

OPERATING INSTRUCTIONS

SZ-7552-62-P



General Description

SZ-7552 and SZ-7562 are two compressor controllers with separate setpoints, differentials and time delays for each compressor.

They are specifically designed for refrigeration applications wherein the compressor cuts off at setpoint and is restarted at a temperature of setpoint plus differential.

The controller features cycling of compressors so that there is no overload on one compressor.

Amongst other features, an important one is that incase one compressor is not capable of handling the load, the second compressor will activate and both compressors will cutout at the lowest set point.

Technical Data

Housing	Black, ABS Plastic
Front Cover	Red Polycarbonate plastic.
Dimensions	Front : 75 X 34.5 MM Depth : 71 MM (w/o back lid)
Panel Cutout	29 X 70.5 MM
Mounting	Flush panel mounting with fasteners.
Frontal protection	IP 65.
Connections	Screw terminal blocks. ≤ 2.5 sq mm one wire/ terminal only.
Display	14.2 mm (0.56") LED
Data storage	Non-volatile EEPROM memory.
Power input	230Vac +/-10%,50-60Hz. Others on request.
Operating temp.	5°C to 50°C (non-condensing)
Storage temp	-20°C to 70°C (non-condensing)
Input	NTC Probe, SZ-N75.
Resolution	1°C
Accuracy	+/- 1°C
Probe tolerance	+/- 0.3°C at 25°C

Front Panel View, Relay

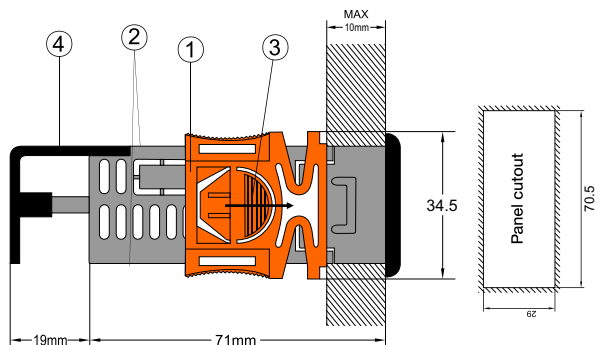


Comp. Relay: 2 SPDT Relay
8(3)A, 250Vac.
Range: 0°C to 50°C



Comp. Relay: 2 SPDT Relay
8(3)A, 250Vac
Range: -50°C to 99°C

Installation and Dimensions



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.

Operating Messages And Icon Status

Message	Mode	Description	Parameter
Ht	Flashing	Temp. above the maximum limit of the set point.	P2
Lt	Flashing	Temp. below the minimum limit of the set point.	P3
pp	Flashing	Probe short circuit, circuit open or without probe, or temperature >50°C or <0°C for SZ-7552-P or temperature >99°C or <-50°C for SZ-7562-P.	
R1	ON/OFF	Compressor1 Relay on/off.	Set Point1, P4
R2	ON/OFF	Compressor2 Relay on/off.	Set Point2, P4
0	ON/OFF	Keypad locked/unlocked.	LP
⌚	ON/OFF	Time delay active/inactive.	P6
R1	Flashing	Compressor1 Relay time delay active.	P4, P6
R2	Flashing	Compressor2 Relay time delay active.	P4, P6

Min = Minimum, Max = Maximum
Fac. = Factory Setting (Default)

1. Set Point : To set the cut out point.



- Press and hold the "SET" key for 2 Seconds.
- The setpoint1 value will start blinking.
- Use ▲ or ▼ to set the desired value.
- Press SET key & you will see "--" which confirms that the set point has been stored in memory.
- The setpoint2 value will start blinking.
- Use ▲ or ▼ to set the desired value.
- Press SET key & you will see "--" which confirms that the set point has been stored in memory.

■ R1 will flash along with respective setpoint1 for compressor1. The setpoint1 value can now be changed by using the UP/DOWN keys. After achieving the desired value, press the set key and you will see "--" which confirms that the set point has been stored in memory.

■ R2 will flash along with respective setpoint2 for compressor2. In the similar manner use UP/DOWN key to set the desired value, press set key to confirm the settings.

Min	Max	Fac.
0°C	50°C	0°C

SZ-7552-P
Set Point 1/ 2

-50°C	99°C	0°C
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SZ-7562-P
Set Point 1/ 2

Parameter List

2. To set other Parameters



- Press & hold the PRG key for 2 seconds.
- Display will show 'P2' for SZ-7552/62-P & flash.
- To go to other parameters, use ▲ or ▼ keys.

