

## Space-saving Plug-in Signal Conditioners H-UNIT

### RTD TRANSMITTER

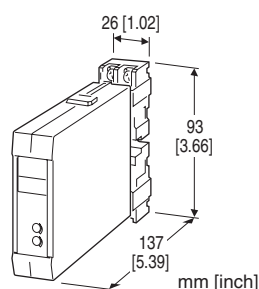
(isolated)

#### Functions & Features

- Accepting direct input from an RTD and providing a standard process signals
- Linearization
- Burnout protection
- "Active bridge" circuit containing two constant current sources allows large leadwire resistances up to 200  $\Omega$
- Fast response type available
- High-density mounting

#### Typical Applications

- Long distance transmission between the RTD and the transmitter
- Combination with intrinsic safety barriers



## MODEL: HRS-[1][2]-R[3]

### ORDERING INFORMATION

- Code number: HRS-[1][2]-R[3]
- Specify a code from below for each of [1] through [3].  
(e.g. HRS-4A-R/K/BL/Q)
- Temperature range (e.g. 0 – 500°C)
- Special output range (For codes Z & 0)
- Specify the specification for option code /Q  
(e.g. /C01/S01)

### [1] INPUT RTD (2- or 3-wire)

1: JPt 100 (JIS'89)

(Usable range: -200 to +500°C, -328 to +932°F; min.span: 50°C, 90°F)

3: Pt 100 (JIS'89)

(Usable range: -200 to +650°C, -328 to +1202°F; min.span: 50°C, 90°F)

4: Pt 100 (JIS'97, IEC)

(Usable range: -200 to +650°C, -328 to +1202°F; min.span: 50°C, 90°F)

5: Pt 50  $\Omega$  (JIS'81)

(Usable range: -200 to +500°C, -328 to +932°F; min.span: 100°C, 180°F)

6: Ni 508.4  $\Omega$

(Usable range: -50 to +200°C, -58 to +392°F; min.span: 30°C, 54°F)

0: Specify

Note: Consult us for 2-wire RTD

### [2] OUTPUT

#### Current

A: 4 – 20 mA DC (Load resistance 750  $\Omega$  max.)

B: 2 – 10 mA DC (Load resistance 1500  $\Omega$  max.)

C: 1 – 5 mA DC (Load resistance 3000  $\Omega$  max.)

D: 0 – 20 mA DC (Load resistance 750  $\Omega$  max.)

E: 0 – 16 mA DC (Load resistance 900  $\Omega$  max.)

F: 0 – 10 mA DC (Load resistance 1500  $\Omega$  max.)

G: 0 – 1 mA DC (Load resistance 15 k $\Omega$  max.)

Z: Specify current (See OUTPUT SPECIFICATIONS)

#### Voltage

1: 0 – 10 mV DC (Load resistance 10 k $\Omega$  min.)

2: 0 – 100 mV DC (Load resistance 100 k $\Omega$  min.)

3: 0 – 1 V DC (Load resistance 1000  $\Omega$  min.)

4: 0 – 10 V DC (Load resistance 10 k $\Omega$  min.)

5: 0 – 5 V DC (Load resistance 5000  $\Omega$  min.)

6: 1 – 5 V DC (Load resistance 5000  $\Omega$  min.)

0: Specify voltage (See OUTPUT SPECIFICATIONS)

### POWER INPUT

#### DC Power

R: 24 V DC

(Operational voltage range 24 V  $\pm$ 10 %, ripple 10 %p-p max.)

### [3] OPTIONS (multiple selections)

#### Response Time (0 – 90 %)

blank: Standard ( $\leq$  0.5 sec.)

/K: Fast Response (Approx. 25 msec.)

#### Burnout

blank: Upscale burnout

/BL: Downscale burnout

#### Other Options

blank: none

/Q: Option other than the above (specify the specification)

### SPECIFICATIONS OF OPTION: Q (multiple selections)

#### COATING (For the detail, refer to our web site.)

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

#### TERMINAL SCREW MATERIAL

/S01: Stainless steel

## GENERAL SPECIFICATIONS

**Construction:** Plug-in  
**Connection:** M3.5 screw terminals (torque 0.8 N·m)  
**Screw terminal:** Nickel-plated steel (standard) or stainless steel  
**Housing material:** Flame-resistant resin (black)  
**Isolation:** Input to output to power  
**Overrange output:** Approx. -10 to +120 % at 1 - 5 V  
**Zero adjustment:** -5 to +5 % (front)  
**Span adjustment:** 95 to 105 % (front)  
**Linearization:** Standard

## INPUT SPECIFICATIONS

**Maximum leadwire resistance:** 200  $\Omega$  per wire (3-wire)  
**Sensing current:** 2 mA (Pt); 1 mA (Ni 508.4  $\Omega$ )

## OUTPUT SPECIFICATIONS

**■ DC Current:** 0 - 20 mA DC  
**Minimum span:** 1 mA  
**Offset:** Max. 1.5 times span  
**Load resistance:** Output drive 15 V max.  
**■ DC Voltage:** -10 - +12 V DC  
**Minimum span:** 5 mV  
**Offset:** Max. 1.5 times span  
**Load resistance:** Output drive 1 mA max.; at  $\geq 0.5$  V

## INSTALLATION

**Current consumption:** Approx. 75 mA  
**Operating temperature:** -5 to +55°C (23 to 131°F)  
**Operating humidity:** 30 to 90 %RH (non-condensing)  
**Mounting:** Surface or DIN rail; Standard Rack Mounting  
 Frame BX-16H available  
**Weight:** 200 g (0.44 lb)

## PERFORMANCE in percentage of span

**Accuracy:**  $\pm 0.2$  %  
**Temp. coefficient:**  $\pm 0.015$  %/°C ( $\pm 0.008$  %/°F)  
**Burnout response:**  $\leq 10$  sec.  
**Line voltage effect:**  $\pm 0.1$  % over voltage range  
**Insulation resistance:**  $\geq 100$  M $\Omega$  with 500 V DC  
**Dielectric strength:** 500 V AC @ 1 minute  
 (input to output to power)  
 1500 V AC @ 1 minute (input or output or power to ground)

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.