

Instruction Manuals of the Signal Converter VM-5011A (Detailed Edition)

Issued by Document No. Revision

IMV CORPORATION TVE-6-4188E Ver2.00

Introduction
Safety Precautions
1. Overview
2. Features
3. System Composition
3.1 System Block Diagram
3.2 Equipment Configuration
4. Installation Method
4.1 Installation of the accelerometer6
4.2 Laying of the Accelerometer Cable
4.3 Installation of the Converter
5. Wiring Method7
6. Power on the Converter 11
7. Change of Measurement Range and DC Output 11
8. How to Connect with the VP-8021A 13
9. Handling Precautions
10. Warranty 14
11. Specifications
11.1 Specifications of the Converter (VM-5011A) 15
11.2 Standard Characteristic of the Converter16
11.3 Outer Dimensions of the Converter 16
11.4 Specifications of the Accelerometer 17
12. Maintenance and Troubleshooting 22
12.1 Maintenance
12.2 Troubleshooting
13. About Envelope Acceleration (E Acceleration) 23
Appendix 24
Appendix 1 In case of the accelerometer is not grounded
Appendix 2 About voltage input connection specifications
Appendix 3 About the Magnets for mounting the Accelerometer
VM-5011 Series Lineup 28

Index

Introduction

Thank you for purchasing Signal Converter "VM-5011 Series".

Read this manual carefully to ensure the best performance and longest product life of the device. In addition, pay attention to the cautions described below to use the product safely.

Notes

- (1) The Signal Converter (hereinafter referred to as "converter") is a device that diagnoses various vibrations for industrial equipment such as electric motors and pumps, and consumer equipment. Do not use it for any other purpose.
- (2) When wiring the converter and piezoelectric acceleration sensor (hereinafter referred to as "accelerometer"), make sure that power supply source is "OFF" before performing the work.
- (3) Ground the system separately from the power equipment, and make sure to use the terminal block or binding post.
- (4) Signal line from the accelerometer and output signal line from the converter should not be bundled with the power line or the signal line that generates noise but should be laid in a separate system.

Safety Precautions

It describes the items that you should follow to prevent harm to customers and other people and damage to property, and to use this product safely. Please be sure to read this manual and attached documents before use, and fully understand the contents for use.

After reading this manual, be sure to place it in a location so that you can always refer to it.

Expressions of Safety Instructions		
	Indication	

Indication	Meaning of Indication
A Warning	Indicates the contents that may cause a dangerous situation of death
	or serious injury if mishandled.
∧ Caution	Indicates the contents that may cause serious injury or property
	damage if mishandled.
	Describes cases where there is no risk of injury to the operator, but it
Note	is expected to cause damage or failure to this product or other
	equipment or devices.

* "Serious injuries" are those with residual aftereffects such as blindness, injury, burns, electric shock, fractures, poisoning, and those requiring hospitalization or long-term hospital visits for treatment.

* "Minor injuries" are those that do not require hospitalization or long-term hospital visits for treatment (other than the "serious injuries" above).

In addition to the danger level classification, this document also uses the following notation: <u>Memo</u>: "Memo" describes supplementary explanations that could not be explained in the text and information that is useful to know.

♦ For Safe Use

🔥 Warning

- (1) Do not use this product as a life-threatening alarm device.
- (2) When installing this product or peripheral devices in a high place, be sure to use a workbench such as a stepladder.
- (3) Do not use it in abnormal conditions such as smoke, strange odor, or abnormal noise. Also, do not disassemble or modify this product regardless of whether it is normal or abnormal. It may cause electric shock, fire, or malfunction.
- (4) When installing near a moving part of the machine, make sure that the machine is stopped before installing it. Do not perform any installation work while the machine is in operation.

▲ Caution

- (1) Be sure to wear a helmet when working at heights.
- (2) When installing this product or peripheral devices in a high place, fix them firmly. If this product or peripheral devices fall, an accident may occur.
- (3) When the converter is energized, do not touch the terminal block carelessly.

Note

- (1) When connecting the accelerometer to the converter, check the method that matches the specifications of the device to be connected. Improper connection may cause the product or connected devices to malfunction or be damaged.
- (2) Use this product in the environment described in this manual. If you use it in an environment not described in this manual, unexpected problems may occur. In addition, if the main unit is damaged or peripheral devices are damaged due to the above reasons, the warranty will be void.
- (3) Do not attach this product to the interference point or operating point of the object to be measured. The object to be measured may damage.

Memo

- (1) The converter and the accelerometer are precision devices. Please handle it with care.
- (2) When performing automatic measurement operation using this product, it may not be possible to record measurement data as expected if the settings are not correct. Please check in the actual environment whether the measurement data can be obtained as expected, and after confirming that there are no problems, start operation in earnest.

1. Overview

The purpose of this product is to constantly monitor vibrations for safety confirmation during operation of various rotating devices such as electric motors and pumps, detection of abnormal operations, detection of deterioration phenomena, and early maintenance.

Vibration of the electric motor, pump, etc. is detected by the accelerometer, vibration signal is converted by the converter as envelope acceleration (hereinafter referred to as "E acceleration") and velocity. Those vibration level output as DC current of 4-20mA or DC voltage of 0-10V.

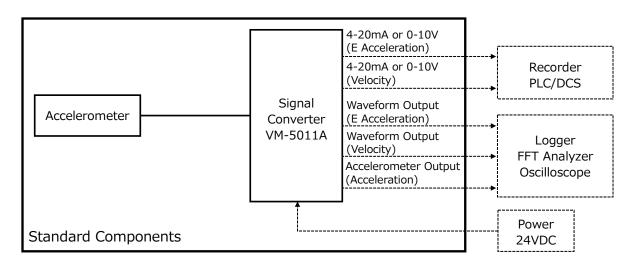
In addition, the vibration signal output AC voltage of 0-1Vrms and can be used for analysis of vibration waveforms.

