



**ProvibTech**  
Innovative Machine Monitoring

## DM200 Dual-Channel A/V/D Vibration Monitor



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## DM200 Dual-Channel A/V/D Vibration Monitor

### DM200 Dual-Channel A/V/D Vibration Monitor

#### Introduction

DM200 is a dual channel vibration monitor. It is used to monitoring rotation machine's absolute vibration with acceleration, velocity or displacement.

#### Features

- ✓ **Dual channels case vibration monitoring with acceleration, velocity or displacement**
- ✓ **Independent alert and danger dual relays on each channel**
- ✓ **Fully digital, long term stability**
- ✓ **Condition monitoring with waveform and spectrum**
- ✓ **Modbus RTU**
- ✓ **IP 65 or NEMA 4X environmental rating**
- ✓ **Bright 4 digit LED display**
- ✓ **Front panel buffered output**
- ✓ **Wide range of power supply**
- ✓ **Cost effective**

#### Specifications

##### Electrical

##### Power Supply:

90-250VAC@ 500mA, 40-60Hz, or  
22-30VDC@ 200mA

##### Frequency Response: ( $\pm 3\text{dB}$ ):

Standard: 2.0-3.0KHz;  
Integration: 10-3.0KHz.  
Low: 0.5-100Hz.

##### External Sensor:

Sensitivity: 100mV/g for accelerometer;  
4.0mV/mm/s for velocity sensor;  
40mV/mm/s or 4.0mV/ $\mu\text{m}$  for low  
frequency velocity/displacement  
sensor.

Current Source: 4mA@24VDC

##### Buffered Output:

Original vibration, un-filtered;  
Sensitivity/frequency: same as the sensor  
specification.  
Impedance :550 $\Omega$ ;  
Maximum cable distance: 300m (1000ft).



##### Overall Vibration:

4-20mA source driving load resistance up to 500 $\Omega$ .

System OK: Each channel output 4-20mA;  
System Fault: Output<3.5mA.

##### Two Level Alarm:

Alarm setup (Normal/Set):

Scalable: 0-100%full scale;

Accuracy:  $\pm 0.1\%$ .

Relays (Alert/Danger):

Hermetic Seal: Epoxy.

Capacity: 1A/220VAC or 1A/24VDC  
resistive load.

Relay Type: SPDT.

Isolation: 1000VDC

Alarm Delay:

0-60 seconds.

Selectable with time interval of 1 second.

##### Alarm Multiply:

Switch Trip/Multi and COM, then set Double  
Multiply or Triple Multiply by software, system  
alarm value will increase a factor of 2 or 3.

##### RESET/BYPASS:

LOCAL RESET;

REMOTE RESET/BYPASS: One shot

REST/BYP and COM

##### LED Machine Condition Indicator:

CH1 (Green) light on: Display the value of CH1;

CH2 (Green) light on: Display the value of CH2;

OK (Green) light on: Self-test passed, System  
works OK;

ALARM (red) light on: Alarm indication.

##### Bus Communication (TX/RX):

All Setup and condition parameters can be  
obtained from the bus connector.



## DM200 Dual-Channel A/V/D Vibration Monitor

### Digital Condition Monitoring (Optional):

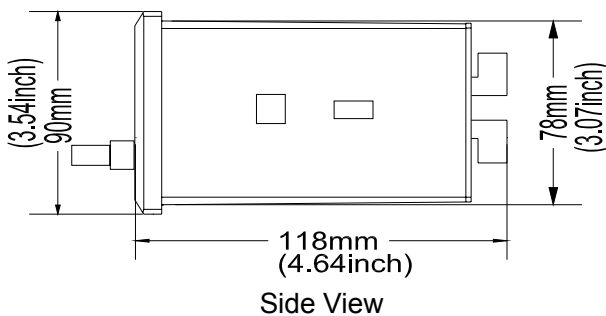
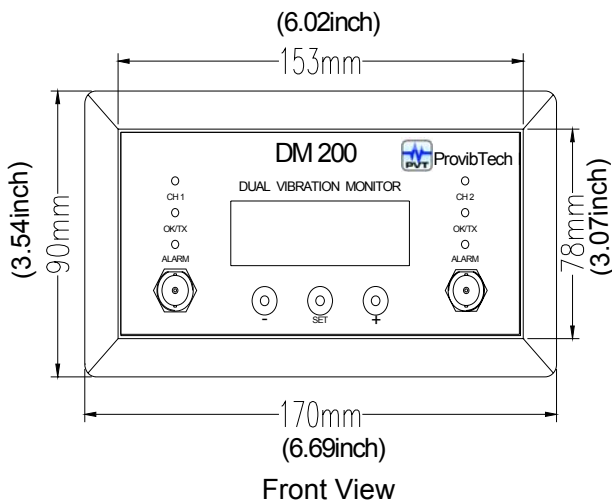
Condition management software, such as PCM360 can work with DM200 to collect, store, and analyze machine running status via the digital bus communication of the DM200.

