

General Feature :

- 3 digits, 7-segment LED display.
- Wide temperature control range from -40C up to 150C
- High precision with up to 0.1C / 0.1F resolution.
- Two temperature unit selectable (°C / °F).
- Alarm or alarm output control available.
- 1, 2 or 3 relay output with different configuration
(2nd relay output for defrost using heater / hot gas)
(3rd relay output for fan control / alarm output control.)
- Data memory storage in event of power failure.
- Heating and cooling control available
- Cooling control with auto / manual defrost feature. (Defrost by stop compressor OR by heater, hot gas.)
- Configuration of parameters via smart card
- IP65 protection on front panel.



Design Terminology :

Housing : Using high grade engineering plastic to provide a rigid and durable structure.

Sensor Cable : Durable silicon insulated electric wires provide a high resistance temperature up to 250°C.

Relay : Using famous and recognized components to ensure the products quality and durability.

Terminals : Ultra large terminals for easily wiring. (2-3) wires connected at the same time are possible.

Humidity Proof : Protection with a thin layer of coating for working in a high humidity condition.

Sensor Failure : As sensor failure, controller do not just only produce error message calling for maintenance but also control the system, say compressor to run at cycling ON/OFF to prevent the system totally shut down in event of the maintenance or repair action cannot be taken immediately.

Date transmission : Unique design to record the important data information or configuration of multiple devices through a smart card.



High Quality Power Relay



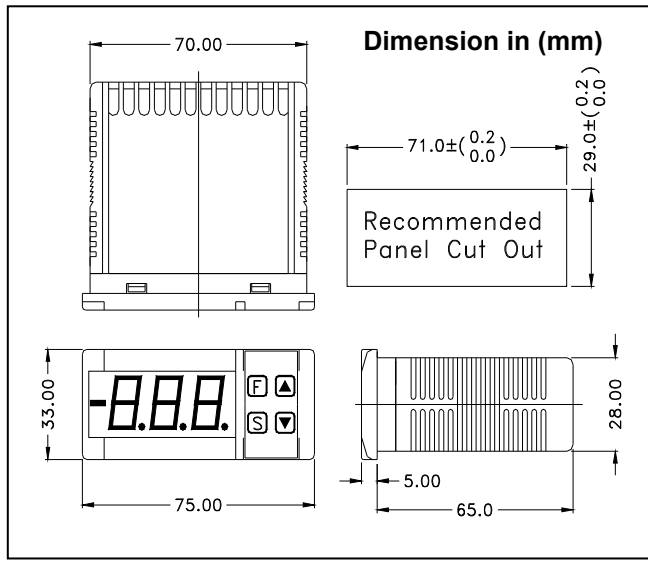
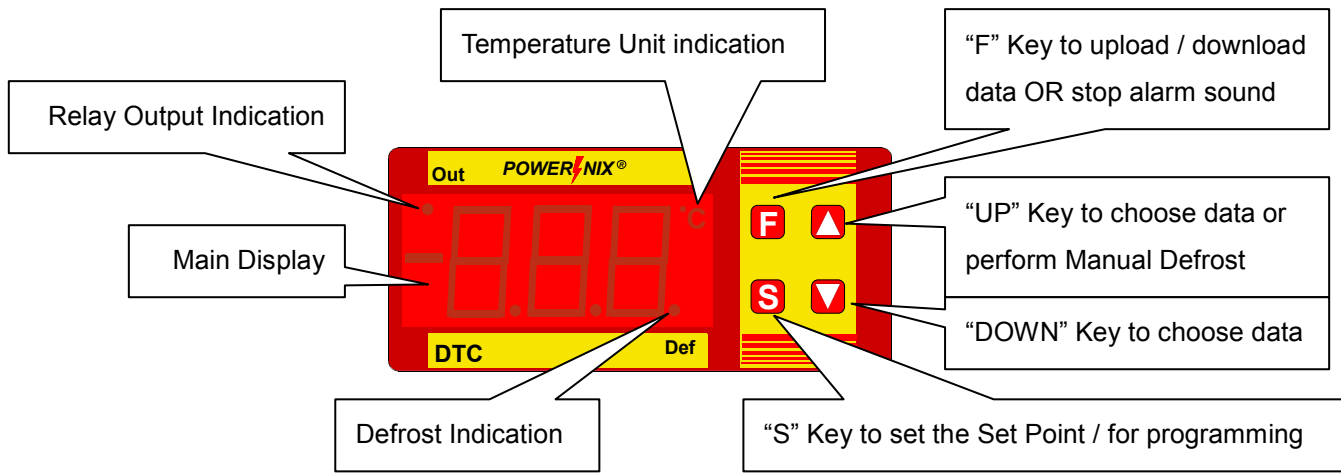
Data Transmission by Smart Card



