



EXPLORE WHAT'S POSSIBLE.



Highlighted markets we serve:



Automation



Machine Builders



Medical & Pharmaceutical

Additional markets we serve:



Aerospace and Defense



Agricultural



Automotive



Manufacturing



Material & Endurance Testing



Product Development & OEM

FUTEK Advanced Sensor Technology, Inc. is a manufacturer of load cells, torque sensors, pressure sensors, multi-axis sensors, and related instruments and software. Located in Southern California, we've built a reputation as a quality provider of test-measurement and control feedback products.

We specialize in the research and development of advanced sensing devices, and our products are used in many industry applications, such as medical devices, automation, and robotics. We vow to produce the highest quality in performance and reliability, and our product line is unique within the test and measurement market. Every stage of design, development, and production is driven by an elevated quality standard. In fact, we guarantee that all of our products will meet or exceed the quality requirements that you outline for us.

We provide the most precise sensor solution for your specific project. A thorough support team is an integral part of the FUTEK experience. We include pre-application R&D consultants as well as post-sales technical support for all our custom solutions.

If you have a test-measurement application or control feedback need, please don't hesitate to contact us for support. We have experience creating solutions for even the most complex challenges.

Drawing Number: SP1182-A

Sensor Solutions Source

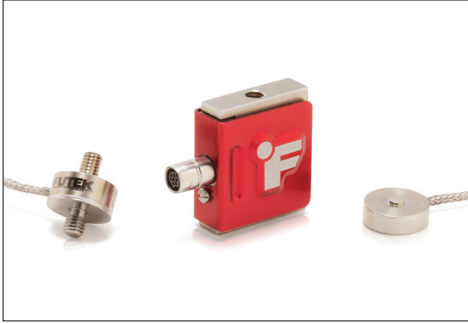
Load · Torque · Pressure · Multi Axis · Calibration · Instruments · Software

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U.S. Manufacturer

Featured Products



LOAD CELLS

- Capacity range from grams to thousands of pounds
- Miniaturization capability
- Amplified and digital output



TORQUE SENSORS

- From 0.04 Nm to 2712 Nm
- Reaction-torque measurement
- Rotary-torque, speed (RPM), angle and power measurement



PRESSURE SENSORS

- Female port and flush mount
- 5 to 10,000 psi capacity range



OEM SENSORS

- High quality, excellent delivery and cost effective
- Cryogenics or non-magnetic type
- Submersible, dual bridge, or fatigue rated



INSTRUMENTS

- Panel mount and hand held instruments
- USB digital connection solutions
- Signal conditioner amplifier options



SOFTWARE

- Measure up to 16 channels
- Live graphing
- Data logging

Certifications and accreditations

At FUTEK, we are committed to producing the highest quality sensors available in test-and-measurement and control feedback industries. Our commitment to high quality means we pay meticulous attention to all the details of production. Every stage of design, development, and production is driven by this quality standard. We are so passionate about our quality assurance that we guarantee our products meet and/or exceed the quality clauses outlined by the International Organization for Standardization (ISO). We proudly carry certifications in the following ISO standards: 9001, 13485, and 17025.

Additionally, FUTEK holds certifications from the American National Standards Institute (ANSI) as a Z540 approved calibration laboratory; as well as RoHS certificates of conformance for our standard product line.

For more information on FUTEK's certifications and compliances, please visit <http://www.futek.com/certifications.aspx>

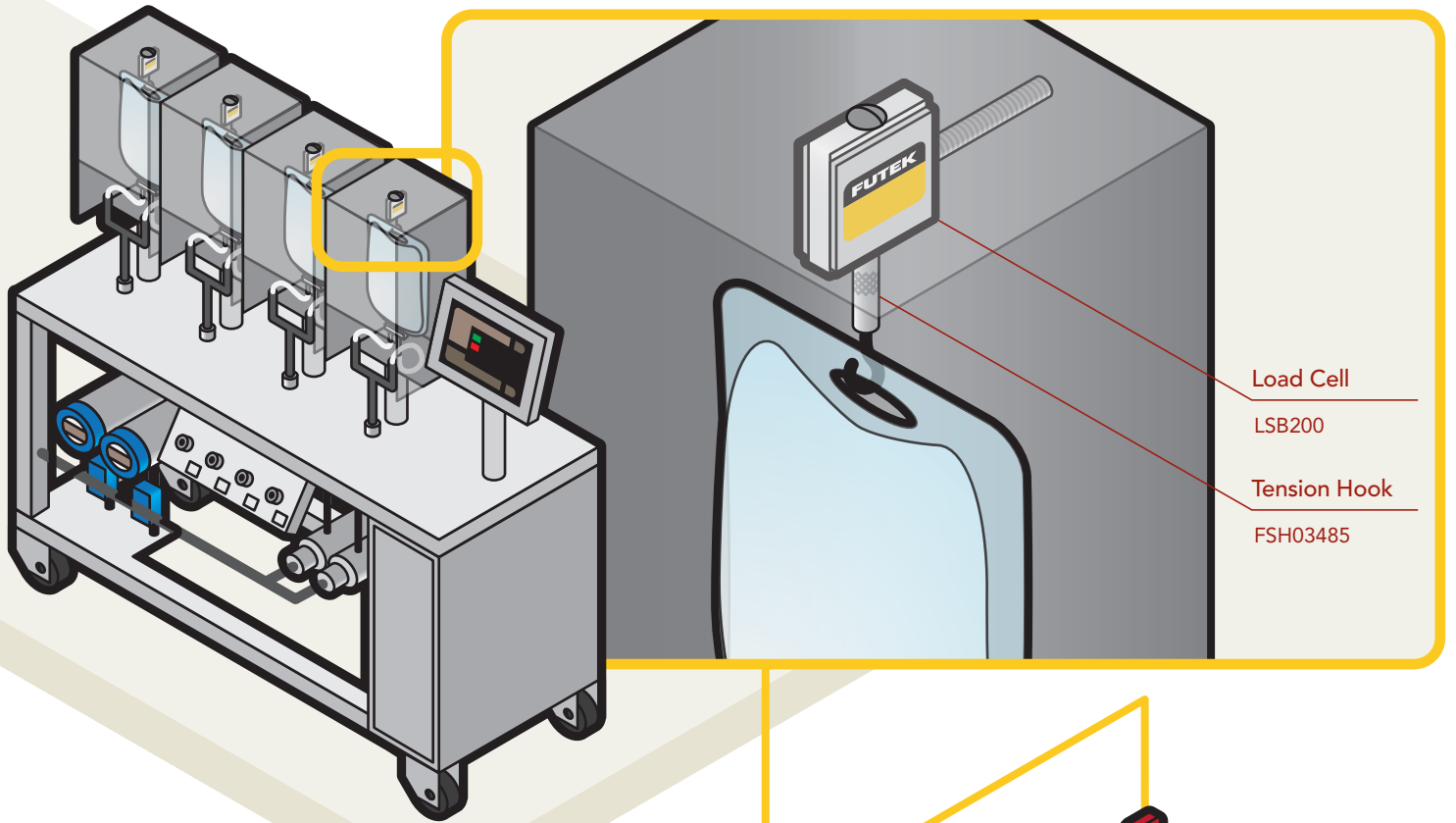


Medical & Pharmaceutical

Sensor Solutions Source

Load · Torque · Pressure · Multi-Axis · Calibration · Instruments · Software

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Load Cell
LSB200
Tension Hook
FSH03485

PRODUCTS IN USE

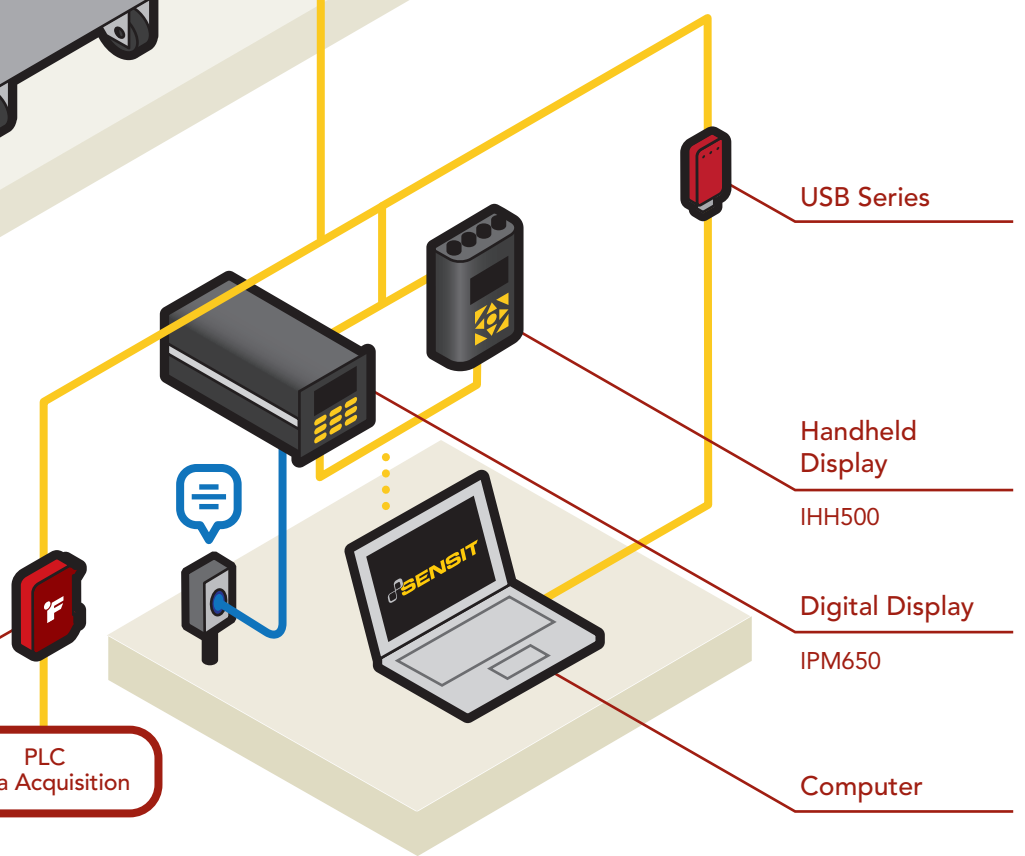
Miniature S-Beam Jr. (LSB200) paired with Instrumentation (IPM650, IHH500, USB Solutions, or IAA analog amplifier).

APPLICATION SUMMARY

Medical applications require the utmost precision. In IV or saline bag weighing, high-precision, In-Line load cells are needed. For this application, FUTEK's LSB200 Miniature S-Beam Load Cell will measure the tension force applied by an IV bag.

Amplifier
IAA Series

PLC
Data Acquisition



USB Series

Handheld Display
IHH500

Digital Display
IPM650

Computer



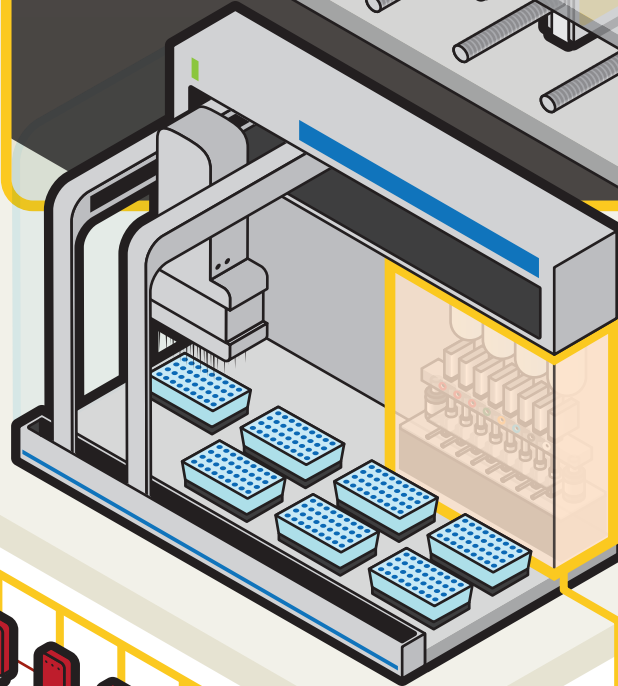
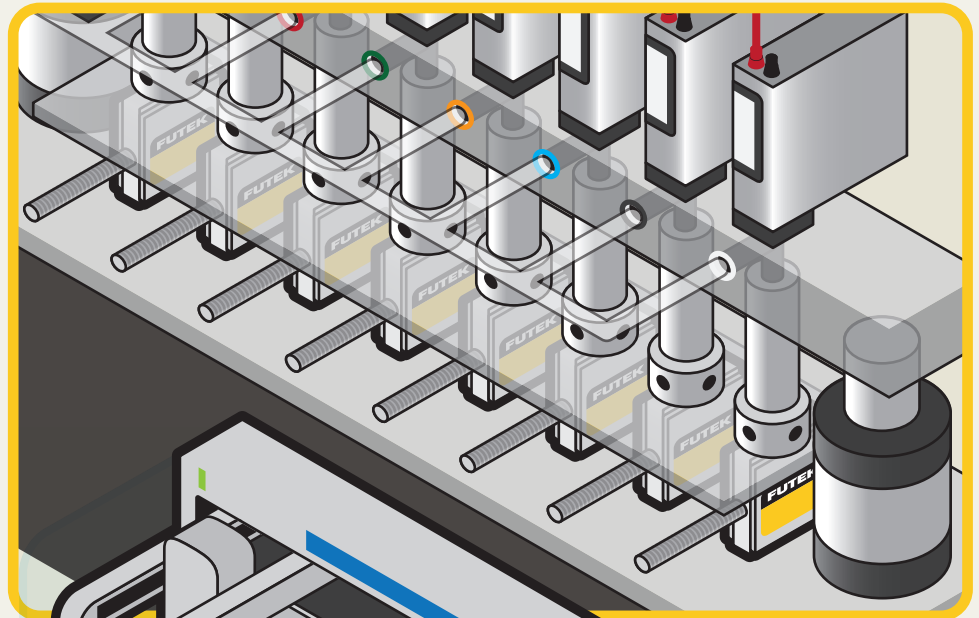


PRODUCTS IN USE

Miniature S-Beam Jr. (LSB200) paired with Instrumentation (USB Solutions or IAA analog amplifier).

APPLICATION SUMMARY

Integration of sensors in Bio-medical applications require high-accuracy, small size and accuracy (in micrograms). In DNA synthesis, bio-medical engineers can utilize FUTEK's LSB200 for its precision and sensitive capacity range.



Amplifier

IAA Series

Data Acquisition

USB Series

One per load cell

USB Hub

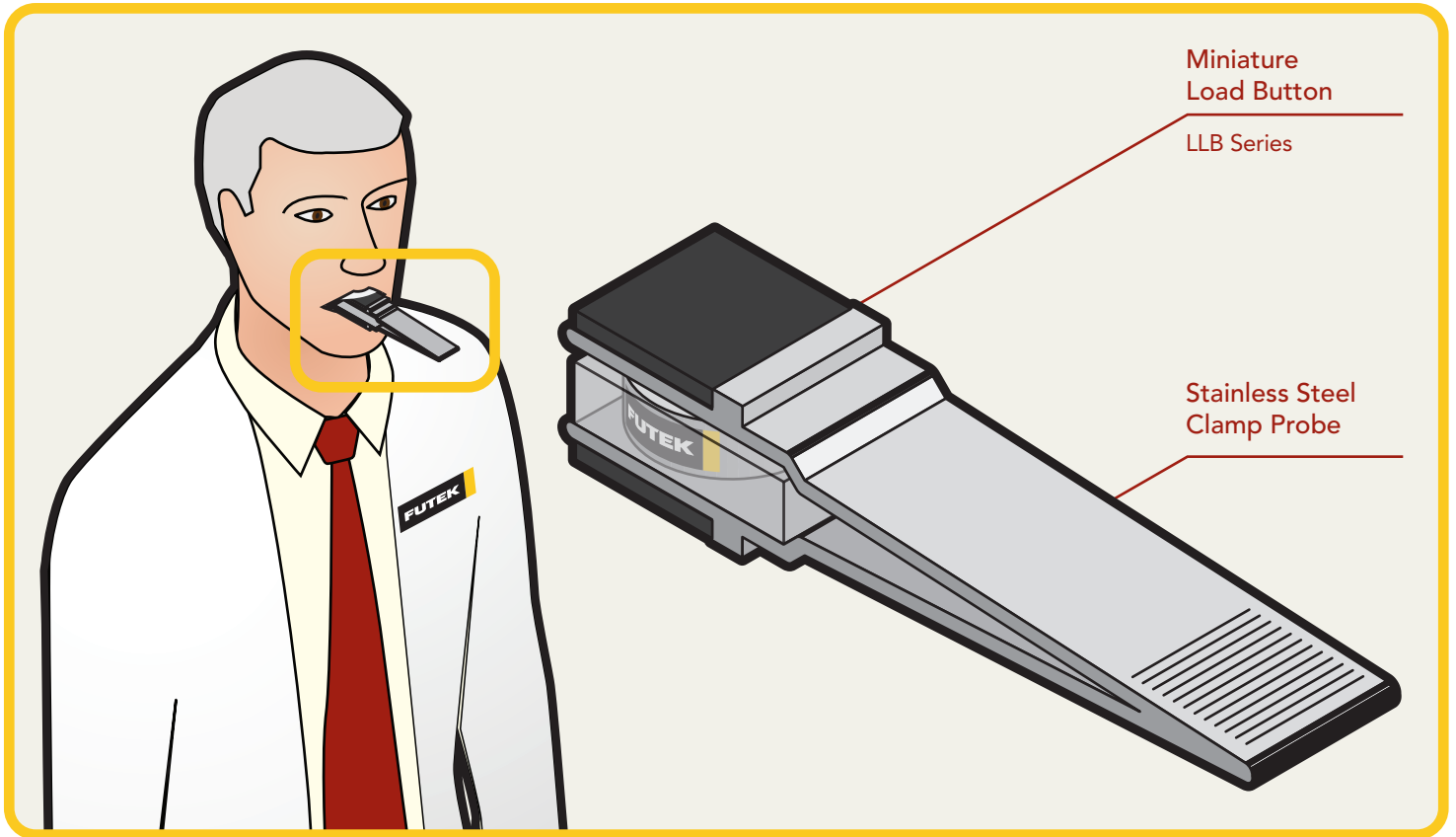
Computer

Sensor Solution Source

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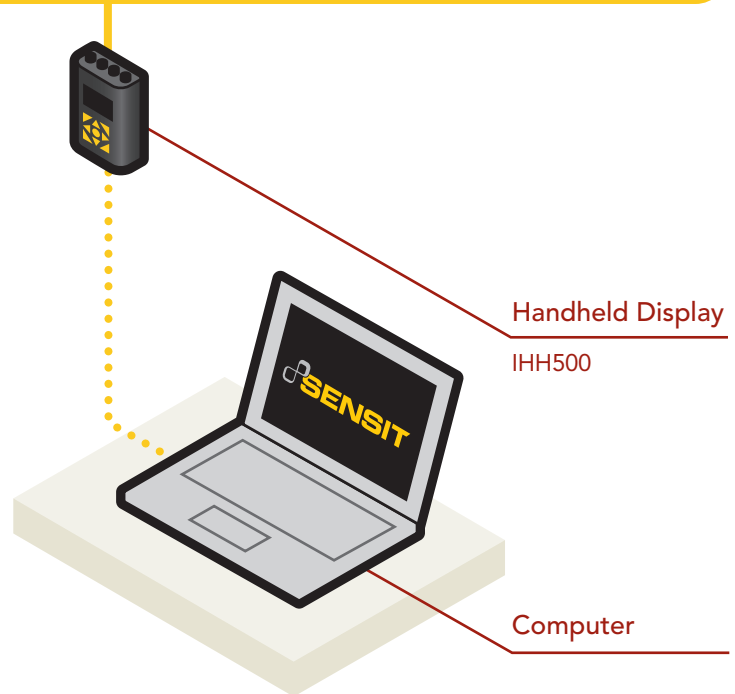


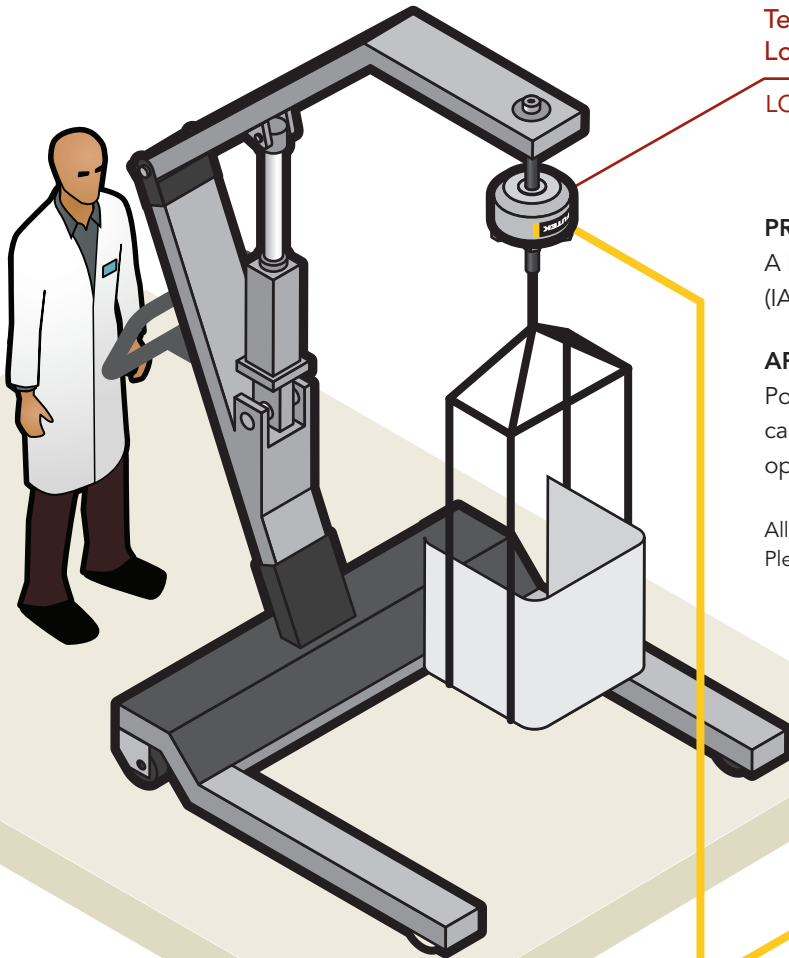
PRODUCTS IN USE

Miniature Load Button Load Cell (LLB Series) paired with FUTEK's Handheld Digital Display (IHH500).

APPLICATION SUMMARY

FUTEK had the opportunity to work along researchers at the University of Amsterdam, Netherlands to develop a miniature load button for their dementia research project . In essence, patients were asked to bite down on a clamp to measure the strength of their bite.





Tension-Based Load Cell

LCF Series

PRODUCTS IN USE

A Pancake Load Cell (LCF Series) paired within Instrumentation (IAA analog amplifier, IPM650, IHH500, USB Solutions).

APPLICATION SUMMARY

Portable crane must performance endurance tests to verify the load capacity of each crane. Using a robust pancake load cell provides operators with these verifications.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

Amplifier
IAA Series

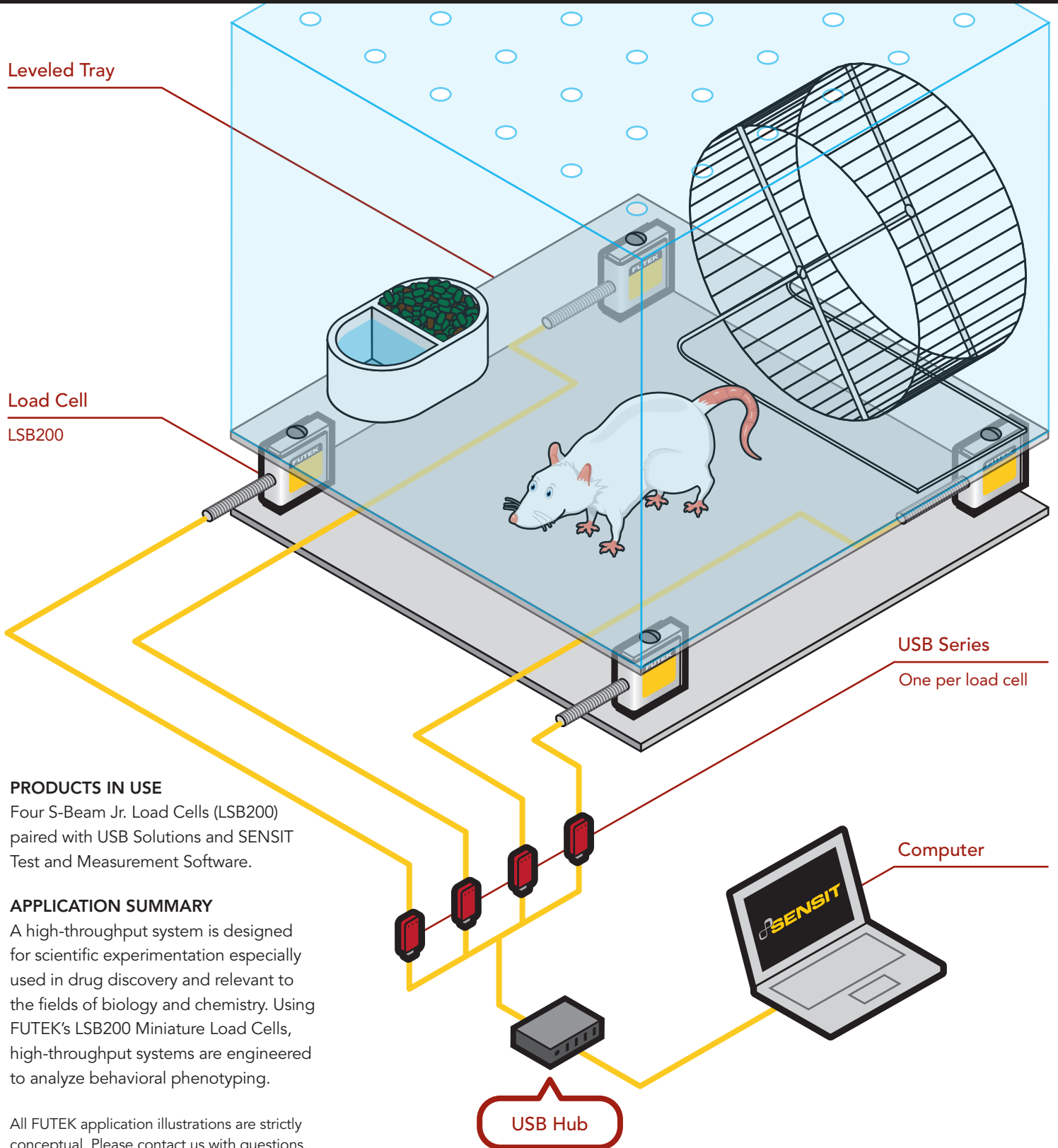
PLC Data Acquisition

USB Series

Handheld Display
IHH500

Digital Display
IPM650

Computer



PRODUCTS IN USE

Four S-Beam Jr. Load Cells (LSB200) paired with USB Solutions and SENSIT Test and Measurement Software.

APPLICATION SUMMARY

A high-throughput system is designed for scientific experimentation especially used in drug discovery and relevant to the fields of biology and chemistry. Using FUTEK's LSB200 Miniature Load Cells, high-throughput systems are engineered to analyze behavioral phenotyping.

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Sensor Solution Source

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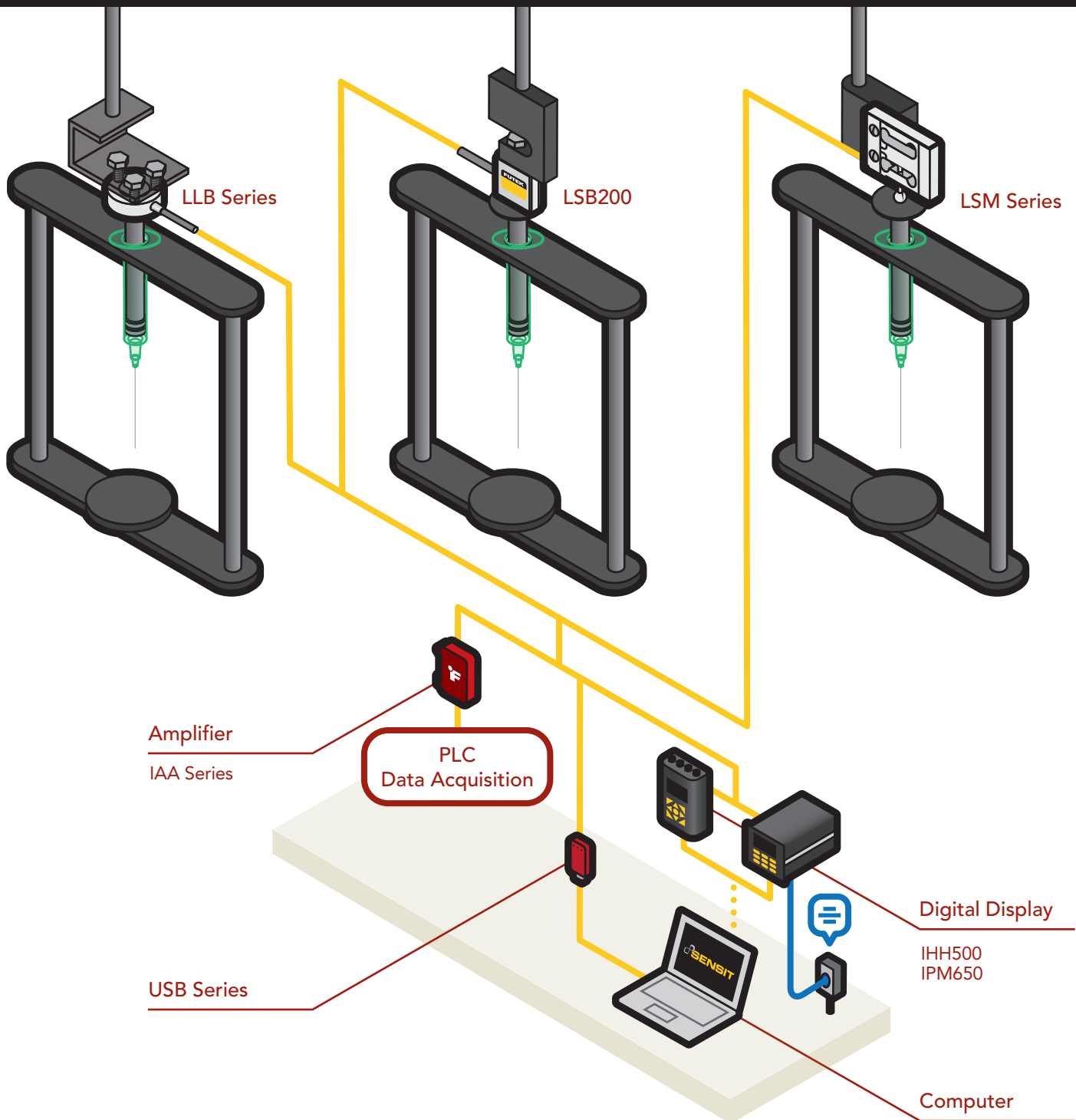
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17025:2005



U.S. Manufacturer

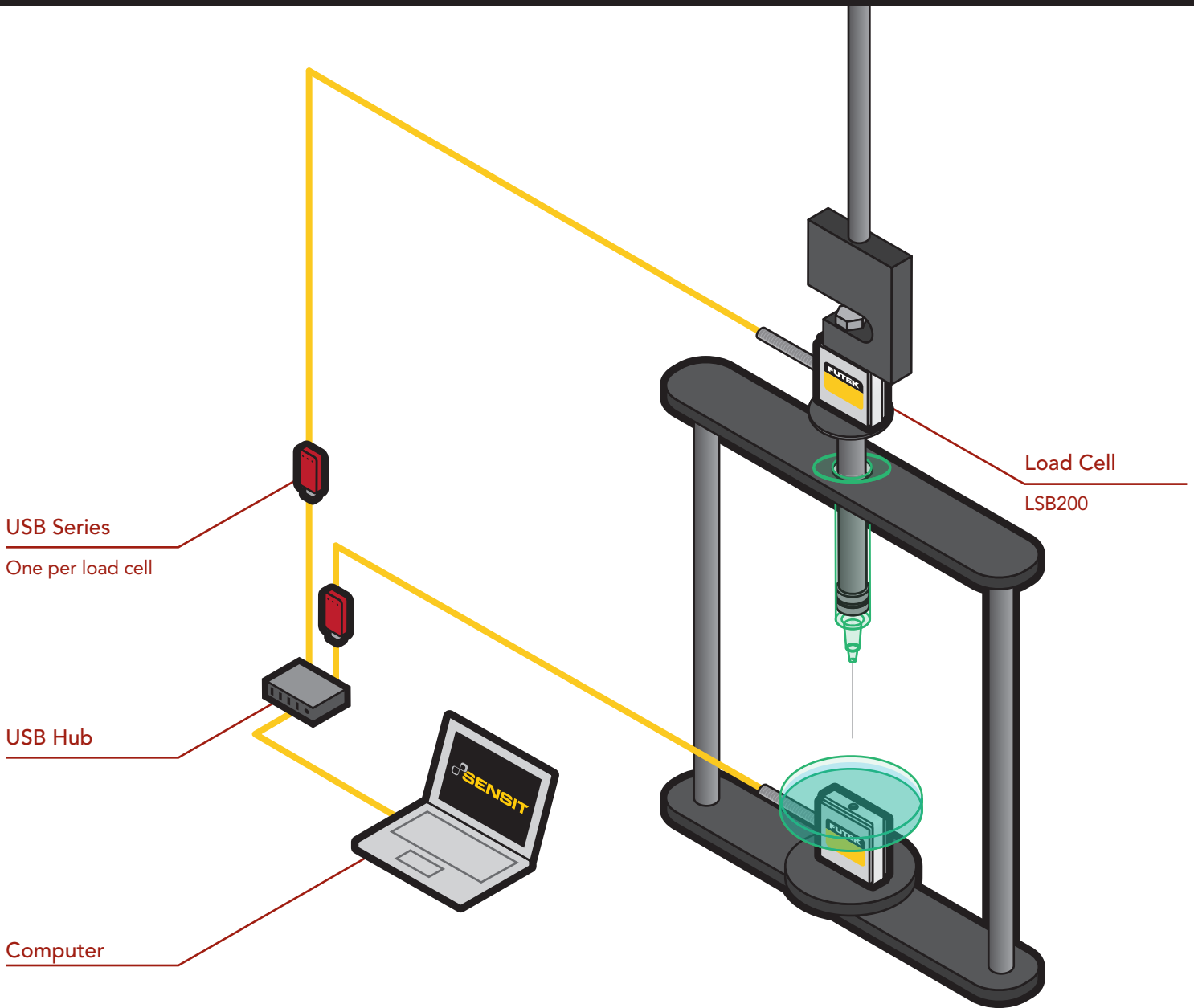


APPLICATION SUMMARY

Utilizing OEM load cells to audit syringes (infusion pumps) provides medical quality inspectors with assurance that these apparatuses will perform up to code.

PRODUCTS IN USE

One S-Beam Jr. Load Cell (LSB200), Side-Mount Series Load Cell (LSM Series), or Load Button Load Cell (LLB Series) paired with Instrumentation (IAA analog amplifier, IPM650, IHH500, or USB Solutions) and SENSIT™ Test and Measurement Software.



All FUTEK application illustrations are strictly conceptual.
Please contact us with questions.

APPLICATION SUMMARY

Medical equipment requires precise testing. Utilizing FUTEK's LSB200 Miniature S-Beam Jr. provides quality inspectors with measurements down to the micro-gram on delicate applications, such as this syringe test stand (infusion pump).

PRODUCTS IN USE

Two S-Beam Jr. Load Cells (LSB200) paired with USB Solutions and SENSIT Test and Measurement Software.

Sensor Solution Source

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U.S. Manufacturer



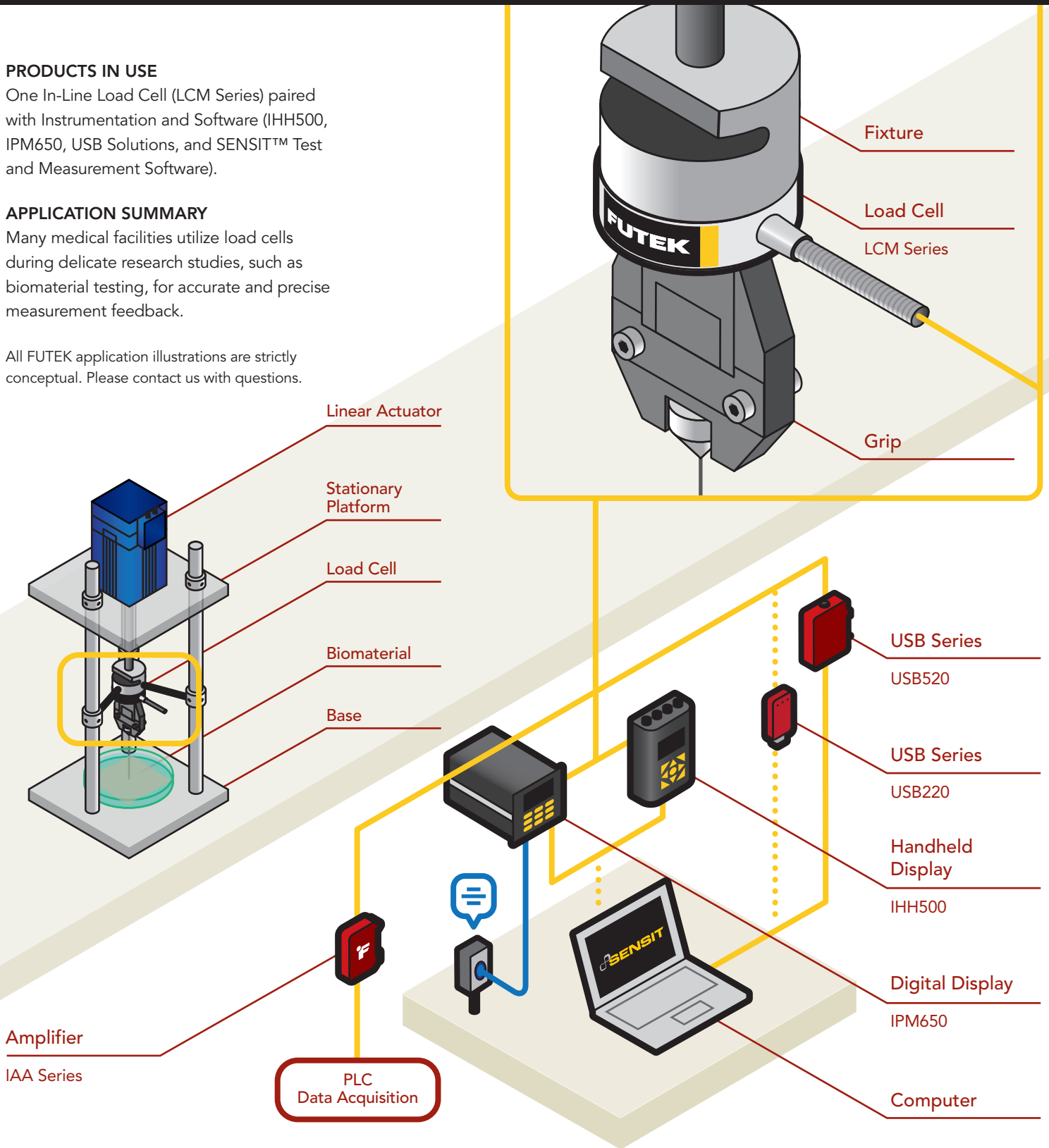
PRODUCTS IN USE

One In-Line Load Cell (LCM Series) paired with Instrumentation and Software (IHH500, IPM650, USB Solutions, and SENSIT™ Test and Measurement Software).

APPLICATION SUMMARY

Many medical facilities utilize load cells during delicate research studies, such as biomaterial testing, for accurate and precise measurement feedback.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



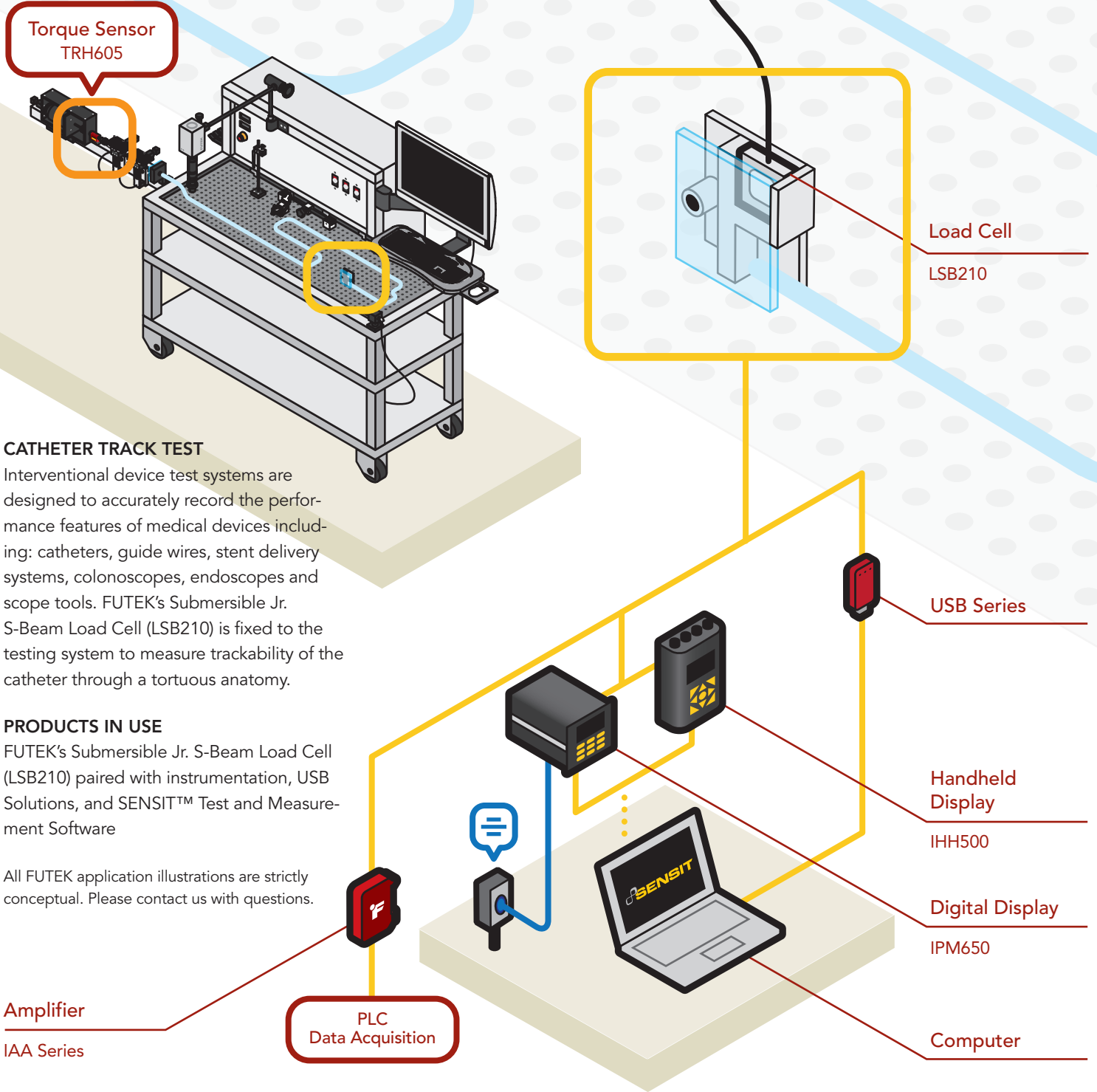
Sensor Solution Source

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CATHETER TRACK TEST

Interventional device test systems are designed to accurately record the performance features of medical devices including: catheters, guide wires, stent delivery systems, colonoscopes, endoscopes and scope tools. FUTEK's Submersible Jr. S-Beam Load Cell (LSB210) is fixed to the testing system to measure trackability of the catheter through a tortuous anatomy.

PRODUCTS IN USE

FUTEK's Submersible Jr. S-Beam Load Cell (LSB210) paired with instrumentation, USB Solutions, and SENSIT™ Test and Measurement Software

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

Amplifier
IAA Series

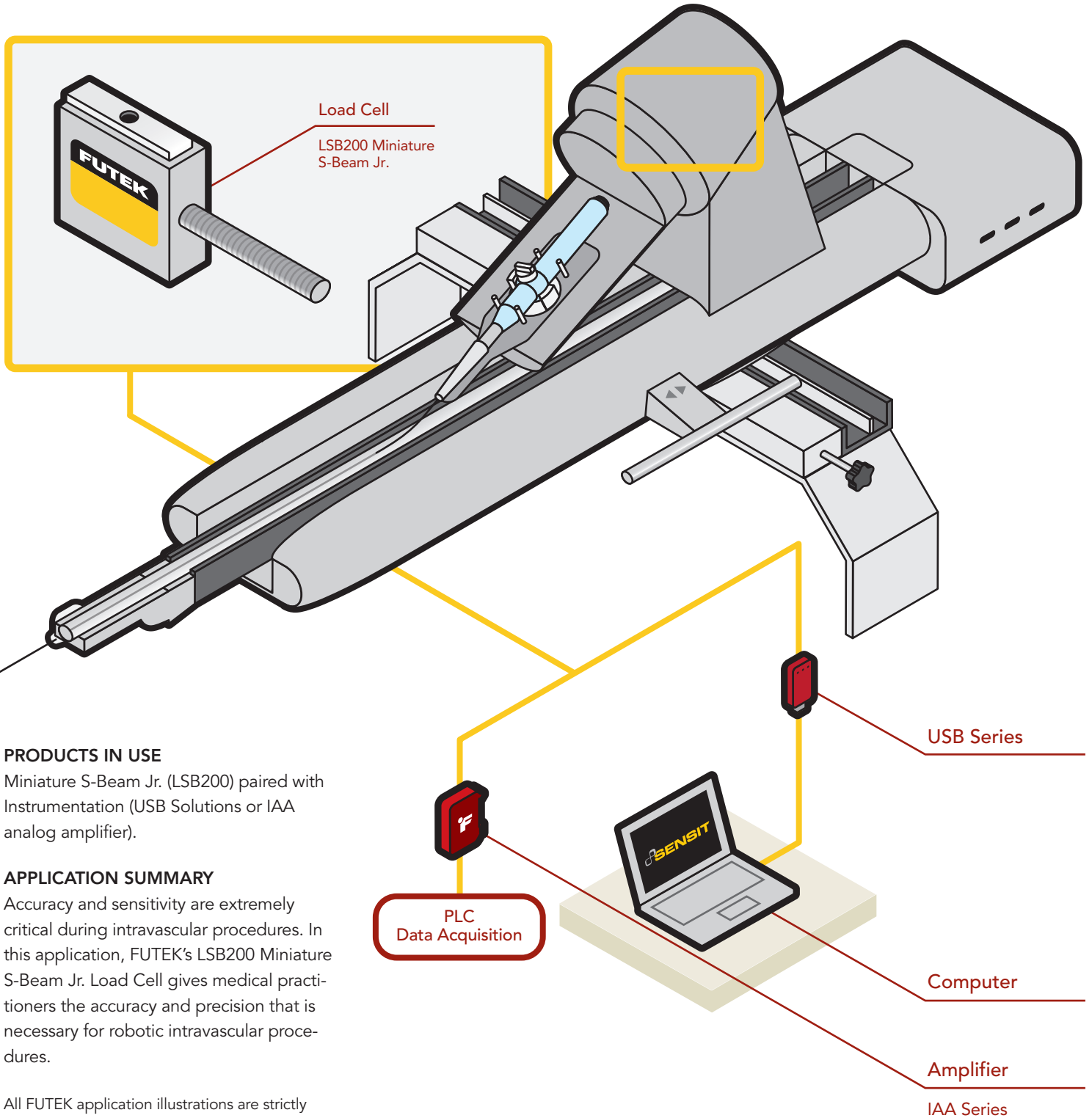
PLC
Data Acquisition

USB Series

Handheld Display
IHH500

Digital Display
IPM650

Computer



PRODUCTS IN USE

Miniature S-Beam Jr. (LSB200) paired with Instrumentation (USB Solutions or IAA analog amplifier).

APPLICATION SUMMARY

Accuracy and sensitivity are extremely critical during intravascular procedures. In this application, FUTEK's LSB200 Miniature S-Beam Jr. Load Cell gives medical practitioners the accuracy and precision that is necessary for robotic intravascular procedures.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

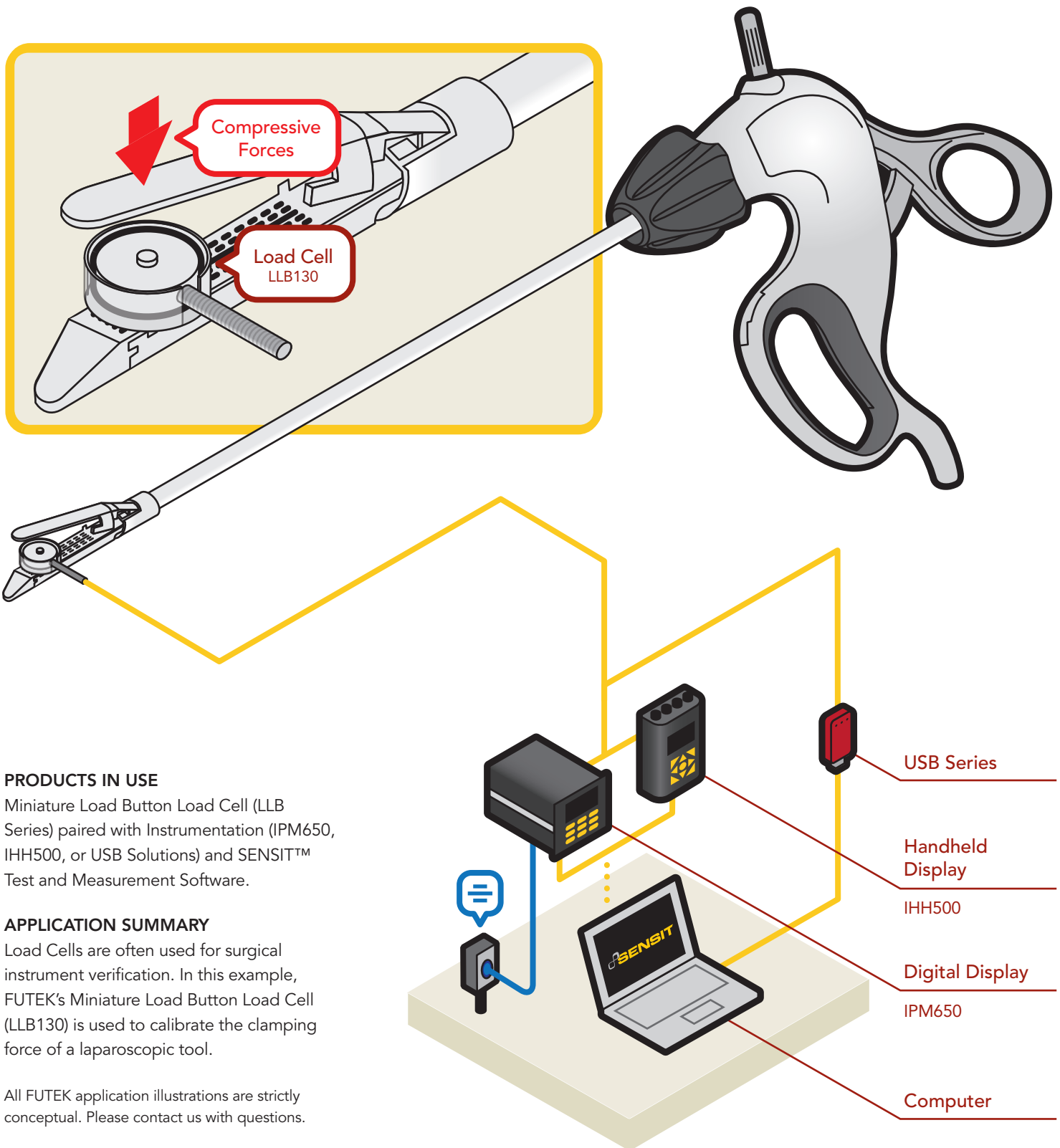
Sensor Solution Source

Load · Torque · Pressure · Multi Axis · Calibration · Instruments · Software

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U.S. Manufacturer



PRODUCTS IN USE

Miniature Load Button Load Cell (LLB Series) paired with Instrumentation (IPM650, IHH500, or USB Solutions) and SENSIT™ Test and Measurement Software.

