



VMS4SE

Multi-Channel Vibration Monitor

Alarm | Trip | Monitor
Communication | Logging



mVSCAN



EtherNet/IP



The VMS4SE is an upgrade of model VMS4S; additional capabilities have been added by way of no of channels, multi-serial ports, ethernet port, scanning speed and alphanumeric display. VMS4SE accepts input directly from ICP type accelerometer, processes the signal and gives analog output in the form of standard current or voltage to suit different applications in power, cement and metal industries; optionally VMS4SE also accepts universal analog input to serve various application

Modular and Expandable

VMS4SE is modular in architecture and expandable, I/O slots can accommodate a mix of vibration input, analog input, open collector output or relay output. All field inputs are wired by pre-fab cables direct into panel terminals

Configuration

VMS4SE is used for plant wide predictive maintenance. It takes up online vibration and provides data through software. It is configured using the **mVSCAN** software which is very user friendly; the unit can also be edited by front keyboard and display. The unit has numeric and alphanumeric displays for value and tag display, alarm/trip and control status are displayed by discrete LEDs on front fascia.

Communication

VMS4SE comes with one RS485 Port as a standard, a second RS485 Port, Ethernet Port, ProfiNet Port & EtherNet/IP Port are options to enhance the communication capabilities of the unit and for direct interface with PLC, DCS or SCADA.

Buffer Output

VMS4SE comes with field interface board with buffered output on BNC connector for analysis purpose of raw signal of vibration input

Alarm/ Control

8 Relay and 16 OC outputs can be freely mapped as alarm/trip or control set point

Analog Output

An optional isolated 4-20mA analog output proportional to vibration range is available to interface with PLC/DCS/RTU for centralized monitoring and protection. Max. 8 output is possible

Features

- 4 / 8 Channel vibration input module
- Optional 8 channel universal analog input module
- 3 I/P & 2 O/P slots capacity
- Compact and rugged panel mount
- Extruded aluminum chassis with IP55 front fascia
- Field configurable for acceleration, velocity or displacement range
- Fast sampling and generation of alarm/trip
- User free mapping of relay to channels
- Comprehensive alarm/trip logic
- Alpha-numeric display for programmable tag no. / Engg unit
- RS-485 serial port (One standard and 2nd optional)
- 1x ethernet port (Optional)
- 2X ProfiNet Port
- 2X EtherNet/IP Port
- Analog output (4-20 mA) (Optional)
- Field interface buffer output module
- Modbus RTU over serial and modnet over ethernet protocols
- Windows based free **mVSCAN** configuration software
- Data logging option

Applications

- Balance of plant vibration measurement and protection of
 - Cooling towers
 - Pumps
 - Motors
 - Gear boxes
 - Blowers
 - ID/FD/PA fans
 - Air compressors
 - Conveyors
- Motor/ generator/ turbine monitoring and protection
- Compressor/ pump/ DG set monitoring

USER-FRIENDLY PROGRAMMING AND ONLINE LOGGING

mVSCAN Software

mVSCAN Software is used to Monitor and Configure the Multichannel Vibration Monitor

- Auto device discovery of VMS4SE over RS-485 port
- Run time data monitoring
- Configuration through RS-485 and ethernet port
- Data log retrieval (Periodic and event) in XLSX and pdf file formats
- Online data logging in XLSX format
- Report generation
- Alarm/Trip setpoints
- Time stamping

Easy to Monitor

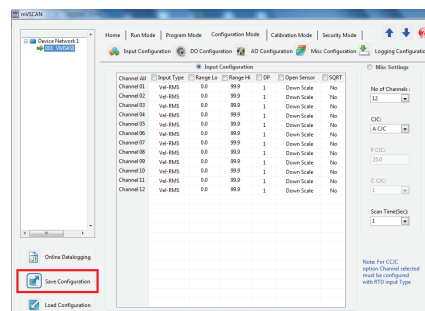
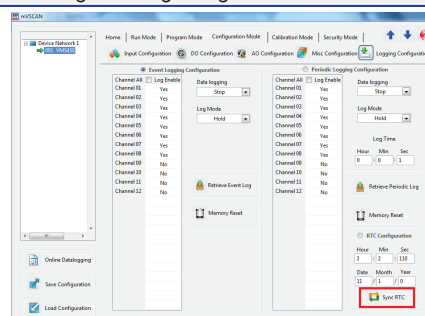
Parameters Front Display mVSCAN Software

