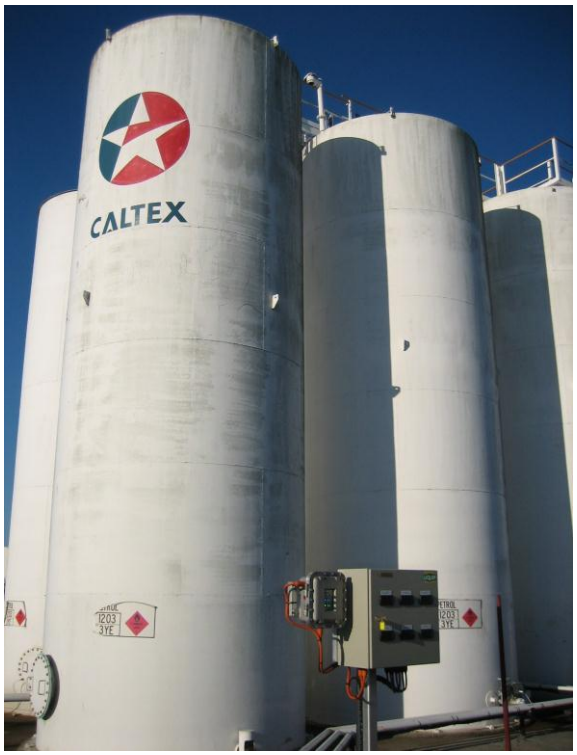
SEMRAD ...*the level control company*

Fuel Monitoring and Automatic Tank Gauge

Diesel Mate - DM-M10-6

Semrad's Fuel Monitoring and Automatic Tank Gauging systems are second to none. Our systems have been deployed in several large scale operations for 'blue-chip' companies throughout Australia, where they have performed flawlessly.



The Semrad Fuel Monitoring System

Fuel is an integral part of today's society, and as such, it is one of the most expensive commodities any operation will incur. Whether it be keeping emergency generators ready to kick in or fuelling heavy duty Earth moving equipment in mining operations, fuel is one of the most important resources in your inventory that you need to keep track of.

Semrad has recognised the importance of monitoring your fuels so we have developed a system that allows your fuel levels to be automatically measured, and the usage rates to be calculated. This information may then be transmitted in real-time to local indicators or through a secure internet connection (WiFi, Ethernet or 3G), allowing changes in inventory to be monitored by the people who need to know.

Features;

- Accurate sensors detect fuel levels in tanks.
- Up to 6 tanks may be monitored per unit.
- Fuel levels can be viewed locally or wirelessly transmitted to the intranet/internet.
- Accessible through a secure web browser.
- Data can be imported to existing inventory management programs such as Microsoft Excel or Access.
- Graphical representation of historical data.

Benefits;

- Improved delivery scheduling.
- Optimised fuel management.
- Eliminates the need for manual measurements.
- Accurate, real-time data can be accessed by anyone with the correct passwords.
- Plan refills more effectively.
- Avoid costly breakdowns caused by a lack of fuel.

How it Works;

1. A suitable level sensor for your application is installed on the fuel storage tank.
2. Fuel levels are sent in real-time to local, easy to read indicators.
3. Data is transmitted to a central database where it is processed and can then be accessed from a secure web browser.
4. Information can be imported to existing inventory management systems such as Microsoft Excel or Access.

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Semrad's guided microwave level transmitter is designed for continuous level measuring of conductive or non-conductive liquids. The guided microwave sends an E.M. pulse along the probe, which is reflected back after it hits a boundary, such as the fuel inside your storage tank. Our guided microwave level transmitter comes with IEC certification, Ex models and provides reliable and accurate measurements (± 5mm) at an attractive price.

Features;

- Measuring range up to 24m.
- Accuracy: ± 5mm.
- Measurement is independent of dielectric constant, temperature, pressure and density.
- Rod, cable and coaxial cable.
- Minimum εr >= 1,4.
- 2 wire version.
- Graphic Display.
- 4-20mA and HART output.
- Medium temperature range; -30 to +200°C.
- Max process pressure 40 bar.

Benefits

- High accuracy.
- Multiple probes to suit any application.
- Measurements unaffected by the medium or changes to the mediums properties such as temperature, pressure or dielectric constant.

TECHNICAL DATA

General Data		
Input data	Measured values	Distance, level, volume
	Measuring range	Depends on the probe type and dielectric constant of the measured medium
Probe types		Coaxial, twin cable, mono cable, twin rod and mono rod
Housing		Aluminium cast with epoxy paint or plastic
Medium temperature		-30 °C...+200 °C, (Ex), other temp ranges for non-Ex versions on request Flange temperature: -30 °C...+90 °C, for H or P high temp versions +200 °C
Medium pressure		- 0.1...1.6 MPa (- 1...16 bar); maximum allowed pressure on 20°C, with 1.4571 (stainless steel) flange 4 Mpa (40 bar)
Ambient temperature		-30 °C...+60 °C, with display: -20 °C... +60 °C
Sealing		FPM (Viton®), for high temp versions optional Perfluoroelastomer (Kalrez® 6375), EPDM
Ingress protection		IP 65
Power supply		18...35 V DC, protected against surge transients
Output data	Output signals	Analogue: 4...20 mA, (3.9...20.5 mA) passive output, error indication: 22 mA
		Digital: HART® interface, terminal resistor maximum 250 ohm
		Display: SAP-300 LCD dot-matrix
	Accuracy *	For liquids: ± 5 mm, if probe length L ≥ 10 m: ± 0.05 % of the probe length
		For solids: ± 20 mm, if probe length L ≥ 10m: ± 0.2 % of the probe length
	Resolution	± 3 µA
Electrical connection		2 x M20x1.5 metal cable gland (Ex version), cable diameter: 7...13 mm, or M20x1.5 plastic cable gland, cable diameter: 6...12 mm wire diameter: 0.5...1.5 mm² (shielded cable suggested) + 2 x NPT 1/2"
Electrical protection		Class III.
Mass (housing)		1.5 kg

