masibus
A Sonepar Company

VMS4SE

Multi-Channel Vibration Monitor

Alarm | Trip | Monitor
Communication | Logging

mVSCAN Modbus

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 plan wide predictive maintenance. It takes up online vibration and provides data though 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 RS-485 port as a standard, a second RS-485 port & an Ethernet 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
- RS485 Serial port (one standard and 2nd Optional)
- 1 x Ethernet port (Optional)
- 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

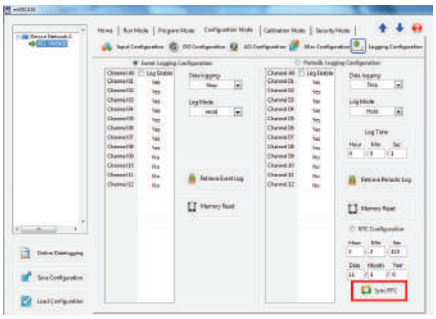
mVSCAN Software is used to Monitor and Configure the Multichannel Vibration Monitor

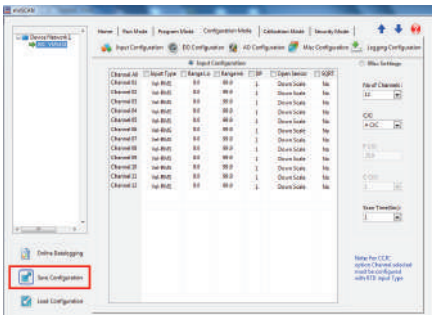
- Auto device discovery of VMS4SE over RS485 Port
- Run Time Data monitoring
- Configuration through RS485 and Ethernet Port
- Data Log Retrieval(Periodic and Event) in .xls and .pdf file formats
- Online Data logging in .xlsx format
- Report Generation
- Alarm/Trip Setpoints
- Time Stamping

