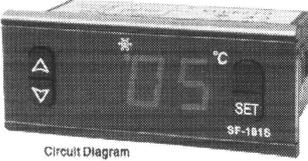
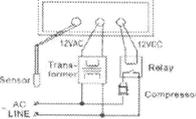
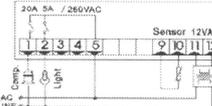
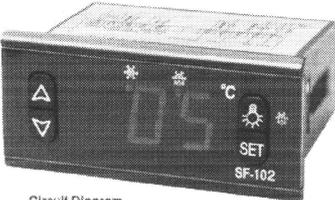
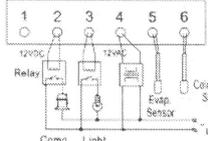
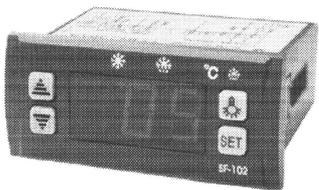


## Digital Temperature Controller for Refrigerating

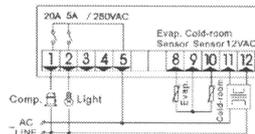
| SF-101S  | SF-101  |   |                 |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
|--|---|---|-----------------|-----------|---------|-----------------------|-----------------------|------------------|-------|------------------------|------------------------|------------------|------|------------------|------------------|----------|-----|------------------------|------------------------|-----------|------|----------------------|----------------------|----------|-----|-----------------------|-----------------------|----------|-----|-----------------------|-----------------------|-----------|--|-----------|-----------------------|-----------|---------|----|---------------------------|-------------------|-------|----|------------------------|---|------|----|------------------|-----------|-----|----|------------------------|-----------|------|----|----------------------|----------|-----|
|  <p><b>Circuit Diagram</b><br/>Model: SF-101S</p>    |  <p><b>Circuit Diagram</b><br/>Model: SF-101</p>    |   |                 |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| <p>Temperature Display / Temperature Control, Automatic defrost by turning off; Value Storing / Self Testing; Range: -45 ~ 99 °C ; Accuracy: ±1 °C ; compressor : 5A/2</p>   | <p>Temperature control/Light control/Re-start delay; Relay output : 1HP (compressor) ; Range: -45 ~ 45 °C ; Accuracy: ±1 °C Compressor: N.O. 20A/250VAC(one HP) ; Light: N.O. 5A/250VAC</p>   |   |                 |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
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| Parameter  | Function  | Set range 50VAC                                 | Default         |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E1   | Lower set point limit   | -45°C ~ Set temp.                               | -35°C           |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E2   | Higher set point limit  | Set temp. ~ 45°C                                | 20°C            |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E3   | Temp. hysteresis  | 1 ~ 10°C  | 4°C             |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E4   | Comp. start delay time  | 0 ~ 10Min                                       | 2Min            |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E5   | Offset on room temp.  | 0 ~ 10Min                                       | 0°C             |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| F1   | Max. Defrost duration   | 1 ~ 30Min                                       | 20Min           |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| F2   | Defrost interval time   | 0 ~ 12Hr  | 0Hr             |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| Parameter  | Function  | Set range                                       | Default         |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E1   | Lower set point limit   | -45°C ~ Set temp.                               | -35°C           |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E2   | Higher set point limit  | Set temp. ~ 45°C                                | 20°C            |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E3   | Temp. hysteresis  | 1 ~ 10°C  | 4°C             |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E4   | Comp. start delay time  | 0 ~ 10Min                                       | 2Min            |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E5   | Offset on room temp.  | -5 ~ 5°C  | 0°C             |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| <p>SF-102</p>  |   |   |                 |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
