Zertifiziertes QM-System
DIN EN ISO 9001
Zertifikat-Nr. 01017

Digital Manometer with LCD Display

battery-operated or 24 V_{DC}

measuring • monitoring • analysing

MAN-SD/-LD

- 4-Digit LCD display
- Measuring ranges: -1 ... +1600 bar
- Accuracy class: 0.5
- Connection:
  G ¼, G ½, ¼" NPT male, ½" NPT male
- Parts in contact with measuring medium:
  stainless steel, ceramics, NBR
- Output: 0 ... 2 V_{DC}, 4 ... 20 mA, relay
- Peak value memory

P1

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Description

The intelligent KOBOLD digital manometers are used for the display, monitoring and remote transmission of pressure-dependent operating sequences in machines and installations.The pressure to be measured is sensed by a piezo-resistive sensor and displayed by the electronics. As an option, an analogue output signal for remote transmission of the measured values and a relay output are available. The values are shown on a four-digit LCD display. The front cover along with the display can be rotated.
In the pressure switch design with integrated relay, the switching point and hysteresis can be set on the membrane keypad. The starting and end points of the optional analogue output, relative to the display, are freely scalable. A wide range of process connections is available as an option. The process connection can be rotated in axial direction as desired, after loosening the counter nut.

Fields of application

- Plant construction
- Mechanical engineering
- Environmental technology
- Hydraulics

Technical Details

Display:	4-digit LCD, digit height 12.7 mm
Measuring ranges:	-1...0...+1600 bar (special ranges on request)
Accuracy class:	0.5
Temperature coefficient:	
Zero point:	≤ ±0.2% of full scale/10 K
Range:	≤ ±0.1% of full scale/10 K
Zero point correction:	≤ ±25%
Overload range:	3 x P_N (to 40 bar) 2 x P_N (60 ... 160 bar) 1.5 x P_N (250/400/1000/1600 bar) 1.3 x P_N (600 bar)
Conversion rate:	5 per second (standard) (1 to 10 per second can be set ex works)
Housing:	Ø 74 mm, PA6 GK30, Polyester film

Wetted parts

Sensor:	ceramic (Al_2O_3) (range ≤600 bar) stainless steel (range >600 bar)
Seal:	NBR (range ≤600 bar)
Process connection:	G ¼, G ½, ¼" NPT, ½" NPT male (range ≥1000 bar only G ½ or ½" NPT) stainless steel 1.4571 (other connections on request)
Temperature of the medium:	-30 ... +85 °C
Ambient temperature:	0 ... +60 °C
Storage temperature:	-30 ... +80 °C
Allowed relative humidity:	<90 %, non-condensing
Protection class:	IP 65
Electric connection:	M12x1 round connector or PVC cable
Cable length::	0.5 m (standard), max. 3 m
Weight:	approx. 350 g

MAN-SD

Power supply: 9 V_{DC} (block battery, IEC 6 LR 01

Service life (based on a conversion rate of 5/s):

Operation	Alkaline battery (Duracell® MN1601, Varta® 4922)	Lithium battery (Ultralife® U9VL-J)
continuous operation	2000 h	5200 h
switched-off	7300 h	17300 h

Automatic switch-off times:	4…64 min (auto-off) can only be set ex works; 0 = inaktiv inactive (recommended for analogue or switching output)
Peak value memory:	MIN or MAX values, reset via keypad

MAN-LD

Power supply: 24 V_{DC} ±20%

Options

Limit value relay:	NO contact, bistable, any setting possible, settable hysteresis
Max. switching power:	30 $V_{AC/DC}$, 2 A (for relay output)
Analogue output:	MAN-SD: 0 ... 2 V_{DC} (Load: ≥ 100 kΩ) MAN-LD: 4 ... 20 mA (Load: <500 Ω, galvanically not separated)

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Order Details (Example: **MAN-SD1S 5 AD 0**)

Version	Power supply	Model	Mechanic connection*	Measuring range*	Electric connection
Standard	9 V battery	**MAN-SD1S...**	**5** = G ¼ male **6** = G ½ male **R** = ¼" NPT male **S** = ½" NPT male	**AD =** -1...0 bar **A1 =** -1...+1.5 bar **A2 =** -1...+3 bar **A3 =** -1...+5 bar **A4 =** -1...+9 bar **A5 =** -1...+15 bar **B1 =** 0...+0.6 bar **B2 =** 0...+1 bar **B3 =** 0...+1.6 bar **B4 =** 0...+2.5 bar **B5 =** 0...+4 bar **B6 =** 0...+6 bar **B7 =** 0...+10 bar **B8 =** 0...+16 bar **B9 =** 0...+25 bar **B0 =** 0...+40 bar **C1 =** 0...+60 bar **C2 =** 0...+100 bar **C3 =** 0...+160 bar **C4 =** 0...+250 bar **C5 =** 0...+400 bar **C6 =** 0...+600 bar **D7 =** 0...+1000 bar **D8 =** 0...+1600 bar	**0** = none
Relay output	9 V battery	**MAN-SD2S..**			**S =** connector M12x1 **K =** 0.5 m cable
Output 0-2 V	9 V battery	**MAN-SD3S...**			
Standard	24 V_{DC}	**MAN-LD1S...**			**S =** connector M12x1
Relay output	24 V_{DC}	**MAN-LD2S...**			
Output 4 ... 20 mA	24 V_{DC}	**MAN-LD3S...**			

* Please specify other connections (7/8 UNF for refrigeration technology, M16, etc.) and special measuring ranges in plain text.
Measuring ranges starting at 1000 bar are primarily to be connected to the process with G ½ or M16x1.5 female.

