KELLER

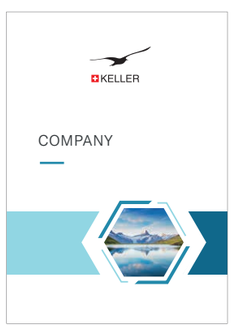
# PRODUCTS

PRECISION PRESSURE SENSORS
INVENTED BY
KELLER
EST. 1974
PRODUCED IN SWITZERLAND

# CONTENT



## MORE BROCHURES




KELLER

# KELLER PRESSURE

THE ORIGINAL SINCE 1974



## KELLER PRESSURE QUALITY

- Piezoresistive pressure measurement technology of the highest quality
- Pressure sensors with maximum accuracy
- Half a century of experience
- Unique measuring and testing expertise
- Custom Solutions
- Swiss Made

keller-pressure.com



## PRODUCT OVERVIEW

KELLER Pressure is known for Swiss quality and precision. Ever since being established, the company has developed and produced its products at its facilities in Winterthur. For more than 50 years, we have been pairing expertise with innovative spirit to find the right solutions for each individual application. The customer's wishes are our key focus.

Pressure Transducers

Pressure Transmitters

Level Probes

Data Loggers


Digital Pressure Gauges

Wireless Solutions

Custom Solutions

Software and Accessories

# PRESSURE TRANSDUCERS

Encapsulated piezoresistive pressure transducers for absolute and gauge pressure measurement are the core competence from KELLER Pressure and lie at the heart of all products for end users. They have proved their worth millions of times over and are a reliable base for any measuring system. Transducers can be adjusted and optimised according to your needs.

## OEM Pressure Transducers

| | Series 4L | Series 7L | Series 9L | Series 9FL | Series 10L |
|---|---|---|---|---|---|
| PRESSURE RANGES | 0...10 to 0...200 bar | 0...5 to 0...200 bar | 0...0,2 to 0...200 bar | 0...0,2 to 0...200 bar | 0...0,1 to 0...200 bar |
| ACCURACY | ± 0,5 %FS | ± 0,5 %FS | ± 0,25 %FS | ± 0,25 %FS | ± 0,25 %FS |
| LONG TERM STABILITY | ± 0,5 %FS | ± 0,25 %FS | ± 0,2 %FS | ± 0,2 %FS | ± 0,15 %FS |
| DIMENSIONS | ø 11 mm × 5,2 mm | ø 15 mm × 5 mm | ø 19 mm × 5 mm | ø 17 mm × 5,5 mm | ø 19 mm × 15 mm |
| TEMPERATURE RANGE | -20...85°C | -20...100 °C | -40...125 °C | -40...125 °C | -40...125 °C |

## OEM High-Pressure Transducers

| | Series 6LHP | Series 7LHP | Series 10LHP |
|---|---|---|---|
| PRESSURE RANGES | 0...100 to 0...2000 bar | 0...100 to 0...2000 bar | 0...200 to 0...1000 bar |
| LONG TERM STABILITY | ± 0,25 %FS | ± 0,25 %FS | ± 0,25 %FS |
| MATERIAL | Steel 1.4435, Hastelloy C-276, Inconel 718 | Steel 1.4435, Inconel 718, Titanium | Steel 1.4435 |
| DIMENSIONS | ø 13 mm × 8 mm | ø 15 mm × 8 mm | ø 19 mm × 15 mm |
| TEMPERATURE RANGE | -40...150 °C | -55...180 °C | -20...100 °C |

## OEM Differential Pressure Transducers

| | Series PD-10L | Series PD-10LHP |
|---|---|---|
| PRESSURE RANGES | 0...0,1 to 0...30 bar | 0...0,1 to 0...30 bar |
| LINE PRESSURE | 200 bar | 600 bar |
| ACCURACY | ± 0,25 %FS | ± 0,25 %FS |
| DIMENSIONS | ø 19 mm × 26 mm | ø 19 mm × 35 mm |
| TEMPERATURE RANGE | -40...125 °C | -40...125 °C |

## OEM Pressure Transducers with Thread

| | Series 20 | Series 20S |
|---|---|---|
| PRESSURE RANGES | 0...5 to 0...600 bar | 0...0,3 to 0...1000 bar |
| ACCURACY | ± 0,5 %FS | ± 0,25 %FS |
| PRESSURE CONNECTION | G1/4, 1/4-18NPT | G1/4, 1/4-18NPT |
| DIMENSIONS | HEX19 × 32 mm | HEX22 × 34 mm |
| TEMPERATURE RANGE | -10...80 °C | -10...80 °C |

## OEM Pressure Transducers Special Designs

| | Series 3L | Series 6L | Series 8L |
|---|---|---|---|
| PRESSURE RANGES | 0...20 to 0...200 bar | 0...10 to 0...200 bar | 0...0,2 to 0...200 bar |
| ACCURACY | ± 0,5 %FS | ± 0,5 %FS | ± 0,5 %FS |
| LONG TERM STABILITY | ± 0,5 %FS | ± 0,35 %FS | ± 0,2 %FS |
| DIMENSIONS | ø 9,5 mm × 4,2 mm | ø 13 mm × 4,5 mm | ø 17 mm × 7 mm |
| TEMPERATURE RANGE | 0...50 °C | -10...80 °C | -40...125 °C |

## Miniature Pressure Transducers without Oil Filling

| | Series M5 | Series 2MI | Catheters | Tip sensors |
|---|---|---|---|---|
| PRESSURE RANGES | 0...3 to 0...30 bar | 0...1 to 0...400 bar | -0,5...0,5 bar | 0...1 to 0...5 bar |
| ACCURACY | ± 0,3 %FS | ± 0,5 %FS | ± 0,5 %FS | ± 0,5 %FS |
| PRESSURE CONNECTION | M5 x 0,5 Thread | Elastomer coating | 4F / 5F / 6F / 8F | 4F / 5F / 6F / 8F |
| DIMENSIONS | ø 6,2 mm × 40 mm | ø 4,5 mm × 3 mm | ø 1,33 mm × 2,67 mm | ø 1,33 mm × 2,67 mm |
| TEMPERATURE RANGE | -50...180 °C | -20...80 °C | 20...40 °C | 20...40 °C |

# PRESSURE TRANSMITTERS

Pressure transmitters are sensors that use additional electronics to compensate for linearity deviations and temperature errors, outputting measurement results as standardised signals. Every transmitter is measured over the entire pressure and temperature profile and compared to the desired signal span.