2. Features

- (1) Simultaneous monitoring of E Acceleration and the velocity levels.
- (2) Several accelerometers are available for connecting to the converter.
- (3) The converter is compact and can be mounted on DIN rail.

3. System Composition

3.1 System Block Diagram



3.2 Equipment Configuration

Main Components

Name	Model	Qty	Remarks
Signal Converter (Converter)	VM-5011A	1	
Accelerometer	VP-1001000206 (VP-100)		Cable Direct Leading
* Select one of the models at the time of purchase	VP-1001000106 (VP-100R)	4	Cable Direct Leading (Waterproof Type)
	VP-1001005406		Cable with Connector (Not included in price)
	VP-8021A		Cable with Connector (Standard Accessory)

Memo

- (1) The above quantity is for one set.
- (2) Refer to the options below for the cable of the VP-1001005406.
- (3) Standard cable length of above accelerometers is 5m.
- (4) Detailed specifications of above accelerometers see "section 11.4".

• Option (Not in included in price)

Name	Model	Qty	Remarks
Cable of the VP-1001005406	MS-AC010-5		Straight Connector
Length: 5m	MS-AC011-5		Right Angle Connector
Magnet for mounting	MH-205R		for Flat Surface
Accelerometer	MH-206R		for Curved Surface

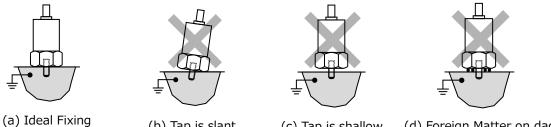
4. Installation Method

4.1 Installation of the accelerometer

Memo

The installation method of the accelerometer in this section applies to the VP-100 series. For instructions on how to install the VP-8021A, please refer to the VP-8021A instruction manual.

The accelerometer detects vibration on the bottom. Therefore, it is an important condition for detecting vibration that the bottom surface is in close contact with the vibrating part. Ideally, the surface of the equipment on which the accelerometer will be installed should be as flat as possible, and the contact surface should be coated with silicone grease or oil (Fig. 4-1).



(b) Tap is slant (c) Tap is shallow (d) 図4-1 Installation of the Accelerometer

(c) Tap is shallow (d) Foreign Matter on dace

Note

Be sure to check the following items before installing the accelerometer.

(1) Is the instrument to be measured grounded

If the accelerometer mounting surface (measurement target instrument) is not properly grounded, it may become charged and may fail.

(2) Is the accelerometer mounting surface cleanly finished <u>Remove completely dirt, dust, and paint at the mounting surface.</u> Also, make sure that the tapped holes are upright with no foreign matter on the threads.

Processing of the accelerometer mounting surface

The degree of close contact between the accelerometer and mounting surface directly affects the characteristics of the accelerometer.

Especially, since the accelerometer measures up to high frequencies, make mounting surface flat and tap M6 female screw perpendicular to mounting surface (Fig.4-2).

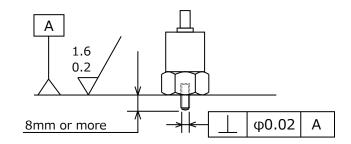


Fig.4-2 Processing of the accelerometer mounting surface

4.2 Laying of the Accelerometer Cable

- (1) The accelerometer cable fix away from the device to be measured and at the location closest to it, and then fix the cable appropriately so that there is no slack.
- (2) When relaying the accelerometer cable, use the junction box, and use the twisted pair shielded cable that takes the installation environment into consideration. Also, keep the wiring as short as possible.

Memo

- (1) If the accelerometer cable is parallel to the power line such as the inverter, noise from the power line may affect the measurement. Install the accelerometer cable as far away from the power line as possible.
- (2) To protect the accelerometer cable from vibration, use a flexible conduit up to it installation location.
- (3) When relaying the accelerometer cable using the junction box, install it in an environment with as little noise as possible (in a place where noise countermeasures have been taken).

4.3 Installation of the Converter

The converter is mounted using 35mm DIN rail (Fig.4-3).

- (1) Hook the upper side of the converter body on DIN rail.
- (2) While pulling down the stopper on the lower side of the converter, hook it on the DIN rail.