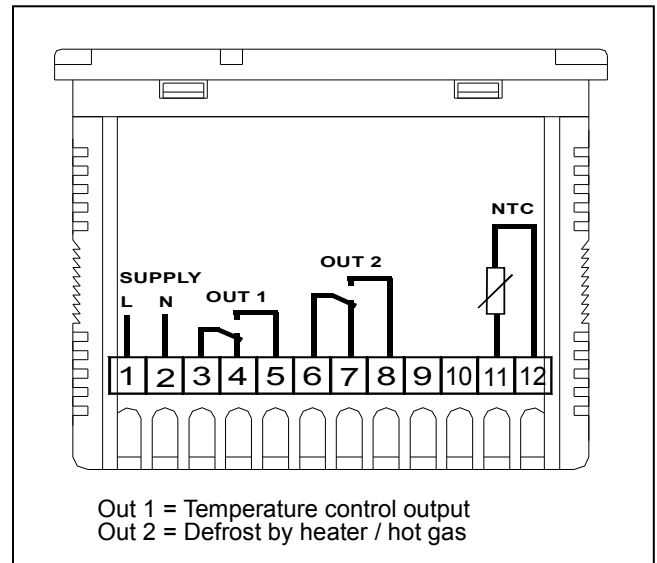
Ultra Large Terminals

General Specification :

| Type Series | DTC-□□□-1R-Y | DTC-□□□-1R-N | DTC-□□□-2R-N | DTC-□□□-3R-N-A | DTC-□□□-3R-N-F |
|---------------------------|--|--------------|--|--|--|
| Power Supply | 12VAV/DC, 24VAC/DC, 110VAC, 220Vac (50/60Hz) +/- 10% | | 12VAV/DC, 24VAC/DC, 110VAC, 220Vac (50/60Hz) +/- 10% | | |
| Power consumption | Max. 5VA | | Max. 5VA | | |
| Display | 3 digits, Red LED | | 3 digits, Red LED | | |
| Temperature Control Range | -40°C ~ 150°C / -40°F ~ 302°F | | -40°C ~ 150°C / -40°F ~ 302°F | | |
| Control mode | Heating / Cooling | | Heating / Cooling | | |
| Input Signal | NTC | | NTC | | |
| Alarm buzzer | Yes | | Yes | | |
| Alarm | > 90db at 100cm distance | | > 90db at 100cm distance | | |
| Output Control | 1 Relay, | 1 Relay, | 2 Relay, | 3 Relay | 3 Relay |
| Output Configuration | Out 1 : Main Temp. Control | | Out 1 : Main Temp. Control Out 2 : Defrost Control using Heater / Hot gas | Out 1 : Main Temp. Control Out 2 : Defrost Control using Heater / Hot gas Out 3 : Alarm Output | Out 1 : Main Temp. Control Out 2 : Defrost Control using Heater / Hot gas Out 3 : Fan Control |
| Output Capacity | 8A, 250Vac relay | | 2 x 8A, 250Vac relay | 3 x 8A, 250Vac relay | 3 x 8A, 250Vac relay |
| Data transfer | Smart Card | NON | NON | | |
| Memory | >10 years EEPROM | | >10 years EEPROM | | |
| Front Protection | IP65 | | IP65 | | |
| Electrical Life (Relay) | > 100,000 cycles at 8A, 250Vac | | > 100,000 cycles at 8A, 250Vac | | |
| Mechanical Life (Relay) | > 10,000,000 cycles | | > 10,000,000 cycles | | |
| Operating Humidity | 35% ~ 85% | | 35% ~ 85% | | |
| Operating Temperature | -10°C ~ 55°C (No freezing) | | -10°C ~ 55°C (No freezing) | | |



