EMITTER
E L E C T R O N I C S
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TANK LEVEL GAUGE
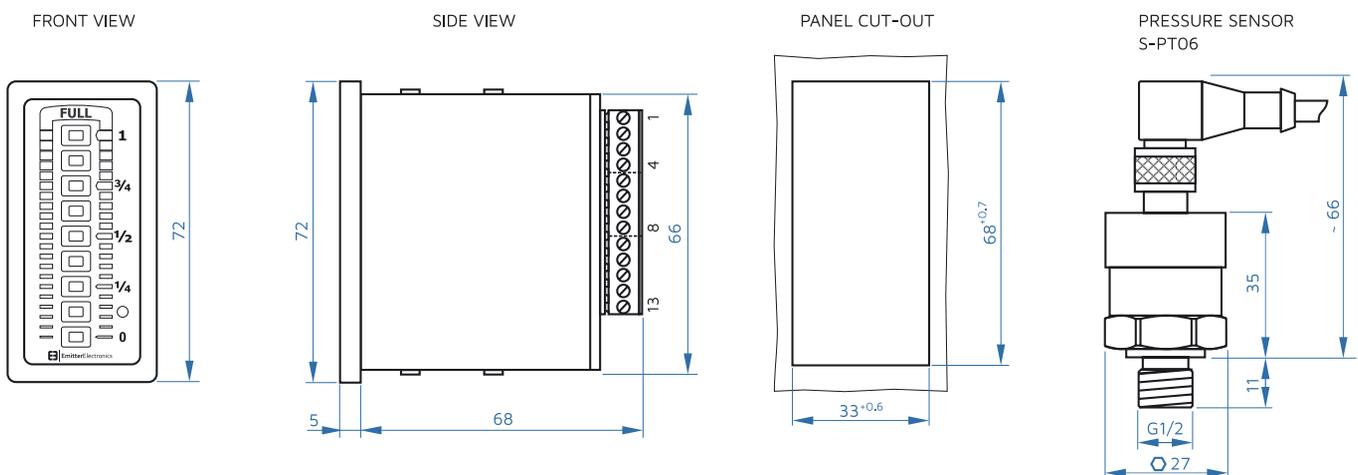## INS-08/RIS-08/TLGS-08

Features and Benefits

1 **160° Viewing Angle**

2 **I/O Driver For Low Water Warning, Autofill-Hysteresis, Mute Input, Large Light Driver, Etc.**

3 **CAN Bus Or 1 Wire Datalink**

4 **Super Bright LEDs**

5 **Dimmable-Light Sensor, Backlit**

6 **Multiple Sensor input**

INS-08 types of Tank Level Gauges are designed to display liquid's volume at an accuracy of 1/8 of the tank level using ultra-bright LEDs. The transducer measures the column of the liquid in the tank above the sensor process input and provides a signal that is proportional to the tank height. The unit standardly uses a pressure transducer with output 0.5-4.5 V by which we can detect also broken sensor cable. The sensor input is widely configurable and it can also be used for 0-10 V transducers, 4-20 mA transmitters or even resistive probe.

FRONT VIEW   SIDE VIEW   PANEL CUT-OUT   PRESSURE SENSOR S-PT06

Optional I/O driver can be integrated for low level warning output, autofill-hysteresis output, mute input, etc.

The Tank Level Gauge can be used as a stand-alone system or as a part of MMX system connected via CAN bus to IO Controller. Several slave indicators (small remote - RIS) can be connected to a master indicator INS to show the same value on different locations or in combination with a XL remote indicator (RIXL) for the vehicle sides.

Connection

Transducer-OEM

CONNECTION standard device

PIN	DESCRIPTION
1	BATTERY + ("15")
2	BATTERY -
3	OUT1 (OPTIONAL)
4	T-COMMUNICATION
5	SENSOR [V] GND
6	SENSOR [V]/[mA] SIGNAL
7	SENSOR [V]/[mA] VCC+
8	OUT2 (OPTIONAL)
9	OUT3 (OPTIONAL)
10	OUT4 (OPTIONAL)
11	OUT5 (OPTIONAL)
12	OUT6 (OPTIONAL)
13	OUT7 (OPTIONAL)

CONNECTION CAN bus device

PIN	DESCRIPTION
1	BATTERY + ("15") / SENSOR SUPPLY (OPTIONAL)
2	BATTERY - / SENSOR GND (OPTIONAL)
3	OUT1 (OPTIONAL)
4	T-COMMUNICATION / OUT3 (OPTIONAL)
5	IN1
6	SENSOR [V]/[mA] SIGNAL
7	OUT2 (OPTIONAL)
8	SENSOR [V]/[mA] VCC+ / OUT4 (OPTIONAL)
9	OUT5 (OPTIONAL)
10	SENSOR [V] GND / OUT6 (OPTIONAL)
11	OUT7 (OPTIONAL)
12	CAN L
13	CAN H