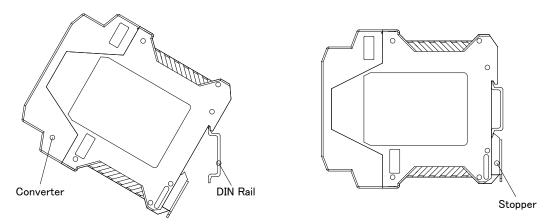


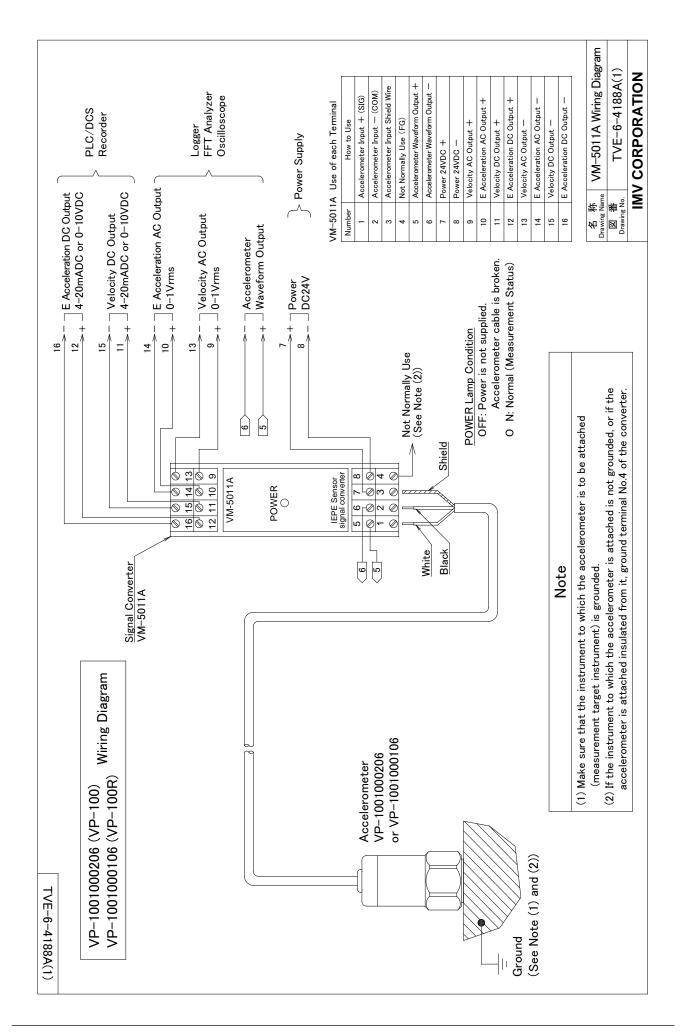
Fig.4-3 Installation of the Converter

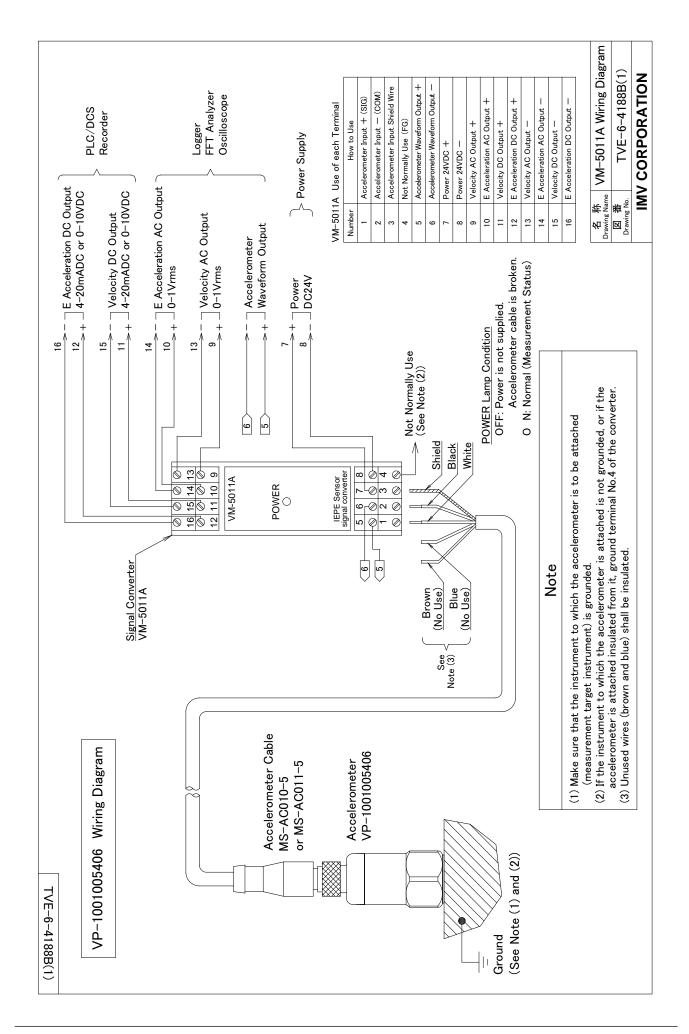
Memo

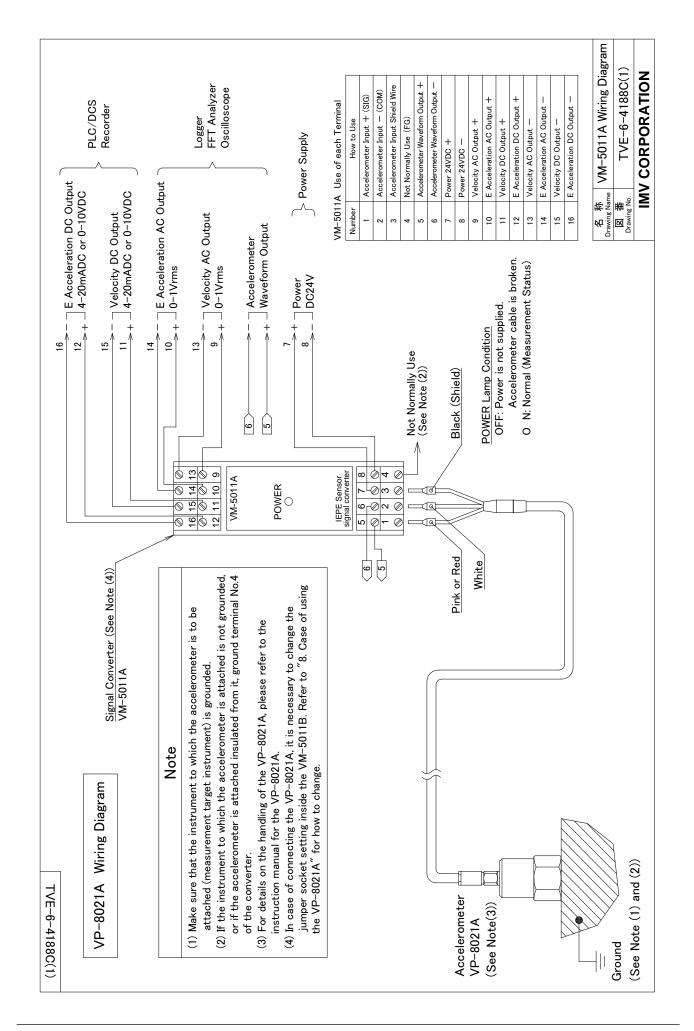
Install the converter in a clean place with as little noise as possible and little vibration or temperature change.

