



DESCRIPTION

- Digital Display and temperature control suitable for freezer or refrigerator
- Thermistor input type NTC or PTC and display range 40-130 °C
- 3-digit whitecolor 7-Segment display with LED status
- Defrost system and Alarm with 8 Function
- 4 relay outputs for compressor, defrost, fan and auxiliary relay
- Over / under voltage protection to prevent damaged compressor and avoid complicated wiring problem
- Output type : Relay contact 5A 250 VAC

OPERATION

DEF-01 is digital temperature controller include stopwatch for timer defrost. Have Choice of both cooling and heat control with Either NTC or PTC Thermistor. There are also alarms that can alert up to 8 temperatures and also There is also a Dongle Terminal that can work with Option Sensor Probe, RS485 Expansion Module for reading. Mod bus R1U Protocol or compatible with Dongle Module in case you want to copy controller parameters to Other. Suitable for manufacturers of freezers and refrigeration

Press button Method

How to use continuous operation

1. Hold UP + DOWN to order or cancel

How to view the maximum temperature

1. Press SET + UP until the display shows "HI".
2. Then, the display shows the maximum temperature.
3. Press SET to exit or wait for 5 seconds
4. Press SET + DOWN until the display shows "LO".
5. Then the display will show the lowest temperature.
6. Press SET to exit or wait for 5 seconds

Howtolock

1. Press and hold DEF + SET until the display shows "LDC".

How to unlock a key

1. Press and hold DEF + SET until the display shows "ULO".

How to change the parameters

1. Press and hold SET until the display screen. Show parameters (note C or F will flash)
 2. Press UP or DOWN to select the desired parameter.
 3. Press SET to view the value of the parameter.
 4. Press UP or DOWN to change the parameter.
 5. Press SET to save.
- * Hold SET in the parameter page or wait 30 seconds to exit.

How to enter menu 2

1. Press and hold SET until the display screen. Show Parameters (Menu 1)
2. Press and hold SET + UP until the display shows "M 2"
3. The display screen will display the parameters in the

How to move parameters between Menu 1 and 2

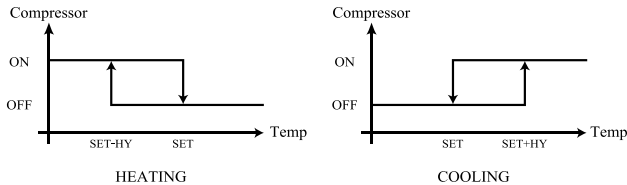
1. Press and hold SET + DOWN to the required parameter in menu
 2. second menu
- * Observe the parameters that are set in menu 1
There will be ':' Shown in menu 2
- * Observe the parameters that are set in menu 2.
There will be no ':' Shown in menu 2

TECHNICAL SPECIFICATION

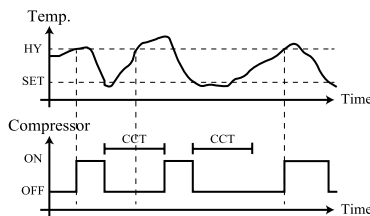
		DEF-01-F1	DEF-01-F2	DEF-01-F3
Power Supply		230VAC ±15%	115VAC ±15%	110-240VAC
Power Consumption		10-24VAC/VDC 2.5 VA		
Voltage Protection		180-260VAC (for Power Supply 230VAC ±15%)	80-140VAC (for Power Supply 115VAC ±15%)	80-260VAC
Voltage Accuracy		±3VAC		
Display		7-Segment Size 0.56 Inch 3 Digit		
Input	Sensor	Room	NTC/PTC (-40 to 130°C)	
		Evaporator	-	NTC/PTC (-40 to 130°C)
		Probe3 (Option)	NTC/PTC (-40 to 130°C)	
		Probe4 (Option)	NTC/PTC (-40 to 130°C)	
Digital Input		Free Voltage Contact		
Input Accuracy		± 2°C		
Output	Relay Output	Compressor	5A 250VAC (NO)	
		Defrost	-	5A 250VAC (NO)
		Fan	-	5A 250VAC (NO)
		Auxiliary	-	5A 250VAC (NO)
Ambient Operation	Temperature	-10 °C to 60 °C		
	Humidity	85 % RH Non-Condensing		
Ambient Storage	Temperature	-20 °C to 80 °C		
	Humidity	85 % RH Non-Condensing		
Protection Degree	Front Protection Rating	IP52		
	Case Protection Rating	IP20		
Installation		Panel Mounting		
Material		ABS-V0		
Size (mm.)		35.25 x 79.6 x 63 mm.		
Weight	90 g. (for Power Supply 10-24VAC/VDC)			
	155 g. (for Power Supply 115VAC ±15%, 230VAC ±15% , 110-240VAC)			

