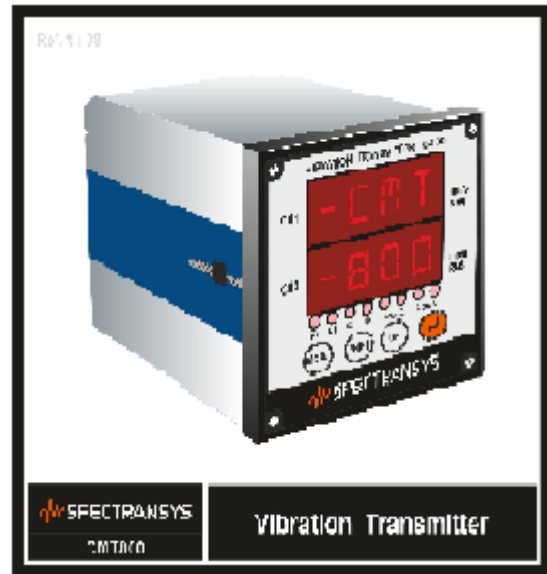


1 or 2 Channel Vibration Transmitter – model CMT800H

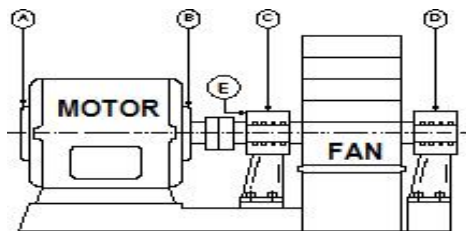
Fully Programmable (Microprocessor based)

The CMT800H Vibration Transmitter (1 or 2 Channel) is microprocessor based fully programmable device, designed to meet industrial environment. Linear Power Supply is deployed for low noise and is very reliable. All the units undergo stringent tests to assure quality performance Large Fans and Blowers (ID, FD, SA, PA etc.) are used in process plants for moving air or gases; they are essential for cooling, heating or transporting product. They usually are centrifugal or axial driven and commonly develop erosion and/or corrosion and/or deposition on the blades. This results in a progressive increase in vibrations. And build-up of dirt or cake on a fan's impellor is quite normal. However, not always are these faults progressive and predictive but, should a dirt piece become detached then suddenly the rotor becomes out of balance, and if ignored, consequential damage to the drive motor's bearings and coupling will results.



This can be extremely destructive and threaten personnel and plant safety. The loss of a single line Fan or Blower can shut down the process causing significant production and financial losses. The re-transmission analogue signal can be trended in DCS/PLC to monitor defect progression and plan maintenance considering production schedule and fix the problem before catastrophic failure.

RS485 Modbus RTU or GSM or RS232 connectivity is also available as an OPTION.



SITE CHALLENGES:

Due to its operational application, analysing and designing an Machine Monitoring System has considered the following:

- Unbalance
- Misalignment
- Bad bearings
- Mechanical looseness
- Aerodynamic forces

RECOMMENDED MEASUREMENT POSITIONS: Locating the vibration sensors as indicated in the schematic will be most sensitive and effective in detecting the above faults listed. The sensor orientations are summarised as follows: HORIZONTAL on Motor Bearings (A & B) and Fan Brgs. (C&D) is recommended;

- VERTICAL on motor & fan drive end bearings (B&C); AXIAL on Motor & Fan DE bearings (B&C) is recommended.

MACHINE FAULTS COMMON TO FANS AND BOWERS.

SN	TYPE OF FAULT	AMPLITUDE	FREQUENCY	PHASE	REMARKS
1	Unbalance	Proportional to unbalance in radial direction	1 x RPM	Single steady reference mark	Most common cause of vibration. Correct by balancing each rotating parts before assembly then after assembly.
2	Misalignment of couplings, bearings or bent shaft	Axial vibration 50% of more of the radial level	1 x RPM common but often x 2 or 3 RPM	Single double or triple reference mark	Best identified by dominant axial vibration. Confirm with phase measurement or dial gauges. If sleeve bearing with no coupling misalignment balance the rotor
3	Antifriction Bearings	Use Bearing Defect Energy, Demodulation	High frequency 35K to 55K CPM not related to RPM	Erratic	Sensor proximity to a defective bearing is a clear indicator. External signals like steam leaks and cavitation can give false readings
4	Mechanical Looseness	Often highest in vertical direction	2 x RPM	1 or 2 reference marks depending on frequency. Usually unsteady	Usually accompanied by unbalance and/or misalignment
5	Aerodynamic Forces	Axial readings may be higher than normal	1 x RPM or number of blades on fan or impellor x RPM	Steady if one blade damaged - like unbalance	Likely to occur where blade is bent or out of track. Use noise analysis for high frequencies.

CMT800H Series Vibration Transmitter Specification:

No. of Channels:	1 to 2
Signal Input:	Piezo Accelerometer 2 Wire CC, Piezo Velocity 2 Wire CC or Loop Powered Sensor or Eddy Current Probe for Shaft Vibration
Sensor Power:	+24 V DC @ 4 mA Constant Current or +24 V DC @ 30mA Loop Power -24 V DC @ 30mA for Eddy Current Probe.
Frequency Response:	5 Hz – 10KHz +/-3 dB for acceleration` 5 Hz – 2.5KHz +/-3 dB for velocity. 5 Hz – 600 Hz +/-3 dB for Displacement
Measurement (Up To):	Acceleration 0-19.99 g (pk or RMS) or Velocity 0-199.9 mm/s (pk or RMS) or Displacement 0-1999 microns (pk-pk); custom selection.
Outputs:	- Display 7 Segment 4 Digit 12.5mmH Bright LED Display per channel - Analogue 4-20 mA DC Isolated with max load of 500 Ohms per channel - Serial Communication RS485 Modbus RTU connectivity (Optional).
Transducer Failure:	Sensor Accelerometer Bias Voltage OR ECP Operating Range is checked for sensor healthiness; however, the check points as briefed below are fully programmable. - For Accl. 10 V Bias Voltage +8V to +12V check points are recommended. - For ECP operating range of -2V to -18V, -1V to -19V check points are recommended.
Alarm & Trip:	Pre-set Alarm & Trip levels independently programmable over full scale range, Relay contacts 2 C/O, 5 A @ 230 V AC resistive Latch Enable/Disable programmable. FS (Fail Safe) / NFS (Non-Fail-Safe) are programmable. Time Delay settable up to 99 seconds.
Accuracy:	+/-1% @ full scale
Mounting:	Panel mounted.
Power Supply:	230V AC Single Phase, 50 Hz.
Operating temp:	0 °C to 50 °C ambient
Storage temp:	-18 °C to 85 °C ambient
Humidity:	<95% non-condensing
Dimensions:	96(W) x 96(H) x 155(D) mm, Al Enclosure.