
RP250 USER MANUAL



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1. RP250 Specification

Product Specification

Rated input voltage	- 220VAC / 50~60Hz
Rated output capacity	- 13VDC / 3A : Default for internal power supply (MCM, OCM, ECM, In/Output module etc.) - 27VDC / 5A : For External Power Supply (Detectors, indicators, fire extinguishing and alarm equipment, etc.) - 27VDC / 10A : For External Power Supply (Detectors, indicators, fire extinguishing and alarm equipment, etc.)
Battery	- 13VDC / 3A : 12VDC / 1.2Ah x 1EA Battery (Power Supply Unit (PTWM2705) mounted) - 27VDC / 5A : 12VDC / 2Ah x 2EA Battery - 27VDC / 10A : 12VDC / 4Ah x 2EA Battery
Use environment	- -10°C ~ 50°C / 0% ~ 95%
User interface	- Screen size: 4.3" Color TFT LCD(480x272) - Screen Operation: Hardware Keys(Arrows, ESC, Enter Keys), Not Touch-type
Panel operation switch	- System control switch, Silence sounds, Stop linking with equipment
Extinguishing Agent Delay Time	- 30 seconds (Pause during Abort is used)
Nominal accumulation time	- 30 seconds
Past Records Output Method	- Print-out as .TXT files using USB memory
In/Output Link Down/Upload	- USB memory
Network	- Network Capacity: Up to 32 RP250 Panels connected to R-type Panels (N MUX II or N MUX U) - RP250 Panel and R-type Panel (N MUXII or N MUX U) : RS-422 (max 1.2 km) - RP250 Panel and W/S (workstation): - Wired: LAN (in-house network, etc.) with up to 250 connections (check workload capacity) - Wireless: LTE (Commercial Mobile Network (LG U+))
Circuit capacity and Enclosure size (Standard Product List)	- Wall-mounted type 32 : Up to 32 I/O / 500mm x 800mm x 230mm, 1.6t - Wall-mounted type 64 : Up to 64 times / 500mm x 1000mm x 230mm, 1.6t - Wall-mounted type 80 : Up to 80 times / 500mm x 1200mm x 230mm, 1.6t - Wall-mounted type 96 : Up to 96 times / 500mm x 1400mm x 230mm, 1.6t - Standalone type 128: Up to 128 times / 500mm x 1800mm x 410mm, 1.6t - Standalone type 250: Up to 250 times / 800mm x 1800mm x 410mm, 1.6t - Standalone type 250E: Up to 250 times input/output / 1000mm x 1800mm x 410mm, 1.6t

2. RP250 Exterior Form and Name of Each Part

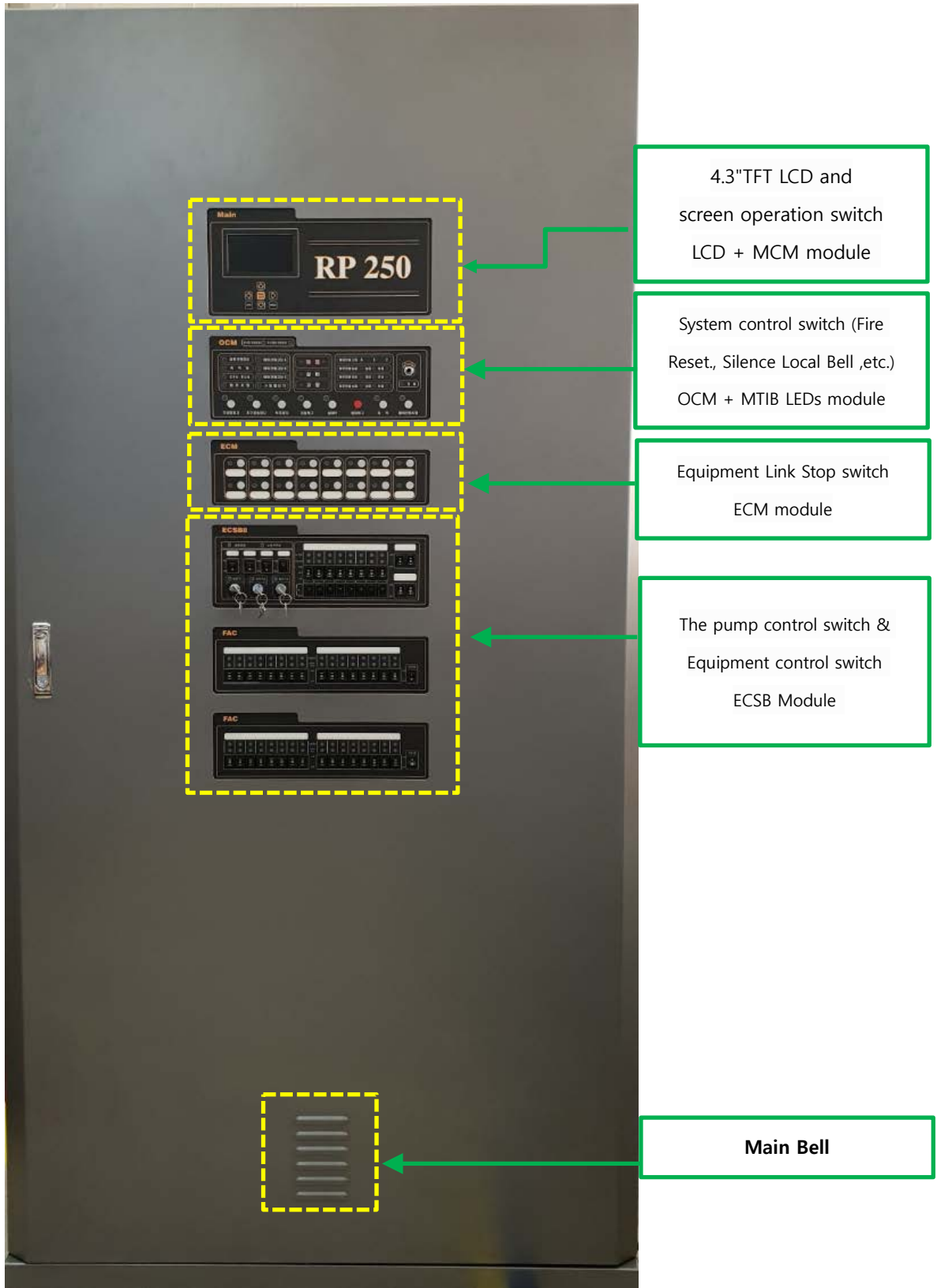


Figure 2-1

3. RP250 Operation

3.1. Display and Operation of LCD screens

3.1.1. Main Menu Screen : It shows menu of the panel after system initialization

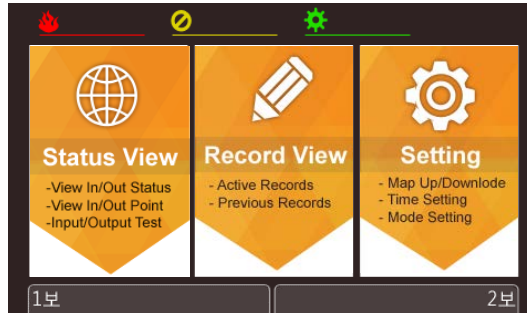


Figure 3-1

- Main Menu screen is consisted of 3 items: Status view, Record view, and Setting

3.1.2. Main Menu Control Keys



Figure 3-2

- When you choose a desired mode, select the mode using LCD control keys (left/right arrows) and press Enter to continue.
- If you press ESC, you return to Main Menu screen or a previous screen.
- If you press MENU, you return to Main Menu screen.

3.1.3. The structure of menu

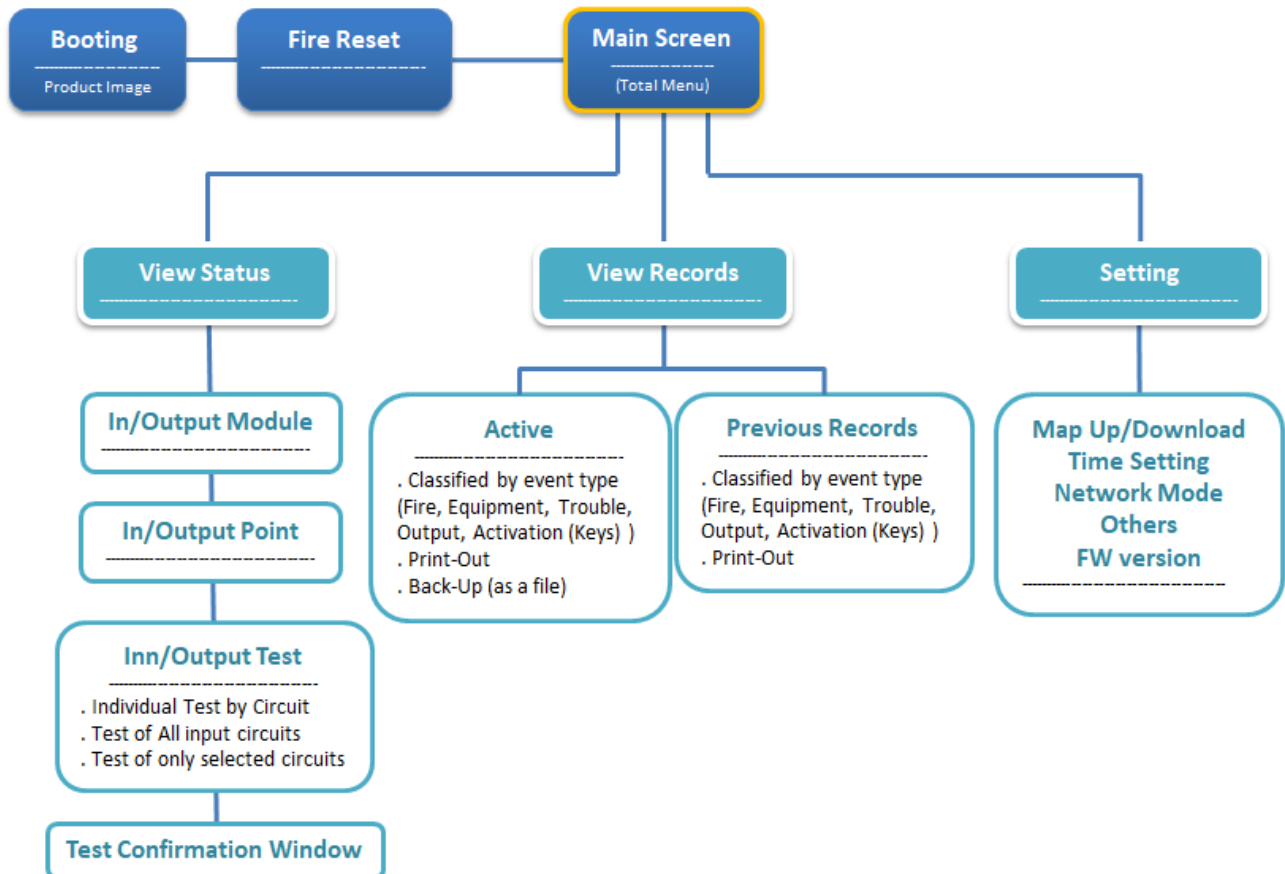


Figure 3-3

3.1.4. Initiating Screen

- It is the first screen which is displayed after power is provided to the panel



Figure 3-4

3.1.5. Fire Reset screen

- It appears while the panel is restored to normal from fire. It disappears when fire reset is completed.
- During the fire reset, the countdown shows the progress.



Figure 3-5

3.1.6. Network screen

- It appears when the panel is connected on the network. RP250 number is displayed at the top left, and the accumulation status is at the bottom right.
- It appears when the panel is linked with R-type RP250 (N-MUX II or U).



Figure 3-6

3.1.7. Fire Occurrence and Accumulation Screen

- In the event of a fire, a pop-up screen appears and the area and circuit names are displayed.



Figure 3-7

3.1.8. USB Connection Screen

- When USB is connected to a USB port in the Panel, a pop-up window appears in any menu as shown below to indicate USB connection.



Figure 3-8

3.1.9. Sub Menu of Status View

3.1.9.1. View Input Module

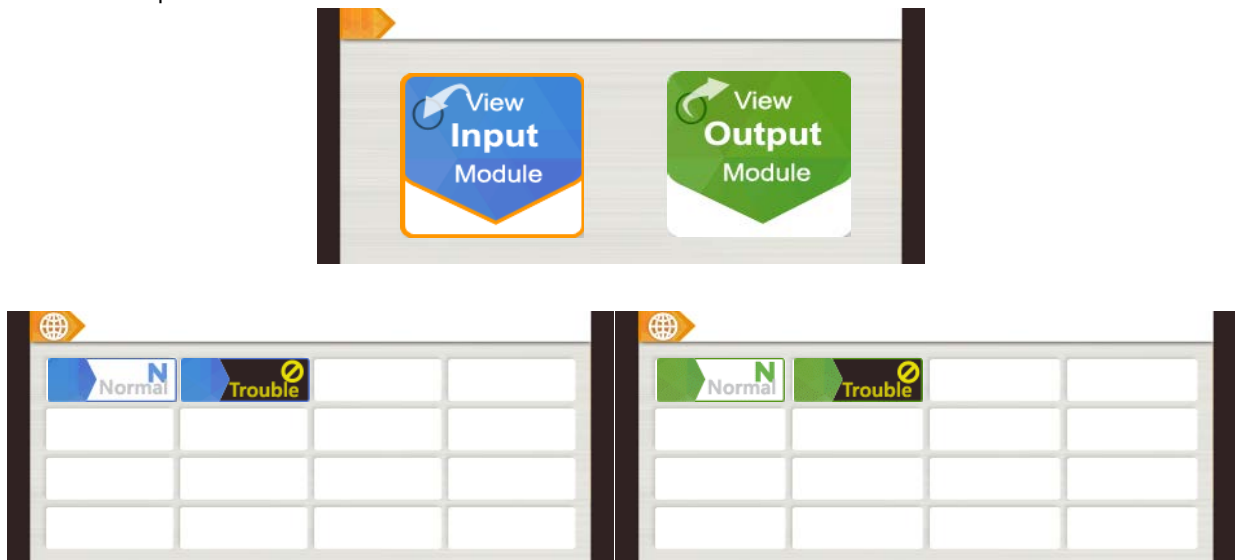


Figure 3-9

- Go to the Status View using an arrow on the main menu, and press Enter.
- Select View Input Module and press Enter.

3.1.9.1.1. View the status of the input circuit

- You can check an event status of each circuit of the input module, and can carry out the sequential circuit tests on the link of an input and an output in RP250.

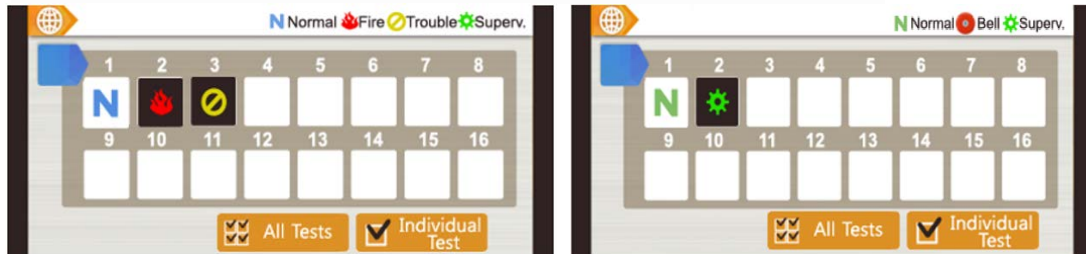


Figure 3-10

- Provided that modes of RP250 should be acknowledged as below:
 - Auto mode: Once an input signal is initiated, it triggers a Fire signal immediately and when the input signal is cleared, the system in the fire mode is automatically restored to the normal mode.
 - Latch mode: Even when the input signal is cleared, the system remains in the fire mode. You have to press Fire Reset to restore the system to normal.

3.1.9.1.2. Test and Recovery of Individual Circuits

- Select the individual circuit test of the input module using the LCD control keys.
- After selecting an input circuit address to be tested, set the address number using up/down arrows.
- When the upper button is pressed, the number increases, and when the down button is pressed, the number decreases.
- After filling in the appropriate address number and pressing the "Enter", a confirmation window appears as below.
- After selecting a desired function, press "Enter" to be continued.
 - YES: Circuit test will start.
 - NO: Circuit test will finish. (When the test condition is halted.)

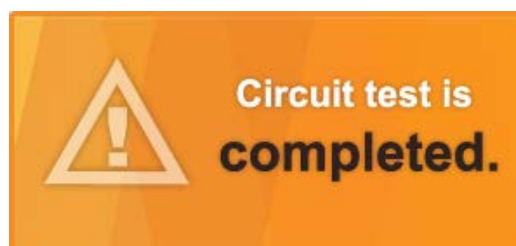
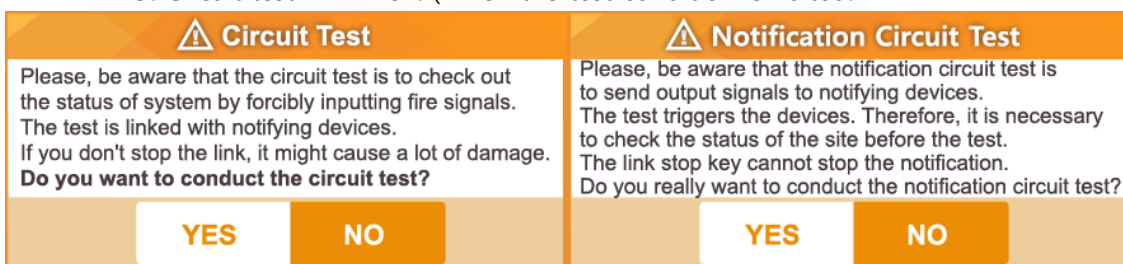


Figure 3-11

3.1.9.2. Front Panel Indication Test

- The front panel indication test is to check LCD, OCM, ECM LED and Buzzers on the front panel of RP250 system.
- When front panel indication test is conducted, LCD displays a screen test, where you can check for abnormalities.

3.1.10. Sub menu of View Records

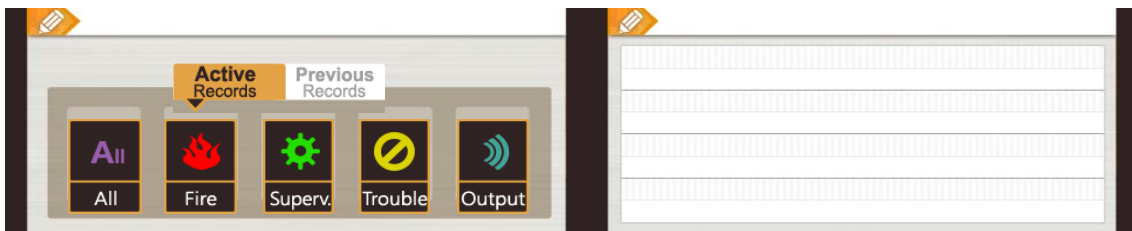


Figure 3-12

- Active/Previous records can be selected if there is an active event now and the corresponding record is shown.
- 4 lines are shown on a single screen so that records can be checked using the up/down control keys.

3.1.11. Sub Menu of Setting

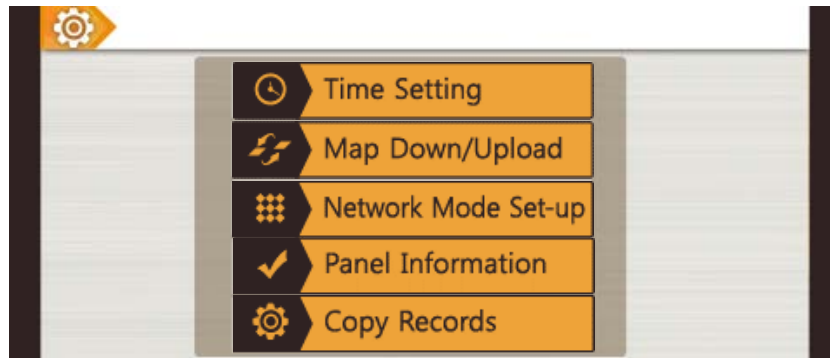


Figure 3-13

3.1.11.1. Time Setting

- The current time is displayed on and the time can be set with the arrows on the LCD module.

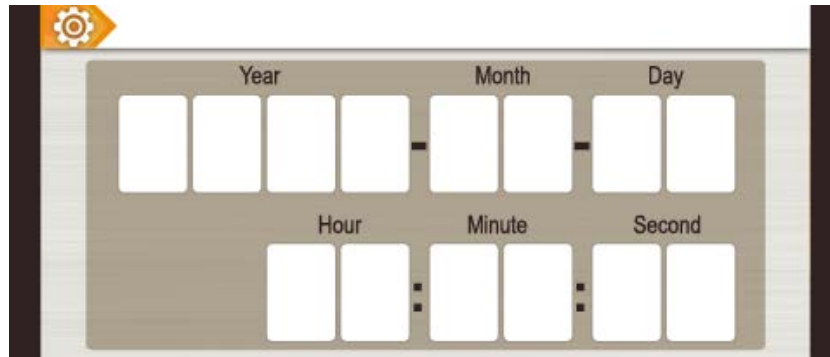


Figure 3-14

3.1.11.2. Download/Upload Map

- You can download or upload a map with the arrow keys on the LCD module after connecting USB.
- For download, configure a USB folder as follows:
→ config > PTYPE > RP001.dat (case-sensitive and verify that the extension is *.dat)

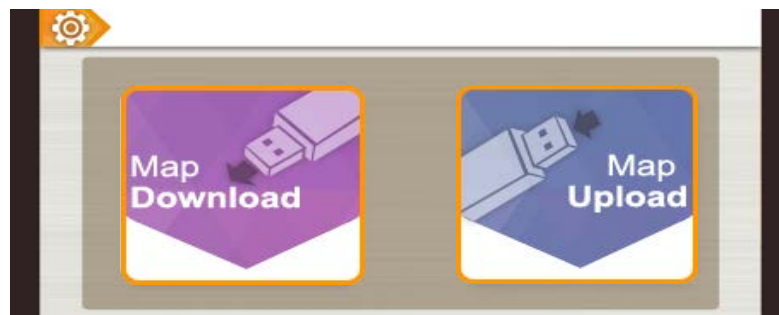


Figure 3-15

- How to download hardware map
- ➔ After connecting USB, set No.7 dip switch of MCM module to on and press the Reset button on MCM Module. This will lead the panel to rebooting with the map downloaded.
- ➔ When the map download is completed and the buzzer is activated, the download has been completed.
- ➔ After removing the USB, set No.7 dip switch of MCM module to off and press the Reset button on MCM module. All functions are completed to be ready and the panel boots normally.

3.1.11.3. Connection with External Equipment (Emergency broadcasting / Workstation)

- It is for data transfer with emergency broadcasting equipment via serial communication. When "Not available" is selected, RP250 doesn't communicate with emergency broadcasting equipment
- Ethernet can be activated to connect workstation. When "Not available" is selected, RP250 doesn't communicate with workstation.



Figure 3-16

3.1.11.4. Panel Information and IP

- Firmware version of RP250 and the IP set on the panel are displayed.
- Information of site map downloaded in RP250 is shown

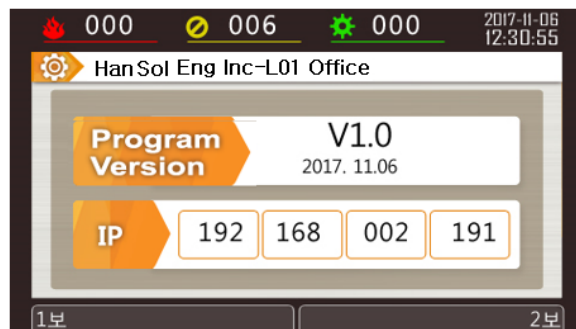


Figure 3-17

3.1.11.5. Copy Records

- Past records stored on RP250 Panel can be copied to USB.
- Pressing the Enter key on the front LCD starts copying. (roughly 2-3 seconds taken)
- A pop-up window appears to show copy of records is completed.
- Follow the guide messages to finish copying the records.



Figure 3-18

3.2. Front Panel Indication and Operation

3.2.1. Normal State

- On the RP250 control board, "AC Power Normal" LED light is on, "CPU RUN" LED flashes and the backup power "Circuit voltage normal" light is on.
- AC Power
 - If AC power is normally applied to RP250, it is turned on. When AC power is cut off, the LED is turned off.
- CPU RUN
 - It indicates that the main CPU is operating normally. It turns off when CPU is out of function.



Figure 3-19

3.2.2. Fire

- The "fire" indicator on the RP250 Control Board (OCM) illuminates and a message about the corresponding area is displayed on the screen. When a fire signal is input, RP250 sounds the main alarm. Local bells and equipment are activated based on the input/output map.



Figure 3-20

3.2.3. Trouble

- The "Trouble" indicator on the RP250 Control Board (OCM) illuminates and a message about the area is displayed on the screen. Then, the main buzzer is sounded.



Figure 3-21

3.2.4. Equipment

- The "Equipment" indicator on the RP250 Control Board (OCM) illuminates and a message about the area is displayed on the screen. When equipment is activated, the main buzzer is sounded with a soft note. The equipment is operating on based on the input/output map.



Figure 3-20

3.2.5. Silence Alarm, Silence Local Bell, & Silence Buzzer

- Pressing a corresponding silence button on the RP250 control board stops the selected output, and the corresponding indicator flashes, indicating the silence state. Pressing the button again turns off the indicator lamp and the silence button returns to its normal state.
- If an event occurs, alarm and buzzer get automatically released from the silence.
- Silence Alarm
 - Alarm operates in the occurrence of fire. Pressing the Silence Alarm key stops its sounding.
- Silence Local Bell
 - Local bell operates in the fire area. Pressing the Silence Local Bell key stops its sounding.
- Silence Buzzer
 - Buzzer is activated by the equipment input. It is mounted inside RP250. It sounds with a soft tone and if a trouble occurs, it makes short sounds. Pressing the Silence Buzzer key stops its sounding.



