

NEOS-HSD200

User Manual



Revision 1.00

Revision Information

Release of 「NEOS-HSD200 User Manual」 is as below.

Revision	Date	Description
1.00	2022.01.01	Initial Production

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1. Precautions

'Safety Precautions' contains important safety-related information, so be sure to follow them. Safety precautions are divided into Danger, Warning, and Caution.



Danger :

- There is a risk of electric shock at the input/output terminals, so make sure that your body and energized objects never come into contact with it.



Warning :

- In order to prevent damage and malfunction of this device, supply voltage that is suitable for the rating.
- To prevent electric shock and equipment failure, do not turn on the power until all wiring is finished.
- Never disassemble, process, improve, or repair this device. There is a risk of abnormal operation, electric shock or fire.
- When detaching this device, turn off the power before taking action. It may cause electric shock, malfunction or malfunction.
- As there is a risk of electric shock, use this device while it is energized and installed on the panel.



Caution :

- The contents of the user manual are subject to change without prior notice or notice.
- When cleaning, do not use water or organic solvents, and use a dry, dry towel to clean.
- Do not use in places with flammable gas, explosive gas, moisture, direct sunlight, vibration, or impact.
- Do not allow dust or wiring debris to enter the inside of this device.
- Do not spray a lot of smoke spray from too close (20cm or less). The liquid component of the smoke spray may cause malfunction or malfunction.

2. Product Overview

2.1. Product Features

2.1.1. NEOS-HSD200 Product Advantages

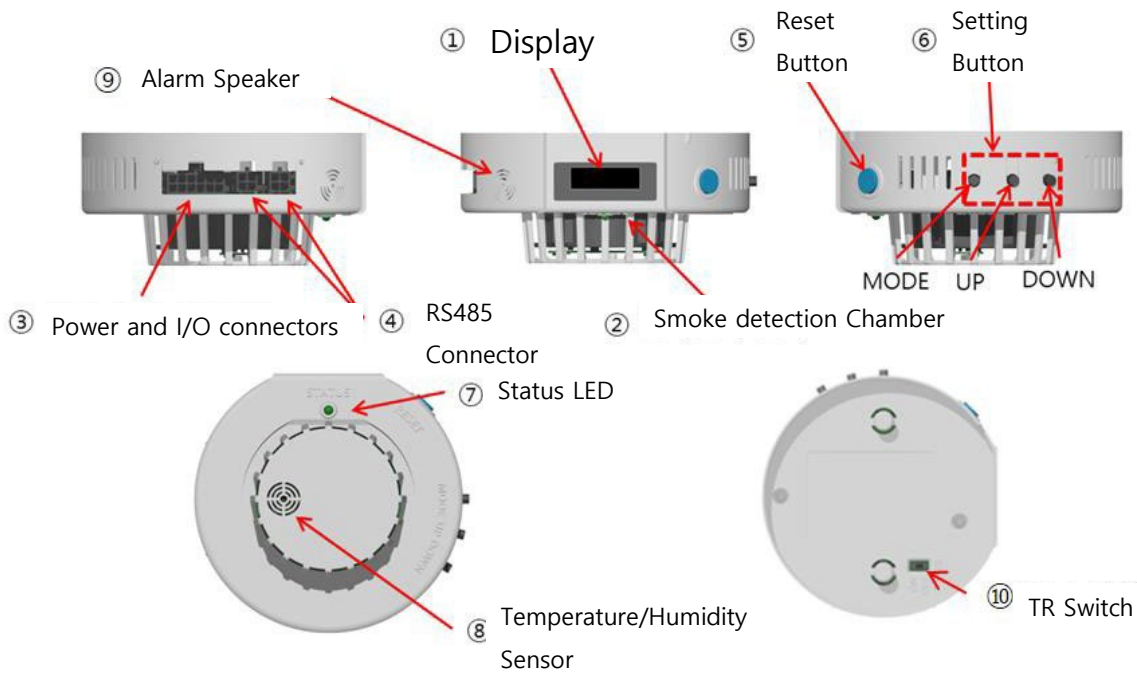
- 1) Blocking the source of malfunction due to noise generated in an industrial environment through I/O and power isolation
- 2) Measure temperature and humidity and generate an alarm after detecting smoke in case of fire
- 3) Display real-time information on temperature and humidity information on the front display of the sensor
- 4) Improved temperature/humidity measurement accuracy by applying RHT digital sensor
- 5) Provides RS485 communication interface function
 - Multiple heat and smoke detectors (up to 32) can be connected to one channel at the same time to enable data communication with the upper PLC
 - Real-time temperature and humidity information can be collected from the upper PLC, and set values such as temperature warning and alarm standard values can be changed
 - Dual RS485 communication port provides convenience for communication cable wiring
 - Convenience of communication interface provided by manufacturer itself and Modbus RTU protocol
 - RS485 communication UI program for monitoring and setting is provided separately
- 6) Provides 4 channel output signal
 - Running, smoke detection, temperature warning, temperature alarm output
 - Smoke detection and temperature alarm are relay contact outputs, and both NO and NC are provided to improve the reliability of the signal and realize the redundancy function
 - Heartbeat function provided for running signal (when using Heartbeat function)
- 7) Self-Reset and Setting button provided
 - Self-reset is possible without external wiring, and internal setting values can be changed using the front display and setting buttons (MODE, UP, DOWN).
 - External Reset DI input provided by installing a separate button
- 8) Buzzer function provided
 - Built-in buzzer function that automatically generates an alarm sound for smoke

detection and temperature alarm

2.1.2. Expected effect when using NEOS-HSD200 product

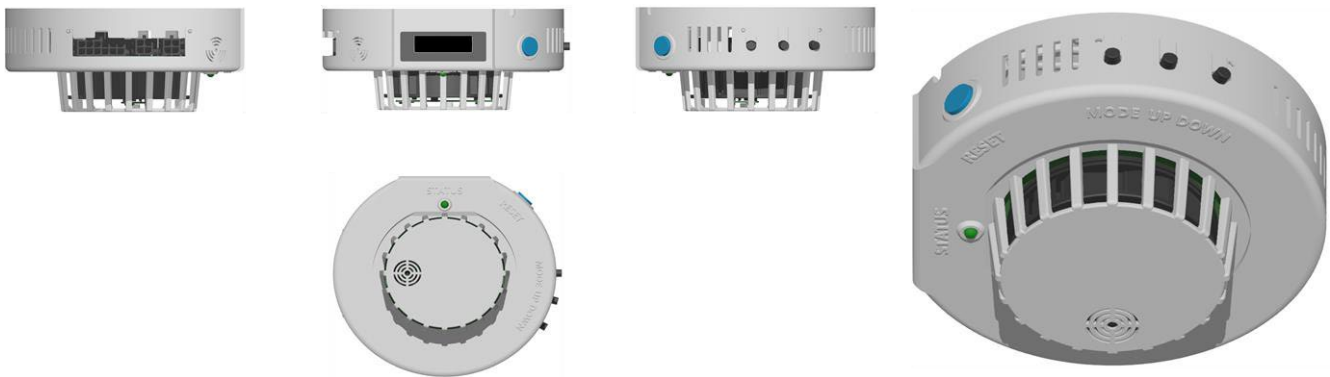
- 1) Through one heat and smoke detector, up to five functions are possible in one product, so it is expected to have a drastic cost reduction effect
- 2) In the case of the existing case, when designing the entire length of the panel, the temperature probe, temperature controller, smoke detector, self-reset, and buzzer are separately arranged and connected
- 3) In the case of the product, it is expected to shorten the working time and reduce the cost because it performs 5 functions in one device

2.2. Name for Each Parts



No.	Name	Description	Remarks
1	Display	Detector status and temperature, humidity display	
2	Smoke detection Chamber	Smoke detection	
3	Power and I/O connectors	Power 24VDC, NPN I/O, RELAY output	
4	RS485 connector	RS485 communication	
5	Reset button	Smoke detection and temperature alarm reset	
6	Setting Button	Change detector settings	
7	Status LED	Detector status indication	
8	Temperature/Humidity sensor	Temperature and humidity sensor	
9	Alarm speaker	Alarm sound according to alarm occurrence	
10	TR switch	RS485 communication terminating resistance setting (ON/OFF)	

2.3. Product Specification

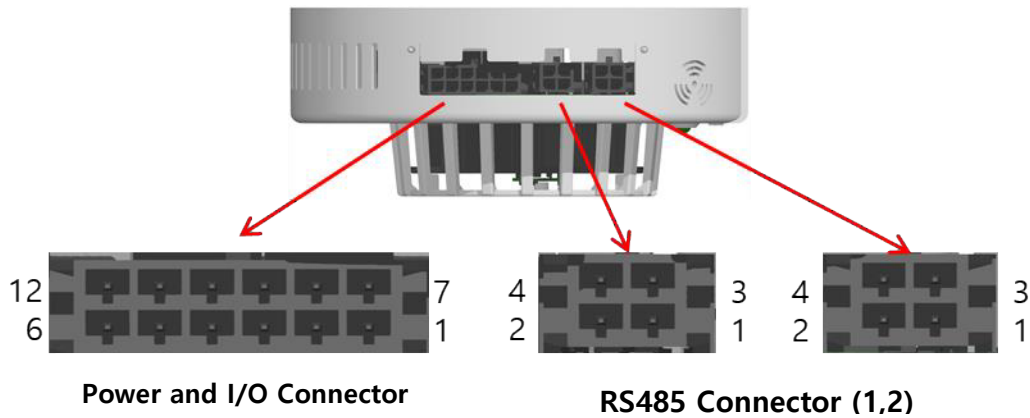


NEOS-HSD200 Specification(s)

Smoke detection method	Scattering from infrared
Temperature /Humidity detection method	Radiant Heat Temperature
Measuring range	Smoke : \geq Photosensitive factor 5~15% (Level-1: \geq 5%, Level-2: \geq 10%, Level-3: \geq 15%) Temp. : -40°C ~ 125°C Humi. : 0 ~ 100%RH
Resolution	Temp. : 0.1°C / Humi. : 0.1%RH
Accuracy	Temp. : \pm 0.4°C / Humi. : \pm 3.0%RH
Operating temperature	-20°C ~ 70°C, 0 ~ 95%RH (Non-condensing)
Storage temperature	-30°C ~ 85°C, 0 ~ 95%RH (Non-condensing)
Input power	DC24V, 100mA
External connection	DI(1ch), DO(2ch) & RELAY(2ch) & RS485
Output method	NPN Open Collector & RELAY & RS485 & Buzzer
Maximum output	NPN : DC30V 50mA / RELAY : DC60V 1A / Buzzer : 85dB
Display	0.91" LCD
LED	3 color LED(Green, Red, Orange)
Dimensions	Φ 96mm x 43.5mm
Weight	106g

