VM-25
MONITORING SYSTEM

SPECIFICATIONS

VM-25 CONDITION MONITORING SYSTEM

(Option selection supported version)

Model Code

Vibration measurement function [VM-25F01]			Recorder Output (Isolated) [VM-25F26]	Relay Output [VM-25F21]	Model Code
Input Channel	Recorder Output (Non-isolated)	Monitor Output			
2ch	2ch	2ch	0ch	0ch	VM-25M00-151-01-00-00-00-00
2ch	2ch	2ch	0ch	4ch	VM-25M00-151-01-00-21-00-00
2ch	2ch	2ch	4ch	0ch	VM-25M00-151-01-00-26-00-00
2ch	2ch	2ch	4ch	4ch	VM-25M00-151-01-00-26-21-00
4ch	4ch	4ch	0ch	0ch	VM-25M00-151-01-01-00-00-00
4ch	4ch	4ch	0ch	4ch	VM-25M00-151-01-01-21-00-00
4ch	4ch	4ch	0ch	8ch	VM-25M00-151-01-01-21-21-00
4ch	4ch	4ch	4ch	0ch	VM-25M00-151-01-01-26-00-00
4ch	4ch	4ch	4ch	4ch	VM-25M00-151-01-01-26-21-00
4ch	4ch	4ch	4ch	8ch	VM-25M00-151-01-01-26-21-21
6ch	6ch	6ch	0ch	0ch	VM-25M00-151-01-01-01-00-00
6ch	6ch	6ch	0ch	4ch	VM-25M00-151-01-01-01-21-00
6ch	6ch	6ch	8ch	0ch	VM-25M00-151-01-01-01-26-26
8ch	8ch	8ch	0ch	0ch	VM-25M00-151-01-01-01-01-00

※ Each combination includes standard housing[VM-25F61], DC 24V power supply function[VM-25F55], Modbus/TCP communication function[VM-25F41] and display function[VM-25F71] as standard.

Additional Spec. Code (No entry if additional spec. code is not specified.)

VM-25M00 - 151 - 01 - ** - ** - ** - ** / NBA

Non-incendive	
A	CSA C/US: Class I, Division 2, Groups A, B, C, D T4 Ex ec nC IIC T4 Gc (For Canada) / Class I, Zone 2, AEx ec nC IIC T4 Gc (For US) ATEX: Ex ec nC IIC T4 Gc IECEx: Ex ec nC IIC T4 Gc

Specification

GENERAL MONITOR SPECIFICATION

Display : Display measurement value and alarm set value on 7-segment LED.

Vibration measurement function
: Measure vibration of displacement or velocity, acceleration. (The number of input channels is selected from Model Code.)

Isolated recorder output
: Output a signal (isolated) proportional to measurement value (The number of output channels is selected from Model Code.)

Relay output : Output contact signal from relay. (The number of output channels is selected from Model Code.)

Modbus/TCP communication
: Output of data by Modbus protocol

Display

Power supply : Green LED
- Normal : On
- Stopped : Off

Alarm : Red LED
- When DANGER alarm occurs : On
- When ALERT alarm occurs : Flashing
- Normal : Off

Sequence : Yellow LED
- Operating : On
- Stopped : Off

DANGER Bypass : Green LED
- Operating : On
- Stopped : Off

Communication : Green LED
- Connected : On
- Communicating : Flashing (100msec interval)
- Disconnected : Off

Operation Contact Input

Alarm reset(RES.) : Reset the SELF-HOLD Alarm.

Sequence (SEQ.) : Prevent the alarm output during machine startup. When sequence circuit is in progress, SEQ. lamp on front panel is lit.

Contact type : Dry contact

VM-25 CONDITION MONITORING SYSTEM

CE

(Option selection supported version)

Specification

Temperature Range

Operating temperature : -20 to +65° C
Storage temperature : -30 to +85° C
Relative humidity : 20 to 90%RH(non-condensing)

Power Supply Voltage

Rated Power Supply Voltage : 24VDC
Power Supply Voltage Range : 22 to 26VDC
Power consumption : 24W(Max.)