|  <p><b>Circuit Diagram</b><br/>Model: SF-102S</p>    | <table border="1"> <thead> <tr> <th>Parameter</th> <th>Function</th> <th>Set range</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>E1</td> <td>Lower set point limit</td> <td>-45°C ~ Set temp</td> <td>-35°C</td> </tr> <tr> <td>E2</td> <td>Higher set point limit</td> <td>Set temp. ~ 45°C</td> <td>20°C</td> </tr> <tr> <td>E3</td> <td>Temp. hysteresis</td> <td>1 ~ 10°C</td> <td>4°C</td> </tr> <tr> <td>E4</td> <td>Comp. start delay time</td> <td>0 ~ 10Min</td> <td>2Min</td> </tr> <tr> <td>E5</td> <td>Offset on room temp.</td> <td>-5 ~ 5°C</td> <td>0°C</td> </tr> <tr> <td>E6</td> <td>Offset on evap. Temp.</td> <td>-5 ~ 5°C</td> <td>0°C</td> </tr> <tr> <td>F1</td> <td>Max. Defrost duration</td> <td>1 ~ 60Min</td> <td>20Min</td> </tr> <tr> <td>F2</td> <td>Defrost interval time</td> <td>0 ~ 24Hr</td> <td>6Hr</td> </tr> <tr> <td>F3</td> <td>Defrost termination temp.</td> <td>0 ~ 20°C</td> <td>8°C</td> </tr> <tr> <td>F4</td> <td>Display during defrost</td> <td>0=Normal display<br/>1=Last value before defrost</td> <td>0°C</td> </tr> <tr> <td>C1</td> <td>Temperature unit</td> <td>0=°C 1=°F</td> <td>0°C</td> </tr> </tbody> </table> | Parameter                                       | Function        | Set range | Default | E1                    | Lower set point limit | -45°C ~ Set temp | -35°C | E2                     | Higher set point limit | Set temp. ~ 45°C | 20°C | E3               | Temp. hysteresis | 1 ~ 10°C | 4°C | E4                     | Comp. start delay time | 0 ~ 10Min | 2Min | E5                   | Offset on room temp. | -5 ~ 5°C | 0°C | E6                    | Offset on evap. Temp. | -5 ~ 5°C | 0°C | F1                    | Max. Defrost duration | 1 ~ 60Min | 20Min  | F2        | Defrost interval time | 0 ~ 24Hr  | 6Hr     | F3 | Defrost termination temp. | 0 ~ 20°C          | 8°C   | F4 | Display during defrost | 0=Normal display<br>1=Last value before defrost | 0°C  | C1 | Temperature unit | 0=°C 1=°F | 0°C |    |                        |           |      |    |                      |          |     |
| Parameter  | Function  | Set range                                       | Default         |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E1   | Lower set point limit   | -45°C ~ Set temp                                | -35°C           |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E2   | Higher set point limit  | Set temp. ~ 45°C                                | 20°C            |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E3   | Temp. hysteresis  | 1 ~ 10°C  | 4°C             |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E4   | Comp. start delay time  | 0 ~ 10Min                                       | 2Min            |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E5   | Offset on room temp.  | -5 ~ 5°C  | 0°C             |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| E6   | Offset on evap. Temp.   | -5 ~ 5°C  | 0°C             |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| F1   | Max. Defrost duration   | 1 ~ 60Min                                       | 20Min           |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| F2   | Defrost interval time   | 0 ~ 24Hr  | 6Hr             |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| F3   | Defrost termination temp.   | 0 ~ 20°C  | 8°C             |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| F4   | Display during defrost  | 0=Normal display<br>1=Last value before defrost | 0°C             |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| C1   | Temperature unit  | 0=°C 1=°F                                       | 0°C             |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |
| <p>Temperature control/Light control; manual/automatic defrost by turning off; Time/temp. setting to end defrost; Re-start delay; Celsius/Fahrenheit degrees; Range: -45 ~ 45 °C ( -40 ~ 120 °F )<br/>Accuracy: ±1 °C ( ±2 °F ), Compressor: N.O. 30A/250VAC (one HP)<br/>Light: N.O. 30A/250VAC</p>   |   |   |                 |           |         |                       |                       |                  |       |                        |                        |                  |      |                  |                  |          |     |                        |                        |           |      |                      |                      |          |     |                       |                       |          |     |                       |                       |           |  |           |                       |           |         |    |                           |                   |       |    |                        |   |      |    |                  |           |     |    |                        |           |      |    |                      |          |     |