## Standard Pressure Transmitters

| | Series 21PY | Series 21Y | Series 21C | Series 23SY | Series 23SX | Series 33X | Series 41X |
|---|---|---|---|---|---|---|---|
| PRESSURE RANGES | 0...10 to 0...600 bar | 0...2 to 0...1000 bar | 0...2 to 0...1000 bar | 0...0,1 to 0...1000 bar | 0...0,16 to 0...1000 bar | 0...0,3 to 0...1000 bar | 0...0,03 to 0...0,3 bar |
| ACCURACY | ± 0,5 %FS | ± 0,5 %FS | ± 0,25 %FS | ± 0,25 %FS | ± 0,1 %FS | ± 0,05 %FS | ± 0,1 %FS |
| TOTAL ERROR BAND | ± 1,5 %FS @ -10...80 °C | ± 1,5 %FS @ -10...80 °C | ± 1,5 %FS @ -10...80 °C | ± 0,7 %FS @ -10...80 °C | ± 0,25 %FS @ -10...80 °C | ± 0,1 %FS @ -10...80 °C | ± 0,2 %FS @ 10...50 °C |
| INTERFACES | 0,5...4,5 V | 4...20 mA, 0...10 V | 0,5...4,5 V ratiom. | 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V |
| TEMPERATURE RANGE | -20...100 °C | -40...125 °C | -40...125 °C | -40...125 °C | -40...125 °C | -40...125 °C | -20...80 °C |

## Hydrogen Pressure Transmitters

| | Series 23SY-H2 | Series 23SY-Ei-H2 | Series 23SX-H2 | Series 33X-Ei-H2 |
|---|---|---|---|---|
| PRESSURE RANGES | 0...4 to 0...900 bar | 0...4 to 0...900 bar | 0...4 to 0...900 bar | 0...4 to 0...1000 bar |
| ACCURACY | ± 0,25 %FS | ± 0,25 %FS | ± 0,1 %FS | ± 0,1 %FS |
| TOTAL ERROR BAND | ± 0,7 %FS @ -10...80 °C | ± 0,7 %FS @ -10...80 °C | ± 0,25 %FS @ -10...80 °C | ± 0,25 %FS @ -10...80 °C |
| INTERFACES | 4...20 mA, 0...10 V | 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V |
| SPECIAL CHARACTERISTICS | Optimised for H2 | Optimised for H2<br>Intrinsically safe | Optimised for H2 | Optimised for H2<br>Intrinsically safe |

## IO-Link and CANopen Pressure Transmitters




| | Series 21Zio | Series 23SXc | Series 23SXio | Series 25SXio |
|---|---|---|---|---|
| PRESSURE RANGES | 0...4 to 0...1000 bar | 0...0,16 to 0...1000 bar | 0...0,16 to 0...1000 bar | 0...0,16 to 0...1000 bar |
| ACCURACY | ± 0,5 %FS | ± 0,1 %FS | ± 0,1 %FS | ± 0,1 %FS |
| TOTAL ERROR BAND | ± 1,5 %FS @ -10...80 °C | ± 0,25 %FS @ -10...80 °C | ± 0,25 %FS @ -10...80 °C | ± 0,25 %FS @ -10...80 °C |
| INTERFACES | IO-Link, switching output | CANopen | IO-Link, switching output | IO-Link, switching output |
| TEMPERATURE RANGE | -40...125 °C | -40...125 °C | -40...125 °C | -40...125 °C |

«Thanks to our technological expertise, longstanding experience and mastery of the many processes involved in manufacturing pressure sensors, coupled with a high level of vertical integration, we can make even the impossible possible.»

Bernhard Vetterli, Technical Director

## Front-Flush Pressure Transmitters





| | Series 25Y | Series 35X | Series 35XHT | Series 35XHTCX | Series 35XHTT |
|---|---|---|---|---|---|
| PRESSURE RANGES | 0...0,5 to 0...1000 bar | 0...0,3 to 0...1000 bar | 0...1 to 0...30 bar | 0...3 to 0...1000 bar | 0...1 to 0...30 bar |
| ACCURACY | ± 0,25 %FS | ± 0,05 %FS | ± 0,05 %FS | ± 0,1 %FS | ± 0,05 %FS |
| TOTAL ERROR BAND | ± 0,7 %FS @ -10...80 °C | ± 0,1 %FS @ -10...80 °C | ± 0,15 %FS @ 20...120 °C | ± 0,5 %FS @ 20...300 °C | ± 0,15 %FS @ 20...120 °C |
| INTERFACES | 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V |
| TEMPERATURE RANGE | -40...100 °C | -40...125 °C | -20...150 °C | 0...300 °C | -20...150 °C |

