

2CH VIBRATION MONITOR

# MODEL-1592

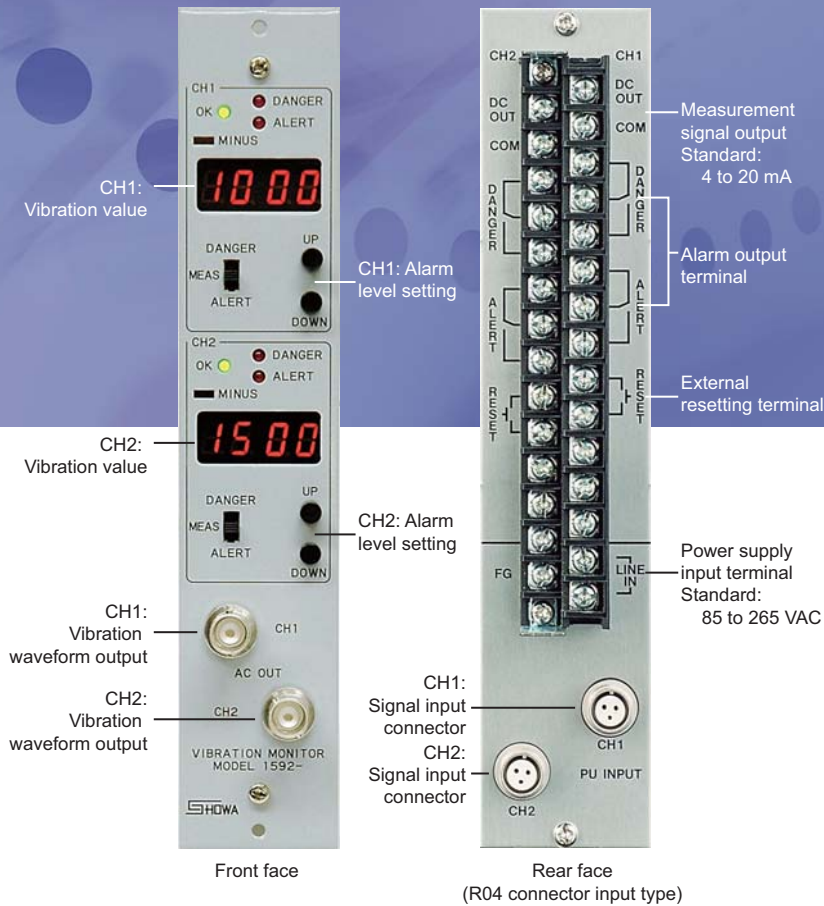
To monitor vibration of facilities

- Unbalance
- Defective lubrication
- Rust
- Wear
- Intrusion of foreign matter
- Cavitation

Monitoring  
 System  
 NEW



# 2CH VIBRATION MONITOR MODEL-1592

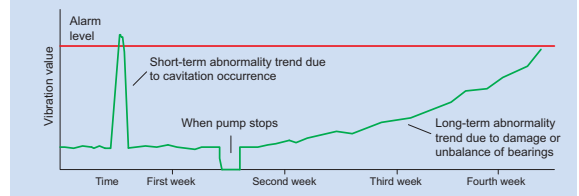


Vibration sensor connection diagram

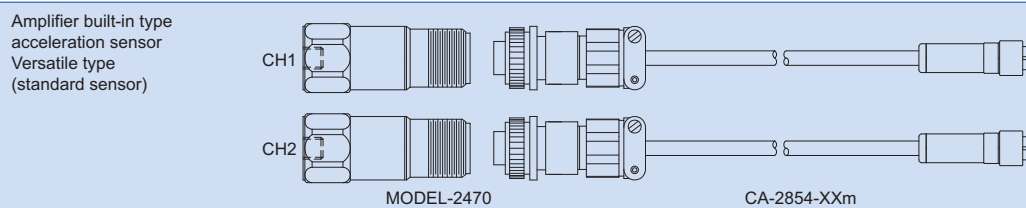
## Features

- MODEL-1592 is a 2CH type vibration monitoring instrument.
- It contributes to monitoring of multiple points through space saving and low cost.
- Two alarming points of "Alert" and "Danger" can be set for measurement values. In case the set point is exceeded, a relay contact is output.
- The 4-20 mA output is provided for the use of a sequencer installed at subsequent stage. Long-term and short-term trends can be investigated by monitoring the 4-20 mA output.

