



PumpMeter

Assembled and Parameterised in Europe

Type Series Booklet



Legal information/Copyright

Type Series Booklet PumpMeter

All rights reserved. The contents provided herein must neither be distributed, copied, reproduced, edited or processed for any other purpose, nor otherwise transmitted, published or made available to a third party without the manufacturer's express written consent.

Subject to technical modification without prior notice.

© KSB SE & Co. KGaA, Frankenthal 2025-09-30

Contents

Monitoring Systems	4
Intelligent Pressure Sensors.....	4
PumpMeter	4
General description	4
Main applications.....	4
Technical data	4
Materials	5
Product benefits.....	6
Product information	6
Functions.....	6
Design variants	7
Electrical connections	8
Dimensions	8
Scope of supply	8
Fluids handled	9
Spare parts.....	10
Electrical accessories	11

Monitoring Systems

Intelligent Pressure Sensors

PumpMeter



General description

The PumpMeter device is designed for monitoring pump operation. It is an intelligent pressure transmitter for pumps, with on-site display of measured values and operating data.

Technical data

Table 1: Technical data of the display unit

Characteristic	Value
Power supply	+24 V DC $\pm 15\%$
Current input	150 mA
Analog signal output	4 - 20 mA, 3-wire
Digital connection	RS485, Modbus RTU (Slave)
Enclosure	IP65 ¹⁾
Service interface	RS232
Storage temperature	-30 °C to +80 °C
Operating temperature	-10 °C to +60 °C

Table 2: Technical data of the sensors

Characteristic	Value
Signal	4 - 20 mA
Enclosure	IP67 ²⁾
Fluid temperature	-30 °C to +140 °C
Fluid temperature (with insulated sensors)	-30 °C to +80 °C
Installation torque	10 Nm
Ambient temperature	-10 °C to +60 °C

It records the load profile of the pump in order to indicate any potential for optimising energy efficiency and availability. The device comprises two pressure sensors and a display unit.

PumpMeter is supplied completely assembled and parameterised for the pump it is used with. It is ready for operation as soon as the M12 plug connector is plugged in.

Main applications

Industry:

- Air-conditioning systems
- Cooling circuits
- Heating systems
- Water treatment
- Cooling lubricant distribution
- Water extraction
- Service water supply

Water:

- Water supply systems
- Water treatment / water conditioning
- Water distribution / water transport

Building services:

- Air-conditioning systems
- Heating systems
- Water supply systems

¹ Provided that the connectors are connected correctly

² Provided that the connectors are connected correctly

Table 3: Sensor pressure limits

Sensor measuring range		Overpressure limit	Burst pressure
Min.	Max.		
[bar]	[bar]	[bar]	[bar]
-1	3	40	60
-1	10	40	60
-1	16	40	60
-1	25	50	75
-1	40	80	120
-1	65	130	195
-1	80	160	240

Materials

Table 4: Overview of materials

Wetted components	Material
Pressure sensor measuring unit	1.4542
Pressure sensor measuring unit	Titanium ³⁾
Pressure sensor process connection	1.4301
Pressure sensor process connection	Titanium ³⁾
Adapter for fitting a sensor ⁴⁾	1.0037 or 1.4571
Joint ring	Centellen

3 Special design for seawater applications
4 Depending on the basic material variant of the pump

Product benefits

- Transparent pump operation by on-site display of all relevant operating data, e.g. the operating point of the pump
- Identifies potential energy savings by recording and analysing the load profile and displaying the energy efficiency icon (EFF) if applicable.
- Saves time and money as the sensors are fitted to the pump at the factory, unlike conventional instruments used in systems.
- Higher availability of the pump through detection and prevention of non-intended use

Product information

Data access and use in accordance with Regulation (EU) 2023/2854 (EU Data Act)

Table 5: Device data recorded

Data type	Format	Volume	Continuous generation/ real-time generation	Data storage (Articles 3, 2c)		Duration of retention
				Device	Remote server	
(Art. 3, 2a)	(Art. 3, 2a)	(Art. 3, 2a)	(Art. 3, 2b)			(Art. 3, 2c)
Measured suction-side pressure (sensor)	INT	8 bytes	Yes	Yes	No	Instantaneous value
Measured discharge-side pressure (sensor)	INT	8 bytes	Yes	Yes	No	Instantaneous value

