

GAUGING & SYSTEMS

DDA DIGITAL MAGNETOSTRICTIVE PROBE

AT A GLANCE

APPLICATIONS

The DDA Magnetostrictive probe offers both a precise and cost effective method for product measurement in various storage vessels up to 25 ft (7.6M) high. The DDA 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 DDA 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.

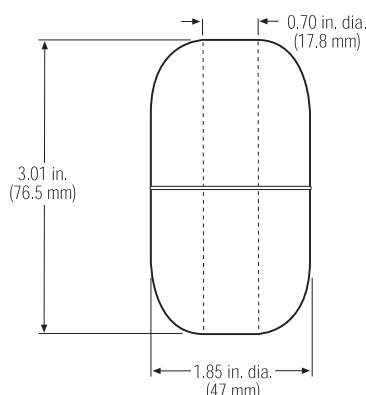
MATERIAL CONSTRUCTION

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. The MSP probe is available with special material options such as Hastelloy, Monel and Teflon for aggressive products and extreme tank environments.

FLOATS

Illustrated below is the standard float used with the DDA 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

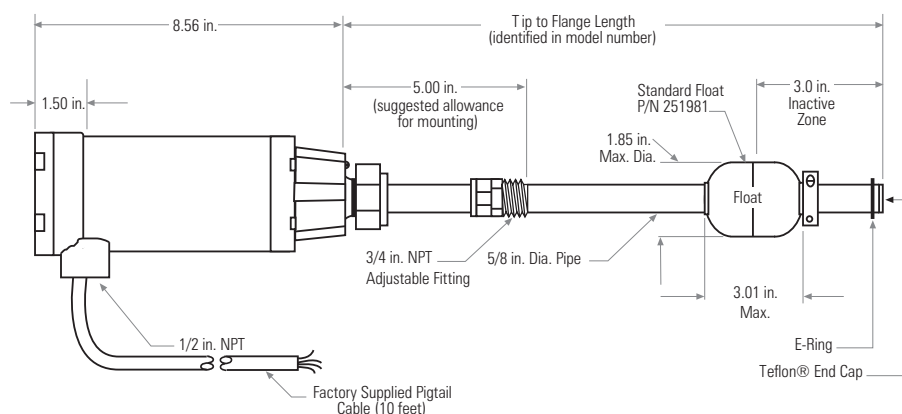
The DDA probe can be easily mounted through a top opening in a tank by means of a flange or plug. As standard the probe is supplied complete with 3/4" NPT compression fitting.

MAINTENANCE

The DDA 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
- **PROBE SUITABLE FOR TANKS UP TO 25 FT (7.6M) HIGH**
Suitable for small/horizontal vessel applications
- **DIGITAL EIA-485 (DDA PROTOCOL) COMMUNICATION SUPPORTS UP TO 20 PROBES ON A SINGLE BUS**
Provides reduced installation & wiring costs





PRODUCT ORDER CODES

D8 & D9, RIGID MAGNETOSTRICTIVE PROBES

CODE A	DEVICE TYPE						
8	Intrinsically safe (-30 to 160°F, -34 to 71°C)						
9	Intrinsically safe (-30 to 300°F, -34 to 149°C)						
CODE B	UNITS OF MEASUREMENT						
1	Inches						
2	Millimeters						
CODE C	GAUGE LENGTH						
XXXX	Length equals vessel height plus 5 inches (127 mm) for mounting purposes Standard Range: 24.0 to 300.0 in. (610 to 7620 mm), encode as 0240 to 3000 (0610 to 7620)						
Standard lengths:							
Length	Code	Length	Code	Length	Code	Length	Code
24 in. = 0240		610 mm = 0610		168 in. = 1680		4267 mm = 4267	
36 in. = 0360		914 mm = 0914		180 in. = 1800		4572 mm = 4572	
48 in. = 0480		1219 mm = 1219		192 in. = 1920		4877 mm = 4877	
60 in. = 0600		1524 mm = 1524		204 in. = 2040		5182 mm = 5182	
72 in. = 0720		1829 mm = 1829		216 in. = 2160		5486 mm = 5486	
84 in. = 0840		2134 mm = 2134		228 in. = 2280		5791 mm = 5791	
96 in. = 0960		2438 mm = 2438		240 in. = 2400		6096 mm = 6096	
108 in. = 1080		2743 mm = 2743		252 in. = 2520		6401 mm = 6401	
120 in. = 1200		3048 mm = 3048		264 in. = 2640		6706 mm = 6706	
132 in. = 1320		3353 mm = 3353		276 in. = 2760		7010 mm = 7010	
144 in. = 1440		3658 mm = 3658		288 in. = 2880		7315 mm = 7315	
156 in. = 1560		3962 mm = 3962		300 in. = 3000		7620 mm = 7620	
NOTE: Tank gauges not ordered in the above standard lengths will be treated as custom orders and subject to additional cost and lead time.							
CODE D	NUMBER OF RTD'S						
0	No temperature output						
1	1 RTD (located at 8 in. [203 mm] from tip of gauge)						
5	5 RTDs (equal spacing with temperature averaging)						
CODE E	MOUNTING						
6	3/4 in. NPT Adjustable Fitting						
CODE F	ROD MATERIAL						
2	316L Stainless Steel						
4	Teflon (15 PSI [0.103 Mpa], -30 to 100 °F [-34 to 38 °C])						
NOTE: Contact Whessoe Varec for availability of other materials.							

D **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 interface level

Level Range:

2 to 25 ft. (610 mm to 7.6 m)

Level Accuracy:

0.025% of F.S. or 0.03 in. 90.794 mm)

Level Hysteresis:

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

Level Repeatability:

0.001% of F.S. or 0.001 in. (0.025 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:

D8: -30 to 160°F (-34 to 71°C)

D9: -30 to 300°F (-34 to 149°C)

Temperature Accuracy:

± 0.5°F (± 0.28°C)

Temperature Resolution:

Up to ± 0.02°F (± 0.01°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 approval 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)

D8: -30 to 160°F (-34 to 71°C),

D9: -30 to 300°F (-34 to 149°C)

< 0.001% per °C (0.0005% per °F)

Vessel Pressure:

1.896 MPa maximum (275 PSIG)

Materials

Wetted: Standard - 316L stainless steel,
Optional - Hastelloy, Teflon, Monel

Non-wetted: Epoxy painted aluminium

FIELD INSTALLATION

Length :

2 to 25 ft. (610 mm to 7.6 m) excluding housing

Electronics housing:

3.75 in. (95.3 mm) diameter x 8.6 in. (218.4 mm) long

Tank Mounting:

3/4 in. NPT adjustable fitting

2 1/2 in. (63.5 mm) sanitary fitting available as option

Wiring:

4 wire connections of shielded cable to factory provided pigtail cable (10 ft.) through 1/2 in. NPT conduit opening

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 Magnetostrictive Probe is manufactured by MTS Systems Corporation.
Visit Whessoe Varec's internet site at <http://www.whessoevarec.com>