DATA SHEET

vibro-meter®

TWW 103 M1 transmitter

TWW 103 M1

KEY FEATURES AND BENEFITS

- From the vibro-meter® product line
- Available in standard versions and Ex versions certified for use in hazardous areas
- One-channel transmitter
- Measurement range: 2 to 12 mm
- Temperature range: 0 to 70°C
- Aluminum housing
- Protection rating: IP66
- Compatible with WW 018 proximity sensor

APPLICATIONS

- Shaft relative position measurement chains for machinery protection and/or condition monitoring
- General-purpose position monitoring and protection for stand-alone machines in harsh industrial environments and/or hazardous areas

DESCRIPTION

The TWW 103 M1 transmitter from Parker Meggitt's vibro-meter® product line is a dedicated one-channel vibration and position measurement transmitter with a 4 to 20 mA current-loop output signal.

A TWW 103 M1 transmitter is used, in combination with a WW 018 proximity sensor, to measure the relative position of a target object without touching the target (that is, the non contact measurement of displacement).

Accordingly, such displacement measurement systems consist of a WW 018 proximity sensor and a TWW 103 M1 transmitter, and provide a measurement range (static) of 10 mm.

The TWW 103 M1 is available in standard versions for use in standard (non-hazardous) areas and Ex versions for installation in hazardous areas (potentially explosive atmospheres).

For specific applications, contact your local Parker Meggitt representative.

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SPECIFICATIONS

General operation

Sensor compatibility	: WW 0xx proximity sensor with a cable length of 5 m. Notes: The system length must be specified when ordering. Sensors of the same type with the same cable length are interchangeable.
Measurement range	: 10 mm max. with WW 018 proximity sensor. Note: The measurement range depends on the sensor.
Linearity deviation	: ≤2%. Note: Measured with a reference WW 018-R proximity sensor.
Filter	
• Low-pass filter (fu)	: 0 Hz
• Low-pass filter (fo)	: 5 Hz
• Roll-off (slope) characteristic	: 20 dB/decade
Internal supervision	: Internal supervision circuitry (transmitter) monitors for interruption or a short-circuit in the proximity sensor or in the cabling. Furthermore, it will also detect when the target object is clearly placed outside of the measurement range.
Fault indication	: Zero current (0 mA) signal from the analog output and a red LED indicator (see **LED indicators on page 3**)
Analog outputs	
• 4 to 20 mA	: 4 to 20 mA current loop output, corresponding to the processed output measurement (relative position). Notes: 500 Ω max. load. This signal is the main output from the transmitter intended to be used for machinery monitoring.
• 4 to 20 mA (25 Ω)	: 4 to 20 mA current loop output, corresponding to the processed output measurement (relative position). Notes: 25 Ω max. load. This signal is intended to be used for the positioning of the proximity sensor (during installation). Notes: Both analog outputs are galvanically isolated. The analog output characteristic is inversely proportional to the input, with 0 to 10 mm corresponding to 20 to 4 mA.
Offset	: Inaccuracy in the mechanical installation (positioning) of a WW 0xx proximity sensor can be corrected using the Z potentiometer. The range of compensation corresponds to ±0.5 mm approx.

Power supply

Voltage	: 24 V_{DC} nominal (18 to 30 V_{DC}). Note: Galvanically separated.
Current	: 100 mA max.

SPECIFICATIONS *(continued)*

Environmental

Temperature range : 0 to 70°C
Protection rating (according to IEC 60529) : IP66

Potentially explosive atmospheres

Available in Ex approved versions for use in hazardous areas

Type of protection Ex nA: non-sparking (**ordering option code A2**)		
Europe	EC type examination certificate	Ⓔx II 3G (Zone 2) Ex nA [ic] IIC T5 Gc CSANe 23 ATEX 1097 X
International	IECEx certificate of conformity	Ex nA [ic] IIC T5 Gc IECEx PTZ 17.0002X
United Kingdom	UK type examination certificate	Ⓔx II 3G Ex nA [ic] IIC T5 Gc CSAE 23 UKEX 1054 X

⚠ **For specific parameters of the mode of protection concerned and special conditions for safe use, refer to the Ex certificates that are available from Meggitt SA.**

⚠ **For the most recent information on the Ex certifications that are applicable to this product, refer to the *Ex product register (PL-1511) document* that is available from Meggitt SA.**

Approvals

Conformity : European Union (EU) declaration of conformity (CE marking)

Electromagnetic compatibility (EMC) : EMC compliant (2014/30/EU):
EN 55011:2009.
EN 61000-4-2:2009.
EN 61000-4-3:2020.
EN 61000-4-4:2012.
EN 61000-4-5:2014 + A1:2017.
EN 61000-4-6:2014.
DIN EN 61326-1:2013.

