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PHÖNiX Messtechnik GmbH

PHÖNiX



Optoelectronic Level Switch Type 720.002L SE/SA

INSTRUCTION MANUAL

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1. Introduction

The device is designed to detect limit levels of liquids. For this purpose the sensor is equipped with a V-shaped glass-tip. The model is also ideally suited for level control, particularly in applications requiring high precision control. The function is independent of colour, refractive index, density, conductance and dielectric constant of the liquid.

Integrated electronics include limit sensing and self-calibration. The output is an open-collector pnp-transistor.

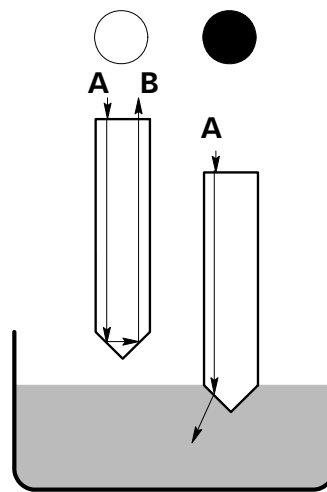
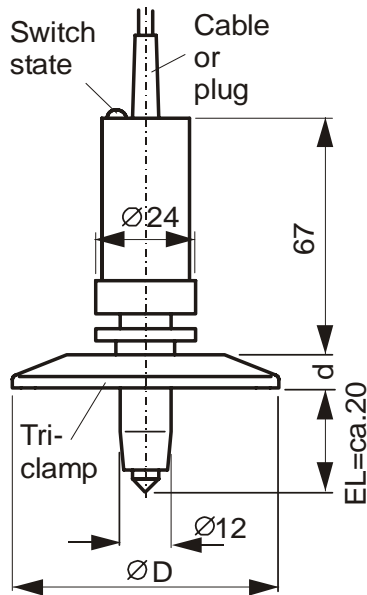


Fig. 1

2. EQUIPMENT DESIGN

The sensor is a one-piece device combined of a mechanical connection which depends on the type of sensor and integrated electronics built in a stainless-steel housing. The measuring length ML is fixed and depends on the type of the sensor.

2.1 Type 720.002L XXTX0XXX



Measure table Tri-Clamp

Diameter	ØD	d
NW10/15	34,0	4,7
NW25/ISO32/NW40	50,5	6,4
2"/NW50	64,0	6,4
2 1/2"/ISO60,3/63,5	77,5	6,4

Fig. 2
Tri-clamp connection, EL = 20

2.2 Type 720.002L XXB10XXX

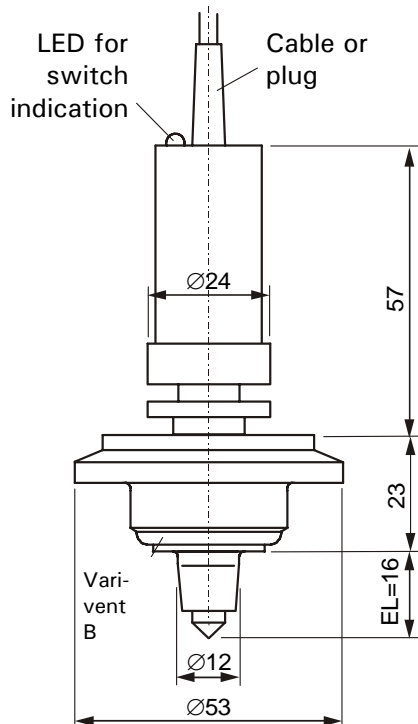
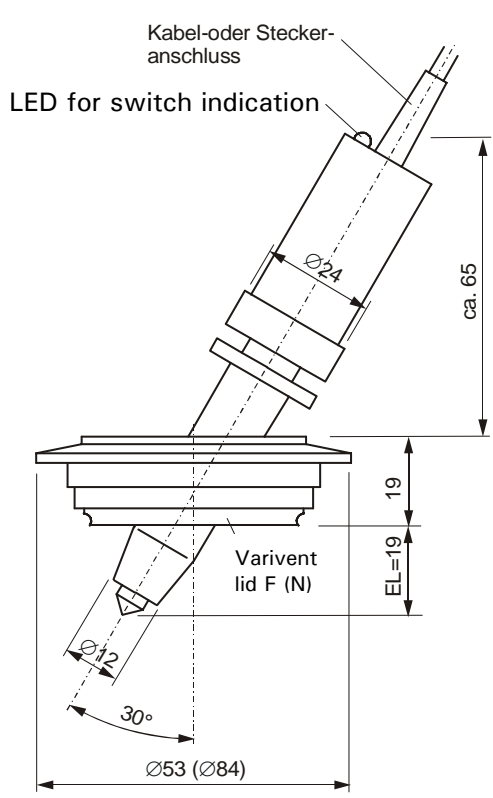


Fig. 3
Vari-vent B connection, EL fixed with 16 mm.

