

LEVEL SENSOR WITH FLOAT



LEVEL

Type: **MEL-S-F**

- RANGE 100 ... 2000 mm
- 4 ... 20 mA, TWO-WIRE
- 4-DIGIT LED, HEAD TURNS 330°
- 2 LIMIT VALUE CONTACTS



IP65



IP68

Stainless
Steel

Display



M12

ORDER CODE

Code	Field	Meaning
OL	series	Level Sensor with Float
0	input	level
1	resolution	4.5 mm
1 · 2 · 3	float	plastic Ø 24 · plastic Ø 29 (standard) · stainless steel Ø 29
0 · 1 · 2 · 3	process connection	1" · 1.5" · 1" NPT · 3/4" (for float 24 mm)
100 ... A00	fitting length	100 · 200 · 300 · 400 · 600 mm · A00 for 1000 mm
0 ... 8	limit value contacts	0 two and 1 one PNP contact, 200 mA · 2 none · 3 two and 4 one NPN contact, 200 mA · 5 to 8 the same four with 1000 mA
0 ... 9	electrical connection	0 M12 4-pin · 1 M12 5-pin · 2 M12 8-pin · 3 Deutsch DT04 3-pin · 4 Deutsch DT04 4-pin · 5 Super Seal 1.5 3-pin · 6 bayonet (DIN) 4-pin · 7 valve connector 4-pin · 9 MIL 6-pin
0 · 1	configuration	factory setting · customer-specific, please state
0	special version	special model

Two limit value contacts only on M12 5-pin, M12 8-pin and MIL 6-pin; Super Seal 3-pin and Deutsch DT04 3-pin carry none, the others one.



OVERVIEW

A float carrying a magnet rides on the surface and travels along a stainless protecting tube; inside the tube the magnet is read out, so nothing rubs and nothing wears. The measuring range covers 100 to 2000 mm in steps of 4.5 mm, and the current output carries 4 ... 20 mA over two wires — the sensor takes its power from the same loop. Two electronic contacts switch anywhere within the range, each with its own hysteresis and delay, and each with a red LED of its own. The four-digit red display can be mirrored through 180° and the head turns through about 330°, so it faces the walkway whatever the thread does. Set points, filter and range limits are entered over three keys or with the TrComm software through a DEV-KMA configurator. Nine connector forms are available, from M12 to a valve connector; how many limit contacts a form can carry is shown further down.

MEASUREMENT	DEVICE AND MOUNTING
• Float with magnet, read out inside the protecting tube • Range 100 ... 2000 mm, resolution 4.5 mm • Hysteresis about 3 mm, amplifier resolution 24 bit • 4 ... 20 mA over two wires, the sensor feeds from the loop • Signal on error 3.6 mA and 21 mA • Two electronic limit value contacts, PNP or NPN, 200 mA or 1000 mA • Accuracy max. 0.1 % of the range plus the sensor error • Working range -40 ... +85 °C, medium 0 ... +100 °C	• Process connection 3/4", 1", 1.5" or 1" NPT through an adaptor • Protecting tube, adaptor and process connection of stainless steel 1.4571 • Float of PE Ø 24 or Ø 29, optionally stainless steel Ø 29 • System pressure up to 25 bar, vertical mounting • Four-digit red LED, 8.5 mm high, mirrorable through 180° • The display head turns through about 330° after mounting • Three keys, or TrComm software through a DEV-KMA configurator • Functions and operation to VDMA 24574-1 to -4



TECHNICAL DATA

MEASUREMENT

Principle	float with magnet, read out in the protecting tube
Level	100 ... 2000 mm
Resolution, sensor	4.5 mm
Hysteresis	approx. 3 mm
Medium	non-aggressive fluids
Fitting position	vertical
Turn-on delay time	5 ms
Note	medium density depends on the float, see the order code

PROCESS AND MATERIALS

Process connection	3/4" · 1" · 1.5" · 1" NPT (adaptor)
System pressure	25 bar
Protecting tube	stainless steel 1.4571
Float	PE Ø 24 (medium density 1 or more) · PE Ø 29 · option stainless steel Ø 29 (1.4571)
Adaptor, process connection	stainless steel 1.4571
Body	PBT GF30 · head of display polycarbonate
Weight	approx. 200 g (1", 300 mm, M12)
Protection class	IP65 electronics at least · IP68 sensor · PCB potted