APPLICATION SUMMARY

Load Cells are often used for surgical instrument verification. In this example, FUTEK's Miniature Load Button Load Cell (LLB130) is used to calibrate the clamping force of a laparoscopic tool.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

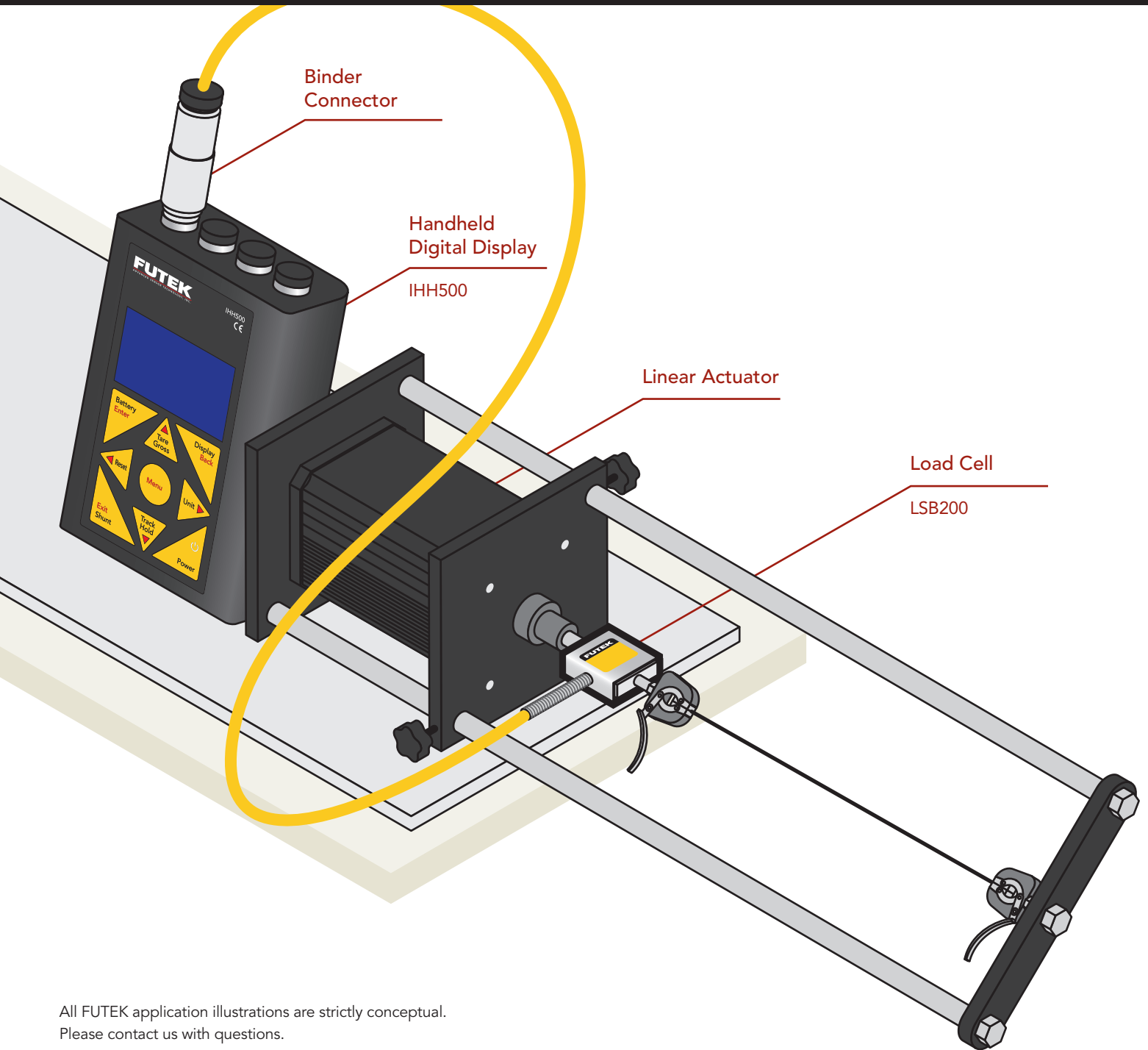
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APPLICATION SUMMARY

In the medical industry, guidewire testing can provide a means of evaluating material quality, and core wire consistency and reliability. In this automated guidewire testing system FUTEK's LSB200 Miniature S-Beam Load Cell is integrated to the wire clamp, guided by an actuator, to record the peak force or breaking force of the guidewire under test.

PRODUCTS IN USE

Miniature S-Beam Jr. (LSB200) paired with Instrumentation (IHH500 or USB Solutions).

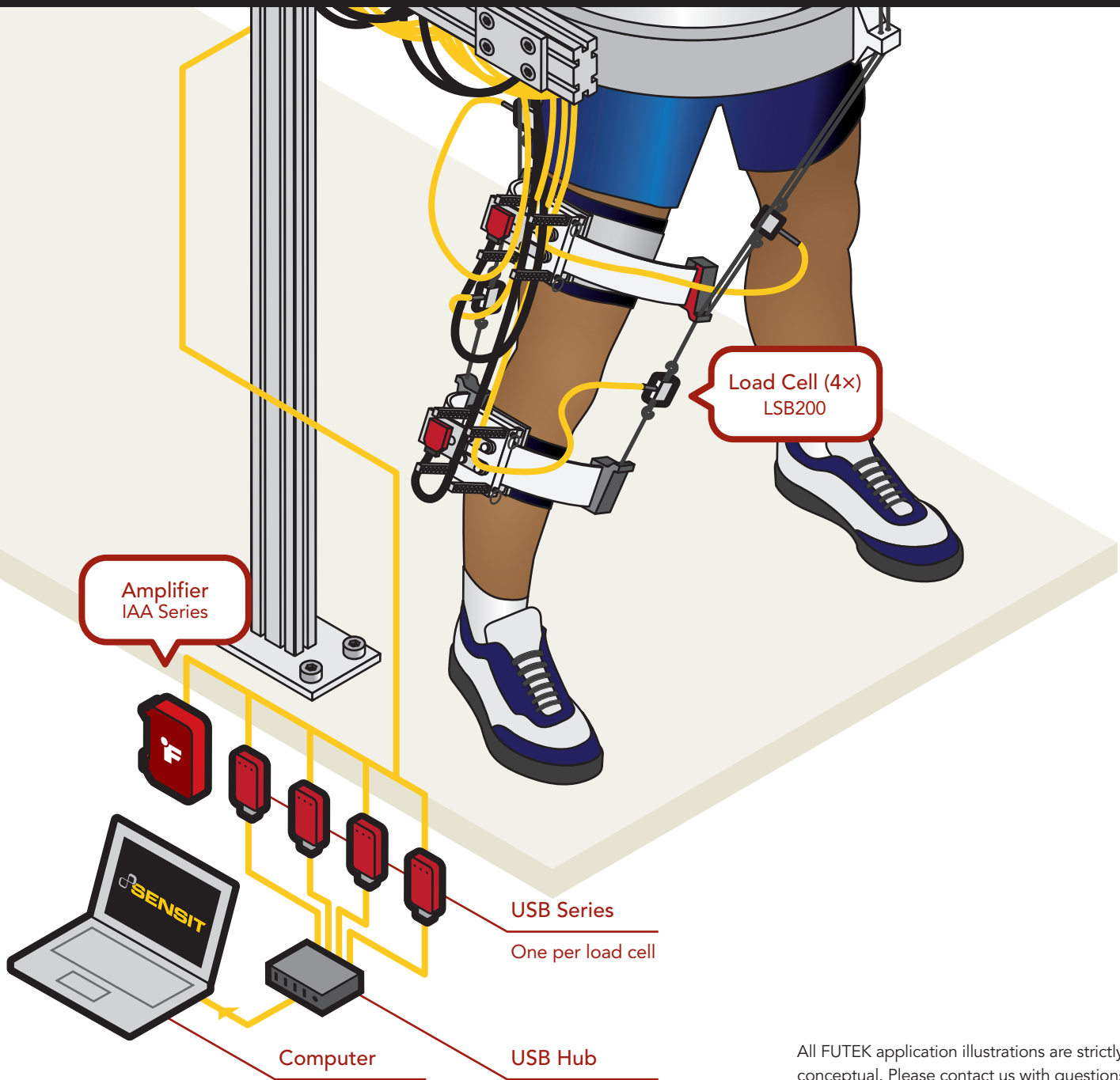
Sensor Solution Source

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U.S. Manufacturer



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APPLICATION SUMMARY

Gait training and rehabilitation are not modern concepts, but through modern technologies, engineers and researchers are working on developing exoskeletons to help rehabilitate a patient at a more accelerated pace. Critical measurements are gathered during development of motor-assisted exoskeletons to ensure that proper assistance is given at different stages of treatment.

PRODUCTS IN USE

JR S-Beam Load Cell (LSB200) paired with instrumentation (USB220 and IAA Series analog amplifiers).

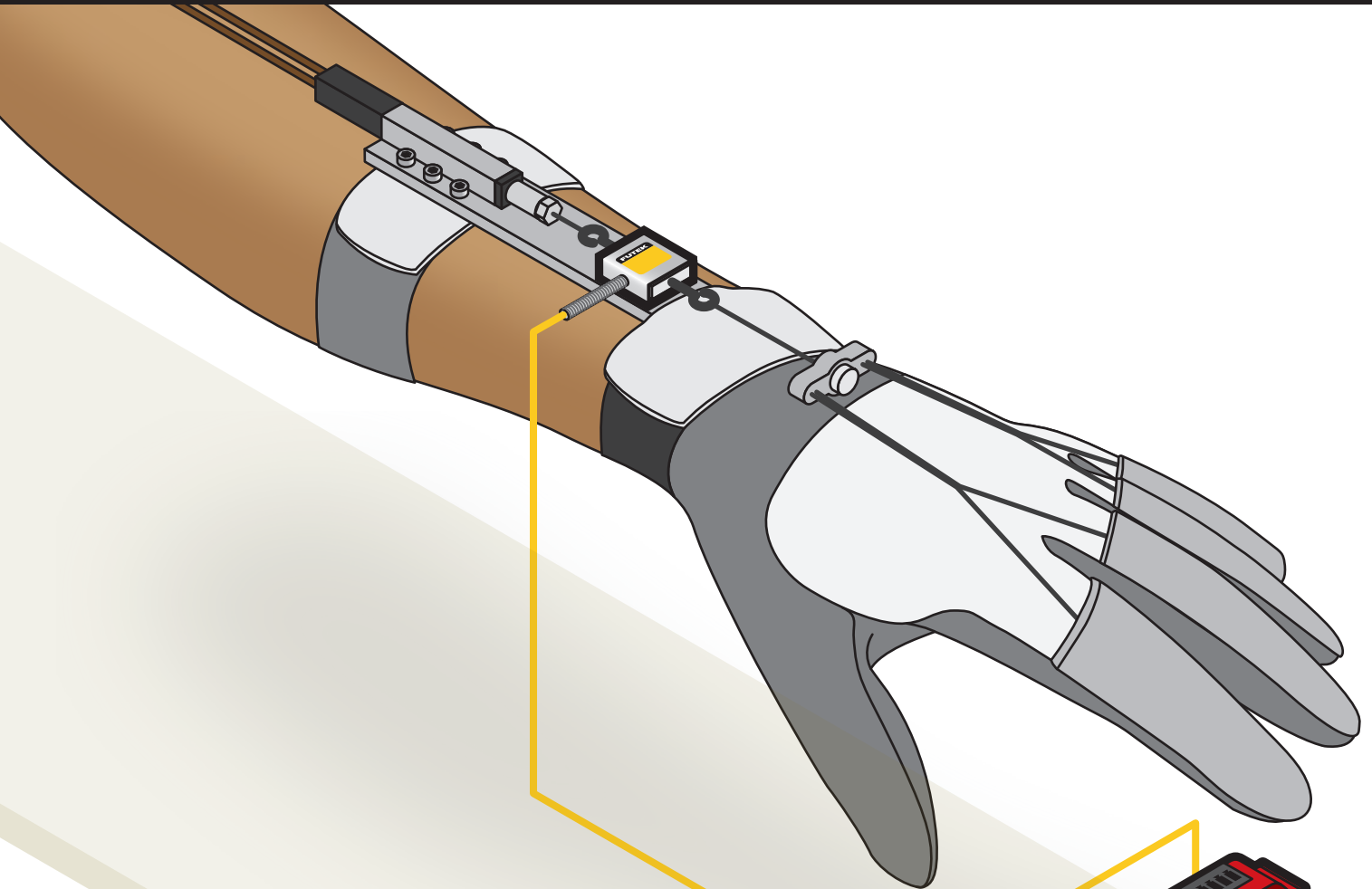
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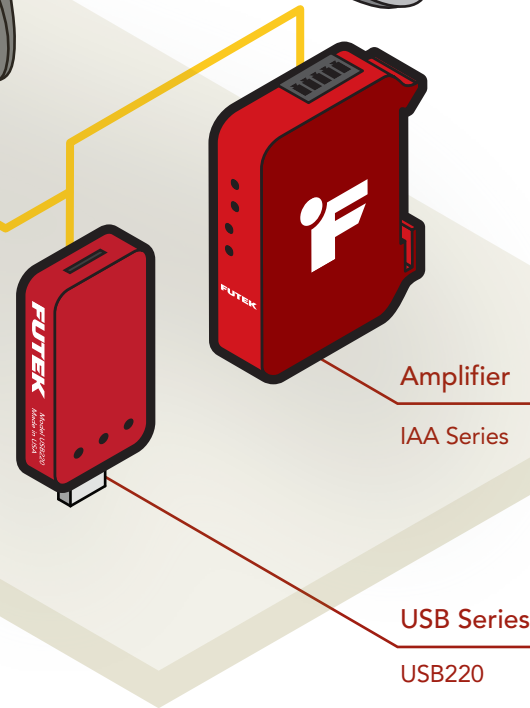
APPLICATION SUMMARY

Researchers, doctors, and engineers are creating ways to help patients speed up rehabilitation by allowing them to perform more tasks on their own, with the assistance of specially made bionics. The LSB200 load cell is small enough to mount to the cabling of the glove, in order to measure the forces on the simulated tendons on the hand.

PRODUCTS IN USE

JR S-Beam Load Cell (LSB200) paired with instrumentation (USB220 and IAA Series analog amplifiers).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



Sensor Solution Source

Load · Torque · Pressure · Multi Axis · Calibration · Instruments · Software

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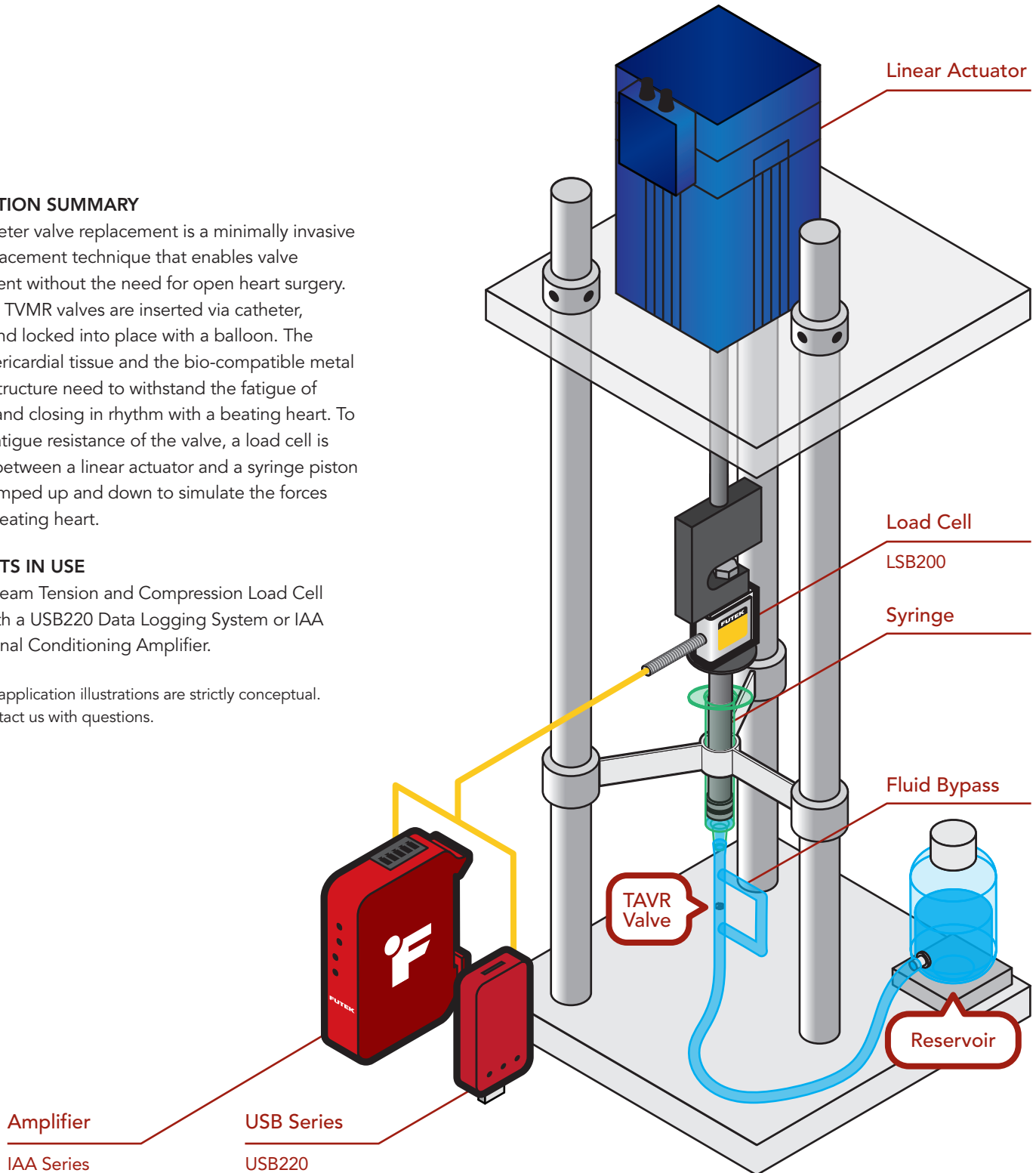
APPLICATION SUMMARY

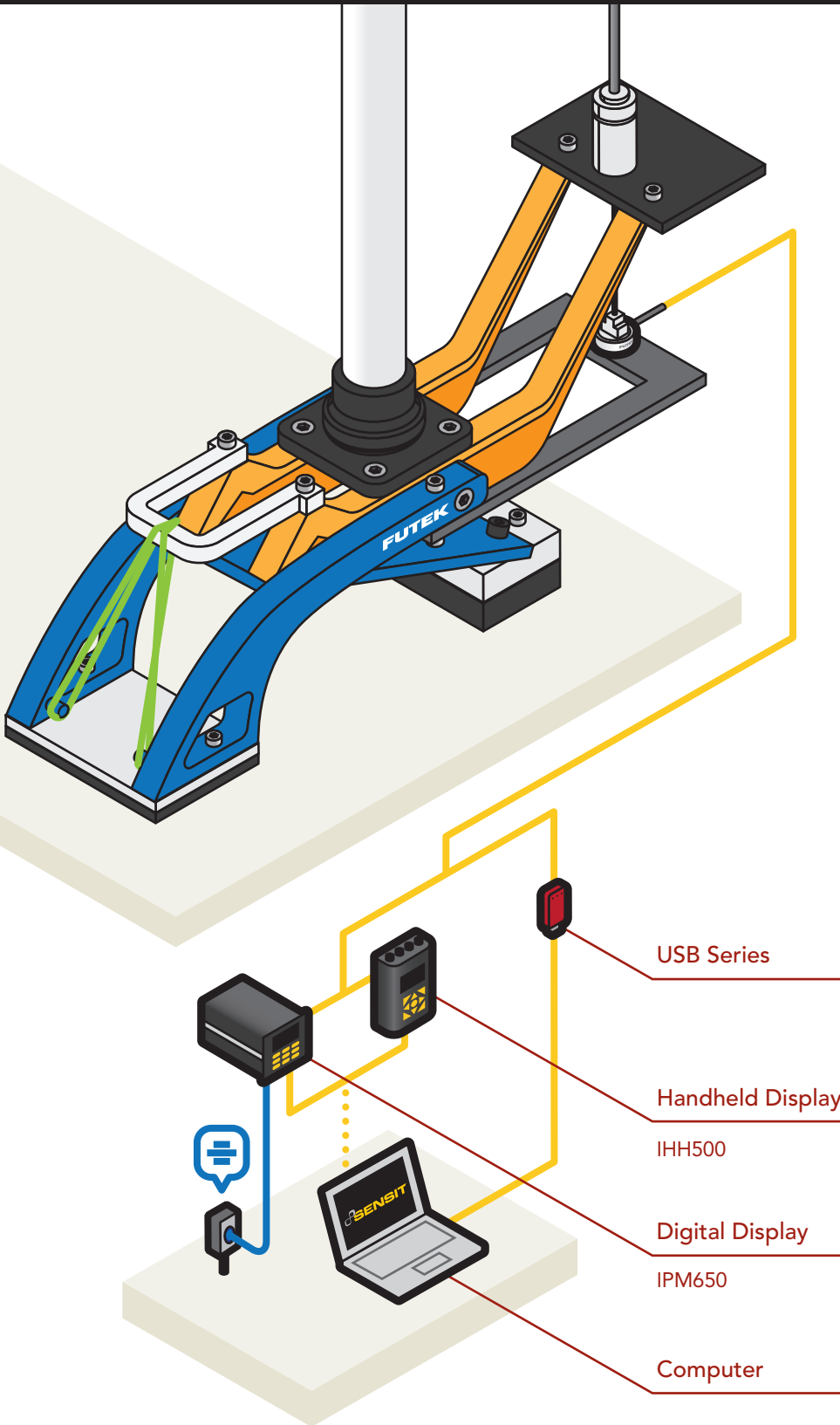
Transcatheter valve replacement is a minimally invasive valve replacement technique that enables valve replacement without the need for open heart surgery. TAVR and TVMR valves are inserted via catheter, inflated and locked into place with a balloon. The bovine pericardial tissue and the bio-compatible metal support structure need to withstand the fatigue of opening and closing in rhythm with a beating heart. To test the fatigue resistance of the valve, a load cell is coupled between a linear actuator and a syringe piston that is pumped up and down to simulate the forces inside a beating heart.

PRODUCTS IN USE

1 LSB S-Beam Tension and Compression Load Cell paired with a USB220 Data Logging System or IAA Series Signal Conditioning Amplifier.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.





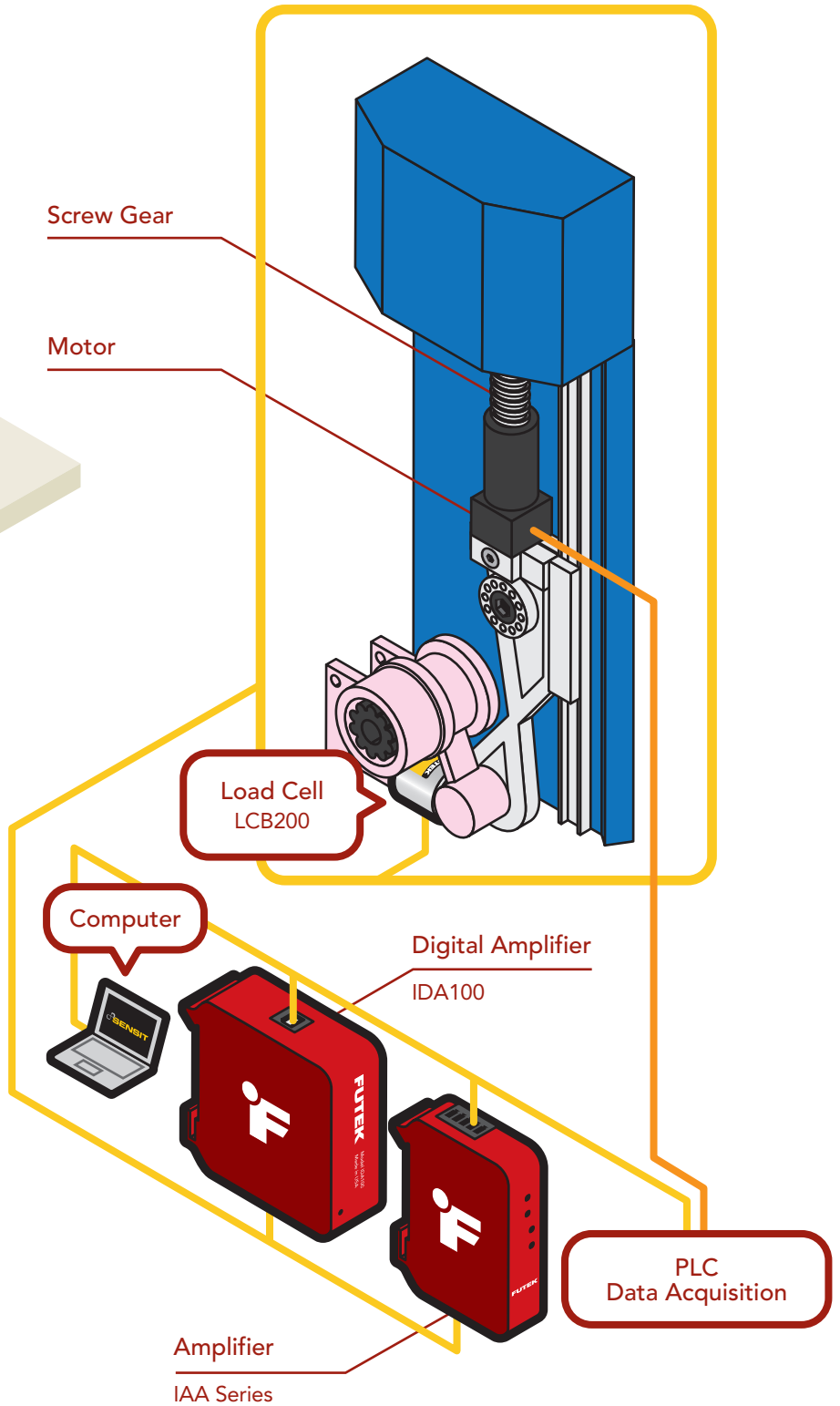
APPLICATION SUMMARY

For individuals who have lost part or all of a limb, rehabilitation is always a difficult process. For those who have undergone trans-tibial amputation, their prosthesis needs to mimic the tibia, ankle, and foot. FUTEK worked with Humotech in selecting a sensor for a trans-tibial prosthesis that could adapt to an individual's gait during rehabilitation. By mounting our LCM200 Miniature Threaded In-Line Load Cell in-line with a servo-driven cable system, Humotech was able to create a closed-loop system that adapts to the patient's gait for a speedier recovery and rehabilitation.

PRODUCTS IN USE

1 FUTEK LCM200 Miniature Threaded In-Line Load Cell paired with IDA100 Digitally Configurable Amplifier.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



APPLICATION SUMMARY

Spinal cord injuries (SCI) often leave the patient with little to no ability to ever walk again. The Institute for Human and Machine Cognition (IHMC) aimed to help solve that with a powered bionic exoskeleton at the 2016 Cybathlon in Zurich, Switzerland. Their ingenious exoskeleton suit, named Mina v2, utilizes power actuators that strap to an individual's legs, moving their hip, knee, and ankle joints, allowing an individual to walk unassisted. FUTEK sponsored their exoskeleton by providing our LCB200 load cells, which were installed in specialized fixtures IHMC designed, enabling the system to receive accurate force feedback from the motors and closing the control loop, all while allowing the sensor to safely rotate.

PRODUCTS IN USE

6 FUTEK LCB200 In Line Rod End Tension and Compression Load Cells paired with amplifiers (IAA series and IDA100)

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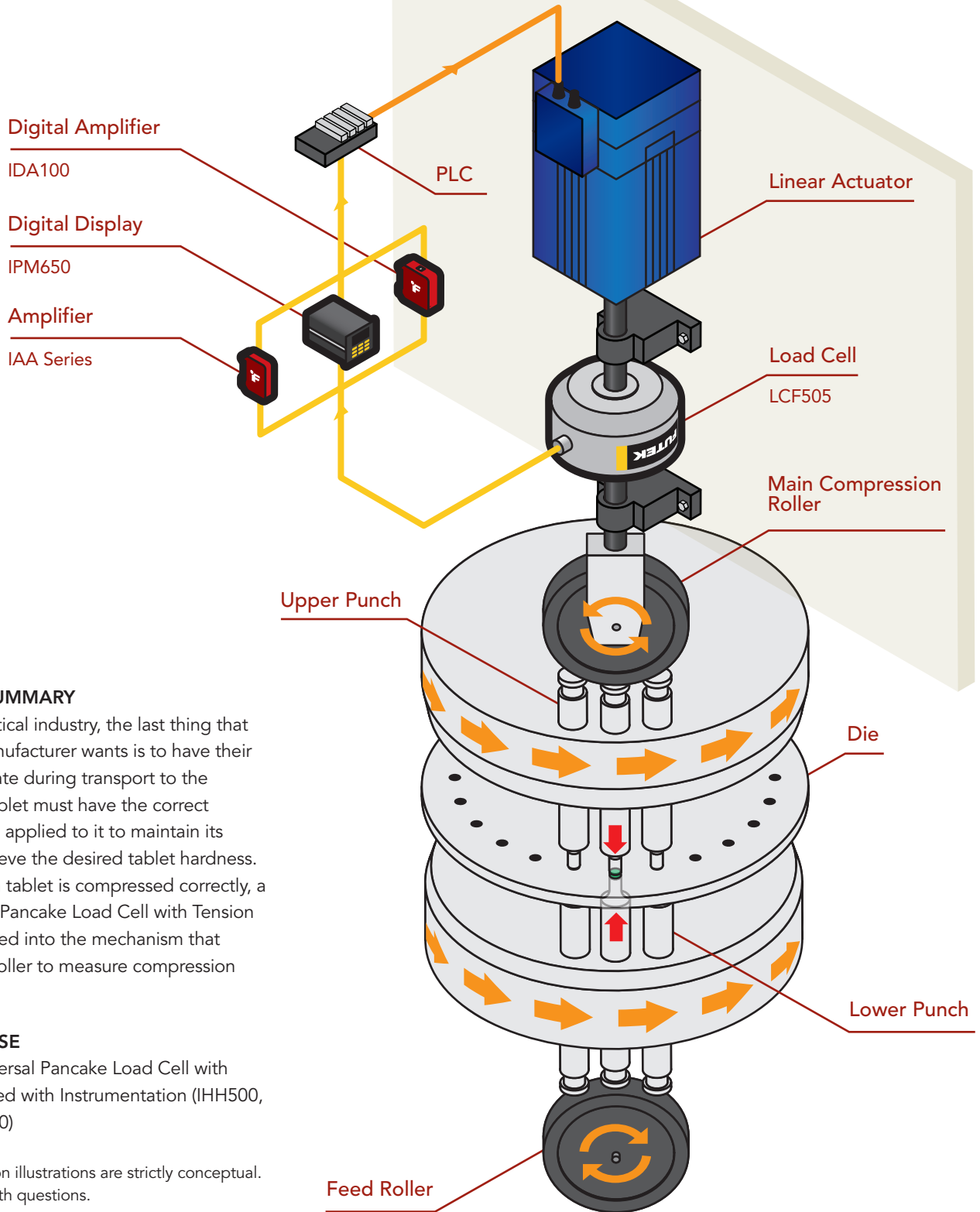
Sensor Solution Source

Load · Torque · Pressure · Multi Axis · Calibration · Instruments · Software

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U.S. Manufacturer



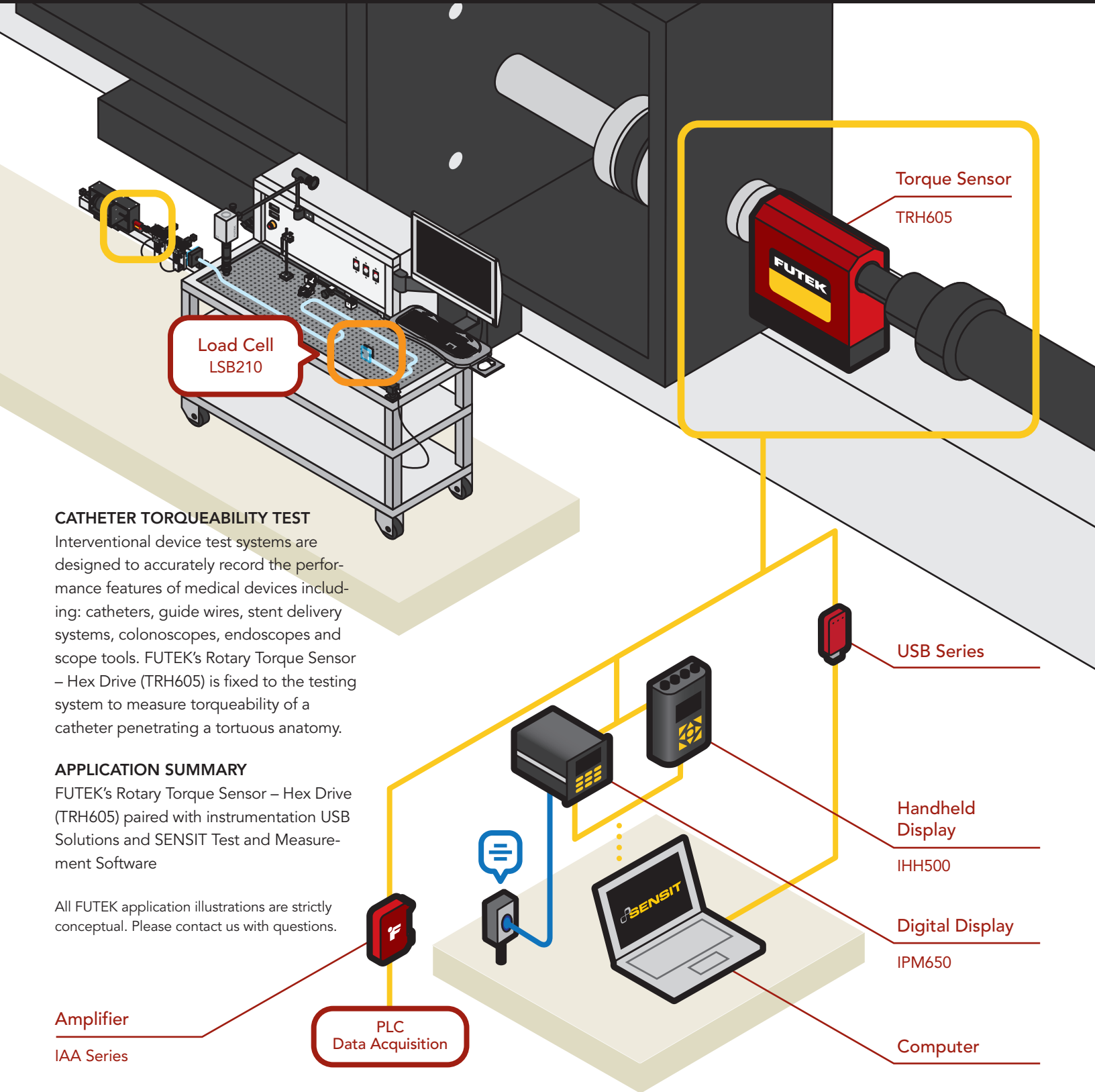
APPLICATION SUMMARY

In the pharmaceutical industry, the last thing that any tablet/pill manufacturer wants is to have their product disintegrate during transport to the customer. Each tablet must have the correct compressive force applied to it to maintain its structure and achieve the desired tablet hardness. To verify that each tablet is compressed correctly, a LCF505 Universal Pancake Load Cell with Tension Base is incorporated into the mechanism that adjusts the main roller to measure compression force.

PRODUCTS IN USE

One LCF505 Universal Pancake Load Cell with Tension Base paired with Instrumentation (IHH500, IPM650, or IDA100)

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



Torque Sensor
TRH605

Load Cell
LSB210

CATHETER TORQUEABILITY TEST

Interventional device test systems are designed to accurately record the performance features of medical devices including: catheters, guide wires, stent delivery systems, colonoscopes, endoscopes and scope tools. FUTEK's Rotary Torque Sensor – Hex Drive (TRH605) is fixed to the testing system to measure torqueability of a catheter penetrating a tortuous anatomy.

APPLICATION SUMMARY

FUTEK's Rotary Torque Sensor – Hex Drive (TRH605) paired with instrumentation USB Solutions and SENSIT Test and Measurement Software

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

Amplifier
IAA Series

PLC
Data Acquisition

USB Series

Handheld
Display
IHH500

Digital Display
IPM650

Computer



Aerospace & Defense

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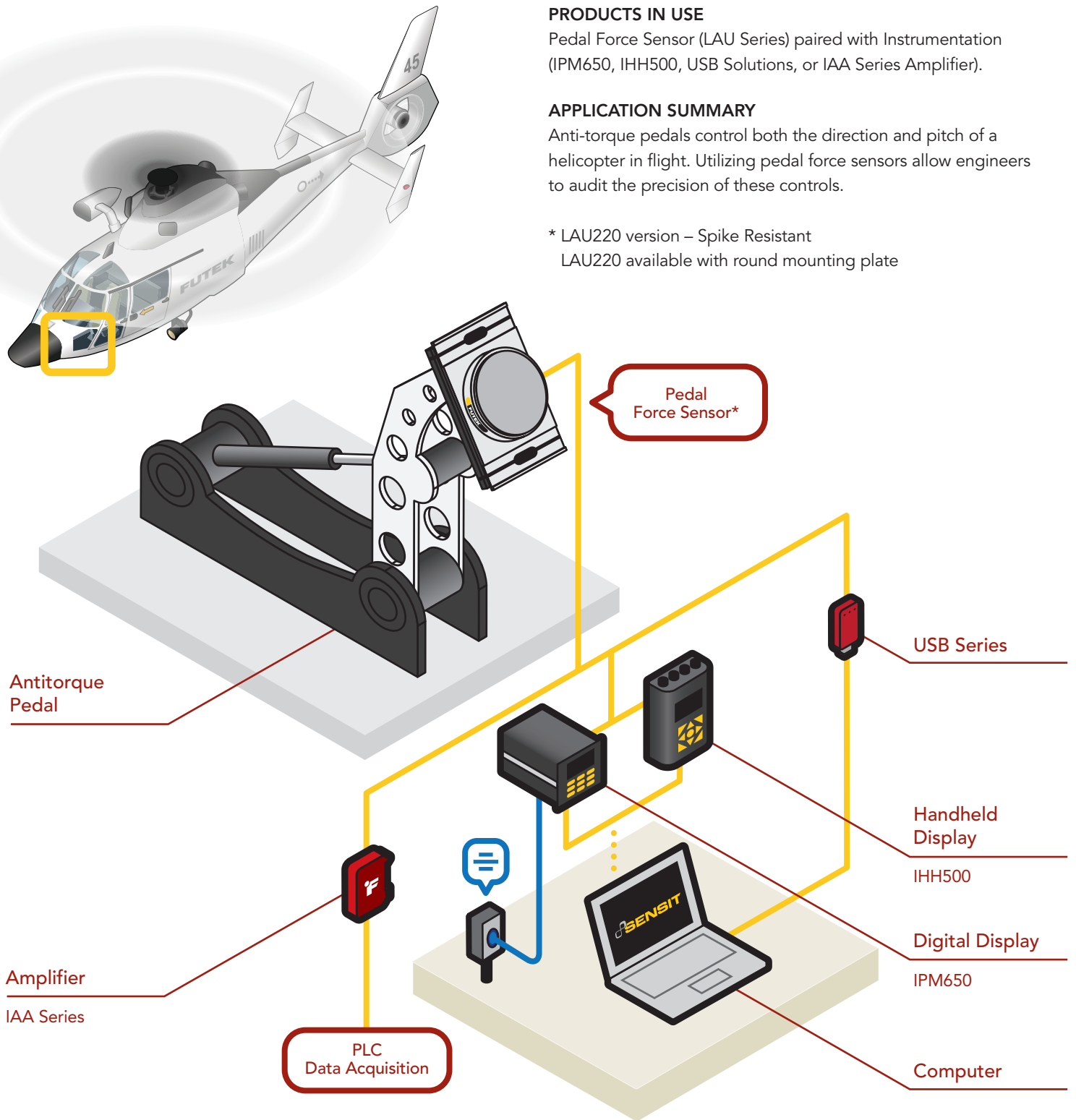
PRODUCTS IN USE

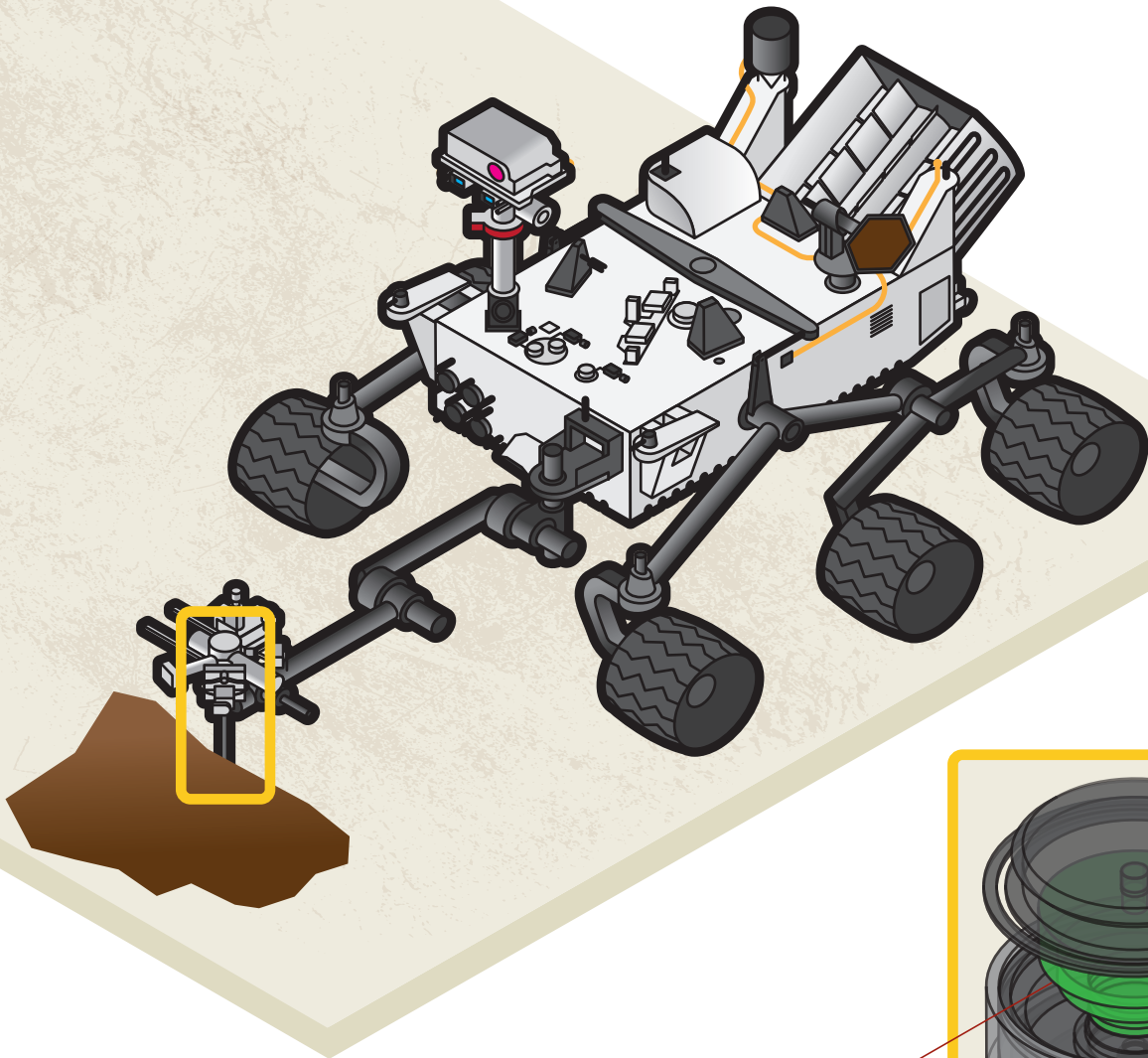
Pedal Force Sensor (LAU Series) paired with Instrumentation (IPM650, IHH500, USB Solutions, or IAA Series Amplifier).

APPLICATION SUMMARY

Anti-torque pedals control both the direction and pitch of a helicopter in flight. Utilizing pedal force sensors allow engineers to audit the precision of these controls.

* LAU220 version – Spike Resistant
LAU220 available with round mounting plate





PRODUCTS IN USE

NASA JPL space/flight qualified cryogenic dualbridge donut load cell and a space/flight qualified cryogenic 3-component multi-axial sensor.

APPLICATION SUMMARY

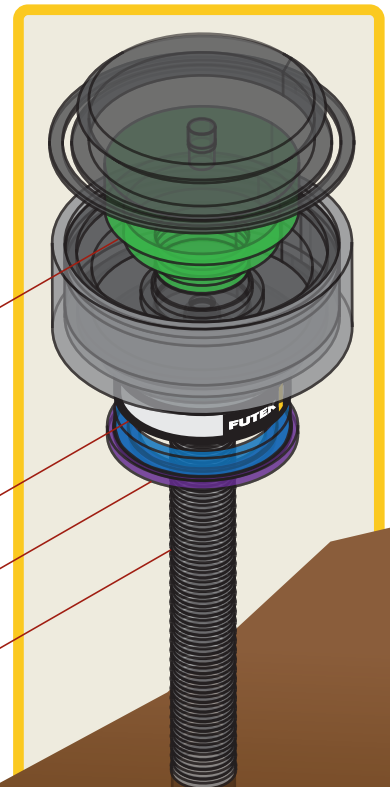
FUTEK developed two cryogenic sensors to operate aboard the rover. The donut load cell directly operates within *Curiosity's* drilling arm. It stands responsible to monitor the drill bit's force as it pierces into the Martian ground. The multi-axial load and torque sensor is responsible for the maneuvers of the robotic arm. Both of these sensors were specifically designed for the Mars Rover *Curiosity* mission.

DTM Actuator

Cryogenic Load Cell

Gimbal Assembly

Ball Screw



Sensor Solution Source

Load Cells · Pressure Sensors · Torque Sensors · Instruments · Software

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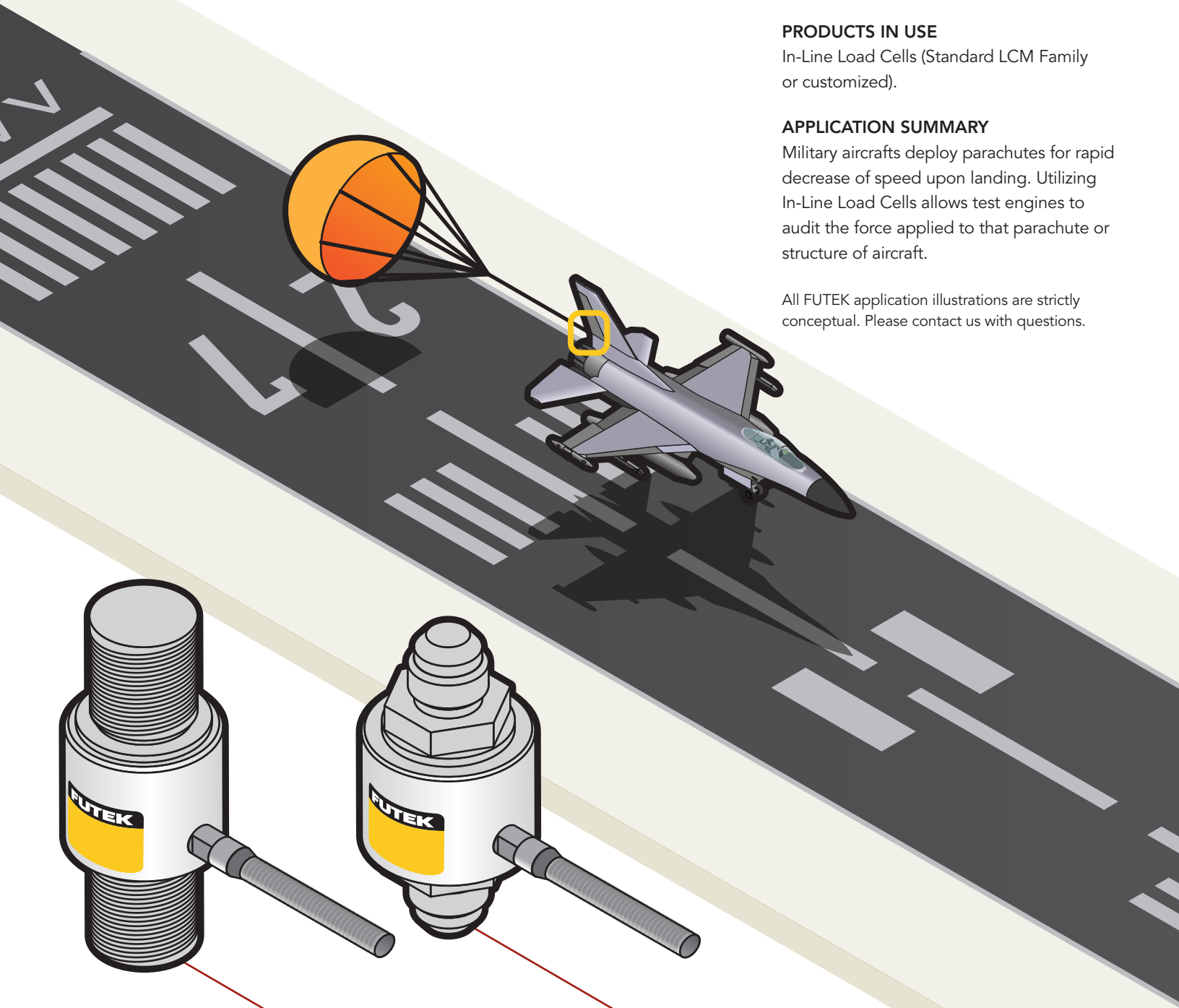
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17025:2005



U.S. Manufacturer



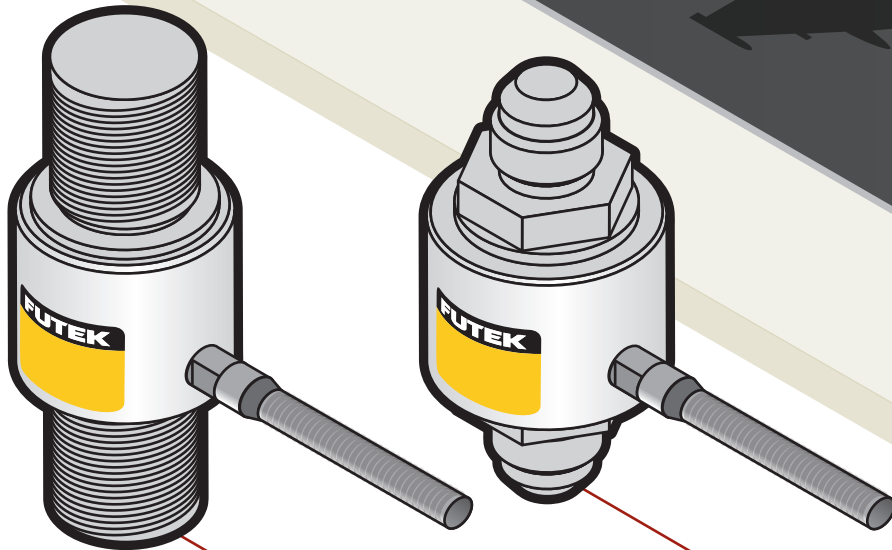
PRODUCTS IN USE

In-Line Load Cells (Standard LCM Family or customized).