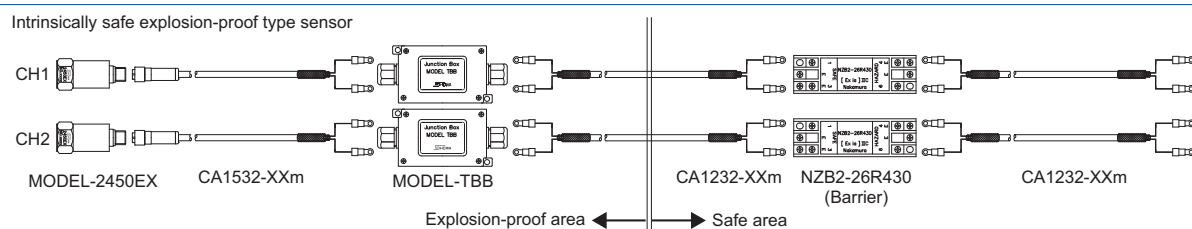
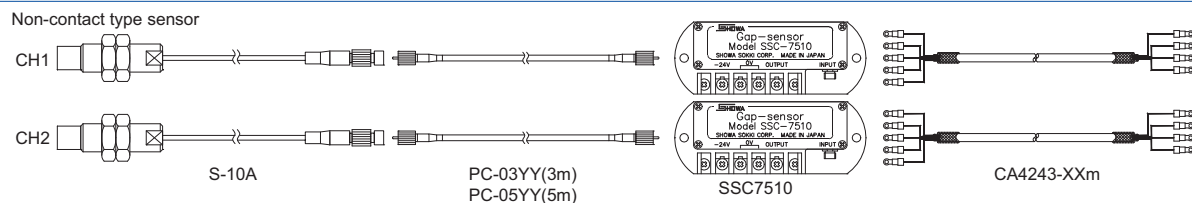
Example of vibration trend data of a pump



## Standard connection example



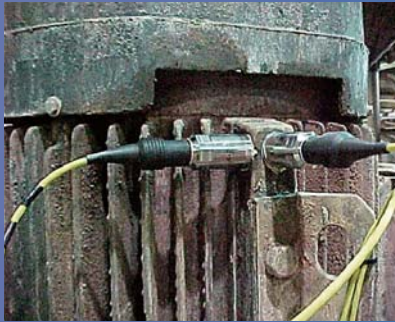
## Other connection examples



The junction box MODEL-TBB and the junction cable CA1232 can be omitted.

# Vibration monitoring instrument for plant machines

Example of mounting sensors on a vertical type centrifugal pump



Two sensors are horizontally mounted in the X and Y directions so as to be perpendicular to the rotating shaft of a pump.

Image when housed in a panel



**Vibration certainly increases as the machine deteriorates.**

- Predicting maintenance timing by using the vibration monitor enables laborsaving and planned spot maintenance.
- The machine can be stopped and inspected before significant failure occurs.
- Serious loss due to unpredicted stop of the machine is reduced, thereby providing large benefit.
- With the 2CH type, vibration monitoring at low cost is possible.

## Examples of implementation

Power generation stations, iron mills, chemical plants, mineral oil refineries, factories, water and sewage facilities, and other plants overall

## Examples of machines

Turbines, fans, blowers, pumps, compressors, jet fans, cooling tower fans, motors, agitators, centrifugal separators, spindles, machine tools, spray driers, other rotating machines, and facilities overall

## Vibration monitoring mode

- **Displacement:** Recommended frequency range of 5 Hz to several hundreds Hz  
As sensuously easy to understand, this mode is used in a wide range of fields. Vibration of a whole machine, such as unbalance of rotating bodies, is well measured. High frequency vibration cannot be measured.
- **Velocity:** Recommended frequency range of 10 Hz to 1,000 Hz  
JIS B 906 (ISO 10816) uses vibration velocity as a criterion for evaluating vibration on rotating machines. This mode is useful as a reliable indicator for facilities diagnosis.
- **Acceleration:** Recommended frequency range of 10,000 Hz at most  
The acceleration mode is superior in detecting stress waves generated by micro defect, as this mode is sensitive in a domain of the large number of vibration (high frequency). The mode is used for diagnosing local vibrational defect such as damage of roller bearings and chip of gears.