## High Temperature Pressure Transmitters






| | Series M5HB | Series M8coolHB | Series 9LC | Series 35XHT | Series 35HTCX | Series 35XHTT |
|---|---|---|---|---|---|---|
| PRESSURE RANGES | 0...3 to 0...30 bar | 0...3 to 0...30 bar | 0...1 to 0...200 bar | 0...1 to 0...30 bar | 0...3 to 0...1000 bar | 0...1 to 0...30 bar |
| ACCURACY | ± 0,1 %FS | ± 0,1 %FS | ± 0,25 %FS | ± 0,05 %FS | ± 0,1 %FS | ± 0,05 %FS |
| TOTAL ERROR BAND | ± 0,5 %FS @ -20...125 °C | ± 1,0 %FS @ -40...180 °C | ± 0,8 %FS @ -10...80 °C | ± 0,15 %FS @ 20...120 °C | ± 0,5 %FS @ 20...300 °C | ± 0,15 %FS @ 20...120 °C |
| INTERFACES | 0...10 V | 0...10 V | 0,5...4,5 V ratiom. | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V |
| TEMPERATURE RANGE | -50...180 °C | -50...1000 °C | -40...150 °C | -20...150 °C | 0...300 °C | -20...150 °C |

## Automotive Pressure Transmitters

Series 21PY

Series 21PHB

Series 22S

Series 22DT

Series 22M

| | | | | | |
|---|---|---|---|---|---|
| PRESSURE RANGES | 0...10 to 0...600 bar | 0...10 to 0...600 bar | 0...5 to 0...250 bar | 0...14 bar | 0...5 to 0...250 bar |
| TOTAL ERROR BAND | ± 1,5 %FS @ -10...80 °C | ± 0,5 %FS @ -10...80 °C | ± 2,0 %FS @ 0...80 °C | ± 2,0 %FS @ 0...90 °C | ± 2,0 %FS @ 0...80 °C |
| INTERFACES | 0,5...4,5 V | 0...10 V | 0,5...4,5 V ratiom., 4...20 mA | 0,5...4,5 V ratiom. | 0,5...4,5 V ratiom., 4...20 mA |
| SPECIAL CHARACTERISTICS | Small and lightweight | 20 kHz bandwidth | Steel 316L | With temperature sensor | Brass |
| HOMOLOGATION | None | None | None | E4-11OR, E4-10R | E4-11OR, E4-10R |

## Differential Pressure Transmitters

Series PD-23X

Series PD-33X

Series PRD-33X

Series PD-39X

Series PD-41X

| | | | | | |
|---|---|---|---|---|---|
| PRESSURE RANGES | 0...0,16 to 0...25 bar | 0...0,3 to 0...30 bar | 0...0,35 to 0...3 bar | 0...3 to 0...300 bar | 0...0,03 to 0...0,3 bar |
| ACCURACY | ± 0,1 %FS | ± 0,05 %FS | ± 0,1 %FS | ± 0,05 %FS | ± 0,1 %FS |
| LINE PRESSURE | 200 bar / 600 bar | 200 bar / 600 bar | 0...40 bar | 0...3 to 0...300 bar | 2 bar |
| INTERFACES | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V | RS485 | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V |
| SPECIAL CHARACTERISTICS | Classic «wet-wet» | Classic «wet-wet» | Line pressure measurement | Line pressure measurement | Capacitive sensor |