Order Details (continued)

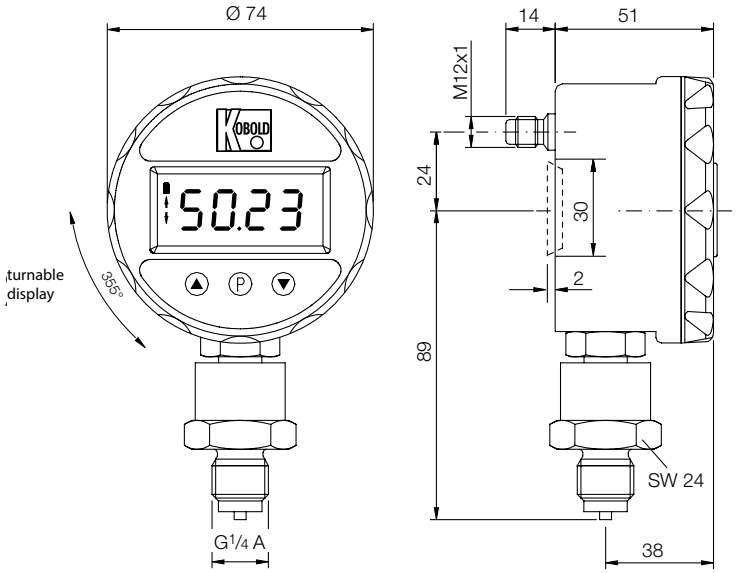
Automatic switch-off times	Other options (please specify in plain text)
without = continuous operation (standard except MAN-SD1) **B** = 4 minutes **C** = 8 minutes (standard MAN-SD1) **D** = 16 minutes **E** = 32 minutes **F** = 64 minutes	Display in mbar, PSI, hPa etc. conversion rate 1-10/s

Accessories for round connector M12x1

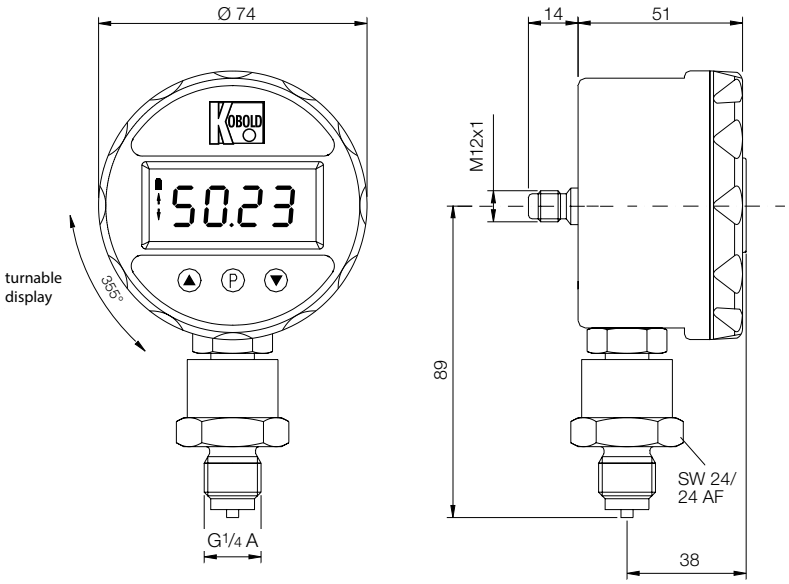
Electrical connection	Other options (please specify in plain text)
M12-box, screw terminals, 5-pole	**ZUB-KAB-12D500**
M12-box, 2 m cable, 4-pole	**ZUB-KAB-12K002**
M12-box, 5 m cable, 4-pole	**ZUB-KAB-12K005**
M12-box, Quick-on, 4-pole	**ZUB-KAB-12Q000**

Dimensions [mm]

MAN-SD



MAN-LD



Electric connection: M12 connector assignment

Contact No.	MAN-SD2...	MAN-SD3...	MAN-LD1...	MAN-LD2...	MAN-LD3...
1	-	-	$+V_S$ / 24 V_{DC}	$+V_S$ / 24 V_{DC}	$+V_S$ / 24 V_{DC}
2	NO contact	-	-	NO contact	-
3	-	GND	GND	GND	GND
4	-	Analogue output 0 ... 2 V_{DC}	-	-	Analogue output 4 ... 20 mA
5	NO contact	-	-	NO contact	-

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