Real-time data

- Channel no.
- Process/Parameter value
- Zero/Span, input type
- Alarm status
- Channel wise process/parameter value

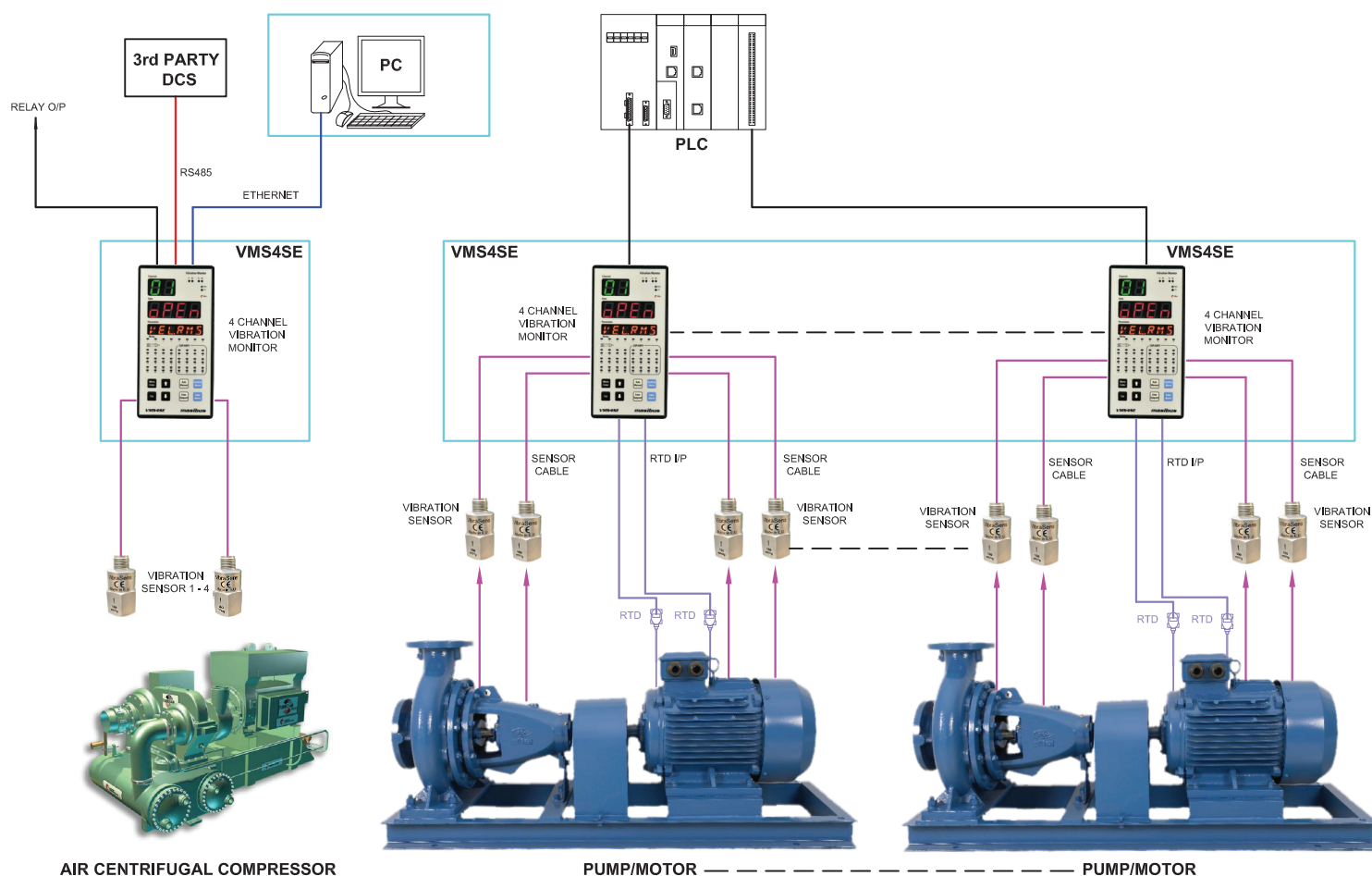
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Programming using mVSCAN Software