- ✓ Real-time dynamic waveform
- ✓ Real-time spectrum (800 lines)
- ✓ Real-time case XY vibration
- ✓ Trend plot
- ✓ Alarm list

### Physical

Size: 170×90×118mm ( 6.69×3.54×4.64" )

Others as per drawing below:



Weight:

1300 g.

### Installation:

With specific Holder. Installation in three situations: plate installation, rail mounting installation and installation with TM0303 waterproof case

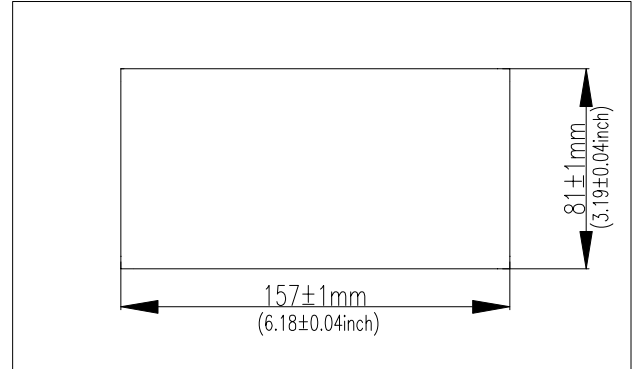


Plate Hole Dimension

### Environmental

Temperature:

Operation: -25°C ~ +70°C;

Storage: -40°C ~ +100°C.

Humidity: 95% non-condensing.



# DM200 Dual-Channel A/V/D Vibration Monitor

## Ordering Information

### DM200-AXX-BX-CX-D1-EX-FX

#### AXX: Full Scale

- A12: 0 ~ 5.0g pk
- A13: 0 ~ 10g pk
- A40\*: 0 ~ 20mm/s rms
- A41: 0 ~ 25 mm/s rms
- A42: 0 ~ 50mm/s rms
- A43: 0 ~ 100mm/s rms
- A46: 0 ~ 1.0 ips rms
- A47: 0 ~ 2.0 ips rms
- A48: 0 ~ 4.0 ips rms
- A50: 0 ~ 20mm/s pk
- A51: 0 ~ 25 mm/s pk
- A52: 0 ~ 50mm/s pk
- A53: 0 ~ 100mm/s pk
- A56: 0 ~ 1.0 ips pk
- A57: 0 ~ 2.0 ips pk
- A58: 0 ~ 4.0 ips pk
- A60: 0 ~ 100um pk-pk
- A61: 0 ~ 125um pk-pk
- A62: 0 ~ 200um pk-pk
- A63: 0 ~ 250um pk-pk
- A64: 0 ~ 500um pk-pk
- A66: 0 ~ 5mil pk-pk
- A67: 0 ~ 10mil pk-pk
- A68: 0 ~ 20mil pk-pk

#### BX: Sensor (not include)

- B0\*: TM0782A, TM0783A, or any ICP Accelerometer with 100mV/g (A60-A68 not applicable)
- B1: TM0793V or any ICP Velocity Sensor with 4mV/mm/s (A12, 13 not applicable)
- B2: TM079VD (A12, 13 not available)
- BXXX: Seismic Sensor, Sensitivity = XXX

#### CX: Frequency Response

- C0\*: Normal Frequency (B2 not applicable)
- C1: Low Frequency (B2 only)

#### DX: Environmental Rating (front panel)

- D1\*: IP65 or NEMA 4X

#### EX: Digital Communication

- E0\*: Without Modbus (only local configuration enabled)
- E1: With Modbus (local and software configuration are enabled)
- E2: With Modbus and Digital condition monitoring software

