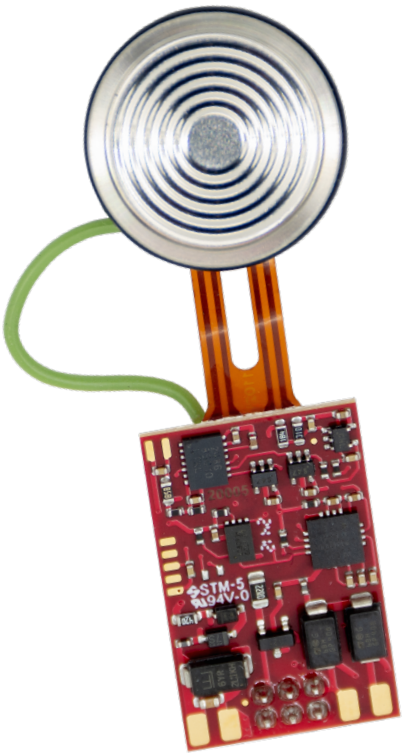
Series 9LX

High Accuracy Pressure Transmitters Modules



Features

- RS485 interface can be combined with analog output
- Highest long-term stability
- Front-flush diaphragm welded with no gaps

Technology

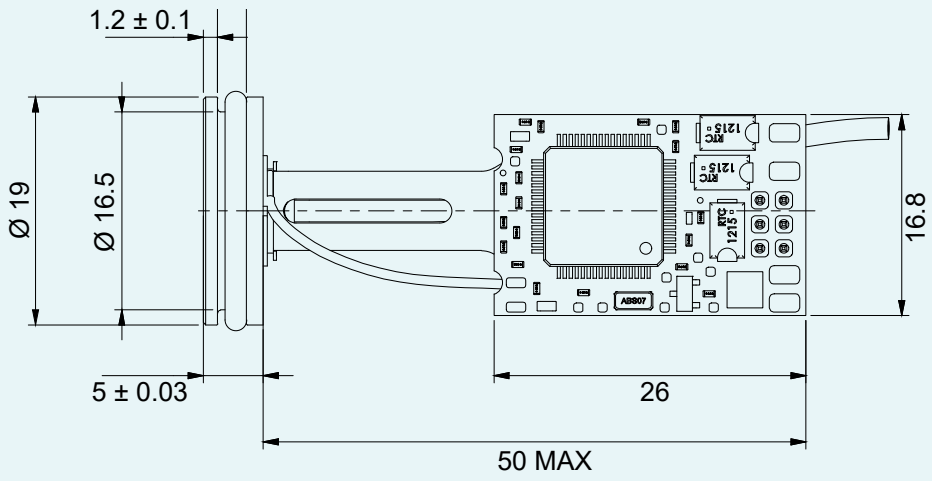
- Insulated and encapsulated piezoresistive pressure sensor chip
- High-quality OEM pressure transmitters and tried-and-tested mathematical compensation
- Ideal for mounting with O-ring

Typical applications

- OEM
- Industrial applications
- Laboratory use
- Oceanology
- Water / wastewater

Accuracy
± 0,05 %FS
Total Error Band
± 0,1 %FS @ -10…80 °C
Pressure ranges
0…1 to 0…30 bar - Others available on request

9LX ≤ 200 bar



Edition 10/2025
Subject to alterations
sales.us@keller-pressure.com

Series 9LX – Specifications

Standard pressure ranges

Relative pressure PR	Relative pressure PR	Proof pressure
0…1	-1…1	3
0…3	-1…3	9
0…10	-1…10	30
0…30	-1…30	90
bar rel.		bar
Reference pressure at atmospheric pressure		Based on reference pressure

Absolute pressure PAA	Proof pressure
0…2	3
0…4	9
0…11	30
0…31	90
bar abs.	bar
Reference pressure at 0 bar abs. (vacuum)	Based on reference pressure

All intermediate ranges for the analog interface can
be ranged (turn-down) from the standard ranges without surcharge.
Smallest range: 0,1 bar. Negative and further +/- ranges also possible.
Optional: Adjust directly to intermediate ranges.

