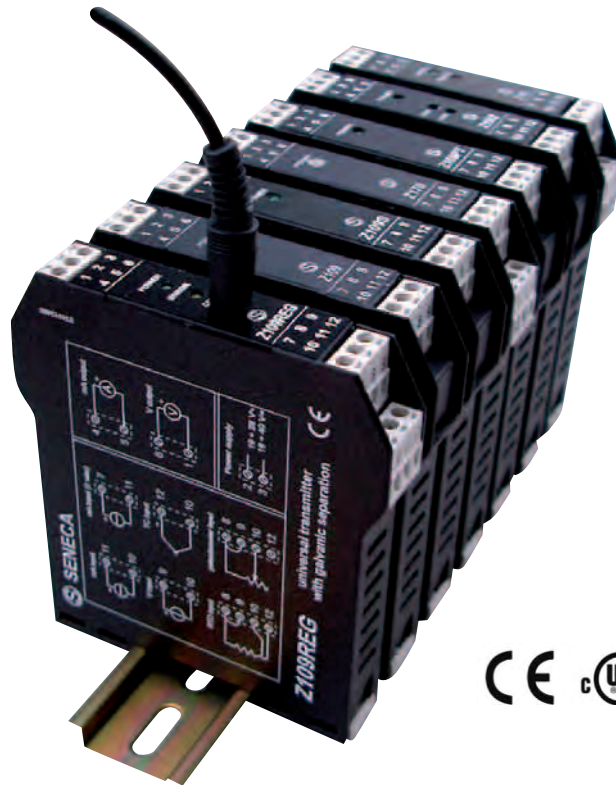


# Z-LINE

Modular signal conditioners

SHORT GUIDE



- ▶ Analogue and digital signal converters
- ▶ Galvanic isolators
- ▶ Communication interfaces
- ▶ Temperature converters
- ▶ Pulses converters
- ▶ Universal converter
- ▶ Limit alarm trips and switches

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# Z-LINE

## OVERVIEW

Z-Line series offers a full range of signal conditioners including **Signal Converters, Transmitters, Galvanic Isolators, Splitters, Trip Amplifiers** and **Maths Modules**. They are easy to use, simple to install and have a universal (ac/dc) low voltage supply.

### Specifications Z-LINE

**Power supply** : 10 – 40 Vdc / 19 – 28 Vac / 85..265 Vac/dc / 5..30 Vdc loop powered  
**Maximum power consumption** : 2.5 W  
**Isolation**: from 1500 Vrms (up to 4.000 Vrms) for 1 minute at three points (power supply/input/output)  
**Operating temperature**: 0 - +50 °C / -10..+60 °C  
**Storage temperature**: -20 - +70 °C  
**Maximum humidity**: 90% at +40 °C (non-condensing)  
**Connections**: Screw-fit removable terminals for wires up to 2.5 mm<sup>2</sup>  
**Mounting**: For guide 35 mm DIN 46277  
**Case dimensions**: 17.5 x 100 x 112 mm  
**Case material**: Nylon 6 filled with 30% fibreglass – self-extinguishing class V0

### CE and UL Standards



All Serie Z products comply with the directives concerning electromagnetic compatibility in INDUSTRIAL ENVIRONMENTS:

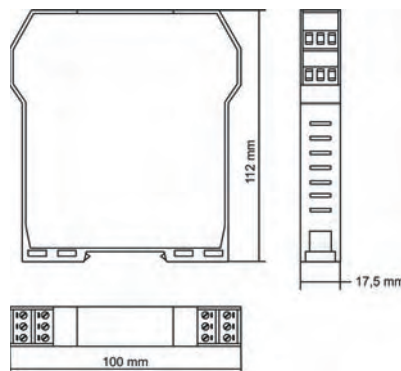
EMISSION in compliance with:

- Standard EN 50081-2
- Conducted EN 55011
- Radiated EN 55011

IMMUNITY in compliance with:

- Standard EN 50082-2:
- ESD EN 61000-4-2
- Burst EN 61000-4-4
- Radio frequency EN 50140 / 141

### Dimensions



### Highlights



#### Connections and Mechanics

- Screw-fit removable terminals
- Rail mounting
- Compact housing (17.5 mm wide)



#### Parameters configuration

- Configuration via DIP switch / Software (Z-SETUP) / Hand Held configurator (Test-3)
- Setup software for universal converter
- Selection input / output / filter / scaling / com / burn out etc.



#### Transducers power supply

- Source for transducers
- Active input 2 wires
- Minimum voltage of 20 Vdc and current of 20 mA












#### Standard signals
















- ANALOG: currents (bidirectional, active or passive), voltage (bipolar), resistance (2 or 3 wires potentiometer, rheostat), electric parameters
- SENSORS: RTD (thermoresistance 2, 3, 4 wires), TC (thermocouples J K R S T E B N), Load Cell (strain gauge)
- Any kind of PULSES
- Electric parameters: W, I, V, cosfi, f














#### Isolation & Power Supply





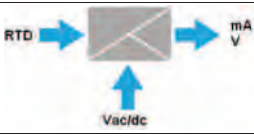
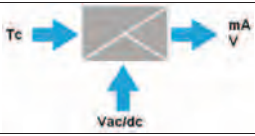


- 3 way (Input / Supply / Output) galvanic isolation from 1.500 to 4.000 Vac
- Supply range: from 10 to 265 Vac/dc
- Switching supply

