(주)온오프시스템
ONOFFSYSTEM Co., Ltd.

User Manual

NEOS-HSD
(heat/smoke detector)

ONOFFSYSTEM Co., Ltd

□ Table of Contents

1. Precautions for safety

※ Please make sure to be aware of 'Precautions for safety' because it includes very important contents of safety. The precautions for safety are classified by danger, warning, and caution.

Danger:

- Do not let the input/output socket contacted with human body or current carrying objects because it may cause electric shock.

Warning:

• Please supply the right voltage for rating in order to prevent this device's damage or failure.

• Do not connect electrical power until every wiring process ends in order to prevent electric shock and component failure.

• Do not disassemble, process, reform, or repair this device. Otherwise, this may cause abnormal operation, electric shock, and fire.

• Please turn it off and then take actions for the removal of this device. Otherwise, this may cause electric shock, malfunction, and failure.

• Please use this device installed in a panel while applying an electric current to it due to shock hazard.

Caution:

• Contents of this user manual may be changed without any prior notice.

• Please clean this device with a dry cloth instead of water or organic solvent.

• Do not use it where there is inflammable gas, explosive gas, humidity, direct sunlight, vibration, or shock.

• Please make sure that there are no dust or wiring residues inside the device.

2. Product Overview

2.1 Product Characteristics

❖ Advantages of NEOS-HSD

• Make sure to prevent malfunction caused by noises occurred in an industrial environment through I/O and telecommunication insulation.

• Measure the temperature and humidity and ring an alarm after detecting smoke in case of fire.

• Show real-time information on the temperature and humidity on a detector's front display.

• Improve the accuracy of the temperature/humidity measurement by applying the RHT digital sensor.

• Provide RS485 telecommunication interface functions.

- Connect various heat/smoke detectors (up to 16 detectors) in one channel at the same time and facilitate data communication with top PLC.

- Collect information on the temperature and humidity live in real time from top PLC and change settings such as temperature warning and alarm standard.

- Separately provide the RS485 telecommunication UI program for monitoring and setting.

• Offer 5-channel output signals.

- Increase the reliability on fire alarming through the dualization of smoke detecting output signals.

- Output running, smoke detection 1, smoke detection 2, temperature warning, and temperature alarm.

• Provide its own reset and setting buttons.

- Reset it by itself without separate external connection and change internal settings using the front display or setting buttons (MODE, UP, DOWN).

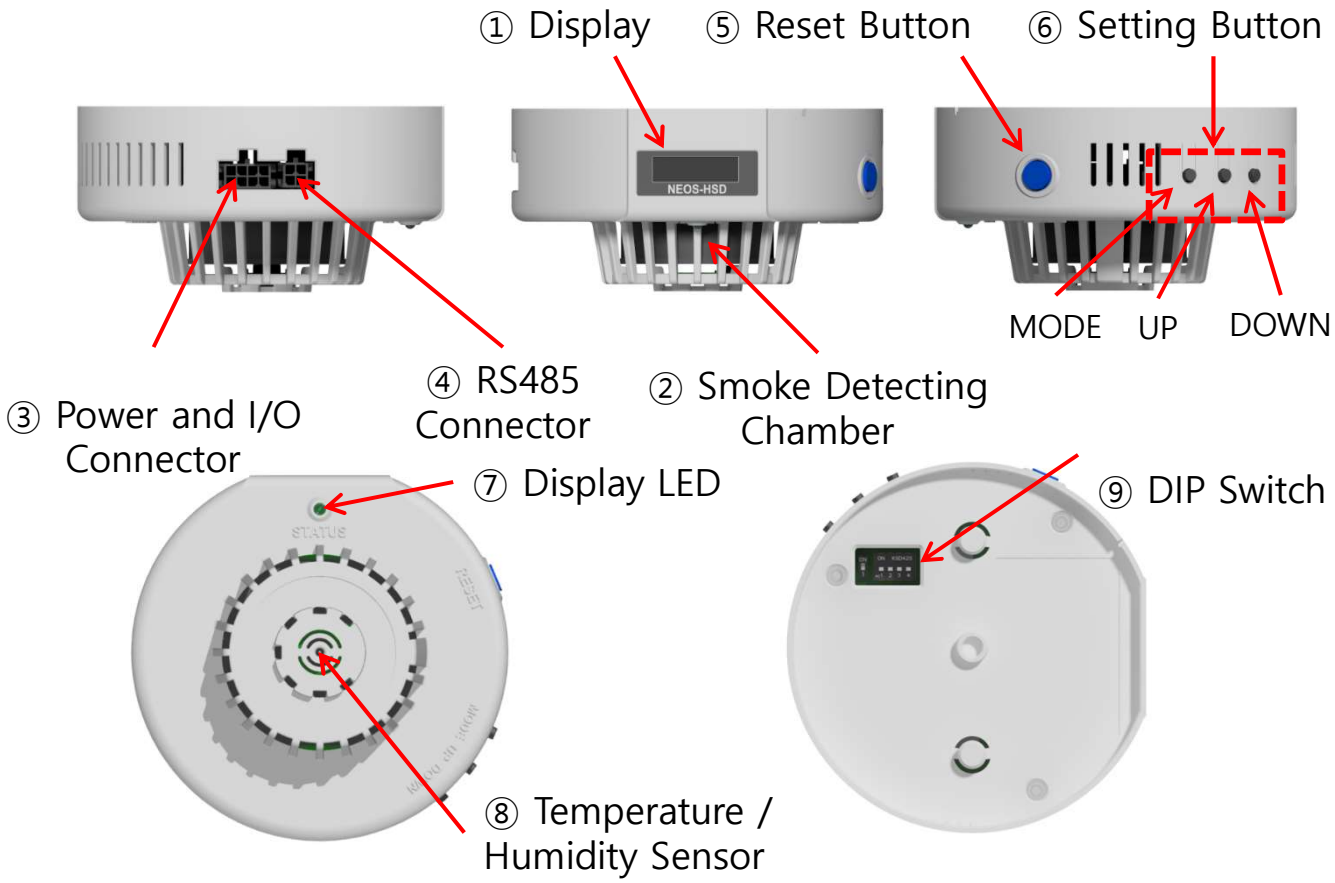
❖ Expected Effects of NEOS-HSD

• Expect to effectively and innovatively save unit cost using this device with four functions.

- In the existing case, separately arrange and connect the temperature probe, temperature controller, smoke detector, and its own reset when designed the front line of panel.

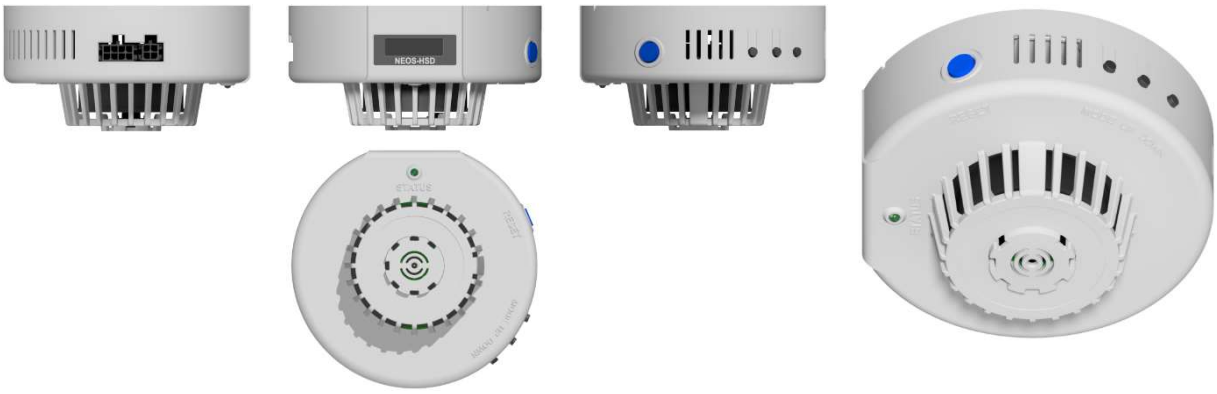
- As for NEOS-HSD, the implementation of four functions in a device can lead to working hour shortening and cost reduction.

