

# USER'S OPERATING MANUAL FOR ULTRA LOW TEMPERATURE CONTROLLER

(Models: ULT - 99)



ULT - 99  
(96 X 96)

## SPECIFICATIONS : -

1. **DISPLAY TYPE** : 8 - Digit 7 segment LED

Model no.	ULT-99	Display Colour
Display height (PV)	0.80"	White
Display height (SV)	0.56"	Green

2. **STATUS LED'S** : OUT1 : Cascade Output Status  
OUT2 : Cabinet Output Status  
ALM1 : Cascade Alarm Status  
ALM2 : Cabinet Alarm Status

### 3. INPUT

Sensor Input : RTD Pt-100

Range : Refer below Table.

Sensor Type	Range	Resolution	Accuracy
Pt-100(RTD 0.1)	-99.9 ~ 450.0°C	0.1 °C	± 0.3 °C

Sampling Time : 125 msec.

Resolution : 0.1°C

LWC for Pt-100 : Built in up to 18E max.

Digital Filter : 1 to 10 Sec.

### 4. RELAY OUTPUT

Contact Type : N/O, COM

Contact Rating : 5A @ 250VAC or 30 VDC

Life Expectancy : > 5,00,000 operations

Isolation : Inherent

### 5. SSR DRIVE OUTPUT

Drive Capacity : 12V @ 30mA.

Isolation : Non-Isolated.

### 6. FUNCTION

Output 1 : Main Control output (Factory Set)

1) Relay

2) SSR

Output 2 : Cabinet Output (Factory Set)

1) Relay

2) SSR

Output 3 : Alarm Output (Programmable)

(common for cabinet & cascade)

1) High Absolute

2) Low Absolute

3) High Deviation

4) Low Deviation

5) Band

Control Action : On-Off

Control Mode : Cool

### 7. ENVIRONMENTAL

Operating Range : 0 ~50°C, 5~90% Rh

Storage Humidity : 95% Rh (Non-condensing)

### 8. POWER SUPPLY

Supply Voltage : 90~270VAC, 50/60Hz.

Consumption : 4W Maximum.

### 9. PHYSICAL

Housing : ABS Plastic

## INSTALLATION GUIDELINES

1. Prepare the cut-out with proper dimension as shown in figure.
2. Remove clamp from Controller.
3. Push the Timer through panel cut-out and secure the Controller in its place by tightening the side clamp.

## SAFETY INSTRUCTION

### MECHANICAL

- ❖ Ambient temperature and relative humidity surrounding the Controller must not exceed the maximum specified limits.
- ❖ The Controller in its installed state must be protected against excessive electrostatic or electromagnetic interferences.

### ELECTRICAL

- ❖ The Controller must be wired as per wiring diagram & it must comply with local electrical regulation.
- ❖ The Electrical noise generated by switching inductive loads might create momentary Fluctuation in display, latch up, data loss or permanent damage to the instrument. To reduce this use snubber circuit across the load.

# PROGRAMMING



Press and Hold SET & UP Key Simultaneously for 3 Sec.

Press and Hold SET & DOWN Key Simultaneously for 3 Sec.

Press SET Key Once in Run Mode

Configuration			
Display	Default	Parameter Name	Range
LOCKP	15	Lock Code	1 ~ 9999
OFFSH	00	Cascade Offset	-25.0 ~ 25.0
FLtH	3	Cascade Filter	1 ~ 10
LSPL	-80.0	Lower Setpoint Limit	-99.9 ~ 450.0
HSPL	100	Higher Setpoint Limit	-99.9 ~ 450.0
OFFSL	00	Input 2 Type	-25.0 ~ 25.0
FLtL	3	Cabinet Filter	1 ~ 10
SP-L	EnbL	Cabinet Setpoint	Enable, Disable
SP-H	00	Cascade Setpoint	LSPL ~ HSPL
ALtYH	LOy	Cascade Alarm Type	Low, High, Lodu, Hi.du, Band
ALtH	dIr	Cascade Alarm Logic	Direct, Reverse
ALtH	YEs	Cascade Alarm Inhibit	Yes, No

A

Configuration			
Display	Default	Parameter Name	Range
ACKM	Auto	Cascade Alarm Acknowledged	Auto, Manual, Both
ALtY	LOy	Cabinet Alarm Type	Low, High, Lodu, Hi.du, Band
ALtL	dIr	Cabinet Alarm Logic	Direct, Reverse
ALtH	YEs	Cabinet Alarm Inhibit	Yes, No
ACKL	Auto	Cascade Alarm Acknowledged	Auto, Manual, Both
Id-1	1	Device ID Number 1	1 ~ 254
Id-2	2	Device ID Number 2	ID-1 + 1
BAUD	9600	Baud Rate	9600, 1920, 3125, 3840, 7680
PARr	o_81	Parity	n_81, n_82, o_81, o_82, E_81, E_82
Intv	1	RS 485 Response Interval	(1 ~ 50) * 20ms
LdSP	tOGGL	Lower Display Message	Toggle, Setpoint, Input
ULOC	15	User Lock Code	1 ~ 9999

