YUTECH

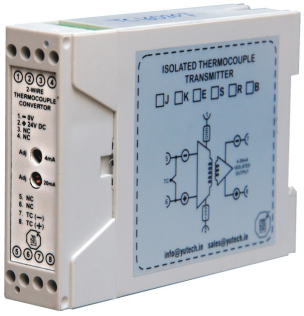
DATASHEETS: TEMPERATURE TRANSMITTERS
DOC NO: A-ISO-DS-TT-2016-1005

Isolating Temperature Transmitter:

- **Isolating RTD Converter Transmitter (Linearized Output)**
- **Isolating Thermo-Couple Converter (J, K, S, R and B Type) Transmitter**

The Isolating Temperature Transmitter Coverts Signals from Temperature Sensors like RTD and Thermocouple to Standard Current Signal of 4-20mA whilst Electrically Isolating the Field side from the Controller side.

Resistance Temperature Dependent or RTD is a Temperature Sensor whose Resistance Varies in Direct Proportion with rising Temperature. The **Isolating RTD Converter Transmitter** is designed for RTD PT-100 as the standard Temperature Sensor and factory default calibration is for 0 – 200 °C. The Output is Linearized 4-20mA with Built-in Linearity Equation. A Head Mounted Non-Isolated version of RTD Transmitter is also available details of which are discussed further in this document.



Thermocouple generates EMF which is in direct proportional to the upward change in temperature. Various TCs like J Type, K Type, S Type and R Type are used as Standard Temperature Sensors for various applications with K type being the most common as it has a larger voltage variation with fairly linear output. **Isolating Thermo-Couple Converter** with K Type is the most common product with default calibration range of 0-1200 °C.

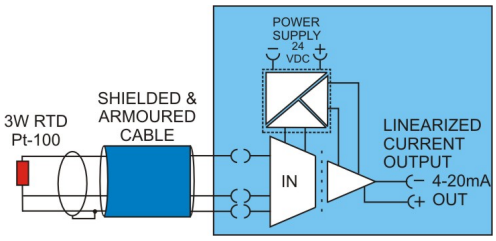
This product also carries the Virtues of the Isolator like Isolating any two Devices and Protecting the Drive / DCS / PLC Cards from Wrong Connections, Excess Voltage and Ground Looping, also from Electro Magnetic Interference (EMI), Harmonic Distortion and RF Noise, caused by switching of Inductive Loads and other Electrical Disturbances. A must in all PLC and DCS Panels it protects your expensive circuitry at the same time ensures true and stable readings at all times.

Datasheet:

Common General Specifications

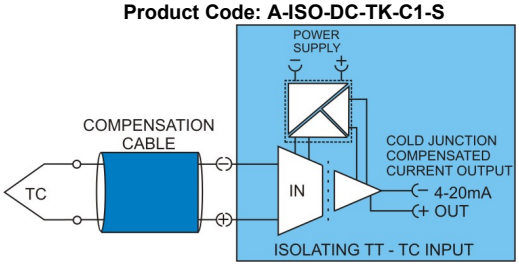
Enclosure					
Shape	:	Rectangular Din Rail Mounted / Round Head Mounted			
Material	:	ABS			
Dimensions (mm)	:	Din Rail Mounted: Length: 107.5, Height: 75; Width: S-22.5 mm / M-45 mm Head Mounted: Dia 44, Mounting Hole Center Dist: 32, Height: 26mm			
Mounting	:	Din Rail Mounted.			
Ingress Protection	:	IP 40, Shock and Contamination Proof.			
Flammability	:	Class V0 according to UL 94.			
Specifications which vary with Temperature Sensors:			**RTD**	**TC**	**RTD HM**
Ambient Temperature	:	-20°C to 55°C	Yes	Yes	Yes
Power Supply					
Power Consumption	:	For all Isolation Products is less than	1W	1W	0.5W
Power Supply Voltage	:	16 to 36 VDC. Recommended 24 VDC.	Yes	Yes	Yes, 2W
Power Supply Side Isolation	:	3 Point Isolation. Rail Power Supply of 24 VDC is internally isolated from Input and Output Circuitry.	Yes	Yes	NA
		Reverse Voltage Protection.	Yes	Yes	Yes
Signal Isolation					
Isolation Barrier Voltage	:	Root Mean Square (RMS) Voltage, value in Kilo Volts rms (KVrms)	5	3.5	NA
Isolation Type	:	Isolation Technology used	Optical	Mutual Inductance	NA
Input and Output					
Input Signal	:	2/3 Wire RTD PT 100	Yes	NA	Yes
		2/3 Wire RTD PT 1000	Yes	NA	NA
		Thermocouple J, K, S, R, or B Type	NA	Selectable	NA
Input and Output Side Protection		Reverse Loop Protection.	Yes	Yes	NA
		EMI Filtering and Protection	Yes	Yes	NA
		RFI Filtering	Yes	No	NA
Output Signal		DC Current: 4 to 20 mA	Yes	Yes	NA
Maximum Load Permissible for Current Output		Value at 24 VDC Power Supply.	650 Ohm	250 Ohm	650 Ohm
Maximum Non-linearity (Transmitter side)		Value with respect to Full Scale Range at maximum ambient temperature.	± 0.1%	± 0.1%	± 0.1%
Output Calibration		Linearity trim set on fascia – Slope Adjust.	Yes	Yes	Yes