2.2 Name of Each Section



Number	Name	Description	Remark
1	Display	Display status of detector, temperature, and humidity.	
2	Smoke Detecting Chamber	Detect smoke.	
3	Power and I/O Connector	Power 24VDC, NPN I/O Output	
4	RS485 Connector	RS485 Telecommunication	
5	Reset Button	Detect smoke and reset temperature alarm.	
6	Setting Button	Change the detector's settings.	
7	Display LED	Display status of detector.	
8	Temperature/Humidity Sensor	Temperature and humidity measuring sensor	
9	DIP Switch	Change RS485 telecommunication address settings.	

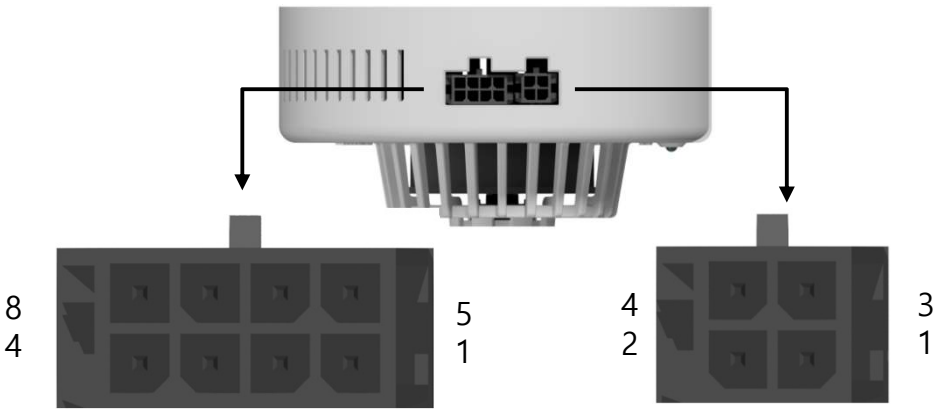
2.3 Product Specification



NEOS-HSD Specification(s)	
Smoke detection method	Scattering from infrared
Temperature / Humidity detection method	Radiant Heat Temperature
Measuring range	Smoke : ≥ Photosensitive factor 15% Temp. : -40℃ ~ 125℃ Humi. : 0 ~ 100%RH
Resolution	Temp. : 0.1℃ / Humi. : 0.1%RH
Accuracy	Temp. : ±0.3℃ / Humi. : ±3.0%RH
Operating temperature	-20℃ ~ 70℃, 0 ~ 95%RH (Non-condensing)
Storage temperature	-30℃ ~ 85℃, 0 ~ 95%RH (Non-condensing)
Input power	DC24V, 100mA
External connection	DO(5ch), RS485
Output method	NPN Open Collector & RS485
Maximum output current	DC30V MAX. 50mA
Display	0.91” LCD
LED	Three-Colored LED(Green, Red, Orange)
Dimensions	Φ104mm x 51mm
Weight	130g

2.4 Signal Wiring

▣ Connector



Power and I/O Connector

RS485 Connector

- Power and I/O Connector

Number	Name	Description	Remark
1	DOUT2	Smoke Detection1	
2	DOUT4	Temperature Warning	
3	DOUT-COM	Output Common	
4	SMPS-GND	Power GND -	
5	DOUT1	Running	
6	DOUT3	Smoke Detection2	
7	DOUT5	Temperature Alarm	
8	SMPS+24V	Power 24V +	

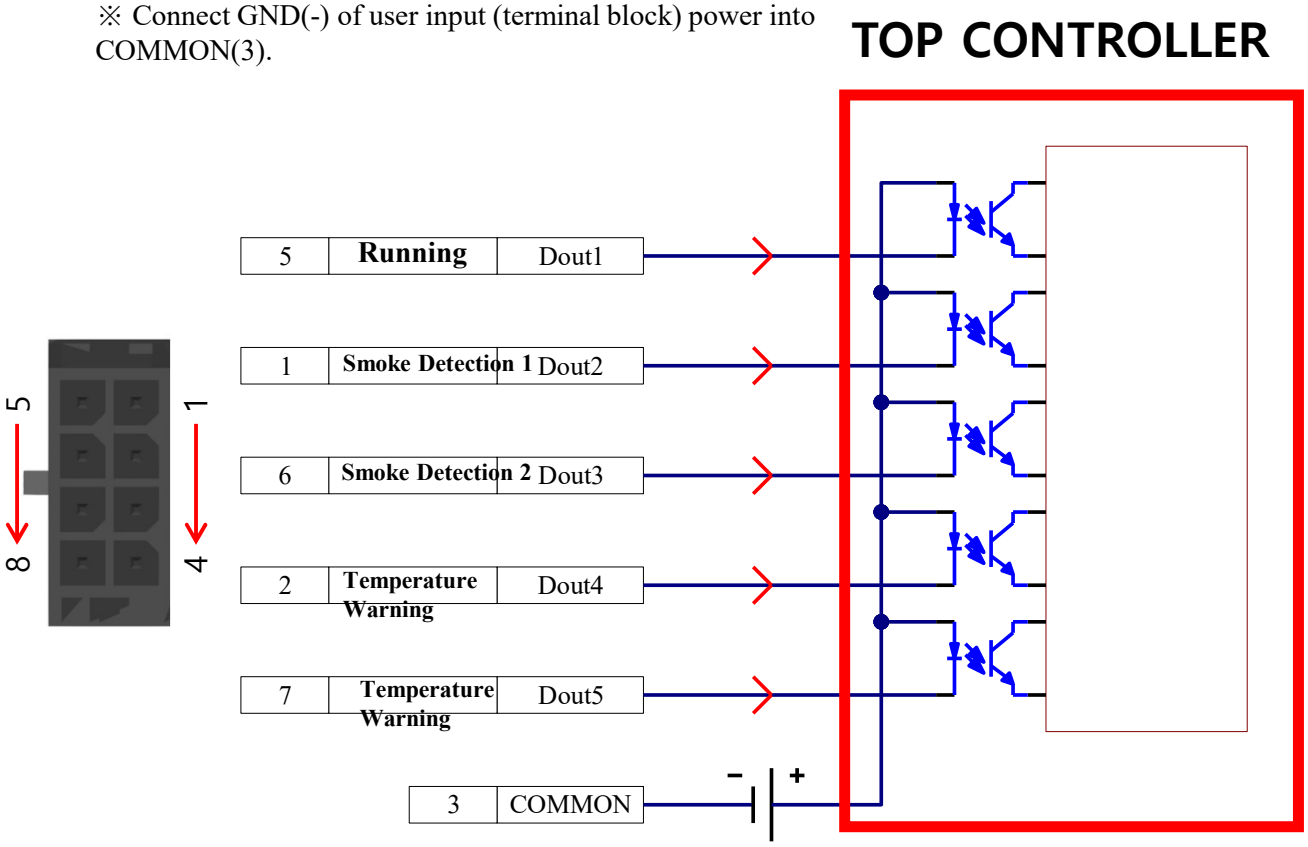
- RS485 Connector

Number	Name	Description	Remark
1	RS485 – B	RS485 – TRXD -	
2	RS485 - GND	RS485 - GND	
3	RS485 – A	RS485 – TRXD +	
4	X	X	