* under ideal reflecting surface and constant temperature conditions

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The ORB™ is a controller that connects to process instrumentation via serial and 4-20 dedicated interfaces. The ORB™ contains a database and integrated web server. It becomes a gateway between process instruments and the Internet. The ORB™ web pages can be accessed using any browser from any device that has Internet connectivity

Features and benefits;

Remote Inventory Management
- Access inventory information and stored data remotely.
- Manage multiple sites with multiple vessels.
- Manage inventory via the internet.
- Set automatic notifications/alarms to be sent via email.

Increase Supply Chain Visibility
- Automate re-order process with suppliers.
- Grant permissions to remote supplier communication.
- Improve efficiencies with real-time accessibility to fuel levels.

Improve Data Management
- Integrate or import to the ERP system.
- Store historical data.
- Run reports for tracking trends of other statistical measures.

Reduce Local Site Maintenance
- Store and replicate calibration settings for all vessels remotely.
- Remote instrument maintenance.
- Eliminate routine and manual fuel level reporting.

Specifications;

Types of data;
- Material, level and weight; any process variable available as 4-20mA.
- Historical data.
- Alarm conditions.
- Logs of user access and configuration changes.

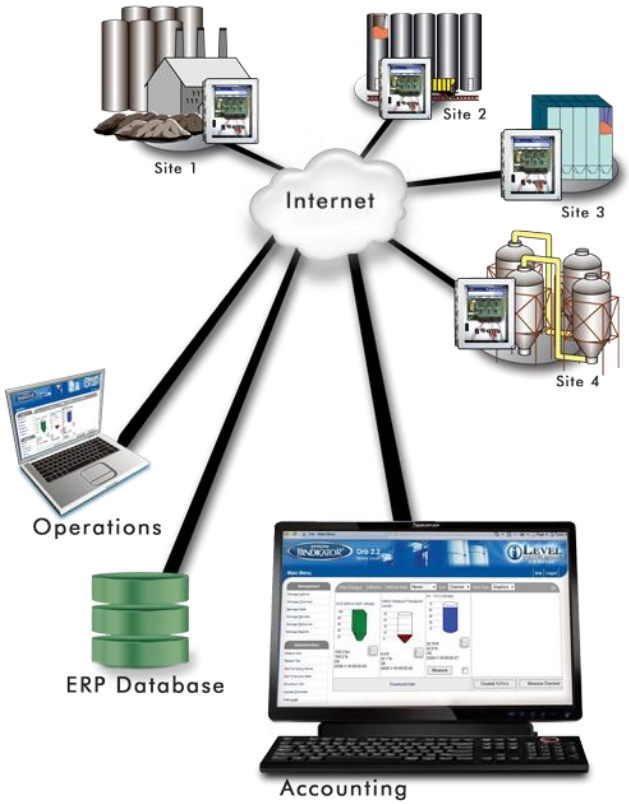
Communication Ports;
- 1 Ethernet TCP/IP (RJ45).
- 1 Modem (RJ11) (Optional).
- 3 RS-422/485/232C.

Power Supply Requirements;
- 90 AC – 254 VAC, 40 watts.

Operating Temperature;
- -30 to 52°C.
- Humidity, 0 to 100% non-condensing.

Enclosure;
- NEMA-4X, Fiberglass reinforced plastic.

Dimensions;
- 130.2mm H. x 215.9mm W. x 165.1mm D.
- 2.95kg.



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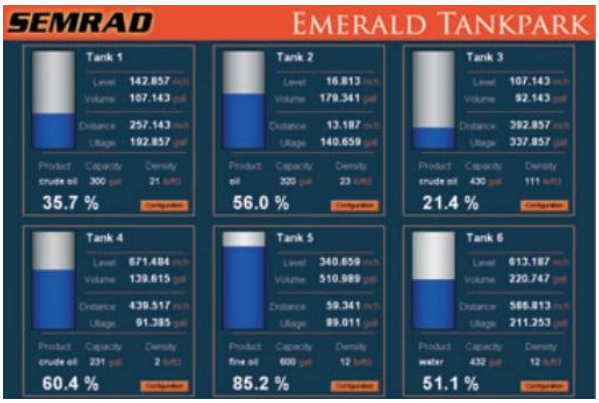
Semrad makes viewing your data easier than ever! We provide a display cabinet with 6 digit, dual-line displays to allow quick and easy on-site level management. We also provide a sophisticated software package that allows you to monitor your usage rates, tank levels and alarm limits, all remotely accessible from the LAN or a secure internet connection.

Local Display Features;

- NEMA 4X, IP65 enclosure.
- Universal 85-265 VAC or 12/24 VDC input power.
- Sunlight readable display models.
- Local displays show data in either volume/ullage in litres or m^3
- Maths functions for flow and round horizontal tanks.
- Programmable display keys
- 32-point square root, or exponential linearization.
- 2 or 4 relays + isolated 4-20mA output options.
- External 4-relay & digital I/O expansion modules.
- RS-232, RS-422/485 serial



NIVISION Remote Software

Remote Software Features;

- Tank configuration
- Transmitter configuration
- Tankpark visualisation
- Displaying of measured values
- Displaying of limit values
- Trend monitoring
- Data logging
- Database handling
- Archiving
- Other log functions (alarms)
- Remote connection (LAN or Internet)

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