

MODULAR CONDUCTIVITY LEVEL SWITCH



Type: **MKCS**

- CONDUCTIVE AQUEOUS SOLUTIONS
- FITTING LENGTH UP TO 200 mm
- BODY STAINLESS STEEL 1.4571
- FOUR CONNECTOR FORMS



ORDER CODE

Code	Field	Meaning
MC	series	Modular Conductivity Level Switch
0	input	conductivity > 2.8 mS/m
0 · 1	output	1 electronic change-over contact · conductivity
0 ... 8	fitting length	25 ... 200 mm in steps of 25 · 8 other length, please indicate
0 ... 6	process thread	3/8" · 1/2" standard · 3/4" · 1" · 3/8" NPT · 1/2" NPT · without thread
0 ... 3	electrical connection	cable gland 2 m · MIL D38999 · valve plug · M12 × 1 RSE4
0	other / accessories	customized model

Length above the fitting length: 63 mm M12, 73 mm cable gland, 77 mm valve plug, 86 mm MIL. The forms are spelled out under Process and connection.



OVERVIEW

A level limit switch for conductive aqueous solutions in simple control loops — for industrial plants, plant engineering, public utilities and machines. The electrode and the protecting tube close a circuit as soon as a liquid of at least 2.8 mS/m stands between them. Ordered with the electronic option the device carries two open-collector PNP outputs, one for liquid detected and one for no liquid, each fused at 100 mA. Body and protecting tube are stainless steel 1.4571, the insulator is PTFE, and the enclosure is completely potted against vibration. Modular means the order code: eight fitting lengths up to 200 mm, seven process threads and four connector forms — MIL, valve plug, M12 × 1 and a cable gland with 2 m of cable. The connector form sets the length of the device as well as the pin assignment.

MEASUREMENT AND OUTPUT

- Conductivity > 2.8 mS/m in aqueous solutions
- Option 1 electronic change-over contact
- 2 open collectors PNP, liquid detected and not
- Output voltage 8 ... 24 V DC as supply
- Output current 100 mA maximum, fused
- Accuracy $\pm 10\%$
- Supply 8 ... 24 V DC, 25 mA without load
- Reverse battery protection

DEVICE AND MOUNTING

- Fitting length 25 ... 200 mm in steps of 25 mm
- Process thread 3/8" ... 1", NPT or without
- Body and protecting tube stainless steel 1.4571
- Insulator PTFE, colour natural steel
- Enclosure completely potted, IP 67
- Four connector forms: MIL, valve, M12, cable
- $\varnothing$ 31 mm × 63 ... 86 mm plus the fitting length
- Operation 0 ... +85 °C



TECHNICAL DATA

INPUT AND OUTPUT

Conductivity	> 2.8 mS/m
Medium	conductive aqueous solutions
Output	conductivity > 2.8 mS/m
Option	1 electronic change-over contact: one open collector PNP for liquid detected, one for liquid not detected
Output voltage	8 ... 24 V DC, as supply
Output current	100 mA maximum
Protection	fuse 100 mA
Accuracy	±10 %

MECHANICS

Length of enclosure	Ø 31 × 86 mm MIL · Ø 31 × 77 mm valve plug · Ø 31 × 73 mm cable gland · Ø 31 × 63 mm M12 — each plus the fitting length
Material	protecting tube and body stainless steel 1.4571 · insulator Teflon (PTFE)
Colour	stainless steel, natural
Weight	approx. 230 g with MIL plug · approx. 190 g with valve plug, M12 or cable gland (1/2", 50 mm fitting length)
Vibrating protection	enclosure completely potted
Protection class	IP 67

APPLICATION

Use	As a level limiting switch in conductive aqueous solutions in simple control loops: industrial plants, plant engineering, public utilities and machines. The manufacturer describes the sensor as very robust because of its materials and its compact design.
Measurement	The conductivity is measured over the same two conductors that carry the supply. With the electronic option the two open collectors switch against it.

SUPPLY AND AMBIENT

Supply voltage	8 ... 24 V DC, with the electronic option
Current consumption	25 mA, outputs without load
Reverse battery protection	yes
Operation	0 ... +85 °C
Storage	-40 ... +95 °C

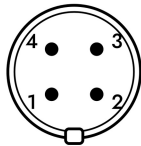
PROCESS AND CONNECTION

Fitting length	25 ... 200 mm in steps of 25 mm; other lengths on request
Process thread	3/8" · 1/2" (standard) · 3/4" · 1" · 3/8" NPT · 1/2" NPT · without thread
Electrical connection	MIL plug D38999, 6-pole · valve plug DIN EN 175301-803, 4-pole · plug M12 × 1 RSE4 compatible, 4-pole · cable gland M12 × 1.5 MS-SC-M with 2 m cable



ELECTRICAL CONNECTION

View onto the connector pins at the device



M12x1, 4-pole

Signal	MIL D38999	cable	valve plug	M12x1
output: no liquid	2	yellow	2	2
output: liquid detected	4	green	PE	4
supply 8 ... 24 V DC	1	brown	1	1
supply 0 V	3	white	3	3
conductivity	1 / 3	as supply	1 / 3	1 / 3

The assignment depends on the connector form. Two readings are worth care: with the valve plug the output for liquid detected sits on the PE contact, not on a numbered pin; and the conductivity is measured over the same two conductors that carry the supply, which the manufacturer leaves unlabelled for the cable version. The view onto the connector pins is taken from the PFKS data sheet of the same manufacturer, which uses the same M12 x 1 4-pole connector; the MKCS data sheet shows none.

ACCESSORIES

Customized model

fitting length, thread and connector to specification, on request

The manufacturer document lists no further accessories.

COMPLIANCE



Protection class

IP 67, enclosure completely potted



Wetted material

stainless steel 1.4571, protecting tube and body; insulator PTFE



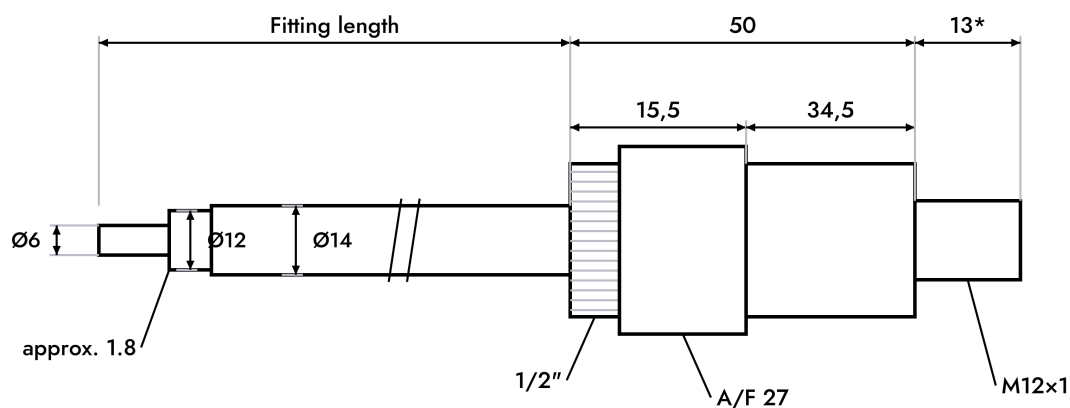
Electrical connection

M12 x 1, 4-pole, and three further forms

No approval beyond these is documented in the manufacturer document.



DIMENSIONS (mm)



Drawn by octogon from the manufacturer document; the dimensioned values are taken from it, the outline is schematic and the fitting length is broken. The 13 mm of the connector part apply to the M12 x 1 — the other forms are longer, see the order code.