2.4. Signal Wiring

2.4.1. Connector



- Power and I/O connectors

No.	Name	Description	Remarks
1	DOUT2	Smoke detection RLY (N.O)	
2	DOUT4	Temperature warning	
3	DOUT6	Temperature alarm RLY (N.C)	
4	IN-COM	Remote rest Common	
5	DOUT- COM	NPN output Common	
6	N 24V	Power GND	
7	DOUT1	Running	
8	DOUT3	Smoke detection RLY (N.C)	
9	DOUT5	Temperature alarm RLY (N.O)	
10	D IN1	Remote reset input	
11	RLY-COM	Relay Common	
12	P 24V	Power 24V +	

- RS485 Connector (1,2)

No.	Name	Description	Remarks
1	RS485 – B	RS485 – TRXD -	
2	RS485 - GND	RS485 - GND	
3	RS485 – A	RS485 – TRXD +	
4	FG	Frame Ground	

2.4.2. Cable Wiring

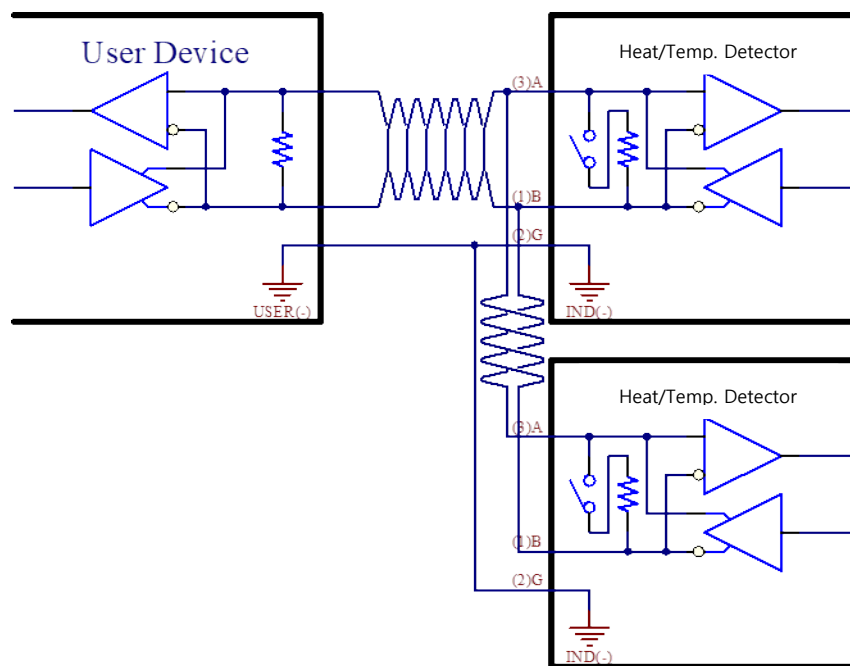
1) RS485 Communication Wiring

Bind the non-inversion of the transmit and receive signals to A and connect the inversion to B.

The terminating resistance of the module can be selected as 120 Ω and no power is supplied.

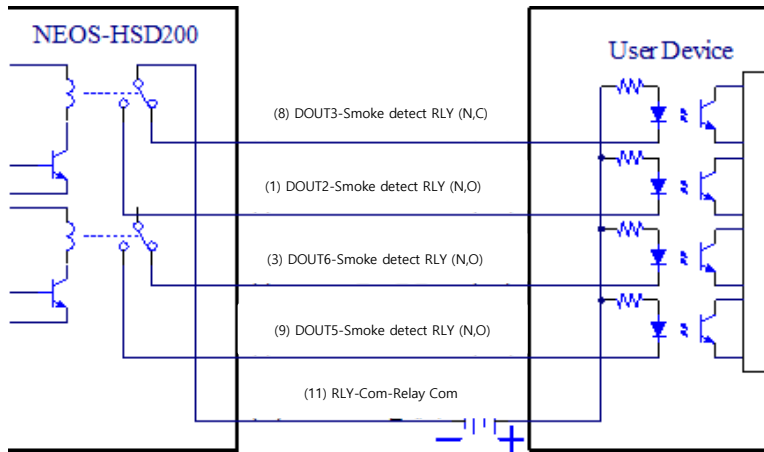
It is recommended to use the same pair of cables as the UL2919 series.

It supports connection of up to 32 units.



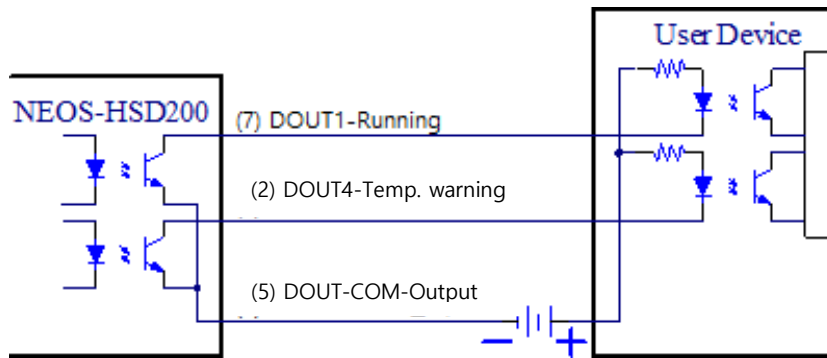
2) Relay Output

Since it is an output of 1A1B contact type, the host controller is used regardless of the input direction. Based on the COM terminal, N.C.1A1B is a normally closed contact and N.O. is a normally open contact. When an output occurs, RLY operates, and the COM terminal is connected to the terminal of N.O. away from N.C.



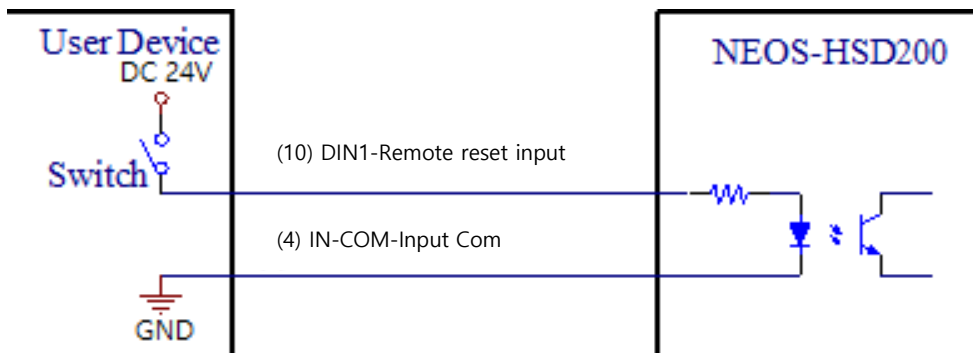
3) NPN Type Digital Output

As an NPN type digital output signal, it provides the running status of the product and the output of the temperature warning signal.



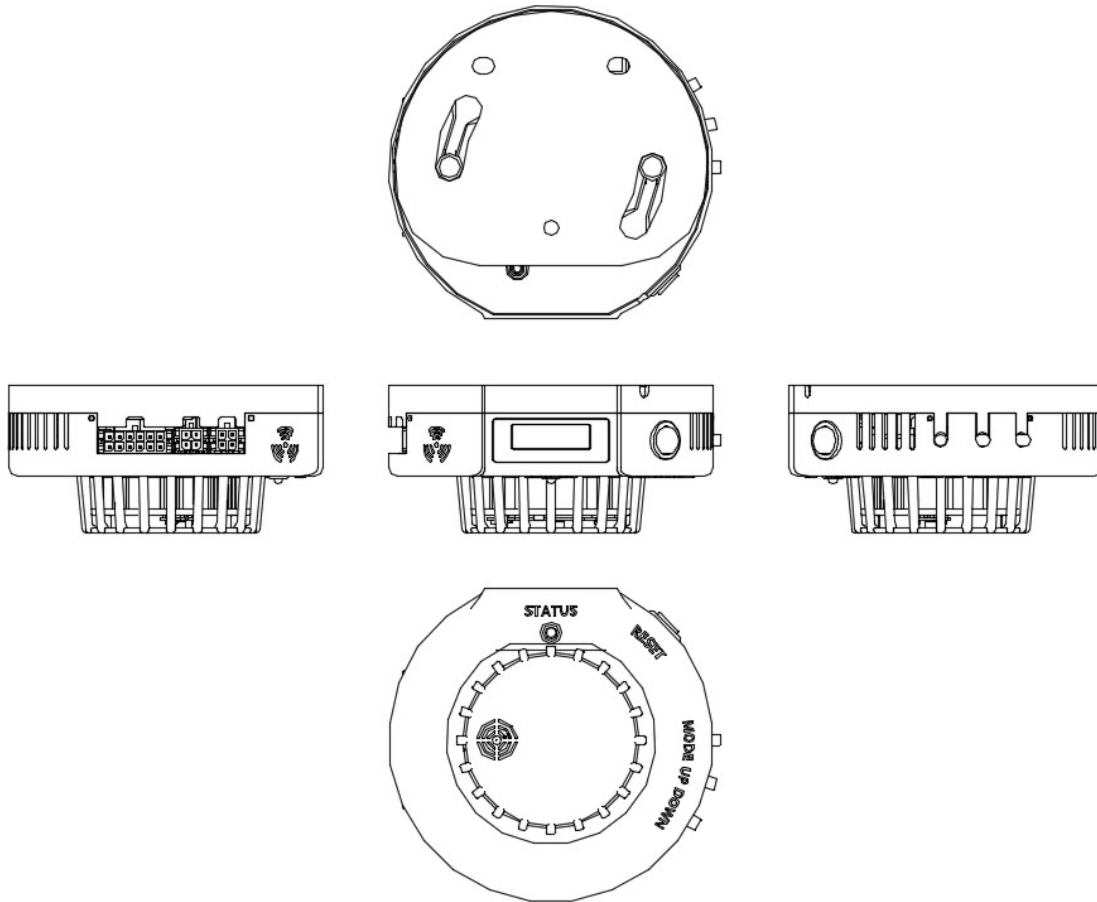
4) NPN Type Digital Input

Receives NPN type digital input signal to perform remote reset of the product.