External Dimension and Panel Cutout



Wiring Connection Diagram

How to order :

| | | | | |
|-----|-----|----------|-------|---------|
| DTC | 220 | 1R/2R/3R | N / Y | - A / F |
|-----|-----|----------|-------|---------|

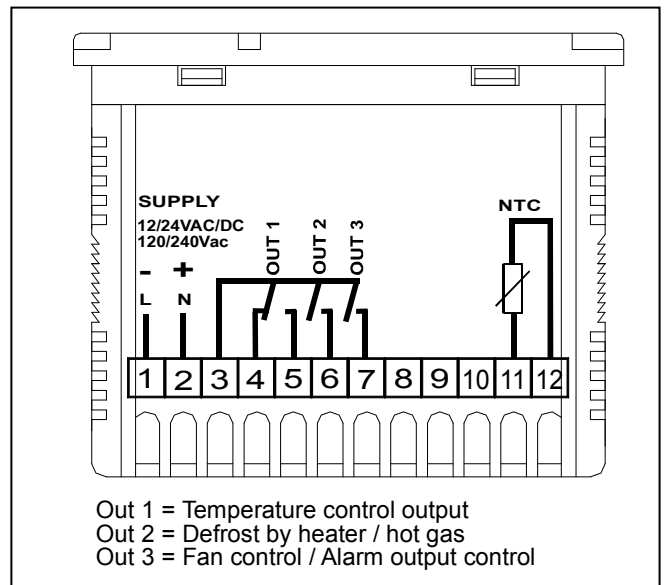
- DTC = Type Series
 - 12 = 12VAC/DC, 24 = 24VAC/DC
110 = 110Vac, 220 = 220~240Vac
 - 1R = 1 x 8A relay for temperature control.
 - 2R = 2 x 8A relay, 2nd relay for defrost control using heater / hot gas.
 - N = Non smart card available.
 - Y = With 1K size smart card.
 - A = Assign 3rd relay to Alarm Output Control.
 - F = Assign 3rd relay to Fan Control.
- (Remark : The fan control is synchronized to the temperature control operation.)

Mounting Method :

