

NEOS-HSD-I

User Manual



Version 1.2.0

Revision Information

The release for 「NEOS-HSD-I User Manual」 is as follows.

Revision	Date	Description
1.00	2021.03.23	Initial production
1.10	2021.11.18	<ol style="list-style-type: none"> 1. Changed the maximum number of heat and smoke detectors from 3 to 8 2. RS485-2 port ModBus protocol added 3. User UI change according to function addition
1.20	2022.01.12	<ol style="list-style-type: none"> 1. Added Display Slip mode function 2. Added explanation when using NEOS-HSD200 heat/smoke detector connection 3. PC monitoring program usage manual added (Section 7.1)

Index

Index	3
1. Precautions	4
2. Product Overview	5
2.1. Product Features.....	5
2.2. Name for Each Part	6
2.3. Product Specification	7
2.4. Signal Wiring	8
2.5. Dimensions.....	12
3. Components	13
4. How to Operate	14
4.1. Operation Switch	14
4.2. Screen Layout.....	14
4.3. How to Operate the Main Screen	16
4.4. Operation Details of the Setting Screen	17
5. Communication Specification	23
5.1. ONOFF PROTOCOL.....	23
5.2. MODBUS PROTOCOL.....	23
6. How to Install	39
6.1. Installation Environment and Precautions.....	39
6.2. Fix.....	39
6.3. Wiring.....	39
6.4. Startup and Setup.....	41
7. Others	44
7.1. How to Use Monitoring Program.....	44

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 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.

2. Product Overview

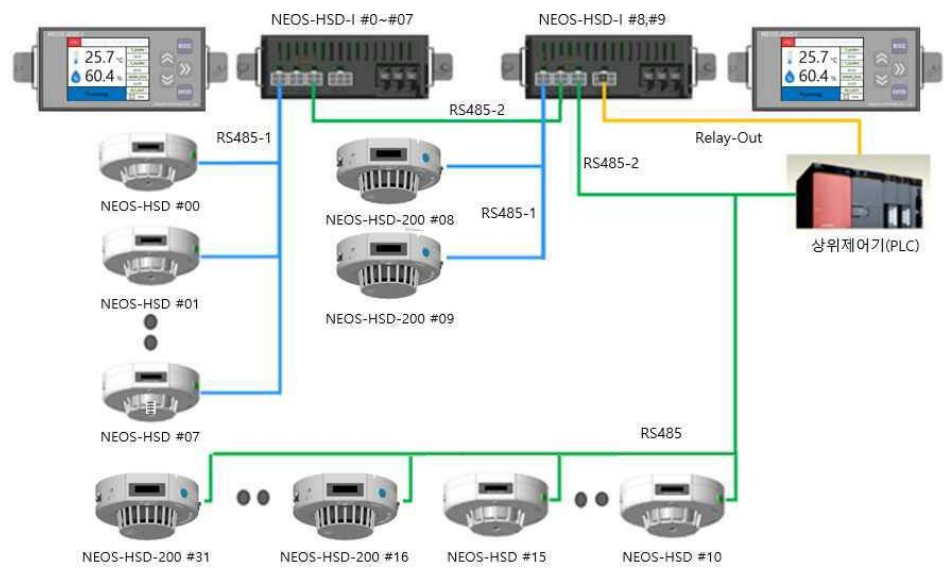
2.1. Product Feature

2.1.1. NEOS-HSD-I Product Advantage

- 1) Securing visibility by applying 2.2 inches TFT color LCD
- 2) Display of temperature/humidity and status information of up to 8 heat and smoke detectors through RS485-1 communication port
- 3) It is possible to change the settings such as the temperature warning/alarm reference value of the connected heat and smoke detection through the indicator setting screen
- 4) One C contact relay output is provided and the output type can be selected on the indicator setting screen
- 5) It is possible to collect up to 8 heat and smoke detector information connected to the indicator from the host controller through the RS485-2 communication port.
- 6) Two RS485-2 communication connectors are provided and information can be collected from the host controller by connecting to the existing heat and smoke detector RS485 communication line

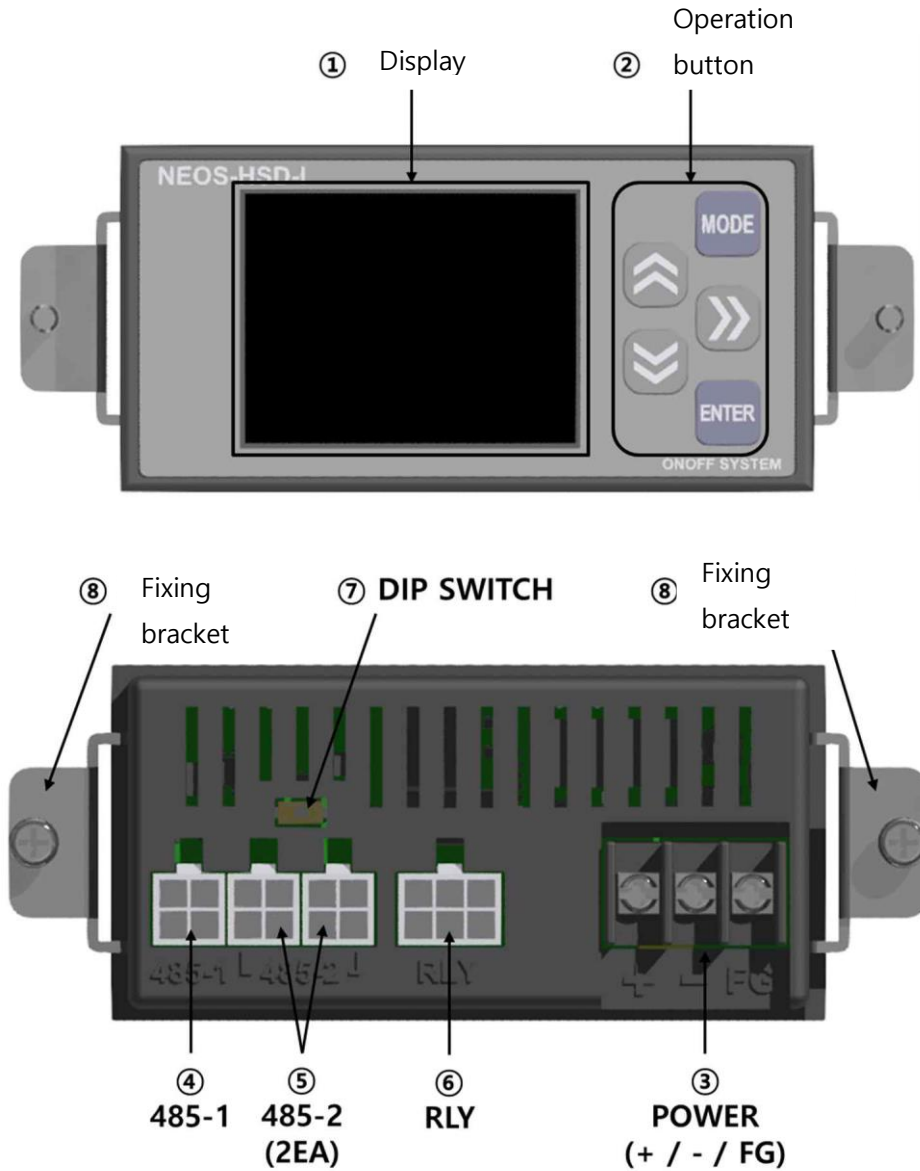
2.1.2. Expected effects when using NEOS-HSD-I products

- 1) It is possible to display information on up to 8 heat and smoke detectors through one indicator, so cost reduction is expected
- 2) By applying a 2.2 inches TFT color LCD, it is expected that the visual quality will be improved to check the condition of the heat and smoke detector
- 3) It is possible to connect with the existing heat and smoke detection RS485 communication line, so it is expected that the convenience of information collection will be improved



※ NEOS-HSD200 can be connected from 1 to 32

2.2. Name for Each Part



No.	Name	Description
1	Display	Show current status
2	Operation button	Switch screens and change settings
3	Power	Powered CNT
4	RS485-1	RS485 communication CNT (Heat/smoke detector connection)
5	RS485-2	RS485 communication CNT (Host controller connection)
6	RLY	Relay output CNT

7	DIP SWITCH	RS485-2 terminating resistor selection S/W for communication
8	Fixing bracket	Support for fixing the product

2.3. Product Specification

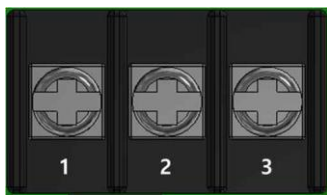
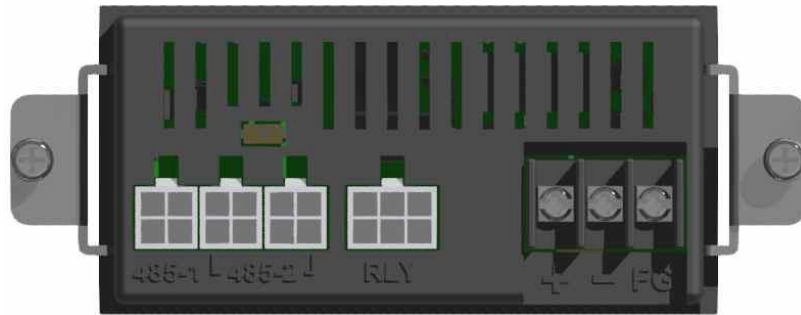


NEOS-HSD-I Specification(s)

Power supply	+24 VDC, 50 mA
Working condition	-20°C ~ 60°C, 0 ~ 95%RH (Non-condensing)
Storage condition	-30°C ~ 70°C, 0 ~ 95%RH (Non-condensing)
External Interface	RS485(2ch), DO(1ch)
Output method	Relay(1A1B Typ.) & RS485
Maximum output current	0.5A Max. @ 125 VAC / 1 A Max. @ 60 VDC
Display	2.2" TFT LCD
Dimensions	W 96 mm × H 48 mm × D 46 mm
Panel Cut-out Dimensions	W 92 mm × H 45 mm
Weight	130 g (Include Brackets)

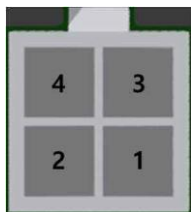
2.4. Signal Wiring

2.4.1. Connector



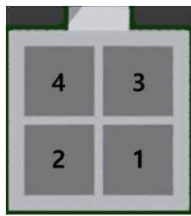
POWER

No.	Name	Description
1	(+)	+24V
2	(-)	GND of Power
3	F.G.	Frame Ground

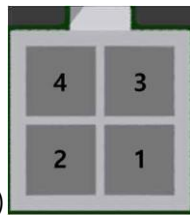


RS485-1

No.	Name	Description
1	B	Inverted signal (TRXD-)
2	G	Signal's GND
3	A	Non-inverted signal (TRXD+)
4	N.C.	Unused

