



## DTM10 Proximity Distributed Transmitter Monitor

(Radial Shaft Vibration, Thrust Position and Speed)

The DTM10 distributed vibration transmitter monitor provides a simple and cost-effective solution for monitoring critical and balance of plant equipment. The DTM design is extremely reliable with redundancy in power supply inputs, 4-20mA outputs and relay outputs as well as a modbus communication port. The DTM can interface with almost any proximity system (Proximity probe, extension cable and with or without probe driver). The DTM is fully digital and can be fully field-configurable or factory pre-configured.

### Applications Include

- ✓ Turbines
- ✓ Compressors
- ✓ Motors
- ✓ Pumps
- ✓ Fans
- ✓ Blowers
- ✓ Centrifuges
- ✓ Generators
- ✓ Turbochargers

### DTM10 Fully Configurable by Software

- ✓ Radial Vibration
- ✓ Thrust Position
- ✓ Speed
- ✓ Phase Reference



### DTM10 Features

- ✓ Interface with any manufacturers' proximity probe system
- ✓ Works with or without probe driver
- ✓ Direct Modbus RTU interface
- ✓ Redundant 4-20mA outputs
- ✓ Redundant power supply inputs
- ✓ Measures radial shaft vibration, thrust position, speed and phase reference
- ✓ Fully digital field-configurable
- ✓ Dual relay outputs (SPDT)
- ✓ LED indication of system OK, Alert, Danger, Bypass, and digital transmitting
- ✓ Local and remote RESET/BYPASS and Trip-multiply
- ✓ Buffered output for condition monitoring
- ✓ Aluminum case for RFI/EMI protection



# DTM Distributed Transmitter Monitor

## Specifications

### Electrical

#### Power Supply:

22-30VDC, 150mA

Galvanic isolation: power to circuits

Accepts dual power supply inputs

#### Frequency Response ( $\pm 3$ dB):

Nominal frequency: 4 - 4.0 KHz

Low frequency: 0.5 - 100Hz

#### Proximity Probe Interface:

##### Sensitivity:

5mm and 8mm probe: 8 mV/ $\mu$ m (200 mv/mil)

11mm probe: 4 mV/ $\mu$ m (100 mv/mil)

25mm probe: 0.787 mV/ $\mu$ m (20 mv/mil)

##### Calibration:

Requires two specifying probe systems for factory calibration.

Field calibration with any manufacturers' 5mm, 8mm and 11mm probes is available with TM0540 or TM0541 proximity probe static calibrator.

#### Buffered Output:

Original, un-filtered signal

Impedance: 550  $\Omega$

Maximum cable distance: 300m (1,000ft)

Sensitivity: same as the sensor

Local BNC connection

Remote terminal connection

#### Overall Vibration:

Dual 4-20mA, source

Maximum load resistance 380  $\Omega$

#### Alarm Setup:

0 - 100% FS

Accuracy:  $\pm 0.1\%$

#### Relays:

Seal: Epoxy.

Capacity: 0.2A/240VAC, 0.4A/110VAC or 2.0A/24VDC, resistive load

Relay type: SPDT

Isolation: 1,000VDC

#### LED Machine Condition Indicator:

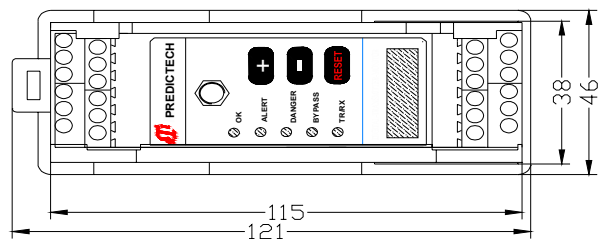
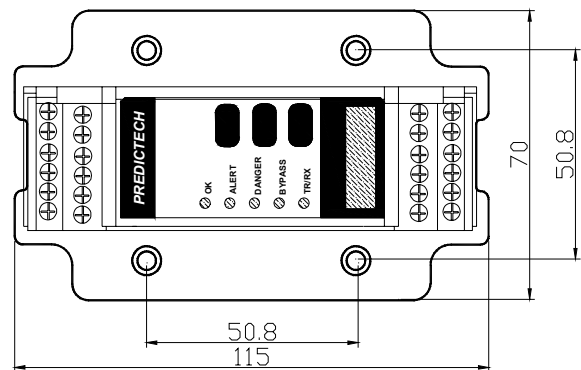
OK: System OK indication