Data access (Art. 3, 2d)

Authorised users can access the collected data in the following ways:

- Data that is stored on the device
 - **Access:** The data stored on the device can be accessed using the KSB ServiceTool.
 - **Interface:** The data stored on the device can be read out via a field bus interface (ModbusRTU).
- When an optional field bus interface is used, data may be stored on a **remote server** provided by the customer.
 - **Access:** The customer is responsible for managing, securing and updating the access data.
 - **Technical details:** The customer is responsible for access rights, data storage and data deletion.
 - **Data format:** Exported data can be processed in commonly used tools (e.g. Excel, ERP systems).
- When an optional field bus interface is used, data may be stored on a **KSB remote server**.
 - No data is stored on a KSB remote server.
 - During use, related services such as the KSB ServiceTool and the KSB FlowManager store data from the connected product on a remote server in accordance with the terms and conditions of use.

The requirements regarding the information obligation under the EU Data Act for related services such as the KSB ServiceTool and the KSB FlowManager are set out in a separate document. Only the data of the connected product itself is shown here.

Functions

Pressure transmitter function

The discharge pressure or differential pressure of the pump are transmitted as a 4-20 mA signal. Connection via the RS485 serial interface with Modbus protocol is also possible.

Operating data display

The device alternately displays the suction pressure and discharge pressure as well as the differential pressure or head.

Recording and analysing of the load profile

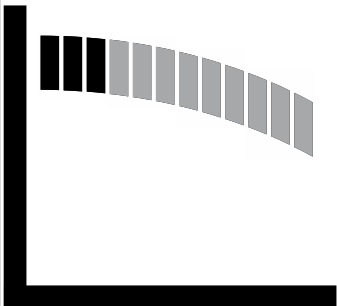
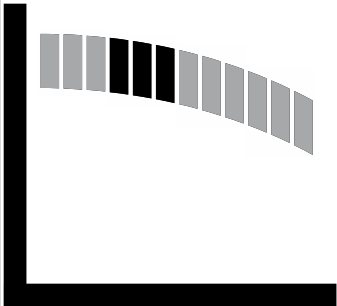
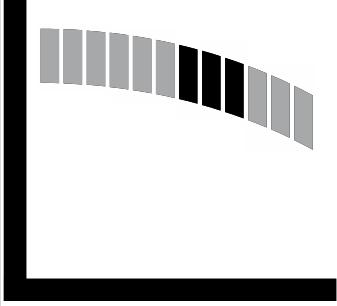
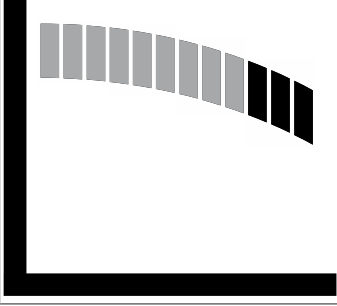


The operating hours of the pump in the different operating ranges are recorded in a load profile and saved in a non-volatile memory (protected against power failure). The energy efficiency symbol is displayed when a potential for optimisation is recognised.

Qualitative indication of the pump's current operating point

The flashing segment indicates the position of the current operating point on the generalised characteristic curve.

Table 6: Qualitative indication of the current operating point

Operating range	Segment display	Description
Operation in extreme part load conditions ⁵⁾ 	First quarter flashing (1)	- Pump possibly not operated in accordance with its intended use - Increased load on the components
Operation in moderate part load conditions ⁵⁾ 	Second quarter flashing (2)	Operation with potential for optimising energy efficiency
Operation near BEP 	Third quarter flashing (3)	Operation within intended operating range at optimum energy efficiency
Operation in overload conditions 	Fourth quarter flashing (4)	- Limit of the intended operating range - Possibly overload of pump and/or motor

