



DEF-03

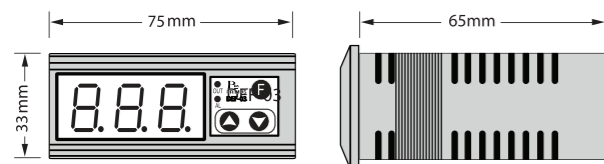
TECHNICAL SPECIFICATION

Type	DEF-03N
Supply voltage	10-30 VAC, VDC
	220VAC ± 5 %
Input quantity	1
Input type	NTC, PTC
Accuracy	±0.5%FS , room temperature @ 25 °C
Input signal convert time	0.25 Sec
Display	7-Segment
Output quantity	1 Out (3A, 250 VAC)
Alarm quantity	1 alarm (3A, 250 VAC)
Operation temperature	0 to + 60 °C
Standard protection	IP40
Control function	Heating/ Cooling
	Hysteresis 0-100°C(ON/OFF)
Decimal	1
Start delay time	0-9.59 min
Hysteresis time = On/OFF delay	0-9.59 min

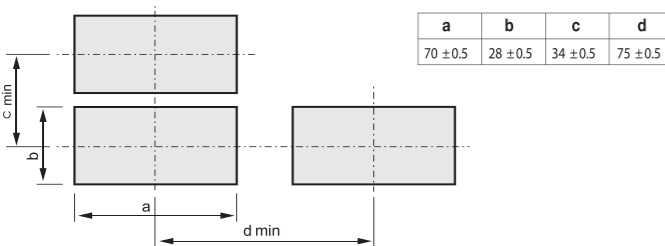
Table 1. Select input sensors and setting range.

Symbol	Input Type	Setting Range/Display Range	
		Non-decimal point	Decimal point
00	PTC 2K @ 25 C	-40~130°C	-19.9~99.9°C
		-40~266 °F	-19.9~99.9°F
01	PTC 10K @ 25 C	-40~130°C	-19.9~99.9°C
		-40~266 °F	-19.9~99.9°F
02	NTC 2K @ 25 C	-40~130°C	-19.9~99.9°C
		-40~266 °F	-19.9~99.9°F
03	NTC 10K @ 25 C	-40~130 °C	-19.9~99.9°C
		-40~266 °F	-19.9~99.9°F

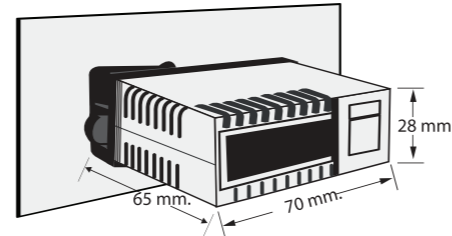
DIMENSION



CUTTING PANEL



INSTALLATION



DESCRIPTION

- DEF - 03N is a digital controller and display Receive input signal from NTC/PTC
- Display with 7 - Segment Red LED 3 digits
- The temperature display area can be seen in Table 1.
- Can set the decimal point 1 position
- Compact size Suitable for installation in front of the cabinet with limited space
- 1 set of Main Relay can choose to work as Control / Alarm has 1 alarm relay (Option model only)
- Hysteresis time with 0-99.59 min
- Relay output can work both Heating and Colling, Hysteresis can be set and make a unit or time value

DESCRIPTION

DEF - 03N device is a temperature controller that is compact and compact. There is a control function of ON / OFF Control, which can choose two types of control, namely heating / cooling function and alarm function which can be selected in one main relay. For Option - B models, there is an Alarm relay for additional use from Main Relay

Operation control with ON / OFF control

The ON / OFF Control operation of DEF - 02N can be selected. There are two types of control : Heating / Cooling. In addition, ON / OFF Control can also select control mode in two ways:

1. Hysteresis Mode is to set the distance of ON and OFF in degrees C or F, can be defined from 0 - 100. The functions in this function are shown in Figure 1.
2. Time Mode uses Time ON and Time OFF delay. At the point of set point Value in minutes (min), can be set from 00:00 to 99:59 minutes, with two digits in front of the decimal point is the minute value set to 0 and 99, and two digits after the decimal point is Seconds can be set from 00 to 59. The functions in this function are shown in Figure 2