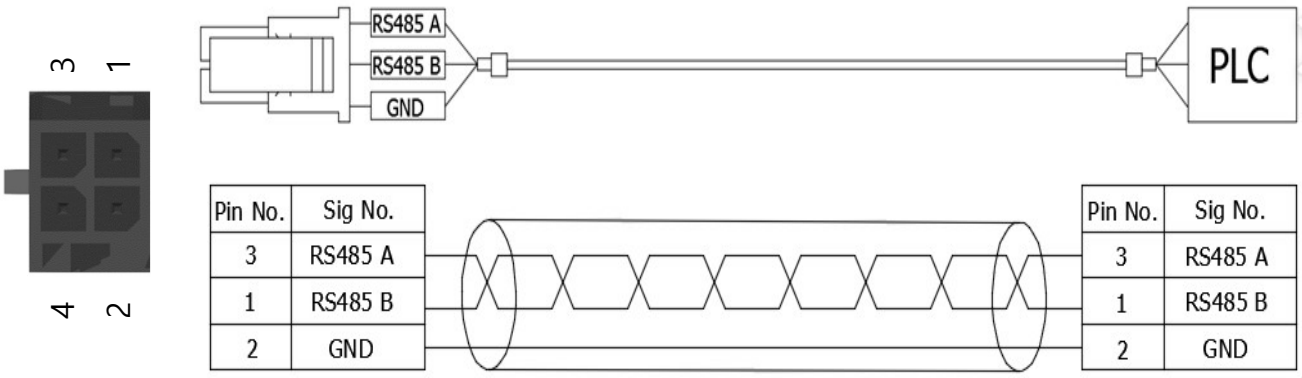
▣ Cable

- I/O Signal Wiring

※ NPN-Typed Digital Output
※ Connect GND(-) of user input (terminal block) power into COMMON(3).



- RS485 Wiring

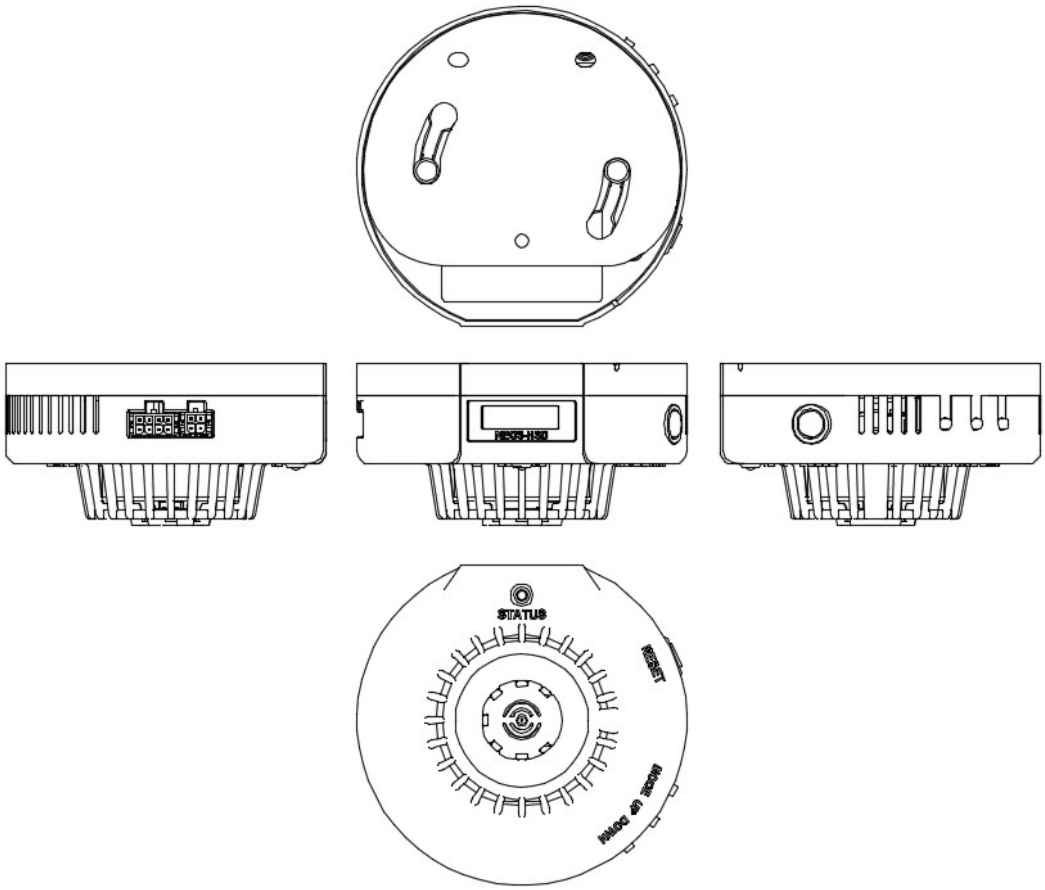


Pin No.	Sig No.
3	RS485 A
1	RS485 B
2	GND

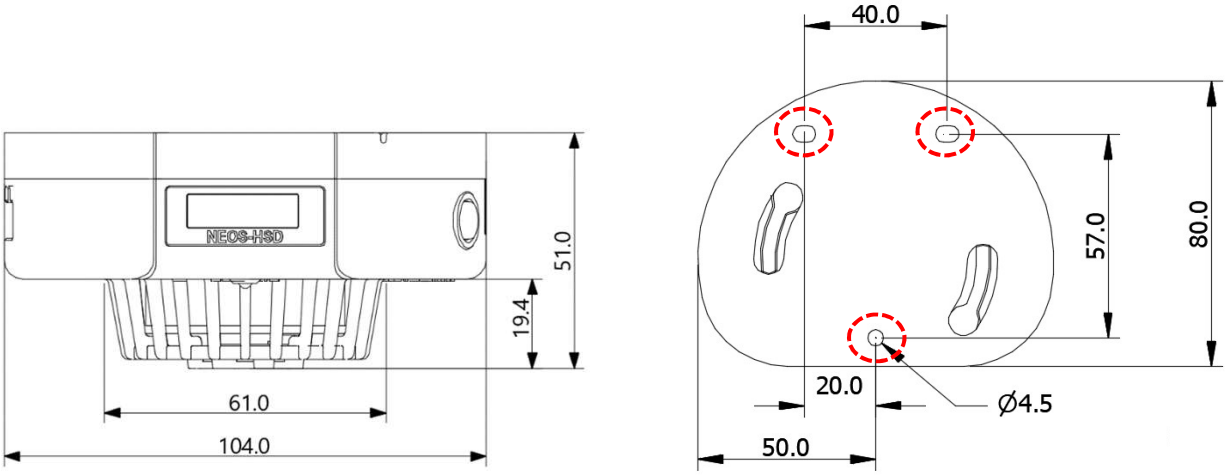
Pin No.	Sig No.
3	RS485 A
1	RS485 B
2	GND

