Ultrasonic Level Sensor

INTRODUCTION

The ultrasonic level sensor is a low-cost, non-contact and easy-to-install measurement device. It is able to meet the every-day needs of commercial production, as well serving a more specialized role in the technologically-advanced aero-space industry, thus placing it firmly in the category of high-level measurement technology. Unlike other level indicators with limited uses, the easy-to-install ultrasonic level indicator is a highly-accurate device with enough specialized uses to ensure that the needs of the customer are met.

THEORY

The principle of operation of the ultrasonic sensor system is to use the ultrasonic pulses which are transmitted by the transducer to the surface to be monitored and are reflected back to the transducer, the time period between transmission and reception of the sound pulses is directly proportional to the distance between the transducer and surface, A micro-controller computes this time period for all echoes received and analyses them to determine which is the correct reflection from the material surface, it uses this data as the basis for giving control outputs and displays in usable engineering units. The distance D is determined from the velocity of sound *v* and the time period t by the formula:

$$D = v \cdot t / 2$$

Example:

With the velocity of sound *v* = 334.1 M/s, a time period of 60m/s corresponds to a transmission path of 20.046M and thus to a distance of 10.023M.

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FEATURES

Non-contact.

Not effected by material property, such as pressure environments, viscosity and specific gravity.

Integrated keypad with security code.

Easy installation and low operating costs.

Can be used in a versatile of application .

Maintenance-free.

Easy to set program no need to train personal.

The distance between the transducer and control equipment can be up to 300M.

Fully isolated analog output/Digital Output.

Better accuracy and stability in difficult conditions.
Internal temperature compensation improves accuracy.

Power Supply:	12~28VDC (0.1A surge)
Operating Temp. (In tank):	-40BC ~ +70BC (-40BF ~ 158BF)
Mounting Screw:	2" NPT / 2" BSP
Measurement Accuracy:	0.25% of measuring range
Resolution:	3 mm (0.11")l
Housing Type:	Integrated
Housing Material:	ABS + UV
Enclosure:	IP65
Beam Angle:	5 @ 3db point
Sensor Material:	Aluminum coated ECTEF
Sensor Housing:	EA-10P: PP, EA-10F: (PVDF)
Display:	LCD (4-digits 7 segments)
Loop current:	2-wire 4~20mA, 750 Ohm @28VDC
Weight:	1.5 Kg (3.3Lb)

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