APPLICATION SUMMARY

Military aircrafts deploy parachutes for rapid decrease of speed upon landing. Utilizing In-Line Load Cells allows test engines to audit the force applied to that parachute or structure of aircraft.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



Miniature Inline Threaded Tension and Compression Load Cell

LCM Series

Miniature Inline Threaded Load Cell

QLA317



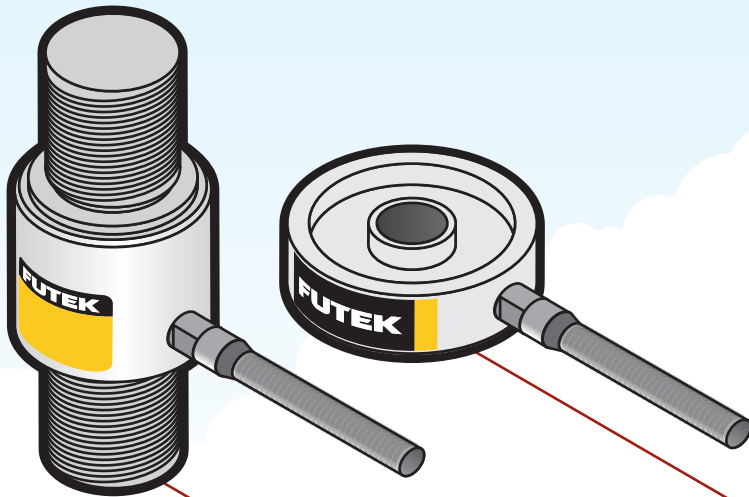
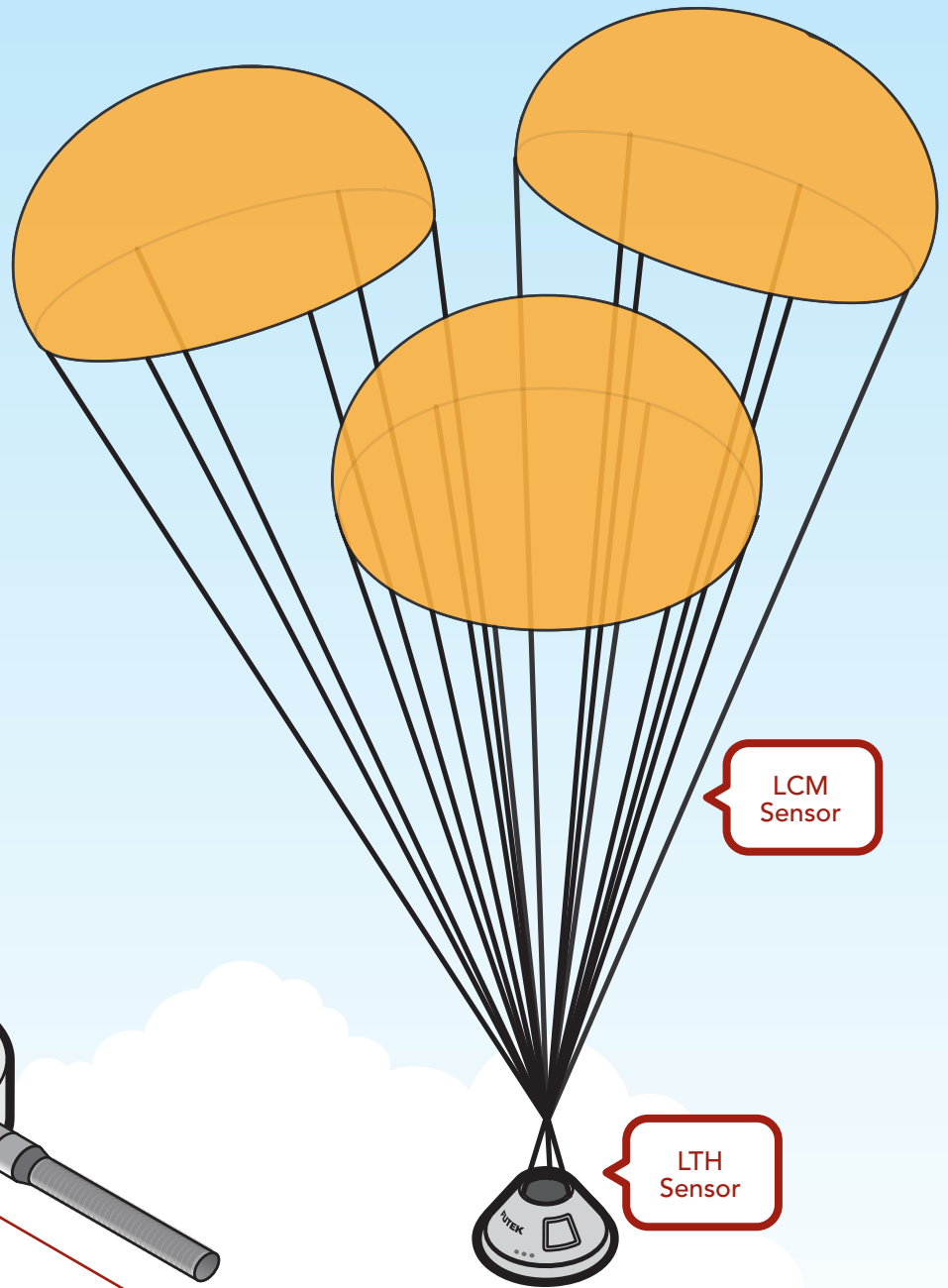
PRODUCTS IN USE

In-Line Load Cells (LCM Family) or
Thru-Hole/Donut Load Cells (LTH Family).

APPLICATION SUMMARY

Aerospace parachute deployment mechanisms require high precision load cells throughout the testing phase. NASA's Orion capsule utilized FUTEK load cells to measure the force of the payload applied against the parachute system.

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Miniature Inline
Threaded Tension
and Compression
Load Cell

LCM Series

Donut Load Cell

LTH Series



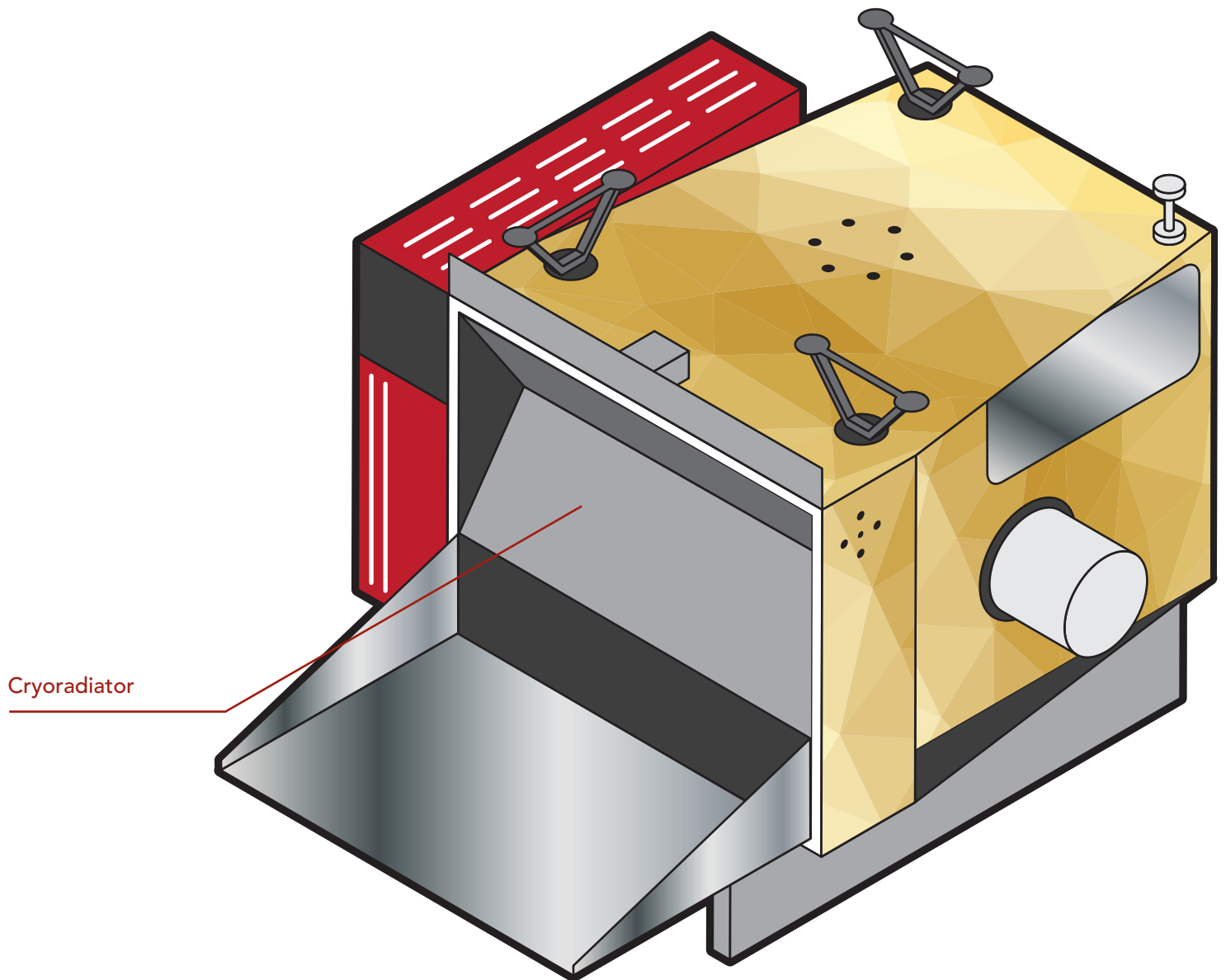
PRODUCTS IN USE

FUTEK designed two cryogenic load cells able to operate within the cryoradiator of the VIIRS component at the extreme temperature of -300°F (-184°C).

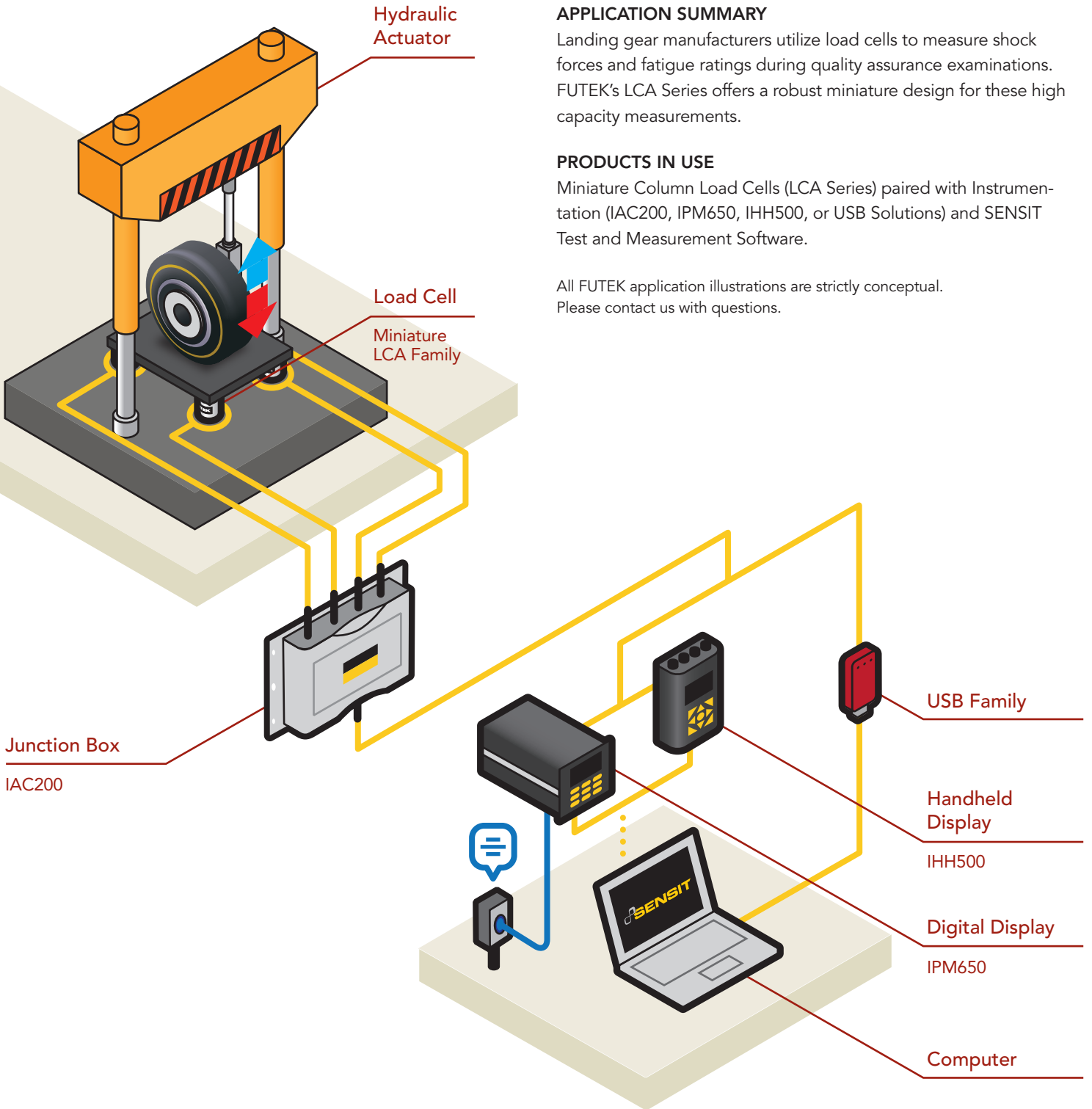
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Please contact us with questions.

APPLICATION SUMMARY

Within NASA's Suomi NPP Satellite are five weather instruments. Commissioned by Raytheon, FUTEK designed two cryogenic load cells for the Visible Infrared Imager Radiometer Suite (VIIRS) aboard the satellite.



Cryoradiator



APPLICATION SUMMARY

Landing gear manufacturers utilize load cells to measure shock forces and fatigue ratings during quality assurance examinations. FUTEK's LCA Series offers a robust miniature design for these high capacity measurements.

PRODUCTS IN USE

Miniature Column Load Cells (LCA Series) paired with Instrumentation (IAC200, IPM650, IHH500, or USB Solutions) and SENSIT Test and Measurement Software.

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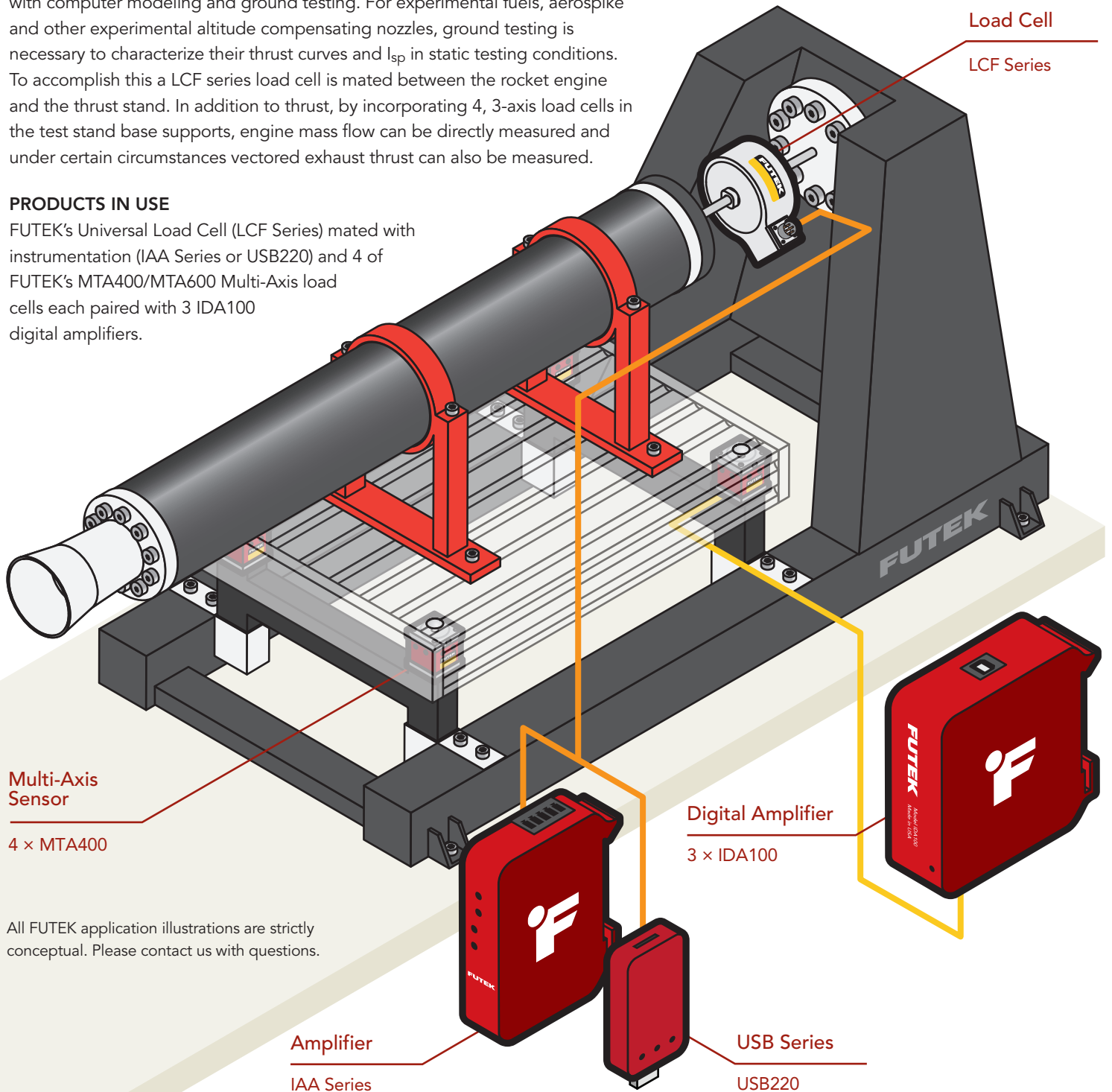


APPLICATION SUMMARY

Characterization of solid, liquid, and hybrid rocket engines is often performed with computer modeling and ground testing. For experimental fuels, aerospike and other experimental altitude compensating nozzles, ground testing is necessary to characterize their thrust curves and I_{sp} in static testing conditions. To accomplish this a LCF series load cell is mated between the rocket engine and the thrust stand. In addition to thrust, by incorporating 4, 3-axis load cells in the test stand base supports, engine mass flow can be directly measured and under certain circumstances vectored exhaust thrust can also be measured.

PRODUCTS IN USE

FUTEK's Universal Load Cell (LCF Series) mated with instrumentation (IAA Series or USB220) and 4 of FUTEK's MTA400/MTA600 Multi-Axis load cells each paired with 3 IDA100 digital amplifiers.



Multi-Axis Sensor

4 × MTA400

Load Cell

LCF Series

Digital Amplifier

3 × IDA100

Amplifier

IAA Series

USB Series

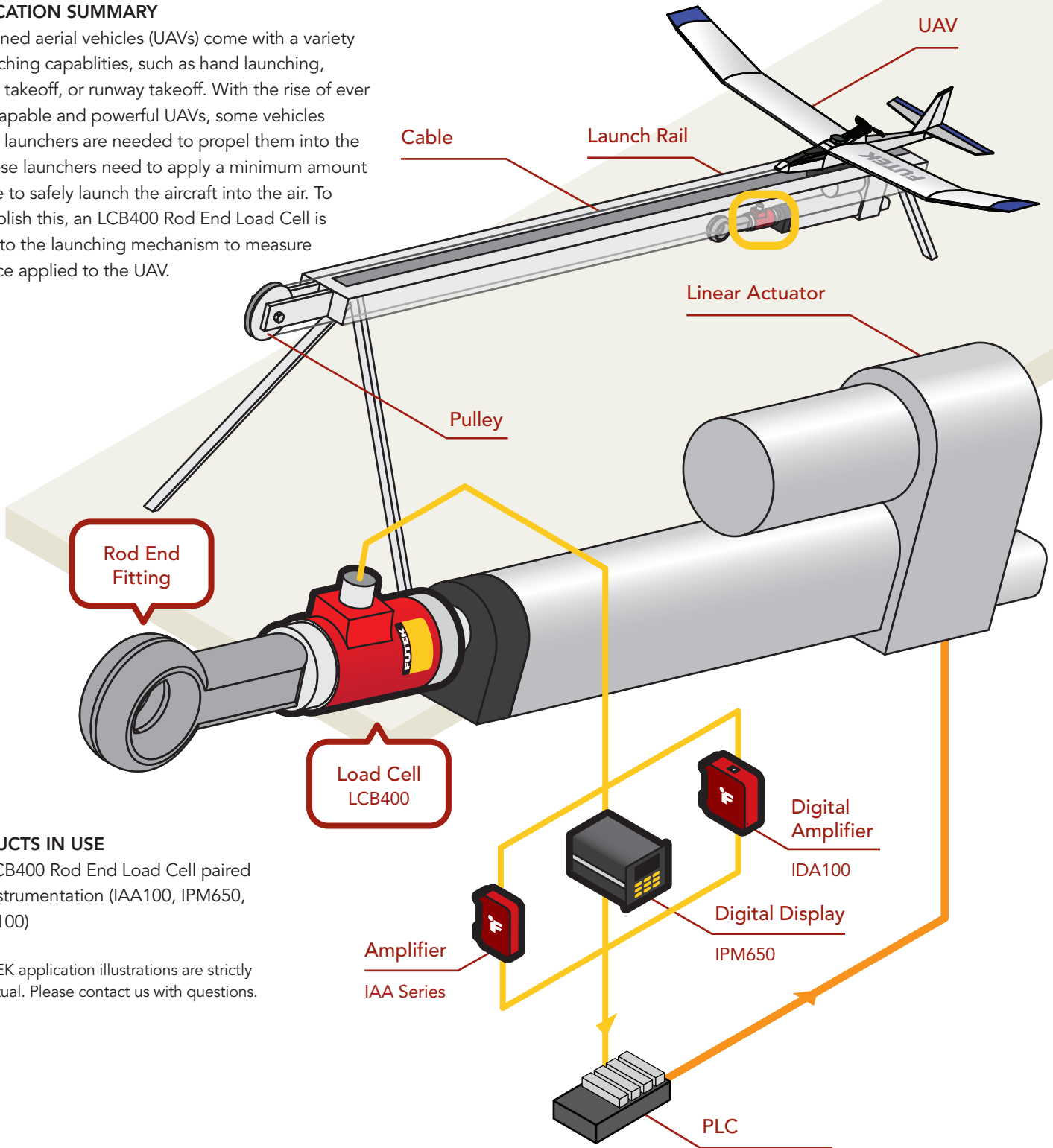
USB220

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



APPLICATION SUMMARY

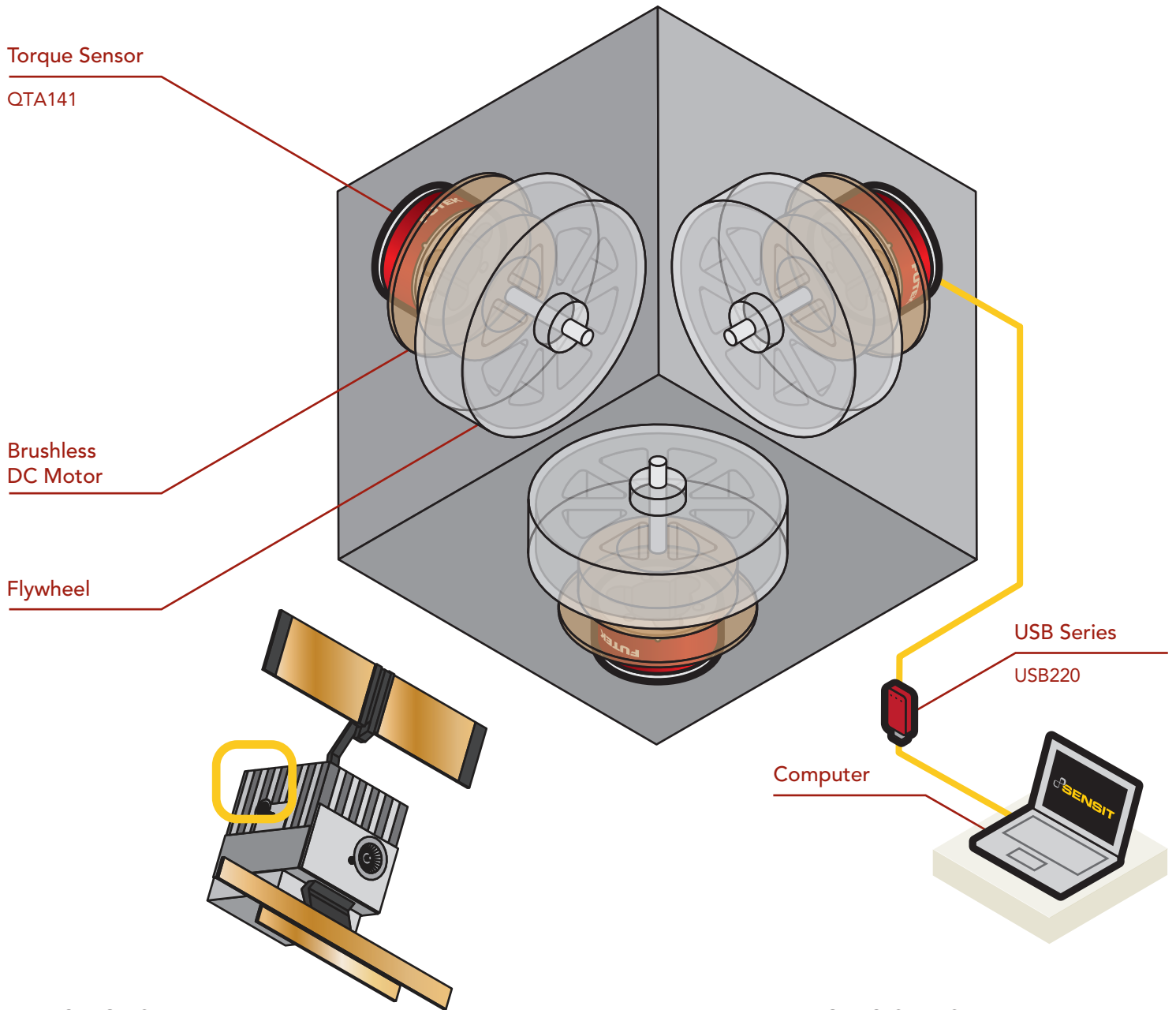
Unmanned aerial vehicles (UAVs) come with a variety of launching capabilities, such as hand launching, vertical takeoff, or runway takeoff. With the rise of ever more capable and powerful UAVs, some vehicles require launchers are needed to propel them into the air. These launchers need to apply a minimum amount of force to safely launch the aircraft into the air. To accomplish this, an LCB400 Rod End Load Cell is mated to the launching mechanism to measure the force applied to the UAV.



PRODUCTS IN USE

One LCB400 Rod End Load Cell paired with Instrumentation (IAA100, IPM650, or IDA100)

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



APPLICATION SUMMARY

One of the more efficient means of satellite attitude control is using reaction wheels. Reaction wheels scale easily making them excellent candidates for attitude control systems in a CubeSat. They create small torque changes necessary to keep a communication antenna pointing at earth or a telescope pointing at a star. By utilizing a micro torque sensor, the response time and torque output of the motor/flywheel can be measured, allowing for precision control loop gains to be established for the PID balancing functions used to stabilize the spacecraft.

PRODUCTS IN USE

FUTEK's QTA141 Micro Reaction Torque sensor paired with the USB220 High Resolution USB Solution.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

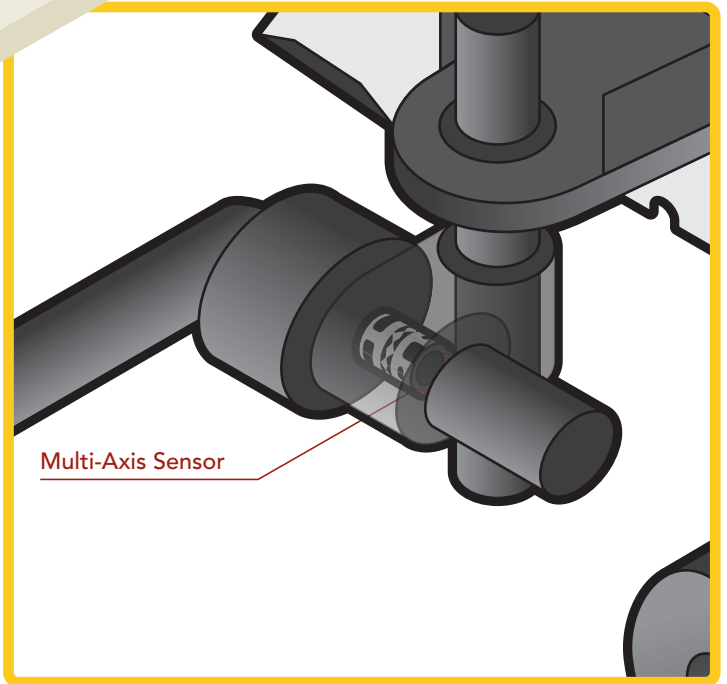
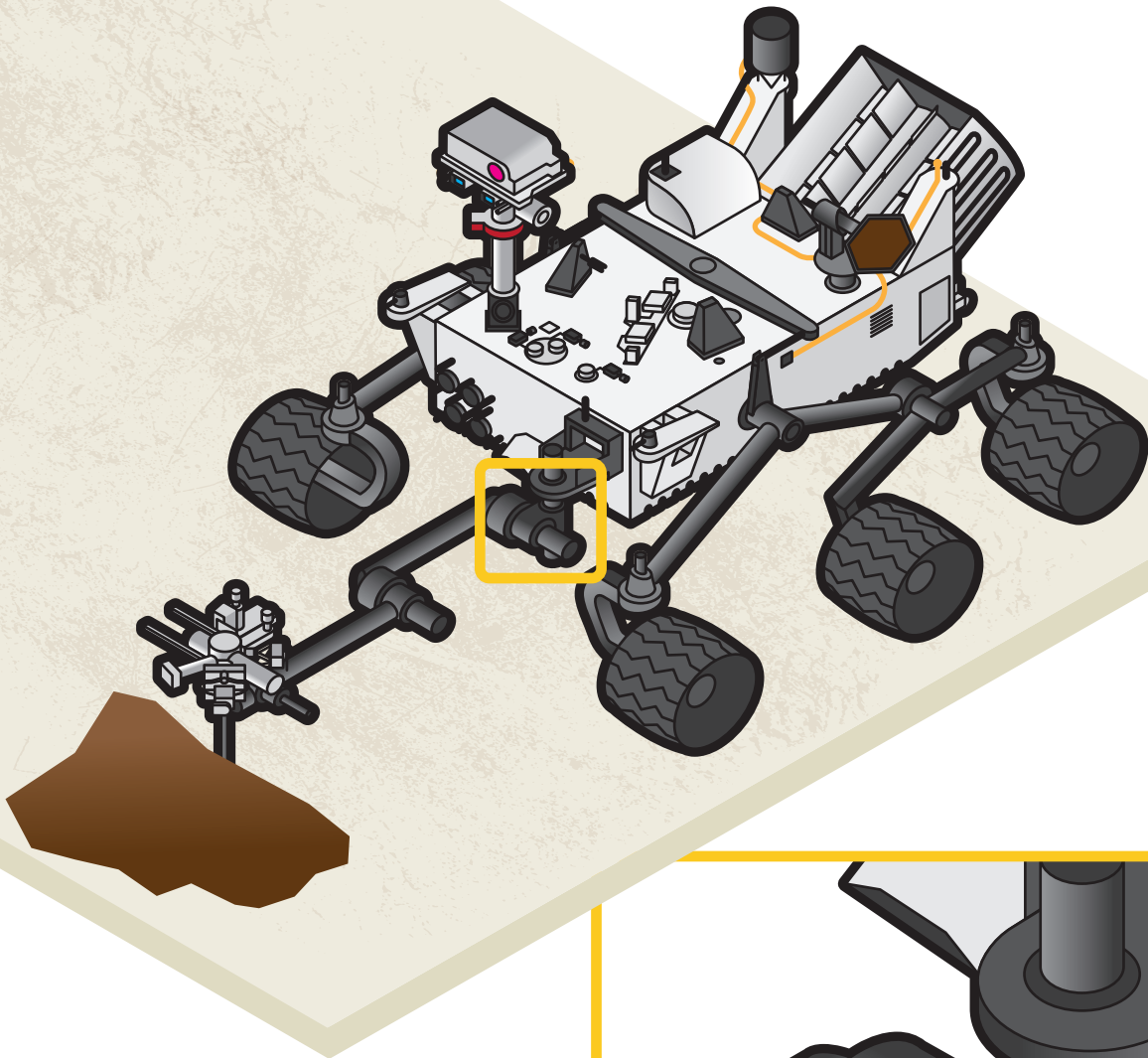
Sensor Solution Source

Load · Torque · Pressure · Multi Axis · Calibration · Instruments · Software

USA: www.logicbus.com / **MX:** www.logicbus.com.mx



U.S. Manufacturer



PRODUCTS IN USE

NASA JPL space/flight qualified cryogenic dualbridge donut load cell and a space/flight qualified cryogenic 3-component multi-axial sensor.

APPLICATION SUMMARY

FUTEK developed two cryogenic sensors to operate aboard the rover. The donut load cell directly operates within *Curiosity's* drilling arm. It stands responsible to monitor the drill bit's force as it pierces into the Martian ground. The multi-axial load and torque sensor is responsible for the maneuvers of the robotic arm. Both of these sensors were specifically designed for the Mars Rover *Curiosity* mission.

Sensor Solution Source

Load Cells · Pressure Sensors · Torque Sensors · Instruments · Software

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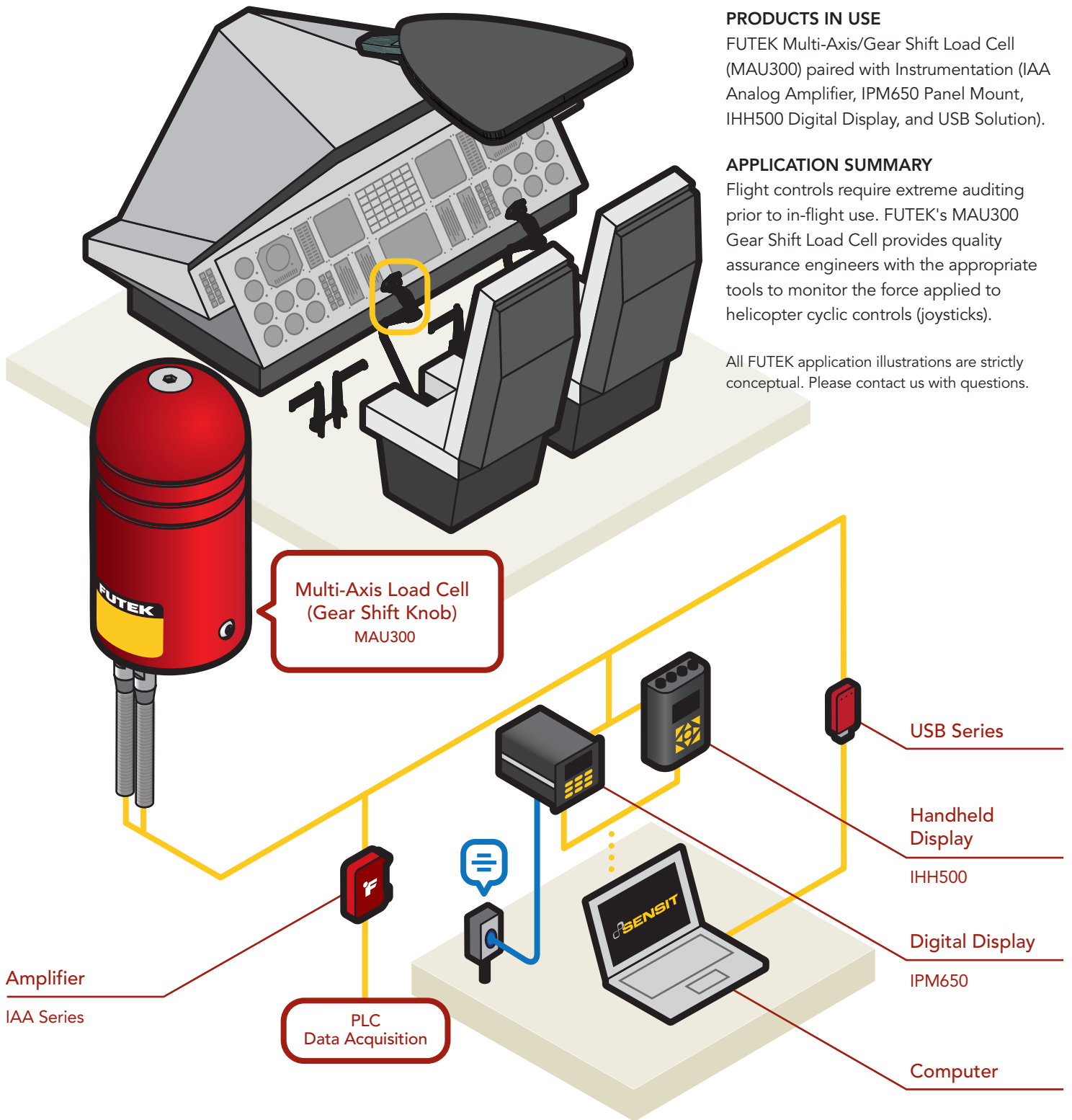
9001:2008



17025:2005



U.S. Manufacturer



PRODUCTS IN USE

FUTEK Multi-Axis/Gear Shift Load Cell (MAU300) paired with Instrumentation (IAA Analog Amplifier, IPM650 Panel Mount, IHH500 Digital Display, and USB Solution).

APPLICATION SUMMARY

Flight controls require extreme auditing prior to in-flight use. FUTEK's MAU300 Gear Shift Load Cell provides quality assurance engineers with the appropriate tools to monitor the force applied to helicopter cyclic controls (joysticks).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



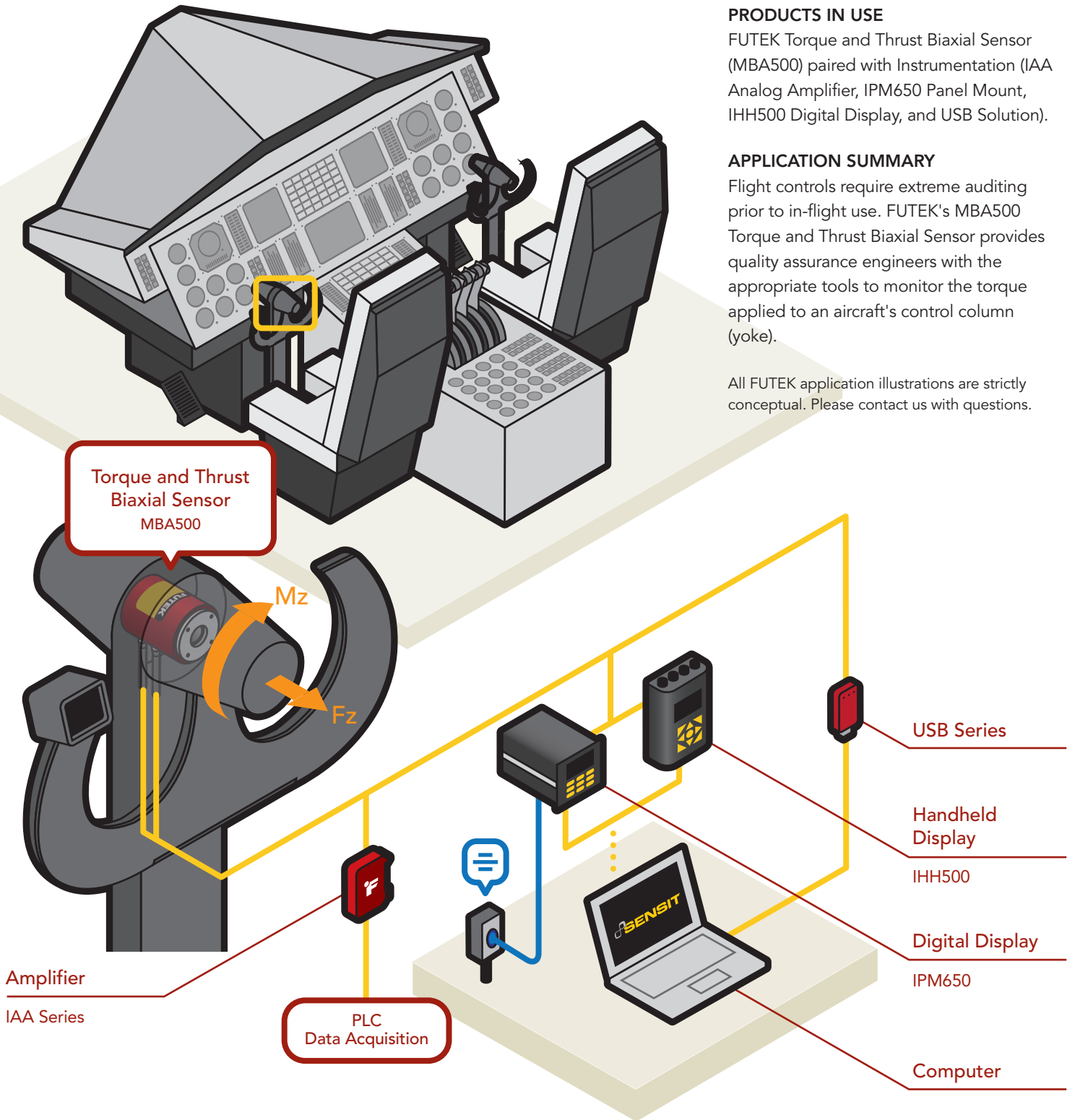
PRODUCTS IN USE

FUTEK Torque and Thrust Biaxial Sensor (MBA500) paired with Instrumentation (IAA Analog Amplifier, IPM650 Panel Mount, IHH500 Digital Display, and USB Solution).

APPLICATION SUMMARY

Flight controls require extreme auditing prior to in-flight use. FUTEK's MBA500 Torque and Thrust Biaxial Sensor provides quality assurance engineers with the appropriate tools to monitor the torque applied to an aircraft's control column (yoke).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



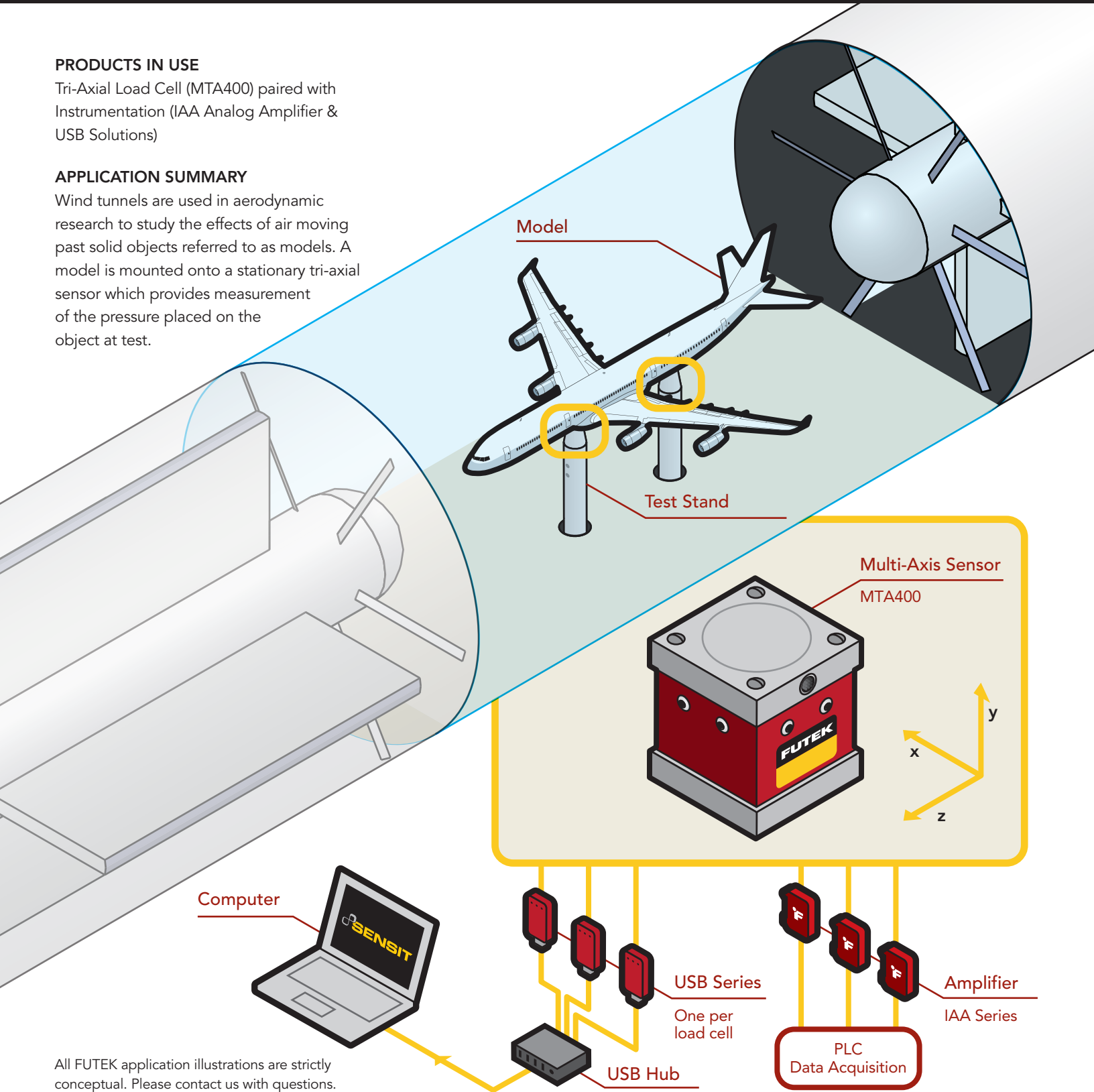


PRODUCTS IN USE

Tri-Axial Load Cell (MTA400) paired with Instrumentation (IAA Analog Amplifier & USB Solutions)

APPLICATION SUMMARY

Wind tunnels are used in aerodynamic research to study the effects of air moving past solid objects referred to as models. A model is mounted onto a stationary tri-axial sensor which provides measurement of the pressure placed on the object at test.



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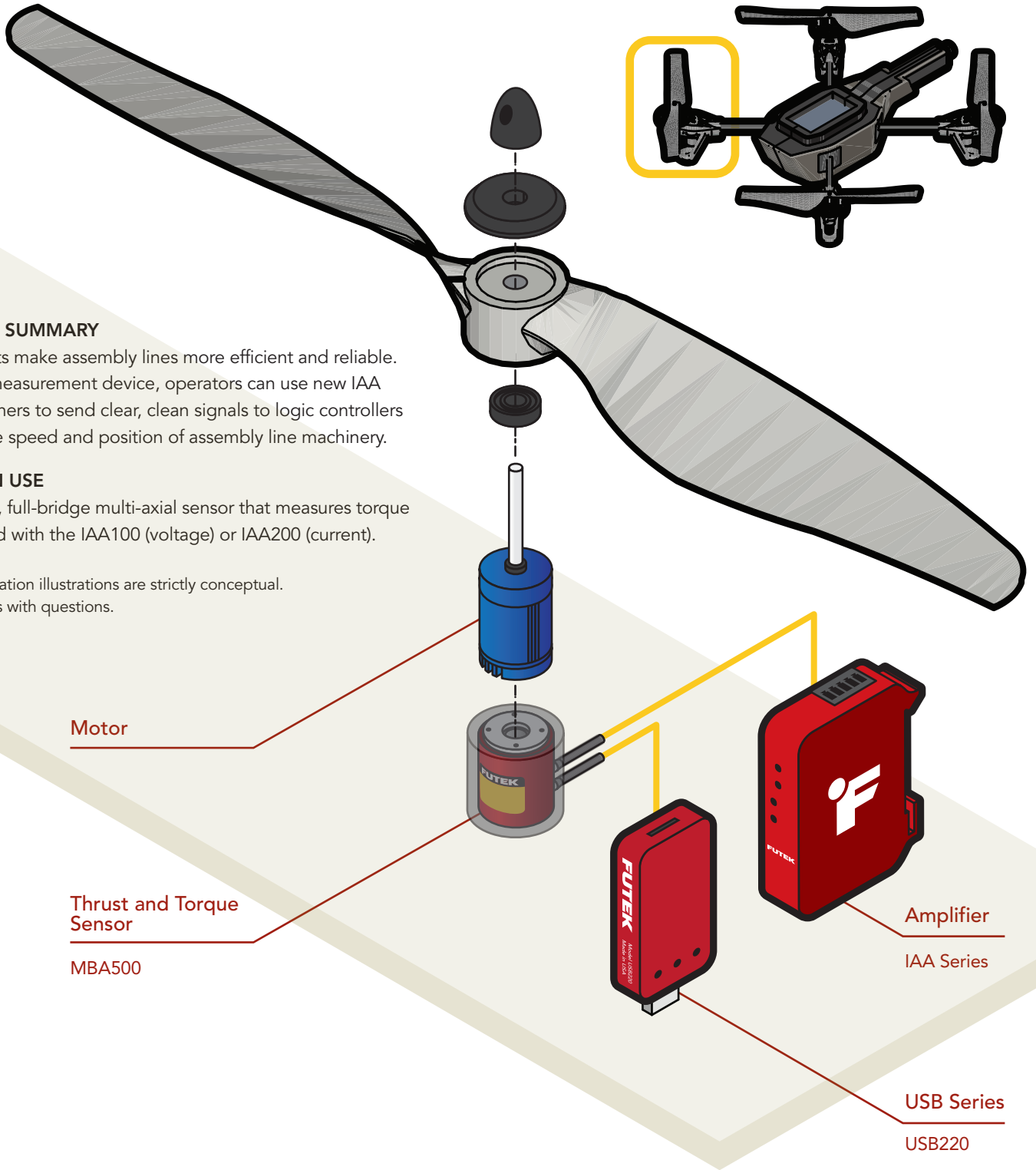
Sensor Solution Source

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U.S. Manufacturer



APPLICATION SUMMARY

Industrial robots make assembly lines more efficient and reliable. Paired with a measurement device, operators can use new IAA signal conditioners to send clear, clean signals to logic controllers that govern the speed and position of assembly line machinery.

