



TM600 Series Digital-Transmitter-Monitor

TM631/TM632/TM635 Proximity Digital Transmitter-Monitor

(Shaft Vibration, Thrust Position and Speed)

The TM631/TM632/TM635 digital vibration transmitter monitor is ideal for monitoring machine vibration using proximity probes. The monitor contains redundant relay outputs and 4-20mA transmission, it can interface to a PLC or DCS system. The monitor works without probe driver. Using Provibtech's unique technology, the monitor can interface with almost any proximity probe system without hardware changes.

Applications include:

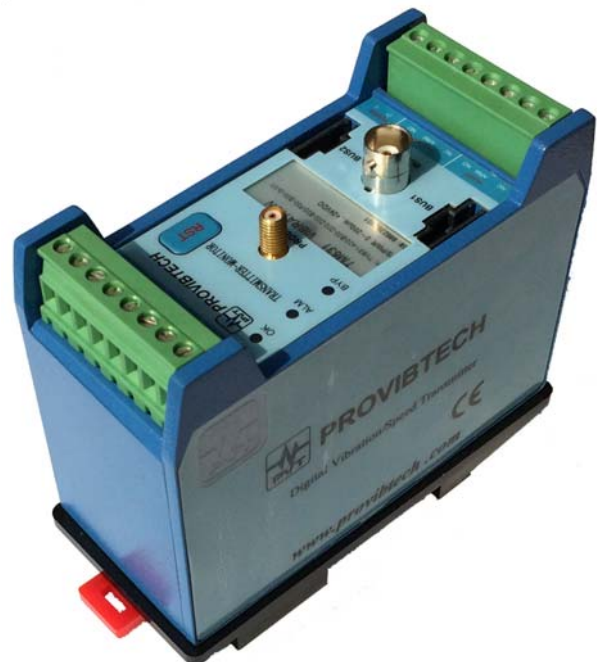
- ✓ Turbines
- ✓ Compressors
- ✓ Motors
- ✓ Pumps
- ✓ Fans
- ✓ Blowers
- ✓ Centrifuges
- ✓ Generators
- ✓ Turbochargers

Module Type:

- ✓ Vibration Monitor Module
- ✓ Thrust Position Monitor Module
- ✓ Speed Monitor Module
- ✓ Phase Reference Monitor module

Features

- ✓ Interface with almost any manufacture's proximity probe system
- ✓ Works without probe driver
- ✓ Modbus RTU output
- ✓ Redundant 4-20mA output
- ✓ Measure shaft vibration, thrust position, or speed
- ✓ Full digital field-configuration
- ✓ Dual alarms (SPDT)
- ✓ LED indication of system OK, Alert, Danger, and Bypass
- ✓ Local and remote RESET/BYPASS and Trip-multiply
- ✓ Buffered Output for condition monitoring
- ✓ Aluminum case for RFI/EMI reduction
- ✓ Digital condition monitoring (optional)





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Specifications

Electrical

Power Supply:

+24VDC:
18-30VDC, @150mA; isolation: 1000VDC

Frequency Response (-3dB):

Nominal frequency: 2 ~ 4.0 KHz
Low frequency: 0.5 ~ 100Hz

Proximity probe Interface:

Sensitivity:
5mm and 8mm probe: 8 mV/ μ m (200 mv/mil)
11mm probe: 4 mV/ μ m (100 mv/mil)

Buffered Output:

Original, un-filtered signal
Impedance: 150 Ω
Maximum cable distance: 300m (1000ft)
Sensitivity: same as the sensor
Local BNC connection and terminal block

4-20mA Output:

Dual 4-20mA, sourced (loop power not required)
Maximum load resistance: 380 Ω

Alarm Setup:

Range: 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: SPTD
Isolation: 1000VDC

LED Machine Condition Indicator:

OK: System OK and Digital Transmission indication
ALM (yellow): Vibration over ALERT level
ALM (red): Vibration over DANGER level
BYP: System in BYPASS

RESET/BYPASS:

Front panel push button
Remote RESET/BYPASS terminals

Trip Multiply:

Double multiply or Triple multiply set in TM600-CFG
Short Trip/Multi terminal to COM terminal on TM691,
System alarm level will increase by a factor of 2 or 3
(TM631 only)

Modbus:

RS485 Modbus RTU
Not isolated (use TM691 for isolation)

Software programming (TM600-CFG and TM691):

Alert and danger set-point, time delay
ZERO and Full-Scale calibration
Full-scale high and low setup
Alarm latching/ non-latching, energized/ de-energized
Alarms programmable with alert, danger or system ok
Probe selection, linearization, and system calibration
Monitor function change: vibration, position, or speed
Modbus communication setup
Trip-multiply setup
Real-time bar-graph and alarms
Configure speed monitor to phase reference only
monitor
3 layers of password protection

Digital Condition Monitoring

Terminals
Modbus-TCP interface in TM691
Software PCM360-LT
Work with PCM360-LT plant condition management
software
Dynamic waveform:
Real-time vibration data, 2000 sets per data
acquisition.
Alarms:
Up to 100 alarms can be stored in TM600
Trend:
Up to 1000 trend data can be stored in TM600.
Spectrum:
Up to 800 lines of resolution.