#### FX: Power Supply

- F0\*: 110 VAC or 230 VAC
- F1: 24 VDC

\* Factory default

## Accessories

### DM200-CFG-K

DM200 configuration and calibration software kit includes:

- ✓ DM200-CFG configuration and calibration software CD
- ✓ RS485-USB converter with cable

### PCM-TCP: Modbus RTU-TCP Converter

- TM0782A-K-M:** Accelerometer Kit.
- TM0783A-K-M:** Accelerometer with Integral Cable.
- TM0793V-K-M:** Velocity Sensor Kit.
- TM079VD-V/H-K:** Low Frequency Velocity/ Displacement Sensor.

**TM0303:** NEMA Housing.

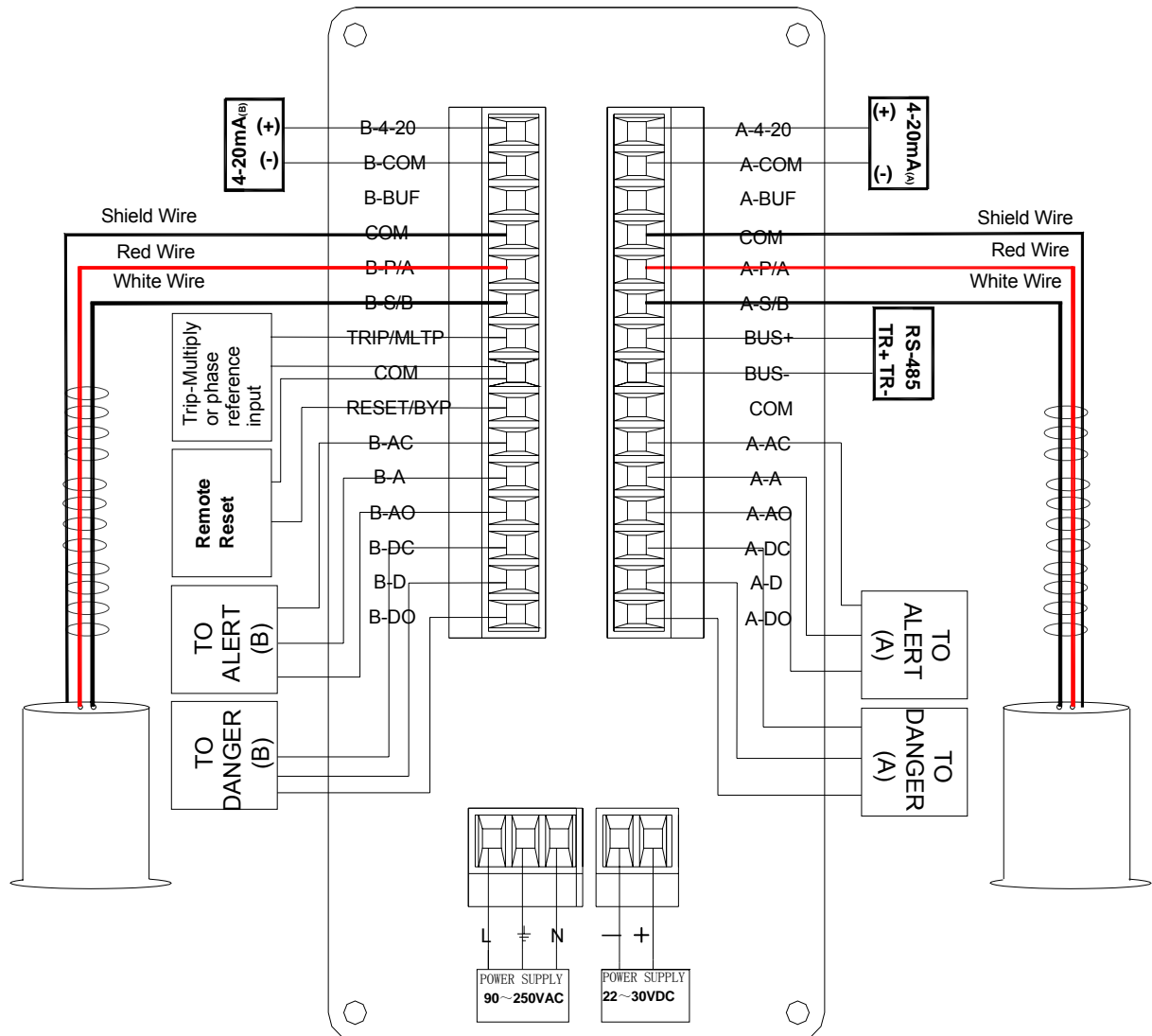
**TM0401:** Barrier.