Design variants

- **Adapter:**
Depending on thread type and size of the pump's pressure gauge connections
- **Cable length:**
600 mm, 1200 mm or 1800 mm, depending on the pump size
- **Measuring ranges of the pressure sensors:**
The measuring ranges are selected as a function of the maximum pump inlet pressure specified (suction-side sensor) and the maximum pump discharge pressure at zero flow

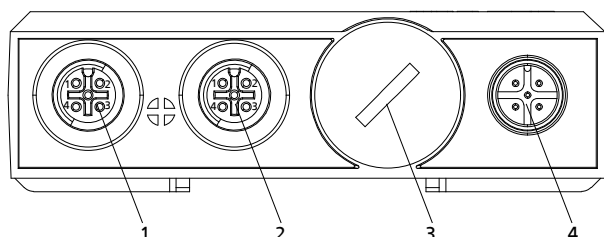
(discharge-side sensor). If no maximum inlet pressure is specified, calculation is based on a maximum inlet pressure of 5 bar.

⁵⁾ For some pump characteristics, no differentiation is made between the part load operating conditions in the curve's first two quarters (both flashing simultaneously).

Table 7: Available measuring ranges

Label colour of sensor	Colour code	Measuring range [bar]	
		Minimum	Maximum
-	Red	-1	3
-	Blue	-1	10
-	Light grey	-1	16
-	Green	-1	25
-	Black	-1	40
Silver	None	-1	65
Yellow	None	-1	80

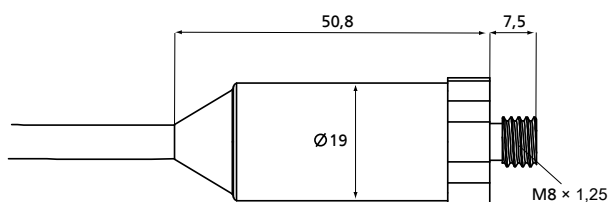
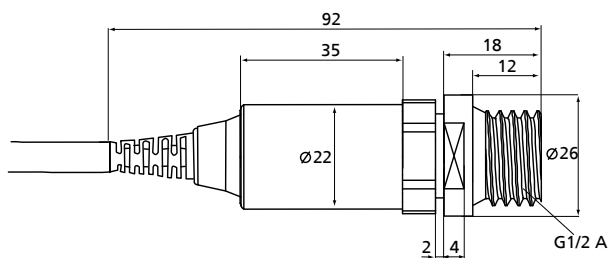
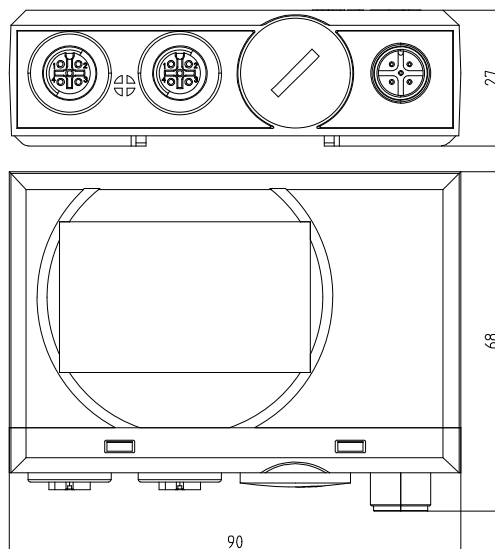
Electrical connections


Fig. 1: Connections at the device

1	IN1 / port for the suction-side pressure sensor
2	IN2 / port for the discharge-side pressure sensor
3	Service interface
4	EXT / external port for energy supply and signal output

Dimensions

PumpMeter


Fig. 2: Dimensions of sensor, measuring range up to 40 bar

Fig. 3: Dimensions of sensor, measuring range 65 bar and above

Fig. 4: Dimensions of the display unit

Scope of supply

Depending on the model, the following items are included in the scope of supply:

