OCTOGON

MANUAL

FSKA

ELECTRONIC LEVEL SENSOR

Operating instructions



Document	Version	Date	Applies to
Operating instructions	V00x	11/2026	FSKA, all lengths, connections and outputs

This manual describes the FSKA electronic level sensor: safety, technical data, dimensions, electrical connection, installation, switching functions, operation with the two menu levels, maintenance and removal.

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1 About this manual

Read this manual before installing and commissioning the device and keep it available for later use. Device data in this manual refer to the FSKA data sheet.

1.1 Signal words

Safety instructions protect users from dangerous situations and/or prevent material damage. The severity of the potential risk is indicated by the following signal words:

Signal word	Meaning
Danger	Imminent danger to the user. Failure to comply may result in fatal injury.
Warning	Identifiable hazard. Failure to comply may result in fatal injury and in damage to equipment or plant parts.
Caution	Danger. Failure to comply may result in minor injury and in material damage to the sensor (switch) and/or the plant.
Important	Information that is important to the user.

1.2 Versions covered

Feature	Versions
Output signal	S2: two switching outputs and IO-Link · SA: one switching output, IO-Link and analogue · A3: two switching outputs and analogue · RS: RS485
Process connection	G1M · G112M · G2M: G1 · G1-1/2 · G2 male thread · F25 · F50 · F45: DN 25 · DN 50 flange · 3 holes on a 45 mm pitch
Measuring length	L150 ... L1000: 150 · 250 · 350 · 500 · 650 · 750 · 1000 mm
Float	N: NBR Ø 30 mm, oils · S: stainless steel 304 Ø 40 mm, water
Resolution	–: 10 mm · 5: 5 mm
Connector	S2, SA and RS: 4-pin · A3: 5-pin
Basic type	LS500

2 Safety

2.1 Intended use

The FSKA measures the level of liquids with a density of at least 0.7 g/cm³, shows it on an LED display and provides, depending on the version, switching, analogue and IO-Link or RS485 outputs.

Danger Use the device only within the specified application range. The temperature must be within the permissible range. Do not exceed the rated pressure and the rated electrical load. Installation, commissioning and operation must be carried out in accordance with the applicable national and local safety regulations.

2.2 Personnel

The sensor may be set up and operated only by authorised personnel.

Caution Do not put the switch into operation if the sensor itself or the connecting cable is damaged. Do not use sharp or hard objects to operate the keys; they may damage the keys.

Warning The surface of the housing may become very hot at high operating temperatures.

2.3 Disposal

Sensors (switches) must be handled correctly in accordance with national or local regulations for electrical and electronic equipment. Sensors (switches) must not be disposed of with household waste.

3 Product description

3.1 Working principle

A float carries a ring magnet up and down a closed stainless steel tube, and the Hall elements inside the tube detect its position. The level is shown on a four-digit red LED display, 12 mm high, and at the same time on the outputs: two switching outputs, an analogue signal of 4 ... 20 mA, 1 ... 5 V or 0 ... 10 V, IO-Link or RS485, depending on the version. Only the tube is exposed to the medium; the measurement is independent of foam, colour and dielectric constant and only requires a density of at least 0.7 g/cm³. Set points, reset points and the range are entered with three keys.

3.2 Display and keys

Element	Function
SP1 / SP2 signal lamp	switching state of output 1 / output 2
4-digit LED display	measured value, menu items and values
Unit indicator lamps	unit of the displayed value
– / +	move between the menu items; change a value
M	open the menu or an item, confirm, exit