PRODUCTS IN USE

A strain-gauge, full-bridge multi-axial sensor that measures torque and load paired with the IAA100 (voltage) or IAA200 (current).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

Motor

Thrust and Torque
Sensor

MBA500

Amplifier

IAA Series

USB Series

USB220

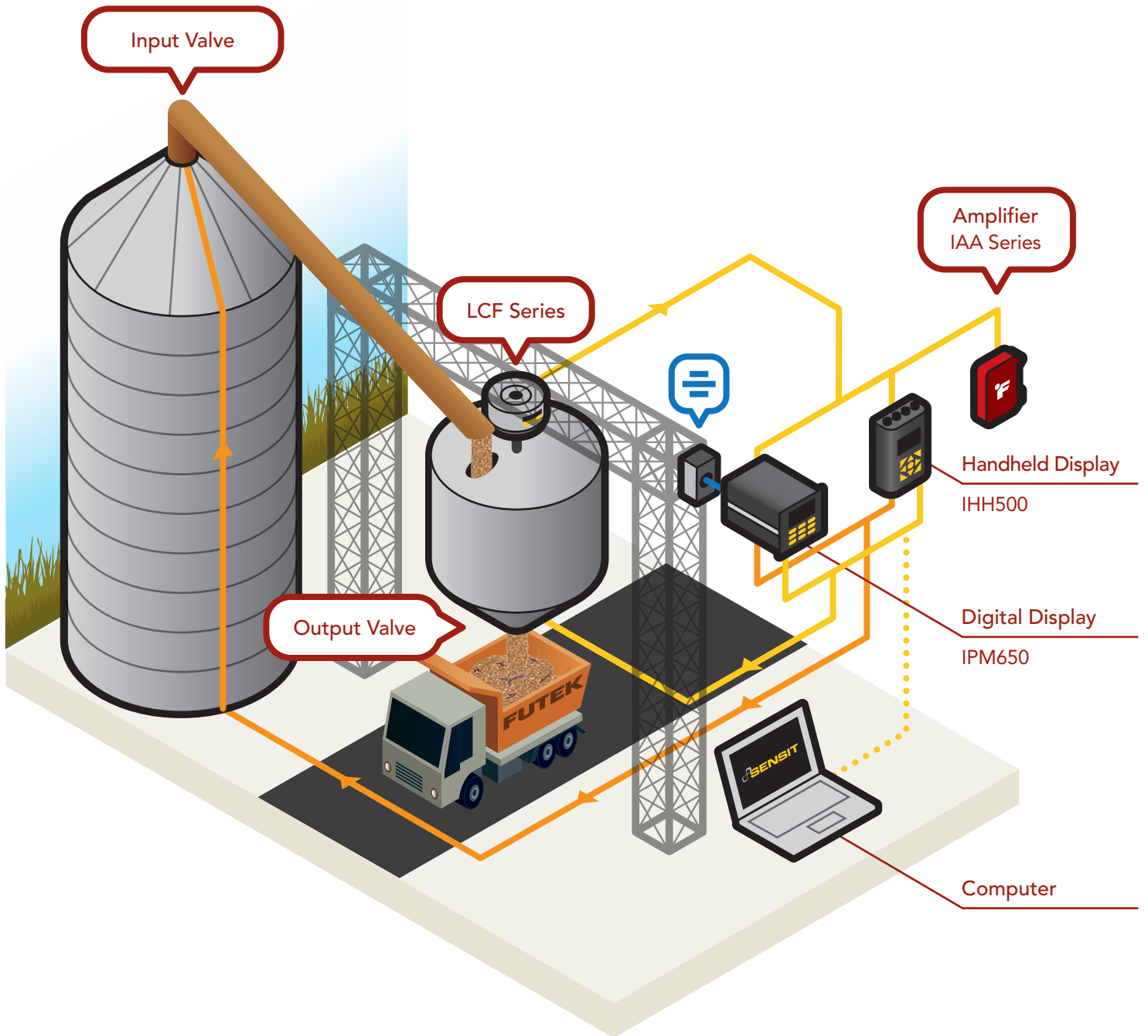


Agricultural

Sensor Solutions Source

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PRODUCTS IN USE

One Pancake Load Cell (LCF Series) paired with Instrumentation (IPM650, IHH500 or IAA analog amplifier).

APPLICATION SUMMARY

Tank dispensing is based on the container's contents — both inputted and outputted. This application utilizes a full load cell system to ensure equal distribution.

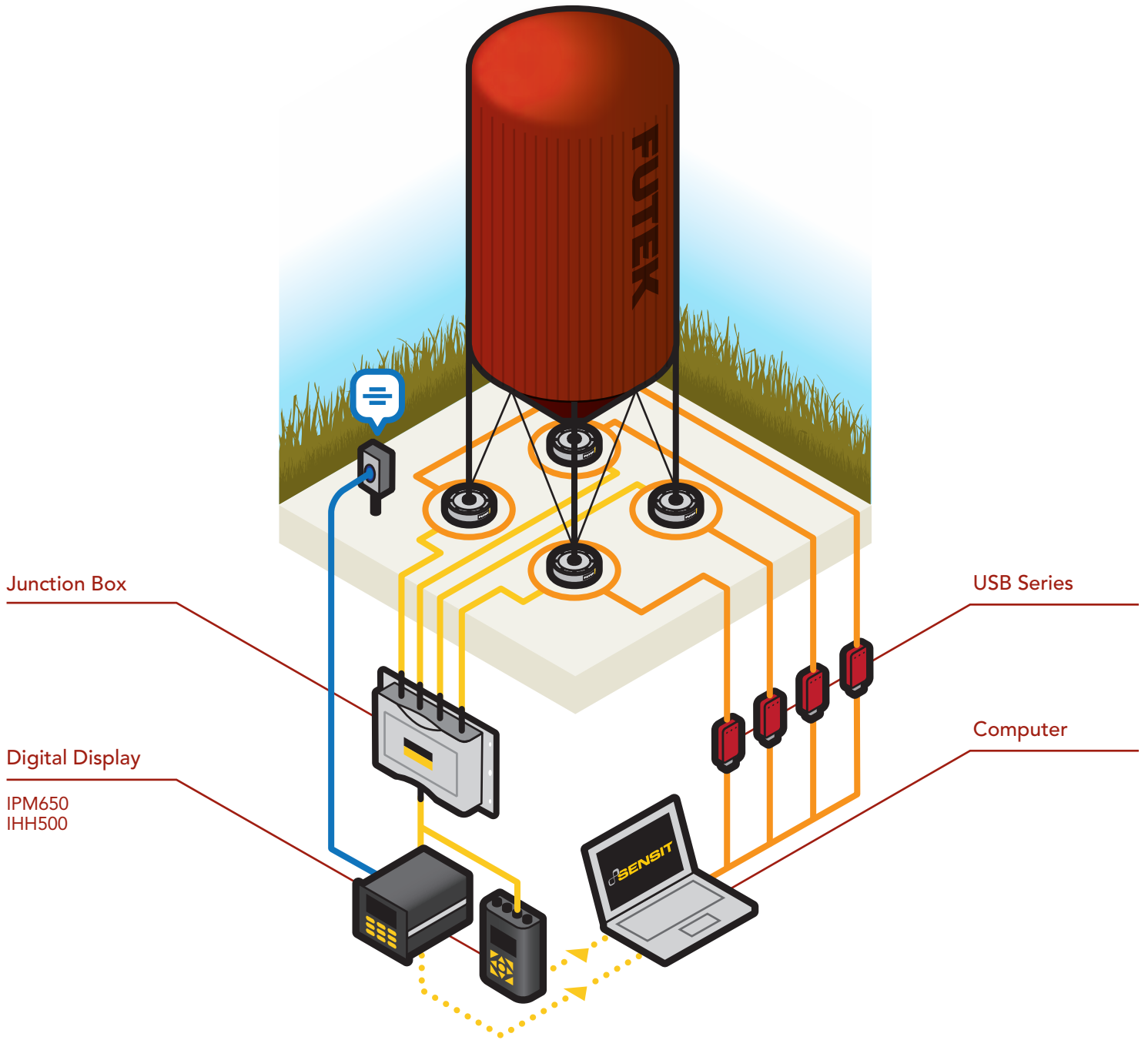
Sensor Solution Source

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U.S. Manufacturer



Junction Box

USB Series

Digital Display

Computer

IPM650
IHH500

PRODUCTS IN USE

Four Low Profile Pancake Load Cell (LCF Series) paired with Instrumentation (IAC200 Junction Box, IPM650, IHH500, or USB Solutions).

APPLICATION SUMMARY

Measuring the contents of any industrial tank, silo, or hopper requires a robust and precise system. Utilizing multiple high-capacity sensors in conjunction with powerful instrumentation can make for an effective platform.

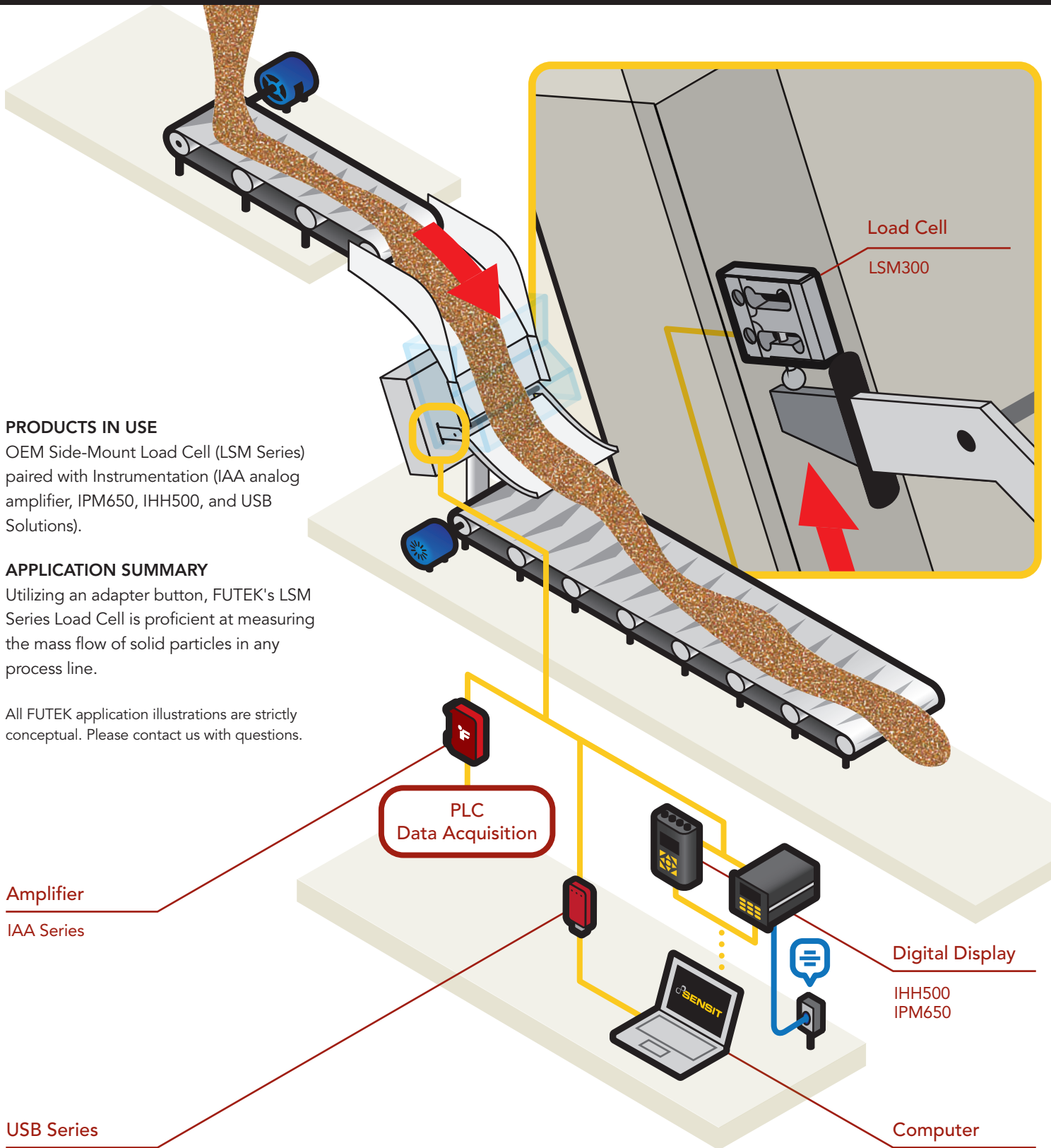
Sensor Solution Source

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U.S. Manufacturer



PRODUCTS IN USE

OEM Side-Mount Load Cell (LSM Series) paired with Instrumentation (IAA analog amplifier, IPM650, IHH500, and USB Solutions).

APPLICATION SUMMARY

Utilizing an adapter button, FUTEK's LSM Series Load Cell is proficient at measuring the mass flow of solid particles in any process line.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

Amplifier
IAA Series

PLC
Data Acquisition

Digital Display
IHH500
IPM650

USB Series

Computer

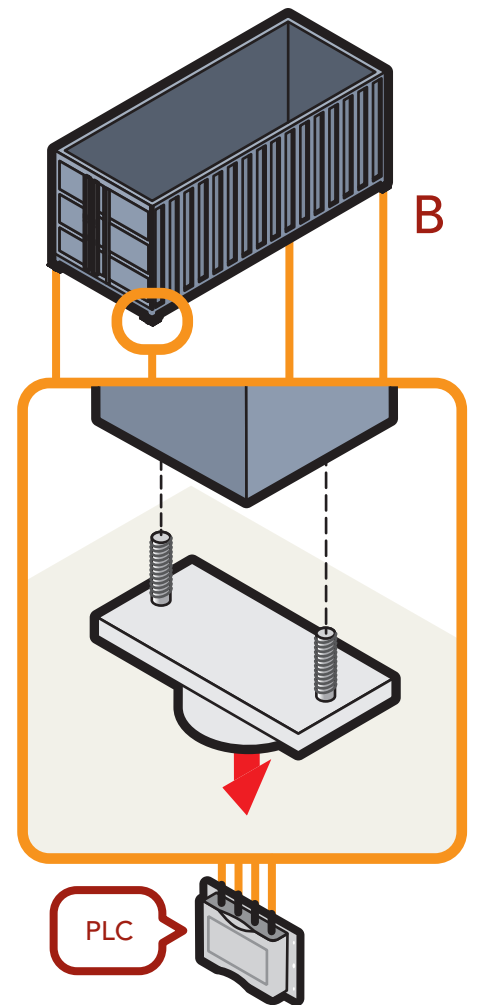
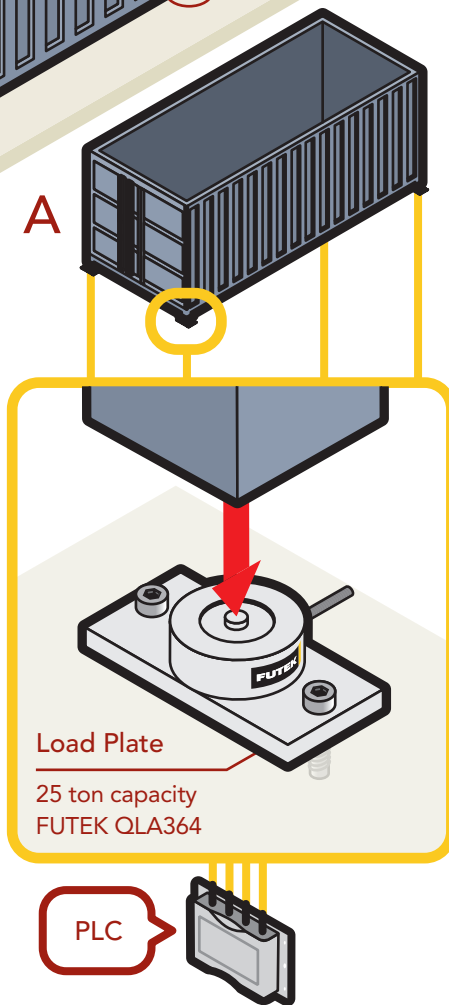
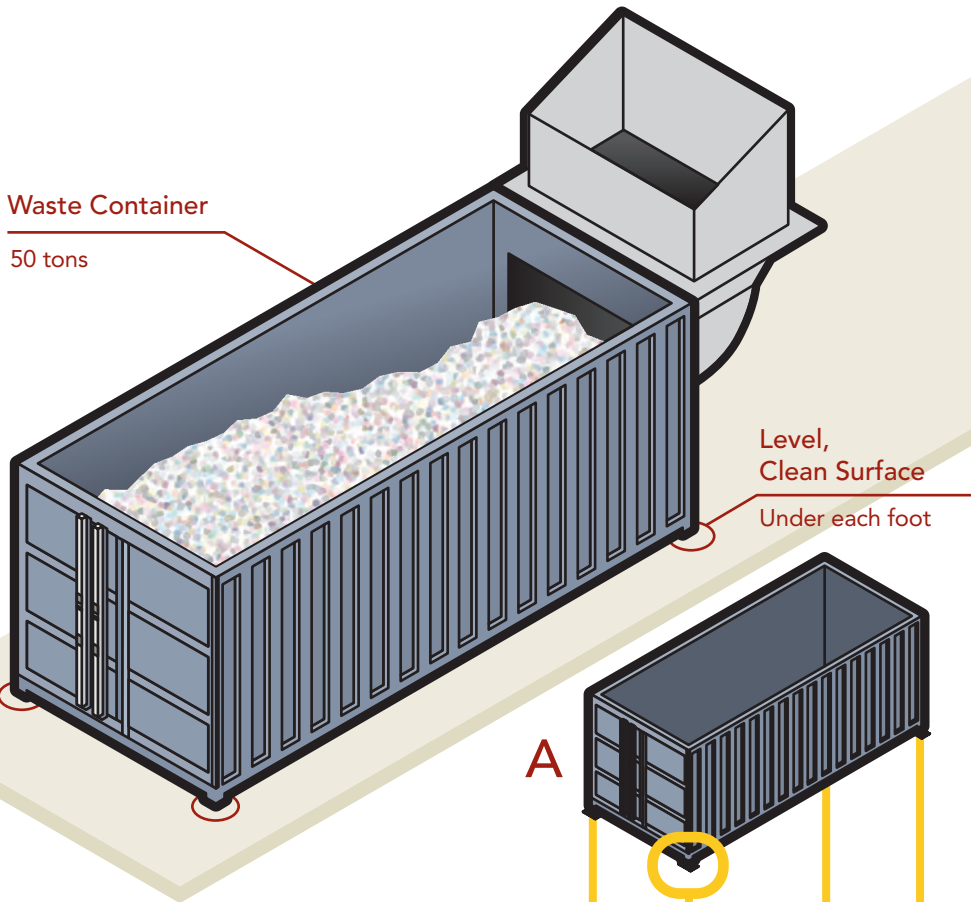
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U.S. Manufacturer



PRODUCTS IN USE

Four customized Load plates paired with Instrumentation (IAA analog amplifiers, IPM650, IHH500, USB Solutions).

APPLICATION SUMMARY

Large waste management containers are intended to collect trash until they reach a specific capacity. Once that capacity is reached, disposal of the contents is necessary. Utilizing load cells helps monitor the container's capacity increase.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

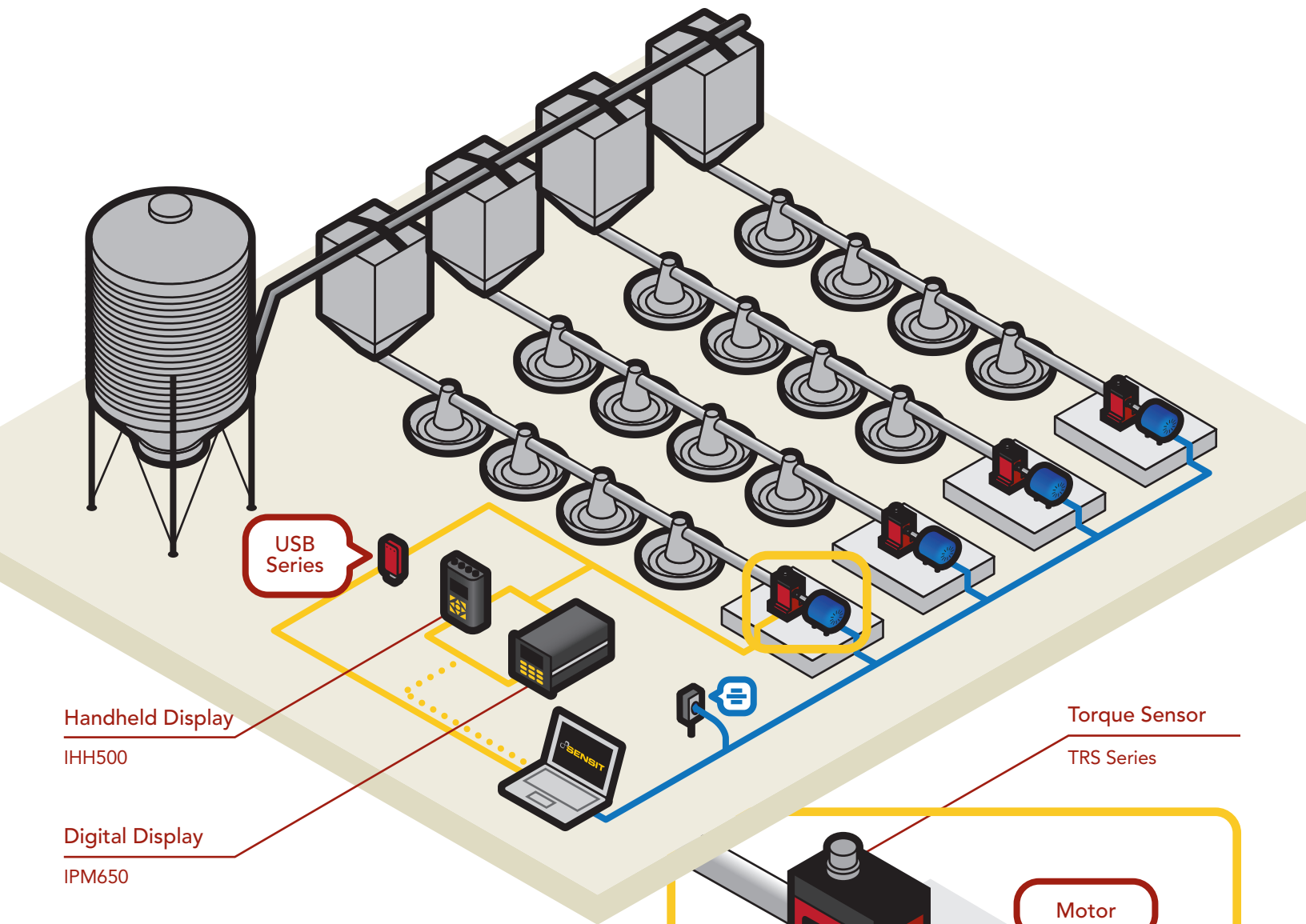
Sensor Solution Source

Load · Torque · Pressure · Multi Axis · Calibration · Instruments · Software

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U.S. Manufacturer



Handheld Display
IHH500

Digital Display
IPM650

Torque Sensor
TRS Series

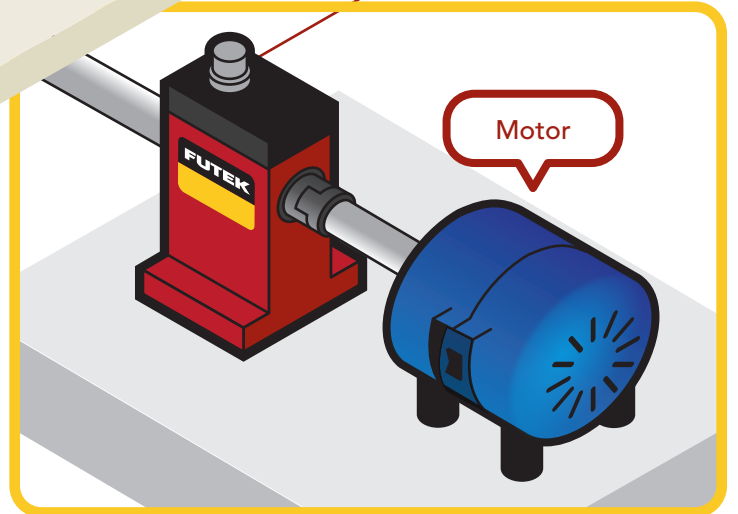
APPLICATION SUMMARY

Agricultural poultry feeders are responsible for the equal distribution of feed throughout a poultry house. Agricultural engineers often implement rotary torque sensors to monitor the motors operating each feeder.

PRODUCTS IN USE

Rotary Torque Sensor (TRS Series) paired within Instrumentation (IPM650, IHH500, or USB Solutions).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



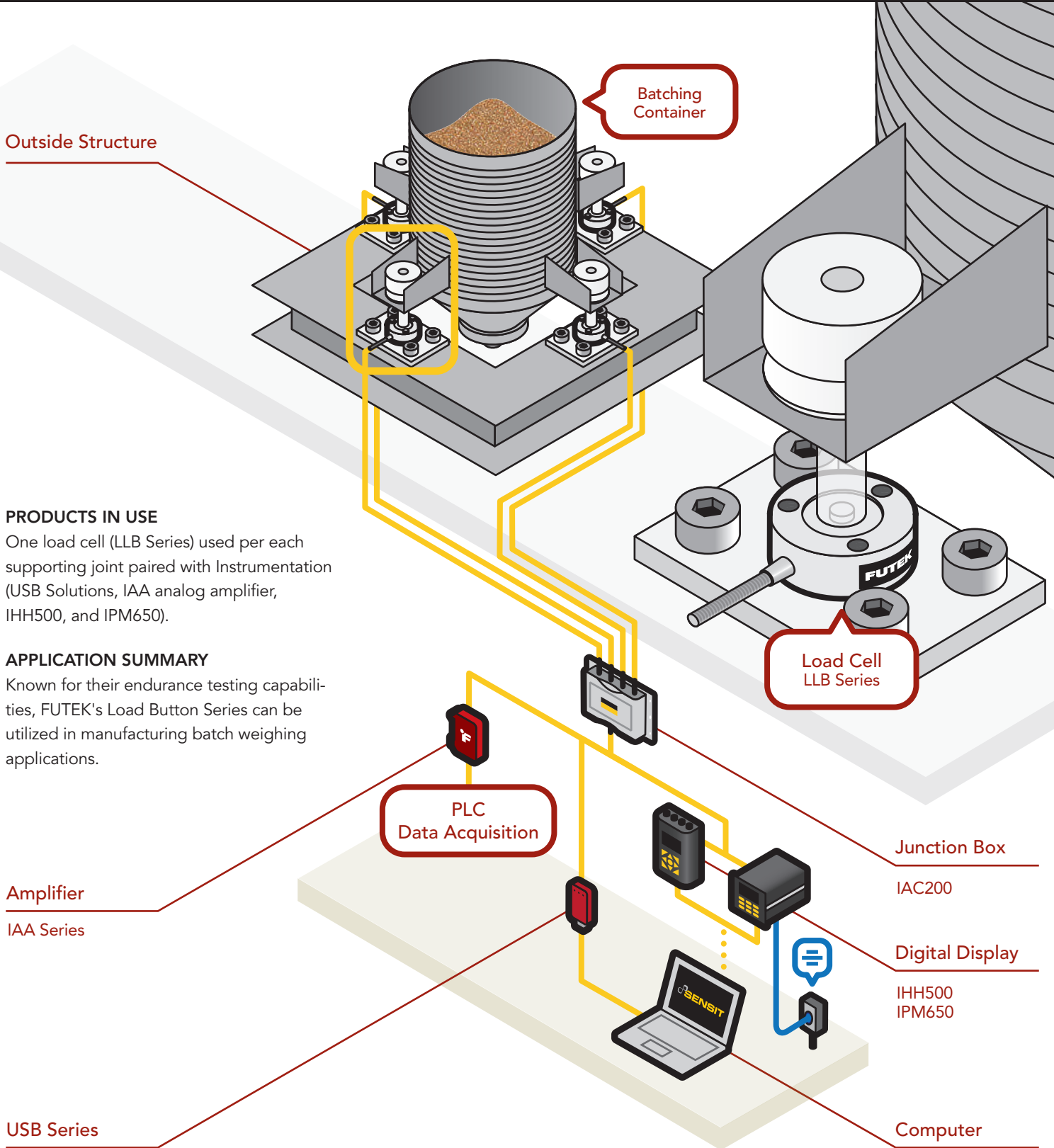
Sensor Solution Source

Load · Torque · Pressure · Multi Axis · Calibration · Instruments · Software

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U.S. Manufacturer



PRODUCTS IN USE

One load cell (LLB Series) used per each supporting joint paired with Instrumentation (USB Solutions, IAA analog amplifier, IHH500, and IPM650).

APPLICATION SUMMARY

Known for their endurance testing capabilities, FUTEK's Load Button Series can be utilized in manufacturing batch weighing applications.

Amplifier
IAA Series

USB Series

PLC
Data Acquisition

Load Cell
LLB Series

Junction Box
IAC200

Digital Display
IHH500
IPM650

Computer

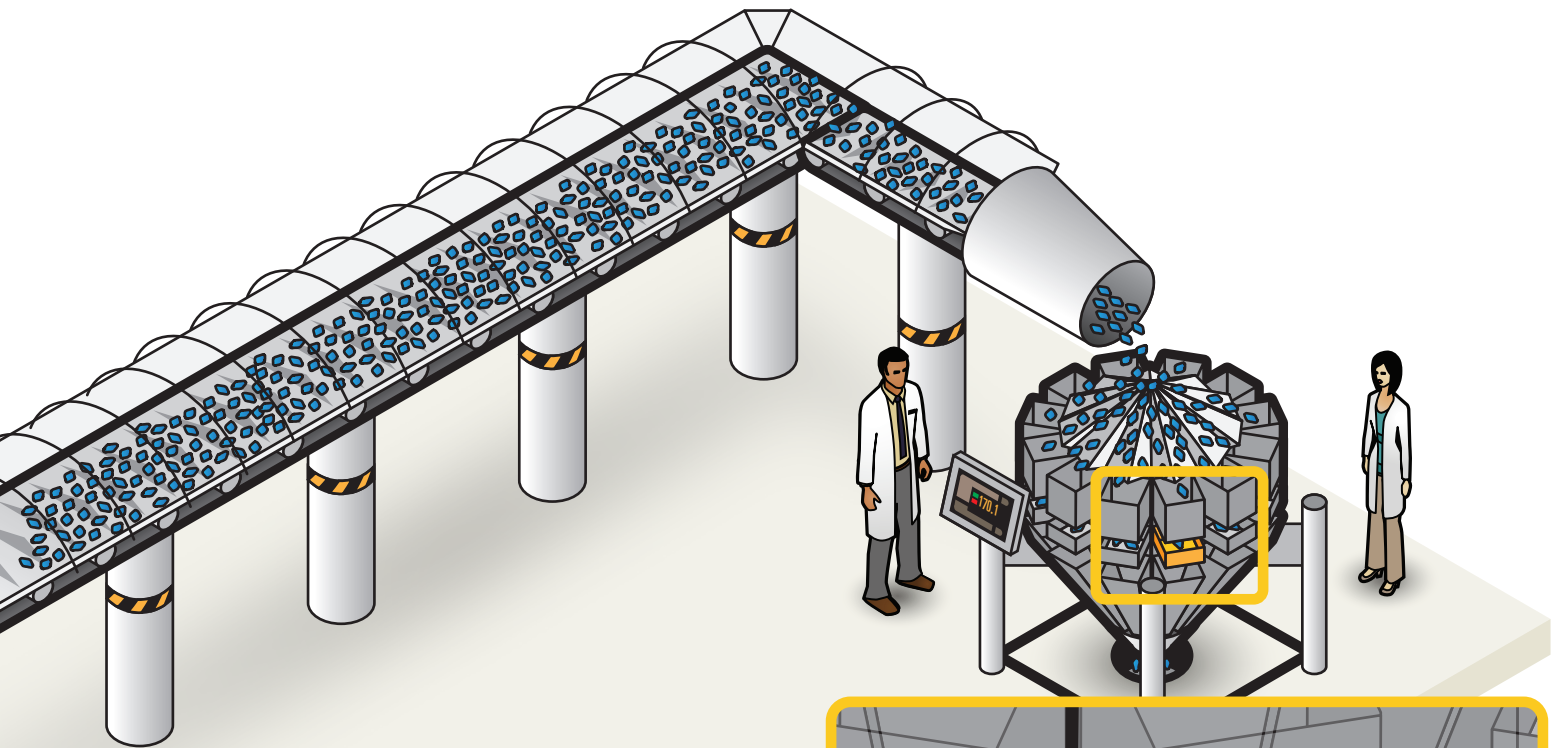


Automation

Sensor Solutions Source

Load · Torque · Pressure · Multi-Axis · Calibration · Instruments · Software

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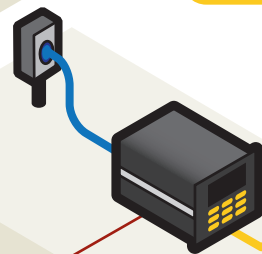
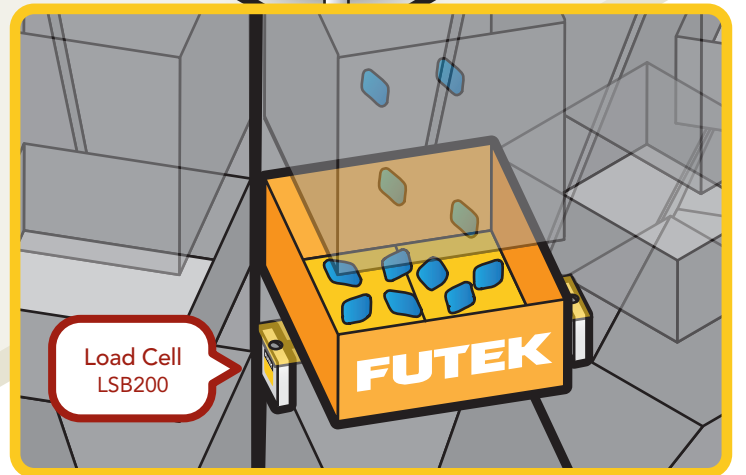


PRODUCTS IN USE

Miniature S-Beam Jr. (LSB200) paired with Instrumentation (IAA analog amplifier or IPM650).

APPLICATION SUMMARY

Load Cells and Force Sensors are commonly used to automate production lines. By using these sensors, production engineers are better able to control the automation process and improve their overall quality.



Digital Display
IPM650



Amplifier
IAA Series



PLC
Data Acquisition



Conveyor Speed
Motor Controller

Set Point/Alarm 2

Load Cell

LSB or LCF Series

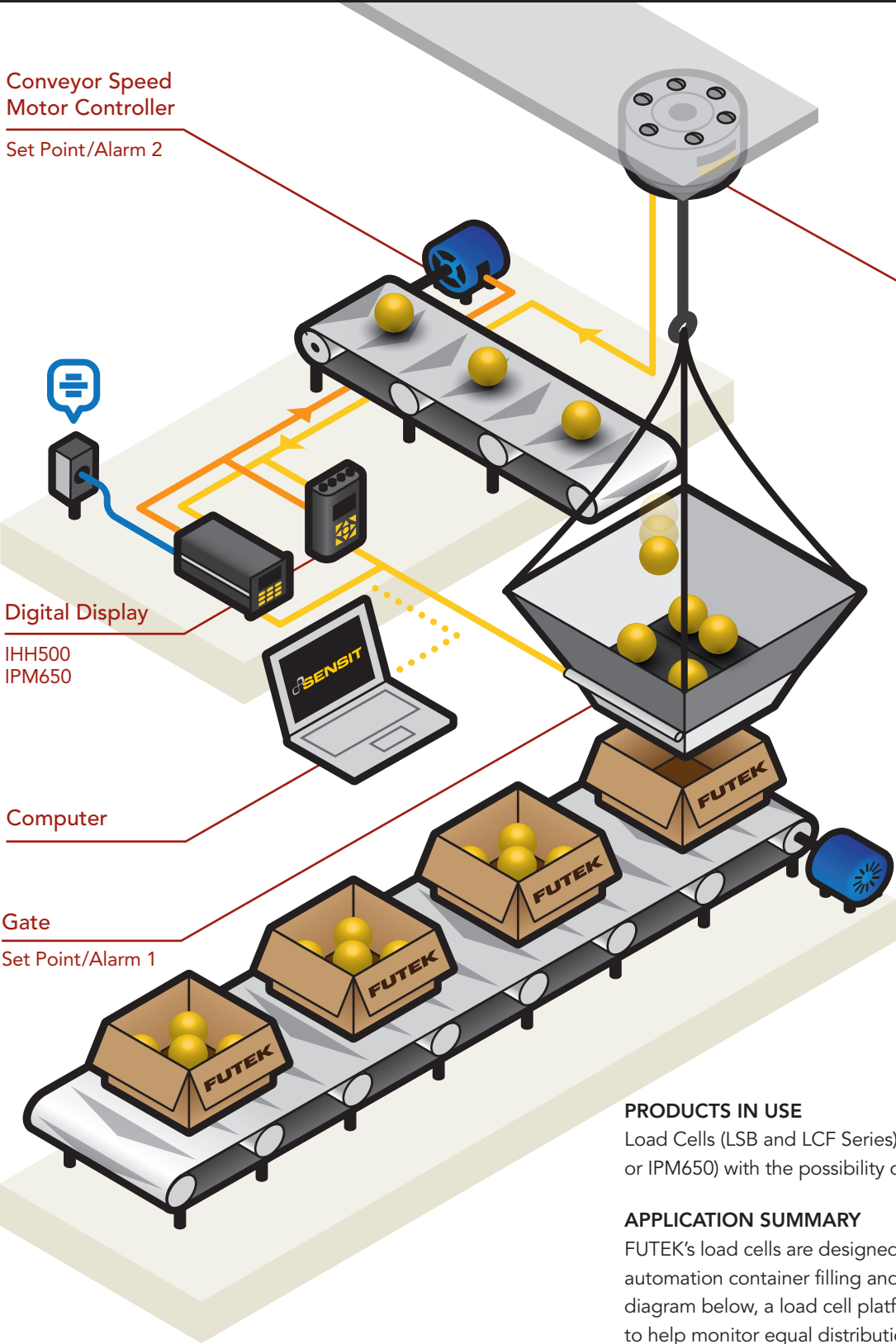
Digital Display

IHH500
IPM650

Computer

Gate

Set Point/Alarm 1

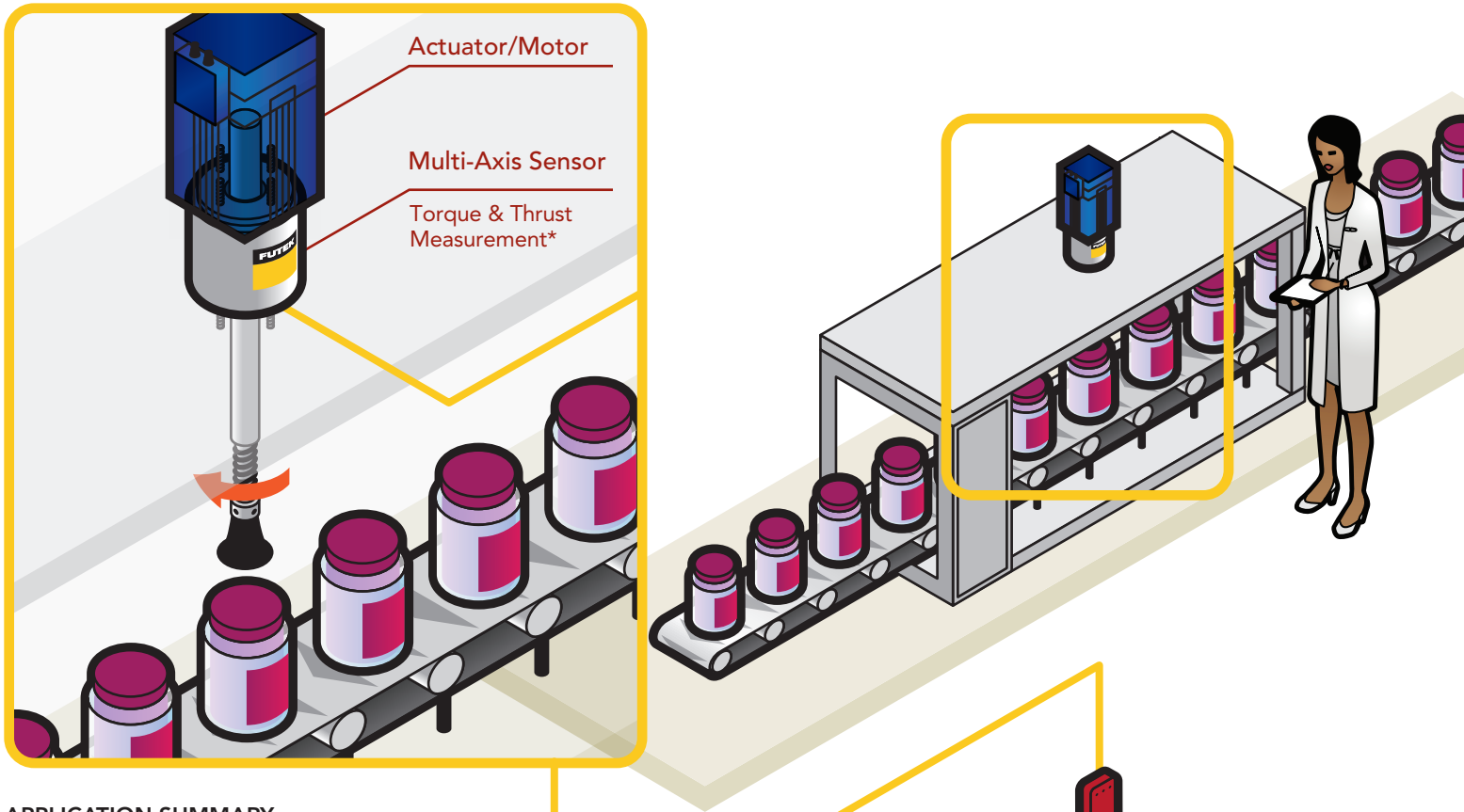


PRODUCTS IN USE

Load Cells (LSB and LCF Series) paired with Instrumentation (IHH500 or IPM650) with the possibility of collecting data on a Computer/PLC.

APPLICATION SUMMARY

FUTEK's load cells are designed to fit applications like industrial automation container filling and/or weighing. As shown in the diagram below, a load cell platform is installed in an automation line to help monitor equal distribution through packaging.



APPLICATION SUMMARY

Utilizing a multi-axial sensor within an automated manufacturing line, such as a capping press, ensures precision and consistency.

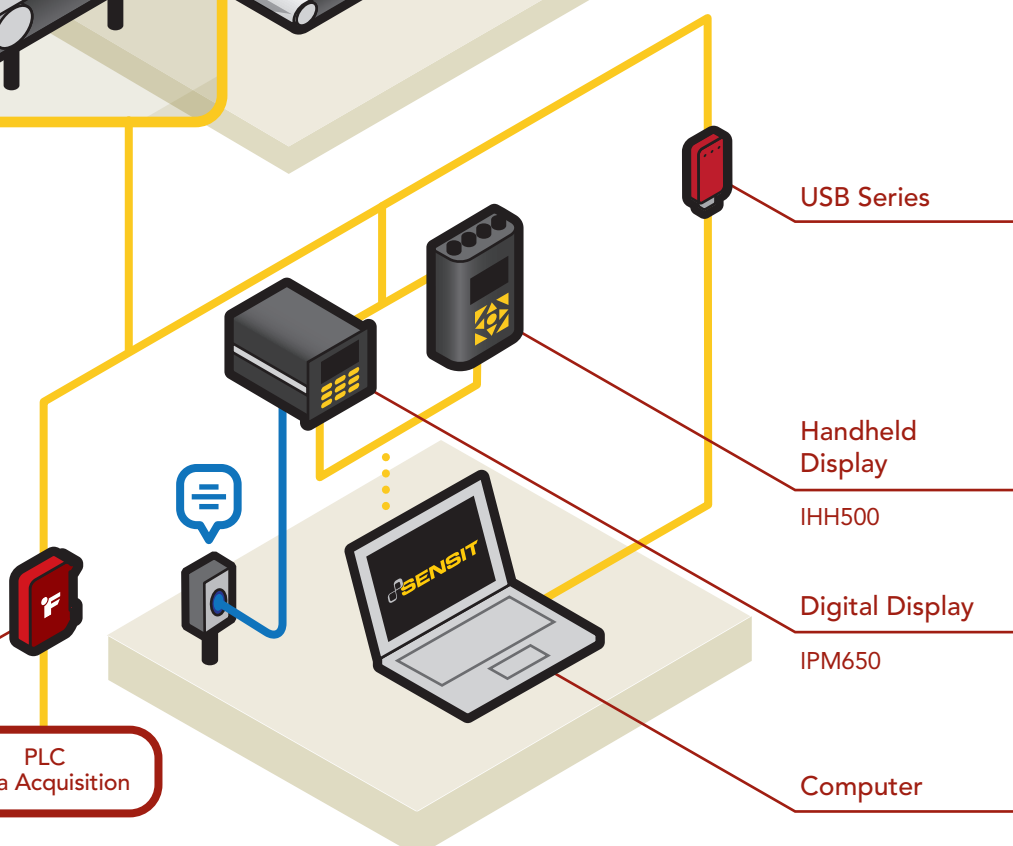
PRODUCTS IN USE

A Bi-Axial Sensor, measuring torque and thrust, paired within Instrumentation (IAA analog amplifier, IPM650, IHH500, USB Solutions).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

Amplifier
IAA Series

PLC
Data Acquisition



USB Series

Handheld Display
IHH500

Digital Display
IPM650

Computer

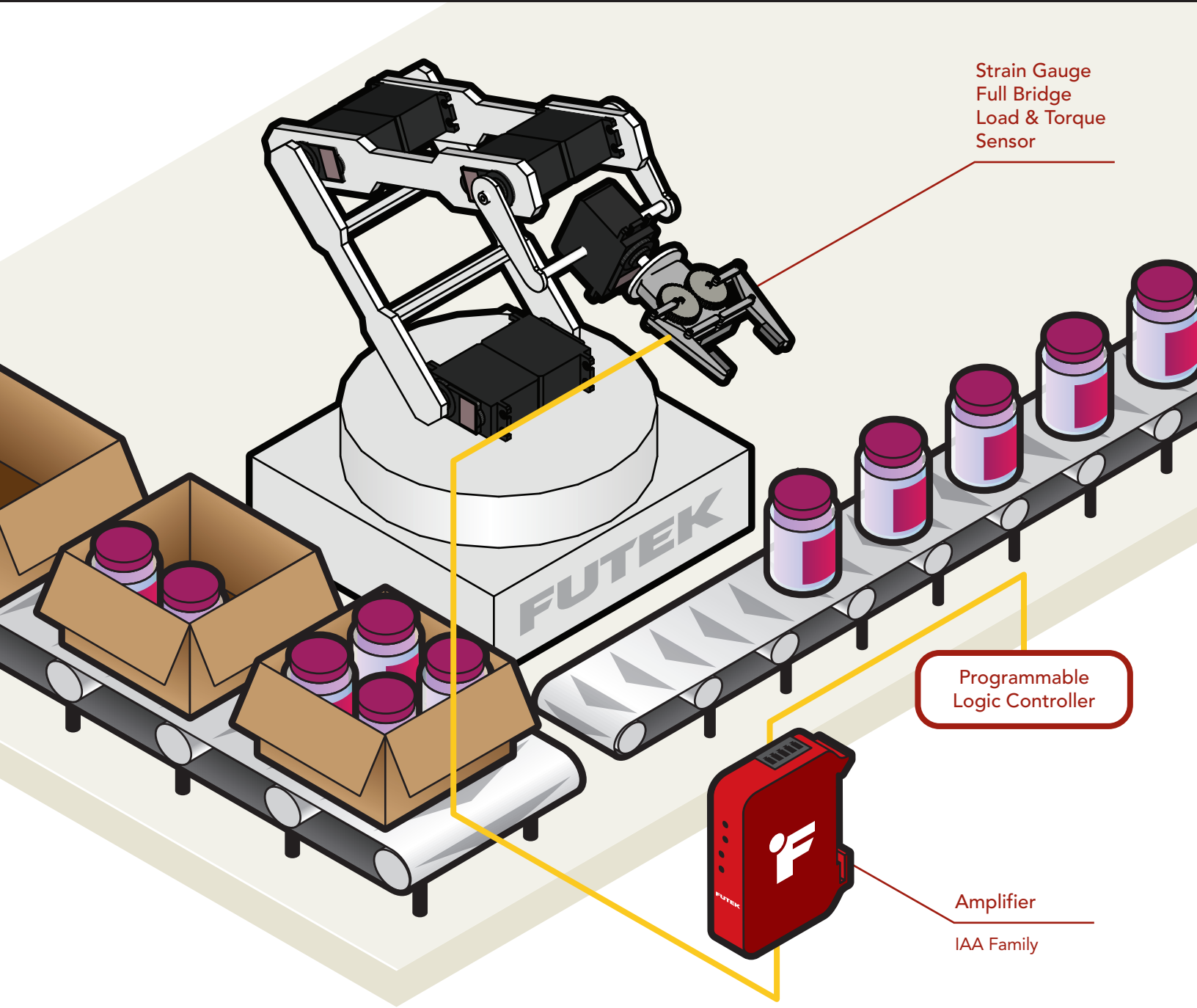
Sensor Solution Source

Load · Torque · Pressure · Multi Axis · Calibration · Instruments · Software

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U.S. Manufacturer



Strain Gauge
Full Bridge
Load & Torque
Sensor

Programmable
Logic Controller

Amplifier
IAA Family

PRODUCTS IN USE

A strain-gauge, full-bridge multi-axial sensor that measures torque and load paired with the IAA100 (voltage) or IAA200 (current).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

APPLICATION SUMMARY

Industrial robots make assembly lines more efficient and reliable. Paired with a measurement device, operators can use new IAA signal conditioners to send clear, clean signals to logic controllers that govern the speed and position of assembly line machinery.

