

# HD6

## INSTRUCTION MANUAL

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Thank you for purchasing Hanyoung Nux products. Please read the instruction manual carefully before using this product, and use the product correctly. Also, please keep this instruction manual where you can view it any time.

MA0608KE210429

### Safety information

Please read the safety information carefully before the use, and use the product correctly. The alerts declared in the manual are classified into 'DANGER', 'WARNING' and 'CAUTION' based on its importance

	<b>DANGER</b>	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury
	<b>WARNING</b>	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
	<b>CAUTION</b>	Indicates a potentially hazardous situation which, if not avoided, may result in minor injury or properties damage

#### DANGER

- The electric shock may occur in the input/output terminal so please never let your body and/or conductive substance to be contacted by the input/output terminal.

#### WARNING

- Failure or abnormality of this product may lead to a serious accident. In this case, install an appropriate protection circuit outside.
- In case of use other than the method specified by the manufacturer, loss may occur.
- To prevent damage and breakdown of this device, supply the power voltage appropriate to the rating.
- There is a risk of electric shock, so use this product while it is installed on the panel while it is energized.

#### CAUTION

- The contents of this manual are subject to change without prior notice or notice.
- Check whether there is any damage or abnormality in the product during transportation.
- Use in a place where vibration or impact is not applied directly to the body.
- Use in a place free from water, oil, chemicals, steam, dust, salt, iron, etc.
- Avoid places where inductive obstacles are large and static electricity and magnetic noise are generated.
- The characters on the display may not be visible in outdoor sunlight or in a brightly lit indoor environment.
- For thermocouple input, use a prescribed compensation wire.  
(In case of using general conductor, temperature error occurs.)
- In the case of RTD input, use one with a small lead wire resistance and no difference in resistance between three wires.
- Separate the input signal line and the output signal line from each other. If separation is not possible, use a shielded line for the input signal line.
- Use a non-grounded sensor for thermocouples.  
(If a ground sensor is used, the device may malfunction due to a short circuit.)
- If there is a lot of noise from the power, it is recommended to use an insulation transformer and a noise filter. The noise filter must be attached to a grounded panel, etc., and the wiring between the noise filter output side and the power supply terminal of the instrument must be short.
- When mounting this device to a panel, use a switch or circuit breaker approved by IEC60947-1 or IEC60947-3.
- The warranty organization for this device including accessories is 1 year under normal use.
- When the power is turned on, a preparation period for contact output is required. When used as a signal for an external interlock circuit, etc., use a delay relay together.
- Before using the temperature controller, there may be a deviation from the measured value (PV) of the temperature controller and the actual temperature, so please use it after correcting the temperature deviation.

### Suffix code

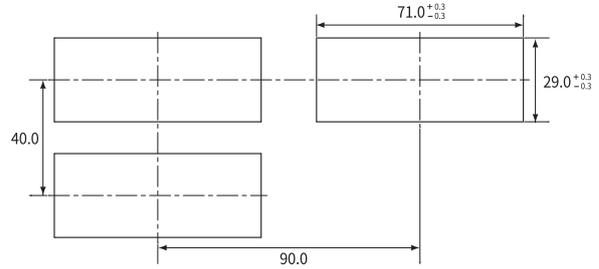
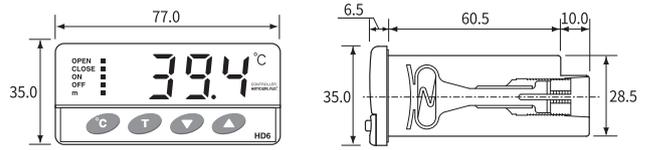
Model	Code				Description
HD6-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Green house open / close motor control only
Control type	F				ON / OFF Control
Input	N				TH-540N(103ET)
Control output	M				Relay
Power supply voltage	P4				100 ~ 240 V a.c.
Option	0				None sensor
	2				2 m Incloud sensor
	3				3 m Incloud sensor
	5				5 m Incloud sensor
	10				10 m Incloud sensor
	15				15 m Incloud sensor
	20				20 m Incloud sensor

### Specification

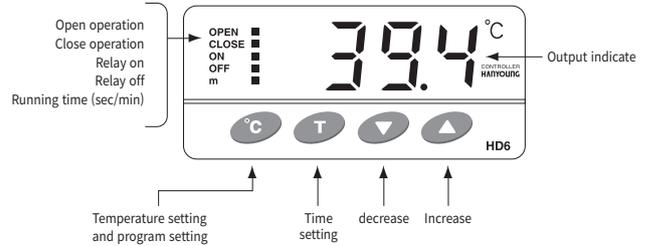
Power supply voltage	100 - 240 V a.c. 50 - 60 Hz
Power consumption	2 VA max.
Input	TH-540N (103ET) : -40.0 ~ 90.0 °C, 2 m ~ 20 m)
Indicate accuracy	±1 % of FS +1 Digit
Control output (Relay)	OPEN OUT : 250 V a.c. 5 A , CLOSE OUT : 250 V a.c. 5 A
Control operation	ON/OFF control (Control by temperature and time)
Setting method	Digital method by FND and button
Ambient Temperature	0 ~ 50 °C
Ambient Humidity	85 % R.H. max.
Weight	116 g