Dimensions

Approx. 158.2(W) x 99(H) x 112.85(D) mm (Excluding the projection parts)

Mounting Method

35mm DIN rail

Mass

All full load : Max. 0.9kg(2.0lb)

2CHANNEL VIBRATION MEASUREMENT FUNCTION

Input Points

Input points : 2 channel / slot

Input Transducer*1

Eddy current transducer : FK-202F
Displacement vibration mesurement
Velocity transducer : CV-86, CV-87
Velocity vibration measurement or
displacement vibration measurement
Acceleration transducer : CA-302
Acceleration vibration measurement or
velocity vibration measurement
Other transducer : Voltage signal

Vibration Measurement

Monitor type*1 : Displacement vibration, Velocity vibration,
Acceleration vibration
Monitor range*1 : 1 to 1000
Unit : μm, mils, mm/s, in/s, m/s^2, g
Measurement detection : pk-pk、pk、rms
Rectification : Avarage value
Measurement range(AC) : 0 to 9V pk
The input voltage of 100% of F.S. at 100Hz should be
within the range of 39.4mV pk to 9V pk
Measurement range (DC) : 0 to 22VDC（CV-86, CV-87, CA-302 input）
-22 to 0VDC（FK-202F input）
Input voltage range : -24 to 24VDC
Input impedance : Approx. 50kΩ

Frequency Response*1

4 pole high-pass filter : 2Hz, 5Hz, 10Hz, 20Hz (-3db)
2 pole low-pass filter : 500Hz, 1kHz, 4kHz, 10kHz (-3db)

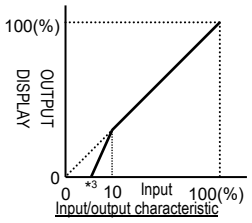
Sequence Function*1

Used to prevent alarm output that is caused by excessive vibration during machine startup. Block off the DANGER/ALERT alarm, or switch the alarm setup value to another number magnified by setup number.
Sequence Setup Value : 0(Block off), 1 to 10 (0.5step)

⚠ WARNING
The sequence function may leave the machine unprotected.
In case the SEQ. magnification number is set up “0“, machine is unprotected as alarms are disabled.
In case the SEQ. magnification number is set up from 1.5 to 10.0, and SEQ. function is in effect, alarm set points are multiplied by the set value.
If the number is more than 150% of the monitor range the alarm may not output.

Suppression Function*1

If the vibration value is less than the setup value, this function is forced to suppress the measured vibration value and recorder output *2.
Suppression Setup Value*3 : 0 to 5% (0.1% step)



Input/output characteristic

Burnout Function*1

When an OK alarm occurs (Output defeat function: ON), or at the monitor startup, the recorder output and the measurement value are controlled as follows.
Burn-out function setting

Burnout setting value	Burnout	
	Recorder output value	Mesurement value
Down Scale 0%	Equivalent to “0” of the measurement value	0
Down Scale 0mA / 0V	0V or 0mA	0

Conversion Accuracy

I/O Conversion Accuracy :±1.5% of F.S. at 100Hz at 25°C
±3.0% of F.S. at 100Hz at -20 to +65°C

Output

Recorder(Non-Isolated) Output*1*4 :
Current/Voltage output proportional to measurement value.
4 to 20mADC
1 to 5VDC
Measurement value of each channel can be assigned to any output channel of its own slot.
The recorder output gain (1 time or 2 times) can be changed.
Number of output points : 2 channel
Output range : 4 to 20mADC, 1 to 5V
Max. load resistance : 600Ω (current mood)
Output impedance: Approx. 250Ω (voltage mood)
Monitor output : Input signal is output via buffer amplifier.
Location : BNC(Front) and Terminal block(Bottom)
Output impedance : Approx.100Ω
Output voltage : Max.5mA

Transducer Power Supply :
Proximity transducer (FK-202F) : -24VDC±10% / 25mA Max.
Piezoelectric transducer (CA-86, CA-302)
: +24VDC±10% / 4mA (constant current).

