

GAUGING & SYSTEMS

LDF DIGITAL MAGNETOSTRICTIVE PROBE

AT A GLANCE

APPLICATIONS

The LDF Magnetostrictive probe provides precise level measurement for large storage tanks up to 60ft (18M) high. The probe's flexible one piece construction ensures that installation on a tank is time efficient and often eliminates the need to empty the tank. The LDF probe is most suitable for applications involving clean and finished products such as jet fuel, propane and diesel at refineries, tank farms, gas storage facilities and terminals.

The LDF probe provides highly accurate continuous readings of:

- **Level**
- **Product interface (i.e BSW)**
- **Multi-spot temperature**

COMMUNICATIONS

Outputs from the probe are communicated via a 4-wire multi-drop power and data bus (EIA-485), eliminating the requirement for individual cable runs from each tank. All versions are intrinsically safe, when connected to approved safety barriers, for installation in hazardous areas.

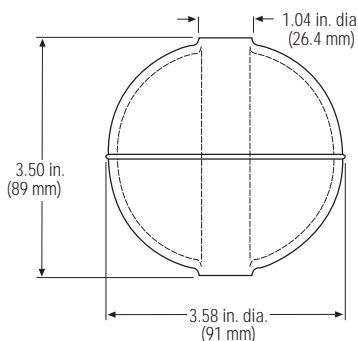
MATERIAL CONSTRUCTION

Using resilient lightweight materials, all wetted parts are constructed from of stainless steel as standard. The electronics housing is manufactured from a chemical resistant epoxy painted aluminium enclosure.

FLOATS

Illustrated below is the standard float used with the Level Plus probe. A wide selection of other floats are available for such considerations as:

- **Material of construction**
- **Corrosion resistance**
- **Measuring interface level**
- **Density of product or interface liquid**



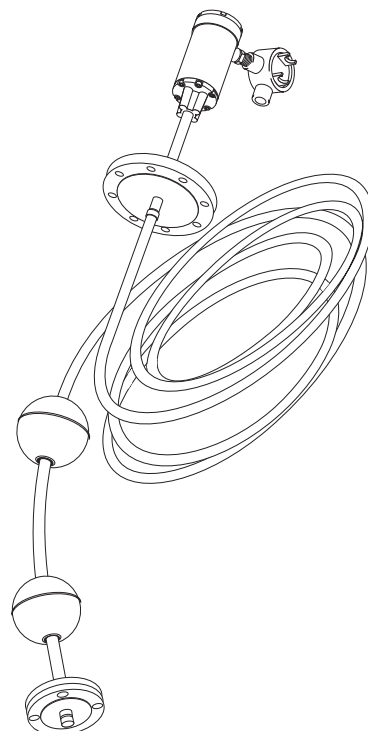
INSTALLATION

The LDF probe can be easily mounted through a top opening in a tank by means of a flange or plug. As standard the probe is supplied complete with 1" NPT compression fitting.

MAINTENANCE

The LDF probe utilises non-contacting magnetostrictive technology with the only moving parts being the float. This simple design ensures that any scheduled maintenance will be minimised.

- **3 MEASUREMENTS IN 1 PROBE**
Level, temperature and BSW
Measures all the necessary parameters for advanced inventory management
- **HIGH ACCURACY**
Provides improved inventory management with an accuracy that exceeds American Petroleum Institute (API) accuracy recommendations
- **FLEXIBLE PROBE SUITABLE FOR TANKS UP TO 60 FT (18M) HIGH**
Suitable for most vessel applications
- **DIGITAL EIA-485 (DDA PROTOCOL) COMMUNICATION**
Supports up to 20 probes on a single bus
Provides reduced installation & wiring costs





ANCILLARY EQUIPMENT

In order to ensure seamless system integration of the LDF probe, we are able to offer a range of field interface units and monitoring systems to suit most applications including the ability to interface with other manufacturers' equipment and systems.