2.5 Exterior Size

▣ Exterior Drawing



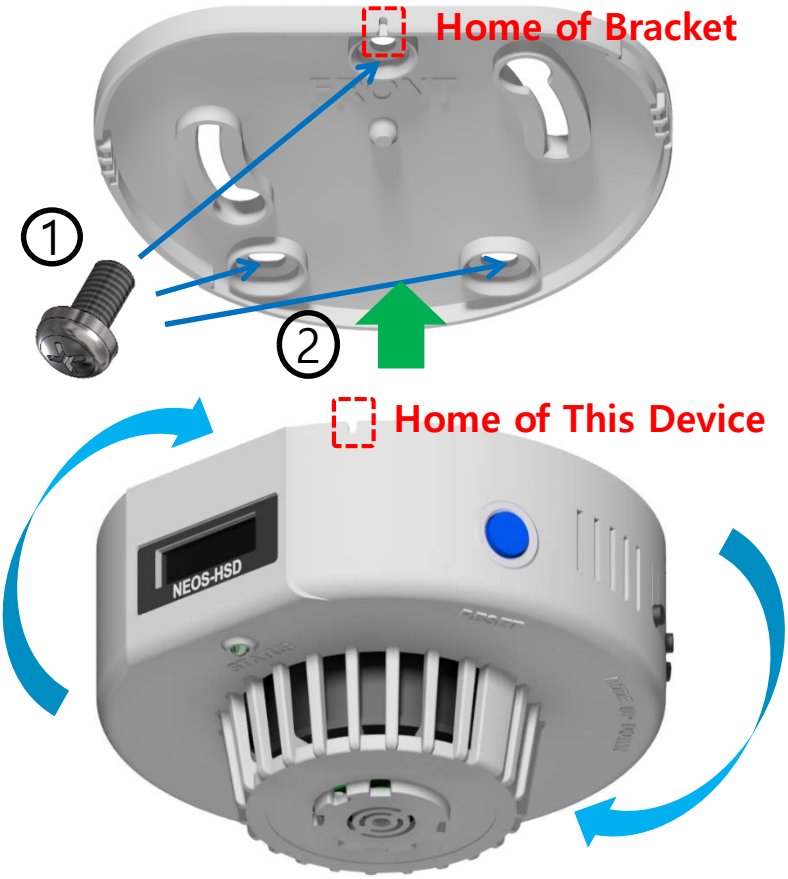
▣ Exterior Size Drawing and Panel Mounting Drawing

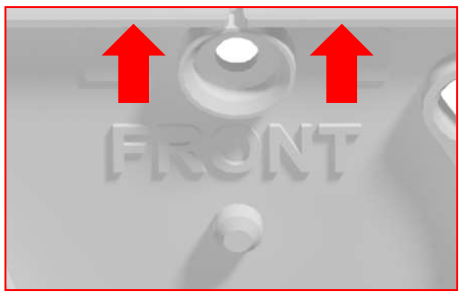


: Location of Panel's Mounting

Assembling M4 bolts (3 areas)

▣ Bracket Connection Method





<After installation>

❖ How to install NEOS-HSD

① Fixate a bracket in 3 areas with M4 bolts enclosed with a panel and ceiling.

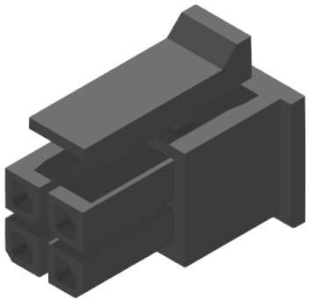
→ Install the front direction specified in the bracket to the direction of display.

② Set the home specified in the front side of the bracket to another home of this device, put bumps in the middle of the bracket into the device in the vertical direction, and turn it clockwise.

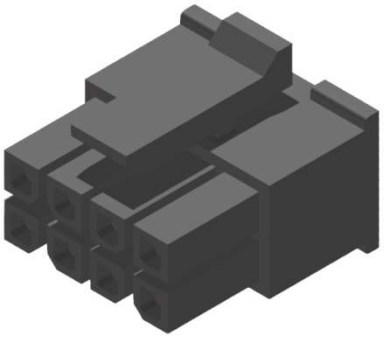
→ Turn it clockwise until its display comes to the front side and sounds rattle.

3. Component

heat/smoke detector **(NEOS-HSD)** 1

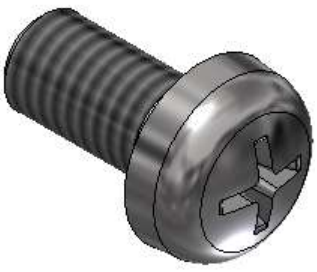


43025-0400 _ MOLEX
(4PIN Housing) 1



43025-0800 _ MOLEX
(8PIN Housing) 1

43030-0001 _ MOLEX
(Pin Terminal) 12



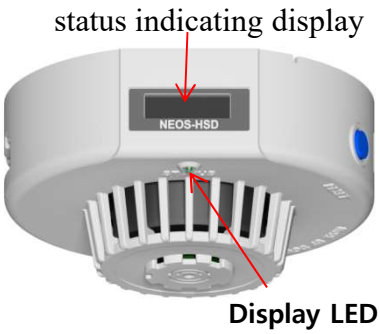
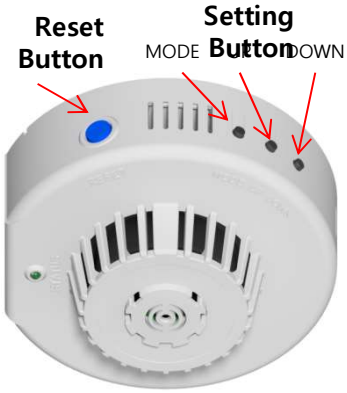
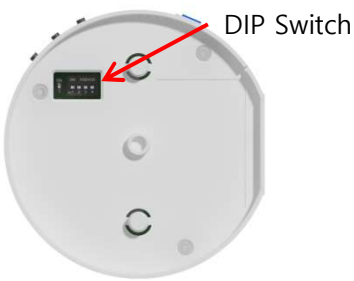
M4 Bolts 4

4. Operation Method

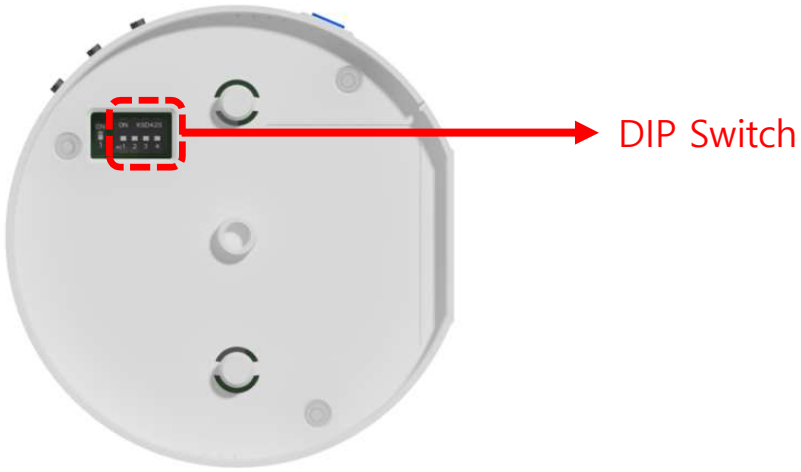
4.1 Description of Functions

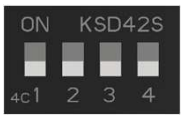
- Heat/smoke detector displays the current temperature/humidity value and status of warning/alarm through status indicating display and LED.
- It sets error resets and detector's parameters by 4 buttons of the controller and DIP switch.

NEOS-HSD UI and Description of Functions

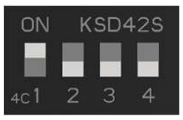
Display		TEMP: Temperature (Display up to one decimal place) HUMI: Humidity (Display up to one decimal place) Display the current status. - Smoke detection, Temperature Warning/alarm, and errors
LED		Green : Normal Red : Smoke Detection Orange : Temperature alarm Orange flickering : Detector's ERROR
BUTTON		RESET : Alarm reset MODE : Setting display change and value setting UP : Setting change (increase) DOWN : Setting change (decrease)
DIP		Change RS485 telecommunication address settings. (0~15)