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

- To change the P2 parameter, press the "SET" key.
- To go to desired value, use ▲ or ▼ keys.
- To set confirm value press "SET" key you will see "--" which confirms that the value has been stored in memory.

Min	Max	Fac.
XX°C	50°C	50°C

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XX°C	99°C	99°C
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SZ-7562-P

Once set at a particular value, this will not allow both set points to go above this value and below P3 value.

Example: Setting this parameter at 30°C will not allow the set point to go above 30°C. Also, if the temperature reaches 30°C, the display will show Ht (High Temp.) indicating that the temperature has reached or gone above the range in this parameter and at this point the alarm relay will activate.

Ht
(Message on display)

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4. **P3** Parameter : To set minimum allowable low temperature limit.

Min	Max	Fac.
0°C	XX°C	0°C
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-50°C	XX°C	-50°C
SZ-7562-P		

1. To change the P3 parameter, press the "SET" key.
2. To go to desired value, use ▲ or ▼ keys.
3. To set confirm value press "SET" key you will see "- - -" which confirms that the value has been stored in memory.

Once set at a particular value, this will not allow the set point to go below this value and above P2 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 (Low Temp.) indicating that the temperature has reached or gone below the range in this parameter and at this point the alarm relay will activate.

Lt
(Message on display)

5. **P4** Parameter : To set the differential of set point 1 and set point2.

Min	Max	Fac.
1°C	20°C	2°C
Differential 1		
1°C	20°C	2°C
Differential 2		

1. To change the P4 parameter, press the "SET" key.
2. R1 and time delay of setpoint1 will flash.
3. To go to desired value, use ▲ or ▼ keys.
4. To set confirm value press "SET" key you will see "- - -" which confirms that the value has been stored in memory.

Once in this mode, ■ R1 and differential of setpoint1 will flash. Use UP/DOWN keys to set desired value. Once desired value is achieved, press set key and you will see"---", this confirms differential for set point1 has been stored.

Immediately after up key is pressed ■ R2 flashes along with the differential for setpoint2. Use UP/DOWN keys to set desired value. Once range is achieved, press set key. This confirms differential for set point2.

Example: If the set point1 is set at 10°C and differential for setpoint1 is set at 2°C, then when the system reaches 10°C, the relay for compressor1 will cut out and since the differential is 2, the relay will cut in (restart) at 12°C (10°C+2°C).

6. **P5** Parameter : To set probe calibration.

Min	Max	Fac.
-10°C	10°C	0°C

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.

1. To change the P5 parameter, press the "SET" key.
2. To go to desired value, use ▲ or ▼ keys.
3. To set confirm value press "SET" key you will see "- - -" which confirms that the value has been stored in memory.

Example: The temperature on the display is 28°C, whereas the actual temperature is 30°C. You will need to set the P5 mode to 2, which means that once out of the programming mode, the temperature will show 30°C (28°C + 2°C).

7. **P6** Parameter : To set time delay between relay restart time for comp1 and comp2.

Min	Max	Fac.
0 Min	20Min	3 Min
Time delay 1		
0 Min	20Min	3 Min
Time delay 2		

1. To change the P6 parameter, press the "SET" key.
2. R1 and time delay of setpoint1 will flash.
3. To go to desired value, use ▲ or ▼ keys.
4. To set confirm value press "SET" key you will see "- - -" which confirms that the time delay value for set point1 has been stored in memory.

5. After pressing Up key R2 flashes along with the time delay for setpoint2.
3. To go to desired value, use ▲ or ▼ keys.
4. To set confirm value press "SET" key you will see "- - -" which confirms that the time delay value for set point2 has been stored in memory.



(Time delay in progress)

To prevent both compressors from switching on together, there is an internal 10 second time delay between simultaneous startups to prevent an electrical surge.

8. **t2** Parameter : To start second comp. In case comp1 cannot achieve the lower setpoint.

Min	Max	Fac.
0 Min	30Min	0 Min

This function is used to switch on the second compressor in case the heat load cannot be met with compressor one's functioning.

1. To change the t2 parameter, press the "SET" key.
2. To go to desired value, use ▲ or ▼ keys.
3. To set confirm value press "SET" key you will see "- - -" which confirms that the value has been stored in memory.

