

Ex Electro-Optic Level Switch C€ 0948



II 1G Ex ia IIC T6...T4 Ga

TÜV IT 14 ATEX 056 X rev. 1



 Via Emilia Ovest 1179 - 41123 Modena - Italy www.teklab.eu C€ 0948  II 1G Ex ia IIC T6...T4 Ga TÜV IT 14 ATEX 056 X rev. 1	Safe Parameters: Ii: 160 mA Ui: 30VDC Pi: 1.2W	Part Number: Ambient Temp. range: -20 ÷ 60°C Operating Voltage: 9 ÷ 28 V DC Max. output sink current: 40 mA OUTPUT TYPE: CONTACT:
	CABLE COLORS: BN: Power; BK: Output; BU GND (Blue) (Brown) (Black)	 The device must be mounted only by qualified persons in strict accordance with the technical brochure. Failure to observe this warning could result in serious injury or damages

Label example of the T6...T4 class NPN sensor

Safety notes and marking details

The device shall be mounted and used **by qualified and authorized persons only**.

The sensor belongs to Equipment Group II. It is suitable for Category 1 applications in G (Gas) - Zone 0.

It has been designed and manufactured to work in potentially explosive environment (Ex) and achieve the ia intrinsic safety.

Category 1 is requiring a very high level of protection (area having a permanent or prolonged risk of explosions) and Sub-Group IIC certification is the highest possible covering also other sub-groups (Group I, IIA, IIB for Gas).

Please look at the table in page 4 of this document for more details about the temperature class of the sensor. Since the sensor primary use is in hazardous location, **an appropriate intrinsically safe interface must be used and installed in strict accordance with this technical brochure**.

Failure to observe this warning could result in serious injury or damages.

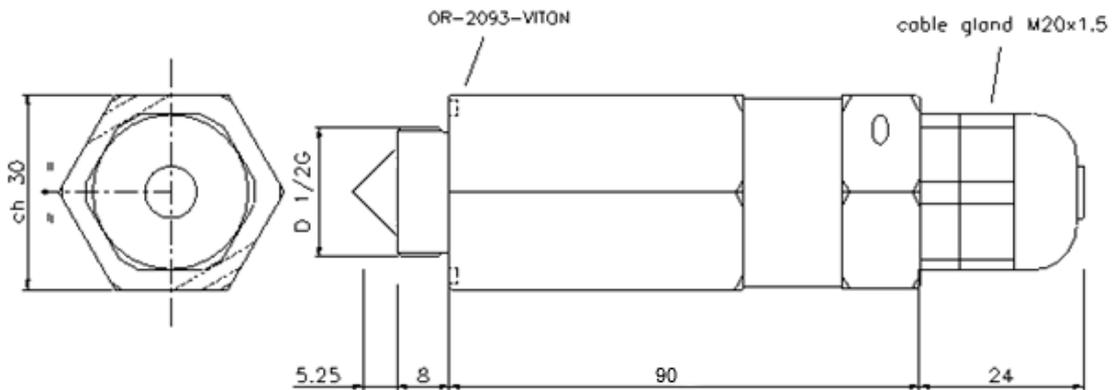
Principle of functioning



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.

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Mechanical drawing



Case features

Body materials:

Stainless Steel AISI 303, 304, 316L, Nickel plated steel

Dome materials:

Glass

Available Body threads:

from 3/8" up to 3/4" GAS cylindrical;

from 3/8" up to 3/4" GAS conic;

from 3/8" up to 3/4" NPT;

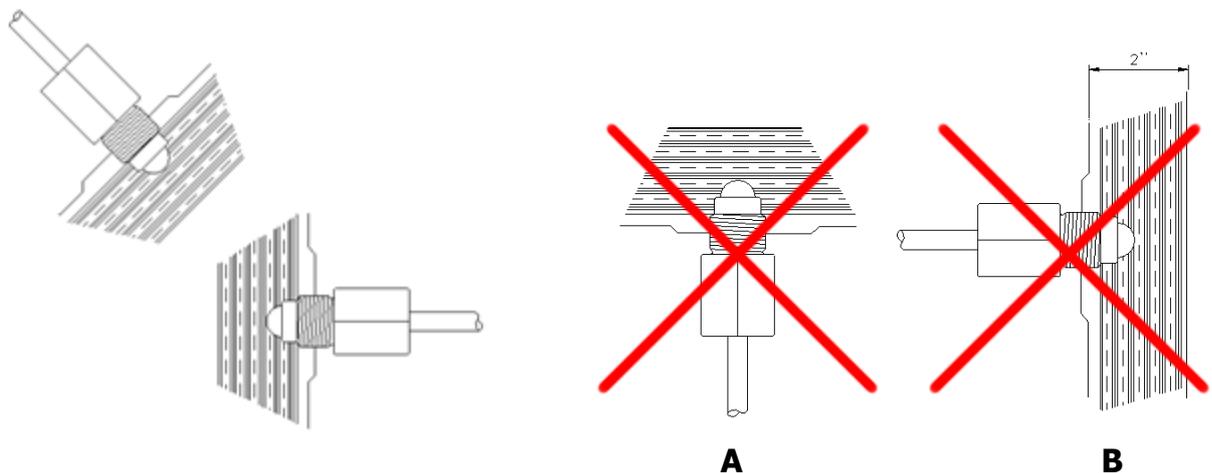
from 5/8" - 24 up to 1" 1/8 - 18 UNEF;

