

Pressure and Temperature

Instrumentation for biodiesel applications



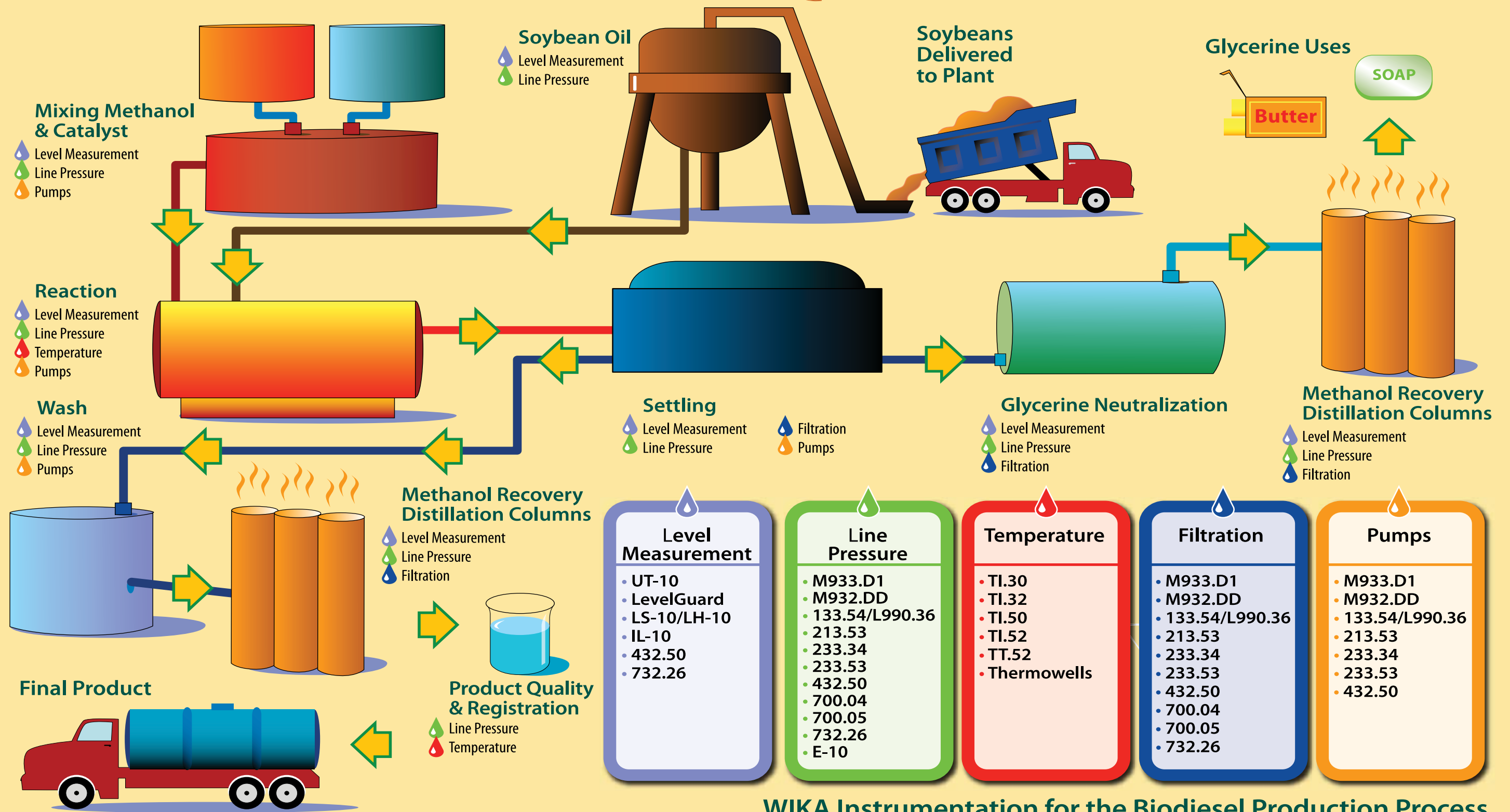
 Part of your business

WIKA Instrument Corporation manufactures products engineered with specific design features and gauge options optimized for utilization in the Biodiesel industry. This diagram illustrates how WIKA's technology will help insure reliability through every stage of the Biodiesel production process.

The color coded selection guide provides easy product identification for the most common pressure and temperature measurement requirements in the Biodiesel industry. Featured products have been selected for their design, durability, and proven performance in Biodiesel production.

