

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

High-speed and high-accuracy measurement achieved by built-in newly developed A/D converter



ISW-50G

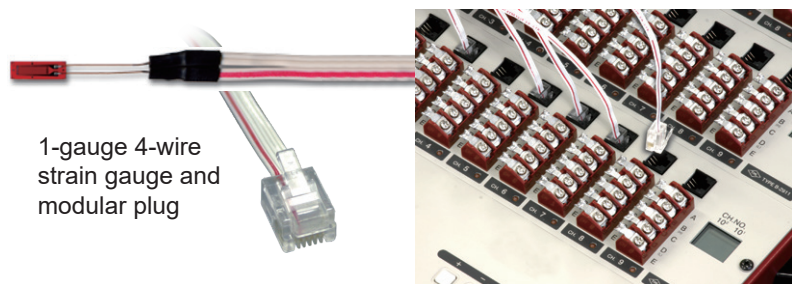


IHW-50G



These are A/D converter-integrated switching boxes enabling high-speed and highly accurate measurement through the combined use with a data logger. They can measure thermocouples, platinum resistance temperature detectors and DC voltage in addition to strain gauges. The time required for measurement is 2 seconds per 50 points for ISW-50G and 0.4 seconds per 50 points for IHW-50G. Furthermore, when two or more switching boxes are used in one system, the A/D converters which are built in each switching box operate in parallel. Owing to this, measurement of up to 1,000 points is possible in the same 0.4 seconds for IHW-50G (up to 1,000 points in 2 seconds for ISW-50G). As for strain measurement, 1-gauge 4-wire mode is provided in addition to our original Complete Compensation Method of Strain, and speedy and reliable wire connection is possible through one-touch connection using a modular plug. Also, temperature-integrated strain gauge mode is available for measurement of strain and temperature using one measurement channel. High-speed digital communication with data logger is performed by isolated RS-422 or optical fiber, which provides excellent noise immunity.

1-gauge 4-wire strain measurement without loss of sensitivity



1-gauge 4-wire strain gauge and modular plug

IHW-50G

50 points/0.4 s (using one box)
1000 points/0.4 s (using 20 boxes)

ISW-50G

50 points/2 s (using one box)
1000 points/2 s (using 20 boxes)

1-gauge 4-wire measurement

One-touch connection using modular plug

High resolution mode

0.1×10^{-6} strain measurement
available in standard specifications

Measures various objects

Strain, DC voltage, Thermocouple
and Pt-RTD temperature

Temperature-integrated strain gauge

Simultaneous measurement of strain
and temperature using one channel

Surge absorber for lightning protection

Provided for each channel as
standard equipment

Terminal model and

Connector/terminal combined
model (option) are available

Complete Compensation Method of Strain

Specifications IHW-50G / ISW-50G

Number of measuring points	50
More than 50 points may be set when temperature-integrated strain gauge mode is used	
Connection with data logger	Optical fiber or RS-422
Applicable data logger	TDS-630/TDS-540/TDS-530 TDS-303 (Ver. 3.1B or later for 1-gauge 4-wire mode) TDS-602 (1-gauge 4-wire mode is not available)
Measuring point switching speed	0.04s/point (strain and voltage measurement in 50Hz area)
Switcher	Semiconductor relay
Input	
Strain measurement	
Quarter bridge 3-wire	120/ 240/ 350 Ω
1-gauge 4-wire	120/ 240/ 350 Ω
Half bridge	60 to 1000 Ω
Half bridge common dummy	60 to 1000 Ω (only for ISW-50G)
Full bridge	60 to 1000 Ω
Full bridge constant current	350Ω
Full bridge high resolution	120 to 1000 Ω
Temperature-integrated strain gauge	120/ 240/ 350 Ω (only for TDS-530/TDS-630)
Lead wire resistance compensation	Comet B (Quarter bridge 3-wire, Half bridge common dummy)
Gauge resistance	Compensation range of lead wire resistance
120 Ω	Approx. 100Ω or less
240 Ω	Approx. 200Ω or less
350 Ω	Approx. 300Ω or less
DC voltage measurement	
V[1/1]	DC ±640mV
V[1/100]	DC ±64V
Input impedance	1 MΩ or more
Allowable input voltage	±70V (DC) between B and D
Thermocouple temperature measurement	Applicable thermocouple T,K,J,B,S,R,E,N JIS C1602-1995
Pt-RTD temperature measurement	Pt100 (500 μA constant current 3-wire) JIS C1604-1997
Accuracy	
Strain measurement (normal resolution mode)	
Bridge excitation	DC2V 24ms (50Hz)
Temperature coefficient of accuracy	±0.002%rdg / °C
Secular change of accuracy	±0.02%rdg / year
Strain measurement (high resolution mode)	
Bridge excitation	DC5V 48ms (50Hz)
Temperature coefficient of accuracy	±0.002%rdg / °C
Secular change of accuracy	±0.02%rdg / year
DC voltage measurement	
Temperature coefficient of accuracy	±0.0024%rdg / °C
Secular change of accuracy	±0.024%rdg / year
Sensor mode	V1/1, V1/100
Thermocouple temperature measurement	
Applicable thermocouple	T, K, J, B, S, R, E, N
Linearization	Digital processing, Conforms to JIS C1602-1995
Pt-RTD temperature measurement	
Applicable Pt-RTD	Pt100

Measuring method	3-wire (Pt3W)
Linearization	Digital processing, Conforms to JIS C1604-1997
Temperature coefficient of accuracy	Pt100 3W ±0.0020%rdg / °C
Secular change of accuracy	Pt100 3W ±0.05%rdg / year
Measuring time	
ISW-50G	50 points / 2s
IHW-50G	50 points / 0.4s
Note) The above are when connected with TDS-540 in strain measurement (except high resolution mode) within ±20000×10 ⁻⁶ strain	
Operating environment	0 to +50°C, 85%RH or less (no dew condensation)
Power supply	
AC power supply	
Rated voltage	AC100 to 240V 50/60Hz
Allowable range	AC85 to 250V 50/60Hz
Maximum power consumption	ISW-50G: 104VA IHW-50G: 37VA
DC power supply	
Rated voltage	DC10 to 16V
Maximum current consumption	ISW-50G: 4A IHW-50G: 0.8A
External dimensions	
IHW-50G/ISW-50G	298(W)×100(H)×500(D)mm (except projecting parts)
IHW-50G-05/ISW-50G-05	298(W)×100(H)×600(D)mm (except projecting parts)
Note) The -05 model is connector/terminal combined model.	
Weight	
IHW-50G/ISW-50G	Approx. 8 kg
IHW-50G-05/ISW-50G-05	Approx. 9 kg
Standard accessories	
Operation manual	1 copy
Connection cable	1 piece (Optical fiber cable CR-842M or RS-422 cable CR-832M)
AC power supply cable	1 piece
Ground wire (CR-20)	1 piece
Cross slot screwdriver	1 piece
Vinyl cover	1 piece



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

The contents of this catalog are subject to change without prior notice.
The contents of this catalog are as of October 2024. TML Pam E369H



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