Sensor Solution Source

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U.S. Manufacturer

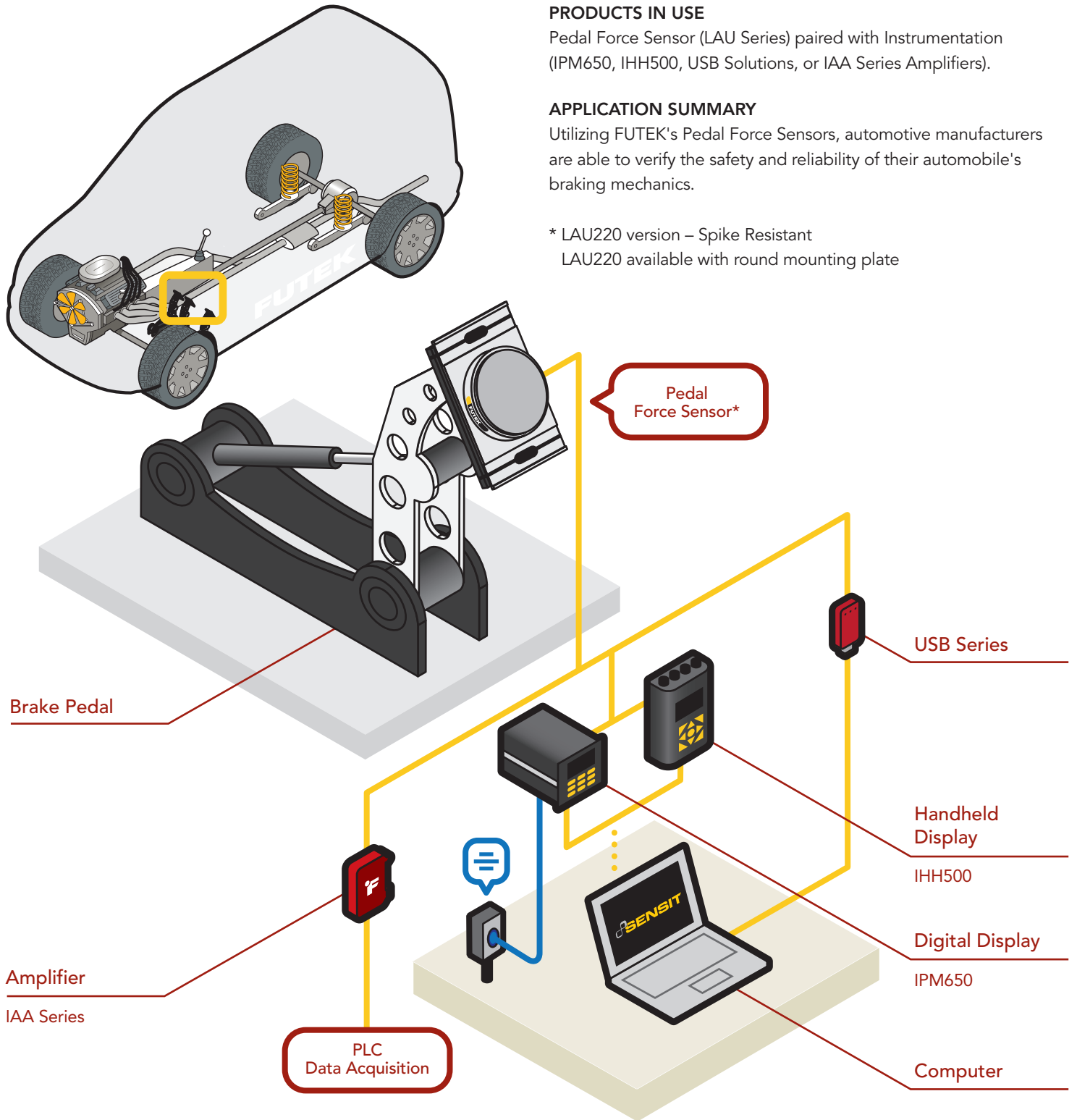


Automotive

Sensor Solutions Source

Load · Torque · Pressure · Multi-Axis · Calibration · Instruments · Software

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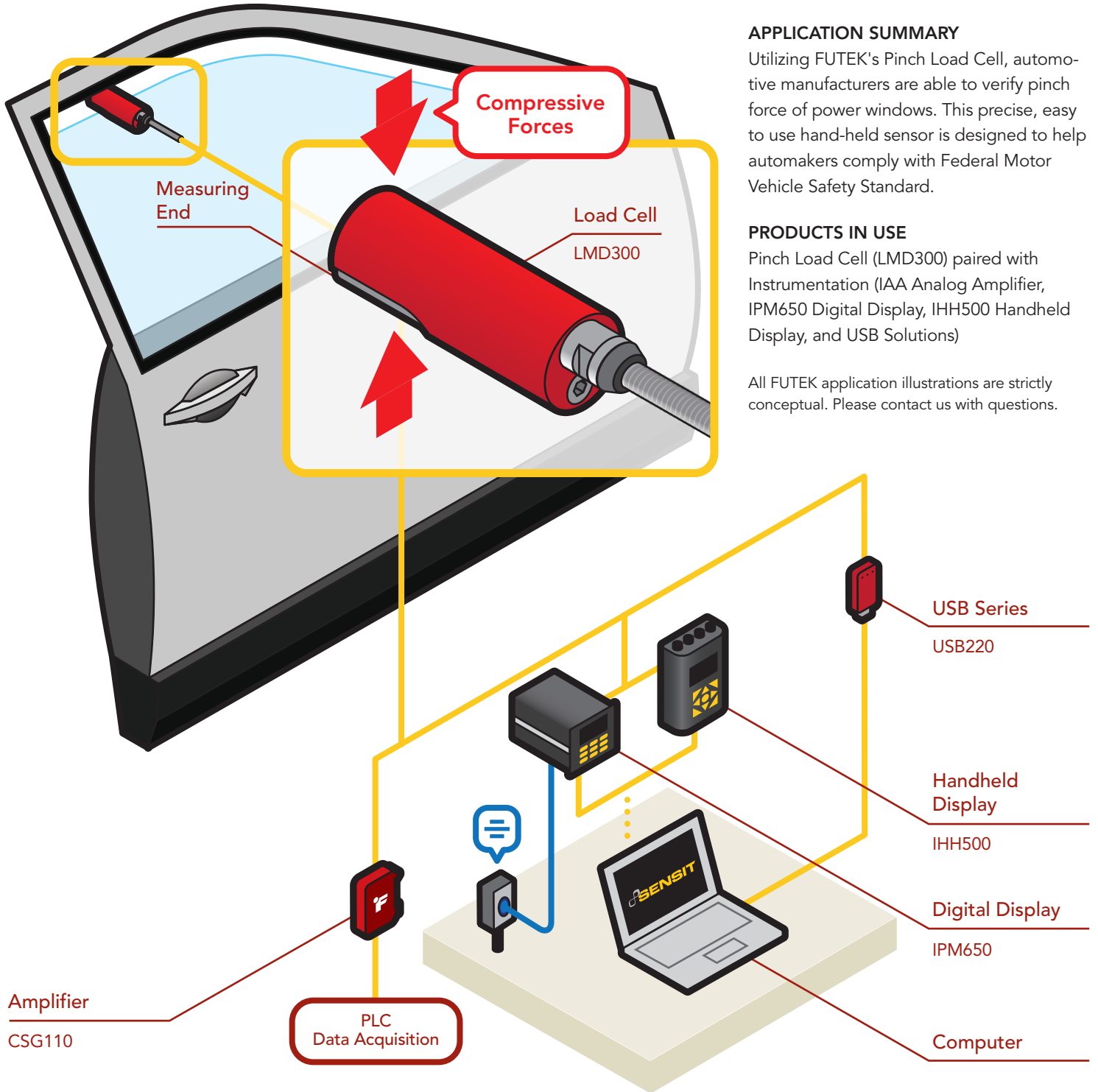
PRODUCTS IN USE

Pedal Force Sensor (LAU Series) paired with Instrumentation (IPM650, IHH500, USB Solutions, or IAA Series Amplifiers).

APPLICATION SUMMARY

Utilizing FUTEK's Pedal Force Sensors, automotive manufacturers are able to verify the safety and reliability of their automobile's braking mechanics.

* LAU220 version – Spike Resistant
LAU220 available with round mounting plate



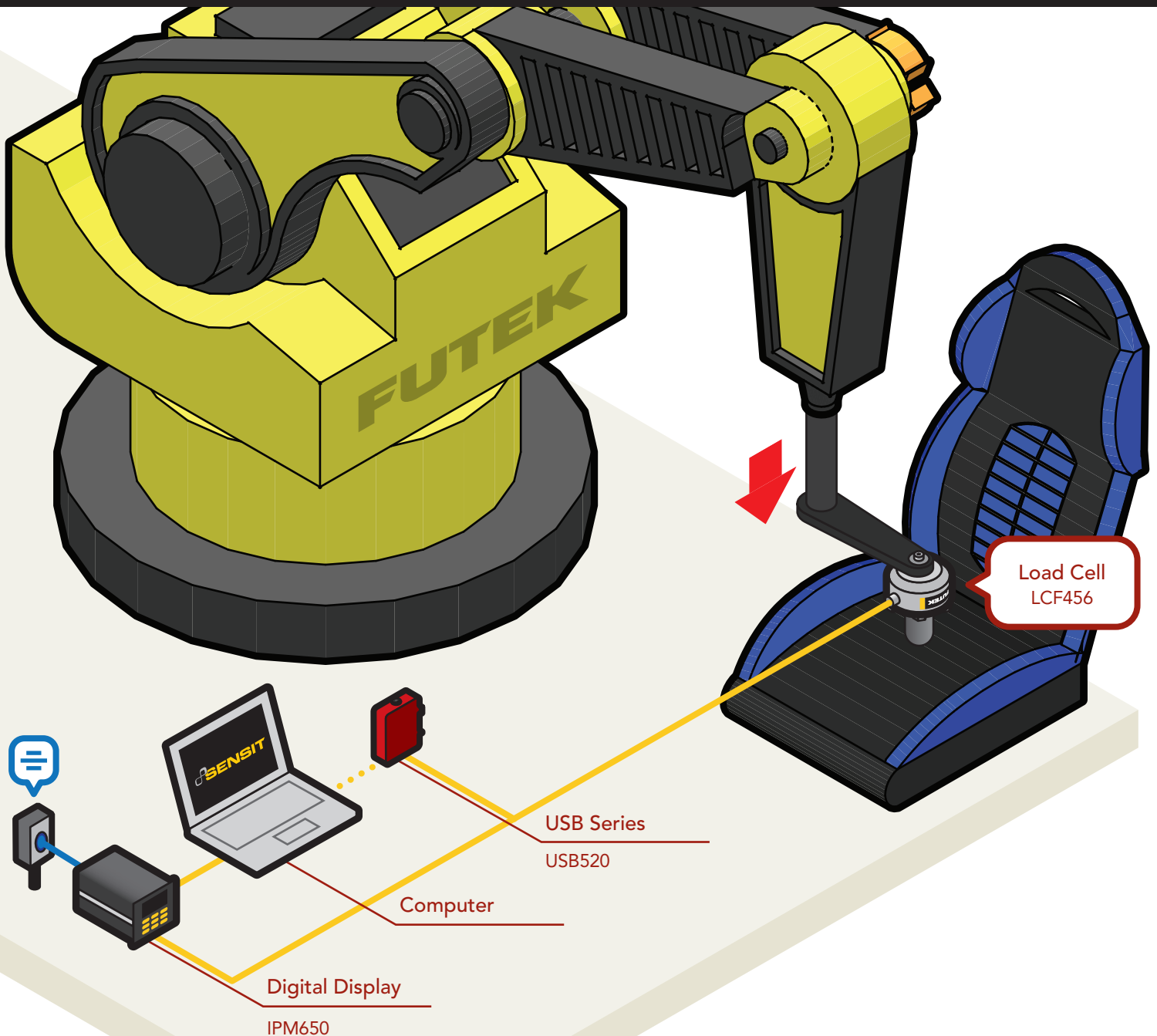
APPLICATION SUMMARY

Utilizing FUTEK's Pinch Load Cell, automotive manufacturers are able to verify pinch force of power windows. This precise, easy to use hand-held sensor is designed to help automakers comply with Federal Motor Vehicle Safety Standard.

PRODUCTS IN USE

Pinch Load Cell (LMD300) paired with Instrumentation (IAA Analog Amplifier, IPM650 Digital Display, IHH500 Handheld Display, and USB Solutions)

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



PRODUCTS IN USE

Pancake Load Cell (LCF456) paired with Instrumentation (USB Solutions or IPM650 Panel Mount).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

APPLICATION SUMMARY

In the automotive industry, robots are used to cycle test seats for wear and durability. Automakers research how people of all shapes and sizes affect the upholstery, seat cushions and seat structures over the life of the vehicle. FUTEK's Fatigue Rated Pancake Load Cell LCF456 is integrated into the custom testing robot to quantify data of the compression force placed onto a seat.

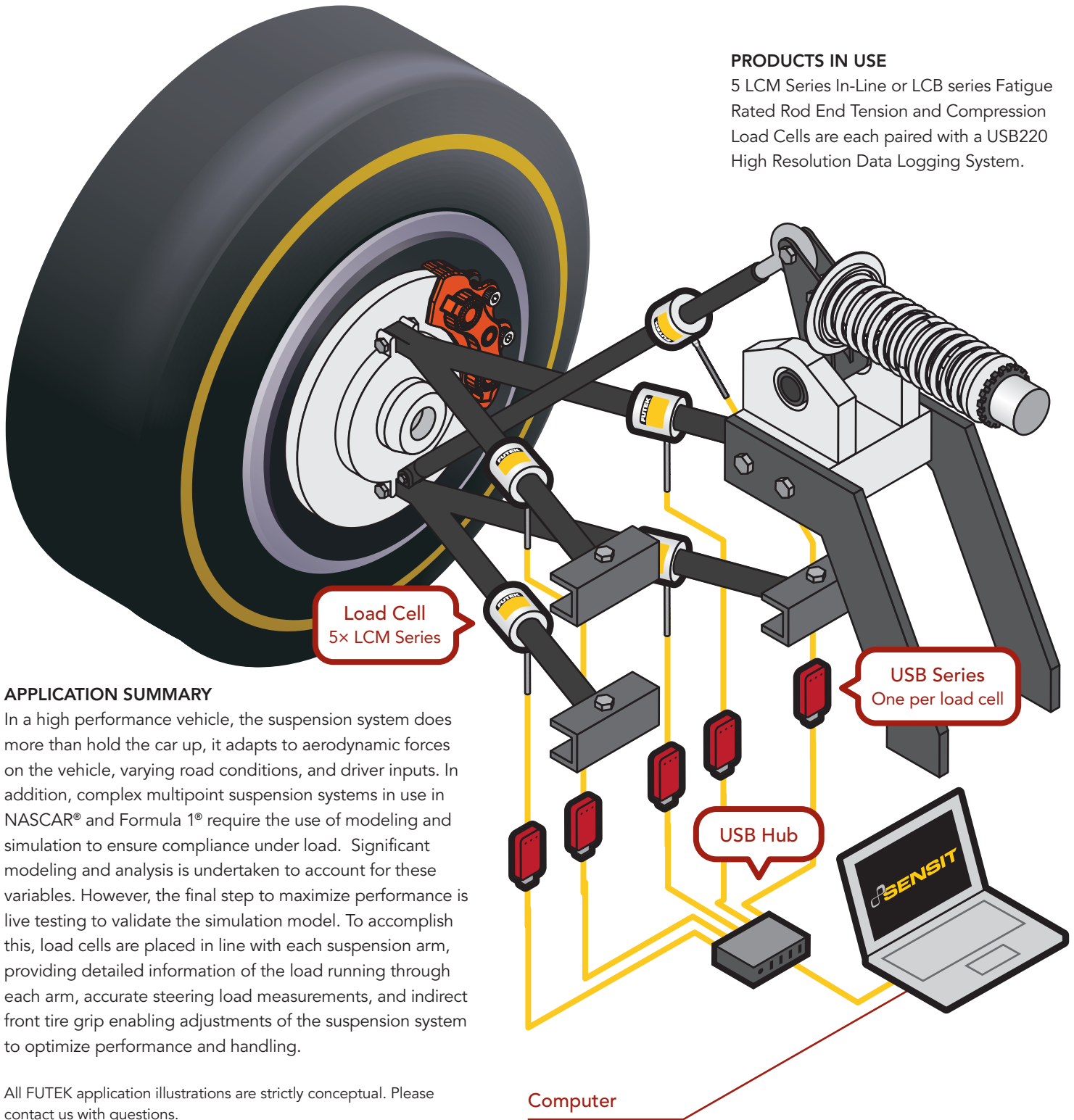
Sensor Solution Source

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U.S. Manufacturer



PRODUCTS IN USE

5 LCM Series In-Line or LCB series Fatigue Rated Rod End Tension and Compression Load Cells are each paired with a USB220 High Resolution Data Logging System.

APPLICATION SUMMARY

In a high performance vehicle, the suspension system does more than hold the car up, it adapts to aerodynamic forces on the vehicle, varying road conditions, and driver inputs. In addition, complex multipoint suspension systems in use in NASCAR® and Formula 1® require the use of modeling and simulation to ensure compliance under load. Significant modeling and analysis is undertaken to account for these variables. However, the final step to maximize performance is live testing to validate the simulation model. To accomplish this, load cells are placed in line with each suspension arm, providing detailed information of the load running through each arm, accurate steering load measurements, and indirect front tire grip enabling adjustments of the suspension system to optimize performance and handling.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

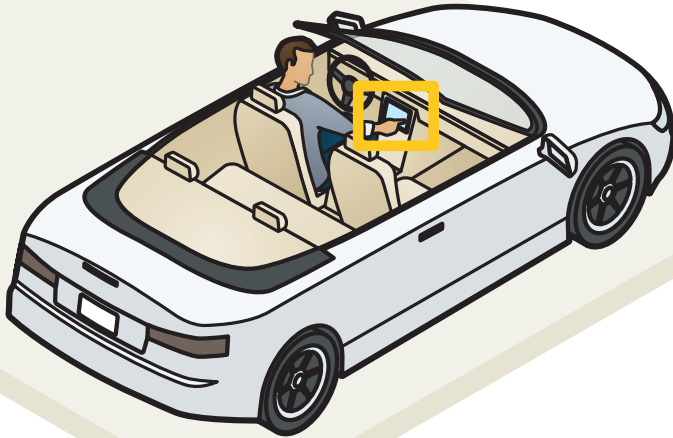
Sensor Solution Source

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U.S. Manufacturer



Touch Surface

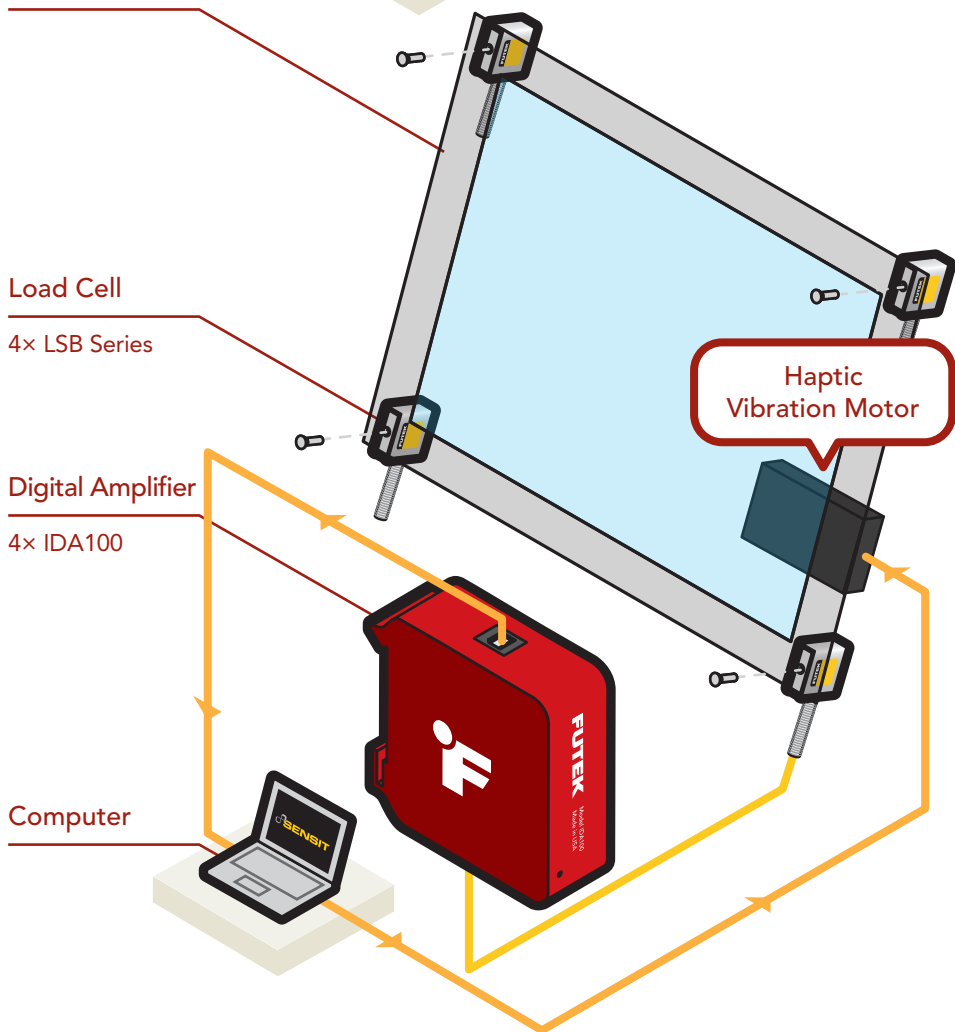
Load Cell

4x LSB Series

Digital Amplifier

4x IDA100

Computer



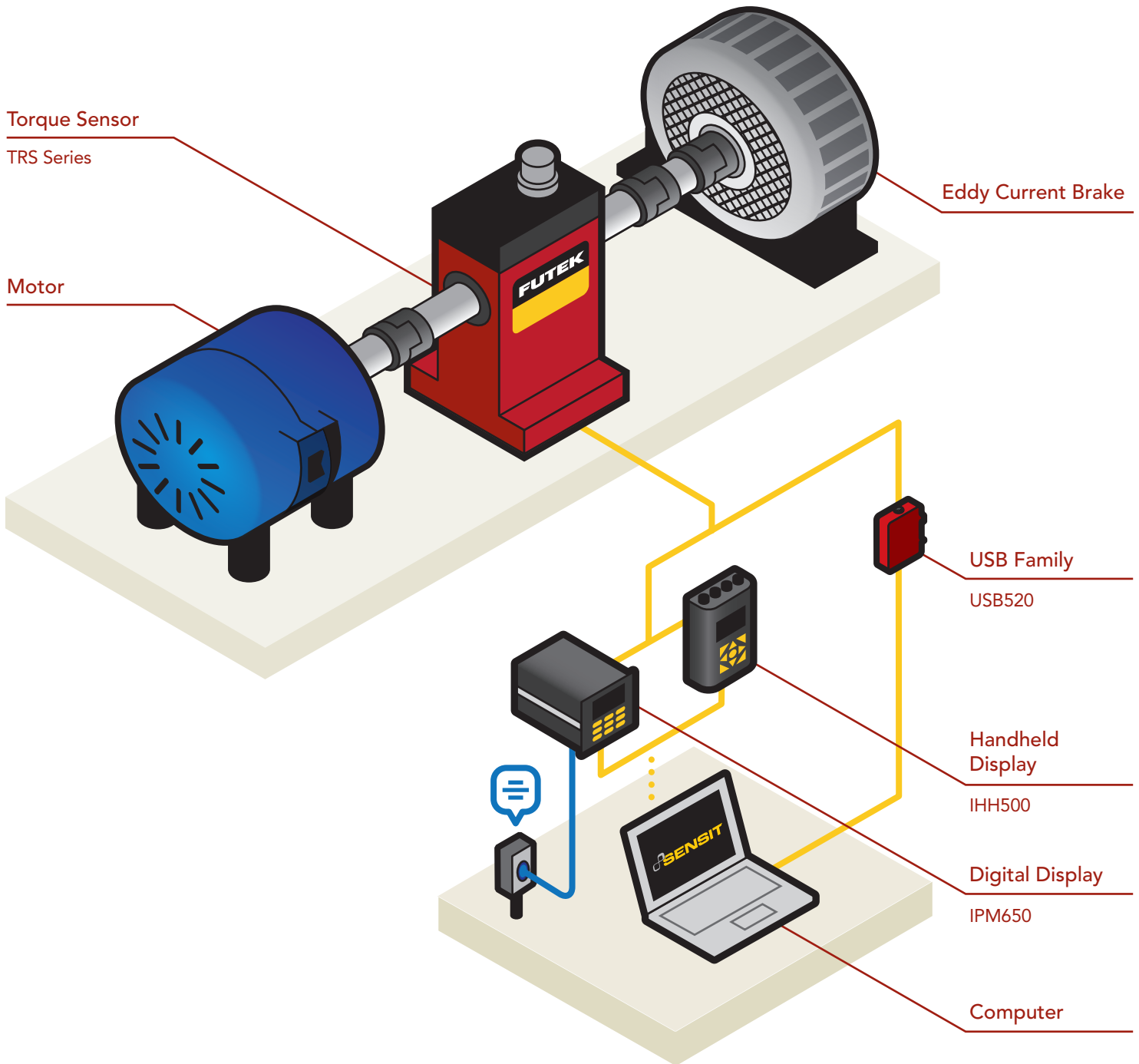
APPLICATION SUMMARY

As automotive entertainment UIs become more sophisticated, it's become harder to control them hands free without looking directly at the screen. The lack of tactile feedback results in the user's brain wanting to look at the screen to confirm input selection. By incorporating load cells to measure contact force, the on-board computer can confirm correct and incorrect inputs using varying vibrations, ensuring the driver that their input was correctly registered.

PRODUCTS IN USE

4 LSB200 In-line Tension and Compression S-Beam Load Cells each paired with an IDA100 Digital and Analog Amplifier

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



PRODUCTS IN USE

One Rotary Torque Sensor (TRS Series) paired with Instrumentation (IPM650, IHH500 or USB Solution).

APPLICATION SUMMARY

Rotary Torque Sensor are frequently used as auditing tools for motors, power tools, turbines, and generators.

Sensor Solution Source

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U.S. Manufacturer



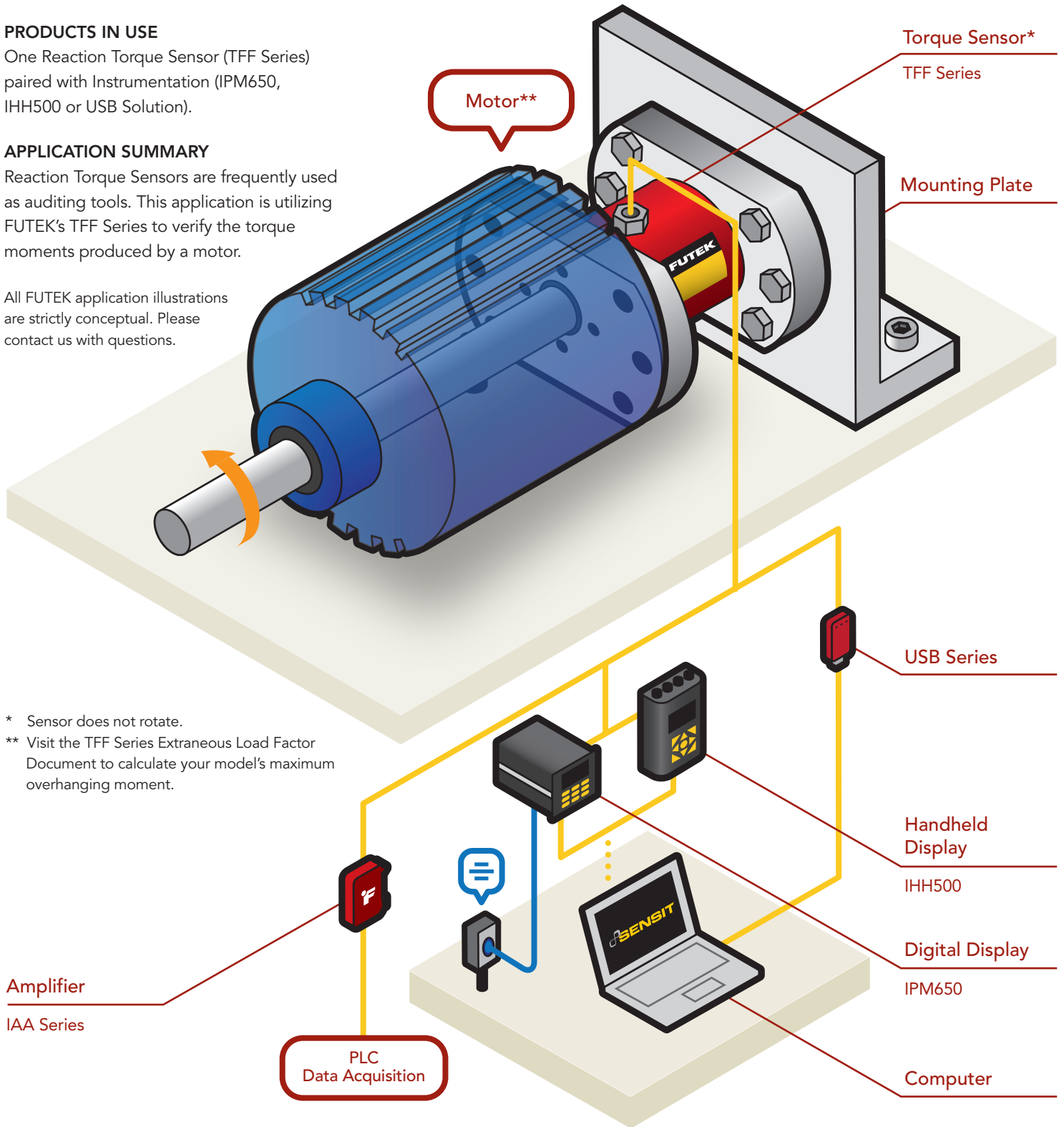
PRODUCTS IN USE

One Reaction Torque Sensor (TFF Series) paired with Instrumentation (IPM650, IHH500 or USB Solution).

APPLICATION SUMMARY

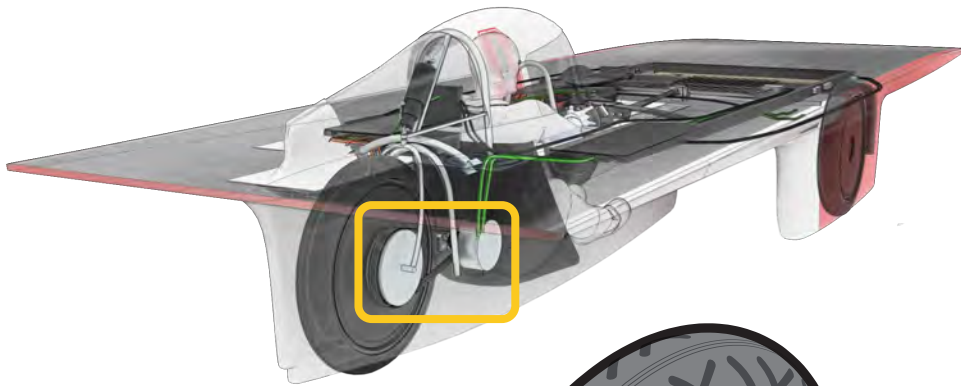
Reaction Torque Sensors are frequently used as auditing tools. This application is utilizing FUTEK's TFF Series to verify the torque moments produced by a motor.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



* Sensor does not rotate.

** Visit the TFF Series Extraneous Load Factor Document to calculate your model's maximum overhanging moment.



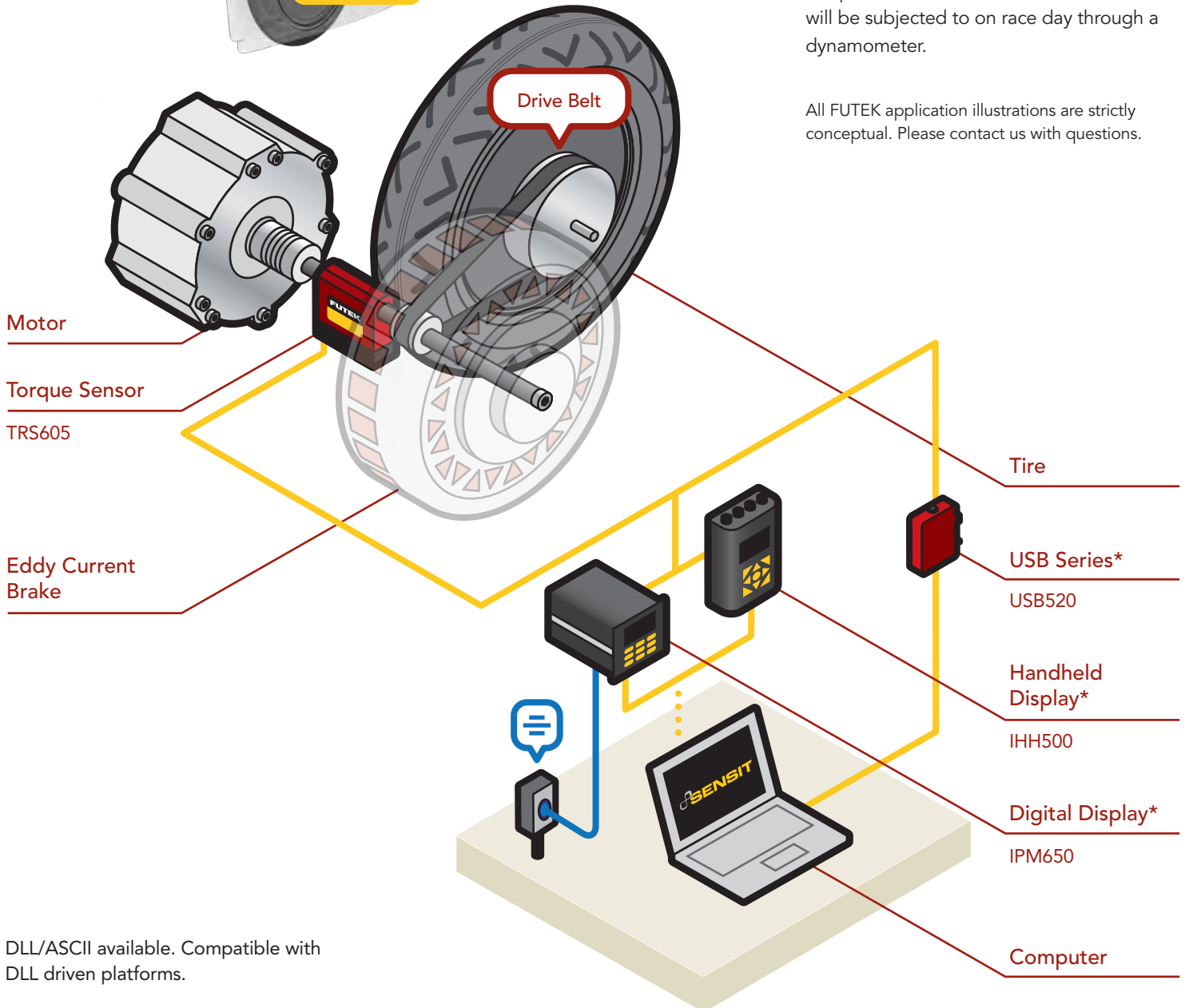
PRODUCTS IN USE

One Shaft-to-Shaft Rotary Torque Sensor (TRS Series) paired with Instrumentation (IPM650, IHH500 or USB Solution).

APPLICATION SUMMARY

Stanford's 2013 Solar Car Project team utilized FUTEK's Shaft-to-Shaft Rotary Torque Sensor to emulate what the motor will be subjected to on race day through a dynamometer.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



* DLL/ASCII available. Compatible with DLL driven platforms.



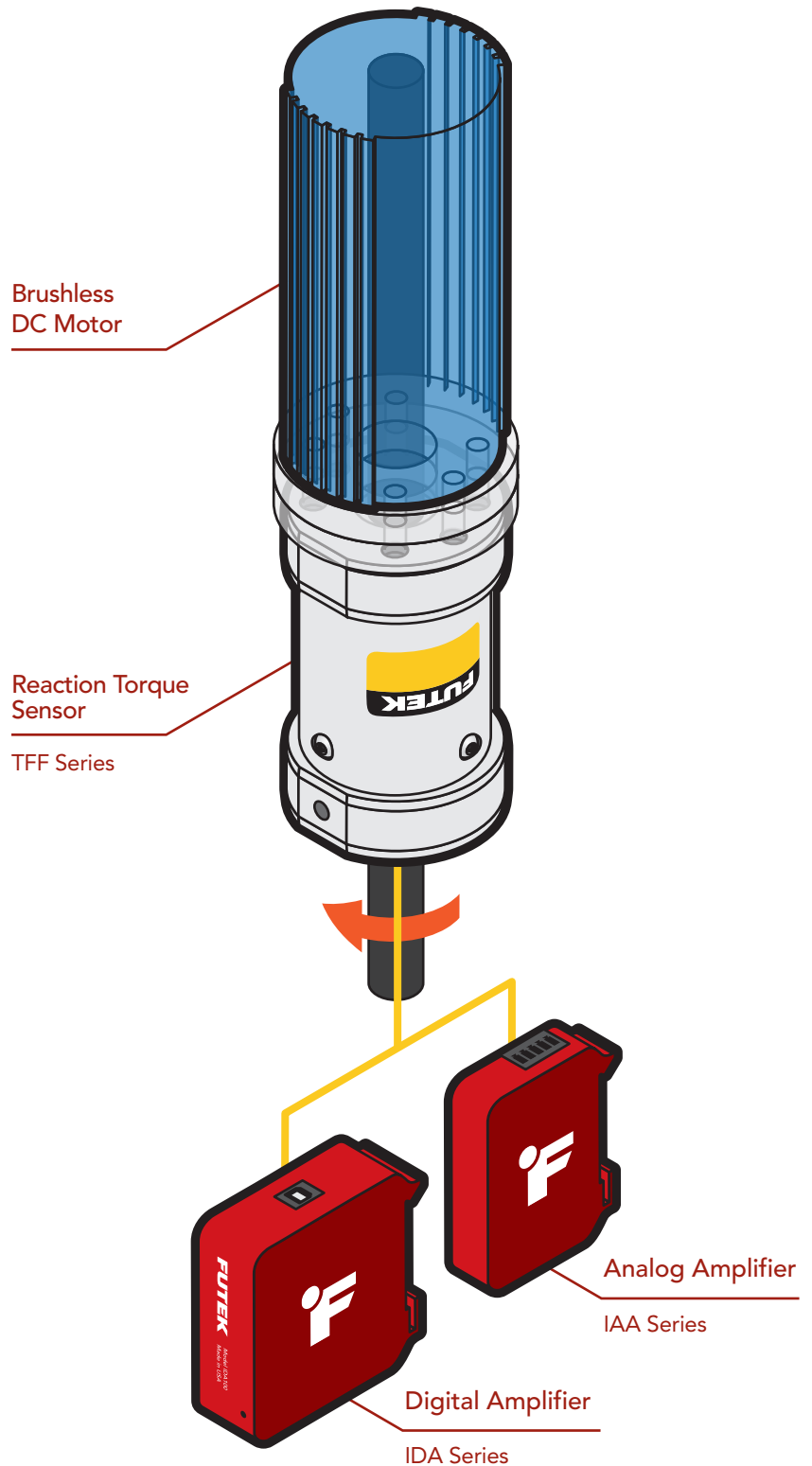
APPLICATION SUMMARY

Reaction torque sensors are often used as auditing and monitoring tools. This application utilizes the FUTEK TFF Series to measure the reaction torque produced by a miniature electric DC (brushed/brushless) or AC motor.

PRODUCTS IN USE

One Reaction Torque Sensor (TFF Series) paired with Instrumentation (IAA series analog amplifier or the IDA100 digital amplifier).

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U.S. Manufacturer

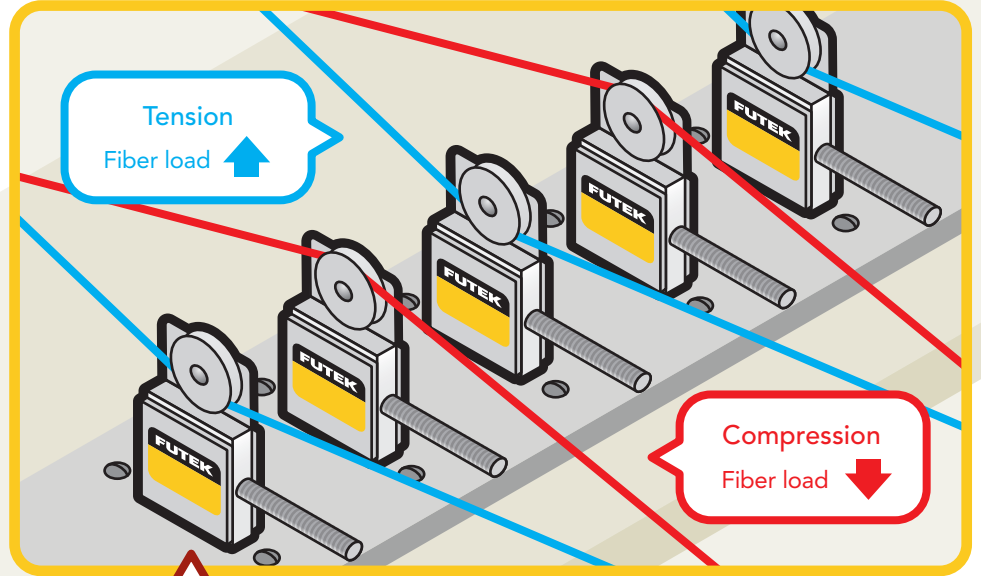
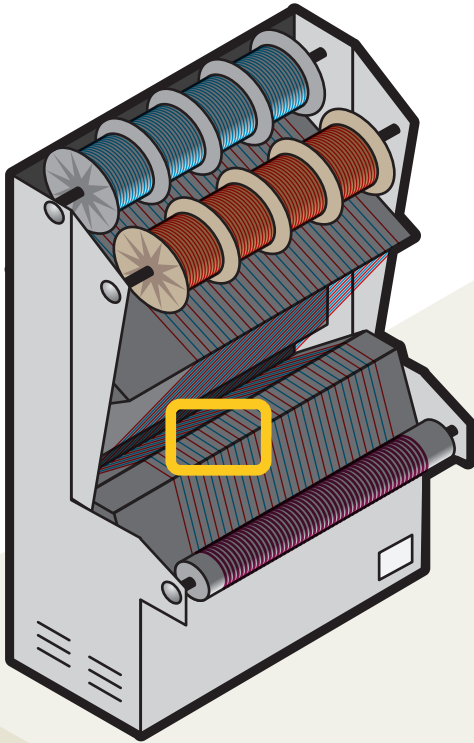


Manufacturing

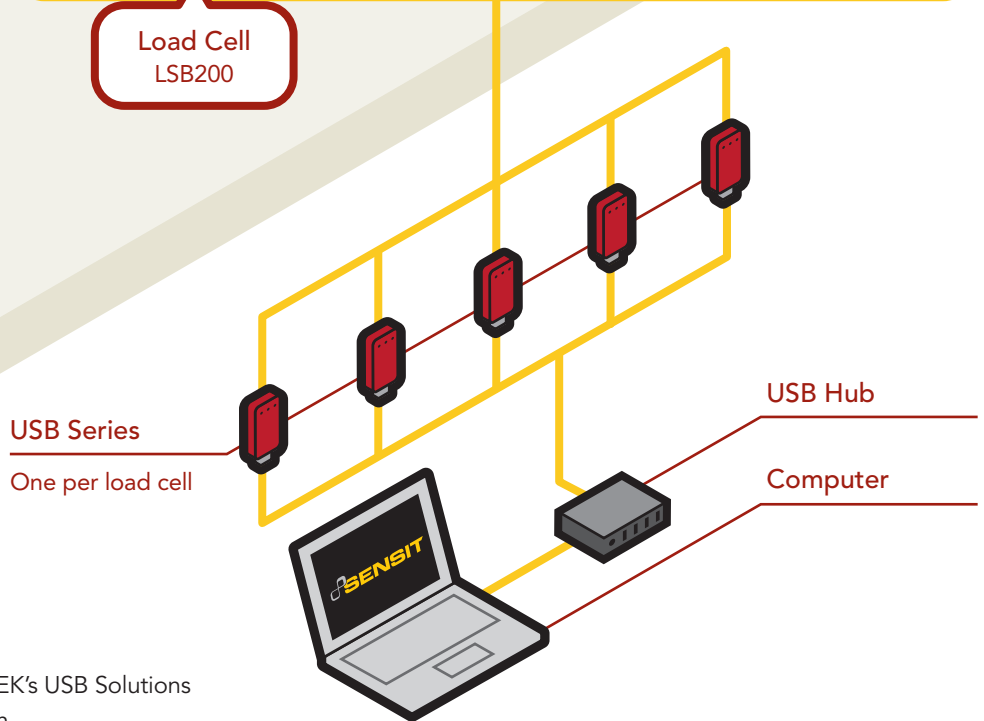
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Load Cell
LSB200



PRODUCTS IN USE

Miniature S-Beam Jr. (LSB200) paired with FUTEK's USB Solutions for monitoring tension force and data collection.

APPLICATION SUMMARY

Wire tension measurement is an integral part for manufacturers of fibers, cables, and even textile fabrics. This method of measurement allows manufactures to ensure their products fit their requirements.

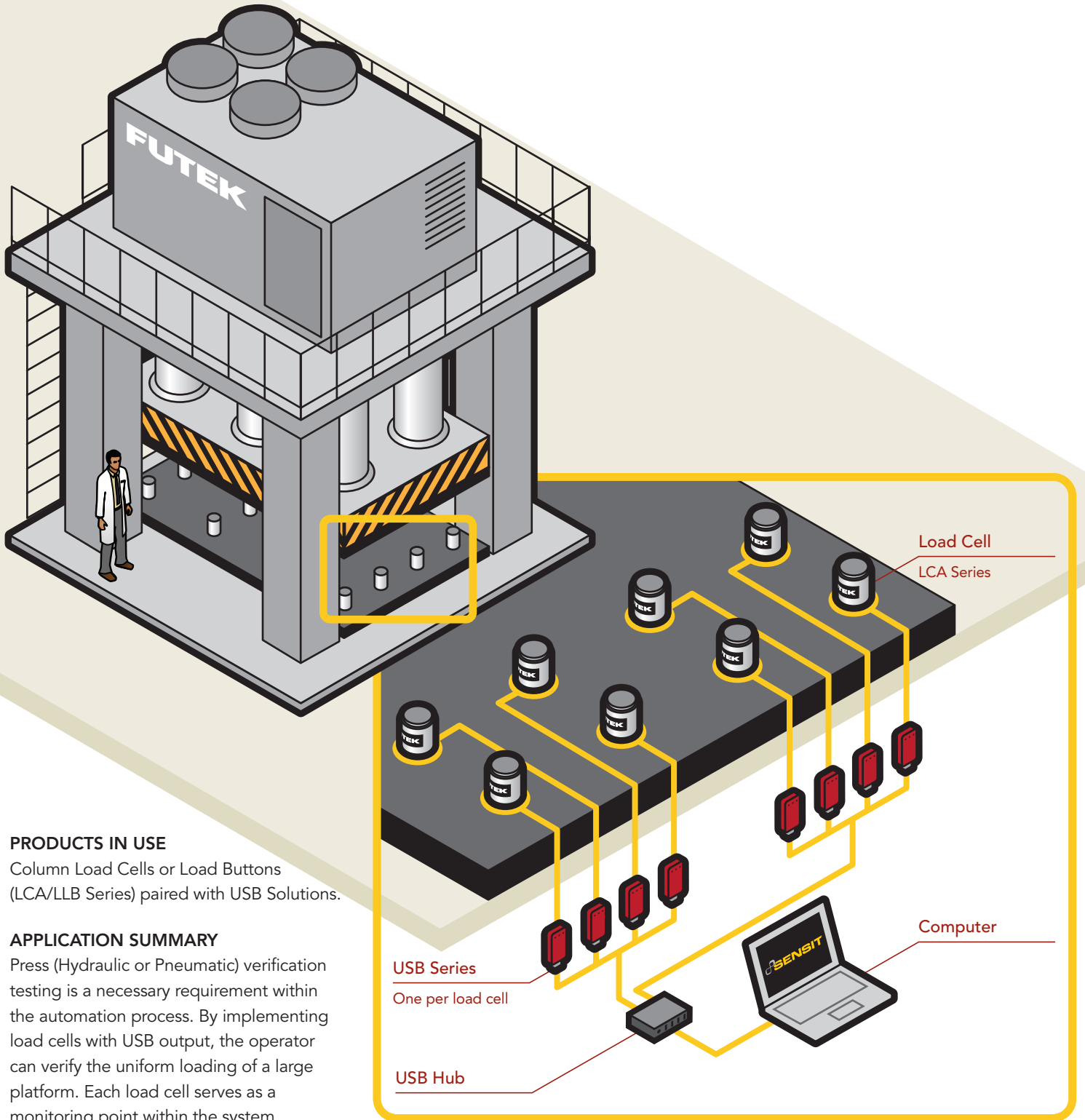
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U.S. Manufacturer



PRODUCTS IN USE

Column Load Cells or Load Buttons (LCA/LLB Series) paired with USB Solutions.

APPLICATION SUMMARY

Press (Hydraulic or Pneumatic) verification testing is a necessary requirement within the automation process. By implementing load cells with USB output, the operator can verify the uniform loading of a large platform. Each load cell serves as a monitoring point within the system.