		Z109REG	Z109REG2-Z109REG2-H	Z109UI2	Z109S
					
		Universal converter / isolator	Universal converter / isolator with advanced functions	DC current -voltage isolator / converter	DC current isolator
FUNCTIONAL DIAGRAM					
ORDER CODE		Z109REG -ER (square root extraction)	Z109REG2 (9..40 Vdc/19..28 Vac) Z109REG2-H (85..265 Vac/dc) -ER (square root extraction)	Z109UI2	Z109S
INPUT	NR	1	1 analog, 1 strobe	1	1
	TYPE	<b>Voltage (mV, V)</b> Bipolar 0..20 mA Bipolar 0..2, 0.5, 0..10 V <b>Current (mA)</b> Bipolar 0..20 mA <b>RTD</b> Pt100 (-200..+600°C) <b>Thermocouple</b> Type J, K, R, S, T, E, B, N <b>Potentiometer</b> 0.5..15 kΩ	<b>Voltage (mV, V)</b> Bipolar from 75 mV up to 20 V Resolution 15 bit + sign <b>Current (mA)</b> Bipolar up to 20 mA Resolution 1 μA <b>RTD</b> Pt100, Pt500, Pt1000, Ni100, KTY81, KTY84, NTC 3, 4 wires measurement Scale: -200..600 °C Resolution 0,1°C <b>Thermocouple</b> Type J, K, R, S, T, E, B, N Resolution 2,5 μV <b>Potentiometer / Rheostat</b> Potentiometer: 500 Ω ..10 kΩ Rheostat: 500 Ω ..25 kΩ <b>Strobe</b> Alternative to relay output	<b>Voltage (mV, V)</b> Bipolar from 75 mV up to 20 V 9 scales Resolution 15 bit + sign <b>Current (mA)</b> Bipolar up to 20 mA Resolution 1 μA	<b>Current</b> 2 scales: 0/4..20 mA
OUTPUT	NR	1	1 analog, 1 relay	1	1
	TYPE	<b>Voltage (V)</b> 2 scales: 0..2, 0..10 V <b>Current (mA)</b> 2 scales: 0..20, 4..20 mA	<b>Voltage (V)</b> 4 scales: 0/1..5V, 0/2..10V Min load impedance 2 kΩ <b>Current (mA)</b> 2 scales: 0/4..20 mA Max load impedance 600 Ω <b>Relay</b> Alternative to strobe input NC / NO in case of alarm	<b>Voltage (V)</b> 4 scales: 0/1..5V, 0/2..10V Min load impedance 2 kΩ <b>Current (mA)</b> 2 scales: 0/4..20 mA Max load impedance 600 Ω	<b>Current (mA)</b> 2 scales: 0/4..20 mA Max load impedance 600 Ω
PRECISION CLASS		0,2%	0,1%	0,1%	0,2%
THERMAL DRIFT		0,02 % f.s. / °C	0,01%/°K	0,01%/°K	0,02 % f.s. / °C
LINEARITY		0,05% (V,I), 0,2% (RTD), 1°C (TC)	0,05% / 0.4%	0,05 % (V,I), 0,01% (Vout)	0,05 %
SETTINGS		DIP switch Z-SETUP (PC software)	DIP switch Z-SETUP2 (PC software) Test-3 (hand held calibrator)	DIP switch Jumper	DIP switch
POWER SUPPLY		9..30 (option) - 19..40 Vdc 19..28 Vac; (50..60 Hz)	Z109REG2: 9..40 Vdc; 19..28 Vac; (50..60 Hz) Z109REG2-H: 85..265 Vac/dc	9..40 Vdc 19..28 Vac; (50..60 Hz)	9..40 Vdc 19..28 Vac; (50..60 Hz)
SENSORS SUPPLY		Active input 2 wires (min 18 Vdc)	Active input 2 wires (min 20 Vdc)	Active input 2 wires (min 20 Vdc)	Active input 2 wires (min 20 Vdc)
POWER CONSUMPTION		2,5 W (max)	2,5 W (max) 1,6 W (24 Vdc, 20 mA)	2,5 W	2,5 W
ISOLATION & PROTECTIONS		1.500 Vac (1 at 3 way) Input: 60 V / 200 mA Pulses 400 W / ms	1.500 Vac (1 at 3 way) Pulses 400 W / ms	1.500 Vac (1 at 3 way) Input: 60 V / 200 mA Pulses 400 W / ms	1.500 Vac (1 at 3 way) Input: 60 V / 200 mA Pulses 400 W / ms
FRONT LED		Power supply Error	Power supply Error Alarm	Power supply	Power supply
RESPONSE TIME		300 ms	35 ms (11 bit)..140 ms (16 bit)	35 ms (11 bit)..140 ms (16 bit)	< 60 ms
OPERATING TEMP.		0..+55°C	-10..+60°C	-10..+60°C	0..+50°C
DIMENSIONS		17,5 x 100 x 112 mm	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm
CONNECTIONS		Screw fit removable terminals	Screw fit removable terminals	Screw fit removable terminals	Screw fit removable terminals
WEIGHT		200 g	200 g	200 g	200 g
APPROVALS		CE	CE 	CE	CE
NORMS		EN 50081-1, EN 50082-2, EN 61010-1	EN 61000-6-4 / 2002, EN 61000-2-2/2005 / EN 61010-1, EN 60742	EN 55011, EN 61000-4-2, EN 61000-4-4, EN 50140 / 141	EN 55011, EN 61000-4-2, EN 61000-4-4, EN 50140 / 141

