

## **MODEL: UST330**



### **RAIL-MOUNTING**

- T/C, RTD, mV, V, CURRENT & SLIDE-WIRE INPUTS
- RS-485, CURRENT AND RELAY OUTPUTS
- GALVANIC ISOLATION: POWER SUPPLY/INPUT/OUTPUT
- CONFIGURATION BY PLUG-IN MODULE OR BY A COMPUTER
- SECOND RS-485 FOR NETWORKING (OPTION)
- AUXILIARY POWER SUPPLY (OPTION)
- RELAY OUTPUT (OPTION)
- FIELD RANGE SELECTABLE
- DIN RAIL MOUNTED
- COMPACT SIZE

## FUNCTIONS

- PROCESS VARIABLE INTEGRATION
- SQUARE ROOT CALCULATION
- 20-SEGMENT LINEARISATION
- PROCESS VARIABLE CORRECTION
- ADJUSTABLE PROCESS VARIABLE FILTERING
- ADJUSTABLE OUTPUT IN MANUAL MODE
- EMISSION FACTOR IN INFRARED PYROMETRY
- STATISTICAL CALCULATIONS:  
MINIMUM, MAXIMUM, AVERAGE AND STANDARD DEVIATION

**2 x RS485  
for  
NETWORKING**

## INTRODUCTION

The *UST330* Rail-mounted Universal Signal Transmitter provides accurate and reproducible conversion of any commonly used thermocouple sensors, Pt-100 RTDs, current, voltage, slide-wire transducer or mV signals to isolated industry standard 4-20 mA or 0-20 mA output and simultaneously produces a digital signal via its MODBUS / JBUS-RTU communication. This is an **excellent solution for acquisition and centralization problems of most of the signals in the industry.**

The versatility of this smart universal transmitter results in lower stock holdings and greater operational flexibility.

Isolation is a standard feature, removing all ground loop effects as the input is electrically and physically isolated from the output and the power supply.

The transmitter can easily be configured through the assigned software and a PC. But, the definite advantage of the UST330 is its capability of also being configured in the field via a plug-in configuration module. The module can be removed in normal use to prevent tampering.

Special thermocouples can be accommodated, which allows any custom characterization and linearisation option.

## SPECIFICATIONS

### Thermocouple Input

<b>Sensor Types</b>	K, J, T, R, S, E, N, B, W5
<b>Special T/C</b>	18 mV, 70 mV or 1000 mV
<b>Accuracy</b>	±0.1% of full scale
<b>Resolution</b>	0.01% of selected range
<b>Cold Junct. Error</b>	±0.6°C ± 0.06°C/°C
<b>Max. Line Res. Er.</b>	0.1 µV / Ω

Thermocouple Type	Measuring Range °C
K	-270...1370
J	-210...1200
N	-270...1300
E	-270...1000
T	-270...360
S	-50...1765
R	-50...1765
B	0...1820
W5	0...2300

### RTD (Pt-100) Input

<b>Sensor Range</b>	-200...+650°C
<b>Accuracy</b>	±0.1% of full scale

### Potentiometer Input

<b>Input</b>	0-80 Ω, 0-330 Ω, 0-100 kΩ
<b>Accuracy</b>	±0.1% of full scale
<b>Max. Line Res. Er.</b>	0.001 Ω / Ω
<b>Polarization Current</b>	200 µA

### Current Input

Input	±22 mA
Accuracy	±0.1% of selected range
Input Impedance	100 Ω
Continuos	
Over-intensity	40 mA
Temporary	
Over-intensity(1s)	100 mA max.

### Millivolt Input

Input	±18 mV, ±70 mV, ±1100 mV
Accuracy	±0.1% of selected range
Input Impedance	10 MΩ
Continuos	
Over-voltage	35 V
Temporary	
Over-voltage (1s)	60 V max.

### Volt Input

Input	±10 V, ±100 V
Accuracy	±0.1% of selected range
Input Impedance	150 kΩ
Continuos	
Over-voltage	150 V
Temporary	
Over-voltage (1s)	300 V max.

### Current Output

Output	0...20 mA, 4...20 mA
Accuracy	±0.1%
Maximum Load	750 Ω
Resolution	0.03%
Temperature Drift	5 ppm / °C
Voltage Insulation	< 265 V rms

### Communications

Digital Comm.	RS-485 MODBUS RTU
Type	Multipoint 32 units
Data Rate	1200 to 38400 baud
Max. Distance	1000 meters
Main Comm. Cable	1 pair
Optional Cable	1 pair or 2 pairs
Protocol	Master or slave MODBUS for main communication. Slave MODBUS for the optional communication

### Relay Output

Contact	NO/NC selection by jumpers
Rating	2A @ 250 VAC or 30 VDC
No. of Operations	500,000

### General

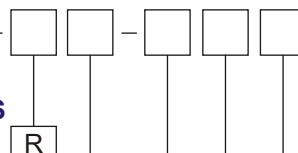
Material	ABS, auto-extinguishable
Power Supply	85...265 VAC/VDC or 24...48 VAC/VDC (option)
Power Consumption	3 VA
Mounting	DIN rail
EMC Emission	BS EN 50081-1
Susceptibility	BS EN 50082-2
Electrical Safety	BS EN 61010-1
Operating Condit'n	0...50°C; 10 to 90% RH
Storage	-20...+70°C
Front Panel	
Protection	IP20
Dimensions (H x D x W)	100 x 110 x 22.5 mm
Weight	250 grams (0.55 lb)

### ORDER CODE

UST330-

#### CONNECTION BLOCKS

Removable



#### POWER

85...265 VAC/DC  
24...48 VAC/DC

#### VERSION

Standard

0

#### OUTPUT OPTION

Without  
2-Relays  
Second RS-485 (2-wire)  
Second RS-485 (4-wire)  
1 Aux. Power Supply + 1 Relay  
1 Aux. Power Supply

0  
1  
2  
3  
4  
5

#### CONFIGURATION MODULE (Display + Keyboard)

Without  
With

0  
1

# NETWORKING

## MODBUS CONCENTRATOR PRINCIPLE

The concentrator is a UST330 transmitter equipped with two digital RS485 outputs. It can manage up to 15 slaves in a cycle, and store the acquired data in a table. The supervisor will then be able to read this table in one or two frames(dependent on the number of the slaves and the transmitted registers to the concentrator). This will result in considerably lower time for receiving the data from the slaves by the supervisor. Furthermore, the supervisor can still hold its direct access (writing or reading a value) on the slaves located below the concentrator.

In conclusion, the concentrator sends the orders to the slaves and ,in return, transfers the message from the slaves to the supervisors. Thus, the concentrator is "transparent" for the supervisor-slave connection.

