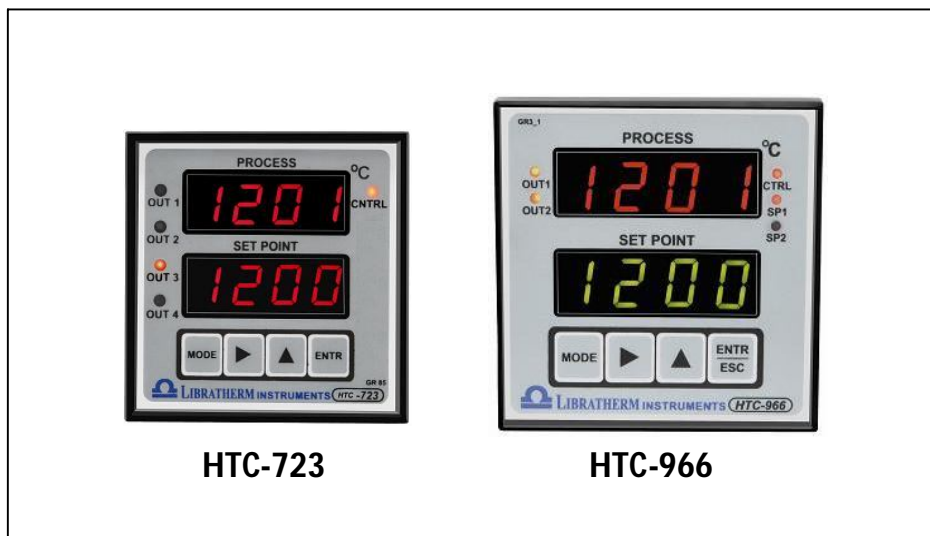


Temperature / Process On-Off Controller (Microcontroller based 1 to 6 Set Points) (Product Code 4.4 To 4.7)



Model Wise Description:

Sr. No	Model	Product Description
4.4.1	HTC-723-U-2	Two Set Point on-off Temp / Process controller with Universal Input
4.4.2	HTC-723-U-4	Four Set Point on-off Temp /Process controller with Universal Input.
4.5.1	HTC-723-F-2	Two Set Point on-off Temp /Process controller with Fixed Input.
4.5.2	HTC-723-F-4	Four Set Point on-off Temp /Process controller with Fixed Input.
4.6.1	HTC-966-U-2	Two Set Point on-off Temp /Process controller with Universal Input.
4.6.2	HTC-966-U-4	Four Set Point on-off Temp /Process controller with Universal Input.
4.6.3	HTC-966-U-6	Six Set Point on-off Temp /Process controller with Universal Input.
4.7.1	HTC-966-F-2	Two Set Point on-off Temp /Process controller with Fixed Input.
4.7.2	HTC-966-F-4	Four Set Point on-off Temp /Process controller with fixed Input.
4.7.3	HTC-966-F-6	Six Set Point on-off Temp /Process controller with fixed Input.

Description:

Libratherm offers New version (Model HTC-723 and HTC-966) which are designed and developed using the latest micro-controller. The specification incorporated serves the every simple and critical process control 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 other process control applications like pressure control, level control etc. accepting input signals from the respective transmitter or transducers.

HTC-723 / HTC-966 accepts universal input. User can select one of 8 different types of input using back panel DIP switch. This is the added advantage over the fixed type of input.

The controller HTC-723 and HTC-966 has respectively 2 to 4 and 2 to 6 programmable set points. Each can be configured as either High Alarm or Low Alarm or Deviation Alarm or for Off state with programmable ON/OFF hysteresis through user friendly membrane key board. Dual 4 digits display allows simultaneous indications of the process value and the set value. In addition these models can give two nos. retransmission output of 4-20mA proportional to process value, for remote indication of the process value.

Features:

- ❖ Highly accurate and sturdy in operation.
- ❖ Elegant looks, Very easy to operate.
- ❖ Accepts standard type of thermocouple or RTD (Pt-100) 2 or 3-wire input.
- ❖ Control output of Relay or DC pulse or TRAIC.
- ❖ Programmable Hysteresis.
- ❖ User configurable output up to 4 or 6 set points.
- ❖ Models available in 2, 3 and 4 configurable set points
- ❖ High quality membrane keypad.
- ❖ Operates on Universal supply of 90 to 250 VAC, 50/60 Hz.