SPECIFICATION AND CONNECTION

Pressure Range	0-600 mbar (0 - 6 m tank height)
Signal Output	0.5-4.5 V
IP Class (IEC529)	IP67
Transducer Material	Stainless steel 316L
Pressure Port	1/4"
Transducer Cable	3 x 0.35 mm2 with M12 connector
M12 Connection	1:Ub, 3:GND, 4:Signal+

Specifications

POWER	
Supply Voltage	9-30 V DC
Current	0.5 A maximum, no outputs active
Electrical Protection	overvoltage, transients, reverse polarity
INTERFACES	
CAN	1 x CAN, optional
CAN termination	120 ohm, solder pad on PCB
Serial communication	1 x T (1 Wire), optional
I/O	
Sensor input	0.5-4.5 V Standardly, 0-5V, 0-10V, 4-20 mA, resistive
Digital Input	GND, only with CAN bus device
Digital Output OUT1 OUT2 OUT3-OUT7	*Only version with integrated I/O driver* positive switching (relay), max. 6 A (Low water warning) positive switching (relay), max. 1.5 A (Autofill-Hysteresis) negative switching (low-side), max. 1.8 A (large light driver)
Loads	inductive, resistive

ENVIRONMENT	
IP Class (IEC529)	front panel IP67, back IP20
EMC Conformity	EN61000-6-2 noise immunity EN61000-6-4 radiation of interference
Temperature Range	storage -40° to +85°C (-40° to 185°F) operating -40° to +85°C (-40° to 185°F)
ENCLOSURE	
Housing Material	NORYL with glass-fibre reinforcement
Mounting	in-dash, with clips or springs
Connector	Terminal block 4, 8 or 13 way depending on selected options
MISCELLANEOUS	
Indicator increments	1/8 Standardly, 1/4 Optional
Day/Night operation	automatic – integrated light sensor
Front panel	backlit, colour coded for water and foam
Detectable substances	water, fire-smothering foam, gasoline, etc
SIZE AND WEIGHT	
W x H X D	36 x 72 x 68 mm with connector
Weight	0.1 kg

How to order (use characters in **bold** to create order code)

SET of master indicator small INS, sensor PT06-U4, sensor cable   Ordering code example:

T	L	G	S	-	0	8	W	T	-	0	5	R	H	L	

| | | | | | **08** DISPLAY INCREM.1/8 **04** DISPLAY INCREM.1/4 | | **W**: WATER **F**: FOAM | **T**: 1 WIRE **C**: CAN BUS | | CABLE LENGTH, METERS (INCH) **05**: 5 M (20") **10**: 10 M (40") **15**: 15 M (60") | | OUT1 **R**: LOW LEVEL WARNING | OUT2 **H**: AUTOFILL HYST. xx/xx % **R**: ADD. OUTPUT | OUT3 - OUT7 **L**: LLD5 DRIVER 5X1.8A GND OUTPUTS | IN1 NEGATIVE **M**: MUTE OUT1 (only CAN device) |

Remote Indicator - Small   Ordering code example:

R	I	S	-	0	8	W	T	O	-	R	H	L	

| | | | | **08** DISPLAY INCREM.1/8 **04** DISPLAY INCREM.1/4 | | **W**: WATER **F**: FOAM | **T**: 1 WIRE **C**: CAN BUS | LED BRIGHTNESS **I**: INSIDE **O**: OUTSIDE | | OUT1 **R**: LOW LEVEL WARNING | OUT2 **H**: AUTOFILL HYST. xx/xx % **R**: ADD. OUTPUT | OUT3 - OUT7 **L**: LLD5 DRIVER 5X1.8A GND OUTPUTS | IN1 NEGATIVE **M**: MUTE OUT1 (only CAN device) |

Master Indicator - Small   Ordering code example:

I	N	S	-	0	8	W	T	U	4	R	H	L	M

| | | | | **08** DISPLAY INCREM.1/8 **04** DISPLAY INCREM.1/4 | | **W**: WATER **F**: FOAM | **T**: 1 WIRE **C**: CAN BUS | SENSOR INPUT / PROBE **U4**: 0,5-4,5V **U1**: 0-10 V **I2**: 4-20 MA | | OUT1 **R**: LOW LEVEL WARNING | OUT2 **H**: AUTOFILL HYST. xx/xx % **R**: ADD. OUTPUT | OUT3 - OUT7 **L**: LLD5 DRIVER 5X1.8A GND OUTPUTS | IN1 NEGATIVE **M**: MUTE OUT1 (only CAN device) |