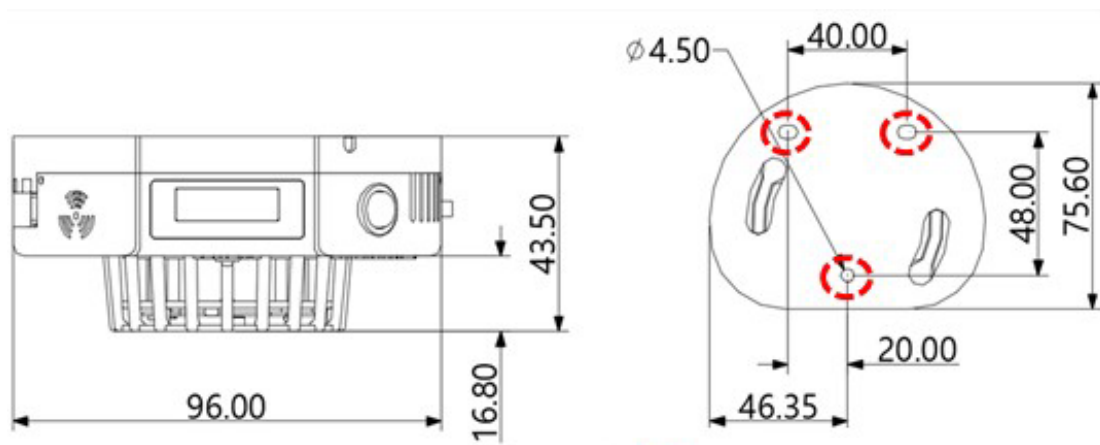


2.5. Dimensions

▣ Outline Drawing



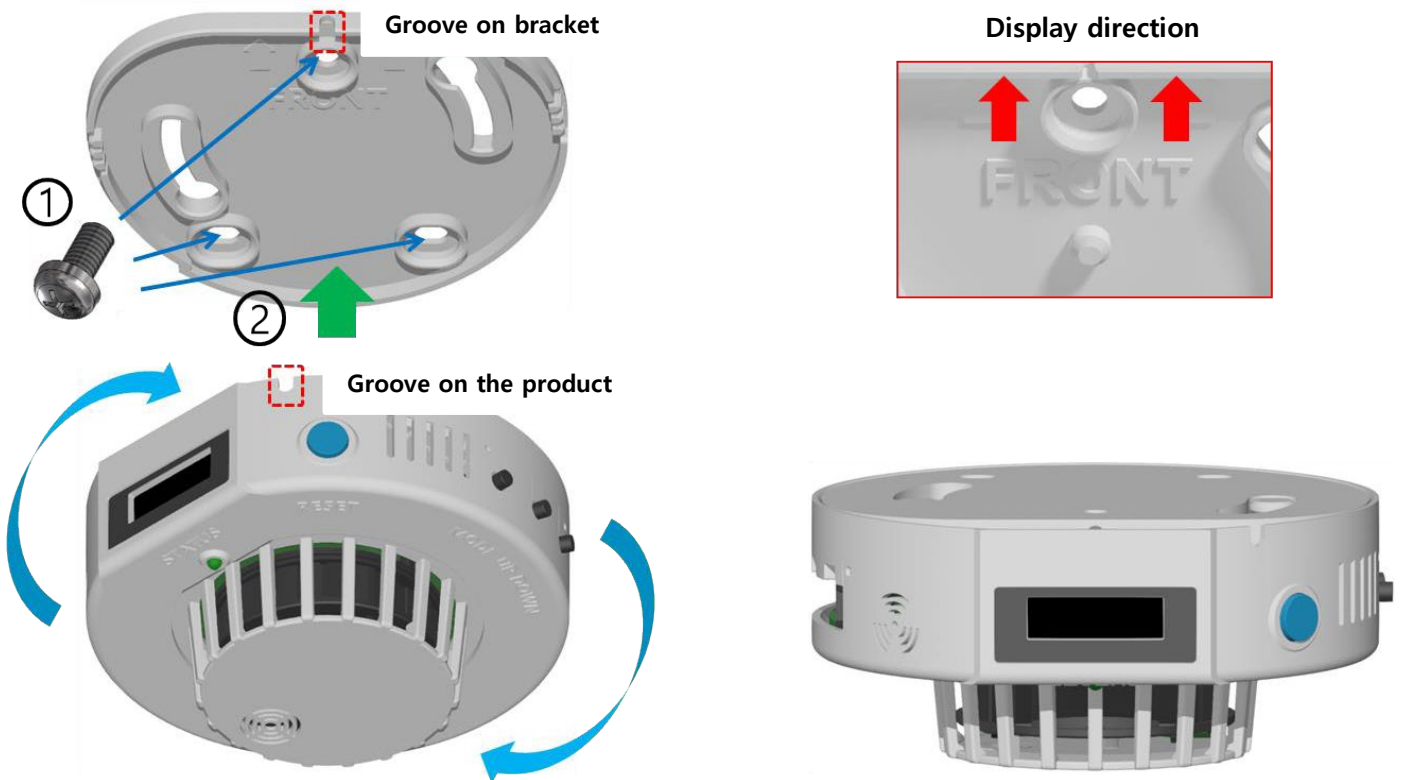
▣ Dimension



○ : Panel Mounting Position

M4 Bolt Assembly (3 places)

▣ Fixing bracket and panel perforation diagram



❖ How to Install NEOS-HSD200

① Fix the brackets in 3 places with the M4 screws included in the panel and ceiling.

→ Install with the FRONT direction marked on the bracket facing the front (display direction).

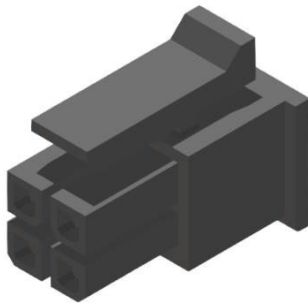
② Align the positions of the grooves marked on the front of the bracket with the grooves on the product, and align the projections in the center of the bracket in the vertical direction to fit the product.

→ When turned clockwise, rotate until the display comes to the front and you hear a "click" sound.

3. Components



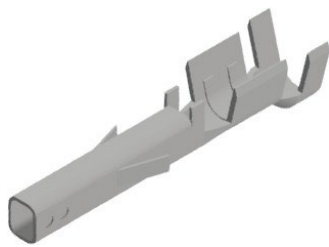
Heat and Smoke Detector (NEOS-HSD200) 1 pcs



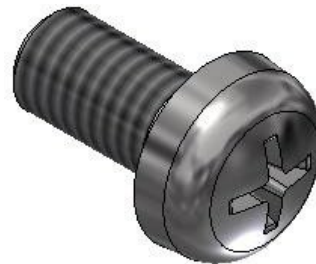
43025-0400 _ MOLEX
(4PIN Housing)2pcs



43025-1200 _ MOLEX
(12PIN Housing)
1pcs



43030-0001 _ MOLEX
(Pin Terminal)
20pcs



M4 Bolt 4pcs

4. How to Operate

4.1. Operation Switch

4.1.1. MODE Switch

- 1) Press 3 seconds on the main screen to go to the setting screen
- 2) Press once on the setting to move to the next screen
- 3) Press 3 seconds on the setting screen to save the setting value and go to the main screen

4.1.2. UP Switch

- 1) Change (Increase) set value, move set item (above)

4.1.3. DOWN Switch

- 1) Change (Decrease) set value, move set item (down)

4.2. Screen Layout

4.2.1. Main Screen

TEMP : 24.3C HUMI : 30.5%	TEMP : 24.3C SMK ALARM	TEMP : 31.3C TEMP WARN	TEMP : 41.3C TEMP ALARM	ERROR CODE : 0x01
Current temperature and humidity ⁽¹⁾	Smoke detection occurs ⁽²⁾	Temperature warning ⁽³⁾	Temperature alarm ⁽⁴⁾	Detector ERROR ⁽⁵⁾

- 1) Displays the current temperature and humidity status.
- 2) Displays the status when smoke is detected.
- 3) When a temperature warning occurs, the status is displayed.
- 4) Displays the status when a temperature alarm occurs.
- 5) Displays status and code when detector ERROR occurs.

(1) 0x01(Temperature sensor Error), 0x02(EEPROM Error), 0x03(Checksum Error), 0x04(LCD Error), 0x05(RS485 Error)

4.2.2. Setting Main Screen

ID_NUMBER 01	TEMP WARN REF : 26.0C	TEMP_W_DVA REF : ±4.0C	TEMP ALARM REF : 40.0C
Current ID No. ⁽¹⁾	Temperature warning value ⁽²⁾	Temperature warning deviation value ⁽³⁾	Temperature alarm value ⁽⁴⁾

- 1) Displays the current ID number.
- 2) Displays the temperature warning value to one decimal place.
- 3) Displays the temperature warning deviation value to one decimal place.
- 4) Displays the temperature alarm value to one decimal place.

TEMP_AMODE
ENABLE

Enable warning alarm ⁽⁵⁾

WARN_CMODE
DISABLE

Temperature warning hold
setting ⁽⁶⁾

ALM_CMODE
DISABLE

Temperature alarm hold
setting ⁽⁷⁾

TEMP_W_OUT
A_TYPE

Temperature warning
output setting ⁽⁸⁾

- 5) It indicates whether temperature warning or alarm is used.
- 6) Indicates whether or not to use the temperature warning maintenance.
- 7) Indicates whether or not to use the temperature alarm maintenance.
- 8) Displays temperature warning output setting information.

BPS_SET
115200

Communication speed
setting ⁽⁹⁾

PROTOCOL
ONOFF

Protocol setting ⁽¹⁰⁾

END_CODE
USED

END code setting ⁽¹¹⁾

DISP_SLEEP
ENABLE

Display sleep setting ⁽¹²⁾

- 9) Displays RS-485 communication speed information.
- 10) Displays protocol setting information.
- 11) Displays End Code setting information.
- 12) Indicates whether or not to use display auto-off.

HEARTBEAT
DISABLE

Heartbeat function setting ⁽¹³⁾

BUZZER
ON

Buzzer setting ⁽¹⁴⁾

SMK_LEVEL
2

Smoke detection level setting ⁽¹⁵⁾

SOFTWARE
VER 1.00

Version
information
⁽¹⁶⁾

- 13) Indicates whether or not to use the Heartbeat function.
- 14) Indicates whether buzzer is used or not.
- 15) Displays the smoke detection level.
- 16) Display version information.