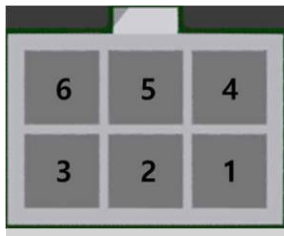


RS485-2(Left)



RS485-2(Right)

No.	Name	Description
1	B	Inverted signal (TRXD-)
2	G	Signal's GND
3	A	Non-inverted signal (TRXD+)
4	N.C.	Unused



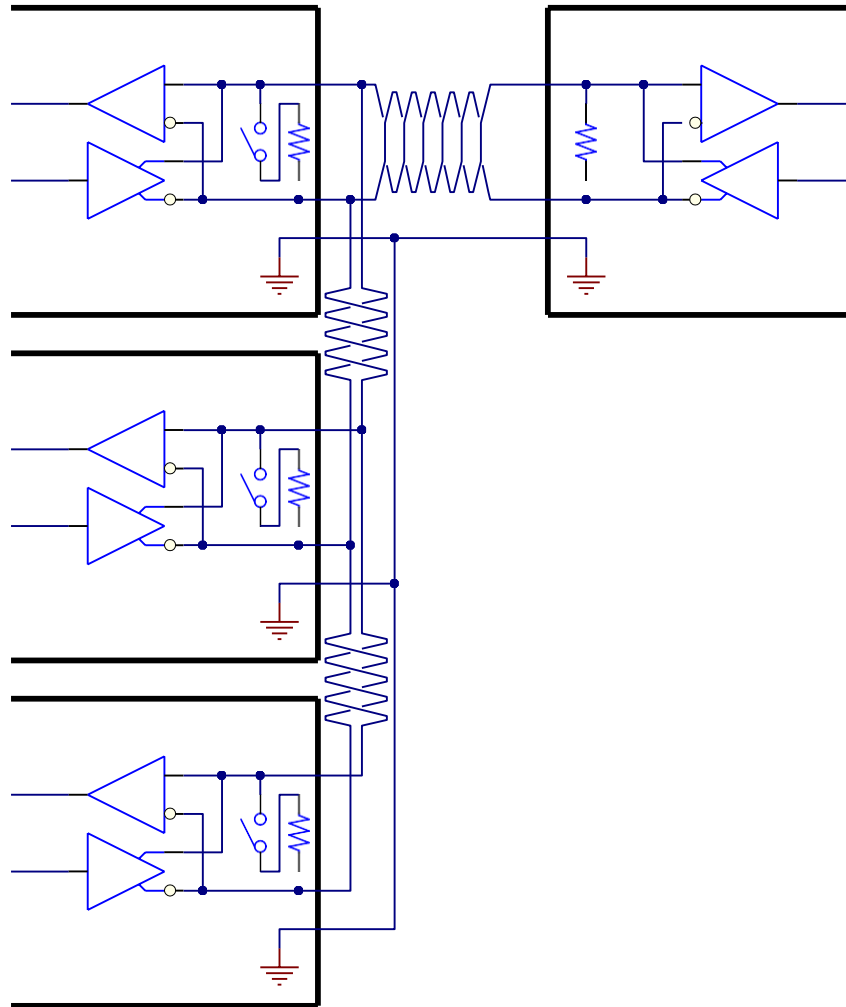
RLY

No.	Name	Description
1	NC1	Normally closed contact of relay output 1
2	COM1	Common contact of relay output 1
3	NO1	Normally open contact of relay output 1
4	N.C.	Spare
5	N.C.	Spare
6	N.C.	Spare

2.4.2. Cable

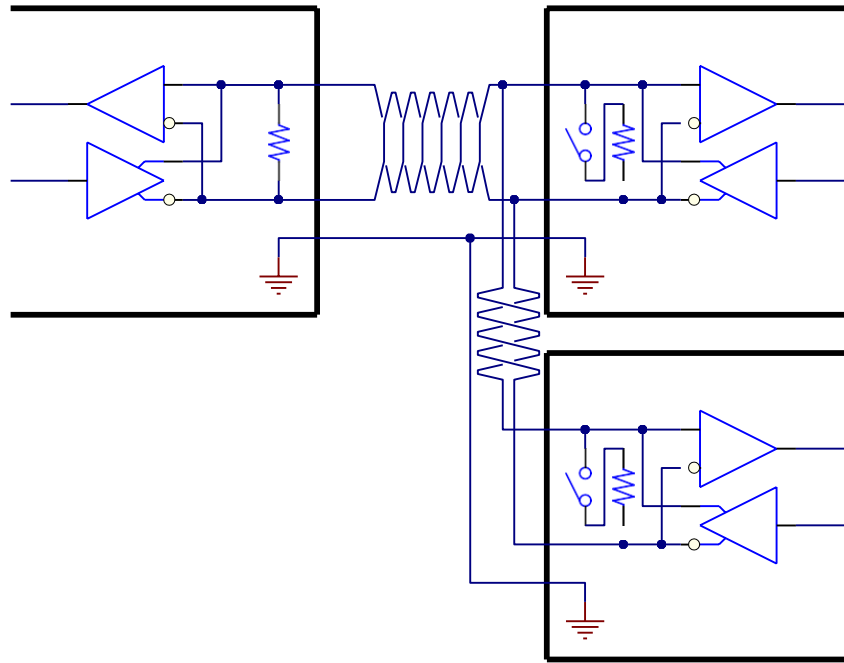
1) RS485-1 communication wiring

Bind the non-inversion of the transmit and receive signals to A and connect the inversion to B. The terminating resistance of the module is fixed at 120 Ω and no power is supplied. It is recommended to use the same pair of cables as the UL2919 series. At least one heat and smoke detector must be connected, and up to three are supported.



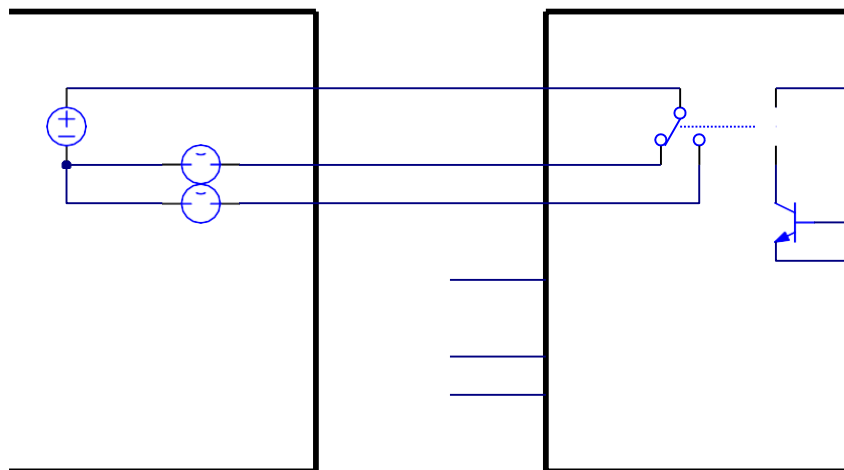
2) RS485-2 communication wiring

Bind the non-inversion of the transmit and receive signals to A and connect the inversion to B. It is possible to select whether to use the module's terminating resistance 120 Ω or not, and power is not supplied. It is recommended to use the same pair of cables as the UL2919 series. Depending on the usage environment, indicators can be connected in parallel.



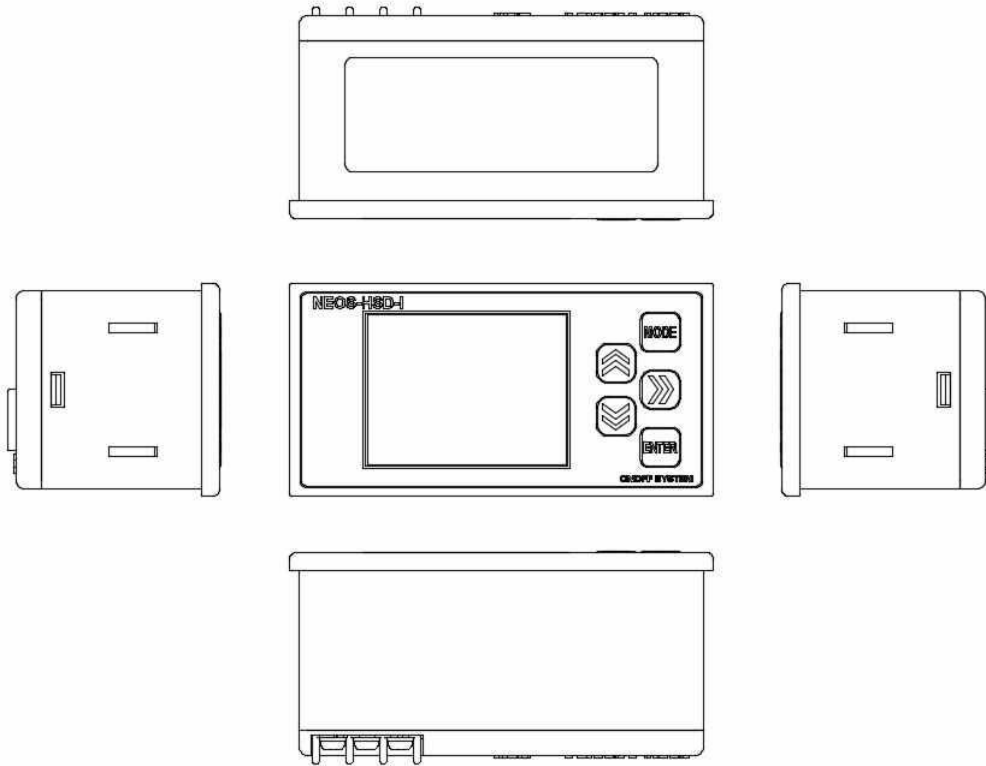
3) Relay output

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. is a normally closed contact and N.O. is a normally open contact. When output occurs, RLY is excited, and the COM terminal is separated from the N.C. and connected to the N.O. terminal.

