Specifications

TM-0013-SW

Item	Specification
Number of seismic monitoring system	Maximum 3
Screen display	7 inch (800 x 480 dot), TFT color liquid crystal touch panel Earthquake monitor : present time, earthquake occurrence time, maximum value (intensity scale, acceleration, SI value), alarm output condition / recording data : log, earthquake history setting : time, main body, seismic monitoring system, print / maintenance : waveform data acquisition, test, memory card
Alarm contact output	Photo-MOS relay, contact rating : 60 V-2.5 A (for both AC / DC, peak value) Earthquake alarm : upper limit 7-step, 1a contact (At alarm occurrence : close) Reset method : external input, internal timer (Seismometer setting), touch panel switch / FAULT alarm : 1a contact (At alarm occurrence: open)
Interface (dedicated connector)	Seismometer connection, alarm output, analog output, digital input
Interface (others)	RJ-45 (LAN), USB2.0 (TypeA), SD memory card slot, power supply jack
Clock	Accuracy : 20ppm (dayly error of 2 seconds) or better / Seismometer time management : synchronize with unit time during calibration
Mounting method	Wall hanging, panel / rack mount (storing cabinet)
Operational temperature range	0 to 40℃
Operational humidity range	20 to 85% RH (Non-condensing)
Power supply	100-240 VAC
Mass	Display unit：Approx. 2 kg / Including cabinet：Approx.8 kg

SW-52ST/SW-52EX

Item		Specification		
Detection method	Non-directional detection by acceleration with vector composition			
Built-in pickup	Force-balancing servo acceleration pickup, sensitivity : 2.04 mV / Gal, ±5 % (gravity acceleration standard)			
Acceleration measurement	Measurement range	0 to 5000 Gal (composite value of three component vectors) , NS and EW axes : ±3000 Gal, UD axis : +2000 to -3000 Gal		
	Rated range	0 to 3000 Gal (composite value of three component vectors), ±3 % FS (3000 Gal)		
	Frequency range	0.3 to 10 Hz (±10 %)		
Spectrum intensity measurement	$SI = \frac{1}{2.4}\int_{0.1}^{2.5} Sv(h,T)\,dT$	Natural period 0.1 sec. /step by measured acceleration Real time calculation of velocity response spectrum by 25 pieces of 1 degree of freedom simulation filters		
	Measurement range	0 to 5000 Kine (composite value of three component vectors) (Period 2 seconds, 5000 Gal, Dumping 2 %)		
	Rated range	0 to 6000 Kine (composite value of three component vectors) ±3 %FS (600 Kine) (Period 1 second, 3000 Gal, Dumping 20 %)		
	Cycle range	0.1 to 2.5 seconds (0.1 sec. step)		
	Damping	2 to 30 % (arbitrarily setting of 1 % stepping)		
Low-pass filter	30 Hz (-3 dB), 4th order Butterworth filter			
A / D converter	24 bit, 100 Hz sampling			
Data recording	History data : 50 cases＋1 case (No.0 – 50)) / Waveform data : 20 cases＋1 case (No.0 – 20) / Saving format : Selected from latest priority and maximum priority *Top 21 cases of history data (No.0 – 20) are always correspond to waveform data *To acquire the recorded data, dedicated software is necessary			
Analog output	DC4 – 20 mA×2 pcs. (resistive load of 300 Ω or less), Switchable output data (acceleration / seismic intensity scale / spectrum intensity, according to the setting) Full scale：10 to 3000 Gal / Kine ±3 % full span (16 mA) (seismic intensity scale is fixed full scale, 1.6 mA step 10 step output)			
Relay output	1a contact (Photo-MOS relay) Contact rating : 40 V, 0.8 A (for both AC / DC, peak value) Output content : Select from earthquake alarm or FAULT			
Digital output	Open collector output ×3 pcs. (D-GND common) Rated output : 30 V, 50 mA Output detail : select from seismic alarm / FAULT			
Earthquake alarm	Output when it detects earthquake and exceeds the setting level OFF at normal time (relay non-excitation, transistor release) / ON at alarm occurrence Output factor: select from acceleration / instrumental seismic intensity / SI value Output level : 0.1– 999.9 (Gal / Kine / instrument seismic intensity) 0.1 step, 0.0 means alarm action OFF Reset time: 1– 9999 sec., 1 sec. step 0 second means no automatic reset			
Earthquake alarm reset	Internal timer or digital input (need to set digital input)			
FAULT alarm	Hardware self-diagnosis, Output from abnormal detection of pickup test, pickup self-diagnosis and system power discontinuity. On at normal time (Relay excitation, transistor short circuit) / OFF at alarm occurrence			
Hardware self-diagnosis	Diagnosis detail : abnormal monitoring of internal power voltage/detection timing : normal time			
Pickup self diagnosis	Diagnosis detail : abnormal monitoring of angular displacement detection mechanism / detection timing : 2 minutes after start and every 30 second cycle			
Pickup test	Diagnosis detail : Abnormal diagnosis by servomechanism / detection timing：Schedule (Once in a month or everyday) Or digital input (digital input setting is necessary) Schedule setting : ON / OFF of schedule execution, execution once a month by setting of day, time, minute and second. (Everyday execution when the date is set to be "0".) *Seismic monitoring is stop during pickup test.			
Digital input	Open collector or non-voltage contact input × 1 pcs (D-GND common) / Open voltage : approx.13 V / input pulse width : more than 0.1 sec. / function switching method by communication setting : seismometer alarm reset, time correction, pickup test			
Serial I / F	Collection of measured data, change in system setting, state monitoring, pickup test, digital input function switching Interface: RS-485 (2-wire half-duplex communication) / Communication speed: 115,200 bps/protocol：Modbus (RTU mode)			
Clock	Accuracy：20ppm (monthly error of 50 seconds or better) / Calibration: ±30 second correction by digital input (digital input setting is necessary)			
Operational temperature range	0 to + 50℃			
Operational humidity range	10 to 100% RH			
Power supply	24 VDC ±10%, ≦10 W			
Construction	SW-52ST	Dust proof, Flood prevention IP67	SW-52EX	Explosion proof Ex db Ⅱ B+H2 T6 / Dust explosion-proof Ex tb Ⅲ 120 ℃ Db
Mounting method	Installation on the ground (fixed by anchor)			
I / O cable	SW-52ST	For connection with a water-proof connector	SW-52EX	Cable ground (Internal terminal block connection)
Mass		Approx. 2 kg		Approx. 5 kg
Painted color	Metalic silver			

