

Digital Temperature Indicator Operation / Instruction Manual

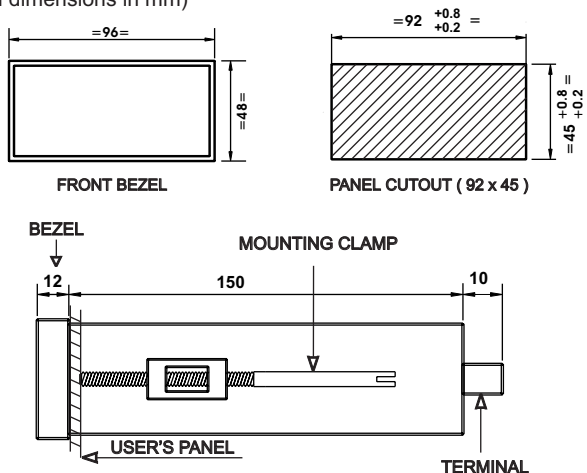
Thank you very much for purchasing **masibus** series digital indicator. Please read this instruction before using digital indicator to ensure proper operation and please keep this instruction sheet handy for quick reference.

Specifications

Display	↗ 4 digit 0.8" RED LED for Process value
Input	↗ RTD : PT-100 (3 wire cancellation automatically by software) ↗ Linear : 0-20 mA/0-5VDC, 4-20 mA/1-5VDC ↗ Thermocouple : J, K, T, R, S (CJC compensation automatically by software)
Input Range	↗ RTD -199 to 850 °C ↗ RTD 0.1°C -199.0 to 300.0°C (Optional) ↗ 4-20mA/1-5V -1999 to 9999 ↗ 0-20mA/0-5V -1999 to 9999 ↗ J T/C -100 to 1200 °C ↗ K T/C -100 to 1372 °C ↗ T T/C -100 to 400 °C ↗ R T/C 0 to 1768 °C ↗ S T/C 0 to 1768 °C
Accuracy	↗ For T/C & RTD +/- (0.25% of FS + 1 count) ↗ For Linear +/- (0.1% of FS + 1 count)
Transmitter power supply	↗ 24VDC @ 30mA
Calibration	↗ Zero adjustment automatic by software ↗ CJC adjustment for T/C type input and span adjustment by trimpot at the back of the instrument
Power supply	↗ 230V/110V AC@50Hz or 24VDC (factory set)
Operating Ambient	↗ 0 to 55 Deg C
Humidity	↗ Up to 95% RH non-condensing
Power Consumption	↗ Less than 10VA
Physical	↗ Bezel size 96 x 48 mm ↗ Panel cutout 92 x 45 mm ↗ Depth behind Panel 160 mm ↗ Cassette (Suitable for wire size of 2.5 Sq. mm)

Dimensions and panel cutout

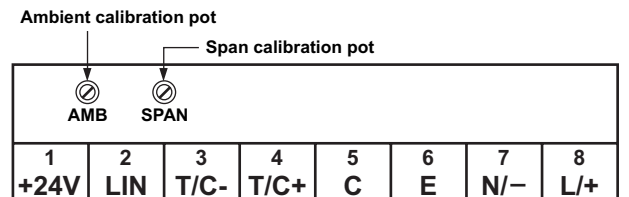
(All dimensions in mm)



⚠ DANGER! Caution! Electric Shock!

1. Do not touch the power terminals while the power is supplied to the controller to prevent an electric shock.
2. Make sure the power is disconnected before opening outer case for checking the inside circuit.

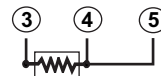
Rear Terminal Connection



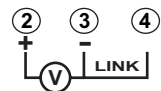
1. T/C Input :



2. RTD Pt-100, 3 wire :

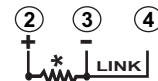


3. Volt Input :

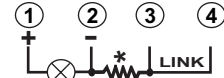


E N L (AC)
- + (DC)

4. mA Input:



5. Two wire loop:

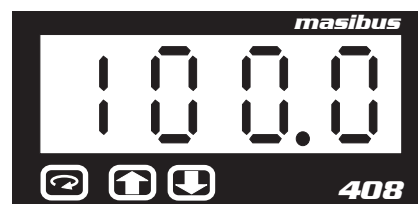


* 250 Ohms, 0.1% (USE EXTERNALLY)

Wiring Precautions

- 1.- Ensure the wires connected to rear terminals are properly done as shown in the rear terminal connection table.
- 2.- Turn OFF power, before changing the wiring of the temperature sensor and other wiring.
- 3.- Be sure to match compensating cable with the thermocouple type. Also ensure that the polarity of compensating cable is properly connected.
- 4.- Ensure that the compensating cable/signal wire route separately from power wires to prevent electrically induced noise.

