

USER MANUAL

**M006_13_GEN
_LINEAR**

X-000001-01-ENG 11/2023



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1 Functional description

The "CONTINUOUS" level sensors are electromechanical instruments. The mechanical part is made up by a supporting stem, on which the float is inserted, a threaded or flanged process connection and an electrical connection.

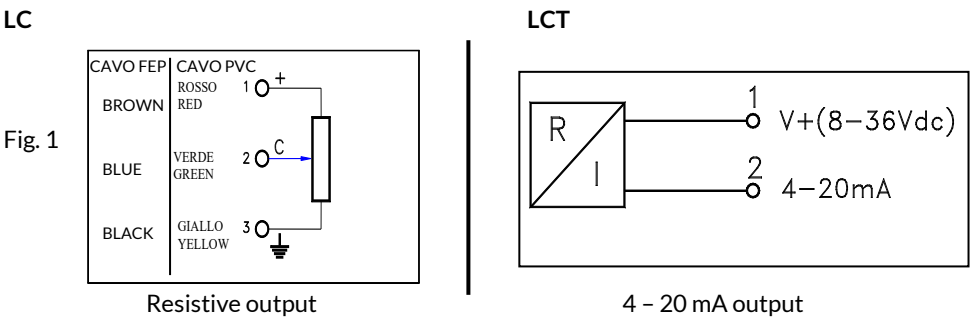
The chain of electrical reed sensors is sealed inside the supporting stem and is magnetically actuated by the float. The position of the sensors are prevently defined and cannot be modified by the user. The contacts chain simulates an electrical potentiometer.

All model are available with resistive output , 4-20mA transmitter or voltage output. (see Fig.1).

The electrical connection can be:

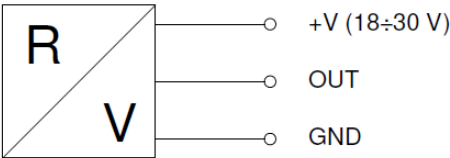
- Directly through cable
- Through DIN-43650 socket and plug.
- Through terminal block located in a protection box.

The instruments with potentiometric output must be always connected to a signal processor like VLC.01 - VLC.202.S - VLC.602.M in order to display the level measurement.



TIPO OF CONNECTION	WIRING		TIPO OF CONNECTION	WIRING	
CABLE OR CABLE-GLAND	+V	RED	CABLE OR CABLE-GLAND	+V	BROWN
	C	GREEN	OUT	BLUE	
	GND	YELLOW			
DIN 43650 PLUG	+V	TB1	DIN 43650 PLUG	+V	TB1
	C	TB2	OUT	TB2	
	GND	TB3			
IP65 JUNCTION BOX	+V	TB1	IP65 JUNCTION BOX	+V	TB1
	C	TB2	OUT	TB2	
	GND	TB3			

LCTV



TIPO OF CONNECTION	WIRING			TIPO OF CONNECTION	WIRING	
CABLE OR CABLE-GLAND	+V	BROWN		CABLE OR CABLE GLAND	+V	RED
	OUT	BLUE			OUT	GREEN
	GND	BLACK			GND	YELLOW
DIN 43650 PLUG	+V	RED		CONNECTOR M12	+V	1
	OUT	WHITE			OUT	2
	GND	BLUE			GND	3
IP65 JUNCTION BOX	+V	RED				
	OUT	WHITE				
	GND	BLUE				

2 Installation

The instruments have to be installed in the tank in vertical position +/- 15° through an appropriate (threaded or flanged) mechanical connection, having care to interpose a proper gasket between the connections.

 Warning!