5. Wiring Method

Connect the power supply, the accelerometer and various subsequent instruments according to the wiring diagram shown from p8 to p10.







6. Power on the Converter

After connecting according to section 5, turn on the power and the "POWER" lamp on the front of it will light up (Fig.6-1).

Memo

- (1) The converter takes about 30 seconds from power-on to stability.
- (2) If "POWER" lamp is off even though power is being supplied, the accelerometer cable may not be connected properly, or the accelerometer cable may be broken. In such a case, turn off power supply to the converter once, check that the accelerometer cable is connected correctly, and then turn on power again.

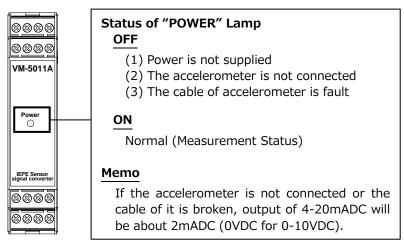


Fig.6-1 POWER Lamp Indication

7. Change of Measurement Range and DC Output

The converter can change measurement range and DC output. Follow the procedure below.

Setting Method

- (1) Turn off power supply to the converter and disconnect all wiring connected to it.
- (2) Remove the converter from DIN rail.
- (3) Push lock hooks on the top and bottom of the converter with a flat-blade screwdriver. Release the lock, then hold upper housing and pull it out from base housing (see Fig.7-1).

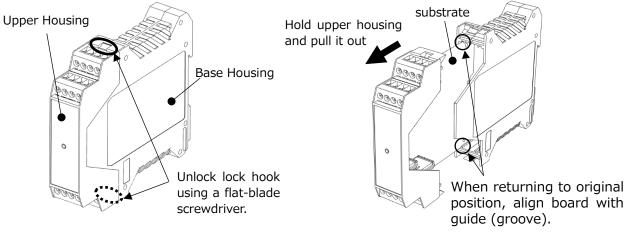
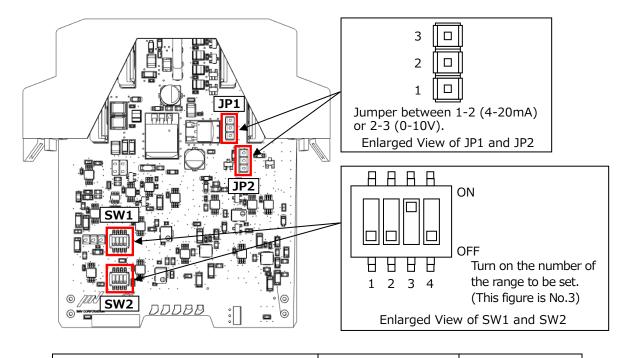


Fig.7-1 Pulling out upper housing



(4) Change measurement range and DC output according to Fig.7-2 below.

"JP" and "SW" Setting Item		Setting	Factory Default	
101	E Acceleration	1-2	4-20mADC	v
JP1	DC Output	2-3	0-10VDC	
JP2	Velocity	1-2	4-20mADC	v
JPZ	DC Output	2-3	0-10VDC	
		1	$0\sim 10$ m/s ² E rms	
SW1	E Acceleration	2	$0\sim$ 25m/s ² E rms	
(*)	Measuring Range	3	$0\sim$ 50m/s ² E rms	v
		4	0~100m/s ² E rms	
		1	10mm/s rms	
SW2	Velocity	2	25mm/s rms	
(*)	Measuring Range	3	50mm/s rms	v
		4	100mm/s rms	
(*) Do not turn on more than one switch				

(*) Do not turn on more than one switch.

Fig.7-2 Setting of Measurement Range and DC Output

(5) After completing the settings, insert upper housing into base housing, check that lock hook is locked, attach it to DIN rail, and reconnect each cable.

Note

- (1) Do not change or adjust jumpers or volumes other than those specified in this manual. Correct measurement may not be possible.
- (2) The converter is a precision device. Please handle it with care.
- (3) Please do not forget to record and manage the settings.

8. How to Connect with the VP-8021A

The converter also supports connection with our MEMS high-frequency vibration sensor VP-8021A. The setting of factory default connecting accelerometer is the VP-100 (*). When connecting the VP-8021A to the converter, it is necessary to change jumper JP4 settings on circuit board (see Fig.8-1).

(*) VP-1001000206 (VP-100), VP-1001000106 (VP-100R), and VP-1001005406 are applicable.

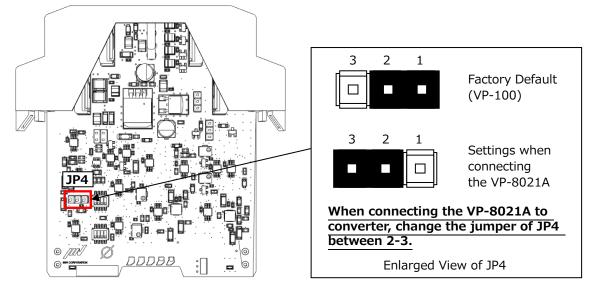


Fig.8-1 Jumper change when connecting the VP-8021A

Refer to "Section 5" for how to connect the VP-8021A to the converter.

