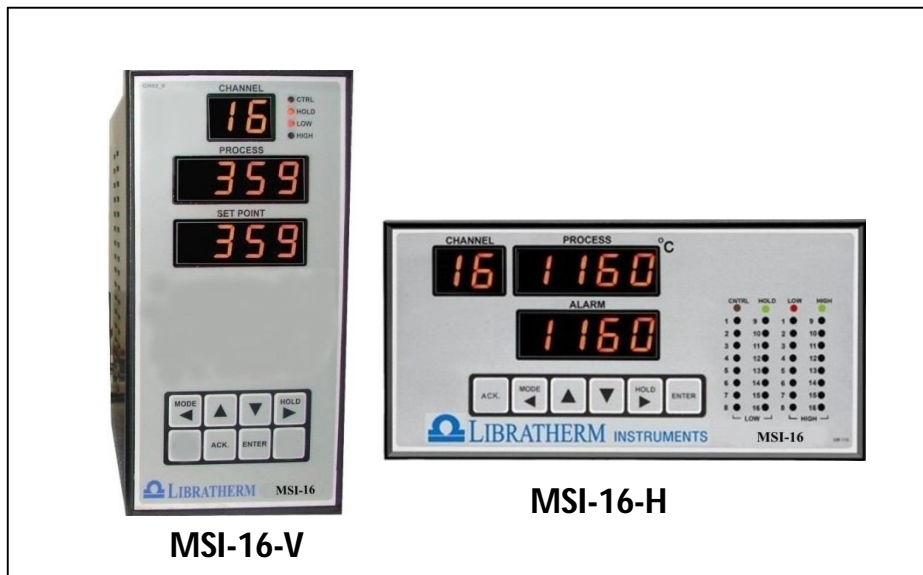


## Digital & Microprocessor Based Temperature Scanners

(Product Code 7.2 To 7.3)



### Model Wise Description:

Sr. No	Model	Description (XX = No. of channel)	Size in Horizontal & Vertical (w x h x d) mm
7.2	<b>MSI-16C-XX</b>	Microprocessor based 16 channel Temperature / Process Scanner with common high / low alarm relays. (XX = 04,08,12,16 points)	H-(192 x 96 x 200) V-(96 x 192 x 200)
7.3	<b>MSI-16A-XX</b>	Microprocessor based 16 channel Temperature / Process Scanner with common high / low alarm relay along with per channel high / low alarm LED indication and transistor drivers for external relays. (XX = 04,08,12,16 points)	H-(192 x 96 x 200) V-(96 x 192 x 200)

### Description:

**Libratherm** offers **Microprocessor based Temperature / Process Scanner Model MSI-16-H** and **MSI-16-V**, which is most suitable for continuous and accurate monitoring of temperature or process values at maximum 16 different locations in the same or different system. Additional useful features of common and individual high or low alarms make these scanners versatile for control and alarm applications.

MSI-16 accepts thermocouples or RTD (Pt-100) sensors, as inputs. The temperature is indicated within the accuracy of  $\pm 1^\circ\text{C}$  or  $\pm 0.1^\circ\text{C}$  of the specified input range, in spite of non-linear behavior of the standard thermocouple and RTD (Pt-100) sensors. The Linearized indication is achieved by software linearization technique. The models are available for 4, 8, 12, 16, 20, 24, 28 and 32 channels.

The standard features include SCAN/HOLD, and SKIP the unwanted Channel facility and manual increment of the channel number using front panel membrane keyboard.

Other than input from temperature sensors MSI-16 series also accepts (4-20) mA or (0-5) or (0-10) Volt signals from process transmitters for pressure, flow, pH, ORP, level etc...

### Features:

- ❖ Available in standard ½ DIN sizes.
- ❖ Highly accurate and sturdy in operation.
- ❖ Elegant looks and Very easy to operate.
- ❖ High quality membrane keypad
- ❖ Facility of common and individual high/low alarms.

### Application:

- ◆ Heat treatment, Large funnel Furnace / Oven Temperatures at various locations
- ◆ Transformer oil temperature
- ◆ Power plant
- ◆ Food processing ovens
- ◆ Plastic / Packaging industry
- ◆ Environmental chambers, Cold Storage and Chilling plants
- ◆ Laboratory equipment.etc.

### Technical Specifications:

<b>Design</b>	Microprocessor based( 8 bit) with 12 bit ADC
<b>No. Of channels</b>	4, 8, 12 or 16.
<b>Input</b>	Refer input and range selection table as given below. (each channel can be of same or different input type as per user's requirement)
<b>Accuracy</b>	Better than $\pm 0.1^{\circ}\text{C}$ , $\pm 1^{\circ}\text{C} / 0.1$ or 1 UOM - Software Linearized. (Subject to specified input and range).
<b>Resolution</b>	0.1 $^{\circ}\text{C}$ , 1 $^{\circ}\text{C}$ , 0.1 or 1 UOM (As per users requirement)
<b>Display</b>	4 digits each 0.5" 7-segment red LED to display process and Alarm Set values. 2 digit 0.5" 7 segment red LED for channel number
<b>Open Sensor/Input Indication</b>	Display shows Flt-1 or Flt-2 and all outputs will be turned low.
<b>Display Scan Rate</b>	1 to 99 sec (programmable through front panel keyboard)
<b>Sampling Rate</b>	125mS (All 16 channels will be scanned in 2 seconds).
<b>Skip/Hold Facility</b>	Available through key board in configuration mode
<b>Key board</b>	8 x 1 membrane keypad for data entry
<b>Common Relay Outputs</b>	2 nos. potential free change over contact (1 each for high and low output but common for all the channels)
<b>Individual Alarm</b>	2 per channel i.e. 32 open collector outputs to drive external relay cards.