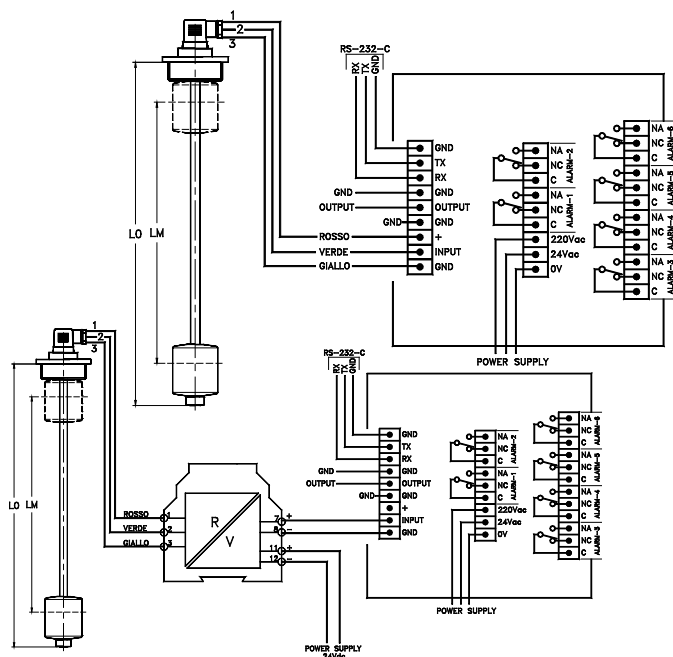
- ▶ Only proper tools have to be used for installing and uninstalling the level sensors.
- ▶ Do not use the electrical connection box for manual installation.

3 Electrical connection

The electric connection to the terminal boards must be performed with shielded cables. The weatherproof "W" junction boxes are provided with bilateral threaded inlets, to facilitate the electrical connection. If just one of this connections are used, take care to seal properly the unused one, to grant the characteristic protection grade (IP65) of the housing.

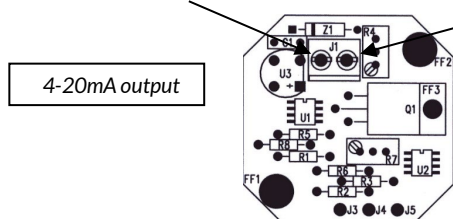
VAL.CO decline all responsibilities for damages caused by improper installation of the instruments.

Fig. 2



Power supply 8-36 Vdc

Signal output 4 - 20 mA



3.1 Eexd continuous level controls

Cables for Eexd level sensors must be installed in conduit pipe with blocking joint at the beginning and at the end of the pipe. We recommend to use a shielded cable with a minimum section of 0,22 mm².

3.2 Eexi continuous level controls

If Eexi level sensors are used, electrical connection between barriers and instruments must be made with cables having working voltage of 250 Vac, test voltage of 1500Vac and minimum thickness of insulation of 0,2 mm in according with EN-50039.

Signal cables must be separate from power cables and installed in a fixed mechanical protection, such as conduit pipe. The label "EXI CIRCUITS" supplied with the instrument has to be applied on signal cables layout. Technical data of cables are below mentioned.

Maximum length:	300 m for cable with capacitance 200 nF/Km 600 m for cable with capacitance 100 nF/Km
Minimum section:	0,22 mm ²

Zener barriers (active or passive) and/or other devices such as insulation amplifiers or relays must be certified in according with EN-50020 [Eexia] IIC and installed in safe area.

Technical data of barriers are below mentioned.

In case of multichannel barriers, technical data are referred to each channel.

U _{max} :	250 V
• Maximum voltage U ₀ :	30 V
• Maximum current I ₀ :	100 mA
• Maximum power P ₀ :	0,75 W

4 Electrical characteristics. (See table below)

The contacts used in these instruments are "Reed" type, magnetically actuated. This kind of contacts can carry out up to 100.000.000 operations.

TIPO/TYPE	LC	LCT	LCTV
Max. voltage	12Vdc	8 ÷ 36Vdc	18 ÷ 30Vdc
Max. current	30mA	20 mA	20 mA
Output signal Depending on the measure length	Potentiometric 600Ω ÷ 20KΩ	4 ÷ 20mA	Voltage output

5 Maintenance

This type of instruments, if they are used in accordance with the specified mechanical and electrical characteristics, do not need particular maintenance. If they are used to control incrusting liquids we recommend to make periodic inspections and remove the incrustations, if they are present.

DOCUMENTO CORRELATO
AL CERTIFICATO CESI03ATEX265/272
Non sono ammesse modifiche senza
l'approvazione della "Persona Autorizzata"

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