▣ RS485 ID Setting



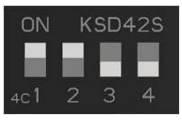


Address : 0

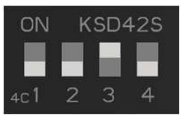


Address : 1

Address : 2



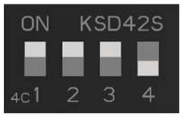
Address : 3



Address : 4

Address : 5

Address : 6

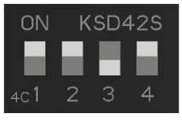


Address : 7

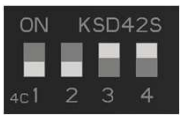
Address : 8

Address : 9

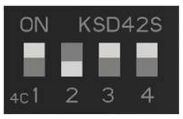
Address : 10



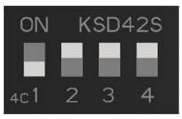
Address : 11



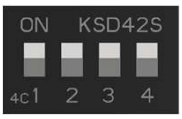
Address : 12



Address : 13



Address : 14

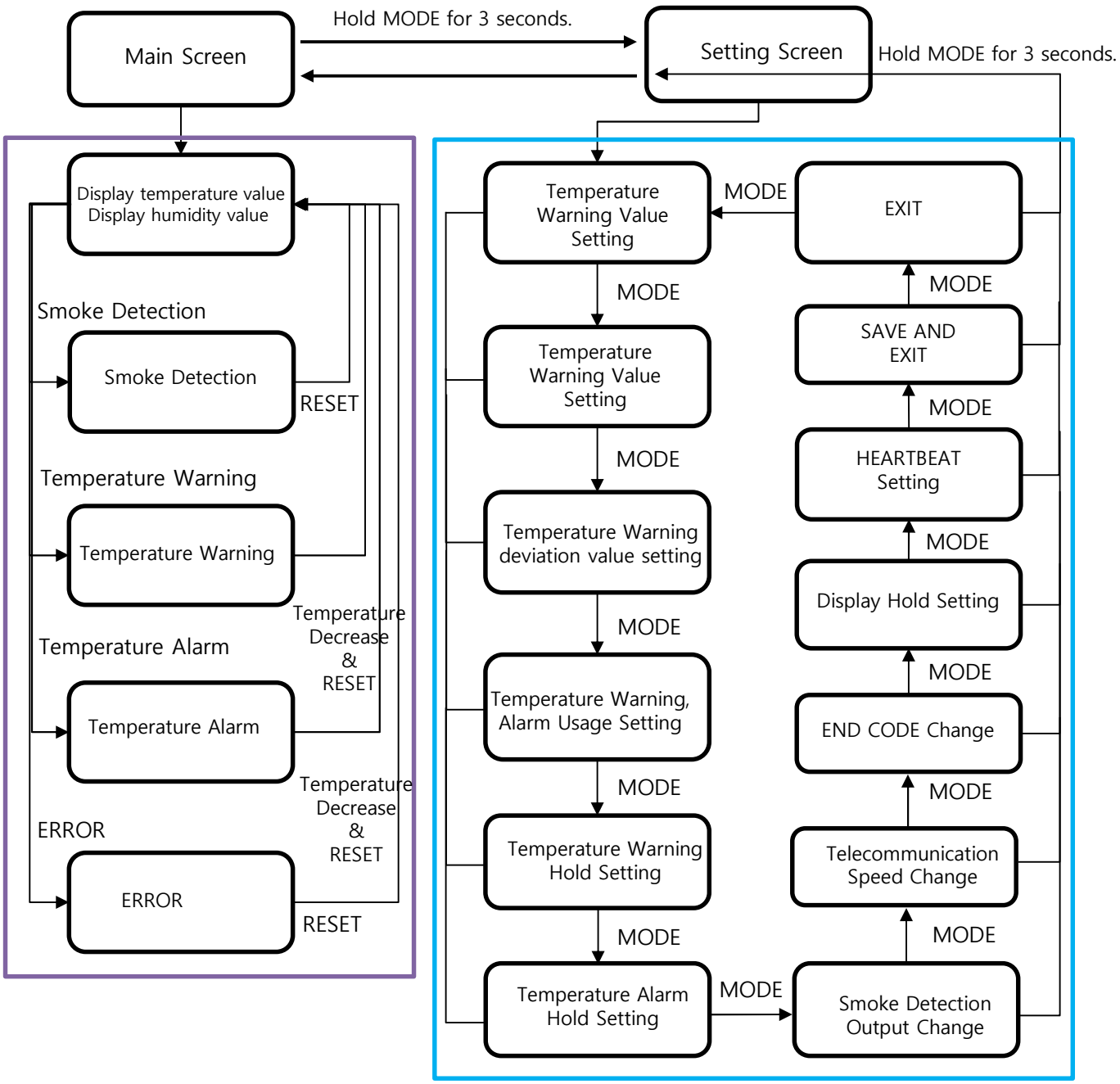


Address : 15

▣ Digital Output

Type	Output				
	Running	Smoke Detection1	Smoke Detection2	Temperature Warning	Temperature Alarm
Smoke Detection **SMK_OUT(in case of setting A_Type)**	X	O	O	X	X
Temperature Warning	O	X	X	O	X
Temperature Alarm	X	X	X	X	O
Normal (Reset)	O	X	X	X	X

▣ Display Screen Flow



MODE	- Press MODE on the main screen for 3 seconds to move to Setting. - Press it on the setting screen for 3 seconds to save the changed value and return to the main screen. (No save the changed value in EXIT screen and return to the main screen.) - Press MODE once on the setting screen to move to the next screen.
UP	- Increase in value (by 0.1), DISABEL -> ENABLE, - Increase the telecommunication speed setting.
DOWN	- Decrease in value (by 0.1), ENABLE -> DISABLE, - Decrease the telecommunication speed setting.

▣ Resetting Method

- After alarming smoke detection
- After alarming in the state of setting the temperature warning hold parameter
- After alarming in the state of setting the temperature alarm hold parameter

▶ Press RESET to release warning/alarm.

▣ Main Display

(1) Current Temperature/Humidity

TEMP : 24.3C HUMI : 30.5%	- Show the current temperature and humidity to one decimal place. (In case of no smoke detection and temperature warning and alarm)

(2) Smoke Detection

TEMP : 24.3C SMK ALARM	- Display status of smoke detection.

(3) Temperature Warning

TEMP : 31.3C TEMP WARN	- Display status of temperature warning.

(4) Temperature Alarm

TEMP : 41.3C TEMP ALARM	- Display status of temperature alarm.

(5) Detector's ERROR

ERROR CODE : 0x01	- Display status of code of detector's error. - ERROR CODE : 0x00(No Error), 0x01(Temperature Detector Error), 0x02(EEPROM Error), 0x03(Checksum Error), 0x04(LCD Error), 0x05(RS485 Error)

4.2 How to Set Up Parameter

(1) Temperature Warning Value Change

TEMP WARN
REF : 26.0C

- Change the temperature warning value to one decimal place.
  MODE : Press MODE once to move to the next setting screen. Press MODE for 3 seconds to set the current value and move to the main screen.
  UP : Increase into one decimal place of the setting
  DOWN : Decrease into one decimal place of the setting

❖ Temperature Warning Operation Condition: When the current temperature is below or above the temperature warning deviation value, it occurs a temperature warning.

(2) Temperature Alarm Value Change

TEMP ALARM
REF : 40.0C

- Change the temperature alarm value to one decimal place.
  MODE : Press MODE once to move to the next setting screen. Press MODE for 3 seconds to set the current value and move to the main screen.
  UP : Increase into one decimal place of the setting
  DOWN : Decrease into one decimal place of the setting

❖ Temperature Alarm Operation Condition : When the current temperature is above the temperature alarm value, it occurs a temperature alarm.

(3) Temperature Warning Deviation Value Change

TEMP_W_DVA
REF : ±4.0C

- Change the temperature warning deviation value to one decimal place.
  MODE : Press MODE once to move to the next setting screen. Press MODE for 3 seconds to set the current value and move to the main screen.
  UP : Increase into one decimal place of the setting
  DOWN : Decrease into one decimal place of the setting

(4) Change in Setting for Use of Temperature Warning and Alarm

TEMP_AMODE
ENABLE

- Change use of temperature warning and alarm.
  MODE : Press MODE once to move to the next setting screen. Press MODE for 3 seconds to set the current value and move to the main screen.
  UP : Chang DISABLE to ENABLE for use.
  DOWN : Chang ENABLE to DISABLE for use.