Memo

- (1) Refer to "Section 7" for how to pull out the board.
- (2) For more information on the VP-8021A, please check our website.
 - URL: https://we-are-imv.com/en/

9. Handling Precautions

A Caution

- (1) Avoid moving the accelerometer during vibration measurement. When moving, turn off the power supply to the converter before moving.
- (2) Use a 24VDC for this product and use a stable power supply with little external noise (noise surge pulse).

Note

When storing this product for a long period of time, avoid places exposed to direct sunlight, high humidity, and dusty places, and store it in a place within the operating temperature and humidity range.

Memo

When disposing of this product, dispose of it as industrial waste.

10. Warranty

This product is shipped after strict inspection in our factory. But in case the system has a fault caused by the responsibility of IMV as the defect under production and material during the warranty period, we will repair or replace it free of charge. However, consumables such as lamps will be excluded.

The warranty period for this product is one year from the date of shipment. However, even within the warranty period, repairs will be charged in the following cases.

- (1) Any damage and breakdown caused by natural disasters such as fire, earthquake, flood, lightning damage.
- (2) Any transporting, moving, or dropping which does not relate to us after finishing our delivery.
- (3) Any error operation, unusual power supply input, and the fault caused by disassembling/repairing/modifying by customer.

11. Specifications

11.1 Specifications of the Converter (VM-5011A)

Model		VM-5011A	
Input Range		0 to 500m/s ²	
Measuring Range of E Acceleration		10Hz to 1kHz	
Frequency		Band Pass Filter: 500Hz \sim 10kHz (*2)	
	Velocity	10Hz to 1kHz (*2)	
		(ISO 2954:2012 Filter Characteristics compliant)	
Measuring Range (*1)	E Acceleration	\Box 10m/s ² rms	
		\Box 25m/s ² rms	
		\blacksquare 50m/s ² rms	
		\Box 100m/s ² rms	
	Velocity	□ 10mm/s rms	
		□ 25mm/s rms	
		■ 50mm/s rms	
		🗆 100mm/s rms	
Connect Accelerometer	(*1)	■ VP-100 (*3)	
	1	□ VP-8021A	
DC Output (*1)	E Acceleration	4-20mA (Load 500Ω or lower)	
		\Box 0-10V (Load 100k Ω or higher)	
	Velocity	4-20mA (Load 500Ω or lower)	
		\Box 0-10V (Load 100k Ω or higher)	
	Response Speed	τ =1s 63% Response	
AC Output	E Acceleration	0-1Vrms (Load 100k Ω or higher)	
	Velocity	0-1Vrms (Load 100k Ω or higher)	
Linearity	DC Output	within ±3%F.S	
	AC Output	within ±5%	
Accelerometer Waveforn	n Output	Depends on Voltage Sensitivity of Accelerometer	
		Bias Voltage: 9VDC	
Operating Temperature	2	0 to 50°C, 95%RH or less	
and Humidity Range		without freezing or condensation	
Suitable Cable of Termi	nal Block	0.2 to 2.5 mm ² (Single wire / Stranded wire)	
		(AWG12 to 24)	
Power Supply of the Co		24VDC ±10%	
Power Supply of Accelerometer		24VDC 3.5mA±20%	
Power Consumption		3W or less	
Case Material		Resin	
Outer Dimensions (Exclu	ding protrusions)	W22.6×H99×D113.6mm (See p16)	
Weight		Approx. 150g	

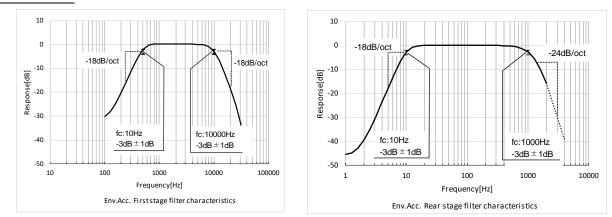
*1 "■" is factory default settings.

*2 Refer to "11.2 Standard Characteristic of the Converter".

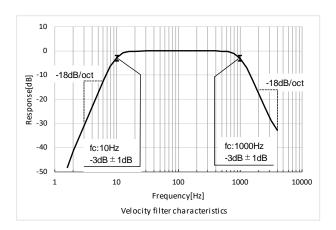
*3 VP-1001000206 (VP-100), VP-1001000106 (VP-100R), and VP-1001005406 are applicable.

11.2 Standard Characteristic of the Converter

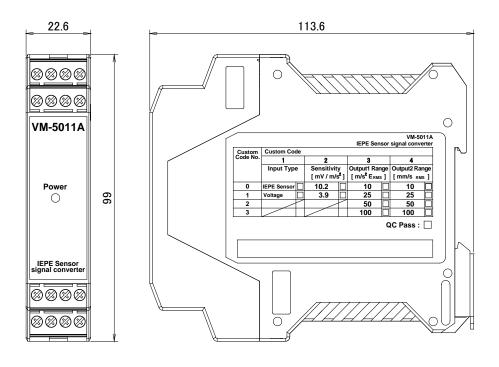
Acceleration



Velocity



11.3 Outer Dimensions of the Converter

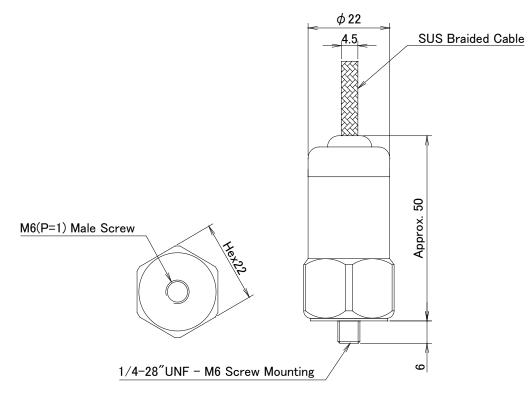


Unit [mm]

