K06 Level Switch with 4÷20 mA analog temperature output

Operating Instructions

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Summary

1. Note

Please read and take note of these operating instructions before unpacking and commissioning. The instruments may only be used, maintained and installed by personnel familiar with the operating instructions and the applicable health and safety requirements.

2. Instrument Inspection

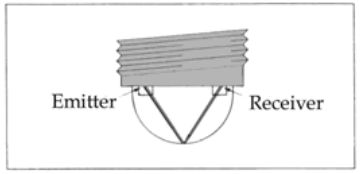
The instruments are inspected before dispatch and sent out in perfect condition. Should damage to the instrument be visible, we recommend close inspection of the delivery package. In cases of damage, please immediately inform the forwarder as he is liable for any damage in transit.

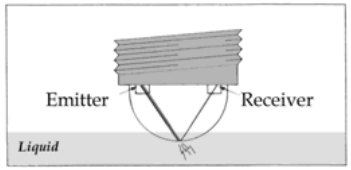
Scope of Supply
* Level Switch K06 and o-ring when requested.

3. Specific Application

The optical level switch has been designed for use in level monitoring applications for the control of the liquid presence/absence and can be suitable for a lot of applications due to the wide chemical compatibility assured by the technology of the fused glass dome with the stainless steel body. The switch has no moving parts, thus it is particularly suited for monitoring critical media where high reliability is needed.
For minimum / maximum level detection the switch must be mounted at the desired height and gives an alarm when low (or high) liquid level is detected.
This series of switches incorporates the 4÷20mA temperature output in order to be implemented in all the environments in which the temperature must be monitored continuously.

4. Operating Principle





The sensors contains an infrared-ray emitter and an optical receiver. In air (liquid not present), all the light emitted is reflected - internally - by the dome and then redirected to the receiver. When the liquid reaches the sensor dome, a big amount of the light emitted is lost in the liquid and the sensor senses its presence.

5. Technical Data of the Instrument

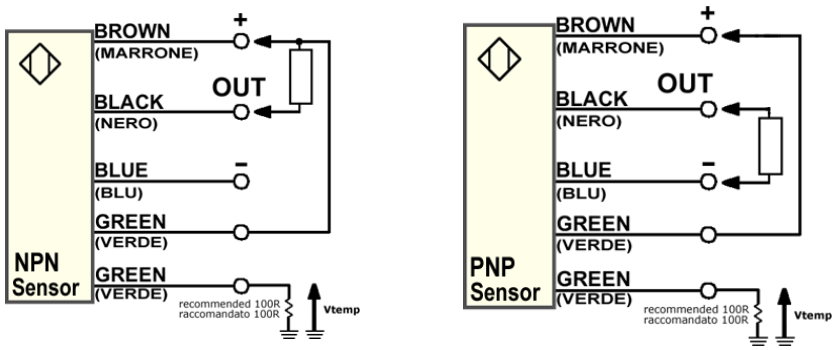
OPERATION MODE	Detect liquid presence with contact
REPEATABILITY	± 2 mm
BODY MATERIALS	Stainless Steel
SENSIBLE DOME	GLASS
ELECTRONIC PROTECTIONS	Transient over voltage, reverse polarity
MAX. TEMPERATURE RANGE	From –40ºC up to +125ºC (depending on terminations)
STORAGE TEMPERATURE	From –40ºC up to +125ºC (depending on terminations)
SUPPLY VOLTAGE	10 – 28 VDC
OUTPUT TYPE	NPN, NPN open collector, PNP
DC OUTPUT CURRENT	up to 100 mA Max (depending on temperature range)
OUTPUT MODE	Output Normally Open or Closed in the air
TEMPERATURE OUTPUT	Analogical from 4 to 20 mA
DELAY TIMES	Customizables depending on application needings
MAX PRESSURE	up to 40 bar
TORQUE TIGHTEN	15 Ntm

6. Temperature Reference

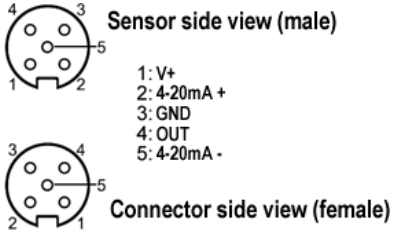
Temperature (°C)	Current (mA)	Voltage (mV)(*)
-40	4	400
-30	5	500
-20	6	600
-10	7	700
0	8	800
10	9	900
20	10	1000
30	11	1100
40	12	1200
50	13	1300
60	14	1400
70	15	1500
80	16	1600
90	17	1700
100	18	1800
110	19	1900
120	20	2000

(*) Example with an external load of 100 ohm resistor

7. Electrical Connection



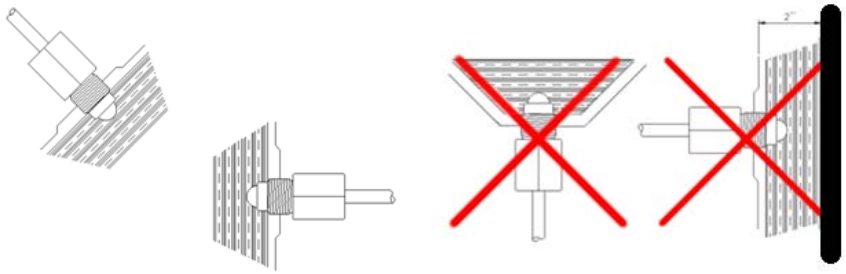
CABLE CONNECTION



M12x1 CONNECTOR CONNECTION

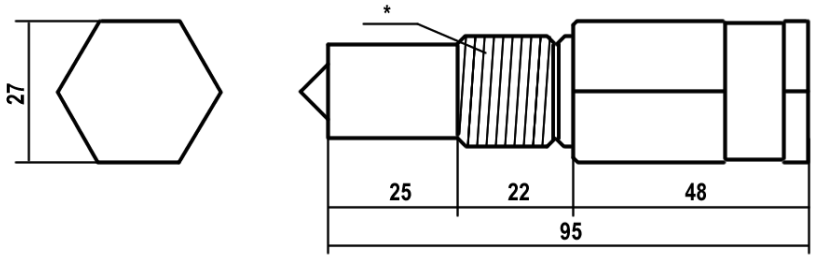
8. Installation instruction

- Only qualified personnel should carry out installation
- Protect hands and face from contacting the liquids, which may contain harmful acid.
- Depressurise the system before attempting any work
- Switch off power supply and isolate system
- If fitting to an existing installation, drain the liquid of the system if present
- Assemble the switch on the system



- Do not install sensor close to infrared sources.
- Dome of the sensor must be at least 2" (~ 50mm) from any reflective surfaces. Please contact Teklab for lower distances.
- Do not install the sensor in a stagnation point of the liquid
- Do not use to detect freezing liquids
- The mounting position corresponds to the desired switching point.
- The optical sensor tip must be free of insulating materials.
- The sensor tip must be installed in a way that it is not in contact with any moving parts inside the tank or the reservoir.
- During installation the sensor tip may not be touched with any device which could scratch or damage the glass dome in any way.
- It is recommended that for conical threads proper tapes should be applied to the threads itself on the switch body. The switch should then be threaded and sealed by using a correct wrench and under no circumstances by using any other device which may damage the housing .

9. Mechanical Dimensions



Quotes in mm

***Available threads: ½"GAS, other threads on request.**

10. Recommendation

While the device is totally maintenance free we recommend that the optical lens be cleaned periodically during major servicing.

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OPTICAL LEVEL SWITCH K06