Figure 3-21

3.2.6. Battery Test

- Pressing the "Battery Test" button turns on the indicator lamp and the test starts. Once the battery test starts, the battery status can be checked out through its monitoring indicator on the front panel.
- When the Voltage Low indicator illuminates, or the battery is in trouble, it should be fixed, or the battery should be replaced immediately.

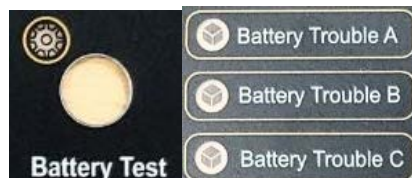


Figure 3-22

3.2.7. Setting of Auto Restoration

- Pressing the "Automatic Restore" button, the indicator flashes and the panel operates in auto restoration mode. Pressing the button once again turns off the indicator lamp and the panel operates in latched mode.
- In auto restoration mode, the panel returns to normal state from fire mode when the fire is cleared.
- In latched mode, even if fire is cleared, the fire mode does not recover to normal. The fire mode is reset to normal only by the fire reset key.
- The equipment input (Activation check, etc.) cannot be latched on.



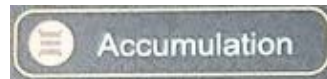
Figure 3-23

3.2.8. Setting of Accumulation Mode

- Pressing the "Accumulation" button once causes the indicator to flash and the panel operates in the accumulation mode (Accumulation time: 30 seconds).
- When a fire signal is input in the accumulation mode, an accumulation pop-up window appears on the screen and the accumulation lamp lights on.
- The panel sounds the main alarm.
- If the fire signal keeps even after 30 seconds of verification, the accumulation pop-up window and accumulation lamp turn off. The fire is indicated on the panel.
- Pressing the accumulation switch again turns off the accumulation mode indicator lamp and the panel operates in non-accumulation mode.
- Equipment, fire facilities (sprinklers, fire extinguishing agents, etc.) and manual call point doesn't support accumulation.



Accumulation Button



Accumulation Lamp

Figure 3-24

3.2.9. Fire Reset

- Pressing the "Fire Reset" button displays fire reset in the LCD and the panel returns to its normal state.
- If a detector's wire is shorted or if a detector, a manual call point or a manual control box remains activated, the related event will occur after the panel is reset to normal from fire.



Figure 3-25

3.2.10. Telephone

- When a handset plug is inserted into a phone jack attached to the manual call point on site, the phone buzzer on the RP250 rings. If the handset plug is inserted into a phone jack attached to the RP250, the buzzer stops and you can talk to the manual call point on site through the phone.



Figure 3-26

3.2.11. Auto and Stop of Equipment

- "Stop" switch makes an output by fire or equipment activation to cease.
- Pressing the stop switch on appropriate equipment on the front panel (ECM) stops the corresponding output, and the indicator flashes, indicating the equipment comes to a halt.
- Pressing the stop switch once again turns off the indicator lamp and the switch will return to normal and the output will be linked.
- The purpose and location of the equipment control switch can be set up and changed by the program.

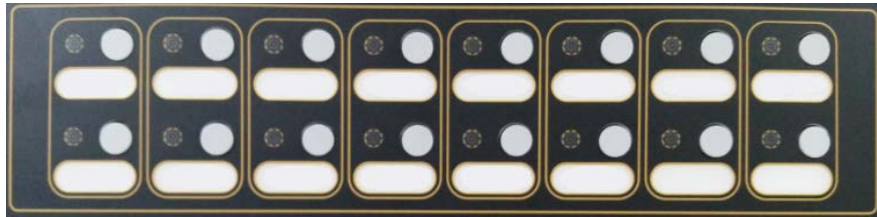


Figure 3-27

3.2.12. Activation and Stop of Pump

- When the pump switch is turned to "Auto", if the pressure of the pressure tank drops, the pressure switch (PS) is activated and the pump operates automatically.
- If the pump switch is turned to "Manual", the pump operates manually. When the pump is activated, the Activation Acknowledge (Act. Ack.) indicator lamp is lit on the Pump Control Board (ECSB) so that you can see the pump is working now.
- When the pump switch is turned to "Stop", the switch warning indicator flashes. It means the pump does not operate automatically or manually.
 - Auto: the pump operates automatically once the PS input is transferred.
 - Stop: the pump does not work regardless of PS input.
 - Manual: The user directly operates the pump regardless of PS input



Figure 3-28

CAUTION:

The pump operates only when the pump's output protection switch is turned to "Auto". When the pump's output protection switch is turned to "Stop", manual operation of the pump with individual control switches mentioned above does not work. (Auto operation does not work either.)



Pump's Output Protection Switch

3.2.13. Link of Exit Sign

- If exit sign is configured through a three-wire wiring method, the exit sign switch is available. When the link switch of the exit sign is turned to "Auto", the exit sign turns on by the input of linked fire signals. If the link switch is turned to "Manual", the exit sign turns on regardless of a fire signal.



Figure 3-29

4. RP250 Set-up & Wiring

4.1. Set-up and wiring of each module

4.1.1. MCM (Main Control Module)

4.1.1.1. Dip-Switch Location

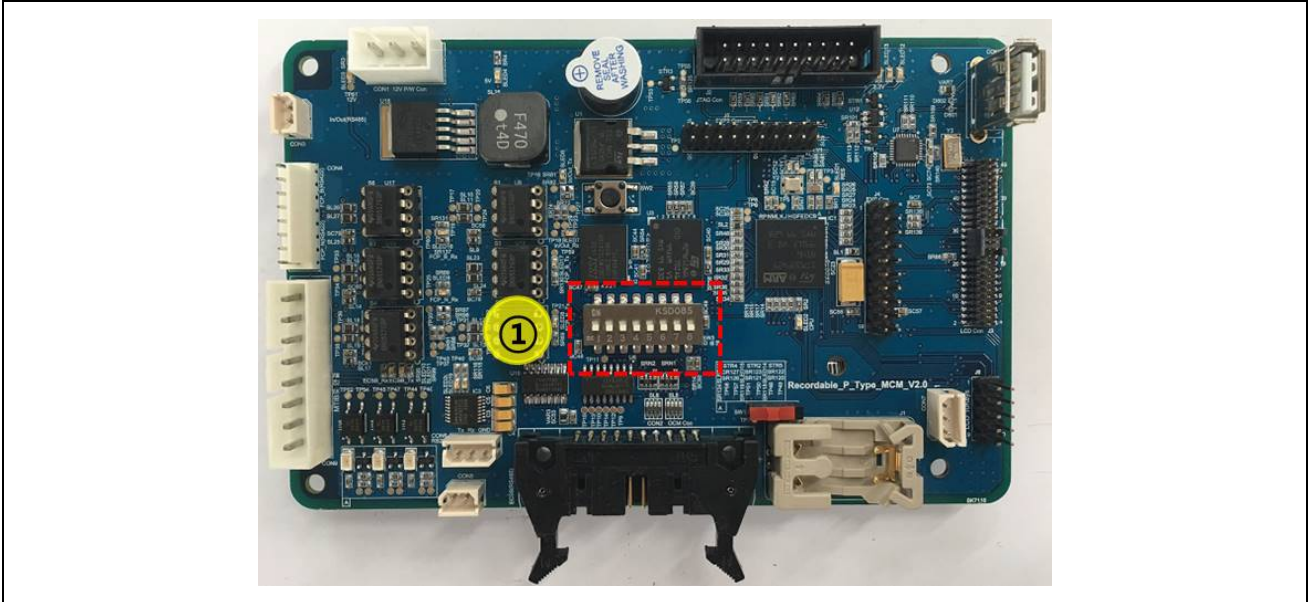


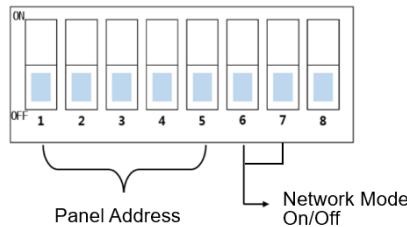
Figure 4- 1 MCM Module

4.1.1.2. Dip-Switch Function

Local	Part	Function
①	SW3	This switch is to set up panel addresses and modes.

4.1.1.3. How to set up dip-switch

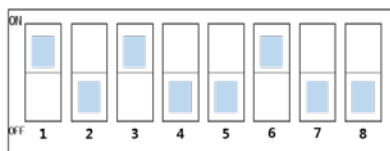
SW3: Address and mode setting switch (When the switch is turned to On, a corresponding function operates as follows ;)



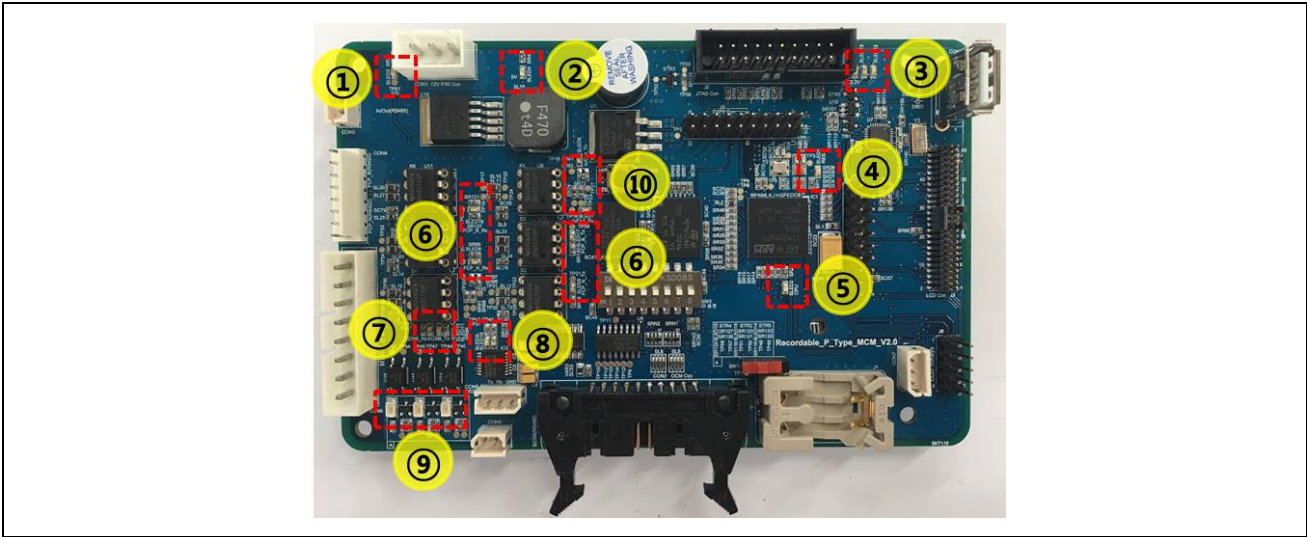
Ex.) Setting panel's address to 6 and network mode – The dip switch must be turned to "On". It sets to "1"

- To set the address to 6: Dip-switches 1 and 3 should be On.(Address 1 = If all dip switches are off)

- To set network mode: Dip-switches 6 and 7 should be On.



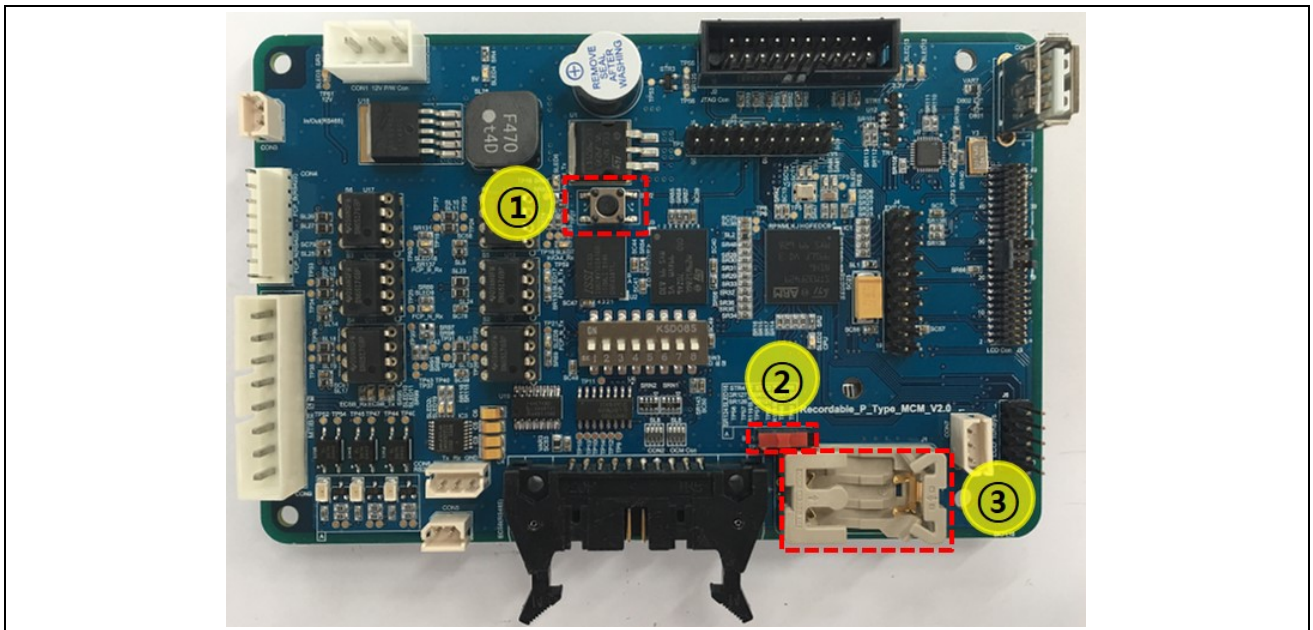
4.1.1.4. LED Location



4.1.1.5. LED Description

Location	Part	Color	Function
①	SLED3	Green	LED On : Input power (13 V DC) is normal at PTWM2705
②	SLED4	Green	LED On : Internal power circuit (5 VDC) is normal
③	SLED5	Green	LED On : Internal power circuit (3.3 VDC) is normal
	SLED12	Green	LED On : USB memory connection
	SLED13	Green	LED On : USB memory connection is trouble (short circuit, over-current, over-heating, low-voltage)
④	SLED1	Green	LED Flashes : MCU is normal
⑤	SLED2	Green	LED Flashes: MCU is normal
⑥	SLED9	Green	LED Flashes: Connection to RS422 network with another panel (FCP_B_Rx)
	SLED18	Green	LED Flashes: Connection to RS422 network with another panel (FCP_N_Rx)
		Red	LED Flashes: Connection to RS422 network with another panel (FCP_B_Tx)
		Red	LED Flashes: Connection to RS422 network with another panel (FCP_N_Tx)
⑦	SLED10	Green	LED Flashes: ECSB to RS485 Communication (Rx)
	SLED11	Red	LED Flashes: ECSB to RS485 Communication (Tx)
⑧	SLED19	Green	LED Flashes: RS232 Communication with an external device (Rx)
	SLED20	Red	LED Flashes: RS232 Communication with an external Device (Tx)
⑨	SLED14	Green	LED On : Main alarm is activated by fire or input from equipment
	SLED15	Green	LED On : Fire signal is transferred
	SLED16	Green	LED On : MTIB buzzer is activated by equipment activation or any failure (Failure LED flashes)
⑩	SLED7	Green	LED Flashing: MCM to Input/Output Module Communication (Rx)
	SLED8	Red	LED Flashing: MCM to Input/Output Module Communication (Tx)

4.1.1.6. Others



4.1.1.7. Function Description

Location	Part	Function
①	SW2	MCU reset switch
②	SW3	MCU Boot Mode setting switch's default option is to 'ON' and its operation on site is not available.
③	J1	Battery Connector for RTC (Real Time Clock) (CR2032 Battery mounted)

4.1.2. 4.3-inch TFT LCD and Screen Operation Switch

4.1.2.1. Location

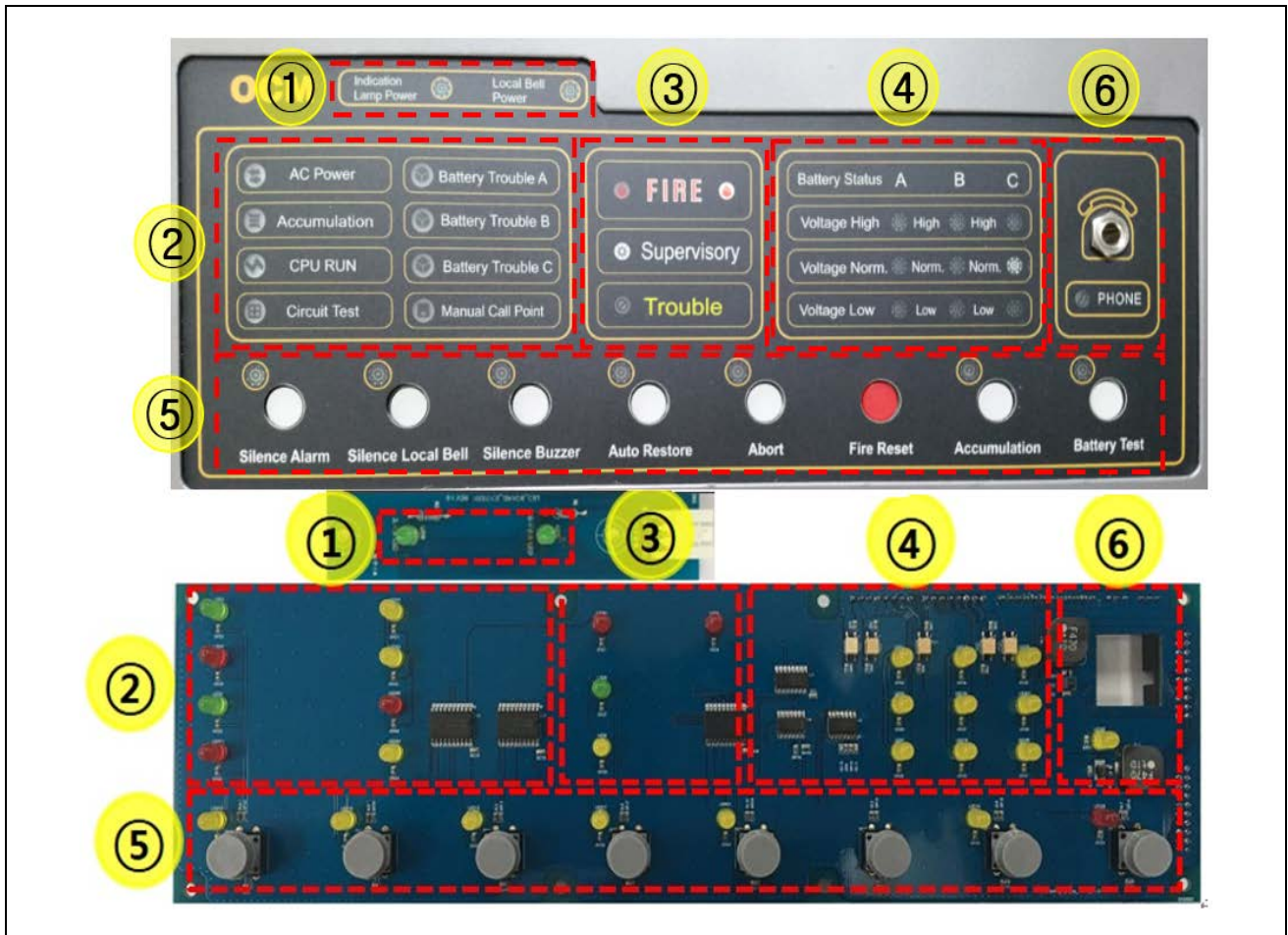


4.1.2.2. Function Description

Location	Part	Function
①	SW1~7	User-interface switch for screen operation: switches to search for event and to select menu

4.1.3. OCM (Operating Control Module)

4.1.3.1. LED Location



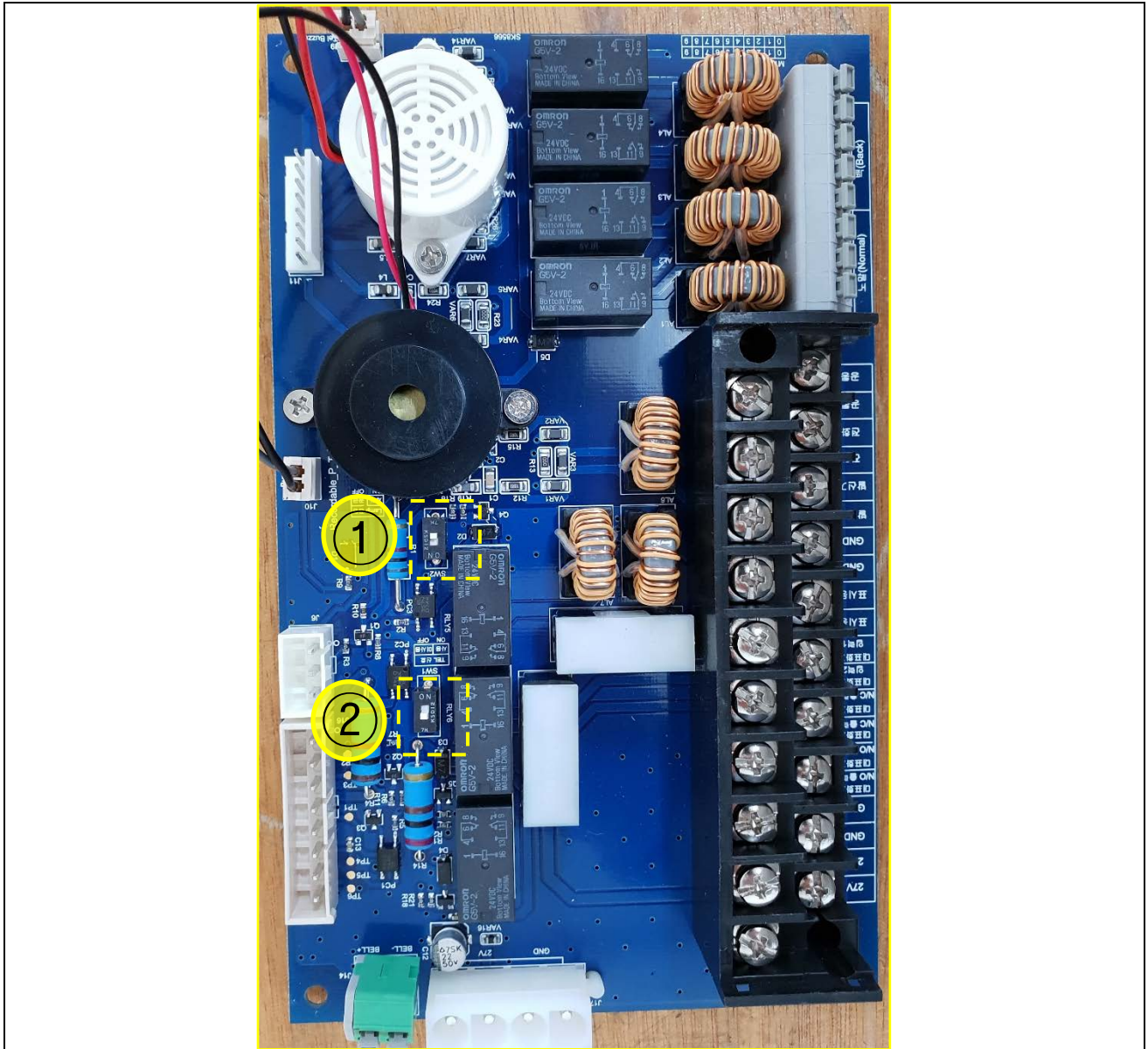
4.1.3.2. Function Description

Local	Part	Color	Function
①	LED1	Green	LED On : Power for local bell is normal,
	LED2	Green	LED On : Power for indicator lamp is normal.
②	LED2	Green	LED On : 220 V AC power input is normal
	LED5	Red	LED On : Accumulation occurs
	LED8	Green	LED On : CPU_RUN (MCM is normal)
	LED11	Red	LED On : Circuit test operation
	LED10	Yellow	LED On : Battery (24V DC on PTWM2710) open circuit
	LED23	Yellow	LED On : Battery (12V DC on PTWM2705) open circuit
	LED29	Yellow	LED On : Battery (24V DC on PTWM2705) open circuit
③	LED24	Red	LED On : Manual call point is activated
	LED3,31	Red	LED On : Fire occurs
	LED6	Green	LED On : Equipment is activated
	LED4	Yellow	LED On : Trouble occurs

④	LED1	Yellow	LED On : Voltage at Battery A (PTWM2710 24VDC) is greater than 28.8 VDC
	LED9	Green	LED On : Voltage at Battery A (PTWM2710 24 VDC) is less than 28.8 VDC and greater than 20.4 VDC
	LED7	Yellow	LED On : Voltage at Battery A (PTWM2710 24 VDC) is 19.2 VDC or less.
	LED13	Yellow	LED On : Voltage at Battery B (PTWM2705 12VDC) is greater than 14.4 VDC
	LED16	Green	LED On : Voltage at Battery B (PTWM2705 12VDC) is less than 14.4 VDC and greater than 10.2 VDC
	LED19	Yellow	LED On : Voltage at Battery B (PTWM2705 13VDC) is not greater than 10.2 VDC
	LED26	Yellow	LED On : Power of Battery C (PTWM2705 26 VDC) is greater than 28.8 VDC
	LED27	Green	LED On : Voltage at Battery C (PTWM2705 26 VDC) is less than 28.8 VDC, and greater than 20.4 VDC.
	LED28	Yellow	LED On : The voltage at Battery C (PTWM2705 26 VDC) is 10.2 VDC or less.
⑤	LED18	Yellow	LED Flashes : Forced stop of main alarm is input
	LED15	Yellow	LED Flashes : Forced stop for bell is input
	LED12	Yellow	LED Flashes : Buzzer forced stop is input
	LED17	Yellow	LED Flashes : Forced stop of auto restoration is input
	LED21	Yellow	LED Flashes : Forced stop for abort is input
	LED14	Yellow	LED Flashes : Accumulation Stop Input
⑥	LED25	Red	LED On : Battery Test Input
	LED20	Red	LED On : Use of Phone

