AUTOMATION INTERFACES
GENERAL CATALOG

ACQUISITION DATA AND AUTOMATION

INDUSTRIAL COMMUNICATION AND REMOTE CONTROL

ENERGY AND ELECTRIC MEASUREMENTS

PANEL AND MEASUREMENT INSTRUMENTATION
MISSION WE HANDLE THE SIGNAL FROM THE SENSOR TO INDUSTRY 4.0

One of the leading companies in Europe to design and produce galvanic isolators and signal conditioners, SENCA offers a comprehensive catalogue of high-performance and cost-effective products and systems with which it is possible to feed, isolate, convert, capture, display and transmit safely by cable, bus or radio, most industrial signals, in other words, to ensure the integrity of the data processing cycle. In the 4.0 age, an increasing number of manufacturing companies, builders of machines, utilities, chemical and process industries must be able to rely on decentralised devices and control systems to monitor the progress of machines and systems. In this scenario the intent of SENECA is to ensure the real-time knowledge of the data available in order to offer the customer new information and concrete economic opportunities. This is the essence of the innovation process called Industry 4.0, in which the functions of data collection and interconnection are fundamental.
Present for over 30 years in the field of industrial automation, SENECA has achieved a prominent position in the Italian electronic instrumentation market, making innovation, reliability and qualified support its core strengths. SENECA constantly innovates processes and products with targeted investments in latest-generation machinery and in qualified personnel.

Thanks to the synergy of two business units (Automation Interfaces, Systems & Services) organised according to quality criteria, SENECA offers a complete range of automation solutions: from the single component to the turnkey system.

SENECA manufactures multi-sector devices that galvanically power, condition and separate sensors and actuators, so that, after being connected to the control unit, no device can be damaged. SENECA products provide standard signals via cable, bus and wireless to most industrial control systems.

SENECA collaborates with the main process industries, with high automation SMEs, with the big energy and industry players as well as with various Universities and Research Companies. SENECA has developed a concrete and effective business model, aiming to solve actual problems of the client, believing first and foremost in the technologies it offers to the market.

Electrical and process automation: oil & gas, refineries, chemical and petrochemical plants, steel mills, rolling mills, foundries, paper mills, sugar mills, pharmaceutical industries, cement factories, metalworking, shipbuilding. Distribution of electronic components, civil installations, domotics, remote control and remote assistance. Solutions for the manufacturing sector, utilities and building automation.
DESIGN, PRODUCTION, LOGISTICS, ALL UNDER THE ONE ROOF

DESIGN
- Integrated management of all the phases of product development
- Use of the best modelling, simulation, industrialisation and prototyping software
- Adoption of the most advanced microelectronic technologies (FPGA, PSOC, CPLD, ASIC, DSP, MEMS, LVDS, VHDL)
- Hardware / Software engineering
- Rapid prototyping
- Metrological and electromagnetic compatibility testing

PRODUCTION
- SMT (Surface Mounting Technology) lines for the latest generation Pick & Place machines 50,000 components/hour
- AOI (Automated optical inspection) and ATE (Automatic Test Equipment) systems
- Burn-in test on the entire production
- Lean Production for rapid changes in production cycles
- Production process fully compliant with the WEEE, ROHS and REACH eco-compatible directives

WAREHOUSING
- Prompt delivery of over 70,000 items
- Safe and high-density storage in 12-meter high towers
- Equivalent storage capacity of 1,000 square meters
- Connection in real time with ERP
- Complete product traceability
TABLE OF CONTENTS

1 DATA ACQUISITION AND AUTOMATION 9

Z-PC Series Overview 11
Preview of products - Z-8AI, Z-4RTD2, Z-4TC, Z-8TC, Z-SG 17

1.1 ModBUS I/O Modules 23
Digital I/O Modules - Z-D-IN, Z-D-OUT, Z-10-D-IN, Z-10-D-OUT 24
ModBUS / CANopen Digital I/O Modules - ZC-24DI, ZC-24DO, ZC-16DI-8DO 25
Analog I/O Modules - Z-DAQ-PID, Z-4AI, Z-8AI, Z-3AO 26
Process I/O Modules - Z-4RTD2, Z-4TC, Z-8TC, Z-8NTC, Z-SG 27

1.2 RTU ModBUS / TCP-IP ModBUS I/O Modules 28

1.3 CANopen I/O Modules 31
Digital I/O Modules - ZC-24DI, ZC-24DO, ZC-16DI-8DO 33
Analog / Process I/O Modules - Z-8AI, Z-3AO, Z-4RTD, ZC-8TC, ZC-SG 34

1.4 Controllers and Calculation Unit 35
Control and calculation unit - S6001 Pump Controller, Z-FLOWCOMPUTER 43

1.5 HMI 45
VISUAL1E, VISUAL2E, VISUAL3, VISUAL4, VISUAL4T, VISUAL5-PC, VISUAL5-WB, VISUAL6, VISUAL7, VISUAL8, VISUAL9, VISUAL10, VISUAL11, VISUAL12, OLED Indicator - S401-L 50

1.6 Software & Accessories 51
System Software - Z-NET4, EASY SETUP, OPC, STRATON 52
DAQ Software - Data Recorder 54
Accessories 56

2 INDUSTRIAL COMMUNICATION AND REMOTE CONTROL 61

2.1 Remote alarm and datalogger units 63
B-ALARM, MYALARM2 64

2.2 Advanced Dataloggers 67
Z-LOGGER3, Z-GPRS3, Z-UMTS, Cloud BOX, Management software (SEAL, Log Factory, SENECA SMS) 68

2.3 RTU for remote control applications 73
Straton multifunction RTU IEC 61131 - Z-MINIRTU, Z-PASS2-S, S6001-RTU 79
RTU low power, Z-RTU-LP-ST 82

2.4 Industrial modem 83
Z-MODEM, Z-MODEM-3G 84

2.5 IoT Gateway 85
R-KEY, Z-KEY, Z-PASS1, Z-PASS2 87

2.6 LET’S - VPN / IoT remote assistance / remote control platform 89
Server - VPN BOX 91
Gateway / Router Z-PASS1, Z-PASS2 91
Controllers Z-TWS4, Z-PASS2-S, S6001-RTU, S6001-PC 91
Programming – OpenVPN, VPN Box Manager, VPN Client Communicator, Straton 91

2.7 IoT / Cloud Solutions 95
Cloud Box 96

2.8 Serial / USB Converters 97
USB Converters - K107USB, S117P1, S107USB, EASY-USB 99

2.9 Converters for Fibre Optics 101
S232-FO, S485-FO, SETH-FO, SCAN-FO 103

2.10 Moduli Radio 105
Z-LINK1-NM, Z-LINK1-LO, Z-AIR-1, RM169-1, RTURADIO-169 106
# TABLE OF CONTENTS

## 3. ENERGY AND ELECTRICAL MEASUREMENTS 109

### 3.1 ModBUS Network Analyser - S203 Series
- S203T, S203TA, S203TA-D, S203RC-D
- Accessories and Software

### 3.2 Network Analyser Analysers - S604 Series
- S604B, S604E, S604E-ROG
- Accessories and Software

### 3.3 Front Panel Multifunction Network Analyser - S711 Series
- S711B, S711E, S711EROG
- Accessories and Software

### 3.4 Rogowski Sensors - RC150 Series

### 3.5 Energy Counters - S500 Series
- S501-40, S502-80, S504C, S534

### 3.6 AC/DC Current Transducers - T201 Series
- T201, T201DC, T201DC100, T201DCH, T201DCH100, T201DCH300, T201DCH50-LP, T201DCH100-LP, T201DCH300-LP, T201DCH50-M, T201DCH100-M, T201DCH300-M

### 3.7 Electric measurement modular converters

### 3.8 Controllers and RTU for energy management
- Z-TWS4-E, Z-PASS2-S-E, S6001-RTU-E

## 4. PANEL AND MEASUREMENT INSTRUMENTATION 153

### 4.1 Multistandard Isolator Converters - Z Series
- A/D Converters - Z-4AIF-D, Z-4TC-D
- Converters with Relay Thresholds - Z112A, Z112D, Z113S, Z113D, Z113T, Z113-1
- Temperature Converters - Z109PT2-1, Z109PT2-1
- Converters for Signals in Frequency - Z104, Z111
- Software and Accessories

### 4.2 Compact Isolator Converters - K Series
- Universal / Analog Converters - K121, K109UI, K109S, K109LV
- Temperature Converters - K109PT, K109PT-HPC, K109PT1000, K120RTD, K109TC
- Converters in Frequency / Serials - K111, K111D, K112, K107A, K107B, K107USB
- Software and Accessories

### 4.3 High Isolation Converters - S Series

### 4.4 Temperature Transmitters
- T120, T121, PT100, PT100A, PT100-SOLAR

### 4.5 Protezioni contro sovratensioni
- S400HV-2, S400LV-1, K400CL, S400CL-1, S400ETH-DSDK, S400NET-1

### 4.6 Digital Indicators - S Series
- Indicators / totalisers with universal analog input
- Indicators / generators with analog input
- Compact indicators / totalisers with analog input - S311AK, S312A, S315
- Batch indicators / totalisers / counters with digital input
- High brightness LED indicators with analog input - S201, S201D, S301, S301B, S320A

### 4.7 Batch controllers - S Series
- S20N1, S21N1

### 4.8 Portable Measurement Systems - MY Series
- MY-PT, MY-TC, MY-UT

### 4.9 Calibrator - Signal Generator
- TEST-4

## SENECA App for Android / iOS terminals
- EASY SETUP APP, PIV APP, SENECA SMS, SENECA TEMP, VPN CC
The SENECA product line for Data Acquisition and Automation includes ModBUS, CANopen, Ethernet, HMI systems with Led and Oled technology, IEC 61131 logic controllers and for IEC 60870-5-101, IEC 60870-5-104, IEC 61850 Energy Management process controllers and flow computers. SENECA I/O systems are modular and open automation platforms for single-signal management to thousands of I/Os. They include the widest variety of I/O modules: digital inputs, high-speed counters, digital relay outputs and MOSFETs, analog channels (mA, V, Ohm, mV), strain gauges, resistance thermometers, thermocouples, power grid measurements. SENECA systems are designed to facilitate system integrators, design and engineering firms, instrumentation builders, electrical installers, qualified installers.

1.1 ModBUS RTU I/O Systems
1.2 ModBUS TCP-IP I/O Systems
1.3 CANopen I/O Systems
1.4 Controllers
1.5 HMI
1.6 Software and accessories
OVERVIEW
Z-PC SERIES
Z-PC Series
Data Acquisition and Automation

MODULAR DISTRIBUTED I/O SYSTEM

ModBUS Z-PC Series is a modular automation system for management of the single signal to thousands of I/Os. The Z-PC Series includes the widest variety of I/O modules: digital inputs, high-speed counters, digital relay outputs and mosfets, analog channels (mA, V, Ohm, mV), strain gauges, resistance thermometers, thermocouples. Maximum data concentration is also guaranteed. For example, with only 1 module, up to 24 digital and 8 analog signals can be acquired. Modular DIN guide bus support is available in 1, 2, 4, 8 slot formats. The modules are of a Hot-Swap type that is "hot" replaceable, without interrupting the power supply and communication. Completing the system is a wide range of interfaces and network interconnections to expand the configuration.

With its flexibility and modularity, the Z-PC Series is a distributed system for multi-sector applications: data acquisition, building automation, remote monitoring, energy consumption monitoring, production control, ship automation, testing and laboratory testing, environmental analysis, water treatment etc.

EXTENDED RANGE
Over 160 codes including I/O, CPU, RTU modules, communication interfaces, HMI, network analysers, software, accessories

UNIVERSAL APPLICATIONS
• Data acquisition and display
• Distributed automation
• Remote assistance / Remote control
• Stand-alone remote I/O system / with SENECA controllers / with third-party devices
**Z-PC SERIES OVERVIEW**

**CONFIGURATION MODE**

1. **Simplified Configuration for End User**
   - EASY SETUP
   
EASY Setup is a user-friendly PC application that allows quick setting and modification of the operating and communication parameters, automatic configuration of the individual modules, real-time tests, fast configuration replication for identical module batteries.

2. **Advanced configuration for System Integrator**
   - ZNET4
   
Z-NET is a system configuration and engineering platform designed for OEMs, system integrators and experienced users. It enables the creation and export of data and variable lists to PLC and SCADA, complete configuration of CPUs, I/O modules and communication network. Z-NET also integrates specific libraries with automation and remote control functions.

3. **Basic configuration via dip switch**
   
Address and baud rate setting for each module

**TOOL FOR SYSTEM INTEGRATOR**

- Ready to use automation, data transmission, remote control functions
- IEC 61131 programming environment
- Advanced technical support

**DATA ACQUISITION TOOL**

- DATA RECORDER (DAQ Software)
- Web Editor
- Microsoft Visual Studio Libraries™
- OPC Technologies
- Drives NI LabVIEW™

**STANDARDS & CERTIFICATIONS**

- CE
- UL Listed
- RoHS

**ENERGY MANAGEMENT**

For Energy Management applications SENECA offers different types of controllers with the support of the IEC 60870-101/104 and IEC 61850 communication protocols

**REMOTE ASSISTANCE / REMOTE CONTROL**

VPN / IoT remote communication services and supervision with secure and private access to data and for communication between machines (M2M) and systems.

**INTEGRATED COMMUNICATION**

SENECA offers a wide range of communication interfaces in combination with the Z-PC Series I/O modules: IoT gateway / router, serial / USB converters, fibre optic converters, radio modules.
Z-PC Series
Data Acquisition and Automation

ROBUST INDUSTRIAL DESIGN

MULTIFUNCTION CONTROLLERS
- IEC 61131 Controllers
- Integrated Modems / Routers / I/Os
- Web Server, Datalogger, Gateway
- Ethernet Serial, USB communication ports,
- Management up to 1,000 I/O

DIGITAL I/O
- Reed, PNP, NPN, Proximity, Contact
- Counters, 32 bit 10 KHz
- SPST Relay
- Mosfet
- Integrated control

Modbus CANopen

Data Acquisition
and Automation

Z-PC SERIES OVERVIEW
**Z-PC SERIES OVERVIEW**

- Multi-way isolation 1.5 kVac
- Configuration parameters on EEPROM, data retention up to 40 years
- Hot swapping, insertion / hot extraction of modules
- Power supply Vac/dc switching on the same hardware

**ANALOG I/O**

- mA, mV, V, Ω
- Temperature
- Load cell
- Electric measurements
- PID Regulation
- Resolution up to 16 bit

- Removable terminals
- LED front state indicators
- Sensor power supply
- Front jack 3.5 mm RS232 door (COM)
MODBUS I/O SYSTEMS

PRODUCT PREVIEW
**PRODUCT PREVIEW - MODBUS I/O SYSTEMS**

**Z-8AI**  
**MODULE 8 VOLTAGE INPUTS**  
**CURRENT / RS485**

### TECHNICAL DATA

**GENERAL DATA**
- **Power supply**: 10..40 Vdc / 19..28 Vac / 50-60 Hz
- **Max absorption**: 0.5 W
- **Insulation**: 1,500 Vac (3-way)
- **Transducers power supply**: Auxiliary power supply up to 8 sensors
- **State indicators**: Power supply, Error, Data transmission, Data receipt
- **Degree of protection**: IP20

**THERMOMECHANICAL CHARACTERISTICS**
- **Operating temperature**: -10..+65°C
- **Dimensions**: 17.5 x 100 x 112 mm
- **Weight**: 140 g approx.
- **Casing**: Preloaded nylon 30% glass fibre, self-extinguishing class V0
- **Connections**: Screw removable terminals up to 2.5 mm² phono conductors
- **Assembly**: DIN Guide 35 mm (IEC/EN 60715)

**COMMUNICATION, MEMORY PROCESSING**
- **Interfaces**: RS485 2 wires, RS232 (stereo jack 3..5 mm)
- **Speed**: Up to 115,200 bps
- **Protocol**: ModBUS RTU slave
- **Communication time**: < 10 ms (@ 38400 baud)
- **Distance**: Up to 1,200 m
- **Connectivity**: Max 32 nodes
- **Data memory**: EEPROM for the configuration parameters, retention time 10 years

**SIGNALS, MEASUREMENT, CONFIGURATION, STANDARDS**
- **Number of channels**: 8
- **Type**: Bipolar inputs programmable in voltage (+ ± 2.5 Vdc, ±10 Vdc, impedance> 100 kΩ) or in current (+ ±20 mA)
- **Resolution**: 16 bit
- **Precision class**: 0.1%
- **Stability**: 0.01%/°C
- **Programming**: Z-NET4 (system software), EASY SETUP (plug&play software), DIP switch
- **Standards and approvals**: UL-UR, CE, EN 61000-6-4, EN 61000-6-2, EN 61010-1

### APPLICATION EXAMPLE

**ORDER CODE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-8AI</td>
<td>Module 8 voltage inputs - current RS485</td>
</tr>
<tr>
<td></td>
<td>Software &amp; Accessories</td>
</tr>
<tr>
<td></td>
<td>p. 51</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
## Z-4RTD2

**4-INPUT MODULE WITH THERMORESISTANCES / RS485**

### Technical Data

<table>
<thead>
<tr>
<th>General Data</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>10..40 Vdc, 19...28 Vac 50...60 Hz</td>
</tr>
<tr>
<td>Max absorption</td>
<td>0.7 W</td>
</tr>
<tr>
<td>Insulation</td>
<td>1.500 Vac a 3 vie</td>
</tr>
<tr>
<td>State indicators</td>
<td>Power supply, Error, Data transmission, Data receipt</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thermomechanical Characteristics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>-10..+65 °C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>17.5 x 100 x 112 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>140 g approx.</td>
</tr>
<tr>
<td>Casing</td>
<td>Nylon 6 preloaded 30% glass fibre – self-extinguishing class V0</td>
</tr>
<tr>
<td>Connections</td>
<td>Screw removable terminals up to 2.5 mm² conductors</td>
</tr>
<tr>
<td></td>
<td>IDC10 rear connector for DIN bar</td>
</tr>
<tr>
<td></td>
<td>RS232 front jack (COM)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Communication, Processing, Memory</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interfaces</td>
<td>RS485, 2 wires</td>
</tr>
<tr>
<td>Speed</td>
<td>Up to 115 kbps</td>
</tr>
<tr>
<td>Protocol</td>
<td>ModBUS RTU slave</td>
</tr>
<tr>
<td>Communication time</td>
<td>45..179 ms</td>
</tr>
<tr>
<td>Distance</td>
<td>Up to 1,200 m</td>
</tr>
<tr>
<td>Connectivity</td>
<td>Max 32 nodes</td>
</tr>
<tr>
<td>Data memory</td>
<td>EEPROM for configuration parameters, retention time 40 years</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signals, Measurement, Configuration, Standards</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of channels</td>
<td>4</td>
</tr>
<tr>
<td>Type</td>
<td>A 4 terminals (ohmeter with 2,3,4 wires)</td>
</tr>
<tr>
<td></td>
<td>Pt100: -200..+650°C (f.s. 330 Ω)</td>
</tr>
<tr>
<td></td>
<td>Pt500: -200..+750°C (f.s. 1.800 Ω)</td>
</tr>
<tr>
<td></td>
<td>Pt1000: -200..+210°C (f.s. 1.800 Ω)</td>
</tr>
<tr>
<td></td>
<td>Ni100: -60..+250°C (f.s. 330 Ω)</td>
</tr>
<tr>
<td>Resolution</td>
<td>16 bit</td>
</tr>
<tr>
<td>Precision class</td>
<td>0.05%</td>
</tr>
<tr>
<td>Thermal drift</td>
<td>25 ppm/K</td>
</tr>
<tr>
<td>Programming</td>
<td>Z-NET4 (system software)</td>
</tr>
<tr>
<td></td>
<td>EASY SETUP (plug&amp;play software)</td>
</tr>
<tr>
<td></td>
<td>DIP Switch</td>
</tr>
<tr>
<td>Standards and approvals</td>
<td>UL-UR, CE, EN 61000-6-4, EN 61000-6-2, EN 61010, EN 60742</td>
</tr>
</tbody>
</table>

### Application Example

![Application Diagram](image)

### Order Code

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-4RTD2</td>
<td>4 input module with thermoresistances / RS485</td>
</tr>
<tr>
<td>Software &amp; Accessories</td>
<td>p. 51</td>
</tr>
</tbody>
</table>
# Z-4TC
4-INPUT MODULE WITH THERMOCOUPLE / RS485

## TECHNICAL DATA

### GENERAL DATA

<table>
<thead>
<tr>
<th>Power supply</th>
<th>10..40 Vdc / 19..28 Vac / 50-60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max absorption</td>
<td>Max 2.5 W; 1.6 W @ 24 Vdc</td>
</tr>
<tr>
<td>Insulation</td>
<td>1.500 Vac a 3 vie</td>
</tr>
<tr>
<td>State indicators</td>
<td>Power supply, Error, Data transmission, Data receipt</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
</tr>
</tbody>
</table>

### THERMOMECHANICAL CHARACTERISTICS

| Operating temperature | -10..+65 °C |
| Dimensions | 17.5 x 100 x 112 mm |
| Weight | 140 g approx. |
| Casing | Nylon 6 preloaded 30% glass fibre – self-extinguishing class V0 |
| Connections | Screw removable terminals for conductors up to 2.5 mm², Rear connector IDC10 for DIN bar, RS232 front jack (COM) |
| Assembly | DIN Guide 35 mm (IEC/EN 60715) |

### COMMUNICATION, PROCESSING, MEMORY

| Interfaces | RS485, 2 wires |
| Speed | Up to 115 kbps |
| Protocol | ModBUS RTU slave |
| Communication time | < 20 ms (@ 38400 baud) |
| Distance | Up to 1,200 m |
| Connectivity | Max 32 nodes |
| Data memory | EEPROM for configuration parameters, retention time 10 years |

### SIGNALS, MEASUREMENT, CONFIGURATION, STANDARDS

| Number of channels | 4 |
| Type | Bipolar voltage ± 80 mVdc, impudence 10 MΩ, Thermocouple J, K, R, S, T, B, E, N |
| Resolution | 16 bit |
| Precision class | 0.1% |
| Thermal drift | 0.01%/°C c.d.m. |
| Programming | Z-NET4 (system software), EASY SETUP (plug&play software), Dip Switch |
| Standards and approvals | CE, EN 61000-6-4, EN 61000-6-2, EN 61010-1, EN 60742 |

## APPLICATION EXAMPLE

![Application Example Diagram](image)

### ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-4TC</td>
<td>4 input module with thermocouple / RS485</td>
</tr>
<tr>
<td>Software &amp; Accessories</td>
<td>p. 51</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
Z-8TC
8 INPUT MODULE WITH THERMOCOUPLE AND mV / RS485

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>GENERAL DATA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>10..40 Vdc; 19..28 Vac (50-60 Hz)</td>
</tr>
<tr>
<td>Max absorption</td>
<td>0.6 W</td>
</tr>
<tr>
<td>Insulation</td>
<td>1,500 Vac with 6 points</td>
</tr>
<tr>
<td>State indicators</td>
<td>Power supply, Error, Data transmission, Data receipt</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
</tr>
</tbody>
</table>

**THERMOMECHANICAL CHARACTERISTICS**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>-10..+65°C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>17.5 x 100 x 112 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>140 g approx.</td>
</tr>
<tr>
<td>Casing</td>
<td>Nylon 6 preloaded 30% glass fibre – self-extinguishing class V0</td>
</tr>
<tr>
<td>Connections</td>
<td>Screw removable terminals for 2.5 mm² conductors, IDC10 rear connector for DIN bar, RS232 front jack (COM)</td>
</tr>
<tr>
<td>Assembly</td>
<td>DIN Guide 35 mm (IEC/EN 60715)</td>
</tr>
</tbody>
</table>

**COMMUNICATION, PROCESSING, MEMORY**

<table>
<thead>
<tr>
<th>Interfaces</th>
<th>RS485, 2 wires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>Up to 115 kbps</td>
</tr>
<tr>
<td>Protocol</td>
<td>ModBUS RTU slave</td>
</tr>
<tr>
<td>Communication time</td>
<td>45..179 ms</td>
</tr>
<tr>
<td>Distance</td>
<td>Up to 1,200 m</td>
</tr>
<tr>
<td>Connectivity</td>
<td>Max 32 nodes</td>
</tr>
<tr>
<td>Data memory</td>
<td>EEPROM for configuration parameters, retention time 10 years</td>
</tr>
</tbody>
</table>

**SIGNALS, MEASUREMENT, CONFIGURATION, STANDARDS**

<table>
<thead>
<tr>
<th>Number of channels</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Thermocouple J, K, R, S, T, B, E, N (EN 60584-1, ITS-90)</td>
</tr>
<tr>
<td>Range between</td>
<td>-210 and + 1820°C</td>
</tr>
<tr>
<td>Span mV</td>
<td>-10.1..81.4 mV</td>
</tr>
<tr>
<td>Shunt up to</td>
<td>70 mV</td>
</tr>
<tr>
<td>Resolution</td>
<td>16 bit</td>
</tr>
<tr>
<td>Precision class</td>
<td>0.05%</td>
</tr>
<tr>
<td>Thermal drift</td>
<td>&lt; 100 ppm/K</td>
</tr>
<tr>
<td>Programming</td>
<td>Z-NET4 (system software), EASY SETUP (plug&amp;play software), DIP Switch</td>
</tr>
<tr>
<td>Standards and approvals</td>
<td>CE, EN 61000-6-4/2002, EN 61000-6-2/2002, EN 61010-1, EN 60742</td>
</tr>
</tbody>
</table>

**ORDER CODE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-8TC</td>
<td>8 input module with thermocouple mV / RS485</td>
</tr>
</tbody>
</table>

Software & Accessories p. 51

---

The technical data and the diagrams in this document are indicative and not binding.
### TECHNICAL DATA

#### GENERAL DATA
- **Power supply**: 10..40 Vdc, 19..28 Vac 50..60 Hz
- **Max absorption**: 2.5 W
- **Insulation**: 30-way Vac 1,500
- **State indicators**: Power supply, Error, Data transmission, Data receipt
- **Degree of protection**: IP20

#### THERMOMECHANICAL CHARACTERISTICS
- **Operating temperature**: -10..+65°C
- **Dimensions**: 17.5 x 100 x 112 mm
- **Weight**: 140 g approx.
- **Casing**: Nylon 6 preloaded 30% glass fibre – self-extinguishing class V0
- **Connections**: Screw removable terminals for 2.5 mm² conductors, IDC10 rear connector for DIN bar, RS232 front jack (COM)
- **Assembly**: DIN Guide 35 mm (IEC/EN 60715)

#### COMMUNICATION, PROCESSING, MEMORY
- **Interfaces**: RS485, 2 wires
- **Speed**: Up to 115 kbps
- **Protocol**: ModBUS RTU slave
- **Communication time**: < 10 ms (@ 38400 baud)
- **Distance**: Up to 1,200 m
- **Connectivity**: Max 32 nodes
- **Data memory**: EEPROM for configuration parameters, retention time 40 years

#### SIGNALS, MEASUREMENT, CONFIGURATION, STANDARDS
- **Number of channels**: 1
- **Type**: Input: 1 analogue channel for reading (and power supply) up to 4 (350 Ω) or 8 (1,000 Ω) strain gauge load cells, 4 or 6-wire connection, equivalent impedance 87 Ω
  - Output: 1 analog retransmission channel of net current weight (0..20, 4..20 mA) or voltage (0..5, 0..10 V)
  - 1 Digital input or output for tare calibration or weight threshold
- **Resolution**: 24 bit
- **Precision class**: 0.01%
- **Thermal drift**: 25 ppm/K
- **Programming**: Z-NET4 (system software), EASY SETUP (plug&play software), DIP Switch
- **Standards and approvals**: CE, EN 61000-6-4, EN61000-6-2, EN 61010, EN 60742, IEC 61131

---

### APPLICATION EXAMPLE

![Z-SG Converter module for load cells](image)

#### ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-SG</td>
<td>Converter module for load cells</td>
</tr>
</tbody>
</table>

Software & Accessories p. 51

The technical data and the diagrams in this document are indicative and not binding.
## MODBUS DIGITAL I/O MODULES

### Module 5 digital inputs / RS485

**Power supply**: 10.40 Vdc / 19.28 Vac

**Max absorption**: 2.5 W

**Insulation**: 30-way Vac 1,500

**Transducers power supply**: Yes, 17Vdc/20mA, max 5 sensors

**State indicators**: Power supply, Error, Data Transmission, Data Reception

**Assembly**: Guide 35 mm DIN 46277

**Connectivity**: Up to 32 nodes

**Max distance**: Up to 1,200 m

**Communication time**: < 10 ms (@ 38400 bps)

**Protocols**: ModBUS RTU slave

**Casing**: Nylon 6 30% glass fibre self-extinguishing

**Connections**: Screw removable terminals for 2.5 mm² conductors

**Programming**: Z-NET4 (system software)

**Data Memory**: EEPROM for configuration parameters, retention time 10 years, FeRAM for counter saving

### Module 5 digital outputs / RS485

**Power supply**: 10.40 Vdc / 19.28 Vac

**Max absorption**: 2.5 W

**Insulation**: 30-way Vac 1,500

**Transducers power supply**: Yes, 17Vdc/20mA, max 5 sensors

**State indicators**: Power supply, Error, Data Transmission, Data Reception

**Assembly**: Guide 35 mm DIN 46277

**Connectivity**: Up to 32 nodes

**Max distance**: Up to 1,200 m

**Communication time**: < 10 ms (@ 38400 bps)

**Protocols**: ModBUS RTU slave

**Casing**: Nylon 6 30% glass fibre self-extinguishing

**Connections**: Screw removable terminals for 2.5 mm² conductors

**Programming**: Z-NET4 (system software)

**Data Memory**: EEPROM for configuration parameters, retention time 10 years, FeRAM for counter saving

### Module 10 digital inputs / RS485

**Power supply**: 10.40 Vdc / 19.28 Vac

**Max absorption**: 3.5 W

**Insulation**: 30-way Vac 1,500

**Transducers power supply**: Yes, 17Vdc/40mA, max 10 sensors

**State indicators**: Power supply, Error, Data Transmission, Data Reception

**Assembly**: Guide 35 mm DIN 46277

**Connectivity**: Up to 32 nodes

**Max distance**: Up to 1,200 m

**Communication time**: < 10 ms (@ 38400 bps)

**Protocols**: ModBUS RTU slave

**Casing**: Nylon 6 30% glass fibre self-extinguishing

**Connections**: Screw removable terminals for 2.5 mm² conductors

**Programming**: Z-NET4 (system software)

**Data Memory**: EEPROM for configuration parameters, retention time 10 years, FeRAM for counter saving

### Module 10 digital outputs / RS485

**Power supply**: 10.40 Vdc / 19.28 Vac

**Max absorption**: 2.5 W

**Insulation**: 30-way Vac 1,500

**Transducers power supply**: Yes, 17Vdc/40mA, max 10 sensors

**State indicators**: Power supply, Error, Data Transmission, Data Reception

**Assembly**: Guide 35 mm DIN 46277

**Connectivity**: Up to 32 nodes

**Max distance**: Up to 1,200 m

**Communication time**: < 10 ms (@ 38400 bps)

**Protocols**: ModBUS RTU slave

**Casing**: Nylon 6 30% glass fibre self-extinguishing

**Connections**: Screw removable terminals for 2.5 mm² conductors

**Programming**: Z-NET4 (system software)

**Data Memory**: EEPROM for configuration parameters, retention time 10 years, FeRAM for counter saving

## INPUT / OUTPUT DATA

### Number of Channels

**Type**: No. 5 Reed opto-isolated inputs, Proximity, PNP/NPN, clean contact etc. No. 5 counters Ø16 bit, max frequency 100 Hz. No. 1 counter Ø32 bit, max frequency 10 kHz

**No. 5 SPST relay outputs**: No with common

**Max relay capacity**: 5A 250 Vac with resistive load 2A with inductive load

**Total current**: mx 12 A on the common terminal

**Relay safety status**: at start-up in case of communication failure

**Diagnostic signalling**: on the front for each channel

**Voltage measurement**: 33 ms..2184 s

**Load power supply voltage measurement**: Diode signal for power supply

**Diagnostic signalling on the front for each channel**: ON/OFF (Overload/Open circuit)

**Programmable fail-safe function**: (status of the outputs in case of serial communication fail)

## STANDARD

**Certifications**: EC, UL-UR CSA, CE

**Approvals and Regulations**: CE, EN 50081-2; EN 50011; EN 50082-2; EN 61000-2-2; EN 50150/414; EN 61010-1

## ORDER CODE

**Code**: Z-D-IN, Z-D-OUT, Z-10-D-IN, Z-10-D-OUT

**Software & Accessories**: p. 51
## MODBUS / CANOPEN DIGITAL I/O MODULES

### ZC-24DI

- **24 digital inputs module**
- ModBUS/CANopen

### ZC-24DO

- **24 digital outputs module**
- ModBUS/CANopen

### ZC-16DI-8DO

- **Modules 16 digital inputs, 8 digital outputs**
- ModBUS/CANopen

### GENERAL DATA

<table>
<thead>
<tr>
<th>Power supply</th>
<th>10..40 Vdc / 19..28 Vac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max absorption</td>
<td>2.5 W</td>
</tr>
<tr>
<td>Insulation</td>
<td>1.5 kΩ (3-way)</td>
</tr>
<tr>
<td>Transducers power supply</td>
<td>Yes, 16V/70mA, max 24 sensors</td>
</tr>
<tr>
<td>State indicators</td>
<td>Power supply, Input Status, Communication</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10..-65˚C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>35 x 100 x 112 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>170 g</td>
</tr>
<tr>
<td>Casing</td>
<td>Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing</td>
</tr>
<tr>
<td>Connections</td>
<td>Detachable 4-way screw terminals, 3.5 mm pitch</td>
</tr>
<tr>
<td>Assembly</td>
<td>For guide 35 mm DIN 46277</td>
</tr>
<tr>
<td>Programming</td>
<td>DIP switch, Z-NET4, EASY SETUP, EDS, Codesys (IEC 61131)</td>
</tr>
<tr>
<td>Regulations and Standards</td>
<td>CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1, CAN 2.0A, 2.0B, CANopen (profile CiA 401 v2.01); ModBUS RTU (via RS485)</td>
</tr>
</tbody>
</table>

### COMMUNICATION

#### Interfaces
- RS485, RS232

#### Protocols
- CAN bus standard (2.0A, 2.0B); CANopen (profile CiA 401 v2.01); ModBUS RTU (via RS485)

#### Communication time
- 2.5 ms for inputs, 1.2 ms for outputs, 1.2..2.5 ms for communications

### INPUT / OUTPUT DATA

<table>
<thead>
<tr>
<th>Type</th>
<th>24 digital inputs with EN 61131-2 polarity type 2, synq (pnp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>24 digital inputs with EN 61131-2 polarity type 2, synq (pnp)</td>
</tr>
<tr>
<td>No.</td>
<td>8 counters @ 32 bit, max freq. 10 kHz; Configuration increment, reset, preset; Overflow indication; Vmax=30V; pulse width 250μs; on/off delay &lt;3ms; TPDO &lt; 1ms</td>
</tr>
<tr>
<td>No.</td>
<td>8 digital outputs with EN 61131-2 polarity type 2, synq (pnp)</td>
</tr>
<tr>
<td>No.</td>
<td>24 Modbus outputs (open source with common negative); supply voltage 5..30V; Imax = 0.5A (from terminals) / 25 mA (from connectors); on/off delay &lt;1ms; RPDO = 1.25 ms</td>
</tr>
<tr>
<td>No.</td>
<td>16 digital outputs with EN 61131-2 polarity type 2, synq (pnp)</td>
</tr>
<tr>
<td>No.</td>
<td>8 Modbus outputs (open source with common negative); supply voltage 5..30V; Imax = 0.5A (from terminals) / 25 mA (from connectors); on/off delay &lt; 1ms; RPDO &lt; 1.25 ms</td>
</tr>
</tbody>
</table>

### CANOPEN REQUIREMENTS

| NMT | Slave |
| Error Control | Node Guarding |
| Node ID | Software, DIP switch |
| Nr PDO | RX 5 |
| PDO modes | Event triggered, synq (cyclic), synq (acyclic) |
| PDO linking | Yes |
| PDO mapping | Variable |
| Nr SDO Server | 1 |
| Emergency message | Yes |
| Application Layer | QA 301 v4.02 |

### ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>ZC-24DI</th>
<th>ZC-24DO</th>
<th>ZC-16DI-8DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software &amp; Accessories</td>
<td>p. 51</td>
<td>p. 51</td>
<td>p. 51</td>
</tr>
</tbody>
</table>
## MODBUS ANALOG I/O MODULES

### Z-DAQ-PID
- Universal I/O module with PID regulation / RTU ModBUS RS485
- Module 4 voltage inputs - current / RS485 ModBUS RTU
- Power supply: 10.40 Vdc / 19.28 Vac
- Max absorption: 2.5 W
- Insulation: 1.5 kVac (3-way)
- Transducers power supply: Yes, 17Vdc/25mA, max 1 channel
- Power supply state indicators: Power supply, Error, Data Transmission, Data Receipt
- Operating temperature: -10 to +65°C
- Dimensions: 17.5x100x112 mm
- Weight: 140 g approx.
- Casing: Preloaded nylon 30% glass fibre self-extinguishing class V0
- Connections: Screw removable terminals for 2.5 mm² conductors
- Calculations: Guide 35 mm DIN 46277
- Assembling: Guide 35 mm DIN 46277
- Programming: System software (Z-NET4)
- Communication time: < 10 ms (@38.400 bps)
- Communication: Max 32 nodes
- Input / Output Data: 1 input, 1 output
- Voltage: bipolar ±10 VDC or ±2VDC, impedance 100 kOhm
- Resolution: 0.01% / 0.01% / 0.01% / 0.01% / 0.01% / 0.01% / 0.01%
- Certifications: EC, UL-UR CSA, CE
- Approvals and Regulations: EN 61000-6-4, EN 61000-6-2, EN 61010-1

### Z-4AI
- Module 4 voltage inputs - current / RS485 ModBUS RTU
- Power supply: 10.40 Vdc / 19.28 Vac
- Max absorption: 2.5 W
- Insulation: 1.5 kVac (3-way)
- Transducers power supply: Yes, 20V/40mA, max 4 channels
- Power supply state indicators: Power supply, Error, Data Transmission, Data Receipt
- Operating temperature: -10 to +65°C
- Dimensions: 17.5x100x112 mm
- Weight: 140 g approx.
- Casing: Preloaded nylon 30% glass fibre self-extinguishing class V0
- Connections: Screw removable terminals for 2.5 mm² conductors
- Calculations: Guide 35 mm DIN 46277
- Assembling: Guide 35 mm DIN 46277
- Programming: System software (Z-NET4)
- Communication time: < 10 ms (@38.400 bps)
- Communication: Max 32 nodes
- Input / Output Data: 4 inputs
- Voltage: bipolar ±10 VDC or ±2VDC, impedance 100 kOhm
- Resolution: 0.1% / 0.1%
- Precision class: 0.1%
- Stability: 0.01%/°C
- Certifications: EC, UL-UR CSA, CE
- Approvals and Regulations: EN 61000-6-2, EN 55011, EN 55082-1, EN 61000-2-2/4, EN 50140/141, EN 61010-1

### Z-8AI
- Module 8 voltage inputs - current / RS485 ModBUS RTU
- Power supply: 10.40 Vdc / 19.28 Vac
- Max absorption: 3.5 W
- Insulation: 1.5 kVac (3-way)
- Transducers power supply: Yes, 20V/40mA, max 8 channels
- Power supply state indicators: Power supply, Error, Data Transmission, Data Receipt
- Operating temperature: -10 to +65°C
- Dimensions: 17.5x100x112 mm
- Weight: 140 g approx.
- Casing: Preloaded nylon 30% glass fibre self-extinguishing class V0
- Connections: Screw removable terminals for 2.5 mm² conductors
- Calculations: Guide 35 mm DIN 46277
- Assembling: Guide 35 mm DIN 46277
- Programming: System software (Z-NET4)
- Communication time: < 10 ms (@38.400 bps)
- Communication: Max 32 nodes
- Input / Output Data: 8 inputs
- Voltage: bipolar ±10 VDC or ±2VDC, impedance 100 kOhm
- Resolution: 0.1% / 0.1%
- Precision class: 0.1%
- Stability: 0.01%/°C
- Certifications: EC, UL-UR CSA, CE
- Approvals and Regulations: EN 61000-6-2, EN 55011, EN 55082-1, EN 61000-2-2/4, EN 50140/141, EN 61010-1

### Z-3AO
- Module 3 / current inputs / current / RS485 ModBUS RTU
- Power supply: 10.40 Vdc / 19.28 Vac
- Max absorption: 3.2 W
- Insulation: 1.5 kVac (3-way)
- Transducers power supply: Yes, 13Vdc/16mA, max 8 channels
- Power supply state indicators: Power supply, Error, Data Transmission, Data Receipt
- Operating temperature: -10 to +65°C
- Dimensions: 17.5x100x112 mm
- Weight: 140 g approx.
- Casing: Preloaded nylon 30% glass fibre self-extinguishing class V0
- Connections: Screw removable terminals for 2.5 mm² conductors
- Calculations: Guide 35 mm DIN 46277
- Assembling: Guide 35 mm DIN 46277
- Programming: System software (Z-NET4)
- Communication time: < 10 ms (@38.400 bps)
- Communication: Max 32 nodes
- Input / Output Data: 3 inputs
- Voltage: bipolar ±10 VDC or ±2VDC, impedance 100 kOhm
- Resolution: 0.1% / 0.1%
- Precision class: 0.1%
- Stability: 0.01%/°C
- Certifications: EC, UL-UR CSA, CE
- Approvals and Regulations: EN 61000-6-2, EN 55011, EN 55082-1, EN 61000-2-2/4, EN 50140/141, EN 61010-1

### ORDER CODE
- Code: Z-DAQ-PID, Z-4AI, Z-8AI, Z-3AO
- Software & Accessories: p. 51
### MODBUS PROCESS I/O MODULES

**Z-4RTD2**  
- Module 4 thermoresistance inputs / RS485 ModBUS RTU
- **Power supply**: 10.40 Vac, 19..28 Vac 50..60 Hz
- **Max absorption**: 0.7 W
- **Insulation**: 30-way Vac 1,500
- **Transducers power supply**: -
- **State indicators**: Power supply
- **Degree of protection**: IP20
- **Weights**: 140 g approx.
- **Casing**: Nylon 6 preloaded 30% glass fibre, class V0 self-extinguishing
- **Connections**: Screw removable terminals for 2.5 mm² conductors
- **Assembly**: Guide 35 mm DIN 46277
- **Programming**: System software (Z-NET4)
- **Data Memory**: EEPROM for configuration parameters, retention time 10 years
- **Interfaces**: Nr.1 RS485 2 wires
- **Speed**: Up to 115,200 bps
- **Protocols**: ModBUS RTU slave
- **Communication time**: 45..179 ms
- **Max distance**: Up to 1,200 m
- **Connectivity**: Max 32 nodes

**Z-4TC**  
- Module 4 thermocouple inputs / RS485 ModBUS RTU
- **Power supply**: 10.40 Vac, 19..28 Vac 50..60 Hz
- **Max absorption**: 0.7 W
- **Insulation**: 30-way Vac 1,500
- **Transducers power supply**: -
- **State indicators**: Power supply
- **Degree of protection**: IP20
- **Weights**: 140 g approx.
- **Casing**: Nylon 6 preloaded 30% glass fibre, class V0 self-extinguishing
- **Connections**: Screw removable terminals for 2.5 mm² conductors
- **Assembly**: Guide 35 mm DIN 46277
- **Programming**: System software (Z-NET4)
- **Data Memory**: EEPROM for configuration parameters, retention time 10 years
- **Interfaces**: Nr.1 RS485 2 wires
- **Speed**: Up to 115,200 bps
- **Protocols**: ModBUS RTU slave
- **Communication time**: 45..179 ms
- **Max distance**: Up to 1,200 m
- **Connectivity**: Max 32 nodes

**Z-8TC**  
- Module 8 thermocouple inputs / RS485 ModBUS RTU
- **Power supply**: 10.40 Vac, 19..28 Vac 50..60 Hz
- **Max absorption**: 2.5 W
- **Insulation**: 30-way Vac 1,500
- **Transducers power supply**: -
- **State indicators**: Power supply
- **Degree of protection**: IP20
- **Weights**: 140 g approx.
- **Casing**: Nylon 6 preloaded 30% glass fibre, class V0 self-extinguishing
- **Connections**: Screw removable terminals for 2.5 mm² conductors
- **Assembly**: Guide 35 mm DIN 46277
- **Programming**: System software (Z-NET4)
- **Data Memory**: EEPROM for configuration parameters, retention time 10 years
- **Interfaces**: Nr.1 RS485 2 wires
- **Speed**: Up to 115,200 bps
- **Protocols**: ModBUS RTU slave
- **Communication time**: 45..179 ms
- **Max distance**: Up to 1,200 m
- **Connectivity**: Max 32 nodes

**Z-8NTC**  
- Module 8 thermoelectric inputs / RS485 ModBUS RTU
- **Power supply**: 10.40 Vac, 19..28 Vac 50..60 Hz
- **Max absorption**: 0.6 W
- **Insulation**: 30-way Vac 1,500
- **Transducers power supply**: -
- **State indicators**: Power supply
- **Degree of protection**: IP20
- **Weights**: 140 g approx.
- **Casing**: Nylon 6 preloaded 30% glass fibre, class V0 self-extinguishing
- **Connections**: Screw removable terminals for 2.5 mm² conductors
- **Assembly**: Guide 35 mm DIN 46277
- **Programming**: System software (Z-NET4)
- **Data Memory**: EEPROM for configuration parameters, retention time 10 years
- **Interfaces**: Nr.1 RS485 2 wires
- **Speed**: Up to 115,200 bps
- **Protocols**: ModBUS RTU slave
- **Communication time**: 45..179 ms
- **Max distance**: Up to 1,200 m
- **Connectivity**: Max 32 nodes

**Z-SG**  
- Converter module for load cells / RS485 ModBUS RTU
- **Power supply**: 10.40 Vac, 19..28 Vac 50..60 Hz
- **Max absorption**: 2.5 W
- **Insulation**: 30-way Vac 1,500
- **Transducers power supply**: -
- **State indicators**: Power supply
- **Degree of protection**: IP20
- **Weights**: 140 g approx.
- **Casing**: Nylon 6 preloaded 30% glass fibre, class V0 self-extinguishing
- **Connections**: Screw removable terminals for 2.5 mm² conductors
- **Assembly**: Guide 35 mm DIN 46277
- **Programming**: System software (Z-NET4)
- **Data Memory**: EEPROM for configuration parameters, retention time 10 years
- **Interfaces**: Nr.1 RS485 2 wires
- **Speed**: Up to 115,200 bps
- **Protocols**: ModBUS RTU slave
- **Communication time**: 45..179 ms
- **Max distance**: Up to 1,200 m
- **Connectivity**: Max 32 nodes

### GENERAL DATA

| Power supply | 10.40 Vac, 19..28 Vac 50..60 Hz |
| Max absorption | 0.7 W |
| Insulation | 30-way Vac 1,500 |
| Transducers power supply | - |
| Degree of protection | IP20 |
| Operating temperature | -10..+65°C |
| Dimensions | 17.5x100x112 mm |
| Weight | 140 g approx. |
| Insulation | 30-way Vac 1,500 |
| Max absorption | 0.6 W |
| Transducers power supply | - |
| Degree of protection | T6EE |
| Operating temperature | -10..+28°C |
| Dimensions | 17.5x100x112 mm |
| Weight | 30-way Vac 1,500 |
| Insulation | 30-way Vac 1,500 |

### COMMUNICATION

| Interfaces | Nr.1 RS485 2 wires |
| Speed | Up to 115,200 bps |
| Protocols | ModBUS RTU slave |
| Communication time | 45..179 ms |
| Max distance | Up to 1,200 m |

### INPUT / OUTPUT DATA

| Type | RTD with 4 terminals (resistor with 2.3 kOhm) / 4 inputs 10 kOhm, 20..240°C (± 1°C) |
| Number of Channels | 4 inputs |
| Resolution | 16 bit |
| Precision class | 0.1% |
| Thermal drift | 25 ppm/K |

**STANDARD**

| Certifications | CE, UL, LR |
| Approvals and Regulations | EN 61000-6-2/2002, EN 61010, EN 60742 |

**ORDER CODE**

| Code | Z-4RTD2 |
| Software & Accessories | p. 51 |
# MODBUS I/O SYSTEM

## MIXED I/O MODULES

<table>
<thead>
<tr>
<th>Module</th>
<th>Description</th>
<th>Z-D-I0</th>
<th>Z-5DI-2DO</th>
<th>Z-4DI-2AI-2DO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MIXED I/O MODULES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>10..40 Vdc / 19..28 Vac / 50-60 Hz</td>
<td>10..40 Vdc / 19..28 Vac</td>
<td>11.40 Vdc; 19..28 Vac</td>
<td></td>
</tr>
<tr>
<td><strong>Max absorption</strong></td>
<td>2 W</td>
<td>2 W</td>
<td>3.5 W</td>
<td></td>
</tr>
<tr>
<td><strong>Insulation</strong></td>
<td>1,500 Vac vs inputs</td>
<td>1,500 Vac vs inputs</td>
<td>1,500 Vac</td>
<td></td>
</tr>
<tr>
<td><strong>Transducers power supply</strong></td>
<td>1,500 Vac vs outputs</td>
<td>3,000 Vac vs outputs</td>
<td>Yes, 12W/20/40W/3A, max 8 sensors</td>
<td></td>
</tr>
<tr>
<td><strong>State indicators</strong></td>
<td>Power supply (green)</td>
<td>Error (yellow)</td>
<td>Error</td>
<td></td>
</tr>
<tr>
<td><strong>Degree of protection</strong></td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td></td>
</tr>
<tr>
<td><strong>Operating temperature</strong></td>
<td>-10..+65°C</td>
<td>-20..+70°C</td>
<td>-10..+65°C</td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>35x100x112 mm</td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>200 g approx.</td>
<td>140 g approx.</td>
<td>170 g approx.</td>
<td></td>
</tr>
<tr>
<td><strong>Casing</strong></td>
<td>Nylon 6 30% glass fibre self-extinguishing class VII</td>
<td>Nylon 6 30% glass fibre self-extinguishing class VII</td>
<td>Glass loaded PA6 black plastic</td>
<td></td>
</tr>
<tr>
<td><strong>Connections</strong></td>
<td>Screw removable terminals for 2.5 mm conductors</td>
<td>Screw removable terminals for 2.5 mm conductors</td>
<td>Screw removable terminals for 2.5 mm conductors</td>
<td></td>
</tr>
<tr>
<td><strong>Assembly</strong></td>
<td>35 mm DIN 46277</td>
<td>35 mm DIN 46277</td>
<td>35 mm DIN 46277</td>
<td></td>
</tr>
<tr>
<td><strong>Programming</strong></td>
<td>Z-NET4 (system software)</td>
<td>EASY SETUP (plug&amp;play software)</td>
<td>Z-NET4 (system software)</td>
<td></td>
</tr>
<tr>
<td><strong>Data Memory</strong></td>
<td>EEPROM for configuration parameters, retention time 10 years</td>
<td>EEPROM for configuration parameters, retention time 10 years, No. 5 32 bit registers, No. 5 bit overflow, FeRAM for counters saving</td>
<td>Flash 512 kB, FeRAM 64 kB (counters)</td>
<td></td>
</tr>
<tr>
<td><strong>COMMUNICATION</strong></td>
<td>Rs485</td>
<td>Rs485</td>
<td>Rs485</td>
<td></td>
</tr>
<tr>
<td><strong>USB</strong></td>
<td>Nr.1 Micro USB</td>
<td>Nr. 1 Mini USB 2.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## GENERAL DATA

### Power supply
- 10..40 Vdc / 19..28 Vac / 50-60 Hz
- 10..40 Vdc / 19..28 Vac
- 11.40 Vdc; 19..28 Vac

### Max absorption
- 2 W
- 2 W
- 3.5 W

### Insulation
- 1,500 Vac vs inputs
- 1,500 Vac vs inputs
- 1,500 Vac

### Transducers power supply
- 1,500 Vac vs outputs
- 3,000 Vac vs outputs
- Yes, 12W/20/40W/3A, max 8 sensors

### State indicators
- Power supply (green)
- Error (yellow)
- Error

### Degree of protection
- IP20
- IP20
- IP20

### Operating temperature
- -10..+65°C
- -20..+70°C
- -10..+65°C

### Dimensions
- 17.5 x 100 x 112 mm
- 17.5 x 100 x 112 mm
- 35x100x112 mm

### Weight
- 200 g approx.
- 140 g approx.
- 170 g approx.

### Casing
- Nylon 6 30% glass fibre self-extinguishing class VII
- Nylon 6 30% glass fibre self-extinguishing class VII
- Glass loaded PA6 black plastic

### Connections
- Screw removable terminals for 2.5 mm conductors
- Screw removable terminals for 2.5 mm conductors
- Screw removable terminals for 2.5 mm conductors

### Assembly
- 35 mm DIN 46277
- 35 mm DIN 46277
- 35 mm DIN 46277

### Programming
- Z-NET4 (system software)
- EASY SETUP (plug&play software)
- Z-NET4 (system software)

### Data Memory
- EEPROM for configuration parameters, retention time 10 years
- EEPROM for configuration parameters, retention time 10 years, No. 5 32 bit registers, No. 5 bit overflow, FeRAM for counters saving
- Flash 512 kB, FeRAM 64 kB (counters)

### COMMUNICATION
- Rs485
- Rs485
- Rs485

### USB
- Nr.1 Micro USB
- Nr. 1 Mini USB 2.0

### INPUT / OUTPUT DATA
- 6 inputs, 2 outputs
- 5 inputs, 2 outputs
- 4 digital inputs, 2 analog inputs, 2 digital outputs,
- No. 4 opto-isolated inputs Reed, Prisma, PNP, NPN, contact etc.
- Nr. 4 counters 832 bit, max freq. 7 kHz
- Nr. 2 SPST relay outputs with common, selectable via jumper
- Nr. 2 analogue mA / Vdc inputs, configurable, 16 bit

### STANDARD
- Certifications
- EC
- CE, EN61000-6-4; EN61000-6-2; EN61010-1
- EC, EN61000-6-4; EN61000-6-2; EN61010-1
- EC
- Approvals and Regulations
- CE, EN61000-6-4; EN61000-6-2; EN61010-1
- CE, EN61000-6-4; EN61000-6-2; EN61010-1, EN 60950
- CE, EN61000-6-4; EN61000-6-2; EN61010-1, EN 60950

### ORDER CODE
- Code
- Z-D-I0
- Z-5DI-2DO
- Z-4DI-2AI-2DO
- Software & Accessories
- p. 51
- p. 51
- p. 51

The technical data and the diagrams in this document are indicative and not binding.
TCP-IP MODBUS I/O SYSTEMS

Series Z-PC ETHERNET I/O
TCP-IP MODBUS I/O SYSTEMS

The mixed I/O modules of the Z-PC Series for high performance analog and digital signals are based on ARM processor. They support the ModBUS TCP-IP and ModBUS RTU communication protocols on the bus/terminal and an extended range for voltage input up to 30 V. These modules can use a 16-bit ADC converter with configurable acquisition speed from 5 to 300 ms. They also offer complete web server configurability compatible with browsers that support Html5.

TCP-IP MODBUS / RTU MODBUS DIGITAL / ANALOG MODULES

<table>
<thead>
<tr>
<th>ZE-4DI-2AI-2DO</th>
<th>ZE-2AI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENERAL DATA</strong></td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>11.40 Vdc; 19..28 Vac</td>
</tr>
<tr>
<td>Max absorption</td>
<td>4.5 W</td>
</tr>
<tr>
<td>Insulation</td>
<td>1,500 Vac</td>
</tr>
<tr>
<td>Transducers power supply</td>
<td>Yes, 12V/20 mA, max 8 sensors</td>
</tr>
<tr>
<td>State indicators</td>
<td>R0/TX RS485 - IP / DHCP - Ethernet Link</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10..+65°C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>35x100x112 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>170 g approx.</td>
</tr>
<tr>
<td>Casing</td>
<td>Glass loaded PA6 black plastic</td>
</tr>
<tr>
<td>Connections</td>
<td>Screw removable terminals for 2.5 mm² conductors</td>
</tr>
<tr>
<td>Assembly</td>
<td>For guide 35 mm DIN EN 46277</td>
</tr>
<tr>
<td>Programming</td>
<td>Software (EASY SETUP)</td>
</tr>
<tr>
<td>Data Memory</td>
<td>Flash 512 kB, FerAM 64 kB (contatori)</td>
</tr>
</tbody>
</table>

| **COMMUNICATION** |       |
| Interfaces | Nr.1 Ethernet 10/100 Mbps |
| Protocols | ModBUS RTU, ModBUS TCP-IP, http |
| Speed | Fino a 115.200 bps (RS485) / 100 Mbps (TCP-IP) |
| Communication time | From 1 to 300 ms |
| Max distance | Up to 1,200 m |

| **INPUT / OUTPUT DATA** |       |
| Number of Channels | 6 inputs, 2 outputs |
| Type | No. 2 Analog Inputs 0-20 mA / 0-30 V |
| Resolution | 16 bit |
| Precision class | 0.1% |
| Thermal drift | 100 ppm/K |
| Certification | EC |

| **STANDARD** |       |
| Certifications | EN 61000-6-4, EN 61000-6-2, EN 61010-1, EN 60950 |

| **ORDER CODE** |       |
| Code | ZE-4DI-2AI-2DO |
| Software and Accessories | Pag. 51 |

Technical data and diagrams on this document are indicative and not binding.
CANOPEN I/O SYSTEMS

Series Z-PC

CANopen I/O
Z-PC Series
DISTRIBUTED HIGH PERFORMANCE I / O SYSTEM

CANopen Z-PC series is a distributed I/O system actually based on IEC 61131 programming that does not require the use of couplers, controllers or repeaters for each communication line. All modules have a CAN communication interface with speeds of up to 1 Mbps and are therefore ideal for acquiring and controlling system signals on systems and machines where the distance between the signals plays a fundamental role.

The CANopen Z-PC Series modules can be integrated with third-party master/network configurators and controllers, even on existing machines and installations. The advantage of not needing an end-of-line coupler significantly reduces the cost factor for medium-small installations.

I/O MODULES
I/O modules of analog inputs (8), thermocouples and resistance thermometers (4/8), digital inputs / outputs (16/24), analog outputs (3), load cells (1) etc.

