

8. External input and output

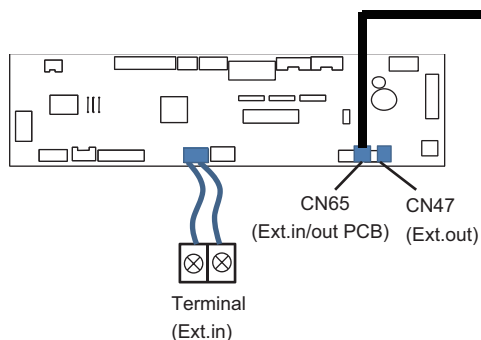


Fig. Indoor unit PCB

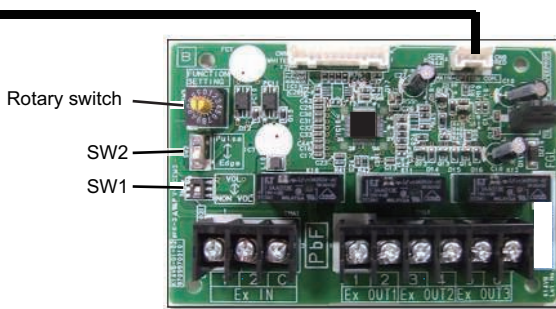


Fig. External input and output PCB

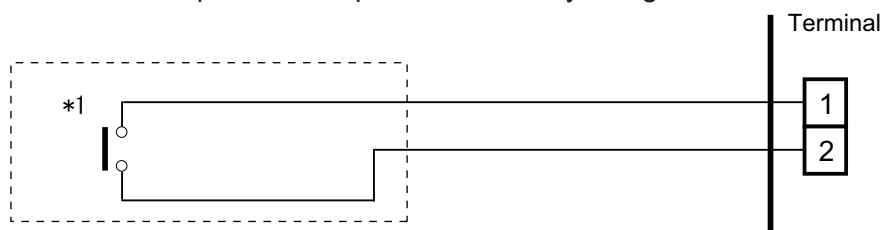
| PCB | External input | External output | Connector | Input select | Input signal | External connect kit (Optional parts) |
|--------------------------------------|-------------------------------|----------------------------------|----------------------------------|-------------------------------|----------------|---------------------------------------|
| Indoor unit | Operation/Stop Forced stop | — | Terminal | Dry contact | Edge | — |
| | — | Operation status | CN47 | — | — | UTY-XWZXZG |
| | | Error status | | | | |
| | | Indoor unit fan operation status | | | | |
| External heater output | | | | | | |
| External input and output (UTY-XCSX) | Operation/Stop | — | Input 1/ Input 2 | Dry contact/ Apply voltage | Edge/ Pulse | — |
| | Forced thermostat off | | Input 1 | | Edge | |
| | — | Operation status | Output 1 Output 2 Output 3 | — | — | — |
| | | Error status | | | | |
| Indoor unit status | | | | | | |
| External heater output | | | | | | |

8-1. External input

- “Operation/Stop” mode or “Forced stop” mode can be selected with function setting of indoor unit.
- A twisted pair cable (22AWG) should be used. Maximum length of cable is 150 m.
- The wire connection should be separate from the power cable line.

■ Indoor unit

Indoor unit functions such as Operation/Stop can be done by using indoor unit terminals.



*1: The switch can be used on the following condition: DC 12 V to 24 V, 1 mA to 15 mA.

External input and output PCB

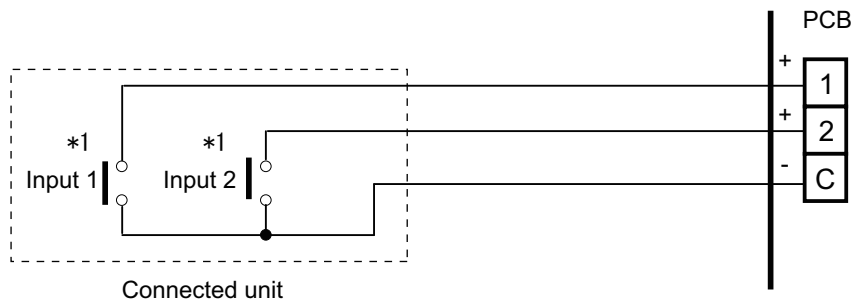
The indoor unit Operation/Stop can be set by using the input terminal on the PCB.