Control List			
Display	Default	Parameter Name	Range
LOCKP	15	Lock Code	1 ~ 9999
dLYH	90	Cascade Delay Time	0 to 500 Sec.
HYSH	0.2	Cascade Hysterisis	0.1 ~ 100.0°C
dLYL	90	Cabinet Delay Time	0 ~ 500Sec
HYSL	0.2	Cabinet Hysterisis	0.1 ~ 100.0°C
ALtYH	0.2	Cascade Alarm Hysterisis	0.1 ~ 100.0°C
ALtYL	0.2	Cabinet Alarm Hysterisis	0.1 ~ 100.0°C

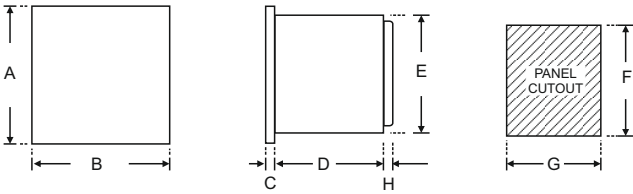
User List			
Display	Default	Parameter Name	Range
SP-L	0.0	Cabinet Setpoint	LSPL ~ HSPL
ASPH	0.0	Cascade Alarm Setpoint	LSPL~HSPL 2 ~ 99
ASPL	0.0	Cabinet Alarm Setpoint	LSPL~HSPL 2 ~ 99

Parameter will display according to below symbols

▶	Factory Set RS-485 Given
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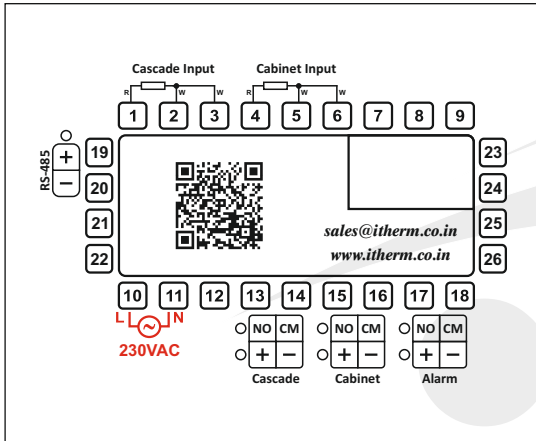
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**OVER ALL DIMENSIONS & PANEL CUT OUT (IN MM)**

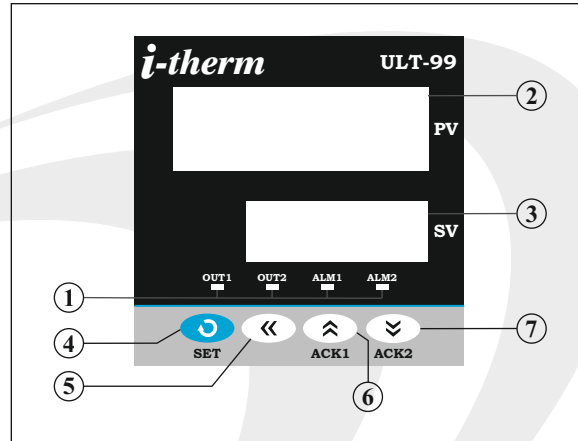


Model \ Dim	A	B	C	D	E	F	G	H
ULT-99	96	96	10	65	89	92	92	9

**TERMINAL CONNECTIONS :**



**FRONT PANEL LAYOUT**



**FRONT PANEL LAYOUT DESCRIPTION :**

Sr.	NAME	FUNCTION
1	OUT1 LED	Cascade Output Status
	OUT2 LED	Cabinet Output Status
	ALM1 LED	Cascade Alarm Status
	ALM2 LED	Cabinet Alarm Status
2	UPPER DISPLAY	It will display (1) Cabinet Value or Error messages in run mode. (2) Parameters value in program mode.
3	LOWER DISPLAY	It will display (1) SP (Main set point) / (2) Cascade Value (3) Parameter code in program mode.
4	SET KEY	(1) For SP programming. (2) To access Control mode along with Dn Key. (3) To access Configuration mode along with UP key. (4) To scroll the parameter & to store its value.
5	SHIFT KEY	(1) To enter in Tune Mode. (2) To increase/alter parameter value in program mode with Up/Dn key. (3) Press for 3sec in programming, this will help to go back to previous parameter.
6	UP KEY	(1) To increase/alter parameter value in program mode. (2) To enter in configuration mode with SET key. (3) To acknowledge Alarm 1
7	DOWN KEY	(1) To decrease/alter parameter value in program mode. (2) To enter in Control mode with Set key. (3) To acknowledge Alarm 2



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