SmartCost

compact ultrasonic level transmitter with two thresholds for pump or alarm control

865B034E

SmartCost

This single-chip operated transmitter has been designed for use in tanks, basins and canals and is characterized by easy calibration procedures. If the probe is being used just as e two-threshold transmitter (min and max), calibration is performed by simply pressing two push buttons. The complete configuration also including pump or alarm control, is achieved simply connecting the transmitter to a PC through the RS485 port.The two transmitter relays may be setup as thresholds, as pump controls as self-diagnostic alarms, should malfunctioning occur. The ultrasonic transducer and electronics are enclosed into a 2" GAS. SmartCost is intended to operate with temperatures up to 80°C and is appropriate for applications involving aggressive chemical acids or liquids and even stirring devices (mixer).

- ***4÷20 mA Level/Distance transmitter up to 5 m***
- ***2 calibration push-buttons + RS485***
- ***2 built-in programmable relays (5A, 250Vac)***
- ***2" thread or flanged mechanical connection***
- ***IP66 and IP68 versions***
- ***Power supply 20÷30 Vdc or 24, 115, 230 Vac***

Measurement principle

The **SmartCost** level transmitter measuring technology is based on the emission of a short ultrasonic pulse. The ultrasonic wave runs towards the surface of the product to be measured and bounces on the surface, then backrunning towards the sensor. The time elapsed between wave emission and reception is defined as flight time and is proportional to the measured distance and ultimately to the level.

Implementation

The **SmartCost** incorporates a powerful single-chip allowing the completely digitized acquisition and processing of the acoustic signal immediately after the ultrasonic (physical) transducer, a significant feature which has been implemented using an extremely high-speed processor. The signal processing technique is therefore of the DSP type (digital signal processor) allowing to achieve special stability, disturbance immunity and accuracy which are unique, even within this class of products. While normally operating, a built-in self-diagnostic control system monitors essential functions, detecting any echo absence (lost echo), reading instability or electronic fault occurrence. Such self-diagnostic monitoring allows to use one of the two relays available on the **SmartCost** as a malfunctioning alarm. The reliability during operation is ensured by the manufacturing techniques and materials used, involving forced ageing cycles (i.e. temperature range) and by the use of silicon components of demonstrated quality and reliability.
The device described in this data-sheet has been entirely designed and implemented by SGM LEKTRA. The Company acts as research laboratory as appropriately approved by M.U.R.S.T. (Ministry for University and Scientific and Technological Research).