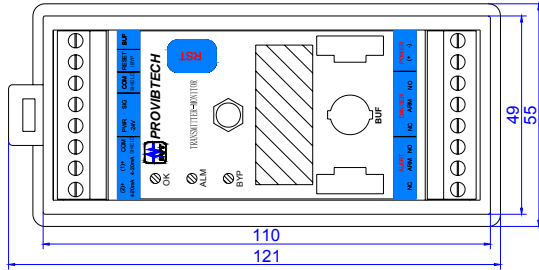


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Physical

Dimension:

Height: 82mm (3.23")
See figure below
Weight: 2.0lb (1.0kg)



Rail Mounting

Environmental

Temperature:

Operation: -30°C ~ +70°C
Storage: -40°C ~ +100 °C

Humidity: 90% non-condensing

Case: Aluminum



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Ordering Information

TM631-AXX-BXX-CXX-DXX-EXX-FXX-GXX-IX-MX

Vibration monitor (built-in probe driver), can replace TM301

AXX: Full Scale

- A00*: 0 ~ 200µm pk-pk
- A01: 0 ~ 500µm pk-pk
- A02: 0 ~ 100µm pk-pk
- A03: 0 ~ 10mil pk-pk
- A04: 0 ~ 25mil pk-pk
- A05: 0 ~ 5.0mil pk-pk
- A06: 0 ~ 200µm pk-pk (0.5 ~ 100Hz)
- A07: 0 ~ 500µm pk-pk (0.5 ~ 100Hz)
- A08: 0 ~ 100µm pk-pk (0.5 ~ 100Hz)

BXX: Power Supply

- B00*: +24VDC

CXX: Alarm

- C00: Epoxy Relay, Latching
- C01: No Alarm.
- C02*: Epoxy Relay, Non-Latching

DXX: Output

- D00*: 4 ~ 20mA

EXX: Probe and Cable

- 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: Buffer Out

- F00*: With Buffer Output

GXX: Mounting

- G00*: DIN rail mounting

IX: Frequency Response.

- I0*: Normal Frequency (2~4000Hz)
- I1: Low Frequency (0.5~100Hz)

MX: Digital Communication

- M1*: Modbus communication
- M2: Modbus communication with digital condition monitoring

TM632-AXX-BXX-CXX-DXX-EXX-FXX-GXX

Axial position monitor (built-in probe driver), can replace TM302

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)

BXX: Power Supply

- B00*: +24VDC

CXX: Alarm

- C00: Epoxy Relay, Latching
- C01: No Alarm.
- C02*: Epoxy Relay, Non-Latching

DXX: Output

- D00*: 4 ~ 20mA

EXX: Probe and Cable

- 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: Buffer Out

- F00*: With Buffer Output

GXX: Mounting

- G00*: DIN rail mounting



TM600 Series Digital-Transmitter-Monitor

TM635-AXX-BXX-CXX-DXX-EXX-FXX-GXX

Speed or phase reference monitor (built-in probe driver), can replace TM502

AX: Full Scale.

- A00: 0 ~ 1,000 rpm
- A01*: 0 ~ 3,600 rpm
- A02: 0 ~ 6,000 rpm
- A03: 0 ~ 10,000 rpm
- A04: 0 ~ 30,000 rpm
- A05: 0 ~ 50,000 rpm
- A06: phase reference output

BXX: Power Supply

- B00*: +24VDC

CXX: Alarm

- C00: Epoxy Relay, Latching
- C01: No Alarm.
- C02*: Epoxy Relay, Non-Latching

DXX: Output

- D00*: 4 ~ 20mA

EXX: Probe and Cable

- 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.

- F00*: 1
- F01: 60
- FXX: Customer specify, number of teeth =XX

GXX: Mounting

- G00*: DIN rail mounting

* Denote factory default.

Optional Accessories

TM600-CAL

The TM600 field calibration kit is capable of calibrating any 5mm, 8mm, or 11mm probe system. The kit includes:

- ✓ TM600-CFG-K
- ✓ TM0540 proximity probe field calibration kit

TM600-CFG-K

The TM600 configuration and calibration software kit includes:

- ✓ TM600 -CFG configuration and calibration software CD
- ✓ Network cable

TM900

Power converter with isolation. Converts 95-250 VAC into 24VDC and is capable of powering up to 7 TM600 modules.