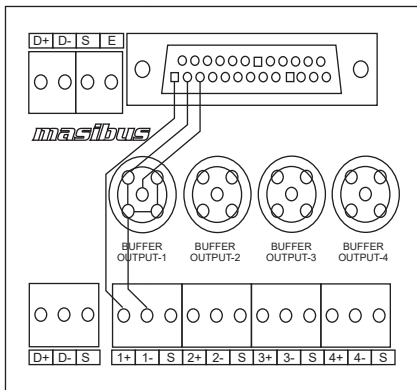


Online Logging using mVSCAN Software

Application

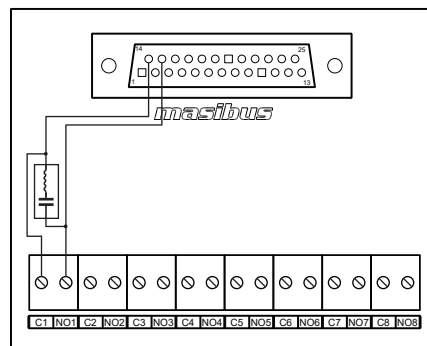
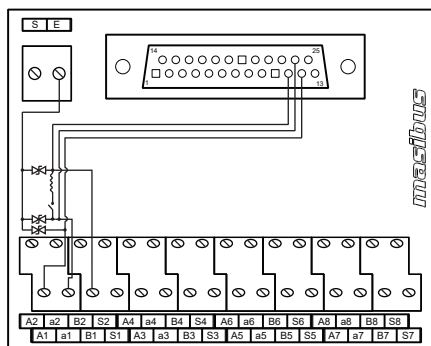