	Z102	Z110	Z-4AI-D	Z-4TC-D	Z-SG
					
	<b>Potentiometric to DC isolator / converter</b>	<b>DC current isolator (loop-powered)</b>	<b>4 Current / voltage A/D converter</b>	<b>4 Thermocouples A/D converter</b>	<b>Strain gauge to DC isolator / converter</b>
<b>FUNCTIONAL DIAGRAM</b>					
<b>ORDER CODE</b>	<b>Z102</b>	<b>Z110S</b> (single channel) <b>Z110D</b> (double channel)	<b>Z-4AI-D</b>	<b>Z-4TC-D</b>	<b>Z-SG</b>
<b>INPUT</b>	<b>NR</b> 1 <b>TYPE</b> <b>Potentiometer</b> 2 wires: 0..300 Ω (I=6mA); 0..500 Ω (I=3,6 mA); 0..1 KΩ (I=1,8 mA) 3 wires: Vref=1,8 Vcc, from 200 Ω to 1 MΩ	1, 2 <b>Current (mA)</b> 4..20 mA	4 <b>Voltage (V)</b> 2..10 V f.s Resolution 16.000 points Impedance: 100 KΩ <b>Current (mA)</b> ±20 mA (bipolar) Resolution 16.000 points Impedance: 100 Ω	4 <b>Voltage</b> ± 80 mV Impedance 10 MΩ <b>Thermocouples</b> Type J, K, R, S, T, E; B, N	1 analog, 1 digital <b>Analog</b> Strain gauge load cell, 4 or 6 bridge connections, min 87 Ω for 1.4 load cells (350 Ω) or 1.8 load cells (1.000 Ω); Sensitivity: 1..64 mV/V <b>Digital</b> Tare calibration / threshold weight
<b>OUTPUT</b>	<b>NR</b> 1 <b>TYPE</b> <b>Voltage (V)</b> 4 scales: 0..5, 1..5, 0..10, 2..10 V Load impedance > 2,5 KΩ <b>Current (mA)</b> 2 scales: 0..20, 4..20 mA Loop impedance < 600 Ω	1,2 <b>Current (mA)</b> 4..20 mA	2 <b>Digital</b> Channels from/to control unit (1 settable as clock or reset input)	2 <b>Digital</b> Channels from/to control unit (1 settable as clock or reset input)	1 analog, 1 digital <b>Current (mA)</b> 0..20, 4..20 mA <b>Voltage (V)</b> 0..10, 0..5 Vdc <b>Digital</b> Tare calibration / threshold weight
<b>INTERFACE</b>			RS485 2 wires, 1.200..115k bps RS232 (setup)	RS485 2 wires, 1.200..115k bps RS232 (setup)	RS485 ModBUS RTU 2 wires, 1.200..115k bps RS232, 2.400 bps
<b>PRECISION CLASS</b>	0,2%	0,1%			0,01%
<b>THERMAL DRIFT</b>	0,02 % f.s. / °	0,02 % f. / °C			0,0025% / °C
<b>LINEARITY</b>	0,05 %	0,1 % f.s			0,01%
<b>SETTINGS</b>	DIP switch (zero, span)		PLC IEC 61131 libraries DIP switch (filter time, input time, scales, serial interface)	PLC IEC 61131 libraries DIP switch (filter time, input time, scales, serial interface)	DIP Switch Z-NET3 (PC software)
<b>POWER SUPPLY</b>	9..30 (option) - 19..40 Vdc 19..28 Vac (50..60 Hz)	Self powered on input	9..30 (option) - 19..40 Vdc 19..28 Vac (50..60 Hz)	9..30 (option) - 19..40 Vdc 19..28 Vac (50..60 Hz)	10..40 Vdc 19..28 Vac
<b>CONSUMPTION</b>	2,5 W				2 W
<b>ISOLATION &amp; PROTECTIONS</b>	1.500 Vac 3 way 400 W/ms impulsive over-voltages	I/O isolation 1.500 Vac I/O protection: up to 35 Vdc max	1.500 Vac Input protection 60 V continuous	1.500 Vac Input protection 60 V continuous	1.500 Vac
<b>FRONT LED</b>	Power supply		Power supply Fault Data transmission Data receiving	Power supply Fault Data transmission Data receiving	Power supply Fault Data transmission Data receiving
<b>RESPONSE TIME</b>	40 ms	100 ms	< 400 ms	< 400 ms	< 10 ms
<b>OPERATING TEMP.</b>	0..+50°C	0..+50°C	0..+50°C	0..+50°C	-10..+65°C
<b>DIMENSIONS</b>	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm
<b>CONNECTIONS</b>	Screw fit removable terminals	Screw fit removable terminals	Screw fit removable terminals	Screw fit removable terminals	Screw fit removable terminals
<b>WEIGHT</b>	200 g	200 g	200 g	200 g	200 g
<b>APPROVALS</b>					
<b>NORMS</b>	EN 55011, EN 61000-4-2, EN 61000-4-4, EN 50140 / 141	EN 55011, EN 61000-4-2, EN 61000-4-4, EN 50140 / 141	EN 55011, EN 61000-4-2, EN 61000-4-4, EN 50140 / 141	EN 55011, EN 61000-4-2, EN 61000-4-4, EN 50140 / 141	EN 61000-6-4, EN 61000-6-2, EN 61010-1, EN 60742, IEC 61131