4.1.4. MTIB Board

4.1.4.1. Dip-Switch Location

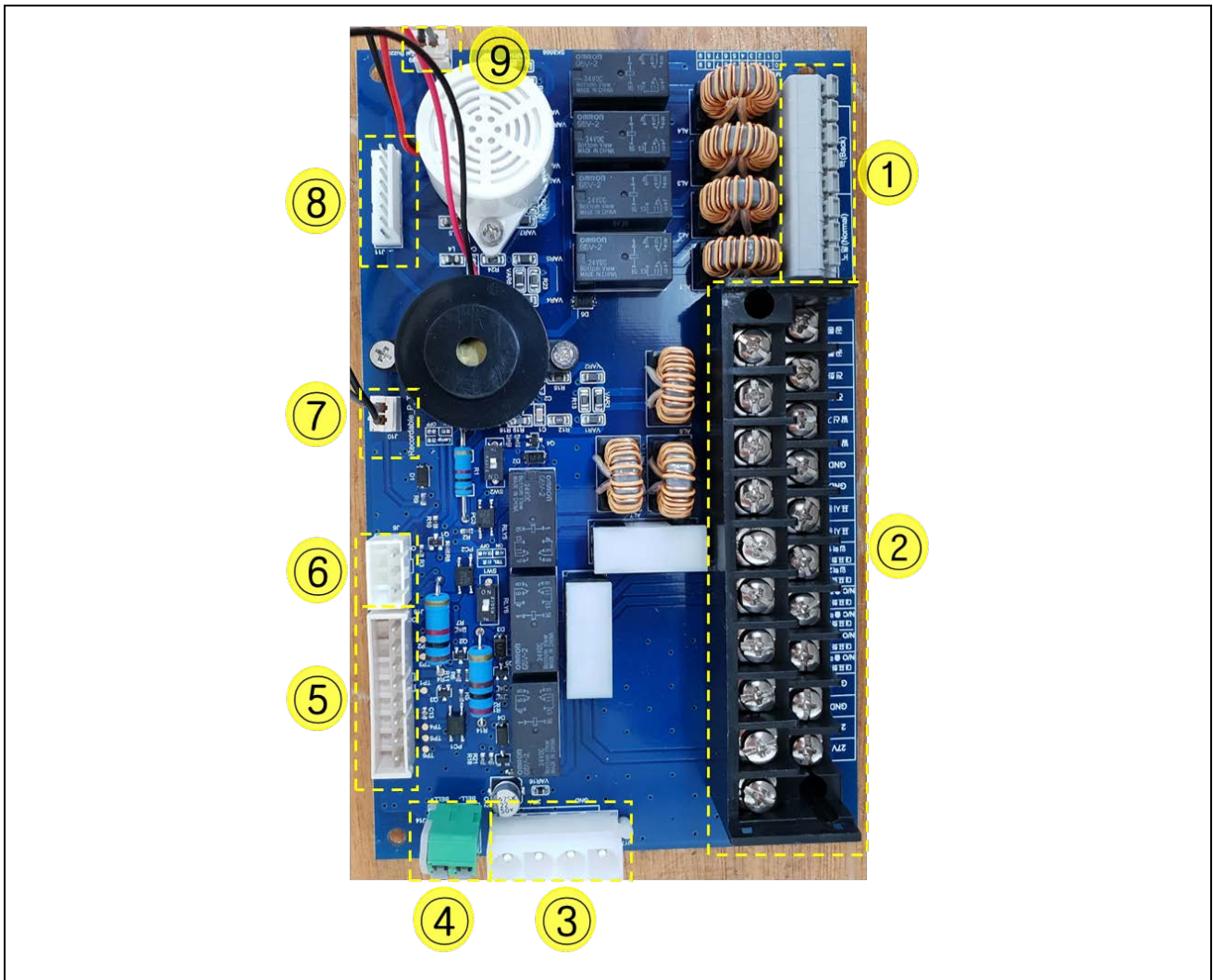


4.1.4.2. Function Description

Location	Part	Function
①	SW2	Switch On: Lamp output is blocked when battery is working.
②	SW1	On/Off to use telephone. On: Telephone is available Off: Telephone is not available.

4.1.4.3. Connector

4.1.4.4. Location



4.1.4.5. Function Description

Location	Part	Function
①	J12	RS422 connector for a network with R-type panels
②	J15	External wire connector (27 VDC, GND, indicator, manual call points, telephone, telephone common ground, fire signals)
③	J17	27 VDC Power connector (Connected to PTWM2705 or PTWM2710)
④	J14	Connector for main alarm power supply
⑤	J16	Main alarms, local bells, fire signals, telephone, 220V AC power in/output connector (connected to MCM)
⑥	J6	Telephone jack connector
⑦	J10	Connector for equipment and trouble indicating buzzers
⑧	J11	RS422 connector for R-type panel and network (connected to MCM)
⑨	J9	Connector for telephone connection indicating buzzer

4.1.4.6. Wiring Method

Location	Part	Wiring Method
①	J15	

4.1.5. ECM

4.1.5.1. Dip Switch Location



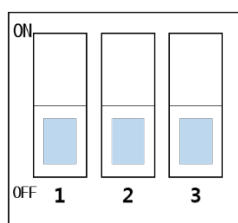
4.1.5.2. Function Description

Location	Part	Function
①	SW1	This switch is to set addresses for connections with more than one ECM

4.1.5.3. Set-up

① SW1: Address -setting switch

- ECM 1 : 1 OFF, 2 OFF, 3 ON
- ECM 2 : 1 OFF, 2 ON, 3 OFF
- ECM 3 : 1 ON, 2 OFF, 3 OFF



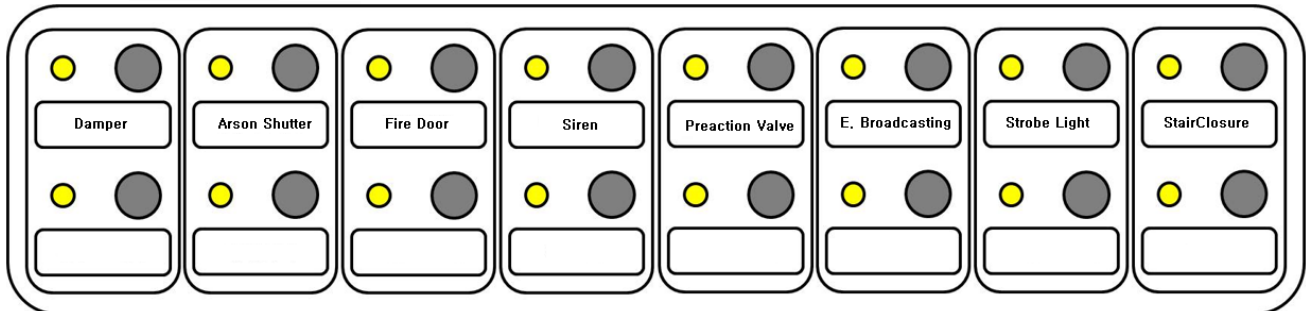
4.1.5.4. LED Location



4.1.5.5. Function Description

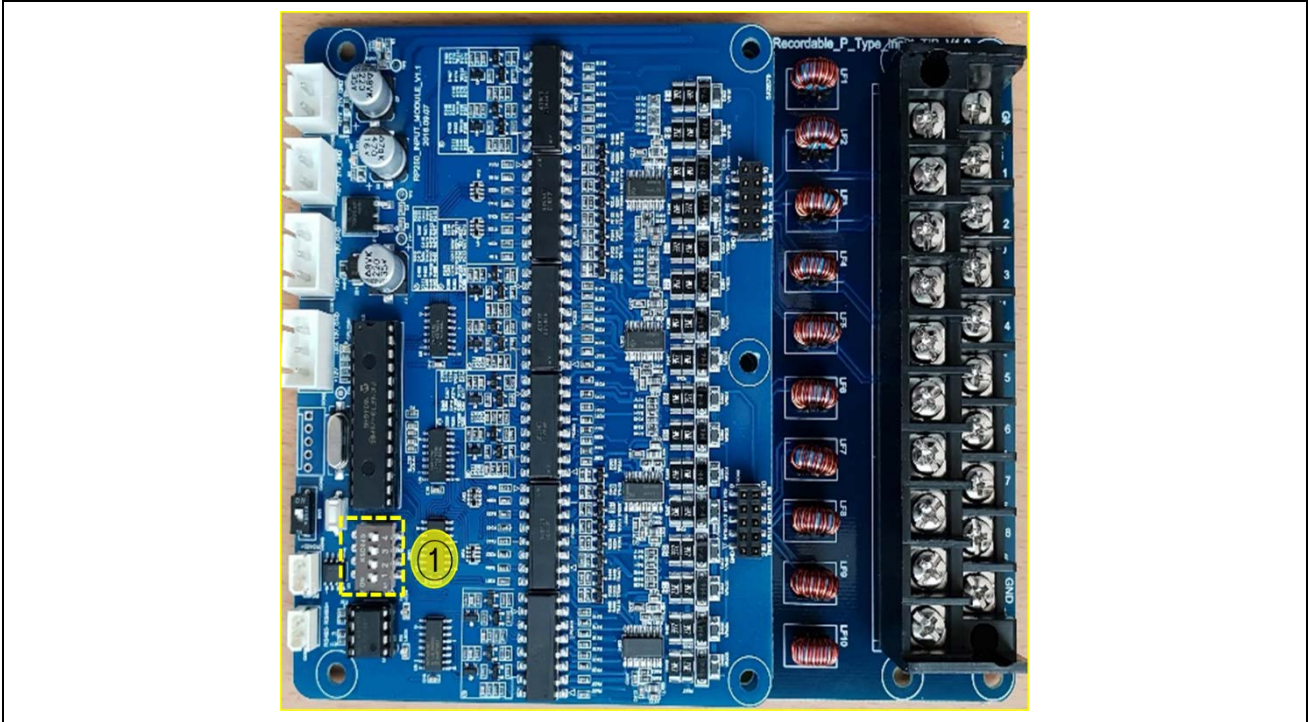
Location	Part	Function
①	LED1~16	LEDs are on after pressing an appropriate key makes equipment to cease that is set based on in/output table.
	SW2~17	Link or stop the equipment set based on in/output table

E.G.) ECM Set stop key



4.1.6. (-)Input Module

4.1.6.1. Dip Switch Location



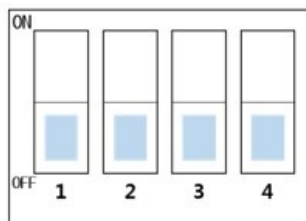
4.1.6.2. Function Description

Location	Part	Function
①	SW1	It is for address setting (1-16)

4.1.6.3. Set-up

① SW1: This switch is to set input module's address

※ See the Address setting table (p73)

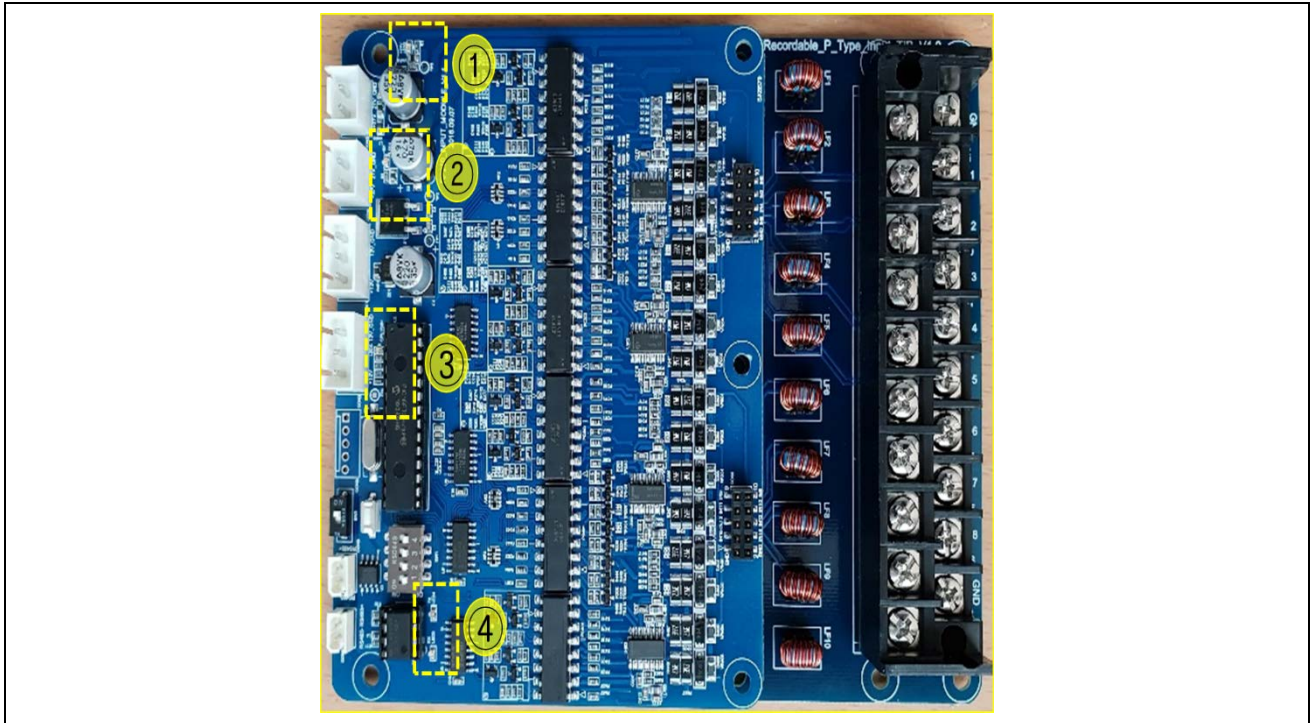


- Input module's switch must be turned to "Off" in order to set "1".

Ex) No. 6 address is to set "No. 1 and No. 3" dip-switches to Off (※ Add 1 to the value set by the switch)
 ((1+4)+1=6)



4.1.6.4. LED Location

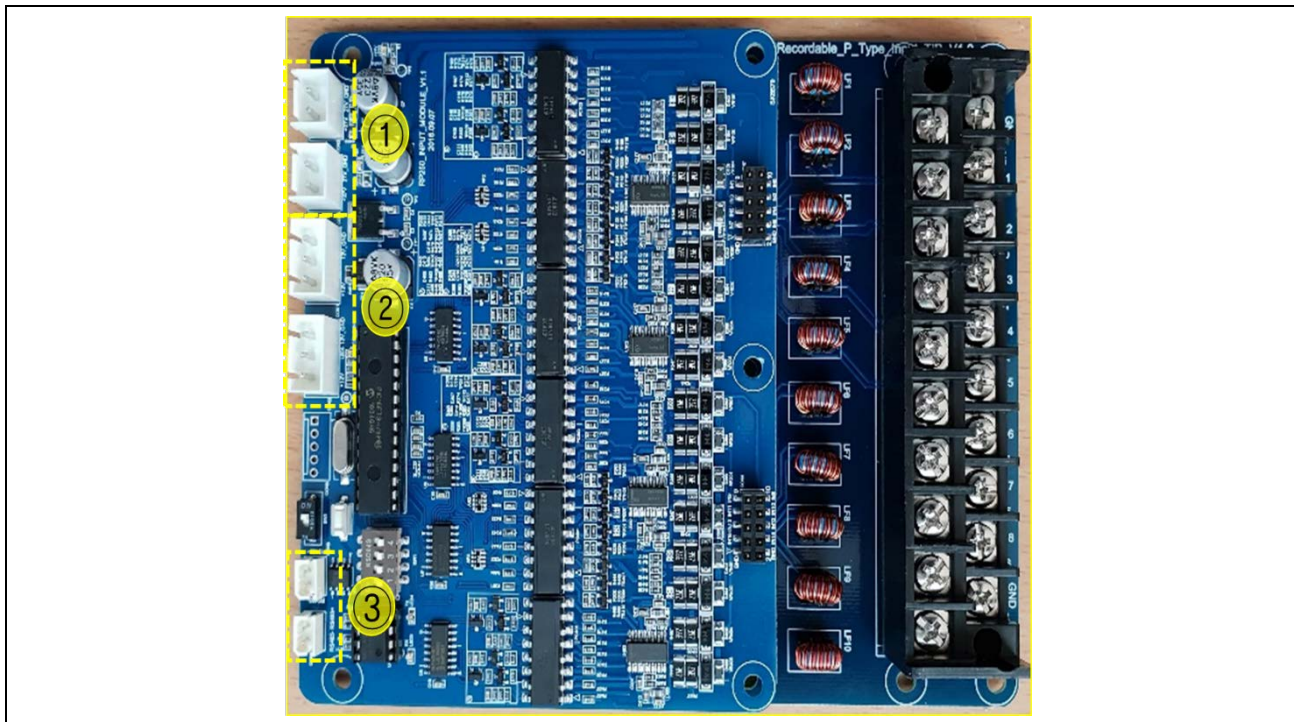


4.1.6.5. Function Description

Location	Part	Color	Function
①	LED2	Green	LED is on: Power (27V DC) is normal on PTWM2705 or PTWM2710
②	LED1	Green	LED is on: Internal Power Circuit's output power (5V DC) is normal.
③	LED5	Green	LED flashes: CPU operation is normal
④	LED3	Green	LED flashes: Communication between MCM and RS485 (Rx)
	LED4	Red	LED flashes: Communication between MCM and RS485 (Tx)

4.1.6.6. Connector

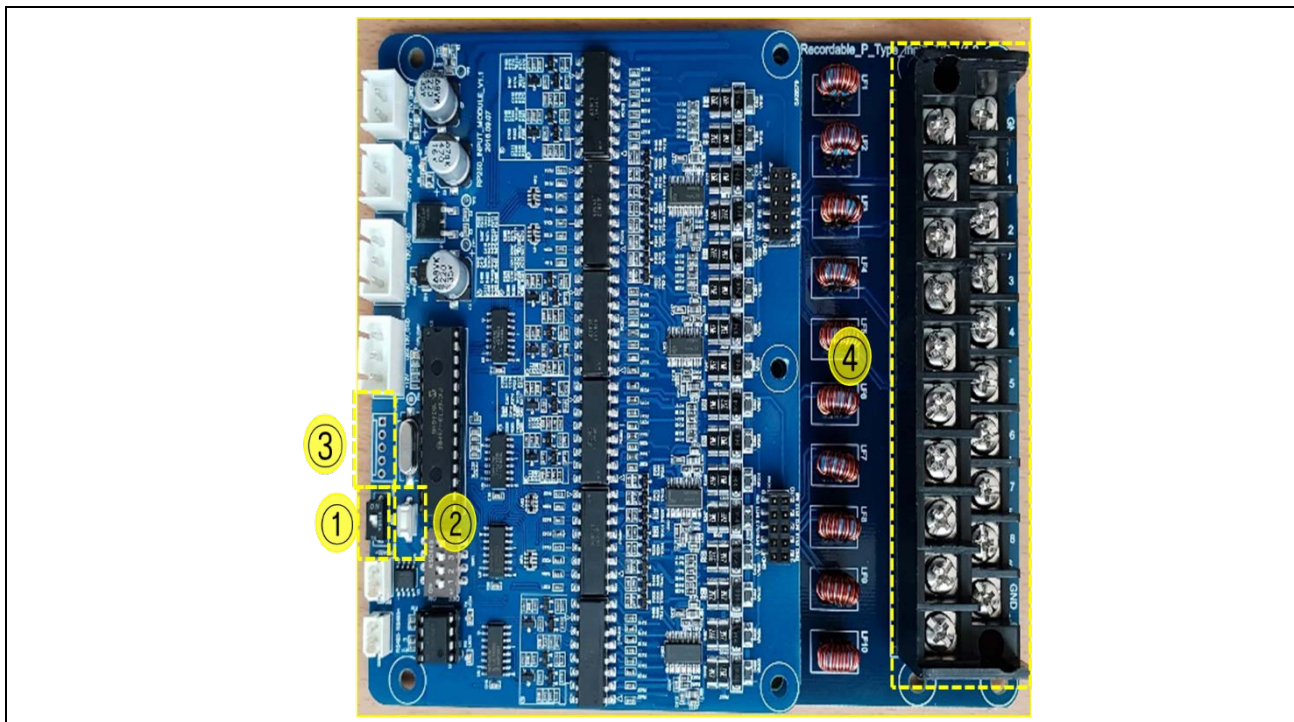
4.1.6.6.1. Location



4.1.6.7. Function Description

Location	Part	Function
①	CON3~4	27V DC Power Supply Connector (Connection with PTWM2705 and PTWM2710 or connection with the com terminal of next input /output module)
②	CON1~2	13V DC Power Supply Connector (Connection with PTWM2705 or connection with the com terminal of next input /output module)
③	CON5~6	RS485 Communication Connector (Connection with MCM or connection with the com terminal of next input /output module)

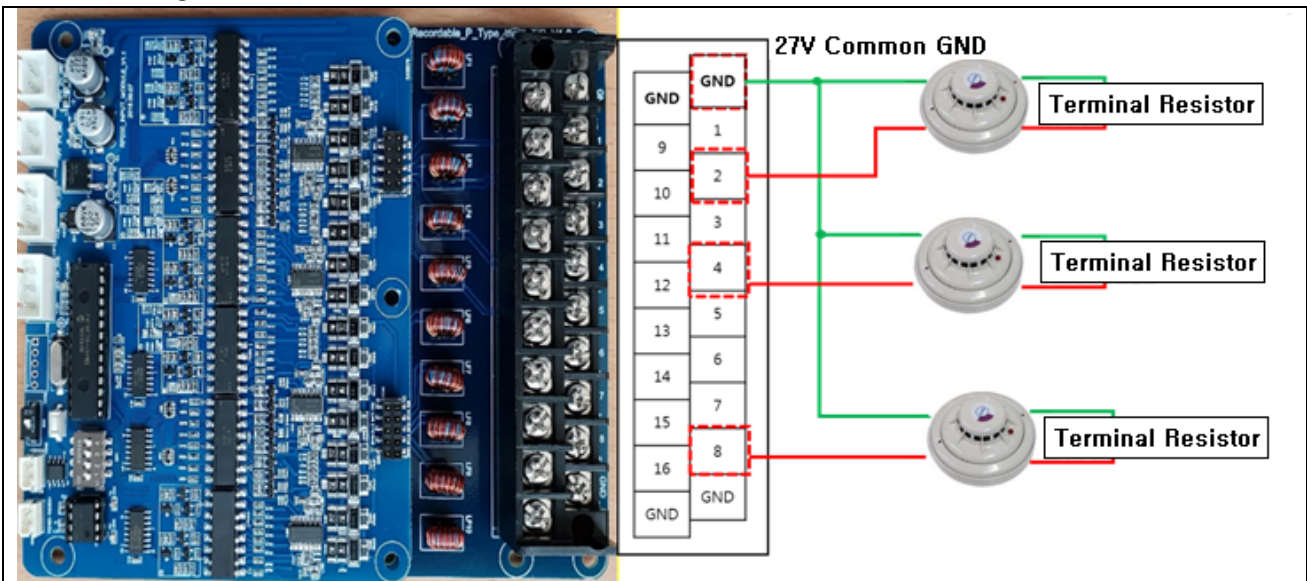
4.1.6.8. Others



4.1.6.9. Function Description

Location	Part	Function
①	SW2	Reset switch
②	SW3	Boot mode and reset settings switch. Its default is to 'On' and its operation on site is not available.
③	CON7	Connector for Debugging (Connection with a designated tool)
④	CON3	Connector for detectors and input devices

4.1.6.10. Wiring Method

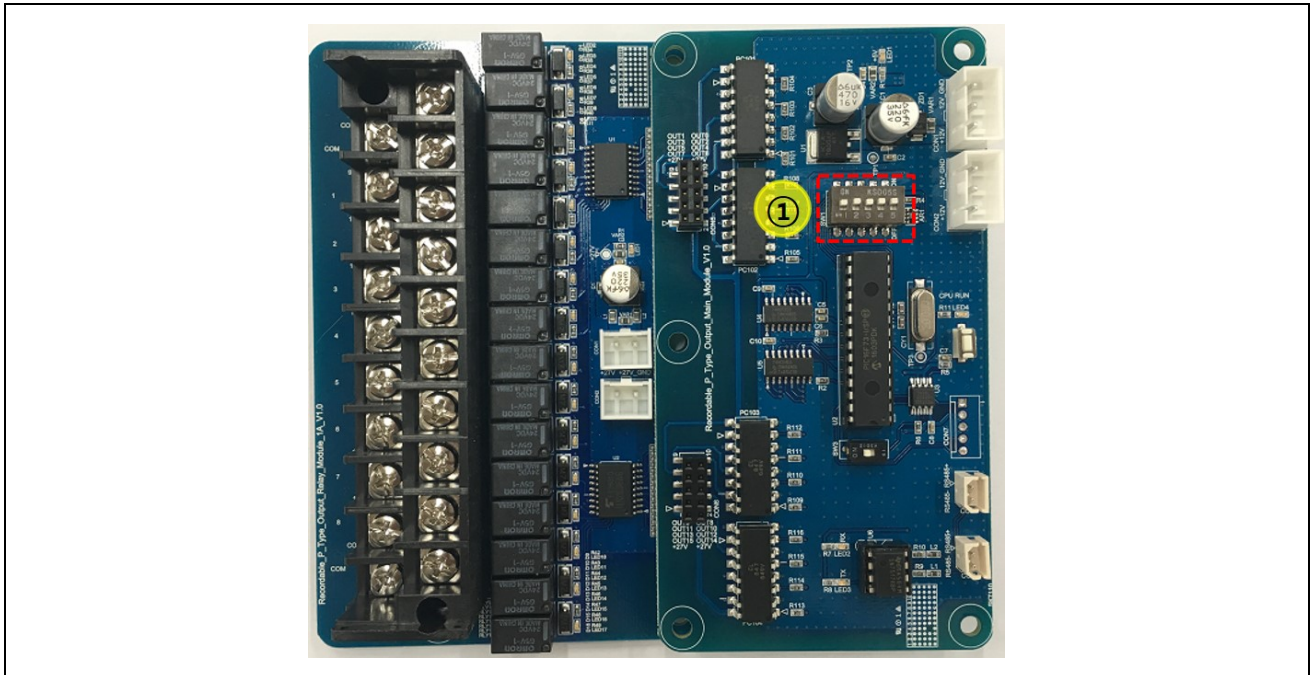


※ **Caution**

- 1) This terminal is to connect input devices (detector, etc.). Do not connect 4 grounds of the terminal's ends with grounds of output devices.
- 2) Pls. refer to the white silk text written on the right side of the terminal for the input order.
- 3) Pls. connect a 10K Ω , 1/4W end-resistor to the end of a detector and an input device
- 4) Pls., connect a 10K Ω , 1/4W end-resistor to an unused input terminal.