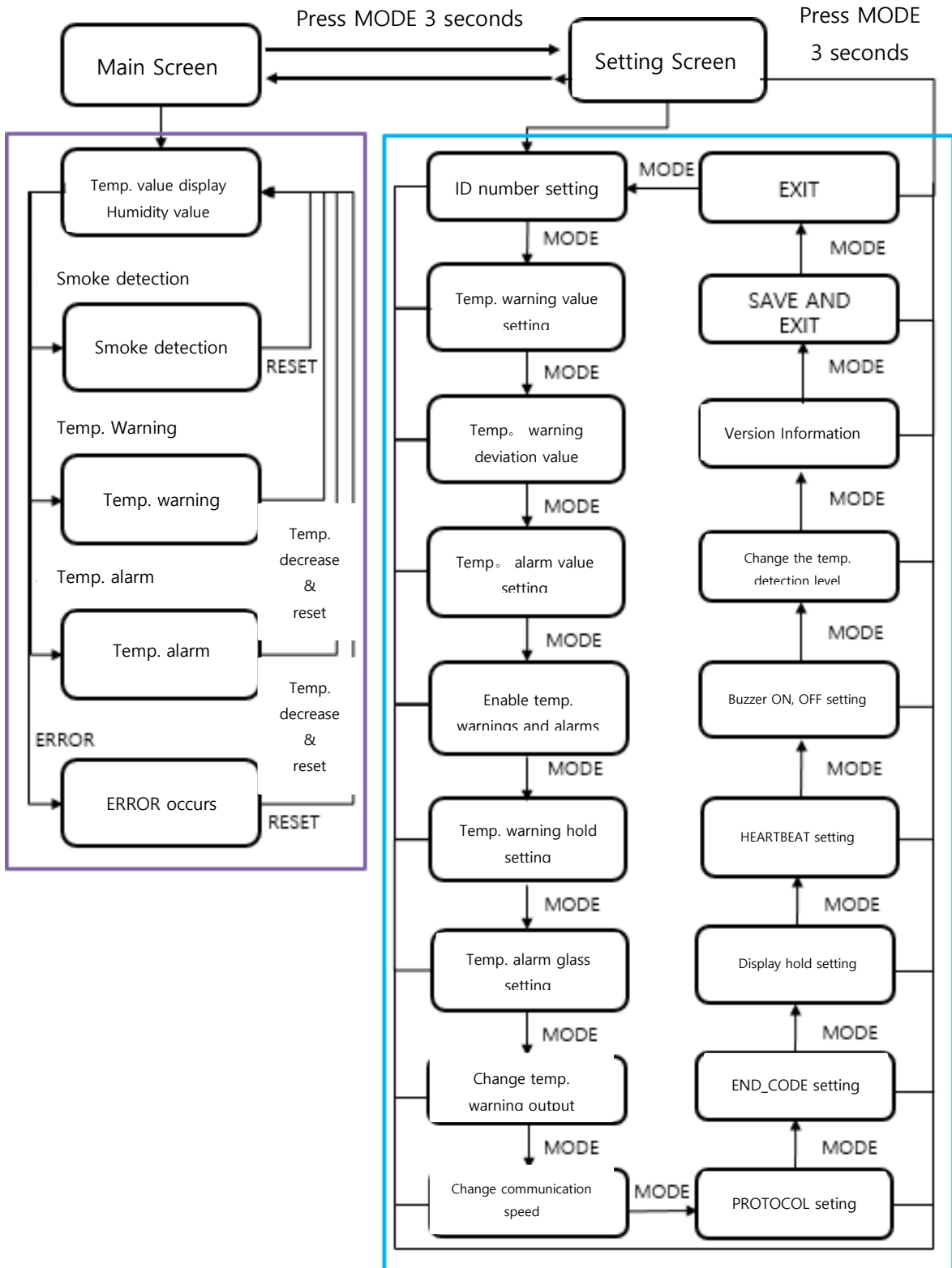
SAVE &
EXIT

Save & exit ⁽¹⁷⁾

EXIT

Exit without saving
⁽¹⁸⁾

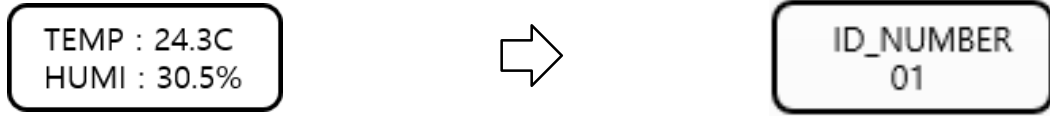
- 17) Exit to the main screen after saving the changed setting values.
- 18) Exit to the main screen without changing the setting value.



Display Screen Flow

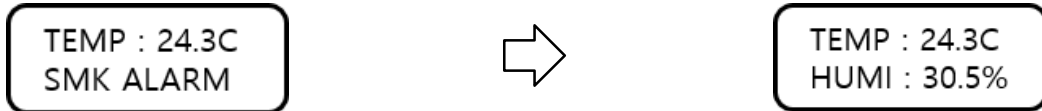
4.3. How to Operate the Main Screen

1) How to switch to the main setting screen



Press the MODE switch for 3 seconds to move to the main setting screen.

2) How to switch from the alarm and error screens to the main screen



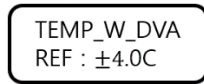
Press RESET button in smoke detection, temperature warning, temperature alarm, and Error.

4.4. Operation Details of the Setting Screen

1) Change the temperature warning value and change the temperature warning deviation value



-Change the temp. warning and deviation values to one decimal point.



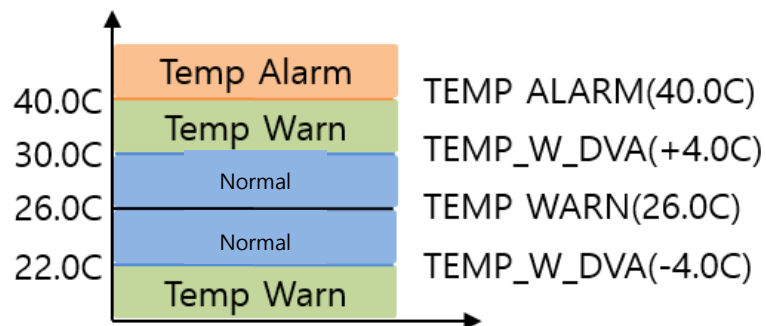
MODE : Move to the next setting screen when press once

Move to main screen after setting the current value when press 3 seconds

UP : Increase the set value by one decimal point

DOWN : Decrease the set value by one decimal point

- ❖ Temp warning operating condition: Temp. warning occurs when the current temp. is above or below the temp. warning value and the warning deviation value ±



2) Change the temperature alarm value

TEMP ALARM
REF : 40.0C

- Change the temperature alarm value to one decimal point.

MODE : Move to the next setting screen when pressed once
When pressed for 3 seconds, it moves to the main screen after setting the current value.

UP: Increases the set value by one decimal place.

DOWN : Decrease the set value by one decimal place.

- ❖ Temp. alarm operation condition: When the current temp. is higher than the temp. alarm value, a temperature alarm occurs.

3) Change temperature warning and alarm settings

TEMP_AMODE
ENABLE

- Change whether temperature warning or alarm is used.

MODE : Move to the next setting screen when pressed once
If pressed for 3 seconds, it moves to the main screen after setting the current value

UP: Change Usage status DISABLE to ENABLE

DOWN : Change Usage status ENABLE to DISABLE

- ❖ If DISABLE, no temperature warning or alarm occurs.

4) Change the temperature warning maintenance setting

WARN_CMODE
DISABLE

- Change whether or not to use temperature warning maintenance.

MODE : Move to the next setting screen when pressed once
If pressed for 3 seconds, it moves to the main screen after setting the current value

UP: Change Usage status DISABLE to ENABLE

DOWN : Change Usage status ENABLE to DISABLE

- ❖ If the warning maintenance setting is ENABLE, the warning status is maintained even if the temperature value goes down or rises below or above the warning threshold value after the warning is generated. If it is DISABLE, it is automatically reset.

5) Change the temperature alarm maintenance setting

ALM_CMODE
DISABLE

- Change whether or not to use temperature alarm maintenance.

MODE : Move to the next setting screen when pressed once

If pressed for 3 seconds, it moves to the main screen after setting the current value

UP : Change Usage status DISABLE to ENABLE

DOWN : Change Usage status ENABLE to DISABLE

- ❖ If the alarm maintenance setting is ENABLE, the alarm status is maintained even if the temperature value falls below the alarm occurrence standard value after an alarm occurs. If it is DISABLE, it is automatically reset.

6) Change temperature warning output setting

TEMP_W_OUT
A_TYPE

- Change the temperature warning output type.

MODE : Move to the next setting screen when pressed once

If pressed for 3 seconds, it moves to the main screen after setting the current value

UP: Change the output TYPE from A_TPYPE to B_TYPE

DOWN : Change the output TYPE from B_TPYPE to A_TYPE

- ❖ In A_TYPE, the temperature warning output operates in the form of a contact, and in B_TYPE, it operates in the form of contact b.

7) Change communication speed setting

BPS_SET
115200

- Change the RS-485 communication speed.

MODE : Move to the next setting screen when pressed once

When pressed for 3 seconds, when the value is changed, save and then reset the MCU

UP : Change in order of 9600 > 19200 > 38400 > 57600 > 115200

DOWN : Change in order of 115200 > 57600 > 38400 > 19200 > 9600

- ❖ After changing the baud rate setting, the detector will automatically restart

8) Protocol setting change

PROTOCOL
ONOFF

- Change the communication protocol setting.

MODE : Move to the next setting screen when pressed once

If pressed for 3 seconds, it moves to the main screen after setting the current value

UP: Change MODBUS to ONOFF

DOWN : Change ONOFF to MODBUS

- ❖ Refer to the communication packet structure and Modbus communication packet and address map provided by ONOFF in section 5 communication specification.

9) Change end code setting



- Change the End Code setting.

MODE : Move to the next setting screen when pressed once

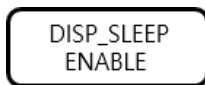
If pressed for 3 seconds, it moves to the main screen after setting the current value

UP: Change to USED from UNSED

DOWN : Change to UNUSED from USED

- ❖ If End Code is USED, CR(0x0D), LF(0x0A) are added to the end of ONOFF protocol communication packet and sent

10) Set display auto-off



- Change the use of auto-off of the display.

MODE : Move to the next setting screen when pressed once

If pressed for 3 seconds, it moves to the main screen after setting the current value

UP: Change usage status from DISABLE to ENABLE

DOWN : Change usage status from ENABLE to DISABLE

- ❖ ENABLE is recommended for DISP_SLEEP, and it may cause a decrease in long-term lifespan when set to DSIABLE.
- ❖ When the DISP_SLEEP function is ENABLE, the display will automatically turn off if there is no event for 10 minutes during normal operation.
- ❖ When one of the MODE, UP, DOWN, or RESET buttons is pressed, the display turns on and the main screen appears.
- ❖ Display and maintain with or without the display auto-off when temperature warning, alarm, smoke detection and ERROP occur
- ❖ If there is no event for 8 minutes during normal operation,

the brightness of the display will be dimmed. If you press any button, the brightness will be bright again.