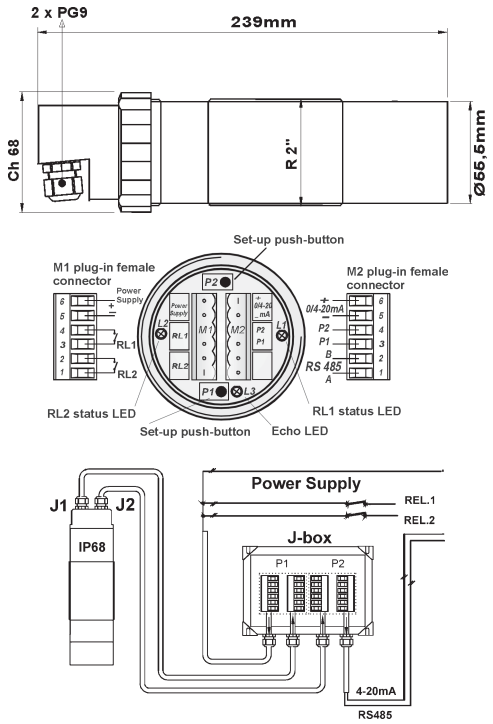
Device versions

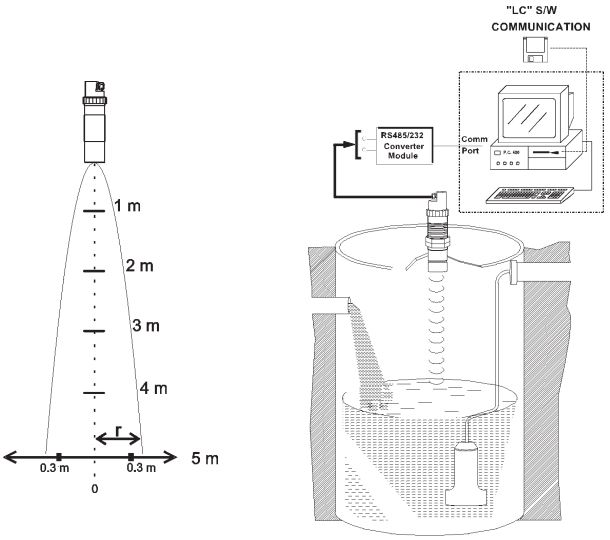
On the IP66 version the calibration push-buttons are housed into the connection head of the transmitter. On the IP68 version of the same transmitter, the access to push-buttons on transmitters is no longer possible as waterproofing prevents opening the transmitter (which is in fact entirely welded and filled with waterproofing resin). The electric connection has no length limit and is obtained through electric wires connected to a watertight shunt box (IP66) also housing the calibration switches.

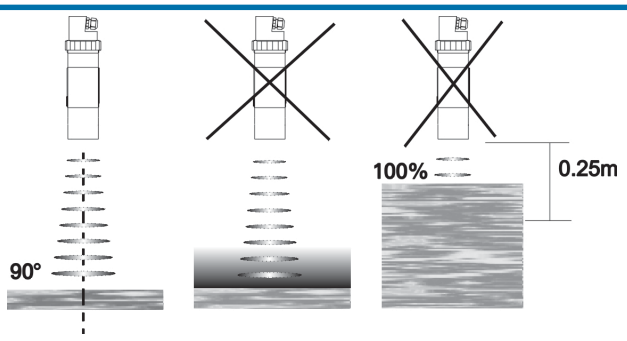
SmartCost transmitter

TECHNICAL DATA

Housing:	**PP**
Mechanical installation:	**2" G.M. BSP**
Protection class:	**IP66 or IP68**
Electrical connection:	**Internally extractable terminal board (IPG65 version) output cable (IP68)**
Working temperature:	**- 30 to + 60°C (80°C for short period)**
Pressure:	**0.5 to 1.5 bar (absolute)**
Power supply:	**24 Vdc or 24, 48, 118, 230 Vac**
Power consumption:	**2.0W**
Analogic output:	**4÷20 mA; max load 750 ohm**
Output relay :	**n°2 relays; 5A 230 Vac (n.o. contact)**
Max meas. distance range:	**5 m (7 m with Extended Range)**
[The above distance must be intended from perfect reflecting surfaces]	
Communication port:	**RS485**
Blocking distance:	**0.25 m (0.4 m with Extended Range)**
Temperature compensation:	**PT100; -30 to + 80°C**
Accuracy:	**± 0.5% (of the measured distance) in any case not better than ± 1 mm**
Resolution:	**0.2 mm**
Calibration:	**two push-buttons or via RS485 port**
LED display:	**green LED indicating echo reception yellow LEDS: REL1 and REL2 conditions**







Install perpendicularly to the surface to be measured

Do not use with foaming products

Avoid installation if the level of the product to be measured approximates 0.25 m

Calibration

Probe calibration is performed acting on the two P1 and P2 push bottons or using the RS485 communication port. To perform these operations through a PC the "LC" software is available.

Order code

SMART	Code	Version
	1	IP66, range 0,25÷5m, with electrical connection by 2 internal plug-in connector
	2	IP68, range 0,25÷5m, with n.2 electrical cable (3m length) connection
	3	IP66, range 0,4÷7m, with electrical connection by 2 internal plug-in connector
	4	IP68, range 0,4÷7m, with n.2 electrical cable (3m length) connection

Code	Housing material
B	PP polypropilene
Z	Special

Code	Power supply
0	24Vac 50÷60Hz
1	115Vac 50÷60Hz
2	230Vac 50÷60Hz
4	24Vdc
5	12Vdc Attention! Max 3m distance no relays inside
9	Special

Code	Accessory
A	None
C	DN80 PN6 UNI6091-71/PP flange
E	IP66 Junction-box for remote calibration
F	PC S/W for the communication to the SGM LEKTRA ultrasonic units
H	Couple Fixing bolts 2"BSP in PP
Z	Special

SMART	1	B	4	H

Order code example

CERT. N. 2032308

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