## Digital Temperature Controller for Refrigerating

SF-102



**Circuit Diagram**  
Model: SF-102



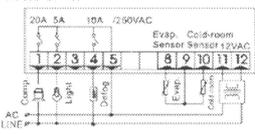
Temperature control/Light control; manual/automatic defrost by turning off; Time/temp. setting to end defrost; Re-start delay; Celsius/Fahrenheit degrees; Relay output :1HP (compressor)  
Range: -45~45°C (-40~120°F) ;Accuracy:±1°C (±2°F)  
Compressor: N.O. 20A/250VAC(one HP);Light: N.O. 5A/250VAC

| Parameter | Function                  | Set range                                       | Default |
|-----------|---------------------------|---|---------|
| E1        | Lower set point limit     | -45°C~Set temp                                  | -35°C   |
| E2        | Higher set point limit    | Set temp.~45°C                                  | 20°C    |
| E3        | Temp. hysteresis          | 1~10°C  | 4°C     |
| E4        | Comp. start delay time    | 0~10Min   | 2Min    |
| E5        | Offset on room temp.      | -5~5°C  | 0°C     |
| E6        | Offset on evap. Temp.     | -5~5°C  | 0°C     |
| F1        | Max. Defrost duration     | 1~60Min   | 20Min   |
| F2        | Defrost interval time     | 0~24Hr  | 6Hr     |
| F3        | Defrost termination temp. | 0~20°C  | 8°C     |
| F4        | Display during defrost    | 0=Normal display<br>1=Last value before defrost | 0°C     |
| C1        | Temperature unit          | 0=°C 1=°F                                       | 0°C     |

SF-103

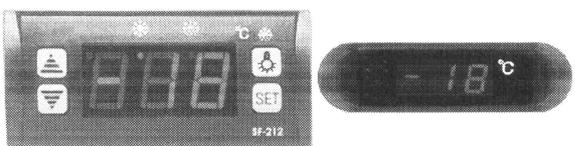


**Circuit Diagram**  
Model: SF-103

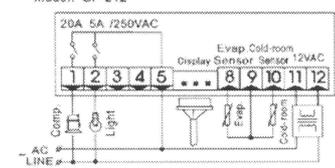


Temperature control/Light control; Electric heater defog; Automatic/manual defrost by turning off;Time/temp. setting to end defrost;Re-start delay;Relay output:1HP (compressor)  
Range: -45~45°C (-40~120°F) ;Accuracy:±1°C (±2°F)  
Compressor: N.O. 20A/250VAC;Defog: N.O. 10A/250VAC  
Light: N.O. 5A/250VAC

| Parameter | Function                  | Set range                                       | Default |
|-----------|---------------------------|---|---------|
| E1        | Lower set point limit     | -45°C~Set temp                                  | -35°C   |
| E2        | Higher set point limit    | Set temp.~45°C                                  | 20°C    |
| E3        | Temp. hysteresis          | 1~10°C  | 4°C     |
| E4        | Comp. start delay time    | 0~10Min   | 2Min    |
| E5        | Offset on room temp.      | -5~5°C  | 0°C     |
| E6        | Offset on evap. Temp.     | -5~5°C  | 0°C     |
| F1        | Max. Defrost duration     | 1~60Min   | 20Min   |
| F2        | Defrost interval time     | 0~24Hr  | 6Hr     |
| F3        | Defrost termination temp. | 0~20°C  | 8°C     |
| F4        | Display during defrost    | 0=Normal display<br>1=Last value before defrost | 0°C     |
| C1        | Temperature unit          | 0=°C 1=°F                                       | 0°C     |



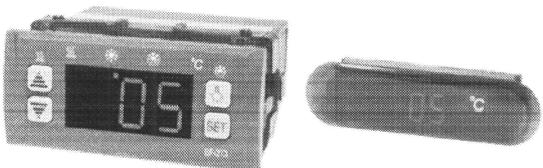
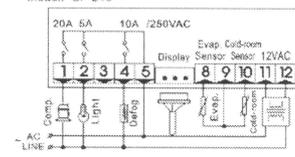
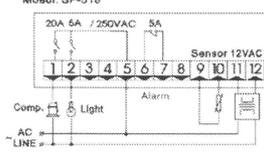
**Circuit Diagram**  
Model: SF-212



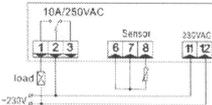
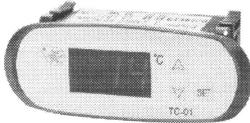
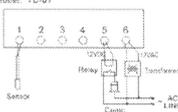
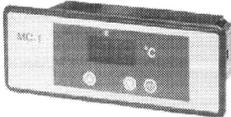
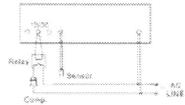
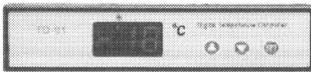
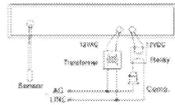
SF-212