## Intrinsically Safe Pressure Transmitters

Series 23SY-Ei

Series 25Y-Ei

Series 33X-Ei

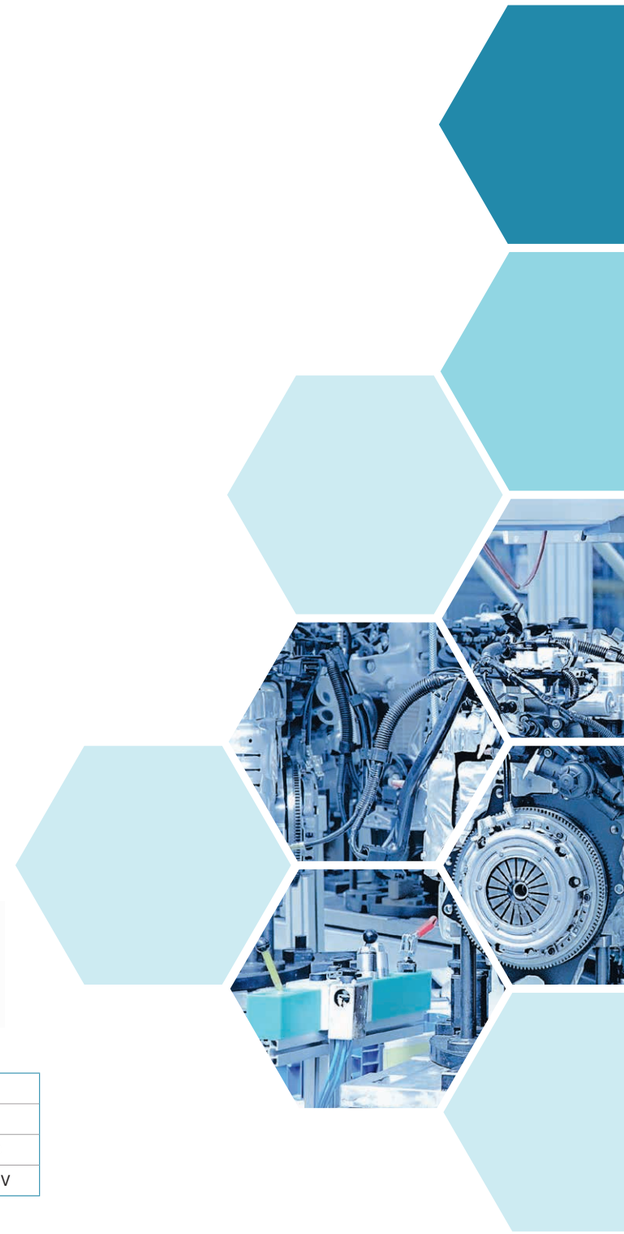
Series 35X-Ei

Series PD-33X-Ei

Series PD-39X-Ei

Series 41X-Ei

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PRESSURE RANGES | 0...0,1 to 0...1000 bar | 0...0,5 to 0...600 bar | 0...0,3 to 0...1000 bar | 0...0,3 to 0...1000 bar | 0...0,3 to 0...30 bar | 0...3 to 0...300 bar | 0...0,03 to 0...0,3 bar |
| ACCURACY | ± 0,25 %FS | ± 0,25 %FS | ± 0,05 %FS | ± 0,05 %FS | ± 0,05 %FS | ± 0,05 %FS | ± 0,1 %FS |
| TOTAL ERROR BAND | ± 0,7 %FS @ -10...80 °C | ± 0,7 %FS @ -10...80 °C | ± 0,1 %FS @ -10...80 °C | ± 0,1 %FS @ -10...80 °C | ± 0,1 %FS @ -10...80 °C | ± 0,1 %FS @ -10...80 °C | ± 0,2 %FS @ 10...50 °C |
| INTERFACES | 4...20 mA, 0...10 V | 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V |



## Flame Proof Pressure Transmitters

Series 33X-Ed

Series 35X-Ed

Series 23-Ed

Series 25-Ed

| | | | | |
|---|---|---|---|---|
| PRESSURE RANGES | 0...1 to 0...300 bar | 0...1 to 0...100 bar | 0...1 to 0...300 bar | 0...1 to 0...300 bar |
| ACCURACY | ± 0,05 %FS | ± 0,05 %FS | ± 0,5 %FS | ± 0,5 %FS |
| TOTAL ERROR BAND | ± 0,1 %FS @ -10...80 °C | ± 0,1 %FS @ -10...80 °C | ± 4,0 %FS @ -10...80 °C | ± 4,0 %FS @ -10...80 °C |
| INTERFACES | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V | 4...20 mA, 0...10 V | 4...20 mA, 0...10 V |

## OEM Pressure Transmitters

Series 4LC

Series 4LD

Series 7LC

Series 7LD

Series 8LC

| | | | | | |
|---|---|---|---|---|---|
| PRESSURE RANGES | 0...3 to 0...200 bar | 0...3 to 0...200 bar | 0...2 to 0...200 bar | 0...3 to 0...200 bar | 0...1 to 0...200 bar |
| ACCURACY | ± 0,25 %FS | ± 0,15 %FS | ± 0,25 %FS | ± 0,15 %FS | ± 0,25 %FS |
| TOTAL ERROR BAND | ± 1,0 %FS @ 0...50 °C | ± 0,7 %FS @ 0...50 °C | ± 1,0 %FS @ -10...80 °C | ± 0,7 %FS @ -10...80 °C | ± 0,8 %FS @ -10...80 °C |
| INTERFACES | 0,5...4,5 V ratiom. | I2C | 0,5...4,5 V ratiom. | I2C | 0,5...4,5 V ratiom. |
| DIMENSIONS | ø 11 mm × 4,2 mm | ø 11 mm × 4,2 mm | ø 15 mm × 5 mm | ø 15 mm × 5 mm | ø 17 mm × 7 mm |

Series 9FLC

Series 9FLD

Series 9LC

Series 9LD

Series 10LX

Series 20SX

| | | | | | | |
|---|---|---|---|---|---|---|
| PRESSURE RANGES | 0...1 to 0...50 bar | 0...1 to 0...30 bar | 0...1 to 0...200 bar | 0...1 to 0...200 bar | 0...3 to 0...200 bar | 0...0,3 to 0...1000 bar |
| ACCURACY | ± 0,25 %FS | ± 0,15 %FS | ± 0,25 %FS | ± 0,15 %FS | ± 0,05 %FS | ± 0,05 %FS |
| TOTAL ERROR BAND | ± 0,8 %FS @ -10...80 °C | ± 0,7 %FS @ -10...80 °C | ± 0,8 %FS @ -10...80 °C | ± 0,7 %FS @ -10...80 °C | ± 0,1 %FS @ -10...80 °C | ± 0,1 %FS @ -10...80 °C |
| INTERFACES | 0,5...4,5 V ratiom. | I2C | 0,5...4,5 V ratiom. | I2C | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V |
| DIMENSIONS | ø 17 mm × 5,5 mm | ø 17 mm × 5,5 mm | ø 19 mm × 5 mm | ø 19 mm × 5 mm | ø 19 mm × 57...96 mm | HEX22 × 79,2...119 mm |

## OEM High-Pressure Transmitters

Series 6LHPC

Series 6LHPD

Series 7LHPC

Series 7LHPD

Series 10LHPX

| | Series 6LHPC | Series 6LHPD | Series 7LHPC | Series 7LHPD | Series 10LHPX |
|---|---|---|---|---|---|
| PRESSURE RANGES | 0...200 to 0...1000 bar | 0...400 to 0...1000 bar | 0...200 to 0...1000 bar | 0...400 to 0...1000 bar | 0...200 to 0...1000 bar |
| ACCURACY | ± 0,25 %FS | ± 0,15 %FS | ± 0,25 %FS | ± 0,15 %FS | ± 0,05 %FS |
| TOTAL ERROR BAND | ± 0,8 %FS @ -10...80 °C | ± 1,0 %FS @ -10...80 °C | ± 0,8 %FS @ -10...80 °C | ± 1,0 %FS @ -10...80 °C | ± 0,1 %FS @ -10...80 °C |
| INTERFACES | 0,5...4,5 V ratiom. | I2C | 0,5...4,5 V ratiom. | I2C | RS485, 4...20 mA, 0...10 V |
| DIMENSIONS | ø 13 mm × 8 mm | ø 13 mm × 8 mm | ø 15 mm × 8 mm | ø 15 mm × 8 mm | ø 19 mm × 57...96 mm |

