

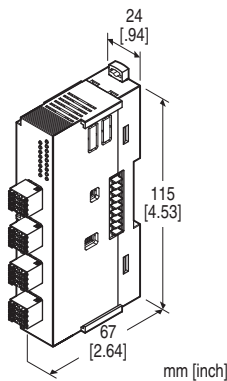
Remote I/O R80 Series

UNIVERSAL INPUT MODULE, 4 points

(4 points, isolated, tension clamp terminal block)

Functions & Features

- 4 channels for universal input remote I/O module
- Universal inputs are configurable for each channel to T/C, RTD, potentiometer, resistor, DC current or voltage, and able to set input range via PC configurate software.
- Isolation between the channels
- Tension clamp terminal



MODEL:R80UST4[1]

ORDERING INFORMATION

- Code number: R80UST4[1]
Specify a code from below for [1].
(e.g. R80UST4/Q)
- Specify the specification for option code /Q
(e.g. /C01)

[1] OPTIONS

blank: none

/Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q

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

/C01: Silicone coating

/C02: Polyurethane coating

RELATED PRODUCTS

- PC configurator software (model: R80CFG)
Downloadable at our web site.
For connecting to PC, use commercially available Mini-B type USB cable. (provided by user)

GENERAL SPECIFICATIONS

Connection

Input: Separable tension clamp terminal

Internal bus, internal power: Connected to internal bus connector

Housing material: Flame-resistant resin (black)

Isolation: Input 1 to input 2 to input 3 to input 4 to internal bus or internal power to exc. supply to FE

Module address: DIP switches

Input type and range: Selectable with PC configuration software (model: R80CFG)

Burnout (T/C, RTD, potentiometer, resistor input): Selectable among upscale, downscale or no burnout with PC configurator software (model: R80CFG)

Linearization (T/C, RTD input): Standard tables stored in memory

Cold Junction Compensation (thermocouple input): CJC sensor incorporated (shortcircuit the U4 and U6)

Terminating resistor: Built-in (DIP Switch, default: disable)

Status indicator: Bi-color (red/green) LED;

Input status indicator: Red LED;

Refer to the instruction manual.

INPUT SPECIFICATIONS

Module type: Analog input, 4 points

■ Universal Input

Refer to the users manual of R80CFG for setting input type and range

•DC current input

Input resistance: Input resistor (49.9 Ω) incorporated

Input range: -20 ~ +20 mA

•DC narrow span voltage input range (-1000 ~ +1000 mV)

Input resistance: ≥ 100 k Ω

•DC wide span voltage input range (-10 ~ +10 V)

Input resistance: ≥ 1 M Ω

•Thermocouple input

Input resistance: ≥ 100 k Ω

Input range: See Table 1

Conformance range: See Table 1

•RTD input (2- or 3-wire)

Input sensing: ≤ 0.33 mA

Input range: See Table 1

Maximum leadwire resistance: 20 Ω per wire

•Potentiometer input

Input sensing: ≤ 0.33 mA

Input range: 0 ~ 4000 Ω

Maximum leadwire resistance: 20 Ω per wire

•Resistor input

Input sensing: ≤ 0.33 mA

Input range: 0 ~ 4000 Ω

Maximum leadwire resistance: 20 Ω per wire

INSTALLATION

Current consumption: 170 mA

Operating temperature: -10 to +55°C (14 to 131°F)

Storage temperature: -10 to +55°C (14 to 131°F)

Operating humidity: 10 to 90 %RH (non-condensing)

Atmosphere: No corrosive gas or heavy dust

Mounting: DIN rail

Weight: 120 g (0.26 lb)

PERFORMANCE

Conversion accuracy: See Table 1.

Conversion rate: ≤ 100 msec.

Converted data range

DC current/voltage, potentiometer or resistor: 0 to 10000
with respect to input range (Default setting)

Thermocouple or RTD:

°C, K: Engineering unit value $\times 10$ (integer) (Default setting)

°F: Engineering unit value (integer)

* Scaling of converted data is configurable with the configurator software (model: R80CFG). Refer to the software manual for details.

Cold junction compensation error:

$\pm 3^{\circ}\text{C}$ at $25 \pm 10^{\circ}\text{C}$

$\pm 5.4^{\circ}\text{F}$ at $77 \pm 18^{\circ}\text{F}$

(The described accuracy may be partially not satisfied when the input temperature is below 0°C . Consult factory.)

