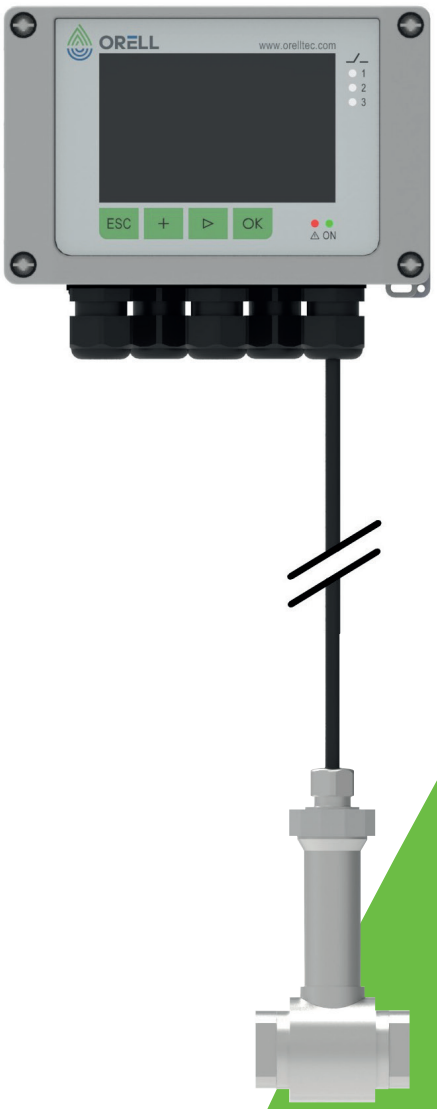
ORELL

Level indicator with monitoring function

up to 40 bar



General description

The fill level in the tank is determined by differential pressure measurement and displayed on the indicator in centimeters of water column (cm WC).

Both a maximum alarm and a minimum alarm can be programmed via the relay output. This is particularly useful for monitoring specific limit values and ensuring that the systems remain within the desired parameters.

The 4–20 mA signal from the pressure transmitter can be easily integrated into the control system. This allows the water level to be displayed graphically and monitored in real time, providing a visual and intuitive way to control the water level and respond quickly to any changes.

Level indication up to 40 bar

Connection Description

Power Supply DC 24 ... 65 V:	See points 4, 7, and 8
MAX/MIN Alarm:	See points 5, 7, and 8
Level Indication via Control System 4–20 mA: (Graphical display of the water level)	See points 6, 7, and 8

1. Design

Materials – Display Unit

Housing:	PC-FR
Housing Screws:	Stainless Steel V2A
Viewing Window:	PE
Sealing:	Silicone
Cable Glands:	PA

Materials – Pressure Transmitter

Housing:	Stainless Steel AISI 316L

Pressure Transmitter Connection

Pressure Port:	Female Thread 1/4“
Water Side Connection:	+
Gas Side Connection:	–

Displays

Graphical LC Display, backlit:	89 x 56 mm, digital and quasi-analog display
Display Range:	-9999999 ... 9999999

Electrical Safety – Display Unit

Protection Rating:	IP66/IP67 according to IEC 60529, Type
Operating Altitude Above Sea Level:	up to 5000 m (16404 ft)
Overvoltage Category (IEC 61010-1):	II
Protection Class:	I
Pollution Degree:	4

Electrical Safety – Pressure Transmitter

Protection Rating:	IP68

2. Measuring Range

Up to 10 m WC differential, accuracy ±2.5 cm WC

3. Environmental Conditions

Ambient Temperature – Display Unit

General device:	–40 ... +60 °C (–40 ... +140 °F)
Display readability:	–20 ... +60 °C (–4 ... +140 °F)
Relative humidity:	< 96%

Ambient Temperature – Pressure Transmitter

General:	–20 ... +85 °C

Media Temperature Range – Pressure Transmitter

General:	-20 ... 125 °C

4. Power Supply (Power 1)

Operating Voltage – Integration into Control System

Rated voltage DC:	24 ... 65 V (–15%, +10%), terminals 91/92
Power consumption:	max. 13 VA; 4 W

Operating Voltage – Local Display

Rated voltage AC:	100 ... 230 V (–15%, +10%) 50/60 Hz, terminals 91/92
Power consumption:	max. 13 VA; 4 W

5. Relay Output / Alarm (Relay Output 2)

Relay Output No. 1	**MAX Alarm:** Terminals 61/62 (NC) – OK mode = closed
Relay Output No. 2	**MIN Alarm:** Terminals 64/65 (NC) – OK mode = closed
Relay Output No. 3	**Free /** (Fault alarm relay configurable)

Contact Type	Potential-free changeover contact (SPDT)
Contact material:	$AgSnO_2$, hard gold-plated
Switching voltage:	max. 250 V AC / 60 V DC
Switching current:	max. 1 A AC (cos phi > 0.9), 1 A DC
Switching power[3]:	min. 50 mW, max. 250 VA, max. 40 W DC (at U < 40 V DC)
AC/DC Operation	Mixed operation with AC and DC voltages is not permitted for the relay outputs.
Min. Programmable Switching Hysteresis	0,1 %
Operating Mode	Pulse output
PPulse duration:	350 ms

3) Note: When switching inductive loads or higher currents, the gold plating on the relay contact surface will be permanently damaged.
The contact is then no longer suitable for switching low-signal circuits.

