

OPERATION MANUAL

USI Series Universal Smart Isolator

Thank You for selecting ABUSTEK products! before operating this instrument, please read this manual carefully and fully understand its contents. In case of any problems, please contact our sales Deptt. or distributors from whom the instrument has been supplied. The manual contents is subject to change without prior notice.

Introduction



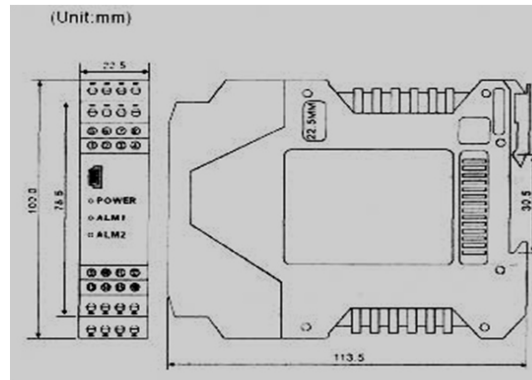
The ABUS USI Series Universal Smart Isolator being programmable through Handheld Configurator USI-C can be fit into major of industrial applications operating with different signals. It can be ordered to accept up to 2 inputs and provide up to 3 outputs.

The input signals can be non-linear input such as resistance temperature detector, thermocouple or linear current or voltage. Signal of one-way, two-way or three-way current or voltage, isolated by transmitting output provides good electric isolation between input, output and power. It can be used as a temperature transmitter, converter, signal isolator or signal conditioner according to the

Technical Specification

- Accuracy** : $\pm 0.2\%$ FS ± 1 for resistance mVDC VDC and mADC.
 $\pm 0.5\%$ FS ± 1 for thermocouple input.
- Output** : 0...5 V, 0...10 V, 0.5...4.5 V, 4...20 mA
- Power Supply** : 100~240V AC (50/60Hz, 100~240V AC)
 22~26V AC (50/60Hz, 24V AC)
 22~26V DC (24V DC).
- Isolated Resistance** : 10M Ω or more between input and case at DC 550V.
 10M Ω or more between output and case at DC 550V.
- Dielectric Strength** : 1000V AC for 1 minute between input terminal and case
 1500V AC for 1 minute between output terminal and case.
- Load Resistance** : DC mA Output
 PID O/P: 500 Ω
 Transmission O/P: 220 Ω
 VDC Output
- Max. Load Current: 20mA
- Input Impedance** : DC mA Current Input: 200 Ω
 DC V Voltage Input: 500K Ω
 Thermocouple Input: 4.7 K Ω

Dimensions



Mounting Instruction

1. This instrument is intended to be used under the following OVER VOLTAGE CATEGORY II, and POLLUTION DEGREE 2,
2. Use this instrument within the following ambient temperature and humidity.
 Temperature: 0~50°C
 Humidity: 45~85% RH
3. Avoid the following when selecting the mounting location:
 - # Rapid changes in ambient temperature which may cause condensation.
 - # Corrosive or inflammable gases.
 - # Direct vibration or shock to the mainframe,
 - # Water, oil, chemicals, vapor or steam splashes.
 - # Excessive induction noise, static electricity, magnetic fields or noise
 - # Exposure to direct sunlight,
 - # Excessive heat accumulation.

Wiring Precautions:

1. For thermocouple input, use the specified compensation wire.
2. For RTD input, use leads with low resistance and having no resistance differences among the 3 leads.
3. Conduct input signal wiring away from instrument power, electric equipment power and loads lines to avoid noise induction.
4. Conduct instrument power wiring so as not to be influenced by noise from the electric equipment power. If the instrument is affected by external noise, a noise filter should be used.
 - a. Shorten the distance between twisted power supply wire pitches. The shorter the distance between the pitches, more effective is the noise reduction.
 - b. Install the noise filter on the panel which is always grounded and minimize the wiring distance between the noise filter output side and the instrument power terminals.
 - c. Do not install fuses and/or switches on the filter output signal since this may loose filter effect.
5. For wiring, use wires conforming to the domestic standards of the countries.
6. This instruments has no power supply switch for fuses. Therefore, install the fuse close to the instrument and the switch, if required.
7. Do not excessively tighten the terminal screws. In addition, use the solder less terminal with respect to the screw size.

Ordering Details

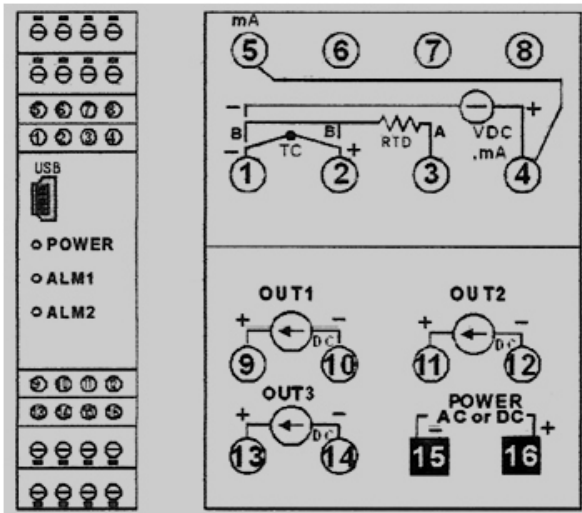
TYPE		DESCRIPTION	
Product	USI	USI Series Universal Smart Isolator	
	N	AC 90~265V	
	D	DC 24V	
Power Supply	C	AC 24V	
	Input Type 1	L Linear Signal such as, 4~20mA 0~10V	Please Refer Input Table
		T Thermocouple or RTD	Please Refer Input Table
Lower Range 1	—	Specify Lower Range (Integer value)	
Upper Range 1	—	Specify Upper Range (Integer value)	
Input Type 2	N	None	
	A	Please Refer Input Table	
Lower Range 2	—	Specify Lower Range (Integer value)	
Upper Range 2	—	Specify Upper Range (Integer value)	
First Output	B1	4~20 mA	
	B2	0~5 V	
	B3	0~10 mA	
	B4	0~10 V	
Second Output	C1	4~20 mA	
	C2	0~5 V	
	C3	0~10 mA	
	C4	0~10 V	
Third Output	D1	4~20 mA	
	D2	0~5 V	
	D3	0~10 mA	
	D4	0~10 V	
Communication	N	None	
	T	RS485	
	M	RS485 (Modbus)	
Auxiliary Power Supply	A	No AUX power	
	B	AUX 24VDC output	