Temp. coefficient: $\pm 0.03\%$ / $^{\circ}\text{C}$ ($\pm 0.02\%$ / $^{\circ}\text{F}$)

Input delay time: ≤ 150 msec.

Burnout response time (T/C, RTD, potentiometer or resistor input): ≤ 1 sec.

Insulation resistance: $\geq 100\text{ M}\Omega$ with 500 V DC

Dielectric strength: 1500 V AC @ 1 minute (input 1 to input 2 to input 3 to input 4 to internal bus or internal power to exc. supply to gground)

STANDARDS & APPROVALS

EU conformity:

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

RoHS Directive

INPUT TYPE, RANGE & CONVERSION ACCURACY

Table 1

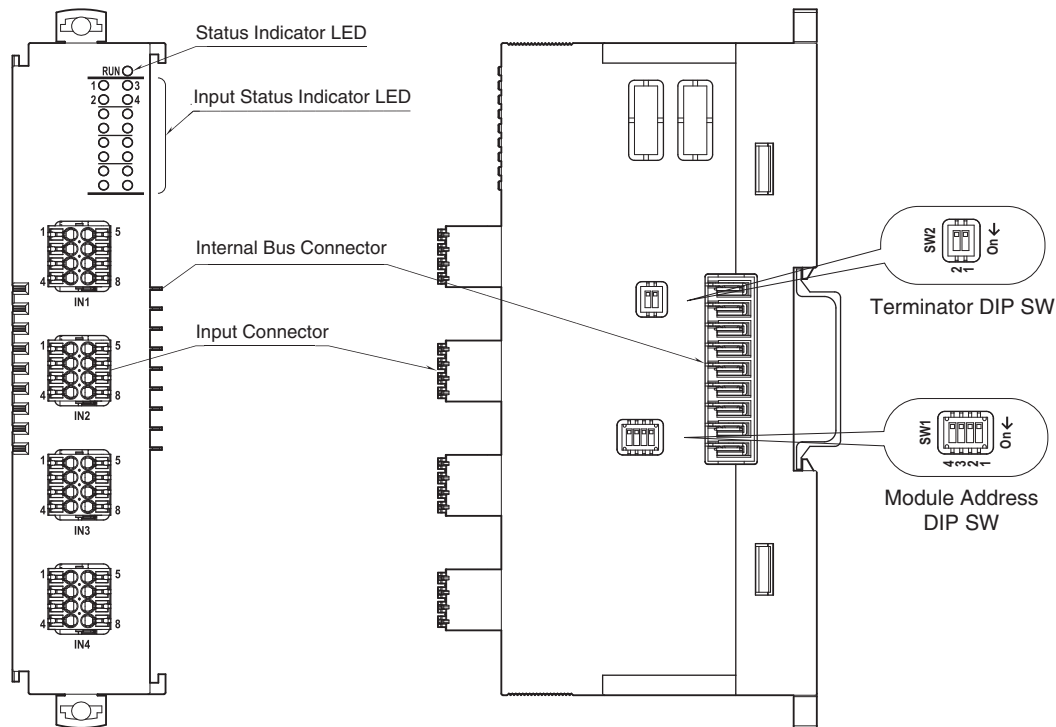
INPUT TYPE		INPUT RANGE		CONVERSION ACCURACY		
DC Current		-20 – +20 mA DC		±20 µA		
DC Voltage		-1000 – +1000 mV DC		When maximum range* ² is 60 mV or less: ±80 µV When maximum range* ² is 120 mV or less: ±150 µV When maximum range* ² exceeds 120 mV: ±1 mV		
		-10 – +10 V DC		±10 mV		
Potentiometer* ³		0 – 4000 Ω		Larger value of either ±0.1 Ω or ±0.1 %		
Resistor* ³		0 – 4000 Ω		Larger value of either ±0.1 Ω or ±0.1 %		
Thermocouple* ³	°C			°F		
	Usable range	Conv. accuracy * ¹	Conformance range	Usable range	Conv. accuracy * ¹	Conformance range
(PR)	-50 – +1860	±2.0	0 – 1760	-58 – +3380	±3.6	32 – 3200
K (CA)	-273.2 – +1470	±1.0	-150 – +1370	-460 – +2678	±1.8	-238 – +2498
E (CRC)	-273.2 – +1020	±1.0	-170 – +1000	-460 – +1868	±1.8	-274 – +1832
J (IC)	-273.2 – +1300	±1.0	-180 – +1200	-460 – +2372	±1.8	-292 – +2192
T (CC)	-273.2 – +500	±1.0	-170 – +400	-460 – +932	±1.8	-274 – +752
B (RH)	20 – 1920	±2.0	400 – 1760	68 – 3488	±3.6	752 – 3200
R	-100 – +1860	±2.0	200 – 1760	-148 – +3380	±3.6	392 – 3200
S	-100 – +1860	±2.0	0 – 1760	-148 – +3380	±3.6	32 – 3200
C (WRe 5-26)	-50 – +2420	±2.0	0 – 2315	-58 – +4388	±3.6	32 – 4199
N	-273.2 – +1400	±1.0	-130 – +1300	-460 – +2552	±1.8	-202 – +2372
U	-273.2 – +700	±1.0	-200 – +600	-460 – +1292	±1.8	-328 – +1112
L	-273.2 – +1000	±1.0	-200 – +900	-460 – +1832	±1.8	-328 – +1652
P (Platinel II)	-50 – +1500	±1.0	0 – 1395	-58 – +2732	±1.8	32 – 2543
RTD* ³	°C			°F		
	Usable range	Conv. accuracy	Conformance range	Usable range	Conv. accuracy	Conformance range
Pt 100 (JIS'97, IEC)	-240 – +950	±1.0	-200 – +850	-400 – +1742	±1.8	-328 – +1562
Pt 500	-240 – +950	±0.5	-200 – +850	-400 – +1742	±0.9	-328 – +1562
Pt 1000	-240 – +950	±0.5	-200 – +850	-400 – +1742	±0.9	-328 – +1562
Pt 50 Ω (JIS'81)	-235 – +750	±2.0	-200 – +649	-391 – +1382	±3.6	-328 – +1200
JPt 100 (JIS'89)	-235 – +610	±1.0	-200 – +510	-391 – +1130	±1.8	-328 – +950
Ni 508.4 Ω	-100 – +330	±0.5	-50 – +200	-148 – +626	±0.9	-58 – +392
Cu 10 @ 25°C	-210 – +350	±3.0	-50 – +250	-346 – +662	±5.4	-58 – +482