11) Change Heartbeat settings



- Change whether or not to use the heartbeat function.

MODE : Move to the next setting screen when pressed once

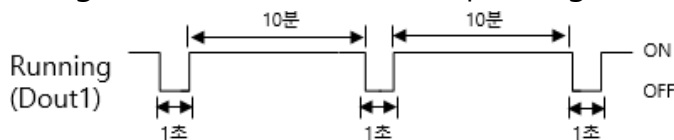
If pressed for 3 seconds, it moves to the main screen after setting the current value

UP : Change in order of DISABLE > 1MIN > 10MIN > 30MIN > 60MIN

DOWN : Change in order of 60MIN > 30MIN > 10MIN > 1MIN > DISABLE

(Each time setting is in minutes)

❖ Setting in 10 MIN (Detector is operating normally)




❖ Setting in Disable (Detector is operating normally)



❖ When activating the heartbeat function, refrain from using the Running (Dout1) output terminal for relay operation. Long-time on/off operation may cause deterioration of lifespan and malfunction

12) Change Buzzer setting

- Change whether to use the buzzer function.



BUZZER
ON


MODE : Move to the next setting screen when pressed once
If pressed for 3 seconds, it moves to the main screen after setting the current value

UP: Change usage status from OFF to ON

DOWN : Change usage status from ON to OFF

- ❖ When the buzzer function is turned ON, the buzzer operates in case of temperature warning, alarm, smoke detection, or ERROR.

13) Change smoke detection level setting



SMK_LEVEL
2

- Change smoke detection LEVEL.

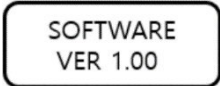
MODE : Move to the next setting screen when pressed once
If pressed for 3 seconds, it moves to the main screen after setting the current value

UP: Change in order of LEVEL-1 > LEVEL-2 > LEVEL-3

DOWN : Change in order of LEVEL-3 > LEVEL-2 > LEVEL-1

- ❖ LEVEL-1: Smoke detection occurs at smoke concentration $\geq 5\%$
- LEVEL-2: Smoke detection occurs at smoke concentration $\geq 10\%$
- LEVEL-3: Smoke detection occurs at smoke concentration $\geq 15\%$

14) Version Information



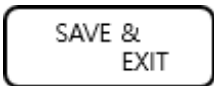
SOFTWARE
VER 1.00

Displays software version information.

MODE : Move to the next setting screen when pressed once

If pressed for 3 seconds, it moves to the main screen after setting the current value

15)SAVE AND EXIT



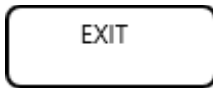
SAVE &
EXIT

- Save the changed setting value and close the setting screen.

MODE : Move to the next setting screen when pressed once

If pressed for 3 seconds, it moves to the main screen after setting the current value

16)EXIT



- Exit the setting screen without changing the setting value.

MODE : Move to the next setting screen when pressed once
When pressed for 3 seconds, it moves to the main screen without saving (changes) the set value

5. Communication Specifications

5.1. ONOFF Protocol

5.1.1. Communication Method

- 1) Communication method : RS485
- 2) baud rate : 9600/19200/38400/57600/115200 bps
- 3) Data bit : 8bit / Stop bit : 1 bit / Parity bit : None

5.1.2. Communication Frame

Format	STX	Length	CMD	Code	Count	DATA	Checksum	ETX
Hex	0x53	2 bytes	2 bytes	1 Byte	1 Byte	N Byte	2 bytes	0x45

- 1) Data Format : Hex (Hexadecimal Byte Type)
- 2) STX : 0x53 (1 Byte) / ETX : 0x45 (1 Byte)
- 3) Length : Number of bytes from CMD to DATA (ex. 0x0014 in case of 20 Byte)
- 4) CMD : Communication command
- 5) Code : Command division
- 6) Count : Transmission Count (repeat 0~255)
- 7) DATA : data such as ID, temperature, humidity, etc.
- 8) Checksum : The sum of 1Byte expressions from length to Data (ex. If the checksum value is 0x012345, use 2 bytes as 0x2345)
- 9) Endian : Big Endian
- 10) End_Code : CR(0x0D)+LF(0x0A)

5.1.3. Data Request

- 1) PC -> Sensor

Index	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Format	STX	Length		CMD		Code	Count	DATA							
		MSB	LSB	MSB	LSB			ID							
HEX	0x53	0x00	0x0C	0x05	0x01	0x01	0x00	0x01	0x00	0x00	0x00	0x00	0x00	0x00	0x00
15	16	17													
Checksum		ETX													
		0x45													

2) Sensor -> PC(Normal command response)

Index	0	1	2	3	4	5	6	7	8	...	19	20
Format	STX	Length MSB LSB		CMD MSB LSB		Code	Count	DATA				
HEX	0x53	0x00	0x12	0x05	0xA1	0x01	0x00	See Data Details				
21	22	23	24	25								
Checksum		ETX	CR	LF								
		0x45	0x0D	0x0A								

※ In case of CR+LF, END_CODE is additionally transmitted when USED is set

3) Data detail part

Index	7	8	9	10	11	12	13	14	15	16	17	18
Format	ID	OpState MSB LSB		Error Code	Temperature MSB LSB		Humidity MSB LSB		WARNING TEMPERATURE REFERENCE MSB LSB		ALARM TEMPERATURE REFERENCE MSB LSB	
HEX	0x01											
19	20											
Deviation reference value MSB LSB												

OPState

Data			
		MSB Description	LSB Description
Bit 0	0	Display Slip not used	Running
	1	Use Display Slip	Stop
Bit 1	0	Buzzer not used	Smoke detection
	1	Use buzzer	Non-occurring
Bit 2	0	Smoke Detection Level 00 : 1Level	Temperature warning
	1	01 : 2Level	Non-occurring
Bit 3	0	10: 3Level	Temperature alarm
	1		Non-occurring
Bit 4	0	Heartbeat setting 000: Not used	Detector error occurred
	1	001: 1 min	Not set
Bit 5	0	010: 10 min	Temp. warning alarm setting
	1	011: 30 min 100: 1 hour	Not set
Bit 6	0		Temp. warning hold setting
	1		Not set
Bit 7	0	Reserved	Temp. alarm hold setting
	1		Not set

ID

Data	Description
1~64	Detector No.
Temperature	
Format	Current Temp.
	MSB LSB
HEX	0x0A 0xAA
INT	2730
Input value	27.3
Humidity	
Format	Current humidity
	MSB LSB
HEX	0x0F 0xB4
INT	4020
Input Value	40.2
Alarm Temperature Threshold	
Format	Alar temp. refer. value
	MSB LSB
HEX	0x10 0xD6
INT	4310
Input value	43.1

WARNING TEMPERATURE REFERENCE

Format	Warning temp. refer.	
	MSB	LSB
HEX	0x0B	0xEA
INT	3050	
Input Value	30.5	
Deviation reference value		
Format	Deviation refer. value	
	MSB	LSB
HEX	0x03	0xFC
INT	1020	
Input Value	10.2	
Error Code		
Data	Description	
0	No Error	
1	Temp. sensor Error	
2	EEPROM Error	
3	Checksum Error	
4	LCD Error	

5.1.4. Alarm Reset

1) PC -> Sensor

Index	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Format	STX	Length MSB LSB		CMD MSB LSB		Code	Count	DATA ID Error Reset							
HEX	0x53	0x00	0x0C	0x05	0x03	0x01	0x00	0x01	0x00	0x01	0x00	0x00	0x00	0x00	0x00
15	16	17													
Checksum		ETX													
		0x45													

2) Sensor -> PC(Normal command response)

Index	0	1	2	3	4	5	6	7	8	9	10	11	...	14
Format	STX	Length MSB LSB		CMD MSB LSB		Code	Count	DATA ID Error Reset						
HEX	0x53	0x00	0x0C	0x05	0xA3	0x01	0x00	0x01	0x00	0x01	0x00			
15	16	17	18	19										
Checksum		ETX	CR	LF										
		0x45	0x0D	0x0A										

※ In case of CR+LF, END_CODE is additionally transmitted when USED is set

5.1.5. Temperature Warning, Alarm Threshold Setting

1) PC -> Sensor

Index	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Format	STX	Length MSB LSB		CMD MSB LSB		Code	Count	Data ID Error WARNING REFERENCE ALARM REFERENCE MSB LSB MSB LSB							
HEX	0x53	0x00	0x0C	0x05	0x03	0x02	0x00	0x01	0x00	0x0B	0xEA	0x11	0xA8	0x00	0x00
15	16	17													
Checksum		ETX													
		0x45													

Temperature warning threshold

Format	Warning temp. refer	
	MSB	LSB
HEX	0x0B	0xEA
INT	3050	
Input Value	30.5	

Temperature alarm threshold

Format	Alarm temp. refer	
	MSB	LSB
HEX	0x11	0xA8
INT	4520	
Input Value	45.2	

2) Sensor -> PC (Normal command response)

Index	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Format	STX	Length MSB LSB		CMD MSB LSB		Code	Count	Data ID Error WARNING REFERENCE ALARM REFERENCE MSB LSB MSB LSB							
HEX	0x53	0x00	0x0C	0x05	0xA3	0x02	0x00	0x01	0x00	0x0B	0xEA	0x11	0xA8	0x00	0x00
15	16	17	18	19											
Checksum		ETX	CR	LF											
		0x45	0x0D	0x0A											

※ In case of CR+LF, END_CODE is additionally transmitted when USED is set

5.1.6. Deviation Reference Value Setting

1) PC -> Sensor

Index	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Format	STX	Length		CMD		Code	Count	Data							
		MSB	LSB	MSB	LSB			ID	Error	Deviation refer. value					
HEX	0x53	0x00	0x0C	0x05	0x03	0x06	0x00	0x01	0x00	0x00	0xDC	0x00	0x00	0x00	0x00
15	16	17	Checksum		ETX										
		0x45													

(1) Deviation reference value

Format	Alarm temp. threshold	
	MSB	LSB
HEX	0x11	0xDC
INT	220	
Input Value	2.2	

2) Sensor -> PC(Normal command response)

Index	0	1	2	3	4	5	6	7	8	9	10	11	...	14
Format	STX	Length		CMD		Code	Count	Data						
		MSB	LSB	MSB	LSB			ID	Error	Deviation refer. value				
HEX	0x53	0x00	0x0C	0x05	0xA3	0x06	0x00	0x01	0x00	0x00	0xDC	0x00		
15	16	17	18	19										
Checksum		ETX	CR	LF										
		0x45	0x0D	0x0A										

