

M100 Head Mount Transmitter for pH/ORP, pH/pNa, Oxygen and Conductivity

Small Footprint Installation for Hazardous Areas

Technical Data



Short description

The M100 is a 2-wire head mount transmitter for analytical measurements with HART communication capability. The M100 is a single-channel, multi-parameter transmitter compatible with ISM sensors for measuring pH/ORP, pH/pNa, Oxygen and Conductivity. Thanks to its compact head mount design the M100 head mount transmitter requires only a small footprint in the plant. With its explosion proof/flameproof enclosure and intrinsically safe electronics the M100 transmitter offers the most versatile measurement solution for both hazardous and non-hazardous area installation. Featuring ISM functionality the M100 transmitter greatly reduces maintenance efforts, resulting in significant cost savings.

Features

- IECEx/ATEX/NEPSI/CSA
- Advanced ISM functionalities
- HART® communication as standard
- Multi-parameter transmitter
- Sensor diagnostics DLI, ACT and TTM via HART
- Analog input signal 4 to 20 mA (for pressure compensation)
- IP66/NEMA 4X rated
- Digital input (Hold)

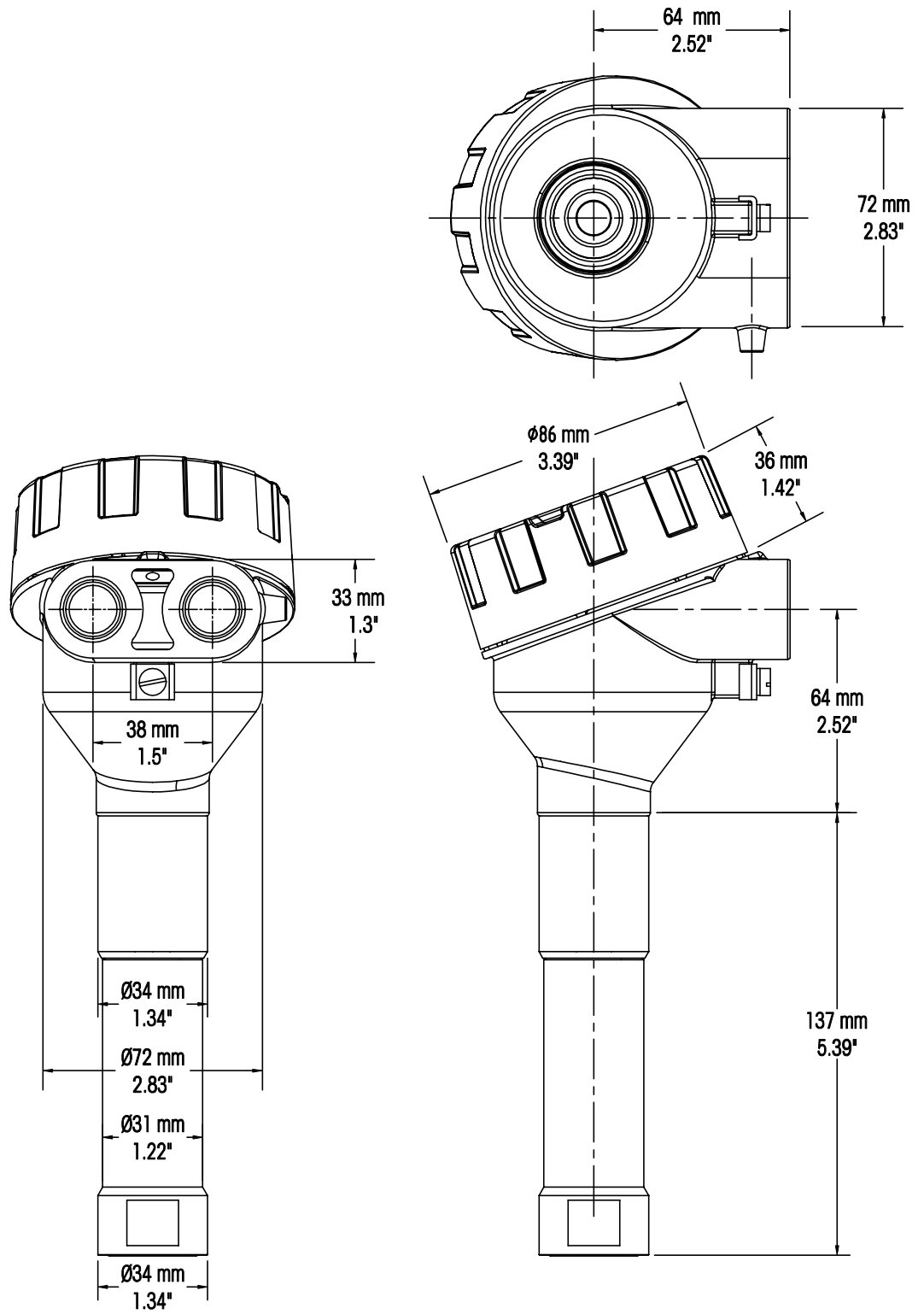


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METTLER TOLEDO

Dimension drawings



Specifications

M100 head mount transmitter

pH/ORP (incl. pH/pNa)

Measurement parameters	pH, mV and temperature
pH measuring range	-2.00 to +20.00 pH
ORP input range	-1500 to +1500 mV
Temperature measuring range	-30 to 130 °C (-22 to 266 °F)
Calibration	<ul style="list-style-type: none">• Configuration tool: Process• iSense software: 1-point and 2-point

Amperometric oxygen

Measurement parameters	Dissolved oxygen: Saturation or concentration and temperature
Oxygen measuring ranges	<ul style="list-style-type: none">• Saturation: 0 to 500% air, 0 to 200% O₂• Concentration: 0 ppb (µg/L) to 50.00 ppm (mg/L)
Polarization voltage	-550 mV or -674 mV (configurable)