OPERATION
Cooling system

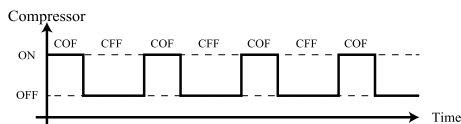
The DEF-01 measures the room temperature to control the COMP. Relay to enable the compressor to run. Until Temperature drops to the set point and returns to normal. When temperature is higher than or equal to Set Point + Hysteresis, if set to Heating, will cause COMP. Relay to work in reverse as shown in Figure 1.


Figure 1 operation of Compressor relay

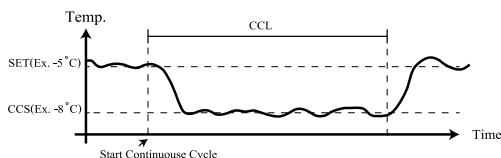
And it can also set the compressor delay (CCT) to prevent it. The compressor runs too often, as shown in Figure 2.


Figure 2 CCT operation

In case Room Probe is defective or defective, DEF-01 can be detected. The compressor will change to COF or CFF (ON Time and OFF Time), as shown in Figure3. or stop working or continuous


Figure 3 COF and CFF intervals

Continuous Cycle Set Point 2 has Set Point (SET) is set. Set Point (CCS) based on time interval, which will only work during the execution time. Suitable for temperature reduction of newly imported products. Freezer or Cooler For the time period set forth (CCL) as Figure 4

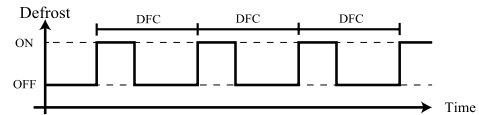

Figure 4 Continuous operation mode

Energy Saving or Energy Saving Mode It works by using Digital Input as a Set Point to Set Point (SET + HES) for free. To adjust the temperature while closing the curtain

Probe 2 (EVAP. Probe) is used to measure the temperature in the Evaporator to display the temperature. And set the defrost temperature

Probe 3 uses the same terminal position as the digital input used to measure the temperature of the Condenser, which commands a high low band alarm

Probe 4 In case of digital input, the Condenser temperature sensor has


Figure 5 Operation of the defrost system by time

Defrosting

Defrosting can be performed by pressing the Digital Input button or by the DFC time interval as shown in Figure 5. During defrosting, the DFT or DFL time can be selected as shown in Figures 6 and 7

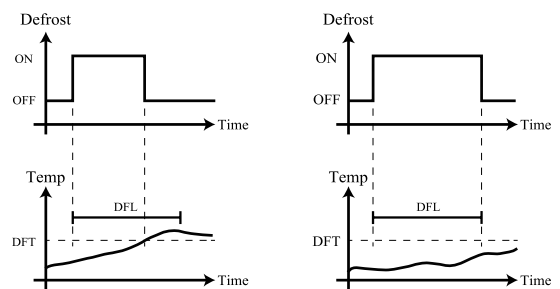
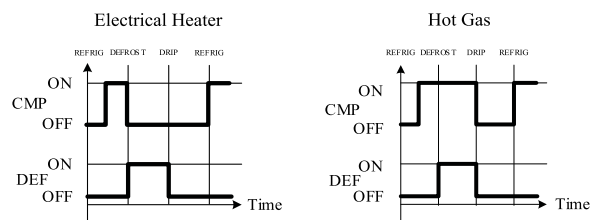

Figure 6 temperature of defrosting by temperature

Figure 7 Ending the defrost function with time

The electric heater or hot gas can be selected as shown in Figure 8.


Figure 8 Defrost pattern

Alarm

an be set to alert when the temperature is high. Or lower than the set value. It can also be delayed before the alert. Alarm has 8 Function as shown in Figure 10

Fan function

Can be set to work And stop by the compressor.Or work all the time. And during the defioat The fan can be programmed to operate or not.