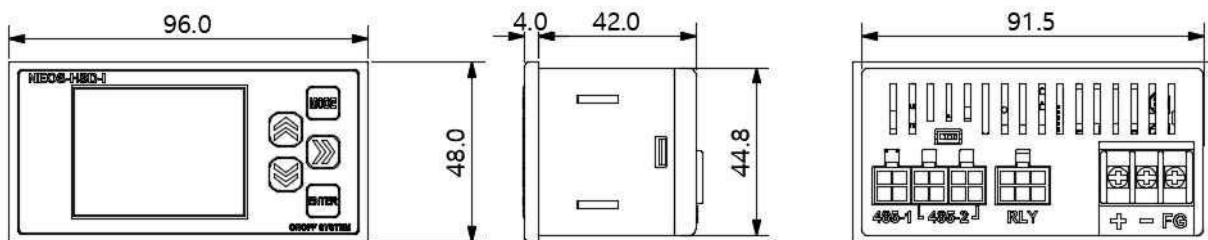


2.5. Dimensions

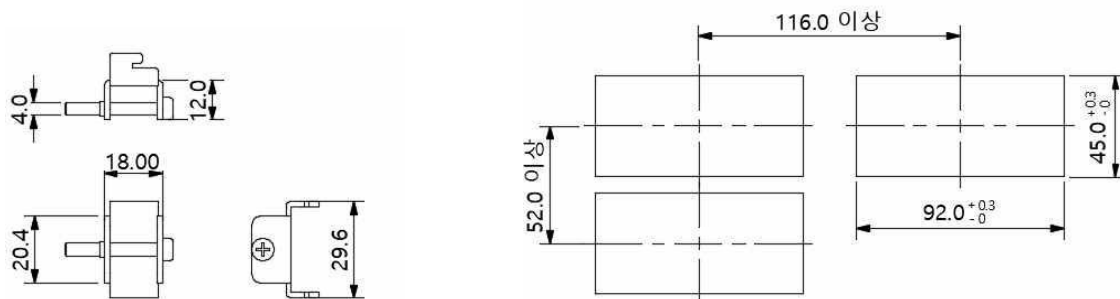
■ Outline diagram



■ Dimensions



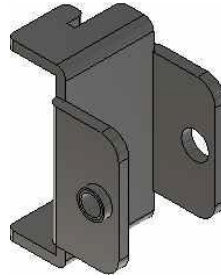
■ Fixing bracket and panel perforation diagram



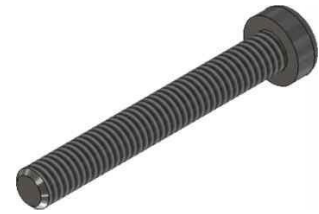
3. Components



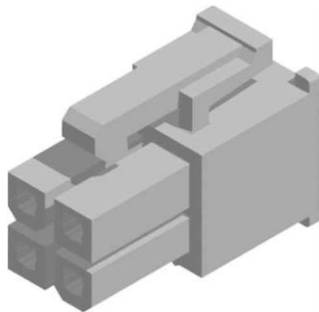
LCD Indicator 1pcs



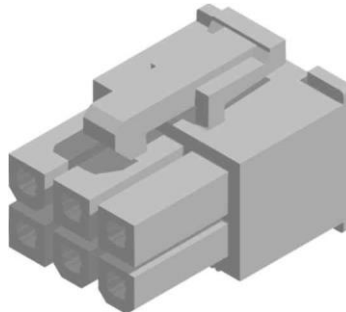
Fixing bracket 2cps



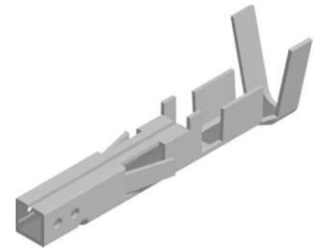
M4x35 Round head
Cross bolt 2pcs



CHD1140-04 _Hanlim
(4PIN housing) 3pcs



CHD1140-06 _ Hanlim
(6PIN housing) 1pcs



CTD1140 _ Hanlim
(Crimp terminal) 13pcs

4. How to Operate

4.1. Operation Switch

4.1.1. MODE Switch

- 1) Press for 3 seconds on the main screen to go to the setting screen

4.1.2. UP Switch

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

4.1.3. DOWN Switch

- 1) Change setting value (decrease), move setting item (below)

4.1.4. ENTER Switch

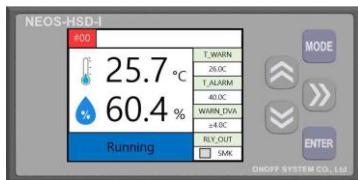
- 1) Setting item, setting completion switch

4.1.5. RIGHT Switch

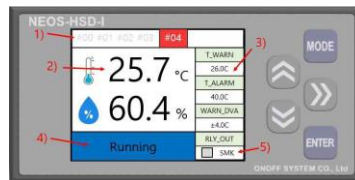
- 1) Move ID on main screen, select setting item (only at value change position)

4.2. Screen Layout

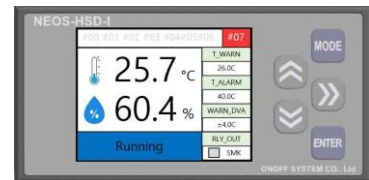
4.2.1. Main Screen



ID 0



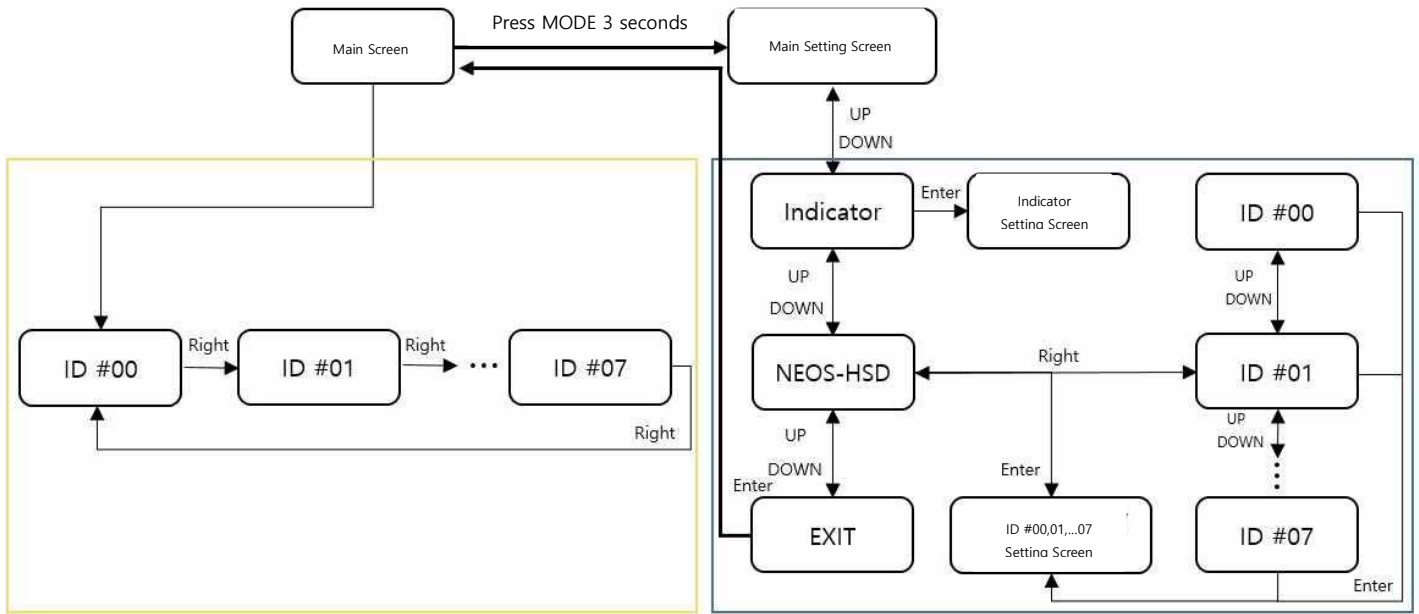
ID 4 out of 0~4



ID 7 out of 0~7

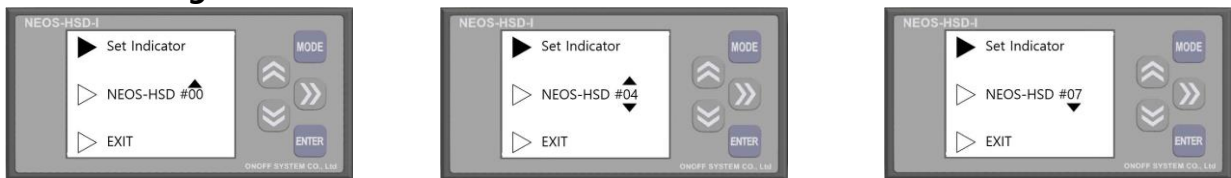
- 1) Displays the currently active heat/smoke detector ID number on the main screen.
- 2) Displays the current temperature and humidity of the heat and smoke detector.
- 3) Displays the current setting value of the heat and smoke detector.
- 4) Display of heat and smoke detector status
 - (1) Disconnected: Indicates the state in which communication is not connected.
 - (2) Running: Indicates the normal operating state of the heat and smoke detector.
 - (3) SMK Alarm: Indicates the smoke detection status of the heat and smoke detector.
 - (4) Temp WARN: Indicates the temperature warning status of the heat/smoke detector.
 - (5) Temp Alarm: Displays the temperature alarm status of the heat/smoke detector.
- 5) RLY_OUT notation
 - (1) Indicate one of the output settings items OFF, RUN, SMK, WARN, and ALARM.
 - (2) Indicate the output operation status of the output setting item.
 - (3) If the ID of the current main screen is not the relay output setting ID, it is

displayed in gray.



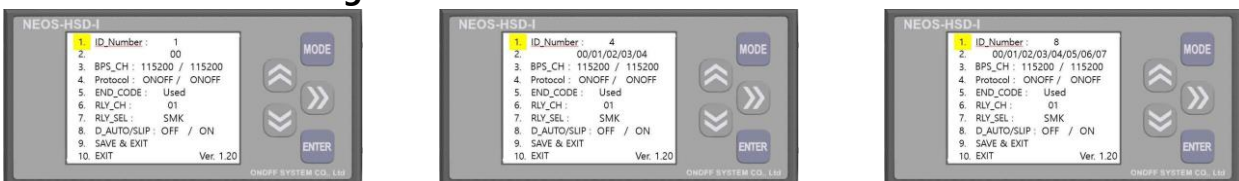
Display Screen Flow

4.2.2. Settings Main Screen



- 1) Displays the menu for entering the indicator setting screen.
- 2) Displays the menu for entering the NEOS-HSD #00, #04, #07 (heat/smoke detector) setting screen.
- 3) Displays the menu for returning to the main screen.

4.2.3. Indicator Settings Screen



- 1) ID_Number: Displays the number of IDs to be currently set.
- 2) ID_CH: Displays the ID to be connected to the heat/smoke detector.
- 3) BPS_CH: Displays the left column. Smoke detector, right upper controller communication speed (BPS).
- 4) Protocol: Displays the left column, smoke detector, and right upper controller communication. (Heat/smoke detector is fixed as ONOFF, upper controller can be selected as ONOFF or Modbus)

- 5) END_CODE : Indicates whether CR, LF of End Code is used.
- 6) RLY_SEL: Displays heat/smoke detector ID for relay output.
- 7) RLY_CH : Displays the type of relay output (OFF, RUN, SMK, WARN, ALARM).
- 8) D_AUTO/SLIP: Displays the setting status for the D_AUTO main screen ID automatic switching function. When DSIP_AUTO is set to ON, the display ID screen of the main screen is automatically switched sequentially every 15 seconds.
If D_SLIP is set to ON, the display turns off when no button is pressed on the main screen for 30 minutes, and the display screen turns on again when the UP, DOWN, RIGHT, ENTER, MODE buttons are pressed.
- 9) Save & EXIT: After saving the changed value, return to the main setting screen is displayed.
- 10) EXIT: Displays the return to the setting main screen without saving the changed value.