## Intrinsically Safe OEM Pressure Transmitters

Series 4LD-Ei

Series 6LHPD-Ei

Series 7LD-Ei

Series 7LHPD-Ei

Series 9LD-Ei



Series 9FLD-Ei

| | Series 4LD-Ei | Series 6LHPD-Ei | Series 7LD-Ei | Series 7LHPD-Ei | Series 9LD-Ei | Series 9FLD-Ei |
|---|---|---|---|---|---|---|
| PRESSURE RANGES | 0...3 to 0...200 bar | 0...400 to 0...1000 bar | 0...3 to 0...200 bar | 0...400 to 0...1000 bar | 0...1 to 0...200 bar | 0...1 to 0...30 bar |
| ACCURACY | ± 0,15 %FS | ± 0,15 %FS | ± 0,15 %FS | ± 0,15 %FS | ± 0,15 %FS | ± 0,15 %FS |
| TOTAL ERROR BAND | ± 0,7 %FS @ 0...50 °C | ± 1,0 %FS @ -10...80 °C | ± 0,7 %FS @ -10...80 °C | ± 1,0 %FS @ -10...80 °C | ± 0,7 %FS @ -10...80 °C | ± 0,7 %FS @ -10...80 °C |
| INTERFACES | I2C | I2C | I2C | I2C | I2C | I2C |
| DIMENSIONS | ø 11 mm × 4,2 mm | ø 13 mm × 8 mm | ø 15 mm × 5 mm | ø 15 mm × 8 mm | ø 19 mm × 5 mm | ø 17 mm × 5,5 mm |

## Analog Pressure Transmitters

Series 23

Series PD-23

Series 25

| | Series 23 | Series PD-23 | Series 25 |
|---|---|---|---|
| PRESSURE RANGES | 0...0,2 to 0...1000 bar | 0...0,2 to 0...20 bar | 0...0,5 to 0...1000 bar |
| ACCURACY | ± 0,5 %FS | ± 0,5 %FS | ± 0,5 %FS |
| TOTAL ERROR BAND | ± 4,0 %FS @ -10...80 °C | ± 4,0 %FS @ -10...80 °C | ± 4,0 %FS @ -10...80 °C |
| INTERFACES | 4...20 mA, 0...10 V | 4...20 mA, 0...10 V | 4...20 mA, 0...10 V |
| TEMPERATURE RANGE | -40...100 °C | -40...100 °C | -40...100 °C |

# LEVEL PROBES

Submersible probes for level and fill measurement. With a special design and cable and housing materials that have been chosen for compatibility with their surroundings, these probes can be used in a wide range of liquids.

## Standard Level Probes








| | Series 26Y | Series 26X | Series 26Xi | Series 26KyX | Series 36XS | Series 36XW | Series 36XiW | Series 46X |
|---|---|---|---|---|---|---|---|---|
| PRESSURE RANGES | 0...0,1 to 0...10 bar | 0...0,1 to 0...25 bar | 0...0,3 to 0...10 bar | 0...0,4 to 0...1 bar | 0...1 to 0...30 bar | 0...0,3 to 0...30 bar | 0...0,3 to 0...10 bar | 0...0,03 to 0...0,3 bar |
| ACCURACY | ± 0,25 %FS | ± 0,1 %FS | ± 0,1 %FS | ± 0,3 %FS | ± 0,05 %FS | ± 0,05 %FS | ± 0,05 %FS | ± 0,1 %FS |
| TOTAL ERROR BAND | ± 0,5 %FS @ 0...50 °C | ± 0,25 %FS @ 0...50 °C | ± 0,25 %FS @ 0...50 °C | ± 0,5 %FS @ 0...50 °C | ± 0,2 %FS @ 0...50 °C | ± 0,1 %FS @ 0...50 °C | ± 0,1 %FS @ 0...50 °C | ± 0,2 %FS @ 10...50 °C |
| INTERFACES | 4...20 mA | RS485, 4...20 mA, 0...10 V | SDI-12 | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA | RS485, 4...20 mA, 0...10 V | SDI-12 | RS485, 4...20 mA, 0...10 V |
| SPECIAL CHARACTERISTICS | Compact design | High accuracy | High accuracy | Plastic diaphragm | Reduced diameter | Optimum accuracy | Maximum accuracy | Ceramic measuring cell |

## Intrinsically Safe Level Probes



| | Series 26Y-Ei | Series 36XW-Ei | Series 46X-Ei |
|---|---|---|---|
| PRESSURE RANGES | 0...0,1 to 0...10 bar | 0...0,3 to 0...30 bar | 0...0,03 to 0...0,3 bar |
| ACCURACY | ± 0,25 %FS | ± 0,05 %FS | ± 0,1 %FS |
| TOTAL ERROR BAND | ± 0,5 %FS @ 0...50 °C | ± 0,1 %FS @ 0...50 °C | ± 0,2 %FS @ 10...50 °C |
| INTERFACES | 4...20 mA | RS485, 4...20 mA, 0...10 V | RS485, 4...20 mA, 0...10 V |
| SPECIAL CHARACTERISTICS | Compact design | Optimum accuracy | Ceramic measuring cell |

## Multi-Parameter Probe


| | Series 36XW-CTD | Series 36XiW-CTD |
|---|---|---|
| PRESSURE RANGES | 0...0,3 to 0...20 bar | 0...0,3 to 0...20 bar |
| ACCURACY | ± 0,05 %FS | ± 0,05 %FS |
| TOTAL ERROR BAND | ± 0,1 %FS @ 0...50 °C | ± 0,1 %FS @ 0...50 °C |
| INTERFACES | RS485 | SDI-12 |
| SPECIAL CHARACTERISTICS | Additional conductivity measurement | Additional conductivity measurement |

# DATA LOGGERS

A variety of data logger designs for recording pressure and temperature profiles. Depending on the system, the data is read out via a plug connection or remote transfer.