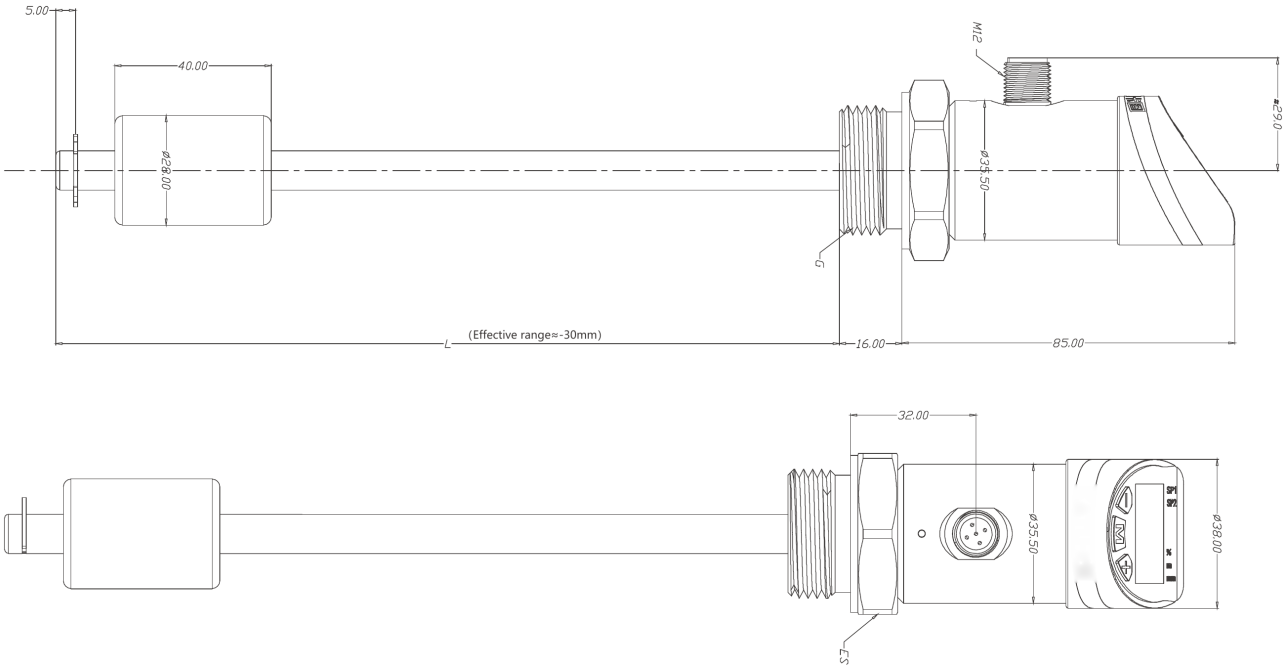
3.3 Technical data

Item	Value
Principle	float with ring magnet, Hall elements in the tube
Measuring length	0.15 ... 2 m
Resolution	10 mm · 5 mm on request
Analogue accuracy	≤ ± 0.5 % of the range
Linearity	≤ 0.5 % of the range
Medium density	≥ 0.7 g/cm³
Process connection	G1 · G1-1/2 · G2 male thread
Flange connection	DN 25 · DN 50
Tube and housing	stainless steel 304
Float	NBR Ø 30 mm · 304 Ø 40 mm
Head housing	engineering plastic, UL 94 V-0

Item	Value
Protection rating	IP67
Switching output	2 × PNP or NPN, NO or NC
Switching load	< 200 mA at 24 V DC
Response time	0.01 … 2 s
Analogue output	4 … 20 mA · 1 … 5 V · 0 … 10 V, load ≤ 500 Ω
Digital output	IO-Link · RS485
Supply voltage	12 … 30 V DC
No-load current	max. 40 mA at 24 V DC
Protection	reverse polarity · overload · short circuit
Display	4-digit red LED, 12 mm high
Display range	–1999 … 9999
Signal lamps	SP1 and SP2, one per output
Keys	up · down · enter
Medium temperature	–20 °C … +85 °C
Ambient temperature	–20 °C … +80 °C
Storage temperature	–30 °C … +80 °C
Connection	M12 × 1 connector

4 Dimensions

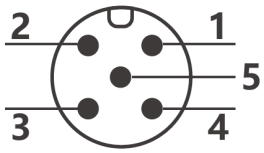
Dimensions in mm. Top: side view with the float; L is the measuring length, the effective range starts about 30 mm below the process connection. Bottom: front view with the display head.

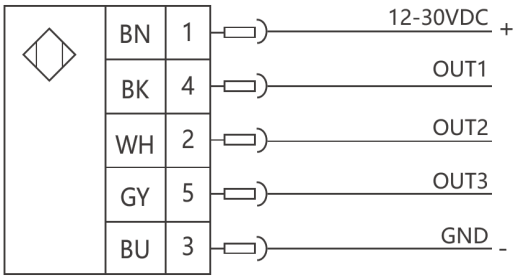


5 Electrical connection

Supply 12 … 30 V DC. A3 uses a 5-pin M12 × 1 connector, S2, SA and RS a 4-pin one.

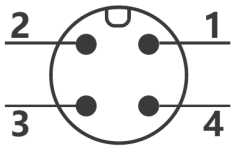
5.1 Version A3 (5-pin)

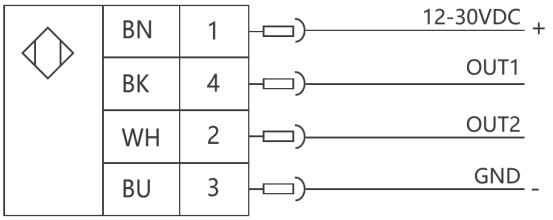




Pin · wire	A3: two switching outputs + analogue
1 · BN	supply +
3 · BU	supply –
4 · BK	OUT1: SP1 PNP (default) / NPN
2 · WH	OUT2: SP2 PNP (default) / NPN
5 · GY	OUT3: 4 … 20 mA (default) / 1 … 5 V / 0 … 10 V

5.2 Versions S2, SA and RS (4-pin)





Pin · wire	S2: two switching outputs / IO-Link	SA: one switching output / IO-Link + analogue	RS: RS485
1 · BN	supply +	supply +	supply +
3 · BU	supply –	supply –	supply –
4 · BK	OUT1: SP1 PNP (default) / NPN · IO-Link	OUT1: SP1 PNP (default) / NPN · IO-Link	RS485 B
2 · WH	OUT2: SP2 PNP (default) / NPN	OUT2: 4 … 20 mA (default) / 1 … 5 V / 0 … 10 V	RS485 A

The IO-Link device description, the settings of the RS485 version and the RS485 protocol are not part of this manual; please ask.