	T201	Z201 • Z201-H	Z202 • Z202-H • Z202-LP	Z203	S203T • S203TA
					
	<b>Loop powered current transformer</b>	<b>AC current to DC isolator / converter</b>	<b>AC voltage to DC isolator / converter</b>	<b>AC single phase network analyzer</b>	<b>Advanced 3-phase network analyzer</b>
<b>FUNCTIONAL DIAGRAM</b>					
<b>ORDER CODE</b>	<b>T201</b>	<b>Z201</b> (10..40 Vdc / 19..28 Vac) <b>Z201-H</b> (85..265 Vac/dc)	<b>Z202</b> (10..40 Vdc / 19..28 Vac) <b>Z202-H</b> (85..265 Vac/dc) <b>Z202-LP</b> (5..28 Vdc loop powered)	<b>Z203</b> (10..40 Vdc / 19..28 Vac)	<b>S203T</b> (input 100 mA) <b>S203TA</b> (input 5 Arms)
<b>INPUT</b>	<b>NR</b> 1 <b>TYPE</b> <b>AC Current (A)</b> 5, 10, 15, 20, 25, 30, 35, 40 A Max current capacity: 800 A Frequency: 20..1.000 Hz Crest Factor: 2	<b>NR</b> 1 <b>TYPE</b> <b>AC Current (A)</b> 0..5 / 10 A	<b>NR</b> 1 <b>TYPE</b> <b>AC Voltage (V)</b> Alternate voltage 0..500 Vac, input impedance 2.000 Ω/V, frequency 10 Hz..1kHz	<b>NR</b> 1 (6 measures) <b>TYPE</b> <b>AC Voltage (V)</b> Alternate voltage 0..500 Vac max (50-60 Hz) <b>AC Current (A)</b> 0..5 A (rms)	<b>NR</b> 1 <b>TYPE</b> <b>AC Voltage (V)</b> Up to 600 Vac <b>AC Current (A)</b> S203T: Nominal range 15 (25, 100) mA(rms) S203TA: Nominal range defined by primary current
<b>OUTPUT</b>	<b>NR</b> 1 <b>TYPE</b> <b>Current (mA)</b> 4..20 mA (2 wires)	<b>NR</b> 1 <b>TYPE</b> <b>Current (mA)</b> 2 scales: 0..10V, 2..10 V Min load impedance 2,5 KΩ	<b>NR</b> 1 <b>TYPE</b> <b>Voltage (V)</b> 4 scales: 0..5, 1..5, 0..10, 2..10 V Min load impedance 2,5 KΩ <b>Current (mA)</b> Active or passive 2 scales: 0..20 or 4..20 mA Max load impedance 600 Ω	<b>NR</b> 1 (6 measures) <b>TYPE</b> <b>Voltage (V)</b> 4 scales: 0..5, 1..5, 0..10, 2..10 V <b>Current (mA)</b> 2 scales: 0..20 or 4..20 mA <b>Analog Retransmission</b> I, V, W, Q, cosφ	<b>NR</b> 1 <b>TYPE</b> <b>Voltage (V)</b> 4 scales: 0..5, 0..10 V Min load impedance 2 kΩ <b>Current (mA)</b> 2 scales: 0..20, 4..20 mA Max load impedance 500 Ω <b>Analog Retransmission</b> I, V, P, cosφ
<b>COMMUNICATION INTERFACES</b>				RS485, 2 wires, 1.200..115k bps RS232, 2.400 bps ModBUS RTU Slave protocol	RS485, 2 wires, 1.200..115k bps ModBUS RTU Slave protocol
<b>PRECISION CLASS</b>	0,1%	0,3 %	0,25 %	0,5%	0,2% (voltmeter, amperometer, wattmeter)
<b>THERMAL DRIFT</b>	115 ppm/°K	0,02 % f.s. / °C	100 ppm/K		
<b>LINEARITY</b>		0,3 %	0,25 %		
<b>SETTINGS</b>	DIP switch	DIP switch	DIP switch (input / output scale)	DIP switch Software (Z-NET)	DIP switch Software (Z-NET)
<b>POWER SUPPLY</b>	Loop powered (5..28 Vdc)	Z201: 19..40 Vdc / 19..28 Vac Z201-H: 85..265 Vac/dc	Z202: 19..40 Vdc / 19..28 Vac Z202-H: 85..265 Vac/dc Z202-LP: 5..28 Vdc	10..40 Vdc 19..28 Vac (50..60 Hz)	10..40 Vdc 19..28 Vac (50..60 Hz)
<b>CONSUMPTION</b>		2,5 W	< 1,5 W	2,5 W	< 2,5 W
<b>ISOLATION &amp; PROTECTIONS</b>	CAT III 300 Vac	3.750 Vac	1.500 Vac 3 way 400 W/ms impulsive over-voltages	3.750 Vac from/to power 1.500 Vac other circuits	3.750 Vac from/to measure input 1.500 Vac other circuits 4 kV (ESD)
<b>FRONT LED</b>		Power supply	Power supply	PWR (power supply) Fail Tx (data transmission) Rx (data receiving)	
<b>RESPONSE TIME</b>	< 100 ms	< 200 ms	30 ms	< 10 ms	400 ms
<b>OPERATING TEMP.</b>	-20..+65 °C	0..+55°	0..+60°C	0..+55 °C	-10..+65 °C
<b>CONNECTIONS</b>	Faston clamp	Screw fit removable terminals	Screw fit removable terminals	Screw fit removable terminals IDC10 back connector for DIN rail Front jack RS232	Screw terminals – step 5,08 mm
<b>DIMENSIONS</b>	38 x 40 x 20 mm	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm	105 x 89 x 60 mm
<b>WEIGHT</b>	50 g	200 g	140 g	140 g	
<b>APPROVALS</b>	<b>CE</b>	<b>CE</b>	<b>CE</b>	<b>CE</b> 	<b>CE</b>
<b>NORMS</b>	EN 60668+A1+A2, EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 55011, EN 61000-4-2, EN 61000-4-4, EN 50140 / 141	EN50081-2, EN50082-2, EN61010-1, EN60742	EN 61000-6-4/2002, EN 61000-6-2/2002, EN 61010-1	EN 61000-6-4/2002, EN 61000-6-2/2002, EN 61010-1, EN 60742