### Dimension and panel cutout

[ Unit : mm ]



### Part name

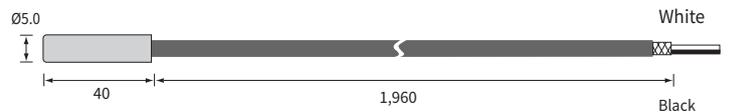


### Sensor (NTC)

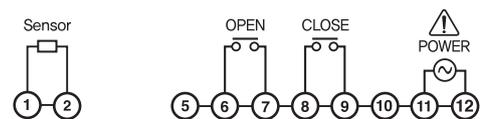
• HD6 uses only this sensor.

Name	Sensory type	Range(°C)	Accuracy	Remark
TH540N	Thermistor	-40.0 ~ 90.0	±1.5 °C	Max ± 3.5 °C temperature deviation may be happen (± 1.5 °C sensor deviation & ± 2 °C controller deviation)

※ Caution : Extension of sensor length or modification will cause malfunction.  
※ When sensor length is based on 2m



### Connection diagram



### Custom Mode

#### Key operation function description

- : Keys for temperature setting and program setting
- : KEY for time setting
- , : Increase/decrease key setting for setting value change
- Press , for 3 seconds to save the changed data.
- If there is no key input, the mode automatically exits after 10 seconds.

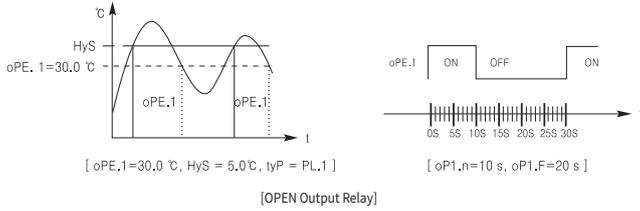
# Control method for temperature

## Key operation function description

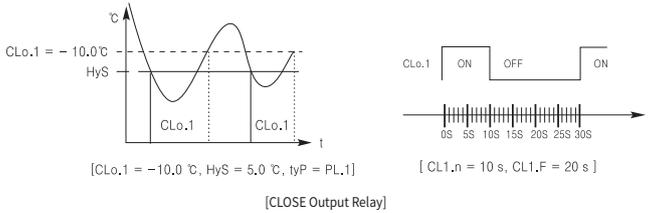
- [2.tyP] { "PL.2": 1, 2nd stage setting and 1, 2nd stage control (control 2nd stage priority)  
"PL.1": 1st stage setup and 1st stage control only.

### 2.tyP = PL.1 (Stage 1 control operation)

**Open 1 operation**  
When the current temperature is higher than the set temperature (oPE.1), the OPEN output relay is operated. The output relay is "ON/OFF" according to the ON/OFF time (oP1.n/oP1.F) setting of Open1 operation.

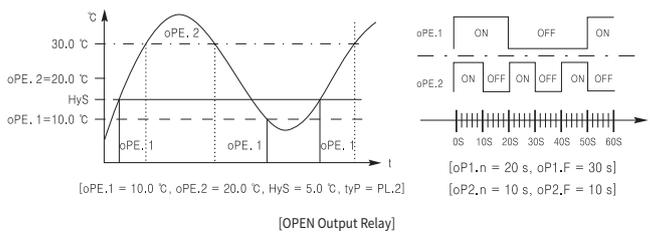


**Closed 1 operation**  
If the current temperature is lower than the set temperature (CLo.1), the CLOSE output relay is operated, and the output relay is "ON / OFF" according to the ON/OFF time (CL1.n / CL1.F) of the close 1 operation.

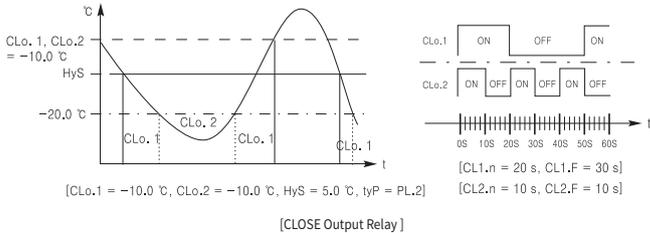


### 2.tyP = PL.2 (Stage 2 control operation)

**Open 2 operation** (However, the operation priority is higher than Open 2 operation.)  
If the current temperature is higher than the set temperature (oPE.1 + oPE.2), the OPEN output relay operates. The output relay is "ON / OFF" according to the ON / OFF time (oP2.n / oP2.F) of open 2 operation.