CPU / INTERFACES
• Multi-function web server controller, datalogger with CAN interfaces, Ethernet, RS232/RS485, ModBUS RTU.
• CANopen repeaters - optical fibre

SETTINGS
• IEC 61131 CoDeSys programming system
• EASY SETUP suite (software configurator) via RS232
• DIP-switch (address, baud rate)

HIGH PERFORMANCES
• High precision: 0.01...0.05%
• Insulation: 1.5 kVac (up to 6 ways)
• Baud rate: up to 1 Mbps
• Response time for digital channel ~ 1ms
• Response time for digital channel ~ 1ms ~ 20 ms
• Supply up to 8 sensors

APPLICATION DIAGRAMS
MANIPULATION SYSTEM
AUTOMATIC BOTTLING SYSTEM

PROCESS PARAMETERS CONTROL
CONVEYOR BELT CONTROL
### MODBUS / CANOPEN DIGITAL I/O MODULES

#### ZC-24DI
- **24 digital inputs module**
- **ModBUS/CANopen**

#### ZC-24DO
- **24 digital outputs module**
- **ModBUS/CANopen**

#### ZC-16DI-8DO
- **Modules 16 digital inputs, 8 digital outputs**
- **ModBUS/CANopen**

### GENERAL DATA

<table>
<thead>
<tr>
<th></th>
<th>ZC-24DI</th>
<th>ZC-24DO</th>
<th>ZC-16DI-8DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>10..40 Vdc / 19..28 Vac</td>
<td>10..40 Vdc / 19..28 Vac</td>
<td>10..40 Vdc / 19..28 Vac</td>
</tr>
<tr>
<td>Insulation</td>
<td>1.5 kΩ (3-way)</td>
<td>1.5 kΩ (3-way)</td>
<td>1.5 kΩ (3-way)</td>
</tr>
<tr>
<td>Transducers power supply</td>
<td>Yes, 16/70mA, max 24 sensors</td>
<td>-</td>
<td>Yes, 16/70mA, max 16+8 sensors</td>
</tr>
<tr>
<td>State indicators</td>
<td>Power supply, Input Status, Communication</td>
<td>Power supply, Output Status, Communication</td>
<td>Power supply, Inputs / Outputs Status, Communication</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10°C...+65°C</td>
<td>-10°C...+65°C</td>
<td>-10°C...+65°C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>35 x 100 x 112 mm</td>
<td>35 x 100 x 112 mm</td>
<td>35 x 100 x 112 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>170 g</td>
<td>170 g</td>
<td>170 g</td>
</tr>
<tr>
<td>Casing</td>
<td>Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing</td>
<td>Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing</td>
<td>Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing</td>
</tr>
<tr>
<td>Connections</td>
<td>Detachable 4-way screw terminals, 3.5 mm pitch I²C10 rear connector for DIN bar Micro USB</td>
<td>Detachable 4-way screw terminals, 3.5 mm pitch I²C10 rear connector for DIN bar Micro USB</td>
<td>Detachable 4-way screw terminals, 3.5 mm pitch I²C10 rear connector for DIN bar Micro USB</td>
</tr>
<tr>
<td>Assembly</td>
<td>For guide 35 mm DIN 46277</td>
<td>For guide 35 mm DIN 46277</td>
<td>For guide 35 mm DIN 46277</td>
</tr>
<tr>
<td>Programming</td>
<td>DIP switch, Z-NET4, EASY SETUP, ED, Codesys (IEC 61131)</td>
<td>DIP switch, Z-NET4, EASY SETUP, ED, Codesys (IEC 61131)</td>
<td>DIP switch, Z-NET4, EASY SETUP, ED, Codesys (IEC 61131)</td>
</tr>
<tr>
<td>Regulations and Standards</td>
<td>CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1, CAN 2.0A, 2.0B</td>
<td>CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1, CAN 2.0A, 2.0B</td>
<td>CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1, CAN 2.0A, 2.0B</td>
</tr>
</tbody>
</table>

### COMMUNICATION

<table>
<thead>
<tr>
<th></th>
<th>ZC-24DI</th>
<th>ZC-24DO</th>
<th>ZC-16DI-8DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>1 Mbps (CANopen); 115.200 bps (ModBUS)</td>
<td>1 Mbps (CANopen); 115.200 bps (ModBUS)</td>
<td>1 Mbps (CANopen); 115.200 bps (ModBUS)</td>
</tr>
<tr>
<td>Protocols</td>
<td>CAN bus standard (2.0A, 2.0B); CANopen (profile CAI 401 v2.01); ModBUS RTU (via RS485)</td>
<td>CAN bus standard (2.0A, 2.0B); CANopen (profile CAI 401 v2.01); ModBUS RTU (via RS485)</td>
<td>CAN bus standard (2.0A, 2.0B); CANopen (profile CAI 401 v2.01); ModBUS RTU (via RS485)</td>
</tr>
<tr>
<td>Communication time</td>
<td>2.5 ms</td>
<td>1.2 ms</td>
<td>1.2...2.5 ms</td>
</tr>
<tr>
<td>Special Functions</td>
<td>CANopen/ModBUS protocol switching</td>
<td>CANopen/ModBUS protocol switching</td>
<td>CANopen/ModBUS protocol switching</td>
</tr>
</tbody>
</table>

### INPUT / OUTPUT DATA

<table>
<thead>
<tr>
<th></th>
<th>ZC-24DI</th>
<th>ZC-24DO</th>
<th>ZC-16DI-8DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Channels</td>
<td>24 inputs (with 16 Vdc self-powered common negative)</td>
<td>24 outputs</td>
<td>16 inputs, 8 outputs</td>
</tr>
<tr>
<td>Type</td>
<td>No. 24 digital inputs with EN 61131-2 polarity type 2, synq (pnp); No. 8 counters @ 32 bit, max freq. 10 kHz; Configuration increment, reset, preset; Overflow indication; Vmax=30V; pulse width 250μs; on/off delay &lt; 3ms; TPDO &lt; 1ms</td>
<td>No. 16 digital inputs with EN 61131-2 polarity type 2, synq (pnp); No. 8 counters @ 32 bit, max freq. 10 kHz; Configuration increment, reset, preset; Overflow indication; Vmax=30V; pulse width 250μs; on/off delay &lt; 3ms; TPDO &lt; 1ms</td>
<td>No. 16 digital inputs with EN 61131-2 polarity type 2, synq (pnp); No. 8 counters @ 32 bit, max freq. 10 kHz; Configuration increment, reset, preset; Overflow indication; Vmax=30V; pulse width 250μs; on/off delay &lt; 3ms; TPDO &lt; 1ms</td>
</tr>
<tr>
<td>CANopen REQUIREMENTS</td>
<td>NMT Slave</td>
<td>Slave</td>
<td>Slave</td>
</tr>
<tr>
<td></td>
<td>Error Control Node Guarding</td>
<td>Node Guarding</td>
<td>Node Guarding</td>
</tr>
<tr>
<td></td>
<td>Node ID Software, DIP switch</td>
<td>Software, DIP-switch</td>
<td>Software, DIP-switch</td>
</tr>
<tr>
<td></td>
<td>Nr PDO RX 5</td>
<td>RX 5</td>
<td>RX 5</td>
</tr>
<tr>
<td>PDO modes</td>
<td>Event triggered, synq (cyclic), synq (acyclic)</td>
<td>Event triggered, synq (cyclic), synq (acyclic)</td>
<td>Event triggered, synq (cyclic), synq (acyclic)</td>
</tr>
<tr>
<td>PDO linking</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>PDO mapping</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
</tr>
<tr>
<td>Nr SDO Server</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Emergency message</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Application Layer</td>
<td>CAI 301 v4.02</td>
<td>CAI 301 v4.02</td>
<td>CAI 301 v4.02</td>
</tr>
<tr>
<td>Profile</td>
<td>CAI 401 v2.01</td>
<td>CAI 401 v2.01</td>
<td>CAI 401 v2.01</td>
</tr>
</tbody>
</table>

### ORDER CODE

<table>
<thead>
<tr>
<th></th>
<th>ZC-24DI</th>
<th>ZC-24DO</th>
<th>ZC-16DI-8DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>ZC-24DI</td>
<td>ZC-24DO</td>
<td>ZC-16DI-8DO</td>
</tr>
<tr>
<td>Software and Accessories</td>
<td>Pag. 51</td>
<td>Pag. 51</td>
<td>Pag. 51</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
### CANOPEN I/O SYSTEMS

#### CANOPEN I/O MODULES

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZC-8AI</td>
<td>8-input module CANopen (mA, V) analogs</td>
</tr>
<tr>
<td>ZC-3AO</td>
<td>3-channel analog outputs CANopen</td>
</tr>
<tr>
<td>ZC-4RTD</td>
<td>4-channel RTD inputs CANopen thermo resistance</td>
</tr>
<tr>
<td>ZC-8TC</td>
<td>3-channel 8-inputs CANopen thermocouple</td>
</tr>
<tr>
<td>ZC-SG</td>
<td>Module 1 input for CANopen load cell</td>
</tr>
</tbody>
</table>

---

### GENERAL DATA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>ZC-8AI</th>
<th>ZC-3AO</th>
<th>ZC-4RTD</th>
<th>ZC-8TC</th>
<th>ZC-SG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>10..40 Vdc / 19..28 Vac</td>
<td>10..40 Vdc / 19..28 Vac</td>
<td>10..40 Vdc / 19..28 Vac</td>
<td>10..40 Vdc / 19..28 Vac</td>
<td>10..40 Vdc / 19..28 Vac (strain gauge powered from the sensor)</td>
</tr>
<tr>
<td>Max absorption</td>
<td>5 W</td>
<td>2.5 W</td>
<td>1 W</td>
<td>1 W</td>
<td>2 W</td>
</tr>
<tr>
<td>Insulation</td>
<td>1.5 kV (6 ways)</td>
<td>1.5 kV (6 ways)</td>
<td>1.5 kV (6 ways)</td>
<td>1.5 kV (6 ways)</td>
<td>1.5 kV (6 ways)</td>
</tr>
<tr>
<td>Inputs Protection</td>
<td>Against ESD up to 4 kV</td>
<td>Against ESD up to 4 kV</td>
<td>Against ESD up to 4 kV</td>
<td>Against ESD up to 4 kV</td>
<td>Against ESD up to 4 kV</td>
</tr>
<tr>
<td>Transducers power supply</td>
<td>Yes, 16V/22mA, max 8 sensors</td>
<td>Power supply Communication Inputs Error</td>
<td>Power supply Communication</td>
<td>Power supply Communication Inputs Error</td>
<td>Power supply Communication Inputs Error</td>
</tr>
<tr>
<td>State indicators</td>
<td>Power supply</td>
<td>Communication</td>
<td>-</td>
<td>-</td>
<td>Yes, 9Vdc, max 8 sensors</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10..+65°C</td>
<td>-10..+65°C</td>
<td>-10..+65°C</td>
<td>-10..+65°C</td>
<td>-10..+65°C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 110 x 112 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>170 g</td>
<td>170 g</td>
<td>170 g</td>
<td>170 g</td>
<td>170 g</td>
</tr>
<tr>
<td>Casing</td>
<td>Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing</td>
<td>Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing</td>
<td>Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing</td>
<td>Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing</td>
<td>Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing</td>
</tr>
<tr>
<td>Connections</td>
<td>Detachable 4-way screw terminals, 3.5 mm pitch</td>
<td>Detachable 4-way screw terminals, 3.5 mm pitch</td>
<td>Detachable 4-way screw terminals, 3.5 mm pitch</td>
<td>Detachable 4-way screw terminals, 3.5 mm pitch</td>
<td>Detachable 4-way screw terminals, 3.5 mm pitch</td>
</tr>
<tr>
<td>Assembly</td>
<td>For guide 35 mm DIN 46277</td>
<td>For guide 35 mm DIN 46277</td>
<td>For guide 35 mm DIN 46277</td>
<td>For guide 35 mm DIN 46277</td>
<td>For guide 35 mm DIN 46277</td>
</tr>
<tr>
<td>Programming</td>
<td>DIP switch, Z-NET4, EASY SETUP</td>
<td>DIP switch, Z-NET4, EASY SETUP</td>
<td>DIP switch, Z-NET4, EASY SETUP</td>
<td>DIP switch, Z-NET4, EASY SETUP</td>
<td>DIP switch, Z-NET4, EASY SETUP</td>
</tr>
<tr>
<td>Regulations and Standards</td>
<td>CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1 CAN 2.0A, 2.0B CAN 401 v.2.01</td>
<td>CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1 CAN 2.0A, 2.0B CAN 401 v.2.01</td>
<td>CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1 CAN 2.0A, 2.0B CAN 401 v.2.01</td>
<td>CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1 CAN 2.0A, 2.0B CAN 401 v.2.01</td>
<td>CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1 CAN 2.0A, 2.0B CAN 401 v.2.01</td>
</tr>
</tbody>
</table>

---

### COMMUNICATION

<table>
<thead>
<tr>
<th>Interface</th>
<th>CANopen (profile CA 401 v.2.01)</th>
<th>CANopen (profile CA 401 v.2.01)</th>
<th>CANopen (profile CA 401 v.2.01)</th>
<th>CANopen (profile CA 401 v.2.01)</th>
<th>CANopen (profile CA 401 v.2.01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>1Mbps (CANopen)</td>
<td>1Mbps (CANopen)</td>
<td>1Mbps (CANopen)</td>
<td>1Mbps (CANopen)</td>
<td>1Mbps (CANopen)</td>
</tr>
<tr>
<td>Protocols</td>
<td>CAN bus standard (2.0A, 2.0B); CANopen (profile CA 401 v.2.01); ModBus RTU (via RS485)</td>
<td>CAN bus standard (2.0A, 2.0B); CANopen (profile CA 401 v.2.01); ModBus RTU (via RS485)</td>
<td>CAN bus standard (2.0A, 2.0B); CANopen (profile CA 401 v.2.01); ModBus RTU (via RS485)</td>
<td>CAN bus standard (2.0A, 2.0B); CANopen (profile CA 401 v.2.01); ModBus RTU (via RS485)</td>
<td>CAN bus standard (2.0A, 2.0B); CANopen (profile CA 401 v.2.01); ModBus RTU (via RS485)</td>
</tr>
<tr>
<td>Communication time</td>
<td>&lt; 28 ms</td>
<td>&lt; 28 ms</td>
<td>&lt; 28 ms</td>
<td>&lt; 28 ms</td>
<td>&lt; 28 ms</td>
</tr>
</tbody>
</table>

---

### INPUT / OUTPUT DATA

<table>
<thead>
<tr>
<th>Number of Channels</th>
<th>8 outputs (torque isolation)</th>
<th>3 outputs</th>
<th>4 isolated RTD inputs, 2, 3, 4, wire measurement</th>
<th>8 inputs (thermocouple or mV measurement)</th>
<th>1 analog input, 1 digital input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td></td>
<td>Voltage ±(0-10 V); current ±(0-20 mA)</td>
<td>Voltage ±(0-10 V); current ±(0-20 mA)</td>
<td>PT100 (EN 60751/A2-ITS90), -200..+650°C, PT500 (EN 60751/A2-ITS90), -200..+200°C, PT100 (EN 60751/A2-ITS90), -200..+200°C, PT500 (EN 60751/A2-ITS90), -200..+200°C</td>
<td>Thermocouple: J, K, E, N, R, B, T, EN - 60584-1 (ITS-90), Span mV: ±0.1 mV..+81.4 mV, Input impedance: 10 MO</td>
</tr>
<tr>
<td>Resolution</td>
<td>15 bit</td>
<td>14 bit</td>
<td>14 bit</td>
<td>15 bit</td>
<td>24 bit</td>
</tr>
<tr>
<td>Precision class</td>
<td>0.05%</td>
<td>0.01%</td>
<td>0.05%</td>
<td>0.1%</td>
<td>0.01%</td>
</tr>
<tr>
<td>Thermal drift</td>
<td>&lt;100 ppm/°C</td>
<td>&lt;100 ppm/°C</td>
<td>&lt;50 ppm/°C</td>
<td>&lt;100 ppm/°C</td>
<td>&lt;25 ppm/°C</td>
</tr>
</tbody>
</table>

---

### CANOPEN REQUIREMENTS

<table>
<thead>
<tr>
<th>HW Control</th>
<th>Slave</th>
<th>Slave</th>
<th>Slave</th>
<th>Slave</th>
<th>Slave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error Control</td>
<td>Node Guarding</td>
<td>Node Guarding</td>
<td>Node Guarding</td>
<td>Node Guarding</td>
<td>Node Guarding</td>
</tr>
<tr>
<td>Nr PDO</td>
<td>RX 5</td>
<td>RX 5</td>
<td>RX 5</td>
<td>RX 5</td>
<td>RX 5</td>
</tr>
<tr>
<td>PDO modes</td>
<td>Event triggered, synq (cyclic), synq (acyclic)</td>
<td>Event triggered, synq (cyclic), synq (acyclic)</td>
<td>Event triggered, synq (cyclic), synq (acyclic)</td>
<td>Event triggered, synq (cyclic), synq (acyclic)</td>
<td>Event triggered, synq (cyclic), synq (acyclic)</td>
</tr>
<tr>
<td>PDO linking</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>PDO mapping</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
</tr>
<tr>
<td>Nr PDO mapping</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Emergency message</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Application Layer</td>
<td>CAN 301 v.4.02</td>
<td>CAN 301 v.4.02</td>
<td>CAN 301 v.4.02</td>
<td>CAN 301 v.4.02</td>
<td>CAN 301 v.4.02</td>
</tr>
<tr>
<td>Profile</td>
<td>CAN 401 v.2.01</td>
<td>CAN 401 v.2.01</td>
<td>CAN 401 v.2.01</td>
<td>CAN 401 v.2.01</td>
<td>CAN 401 v.2.01</td>
</tr>
</tbody>
</table>

---

### ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>ZC-8AI</th>
<th>ZC-3AO</th>
<th>ZC-4RTD</th>
<th>ZC-8TC</th>
<th>ZC-SG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software and Accessories</td>
<td>P.51</td>
<td>P.51</td>
<td>P.51</td>
<td>P.51</td>
<td>P.51</td>
</tr>
</tbody>
</table>

---

The technical data and the diagrams in this document are indicative and not binding.
### CONTROLLERS

**CONTROLLERS / RTU IEC 61131 - STRATON**

<table>
<thead>
<tr>
<th></th>
<th>Z-TWS11</th>
<th>Z-TWS4</th>
<th>Z-MINIRTU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MAIN CHARACTERISTICS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>integrated I/O</td>
<td>2AI</td>
<td>1DI, 2DO, 1DI/DO</td>
<td>4DI, 2DO, 2AI</td>
</tr>
<tr>
<td>CPU</td>
<td>ARM 32 bit @ 120 MHz</td>
<td>ARM9 32-bit @400MHz</td>
<td>ARM9 32-bit @400MHz</td>
</tr>
<tr>
<td>Programming system</td>
<td>Straton, Z-NET4</td>
<td>Straton, Z-NET4</td>
<td>Straton, Z-NET4</td>
</tr>
<tr>
<td>Flash</td>
<td>8 MB</td>
<td>1 GB</td>
<td>8 MB</td>
</tr>
<tr>
<td>RAM</td>
<td>256 kB</td>
<td>64 MB</td>
<td>256 kB</td>
</tr>
<tr>
<td>Program dimension</td>
<td>248 kB</td>
<td>4 MB</td>
<td>248 kB</td>
</tr>
<tr>
<td>PLC variable memory</td>
<td>38 kB</td>
<td>4 MB</td>
<td>38 kB</td>
</tr>
<tr>
<td><strong>CONNECTIVITY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modem / Router</td>
<td>-</td>
<td>-</td>
<td>2G</td>
</tr>
<tr>
<td>Industrial protocols</td>
<td>ModBUS RTU/TCP</td>
<td>ModBUS RTU/TCP</td>
<td>ModBUS RTU/TCP</td>
</tr>
<tr>
<td>IT Protocols</td>
<td>http, ftp, smtp</td>
<td>http, ftp, smtp</td>
<td>http, ftp, smtp, ppp</td>
</tr>
<tr>
<td>Energy Protocols</td>
<td>-</td>
<td>IEC 60870-101/104, IEC 61850 (opt.)</td>
<td>-</td>
</tr>
<tr>
<td>Supporto VPN</td>
<td>-</td>
<td>VPN Box, OpenVPN</td>
<td>-</td>
</tr>
<tr>
<td>Private APN Support</td>
<td>-</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>Ethernet Ports</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Serial Ports</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>USB Ports</td>
<td>1 (Micro)</td>
<td>1 (Host)</td>
<td>1 (Micro)</td>
</tr>
<tr>
<td><strong>APPLICATIONS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 1,000 I/O</td>
<td>-</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Up to 200 I/O</td>
<td>x</td>
<td>-</td>
<td>x</td>
</tr>
<tr>
<td>Advanced automation</td>
<td>-</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Remote control / Remote support.</td>
<td>-</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Microautomation</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Energy Management</td>
<td>-</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Pumps control</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gas/Steam Applications</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
SENECA multifunctional controllers and RTUs with high connectivity (Z-TWS11, Z-MINIRTU, Z-TWS4, Z-PASS2-S, S6001-RTU) combine PLC tasks based on the Straton IEC 61131-1 softPLC platform with web server functionality, datalogger, remote control, remote assistance and energy management (in compliance with the IEC 60870-101/104, IEC 61850 protocols). The controllers can be used with different architectures and configurations depending on the complexity of the system and on the required hardware requirements. SENECA also provides process controllers and flow computers for predefined scenarios such as pump control, pressurisation groups (S6001-PC) and fluid regulation (Z-FLOWCOMPUTER).

### CONTROLLERS

#### Z-PASS2-S

- **2DI, 2DO, 2DO/DO**: 15DI+2DI, 8DO, 4AI, 2AO
- **ARM9 32-bit @400MHz**
- **Straton, Z-NET4**
- **1 GB, 64 MB**
- **4 MB**
- **3G+**
- **ModBUS RTU/TCP**
- **http, ftp, smtp, ppp**
- **IEC 60870-101/104, IEC 61850 (opt.)**
- **VPN Box, OpenVPN**
- **2, 3, 1 (Host)**
- **X**

#### S6001-RTU

- **4DI, 2DO, 2DO/DO**: 15DI+2DI, 8DO, 4AI, 2AO
- **ARM9 32-bit @400MHz**
- **Straton, Z-NET4**
- **1 GB, 64 MB**
- **4 MB**
- **3G+**
- **ModBUS RTU/TCP**
- **http, ftp, smtp, ppp**
- **IEC 60870-101/104, IEC 61850 (opt.)**
- **VPN Box, OpenVPN**
- **2, 3, 1 (Host)**
- **X**

#### S6001-PC

- **4DI, 3AI, 2DO**: 15DI+2DI, 8DO, 4AI, 2AO
- **ARM 32 bit @ 120 MHz**
- **HMI**
- **1 GB, 64 MB**
- **4 MB**
- **3G+**
- **ModBUS RTU/TCP**
- **http, ftp, smtp, ppp**
- **IEC 60870-101/104, IEC 61850 (opt.)**
- **VPN Box, OpenVPN**
- **2, 3, 1 (Host)**
- **X**

#### Z-FLOWCOMPUTER

- **4DI, 3AI, 2DO**: 15DI+2DI, 8DO, 4AI, 2AO
- **ARM 32 bit @ 120 MHz**
- **HMI, EASY**
- **1 GB, 64 MB**
- **4 MB**
- **3G+**
- **ModBUS RTU/TCP**
- **http, ftp, smtp, ppp**
- **IEC 60870-101/104, IEC 61850 (opt.)**
- **VPN Box, OpenVPN**
- **2, 3, 1 (Micro)**
- **X**

### PROCESS CONTROLLERS AND CALCULATORS

<table>
<thead>
<tr>
<th>Z-PASS2-S</th>
<th>S6001-RTU</th>
<th>S6001-PC</th>
<th>Z-FLOWCOMPUTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>2DI, 2DO, 2DO/DO</td>
<td>15DI+2DI, 8DO, 4AI, 2AO</td>
<td>15DI+2DI, 8DO, 4AI, 2AO</td>
<td>4DI, 3AI, 2DO</td>
</tr>
<tr>
<td>ARM9 32-bit @400MHz</td>
<td>ARM9 32-bit @400MHz</td>
<td>ARM9 32-bit @ 400 MHz</td>
<td>ARM 32 bit @ 120 MHz</td>
</tr>
<tr>
<td>Straton, Z-NET4</td>
<td>Straton, Z-NET4</td>
<td>HMI</td>
<td>HMI, EASY</td>
</tr>
<tr>
<td>1 GB</td>
<td>1 GB</td>
<td>1 GB</td>
<td>8 MB</td>
</tr>
<tr>
<td>64 MB</td>
<td>64 MB</td>
<td>64 MB</td>
<td>256 kB</td>
</tr>
<tr>
<td>4 MB</td>
<td>4 MB</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4 MB</td>
<td>4 MB</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3G+</td>
<td>3G+</td>
<td>3G+</td>
<td>-</td>
</tr>
<tr>
<td>ModBUS RTU/TCP</td>
<td>ModBUS RTU/TCP</td>
<td>ModBUS RTU/TCP(Slave)</td>
<td>ModBUS RTU/TCP(Slave)</td>
</tr>
<tr>
<td>http, ftp, smtp, ppp</td>
<td>http, ftp, smtp, ppp</td>
<td>http, ftp, smtp, ppp</td>
<td>http, ftp</td>
</tr>
<tr>
<td>IEC 60870-101/104, IEC 61850 (opt.)</td>
<td>IEC 60870-101/104, IEC 61850 (opt.)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>VPN Box, OpenVPN</td>
<td>VPN Box, OpenVPN</td>
<td>VPN Box, OpenVPN</td>
<td>-</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1 (Host)</td>
<td>1 (Host)</td>
<td>1 (Host)</td>
<td>1 (Micro)</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
Z-TWS11
MULTIFUNCTION CONTROLLER IEC 61131, EMBEDDED PLC STRATON WITH INTEGRATED I/O

TECHNICAL DATA

GENERAL DATA
- Power supply: 11...40 Vdc; 19...28 Vac
- Insulation: 1,500 Vac
- State Indicators: Power supply, Serial communication, Ethernet, SD card
- Degree of protection: IP20
- Operational Temperature: -10...+50°C
- Dimensions (lxhxw): 17.5 x 100 x 112 mm
- Casing: Nylon 6 with 30% glass fibre self-extinguishing class V0
- Connections: Removable terminals, max conductor size 2.5 mm²
- Assembly: DIN Guide 35 mm (IEC EN 60715)

COMMUNICATION
- Ethernet: No. 1 Ethernet port 10/100 Mbps (RJ45)
- Serial: Nr 1 RS232 / RS485 switchable
- USB: Nr. 1 lateral connector USB
- Industrial protocols: RTU ModBUS, TCP-IP ModBUS, custom protocols
- Network protocols: PPP, http, Ftp, Smtp

INPUT DATA
- Channels / Type: Nr. 1 analog inputs 0-20 mA, 0-30 Vdc

PROCESSOR / MEMORY
- Processor: ARM, 32 bit
- RAM / FeRAM: 256 kB / 256 byte
- Slot Micro SD: SD Card up to 32 GB

CONFIGURATIONS, REGULATIONS
- System software: ZNET4 / Straton
- Web server: -
- Datalogger: Yes, integrated
- PLC programming: IEC 61131 (Straton) dedicated libraries
- Certifications: EC
- Regulations: EN 61000-6-4, EN 61000-6-2

APPLICATION EXAMPLE

TEMPERATURE REGULATION SYSTEM WITH HYSTERESIS LOOP

ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-TWS11</td>
<td>IEC 61131 multifunction controller, with integrated I/O</td>
</tr>
</tbody>
</table>

SOFTWARE
- STRATON-D-USB: Straton activation key for IEC 61131 controllers
- STRATON-IDE256: Straton development environment 256 tag with USB activation key
- STRATON-IDE512: Straton development environment 512 tag with USB activation key
- SSP: SENECA Straton Package - CPU Seneca Installer suite (supplied)
- STRATON-WB: Straton workbench IEC 61131 free editor
- Z-MET4: I/O systems configurator and IEC 61131 controllers

ACCESSORIES
- MSD: Micro SD memory card with adapter
- Z-PC-DIN2-17.5: Support for rapid assembly on DIN guide 2 slot pitch 17.5 mm
- Z-PC-DIN2L-17.5: Support for rapid assembly on DIN guide head + 2 slot pitch 17.5 mm
- Z-POWER-115-15VA: Transformer with DIN guide 19 Vac, 115 / 15 VA with thermofuse
- Z-SUPPLY: Power supply switching monophase 24V @ 1.5 A

CABLES
- CE-RJ45-RJ45-C: Crossed Ethernet cable (RJ45 / RJ45)
- CE-RJ45-RJ45-R: Straight Ethernet cable (RJ45 / RJ45)
- CS-D9RF-CLAMP: Serial cable RS485 (DB9F / terminals)
- CS-D9RF-TIP-V: Serial cable RS485 (DB9F / tips)
- CS-D9RM-TIP-V: Serial cable RS485 (DB9M / tips)
- CU-A-MICROB: Cable plug USB-A Micro USB-B 5 P

The technical data and the diagrams in this document are indicative and not binding.
CONTROLLERS

Z-TWS4
MULTIFUNCTION CONTROLLER IEC 61131
STRATON/LINUX

**TECHNICAL DATA**

**GENERAL DATA**

- **Power supply**: 11..40 Vdc; 19..28 Vac
- **Max absorption**: Max 6 W
- **Insulation**: Max 1.500 V
- **State indicators**: Power Supply, Ethernet Communication, Ethernet Data Transmission, Serial Data Transmission
- **Degree of protection**: IP20
- **Operating temperature**: -20..+65°C
- **Dimensions**: 35 x 100 112 mm
- **Weight**: 250 g
- **Casing**: Nylon 6 with 30% glass fibre self-extinguishing class V0
- **Hot swapping**: Yes
- **Connections**: Screw removable terminals pass 5.08, IDC10 connector for DIN guide, RJ45 - 4/54, RJ45, USB, mini USB, plug-in: micro SD card

**APPLICATION EXAMPLE**

**ORDER CODE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROLLERS</td>
<td></td>
</tr>
<tr>
<td>Z-TWS4-L-IO</td>
<td>IEC 61131 multifunction controller, integrated I/O, Linux based, OEM version</td>
</tr>
<tr>
<td>Z-TWS4-S-IO</td>
<td>IEC 61131 multifunction controller, integrated I/O, Straton workbench, OEM version</td>
</tr>
<tr>
<td>Z-TWS4-E-IO</td>
<td>IEC 61131 multifunction controller, integrated I/O, Straton workbench, OEM version, energy protocol</td>
</tr>
<tr>
<td>SOFTWARE</td>
<td></td>
</tr>
<tr>
<td>OPC-DA-SERVER</td>
<td>Communication and data exchange software OPC Server WITH unlimited I/O tags (hardware licence)</td>
</tr>
<tr>
<td>OPC-UA-SERVER</td>
<td>Communication and data exchange software OPC Server UA I/O unlimited tags (hardware licence)</td>
</tr>
<tr>
<td>STRATON-D-USB</td>
<td>Straton activation key for IEC 61131 controllers</td>
</tr>
<tr>
<td>STRATON-IDE256</td>
<td>Straton development environment 256 tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-IDE512</td>
<td>Straton development environment 512 tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-IDEUN</td>
<td>Straton development environment unlimited tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-870S</td>
<td>Activation licence IEC 60870-5-101/104 Slave</td>
</tr>
<tr>
<td>STRATON-870S-850</td>
<td>Activation licence IEC 60870-5-101/104 Slave + Licence IEC 61850 Client / Server</td>
</tr>
<tr>
<td>SSP</td>
<td>SENECA Straton Package - CPU Seneca Installer suite (supplied)</td>
</tr>
<tr>
<td>STRATON-UPGRADE1</td>
<td>Straton upgrade from 256 to 512 tags</td>
</tr>
<tr>
<td>STRATON-UPGRADE2</td>
<td>Straton upgrade from 512 to unlimited tags</td>
</tr>
<tr>
<td>STRATON-UPGRADE3</td>
<td>Straton upgrade from 256 to unlimited tags</td>
</tr>
<tr>
<td>STRATON-WB</td>
<td>Straton workbench IEC 61131 free editor (supplied)</td>
</tr>
<tr>
<td>ACCESSORIES</td>
<td></td>
</tr>
<tr>
<td>Z-SUPPLY</td>
<td>Power supply switching monophase 24V @ 1.5 A</td>
</tr>
<tr>
<td>Z-PC-DIN1-35</td>
<td>Support for rapid assembly on DIN guide 1 slot format pitch 35 mm</td>
</tr>
<tr>
<td>Z-PC-DINAL1-35</td>
<td>Support for rapid assembly on DIN guide head + 1 slot pitch 35 mm</td>
</tr>
<tr>
<td>MSG</td>
<td>Micro SD memory card with adapter</td>
</tr>
<tr>
<td>USB-SW-KEY</td>
<td>USB key with software, libraries, platforms and development environments, manuals for multifunction controllers</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
CONTROLLERS

Z-MINIRTU
GSM/GPRS REMOTE CONTROL EQUIPMENT,
WITH INTEGRATED STRATON IO

TECHNICAL DATA

GENERAL DATA
- Power supply: 11..40 Vdc; 19..28 Vac
- Max absorption: 6.5 W
- UPS: Integrated (autonomy approximately 1 hour)
- Insulation: 3,000 Vac (power supply/outputs); (1,500 Vac (power supply / other circuits)
- State Indicators: Power supply, Serial communication, Ethernet, SD card, Digital inputs state, Modem state
- Degree of protection: IP20
- Operational Temperature: -10..+50°C
- Dimensions (lxwxh): 35 x 100 x 112 mm
- Casing: Nylon 6 with 30% glass fibre self-extinguishing class V0
- Connections: Removable terminals, max conductor size 2.5 mm²

COMMUNICATION
- Ethernet: No. 1 Ethernet port 10/100 Mbps (RJ45)
- Serial: Nr 1 RS232 / RS485 switchable
- USB: Nr. 1 lateral connector USB
- Modem: GSM, GPRS (quad band)
- Industrial protocols: ModBUS TCP-IP (Client/Server), ModBUS RTU (Master/Slave), custom protocols
- Network protocols: PPP, HTTP Post, FTP Client, SMTP Client, NTP Client

INPUT DATA
- Channels / Type: Nr 4 digital inputs PNP, NPN (max voltage 30 Vdc)
- Nr. 1 analog inputs 0-20 mA, 0-30 Vdc

OUTPUT DATA
- Channels / Type: No. 1 SPDT relay outputs, max 2A 250 Vac

PROCESSOR / MEMORY
- Processor: ARM 32 bit @ 120 MHz
- O.S.: Real-Time multitasking
- FeRAM (variable retentive): Max 4 KB
- Program memory: Max 248 KB
- Variables memory: Max 38 KB
- Slot Micro SD: SD Card up to 32 GB

CONFIGURATIONS
- System software: Z-NET4 / Straton
- Web Server: -
- Datalogger: Integrated
- PLC programming: IEC 61131 (Straton) dedicated libraries

STANDARD
- Certifications: EC
- Regulations: EN 61000-6-4, EN 61000-6-2, EN 61010, EN 301511, EN 301489-1, EN 301489-7, EN 60950

APPLICATION EXAMPLE

NETWORK REMOTE CONTROL

ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-MINIRTU</td>
<td>GSM / GPRS remote control equipment, with integrated Straton IO</td>
</tr>
</tbody>
</table>

SOFTWARE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRATON-D-USB</td>
<td>Straton activation key for IEC 61131 controllers</td>
</tr>
<tr>
<td>STRATON-IDE256</td>
<td>Straton development environment 256 tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-IDE512</td>
<td>Straton development environment 512 tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-SP</td>
<td>Straton SENECA Package - CPU Seneca Installer suite</td>
</tr>
<tr>
<td>STRATON-WB</td>
<td>Straton workbench IEC 61131 free editor</td>
</tr>
<tr>
<td>Z-NET4</td>
<td>I/O systems configurator and IEC 61131 controllers</td>
</tr>
</tbody>
</table>

ACCESSORIES

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSD</td>
<td>Micro SD memory card with adapter</td>
</tr>
<tr>
<td>Z-PC-DIN1-35</td>
<td>Support for rapid assembly on DIN guide 1 slot pitch 35 mm</td>
</tr>
<tr>
<td>Z-PC-DINAL1-35</td>
<td>Support for rapid assembly on DIN guide head + 1 slot pitch 35 mm</td>
</tr>
<tr>
<td>Z-POWER-115-15VA</td>
<td>Transformer with DIN guide 19 Vac, 115 / 15 VA with thermofuse</td>
</tr>
<tr>
<td>Z-POWER-230-15VA</td>
<td>Transformer with DIN guide 19 Vac, 230 / 15 VA with thermofuse</td>
</tr>
<tr>
<td>Z-SUPPLY</td>
<td>Power supply switching monophase 24V @ 1.5 A</td>
</tr>
</tbody>
</table>

CABLES

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE-RJ45-RJ45-C</td>
<td>Crossed Ethernet cable (RJ45 / RJ45)</td>
</tr>
<tr>
<td>CE-RJ45-RJ45-R</td>
<td>Straight Ethernet cable (RJ45 / RJ45)</td>
</tr>
<tr>
<td>CS-D9BF-CLAMP</td>
<td>Serial cable RS485 (DB9F / terminals)</td>
</tr>
<tr>
<td>CS-D9BF-TIP-V</td>
<td>Serial cable RS485 (DB9F / tps)</td>
</tr>
<tr>
<td>CS-D9BM-TIP-V</td>
<td>Serial cable RS485 (DB9M / tps)</td>
</tr>
<tr>
<td>CU-A-MICROB</td>
<td>Cable plug USB-A Micro USB-B 5 P</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
**Z-PASS2-S STRATON REMOTE CONTROLLER, INTEGRATED I/O, MODEM 3G+/4G*, ETHERNET ROUTER, GPS**

### TECHNICAL DATA

**GENERAL DATA**

- **Power supply**: 19...40 Vdc; 19...28 Vac
- **Absorption**: Typical 4 W @ 24Vac, Max 6 W
- **Insulation**: 1500 Vac
- **State indicators**:
  - Power / Ready to use / Inputs / Outputs state
  - Remote Connection (RCD) / VPN Connection (VPN)
  - LAN/WAN/ethernet mode / SERV (VPN BOX Service)
  - Rx Tx serial communications / Link and Ethernet traffic
- **Degree of protection**: IP20
- **Operating temperature**: -20°C...+65°C
- **Dimensions (l x h x p)**: 52.5 x 100 x 112 mm
- **Weight**: 280 g
- **Casing**: Glass loaded PAG black plastic
- **Installation**: For guide 35 mm EC EN 60715

**COMMUNICATION**

- **Ethernet Ports (ETH1, ETH2)**:
  - N: 2 Fast Ethernet ports 10/100Tx on RJ45 front
  - N: 1 serial port RS232/7 485 switchable via software, max baud rate 115kbps on connector
  - N: 1 RS485 port, max baud rate 115kbps on connector IDC10 for bus and terminals
  - N: 1 RS485 port, max baud rate 115kbps on terminals
- **USB Ports**:
  - N: 1 USB host port on side connector type A
- **Modem / Router 3G+**
  - Worldwide*: GSM / GPRS / EDGE Dual-band: 1800/900 MHz
  - DC8 1800 MHz, PCS 1900 MHz 850-900-1800-1900 MHz
  - UMTS/HSPA+: Penta-BAND: WCDMA 2100/900, 2100/850, 1900/850 MHz
  - GNSS: 30 Channels: 16 GPS channels and 14 GLONASS channels
  - 4G/LTE Model (Europe, Africa, Middle East, Korea, Thailand, India)
  - GSM / GPRS / EDGE Dual-band: 1800/900 MHz
  - UMTS/HSPA+ Tri-Band: WCDMA 2100/900/850 MHz
  - 4G/LTE Band 6: Band: 2100/1900/900/850 MHz
  - 4G/LTE Band 5: Band: 1800/1900/900 MHz G/NSS: GPS/GLONASS/Beidou/Galileo/QZSS of up to 55 channels
- **Industrial protocols**:
  - ModBUS TCP-IP Client/Server, ModBUS RTU Master/Slave
- **IT Protocols**:
  - FTP server, SFTP server, HTTP server, HTTPS server, OpenVPN
- **Optional energy protocols**:
  - EC 60870-101/104, EC 61850
- **Nr. Max client VPN**:
  - Point-To-Point: 1; Single LAN: 496
- **No. Max simultaneous TCP client connections**:
  - Operating mode: MD/Gateway, 3G+/Ethernet Router, VPN, Single LAN Remote Control, Point-to-Point Remote Assistance, LAN/WAN, Ethernet Switch, Layer 2 - Industrial Ethernet (Point-To-Point Mode)

**CPU AND MEMORY**

- **Processor**: AVR 32 bit
- **Flash Memory (data)**: 1 GB
- **RAM**: 64 MB
- **FeRAM**: 4 KB
- **Slot Micro SD**: Yes, Max 32 GB
- **I/O**:
  - Pre-wired: 1 DI / 1 DO
  - For generic use: 2 DI / DO
  - Mixed configurable: 2 DI/DO

**SAFETY**

- **Remote access block**: Mechanical, interlock Digital Input
- **LAN/WAN networks disengagement**:
  - Yes
- **Data Encryption**: 128bit
- **Data Authentication**: SHA1 160bit
- **Safety protocols**:
  - OpenVPN, SSL, HTTPS Server

**SETTINGS & SOFTWARE**

- **Tools and packets**:
  - Web Server, VPN Client Communicator
  - Seneca Discovery Device, Configurator Z-NET4
  - Straton programming, Log Factory, Web Factory
- **Standard**:
  - Marking / Certifications: EC
  - Regulations: TSI EN 301489-7, EN 61000-6-4, EN 61000-6-2, EN 301511, EN 301489-1, EN 301489-7, EC, EN 60950

*In alternative

The technical data and the diagrams in this document are indicative and not binding.
CONTROLLERS

S6001-RTU
ALL-IN-ONE RTU WITH INTEGRATED I/O, 3G MODEM AND STRATON PROGRAMMING SYSTEM

TECHNICAL DATA

**APPLICATION EXAMPLE**

**ORDER CODE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S6001-RTU</td>
<td>All-in-one RTU with integrated I/O, 3G modem and Straton programming system</td>
</tr>
</tbody>
</table>

**SOFTWARE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPC-DA-SERVER</td>
<td>Communication and data exchange software OPC Server WITH unlimited I/O tags (hardware licence)</td>
</tr>
<tr>
<td>OPC-UA-SERVER</td>
<td>Communication and data exchange software OPC Server UA I/O unlimited tags (hardware licence)</td>
</tr>
<tr>
<td>STRATON-D-USB</td>
<td>Straton activation key for IEC 61131 controllers</td>
</tr>
<tr>
<td>STRATON-IDEX256</td>
<td>Straton development environment 256 tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-IDEX512</td>
<td>Straton development environment 512 tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-IDEXUN</td>
<td>Straton development environment unlimited tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-870S</td>
<td>Activation licence IEC 60870-5-101/104 Slave</td>
</tr>
<tr>
<td>STRATON-870S-850</td>
<td>Activation licence IEC 60870-5-101/104 Slave + Licence IEC 61850 Client / Server</td>
</tr>
<tr>
<td>STRATON-UPGRADE1</td>
<td>Straton upgrade from 256 to 512 tags</td>
</tr>
<tr>
<td>STRATON-UPGRADE2</td>
<td>Straton upgrade from 512 to unlimited tags</td>
</tr>
<tr>
<td>STRATON-UPGRADE3</td>
<td>Straton upgrade from 256 to unlimited tags</td>
</tr>
<tr>
<td>STRATON-WB</td>
<td>Straton workbench IEC 61131 free editor (supplied)</td>
</tr>
<tr>
<td>STRATON-IDEX</td>
<td>IEC 61131 Straton development activation key</td>
</tr>
</tbody>
</table>

**ACCESSORIES**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE-RJ45-RJ45-C</td>
<td>Crossed Ethernet cable (RJ45/RJ45) 1.5 MT</td>
</tr>
<tr>
<td>CE-RJ45-RJ45-R</td>
<td>Straight Ethernet cable (RJ45/RJ45) 1.5</td>
</tr>
<tr>
<td>A-GSM</td>
<td>External antenna GSM dual band swing cable 3.2 m</td>
</tr>
<tr>
<td>A-GSM-DIR-SM</td>
<td>Compact directional antenna GSM-DECT-UMTS SMA-M, cable 5 m</td>
</tr>
<tr>
<td>A-GSM-OMNIDIR</td>
<td>Omnidirectional GSM-UMTS-WiFi antenna, 5.1 dBi, SMA-M, cable 5 m</td>
</tr>
<tr>
<td>A-GSM-OMNIDIR-10</td>
<td>Omnidirectional GSM-UMTS-WiFi antenna, 5.1 dBi, SMA-M, cable 10 m</td>
</tr>
<tr>
<td>A-GSM-QUAD-N</td>
<td>GSM SMA-M quadband external antenna, cable 4 m</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
**S6001—PUMP CONTROLLER**

**APPLICATION EXAMPLE**

S6001-PUMP CONTROLLER WITH INTEGRATED I/O, MODEM 3G+, HMI 7”

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>GENERAL DATA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alimentazione AC/DC</td>
<td>24 Vac /dc</td>
</tr>
<tr>
<td>Insulation</td>
<td>1,500 Vac</td>
</tr>
<tr>
<td>State indicators</td>
<td>Power supply, Serial communication, Ethernet Communication, Gsm-Umts signal level, Digital I/O State</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
</tr>
<tr>
<td>Operational Temperature</td>
<td>-20..+50°C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>190 x 105 x 60 mm</td>
</tr>
<tr>
<td>Casing</td>
<td>Aluminium, black</td>
</tr>
<tr>
<td>Connections</td>
<td>Removable terminals, max conductor size 1.5 mm²</td>
</tr>
<tr>
<td>Assembly</td>
<td>DIN Guide 35 mm (IEC EN 60715)</td>
</tr>
</tbody>
</table>

**COMMUNICATION**

- Ethernet: Nr 1 port 10/100 Ethernet 10/100Tx - RJ45
- Serial ports: Nr 2 RS485; Nr 1 RS232
- USB: Nr 1 USB host; Nr 1 USB micro USB
- Modem: UMTS, HSDPA (dual band) or EDGE, GPRS, GSM (quad band)

**INPUT DATA**

- Channels: No. 15 digital inputs, Nr. 4 analogic outputs 0..20 mA, Nr. 2 digital inputs for level control

**OUTPUT DATA**

- Channels: No. 8 SPDT relay outputs, 5A - 250 Vac, Nr. 1 analogic output 0..20 mA, Nr. 1 analogic outputs 0..10 mA, Nr. 1 12V/50mA output for alarms

**CPU / MEMORIES**

- CPU: ARM 32 bit
- Flash Memory (data): 1 GB
- RAM: 64 MB / 4 KB
- Slot Micro SD: Yes with support up to SD card external 32 GB
- HMI supplied: Power supply 24 Vdc

**DISPLAY**

- 7” TFT LED backlit
- 800x480 pixel (WWGA), 64K colours
- Resistive touchscreen
- Ports: Ethernet, USB

**CONFIGURATION**

- Configuration: Scenario can be set via HMI
- Web Server: Yes

**STANDARD**

- Certifications: EC
- Regulations: EN 301489-1, EN 301511, EN 301 489-7, EN61000-6-4, EN64000-6-2, EN60950

The technical data and the diagrams in this document are indicative and not binding.
The technical data and the diagrams in this document are indicative and not binding.
HMI

VISUAL - Touchscreen operator panel with TFT LCD display

The VISUAL touchscreen operator panels are suitable to meet every application need, from small automations to the control of complex industrial processes. With 4.3", 7", 9.7", 10.1", 15" display and widescreen format they allow more information to be displayed compared to a traditional display, ensuring at the same time the containment of external dimensions. The operator panels can be freely oriented horizontally or vertically, depending on the requirements of the application. The displays are TFT up to 16 million colours with LED backlight and high resolution.

TECHNICAL DATA

<table>
<thead>
<tr>
<th>VISUAL1E</th>
<th>VISUAL2E</th>
<th>VISUAL3</th>
<th>VISUAL4</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.3&quot; HMI touchscreen Terminal colour widescreen</td>
<td>7&quot; HMI touchscreen Terminal colour widescreen</td>
<td>4.3&quot; HMI touchscreen colour widescreen, Ethernet interface</td>
<td>7&quot; HMI touchscreen Terminal colour widescreen, Ethernet interface</td>
</tr>
</tbody>
</table>

DISPLAY

<table>
<thead>
<tr>
<th>Sample</th>
<th>Resolution</th>
<th>Format</th>
<th>Brightness</th>
<th>Contrast</th>
<th>Backlight</th>
<th>Colours</th>
<th>Touchscreen</th>
<th>Precision</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.3&quot; TFT LCD</td>
<td>480x272</td>
<td>16:9</td>
<td>500 cd/m2</td>
<td>500:1</td>
<td>LED &gt; 30,000 hours</td>
<td>65536</td>
<td>4 wires, resistive</td>
<td>±2%</td>
</tr>
<tr>
<td>7&quot; TFT LCD</td>
<td>800x480</td>
<td>16:9</td>
<td>350 cd/m2</td>
<td>500:1</td>
<td>LED &gt; 30,000 hours</td>
<td>65536</td>
<td>4 wires, resistive</td>
<td>±2%</td>
</tr>
<tr>
<td>4.3&quot; TFT LCD</td>
<td>480x272</td>
<td>16:9</td>
<td>500 cd/m2</td>
<td>500:1</td>
<td>LED &gt; 30,000 hours</td>
<td>65536</td>
<td>4 wires, resistive</td>
<td>±2%</td>
</tr>
<tr>
<td>7&quot; TFT LCD</td>
<td>800x480</td>
<td>16:9</td>
<td>350 cd/m2</td>
<td>500:1</td>
<td>LED &gt; 30,000 hours</td>
<td>65536</td>
<td>4 wires, resistive</td>
<td>±2%</td>
</tr>
</tbody>
</table>

CONNECTIONS

<table>
<thead>
<tr>
<th>USB Client 2.0</th>
<th>USB Host 1.1</th>
<th>USB Host 2.0</th>
<th>Ethernet 10/100</th>
<th>Ethernet 10/100/1000</th>
<th>COM1</th>
<th>COM2</th>
<th>COM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>RS232 RS485</td>
<td>RS485</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>RS232 RS485</td>
<td>RS485</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>RS232 RS485</td>
<td>RS485</td>
<td>-</td>
</tr>
</tbody>
</table>

GENERAL DATA

<table>
<thead>
<tr>
<th>Flash</th>
<th>RAM</th>
<th>Processor</th>
<th>RTC</th>
<th>Power supply</th>
<th>Absorption</th>
<th>Casing</th>
<th>Dimensions</th>
<th>Hole dimension</th>
<th>Weight</th>
<th>Operating temperature</th>
<th>Degree of protection</th>
<th>Certification</th>
<th>Regulations</th>
<th>CONFIGURATION AND PROGRAMMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>128 MB</td>
<td>128 MB</td>
<td>Cortex A8 600MHz</td>
<td>Integrated</td>
<td>24 Vdc</td>
<td>400mA @ 24 Vdc</td>
<td>Plastic</td>
<td>128 x102 x 32 mm</td>
<td>199x93 mm</td>
<td>250 g</td>
<td>-30...+60°C</td>
<td>NEMA4 / IP65</td>
<td>EC</td>
<td>EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22</td>
<td></td>
</tr>
<tr>
<td>128 MB</td>
<td>128 MB</td>
<td>Cortex A8 600MHz</td>
<td>Integrated</td>
<td>24 Vdc</td>
<td>500mA @ 24 Vdc</td>
<td>Plastic</td>
<td>200.3 x 146.3 x 34 mm</td>
<td>199x93 mm</td>
<td>520 g</td>
<td>-30...+60°C</td>
<td>NEMA4 / IP65</td>
<td>EC</td>
<td>EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22</td>
<td></td>
</tr>
<tr>
<td>128 MB</td>
<td>128 MB</td>
<td>Cortex A8 600MHz</td>
<td>Integrated</td>
<td>24 Vdc</td>
<td>300 mA @ 24 Vdc</td>
<td>Plastic</td>
<td>200.3 x 146.3 x 34 mm</td>
<td>199x93 mm</td>
<td>250 g</td>
<td>-30...+60°C</td>
<td>NEMA4 / IP65</td>
<td>EC</td>
<td>EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22</td>
<td></td>
</tr>
<tr>
<td>128 MB</td>
<td>128 MB</td>
<td>Cortex A8 600MHz</td>
<td>Integrated</td>
<td>24 Vdc</td>
<td>300 mA @ 24 Vdc</td>
<td>Plastic</td>
<td>200.3 x 146.3 x 34 mm</td>
<td>199x93 mm</td>
<td>600 g</td>
<td>-30...+60°C</td>
<td>NEMA4 / IP65</td>
<td>EC</td>
<td>EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22</td>
<td></td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
The **VISUAL** terminals are designed to be installed in the harshest environmental conditions thanks to the front panel with IP65/66 protection rating. The **VISUAL** range can be customised through the EASY BUILDER PRO design environment with a powerful editor and a simple and intuitive user interface.

Through Ethernet, USB, RS232, RS485 communication interfaces, with the support of the ModBUS RTU / TCP-IP protocols, the terminals can be combined with the most widely-used industrial controllers and with other supervision and automation systems.

### HMI

<table>
<thead>
<tr>
<th>VISUAL4T</th>
<th>VISUAL5-PC</th>
<th>VISUAL5-WB</th>
<th>VISUAL6</th>
<th>VISUAL7N</th>
</tr>
</thead>
<tbody>
<tr>
<td>7” HMI touchscreen Terminal 16:9, 64k colours, TFT LCD, Ethernet interface, version spare part S6001-PC</td>
<td>7” HMI touchscreen Terminal 16:9, 64k colours, TFT LCD, Ethernet interface, version replica HMI / Web Server, CHROMIUM function</td>
<td>7” HMI touchscreen Terminal 16:9, 64k colours, TFT LCD, Ethernet interface, version replica HMI / Web Server, CHROMIUM function</td>
<td>7” HMI touchscreen Terminal 16:9, 64k colours, TFT LCD, Ethernet interface, version replica HMI / Web Server, CHROMIUM function</td>
<td>7” HMI touchscreen terminal colour widescreen, Ethernet interface</td>
</tr>
</tbody>
</table>

**GENERAL DATA**

- **COM3**
- **COM2**
- **Ethernet 10/100/1000**
- **Ethernet 10/100**
- **USB Host 2.0**
- **USB Host 1.1**
- **USB Client 2.0**

**TECHNICAL DATA**

- **CISPR22 3-2, EN 61000-3-3, AS/NZS**
- **EN 55022, EN 55024, EN 61000-6-1**
- **EN 61000-6-2; EN 61000-6-3; EN 61000-6-4, Immunity**
- **NEMA4 / IP65**
- **EC**
- **500:1**
- **VISUAL4T**
- **VISUAL5-PC**
- **VISUAL5-WB**
- **VISUAL6**
- **VISUAL7N**

**CONNECTIONS**

- **Precision**
- **Touchscreen**
- **Backlight**
- **Contrast**
- **Brightness**
- **Resolution**

**DISPLAY**

- **4.3” TFT LCD**
- **7” TFT LCD**

**Absorption**

- **500:1**

**RAM**

- **128 MB**
- **256 MB**
- **512 MB**
- **GB**

**Flash**

- **512 MB**
- **512 MB**
- **512 MB**
- **GB**

**Operating temperature**

- **0..50 °C**
- **-20..50°C**

**Hole dimension**

- **128 x102 x 32 mm**
- **200,4 x146,5 x 34 mm**
- **128 x102 x 32 mm**
- **200,4 x146,5 x 34 mm**

**Dimensions**

- **192 x 138 mm**
- **256 MB**
- **260 x 202 mm**
- **260 x 202 mm**

**Absorption**

- **500:1**

**Visor**

- **500 cd/m2**
- **500 cd/m2**
- **500 cd/m2**
- **500 cd/m2**

**Absorption**

- **±2%**
- **±2%**
- **±2%**
- **±2%**

**Server**

- **CHROMIUM function**
- **Relative Humidity**
- **71%**
- **71%**
TECHNICAL DATA

DISPLAY

<table>
<thead>
<tr>
<th>Dimension</th>
<th>VISUAL8</th>
<th>VISUAL9</th>
<th>VISUAL10</th>
<th>VISUAL11</th>
<th>VISUAL12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>10.1” TFT LCD</td>
<td>10.1” TFT LCD</td>
<td>9.7” TFT LCD</td>
<td>9.7” TFT LCD</td>
<td>15” TFT LCD</td>
</tr>
<tr>
<td>Format</td>
<td>16:9</td>
<td>16:9</td>
<td>4:3</td>
<td>4:3</td>
<td>4:3</td>
</tr>
<tr>
<td>Brightness</td>
<td>350 cd/m²</td>
<td>350 cd/m²</td>
<td>350 cd/m²</td>
<td>300 cd/m²</td>
<td>4000 cd/m²</td>
</tr>
<tr>
<td>Contrast</td>
<td>500:1</td>
<td>500:1</td>
<td>500:1</td>
<td>700:1</td>
<td>1:1</td>
</tr>
<tr>
<td>Backlight</td>
<td>LED, &gt; 50,000 hours</td>
<td>LED, &gt; 50,000 hours</td>
<td>LED, &gt; 30,000 hours</td>
<td>LED, &gt; 30,000 hours</td>
<td>LED, &gt; 500 hours</td>
</tr>
<tr>
<td>Colours</td>
<td>16.7 million</td>
<td>16.7 million</td>
<td>260k</td>
<td>260k</td>
<td>16.2 million</td>
</tr>
<tr>
<td>Touchscreen</td>
<td>4 wires, resistive</td>
<td>4 wires, resistive</td>
<td>4 wires, resistive</td>
<td>4 wires, resistive</td>
<td>4 wires, resistive</td>
</tr>
<tr>
<td>Precision</td>
<td>±2%</td>
<td>±2%</td>
<td>±2%</td>
<td>±2%</td>
<td>±2%</td>
</tr>
</tbody>
</table>

CONNECTIONS

| USB Client 2.0  | 1                  | 1                  | 1                  | 1                  | 2                  |
| USB Host 1.1    | -                  | -                  | -                  | -                  | -                  |
| USB Host 2.0    | -                  | -                  | -                  | -                  | -                  |
| Ethernet 1/100  | 1                  | 1                  | 1                  | 1                  | 1                  |
| Ethernet 10/100/1000 | -          | -                  | -                  | 2                  | -                  |
| COM1            | RS232              | RS232              | RS232             | RS232 (isolated)   | RS485 (isolated)   |
| COM2            | RS485              | RS485              | RS485             | RS485 (isolated)   | RS485 (isolated)   |

GENERAL DATA

| Flash           | 128 MB             | 128 MB             | 512 MB            | 512 MB            | 256 MB            |
| RAM             | 128 MB             | 128 MB             | 256 MB            | 256 MB            | 256 MB            |
| Processor       | 32 bits RISC Cortex-A8 600MHz | 32 bits RISC Cortex-A8 600MHz | 32 bits RISC Cortex-A8 1GHz | 32 bits RISC Cortex-A8 1GHz | Cortex-A8 32bit RISC 1GHz |
| RTC             | Integrated         | Integrated         | Integrated        | Integrated        | Integrated        |
| Power supply    | 24 Vdc             | 24 Vdc             | 24 Vdc            | 24 Vdc            | 24 Vdc            |
| Absorption      | 650 mA @ 24 Vdc    | 650 mA @ 24 Vdc    | 500 mA @ 24 Vdc   | 500 mA @ 24 Vdc   | 1600 mA @ 24 Vdc  |
| Casing          | Plastic            | Plastic            | Plastic           | Plastic           | Aluminium         |
| Dimensions      | 271 x 213 x 36,4   | 271 x 213 x 36,4   | 200 x 192 mm      | 200 x 192 mm      | 352 x 279 mm      |
| Hole dimension  | 260 x 202 mm       | 260 x 202 mm       | 250 x 192 mm      | 250 x 192 mm      | 352 x 279 mm      |
| Weight          | 1000 g             | 1000 g             | 850 g             | 850 g             | 2750 g            |
| Operating temperature | 0.50°C             | 0.50°C             | 0.50°C            | 0.50°C            | 0.50°C            |
| Degree of protection | NEMA4 / IP65       | NEMA4 / IP65       | NEMA4 / IP65      | NEMA4 / IP65      | NEMA4 / IP65      |
| Certification   | CE/UL              | CE/UL              | CE/UL             | CE/UL             | CE/UL             |
| Regulations     | EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22 | EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22 | EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22 | EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22 | EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22 |

CONFIGURATION AND PROGRAMMING

| Programming tool | EASY BUILDER PRO | EASY BUILDER PRO | EASY BUILDER PRO | EASY BUILDER PRO | EASY BUILDER PRO |
| Remote access    | EASY ACCESS      | EASY ACCESS      | EASY ACCESS      | EASY ACCESS      | EASY ACCESS      |

CAVI

| CS-DR9F-TIP-V     | x                  | x                  | x                  | x                  | x                  |
| CS-DR9IM-TIP-V    | x                  | x                  | x                  | x                  | x                  |
| CE-RJ45-RJ45-R    | x                  | x                  | x                  | x                  | x                  |

The technical data and the diagrams in this document are indicative and not binding.
**EASY BUILDER PRO**

**HMI programming environment**
- Integrated windows development environment, toolbars, dialogs windows, menu bars, drag & drop drawing objects
- Multi-purpose objects for dynamic use to support user screens (graphics, buttons, alarm history, etc.)
- Support for multilingual display
- More than 250 drivers are available to ensure easy connection to PLCs, temperature controllers, bar code readers, etc.

**EASY ACCESS**

**Remote assistance tool**
- Remote assistance system activated on HMI VISUAL with Ethernet port
- Remote access to the operator panel and, in pass-through mode, to PLCs and devices connected to it (in serial or Ethernet mode) without any network configuration
- SSL secured VPN connection for the secure exchange of data and information with minimal bandwidth usage

---

**EXAMPLES OF CONNECTION**

**SERIAL**
- VISUAL1E: Terminal HMI touchscreen 4.3” colour widescreen, Ethernet interface
- VISUAL2E: Terminal HMI touchscreen 7” colour widescreen, Ethernet interface
- VISUAL3: Terminal HMI touchscreen 4.3” colour widescreen, Ethernet interface
- VISUAL4: Terminal HMI touchscreen 7” colour widescreen, Ethernet interface
- VISUAL4T: Terminal HMI touchscreen 7” HD, colour widescreen, Ethernet interface, aluminium casing
- VISUAL5-PC: Terminal HMI touchscreen 7” HD, colour widescreen, Ethernet interface
- VISUAL5-W: Terminal HMI touchscreen 7” HD, colour widescreen, Ethernet interface, version replica HMI / Web Server, CHROMIUM function

**DISTRIBUTED SERIAL NETWORK**
- VISUAL6: Terminal HMI touchscreen 7” colour widescreen, double Ethernet interface
- VISUAL7N: Terminal HMI touchscreen 10.1” colour widescreen, Ethernet interface
- VISUAL8: Terminal HMI touchscreen 10.1” HD, colour widescreen, Ethernet interface
- VISUAL9: Terminal HMI touchscreen 10.1” HD, colour widescreen, Ethernet interface, WiFi
- VISUAL10: Terminal HMI touchscreen 9.7” colour widescreen, Ethernet interface
- VISUAL11: Terminal HMI touchscreen 9.7”, colour widescreen, double Ethernet interface, WiFi
- VISUAL12: Terminal HMI touchscreen 15” colour widescreen, Ethernet interface, aluminium casing

**ETHERNET**
- VISUAL1E: Terminal HMI touchscreen 4.3” colour widescreen, Ethernet interface
- VISUAL2E: Terminal HMI touchscreen 7” colour widescreen, Ethernet interface
- VISUAL3: Terminal HMI touchscreen 4.3” colour widescreen, Ethernet interface
- VISUAL4: Terminal HMI touchscreen 7” colour widescreen, Ethernet interface
- VISUAL4T: Terminal HMI touchscreen 7” HD, colour widescreen, Ethernet interface, aluminium casing
- VISUAL5-PC: Terminal HMI touchscreen 7” HD, colour widescreen, Ethernet interface, version spare part S0001-PC
- VISUAL5-W: Terminal HMI touchscreen 7” HD, colour widescreen, Ethernet interface, version replica HMI / Web Server, CHROMIUM function

**REMOTE CONTROL**
- VISUAL6: Terminal HMI touchscreen 7” colour widescreen, double Ethernet interface
- VISUAL7N: Terminal HMI touchscreen 10.1” colour widescreen, Ethernet interface
- VISUAL8: Terminal HMI touchscreen 10.1” HD, colour widescreen, Ethernet interface
- VISUAL9: Terminal HMI touchscreen 10.1” HD, colour widescreen, Ethernet interface, WiFi
- VISUAL10: Terminal HMI touchscreen 9.7” colour widescreen, Ethernet interface
- VISUAL11: Terminal HMI touchscreen 9.7”, colour widescreen, double Ethernet interface, WiFi
- VISUAL12: Terminal HMI touchscreen 15” colour widescreen, Ethernet interface, aluminium casing

**DATA ARCHIVING**
- VISUAL6: Terminal HMI touchscreen 7” colour widescreen, double Ethernet interface
- VISUAL7N: Terminal HMI touchscreen 10.1” colour widescreen, Ethernet interface
- VISUAL8: Terminal HMI touchscreen 10.1” HD, colour widescreen, Ethernet interface
- VISUAL9: Terminal HMI touchscreen 10.1” HD, colour widescreen, Ethernet interface, WiFi
- VISUAL10: Terminal HMI touchscreen 9.7” colour widescreen, Ethernet interface
- VISUAL11: Terminal HMI touchscreen 9.7”, colour widescreen, double Ethernet interface, WiFi
- VISUAL12: Terminal HMI touchscreen 15” colour widescreen, Ethernet interface, aluminium casing

**ACCESSORIES and SOFTWARE**
- CS-RJ45-RJ45-R: Straight Ethernet cable (RJ45 / RJ45)
- CS-DB9F-TIP-V: Serial cable RS485 (DB9F / tips)
- CS-DB9M-TIP-V: Serial cable RS485 (DB9M / tips)
- EB PRO: Programming environment
- EASY ACCESS: Remote assistance tool

---

The technical data and the diagrams in this document are indicative and not binding.
## TECHNICAL DATA

### GENERAL DATA
- **Power supply**: 10-40 Vdc / 19-28 Vac
- **Max absorption**: 1 W
- **Insulation**: 1,500 Vac
- **Interface comunicazione**: 2 x RS485 ModBUS RTU Master / Slave Speed 1,200, 115,200 bps
- **Memories**: RAM: 256 byte XRAM: 64/b Flash: 32 kB

### DISPLAY AND MEASUREMENT
- **Display**: OLED 2,7", 128 x 64 pixel
- **Front keys**: 3 navigation keys
- **Display**: Up to 20 measurements (max 3 per page) freely programmable
- **Serial communication**: Address, parity, baud rate, delayed response, transmission delay, receipt timeout
- **Data archiving**: RAM, tabella 20x4 byte

### THERMO-MECHANICAL DATA
- **Operating temperature**: -10..+60°C
- **Front protection**: IP65
- **Dimensions (w x h x d)**: 96x48x40 mm

### SETTINGS, REGULATIONS
- **Software**: Max 20 freely selectable interrogations, data management (EASY S401)
- **Settings**: Communication parameters, language, contrast, brightness, scale, measurement unit offset

### ORDER CODE
- **Code**: Description
  - S401-L: Indicator with OLED display and ModBUS interface

## APPLICATION EXAMPLES

### SERIAL CONNECTION

![Serial connection diagram](image1)

### PLC LOCAL CONTROL

![Plc local control diagram](image2)

### SIGNAL RETRANSMISSION

![Signal retransmission diagram](image3)

### TEMPERATURE ACQUISITION

![Temperature acquisition diagram](image4)

The technical data and the diagrams in this document are indicative and not binding.
The SENECA software suite includes powerful system configurators, programming environments complete with libraries, acquisition tools, access and management of data, events and alarms. Z-NET-4, designed for the configuration of CPUs / controllers, I / O modules and ModBUS device also allows management and creation of the database of machine / system variables (IEC 61131, OPC, trend, log). Alternatively, the EASY SETUP plug & play software is also available for rapid configuration of the I / O modules, in the Android app version. The programming strategy of SENECA controllers is based on the industrial standard for PLCs IEC 61131, in particular on the Straton softPLC development environment which includes libraries and protocols for energy management. Integrated within the Z-NET4 platform, Web Factory allows development of the html / web supervision pages loaded in the CPUs, starting from the general project. Data Recorder and Trend Viewer are flexible tools for data acquisition, trend display, events, variables, alarms as well as management of logs and archives. With the OPC Server technology, it is possible to exchange real-time data with Scada and other client applications.