- Display unit fitted
- Sensors fitted with adapter

Fluids handled
Table 8: Overview of fluids handled

Fluid handled	Concen- tration	Max. tem- perature	Fluid handled	Concen- tration	Max. tem- perature
	[%]	[°C]		[%]	[°C]
Alum, acid-free	3	80	Water-oil emulsion (95 % / 5 %), free of solids	–	80
Alkaline solution, bottle rinsing, max. 2 % sodium hydroxide	–	40	Propanol	–	80
Alcohol	–	–	Cleaning agents	–	–
Aluminium sulphate, acid-free	5	60	Fuel	–	–
Ammonium bicarbonate	10	40	Water	–	–
Ammonium sulphate	20	60	Deionised water (fully desalinated)	–	140
Anolyte (dialyte) with acetic acid or formic acid, free of solids	–	30	Dealkalised water	–	120
Accelerator (as preparation)	–	–	Decarbonised water	–	120
Drilling/grinding emulsion	–	60	Fire-fighting water ⁶⁾	–	60
Spirits (40 % ethanol)	–	60	River water	–	60
Service water	–	60	Heating water ⁷⁾	–	140
Brewery applications	–	–	Boiler feed water to VdTÜV1466	–	140
Brewing water	–	60	Cooling water ⁶⁾ (without antifreeze)	–	60
Ice water (brewery)	–	60	Closed circuit cooling water	–	100
Vapour condensate (brewery)	–	140	Open circuit cooling water	–	100
Butanol	–	60	Cooling water pH > 7.5 (with antifreeze) ⁸⁾	–	110
Calcium acetate, acid-free	10	60	Slightly contaminated water ⁶⁾	–	60
Calcium nitrate, acid-free	10	60	Tap water	–	60
Diethylene glycol	–	100	Seawater	–	60 ⁹⁾
Aqueous dipping paint for electrochemical coating, anodic E-coating (anaphoresis)	–	–	Pure water ¹⁰⁾	–	60
Aqueous dipping paint for electrochemical coating, cathodic E-coating (cataphoresis)	–	35	Raw water ⁶⁾	–	60
Ethanol	–	35	Swimming pool water (fresh water) ⁶⁾	–	60
Ethylene glycol	–	60	Lake water (fresh water)	–	60
Ethylene glycol base antifreeze, inhibited, closed system	50	100	Barrier fluid	–	70
Glycerine	40	110	Fresh water	–	60
Potassium hydroxide	5	80	Sulphuric acid ⁹⁾	5	60
Potassium nitrate, acid-free	5	40	Dam water	–	60
Potassium sulphate, acid-free	3	30	Partly desalinated water	–	120
Jet fuel	–	20	Drinking water ⁶⁾	–	60
Condensate ⁷⁾	–	80	Permeate (osmosis)	–	140
Condensate, not conditioned	–	120	Fully desalinated water, free of solids	–	60
Copper sulphate	5	120	Fully desalinated water	–	120
Magnesium sulphate	10	80	Hot water (brewery)	–	60
Sodium carbonate	6	80	Water treated to VdTÜV1466	–	140
Sodium hydroxide	5	60	Water with antifreeze, pH > 7.5 ⁶⁾⁸⁾	–	110
Sodium nitrate, acid-free	10	40	Water, waste water, slightly contaminated water, surface water	–	60
Sodium sulphate, acid-free	5	60	Water, fire-fighting water	–	60
Sodium hydroxide	15-20	60	Water, surface water	–	60
Diesel oil	–	20	Water, rainwater, with strainer	–	60

6 General criteria for results of water analysis: pH ≥ 7; chloride content (Cl) ≤ 250 mg/kg. Chlorine (Cl 2) ≤ 0.6 mg/kg

7 Treatment to VdTÜV 1466, additional requirement: O₂ t ≤ 0.02 mg/l

8 Anti-freeze on ethylene glycol basis with inhibitors, content >20 % to 50 % (e.g. Antifrogen N)

9 Can only be used in combination with suitably certified sensors made of titanium.

10 No ultra-pure water: conductivity at 25 °C: ≤ 800 µS/cm, neutral with regard to chemical corrosion

Fluid handled	Concentration	Max. temperature	Fluid handled	Concentration	Max. temperature
	[%]	[°C]		[%]	[°C]
Diesel oil, extra light fuel oil	–	80	Water, raw water	–	60
Lubricating oil, turbine oil, does not apply to SF-D oils (hardly flammable)	–	60	Water, drinking water	–	60
Fuel oil	–	80	Lyes for bottle rinsers	–	90