## Level Loggers

| | DCX-16 | DCX-22 | DCX-22AA | DCX-22-ECO | DCX-25PVDF | DCX-38 |
|---|---|---|---|---|---|---|
| PRESSURE RANGES | 0...10 to 0...100 mH2O | 0...10 to 0...100 mH2O | 0...5 to 0...10 mH2O | 0...10 to 0...100 mH2O | 0...10 to 0...100 mH2O | 0...0,5 to 0...3 mH2O |
| TOTAL ERROR BAND | ± 0,1 %FS @ -10...40 °C | ± 0,1 %FS @ -10...40 °C | ± 0,1 %FS @ -10...40 °C | ± 0,25 %FS @ -10...40 °C | ± 0,1 %FS @ -10...40 °C | ± 0,2 %FS @ -10...40 °C |
| READING CAPACITY | 114'000 measuring points | 114'000 measuring points | 114'000 measuring points | 114'000 measuring points | 114'000 measuring points | 114'000 measuring points |
| DIMENSIONS | ø 16 mm | ø 22 mm | ø 22 mm | ø 22 mm | ø 25 mm | ø 38 mm |
| SPECIAL CHARACTERISTICS | Slender design | Available in different versions | With integrated barometer | With USB interface | Special plastic housing | Capacitive sensor |

## Multi-Parameter Loggers

| | DCX-22AA-CTD | DCX-22-CTD |
|---|---|---|
| PRESSURE RANGES | 0...10 to 0...100 mH2O | 0...10 to 0...100 mH2O |
| TOTAL ERROR BAND | ± 0,1 %FS @ -10...40 °C | ± 0,1 %FS @ -10...40 °C |
| READING CAPACITY | 114'000 measuring points | 114'000 measuring points |
| DIMENSIONS | ø 22 mm | ø 22 mm |
| SPECIAL CHARACTERISTICS | Additional conductivity measurement | Additional conductivity measurement |

## Pressure Loggers

| | LEO-Record | LEO5 | Series 21DC-RFID |
|---|---|---|---|
| PRESSURE RANGES | -1...3 to 0...1000 bar | -1...1 to 0...1000 bar | 0...3 to 0...1000 bar |
| ACCURACY | ± 0,05 %FS | ± 0,05 %FS | ± 0,15 %FS |
| TOTAL ERROR BAND | ± 0,1 %FS @ 0...50 °C | ± 0,1 %FS @ 0...50 °C | ± 0,7 %FS @ -10...80 °C |
| READING CAPACITY | 57'000 measuring points | 56'000 measuring points | 32'000 measuring points |
| SPECIAL CHARACTERISTICS | Measured value recording | All-rounder | Data logger with battery |

# DIGITAL PRESSURE GAUGES

High-quality digital pressure gauges with easy to read displays and practical additional functions.
Display units for use with transmitters or for processing standard signals from other sources.

## Digital Pressure Gauges

| | LEX1 | LEO1 | LEO2 | LEO3 | LEO5 | LEO-Record | LEO-Record-H2 | ECO2 |
|---|---|---|---|---|---|---|---|---|
| PRESSURE RANGES | -1...1 to 0...1000 bar | -1...3 to 0...1000 bar | 0...4 to 0...700 bar | -1...3 to 0...1000 bar | -1...1 to 0...1000 bar | -1...3 to 0...1000 bar | -1...3 to 0...900 bar | 0...31 to 0...300 bar |
| ACCURACY | ± 0,05 %FS | ± 0,1 %FS | ± 0,1 %FS | ± 0,1 %FS | ± 0,05 %FS | ± 0,05 %FS | ± 0,05 %FS | ± 0,5 %FS |
| TOTAL ERROR BAND | ± 0,05 %FS @ 0...50 °C | ± 0,2 %FS @ 0...50 °C | ± 0,2 %FS @ 0...50 °C | ± 0,2 %FS @ 0...50 °C | ± 0,1 %FS @ 0...50 °C | ± 0,1 %FS @ 0...50 °C | ± 0,1 %FS @ -10...80 °C | ± 1,0 %FS @ 0...50 °C |
| INTERFACES | RS485 | None | None | RS485, 4...20 mA | USB | RS485 | RS485 | None |
| SPECIAL CHARACTERISTICS | Precision of up to 0,01 %FS | Peak recording | Compact and precise | 4...20 mA output | All-rounder | Measured value recording | Optimised for H2 | Compact and economical |

## Intrinsically Safe Digital Pressure Gauges

| | LEO1-Ei | LEO2-Ei | LEO-Record-Ei | LEO-Record-Ei-H2 | LEX1-Ei | ECO2-Ei |
|---|---|---|---|---|---|---|
| PRESSURE RANGES | -1...3 to 0...1000 bar | 0...4 to 0...700 bar | -1...3 to 0...1000 bar | -1...3 to 0...1000 bar | -1...1 to 0...1000 bar | 0...31 to 0...300 bar |
| ACCURACY | ± 0,1 %FS | ± 0,1 %FS | ± 0,05 %FS | ± 0,05 %FS | ± 0,05 %FS | ± 0,5 %FS |
| TOTAL ERROR BAND | ± 0,2 %FS @ 0...50 °C | ± 0,2 %FS @ 0...50 °C | ± 0,1 %FS @ 0...50 °C | ± 0 ,1 %FS @ 0...50 °C | ± 0,05 %FS @ 0...50 °C | ± 1,0 %FS @ 0...50 °C |
| INTERFACES | None | None | RS485 | RS485 | RS485 | None |
| SPECIAL CHARACTERISTICS | Peak recording | Compact and precise | Measured value recording | Optimised for H2 | Precision of up to 0,01 %FS | Compact and economical |

# WIRELESS SOLUTIONS

Devices for measuring and transmitting pressure values via wireless interfaces such as LoRa, Bluetooth, 2G, 3G, 4G and RFID. Alarm notifications, switch outputs and additional extras round out the range of functions on offer.