1. C-N = fan working with compressor It will stop working while defrosting.
2. 0-N = fan running all the time. And stop working while defrosting
3. C-Y = The fan will work with the compressor. And work while defrosting
4. 0-Y = fan running all the time

Operation of Digital Input

Can be set to receive input. To use the functions. For example, to indicate the start of the defrost system, the pressure switch or switch to open the door or curtain, etc. Also can set delay before the alert as well

OPERATION

Voltage Protection

The DEF-01 has Over-Under Voltage Protection (except for models 1 D-24 VAC /VDC) to check the voltage supplied to the system. DEF-01 will stop after the set time to protect the compressor or the cooling system is damaged, as shown in Figure 9, when the pressure is higher or lower than the set value and can be used AUX contact for warning

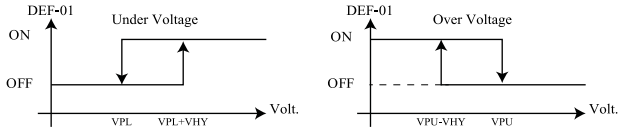
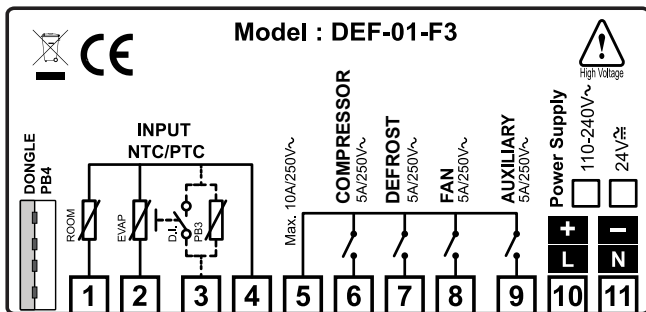
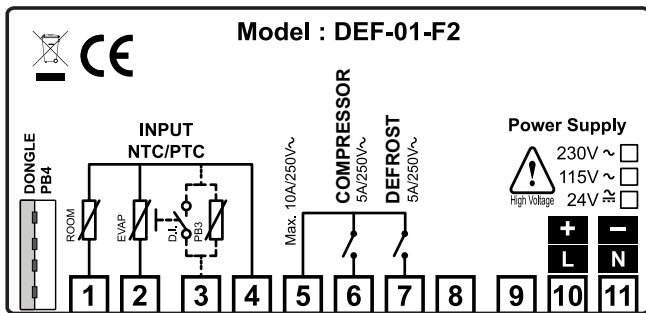
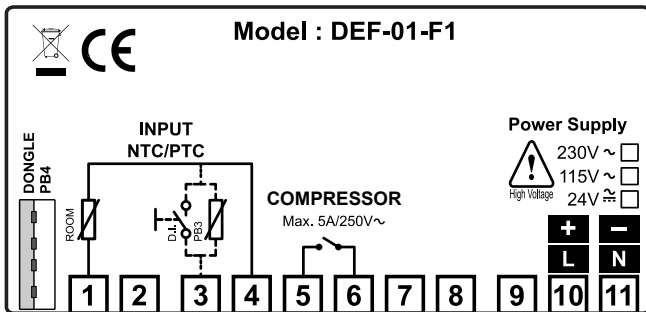


Figure 9 Voltage protection pattern

		DEF-01-F1	DEF-01-F2	DEF-01-F3
Sensor Input	Room Probe	•	•	•
	Evaporator Probe		•	•
	Probe 3 / Digital Input	•	•	•
	*Probe 4	•	•	•
Relay Output	Compressor	•	•	•
	Defrost		•	•
	Fan			•
	Auxiliary			•
Voltage Protection	**Under/Over Voltage	•	•	•
Dongle Module	Copy Parameter	•	•	•
	RS-485	•	•	•

