

## Temperature / Process Indicator (Microcontroller based)

(Product Code 4.1 To 4.3)



### Model Wise Description:

Sr. No	Model	Product Description
4.1.1	DTI-723-U	Temperature and Process Indicator with universal input
4.1.2	DTI-723-F	Temperature and Process Indicator with fixed input
4.2.1	DTI-966-U	Temperature and Process Indicator with universal input
4.2.2	DTI-966-F	Temperature and Process Indicator with fixed input
4.2.3	DTI-966-T	Temperature and Process Indicator with 2 inputs
4.3.1	LPI-948-U	Temperature and Process Indicator with Universal inputs
4.3.2	LPI-948-F	Temperature and Process Indicator with Fixed inputs

### Description:

**Libratherm offers New version (Model DTI-723, DTI-966 and LPI-948)** which are designed and developed using the latest micro-controller. The specification incorporated serves the every simple and critical process measurement applications of the industry. It accepts input from temperature sensors like thermocouple, RTD (Pt-100), Infrared thermocouple, or pyrometers generating mV or mA signals or from the level/flow/pressure/pH transmitters in the form of (4-20) mA. The input signals from thermocouples and RTD (Pt-100) are software Linearized for 1°C / 0.1°C indicating accuracy. It can also be used for measurement of other process parameter accepting input signals from the process transmitter or transducers with facility to select the decimal point on the display.

DTI-723-U / DTI-966-U / LPI-948-U accept universal input. User can select one of 8 different types of input using DIP switch accessible to the user. This is the added advantage over the fixed type of input. Digital interface on RS485 lines and analog retransmission, linearized to the input as 4-20mA on RL max of 400 ohms are also available from these indicators.

## Features:

- ❖ Highly accurate and sturdy in operation.
- ❖ Elegant in appearance and very easy to operate.
- ❖ Accepts standard type of thermocouple or RTD (Pt-100) 2 or 3-wire input.
- ❖ High quality membrane keypad.
- ❖ Operates on Universal supply of 90 to 250 VAC, 50/60 Hz.
- ❖ 4-20 mA Retransmission of high resolution and RS485 interface can be given to PLC.

## Application:

- ◆ On line and continuous measurement of Industrial Temperature and Process values with facility for analog and digital interface to DCS, PLC or Process controllers..

## Technical Specifications:

<b>Input</b>	Thermocouple type J, K, R, S, B, C, D or RTD(Pt-100) 2 or 3-wire input, 0-10V and (4 – 20)mA ( Fixed or Universal – front panel and DIP switch selectable)
<b>Two Inputs</b>	Simultaneous - Two independent fixed inputs of the same type can also be used. (Does the roll of two indicators in one instrument). Available only with DTI-966
<b>Range</b>	Subject to the full range of the specified input (Refer table)
<b>Resolution</b>	0.1/1 unit Subject to the specified input and range
<b>Indicating Accuracy</b>	Better than $\pm 1^{\circ}\text{C}$ / $0.1^{\circ}\text{C}$ / $0.1\%$ of the specified range and the input (Software linearized for thermocouple and RTD inputs)
<b>Display</b>	4 digit 0.5"/0.3" Red 7-segment LED display for process value.
<b>CJC</b>	Built-in automatic from 0 - 50°C for thermocouple inputs.
<b>Open sensor detection</b>	Provided on Display and retransmission outputs are turned off.
<b>Key board settings</b>	Front panel membrane key pad for parameter settings.
<b>Retransmission Signals</b>	One or Two 4-20mA signal proportional and linearized to process input – 12 bit resolution (4000 counts). RLmax = 400 Ohms.
<b>Loop Supply</b>	18 - 24VDC for external Two / Three wire Temperature / Process Transmitter (Available only with DTI-966).
<b>Digital Serial Interface</b>	Optically isolated 2 wire RS485 in Modbus RTU protocol. (Slave mode with programmable Modbus address).
<b>Supply</b>	Universal supply of 90 to 250 VAC (5VA max.), 50/60Hz.
<b>Size / Enclosure / Weight</b>	72 x 72 x 120 mm (DTI-723) 96 x 96 x 120 mm (DTI-966) 96 x 48 x 120 mm (LPI-948)
<b>Enclosure</b>	ABS
<b>Weight</b>	0.25 Kg (DTI-723) 0.4 Kg (DTI-966) 0.25 Kg (LPI-948)

\* All Optional Features are Available Extra Cost

### Input and Range Selection Table:

Code	Input	Range
A1	Factory set to 8 universal inputs marked (*) below : A2,A3,A4,A5,A6,A13,A15,A17	<b>Subject to input</b>
A2	J type : Fe/Con thermocouple (*)	0 to 760 °C
A3	K type : Cr/Al thermocouple (*)	0 to 1372 °C
A4	R type : Pt/PtRh13% thermocouple (*)	0 to 1768 °C
A5	S type : Pt/PtRh10% - thermocouple (*)	0 to 1768 °C
A6	B type : Pt30%Rh/Pt6%Rh thermocouple (*)	200 to 1820 °C
A7	T type : Cu/Con thermocouple	0 to 350 °C
A8	E type : NiCr/CuNi thermocouple	0 to 900 °C
A9	C type : W5%Re/W26%Re thermocouple	0 to 2300 °C
A10	D type : W3%Re/W25%Re thermocouple	0 to 2300 °C
A11	G type : W/W26%Re thermocouple	0 to 2000 °C
A12	N type : Ni-Cr-Si/Ni-Si-Mg	0 to 1300 °C
A13	Pt-100 (Alpha = 0.00385) DIN 43760 (*)	0.0 to 400.0 °C
A14	Pt-100 (Alpha = 0.00385) DIN 43760	-199.0 to 200.0 °C
A15	4-20mA (*)	0 to 3500 unit
A16	4-20mA	-1500 to +2000 unit
A17	0-10VDC (*)	0 to 3500 unit
A18	0 -10VDC	-1500 to +2000 unit

User can specify the unit of measurement with required decimal point.

### Ordering Information for Model DTI-723 / DTI-966 / LPI-948 (U, F, and T):

Model	A- Input	B- Retransmission	C- Loop Supply	D- RS485
DTI-723-U	A1- (Factory set to 8 inputs)	B1- (4-20mA x 1 For (PV))	C1 – (Yes)	D1- (Yes)
DTI-723-F				
DTI-723-T				
DTI-966-U	A2 to A18- (Any one - Single Fixed input)	B2- (4-20mA x 2 For (PV1 andPV2))	00 – (None)	00- (None)
DTI-966-F				
DTI-966-T				
LPI-948-U	A2 to A18- (Any Two Fixed inputs of same type)	00- (None)		
LPI-948-F				

\* All Optional Features are Available Extra Cost

**Example:**

Model	A- Input	B- Retransmission	C- Loop Supply	D- RS485
DTI-966-U	A1	B1	C1	D1
DTI-723-T	A13	B2	00	00
LPI-948-F	A15	00	C1	D1

Example	Ordering Code	Description
1	DTI-966-U-A1-B1-C1-D1	This is 96 x 96 indicator with universal input, 4-20mA retransmission output, with built-in loop supply and RS485 interface.
2	DTI-723-T-A13-B2-00-00	This is 72 x 72 size indicator with two input of type RTD Pt-100, calibrated in the range of 0.0 to 400.0oC with No loop supply, No retransmission and NO RS485 interface.
3	LPI-948-F-A15-00-C1-D1	This is with 2 inputs i.e. of J type input. Two Retransmission output of 4-20mA proportional to PV1 and PV2. With RS485 output.

REMARK :