

ABB MEASUREMENT & ANALYTICS | DATA SHEET

LevelMaster

Level sensor



Introduction

The Totalflow LevelMaster uses a patented multilayer transformer technology to provide high precision liquid level measurements.

In service at thousands of production and gathering sites, Totalflow's digital level sensors can be used to:

- Prevent spills & detect leaks
- Manage production inventories
- Ensure accurate custody transfer
- Generate Run-Tickets automatically
- Automate pumps & disposal systems
- Schedule haul-off trucks
- Minimize time on tanks

Floats are available for measuring oil, water and emulsion levels up to 25 feet in depth with a relative accuracy of 0.1 inch. The floats can be installed to measure only the top surface level (single float) or both surface and interface levels (dual floats). In addition to level measurement, an RTD measures the liquid temperature at the load line.

Data from the level sensors can be accessed locally, near the tank, or remotely via wired or wireless networking.

In-field interfaces and software options

- Push-to-Read display near the tank in a Totalflow XSeries
- MasterLink software on PC connected directly to the LevelMaster sensor
- PCCU software on PC connected to Totalflow XSeries

Remote interface software options

- WinCCU software on a PC connected to an XSeries or LMC7100 device
- TF.NET software on a PC in a web browser for multiple client access to level data
- SCADAventure software on a PC for multiple client access to dashboard views for comprehensive tank management
- Automated Voice Alarm System calls you when an alarm sets

Communications options

- RS-485 port with open ASCII protocol
- Licensed and spread spectrum radio
- Microwave and leased lines
- Cellular and cellular digital packet data
- LAN/WAN and satellite

Automation

Powerful and highly adaptable level measurement applications can be configured in PCCU and deployed on Totalflow XSeries flow computers for standalone operation. These applications can measure inputs, compute control logic and drive output channels to automate the management of liquids at a tank battery. SCADAventure can gather data from multiple tank batteries and automate business processes for optimal production and disposal of liquids for your enterprise.

Features

- High-precision level measurement
- Both surface and interface level sensing
- Customizable alarms & reports
- Ultra low power consumption
- Highly adaptable data collection and automation capabilities
- Works with your existing Totalflow computers and RTUs
- Simple one-time installation & calibration (set it and forget it)
- Same, familiar trending tool as other Totalflow applications
- Meets or exceeds requirements for Federal Bureau of Land Management (BLM)
- Optional high level switch for failsafe shutdown
- Dynamic temperature correction during transfer

Specifications

Measurement	
Length (depth)	2-25 feet (0.6 to 7.6 meters) in 1 foot (0.31 meters) increments
Relative level accuracy	Standard: ± 0.1 inches (2.5 mm) High: ± 0.05 inches (1.25 mm)
Level resolution	± 0.01 inches (0.25 mm)
Level repeatability	± 0.05 inches (1.25 mm)
Temperature sensor accuracy	$\pm 1.8^\circ$ F (1.0° C)
Temperature sensor range	0° F to 185° F (-17.7° C to 85° C)
Pressure	Single or dual floats: Non-pressurized tanks Single float: Up to 200 psig (standard) - (higher pressure on request)

Materials and dimensions	
Casing material	Fiberglass or stainless steel (pressurized tanks)
Casing outer diameter	1.95 inches (48.5 mm)
Float material	PPS material with Nitrophenyl Gravity of the oil
Float outer diameter	3.17 inches (80.5 mm) (2.83 inch single float on request)
Reducer bushing and compression fitting	Fits standard 3 and 4 inch (10.16 mm) tank port
Temperature sensor location	12 inches (300 mm) from bottom

Power	
Supply voltage	9-15.5 V DC
Current	40 mA transmitting; 1 mA standby
Power cycling	Available for optimal power management

Environmental/Safety	
Operating temperature	Non-submerged: -20° F to 185° F (-29° C to +85° C) Submerged, single float: 26° F to 185° F (-3° C to +85° C) Submerged, dual floats: 26° F to 140° F (-3° C to +60° C)
CSA approved for intrinsically safe operation	Class I, Div 1, Group D: 4 level sensors max / barrier Class I, Div 1, Group C & D: 3 level sensors max / barrier

Communications	
Output	Standard digital serial half duplex RS485, ASCII protocol
Speed	1200 or 9600 bps

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