# DM200 Dual-Channel A/V/D Vibration Monitor

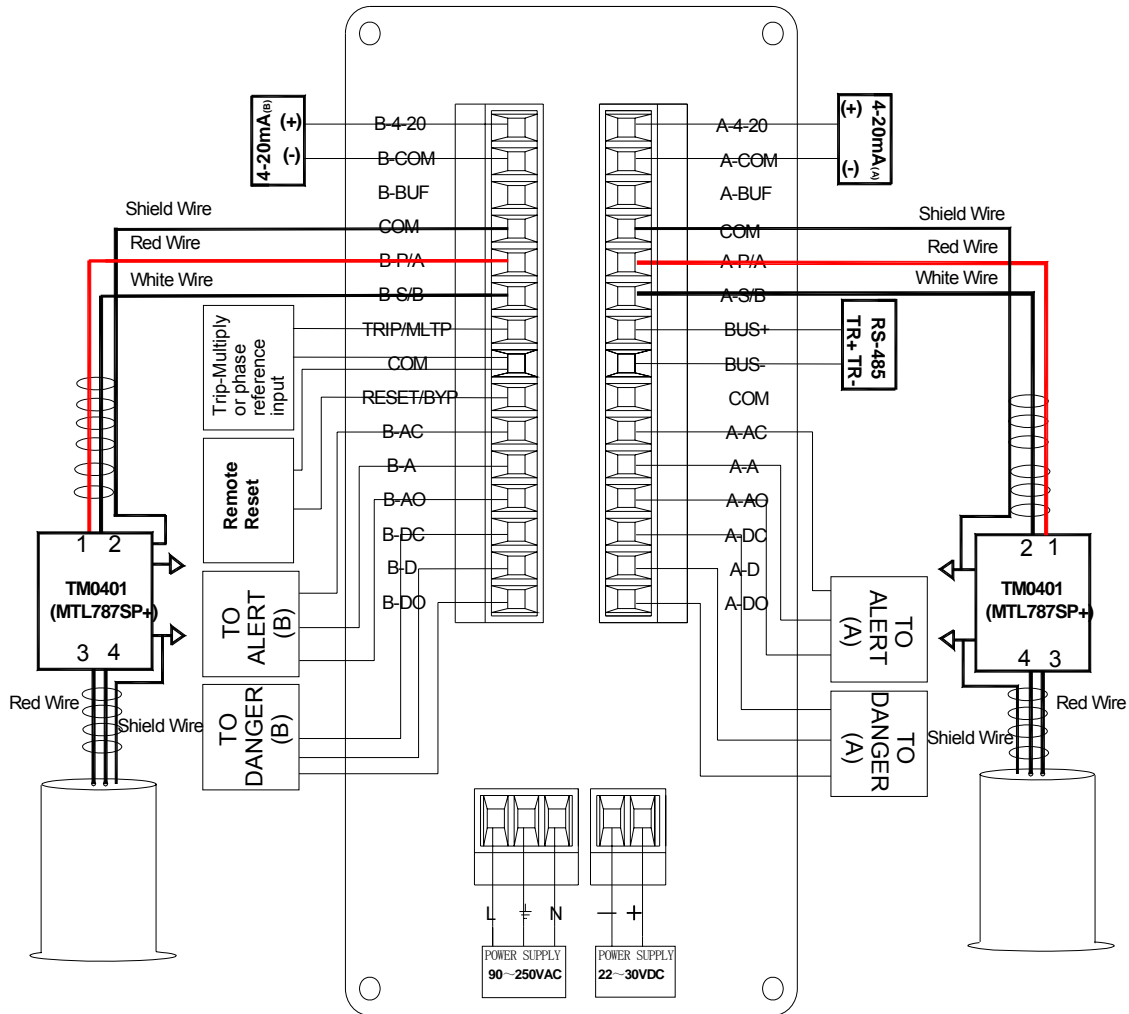
DM200 Field-wiring Diagram for TM0782A, TM0793V, TM079VD or other ICP sensor



