

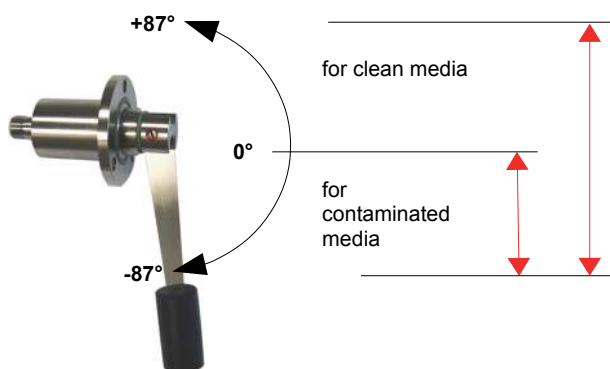
Level Transmitter / Switch VECTIS



- Lever arm level sensor with analog Hall sensor
- Analog output and/or switching/frequency output
- Designed for industrial use
- Small, compact construction
- Suitable for installation from the side and from above
- Including unlosable O-ring seal
- Very simple installation

Characteristics

The lightweight float arm is fitted with a magnet at its fulcrum. If there is a change in the level, the lever arm is displaced accordingly. The rotation of the magnet is then recorded by a Hall sensor, and is converted to a level by a microcontroller. The result can be output with the aid of an analog output (4...20 mA or 0...10 V). Here, the assignment of the signal to the level can be freely selected within broad limits. The float arm is available in different lengths, and therefore various metering ranges are available.



In addition to the analog output, an electronic switching output is available; this can signal the exceeding or falling short of a defined level. The switching point is programmed to the current level, using a supplied magnet clip. The status of the switching output is displayed by an integrated LED. Alternatively, the switching output can also be used as a frequency output.

The VECTIS level sensor is also suitable for viscous media. Like all intelligent sensors from HONSBERG, the transmitter can be connected to a PC and then configured with numerous parameters (damping, switching delays, hystereses, power-on delay...) and

adapted to the appropriate application, with the aid of a configurator (see separate product information ECI-1). Usually this happens during production at HONSBERG, as per the customer's wishes, but it can also be carried out in the field or for OEMs by the user himself.

High temperature model

A high temperature model is available for use at high temperatures. Here, the evaluation electronics are separated from the mechanical unit by means of a 30 cm long cable.



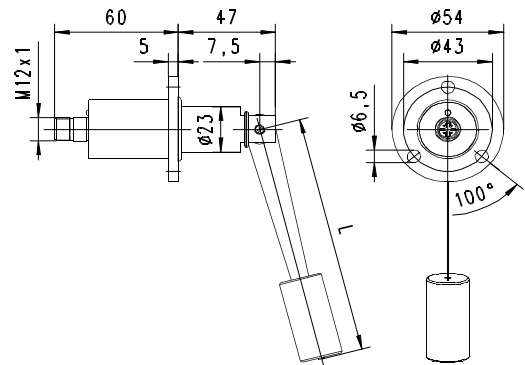
The high temperature model is equipped with only one output (analog output, switching output, or frequency output). Programming is not carried out using a magnetic clip; instead a voltage pulse of 0.5 to 2 seconds is applied to pin 2 of the connector. This model therefore has a different connection mode. The size of the plug gauge (separation of flange surface from fulcrum) of the high temperature model is always 39.5 mm.

Technical data

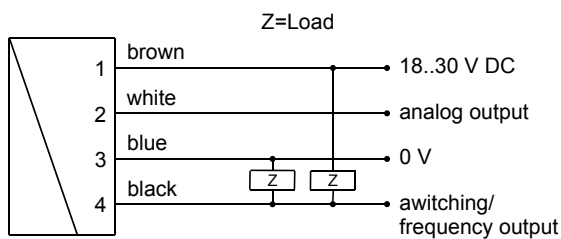
Sensor	analog hall sensor
Process connection	3-hole flange (asymmetric)
Metering range	-87 °...+87 ° or parts of this Level height up to 1 m, depending on length of lever arm.
Measurement accuracy	typically ±0.5 °
Pressure resistance	max. 3 bar
Medium temperature	-20...+85 °C (high temperature model max. 150 °C)
Ambient temperature	-20...+60 °C
Storage temperature	-20...+85 °C
Media	water, oil, petrol
Supply voltage	18...30 V DC (controlled)
Current consumption	< 100 mA (for outputs not under load)
Analog output	0...10 V or 4...20 mA, resistant to short circuits, reversal polarity protected
Switching output	push-pull, 100 mA max. resistant to short circuits, reversed polarity protected
Hysteresis (Switch)	approx. 2 % F.S. or as desired, but not less than the resolution position of characteristic (minimum / maximum switch) depends
Frequency output	standard 1 kHz at F.S. / max. 2 kHz (alternative to switching output)