Proximity Sensor Systems

- ✓ **TM0180:** 8mm probe
- ✓ **TM0105:** 5mm probe
- ✓ **TM0110:** 11mm probe
- ✓ **TM0181:** Extension Cable

BUS Cable

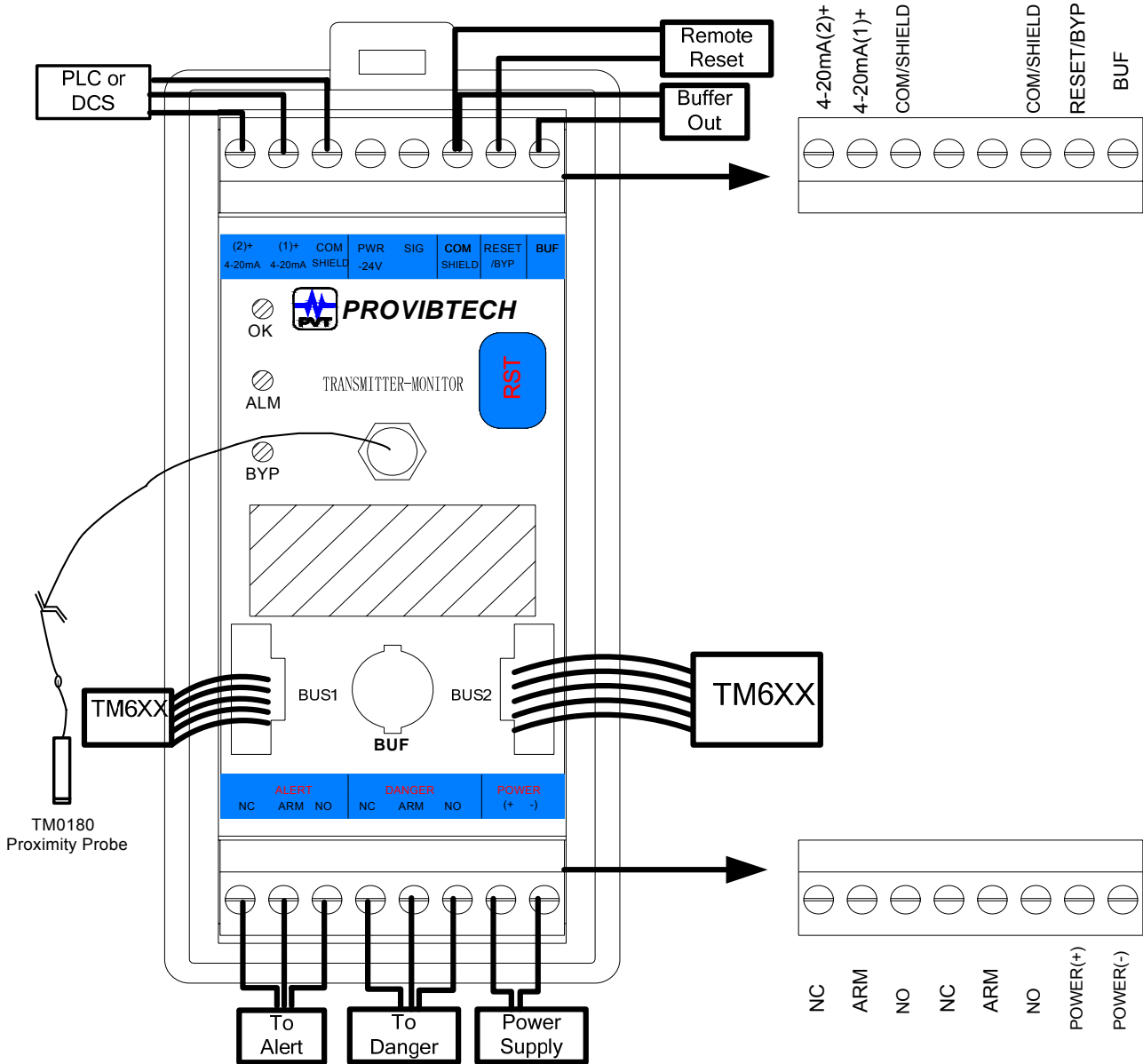
- ✓ **TM695-08:** 70mm Cable, used to connected BUS interface of TM691 to BUS2 interface of TM63X or connected BUS1 interface of TM63X to BUS2 interface of another TM63X.
- ✓ **TM695-22:** 200mm Cable, used to connected BUS1 interface of TM691 to BUS1 interface of another TM63X.



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TM631/TM632/TM635 System Installation

TM631/TM632/TM635 Field-Wiring Diagram



Note:

- ✓ 4-20mA (2) is redundancy output.
- ✓ Alert and Danger relays are shown connected as normally open. Connect ARM and NC for normally closed.
- ✓ Connecting COM and RESET/BYP with an external continuous or momentary closed switch will initiate a remote reset. Temporarily closing the switch will result in a system reset, continuous close will result in a system bypass.