TECHNICAL SPECIFICATIONS

Input			PROFINET (Optional)																																
Accelerometer Input			Device Type	Profinet I/O Device																															
No of Modules	1 (4 ch), 2 (8ch)		Communication Protocol	Profinet																															
Type	Remote ICP piezoelectric accelerometer		Network Topology	MRP (Media Redundancy Protocol), STAR, LINE																															
Sensitivity	100mV/g standard		Network Port	2 Nos (RJ-45)																															
	500mV/g (On request)		Max. In/Out Bytes	256 IN / 256 OUT Bytes*																															
Dynamic Range	80 g pk		Network Speed	10/100 Mbps, Auto-negotiation & Auto-crossover																															
Measurement Parameters			Data Transport Layer	Ethernet II, IEEE 802.3																															
Parameter	Range (Field Selectable)	Resolution	Configuration File	GSDML available																															
Acceleration	0 to 50.0g (RMS, Pk)	0.1g	Conformance Class	Class C																															
Velocity	0 to 100.0mm/sec (RMS, Pk)	0.1mm/sec	ETHERNET/IP (Optional)																																
Displacement	0 to 2000microns (Pk-Pk)#	1 micron	Device Type	EtherNet/IP Adapter (Slave)																															
		#Derived peak	Communication Protocol	EtherNet/IP																															
Sensor Excitation Current	4 mA approx.		Network Topology	DLR (Device Level Ring), TREE, LINE																															
Scan Time	50 mSec/channel		Network Port	2 Nos (RJ-45)																															
Frequency Range	High pass: 2.5Hz,5Hz,10Hz		Max. In/Out Bytes	504 IN / 504 OUT Bytes*																															
(Factory Set)	Low pass: 1KHz,2.5KHz,10KHz		Network Speed	10/100 Mbps, Auto-negotiation & Auto-crossover																															
Accuracy	-3dB filter accuracy : ± 10%		Data Transport Layer	Ethernet II, IEEE 802.3																															
	± 2% of full span (Input to display)		Configuration File	EDS available																															
Analog Input (Optional)			*Note: Currently, Profinet and Ethernet IP communication support Input (Read) functionality only, Output (Write) functionality will be available in a future.																																
No. of AI Modules	1 (8 ch.)		Buffered Output (Din-Rail Mount Field Interface Module)																																
Input Type	Thermocouple, RTD, voltage, current		No. of Output Per Card	4 nos.																															
Input Range	Refer table-1		Output Impedance	<100 ohms																															
Accuracy	0.1% FS		Frequency Range	0.5Hz to 10KHz																															
ADC Resolution	17 bits		Accuracy	0.25% of Full range																															
Display Resolution	0.1 / 1.0 °C																																		
Sampling Rate	T/C & Voltage/current: 50mSec/channel																																		
Display Scan Rate	RTD: 100mSec/channel																																		
CJC	1 to 99 Sec (Programmable)																																		
Sensor Open	Auto/ manual/ external for T/C type		Field Interface Module (BNC Port)																																
Sensor Burnout Current	All inputs except 0-5V, 0-10VDC		Data Logging (Optional)																																
RTD Excitation Current	0.4uA		Memory	25MB (Periodic), 7MB (Event)																															
NMRR	250uA (Approx.)		Logged Data Retrieval	VIA mvSCAN Software																															
CMRR	> 40dB		Min. Periodic Log Time	1 min																															
Temp-Co	> 120dB		No. of Records	101888 X $\left[\frac{256}{(2X\text{No. of Ch}) + 12} \right]$																															
Input Impedance	< 100ppm/°C		Power Supply																																
Max. Voltage	> 1MΩ		Voltage	85-265VAC, 50/60 Hz / 100-295 VDC																															
Connector Type	> 20VDC		Power Consumption	18 - 36VDC (Optional) 16VA (Max.) [85-265V AC] 8VA (Max.) [18-36VDC]																															
Display and Keys			Isolation (Withstanding voltage)																																
Channel Number	2-Digit, 0.56", green seven segment LED		Between primary terminals* and secondary terminals**: At least 1500 V AC for 1 minute																																
Measuring Parameter Value	4-Digit, 0.56", red seven segment LED		Between primary terminals* and grounding terminal: At least 1500 V AC for 1 minute																																
Engineering Unit	6-Digit, 0.3", orange alphanumeric LED		Between grounding terminal and secondary terminals**: At least 1500 V AC for 1 minute																																
Status LEDs	Manual, run, flt, Tx/Rx, relay status		Between secondary terminals**: At least 500 V AC for 1 minute																																
Keys	Alarm/control status per channel		* Primary terminals indicate power terminals and relay output terminals.																																
Output			**Secondary terminals indicate I/O signal and Communication O/P.																																
Alarm/Trip Output (Optional)			Insulation resistance: 20MΩ or more @ 500 V DC between power terminals and grounding terminal																																
Relay Output (Optional)			Table 1: Display Range for Analog Input																																
Relays	8 Nos. per card		<table><tr><th>Input Type</th><th>Ranges</th></tr><tr><td>E</td><td>-200 °C to 1000 °C</td></tr><tr><td>J</td><td>-200 °C to 1200 °C</td></tr><tr><td>K</td><td>-200 °C to 1372 °C</td></tr><tr><td>T</td><td>-200 °C to 400 °C</td></tr><tr><td>B</td><td>450 °C to 1820 °C</td></tr><tr><td>R</td><td>0 °C to 1768 °C</td></tr><tr><td>S</td><td>0 °C to 1768 °C</td></tr><tr><td>N</td><td>-200 °C to 1300 °C</td></tr><tr><td>Pt100</td><td>-199.9 °C to 850.0 °C</td></tr><tr><td>Cu53</td><td>-210.0 °C to 210.0 °C</td></tr><tr><td>NI-120</td><td>-70.0 °C to 210.0 °C</td></tr><tr><td>0/4 to 20mA (Ext.250Ω)</td><td rowspan="4">-1999 to 9999</td></tr><tr><td>0/1 to 5V</td></tr><tr><td>-10 to 20 mV DC</td></tr><tr><td>0 - 100 mV DC</td></tr><tr><td>0 - 10 V DC</td><td></td></tr></table>		Input Type	Ranges	E	-200 °C to 1000 °C	J	-200 °C to 1200 °C	K	-200 °C to 1372 °C	T	-200 °C to 400 °C	B	450 °C to 1820 °C	R	0 °C to 1768 °C	S	0 °C to 1768 °C	N	-200 °C to 1300 °C	Pt100	-199.9 °C to 850.0 °C	Cu53	-210.0 °C to 210.0 °C	NI-120	-70.0 °C to 210.0 °C	0/4 to 20mA (Ext.250Ω)	-1999 to 9999	0/1 to 5V	-10 to 20 mV DC	0 - 100 mV DC	0 - 10 V DC	
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Connector Type	25 D-Sub																																		
Open Collector (OC) Output (Optional)																																			
OC Outputs	16																																		
Type	Sinking																																		
Rating	100mA@30VDC																																		
Connector Type	25 D-Sub																																		
Analog Output (Optional)																																			
No of Outputs	Max. upto 8 nos. per card																																		
Output Types	0/4 to 20 mA (Isolated)																																		
Load	500Ω Max.																																		
Accuracy	±0.1% Of full scale (Display to output)																																		
Communication Output																																			
RS485-1 (Standard) & RS485-2 (Optional)																																			
Protocol	Modbus-RTU slave																																		
Baud Rate	9600 or 19200																																		
Connector	2 Pin, plug-in terminals																																		
Ethernet (Optional)																																			
Protocol	Modbus - TCP/IP (Modnet) slave																																		
Baud Rate	10 Mbps																																		
Connector	RJ45																																		