Input select

Use either one of these types of terminals according to the application. (Both types of terminals cannot be used simultaneously.)

- Dry contact

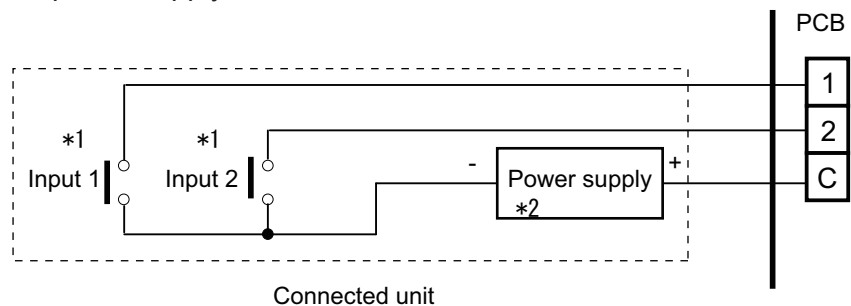
In case of internal power supply, set the slide switch of SW1 to "NON VOL" side.



*1: The switches can be used on the following condition: DC 12 V to 24 V, 1 mA to 15 mA.

- Apply voltage

In case of external power supply, set the slide switch of SW1 to "VOL" side.



*1: The switches can be used on the following condition: DC 12 V to 24 V, 1 mA to 15 mA.

*2: Make the power supply DC 12 V to 24 V 10 mA or more.

8-2. External output

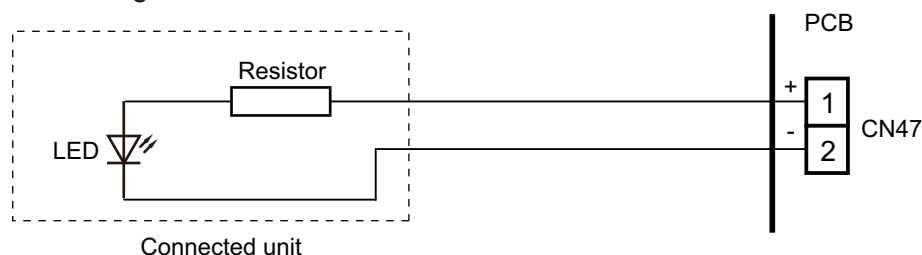
Use an external output cable with appropriate external dimension, depending on the number of cables to be installed.

Indoor unit

- A twisted pair cable (22AWG) should be used. Maximum length of cable is 25 m.
- Output voltage: High DC 12 V \pm 2 V, Low 0 V.
- Permissible current: 50 mA
- For details, refer to Chapter 8-3. "[Combination of external input and output](#)" on page 38.

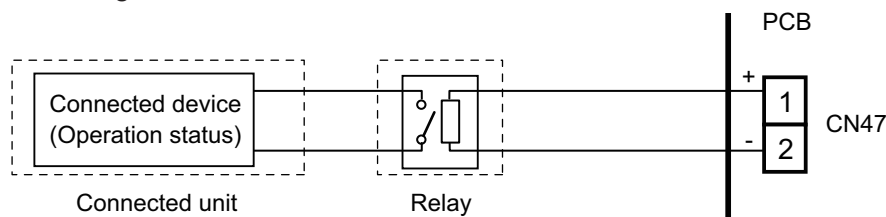
When indicator, etc. are connected directly

Example: Function setting 60 is set to "00"



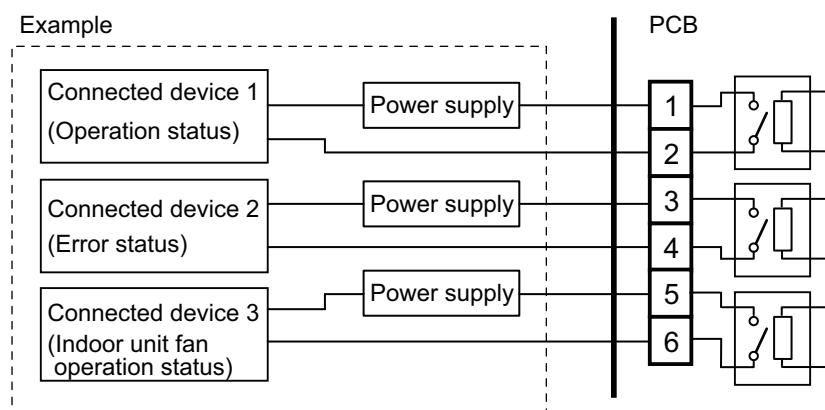
When connecting with a device equipped with a power supply

Example: Function setting 60 is set to "00"



External input and output PCB

- A twisted pair cable (22AWG) should be used.
- Permissible voltage and current: DC 5 V to 30 V / 3 A, AC 30 V to 250 V / 3 A
- For details, refer to Chapter 8-3. "[Combination of external input and output](#)" on page 38.