※ In case of CR+LF, END_CODE is additionally transmitted when USED is set

5.1.7. Temperature Warning, Alarm setting

1) PC -> Sensor

Index	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Format	STX	Length		CMD		Code	Count	Data							
		MSB	LSB	MSB	LSB			ID	Error	Enable alarm					
HEX	0x53	0x00	0x0C	0x05	0x03	0x03	0x00	0x01	0x00	0x01	0x00	0x00	0x00	0x00	0x00
15	16	17	Checksum		ETX										
		0x45													

1) Enable alarm

Data	Description
0	Disable
1	Enable

2) Sensor -> PC(Normal command response)

Index	0	1	2	3	4	5	6	7	8	9	10	11	...	14
Format	STX	Length		CMD		Code	Count	Data						
		MSB	LSB	MSB	LSB			ID	Error	Enable alarm				
HEX	0x53	0x00	0x0C	0x05	0xA3	0x03	0x00	0x01	0x00	0x01	0x00	0x00		
15	16	17	18	19										
Checksum		ETX	CR	LF										
		0x45	0x0D	0x0A										

※ In case of CR+LF, END_CODE is additionally transmitted when USED is set

5.1.8. Enabling Keep Temperature Alerts

1) PC -> Sensor

Index	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Format	STX	Length		CMD		Code	Count	Data							
		MSB	LSB	MSB	LSB			ID	Error	Enable warning					
HEX	0x53	0x00	0x0C	0x05	0x03	0x04	0x00	0x01	0x00	0x01	0x00	0x00	0x00	0x00	0x00
15	16	17													
Checksum		ETX													
		0x45													

(1) Keep Warning

Data	Description
0	Disable
1	Enable

2) Sensor -> PC

Index	0	1	2	3	4	5	6	7	8	9	10	11	...	14
Format	STX	Length		CMD		Code	Count	Data						
		MSB	LSB	MSB	LSB			ID	Error	Enable warning				
HEX	0x53	0x00	0x0C	0x05	0xA3	0x04	0x00	0x01	0x00	0x01	0x00	0x00		
15	16	17	18	19										
Checksum		ETX	CR	LF										
		0x45	0x0D	0x0A										

5.1.9. Enable Keep Temperature Alarm

1) PC -> Sensor

Index	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Format	STX	Length		CMD		Code	Count	Data							
		MSB	LSB	MSB	LSB			ID	Error	Enable alarm					
HEX	0x53	0x00	0x0C	0x05	0x03	0x05	0x00	0x01	0x00	0x01	0x00	0x00	0x00	0x00	0x00
15	16	17													
Checksum		ETX													
		0x45													

(1) Keep alarm

Data	Description
0	Disable
1	Enable

2) Sensor -> PC(Normal command response)

Index	0	1	2	3	4	5	6	7	8	9	10	11	...	14
Format	STX	Length		CMD		Code	Count	Data						
		MSB	LSB	MSB	LSB			ID	Error	Enable alarm				
HEX	0x53	0x00	0x0C	0x05	0xA3	0x05	0x00	0x01	0x00	0x01	0x00	0x00		
15	16	17	18	19										
Checksum		ETX	CR	LF										
		0x45	0x0D	0x0A										

※ In case of CR+LF, END_CODE is additionally transmitted when USED is set

5.1.10. Error Response (Common)

1) Sensor -> PC

Index	0	1	2	3	4	5	6	7	8	9	10	11	...	14
Format	STX	Length		CMD		Code	Count	Data						
		MSB	LSB	MSB	LSB			ID	Error					
HEX	0x53	0x00	0x0C	0x05	0xA3	0x01	0x00	0x01	0xFF	0x00	0x00	0x00		
15	16	17	18	19										
Checksum		ETX	CR	LF										
		0x45	0x0D	0x0A										

※ In case of CR+LF, END_CODE is additionally transmitted when USED is set

(1) Code

Data	Description
0x01~0x06	Command code

5.2. Modbus Protocol

Modbus RTU protocol is a kind of Modbus protocol to operate in serial communication environment such as RS-485 or RS-232. This protocol identifies each device through device address and checks error using CRC.

5.2.1. Packet Structure

The packet structure of Modbus RTU protocol is as follows.

Device Address	Function Code	Data	CRC
1 byte	1 byte	n bytes	2 bytes

1) The meaning of each field is as follows.

Fields	Description
Device Address	Device Address is used to identify each slave device and ranges from 1 to 63.
Function Code	When sending a request from the master to the slave, it means what kind of operation the slave will do. In a normal response situation, the function code written in the request is used as it is. In response to error, 80h is added and used as the function code of the response.
Data	The data field depends on the function code.
CRC	A code generated using CRC (Cyclical Redundancy Check) is used as a field for error checking. The CRC field checks the entire message content and uses the CRC-16 algorithm. This is described in detail in 5.2.7.

5.2.2. Function code

The function codes supported by NEOS-HSD200 are as follows.

Function code Decimal [Hex]	Name	Description
3 [03h]	Read Holding Registers	Read the holding register 0~30 data of the slave device. The request message is described with the register to start reading and the number of registers to read. Register is accessed by address starting from 0.
6 [06h]	Write Single Register	Write a value to one of the 16~30 or 64 holding registers. Request message is described with holding register and data to be recorded. Registers are accessed with addresses starting from 16.
16 [10h]	Write Multiple Registers	Write values to several consecutive registers among holding registers 16 to 30 of the slave device. Request message is described with register to start recording, register quantity and data. Write registers are accessed with addresses starting from 16.

5.2.3. Function 3 [03h] : Read Holding Registers

This function code can read part of holding register 0-32 of NEOS-HSD200 device.
Each holding register is a 2-byte long word.

1) Request

Function Code	Starting Address	Quantity of Registers
1 byte	2 bytes	2 bytes

2) Response

Function Code	Byte Count	Register Values
1 byte	1 byte	2 * (Quantity of Registers) bytes

3) Error Response

Error Code	Exception Code
1 byte	1 byte

4) Request detailed structure

Name	Byte Length	Description
Function Code	1	3 [03h] : Read holding registers
Starting Address	2	The starting address of the registers to read Register is accessed with an address starting from 0.
Quantity of Registers	2	Number of registers to read Standard range: 0 – 30 NEOS-HSD200 is designed to read registers of 0~30 Data Address. However, if more than 30 registers are read, an error is sent because overflow occurs in the byte count field.

5) Response detailed structure

Name	Byte Length	Description
Function Code	1	3 [03h] : Read holding registers
Byte Count	1	2 *(Quantity of Registers), overflow occurs when the quantity of registers is 17 or more in 1 byte space.
Register Values	2 * Quantity of Registers	Data of Holding Registers Holding register details are described in the Modbus map.

6) Error Response detailed structure

Name	Byte Length	Description
Error Code	1	131 [83h]: Error Response of "Read Holding Registers"
Exception Code	1	Request register value of undefined address Request to store invalid data in a defined register

5.2.4. Function 6 [06h]: Write Single Register

This function code can write a value to one of the holding registers ranging from 16 to 30. Each holding register is a 2 bytes long word.

1) Request

Function Code	Register Address	Register Value
1 byte	2 bytes	2 bytes

2) Response

Function Code	Register Address	Register Value
1 byte	2 bytes	2 bytes

3) Request detailed structure

Name	Byte Length	Description
Function Code	1	6 [06h]: Write Single Register
Register Address	2	holding register address for record Registers are accessed with addresses starting from 16.
Register Value	2	Value to be written to holding register Holding register details are described in the Modbus map.

4) Response detailed structure

Name	Byte Length	Description
Function Code	1	6 [06h]: Write Single Register
Register Address	2	It is the same as the value of Request packet.
Register Value	2	It is the same as the value of Request packet.

5.2.5. Function 16 [10h]: Write Multiple Registers

This function code can write a value to some area of the holding register in the range of 16 to 30. Each holding register is a 2-byte long word.

1) Request

Function Code	Starting Address	Quantity of Registers	Byte Count	Register Values
1 byte	2 bytes	2 bytes	1 byte	2*(Quantity of Registers) bytes

2) Response

Function Code	Starting Address	Quantity of Registers
1 byte	2 bytes	2 bytes

3) Error Response

Error Code	Exception
1 byte	1 byte

4) Request detailed structure

Name	Byte Length	Description
Function Code	1	16 [10h]: Write Multiple Register
Starting Address	2	Holding register address for record Register is accessed by address starting from 0.
Quantity of Registers	2	Quantity of registers for record Range: 1 - 16
Byte Count	1	2*Quantity of Registers
Register Values	2*Quantity of Registers	Value to write on Holding Register Holding register details are described in the Modbus map.

5) Response detailed structure

Name	Byte Length	Description
Function Code	1	16 [10h]: Write Multiple Register

Starting Address	2	It is the same as the value of Request packet.
Quantity of Registers	2	It is the same as the value of Request packet.

6) Error Response detailed structure

Name	Byte Length	Description
Error Code	1	131 [83h]: error response for "Read Holding Registers"
Exception Code	1	Request for register value of undefined address Request to store invalid data in a defined register

5.2.6. Sample of Modbus RTU Packet

The example of Modbus RTU packet below reads Modbus holding register 0 ~ 3 using function code 03h "Read holding register". Register 0 – 3 is accessed by address 0 ~ 3 on the packet. "Device Address" of NEOS-HSD200 is assumed to be 1.

1) Request Packet

Device Address	Function Code	Data		CRC
		Starting Address	Quantity of Registers	
1 byte	1 byte	2 byte	2 bytes	2 byte
01h	03h	0000h	0003h	05CBh

For the CRC generation method, refer to the CRC-16 (Modbus) Algorithm. (The upper byte of CRC is transmitted last.)

2) Response Packet

Device Address	Function Code	Data			CRC	
		Starting Address	Quantity of Registers			
1 byte	1 byte	1 bytes	6 byte		2 byte	
01h	03h	06h	08FCh	8917h	9600h	85D1h

For the CRC generation method, refer to the CRC-16 (Modbus) Algorithm. (The upper byte of CRC is transmitted last.)