(5) Change in Setting for Temperature Warning Hold

WARN_CMODE
ENABLE

- Change use of temperature warning hold.
  MODE : Press MODE once to move to the next setting screen. Press MODE for 3 seconds to set the current value and move to the main screen.
  UP : Chang DISABLE to ENABLE for use.
  DOWN : Chang ENABLE to DISABLE for use.

❖ As for the warning hold setting, ENABLE holds status of warning even though the temperature value is below the reference value for temperature warning. DISABLE automatically resets it.

(6) Change in Setting for Temperature Alarm Hold

ALM_CMODE
ENABLE

- Change use of temperature alarm hold.

MODE : Press MODE once to move to the next setting screen. Press MODE for 3 seconds to set the current value and move to the main screen.
UP : Chang DISABLE to ENABLE for use.
DOWN : Chang ENABLE to DISABLE for use.

❖ As for the warning hold setting, ENABLE holds status of warning even though the temperature value is below the reference value for temperature warning. DISABLE automatically resets it.

(7) Smoke Detection Output Setting

SMK_OUT
A_TYPE

- Change the type of smoke detection output setting.

MODE : Press MODE once to move to the next setting screen. Press MODE for 3 seconds to set the current value and move to the main screen.
UP : Change from A_TYPE, > B_TYPE > C_TYPE in order
DOWN : Change from C_TYPE > B_TYPE > A_TYPE in order

Setting		Output	
		Smoke Detection1	Smoke Detection2
A_Type	Normal	X	X
	Detection	O	O
B_Type	Normal	O	O
	Detection	X	X
C_Type	Normal	X	O
	Detection	O	X

(8) Telecommunication Speed Setting

BPS_SET
115200

- Change RS-485 telecommunication speed.
  MODE : Press MODE once to move to the next setting screen. Press MODE for 3 seconds to set the current value and move to the main screen.
  UP : Change from 9600 > 19200 > 38400 > 57600 > 115200 in order
  DOWN : Change from 115200 > 57600 > 38400 > 19200 > 9600 in order

❖ After this change, a detector automatically re-starts.

(9) END Code Additional Setting

END_CODE
USED

- Change use of CR and LF of END code.
  MODE : Press MODE once to move to the next setting screen. Press MODE for 3 seconds to set the current value and move to the main screen.
  UP : Chang DISABLE to ENABLE for use.
  DOWN : Chang ENABLE to DISABLE for use.

❖ Add CR(0x0D) + LF(0x0A) following ETX of frame when USED and transmit it. When UNUSED, no added.

(10) Display Hold Setting

DISP_SLEEP
ENABLE

- Change use of Display Auto Off.
  MODE : Press MODE once to move to the next setting screen. Press MODE for 3 seconds to set the current value and move to the main screen.
  UP : Chang DISABLE to ENABLE for use.
  DOWN : Chang ENABLE to DISABLE for use.

❖ When DISP+SLEEP enabled, display automatically turns off if there is no event for 10 minutes during normal operations.

❖ Press one of MODE, UP, DOWN, or RESET once to turn display on and represent the main screen.

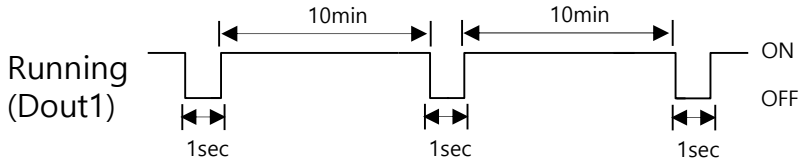
❖ In case of temperature warning or alarm, smoke detection, or error, this setting is displayed and maintained regardless of the auto-off setting.

(11) Heartbeat Setting Change

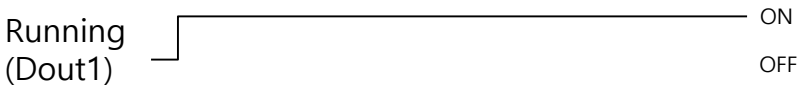
HEARTBEAT
DISABLE

- Change use of heartbeat function.
  MODE: Press MODE once to move to the next setting screen. Press MODE for 3 seconds to set the current value and move to the main screen.
  UP : Change from DISABLE > 1 MIN > 10 MIN > 30 MIN > 60 MIN in order
  DOWN : Change from 60 MIN > 30 MIN > 10 MIN > 1 MIN > DISABLE in order
  (Each time setting is by minute.)

❖ In case of 10 MIN (during normal operation)



❖ In case of Disable(during normal operation)



❖ When Heartbeat enabled, do not use Running(Dout1) output terminal for relay operation. Otherwise, it may cause life-time depression and damage due to long-hour On/Off operations.

(12) SAVE AND EXIT

SAVE &
EXIT

- Save the changed setting and end the setting screen.
  MODE : Press MODE once to move to the next setting screen. Press MODE for 3 seconds to set the current value and move to the main screen.

(13) EXIT

EXIT

- End the setting screen with no change in setting.
  MODE : Press MODE once to move to the next setting screen. Press MODE for 3 seconds to set the current value and move to the main screen.

❖ The saved setting value is valid even when re-inputted after power-off.

5. Telecommunication Specification

5.1 Telecommunication Method

- Telecommunication Method : RS485
- Baud rate : 9600/19200/38400/57600/115,200 bps
- Data bit : 8 bit / Stop bit : 1 bit / Parity bit : None

▣ Telecommunication Frame

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

- Data Format : Hex (16-decimal number Byte Type)
- STX : 0x53 (1 Byte) / ETX : 0x45 (1 Byte)
- Length : Bytes from CMD to Data
  (ex. 0x0014 in case of 20 byte)
- CMD : Telecommunication Command
- Code : Division of Command
- Count : 0x00 fixed (for preparation)
- DATA : ID, temperature, humidity, and other data
- Checksum : Value which totals up by 1 byte from Length to Data
  (ex. If the checksum is 0x2345, 2 bytes are used as 0x23 and 0x45.)
- Endian : Big Endian
- END_CODE : CR(0x0D) + LF(0x0a)

5.2 Telecommunication Protocol

▣ Data Request

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										
HEX	0x53	0x00	0x0C	0x05	0x01	0x01	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00			0x45

Request the measured data.

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		CMD		Code	Count	DATA					Checksum		ETX	CR	LF
		MSB	LSB	MSB	LSB			Refer to the detailed data.									
HEX	0x53	0x00	0x12	0x05	0xA1	0x01	0x00								0x45	0x0D	0x0A

※ When END_CODE USED, additionally transmit CR+LF.

