Series 26KyX

Piezoresistive level probe with Kynar® diaphragm

Features

- The Kynar® diaphragm makes it ideal for for sewage or wastewater
- RS485 interface can be combined with analog interface
- Analog interface scaleable by RS485 interface (turn-down)
- Modbus RTU protocol for process values and configuration
- For many years of maintenance-free operation

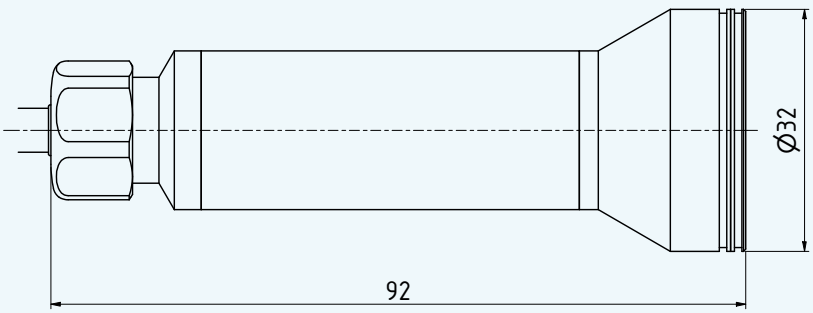
Technology

- Insulated and encapsulated piezoresistive pressure sensor
- Non-fouling diaphragm
- Robust stainless-steel housing
- Tried-and-tested mathematical signal compensation

Typical applications

- Hydrostatic pressure measurement
- Level measurement of sewage
- Level measurement in clarifiers

Accuracy
± 0,3 %FS
Total error band
± 0,5 %FS @ 0…50 °C
Pressure ranges
0…0,4 to 0…1 bar



Edition 10/2024
Subject to alterations
info@keller-pressure.com

Series 26KyX – Specifications

Standard pressure ranges

Water column approx.	Relative pressure PR	Proof pressure
4	0,4	3
6	0,6	3
10	1	3
mH2O	bar rel.	bar
Analog interface also rangeable to other units	Reference pressure at atmospheric pressure	Based on reference pressure

Note: Wider pressure ranges available on request.

Performance

Pressure

Digital non-linearity	≤ ±0,2 %FS	Best fit straight line (BFSL)
Accuracy @ RT (20…25 °C)	≤ ± 3 mbar	Non-linearity (best fit straight line, BFSL), pressure hysteresis, non-repeatability, zero point deviation and amplification deviation
Total error band (0…50 °C)	≤ ± 5 mbar	Max. deviation within the compensated pressure and temperature range.
Compensated temperature range	0…50 °C	
Long-term stability	≤ ± 3 mbar	
Position dependency	≤ ± 1,5 mbar	Calibrated in vertical installation position with pressure connection facing downwards.
Resolution	20 µbar	Digital
Signal stability	0,1 mbar	Digital noise-free
Pressure range reserve	≥ ± 10 %	Outside the pressure range reserve, +Inf / -Inf is displayed. If there is an error in the device, NaN is displayed.

Temperature

Accuracy	≤ ± 1,5 %FS	The temperature is measured on the pressure sensor (silicon chip) that sits behind the metallic separating diaphragm.
Optional	≤ 0,1 °C	The temperature is also measured by a Pt1000 sensor behind the pressure transducer.
Resolution	≤ 0,01 °C	
Internal measurement rate	≥ 10 Hz	
Note	The data applies within the compensated temperature range.	

Series 26KyX – Specifications

Electrical data

Connectivity	digital	2-wire + digital	3-wire + digital
Analog interface		4…20 mA	0,1…2,5 V
Digital interface	RS485	RS485	RS485
Voltage supply	3,2…32 VDC	8…32 VDC	3,2…32 VDC
Voltage supply with lightning protection (advanced surge protection)	4,5…32 VDC	10…32 VDC	N/A
Power consumption (without communication)	< 8 mA	3,5…22,5 mA	< 8 mA
RS485 voltage insulation	± 32 VDC	± 18 VDC	± 32 VDC
Note	Disturbance of the 4...20 mA signal occurs during communication via the digital interface. 3-wire types are suitable for simultaneous operation of the analog and digital interface.		