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	✓	✓

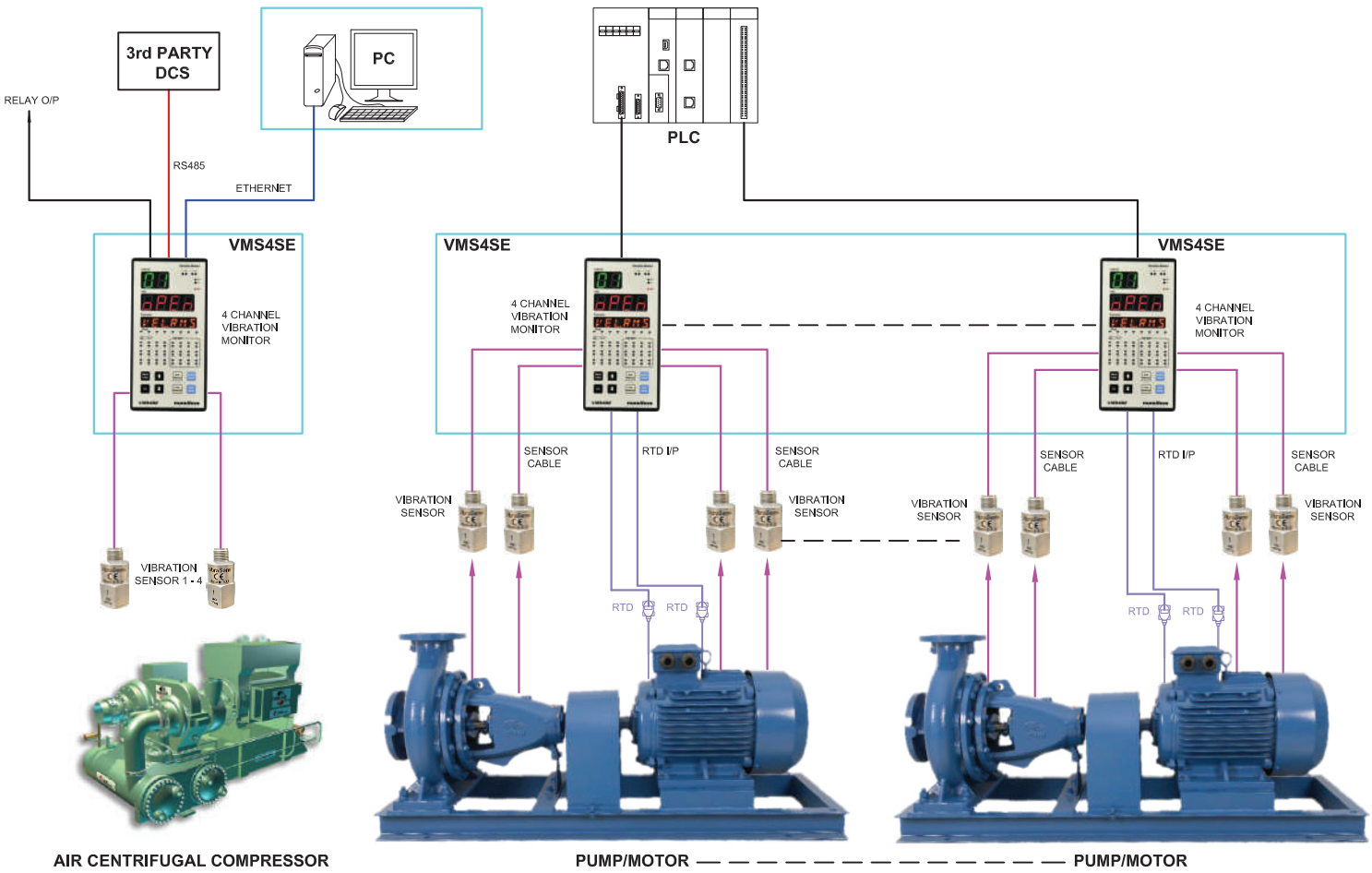
Programming using mVSCAN software





Online Logging using mVSCAN software

Application



TECHNICAL SPECIFICATIONS

Input

Accelerometer Input

No of Modules	1 (4 ch), 2 (8ch)
Type	Remote ICP piezoelectric Accelerometer
Sensitivity	100mV/g standard 500mV/g (on request)
Dynamic range	80 g pk

Measurement Parameters

Parameter	Range (Field Selectable)	Resolution
Acceleration	0 to 50.0g (RMS, Pk)	0.1g
Velocity	0 to 100.0mm/sec (RMS, Pk)	0.1mm/sec
Displacement	0 to 2000microns (Pk-Pk)#	1 micron #Derived Peak
Sensor Excitation current	4 mA approx.	
Scan time	50 mSec/Channel	
Frequency range (factory set)	High Pass: 2.5Hz,5Hz,10Hz Low Pass: 1KHz,2.5KHz,10KHz -3dB Filter Accuracy : ± 10%	
Accuracy	± 2% of full span (Input to Display)	

Analog Input (Optional)

No of AI Modules	1 (8 ch)
Input Type	Thermocouple, RTD, Voltage, Current
Input Range	Refer Table-1
Accuracy	0.1% FS
ADC Resolution	17 bits
Display Resolution	0.1 / 1.0 °C
Sampling Rate	T/C & Voltage/Current: 50mSec/Channel RTD: 100mSec/Channel
Display Scan Rate	1 to 99 Sec (Programmable)
CJC	Auto/ Manual/ External for T/C type
Sensor open	All inputs except 0-5V, 0-10VDC
Sensor Burnout current	0.4uA
RTD excitation current	250uA (Approx)
NMRR	> 40dB
CMRR	> 120dB
Temp-co	< 100ppm/°C
Input Impedance	> 1MΩ
Max Voltage	20VDC
Connector type	24 pin Rectangular connector

Display and Keys

Channel number	2-Digit, 0.56", Green seven segment LED
Measuring Parameter Value	4-Digit, 0.56", Red seven segment LED
Engineering unit	6-Digit, 0.3", Orange Alphanumeric LED
Status LEDs	Manual, Run, Flt, Tx/Rx, Relay status Alarm/Control Status per channel
Keys	2 X 4 for Configuration, Operation and Calibration

Output

Alarm/Trip Output (Optional)
Relay Output (Optional)

Relays	8 Nos per card
Type	C- NO or C-NC (Jumper Selectable)
Rating	2A @ 250VAC / 30VDC
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 (for Current o/p) 3000Ω Min (for Voltage o/p)
Accuracy	±0.1% of Full Scale (Display to output)

Communication Output

RS485-1 (Standard) & RS485-2 (Optional)

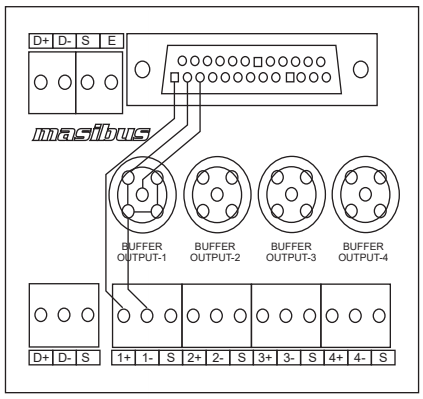
Protocol	Modbus-RTU Slave
Baud Rate	9600 or 19200
Connector	2 pin, plug-in terminals

Ethernet (Optional)

Protocol	Modbus - TCP/IP(Modnet) Slave
Baud rate	10 Mbps
Connector	RJ45

Buffered Output (Din Rail Mount Field Interface Module)

No of output per card	4 nos
Output Impedance	<100 ohms
Frequency range	0.5Hz to 10KHz
Accuracy	0.25% of Full range



