DTM Series Distributed Transmitter Monitor Introduction

Fully Digital

The DTM series digital transmitter monitor is ProvibTech's vibration monitor, vibration transmitter and vibration switch all rolled into one package. Each DTM module can be operated independently or networked together to create a machine protection system. It has all the functionalities of an API 670 multi-channel monitor plus a unique field linearization feature which enables the use of any manufacturers' probe and extension cable combination. DTM modules are fully programmable, flexible, and highly reliable.

Fully Programmable and Flexible

The DTM is modular in nature and can easily be expanded into a larger vibration system with the addition of a:
DTM10 (Proximity Probe Sensor Module)
DTM 20 (Case Vibration Sensors Module)
DTM 30 (temperature Module)
DTM 96 (Communication Module)
DTM- CFG (Configuration Software)

DTM10 is a proximity probe sensor module which provides measurements in radial vibration, axial position(thrust), and speed / phase reference. The DTM10 works with any proximity probe system combination (including other manufacturers) and can be used:

- With or without Probe Driver
- In any combination of probe and extension cable. The DTM10 has a field linearization feature which enables the DTM10 to interface to any proximity probe system. This feature greatly reduces the requirement for spare parts.
- Works with any shaft material (Steel, Tungsten, K-monel and more).

DTM20 is a case mounted seismic sensor module which provides case vibration measurements in acceleration, velocity, or displacement. The DTM20 works with any case mounted sensor (including other manufacturers):

- Accelerometers
- Velocity Transducers

DTM30 is a temperature module which works with:

- Resistance temperature detector (RTD)
- Thermocouple

DTM96 is a communication module that can be used to network up to (32) DTMs together to form a vibration protection system. The DTM96 can be used to communicate directly with control systems (PLC or DCS) via modbus to provide data from the DTMs such as: alarm status, system status, overall value, and more.

DTM-CFG is the software used to configure the DTM modules (DTM10 and DTM20) either with a local laptop computer or a remote computer on the network (requires Modbus connection).

Configurable Parameters:

- Measurement Type (Case Vibration, Radial Vibration, Axial Position, and Speed/Phase)
- Sensor Type and Sensitivity (Proximity Probe, Accelerometer and Velocity Transducer)
- Full Scale Range (g, ips, mm/s, rms, pk, etc..)
- Time Delays
- Alarm Set Points

Observe:

- Alarm and Channel OK Status
- Trip Multiply
- Bypass and Overall Vibration Level

Control:

- Trip Multiply values
- Bypass and Reset functions

Note: The DTM can be pre-configured at the factory. DTM-CFG software is only required when field configuration is desired.

Highly Reliable System

The DTM was designed to be used for critical machines as well as balance of plant applications. Built into every DTM is a system redundancy based upon a reliable microprocessor and proprietary system diagnostics which all contribute to a robust system design which will maximize system uptime.

Power Redundancy- The DTM module has redundant power supply inputs to maximize the reliability of the system. A single power supply failure will not affect the operation of the system.

Output Redundancy- The DTM module is equipped with redundant 4-20mA outputs, redundant relay outputs, and a Modbus communication port. The DTM relay outputs can be configured for any logic configuration required.

Channel Redundancy- the DTM can be configured for triple redundancy with multiple DTMs networked together.

System Diagnostics- the DTM performs internal diagnostic tests to search for errors: sensor status, supply voltage, system power up, fieldbus status and more. If there is an error, the system OK status LED on the DTM will go off, and an error will be registered for the channel and sent via Modbus.

Reliable Microprocessor- critical data and system configuration is stored in a solid-state memory chip. The memory chips are designed not to lose data during an interruption of power. Once power is restored, the critical data and system configuration are recovered from the memory chips.

Additional Features

Power-Up Inhibit- This feature decreases false alarms due to higher vibration levels during machine start-up.

Condition Monitoring- Each DTM module has a buffered output for easy connection to a condition monitoring system or other vibration analysis hardware.

Selection Guide of DTM Modules

Model Number	DTM10	DTM20	DTM30	DTM96	DTM-CFG
	Radial Shaft Vibration, Thrust & Speed	**Case Vibration**	**Temperature, Dual Channels**	**Accessory: Communication Module**	**Accessory: Configuration Software**
Available as Pre- Configured or Field Programmable ***1**	●	●	●		●
Vibration Measurements					
Radial Vibration	●				
Axial Position	●				
Speed/ Phase Reference	●				
Case Vibration		●			
Temperature			●		
Sensor Interfaces					
Accelerometer		●			
Velocity Transducer		●			
Proximity Probe	●				
Works With or Without Probe Driver	●				
Thermocouple, RTD			●		
Outputs/ Communications					
Redundant 4-20mA Output	●	●	**S**		
Relay Output	●	●	●		
Redundant Power Supply Input	●	●	**S**		
Modbus Output	●	●		● (isolation)	
Buffered Output	●	●			
Features					
Push Button Setup (Limited Settings)	●	●	●		
Power-Up Inhibit	●	●	●		
System OK Checking	●	●	●		
Hazardous Rating (CSA, ATEX, TR CU) II 3 G Ex nA II T4 Class I, Div.2; Grps A, B, C & D, T4 2Ex nA II T4 X	●	●		●	
Network DTMs via Modbus ***2**	●	●		●	
Warranty- 2 years	●	●	●	●	

● = Complete Offering, S= Single 4-20mA Output or power supply input

Notes:

*1 = Field programming requires DTM-CFG-K Configuration Software kit. Without the software, the DTMs can only be configured for alarm set points and ZERO adjustment.

*2 =To network up to 32 DTMs via Modbus, requires (1) DTM96 Communication Module