5.2.7. CRC-16(Modbus) Algorithm

1) Create CRC

```
uint16_t CRC16(uint8_t* buf, size_t len)
{
    Uint16_t crc = 0xffff;

    for(int pos = 0; pos < len; pos++)
    {
        crc ^= (uint16_t)buf[pos];

        for(int i = 8; i !=0; i--)
        {
            if((crc & 0x0001) != 0)
            {
                crc >>=1;
                crc ^= 0xA001;
            }
            else
            {
                crc >>=1;
            }
        }
    }

    return crc;
}
```


5.2.8. Modbus Map Application

Division	Read / Write Mode	Data Address		Data Value(HEX)			Description 1	Description 2
		DEC	HEX	Size	Byte	Bit		
OpStatus	Read	40960	A0 00	Word	Byte- H (MSB)	0	Display_Slip	0:Unuse 1: Use
						1	Buzzer	0:Unuse 1: Use
						2	Smoke Detection Level	00 : 1Level
						3		01 : 2Level 10 : 3Level
						4	Heartbeat Setting(3bit)	000 : Unuse
						5		001 : 1 min
						6		010 : 10 min 011 : 30 min 100 : 1 hour
						7	Reserved	
					Byte- L (LSB)	0	Running	ON : Operative OFF : Stopped (When alarm occurs, no warning) In case of smoke detection or temp. alarm OFF
						1	Smoke detection	0: not detected 1: detected
						2	Temp. warning	0: not detected 1: detected
						3	Temp. alarm	0: not detected 1: detected
						4	Detector Error	0: not detected 1: detected
						5	Reserved	
						6	Reserved	
7	Reserved							

Division	Read/Write Mode	Data Address		Data Value(HEX)			Description 1	Description 2
		DEC	HEX	Size	Byte	Bit		
Error Code	Read	40962	A0 02	Word	Byte- H(MSB)		01h : temp. sensor Error 02h : EEPROM Error 03h : Checksum Error 04h : LCD Error	Error: Detector error occurred
					Byte- L(LSB)			
Temperature Value	Read	40964	A0 04	Word	Byte- H(MSB)		Temperature[°C]	Transmitter: Temperature * 100 Receiver: Received value /100
					Byte- L(LSB)			
Humidity Value	Read	40966	A0 06	Word	Byte- H(MSB)		Humidity [%]	Transmitter: Temperature * 100 Receiver: Received value /100
					Byte- L(LSB)			
Reserve	Read	40968	A0 08	Word	Byte- H(MSB)		Reserve	
					Byte- L(LSB)			
Reserve	Read	40970	A0 0A	Word	Byte- H(MSB)		Reserve	
					Byte- L(LSB)			
Reserve	Read	40972	A0 0C	Word	Byte- H(MSB)		Reserve	
					Byte- L(LSB)			
Reserve	Read	40974	A0 0F	Word	Byte- H(MSB)		Reserve	
					Byte- L(LSB)			
Temperature Value	Read/Write	40976	A0 10	Word	Byte- H(MSB)		Warning temperature reference [°C]	Transmitter: Temperature * 100 Receiver: Received value /100
				Byte- L(LSB)				
Temperature Value	Read/Write	40978	A0 12	Word	Byte- H(MSB)		Alarm temperature reference [°C]	Transmitter: Temperature * 100 Receiver: Received value /100
				Byte- L(LSB)				
Deviation Value	Read/Write	40980	A0 14	Word	Byte- H(MSB)		Warning temperature deviation standard [°C]	Transmitter: Temperature * 100 Receiver: Received value /100
					Byte- L(LSB)			

Division	Read/Write Mode	Data Address		Data Value(HEX)			Description 1	Description 2
		DEC	HEX	Size	Byte	Bit		
Temp Enable/Disable	Read/Write	40982	A0 16	Word	Byte- H(MSB)		Temperature warning/alarm Enable/Disable	0: Unuse, 1: Use
					Byte- L(LSB)			
	Read/Write	40984	A0 18	Word	Byte- H(MSB)		Temperature warning maintenance operation Enable/ Disable	0 : Normal, 1: Maintain
					Byte- L(LSB)			
	Read/Write	40986	A0 1A	Word	Byte- H(MSB)		Temperature Alarm Hold Action Enable/Disable	0: Normal, 1: Maintain
					Byte- L(LSB)			
Reserve	Read/Write	40988	A0 1C	Word	Byte- H(MSB)		Reserved	
					Byte- L(LSB)			
Reserve	Read/Write	40990	A0 1E	Word	Byte- H(MSB)		Reserved	
					Byte- L(LSB)			
Alarm rest	Write	41024	A0 40	Word	Byte- H(MSB)		Alarm Reset	0x01
					Byte- L(LSB)			

6. How to Install

6.1. Startup and Setup

6.1.1. Power Up

After power connection, the product starts by applying from an external power supply.

6.1.2. Startup After Initial Setting

It determines the ID and communication speed to be connected with the host controller and sets the internal operation mode.

1) Heat/smoke detector ID setting

(1) On the setting screen, press the UP and DOWN switches to set IDs from 1 to 64.

2) Temperature warning, alarm, temperature warning deviation value setting

(1) Press the UP and DOWN switches on the setting screen REF: to change the value in decimal units.

3) Enable/disable setting for each other function

(Temperature warning/alarm enable/keep setting, display sleep, buzzer)

(1) Change by pressing the UP(Enable), DOWN(Disable) switch on the setting screen.

4) Communication speed setting

(1) Change by pressing the UP, DOWN switch on the setting screen. The default is 115200, and it is changed in the order of 57600, 38400, 19200, and 9600 by pressing the DOWN switch.

5) Protocol setting

(1) Change by pressing the UP, DOWN switch on the setting screen. This is the default ONOFF, and if necessary, change to Modbus and use RS-485 communication.

6) END_CODE setting

(1) Change by pressing the UP, DOWN switch on the setting screen. This is the default USED, and when ONOFF protocol is used, CR(0x0D) and LF(0x0A) are added to the end of RS-485 communication frame and sent. When CR, LF are not used, press the DOWN switch to change to UNUSED.

7) Heartbeat setting

(1) Change by pressing the UP, DOWN switch on the setting screen. It is disabled by default and is changed in the order of 1 MIN, 10 MIN, 30 MIN, 60 MIN by pressing the UP switch.

8) Smoke detection level setting

(1) Change by pressing the UP, DOWN switch on the setting screen. It is

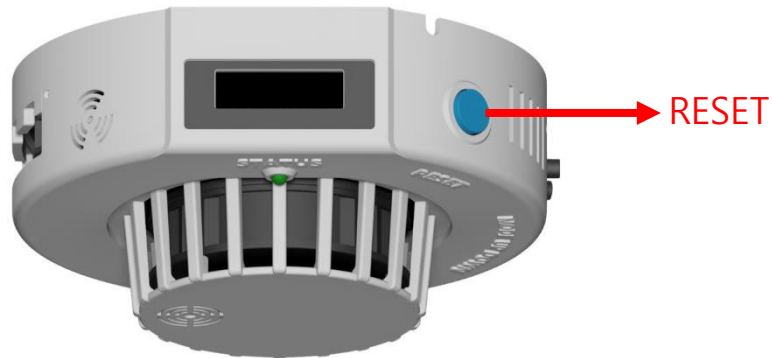
the default LEVEL-2, and it is changed to LEVEL-1, LEVEL-3 if necessary by using the UP/DOWN switch.

9) Save settings and complete

- (1) In the SAVE & EXIT item, press the MODE switch for 3 seconds to save the changed setting value and return to the main screen to complete the initial setting. At this time, if the BPS_SET setting is changed from the initial value, the system reboots and returns to the main screen.

7. Other

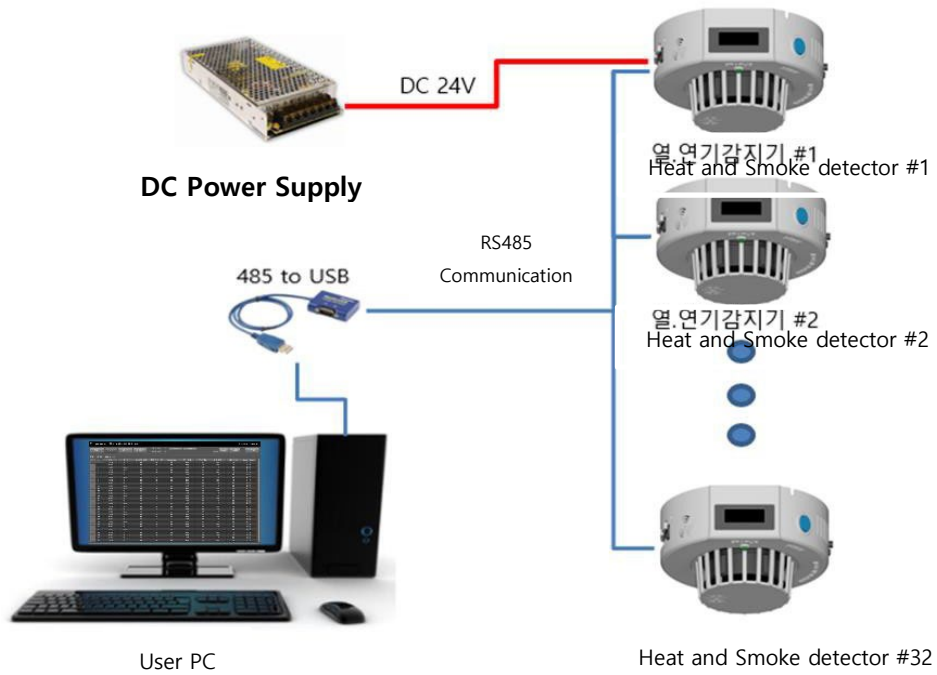
7.1. How to Reset



- After smoke detection alarm
- After warning occurs in the temperature warning maintenance parameter setting state
- After an alarm occurs in the temperature alarm maintenance parameter setting state
- After a detector error occurs
 - ▶ When the RESET button is pressed, the warning/alarm is canceled.