Front Panel Description



- **PV display** : To display the process value or parameter type.
- Press this key to save the selected parameter and next parameter on display.
- & Press together at Power On to take instrument in configuration mode.
- In run mode shows Ambient temperature. (For Thermocouple input)

Configuration of Parameters

To Enter in this mode press \uparrow & \downarrow keys together at power on. Unit will display INP message.

\uparrow / \downarrow Is used to edit the displayed parameters.

1. CONFIGURE SENSOR TYPE

DISPLAY

PRESS \rightarrow

DIFFERENT TYPE OF INPUT			
<input type="text" value="rtd"/>	RTD	<input type="text" value="r TC"/>	R - T/C
<input type="text" value="j TC"/>	J - T/C	<input type="text" value="s TC"/>	S - T/C
<input type="text" value="k TC"/>	K - T/C	<input type="text" value="i 5u"/>	1-5V/4-20mA
<input type="text" value="t TC"/>	T - T/C	<input type="text" value="0 5u"/>	0-5V/0-20mA

To select desire input type,

PRESS \uparrow / \downarrow

\rightarrow PRESSING \rightarrow KEY TO SAVE THE SELECTED INPUT TYPE AND NEXT PARAMETER ON DISPLAY.

2. CONFIGURE ZERO

DISPLAY

PRESS \rightarrow

To change desire value of zero,

PRESS \uparrow / \downarrow

\rightarrow PRESSING \rightarrow KEY TO SAVE THE ZERO VALUE AND NEXT PARAMETER ON DISPLAY.

3. CONFIGURE SPAN

DISPLAY

PRESS \rightarrow

To change desire value of span,

PRESS \uparrow / \downarrow

\rightarrow PRESSING \rightarrow KEY TO SAVE THE SPAN VALUE AND NEXT PARAMETER ON DISPLAY.

4. CONFIGURE DECIMAL POINT

DISPLAY

PRESS \rightarrow

To change the position of DP,

PRESS \uparrow / \downarrow

\rightarrow PRESSING \rightarrow KEY TO SAVE THE DECIMAL POINT POSITION.

Calibration

Instrument factory calibrate for one type input as per customer purchase order. Change of input is subject to recalibration.

Calibration of Instrument for T/C type Inputs (J, K, T, R, S)

Ambient calibration (STEP 1)

First short T/C type input to see Ambient.

Press \uparrow in RUN MODE to see Actual Ambient temperature of unit on display

DISPLAY

Example : Reference Ambient temp. Is 25.0 Deg C

A Adjust AMB pot at back side till 25 Deg C temperature not comes on display

DISPLAY Now Ambient is calibrated at 25.0 Deg C.

Span calibration (STEP 2)

Apply accurate mV corresponding SPAN temp., As per selected input type

DISPLAY

Now calibrate span 1200,

S Adjust span pot at back side till you required temperature not comes on display

DISPLAY Now span is calibrated at 1200 Deg C.

Calibration of Instrument for RTD Type Input

To calibrate SPAN for RTD input, connect the reference STD instrument. Feed the input from reference STD as per configure value of SPAN.

Check the reading on display & adjust required value with the "**S**" pot on back-plate. (Refer step 2 as above)

Software will automatically calibrate the ZERO value.

Calibration of LINEAR TYPE INPUT

To calibrate SPAN for mA input connect the reference STD instrument.. Feed the mA as per the configure value of SPAN.

Check the reading on display & adjust SPAN value as per configured with the "**S**" pot on back-plate. (Refer step 2 as above)

Software will automatically calibrate the ZERO value.

NOTE:-

- After adjusting ZERO & SPAN value, once again check ZERO & SPAN value for any deviation.
- Run mode is the normal mode of display. From configuration mode of operations, display falls back to this mode if no key is pressed for 60 seconds..
- The unit having provision for programming operating range by ZERO & SPAN setting. In case sensor getting open then display shows "OPEN" or in case the value of PV outside the SPAN value it's shows "OVER" message on display.



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