11.4 Specifications of the Accelerometer

Detecting Method	Compression Type
Resonance Frequency	22kHz or more
Frequency Range	2Hz to 10kHz ±1dB
Voltage Sensitivity	$10.2 \text{mV}/(\text{m/s}^2) \pm 10\%$
Max Measurement Acceleration	784m/s ²
Drive Current	0.5 to 8mA (18 to 30VDC)
Operating Temperature	-55 to +140℃
Protection Class	IP65
Weight	Approx. 106g (without Cable)
Case Material	SUS303
Mounting Method	M6 Screw
Cable Sheath Material	SUS Braided Cable
Cable Length	5m (Standard Length)
Outer Dimensions	See below Figure

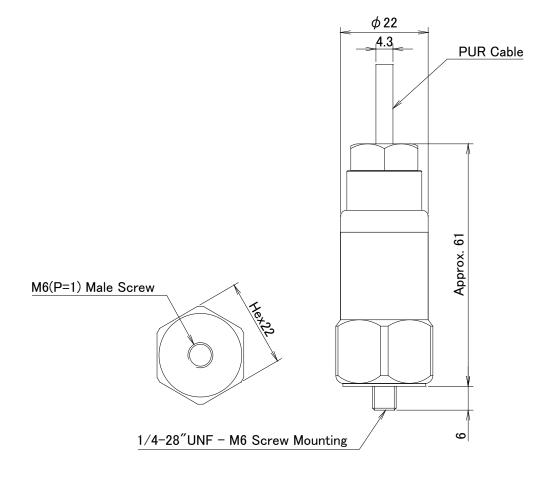
(1) VP-1001000206 (VP-100) (Cable Direct Leading Type)



Outer Dimensions of the VP-1001000206 (Unit: mm)

Detecting Method	Compression Type
Resonance Frequency	22kHz or more
Frequency Range	2Hz to 10kHz ±1dB
Voltage Sensitivity	$10.2 \text{mV}/(\text{m/s}^2) \pm 10\%$
Max Measurement Acceleration	784m/s ²
Drive Current	0.5 to 8mA (18 to 30VDC)
Operating Temperature	-55 to +140℃
Protection Class	IP65
Weight	Approx. 125g (without Cable)
Case Material	SUS303
Mounting Method	M6 Screw
Cable Sheath Material	PUR
Cable Length	5m (Standard Length)
Outer Dimensions	See below Figure

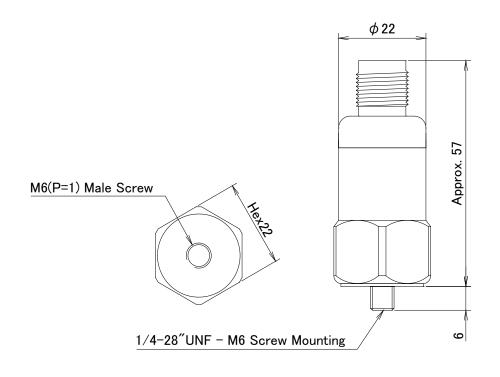
(2) VP-1001000106 (VP-100R) (Waterproof Type with Oil-resistant Cable)



Outer Dimensions of the VP-1001000106 (Unit: mm)

(3) VP-1001005406 (Connector Type)

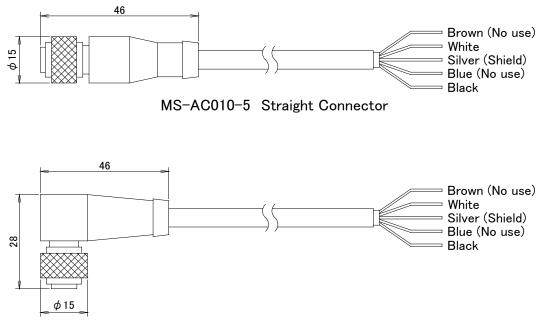
Detecting Method	Compression Type
Resonance Frequency	22kHz or more
Frequency Range	2Hz to 10kHz ±1dB
Voltage Sensitivity	$10.2 \text{mV}/(\text{m/s}^2) \pm 10\%$
Max Measurement Acceleration	784m/s ²
Drive Current	0.5 to 8mA (18 to 30VDC)
Operating Temperature	-55 to +140℃
Protection Class	IP67
Weight	Approx. 125g (without Cable)
Case Material	SUS303
Mounting Method	M6 Screw
Cable Connecting Method	M12 Connector
Outer Dimensions	See below Figure



Outer Dimensions of the VP-1001005406 (Unit: mm)

Outside view of the Cable of VP-1001005406 (Connector Type)

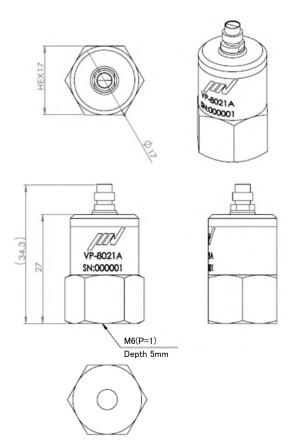
Cable Sheath Material: PUR Finished Outer Diameter: Approx. 5.9mm Cable Length: 5m



MS-AC011-5 Right Angle Connector

(4) VP-8021A (including Cable with a Connector)

Detecting Method	Capacitance (MEMS) Type
Resonance Frequency	17kHz or more
Frequency Range	10Hz to 8kHz ±3dB
Voltage Sensitivity	3.9mV/(m/s ²) ±5%
Max Measurement Acceleration	490m/s ²
Drive Current	3.5mA (Typ.) 24VDC (Max.)
Operating Temperature	-30 to +120℃
Weight	Approx. 15g
Case Material	A5052 (Alumite treatment)
Mounting Method	M6 Screw
Cable Sheath Material	PVC or ETFE
Cable Length	5m (Standard Length)
Outer Dimensions	See below Figure



Outer Dimension of VP-8021A (Unit: mm)

Memo

For detailed specifications of the VP-8021A, please refer to the instruction manual for the VP-8021A.

