

The magnetostrictive Level Sensors



M-Series USTD II For Filling Stations







- Continous absolute level gauging
- \blacksquare Gauge order length 740 mm to 3800 mm (29 in. to 149 in.) in various length
- \blacksquare Only one probe for temperature, product and water levels
- Output: EIA RS 485 Interface
- 2-wire multidrop network
- Non-linearity 0,025%
- Repeatability 0,001%
- \blacksquare Intrinsically safe
- \blacksquare ATEX safety approvals for zones 0 and 1
- No recalibration needed







Product level, Interface level, temperature and volume shall be measured continuously, highly accurate and administrated. The best to do with LEVEL PLUS-USTDII, the precise, robust and pioneering tank gauge of MTS for gas stations.

At the same time it can measure the level of product and interface via two floats and, in addition, determine with 5 integrated digital thermometers the individual and avarage temperature of the thermometers submerged in the liquid. This serves in connection with a control unit to achieve exact calculations of value or mass in filling stations. For remote data transfer to the tank management system, the well-known digital RS 485-Interface is used.

- Easy to install
- No handling with fuel dip stick
- Measures product- and water level
- Continuous temperature control via 5 DT
- Absolute high-precision measurements
- No recalibration
- Replacement without tank opening

... only 3 safety barriers **per gas station**



M-Series USTD II

LEVEL PLUS gauges are based on the magnetostrictive measuring technology, which is successfully used for more than 28 years at MTS.

Magnetostriction is a combination of magnetic (non contact) and ultrasonic effects (speed control).

According to MTS know-how, two magnetic fields interact, and a torsional strain pulse on the sensor element results. The running time of the the pulse is used to determine the level measurement with a high degree of accuracy and reliability.

All LEVEL PLUS Tank Gauge systems base on this principle, which ensures a really innovative and promissing measuring system for continous level measurement.



Floats Illustrated at right are the standard floats for gas stations.

Materials / Mechanics	
Sensorhead	Stainless steel 1.4301
Sealing	IP 67; NEMA 6
Sensor outer pipe	Stainless steel 1.4404
Mounting	NPT fitting, flange
Float styles	Gas station: Stainless steel 1.4571
Connection	5-Pin connector, female M12 with
	5 m pigtail, extra charge
Pressure rating	Up to 4 bar on stainless steel float
	Option: higher pressure floats on request
Safety approval	EC-Type-Examination Certificate
	II 1/2G bzw. II 2G
	EEx ia IIB T4 bzw. EEx ia IIA T4
	PTB 04 ATEX 2107 X
Measuring parameters / Electronics	
Measured variable	Product level, Interface level, temperature
Gauge length	740 to 3800 mm
Non-Linearity	≤ 0,025 % F.S. or 0,8 mm
	(whichever is greater)
Repeatablity	± 0,001% F.S. or 0,127 mm
Temperature measurement	5 pcs DT for individual or avarage
	temperature, programmable.
- measuring range	-40°+70°C
- repeatability	0,28°C
Output format	Digital RS 485-Interface
Input voltage	8-28 Vdc into Sensor
Current consumption	max. 10 mA
Temperature requirements	
Storage temperature	-40°+80°C
Uperating temperature	-40°+80°C (Sensorhead)
	-40°+70°C (Sensorpipe)

Interface float Gasoline/Diesel; Water **Type 201 606-2**



Product float (Gasoline, Diesel) **Type 201 605-2**



Sensor Design

All LEVEL PLUS gauges, based on the non-contacting magnetostrictive technology, only have one moving part - the float. this simple design ensure no sheduled maintanance or recalibration will be required - ever.

The absolute measured level reading is also after a breakdown immediately thereafter available. The gauge is composed of three parts: The sensor rod with the integral sensing element for levels up to 3,8 mm and 5 DT for temperature measurements. The sensor head, a stainless steel housing with the sensor electronic and the float with a built-in magnet on the gauge pipe. Choosing the suitable second float, an additional measurement of the interface level is possible.



Use a 2 mm inbus-key and turn the 2 screws clockwise into the housing-sokket. Remove the housing carefully.

Push the housing carefully over the flange with O-Ring. Position the holes in line with the screws. Turn the screws anticlockwise until they are in line with the outer surface of the housing

Ordering Guide

LEVEL PLUS-USTD II

Unit of measure

M - Millimeter (xxxx mm) U - Inch (oxxx")

Gauge order length

From 740 to 3800 mm (49 in. to 149 in.)

Mounting

- 6 3/4" / NPT adjustable fitting. others e.g. 1"/1.5"/2" NPT or corresponding metric fitting (add. price)
- 8 DIN- or ANSI-flange resp. welded fitting (add. price)
- H Fill tube mounting (hänger w. centering disk) Category 2-apparatus
- 7 5 m pigtail (blue), PG-fitting with strain-relief
- 9 5-pin plug, male contacts M12

Floats

- 1. Product float:
- 2. Interface float:
- 3. Other floats:

Typ 201605-2 (Gasoline, Diesel) Typ 201606-2 (Gasoline/Diesel, Water)

Upon request



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