6 Installation

Caution Avoid vibration and violent shocks during transport. Even if the housing of the sensor (switch) is not damaged, internal components may break and cause failure.

Danger Install sensors (switches) only in systems that do not exceed the maximum pressure Pmax (see type label). Install sensors (switches) only when the system is de-energised and depressurised (electrical, hydraulic/pneumatic).

- The effective range starts about 30 mm below the process connection; below the lower stop the float no longer moves.
- The float must be matched to the medium: NBR for oils, stainless steel 304 for water; the density decides whether the float carries.
- The float with Ø 40 mm needs a process connection of G1-1/2 or larger, or a flange.

7 Switching functions

When the level rises above or falls below the set switching limits (SP, rP), the switching state of the output changes. The following switching functions can be selected (menu **ou1** / **ou2**):

Function	Menu value
Hysteresis function, normally open	**Hno**
Hysteresis function, normally closed	**Hnc**
Window function, normally open	**Fno**
Window function, normally closed	**Fnc**

– Hysteresis function: first set the switch point SP, then the reset point rP. If SP is changed again, the hysteresis changes with it.

– Window function: the width of the window is set by the difference between SP and rP; SP = upper limit value, rP = lower limit value.

8 Operation

8.1 Navigation

– In the display, press **M** to open the level 1 menu.

– **+** and **–** move between the menu items; **M** opens the selected item and shows its value, **M** returns to the list.

– To change a value, hold **+** or **–** for at least 1 s. After 1 s the value can be changed: each press changes the value, holding the key changes it continuously.

– At **EF** in the level 1 menu, **M** opens the level 2 menu and **+** returns to the display. At **EF** at the end of the level 2 menu, **M** returns to the start of the level 2 menu and **+** returns to the display.

8.2 Level 1 menu

Menu	Function	Factory setting
SP1	switch point of output 1	100
rP1	reset point of output 1	95
SP2	switch point of output 2 [1]	200
rP2	reset point of output 2 [1]	195
oF-L	level offset	0
ASP	lower range value of the analogue output (corresponding range of the PLC) [2]	lower range limit
AEP	upper range value of the analogue output (corresponding range of the PLC) [2]	upper range limit
EF	**M**: open the level 2 menu · **+**: return to the display	–

[1] not available in versions with one switching output.

[2] not available in versions without analogue output.

8.3 Level 2 menu

Menu	Function	Factory setting
rES	factory data reset: long press **+** to restore the factory settings	–
ou1	switching function of output 1: **Hno**, **Hnc**, **Fno**, **Fnc** (chapter 7); IO-Link only in versions S2 and SA	**Hno**
ou2	switching function of output 2: **Hno**, **Hnc**, **Fno**, **Fnc** [1]	–
dS1	switching delay of output 1	0 s
dr1	reset delay of output 1	0 s
dS2	switching delay of output 2 [1]	0 s
dr2	reset delay of output 2 [1]	0 s
uni	unit of the displayed value	–
P-n	switching output PNP or NPN	PNP
Lo	historical minimum of the measured value	–

Menu	Function	Factory setting
Ho	historical maximum of the measured value	–
dAP	signal damping	0.06
diS	update rate of the display: **d1** = every 100 ms, **d2** = every 500 ms, **d3** = every 1000 ms	**d1**
ZERo	zero cut-off (% of full scale)	0.5
dAA	signal filtering value	99
iout	analogue output [2]: **4-20** = 4 ... 20 mA, **1-5F** = 1 ... 5 V, **010F** = 0 ... 10 V	4 ... 20 mA
EF	**M**: back to the start of the level 2 menu · **+**: return to the display	–

[1] not available in versions with one switching output.

[2] not available in versions without analogue output.

9 Maintenance, cleaning and removal

9.1 Maintenance and cleaning

Sensors (switches) do not require maintenance.

Warning Periodically check whether the switch is working properly. If the switch does not work properly, stop the operation immediately.

Caution Unsuitable cleaning agents may damage the switch.

The following cleaning agents can be used to clean polycarbonate: mild soap or detergent, isopropyl alcohol. Rinse with water immediately after cleaning. Do not leave cleaning agent on the surface of the product. Do not clean the product in high heat or in direct sunlight.

The following cleaning agents are known to affect the integrity of polycarbonate components and must not be used:

- ZEP Fast 505, Pinesol, Formula 409
- halogenated solvents (benzene, gasoline, acetone or carbon tetrachloride)
- strong alkalis
- methyl ethyl ketone
- abrasive substances

9.2 Removal

Danger Remove the switch only when it is depressurised and de-energised (electrical, hydraulic/pneumatic). Disconnecting the switch from pressure and power supply must be performed by trained or instructed personnel in accordance with the state of the art.

Warning The surface of the housing may become very hot at high operating temperatures.