LED	yellow On = all OK Off = level below minimum or above maximum Flashes = programming
Electrical connection	for round plug M12x1, 4-pole
Ingress protection	IP 67
Materials medium-contact	Body CW614N Float spandil Arm stainless steel 1.4310 O-rings FKM, optional NBR, EPDM
Weight	approx. 0.2 kg
Conformity	CE

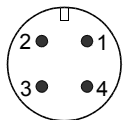
Dimensions



Wiring

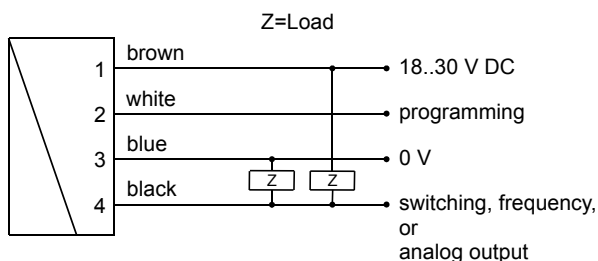


Connection example: PNP NPN



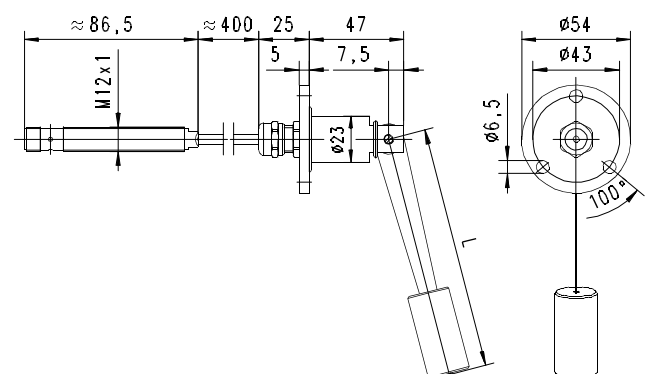
Before connecting the supply voltage, it must be ensured that this corresponds with the data sheet.
The use of shielded cabling is recommended.

High temperature model



Connection example: PNP NPN

High temperature model



Handling and operation

Note

The sensors are fully preconfigured at HONSBERG to customer wishes. However, as an option, the setting of one or more parameters using a magnetic clip through the enclosed housing (IP 67) is fully possible. For the high temperature model this can alternatively be done through setting the contact on pin 2 of the connector.

The parameters available are:

- Switching value of the level switch
- Upper position of the float arm at 20 mA / 10 V or maximum frequency

The parameter to be programmed must be specified when ordering.

Not suitable for use in media with ferritic particles.

Programming

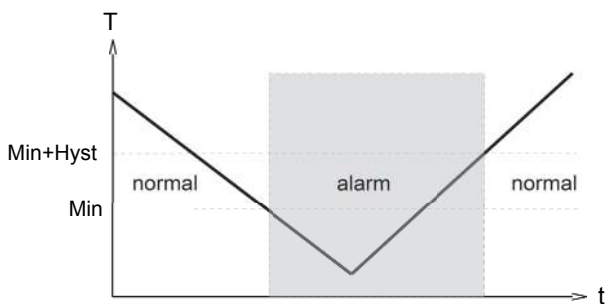
Models with a limit switch contain a magnetic contact, with the aid of which the currently measured value is stored as the limit value. Programming takes place when a magnet is applied for a period between 0.5 and 2 seconds to the marking located on the label.



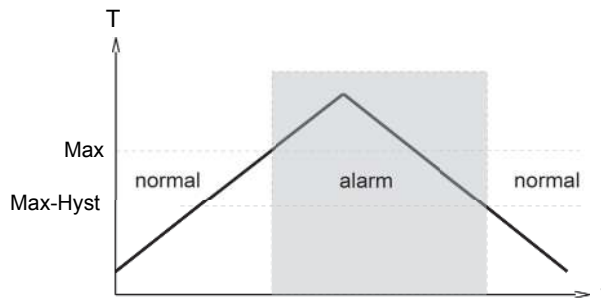
If the contact time is longer or shorter than this, no programming takes place (protection against external magnetic fields). Immediately after programming, the switching output goes into the normal state (see below).

The device has a yellow LED which flashes during the programming pulse. During operation, the LED serves as a status display for the switching output. With the high temperature model, instead of the magnet contact, pin 2 of the connector is used for programming. A pulse is correspondingly given by applying the supply voltage. After programming, the pin should be set to earth in order to prevent unintended programming. In order to avoid the need to transit to an undesired operating status during the teach-in, the device can be provided ex-works with a teach-offset. The teach-offset point is added to the currently measured value before saving.