BIODIESEL PRODUCTION

PROCESS INSTRUMENTS



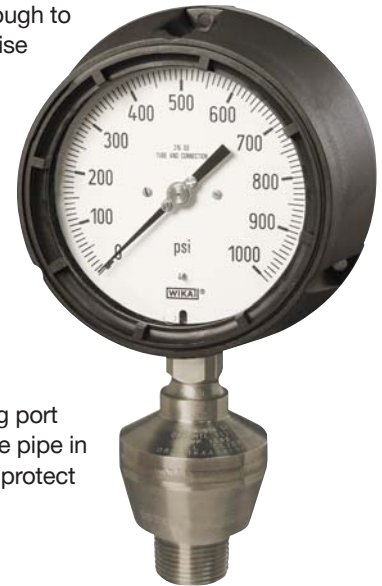
WIKA Instrumentation for the Biodiesel Production Process

Type M933.D1 All-Welded System Is the Solution for the Biodiesel Industry

Pressure instruments used in the Biodiesel processing industry must be rigorous and sturdy enough to withstand harsh conditions. Pulsation, vibration, and/or environmental conditions can compromise system integrity. These conditions may break the threaded gauge-to-seal connection found in a traditional diaphragm seal system. A broken connection can result in inaccurate readings or total failure. Also, mishandling and incorrect installation of the traditional diaphragm seal system can compromise gauge alignment, resulting in a leaking system.

The WIKA model M933.D1 All-Welded System (AWS) is a process gauge and a diaphragm seal integrated into a complete assembly. All connections and access ports are welded to ensure complete leak free design, resulting in increased operating life. This proven and rugged system can handle the harshest conditions where many other instruments fail. The AWS is widely accepted as a **problem solver** in oil and gas refineries.

However, WIKA has taken the AWS one-step further and developed the premier assembly for the **Biodiesel industry**; the AWS with 1.0 NPT-male process connection and flushing port. A flushing port added to the lower housing of the diaphragm seal allows cleaning fluid to flush residue out of the pipe in order to prevent damage or clogging to the instrument. The AWS also has a liquid-filled case to protect the instrument from mechanical vibration and pressure pulsation.



Specifications

Size:	4½"
Case:	fiberglass reinforced thermoplastic
Wetted Parts:	316L stainless steel, Monel, HastelloyC-276
Window:	acrylic
Process Connection:	1.0" NPT-male
System Fill Fluid:	silicone, DC200-10
Accuracy:	±0.5% of span
Options:	consult factory

Additional Product Configurations Designed for the Biodiesel Industry

WIKA manufactures two additional product configurations engineered with specific design features and gauge options for utilization in the Biodiesel industry. Many other product configurations and designs are available. Please consult the WIKA Technical Team for additional information.

Biodiesel Diaphragm Seal Assembly – 133.54 / L990.36

The Biodiesel Diaphragm Seal Assembly is a Type 133.54 4" gauge mounted on an L990.36 flush diaphragm seal with a 1" male NPT process connection.

This System is considered to be the "Standard" Biodiesel Seal Assembly. It is equipped with a silicone or glycerine case and a "system fill" selected by the user according to operating conditions.

This System is a direct replacement to the most commonly found gauge assemblies currently used in Biodiesel processing operations



Biodiesel Direct Drive Assembly - M932.DD

The M932.DD is a Type 232.34DD 4½" Direct Drive process-style gauge featuring a fiberglass reinforced thermoplastic turret-style case, mounted on an L990.36 high pressure flush seal or an L990.TA/L990.TB mini seal, with a 1" male NPT or process connection. All wetted parts are 316 SS.

The M932.DD is equipped with a "system fill" selected by the user according to operating conditions.

The Direct Drive Gauge features resistance to severe shock and vibration and is supplied with an external "zero screw" as standard.





Stainless Steel Case with Brass Wetted Parts Gauge, Liquid Filled

213.53

Type 213.53 is an ideal choice for OEM and general industrial applications requiring an economical liquid-filled pressure gauge. Typical applications include pumps, control systems, hydraulic, and pneumatic equipment. When vibration and/or pulsation are present, the glycerine fill dampens the Bourdon tube and minimizes pointer oscillation, which reduces wear on the gauge movement.



2 1/2" shown

- Size: 2 1/2", 4"
- Case: stainless steel
- Ring: stainless steel, crimped-on
- Wetted Parts: copper alloy
- Window: acrylic
- Liquid Filling: glycerine
- Accuracy: ±2/1/2% of span (2 1/2"); ±1.0% of span (4")



Process Gauge, Liquid Filled

233.34

WIKA process gauges are specifically designed for the petrochemical and processing industries. These durable gauges are engineered to provide reliable service in harsh and rugged environments.