**EASY SETUP**
Plug & play configuration suite for SENECA programmable instruments

**Z-NET4**
Complete configuration environment for Z-PC Series system

**WEB FACTORY**
Integrated HMI/Web editor in Z-NET4

**DATA RECORDER**
DAQ Software (Data Acquisition) integrated in Z-NET4

**TREND VIEWER**
Display software trend integrated in Z-NET4

**STRATON**
Programming environment IEC 61131-3

**OPC SERVER**
Data exchange software and real-time variables management

<table>
<thead>
<tr>
<th>Feature</th>
<th>EASY SETUP</th>
<th>Z-NET4</th>
<th>WEB FACTORY</th>
<th>DATA RECORDER</th>
<th>TREND VIEWER</th>
<th>STRATON</th>
<th>OPC Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licence</td>
<td>free</td>
<td>free</td>
<td>free</td>
<td>USB key</td>
<td>free</td>
<td>USB key</td>
<td>USB key</td>
</tr>
<tr>
<td>Hardware configuration and I/O</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>System complete configuration</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication setting</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variables advanced setting</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alarms management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control logics</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote control functions</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics functions</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log / events archive</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostics</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Acquisition</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Real-time variables acquisition / simulations</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Data display (graphics / trends)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Data Import / Export</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Variables configuration Import / Export</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
**SOFTWARE**

<table>
<thead>
<tr>
<th>ORDER CODE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CODESYS</td>
<td>CODESYS IEC 61131 v2.3 platform for Z-TWS3 programming</td>
</tr>
<tr>
<td>CODESYS-SP</td>
<td>CODESYS SENECA PACKAGE (CODESYS 2.3.9.22, JMobile 2.0.0.324, Windows CE Remote Host 3.00, Z-NET4 1.31, OPC Server 0 2.07, CODESYS Seneca Library 1.1.0 and 2.0.0)</td>
</tr>
</tbody>
</table>

**DATA RECORDER**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR-02</td>
<td>2-channel Data Recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)</td>
</tr>
<tr>
<td>DR-04</td>
<td>4-channel Data Recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)</td>
</tr>
<tr>
<td>DR-08</td>
<td>8-channel Data Recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)</td>
</tr>
<tr>
<td>DR-16</td>
<td>16-channel Data Recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)</td>
</tr>
<tr>
<td>DR-32</td>
<td>32-channel Data Recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)</td>
</tr>
<tr>
<td>DR-64</td>
<td>64-channel Data Recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)</td>
</tr>
<tr>
<td>DR-UN</td>
<td>Unlimited data recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)</td>
</tr>
<tr>
<td>DR-02-PLUS</td>
<td>Data Recorder 2 channels + packet plus multi-client</td>
</tr>
<tr>
<td>DR-04-PLUS</td>
<td>Data Recorder 4 channels + packet plus multi-client</td>
</tr>
<tr>
<td>DR-08-PLUS</td>
<td>Data Recorder 8 channels + packet plus multi-client</td>
</tr>
<tr>
<td>DR-16-PLUS</td>
<td>Data Recorder 16 channels + packet plus multi-client</td>
</tr>
<tr>
<td>DR-32-PLUS</td>
<td>Data Recorder 32 channels + packet plus multi-client</td>
</tr>
<tr>
<td>DR-64-PLUS</td>
<td>Data Recorder 64 channels + packet plus multi-client</td>
</tr>
<tr>
<td>DR-UN-PLUS</td>
<td>Data Recorder unlimited channels + packet plus multi-client</td>
</tr>
<tr>
<td>DR-UPGRADE</td>
<td>Data Recorder licence upgrade service</td>
</tr>
</tbody>
</table>

**Driver, Kit, Libraries**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-USB</td>
<td>Driver USB (S107USB, K107USB, EASY USB, S117P1)</td>
</tr>
<tr>
<td>EDS</td>
<td>EDS file collection for CANopen I/O modules</td>
</tr>
<tr>
<td>KIT-USB</td>
<td>Programming kit for instruments with USB interface</td>
</tr>
<tr>
<td>LS-C</td>
<td>Libraries SENECA - CoDeSys</td>
</tr>
<tr>
<td>LS-I</td>
<td>Libraries SENECA - Isagraf</td>
</tr>
<tr>
<td>LS-S</td>
<td>Libraries SENECA - Straton</td>
</tr>
<tr>
<td>LS-VI</td>
<td>Libraries SENECA - LabVIEW Driver VI</td>
</tr>
</tbody>
</table>

**EASY**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASY FLOW COMPUTER</td>
<td>Z-FLOWCOMPUTER management software</td>
</tr>
<tr>
<td>EASY LP</td>
<td>Plug&amp;play collection configuration instruments loop powered (K120RTD, K121, T120, T121)</td>
</tr>
<tr>
<td>EASY SETUP</td>
<td>Plug&amp;play configurator suite for SENECA programmable instruments</td>
</tr>
</tbody>
</table>

**OPC**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPC-DA-SERVER</td>
<td>Communication and data exchange software OPC Server WITH unlimited I/O tags (hardware licence)</td>
</tr>
<tr>
<td>OPC-UA-SERVER</td>
<td>Communication and data exchange software OPC Server UA I/O unlimited tags (hardware licence)</td>
</tr>
</tbody>
</table>

**SEAL**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEAL</td>
<td>SENECA Advanced language, MYALARM2, Z-LOGGER3, Z-GPRS3, Z-UMTS advanced programmable graphics software</td>
</tr>
</tbody>
</table>

**STRATON**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRATON-USB</td>
<td>Straton activation key for IEC 61131 controllers</td>
</tr>
<tr>
<td>STRATON-IDE256</td>
<td>Straton development environment 256 tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-IDE512</td>
<td>Straton development environment 512 tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-IDEUN</td>
<td>Straton development environment unlimited tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-870S</td>
<td>Activation licence IEC 60870-5-101/104 Slave</td>
</tr>
<tr>
<td>STRATON-870S-850</td>
<td>Activation licence IEC 60870-5-101/104 Slave + Licence IEC 61850 Client / Server</td>
</tr>
<tr>
<td>SSP</td>
<td>SENECA Straton Package - CPU Seneca Installer suite (supplied)</td>
</tr>
<tr>
<td>STRATON-UPGRADE1</td>
<td>STRATON UPGRADE from 256 to 512 tags</td>
</tr>
<tr>
<td>STRATON-UPGRADE2</td>
<td>STRATON UPGRADE from 512 to unlimited tags</td>
</tr>
<tr>
<td>STRATON-UPGRADE3</td>
<td>STRATON UPGRADE from 256 to unlimited tags</td>
</tr>
<tr>
<td>STRATON-WB</td>
<td>Straton workbench IEC 61131 free editor (supplied)</td>
</tr>
</tbody>
</table>

**Z-NET**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-NET3</td>
<td>Z-TWS3 systems configuration software, standard configurator, including Web Editor development environment, Trend Viewer, Data Recorder</td>
</tr>
<tr>
<td>Z-NET4</td>
<td>Z-PC Series I/O Systems and Controller Configurator, including Web Editor development environment, Trend Viewer, Data Recorder</td>
</tr>
</tbody>
</table>
**DATA RECORDER**

Data Recorder is an open, scalable and cost-effective software recorder on a Windows PC basis, ideal for testing sessions, laboratories, test rooms, process measurement monitoring. The physical data acquisition takes place via Z-PC Series distributed I/O modules (with or without CPU), and in general with any standard ModBUS RTU slave device. The communication between hardware and PC can be serial (RS232/RS485/ModBUS RTU) or Ethernet / ModBUS TCP on a wired or wireless physical medium. Licensing is managed with a USB key and covers a display range of 2 to unlimited channels, whether analog, digital, impulsive or calculated. The normalised graphical representation can be set to nibs or to display (digit). The realtime display offers multiple selection possibilities: channel groups, representation interval, screen scroll direction. Consultation of the historical archive (data and alarms) with a dedicated display tool is also guaranteed. An optional Plus package is included which includes: alarm management (with implementation of digital outputs), report management (with trigger events) and mathematical package with algebraic, linear, trigonometric, boolean (digital channels) functions, average calculation, compensation and deviations on the measurements.

**MINIMUM HARDWARE REQUIREMENTS**

- O.S. Windows 8 or subsequent
- RAM 128 MB
- HD 3G
- SVGA 800x600

**DATA ACQUISITION AND MEASUREMENTS VIA SENECA Z-PC SERIES REMOTE I/O SYSTEM**

- Windows & OPC tested
- Portable measuring kits ready for use

**HIGHLIGHTS**

- 2 a software licences
- Unlimited channels
- Real-time data recording in nib or display mode
- Data archiving in csv format and display through the Trend Viewer software tool
- Data integration and project development through the environment of Z-NET configuration
- PLUS package multi-client
- Scheduling of recordings
- Support connections serial, Ethernet and wireless
- Advanced calibration for temperature sensors

**APPLICATION DIAGRAMS**

- Parameter monitoring of water quality
- Testing, inspections and acquisition data for electric motors
- Monitoring of temperature and humidity
- Monitoring of climatic chambers
SOFTWAre

1. **Z-NET4 - SYSTEM CONFIGURATION**

- General hardware and project configuration
- Configuration of communication parameters
- Channel configuration (I/O, variables, tags, name, description, start/full scale)
- Mathematical functions
- Alarm setting
- Online test configuration

2. **DATA RECORDER**

- Data acquisition from 2 to unlimited channels (minimum 1 second sampling period)
- Display pages setting
- Visualisation in nib or display mode
- Start / stop / pause recording commands
- Selection of scroll, range, channel groups
- Display of real-time measurement values
- Automatic report generation
- Scheduling of recordings
- Alarm display
- Thermocouple calibration
- Independent multi-user recording sessions

3. **TREND VIEWER**

- Trend display
- Independent display for groups of different signals
- Events/alarms log
- Archiving and access to historical data
- Statistical processing
- Printing and data conversion in csv and Excel-compatible formats
- SQLite database management

**ORDER CODE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR-02</td>
<td>Data Recorder 2 channels, data acquisition and display software for Modbus devices</td>
</tr>
<tr>
<td>DR-04</td>
<td>Data Recorder 4 channels, data acquisition and display software for Modbus devices</td>
</tr>
<tr>
<td>DR-08</td>
<td>Data Recorder 8 channels, data acquisition and display software for Modbus devices</td>
</tr>
<tr>
<td>DR-16</td>
<td>Data Recorder 16 channels, data acquisition and display software for Modbus devices</td>
</tr>
<tr>
<td>DR-32</td>
<td>Data Recorder 32 channels, data acquisition and display software for Modbus devices</td>
</tr>
<tr>
<td>DR-UN</td>
<td>Unlimited data recorder channels, data acquisition and display software for Modbus device</td>
</tr>
</tbody>
</table>

**ORDER CODE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR-02-PLUS</td>
<td>Data Recorder 2 channels + multi-client packet</td>
</tr>
<tr>
<td>DR-04-PLUS</td>
<td>Data Recorder 4 channels + multi-client packet</td>
</tr>
<tr>
<td>DR-08-PLUS</td>
<td>Data Recorder 8 channels + multi-client packet</td>
</tr>
<tr>
<td>DR-16-PLUS</td>
<td>Data Recorder 16 channels + multi-client packet</td>
</tr>
<tr>
<td>DR-32-PLUS</td>
<td>Data Recorder 32 channels + multi-client packet</td>
</tr>
<tr>
<td>DR-64-PLUS</td>
<td>Data Recorder 64 channels + multi-client packet</td>
</tr>
<tr>
<td>DR-UN-PLUS</td>
<td>Data Recorder unlimited channels + packet multi-client</td>
</tr>
</tbody>
</table>
**ACCESSORIES**

### MSD
**MICROSD CARD WITH SD ADAPTER**

- **Work Voltage**: 2.7 – 3.6V
- **Operating Temperature**: -25 – 85°C
- **SD Compatibility**: SD card spec. v1.1, MultiMediaCard upward compatibility, SD Association File System Specification
- **Mechanical Protection**: Switch with microSD adapter
- **Form Factor**: 11x15x1 mm

### SG-EQ4
**EQUALISATION AND CONNECTION SYSTEM FOR LOAD CELLS**

- **4-wire / 6-wire load cells**
- **Trimmer setting for 4-wire load cells**
- **Internal jumpers**
- **Compatible Modules**: Z-SG, ZC-SG

### Z-POWER
**19 VAC VOLTAGE TRANSFORMERS FOR ASSEMBLY ON DIN GUIDE**

- **Primary Voltage**: 230 (115) Vac ± 10%
- **Casing**: Self-extinguishing thermoplastic material (class V-0)
- **Protection**: With thermal fuse
- **Dimensions**: 3 DIN modules (version 15 VA), 5 DIN modules (25 VA)
- **Protection Degree**: IP 40
- **Compatible Modules I/O and CPU**

### Z-SUPPLY
**SWITCHING POWER UNIT SINGLE PHASE 24V @ 1.5 A**

- **Input**: 110...230 Vac @ 47-63 Hz 0,7 A; 110...315 Vdc, 0.7 A
- **Output**: 24 Vdc ± 2%
- **Redundancy**: In parallel of two Z-SUPPLY modules (from IDC10 connector only)
- **Output Current**: 1.5 A
- **Output Control**: “Power Good” output relay
- **Internal Fuse**: 1.25A T-type (delayed)
- **Assembly**: On DIN guide 46277
- **Insulation**: Up to 3KV in output and output voltage
- **Compatible Modules I/O and CPU**

### Z-PC DIN
**BUS SUPPORT FROM RAPID ASSEMBLY FOR DIN GUIDE**

- **Assembly**: On guide 35 mm (DIN 46277)
- **Hot Swapping**: Yes
- **Material**: 30% glass fibre loaded PA6 Nylon
- **Terminal**: Power supply / Data
- **Compatible Modules I/O and CPU**

### S20ADP-CM-S
**INPUT ADAPTER CARD FOR SINUSOIDAL SENSORS**

- **Version**: DIN module
- **Power Supply**: Self-powered by the output circuit (square wave NPN)
- **Inputs**: Photoelectric sensor, AICHI turbine
- **Compatible Modules**: K111, K112, S111, S112A/D/M, S20N, S21, S30, S311D, Z-10-D-IN – Z111, ZC-1601-800, ZC-240I, Z-D-IN, Z-D-10

### Z-8R-10A
**8- RELAY BOARD, CAPACITY 250 VAC - 10 A**

- **Power Supply**: 24 Vdc
- **Connectors**: IDC 10, 16 (2), 20-pins for flat cable; extractable terminals 3.5 mm pitch
- **Relay Capacity**: 250 Vac, 10 A
- **Channels**: 8
- **Dimensions**: (lshpg): 160 mm x 80 mm x 46 mm
- **Compatible Modules**: ZC-240D, ZC-16DI800, Z-10-D-OUT

### CABLES
**SERIAL COMMUNICATION CABLES ETHERNET, USB**

- **Order Codes**: P.58

---

**Order codes**: P.58
## ACCESSORIES

### Z-PC-DIN – COMMUNICATION BUS REAR SUPPORT / POWER SUPPLY FOR Z-PC SERIES MODULES

<table>
<thead>
<tr>
<th>Category</th>
<th>Code</th>
<th>Width</th>
<th>Z-PC DINAL2 17.5</th>
<th>Z-PC DINAL3 35</th>
<th>Z-PC DINAL3 02.5</th>
<th>Obligatory for Z-PC Series</th>
<th>Connection mode</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Digital I/O Modules</strong></td>
<td><strong>ModBus</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-D-IN</td>
<td>17.5 mm</td>
<td>x</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Z-10-D-IN</td>
<td>17.5 mm</td>
<td>x</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Z-10-D-OUT</td>
<td>17.5 mm</td>
<td>x</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Z-4T</td>
<td>17.5 mm</td>
<td>x</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Z-8TC</td>
<td>17.5 mm</td>
<td>x</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Z-50I-200</td>
<td>17.5 mm</td>
<td>x</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Z-SG</td>
<td>17.5 mm</td>
<td>x</td>
<td>Yes, only for RS485 ModBus communication</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td><strong>Digital I/O Modules</strong></td>
<td><strong>ModBus/CAOpen</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Modbus Analog I/O modules</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-25DI</td>
<td>17.5 mm</td>
<td>x</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Z-4DI-2AI-200</td>
<td>35 mm</td>
<td>x</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Z-4DI-2AI-200</td>
<td>35 mm</td>
<td>x</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td><strong>CANopen analog I/O Modules</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-CSI-35</td>
<td>17.5 mm</td>
<td>x</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Z-CSI-35</td>
<td>17.5 mm</td>
<td>x</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Z-8TC</td>
<td>17.5 mm</td>
<td>x</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Z-SG</td>
<td>17.5 mm</td>
<td>x</td>
<td>Yes, only for RS485 ModBus communication</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td><strong>CANopen Analog I/O modules</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Controllers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-TWS4</td>
<td>35 mm</td>
<td>x</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Z-TWS1</td>
<td>17.5 mm</td>
<td>x</td>
<td>Yes, with 2 serial ports enabled</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Z-PASS2/S</td>
<td>52.5 mm</td>
<td>x</td>
<td>Yes, with 2 serial ports enabled</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Z-MINI1/RU</td>
<td>35 mm</td>
<td>x</td>
<td>Yes, with 2 serial ports enabled</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Z-FLOWCOMPUTER</td>
<td>52.5 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DataLogger</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-UNIT</td>
<td>35 mm</td>
<td>x</td>
<td>Yes, with 2 serial ports enabled</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Z-GPRS3</td>
<td>35 mm</td>
<td>x</td>
<td>Yes, with 2 serial ports enabled</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Z-LOGGER3</td>
<td>35 mm</td>
<td>x</td>
<td>Yes, with 2 serial ports enabled</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td><strong>Networking</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-Key</td>
<td>17.5 mm</td>
<td>x</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Z-PASS2</td>
<td>52.5 mm</td>
<td>x</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>Z-MODEM</td>
<td>35 mm</td>
<td>x</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Z-MODEM-3G</td>
<td>17.5 mm</td>
<td>x</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>E</td>
<td>E</td>
</tr>
</tbody>
</table>

### CONNECTION MODE

#### A BUS (RS485): TERMINALS OR IDC10
- **Power supply:** TERMINALS OR IDC10 (i.e. Z-4AI)
  - Power supply: TERMINALS OR IDC10 (i.e. Z-4AI)
- **Bus (RS485)**
  - Power supply: TERMINALS OR IDC10 (i.e. Z-4AI)
- **Bus (RS485)**
  - Power supply: TERMINALS OR IDC10 (i.e. Z-4AI)

#### B BUS (RS485): ONLY IDC10
- **Power supply:** Terminals or IDC10 (i.e. Z-203-1)
  - Power supply: Terminals or IDC10 (i.e. Z-203-1)
- **Bus (RS485)**
  - Power supply: Terminals or IDC10 (i.e. Z-203-1)

#### C BUS (RS485): ONLY IDC10
- **Power supply:** IDC10 (i.e. Z-8TC)
  - Power supply: IDC10 (i.e. Z-8TC)
- **Bus (RS485)**
  - Power supply: IDC10 (i.e. Z-8TC)

#### D BUS (RS485): IDC10 ONLY WITH NO. 2 SERIAL PORTS ENABLED
- **Power supply:** Terminals or IDC10 (i.e. Z-KEY)
  - Power supply: Terminals or IDC10 (i.e. Z-KEY)
- **Bus (RS485)**
  - Power supply: Terminals or IDC10 (i.e. Z-KEY)
- **Bus (RS485)**
  - Power supply: Terminals or IDC10 (i.e. Z-KEY)

#### E BUS (RS485): IDC10 ALTERNATIVE TO 1 OF THE 3 SERIAL PORTS ENABLED
- **Power supply:** Terminals or IDC10 (i.e. Z-PASS2)
  - Power supply: Terminals or IDC10 (i.e. Z-PASS2)
- **Bus (RS485)**
  - Power supply: Terminals or IDC10 (i.e. Z-PASS2)
### ACCESSORIES

#### MODELS Z-PC-DIN

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>SLOT</th>
<th>STEP</th>
<th>TERMINAL POWER SUPPLY / BUS</th>
<th>HOT SWAPPING</th>
<th>DIN GUIDE ASSEMBLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-PC-DINAL1-35 DIN guide rapid assembly support</td>
<td>1</td>
<td>35 mm</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>head + 1 slot P=35 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-PC-DINAL2-17.5 DIN guide rapid assembly support</td>
<td>2</td>
<td>17.5 mm</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>head + 2 slot P=17.5 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-PC-DINAL2-52.5 DIN guide rapid assembly support</td>
<td>2</td>
<td>52.5 mm</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>head + 2 slot P=52.5 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-PC-DIN1-35 DIN guide rapid assembly support</td>
<td>1</td>
<td>35 mm</td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>1 slot P=35 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-PC-DIN2-17.5 DIN guide rapid assembly support</td>
<td>2</td>
<td>17.5 mm</td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>1 slot P=17.5 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-PC-DIN4-35 DIN guide rapid assembly support</td>
<td>4</td>
<td>35 mm</td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>4 slot P=35 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-PC-DIN8-17.5 DIN guide rapid assembly support</td>
<td>8</td>
<td>17.5 mm</td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>8 slot P=17.5 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EXAMPLE OF CONNECTION FOR MODULES DIN 17.5 mm**

![Example of Connection for Modules DIN 17.5 mm](image)

**EXAMPLE OF CONNECTION FOR MODULES DIN 35 mm**

![Example of Connection for Modules DIN 35 mm](image)
## ORDER CODES

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CABLES</strong></td>
<td></td>
</tr>
<tr>
<td>CE-RJ45-RJ45-C</td>
<td>Crossed Ethernet cable (RJ45 / RJ45) 1.5 MT</td>
</tr>
<tr>
<td>CE-RJ45-RJ45-R</td>
<td>Straight Ethernet cable (RJ45 / RJ45) 1.5</td>
</tr>
<tr>
<td>CS-D9F-CVF10</td>
<td>RS232 connection cable (D9F-CVF10) for M-RTU</td>
</tr>
<tr>
<td>CS-D9F-D9F-M</td>
<td>RS485 serial cable (D9F / terminals) 1.5 MT for HMI VISUAL and Z-FLOWCOMPUTER</td>
</tr>
<tr>
<td>CS-D9F-D9F</td>
<td>RS232 serial cable (D9F / D9F)</td>
</tr>
<tr>
<td>CS-D9F-TIP</td>
<td>K107B RS232 communication cable (D9F - tps)</td>
</tr>
<tr>
<td>CS-D9F-TIP-V</td>
<td>RS485 serial cable (D9F / leads) 1.5 MT for HMI VISUAL1/2/3</td>
</tr>
<tr>
<td>CS-D9M-D9F</td>
<td>RS232 straight serial cable for programming (D9M / D9F)</td>
</tr>
<tr>
<td>CS-D9M-D9M</td>
<td>RS232 serial cable (D9M / D9M)</td>
</tr>
<tr>
<td>CS-D9M-MEF-1012</td>
<td>Serial communication cable Z-KEY (D9M / MEF 10-12) 1.5 MT</td>
</tr>
<tr>
<td>CS-D9M-MEF-PH</td>
<td>Serial communication cable (D9M / MEF PH) 3 wires 1.5 MT</td>
</tr>
<tr>
<td>CS-D9M-MICROB</td>
<td>Serial communication cable (D9M / Micro USB) for Z-TWS5</td>
</tr>
<tr>
<td>CS-D9M-TIP</td>
<td>Serial cable RS485 for radiomodem (D9M / Tips)</td>
</tr>
<tr>
<td>CS-D9M-TIP-V</td>
<td>Serial cable RS485 (D9M / tps) for HMI VISUAL4</td>
</tr>
<tr>
<td>CS-RJ10-D25M-M</td>
<td>Modern communication cable (U10 / D25M )</td>
</tr>
<tr>
<td>CS-RJ10-D25M-2</td>
<td>Modern and HMI communication cable (U10 / D25M )</td>
</tr>
<tr>
<td>CS-RJ10-D89F</td>
<td>Serial cable RS232 serial cable (U10 / D89F)</td>
</tr>
<tr>
<td>CS-RJ10-D9M</td>
<td>Modern serial cable (U10 / D9M)</td>
</tr>
<tr>
<td>CS-RJ10-TIP</td>
<td>Serial communication cable (U10/ 4 Tips) 1.5 m</td>
</tr>
<tr>
<td>CS-TIP-MEF-PH</td>
<td>Serial communication cable (Tips / 4-way female connector) for Z-TWS5, Z-PASS1/2</td>
</tr>
<tr>
<td>CS-TIP-MICROB</td>
<td>Serial communication cable (Tips / Micro USB) - Z-TWS5</td>
</tr>
<tr>
<td>CS-TPW-TIP</td>
<td>Serial cable RS485 Tp-wire (Tp-wire / Tips)</td>
</tr>
<tr>
<td>CS-TPW-TPW</td>
<td>Cable Tp-Wire (Tp-wire / Tp-wire)</td>
</tr>
<tr>
<td>CU-A-MICROB</td>
<td>Cable plug USB-A Micro USB-B 5 P (KIT-USB, MY2, Z109REGBP)</td>
</tr>
<tr>
<td>CU-A-MICRO-OTG</td>
<td>Adapter cable Micro USB OTG – USB Female A type</td>
</tr>
<tr>
<td><strong>MEMORIES</strong></td>
<td></td>
</tr>
<tr>
<td>MSD</td>
<td>Micro SD memory card with adapter</td>
</tr>
<tr>
<td><strong>ADAPTERS</strong></td>
<td></td>
</tr>
<tr>
<td>FD01</td>
<td>PULSECAP, photodetector for counting pulses from electronic meter, max freq 10 Hz</td>
</tr>
<tr>
<td>S20ADP-CM-S</td>
<td>Sinusoidal pulse adapter card in NPN square wave</td>
</tr>
<tr>
<td>SG-EQ4</td>
<td>Equalisation card with up to 4 load cells</td>
</tr>
<tr>
<td>SG-EQ4-BOPG7</td>
<td>Card + equalisation box with up to 4 load cells</td>
</tr>
<tr>
<td>Z-8R-10A</td>
<td>Interface board 8 relays 24 Vdc, capacity 250 Vac - 10 A (accessory Z-10-D-OUT)</td>
</tr>
<tr>
<td><strong>BUS SYSTEM</strong></td>
<td></td>
</tr>
<tr>
<td>Z-PC-DIN1-35</td>
<td>Support for rapid assembly on DIN guide 1 slot pitch 35 mm</td>
</tr>
<tr>
<td>Z-PC-DIN2-17.5</td>
<td>Support for rapid assembly on DIN guide 2 slot pitch 17.5 mm</td>
</tr>
<tr>
<td>Z-PC-DIN4-35</td>
<td>Support for rapid assembly on DIN guide 4 slot pitch 35 mm</td>
</tr>
<tr>
<td>Z-PC-DIN8-17.5</td>
<td>Support for rapid assembly on DIN guide 8 slot pitch 17.5 mm</td>
</tr>
<tr>
<td>Z-PC-DINAL1-35</td>
<td>Support for rapid assembly on DIN guide head + 1 slot pitch 35 mm</td>
</tr>
<tr>
<td>Z-PC-DINAL2-17.5</td>
<td>Support for rapid assembly on DIN guide head + 2 slot pitch 17.5 mm</td>
</tr>
<tr>
<td>Z-PC-DINAL2-52.5</td>
<td>Support for rapid assembly on DIN guide head + 3 slot pitch 17.5 mm</td>
</tr>
<tr>
<td><strong>POWER SUPPLY UNITS</strong></td>
<td></td>
</tr>
<tr>
<td>Z-POWER-115-15VA</td>
<td>Transformer with DIN guide 19 Vac, 115 / 15 VA with thermofuse</td>
</tr>
<tr>
<td>Z-POWER-230-15VA</td>
<td>Transformer with DIN guide 19 Vac, 230 / 15 VA with thermofuse</td>
</tr>
<tr>
<td>Z-POWER-230-25VA</td>
<td>Transformer with DIN guide 19 Vac, 230 / 25 VA with thermofuse</td>
</tr>
<tr>
<td>Z-SUPPLY</td>
<td>Power supply switching monophase 24V @ 1.5 A</td>
</tr>
</tbody>
</table>
The Industrial Communication and Remote Control line includes industrial modems and gateways, VPN routers, UHF / VHF radio devices, serial and fibre optic communication interfaces, remote control units, remote alarms and remote assistance. The Seneca industrial communication products support the main http, ftp, SMTP, TCP-IP network protocols, as well as the 3G+ and web server technologies. The SENECA communication devices allow extension of the networks to be increased and allow the passage of process data between different levels of the IT and industrial communication architecture. SENECA solutions for networking and remote control ensure openness, scalability and maximum connectivity in the transmission of data to and from supervisory centres.
REMOTE ALARM AND DATALOGGER UNITS
REMOTE ALARM AND DATALOGGER UNITS

The SENECA remote alarm and datalogging devices are designed to remotely control, monitor and implement small automations for homes, buildings, systems and production machines through simple commands sent with SMS messages. With any mobile phone or smartphone, it is possible to control the switching on and off of a technical system, to activate a contact and to receive an anomaly or an alarm. These professional and universal devices are easily programmable and are based on a GSM/GPRS module that acts as a telephone communicator capable of intelligently managing calls, commands, directories and data archiving.

HIGHLIGHTS

- **Instant Alarm Messaging**
- **Multilingual Support Unicode**
- **Integrated Modem and I/O**
- **SMS Commands / Zero Cost Call**
- **List of Up to 250 Users Per Application**
- **Rechargeable Li-ion Battery**
- **Compatible with All Types of Standard Voice/Data SIMs**
- **E-Timer Counter Management**
- **Data Archiving and Display**
- **Integrated Temperature Sensor**
- **E-Mail Management**
- **Pre-Set Scenarios**
- **DTMF Commands, Voice Alarms (10 Hourly Programs, 83 Alarm Sources)**
- **Digital Outputs Option**
- **Casing Option IP66**
- **SD Micro Supplied (MY2S Model)**

PROGRAMMING TOOL

- **Easy MyAlarm2 / Easy Setup (Base Configuration)**
  - I/O management, acquisition time, log (MYALARM2 only), commands, alarms, SIM, GSM communication, audio files (MYALARM2 only), administration functions (password, credit, message redirection, etc.)
- **Easy MyAlarm2 (With Scenarios)**
  - Custom pre-programmed applications: advanced automation, datalogger, solar panel control, automatic gate control, hour meter, power blackout control, alarm control on analog / digital inputs, water / gas leakage control, swimming pool control, timer automation, boiler control
- **Log Factory**
  - History file display and archiving
- **SENECA SMS**
  - Android / iOS APP for the sending and customisation of SMS controls
- **SENECA Temp**
  - Android APP for thermostat temperature and function management
REMOTE ALARM AND DATALOGGER UNITS

USE SCENARIOS

DOMOTICS
- AUTOMATIC BARRIER CONTROL (GATES, DOORS, GARAGE, BARRIERS, ETC.)
- CONTROL OF BOILERS AND HVAC SYSTEMS
- ALARMS MANAGEMENT MAINS WATER NETWORK
- REMOTE CONTROL SYSTEMS TECHNOLOGICAL SYSTEMS

ANTI-INTRUSION SYSTEMS

ANTI-FLOOD SYSTEMS

WATER CONSUMPTION AND LOSS

COLD CELLS

SYSTEM MONITORING

AUTOMATIC IRRIGATION SYSTEMS

PUMP ROTATION

EMBARKATIONS CONTROL

SWIMMING POOL

AUTOMATIONS

NETWORK VOLTAGE CONTROL AND BLACKOUT ALARMS MANAGEMENT

SOLAR PANELS AND ENERGY CONSUMPTION CONTROL

CONTROL OF THE CONTINUITY OF FIBRE OPTIC

MONITORING OF ACCESSES AND PRESENCE

REMOTE ALARMS

COLD CELLS

DOMOTICS

AUTOMATIONS

ENERGY MANAGEMENT

REMOTE ALARMS
REMOTE ALARM AND DATALOGGER UNITS

B-ALARM

1DI / 1DO remote alarm unit with basic functions

GSM / GPRS datalogger with remote alarm functions, remote measurement and remote management

GENERAL DATA
Power supply 10...28 Vdc 6...15 Vdc
Absorption Typical 1.2 W, maximum 3.5 W IP20
Degree of protection IP20
Recchargeable spare battery NiMh, 700 mAh, autonomy up to 60 min Li-O2 (1,000 mAh), autonomy from 8 to 16 h
Status reports Power supply - GSM network coverage - Input / Output status Power supply - GSM network coverage - Device status
Operating temperature -10...+55°C -10...+55°C (with battery not being recharged); 0...+45°C (during recharge)
Integrated NTC sensor No Yes
Connections Detachable screw terminals, 3.5 mm step PUSH-PUSH type SIM-CARD connector Yes
SD supplied Yes No
SD support Yes No
Display No Yes
Graphic LCD 32x128 pixels - Display scroll button - Area visible 29 x 8.6 mm
Display -10..+55°C
GSM Quad band (850 / 900 / 1800 / 1900 MHz) Quad band 850 / 900 / 1800 / 1900 MHz; SIM push-pull port slot, voice/data SIM
Datalogger No Yes
Fast / timed commands Yes Yes
Zero cost ring commands Yes Yes
Status reports Power supply - GSM network coverage - Input / Output status
Pre-set scenarios No Yes (MY2S model)
Pre-seen scenarios No Yes
Channels 1 4
Max. frequency 5 Hz 30 Hz
Type Reed, contact, NPN 2 wires, FD01 photodiode REED Contact, PNP, PULSCAP, relay
ANALOG INPUTS
Channels - 2
Type - Current 0...20 mA (max impedance 60 Ω); voltage 0...30 V (max impedance 100 kΩ); 16 bit resolution, precision 0.1%, f.s.
DIGITAL INPUTS
Type 1DI / 1DO remote alarm unit with basic functions
DIGITAL OUTPUTS
Type Relay SPDT 2 A / 250 Vac 2 (optional)
STANDARD
Certification EC EC
Regulation ETSI EN 301 489-7, EN301 511, EN301 489-1, EEC / EN 60950 EN60950, EN 301 511, EN 301 489-7, EN 301 489-1
ORDER CODES
Code Description Code Description
B-ALARM Remote alarm 1DI / 1DO with basic functions MY2B-0-0-M-B
MY2B-0-0-M-G
MY2B-0-0-M-B-B
MY2B-0-0-M-G-G
MY2B-0-0-M-B-4X
MY2B-0-0-M-G-4X
MY2B-0-0-M-B-4X
MY2B-0-0-M-G-4X
MY2B-0-0-M-B-4X
MY2B-0-0-M-G-4X
A-GSM External antenna GSM dual band swing cable 3.2 m
ACCESSORIES A-GSM-DR-5M
Compact directional antenna GSM-DECT-LMETS SMA-M, cable 5 m
A-GSM-OMNI8R
Omnidirectional GSM UMTS-WiFi antenna, 8.5 dBi, SMA-M, cable 5 m
A-GSM-OMNI10R
Omnidirectional GSM UMTS-WiFi antenna, 10.5 dBi, SMA-M, cable 10 m
A-GSM-QUAD-N
Omnidirectional external antenna 40/48 FL, FME, cable 3 m
ALIM-MY2 230 V / 50 Hz 12 V for MYALARM2 and B-ALARM
BATT-MY2 3.7V lithium battery - 1.200mAh for MYALARM2
FD01 PULSCAP photodetector for counting pulses from electronic meter, max freq 10 Hz
MSD Micro SD memory card with adapter
MY2-KITIP66 ABS kit for rapid assembly with IP66 protection grade for field applications
SOFTWARE E APP
LOG FACTORY Data acquisition and display software
MY22-KITIP66
EASY MYALARM2 MINALARM2 configurator
EASY SETUP SENECA programmable product configurator
SMS SENECA iOS / Android App for MYALARM2 remote configuration and interrogation
SENICA TEMP iOS MINALARM2 App for MYALARM2 temperature control

SENECA I General Catalogue
OVERVIEW

The advanced Z-LOGGER3, Z-GPRS3 and Z-UMTS dataloggers represent a platform able to meet the growing needs of data collection, real-time analysis and integration with IT systems present in automation and in system monitoring, in line with the new productivity and communication models of Industry 4.0 and the Internet of Things. Designed to perform remote alarm, remote measurement and datalogging functions, these devices are available with integrated I/O channels, dedicated programming and supervision software, support for serial communication, Ethernet and wireless in models equipped with 2G / 3G + modem. Optionally, dataloggers can be combined with Cloud BOX, an IoT / Cloud solution proposed by SENECA that allows the centralising data, the managing of remote connections and the creation of multi-user customisable supervision pages.

HIGHLIGHTS

- **DATA MEASUREMENTS AND COLLECTION AND SENSORS / ACTUATORS INTERFACE**
- **INTEGRATION WITH AUTOMATION SYSTEM (HMI / SCADA / PLC)**
- **REMOTE MANAGEMENT (REMOTE ALARM, REMOTE CONTROL, REMOTE MEASUREMENT)**
- **FLEXIBLE PROGRAMMING AND CONFIGURATION**

**DATALOGGING**
- Synchronous / Asynchronous / On Trigger

**DATA LOG**
- Redundant

**ALARMS MANAGEMENT**
- Via SMS / DTMF

**SEND EMAIL / FTP FILE**
- Communication Ports: Serial / Ethernet

**IT / MODBUS COMMUNICATION PROTOCOLS**
- Transparent Gateway

**PROGRAMMING ENVIRONMENT AND CONTROL FUNCTIONS**
- SeAL

**MODEM**
- 2G / 3G+

**INTEGRATED I/O**
- Cloud Support

**COMMUNICATION PORTS**
- Protocols Support IoT (MQTT, HTTP REST)

**BACKUP BATTERY**
- Memory Expandable up to 32 GB with Micro SD Card

**UNICODE/UTF8 SUPPORT**
- Sim Support with IP Public / APN / DynDNS
Z-LOGGER3, Z-GPRS3, Z-UMTS are devices with a high technological concentration. They can operate stand-alone or as a Master unit of the SENECA Z-PC Series distributed I/O system. They offer maximum openness outwardly and to third parties thanks to the technological standards they comply with. They have 8 built-in I/O channels, 2 serial interfaces supporting Modbus protocol, 1 Micro USB port and 1 10/100 Mbps Ethernet port. Models with 2G/3G + modem support different types of SIM. They are equipped with 8MB Flash memory slot for an expandable Micro SD card.

**HARDWARE**

**POWER SUPPLY**
- Voltage range 11(19)…40 Vdc; 19…28 Vac
- Integrated UPS with up to 1 hour of autonomy

**MODEM**
- GSM / GPRS Quad Band (ZGPRS3)
- GSM / GPRS Quad Band / UMTS / HSPA+ (Z-UMTS)
- DTMF Commands and audio alarms
- ftp, smtp, http rest protocols

**ETHERNET**
- Ethernet – ModBUS TCP-IP Client / Server Interface, 10/100 Mbps, RJ45
- ftp, smtp, http rest protocols
- ftp, smtp, http rest, MQTT protocols

**SERIAL INTERFACES**
- RS485 ModBUS Master / Slave
- RS232 / RS485 ModBUS Master / Slave

**USB**
- USB Micro types B host for local programming

**CONNECTORS, BUTTONS AND LED**
- SIM slot
- Push pull connector for Micro SD card insertion
- On/off button
- Diagnostics LED

**CPU / MEMORIES**
- ARM @32bit
- RTOS multitasking
- Flash Log 8MB
- Slot for Micro SD card up to 32GB

**SERIAL Interfaces**
- 8MB Flash memory slot for Micro SD card expansion

**SERIAL Interfaces**
- RS485 ModBUS Master / Slave
- RS232 / RS485 ModBUS Master / Slave

**I/O**
- 4 Digital Inputs PNP, NPN
- Analog Inputs 0..20 mA, 0..30 V
- 2 SPDT relay outputs, max 2 A - 250 Vac

**PROGRAMMING**

SENeca’s advanced data loggers ensure open and flexible programming thanks to a dedicated environment for the development of control logic (SeAl), an integrated Web Server, an app for direct management of commands via SMS, a tool for importing and displaying data (Log Factory). The HMI interface of the “Cloud BOX” system completes the possibility of managing data through responsive web pages that can be customised with widgets. They can also be integrated with Scada, Cloud systems, databases and third-party web portals already available on systems or arranged by end users.

**SeAl**
**LOGICAL-MATHEMATICAL SYSTEM AND FUNCTIONS CONFIGURATION**

**CLOUD BOX**
**REMOTE CONNECTIONS MANAGEMENT**
**HMI FUNCTIONS, DATA FILE ARCHIVE**

**WEB SERVER**
**MONITORING AND SETTING PARAMETERS**

**LOG FACTORY**
**ARCHIVING AND DISPLAY HISTORIC FILES**

**SMS SENeca**
**ANDROID APP / IOS FOR THE SENDING AND PERSONALISATION OF SMS COMMANDS**

**THIRD PARTIES SYSTEMS**
**SCADA, CLOUD, DATABASE SYSTEMS AND WEB PORTALS OF THIRD PARTIES**
CLOUD BOX - INDUSTRIAL IoT BOX WITH MICRO SCADA FUNCTIONS

WHAT IT IS

The Cloud - IoT solution for centralising data, managing remote connections, creating multi-user customisable supervision pages.

HOW IT WORKS

- Sending commands to datalogger
- Saving data received from devices in the field on a centralised database
- Access to Cloud BOX through customisable web pages

HIGHLIGHTS

SUPERVISION
Creation of responsive web pages with dashboards, synoptics and integrated widgets for the supervision of devices in the field

DATA ARCHIVING
Centralised data storage alarms of connected devices

DATA DISPLAY
Displaying data with web pages in graphical mode

DATA EXPORT
Data export in csv format

DATA/ALARMS HISTORY
Display of time series data, events, alarms on web pages

SENDING OF COMMANDS
Sending of commands to connected devices bypassing of any SIM blocks and firewalls (compatibility with any data/M2M SIM)

REMOTE CONNECTION
Communication management with datalogger via 2G / 3G+ / Ethernet with HTTP, HTTPS, FTP protocols

SENDING OF EMAIL
Sending of alarm email to a user list

HMI / SCADA FUNCTIONS

Cloud BOX provides numerous widgets (input status, charts, bars, etc.), i.e. components that represent the status of connected devices. Starting from these widgets, responsive web pages (for PCs, tablets, smartphones) of the dashboard type (e.g. historical data, commands, events management, trend management) or supervisory synoptics can be created.

TECHNICAL DATA

- Power supply voltage: 12 Vdc
- Operating temperature: 0...40°C
- Dimensions (lxhxW): 185x48x165 mm
- Conformity: CE, FCC, RoHS, ErP Ready
- Casing: Compact / fanless
- Assembly: On wall or on DIN guide
- Processor: Intel Celeron J1900 2.0 GHz Quad-Core
- SSD: 64GB mSATA
- LAN controller: Intel 211 AT Gigabit LAN
- Interfaces: Nr. 4 USB ports, Nr. 2 RJ45 ports
- Monitoring instruments: Dashboard, synoptics, widgets
- Real-time display: Yes
- Analysis of historic data, alarm and event log: Yes
- Sampling time: Min 1 minute
- Data export: CSV
- Connectable Seneca Devices: Max 200
- Total number of Tags: Max 5,000
- Connection protocols: http, https, Ftp
ADVANCED DATALOGGERS

APPLICATION DIAGRAMS

DATA ACQUISITION AND RETRANSMISSION

MASTER / SLAVE SIMULTANEOUS OPERATION

PLC REMOTE MANAGEMENT

ENERGY MEASUREMENT SUPERVISION AND CONTROL

MQTT ARCHITECTURE

DATA LOGGING AND DATA RETRANSMISSION

REMOTE MONITORING IoT

PUMPS REMOTE MONITORING

APPLICATION DIAGRAMS

DATA ACQUISITION AND RETRANSMISSION

MASTER / SLAVE SIMULTANEOUS OPERATION

PLC REMOTE MANAGEMENT

ENERGY MEASUREMENT SUPERVISION AND CONTROL

MQTT ARCHITECTURE

DATA LOGGING AND DATA RETRANSMISSION

REMOTE MONITORING IoT

PUMPS REMOTE MONITORING
## NEW CHARACTERISTICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-LOGGER3</td>
<td>Datalogger with integrated I/O and alarm management functions</td>
<td>MSD</td>
<td>Micro SD memory card with adapter</td>
</tr>
<tr>
<td>Z-GPRS3</td>
<td>GSM/GPRS data logger with integrated I/O, remote control and voice alarm functions</td>
<td>Z-PC-DIN1-35</td>
<td>Support for rapid assembly on DIN guide 1 slot pitch 35 mm</td>
</tr>
<tr>
<td>Z-UMTS</td>
<td>3G+ data logger with integrated I/O, remote control functions and voice commands</td>
<td>Z-PC-DIN1-35</td>
<td>Support for rapid assembly on DIN guide head = 1 slot pitch 35 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z-PC-DIN4-35</td>
<td>Support for rapid assembly Z-PC-DIN4-35 on DIN guide 4 slot pitch 35 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z-PC-OMNIDR</td>
<td>Compact directional antenna GSM-DECT-UMTS SMA-M, cable 5 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z-PC-OMNIDR</td>
<td>Compact directional antenna GSM-OMNI-M with internal antenna, cable 5 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z-PC-OMNIDR</td>
<td>Omnidirectional Antenna GSM-OMNI-M with internal antenna, cable 5 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z-PC-OMNIDR</td>
<td>Omnidirectional Antenna GSM-OMNI-M with internal antenna, cable 5 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z-PC-OMNIDR</td>
<td>Omnidirectional Antenna GSM-OMNI-M with internal antenna, cable 5 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z-PC-OMNIDR</td>
<td>Omnidirectional Antenna GSM-OMNI-M with internal antenna, cable 5 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z-PC-OMNIDR</td>
<td>Omnidirectional Antenna GSM-OMNI-M with internal antenna, cable 5 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z-PC-OMNIDR</td>
<td>Omnidirectional Antenna GSM-OMNI-M with internal antenna, cable 5 m</td>
</tr>
</tbody>
</table>

### ADVANCED DATALOGGERS

#### GENERAL DATA

- **Power supply**: 11...40 Vdc / 19...28 Vac
- **Transducers power supply**: Yes
- **Consumption**: Max 3.5 W
- **Integrated UPS**: YES (autonomy max 60 minutes)
- **On/off button**: Yes (autonomy max 60 minutes)
- **SD extraction button**: No
- **SD expansion memory**: Micro SD card supplied (up to 4GB) expandable up to 8 MB
- **Ftp, Smtp, http rest, ModBUS RTU, ModBUS TCP-IP, MQTT**: Yes
- **USB Interface**: Micro USB type B HOST (local)
- **Serial interface #1**: RS485 ModBUS, programmable baud rate
- **Serial interface #2**: RS232/RS485 switchable, programmable baud rate, on terminal
- **Modem**: Micro USB type B HOST (local)
- **Protocols**: Ftp, Smtp, http rest, ModBUS RTU, ModBUS TCP-IP, MQTT
- **CPU**: ARM 32 bit
- **RTOS Multitasking**: Yes
- **Integrated Flash log**: 8 MB
- **Log expandable memory**: Micro SD card supplied
- **Data logger**: Measurements, alarms, events, log on Micro SD card and Flash
- **Synchronous datalogger**: Minimum sampling time 1 minute
- **Asynchronous datalogger**: Up to 8 trigger events with max input frequency 1 Hz
- **Platform**: SEAL
- **Max logic blocks (SEAL)**: 32
- **Web server**: Yes, on Ethernet
- **Management of alarms and commands**: Yes
- **Auxiliary functions (DynDNS / Syslog / Dm/Code/UTF6)**: Yes
- **Alarm no GSM/Ethernet communication**: Yes
- **Update of remote firmware**: Yes
- **Regulations**: EN 61000 6-4, EN 64000 6-2, EN 61010-1

### DATA PROCESSING, ARCHIVING

- **CPU**: ARM 32 bit
- **RTOS Multitasking**: Yes
- **Integrated Flash log**: 8 MB
- **Log expandable memory**: Micro SD card supplied
- **Data logger**: Measurements, alarms, events, log on Micro SD card and Flash
- **Synchronous datalogger**: Minimum sampling time 1 minute
- **Asynchronous datalogger**: Up to 8 trigger events with max input frequency 1 Hz
- **Platform**: SEAL
- **Max logic blocks (SEAL)**: 32
- **Web server**: Yes, on Ethernet
- **Management of alarms and commands**: Yes
- **Auxiliary functions (DynDNS / Syslog / Dm/Code/UTF6)**: Yes
- **Alarm no GSM/Ethernet communication**: Yes
- **Update of remote firmware**: Yes
- **Regulations**: EN 61000 6-4, EN 64000 6-2, EN 61010-1

### ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-LOGGER3</td>
<td>Datalogger with integrated I/O and alarm management functions</td>
<td>Z-GPRS3</td>
<td>GSM/GPRS data logger with integrated I/O, remote control and voice alarm functions</td>
</tr>
<tr>
<td>Z-GPRS3</td>
<td></td>
<td>Z-UMTS</td>
<td>3G+ data logger with integrated I/O, remote control functions and voice commands</td>
</tr>
</tbody>
</table>

*Available by 2018*
RTU FOR REMOTE CONTROL APPLICATIONS
The SENECA remote control equipment is a perfect combination between the world of remote control and automation. The RTU range includes solutions for small systems, all-in-one solutions that concentrate I/O, control logic and communication system, devices for special applications (unattended sites, pumping stations, energy management). The use of compatible platforms and the most popular technological standards offers the user the opportunity to improve the efficiency and quality of investments in their applications. SENECA RTUs can be integrated with SENECA hardware (I/O modules, HMI, communication interfaces) and with those of third parties as well as with the LET’S remote assistance platform. They also provide flexible programming tools and dedicated libraries for remote monitoring.
RTU for Remote Control Applications

Key Functions

Data Acquisition
- Acquisition and exchange of data from sensors, actuators, meters, analysers, thresholds
- Distributed I/O system
- Range of modules with density from 5 to 24 points
- 3-way galvanic isolation
- ModBUS RTU, ModBUS TCP/IP, CANopen protocols
- Self-diagnosis management and safety status
- Hot swapping

Alarms Integrated Management
- Early warning in case of fault
- Event actions towards external actuators
- Transmission of alarms to maintenance personnel via SMS
- Receiving and sending of commands via SMS, email or app
- Consultation and verification of alarms, events and statuses of the system

MultiStandard Communication
- Modem / Router 2G/3G+/4G/GNSS/GPS
- Fast Ethernet, serial, USB ports
- Point-point, point-multipoint connections
- Management of «Always ON» and «ON Demand» connections
- ModBUS RTU, TCP/IP, ASCII support
- Data log transfer via ftp, smtp (email), pre-set time threshold

Programmation and Libraries
- Control logic based on SoftPLC Straton IEC 61131
- Sending of email/SMS
- Creation, storage and display of data logs
- Management of alarms and signals
- Automatic management of motorised users
- Counting of operating hours
- Management of counters and totalisations
- Capacities calculation

OPC / SCADA
- Opening to SCADA with OPC UA / OPC DA technology
- Field integration and supervision with ModBUS RTU or TCP/IP protocol
- Integrated Web Factory display environment
- Front End of real-time communication between field and Scada

Platforms IoT / VPN
- Controllers that can be integrated into the remote access platform, LET’S
- Support of VPN and SSL technologies
- Centralised supervision
- Predictive maintenance and diagnostics
- Remote assistance
- Remote software update
- Access to data and installations in ‘Single LAN’ and ‘Point-to-Point’ modes

Control of Pumps and Pressurisation Groups
- Sending of commands via SMS
- Calculation of the capacity
- Configuration via HMI 7” touchscreen
- Regulation, start, stop and acceleration
- Elimination of water hammer
- Extension of pump life
- Adjustment of pressures, levels, flow rates

Energy Sector Applications
- RTU for transmission systems and electricity distribution
- Availability of the IEC 61850 protocol for local communication between equipment in medium and high voltage electrical systems
- Availability IEC 60870 (101 and 104) for communication in the distributed networks of transport and distribution of electricity.
## RTU FOR REMOTE CONTROL APPLICATIONS

### RTU - A COMPLETE RANGE OF PERIPHERAL UNITS AND REMOTE CONTROLLERS FOR UTILITIES, ENERGY AND INFRASTRUCTURE

<table>
<thead>
<tr>
<th>Remote Alarm and Datalogger Units</th>
<th>Datalogger with Remote Control Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B-ALARM</strong></td>
<td><strong>MYALARM2</strong></td>
</tr>
<tr>
<td><strong>Z-LOGGER3</strong></td>
<td><strong>Z-GPRS3</strong></td>
</tr>
<tr>
<td><strong>Z-UMTS</strong></td>
<td><strong>Z-PASS2-S</strong></td>
</tr>
<tr>
<td><strong>S6001-RTU</strong></td>
<td><strong>RTU LOW POWER PUMP CONTROLLER</strong></td>
</tr>
</tbody>
</table>

### Power supply
- **10..28 Vdc, rechargeable battery Li-On autonomy 100 minutes**
- **6..15 Vdc, rechargeable battery Li-On autonomy 8/16 hours**
- **11..40 Vdc / 19..28 Vac, rechargeable battery NiMh, autonomy 60 minutes**
- **11..40 Vdc / 19..28 Vac, rechargeable battery NiMh, autonomy 60 minutes**
- **19..40 Vdc / 19..28 Vac, rechargeable battery NiMh, autonomy 60 minutes**

### I/O integrati
- **1DI, 1DO**
- **4DI, 2AI, 2DO (opz.)**
- **4DI, 2AI, 2DO**
- **4DI, 2AI, 2DO**
- **4DI, 2AI, 2DO**

### Programming system
- **EASY SETUP**
- **EASY MYALARM2**
- **SEAL**
- **SEAL**
- **SEAL**

### Flash
- **512 kB+2MB (log)**
- **8 MB**
- **8 MB**
- **8 MB**

### RAM
- **128 kB**
- **256 kB**
- **256 kB**
- **256 kB**

### Micro SD Card
- **Up to 32 GB**
- **Up to 32 GB**
- **Up to 32 GB**
- **Up to 32 GB**

### Program dimension
- **2**
- **Up to 100 I/O**
- **Up to 100 I/O**
- **Up to 100 I/O**

### PLC variable memory
- **-**
- **-**
- **-**
- **-**

### Variables managed
- **2**
- **8**
- **Up to 100 I/O**
- **Up to 100 I/O**
- **Up to 100 I/O**

### Integrated functions of automation, remote control and data management
- **-**
- **-**
- **Sending of data log, states email/sms, commands and alarms**
- **Sending of data log, states email/sms, commands and alarms**
- **Sending of data log, states email/sms, commands and alarms**

### Datalogging
- **Yes**
- **Yes**
- **Yes**
- **Yes**

### Data display
- **Log Factory**
- **Log Factory, Cloud BOX**
- **Log Factory, Cloud BOX**
- **Log Factory, Cloud BOX**

### Third party integration
- **-**
- **-**
- **-**
- **-**

### Connectivity
- **Modem / Router**
  - **2G (modem)**
  - **2G (modem)**
  - **External router**
  - **2G (modem)**
  - **3G+ / 3G+ worldwide**
- **Ethernet Ports**
  - **1**
  - **1**
  - **1**
- **Serial Ports**
  - **2**
  - **2**
  - **2**
- **USB Ports**
  - **1**
  - **1**
  - **1**
- **Industrial protocols**
  - **ModBUS RTU/TCP**
  - **ModBUS RTU/TCP**
  - **ModBUS RTU/TCP**
- **IT Protocols**
  - **SMS**
  - **SMS, Ftp/Sntp Client, Smtp with SSL**
  - **Ftp, Sntp, http rest, MQTT**
  - **Ftp, Sntp, http rest, MQTT**
  - **Ftp, Sntp, http rest, MQTT**
- **Energy Protocols**
  - **-**
  - **-**
  - **-**
  - **-**
  - **-**
- **VPN support**
  - **-**
  - **-**
  - **-**
  - **-**
  - **-**
- **Private APN Support**
  - **-**
  - **-**
  - **Yes with DynDNS**
  - **Yes with DynDNS**
- **Cloud Support**
  - **-**
  - **-**
  - **Yes**
  - **Yes**
  - **Yes**
- **Advanced automation**
  - **-**
  - **-**
  - **-**
  - **-**
  - **-**
- **Distributed automation**
  - **-**
  - **-**
  - **x**
  - **x**
  - **x**
- **On machine**
  - **-**
  - **-**
  - **-**
  - **-**
  - **-**
- **Control of Pumps and Pressurisation Groups**
  - **-**
  - **-**
  - **-**
  - **-**
  - **-**
- **Domotics / Security**
  - **x**
  - **x**
  - **x**
  - **x**
  - **x**
- **Energy Management**
  - **-**
  - **-**
  - **x**
  - **x**
  - **x**
- **Infrastructures and Transportation**
  - **-**
  - **-**
  - **-**
  - **-**
  - **-**
- **Laboratories / Testing / DAQ**
  - **-**
  - **-**
  - **-**
  - **-**
  - **-**
- **Small automations**
  - **-**
  - **-**
  - **x**
  - **x**
  - **x**
- **Process (Utilities, Energy, Oil&Gas)**
  - **-**
  - **-**
  - **-**
  - **-**
  - **-**
- **Remote alarm**
  - **x**
  - **x**
  - **-**
  - **x**
  - **x**
- **Remote control / Remote assistance (LET’S)**
  - **-**
  - **-**
  - **-**
  - **-**
  - **-**

For order codes, accessories, software and further information visit [https://www.seneca.it/linee-di-prodotto/comunicazione-industriale-e-telecontrollo/](https://www.seneca.it/linee-di-prodotto/comunicazione-industriale-e-telecontrollo/)

*Available by 2018*
## Caratteristiche principali

### Power supply
- 10..28 Vdc, rechargeable battery Li-On autonomy: 100 minutes
- 6..15 Vdc, rechargeable battery Li-On autonomy: 8/16 hours
- 11..40 Vdc / 19..28 Vac, rechargeable battery NiMh, autonomy: 60 minutes
- 11..40 Vdc / 19..28 Vac, rechargeable battery NiMh, autonomy: 60 minutes
- 19..40 Vdc / 19..28 Vac, rechargeable battery NiMh, autonomy: 60 minutes
- 11..40 Vdc / 19..28 Vac, 24 Vac/dc ±15%, 8..30 Vdc, rechargeable battery Li-On, max autonomy: 2 years

### I/O integrati
- 1DI, 1DO 4DI, 2AI, 2DO (opz.)
- 15DI+2DI, 8DO, 4AI, 2AO
- 1DI, 2DO, 2DI/DO 4DI, 2AI, 2DO

### Programming system
- EASY SETUP
- SEAL
- SEAL
- SEAL
- Straton, Z-NET4
- Straton, Z-NET4
- Straton, Z-NET4
- EASY RTU-LP
- HMI

### Flash
- 512 kB + 2 MB (log)
- 8 MB
- 1 GB

### RAM
- 128 kB
- 256 kB
- 64 MB

### Micro SD Card
- Up to 32 GB
- Up to 32 GB
- Up to 32 GB
- Up to 32 GB
- Up to 32 GB
- Up to 32 GB
- Up to 32 GB
- Up to 32 GB

### Program dimension
- 248 kB
- 4 MB
- 4 MB
- 4 MB
- 4 MB

### PLC variable memory
- 38 kB
- 4 MB
- 4 MB
- 4 MB

### Variables managed
- 2
- Up to 100 I/O
- Up to 100 I/O
- Up to 100 I/O
- Up to 200 I/O
- Up to 1,000 I/O
- Up to 1,000 I/O

### Integrated functions of automation, remote control and data management
- Sending of data log, states email/sms, commands and alarms
- Sending of data log, states email/sms, commands and alarms
- Sending of data log, states email/sms, commands and alarms

### Datalogging
- Yes
- Yes
- Yes
- Yes
- Yes

### Data display
- Log Factory
- Log Factory, Cloud BOX
- Web Factory

### Third party integration
- . Yes
- Yes
- Yes
- Yes
- Yes

### Connectivity
- Modem / Router
- 2G (modem)
- 2G (modem)
- External router
- 2G (modem)
- 3G+ / 3G+ worldwide
- GNSS* (modem)
- Yes
- 2G (no router)
- 3G+ / 4G / GPS / GNSS
- 3G+

### Ethernet Ports
- 1
- 1
- 1
- 1

### Serial Ports
- 2
- 2
- 2
- 3
- 3

### USB Ports
- 1
- 1
- 1
- 1

### Industrial protocols
- ModBUS RTU/TCP
- ModBUS RTU/TCP
- ModBUS RTU/TCP
- ModBUS RTU/TCP

### IT Protocols
- SMS
- Ftp/Smtp Client, Smtps with SSL

### Energy Protocols
- IEC 60870-101/104, IEC 61850 (opz.)

### VPN support
- Yes, OpenVPN
- -

### Private APN Support
- Yes with DynDNS
- Yes

### Cloud Support
- -
- -
- -
- -

### Applications
- Advanced automation
- x
- x
- -
- -

### Distributed automation
- x
- x
- x
- x
- x
- -

### On machine
- -
- -
- -
- -

### Control of Pumps and Pressurisation Groups
- -
- -
- -
- -

### Domotics / Security
- x
- x
- x
- x
- x
- x

### Energy Management
- x
- x
- x
- x

### Infrastructures and Transportation
- x
- x
- x
- x

### Laboratories / Testing / DAQ
- x
- x
- x
- x

### Small automations
- x
- x
- x
- x

### Process (Utilities, Energy, Oil&Gas)
- x
- x
- x

### Remote alarm
- x
- x
- x
- x

### Remote control / Remote assistance (LET’S)
- -
- -
- -
- -

### NEW CHARACTERISTICS
- COMPACT
- HIGH
- CONNECTIVITY
- LOW POWER
- NEW
- CHARACTERISTICS
Remote monitoring via the Internet offers remote viewing services, alarm notification, remote system management, collection supervision and data analysis, use of the Internet, the 3G/GPRS standard and the DDNS technology.

Remote Control via Web

In Single LAN Remote Control mode (always on connection) a Static and public IP is assigned to the VPN BOX server. Communication is simultaneous and always active between all remote sites and the different subnets that are part of the overall system.

Remote Control Always On

Intranet / APN remote control systems require an Intranet with private APN (static IP addresses on peripheral SIMs).

Private Intranet / APN Remote Control

The Point-to-Point Remote Assistance mode (on demand communication) establishes a point-to-point connection between supervision and the machine. Ideal for remote maintenance and diagnostics applications.

On Demand Remote Assistance

The Cloud - IOT solution proposed by SENECA centralises data, manages remote connections and creates customisable multi-user supervision pages.

Monitoring IOT / Cloud

The SENECA controllers for Energy Management applications can act as IEC 61850 Servers, as a ModBUS-RTU conversion system - ModBUS TCP, as equipment for the creation of virtual networks via the Internet and point-to-point tunnels.