In addition, the control can also set start delay time with units. In minutes to delay the operation of Main Relay and Relay Alarm during the first power - on time To prevent the ON / OFF Actuator too fast, such as In the event of a sudden shutdown or a power failure, the Actuator may be turned ON / OFF suddenly, causing the compressor or heater to be damaged

Start Delay Time can be set from 00.01 to 99.59 minutes, with double digit on the decimal point is the minute value set to 0 and 99, and the two digits after the decimal point are seconds, can be set from 00 to 59, in the case of digits, minutes greater than 0 and 01 to 59, when the minute digit is 0

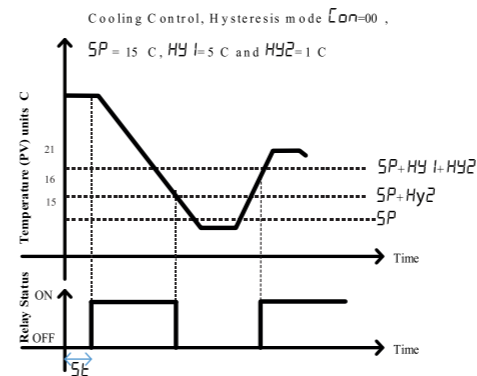
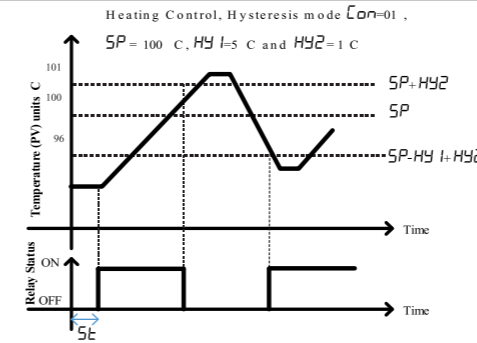


Figure 1 show operation of ON / OFF Controller in Hysteresis mode

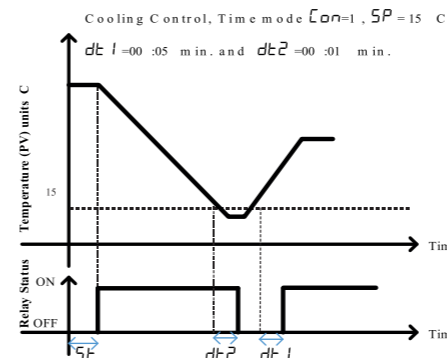
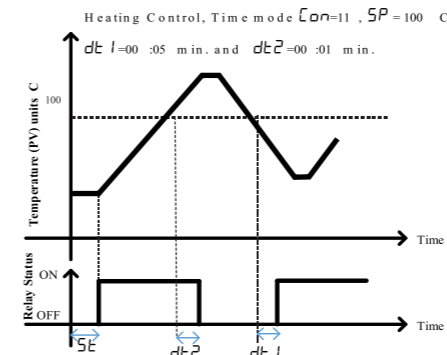


Figure 2 show operation of ON / OFF Controller using time (time) as hysteresis in minutes

Alarm system operation

Alarm system operation user can select the working pattern total of 8 forms, showing the work as shown in Figure 3 and can be classified into 2 types of work:

1. Deviation in which the value used to judge the operation of the relay will run according to or relative to the value of setpoint value , divided into 4 types: High - Low alarm, High alarm, low alarm and High-Low range alarm. For example, set SP = 100 C, select High alarm and High alarm limit made

with 10 will cause the Alarm Relay to run when the temperature is higher than 110 C. If the user has changed the SP value to 120 C, the alarm relay will work when the temperature is higher than 130 C details see table alarm function