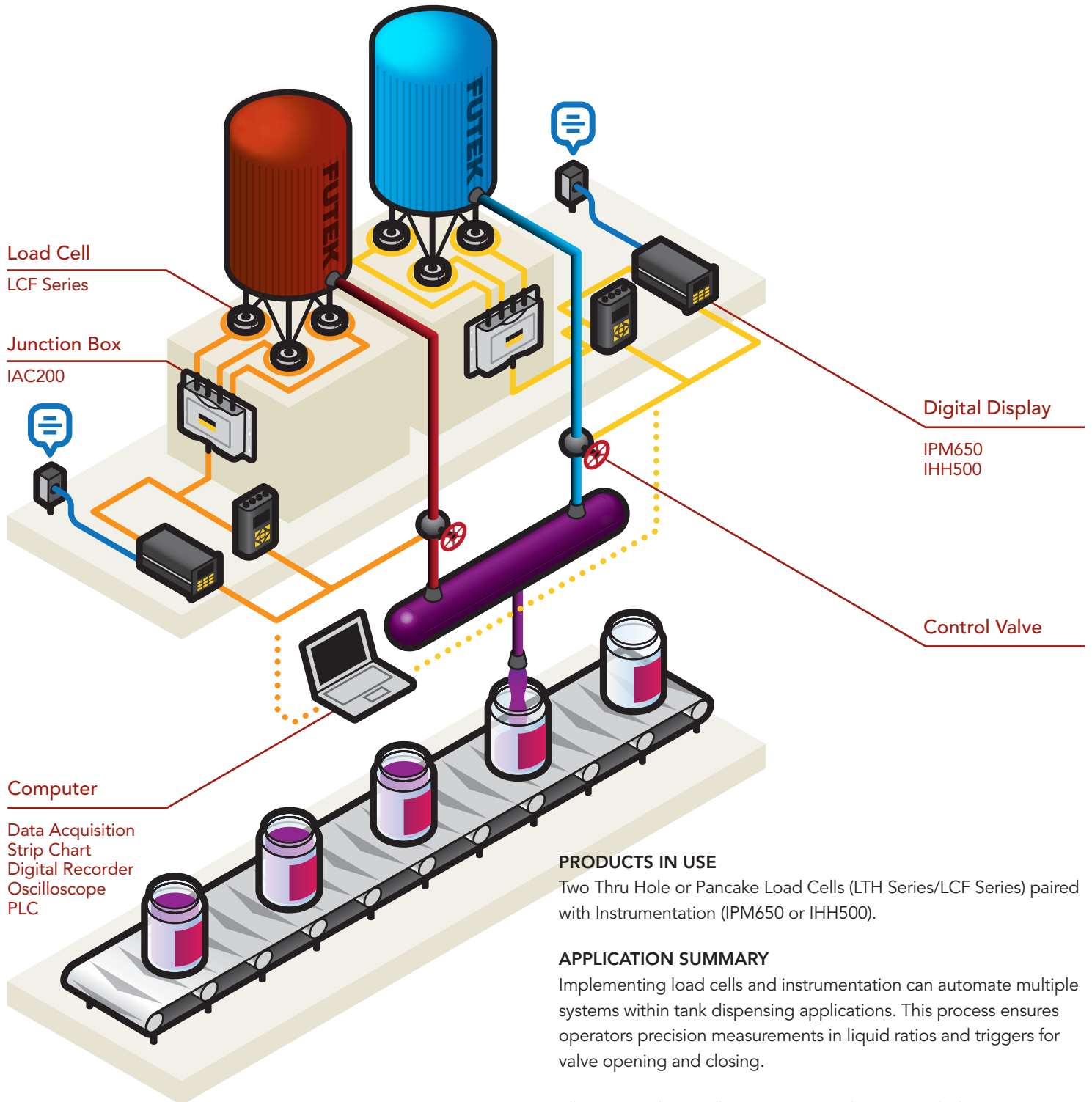
Sensor Solution Source

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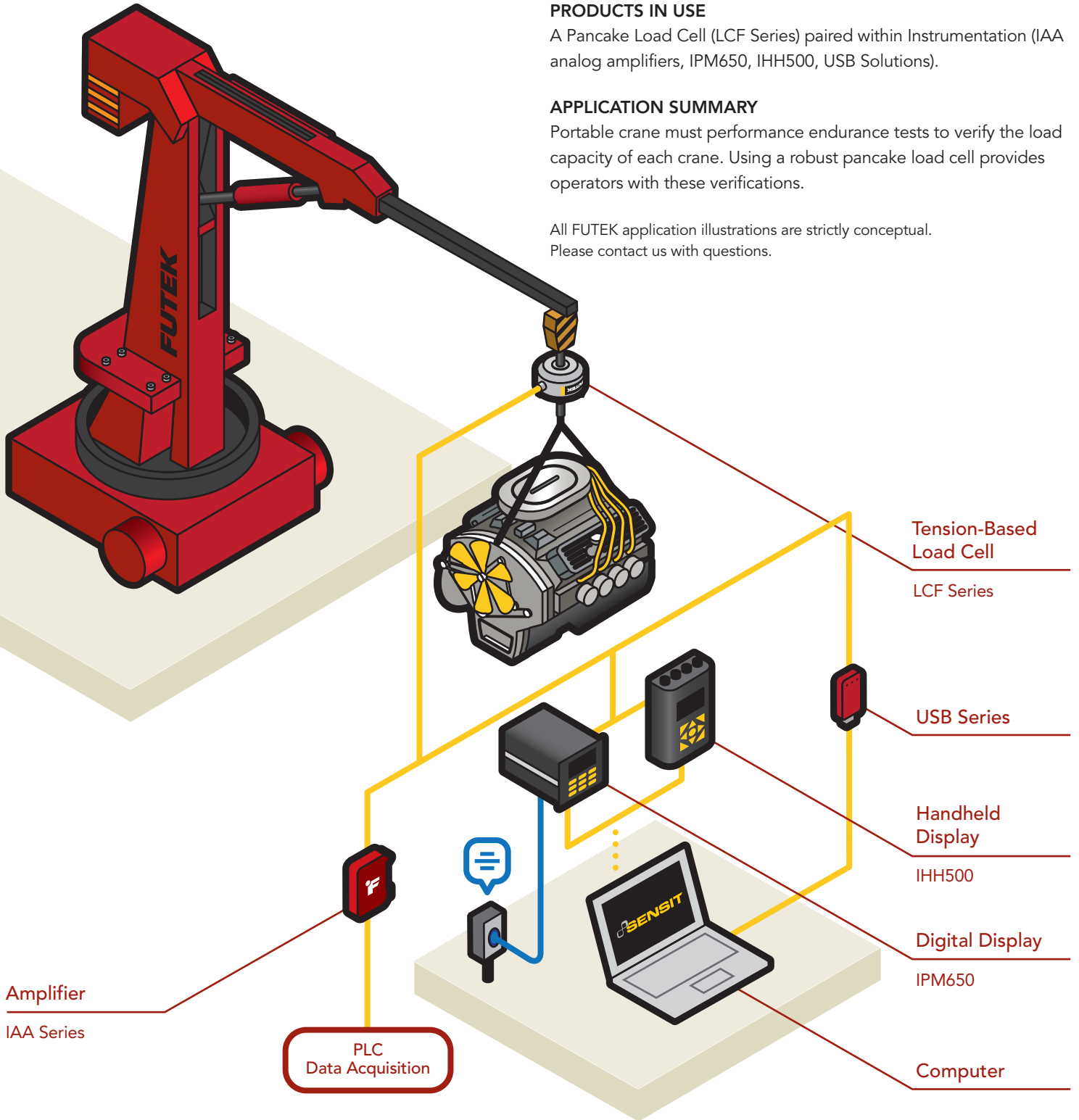
PRODUCTS IN USE

Two Thru Hole or Pancake Load Cells (LTH Series/LCF Series) paired with Instrumentation (IPM650 or IHH500).

APPLICATION SUMMARY

Implementing load cells and instrumentation can automate multiple systems within tank dispensing applications. This process ensures operators precision measurements in liquid ratios and triggers for valve opening and closing.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



PRODUCTS IN USE

A Pancake Load Cell (LCF Series) paired within Instrumentation (IAA analog amplifiers, IPM650, IHH500, USB Solutions).

APPLICATION SUMMARY

Portable crane must performance endurance tests to verify the load capacity of each crane. Using a robust pancake load cell provides operators with these verifications.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



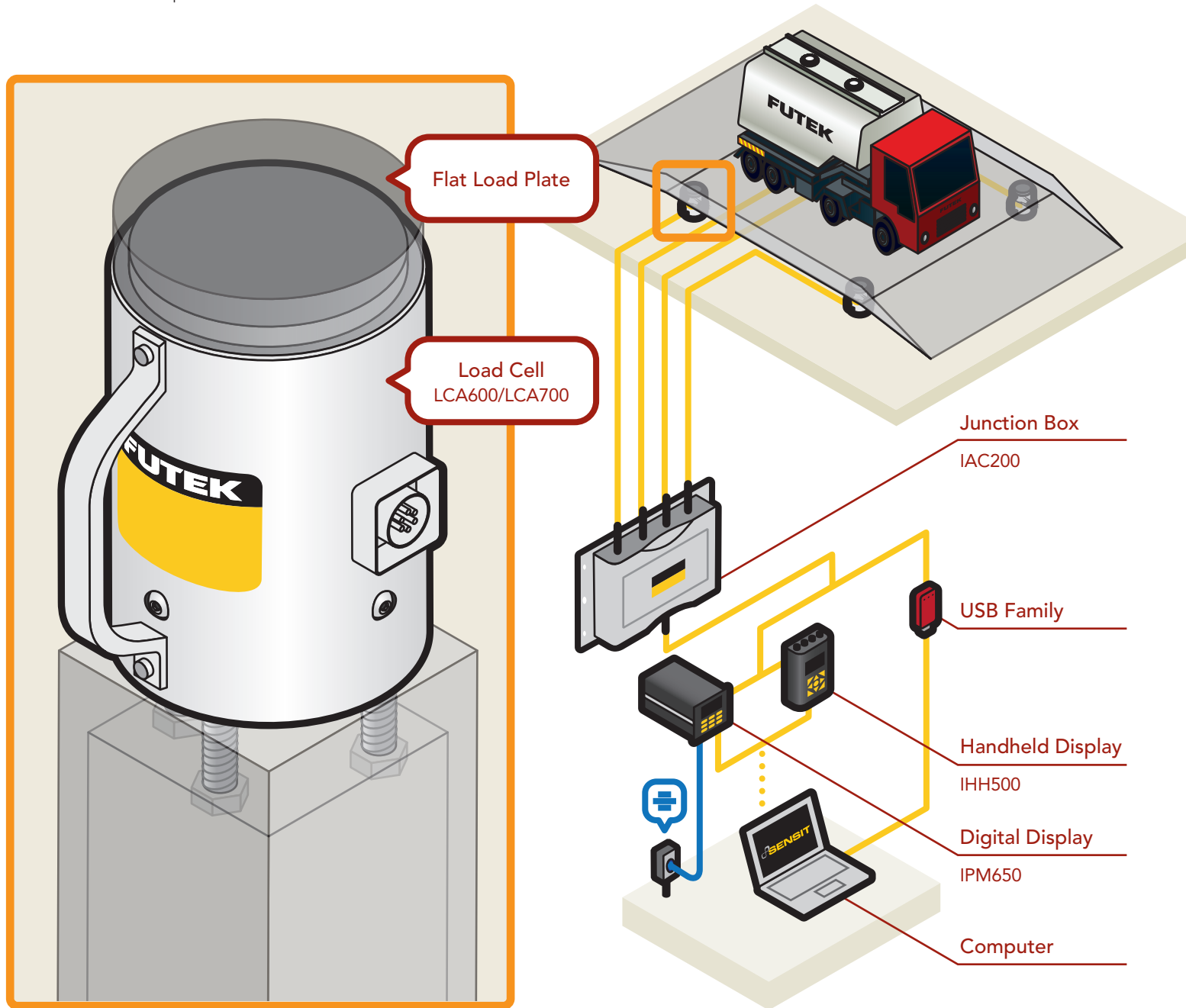
APPLICATION SUMMARY

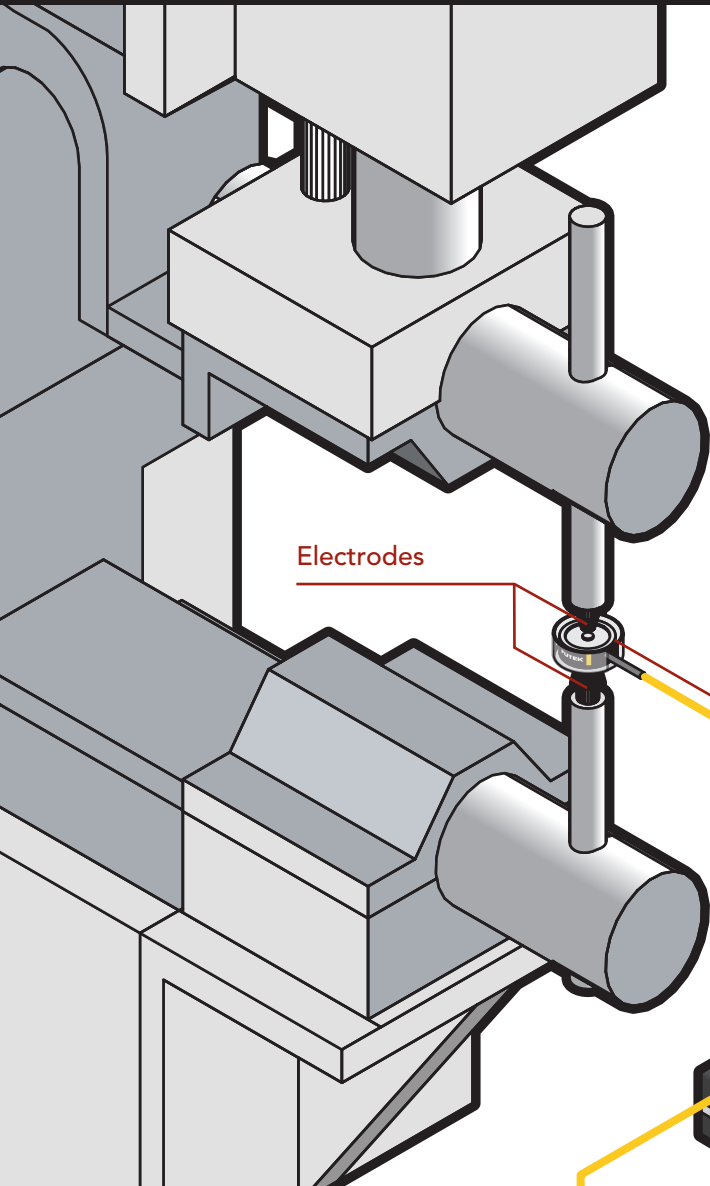
Weighbridges are utilized in various industries that manufacture or move bulk items. FUTEK's LCA Family offers a robust design for high capacity measurements.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

PRODUCTS IN USE

Load Column Cell (LCA600/LCA700) paired with Instrumentation (IPM650, IHH500, IAC200, or USB Solutions) and SENSIT™ Test and Measurement Software.





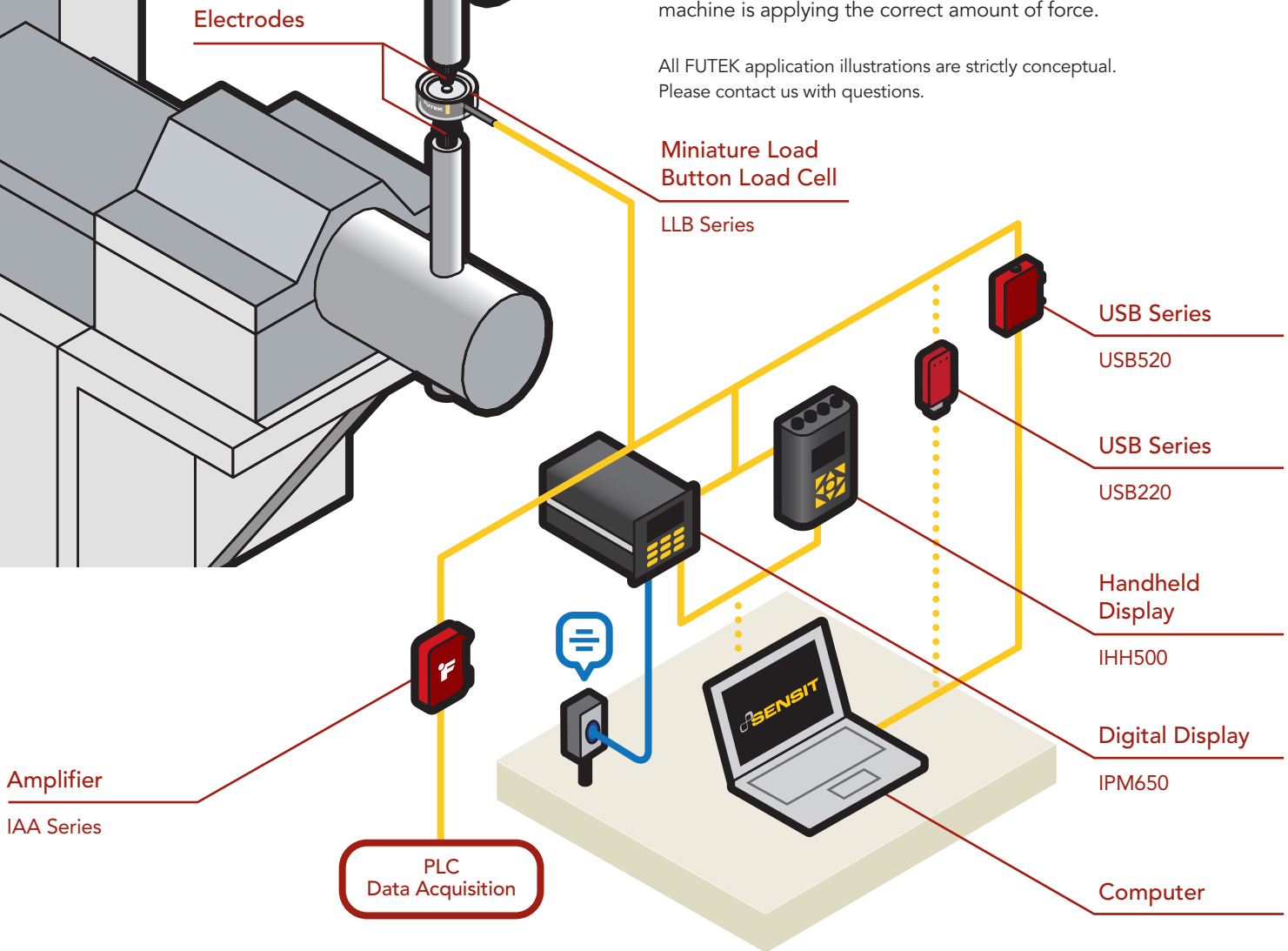
PRODUCTS IN USE

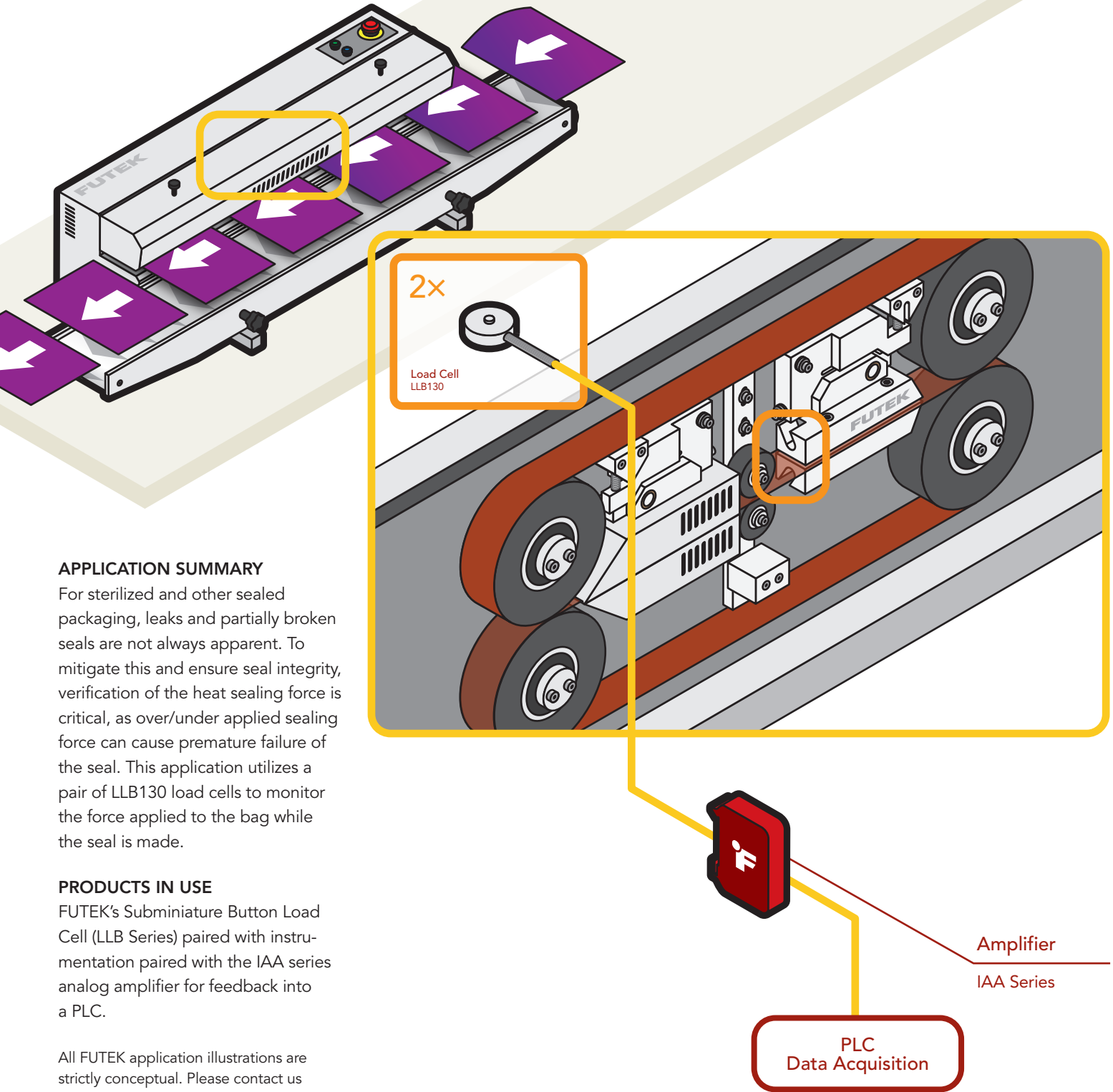
Subminiature Load Button Load Cell (LLB Series) paired with Instrumentation and Software (IHH500, IPM650, USB Solutions, and SENSIT™ Test and Measurement Software).

APPLICATION SUMMARY

Resistance Spot Welding is a process in which pieces of metal are joined together by the heat created by the electrical resistance of the material combined with the forces applied by the electrode to hold the pieces together. The forces applied by the electrodes are very critical to the process, as the incorrect amount might cause cracks, holes, and failures in the welds. FUTEK's LLB300 Subminiature Load Button Load Cell helps operators ensure that the welding machine is applying the correct amount of force.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.





APPLICATION SUMMARY

For sterilized and other sealed packaging, leaks and partially broken seals are not always apparent. To mitigate this and ensure seal integrity, verification of the heat sealing force is critical, as over/under applied sealing force can cause premature failure of the seal. This application utilizes a pair of LLB130 load cells to monitor the force applied to the bag while the seal is made.

PRODUCTS IN USE

FUTEK's Subminiature Button Load Cell (LLB Series) paired with instrumentation paired with the IAA series analog amplifier for feedback into a PLC.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

Sensor Solution Source

Load · Torque · Pressure · Multi Axis · Calibration · Instruments · Software

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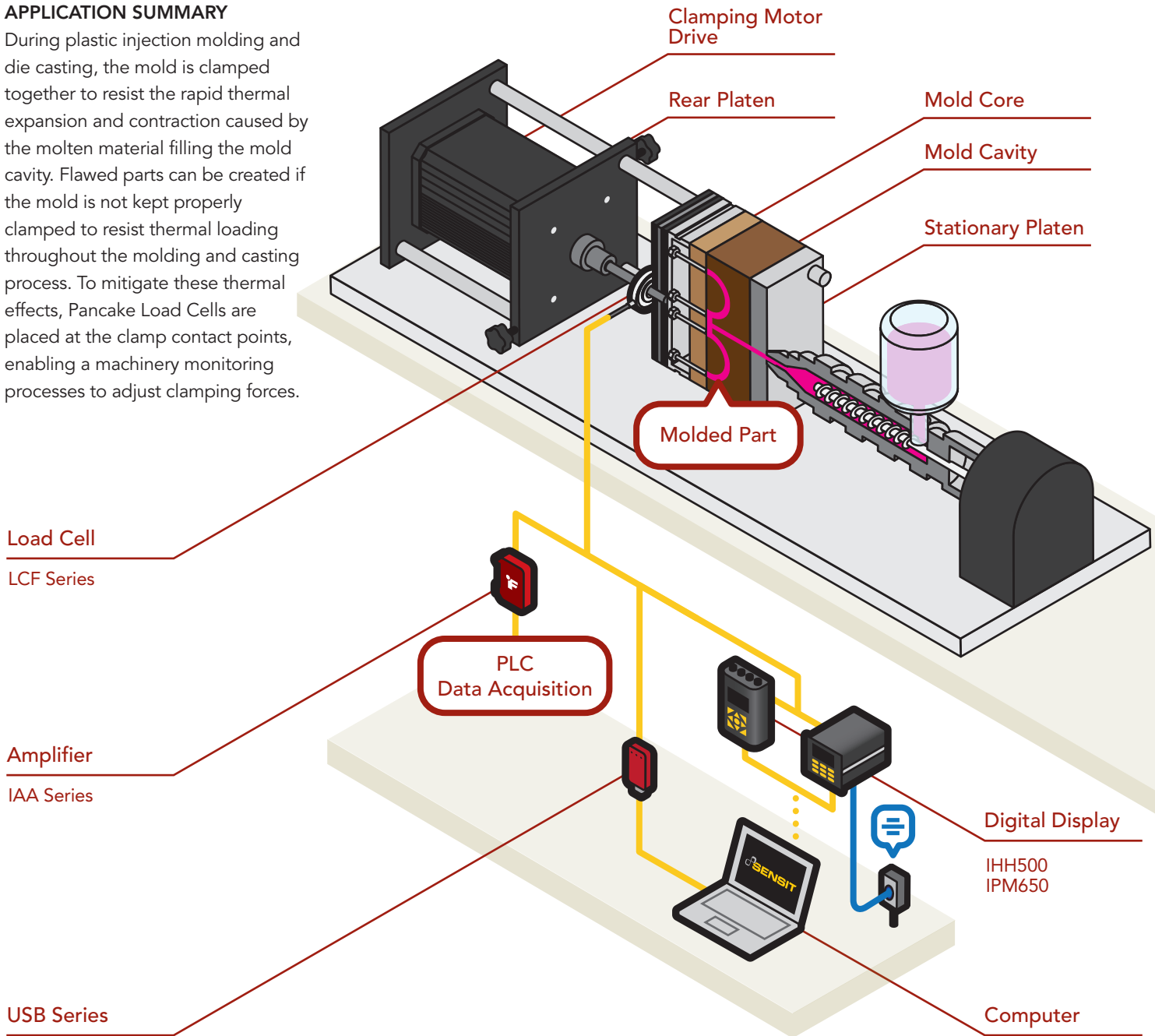


U.S. Manufacturer



APPLICATION SUMMARY

During plastic injection molding and die casting, the mold is clamped together to resist the rapid thermal expansion and contraction caused by the molten material filling the mold cavity. Flawed parts can be created if the mold is not kept properly clamped to resist thermal loading throughout the molding and casting process. To mitigate these thermal effects, Pancake Load Cells are placed at the clamp contact points, enabling a machinery monitoring processes to adjust clamping forces.



Load Cell
LCF Series

Amplifier
IAA Series

USB Series

Clamping Motor Drive

Rear Platen

Mold Core

Mold Cavity

Stationary Platen

MolDED Part

PLC
Data Acquisition

Digital Display

IHH500
IPM650

Computer

PRODUCTS IN USE

FUTEK's Universal Pancake Load Cells (LCF Series) coupled with the IAA Series analog amplifier for feedback into a PLC.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

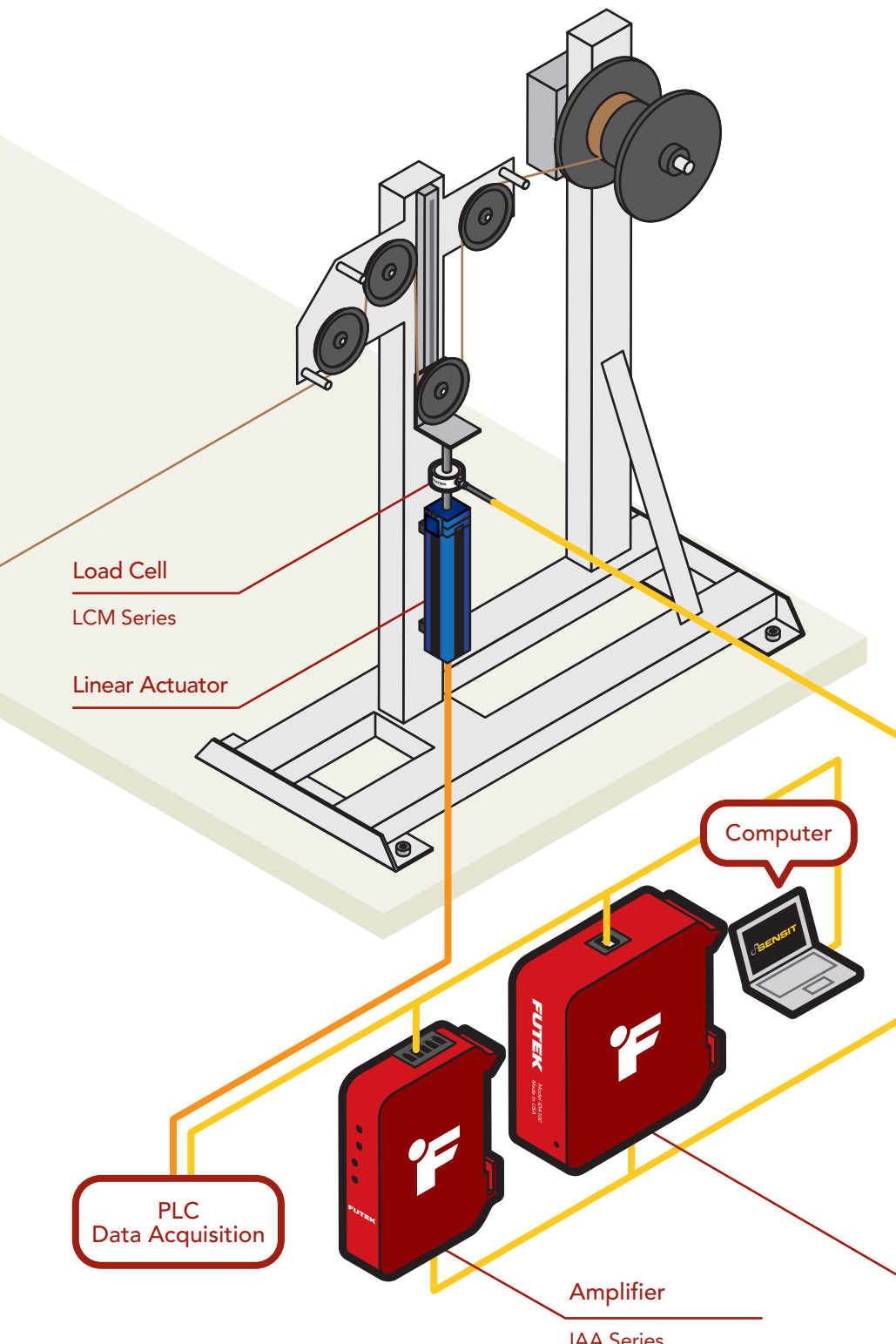
Sensor Solution Source

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U.S. Manufacturer



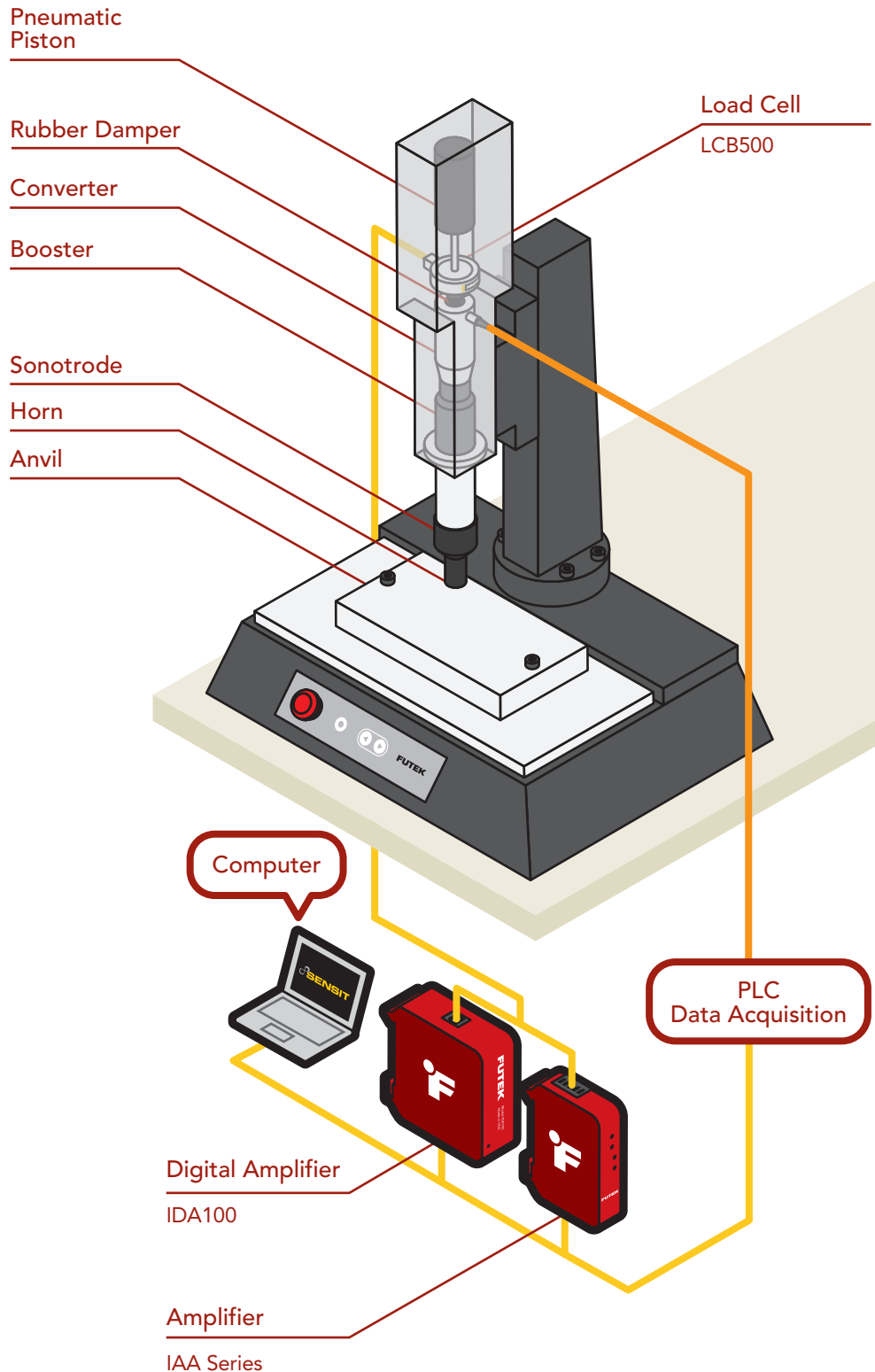
APPLICATION SUMMARY

Whether you are feeding a wire EDM machine, a wire stripper, or winding electric motor coils, precision wire tension is key to meet today's high performance standards. The key to precision wire tension control requires live monitoring of the wire tension. By utilizing a load cell in-line with the wire tensioner, a versatile wire tensioning system can be developed that can adapt to changing wire quality and conditions. Furthermore this adaptive system can maintain high coil winding quality and repeatability while maximizing process efficiency by preventing wire breakage.

PRODUCTS IN USE

1 In-Line Tension and Compression Load Cell (LCM Series) paired with Instrumentation (IAA Series or IDA100).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



APPLICATION SUMMARY

Ultrasonic Welding welds together two pieces of material (ex: plastic) using high frequency vibrations. This results in a clean welding process, producing uniform, fluid tight welds. The clean welding process makes it ideal for medical equipment, toys, semiconductors, and consumer electronics. One of the keys to a clean weld is the proper application of clamping force. Too little force results in an incomplete weld, too much force results in deformed parts. Incorporating a load cell inline with the welding stack enables the ultrasonic welder to provide the correct amount of contact force to every part.

PRODUCTS IN USE

1 LCB/LCF Series Load Cells paired with Instrumentation (IAA Series or IDA100)

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

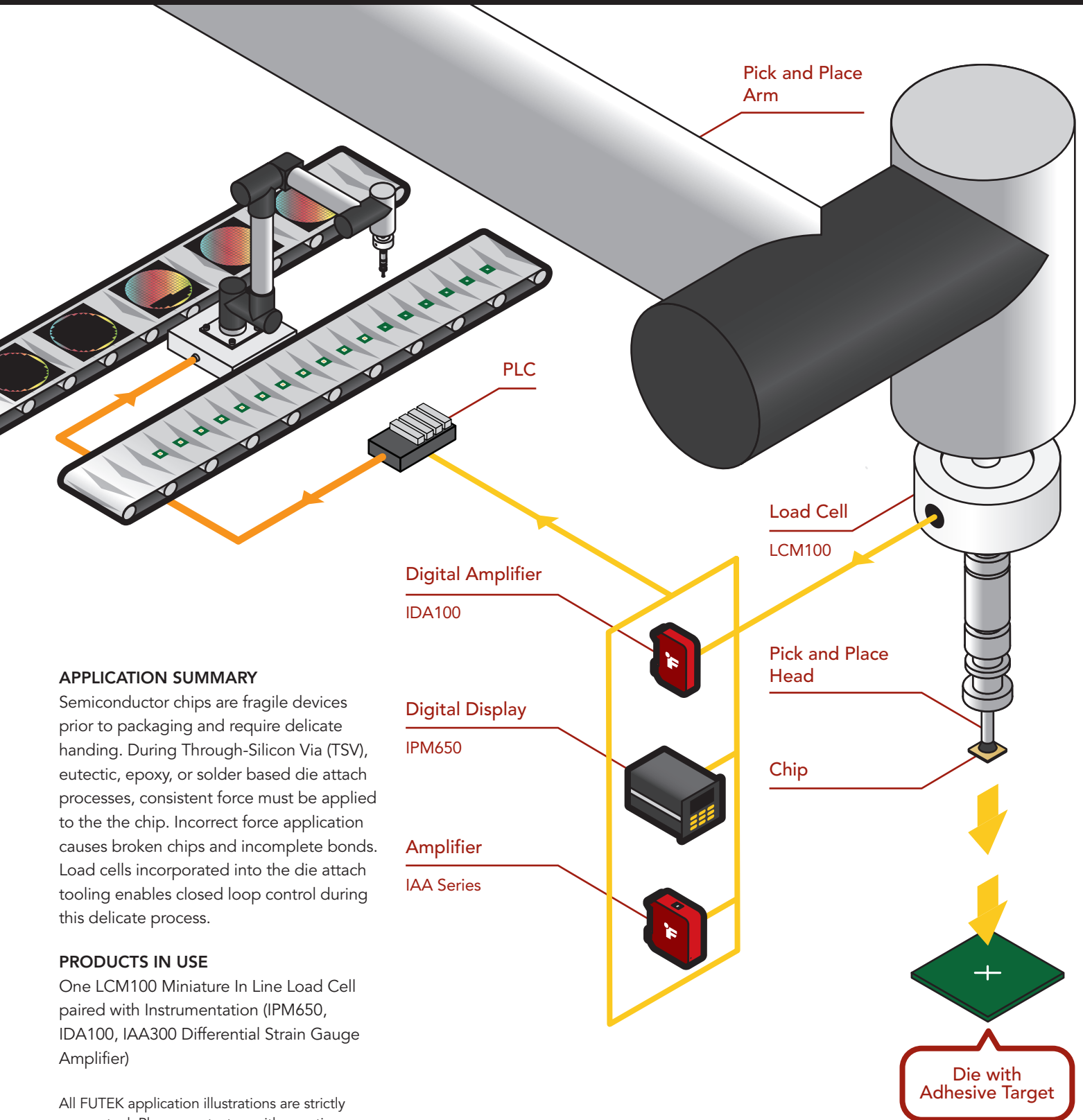
Sensor Solution Source

Load · Torque · Pressure · Multi Axis · Calibration · Instruments · Software

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U.S. Manufacturer



APPLICATION SUMMARY

Semiconductor chips are fragile devices prior to packaging and require delicate handling. During Through-Silicon Via (TSV), eutectic, epoxy, or solder based die attach processes, consistent force must be applied to the the chip. Incorrect force application causes broken chips and incomplete bonds. Load cells incorporated into the die attach tooling enables closed loop control during this delicate process.

PRODUCTS IN USE

One LCM100 Miniature In Line Load Cell paired with Instrumentation (IPM650, IDA100, IAA300 Differential Strain Gauge Amplifier)

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

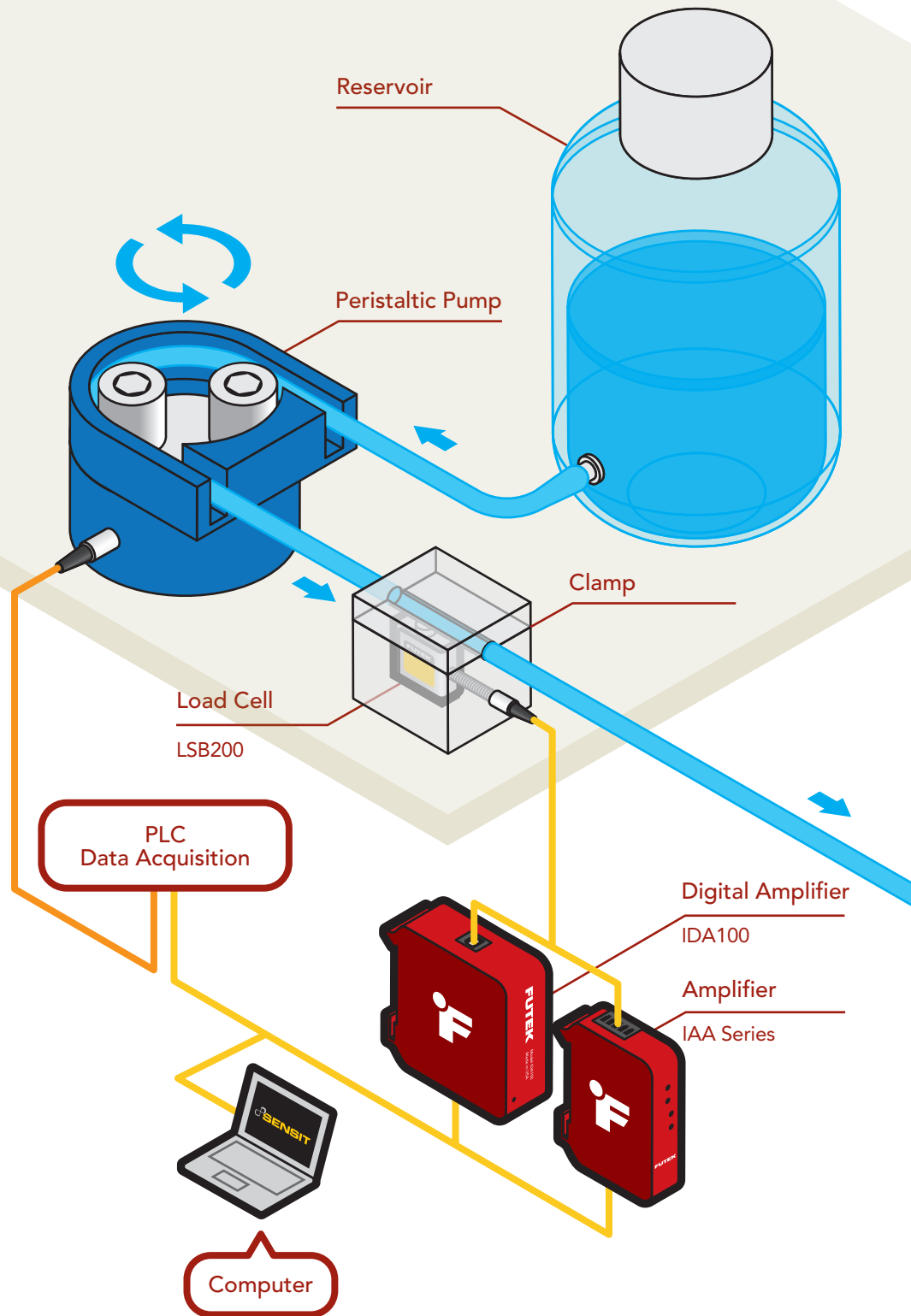
Sensor Solution Source

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U.S. Manufacturer



APPLICATION SUMMARY

Measuring fluid flow rate in food production, blood infusions, catheterization, and chemical compounding requires sanitary and sterile processes. Non-contact measurement solutions such as using an occlusion provide one type of flow measurement solution. Additionally, this technique allows for bubble and blockage detection. To measure the force exerted by the fluid on the occlusion, a load cell is incorporated into the clamping mechanism.

PRODUCTS IN USE

1 LSB200 Jr. Miniature S-Beam Load Cell paired with Instrumentation (IAA, IDA100)

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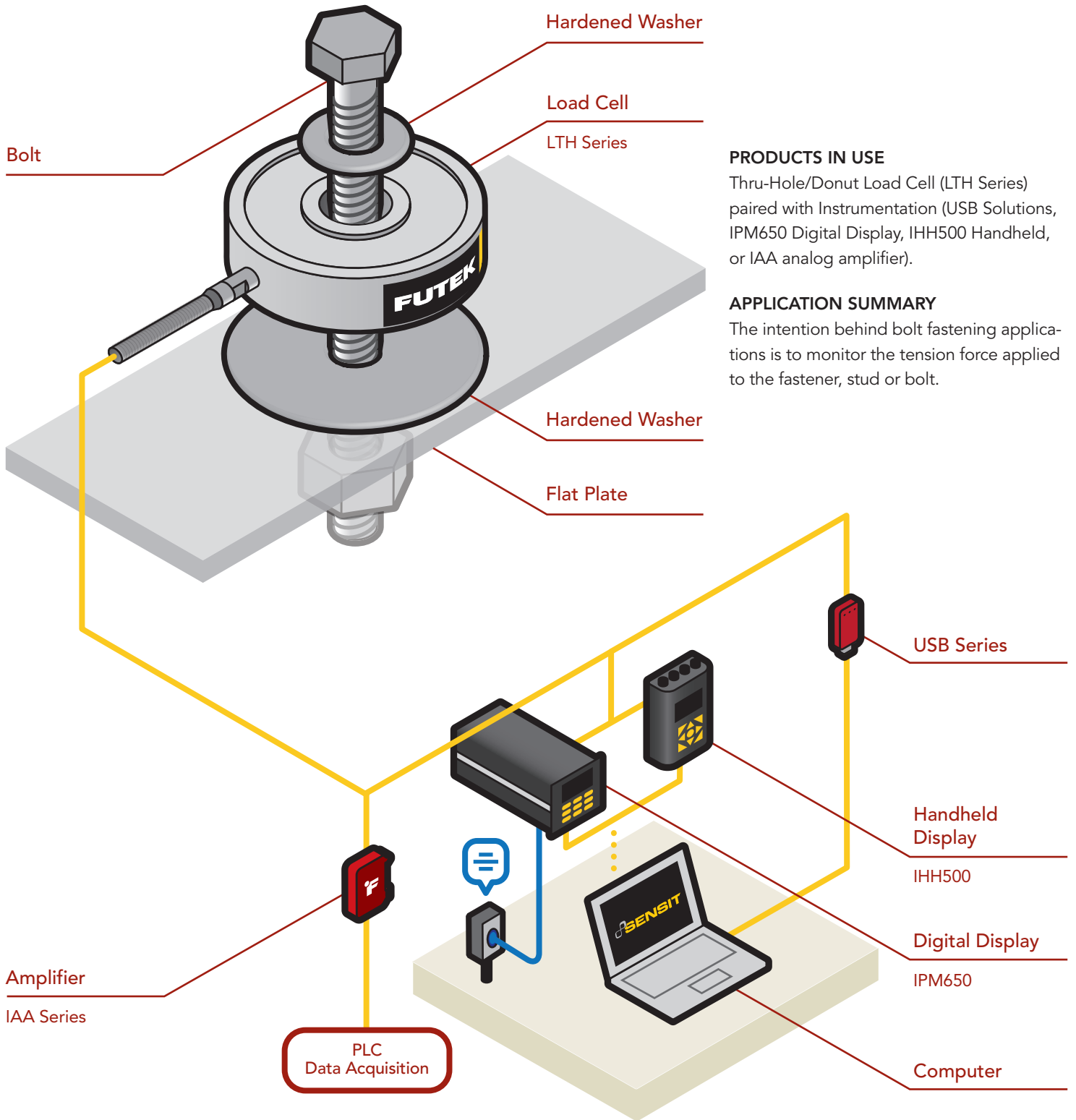


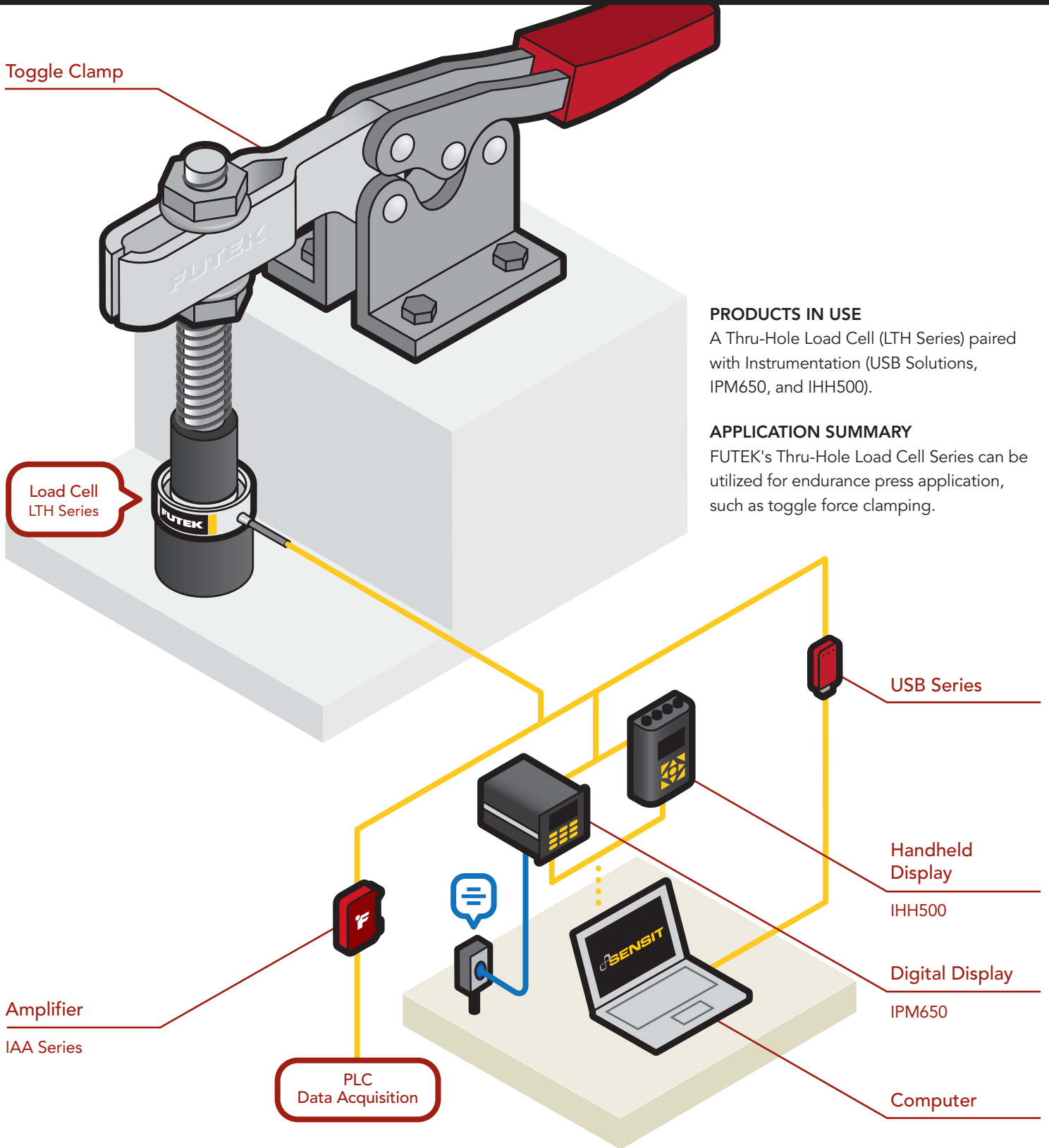
Material & Endurance Testing

Sensor Solutions Source

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PRODUCTS IN USE

A Thru-Hole Load Cell (LTH Series) paired with Instrumentation (USB Solutions, IPM650, and IHH500).

