



LS Range Liquid Level Sensors

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Sensor Output

Analog	0 – 5VDC (configurable) (0.25V – 4.75V standard configuration)
CAN	2.0A with 11bit identifier with configurable base ID – Protocol available on request
Low Level Alarm (Switched)	Instantaneous Max Voltage: 55V Maximum Current Sink: 500mA Time Period: Indicator to be asserted when the average liquid level has been below set threshold for 1.5sec
Output resolution	10bit
Sample rate	100Hz
Accuracy	±1% of full scale @20°C ±0.5% of full scale @20°C (option)
Analog Error Conditions	0.1V Programmable
CAN Error Conditions	See CAN Protocol

Electrical

Supply Voltage	+6VDC – 30VDC 5VDC +/- 0.1VDC Unregulated – Ratiometric (option)
Supply Current	<20mA Nominal @ 12VDC
Reverse Polarity Protection	-40VDC
Serial Interface	5V CMOS Logic Levels FTDI TTL-232R

Mechanical Details & Calibration

Probe length	80 – 700mm (customer-specified)
Mounting options	1 bolt, 2 bolt, 3 bolt, 5 bolt SAE and AN-8 Threaded
Sealing	Radial O-ring / Dowty seal
Fluid Compatibility	All common fuels, oils, coolants, water and blends. Consult Reventec engineers for specific fluid compatibility
Fluid Calibration	Fluid specific, on board storage of multiple fluids available
Dry Calibration	Up to 10 point calibration across temperature
Dielectric compensation	Up to 10 point calibration across temperature Volatile liquids @ Nominal 20°C Non-volatile liquids @ 20°C - 150°C interpolated between 5 points Extended calibration available on request

Environmental

Operating Temperature	-40°C to +125°C -40°C to +150°C (option)
Ingress Protection	IP67
Pressure	2 bar 10 bar (option)

Wiring Designation

Wire Colour	Pinout	Analogue 0-5V	Analogue & Low Level Alarm	CAN & Analogue 0-5V
● Red	Pin 1	Power (6-30VDC)	Power (6-30VDC)	Power (6-30VDC)
● Black	Pin 2	Ground	Ground	Ground
● Yellow	Pin 3	Analogue Output 0-5V	Analogue Output 0-5V	Analogue Output 0-5V
○ White	Pin 4	Tx Comms	Tx Comms	Tx Comms
● Green	Pin 5	Rx Comms	Rx Comms	Rx Comms
● Blue	Pin 6	-	Low Level Alarm	CAN High
● Purple	Pin 7	-	-	CAN Low

CAN Protocol

The specification of the CAN bus interface is:

- 2.0A
- Fixed 1.0 Mbps baud rate
- Transmit only
- Standard (11 bit) identifier only
- Transmit rate (packets/sec) and ID are configurable
- No termination resistor is included

Byte	0	1	2	3	4	5
Meaning	Level		Internal Temperature		External Temperature	

Each value is an unsigned 16 bit integer and is sent most significant byte first.

Level

The measured liquid level. An arbitrary straight line may be used to map between measured level (ie. the voltage level sent to the DAC) and the range of values sent via the CAN bus interface - so, for example, the DAC can output 0.25 to 4.75V over the working range of levels, while the CAN interface simultaneously reports values from 0 to 100.

Internal temperature

The temperature measured by the internal temperature sensor.

External temperature

The temperature measured by the external PT sensor, provided that sensor is enabled and working. If the external temperature is not available, the reason is indicated as follows:

- 0xFFFF = external sensor not enabled
- 0x8001 = open circuit failure
- 0x8002 = short circuit failure

An extended CAN template that includes sensor status information is available on request.