VM-25 CONDITION MONITORING SYSTEM

CE

(Option selection supported version)

Specification

Alarm*1

Alarm Set Point : DANGER Alarm
1 point, from 0 to 100% of monitor range
ALERT Alarm
1 point, from 0 to 100% of monitor range
Alarm Delay Time : 0 to 5sec.(0.5sec step)
Alarm Reset : AUTO-RESET / SELF-HOLD

Display

Alarm : Green LED / Red LED
Normal : ON(Green)
When OK alarm occurs : Flashing(Green)
When DANGER alarm occurs : ON(Red)
When ALERT alarm occurs : Flashing(Red)
When Channel Bypass occurs,
or the channel disables : Off

Notices

All of the terminal on this function should not be connected to earth.

*1 User can change the setting by VM-25S01 Device Config.
*2 Suppression function also applies to the output from VM-25F26 4 channel isolated recorder output function.
*4 When the Recorder (Non-isolated) output terminal is connected to a instrumentation device, the input of the device should be an isolated type or an isolation amplifier should be provided between the terminal and the device.

4 CHANNEL ISOLATED RECORDER OUTPUT FUNCTION

Output Points

Output points : 4 channel / slot

Output

Recorder output (Isolated) *5
: Current/Voltage output proportional to measurement value.
Measurement value of each channel can be assigned to any output channel of its own unit.
The recorder output gain (1 time or 2 times) can be changed.
Output range : 4 to 20mA, 1 to 5V
Max. Load Resistance : 600Ω(current mood))
Output impedance : Approx. 250Ω (voltage mood)

Insulation Resistance

Input, Power, GND*6 – Recorder output (isolated) – Contact
: 100MΩ at 500VDC

Withstand Voltage

Input, Power, GND*6 – Recorder output (isolated) –Contact
: 100VAC for 1minute.

*5 User can change the setting by VM-25S01 Device Config.
*6 Input, Power and GND are not isolated from each other.

4 CHANNEL RELAY OUTPUT FUNCTION

Output Points

Output points : 4 channel / slot

Alarm*7

Logic : Changeable
Energization method : Normally de-energized or Normally energized
Contact type : Dry contact (SPDT)
Contact capacity : 250VAC/2A, 30VDC/2A

Insulation Resistance

Input, Power, GND*8 – Recorder output (isolated) – Contact
: 100MΩ at 500VDC

Withstand Voltage

Input, Power, GND*8 – Recorder output (isolated) –Contact
: 100VAC for 1minute.

*7 User can change the setting by VM-25S01 Device Config.
*8 Input, Power and GND are not isolated from each other.

DISPLAY FUNCTION

Display

Display : 4 digits 7-segment Red LED display.
Character height : 8mm
Display Accuracy : ±(I/O conversion accuracy + 1 digit) at 25°C
Display Contents : Measurement value
GAP/Bias voltage value
DANGER Alarm set value
ALERT Alarm set value
OK Alarm set value

Display Mode

Display Mode	Description
All-channel cycle display	Measurement values for all input channels are displayed in turns at intervals of five seconds.
Specific channel cycle display	Measurement values for specific input channel or alarm setting values are displayed in turns at intervals of five seconds.
Specific channel fixed display	Measurement values for the specific input channel are displayed continuously.
All-channel maximum value display	The maximum measurement value for all the input channels is displayed.

※ Selectable by front switch.

MODBUS / TCP COMMUNICATION FUNCTION

Communication Function

Network : Ethernet 10Base-T / 100Base-TX
Protocol : Modbus® Based on AEG Modicon PI-MBUS-300 Reference Manual.
Transmission mode : RTU (Remote Terminal Unit) mode
Connector : RJ-45 (Shared to DEVICE CONFIG)

Input / Output Data

Data transmitted from VM-25 to host network
: Measurement value, Peak mesured value,
Gap/Bias voltage value,
DANGER Alarm status,
ALERT Alarm status, OK Alarm status,
DANGER Bypass status, Setting of DANGER,
Setting of ALERT, and OK Limit

Data received by VM-25 from host network
: Date and Time Data

Function of VM-25 that can be controlled from host network
: Channel Bypass status ON/OFF
DANGER Bypass status ON/OFF
Peak Hold reset
Alarm Reset
Sequence Mode ON/OFF