Example: If setpoint 1 is 23 and setpoint 2 is 25 and if t2 para is set to 7 minutes, if the second comp. Cuts out at 25, if comp. 1 is not able to achieve 23 for a period of 7 minutes, then after 7 minutes, second compressor will also come on and both compressors will cutout at the lower setpoint.

If t2 is set less than P6, then P6 parameter will override t2 parameter.

If set to 0, this feature will not activate.

9. **t3** Parameter : To set minimum off time between two compressor.

Min	Max	Fac.
0Sec	15Sec	5Sec

This mode is used to set the time delay between the switching off of both compressors so that they donot switch off simultaneously.

1. To change the t3 parameter, press the "SET" key.
2. To go to desired value, use ▲ or ▼ keys.
3. To set confirm value press "SET" key you will see "- - -" which confirms that the value has been stored in memory.

Example: If this mode is set to 3 seconds the second Compressor will switch off after a minimum of 3 seconds from the first compressor switching off.

If set to 0, this feature will not activate.

10. **t4** Parameter : To avoid overloading of either compressor.

Min	Max	Fac.
0Hr	12Hr	0Hr

This function is used to avoid overloading of any one compressor working at a stretch over a period of time.

1. To change the t4 parameter, press the "SET" key.
2. To go to desired value, use ▲ or ▼ keys.
3. To set confirm value press "SET" key you will see "- - -" which confirms that the value has been stored in memory.

Example: If this parameter is set at 2 hours, the setpoint, differential & timedelay of both compressors will interchange after 2 hours. The interchange will occur every 2 hours.

Time calculation will start at power on.

This helps by not overworking any one compressor for long hours and increases compressor life. If for any reason the t4 and setpoints have been changed, the time calculation will start from the last change in any of these parameters.

11. **LP** Parameter : To lock keypad.

Min	Max	Fac.
0	1	0

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

1. To change the LP parameter, press the "SET" key.
2. To go to desired value, use ▲ or ▼ keys.

0 : keypad unlocked.
1 : keypad locked.



3. To set confirm value press "SET" key you will see "- - -" which confirms that the value has been stored in memory:

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

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12. **E1** Parameter: To set relay status on Probe Failure.

Min	Max	Fac.
0	2	0

1. To change the E1 parameter, press the "SET" key.
2. To go to desired value, use ▲ or ▼ keys.
 - 0 : Comp.relays will stay ON with initial start-up Delay of 2 minutes.
 - 1 : Comp. Relay performs a duty cycle 10 minutes ON and 4 minutes OFF.
 - 2 : Both relays will stay OFF.
3. To set confirm value press "SET" key you will see "- -" which confirms that the value has been stored in memory.

13. **F5** Parameter: To restore default settings of the controller.

Min	Max	Fac.
0	1	0

- When set to 1 all parameters are programmed to factory values. Useful to debug setting related problems.
1. To change the FS parameter, press the "SET" key.
 2. To go to desired value, use ▲ or ▼ keys.
 3. To set confirm value press "SET" key you will see "- -" which confirms that the value has been stored in memory.

14. **EP** Parameter: To end programming.

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

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.

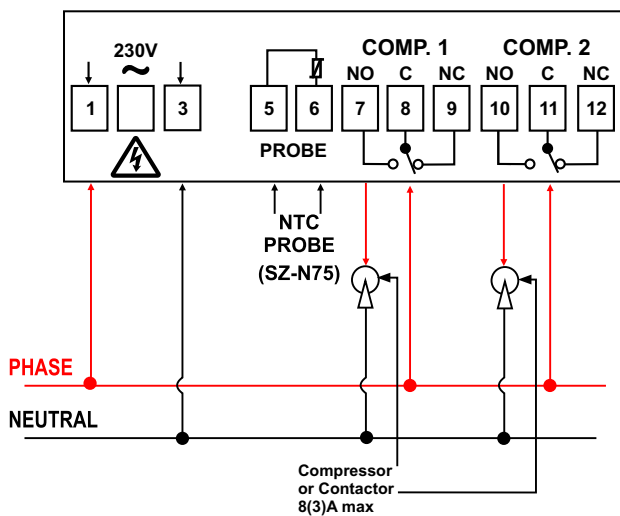
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Wiring Diagram

SZ-7552-62-P



Caution : Wiring for 230vac Loads Only.