IMV CORPORATION

Head office / Osaka Sales Office
2-6-10 Takejima, Nishiyodogawa-ku, Osaka, 555-0011, Japan
Tel. +81-6-6478-3155 Fax .+81-6-6471-3158

Tokyo Sales Office
Kuretoishi-Bldg. F4, 2-1-5 Hamamatsu-cho, Minato-ku, Tokyo, 105-0013, Japan
Tel. +81-3-3436-3920 Fax. +81-3-3436-3926

https://www.imv.co.jp/e

*Product specifications and appearances are subject to change without notice.

JQA-1573 CN / 14640E

June 2018
Cat.No.1806①002TM_E.SK

TM-0013-SW & SW-52ST

Seismic Monitoring System

The prevention of the secondary disaster by earthquake starts from the accurate measurement of earthquake. The installation of seismic monitoring system in the public area and plant is increased to prevent from the secondary disaster.
Our seismic monitoring system use high resolution servo acceleration pickup which can detect the minute earthquake.

Installation example

IMV CORPORATION

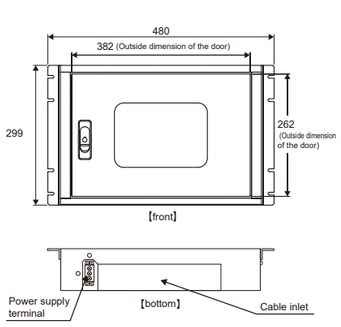
Seismic monitoring system with display TM-0013-SW

TM-0013-SW is the display record system for a dust-explosion-proof type seismic monitoring system SW-52EX and standard seismic monitoring system SW-52ST. This display can be connected 3 systems, also can display and record the seismic information of 3 systems. It acquires waveform and can output after logical judgement (AND/OR/2 out of 3) against seismic alarm.

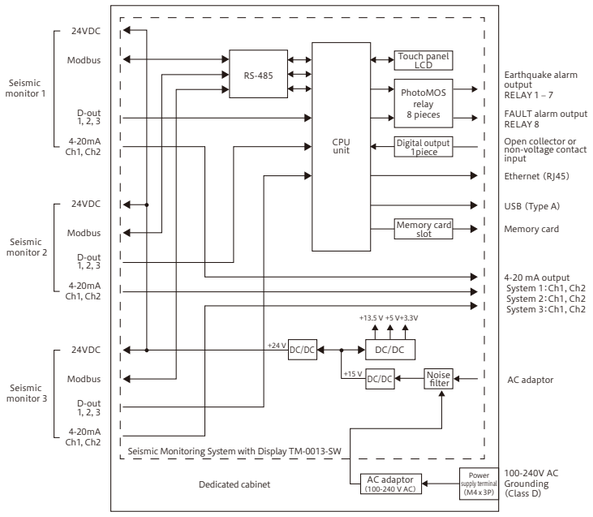
Function

- 7 inch color liquid crystal touch panel
- 4 GB memory card
- Earthquake information indication
- Earthquake history confirmation
- Earthquake alarm relay output 7-point
- Fault alarm relay output 1-point
- Relay output test
- Time calibration
- Digital output 1-point
- Analog output 6-point
- Analog output adjustment / test
- Pickup test
- Waveform data acquisition
- E-mail notification of earthquake
- External monitor software connection
- Printer connection