12. Maintenance and Troubleshooting

12.1 Maintenance

Check the following items when performing maintenance and inspection.

- (1) Maintenance of the Converter
 - (a) Is the screw at the connector terminal where cable is connected loose?
 - (b) Is the connected cable damaged?
 - (c) Is the power supply as specified (whether POWER lamp is on)?
 - (d) Is there any abnormal heat generation while the power is on?
- (2) Maintenance of the Accelerometer
 - (a) Is accelerometer installed loosely (is it securely installed)?
 - (b) Is accelerometer or the cable of accelerometer damaged?
 - (c) Is there a problem with the grounding of measurement target device to which sensor is attached?

12.2 Troubleshooting

If you feel any malfunction or abnormality, please check the following before requesting repair or replacement. If the problem persists even after checking the following, please contact the purchasing agent or us.

Status	Cause	Treatment
POWER lamp does not	Power is not being supplied.	Please supply power.
light.	Cable connection is not made, or	Make sure to connect them securely.
	cable connection is incorrect.	
	The supply power supply voltage is	Check the power supply
	out of the specification range.	specifications.
	Accelerometer does not connect.	Please connect it.
	Accelerometer cable is disconnection.	Replace the cable of it.
Output of 4-20mADC does	Accelerometer cable is unconnected	Connect the cable correctly.
not change from 2mA.	or disconnected.	
Vibration measurements	Accelerometer is installed in the	Reinstall in the correct detecting
are very small (large).	wrong detection direction.	direction.
	Vibration is small (large).	—
①Vibration measurements	Accelerometer is not securely fixed.	Please fix it securely.
are very unstable.	There is a poor contact in cable	Please connect it securely.
②Suddenly, vibration	connection part of the converter.	
measurement became	Accelerometer is broken.	If you own an accelerometer of the same
extremely large (small).		specifications, check if the phenomenon
		is reproduced or if the phenomenon is
		switched by replacing the accelerometer.
	The converter is out of order.	If you own a converter of the same
		specifications, check if the phenomenon
		is reproduced or if the phenomenon is
		switched by replacing the converter.
	Vibration is unstable or large (small).	—

13. About Envelope Acceleration (E Acceleration)

If the inner ring of a rolling bearing is scratched, vibration with an impact (several kHz or more) will occur each time the rolling element passes through the scratch (Fig.13-1).

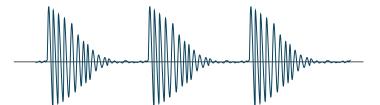


Fig.13-1 Example of impact waveform when bearing is abnormal

By processing the impact waveform by absolute value and passing it through a low-pass filter, the envelope curve corresponding to the thick line in Fig.13-2 is obtained. By frequency analysis of the obtained envelope, the repetition period (frequency) of impact can be obtained.

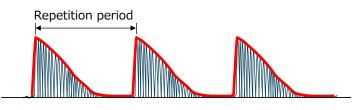


Fig.13-2 Envelope processing

In addition, the waveform with impact also includes the primary rotation component and low-frequency vibration component, and these components become noise in the envelope processing, so they are removed in advance using a bandpass filter.

This product uses a bandpass filter of 500Hz to 10kHz before envelope processing, removes primary rotation components and low frequency components, performs envelope processing, and outputs the enveloped waveform as "E Acceleration AC Output". (See Figure 13-3).

Since the impact repetition frequency differs depending on which part of the bearing is damaged, precise diagnosis is possible by frequency analysis using the E Acceleration AC output.

In addition, the waveform after envelope processing is converted to 4-20mA or 0-10V and output as a vibration level, so early detection of bearing abnormalities can be expected by managing the vibration level.

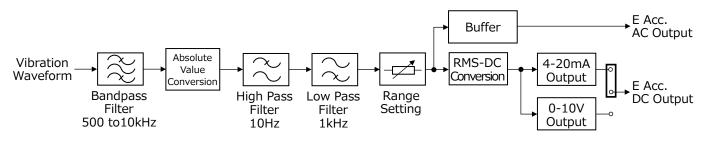


Fig.13-3 Block Diagram of E acceleration

Appendix 1 In case of the accelerometer is not grounded

Normally, the mounting place where the accelerometer is installed (the device to be measured) must be grounded.

If for some reason it cannot be grounded, ground it via the converter as shown in Fig.A-1.

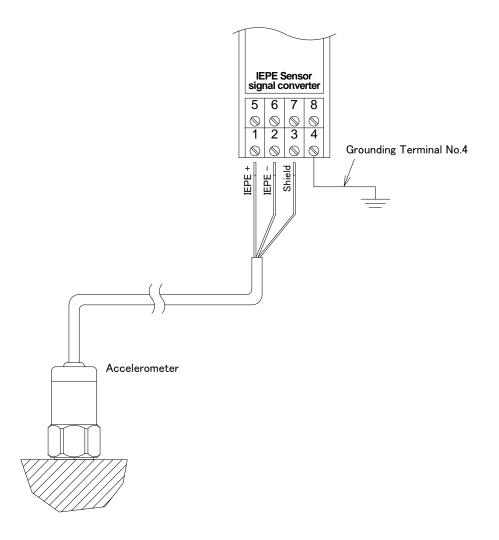


Fig.A-1 Wiring when the Accelerometer is not grounded

Memo

If the mounting place where the accelerometer is installed (device to be measured) is grounded, do not make the above wiring.