8-3. Combination of external input and output

By combining the function setting of the indoor unit and rotary switch setting of the External input and output PCB, you can select various combinations of functions.

Combination examples of external input and output are as follows:

| Mode | Function setting | External input and output PCB (Rotary SW) | External input | | | |
|------|------------------|---|----------------------|-------------------------------|---------------|-------------|
| | | | Indoor unit Input | External input and output PCB | | |
| | | | Terminal | Input 1 | Input 2 | Signal type |
| 0-1 | 60-00 | 1 | Operation/Stop | Operation/Stop | Not available | Edge |
| | | | | Operation | Stop | Pulse |
| 0-2 | 60-00 | 2 | Operation/Stop | Forced Thermostat OFF | Not available | Edge |
| 1—8 | 60-01 to 60-08 | 3 - 9, A | (Setting prohibited) | | | |
| 9 | 60-09 | B | Operation/Stop | Forced Thermostat OFF | Not available | Edge |
| 10 | 60-10 | C | Operation/Stop | Forced Thermostat OFF | Not available | Edge |
| 11 | 60-11 | D | Operation/Stop | Forced Thermostat OFF | Not available | Edge |

| Mode | Function setting | External input and output PCB (Rotary SW) | External output | | | |
|------|------------------|---|----------------------------------|-------------------------------|----------------------------------|----------------------------------|
| | | | Indoor unit Output | External input and output PCB | | |
| | | | CN47 | Output 1 | Output 2 | Output 3 |
| 0-1 | 60-00 | 1 | Operation/Stop | Operation/Stop | Error status | Indoor unit fan operation status |
| 0-2 | 60-00 | 2 | Operation/Stop | Error status | Indoor unit fan operation status | External heater output |
| 1—8 | 60-01 to 60-08 | 3 - 9, A | (Setting prohibited) | | | |
| 9 | 60-09 | B | Error status | Operation/Stop | Indoor unit fan operation status | External heater output |
| 10 | 60-10 | C | Indoor unit fan operation status | Operation/Stop | Error status | External heater output |
| 11 | 60-11 | D | External heater output | Operation/Stop | Indoor unit fan operation status | Error status |

NOTE: Input of Operation/Stop depends on the setting of function setting 46.

00: Operation/Stop mode 1 (R.C. enabled)

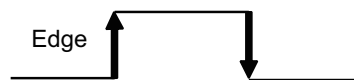
01: (Setting prohibited)

02: Forced stop

03: Operation/Stop mode 2 (R.C. disabled)

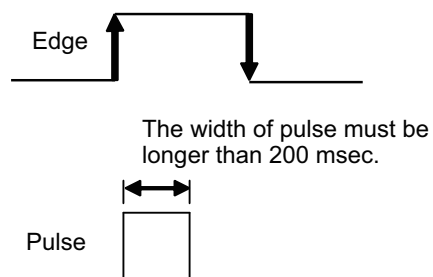
■ Input signal type

- Indoor unit
Input signal type is only "Edge".



- External input and output PCB
The input signal type can be selected.

Signal type (edge or pulse) can be switched by the DIP switch 2 (SW2) on the External input and output PCB.