Energy Sector Monitoring
RTU FOR REMOTE CONTROL APPLICATIONS

Z-MINIRTU
GSM/GPRS REMOTE CONTROL EQUIPMENT, WITH INTEGRATED IO AND STRATON IDE

TECHNICAL DATA

GENERAL DATA
- Power supply: 11..40 Vdc; 19..28 Vac
- Max absorption: 6.5 W
- UPS: Integrated (autonomy approximately 1 hour)
- Insulation: 3,000 Vac (power supply/outputs); (1,500 Vac (power supply / other circuits)
- State Indicators: Power supply, Serial communication, Ethernet, SD card, Digital inputs state, Modem state
- Degree of protection: IP20
- Operational Temperature: -10..+50°C
- Dimensions (lxhxp): 100 x 35 x 112 mm
- Casing: Nylon 6 with 30% glass fibre self-extinguishing class V0
- Connections: Removable terminals, max conductor size 2.5 mm²
- Assembly: DIN Guide 35 mm (IEC EN 60715)

COMMUNICATION
- Ethernet: No. 1 Ethernet port 10/100 Mbps (RJ45)
- Serial: Nr 1 RS232 / RS485 switchable
- USB: Nr. 1 lateral connector USB
- Modem: GSM, GPRS (quad band)
- Industrial protocols: ModBUS TCP-IP (Client/Server), ModBUS RTU (Master/Slave), custom protocols
- Network protocols: PPP, HTTP Post, FTP Client, SMTP Client, NTP Client

INPUT DATA
- Channels / Type: Nr 4 digital inputs PNP, NPN (max voltage 30 Vdc)
- Nr. 1 analog inputs 0-20 mA, 0-30 Vdc

OUTPUT DATA
- Channels / Type: No. 1 SPDT relay outputs, max 2A 250 Vac

PROCESSOR / MEMORY
- Processor: ARM 32 bit @ 120 MHz
- O.S.: Real-Time multitasking
- FerRAM (variable retentive): Max 4 kB
- Program memory: Max 248 kB
- Variables memory: Max 38 kB
- Slot Micro SD: SD Card up to 32 GB

CONFIGURATIONS
- System software: Z-NET4 / Straton
- Web Editor: Integrated
- Datalogger: Integrated
- PLC programming: IEC 61131 (Straton) dedicated libraries

STANDARD
- Certifications: EC
- Regulations: EN 61000-6-4, EN 61000-6-2, EN 61010, EN 301511, IEC 61489-1, EN 301489-7, EN 60950

ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-MINIRTU</td>
<td>GSM / GPRS remote control equipment, with integrated Straton IO</td>
</tr>
</tbody>
</table>

SOFTWARE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRATON-D-USB</td>
<td>Straton activation key for IEC 61131 controllers</td>
</tr>
<tr>
<td>STRATON-IDE256</td>
<td>Straton development environment 256 tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-IDE512</td>
<td>Straton development environment 512 tags with USB activation key</td>
</tr>
<tr>
<td>SSP</td>
<td>Straton SENECA Package - CPU Seneca Installer suite</td>
</tr>
<tr>
<td>STRATON-WB</td>
<td>Straton workbench IEC 61131 free editor</td>
</tr>
<tr>
<td>Z-NET4</td>
<td>I/O systems configurator and IEC 61131 controllers</td>
</tr>
</tbody>
</table>

ACCESSORIES

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSD</td>
<td>Micro SD memory card with adapter</td>
</tr>
<tr>
<td>Z-PC-DIN1-35</td>
<td>Support for rapid assembly on DIN guide 1 slot pitch 35 mm</td>
</tr>
<tr>
<td>Z-PC-DINAL1-35</td>
<td>Support for rapid assembly on DIN guide head +1 slot pitch 35 mm</td>
</tr>
<tr>
<td>Z-POWER-115-15VA</td>
<td>Transformer with DIN guide 19 Vac, 115 / 15 VA with thermostat</td>
</tr>
<tr>
<td>Z-POWER-230-15VA</td>
<td>Transformer with DIN guide 19 Vac, 230 / 15 VA with thermostat</td>
</tr>
<tr>
<td>Z-POWER-230-25VA</td>
<td>Transformer with DIN guide 19 Vac, 230 / 25 VA with thermostat</td>
</tr>
<tr>
<td>Z-SUPPLY</td>
<td>Power supply switching monophase 24V @ 1.5 A</td>
</tr>
</tbody>
</table>

CABLES

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE-RJ45-RJ45-C</td>
<td>Crossed Ethernet cable (RJ45 / RJ45)</td>
</tr>
<tr>
<td>CE-RJ45-RJ45-R</td>
<td>Straight Ethernet cable (RJ45 / RJ45)</td>
</tr>
<tr>
<td>CS-DB9F-CLAMP</td>
<td>Serial cable Rs485 (DB9F / terminals)</td>
</tr>
<tr>
<td>CS-DB9F-TIP-V</td>
<td>Serial cable Rs485 (DB9F / tips)</td>
</tr>
<tr>
<td>CS-DB9M-TIP-V</td>
<td>Serial cable Rs485 (DB9M / tips)</td>
</tr>
<tr>
<td>CU-A-MICR08</td>
<td>Cable plug USB-A Micro USB-B 5 P</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
**Z-PASS2-S**

**STRATON REMOTE CONTROLLER, INTEGRATED I/O, MODEM 3G+/4G*, ETHERNET ROUTER, GPS**

**TECHNICAL DATA**

**GENERAL DATA**
- **Power supply:** 19..40 Vdc; 19..28 Vac
- **Absorption:** Typical 4 W @ 24Vac, Max 6 W
- **Insulation:** 1500 Vac
- **State indicators:** Power / Ready to use / Inputs / outputs state
- **Remote Connection (RCD) / VPN Connection (VPN)**
- **LAN/WAN (Ethernet mode) / SERV (VPN BOX Service)**
- **Rx/Tx serial communications / Link and Ethernet traffic**
- **Degree of protection:** IP20
- **Operating temperature:** -20°C to +65°C
- **Dimensions (l x h x p):** 100 x 52.5 x 112 mm
- **Weight:** 280 g
- **Casing:** Glass loaded PAG black plastic
- **Installation:** For guide 35 mm IEC EN 60715

**COMMUNICATION**
- **Ethernet Ports (ETH1, ETH2):**
  - N: 2 Fast Ethernet ports 10/100Tx on RJ45 front 
  - N: 1 serial port RS232/7 485 switchable via software, max baud rate 115kbps on connector
- **Serial Ports (COM1, COM2, COM4):**
  - N: 1 serial port RS232/7 485 switchable via software, max baud rate 115kbps on connector
  - N: RS485 port, max baud rate 115kbps on connector
  - N: RS485 port, max baud rate 115kbps on connector
- **USB Ports:**
  - N: 1 USB host port on side connector type A
- **Modem / Router 3G+ Worldwide*:**
  - GSM/GPRS/EDGE Quad-band: GSM 850 MHz, DCS 1800 MHz, PCS 1900 MHz 850-900-1900-1900 MHz
  - UMTS/HSPA+ Pentaband - WCDMA 2100/900, 2100/850, 1900/900 MHz
- **Modem / Router 4G – LTE*:**
  - 4G LTE BAND 6-Band: 2100/1800/850/2600/900 MHz
  - UMTS/HSPA+ Tri-Band: WCDMA 2100/850/900 MHz
  - 4G LTE BAND 6-Band: 2100/1800/900/ 2600/900 MHz
- **GNSS:** 36 Channels: 16 GPS channels and 14 GLONASS channels
- **Industrial protocols:**
- **IT Protocols:** FTP server, SFTP server, HTTP server, HTTPS server, OpenVPN
- **Industrial protocols:** ModBUS TCP server, ModBUS RTU master, ModBUS RTU slave.
- **USB Ports:**
- **Endpoint energy:**
  - USB Ports
  - **U2**
  - **U3**
  - **U4**
  - **U5**
- **Power supply:**
  - **19..40 Vdc; 19..28 Vac**
  - **19..40 Vac; 19..28 Vac**

**CPU AND MEMORY**
- **Processor:** AVAM 32 bit
- **Flash Memory (data):** 1 GB
- **FerRAM:** 4 kB
- **Slot Micro SD:** Yes, Max 32 GB
- **I/O:**
  - **Pre-wired:** 1 DI / 1 DO
  - **For generic use:** 1 DI / 1 DO
  - **Mixed configurable:** 2 DI/DO

**SAFETY**
- **Remote access block:** Mechanical, interlock Digital Input
- **LAN/WAN networks disengagement:** Yes
- **Data Encryption:** SHA1 160bit
- **Data Authentication:** Yes
- **Safety protocols:** OpenVPN, SSL, HTTPS Server

**SETTINGS & SOFTWARE**
- **Tools and packets:**
  - Web Server, VPN Client Communicator
  - Seneca Discovery Device, Configurator Z-NET4
  - Straton programming, Log Factory, Web Factory
- **STANDARD**
  - **Marking / Certifications:** EC
  - **Regulations:** EN 301489-7, EN 61000-6-4, EN 61000-6-2, EN 301511, EN 301489-1, EN 301489-7, EC / EN 60950

**APPLICATION EXAMPLE**

- **Supervisor**
  - 192.168.1.33
  - 192.168.1.33
  - ROUTER
  - ModBUS RTU
  - ethernet
  - 3G
  - ModBUS TCP-IP
  - ModBUS RTU
  - HTTP
  - HTML

**ORDER CODE**

- **Code**
  - **Description**
  - ROUTER / GATEWAY
    - Z-PASS2-S-I0: Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DO/1DI, worldwide modem 3G+/Ethernet Router, GPS
    - Z-PASS2-S-I0-E: Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DO/1DI, worldwide modem 3G+/Ethernet Router, GPS, energy protocols
    - Z-PASS2-S-G04GEU: Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DO/1DI, 4G-EU Ethernet Router, GPS, energy protocols

- **VPN PLATFORM**
  - **VPN BOX**
    - LET’S - Server VPN optimised for connections Point-to-Point / Single LAN
  - **VPN BOX VM**
    - LET’S - Virtual Machine Server VPN optimised for connections Point-to-Point / Single LAN
  - **VPN BOX-D**
    - LET’S - Service on test in VPN BOX Point-to-Point valid for 30 days max 2 device
  - **VPN BOX VM-D**
    - LET’S - Virtual Machine Server VPN optimised for connections Point-to-Point Single LAN max 2 devices
  - **VPN CC**
    - LET’S - VPN Client Communicator, Remote Access Management software
  - **VPN CC APP**
    - VPN CC mobile app version

**TOOL SOFTWARE**
- **Log Factory**
  - Display tool and datalogger data archiving Z-GPRS3, Z-LOGER3, Z-UMTS
- **SDD**
  - SENeca Discovery Device, IP scanner for Z-KEY, Z-PASS1, Z-PASS2
- **SDK**
  - SENeca Ethernet to Serial Connection for Z-KEY, Z-PASS1, Z-PASS2
  - Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DO/1DI, 4G-EU Ethernet Router, GPS
  - **Z-NE4**
    - Configurator I/O systems and Z-PC Series controller

**ACCESSORIES**
- **A-GPS-SMA**
  - Antenna GPS with SMA coupling
- **A-SSM**
  - External antenna GSM dual band swing cable 3.2 m
- **A-GSM-2DIAD**
  - Omnidirectional external antenna 4G/2400 MHz, FME, cable 3 m
- **CS-TIP-MEF-PH**
  - Serial communication cable (Type 4-way female connector) for Z-7MWS4, Z-PASS1/2
- **CSRBM-MEF-PH**
  - Serial communication cable (COM1 / MEF PH) 1.5 MT
- **CE-RJ45-RJ45-R**
  - Straight Ethernet cable (RJ45 / RJ45) 1.5 M
- **MSD**
  - Micro SD memory card with adapter
  - **Z-PC-DINAL2-S2S**
    - Support for rapid assembly on DIN guide head + 3 slot pitch 17.5 mm

**THE TECHNICAL DATA and the diagrams in this document are indicative and not binding.**
## RTU FOR REMOTE CONTROL APPLICATIONS

### S6001-RTU

**ALL-IN-ONE RTU WITH INTEGRATED I/O, 3G MODEM AND STRATON PROGRAMMING SYSTEM**

![Straton Logo]

## TECHNICAL DATA

### GENERAL DATA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>24 Vac/dc ±15%</td>
</tr>
<tr>
<td>Insulation</td>
<td>1500 Vac</td>
</tr>
<tr>
<td>State Indicators</td>
<td>Power supply Serial communication Ethernet PLC state</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
</tr>
<tr>
<td>Operational Temperature</td>
<td>-20...+50°C</td>
</tr>
<tr>
<td>Dimensions (lxhxw)</td>
<td>105 x 190 x 60 mm</td>
</tr>
<tr>
<td>Casing</td>
<td>Black aluminium</td>
</tr>
<tr>
<td>Connections</td>
<td>Removable terminals, max conductor size 2.5 mm²</td>
</tr>
<tr>
<td>Assembly</td>
<td>DIN Guide 35 mm (IEC EN 60715)</td>
</tr>
</tbody>
</table>

### COMMUNICATION

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet</td>
<td>No. 1 Ethernet port 10 ‑ 100 Mbps (RJ45)</td>
</tr>
<tr>
<td>Serial</td>
<td>Nr 1 RS232, Nr 2 RS485</td>
</tr>
<tr>
<td>USB</td>
<td>Nr 1 USB host; Nr 1 USB micro USB</td>
</tr>
<tr>
<td>Modem</td>
<td>Modern UMTS, HSDPA (dual band), EDGE, GPRS, GSM (quad band)</td>
</tr>
<tr>
<td>Industrial protocols</td>
<td>RTU ModBUS, TCP-IP ModBUS, custom protocols</td>
</tr>
<tr>
<td>Energy protocol</td>
<td>IEC 60870-101/104, IEC 61850</td>
</tr>
<tr>
<td>Network protocols</td>
<td>PPP, http, Ptp, Smtp, Open VPN</td>
</tr>
</tbody>
</table>

### INPUT DATA

<table>
<thead>
<tr>
<th>Channels / Type</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nr 15 Digital Inputs</td>
<td></td>
</tr>
<tr>
<td>Nr 2 Digital Inputs (thresholds)</td>
<td></td>
</tr>
<tr>
<td>Nr 4 Analogic Outputs</td>
<td>0...20 mA</td>
</tr>
</tbody>
</table>

### OUTPUT DATA

<table>
<thead>
<tr>
<th>Channels / Type</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 8 SPDT relay outputs</td>
<td>3A - 250 Vac</td>
</tr>
<tr>
<td>Nr 1 Analogic Outputs</td>
<td>0...10 mA</td>
</tr>
<tr>
<td>Nr 1 Analogic Output</td>
<td>0...20 mA</td>
</tr>
</tbody>
</table>

### PROCESSOR / MEMORY

<table>
<thead>
<tr>
<th>Processor</th>
<th>ARM 32 bit @400 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Memory (data)</td>
<td>1 GB</td>
</tr>
<tr>
<td>RAM / FeRAM</td>
<td>64 MB / 4 KB</td>
</tr>
<tr>
<td>Slot Micro SD</td>
<td>SD Card up to 32 GB</td>
</tr>
</tbody>
</table>

### CONFIGURATION

<table>
<thead>
<tr>
<th>System software</th>
<th>Z-NE14/Straton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web server / Datalogger</td>
<td>Yes, integrated with Web Editor</td>
</tr>
<tr>
<td>PLC programming</td>
<td>IEC 61131 (Straton) dedicated libraries</td>
</tr>
</tbody>
</table>

### STANDARD

<table>
<thead>
<tr>
<th>Certifications</th>
<th>EC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulations</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 60950, EN 301511, EN 301489-1, EN 301489-7</td>
</tr>
</tbody>
</table>

## APPLICATION EXAMPLE

![Application Diagram]

**Scada / Control Room**

- Power Meter
- VFD
- RS485 ModBUS
- RS232
- Printer
- I/O

### ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S6001-RTU</td>
<td>All-in-one RTU with integrated I/O, 3G+ modem and Straton programming system</td>
</tr>
</tbody>
</table>

### SOFTWARE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPC-DK-SERVER</td>
<td>Communication and data exchange software OPC Server WITH unlimited I/O tags (hardware licence)</td>
</tr>
<tr>
<td>OPC-UA-SERVER</td>
<td>Communication and data exchange software OPC Server UA I/O unlimited tags (hardware licence)</td>
</tr>
<tr>
<td>STRATON-D-USB</td>
<td>Straton activation key for IEC 61131 controllers</td>
</tr>
<tr>
<td>STRATON-ID_D256</td>
<td>Straton development environment 256 tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-ID_D512</td>
<td>Straton development environment 512 tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-ID_UN</td>
<td>Straton development environment unlimited tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-870S</td>
<td>Activation licence IEC 60870-5-101/104 Slave</td>
</tr>
<tr>
<td>STRATON-870S_850</td>
<td>Activation licence IEC 60870-5-101/104 Slave + Licence IEC 61850 Client / Server</td>
</tr>
<tr>
<td>STRATON-870S_850</td>
<td>Activation licence IEC 60870-5-101/104 Slave + Licence IEC 61850 Client / Server</td>
</tr>
<tr>
<td>STRATON-UPGRADE1</td>
<td>Straton upgrade from 256 to 512 tags</td>
</tr>
<tr>
<td>STRATON-UPGRADE2</td>
<td>Straton upgrade from 512 to unlimited tags</td>
</tr>
<tr>
<td>STRATON-UPGRADE3</td>
<td>Straton upgrade from 256 to unlimited tags</td>
</tr>
<tr>
<td>STRATON-WB</td>
<td>Straton workbench IEC 61131 free editor (supplied)</td>
</tr>
</tbody>
</table>

### ACCESSORIES

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRATON-JDE</td>
<td>IEC 61131 Straton development activation key</td>
</tr>
<tr>
<td>CE-RJ45-RJ45-C</td>
<td>Crossed Ethernet cable (RJ45 / RJ45) 1.5 MT</td>
</tr>
<tr>
<td>CE-RJ45-RJ45-R</td>
<td>Straight Ethernet cable (RJ45 / RJ45) 1.5 MT</td>
</tr>
<tr>
<td>A-GSM-DIR-5M</td>
<td>Compact directional antenna GSM-DECT-UMTS SMA-M, cable 5 m</td>
</tr>
<tr>
<td>A-GSM-DIR-5M</td>
<td>Compact directional antenna GSM-DECT-UMTS SMA-M, cable 5 m</td>
</tr>
<tr>
<td>A-GSM-DIR-5M</td>
<td>Compact directional antenna GSM-DECT-UMTS SMA-M, cable 5 m</td>
</tr>
<tr>
<td>A-GSM-DIR-5M</td>
<td>Compact directional antenna GSM-DECT-UMTS SMA-M, cable 5 m</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
TECHNICAL DATA

GENERAL DATA
- Power supply: 8..30 Vdc
- Average absorption: 3.7 mW
- Sensor power supply: Max 100 mA (with automatic pre-ignition function)
- Batteries (optional): Lithium-thionyl Chloride 13,000 mA/h @ 10.8V
- Autonomy: Up to 3 years
- Insulation: 500 Vac
- Degree of protection: IP40
- LED status indicators: GSM relay status
- Operating Temp: -20..+70 °C
- Temp. Warehousing: -20..+85°C
- Umidità: 30..90% @40°C non-condensing
- Altitude: 2,000 m
- Dimensions (lxhxp): 132x65x67 mm (batteries excluded)
- Weight: 290 g
- Container: ABS, black

COMMUNICATION, PROCESSING, MEMORY
- Communication ports: N.1 RS232 half duplex port
- Modem: GSM/GPRS quad-band 850/900/1800/1900 MHz
- GPRS multi slot class 10, speed GPRS max. 86 kbps (DL)
- Coding scheme: CS-1, CS-2, CS-3, CS-4
- CPU: ARM 32 bit
- Flash Memory (datalogger): 2 MB
- EEPROM: 64 kB
- Clock: Internal RT, max error: 75 ppm (-20..+70°C)
- System protocols: ModBUS RTU, FTP CLIENT (sending of log), SMS

I/O CHANNELS
- Digital inputs: No. 4 galvanically isolated channels 1,500 Vac, freq. sampling of digital channels max 1 Hz
- Analog inputs: No. 2 voltage/current channels protected against overvoltages and overcurrents
- Range: ±2 V, ±20 V, ±50 V, ±20 mA
- Resolution: 15 bit + sign
- Precision: 0.1% F.S. at 20°C
- Input impedance: > 1 MOhm
- Digital outputs: No. 2 bistable relays
- Capacity: 30 Vdc – 1 A max (resistive load)

PROGRAMMING AND FUNCTIONALITY
- SMS parameters: Yes
- Programming software: EASY RTU-LP
- Sending/receipt functions: Periodic sending of data logs, statuses and events via SMS or FTP Server
- Temporary switching on of the modem for sending of data
- Receipt of commands and configuration parameters
- Firmware update: Via RS232, RS232/USB converter (i.e. S117P1), CS-DB9M-DB9F-CR cable and EASY RTU-LP software
- Datalogger: 2MB external flash memory
- Maximum Analog Log Speed 30 s
- Maximum Digital Log Speed 1 s

STANDARD
- Approvals: EC
- Regulations: EN61000-6-4, EN61000-6-2, EN 301511, EN 301489-1, EN 60950

APPLICATION EXAMPLE

Remote control of the purification system with GSM/GPRS battery-powered and low consumption equipment

ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTU-LP-ST</td>
<td>RTU / low power datalogger; FTP version, 4DI, 2AI, 2DO, GSM external antenna, DIN hook, 2 serial cables</td>
</tr>
<tr>
<td>RTU-LP-ST1</td>
<td>RTU / low power datalogger; FTP version, 4DI, 2AI, 2DO, GSM external antenna, DIN hook, 2 serial cables, standard battery pack</td>
</tr>
<tr>
<td>RTU-LP-ST2</td>
<td>RTU / low power datalogger; FTP version, 4DI, 2AI, 2DO, GSM external antenna, DIN hook, 2 serial cables, double battery pack</td>
</tr>
<tr>
<td>BATTERIE</td>
<td></td>
</tr>
<tr>
<td>BATT-S</td>
<td>Lithium-thionyl Chloride battery pack 3 cells 10.8 V – 12.5 Ah</td>
</tr>
<tr>
<td>BATT-2S</td>
<td>Lithium-thionyl Chloride double battery pack 3 cells 10.8 V – 25 Ah</td>
</tr>
</tbody>
</table>

ANTENNAS
- A-GSM: External antenna GSM dual band swing cable 3.2 m
- A-GSM-DIR-5M: Compact directional antenna GSM-DECT-UMTS SMA-M, cable 5 m
- A-GSM-DIR-10: Omnidirectional GSM-UMTS-WIFI antenna, 5.1 db, SMA-M, cable 5 m
- A-GSM-DIR-10: Omnidirectional GSM-UMTS-WIFI antenna, 5.1 db, SMA-M, cable 10 m
- A-GSM-QUAD: 4G omnidirectional external antenna, SMA-M; 5 m cable

CABLES
- CS-DB9M-DB9F: Configuration serial cable
- CS-DB9M-DB9F-CR: Firmware update serial cable

SOFTWARE
- EASY RTU LP: RTU-LP equipment software configurator
INDUSTRIAL MODEM

2.4

RTU / DATALOGGER LOW POWER WITH GSM/GPRS MODEM AND INTEGRATED I/O
**INDUSTRIAL MODEM**

**WIRELESS INDUSTRIAL MODEM**

With the new range of wireless modems, SENECA offers GSM, GPRS, Quadband and 3G+ connectivity devices ideal for use in industrial and professional environments. Applications include remote control, automation, telemetry, M2M connections and data transfer on every type of system and installation.

**Z-MODEM**

GSM/GPRS Quadband industrial modem with RS232 serial port

**Z-MODEM-3G**

3G industrial modem with USB micro interface

<table>
<thead>
<tr>
<th>GENERAL DATA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>10..40 Vdc; 19..28 Vac</td>
</tr>
<tr>
<td>Absorption</td>
<td>2W (standby), 6.5 W (MAX)</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
</tr>
<tr>
<td>Insulation</td>
<td>1.500 Vac</td>
</tr>
<tr>
<td>LED signalling</td>
<td>Power supply, communication</td>
</tr>
<tr>
<td>Antenna connector</td>
<td>SMA type</td>
</tr>
<tr>
<td>SIM card</td>
<td>Standard (25 x 15 mm)</td>
</tr>
<tr>
<td>Installation</td>
<td>DIN Guide 35 mm (IEC/EN 60715)</td>
</tr>
<tr>
<td>Connections</td>
<td>Removable terminals for 2.5 mm² conductors</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10...+65°C</td>
</tr>
<tr>
<td>Material, colour</td>
<td>Black, glass loaded PA6 Nylon</td>
</tr>
<tr>
<td>Dimensions</td>
<td>100 x 35 x 112 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>280 g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMMUNICATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface</td>
<td>RS232 connector IDC10</td>
</tr>
<tr>
<td>Modem frequency</td>
<td>GSM/GPRS/EDGE Quad Band 850 MHz, EGSM 900 MHz, DCS 1800 MHz, PCS 1900MHz</td>
</tr>
<tr>
<td>Connection speed</td>
<td>Downlink max 85.6 kbps, Uplink max 42.8 kbps</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STANDARD</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Certifications</td>
<td>EC</td>
</tr>
<tr>
<td>Regulations</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 301511, EN 301489-1, EN 301489-7, EN 60950</td>
</tr>
</tbody>
</table>

**APPLICATION EXAMPLES**

**DATA TRANSMISSION VIA MODEM WITH SERIAL CONNECTION TO PLC**

**DATA TRANSMISSION VIA MODEM WITH USB CONNECTION TO Z-TWS4 / Z-PASS1**

**ORDER CODE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Z-MODEM</th>
<th>Z-MODEM-3G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-MODEM</td>
<td>GSM/GPRS Quadband industrial modem with RS232 serial port</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Z-MODEM-3G</td>
<td>3G+ industrial modem with USB micro interface</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

**ACCESSORIES**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Z-MODEM</th>
<th>Z-MODEM-3G</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-GSM</td>
<td>External antenna GSM dual band swing cable 3.2 m</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>CU-A-MICROB</td>
<td>Cable plug USB-A Micro USB 8 5 P</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>CS-DB9M-DB9F</td>
<td>RS232 straight serial cable for programming (DB9M / DB9F)</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>CS-DB9F-CFV10</td>
<td>RS232 connection cable (DB9F-CFV10) with adapter</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Z-PC-DINAL1-35</td>
<td>Support for rapid assembly on DIN guide head + 1 slot pitch 35 mm</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Z-PC-DIN1-35</td>
<td>Support for rapid assembly on DIN guide 1 slot format pitch 35 mm</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Z-PC-DINAL2-17.5</td>
<td>Support for rapid assembly on DIN guide head + 2 slot pitch 17.5 mm</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Z-PC-DIN2-17.5</td>
<td>Support for rapid assembly on DIN guide 2 slot pitch 17.5 mm</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>
IOT
GATEWAY
OVERVIEW

SENECA’s IoT gateways connect new and legacy systems and promote a secure and seamless flow of data between peripheral devices and centralised servers. Gateways establish two-way communication between field and supervision, as well as offering processing and data storage capabilities to provide services with secure VPN connections and to manage real-time devices in the field. The new SENECA range of industrial routers/gateways includes devices able to increase the extension of networks and allow the passage of process data between different levels of the IT and industrial communication architecture.

HIGHLIGHTS

- Modbus Gateway for Universal Uses
- Simultaneous Communication Up to Simplified
- Tag Management via Excel
- Display Serial Port (SENECA Driver, Transparent Gateway)
- Configuration via Software and Web Server
- Serial / USB / Ethernet Interfaces
- Communication Protocol Support (IT / Modbus/ Security)
- Integration with VPN Platform P2P / Single LAN
- Integrated I/O for Generic and Preassigned Use
- Integrated Modem 3G+ Worldwide / 4G LTE (GPS/GNSS)
- Traffic Sniffer Serial Port
- Nine highlights

CONFIGURATION TOOL

- Web Server
  - Device and network parameter configuration
  - Firmware update
  - Saving of Configuration
  - Access through authentication
  - Custom Web Server pages saved on SD card
  - Webpage template downloadable from www.seneca.it
  - Variable configuration via SMS
  - Datologging on SD card

- SESC (SENECA Ethernet to Serial Connection)
  - Management interface
  - Assigning of IP address and TCP port to Virtual COM

- SDD (SENECA Discovery Device)
  - Automatic identification of all the devices connected
  - Management and modification of the network parameters of the devices

- Excel Template
  - Immediate configuration of Modbus RTU and TCP/IP-variable tags, recordings, addresses, serial ports
  - File export

- VPN Tool
  - P2P / Single LAN connections
  - Access with credentials
  - Client authentication
  - OpenVPN client configuration
### R-KEY

**NEW PRODUCT**

**1-Port ModBUS RTU/ASCII Industrial Gateway**

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>YES</th>
<th>YES</th>
<th>YES</th>
<th>YES</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
</tr>
<tr>
<td>Absorption</td>
<td>1 W</td>
<td>2 W @ 24 Vac (typical)</td>
<td>2 W @ 24 Vac (typical)</td>
<td>3 W @ 24 Vac, Max 4 W</td>
<td>4 W @ 24 Vac, Max 6 W</td>
</tr>
<tr>
<td>Insulation</td>
<td>1,500 Vac</td>
<td>1,500 Vac</td>
<td>1,500 Vac (power supply // remaining circuits b.i.l)</td>
<td>1,500 Vac</td>
<td>1,500 Vac</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
</tr>
<tr>
<td>RAM</td>
<td>-</td>
<td>64 MB</td>
<td>64 MB</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SD Micro Card</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Max 32 GB</td>
<td>Max 32 GB</td>
</tr>
<tr>
<td>Integrated I/O</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Max 32 GB</td>
<td>Max 32 GB</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20..+70°C</td>
<td>-20°C..+65°C</td>
<td>-20°C..+50°C</td>
<td>-20°C..+40°C</td>
<td>-20°C..+40°C</td>
</tr>
<tr>
<td>Dimensions (height)</td>
<td>53 x 80 x 32 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>35 x 100 x 112 mm</td>
<td>32.5 x 100 x 112 mm</td>
<td>32.5 x 100 x 112 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>80 g</td>
<td>170 g</td>
<td>220 g</td>
<td>280 g</td>
<td>280 g</td>
</tr>
<tr>
<td>Casing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Installation</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
</tr>
</tbody>
</table>

### Z-KEY

**NEW CHARACTERISTICS**

**2-Port ModBUS RTU Industrial Gateway / Serial Device Server**

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>YES</th>
<th>YES</th>
<th>YES</th>
<th>YES</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
</tr>
<tr>
<td>Absorption</td>
<td>1 W</td>
<td>2 W @ 24 Vac (typical)</td>
<td>2 W @ 24 Vac (typical)</td>
<td>3 W @ 24 Vac, Max 4 W</td>
<td>4 W @ 24 Vac, Max 6 W</td>
</tr>
<tr>
<td>Insulation</td>
<td>1,500 Vac</td>
<td>1,500 Vac</td>
<td>1,500 Vac (power supply // remaining circuits b.i.l)</td>
<td>1,500 Vac</td>
<td>1,500 Vac</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
</tr>
<tr>
<td>RAM</td>
<td>-</td>
<td>64 MB</td>
<td>64 MB</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SD Micro Card</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Max 32 GB</td>
<td>Max 32 GB</td>
</tr>
<tr>
<td>Integrated I/O</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Max 32 GB</td>
<td>Max 32 GB</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20..+70°C</td>
<td>-20°C..+65°C</td>
<td>-20°C..+50°C</td>
<td>-20°C..+40°C</td>
<td>-20°C..+40°C</td>
</tr>
<tr>
<td>Dimensions (height)</td>
<td>53 x 80 x 32 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>35 x 100 x 112 mm</td>
<td>32.5 x 100 x 112 mm</td>
<td>32.5 x 100 x 112 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>80 g</td>
<td>170 g</td>
<td>220 g</td>
<td>280 g</td>
<td>280 g</td>
</tr>
<tr>
<td>Casing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Installation</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
</tr>
</tbody>
</table>

### Z-PASS1

**NEW CHARACTERISTICS**

**VPN Industrial Gateway - Serial Device Server, 101, 200, integrated 1DI/0D**

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>YES</th>
<th>YES</th>
<th>YES</th>
<th>YES</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
</tr>
<tr>
<td>Absorption</td>
<td>1 W</td>
<td>2 W @ 24 Vac (typical)</td>
<td>2 W @ 24 Vac (typical)</td>
<td>3 W @ 24 Vac, Max 4 W</td>
<td>4 W @ 24 Vac, Max 6 W</td>
</tr>
<tr>
<td>Insulation</td>
<td>1,500 Vac</td>
<td>1,500 Vac</td>
<td>1,500 Vac (power supply // remaining circuits b.i.l)</td>
<td>1,500 Vac</td>
<td>1,500 Vac</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
</tr>
<tr>
<td>RAM</td>
<td>-</td>
<td>64 MB</td>
<td>64 MB</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SD Micro Card</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Max 32 GB</td>
<td>Max 32 GB</td>
</tr>
<tr>
<td>Integrated I/O</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Max 32 GB</td>
<td>Max 32 GB</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20..+70°C</td>
<td>-20°C..+65°C</td>
<td>-20°C..+50°C</td>
<td>-20°C..+40°C</td>
<td>-20°C..+40°C</td>
</tr>
<tr>
<td>Dimensions (height)</td>
<td>53 x 80 x 32 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>35 x 100 x 112 mm</td>
<td>32.5 x 100 x 112 mm</td>
<td>32.5 x 100 x 112 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>80 g</td>
<td>170 g</td>
<td>220 g</td>
<td>280 g</td>
<td>280 g</td>
</tr>
<tr>
<td>Casing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Installation</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
</tr>
</tbody>
</table>

### Z-PASS2

**NEW CHARACTERISTICS**

**VPN Industrial Gateway - Serial Device Server, 201, 200, integrated 2DI/0D, worldwide modem**

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>YES</th>
<th>YES</th>
<th>YES</th>
<th>YES</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
<td>10..40 Vac; 19..28 Vac</td>
</tr>
<tr>
<td>Absorption</td>
<td>1 W</td>
<td>2 W @ 24 Vac (typical)</td>
<td>2 W @ 24 Vac (typical)</td>
<td>3 W @ 24 Vac, Max 4 W</td>
<td>4 W @ 24 Vac, Max 6 W</td>
</tr>
<tr>
<td>Insulation</td>
<td>1,500 Vac</td>
<td>1,500 Vac</td>
<td>1,500 Vac (power supply // remaining circuits b.i.l)</td>
<td>1,500 Vac</td>
<td>1,500 Vac</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
</tr>
<tr>
<td>RAM</td>
<td>-</td>
<td>64 MB</td>
<td>64 MB</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SD Micro Card</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Max 32 GB</td>
<td>Max 32 GB</td>
</tr>
<tr>
<td>Integrated I/O</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Max 32 GB</td>
<td>Max 32 GB</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20..+70°C</td>
<td>-20°C..+65°C</td>
<td>-20°C..+50°C</td>
<td>-20°C..+40°C</td>
<td>-20°C..+40°C</td>
</tr>
<tr>
<td>Dimensions (height)</td>
<td>53 x 80 x 32 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>35 x 100 x 112 mm</td>
<td>32.5 x 100 x 112 mm</td>
<td>32.5 x 100 x 112 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>80 g</td>
<td>170 g</td>
<td>220 g</td>
<td>280 g</td>
<td>280 g</td>
</tr>
<tr>
<td>Casing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Installation</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
<td>For DIN guide (IEC EN 60715)</td>
</tr>
</tbody>
</table>

---

**SAFETY**

- Remote access block
- LAN/WAN networks division
- Data Encryption / VPN
- Handshake
- Web Server Authentication
- Safety protocols

**SETTINGS AND FUNCTIONS**

- DPI switch
- Web server
- Web server
- Web server
- Web server

**VPN management software**

- VPN BOX Manager, OpenVPN, VPN Client

**Connections management tool**

- SDD (Seneca Discovery Device), SESC (Seneca Ethernet to Serial Connection), EASY Z-KEY

**Variable I/O configuration via SMS**

- Advanced diagnostics
- Data logging on SD Card
- If THEN ELSE* Logic
- MQTT and Third Party Cloud* Support

**Cloud BOX support**

- Yes

---

**REGULATIONS**

- EC
- EC
- EC
- EC

* Functions available by Q3-2018 ** alternatively
## IOT GATEWAY

### APPLICATION EXAMPLES

#### TRANSPARENT GATEWAY / DAQ

- **Code**: ModBUS TCP-IP
- **Description**: Remote I/O

#### MODBUS GATEWAY SHARED MEMORY

- **Max 8 / 32 client**
- **Code**: ModBUS TCP-IP

#### SERIAL TUNNEL POINT-TO-POINT

- **Code**: Ethernet to Serial Connection
- **Description**: Ethernet to Serial Connection

#### SERIAL DEVICE SERVER – VIRTUAL COM

- **Code**: SESC
- **Description**: SESC Ethernet to Serial Connection

### ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-KEY-LT</td>
<td>1-Port ModBUS RTU/ASCII Industrial Gateway</td>
</tr>
<tr>
<td>Z-KEY</td>
<td>2-Port ModBUS RTU Industrial Gateway / Serial Device Server</td>
</tr>
<tr>
<td>2-PASS1</td>
<td>VPI Industrial Gateway - Serial Device Server, 10/100, integrated 10/100</td>
</tr>
<tr>
<td>2-PASS2</td>
<td>VPI Industrial Gateway - Serial Device Server, 20/100, 20x100, open port 30/100</td>
</tr>
<tr>
<td>2-PASS2-10-GF</td>
<td>VPI Industrial Gateway - Serial Device Server, 10/100, integrated 10/100, 10G Ethernet Router, GPS</td>
</tr>
</tbody>
</table>

### ACCESSORIES

- **Code**: A-GSM
- **Description**: External antenna GSM dual band M 2.3 m
- **Code**: A-GSM-QUAD-N
- **Description**: GSM 5M M quadband external antenna, M 4 m

### TOOL SOFTWARE

- **Code**: Z-KEY
- **Description**: Z-KEY address configuration tool
- **Code**: SDD
- **Description**: SENeca Discovery Device, IP scanner for Z-KEY, Z-PASS1, Z-PASS2
- **Code**: SESC
- **Description**: SESC Ethernet to Serial Connection for Z-KEY, Z-PASS1, Z-PASS2
- **Code**: EASY-Z-KEY
- **Description**: Z-KEY web page template
- **Code**: TEMP-TAG-Z-PASS
- **Description**: Default template tag management gateway mode: Z-PASS1 or Z-PASS2
- **Code**: TEMP-TAG-Z-KEY
- **Description**: Gateway mode tag management Excel Template: Z-PASS1 or Z-PASS2
- **Code**: TEMP-WEB-Z-KEY
- **Description**: Z-KEY web page template
IOT / VPN REMOTE ASSISTANCE
REMOTE CONTROL PLATFORM

2.6
LET’S is the SENECA VPN - IoT platform that reduces maintenance costs for automation and management of machines and systems, offering an integrated connectivity service on 3 levels: remote access to data, programmable control, network monitoring. Based on the VPN BOX Server module, LET’S allows “Always ON” connections (Remote control / Single LAN mode) for systems supervision or “ON Demand” connections (Remote service / Point-to-Point mode) to third-party machines and devices and for services maintenance or data collection. Communication from a PC or mobile device is via desktop software or VPN Client Communicator APP. The industrial VPN - IoT gateways of the LET’S platform extend the serial networks over Ethernet as well as supporting complex architectures and safety critical applications. The ZPASS2 model, with integrated 3G+/4G LTE modem, also functions as a router, DynDNS Server and a redundant communication device. One of the main innovations of the platform is the integration of the remote access functions with those of programmable automation thanks to the SENECA controllers on the basis of IEC 61131.

**HIGHLIGHTS**

- Configurable integrated I/O
- Integration with PLC and third party device
- PLC / SoftPLC IEC 61131 - Straton
- R/W from Plc siemens S7 Protocol® for CPU with Straton
- Server in House (HW/SW/Virtual Machine)
- VPN based on Standard OpenVPN
- Mobile app for VPN client connectivity
- Datalogging
- Advanced alarms
- Support Modbus
- Serial connections (RS232, RS485, custom)
- 3G+ / 4G Connectivity
- Rapid configuration via Web Server
- 100% Made & Designed in Italy
- Industry 4.0 ready
**THE PLATFORM**

**CONNECTIVITY MODULE - VPN SERVER**

**Connections management**
- A server that can be installed on the customer’s network with a public static IP
- Remote connection mode management: Remote assistance/Point-to-Point or Remote control/Single LAN
- Max 496 networks supported in Single LAN mode, virtually unlimited in Point-To-Point mode

**System Configuration**
- Registering of Client VPN BOX through certificates: automated operation, following client authentication (password)
- Server configuration through dedicated software
- Security management through SSL/TLS protocols
- Upgradable via USB flash drive

**Versions**
- HW device / appliance
- Software / Virtual Machine

---

**GATEWAY / ROUTER VPN CLIENT**

**FUNCTIONALITY**

<table>
<thead>
<tr>
<th></th>
<th>Z-PASS1</th>
<th>Z-PASS2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modbus Gateway (from Modbus TCP to Modbus RTU)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Modbus Gateway (Shared memory)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Modbus calls optimisation</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Serial communication diagnostics</td>
<td>X*</td>
<td>X*</td>
</tr>
<tr>
<td>Modbus Gateway Reverse (from Modbus RTU to Modbus TCP)</td>
<td>X*</td>
<td>X*</td>
</tr>
<tr>
<td>Client Modbus TCP (gateway)</td>
<td>X*</td>
<td>X*</td>
</tr>
<tr>
<td>Remote / Virtual COM PORT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serial Server Point-to-Point (UDP)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3G / 4G Router (DHCP Server, Firmware, DynDNS)</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**System Redundancy**
- Client OpenVPN Standard
- Client VPN BOX for Always On connections
- Client VPN BOX for On Demand connections

**Integrated Web Server**
- X

**Web pages security device**
- Basic Authentication

**Ethernet LAN/WAN**
- X

**Ethernet Switch**
- X

**Integrated I/O**
- 4

**Update firmware/configuration via USB**
- X

**Remote connection block**
- X

**Data Logging**
- X* | X*

**Modbus I/Y/TAG Management via SMS**
- X* | X*

---

**VPN CLIENT CONTROLLERS**

**FUNCTIONALITY**

<table>
<thead>
<tr>
<th></th>
<th>Z-TWS4</th>
<th>Z-PASS2-S</th>
<th>S6001-RTU</th>
<th>S6001-PC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modern / Router</td>
<td>-</td>
<td>3G+/4G</td>
<td>3G+</td>
<td>3G+</td>
</tr>
<tr>
<td>Serial Ports</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>USB Ports</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Industrial protocols</td>
<td>Modbus RTU/TCP, LAN</td>
<td>Modbus RTU/TCP, IP</td>
<td>Modbus RTU/TCP, IP</td>
<td>Modbus RTU/TCP, IP (only slave)</td>
</tr>
<tr>
<td>Network protocols</td>
<td>http, ftp, smtp</td>
<td>http, ftp, smtp, sftp</td>
<td>http, ftp, smtp, sftp</td>
<td>http, ftp, smtp, sftp</td>
</tr>
<tr>
<td>Energy protocol</td>
<td>IEC 60870-101/104, IEC 61850 (optional)</td>
<td>IEC 60870-101/104, IEC 61850 (optional)</td>
<td>IEC 60870-101/104, IEC 61850 (optional)</td>
<td>-</td>
</tr>
<tr>
<td>Configuration</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Security</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Remote terminal</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Web pages server</td>
<td>Straton, ZNET4</td>
<td>Straton, ZNET4</td>
<td>Straton, ZNET4</td>
<td>HMI</td>
</tr>
<tr>
<td>Availability of Straton OEM libraries</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
</tbody>
</table>

---

**PROGRAMMING TOOL**

**WEBSEVER**
- Web server
- Client Configuration
- RTC Configuration
- Firmware update

**OPENVPN (PC and Mobile App)**
- Open VPN client flexible configuration
- Client authentication
- TUN, TAP interfaces support

**VPN CLIENT COMMUNICATOR**
- App PC and Mobile
- P2P / SINGLE LAN connections
- Access with credentials
- Certified automatic installation

**STRATON**
- IEC 61131 SoftPLC automation logic
- I/R functions from Siemens PLC with S7 Protocol
SINGLE LAN / REMOTE CONTROL CONNECTION

In Remote control / Single LAN mode (always on connection) VPN BOX functions as a network server to which a static and public IP is assigned. The communication is simultaneous and always active between all the remote sites and the server, as well as with the different subnets that are part of the overall system. This type of connection is ideal for real-time monitoring and for the implementation of supervisory systems.

**Typical applications**
Monitoring, maintenance, supervision, data acquisition, local automation, alarms

**Type of connection**
Always ON. Contemporary and always active on all remote sites. Connection between different networks (e.g. 192.168.30.x, 192.168.40.x...) via VPN

**Communication between VPN subnets**
Yes, systems visible/accessible to all VPN clients

**Subnet access**
Via local addresses

**Multi-user management**
No

**Network configurations**
Differentiated in different sites

**SIM supported**
All

**Benefits**
- Remote and simultaneous access on different systems
- Possibility to consult the devices as if you were in the field (local)
- Integration of heterogeneous networks

**LOGIC MODEL**

«ALWAYS ON» CONNECTION

**EXAMPLE OF ARCHITECTURE**
IOT / VPN REMOTE ASSISTANCE / REMOTE CONTROL PLATFORM

POINT TO POINT CONNECTION

In the Remote service / Point-To-Point mode (connection on demand) VPN BOX works as a concentrator and establishes communication between PC (or mobile device) and machine / system.

It also requires the assignment of a static and public IP or possibly of a DynDNS address.

Ideal for remote maintenance and diagnostics applications. This type of connection allows the coexistence of multiple types of users.

<table>
<thead>
<tr>
<th>Typical applications</th>
<th>Maintenance, diagnostics, Systems start-up, customer support in real time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of connection</td>
<td>ON Demand, P2P Pc user connection / Mobile device and device / machine. If required and not contemporary for the different sites.</td>
</tr>
<tr>
<td>Communication between VPN subnets</td>
<td>No</td>
</tr>
<tr>
<td>Subnet access</td>
<td>Via local addresses</td>
</tr>
<tr>
<td>Multi-user management</td>
<td>YES</td>
</tr>
<tr>
<td>Network configurations</td>
<td>Equal at the different sites (e.g. 192.168.20.x).</td>
</tr>
<tr>
<td>SIM supported</td>
<td>All</td>
</tr>
<tr>
<td>Benefits</td>
<td>• Reduction of logistics and maintenance costs</td>
</tr>
<tr>
<td></td>
<td>• Remote machine control</td>
</tr>
<tr>
<td></td>
<td>• User Profiling</td>
</tr>
</tbody>
</table>

LOGIC MODEL

«ON DEMAND» CONNECTION

EXAMPLE OF ARCHITECTURE

<table>
<thead>
<tr>
<th>Data collection</th>
<th>ModBUS/TCP/IP 192.168.2.X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display of the machine/system status</td>
<td>ModBUS RTU</td>
</tr>
<tr>
<td>Programming and debug</td>
<td>192.168.4.12</td>
</tr>
<tr>
<td>Static and public IP</td>
<td>192.168.1,33</td>
</tr>
<tr>
<td>WAN</td>
<td>192.168.85.18</td>
</tr>
</tbody>
</table>

SENeca I General Catalogue
## VPN SOLUTIONS

### SOLUTION SENeca VPN BOX

- **GATEWAY / ROUTER**
  - Z-PASS1-10: VPN Industrial Gateway - Serial Device Server, 1DI, 2DO, integrated 1DI/DO
  - Z-PASS2-10: VPN Industrial Gateway - Serial Device Server, 2DI, 2DO, integrated 2DI/DO, worldwide modem
  - Z-PASS2-10-4G-BD: VPN Industrial Gateway - Serial Device Server, 1DI/DO, 4G-LTE/Ethernet Router, GPS

### SOLUTION SENeca VPN BOX / VIRTUAL MACHINE

- **SERVER VPN**
  - VPN BOX: VPN Server optimised for Point-to-Point / Single LAN connections
  - VPN BOX VM: Virtual Machine Server VPN optimised for Point-to-Point / Single LAN connections
  - VPN BOX VM-D: Virtual Machine Server VPN optimised for Point-to-Point / Single LAN connections max 2 devices

### SOLUTION WITH SERVER OPEN VPN STANDARD

- **VPN CONTROLLERS**
  - Z-TWS4-L-IO: IEC 61131 multifunction controller, integrated I/O, Linux based, OEM version
  - Z-TWS4-S-IO: IEC 61131 multifunction controller, integrated I/O, Straton workbench, OEM version
  - Z-TWS4-E-IO: IEC 61131 multifunction controller, integrated I/O, Straton workbench, OEM version, Energy protocol
  - Z-PASS2-S-IO: Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, worldwide modem 3G+ / Ethernet Router, GPS
  - Z-PASS2-S-EO4GEU: Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, 4G-EU/Ethernet Router, GPS

### ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GATEWAY / ROUTER</td>
<td></td>
</tr>
<tr>
<td>Z-PASS1-10</td>
<td>VPN Industrial Gateway - Serial Device Server, 1DI, 2DO, integrated 1DI/DO</td>
</tr>
<tr>
<td>Z-PASS2-10</td>
<td>VPN Industrial Gateway - Serial Device Server, 2DI, 2DO, integrated 2DI/DO, worldwide modem</td>
</tr>
<tr>
<td>Z-PASS2-10-4G-BD</td>
<td>VPN Industrial Gateway - Serial Device Server, 1DI/DO, 4G-LTE/Ethernet Router, GPS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CODE</th>
<th>TOOL SOFTWARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDD</td>
<td>SENeca Discovery Device, IP scanner</td>
</tr>
<tr>
<td>KSC</td>
<td>SENeca Ethernet to Serial Connection</td>
</tr>
</tbody>
</table>

| STRATON-USB | Station activation key for IC-61131 controllers |
| STRATON-ID256 | Station development environment 256 tags with USB activation key |
| STRATON-ID512 | Station development environment 512 tags with USB activation key |

| STRATON-CA | Station development environment unlimited tags with USB activation key |
| STRATON-6705 | Activation licence IC-60870-5-101/104 Slave |
| STRATON-6705-850 | Activation licence IC-60870-5-101/104 Slave + Licence IC-61850 Client / Server |

| STRATON-PACKAGE | SENeca Straton Package - CPU Straton Installer suite (supplied) |
| STRATON-UPGRADE1 | Station upgrade from 256 to 512 tags |
| STRATON-UPGRADE2 | Station upgrade from 512 to unlimited tags |
| STRATON-UPGRADE3 | Station upgrade from 256 to unlimited tags |

### ACCESSORIES

<table>
<thead>
<tr>
<th>ACCESSORIES</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-TW54-S</td>
<td>Station workstation (2) 61131 free editor supplied</td>
</tr>
</tbody>
</table>

### ORDER CODE

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-PASS1-10</td>
<td>IEC 61131 multifunction controller, integrated I/O, Linux based, OEM version</td>
</tr>
<tr>
<td>Z-PASS2-10</td>
<td>IEC 61131 multifunction controller, integrated I/O, Straton workbench, OEM version</td>
</tr>
<tr>
<td>Z-PASS2-10-4G-BD</td>
<td>IEC 61131 multifunction controller, integrated I/O, Straton workbench, OEM version, energy protocol</td>
</tr>
<tr>
<td>Z-PASS2-S-IO</td>
<td>Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, worldwide modem 3G+ / Ethernet Router, GPS</td>
</tr>
<tr>
<td>Z-PASS2-S-EO4GEU</td>
<td>Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, 4G-EU/Ethernet Router, GPS</td>
</tr>
<tr>
<td>S6001-PC</td>
<td>Pump controller with integrated I/O, 2DO, 2DI, 2DI/DO, energy protocol</td>
</tr>
<tr>
<td>S6001-RTU</td>
<td>Pump controller with integrated I/O, 3DO, 3DI, 3DI/DO, energy protocol</td>
</tr>
<tr>
<td>S6001-RTU-APP</td>
<td>Pump controller with integrated I/O, 3DO, 3DI, 3DI/DO, energy protocol</td>
</tr>
</tbody>
</table>

### SOLUTIONS

- **IOT / VPN REMOTE ASSISTANCE / REMOTE CONTROL PLATFORM**
- **WEB SERVER SOLUTION**
- **OPENVPN STANDARD**

### APPLICATION SECTORS

- **BUILDING AUTOMATION**
- **ENVIRONMENT / WATER TREATMENT**
- **REMOTE ASSISTANCE / REMOTE CONTROL**
- **INTEGRATION WITH IT SYSTEMS**
- **TRAFFIC & TRANSPORTATION**
- **ENERGY**
- **SURVEILLANCE & SECURITY**
- **OIL & GAS**

### ACCESSORIES

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-PC-DINAL2-52.5</td>
<td>Support for rapid assembly on DIN guide head + 3 slot pitch 17.5 mm</td>
</tr>
<tr>
<td>Z-PC-DIN1-35</td>
<td>Support for rapid assembly on DIN guide 1 slot pitch 35 mm</td>
</tr>
<tr>
<td>Z-PC-DIN4-35</td>
<td>Support for rapid assembly on DIN guide 4 slot pitch 35 mm</td>
</tr>
<tr>
<td>Z-PC-DIN4-35</td>
<td>Support for rapid assembly on DIN guide 4 slot pitch 35 mm</td>
</tr>
</tbody>
</table>

### STRATON-UPGRADE1 | Station upgrade from 256 to unlimited tags |
| STRATON-UPGRADE2 | Station upgrade from 512 to unlimited tags |
| STRATON-UPGRADE3 | Station upgrade from 256 to unlimited tags |

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-PASS2-S-IO</td>
<td>Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, worldwide modem 3G+ / Ethernet Router, GPS</td>
</tr>
<tr>
<td>Z-PASS2-S-IO-4G-EU</td>
<td>Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, 4G-EU/Ethernet Router, GPS</td>
</tr>
<tr>
<td>Z-PASS2-S-IO4GEU</td>
<td>Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, 4G-EU/Ethernet Router, GPS, energy protocol</td>
</tr>
<tr>
<td>Z-PASS2-52-S</td>
<td>Straton advanced control unit with integrated I/O, 2DO, 2DI, 2DI/DO, energy protocol</td>
</tr>
</tbody>
</table>

### ORDER CODE

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-PC-DINAL2-52.5</td>
<td>Support for rapid assembly on DIN guide head + 3 slot pitch 17.5 mm</td>
</tr>
<tr>
<td>Z-PC-DIN1-35</td>
<td>Support for rapid assembly on DIN guide 1 slot pitch 35 mm</td>
</tr>
<tr>
<td>Z-PC-DIN4-35</td>
<td>Support for rapid assembly on DIN guide 4 slot pitch 35 mm</td>
</tr>
</tbody>
</table>
IOT Solutions
CLOUD

Cloud BOX
## TECHNICAL DATA

### GENERAL DATA
- **Power supply voltage**: 12 Vdc (including power supply unit)
- **Operating temperature**: 0..+40 °C
- **Storage temperature**: -20..+85 °C
- **Dimensions (lxhxw)**: 185x48x165 mm
- **Factory IP address**: Configured in DHCP
- **CPU Casing / Cooling**: Compact / Fanless
- **Conformity**: CE, FCC, RoHS, ErP Ready
- **Assembly**: On wall or on DIN guide
- **Compatible SENECA products**: Z-LOGGER3, Z-GPRS3, Z-UMTS

### HARDWARE DATA
- **Processor**: Intel Celeron J1900 2.0 GHz Quad-Core
- **Memory capacity**: 4 GB DD3L-1333
- **SSD**: 64GB mSATA
- **LAN Controller**: Intel 211-AT Gigabit LAN

### INTERFACES
- **USB**: No. 3 USB ports 2.0 No. 1 USB port 3.0
- **LAN**: Nr.2 RJ45
- **Video**: VGA, HDMI

### FUNCTIONS
- **Real-time telemetric display**: Yes
- **Historic data analysis**: Yes
- **Analysis of alarm and event log**: Yes
- **Sending of commands to the connected SENECA devices**: Yes
- **Dashboard**: Yes
- **Synoptics**: Yes
- **Widget**: Yes
- **Data storage**: Local storage on DB
- **Data export**: CSV
- **Sampling time**: Minimum 1 minute
- **Connectable SENECA device**: Maximum 200
- **Total number of tags**: Max 5000
- **Compatible browser**: Google Chrome
- **Compatible media**: Desktop, Tablet, Smartphone, Smart TV
- **Compatible operating systems**: Windows, Android, iOS
- **Related softwares**: SeAL, Log Factory, SDD (Seneca Discovery Device)

### CONNECTIONS
- **VPN network configuration**: No
- **Server Configuration**: Yes
- **Static and Public IP Request**: Yes
- **Connection protocols**: HTTP, HTTPS, FTP
- **VPN P2P connections (On Demand)**: No
- **VPN Single LAN connections (Always On)**: No

## WHAT IT IS

The Cloud - IoT solution for centralising data, managing remote connections, creating multi-user customisable supervision pages.

## HOW IT WORKS

- **Sending of commands to datalogger, RTU and communication devices**
- **Saving data received from devices in the field on a centralised database**
- **Access to Cloud BOX through configurable web pages**

Each Cloud BOX connection can receive data from devices and send asynchronous commands based on widget settings in the dashboard.

If the device is unable to send data to the Cloud BOX, it is stored in it. When the connection is restored, the Cloud BOX recovers the data interval that is missing from the device.

It is possible to define a list with a virtually unlimited number of users to send alarm mails to. Cloud BOX receives real-time alarms from the field and forwards them to users.

## ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLOUD BOX</td>
<td>Industrial IoT BOX</td>
</tr>
<tr>
<td>SEAL</td>
<td>SENECA Advanced language, advanced software prog.</td>
</tr>
<tr>
<td>SDD</td>
<td>SENECA Discovery Device, IP scanner</td>
</tr>
</tbody>
</table>

## SUPPORTED SENECA DEVICES*

- **Z-LOGGER3**: Data logger with integrated I/O, voice alarms
- **Z-GPRS3**: GSM/GPRS data logger with integrated I/O, remote control and voice alarms
- **Z-UMTS**: 3G+ data logger with integrated I/O, remote control, voice alarms

*The technical data and the diagrams in this document are indicative and not binding.*
SERIAL/USB CONVERTERS
# SERIAL CONVERTERS

<table>
<thead>
<tr>
<th>SERIAL CONVERTERS</th>
<th>Z107/S107P</th>
<th>Z-4AI-D</th>
<th>Z-4TC-D</th>
<th>K107A</th>
<th>K107B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENERAL DATA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>Z107: 19..40 Vac, 19..28 Vac S107P: 9..12 Vac (power supply unit 220 Vac supplied)</td>
<td>9..30 (option) - 19..40 Vac, 19..28 Vac (50..60 Hz)</td>
<td>9..30 (option) - 19..40 Vac, 19..28 Vac (50..60 Hz)</td>
<td>19..30 Vac, 22 mA (24 Vdc)</td>
<td>19..30 Vac, 22 mA (24 Vdc)</td>
</tr>
<tr>
<td>Max absorption</td>
<td>Z107: 2.5 W - S107P: 1 W</td>
<td>2.5 W</td>
<td>2 W</td>
<td>0.5 W</td>
<td>0.5 W</td>
</tr>
<tr>
<td>Insulation</td>
<td>Z107: 1,500 Vac (3-way)</td>
<td>1,500 Vac (3-way)</td>
<td>1,500 Vac (3-way)</td>
<td>1,500 Vac (3-way)</td>
<td>1,500 Vac (3-way)</td>
</tr>
<tr>
<td>State indicators</td>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
<td>Data presence</td>
<td>Data presence</td>
</tr>
<tr>
<td></td>
<td>RST signal status</td>
<td>Error</td>
<td>Error</td>
<td>Power supply</td>
<td>Power supply</td>
</tr>
<tr>
<td></td>
<td>Data transmission</td>
<td>Data transmission</td>
<td>Data transmission</td>
<td>Data receipt</td>
<td>Data receipt</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0..+55 °C</td>
<td>0..+50 °C</td>
<td>0..+50 °C</td>
<td>-20..+65°C</td>
<td>-20..+65°C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>6.2 x 93.1 x 102.5 mm</td>
<td>6.2 x 93.1 x 102.5 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
<td>45 g</td>
<td>45 g</td>
</tr>
<tr>
<td>Casing</td>
<td>Z107: nylon 6 preloaded 30% glass fibre – self-extinguishing class V0</td>
<td>nylon 6 preloaded 30% glass fibre – self-extinguishing class V0</td>
<td>nylon 6 preloaded 30% glass fibre – self-extinguishing class V0</td>
<td>PBT, black</td>
<td>PBT, black</td>
</tr>
<tr>
<td>Connections</td>
<td>Screws removable terminals for 2.5 mm conductors</td>
<td>Screw removable terminals</td>
<td>Screw removable terminals</td>
<td>Spring terminals</td>
<td>Spring terminals</td>
</tr>
<tr>
<td><strong>COMMUNICATION, PROCESSING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interfaces</td>
<td>Z107 RS232 on RJ45 connector on the front RS485/RS422, extractable terminals, screw connection S107P RS232, DB9 connector RS485/RA242, removable terminal block, 5-pole screw connection</td>
<td>Serial RS232 (configuration)</td>
<td>Serial RS232 (configuration)</td>
<td>RS485 half duplex, 31 nodes, terminator, protection up to 30 Vdc RS485 half duplex, 31 nodes, terminator, protection up to 30 Vdc</td>
<td>RS232B, protection up to 30 Vdc</td>
</tr>
<tr>
<td>Inlet</td>
<td>VOLTAGE (V) 2..10 V f.s. 16,000 point resolution Impedance 100 KΩ CURRENT (mA) ± 20 mA (bipolar) 16,000 point resolution Impedance: 100 KΩ</td>
<td>VOLTAGE ± 80 mV Impedance 10 MΩ THERMOCOUPLE Type J, K, R, S, T, E, B, N</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Output</td>
<td>4 digital channels from/to control unit (1 can be set as clock or reset input)</td>
<td>4 digital channels from/to control unit (1 can be set as clock or reset input)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Change of direction</td>
<td>Automatic timed, controlled by RTS RS232 interface</td>
<td>Automatic timed</td>
<td>Automatic timed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>Up to 115 kbps</td>
<td>-</td>
<td>-</td>
<td>Up to 250 kbps</td>
<td>Up to 250 kbps</td>
</tr>
<tr>
<td>Protocol</td>
<td>ModBUS RTU slave</td>
<td>-</td>
<td>-</td>
<td>ModBUS RTU slave</td>
<td>ModBUS RTU slave</td>
</tr>
<tr>
<td>Distance</td>
<td>Up to 1,200 m</td>
<td>-</td>
<td>-</td>
<td>Up to 1,200 m</td>
<td>Up to 1,200 m</td>
</tr>
<tr>
<td><strong>CONFIGURATIONS, REGULATIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Programming</td>
<td>Dip switch (speed, communication, change of direction) IEC 61131 PLC libraries Dip switch (filter time, input time, scale, serial interface) Z-PROG (PC software)</td>
<td>IEC 61131 PLC libraries Dip switch (filter time, input time, scale, serial interface) Z-PROG (PC software)</td>
<td>IEC 61131 PLC libraries Dip switch (filter time, input time, scale, serial interface) Z-PROG (PC software)</td>
<td>Dip switch</td>
<td>Dip switch</td>
</tr>
<tr>
<td>Standards and approvals</td>
<td>CE, EN 61000-6-4, EN61000-6-2, EN61010-1</td>
<td>CE, EN 61010-1, EN 50081-2, EN 50082-2, EN 60742, IEC 61131</td>
<td>CE, EN 61010-1, EN 50081-2, EN 50082-2, EN 60742, IEC 61131</td>
<td>UL-UR, CE, EN 61010-1, EN 60742, EN 61000-6-2, EN 60600-6-4</td>
<td>UL-UR, CE, EN 61010-1, EN 60742, EN 61000-6-2, EN 61000-6-4</td>
</tr>
<tr>
<td><strong>ORDER CODE</strong></td>
<td>Code</td>
<td>Z107 (panel version)</td>
<td>Z-4AI-D</td>
<td>Z-4TC-D</td>
<td>K107A</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
## USB CONVERTERS

### K107USB
- **Opto-isolated serial converter RS485 / USB (panel vers.)**
- **Power supply** Via USB port of the PC
- **Max absorption** 0.5W
- **Insulation** 1,500 Vac
- **State indicators** Data presence, Inverter connection
- **Degree of protection** IP20
- **Dimensions** 6.2 x 93.1 x 102.5 mm
- **Weight** 45 g
- **Casing** PBT, black
- **Connections** Spring terminals DB9 (RS232 connector)
- **Assembly** DIN Guide 35 mm (IEC/EN 60715)

### S117P1
- **Asynchronous serial converter RS232/USB, TTL/USB, RS485/USB**
- **Power supply** Via USB port of the PC
- **Max absorption** 0.35W
- **Insulation** 1,500 Vac
- **State indicators** Power Supply, Data Transmission
- **Connections** 5-pole terminal block

### S107USB
- **Opto-isolated serial converter RS485 / USB (portable vers.)**
- **Power supply** Via USB port of the PC
- **Max absorption** 0.5W
- **Insulation** 1,500 Vac
- **State indicators** Power Supply, Data Transmission
- **Connections** Data receipt

### EASY-USB
- **Converter USB - UART TTL**
- **Power supply** Via USB port of the PC
- **Max absorption** 0.35W
- **Insulation** 1,500 Vac
- **State indicators** Power Supply, Data Transmission
- **Connections** Data receipt

### GENERAL DATA
- **Power supply** Via USB port of the PC
- **Max absorption** 0.5W
- **Insulation** 1,500 Vac
- **State indicators** Data presence, Inverter connection
- **Degree of protection** IP20

### THERMOMECHANICAL CHARACTERISTICS
- **Operating temperature** -20..+65°C
- **Dimensions** 6.2 x 93.1 x 102.5 mm
- **Weight** 45 g
- **Casing** PBT, black
- **Connections** Spring terminals DB9 (RS232 connector)
- **Assembly** DIN Guide 35 mm (IEC/EN 60715)

### COMMUNICATION, PROCESSING
- **Interfaces** RS485, 31 nodes, spring terminal, USB A and MINI USB B, connection multiple on the same PC
- **Change of direction** Automatic timed
- **Speed** Up to 250 kbps
- **Protocol** ModBUS RTU slave
- **Distance** Up to 1,200 m

### CONFIGURATIONS, REGULATIONS
- **Programming** Cd with driver, USB connection cable
- **Standards and approvals** UL-UR, CE, EN 61010-1, EN 60742, EN 61000-6-2, EN 61000-6-4

### ORDER CODE
- **Code** K107USB, S117P1, S107USB, EASY-USB

## PROGRAMMING KIT

### D-USB
- **Free download on** www.seneca.it
- **Driver for O.S. Windows, Mac OS, OS-X, Linux**

### CS-JACK-DB9F
- **Indicators (S311A and S311D with optional board, S312A)**

### Programming serial cable
- **Serie Z (Z109REG, Z109REG2, Z4AI-D, Z-4TC-D, Z3AO, Z8AI, Z-8TC...) (Jack / DB9F)**

The technical data and the diagrams in this document are indicative and not binding.
APPLICATION DIAGRAMS

A/D conversion for mA/V input signals

A/D conversion for thermocouples

Connection of several RS485 serial lines (ModBUS) with electrical isolation

Remote transmission RS232 / RS485 bidirectional with electrical isolation

Bidirectional RS232 / RS485 remote transmission with electrical isolation up to 32 nodes

Multiple connection and data transmission with USB / RS485 electrical isolation

Connection for configuration strain gauge module

On-board diagnostics
CONVERTERS FOR FIBRE OPTICS
CONVERTERS FOR FIBRE OPTICS

The SENECA S232, S485, SETH and SCAN fibre optic converters also offer the possibility of extending any type of network/bus (LAN/Ethernet, CAN or serial) on the optical fibre at the same time. They also guarantee high levels of safety and reliability. The modules make it possible to use both mono-modal and multi-modal fibre, ensuring solid, reliable and extremely high-speed communication. The application of optical fibre includes industrial and civil environments, energy production plants and telecommunication and control systems.

**TYPE OF CONNECTION**

1. **POINT TO POINT (LINKED DIRECTLY)**

   - Ethernet CAN RS232 RS485
   - Two optical fibers

2. **RING (SINGLE LOOP)**

   - One optical fibers
   - Converters dosed in a RING
   - Ethernet CAN RS232 RS485

3. **REDUNDANT RING (DOUBLE LOOP)**

   - Two optical fibers
   - Converters dosed in a REDUNDANT RING
   - Ethernet CAN RS232 RS485

4. **MULTI-DROP (IN-LINE)**

   - Several devices connected in line (up to 1000 units)
   - Ethernet CAN RS232 RS485
   - Two optical fibers
## Serial Converters

<table>
<thead>
<tr>
<th>S232-FO</th>
<th>S485-FO</th>
<th>SETH-FO</th>
<th>SCAN-FO</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="serialConverters" alt="Image" /></td>
<td><img src="serialConverters" alt="Image" /></td>
<td><img src="serialConverters" alt="Image" /></td>
<td><img src="serialConverters" alt="Image" /></td>
</tr>
</tbody>
</table>

### Serial Converters

- **S232-FO**: Single / double loop single-mode / multimode RS232 converter
- **S485-FO**: RS485 converter in single-mode / double loop fibre
- **SETH-FO**: Single-mode / multimode single / double loop fibre-optic converter
- **SCAN-FO**: CAN converter in single-mode / multimode single / double loop fibre

### General Data

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>12...35 Vdc; 8...24 Vac</th>
<th>12...35 Vdc; 8...24 Vac</th>
<th>12...35 Vdc; 8...24 Vac</th>
<th>12...35 Vdc; 8...24 Vac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Absorption @24V</td>
<td>4 W</td>
<td>4 W</td>
<td>4 W</td>
<td>4 W</td>
</tr>
<tr>
<td>Insulation</td>
<td>4 kV 3-way</td>
<td>4 kV 3-way</td>
<td>4 kV 3-way</td>
<td>4 kV 3-way</td>
</tr>
<tr>
<td>State Indicators</td>
<td>Fibre optic communication, serial communication, device status</td>
<td>Fibre optic communication, serial communication, device status</td>
<td>Fibre optic communication, Ethernet communication, device status</td>
<td>Fibre optic communication, CAN communication, device status</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
</tr>
<tr>
<td>Dimensions (LxHxD)</td>
<td>71 x 95 x 60 mm</td>
<td>71 x 95 x 60 mm</td>
<td>71 x 95 x 60 mm</td>
<td>71 x 95 x 60 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
</tr>
<tr>
<td>Casing</td>
<td>PVC, white</td>
<td>PVC, white</td>
<td>PVC, white</td>
<td>PVC, white</td>
</tr>
<tr>
<td>Programming</td>
<td>Software COMPOSITOR (S232-FO-MONO), DIP Switch (S232-FO-MULTI)</td>
<td>Software COMPOSITOR (S485-FO-MONO), DIP Switch (S485-FO-MULTI)</td>
<td>Software COMPOSITOR</td>
<td>Software COMPOSITOR</td>
</tr>
<tr>
<td>Integrated self-diagnostics</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Conformity</td>
<td>EC</td>
<td>EC</td>
<td>EC</td>
<td>EC</td>
</tr>
<tr>
<td>Regulations</td>
<td>EN 61000-6-4, EN 61000-6-2</td>
<td>EN 61000-6-4, EN 61000-6-2</td>
<td>EN 61000-6-4, EN 61000-6-2</td>
<td>EN 61000-6-4, EN 61000-6-2</td>
</tr>
</tbody>
</table>

### Communication

- **Communication Ports**: No. 1 opto-isolated RS232
- **Type**: Single Loop (S232-SL-…), Double Loop (S232-DL-…)
- **Max No. of Converters in Series**: 1,000
- **Max No. of Independent Networks**: 6
- **Fibre Optics and Connectors**: Single-mode, LC/SC connectors (S232-FO-MONO), Multi-mode (62.5/125 or 50/125 μm), ST/ST connectors (S232-FO-MULTI)
- **Coverage**: 10 km (S232-FO-MONO), 2 km (S232-FO-MULTI)
- **Interface and Protocols**: ModBUS RTU, transparent to communication protocols
- **Speed**: From 1,200 to 115,200 bps

The technical data and the diagrams in this document are indicative and not binding.
through the COMPOSITOR software freely downloadable from www.seneca.it it is possible to carry out configuration of the projects and of the network parameters, to identify the devices on the network and the respective connections in addition to performing diagnostics and monitoring. The diagnostics networks logs can be read directly and easily from SCADA and management software.