Relay output:1HP(compressor)  
Temperature control/Light control;manual/automatic defrost by turning off;Time/temp. setting to end defrost;Re-start delay  
Relay output :1HP (compressor) ;Range:-45~45°C  
Compressor: N.O. 20A/250VAC(one HP);Light: N.O. 5A/250VAC

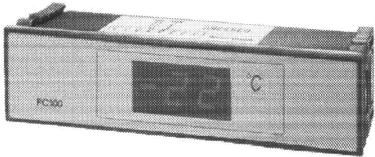
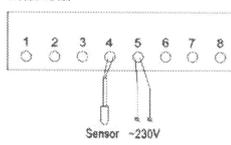
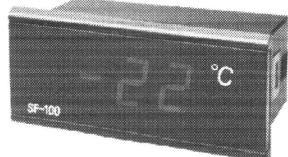
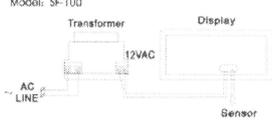
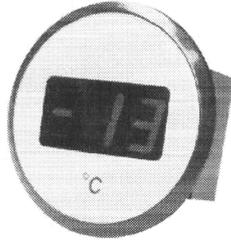
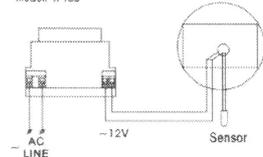
## Digital Temperature Controller for Refrigerating