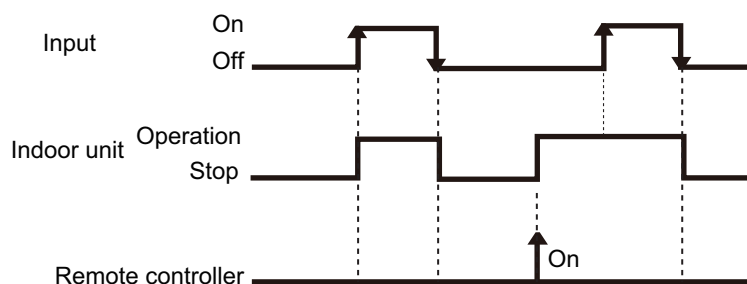
8-4. Details of function

■ Control input function

● When function setting is "Operation/Stop" mode 1

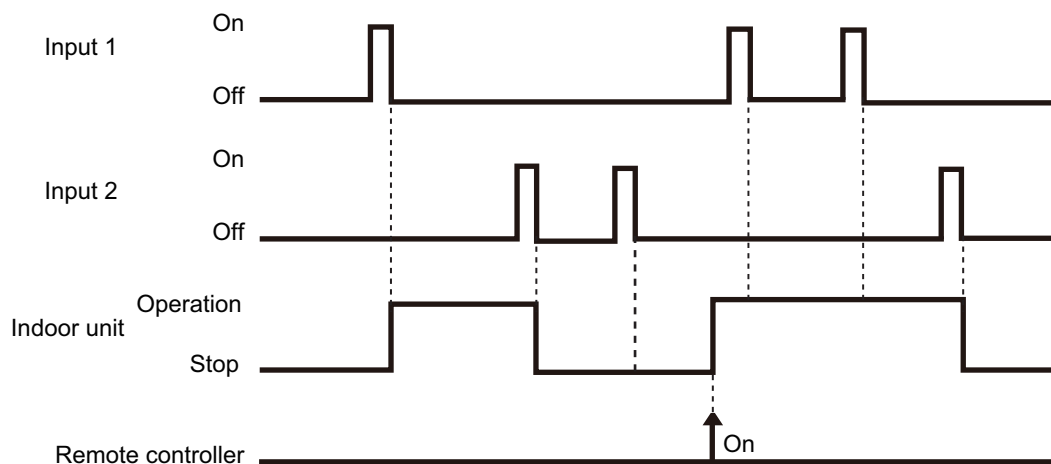
- In the case of "Edge" input

| Function setting / | Rotary SW of External input and output PCB | External input | | Input signal | Command |
|--------------------|--|-------------------------------|----------|--------------|-----------|
| 46-00 | - | Input of indoor unit | Terminal | Off → On | Operation |
| | | | | On → Off | Stop |
| | 60-00 / 1 | External input and output PCB | Input 1 | Off → On | Operation |
| | | | | On → Off | Stop |



- In the case of "Pulse" input

| Function setting / | Rotary SW of External input and output PCB | External input | | Input signal | Command |
|--------------------|--|-------------------------------|---------|--------------|-----------|
| 46-00 | 60-00 / 1 | External input and output PCB | Input 1 | Pulse | Operation |
| | | | Input 2 | Pulse | Stop |



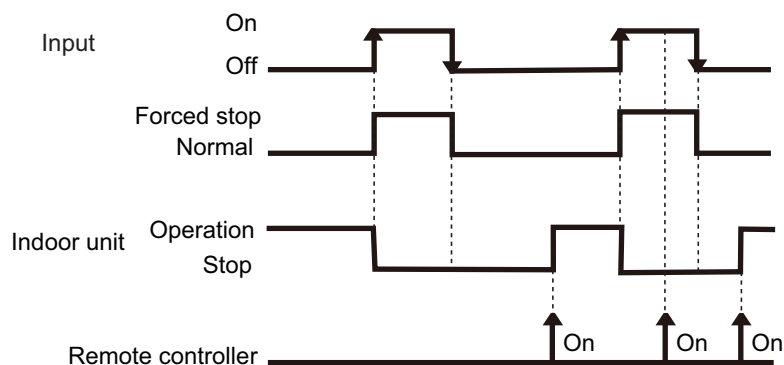
NOTES:

- The last command has priority.
- The indoor units within the same remote controller group operates in the same mode.