from M18 up to M30 ISO metric.

NOTE. Std. product with the AISI 304 - 3/4" NPT thread. Drawing referred to 1/2"G thread model.

The dimension of the cable gland and the overall length of the sensor and the thread can vary depending on selected the model. Please contact Teklab for more details.

Mounting Positions



WARNING

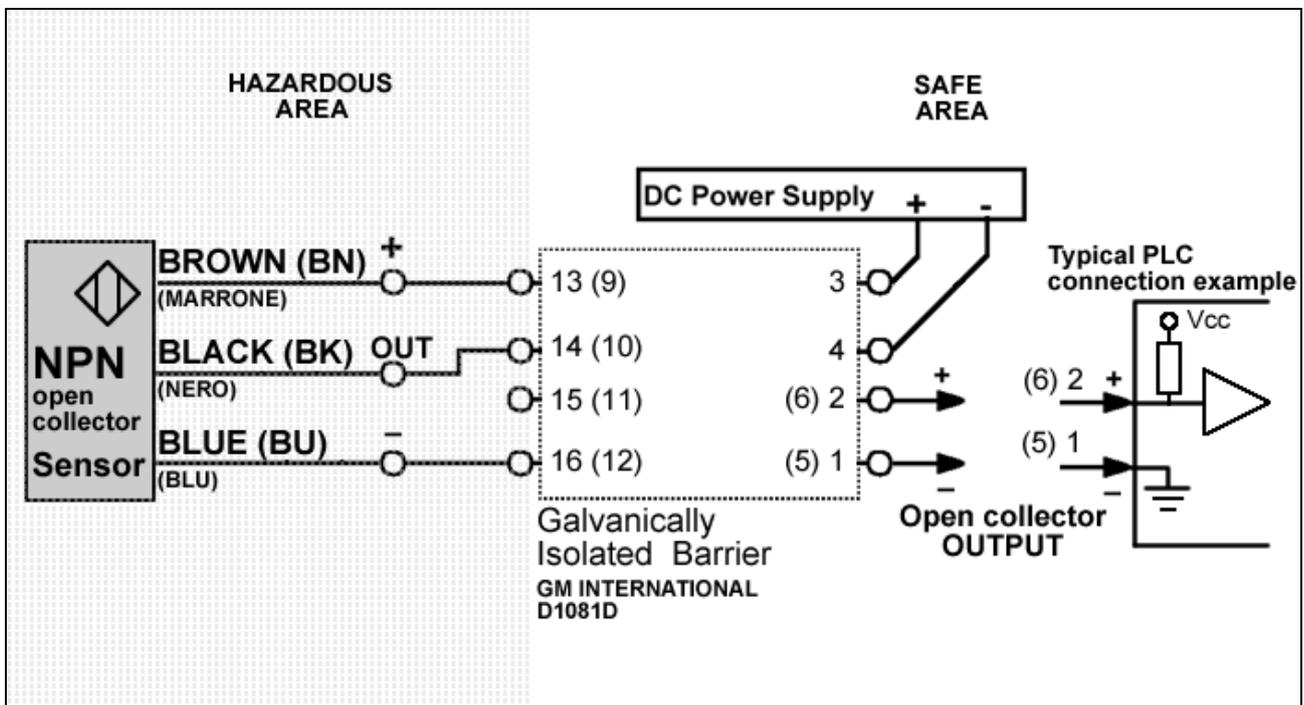
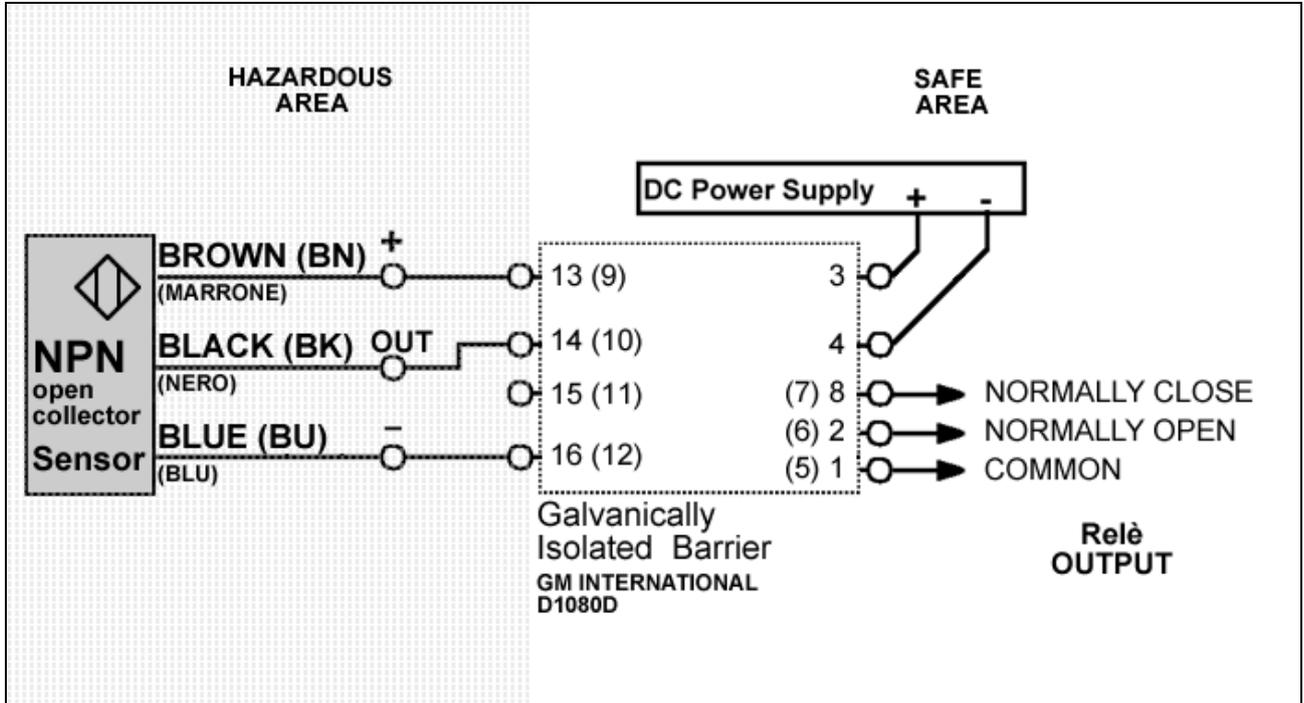
- Do not install sensor close to infrared sources.
- Do not install the sensor in a stagnation point of the liquid (*Example A*).
- Dome of the sensor must be at least 2" (~ 50mm) from any reflective surfaces (Please contact Teklab for lower distances). (*Example B*).
- Do not use to detect freezing liquids
- When mounting the sensor do not use excessive torque tighten to avoid damages to the unit. Please contact Teklab to verify proper torque tighten values.