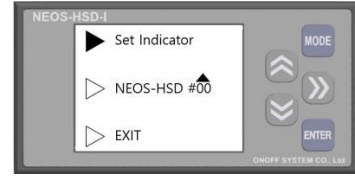
4.2.4. Heat and Smoke Detector Setting Screen



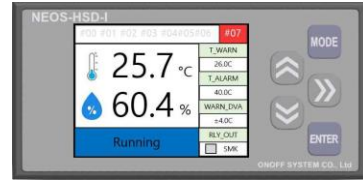
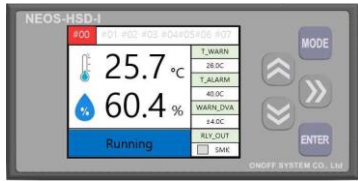
- 1) Temp Warn Ref: Displays the temperature warning value for the heat/smoke detector of the designated ID.
- 2) Temp Alarm Ref: Displays the temperature alarm value.
- 3) WARN DVA Ref: Displays the temperature warning deviation value.
- 4) Temp Amode: Displays the temperature warning alarm maintenance setting value.
- 5) WARN Cmode: Displays the temperature warning maintenance setting value.
- 6) Alarm Cmode: Displays the temperature alarm maintenance setting value.
- 7) Save & EXIT: After setting the heat/smoke detector for the changed value, it displays the return to the main setting screen.
- 8) EXIT: Displays the return to the setting main screen without saving the changed value.

4.3. How to Operate the Main Screen

- 1) How to switch to the main setting screen



- (1) Press the MODE switch for 3 seconds to move to the setting main screen.
- 2) How to switch main screen display ID

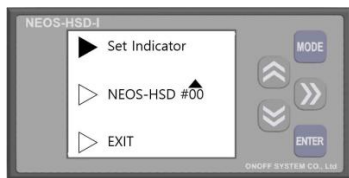


- (1) Press the RIGHT switch to move from #00 to #07, and press the switch again to move from #07 to #00.

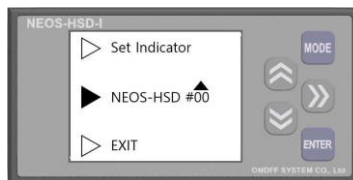
4.4. Operate Details of the Setting Screen

4.4.1. How to Operate the Setting Main Screen

- 1) How to enter the indicator setting screen

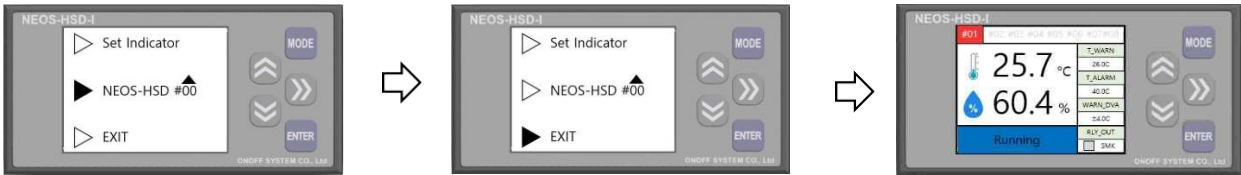


- (1) ►(Cursor) enters by pressing the ENTER switch at the Set Indicator position.
- 2) How to enter the heat and smoke detector setting screen



- (1) Move the ►(cursor) to the NEOS-HSD #00 position with the DOWN switch and press the ENTER switch to enter.

3) How to return to the main screen



(1) Move ►(Cursor) to the EXIT position with the DOWN switch and return by pressing the ENTER switch.

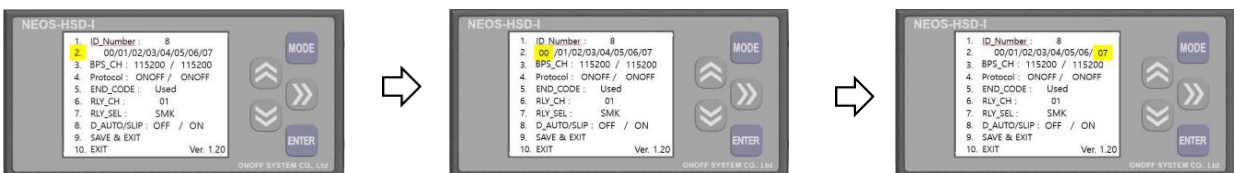
4.4.2. How to Operate the Indicator Screen

1) How to change the number of IDs



(1) In ID_Number item, press RIGHT or ENTER switch to move to the setting tap position, use UP or DOWN switch to change the number of IDs, and press ENTER or RIGHT switch to change it.

2) How to change ID channel



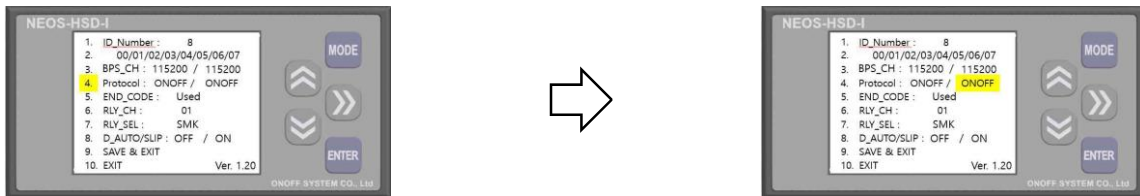
(1) Press the UP/DOWN switch to move to the ID_CH item and then press the RIGHT or ENTER switch to move to the ID setting tab. Set the ID number for each channel by using the UP or DOWN switch and change it by pressing the ENTER switch.

3) How to change the BPS speed (detector/upper controller)



(1) Press the UP/DOWN switch to move to the BPS_CH item and then press the RIGHT or ENTER switch to move to the Baud Rate setting tab. The left side of the setting tab is the heat/smoke detector baud rate, and the right side is the host controller baud rate. Press the UP or DOWN switch to change the BPS value, and then press the ENTER switch to change it.

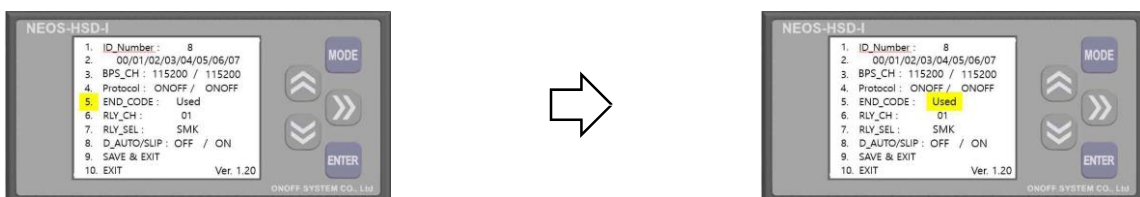
4) How to change Protocol



(1) Press the UP/DOWN switch to move to the Protocol item, then press the RIGHT or ENTER switch to move to the Protocol change tab. Press the UP or DOWN switch in the setting tab to change to one of ONOFF or Modbus, and then press the ENTER switch to change it.

(The left is the heat/smoke detector communication, the right is the upper controller communication protocol, and the left is fixed ONOFF communication.)

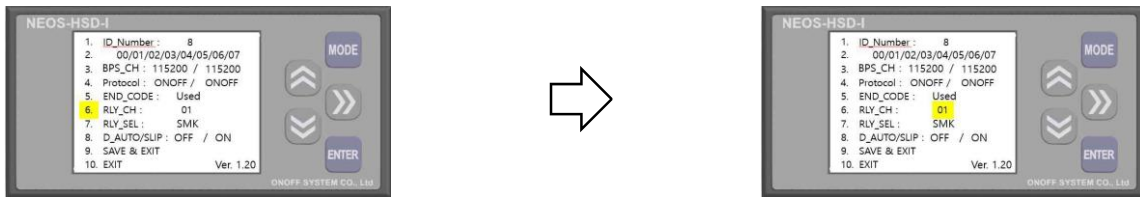
5) How to change END_CODE



(1) After moving to the END_CODE item by pressing the UP/DOWN switch, press the RIGHT or ENTER switch to move to the END_CODE change tab. In the setting tab, press the UP or DOWN switch to change to either Used or Unused, and then press the ENTER switch to change it.

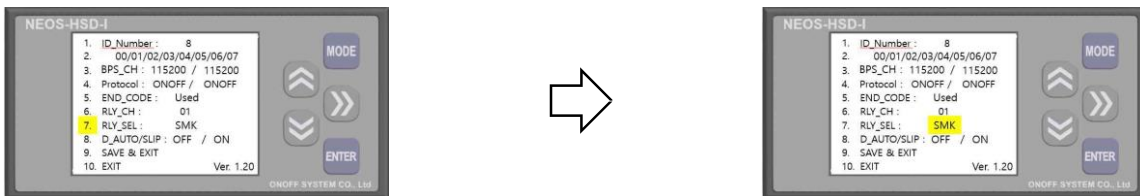
(Applied to the upper controller ONOFF protocol.)

6) How to change relay channel



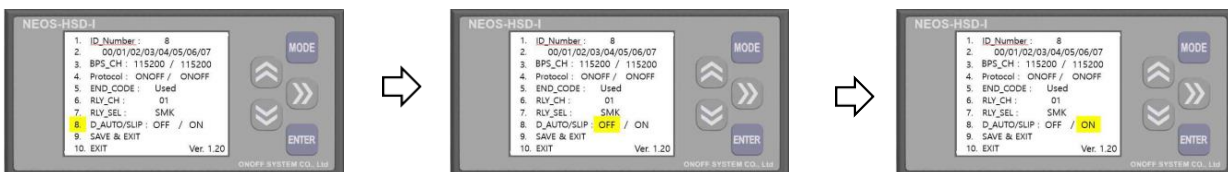
(1) Press the UP/DOWN switch to move to the RLY_CH item, and then press the RIGHT or ENTER switch to move to the relay output change tab. In the setting tab, press the UP or DOWN switch to change to the desired channel, and then press the ENTER switch to change.

7) How to change relay output status



(1) Press the UP/DOWN switch to move to the RLY_SEL item, and then press the RIGHT or ENTER switch to move to the relay output type setting tab. In the setting tab, press the UP or DOWN switch to change to one of OFF, RUN, SMK, WARN, ALARM, and then press the ENTER switch to change it.