Detailed Data

Index	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Format	ID	OpState		Error Code	Temperature		Humidity		Warning Temperature Reference Value		Alarm Temperature Reference Value		Deviation Reference Value	
		MSB	LSB		MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB
HEX	0x00	0x00												

(1) ID

Data	Description
0 ~ 15	Detector Number

(2) OpState

Data			Description
MSB	LSB		
0x00	Bit 0	1	Running
		0	Stop
	Bit 1	1	Smoke Detection
		0	N/A
	Bit 2	1	Temperature Warning
		0	N/A
	Bit 3	1	Temperature Alarm
		0	N/A
	Bit 4	1	Detector's Error
		0	N/A
	Bit 5	1	Temperature Warning Alarm Setting
		0	No setting
	Bit 6	1	Temperature Warning Hold Setting
		0	No setting
	Bit 7	1	Temperature Alarm Hold Setting
		0	No setting

(3) Error Code

Data	Description
0	No error
1	Temperature Sensor Error
2	EEPROM Error
3	Checksum Error
4	LCD Error

(4) Temperature

FORMAT	Current Temperature	
	MSB	LSB
HEX	0x0A	0xAA
INT	2730	

Temperature : 2 Byte, Decimal Place / 100.0

Input Value	27.3

(5) Humidity

FORMAT	Current Humidity	
	MSB	LSB
HEX	0x0F	0xB4
INT	4020	

Humidity : 2 Byte, Decimal Place / 100.0

Input Value	40.2

(6) Warning Temperature Reference Value

FORMAT	Warning Temperature Reference Value	
	MSB	LSB
HEX	0x0B	0xEA
INT	3050	

Reference Value : 2 Byte, Decimal Place/100.0

Reference Value	30.5

(7) Alarm Temperature Reference Value

FORMAT	Alarm Temperature Reference Value	
	MSB	LSB
HEX	0x11	0xA8
INT	4520	

Reference Value : 2 Byte, Decimal Place/100.0

Reference Value	45.2

(8) Deviation Reference Value

FORMAT	Deviation Reference Value	
	MSB	LSB
HEX	0x03	0xFC
INT	1020	

Reference Value : 2 Byte, Decimal Place/100.0

Reference Value	10.2

▣ Alarm Reset

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	Reset								
HEX	0x53	0x00	0x0C	0x05	0x03	0x01	0x00	0x00	0x00	0x01	0x00	0x00	0x00	0x00	0x00			0x45

Release status of Smoke Detection and Temperature Alarm.

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	Reset										
HEX	0x53	0x00	0x0C	0x05	0xA3	0x01	0x00	0x00	0x00	0x01	0x00	0x00	0x00	0x00	0x00			0x45	0x0D	0x0A

※ In case of abnormal (error) response, refer to error responses.

※ When END_CODE USED, additionally transmit CR+LF.

▣ Temperature Warning, Alarm Reference Value Setting

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 Reference Value		Alarm Reference Value						
										MSB	LSB	MSB	LSB					
HEX	0x53	0x00	0x0C	0x05	0x03	0x02	0x00	0x00	0x00	0x0B	0xEA	0x11	0xA8	0x00	0x00			0x45

Set Temperature Warning and Alarm Reference Value.

(1) Temperature Warning Reference Value

FORMAT	Temperature Warning Reference Value	
	MSB	LSB
HEX	0x0B	0xEA
INT	3050	

Input Value : 2 Byte, Decimal Place * 100.0

Input Value	30.5

(2) Temperature Alarm Reference Value

FORMAT	Temperature Alarm Reference Value	
	MSB	LSB
HEX	0x11	0xA8
INT	4520	

Input Value : 2 Byte, Decimal Place * 100.0

Input Value	45.2

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 Reference Value		Alarm Reference Value								
										MSB	LSB	MSB	LSB							
HEX	0x53	0x00	0x0C	0x05	0xA3	0x02	0x00	0x00	0x00	0x0B	0xEA	0x11	0xA8	0x00	0x00			0x45	0x0D	0x0A

※ In case of abnormal (error) response, refer to error responses.

※ When END_CODE USED, additionally transmit CR+LF.

▣ Deviation Reference Value Setting

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	Length LSB	CMD MSB	CMD LSB	Code	Count	DATA ID	DATA Error	DATA Deviation Reference Value MSB	DATA Deviation Reference Value LSB					Checksum		ETX
HEX	0x53	0x00	0x0C	0x05	0x03	0x06	0x00	0x00	0x00	0x00	0xDC	0x00	0x00	0x00	0x00			0x45

Set Temperature Deviation Reference Value.

(1) Deviation Reference Value

FORMAT	Deviation Reference Value	
	MSB	LSB
HEX	0x00	0xDC
INT	220	

Input Value : 2 Byte, Decimal Place * 100.0

Input Value	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 MSB	Length LSB	CMD MSB	CMD LSB	Code	Count	DATA ID	DATA Error	DATA Deviation Reference Value MSB	DATA Deviation Reference Value LSB					Checksum		ETX	CR	LF
HEX	0x53	0x00	0x0C	0x05	0xA3	0x06	0x00	0x00	0x00	0x00	0xDC	0x00	0x00	0x00	0x00			0x45	0x0D	0x0A

※ In case of abnormal (error) response, refer to error responses.

※ When END_CODE USED, additionally transmit CR+LF.

▣ Temperature Warning, Alarm Setting

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	Length LSB	CMD MSB	CMD LSB	Code	Count	DATA ID	DATA Error	DATA Alarm 사용						Checksum		ETX
HEX	0x53	0x00	0x0C	0x05	0x03	0x03	0x00	0x00	0x00	0x01	0x00	0x00	0x00	0x00	0x00			0x45

Set status of Temperature Warning and Alarm.

(1) Use of Alarm

Data	Description	
0	Disable	
1	Enable	initial value

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	Length LSB	CMD MSB	CMD LSB	Code	Count	DATA ID	DATA Error	DATA Alarm 사용						Checksum		ETX	CR	LF
HEX	0x53	0x00	0x0C	0x05	0xA3	0x03	0x00	0x00	0x00	0x01	0x00	0x00	0x00	0x00	0x00			0x45	0x0D	0x0A

※ In case of abnormal (error) response, refer to error responses.

※ When END_CODE USED, additionally transmit CR+LF.

▣ Setting for Use of Temperature Warning Hold

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 사용								
HEX	0x53	0x00	0x0C	0x05	0x03	0x04	0x00	0x00	0x00	0x01	0x00	0x00	0x00	0x00	0x00			0x45

Set status of Warning Hold in case of temperature warning.

(1) Warning Hold

Data	Description	
0	Disable	initial value
1	Enable	

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 Used										
HEX	0x53	0x00	0x0C	0x05	0xA3	0x04	0x00	0x00	0x00	0x01	0x00	0x00	0x00	0x00	0x00			0x45	0x0D	0x0A

※ In case of abnormal (error) response, refer to error responses.

※ When END_CODE USED, additionally transmit CR+LF.

▣ Setting for Use of Temperature Alarm Hold

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 사용								
HEX	0x53	0x00	0x0C	0x05	0x03	0x05	0x00	0x00	0x00	0x01	0x00	0x00	0x00	0x00	0x00			0x45

Set status of Alarm Hold in case of temperature alarm.

(1) Alarm Hold

Data	Description	
0	Disable	initial value
1	Enable	

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	0x00	0x00	0x00	0x00			0x45	0x0D	0x0A

※ In case of abnormal (error) response, refer to error responses.

※ When END_CODE USED, additionally transmit CR+LF.

▣ Error Response (common)

If code and data don’t match, the error response is as follows.

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	0x00	0x00	0x00	0x00			0x45	0x0D	0x0A

Common: In the event that code and data don’t match, the error response

※ When END_CODE USED, additionally transmit CR+LF.