## Sensor

Model	MODEL-2470	MODEL-2450EX	MODEL-376	MODEL-2040	MODEL-2016W-2	MODEL-2200	MODEL-793L	MODEL-S-10A
Features	Standard sensor For wide range of application	Intrinsically safe explosion-proof sensor For explosion-proof environment	High-temperature responsive sensor Up to 260°C	Electrokinetic sensor (1CH) For more stable displacement measurement	Electrokinetic sensor (2CH) For more stable displacement measurement	Servo-type sensor For low frequency micro vibration	Low frequency sensor At least 2 Hz	Non-contact type sensor For measurement during axial traveling
Appearance								
Dimensional outline drawing (mm)								
Sensitivity	10mV/(m/s <sup>2</sup> )	5mV/(m/s <sup>2</sup> )	2.5pC/(m/s <sup>2</sup> )	80mV/(cm/s)	120mV/(cm/s)	50mV/(m/s <sup>2</sup> )	50mV/(m/s <sup>2</sup> )	-1.25V/(mm)
Frequency range	0.4 to 14,000 Hz (±3dB)	2 to 8,000 Hz (±3dB)	1 to 12,000 Hz (±3dB)	15(*10) to 500 Hz	5 to 300Hz	DC to 450 Hz (±3dB)	0.2 to 2,300 Hz (±3dB)	DC to 20,000 Hz
Use temperature range	-50 to +120°C	-20 to +60°C	-50 to +260°C	-34 to +70°C	-25 to +80°C	-20 to +70°C	-50 to +120°C	-30 to +120°C
Measurement upper limit	784 m/s <sup>2</sup>	720 m/s <sup>2</sup>	490 m/s <sup>2</sup>	1 mmp-p	1 mmp-p	100 m/s <sup>2</sup>	98 m/s <sup>2</sup>	4 mmp-p
Mass	62 g	90 g	75 g	200 g	2,000 g	300 g	142 g	-
Mounting	M6 conversion screw	M6 screw	M6 conversion screw	Horizontal/vertical mounting base	M5 screws x 4 pcs	M6 screws x 4 pcs	M6 conversion screw	Φ12.5
Protection class	IP64 (with use of CA2854)	IP67 (with use of CA1532)	-	IP65	IP65	IP64	IP64 (with use of CA2854)	-
Catalog price (excluding tax)	ASK	ASK	ASK	ASK	ASK	ASK	ASK	ASK

\* Requires a low range compensation circuit.

## Tabulated list of the types of MODEL-1592

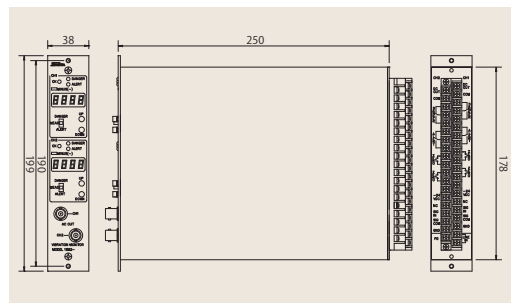
Sensors	Types	Measuring target	Full scale range		Lower limited frequencies		Upper limited frequencies		Input terminals
			Standard	Other examples of setting	Standard	Other examples of setting	Standard	Other examples of setting	
1 376	1592-111	Acc.	100 m/s <sup>2</sup>	10, 50, 500, 1,000 m/s <sup>2</sup>	5 Hz	10, 20, 100 Hz	1 kHz	100, 500, 5k, 10 kHz	B
	1592-122	Vel.	50 mm/s	10, 100 mm/s	10 Hz	5, 20, 100 Hz	500 Hz	100 Hz	
	1592-133	Disp.	0.2 mm	0.1 mm	10 Hz	5, 20, 100 Hz	500 Hz	100 Hz	
2 2040, 2016W-2	1592-222	Vel.	20 mm/s	2, 5, 10 mm/s	10 Hz	5, 20, 100 Hz	500 Hz	100 Hz	R, T
	1592-233	Disp.	0.2 mm	0.1, 0.5 mm	10 Hz	5, 20, 100 Hz	100 Hz	500 Hz	
3 2200	1592-311	Acc.	30 m/s <sup>2</sup>	5, 10 m/s <sup>2</sup>	DC	-	200 Hz	-	R, T
	1592-333	Disp.	0.2 mm	0.1, 0.5 mm	1 Hz	-	200 Hz	-	
4 2470, 2450EX 793L	1592-411	Acc.	100 m/s <sup>2</sup>	10, 20, 50, 500 m/s <sup>2</sup>	5 Hz	10, 20, 100 Hz	1 kHz	100, 500, 5k, 8 kHz	R, T
	1592-422	Vel.	50 mm/s	10, 100, 200 mm/s	10 Hz	5, 20, 100 Hz	1 kHz	100, 500 Hz	
	1592-433	Disp.	0.2 mm	0.5, 1.0 mm	10 Hz	5, 20, 100 Hz	500 Hz	100, 1 kHz	
	1592-411	Acc.	50 m/s <sup>2</sup>	10, 20, 100 m/s <sup>2</sup>	2 Hz	-	1 kHz	100, 500 Hz	
	1592-422	Vel.	50 mm/s	10, 100 mm/s	2 Hz	-	500 Hz	100 Hz	
	1592-433	Disp.	0.2 mm	0.5, 1.0, 2.0 mm	2 Hz	-	100 Hz	-	
5 S-10A	1592-533	Disp.	0.2 mm	0.05, 0.1, 0.5, 1.0 mm	5 Hz	2, 10, 20, 100 Hz	1k Hz	100, 500, 5k, 10 kHz	T
	1592-544	DC disp.	0.2 mm	0.1, 0.5, 1.0 mm	DC	-	1k Hz	100, 500, 5k, 10 kHz	