**ORDER CODE**

<table>
<thead>
<tr>
<th>SERIAL CONVERTERS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S232-FO-MONO-SL</td>
<td>Single loop single-mode fibre RS232 converter</td>
</tr>
<tr>
<td>S232-FO-MONO-DL</td>
<td>Double loop single-mode fibre RS232 converter</td>
</tr>
<tr>
<td>S485-FO-MONO-SL</td>
<td>Single loop single-mode fibre RS485 converter</td>
</tr>
<tr>
<td>S485-FO-MONO-DL</td>
<td>RS485 converter in single-loop double-mode fibre</td>
</tr>
<tr>
<td>S232-FO-MULTI-SL</td>
<td>Multi-drop fibre optic converter ↔ RS232 single loop</td>
</tr>
<tr>
<td>S232-FO-MULTI-DL</td>
<td>Multi-drop fibre optic converter ↔ RS232 double loop</td>
</tr>
<tr>
<td>S485-FO-MULTI-SL</td>
<td>Multi-drop fibre optic converter ↔ RS485 double loop</td>
</tr>
<tr>
<td>S485-FO-MULTI-DL</td>
<td>Multi-drop fibre optic converter ↔ RS485 single loop</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ETHERNET CONVERTERS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SETH-FO-MONO-SL</td>
<td>Single loop single-mode fibre Ethernet converter</td>
</tr>
<tr>
<td>SETH-FO-MONO-DL</td>
<td>Double loop single-mode fibre Ethernet converter</td>
</tr>
<tr>
<td>SETH-FO-MULTI-SL</td>
<td>Single loop multi-mode fibre Ethernet converter</td>
</tr>
<tr>
<td>SETH-FO-MULTI-DL</td>
<td>Double loop multi-mode fibre Ethernet converter</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONVERTITORES CAN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SCAN-FO-MONO-SL</td>
<td>Single loop multi-mode fibre CAN converter</td>
</tr>
<tr>
<td>SCAN-FO-MONO-DL</td>
<td>Double loop multi-mode fibre CAN converter</td>
</tr>
<tr>
<td>SCAN-FO-MULTI-SL</td>
<td>Single loop multi-mode fibre CAN converter</td>
</tr>
<tr>
<td>SCAN-FO-MULTI-DL</td>
<td>Double loop multi-mode fibre CAN converter</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CABLES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CU-A-MINIB-1</td>
<td>Cable plug USB-A Mini USB-B 5 P, 1 meter</td>
</tr>
<tr>
<td>CU-A-MINIB-2</td>
<td>Cable plug USB-A min USB-B 5 P, 2 metres</td>
</tr>
<tr>
<td>CE-RJ45-RJ45-C</td>
<td>Crossed Ethernet cable (RJ45 / RJ45)</td>
</tr>
<tr>
<td>CE-RJ45-RJ45-R</td>
<td>Straight Ethernet cable (RJ45 / RJ45)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOFTWARE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPOSITOR</td>
<td>Configuration and test tool for fibre optic converters</td>
</tr>
<tr>
<td>FO TEST</td>
<td>Automatic test environment for fibre optic converters</td>
</tr>
</tbody>
</table>
RADIO MODULES

With its experience in interface technology, the SENECA proposal for radio and radiomodem modules is one of the key elements of automation and communication systems, in particular in the transport of signals from a few meters to tens of kilometres. The use of UHF / VHF devices allows the reaching of distances of multiple km with maximum reliability. It also allows remote control functions, remote interrogations and diagnostics of devices in the field through point-to-point and multipoint connections, broadcasting, signal repetition. The Radio devices comply with the essential requirements of the RED Directive (Radio Equipment Directive) 2014/53/EU and can be freely marketed within the European Union.

Glossary

AGILITY
A system that combines multiple radio communication technologies with security systems, alarm management, remote control, web applications and smartphones.

BROADCASTING
Transmission of information from a transmitting system to a set of receiving systems not defined a priori, typically by a radio transmitter of great power and with a high number of receivers. Broadcast transmission is unidirectional.

DIGIPEATER (Digital repeater)
Use of the device for the receipt and retransmission of a signal typically at a higher power so that its propagation can be guaranteed even over long distances or to overcome obstacles without excessive attenuation / degradation of the signal.

GFSK (Gaussian Frequency Shift Keying)
Numerical frequency modulation technique or scheme, in which the modulating signal containing information shifts the frequency of the carrier in output from one to the other of two predetermined values.

LBT (Listen Before Talk)
Data transmission technique in which the initial monitoring on the radio channel is foreseen. If this is occupied by another transmitter, it cannot be transmitted. In the licensed bands, the radio station scheduler decides who to allocate the transmission resources to.

NBFM (Narrow Band Frequency Modulation)
Narrowband modulation able to reduce disturbances on the frequency of interest by reducing the reception channel of the radio receiver and consequent limitation of the listening channel.

POINT-TO-MULTIPOINT
Connection mode in which a single network segment communicates with multiple stations serving a series of users (clients) from a central location.

POINT-TO-POINT
ISO/OSI model link level network protocol, commonly used to establish straight line connections between two nodes.

Z-AIR-1 ANTENNA WITH RADIOMODEM 868 - 870 MHZ INTEGRATED

Radio frequency: License free
External protection degree: IP65
Configuration: Via software (Z-AIR-1-SETUP)
Axial antenna: Incorporated
Power supply: 8-32 Vdc
Operating band: 868 - 870 Mhz
Modulation: NBFM / GFSK
Transmission power: 25 / 150 / 500 mW
Integrated I/O
Interfaces: RS485
Operating mode:
Point-to-Point, Point-to-Multipoint, Broadcasting, Digipeater, LBT
(Listen Before Talk), Agility

Data transmission from Master controller

Trasmissione dati punto-punto (es. Ripetizione I/O)

Point- multipoint data transmission
**RADIO MODULES**

**Z-LINK1-NM**

869 MHz radio modem with RS232/RS485 interface

**Z-LINK1-LO**

869 MHz radio modem with RS232/RS485 interface and LoRa technology

**Z-AIR1**

Radionomem simplex/half duplex, 860 – 870 MHz with integrated antenna

**RM169-1**

Radionomem 169 MHz, aluminium housing, integrated I/O, RS485 interface

**RTURADIO-169**

Radionomem 169 MHz, aluminium housing, integrated I/O, RS485 interface

---

**GENERAL DATA**

- **Power supply:** 10...40 Vdc; 19...28 Vac
- **External modules supply:** 10...40 Vdc; 19...28 Vac
- **Absorption:** 10...40 Vdc; 19...28 Vac
- **State indicators:** Power Supply / Error / RxTx Data
- **Power Supply / Error / RxTx Data**
- **Operating band:** 863, antenna 1 EPIC-70/03 (863.4 MHz – 869.650 MHz)
- **N° canali:** 868 – 870 MHz

**CHANNELLING**

- **Modulation:** GFSK
- **Data speed (radio):** 9K00F1D or 18K0F1D (NBFM / GFSK)
- **Power absorption:** 1W @ 12 Vdc
- **Degree of protection:** IP20
- **Container:** Polypropylene black
- **Operational Temperature:** 0...55°C
- **Dimensions:** 17.5 x 100 x 112 mm
- **Weight:** 200 g
- **Temperature:** 0...55°C
- **IP65 (suitable for outdoor installation):** On plate/wall
- **Degree of protection:** IP20
- **Weight:** 200 g
- **Integrated I/O:** No 1 Digital inputs, 5-24 Vdc or 3.50-20 Vac; Zinp. 2.2 kΩ
- **Mode of operation:** Easy setup, dip-switch
- **Input:** Easy setup, dip-switch
- **Protocol:** ModBUS RTU
- **Transmission Rate:** 9600 bps
- **Output power:** 10 mW
- **Transmission Rate:** 9600 bps
- **Receiver:** Half Duplex
- **Output power:** 10 mW
- **Output power:** 10 mW
- **Communication Mode:** Transparent
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 Vac
- **Power supply:** 10...40 Vdc; 19...28 V
RADIO MODULES

APPLICATION EXAMPLES

Z-LINK1-NM
CONVERSION AND RETRANSMISSION OF ANALOG SIGNALS

Frequency 869 MHz
Power 20 mW
Max distance 400 m

Z-LINK1-LO
«SHORT RANGE» SIGNAL REPETITION

Frequency 869 MHz
Power 20 mW
Max distance 1 km

ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-LINK1-NM</td>
<td>Z-LINK1-NM 869 MHz radio modem with RS232/RS485 interface</td>
</tr>
<tr>
<td>Z-LINK1-LO</td>
<td>Z-LINK1-LO 869 MHz radio modem with RS232/RS485 interface and LoRa technology</td>
</tr>
<tr>
<td>CS-RJ10-089F</td>
<td>Serial cable RS232 serial cable RJ10/DB9F</td>
</tr>
<tr>
<td>Z-PC-DINAL2-17.5</td>
<td>Support for rapid assembly on DIN guide head + 2 slot pitch 17.5 mm</td>
</tr>
<tr>
<td>A-DIR-10-869</td>
<td>Directive external antenna for 10 elements UHF 824-960 MHz</td>
</tr>
<tr>
<td>A-DIR-6-869</td>
<td>Directive external antenna for 6 elements UHF 824-960 MHz</td>
</tr>
<tr>
<td>ANT-LINK1-MG</td>
<td>SMA 4 dBi dual band magnetic outdoor antenna, 2.5 m cable</td>
</tr>
<tr>
<td>Z-PC-DIN2-17.5</td>
<td>Support for rapid assembly on DIN guide 2 slot pitch 17.5 mm</td>
</tr>
<tr>
<td>A-DIR-10-869</td>
<td>Directive external antenna for 10 elements UHF 824-960 MHz</td>
</tr>
<tr>
<td>Z-PC-DIN2-17.5</td>
<td>Support for rapid assembly on DIN guide 2 slot pitch 17.5 mm</td>
</tr>
<tr>
<td>A-DIR-10-869</td>
<td>Directive external antenna for 10 elements UHF 824-960 MHz</td>
</tr>
<tr>
<td>A-DIR-6-869</td>
<td>Directive external antenna for 6 elements UHF 824-960 MHz</td>
</tr>
<tr>
<td>ANT-LINK1-MG</td>
<td>SMA 4 dBi dual band magnetic outdoor antenna, 2.5 m cable</td>
</tr>
<tr>
<td>EASY SETUP</td>
<td>Configuration software</td>
</tr>
</tbody>
</table>

RM169-1
EXPANSION MODBUS I/O - POINT / MULTI-POINT

Frequency 169 MHz
Two-way transmission

RTURADIO
MIRRORING I/O - REPLICA REMOTELY OF SIGNALS

Frequency 169 MHz
Two-way transmission

RM169
SERIAL CONVERSION AND RETRANSMISSION OF ANALOG SIGNALS

Z-AIR
DIRECT MIRRORING OF I/O - REPLICA REMOTELY OF SIGNALS

Z-AIR
MIRRORING I/O - REPLICA REMOTELY OF SIGNALS

Z-AIR-1
Radiomodem 868-870 MHz with integrated antenna, IP65 protection degree, RED directive

S107USB
Serial converter USB/RS485 portable

Z-AIR-1-SETUP
Z-AIR radiomodem configuration software

RM169-1
Radiomodem 169MHz 0.2W, 1DI, 1DO, 1 RS485 BNC connector, RED directive

RM169-1-169DV12
Radiomodem 169MHz 0.2W, 1DI, 1DO, 1 RS485 + antenna dip. vert. /2 (A-169DV12) and 5 m cable RG58U

RM169-1-169YAGI
Radiomodem 169MHz 0.2W, 1DI, 1DO, 1 RS485 + antenna Yagi 3 elements (A-169DVYAGI) and 10m. cable RG58U

RM169-1-169DV14
Radiomodem 169MHz 0.2W, 1DI, 1DO, 1 RS485 + antenna stylus vert. /4 (A-169DV14)

A-169DV12
Antenna 169MHz, vertical dipole lambda/2, BNC M, 5 m low loss cable, bracket

A-169DV14
Antenna 169MHz, vertical stylus lambda/4, BNC M, L=450 mm, without cable

A-169YAGI
Antenna 169MHz, Yagi 3 elements, BNC M, 10 m low loss cable, bracket

RM169-SETUP
RM169 radiomodem configuration software

RTURADIO-169
RTU Radio 169MHz 0.5W, 4DI, 2 DO, 1 meter, 2 AO, 2 Al, RS485 BNC-F connector

RTURADIO-169DV12
RTU Radio 169MHz 0.5W, 4DI, 2 DO, 1 meter, 2 AO, 2 Al, RS485, BNC-F connector and 2 AO, 2 Al, RS485, BNC-F connector

RTURADIO-169DV12
RTU Radio 169MHz 0.5W, 4DI, 2 DO, 1 meter, 2 AO, 2 Al, RS485, BNC-F connector and 2 AO, 2 Al, RS485, BNC-F connector

RTURADIO-169DV12
RTU Radio 169MHz 0.5W, 4DI, 2 DO, 1 meter, 2 AO, 2 Al, RS485, BNC-F connector and 2 AO, 2 Al, RS485, BNC-F connector

S117PI
Serial converter RS232-TTL-RS485/USB portable

RTURADIO-SETUP
RTURADIO radiomodem configuration software
ENERGY AND ELECTRICAL READINGS
Energy and Electrical Readings

The SENeca Energy and Electrical Measurement systems include consumption monitoring systems such as multifunction Modbus network analysers with web server, harmonic analysis and Rogowski sensors and energy meters with Modbus/Ethernet/M-bus protocols also available with MID certification. There are also a complete series of AC/DC current transformers with a patented magnetic or hall effect magnetic measuring principle and the traditional multistandard switch converters for electrical quantities (Vrms, Irms, Watt, VAR, frequency, Energy, etc.) with Modbus or analog output. The reliability and wide range of this instrumentation allows the achievement of fundamental objectives of cable reduction, energy-saving, revamping and retrofitting of existing installations and energy efficiency with maximum ease of use.
MODBUS NETWORK ANALYSERS - S203 SERIES
MODBUS NETWORK ANALYSERS - S203 SERIES

Serie S203

MODBUS NETWORK ANALYSERS WITH ANALOG OUTPUT

The network analysers are specifically designed to detect the characteristics of the power supply in the single-phase or three-phase networks and utilities. They allow the analysis of energy and power and thus controlling the power supply quality. At the same time in many versions they are also used to continuously record the progress of the alternating quantities available. The measurement and event reporting functions provide a basis of information useful for controlling the correct functioning of a machine, maximising energy efficiency.

**INPUT VOLTAGE**
The S203 series analysers support voltage inputs with a maximum range of up to 600 Vac (50-60 Hz)

**INPUT CURRENT**
The S203 series analysers manage current inputs up to 100 mA (S203T), 5 Arms (S203TA, S203TA-D), 4,000 A (S203RC-D).

**MEASURED VALUES**
The S203 series analysers provide the single-phase and three-phase values of the main electrical quantities via the analogue mA/V output: effective voltage, effective current, active power, reactive power, apparent frequency, power factor, energy (bidirectional). The configurable analogue output also allows the analyser to be used as a measuring transducer.

**ENERGY COUNTING**
The S203TA-D and S203RC-D models are equipped with pulsed digital output and retentive memory for energy metering.

**COMMUNICATION**
Equipped with a mini-USB (S203TA-D and S203RC-D) and RS485 programming port, all models support the ModBUS RTU protocol up to a maximum of 32 nodes and 115,200 bps without the use of amplifiers or repeaters.

**PROGRAMMING**
All models can be configured using the free EASY SET-UP software and with an easily accessible front USB port connection. Versions without display are also programmable by DIP-switch.

**DISPLAY**
The S203 Series includes models with high brightness LCD display front (2 lines x 16 characters) backlight.

**INSULATION CONFIGURATION**
The versions with display are configurable through the Android EASY SET-UP APP downloadable from Play Store.

**CONNECTIONS**
Depending on the versions, the main types of insertion possible are: single-phase, Aron three-phase, 4-wire three-phase. The analysers can be connected to commercial CTs with secondary max 5 A, precision transformers with f.s. from 15 to 100 A, Rogowski sensors max 4,000 A.

**APP**
The analysers have protection against ESD discharges up to 4 kV, insulation between power input and other circuits up to 4,000 Vac and insulation between communication (or analog output) and power supply of 1500 Vac.
MODBUS NETWORK analysers - S203 SERIES

S203T
THREE-PHASE NETWORK ANALYSER, 600 Vac
FOR PRECISION TA, ANALOG OUTPUT

TECHNICAL DATA

GENERAL DATA
Power supply 10–40 Vdc, 19–28 Vac (50-60 Hz)
Max absorption 2.5 W
Insulation 4 kVac between measurement input and other circuits, 1.5 kVac between power supply and communication // retransmitted output
State indicators Power supply, Fail, RS485 communication
Installation Category 350 V CAT II
Retransmission error 0.1% (maximum field)
Passing band 7 kHz
Precision class 0.2% (voltmeter, ammeter, wattmeter)
Insertion type Single-phase, Aron three-phase, 4-wire three-phase
Connections Precision TA with 15 a full scale 100 A, precision 0.1%
Degree of protection IP20
Assembly DIN Guide 35 mm (IEC/EN 60715)
Connections Screw terminals, 5.08 mm pitch
Operating temperature -10...+65°C
Dimensions 105 x 89 x 60 mm
Weight 200 g
Casing UL V0 plastic

COMMUNICATION
Interfaces RS485, 2 wires
Speed Sample time 25 ms
Protocol ModBUS RTU slave
Distance Up to 1,200 m
Connectivity Max 32 nodes

I/O
Channels 1 input, 1 output
Input type VOLTAGE Up to 600 Vac, frequency 50 or 60 Hz
CURRENT Nominal flow: 15 (25, 100) mAms * TA; max. pos. crest 4, max. current: 100 (400) mApeak * TA;
Output Type CURRENT 0..20, 4..20 mA, min. Load resistance 500 Ω

PROGRAMMING
Configuration DIP switch
Software (EASY SETUP / Z-NET4)

STANDARD
Certifications EC
Regulations EN 61000-6-4, EN 61000-6-2, EN 61010-1

APPLICATION EXAMPLE

ORDER CODE

Code Description
S203T Three-phase mains analyzer, 600 Vac / 100 mA, class 0.2, analog output, precision TA

ACCESSORIES

TA100 Precision amperometric transformer for S203T, f.s.100 A, class 0.1%
TA15 Precision amperometric transformer for S203T, f.s.15 A, class 0.1%
TA25 Precision amperometric transformer for S203T, f.s.25 A, class 0.1%

SOFTWARE
Z-NET4 I/O systems configurator and Z-PC Series controllers
EASY SETUP SENECA programmable instrumentation configurator

The technical data and the diagrams in this document are indicative and not binding.
MODBUS NETWORK ANALYSERS - S203 SERIES

S203TA
THREE-PHASE NETWORK ANALYSER,
600 VAC / 5 ARMS, OUTPUT
ANALOG, TA STANDARD

TECHNICAL DATA

GENERAL DATA
Power supply 10–40 Vdc, 19–28 Vac (50–60 Hz)
Max absorption 2.5 W
Insulation 4 kVac between measurement input and other circuits
1,500 Vac between power supply and communication // retransmitted output
State indicators Power supply, Fail, RS485 communication
Installation Category 350 V CAT II
Retransmission error 0.1% (maximum field)
Passing band 7 kHz
Precision class 0.2% (voltmeter, ammeter, wattmeter)
Insertion type Single-phase, three-phase, three-phase, 4-wire
Connections Commercial TA with secondary max 5A,
typical precision 0.5%
Degree of protection IP20
Operating temperature -10..+65°C
Dimensions 105 x 89 x 60 mm
Weight 200 g
Casing UL V0 plastic

COMMUNICATION
Interfaces RS 485 2 wires
Speed 1.200..115 kbps
Protocol ModBUS RTU
Distance Up to 1,200 m
Connectivity Max 32 nodes

I/O
Channels 1 input, 1 output
Input type VOLTAGE Up to 600 Vac, frequency 50 or 60 Hz
CURRENT Nominal flow: defined by primaria TA; max. pos. crest: 3; max current: 3*primary TA;
Output Type VOLTAGE 0..5, 0..10 Vdc, min load resistance 2 kΩ
CURRENT 4..20 mA, min. Load resistance 500 Ω

PROGRAMMING
Configurations DIP switch
Software (EASY SETUP / Z-NET4)

STANDARD
Certifications EC
Regulations EN 61000-6-4, EN 61000-6-2, EN 61010-1, EN 60742

APPLICATION EXAMPLE

ORDER CODE
Code Description
S203TA Three-phase network analyser, 600 Vac / 5 Arms, class 0.2, analogue output, standard CT
SOFTWARE
Z-NET4 I/O systems configurator and Z-PC Series controllers
EASY SETUP SENECA programmable instrumentation configurator

The technical data and the diagrams in this document are indicative and not binding.
### TECHNICAL DATA

#### GENERAL DATA
- **Power supply**: 10..40 Vdc; 19..28 Vac (50-60 Hz)
- **Max absorption**: 2.5 W
- **Insulation**: 4 kV Vac (from/to power circuits)
  1.500 Vac (other circuits)
- **State indicators**: Power supply, Fail, RS485 communication
- **Installation Category**: 350 V CAT II
- **Display**: Front LCD 2 lines x 16 alphanumeric characters backlit
- **Retransmission error**: 0.1% (maximum field)
- **Passing band**: 7 kHz
- **Precision class**: 0.2% (voltmeter, ammeter, wattmeter)
- **Insertion type**: Single-phase, Aron three-phase, 4-wire three-phase
- **Connections**: Commercial TA with secondary max 5A, typical precision 0.5%
- **Degree of protection**: IP20
- **Operating temperature**: -10..+65°C
- **Dimensions**: 105 x 89 x 60 mm
- **Weight**: 200 g
- **Casing**: UL V0 plastic

#### COMMUNICATION
- **Interfaces**: No.1 RS485 port, no.1 USB port
- **Speed**: 1 reading every 25 ms
- **Protocol**: ModBUS RTU
- **Distance**: Up to 1,200 m
- **Connectivity**: Max 32 nodes
- **I/O**
  - **Channels**: 1 input, 2 outputs
  - **Input type**: VOLTAGE: Up to 600 Vac (50-60 Hz); CURRENT: Up to 5 Arms
  - **Output Type**: VOLTAGE: 0, 5, 0, 10 Vdc min load resistance 2 kΩ, CURRENT: 0, 20, 4, 20 mA, max load resistance 500 Ω, DIGITAL IMPULSIVE for metres of energy produced/absorbed, flow 50 mA

#### PROGRAMMING
- **Configurations**: Front keys, DIP switch, Software (EASY SETUP / Z-NET4), App Android (EASY SETUP APP)

#### STANDARD
- **Certifications**: EC
- **Regulations**: EN 61000-6-4, EN 61000-6-2, EN 61010-1

### APPLICATION EXAMPLE

**S203TA-D**
THREE-PHASE NETWORK ANALYSER, 600 VAC / 5 ARMS, ANALOG AND PULSE OUTPUTS, STANDARD TA, LCD DISPLAY

**ORDER CODE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S203TA-D</td>
<td>Three-phase network analyser, 600 Vac / 5 Arms, analog and pulse outputs, standard TA, LCD display, Micro app</td>
</tr>
</tbody>
</table>

**SOFTWARE**

- Z-NET4: I/O systems configurator and Z-PC Series controllers
- EASY SETUP: SENECA programmable instrumentation configurator

The technical data and the diagrams in this document are indicative and not binding.
MODBUS NETWORK ANALYSERS - S203 SERIES

S203RC-D
THREE-PHASE NETWORK ANALYSER, 600 VAC FOR
ROGOWSKI TRANSDUCERS, ANALOGUE AND IMPULSIVE OUTPUTS, LCD DISPLAY

TECHNICAL DATA

GENERAL DATA
- Power supply: 10..40 Vdc; 19..28 Vac (50-60 Hz)
- Max absorption: 2.5 W
- Insulation: 4 kV Vac (from/to power circuits)
- State indicators: Power supply, Fail, RS485 communication
- Installation Category: 350 V CAT II
- Display: Front LCD 2 lines x 16 alphanumeric characters backlit
- Retransmission error: 0.1% (maximum field)
- Passing band: 7 kHz
- Precision class: 0.5% (voltmeter, ammeter, wattmeter)
- Insertion type: Single-phase, Aron three-phase, 4-wire three-phase
- Connections: Rogowski Transducers with max output 100 mV RMS
- Degree of protection: IP20
- Assembly: DIN Guide 35 mm (IEC/EN 60715)
- Connections: Screw terminals, 5.08 mm pitch
- Operating temperature: -10..+65°C
- Dimensions: 105 x 89 x 60 mm
- Weight: 200 g
- Casing: UL V0 plastic

COMMUNICATION
- Interfaces: No.1 RS485 port, no.1 USB port
- Speed: 1 reading every 25 ms
- Protocol: ModBUS RTU
- Distance: Up to 1,200 m
- Connectivity: Max 32 nodes
- Channels: 1 input, 2 outputs
- Input type: VOLTAGE up to 600 Vac (50-60 Hz), CURRENT from Rogowski transducers with max output 100 mV RMS
- Output Type: VOLTAGE 0..5, 0..10 Vdc, min load resistance 2 kΩ, CURRENT 0..20, 4..20 mA, max load resistance 500 Ω, DIGITAL IMPULSIVE for metres of energy produced/absorbed, flow 50 mA

PROGRAMMING
- Configurations: Front keys, DIP switch, Software (EASY SETUP / Z-NET4), AppAndroid (EASY SETUP APP)

STANDARD
- Certifications: EC
- Regulations: EN 61000-6-4, EN 61000-6-2, EN 61010-1

APPLICATION EXAMPLE

ORDER CODE
- Code Description
  - S203RC-D Three-phase network analyser, 600 Vac / 1000 Arms, Rogowski, analog and pulse outputs, LCD display, Micro USB app
  - Z-NET4 I/O systems configurator and Z-PC Series controllers
  - EASY SETUP SENECA programmable instrumentation configurator

ACCESSORIES
- RC150-025-100-3M Rogowski Sensor L=25cm Øint.8cm,100mV/1KA-50Hz,cable L=3m.
- RC150-040-100-3M Rogowski Sensor L=40cm Øint.12cm,100mV/1KA-50Hz,cable L=3m.
- RC150-060-100-3M Rogowski Sensor L=60cm Øint.19cm,100mV/1KA-50Hz,cable L=3m.

The technical data and the diagrams in this document are indicative and not binding.
MODBUS NETWORK ANALYSERS - S203 SERIES

ACCESSORIES

CURRENT TRANSFORMERS FOR S203T

- **TA25**
  - Precision amperometric transformer (f.s. 25 A)
  - Cod. TA25

- **TA15**
  - Precision amperometric transformer (f.s. 15 A)
  - Cod. TA15

- **TA100**
  - High precision current transformer (f.s. 100 A)
  - Cod. TA100

SOFTWARE

**Z-NET4**

- Input / output settings
- Communication parameters
- Variable addressing
- Setting of counters and retransmitted output
- TA/TV parameters
- Energy accounting
- Test

- Free download from [www.seneca.it](http://www.seneca.it)
- Available for S203T, S203TA, S203TA-D

**EASY SETUP**

**EASY SETUP APP**

- Communication parameters
- Modbus parameters
- Reading, writing, testing
- Setting of measured and retransmitted variable values

- Free download from [www.seneca.it](http://www.seneca.it) on Google Play
- Available for S203T, S203TA, S203TA-D, S203RC-D

ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCESSORIES</td>
<td></td>
</tr>
<tr>
<td>RC150-025-100-3M</td>
<td>Rogowski Sensor L=25cm Øint.8cm, 100mV/1kA-50Hz, cable L=3m.</td>
</tr>
<tr>
<td>RC150-040-100-3M</td>
<td>Rogowski Sensor L=40cm Øint.12cm, 100mV/1kA-50Hz, cable L=3m.</td>
</tr>
<tr>
<td>RC150-060-100-3M</td>
<td>Rogowski Sensor L=60cm Øint.19cm, 100mV/1kA-50Hz, cable L=3m.</td>
</tr>
<tr>
<td>TA15</td>
<td>Precision amperometric transformer for S203T, f.s. 15 A, class 0.1% (1/10000)</td>
</tr>
<tr>
<td>TA25</td>
<td>Precision amperometric transformer for S203T, f.s. 25 A, class 0.1% (1/10000)</td>
</tr>
<tr>
<td>TA100</td>
<td>Precision amperometric transformer for S203T, f.s. 100 A, class 0.1% (1/10000)</td>
</tr>
</tbody>
</table>
MULTI-FUNCTION NETWORK ANALYSERS
S604 SERIES

3.2
S604 Series
MULTI-FUNCTION NETWORK ANALYSERS

The S604 Series multifunction network analysers are innovative tools for the measuring and storing of electrical parameters. They are particularly suitable when a device for analysis and consumption control is needed, with an excellent price/performance ratio. In the versions with the Rogowski current transducers, the S604 series analysers offer an extremely easy connection and can be used in applications with high currents, linear measurements, retrofitting, energy audits, etc. On request, the instruments can communicate through the RS485 serial port with ModBUS RTU/ASCII protocol or through the LAN port with ModBUS TCP-IP protocol. The ENERGY POWER PACK software is also provided for remote management of the instrument. A Web server interface is also available for management of the instrument from any PC connected to the LAN/Internet network.

**POWER SUPPLY INSERTION**
- From 3x230/400 V to 3x240/415 V 4-wire three-phase
- From 3x400 V to 3x415 V 3-wire three-phase
- 230 V to 240 V single-phase

**METHOD**
- Self-powered models
- Models with auxiliary power supply

**DIGITAL I/O**
- No.1/2 outputs for alarms/pulses
- No.1 input for the calculation of average values (DMD)

**DATA ARCHIVING**
- Recording average values of active and reactive powers
- Up to 24 parameters selectable from instantaneous variables for recording MIN/MED/MAX values
- Up to 8 MB of memory for data recording

**TYPICAL APPLICATIONS**
- Energy monitoring and control systems
- Monitoring of the load of individual machines
- Control of power tips
- Control panels, generators, motor control, etc.
- Remote consumption detection and cost calculation

**COMMUNICATION**
On request models are available with MODBUS RTU/ASCII communication via RS485 port or in MODBUS TCP via LAN port

**PROGRAMMING**
Possibility to remotely manage the instrument through ENERGY POWER PACK software or via Web server interface

**ENERGY MEASUREMENTS**
- Total counters
- Separate inductive/capacitive meters
- Bidirectional measurement on four quadrants for all energies and powers
- Measurement of all the main parameters necessary for an effective consumption analysis

**INPUTS**
- Standard CT versions of 1 or 5 A, for direct insertion up to 80 A or for Rogowski coils

**THD & HARMONICS**
THD values of voltage and current
THD Values of voltage and current + harmonics up to 15°
### PANEL MULTI-FUNCTION NETWORK ANALYSERS - S604 SERIES

#### GENERAL DATA

<table>
<thead>
<tr>
<th>Model</th>
<th>Three-phase network analysers with advanced functions for CT inputs 1/5 A, direct 80 A, BASIC version</th>
<th>Three-phase network analysers with advanced functions for CT inputs 1/5 A, direct 80 A, ENERGY PLUS version</th>
</tr>
</thead>
<tbody>
<tr>
<td>S604B</td>
<td>180...285 Vac line-neutral, Cal II (self-powered models) 85...265 Vac, Aux, Cal II (models with auxiliary power supply)</td>
<td>85...265 Vac, Aux, Cal II (models with auxiliary power supply)</td>
</tr>
<tr>
<td>S604E</td>
<td>1.6 VA - 1 W (models with auxiliary power supply, RS485 interface) 4.5 VA - 1.6 W (models with auxiliary power supply, Ethernet interface)</td>
<td>1.6 VA - 1 W (models with auxiliary power supply, RS485 interface) 4.5 VA - 1.6 W (models with auxiliary power supply, Ethernet interface)</td>
</tr>
<tr>
<td>S604E-ROG</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

- **Power supply**
- **Max absorption**
- **Display**
- **Function keys**
- **Operating temperature**
- **Humidity**
- **Sinusoidal vibration amplitude**
- **Memory (instruments with communication port)**

#### PRECISION

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Current</th>
<th>Power</th>
<th>Frequency</th>
<th>Active Energy</th>
<th>Reactive Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>S604B</td>
<td>±0.2% reading 10% FS...FS (FS=full scale value)</td>
<td>±0.4% reading in 5% FS...FS</td>
<td>±0.5% reading ±0.1% FS (PF=1)</td>
<td>±0.1% reading ±1 digit in the range 45...65 Hz</td>
<td>±0.2% reading 10% FS...FS (FS=full scale value)</td>
<td>±0.4% reading in 5% FS...FS</td>
</tr>
<tr>
<td>S604E</td>
<td>±0.2% reading 10% FS...FS (FS=full scale value)</td>
<td>±0.4% reading in 5% FS...FS</td>
<td>±0.5% reading ±0.1% FS (PF=1)</td>
<td>±0.1% reading ±1 digit in the range 45...65 Hz</td>
<td>±0.2% reading 10% FS...FS (FS=full scale value)</td>
<td>±0.4% reading in 5% FS...FS</td>
</tr>
<tr>
<td>S604E-ROG</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

#### COMMUNICATION

<table>
<thead>
<tr>
<th>Model</th>
<th>Serial Port</th>
<th>Ethernet Port</th>
<th>Protocols supported</th>
<th>I/O</th>
<th>Voltage input</th>
<th>Current input</th>
<th>Digital Inputs</th>
<th>Digital output</th>
<th>PROGRAMMING</th>
<th>STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>S604B</td>
<td>RS485 (optoisolated, 300...57,600 bps (optional))</td>
<td>10/100 Mbps, RJ45 connector (optional)</td>
<td>ModBUS RTU/ASCII (RS485); http, Ntp, ModBUS TCP-IP (Ethernet)</td>
<td>3x180/310...3x285/495 Vac, Cal III 300 V (self-powered models)</td>
<td>3x10/17...3x285/495 Vac, Cal III 300 V (models with auxiliary power supply)</td>
<td>No. 1 opto-isolated active channel (models without communication port), range of average values DMD 60...276 Vac</td>
<td>Nr 1 (models RS485 / 2 models without communication port) opto-isolated passive channels, IEC / EN 60265-31</td>
<td>Front keys Energy Power Pack software (ModBUS/ Ethernet models) Webserver (Ethernet models)</td>
<td>EC</td>
<td></td>
</tr>
<tr>
<td>S604E</td>
<td>RS485 (optoisolated, 300...57,600 bps)</td>
<td>10/100 Mbps, RJ45 connector</td>
<td>ModBUS RTU/ASCII (RS485); http, Ntp, Dncp, ModBUS TCP/IP (Ethernet)</td>
<td>3x180/310...3x285/495 Vac, Cal III 300 V (self-powered models)</td>
<td>3x10/17...3x285/495 Vac, Cal III 300 V (models with auxiliary power supply)</td>
<td>No. 1 opto-isolated active channel (models without communication port), range of average values DMD 60...276 Vac</td>
<td>Nr 1 (models RS485 / 2 models without communication port) opto-isolated passive channels, IEC / EN 60265-31</td>
<td>Front keys Energy Power Pack software (ModBUS/ Ethernet models) Webserver (Ethernet models)</td>
<td>EC</td>
<td></td>
</tr>
<tr>
<td>S604E-ROG</td>
<td>RS485 (optoisolated, 300...57,600 bps)</td>
<td>10/100 Mbps, RJ45 connector</td>
<td>ModBUS RTU/ASCII (RS485); http, Ntp, Dncp, ModBUS TCP/IP (Ethernet)</td>
<td>3x180/310...3x285/495 Vac, Cal III 300 V (self-powered models)</td>
<td>3x10/17...3x285/495 Vac, Cal III 300 V (models with auxiliary power supply)</td>
<td>No. 1 opto-isolated active channel (models without communication port), range of average values DMD 60...276 Vac</td>
<td>Nr 1 (models RS485 / 2 models without communication port) opto-isolated passive channels, IEC / EN 60265-31</td>
<td>Front keys Energy Power Pack software (ModBUS/ Ethernet models) Webserver (Ethernet models)</td>
<td>EC</td>
<td></td>
</tr>
</tbody>
</table>

#### *Alternatively*

The technical data and the diagrams in this document are indicative and not binding.
MULTI-FUNCTION NETWORK ANALYSERS - S604 SERIES

PROGRAMMING SYSTEMS

MODBUS / ETHERNET CONNECTIONS

The ENERGY POWER PACK package is a program compatible with all models of the S604 network analyser. It communicates via Modbus RTU and Modbus TCP protocol and performs multiple management of devices, up to a maximum of 32. ENERGY POWER PACK ensures the reading and display of all measurements, provides a complete parameter set-up, downloads and converts recordings and manages the remote connection.

For versions with an integrated Ethernet port or with an external communication module, a Web Server accessible via a browser is available. With this system it is possible to view all the values available in the module and to associate a recording with file exportable in csv format.

ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S604B-6-MOD</td>
<td>BASE network analyser x TA1/5A-RS485 Modbus,1MB log. mem.</td>
</tr>
<tr>
<td>S604B-6-ETH</td>
<td>BASE network analyser x TA1/5A-Ethernet,1MB log. mem.</td>
</tr>
<tr>
<td>S604B-80-MOD</td>
<td>BASE network analyser x TA1/5A-RS485 Modbus,1MB log. mem.</td>
</tr>
<tr>
<td>S604B-80-ETH</td>
<td>BASE network analyser x TA1/5A-Ethernet,1MB log. mem.</td>
</tr>
<tr>
<td>S604B-ROG-MOD-30</td>
<td>BASE network analyser RS485 Modbus,1MB mem. Log.+3 Rogowski RC150 L=30cm Øint. 9,5 cm</td>
</tr>
<tr>
<td>S604B-ROG-MOD-45</td>
<td>BASE network analyser RS485 Modbus,1MB mem. Log.+3 Rogowski RC150 L=45cm Øint. 14 cm</td>
</tr>
<tr>
<td>S604B-ROG-MOD-70</td>
<td>BASE network analyser RS485 Modbus,1MB mem. Log.+3 Rogowski RC150 L=70cm Øint. 22 cm</td>
</tr>
<tr>
<td>S604E-6-MOD</td>
<td>Energy PLUS Network Analyser x TA1/5A-RS485 Modbus,8MB log. Harmonics</td>
</tr>
<tr>
<td>S604E-6-ETH</td>
<td>Energy PLUS Network Analyser x TA1/5A-Ethernet,8MB Harmonics</td>
</tr>
<tr>
<td>S604E-ROG-MOD-30</td>
<td>Energy PLUS Network Analyser RS485 Modbus,8MB log. Arm.+3 Rogowski RC150 L=30cm Øint. 9,5 cm</td>
</tr>
<tr>
<td>S604E-ROG-MOD-45</td>
<td>Energy PLUS Network Analyser RS485 Modbus,8MB log. Arm.+3 Rogowski RC150 L=45cm Øint. 14 cm</td>
</tr>
<tr>
<td>S604E-ROG-MOD-70</td>
<td>Energy PLUS Network Analyser RS485 Modbus,8MB log. Arm.+3 Rogowski RC150 L=70cm Øint. 22cm</td>
</tr>
<tr>
<td>S604E-ROG-ETH-30</td>
<td>Network Analyzer Kit Energy PLUS RS485 Modbus,8MB log. Arm.+3 Rogowski RC150 L=30 cm Øint. 9,5 cm</td>
</tr>
<tr>
<td>S604E-ROG-ETH-45</td>
<td>Network Analyzer Kit Energy PLUS RS485 Modbus,8MB log. Arm.+3 Rogowski RC150 L=45 cm Øint. 14 cm</td>
</tr>
<tr>
<td>S604E-ROG-ETH-70</td>
<td>Network Analyzer Kit Energy PLUS RS485 Modbus,8MB log. Arm.+3 Rogowski RC150 L=70cm Øint. 22cm</td>
</tr>
</tbody>
</table>

Readings, settings and recordings are available via front keys with the possibility of managing up to 7 groups of pages on the instrument display.
NETWORK ANALYSER
MULTIFUNCTION
PANEL FRONT
S711 SERIES
The S711 Series network analysers are characterised by compact front dimensions (96x96 mm) for only 39 mm depth. The S711 models ensure bidirectional measurement on four quadrants for all energies and powers and in general the measurement of all the main parameters necessary for an effective consumption analysis. The Rogowski versions (S711EROG) are available in kits with sensors of length 30, 45 and 70 cm. The ENERGY PLUS versions (S711E, S711EROG) allow recording of up to 8 MB of memory and 24 parameters that can be selected from the instantaneous variables for the recording of MIN/MED/MAX values and harmonics up to the fifteenth. The S711 series is available with models that support communication in ModBUS RTU/ASCII via RS485 port or in ModBUS TCP-IP via Ethernet port. The analysers can also be configured remotely with ENERGY POWER PACK software or via the Web Server.
**General Data**

- **Power supply**: 230 Vac ±15%, 50-60 Hz (versions with RS485 port)
- **Display**: LCD, backlit/768x11 mm, 3 lines, 4 figures + symbols
- **Function keys**: 4 front keys
- **Operating temperature**: -25...+50°C
- **Sinusoidal vibration amplitude**: 50 Hz ± 0.075 mm
- **Memory (instruments with communication port)**: 1 MB
- **Terminal degree of protection**: 1 MB
- **Apparent Energy Counter**: Total or separate counters (inductive / capacitive)
- **Connection modes**: Three phase, 4 wires, 3 currents
- **Front degree of protection**: IP51
- **Terminal degree of protection**: IP20/IP20/IP20
- **Thread diameter for measurement terminals**: 2.5 mm / 14 AWG 1.5... 6 mm / (models with TA) 1.5... 6 mm / (models with TA)
- **Diameter filo per morsetti I/O/ alimentazione/COM**: 1.5..35 mm / 16 AWG 1.5.. 35 mm / (models with 80A insertion) 1.5.. 35 mm / (models with 80A insertion)
- **Dimensions**: 96x96x39 mm
- **Weight**: 310 g

**Precision**

- **Voltage**: ±0.2% reading 10% FS...FS (FS=full scale value)
- **Current**: ±0.4% reading in 5% FS...FS
- **Power**: ±0.5% reading ±10% FS (PF=1)
- **Active Energy**: ±0.1% reading ±1 digit in the range 45...65 Hz
- **THD & Harmonics**: ±0.4% reading in 5% FS...FS

**Installation**

- **Max measurable voltage**: 600 Vac max L-L 20/35 VCA
- **Input from TA**: Input impudence: ›1.3 MOhm
- **Start-up current (Ist)**: 2 mA
- **Max value**: 7 A

**I/O**

- **Digital inputs**: 1 active opto-isolated channel (DMD), opto-isolated range 80..265 Vac/dc
- **Analog output**: No. 1 active opto-isolated channel 0/4..20 mA, max load 500 W (model S711EMODAO)
- **Operation temperature**: 50 Hz ± 0.075 mm
- **Apparent Energy Counter**: Total or separate counters (inductive / capacitive)
- **Connection modes**: Three phase, 4 wires, 3 currents
- **Front degree of protection**: IP51
- **Terminal degree of protection**: IP20/IP20/IP20
- **Thread diameter for measurement terminals**: 2.5 mm / 14 AWG 1.5... 6 mm / (models with TA) 1.5... 6 mm / (models with TA)
- **Diameter filo per morsetti I/O/ alimentazione/COM**: 1.5..35 mm / 16 AWG 1.5.. 35 mm / (models with 80A insertion) 1.5.. 35 mm / (models with 80A insertion)
- **Dimensions**: 96x96x39 mm
- **Weight**: 436 g

**Communication**

- **Serial Port**: RS485 for ModBUS RTU / ASCII communication
- **Ethernet Port**: Ethernet 1/100 Mbit/s for http, ModBUS TCP-P communication (Ethernet models)
- **Protocols supported**: ModBUS RTU/ASCII (RS485); http, Ntp, Dhcp, ModBUS TCP-P (Ethernet)

**Measurement Input**

- **Voltage input**: Max. measurable voltage: 600 Vac max L-L 20/35 VCA
- **Current input**: Input range: 0-50 mA, Input from TA
- **Input from TA**: Max. value: 7 A
- **Start-up current (Ist)**: 2 mA

**Programmation**

- **Configuration systems**: Front keys
- **Sensors**: No. 3 Rogowski reels RC150 of 30, 45 or 70 cm (inner diam 19/142/23 mm, 5 m cable)

The technical data and the diagrams in this document are indicative and not binding.
PANEL FRONT MULTIFUNCTION NETWORK ANALYSERS

MODBUS / ETHERNET CONNECTIONS

The ENERGY POWER PACK package is a program compatible with all models of the S604 network analyser. It communicates via Modbus RTU and Modbus TCP protocol and performs multiple management of devices, up to a maximum of 32. ENERGY POWER PACK ensures the reading and display of all measurements, provides a complete parameter set-up, downloads and converts recordings and manages the remote connection.

For versions with an integrated Ethernet port or with an external communication module, a Web Server accessible via a browser is available. With this system it is possible to view all the values available in the module and to associate a recording with a file exportable in csv format.

FRONT KEYS

Readings, settings and recordings are available via front keys with the possibility of managing up to 7 groups of pages on the instrument display.

ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S711B6MO0</td>
<td>Network Analyzer LCD 96x96 BASIC for TA1/5A-RS485 Modbus, 1MB log, 1 DI 2 DO</td>
</tr>
<tr>
<td>S711B6MOD</td>
<td>Network Analyzer LCD 96x96 Energy PLUS x TA1/5A-RS485 Modbus, 8MB log, 1 DI 2 DO, Harmonics</td>
</tr>
<tr>
<td>S711B6MODA0</td>
<td>Network Analyzer LCD 96x96 Energy PLUS x TA1/5A-RS485 Modbus, 8MB log, 1 DI 2 DO, 1AO, Harmonics</td>
</tr>
<tr>
<td>S711G6ETH</td>
<td>Network Analyzer LCD 96x96 Energy PLUS x TA1/5A-Ethernet, 8MB log, 1 DI 2 DO, Harmonics</td>
</tr>
<tr>
<td>S711ERGMO030</td>
<td>Analyst Kit Network 96x96 RS485 +3 Rogowski L= 30cm Ø 9.5cm v. Energy PLUS RS485 Modbus 8MB data log, 1DI 2DO, reading 15 Harmonics, MIN/MED/MAX values</td>
</tr>
<tr>
<td>S711ERGMO045</td>
<td>Analyst Kit Network 96x96 RS485 +3 Rogowski L= 45cm Ø 14cm v. Energy PLUS RS485 Modbus 8MB data log, 1DI 2DO, reading 15 Harmonics, MIN/MED/MAX values</td>
</tr>
<tr>
<td>S711ERGMO070</td>
<td>Analyst Kit Network 96x96 RS485 +3 Rogowski L= 70cm Ø 22cm v. Energy PLUS RS485 Modbus 8MB data log, 1DI 2DO, reading 15 Harmonics, MIN/MED/MAX values</td>
</tr>
<tr>
<td>S711ERGMO030A0</td>
<td>Analyst Kit Network 96x96 RS485 +3 Rogowski L= 30cm Ø 9.5cm v. Energy PLUS RS485 Modbus 8MB data log, 1DI 2DO, 1AO reading 15 Harmonics, MIN/MED/MAX values</td>
</tr>
<tr>
<td>S711ERGMO030A1</td>
<td>Analyst Kit Network 96x96 RS485 +3 Rogowski L= 45cm Ø 14cm v. Energy PLUS RS485 Modbus 8MB data log, 1DI 2DO, 1AO reading 15 Harmonics, MIN/MED/MAX values</td>
</tr>
<tr>
<td>S711ERGMO070A0</td>
<td>Analyst Kit Network 96x96 RS485 +3 Rogowski L= 70cm Ø 22cm v. Energy PLUS RS485 Modbus 8MB data log, 1DI 2DO, 1AO reading 15 Harmonics, MIN/MED/MAX values</td>
</tr>
<tr>
<td>S711ERGETH030</td>
<td>Analyst Kit Network 96x96 ETHERNET +3 Rog. L= 30cm Ø 9.5cm v. Energy PLUS ETHERNET 8MB data log, 1DI 2DO, reading 15 Harmonics, MIN/MED/MAX values</td>
</tr>
<tr>
<td>S711ERGETH045</td>
<td>Analyst Kit Network 96x96 ETHERNET +3 Rog. L= 45cm Ø 14cm v. Energy PLUS ETHERNET 8MB data log, 1DI 2DO, reading 15 Harmonics, MIN/MED/MAX values</td>
</tr>
<tr>
<td>S711ERGETH070</td>
<td>Analyst Kit Network 96x96 ETHERNET +3 Rog. L= 70cm Ø 22cm v. Energy PLUS ETHERNET 8MB data log, 1DI 2DO, reading 15 Harmonics, MIN/MED/MAX values</td>
</tr>
</tbody>
</table>

Code Description

SOFTWARE

E-POWER PACK S604 series multifunction network analyser management software
E-MODBUS PACK Series 500 energy meter management software with Modbus / Ethernet communication
E-M-BUS PACK Series 500 energy meter management software with M-BUS communication

ACCESSORIES

RC150-025-100-3M Rogowski Sensor L= 25cm Ø 8cm, 100mV/1KA-50Hz, cable L= 3m.
RC150-035-100-3M Rogowski Sensor L= 35cm Ø 11cm, 100mV/1KA-50Hz, cable L= 3m.
RC150-040-100-3M Rogowski Sensor L= 40cm Ø 12cm, 100mV/1KA-50Hz, cable L= 3m.
RC150-060-100-3M Rogowski Sensor L= 60cm Ø 19cm, 100mV/1KA-50Hz, cable L= 3m.
RC150-090-100-3M Rogowski Sensor L= 90cm Ø 28cm, 100mV/1KA-50Hz, cable L= 3m.
RC150-120-100-3M Rogowski Sensor L= 120cm Ø 38cm, 100mV/1KA-50Hz, cable L= 3m.
RC150-180-100-3M Rogowski Sensor L= 180cm Ø 57cm, 100mV/1KA-50Hz, cable L= 3m.
RC150-RIC-KIT30 Rogowski reel kit Spare Part RC150 L= 30cm Ø int. 9.5 cm, 100mV/1KA-50Hz, cable L= 3m.
RC150-RIC-KIT45 Rogowski reel kit Spare Part RC150 L= 45cm Ø int. 14 cm, 100mV/1KA-50Hz, cable L= 3m.
RC150-RIC-KIT70 Rogowski reel kit Spare Part RC150 L= 70cm Ø int. 22 cm, 100mV/1KA-50Hz, cable L= 3m.
RC190-030-333-3M Rogowski Sensor L= 30cm Ø int. 9.5 cm, 333m/1KA-50Hz, cable L= 3m.
ROGOWSKI SENSORS

3

3.4
A flexible coil without a toroid-shaped magnetic core is placed around the current conductor. The variable magnetic field produced by the current induces a voltage in the coil. The output voltage is proportional to the rate of variation of the current and, after an integrating circuit, is proportional to the actual value of the current (as for an Amperometric transformer). The length of the reel varies from 25 to 300 cm for a reduced cord diameter up to about 8 mm.

**TECHNOLOGY**
- Coupling point insensitive both to the position of the internal conductor and to the currents of external conductors
- Coil and cable shielded against electromagnetic noise

**ENGINEERING**
- Reel diameter reduced by up to approximately 8 mm
- High flexibility

**CALIBRATION**
- Better than 1% accuracy even close to the reel closing point
- Calibration point easily accessible for recalibration

**INSTALLATION**
- Applications with difficult access
- Non-intrusiveness in the measuring circuit

**OPTIMAL CLOSURE**
- Safe closure even in the presence of vibrations and/or tractions
- Stable closure that ensures measurement repeatability

**TYPICAL APPLICATIONS**
- High current measurement
- Harmonic supervision, transients, machinery load, power and consumption
- Laboratory measuring instruments
- Control of welding machines

**INSTALLATION PHASES**

**DIMENSIONS**

**PRECISION RANGE**

C (conductor in centred position)
HIGH EFFICIENCY ROGOWSKI FLEXIBLE TRANSDUCERS

RC150

Suitable for measuring currents from mA to hundreds of kA, the Rogowski RC150 Series Sensors ensure high linearity, wide dynamic range and are very useful with large or irregularly shaped conductors. Lightness and flexibility make them optimal even in locations with reduced access. The transducers do not present dangers for open secondaries and cannot be damaged by large overloads. The absence of a magnetic core gives this range a very wide frequency response. All these factors makes them particularly suitable for the measurement of harmonic or transient content.

The bayonet lock equipped with electronics ensures linear detection at any distance between the conductor and transducer, even if not perpendicular to each other.

TECHNICAL SPECIFICATIONS

GENERAL DATA
Reel length From 25 to 300 cm
Reel diameter From 8 ±0.2 mm to 57 cm
Cable length 3 m
Bayonette Closure
IP67 Degree of protection
Material UL94-V0 Thermoplastic
Operational Temperature -30..+80°C
Weight from 150 to 500 g

ELECTRICAL SPECIFICATIONS
Output level (RMS) 100 mV / 1 kA @50 Hz (standard)
Transducer resistance 70..900 Ω (RC150)
(300..2.000 Ω (RC190))
Precision Better than ±1% of reading (with a conductor diameter of 15 mm) across the entire diameter of the coil
Frequency from approx. 40 Hz to 20 kHz
Work voltage 1.000 Vrms CAT III, 600 Vrms CAT IV, contamination degree 2
Voltage test 7.400 Vrms / 1 min

STANDARD
Certification EC
Regulations EN 61010-1, EN 61010-031, EN 61010-2-031, EN 61010-2-032

ORDER CODE
Code Description
RC150-025-100-3M Rogowski Sensor L=25cm Øint.8cm,100mV/1KA-50Hz cable L=3m.
RC150-035-100-3M Rogowski Sensor L=35cm Øint.11cm,100mV/1KA-50Hz cable L=3m.
RC150-040-100-3M Rogowski Sensor L=40cm Øint.12cm,100mV/1KA-50Hz cable L=3m.
RC150-060-100-3M Rogowski Sensor L=60cm Øint.19cm,100mV/1KA-50Hz cable L=3m.
RC150-090-100-3M Rogowski Sensor L=90cm Øint.22cm,100mV/1KA-50Hz cable L=3m.
RC150-120-100-3M Rogowski Sensor L=120cm Øint.38cm,100mV/1KA-50Hz cable L=3m.
RC150-180-100-3M Rogowski Sensor L=180cm Øint.57cm,100mV/1KA-50Hz cable L=3m.
RC150-RIC-KIT30 Rogowski reel kit Spare Part RC150 L= 30cm Ø int. 9.5 cm, 100mV/1KA-50Hz cable L=3m.
RC150-RIC-KIT45 Rogowski reel kit Spare Part RC150 L= 45cm Ø int. 14 cm, 100mV/1KA-50Hz cable L=3m.
RC150-RIC-KIT70 Rogowski reel kit Spare Part RC150 L= 70cm Ø int. 22 cm, 100mV/1KA-50Hz cable L=3m.
RC150-CAVEX-ROG1 Extension over 3 meters. standard of the Rogowski coil connection cable L.1
RC150-CAVEX-ROG2 Extension over 3 meters. standard of the Rogowski coil connection cable L.12
RC150-CAVEX-ROG3 Extension over 3 meters. standard of the Rogowski coil connection cable L.3

APPLICATION EXAMPLE

KIT / SPARE PARTS AND ACCESSORIES

The technical data and the diagrams in this document are indicative and not binding.
ENERGY METERS
S500 SERIES
The S500 Series energy meters in DIN format are used for energy measurement in industrial and civil environments. They are available with integrated, remote and MID certification. The totalisers and instantaneous powers are shown on the LCD display. For remote management the ENERGY MODBUS PACK tools are available for meters with ModBUS interface and ENERGY M-BUS PACK for meters with M-BUS interface as well as the Web Server for versions with Ethernet interface. The S500 meters are built in complete compliance with the EN 50470-1 standard. The accuracy of the active energy refers to the standard IEC/EN 62053-21 class 1. The accuracy of the reactive energy refers to the IEC/EN 62053-23 class 2.
### ENERGY METERS - S500 SERIES

<table>
<thead>
<tr>
<th>S501-40</th>
<th>S502-80</th>
<th>S504C</th>
<th>S534</th>
</tr>
</thead>
<tbody>
<tr>
<td>40A single-phase energy meter, 2 wires, 1 DIN, certif. MID</td>
<td>80A single-phase energy meter, 2 wires, 2 DIN, certif. MID</td>
<td>6A/80A three-phase energy meter, 4 wires, 4 DIN, integrated communication, certif. MID</td>
<td>6A/80A three-phase energy meter, 3/4 wires, 4 DIN, certif. MID</td>
</tr>
</tbody>
</table>

### GENERAL DATA

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Voltage derived from the measurement circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max absorption</td>
<td>1.5 VA - 1 W</td>
</tr>
<tr>
<td>Precision</td>
<td>Active energy class A according to IEC/EN 62053-21 and class B according to EN 50470-3 (MID)</td>
</tr>
<tr>
<td>Tariff input</td>
<td>Active opto-isolated voltage range for tariff 2: 80...276 Vac/dc</td>
</tr>
<tr>
<td>Metrologic LED</td>
<td>Meter constant 10000 imp/kWh Pulse duration 10±2 ms</td>
</tr>
<tr>
<td>Meter reset</td>
<td>Optional</td>
</tr>
<tr>
<td>Operational Temperature</td>
<td>-25...+55°C</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP51 (front), IP20 (terminals)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>18x60x64 mm</td>
</tr>
</tbody>
</table>

### VOLTAGE

<table>
<thead>
<tr>
<th>Nominal value</th>
<th>230 V, 50 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st start-up current</td>
<td>20 mA</td>
</tr>
<tr>
<td>Linear minimum current</td>
<td>250 mA</td>
</tr>
<tr>
<td>Transition current</td>
<td>500 mA</td>
</tr>
<tr>
<td>Reference current (Ib)</td>
<td>5 A</td>
</tr>
<tr>
<td>Maximum current</td>
<td>40 A</td>
</tr>
</tbody>
</table>

### SO OUTPUTS / ENERGY PULSE EMISSION

<table>
<thead>
<tr>
<th>Qty/Type</th>
<th>1 opto-isolated passive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum values</td>
<td>27 Vdc - 27 mA</td>
</tr>
<tr>
<td>Pulse duration</td>
<td>100μs ± 0.5 ms</td>
</tr>
<tr>
<td>Meter constant</td>
<td>1000 imp/kWh</td>
</tr>
</tbody>
</table>

### COMMUNICATION

<table>
<thead>
<tr>
<th>Protocols supported</th>
<th>ModBUS, M-BUS, Ethernet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comunicazione ModBUS</td>
<td>RS485 port, Modbus RTU, ASCL, 30..57600 bps</td>
</tr>
<tr>
<td>Ethernet Communication</td>
<td>10/100BaseT, http, Ntp, Dchp, Modbu TCP, 10/100 Mbps, data recording, web server</td>
</tr>
<tr>
<td>Type</td>
<td>Integrated / Via external interface</td>
</tr>
</tbody>
</table>

### CONFIGURATION

| Front keys | Yes |
| Software PC Windows | E-MODBUS-PACK, E-MBUS-PACK |

### STANDARD

| Regulations | EN 50470-3, IEC/EN 62053-21/23 |
| Certifications | CE, MID |

The technical data and the diagrams on this document are indicative and not binding.
S500 SERIES - PROGRAMMING

FRONT KEYS
By using the front keys on all the models the following functions can be performed:
• Scroll pages and groups
• Temporary display of secondary values
• Access / exit of programming pages
• Start / stop / reset partial meter
• Parameters setting
• Display test

ENERGY MODBUS PACK
Models with Modbus communication can be configured via the ENERGY MODBUS PACK software package downloadable from www.seneca.it.
• Serial port setting
• Search / add counters on the network
• Configuration of the network parameters for a single counter

WEBSERVER
All S500 Series Ethernet meters with integrated or external COM have an accessible WEB SERVER available through secure connection.
The WEB SERVER makes available the values present in the module and defines a registration with file that can be exported to .csv.

ENERGY M-BUS PACK
Models with M-BUS communication can be configured via the ENERGY M-BUS PACK software package downloadable from www.seneca.it.
• Serial port setting
• Search / add counters on the network
• Configuration of the network parameters for a single counter

ORDER CODE
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>METERS</td>
<td></td>
</tr>
<tr>
<td>S501-40-0</td>
<td>Energy meter 40A single-phase 2-wire 1 DIN</td>
</tr>
<tr>
<td>S501-40-0-MID</td>
<td>Energy Meter 40A single-phase 2-wire 1 DIN, cert. MID</td>
</tr>
<tr>
<td>S501-40-MOD-MID</td>
<td>Energy Meter 40A single-phase 2-wire 1 DIN, RS485 Modbus, cert. MID</td>
</tr>
<tr>
<td>S501-40-MBU-MID</td>
<td>Energy Meter 40A single-phase 2-wire 1 DIN, M-Bus, cert. MID</td>
</tr>
<tr>
<td>S502-80-MOD</td>
<td>Energy Meter 80A single-phase 2-wire 2 DIN, RS485 Modbus</td>
</tr>
<tr>
<td>S502-80-MBU</td>
<td>Energy Meter 80A single-phase 2-wire 2 DIN, M-BUS</td>
</tr>
<tr>
<td>S502-80-ETH</td>
<td>Energy Meter 80A single-phase 2-wire 2 DIN, Ethernet</td>
</tr>
<tr>
<td>S502-80-MID</td>
<td>Energy Meter 80A single-phase 2-wire 2 DIN, certif. MID</td>
</tr>
<tr>
<td>S502-80-R</td>
<td>Energy Meter 80A single-phase 2-wire 2 DIN, reset all counters</td>
</tr>
<tr>
<td>S504C-6-MOD-MID</td>
<td>Energy Meter 1/5A single-phase 4-wire 4 DIN-RS485 Modbus, certif. MID</td>
</tr>
<tr>
<td>S504C-6-MBU-MID</td>
<td>Energy Meter 1/5A three-phase 3/4 wire 4 DIN-MBus, certif. MID</td>
</tr>
<tr>
<td>S504C-6-ETH-MID</td>
<td>Energy Meter 1/5A three-phase 3/4 wire 4 DIN-Ethernet, certif. MID</td>
</tr>
<tr>
<td>S504C-80-MOD-MID</td>
<td>Energy Meter 80A three-phase 4-wire 4 DIN-RS485 Modbus, certif. MID</td>
</tr>
<tr>
<td>S504C-80-MBU-MID</td>
<td>Energy Meter 80A three-phase 4-wire 4 DIN-MBus, certif. MID</td>
</tr>
<tr>
<td>S504C-80-ETH-MID</td>
<td>Energy Meter 80A three-phase 4-wire 4 DIN-Ethernet, certif. MID</td>
</tr>
<tr>
<td>S534-6-MID</td>
<td>Energy Meter 1/5A three-phase 3/4 wire 4 DIN, certif. MID</td>
</tr>
<tr>
<td>S534-80-MID</td>
<td>Energy Meter 80A three-phase 3/4 wire 4 DIN, certif. MID</td>
</tr>
<tr>
<td>ACCESSORIES</td>
<td></td>
</tr>
<tr>
<td>S107USB</td>
<td>Serial converter USB/RS485 portable</td>
</tr>
<tr>
<td>S117PI</td>
<td>Configuration kit K121, K120RTD, K111, T120, T121 - Serial converter RS232-TTL-RS485/USB portable</td>
</tr>
<tr>
<td>S107MBU</td>
<td>USB - M-BUS Converter / adapter, portable version</td>
</tr>
<tr>
<td>S500-MOD</td>
<td>Optical communication interface - RS485 Modbus Rtu standard</td>
</tr>
<tr>
<td>S500-MBU</td>
<td>Optical communication interface - M-Bus</td>
</tr>
<tr>
<td>S500-ETH</td>
<td>Optical communication interface - LAN Modbus TCP-IP, web server</td>
</tr>
<tr>
<td>S500-KNX</td>
<td>Optical communication interface – KNX (Konyms)</td>
</tr>
<tr>
<td>SOFTWARE</td>
<td></td>
</tr>
<tr>
<td>E-MODBUS PACK</td>
<td>Series 500 energy meter management software with Modbus / Ethernet communication</td>
</tr>
<tr>
<td>E-M-BUS PACK</td>
<td>Series 500 energy meter management software with M-BUS communication</td>
</tr>
</tbody>
</table>
AC/DC CURRENT TRANSUDCERS
T201 SERIES
T201 Series AC/DC Current Transducers are devices that convert the measured current value (up to 300A) into a standardised 4..20mA or 0..10V industrial signal. Most T201 Series models are UL certified and are characterised by low power consumption, comfortable measurement scales that can be set by means of DIP-switches and a high precision guaranteed by the absence of thermal drift. 12 models with different measurement principles are available: rectified medium, magnetic balancing (with patented technology), Hall effect or TRMS with bipolar input range. Three models are equipped with an RS485 interface with the support of the ModBUS RTU protocol.

**MAGNETIC INDUCTION**

The transducers that take advantage of magnetic induction measurement technology (international patent SENECA No. PD2009A000005) are long-lasting devices thanks to the measurement principle that avoids thermal drifts and which exploits the generation of a current induced at the output of the transducer, through variation of a magnetic field. Their direct use is possible without external shunts, also for pulsed currents.

