

Honeywell Honeywell Series Service Manual

TC-PIL081

1. Description

Honeywell Temperature Input Module (8-Points): TC-PIL081

3. Product Information

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Parameter Description

General

Input Capacity 8 input channels referenced to a single common

Intrinsically Safe Input Europe: II (1) 2G EEx ia/ib IIB/IIC T4 (CENELEC)

Input Type Configurable for input channel groups 0 to 3 and 4 to 7 -- 0.2, 0.5, 1, 2, 3, 10 Hz:

Thermocouple, or RTD

Temperature Format Configurable as Celsius, Fahrenheit, or Kelvin (All Channels)

Thermocouple Input Functional TC Sensor Type:

Data (Configurable) mV/ Range: -40 to 100mV,

B/ Range: Not presently supported/ Range:-270 to 1000°C,

J/ Range: -210 to 1200°C,

K/ Range: -270 to 1372°C,

L/ Range: Not presently supported,

N/ Range: -270 to 1300°C,

R/ Range: -50 to 1768°C,

S/ Range: -50 to 1768°C, or

T/ Range: -270 to 400°C

TC Sensor Modes:

No compensation, fixed compensation, nor external compensation supported

Reference Temperature:

Temperature of CJC reference element or external temperature compensation

RTD Input Functional Data RTD Sensor Type:

(Configurable) Ohm without conversion/ Range 0 to 500 ohms,

Pt 100 (IEC 751, A and B) / Range: -200 to 870°C,

Pt 200 (IEC 751, A and B) / Range: -200 to 380°C,

Pt 100 (JIS C1604-1989) / Range: -200 to 630°C ,

Pt 200 (JIS C1604-1989) / Range: -200 to 375°C,

Ni100, DIN 43 760-1987 / Range: -60 to 250°C

Ni 200 DIN 43 760-1987 / Range: -60 to 200°C

Ni120 Minco / Range: -80 to 320°C, or

Cu10 Minco / Range: -200 to 260°C

RTD Sensor Mode:

2-Wire Measurement without compensation of the lead resistance,

2-Wire Measurement with compensation of the lead resistance,

3-Wire Measurement, or

4-Wire Measurement

RTD Loop Resistance Offset:

Select offset resistance value to compensate for lead resistance

Lead Resistance <10 ohms per lead (preliminary)

Thermocouple Accuracy +/- 0.5% of the mV input for TC Sensor Types E, J, K, N

+/- 0.8% of the mV input for TC Sensor Types R, S, T

RTD Accuracy 0.1% (maximum) of span for all RTD Sensor Types EXCEPT:

+/- 0.125% PT 100 JIS

+/- 0.200% Ni 100

+/- 0.15% Ni 200

Linearization Accuracy +/- 0.2 C maximum

Cold Junction Sensor Accuracy +/- 0.8 C maximum at 25 C

Cold Junction Sensor Drift 300ppm/C of CJR span for the module temp range of (-20C to -15C)

100ppm/C of CJR span for the module temp range of (-15 to 70C)

Note: the span is based on the 120C temp range of the CJR thermistor.

Response Time 4 ms

Resolution 16 Bits

Permissible Field Circuit Values Input (All Channels):

Uo = 9V

Io = 37mA

Po = 83mW

Lo :

80mH maximum for EEx ia IIB

20mH maximum for EEx ia IIC

Co :

40 F maximum for EEx ia IIB

4.9 F maximum for EEx ia IIC

Lo/Ro:

1.7 mH/ohm for EEx ia IIB

0.4 mH/ohm for EEx ia IIC

Internal CJC:

Uo = 9V Io = 1mA

Po =3mW

Lo :

1H maximum for EEx ia IIB

1H maximum for EEx ia IIC

Co :

40μF maximum for EEx ia IIB

4.9μF maximum for EEx ia IIC

Lo/Ro:

63 mH/ohm for EEx ia IIB

15 mH/ohm for EEx ia IIC

External CJC:

Uo = 9V

Io = 38mA

Po =86mW

Lo :

80mH maximum for EEx ia IIB

20mH maximum for EEx ia IIC

Co :

40 F maximum for EEx ia IIB

4.9 F maximum for EEx ia IIC

Lo/Ro:

1.7 mH/ohm for EEx ia IIB

0.4 mH/ohm for EEx ia IIC

Input Voltage Rating Intrinsically Safe power supplied through Terminal Base

Power Consumption 0.19 power supply unit load

Power Dissipation 1.6W

Filter Cutoff Configurable

Fault Detection Configurable – Enables detection of sensor lead breakage or short circuit for channel groups 0 to 3 and 4 to 7

Other Alarms Overrange Alarm per channel

Underrange Alarm per channel

Cold Junction Alarm

Galvanic Isolation (Per DIN EN Input / Backplane Bus

50 020) Input / Power Supply

(There is no galvanic isolation for the inputs relative to each other.)

Operating Conditions

Ambient Temperature -20°C to 70°C (-4°F to 158°F or 253K to 343K)

Storage Temperature -20°C to 100°C (-4°F to 212°F or 253K to 373K)

Maximum Relative Humidity 95%, non-condensing

Pollution Gas Test Test Level G3, according to ISA-S71.04-1985

Shock Test 15g peak 11ms duration

Vibration Test 2g @ 10Hz to 500Hz, according to IEC 68-2-6

Protection Class IP20 (For installation in the field, a separate housing with protection class IP54 or better is required.)

Physical

Weight 0.247 kg (0.54 lb)

Dimensions (H x W x D) Millimeters: 76 x 94 x 46 (With I/O module installed)

Inches: 3.0 x 3.7 x 1.8

Keyswitch Position 2

Standards

Conformity to Standards According to DIN EN 50014: 1992

According to DIN EN 50020: 1997

According to DIN EN 50284: 1997

Climatic Conditions according to DIN IEC 721

E.M. Compatibility according to DIN EN 50081-2, DIN EN 50082-2, NAMUR NE 21

CE Conformity (Europe) To achieve EMC protection class, must use shielded multicore cable with a shield for each channel. The isolation for each channel must be greater than 500V.

Classifications CENELEC (Europe): II (1) 2G EEx ia/ib IIB/IIC T4

Agency Certification Mark d for all applicable directives

DMT 99 ATEX E-025 X