



TWR™-200 THERMAWATCH ROTOR FOR GMD - MINING INDUSTRY

Non-Contact Rotor Pole-End Temperature Monitoring

GENERAL SPECIFICATIONS

Measuring Chain

Operation^{1, 2}

• Measuring type	Infrared technology
• Temperature measuring range (target only)	0 to 200 °C [32 to 392 °F]
• Accuracy ³	
From 0 to 140 °C [32 to 284 °F]	± 6 °C [10.8 °F]
From 140 to 200 °C [284 to 392 °F]	Deviates from ± 6 °C [10.8 °F] to ± 10 °C [18 °F]
• Repeatability	± 1 °C [± 1.8 °F]
• Bandwidth	Up to 300 Hz without attenuation
• Measuring Distance	Up to 12.7 cm [5 in] without attenuation
• Viewing Angle	± 45°
• Measuring gap - Adjustment Range	From inner stator cover surface to TWR-200 sensor tip
Option A - Short:	17 to 30 cm [6.7 to 11.8 in]
Option B - Medium:	27 to 40 cm [10.6 to 15.7 in]
Option C - Long:	37 to 50 cm [14.6 to 19.7 in]

Environment

• Temperature range	
Operating	Refer to individual components
Storage	-20 to 70 °C [-4 to 158 °F]
• Humidity	Up to 95%, non-condensing

Note 1: Each TWR-200 measuring chain is calibrated with a blackbody source. Response varies depending on the infrared emissivity of the target.

Note 2: The components of a TWR-200 measuring chain (sensor, signal conditioner and sensor extension cable) are not calibrated together. Components are therefore readily interchangeable.

Note 3: Standard installation and under normal generator operation conditions

Signal Conditioner

Operation

• Output	4 to 20mA
• Load at output	500Ω max.

Power Requirements

• Voltage	24 Vdc ± 15%
• Consumption	75 mA max.

Connection

• Sensor	8-pin M12 female
• Power/Output	5-pin M12 male
• Maximum cable length - power / output cable	300 m [984 ft]



Environment

- Operating temperature range 0 to 55 °C [32 to 131 °F]

Physical Characteristics

- Body Aluminum, painted black
- Mounting 4 Slots for (M3.5) [#6] screws
- Status indicator Multicolor LED

Sensor

Environment

- Operating temperature range
 - Stator insertion tip 0 to 100 °C [32 to 212 °F]
 - Integral cable 0 to 80 °C [32 to 176 °F]

Physical Characteristics

- Stator insertion tip - rigid section
 - External body Metallic tube with cross linked polyolefin outer jacket
 - External diameter 5.3 mm max. [0.209 in]
 - Mounting Using adjustable mounting support system
- Integral cable - flexible section
 - Material PVC outer jacket, with PUR molded head connector
 - Length 30 cm [12 in]
 - Diameter 5 mm [0.20 in]
 - Connectors 4-pin M12 male

Extension Cable

Environment

- Operating temperature range 0 to 80 °C [32 to 176 °F]

Physical Characteristics

- Material PUR outer jacket, with PUR molded head connector
- Length 30m [98.4 ft] (*can be cut to desired length*)
- Diameter 5 mm [0.20 in]
- Connectors
 - Sensor side 4-pin M12 female
 - Conditioner side 4-pin M12 male (*included - to be installed at site*)