By grounding at two points, a loop is formed through the ground wire, which adversely affects the minute signal flowing through the accelerometer signal line, which may prevent correct vibration measurement.

Appendix 2 About voltage input connection specifications

The current for driving IEPE sensor (accelerometer) is output from accelerometer input terminal of the converter. It can be set to ON (IEPE sensor connection) or OFF (voltage input connection) of the drive current supply with jumper JP3 (see Fig.A-2).

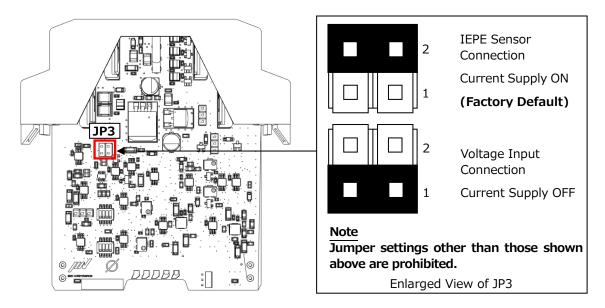


Fig.A-2 Drive Current Supply Setting

Memo

- (1) Refer to "Section 7" for how to pull out the board.
- (2) In the case of voltage input connection, POWER lamp lights up after power is supplied
 - regardless of the cable connection status to the accelerometer input terminal.

 $\ensuremath{\mathbb O}$ Example of using voltage input connection

Use accelerometer waveform output of another type of converter (VM-5011B etc.) and connect it to the accelerometer input terminal of voltage input specification the converter (VM-5011A).

This makes it possible to measure E Acceleration (m/s^2E rms) at the same time (see Fig.A-3).

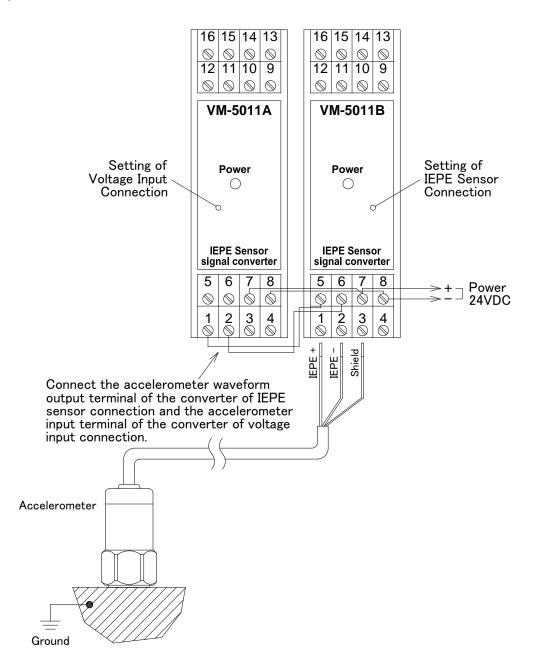


Fig.A-3 Connection example of voltage input specification the converter



Appendix 3 About the Magnets for mounting the Accelerometer

The magnets for attaching the VP-100 series and the VP-8021A to measurement point are available as options (see Table.A-1).

Model	MH-205R	MH-206R		
Insulation	Non-insulation	Non-insulation		
Material	Steel	Stainless		
Adsorption Power	Approx. 160N	Approx. 150N		
Use	for mounting Flat Surface	for mounting Curve Surface		
Outer Dimensions Unit [mm]		$\phi 25.5$		

Table.A-1 The Magnets for mounting the Accelerometer

A Caution

The adsorption force of magnet is very strong, even if it is installed to the accelerometer mounting surface from a very short distance, a large impact will be applied to it. Accelerometer may break down due to a large impact, so once you touch the end of magnet to the mounting point, keep your hands on it and install it quietly.

Note

The adsorption force of magnet decreases due to deterioration over time. The Accelerometer may detect a large impact or vibration that occurs when it falls off the mounting surface due to a decrease in adsorption force.

VM-5011 Series Lineup

		Measuring Mode (*1)			DC OUT
Model	Features	ACC	E ACC	VEL	Response
		RMS	RMS	RMS	Speed
VM-5011A	Simultaneously measures envelope acceleration, suitable for condition monitoring of bearings, and velocity according to ISO 2954:2012 filters.		•	•	τ=1s (63%)
VM-5011B	Simultaneously measures acceleration, and velocity according to ISO 2954:2012 filters. Faster response time of DC output enables more real-time vibration level output.	•		•	τ=0.3s (63%)

*1 The meaning of each phrase is as follows: ACC: Acceleration, <u>E ACC</u>: Envelope Acceleration, <u>VEL</u>: Velocity <u>RMS</u>: Root Mean Square

Revision History							
Apr. 2021	Ver1.20	New Issued.					
		(The version number is based on the Japanese version)					
Sep. 2022	Ver1.30	Added the VP-100 series lineup.					
Nov. 2024	Ver2.00	Updated layout.					
Contact Information for Inquiries							
INV CORPORATION							
MES Business Division (Vibration Measuring Systems Sales Section)							
Address: 2-6-10 Takejima, Nishiyodogawa-ku, Osaka, 555-0011, Japan							
TEL: +81 50 1745 6779 FAX: +81 6 6471 3158							

* Specifications and appearance described in this document are subject to change without notice.