**HALL EFFECT**

In Hall Effect transducers, when a magnetic field is applied perpendicular to a conductor a voltage transverse to the direction of the current flow is generated. Hall effect transducers are used as an alternative to shunts when high voltages and galvanic isolation are involved.
**AC/DC CURRENT TRANSUDERS WITH 4-20 mA OUTPUT**

<table>
<thead>
<tr>
<th></th>
<th>T201</th>
<th>T201DC</th>
<th>T201DC100</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENERAL DATA</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>Loop powered (5..28 Vdc)</td>
<td>Loop powered (6..100 V)</td>
<td>Loop powered (6..100 V)</td>
</tr>
<tr>
<td>Absorption</td>
<td>&lt; 21 mA</td>
<td>&lt; 21 mA</td>
<td>&lt; 21 mA</td>
</tr>
<tr>
<td>Insulation and protections</td>
<td>3 kVdc (on bare conductors)</td>
<td>3 kVdc (on bare conductors)</td>
<td>3 kVdc (on bare conductors)</td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>300 V CAT II (bare conductor)</td>
<td>300 V CAT II (insulated conductor)</td>
<td>300 V CAT II (insulated conductor)</td>
</tr>
<tr>
<td>Measurement polarity</td>
<td>Positive (label site entry current)</td>
<td>Positive (label site entry current)</td>
<td>Positive (label site entry current)</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
</tr>
<tr>
<td>Precision class</td>
<td>AC: 0.2% f.s.</td>
<td>DC: 0.2% f.s.</td>
<td>DC: 0.2% f.s.</td>
</tr>
<tr>
<td>Configuration</td>
<td>DIP switch</td>
<td>DIP switch</td>
<td>DIP switch</td>
</tr>
<tr>
<td>Data Log</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20..+65°C</td>
<td>-10..+65°C</td>
<td>-10..+65°C</td>
</tr>
<tr>
<td>Temperature stoccaggio</td>
<td>-40..+85°C</td>
<td>-40..+85°C</td>
<td>-40..+85°C</td>
</tr>
<tr>
<td>Umidità</td>
<td>10%H. 30% non-condensing</td>
<td>10%H. 30% non-condensing</td>
<td>10%H. 30% non-condensing</td>
</tr>
<tr>
<td>Altitude</td>
<td>Up to 2,000 m above sea level</td>
<td>Up to 2,000 m above sea level</td>
<td>Up to 2,000 m above sea level</td>
</tr>
<tr>
<td>Connections</td>
<td>Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm²</td>
<td>Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm²</td>
<td>Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm²</td>
</tr>
<tr>
<td>Passing hole diameter</td>
<td>12.3 mm</td>
<td>12.3 mm</td>
<td>20.8 mm</td>
</tr>
<tr>
<td>Dimensions (lxhxd)</td>
<td>41x44x26 mm</td>
<td>41x44x26 mm</td>
<td>95x68x26 mm</td>
</tr>
<tr>
<td>Assembly</td>
<td>Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories</td>
<td>Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories</td>
<td>Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories</td>
</tr>
<tr>
<td>Container</td>
<td>PA6, black</td>
<td>PA6, black</td>
<td>PA6, black</td>
</tr>
<tr>
<td>Weight</td>
<td>47 g</td>
<td>47 g</td>
<td>120 g</td>
</tr>
<tr>
<td><strong>COMMUNICATION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication port</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Protocol</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Speed</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>INPUT DATA</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channels</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Range</td>
<td>5, 10, 15, 20, 25, 30, 35, 40 A</td>
<td>Single pole 0..5, 0..10, 0..20..0..40 A</td>
<td>Single pole 0, 10, 0, 25, 0..50, 0..100 A</td>
</tr>
<tr>
<td>Type of Measurement</td>
<td>Adjusted average</td>
<td>Magnetic balancing</td>
<td>Magnetic balancing</td>
</tr>
<tr>
<td>Bipolar balancing</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Overload</td>
<td>800 A</td>
<td>800 A</td>
<td>2000 A (impulsive)</td>
</tr>
<tr>
<td>Passing band</td>
<td>20.1,000 Hz</td>
<td>n.d.</td>
<td>n.d</td>
</tr>
<tr>
<td>Crest factor</td>
<td>2</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>OUTPUT DATA</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channels</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Range</td>
<td>4.20 mA (2 fli)</td>
<td>4.20 mA (2 fli)</td>
<td>4.20 mA (2 fli)</td>
</tr>
<tr>
<td>Resolution</td>
<td>infinite</td>
<td>12 bit</td>
<td>12 bit</td>
</tr>
<tr>
<td>Max load</td>
<td>&lt; 5000 Ohm @ 100 Vdc</td>
<td>&lt; 5000 Ohm @ 100 Vdc</td>
<td>&lt; 5000 Ohm @ 100 Vdc</td>
</tr>
<tr>
<td>Error for EMI</td>
<td>&lt; 40µA</td>
<td>&lt; 50µA</td>
<td>&lt; 50µA</td>
</tr>
<tr>
<td>Thermal drift</td>
<td>&lt; 150 ppm/K</td>
<td>&lt; 150 ppm/K</td>
<td>&lt; 150 ppm/K</td>
</tr>
<tr>
<td>Response time</td>
<td>100 ms (without filter)</td>
<td>100 ms (without filter)</td>
<td>100 ms (without filter)</td>
</tr>
<tr>
<td></td>
<td>2.5 s (with filter)</td>
<td>600 ms (with filter)</td>
<td>600 ms (with filter)</td>
</tr>
<tr>
<td><strong>STANDARD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certifications</td>
<td>CE, UL-UR</td>
<td>CE, UL-UR, European patent</td>
<td>CE, UL-UR European patent</td>
</tr>
<tr>
<td>Regulations</td>
<td>EN60068</td>
<td>EN61000-6-4</td>
<td>EN61000-6-4</td>
</tr>
<tr>
<td></td>
<td>EN61000-6-4</td>
<td>EN61000-6-2</td>
<td>EN61010-1</td>
</tr>
<tr>
<td></td>
<td>EN61010-1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The technical data, diagrams and images are to be considered indicative and not binding.
## HALL EFFECT CURRENT TRANSDUCERS WITH 0-10 OUTPUT

<table>
<thead>
<tr>
<th>T201DCH</th>
<th>T201DCH100</th>
<th>T201DCH300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transducer with continuous or alternate current (± 50 A) with Hall TRMS effect with 0..10 V output</td>
<td>Transducer with continuous or alternate current (± 100 A) with Hall TRMS effect with 0..10 V output</td>
<td>Transducer with continuous or alternate current (± 300 A) with Hall TRMS effect with 0..10 V output</td>
</tr>
</tbody>
</table>

### GENERAL DATA

<table>
<thead>
<tr>
<th>Power supply</th>
<th>10..28 Vdc</th>
<th>12..28 Vdc</th>
<th>12..28 Vdc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absorption</td>
<td>&lt; 25 mA</td>
<td>&lt; 25 mA</td>
<td>&lt; 25 mA</td>
</tr>
<tr>
<td>Insulation and protections</td>
<td>3 kVdc (on bare conductors)</td>
<td>3 kVdc (on bare conductors)</td>
<td>3 kVdc (on bare conductors)</td>
</tr>
<tr>
<td>Front LED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>600 V CAT III (insulated conductor)</td>
<td>600 V CAT III (insulated conductor)</td>
<td>600 V CAT III (insulated conductor)</td>
</tr>
<tr>
<td>Measurement polarity</td>
<td>Positive (label site entry current)</td>
<td>Positive (label site entry current)</td>
<td>Positive (label site entry current)</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
</tr>
<tr>
<td>Precision class</td>
<td>± 0.3 % f.s. (DC bipolar, AC TRMS)</td>
<td>± 0.3 % f.s. (DC bipolar, AC TRMS)</td>
<td>± 0.3 % f.s. (DC bipolar, AC TRMS)</td>
</tr>
<tr>
<td>Configuration</td>
<td>DIP switch</td>
<td>DIP switch</td>
<td>DIP switch</td>
</tr>
<tr>
<td>Data Log</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10..+65°C</td>
<td>-20..+70°C</td>
<td>-20..+70°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-40..+85°C</td>
<td>-40..+85°C</td>
<td>-40..+85°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>10%RH..90% non-condensing</td>
<td>10%RH..90% non-condensing</td>
<td>10%RH..90% non-condensing</td>
</tr>
<tr>
<td>Attitude</td>
<td>Up to 2,000 m above sea level</td>
<td>Up to 2,000 m above sea level</td>
<td>Up to 2,000 m above sea level</td>
</tr>
<tr>
<td>Connections</td>
<td>Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm²</td>
<td>Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm²</td>
<td>Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm²</td>
</tr>
<tr>
<td>Passing hole diameter</td>
<td>12.3 mm</td>
<td>20.8 mm</td>
<td>20.8 mm</td>
</tr>
<tr>
<td>Dimensions (height)</td>
<td>54 x 41 x 30 mm</td>
<td>95 x 68 x 26 mm</td>
<td>95 x 68 x 26 mm</td>
</tr>
<tr>
<td>Assembly</td>
<td>Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories</td>
<td>Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories</td>
<td>Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories</td>
</tr>
<tr>
<td>Container</td>
<td>PA6, black</td>
<td>PA6, black</td>
<td>PA6, black</td>
</tr>
<tr>
<td>Weight</td>
<td>47 g</td>
<td>120 g</td>
<td>120 g</td>
</tr>
</tbody>
</table>

### COMMUNICATION

| Communication port | -          | -          | -          |
| Protocol          | -          | -          | -          |
| Speed             | -          | -          | -          |

### INPUT DATA

| Channels | 1 | 1 | 1 |
| Range    | 0..50 A, 0-100 Ac/dc TRMS | 0-50 A, ±100 A Bipolar | 0-150 A, ±300 Ac/dc TRMS |
| Type of Measurement | AC/DC TRMS | AC/DC TRMS or DC Bipolar | AC/DC TRMS or AC Bipolar |
| Bipolar balancing | No | Yes | Yes |
| Hysteresis | 0.1 % f.s. | 0.1 % f.s. | 0.1 % f.s. |
| Overload   | 2000 A (Impulsive) | 2000 A (Impulsive) | 4000 A (Impulsive) |
| Passing band | 1 kHz | 1 kHz | 1 kHz |
| Crest factor | 1.2 | 2 | 2 |

### OUTPUT DATA

| Channels | 1 | 1 | 1 |
| Range    | 0..10 V | 0..10 V | 0..10 V |
| Resolution | 12 bit | 12 bit | 12 bit |
| Max load | > 2 kOhm | > 2 kOhm | > 2 kOhm |
| Error for EMI | < 200 ppm/K | < 200 ppm/K | < 200 ppm/K |
| Thermal drift | < 200 ppm/K | < 200 ppm/K | < 200 ppm/K |
| Response time | Fast filter 800 ms | Fast filter 800 ms | Fast filter 800 ms |
| Hard filter 2 s | Hard filter 2 s | Hard filter 2 s |

### STANDARD

| Certifications | CE, UL-UR | CE, UL-UR | CE, UL-UR |
| Regulations | EN61000-6-4 | EN61000-6-4 | EN61000-6-4 |
|              | EN61000-6-2 | EN61000-6-2 | EN61000-6-2 |
|              | EN61010-1  | EN61010-1  | EN61010-1  |

The technical data, diagrams and images are to be considered indicative and not binding.
# CURRENT TRANSFORMERS - T201 SERIES

## HALL EFFECT CURRENT TRANSDUCERS WITH OUTPUT OF 4-20mA

<table>
<thead>
<tr>
<th>Model</th>
<th>Transducer with continuous or alternate current (± 50 A) with Hall TRMS effect with output of 4.20 mA loop powered</th>
<th>Transducer with continuous or alternate current (± 100 A) with Hall TRMS effect with output of 4.20 mA loop powered</th>
<th>Transducer with continuous or alternate current (± 300 A) with Hall TRMS effect with output of 4.20 mA loop powered</th>
</tr>
</thead>
<tbody>
<tr>
<td>T201DCH50-LP</td>
<td>HALL EFFECT</td>
<td>HALL EFFECT</td>
<td>HALL EFFECT</td>
</tr>
<tr>
<td>T201DCH100-LP</td>
<td>HALL EFFECT</td>
<td>HALL EFFECT</td>
<td>HALL EFFECT</td>
</tr>
<tr>
<td>T201DCH300-LP</td>
<td>HALL EFFECT</td>
<td>HALL EFFECT</td>
<td>HALL EFFECT</td>
</tr>
</tbody>
</table>

### GENERAL DATA

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Loop powered (9...28 Vdc)</th>
<th>Loop powered (9...28 Vdc)</th>
<th>Loop powered (9...28 Vdc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absorption</td>
<td>&lt; 22 mA</td>
<td>&lt; 22 mA</td>
<td>&lt; 22 mA</td>
</tr>
<tr>
<td>Insulation and protections</td>
<td>3 kVdc (on bare conductors)</td>
<td>3 kVdc (on bare conductors)</td>
<td>3 kVdc (on bare conductors)</td>
</tr>
<tr>
<td>Front LED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>300 V CAT II (bare conductor); 600 V CAT II (insulated conductor)</td>
<td>300 V CAT II (bare conductor); 600 V CAT II (insulated conductor)</td>
<td>300 V CAT II (bare conductor); 600 V CAT II (insulated conductor)</td>
</tr>
<tr>
<td>Measurement polarity</td>
<td>Positive (label site entry current)</td>
<td>Positive (label site entry current)</td>
<td>Positive (label site entry current)</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
</tr>
<tr>
<td>Precision class</td>
<td>AC: 0.5% f.s.; DC: 1% f.s.</td>
<td>AC: 0.5% f.s.; DC: 1% f.s.</td>
<td>AC: 0.5% f.s.; DC: 1% f.s.</td>
</tr>
<tr>
<td>Configuration</td>
<td>DP switch</td>
<td>DP switch</td>
<td>DP switch</td>
</tr>
<tr>
<td>Data Log</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20...+70°C</td>
<td>-20...+70°C</td>
<td>-20...+70°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>10%RH...90% non-condensing</td>
<td>10%RH...90% non-condensing</td>
<td>10%RH...90% non-condensing</td>
</tr>
<tr>
<td>Altitude</td>
<td>Up to 2,000 m above sea level</td>
<td>Up to 2,000 m above sea level</td>
<td>Up to 2,000 m above sea level</td>
</tr>
<tr>
<td>Connections</td>
<td>Removable terminals (5 poles), pitch 5 mm for cables up to 2,5 mm²</td>
<td>Removable terminals (5 poles), pitch 5 mm for cables up to 2,5 mm²</td>
<td>Removable terminals (5 poles), pitch 5 mm for cables up to 2,5 mm²</td>
</tr>
<tr>
<td>Passing hole diameter</td>
<td>12.3 mm</td>
<td>20.8 mm</td>
<td>20.8 mm</td>
</tr>
<tr>
<td>Dimensions (lxhxp)</td>
<td>41x44x26 mm</td>
<td>95x68x26 mm</td>
<td>95x68x26 mm</td>
</tr>
<tr>
<td>Assembly</td>
<td>Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories</td>
<td>Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories</td>
<td>Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories</td>
</tr>
<tr>
<td>Container</td>
<td>PA6, black</td>
<td>PA6, black</td>
<td>PA6, black</td>
</tr>
<tr>
<td>Weight</td>
<td>47 g</td>
<td>120 g</td>
<td>120 g</td>
</tr>
</tbody>
</table>

### COMMUNICATION

| Communication port | - | - | - |
| Protocol          | - | - | - |
| Speed             | - | - | - |

### INPUT DATA

| Channels | 1 | 1 | 1 |
| Range | 0-50 A Ac/DC TRMS | 0-100 A Ac/DC TRMS | 0-150 A Ac/DC TRMS |
| Type of Measurement | AC/DC TRMS or DC Bipolar | AC/DC TRMS or DC Bipolar | AC/DC TRMS or DC Bipolar |
| Bipolar balancing | Yes | Yes | Yes |
| Hysteresis | 0.3% f.s. | 0.3% f.s. | 0.3% f.s. |
| Overload | 300 A uninterrupted; 2,000 A (impulsive) | 500 A uninterrupted; 2,000 A (impulsive) | 500 A uninterrupted; 2,000 A (impulsive) |
| Passing band | 1 kHz | 1 kHz | 1 kHz |
| Crest factor | 1.3 | 1.3 | 1.3 |

### OUTPUT DATA

| Channels | 1 | 1 | 1 |
| Range | 4.20 mA nominal; 3.6 mA fault indication; 22 mA max indication | 4.20 mA nominal; 3.6 mA fault indication; 22 mA max indication | 4.20 mA nominal; 3.6 mA fault indication; 22 mA max indication |
| Resolution | 12 bit | 12 bit | 12 bit |
| Max load | < 1 kOhm 4Ω28 Vdc | < 1 kOhm 4Ω28 Vdc | < 1 kOhm 4Ω28 Vdc |
| Error for EMI | < 1% | < 1% | < 1% |
| Thermal drift | < 200 ppm/K | < 200 ppm/K | < 200 ppm/K |
| Response time | Fast filter 500 ms; Slow filter 1 s | Fast filter 500 ms; Slow filter 1 s | Fast filter 500 ms; Slow filter 1 s |

### STANDARDS

| Certifications | CE, UL-UR | CE, UL-UR | CE, UL-UR |
| Regulations | EN 61326, EN 61010-1 | EN 61326, EN 61010-1 | EN 61326, EN 61010-1 |

The technical data, diagrams and images are to be considered indicative and not binding.
## CURRENT TRANSFORMERS - T201 SERIES

### HALL EFFECT CURRENT TRANSDUCERS WITH 0-10 OUTPUT 0-10 V / MODBUS

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Power supply</th>
<th>Absorption</th>
<th>Insulation and protections</th>
<th>Overvoltage category</th>
<th>Measurement polarity</th>
<th>Degree of protection</th>
<th>Precision class</th>
<th>Configuration</th>
<th>Data Log</th>
<th>Operating temperature</th>
<th>Storage temperature</th>
<th>Humidity</th>
<th>Altitude</th>
<th>Connections</th>
<th>Passing hole diameter</th>
<th>Dimensions (lxhxp)</th>
<th>Assembly</th>
<th>Container</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>T201DCH50-M</td>
<td>Transducer of direct or alternating current (± 50 A) with Hall TRMS effect with 0..10 V output, ModBUS interface</td>
<td>10..28 Vdc</td>
<td>&lt; 25 mA</td>
<td>3 kVdc (on bare conductors)</td>
<td>Power Supply / Communication RS485</td>
<td>Positive (label site entry current)</td>
<td>IP20</td>
<td>0.3% f.s.</td>
<td>DIP switch, Software (EASY SETUP)</td>
<td>Yes</td>
<td>-20..+70°C</td>
<td>-40..+85°C</td>
<td>10% RH..90% non-condensing</td>
<td>Up to 2,000 m above sea level</td>
<td>20.8 mm 95x68x26 mm</td>
<td>Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories</td>
<td>PA6, black</td>
<td>120 g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T201DCH100-M</td>
<td>Transducer with continuous or alternate current (± 100 A) with Hall TRMS effect with output of 0..10 mA, ModBUS interface</td>
<td>12..28 Vdc</td>
<td>&lt; 25 mA</td>
<td>3 kVdc (on bare conductors)</td>
<td>Power Supply / Communication RS485</td>
<td>Positive (label site entry current)</td>
<td>IP20</td>
<td>0.3% f.s.</td>
<td>DIP switch, Software (EASY SETUP)</td>
<td>Yes</td>
<td>-20..+70°C</td>
<td>-40..+85°C</td>
<td>10% RH..90% non-condensing</td>
<td>Up to 2,000 m above sea level</td>
<td>20.8 mm 95x68x26 mm</td>
<td>Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories</td>
<td>PA6, black</td>
<td>120 g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T201DCH300-M</td>
<td>Transducer of direct or alternating current (± 300 A) with Hall TRMS effect with 0..10 V output, ModBUS interface</td>
<td>12..28 Vdc</td>
<td>&lt; 25 mA</td>
<td>3 kVdc (on bare conductors)</td>
<td>Power Supply / Communication RS485</td>
<td>Positive (label site entry current)</td>
<td>IP20</td>
<td>0.3% f.s.</td>
<td>DIP switch, Software (EASY SETUP)</td>
<td>Yes</td>
<td>-20..+70°C</td>
<td>-40..+85°C</td>
<td>10% RH..90% non-condensing</td>
<td>Up to 2,000 m above sea level</td>
<td>20.8 mm 95x68x26 mm</td>
<td>Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories</td>
<td>PA6, black</td>
<td>120 g</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### GENERAL DATA
- Power supply: 10..28 Vdc
- Absorption: < 25 mA
- Insulation and protections: 3 kVdc (on bare conductors)
- Overvoltage category: Power Supply / Communication RS485
- Measurement polarity: Positive (label site entry current)
- Degree of protection: IP20
- Operating temperature: -20..+70°C
- Storage temperature: -40..+85°C
- Humidity: 10% RH..90% non-condensing
- Altitude: Up to 2,000 m above sea level
- Connections: Removable terminals (5 poles), pitch 5 mm for cables up to 2.5 mm²
- Passing hole diameter: 20.8 mm
- Dimensions (lxhxp): 95x68x26 mm
- Assembly: Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories
- Container: PA6, black
- Weight: 120 g

### COMMUNICATION
- Communication port: RS485
- Protocol: ModBUS RTU slave
- Speed: 1.200..115200 bps

### INPUT DATA
- Channels: 1
- Range: 0.25..0.50 A ac/dc TRMS
- Type of Measurement: AC/DC TRMS or DC Bipolar
- Bipolar balancing: Yes
- Overload: 50 A (uninterrupted), 200 A (impulsive)
- Passing band: 1 kHz
- Crest factor: 2

### OUTPUT DATA
- Channels: 1
- Range: 0..10 V
- Resolution: 0.13 bit (10,000 points)
- Max load: > 2 kOhm
- Error for EMI: < 0.5%
- Thermal drift: < 200 ppm/K
- Response time: Fast filter 800 ms

### STANDARD
- Certifications: EC
- Regulations: EN61000-6-4, EN61000-6-2, EN61010-1

The technical data, diagrams and images are to be considered indicative and not binding.
CONTINUOUS CURRENT TRANSDUCER
WITH DIRECT OUTPUT 4-20 mA

TRANSDUCER CURRENT IN OUTPUT FROM ELECTRIC MOTOR IN SIGNAL 0-10 V

METAL SURFACES GALVANIC TREATMENT

INDUCED CURRENT MEASUREMENT

DIMENSIONS

ORDER CODE

ACCESSORIES

SOFTWARE

EASY SETUP
MODULAR CONVERTERS
FOR ELECTRIC READINGS

3.7
## Modular converters for electric readings

The converters for electric readings measure the values of voltage and current (alternate and/or continuous) converting them into a standard signal in current or voltage at the output terminals, proportional to the value of the input. The scale parameters of the inputs and outputs can be selected via software or DIP switches. The modules ensure a high precision class (from 0.1 to 0.5%) and very high multiview galvanic isolation up to 4,000 V. In addition to the presence of power or error, the modules equipped with the ModBUS interface also offer the RS485 LED indication on the front panel.

### WIDE MEASUREMENT RANGE FOR CURRENTS AND VOLTAGES
- Alternate
- Continuous
- TRMS

### SIMPLIFIED CONNECTIONS
- Screw terminals 2,5 mm²

### FLEXIBLE CONFIGURATION
- DIP switch
- Software

### COMPLETE POWER SUPPLY OPTIONS
- Vac/dc switching
- Loop/Self powered

### REDUCED DIMENSIONS
- 17,5 / 35 mm

### INTERNATIONAL REGULATIONS
- CE, UL

### HIGH ISOLATION
- Fino a 4.000 Vac

### E-BUS SIGNAL INTERFACES
- Uscita Analogica
- RS485 Modbus RTU

### HIGH PRECISION CLASS
- 0.3 ± 0.5 %

### STATE INDICATORS FOR CONTROL AND DIAGNOSTICS
- LED
### MODULAR CONVERTERS FOR ELECTRIC READINGS

#### CONVERTITORI PER MISURE ELETTRICHE

<table>
<thead>
<tr>
<th>Z201</th>
<th>Z201-H</th>
<th>Z202</th>
<th>Z202-H</th>
<th>Z202-LP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternate current converter 10..40 Vdc; 19..28 Vac</td>
<td>Alternate current converter 85..265 Vac/dc</td>
<td>Alternate voltage converter 10..40 Vdc; 19..28 Vac</td>
<td>Alternate voltage converter, 85..265 Vac/dc</td>
<td>Alternate voltage converter loop powered</td>
</tr>
</tbody>
</table>

#### GENERAL DATA

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Input/output</th>
<th>Power supply</th>
<th>Input/output</th>
<th>Power supply</th>
<th>Input/output</th>
<th>Power supply</th>
<th>Input/output</th>
<th>Power supply</th>
<th>Input/output</th>
</tr>
</thead>
<tbody>
<tr>
<td>10..40 Vdc; 19..28 Vac</td>
<td>85..265 Vac/dc</td>
<td>10..40 Vdc; 19..28 Vac</td>
<td>85..265 Vac/dc</td>
<td>5..28 Vdc (dal loop)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max absorption</td>
<td>&lt; 2.5 W</td>
<td>&lt; 2.5 W</td>
<td>&lt; 1.5 W</td>
<td>&lt; 1.5 W</td>
<td>&lt; 1 mA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation</td>
<td>3.750 Vac (input/output/power supply) 1.500 Vac (output/power supply)</td>
<td>3.750 Vac (input/output/power supply) 1.500 Vac (output/power supply)</td>
<td>3.750 Vac (input/output/power supply) 1.500 Vac (output/power supply)</td>
<td>4.000 Vac (input/output/power supply)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LED status indicators</td>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response time</td>
<td>&lt; 200 ms</td>
<td>&lt; 100 ms</td>
<td>&lt; 30 ms</td>
<td>&lt; 100 ms</td>
<td>&lt; 100 ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interfaces</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precision class</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.25%</td>
<td>0.3%</td>
<td>0.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Drift</td>
<td>&lt; 200 ppm/K</td>
<td>&lt; 200 ppm/K</td>
<td>&lt; 150 ppm/K</td>
<td>+ 150 ppm/K</td>
<td>+ 150 ppm/K</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configuration</td>
<td>DIP switch</td>
<td>DIP switch</td>
<td>DIP switch</td>
<td>DIP switch</td>
<td>DIP switch</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0..+55°C</td>
<td>-10..+65°C</td>
<td>0..+60°C</td>
<td>-10..+65°C</td>
<td>-20..+65°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connections</td>
<td>Screw removable terminals</td>
<td>Screw removable terminals</td>
<td>Screw removable terminals</td>
<td>Screw removable terminals</td>
<td>Screw removable terminals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Casing</td>
<td>Nylon 6 30% glass fibre</td>
<td>Nylon 6 30% glass fibre</td>
<td>Nylon 6 30% glass fibre</td>
<td>Nylon 6 30% glass fibre</td>
<td>Nylon 6 30% glass fibre</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assembly</td>
<td>35 mm DIN rail (IEC/EN 60715)</td>
<td>35 mm DIN rail (IEC/EN 60715)</td>
<td>35 mm DIN rail (IEC/EN 60715)</td>
<td>DIN Guide 35 mm (IEC/EN 60715)</td>
<td>DIN Guide 35 mm (IEC/EN 60715)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certifications</td>
<td>EC</td>
<td>EC</td>
<td>EC</td>
<td>EC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulations</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### INPUT DATA

<table>
<thead>
<tr>
<th>Channels</th>
<th>Type</th>
<th>Type</th>
<th>Type</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ALTERNATE CURRENT 0..5 / 0..10 Aac</td>
<td>TENSIONE ALTERNATA 0..500 Vac (41 scale), inlet impedance 2.000 Ω/V, Frequency 10 Hz..1 kHz</td>
<td>ALTERNATE VOLTAGE 0..500 Vac (41 scale), inlet impedance 2.000 Ω/V, Frequency 10 Hz..1 kHz</td>
<td>ALTERNATE VOLTAGE 0..500 Vac (41 scale), inlet impedance 2.000 Ω/V, Frequency 10 Hz..1 kHz</td>
</tr>
</tbody>
</table>

#### OUTPUT DATA

<table>
<thead>
<tr>
<th>Channels</th>
<th>Type</th>
<th>Type</th>
<th>Type</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CURRENT 0..20 / 4..20 mA, max load 600Ω, active / passive connection</td>
<td>CURRENT 0..20 / 4..20 mA, max load 600Ω, active / passive connection</td>
<td>CURRENT 0..20 / 4..20 mA, max load 600Ω, active / passive connection</td>
<td>CURRENT 0..20 / 4..20 mA, passive</td>
</tr>
<tr>
<td></td>
<td>VOLTAGE 0..5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω</td>
<td>VOLTAGE 0..5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω</td>
<td>VOLTAGE 0..5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω</td>
<td>VOLTAGE 0..5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω</td>
</tr>
</tbody>
</table>

#### ORDER CODES

<table>
<thead>
<tr>
<th>Z201</th>
<th>Z201-H</th>
<th>Z202</th>
<th>Z202-H</th>
<th>Z202-LP</th>
</tr>
</thead>
</table>

The technical data and the diagrams in this document are indicative and not binding.
## MODULAR CONVERTERS FOR ELECTRIC READINGS

### Z203-1
**SINGLE-PHASE NETWORK ANALYSER**

### TECHNICAL DATA

<table>
<thead>
<tr>
<th><strong>GENERAL DATA</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power supply</strong></td>
<td>10..40 Vdc, 19..28 Vac (50…60 Hz)</td>
</tr>
<tr>
<td><strong>Absorption</strong></td>
<td>&lt; 2.5 W</td>
</tr>
<tr>
<td><strong>Insulation</strong></td>
<td>&lt; 2.5 V</td>
</tr>
<tr>
<td><strong>State indicators</strong></td>
<td>Power supply, Error</td>
</tr>
<tr>
<td><strong>Response time</strong></td>
<td>&lt; 10 ms</td>
</tr>
<tr>
<td><strong>Communication interfaces</strong></td>
<td>RS485 (backplane): As an alternative to the analogue output, speed up to 115,200 bps, ModBUS RTU protocol, RS232 (front connector for programming): baud rate, address, parity, data/stop bit</td>
</tr>
<tr>
<td><strong>Precision class</strong></td>
<td>0.2%</td>
</tr>
<tr>
<td><strong>Thermal drift</strong></td>
<td>+150 ppm/K</td>
</tr>
<tr>
<td><strong>Operating temperature</strong></td>
<td>-10…+65°C</td>
</tr>
<tr>
<td><strong>Connections</strong></td>
<td>Screw removable terminals</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>17.5 x 100 x 112 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>140 g</td>
</tr>
<tr>
<td><strong>Settings</strong></td>
<td>Dip-switch (address, baud rate, line terminator, input range)</td>
</tr>
<tr>
<td><strong>Certifications</strong></td>
<td>CE, UL</td>
</tr>
<tr>
<td><strong>Regulations</strong></td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1, EN 60742</td>
</tr>
<tr>
<td><strong>INPUT DATA</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td>ALTERNATE VOLTAGE, ALTERNATE CURRENT</td>
</tr>
<tr>
<td><strong>Nominal flow rate</strong></td>
<td>5 A rms, max crest factor 3, max current 15 A, frequency 50 – 60 Hz</td>
</tr>
<tr>
<td><strong>OUTPUT DATA</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td>VOLTAGE, CURRENT, DIGITAL</td>
</tr>
<tr>
<td><strong>Analog retransmission</strong></td>
<td>Vrms, Irms, Watt, Var, frequency, cosφ, energy</td>
</tr>
</tbody>
</table>

### APPLICATION EXAMPLE

**Z203-1**
SINGLE-PHASE NETWORK ANALYSER

<table>
<thead>
<tr>
<th><strong>ORDER CODE</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Z203-1</td>
<td>Mono-phase network analyser</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
MODULAR CONVERTERS FOR ELECTRIC READINGS

Z204-1
TRMS CONTINUOUS AND ALTERNATE VOLTAGE CONVERTER

TECHNICAL DATA

GENERAL DATA
- Power supply: 10...40 Vdc, 19...28 Vac (50...60 Hz)
- Absorption: 1 W
- Insulation: 4,000 Vac (input/output, input/power supply), 1,500 Vac (output/power supply)
- State indicators: Power supply, Error
- Response time: 1 s from 10 to 90 %
- Communication interfaces: RS485 (backplane), RS232 (front connector for programming)
- Precision class: 0,5% input; 0,1% outputs.
- Thermal drift: +100 ppm/K
- Operating temperature: -20...+65°C
- Connections: Screw removable terminals
- Dimensions: 35 x 100 x 112 mm
- Weight: 140 g
- Settings: Dip-switch (address, baud rate, line terminator, input range)
- Certifications: EC
- Regulations: EN 61000-6-4, EN61000-6-2, EN61010-1

INPUT DATA
- Channels: 1
- Type: CONTINUOUS VOLTAGE: 0...1,200 Vdc; ALTERNATE VOLTAGE: 0...850 Vac
- Input impedance: 800 kΩ
- Frequency: 30...300 Hz

OUTPUT DATA
- Channels: 1
- Type: CURRENT: Range: 0...20 mA; max impedance: 500 Ω
- VOLTAGE: Range: 0...10 V; Min impedance: 1 kΩ

APPLICATION EXAMPLE

ORDER CODE
- Code: Z204-1
- Description: TRMS alternate and continuous voltage converter

The technical data and the diagrams in this document are indicative and not binding.
**MODULAR CONVERTERS FOR ELECTRIC READINGS**

**S201RC-LP**

LOOP-POWERED CONVERTER FOR ROGOWSKI SENSORS

### TECHNICAL DATA

#### GENERAL DATA

- **Power supply**: From outlook loop 4..20 mA
- **Max absorption**: < 0.6 W
- **Degree of protection**: IP20
- **LED status indicators**: Off scale alarm
- **Response time**: 0.5 / 1 s
- **Precision class**: 0.5 % of the f.s. (@ 40..120 MHz)
- **Thermal Drift**: <200 ppm/°C
- **Configuration**: Choice of f.s. and filter
- **Operating temperature**: -25 … 70°C
- **Storage temperature**: -40 … 85°C
- **Humidity**: 10 - 90 % non-condensing
- **Altitude**: Up to 2000 m above sea level
- **Dimensions (bxhxp)**: 18x105x62 mm including terminals
- **Connections**: Removable connectors pitch 5mm for cables up to 2.5 mm²
- **Casing**: Self-extinguishing PC-ABS material, grey
- **Assembly**: DIN Guide 35 mm (IEC/EN 60715)
- **Certifications**: EC

#### INPUT DATA

- **Channels**: 1
- **Type**: ROGOWSKI SENSORS 100 mV/kA (330 mV/kA)
- **Measurement type**: TRMS
- **Scales**: 250, 500, 1000, 2000, 4000 A (50-60 Hz)
- **Passing band**: 3 kHz
- **Overload**: 10 kA (1 Vrms)
- **Protection**: Overvoltage and polarity reversal
- **Damper filter**: FAST = 0.5 s, SLOW = 1 s

#### OUTPUT DATA

- **Channels**: 1
- **Type**: CURRENT
- **Power supply / Output**: 4..20 mA
- **Maximum output**: 22 mA
- **Power supply voltage**: 9-28 Vdc
- **Maximum load**: 600 Ohm

### APPLICATION EXAMPLE

**Electric motor**

Rogowski coil

**PLC**

S201RC-LP

Rogowski coil

S201RC-LP

**AC main power**

METER

S2S1P

3

4

1

2

### ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S201RC-LP</td>
<td>Loop powered converter for Rogowski sensors</td>
</tr>
<tr>
<td>RC150-025-100-3M</td>
<td>Rogowski Sensor L=25cm Øint.8cm,100mV/1kA-50Hz,cable L=3m.</td>
</tr>
<tr>
<td>RC150-035-100-3M</td>
<td>Rogowski Sensor L=35cm Øint.11cm,100mV/1kA-50Hz,cable L=3m.</td>
</tr>
<tr>
<td>RC150-040-100-3M</td>
<td>Rogowski Sensor L=40cm Øint.12cm,100mV/1kA-50Hz,cable L=3m.</td>
</tr>
<tr>
<td>RC150-060-100-3M</td>
<td>Rogowski Sensor L=60cm Øint.19cm,100mV/1kA-50Hz,cable L=3m.</td>
</tr>
<tr>
<td>RC150-090-100-3M</td>
<td>Rogowski Sensor L=90cm Øint.28cm,100mV/1kA-50Hz,cable L=3m.</td>
</tr>
<tr>
<td>RC150-120-100-3M</td>
<td>Rogowski Sensor L=120cm Øint.38cm,100mV/1kA-50Hz,cable L=3m.</td>
</tr>
<tr>
<td>RC150-180-100-3M</td>
<td>Rogowski Sensor L=180cm Øint.57cm,100mV/1kA-50Hz,cable L=3m.</td>
</tr>
<tr>
<td>RC150-RIC-KIT30</td>
<td>Rogowski reel Kit Spare Part RC150 L= 30cm Ø int. 9.5 cm, 100mV/1kA-50Hz,cable L=3m.</td>
</tr>
<tr>
<td>RC150-RIC-KIT45</td>
<td>Rogowski reel Kit Spare Part RC150 L= 45cm Ø int. 14 cm, 100mV/1kA-50Hz,cable L=3m.</td>
</tr>
<tr>
<td>RC150-RIC-KIT70</td>
<td>Rogowski reel Kit Spare Part RC150 L= 70cm Ø int. 22 cm, 100mV/1kA-50Hz,cable L=3m.</td>
</tr>
<tr>
<td>RC150-CAVEX-ROG1</td>
<td>Extension over 3 meters, standard of the Rogowski coil connection cable L.1</td>
</tr>
<tr>
<td>RC150-CAVEX-ROG2</td>
<td>Extension over 3 meters, standard of the Rogowski coil connection cable L.2</td>
</tr>
<tr>
<td>RC150-CAVEX-ROG3</td>
<td>Extension over 3 meters, standard of the Rogowski coil connection cable L.3</td>
</tr>
<tr>
<td>RC190-030-333-3M</td>
<td>Rogowski Sensor L=30cm Øint.9.5cm,333mV/1kA-50Hz,cable L=3m.</td>
</tr>
</tbody>
</table>

**ESEMPIO DI INSTALLAZIONE SENSORI ROGOWSKI**

1. Installation step 1
2. Installation step 2
3. Installation step 3
4. Installation step 4

The technical data and the diagrams in this document are indicative and not binding.
CONTROLLERS FOR ENERGY MANAGEMENT
CONTROLLERS AND RTU FOR ENERGY MANAGEMENT

For Energy Management applications SENECA offers different types of controllers, Z-TWS4-E, Z-PASS2-S-E, S6001-RTU-E with the support of the IEC 60870-101/104 and IEC 61850 communication protocols. These units can be used as redundant controllers for system automation, management of the energy produced, management of renewable energy systems (biomass, photovoltaic, wind power, etc.), development of smart grids etc. They can also be configured as web servers and TCP-IP nodes and can be integrated with the SCADA, EMS and Web supervisory platforms.

APPLICATIONS
ENERGY MANAGEMENT
IEC 60870-101-104
SLAVE

STRATON
SOFT PLC
IEC 61131-3

IEC 61850
CLIENT / SERVER

CONNECTIVITY
MODBUS RTU / TCP-IP

SUPPORT
VPN

SMART GRID
PLATFOMS
SCADA / WEB

ARCHITECTURE

CONTROL ROOM – REMOTE SCADA

SMART GRID

ELECTRICAL SUBSTATIONS - TRANSFORMATION CABINS

WIND SYSTEMS

PHOTOVOLTAIC SYSTEMS

HYDROELECTRIC SYSTEMS
## CONTROLLERS FOR ENERGY MANAGEMENT

### MULTIFUNCTION CONTROL UNIT WITH ENERGY PROTOCOLS

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-TWS4-E</td>
<td>Advanced multi-function control unit with Energy protocols</td>
</tr>
<tr>
<td>Z-PASS2-S-E</td>
<td>Straton advanced control unit with 3G+ (4G) / ETH routers and Energy protocols</td>
</tr>
<tr>
<td>S6001-RTU-E</td>
<td>All-in-One RTU with integrated I/O, 3G+ modems, Energy protocols</td>
</tr>
</tbody>
</table>

### GENERAL DATA

- **Power supply**: 10..40 Vdc, 19..28 Vac
- **Max absorption**: 6 W
- **Insulation**: 1.500 V
- **State Indicators**: Power Supply, Serial communication
- **Degree of contamination**: 2
- **Degree of protection**: IP20
- **Operational Temperature**: -20..+55°C
- **Dimensions**: 35x100x112 mm
- **Weight**: 250 g
- **Casing**: Nylon 6 with 30% glass fibre self-extinguishing class V0
- **Connections**: Removable terminals with 5.08 mm pass screw IDC10 rear connector for DIN guide
- **Assembly**: DIN Guide 35 mm (IEC EN 60715)

### COMMUNICATION

- **Ethernet**: Nr 2 Fast Ethernet ports 10/100 Mbps (RJ45)
- **Serial Ports**: Nr. 1 RS232, Nr. 1 RS485 ModBUS
- **USB**: Nr. 1 USB host type A
- **Modem / Router**: 3G+ Worldwide, 4G LTE (EAME, Korea, Thailand, India)
- **Industrial protocols**: TCP/IP ModBUS, RTU ModBUS, custom protocols
- **Network protocols**: PPP, HTTP, FTP, SMTP, OpenVPN
- **Energy Protocols**: IEC 60870-101/104, IEC 61850
- **Operating modes**: Modbus Bridge/Gateway*, Single LAN Remote Control, Serial Tunneling, SUCET / Modem/Router, 3G/ETH Redundancy, VPN, Point-to-point remote assistance (* programmable support)

### INPUT / OUTPUT DATA

- **Channels / Type**: Nr. 1 Di VPN connection enabled, Nr. 1 Do DO VPN connection in progress, Nr. 1 Do for general use, Nr. 1 Configurable Di/Do
- **Processor / Memory**: ARM9 32-bit
- **Flash Memory (data)**: 1 GB
- **RAM / FERAM**: 64 MB / 8 KB
- **Slot Micro SD**: SD Card up to 32 GB

### CONFIGURAZIONE / NORME

- **System software**: Z-NE14 / StratOn / OPC Server
- **Web Editor**: Yes, integrated
- **Web Configurator**: Yes, integrated
- **Datalogger**: Yes, integrated
- **PLC programming**: IEC 61131 (Straton) dedicated libraries
- **Certifications**: IEC, EC
- **Regulations**: EN 61000-6-4, EN 61000-6-2, EN 60950, IEC 61131

### NEW CHARACTERISTICS

- Advanced multi-function control unit with Energy protocols
- Straton advanced control unit with 3G+ (4G) / ETH routers and Energy protocols
- All-in-One RTU with integrated I/O, 3G+ modems, Energy protocols
### CONTROLLERS FOR ENERGY MANAGEMENT

<table>
<thead>
<tr>
<th>ORDER CODE</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-TW54-E-10</td>
<td>Z-TW54-E-10</td>
<td>IEC 61131 multifunction controller, integrated I/O, Straton workbench, OEM version, energy protocol</td>
</tr>
<tr>
<td>Z-PASS2-S-ID-E</td>
<td>Z-PASS2-S-ID-E</td>
<td>Straton advanced control unit with integrated VPN, 2DI, 2DO, worldwide modem 3G+/Ethernet Router, GPS, energy protocol</td>
</tr>
<tr>
<td>Z-PASS2-SIDE4EU</td>
<td>Z-PASS2-SIDE4EU</td>
<td>Straton advanced control unit with integrated VPN, 2DI, 2DO, 4G+ EU/Ethernet Router, GPS, energy protocols</td>
</tr>
<tr>
<td>S6001-RTU-E</td>
<td>S6001-RTU-E</td>
<td>All-in-one RTU with integrated I/O, 3G modem and Straton programming system, Energy protocols</td>
</tr>
</tbody>
</table>

### SOFTWARE IEC 61131 / ENERGY MANAGEMENT

<table>
<thead>
<tr>
<th>SOFTWARE</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRATON-D-USB</td>
<td>STRATON-D-USB</td>
<td>Straton activation key for IEC 61131 controllers</td>
</tr>
<tr>
<td>STRATON-IDE256</td>
<td>STRATON-IDE256</td>
<td>Straton development environment 256 tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-IDE512</td>
<td>STRATON-IDE512</td>
<td>Straton development environment 512 tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-IDEUN</td>
<td>STRATON-IDEUN</td>
<td>Straton development environment unlimited tags with USB activation key</td>
</tr>
<tr>
<td>STRATON-870S</td>
<td>STRATON-870S</td>
<td>Activation licence IEC 60870-5-101/104 Slave</td>
</tr>
<tr>
<td>SSP</td>
<td>SSP</td>
<td>SENECA Straton Package - CPU Seneca Installer suite (supplied)</td>
</tr>
<tr>
<td>STRATON-UPGRADE1</td>
<td>STRATON-UPGRADE1</td>
<td>Straton upgrade from 256 to 512 tags</td>
</tr>
<tr>
<td>STRATON-UPGRADE2</td>
<td>STRATON-UPGRADE2</td>
<td>Straton upgrade from 512 to unlimited tags</td>
</tr>
<tr>
<td>STRATON-UPGRADE3</td>
<td>STRATON-UPGRADE3</td>
<td>Straton upgrade from 256 to unlimited tags</td>
</tr>
<tr>
<td>STRATON-WB</td>
<td>STRATON-WB</td>
<td>Straton workbench IEC 61131 free editor (supplied)</td>
</tr>
<tr>
<td>2-NET4</td>
<td>2-NET4</td>
<td>2-PC Series I/O Systems and Controllers Configurator, including Web Editor development environment, Trend Viewer, Data Recorder</td>
</tr>
</tbody>
</table>

### ACCESSORIES

<table>
<thead>
<tr>
<th>ACCESSORIES</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSD</td>
<td>MSD</td>
<td>Micro SD memory card with adapter</td>
</tr>
<tr>
<td>Z-SUPPLY</td>
<td>Z-SUPPLY</td>
<td>Power supply switching monophase 24V @ 1.5 A</td>
</tr>
<tr>
<td>USB-SW-KEY</td>
<td>USB-SW-KEY</td>
<td>USB key with software, libraries, platforms and development environments, manuals for multifunction controllers</td>
</tr>
<tr>
<td>Z-PC-DIN1-35</td>
<td>Z-PC-DIN1-35</td>
<td>Support for rapid assembly on DIN guide 1 slot pitch 35 mm</td>
</tr>
<tr>
<td>Z-PC-DINAL1-35</td>
<td>Z-PC-DINAL1-35</td>
<td>Support for rapid assembly on DIN guide head + 1 slot pitch 35 mm</td>
</tr>
<tr>
<td>Z-PC-DINAL2-52.5</td>
<td>Z-PC-DINAL2-52.5</td>
<td>Support for rapid assembly on DIN guide head + 2 slot pitch 52.5 mm</td>
</tr>
</tbody>
</table>

### VPN PLATFORM

<table>
<thead>
<tr>
<th>VPN PLATFORM</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPN BOX</td>
<td>VPN BOX</td>
<td>VPN server connectivity module optimised for remote assistance and remote control</td>
</tr>
<tr>
<td>VPN BOX VM</td>
<td>VPN BOX VM</td>
<td>Virtual VPN server (Virtual Machine) optimised for remote assistance and remote control</td>
</tr>
<tr>
<td>VPN BOX MANAGER</td>
<td>VPN BOX MANAGER</td>
<td>Configuration software for VPN BOX, Server management, access credentials</td>
</tr>
<tr>
<td>VPN CC</td>
<td>VPN CC</td>
<td>VPN Client Communicator. Software tool for managing network connections to be installed on client PC</td>
</tr>
</tbody>
</table>

### ANTENNAS

<table>
<thead>
<tr>
<th>ANTENNAS</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-GSM</td>
<td>A-GSM</td>
<td>External antenna GSM dual band swing cable 3.2 m</td>
</tr>
<tr>
<td>A-GSM-QUAD</td>
<td>A-GSM-QUAD</td>
<td>Quadband GSM Antenna</td>
</tr>
</tbody>
</table>
PANEL AND MEASUREMENT INSTRUMENTATION
There are signal converters, digital indicators, totalisers, predeterminators, overvoltage protections, stabilised power supplies, temperature and humidity probes in the Instrumentation and Measurement line.

With a broad proposal dedicated to the instrumentation for industrial monitoring, SENECA offers the most advanced optical, capacitive and inductive technologies for the normalisation of field signals from sensors and actuators, galvanic isolation, electrical protection, measurement loop connection and parameter control of electrical and environmental parameters. Signal conditioning products can be used in universal applications also in combination with other SENECA products. Their electrical and mechanical structure minimises the wiring and maintenance activities.

### 4.1 Multistandard isolator converters

- **Z series**

### 4.2 Compact isolator converters

- **K series**

### 4.3 High isolation converters

- **S series**

### 4.4 Temperature transmitters

- **T120-T121 series**

### 4.5 Protections against overvoltages

- **S400 series**

### 4.6 LED digital indicators

- **S series**

### 4.7 Batch Controller

- **S20N-S21N1 Series**

### 4.8 Professional portable measurement systems

- **MY Series**

### 4.9 Multifunction Calibrators
TECHNICAL DATA

GENERAL DATA
- **Power supply**: 10...40 Vdc; 19...28 Vac
- **Transducers power supply**: Ingresso attivo a 2 fili (min 20 Vac)
- **Max absorption**: 2.5 W (max) - 1.6 W (24 Vdc, 20 mA)
- **Insulation**: 1,500 Vac
- **Protection**: Impulsive overvoltages protection 400 W /ms
- **Degree of protection**: IP20
- **LED status indicators**: Power Supply - Error - Alarm
- **Response time**: 35 ms (11 bit), 140 ms (16 bit) 35
- **Interfaces**: Micro USB
- **Precision class**: 0.10%
- **Thermal Drift**: 0.01%/K
- **Linearity**: 0.05% / 0.4%
- **Configuration**: DIP switch - Software (EASY SETUP) - App (EASY SETUP)
- **Operating temperature**: -20...+60°C
- **Dimensions**: 17.5 x 100 x 112 mm
- **Connections**: Removable terminals with 2.5 mm2 screw
- **Casing**: Nylon 6 with 30% glass fibre
- **Assembly**: DIN Guide 35 mm (IEC/EN 60715)
- **Weight**: 200 g
- **Certifications**: CE, UL
- **Regulations**: EN 61000-6-4, EN 61000-6-2, EN 61010-1

INPUT DATA
- **Channels**: 1 analog, 1 strobe
- **Type**:
  - **VOLTAGE** (mV): Bipolar 75 mV 20 V, 15 bit resolution + sign
  - **CURRENT** (mA): Bipolar up to 20 mA, 1 µA resolution
  - **RTD**: PT100, P500, P1000, N100, K10, K50, K100, K200, K300, NTC, 3, 4 wire measurement, Scale: -200...600 °C, Resolution 0.1°C
  - **THERMOCOUPLE**: Type J, K, R, S, T, E, B, N, 2.5 µV resolution
  - **POTENTIOMETER**: 500 Ω -1000 kΩ
  - **RESISTANCE**: 500 Ω 2.5 kΩ
  - **STROBE**: Output relay alternative

OUTPUT DATA
- **Channels**: 1 analog, 1 relay
- **Type**:
  - **VOLTAGE** (V): 4 scales: 0/1...5V, 0/2...10V, Min load resistance: 2 kΩ
  - **CURRENT** (mA): 2 scales: 0/4...20 mA, Max load resistance: > 600 MΩ
  - **RELAY**: Alternative to the NC / NA strobe input in the event of an alarm

ORDER CODE
- **Code**
- **Description**
  - Z109REG2-1: Universal converter with galvanic isolation, relay output, micro USB 9...40 Vdc/19...28 Vac
  - CU-A-MINIB-1: Cable plug USB A Mini USB-B 5 P, 1 meter
  - CU-A-MINIB-2: Cable plug USB A mini USB-B 5 P, 2 metres
  - CU-A-MICRO-OTG: Adapter cable Micro USB OTG – USB Female A type
  - EASY SETUP APP: Plug-and-play configurator suite for SENECA programmable instruments
  - EASY SETUP APP: App Android Suite Complete EASY SET-UP
  - Z-POWER-115-15VA: Transformer with DIN guide 19 Vac, 115 / 15 VA with thermofuse
  - Z-SUPPLY: Power supply switching monophase 24V @ 1.5 A

The technical data and the diagrams in this document are indicative and not binding.
**Z170REG-1**

**UNIVERSAL CONVERTER WITH 2 GALVANICALLY SEPARATED ANALOG OUTPUTS**

### TECHNICAL DATA

#### GENERAL DATA
- **Power supply**: 10..40 Vdc; 19..28 Vac
- **Transducers power supply**: Si max 25 mA, 17 Vdc
- **Max absorption**: 0.5..2 W
- **Insulation**: 1,500 Vac 4 way with input // power supply // output 1 // output 2
- **Degree of protection**: IP20
- **LED status indicators**: Power supply, Alarm
- **Response time**: < 25 ms
- **Interfaces**: Micro USB (front)
- **Precision class**: 0.1%
- **Thermal Drift**: 0.01%/K
- **Linearity**: <1% (input), 0.01% (output)
- **Configuration**: DIP switch, Software (EASY SETUP), App (EASY SETUP)
- **Operating temperature**: -20..+60°C
- **Dimensions**: 17.5 x 100 x 112 mm
- **Connections**: Screw removable terminals
- **Casing**: Nylon 6 30% glass fibre
- **Assembly**: DIN Guide 35 mm (IEC/EN 60715)
- **Weight**: 200 g
- **Certifications**: CE, UL
- **Regulations**: EN 61000-6-4, EN 61000-6-2, EN 61010-1

#### INPUT DATA
- **Channels**: 1
- **Type**: VOLTAGE: configurable scale 0..10 V
  - CURRENT: configurable scale 0..20 mA (active / passive module)
  - Potentiometer: configurable scale 1 kΩ..100 kΩ
  - THERMOCOUPLE: J,K,R,S,T,B,E,N
  - THERMISTER: Pt100, P500, Pt1000, Ni100
- **Sampling period**: 5 to 20 ms

#### OUTPUT DATA
- **Channels**: 2
- **Type**: VOLTAGE: configurable scale 0..10 V
  - CURRENT: configurable scale 0..20 mA (active / passive)
- **Resolution**: 14 bit

### SIGNALS/ISOLATIONS DIAGRAM

### APPLICATION DIAGRAM

### CONFIGURAZIONE TRAMITE INTERFACCIA USB

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z170REG-1</td>
<td>Universal converter with 2 galvanically separated analog outputs, Micro USB part, configurable from App, 24 Vac/dc</td>
</tr>
<tr>
<td>CU-A-MICROB</td>
<td>Cable plug USB A Micro USB-B 5 P</td>
</tr>
<tr>
<td>CU-A-MICROB-OTG</td>
<td>Adapter cable Micro USB OTG – USB Female A type</td>
</tr>
<tr>
<td>EASY SETUP</td>
<td>Plug-and-play configurator suite for SENECA programmable instruments</td>
</tr>
<tr>
<td>EASY SETUP APP</td>
<td>App Android Suite Complete EASY SET-UP</td>
</tr>
<tr>
<td>Z-POWER-115-15WA</td>
<td>Transformer with DIN guide 19 Vac, 115 / 15 VA with thermofuse</td>
</tr>
<tr>
<td>Z-POWER-230-15WA</td>
<td>Transformer with DIN guide 19 Vac, 230 / 15 VA with thermofuse</td>
</tr>
<tr>
<td>Z-POWER-230-25WA</td>
<td>Transformer with DIN guide 19 Vac, 230 / 25 VA with thermofuse</td>
</tr>
<tr>
<td>Z-SUPPLY</td>
<td>Power supply switching monophasé 24V @ 1.5 A</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
PRODUCTS PREVIEW

K121
UNIVERSAL CONVERTER
(mA, V, OHM, RTD, TC) ISOLATED LOOP POWERED

TECHNICAL DATA

GENERAL DATA
Power supply range 7..30 Vdc (with loop 4..20mA)
Hot swapping Yes
Absorption current <4 mA
Absorption <660 mW
A/D conversion 16 bit
Reaction 50 / 60 Hz (configurable)
Configuration Software (EASY)
Dimensions 6.2 x 93.1 x 102.5 mm
Insulation 1.5 kVac (2 ways)
Isolation technology Digital (optocoupler)
Data processing 32 bit floating point
Casing Black, PBT
Weight 45 g
Operating temperature -20..+65°C
Connections 8 Spring terminals
Degree of protection IP20
Precision class 0.1
Thermal drift 120 ppm/K
State indicators Error, alarm
Special Functions Cold coupling offset
Measurement filter
Output inversion
Certifications CE, II 3G Ex ia IIC T4 Gc X, II 3D Ex tc IIIC T135°C Dc X
Regulations Safety (EN 61010-1), EMC (EN 61000-6-2, EN 61000-6-4, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11), Atex (EN 60079-0, EN 60079-15)

INPUT DATA

No. of channels 1
Type Thermocouple J, K, R, S, T, E, B, N (EN 60584)
RTD (Pt100, Pt500, Pt1000, Ni100) 2/3/4 wires
Voltage (V): ± 30V, impedance 200 kΩ
Voltage (mV): ±150 mV, impedance 10 MΩ
Current: ± 24V, impedance 40 kΩ
Potentiometer: 500 Ω..10 kΩ, impedance 10 MΩ

Absolute value

OUTPUT DATA

No. of channels 1
Type Current 4..20 mA
Response time (10-90%) 140..620ms

APPLICATION EXAMPLE

INPUT

| Thermocouple | J, K, R, S, T, E, B, N (EN 60584) |
| RTD (Pt100, Pt500, Pt1000, Ni100) 2/3/4 wires |
| Voltage (V): ± 30V, impedance 200 kΩ |
| Voltage (mV): ±150 mV, impedance 10 MΩ |
| Current: ± 24V, impedance 40 kΩ |
| Potentiometer: 500 Ω..10 kΩ, impedance 10 MΩ |

LOAD RESISTANCE DIAGRAM / MINIMUM OPERATION VOLTAGE

The technical data and the diagrams in this document are indicative and not binding.

APPLICATION EXAMPLE

INSTALLATION

ORDER CODES

Code Description
K121 Universal converter (mA, V, Ohm, RTD, TC) isolated loop powered

ACCESSORIES

EASY USB Converter USB - UART TTL with CD and programming software
S117P1 Serial converter RS232-TTL-RS485/USB portable
K-SUPPLY Power supply module with electronic line protections
K-BUS Expandable connector 2 DIN guide slots 35 mm for fast power supply, black

SOFTWARE

EASY SETUP Plug & play configurator suite for SENECA programmable instruments
EASY LP Configurator plug & play loop powered tools
## T121

**UNIVERSAL TEMPERATURE TRANSMITTER**

**ISOLATED LOOP POWERED**

### TECHNICAL DATA

#### GENERAL DATA

- **Power supply**: 7..30 Vdc (loop powered)
- **Insulation and protections**: 1.5 kV ac
- **Response time**: < 1 s
- **Precision class**: 0.1% (min 0.1°C for RTD and 1°C for TC)
- **Thermal drift**: -
- **Configurations**: EASY SETUP software (Start / full scale, rejection, RTD type, cable resistance, over-range etc.)

#### ORDER CODES

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T121</td>
<td>Standard isolated universal temperature transmitter</td>
</tr>
<tr>
<td>T121-C</td>
<td>Calibrated isolated universal temperature transmitter</td>
</tr>
</tbody>
</table>

### SIGNALS / ISOLATIONS DIAGRAM

#### T121

**Input**

- Pt100/Ni100
- Pt500/Pt1000

**Output**

- 4...20 mA
- 20...4 mA

### APPLICATION DIAGRAM

#### MYALARM2

### ACCESSORIES AND SOFTWARE

- **EASY-USB**: USB Converter ↔ UART-TTL
- **EASY-SETUP**: Configuration software, free download from www.seneca.it
- **EASY-LP**: Configuration software for loop powered instruments
- **FLEX-DIN**: Coupling for DIN guide
- **S117P1**: RS232/TTL/RS485 USB serial converter complete with USB cable, TTL cable, CD driver + EASY-LP

### INPUT DATA

- **Numero**: 1
- **Type**:
  - Pt100 (EN 60751/A2, -200..+650°C, min span 20°C)
  - N100 (-60..+250°C, min span 20°C)
  - Pt500 2,3,4 wires from -200 to 650°C
  - Pt1000 2,3,4 wires from -200 to +200°C
  - TC J, K, R, S, T, B, E, N
  - Potentiometer: 450..1,800 ohm
  - Voltage: -150..+150 mV

### OUTPUT DATA

- **Number**: 1
- **Type**: CURRENT (mA)
  - 4..20, 20..4 mA (2 wires)

---

The technical data and the diagrams in this document are indicative and not binding.
S315
4-Figure Loop Powered Indicator
4-20 INPUTmA

TECHNICAL DATA

GENERAL DATA
Power supply From measurement loop (max 30 V)
Max voltage drop 7 V
Memories EEPROM, 10 years
Operating temperature -10..+65°C
Container Self-extinguishing PPO, DIN 43700 format
Front protection IP65
Terminal blocks With removable screw: 2 way / pitch 5.08 mm (power supply)
Dimensions 96 x 48 x 40 mm
Panel drilling dimensions 91x45 mm
Weight 100 g

DISPLAY AND MEASUREMENT
Display 4 digit, red LEDs
Front keys Three buttons for menu navigation
Precision 0.05%
Stability 0.005%/°K
Linearity 0.0005
Max resolution 16 bit
Electromagnetic interference <1%

INPUT DATA
Channels 1
Type and range 4..20 mA

SETTINGS
Front keys Front keys (Password enable, input type, start / end scale, start / end display scale, decimal point position, filter level)
Access protection Via password
Calibration Yes, factory settings

STANDARD
Certifications EC
Regulations EN 61000-6-4, EN 64000-6, EN 61010-1, EN 60742

APPLICATION DIAGRAM

ANALOG SIGNAL DISPLAY FROM TRANSDUCER WITH ACTIVE LOOP

ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S315</td>
<td>4-digit loop powered indicator, standard 4-20 mA input</td>
</tr>
<tr>
<td>S315-IP66</td>
<td>4-digit powered loop indicator, 4-20 mA input with IP66 casing (130x80x60 mm)</td>
</tr>
<tr>
<td>S315-IP66D</td>
<td>4-digit loop powered indicator, 4-20 mA input, No. 2 instruments and dual IP66 casing</td>
</tr>
</tbody>
</table>

The technical data and the diagrams on this document are indicative and not binding.
MULTISTANDARD ISOLATOR CONVERTERS

Z Series
The modules of the Z Series are reliable signal conditioners, oriented towards ease of use and installation. Available in multiple power standards, they respond to the most common interface and conditioning needs. Most models are characterised by a 3-way galvanic separation equal to 1.5 kVac, reduced overall dimensions (standard width 17.5 mm), installation on DIN 42677 guide, extended temperature range, high precision and the possibility to power the sensors connected to them.

**Z Series Z** is the ideal solution for conditioning analog industrial, electric signals, from temperature sensors, from load, serial, digital and impulsive cells.