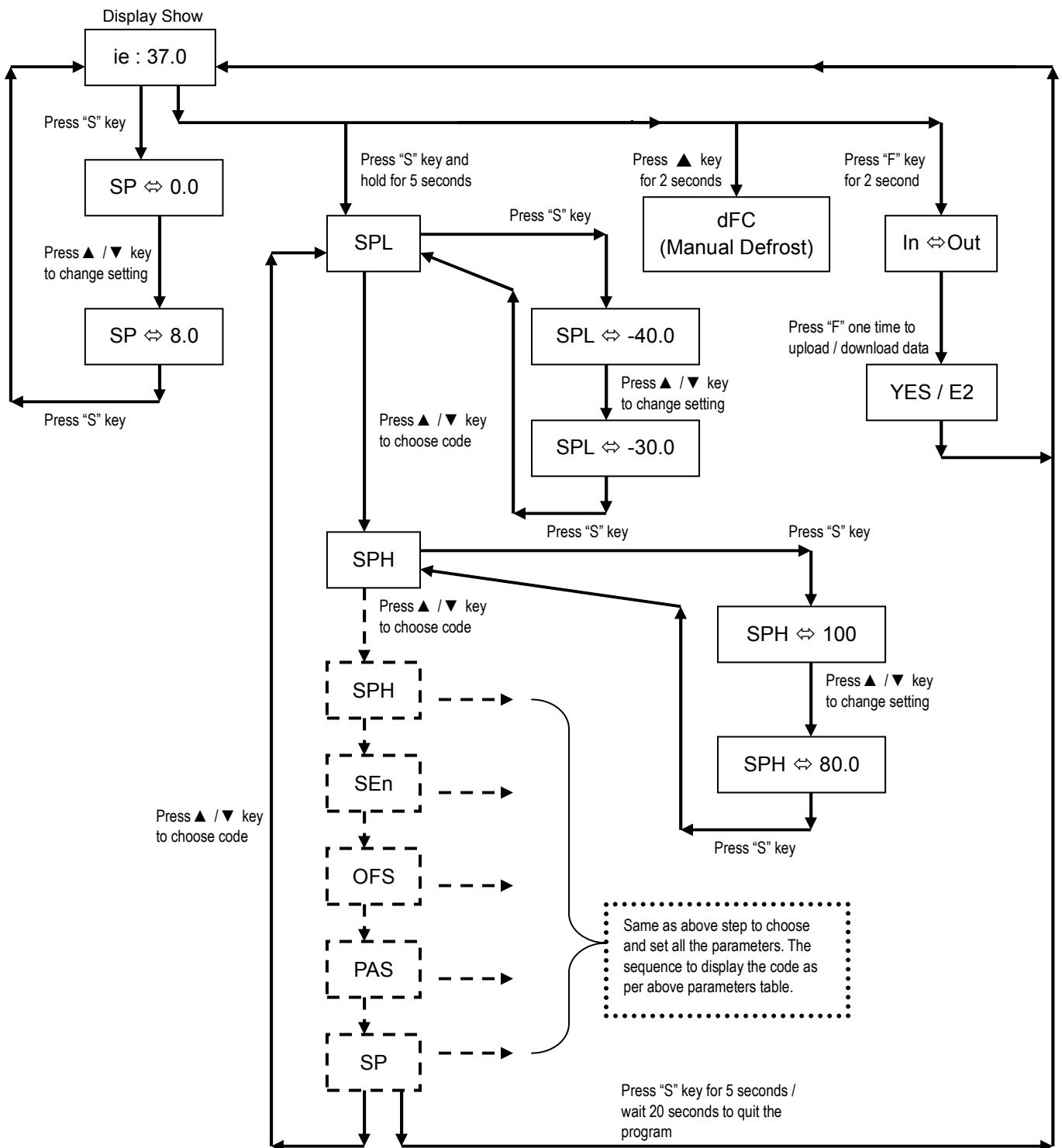
- Plug the controller into the cutout of panel.
- Using the provided plastic retaining clip to lock the meter.

Wiring Connection :

- It is suggested to connect any electric wires with size below 1.5mm² (12AWG).
- It is suggested not to connect the mains together with high inductive loading to prevent serious noise disturbance and voltage spike.



We reserve the right to modify and change the specifications to improve or up-grade our products without priority notification.



- Remark :
- 1) To manual defrost, simply press the “▲” key for 2 second to activate the function
 - 2) To data IN / OUT the controller, press the “F” key for 2 second, then display show “In” and “Out” alternatively. Press the “F” key as the display show “In” to represent data IN or press the “F” key as the display show “Out” to represent data OUT.
 - 3) As alarm sound activated, simply press “F” key one time to temporary stop the sound.