Performance

Pressure

Accuracy @ RT (20…25 °C)	≤ ± 0,05 %FS	Non-linearity (best fit straight line, BFSL), pressure hysteresis, non-repeatability, zero point deviation and amplification deviation
Total Error Band (-10…80 °C)	≤ ± 0,1 %FS	Maximum deviation within the specified pressure and temperature range Experience shows that, outside the compensated temperature range, the total error band in the ambient temperature range is expanded by 0,1 %FS
Compensated temperature range	-10…80 °C	Other temperature ranges between -40…125 °C are possible as an option
Analog interface additional deviation	≤ ± 0,05 %FS	Based on accuracy @ RT and the total error band
Long-term stability	Typ. ± 0,05 %FS	Per year under reference conditions
	Max. ± 0,10 %FS	
Position dependency	≤ ± 2 mbar	Calibrated in vertical installation position with pressure connection facing downwards
Resolution	0,0005 %FS	Digital
Signal stability	0,0025 %FS	Digital, noise-free
Internal measurement rate	≥ 1800 Hz	For version «3-wire + digital (0…10 V, 0…5 V)» > 6000 Hz
Pressure range reserve	± 10 %	Outside the pressure range reserve, +Inf / -Inf is displayed If there is an error in the device, NaN is displayed
Vacuum resistance	For operating pressures ≤ 0,1 bar abs., a vacuum-optimised version is recommended	
Note	For pressure ranges < 1 bar, all data apply with reference to a full-range signal (FS) of 1 bar The specifications listed can only be guaranteed if the installation recommendations have been abided by	

Temperature

Accuracy	≤ ± 2 °C	The temperature is measured on the pressure sensor (silicon chip) that sits behind the metallic separating diaphragm The data applies within the compensated temperature range
Resolution	≤ 0,01 °C	
Internal measurement rate	> 10 Hz	

Series 9LX – Specifications

Electrical data

Connectivity	Digital	2-wire + digital	3-wire + digital		
Analog interface	None	4…20 mA	0…10 V	0…5 V	0,1…2,5 V
Digital interface	RS485	RS485	RS485	RS485	RS485
Voltage supply	3,2…32 VDC	8…32 VDC	13…32 VDC	8…32 VDC	3,2…32 VDC
Power consumption (without communication)	< 8 mA	3,5…22,5 mA	< 8 mA	< 8 mA	< 8 mA
RS485 voltage insulation	± 32 VDC	± 18 VDC	± 32 VDC	± 32 VDC	± 32 VDC
Note	Disturbance of the 4...20 mA signal occurs during communication via the digital interface 3-wire types are designed for simultaneously operating analog and digital interfaces				

Start-up time (power supply ON)	< 250 ms
Overvoltage protection and reverse polarity protection	± 32 VDC
GND case isolation	> 10 MΩ @ 300 VDC

Analog interface

Load resistance	< (U - 8 V) / 25 mA	2-wire
	> 5 kΩ	3-wire
Limiting frequency	≥ 300 Hz	2-wire
		3-wire (0,1…2,5 V)
	≥ 1000 Hz	3-wire (0…10 V, 0…5 V)
Note	Filter properties can be adjusted by the customer	

Digital interface

Type	RS485	Half-duplex
Communication protocols	Modbus RTU	
	KELLER bus protocol	Proprietary
Identification	Class.Group: 5.24	Standard settings: bus address 1, baud rate 9600 bit/s. Can be reconfigured via software by the customer later
Pressure unit	Bar	
Unit of temperature	°C	
Data type	Float32 and Int32	
Baud rates	9600 and 115,200 bit/s	
Cable lengths	Up to 1,2 km	

Electrical connection

Standard	Through-hole technology	6 x ø 0,8 mm
Plug type	Molex angled	6-pin
	Molex straight	6-pin
Cable	Wires	On request

Series 9LX – Specifications

Mechanical data

Materials in contact with media

Housing and separating diaphragm	Stainless steel AISI 316L
O-ring	FKM (75 Shore, -20…200 °C) ø 15,6 mm x 1,78 mm

Other materials

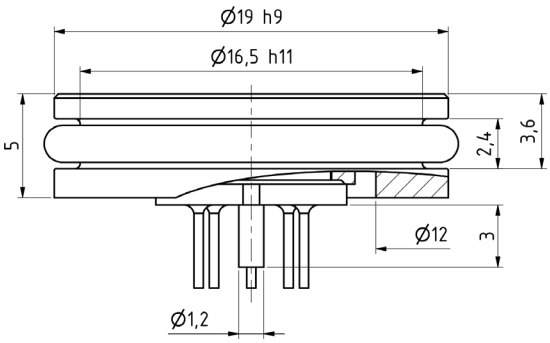
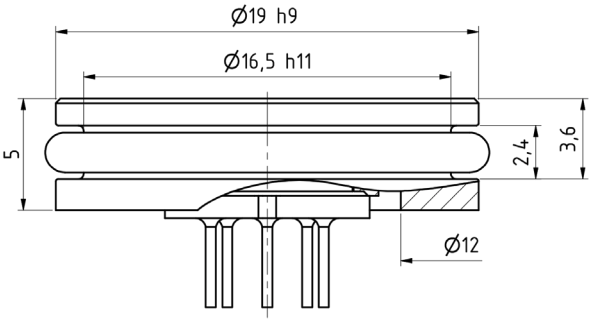
Pressure Transducer Capsules	Silicone oil