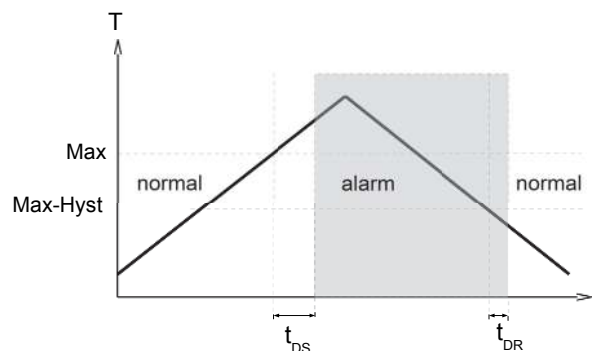
Example: The switching value is to be set to $+50^\circ$, because at this flow rate a critical process status is to be notified. However, only $+40^\circ$ can be achieved without danger. In this case, the device would be ordered with a "teach-offset" of $+10^\circ$. At $+40^\circ$ in the process, a switching value of $+50^\circ$ would then be stored during "teaching". The limit switch of the FLEX-P can be used to monitor minimal or maximal. With a minimum switch, falling below the limit value causes a switchover to the alarm state. Return to the normal state occurs when the limit value plus the set hysteresis is once more exceeded.



With a maximum-switch, exceeding the limit value causes a switchover to the alarm state. Return to the normal state occurs when the measured value once more falls below the limit value minus the set hysteresis.

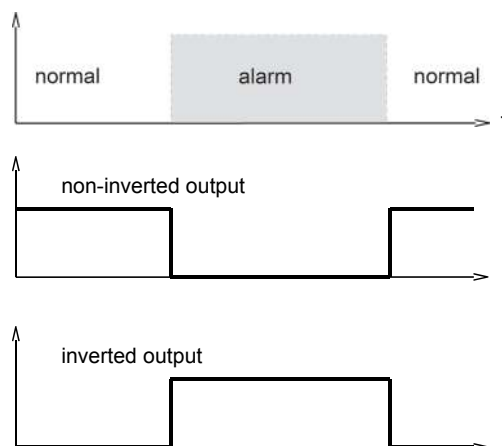


A switchover delay time (t_{DS}) can be applied to the switchover to the alarm state. Equally, one switch-back delay time (t_{DR}) of several can be applied to switching back to the normal state.



In the normal state the integrated LED is on, in the alarm state it is off, and this corresponds to its status when there is no supply voltage.

In the non-inverted (standard) model, while in the normal state the switching output is at the level of the supply voltage; in the alarm state it is at 0 V, so that a wire break would also display as an alarm state at the signal receiver. Optionally, an inverted switching output can also be provided, i.e. in the normal state the output is at 0 V, and in the alarm state it is at the level of the supply voltage.



A Power-On-Delay function (ordered as a separate option) makes it possible to maintain the switching output in the normal state for a defined period after application of the supply voltage.

Installation

The flange is fixed with M6 bolts (see drilling diagram in the drawing)

The flange area must be flat, free of scratches, and clean. The bolts are tightened until the flange abuts against the tank surface, and not more.

Ordering code

VECTIS - 1. 2. 3. 4. 5. 6. 7. 8.

N

○=Option

1. Plug gauge (separation of flange surface from fulcrum)	
165	16.5 mm
395	39.5 mm
2. Connection	
N	Standard flange
3. Length of lever arm (fulcrum to end of float)	
080	80 mm
120	120 mm
150	150 mm
200	200 mm
250	250 mm
300	300 mm
350	350 mm
400	400 mm
450	450 mm
500	500 mm
4. Analog output	
I	current output 4..20 mA
U	voltage output 0..10 V
5. Switching output	
T	push-pull
K	no switching output
6. Switching output function	
L	minimum-switch
H	maximum-switch
R	frequency output
K	no switching output
7. Switching output level	
O	standard
I	○ inverted
8. Optional	
H	○ high temperature

Options

For analog output:

Special range for analog output:

Start of metering range (4 mA or 0 V) at ° / mm

Standard = -87 °

End of metering range (20 mA or 10 V) at ° / mm

Standard = +87 °

For frequency output:

End frequency (max. 2000 Hz)

Standard = 2000 Hz

Special range for frequency output:

Start of metering range (0 Hz) at ° / mm

Standard = -87 °

End of metering range (end frequency) at ° / mm

Standard = +87 °

For switching output:

Switching delay period (0.0..99.9 s)

(from Normal to Alarm)

Switch-back delay period (0.0..99.9 s)

(from Alarm to Normal)

Switching output fixed at

Switching hysteresis

Standard = 2 % of the metering range

General:

Power-On delay period (0..99 s)

Teach-offset (-87 °..+87 °)

Standard = 0 °

Tropical model (oil filled)

Further options available on request.

Accessories

- Cable/round plug connector (KB...) see additional information "Accessories"
- Device configurator ECI-1