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UT-94

Universal Transmitter

Alarm/Trip Module

RoHS

Model UT-94 is a 4 wire versatile universal transmitter that isolates & converts wide range of conventional / unconventional process inputs into standard process signals acceptable to commercially off the shelf (COTS) automation products. Signal inverting option is also available. The input circuit can accommodate a variety of input signal levels including bi-directional, reverse, true and live-zero.

A built in 4 digit display facilitates the user to monitor process value and helps in fast configuration and calibration. Model UT-94 enables analog signals to transmit without galvanic connections between the fields to the receiving instrument. This in turn allows ground or reference levels to float up to thousands of volts at its input terminals, and prevents circulating current between differing ground potentials that can contaminate input signal.

Isolation provided by Model UT-94 saves the control system from damage due to accidental application of high voltage or induced voltages on the input signal and in turn avoids wrong output signals to process. Isolation provides a good protection for sensitive system parts against voltage spikes etc.

Model UT-94 offers a wide range of input/ output signal types include mA, mV, V, RTD, TC, Resistance. Built-in transmitter power supply (TPS) can drive field transmitters in case of 4-20mA DC input. It offers excellent accuracy and stability for reliable operation in hostile environments and full isolation safely separates each input channel, each output channel and the power supply.

Model UT-94 is equipped with advanced functions like digital filtering, password setting, input and output protection and square root function for optimum process functionality.

Features

- Compact DIN rail mounting
- Digital Display
- Easy configuration using keys & display
- Micro controller based transmitter
- Measuring Parameters: RTD, TC, mV, V, mA, Ω
- Upto Two Retransmission output
- Two Relay Output (Option)
- Modbus protocol on RS485 (Option)
- Square Root Extraction for Linear input type

Applications

- Industrial process control
- Factory automation
- SCADA
- DAS
- Heat treatment furnaces
- Reheat furnaces
- Ceramic Kilns
- Glass Industry
- Water and waste water control

TECHNICAL SPECIFICATIONS

Input

Input Type	Thermocouple (E, J, K, T, B, R, S, N), RTD (PT-100), mA ,mV, V & Resistance
Display Range	Refer Table-1
Accuracy	Refer Table-1
ADC Resolution	17 bits
Display Resolution	0.1 / 1°C
Sampling Time	< 75ms
CJC Error	±2.0 °C Max
Sensor Burnout current	0.5uA
RTD excitation current	1mA Approx.
NMRR	> 50 dB
CMRR	> 120 dB
Temp-co	< 100ppm/°C
Input Impedance	> 1MΩ for Voltage, 100Ω for Current
Max Voltage	20VDC

Display & Keys

Process Value	0.3" Four-digit Seven segment, Red LED
Status	Power, RL1, RL2, Tx, Rx
Keys	3 keys for configuration, calibration and operation

Output

Relay (Option)	
Relays	2 Nos.
Type	Single Change over (C, NO, NC)
Rating	2A @ 230VAC / 30VDC
AO1	
Output Signal	4-20mA/ 0-20mA @ 750Ω Max. 1-5VDC/ 0-5VDC/ 0-10VDC @ 4KΩ Min.
Output accuracy	±0.25% of span
Temp-co	< 150ppm/°C
AO2 (Option)	
Output Signal	4-20mA/ 0-20mA @ 750Ω Max. 1-5VDC/ 0-5VDC/ 0-10VDC @ 4KΩ Min.
Output accuracy	±0.25% of span
Temp-co	< 150ppm/°C
Communication (Option)	
Interface	RS485 (2 Wire)
Protocol	Modbus-RTU
Baud rate	4800, 9600, 19200
Transmitter Power Supply	24VDC (±1V) @30mA

Power Supply

Standard	85-265VAC/ 125-300VDC
Optional	18-36VDC
Power consumption	< 10 VA

Isolation (Withstanding voltage)
Between primary terminals* and secondary terminals**: At least 1500 V AC for 1 minute
Between secondary terminals**: At least 500 V AC for 1 minute
* Primary terminals indicate power terminals and relay output terminals.
** Secondary terminals indicate I/O terminals and Communication Port.

Physical

Dimensions (mm)	75(H) x 55(W) x 110(D)
Mounting	Din Rail
Terminal Cable Size	2.5 mm2
Weight	< 250 grams
Enclosure Material	ABS
Enclosure Protection	IP20

Environmental

Operating temperature	0 to 55 °C
Storage temperature	0 to 80 °C
Humidity	20 to 95 % RH non-condensing

Table 1: Display Range

Input Type		Ranges	Accuracy
Thermocouple	E	-200 to 1000 °C	±0.1% of FS
	J	-200 to 1200 °C	
	K	-200 to 1370 °C	
	T	-200 to 400 °C	
	N	-200 to 1300 °C	
	R	0 to 1750 °C	±0.25% of FS
	S	0 to 1750 °C	
	B	450 to 1800 °C	
RTD	Pt-100	-199.9 to 850 °C	±0.1% of FS
Voltage	-10 to 500mV	-1999 to 9999	
	0/0.4 to 20mV		
	0 to 5V		
	1 to 5V		
	0 to 10V		
Current	0/4 to 20mA		
Resistance	0 to 2000Ω		

Ordering Code

Model	Input Type		APS		No of O/P		O/P type-1		O/P type-2		Relay o/p		Communication	
UT-94	X		XX		X		X		X		X		X	
	1	E	U1	85-265 VAC/ 125-300 VDC	1	One	1	4-20mA	0	None	N	None	N	None
	2	J	U2	18-36 VDC	2	Two	2	0-20mA	1	4-20mA	Y	Yes	Y	RS485
	3	K					3	1-5VDC	2	0-20mA				
	4	T					4	0-5VDC	3	1-5VDC				
	5	B					5	0-10VDC	4	0-5VDC				
	6	R					S	Special	5	0-10VDC				
	7	S							S	Special				
	8	N												
	9	Pt-100												
	C	4-20 mA												
	D	0-20 mA												
	E	1-5 VDC												
	F	0-5 VDC												
	G	0-10 VDC												
	W	0.4-2 VDC												
	X	-10-500 mV												
	Y	0-2 V												
	Z	0-2000 Ohms												
	S	Special												

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All specifications are subject to change without notice due to continuous improvements.
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