VM-25 CONDITION MONITORING SYSTEM

CE

(Option selection supported version)

Alarm Contact Operation

Contact type	Energization method	Power OFF	Power ON	
			Normal state	Alarm state
N.O. contact	NORMALLY DE-ENERGIZED	OPEN	OPEN	CLOSE
	NORMALLY ENERGIZED	OPEN	CLOSE	OPEN
N.C. contact	NORMALLY DE-ENERGIZED	CLOSE	CLOSE	OPEN
	NORMALLY ENERGIZED	CLOSE	OPEN	CLOSE

Default Value

Alarm

DANGER set value : 80% of monitor range
ALERT set value : 60% of monitor range
OK set value : [FK-202F] -1.4V(Low), -18.8V(High)
[CV-86] 2.1V(Low), 22.0V(High)
[CV-87] 7.6V(High)
[CA-302] 2.1V(Low), 22.0V(High)
Alarm delay time : 3.0 sec.(DANGER,ALERT)
Alarm reset : Auto Reset

Non-Isolated Recorder output

Recorder Output gain : 1
Recorder Allocation : [Recorder1] Output of measurement ch1 of own slot
[Recorder2] Output of measurement ch2 of own slot

Isolated Recorder output

Recorder Output gain : 1
Recorder Allocation :

Number of input channel : 2ch

Slot 3
[Recorder1] Measurement channel 1 of slot 1
[Recorder2] Measurement channel 2 of slot 1
[Recorder3] Measurement channel 1 of slot 1
[Recorder4] Measurement channel 2 of slot 1

Number of input channel: 4ch

Slot 3
[Recorder1] Measurement channel 1 of slot 1
[Recorder2] Measurement channel 2 of slot 1
[Recorder3] Measurement channel 1 of slot 2
[Recorder4] Measurement channel 2 of slot 2

Number of input channel : 6ch

Slot 4
[Recorder1] Measurement channel 1 of slot 1
[Recorder2] Measurement channel 2 of slot 1
[Recorder3] Measurement channel 1 of slot 2
[Recorder4] Measurement channel 2 of slot 2

Slot 5
[Recorder1] Measurement channel 1 of slot 3
[Recorder2] Measurement channel 2 of slot 3
[Recorder3] Measurement channel 1 of slot 3
[Recorder4] Measurement channel 2 of slot 3

Contact output

Relay logic : [RELAY1] OR logic (DANGER of all channels)
[RELAY2] OR logic (ALERT of all channels)
[RELAY3] OR logic (NOT-OK of all channels)
[RELAY4] None
Enagization method : NORMALLY DE-ENERGIZED

Communication

IP address : 192.168.8.8
Subnet mask : 255.255.255.0
Port number : 8888

Others

Sequence : 1.0 (DANGER,ALERT)
Suppresstion : 0.0%
Timed OK channel defert : ON
Burnout : Down Scale 0mA/0V

VM-25 CONDITION MONITORING SYSTEM

(Option selection supported version)

Functional Specification Code (Default)