Electrical safety : DIN EN 61010-1:2020

Environmental management : RoHS compliant (2011/65/EU)

Hazardous areas : Ex approved versions (see **Potentially explosive atmospheres on page 3**)

LED indicators

Ready : Green LED.
Note: This LED indicates that the transmitter is operating normally.

Fault : Red LED.
Note: This LED indicates that the transmitter is not operating normally (fault condition).

SPECIFICATIONS *(continued)*

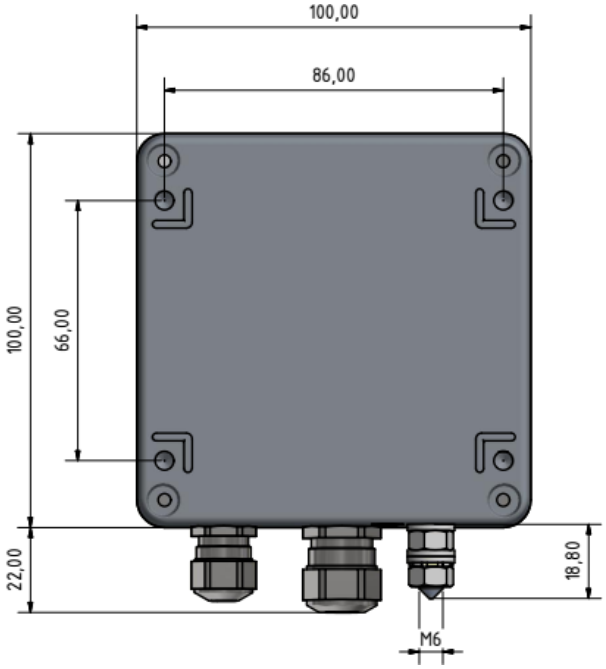
Physical

Housing material	: Aluminum (Al-Si12)
Color	: Black (RAL 9011) or silver/gray (RAL 7001)
Dimensions	: 100 × 100 × 80. See **Drawings, Mechanical drawings on page 5**
Weight	: 800 g approx.
Mounting	: Four M4 × 30 fixing screws. Note: Wall mounting only.
Cover screws	: Four cover screws. Mounting torque: 1.5 to 2.0 N•m.
Cable connections	
• Sensor	: Triax (Fischer-connectors), hard gold
• Power supply	: M12 cable fitting (stuffing gland). Clamping range: 2 to 5 mm. Mounting torque: 7 N•m.
• Other	: M16 cable fitting (stuffing gland). Clamping range: 4 to 7 mm. Mounting torque: 7 N•m.
Connectors	
• Sensor	: Triax (Fischer-connectors), hard gold
• Power supply	: 2 × screw-terminal contacts (1-2)
• Other	: 5× screw-terminal contacts (3-7) Note: The screw-terminal connectors have a clamping range of 2.5 mm^2 max. for flexible or solid cabling.