| SF-213  | SF-518  |   |               |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
|---|---|---|---------------|---------|----|-----------------------|----------------------------|---------------|----|------------------------|-------------------------|-------------|----|------------------|-----------------|-----------|----|------------------------|---------|------|----|----------------------|----------------|-----|----|-----------------------|----------------|-----|----|-----------------------|---------|-------|----|-----------------------|--------|-----|----|---------------------------|------------------|------------|----|------------------------|---|-----|----|------------------|-----------|-----|---|-----------|----------|-----------|---------|----|-----------------------|------------------|-----|----|------------------------|-----------------|------|----|------------------|--------|-----|----|------------------------|---------|------|----|----------------------|----------|-----|----|-----------------------|---------|-------|----|-----------------------|--------|-----|----|------------------------|---|-----|----|------------------------|-------------|---------|----|-----------------------|----------------|-----|----|--|--------------|----|----|----------------------------------|----------|------|
|  <p><b>Circuit Diagram</b><br/>Model: SF-213</p>    |  <p><b>Circuit Diagram</b><br/>Model: SF-518</p>  |   |               |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| <p>Range: -45~45°C; Accuracy: ±1°C<br/>Compressor: 20A/250VAC (one HP); Defog: 10A/250VAC</p>   | <p>Temperature Control/Highest and lowest temperature record<br/>The alarm function; Light Control<br/>Manual, automatic defrost by turning off<br/>Value Storing / Parameter Locking</p>                             |   |               |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| <table border="1"> <thead> <tr> <th>Parameter</th> <th>Function</th> <th>Set range</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>E1</td> <td>Lower set point limit</td> <td>-45°C / -40 °F ~ Set temp.</td> <td>-35°C / -35°F</td> </tr> <tr> <td>E2</td> <td>Higher set point limit</td> <td>Set temp. ~45°C / 120°F</td> <td>20°C / 68°F</td> </tr> <tr> <td>E3</td> <td>Temp. hysteresis</td> <td>1~10°C / 1~18°F</td> <td>4°C / 7°F</td> </tr> <tr> <td>E4</td> <td>Comp. start delay time</td> <td>0~10Min</td> <td>2Min</td> </tr> <tr> <td>E5</td> <td>Offset on room temp.</td> <td>-5 ~ 5 °C / °F</td> <td>0°C</td> </tr> <tr> <td>E6</td> <td>Offset on evap. Temp.</td> <td>-5 ~ 5 °C / °F</td> <td>0°C</td> </tr> <tr> <td>F1</td> <td>Max. Defrost duration</td> <td>1~60Min</td> <td>20Min</td> </tr> <tr> <td>F2</td> <td>Defrost interval time</td> <td>0~24Hr</td> <td>6Hr</td> </tr> <tr> <td>F3</td> <td>Defrost termination temp.</td> <td>0~20°C / 32~68°F</td> <td>8°C / 46°F</td> </tr> <tr> <td>F4</td> <td>Display during defrost</td> <td>0=Normal display<br/>1=Last value before defrost</td> <td>0°C</td> </tr> <tr> <td>C1</td> <td>Temperature unit</td> <td>0=°C 1=°F</td> <td>0°C</td> </tr> </tbody> </table> | Parameter   | Function  | Set range     | Default | E1 | Lower set point limit | -45°C / -40 °F ~ Set temp. | -35°C / -35°F | E2 | Higher set point limit | Set temp. ~45°C / 120°F | 20°C / 68°F | E3 | Temp. hysteresis | 1~10°C / 1~18°F | 4°C / 7°F | E4 | Comp. start delay time | 0~10Min | 2Min | E5 | Offset on room temp. | -5 ~ 5 °C / °F | 0°C | E6 | Offset on evap. Temp. | -5 ~ 5 °C / °F | 0°C | F1 | Max. Defrost duration | 1~60Min | 20Min | F2 | Defrost interval time | 0~24Hr | 6Hr | F3 | Defrost termination temp. | 0~20°C / 32~68°F | 8°C / 46°F | F4 | Display during defrost | 0=Normal display<br>1=Last value before defrost | 0°C | C1 | Temperature unit | 0=°C 1=°F | 0°C | <table border="1"> <thead> <tr> <th>Parameter</th> <th>Function</th> <th>Set range</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>E1</td> <td>Lower set point limit</td> <td>-45°C ~ Set temp</td> <td>0°C</td> </tr> <tr> <td>E2</td> <td>Higher set point limit</td> <td>Set temp. ~45°C</td> <td>12°C</td> </tr> <tr> <td>E3</td> <td>Temp. hysteresis</td> <td>1~10°C</td> <td>3°C</td> </tr> <tr> <td>E4</td> <td>Comp. start delay time</td> <td>0~10Min</td> <td>2Min</td> </tr> <tr> <td>E5</td> <td>Offset on room temp.</td> <td>-5 ~ 5°C</td> <td>0°C</td> </tr> <tr> <td>F1</td> <td>Max. Defrost duration</td> <td>1~60Min</td> <td>20Min</td> </tr> <tr> <td>F2</td> <td>Defrost interval time</td> <td>0~24Hr</td> <td>6Hr</td> </tr> <tr> <td>F4</td> <td>Display during defrost</td> <td>0=Normal display<br/>1=Last value before defrost</td> <td>0°C</td> </tr> <tr> <td>C1</td> <td>High temperature alarm</td> <td>(C2+1)~45°C</td> <td>9°C 9°C</td> </tr> <tr> <td>C2</td> <td>Low temperature alarm</td> <td>-45°C ~ (C1-1)</td> <td>1°C</td> </tr> <tr> <td>C3</td> <td>Time delay of alarm and memory when starting</td> <td>(0~24)×10min</td> <td>06</td> </tr> <tr> <td>C4</td> <td>Time delay of alarm when working</td> <td>0~60min.</td> <td>0Min</td> </tr> </tbody> </table> | Parameter | Function | Set range | Default | E1 | Lower set point limit | -45°C ~ Set temp | 0°C | E2 | Higher set point limit | Set temp. ~45°C | 12°C | E3 | Temp. hysteresis | 1~10°C | 3°C | E4 | Comp. start delay time | 0~10Min | 2Min | E5 | Offset on room temp. | -5 ~ 5°C | 0°C | F1 | Max. Defrost duration | 1~60Min | 20Min | F2 | Defrost interval time | 0~24Hr | 6Hr | F4 | Display during defrost | 0=Normal display<br>1=Last value before defrost | 0°C | C1 | High temperature alarm | (C2+1)~45°C | 9°C 9°C | C2 | Low temperature alarm | -45°C ~ (C1-1) | 1°C | C3 | Time delay of alarm and memory when starting | (0~24)×10min | 06 | C4 | Time delay of alarm when working | 0~60min. | 0Min |
