

9100 4Ch Vibration Monitor (VM4)

Machine Protection System

Tavator Sepahan Condition Monitoring Systems

Description



VM4 vibration monitor is a 4 channel vibration monitor accepts 100 mv/g accelerometers dynamic signals and condition those to Velocity RMS value, indicate vibration severity, compare it to user defined alarm values, indicate alarm condition and provide alarm relay action signal as well as acceleration buffered signals for external analysis. Extra 2 temperature measuring channel and one tacho channel is provided to improve any requirements for a complete machine monitor.

This module provides 4-20 mA current output signal for use in the DCS and recorders. ERROR indication can monitor VM4, sensors and connection faults and. RS485 connection used for data bus, controlling and setting VM4 in an online condition monitoring setup composed of several VM4s and processing modules. Full colored graphic display provides user friendly indication of all data needed by users.

Uses:

- Machinery protection by continues vibration, temperature and speed measurement and compare values against alarm set points and activate alarm relay.
- Machine off-line condition monitoring with BNC connections for inaccessible measurement points and machines.
- Any industrial machines such as Fan, Pump, Compressor, Motor, Gearbox, ..

Specifications

Alarms	
Relay: <ul style="list-style-type: none"> • Alarm 1 – Alert • Alarm 2 - Danger 	Indication: <ul style="list-style-type: none"> • Yellow LED – Alert • Red LED – Danger
Relay Time Delay: 0.1, 0.2, 0.5, 0.8, 1.0, 2.0, 3.0, 5.0, 6.0, 8.0, 10.0, 20.0 Seconds	Relay Action: <ul style="list-style-type: none"> • Normally Close • Normally Open
ERROR indication: <ul style="list-style-type: none"> • Sensor Fault • Sensor Connection Fault • Module Operation Fault 	Alarm Hysteresis: 0.5% Full Scale
Voting: <ul style="list-style-type: none"> • Any combination of “AND” and “OR” operand for any of 4 channels. 	
Display	
Graphic type: LCD <ul style="list-style-type: none"> • 400x272 TFT 16 Million color (Option: touch screen) 	Parameters: <ul style="list-style-type: none"> • Large font digital (level) • bar graph (level, Al, Dan) • Machine, Point, FS Value

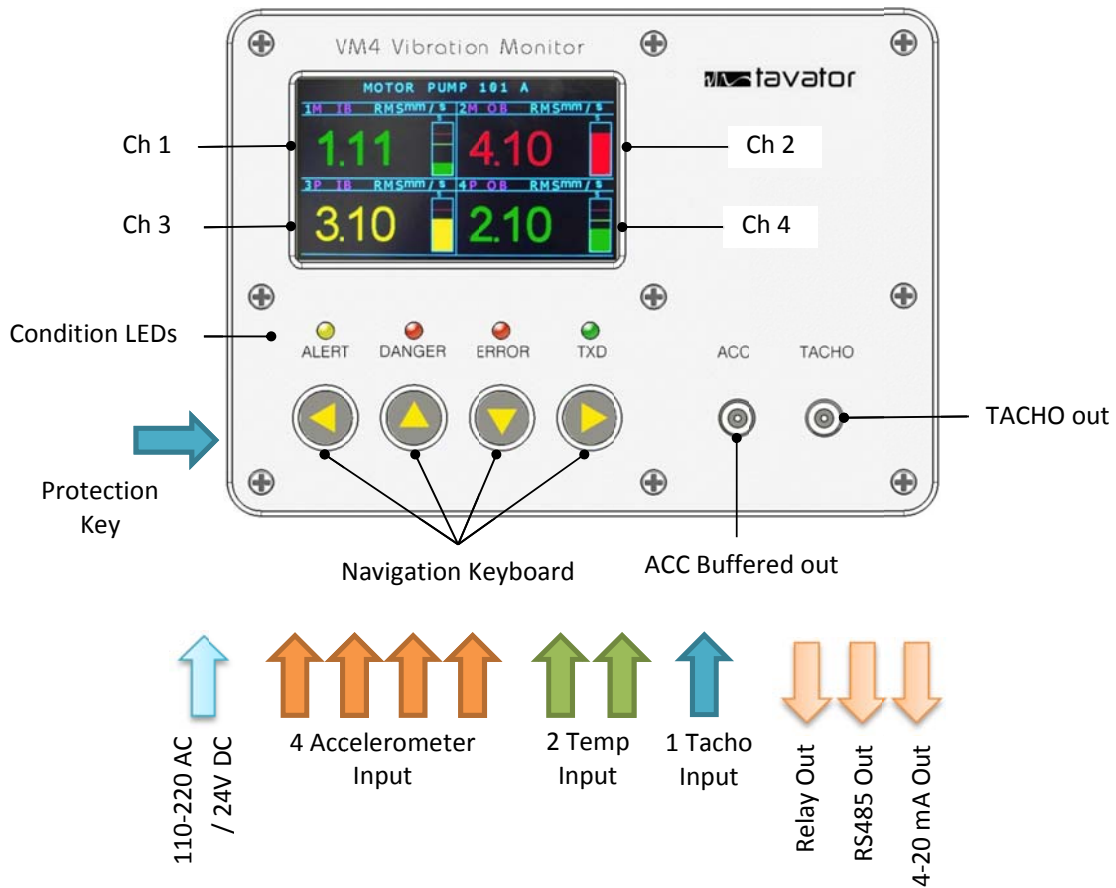
Signal Processing			
LLF:	<ul style="list-style-type: none"> • 1 Hz • 10 Hz 	ULF:	<ul style="list-style-type: none"> • 1 KHz • 10 KHz
Filter Order:	Order 4	Full Scale:	<ul style="list-style-type: none"> • 5 • 20 • 50 • 100 • 200
Unit:	<ul style="list-style-type: none"> • mm/s • IPS (Inch/s) 	RMS mm/s	

I/O			
Inputs	Outputs		
Accelerometer:	All 100mv/g standard Accelerometers (IPC)	BNC:	4 channel selectable buffered acceleration output for use in portable vibration analyzer.
Pt100 Transmitter:	Any transmitter with 4-20 mA output signal	Dynamic Out:	Dynamic velocity signal outputs for On-Line CM in future developments if this device.
Speed Sensor:	Any proximity probe, Photoelectric and tach sensors	4-20 mA:	4 x RMS Velocity + 2 x Temperature current output for use in the DCS systems or recorders.
		Relay:	ALERT, DANGER, OK and ACK for alarm management system
		RS485:	RS485 bus for data transmission between all VM4s and server computer to display machine levels and conditions in the Recorder software and setting VM4s. Half Duplex Modbus/RTU

General Specification at 25°C			
Accuracy:	1% Full Scale	Power:	<ul style="list-style-type: none"> • +24 V DC / 100~220 V AC • 20 Watt (Include Sensors)
Buffered Output:	<ul style="list-style-type: none"> • Acceleration (100 mv/g) 	Output Impedance:	75 Ω

Physical			
Dimension:	250 x 190 x 95 mm	Weight:	2150 gram

Environmental Limits			
Operating Temperature:	-5°C to +65°C	Storage Temperature:	-40°C to +85°C
Operating Humidity:	5% to 95% Non-condensing relative humidity	Storage Humidity:	5% to 95% Non-condensing relative humidity
IP:	IP 67		



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