● When function setting is "Forced stop" mode

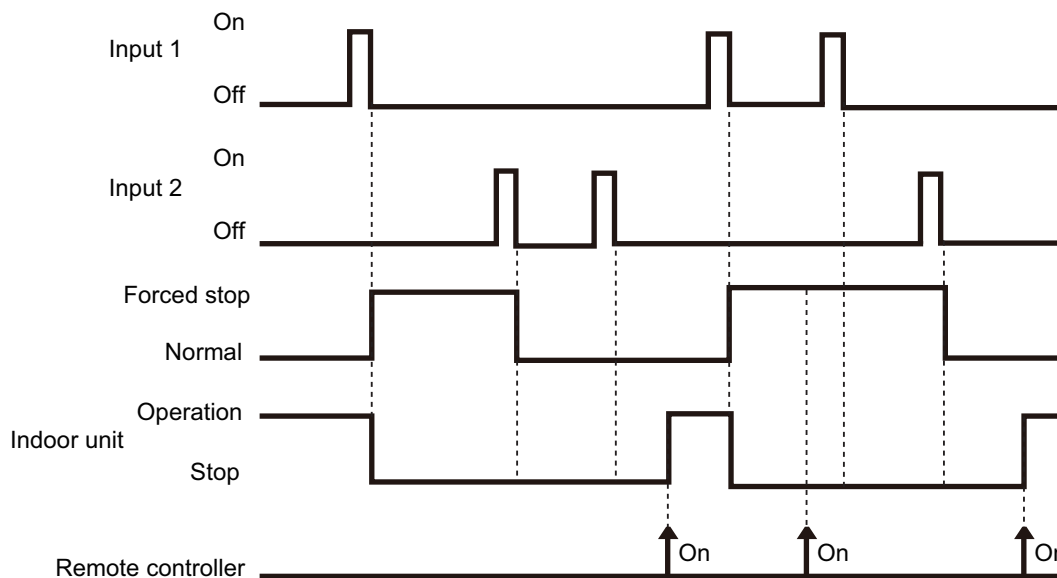
- In the case of "Edge" input

| Function setting / | Rotary SW of External input and output PCB | External input | | Input signal | Command |
|--------------------|--|-------------------------------|----------|--------------|-------------|
| 46-02 | - | Input of indoor unit | Terminal | Off → On | Forced stop |
| | | | | On → Off | Normal |
| | 60-00 / 1 | External input and output PCB | Input 1 | Off → On | Forced stop |
| | | | | On → Off | Normal |



- In the case of "Pulse" input

| Function setting / | Rotary SW of External input and output PCB | External input | | Input signal | Command |
|--------------------|--|-------------------------------|---------|--------------|-------------|
| 46-02 | 60-00 / 1 | External input and output PCB | Input 1 | Pulse | Forced stop |
| | | | Input 2 | Pulse | Normal |



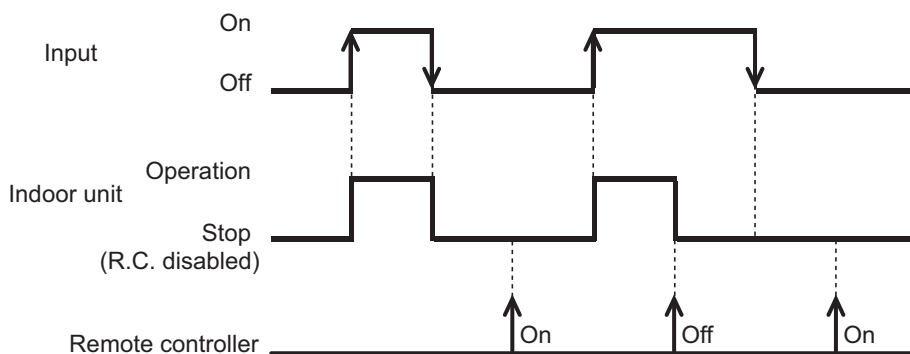
NOTES:

- When the forced stop is triggered, indoor unit stops and Operation/Stop operation by the remote controller is restricted.
- When forced stop function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