Start-up time (power supply ON)	< 250 ms
Overvoltage protection and reverse polarity protection	± 32 VDC
GND case insulation	> 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
	≥ 1000 Hz	3-wire
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. Other default settings available on request. Can be reconfigured via software by the customer later.
Unit of pressure	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

Cable	polyethylene (PE) ø 5,8 mm	Integrated capillary
Standard cable lengths	5 m, 10 m, 15 m, 25 m	Others available on request.

Electromagnetic compatibility

CE conformity as per 2014/30/EU (EMC)	EN IEC 61326-1 / EN IEC 61326-2-3 / EN IEC 61000-6-1 / EN IEC 61000-6-2 / EN IEC 61000-6-3 / EN IEC 61000-6-4	
Surge protection in accordance with EN 61000-4-5	Standard	Line-line: 50 A @ 8/20 µs
		Line-CASE: 200 A @ 8/20 µs
Lightning protection (advanced surge protection) in accordance with EN 61000-4-5	Optional	Line-line: 10 kA @ 8/20 µs
		Line-CASE: 2 kA @ 8/20 µs

Series 26KyX – Specifications

Mechanical data

Materials in contact with media

Housing	Stainless steel AISI 316L	
Pressure transducer separating diaphragm	PVDF (Kynar®)	
Pressure transducer seal (internal)	None	
Cable gland seal (internal)	FKM	Others available on request
Cable sheath	Polyethylene (PE)	Others available on request

Other materials

Pressure transducer oil filling	Silicone oil

Further details

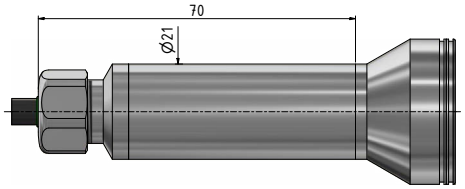
Pressure connection	None	See Dimensions and options
Diameter × length	ø 32 mm × approx. 92 mm	
Weight	approx. 150 g	

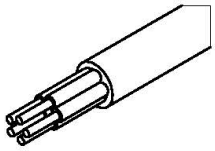
Environmental conditions

Media temperature range	-10…60 °C	Icing not permitted
Ambient temperature range	-10…60 °C	
Storage temperature range	-10…60 °C	
Protection	IP68	Cable gland
Vibration resistance	10 g, 10…2000 Hz, ±10 mm	IEC 60068-2-6
Shock resistance	50 g, 6 ms	IEC 60068-2-27

Series 26KyX – Dimensions and options

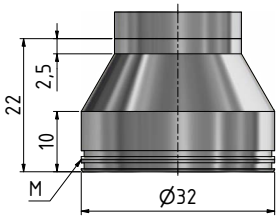
Electrical connections



Cable gland	2-wire		3-wire	
Cable	4…20 mA		0,1…2,5 V	
	WH	OUT/GND	WH	GND
	RD	n.c.	RD	+OUT
	BK	+Vs	BK	+Vs
	BU	RS485A	BU	RS485A
	YE	RS485B	YE	RS485B
	Shield on CASE		Shield on CASE	

Available pressure connections

Open



M: marking of diaphragm position

Customer-specific options

- Other pressure ranges available on request
- Extended lightning protection
- Integration of application-specific calculations

Examples of similar products

- Series 36XW: Level probe with excellent accuracy
- Series 26KyXi: Piezoresistive level probe with Kynar® diaphragm and SDI-12 interface

Series 26KyX – 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-pressure.com. To integrate the communication protocol into your own software, documentation, a Dynamic Link Library (DLL) and various program examples are available.

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

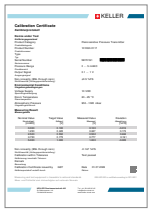
The CCS30 software has no licence costs and is used to perform configurations and record measured values.

Measurement recording
- Live visualisation
- Configurable 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

Scope of delivery

Calibration certificate



Accessories

Interface converter

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