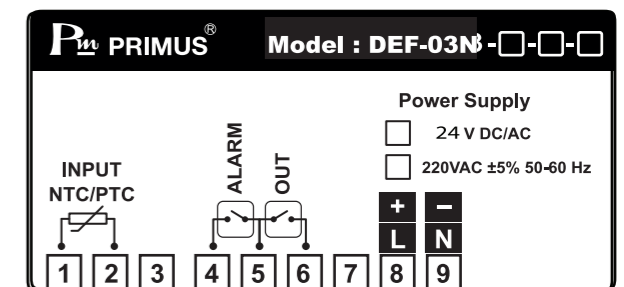
2. Absolute value used to judge the relay operation is separated into independent with set point value or it can be said that it is the setting of the temperature of the relay operation without the SP value calculated by dividing into 4 types: High-Low alarm, High alarm, low alarm and High - Low range alarm. For example, setting SP = 100 C, selecting High alarm and alarm with high limit made with 110, will cause Alarm relay to work when the temperature is higher than 110 C. The work has changed the SP value to 120 C, so the Alarm relay will still work at 110 as before details, see the topic alarm output

Function selection of Main Relay and Alarm Relay operation

Since the relay of the DEF - 03N is able to choose between ON / OFF control or alarm Function for Main Relay, the relay function can be selected as follows:

1. DEF - 03N - A has only one main relay, allowing to select work can be the absolute output or alarm function of 4 types: Absolute High - Low alarm, Absolute High alarm, Absolute low alarm and Absolute High - Low range alarm
2. DEF - 03N - A - B has Main Relay and Alarm Relay can be select operation
 - 2.1 In the event that Main Relay is an Output Function, can select heat control or cooling can cause the alarm relay to choose the operation . There are 8 types of deviation and absolute alarm according to table alarm function
 - 2.2 In the case of Main Relay as Alarm Function, the Main Relay And Alarm Relay can select all 4 functions, namely Absolute alarm according to Table Alarm Function

