

TML High Speed Switching Box **IHW-50G** Switching Box **ISW-50G**

New product

High speed and high accurate measurement with onboard newly developed A/D converter

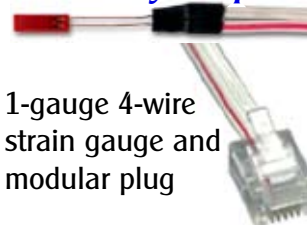


ISW-50G



IHW-50G

1-Gauge 4-Wire Strain Measurement without sensitivity drop



1-gauge 4-wire strain gauge and modular plug



IHW-50G

50 channels/0.4 sec. (with 1 unit)
1000 channels/0.4 sec. (with 20 units)

ISW-50G

50 channels/2 sec. (with 1 unit)
1000 channels/2 sec. (with 20 units)

1-Gauge 4-Wire Measurement

One-touch connection by modular plug

High Resolution Mode

0.1 x 10⁻⁶ strain (standard)

Multi-measurements

Strain, DC voltage, Temperature with Pt RTD & Thermocouples

Temperature integrated strain gauges

Simultaneous measurement of strain & temperature with the same channel

Surge absorber for lightning

Built in each channel

Both terminal & plug connection (Option-05)

Complete compensation of strain



GENERAL

The IHW-50G and ISW-50G are an A/D converter integrated switching box to offer high speed and high accurate measurement in combination with TML data loggers. Not only strain but temperature using thermocouples and Pt RTD and DC voltage can be measured. The ISW-50G scans 50 channels in 2 seconds and IHW-50G in 0.4 seconds. Even if multiple units are cascaded, 1000 channel scanning is finished in 0.4 seconds with the IHW-50G and 2 seconds with the ISW-50G because of parallel operation of the onboard A/D converters. In strain measurements, complete compensation of strain, and speedy and secure strain gauge wiring using the 1-gauge 4-wire mode and modular plug connection are available, and further temperature-integrated strain gauge mode makes it possible to measure both strain and temperature by one channel. As connection to a data logger or between individual switching boxes makes avail of high speed digital communication using RS-422 or fiber optic cable, excellent immunity-to-noise measurement is achieved.

SPECIFICATIONS IHW-50G/ISW-50G

Number of channels	50 * more than 50 channels in temperature-integrated strain gauge mode
Connection to data logger	Optical fibre or RS-422 cable
Compatible data logger	TDS-530 TDS-303 (Ver. 3.1B or later for 1-gauge 4-wire method) TDS-602 (Not available for 1-gauge 4-wire method)
Scanning speed	0.04 sec./channel (strain/voltage, 50Hz area)
Switching relay	Semi-conductor relay
Input	

Strain measurement	
3-wire 1/4 bridge	120, 240 & 350Ω
1-gauge 4-wire	120, 240 & 350Ω
Half bridge	60~1000Ω
Half bridge common dummy	60~1000Ω (ISW-50G only)
Full bridge	60~1000Ω
Full bridge constant current	350Ω
Full bridge high resolution	120~1000Ω
Temperature-integrated gauge mode	120, 240 & 350Ω(TDS-530 only)
Leadwire resistance compensation	Comet B (3-wire 1/4 and half bridge common dummy)
Gauge resistance	Leadwire resistance compensation range
120Ω	Less than 100Ω
240Ω	Less than 200Ω
350Ω	Less than 300Ω

DC voltage measurement	
V[1/1]	DC±640mV
V[1/100]	DC±64V
Input impedance	More than 1MΩ
Allowable input voltage between B and D	±70V(DC)

Thermocouple temperature measurement	
Applicable	T, K, J, B, S, R, E, N JIS C1602-1995

Pt TRD temperature measurement	
Pt 100 (500mA, constant current 3-wire method)	JIS C1604-1997

Accuracy

Strain measurement (standard resolution)	
Bridge excitation	DC2V 24ms (50Hz)
Thermal coefficient	±0.002% reading/°C
Aging variation	±0.02% reading/year
Strain measurement (high resolution)	
Bridge excitation	DC5V 48ms (50Hz)
Thermal coefficient	±0.002% reading/°C
Aging variation	±0.02% reading/year
DC voltage measurement	
Thermal coefficient	±0.0024% reading/°C
Aging variation	±0.024% reading/year
Sensor mode	V 1/1, V 1/100

Thermocouple temperature measurement	
Applicable thermocouple	T, K, J, B, S, R, E, N
Linearizer	Digital operation Conforms to JIS C1602-1995
Pt TRD Temperature measurement	
Applicable RTD	Pt 100
Measurement method	3-wire method (Pt3W)
Linearizer	Digital operation Conforms to JIS C1604-1997
Thermal coefficient	Pt100 3W ±0.0020% reading/°C
Aging variation	Pt100 3W ±0.05% reading/year

Measuring time	
ISW-50G	50 channels/2 sec.
IHW-50G	50 channels/0.4 sec.
Note: Strain measurement with TDS-530 in standard resolution mode and within ±20000x10 ⁻⁶ strain	

Environment 0~50°C Less than 85%RH (no condensation)	
Power source	
ISW-50G	AC85~250V 50/60Hz 37VA max. DC10~16V, 0.8A max.
IHW-50G	AC85~250V 50/60Hz 104VA max. DC10~16V 4A max.

Dimension	
IHW-50G/ISW-50G	298(W)×100(H)×500(D)mm (excluding projecting parts)
IHW-50G-05/ISW-50G-05	298(W)×100(H)×600(D)mm (excluding projecting parts)
* "-05" means both terminal and connector board option	

Weight	
IHW-50G/ISW-50G	8 kg
IHW-50G-05/ISW-50G-05	9 kg

Accessories	
Operation manual	1 copy
Connection cable	1 piece (Optical fibre cable CR-842M or RS422 cable CR-832M)
AC power cable (CR-01)	1 piece
Earth wire (CR-20)	1 piece
Phillips screwdriver	1 piece
Vinyl cover	1 piece

1-Gauge 4-Wire Measurement Method

(Patented)

Our developed patented 1-gauge 4-wire method eliminates influence of leadwire resistance and contact resistance between strain gauges and switching boxes, so there is no variation caused by sensitivity drop and temperature due to leadwire extension. Available modular plug makes connection easy and troublesome soldering work unnecessary.

Specifications subject to change without prior notice



Approval Certificate ISO9001
Design and manufacture of
strain gauges, strain measuring
equipment and transducers



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