| Parameter   | Function  | Set range                                       | Default       |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| E1  | Lower set point limit   | -45°C / -40 °F ~ Set temp.                      | -35°C / -35°F |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| E2  | Higher set point limit  | Set temp. ~45°C / 120°F                         | 20°C / 68°F   |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| E3  | Temp. hysteresis  | 1~10°C / 1~18°F                                 | 4°C / 7°F     |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| E4  | Comp. start delay time  | 0~10Min   | 2Min          |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| E5  | Offset on room temp.  | -5 ~ 5 °C / °F                                  | 0°C           |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| E6  | Offset on evap. Temp.   | -5 ~ 5 °C / °F                                  | 0°C           |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| F1  | Max. Defrost duration   | 1~60Min   | 20Min         |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| F2  | Defrost interval time   | 0~24Hr  | 6Hr           |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| F3  | Defrost termination temp.   | 0~20°C / 32~68°F                                | 8°C / 46°F    |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| F4  | Display during defrost  | 0=Normal display<br>1=Last value before defrost | 0°C           |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| C1  | Temperature unit  | 0=°C 1=°F                                       | 0°C           |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| Parameter   | Function  | Set range                                       | Default       |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| E1  | Lower set point limit   | -45°C ~ Set temp                                | 0°C           |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| E2  | Higher set point limit  | Set temp. ~45°C                                 | 12°C          |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| E3  | Temp. hysteresis  | 1~10°C  | 3°C           |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| E4  | Comp. start delay time  | 0~10Min   | 2Min          |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| E5  | Offset on room temp.  | -5 ~ 5°C  | 0°C           |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| F1  | Max. Defrost duration   | 1~60Min   | 20Min         |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| F2  | Defrost interval time   | 0~24Hr  | 6Hr           |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| F4  | Display during defrost  | 0=Normal display<br>1=Last value before defrost | 0°C           |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| C1  | High temperature alarm  | (C2+1)~45°C                                     | 9°C 9°C       |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| C2  | Low temperature alarm   | -45°C ~ (C1-1)                                  | 1°C           |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| C3  | Time delay of alarm and memory when starting  | (0~24)×10min                                    | 06            |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |
| C4  | Time delay of alarm when working  | 0~60min.  | 0Min          |         |    |                       |                            |               |    |                        |                         |             |    |                  |                 |           |    |                        |         |      |    |                      |                |     |    |                       |                |     |    |                       |         |       |    |                       |        |     |    |                           |                  |            |    |                        |   |     |    |                  |           |     |   |           |          |           |         |    |                       |                  |     |    |                        |                 |      |    |                  |        |     |    |                        |         |      |    |                      |          |     |    |                       |         |       |    |                       |        |     |    |                        |   |     |    |                        |             |         |    |                       |                |     |    |  |              |    |    |                                  |          |      |