4.1.7. Output Main Module & 1A Output Relay

4.1.7.1. Dip Switch Location



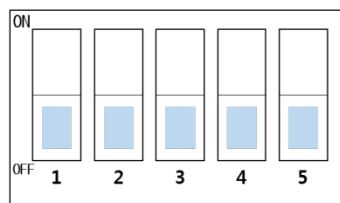
4.1.7.2. Function Description

Location	Part	Function
①	SW1	This dip switch is for address setting (1-16)

4.1.7.3. Set-up

SW1: Address setting switch on the Output Main Module

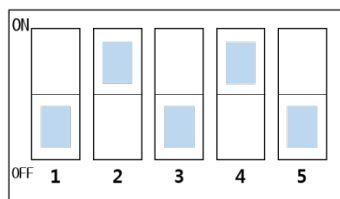
※ See the Address setting table (p73)



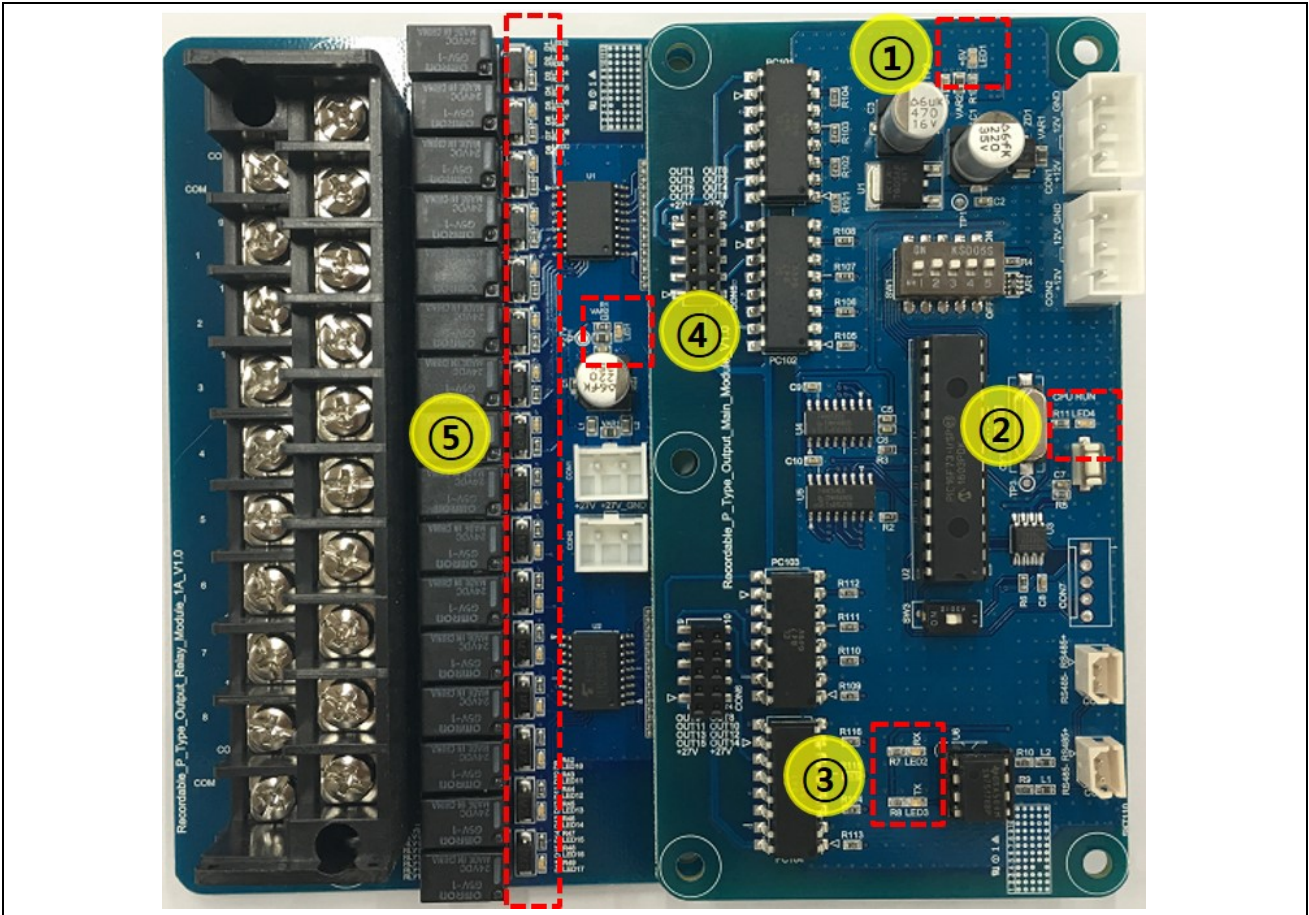
- Output module must be "OFF" switch to set to "1"

Ex) Address 6 is to set "No. 1 and No. 3" dip-switches to Off (※ Add 1 to the value set by the switch) $((1+4)+1=6)$

※ Do not use the 5th switch.



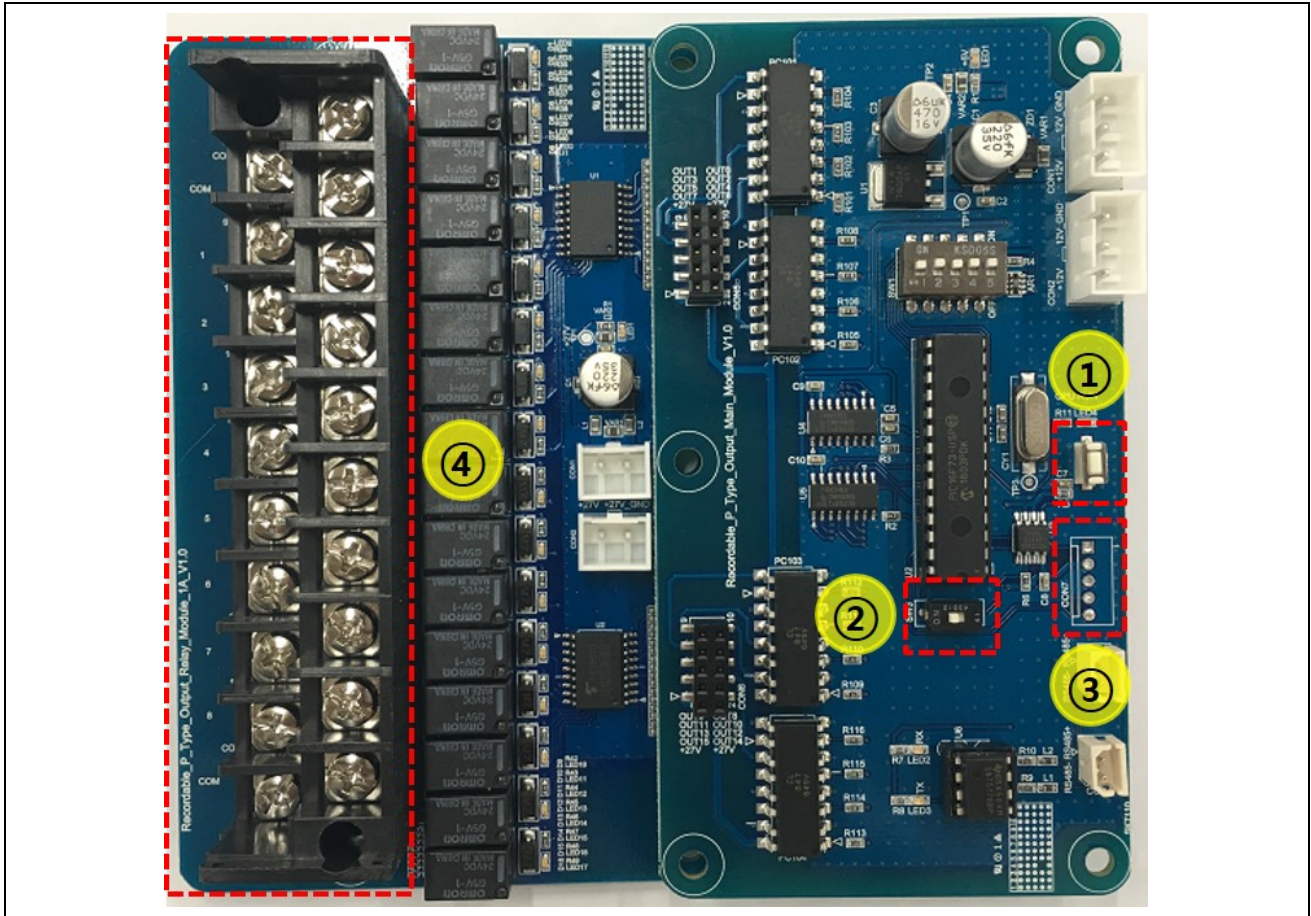
4.1.7.4. LED Location



4.1.7.5. Function Description

Location	Part	Color	Function
①	LED1	Green	LED is On: Internal Power Circuit's output power (5 V DC) is normal
②	LED4	Green	LED flashes: CPU is normal
③	LED2	Green	LED flashes: Communication between MCM and RS485 (Rx)
	LED3	Red	LED flashes: Communication between MCM and RS485 (Tx)
④	LED1	Green	LED is On: Power (27V DC) input is normal on PTWM2705 or PTWM2710.
⑤	LED2~17	Red	LED is On: Output signal is transferred to that terminal

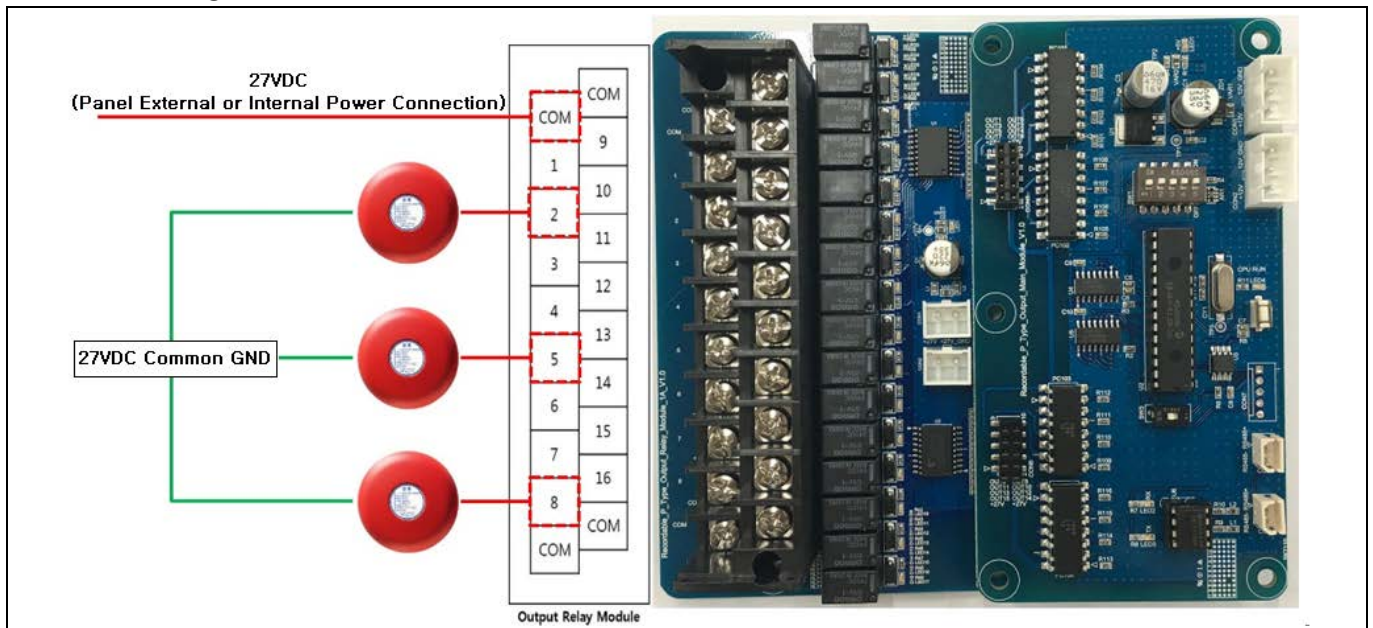
4.1.7.6. Others



4.1.7.7. Function Description

Location	Part	Function
①	SW2	Reset switch
②	SW3	Boot mode setting switch. Its default is to 'Off' and its operation on site is not available.
③	CON7	Connector for Debugging (Connection with a designated tool)
④	CON5	Connector for external devices and equipment

4.1.7.8. Wiring Method

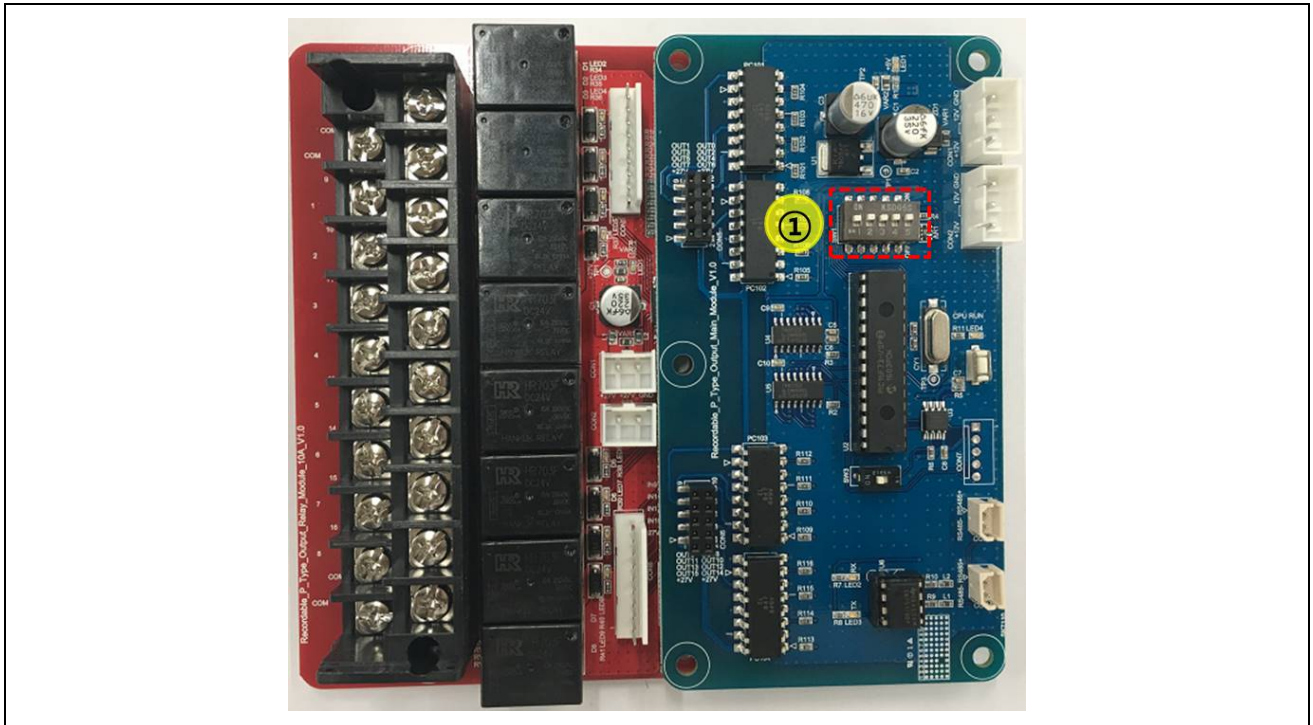


※ **Caution**

- 1) Pls., refer to the white silk written on the left side of the terminal for the output sequence.
- 2) 27V DC for equipment output is connected to 4 COM terminals at both ends of the terminal (Internal and external power supply available)
- 3) Pls., connect common GND of equipment to the terminal in a panel (if using the internal power source of the Panel) or connect it to an external power ground (common) when the external power supply is used
- 4) Each output has a maximum contact capacity of 24VDC/1A. The use of the exceeding output above the specification may result in trouble.

4.1.8. Output Main Module & 10A Output Relay

4.1.8.1. Dip Switch Location



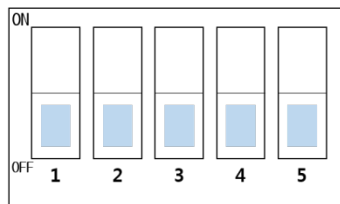
4.1.8.2. Function Description

Location	Part	Function
①	SW1	This dip switch is for address setting (1-16)

4.1.8.3. Set-up

SW1: Output main module's address setting switch

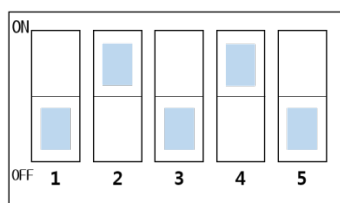
※ See the address setting table (p73)



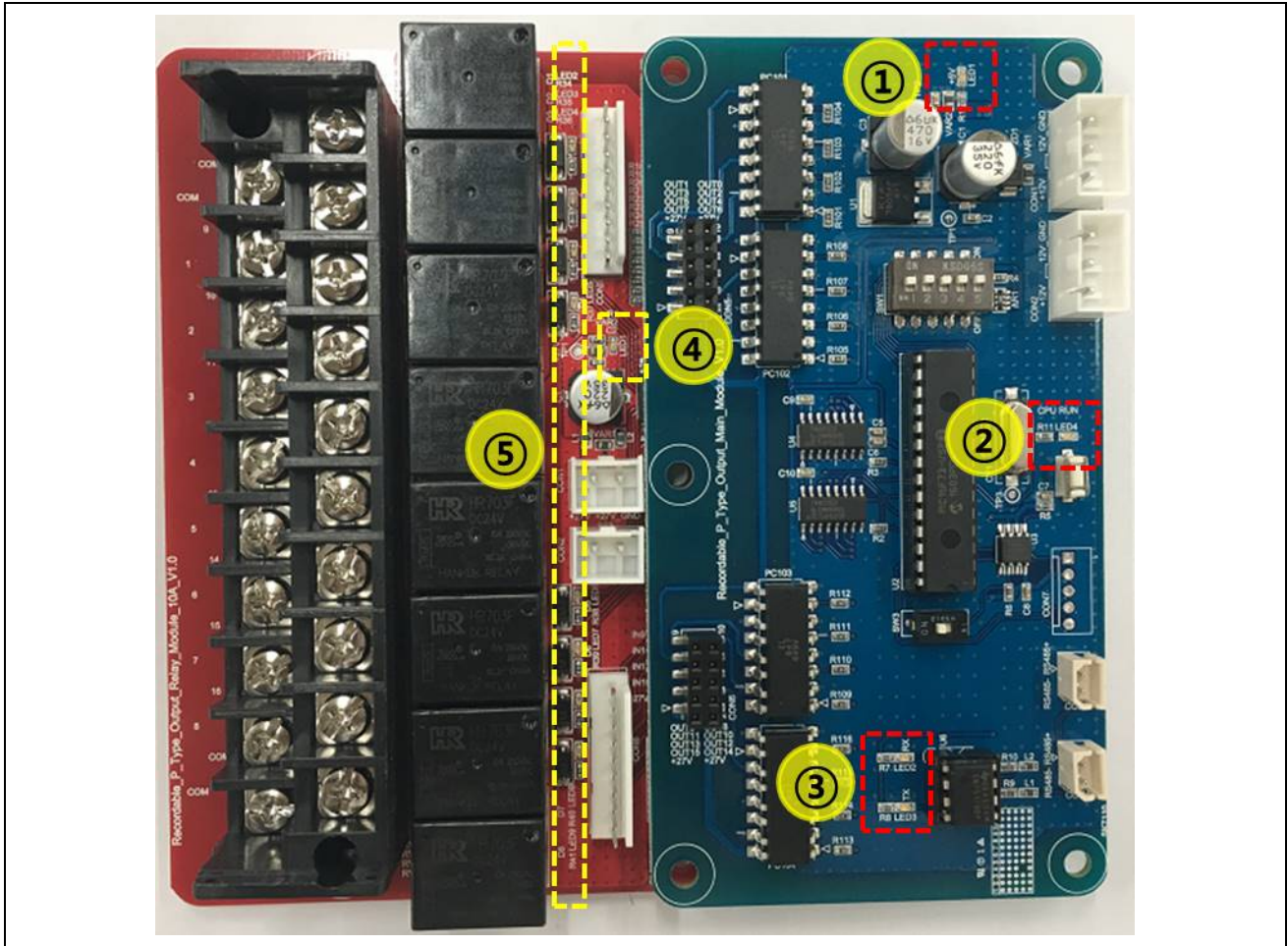
- Output module's switch must be turned to "Off" to set to "1"

Ex) Address 6 is to set "No. 1 and No. 3" dip-switches to Off (※ Add 1 to the value set by the switch) $((1+4)+1=6)$

※ Do not use the 5th switch.



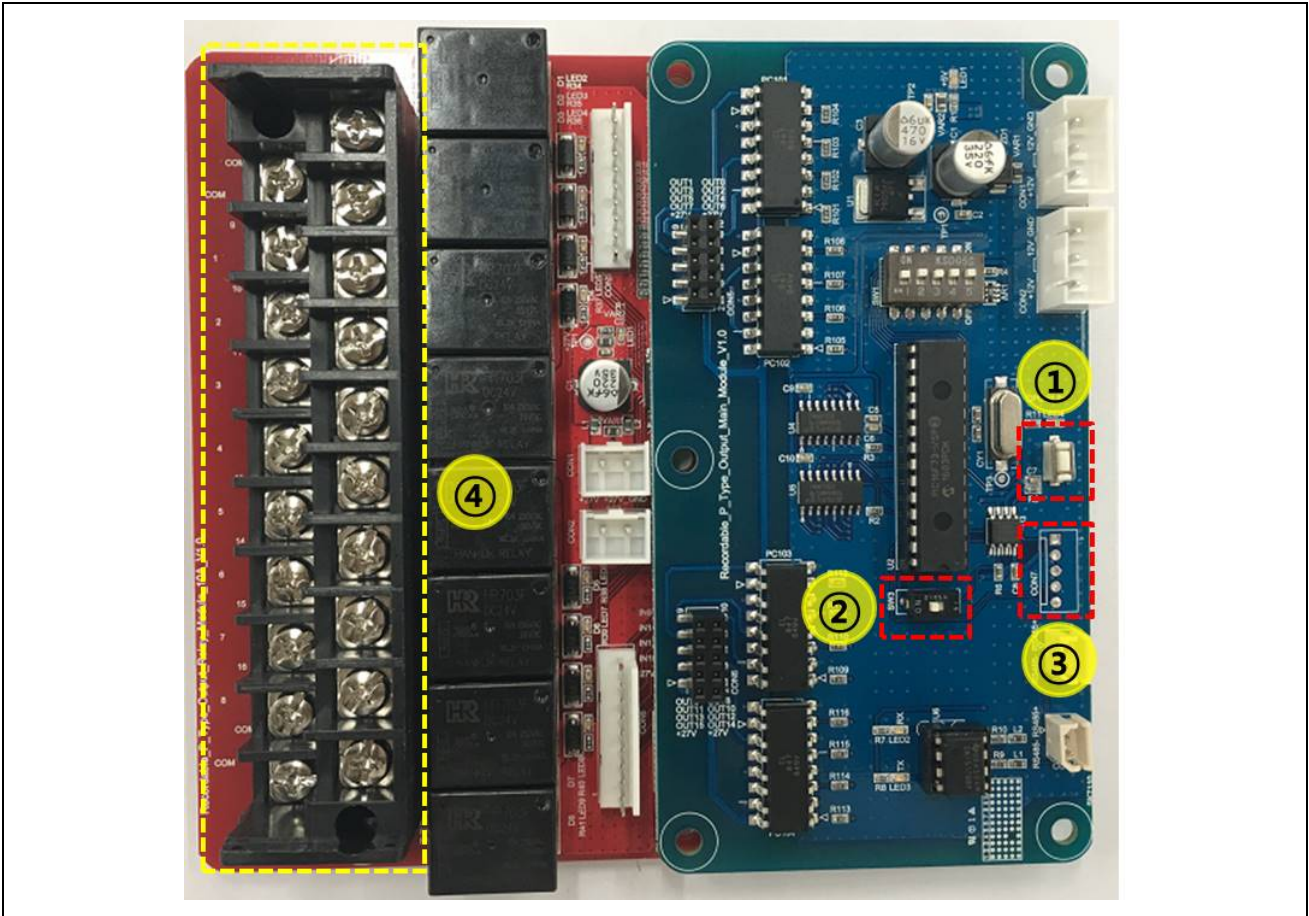
4.1.8.4. LED Location



4.1.8.5. Function Description

Location	Part	Color	Function
①	LED1	Green	LED is On: Internal Power Circuit's output power (5 V DC) is normal
②	LED4	Green	LED flashes: CPU is normal
③	LED2	Green	LED flashes: Communication between MCM and RS485 (Rx)
	LED3	Red	LED flashes: Communication between MCM and RS485 (Tx)
④	LED1	Green	LED is On: Power (27V DC) input is normal on PTWM2705 or PTWM2710.
⑤	LED2~9	Red	LED is On: Relay (equipment) of that terminal is activated.