	Z109PT2	Z109TC	FlexTop	FlexTop ISO
				
	<b>RTD to DC isolator / converter</b>	<b>Thermocouple to DC isolator / converter</b>	<b>Pt100 transmitter (loop powered)</b>	<b>Universal temperature transmitter</b>
<b>FUNCTIONAL DIAGRAM</b>				
<b>ORDER CODE</b>	<b>Z109PT2</b>	<b>Z109TC</b>	<b>FLEXTOP (standard)</b> -C (programming) -EX (EEx ia)	<b>FLEXTOP ISO (standard)</b> -C (programming) -EX (EEx ia)
<b>INPUT</b>	<b>NR</b> 1 <b>TYPE</b> <b>RTD</b> Pt100, Pt500, Pt1000, Ni100, KTY81, KTY84, NTC 2, 3, 4 wires measurement Energizing current 1 mA Resolution 0,1°C	<b>NR</b> 1 <b>TYPE</b> <b>Thermocouple</b> Type: J, K, R, S, T, E, B, N Resolution 5 µV TC interruption automatic detection	<b>NR</b> 1 <b>TYPE</b> <b>Pt100</b> Thermoresistance: 2/3/4 wires measurement IEC/DIN/EN 60 751-2 -200/+850 °C Min span 25 °C Protection ± 35 Vdc	<b>NR</b> 1 <b>TYPE</b> <b>RTD</b> Pt25..Pt1000, Ni25..Ni1000, Cu25..Cu1000 2/3/4 wires measurement <b>Thermocouple</b> B,E,J,K,L,T,U,IEC 584, ASTM 988 <b>Voltage (mV, V)</b> -10..70 mV, -0,1..1,1 V <b>Ohm</b> 0..390 Ω, 0..2.200 Ω Protection ± 35 Vdc
<b>OUTPUT</b>	<b>NR</b> 1 <b>TYPE</b> <b>Voltage (V)</b> 4 scales: 0..5, 0..10, 1..5, 2..10 V Min load impedance 2 kΩ Resolution: 2,5 µA / 1,25 mV <b>Current (mA)</b> 2 scales: 0..20, 4..20 mA Max load impedance 600 Ω Resolution: 2,5 µA / 1,25 mV	<b>NR</b> 1 <b>TYPE</b> <b>Voltage (V)</b> 4 scales: 0..5, 1..5, 0..10, 2..10 V Min load impedance 2,5 KΩ Resolution: 0,025%..0,032 % <b>Current (mA)</b> Active / passive connection 2 scales: 0..20, 4..20 mA Max load impedance: 600 Ω Resolution: 0,025%..0,032 %	<b>NR</b> 1 <b>TYPE</b> <b>Current (mA)</b> 4..20 mA, 2-wire Resolution 12 bit Burn out positive / negative Up/down limits 23 mA / 3,5 mA Damping 0..30 s Protection with polarity inversion	<b>NR</b> 1 <b>TYPE</b> <b>Current (mA)</b> 4..20, 20..4 mA, 2 wires Resolution 12 bit
<b>PRECISION CLASS</b>	0,1% (RTD) 0,3% (voltage output)	0,2 % - input 0,1 % - output	< 0,1%	< 0,1%
<b>THERMAL DRIFT</b>	0,02 % f.s. / °C	0,02 % f.s. / °C -input 0,01% f.s / °C - output	Max 0,01% f.s / °C, typical 0,003% f.s/°C	
<b>LINEARITY</b>	0,1 %	1°C, 3 °C over 600 °C 0,1 % - output	0,1 %	Max 0,01% f.s / °C, typical 0,003% f.s/°C
<b>SETTINGS</b>	DIP Switch: range (f.s input f.s selection);output selection (range of scale)	DIP switch (type, zero and span of input thermocouples, output scale and polarity) TC emulator	Flex Programmer (sw toolkit) Programmable Damping Technical units selection Settable tag up to 15 characters	Flex Programmer (sw toolkit) Programmable Damping
<b>POWER SUPPLY</b>	9..40 Vdc, 19..28 Vac (50..60 Hz)	9..30 (opt.) - 19..40 Vdc 19..28 Vac (50..60 Hz)	8..35 Vdc (loop powered)	6,5..35 Vdc (loop powered)
<b>CONSUMPTION</b>	2,5 W	2,5 W		
<b>ISOLATION &amp; PROTECTION</b>	Power supply / Input / Output isolation: 1.500 Vac Overvoltage protections: 400 W/ms	Power supply / Input / Output isolation: 1.500 Vac Overvoltage protections: 400 W/ms	Box IP40, terminals IP00 Internal inductivity < 10 µF Internal capacity 10 nF Barrier: Umax 28 Vcc, Imax 0,1A, Pmax 0,7 W	Isolation: 3,75 KVdc; protection: IP55 box, IP10 terminals Internal inductivity < 15 µF Internal capacity < 2 nF Barrier: Umax=30 Vdc, Imax=0,1 A, Pmax=0,75W
<b>FRONT LED</b>	Power Supply Setting Fault Out scale	Power supply Fault	Sensor fault	
<b>RESPONSE TIME</b>	35..140 ms	330 ms	0,7 s	
<b>RESOLUTION</b>	11bit+sign..15bit+sign		12 bit	12 bit
<b>OPERATING TEMP.</b>	-10..+60°C	0..+50°C	-40..+85 °C	-40..+85 °C
<b>CONNECTIONS</b>	Screw fit removable terminals	Screw fit removable terminals	Spring loaded system	Spring loaded system
<b>DIMENSIONS</b>	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm	∅ 44 x 19 mm	∅ 44 x 26,3 mm
<b>WEIGHT</b>	200 g	200 g		
<b>APPROVALS</b>	<b>CE</b>	<b>CE</b>	<b>CE</b> , EEx ia IIC T5/T6 ATEX II 1G (EEx versions)	<b>CE</b> , Namur NE 21, Demko EEx ia IIC T5/T6
<b>NORMS</b>	EN 55011, EN 61000-4-2, EN 61000-4-4, EN 50140 / 141	EN 55011, EN 61000-4-2, EN 61000-4-4, EN 50140 / 141	EN50081-1, EN50081-2 EN50014, EN50020	EN 61326