4 1/2" shown

- Size: 4 1/2", 6"
- Case: black fiberglass reinforced thermoplastic
- Wetted Parts: 316 stainless steel
- Ring: threaded thermoplastic
- Window: acrylic
- Liquid Filling: ±0.5% of span



SealGauge® All Stainless Steel

432.50

The WIKA Model Type 400 Series SealGauge provides a unique solution to your tough Biodiesel processing applications. Offering full separating diaphragm seal technology with a mechanical linkage, the SealGauge provides a unique WIKA solution to even the most demanding service. With ranges beginning at 5"WC, it provides real-world application solutions unavailable from other instrument manufacturers.



- Size: 4"
- Diaphragm: 316 stainless steel, PTFE-lined
- Lower Housing: 316 stainless steel
- Window: laminated safety glass
- Accuracy: ±1.5% of span



All Stainless Steel Gauge, Liquid Filled

233.53

With all stainless steel construction, this industrial gauge ensures long service life in the harshest, most demanding environments. Typical applications include process, chemical/petrochemical, power stations, on and offshore, environmental technology, mechanical engineering, and plant construction.



4" shown

- Size: 2 1/2", 4"
- Case: stainless steel
- Ring: stainless steel, crimped-on
- Wetted Parts: stainless steel
- Window: polycarbonate
- Liquid Filling: glycerine
- Accuracy: ±2/1/2% of span (2 1/2"); ±1.0% of span (4")



Differential Gauges, Dry or Liquid Filled

700.04 / 700.05*

This piston-styled differential pressure gauge is used in measurement applications requiring high differential/static process pressures. This type gauge is suitable for measuring pressure drops across a variety of devices, including filters, strainers, separators, and heat exchanges.



700.05* - 2 1/2"

- Size: 2 1/2", 4 1/2"
- Case & Bezel: reinforced plastic or aluminum
- Sensor Housing: 316L stainless steel or anodized aluminum
- Wetted Parts: aluminum or 316 stainless steel & ceramic magnet



700.04 - 4 1/2"

- Window: acrylic or shatter-resistant glass
- Accuracy: ±2% of span (increasing)

*700.05 offers the addition of a separating diaphragm



Differential Gauge, Membrane Sensing Element

732.26

Type 732.26 is used in measurement applications requiring low to medium differential and/or static process pressures. Type 732.26 is suitable for measuring tough process applications and liquid level measurement.



4 1/2" shown

- Size: 4 1/2", 6"
- Case: black powder-coated aluminum
- Sensor Housing: 316L stainless steel
- Wetted Parts: 316L stainless steel and PTFE-lined
- Working Pressure: up to 600 psid
- Accuracy: ±1% of span

UniTrans™ Transmitters

UT-10

The UniTrans™ has a turndown capability of up to 20:1, is tank scalable and includes an integral temperature sensor. An intrinsically safe version is also available with a HART® communications interface. The UniTrans™ provides an excellent alternative to expensive smart transmitters when local and remote indication from a transmitter is required.



Ranges: 5 psi to 15,000 psi
 Output: 4-20 mA
 Accuracy: ≤0.15% B.F.S.L. (pre-turndown)

Explosion Proof Transmitters

E-10, E-11

The E series transmitters are FM-approved explosion-proof for Class I, Division 1 locations. Utilizing the same thin film technology as the industrial series of transmitters, the E-10 & E-11 are well suited for pump and control systems in enclosed environments where volatile or explosive conditions may exist.



Ranges: 50 InWC to 15,000 psi, vacuum, compound, absolute
 Output: 4-20 mA or 1-5V low power
 Accuracy: ≤0.25% B.F.S.L.



The Rugged All Stainless Steel LevelGuard™ Provides Excellent Durability and Service Life in Difficult Environments

The LevelGuard™ anti-clog attachment for TRONIC submersible liquid level transmitters is ideal for difficult level sensing applications where sludge, slurry, or turbulence may be present.

The large, 2" diaphragm provides excellent sensitivity and performance even when used to monitor extremely low liquid levels or when the assembly is buried in a layer of sludge or slurry. The cable supplied with WIKA submersible pressure transmitters is designed to withstand over 200 pounds of strain, eliminating the need for additional support or conduit connections. The added weight prevents movement of the transmitter when flow or turbulence is present.

The LevelGuard™ is available with the LS-10, LH-10 high performance, and IL-10 FM-approved, intrinsically-safe submersible level transmitters.

Features:

- For lift stations, wet wells, and other level applications
- All 316 stainless steel construction for durability
- 2" diameter diaphragm provides excellent sensitivity
- Diaphragm is protected from physical damage and turbulence
- Added weight prevents movement of the transmitter



Submersible Level Transmitters

LS-10 / LH-10

Submersible level transmitters have a watertight construction suitable for applications in tank level measurement, water/wastewater treatment, and reservoir or well depth measurement. They are submersible up to 1,000 feet and the integrated cable can withstand up to 220 lbs of strain.