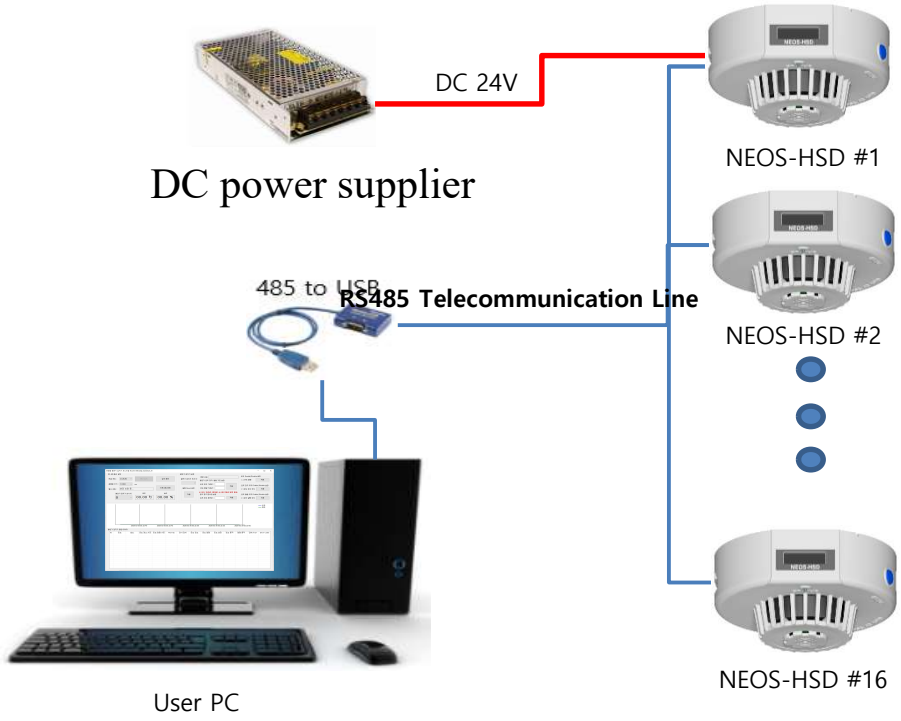
(1) Code

Data	Description
0x01 ~ 0x06	Command code

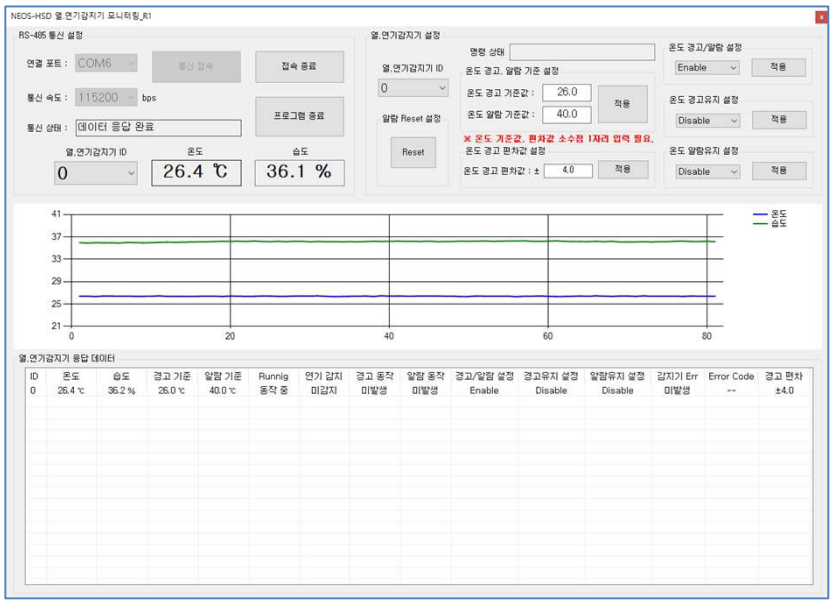
Respond the requested command code as the same command code.

5.3 How to Use Monitoring Program

▣ Connection Configuration and Method

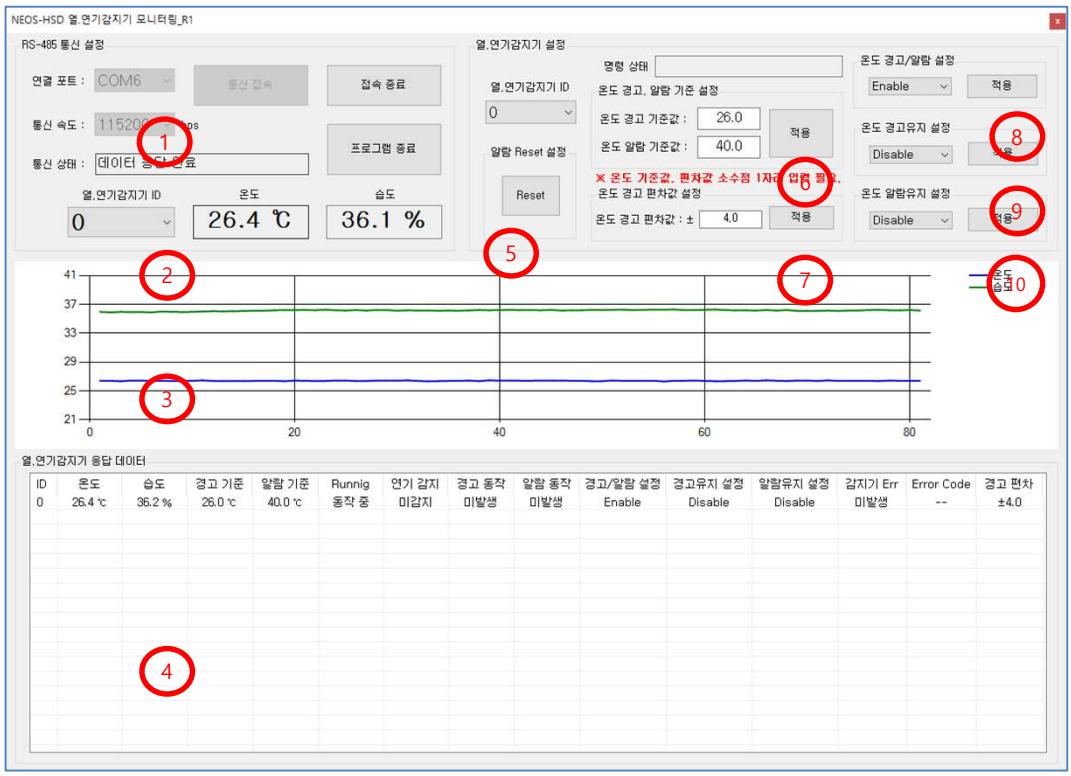


▣ User UI Program



- Connect various heat/smoke detector(NEOS-HSD) (up to 16 detectors) by PC or RS485 at the same time and confirm measuring data.
- Confirm information on smoke detection event, temperature, and humidity live in real time.
- Change settings such as temperature warning and alarm reference values.

▣ Description of Functions for User UI Program



① Connection with RS485

> Connect RS485 to USB converter to computer.

Select a connection port connected with computer and telecommunication speed (basically, 115200 bps) and click "Communication Interface" to communicate with heat/smoke detector(NEOS-HSD) connected to the computer.

If communication is normally connected, it represents "data response completed" on the communication status display screen.

② Display temperature and humidity data of ID selected from the connected heat/smoke detector(NEOS-HSD).

③ Display temperature and humidity data of heat/smoke detector(NEOS-HSD) ID selected in a graphic form.

④ Display information on Temperature, Humidity, and Temperature Warning/Alarm standards of every heat/smoke detector(NEOS-HSD) connected (I이 0 ~ 15) live in real time.

⑤ Alarm Reset Setting

> In case of smoke/temperature alarm, select heat/smoke detector(NEOS-HSD) ID and click Reset Button to release smoke/temperature alarm and detector's error status.

⑥ Temperature Warning, Alarm Reference Setting

> Set Temperature Warning and Alarm reference values. (Temperature Reference Value is represented to one decimal point ranging from -327.6 to 327.6.

⑦ Temperature Warning Deviation Value Setting

> Set Temperature Warning Deviation Value. (Represented to one decimal point ranging from 0.0 to 655.3.)

⑧ Temperature Warning/Alarm 사용 Setting

> Set use of temperature alarm. (Disable: unused, Enable: used)

⑨ Temperature Warning Hold Setting

> Set use of temperature warning hold in case of temperature warning. (Disable: unused, Enable: used)

⑩ Temperature Alarm Hold Setting

> Set use of temperature alarm hold in case of temperature alarm. (Disable: unused, Enable: used)

▣ KC Certification Words : A-class Device (broadcasting communication equipment for business use)

User Guide
This device has been evaluated as suitable for business use. It may cause interference for family use.

※ The user guide only applies to “broadcasting communication equipment for business use.”