Z104



**DC to frequency  
converter / isolator**

Z111



**Frequency to DC  
converter / isolator**

Z170



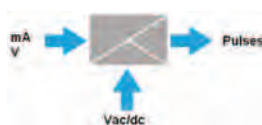
**DC duplicator / isolator**

Z190









**DC adder – subtractor /  
isolator**

**FUNCTIONAL  
DIAGRAM**



ORDER CODE	Z104	Z111	Z170	Z190
INPUT NR	1	1	1	2
TYPE	<b>Voltage (V)</b> 4 scales: 0..1, 0..5, 0..10, 2..10 V Input impedance 1 M $\Omega$ <b>Current (mA)</b> 2 scales: 0/4..20 mA Active connection: loop powered 15 Vdc not stabilized Passive connection: input impedance 100	<b>Pulses</b> Contact / reed; 2/3 wires npn; 3 wires pnp with 24 Vdc power supply; namur; photoelectric; hall effect sensor; variable reluctance; 24 V; TTL Max frequency: 10 kHz	<b>Voltage (V)</b> 4 scales: 0..1, 0..5, 0..10, 2..10 V Input impedance 500 k $\Omega$ <b>Current (mA)</b> 2 scales: 0/4..20 mA Active connection: loop powered 20 Vdc not stabilized Passive connection: input impedance 100	<b>Voltage (V)</b> 4 scales: 0..1, 0..5, 0..10, 2..10 V Input impedance 500 k $\Omega$ <b>Current (mA)</b> 2 scales: 0/4..20 mA Active connection: loop powered 20 Vdc not stabilized Passive connection: input impedance 100
OUTPUT NR	1	1	2 (independent)	1
TYPE	<b>Pulses</b> Transistor npn open collector, 30 Vcc, 300 mA Reed relay, 30 Vdc-ac, 100 mA Max frequency: 10 kHz	<b>Voltage (V)</b> 4 scales: 0..5, 0..10, 1..5, 2..10 V, min load resistance 2.500 $\Omega$ <b>Current (mA)</b> 2 scales: 0/4..20 mA Max load resistance 600 $\Omega$	<b>Voltage (V)</b> 4 scales: 0..5, 0..10, 1..5, 2..10 V, min load resistance 2.500 $\Omega$ <b>Current (mA)</b> 2 scales: 0/4..20 mA Active connection: max loop impedance 600 $\Omega$ Passive connection	<b>Voltage (V)</b> 4 scales: 0..5, 0..10, 1..5, 2..10 V, min load resistance 2.500 $\Omega$ <b>Current (mA)</b> 2 scales: 0/4..20 mA Active connection: max loop impedance 600 $\Omega$ Passive connection
PRECISION CLASS	0,2 %	0,3%	0,2 %	0,2 %
THERMAL DRIFT	0,02 % f.s. / °C	0,01 % f.s. / °C	0,02 % f.s. / °C	0,02 % f.s. / °C
LINEARITY	0,05 %		0,05 %	0,05 %
SETTINGS	DIP switch: input type, output, top of the scale Trimmer: rop of the scale regulation, setting constant	DIP switch: input type & frequency, filter, pulses average, output Trimmer: top of the scale regulation (1 Hz..10 KHz)	DIP switch: I/O type & connections	DIP switch: I/O type & connections
POWER SUPPLY	19..40 (9..30 opt.) Vdc; 19..28 Vac (50..60 Hz)	19..40 (9..30 opt.) Vdc; 19..28 Vac (50..60 Hz)	19..40 Vdc; 19..28 Vac (50..60 Hz)	19..40 (9..30 opt.) Vdc; 19..28 Vac (50..60 Hz)
SENSORS SUPPLY	Active input 2 wires (min 20 Vdc)	Active input 2 wires (min 20 Vdc)	Active input 2 wires (min 20 Vdc)	Active input 2 wires (min 20 Vdc)
CONSUMPTION	2,5 W	2,5 W	2,5 W	2,5 W
ISOLATION & PROTECTIONS	1.500 Vac (at 3 way) Input: 100 mA Pulses 400 W/ ms	1.500 Vac (at 3 way)	1.500 Vac (at 3 way) Pulses output / power. 400 W/ ms	1.500 Vac (at 4 way) Pulses output / power 400 W/ ms
FRONT LED	Power supply Output (attracted relay)	Power supply Error	Power supply	Power supply
RESPONSE TIME	350 ms	250 ms		
OPERATING TEMP.	0..+50°C	0..+50°C	0..+50°C	0..+50°C
CONNECTIONS	Screw fit removable terminals	Screw fit removable terminals	Screw fit removable terminals	Screw fit removable terminals
DIMENSIONS	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm
WEIGHT	200 g	200 g	200 g	200 g
APPROVALS	<b>CE</b>	<b>CE</b>	<b>CE</b>	<b>CE</b>
NORMS	EN50081-1, EN50081-2, EN61010-1	EN50081-1, EN50081-2, EN61010-1	EN50081-1, EN50081-2, EN61010-1	EN50081-1, EN50081-2, EN61010-1



