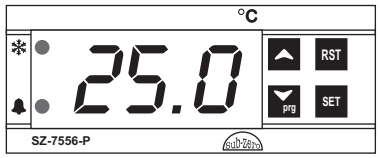
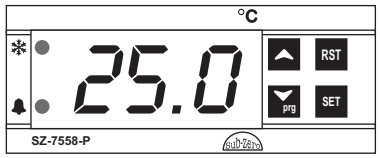
SZ-7556-P / SZ-7558-P

Operating Instructions

Controlled cooling, always





Temperature Controller

Introduction :

The Sub-Zero Series SZ-75XX-P are aesthetically superior versions of their predecessors. The SZ-7556/58-P are two relay controllers.

SZ-7556/58-P are specifically designed for the panel A/C, oil cooler, package a/c and similar kind of applications.

The SZ-7558-P has an inbuilt power relay which can drive compressive loads directly upto 20 Amps, thus eliminating the need of a contactor esp. in single phase applications.

The controllers have special features like power on time delay for alarms. Additionally these series offer several protection features that are easily understood by the examples in the instructions below.

A number of parameters are displayed alphanumerically to set up the instrument for each specific application.

SZ-7556/58-P can be used for several applications with a measuring range from 0°C to + 50°C (1°C Resolution) or 0.0°C to 50.0°C (0.1°C Resolution).

CAUTION

WIRING: The probe and its corresponding wires should never be installed in a conduit next to control or power supply lines. The electrical wiring should be done as shown in the diagram. The power supply circuit should be connected to a protection switch. The terminals admit wires of upto 2.5sq mm.

WARNING: Improper wiring may cause irreparable damage and personal injury. Kindly ensure that wiring is done by qualified personnel only.

Maintenance: Cleaning: Clean the surface of the controller with a soft moist cloth. Do not use abrasive detergents, petrol, alcohol or solvents.

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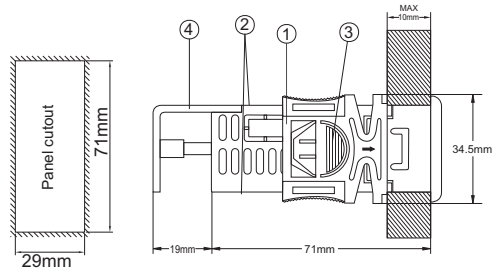
Installation : Fixing and dimensions of panel models:
To fix the unit, slide the fastener ① through the guides ② as per the position shown in the figure. Move the fastener in the direction of the arrow, pressing tab ③ it permits to move the fastener in the opposite direction of the arrow. Once the controller has been connected, they should be covered with the lid ④ Silicon sealant should be applied along the perimeter of the panel cut out or a rubber 'O' ring supplied before the unit is fitted to increase protection against water seepage.

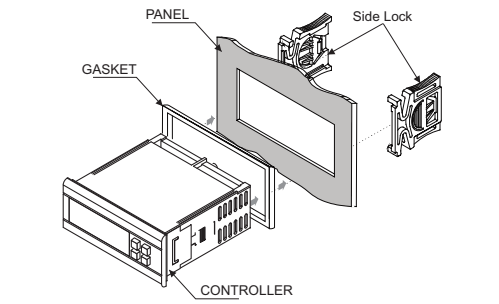
Controller :Controller should be installed in a place protected by vibration, water and corrosive gasses and where ambient temperature does not exceed the values specified in the technical data.

Probe : To give a correct reading, the probe must be installed in a place protected from thermal influences, which may affect the temperature to be controlled.

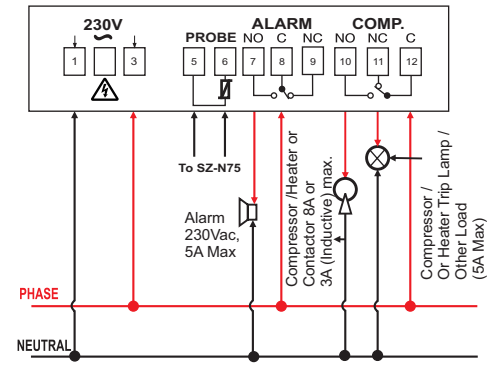
Panel Cutout and Dimensions :



Panel Cutout and Dimensions :