2.3 Type 720.002L XXFX3XXX / XXNX3XXX



Cable or plug

Fig. 4
 Varivent F or N connection, EL fixed with 19 mm built-in angle 30° (in order to prevent reflections from surface).

2.4 Type 720.002L XXJX0XXX

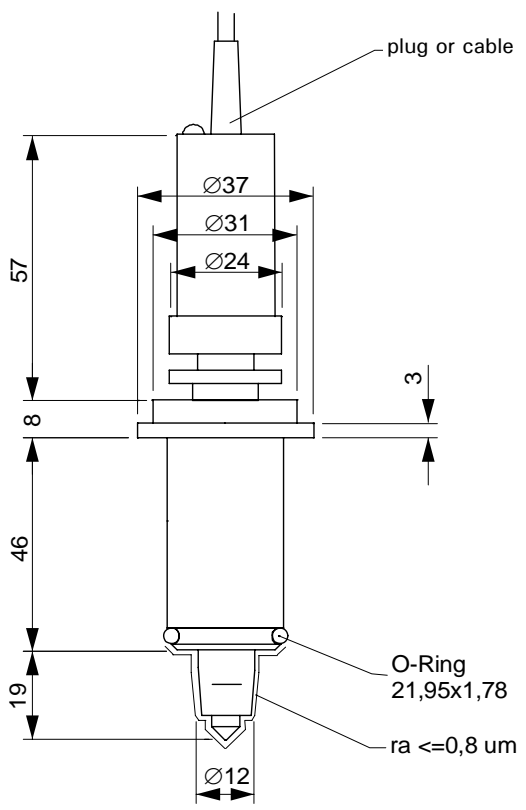


Fig. 5
 Ingold connection, if mounting in a pipe Ingold stud is to weld in an angle of e. g. 30° or 45° or in a pipe knee (in order to prevent reflexions).

2.5 Type 720.002L 59K10X3X

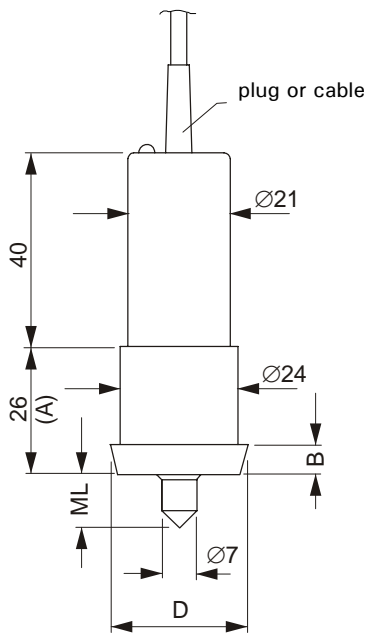


Fig. 6
Food connection acc. to DIN 11887

Fig. 1 to 5 are examples. Other custom-designed connections in the food and sterile area are possibly.

2.6 Electrical connections

Type 720.002L XXXXXKXX

Type 720.002L XXXXXSXX

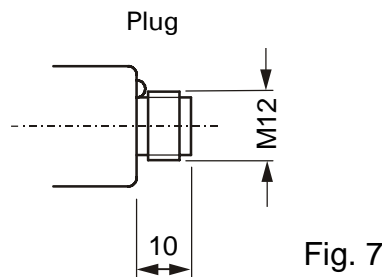
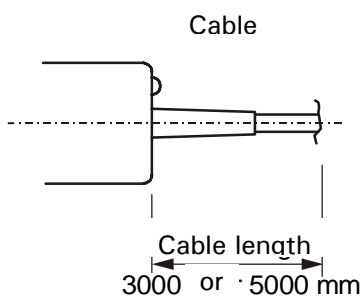


Fig. 7

3. INSTALLATION

It is recommended that on unpacking the equipment all items to be checked for external damage. In addition, a function test may be carried out prior to the installation. For that purpose, the device is temporary connected and the sensor-tip is immersed in and taken out of a glass of water. Authorized skilled personnel only is allowed to connect the electrics.

3.1. Mounting of the the sensor

The sensor is screwed into the fitting. In accordance to page 8 installation hints the distance between sensor-tip and inner surface of the pipe should be greater than 10 mm. If the pipe is polished, the distance must be 20 mm or more.