Example: USI > D > L > 0 > 100 > N > B1 > C1 > N > M > B

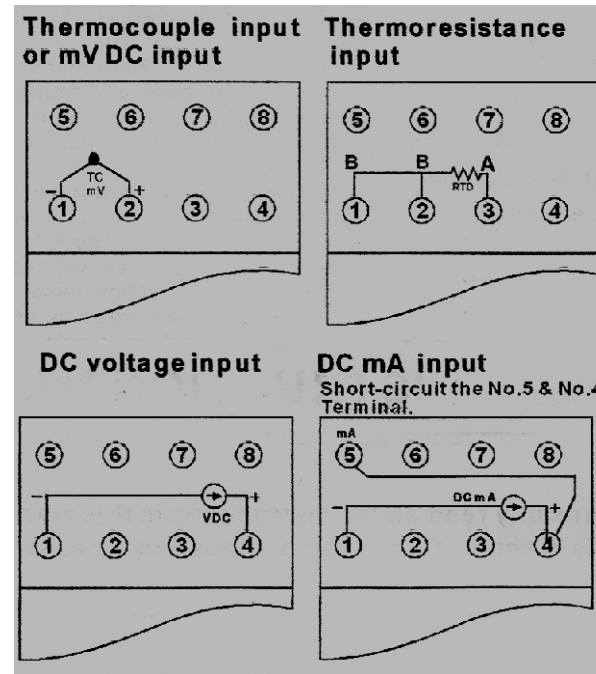
Input Table Selection

Code	Input Type	Input Range
00	K	0 ~ 1300 °C
01	E	0 ~ 900 °C
02	S	0 ~ 1600 °C
03	B	300 ~ 1800 °C
04	J	0 ~ 400 °C
05	T	0 ~ 1300 °C
06	R	0 ~ 1600 °C
07	N	0 ~ 1300 °C
10	DC 0~20mV	-1999 ~ 9999 °C
11	DC 0~75mV	-1999 ~ 9999 °C
12	DC 0~200mV	-1999 ~ 9999 °C
13	DC 0~10V	-1999 ~ 9999 °C
14	DC 2~20V	-1999 ~ 9999 °C
15	DC 0~10mA	-1999 ~ 9999 °C
17	DC 4~20mA	-1999 ~ 9999
20	Pt100	-199.9 ~ 600.0 °C
21	Cu100	-50.0 ~ 150.0 °C
22	Cu50	-50.0 ~ 150.0 °C
23	BA2	-199.9 ~ 600 °C
24	BA1	-199.9 ~ 600 °C
25	G	-199.9 ~ 600 °C
26	Pt1000	-19.99 ~ 99.99 °C
27	0 ~ 400 Ω	-1999 ~ 9999 °C

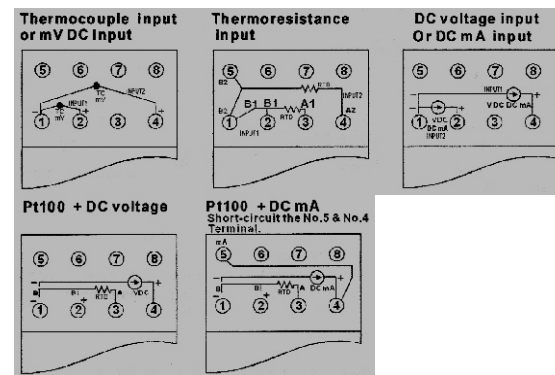
Terminal Configuration



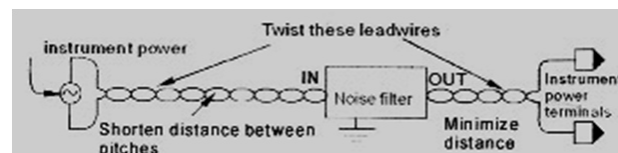
Single Input Configuration



Double Input Configuration



Connections



Limited Warranty

The products are warranted to be free from defects in materials and workmanship for a period of one (1) year from the date of shipment, subject to the following terms and conditions: Without charge, they will repair, replace, or refund the purchase price at option products found to be defective in materials or workmanship within the warranty period; provided that:

- the product has not been subjected to abuse, neglect, accident, incorrect wiring not our own, improper installation or servicing, or use in violation of labels or instructions;
- the product has not been repaired or altered by anyone except us;
- the maximum ratings label and serial number or date code have not been removed, defaced, or otherwise changed;
- examination discloses, in the judgment of us, the defect in materials or workmanship developed under normal installation, use and service; and
- Our system is notified in advance of and the product is returned to us transportation prepaid before expiration of the warranty period.

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