PRODUCT ORDER CODES

LDF, FLEXIBLE MAGNETOSTRICTIVE PROBE

CODE	UNITS OF MEASUREMENT
1	Inches
2	Millimeters
CODE	GAUGE LENGTH
XXXX	Range: 120 to 720 inches (305 to 1829 cm), encode as 0120 to 0720 (0305 to 1829) 4-digit code represents measurement from tank flange to tank bottom plus 12 inches (30 cm)
CODE	NUMBER OF RTD'S
1	1 RTD, always located 4 inches from tip of gauge
5	5 RTDs, equal spacing
6	5 RTDs, located per customer specifications (specify on Application)
CODE	OUTER PIPE MATERIAL
2	316L Stainless Steel
CODE	ANCHORING OPTION
1	Magnet
2	Weight
CODE	ENGINEERED FEATURES
1	Standard, no engineered features
2	Custom engineering required (specify on Application)

LDF **A B C D E F**

When ordering or requesting a quotation from Whessoe Varec, choose options from suffixes to complete the order code. Please refer to separate data sheet for specific, non-standard float options.

LEVEL OUTPUT

Measured Variables:

Product level and BS&W level

Level Range:

10 to 60 ft. (3 to 18.3 m)

Level Accuracy:

0.005% F.S. or 0.020 in. (0.508 mm)

Level Hysteresis:

0.002% F.S. or 0.015 in. (0.381 mm)

Level Repeatability:

0.001 % F.S. or 0.005 in. (0.127 mm)

Level Resolution:

Up to ± 0.001 in. (0.025 mm)

TEMPERATURE OUTPUT

Measured Variable:

Averaging and multipoint temperature (up to 5 RTDs).

Temperature Range:

-30 to 160°F (-34 to 71°C)

Temperature Accuracy:

$\pm 0.5^\circ\text{F}$ ($\pm 1.0^\circ\text{C}$)

Temperature Resolution:

Up to $\pm 0.02^\circ\text{F}$ ($\pm 0.04^\circ\text{C}$)

ELECTRONICS

Input Voltage Range:

24 to 26 Vdc at safety barrier input

Reverse Polarity Protection:

Internal series diodes

Safety Approval:

FMRC and CSA Intrinsic Safety for Class I, II, III, Division 1, Groups C, D, E, F, G hazardous areas

CALIBRATION

Zero Adjust Range:

Software selectable along entire active gauge length.
No field adjust required

ENVIRONMENTAL

Enclosure:

O-ring sealed for outdoor use (NEMA 4)

Humidity:

0 to 100% R.H.

Operating Temperature:

Electronics: -40 to 149°F (-40 to 65°C)
Waveguide: -30 to 160°F (-34 to 71°C)

Vessel Pressure:

1.896 MPa maximum (275 PSIG)

Materials

Wetted: 316L stainless steel
Non-wetted: Epoxy painted aluminium

FIELD INSTALLATION

Length :

10-60 ft (3-18.3 m) excluding housing

Electronics housing:

3.75 in. (95.25 mm) diameter
x 8.56 in. (217.42 mm) long.

Condulet housing:

approximately 5 in. (127 mm) diameter

Tank Mounting:

1 in. NPT adjustable fitting

Wiring:

4 wire connections of shielded cable to screw terminals
through a 3/4 in. NPT conduit opening in condulet housing

UNITED KINGDOM

PHONE: (44) 1325 301 100

FAX: (44) 1325 300 840

USA

PHONE: (1) 714 761 1300

FAX: (1) 714 952 2701

FRANCE

PHONE: (33) 1 34 38 87 97

FAX: (33) 1 34 38 87 90

SINGAPORE

PHONE: (65) 533 8809

FAX: (65) 533 2485

JAPAN - SAKURA ENDRESS

PHONE: (81) 422 54 06 11

FAX: (81) 422 55 02 75

AGENT -

PHONE:

FAX:

WHESSOE VAREC

A member of the Endress+Hauser Group

Whessoe Varec are BS EN ISO 9001 Approved.
The company reserves the right to change the specification or design without prior notice.
The Magnetostriuctive Probe is manufactured by MTS Systems Corporation.
Visit Whessoe Varec's internet site at <http://www.whessoevarec.com>

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