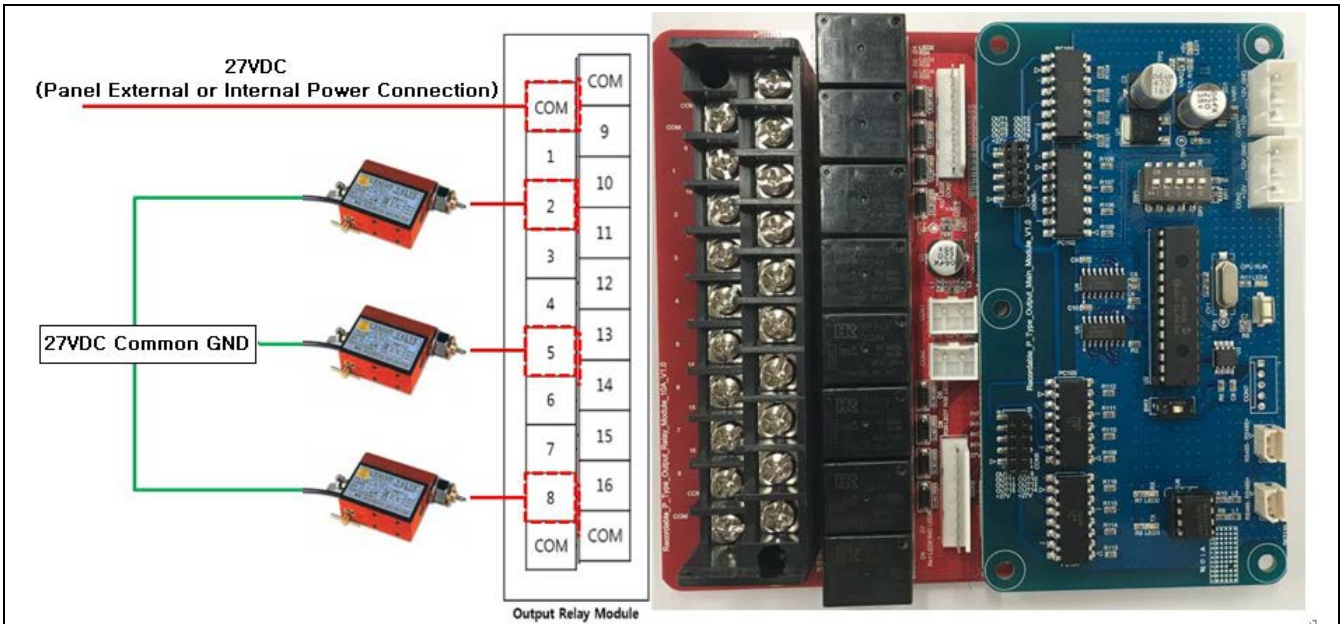
4.1.8.6. Others



4.1.8.7. Function Description

Location	Part	Function
①	SW1	Reset switch
②	SW2	Boot mode setting switch. Its default is to 'Off'.
③	CON7	Connector for Debugging (Connection with a designated tool)
④	CON5	Connector for external devices

4.1.8.8. Wiring Method

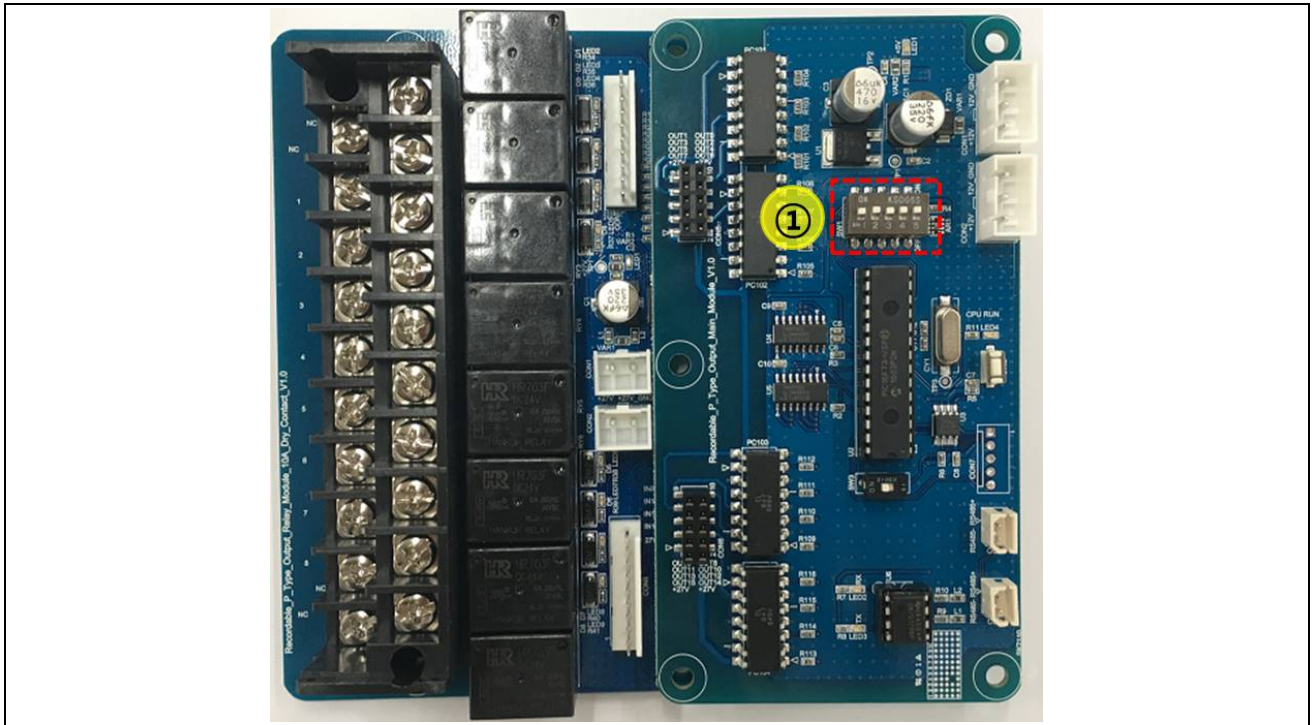


- **Caution**

- 1) Pls., refer to the white silk written on the left side of the terminal for the output sequence.
- 2) 27V DC for equipment output is connected to 4 COM terminals at both ends of the terminal (external power supply is allowed to use). Pls., connect common GND of equipment to the terminal in a panel or connect it to an external power ground (common) when the external power supply is used
- 3) Each output has a maximum contact capacity of 27VDC/10A. The use of the exceeding output above the specification may result in trouble.

4.1.9. Output Main Module & 10A Output Relay Dry Contact

4.1.9.1. Dip Switch Location



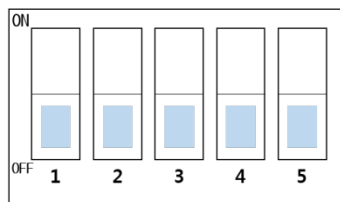
4.1.9.2. Function Description

Location	Part	Function
①	SW1	This dip switch is for address setting (1-16)

4.1.9.3. Set-up

SW1: Output main module's address setting switch

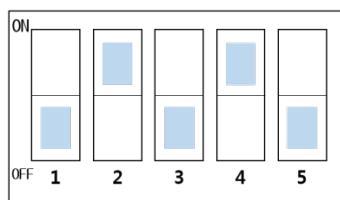
※ See the address setting table (p73)



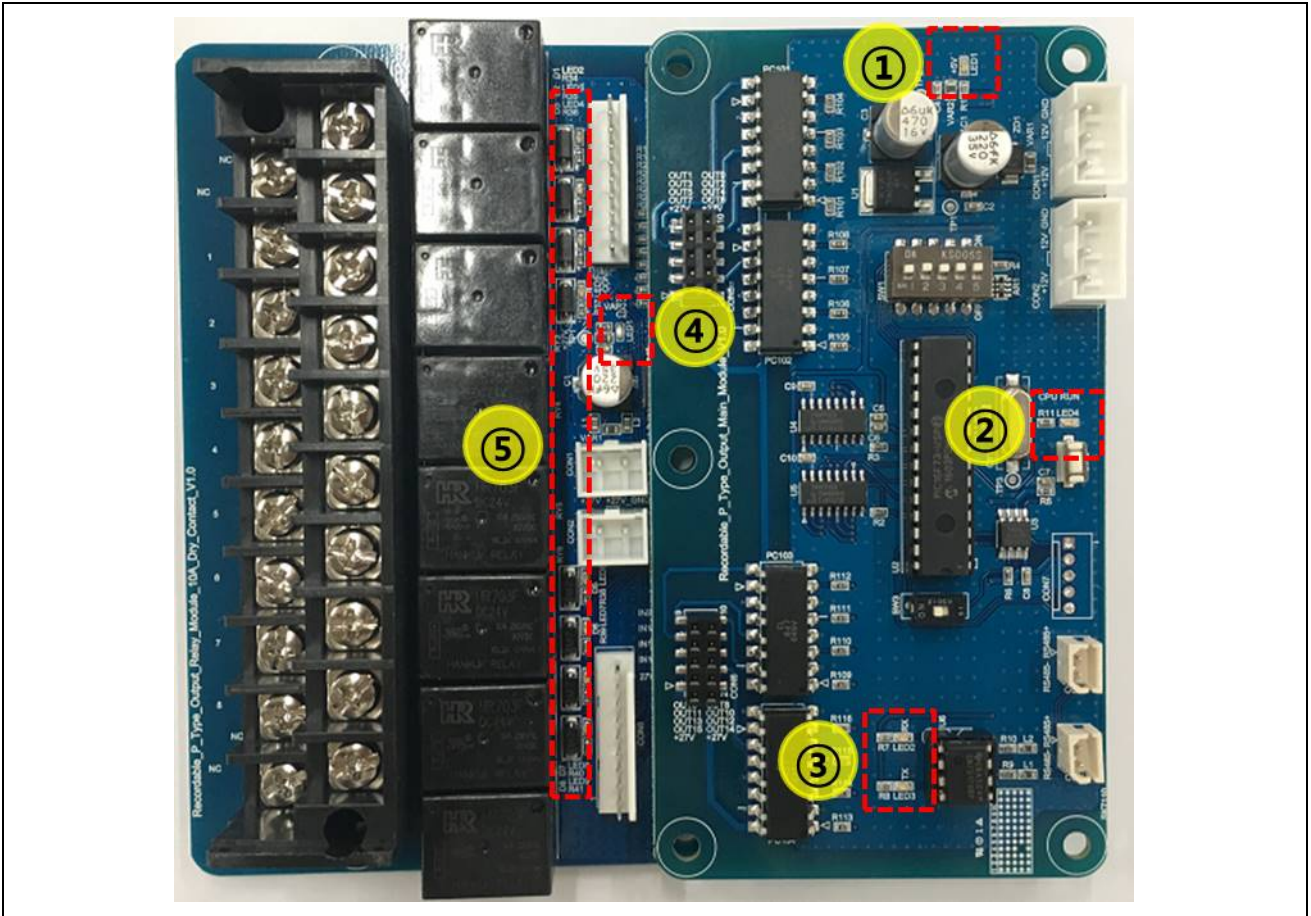
- Output module's switch must be turned to "Off" to set to "1"

Ex) Address 6 is to set "No. 1 and No. 3" dip-switches to Off (※ Add 1 to the value set by the switch) (5+1=6)

※ Do not use the 5th switch.



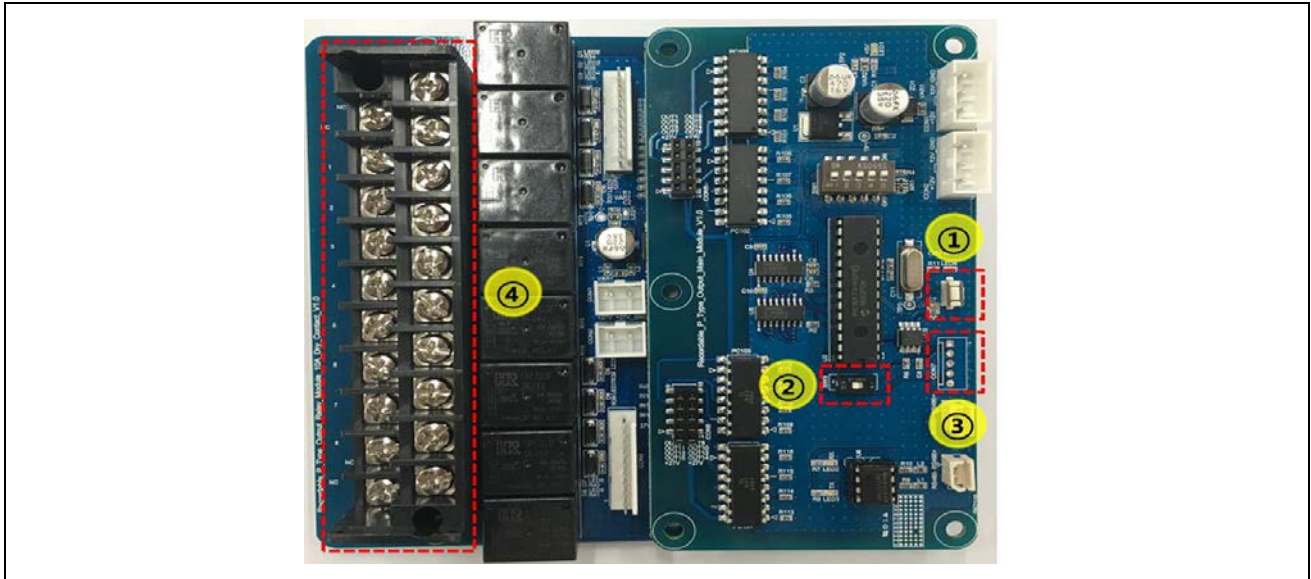
4.1.9.4. LED Location



4.1.9.5. Function Description

Location	Part	Color	Function
①	LED1	Green	LED is On: Internal Power Circuit's output power (5 V DC) is normal
②	LED4	Green	LED flashes: CPU is normal
③	LED2	Green	LED flashes: Communication between MCM and RS485 (Rx)
	LED3	Red	LED flashes: Communication between MCM and RS485 (Tx)
④	LED1	Green	LED is On: Power (27V DC) input is normal on PTWM2705 or PTWM2710.
⑤	LED2~9	Red	LED is On: Equipment) of that terminal is activated.

4.1.9.6. Others



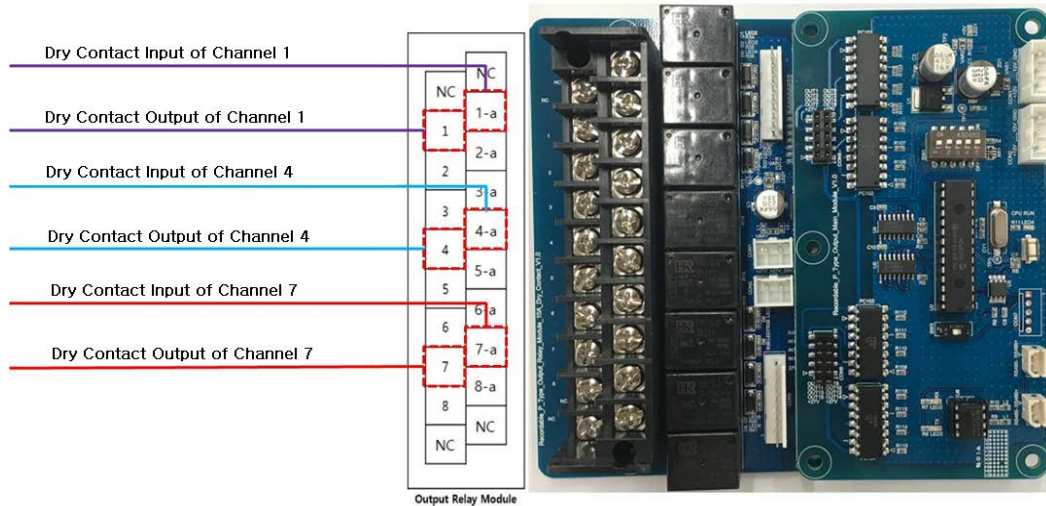
4.1.9.7. Function Description

Local	Part	Function
①	SW1	Reset switch
②	SW2	Boot mode setting switch. Its default is to 'On'.
③	CON7	Connector for Debugging (Connection with a designated tool)
④	CON5	Connector for external devices

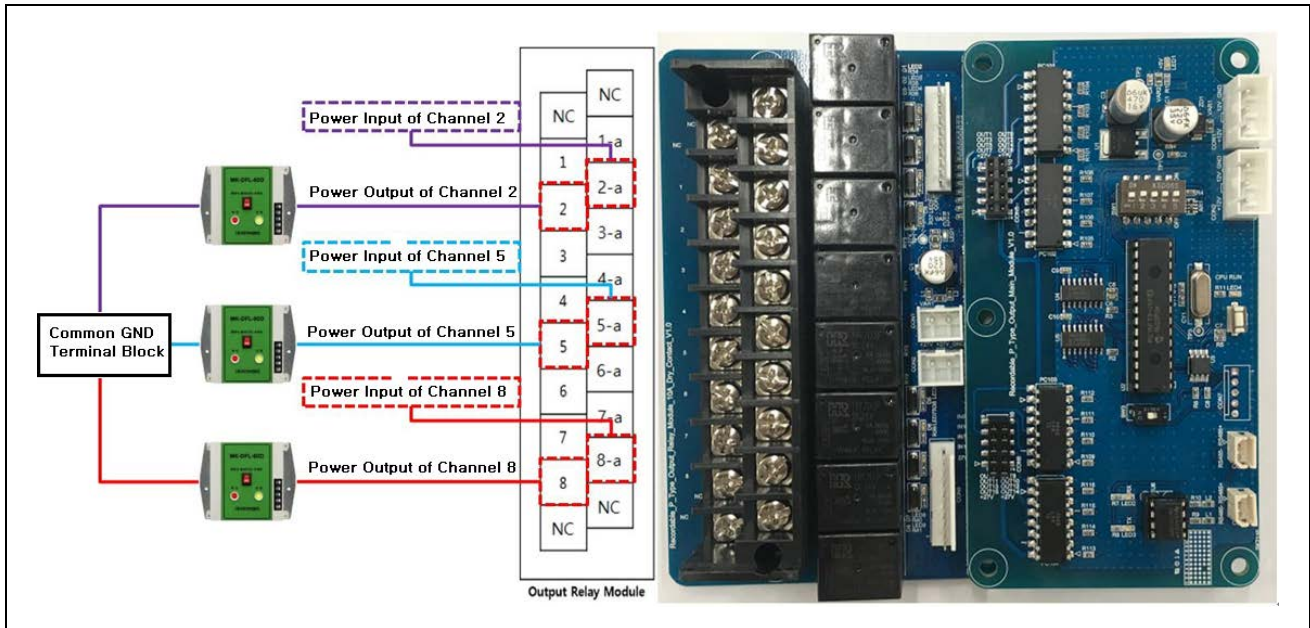
4.1.9.3. Set-up

- Caution 1-a

- 1) Pls., refer to the white silk written on the left side of the terminal for the output sequence.
- 2) 4 N/C terminals at both ends of terminal are not used
- 3) Each output has a **maximum contact capacity of 27VDC/10A**. The use of the exceeding output above the specification may result in trouble.



Example of wiring on-site (Dampers, fire shutter, etc.)



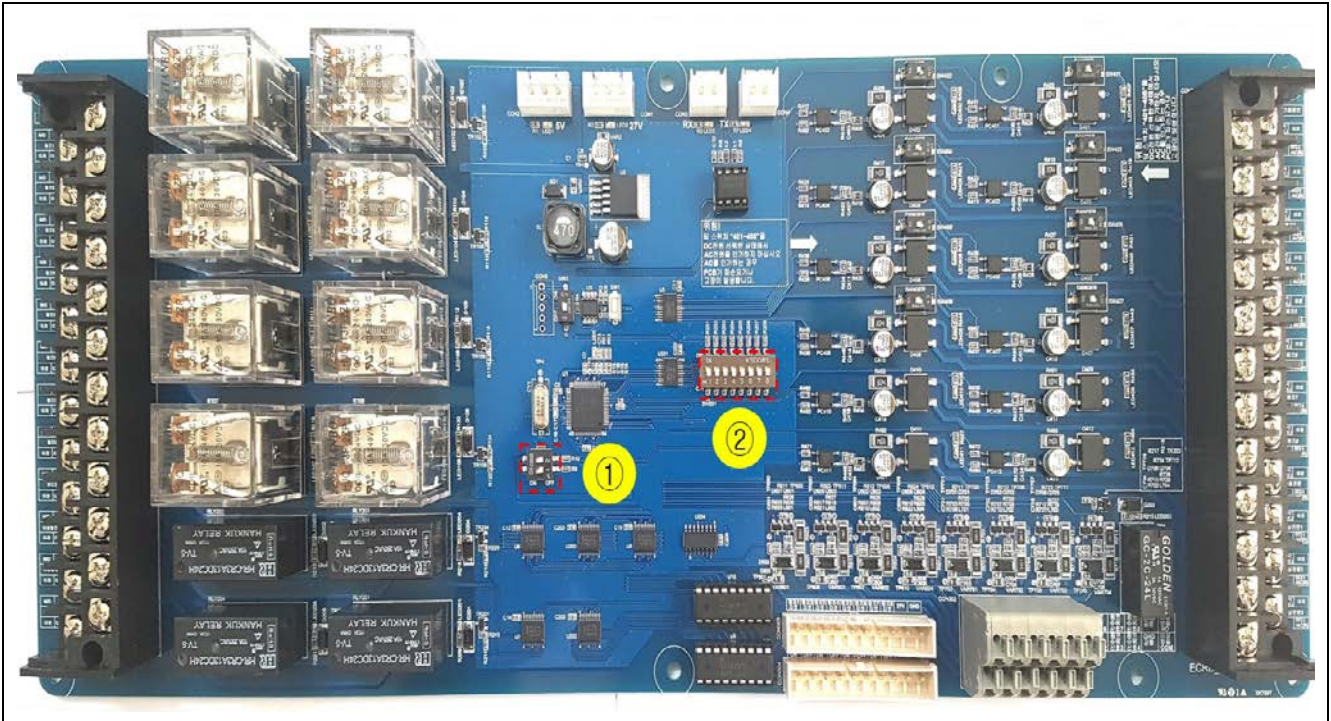
※ Caution

- 1) Refer to the white silk written on the left side of the terminal for the output sequence.
- 2) 4 N/C terminals at both ends of terminal are not used
- 3) Each output has a maximum contact capacity of 27VDC/10A. The use of the exceeding output above the specification may result in trouble.
- 4) If the input powers of output 2, 5, and 8 are equal, then output 2,5, and 8 are jumper wired with 2-a, 5-a, and 8-a together.

4.1.10. ECRB_Pump8

4.1.11. Dip Switch

4.1.11.1. Location



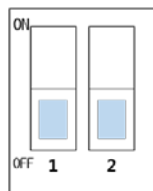
4.1.11.2. Function Description

Location	Part	Function
①	SW3	Address-setting dip switch
②	SW201	Latched mode dip switch

4.1.11.3. Set-up

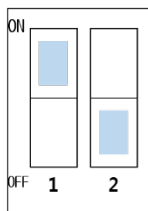
SW3: Address-setting switch

※ ECRB_Pump8 does not use address 0 (Only address 1, 2, and 3)



Ex) If you set an address (the switch must be turned to "On" in order to set to "1")

- Setting No. 1 is to turn "No. 1" dip-switch to On.

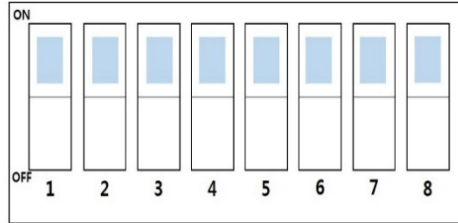


SW201: Latched mode (Hold) switch

- Only one input signal of equipment makes pump output status latched.

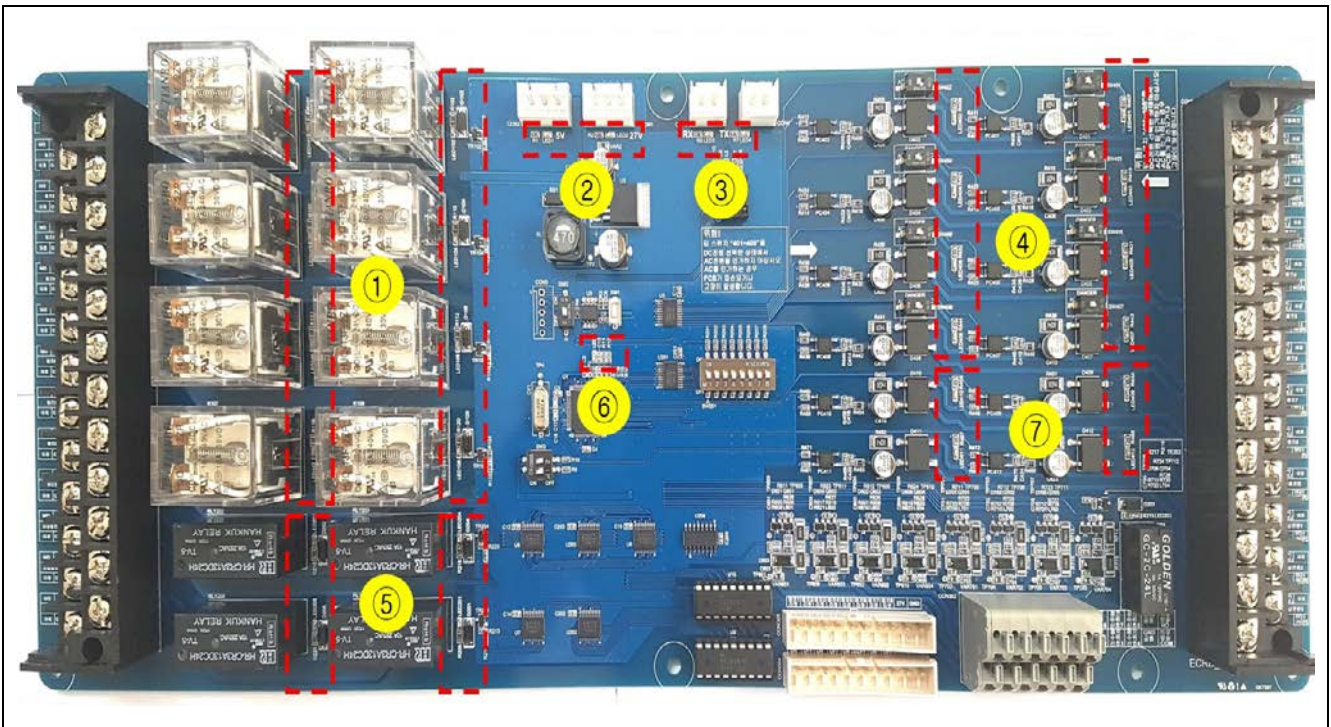
Ex) **The switch must be turned to "On" in order to set to latched mode.**

- If 1 to 8, all of switches should have pump output set to latched state, all from 1 to 8 switches are turned to On.