● When function setting is "Operation/Stop" mode 2

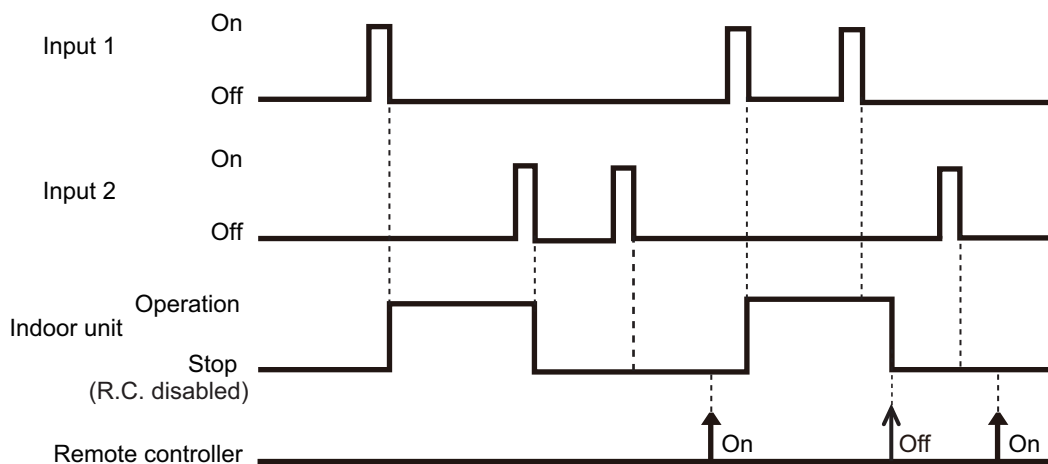
- In the case of "Edge" input

| Function setting / | Rotary SW of External input and output PCB | External input | | Input signal | Command |
|--------------------|--|-------------------------------|----------|--------------|----------------------|
| 46-03 | - | Input of indoor unit | Terminal | Off → On | Operation |
| | | | | On → Off | Stop (R.C. disabled) |
| | 60-00 / 1 | External input and output PCB | Input 1 | Off → On | Operation |
| | | | | On → Off | Stop (R.C. disabled) |



- In the case of "Pulse" input

| Function setting / | Rotary SW of External input and output PCB | External input | | Input signal | Command |
|--------------------|--|-------------------------------|---------|--------------|----------------------|
| 46-03 | 60-00 / 1 | External input and output PCB | Input 1 | Pulse | Operation |
| | | | Input 2 | Pulse | Stop (R.C. disabled) |

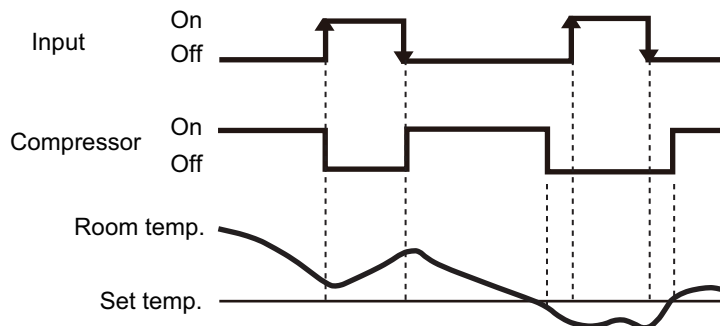


NOTES:

- When "Operation/Stop" mode 2 function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

■ Forced thermostat off function

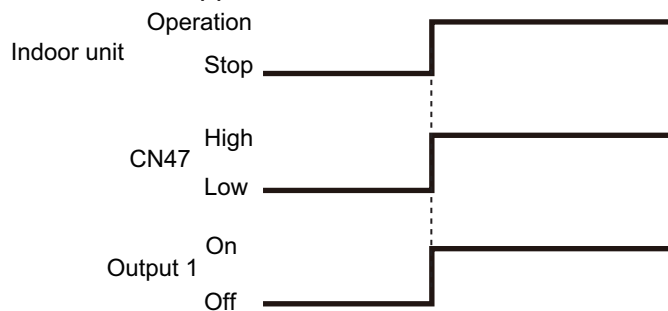
| Function setting / | Rotary SW of External input and output PCB | External input | | Input signal | Command |
|--------------------|--|-------------------------------|---------|--------------|------------------|
| | 60-00 / 2 60-09 / B 60-10 / C 60-11 / D | External input and output PCB | Input 1 | Off → On | Thermostat off |
| | | | | On → Off | Normal operation |



■ Control output function

| Function setting / | Rotary SW of External input and output PCB | External output | | Output signal | Command |
|--------------------|--|-------------------------------|----------|--------------------------|-------------------|
| | 60-00 / 1, 2 | Output of indoor unit | CN47 | Low → High High → Low | Operation Stop |
| | 60-00 / 1 60-09 / B 60-10 / C 60-11 / D | External input and output PCB | Output 1 | Off → On | Operation |
| | | | | On → Off | Stop |

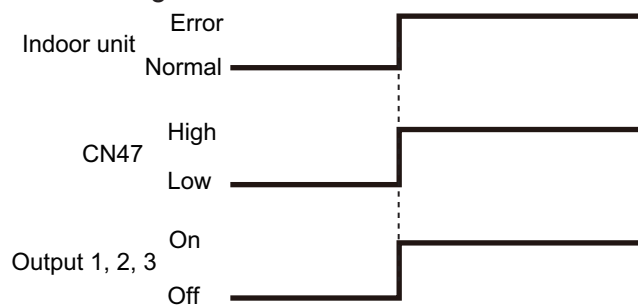
The output is low when the unit is stopped.