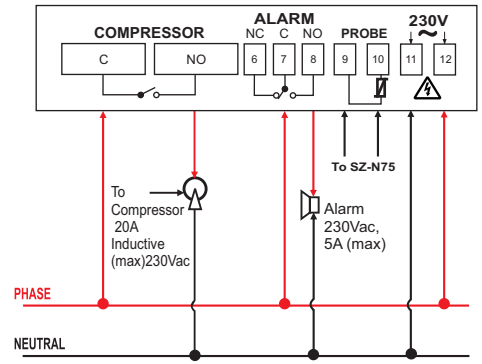


Suggested Wiring SZ-7556-P



Caution:Wiring for 230Vac load only

Suggested Wiring SZ-7558-P



Caution:Wiring for 230Vac load only

TECHNICAL DATA

Housing	: Black ABS plastic, Auto-extinguish.
Front cover	: Polycarbonate plastic.
Dimensions	: Front - 75 x 34.5 mm, Depth : 71 mm (w/o back lid).
Panel Cutout	: 29 X 71mm.
Mounting	: Flush panel mounting with fasteners.
Protection	: Front panel is water proof & I.P 65 rated .
Connections	: Screw terminal blocks. ≤ 2.5 Sq.mm wire Terminal only
Display	: 3 X 14.2 mm (0.56") LED.
Data storage	: Non-volatile EEPROM memory
Power input	: 230Vac,+/-15% 50-60Hz. Other on request.
Operating temp.	: 5°C to 50°C(non-condensing).
Storage temp	: -20°C to 70°C(non-condensing).
Output :	
Compressor Relay	: SZ-7556-P: 8(3)/250Vac SZ-7558-P: 20A/250Vac
Alarm relay	: SZ-7556-P: 5A/250Vac. SZ-7558-P: 5A/250Vac.
Input	: NTC probe, SZ-N75.
Range	: 0°C to 50°C (1°C) 0.0°C to 50.0°C (0.1°C)
Resolution	: 0.1°C, 1°C.
Accuracy	: +/- 1°C.
Probe tolerance at 25°C	: +/- 0.3°C.

USER INTERFACE

UP	In Program mode: **Scroll through parameters & Increases parameter value.** In Set mode : **Increases parameter value.**
Down/ Program	Press and hold for 2sec **to enter into program mode.** In program mode and set mode: **Decreases parameter value**
Set	Press and hold for 2sec **to enter into set mode**. In program mode and set mode: **set/save the changed value of parameter.**
Reset	This key will reset the alarm relay.

INDEX

Sr. No.	Para.	Description
1	Set Point	Compressor relay set point.
2		Set other parameter.
3	P2	High temperature limit.
4	P3	Low temperature limit.
5	P4	To set Differential (Hysterisis).
6	P5	Probe calibration.
7	P6	Time Delay (relay restart after cutoff).
8	P7	Defrost duration.
9	LP	Keypad Lock
10	AL	Buzzer enable / disable.
11	E1	Compressor relay status in probe fail.
12	rS	To change the resolution.
13	FS	Restore factory defaults
14	EP	End Programming
15		LED Indications
16		Operating Messages

Parameter List :

1 Set point — Function: To set the cut out point of the controller.

Press and hold the SET key for 2 Seconds.

Display will change to set value. The set point value can now be changed by using the UP/DOWN key. After setting the desired value, press the set key and you will see "- - -" which confirms that the set point has been stored in memory.

rS = 0			rS = 1		
Min	Max	Fac.	Min	Max	Fac.
P3+0.5	P2-0.5	1.0°C	P3+1	P2-1	1°C

2 To set other Parameters. — Display will flash "P2". To select other parameters, use UP/DOWN keys.

Press & hold prg key for 2 seconds.

3 P2 Parameter — Function: To set maximum allowable high temperature limit.

To change value use ▲ prg keys | To set value press SET key

Once set at a particular value, this will not allow the set point to go above this value.

Example : Setting this parameter at 25°C will not allow the set point to go above 25°C. Also, if the temperature reaches 25°C, the display will show HL (High Temp.) indicating that the temperature has gone above the value in this parameter and at this point the buzzer will activate.(if AL parameter is set to 1)

HL (Message on display)

rS = 0			rS = 1		
Min	Max	Fac.	Min	Max	Fac.
SP+0.5	50.0°C	50.0°C	SP+1	50°C	50°C

SP = Set Point

4 P3 Parameter

Function: To set minimum allowable low temperature set point.

Once set at a particular value, this will not allow the set point to go below this value.

Example : Setting this parameter at 10°C will not allow the set point to go below 10°C. Also, if the temperature reaches 10°C, the display will show Lt (LowTemp.) indicating that the temperature has gone below the value in this parameter and at this point the buzzer will activate.

Lt
(Message on display)

rS = 0			rS = 1		
Min	Max	Fac.	Min	Max	Fac.
0.0°C	SP-0.5	0.0°C	0°C	SP-1	0°C

5 P4 Parameter

Function: To set the differential.

Differential between cut out and cut in temperature can be set between 0.1°C to 20.0°C.