## Digital Temperature Controller for Freezing

| <p>ED66</p>  <p>Circuit Diagram<br/>Model: ED66</p>    | <p>TC-01</p>  <p>Circuit Diagram<br/>Model: TC-01</p>      |                              |           |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
|--|--|------------------------------|-----------|---------|----|-----------------------|------------------|-------|----|------------------------|-----------------|------|----|------------------|-------|-----|----|------------------------|---------|------|----|----------------------|---------|----|---|--------------------------|------------------------------|-----------|---|-----------|-----------------------|----------------|---------|----|------------------------|---------------|------|----|------------------------|---------------|-----|----|------------------------|---------|------|----|------------------------|---------|------|----|-----------------------|---------|-------|----|-----------------------|--------|-----|
| <p>Temperature control/Refrigerating &amp; heating modes selection<br/>Value Storing;Self Testing<br/>Range:—150~550℃ Accuracy:±1℃<br/>Compressor: N.O. 10A/250VAC;Temperature sensor:PT100,1pc</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Function</th> <th>Set range</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>E1</td> <td>Lower set point limit</td> <td>—150℃ ~ Set temp</td> <td>—100℃</td> </tr> <tr> <td>E2</td> <td>Higher set point limit</td> <td>Set temp. ~550℃</td> <td>400℃</td> </tr> <tr> <td>E3</td> <td>Temp. hysteresis</td> <td>1~99℃</td> <td>10℃</td> </tr> <tr> <td>E4</td> <td>Comp. start delay time</td> <td>0~10Min</td> <td>0Min</td> </tr> <tr> <td>E5</td> <td>Offset on room temp.</td> <td>—30~30℃</td> <td>0℃</td> </tr> <tr> <td>C1</td> <td>Temperature control mode</td> <td>0=refrigerating<br/>1=heating</td> <td>1</td> </tr> </tbody> </table> | Parameter  | Function                     | Set range | Default | E1 | Lower set point limit | —150℃ ~ Set temp | —100℃ | E2 | Higher set point limit | Set temp. ~550℃ | 400℃ | E3 | Temp. hysteresis | 1~99℃ | 10℃ | E4 | Comp. start delay time | 0~10Min | 0Min | E5 | Offset on room temp. | —30~30℃ | 0℃ | C1  | Temperature control mode | 0=refrigerating<br>1=heating | 1         | <p>Temperature control; Re-start delay; Relay output :1HP (compressor)<br/>Range:—45 ~ 99℃ ; Accuracy:±1℃ ;Temperature sensor: NTC, 2m(L);Compressor relay: N.O. 30A/250VAC</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Function</th> <th>Set range</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>E1</td> <td>Lower set point limit</td> <td>—45℃~Set temp</td> <td>-35℃</td> </tr> <tr> <td>E2</td> <td>Higher set point limit</td> <td>Set temp.~45℃</td> <td>20℃</td> </tr> <tr> <td>E3</td> <td>Temp. hysteresis</td> <td>1~10℃</td> <td>4℃</td> </tr> <tr> <td>E4</td> <td>Comp. start delay time</td> <td>0~10Min</td> <td>2Min</td> </tr> <tr> <td>E5</td> <td>Offset on room temp.</td> <td>—10~10℃</td> <td>0℃</td> </tr> </tbody> </table> | Parameter | Function              | Set range      | Default | E1 | Lower set point limit  | —45℃~Set temp | -35℃ | E2 | Higher set point limit | Set temp.~45℃ | 20℃ | E3 | Temp. hysteresis       | 1~10℃   | 4℃   | E4 | Comp. start delay time | 0~10Min | 2Min | E5 | Offset on room temp.  | —10~10℃ | 0℃    |    |                       |        |     |
| Parameter  | Function   | Set range                    | Default   |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E1   | Lower set point limit  | —150℃ ~ Set temp             | —100℃     |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E2   | Higher set point limit   | Set temp. ~550℃              | 400℃      |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E3   | Temp. hysteresis   | 1~99℃                        | 10℃       |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E4   | Comp. start delay time   | 0~10Min                      | 0Min      |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E5   | Offset on room temp.   | —30~30℃                      | 0℃        |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| C1   | Temperature control mode   | 0=refrigerating<br>1=heating | 1         |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| Parameter  | Function   | Set range                    | Default   |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E1   | Lower set point limit  | —45℃~Set temp                | -35℃      |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E2   | Higher set point limit   | Set temp.~45℃                | 20℃       |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E3   | Temp. hysteresis   | 1~10℃                        | 4℃        |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E4   | Comp. start delay time   | 0~10Min                      | 2Min      |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E5   | Offset on room temp.   | —10~10℃                      | 0℃        |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| <p>MC-1</p>  <p>Circuit Diagram<br/>Model: MC-1</p>    | <p>TD-01</p>  <p>Circuit Diagram<br/>Model: TD-01</p>  |                              |           |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| <p>Temperature control ;Re-start delay ;Relay output :1HP (compressor)<br/>Range:—45 ~ 99℃ Accuracy:±1℃ ;Compressor: N.O. 30A250VAC<br/>Relay output :1HP (compressor)</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Function</th> <th>Set range</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>E1</td> <td>Lower set point limit</td> <td>— 45℃ ~ Set temp</td> <td>-25℃</td> </tr> <tr> <td>E2</td> <td>Higher set point limit</td> <td>Set temp.~45℃</td> <td>10℃</td> </tr> <tr> <td>E3</td> <td>Temp. hysteresis</td> <td>1~10℃</td> <td>4℃</td> </tr> <tr> <td>E4</td> <td>Comp. start delay time</td> <td>0~10Min</td> <td>2Min</td> </tr> <tr> <td>E5</td> <td>Offset on room temp.</td> <td>—10~10℃</td> <td>0℃</td> </tr> </tbody> </table>  | Parameter  | Function                     | Set range | Default | E1 | Lower set point limit | — 45℃ ~ Set temp | -25℃  | E2 | Higher set point limit | Set temp.~45℃   | 10℃  | E3 | Temp. hysteresis | 1~10℃ | 4℃  | E4 | Comp. start delay time | 0~10Min | 2Min | E5 | Offset on room temp. | —10~10℃ | 0℃ | <p>Temperature control; Re-start delay; Automatic defrost by turning off<br/>Range:—45 ~ 99℃ ; Accuracy:±1℃ ;Temperature sensor: NTC, 2m(L);<br/>Compressor relay: N.O. 30A/250VAC; Relay output :1HP</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Function</th> <th>Set range</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>E1</td> <td>Lower set point limit</td> <td>—40℃~Set temp.</td> <td>-35℃</td> </tr> <tr> <td>E2</td> <td>Higher set point limit</td> <td>Set temp.~30℃</td> <td>20℃</td> </tr> <tr> <td>E3</td> <td>Temp. hysteresis</td> <td>1~10℃</td> <td>4℃</td> </tr> <tr> <td>E4</td> <td>Comp. start delay time</td> <td>0~10Min</td> <td>2Min</td> </tr> <tr> <td>E5</td> <td>Offset on room temp.</td> <td>—10~10℃</td> <td>0℃</td> </tr> <tr> <td>F1</td> <td>Max. Defrost duration</td> <td>1~30Min</td> <td>15Min</td> </tr> <tr> <td>F2</td> <td>Defrost interval time</td> <td>0~12Hr</td> <td>0Hr</td> </tr> </tbody> </table> | Parameter                | Function                     | Set range | Default   | E1        | Lower set point limit | —40℃~Set temp. | -35℃    | E2 | Higher set point limit | Set temp.~30℃ | 20℃  | E3 | Temp. hysteresis       | 1~10℃         | 4℃  | E4 | Comp. start delay time | 0~10Min | 2Min | E5 | Offset on room temp.   | —10~10℃ | 0℃   | F1 | Max. Defrost duration | 1~30Min | 15Min | F2 | Defrost interval time | 0~12Hr | 0Hr |
| Parameter  | Function   | Set range                    | Default   |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E1   | Lower set point limit  | — 45℃ ~ Set temp             | -25℃      |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E2   | Higher set point limit   | Set temp.~45℃                | 10℃       |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E3   | Temp. hysteresis   | 1~10℃                        | 4℃        |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E4   | Comp. start delay time   | 0~10Min                      | 2Min      |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E5   | Offset on room temp.   | —10~10℃                      | 0℃        |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| Parameter  | Function   | Set range                    | Default   |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E1   | Lower set point limit  | —40℃~Set temp.               | -35℃      |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E2   | Higher set point limit   | Set temp.~30℃                | 20℃       |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E3   | Temp. hysteresis   | 1~10℃                        | 4℃        |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E4   | Comp. start delay time   | 0~10Min                      | 2Min      |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| E5   | Offset on room temp.   | —10~10℃                      | 0℃        |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| F1   | Max. Defrost duration  | 1~30Min                      | 15Min     |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |
| F2   | Defrost interval time  | 0~12Hr                       | 0Hr       |         |    |                       |                  |       |    |                        |                 |      |    |                  |       |     |    |                        |         |      |    |                      |         |    |   |                          |                              |           |   |           |                       |                |         |    |                        |               |      |    |                        |               |     |    |                        |         |      |    |                        |         |      |    |                       |         |       |    |                       |        |     |

## Temperature Display

|   |  |
|---|--|
| <p>PC-100</p>  <p>Circuit Diagram<br/>Model: PC100</p>  | <p>SF-100</p>  <p>Circuit Diagram<br/>Model: SF-100</p>  |
| <p>Temperature display<br/>Range: -40~50°C Accuracy: ±1°C</p>   | <p>Temperature display Accuracy: ±1°C<br/>SF-100P: -40~50°C SF-100H: -5~150°C SF-100: -45~99°C</p>   |
| <p>SF-M01</p>    | <p>SF-M02</p>  <p>Circuit Diagram<br/>Model: X-100</p>  |
| <p>Temperature display<br/>Range: -40~50°C</p>  | <p>Temperature display<br/>Range: -45~99°C</p>   |