Outward dimensions (Unit : mm)



Block diagram



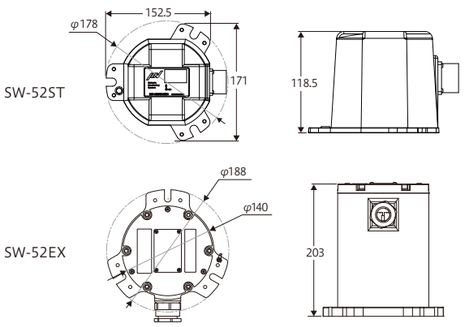
Seismic monitoring system SW-52ST / SW-52EX -Flame-proof- Option

SW-52ST/SW-52EX can calculate at real time modified mercalli seismic intensity scale(estimate value by PGA) and SI value, so called “velocity response spectrum”, which is one of the standards to express an earthquake's destructive power against structures by using built-in servo type accelerometer.

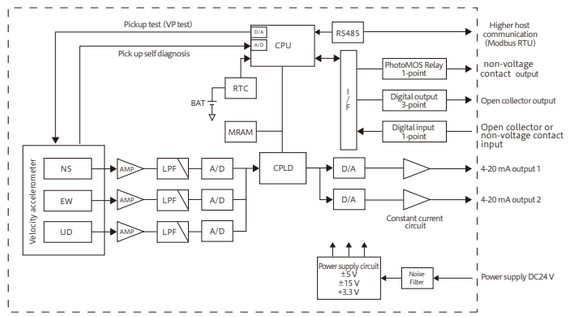
Function

- Servo type accelerometer
- 3-direction non-directivity
- Digital output 3-point
- Relay output 1-point
- Digital input 1-point
- Analog 4-20mA output 2-point
- Pickup test
- Pickup self diagnosis

Outward dimensions (Unit : mm)



Block diagram



Features

Touch panel for intuitive operation

Full color and big panel enables speedy confirmation.

Free from complicated connection

One touch connector enables easy connections.

Easy installation

U-shaped fixing hole makes easy to anchor. Level gauge is equipped.

Water proof structure

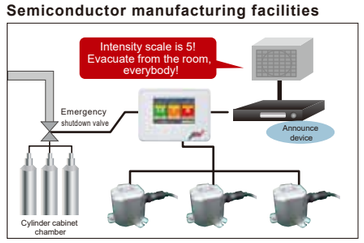
The accelerometer has IP67 water proof compliant structure for installation at any location.

History display at a glance

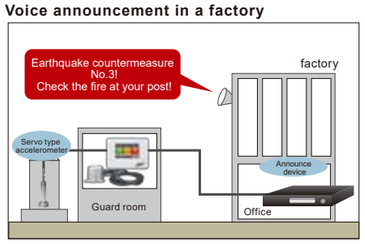
Up to 100 histories can be saved.

Application examples

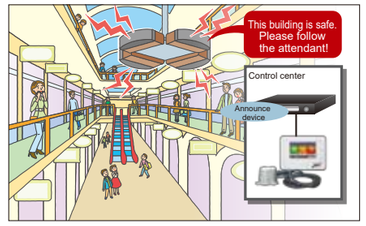
Semiconductor manufacturing facilities



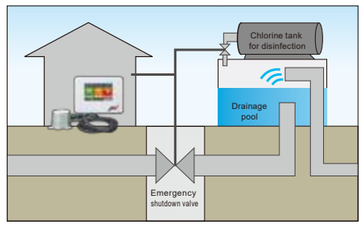
Voice announcement in a factory



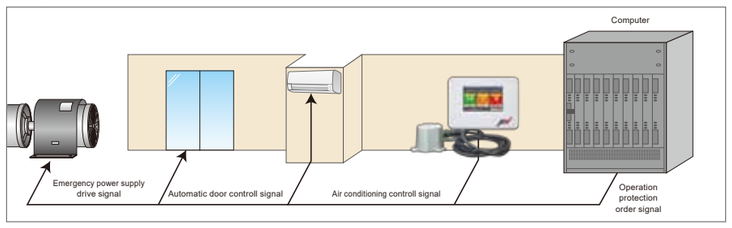
Public facilities



Water treatment and storage facilities



Computer facilities



Option

Printer RP-E11-W3FJ1-U

Print accelerometer, earthquake scale and time from the seismic monitoring system.