ALT: Vibration over ALERT level

DNG: Vibration over DANGER level

BYP: System in BYPASS

TRX: Digital Transmitting



#### RESET/ BYPASS:

Local Reset: On monitor front panel

Remote RESET/BYPASS: Shoring the connector pin

RESET and COM will engage system reset and bypass

#### Trip-Multiply:

Shorting the connector pin Trip Multi and COM will engage system alarm level increases to factory set levels.

#### Modbus:

Modbus RTU. With RS485 not isolated from the system, isolation can be done with DTM96.

### Physical

Dimensions: Height: 75mm (2.95")

Weight: 2.0lbs (1.0kg)

### Environmental

#### Temperature:

Operation: -40°C to +85°C

Storage: -50°C to +100°C

#### Humidity:

90% non-condensing

#### Case:

Aluminum casted (copper free) case

### Certifications

CE certified with EMI compliance

CSA Class I, Div.2, Groups A, B, C & D, T4

ATEX III 3G Ex nA II T4



## Order Information

\* Factory default

### **DTM10-AX-BX-CX-EXX-SX**

**Customer fully-configurable proximity DTM  
(requires DTM-CFG software)**

#### **AX: Alarm**

- A0: Dual alarms with epoxy sealed relays
- A1: No alarm

#### **BX: Mounting**

- B0: DIN rail mount
- B1: Plate mount

#### **CX: External Proximity Driver**

- C0: Not required (requires probe and extension cable)  
(301, 302, 502 type modules)
- C1: Required (requires probe, extension cable and probe  
driver) (201, 202, 501 type modules)

#### **EXX: Probe and Cable (Series and Length) Purchased Separately**

- E00\*: TM0180, 5m Cable
- E01: TM0180, 9m Cable
- E02: 8mm Probe, 3300, 5m Cable
- E03: 8mm Probe, 3300, 9m Cable
- E04: 8mm Probe, 7200, 5m Cable
- E05: 8mm Probe, 7200, 9m Cable
- E06: TM0105, 5m Cable
- E07: TM0105, 9m Cable
- E08: TM0110, 5m Cable
- E09: TM0110, 9m Cable
- E10: 11mm Probe, 3300, 5m Cable
- E11: 11mm Probe, 3300, 9m Cable
- E12: 11mm Probe, 7200, 5m Cable
- E13: 11mm Probe, 7200, 9m Cable
- E99: Other probe systems (requiring field calibration)

#### **SX: Approvals**

- S0\*: CE
- S1: CE
- CSA Class I, Div.2, Groups A, B, C & D, T4
- ATEX III 3G Ex nA II T4

### **DTM10-201-AX-CX-GX-IX-SX**

**Factory pre-configured for radial vibration  
(probe driver required)**

#### **AX: Full Scale**

- A0\*: 0 - 200um pk-pk
- A1: 0 - 1,000um pk-pk
- A2: 0 - 100um pk-pk

#### **AX: Full Scale Continued**

- A3: 0 - 10mil pk-pk
- A4: 0 - 50mil pk-pk
- A5: 0 - 5.0mil pk-pk
- A6: 0 - 200um pk-pk (0.5 - 100Hz)
- A7: 0 - 1,000um pk-pk (0.5 - 100Hz)
- A8: 0 - 100um pk-pk (0.5 - 100Hz)

#### **CX: Alarms**

- C0\*: Dual alarms with epoxy sealed relays
- C1: No alarm

#### **GX: Mounting**

- G0\*: DIN rail mount
- G1: Plate mount

#### **IX: Frequency Response**

- I0\*: Normal frequency
- I1: Low frequency (0.5-20Hz)

#### **SX: Approvals**

- S0\*: CE
- S1: CE
- CSA Class I, Div.2, Groups A, B, C & D, T4
- ATEX III 3G Ex nA II T4

