

**Display**

- ♦ Digital display : Process value (PV) 7 segment Red LED 4 digits (H: 20mm)
- ♦ Action display : 1 point of parameter display (SET) by green LED  
: 1 point of communication display (COM) by green LED  
: 2 points of alarm (AL1, AL2) by red LED
- ♦ Display accuracy :  $\pm(0.3\% \text{ FS} + 1 \text{ digit})$  within measuring range  
: Excluding cold junction temperature compensation accuracy in the case of thermocouple input  
:  $\pm 5\% \text{ FS}$  for temperature below 400 °C of thermocouple B  
: When the thermocouple [T, U] indication value is 0 - 100 °C, 0.5%FS and when it is below -100 °C, 1%FS  
: 23 °C  $\pm 5$  °C (18 - 28 °C)  
: Depends on measuring range (0.001, 0.01, 0.1, 1)  
: -10 - 110% of measuring range (Accuracy guaranteed for value is within measuring range only)  
: For R.T.D. input of -200 - 600 °C: 210 - 680 °C  
: For thermocouple [K] input of -199.9 - 800 °C: -273.1 - 900.0 °C  
: 0.25 - 5.00 seconds configurable (0.25 seconds step)  
When 0.5 second or more is set, there may occur a difference among the displayed value, the analog output and the communication data.
- ♦ Display accuracy range
- ♦ Display resolution
- ♦ Measured value display range
- ♦ Display update cycle

**Setting**

- ♦ Setting : By four (4) front key switches
- ♦ Setting range : Same as measuring range
- ♦ Setting protection : Keylock ON/OFF

**Input**

- ♦ Type of input : Three-type multiple input of Thermocouple, R.T.D., Voltage (mV, V)
- ♦ Thermocouple : B, R, S, K, E, J, T, N, {U, L (DIN 43710)}, WRe5-26  
Refer to measuring range code table
- ♦ External resistance : 100  $\Omega$  max.
- ♦ Input impedance : 500 K $\Omega$  max.
- ♦ Burnout : Standard (Up-scale)
- ♦ Cold junction temperature compensation accuracy :  $\pm 1$  °C (18 - 28 °C range)  
:  $\pm 2$  °C (5 - 18 °C, 28 - 45 °C range)  
( $\pm 5$  °C to the negative side of measuring range in case of T and U input)
- ♦ R.T.D. : JIS Pt100  $\Omega$  3-wire type
- ♦ Amperage : Approx. 0.25mA
- ♦ Lead wire tolerable resistance : 5  $\Omega$  max. / wire (3 lead wire should have same resistance)  
When the resistance value of each wire is same  
0 - 5  $\Omega$ : 0.05 °C, 5 - 10  $\Omega$ : 0.2 °C, 10 - 20  $\Omega$ : 0.6 °C, 20 - 30  $\Omega$ : 1.4 °C max.
- ♦ Voltage (mV) : 0 - 10mV DC
- ♦ Voltage (V) : 0 - 5V, 1 - 5V, 0 - 10V DC
- ♦ Input impedance : 500 K $\Omega$  min.
- ♦ Current : 4 - 20mA DC
- ♦ Input impedance : 250  $\Omega$  [A shunt resistor needs to be connected to the terminal]
- ♦ Input scaling function : Scaling possible for voltage (mV, V) or current (mA) input and inverse scaling possible.
- ♦ Scaling range : -1999 - 9999 unit
- ♦ Span : 10 - 10000 unit
- ♦ Position of decimal point : 1, 0.1, 0.01, 0.001
- ♦ Sampling cycle : 0.25 seconds
- ♦ PV bias : -1999 - 2000 unit
- ♦ PV filter : 0 - 100 seconds (0 = without filter)
- ♦ Isolation : Isolated between input and analog output (sensor power supply), or between input and communication.  
Not isolated between input and system.