## Remote Transmission Units

ARC1-Tube

ARC1-Box

ARC1-Box-SB

ADT1-Tube

ADT1-Box

| | ARC1-Tube | ARC1-Box | ARC1-Box-SB | ADT1-Tube | ADT1-Box |
|---|---|---|---|---|---|
| CONNECTIVITY | 2G / 3G / 4G / NB-IoT / LTE-M / LoRa | 2G / 3G / 4G / NB-IoT / LTE-M / LoRa | 2G / 3G / 4G / NB-IoT / LTE-M / LoRa | NB-IoT / LTE-M / LoRa | NB-IoT / LTE-M / LoRa |
| SENSOR INTERFACES | RS485, SDI-12, analog, digital | RS485, SDI-12, analog, digital | RS485, SDI-12, analog, digital | RS485, I2C | RS485, I2C |
| BATTERY LIFE | Up to 10 years | Up to 10 years | Up to 10 years | Up to 5 years | Up to 5 years |
| DIMENSIONS | ø 48 mm × 330 mm | 200 × 100 × 81 mm | 180 × 180 × 72 mm | ø 42,4 mm × 165 mm | 162 × 82 × 55 mm |
| SPECIAL CHARACTERISTICS | For 2“ monitoring pipes | For wall installation | For intrinsically safe transmitters | For 2“ monitoring pipes | For wall installation |

## RFID

Series 21D-RFID

Series 21DC-RFID

| | Series 21D-RFID | Series 21DC-RFID |
|---|---|---|
| PRESSURE RANGES | 0...3 to 0...1000 bar | 0...3 to 0...1000 bar |
| ACCURACY | ± 0,15 %FS | ± 0,15 %FS |
| TOTAL ERROR BAND | ± 0,7 %FS @ -10...80 °C | ± 0,7 %FS @ -10...80 °C |
| READING CAPACITY | None | 32'000 measuring points |
| SPECIAL CHARACTERISTICS | Pressure transponder (passive) | Data logger with battery |

# SOFTWARE

Software and device drivers for configuring KELLER Pressure products and for reading, analysing and processing the measurement data.

## Data Platforms

| PressureSuite Desktop | PressureSuite Cloud | myCalibration |
|---|---|---|
| Windows software for communicating with connected KELLER Pressure devices. | Web app for collecting and displaying measured values that are recorded by IoT devices and transmitted via mobile radio or LoRaWAN. | myCalibration is a free data platform that has been specially developed for the provision and transmission of sensor calibration data. |

«The success of a project hinges on the exchange ofinformation at the interfaces. We are committed to offering a wide range of protocols and electrical interfaces for seamless system integration and lossfree transmission of pressure values.»

Daniel Hofer, Head of Product Management

## Desktop Applications

### Windows-Software

CANopen Calibration Tool
Control Center Series 30
K-114 Config
Conductivity Calibration Tool
D-Line Address Manager

## Drivers

### USB driver

For manometers and remote transmission units with a USB connection. This driver is also included in PressureSuite Desktop.

# ACCESSORIES

Accessories, interface converters and spare parts for the KELLER Pressure products

## Converters

K-114

K-404-T

K-102 / K-102I / K-103-A / K-107-B

K-510

| | | | | |
|---|---|---|---|---|
| INTERFACES | USB | USB | RS232 | USB |
| SENSOR INTERFACES | RS485, 0...40 mA, 0...12 V | I2C | RS485 | CAN |
| SENSOR POWER SUPPLY | 12 VDC | 3,3 VDC | Various versions | 12 VDC |
| SPECIAL CHARACTERISTICS | Compact design | For D-line products | Various versions | For Xc-line products |

## Calibrators With Reference Pressure Gauge LEX1

LPX

MPX

HPX

| | | | |
|---|---|---|---|
| PRESSURE RANGES | -0,85...10 bar | -0,85...25 bar | 0...700 bar |
| ACCURACY | ± 0,05 %FS | ± 0,05 %FS | ± 0,05 %FS |
| INTERFACES | RS485 | RS485 | RS485 |
| DISPLAY | 5-digit LCD display | 5-digit LCD display | 5-digit LCD display |
| SPECIAL CHARACTERISTICS | For air pressure | For air pressure | For hydraulic oil |

## Hand Pumps

Hand Pump K/P

Hand Pump HTP1

| | | |
|---|---|---|
| PRESSURE RANGES | -0,85...25 bar | 0...700 bar |
| ACCURACY | See ordered pressure gauge | See ordered pressure gauge |
| SPECIAL CHARACTERISTICS | For air Pressure | For hydraulic oil or distilled water |

# CUSTOM SOLUTIONS

Wherever pressure sensors are needed, a solution can normally be found in the KELLER Pressure standard product catalog. However, there are often great benefits to optimising a product specifically for integration and use in existing complete systems. In addition to outwardly identifiable components such as housing parts or plugs, this also includes the inner workings of the sensor. We produce a large number of individual parts in-house and establish close working relationships with our suppliers, enabling us to make a wide variety of modifications with ease.