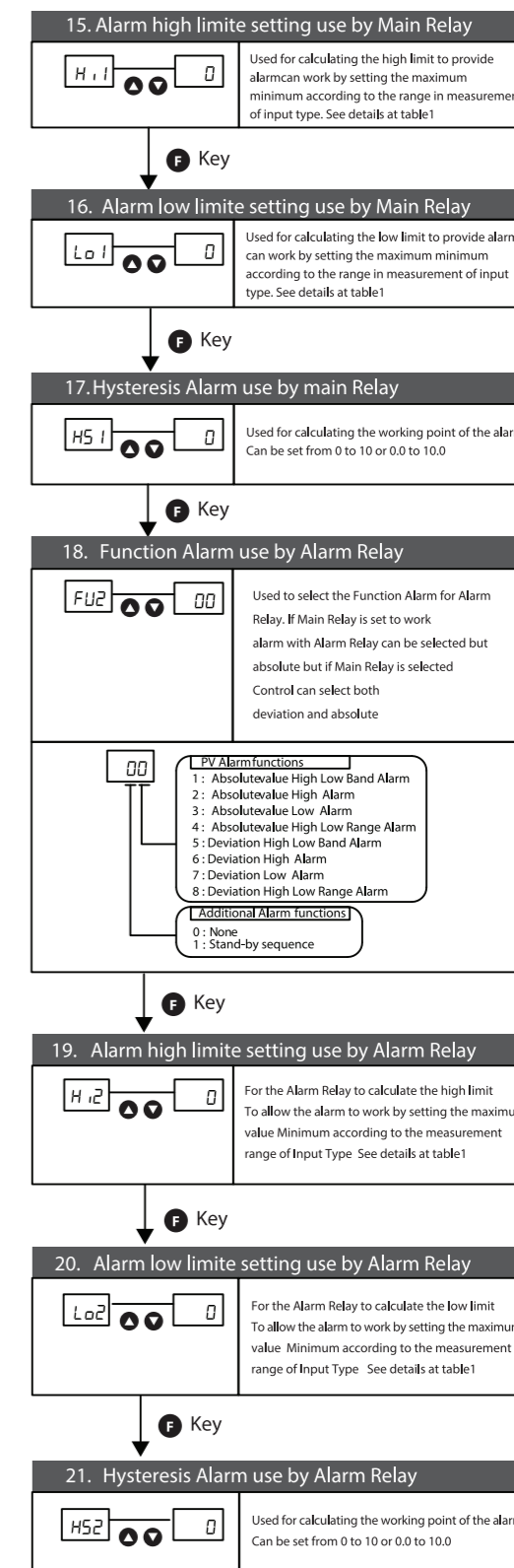
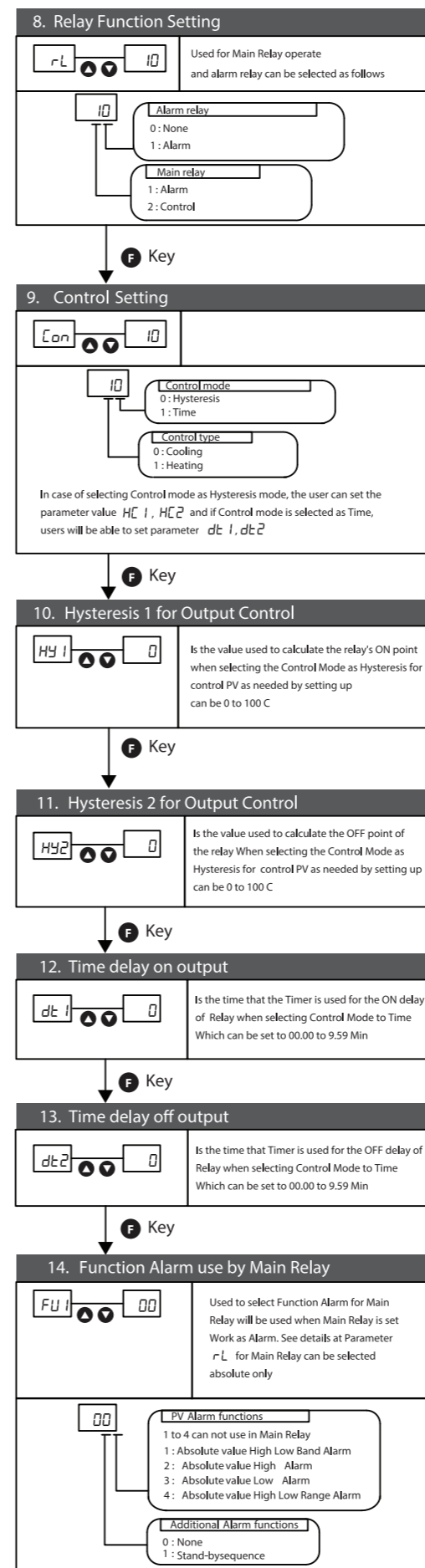
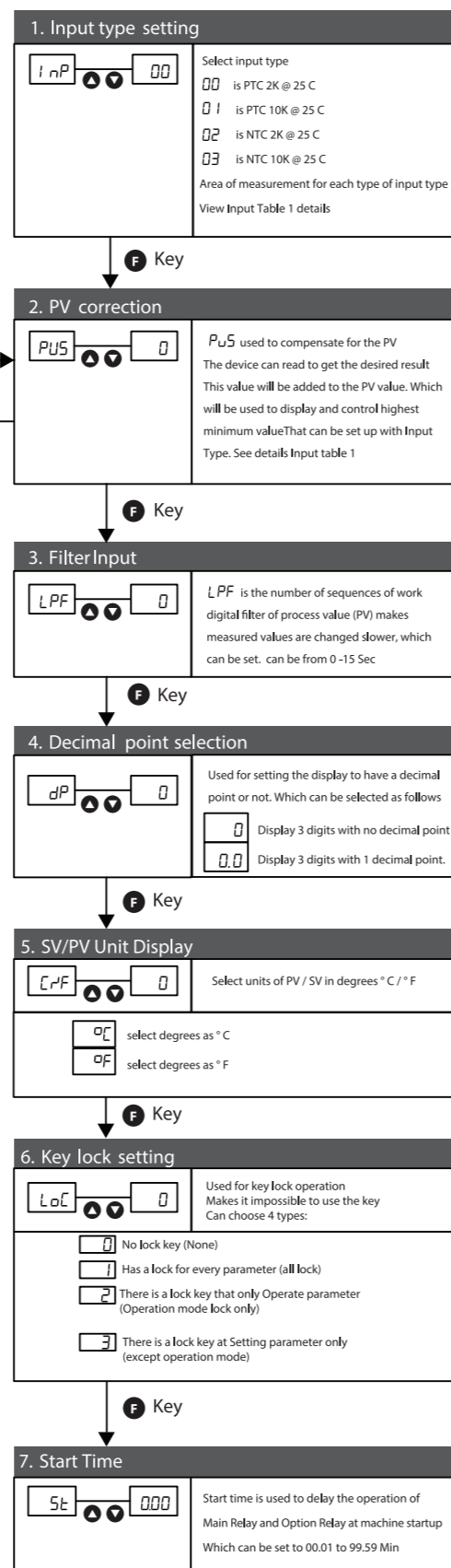
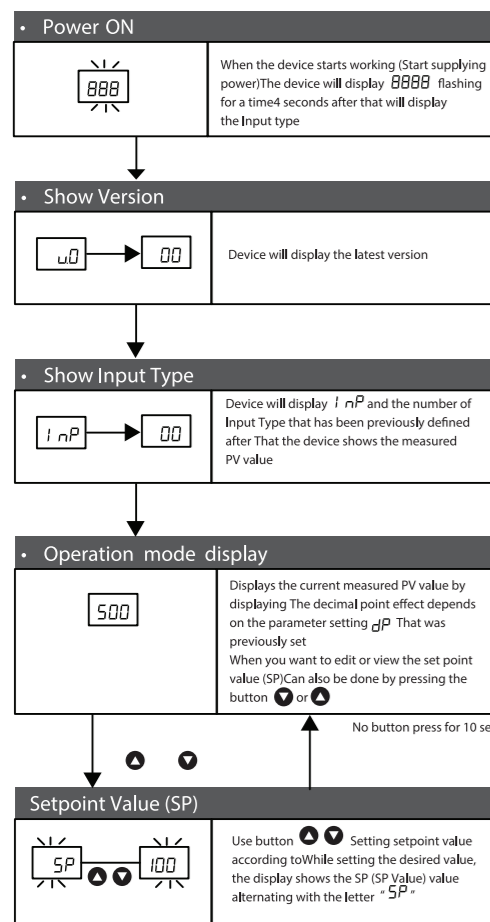
WIRING DIAGRAM