6. Current Output 4 ... 20 mA (3)

Current Output:	4 ... 20 mA, terminals 41/42
Function:	Level measurement
Range:	0/4 ... 20 mA, 20 ... 0/4 mA (configurable)
Resolution:	1 µA
Max. Load:	500 Ω
Failure Signal (selectable):	0; < 3.6; 4; 20; 20.5; 22 mA

Accuracy

Standard:	±20 µA (0.1% of 20 mA)
Under EMC interference:	±80 µA (0.4% of 20 mA)
Temperature Drift (relative to 20 mA):	0.005%/K

Operating Mode – Pulse Output

Current pulse:	20 mA
Pulse duration:	200 ms
Electrical Connection to Control System:	Passive

7. Electromechanical Data

Cable Entry

Cable gland (optional):	M20 x 1.5 (cable diameter 6 ... 12 mm)
NPT adapter (optional):	M20 to ½" NPT
Blind plug (optional):	M20 x 1.5

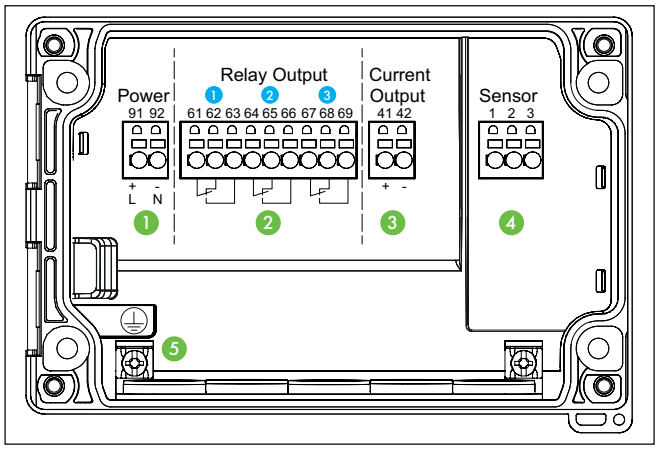
Terminal Connections

Terminal type:	Spring clamp terminal
Conductor Cross-Section:	Solid wire / stranded wire: 0.2 mm² (AWG 26) ... 2.5 mm² (AWG 12)
Stranded wire with ferrule:	0.25 mm² ... 1.5 mm²

Level indication up to 40 bar

8. Connection Diagram

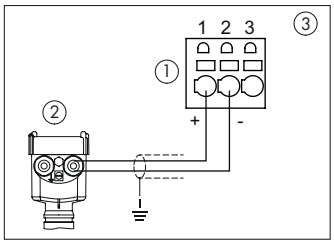
Figure 1



1 Power supply of the control unit: 24 ... 65 V / 100 ... 230 V
2 Relay outputs No. 1 Alarm MAX / No. 2 Alarm MIN / No. 3 free
3 Current output: 4 ... 20 mA
4 Sensor input (active) with HART communication sockets
5 Grounding terminal for protective earth conductor

9. Sensor Connection Details

Figure 2

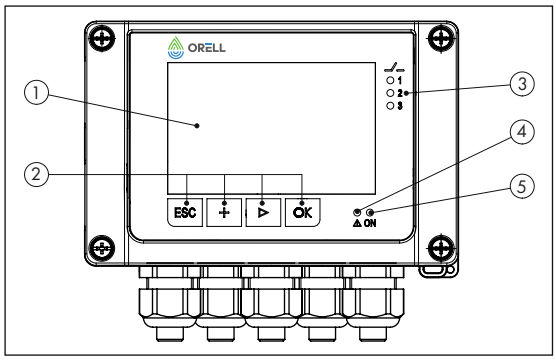


Connection Input 4 for two-wire sensor

① Active input with sensor supply for two-wire sensors
② Two-wire sensor
③ HART communication sockets for connecting a VEGACONNECT

10. Display and Control Panel

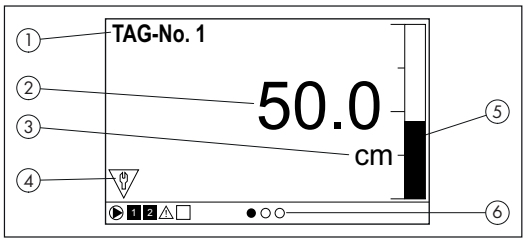
Figure 3



① LC-Display
② Control buttons
③ Relay status indicator
④ Failure signal status indicator
⑤ Operational readiness status indicator

11. Messwert- und Menüpunktanzeige

Figure 4



Example of Measured Value Display (Measured Value with Bar Graph)

① Measuring point name
② Measured value
③ Unit
④ Status message according to NAMUR NE 107
⑤ Bar graph of measured value
⑥ Active measured value display

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