Ranges: 50 InWC to 400 psi
 Output: 4-20 mA, 2-wire
 Accuracy: ≤0.25% - 0.125% B.F.S.L.



LS-10

LH-10



Intrinsically Safe Level Transmitters

IL-10

WIKA IL-10 intrinsically safe submersible liquid level transmitters are engineered for a wide variety of industrial and municipal liquid level measurement applications installed in hazardous areas. Each transmitter undergoes extensive quality control testing and calibration to achieve high accuracy and reliability.

Ranges: 50 InWC to 400 psi
 Output: 4-20 mA, 2-wire
 Accuracy: ≤0.125% B.F.S.L. may be present



Note: Hazardous area approvals available .



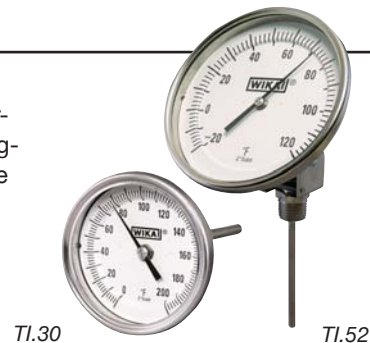
Bimetal Thermometer

TI.32/TI.52 All-Angle, TI.30/TI.50 Center Back Mount (CBM)

WIKA's process grade bimetal thermometers are suitable for nearly every direct-reading thermometer application. Their durable construction and finish ensure reliable readings and long-lasting service. The superior quality of the WIKA types 30, 32, 50, and 52 are reflected in the seven-year warranty.

Ranges: -100°F (-73°C) to 1000°F (538°C)
 Accuracy: ± 1.0% full scale value (ASME B40.3)

Thermowells available. Patented "Dampened Movement" available for high vibration applications. Please consult factory for additional information.



Twin-Temp™ Thermometer

TT.52

The Twin-Temp thermometer can be an option if both analog and 4-20mA output is required. WIKA's unique Twin-Temp thermometer combines the accuracy, reliability and easy-to-read dial of a bimetal thermometer with the precision output and data acquisition capability of a thermocouple or RTD sensor. Every thermowell in your process can have two outputs from one instrument.

Ranges: -40°F (-40°C) to 550°F (288°C)
 Accuracy: ± 1.0% of span for each sensor






*Solar digital models are also available with back and all-angle connections.



Selecting Criteria Guidelines

Mechanical vibration, pressure pulsation, and high temperature media can affect instrument performance. It is important to utilize configurations that will not only ensure optimal performance, but also increase the instrument's service life and operational safety.

Pump systems transport materials through the production process. This can cause mechanical vibration and pressure pulsation in the piping system. The resulting internal pressure pulsation and mechanical vibration is dependent on the type of pump system (rotary or piston-style design) and the type of media (mash or clean liquid).

WIKA Application Guideline for Mechanical Vibration / Pressure Pulsation / High Temperature Media			
0 = Not Effective 1 = Marginally Effective 2 = Highly Effective			
Option/Configuration	Mechanical Vibration	Pressure Pulsation	High Temperature Media
*Mechanical Pressure			
 Liquid Fill Case	2	2	0
 Restrictor	0	2	0
Snubber	0	2	0
Higher Pressure Range Gauge	1	1	0
Dampened Movement	1	1	0
Siphon	0	0	2
Throttling Snubber	0	2	0
Needle Valves	0	1	0
Overpressure Protector	0	1	0
SealGauge	1	1	1
*Diaphragm Seals			
Cooling Tower	0	0	2
 M933.D1 (AWS/all-welded seal)	0	1	1
 M933.D1 (AWS with flushing port)	0	1	1
 M933.D1 (AWS plus cooling element)	0	1	2
Diaphragm Seal with Capillary	2	2	2

* Many of the options in this chart can be assembled into one system. Consult the WIKA Technical Team for additional information.

 = Biodiesel process recommendations



ISO 9001
Certified

For over 60 years, WIKA Instrument Corporation has been advancing the world of pressure and temperature instrumentation. Regarded as the global leader, WIKA has pioneered many diverse products for a broad range of industries, end-users, and OEM applications. Our success is reflected in our commitment to Lean methodology, product innovation, and customer focus.

By combining world-class LeanSigma[®] operations, state-of-the-art proprietary technology, agile manufacturing and resident engineering, WIKA delivers made-to-order products with minimal lead times and tremendous flexibility. Additionally, the WIKA TRONIC LINE[®] has a continuously expanding array of electronic transmitters and transducers to meet the emerging demands of integrated and automated systems.

Talk to us to learn about our Total Performance commitment for your pressure and temperature measurement requirements.

To find your nearest WIKA distributor,
visit our website at **www.wika.com** or
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