APPLICATION SUMMARY

FUTEK's Thru-Hole Load Cell Series can be utilized for endurance press application, such as toggle force clamping.

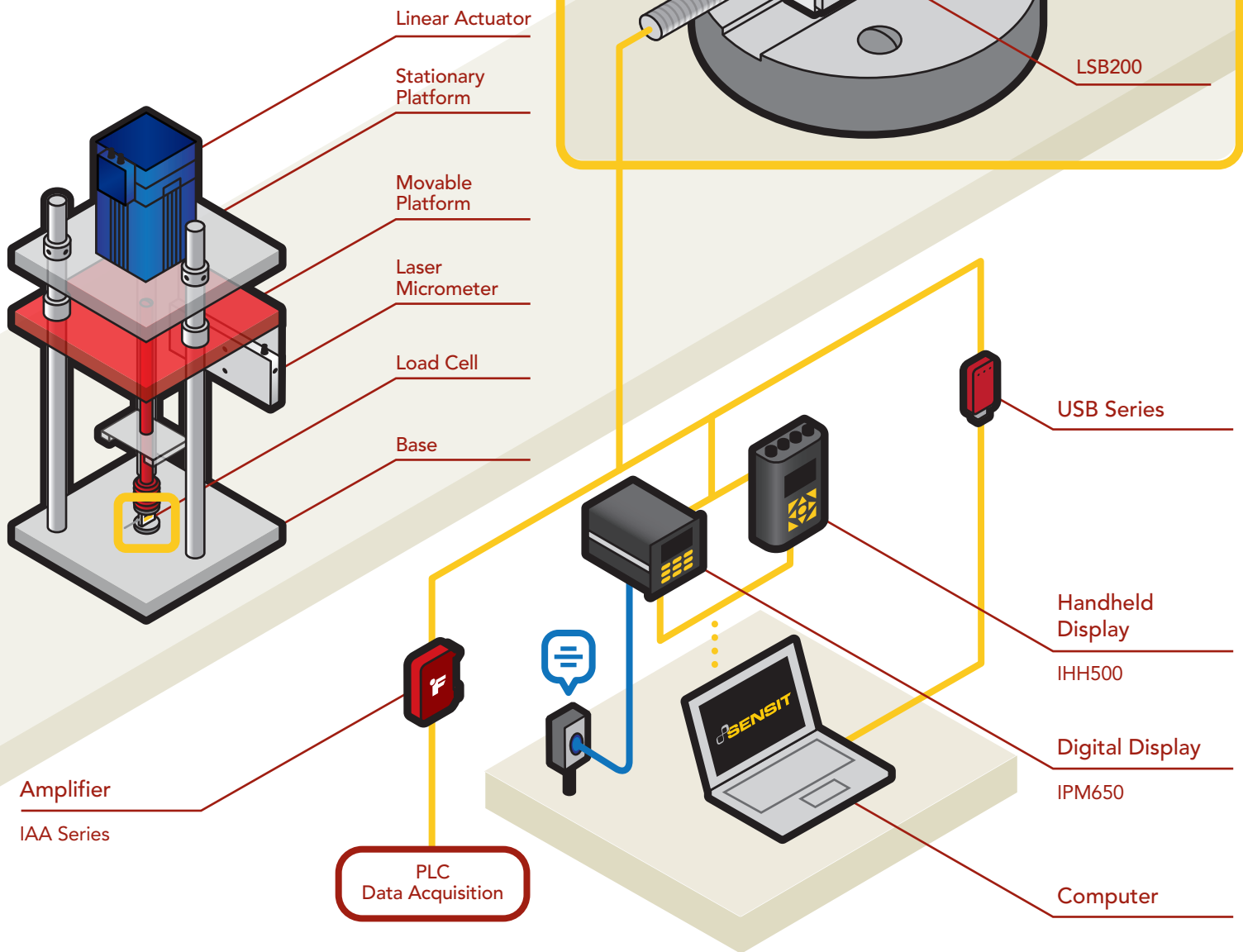


PRODUCTS IN USE

Miniature S-Beam Jr. (LSB200) paired with Instrumentation (IPM650, IHH500, USB Solutions, or IAA analog amplifier).

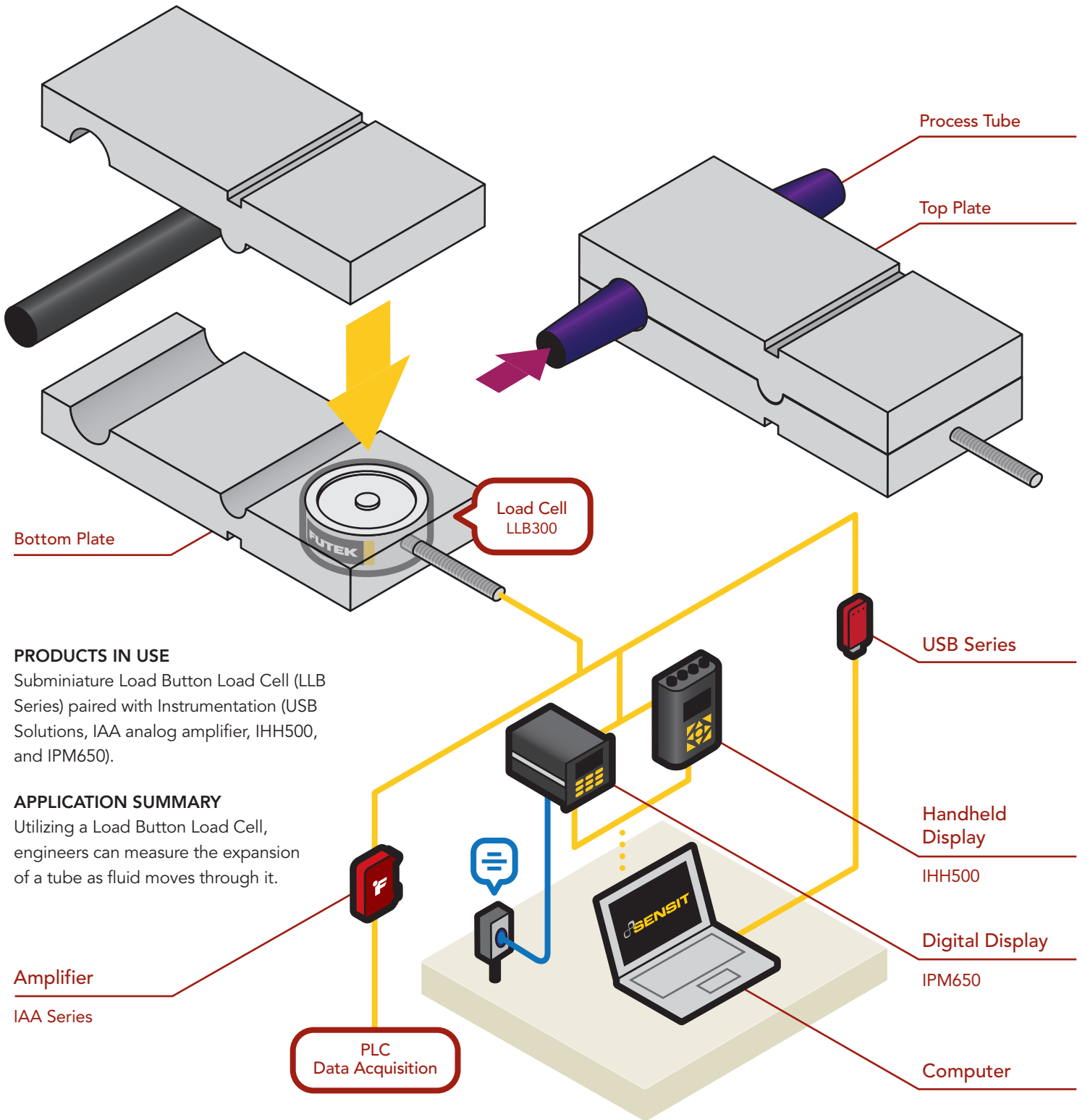
APPLICATION SUMMARY

Many industries use test fixtures to measure their presses or impact stands. FUTEK's LSB200 Load Cell is suitable for applications needing precise lower capacity impact test measurements.



Amplifier
IAA Series

PLC
Data Acquisition

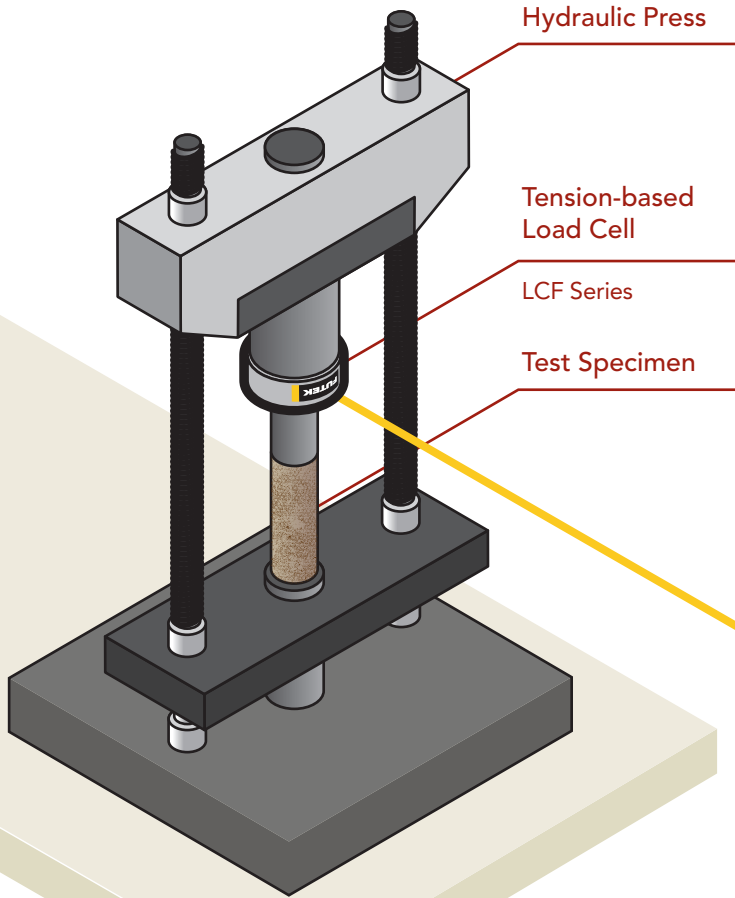


PRODUCTS IN USE

Subminiature Load Button Load Cell (LLB Series) paired with Instrumentation (USB Solutions, IAA analog amplifier, IHH500, and IPM650).

APPLICATION SUMMARY

Utilizing a Load Button Load Cell, engineers can measure the expansion of a tube as fluid moves through it.



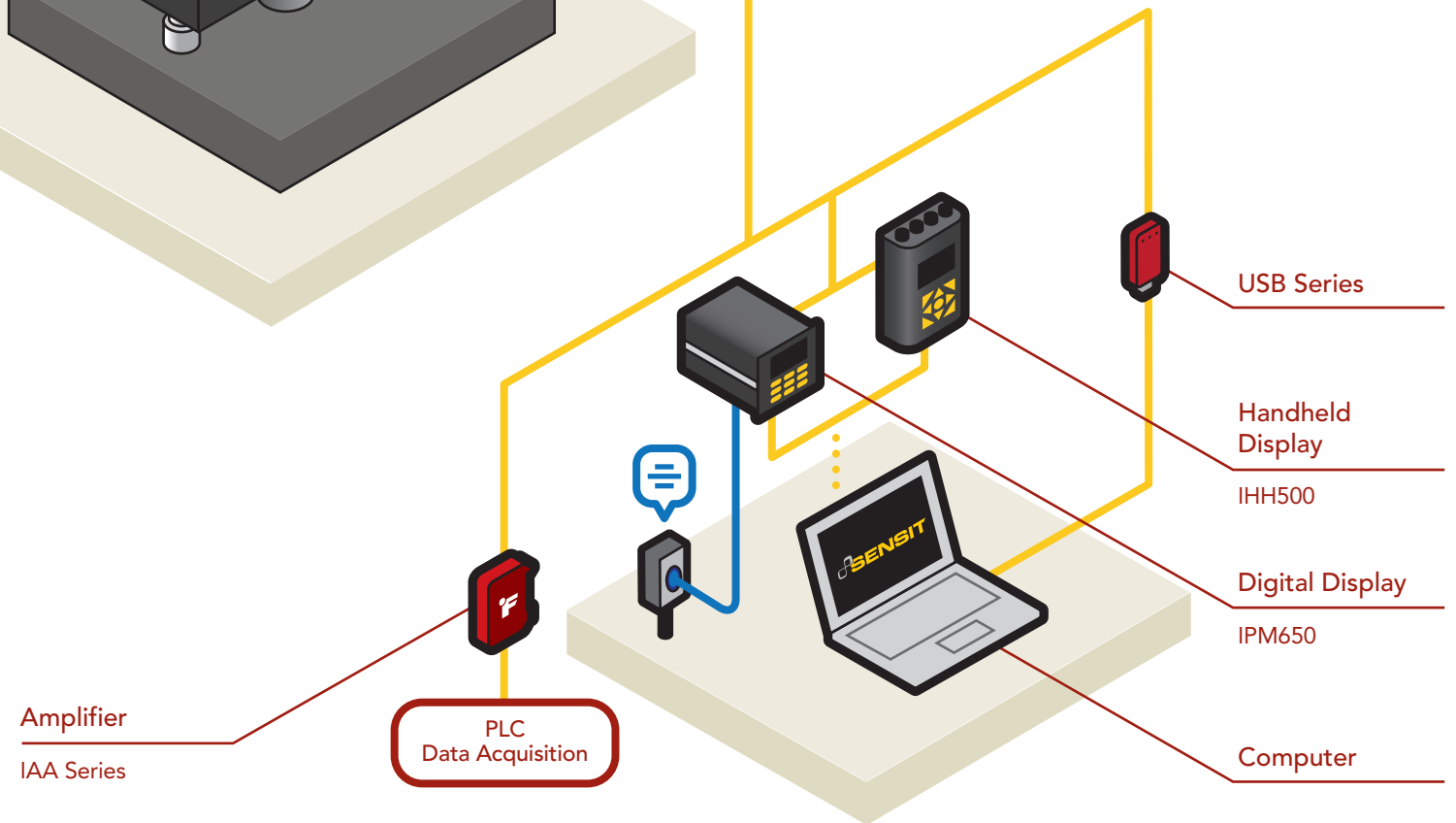
PRODUCTS IN USE

A Pancake Load Cell (LCF Series) paired within Instrumentation (IAA analog amplifier, IPM650, IHH500, USB Solutions).

APPLICATION SUMMARY

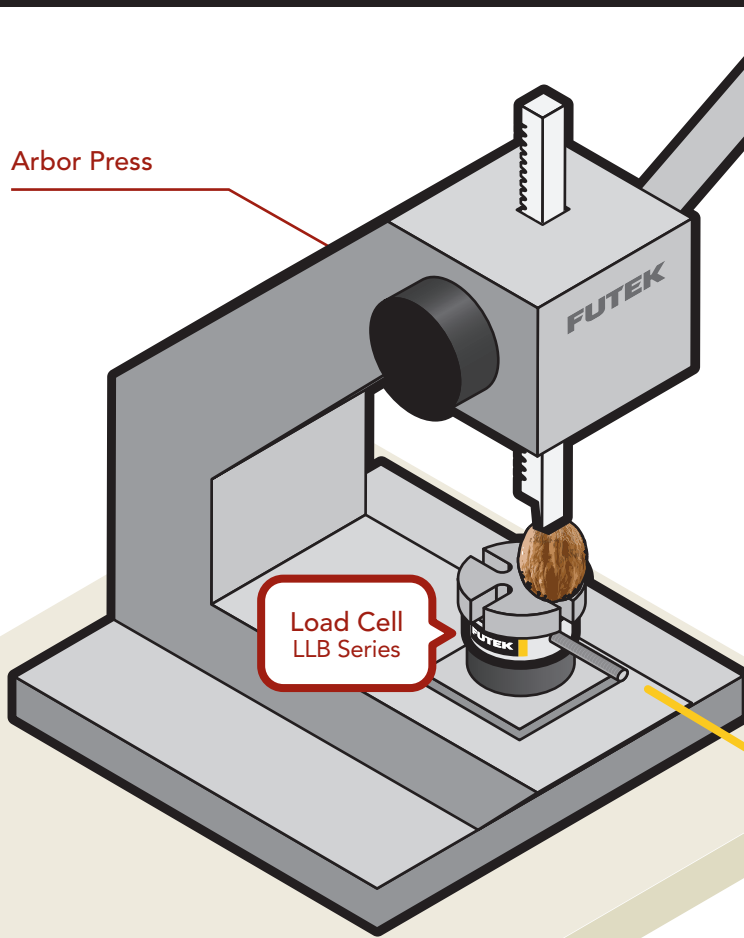
Utilizing a robust, high capacity load cell (LCF Series), industrial operators can measure the force applied to materials via a hydraulic press.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.





Arbor Press



Load Cell
LLB Series

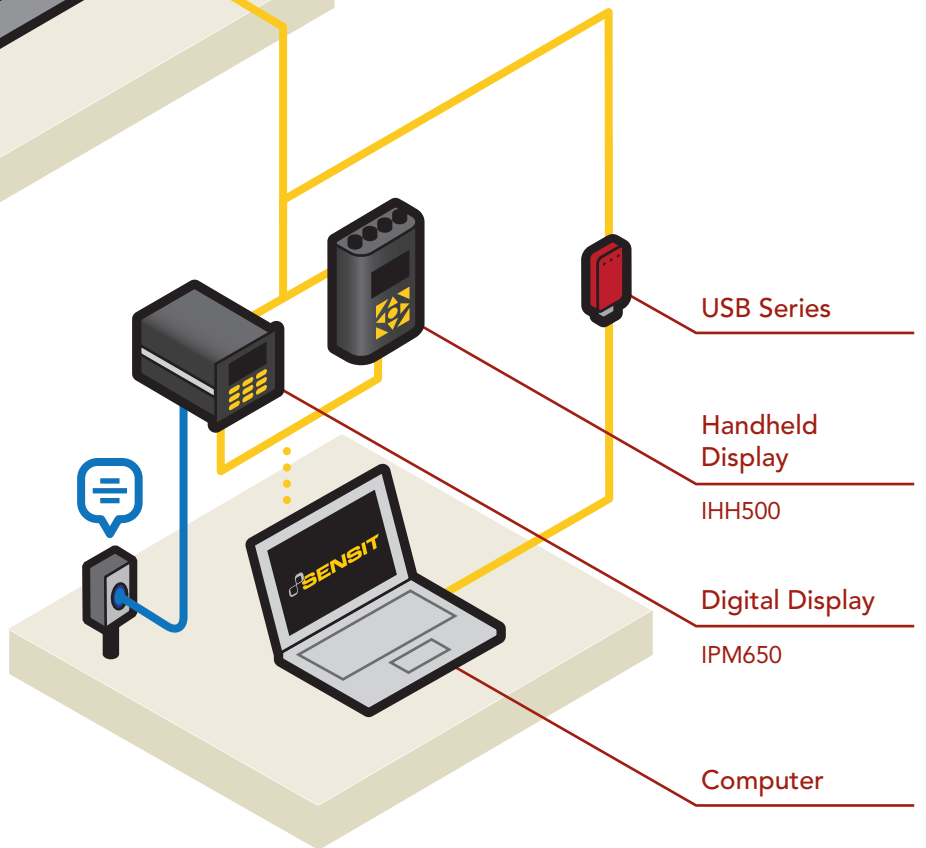
PRODUCTS IN USE

One Load Button Load Cell (LLB Series) with Instrumentation (IPM650, IHH500, or USB Series) and SENSIT™ Test and Measurement Software.

APPLICATION SUMMARY

Load cells are frequently used with arbor presses as auditing tools to gauge the amount of force required for a press fit or riveting process.

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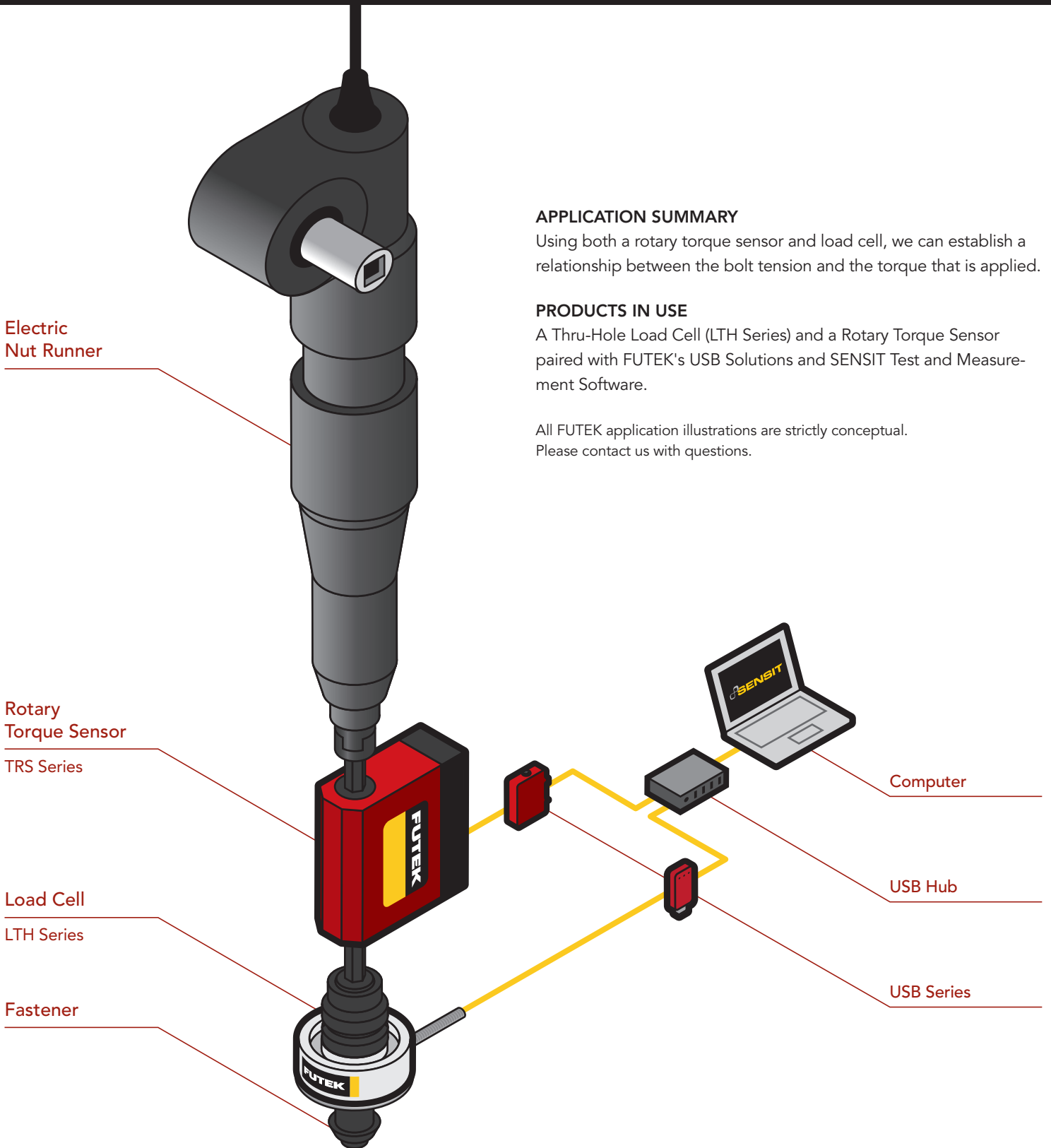
Sensor Solution Source

Load Cells · Pressure Sensors · Torque Sensors · Instruments · Software

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U.S. Manufacturer



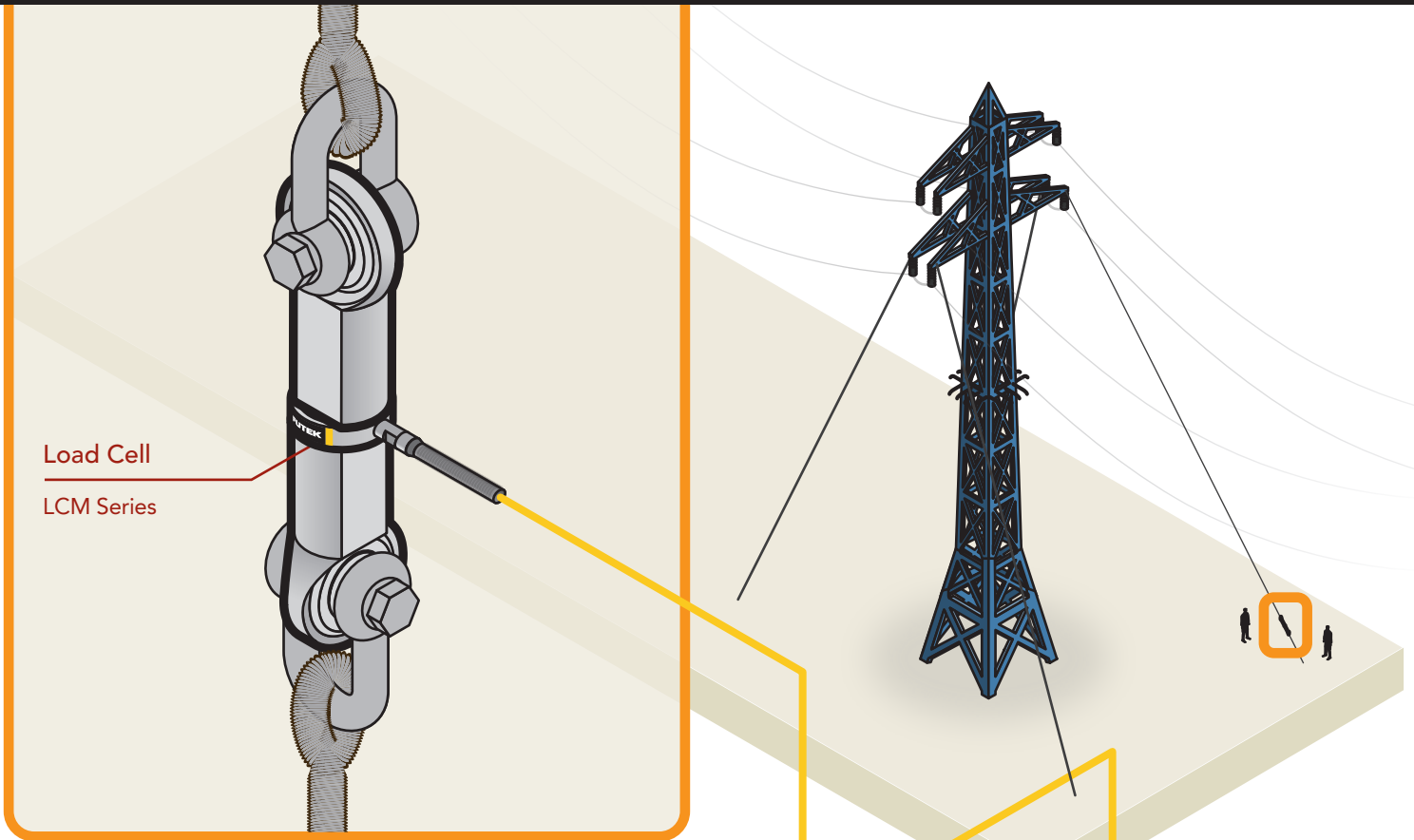
APPLICATION SUMMARY

Using both a rotary torque sensor and load cell, we can establish a relationship between the bolt tension and the torque that is applied.

PRODUCTS IN USE

A Thru-Hole Load Cell (LTH Series) and a Rotary Torque Sensor paired with FUTEK's USB Solutions and SENSIT Test and Measurement Software.

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Load Cell
LCM Series

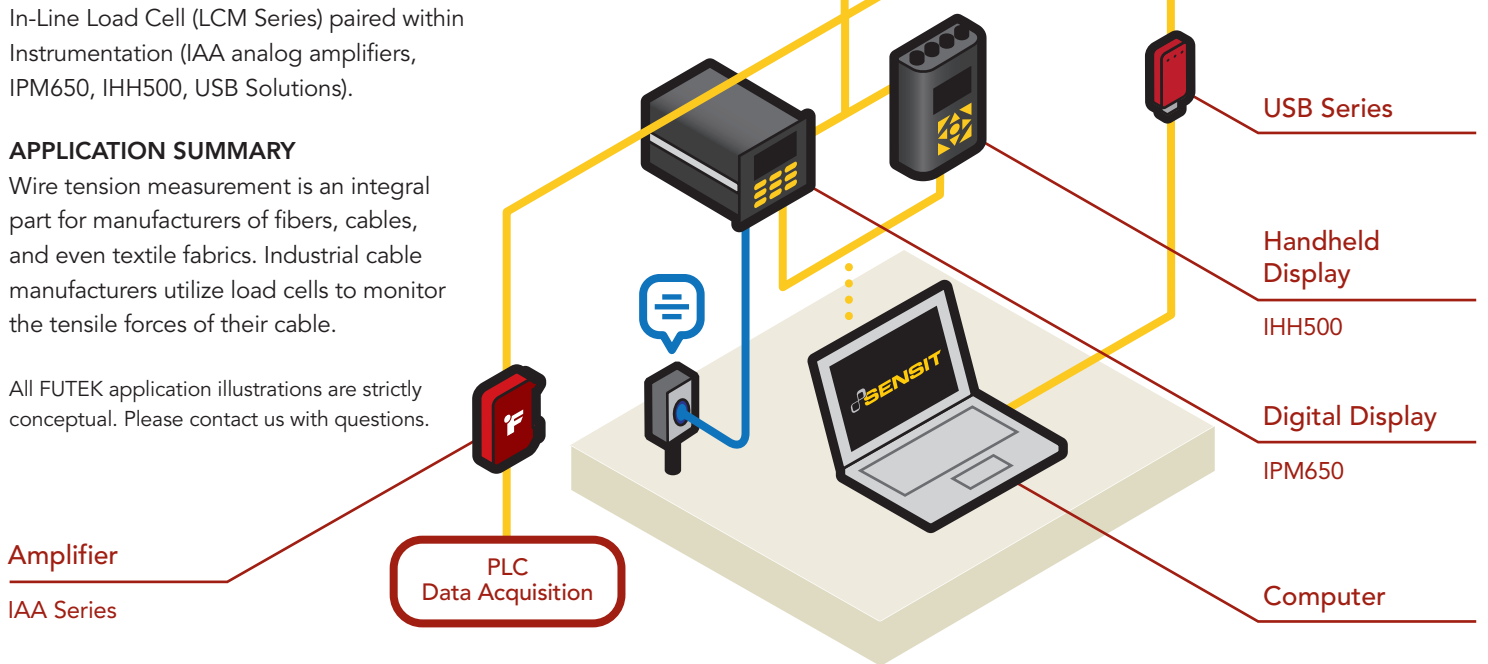
PRODUCTS IN USE

In-Line Load Cell (LCM Series) paired within Instrumentation (IAA analog amplifiers, IPM650, IHH500, USB Solutions).

APPLICATION SUMMARY

Wire tension measurement is an integral part for manufacturers of fibers, cables, and even textile fabrics. Industrial cable manufacturers utilize load cells to monitor the tensile forces of their cable.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



Amplifier
IAA Series

PLC
Data Acquisition

USB Series

Handheld
Display

IHH500

Digital Display

IPM650

Computer

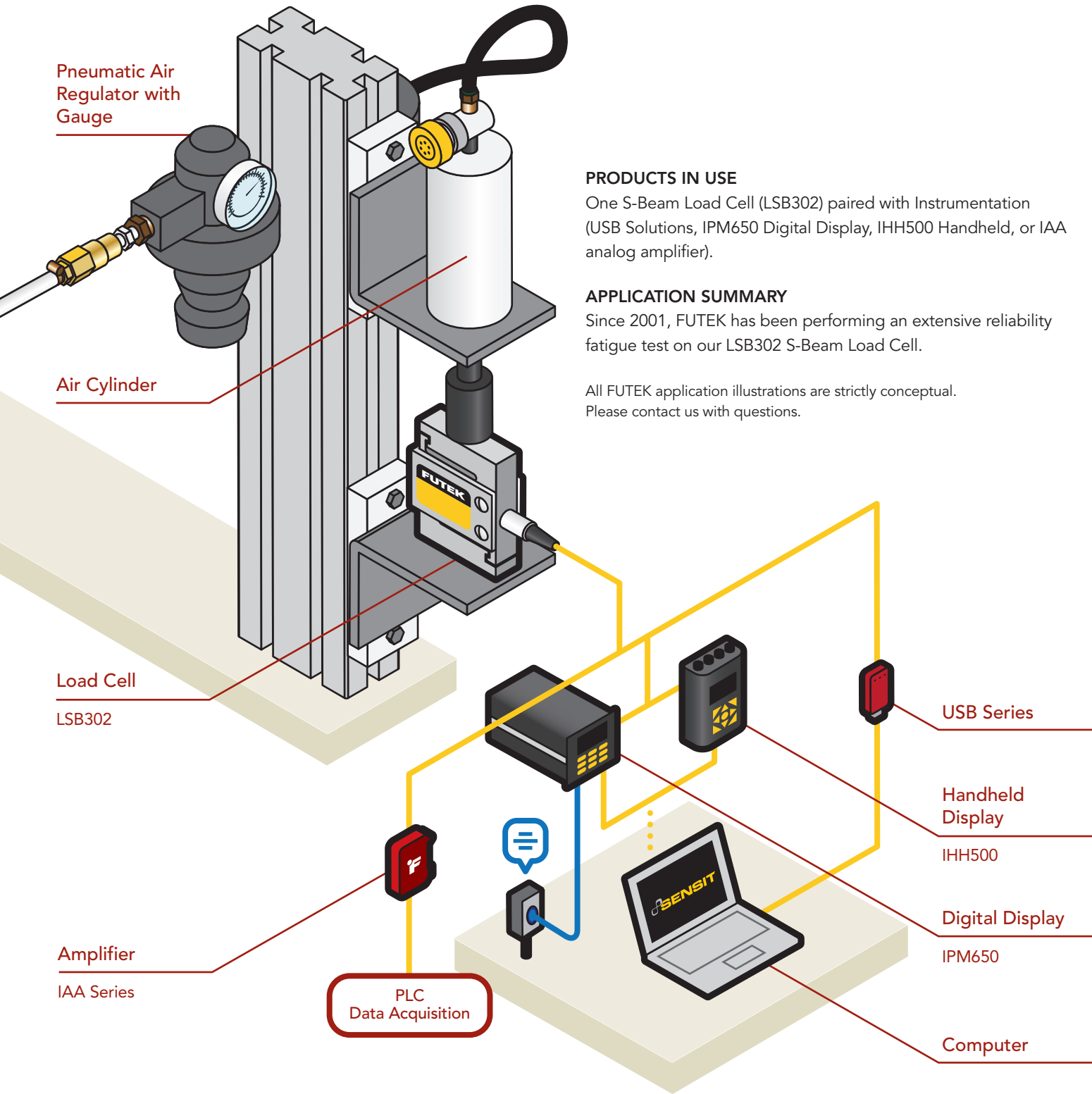
Sensor Solution Source

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U.S. Manufacturer



Pneumatic Air Regulator with Gauge

Air Cylinder

Load Cell
LSB302

Amplifier
IAA Series

PLC
Data Acquisition

PRODUCTS IN USE

One S-Beam Load Cell (LSB302) paired with Instrumentation (USB Solutions, IPM650 Digital Display, IHH500 Handheld, or IAA analog amplifier).

APPLICATION SUMMARY

Since 2001, FUTEK has been performing an extensive reliability fatigue test on our LSB302 S-Beam Load Cell.

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USB Series

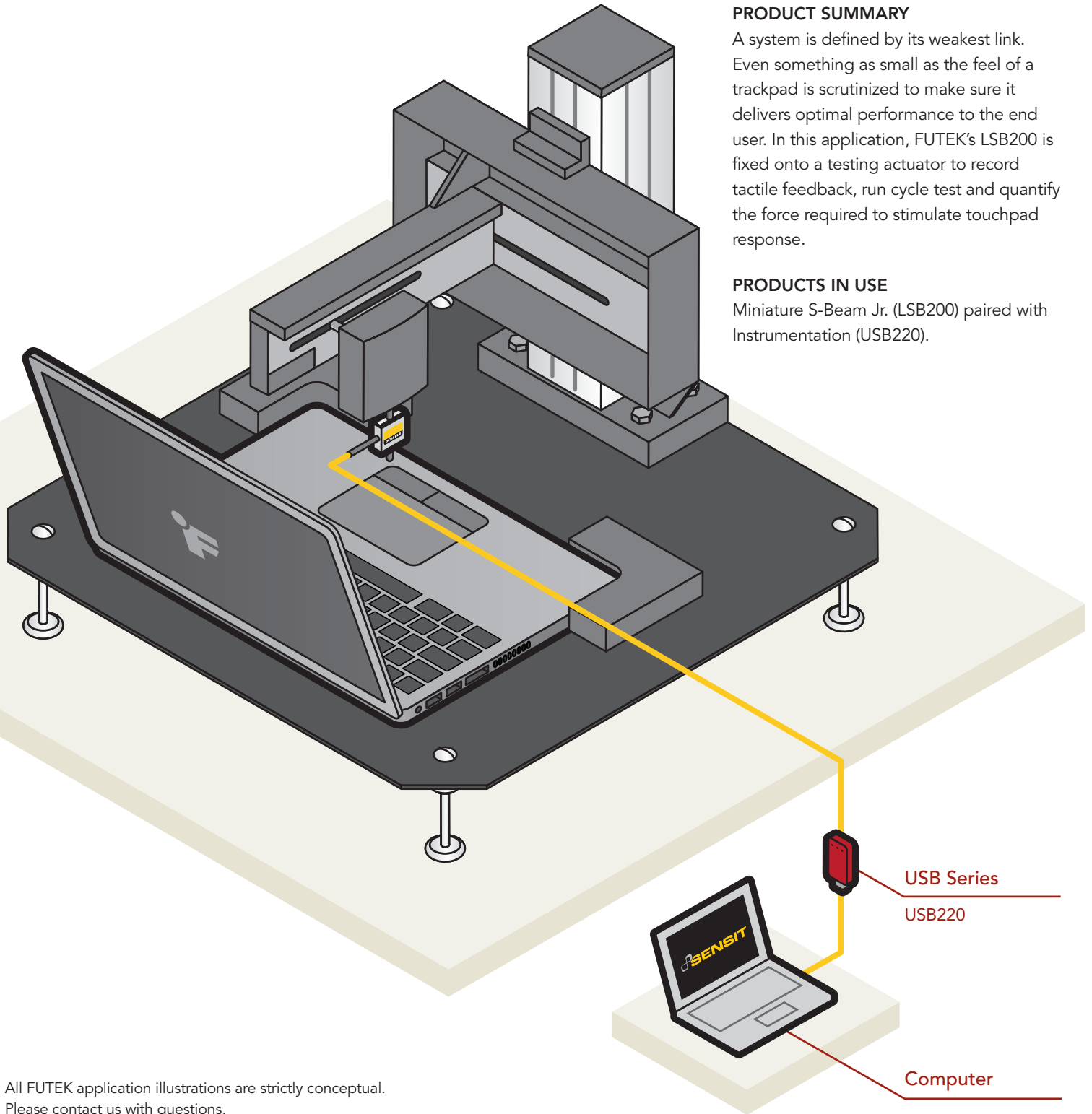
Handheld Display
IHH500

IHH500

Digital Display
IPM650

IPM650

Computer



PRODUCT SUMMARY

A system is defined by its weakest link. Even something as small as the feel of a trackpad is scrutinized to make sure it delivers optimal performance to the end user. In this application, FUTEK's LSB200 is fixed onto a testing actuator to record tactile feedback, run cycle test and quantify the force required to stimulate touchpad response.

PRODUCTS IN USE

Miniature S-Beam Jr. (LSB200) paired with Instrumentation (USB220).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

Sensor Solution Source

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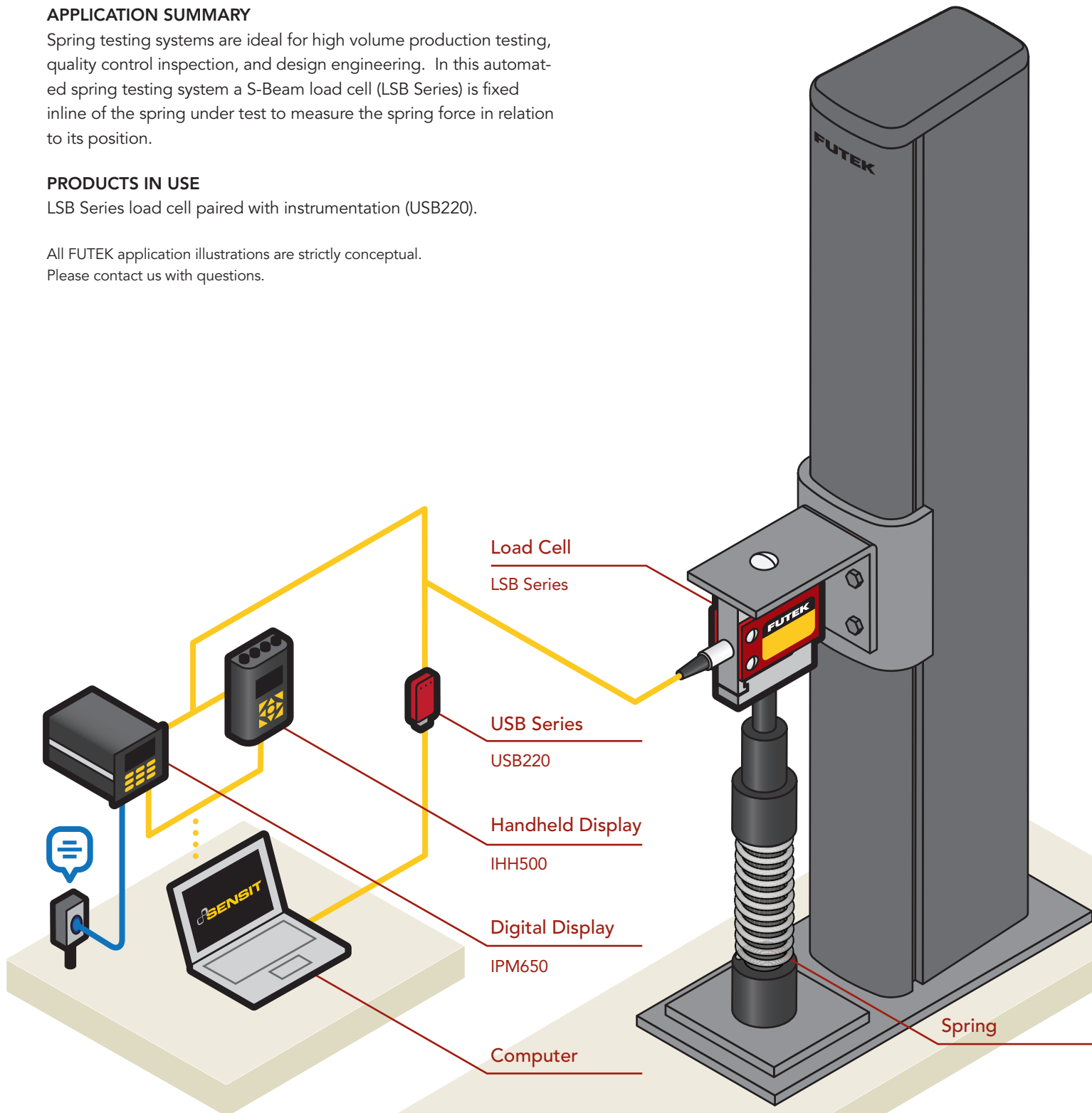
APPLICATION SUMMARY

Spring testing systems are ideal for high volume production testing, quality control inspection, and design engineering. In this automated spring testing system a S-Beam load cell (LSB Series) is fixed inline of the spring under test to measure the spring force in relation to its position.

PRODUCTS IN USE

LSB Series load cell paired with instrumentation (USB220).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



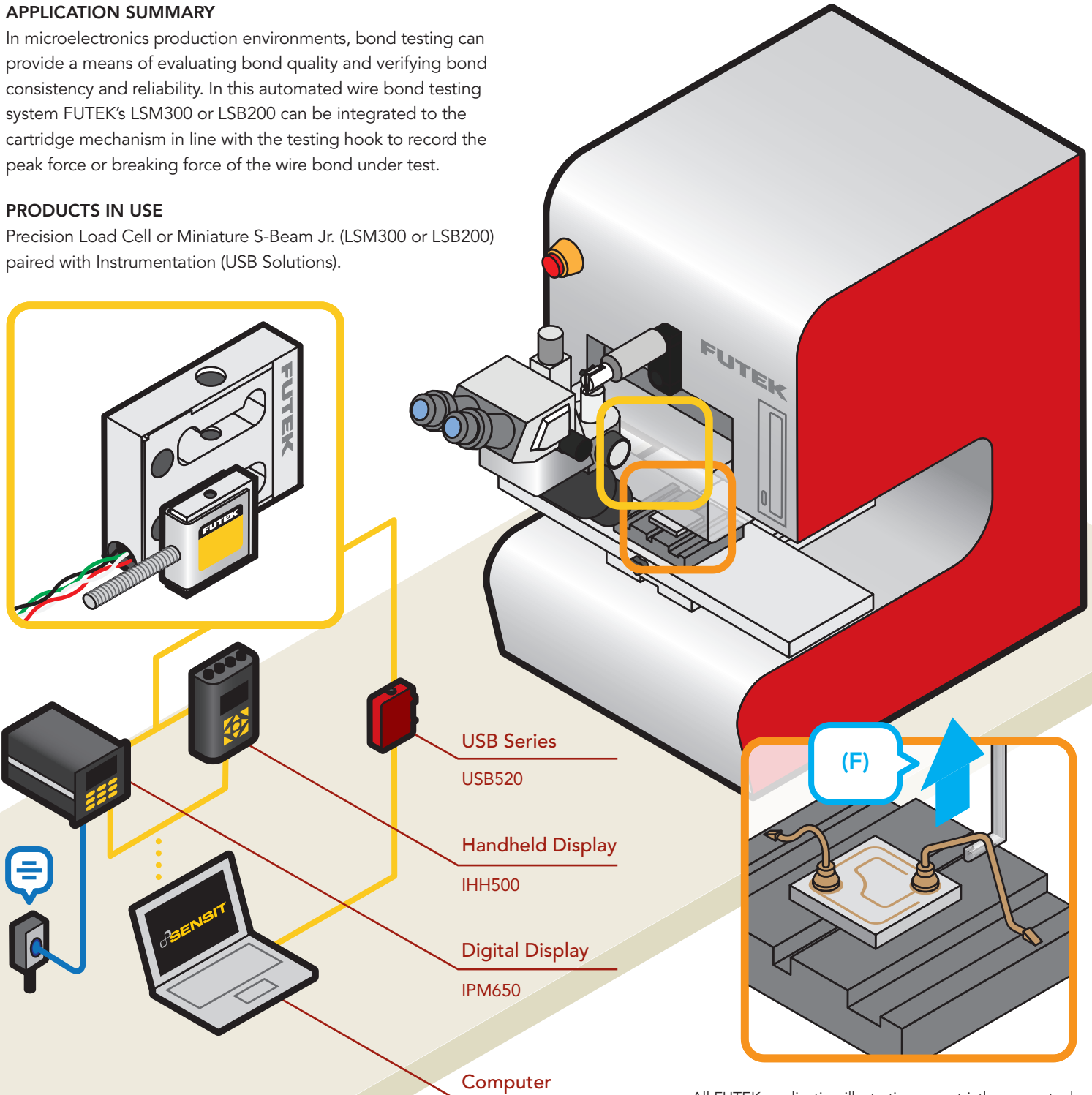


APPLICATION SUMMARY

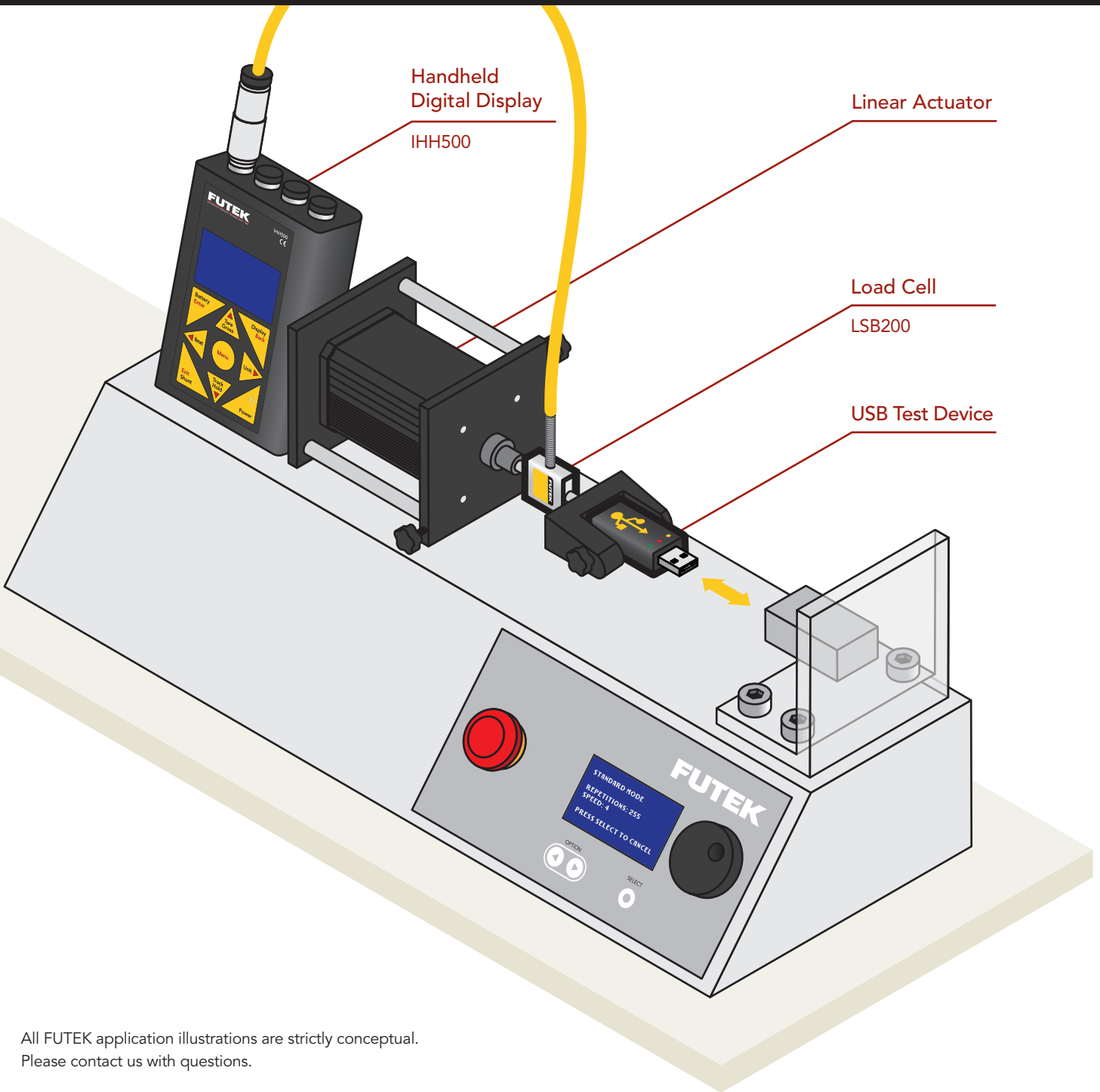
In microelectronics production environments, bond testing can provide a means of evaluating bond quality and verifying bond consistency and reliability. In this automated wire bond testing system FUTEK's LSM300 or LSB200 can be integrated to the cartridge mechanism in line with the testing hook to record the peak force or breaking force of the wire bond under test.