Application:

- ◆ Pressure control
- ◆ Heater bank selection
- ◆ Star delta changeover
- ◆ Level control
- ◆ Process industry
- ◆ Plastic / Packaging industry

Technical Specifications:

Input	Thermocouple type J, K, R, S, B, C, D or RTD(Pt-100) 2 or 3-wire input, (0-10)V and (4 – 20)mA (single fixed or 8 Universal)
Range	Subject to the full range of the specified input (Refer table)
Resolution	0.1/1 °C/ unit subject to the specified input and range
Indicating Accuracy	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)
Display	4 digit 0.5"/0.3" Red 7-segment LED display for process value 4 digit 0.5"/0.3" Green/Red 7-segment LED display for set value
CJC	Built-in automatic from 0 - 50 °C (applies only for thermocouple)
Open sensor detection	Provided, outputs are turned off for fail safe operations.
Control Mode	Each output is user configurable for High/Low/Deviation/Off state.
Control Action	ON / OFF with programmable Hysteresis.
No. of Set points (X)	X= 2 to 4 set points (HTC-723) i.e. X = 2 or 4 X= 2 to 6 set points (HTC-966) ,i.e. X= 2, 4 or 6
Control outputs	2 or 4 DC pulses or only 2 Relays or 2 AC SSR (Triac) in HTC-723. 2, 4 or 6 DC pulses or maximum 4 Relays or maximum 4 AC SSRs (Triac) in HTC-966. (Relay/Triac rated for 5A @ 230VAC) For 4 relay / triac outputs - External 4 channel Relay/Triac card is supplied with HTC-723-U-4 or HTC-723-F-4 For 6 relay / triac outputs – external 6 channel Relay/Triac card is supplied with HTC-966-U-6 or HTC-966-F-6
Output / Set point indication	Front panel LED indication (OUT1 to OUT 6 and Set point indication SP1 to SP6 – Model dependent)
Key board settings	Front panel membrane key pad for parameter settings.
Retransmission Signal	4-20mA signal proportional and linearized to PV.
Loop Supply	18 - 24VDC for external Two / Three wire Transmitter (optional in HTC-966 only)
Supply	Universal supply of 90 to 250 VAC (5VA max.), 50/60Hz
Digital Serial Interface - Optional	Optically isolated 2 wire RS485 in Modbus RTU protocol. (Slave mode with programmable Modbus address)
Size / Enclosure / Weight	72 x 72 x 120 mm / ABS / 0.25 Kg / (HTC-723) 96 x 96 x 120 mm / ABS / 0.7 Kg / (HTC-966)

* 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	Subject to input
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

Ordering Information For Model HTC-723/HTC-966 (U and F):

Model	A- Input	B- 2 outputs	C- 4 outputs	D- 6 outputs	E - Retransmission	F – Loop Supply	G – RS 485
HTC-723-U-2	A1 - (Factory set to 8 inputs)	B1- (Both DC pulses for SSRs)	C1- (All 4 DC pulses for SSRs)	D1- (All 6 DC pulses for SSRs)	E1- (4-20mA)	F1- (YES)	G1-(Yes)
HTC-723-U-4							
HTC-723-F-2							
HTC-723-F-4	A2 - Single Fixed input (any one of A2 to A18)	B2- (Both relays)	C2- (All 4 relays)	D2- (All 6 Relays)	00- (None)	00- (None)	00- (None)
HTC-966-U-2							
HTC-966-U-4							
HTC-966-U-6							
HTC-966-F-2							
HTC-966-F-4							
HTC-966-F-6							

* All Optional Features are Available at Extra Cost

Example:

Model	A- Input	B- 2 outputs	C- 4 outputs	D- 6 outputs	E - Retransmission	F – Loop Supply	G – RS 485
HTC-723-U-2	A 1	B2	00	00	E1	00	00
HTC-723-F-4	A 3	00	C1	00	E1	00	G1
HTC-966-U-4	A 1	00	C2	00	E1	F1	00
HTC-966-F-6	A 13	00	00	D1	00	F1	G1

Example	Ordering Code	Description
1	HTC-723-U-2-A1-B2-00-00-E1-00-00	This is with Universal input of types J, K, R,S, B, PT-100, 4-20mA and (0-10)V with 2 set points and 2 relay outputs Retransmission output of (4-20)mA proportional to selected process value.
2	HTC-723-F-4-A3-00-C1-00-E1-00-G1	This is with Single Fixed input of K type thermocouple with 4 set points, 4 DC pulse outputs Retransmission output of 4-20 mA proportional to K type input in the range of 0 to 1372oC and RS485 output
3	HTC-966-U-4-A1-00-C2-00-E1-F1-00	This is with Universal input of types J, K, R,S, B, PT-100, 4-20mA and (0-10)V with 4 set points and 4 relay outputs, Retransmission output of (4-20)mA proportional to selected process value and loop supply.
4	HTC-966-F-6-A15-00-00-D1-00-F1-G1	This is with 4-20mA input with 6 set points, and 6 DC pulse outputs, loop supply and RS485 output.

REMARK :