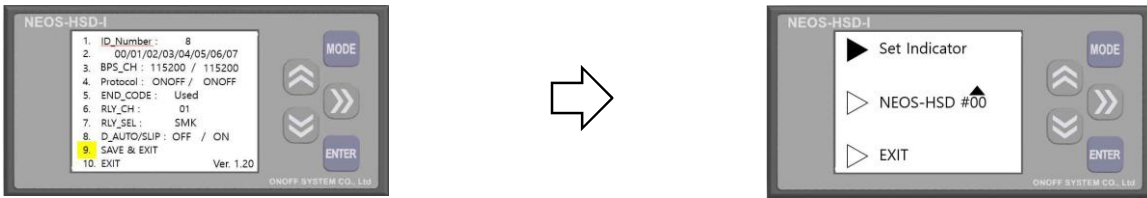
8) How to change Display AUTO / Slip



Press the UP/DOWN switch to move to the D_AUTO/SLIP item, and then press the RIGHT or ENTER switch to move to the main screen ID automatic conversion and main screen slip function setting tab. Press the UP or DOWN switch in the setting tab to change to one of ON/OFF and then press the ENTER switch to change it.

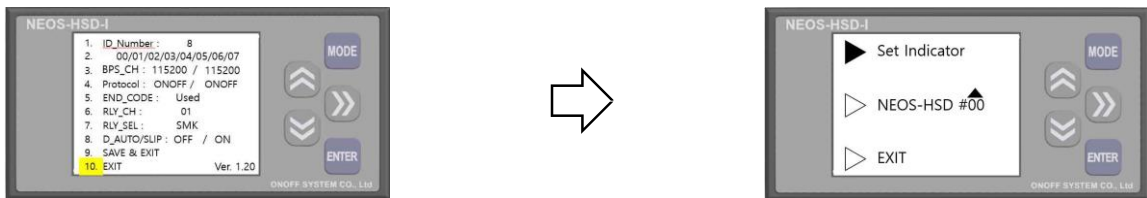
◆ After setting the D_SLIP function to OFF, please refrain from using it for a long time. It may affect the long-term lifespan of the product and may cause deterioration and malfunction of the LCD.

9) How to save and exit



(1) Press the UP/DOWN switch to move to the SAVE & EXIT item, then press the ENTER switch to save the changed set value and return to the main setting screen. At this time, if the BPS_CH setting is changed, the system reboots and returns to the main screen.

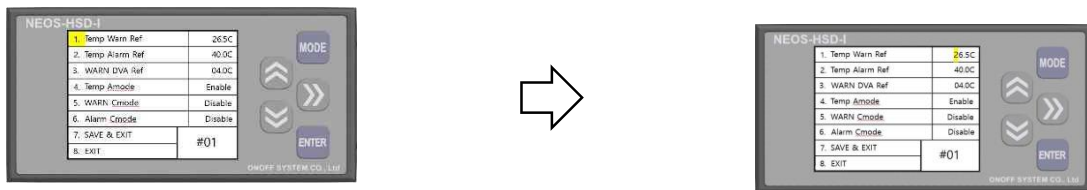
10) How to exit without saving



After moving to the EXIT item by pressing the UP/DOWN switch, press the ENTER switch to return to the setting main screen without saving the changed value.

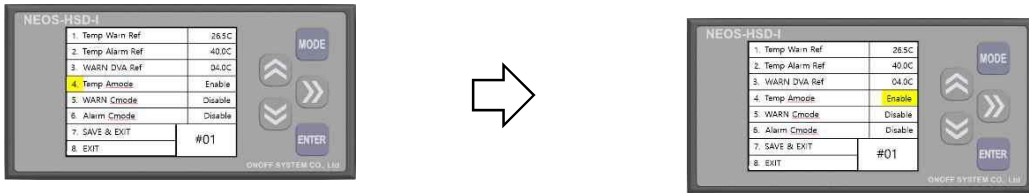
4.4.3. How to Operate the NEOS-HSD Setting Screen

1) How to change temperature warning, alarm, and horseshoe values



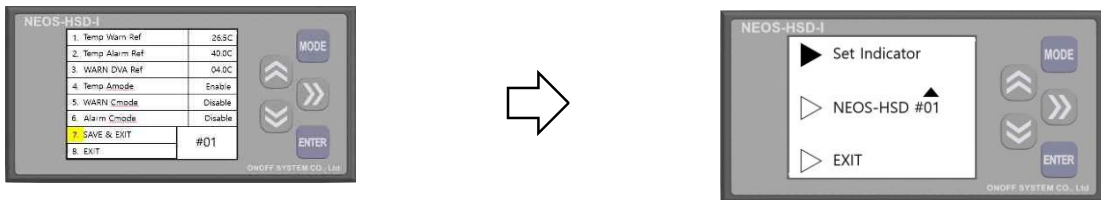
(1) Press the RIGHT or ENTER switch in the Temp Warn Ref, Temp Alarm Ref, and Temp WARN DVA Ref items, respectively, to move to the tenth, one, and decimal places. In the setting tab, press the UP or DOWN switch to change the temperature value to be set, and then press the ENTER switch at the decimal point to change it.

- 2) How to change the temperature warning alarm function, keep warning, keep alarm



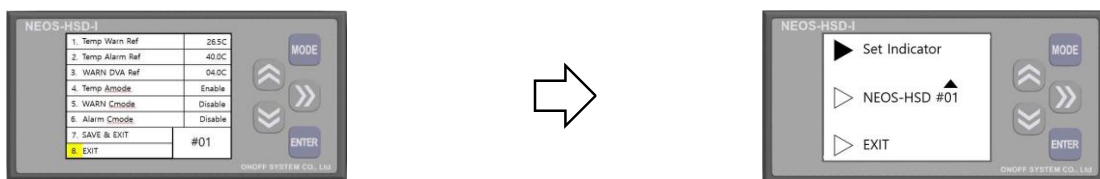
- (1) Press the UP/DOWN switch to move to Temp Amode, WARN Cmode, and Alarm Cmode, and then press the RIGHT or ENTER switch to move to the Enable, Disable setting tab. In the setting tab, press the UP or DOWN switch to change to one of Enable/Disable, and then press the ENTER switch to change it.

- 3) How to save and exit



- (1) Press the UP/DOWN switch to move to the SAVE & EXIT item and press the ENTER switch to return to the main setting screen after setting the heat/smoke detector for the changed value.

- 4) How to exit without saving



- (1) After moving to the EXIT item by pressing the UP/DOWN switch, press the ENTER switch to return to the setting main screen without saving the changed value.

5. Communication Specification

5.1. ONOFF Protocol

5.1.1. Communication Method (RS485-2 Port)

- 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 : Classification of commands
- 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	15	16	17
Format	STX	Length MSB LSB		CMD MSB LSB		Code	Count	ID	DATA							Checksum	ETX	
HEX	0x53	0x00	0x0C	0x05	0x01	0x01	0x00	0x00	0x00								0x45	

- 2) Sensor -> PC(Normal command response)

Index	0	1	2	3	4	5	6	7	8	...	19	20	21	22	23	24	25
Format	STX	Length MSB LSB		CMD MSB LSB		Code	Count	DATA					Checksum	ETX	CR	LF	
HEX	0x53	0x00	0x12	0x05	0xA1	0x01	0x00	See data details						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	19	20
Format	ID	OpState MSB LSB		Error Code	Temperature MSB LSB		Humidity MSB LSB		Warning temperature reference MSB LSB		Alarm temperature reference MSB LSB		Deviation reference value MSB LSB	
HEX	0x00													

OPState

Data			
		MSB Description	LSB Description
Bit 0	0	Display Slip unused	Stop
	1	Display Slip used	Running
Bit 1	0	Buzzer unused	Non-occurring
	1	Buzzer used	Smoke detection
Bit 2	0	Smoke detect Level	Non-occurring
	1	00 : 1Level	Temperature warning
Bit 3	0	01 : 2Level	Non-occurring
	1	10: 3Level	Temperature alarm
Bit 4	0	Heartbeat setting 000: Unused	Non-occurring
	1		Detector Error Occurred
Bit 5	0	001: 1 min	Not set
	1	010: 10 min	Temp. warning alarm setting
Bit 6	0	011: 30 min	Not set
	1	100: 1 hour	Temp. warning hold setting
Bit 7	0	Detector connected	Not set
	1	Detector disconnected	Temp. alarm hold setting

ID

Data	Description
0~64	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	Alarm temperature reference value
	MSB LSB
HEX	0x10 0xD6
INT	4310
Input Value	43.1

Warning Temperature Threshold

Format	Warning Temp. Threshold	
	MSB	LSB
HEX	0x0B	0xEA
INT	3050	
Input Value	30.5	

Deviation reference value

Format	Deviation reference 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

※ OPState MSB bits 0~6 are status information used only by NEOS-HSD200

5.1.4. Alarm Reset

1) PC -> Sensor

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

2) Sensor -> PC(Normal command response)

Index	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Format	STX	Length MSB LSB		CMD MSB LSB		Code	Count	ID	Error	Reset					Checksum		ETX	CR	LF	
HEX	0x53	0x00	0x0C	0x05	0xA3	0x01	0x00	0x00	0x00	0x01	0x00						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	15	16	17
Format	STX	Length		CMD		Code	Count	Data						Checksum	ETX			
		MSB	LSB	MSB	LSB			ID	Error	Warning Threshold		Alarm Threshold						
HEX	0x53	0x00	0x0C	0x05	0x03	0x02	0x00	0x00	0x00	0x0B	0xEA	0x11	0xA8	0x00	0x00			0x45

(1) Temperature warning reference value

(2) Temperature alarm threshold

Format	Alarm temp. threshold	
	MSB	LSB
HEX	0x0B	0xEA
INT	3050	
Input value	30.5	

Format	Alarm temp. threshold	
	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	15	16	17	18	19
Format	STX	Length		CMD		Code	Count	Data						Checksum	ETX	CR	LF			
		MSB	LSB	MSB	LSB			ID	Error	Warning threshold		Alarm threshold								
HEX	0x53	0x00	0x0C	0x05	0xA3	0x02	0x00	0x00	0x00	0x0B	0xEA	0x11	0xA8	0x00	0x00			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	15	16	17
Format	STX	Length		CMD		Code	Count	Data						Checksum	ETX			
		MSB	LSB	MSB	LSB			ID	Error	Deviation threshold								
HEX	0x53	0x00	0x0C	0x05	0x03	0x06	0x00	0x00	0x00	0x00	0xDC	0x00	0x00	0x00	0x00			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	12	13	14	15	16	17	18	19
Format	STX	Length		CMD		Code	Count	Data						Checksum	ETX	CR	LF			
		MSB	LSB	MSB	LSB			ID	Error	Deviation threshold										
HEX	0x53	0x00	0x0C	0x05	0xA3	0x06	0x00	0x00	0x00	0x00	0xDC	0x00	0x00	0x00	0x00			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	15	16	17	
Format	STX	Length		CMD		Code	Count	Data						Checksum	ETX				
		MSB	LSB	MSB	LSB			ID	Error	Alarm used									
HEX	0x53	0x00	0x0C	0x05	0x03	0x03	0x00	0x00	0x00	0x01	0x00								0x45