4.1.12. LED

4.1.12.1. Location

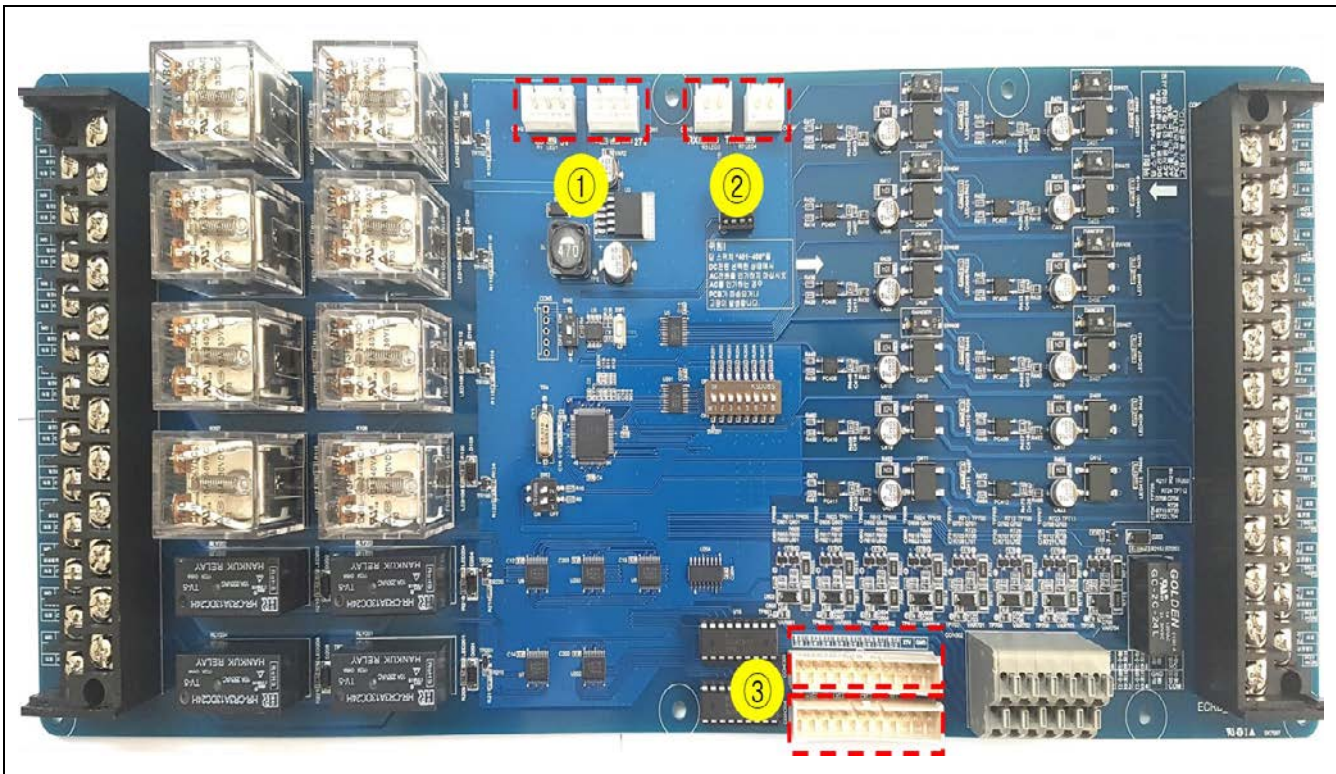


4.1.12.2. Function Description

Location	Part	Color	Function
①	LED101~108	Red	LED is on : Relay operation is normal
②	LED1	Green	LED is on : Internal power's circuit output (5 V DC) is normal
	LED2	Green	LED is on : Power (27 VDC) input is normal
③	LED3	Green	LED flashes: RS485 communication connection (Rx)
	LED4	Red	LED flashes: RS485 communication connection (Tx)
④	LED401~408	Red	LED is on : Activation acknowledging voltage input (220 VAC/24 VDC) is normal
⑤	LED204	Red	LED is on: Exit sign shows a normal operation
	LED201,205,202	Red	LED is on: Emergency generator 1,2,and 3 show normal operation
⑥	LED5	Green	LED is on: Error in address setting
			LED flashes (Period 0.25sec) : Communication is lost
			LED flashes (Period 1sec): CPU is normal
⑦	LED409	Red	LED is on : Commercial power is input
	LED410~412	Red	LED is on: Emergency power 1,2,and 3 are input

4.1.13. Connectors

4.1.13.1. Location

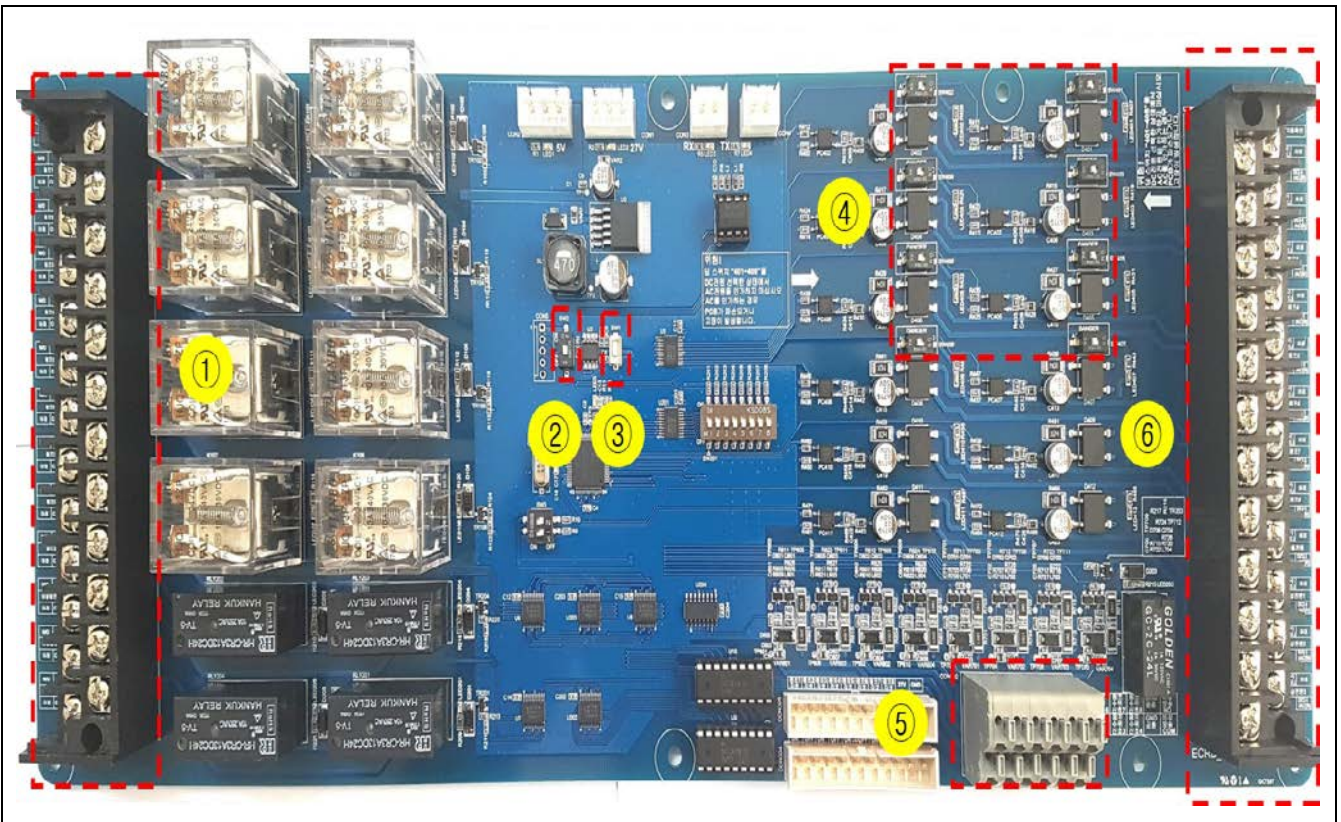


4.1.13.2. Function Description

Location	Part	Function
①	Con1~2	Power connector (Connected to other ECSB-ECRB using the daisy chain method)
②	Con3~4	Communication connector (Connected to other ECSB-ECRB using the daisy chain method)
③	Con304~5	Pump Reset, On/Off control switch signal connector (connected to ECRB_DCM)

4.1.14. Others

4.1.14.1. Location



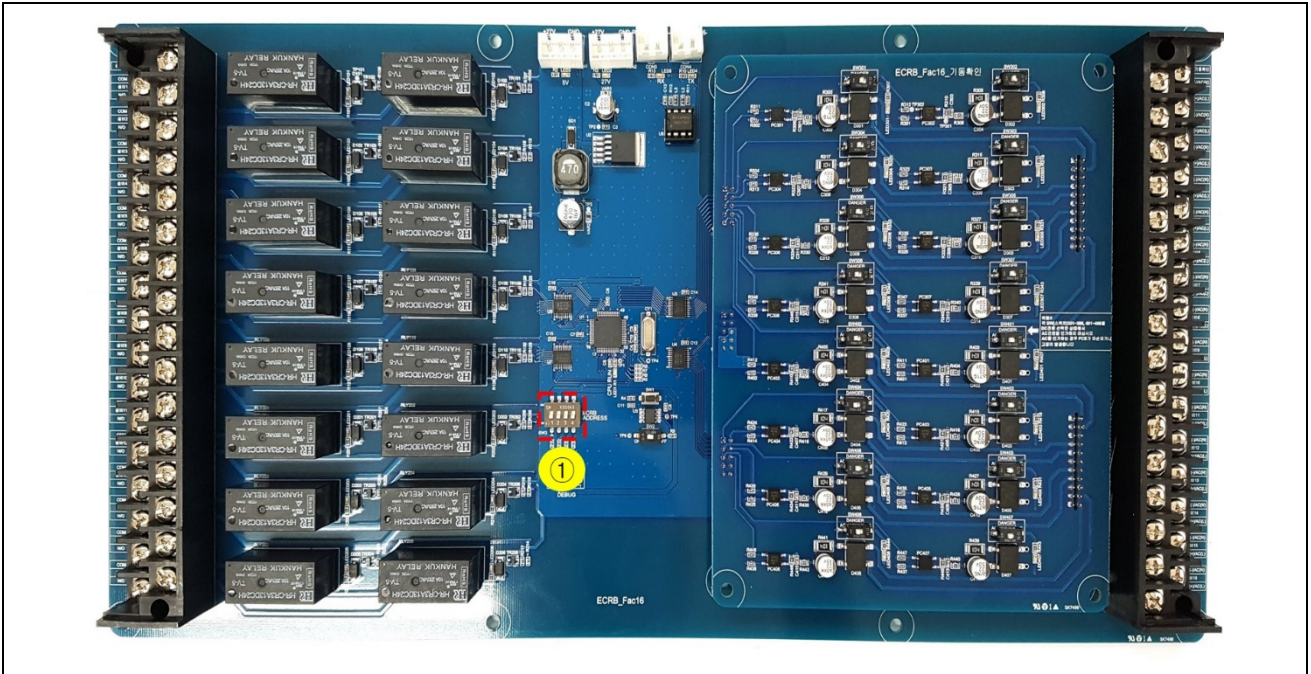
4.1.14.2. Function Description

Local	Part	Function
①	Con301	Pump activation, emergency generator, exit sign signal output connector
②	SW2	Boot mode setting switch (default state is on)
③	SW1	Reset switch
④	SW401~408	<p>Setting the level of pump activation acknowledging input signal (On:24 V DC, Off:220V AC)</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>AC DC</p> <p>OFF ON</p> <p>DC</p> </div> <div style="text-align: center;"> <p>AC DC</p> <p>OFF ON</p> <p>AC</p> </div> </div> <p>※ Do not change it when the power supply is input. ※ Do not allow power other than the designed power.</p>
⑤	CON302	Pump level signal (PS) input, emergency broadcasting in/output connector
⑥	CON303	Pump activation acknowledgement, pump activation, main power, emergency power, signal input connector

4.1.15. ECRB_Fac16

4.1.15.1. Dip Switch

4.1.15.1.1. Location



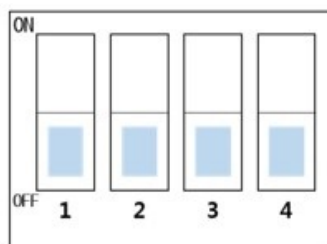
4.1.15.1.2. Function Description

Local	Part	Function
①	SW3	Address-setting dip switch

4.1.15.1.3. Setting method

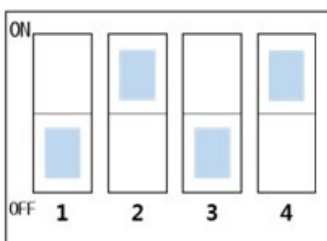
SW3: Address-setting switch

※ ECRB_Fac16 does not use addresses 0,14,and 15 (address 1 to 13 only)



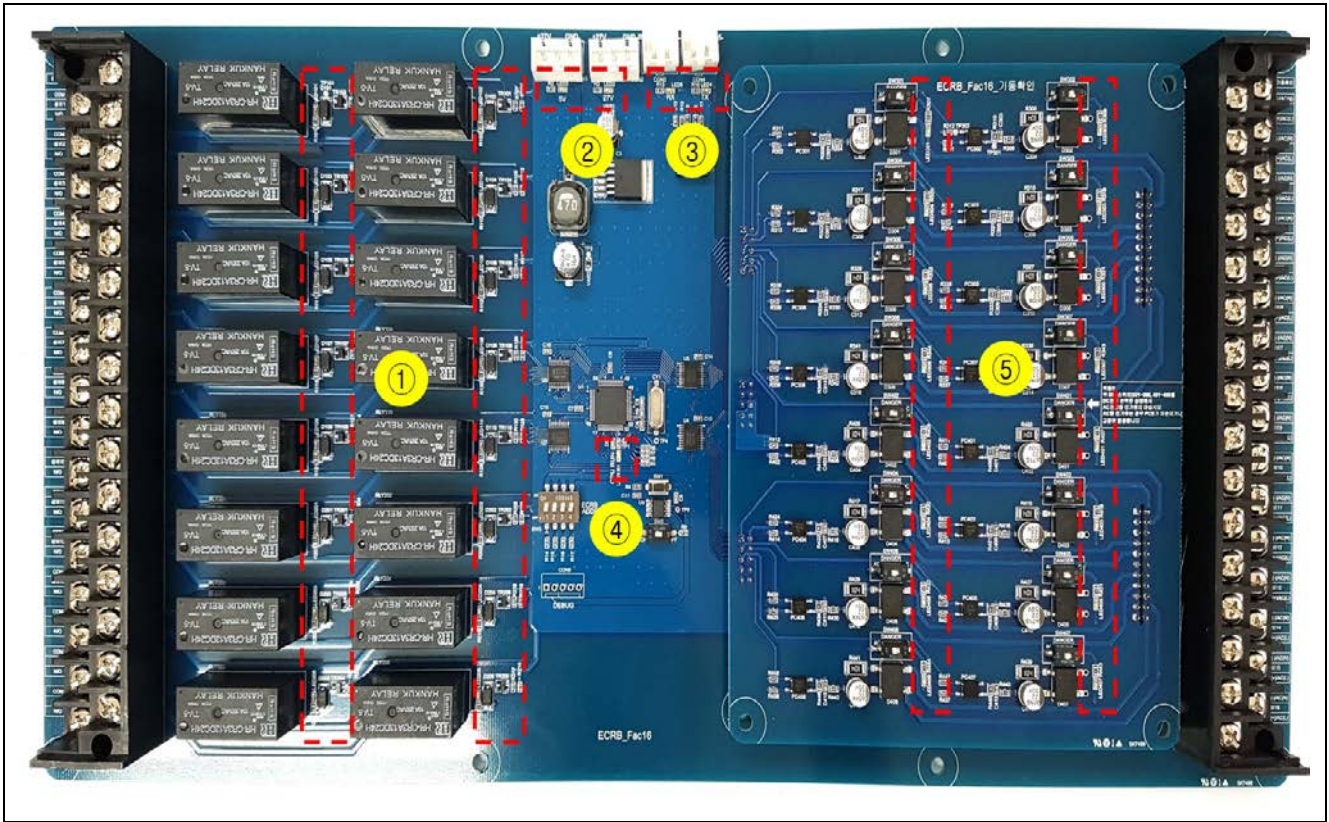
Ex) If you set an address to 10 (The switch must be turned to "on" in order to set to 1).

Address 10 is to set "No. 2 and 4" dip-switches to On (2 + 8 = 10)



4.1.15.2. LED

4.1.15.2.1. Location

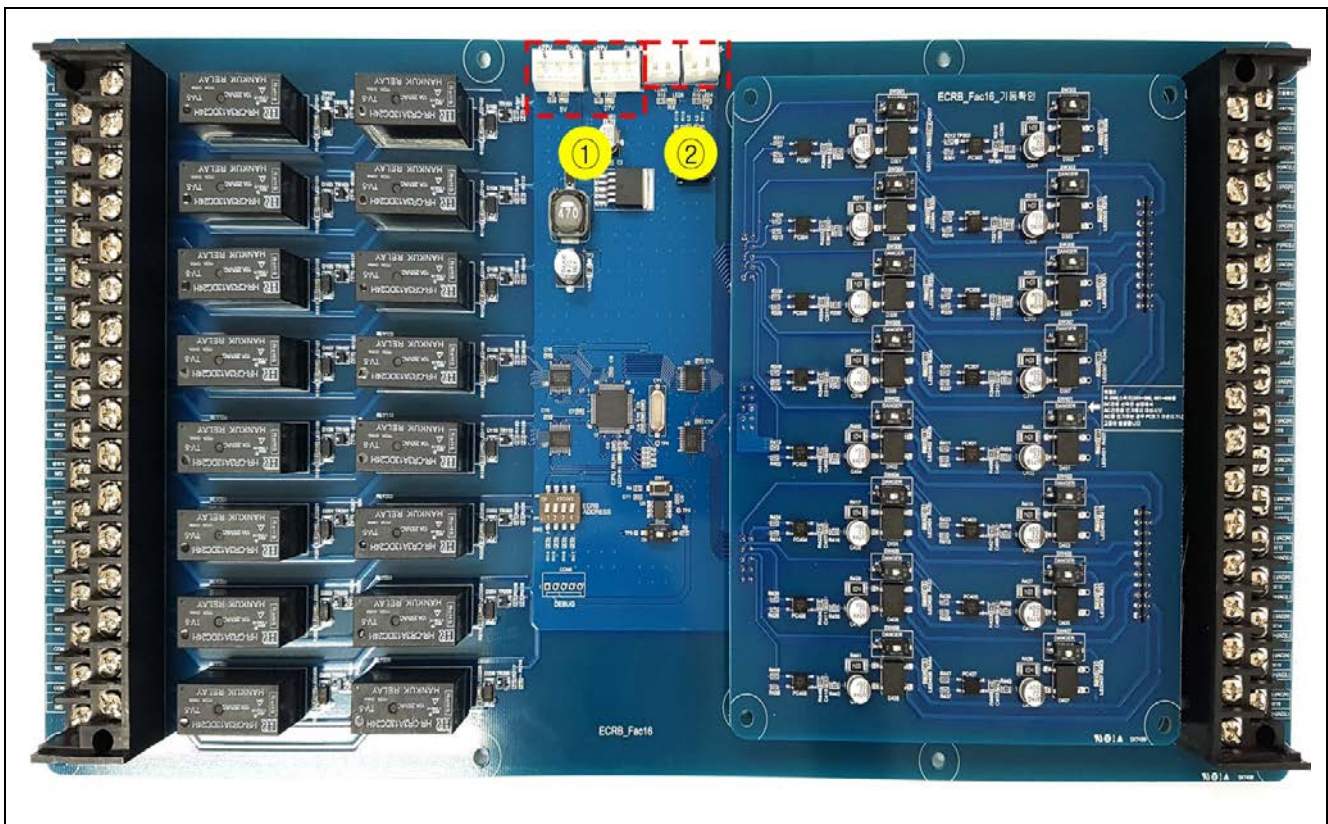


4.1.15.2.2. Function Description

Location	Part	Color	Function
①	LED101~110 LED201~206	Red	LED is On : Equipment shows a normal operation
②	LED3	Green	LED is On: Power (5 V DC) is OK
	LED2	Green	LED is On : Input power (27 V DC) is normal
③	LED5	Green	LED Flashes: RS485 Communication Connectivity (Rx)
	LED4	Red	LED Flashes: RS485 Communication Connectivity (Tx)
④	LED1	Green	LED is On: Error in address setting
			LED Flashes (Period 0.25sec) : Communication is lost
			LED Flashes (Period 1sec): CPU is normal
⑤	LED301~308 LED401~408	Red	LED On: equipment activation acknowledgement is normal

4.1.15.3. Connector

4.1.15.3.1. Location

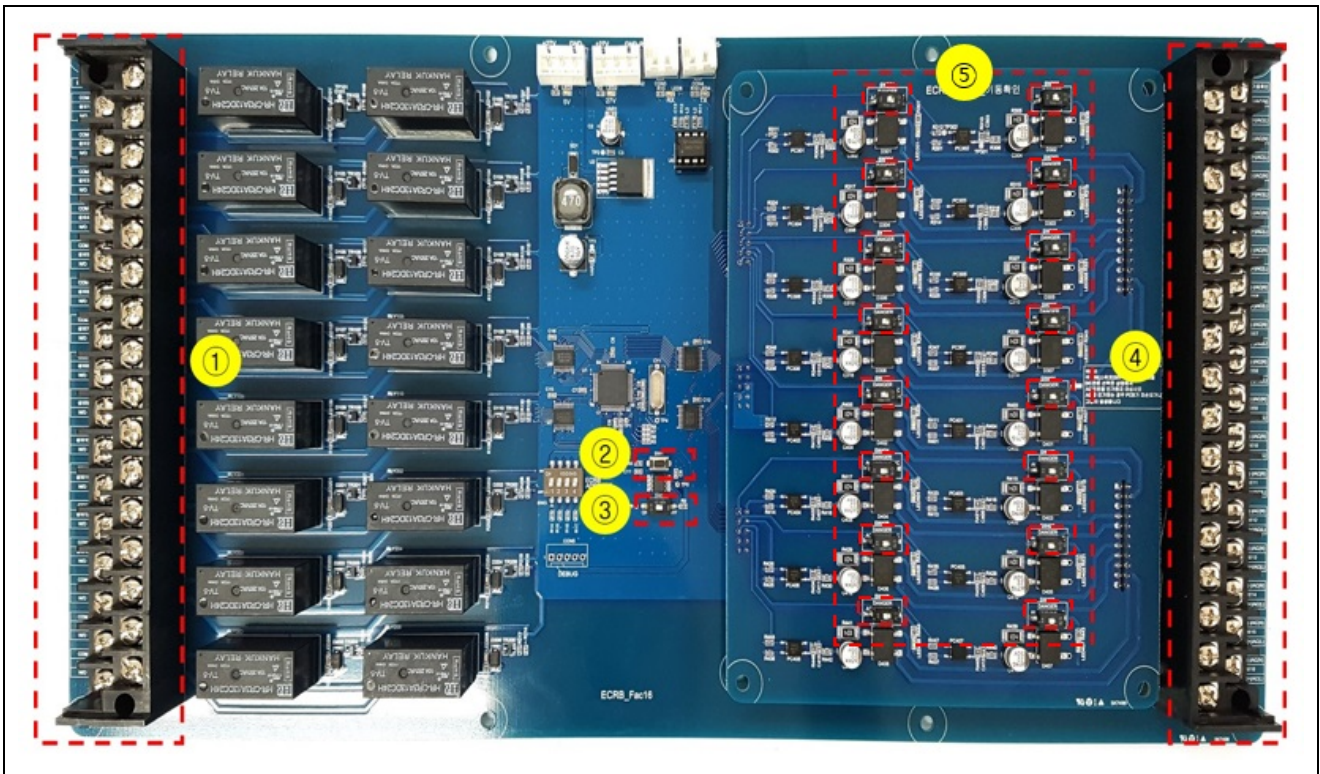


4.1.15.3.2. Function Description

Location	Part	Function
①	CON1~2	Power connector (Connected to other ECSB-ECRB using the daisy chain method)
②	CON3~4	Communication connector (Connected to other ECSB-ECRB using the daisy chain method)