TECHNICAL SPECIFICATIONS

Physical		Terminal Board for AI Module (Optional)	
Size (in mm)	144 (H) X 72 (W) X 165 (D)	Input Connection	MKDS type connector screw up to 2.5mm ² conductor
Panel Cutout (in mm)	137 (H) X 68.5 (W)	O/P Connection	25 Pin D-Type plug in type connector
Depth Behind Panel (in mm)	155 / 203 (With cable connector)	Size (L X W X H) in mm	90 X 90 X 75
Mounting	Panel mount (Standard)	Mounting	35 mm DIN-Rail
Weight	1.25 Kg	Terminal Board for Relay Module (Optional)	
Enclosure Material	Extruded aluminum	Input Connection	25 Pin D-Type plug in type connector
Protection	IP20 (Overall), IP55 (Front fascia)	O/P Connection	MKDS type connector screw up to 2.5mm ² conductor
Environmental		Size (L X W X H) in mm	90 X 90 X 75
Operating Temperature	-10 to 55 °C	Mounting	35 mm DIN-Rail
Storage Temperature	0 to 80 °C		
Humidity	20 to 95 % RH Non-condensing		



Ordering Code												
Model	Input				Output				Power Supply	Communication	Data logging	
	1	2	3		4	5						
VMS4SE	XX	XX	XX		XX	XX			XX	XX	X	
	VI	N	N		N	N			U1	1X	N	
		4 Channel VIB I/P	None		None	None			85-265 VAC	1 x RS485	No	
		VI	AI		RL	4A			U2	2X	Y	
		4 Channel VIB I/P	8 Channel Analog I/P		8 Relay	4-20mA o/p			18-36 VDC	2 x RS485	Yes	
					OC	8A				1E		
					Open Collector O/P	4-20mA o/p				2E		
										EP		
										PN		

Note:

- Specify X from ordering code
- For analog O/P type; other than 0/4-20mA please contact factory
- Customer to specify required input type/range from table-1 for analog input at the time of order placement; else by default all analog channels will be calibrated for input RTD PT100 range

Field Interface Board and Pre-Fab Cable for Vibration Input Ordering Code (Standard)	
Part Code	Description
m-VMS4SE-FIB-VI	4 Channel field Interface board for vibration input with BNC port for buffered output (4 Ch. (VI): 1 Module required & 8 ch. (VI): 2 Modules required)
VIC-2.5	4 Points input cable 25 core 2.5 mtrs long 4 Ch. (VI)
Prefab Cables Ordering Code (Optional)	
Part Code	Description
AIC-2.5-DB	8 Points Analog input cable 25 core 2.5 mtrs long with DB 25 Connector 8 Ch. (AI)
RLC-2.5	8 Relay output cable 25 core 2.5 mtrs long
OCC-2.5	16 OC output cable 25 core 2.5 mtrs long
AOC-2.5	Analog output cable 25 core 2.5 mtrs long
Field Interface Terminal Board and Pre-Fab Cable for Analog Input Ordering Code (Extra Cost)	
Part Code	Description
m-VMS4SE-FIB-AI	8 Channel field interface board for analog input (8 Ch. (AI): 1 Module required)
m-AIC-2.5-R24J-D25M	8 Points analog input cable 25 core 2.5 mtrs long with DB25 connector (8 Ch. (AI): 1 Cable required)
Field Interface Terminal Board and Pre-Fab Cable for Relay Output Ordering Code (Extra Cost)	
Part Code	Description
m-VMS4SE-FIB-RL	8 Channel field interface board for relay output
m-RLC-2.5-D25F-D25M	8 Relay output cable 25 Core 2.5 mtrs long with DB25 connector