*1. Thermocouple: Cold junction compensation error is not included in above figures. Take it into account when cold junction compensation is enabled.

*2. Maximum range: Absolute value of 0% or 100% of the input range, whichever is greater.

*3. Burnout indication (potentiometer, resistor, thermocouple or RTD): upscale burnout (32767), downscale burnout (-32768).

EXTERNAL VIEW



CONNECTION DIAGRAMS

■ Tension clamp terminal block

Unit side connector: DMC0,5/4-G1-2,54 P20THR R44 (Phoenix Contact)

Cable side connector: DFC0,5/4-ST-2,54
(Phoenix Contact)

Applicable wire size: 0.14 – 0.5 mm²

Stripped length: 7 mm

Recommended solderless terminal

- AI0,14-6GY0.14mm²(Phoenix Contact)
- AI0,14-8YE0.14mm²(Phoenix Contact)
- A0,25-6YE0.25mm²(Phoenix Contact)
- A0,25-8YE0.25mm²(Phoenix Contact)
- A0,25-70.25mm²(Phoenix Contact)
- A0,34-70.34mm²(Phoenix Contact)

Note: If the stripped length does not match the length of recommended solderless terminal, adjust to the stripped length of 7mm by cutting the terminal if it is too long, or by extending the wire if the terminal is too short.

OPERATING MODE SETTING

(*) factory default setting

Note: Be sure to set unused SW 2-2 to OFF.

• Module Address Setting

Configure the module address with DIP Switch.

0 - 15 are available for module address.