3.2. Electrical connection of the sensor

The sensor has to be connected as shown in Fig.3.

Connection diagram (all types)

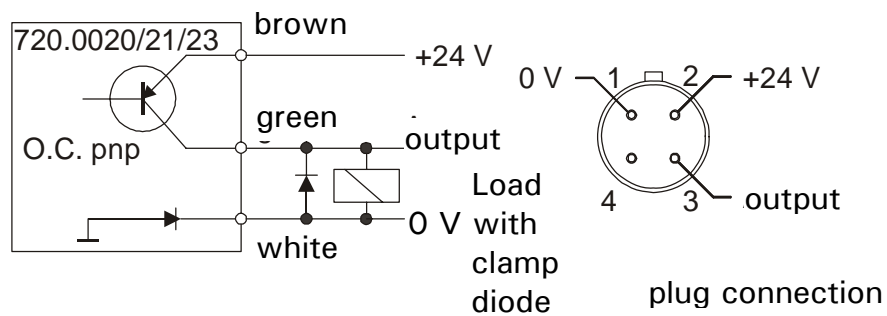


Fig. 8

4. OPERATING HINTS

4.1. Switching characteristics, Type 720.002L SE/SA

The switching characteristics are set in factory as follows:

	LED	Output transistor	ext. Relay
Typ 720.002L SE immersed	on	switched on	closed
Typ 720.002L SE not immersed	off	switched off	open
Typ 720.002L SA immersed	off	switched off	open
Typ 720.002L SA not immersed	on	switched on	closed

5. MAINTENANCE

As a rule, the sensor is free of maintenance. However, if the plant is subject to heavy contamination or fur, it is advisable to establish maintenance instructions.

6. GUARANTEE

We grant a guarantee period of 24 months, under the condition this device has been handled and operated according to this manual. For wear and spare parts the guarantee is restricted to failures in material or construction.

7. Disposal

The customer/enduser is obliged to take care for the disposal within the legal regulations.

8. REPAIR

If the sensor is defective or damaged it must be sent to the factory.

9. TROUBLE SHOOTING

FAILURE	POSSIBLE CAUSE	REMEDY
no function	no power supply	check power supply
	connection failure	check connection to cable or plug
no function in spite of liquid level change	contamination or fur on the glass-tip	clean glass-tip establish maintenance instructions
sensor works vice versa	SA instead of SE or SE instead of SA specified	change sensor

10. TECHNICAL DATA

10.1 Electrical Data

	unit	720.002L
power supply	V DC	24 -25/+30%
supply current	mA	40
power consumption	W	1
output - voltage - current - features	V DC A	24 0,5 at T _{amb} 70°C short circuit protection, protection against inverse power supply, limits of current, voltage and power

10.2 Design Data

	unit	720.002L
measuring accuracy level of liquid	mm	±0,5
fitting position	-	any
temperature - medium (liquid) - ambient	°C/°F °C/°F	-30/+140 / -22/+284 -30/+70 / -22/+158
operating pressure	MPa/bar/p si	0-5/0-50 /725
ambient light max.	Lux	<10.000 (immersed)
measuring length	mm	see Fig. 2 and 3
fitting		Tri-clamp, Varivent or custom design
material - sensor - glass-tip - housing		1.4301 quartz, cladde core 1.4301
weight	kg	0,125 with M16x1,5
electrical connection		cable 3x0,5 mm ² or Binder-connector type 763, 4-contacts, M12
enclosure rating acc. to EN 60529 - cable - connector		IP 66 IP65 when female connector is mounted