### **DTM10-202-AX-CX-GX-SX**

**Factory pre-configured for axial (thrust)  
position (probe driver required)**

#### **AX: Full Scale**

- A0\*: 1.0 - 0 - 1.0mm (40 - 0 - 40mil)  
(requires TM0180 or other 8mm proximity probe  
transducer; TM0105 or other 5mm proximity probe  
transducer)
- A1: 2.0 - 0 - 2.0mm (80 - 0 - 80mil)  
(requires TM0110 or other 11mm proximity probe  
transducer)
- A2: 5.0 - 0 - 5.0mm (0.2 - 0 - 0.2inch)  
(requires TM0120 or other 25mm, 35mm proximity  
probe transducer)
- A3: 12.0 - 0 - 12.0mm (0.5 - 0 - 0.5inch)  
(requires TM0150 or other 50mm proximity probe  
transducer)

#### **CX: Alarms**

- C0\*: Dual alarms with epoxy sealed relays
- C1: No alarm

#### **GX: Mount**

- G0\*: DIN rail mount
- G1: Plate mount

#### **SX: Approvals**

- S0\*: CE
- S1: CE
- CSA Class I, Div.2, Groups A, B, C & D, T4
- ATEX III 3G Ex nA II T4



## DTM10-501-AX-CX-FXX-GX-SX

Factory pre-configured for speed/ phase reference (probe driver required)

### AX: Full Scale

- A0: 0 - 1,000 rpm
- A1\*: 0 - 3,600 rpm
- A2: 0 - 6,000 rpm
- A3: 0 - 10,000 rpm
- A4: 0 - 30,000 rpm
- A5: 0 - 50,000 rpm

### CX: Alarms

- C0\*: Dual alarms with epoxy sealed relays
- C1: No alarm

### FXX: Teeth per Revolution

- F01\*: 1
- FXX: Customer specifies, number of teeth =XX

### GX: Mount

- G0\*: DIN rail mount
- G1: Plate mount

### SX: Approvals

- S0\*: CE
- S1: CE
- CSA Class I, Div.2, Groups A, B, C & D, T4
- ATEX III 3G Ex nA II T4

## DTM10-301-AX-CX-EXX-GX-IX-SX

Factory pre-configured for radial shaft vibration (with built-in probe driver)

### AX: Full Scale

- A0\*: 0 - 200um pk-pk
- A1: 0 - 500um pk-pk
- A2: 0 - 100um pk-pk
- A3: 0 - 10mil pk-pk
- A4: 0 - 25mil pk-pk
- A5: 0 - 5.0mil pk-pk
- A6: 0 - 200um pk-pk (0.5 - 100Hz)
- A7: 0 - 500um pk-pk (0.5 - 100Hz)
- A8: 0 - 100um pk-pk (0.5 - 100Hz)

### CX: Alarms

- C0\*: Dual alarms with epoxy sealed relays
- C1: No alarm

### EXX: Probe and Cable (not included)

- E00\*: TM0180, 5m Cable
- E01: TM0180, 9m Cable
- E02: 8mm Probe, 3300, 5m Cable
- E03: 8mm Probe, 3300, 9m Cable
- E04: 8mm Probe, 7200, 5m Cable

### EXX: Probe and Cable Continued

- E05: 8mm Probe, 7200, 9m Cable
- E06: TM0105, 5m Cable
- E07: TM0105, 9m Cable
- E08: TM0110, 5m Cable
- E09: TM0110, 9m Cable
- E10: 11mm Probe, 3300, 5m Cable
- E11: 11mm Probe, 3300, 9m Cable
- E12: 11mm Probe, 7200, 5m Cable
- E13: 11mm Probe, 7200, 9m Cable

### GX: Mount

- G0\*: DIN rail mount
- G1: Plate mount

### IX: Frequency Response

- I0\*: Normal frequency
- I1: Low frequency (0.5-20Hz)

### SX: Approvals

- S0\*: CE
- S1: CE
- CSA Class I, Div.2, Groups A, B, C & D, T4
- ATEX III 3G Ex nA II T4

## DTM10-302-AX-CX-EXX-GX-SX

Factory configured for axial (thrust) position (built-in probe driver)

### AX: Full Scale

- A0\*: 1.0 - 0 - 1.0mm (40 - 0 - 40mil)  
(requires TM0180 or other 8mm proximity probe transducer)
- A1: 2.0 - 0 - 2.0mm (80 - 0 - 80mil)  
(requires TM0110 or other 11mm proximity probe transducer)