<b>Outputs</b>	Alarms Can be configured for LL, HH, LH, HL) L – Low and H – High.
<b>LED Indication</b>	32 LED's in the front indicating status of each alarm output
<b>Size (WxHxD)</b>	192 x 96 x 200 mm ( MSI-16-H) <b>or</b> 96 x 192 x 200 mm. (MSI-16-V)
<b>Panel Cutout</b>	186 x 92 mm., or 92 x 186 mm + 0.5 mm
<b>Supply</b>	230VAC / 110 VAC $\pm$ 10% (10VA), 50/60Hz or 24VDC @ 500mA
<b>Enclosure</b>	Metallic with ABS bezel and polycarbonate front fascia

Note : Specifications are subject to change without notice – due to continuous upgradation.

### Input and Range Selection Table:

Code	Input	Range
A1	NA	<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	-150.0 to 200.0 °C
A15	Pt-100 (Alpha = 0.00385) DIN 43760	0 to 400 °C
A16	4-20mA	0 to 3500 unit
A17	4-20mA	-1500 to +2000 unit
A18	0-10VDC	0 to 3500 unit
A19	0 -10VDC	-1500 to +2000 unit

## Ordering Information:

Model	No. of channels	A- Channel Input (Use above table)	B- Supply	C- Size (W x H x D) mm.
<b>MSI-16C</b> <b>MSI-16A</b>  C – Common HI / LO Alarms A - With individual HI / LO Alarms	04	CH-1- (Select from A2 to A19)	<b>B1-(230 VAC)</b> <b>B2-(110 VAC)</b> <b>B3-(24 VDC)</b>	<b>C1-(192 x 96 x 200)</b> <b>C2-(96 x 192 x 200)</b>
	08	CH-2- (Select from A2 to A19)		
	12	CH-3- (Select from A2 to A19)		
	16	CH-4- (Select from A2 to A19)		
		CH-5- (Select from A2 to A19)		
		CH-6- (Select from A2 to A19)		
		CH-7- (Select from A2 to A19)		
		CH-8- (Select from A2 to A19)		
		CH-9- (Select from A2 to A19)		
		CH-10- (Select from A2 to A19)		
		CH-11- (Select from A2 to A19)		
		CH-12- (Select from A2 to A19)		
		CH-13- (Select from A2 to A19)		
		CH-14- (Select from A2 to A19)		
		CH-15- (Select from A2 to A19)		
		CH-16- (Select from A2 to A19)		

## Examples:

Model	No. of channel	A- Channel Input	B- Supply	C- Size
MSI-16C	04	CH-1- (A3) CH-2- (A3) CH-3- (A3) CH-4- (A3)	B1-(230 VAC)	C1-(192 x 96 x 200)
MSI-16A	08	CH-1- (A2) CH-2- (A2) CH-3- (A2) CH-4- (A2) CH-5- (A15) CH-6- (A15) CH-7- (A15) CH-8- (A15)	B2-(110 VAC)	C2-(96 x 192 x 200)
MSI-16C	12	CH-1- (A3) CH-2- (A3) CH-3- (A3) CH-4- (A5) CH-5- (A5) CH-6- (A5) CH-7- (A13) CH-8- (A13) CH-9- (A13) CH-10- (A13) CH-11- (A16) CH-12- (A16)	B3-(24 VDC)	C1-(192 x 96 x 200)

Example	Ordering Code	Description
1	MSI-16C-04-CH-1-(A3)-B1-C1 CH-2-(A3) CH-3-(A3) CH-4-(A3)	4 channel scanners with common high and low alarm outputs, with all channels calibrated for K type thermocouple, working on 230VAC and horizontal model.
2	MSI-16A-08-CH-1-(A2)-B2-C2 CH-2-(A2) CH-3-(A2) CH-4-(A2) CH-5-(A15) CH-6-(A15) CH-7-(A15) CH-8-(A15)	8 channel scanner with individuals high and low alarm outputs, with 1 <sup>st</sup> 4 channel calibrated for J type thermocouple and next 4 channel calibrated for RTD ( 0 to 400°C), working on 110VAC and vertical model.
3	MSI-16C-12-CH-1-(A3)-B3-C1 CH-2-(A3) CH-3-(A3) CH-4-(A5) CH-5-(A5) CH-6-(A5) CH-7-(A13) CH-8-(A13) CH-9-(A13) CH-10-(A13) CH-11-(A16) CH-12-(A16)	12 channel scanner with common high and low alarm outputs, with 1 <sup>st</sup> 3 channel calibrated for K type thermocouple, next 3 for S type thermocouple, next 4 channel for calibrated for RTD ( 0.0 to 400.0 °C ) and last channel for 4-20mA (0 to 3500 counts) working on 24VDC and horizontal model.

REMARK :