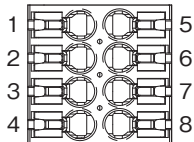
MODULE ADDRESS	SW1			
	1	2	3	4
0(*)	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

• Terminator Setting

Terminator	SW2-1
Disabled (*)	OFF
Enabled	ON

TERMINAL ASSIGNMENTS

■ INPUT CONNECTOR TERMINAL ASSIGNMENT

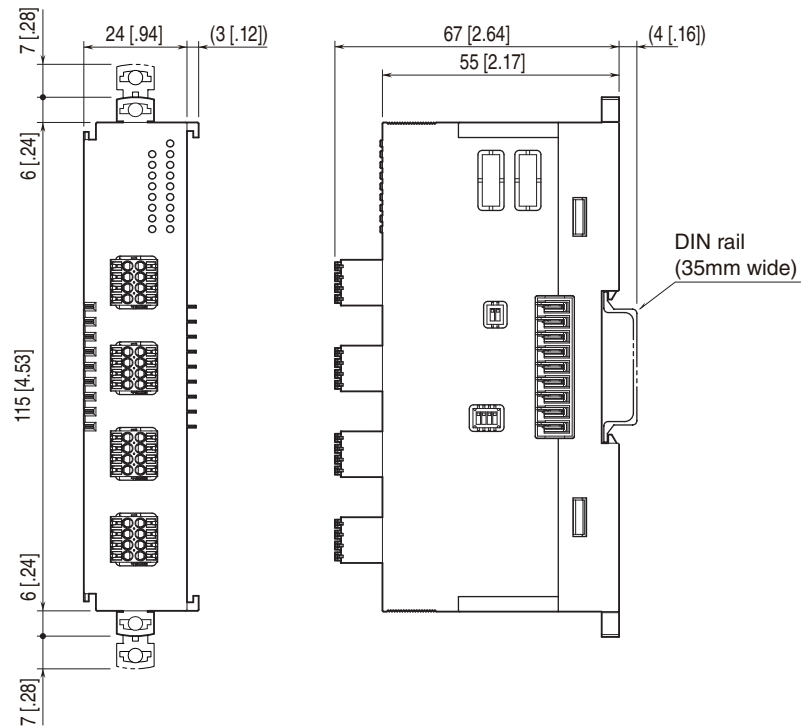


PIN NO.	ID	FUNCTION
1	U1	U1
2	NC	Unused
3	NC	Unused
4	U6	U6
5	U2	U2
6	U3	U3
7	U4	U4
8	U5	U5