### CX: Alarms

- C0\*: Dual alarms with epoxy sealed relays
- C1: No alarm

### EXX: Probe and Cable (not included)

- E00\*: TM0180, 5m Cable
- E01: TM0180, 9m Cable
- E02: 8mm Probe, 3300, 5m Cable
- E03: 8mm Probe, 3300, 9m Cable
- E04: 8mm Probe, 7200, 5m Cable
- E05: 8mm Probe, 7200, 9m Cable
- E06: TM0105, 5m Cable
- E07: TM0105, 9m Cable
- E08: TM0110, 5m Cable
- E09: TM0110, 9m Cable
- E10: 11mm Probe, 3300, 5m Cable
- E11: 11mm Probe, 3300, 9m Cable



## DTM Distributed Transmitter Monitor

### EXX: Probe and Cable Continued

- E12: 11mm Probe, 7200, 5m Cable
- E13: 11mm Probe, 7200, 9m Cable

### GX: Mount

- G0\*: DIN rail mount
- G1: Plate mount

### SX: Approvals

- S0\*: CE
- S1: CE
- CSA Class I, Div.2, Groups A, B, C & D, T4
- ATEX III 3G Ex nA II T4

### DTM10-502-AX-CX-EXX-FXX-GX-SX

### Factory pre-configured for speed/ phase reference (built-in probe driver)

### AX: Full Scale

- A0: 0 - 1,000 rpm
- A1\*: 0 - 3,600 rpm
- A2: 0 - 6,000 rpm
- A3: 0 - 10,000 rpm
- A4: 0 - 30,000 rpm
- A5: 0 - 50,000 rpm

### CX: Alarms

- C0\*: Dual alarms with epoxy sealed relays
- C1: No alarm

### EXX: Probe and Cable (not included)

- E00\*: TM0180, 5m Cable
- E01: TM0180, 9m Cable
- E02: 8mm Probe, 3300, 5m Cable
- E03: 8mm Probe, 3300, 9m Cable
- E04: 8mm Probe, 7200, 5m Cable
- E05: 8mm Probe, 7200, 9m Cable
- E06: TM0105, 5m Cable
- E07: TM0105, 9m Cable
- E08: TM0110, 5m Cable
- E09: TM0110, 9m Cable
- E10: 11mm Probe, 3300, 5m Cable
- E11: 11mm Probe, 3300, 9m Cable
- E12: 11mm Probe, 7200, 5m Cable
- E13: 11mm Probe, 7200, 9m Cable

### FXX: Teeth per Revolution

- F01\*: 1
- FXX: Customer specifies number, number of teeth =XX

### GX: Mount

- G0\*: DIN rail mount
- G1: Plate mount

### SX: Approvals

- S0\*: CE
- S1: CE
- CSA Class I, Div.2, Groups A, B, C & D, T4
- ATEX III 3G Ex nA II T4

\* Factory default

### Optional Accessories

#### DTM-CAL

The DTM field calibration kit is capable of calibrating with any 5mm, 8mm and 11mm probe system. The kit includes:

- ✓ DTM-CFG configuration and calibration software CD
- ✓ RS485-USB converter with cable
- ✓ TM0540 proximity probe field calibration kit

#### DTM-CFG-K

DTM configuration and calibration software kit includes:

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

#### TM900

Power converter with isolation. It converts 95-250 VAC into 24VDC and is capable of powering up to five DTM modules.

### Probe systems

- TM0180:** 8mm probe
- TM0105:** 5mm probe
- TM0110:** 11mm probe
- TM0181:** Extension cable
- TM0182:** Probe driver
- TM0120:** 25mm probe system