Temperature input	NTC 22 kΩ, Pt1000, Pt100
Temperature compensation	Automatic
Temperature measuring range	-10 to +80 °C (+14 to +176 °F)
Calibration	<ul style="list-style-type: none">• Configuration tool: Process• iSense software: 1-point and 2-point

Conductivity 4-e

Measurement parameters	Conductivity/resistivity and temperature
Conductivity ranges	0.01 to 650 mS/cm (1.54 Ω x cm to 0.1 MΩ x cm)
Chemical concentration curves	NaCl: 0-26% @ 0°C to 0-28% @ +100°C NaOH: 0-12% @ 0°C to 0-16% @ +40°C to 0-6% @ +100°C HCl: 0-18% @ -20°C to 0-18% @ 0°C to 0-5% @ +50°C HNO ₃ : 0-30% @ -20°C to 0-30% @ 0°C to 0-8% @ +50°C H ₂ SO ₄ : 0-26% @ -12°C to 0-26% @ +5°C to 0-9% @ +100°C H ₃ PO ₄ : 0-35% @ +5°C to +80°C
TDS ranges	NaCl, CaCO ₃
Temperature input	Pt1000
Temperature measuring range	-40 to +200 °C (-40 to +392 °F)
Calibration	<ul style="list-style-type: none">• Configuration tool: Process• iSense software: 1-point and 2-point

General electrical specifications

Output	Analog output 4 to 20 mA with HART®
HART Communication	Digital communication via FSK modulation of the analog output, device identification, measured values, status and messages, parameters, calibration, ISM diagnostics (DLI, ACT and TTM)
Operation	Via configuration tool, Asset-Management-Tool or HART handheld terminal
Supply voltage	14 to 30 V DC
Connection terminals	Spring cage terminals, appropriate for wire cross section 0.2 to 1.5 mm ² (AWG 16 – 24)
Galvanic isolation	Inputs, output and earth/ground are galvanically isolated up to 500 V.
Analog output	Loop current 4 to 20 mA, protected against wrong polarity
Accuracy analog output	< ±0.05 mA over 4 to 20 mA
Analog input	4 to 20 mA (for pressure compensation)
Digital input	For switching transmitter in Hold state Switching voltage (selectable): • Low: 0.0 to 1.0 V DC • High: 2.3 to 30.0 V DC
Alarm	For sensor disconnected, 22 mA
Real time clock	Fixed time and date format. The format cannot be changed. Power reserve: > 5 days