■ Error status

| Function setting / | Rotary SW of External input and output PCB | External output | | Output signal | Command |
|------------------------|--|-------------------------------|----------|---------------|---------|
| 60-09 / B | | Output of indoor unit | CN47 | Low → High | Error |
| | | | | High → Low | Normal |
| 60-00 / 2 | | External input and output PCB | Output 1 | Off → On | Error |
| | | | | On → Off | Normal |
| 60-00 / 1 60-10 / C | | External input and output PCB | Output 2 | Off → On | Error |
| | | | | On → Off | Normal |
| 60-11 / D | | External input and output PCB | Output 3 | Off → On | Error |
| | | | | On → Off | Normal |

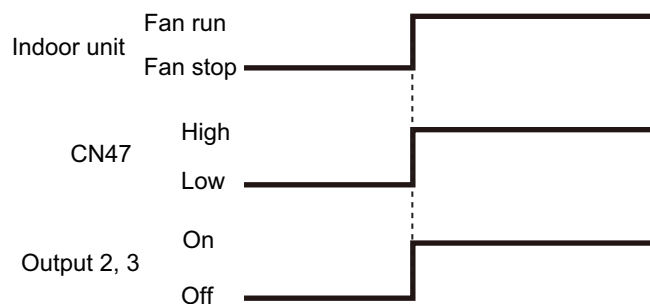
The output is ON when an error is generated for the indoor unit.



■ Indoor unit fan operation status

| Function setting / | Rotary SW of External input and output PCB | External output | | Output signal | Command |
|-------------------------------------|--|-------------------------------|----------|---------------|----------|
| 60-10 / C | | Output of indoor unit | CN47 | Low → High | Fan run |
| | | | | High → Low | Fan stop |
| 60-00 / 2 60-09 / B 60-11 / D | | External input and output PCB | Output 2 | Off → On | Fan run |
| | | | | On → Off | Fan stop |
| 60-00 / 1 | | External input and output PCB | Output 3 | Off → On | Fan run |
| | | | | On → Off | Fan stop |

| Output signal | Condition |
|-------------------|--|
| On Low → High | The indoor unit fan is operating. |
| Off High → Low | The fan is stopped or during cold air prevention. During thermostat off when in dry mode operation. |



External heater output

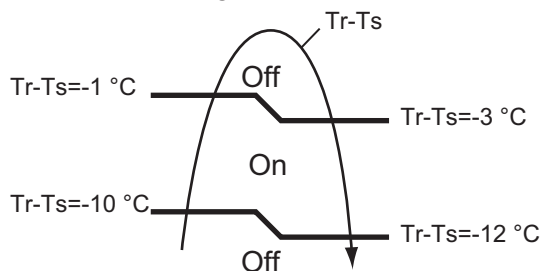
| Function setting / | Rotary SW of External input and output PCB | External output | | Output signal | Command |
|--------------------|--|-------------------------------|----------|---------------|------------|
| | 60-11 / D | Output of indoor unit | CN47 | Low → High | Heater on |
| | | | | High → Low | Heater off |
| | 60-00 / 2 60-09 / B 60-10 / C | External input and output PCB | Output 3 | Off → On | Heater on |
| | | | | On → Off | Heater off |

| Output signal | Condition |
|------------------------|---|
| Low → High Off → On | Heater turns on as shown in diagram of heating temperature |
| High → Low On → Off | Heater turns off as shown in diagram of heating temperature <ul style="list-style-type: none"> • Other than Heating mode • Error occurred • Forced thermo off • Fan stop protection |

Specifications of the signal output performance are as shown as follows:

Example: When set temperature (T_s) is set at 22 °C;

- And room temperature (T_r) increase above 12 °C, signal output is on.
- And T_r increase above 21 °C, signal output is off.
- And T_r decrease below 19 °C, signal output is on.
- And T_r decrease below 10 °C, signal output is off.



The output also turns off in defrost operation.