PRODUCTS IN USE

Precision Load Cell or Miniature S-Beam Jr. (LSM300 or LSB200) paired with Instrumentation (USB Solutions).



All FUTEK application illustrations are strictly conceptual.
Please contact us with questions.



All FUTEK application illustrations are strictly conceptual.
Please contact us with questions.

APPLICATION SUMMARY

Motorized insertion and extraction test are performed to determine the durability of a USB thumb-drive. Configuring the test stand with a FUTEK load cell (the LSB200 or LRM200) enables test engineers to quantify the exact force needed to insert or extract a USB connector over time.

PRODUCTS IN USE

Miniature S-Beam Load Cell (LSB200) or Miniature S Beam Load Cell with Male Thread (LRM200) paired with Instrumentation (IHH500).

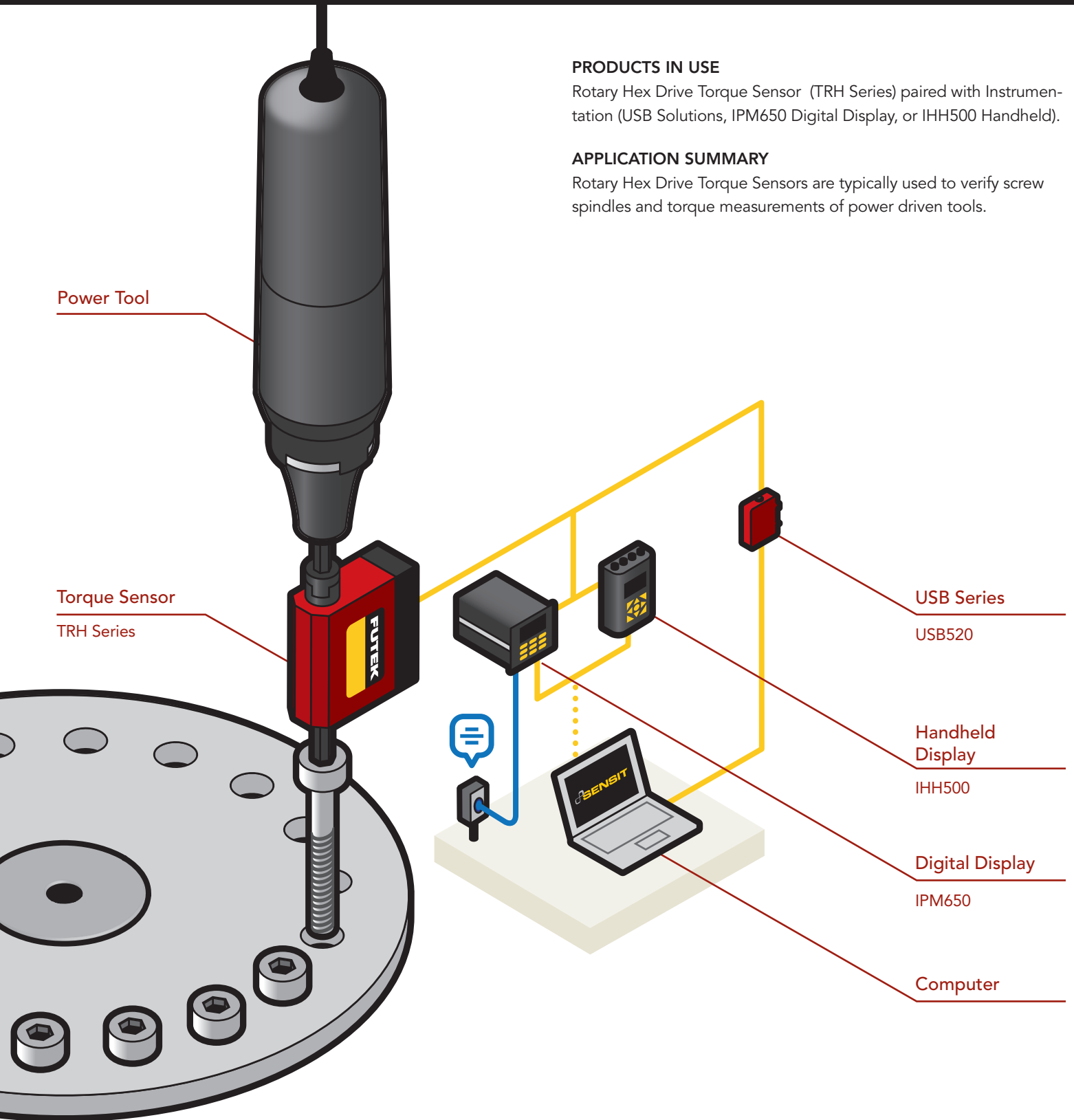
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U.S. Manufacturer



PRODUCTS IN USE

Rotary Hex Drive Torque Sensor (TRH Series) paired with Instrumentation (USB Solutions, IPM650 Digital Display, or IHH500 Handheld).

APPLICATION SUMMARY

Rotary Hex Drive Torque Sensors are typically used to verify screw spindles and torque measurements of power driven tools.

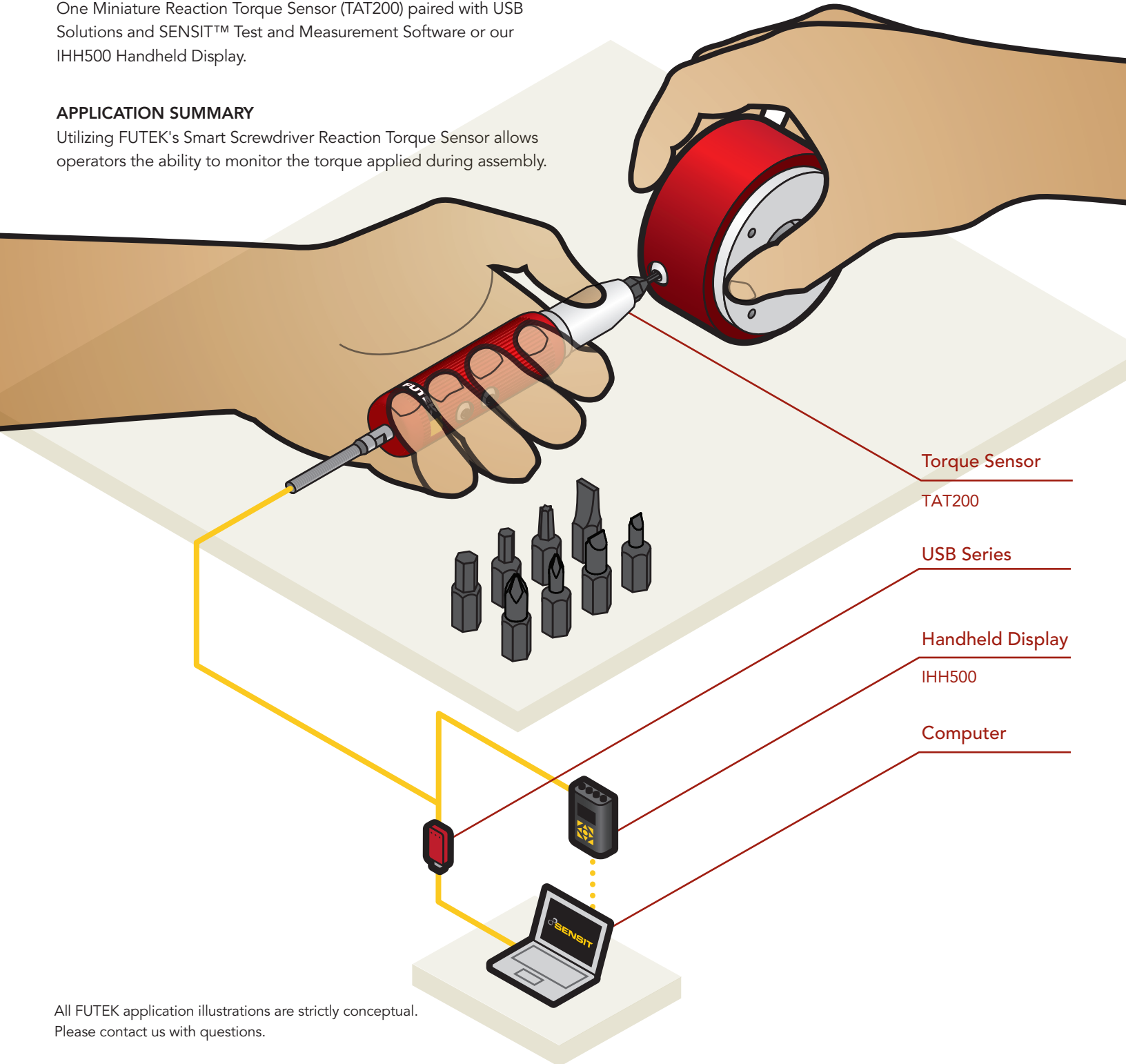


PRODUCTS IN USE

One Miniature Reaction Torque Sensor (TAT200) paired with USB Solutions and SENSIT™ Test and Measurement Software or our IHH500 Handheld Display.

APPLICATION SUMMARY

Utilizing FUTEK's Smart Screwdriver Reaction Torque Sensor allows operators the ability to monitor the torque applied during assembly.



All FUTEK application illustrations are strictly conceptual.
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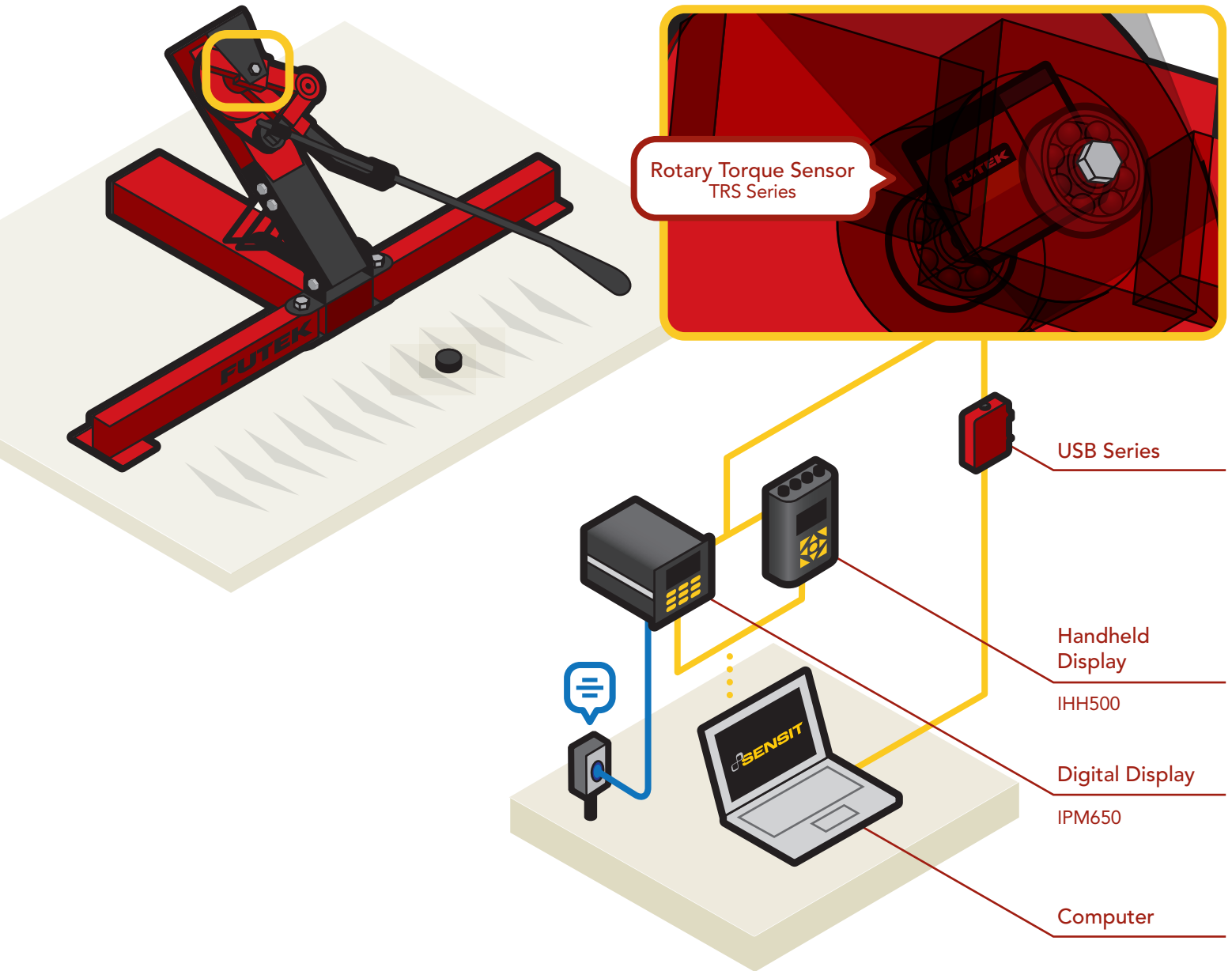
Sensor Solution Source

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PRODUCTS IN USE

Non-Contact Shaft-to-Shaft Rotary Torque Sensor paired with Instrumentation (IHH500, IPM650, and USB Solutions).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

APPLICATION SUMMARY

Robotic systems are often used in industrial plants but in this example how a robotic arm is creatively used in sports endurance application. The robotic arm mimics the slap shot of a hockey player and with the assistance of rotary torque sensors. Engineers can measure the force exerted at the tip of the hockey stick on various hockey sticks over high cycle testing. Data can be collected and analyzed to optimize or verify the stick design.

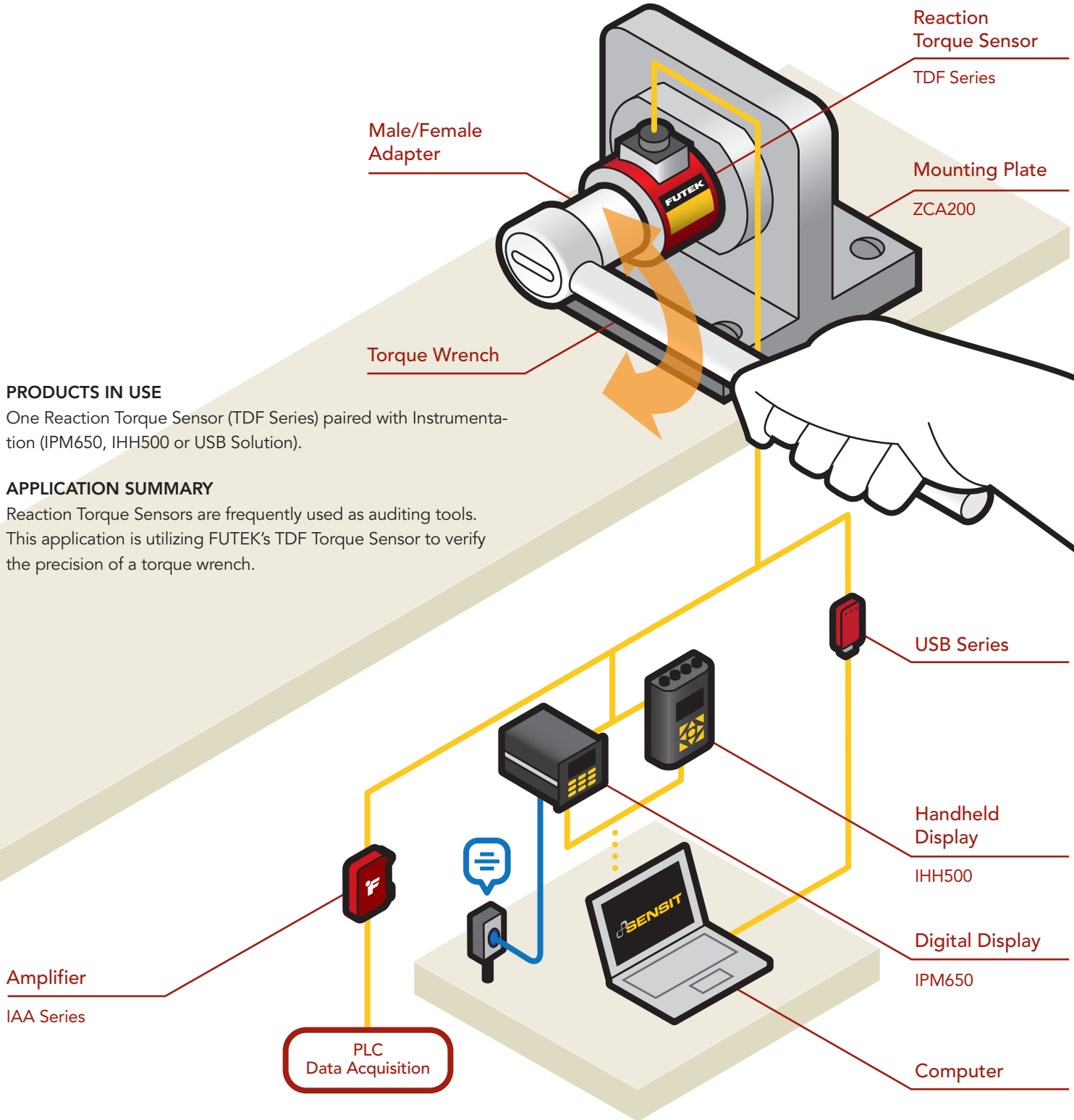
Sensor Solution Source

Load Cells · Pressure Sensors · Torque Sensors · Instruments · Software

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U.S. Manufacturer

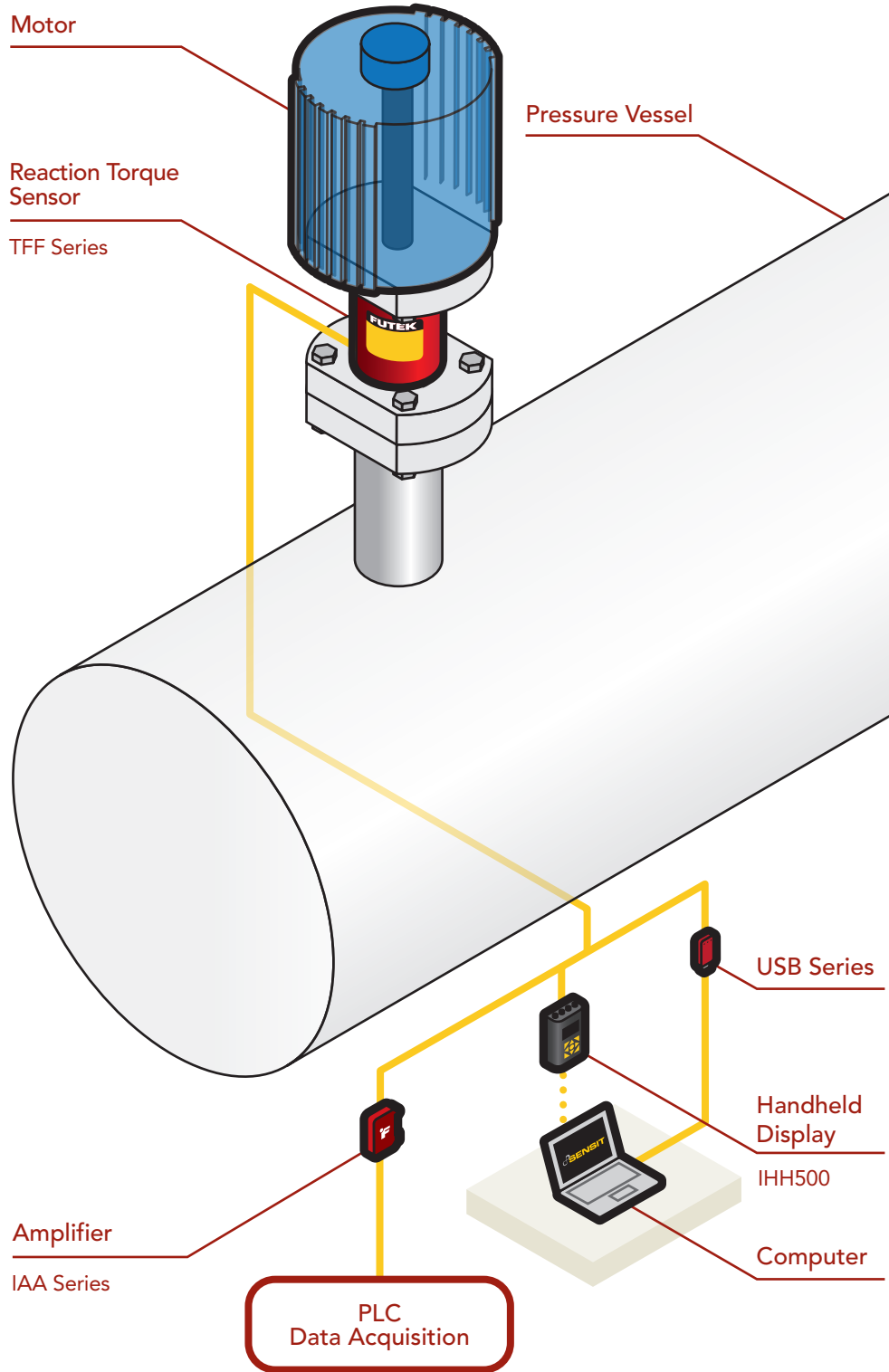


PRODUCTS IN USE

One Reaction Torque Sensor (TDF Series) paired with Instrumentation (IPM650, IHH500 or USB Solution).

APPLICATION SUMMARY

Reaction Torque Sensors are frequently used as auditing tools. This application is utilizing FUTEK's TDF Torque Sensor to verify the precision of a torque wrench.



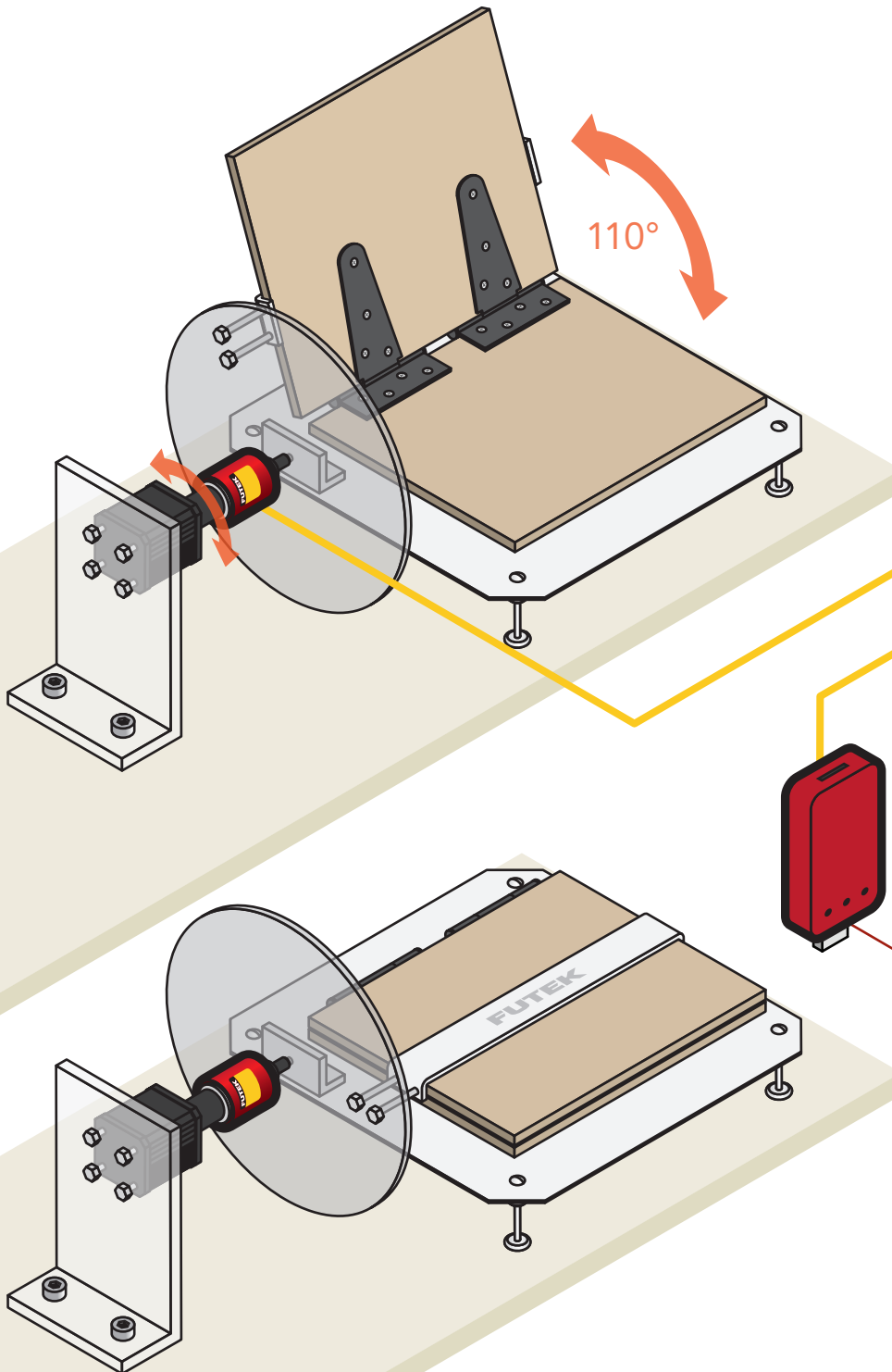
APPLICATION SUMMARY

Reaction torque sensors are often used as auditing and monitoring tools. This application utilizes the TFF Series to measure the reaction torque required by an electric valve actuator/motor to operate a ball, plug, or butterfly valve.

PRODUCTS IN USE

FUTEK's Reaction Torque Flange-to-Flange Sensor (TFF Series) paired with instrumentation (IAA Series analog amplifiers, USB Solutions, and the IHH500 handheld display).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



APPLICATION SUMMARY

Torque hinges, friction hinges, and position hinges are all synonyms for a type of hinge that allows two parts to rotate about one another when a load is applied. The hinge then returns to its original position when that load is removed due to its high torsional stiffness. Because of this property, they are used in everything, from cabinetry and car glove boxes to laptops and monitor stands. This wide range of uses requires that these hinges survive and very often exceed the lifetime of the product. To ensure this, fatigue and cycle testing must be performed to verify the hinge lifespan when integrated into the product.

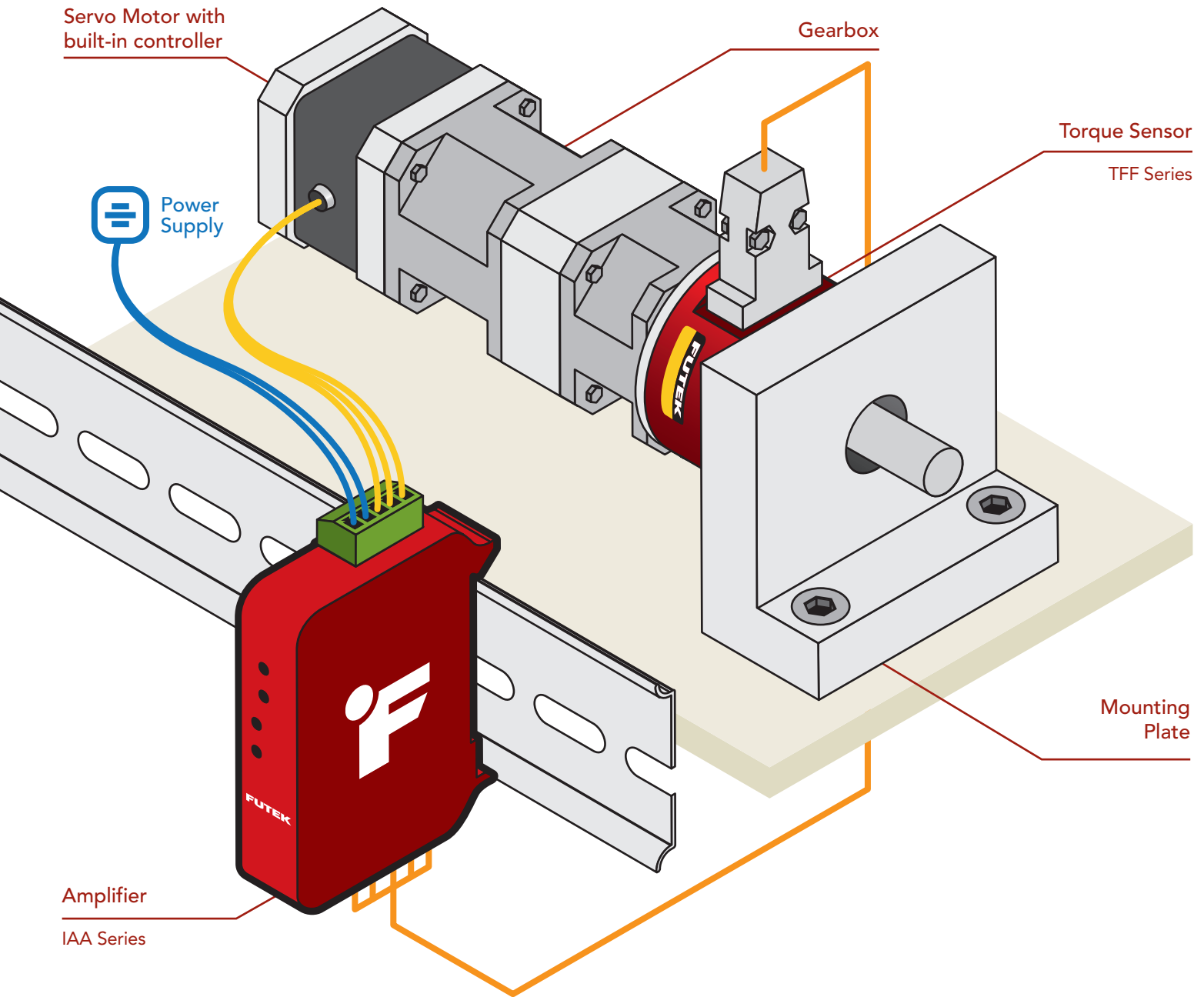
Amplifier
IAA Series

USB Series
USB220

PRODUCTS IN USE

FUTEK's TFF400 Reaction Torque sensor paired with Instrumentation (USB220, IAA Amplifier). For more in-depth analysis of hinge performance, a TRS605 Rotary Torque Sensor with a built-in encoder paired with a USB520 can be used.

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.



APPLICATION SUMMARY

In certain applications, like managing constant tension while winding material onto a spool, it is necessary for the servo motor to generate a fixed amount of torque. Frictional loss and motor speed change necessitate the inclusion of a closed loop control system. To accomplish this, place a reaction torque sensor between the servo gearbox and its mounting location to measure the generated torque.

PRODUCTS IN USE

FUTEK's TFF500 Reaction Torque Sensor with Thru Hole Center paired with an IAA Series Analog Amplifier.

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Sensor Solution Source

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U.S. Manufacturer



Robotic & System Integrators

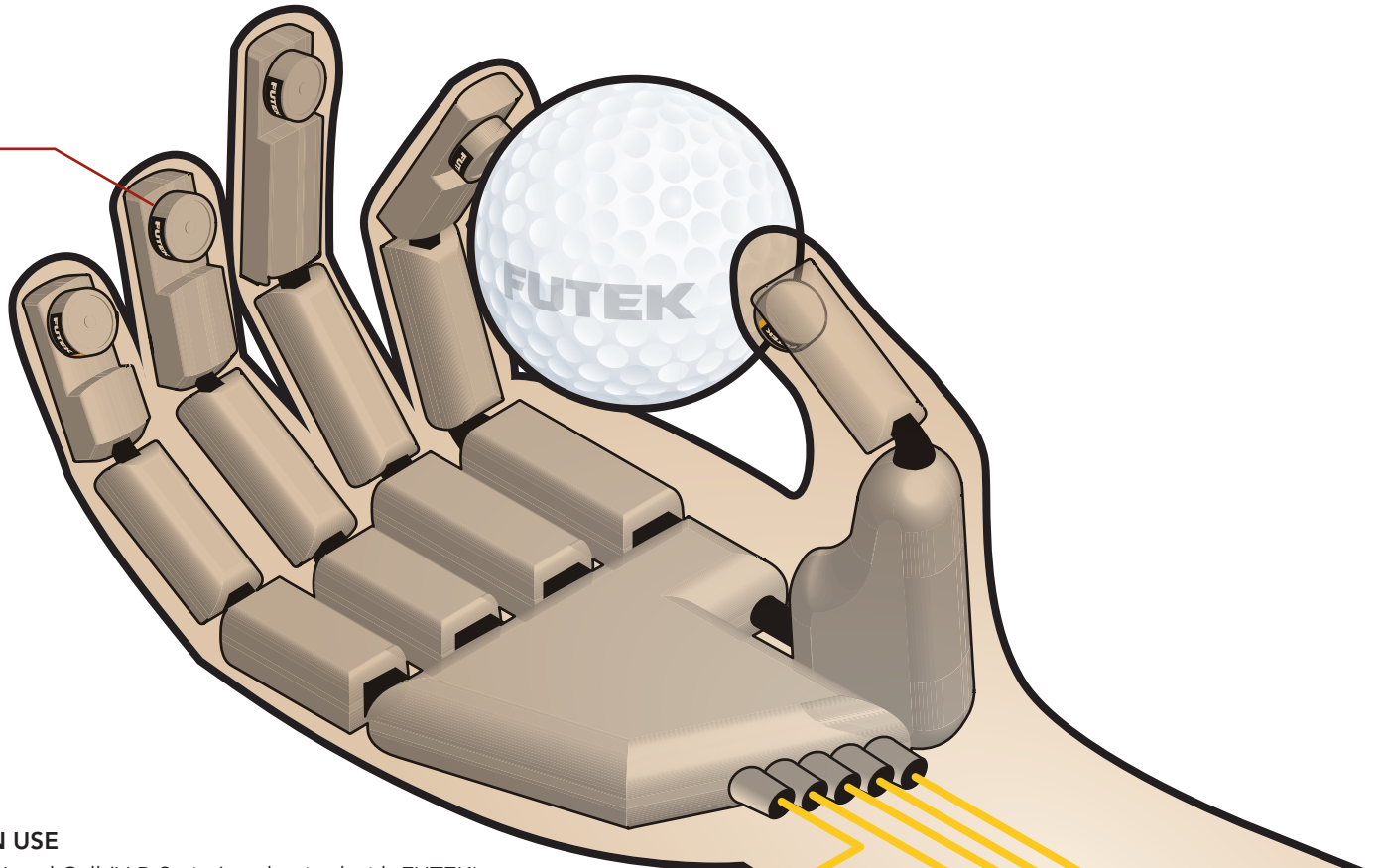
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Load Cell
LLB Series



PRODUCTS IN USE

A Load Button Load Cell (LLB Series) and paired with FUTEK's USB Solutions and SENSIT Test and Measurement Software.

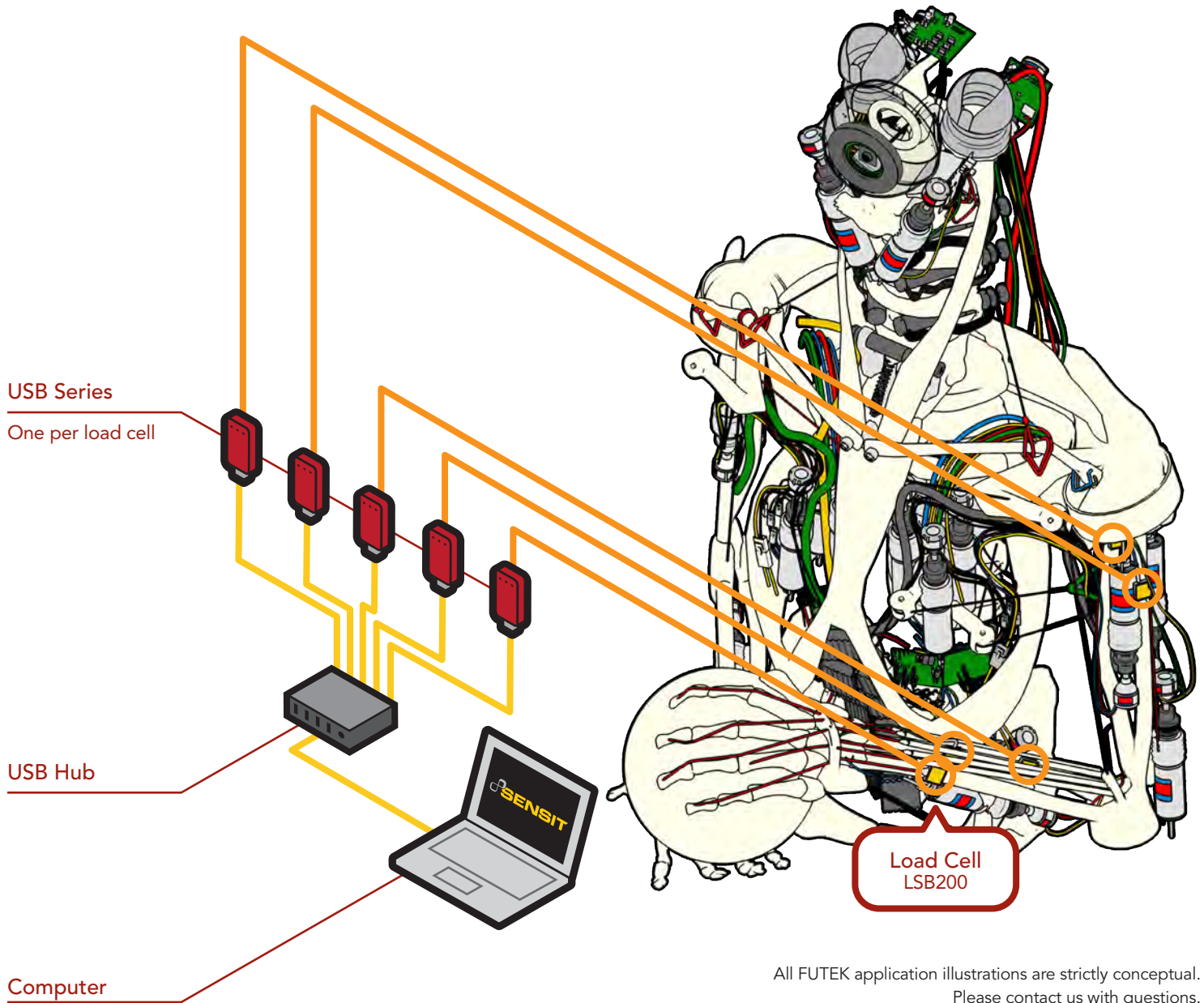
APPLICATION SUMMARY

Multiple Load Button Load Cells are utilized to measure the tactile force produced by an industrial robot.

Computer



USB Series
One per load cell



All FUTEK application illustrations are strictly conceptual.
Please contact us with questions.

PRODUCTS IN USE

60+ Miniature S-Beam Jr. Load Cells (LSB200) with USB Solutions and SENSIT™ Test and Measurement Software.

APPLICATION SUMMARY

FUTEK partnered with The Robot Studio, a specialist in biometric robotic hardware, to construct a fully functional humanoid robot. Over 60 of FUTEK's LSB200 Miniature S-Beam Jr. Load Cells are in operation to monitor the robot's movements.

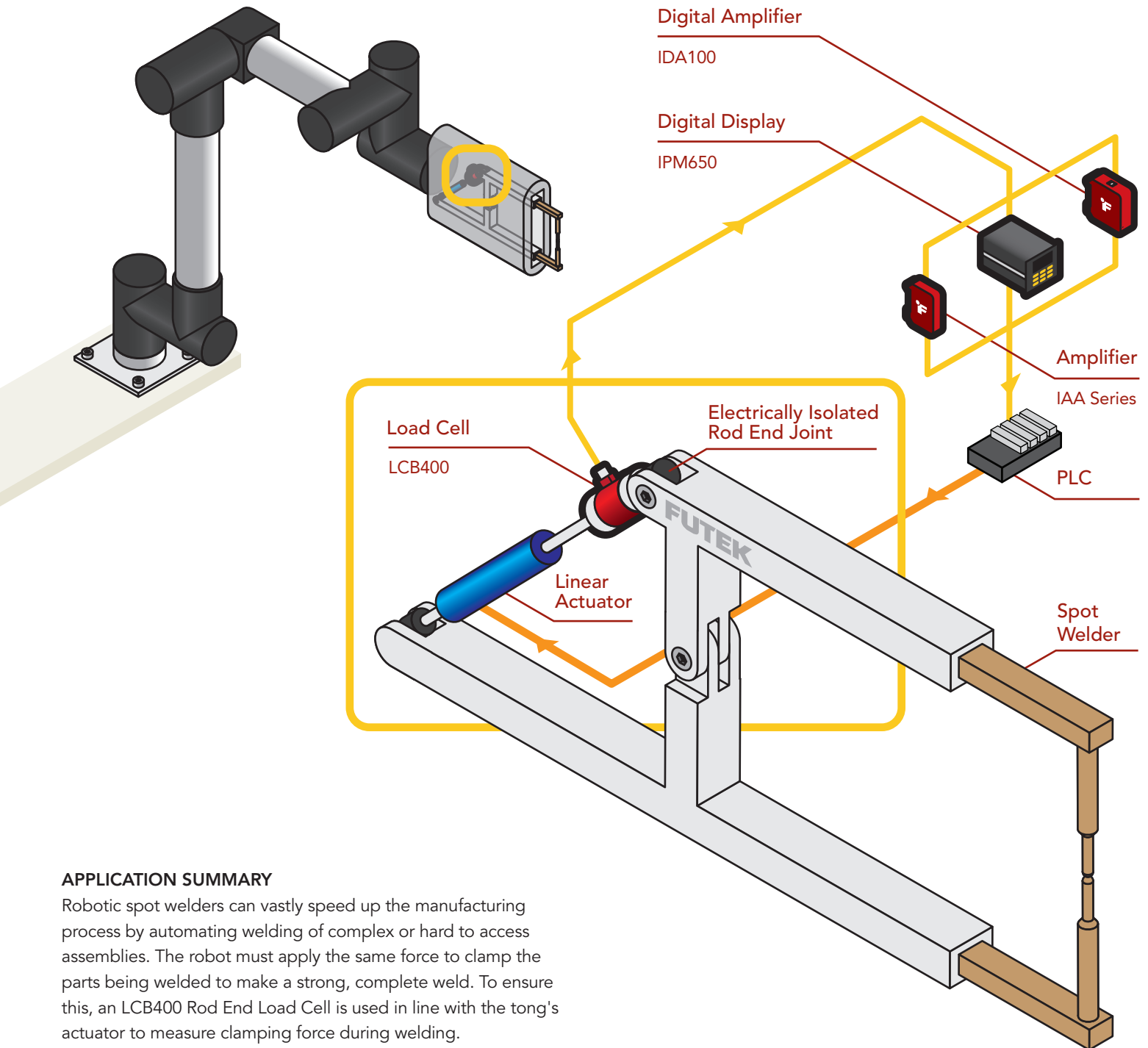
Sensor Solution Source

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U.S. Manufacturer



APPLICATION SUMMARY

Robotic spot welders can vastly speed up the manufacturing process by automating welding of complex or hard to access assemblies. The robot must apply the same force to clamp the parts being welded to make a strong, complete weld. To ensure this, an LCB400 Rod End Load Cell is used in line with the tong's actuator to measure clamping force during welding.

PRODUCTS IN USE

One LCB400 Rod End Load Cell paired with Instrumentation (IAA Series or IDA100)

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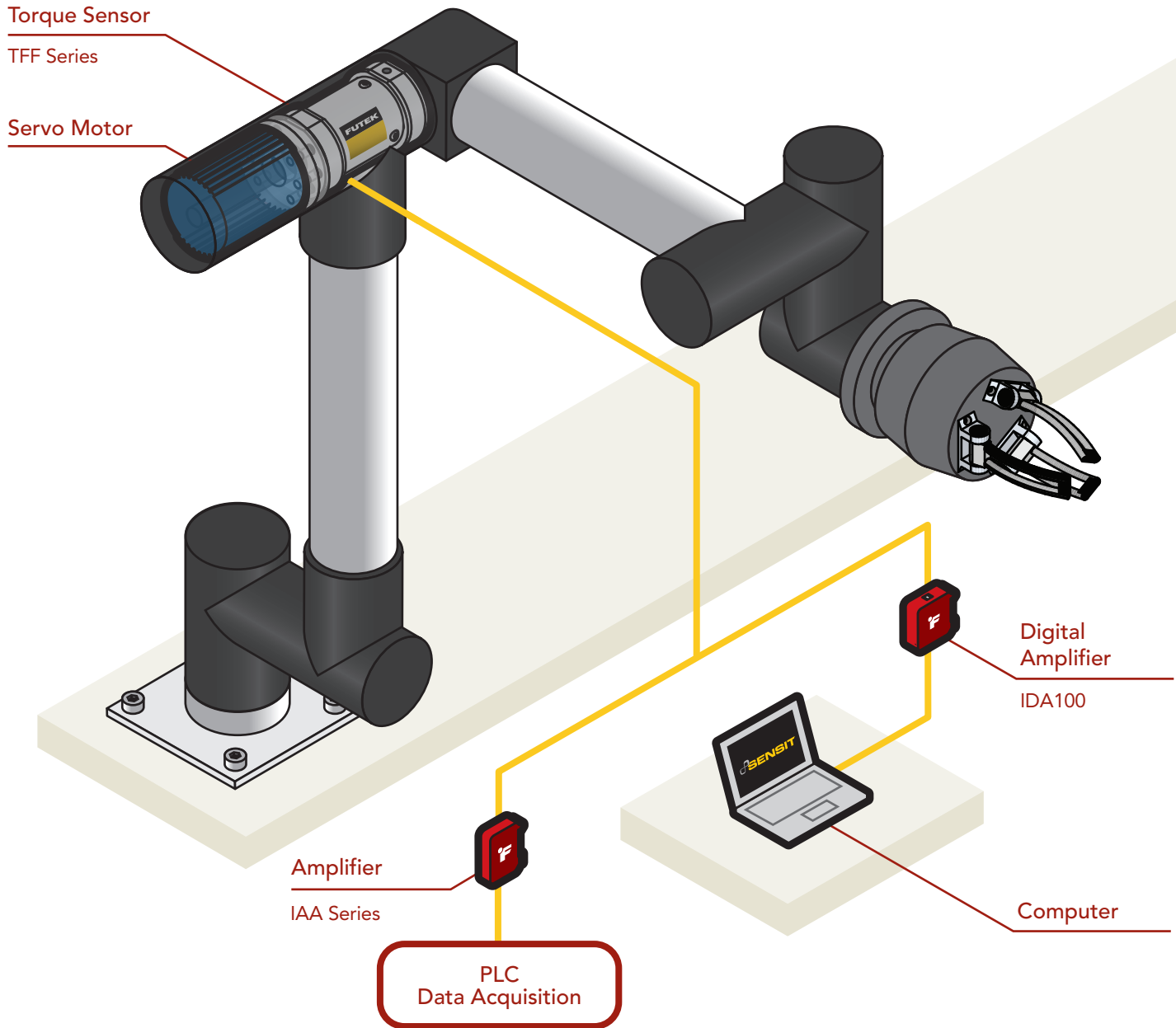
Sensor Solution Source

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U.S. Manufacturer



APPLICATION SUMMARY

Versatile and adaptive robotic armatures have the benefit of increasing manufacturing productivity by automating and performing complex, repetitive tasks 24x7. These arms are often designed to be trainable or operate as a team as cooperative robots (cobot/co-robot). Driving these arms in their joints are servo or stepper motors. In addition to monitoring shaft position, these arms need to monitor torque output for smooth, steady motion. By combining these motors with a reaction torque sensor, control loops can be developed for smooth, autonomous operation.

PRODUCTS IN USE

1 FUTEK TFF Series Reaction Torque Sensor paired with FUTEK Amplifiers (IAA Series or IDA100).

All FUTEK application illustrations are strictly conceptual. Please contact us with questions.

Sensor Solution Source

Load · Torque · Pressure · Multi Axis · Calibration · Instruments · Software

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