(1) Use 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	12	13	14	15	16	17	18	19	
Format	STX	Length		CMD		Code	Count	Data						Checksum	ETX	CR	LF				
		MSB	LSB	MSB	LSB			ID	Error	Alarm used											
HEX	0x53	0x00	0x0C	0x05	0xA3	0x03	0x00	0x00	0x00	0x01	0x00								0x45	0x0D	0x0A

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

5.1.8. Enabling keep Temperature Alarm

1) PC -> Sensor

Index	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Format	STX	Length		CMD		Code	Count	Data						Checksum					
		MSB	LSB	MSB	LSB			ID	Error										
HEX	0x53	0x00	0x0C	0x05	0x03	0x04	0x00	0x00	0x00	0x01	0x00								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	12	13	14	15	16	17	18	19	
Format	STX	Length		CMD		Code	Count	Data						Checksum	ETX	CR	LF				
		MSB	LSB	MSB	LSB			ID	Error	Warning used											
HEX	0x53	0x00	0x0C	0x05	0xA3	0x04	0x00	0x00	0x00	0x01	0x00								0x45	0x0D	0x0A

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

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	15	16	17	
Format	STX	Length		CMD		Code	Count	Data						Checksum	ETX				
		MSB	LSB	MSB	LSB			ID	Error	Alarm used									
HEX	0x53	0x00	0x0C	0x05	0x03	0x05	0x00	0x00	0x00	0x01	0x00								0x45

(1) 알람 유지

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	12	13	14	15	16	17	18	19	
Format	STX	Length		CMD		Code	Count	Data						Checksum	ETX	CR	LF				
		MSB	LSB	MSB	LSB			ID	Error	Alarm used											
HEX	0x53	0x00	0x0C	0x05	0xA3	0x05	0x00	0x00	0x00	0x01	0x00								0x45	0x0D	0x0A

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

5.1.10 Error Response (Common)

3) Sensor -> PC

Index	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Format	STX	Length		CMD		Code	Count	Data						Checksum	ETX	CR	LF				
		MSB	LSB	MSB	LSB			ID	Error												
HEX	0x53	0x00	0x0C	0x05	0xA3	0x01	0x00	0x00	0xFF	0x00	0x00								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 for errors using CRC.

5.2.1. Packet Structure

1) Packet structure of Modbus RTU protocol is as follows

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

2) 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 64.
Function Code	It means what kind of operation the slave will do when sending a request from the master to the slave. 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-HSD-I are as follows.

Function code Decimal [Hexadecimal]	Name	Description
3 [03h]	Read Holing Registers	Read the holding register 0~30 data of the save 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 Register is accessed with an address 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-HSD-I device. Each holding register is a 2-bytes 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-HSD-I 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	2: Request for register value of undefined address 3: Request to store invalid data in 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	The holding register address to be recorded. The register is accessed with an address 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 to write to Registers are accessed by address starting from 0.
Quantity of Registers	2	Number of registers to write Range: 1 - 16
Byte Count	1	2*Quantity of Registers
Register Values	2*Quantity of Registers	Value to write to 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 of "Read Holding Registers"
Exception Code	1	2: Request for register value of undefined address 3: Request to store invalid data in 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". Registers 0 – 3 are accessed by address 0-3 on the packet. Assume that "Device Address" of NEOS_HSD-I is 1.