4.1.15.4. Others

4.1.15.4.1. Location



4.1.15.4.2. Function Description

Location	Part	Function
①	CON504	Equipment activation output connector
③	SW1	Reset switch
④	SW2	Boot mode setting switch (Default state is ON)
④	CON501	Equipment activation acknowledging input connector
⑤	SW301~308 SW401~408	<p>Setting the level of pump activation acknowledging input signal (On:24 V DC, Off:220V AC)</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>AC DC</p> <p>DC</p> </div> <div style="text-align: center;"> <p>AC DC</p> <p>AC</p> </div> </div> <p>✘ Do not change it when the power supply is input. ✘ Do not allow power other than the designed power.</p>

4.1.15.4.3. Terminal Description

Silk

설비기능확인	
설비1	설비1 DC(+)/AC(L)
설비2	설비2 DC(+)/AC(L)
설비3	설비3 DC(+)/AC(L)
설비4	설비4 DC(+)/AC(L)
설비5	설비5 DC(+)/AC(L)
설비6	설비6 DC(+)/AC(L)
설비7	설비7 DC(+)/AC(L)
설비8	설비8 DC(+)/AC(L)
설비9	설비9 DC(+)/AC(L)
설비10	설비10 DC(+)/AC(L)
설비11	설비11 DC(+)/AC(L)
설비12	설비12 DC(+)/AC(L)
설비13	설비13 DC(+)/AC(L)
설비14	설비14 DC(+)/AC(L)
설비15	설비15 DC(+)/AC(L)
설비16	설비16 DC(+)/AC(L)

설비기능	
설비1	설비1 COM
설비2	설비2 COM
설비3	설비3 COM
설비4	설비4 COM
설비5	설비5 COM
설비6	설비6 COM
설비7	설비7 COM
설비8	설비8 COM
설비9	설비9 COM
설비10	설비10 COM
설비11	설비11 COM
설비12	설비12 COM
설비13	설비13 COM
설비14	설비14 COM
설비15	설비15 COM
설비16	설비16 COM

4.1.16. DCM

4.1.16.1. LED

4.1.16.1.1. Location

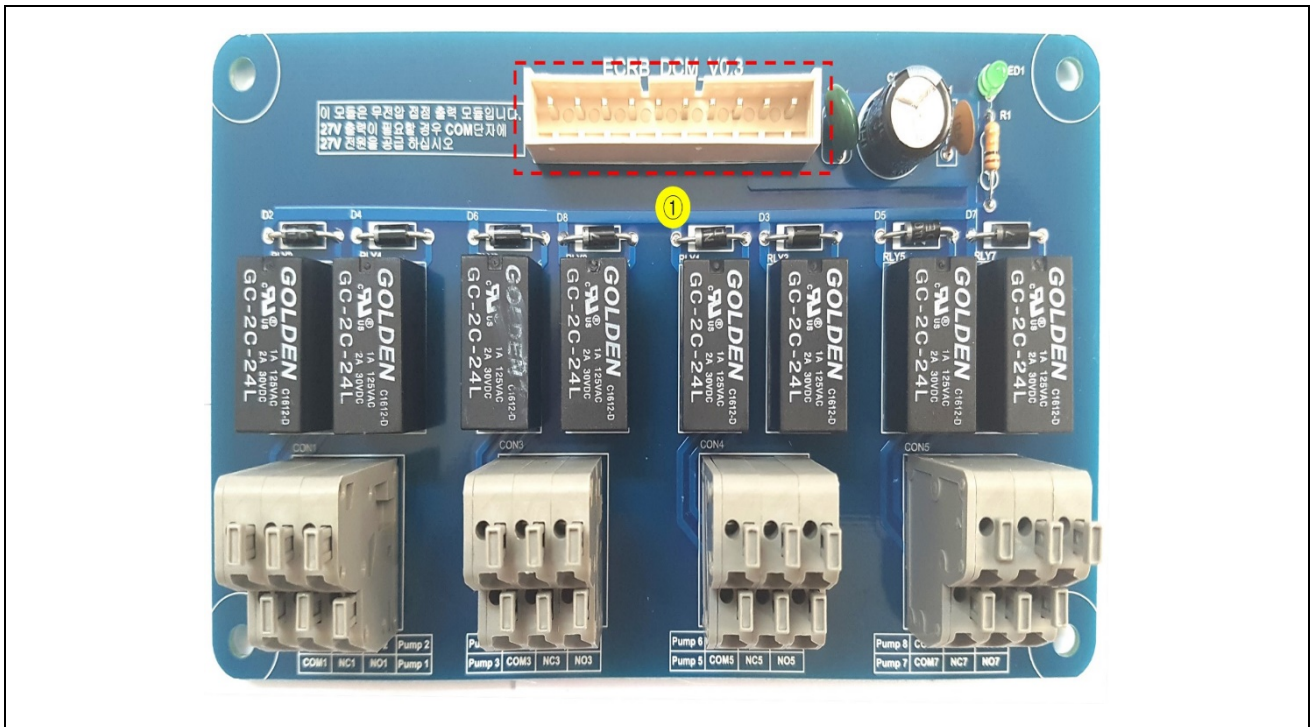


4.1.16.1.2. Function Description

Location	Part	Color	Function
①	LED1	Green	LED On: Power output (27 V DC) is normal

4.1.16.2. Connector

4.1.16.2.1. Location

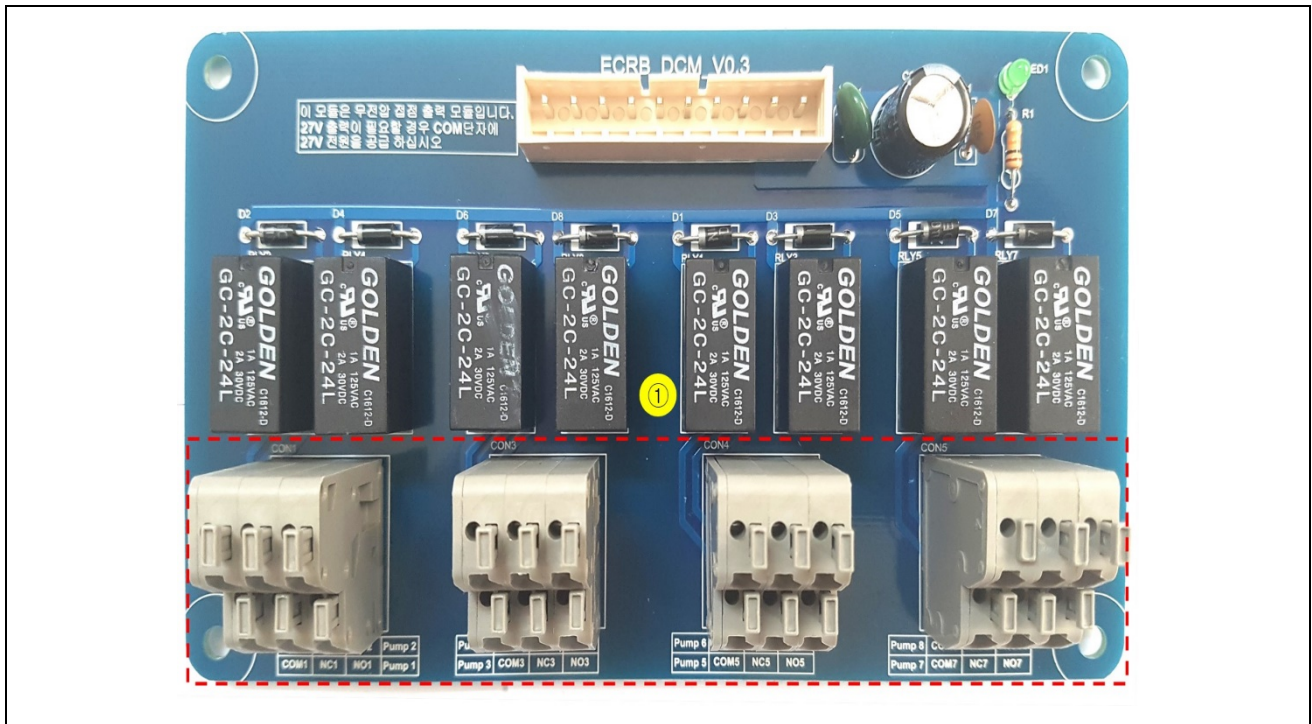


4.1.16.2.2. Function Description

Location	Part	Function
①	CON1	Pump Reset, On/Off control switch, 27 V DC signal connector (connected to ECRB_Pump8)

4.1.16.3. Others

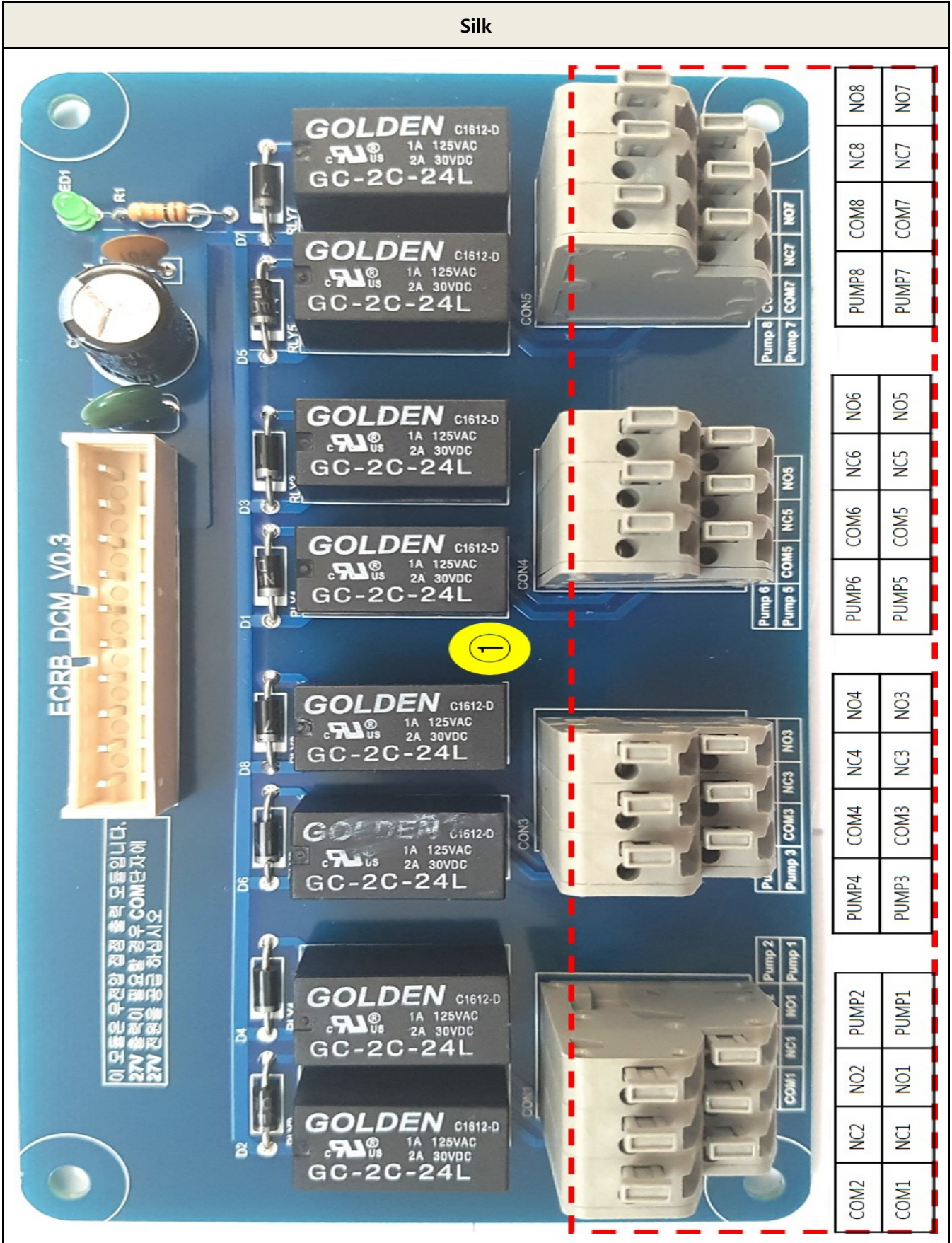
4.1.16.3.1. Location



4.1.16.3.2. Function Description

Location	Part	Function
①	CON1,3,4,5	Non-voltage contactor output

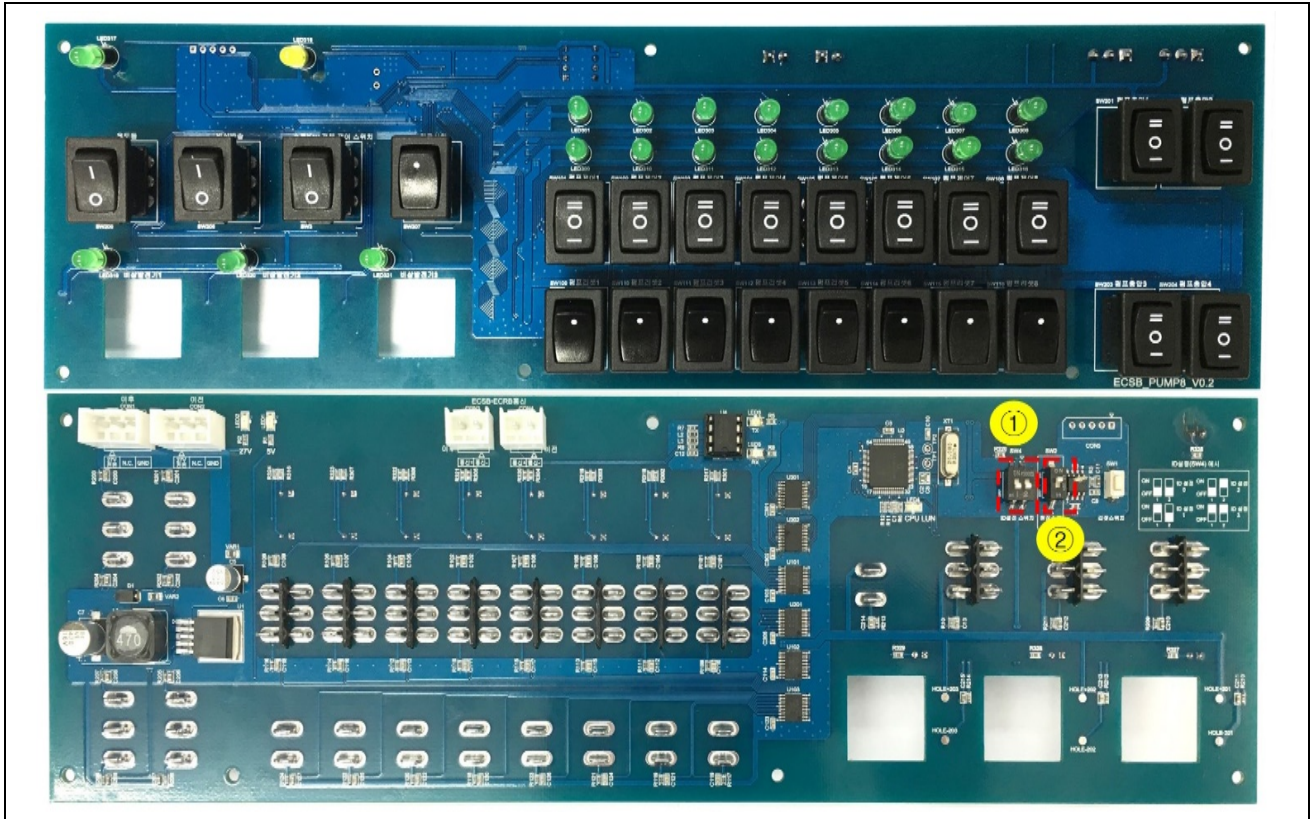
4.1.16.4. Terminal Description



4.1.17. ECSB_Pump8

4.1.17.1. Dip Switch

4.1.17.1.1. Location



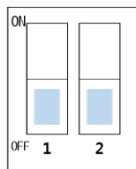
4.1.17.1.2. Function Description

Location	Part	Function
①	SW4	Address-setting dip switch
②	SW2	Boot mode setting switch (default state is ON)

4.1.17.1.3. Setting method

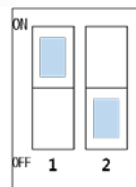
SW4: Address-setting switch

※ ECSB_Pump8 does not use address 0 (address 1, 2, and 3 only)



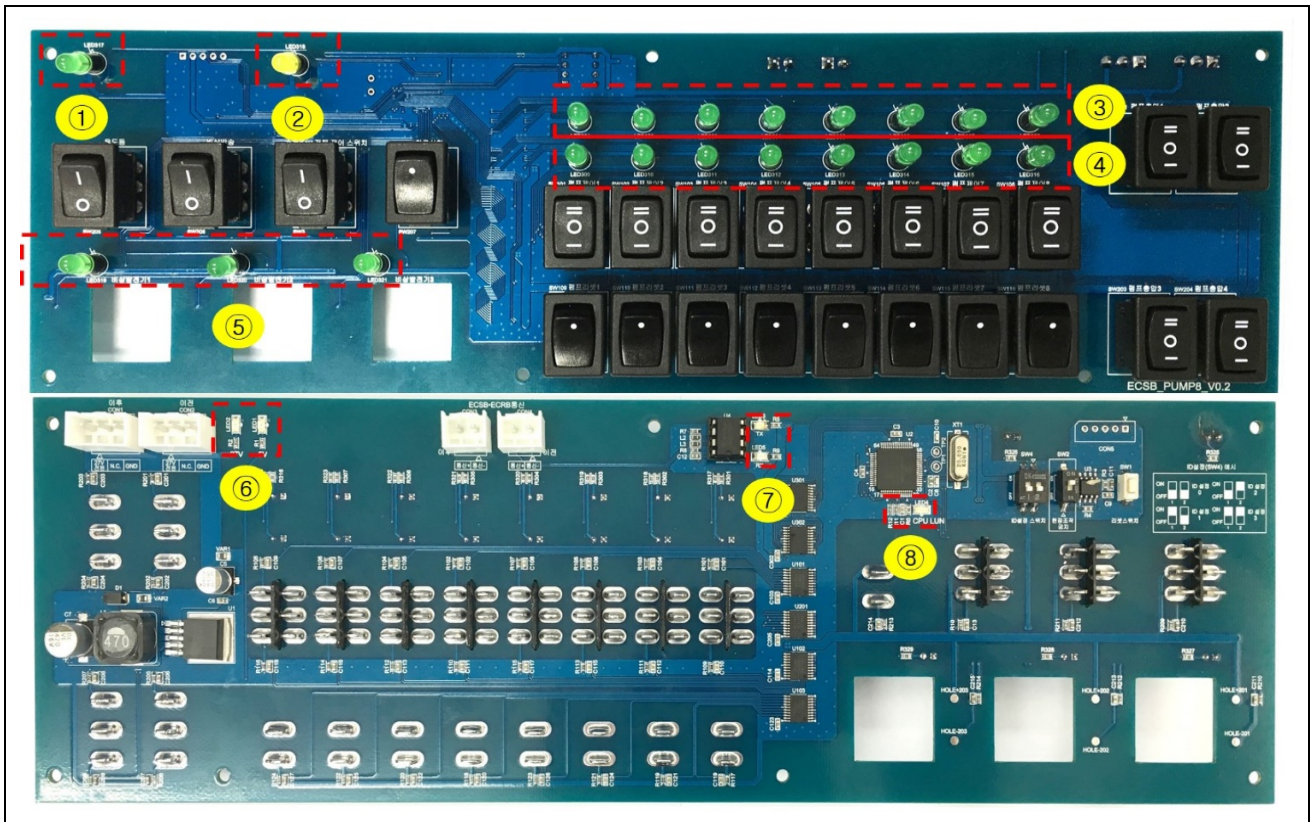
Example) If you want to set ECSB's address to address 1 (The switch must be turned "On" in order to set to 1).

- Setting address 1 is to turn "No. 1" dip-switch to On.



4.1.17.2. LED

4.1.17.2.1. Location

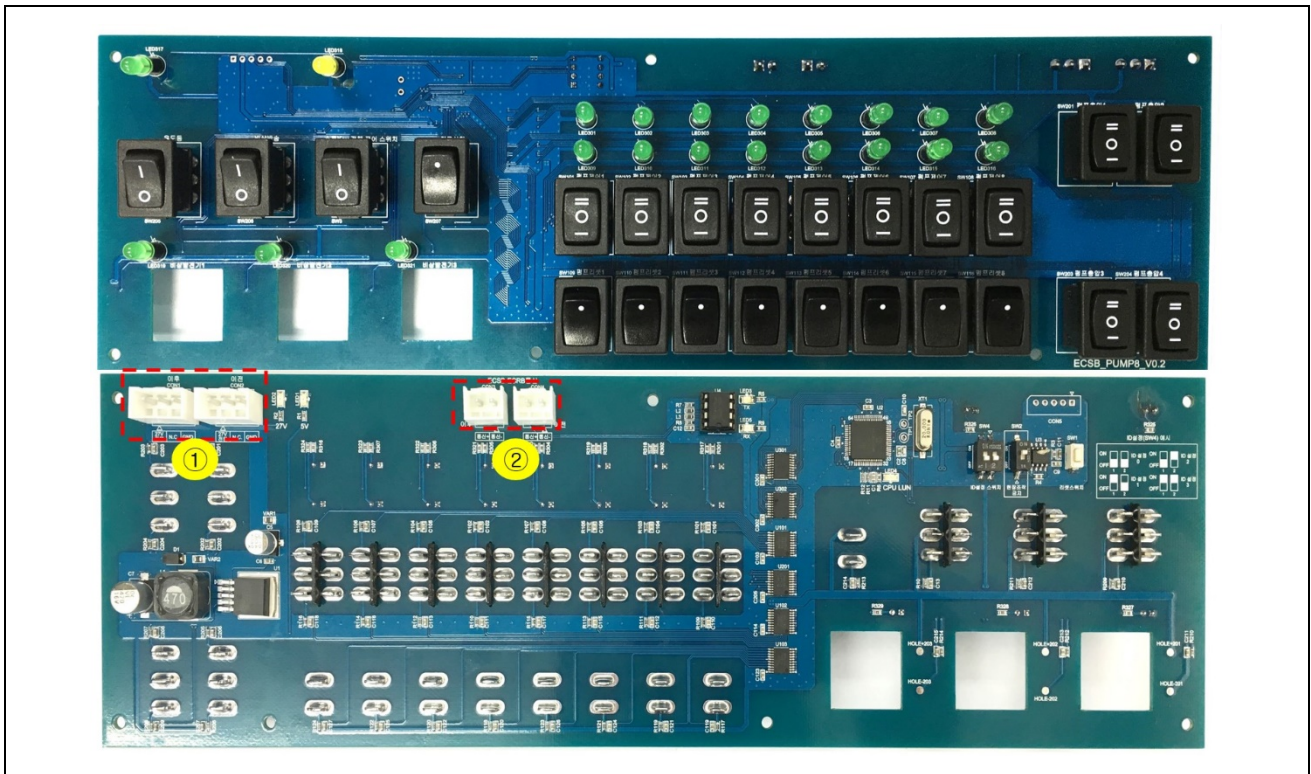


4.1.17.2.2. Function Description

Location	Part	Color	Function
①	LED317	Red	LED is On: Main power is normal
②	LED318	Yellow	LED flashes: Switch Caution
③	LED301~308	Green	LED is On : PS Input LED flashes : end-of-terminal failure (Period 1sec) LED is Off : Normal state
④	LED309~316	Green	LED is On : Pump activation acknowledging voltage input is normal
⑤	LED319~321	Green	LED is On: Normal emergency generator
⑥	LED1	Green	LED is On : Input power (27 V DC) is normal
	LED2	Green	LED is On : Input power (5 V DC) is normal
⑦	LED3	Green	LED flashes: RS485 communication connection (Rx)
	LED5	Red	LED flashes: RS485 communication connection (Tx)
⑧	LED4	Green	LED is On: Error in address setting
			LED flashes (Period 0.25sec) : Communication is lost
			LED flashes (Period 1sec): CPU is normal

4.1.17.3. Connector

4.1.17.3.1. Location



4.1.17.3.2. Function Description

Location	Part	Function
①	Con1~2	Power connector (Connected to other ECSB-ECRB using the daisy chain method)
②	Con3~4	Communication connector (Connected to other ECSB-ECRB using the daisy chain method)