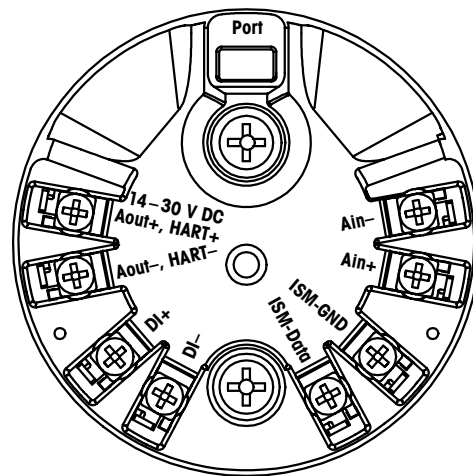
Environmental specifications

Storage temperature	–40 to +70 °C (–40 to +158 °F)
Ambient temperature operating range	–20 to +60 °C (–4 to +140 °F)
Relative humidity	0 to 95 % non-condensing
EMC	According to EN 61326-1 (general requirements) Emission: Class B, Immunity: Class A
Certificates and approvals	ATEX/IECEX, NEPSI Zone 1 • II 2(1) G Ex ib [ia Ga] IIC T4 Gb • II 2(1) D Ex ib [ia Da] IIIC T80°C/T90°C Db • II 2(1) G Ex d [ia Ga] IIC T4 Gb • II 2(1) D Ex tb [ia Da] IIIC T80°C/T90°C Db CSA • Class I, Division 1, Groups A, B, C and D T4 • Class II, Division 1, Groups E, F and G and • Class III • Ex ia IIC T4 Ga; Class I, Zone 0, AEx ia IIC T4 Ga
CE mark	The measuring system is in conformity with the statutory requirements of the EC Directives. METTLER TOLEDO confirms successful testing of the device by affixing to it the CE mark.

Mechanical specifications

Dimensions	See Page 2.
Cable glands	<ul style="list-style-type: none"> • M100/2XH (30 026 578): 2 pieces M20 x 1.5 • M100/2XH (30 246 352): 2 pieces NPT 3/4"
Weight	1.2 kg
Material	<ul style="list-style-type: none"> • Die cast aluminum for top housing • Stainless steel 304 for lower parts
Enclosure rating	IP 66 / NEMA4X

Connector terminal definition



4 to 20 mA (with HART®)

Terminal	Description
Port	Interface for service e.g. firmware update
Aout+, HART+	Power connection 14 to 30 V DC
Aout-, HART-	Analog output HART signal
DI+, DI-	Digital input (for switching transmitter in Hold state)
ISM-DATA, ISM-GND	Sensor input, see table "M100 parameter fit guide" on page 6.
Ain+, Ain-	Analog input 4 to 20 mA (for pressure compensation)

Ordering information

Transmitter

Description	Order no.
M100/2XH, 1-channel multi-parameter, M20 cable glands	30 026 578
M100/2XH, 1-channel multi-parameter, NPT 3/4" cable conduits	30 246 352

Accessories

Description	Order no.
iSense 2.0 full version	30 130 614
iSense 2.0 lite version	Available for free
iSense 2.0 mobile version	Available for free
iLink cable for iSense	52 300 383

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Description	Order no.
InFit761 e, InTrac777 e, InTrac797 e	See catalog, section "Housing".

M100 parameter fit guide

	M100/2XH
	ISM
pH/ORP	•
pH/pNa	•
Conductivity 4-e	•
Amp. DO ppm/ppb/trace	• ¹⁾ /• ²⁾ /• ²⁾

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