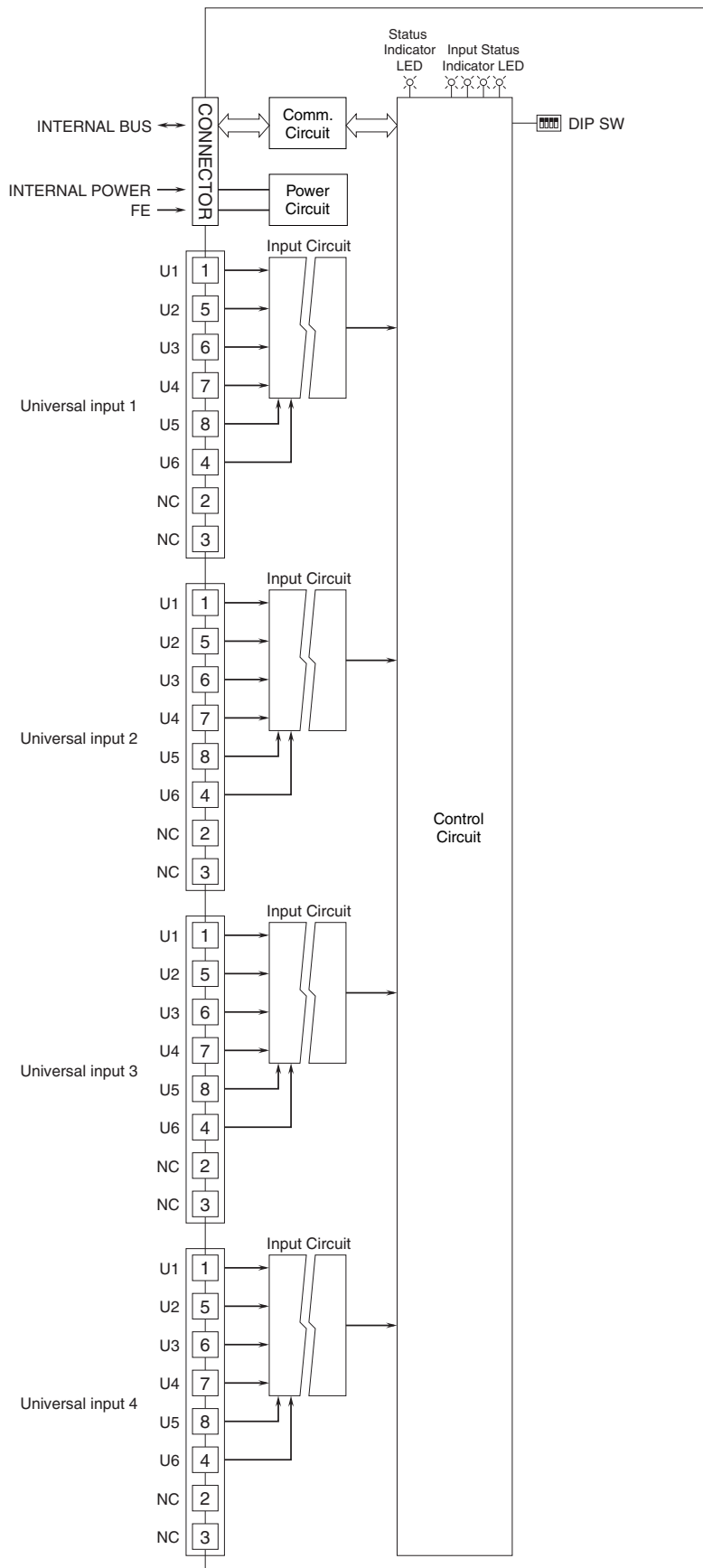
• Universal input terminal assignment

ID	FUNCTION						
	Wide span voltage (-10 - +10V DC)	DC Current	Narrow span voltage (-1000 - +1000mV DC)	Thermocouple	RTD/ Resistor (3-wire)	RTD/ Resistor (2-wire)	Potentiometer
U1	Wide span voltage	-	-	-	-	-	-
U2	-	DC Current	-	-	-	-	-
U3	-	-	Narrow span voltage	Thermocouple+	RTD-b	-	Input S
U4	-	-	-	CJM	RTD-B	RTD-B	Input L
U5	Common	Common	Common	Thermocouple-	RTD-A	RTD-A	Input H
U6	-	-	-	CJM	-	-	-

EXTERNAL DIMENSIONS unit: mm [inch]

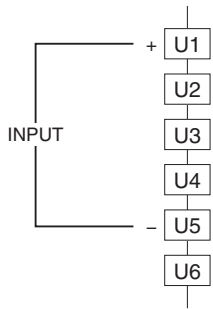


SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

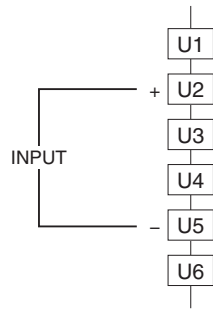


■ UNIVERSAL INPUT CONNECTION

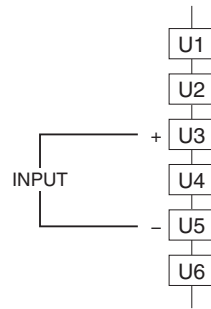
• DC Voltage (-10 ~ +10V DC)



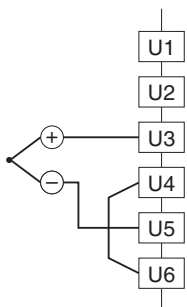
• DC Current (0 ~ 20mA DC)



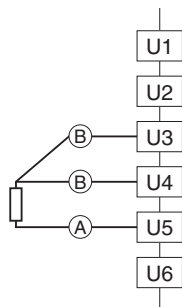
• DC Voltage (-1000 ~ +1000mV DC)



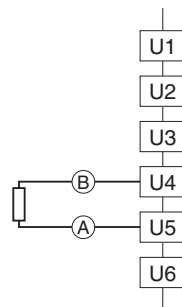
• Thermocouple



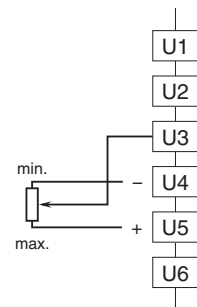
• RTD or Resistor (3-wire)



• RTD or Resistor (2-wire)



• Potentiometer



Specifications are subject to change without notice.