Environmental conditions

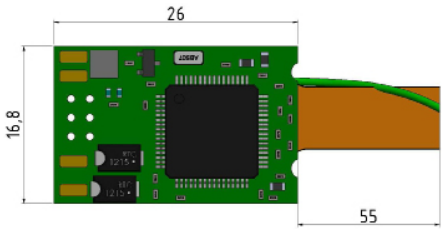
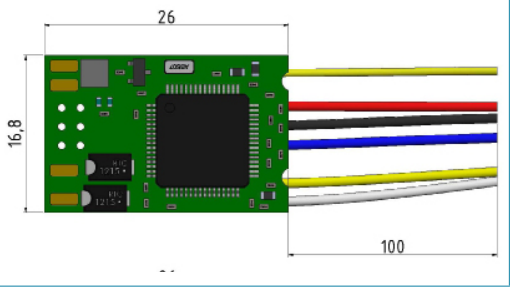
Medium temperature range	-20…125 °C	Icing not permitted
Ambient temperature range	-20…85 °C	
Storage temperature range	-20…85 °C	
Vibration resistance	10 g, 10…2000 Hz, ± 10 mm	IEC 60068-2-6
Shock resistance	50 g, 6 ms	IEC 60068-2-27
Load cycles @ RT (20…25 °C)	> 10 million pressure cycles	0…100 %FS

Series 9LX – Dimensions and variants

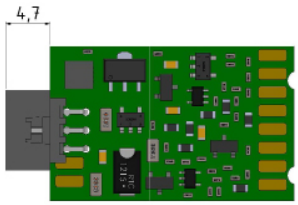
Overview of versions

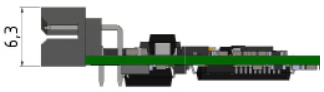
PR-9LX	PAA-9LX
	

Electrical contacts – Electronics to pressure transducer

PCB - Flexprint	PCB - Wires
	

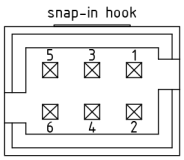
Electrical connections



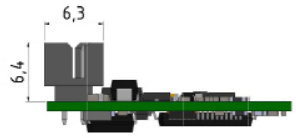


Molex type 87760-0616, 2 mm pitch

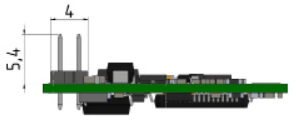


Molex type 87833-0631, 2 mm pitch	Digital		2-wire		3-wire	
			4…20 mA		0…max. 10 V	
	1	Do not connect	1	Do not connect	1	+OUT
	2	Do not connect	2	Do not connect	2	GND
	3	+Vs	3	+Vs	3	+Vs
	4	GND	4	OUT/GND	4	GND
	5	RS485B	5	RS485B	5	RS485B
	6	RS485A	6	RS485A	6	RS485A

Molex type 87831-0641, 2 mm pitch



Molex type 87758-0616, 2 mm pitch



Series 9LX – Software, scope of delivery and accessories

Modbus interface

The X-line products have a digital interface (RS485 half-duplex), which supports the MODBUS RTU and KELLER bus protocols. Details of the communication protocols can be found at www.keller-druck.com. Documentation, a Dynamic Link Library (DLL) and various programming examples are available for integrating the communication protocol into your own software.

Interface converters

The connection to a computer is established via an RS485-USB interface converter To ensure smooth operation, we recommend the K-114 with the corresponding mating plug, robust driver module, fast RX/TX switching and connectable bias and terminating resistors.

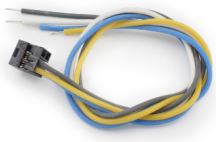
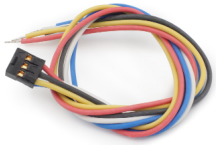
"CCS30" software

The licence-free software CCS30 is used to carry out configurations and record measured values.

Record of measured values
- Live visualisation
- Adjustable measuring and storage interval
- Export function
- Parallel recording in bus operation
- Up to 100 measured values per second

Configuration
- Call up of information (pressure and temperature range, software version, serial number etc.)
- Readjustment of zero point and amplification
- Rescaling of analog output (unit, pressure range)
- Adjustment of low-pass filter
- Selection of instrument address and baud rate

Accessories

Interface converter	Mating plug	Mating plug
		
K-114 • Analog measurement 0…10 V and 4…20 mA • 12 V measuring device supply via USB • USB interface galvanically isolated • Bias and terminating resistors can be activated	Molex, 6p, 4 wires, 200 mm • Compatible with digital and 2-wire • Product number 600510.0143	Molex, 6p, 5 wires, 200 mm • Compatible with 3-wire • Product number 600510.0144