	Z112	Z113	Z-TIMER
			
	<b>On/Off sensors amplifier</b>	<b>DC current / voltage alarm trip module</b>	<b>Electronic timer</b>
<b>FUNCTIONAL DIAGRAM</b>			
<b>ORDER CODE</b>	<b>Z112A</b> (single channel) <b>Z112D</b> (double channel)	<b>Z113S</b> (1 relay output) <b>Z113D</b> (2 relay output) <b>Z113T</b> (3 relay output)	<b>Z-TIMER</b> <b>Z-TIMER-D</b> (2 independent times, working time and pause time)
<b>INPUT NR</b>	1 / 2	1	1
<b>TYPE</b>	<b>Pulses</b> Optoisolated from mechanical contact Reed 2/3 wires npn - 12..24 Vdc 3 wires pnp with 24 Vdc power supply NAMUR Pulses 24 Vdc Photoelectric sensor HALL effect sensor Max frequency 400 Hz	<b>Voltage (V)</b> 4 ranges: 0/1..5 Vdc, 0/2..10 Vdc Input impedance 500 KΩ <b>Current (mA)</b> 2 ranges: 0..20 mA; 4..20 mA Active connections Passive connection, input impedance: 100 Ω	<b>Contacts</b> START time switch PAUSE time switch
<b>OUTPUT NR</b>	1 / 2	1 / 2 / 3	1
<b>TYPE</b>	<b>Relay</b> Z112A: relay with SPDT changeover and capacity 1 A - 30 Vdc or 5 A - 250 Vac (resistive load) Z112D: reed relays with SPST contact, max capacity 0,5 A - 100 Vdc-ac (10 VA on resistive load)	<b>Relay</b> Z-113A: relay with SPDT changeover and capacity 1A - 30 Vdc or 5 A - 250 Vac (resistive load) Z-113D/T: relays with SPST contact and max capacity 0,1 A - 30 Vdc-ac (10 VA on resistive load)	<b>Relay</b> SPDT changeover and capacity 8 A - 250 Vac (resistive load)
<b>THERMAL DRIFT</b>		0,02 % f.s. / °C	
<b>LINEARITY</b>		0,05 %	
<b>SETTINGS</b>	<b>DIP switch</b> Input type, output repetition of input pulses, divisor circuit with programmable dividing factor between 1 and 256 <b>Trimmer</b> Pulse duration (100..500 ms)	<b>DIP switch</b> Input type Functions (excitement/de-excitement relays, minimum/maximum alarms) <b>Trimmer</b> Alarm set-point (1..100% control signal) Cut-in delay (0,3..30s) Hysteresis (2..15% of cut-in value)	<b>DIP switch</b> Nr 8 timer functions (delay upon excitement; delay upon de-excitement; blinker with non energized relay start; blinker with energized relay start; calibrator; opening timing with delay upon de-excitement; reopening timing with delay upon de-excitement) Nr 8 scales of times (50ms..10h) <b>Trimmer</b> Timing regulation
<b>POWER SUPPLY</b>	19..40 (9..30 option) Vdc; 19..28 Vac; (50..60 Hz)	19..40 (9..30 option) Vdc 19..28 Vac; (50..60 Hz)	12..40 Vdc ± 10 % 12..40 Vac / 115..230 Vac ± 10 % 50..60 Hz
<b>SENSORS SUPPLY</b>	Active input 2 wires (min 20 Vdc)	Active input 2 wires (min 20 Vdc)	Active input 2 wires (min 20 Vdc)
<b>CONSUMPTION</b>	2,5 W	2,5 W	2 W
<b>ISOLATION &amp; PROTECTIONS</b>	<b>Z112A</b> 1.500 Vac (power/input) and 4.000 Vac (input/power/output) <b>Z112D</b> 1.500 Vac	<b>Z113S</b> 1.500 Vac (power./input) 4.000 Vac (input/power/output) <b>Z113D, Z113T</b> 1.500 Vac Impulsive over-voltages 400 W/ms	1.500 Vac (power/input) 4.000 Vac (input/power/output)
<b>FRONT LED</b>	Powered instrument Energized relay	Power supply Threshold overcoming	Power supply Pause (energized relay) Timer (time switch pause)
<b>OPERATING TEMPERATURE</b>	0..+50°C	0..+50°C	-10..+60°C
<b>CONNECTIONS</b>	Screw fit removable terminals	Screw fit removable terminals	Screw fit removable terminals)
<b>DIMENSIONS</b>	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm	17,5 x 100 x 112 mm
<b>WEIGHT</b>	200 g	200 g	200 g
<b>APPROVALS</b>	<b>CE</b>	<b>CE</b>	<b>CE</b>
<b>NORMS</b>	EN 50081-1, EN 50082-2, EN 61010-1	EN 50081-1, EN 50082-2, EN 61010-1	EN 50081-1, EN 50082-2, EN 61010-1

## Z-SETUP



## Z109REG configuration software

## MAIN FEATURES

On line help for DIP-switches configuration guide.  
 Download / Upload / Acquisition of the module configuration  
 Inversion of the scale  
 Positive or negative burn-out setting  
 Positioning of the digital filter  
 Extraction of the square-root  
 Free conversion scales

## ORDER CODES

Z-SETUP Programming software Z109REG

## Z-SETUP2



## Z109REG2 configuration software

## MAIN FEATURES

Start / End scale, digital filter  
 Extraction of the square-root  
 Positive or negative burn-out setting  
 Analog output Start / End scale  
 Frequency rejection 50/60 Hz  
 Sample rate / resolution setting  
 Automatic alarm relay energizing in case of fault

## ORDER CODES

Z-SETUP2 Programming software Z109REG2

## S-TOOL



## Configuration toolkit with software collection

## MAIN FEATURES

Setup software collection

## ORDER CODES

S-TOOL Configuration toolkit including Z-PROG, Z-SETUP, Z-SETUP2, Z-4AI-D, Z-4TC-D libraries, Soft2000DOS/WIN, PM001600 cable

## TEST-3



## Hand held OLED multimeter and Z109REG2 configurator

## MAIN FEATURES

Precision class 0,1%  
 Z109REG2 Alarms, scales, I/O parameters settings  
 Generation / measure of voltage (0-10 V) and current (0-20 mA) signals  
 OLED display 128 x 64  
 NiMh batteries, AA type 2.650 mAh (20 h)

## ORDER CODES

TEST-3 Hand held multimeter and Z109REG2 with OLED display  
 /T Calibration service (NIST traceable)  
 TEST-3-PK Precision kit with Z109REG2 programming cable

## Flex Programmer



## Programming toolkit FlexTop series

## MAIN FEATURES

Working as a datalogger for measures recording  
 Saving and loading of the configuration sets  
 Printing facility for hard copy records  
 An interface converter with a 1,5 mt long cable with a 9 pole RS232C plug to PC  
 Multi-language software CD

## ORDER CODES

SOFT-FLEX Programming toolkit for FlexTop 2201 and FlexTop ISO

## S117P



## RS232-TTL/USB asynchronous serial converter

## MAIN FEATURES

Windows (Xp, Vista, Xp Embedded, CE .Net), Mac OS (8, 9, X), Linux (2.24.0) support  
 USB / RS232 isolation: 1.500 V  
 Loop powered by USB PC port  
 Dimensions: 90 x 50 x 25 mm  
 Standard USB 1.0, 1.1, 2.0

## ORDER CODES

S117P RS232-TTL/USB asynchronous serial converter

## Z-POWER



## DIN rail mounting 19 Vac transformer

## ORDER CODES

Z-POWER 230-15VA 19 Vac, 230-15 VA transformer  
 Z-POWER 230-25VA 19 Vac, 230-25 VA transformer  
 Z-POWER 115-15VA 19 Vac, 115-15 VA transformer