**Close 2 operation** (However, the operation priority is higher than the closed 2 action.)  
If the current temperature is lower than the set temperature (CLo.1 + CLo.2), the CLOSE output relay operates. The output relay turns "ON / OFF" according to the ON/OFF time (CL2.n/CL2.F) of the closed 2 operation.



## Temperature setting

Current temperature

⊕ C

oPE.1  
Default: 30.0 °C  
Open 1 operation temperature setting  
(Set temperature (oPE.1) < present temperature (PV))  
· Operation: Operates when the current temperature is higher than the set temperature (oPE.1)  
· Setting value change (⬇️, ⬆️): -40.0 ~ 90.0 °C

CLo.1  
Default: 10.0 °C  
Closed 1 operating temperature setting  
(Set temperature (CLo.1) < present temperature (PV))  
· Operation: Operates when the current temperature is lower than the set temperature (CLo.1)  
· Setting value change (⬇️, ⬆️): -40.0 ~ 90.0 °C

oPE.2  
Default: 10.0 °C  
Open 2 operation temperature setting  
(Set temperature (oPE.1+oPE.2) < present temperature (PV))  
· Operation: Operates when the current temperature is higher than the set temperature (oPE.1 + oPE.2)  
· Setting value change (⬇️, ⬆️): 1.0 ~ 130.0 °C

CLo.2  
Default: -10.0 °C  
Closed 2 operating temperature setting  
(Set temperature (CLo.1 + CLo.2) > Current temperature (PV))  
· Operation: Operates when the current temperature is lower than the set temperature (CLo.1 + CLo.2)  
· Setting value change (⬇️, ⬆️): -1.0 ~ -99.0 °C

Save temperature setting value

⊕ C

Current temperature

⊗ In the program setting mode, "2." Displayed only when tyP = PL.2" is set.

## Time setting

Current temperature

⊕ T

oP1n  
Default: 10 (Sec)  
Open 1 operation ON time  
· Operation: oPE.1 output ON time  
· Setting value change (⬇️, ⬆️): 1 ~ 999

oP1F  
Default: 1 (Min)  
Open 1 operation OFF time  
· Operation: OFF time after output ON time of oPE.1  
· Setting value change (⬇️, ⬆️): 1 ~ 999

CL1n  
Default: 10 (Sec)  
Closing 1 operation ON time  
· Operation: CLo.1 output ON time  
· Setting value change (⬇️, ⬆️): 1 ~ 999

CL1F  
Default: 1 (Min)  
Closing 1 operation OFF time  
· Operation: CLo.1 output ON time and OFF time  
· Setting value change (⬇️, ⬆️): 1 ~ 999

oP2n  
Open 2 operation ON time  
· Operation: oPE.2 output ON time  
· Setting value change (⬇️, ⬆️): 1 ~ 999  
Default: 10 (Sec)

oP2F  
Open 2 operation OFF time  
· Operation: OFF time after output ON time of oPE.2  
· Setting value change (⬇️, ⬆️): 1 ~ 999  
Default: (1 Min)

CL2n  
Closed 2 operation ON time  
· Operation: CLo.2 output ON time  
· Setting value change (⬇️, ⬆️): 1 ~ 999  
Default: (10 Sec)

CL2F  
Closed 2 operation OFF time  
· Operation: CLo.2 output ON time and OFF time  
· Setting value change (⬇️, ⬆️): 1 ~ 999  
Default: (1 Min)

SAVE  
Save time setting value

Current temperature

⊗ Displayed only when "2.tyP=PL.2" is set in the program setting mode.

## Program setting

Current temperature

⊕ C

⊗ Press for more than 3 seconds. (Enter the mode or save the set value)

lLoC  
Setting data lock function  
⬆️ on (lock): locks all set values in program setting mode  
⬇️ oFF (Release): Unlock all set values in program setting mode

2tyP  
Control method selection (1st stage control operation or 2nd stage control operation)  
⬆️ "PL.2": 1st and 2nd stage setting and 1st and 2nd stage control (control 2nd stage priority)  
⬇️ "PL.1": 1st stage setting and 1st stage control only

3b1A  
Measurement value correction setting  
⬆️ Temperature compensation for sensor line length or error occurrence (-10.0 ~ 10.0 °C)

4HYS  
Hysteresis  
⬆️ Constant deviation is required during ON/OFF operation (0.1 ~ 25.0 °C)

5onS  
Select output ON time unit  
⬆️ Sec: Seconds (display lamp m: OFF)  
⬇️ Min: minute unit (display lamp m: ON)

6oFS  
Select output OFF time unit  
⬆️ Sec: Seconds (display lamp m: OFF)  
⬇️ Min: minute unit (display lamp m: ON)

nIn  
Default: Min