1) Request Packet

Device Address	Function Code	Data		CRC
		Starting Address	Quantity of Registers	
1 byte	1 byte	2 bytes	2 bytes	2 bytes
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 byte	6 bytes			2 bytes
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) CRC table ready

```

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	Type	Byte	Bit		
OPState	Read	40960	A0 00	1 Word	Byte- H(MSB)	0	Display Slip	0:Unuse 1: Use
						1	Buzzer	0:Unuse 1: Use
						2	Smoke detect level	00: 1Level
						3		01: 2Level 01 3Level
						4	Heartbeat	000 : Unuse
						5		001 : 1 min
						6		010 : 10 min 011 : 30 min 100 : 1 hour
						7	Smoke Detector Connection Status	0:Unuse 1: Use
					Byte- L(LSB)	0	Running	ON : Operative OFF : Stopped (When alarm occurs, no warning) (stop: in case of smoke detection, temp. alarm)
						1	Smoke detection	0: Undetected 1:Detected
						2	Temp. warning	0: non-occur 1: Occur
						3	Temp. alarm	0: non-occur 1: Occur
						4	Detection error	0: non-occur 1: Occur
						5	Reserved	
						6	Reserved	
7	Reserved							

※ OPState MSB bits 0~6 are status information used only by NEOS-HSD200

Division	Read/Write Mode	Data Address		Data Value(HEX)			Description 1	Description 2
		DEC	HEX	Type	Byte	Bit		
Error Code	Read	40962	A0 02	1 Word	Byte- H(MSB)		Temp. sensor Error : 0x01 EEPROM Error : 0x02 Checksum Error : 0x03 LCD Error : 0x04	Error Detector Error Occurred
					Byte- L(LSB)			
Temperature Value	Read	40964	A0 04	1 Word	Byte- H(MSB)		Temperature [C]	Transmitter: Temp. * 100 Receiver: Received value /100
					Byte- L(LSB)			
Humidity Value	Read	40966	A0 06	1 Word	Byte- H(MSB)		Humidity [%]	Transmitting side: Humidity * 100 Receiving side: Received value / 100
					Byte- L(LSB)			
Reserve	Read	40968	A0 08	1 Word	Byte- H(MSB)		Reserve	
					Byte- L(LSB)			
Reserve	Read	40970	A0 0A	1 Word	Byte- H(MSB)		Reserve	
					Byte- L(LSB)			
Reserve	Read	40972	A0 0C	1 Word	Byte- H(MSB)		Reserve	
					Byte- L(LSB)			
Reserve	Read	40974	A0 0F	1 Word	Byte- H(MSB)		Reserve	
					Byte- L(LSB)			
Temperature Value	Read/Write	40976	A0 10	1 Word	Byte- H(MSB)		Warning temperature reference [°C]	Transmitting side: Temp. standard * 100 Receiving side: Receiving value/100
					Byte- L(LSB)			
	Read/Write	40978	A0 12	1 Word	Byte- H(MSB)		Alarm temperature reference [°C]	Transmitting side: Temp. standard * 100 Receiving side: Receiving value/100
					Byte- L(LSB)			

Deviation Value	Read/Write	40980	A0 14	1 Word	Byte- H(MSB)		Warning temperature deviation standard [°C]	Transmitter: Deviation standard * 100 Receiver: Received value/100
					Byte- L(LSB)			
Temp Enable/Disable	Read/Write	40982	A0 16	1 Word	Byte- H(MSB)		Temperature warning/alarm Enable/Disable	0: not used, 1: used
					Byte- L(LSB)			
	Read/Write	40984	A0 18	1 Word	Byte- H(MSB)		Temperature warning maintenance operation Enable/ Disable	0: once, 1: keep
					Byte- L(LSB)			
	Read/Write	40986	A0 1A	1 Word	Byte- H(MSB)		Temperature Alarm Hold Action Enabel/Disable	0: Normal, 1: Maintain
					Byte- L(LSB)			
Reserve	Read/Write	40988	A0 1C	1 Word	Byte- H(MSB)		Reserved	
					Byte- L(LSB)			
Reserve	Read/Write	40990	A0 1E	1 Word	Byte- H(MSB)		Reserved	
					Byte- L(LSB)			
Alarm Reset	Write	41024	A0 40	1 Word	Byte- H(MSB)		Alarm Reset	0x01
					Byte- L(LSB)			

6. How to Install

6.1. Installation Environment and Precautions

6.1.1. Installation Environment

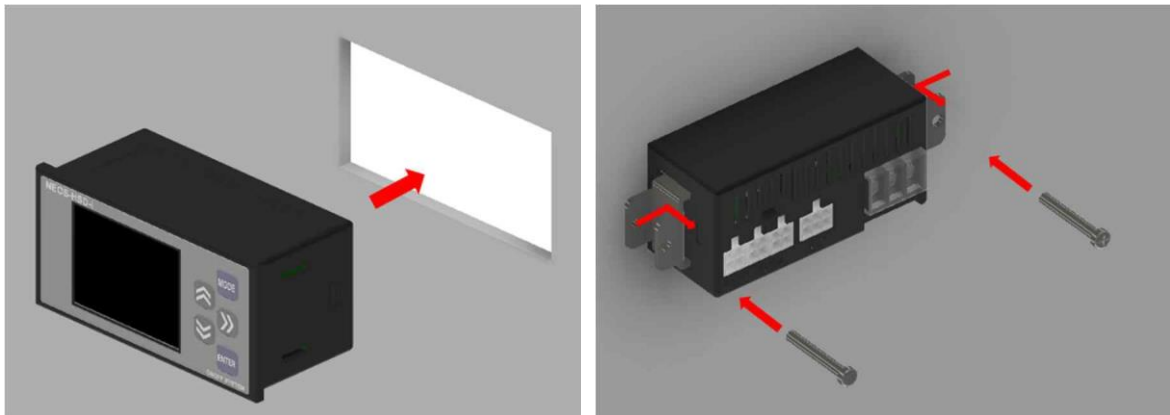
This product is to display the current information of the heat and smoke detector, and is based on being fixed to the panel.

6.1.2. Notes on Installation

- 1) Do not apply excessive force when fastening screws for fixing the product to the panel.
- 2) Check the polarity of the power supply terminal block to avoid incorrect wiring.
- 3) During normal operation, fix the cover of the power terminal block.

6.2. Fix

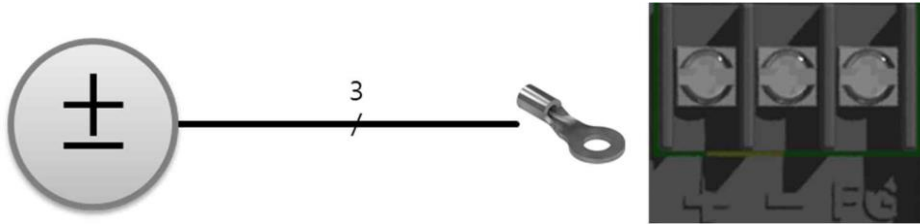
After inserting the product into the fixing hole of the panel from the outside, attach the brackets to the holes on both sides of the product and tighten the fixing bolts to fix it.



6.3. Wiring

6.3.1. Power

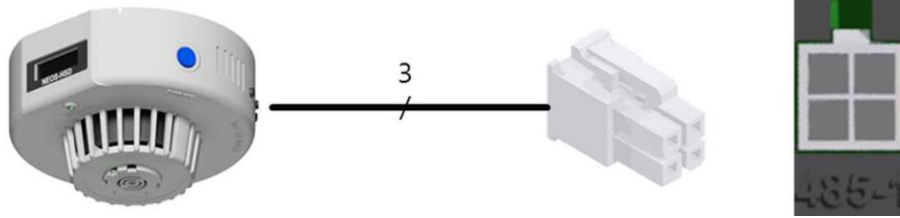
After assembling the harness wire with the crimp terminal (ring terminal for M3, 0.75SQ recommended) on the product side, remove the cover of the terminal block and loosen the screw, insert the wire terminal and tighten the screw to fix it. After tightening, it is recommended to cover it with a cover again. Pay attention to the incorrect wiring of the power to be applied, and in the case of F.G., determine whether to connect it according to the condition of the user panel.



6.3.2. Communication

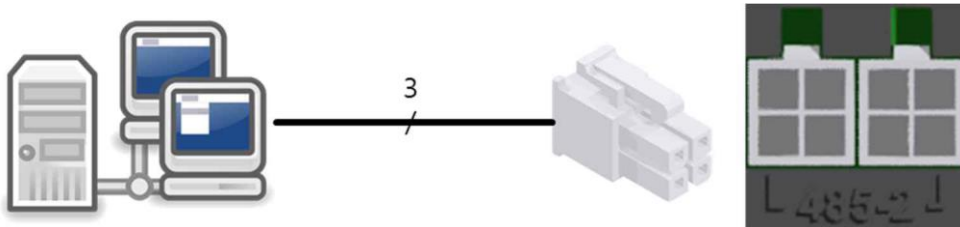
1) RS485-1

Assemble and connect crimp terminal CTD1140 (Hanlim, AWG16~20 recommended) harness wire to CHD1140-04 (Hanlim, 4-pin receptacle) on the product side and complete the wiring circuit as in 2.4.2. It is a communication port dedicated to heat and smoke detectors, and it is possible to connect at least 1 unit and max. 8 units.



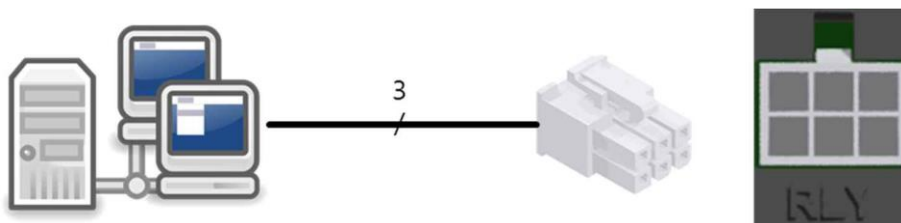
2) RS485-2

Assemble and connect crimp terminal CTD1140 (Hanlim, AWG16~20 recommended) harness wire to CHD1140-04 (Hanlim, 4-pin receptacle) on the product side and complete the wiring circuit as in 2.4.2. As a communication port for user equipment, parallel connection of indicator products is possible, and the left and right positions on the port are independent of operation.



6.3.3. Relay

Assemble and connect crimp terminal CTD1140 (Hanlim, AWG16~20 recommended) harness wire to CHD1140-04 (Hanlim, 4-pin receptacle) on the product side and complete the wiring circuit as in 2.4.2. A contact or B contact output can be used through the relay built into the product, and the operating conditions are set within the product menu.