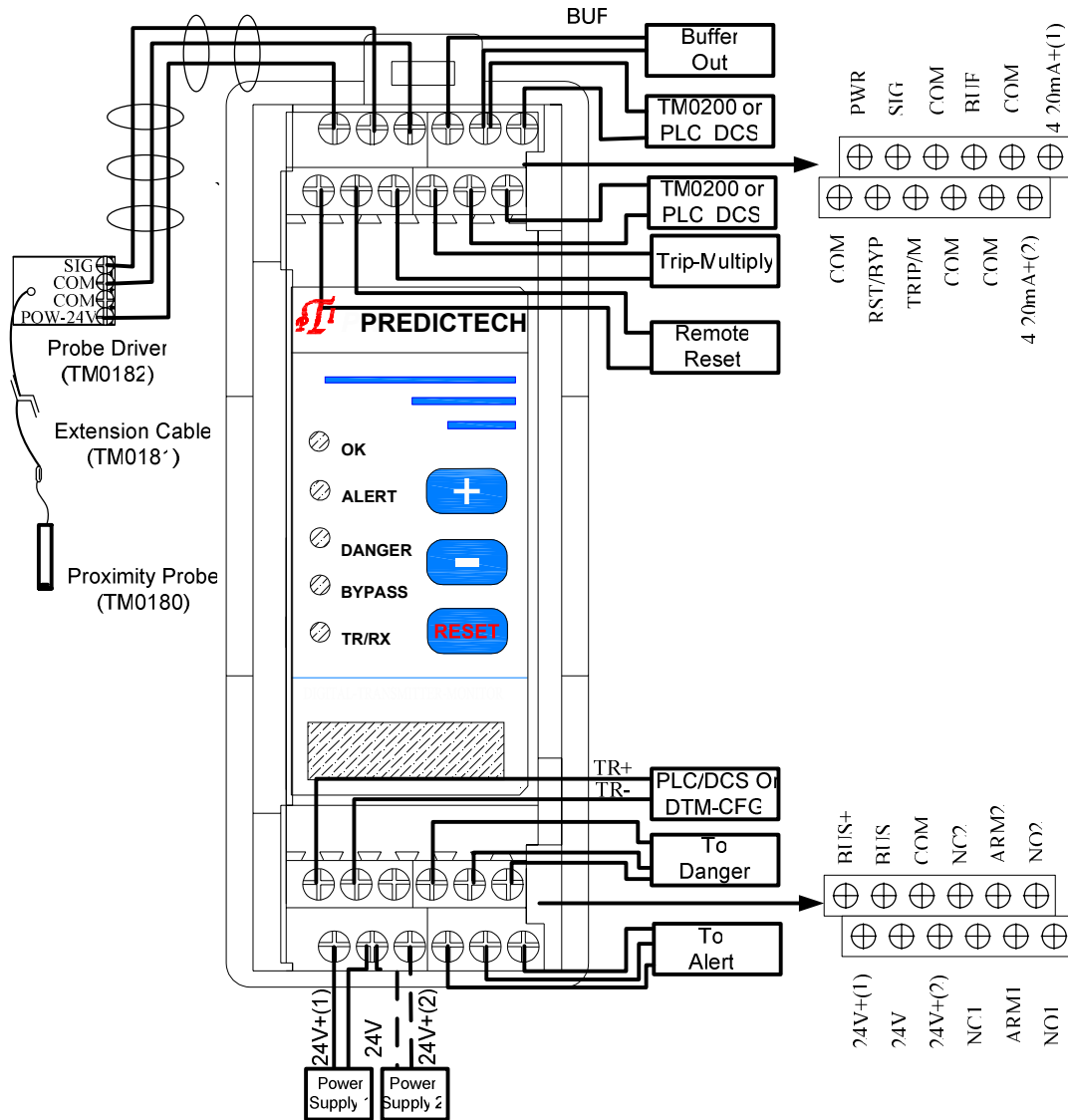
#### TM0200

3-1/2 digit display unit. Requires 110VAC or 230VAC power input.