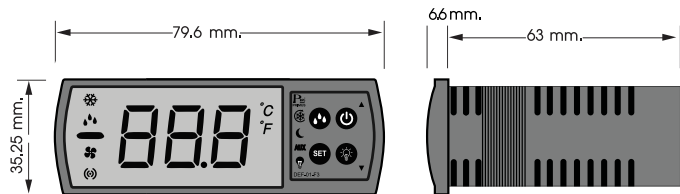
WIRING DIAGRAM



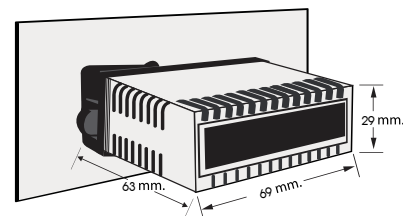
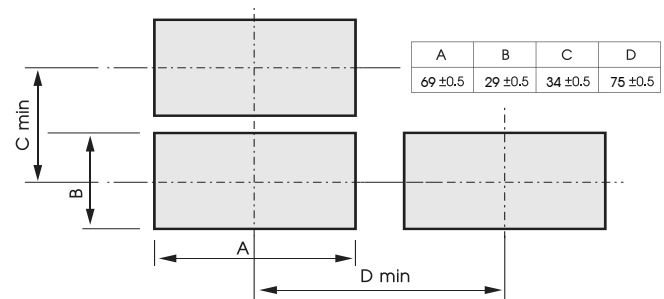
WARNING

- Make sure the correct wiring connection before turning on electricity. Mis-wiring may cause malfunction of the unit and fire.
- Never modify the unit to prevent damage or incident such as malfunction and fire etc.