Product Code: A-ISO-DC-RT-C1-S



ISOLATING TEMPERATURE TRANSMITTER 2/3 WIRE RTD INPUT.
Replace RT by RT1 for Pt-1000 in Product Code.
For Head Mounted replace S by HM in Product Code.

Product Code: A-ISO-DC-TK-C1-S



ISOLATING TEMPERATURE TRANSMITTER THERMOCOUPLE (TC) INPUT. Select TC from J, K, S, R, B Type. For J Type replace TK by TJ in Product Code, similarly for other TC types.

Ordering Information

Product Code (PC)		Product Description
A-Series		
A-ISO-DC-RT-C1-S	:	Isolating Temperature Transmitter – Input: 2/3W RTD PT-100 Output: 4 – 20 mA
A-ISO-DC-RT-C2-M	:	Isolating Temperature Transmitter – Input: RTD PT-100 Output: 4 – 20 Ma Dual Channel
A-ISO-DC-RT1-C1-S	:	Isolating Temperature Transmitter – Input: 2/3W RTD PT-1000 Output: 4 – 20 mA
A-ISO-DC-TJ-C1-S	:	Isolating Temperature Transmitter – Input: Thermocouple J Type Output: 4 – 20 mA
A-ISO-DC-TK-C1-S	:	Isolating Temperature Transmitter – Input: Thermocouple K Type Output: 4 – 20 mA
A-ISO-DC-TS-C1-S	:	Isolating Temperature Transmitter – Input: Thermocouple S Type Output: 4 – 20 mA
A-ISO-DC-TR-C1-S	:	Isolating Temperature Transmitter – Input: Thermocouple R Type Output: 4 – 20 mA
A-ISO-DC-TB-C1-S	:	Isolating Temperature Transmitter – Input: Thermocouple B Type Output: 4 – 20 mA
A-DC-RT-C1-HM	:	Head Mounted Temperature Transmitter – Input: 2/3W RTD PT-100 Output: 4 – 20 mA
A-ISO-DC-U-C1-LD-PM	:	Isolating Indicator Display cum Transmitter – Universal Input and Current (4 – 20 mA) Output.
A-ISO-AC-U-C1-LD-PM	:	Isolating Indicator Display cum Transmitter – Universal Input and Current (4 – 20 mA) Output. 230VAC PS.

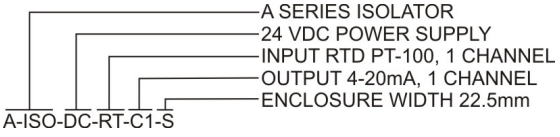
Note: RTD / Thermocouple, Compensation Cable, Shielded Armoured Cable are not a part of supply for Isolating Temperature Transmitters. These items can be ordered separately by giving us information on the application and temperature ratings.

Product Coding (PC) Information:

Item Description	Item Code	Item Specification
Product Description	A-ISO	A-Series Isolator
Power Supply	DC	Power Supply Voltage 24 VDC.
Input / Output	RT	RTD Input PT-100
	RT1	RTD Input PT-1000
	TJ	Thermocouple Input J Type
	TK	Thermocouple Input K Type
	TS	Thermocouple Input S Type
	TR	Thermocouple Input R Type
	TB	Thermocouple Input B Type
	C	Output DC 4 to 20mA.
Channels	1	Single Channel
	2	Two Channels
Enclosure	S	Standard 22.5mm Width.
	M	Medium 45mm Width.
	HM	Head Mounted

Universal Input Temperature Indicator cum Transmitter
Product Code: A-ISO-DC-U-C1-LD-PM

Decoding the Product Code



Head Mounted Temperature Transmitter: Product Code: A-DC-RT-C1-HM
Used for Temperature Sensing Applications upto 200°C where fixing JBs or Indication Panels near the process is not accessible. The HMTT enclosure is designed as per International RTD Standards and fits easily in any standard RTD Head.
The Output is Linearized 4-20mA on 2-Wire Transmitter with Built-in Linearity Equation.