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Programmable Parameters Table :

| Item | Code | Descriptions | Range | Default value |
|------|------|--|--------------------------------|---------------|
| 1 | SPL | Minimum Set Point : To control the usable limit of minimum temperature. Alarm will be activated as temperature under this limit. | -40°C ~ 150°C -40°F ~ 302°F | -40.0 |
| 2 | SPH | Maximum Set Point : To control the usable limit of maximum temperature. Alarm will be activated as temperature over this limit. | -40°C ~ 150°C -40°F ~ 302°F | 100 |
| 3 | SEn | Sensor Type : | NTC | ntc |
| 4 | OFS | Sensor Offset : To offset the sensor probe. | -30.0 ~ +30.0 (°C / °F) | 0.0 |
| 5 | Unt | Unit of Measurement : To choose the temperature unit as °C / °F | °C / °F | C |
| 6 | dP | Decimal Point : To control the display with or without the decimal point. | On / OFF | On |
| 7 | dFF | Deadband / Differential : To control the temperature differential. Hence to define the possible control accuracy of temperature controlling. | 0.0 ~ 30.0 (°C / °F) | 2.0 |
| 8 | At1 | Relay output activation time as sensor broken : To switch ON the relay at a defined time interval during probe failure. | OFF ~ 999 (Minutes) | OFF |
| 9 | dAt | Relay output deactivation time as sensor broken : To switch OFF the relay at a defined time interval during probe failure. | OFF ~ 999 (Minutes) | OFF |
| 10 | Fot | Temperature control mode : To define the application of controller used in Heating or in Cooling condition. | Hot / CoL | CoL |
| 11 | dFc | Defrost interval : To define the defrost interval after each defrost time. This function only effective on cooling mode. | OFF ~ 999 (Hours) | 8.0 |
| 12 | dt | Defrost time : To define the defrost time after each defrost interval. This function only effective on cooling mode. | OFF ~ 999 (Minutes) | 30.0 |
| 13 | dLo | Display locking type during defrost : To lock the display condition during defrost period. OFF = Measuring value On = Lock on temperature before defrost Lb = Lock on "dEF" | On / OFF / Lb | Lb |
| 14 | CPn | Compressor protection type : 1 = delay at switch on 2 = delay after switch off 3 = delay between starts | 1 / 2 / 3 | 1 |
| 15 | CPT | Compressor protection time : To define the time to protect the compressor after chosen the type of protection. | OFF ~ 999 (Minutes) | OFF |
| 16 | od | Delay time at power ON : To define the time to delay the working of controller after power is ON. | OFF ~ 999 (Minutes) | OFF |
| 17 | dAd | Time delay to unlock display after defrost : To define the time of display locked at a condition after defrost. | OFF ~ 999 (Minutes) | OFF |
| 18 | PAS | Access to Password : To control the accessibility of parameters by using password. | OFF ~ 999 | OFF |
| 19 | SP | Temperature Set Point : To set the desired temperature control set point. | SPL ~ SPH | 0.0 |

Error message

| Error code | Problems message | Action |
|------------|---|--|
| E1 | The sensor probe may be interrupted / In short circuit / Broken | Check the sensor connection as well as the function of sensor. |
| E2 | Failure of upload and download data from smart card. | Check the connection between smart card as well as the function of the card. |

Caution for safety

- 1) Please keep this instruction sheet for review and reference in future.
- 2) Before installation, please read this instruction carefully.
- 3) Don't try to dismantle or modify the unit.
- 4) This unit should not be used in outdoor or condition over its specified limits.
- 5) Do not clean the unit with water, organic solvents.
- 6) Do not make any electrical connection during power on.
- 7) Make sure the voltage of source should be within the specified limits of the unit.

GUARANTEE AND REPAIRS :

The instrument is under warranty against manufacturing flaws or faulty material that are found within 12 months from the date of delivery. The guarantee is limited to repairs or to the replacement of the instrument. Any dismantle the unit, the violation of the instrument or the improper use and installation of the product will bring immediate withdrawal of the warranty's effects. In the event of a faulty instrument, either within the warranty period or expired, please contact us to obtain authorization to sending the instrument back to our company.

Agent :

Bosan Industrial Technology Limited.

Flat 7, 5/F., Kai Fuk Industrial Centre, 1 Wang Tung Street, Kowloon Bay, Kln, Hong Kong, China

Tel : (0852)-2755-3470 Fax : (0852)-2757-2111

E-mail : info@bosan-control.com Website : <http://www.bosan-control.com>

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