**Alarm output (option)**

- ♦ Number of alarm points : 2a (AL1 and AL2) for both normal open and common
- ♦ Alarm type : Selectable from combinations of the following 4 types  
: Higher limit absolute value (latching function)  
: Lower limit absolute value (latching function)  
: Within measuring range or within full scaling range  
: ON-OFF action  
: 1 - 999 unit Within measuring range  
: Contact 1a (common) / 240V, AC1.5A (resistive load)  
: 0.25 seconds
- ♦ Alarm setting range
- ♦ Alarm action
- ♦ Alarm sensitivity
- ♦ Alarm output / rating
- ♦ Alarm output update cycle

**Analog output (option) /**
**Not selectable with the sensor power supply**

- ◆ Analog output type : 0 - 10mV DC (output resistance: 10 Ω)  
: 0 - 10V DC (load current: 1mA max.)  
: 4 - 20mA DC (load resistance: 300 Ω max.)
- ◆ Output resolution : Approx. 1/14000
- ◆ Output accuracy :  $\pm(0.3\%FS + 1 \text{ digit})$  of display value
- ◆ Output scaling : Within measuring range or input scaling range (inverse scaling possible)
- ◆ Output update cycle : 0.25 seconds

**Communication (option)**

- ◆ Communication type : RS-232C, RS-485
- ◆ Communication system : Half duplex start-stop synchronized system
- ◆ Communication speed : 1200, 2400, 4800, 9600, 19200 bps
- ◆ Data bit length : 7 bit even parity 1 stop bit  
: 8 bit non parity 1 stop bit
- ◆ Data format : 7E1, 7E2, 7N1, 7N2, 8E1, 8E2, 8N1, 8N2
- ◆ Communication address : 1 - 100
- ◆ Multi-drop connection : 31 max. (with RS-485)
- ◆ Communication delay : 1 - 100 milli-seconds
- ◆ Communication protocol : Shimaden standard protocol, MODBUS ASCII, MODBUS RTU
- ◆ Communication code : Shimaden standard protocol: ASCII  
: MODBUS ASCII: ASCII  
: MODBUS RTU: binary
- ◆ Others : Start character and BCC operation method can be selected for Shimaden standard protocol.

**Sensor power supply (option)**

- ◆ Output rating : 24V $\pm$ 3V DC 25mA max.
- ◆ ON/OFF : Depending upon instrument's power ON-OFF status.
- ◆ Restrictions : Sensor power supply can't be selected when the analog output is selected. Sensor power supply can't be selected when the power supply 24V is selected.

**Others**

- ◆ Data storage : By non volatile memory (EEPROM)
- ◆ Ambient conditions for use : -10 - 50 °C/90%RH max. (on condition that there is no dew condition)
- ◆ Height : 2000m above sea level or lower
- ◆ Installation category : Category II
- ◆ Degree of pollution : Degree 2
- ◆ Power supply voltage : 100 - 240V AC $\pm$ 10%, 50/60Hz  
: 24V AC (50/60Hz) /DC $\pm$ 10% (option)
- ◆ Power consumption : 11VA (100~240V AC), 7VA (24V AC), 5W (24V DC)
- ◆ Applicable standard : IEC61010-1, EN61010-1
- ◆ Safety : EN61326:1997+A1:1998, A2:2001, A3:2003
- ◆ EMC : EMC testing display accuracy  $\pm 3\%FS$
- ◆ Dust proof/Drip proof : IP66 (Complies with the IEC 529-IP66)
- ◆ Insulation resistance : Between input/output terminal and power supply terminal:  
: 500V DC 20 MΩ minimum  
: Between input/output terminal and protective conductor terminal  
: 500V DC 20 MΩ minimum
- ◆ Dielectric strength : Between all input/output terminals and power terminal:  
: 2300V AC for one minute (faradic current 1mA)  
: Between power terminal and ground terminal:  
: 1500V AC for one minute (faradic current 1mA)
- ◆ Case material : PPO resin molding (equivalent to UL94V-1)
- ◆ External dimensions : H48 x W96 x D110 mm
- ◆ Mounting : Push-in panel (one-touch mount)
- ◆ Panel thickness : 1.0~4.0 mm
- ◆ Panel cutout : H45 x W92 mm
- ◆ Weight : Approx. 250g