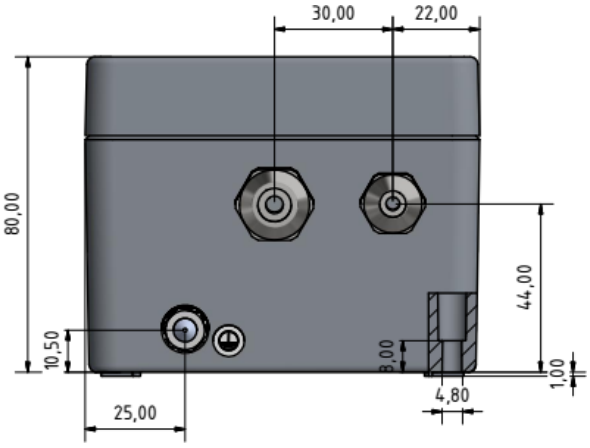
DRAWINGS

Mechanical drawings

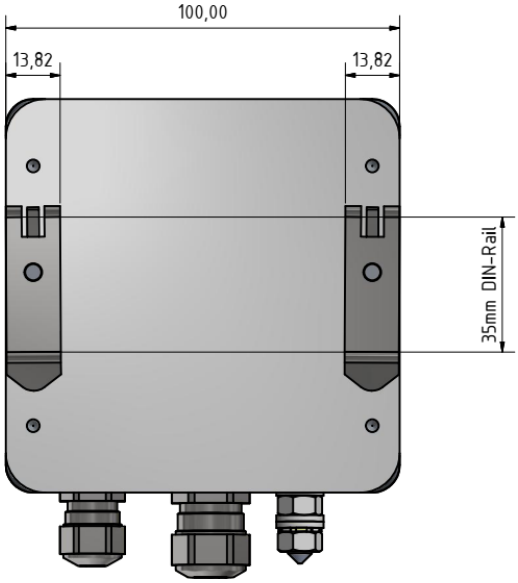
Top view



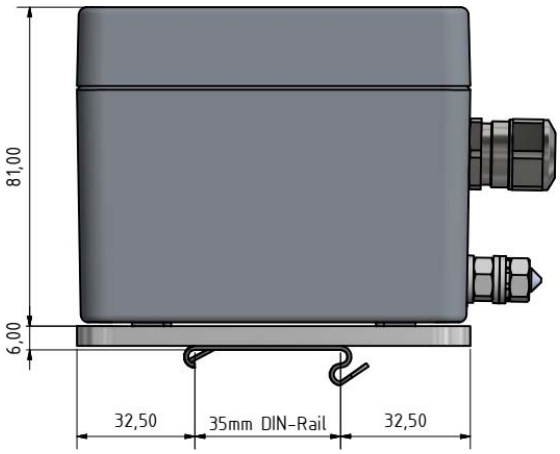
Front view



Bottom (rear) view



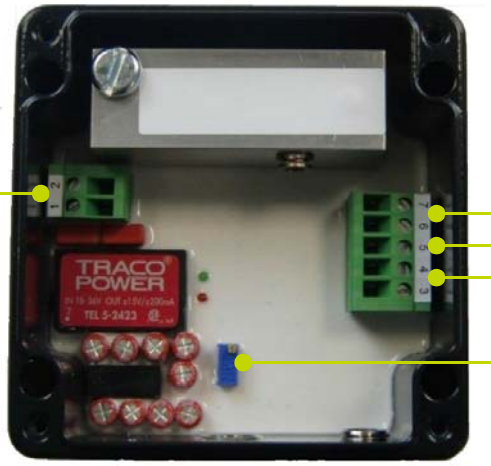
Side view



Note: All dimensions in mm unless otherwise stated.

DRAWINGS *(continued)*

Layout



Note

The 4 to 20 mA (500 Ω) signal, across terminals 3-4, is the main output from the transmitter intended for machinery monitoring.

The 4 to 20 mA (25 Ω) signal, across terminals 6-7, is intended for the positioning of the proximity sensor (during installation).

Terminal assignment

1	(+) 24 V_{DC}
2	(−) 0 V_{DC} (GND)
3	(+) 4 to 20 mA / 500 Ω
4	(−) 4 to 20 mA
5	Casing/housing potential
6	(+) 4 to 20 mA / 25 Ω See note 1
7	(−) 4 to 20 mA See note 1

Note

The 4 to 20 mA (25 Ω) signal, across terminals 6-7, is only available if a load <500 Ω is connected across terminals 3-4.

ORDERING INFORMATION

To order, please specify the version(s) of the TWW 103 M1 transmitter required …

Ordering number (PNR):

TWW103M1 — **A** [ ] — **H** [ ]

Version / Environment (A)	
Standard	1
Explosive (Ex)	2

System length (H)	
05	5 m

Notes

The normalized versions of the TWW 103 M1 that are readily available are listed below (see **Normalized Ex versions (for use in hazardous areas) on page 7** and **Normalized standard (non-Ex) versions on page 7**).

Other versions (combinations of ordering option codes) can be made available, subject to sufficient demand.

Normalized Ex versions (for use in hazardous areas)

Type	Designation	Ordering number (PNR)
TWW 103 M1	See Ordering number (PNR) above	TWW103M1-A2-H05

Normalized standard (non-Ex) versions

Type	Designation	Ordering number (PNR)
TWW 103 M1	See Ordering number (PNR) above	TWW103M1-A1-H05

RELATED PRODUCTS

WW 018	Proximity sensor	: Refer to corresponding data sheet

Meggitt (Meggitt PLC) is a leading international engineering company, headquartered in England, that designs and delivers high-performance components and subsystems for aerospace, defence and selected energy markets. Meggitt comprises four customer-aligned divisions: Airframe Systems, Engine Systems, Energy & Equipment and Services & Support.

The Energy & Equipment division includes the Energy Sensing and Controls product group that specialises in sensing and monitoring solutions for a broad range of energy infrastructure, and control valves for industrial gas turbines, primarily for the Power Generation, Oil & Gas and Services markets. Energy & Equipment is headquartered in Switzerland (Meggitt SA) and incorporates the vibro-meter® product line, which has over 65 years of sensor and systems expertise and is trusted by original equipment manufacturers (OEMs) globally.

In this publication, a dot (.) is used as the decimal separator and thousands are separated by thin spaces. Example: 12345.67890.

Sales offices

Meggitt has offices in more than 30 countries. For a complete list, please visit our website.

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