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Wiring

The sensor is available with the following output types:

- ✓ NPN OPEN COLLECTOR
- ✓ PNP OPEN COLLECTOR



NPN SENSOR'S CONNECTION EXAMPLES.

ATTENTION

Leads connection only as indicated in the picture: any other combination may damage the sensor in an irreversible way.

Electrical features

Power supply	9 ÷ 28 V DC
Storage Temperature	-20°C ÷ 60°C
Output Type	Open collector (PNP or NPN depending on model)
Max. output current	40 mA
Cable capacitance	140 pF/m
Cable inductance	1,25 µH/m
Cable resistance	39 mΩ/m

Safety Parameters

$U_i = 30VDC$
 $I_i = 160mA$
 $P_i = 1,2W$

Temperature class Max surface temperature (TX)	Max Working temperature range at liquid detecting point (°C)	Ambient temperature range (°C)
T6 / 85 °C	-20 ÷ +60	-20 ÷ +60
T5 / 100 °C	-20 ÷ +75	-20 ÷ +60
T4 / 135 °C	-20 ÷ +100	-20 ÷ +60

NOTE. Cable parameters can change from a production batch to another but they can never exceeds the values reported above

Code number

Output Mode	Code Number	Output Mode	Code Number
NPN - Normally Open in air	5124	PNP - Normally Open in air	5126
NPN - Normally Closed in air	5125	PNP - Normally Closed in air	5127

Chemical compatibility

The materials of which the sensor is composed are resistant to several aggressive chemical agents; **it is strictly to the customer pertinence, the test of compatibility between the sensor itself and the liquid and/or the environment in which the sensor will be used.**

Maintenance

Sensor may require a periodic cleaning of the photo-sensible dome surface.
 Eventual solids deposits shall be removed with a mild detergent.

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