4.1.17.4. Others

4.1.17.4.1. Location



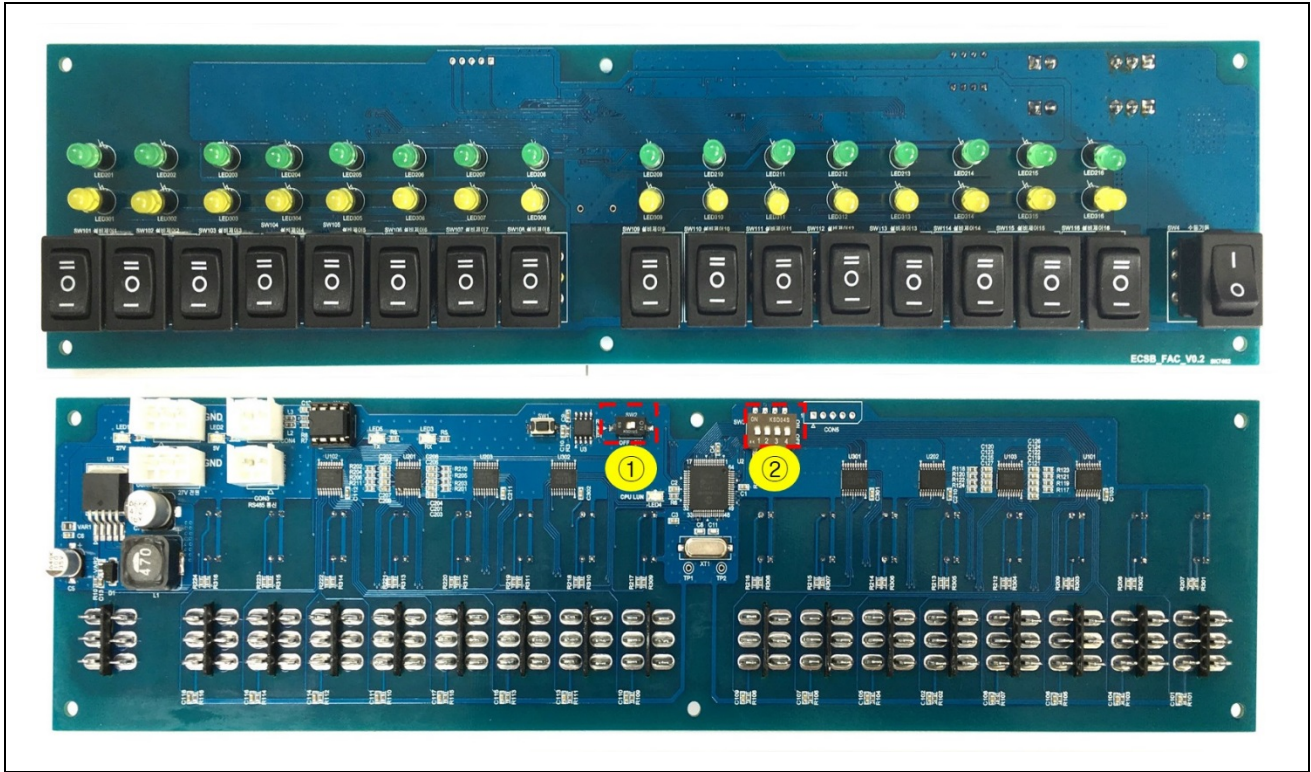
4.1.17.4.2. Function Description

Location	Part	Function
①	SW205	Up : Key to link exit sign Down : Key to stop linking exit sign
②	SW206	Up : : Key to link emergency broadcasting Down : Key to stop linking emergency broadcasting
③	SW207	Up : Output Protection Key
④	SW208	Up : Key to link circuit test
⑤	SW101~108	Up : Key to control pump automatically Mid : Key to stop pump control Down: Key to control pump manually
⑥	SW109~116	Up : Key to link pump reset
⑦	SW201~204	Up : On Key to pump pressure is enough Down: Off Key to pump pressure is not enough
⑧	SW1	Reset switch

4.1.18. ECSB_Fac16

4.1.18.1. Dip Switch

4.1.18.1.1. Location



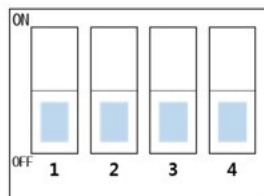
4.1.18.1.2. Function Description

Location	Part	Function
①	SW4	Address-setting dip switch
②	SW2	Boot mode setting switch (default state is ON)

4.1.18.1.3. Set-up

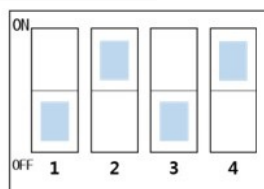
SW4: Address-setting switch

※ ECSB_Fac16 does not use addresses 0,14,15 (address 1 to 13 only)



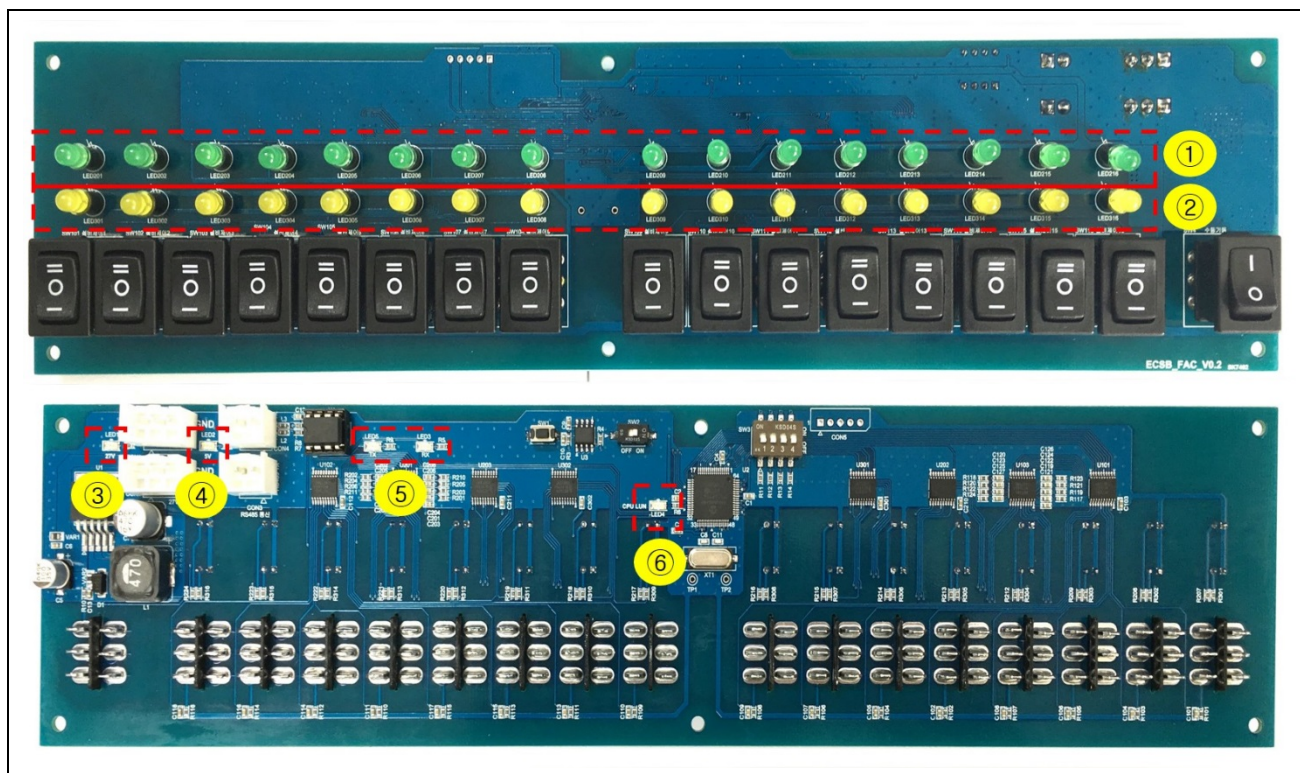
Ex) If you want to set address 10. (The switch must be turned to "on" in order to set to "1")

Address 10 is to set "No. 2 and 4" dip-switches to On. (2 + 8 = 10)



4.1.18.2. LED

4.1.18.2.1. Location

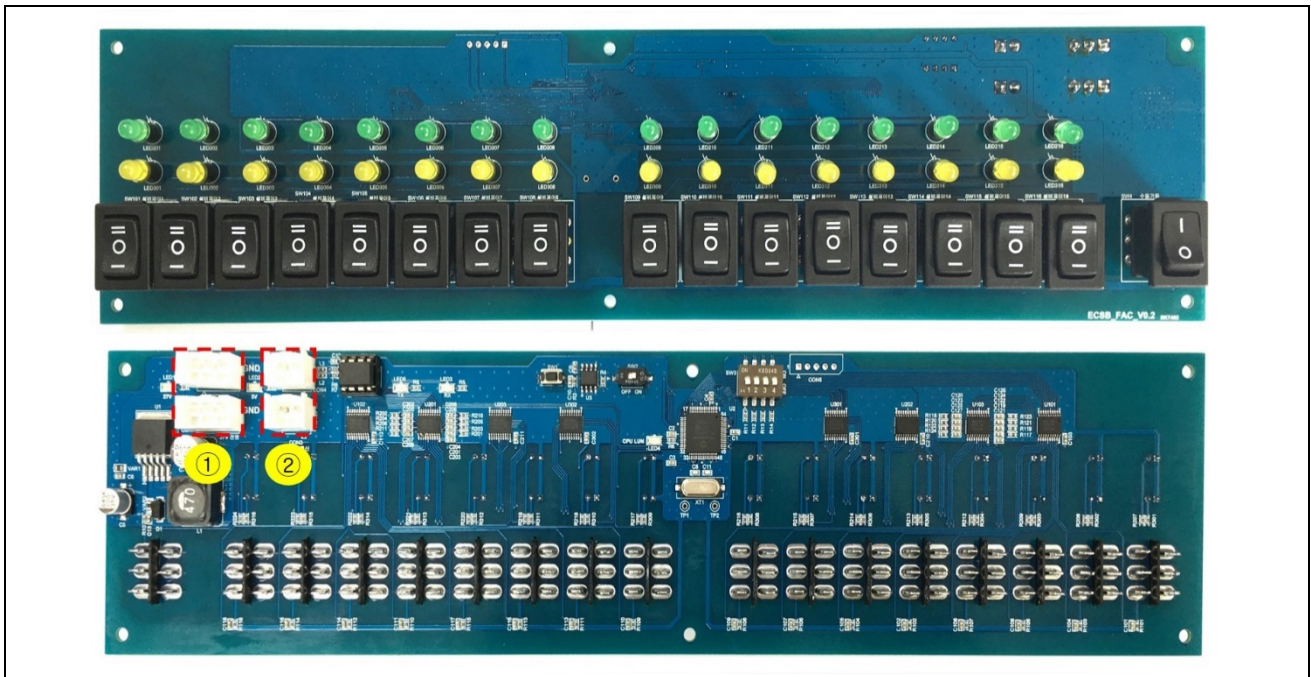


4.1.18.2.2. Function Description

Location	Part	Color	Function
①	LED201~216	Green	LED is On : Activation acknowledging voltage input is normal
②	LED301~316	Yellow	LED is On: Switch cation
③	LED1	Green	LED is On : Input power (27 V DC) is normal
④	LED2	Green	LED is On : Input power (5 V DC) is normal
⑤	LED5	Red	LED flashes: RS485 communication connection (Rx)
	LED3	Green	LED flashes: RS485 communication connection (Tx)
⑥	LED4	Green	LED is On: Error in address setting
			LED flashes (Period 0.25sec) : Communication is lost
			LED flashes (Period 1sec): CPU is normal

4.1.18.3. Connector

4.1.18.3.1. Location

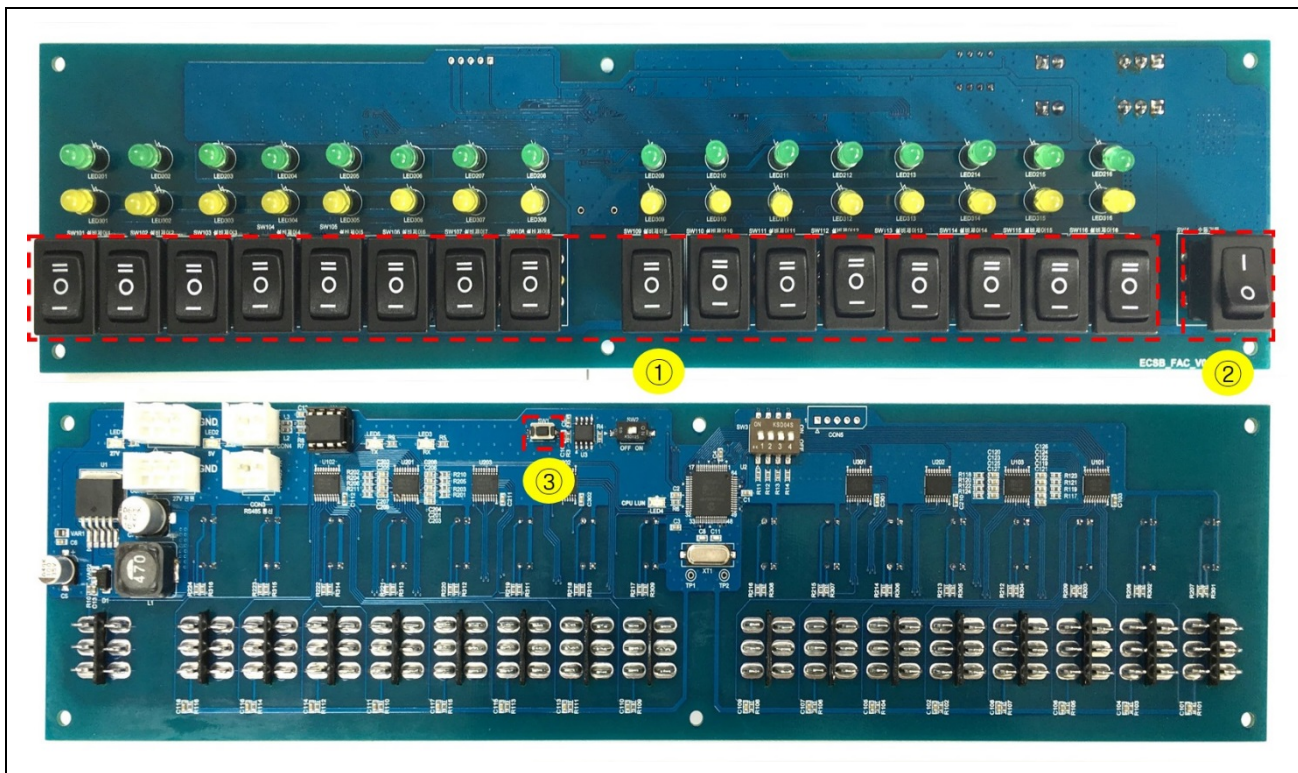


4.1.18.3.2. Function Description

Location	Part	Function
①	Con1~2	Power connector (Connected to other ECSB-ECRB using the daisy chain method)
②	Con3~4	Communication connector (Connected to other ECSB-ECRB using the daisy chain method)

4.1.18.4. Others

4.1.18.4.1. Location

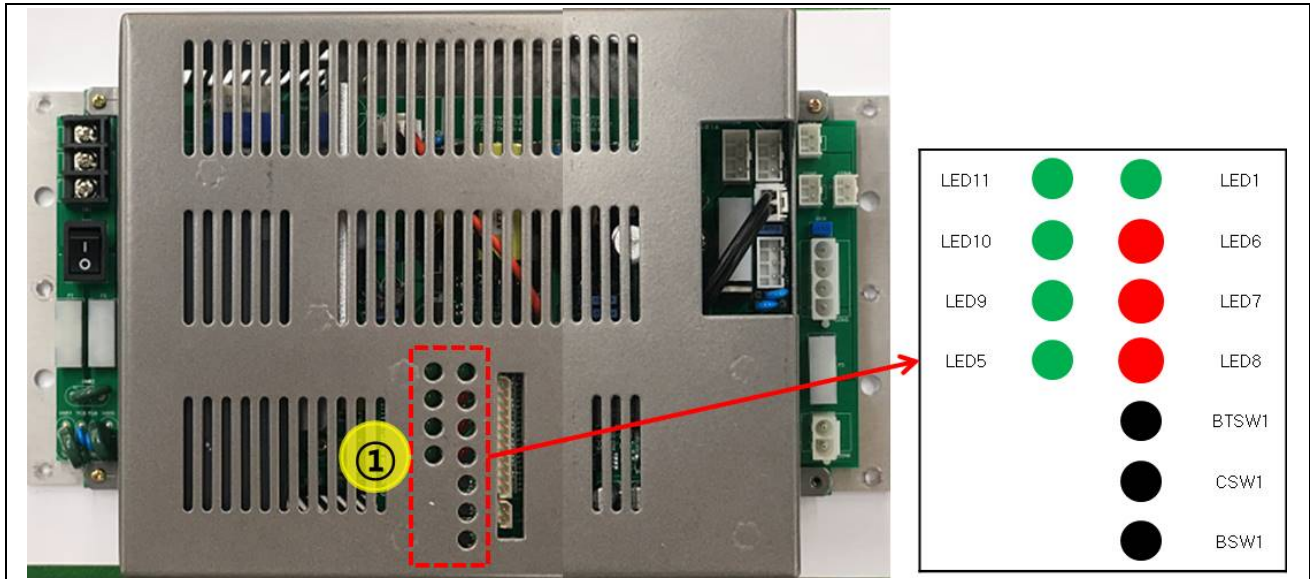


4.1.18.4.2. Function Description

Location	Part	Function
①	SW101~116	Up : Key to control equipment automatically Mid : Key to stop equipment control Down : Key to control equipment manually
①	SW4	Output protection key (formerly manual activation)
③	SW207	Reset switch

4.1.19. PTWM2705

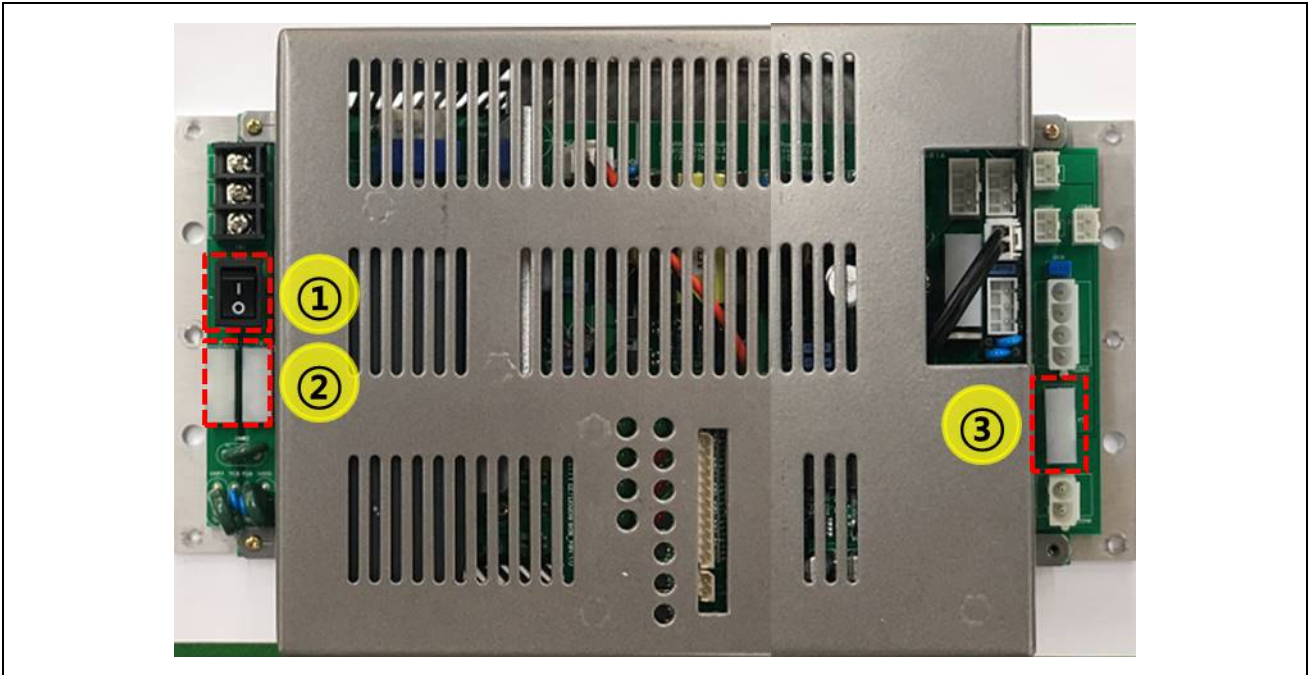
4.1.19.1. LED Location



4.1.19.2. Function Description

Location	Part	Color	Function
①	LED11	Green	LED is On: Output power (5 V DC) is normal
	LED10	Green	LED is On: Output power (13 V DC) is normal
	LED9	Green	LED is On: Battery voltage (13 V DC) is low.
	LED5	Green	LED is On: Battery voltage (13 V DC) is high
	LED1	Green	LED is On: CPU is activated
	LED6	Red	LED is On: AC Power is input
	LED7	Red	LED is On: DC Power output is normal
	LED8	Red	LED is On: Battery voltage (13 V DC) is normal
	BTSW1	Switch	Switch is On : Battery test
	CSW1	Switch	Switch is On: MCU reset
	BSW1	Switch	Switch is On : Battery Charging Relay Contact Test

4.1.19.3. Others



4.1.19.4. Function Description

Location	Part	Function
①	SW1	AC Power Input Switch
②	F1~2	AC Power Circuit Protective Fuse (250 V AC/3A + 3 A = 6 A)
③	F3	26 VDC Battery Protective Fuse (250 V AC/5A)

4.1.20. PTWM2710

4.1.20.1. Connector Location



4.1.20.2. Function Description

Location	Part	Function
①	TB1	AC Power Input Connector (from top to bottom FG, AC_L, AC_N)
②	CON5~7	27 VDC Output Connector (Connected to ECSB, Input / Output Main Module)
③	CON3	27 VDC Output Connector (Connected to the MTIB)
④	CON8	24 VDC Battery Connector
⑤	CON9	Signals of 12 VDC power and battery (connected to OCM) are input/output.

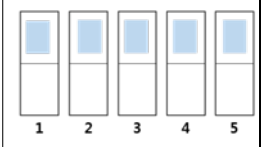
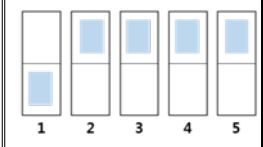
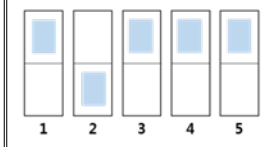
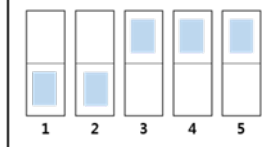
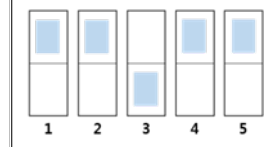
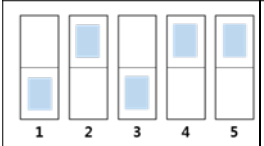
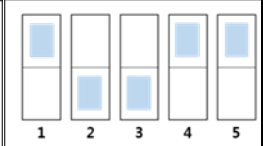
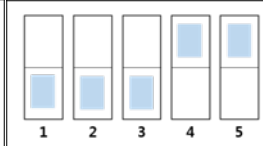
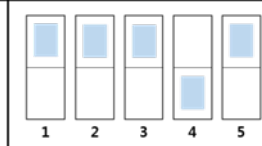
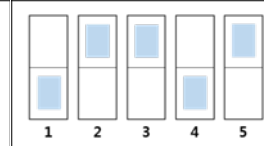
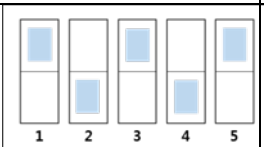
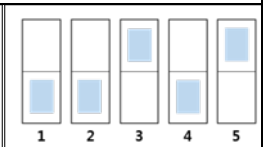
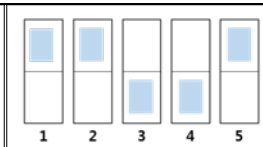
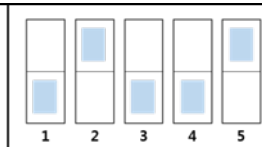
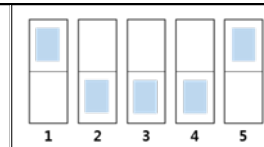
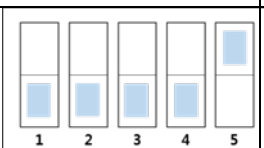
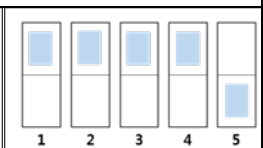
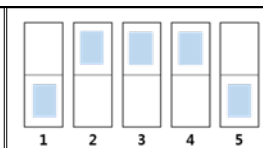
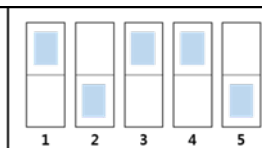
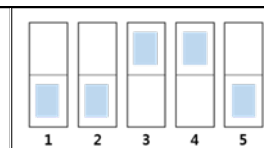
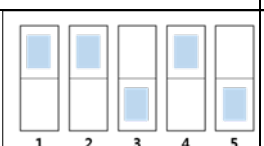
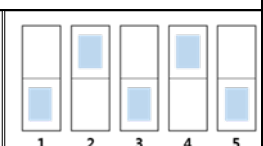
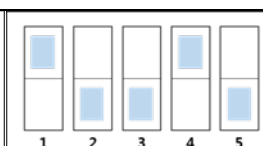
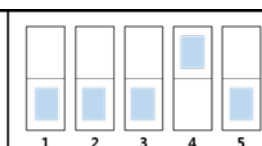
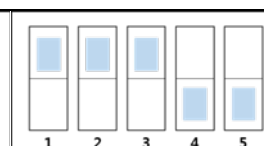
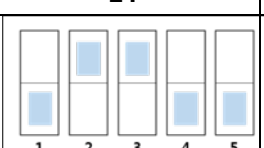
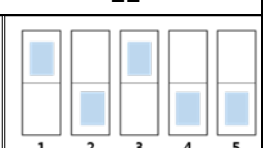
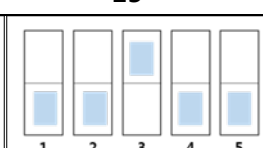
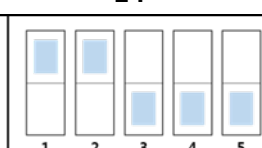
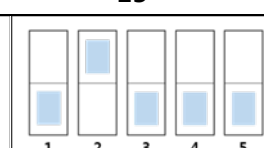
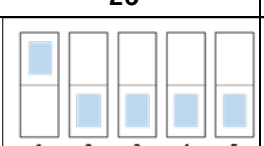
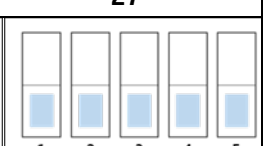
4.1.20.3. Others



4.1.20.4. Function Description

Location	Part	Function
①	SW1	AC Power Input Switch
②	F1~2	AC power circuit protective fuses (250 V AC/6.3A + 6.3A = 13A)
②	F3	26 VDC Battery Protective Fuse (250 V AC/10A)

5. The input/output module address-setting table (Binary into Decimal converting table)

				
1	2	3	4	5
				
6	7	8	9	10
				
11	12	13	14	15
				
16	17	18	19	20
				
21	22	23	24	25
				
26	27	28	29	30
				
31	32			