- 2CHANNEL VIBRATION MEASUREMENT FUNCTION

VM-25F01 - * * * * * * * 0 - *

Channel1, 2												Non-Isolated Recorder Output 1,2	
Monitor Range						Transducer Type		HPF		LPF			
D01	0 to 100μm pk-pk	V01	0 to 25mm/s pk	A01	0 to 20m/s^2 pk	D1	FK-202F	1	2Hz	1	500Hz	0	4 to 20mA
D02	0 to 125μm pk-pk	V02	0 to 50mm/s pk	A02	0 to 50m/s^2 pk	V1	CV-86	2	5Hz	2	1kHz	1	1 to 5V
D03	0 to 200μm pk-pk	V03	0 to 20mm/s rms	A03	0 to 20m/s^2 rms	V2	CV-87	3	10Hz	3	4kHz		
D04	0 to 250μm pk-pk	V04	0 to 1in/s pk	A04	0 to 2g pk	A1	CA-302	4	20Hz	4	10kHz		
D05	0 to 400μm pk-pk	V05	0 to 2in/s pk	A05	0 to 5g pk								
D06	0 to 500μm pk-pk	V06	0 to 1in/s rms	A06	0 to 2g rms								
D07	0 to 5mils pk-pk	V0A	0 to 10 mm/s pk	A07	0 to 5 m/s^2 pk								
D08	0 to 10mils pk-pk	V0B	0 to 12 mm/s pk	A08	0 to 10 m/s^2 pk								
D09	0 to 15mils pk-pk	V0C	0 to 15 mm/s pk	A09	0 to 30 m/s^2 pk								
D0A	0 to 20mils pk-pk	V0D	0 to 20 mm/s pk	A0A	0 to 80 m/s^2 pk								
D0B	0 to 25 mils pk-pk	V0E	0 to 30 mm/s pk	A0B	0 to 100 m/s^2 pk								
D0D	0 to 30 μm pk-pk	V0F	0 to 35 mm/s pk	A0C	0 to 120 m/s^2 pk								
D0E	0 to 50 μm pk-pk	V0G	0 to 40 mm/s pk	A0D	0 to 200 m/s^2 pk								
D0F	0 to 60 μm pk-pk	V0H	0 to 70 mm/s pk	A0E	0 to 300 m/s^2 pk								
D0G	0 to 75 μm pk-pk	V0J	0 to 75 mm/s pk	A0F	0 to 500 m/s^2 pk								
D0H	0 to 80 μm pk-pk	V0K	0 to 100 mm/s pk	A0G	0 to 50 m/s^2 rms								
D0J	0 to 150 μm pk-pk	V0L	0 to 500 mm/s pk	A0H	0 to 100 m/s^2 rms								
D0K	0 to 160 μm pk-pk	V0M	0 to 10 mm/s rms	A0J	0 to 200 m/s^2 rms								
D0L	0 to 170 μm pk-pk	V0N	0 to 15 mm/s rms	A0K	0 to 1 g pk								
D0M	0 to 175 μm pk-pk	V0P	0 to 25 mm/s rms	A0L	0 to 4 g pk								
D0N	0 to 180 μm pk-pk	V0Q	0 to 30 mm/s rms	A0M	0 to 7 g pk								
D0P	0 to 300 μm pk-pk	V0R	0 to 50 mm/s rms	A0N	0 to 8 g pk								
D0Q	0 to 350 μm pk-pk	V0S	0 to 100 mm/s rms	A0P	0 to 10 g pk								
D0R	0 to 380 μm pk-pk	V0T	0 to 2 in/s rms	A0Q	0 to 15 g pk								
D0S	0 to 450 μm pk-pk			A0R	0 to 20 g pk								
D0T	0 to 3 mils pk-pk			A0S	0 to 25 g pk								
D0V	0 to 8 mils pk-pk			A0T	0 to 30 g pk								
D0W	0 to 30 mils pk-pk			A0V	0 to 40 g pk								
D0X	0 to 50 μm pk			A0W	0 to 50 g pk								
D0Y	0 to 100 μm pk			A0X	0 to 1 g rms								
				A0Y	0 to 5 g rms								
				A0Z	0 to 10 g rms								
				A10	0 to 15 g rms								
				A11	0 to 20 g rms								
				A12	0 to 25 g rms								

※ For the combination of monitor range and transducer type, refer to the table below.

Monitor Range	Transducer Type
Displacement	Eddy current transducer
Vibration(DXX)	Velocity Transducer
Velocity	
Vibration(VXX)	
Acceleration	Acceleration Transducer
Vibration (AXX)	

- 4 CHANNEL ISOLATED RECORDER OUTPUT FUNCTION

VM-25F26 - * * * *

Isolated Recorder Output							
Recorder1		Recorder2		Recorder3		Recorder4	
0	4 to 20mA	0	4 to 20mA	0	4 to 20mA	0	4 to 20mA
1	1 to 5V	1	1 to 5V	1	1 to 5V	1	1 to 5V

- 4 CHANNEL RELAY OUTPUT FUNCTION

VM-25F21

Specify the functional specification code of the above function according to the configuration of VM-25 selected on the first page.
(Slot Layout)