Field Interface Module (BNC Port)

Data Logging (Optional)

Memory	25MB (Periodic), 7MB (Event)
Logged data retrieval	VIA mVSCAN Software
Min Periodic Log Time	1 min
No of Records	$101888 \times \left[\frac{256}{(2 \times \text{No. of Ch}) + 12}\right]$

Power supply

Voltage	85-265VAC, 50/60 Hz / 100-295 VDC 18 - 36VDC (Optional)
Power Consumption	16VA (Max) [85-265V AC] 8VA (Max) [18-36VDC]

Isolation (Withstanding voltage)
Between primary terminals* and secondary terminals**: **At least 1500 V AC for 1 minute**
Between primary terminals* and grounding terminal: **At least 1500 V AC for 1 minute**
Between grounding terminal and secondary terminals**: **At least 1500 V AC for 1 minute**
Between secondary terminals**: **At least 500 V AC for 1 minute**
* Primary terminals indicate power terminals and relay output terminals.
**Secondary terminals indicate I/O signal and Communication O/P.
Insulation resistance: 20MΩ or more @ 500 V DC between power terminals and grounding terminal

Physical

Size (in mm)	144 (H) X 72 (W) X 165 (D)
Panel Cutout (in mm)	137 (H) X 68.5 (W)
Depth behind Panel (in mm)	155 / 203 (with cable connector)
Mounting	Panel Mount (Standard)
Weight	1.25 Kg
Enclosure Material	Extruded Aluminum
Protection	IP20 (Overall), IP55 (Front Fascia)

Environmental

Operating temperature	-10 to 55 °C
Storage temperature	0 to 80 °C
Humidity	20 to 95 % RH non-condensing

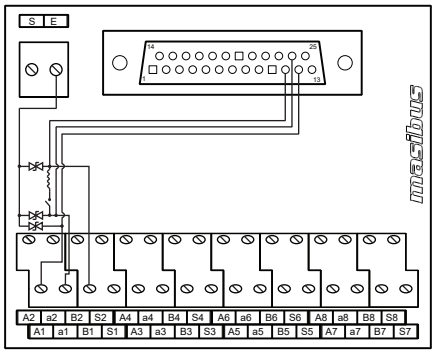
Table 1: Display Range for Analog Input

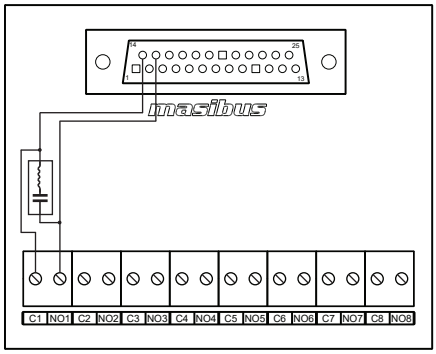
Input Type		Ranges
Thermocouple	E	-200 °C to 1000 °C
	J	-200 °C to 1200 °C
	K	-200 °C to 1372 °C
	T	-200 °C to 400 °C
	B	400 °C to 1820 °C
	R	0 °C to 1768 °C
	S	0 °C to 1768 °C
	N	-200 °C to 1300 °C
RTD	Pt100	-199.0 °C to 850.0 °C
	Cu53	-210.0 °C to 210.0 °C
	NI-120	-70.0 °C to 210.0 °C
Voltage/Current	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	

TECHNICAL SPECIFICATIONS

Terminal Board for AI Module (Optional)	
Input Connection	MKKDS type connector screw up to 2.5mm^2 conductor
O/P Connection	25 Pin D-type plug in type Connector
Size (L X W X H) in mm	90 X 90 X 75
Mounting	35 mm DIN Rail

Terminal Board for Relay Module (Optional)	
Input Connection	25 Pin D-type plug in type Connector
O/P Connection	MKDS type connector screw up to 2.5mm^2 conductor
Size (L X W X H) in mm	90 X 90 X 75
Mounting	35 mm DIN Rail





Ordering Code

Model	Analog Output 1		2		3		4		5		Power Supply		Communication		Data logging	
VMS4SE	XX		XX		XX		XX		XX		XX		XX		X	
	VI	4 channel Vib i/p	N	None	N	None	N	None	N	None	U1	85-265 VAC	1A	1 x RS485	N	No
			VI	4 channel Vib i/p	AI	8 ch Analog i/p	RL	8 Relay	4A	4 nos 4-20mA o/p	U2	18-36 VDC	2X	2 x RS485	Y	Yes
							OC	Open Collector O/P	8A	8 nos 4-20mA o/p			1E	1 x RS485 + 1 x Ethernet		
													2E	2 x RS485 + 1 x Ethernet		

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	8 points Input cable 25 Core 2.5 mtrs long 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

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