Contact us separately if desired scale setting is unlisted.

## Specifications

Input terminals	Select from Terminal block (-T), BNC connector (-B), and R04-R3F connector (-R).
Detection method	Standard: True RMS detection
	Optional: Mean value detection
Display	4-digit LED, character height of 7.2 mm, red color
OK monitor lamp	Lights up with proper range of sensor output.
Alarm setting	Setting value: Arbitrarily settable in a range from 1 to full scale
	Delay: Settable in a range from 0 to 60 sec, standard at 5 sec
	Resetting method: To be specified for automatic resetting or self-holding, standard at automatic resetting
Alarm relay output	2-stage upper limit for ALERT and DANGER, each to be of SPDT (C-contact) output
	Contact rating: AC: 220 Vmax, 4 Amax, 400 Vmax DC: 110 Vmax, 3 Amax, 50 Wmax
AC output	10 Vp-p/full scale, load resistance of 10 kW or more
DC output	Standard: 4 to 20 mA
	Optional: 1 to 5 V
	Optional: Insulating type
Power supply	Standard: 85 to 265 VAC, 50/60 Hz (power consumption: 30 VA or less)
	Optional: 24 VDC, 1.5 Amax
Temperature and humidity ranges	-10 to +60°C, 45 to 85%RH, no dew condensation allowed
Outside dimension and weight	See the outline drawing, approx. 1.5 kg
Catalog price (excluding tax)	ASK

## Outline drawing



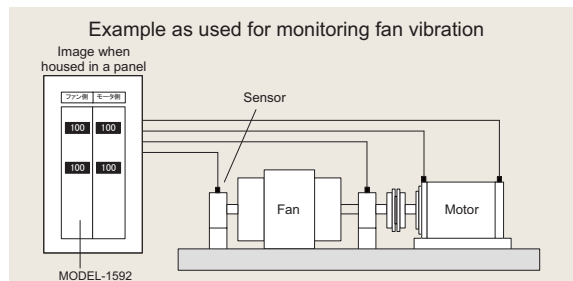
### MODEL-1592 1CH type

The standard type of MODEL-1592 is of 2CH, which can also be modified to 1CH type.

MODEL-1592 1CH type



Type designation coding table			
MODEL-1592- [ ] [ ] [ ] [ ]			
Sensor	1	Charge output type	Sensor input terminals
	2	Electrokinetic type	
	3	Servo type	
	4	Amplifier built-in type	
	5	Non-contact type	
CH1 mode	1	Acceleration	T Terminal
	2	Velocity	
	3	Displacement	
	4	DC displacement	
CH2 mode	1	Acceleration	B BNC connector
	2	Velocity	
	3	Displacement	
	4	DC displacement	
			R R04-R3F connector



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