Example: If the set point is set at 10.0°C and differential is set at 2.0°C, then when the system reaches 10.0°C, the relay will cut out. Since the differential is 2.0, the relay will cut in (restart) at 12.0°C (10.0°C+2.0°C).

rS = 0			rS = 1		
Min	Max	Fac.	Min	Max	Fac.
0.1°C	20.0°C	2.0°C	1°C	20°C	2°C

6 P5 Parameter

Function: To set probe calibration.

In time it may be possible that the display may be offset by a degree or so.
To compensate for this error, you may need to add or minus the degrees required to achieve the correct temperature. Setting value is from -9.9°C to +10.0°C.

Example : The temperature on the display is 28.0°C, whereas the actual temperature is 30.0°C. You will need to set the P5 mode to 2.0, which means that once out of the programming mode, the temperature will show 30.0°C (28.0°C + 2.0°C).

rS = 0			rS = 1		
Min	Max	Fac.	Min	Max	Fac.
-9.9°C	10.0°C	0.0°C	-10°C	10°C	0°C

7 P6 Parameter

Function: To set time delay between relay restart time.

This parameter is used to protect the compressor from restarting in a short period of time and can be set between 0 to 99 minutes.

Example : If this parameter is set at 3 minutes, the relay will cut off at the set temperature, but will not restart for a minimum of 3 minutes, even if the differential is achieved earlier. This parameter is good to protect the life of the compressor when there are power fluctuations and the compressor is switched off and on within a few seconds.

❄ Flashing
Time delay in progress

Min	Max	Fac.
0 Min	99 Min	3 Min

8 P7 Parameter

Function : To set power on time delay for alarm relay.

Example : If this parameter is set to 20min once the unit is powered on the alarm relay will not activate for 20 minutes even if there is a fault. This is very useful to eliminate the nuisance alarm when a unit is switched on and the ambient is above the max set limit in P2.
This delay is applicable for High and Low temperature alarms.

❄ **ON**
Defrost in Progress

Min	Max	Fac.
0 Min	99 Min	0 Min

9 LP Parameter

Function: To lock keypad.

This parameter is used to lock the keypad so that tampering is not possible by by-standers.

0 = keypad unlocked
1 = keypad locked

When locked all parameters can only be viewed, but not modified.

LP
(Message on Display)

Min	Max	Fac.
0	1	0

10 AL Parameter

Function : To enable / disable buzzer.

Once set to 1, the alarm relay will come on incase the temperature reaches or goes above or below the points set in parameter P2 & P3 or if the probe fails.

0 = De-activates alarm relay.
1 = Activates alarm relay on HT & LT, PP.
2 = Activates alarm relay only on HT & PP.
3 = Activates alarm relay only on LT & PP.

🔔 Flashing
Alarm (Ht, Lt or PP)

Min	Max	Fac.
0	3	1

11 E1 Parameter

Function : Compressor relay status in case of Probe Failure.

When set to
0 = Relay status is ON.
1 = Relay performs a duty cycle 10 minutes ON and 4 minutes OFF.
2 = Relay status is OFF.

Min	Max	Fac.
0	2	1

12 rS Parameter

Function : To change the resolution.

If this parameter when set to 0,it will take all parameter in 0.1°C resolution.
If this parameter when set to 1,it will take all parameter in 1°C resolution.

Note : Temperature and parameter will also change accordingly.

rS = 0 / 1		
Min	Max	Fac.
0	1	0

13 FS Parameter

Function : To restore default settings of the controller.

When set to 1 all parameters are programmed to factory values. Useful to debug setting related problems.

Min	Max	Fac.
0	1	0

14 EP Parameter

Function: To end programming.

To end programming press "**SET**" key

Once the key is pressed, the controller goes into the normal mode and displays the temperature and all settings are recorded.

17 LEDS

Compressor
ON: Compressor is ON.
OFF: Compressor is OFF.
FLASHING : Compressor is in time delay.

Alarm
ON: Alarm is ON.
OFF: Alarm is OFF.
FLASHING : Alarm is in time delay.

18 OPERATING MESSAGES

Ht **High temperature alarm**
Temperature above the maximum high temperature limit.

Lt **Low temperature alarm**
Temperature below the minimum low temperature limit.

PP **Probe fail**
Probe short circuit, circuit open or without probe, or temperature is > 70.0°C or <0.0°C when rS = 0 or > 70°C or <0°C when rS = 1

LP **Keypad lock**
Keypad is locked

Warranty: This product is warranted against defects in materials and workmanship for a period of one year from the date of purchase. During the warranty period, product determined by us to be defective in form or function will be repaired or, at our option, replaced at no charge. This warranty does not apply if the product has been damaged by accident, abuse, and misuse or as a result of service or modification other than by the company. This warranty is in lieu of any other warranty expressed or implied. In no event shall the company be held liable for incidental or consequential damages, including lost revenue or lost business opportunity arising from the purchase of this product.

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Note :