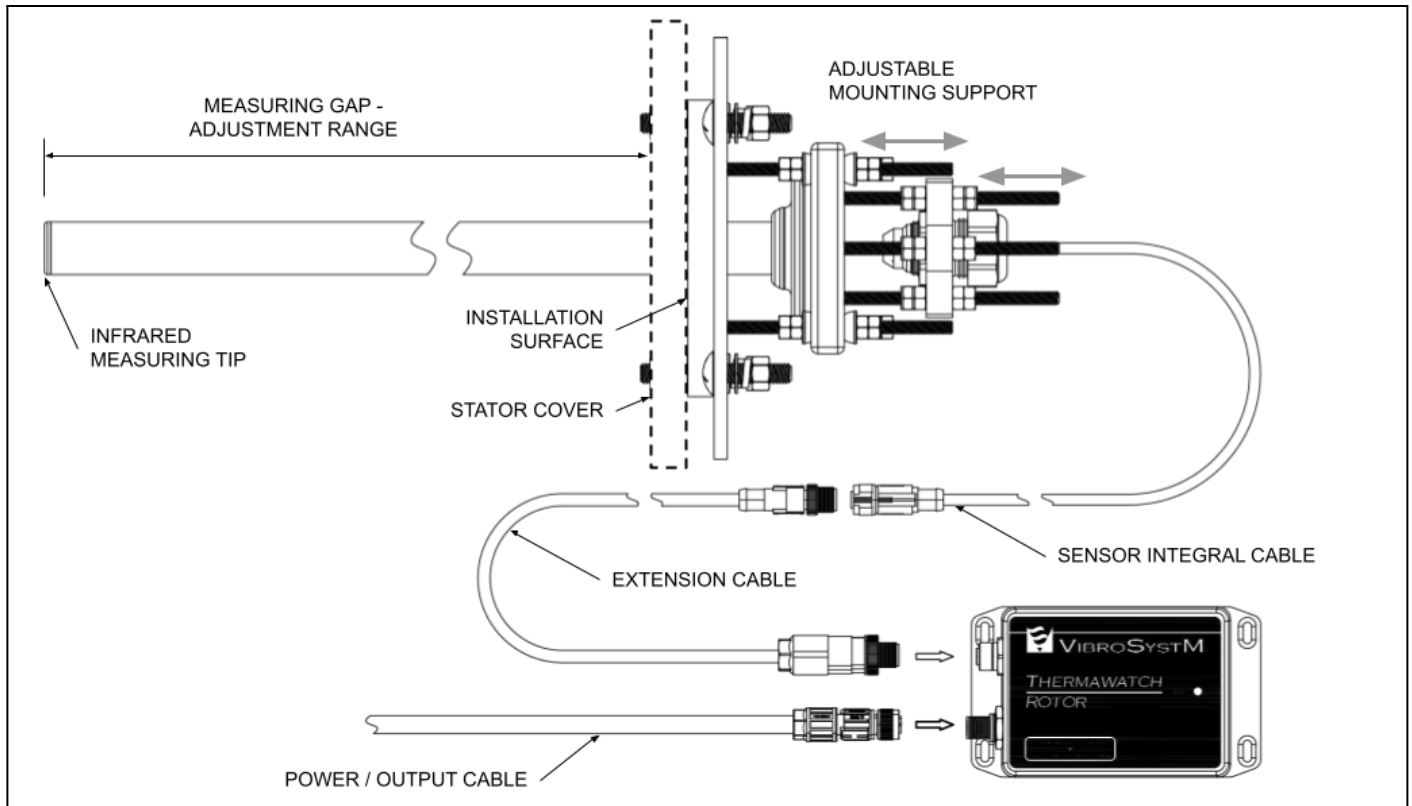
Adjustable Mounting Support System

Physical Characteristics

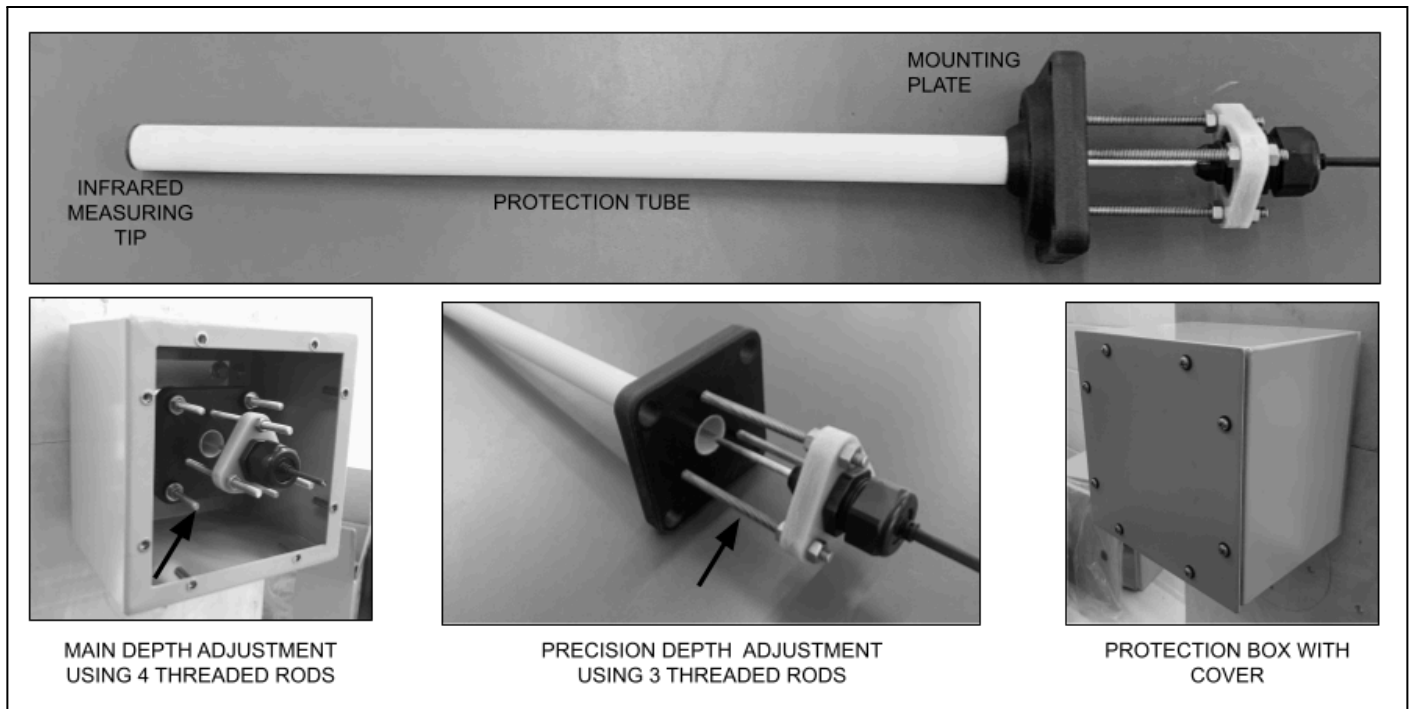
- Core material FR4 and reinforced nylon
- Assembly material Stainless steel and brass hardware
- Protection box
 - Included, with optional extension
 - Dimension 20.3 x 20.3 x 15.5 cm [8.1 x 8.1 x 6.1 in]
 - Dimension - with extension 20.3 x 20.3 x 31.0 cm [8.1 x 8.1 x 12.2 in]
 - Material Mild steel with gray ANSI 61 powder coating
 - Frame and cover thickness 14 gauge (1.78 mm [0.070 in])
- Typical installation method Bolted on stator cover in line with pole-ends
- Adjustments Insertion depth and angle