**DM200 Nonhazardous Area**



# DM200 Dual-Channel A/V/D Vibration Monitor



## DM200 Hazardous Area

### Note:

- ✓ If the DM200 has the digital condition monitoring function, the Trip/Multi and COM pins are used for phase reference input. Moreover, the DM200 won't provide Multiply Alarm function anymore, so you should set Multiply Alarm property to "None" by DM200-CFG software.



# DM200 Dual-Channel A/V/D Vibration Monitor

## Accelerometer TM0782A

### General Purpose, Industrial Piezoelectric Accelerometers

The TM0782A-K accelerometer kit consists of one accelerometer and one 5 meter cable. This accelerometer kit directly interfaces with ProvibTech's signal conditioners: DTM, TR transmitters, DM Dual Monitors and PT580 vibration switches to measure case vibration in acceleration or velocity.

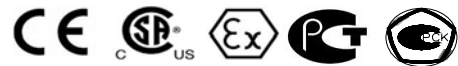
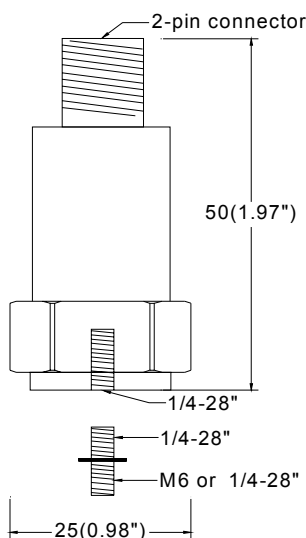
### Specifications

#### Electrical

<b>Sensitivity:</b>	100mV/g, @ 25°C, ±10%
<b>Frequency Response:</b>	0.5 - 10,000Hz (±3dB)
<b>Acceleration Range:</b>	50g
<b>Isolation:</b>	Fully isolated
<b>Electrical Noise:</b>	0.0007g
<b>Power Requirement:</b>	2 - 10mA constant current 18 - 30VDC
<b>Bias Voltage:</b>	10 - 14VDC
<b>Resonance Frequency:</b>	30 kHz
<b>Maximum Transmission Distance:</b>	300 meters (1,000 feet)

#### Environmental and Physical

Temperature Range: -50°C to +120°C



Environmental Protection:	IP67
Weight:	90 grams
Case Material:	Stainless Steel
Mounting:	1/4-28UNF or M6 tapped hole
Installation Torque:	29N x M
Hazardous Area Approval:	
ATEX:	II 1 G, Ex ia IIC T4
CSA:	Class I, Div. 1, Groups A, B, C and D Class I, Div. 2, Groups A, B, C and D
PCEC:	Ex ia IIC T4
GOST R:	0ExialICT4X

#### Connection

- A: Power (red)
- B: COM (white)
- Shield

#### Order Information

##### TM0782A-M

Accelerometer with mounting screw 1/4-28" to M6x1

##### TM0782A-E

Accelerometer with mounting screw 1/4-28" to 1/4-28"

##### TM0782A-K-M

Accelerometer kit includes:

- ✓ TM0782A accelerometer
- ✓ Mounting screw (1/4-28" to M6x1)
- ✓ TM0702-05



## DM200 Dual-Channel A/V/D Vibration Monitor

### TM0782A-K-E

Accelerometer kit includes:

- ✓ TM0782A accelerometer
- ✓ Mounting screw (1/4-28" to 1/4-28")
- ✓ TM0702-05

### TM0782A-M-S

Accelerometer with mounting screw 1/4-28" to M6×1 Hazardous area approval

### TM0782A-E-S

Accelerometer with mounting screw 1/4-28" to 1/4-28" Hazardous area approval

### Accessories:

(Standard cable length is 5 meters. XX = 05)



**TM0702-XX:** Aluminum MIL connector with XX meters cable, 6.35mm diameter. < 120°C (250°F)



**TM0703-XX:** Seal tight boot connector with XX meters cable, 6.35mm diameter. < 120°C (250°F)



**TM0704-XX:** Stainless steel MIL connector with armored XX meters cable, 4.83mm diameter. < 150°C (300°F), Maximum Length is 10 meters.