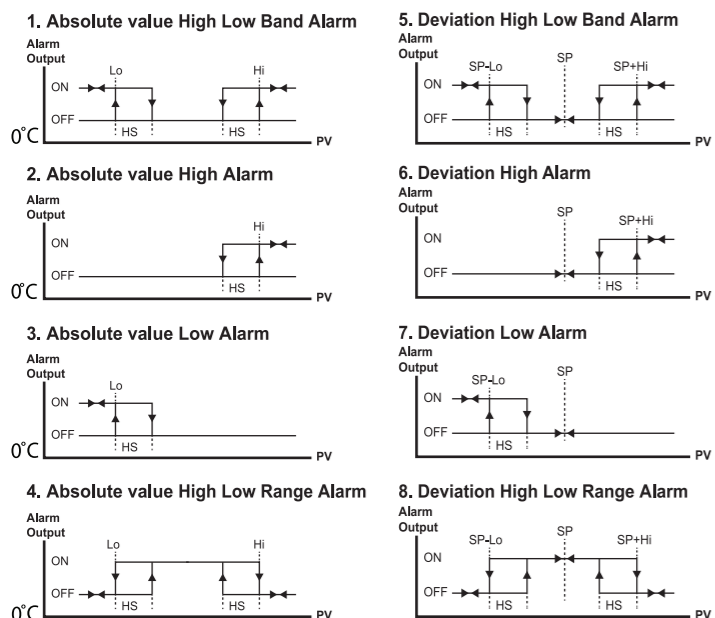
WARNING
 • Make sure the correct wiring connection before turning on electricity. Mis-wiring may cause malfunction of the unit and fire.
 • Never modify the unit to prevent damage or incident such as malfunction and fire etc.

ORDERING CODE

DEF - 03N - [A] - [B] - []	
CODE	Supply
24	10-30 VAC/VDC
220	220 VAC ±10% 50-60 Hz
CODE	OPTION
B	Relay / Alarm
CODE	Output
A	1 Output Relay/Alarm

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

Stand-by sequence : After starting operation of step, alarm output does not turn on unless the process value reach the value of OFF position of alarm output.



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