# DTM Distributed Transmitter Monitor

## DTM10-201/202/501 Field-Wiring Diagram



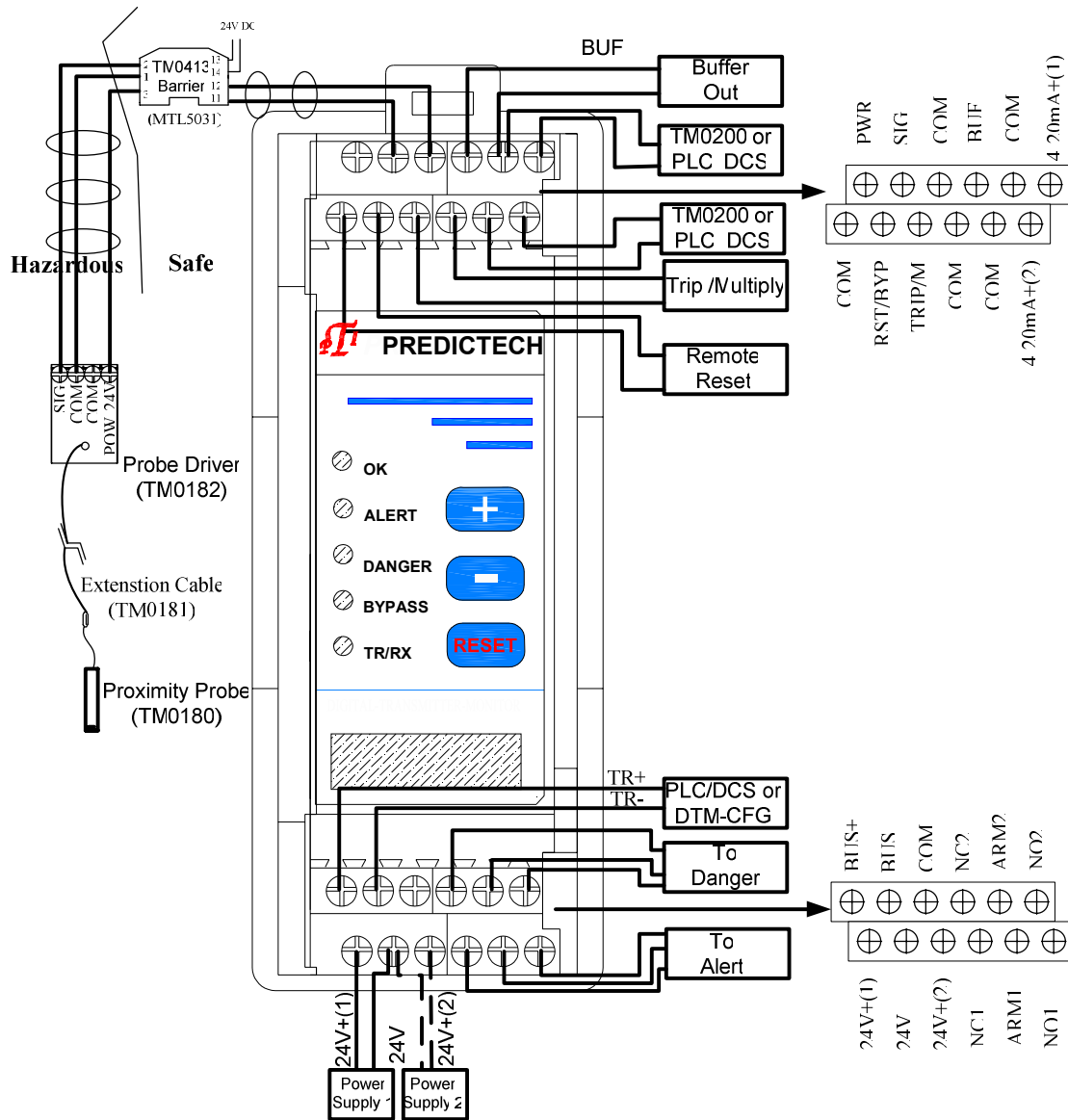
**Notes:**

- ✓ Power supply 2 is optional
- ✓ Alert and Danger relays are connected as normally open. Connect ARM with NC to form a normally closed configuration
- ✓ 4-20mA (2) is optional
- ✓ Closing COM and RST/BYP with an external continuous or momentary switch will initiate a remote reset. Temporarily closing the switch will result in a system reset, continuous close will result in a system bypass.
- ✓ DTM10 series is compatible with other manufacturers' probes, extension cables and probe drivers.