6.4. Startup and set up

6.4.1. Power On

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

6.4.2. Startup After Initial Setting

Determine the indicator operation mode and ID to be displayed on the screen, and the communication speed with the heat/smoke detector and upper controller, and set the relay output inside the indicator.

1) Operation mode setting

- (1) In the main screen, press the MODE switch for 3 seconds to switch to the setting main screen.
- (2) In Set Indicator, press the ENTER switch to enter the indicator setting screen.
- (3) Press the RIGHT or ENTER switch in the ID_Number item to move to the setting tab, press the UP/DOWN switch to change the number of setting IDs, and then press the ENETR switch to complete the setting.

ID_Number can be set up to 8.

2) Heat/smoke detector connection ID setting

- (1) In ID_CH item, press RIGHT or ENTER switch to move to the setting tab. If ID_Number is greater than 1, press ENTER switch to move in the order of 00 ->01 ->02. Press the switch to complete the setting.

The ID number is up to 64.

3) Communication speed setting

- (1) Press the RIGHT or ENTER switch in the BPS_CH item to move to the setting tab, and press the UP and DOWN switches to change the BPS of the left column, smoke detector, and upper right controller, then press the ENTER switch to complete the setting.

4) Protocol setting

- (1) In the Protocol item, press the RIGHT or ENTER switch to move to the setting screen tab, and press the UP, DOWN switch to change it. It is basic ONDFF, and

RS-485 communication frame consists of the protocol provided by ONOFF and the protocol used in Modbus. Protocol setting is the communication protocol between the indicator and the host controller.

5) End Code Setting

- (1) In the END_CODE item, press the RIGHT or ENTER switch to move to the setting tab, press the UP and DOWN switches to change it, and then press the ENTER switch to complete the setting. Used is an indicator during RS-485 communication -> CR(0x0D) and LF(0x0A) are added to the end of the normal command response sent to the PC to send reception. Unused does not add CR(0x0D) or LF(0x0A).

6) Relay output setting

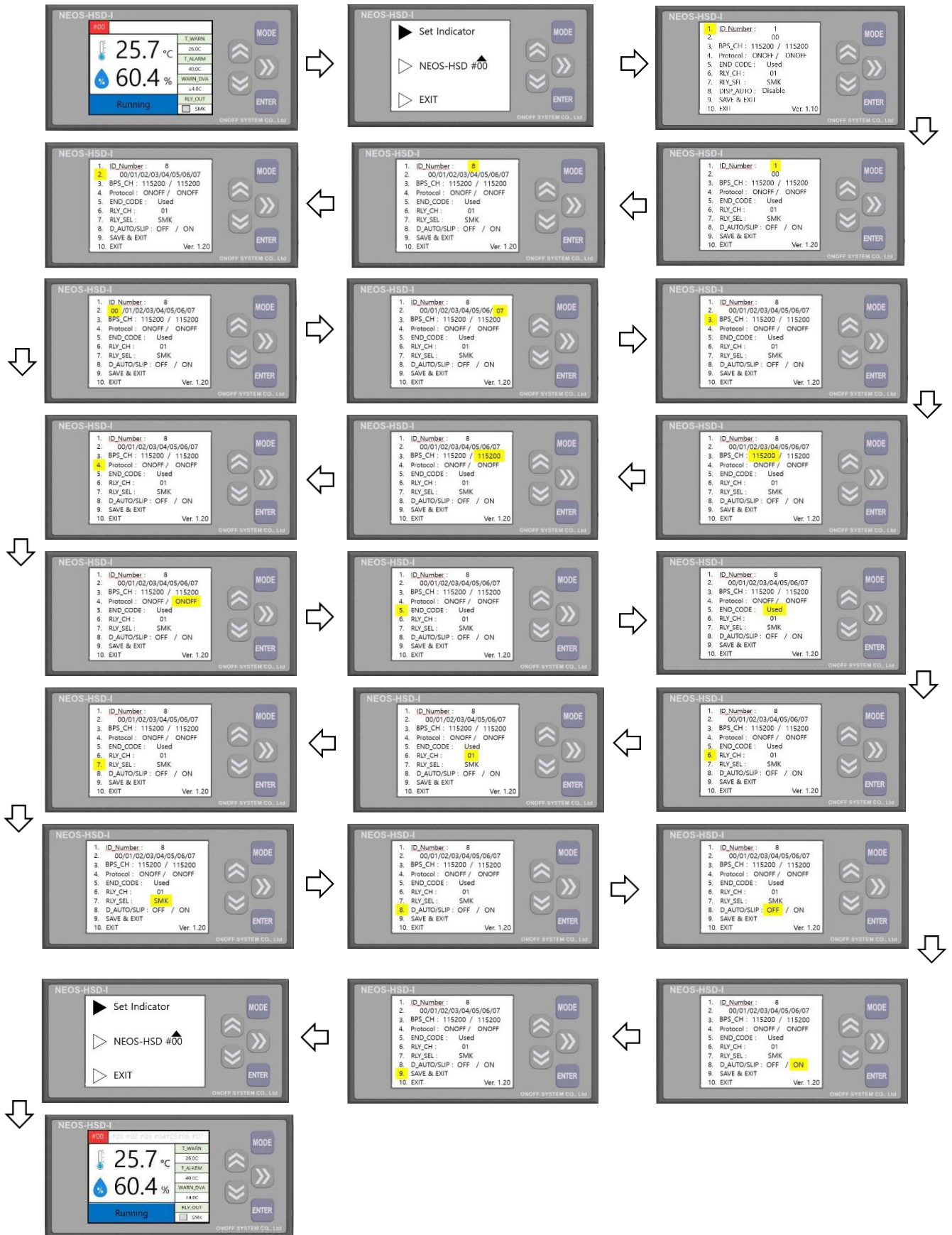
- (1) Press the RIGHT or ENTER switch in the RLY_SEL item to move to the setting tab, press the UP or DOWN switch to change the relay output type to OFF, RUN, SMK, WARN, or ALARM, and press the ENTER switch to complete the setting.

7) D_AUTO/SLIP function setting

- (1) In the D_AUTO/SLIP item, press the RIGHT or ENTER switch to move to the setting tab, press the UP or DOWN switch to change to ON/OFF, and then press the ENTER switch to complete the setting.

8) Save setting and complete

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

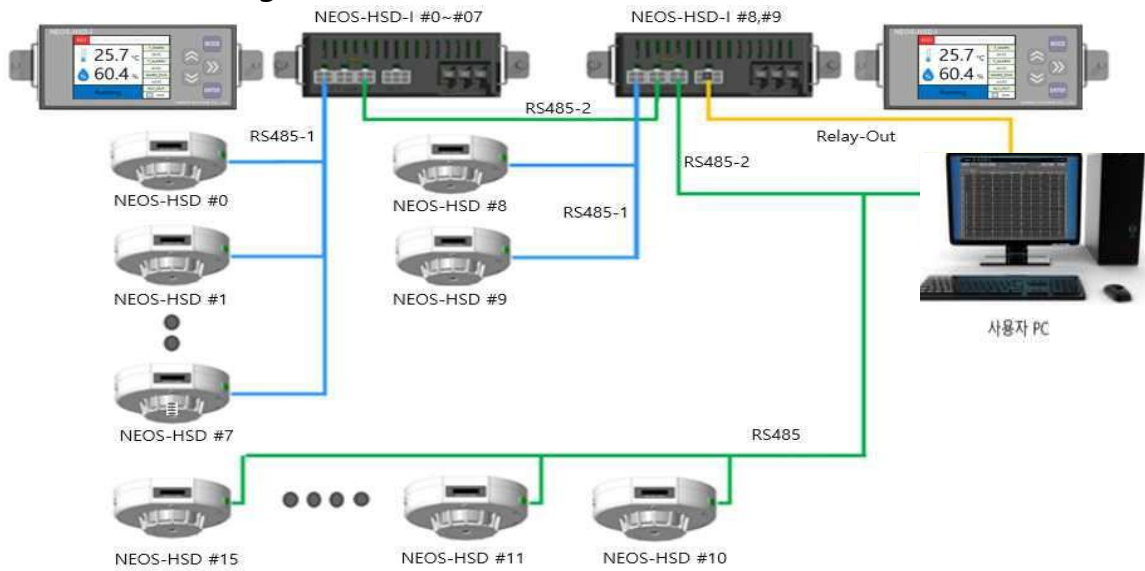


Initial Setup Display Screen Flow

7. Others

7.1. How to Use Monitoring Program

7.1.1. Connection Configuration and Method



※ NEOS-HSD200 ID can be set from 1 to 64 (up to 32 connections)

7.1.2. User UI Program

NEOS HSD 통합 모니터링 프로그램 진행 상태 : 데이터 갱신 중

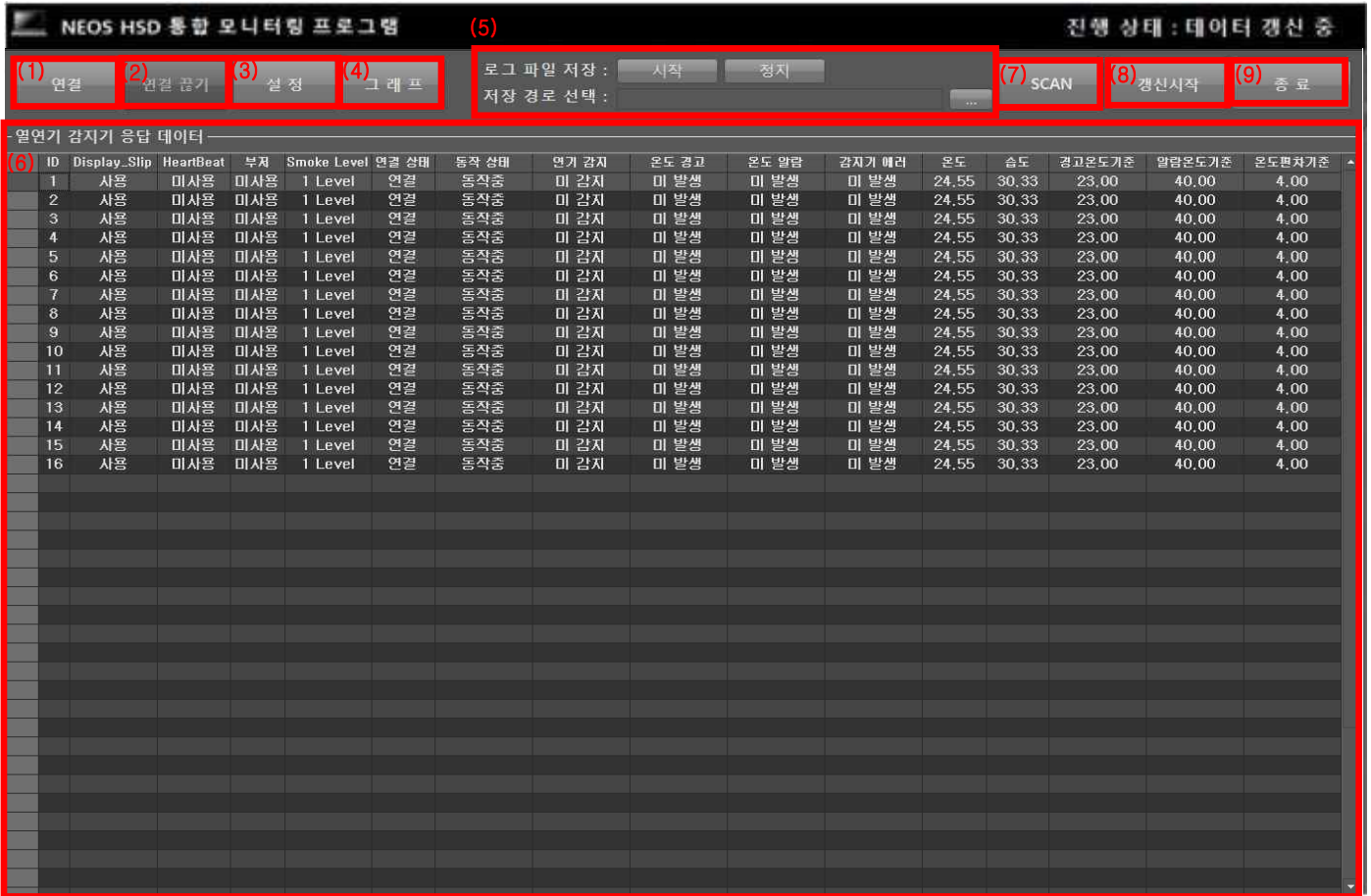
연결 연결 끊기 설정 그래프 로그 파일 저장 : 시작 중지 저장 경로 선택 : ... SCAN 갱신시작 종료

- 열연기 감지기 응답 데이터

ID	Display	Slip	HeartBeat	부지	Smoke Level	연결 상태	동작 상태	연기 감지	온도 경고	온도 알람	습지기 해리	온도	습도	경고온도 기준	알람온도 기준	온도 변화 기준
1	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
2	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
3	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
4	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
5	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
6	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
7	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
8	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
9	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
10	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
11	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
12	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
13	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
14	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
15	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00
16	사용	미사용	미사용	1 Level	연결	동작중	미 감지	미 발생	미 발생	미 발생	미 발생	24.55	30.33	23.00	40.00	4.00

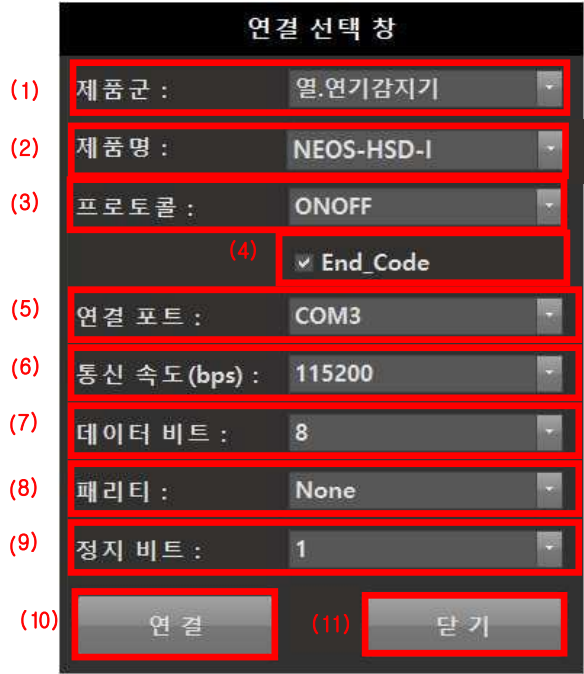
- You can check the measurement data by connecting multiple heat and smoke detectors (up to 32) at the same time through RS485 communication with a PC.
- Real-time smoke detection, temperature warning/alarm event, temperature and humidity information can be checked.
- Setting values such as temperature warning and alarm threshold can be changed.

7.1.3. User UI Program Function Description



1	Connect	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) 연결



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	Parity	Parity selection
9	Stop bit	Stop bit selection
10	Connection	Communication connection
11	Close	Close the current window

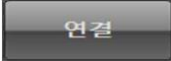

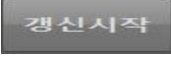

2) Setting



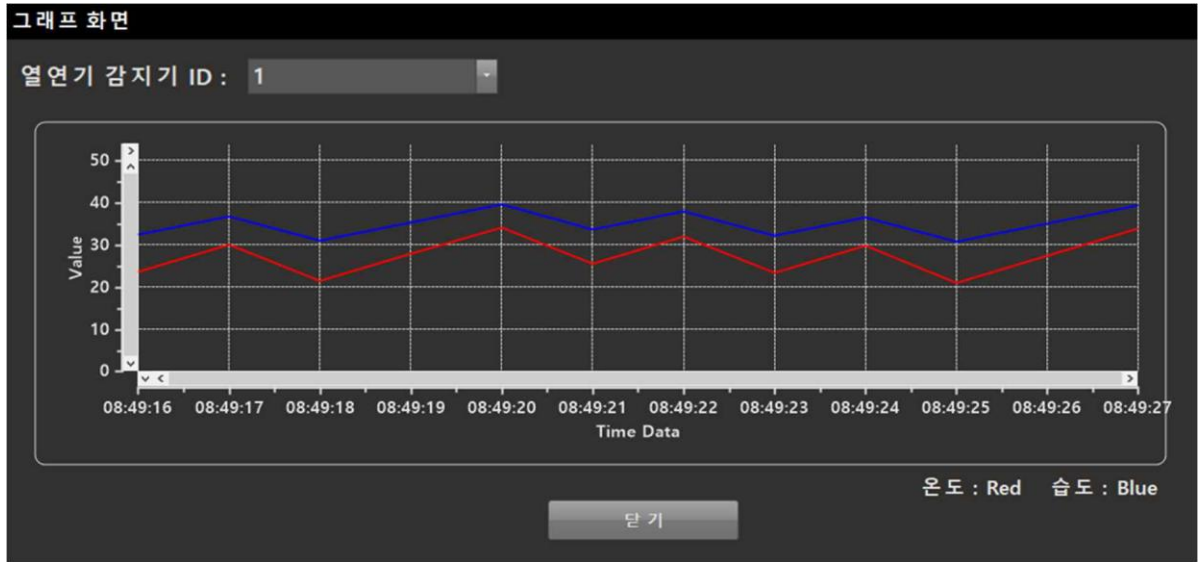
1	Hot Smoke Detector ID	Select Hot Smoke Detector ID
2	Temperature Alarm Enable/Disable	Apply temperature alarm Enable/Disable
3	Keep Temperature Alert Enable/Disable	Temperature warning maintenance Enable/Disable applied
4	Keep Temperature Alarm Enable/Disable	Temperature alarm maintenance Enable/Disable 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 the 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



- ▶ Displays the temperature and humidity data of the selected heat/smoke detector ID as a graph.

■ KC certification phrase: Class A equipment (broadcasting and communication equipment for business use)

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".