7.2. How to Use Monitoring Program

7.2.1. Connection configuration and method



7.2.2. User UI program

NEOS HSD 통합 모니터링 프로그램 진행 상태 : 데이터 갱신 중

연결 | 연결 끊기 | 설정 | 그래프 | 로그 파일 저장 : 시작 | 중지 | 저장 경로 선택 : | SCAN | 연속갱신 | 종료

열연기 감지기 응답 데이터

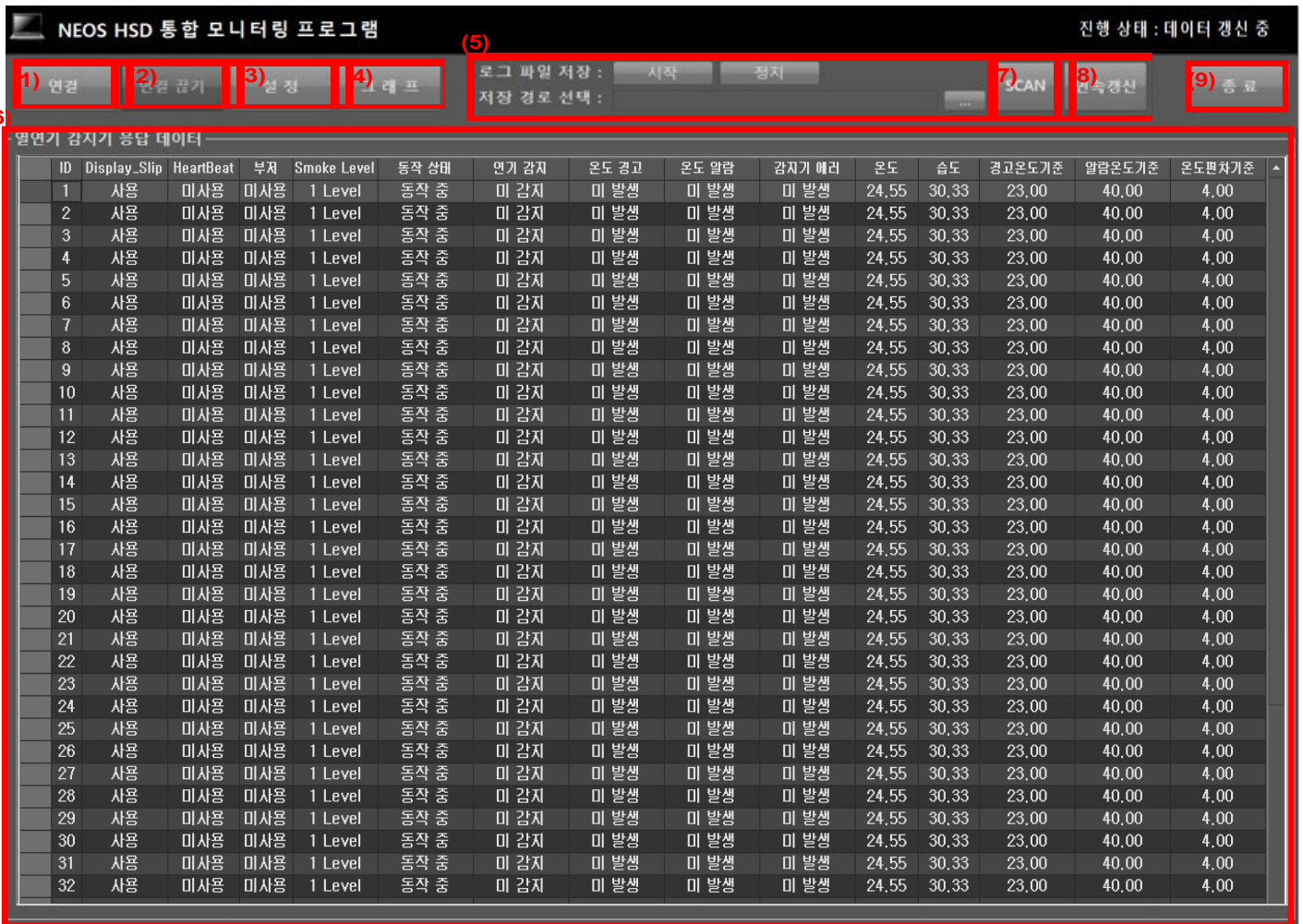
ID	Display_Slip	HeartBeat	부재	Smoke Level	동작 상태	연기 감지	온도 경고	온도 알람	감지기 예러	온도	습도	경고온도기준	알람온도기준	온도편차기준
1	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
2	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
3	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
4	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
5	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
6	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
7	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
8	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
9	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
10	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
11	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
12	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
13	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
14	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
15	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
16	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
17	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
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20	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
21	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
22	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
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24	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
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26	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
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30	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
31	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
32	사용	미사용	미사용	1 Level	동작 중	미 감지	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00

- You can check the measurement data by connecting multiple heat and smoke detectors (up to 32) at the same time through RS485 communication with a PC.
- Real-time smoke detection, temperature warning/alarm event, temperature and

humidity information can be checked.

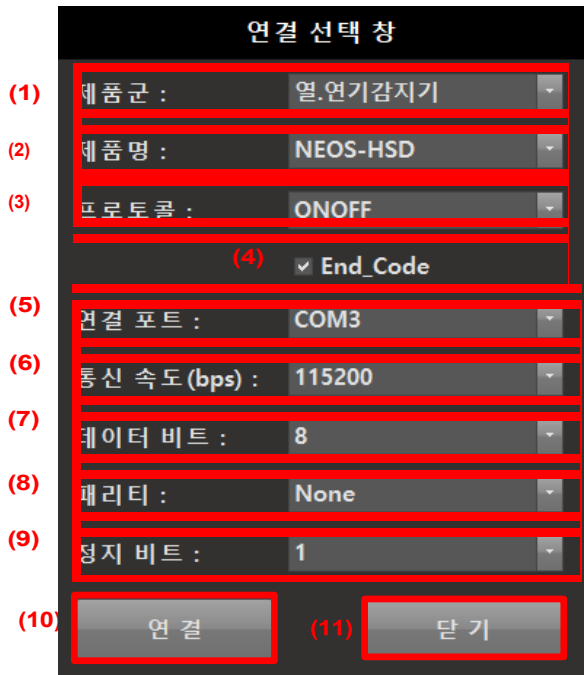
- Setting values such as temperature warning and alarm threshold can be changed.

7.2.3. User UI program function description



1	Connection	ONOFF/MODBUS communication connection
2	Disconnect	Disconnect communication
3	Setting	Each heat and smoke detector sensor reset, temperature reference value, alarm maintenance setting, etc. value setting
4	Graph	Real-time display of temperature and humidity data of heat and smoke detectors in graphs
5	Log storage function	Record log information of heat and smoke detector Start: Start saving log information Stop : Stop saving log information
6	Heat and smoke detector response data	Information such as temperature, humidity, and temperature warning/alarm criteria of the connected heat and smoke detector is displayed in real time
7	SCAN	Scan for currently connected heat and smoke detectors
8	Continuous update	Continuous update of connected heat and smoke detectors
9	End	Quit the program

1) Connection



1	Product family	Select the type of product you are currently connecting to
2	Product name	Select product model name
3	Protocol	Select the protocol to connect the communication to
4	End_Code	Decide whether to use CR/LF in ONOFF protocol
5	Connection port	Select currently connected port
6	Communication speed (bps)	Communication speed selection
7	Data bit	Data bit selection
8	Stop bit	Stop bit selection
9	Parity	Parity selection
10	Connection	Communication connection
11	Close	Close the current window



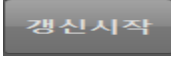
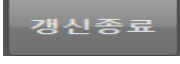
2) Setting



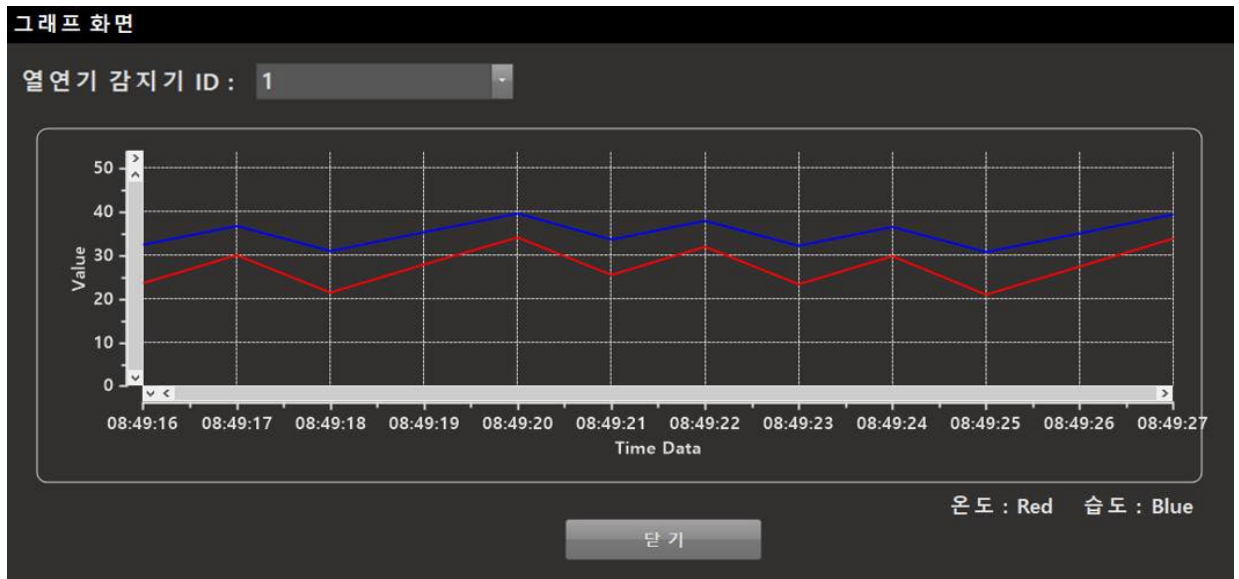
1	Hot Smoke Detector ID	Select Hot Smoke Detector ID
2	Temperature Alarm Enable/Disable	Apply temperature alarm Enable/Disable
3	Keep Temperature Alert Enable/Disable	Temperature warning maintenance Enable/Disable applied
4	Keep Temperature Alarm Enable/Disable	Temperature alarm maintenance Enable/Disable applied
5	Alarm reset command	Send alarm reset command
6	Temperature warning, alarm standard setting	Temperature warning, alarm standard value applied
7	Temperature warning deviation value setting	Temperature warning deviation value applied
8	Apply to all	Apply all setting values
9	Close	Close the current window

3) How to monitor data



- ① **Progress status** : If "Waiting for connection" is displayed click  button to proceed with the connection.
- ② **Progress status** : If communication connection complete is displayed, click  button to proceed with the scan.
- ③ **Progress status** : Scanning status is displayed while the connected heat/smoke detector is being scanned.
- ④ **Progress status** : When the scan is completed, click  button to start updating heat/smoke detector data.
- ⑤ **Progress status** : In the data update status, click  button to end the data update of the heat/smoke detector.
- ⑥ **Progress status**: When data update is finished, you can scan the heat/smoke detector by re-scanning, or you can update the data by clicking the Update Start button.

4) Graph



- It displays the temperature and humidity data of the selected heat/smoke detector ID in a graph.

■ KC Certification Statement: Class A Equipment (Broadcasting and Communication Equipment for Business)

User's Guide
<p>This device has undergone conformity assessment for use in a business environment, and there is a risk of radio wave interference when used in a home environment.</p>

※ User guide applies only to "business broadcast communication equipment".