**High Isolation Multi-Way**

From kVac to 4kVac

**Precision**

Up to 0.1%

**Standard Signals**

mA, mV, A, V, Ohms, RTD, TC, load cell, Reed, Pnp, Npn, Effect hall, photoelectric sens., imp.24V

**Resistance**

Operating temperature up to -20..+65%, RH 90%

**Reliability**

MTBF>500,000 h

**Certifications**

UL, CE, US Listed

**Dimensions Compact**

Width 17.5 mm

**Universal Power Supply**

Vac/dc switching; measurement loop power supply

**Transducer Power Supply**

Loop power supply of current in output (min 20 Vdc)

**Reduced Absorption**

< 2.5 W
The SENECA Z-Series converters offer 3 configuration modes. Almost all the models allow configuration of the standard parameters by means of DIP switches accessible on the side of the instrument. In addition, some models ensure expanded functionality that can be set using the “EASY SETUP” PC software. Other models, equipped with Micro USB port on the front, are programmable via the App “EASY SETUP APP” for Android terminals.
# Multistandard Isolator Converters - Z Series

## Converters for Analog Signals

<table>
<thead>
<tr>
<th>Type</th>
<th>Z109REG</th>
<th>Z109REG2-1</th>
<th>Z109REG2-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal converter with galvanic separation</td>
<td>Universal converter with galvanic isolation, relay output, Micro USB</td>
<td>Universal converter with galvanic isolation, micro USB,</td>
<td></td>
</tr>
</tbody>
</table>

### General Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Z109REG</th>
<th>Z109REG2-1</th>
<th>Z109REG2-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>10..40 Vdc, 19..28 Vac</td>
<td>10..40 Vdc, 19..28 Vac</td>
<td>85..265 Vac/dc</td>
</tr>
<tr>
<td>Transducers power supply</td>
<td>Active input 2 wires (min 18 Vdc)</td>
<td>Active input 2 wires (min 20 Vdc)</td>
<td>Active input 2 wires (min 20 Vdc)</td>
</tr>
<tr>
<td>Max absorption</td>
<td>2.5 W</td>
<td>2.5 W (max)</td>
<td>2.5 W (max)</td>
</tr>
<tr>
<td>Insulation</td>
<td>1.500 Vac (3-way)</td>
<td>1.6 W (24 Vdc, 20 mA)</td>
<td>1.6 W (24 Vdc, 20 mA)</td>
</tr>
<tr>
<td>LED status indicators</td>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
</tr>
<tr>
<td>Response time</td>
<td>35 ms</td>
<td>35 ms (11 bit), 140 ms (16 bit)</td>
<td>35 ms (11 bit), 140 ms (16 bit)</td>
</tr>
<tr>
<td>Interfaces</td>
<td>Front jack 3.5 mm RS232 (COM)</td>
<td>Micro USB</td>
<td>Front jack 3.5 mm RS232 (COM)</td>
</tr>
<tr>
<td>Precision class</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Thermal Drift</td>
<td>0.01%/°K</td>
<td>0.01%/°K</td>
<td>0.01%/°K</td>
</tr>
<tr>
<td>Linearity</td>
<td>0.05%/°K</td>
<td>0.05%/°K</td>
<td>0.05%/°K</td>
</tr>
<tr>
<td>Configuration</td>
<td>DIP switch Software (EASY SETUP)</td>
<td>DIP switch Software (EASY SETUP) App Android</td>
<td>DIP switch Software (EASY SETUP)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20..+60°C</td>
<td>-20..+60°C</td>
<td>-20..+60°C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
</tr>
<tr>
<td>Connections</td>
<td>Removable terminals 2.5 mm²</td>
<td>Removable terminals 2.5 mm²</td>
<td>Removable terminals 2.5 mm²</td>
</tr>
<tr>
<td>Casing</td>
<td>Nylon 6 with 30% glass fibre</td>
<td>Nylon 6 with 30% glass fibre</td>
<td>Nylon 6 with 30% glass fibre</td>
</tr>
<tr>
<td>Assembly</td>
<td>DIN Guide 35 mm (IEC/EN 60175)</td>
<td>DIN Guide 35 mm (IEC/EN 60175)</td>
<td>DIN Guide 35 mm (IEC/EN 60175)</td>
</tr>
<tr>
<td>Weight</td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
</tr>
<tr>
<td>Certifications</td>
<td>EC</td>
<td>CE - UL-UR CSA</td>
<td>CE</td>
</tr>
</tbody>
</table>

### Input Data

#### Channels

<table>
<thead>
<tr>
<th>Type</th>
<th>Z109REG</th>
<th>Z109REG2-1</th>
<th>Z109REG2-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 analog, 1 strobe</td>
<td>1 analog, 1 strobe</td>
<td>1 analog, 1 strobe</td>
<td></td>
</tr>
</tbody>
</table>

#### Type

- **VOLTAGE (mV, V)**
  - Bipolar 0..2, 0..5, 0..10 V
  - Bipolar 0..20 mA

- **CURRENT (mA)**
  - Bipolar 0..20 mA

- **RTD**
  - Pt100 (-200..+600°C)

- **THERMOCOUPLE**
  - Type J, K, R, S, T, E, B, N
  - Resolution 0.1°C
  - Measurement 3, 4 wires

### Output Data

#### Channels

<table>
<thead>
<tr>
<th>Type</th>
<th>Z109REG</th>
<th>Z109REG2-1</th>
<th>Z109REG2-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 analog, 1 relay</td>
<td>1 analog, 1 relay</td>
<td>1 analog, 1 relay</td>
<td></td>
</tr>
</tbody>
</table>

#### Type

- **VOLTAGE (V)**
  - 4 scales: 0..2, 0..10 V
  - 2 scales: 0..20, 4..20 mA

- **CURRENT (mA)**
  - 2 scales: 0..20, 4..20 mA
  - Max load resistance: 600 Ω

- **POTENTIOMETER**
  - Bipolar up to 20 mA
  - Bipolar from 75 mV to 20 V

- **STROBE**:
  - Alternative to the NC/NA strobe input in the event of an alarm
  - Bipolar up to 20 mA

### Order Code

<table>
<thead>
<tr>
<th>Code</th>
<th>Z109REG</th>
<th>Z109REG2-1</th>
<th>Z109REG2-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software and Accessories</td>
<td>pg.172</td>
<td>pg.172</td>
<td>pg.172</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
### MULTISTANDARD ISOLATOR CONVERTERS - Z SERIES

<table>
<thead>
<tr>
<th>Z109UI2-1</th>
<th>Z109REG-BP</th>
<th>Z109S-DI</th>
<th>Z109S</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA-V converter with galvanic separation, micro USB</td>
<td>Universal converter with voltage / current bipolar output, micro USB</td>
<td>Galvanic separator for high isolation current loop</td>
<td>Galvanic separator for current loop</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>10.40 Vdc, 19.28 Vac</th>
<th>10.40 Vdc, 19.28 Vac</th>
<th>10.40 Vdc, 19.28 Vac</th>
<th>9.40 Vdc, 19.28 Vac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active input 2 wires (min 20 Vdc)</td>
<td>Active input 2 wires (17 Vdc)</td>
<td>Active input 2 wires (17 Vdc)</td>
<td>Active input 2 wires (17 Vdc)</td>
<td></td>
</tr>
<tr>
<td>2.5 W</td>
<td>2.5 W</td>
<td>2.5 W</td>
<td>2.5W</td>
<td></td>
</tr>
<tr>
<td>1.500 Vac (3-way)</td>
<td>1.500 Vac (power supply / input)</td>
<td>3.500 Vac (3-way)</td>
<td>1.500 Vac (3-way)</td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
<td></td>
</tr>
<tr>
<td>35 ms (11 bit), 140 ms (16 bit)</td>
<td>35 ms (11 bit), 140 ms (16 bit)</td>
<td>&lt; 200 us</td>
<td>&lt; 60 ms</td>
<td></td>
</tr>
<tr>
<td>Micro USB</td>
<td>Micro USB</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>0.1%</td>
<td>0.1%</td>
<td>0.2% or 10μA</td>
<td>0.2%</td>
<td></td>
</tr>
<tr>
<td>0.01%°K</td>
<td>0.01%°K</td>
<td>0.2%°K</td>
<td>0.02 % f.s. / °C</td>
<td></td>
</tr>
<tr>
<td>0.05 % (U), 0.01% (Vout)</td>
<td></td>
<td></td>
<td>0.05%</td>
<td></td>
</tr>
<tr>
<td>DIP switch</td>
<td>Software (EASY SETUP)</td>
<td>App Android</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-20..+60°C</td>
<td>-20..+60°C</td>
<td>-20..+60°C</td>
<td>-20..+60°C</td>
<td></td>
</tr>
<tr>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td></td>
</tr>
<tr>
<td>Removable terminals 2.5 mm²</td>
<td>Removable terminals 2.5 mm²</td>
<td>Removable terminals 2.5 mm²</td>
<td>Removable terminals 2.5 mm²</td>
<td></td>
</tr>
<tr>
<td>Nylon 6 with 30% glass fibre</td>
<td>Nylon 6 with 30% glass fibre</td>
<td>Nylon 6 with 30% glass fibre</td>
<td>Nylon 6 with 30% glass fibre</td>
<td></td>
</tr>
<tr>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
<td></td>
</tr>
<tr>
<td>CE-UL-UR CSA</td>
<td>EC</td>
<td>EC</td>
<td>CE-UL</td>
<td></td>
</tr>
<tr>
<td>EN 55011, EN 61000-4-2, EN 61000-4-4, EN 50140 / 141</td>
<td>EN 61000-4-2; EN 61000-4-4; EN 61010-1</td>
<td>EN 61000-4-2; EN 61000-4-4; EN 61010-1</td>
<td>EN 55011, EN 61000-4-2, EN 61000-4-4, EN 50140 / 141</td>
<td></td>
</tr>
</tbody>
</table>

1. **VOLTAGE (mV, V)**
   - Bipolar from 75 mV to 20 V
   - 9 scale
   - Resolution 15 bit + sign
   - **CURRENT** (mA)
   - Bipolar up to 20 mA
   - Resolution 1 μA

2. **VOLTAGE (μV)**
   - 4 scales: 0.1/..50, 0.2/..10, 0.5/..20, 1/..50
   - Min load resistance: 2 kΩ
   - **CURRENT** (mA)
   - 2 scales: 0.4/..10 mA
   - Max load resistance: 600 Ω

3. **VOLTAGE (mA)**
   - Voltage from -10 to +10 Vdc, min load 1000 Ω
   - Current from -20 to +20 mA, max load 500 Ω
   - **CURRENT** (mA)
   - 2 scales: 0.4/..20 mA
   - Max load resistance: 600 Ω

---

The technical data and the diagrams in this document are indicative and not binding.
### MULTISTANDARD ISOLATOR CONVERTERS - Z SERIES

#### CONVERTERS FOR ANALOG SIGNALS

<table>
<thead>
<tr>
<th>Code</th>
<th>Z102</th>
<th>Z110S</th>
<th>Z110D</th>
<th>Z170REG-1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENERAL DATA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>9.30 (opz.) - 19..40 Vdc</td>
<td>Self–powered from input loop</td>
<td>Self–powered from input loop</td>
<td>10..40 Vdc, 19..28 Vac</td>
</tr>
<tr>
<td>Transducers power supply</td>
<td>19.28 Vac</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max absorption</td>
<td>2.5 W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation</td>
<td>1,500 Vac (3-way)</td>
<td>1,500 Vac</td>
<td>1,500 Vac</td>
<td>1,500 Vac (4-way)</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LED status indicators</td>
<td>Power supply</td>
<td>IP20</td>
<td>IP20</td>
<td>Power supply</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt; 40 ms</td>
<td>&lt; 100 ms</td>
<td>&lt; 100 ms</td>
<td>&lt; 25 ms</td>
</tr>
<tr>
<td>Interface</td>
<td>Micro USB (front)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication with PLC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precision class</td>
<td>0.2%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Thermal Drift</td>
<td>0.02 % f.s. / °C</td>
<td>0.02 % f.s. / °C</td>
<td>0.02 % f.s. / °C</td>
<td>0.01% / K</td>
</tr>
<tr>
<td>Linearity</td>
<td>0.05%</td>
<td>0.1 % f.s.</td>
<td>0.1 % f.s.</td>
<td>&lt;1% (input), 0.01% (output)</td>
</tr>
<tr>
<td>Configuration</td>
<td>DIP switch</td>
<td>DIP switch</td>
<td>Software (EASY SETUP)</td>
<td>Software (EASY SETUP)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0..+50 °C</td>
<td>0..+50 °C</td>
<td>0..+50 °C</td>
<td>-20..+80°C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
</tr>
<tr>
<td>Connections</td>
<td>Screw removable terminals</td>
<td>Screw removable terminals</td>
<td>Screw removable terminals</td>
<td>Screw removable terminals</td>
</tr>
<tr>
<td>Casing</td>
<td>Nylon 6 30% glass fibre</td>
<td>Nylon 6 30% glass fibre</td>
<td>Nylon 6 30% glass fibre</td>
<td>Nylon 6 30% glass fibre</td>
</tr>
<tr>
<td>Weight</td>
<td>200 g</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certifications</td>
<td>EC</td>
<td>EC</td>
<td>EC</td>
<td>CE-UL-UR- CSA</td>
</tr>
<tr>
<td>Regulations</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
</tr>
</tbody>
</table>

#### INPUT DATA

<table>
<thead>
<tr>
<th>Channels</th>
<th>1</th>
<th>1</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• REDSTATE</td>
<td>2 wires: 0..300 Ω (I=6mA); 0..500 Ω (I=3.6 mA); 0.1 KΩ (I=1.8 mA)</td>
<td>0..10 V</td>
<td>0..10 V</td>
<td>VOLTAGE configurable scale 0..10 V</td>
</tr>
<tr>
<td>• POTENTIOMETER</td>
<td>3 wires: Vref=1.8 Vcc, from 200 Ω to 1 MΩ</td>
<td>CURRENT (mA) 4..20 mA</td>
<td>CURRENT (mA) 4..20 mA</td>
<td>CURRENT (mA) 4..20 mA</td>
</tr>
</tbody>
</table>

#### OUTPUT DATA

<table>
<thead>
<tr>
<th>Channels</th>
<th>1</th>
<th>1</th>
<th>2</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• VOLTAGE (V)</td>
<td>4 scales: 0..5, 1..5, 0..10, 0..10 V</td>
<td>CURRENT (mA) 4..20 mA</td>
<td>CURRENT (mA) 4..20 mA</td>
<td>CURRENT (mA) 4..20 mA</td>
</tr>
<tr>
<td>• CURRENT (mA)</td>
<td>2 scales: 0..20, 4..20 mA</td>
<td>Loop impedance &lt; 600 Ω</td>
<td></td>
<td>VOLTAGE configurable scale 0..10 V</td>
</tr>
<tr>
<td>• VOLTAGE configurable scale 0..10 V</td>
<td></td>
<td></td>
<td></td>
<td>CURRENT configurable scale 0..20 mA (active / passive)</td>
</tr>
<tr>
<td>• CURRENT</td>
<td></td>
<td></td>
<td></td>
<td>14 bit resolution</td>
</tr>
<tr>
<td>• CURRENT</td>
<td></td>
<td></td>
<td></td>
<td>Sampling period configurable from 1 to 20 ms.</td>
</tr>
</tbody>
</table>

#### ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Z102</th>
<th>Z110S</th>
<th>Z110D</th>
<th>Z170REG-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software and Accessories</td>
<td>pg.172</td>
<td>pg.172</td>
<td>pg.172</td>
<td>pg.172</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
### A/D Converters

<table>
<thead>
<tr>
<th></th>
<th>Z190</th>
<th>Z-SG</th>
<th>Z-4AI-D</th>
<th>Z-4TC-D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Signal subtractor adder with galvanic separation</strong></td>
<td>9..30 (opz.) - 19.4 VDC</td>
<td>9..30 (opz.) - 19.4 VDC</td>
<td>9..30 (opz.) - 19.4 VDC</td>
<td>9..30 (opz.) - 19.4 VDC</td>
</tr>
<tr>
<td><strong>19.28 Vac</strong></td>
<td>19.28 Vac</td>
<td>19.28 Vac</td>
<td>19.28 Vac</td>
<td>19.28 Vac</td>
</tr>
<tr>
<td><strong>Active input 2 wires (min 20 VDC)</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>2.5 W</strong></td>
<td>2 W</td>
<td>2.5 W</td>
<td>2 W</td>
<td>2 W</td>
</tr>
<tr>
<td><strong>1.500 Vac (3-way)</strong></td>
<td>1.500 Vac (3-way)</td>
<td>1.500 Vac (3-way)</td>
<td>1.500 Vac (3-way)</td>
<td>1.500 Vac (3-way)</td>
</tr>
<tr>
<td><strong>IP20</strong></td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
</tr>
<tr>
<td><strong>Error</strong></td>
<td>Error</td>
<td>Error</td>
<td>Error</td>
<td>Error</td>
</tr>
<tr>
<td><strong>Data Transmission</strong></td>
<td>Data Transmission</td>
<td>Data Transmission</td>
<td>Data Transmission</td>
<td>Data Transmission</td>
</tr>
<tr>
<td><strong>Data Receipt</strong></td>
<td>Data Receipt</td>
<td>Data Receipt</td>
<td>Data Receipt</td>
<td>Data Receipt</td>
</tr>
<tr>
<td><strong>&lt; 10 ms</strong></td>
<td>Front jack 3.5 mm RS232 (COM)</td>
<td>Front jack 3.5 mm RS232 (COM)</td>
<td>Front jack 3.5 mm RS232 (COM)</td>
<td>Front jack 3.5 mm RS232 (COM)</td>
</tr>
<tr>
<td><strong>IDC10 ModBUS RTU RS485</strong></td>
<td>IEC 61131 PLC libraries</td>
<td>IEC 61131 PLC libraries</td>
<td>IEC 61131 PLC libraries</td>
<td>IEC 61131 PLC libraries</td>
</tr>
<tr>
<td><strong>0.01%</strong></td>
<td>0.01%</td>
<td>0.01%</td>
<td>0.01%</td>
<td>0.01%</td>
</tr>
<tr>
<td><strong>DIP switch</strong></td>
<td>0..50°C</td>
<td>0..50°C</td>
<td>0..50°C</td>
<td>0..50°C</td>
</tr>
<tr>
<td><strong>2..10 V, min load resistance 2 kΩ</strong></td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
</tr>
<tr>
<td><strong>Nylon 6 30% glass fibre</strong></td>
<td>Nylon 6 30% glass fibre</td>
<td>Nylon 6 30% glass fibre</td>
<td>Nylon 6 30% glass fibre</td>
<td>Nylon 6 30% glass fibre</td>
</tr>
<tr>
<td><strong>200 g</strong></td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
</tr>
<tr>
<td><strong>EC</strong></td>
<td>EC</td>
<td>EC</td>
<td>EC</td>
<td>EC</td>
</tr>
<tr>
<td><strong>EN 50081-1, EN 50081-2, EN 61010-1</strong></td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1, EN 60742, IEC 61131</td>
<td>EN 61010-1, EN 50081-2, EN 50082-2, EN 60742, IEC 61131</td>
<td>EN 61010-1, EN 50081-2, EN 50082-2, EN 60742, IEC 61131</td>
<td>EN 61010-1, EN 50081-2, EN 50082-2, EN 60742, IEC 61131</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>1 analogic, 1 digital</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>1 analogic, 1 digital</strong></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>VOLTAGE (V)</strong></td>
<td>2 analogic</td>
<td>4 analogic</td>
<td>4 analogic</td>
<td>4 analogic</td>
</tr>
<tr>
<td><strong>4 scales: 0..1, 0..5, 0..10, 2..10 V</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Input impedance 500 kΩ</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CURRENT [mA]</strong></td>
<td>2 scales: 0/4..20 mA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Active connection</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>loop powered 20 V DC not stabilised</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Passive connection</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>inlet impedance 100 Ohm</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>• ANALOG</strong></td>
<td>Strain gauge load cell, 4 or 6-wire connection, min. 87 Ohm for 1..4 load cells (350 Ω) or 1..8 load cells (1,000 Ohm)</td>
<td>16,000 point resolution</td>
<td>100 kΩ</td>
<td>80 mV</td>
</tr>
<tr>
<td><strong>Sensitivity: 1..64 mV/V</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>• DIGITAL</strong></td>
<td>Tare calibration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>VOLTAGE (V)</strong></td>
<td>2 V</td>
<td>16,000 point resolution</td>
<td>Impedance: 100 kΩ</td>
<td>Impedance: 10 MΩ</td>
</tr>
<tr>
<td><strong>CURRENT [mA]</strong></td>
<td>0..20, 4..20 mA</td>
<td>16,000 point resolution</td>
<td>Impedance: 100 kΩ</td>
<td>Type J, K, R, S, T, E, B, N</td>
</tr>
<tr>
<td><strong>VOLTAGE (mV)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Impedance: 10 MΩ</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>THERMOCOUPLE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Type J, K, R, S, T, E, B, N</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Z190</strong></td>
<td>Z-SG</td>
<td>Z-4AI-D</td>
<td>Z-4TC-D</td>
<td></td>
</tr>
</tbody>
</table>

**Software and Accessories p.172**

The technical data and the diagrams in this document are illustrative and not binding.

**SENECA | General Catalogue**
# MULTISTANDARD ISOLATOR CONVERTERS - Z SERIES

## CONVERTERS FOR ELECTRIC READINGS

<table>
<thead>
<tr>
<th></th>
<th>Z201</th>
<th>Z201-H</th>
<th>Z202</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENERAL DATA</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>10..40 Vdc; 19..28 Vac</td>
<td>85..265 Vac/dc</td>
<td>10..40 Vdc; 19..28 Vac</td>
</tr>
<tr>
<td>Max absorption</td>
<td>&lt; 2.5 W</td>
<td>&lt; 2.5 W</td>
<td>&lt; 1.5 W</td>
</tr>
<tr>
<td>Insulation</td>
<td>3.750 Vac (input/output/power supply)</td>
<td>4.000 Vac (input/output/power supply)</td>
<td>3.750 Vac (input/output, input/power supply)</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
</tr>
<tr>
<td>LED status indicators</td>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt; 200 ms</td>
<td>&lt; 100 ms</td>
<td>&lt; 30 ms</td>
</tr>
<tr>
<td>Interfaces</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precision class</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.25%</td>
</tr>
<tr>
<td>Thermal Drift</td>
<td>&lt; 200 ppm/K</td>
<td>&lt; 200 ppm/K</td>
<td>&lt; 150 ppm/K</td>
</tr>
<tr>
<td>Configuration</td>
<td>DIP switch</td>
<td>DIP switch</td>
<td>DIP switch</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0..+55°C</td>
<td>-10..-65°C</td>
<td>0..+60°C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
<td>17.5 x 100 x 112 mm</td>
</tr>
<tr>
<td>Connections</td>
<td>Screw removable terminals</td>
<td>Screw removable terminals</td>
<td>Screw removable terminals</td>
</tr>
<tr>
<td>Casing</td>
<td>Nylon 6 30% glass fibre</td>
<td>Nylon 6 30% glass fibre</td>
<td>Nylon 6 30% glass fibre</td>
</tr>
<tr>
<td>Assembly</td>
<td>35 mm DIN rail (IEC/EN 60715)</td>
<td>35 mm DIN rail (IEC/EN 60715)</td>
<td>35 mm DIN rail (IEC/EN 60715)</td>
</tr>
<tr>
<td>Weight</td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
</tr>
<tr>
<td>Certifications</td>
<td>EC</td>
<td>EC</td>
<td>EC</td>
</tr>
<tr>
<td>Regulations</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
</tr>
</tbody>
</table>

## INPUT DATA

| Channels | 1 | 1 | 1 |
| Type | ALTERNATE CURRENT 0..5 / 0..10 Aac | ALTERNATE CURRENT 0..5 / 0..10 Aac | ALTERNATE VOLTAGE 0..500 V (41 scales), 0..1,200 Vdc; 0..850 Vac |
|Voltage | | | 0..1,200 Vdc; 0..850 Vac |
| Current | | | 0..1,200 Vdc; 0..850 Vac |
| Impedance | | | 2.000 Ω/V |

## OUTPUT DATA

| Channels | 1 | 1 | 1 |
| Type | CURRENT 0..20 / 4..20 mA, max load 600 Ω, active / passive connection VOLTAGE 0.5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω | CURRENT 0..20 / 4..20 mA, max load 600 Ω, active / passive connection VOLTAGE 0.5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω | CURRENT 0..20 / 4..20 mA, max load 600 Ω, active / passive connection VOLTAGE 0.5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω |

## ORDER CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Z201</th>
<th>Z201-H</th>
<th>Z202</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software and Accessories</td>
<td>pg.172</td>
<td>pg.172</td>
<td>pg.172</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
### CONVERTERS FOR ELECTRIC READINGS

<table>
<thead>
<tr>
<th>Model</th>
<th>Z202-H</th>
<th>Z202-LP</th>
<th>Z203-1</th>
<th>Z204-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternate voltage converter, 85..265 Vac/dc</td>
<td>85..265 Vac/dc</td>
<td>10..40 Vdc; 19..28 Vac</td>
<td>10..40 Vdc; 19..28 Vac</td>
<td></td>
</tr>
<tr>
<td>Channels</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
</tr>
<tr>
<td>&lt; 100 ms</td>
<td>&lt; 10 ms</td>
<td>RS323 (front connector for programming): baud rate, address, parity, data/stop bit</td>
<td>RS323 (front connector for programming): baud rate, address, parity, data/stop bit</td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>DIP switch</td>
<td>DIP switch</td>
<td>DIP switch</td>
<td>DIP switch</td>
<td>DIP switch</td>
</tr>
<tr>
<td>DIN Guide</td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
</tr>
<tr>
<td>EN 61000-6-4; EN 61000-6-2; EN 61010-1</td>
<td>EN 61000-6-4; EN 61000-6-2; EN 61010-1</td>
<td>EN 61000-6-4; EN 61000-6-2; EN 61010-1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
MULTISTANDARD ISOLATOR CONVERTERS - Z SERIES

RELAY THRESHOLD CONVERTERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Power supply</th>
<th>Type</th>
<th>Channels</th>
<th>Dimensions</th>
<th>Connections</th>
<th>Casing</th>
<th>Certifications</th>
<th>Assembly</th>
<th>Weight</th>
<th>Measurements</th>
<th>Certifications</th>
<th>Regs</th>
<th>V, mA, W, kW, °C, Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z112A</td>
<td>19..40...30 Vdc; 19..28 Vac</td>
<td>Impulse (mechanical contact, reed, npn, pnp, Namur, imp. 24 Vdc, photoelectric sensor, Hall effect sensor), freq. Max 450 Hz</td>
<td>1</td>
<td>17.5 x 100 x 112 mm</td>
<td>Screw removable terminals</td>
<td>Nylon 6 30% glass fibre</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>DIN Guide 35 mm (IEC/EN 60715)</td>
<td>200 g</td>
<td>Voltage (V), 4 scales (0/1...5 Vdc, 0/2...10 Vdc, input impedance 500 kΩ)</td>
<td>EC</td>
<td>Voltage up to 10 V, Bipolar current up to 20 mA, Thermocouples Pt100, Pt500, Pt100, Pt100, Pt100, Pt100, Thermocouple type J,K,R,S,T,B,E,N</td>
<td>±0.1% of FSO, 0.1% of span, 0.1% of span</td>
</tr>
<tr>
<td>Z112D</td>
<td>19..40...30 Vdc; 19..28 Vac</td>
<td>Impulse (mechanical contact, reed, npn, pnp, Namur, imp. 24 Vdc, photoelectric sensor, Hall effect sensor), freq. Max 450 Hz</td>
<td>2</td>
<td>17.5 x 100 x 112 mm</td>
<td>Screw removable terminals</td>
<td>Nylon 6 30% glass fibre</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>DIN Guide 35 mm (IEC/EN 60715)</td>
<td>200 g</td>
<td>Voltage (V), 4 scales (0/1...5 Vdc, 0/2...10 Vdc, input impedance 500 kΩ)</td>
<td>EC</td>
<td>Voltage up to 10 V, Bipolar current up to 20 mA, Thermocouples Pt100, Pt500, Pt100, Pt100, Pt100, Pt100, Thermocouple type J,K,R,S,T,B,E,N</td>
<td>±0.1% of FSO, 0.1% of span, 0.1% of span</td>
</tr>
<tr>
<td>Z113S</td>
<td>19..40...30 Vdc; 19..28 Vac</td>
<td>Single adjustable alarm threshold</td>
<td>1</td>
<td>17.5 x 100 x 112 mm</td>
<td>Screw removable terminals</td>
<td>Nylon 6 30% glass fibre</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>DIN Guide 35 mm (IEC/EN 60715)</td>
<td>200 g</td>
<td>Voltage (V), 4 scales (0/1...5 Vdc, 0/2...10 Vdc, input impedance 500 kΩ)</td>
<td>EC</td>
<td>Voltage up to 10 V, Bipolar current up to 20 mA, Thermocouples Pt100, Pt500, Pt100, Pt100, Pt100, Pt100, Thermocouple type J,K,R,S,T,B,E,N</td>
<td>±0.1% of FSO, 0.1% of span, 0.1% of span</td>
</tr>
<tr>
<td>Z113D</td>
<td>19..40...30 Vdc; 19..28 Vac</td>
<td>Double adjustable alarm threshold</td>
<td>2</td>
<td>17.5 x 100 x 112 mm</td>
<td>Screw removable terminals</td>
<td>Nylon 6 30% glass fibre</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>DIN Guide 35 mm (IEC/EN 60715)</td>
<td>200 g</td>
<td>Voltage (V), 4 scales (0/1...5 Vdc, 0/2...10 Vdc, input impedance 500 kΩ)</td>
<td>EC</td>
<td>Voltage up to 10 V, Bipolar current up to 20 mA, Thermocouples Pt100, Pt500, Pt100, Pt100, Pt100, Pt100, Thermocouple type J,K,R,S,T,B,E,N</td>
<td>±0.1% of FSO, 0.1% of span, 0.1% of span</td>
</tr>
<tr>
<td>Z113T</td>
<td>19..40...30 Vdc; 19..28 Vac</td>
<td>Triple adjustable alarm threshold</td>
<td>3</td>
<td>17.5 x 100 x 112 mm</td>
<td>Screw removable terminals</td>
<td>Nylon 6 30% glass fibre</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>DIN Guide 35 mm (IEC/EN 60715)</td>
<td>200 g</td>
<td>Voltage (V), 4 scales (0/1...5 Vdc, 0/2...10 Vdc, input impedance 500 kΩ)</td>
<td>EC</td>
<td>Voltage up to 10 V, Bipolar current up to 20 mA, Thermocouples Pt100, Pt500, Pt100, Pt100, Pt100, Pt100, Thermocouple type J,K,R,S,T,B,E,N</td>
<td>±0.1% of FSO, 0.1% of span, 0.1% of span</td>
</tr>
<tr>
<td>Z113-1</td>
<td>19..40...30 Vdc; 19..28 Vac</td>
<td>Double alarm threshold with universal analogue input and relay output</td>
<td>1</td>
<td>17.5 x 100 x 112 mm</td>
<td>Screw removable terminals</td>
<td>Nylon 6 30% glass fibre</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>DIN Guide 35 mm (IEC/EN 60715)</td>
<td>200 g</td>
<td>Voltage (V), 4 scales (0/1...5 Vdc, 0/2...10 Vdc, input impedance 500 kΩ)</td>
<td>EC</td>
<td>Voltage up to 10 V, Bipolar current up to 20 mA, Thermocouples Pt100, Pt500, Pt100, Pt100, Pt100, Pt100, Thermocouple type J,K,R,S,T,B,E,N</td>
<td>±0.1% of FSO, 0.1% of span, 0.1% of span</td>
</tr>
</tbody>
</table>

ORDER CODE

- Code: pg.172
- Software and Accessories: pg.172
# Multistandard Isolator Converters - Z Series

## Converters for Temperature Sensors

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z109PT2-1</td>
<td>Thermoresistance isolator converter with Micro USB interface</td>
</tr>
<tr>
<td>Z109TC2-1</td>
<td>Thermocouple isolator converter with Micro USB interface</td>
</tr>
</tbody>
</table>

### General Data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Z109PT2-1</th>
<th>Z109TC2-1</th>
<th>Z104</th>
<th>Z111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>9..40 Vdc; 19..28 Vac</td>
<td>9..40 Vdc; 19..28 Vac</td>
<td>19..40 Vdc; 19..28 Vac</td>
<td>19..40 Vdc; 19..28 Vac</td>
</tr>
<tr>
<td>Transducers power supply</td>
<td>Yes, 20 Vdc, max 20 mA, 2 wires</td>
<td>Yes, 20 Vdc, max 20 mA, 2 wires</td>
<td>Yes, 20 Vdc, max 20 mA, 2 wires</td>
<td>Yes, 20 Vdc, max 20 mA, 2 wires</td>
</tr>
<tr>
<td>Max absorption</td>
<td>2.5 W</td>
<td>2 W</td>
<td>2.5 W</td>
<td>2.5 W</td>
</tr>
<tr>
<td>Insulation</td>
<td>1.500 Vac (3-way)</td>
<td>1.500 Vac (3-way)</td>
<td>1.500 Vac (3-way)</td>
<td>1.500 Vac (3-way)</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
</tr>
</tbody>
</table>

### Response Time

<table>
<thead>
<tr>
<th>Feature</th>
<th>Z109PT2-1</th>
<th>Z109TC2-1</th>
<th>Z104</th>
<th>Z111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response time</td>
<td>35..140 ms</td>
<td>35..140 ms</td>
<td>350 ms</td>
<td>250 ms</td>
</tr>
</tbody>
</table>

### Interfaces

<table>
<thead>
<tr>
<th>Feature</th>
<th>Z109PT2-1</th>
<th>Z109TC2-1</th>
<th>Z104</th>
<th>Z111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply Setting</td>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
<td>Power supply</td>
</tr>
<tr>
<td>Error</td>
<td>Off scale</td>
<td>Error</td>
<td>Output (attracted relay)</td>
<td>Error</td>
</tr>
<tr>
<td>Precision class</td>
<td>0.1% (RTD) - 0.3% (output under voltage)</td>
<td>0.1% (TC) - 0.3% (output under voltage)</td>
<td>0.2%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Thermal Drift</td>
<td>0.015°C/K</td>
<td>0.015°C/K</td>
<td>0.02% f.s.°C</td>
<td>0.01% f.s.°C</td>
</tr>
</tbody>
</table>

### Operation Temperature

<table>
<thead>
<tr>
<th>Feature</th>
<th>Z109PT2-1</th>
<th>Z109TC2-1</th>
<th>Z104</th>
<th>Z111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>-20..+60°C</td>
<td>-20..+60°C</td>
<td>0 ..+50°C</td>
<td>0 ..+50°C</td>
</tr>
<tr>
<td>Connections</td>
<td>Screw removable terminals</td>
<td>Screw removable terminals</td>
<td>Screw removable terminals</td>
<td>Screw removable terminals</td>
</tr>
</tbody>
</table>

### Assembly

<table>
<thead>
<tr>
<th>Feature</th>
<th>Z109PT2-1</th>
<th>Z109TC2-1</th>
<th>Z104</th>
<th>Z111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
<td>200 g</td>
</tr>
</tbody>
</table>

### Certifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Z109PT2-1</th>
<th>Z109TC2-1</th>
<th>Z104</th>
<th>Z111</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
<td>EN 61000-6-4, EN 61000-6-2, EN 61010-1</td>
</tr>
</tbody>
</table>

### Input Data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Z109PT2-1</th>
<th>Z109TC2-1</th>
<th>Z104</th>
<th>Z111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>RTD</td>
<td>THERMOCOUPLE</td>
<td>VOLTAGE (V)</td>
<td>Pulse (mechanical contact, reed, npn, NPN, NPN, 24 Vdc, photoelectric sensor, Hall effect sensor, TTL variable reluctance), freq. measurable from 1 mHz to 9.99 kHz</td>
</tr>
<tr>
<td>Rtd type</td>
<td>Pt100, Pt500, Pt1000, Ni100</td>
<td>Tipo: J, K, R, S, T, E, B, N</td>
<td>4 scales: 0.5, 0.5, 0.5, 0.5, 0.5, 0.5</td>
<td>4 scales: 0.5, 0.5, 0.5, 0.5, 0.5, 0.5</td>
</tr>
<tr>
<td>Excitation current</td>
<td>1 mA</td>
<td>Resolution 5 μV</td>
<td>current 1 mA</td>
<td>current 1 mA</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1°C</td>
<td>Automatic interruption detection</td>
<td>0.1°C</td>
<td>0.1°C</td>
</tr>
</tbody>
</table>

### Output Data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Z109PT2-1</th>
<th>Z109TC2-1</th>
<th>Z104</th>
<th>Z111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>VOLTAGE (V)</td>
<td>VOLTAGE (V)</td>
<td>VOLTAGE (V)</td>
<td>VOLTAGE (V)</td>
</tr>
<tr>
<td>Voltage</td>
<td>4 scales: 0.5, 0.5, 0.5, 0.5, 0.5, 0.5</td>
<td>4 scales: 0.5, 0.5, 0.5, 0.5, 0.5, 0.5</td>
<td>4 scales: 0.5, 0.5, 0.5, 0.5, 0.5, 0.5</td>
<td>4 scales: 0.5, 0.5, 0.5, 0.5, 0.5, 0.5</td>
</tr>
<tr>
<td>Resolution</td>
<td>2.5 μA / 1.25 mV</td>
<td>Resolution 5 μV</td>
<td>Active / passive connection</td>
<td>Active / passive connection</td>
</tr>
<tr>
<td>Resolution</td>
<td>2.5 μA / 1.25 mV</td>
<td>Resolution 5 μV</td>
<td>2 scales: 0.20, 0.20 mA</td>
<td>2 scales: 0.20, 0.20 mA</td>
</tr>
</tbody>
</table>

### Order Code

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z109PT2-1</td>
<td>Software and Accessories</td>
</tr>
<tr>
<td>Z109TC2-1</td>
<td>Software and Accessories</td>
</tr>
<tr>
<td>Z104</td>
<td>Software and Accessories</td>
</tr>
<tr>
<td>Z111</td>
<td>Software and Accessories</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
MULTISTANDARD ISOLATOR CONVERTERS - Z SERIES

SOFTWARE & ACCESSORIES

EASY SETUP
Configuration software

Programmable models:
- Z109REG, Z109REG2-1, Z109UI-2, Z109REG-BP,
- Z170REG-1, Z-SG, Z203-1, Z204-1, Z113-1,
- Z109PT2-1, Z109TC2-1

Minimum hardware requirements:
- CPU 1GHz, 256 MB free in HD, graphic board resolution 1024x768 pixel
- Download: free from www.seneca.it

- Automatic connection to the module
- Setting of operation and communication parameters
- Parameter monitoring
- Automatic configuration of modules
- Testing and replication of the configuration

S117P1
S117P1 SERIAL CONVERTER RS232↔USB, TTL↔USB, RS485↔USB

- Asynchronous serial conversion RS232, RS485, TTL
- Multiple connection possibility of multiple S117P1 units on the same PC
- USB 1.0, 1.1, 2.0 standard compatibility
- RS485 communication, max 32 nodes
- External modules power supply (100 mA, 12 Vdc)
- Supplied accessories: USB cable, TTL cable, driver CD

ORDER CODE
Code Description
S117P1 Asynchronous serial converter RS232↔USB, TTL↔USB, RS485↔USB

Z-POWER
19 Vac transformers for DIN guide mounting

- Primary voltage 230 (115) Vac ± 10%Housing in selfextinguishing thermoplastic material (class V-0)
- Protection with thermal fuse
- Dimensions 3 DIN modules (15 VA), 5 DIN modules (25 VA)
- Dimensions 3 DIN modules (15 VA), 5 DIN modules (25 VA)
- IP 40

ORDER CODE
Code Description
Z-POWER 230-15VA Transformer 19 Vac, 230-15 VA
Z-POWER 230-25VA Transformer 19 Vac, 230-25 VA
Z-POWER 115-15VA Transformer 19 Vac, 115-15 VA

CABLES

ORDER CODE
Code Description
CS-JACK-DB9F Programming serial cable (Jack / DB9F)
CU-A-MICROB Cable plug USB-A Micro USB-B 5 P
CU-A-MICRO-OTG Adapter cable Micro USB OTG – USB Female A type

EASY SETUP APP
Configuration app for Android terminal

Programmable models:
- Z109REG2-1, Z109UI2-1,
- Z109REG-BP, Z170REG-1, Z109PT2-1, Z109TC2-1

Android version: 4.0 or later

Compatible terminals:Android Smartphone/Tablet with OTG function

Download: Google Play Store

- Automatic connection to the module
- Setting of operation and communication parameters
- Parameter monitoring
- Automatic configuration of modules
- Testing and replication of the configuration

EQUALISATION AND CONNECTION SYSTEM FOR LOAD CELLS

ORDER CODE
Code Description
SG-EQ4 Equalisation board and connection up to 4 load cells in parallel
SG-EQ4-BOXPG7 Equalisation board and connection up to 4 parallel load cells + IP67 containment box complete with cable glands with 7 mm diameter and 2 hole covers

Z-SUPPLY
Power supply switching monophase 24V @ 1.5 A

- Input: 110..230 Vac @ 47-63 Hz, 0,7 A; 110..315 Vdc, 0.7 A
- Output: 24 Vdc ± 2%
- Redundancy In parallel with two Z-SUPPLY modules (only from IDC10 connector)
- Output current: 1.5 A
- Output control: “Power Good” output relay
- Internal fuse: 1.25A T-type (delayed)
- Assembly: On DIN guide 46277
- Insulation: Up to 3KV in output and output voltage

ORDER CODE
Code Description
Z-SUPPLY Power supply switch monophase 24V @ 1.5 A
Il modulo è stato progettato per essere installato sugli apparecchi IECEN60715 in posizione verticale.

5. INSTRUZIONI PRELIMINARI ALL’UTILIZZO

Per maggiori informazioni consultare il sito nella sezione Z170REG www.seneca.it attraverso applicazioni e/o software.

6. COLLEGAMENTI ELETTRICI

6.1 MISURE DI SICUREZZA PRIMA DELL’UTILIZZO

È vietato installare il modulo accanto ad apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vietato posizionare qualsiasi oggetto che occluda le feritoie di ventilazione.
È vietato installare il modulo accanto a apparecchi che generano calore.
È vi...
## RAPID SELECTION

### CONVERTERS FOR ANALOG SIGNALS

<table>
<thead>
<tr>
<th>CODE</th>
<th>INSTRUMENT</th>
<th>POWER SUPPLY</th>
<th>OTHER CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z102</td>
<td>Ohm</td>
<td>mA, V</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z109REG</td>
<td>mA, mA</td>
<td>mA, V</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z109REG2-1</td>
<td>mA, mA</td>
<td>mA, V, (SPST relay)</td>
<td>2 2 x</td>
</tr>
<tr>
<td>Z109REG2-H</td>
<td>mA, mA</td>
<td>mA, V, (SPST relay)</td>
<td>2 2 x</td>
</tr>
<tr>
<td>Z109REG-BP</td>
<td>mA, mA</td>
<td>mA, V, (SPST relay)</td>
<td>1 2 x</td>
</tr>
<tr>
<td>Z109S</td>
<td>mA</td>
<td>mA</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z109S-DI</td>
<td>mA</td>
<td>mA</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z109U2-1</td>
<td>mA, mA</td>
<td>mA, V</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z110D</td>
<td>mA, mA</td>
<td>mA, V</td>
<td>2 2 x</td>
</tr>
<tr>
<td>Z110S</td>
<td>mA, mA</td>
<td>mA, V</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z170REG-1</td>
<td>mA, mA</td>
<td>mA, V, (SPST relay)</td>
<td>1 2 x</td>
</tr>
<tr>
<td>Z190</td>
<td>mA, V</td>
<td>mA, V</td>
<td>2 1 x</td>
</tr>
<tr>
<td>Z-SG</td>
<td>mA, V</td>
<td>mA, V</td>
<td>1 1 x</td>
</tr>
</tbody>
</table>

### A/D CONVERTERS

<table>
<thead>
<tr>
<th>CODE</th>
<th>INSTRUMENT</th>
<th>POWER SUPPLY</th>
<th>OTHER CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-4AI-D</td>
<td>mA, V</td>
<td>Serial / Signals 24V PNP (Clock, Data, Strobe)</td>
<td>4 3 x</td>
</tr>
<tr>
<td>Z-4TC-D</td>
<td>mA, V</td>
<td>Serial / Signals 24V PNP (Clock, Data, Strobe)</td>
<td>4 3 x</td>
</tr>
</tbody>
</table>

### ELECTRIC MEASUREMENT CONVERTERS

<table>
<thead>
<tr>
<th>CODE</th>
<th>INSTRUMENT</th>
<th>POWER SUPPLY</th>
<th>OTHER CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z201</td>
<td>Aac</td>
<td>mA, V</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z201-H</td>
<td>Aac</td>
<td>mA, V</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z202</td>
<td>Vac</td>
<td>mA, V</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z202-H</td>
<td>Vac</td>
<td>mA, V</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z202LP</td>
<td>Vac/dc</td>
<td>mA, V</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z203-1</td>
<td>A, V</td>
<td>mA, V, RS485 ModBUS</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z204-1</td>
<td>Vac/dc</td>
<td>mA, V, RS485 ModBUS</td>
<td>1 1 x</td>
</tr>
</tbody>
</table>

### CONVERTERS WITH RELAY THRESHOLDS

<table>
<thead>
<tr>
<th>CODE</th>
<th>INSTRUMENT</th>
<th>POWER SUPPLY</th>
<th>OTHER CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z112A</td>
<td>Contact, Reed, NPN, PNP, Namur, Photoelectric, Hall, Var. Reluctance, Imp. 24 V, TTL, Volumetric Meter</td>
<td>SPDT Relay</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z112D</td>
<td>Contact, Reed, NPN, PNP, Namur, Photoelectric, Hall, Var. Reluctance, Imp. 24 V, TTL, Volumetric Meter</td>
<td>SPST relay</td>
<td>2 2 x</td>
</tr>
<tr>
<td>Z113D</td>
<td>mA, V</td>
<td>SPST relay</td>
<td>1 2 x</td>
</tr>
<tr>
<td>Z113S</td>
<td>mA, V</td>
<td>SPST Relay</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z113T</td>
<td>mA, V</td>
<td>SPST relay</td>
<td>1 3 x</td>
</tr>
<tr>
<td>Z113-1</td>
<td>mA, V, Ohm, RTD, TC</td>
<td>SPST relay</td>
<td>1 2 x</td>
</tr>
</tbody>
</table>

### TEMPERATURE SENSOR CONVERTERS

<table>
<thead>
<tr>
<th>CODE</th>
<th>INSTRUMENT</th>
<th>POWER SUPPLY</th>
<th>OTHER CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z109PT2-1</td>
<td>Pt100, Pt500, Pt1000</td>
<td>mA, V</td>
<td>1 1 x</td>
</tr>
<tr>
<td>Z109TC2-1</td>
<td>TC (J,K,R,S,T,B,E,N)</td>
<td>mA, V</td>
<td>1 1 x</td>
</tr>
</tbody>
</table>

### CONVERTERS FOR FREQUENCY SIGNALS

<table>
<thead>
<tr>
<th>CODE</th>
<th>INSTRUMENT</th>
<th>POWER SUPPLY</th>
<th>OTHER CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z104</td>
<td>mA, V, NPN Open Collector, Reed Relay</td>
<td>1 1 x</td>
<td>20 Vac</td>
</tr>
<tr>
<td>Z111</td>
<td>Contact, Reed, NPN, Namur, Photoelectric, Hall, Var. Reluctance, Imp. 24 V, TTL, Volumetric Meter</td>
<td>mA, V</td>
<td>1 1 x</td>
</tr>
</tbody>
</table>
CONVERTERS
ISOLATORI COMPATTI

K Series

4

4.2
**COMPACT ISOLATOR CONVERTERS - K SERIES**

**K series**

**Signal Converters**
**Compact galvanic isolators**

The SENECA K Series converter modules are characterised by 1.5 kVac 3-way isolation in digital technology, precision class 0.1%, supply range from 19.2 to 30 Vdc, compact dimensions (102.5 x 93.1 x 6.2) mm), reduced consumption, Mtbf of over 500,000 hours. Signal configuration is immediate with DIP switches or software. The supply technique is standard (on the spring clamp) or with a distributed system, based on an expandable connector (K-BUS) that can be snapped onto the 35 mm DIN guides according to the EN 60715 standard.

**ROBUST INDUSTRIAL DESIGN**

- **HIGH RELIABILITY**
  - >500,000 h

- **WIDE OPERATING TEMPERATURE RANGE**
  - -20..+65°C

- **REDUCED CONSUMPTION**
  - <25mA

- **MULTI-WAY INSULATION**
  - 1,5 kV

- **COMPACT DIMENSIONS**
  - 6.2 mm

- **HIGH PRECISION**
  - 0.1%
COMPACT ISOLATOR CONVERTERS - K SERIES

SPECIAL FUNCTIONS

- Filter for stabilisation of readying
- Scale inversion for input / output
- Linearisation for horizontal cylinder tanks
- Root extraction

SETTINGS

FLEXIBLE CONFIGURATION VIA DIP-SWITCH

PROGRAMMING VIA PC

EASY SETUP

POWER SUPPLY

DISTRIBUTED / DIRECT ON TERMINAL

19.2..30 Vdc

EXPANDABLE POWER SUPPLY CONNECTOR

CERTIFICATIONS

STANDARD INTERNATIONAL

CE, UL, CSA

ATEX CONFORMITY (K121)

II 3G Ex nA IIC T4 Gc X (gas)
II 3D Ex tc IIIC T135°C Dc X (dust)
EN 60079-0:2012
EN 60079-15:2010
### UNIVERSAL ANALOG

<table>
<thead>
<tr>
<th></th>
<th>K121</th>
<th>K109UI</th>
<th>K109S</th>
<th>K109LV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Universal converter (mA, V, Ohm, RTD, TC) isolated loop powered</td>
<td>V-I / V-I opto-isolated converter</td>
<td>opto-isolated converter with active input (transducer power supply)</td>
<td>opto-isolated converter shunt / V-I</td>
</tr>
<tr>
<td>Power supply</td>
<td>7...30 Vdc (with loop 4..20 mA)</td>
<td>19.2...30 Vdc</td>
<td>19.2...30 Vdc</td>
<td>19.2...30 Vdc</td>
</tr>
<tr>
<td>Power supply on side terminals</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Max current absorbed</td>
<td>24 mA</td>
<td>22 mA (24 Vdc)</td>
<td>23 mA (24 Vdc); 45 mA (with aux. power supply)</td>
<td>22 mA (24 Vdc)</td>
</tr>
<tr>
<td>Max power dissipated</td>
<td>&lt;660 mW</td>
<td>500 mW</td>
<td>500 mW</td>
<td>500 mW</td>
</tr>
<tr>
<td>A/D conversion</td>
<td>16 bit</td>
<td>14 bit</td>
<td>14 bit</td>
<td>14 bit</td>
</tr>
<tr>
<td>Rejection</td>
<td>50 or 60 Hz (programmable)</td>
<td>50 or 60 Hz (programmable)</td>
<td>50 or 60 Hz (programmable)</td>
<td>50 or 60 Hz (programmable)</td>
</tr>
<tr>
<td>Configurability</td>
<td>Software (EASY SETUP)</td>
<td>DIP Switch</td>
<td>DIP Switch</td>
<td>DIP Switch</td>
</tr>
<tr>
<td>Filtro</td>
<td>Additional for reading stabilization</td>
<td>Additional for reading stabilization</td>
<td>Additional for reading stabilization</td>
<td>Additional for reading stabilization</td>
</tr>
<tr>
<td>Dimensions</td>
<td>6.2 x 93.1 x 102.5 mm</td>
<td>6.2 x 93.1 x 102.5 mm</td>
<td>6.2 x 93.1 x 102.5 mm</td>
<td>6.2 x 93.1 x 102.5 mm</td>
</tr>
<tr>
<td>Insulation</td>
<td>1.5 Kvar (2 ways)</td>
<td>1.5 Kvar (3 ways)</td>
<td>1.5 Kvar (3 ways)</td>
<td>1.5 Kvar (3 ways)</td>
</tr>
<tr>
<td>Isolation technology</td>
<td>Digital / optocoupler</td>
<td>Digital / optocoupler</td>
<td>Digital / optocoupler</td>
<td>Digital / optocoupler</td>
</tr>
<tr>
<td>Processing</td>
<td>Calculation of floating point 32 bit</td>
<td>Calculation of floating point 32 bit</td>
<td>Calculation of floating point 32 bit</td>
<td>Calculation of floating point 32 bit</td>
</tr>
<tr>
<td>Colour</td>
<td>Black</td>
<td>Black</td>
<td>Black</td>
<td>Black</td>
</tr>
<tr>
<td>Weight</td>
<td>45 g</td>
<td>45 g</td>
<td>45 g</td>
<td>45 g</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20...+65°C</td>
<td>-20...+65°C</td>
<td>-20...+65°C</td>
<td>-20...+65°C</td>
</tr>
<tr>
<td>Connection</td>
<td>IIWG terminals</td>
<td>Spring and/or BUS</td>
<td>Spring and/or BUS</td>
<td>Spring and/or BUS</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP 20</td>
<td>IP 20</td>
<td>IP 20</td>
<td>IP 20</td>
</tr>
<tr>
<td>Precision class</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Thermal drift</td>
<td>&lt; 120 ppm/K</td>
<td>&lt; 120 ppm/K</td>
<td>&lt; 120 ppm/K</td>
<td>&lt; 120 ppm/K</td>
</tr>
<tr>
<td>LED</td>
<td>Anomaly, alarm</td>
<td>Anomaly, alarm</td>
<td>Anomaly, alarm</td>
<td>Anomaly, alarm</td>
</tr>
<tr>
<td>Special functions</td>
<td>Cold coupling offset Filter that can be inserted</td>
<td>Output inversion</td>
<td>Root retraction Signal inversion</td>
<td>Root retraction Signal inversion</td>
</tr>
<tr>
<td>Approvals</td>
<td>CE, UL-UR CSA</td>
<td>CE, UL-UR CSA</td>
<td>CE, UL-UR CSA</td>
<td>CE, UL-UR CSA</td>
</tr>
<tr>
<td>Regulations</td>
<td>EN 61010-1, EN 61000-6-2, EN 61000-6-4, EN 61000-4-2, EN 61000-4-3, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11, EN 60079-15</td>
<td>EN 61000-6-4, EN 61010-6-2, EN 61010-1</td>
<td>EN 61000-6-4, EN 61010-6-2, EN 61010-1</td>
<td>EN 61000-6-4, EN 61010-6-2, EN 61010-1</td>
</tr>
<tr>
<td>INPUT DATA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channels</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Type</td>
<td>Thermocouple J, K, R, S, T, B, E, N, IR (EN 60840) RTD, Pt100, Pt500, Pt1000, Ni100 2,3,4 wire connection Voltage (V): ±30V, impedance 200 kΩ Voltage (mV): ±150 mV, impedance 10 MΩ Current: ±24V, impedance 40 kΩ Potentiometer: 500 Ω, 10 kΩ Resistance up to 1.760 kΩ</td>
<td>Voltage ±25, ±50, ±60, ±75, ±80, ±100, ±120, ±150, ±200, ±250, ±300, ±400, ±500, ±1000, ±2000 mV (Via Dip switch)</td>
<td>Voltage ±25, ±50, ±60, ±75, ±80, ±100, ±120, ±150, ±200, ±250, ±300, ±400, ±500, ±1000, ±2000 mV (Via Dip switch)</td>
<td></td>
</tr>
<tr>
<td>VOLTAGE</td>
<td>Range: 0.10 / 10 / 0.5 / 1.5 V</td>
<td>Range: 0.10 / 10 / 0.5 / 1.5 V</td>
<td>Range: 0.10 / 10 / 0.5 / 1.5 V</td>
<td>Range: 0.10 / 10 / 0.5 / 1.5 V</td>
</tr>
<tr>
<td>Minimum load resistance:</td>
<td>2 kΩ</td>
<td>2 kΩ</td>
<td>2 kΩ</td>
<td>2 kΩ</td>
</tr>
<tr>
<td>CURRENT</td>
<td>Range: 4.20 / 20 / 4.0 / 0.20 / 0.20 / 0.0 mA</td>
<td>Range: 4.20 / 20 / 4.0 / 0.20 / 0.20 / 0.0 mA</td>
<td>Range: 4.20 / 20 / 4.0 / 0.20 / 0.20 / 0.0 mA</td>
<td>Range: 4.20 / 20 / 4.0 / 0.20 / 0.20 / 0.0 mA</td>
</tr>
<tr>
<td>Minimum span:</td>
<td>50 °C</td>
<td>20 °C</td>
<td>20 °C</td>
<td>20 °C</td>
</tr>
<tr>
<td>Temperature drift</td>
<td>±150 °C</td>
<td>±30 °C</td>
<td>±20 °C</td>
<td>±30 °C</td>
</tr>
<tr>
<td>Response time (10-90%)</td>
<td>&lt; 200 ms (with filter)</td>
<td>&lt; 620 ms (with filter)</td>
<td>&lt; 200 ms (with filter)</td>
<td>&lt; 620 ms (with filter)</td>
</tr>
<tr>
<td>Conversion D/A resolution</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORDER CODE</td>
<td>Code</td>
<td>K121</td>
<td>K109UI</td>
<td>K109S</td>
</tr>
<tr>
<td>Software and Accessories</td>
<td>Pg.182</td>
<td>Pg.182</td>
<td>Pg.182</td>
<td>Pg.182</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
### COMPACT ISOLATOR CONVERTERS - K SERIES

#### TEMPERATURE

<table>
<thead>
<tr>
<th>K109PT</th>
<th>K109PT-HPC</th>
<th>K109PT1000</th>
<th>K120RTD</th>
<th>K109TC</th>
</tr>
</thead>
<tbody>
<tr>
<td>opto-isolated converter</td>
<td>opto-isolated converter</td>
<td>opto-isolated converter</td>
<td>Converter not isolated K100, NI100 loop powered</td>
<td>TC opto-isolated converter</td>
</tr>
<tr>
<td>Pt100 / V-I</td>
<td>Pt100 / V-I ad alta precisione</td>
<td>Pt100 / V-I</td>
<td>V-I / V-I opto-isolated converter</td>
<td>V-I / V-I with adjustable threshold</td>
</tr>
</tbody>
</table>

### GENERAL DATA

- **Potentiometer**: 500 Ω..10 kΩ
- **Current**: ± 24V, impudence 40 kΩ
- **Voltage (mV)**: ±150 mV
- **Voltage (V)**: ± 30 V, impudence 200 kΩ
- **Ni100**: 2,3,4 wire connection
- **RTD (Pt100, Pt500, Pt1000, T135°C)**
- **Filter that can be inserted**
- **Signal inversion**
- **Programmable cut-off**
- **Tank linearisation**

### OUTPUT DATA

- **LED**
- **Thermal drift**
- **Degree of protection**
- **Connection**
- **Weight**
- **Casing material**
- **Dimensions**
- **Rejection**
- **A/D conversion**
- **Power supply on side terminals**
- **Stabilisation**
- **Stabilisation**
- **Stabilisation**
- **Stabilisation**

### REGULATIONS

- EN 61000-6-4, EN 61010-6-2, EN 61010-1

### OPTIONS

- **Shunt**
- **V-I**
- **Opto-isolated converter**

### CONNECTIONS

- **2,3,4 wire connection**
- **16-10-2018 11:37:05 AM**
- **45 g**
- **1.5 kVac (2 ways)**
- **50 or 60 Hz (programmable)**
- **50 or 60 Hz (programmable)**
- **17..20 V, max current 25 mA**

### ANALOG

- **V-I / V-I with active input (transducer power supply)**
- **Filter that can be inserted**
- **Stabilisation**
- **Stabilisation**
- **Stabilisation**

### CALCULATION

- **Calculation of floating point 32 bit**
- **Calculation of floating point 32 bit**
- **Calculation of floating point 32 bit**
- **Calculation of floating point 32 bit**

### ELECTRICAL CHARACTERISTICS

- **Max load resistance**: 500 Ω
- **Load resistance**: 1 kΩ
- **Max span**: 20 °C
- **Minimum span**: 100°C
- **Nominal voltage**: 24 Vac/Vdc
- **Current**: 60 mA
- **Overvoltage protections**: 50 V
- **Settable hysteresis / alarm threshold**: 60 mV

### ADJUSTABLE SETTINGS

- **Anomaly, alarm**
- **21..25 mA (24 Vdc)**
- **Protection**: 25 mA
- **Protection**: 25 mA
- **Protection**: 25 mA
- **Protection**: 25 mA

### OTHER

- **Protection**: 25 mA
- **Protection**: 25 mA
- **Protection**: 25 mA
- **Protection**: 25 mA
- **Protection**: 25 mA

### IMPORTANT NOTES

- The technical data and the diagrams in this document are indicative and not binding.
### FREQUENCY

<table>
<thead>
<tr>
<th>TYPE</th>
<th>K111</th>
<th>K111D</th>
<th>K112</th>
<th>K107A</th>
<th>K107B</th>
<th>K107USB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency divider with two isolated outputs</td>
<td>19.2...30 Vdc</td>
<td>19.2...30 Vdc</td>
<td>19.2...30 Vdc</td>
<td>19.2...30 Vdc</td>
<td>19.2...30 Vdc</td>
<td>Via USB port</td>
</tr>
<tr>
<td>Frequency divider and repeater with two isolated outputs</td>
<td>19.2...30 Vdc</td>
<td>19.2...30 Vdc</td>
<td>19.2...30 Vdc</td>
<td>19.2...30 Vdc</td>
<td>19.2...30 Vdc</td>
<td>19.2...30 Vdc</td>
</tr>
</tbody>
</table>

### SERIALS

<table>
<thead>
<tr>
<th>TYPE</th>
<th>K111</th>
<th>K111D</th>
<th>K112</th>
<th>K107A</th>
<th>K107B</th>
<th>K107USB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated output double channel digital coupler</td>
<td>Opto-isolated serial repeater converter RS485 / RS485</td>
<td>Opto-isolated serial converter RS3232 / RS485</td>
<td>Serial converter optoisolated RS485 / USB</td>
<td>180</td>
<td>182</td>
<td>182</td>
</tr>
</tbody>
</table>

### GENERAL DATA

**Power supply**
- 19.2...30 Vdc
- 19.2...30 Vdc
- 19.2...30 Vdc
- 19.2...30 Vdc
- 19.2...30 Vdc
- Via USB port

**Power supply on side terminals**
- Yes
- Yes
- Yes
- Yes
- Yes
- -

**Hot swapping**
- Yes
- Yes
- Yes
- Yes
- Yes
- -

**Max current absorbed**
- < 25 mA
- < 25 mA
- < 25 mA
- 22 mA (24 Vdc)
- 22 mA (24 Vdc)
- 60 mA

**Max power dissipated**
- 45 g
- 45 g
- 45 g
- 45 g
- 45 g
- -

**Weight**
- 14 bit
- 14 bit
- 14 bit
- -
- -
- -

**Dimensions**
- 6.2 x 93.1 x 102.5 mm
- 6.2 x 93.1 x 102.5 mm
- 6.2 x 93.1 x 102.5 mm
- 6.2 x 93.1 x 102.5 mm
- 6.2 x 93.1 x 102.5 mm
- -

**Insulation**
- 1.5 kVac (3-ways)
- 1.5 kVac (3-ways)
- 1.5 kVac (3-ways)
- 1.5 kVac (3-ways)
- 1.5 kVac (3-ways)
- 1.5 kVac (USB / RS485)

**Isolation technology**
- Digital / Optocoupler
- Digital / Optocoupler
- Digital / Optocoupler
- Digital / Optocoupler
- Digital / Optocoupler
- Digital / Optocoupler

**Processing**
- Calculation of floating point 32 bit
- Calculation of floating point 32 bit
- Calculation of floating point 32 bit
- -
- -
- -

**Colour**
- Black
- Black
- Black
- -
- -
- -

**Casing material**
- PBT
- PBT
- PBT
- PBT
- PBT
- -

**Weight**
- 45 g
- 45 g
- 45 g
- 45 g
- 45 g
- -

**Temperature**
- -20...+65°C
- -20...+65°C
- -20...+65°C
- -20...+65°C
- -20...+65°C
- -20...+65°C

**Connection**
- LED
- -
- -
- -
- -
- -

**Power supply**
- Presence of power supply, active threshold, error
- Presence of power supply, output state
- Power supply
- -
- -
- -

**Data presence**
- Automatic handshake
- Baud rate: 1.200..115.200 bps
- Automatic handshake
- Baud rate: 1.200..115.200 bps
- -
- Supported connection

**Power supply**
- Data presence
- Reversed connection
- Data presence
- Reversed connection
- -
- -

**Specifications**
- Frequency divider
- Average measurement in a window of N pulses (N <= 256)
- Direct operation
- Frequency divider
- Average measurement in a window of N pulses (N <= 256)
- Direct operation
- Frequency divider
- Average measurement in a window of N pulses (N <= 256)
- Direct operation

**Approvals**
- EN 61000-6-4, EN 61010-1
- EN 61000-6-4, EN 61010-1
- EN 61000-6-4, EN 61010-1
- EN 61000-6-4, EN 61010-1
- EN 61000-6-4, EN 61010-1
- -

**Regulations**
- CC
- CC
- CC
- CC (IEC)
- CC (IEC)
- CC (IEC)

**Input Data**

| CHANNELS | 1 | 1 | 1 | 1 | 1 | 1 |

<table>
<thead>
<tr>
<th><strong>TYPE</strong></th>
<th>Contact IC 1131.2 (type 1)</th>
<th>Contact IC 1131.2 (type 1)</th>
<th>Contact IC 1131.2 (type 1)</th>
<th>Contact IC 1131.2 (type 1)</th>
<th>Contact IC 1131.2 (type 1)</th>
<th>Contact IC 1131.2 (type 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPN / NPN</td>
<td>NPN / NPN</td>
<td>NPN / NPN</td>
<td>NPN / NPN</td>
<td>NPN / NPN</td>
<td>NPN / NPN</td>
<td>NPN / NPN</td>
</tr>
<tr>
<td>with 2/3</td>
<td>with 2/3</td>
<td>with 2/3</td>
<td>with 2/3</td>
<td>with 2/3</td>
<td>with 2/3</td>
<td>with 2/3</td>
</tr>
<tr>
<td>wires</td>
<td>wires</td>
<td>wires</td>
<td>wires</td>
<td>wires</td>
<td>wires</td>
<td>wires</td>
</tr>
<tr>
<td>Reed</td>
<td>Reed</td>
<td>Reed</td>
<td>Reed</td>
<td>Reed</td>
<td>Reed</td>
<td>Reed</td>
</tr>
<tr>
<td>Photocell</td>
<td>Photocell</td>
<td>Photocell</td>
<td>Photocell</td>
<td>Photocell</td>
<td>Photocell</td>
<td>Photocell</td>
</tr>
<tr>
<td>Contact IC 1131.2 (type 1)</td>
<td>Contact IC 1131.2 (type 1)</td>
<td>Contact IC 1131.2 (type 1)</td>
<td>Contact IC 1131.2 (type 1)</td>
<td>Contact IC 1131.2 (type 1)</td>
<td>Contact IC 1131.2 (type 1)</td>
<td>Contact IC 1131.2 (type 1)</td>
</tr>
<tr>
<td>NPN / NPN</td>
<td>NPN / NPN</td>
<td>NPN / NPN</td>
<td>NPN / NPN</td>
<td>NPN / NPN</td>
<td>NPN / NPN</td>
<td>NPN / NPN</td>
</tr>
<tr>
<td>with 2/3</td>
<td>with 2/3</td>
<td>with 2/3</td>
<td>with 2/3</td>
<td>with 2/3</td>
<td>with 2/3</td>
<td>with 2/3</td>
</tr>
<tr>
<td>wires</td>
<td>wires</td>
<td>wires</td>
<td>wires</td>
<td>wires</td>
<td>wires</td>
<td>wires</td>
</tr>
<tr>
<td>Reed</td>
<td>Reed</td>
<td>Reed</td>
<td>Reed</td>
<td>Reed</td>
<td>Reed</td>
<td>Reed</td>
</tr>
<tr>
<td>Photocell</td>
<td>Photocell</td>
<td>Photocell</td>
<td>Photocell</td>
<td>Photocell</td>
<td>Photocell</td>
<td>Photocell</td>
</tr>
<tr>
<td>Max frequency: 400 Hz</td>
<td>Max frequency: 400 Hz</td>
<td>Max frequency: 400 Hz</td>
<td>Max frequency: 400 Hz</td>
<td>Max frequency: 400 Hz</td>
<td>Max frequency: 400 Hz</td>
<td>Max frequency: 400 Hz</td>
</tr>
</tbody>
</table>

**Output Data**

| CHANNELS | 1 | 1 | 1 | 1 | 1 | 1 |

<table>
<thead>
<tr>
<th><strong>TYPE</strong></th>
<th>PNP independent channels up to 200 mA, protected against short circuit</th>
<th>PNP independent channels up to 200 mA, protected against short circuit</th>
<th>PNP independent channels up to 200 mA, protected against short circuit</th>
<th>Independent PNP and NPN channels</th>
<th>Independent PNP and NPN channels</th>
<th>Independent PNP and NPN channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 30 Vdc</td>
<td>up to 30 Vdc</td>
<td>up to 30 Vdc</td>
<td>up to 30 Vdc</td>
<td>up to 30 Vdc</td>
<td>up to 30 Vdc</td>
<td>up to 30 Vdc</td>
</tr>
</tbody>
</table>

**Order Code**

<table>
<thead>
<tr>
<th>CODE</th>
<th>K111</th>
<th>K111D</th>
<th>K112</th>
<th>K107A</th>
<th>K107B</th>
<th>K107USB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software and Accessories</td>
<td>Pg 182</td>
<td>Pg 182</td>
<td>Pg 182</td>
<td>Pg 182</td>
<td>Pg 182</td>
<td>Pg 182</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
APPLICATION EXAMPLES

CONVERSION AND TRANSMISSION TO THE PLC OF A UNIVERSAL ANALOGUE SIGNAL

**Input**
- Thermocouples: J, K, T, E, B, N, EN 60584
- RTD: Pt100, Pt500, Pt1000
- Pressure
- Flow
- Proximity pulse sensor
- Acceleration
- Force
- ... 19...30 Vdc

**Output**
- 4..20 mA

**Conversion and Measurement of String Current in Photovoltaic Systems**

**Input**
- Current: 60/200 mV

**Output**
- 4..20 mA

**Conversion, Isolation and Signal Retransmission Analogue from 2 Wire in Tecnica Sensor**

**Input**
- Pt100
- Input Voltage: 19...30 Vdc

**Output**
- 4..20 mA

**Conversion and Retransmission of Thermocouple Temperature Value**

**Input**
- PT100 sensor

**Output**
- mA, V

**Pulse Conversion with Alarm Threshold**

**Input**
- 19...30 Vdc

**Output**
- Proportional pulse

**Monitoring of the Battery Charge Voltage**

**Input**
- Batteries: 12/24 Vdc (100A)

**Output**
- 4..20 mA

**Plc Input**
- Custom curve linearization
- Threshold setting by front button

**Plc Output**
- Auxiliary output (static relay)

**Rs485 Serial Repetition with Galvanic Isolation**

**Input**
- Max 32 nodes, 1200 m

**Output**
- Max 32 nodes, 1200 m
**ACCESSORIES & SOFTWARE**

**K-BUS**
Expandable connector for rapid power supply (EN 60175)

**ORDER CODE**
K-BUS Expandable 2-way connector for fast power supply

**K-SUPPLY**
Redundant power supply with overvoltage protection

**ORDER CODE**
K-SUPPLY Power supply module with electronic line protections

**EASY SETUP / EASY LP**
Complete collection of SENECA programmable instruments plug&play configurators

Free download from www.seneca.it

---

**EASY USB**
USB - UART TTL CONVERTER

- Power supply: Of PC 5V @ 100 mA
- Degree of protection: IP20
- Serial UART TTL: RJ11 connector, baud rate from 300 bps to 250 Kbps
- Serial USB: USB type A compatible standard 1.0, 1.1 and 2.0
- Dimensions: 84 x 21 x 17 mm
- Operating systems supported: Windows, Mac OS-X, Linux

**ORDER CODE**
EASY-USB USB - UART TTL CONVERTER

---

**CONNECTIONS AND INSTALLATION**

**K-BUS CONNECTOR**

**INSERTION OF THE MODULE IN THE GUIDE**

**EXTRACTION OF THE MODULE FROM THE GUIDE**

---

**POWER SUPPLY TECHNOLOGIES**

With the exception of the “loop powered” ones that do not have a bus power supply, the K Series signal conditioners offer 3 power options, one in traditional technology and two with the SMART SUPPLY distributed system. The direct power supply of the modules involves connecting of the source (24 Vdc) to the terminals of each instrument. The SMART SUPPLY system is based on the use of the K-BUS connector. Up to approximately 16 modules, the bus power distribution takes place by supplying a single module, provided that the total absorption is less than 400 mA. K-SUPPLY, an accessory with overvoltage protection and differential mode filter, supplies batteries with up to 75 modules, with maximum current absorption equal to 1.6 A (approximately 21 mA per module). It is also equipped with 2 independent inputs that allow it to be used as a redundant power supply system, guaranteeing the presence of power even if the source of one of the inputs fails.