# DTM Distributed Transmitter Monitor

## DTM10-201/202/501 Hazardous Area Field-Wiring Diagram



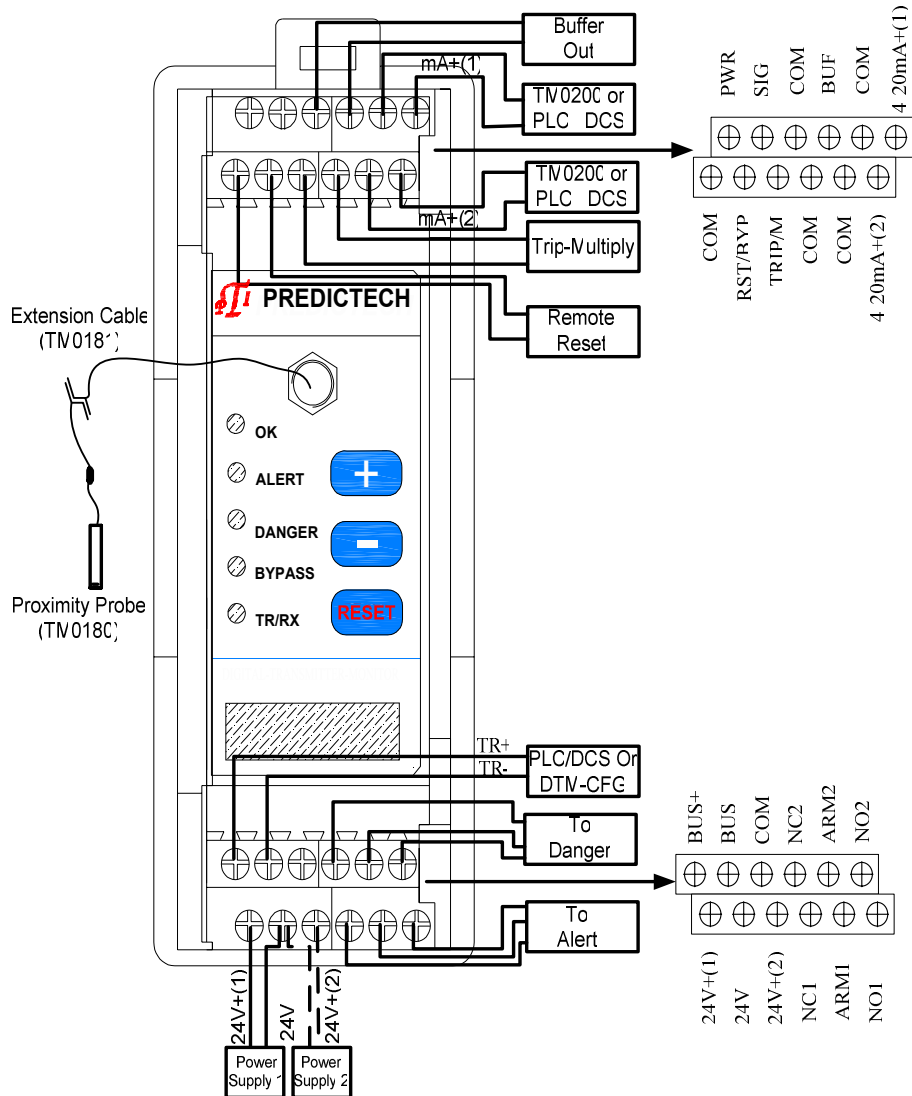
**Notes:**

- ✓ Power supply 2 is optional.
- ✓ Alert and Danger relay are connected with normally open. Connect ARM with NC to form a normally closed configuration.
- ✓ 4-20mA (2) is optional.
- ✓ Closing COM and RST/BYP with an external continuous or momentary switch will initiate a remote reset. Temporarily closing the switch will result in a system reset, continuous close will result in a system bypass.
- ✓ DTM10 series is compatible with other manufacturers' probes, extension cables and probe drivers.
- ✓ Other barriers available:  
 TM0404: (MTL5042)  
 TM0414: (STAHL 9002/00-260-138-001)



# DTM Distributed Transmitter Monitor

## DTM10-301/302/502 Field-Wiring Diagram



**Note:**

- ✓ Power supply 2 is optional.
- ✓ Alert and Danger relays are connected as normally open. Connect ARM with NC to form a normally closed configuration.
- ✓ 4-20mA (2) is optional.
- ✓ Closing COM and RST/BYP with an external continuous or momentary switch will initiate a remote reset. Temporarily closing the switch will result in a system reset, continuous close will result in a system bypass.
- ✓ DTM10 series is compatible with other manufacturers' probes, extension cables and probe drivers.