Slot1 : VM-25F01-_____ Slot4 : _____

Slot2 : _____ Slot5 : _____

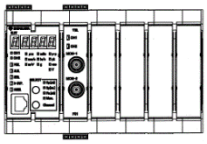
Slot3 : _____

VM-25 CONDITION MONITORING SYSTEM

(Option selection supported version)

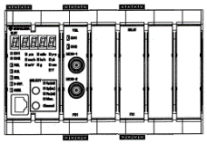
Functional Layout

VM-25M00-151-01-00-00-00-00



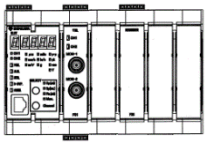
1. Vib. measurement
2. Blank
3. Blank
4. Blank
5. Blank

VM-25M00-151-01-00-21-00-00



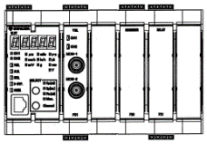
1. Vib. measurement
2. Blank
3. Relay Output
4. Blank
5. Blank

VM-25M00-151-01-00-26-00-00



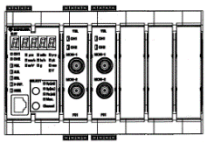
1. Vib. measurement
2. Blank
3. Recorder Output
4. Blank
5. Blank

VM-25M00-151-01-00-26-21-00



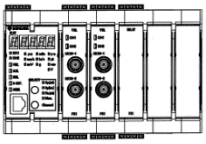
1. Vib. measurement
2. Blank
3. Recorder Output
4. Relay Output
5. Blank

VM-25M00-151-01-01-00-00-00



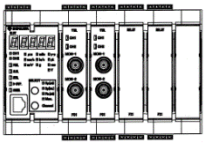
1. Vib. measurement
2. Vib. measurement
3. Blank
4. Blank
5. Blank

VM-25M00-151-01-01-21-00-00



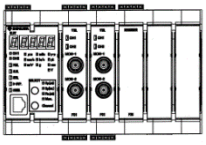
1. Vib. measurement
2. Vib. measurement
3. Relay Output
4. Blank
5. Blank

VM-25M00-151-01-01-21-21-00



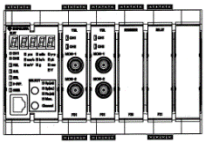
1. Vib. measurement
2. Vib. measurement
3. Relay Output
4. Relay Output
5. Blank

VM-25M00-151-01-01-26-00-00



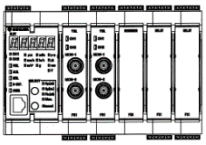
1. Vib. measurement
2. Vib. measurement
3. Recorder Output
4. Blank
5. Blank

VM-25M00-151-01-01-26-21-00



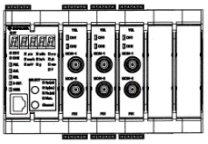
1. Vib. measurement
2. Vib. measurement
3. Recorder Output
4. Relay Output
5. Blank

VM-25M00-151-01-01-26-21-21



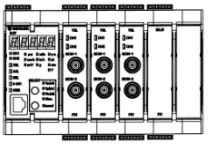
1. Vib. measurement
2. Vib. measurement
3. Recorder Output
4. Relay Output
5. Relay Output

VM-25M00-151-01-01-01-00-00



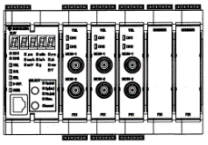
1. Vib. measurement
2. Vib. measurement
3. Vib. measurement
4. Blank
5. Blank

VM-25M00-151-01-01-01-21-00



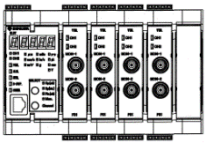
1. Vib. measurement
2. Vib. measurement
3. Vib. measurement
4. Relay Output
5. Blank

VM-25M00-151-01-01-01-26-26



1. Vib. measurement
2. Vib. measurement
3. Vib. measurement
4. Recorder Output
5. Recorder Output

VM-25M00-151-01-01-01-01-00



1. Vib. measurement
2. Vib. measurement
3. Vib. measurement
4. Vib. measurement
5. Blank

※ The specifications and other items indicated herein are subject to change without notice.