---

**S117P1**
Serial Converter RS232-USB, TTL-USB, RS485-USB

- Asynchronous serial conversion RS232, RS485, TTL
- Multiple connection possibility of multiple S117P1 units on the same PC
- USB 1.0, 1.1, 2.0 standard compatibility
- RS485 communication, max 32 nodes
- External modules power supply (100 mA, 12 Vdc)
- Supplied accessories: USB cable, TTL cable, driver CD + EASYLP (K120RTD, K121, T120 and T121 configuration software)

**ORDER CODE**
S117P1 Asynchronous serial converter RS232/USB, TTL/USB, RS485/USB complete with USB cable, TTL cable, C4 driver + EASYLP (K120RTD, K121, T120 and T121 configuration software)

---

**EASY SETUP / EASY LP**
Complete collection of SENECA programmable instruments plug&play configurators

Free download from www.seneca.it

---

**EASY USB**
USB - UART TTL CONVERTER

- Power supply: Of PC 5V @ 100 mA
- Degree of protection: IP20
- Serial UART TTL: RJ11 connector, baud rate from 300 bps to 250 Kbps
- Serial USB: USB type A compatible standard 1.0, 1.1 and 2.0
- Dimensions: 84 x 21 x 17 mm
- Operating systems supported: Windows, Mac OS-X, Linux

**ORDER CODE**
EASY-USB USB - UART TTL CONVERTER

---

**CONNECTIONS AND INSTALLATION**

**K-BUS CONNECTOR**

**INSERTION OF THE MODULE IN THE GUIDE**

**EXTRACTION OF THE MODULE FROM THE GUIDE**

---

**POWER SUPPLY TECHNOLOGIES**

With the exception of the “loop powered” ones that do not have a bus power supply, the K Series signal conditioners offer 3 power options, one in traditional technology and two with the SMART SUPPLY distributed system. The direct power supply of the modules involves connecting of the source (24 Vdc) to the terminals of each instrument. The SMART SUPPLY system is based on the use of the K-BUS connector. Up to approximately 16 modules, the bus power distribution takes place by supplying a single module, provided that the total absorption is less than 400 mA. K-SUPPLY, an accessory with overvoltage protection and differential mode filter, supplies batteries with up to 75 modules, with maximum current absorption equal to 1.6 A (approximately 21 mA per module). It is also equipped with 2 independent inputs that allow it to be used as a redundant power supply system, guaranteeing the presence of power even if the source of one of the inputs fails.

---

**S117P1**
Serial Converter RS232-USB, TTL-USB, RS485-USB

- Asynchronous serial conversion RS232, RS485, TTL
- Multiple connection possibility of multiple S117P1 units on the same PC
- USB 1.0, 1.1, 2.0 standard compatibility
- RS485 communication, max 32 nodes
- External modules power supply (100 mA, 12 Vdc)
- Supplied accessories: USB cable, TTL cable, driver CD + EASYLP (K120RTD, K121, T120 and T121 configuration software)

**ORDER CODE**
S117P1 Asynchronous serial converter RS232/USB, TTL/USB, RS485/USB complete with USB cable, TTL cable, C4 driver + EASYLP (K120RTD, K121, T120 and T121 configuration software)

---

**EASY SETUP / EASY LP**
Complete collection of SENECA programmable instruments plug&play configurators

Free download from www.seneca.it
CONVERTERS WITH HIGH ISOLATION

S Series
**CONVERTERS, ISOLATORS, HIGH ISOLATION POWER SUPPLIES - S SERIES**

### ANALOGUE CONVERTERS
- **S109REG**
- **S109S**
- **S102**
- **S109PT**
- **S170**
- **S2000**

### IMPULSIVE CONVERTERS
- **S104**
- **S111**

### CONTROL RELAY
- **S112**
- **S113**
- **S105**

### STABILISED POWER SUPPLY UNITS
- **S50**
- **S100S**
- **S200**
- **S200REG**
- **S200G**
- **S200D**
- **S200DP**

### GENERAL CHARACTERISTICS
- **Power supply**: 115/230 V
- **Transducers power supply**: 20 Vdc
- **Insulation**: Up to 4.5 kVac
- **Converted quantities**: Analog, Pt100, impulsive signals
- **Signals output**: mA, V, pulses, SPDT / SPST relay
- **Installation**: Su profilato 35 mm (DIN 46277)

### ORDER CODE
- **S SERIES - ANALOGUE CONVERTERS**
  - **S109REG-1-ST**: V-I / V-I converter with galvanic isolation, power supply 115 / 230 Vac
  - **S109REG-1-X7**: V-I / V-I converter with galvanic isolation, input up to 200 Vdc
  - **S109S-1-ST**: Galvanic isolation for loop 4..20 mA, power supply 115 / 230 Vac
  - **S102-1-ST**: Ohm / V-I converter, power supply 115 / 230 Vac
  - **S109PT-1-ST**: Galvanically isolated Pt100 / V-I converter, power supply 115 / 230 Vac
- **S SERIES - IMPULSIVE CONVERTERS**
  - **S104-1-ST**: Isolated V-I / frequency converter, power supply 115 / 230 Vac
  - **S111-1-ST**: Frequency converter / isolated V-I, power supply 115 / 230 Vac
- **S SERIES - ANALOGUE PROCESSORS**
  - **S170-1-ST**: Converter duplicator, power supply 115 / 230 Vac
  - **S190-1-ST**: Summing box – subtracter, power supply 115 / 230 Vac
  - **S2000-1-ST**: Microprocessor calculation module, power supply 115 / 230 Vac
  - **S2000-23-ST**: Modulo di calcolo a microprocessore, alim. 24 Vac / dc
  - **S-T00L**: Configuration kit Z-PROG + Z-SETUP + ZSETUP2 + Libraries Z-4XX-D + Soft2000 DOS + Soft2000WIN + communication cable
- **S SERIES - CONTROL RELAY**
  - **S112A-1-ST**: Power supply - amplifier for on-off sensor, 1 relay output, power supply 115 / 230 Vac
  - **S112D-1-ST**: Power supply - amplifier for on-off sensor, 2 relay output, power supply 115 / 230 Vac
  - **S112M-1-ST**: Power supply - amplifier for on-off sensor, 5 relay output, power supply 115 / 230 Vac
  - **S112M-23-ST**: Power supply - amplifier for on-off sensor, 5 relay output, power supply 24 Vac / dc
  - **S113S-1-ST**: Alarm threshold, 1 relay output
  - **S113T-1-ST**: Soglia di allarme, 3 uscite relè
  - **S105CS1-C**: Control relay for three-phase voltages, single-phase voltages, 230 V, powered contact output
  - **S105CS1-1**: Control relay for single-phase voltages, 230 V, SPDT exchange output
  - **S105CS1-2**: Control relay for three-phase voltages, three-phase voltages, 380 V, SPDT exchange output
  - **S105CS1-3**: Control relay for three-phase voltages, three-phase voltages, 400 V, SPDT exchange output
  - **S108**: Protection relay for alternating currents, power supply 115 / 230 Vac
- **S SERIES - STABILISED POWER SUPPLIES**
  - **S50-1-ST**: Power supply for current loop, power supply 115 / 230 Vac
  - **S50-3-ST**: Power supply for current loop, power supply 24 Vac
  - **S100S-1-ST**: Dual power supply for current loop, power supply 115 / 230 Vac
  - **S100S-3-ST**: Dual power supply for current loop, power supply 24 Vac
  - **S109REG-1-ST**: Converter V-I, Power Supply 115 / 230 Vac
  - **S109REG-1-X7**: V-I / V-I converter, input up to 200 Vdc
  - **S200-1-ST**: Dual stabilized power supply, power supply 115 / 230 Vac
  - **S200REG-16**: Adjustable stabilized power supply, 14..18 Vdc - Imax 500 mA
  - **S200REG-24**: Adjustable stabilized power supply, 22..26 Vdc - Imax 350 mA
  - **S200G**: Signal generator 0..20 mA, power supply 115 / 230 Vac
  - **S200D-1-ST**: 3½ digit indicator with power supply, power supply 115 / 230 Vac
  - **S200DP-1-ST**: 3½ digit indicator with power supply, with settable setpoint, power supply 115 / 230 Vac
TEMPERATURE TRANSMMITERS

Series T120-T121
TEMPERATURE TRANSMITTERS

**GENERAL DATA**

- **Power supply**: 5..30 Vdc (loop powered) 7..30 Vdc (loop powered)
- **Insulation and protections**: - 1.5 kVac
- **Response time**: <220 ms (<620 ms con reiezione 50-60 Hz) < 1 s
- **Precision class**: 0.10% 0.1% (min 0.1°C for RTD and 1°C for TC)
- **Thermal drift**: < 100 ppm (30 ppm tipico)
- **Configurations**: EASY SETUP software (start / measurement full scale, connection and RTD type, rejection, measurement filter, cable resistance, fault / over-range output)

**INPUT DATA**

- **Number**: 1
- **Type**:
  - Pt100 (Standard: EN 60751/A2, -200..+650°C, min span 20°C)
  - Ni100 (Range di misura: -60..+650°C, min span 20°C)

**OUTPUT DATA**

- **Number**: 1
- **Type**: CURRENT (mA) 4..20, 20..4 mA (2 wires)

**APPLICATION DIAGRAMS**

**ORDER CODE**

- **Code**: T120 Looped 2 wire transmitter for Pt100 and Ni100 probes, standard
- **Code**: T121 Standard isolated universal temperature transmitter
- **Code**: T120-C Looped 2 wire transmitter for Pt100 and Ni100 probes, calibrated
- **Code**: T121-C Calibrated isolated universal temperature transmitter

**ACCESSORIES AND SOFTWARE**

- **Code**: EASY-USB USB converter + UART-TTL
- **Code**: EASY-SETUP / EASY-LP Configuration software, free download from www.seneca.it
- **Code**: FLEX-DIN Coupling for DIN guide
- **Code**: S117P1 RS232/ TTL/RS485 USB serial converter complete with USB cable, TTL cable, CD driver + EASY-LP

**PT100 THERMOPROBES**

- **Code**: PT100-100 Pt100 std Length 100 mm
- **Code**: PT100-100-MA Pt100 std Length 100 mm with 4-20 mA output
- **Code**: PT100-150 Pt100 std Length 150 mm
- **Code**: PT100-150-MA Pt100 std Length 150 mm with 4-20 mA output
- **Code**: PT100-200 Pt100 std Length 200 mm
- **Code**: PT100-200-MA Pt100 std Length 200 mm with 4-20 mA output
- **Code**: PT100-250 Pt100 std Length 250 mm
- **Code**: PT100-250-MA Pt100 std Length 250 mm with 4-20 mA output
- **Code**: PT100-300 Pt100 std Length 300 mm
- **Code**: PT100-300-MA Pt100 std Length 300 mm with 4-20 mA output
- **Code**: PT100-50 Pt100 std Length 50 mm
- **Code**: PT100-50-MA Pt100 std Length 50 mm with 4-20 mA output
- **Code**: PT100-A Pt100 ambient
- **Code**: PT100-A-MA Pt100 ambient with 4-20mA output
- **Code**: PT100-SOLAR Pt100 single element sensor 3 Wires for photovoltaic modules
- **Code**: PT100-SOLAR-MA Pt100 single element sensor 3 wires for photovoltaic modules, 4-20 mA output

The technical data and the diagrams in this document are indicative and not binding.
PROTECTION AGAINST OVERVOLTAGES

S400 Series
OVERVOLTAGE PROTECTIONS - S400 SERIES

S400 SERIES
High efficiency Overvoltage Protections

The SENECA S400 surge protectors are designed to protect electrical systems and equipment against transient and impulsive overvoltages caused by atmospheric phenomena and electrical manoeuvres. The S400 range includes:

- **Scaricatori di tipo 2 e 3 per sistemi di alimentazione industriali**
- **Protections for control, measurement and regulation systems that can be used in binary and analog circuits, such as pulses, 0..10 Vdc signals and 0/4..20 mA current loop**
- **Surge protection for IT and communication networks (Token Ring, ISDN, DS1, Ethernet, Power over Ethernet, RS232 / 422/485 etc.) with extremely high transmission speed and dispersion capacity.**

**APPLICATION EXAMPLES**

**PROTEZIONE E ISOLAMENTO PER L’ALIMENTAZIONE TIPO 2 E TIPO 3**

**PROTECTION OF AN ANALOG MEASURING DEVICE**

**PROTECTION OF AN IMPULSIVE MEASURING DEVICE**

(REE, NAMUR, PNP, NPN, ECC. HALL EFFECT)

Automation panels, marshalling panels, PLC / DCS control panels and machine control, distribution panels, electrical panels, power centres, MCC panels

**IT SIGNALS PROTECTION**

Collegamento Ethernet con lo switch posizionato nel Quadro Elettrico in locale
The technical data and the diagrams in this document are indicative and not binding.
S400 SERIES

Dimensions

**S400HV-2**

**S400LV-1**

**K400CL**

**S400CL1**

**S400ETH-DSK**

**S400NET-1**

Accessories

**S400HV-2-RIC-SL**

**S400HV-2-RIC-SN**

**S400LV-1-RIC-SL**

**S400LV-1-RIC-SL**

<table>
<thead>
<tr>
<th>ORDER CODE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>K400CL</td>
<td>Overvoltage protection for analog and logical signals, slim format. 6.2 mm</td>
</tr>
<tr>
<td>K400CL-10</td>
<td>Kit 10 p.z. K400CL</td>
</tr>
<tr>
<td>S400HV-2</td>
<td>Overvoltage protection 230 Vac, type 2 with 3 conductors (L, N, PE)</td>
</tr>
<tr>
<td>S400HV-2-RIC-SL</td>
<td>1L-N/PE plug spare part for S400HV-2, no FM contact</td>
</tr>
<tr>
<td>S400HV-2-RIC-SN</td>
<td>N/PE plug spare part for S400HV2</td>
</tr>
<tr>
<td>S400LV-1</td>
<td>Overvoltage protection 240Vac/dc with FM contact, 3-conductor type 3 (L, N, PE)</td>
</tr>
<tr>
<td>S400LV-1-RIC-SL</td>
<td>Spare part 240VAC/DC plug for S400LV-1, with FM contact</td>
</tr>
<tr>
<td>S400CL-1</td>
<td>Overvoltage protection for analog and logic signals with knife switch</td>
</tr>
<tr>
<td>S400CL-1-15</td>
<td>Kit 15 p.z. S400CL-1</td>
</tr>
<tr>
<td>S400CL-1-P5</td>
<td>Pack of 5 pieces wall closing for S400CL-1 module</td>
</tr>
<tr>
<td>S400NET-1</td>
<td>Overvoltage protection for Ethernet, serial and fieldbus networks, 5 wires</td>
</tr>
<tr>
<td>S400NET-1-RIC-CL</td>
<td>Spare part plug for S400NET-1</td>
</tr>
<tr>
<td>S400ETH-DSK</td>
<td>Overvoltage protection for Class.D/Cat.5 Ethernet networks (100 Mbps)/5e (1Gbps), PoE</td>
</tr>
</tbody>
</table>
DIGITAL INDICATORS

S Series
S Series

Digital indicators with high brightness and precision

**S Series** is a family of high-brightness, high-precision LED digital indicators for industrial applications. Equipped with scalable displays with 4, 6, 8, 4 + 7 digits, the S Series digital indicators manage universal analog and digital inputs and temperature sensors with output retransmission, with ModBUS interface and relay alarm activation via optional card. The available power ranges are 80-265 Vac, 10-40 Vdc, 19-28 Vac.

The indicators allow the multiple display of instantaneous, integrated and totalised increase or decrease values. In addition to using front buttons, programming is carried out using EASY SETUP software.
DIGITAL INDICATORS - S SERIES

SPECIAL FUNCTIONS

TOTALISER
- S311A
- S311D
- Integrated values (S311A) and increase / decrease totalised (S311D)

GENERATOR
- S311G
- Signal generation mA/V in auto/man mode, bumpless filter

BATCH COUNTER
- S311D
- Batch count associated with threshold (alarm / action on totaliser)

PRECISION
- Class 0.1%
- Conv. A/D 14-16 bit

ISOLATION
- 1,500 Vac

PROGRAMMING
- EASY SETUP
- Software PC – Windows
- Easy setup accessible via serial conv. (e.g. S107USB)

IP66 VERSIONS
- S311AK
- S315

PROTECTED ACCESS

FILTER IN FREQUENCY
- S311D

Alarm LED

Front navigation and setting keys

Self-extinguishing recessed PPO container according to DIN 43700
# DIGITAL INDICATORS - S SERIES

## HIGH-BRIGHTNESS AND PRECISION DIGITAL LED INDICATORS

### INDICATORS / TOTALISERS COMBINABLE WITH UNIVERSAL ANALOGUE INPUT

<table>
<thead>
<tr>
<th>Model</th>
<th>Display Type</th>
<th>Front Keys</th>
<th>Operating Temperature</th>
<th>Front Protection</th>
<th>Dimensions</th>
<th>Weight</th>
<th>Display</th>
<th>Front Indicators</th>
<th>Precision</th>
<th>Certification</th>
<th>Special Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>S311A-4</td>
<td>4-digit</td>
<td>3 navigation keys</td>
<td>-10...+60 °C</td>
<td>IP65</td>
<td>96x48x98 mm</td>
<td>200 g</td>
<td>4-digit LED</td>
<td>2 alarm LEDs (can be activated on threshold)</td>
<td>0.1%</td>
<td>EC</td>
<td>EASY SETUP Software, front keys</td>
</tr>
<tr>
<td>S311A-6</td>
<td>6-digit</td>
<td>3 navigation keys</td>
<td>-10...+60 °C</td>
<td>IP65</td>
<td>96x48x98 mm</td>
<td>200 g</td>
<td>6-digit LED</td>
<td>2 alarm LEDs (can be activated on threshold)</td>
<td>0.1%</td>
<td>EC</td>
<td>EASY SETUP Software, front keys</td>
</tr>
<tr>
<td>S311A-8</td>
<td>8-digit</td>
<td>3 navigation keys</td>
<td>-10...+60 °C</td>
<td>IP65</td>
<td>96x48x98 mm</td>
<td>200 g</td>
<td>8-digit LED</td>
<td>2 alarm LEDs (can be activated on threshold)</td>
<td>0.1%</td>
<td>EC</td>
<td>EASY SETUP Software, front keys</td>
</tr>
<tr>
<td>S311A-11</td>
<td>11-digit</td>
<td>3 navigation keys</td>
<td>-10...+60 °C</td>
<td>IP65</td>
<td>96x48x98 mm</td>
<td>200 g</td>
<td>11-digit LED</td>
<td>2 alarm LEDs (can be activated on threshold)</td>
<td>0.1%</td>
<td>EC</td>
<td>EASY SETUP Software, front keys</td>
</tr>
<tr>
<td>S311G</td>
<td>Indicator Generator with 4 digits with analogue input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### INPUT DATA

<table>
<thead>
<tr>
<th>Channels</th>
<th>Type and range</th>
<th>Frequency</th>
<th>Reset</th>
<th>OUTPUT DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Voltage: 0-10 V Active / passive current: 0-20 mA Potentiometer: 1...100 kΩ PTC100 2.34 wires (IEC 751 / EN 60751 – ITS90) Thermocouple J,K,R,S,T,B,E,N</td>
<td>10-40 Vdc, 19-28 Vac</td>
<td>Yes, with digital input and front keys</td>
<td>Channels</td>
</tr>
<tr>
<td>1</td>
<td>Voltage: 0-10 V Active / passive current: 0-20 mA Potentiometer: 1...100 kΩ PTC100 2.34 wires (IEC 751 / EN 60751 – ITS90) Thermocouple J,K,R,S,T,B,E,N</td>
<td>10-40 Vdc, 19-28 Vac</td>
<td>Yes, with digital input and front keys</td>
<td>Channels</td>
</tr>
<tr>
<td>1</td>
<td>Voltage: 0-10 V Active / passive current: 0-20 mA Potentiometer: 1...100 kΩ PTC100 2.34 wires (IEC 751 / EN 60751 – ITS90) Thermocouple J,K,R,S,T,B,E,N</td>
<td>10-40 Vdc, 19-28 Vac</td>
<td>Yes, with digital input and front keys</td>
<td>Channels</td>
</tr>
<tr>
<td>1</td>
<td>Voltage: 0-10 V Active / passive current: 0-20 mA Potentiometer: 1...100 kΩ PTC100 2.34 wires (IEC 751 / EN 60751 – ITS90) Thermocouple J,K,R,S,T,B,E,N</td>
<td>10-40 Vdc, 19-28 Vac</td>
<td>Yes, with digital input and front keys</td>
<td>Channels</td>
</tr>
</tbody>
</table>

The technical data and the diagrams in this document are indicative and not binding.
## DIGITAL INDICATORS - S SERIES

### INDICATORS / COMPACTS WITH ANALOGICAL INPUT

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S311A</td>
<td>4-digit indicator with analogue mA/V input</td>
</tr>
<tr>
<td>S312A</td>
<td>4-digit indicator with universal analogue input, 4 relay outputs, ModBUS interface</td>
</tr>
<tr>
<td>S315</td>
<td>4-digit indicator with 4-20 mA input, loop powered</td>
</tr>
<tr>
<td>S311D-4</td>
<td>Indicator / Totaliser / 4-digit Batch counter with digital / frequency input</td>
</tr>
<tr>
<td>S311D-6</td>
<td>Indicator / Totaliser / 6-digit Batch counter with digital / frequency input</td>
</tr>
<tr>
<td>S311D-8</td>
<td>Indicator / Totaliser / 6-digit Batch counter with digital / frequency input</td>
</tr>
<tr>
<td>S311D-11</td>
<td>Indicator / Totaliser / 11-digit Batch counter with digital / frequency input</td>
</tr>
</tbody>
</table>

### GENERAL DATA

- **Voltage**: 0-10 V
- **Current**: 0-20 mA
- **Potentiometer**: 1...100 kΩ
- **Thermocouple**: ±1% accuracy
- **Alarm**: 0.0001 Hz / 10 kHz
- **Relay Capacity**: 5A - 250 Vac
- **EASY SETUP Software**: Optional board

### INDICATORS / TOTALISERS / BATCH COUNTERS COMBINABLE WITH DIGITAL INPUT

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S311A</td>
<td>4-digit indicator with analogue mA/V input</td>
</tr>
<tr>
<td>S312A</td>
<td>4-digit indicator with universal analogue input, 4 relay outputs, ModBUS interface</td>
</tr>
<tr>
<td>S315</td>
<td>4-digit indicator with 4-20 mA input, loop powered</td>
</tr>
<tr>
<td>S311D-4</td>
<td>Indicator / Totaliser / 4-digit Batch counter with digital / frequency input</td>
</tr>
<tr>
<td>S311D-6</td>
<td>Indicator / Totaliser / 6-digit Batch counter with digital / frequency input</td>
</tr>
<tr>
<td>S311D-8</td>
<td>Indicator / Totaliser / 6-digit Batch counter with digital / frequency input</td>
</tr>
<tr>
<td>S311D-11</td>
<td>Indicator / Totaliser / 11-digit Batch counter with digital / frequency input</td>
</tr>
</tbody>
</table>

### OPERATING DATA

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S311A</td>
<td>From measurement loop (max 30 V)</td>
</tr>
<tr>
<td>S312A</td>
<td>From measurement loop (max 30 V)</td>
</tr>
<tr>
<td>S315</td>
<td>From measurement loop (max 30 V)</td>
</tr>
<tr>
<td>S311D-4</td>
<td>From measurement loop (max 30 V)</td>
</tr>
<tr>
<td>S311D-6</td>
<td>From measurement loop (max 30 V)</td>
</tr>
<tr>
<td>S311D-8</td>
<td>From measurement loop (max 30 V)</td>
</tr>
<tr>
<td>S311D-11</td>
<td>From measurement loop (max 30 V)</td>
</tr>
</tbody>
</table>

### CONNECTION DATA

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S311A</td>
<td>With detachable screw, pitch 5.08 mm</td>
</tr>
<tr>
<td>S312A</td>
<td>With detachable screw, pitch 5.08 mm</td>
</tr>
<tr>
<td>S315</td>
<td>With detachable screw, pitch 5.08 mm</td>
</tr>
<tr>
<td>S311D-4</td>
<td>With detachable screw, pitch 5.08 mm</td>
</tr>
<tr>
<td>S311D-6</td>
<td>With detachable screw, pitch 5.08 mm</td>
</tr>
<tr>
<td>S311D-8</td>
<td>With detachable screw, pitch 5.08 mm</td>
</tr>
<tr>
<td>S311D-11</td>
<td>With detachable screw, pitch 5.08 mm</td>
</tr>
</tbody>
</table>

### DIMENSIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S311A</td>
<td>96 x 48 x 40 mm</td>
</tr>
<tr>
<td>S312A</td>
<td>96 x 48 x 96 mm</td>
</tr>
<tr>
<td>S315</td>
<td>96 x 48 x 96 mm</td>
</tr>
<tr>
<td>S311D-4</td>
<td>96 x 48 x 96 mm</td>
</tr>
<tr>
<td>S311D-6</td>
<td>96 x 48 x 96 mm</td>
</tr>
<tr>
<td>S311D-8</td>
<td>96 x 48 x 96 mm</td>
</tr>
<tr>
<td>S311D-11</td>
<td>96 x 48 x 96 mm</td>
</tr>
</tbody>
</table>

### POWER SUPPLY

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S311A</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S312A</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S315</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S311D-4</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S311D-6</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S311D-8</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S311D-11</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
</tbody>
</table>

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S311A</td>
<td>60751 – ITS90)</td>
</tr>
<tr>
<td>S312A</td>
<td>60751 – ITS90)</td>
</tr>
<tr>
<td>S315</td>
<td>60751 – ITS90)</td>
</tr>
<tr>
<td>S311D-4</td>
<td>60751 – ITS90)</td>
</tr>
<tr>
<td>S311D-6</td>
<td>60751 – ITS90)</td>
</tr>
<tr>
<td>S311D-8</td>
<td>60751 – ITS90)</td>
</tr>
<tr>
<td>S311D-11</td>
<td>60751 – ITS90)</td>
</tr>
</tbody>
</table>

### SAFETY

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S311A</td>
<td>IP65</td>
</tr>
<tr>
<td>S312A</td>
<td>IP65</td>
</tr>
<tr>
<td>S315</td>
<td>IP65</td>
</tr>
<tr>
<td>S311D-4</td>
<td>IP65</td>
</tr>
<tr>
<td>S311D-6</td>
<td>IP65</td>
</tr>
<tr>
<td>S311D-8</td>
<td>IP65</td>
</tr>
<tr>
<td>S311D-11</td>
<td>IP65</td>
</tr>
</tbody>
</table>

### INSTALLATION

- **Front keys**: EASY SETUP Software, front keys
- **Alarm**: Front keys
- **Threshold alarm**: EASY SETUP Software, front keys
- **Relay outputs**: N°2 SPDT 220 Vac 5A

### PROGRAMMING

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S311A</td>
<td>EASY SETUP Software, front keys</td>
</tr>
<tr>
<td>S312A</td>
<td>EASY SETUP Software, front keys</td>
</tr>
<tr>
<td>S315</td>
<td>EASY SETUP Software, front keys</td>
</tr>
<tr>
<td>S311D-4</td>
<td>EASY SETUP Software, front keys</td>
</tr>
<tr>
<td>S311D-6</td>
<td>EASY SETUP Software, front keys</td>
</tr>
<tr>
<td>S311D-8</td>
<td>EASY SETUP Software, front keys</td>
</tr>
<tr>
<td>S311D-11</td>
<td>EASY SETUP Software, front keys</td>
</tr>
</tbody>
</table>

### LICENSE

- **Software**: EASY SETUP Software
- **Board**: Optional board

### ELECTRICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S311A</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S312A</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S315</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S311D-4</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S311D-6</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S311D-8</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S311D-11</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
</tbody>
</table>

### WEIGHING DATA

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S311A</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S312A</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S315</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S311D-4</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S311D-6</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S311D-8</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
<tr>
<td>S311D-11</td>
<td>80-265 Vac (version H) / 10-40 Vdc / 19-28 Vac (version L)</td>
</tr>
</tbody>
</table>
**DIGITAL INDICATORS - S SERIES**

**APPLICATION EXAMPLES**

**DISPLAY OF ANALOGUE AND RETRANSMISSION SIGNAL TO PLC**

- mA / V / RTD / TC / Ohm

![Image](image1)

**DATA DISPLAY FOR CALCULATION OF CONSUMPTIONS – HEAT EXCHANGER**

![Image](image2)

**SIGNAL GENERATION IN AUTO/MAN MODE AND BUMPLESS FUNCTION**

![Image](image3)

**INSTANT DISPLAY ANALOG SIGNAL FROM SENSOR**

![Image](image4)

**SIGNAL DISPLAY AND RETRANSMISSION WITH ALARMS IN OUTPUT**

- Threshold setting by front button

![Image](image5)

**ANALOG SIGNAL DISPLAY FROM TRANSDUCER WITH ACTIVE LOOP**

- Vmax= 30V

![Image](image6)

**VISUALIZATION AND TOTALISATION OF IMPULSIVE SIGNAL**

- Reed
- Npn
- Pnp
- Namur
- Photoelectric
- Var reluctance
- 24V pulse
- TTL
- PROPORTIONAL pulse sensor

![Image](image7)

**OUTPUT ACTIVATION WITH TOTALISER FUNCTION / BATCH COUNTER**

- SPDT
- Relay
- Pulse

![Image](image8)
### Digital Indicators - S Series

#### Modular Indicators / Totalisers with Universal Analogue Input

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base model S311A</td>
<td>Indicator / totaliser with universal analog input</td>
</tr>
<tr>
<td>Display</td>
<td>-4 4-digit LED</td>
</tr>
<tr>
<td></td>
<td>-6 6-digit LED</td>
</tr>
<tr>
<td></td>
<td>-8 8-digit LED</td>
</tr>
<tr>
<td></td>
<td>-11 4+7-digit LED</td>
</tr>
<tr>
<td>Power supply</td>
<td>-L 10-40 Vdc / 19-28 Vac</td>
</tr>
<tr>
<td></td>
<td>-H 80-265 Vac</td>
</tr>
<tr>
<td>Scheda opzionale</td>
<td>-O Board no. 2 SPOT relay, ModBUS RTU interface, reset input</td>
</tr>
</tbody>
</table>

#### Indicators / Generators with Analogue Input

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base model S311G</td>
<td>Indicator / generatore di segnale con ingresso analogico</td>
</tr>
<tr>
<td>Display</td>
<td>-4 4-digit LED</td>
</tr>
<tr>
<td>Power supply</td>
<td>-L 10-40 Vdc / 19-28 Vac</td>
</tr>
<tr>
<td></td>
<td>-H 80-265 Vac</td>
</tr>
<tr>
<td>Optional board</td>
<td>-O ModBUS RTU</td>
</tr>
</tbody>
</table>

#### Compact Indicators / Totalisers with Analogue Input

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S311AK-4-L</td>
<td>4-digit indicator with analogue mA/V input, 10-40 Vdc, 19-28 Vac</td>
</tr>
<tr>
<td>S311AK-4-L-IP66</td>
<td>4-digit indicator with analogue mA/V input, 10-40 Vdc, 19-28 Vac, with IP66 casing (130x80x60 mm)</td>
</tr>
<tr>
<td>S312A-4-H-4R</td>
<td>Indicator with 4-digit display, universal analog input, 4 relay outputs, ModBUS interface, 85-265 Vac</td>
</tr>
<tr>
<td>S312A-4-L-4R</td>
<td>Indicator with 4-digit display, universal analog input, 4 relay outputs, ModBUS interface, 10-40 Vdc, 19-28 Vac</td>
</tr>
<tr>
<td>S315-IP66</td>
<td>4-digit powered loop indicator, 4-20 mA input, with IP66 casing (130x80x60 mm)</td>
</tr>
<tr>
<td>S315-IP66D</td>
<td>4-digit powered indicator, 4-20 mA input, 2 instruments and dual IP66 casing</td>
</tr>
</tbody>
</table>

#### Modular Batch Indicators / Totalisers / Counters with Digital Input

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base model S311D</td>
<td>Indicator / totaliser / batch counter with digital / frequency input</td>
</tr>
<tr>
<td>Display</td>
<td>-4 4-digit LED</td>
</tr>
<tr>
<td></td>
<td>-6 6-digit LED</td>
</tr>
<tr>
<td></td>
<td>-8 8-digit LED</td>
</tr>
<tr>
<td></td>
<td>-11 4+7-digit LED</td>
</tr>
<tr>
<td>Power supply</td>
<td>-L 10-40 Vdc / 19-28 Vac</td>
</tr>
<tr>
<td></td>
<td>-H 80-265 Vac</td>
</tr>
<tr>
<td>Optional board</td>
<td>-O Board no. 2 SPOT relay, ModBUS RTU interface, reset input</td>
</tr>
</tbody>
</table>

#### Accessories and Software

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASY SETUP</td>
<td>Configuration software for S311A, S311D, S312A models</td>
</tr>
<tr>
<td>S311OPZ</td>
<td>Option card 2 SPOT relay alarms, Modbus interface, reset input for S311A / S311D / S311G indicators (ModBUS only)</td>
</tr>
<tr>
<td>S311-T</td>
<td>Calibration service for indicators - S311 Series totalisers</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>S301B-1-R</td>
<td>4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 115 / 230 Vac, 4 open collector alarms, RS232/RS485</td>
</tr>
</tbody>
</table>
| S301B-1-R-AOC-S | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; (0-20mA).
| S301B-1-R-AR-S | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 24 Vac/dc |
| S301B-23-R  | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 24 Vac/dc |
| S301B-23-R-AOC-S | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 24 Vac/dc |
| S301B-23-R-AR-S | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 24 Vac/dc |

**ORDER CODE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S301B-1-R</td>
<td>4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 115 / 230 Vac, 4 open collector alarms, RS232/RS485</td>
</tr>
</tbody>
</table>
| S301B-1-R-AOC-S | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; (0-20mA).
| S301B-1-R-AR-S | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 24 Vac/dc |
| S301B-23-R  | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 24 Vac/dc |
| S301B-23-R-AOC-S | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 24 Vac/dc |
| S301B-23-R-AR-S | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 24 Vac/dc |

**ORDER CODE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S320A-1-ST</td>
<td>3 ½ digit indicator with V/I input and V/I output, dim. 96x96, Power supply: 115 / 230 Vac, 4 open collector alarms, RS232/RS485</td>
</tr>
<tr>
<td>S320A-1-ST-R</td>
<td>3 ½ digit indicator with V/I input and 2 relay alarms, dim. 96x96, Alim: 115 / 230 Vac, retransmitted output</td>
</tr>
<tr>
<td>S320A-23-ST</td>
<td>3 ½ digit indicator with V/I input and V/I output, dim. 96x96, Power supply: 24 Vac/dc</td>
</tr>
<tr>
<td>S320A-23-ST-R</td>
<td>3 ½ digit indicator with V/I input and 2 relay alarms, dim. 96x96, Alim: 24 Vac/dc, retransmitted output</td>
</tr>
</tbody>
</table>

**GENERAL DATA**

- **Power supply:** 115 - 230 Vac ± 10% 50 - 60 Hz
- **Transducers power supply:** +15 Vdc 350 mA e-15 Vdc 75 mA, 24 Vdc 500 mA
- **Max absorption:** 11 VA
- **Rejection:** 40 dB
- **Communication interfaces:** - RS232 / RS485, 9.600 bps, max 1.000 m and 31 tools
- **Memories:** EEPROM, 10 years

**DISPLAY AND MEASUREMENT**

- **Display:** 4 digit, red LED, 14 mm
- **Precision:** 0.3% (voltage / current input, retransmitted output)
- **Stability:** 0.01%/°C
- **Linearity:** From 0.01 to 0.3% (voltage / current input, retransmitted output)
- **Input type:** 24 Vac/dc

**OUTPUT DATA (ALARMS)**

- **Contacts:** 3, 6, 9
- **Type:** Relay SPDT 5A – 250 Vac
- **Voltage:** 0 – 20, 4-20 mA
- **Impressed current:** 0.2% (thermo resistance, potentiometer)
- **Stability:** 0.01%/°C
- **Current:** 0.01%/°C

**THERMO-MECHANICAL DATA**

- **Operating temperature:** -10..+60°C
- **Container:** Self-extinguishing Noryl "W" shockproof
- **Front protection:** IP41
- **Terminal blocks:** Removable
- **Dimensions:** 96x96x17 mm
- **Weight:** 750 g

**SOFTWARE**

- **Software:** Data request and writing
- **Front keys:** Diagnostics and programming
- **Trimmer:** Zero, display span (from -999 to 1,999)
- **Jumpers / Shunt:** Decimal point
- **Conformity:** EC

**ORDER CODE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S301B-1-R</td>
<td>4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 115 / 230 Vac, 4 open collector alarms, RS232/RS485</td>
</tr>
</tbody>
</table>
| S301B-1-R-AOC-S | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; (0-20mA).
| S301B-1-R-AR-S | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 24 Vac/dc |
| S301B-23-R  | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 24 Vac/dc |
| S301B-23-R-AOC-S | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 24 Vac/dc |
| S301B-23-R-AR-S | 4-digit μP indicator with universal input bargraph and retransmitted output, Power supply; 24 Vac/dc |

**ORDER CODE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S320A-1-ST</td>
<td>3 ½ digit indicator with V/I input and V/I output, dim. 96x96, Power supply: 115 / 230 Vac, 4 open collector alarms, RS232/RS485</td>
</tr>
<tr>
<td>S320A-1-ST-R</td>
<td>3 ½ digit indicator with V/I input and 2 relay alarms, dim. 96x96, Alim: 115 / 230 Vac, retransmitted output</td>
</tr>
<tr>
<td>S320A-23-ST</td>
<td>3 ½ digit indicator with V/I input and V/I output, dim. 96x96, Power supply: 24 Vac/dc</td>
</tr>
<tr>
<td>S320A-23-ST-R</td>
<td>3 ½ digit indicator with V/I input and 2 relay alarms, dim. 96x96, Alim: 24 Vac/dc, retransmitted output</td>
</tr>
</tbody>
</table>
BATCH CONTROLLER

S20N1-S21N1 Series
The SENECA S20N1 and S21N1 batch controllers represent economical, simplified and safe solutions for process automation. Equipped with a 72x144 mm polycarbonate frontal membrane with 2 high-brightness red LED 5-digit numerical displays, 7 LEDs indicating the operating states and 6 front programming buttons, S20N1 and S21N1 acquire digital signals from contact, clean, contact reed, NPN transistor, namur sensor, hall effect sensor or photoelectric sensor.

The systems are designed to control measuring probes and operate valves or motors in order to manage the dosing, filling, sampling and regeneration of fluids in an automatic, timed and extremely precise form. The batch controllers S20N1 and S21N1 can be used as a stand-alone dosing unit or as an *auto-manual* station. In this second mode they act as local control units in order to correct, integrate or «manually» interrupt the dosages remotely controlled by the PLC. The flexibility and redundancy of the system, the ability to dose and develop recipes, and the energy efficiency of the controlled processes are thus improved.

**STAND-ALONE OPERATION OR AUTO-MANUAL STATION COMBINED WITH PLC**

**FLEXIBLE RECIPE MANAGEMENT**

**1 CONFIGURABLE IMPULSIVE INPUT (MAX FREQ. 2.2 KHz)**

**2 DIGITAL RELAY OUTPUTS SPDT (CAPACITY 5 A, 250 V, RESISTIVE LOAD)**

**CONFIGURABLE SERIAL PORT RS485 MODBUS**

**RS232 SERIAL PORT ON CONNECTOR FOR IMPACT PRINTER**

**CONTROL BOARD S20N1KIT FOR BUTTONS AND EXTERNAL LIGHTS**

**2 5-DIGIT RED LED NUMERIC DISPLAYS, HIGH-BRIGHTNESS (SET+DOSSAGE)**

**MICRO CONNECTOR USB FOR SW/FW UPDATE**

**6 FRONT PROGRAMMING BUTTONS**

**SPECIAL VERSIONS EX E IP65**

**SELF-POWERED BOARDS AMPLIFICATION INPUT**

**APPLICATION SECTORS**

**WATER TREATMENT**

**WASTE WATER**

**PRODUCTION OF WINE, BEER AND ALCOHOLIC**

**PAPER MILLS**

**FOOD & BEVERAGE**

**PHARMACEUTICAL AND BIOENGINEERING**

**OIL & GAS**

**PRODUCTION OF SOLVENTS, DILUENTS, PAINTS**
**APPLICATION EXAMPLES**

**BATCH MANAGEMENT IN COMBINATION WITH PLC**

- **PLC**
- **RS485 ModBUS**
- **Differential Pressure Transducer**
- **Valve**
- **Meter**
- **Pump**

**BATCH CONTROL FOR TANK TRUCK FILLING**

- **Storage tank**
- **Batch Controller**
- **Valve**
- **Flow Meter**
- **Pump**

**MULTI-RECIPES MANAGEMENT WITH REMOTE (PLC) OR LOCAL (AUTO-MANUAL STATION) CONTROL**

- **PLC**
- **Valve**
- **Meter**
- **Filter**
- **RS485 ModBUS**

**FILTER REGENERATION SYSTEM FOR THE WATER SUPPLY SECTOR**

- **PLC**
- **Valve**
- **Differential Pressure Transducer**
- **Flow Meter**
- **Washing Water**
- **Filtered Water**

**SYSTEM FOR DRUM FILLING IN A DANGEROUS ENVIRONMENT**

- **Batch Controller Ex Version**
- **Valve**
- **Flow Meter**
- **Batch Controller Ex**
- **I/P converter**

**GAS REPLENISHMENT SYSTEM FOR THE ENERGICAL SECTOR**

- **Batch Controller**
- **Valve**
- **Flow Meter**
- **Gas Cylinder**

**INDUSTRIAL DISCHARGE CONTROL SYSTEM**

- **Timer**
- **Discharge**
- **Batch Controller**
- **Flow Meter**

**REPETITIVE DRUM FILLING SYSTEM WITH 2-SPEED VALVE CONTROL**

- **Storage tank**
- **Valve**
- **Flow Meter**
- **Batch Controller**
- **Discharge**
# BATC H CONTROLER – S SERIES

## TOTALISERS

<table>
<thead>
<tr>
<th></th>
<th>S20N1</th>
<th>S21N1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Base totaliser</td>
<td>Totaliser with clock</td>
</tr>
</tbody>
</table>

### GENERAL DATA

<table>
<thead>
<tr>
<th></th>
<th>S20N1</th>
<th>S21N1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>115/230 Vac ± 50/60 Hz, 24 Vac/dc</td>
<td>115/230 Vac ± 50/60 Hz, 24 Vac/dc</td>
</tr>
<tr>
<td>Transducers power supply</td>
<td>12/24 Vdc, 30 mA (max)</td>
<td>12/24 Vdc, 30 mA (max)</td>
</tr>
<tr>
<td>Max absorption</td>
<td>10 VA</td>
<td>10 VA</td>
</tr>
<tr>
<td>Data archiving</td>
<td>EEPROM, data</td>
<td>EEPROM, data</td>
</tr>
<tr>
<td>Clock</td>
<td>Clock with autonomous battery, data memory, automatic correction of summer time</td>
<td>Clock with autonomous battery, data memory, automatic correction of summer time</td>
</tr>
</tbody>
</table>

### DISPLAY AND MEASUREMENT

<table>
<thead>
<tr>
<th></th>
<th>S20N1</th>
<th>S21N1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>2 numeric LED displays 5 digits</td>
<td>2 numeric LED displays 5 digits</td>
</tr>
<tr>
<td>State indicators</td>
<td>Start, stop, reset</td>
<td>Start, stop, reset</td>
</tr>
</tbody>
</table>

### INPUT DATA

<table>
<thead>
<tr>
<th></th>
<th>S20N1</th>
<th>S21N1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of channels</td>
<td>1 (isolated)</td>
<td>1 (isolated)</td>
</tr>
<tr>
<td>Type</td>
<td>From sensor reed, npn (2/3 wires), Namur, Hall effect, photoelectric</td>
<td>From sensor reed, npn (2/3 wires), Namur, Hall effect, photoelectric</td>
</tr>
<tr>
<td>Frequency</td>
<td>1,000 Hz, min. pulse duration 0.1 ms</td>
<td>1,000 Hz, min. pulse duration 0.1 ms</td>
</tr>
<tr>
<td>Control</td>
<td>3 inputs (start, stop, reset)</td>
<td>3 inputs (start, stop, reset)</td>
</tr>
</tbody>
</table>

### OUTPUT DATA

<table>
<thead>
<tr>
<th></th>
<th>S20N1</th>
<th>S21N1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of channels</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Type</td>
<td>SPDT relay, range 5 A 250 B (resistive load)</td>
<td>SPDT relay, range 5 A 250 B (resistive load)</td>
</tr>
</tbody>
</table>

### THERMO-MECHANICAL DATA

<table>
<thead>
<tr>
<th></th>
<th>S20N1</th>
<th>S21N1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational Temperature</td>
<td>0..50°C</td>
<td>0..50°C</td>
</tr>
<tr>
<td>Container</td>
<td>Self-extinguishing Noryl V0</td>
<td>Self-extinguishing Noryl V0</td>
</tr>
<tr>
<td>Front Protection</td>
<td>Polycarbonate frontal membrane</td>
<td>Polycarbonate frontal membrane</td>
</tr>
<tr>
<td>Connections</td>
<td>Removable rear terminal blocks</td>
<td>Removable rear terminal blocks</td>
</tr>
<tr>
<td>Dimensions (l x h x d)</td>
<td>144 x 72 x 130 mm</td>
<td>144 x 72 x 130 mm</td>
</tr>
<tr>
<td>Panel drilling dimensions</td>
<td>135 x 67 mm</td>
<td>135 x 67 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>800 g</td>
<td>800 g</td>
</tr>
</tbody>
</table>

### SETTINGS, REGULATIONS

<table>
<thead>
<tr>
<th></th>
<th>S20N1</th>
<th>S21N1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programming / Dosage</td>
<td>Via front keys</td>
<td>Via front keys</td>
</tr>
<tr>
<td>Mode of operation</td>
<td>Stand-alone or Auto-Manual in conjunction with remote management from PLC (via RS485 - ModBUS)</td>
<td>Stand-alone or Auto-Manual in conjunction with remote management from PLC (via RS485 - ModBUS)</td>
</tr>
<tr>
<td>Max no. recipes</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Conformity</td>
<td>EC</td>
<td>EC</td>
</tr>
</tbody>
</table>

## ORDER CODE

### Batch Controller - Standard Versions

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S20N1-1-ST</td>
<td>Batch controller with pulse input, LED display and ModBUS interface, power supply 115 / 230 Vac</td>
</tr>
<tr>
<td>S20N1-23-ST</td>
<td>Batch controller with pulse input, LED display and ModBUS interface, power supply 24 Vac/dc</td>
</tr>
<tr>
<td>S21N1-1-ST</td>
<td>Batch controller with pulse input, LED display, ModBUS interface and self-powered clock, power supply 115 / 230 Vac</td>
</tr>
<tr>
<td>S21N1-1-ST</td>
<td>Batch controller with pulse input, LED display, ModBUS interface and self-powered clock, power supply 24 Vac/dc</td>
</tr>
<tr>
<td>S21N1-23-ST</td>
<td>Batch controller with pulse input, LED display, ModBUS interface and self-powered clock, power supply 115 / 230 Vac</td>
</tr>
</tbody>
</table>

### Batch Controller - Version EX

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S20N1EX-1-ST</td>
<td>Batch controller with pulse input, LED display and ModBUS interface in Ex-proof casing, power supply 115 / 230 Vac</td>
</tr>
<tr>
<td>S20N1EX-22-ST</td>
<td>Batch controller with pulse input, LED display and ModBUS interface in Ex-proof casing, power supply 24 Vac/dc</td>
</tr>
<tr>
<td>S21N1EX-1-ST</td>
<td>Batch controller with pulse input, LED display, ModBUS interface and self-powered clock in Ex-proof casing, power supply 115 / 230 Vac</td>
</tr>
<tr>
<td>S21N1EX-23-ST</td>
<td>Batch controller with pulse input, LED display, ModBUS interface and self-powered clock in Ex-proof casing, power supply 24 Vac/dc</td>
</tr>
</tbody>
</table>

### BATCH CONTROLLER – S SERIES

The technical data and the diagrams in this document are indicative and not binding.
PORTABLE PROFESSIONAL MEASUREMENT SYSTEMS

Serie MY
MY Series
PROFESSIONAL PORTABLE PROBES
FOR TEMPERATURE AND HUMIDITY MEASUREMENTS

The MY Series is a range of portable transmitters able to transform mobile devices such as smartphones or tablets into data acquisition systems. Easily configurable using a dedicated app, the MY Series allows the display of temperature values (RTD, TC) and humidity in analog or digital form, with sharing of the current measurement through SMS, e-mail and other data platforms.

The MY Series is the ideal candidate for professional, certified and industrial measurements in various contexts (machinery, climatic chambers, food storage and transportation, laboratories, HVAC systems) both for diagnostic purposes and for the monitoring of environmental parameters.
### PT100 • MY-PT PROBES

#### MY-PT-150-3
- **Type of Measurement**: Temperature
- **Power supply**: Supplied from the USB port
- **Environmental conditions**: -20...+50°C (grip)
- **Interface**: Micro USB
- **Precision**: Class B (sensor), conversion error (the highest of 1% measurement/ 0.5°C)
- **Measurement Field**: -30...+300°C
- **Response time**: 15 s
- **Probe connector**: M12
- **Configuration system**: App Android PIV APP via smartphone USB OTG
- **Functions / settings**: Analogue and digital display of the measurement, Maximum and minimum session storage, Reset of the measurement session with indication of the measurement time, Scale modification in analogue mode, Changing the unit of measurement K, °C, °F, °R, Recording of the current measurement with date, time, value and possibility to send it via share (on SMS, E-mail, WhatsApp)
- **Marking**: EC
- **Regulations**: EN 61326, EN 61010-1
- **Thermoelement**: Pt100, precision according to IEC 751
- **Insulation**: 100 MΩ a 100 Vcc
- **Connessione Elettrica**: 4-contact molded nylon connector with M12x1 screw-on coupling (DIN-VDE0627) with metal thread
- **Degree of Protection**: IP67
- **Costruzione**: High compact mineral insulation (MgO), sheath in AISI 316 stainless steel
- **Diameter**: 3 mm
- **Length**: 150 mm

#### MY-PT-250-2
- **Type of Measurement**: Temperature
- **Power supply**: Supplied from the USB port
- **Environmental conditions**: -20...+50°C (grip)
- **Interface**: Micro USB
- **Precision**: Class B (sensor), conversion error (the highest of 1% measurement/ 0.5°C)
- **Measurement Field**: -30...+300°C
- **Response time**: 15 s
- **Probe connector**: M12
- **Configuration system**: App Android PIV APP via smartphone USB OTG
- **Functions / settings**: Analogue and digital display of the measurement, Maximum and minimum session storage, Reset of the measurement session with indication of the measurement time, Scale modification in analogue mode, Changing the unit of measurement K, °C, °F, °R, Recording of the current measurement with date, time, value and possibility to send it via share (on SMS, E-mail, WhatsApp)
- **Marking**: EC
- **Regulations**: EN 61326, EN 61010-1
- **Thermoelement**: Pt100, precision according to IEC 751
- **Insulation**: 100 MΩ a 100 Vcc
- **Connessione Elettrica**: 4-contact molded nylon connector with M12x1 screw-on coupling (DIN-VDE0627) with metal thread
- **Degree of Protection**: IP67
- **Costruzione**: High compact mineral insulation (MgO), sheath in AISI 316 stainless steel
- **Diameter**: 2 mm
- **Length**: 250 mm

#### MY-PT-150-3R
- **Type of Measurement**: Temperature
- **Power supply**: Supplied from the USB port
- **Environmental conditions**: -20...+50°C (grip)
- **Interface**: Micro USB
- **Precision**: Class B (sensor), conversion error (the highest of 1% measurement/ 0.5°C)
- **Measurement Field**: -30...+300°C
- **Response time**: 15 s
- **Probe connector**: M12
- **Configuration system**: App Android PIV APP via smartphone USB OTG
- **Functions / settings**: Analogue and digital display of the measurement, Maximum and minimum session storage, Reset of the measurement session with indication of the measurement time, Scale modification in analogue mode, Changing the unit of measurement K, °C, °F, °R, Recording of the current measurement with date, time, value and possibility to send it via share (on SMS, E-mail, WhatsApp)
- **Marking**: EC
- **Regulations**: EN 61326, EN 61010-1
- **Thermoelement**: Pt100, precision according to IEC 751
- **Insulation**: 100 MΩ a 100 Vcc
- **Connessione Elettrica**: 4-contact molded nylon connector with M12x1 screw-on coupling (DIN-VDE0627) with metal thread
- **Degree of Protection**: IP67
- **Costruzione**: High compact mineral insulation (MgO), sheath in AISI 316 stainless steel
- **Diameter**: 3 mm
- **Length**: 150 mm

### ORDER CODE

#### MEASURING SYSTEM FOR PT100

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MY-PT-150-3</td>
<td>Portable transmitter for PT100 with PT-150-3-M12 probe</td>
</tr>
<tr>
<td>MY-PT-250-2</td>
<td>Portable transmitter for PT100 with PT-250-2-M12 probe</td>
</tr>
<tr>
<td>MY-PT-150-3R</td>
<td>Portable transmitter for PT100 with PT-150-3R-M12 probe</td>
</tr>
</tbody>
</table>

#### ACCESSORIES / SPARE PARTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT-150-3-M12</td>
<td>PT100 class B, d=3 mm, L= 150 mm, connector coupling M12</td>
</tr>
<tr>
<td>PT-250-2-M12</td>
<td>PT100 class B, d=2 mm, L= 250 mm, connector coupling M12</td>
</tr>
<tr>
<td>PT-150-3R-M12</td>
<td>PT100 class B, d=3 mm, L= 150 mm, tapered terminal, M12 connector connection</td>
</tr>
</tbody>
</table>

#### COMPLETE MEASUREMENT KIT

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MY-PT-KIT</td>
<td>Portable transmitter for PT100 with PT-150-3-M12, PT-250-2-M12 and PT-150-3R-M12 probes</td>
</tr>
</tbody>
</table>

The technical data and the diagrams on this document are indicative and not binding.
**THERMOCOUPLE PROBES TYPE K • MY-TC**

**MY-TC-250-3**  
Portatile thermocouple probe K, d=3 mm, L=250 mm, rounded tip, M12M connector

**MY-TC-250-1.5**  
Portatile thermocouple probe K, d=1.5 mm, L=250 mm, rounded tip, M12M connector

**MY-TC-AC**  
K-type thermocouple portable probe with arch, M12M connector

**MY-UT**  
Portable probe for temperature and relative humidity measurement, M12M connector

**ACCESSORIES / SPARE PARTS**

**MY-TC-AC**  
Portable thermocouple transmitter with TCK-AC-M12, TCK-250-1.5-M12 and TCK-W-1000-M12

**MY-TC-KIT**  
Portable transmitter for thermocouple with probes TCK-AC-M12, TCK-250-1.5-M12 and TCK-W-1000-M12

**CONFIGURATION APP**  
Android app for viewing, scaling and sharing data. Working with USB OTG smartphone

---

**GENERAL DATA**

**Type of Measurement**  
Temperature

**Power supply**  
Supplied from the USB port

**Environmental conditions**  
-20..+50°C (Table)

**Interface**  
Micro USB

**Precision**  
Greater of 1% of the measurement / 2°C

**Measurement Field**

**Response time**

**Probe connector**

**Configuration system**

**Functions / settings (via app)**

**Marking**

**Regulations**

**SENSORE**

**Thermoelement**

**Insulation**

**Electrical connection**

**Degree of Protection**

**Construction**

**Diameter**

**Length**

**Additional equipment**

**HUM/TEMP.**

**MEASUREMENT SYSTEM FOR TC-K**

**MEASUREMENT SYSTEM FOR TEMPERATURE/HUMIDITY**

**TRANSMITTER**

**ACCESSORIES / SPARE PARTS**

**APP DI CONFIGURAZIONE**

**CONFIGURATION APP**

---

**The technical data and the diagrams in this document are indicative and not binding.**
MULTIFUNCTION CALIBRATORS
CALIBRATOR - SIGNAL GENERATOR

Test-4
GENERATOR, PORTABLE METER WITH RAMP FUNCTION FOR ANALOGUE SIGNALS

Test-4 is a valid support for calibration sessions, laboratory tests and for the simulation of analog measurements controlled by industrial devices (PLC, regulators, data acquisition systems, etc.). With a total accuracy of less than 0.1%, a resolution of 1 μA / 1 mV, Test-4 guarantees optimal calibration results. It allows the simulation of both voltage and current ramps (active or passive).

Test-4 can be powered from a 220 Vac network through a dedicated power supply or with 2 NiMh batteries that ensure an average life of 20 hours.

TECHNICAL SPECIFICATIONS

GENERAL DATA
- Power supply: 2 x AA batteries of 2650 mAh type
- Autonomous: 8 hours (minimum load max), 20 hours (average)
- From 220 Vac network through dedicated power supply/battery charger
- Degree of protection: IP 20
- Operating temperature: 0...50°C (recommended)
- Humidity: 30...90% non-condensing
- Dimensions: 140 x 75 x 33 mm
- Weight: 250 g
- Insulation: Battery powered instrument, intrinsically isolated
- Rejection: 50-60 Hz
- Freq. Sampling: 10 Hz
- Input / output signals: Voltage measurement/generation: 0...11 V
  - Current measurement/generation: 0...21 mA
  - Protection ± 30 V
- Resolution: 0.002 mA, 0.001 V
- Precision: 0.1% for each type of input/output
- Batteries: NiMh batteries that ensure an average life of 20 hours.

CONNECTIONS
- Input / Output: Tips diameter 2 mm
- Power supply: Battery charger socket, battery compartment on the back, under the protective rubber cover
- Micro USB: For future implementations

EQUIPMENT
- Power unit
- Tips
- Transport bag
- 2 NiMh batteries type AA 2650 mAh

ORDER CODE
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST-4</td>
<td>Signal generator, portable V-mA meter with ramp simulation</td>
</tr>
<tr>
<td>TEST-4-PK</td>
<td>Precision Kit (set of precision tips and crocodile clips) for Test-4</td>
</tr>
<tr>
<td>TEST-4-R</td>
<td>Precision tip set for Test-4</td>
</tr>
<tr>
<td>TEST-4-T</td>
<td>ISO 9001 calibration certificate for Test-4</td>
</tr>
</tbody>
</table>

APPLICATION EXAMPLE

SIMULATION OF SIGNALS FROM THE FIELD

The technical data and the diagrams in this document are indicative and not binding.
SENeca App
for
Android / iOS Terminals
SENECA APP FOR ANDROID / IOS TERMINALS

- Direct access and settings via user friendly interface
- No programming skills required
- Upload/Download quick configuration and configuration replication
- Availability of operating manuals on smartphones
- Your smartphone becomes the best configurator

Mobile Phone with USB OTG support

PROGRAMMABLE PRODUCTS

<table>
<thead>
<tr>
<th>PROGRAMMABLE PRODUCTS</th>
<th>APP</th>
<th>GOOGLE PLAY</th>
<th>APPLE STORE</th>
<th>USB OTG</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASY SETUP APP</td>
<td>Z170REG-1, Z109REG2-1, Z109REG-BP, Z109PT2-1, Z109UI2-1 Z109TC-1, Z-KEY, S203RC-D, S203TA-D</td>
<td>✔️</td>
<td>-</td>
<td>✔️</td>
</tr>
<tr>
<td>PIV APP</td>
<td>MY-PT, MY-UT, MY-TC</td>
<td>✔️</td>
<td>-</td>
<td>✔️</td>
</tr>
<tr>
<td>SMS SENECA</td>
<td>MY2, Z-GPRS2-SEAL, Z-GPRS3</td>
<td>✔️</td>
<td>✔️</td>
<td>-</td>
</tr>
<tr>
<td>SENECA TEMP</td>
<td>MY2, Z-GPRS2-SEAL, Z-GPRS3</td>
<td>✔️</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>VPN CC</td>
<td>VPN BOX</td>
<td>✔️</td>
<td>✔️</td>
<td>-</td>
</tr>
</tbody>
</table>
Visit our website and you will discover a world of efficient products and solutions for automation

www.logicbus.com
CONTACTS AND INFORMATION

Web
Website: www.logicbus.com

E-mail
Sales office: sales@logicbus.com

Follow us on social networks