DIMENSION

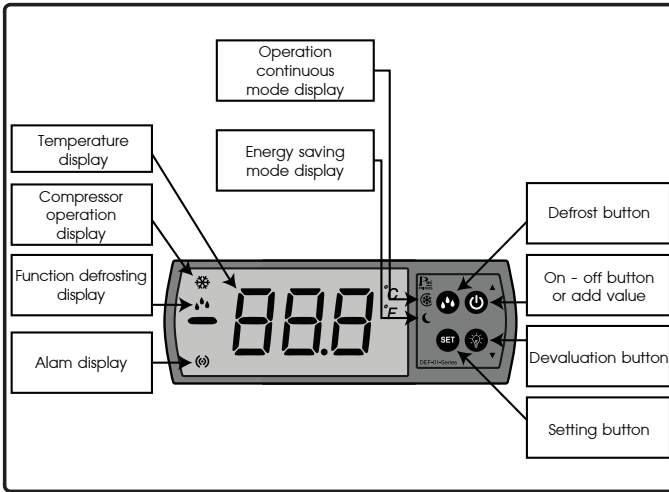


CUTTING PANEL AND INSTALLATION

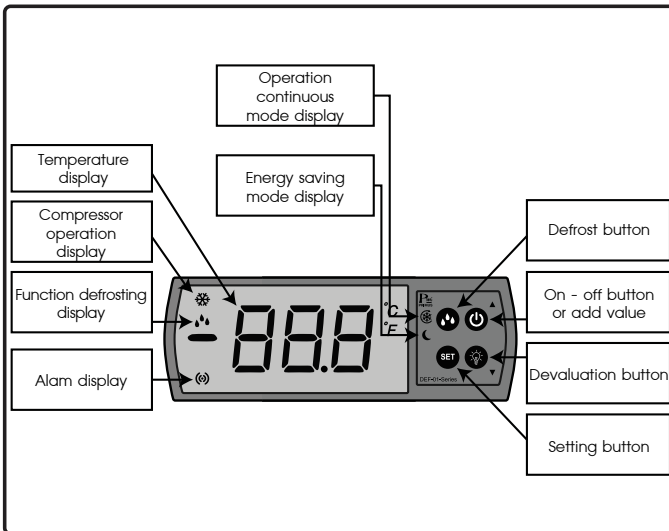


OPERATION DISPLAY

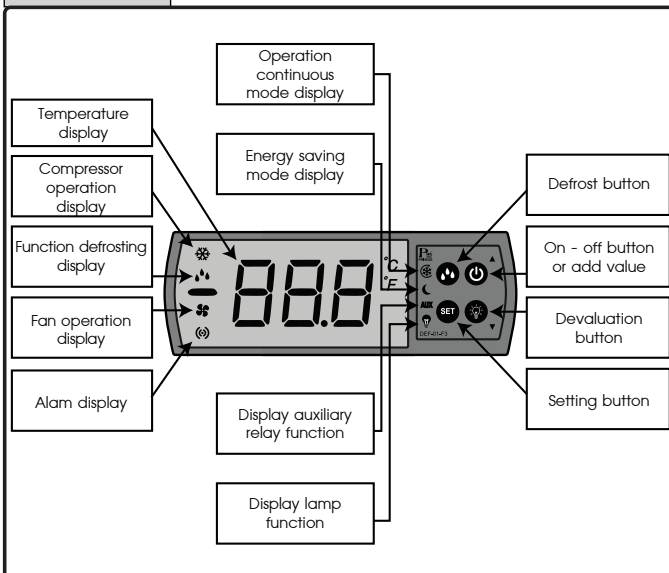
• DEF-01-F1



• DEF-01-F2



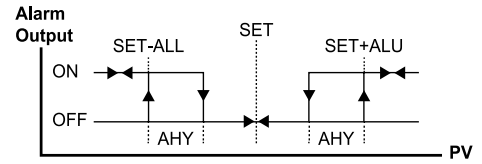
• DEF-01-F3



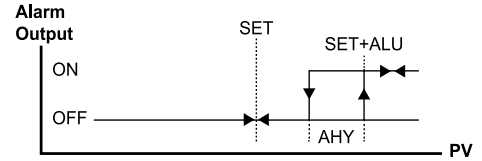
ALARM FUNCTION

Alarm Output : Process value (PV) to be used as Alarm Output.

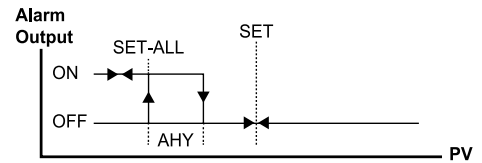
1. Deviation High Low Band Alarm



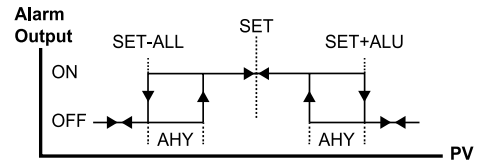
2. Deviation value High Alarm



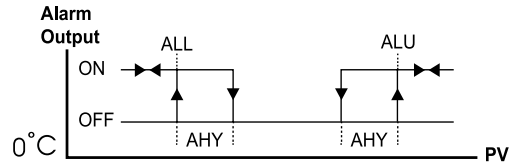
3. Deviation value Low Alarm



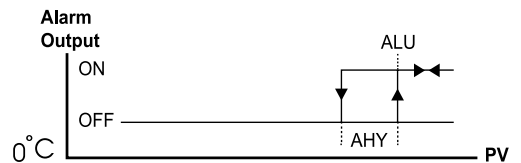
4. Deviation value High Low Range Alarm



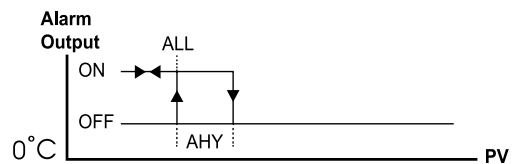
5. Absolute High Low Band Alarm



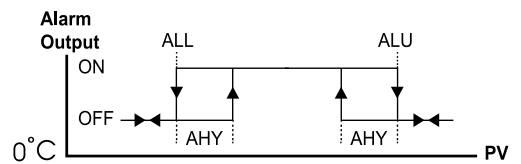
6. Absolute High Alarm



7. Absolute Low Alarm



8. Absolute High Low Range Alarm



ACCESSORIES



• **DEF-01-A1 :**
Dongle Module for Copy Parameter



• **DEF-01-A2 :**
Dongle Module for Copy Parameter With Supply 9 VDC



• **DEF-01-A3 :**
Dongle Module for RS-485 Expansion Module



• **DEF-01-A4 :**
Dongle Module for Expansion Probe

ORDERING CODE

DEF-01- OUTPUT - POWER SUPPLY			
OUTPUT		POWER SUPPLY	
F1	1 Relay Output (Compressor)	24	10-24VAC/VDC
F2	2 Relay Output (Compressor, Defrost)	115	115VAC ±15%
		230	230VAC ±15%

DEF-01- F3 - POWER SUPPLY			
OUTPUT		POWER SUPPLY	
F3	4 Relay Output (Compressor, Defrost, Fan, Auxiliary)	24	10-24VAC/VDC
		230	110-240VAC

*** Free Input Sensor NTC 6x50mm. Wire 1 M. (10K) for		
DEF-01-F1	1 line	
DEF-01-F2	2 line	
DEF-01-F3	2 line	