## Programming cables

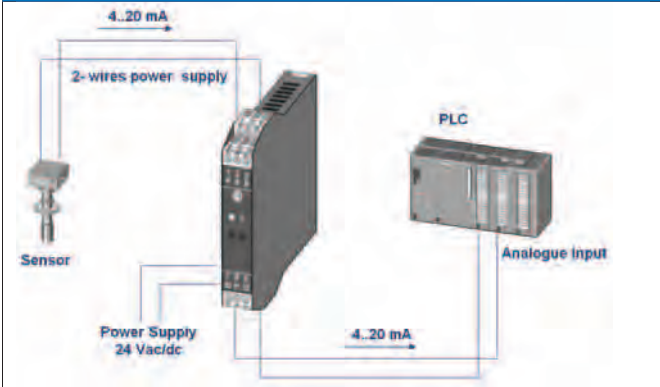


## Programming cables

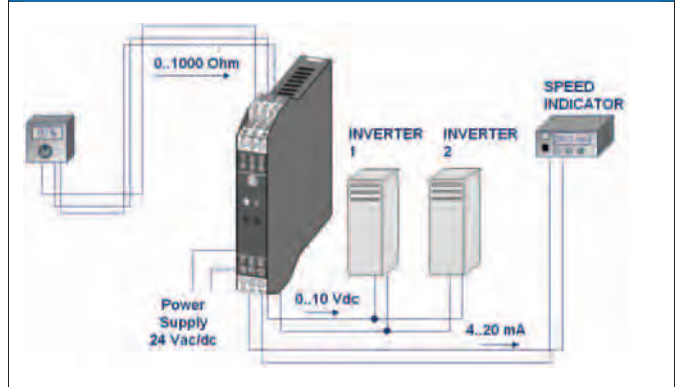
## ORDER CODES

PM001600 Programming serial cable (Z109REG, Z109REG2, Z203, Z-4AI-D, Z-4TC-D, Z-3AO, Z-8AI, Z-8TC) (jack / DB9F)  
 PM001970 RS232 (K107B) serial cable (probes / DB9F)  
 PM002240 Z109REGREG2 / TEST-2 programming cable (jack / jack)

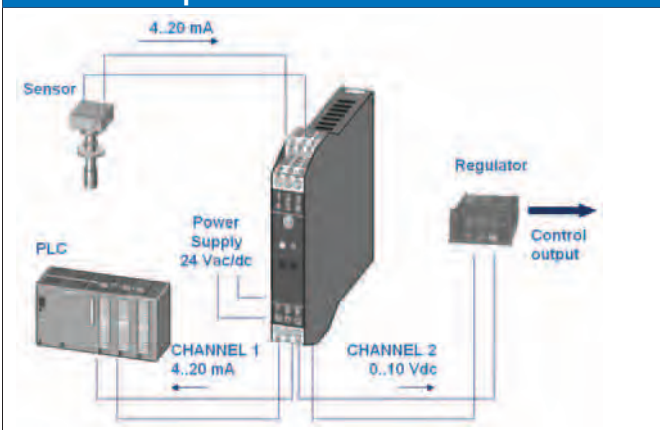
Z109S – DC current converter



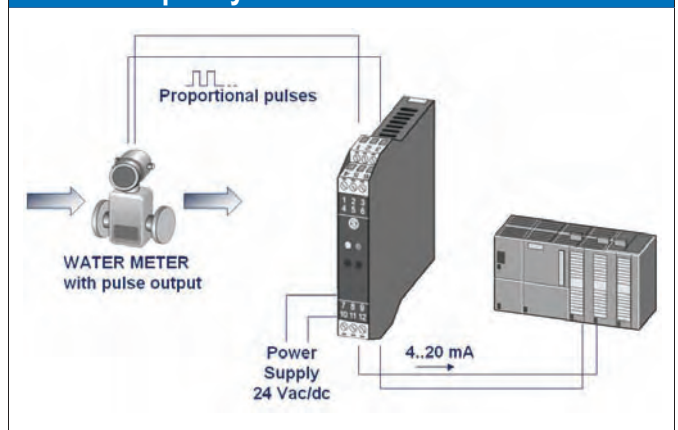
Z102 – Potentiometric to DC converter / isolator



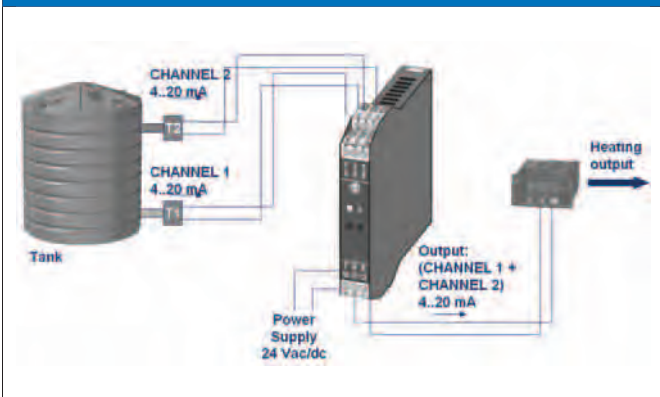
Z170 – DC duplicator / isolator



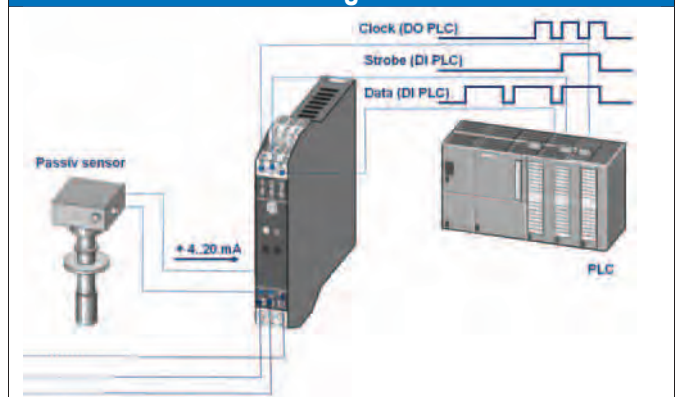
Z111 – Frequency to DC converter / isolator



Z190 – DC adder – subtractor / isolator



Z-4AI-D DC current / voltage A/D converter



Z201 – AC current to DC converter / isolator



Z110 – DC current isolator (self-powered)