TWR-200 FOR GMD - MEASURING CHAIN OVERVIEW

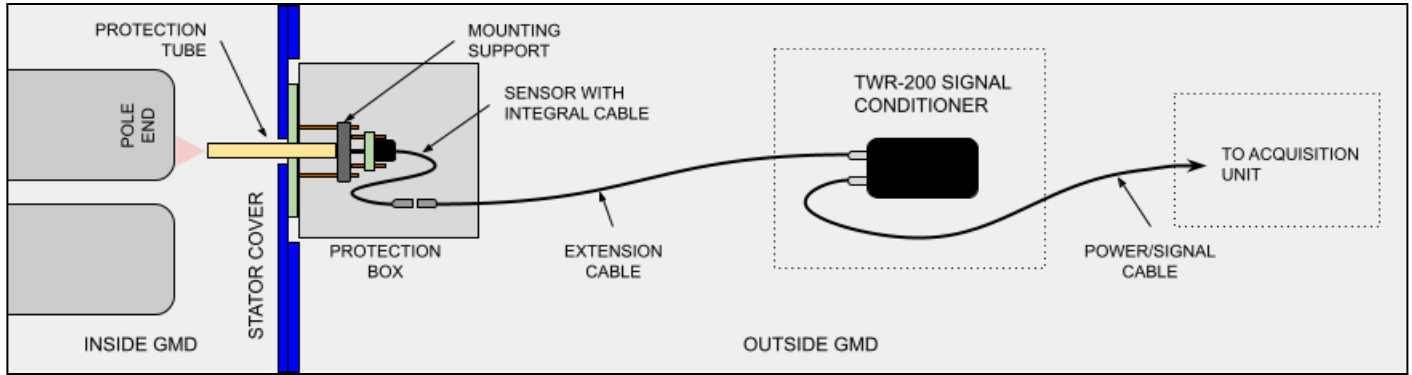


MOUNTING SUPPORT OVERVIEW

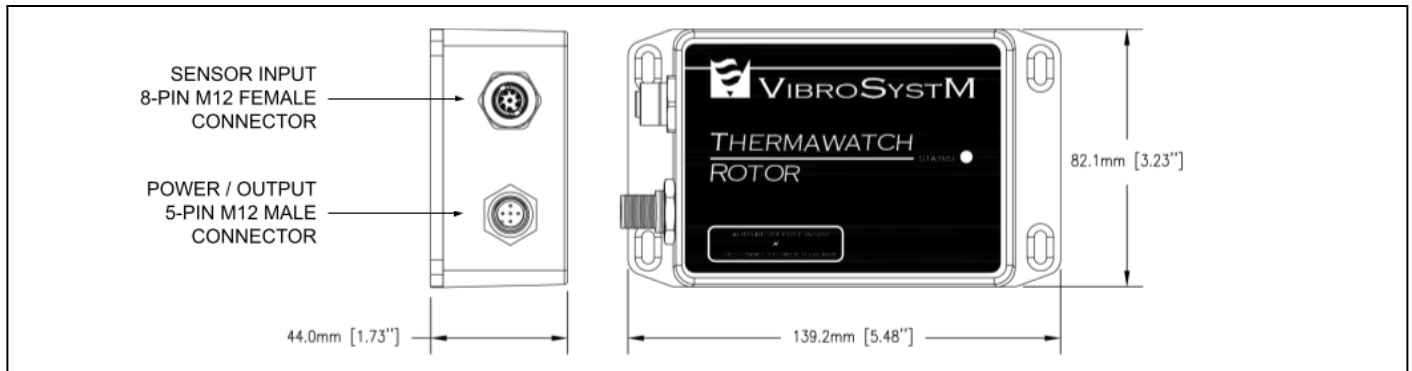




COMPLETE SYSTEM INSTALLATION OVERVIEW



SIGNAL CONDITIONER FOR GMD



TWR-200 FOR GMD PRODUCT INFORMATION

Product Number	Description
VSM-TWR200- (S,M or L)	TWR-200 ThermoWatch Rotor Temperature sensor (short, medium, or long)
VSM-LGMD-TWR200	TWR-200 ThermoWatch Rotor Signal conditioner for GMD
VSM-CBL-TWR200-30	TWR-200 ThermoWatch Rotor 30m Extension cable
VSM-SUPP-TWRGMD- (S,M or L)	TWR-200 ThermoWatch Rotor Adjustable mounting support (short, medium, or long)
VSM-PBOX-TWR200	Protection box of the TWR-200 for GMD