Spare parts

Table 9: Pressure gauge

Description	Measuring range [bar]	Signal [mA]	Cable length [m]	Colour code	[kg]	Mat. No.
Pressure gauge	-1..3	4-20	0,6	Red	0.4	01426463
			1,2	Red	0.4	01426468
			1,8	Red	0.4	01367526
Pressure gauge	-1..10	4-20	0,6	Blue	0.4	01426464
			1,2	Blue	0.4	01426470
			1,8	Blue	0.4	01367657
Pressure gauge ¹¹⁾	1..-10	4-20	1,8	Blue	0.4	05079171
Pressure gauge	-1..16	4-20	0,6	Light grey	0.4	01426465
			1,2	Light grey	0.4	01426471
			1,8	Light grey	0.4	01367658
Pressure gauge ¹¹⁾	-1..-16	4-20	1,8	Light grey	0.4	05079172
Pressure gauge	-1..25	4-20	0,6	Green	0.4	01426466
			1,2	Green	0.4	01426472
			1,8	Green	0.4	01367659
Pressure gauge	-1..40	4-20	0,6	Black	0.4	01426467
			1,2	Black	0.4	01426469
Pressure gauge	-1..65	4-20	0,6	Silver label	0.4	01517385
Pressure gauge	-1..80	4-20	0,6	Yellow label	0.4	01517386
Pressure gauge with silicone coating	-1..3	4-20	1,2	Red, with yellow label	0.4	01601787
	-1..10	4-20	1,2	Blue, with yellow label	0.4	01601788
	-1..16	4-20	1,2	Light grey, with yellow label	0.4	01601789

Table 10: Threaded adapter for fitting a sensor

Description	Connection	Material	[kg]	Mat. No.
Threaded adapter for fitting a sensor	R 1/4 " to M8	Steel	0.02	01146970
		Stainless steel	0.02	01186472
Threaded adapter for fitting a sensor	R 3/8 " to M8	Steel	0.04	01146973
		Stainless steel	0.04	01191765
Threaded adapter for fitting a sensor	R 1/2 " to M8	Steel	0.06	01146976
		Stainless steel	0.06	01191766
Threaded adapter for fitting a sensor	G 1/4 " to M8	Steel	0.02	01146971
		Stainless steel	0.02	01186474
Threaded adapter for fitting a sensor	G 3/8 " to M8	Steel	0.04	01146974
		Stainless steel	0.03	01191857
Threaded adapter for fitting a sensor	G 1/2 " to M8	Steel	0.07	01146977
		Stainless steel	0.06	01191858
Threaded adapter for fitting a sensor	NPT 1/4 " to M8	Stainless steel	0.02	01146972
Threaded adapter for fitting a sensor	NPT 3/8 " to M8	Stainless steel	0.04	01146975
Threaded adapter for fitting a sensor	NPT 1/2 " to M8	Stainless steel	0.06	01146978

¹¹ Special design made of titanium

Table 11: Other spare parts

Description	[kg]	Mat. No.
Display unit	-	05092336
Joint ring A	0.01	01015232

Electrical accessories

Table 12: Overview of electrical accessories

	Description	Length	Mat. No.	[kg]
		[m]		
	Connection cable 5-pole cable with M12 connector for power supply and signal output	1	01146982	0.06
		5	01146983	0.18
		10	01146984	0.35
	Extension cord For extending the sensor cables	5	01146980	0.15
		10	01146981	0.33
	M12 bus cable, PumpMeter, pre-configured, shielded Colour: black; M12 socket, straight; M12 connector, angled	1	01533775	0.07
		2	01533776	0.2
		3	01533777	0.15
		5	01533778	0.23
	Power supply unit for the PumpMeter 24 V / 750 mA (for maximum 5 PumpMeter devices)	-	01147695	0.15
	Power supply unit for the PumpMeter 24 V / 330 mA with CEE plug (for 1 PumpMeter max.)	2	01494036	0.25
	RS232 parameterisation cable	-	47117698	0.08
-	Service dongle	-	47121256	0.01
-	USB/RS232 adapter	-	01111255	0.06