Subject to alterations

11. APPENDIX

11.1 Installation hints

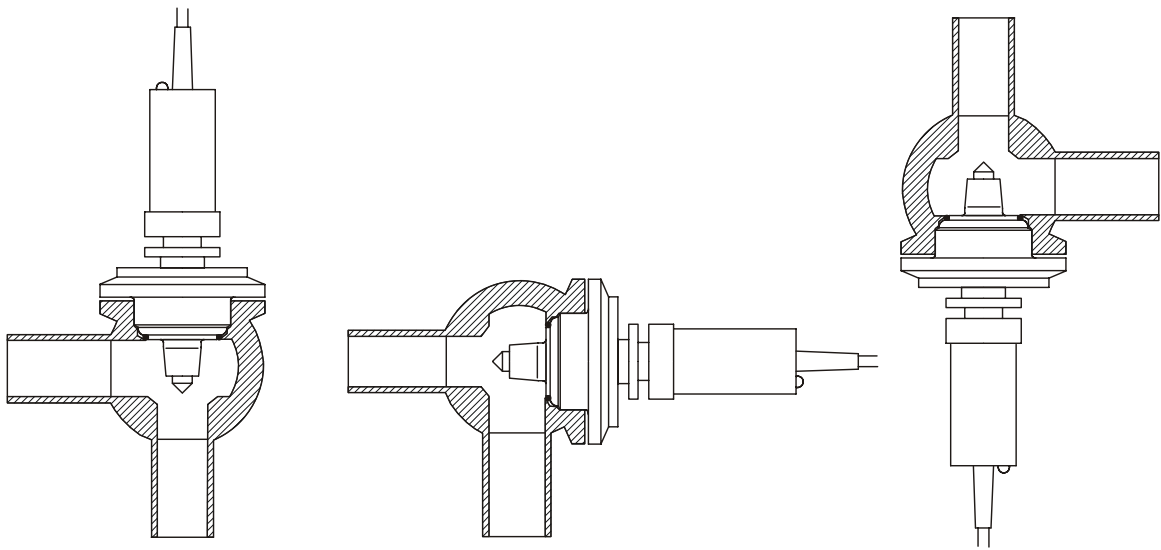


Fig. 9
Installation in Varivent B in-line housing

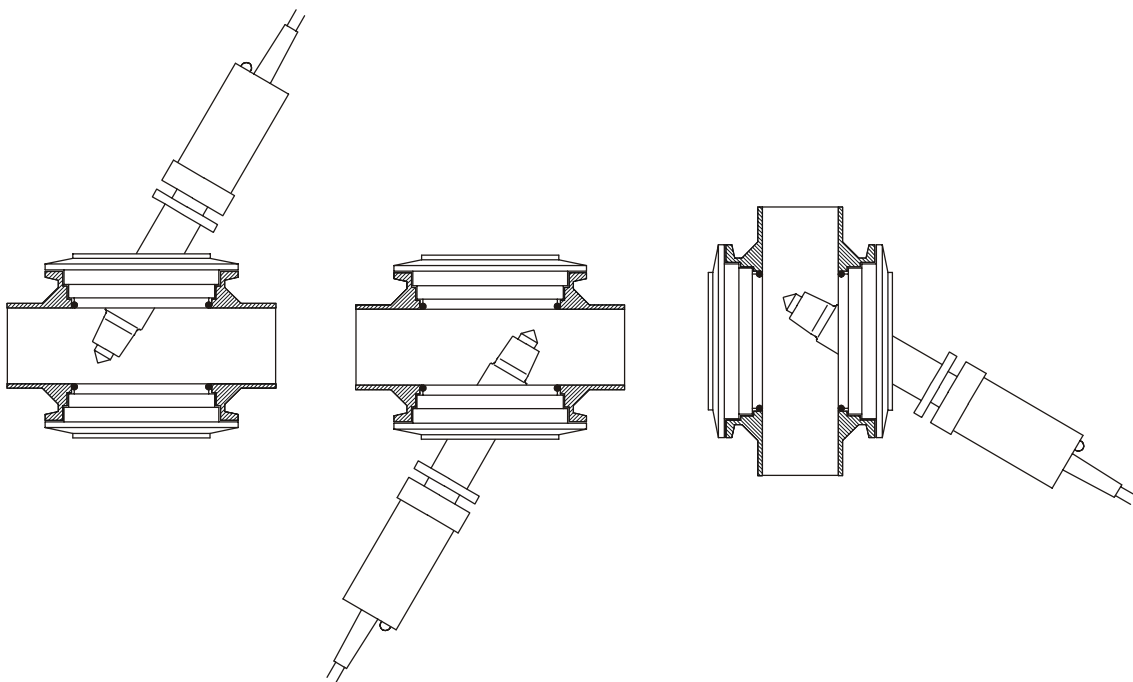


Fig. 10
Installation in Varivent F/N in-line housing

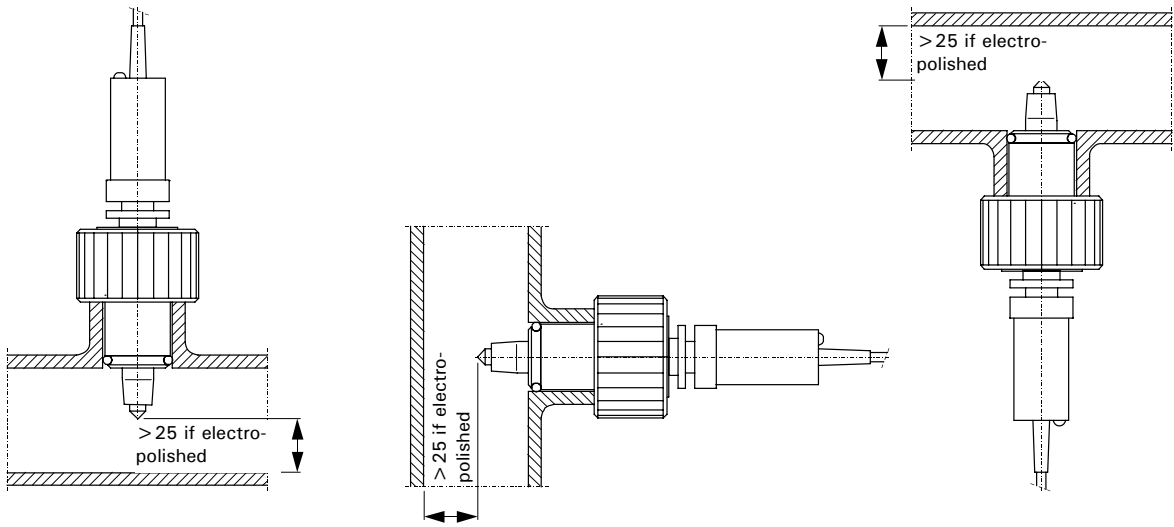


Fig. 11
Mounting in a Ingold stud

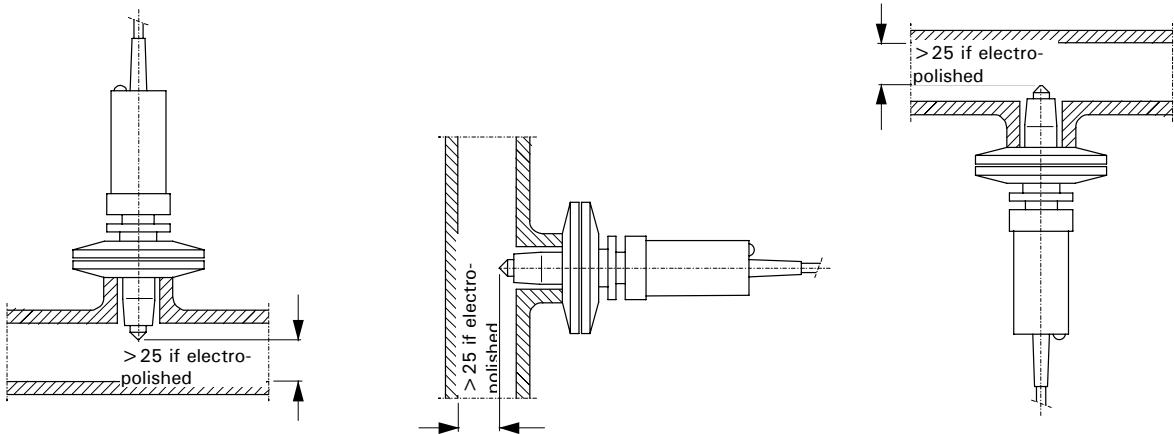
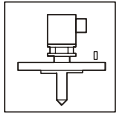


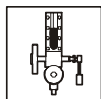
Fig. 12
Mounting Tri-Clamp



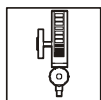
PHÖNIX Messtechnik GmbH
Salzschlirfer Straße 13
D-60386 Frankfurt, Germany
Tel. +49/069/41 67 42 - 20
Fax +49/069/41 67 42 - 29
<http://www.phoenix-mt.com>
sales@phoenix-mt.com

Weitere Produkte:

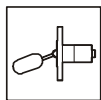
Further products:



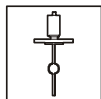
Schauglasanzeiger
Sight Glass Level Gauges



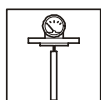
Magnetanzeiger
Magnetic Level Gauges



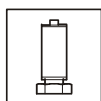
Schwimmerschalter
Float Switches



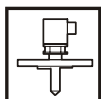
Schwimmer Füllstandmesser
Float Level Gauges



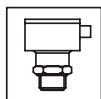
Verdränger Füllstandmesser
Displacer Level Gauges



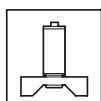
Ultraschall Füllstandmesser
Ultrasonic Level Gauges



Optoelektronische Grenzwertgeber
Optoelectronic Level Switches



Kapazitive Grenzscharter
Capacitance Level Switches



Ultraschall Grenzscharter
Ultrasonic Switches

DR720002LE Rev.4 7/08