**TM0705-XX:** Cornered MIL connector with XX meters cable, 6.35mm diameter. < 120°C (250°F), Maximum Length is 10 meters.

**TM0710:** Mounting screw 1/4-28" - M6×1

**TM0711:** Mounting screw 1/4-28" - 1/4-28"

**TM0712:** Mounting screw 1/4-28" - M8

**TM0713:** Mounting screw 1/4-28" - M10





# DM200 Dual-Channel A/V/D Vibration Monitor

## Velocity Transducer TM0793V

### Piezoelectric Velocity Transducer

The TM0793V-K velocity transducer kit consists of one velocity transducer and one 5 meter cable. This velocity transducer kit directly interfaces with ProvibTech's signal conditioners: DTM, TR transmitters, DM dual monitors and PT580 vibration switches to measure case vibration in velocity or displacement.

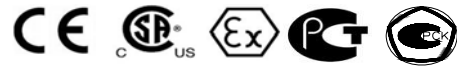
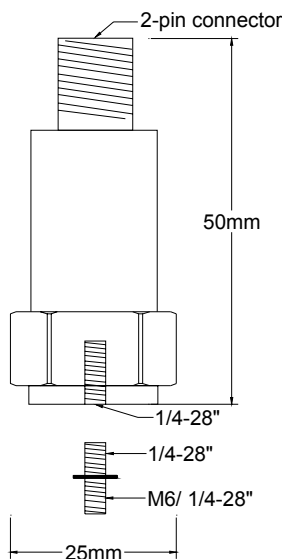
### Specifications

#### Electrical

- Sensitivity:** 4.0mV/mm/sec (100mV/in/sec),  
@ 25°C, ±10%
- Velocity Range:** 5.0V pk
- Amplitude Nonlinearity:** 1%
- Frequency Response:** 2 - 7,000Hz (±3dB)
- Isolation:** Fully isolated
- Transverse Sensitivity:** < 5% or axial
- Power Requirement:**  
3 - 10mA constant current  
18 - 30VDC
- Resonance Frequency:** 15 kHz
- Bias Voltage:** 10 - 14VDC
- Maximum Transmission Distance:**  
300 meters (1,000 feet)

#### Environmental and Physical

Temperature Range: -50°C to +120°C



- Environmental Protection: IP67
- Weight: 250 grams
- Case Material: Stainless steel
- Mounting: 1/4-28UNF tapped hole
- Hazardous Area Approvals:  
ATEX: II 1 G, Ex ia IIC T4;  
CSA: Class I, Div. 1, Groups A, B, C & D;  
Class I, Div. 2, Groups A, B, C & D;  
PCEC: Ex ia IIC T4X  
GOST R: 0ExialICT4X

#### Connection

- A: Power (red)
- B: COM (white)
- Shield

#### Order Information

##### TM0793V-M

Velocity sensor with mounting screw 1/4-28" to M6×1

##### TM0793V-E

Velocity sensor with mounting screw 1/4-28" to 1/4-28"

##### TM0793V-K-M

Velocity sensor kit includes:

- ✓ TM0793V velocity sensor
- ✓ Mounting screw (1/4-28" to M6×1)
- ✓ TM0702-05



## DM200 Dual-Channel A/V/D Vibration Monitor

### TM0793V-K-E

Velocity sensor kit includes:

- ✓ TM0793V velocity sensor

### TM0793V-M-S

Velocity sensor with mounting screw 1/4-28" to M6×1

Hazardous area approval

### TM0793V-E-S

Velocity sensor with mounting screw 1/4-28" to 1/4-28"

Hazardous area approval

- ✓ Mounting screw (1/4-28" to 1/4-28")
- ✓ TM0702-05

### Accessories:

(Standard cable length is 5 meters. XX = 05)



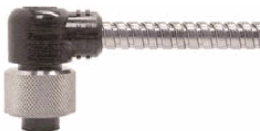
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**TM0712:** Mounting screw 1/4-28" - M8

**TM0713:** Mounting screw 1/4-28" - M10