## Shared Expertise for the Perfect Sensor Solutions

Our customers are specialists in their field: they know the requirements and operating conditions best. Since 1974, KELLER Pressure has been harnessing the potential of piezoresistive sensor technology to see numerous challenging projects through to completion. In all of these projects, a mutual exchange of expertise was essential to their success. Sharing our knowledge is what enables us to find the best sensor solution.

Even applications that may appear trivial at first glance can prove highly complex upon closer analysis. By taking the actual usage conditions of the sensor into consideration right from the outset, we can achieve major improvements in effectiveness and durability. And this holds true whatever the application – from fill level sensors in rainwater tanks to ultra-precise laboratory instruments, and even rocket science.

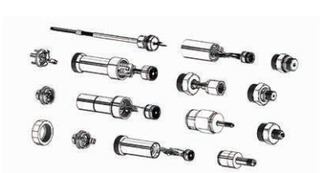
No matter the task at hand, the expert advice from our sales engineers and developers is a vital piece of the puzzle. Whether an existing product can be used – possibly with suitable modifications – or a new development is needed depends entirely on the customer‘s project. Together, we look at the requirements to determine the properties needed for flawless measurement. Armed with many years of experience, we take a close look at all the factors involved and their various interdependencies.

## Measuring Ranges & Performance

First of all, we define the basic sensor specifications such as overall measuring range, accuracy, calibration to specific measuring points and units of pressure, or scaling of the output signal. Products with a digital signal output have additional factors that also need to be determined, such as sampling rate or signal resolution. The values defined at this stage form the starting point for selecting components.

## Mechanical Design

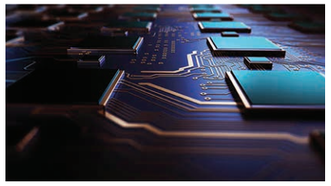
When designing a sensor, all the above points must be taken into consideration. A device‘s performance is heavily influenced by the sensor design, from the choice of sensor chip and coupling medium through to the materials and production techniques used. In addition, customers may have particular requests concerning shape and size, pressure connections and so on. And of course, any specific requirements pertaining to the area of application must be complied with, along with all the applicable legal regulations and standards.



## Perfectly Tuned to the Ambient Conditions

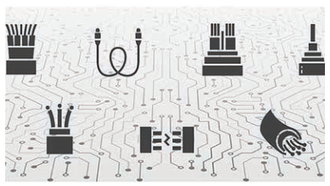
Another crucial requirement is taking the ambient conditions into consideration. Not only does this increase the service life of the sensor, it is also an essential prerequisite for correct measurements. If the pressurised system operates with a large proof pressure or with dynamic loads, the sensor design must be optimised for these particular demands. With some applications or neighbouring system parts, there is a risk of signal distortion or component failure due to vibration or shock. Temperature also has a major impact on all materials and their resistance. Complications can be caused not just by extreme temperature values but also by rapid changes in temperature. Another equally important factor is chemical resistance. The materials used for housings and seals must be carefully selected, otherwise they risk being damaged by aggressive measuring media. External factors such as petrol fumes, UV radiation, salt water or even microorganisms can also cause problems. It is therefore essential that all relevant factors be considered. Of course, even finely tuned designs still have limits, and additional protective measures may be needed.

## Electronics & Configuration



The main function of the electronics is to prepare the measurement signal, as well as possibly to save it and output it via a suitable interface. Customers can also request that application-specific calculations be integrated in the firmware, or ask for special device and software configurations. Once again, there are other requirements that depend on the environment, such as extended lightning protection, EMC or explosion protection. Intrinsically safe products can also be specially configured to match the parameters of the customer‘s overall system.

## Electrical Interfaces & Connections



Digital interfaces can be configured for specific communication protocols, or modified to suit the customer‘s needs. Meanwhile, analog interfaces also continue to play a vital role in sensor technology. KELLER Pressure is highly experienced in developing application-specific solutions based on both of these principles, including devices with light wave and frequency outputs. For electrical connections, the necessary plugs can be integrated into the design, while cable outlets can be specified by the customer.

## Marking

In addition to customer logos, it is also possible to have functional markings applied to the product, either by means of laser inscription or by printing information on labels. These may include part codes, serial numbers, data matrix codes or guide marks. Customers can also specify a color-coding scheme for the connecting wires. For consumer products such as manometers, a personalised design that includes the customer‘s logo can be applied to the front panel.

## KELLER PRESSURE – YOUR SWISS PRESSURE SENSING SPECIALIST

A market leader in the production of isolated pressure transducers and transmitters.


KELLER Pressure was established in 1974 by Hannes W. Keller, the inventor of the integrated silicon measuring cell. Today, his sons Tobias and Michael Keller run the business. The company is wholly family-owned and employs 500 staff from over 20 nations.

KELLER Pressure feels a strong connection to its home of Switzerland. Its headquarters are where the value is added and where most of our employees work. All products bear a quality seal that stands for «Swiss Made», among other things, which is associated with expertise, quality, tradition and being grounded approach all across the world. These are the core values as a business – values embodied by the company and its products.

KELLER Pressure is certified to ISO 9001. This means that our measured values can be fully traced to national standards.

*Find out more exciting details about the seal of quality here:*

## INDUSTRY OVERVIEW

Learn about the wide range of possible applications of our products. Our application reports show different real-life examples of customers trusting in the precision and reliability of KELLER Pressure sensors.


Vehicles


Aviation and Space Travel


Oil and Gas


Water and Environment


HVAC


Raw Material Extraction


Chemistry, Food and Pharma


Consumer Products


Structural Measuring


System and Device Construction

KELLER

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