OUTPUT AND SUPPLY

Current signal	4 ... 20 mA, 2-wire
Current range	3.8 ... 20.5 mA
Signal on error	3.6 mA sensor short circuit, underflow · 21 mA sensor break, overflow
Limit value contacts	2 × PNP or NPN, 30 V DC, 200 mA
Limit value contacts, option	2 × PNP or NPN, 30 V DC, 1000 mA
Voltage drop	< 1 V
Supply voltage	12 ... 35 V DC
Reverse voltage, short circuit	protection available · short-circuit resistant
Galvanical insulation	switching outputs separated from the measuring amplifier

ACCURACY

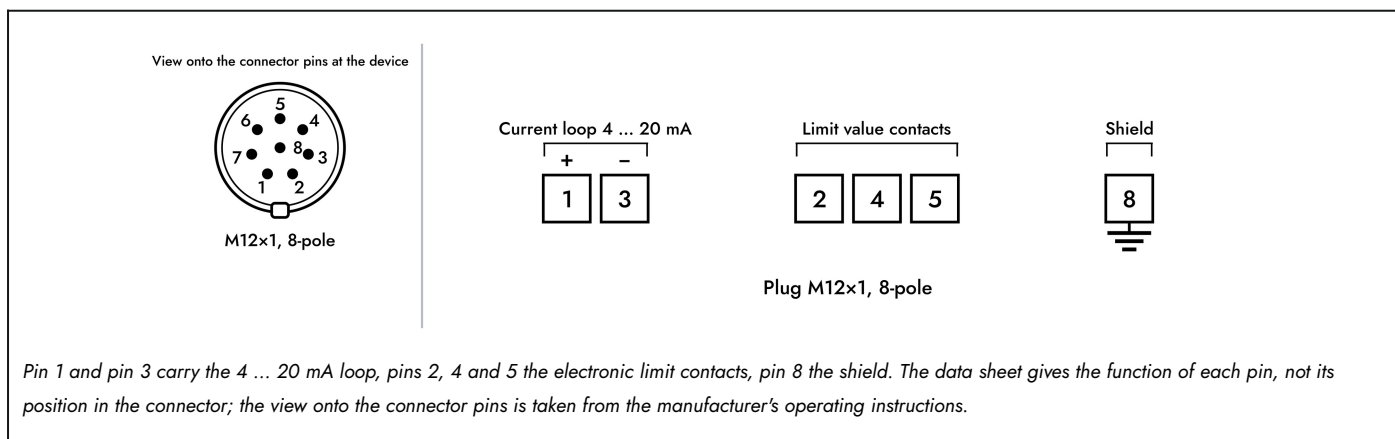
Accuracy, measuring amplifier	max. 0.1 % of the range plus the sensor error
Resolution, measuring amplifier	24 bit
Filter setting	5 ... 5000 ms
Resolution, indication	-9999 ... 9999 digit
Error of measurement	± 0.2 % of range, ± 1 digit
Temperature drift	100 ppm/K
Features, operation	according VDMA 24574-1 up to 24574-4

DISPLAY, LIMITS AND ENVIRONMENT

Display	7-segment, 8.5 mm high, red, four digits, mirrorable through 180°; the head turns through about 330°; minimum and maximum are stored; decimal point set automatically or by hand
Limit value contacts	set point and hysteresis anywhere in the range · switching delay 0.0 ... 999.9 s · failsafe behaviour settable · one red LED per limit
Configuration	three keys (TouchM) on the display, or the TrComm software through a DEV-KMA configurator: range limits, filter, display range, decimal point, unit, zero damping, programming lock, linearisation points, TAG number, limits, hysteresis and delays
Environment	working -40 ... +85 °C · storage -20 ... +85 °C · medium 0 ... +100 °C · condensation harmless · EMC to EN 61000-6-2:2019-11 and EN 61000-6-4:2020-09



ELECTRICAL CONNECTION



ACCESSORIES

DEV-KMA configurator	needed for setting over software; the TrComm configuration and calibration software is included, and is available on its own on request
Connecting cable	to suit the connector form ordered, with the matching protection rating
Adaptor	stainless steel 1.4571, for the process connections listed above

The protection rating applies only with a mating connector of the same rating fitted. For the conventional setting through the display, see the manufacturer's operating instructions.

COMPLIANCE

 IP65	Protection rating, electronics	IP65 at least
 IP68	Protection rating, sensor	IP68, boards potted
 Stainless Steel	Wetted material	stainless steel 1.4571; float of PE or stainless steel
 IO52 Display	Display and operation	functions and operation to VDMA 24574-1 to VDMA 24574-4
 M12	Electrical connection	M12 x 1 and eight further connector forms

Electromagnetic compatibility tested to EN 61000-6-2:2019-11 and EN 61000-6-4:2020-09. No approval beyond these is documented for this device.



DIMENSIONS (mm)

