

11. External input and output

11-1. Compact cassette, slim duct, wall mounted, floor/ceiling, and floor types

Indoor unit type	External input	External output			
	Control input	Operation status output	Fresh air control output	Auxiliary heater output	Error status output
Compact cassette	•	•	•	—	—
Slim duct	•	•	•	•	—
Wall mounted	•	•	—	—	• (LU/LM/KM types)
Floor	•	•	—	—	—

External input

With using external input function, some functions on this product can be controlled from an external device.

- "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.

Control input (Operation/Stop or Forced stop)

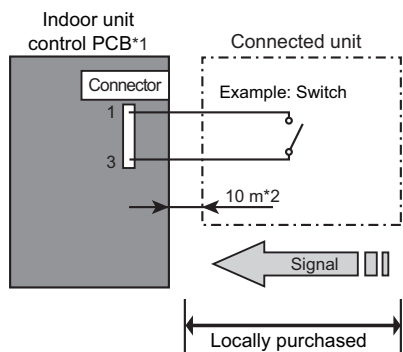
Indoor unit type		Connector
Compact cassette		CN102
Slim duct		
Wall mounted	LJ	CN303
	LU/LM/KM	CNA01
	LF	CN14
Floor/Ceiling		CN102
Floor		CN14

The air conditioner can be remotely operated by means of the following on-site work.

Operation is started at the following contents by adding the contact input of a commercial on/off switch to a connector on the external control PCB and turning it on.

Unit operation	Initial setting after power is on	Starting mode other than initial setting
Operation mode	Auto changeover	Mode at previous operation
Set temperature	24 °C	Temperature at previous operation
Airflow mode	AUTO	Mode at previous operation
Air direction (swing)	Standard air direction (swing: off)	Air direction at previous operation

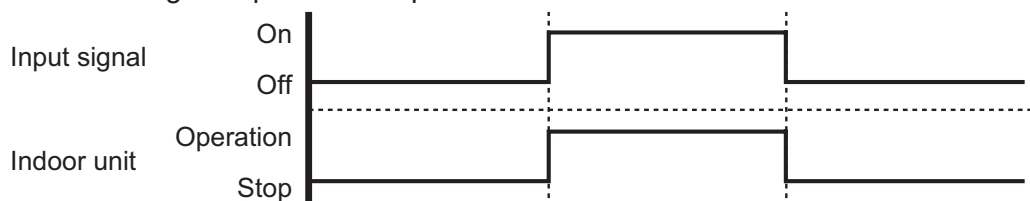
• **Circuit diagram example**



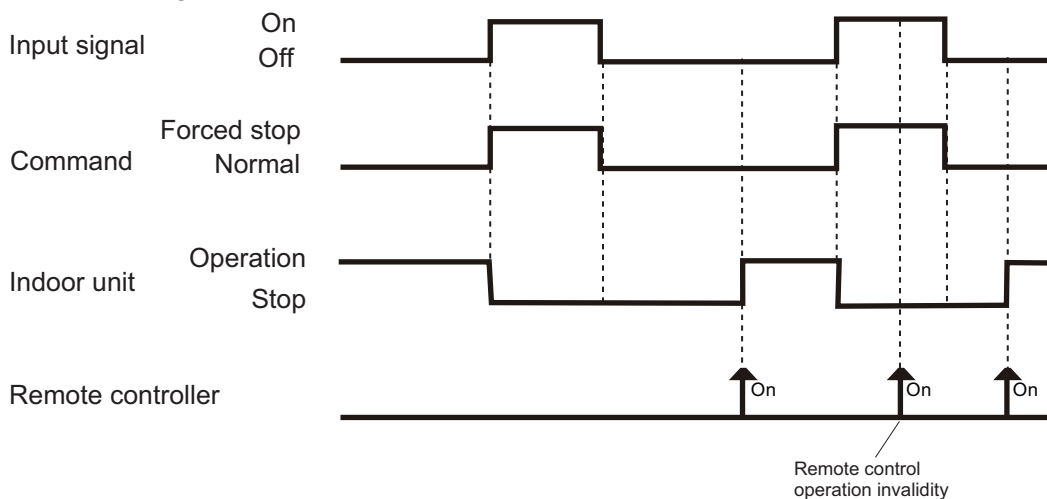
- Contact capacity: DC 24 V or more, 10 mA or more.
- *1: PCB of Communication kit is used for wall mounted type (LU, LM, and KM).
- *2: Make the distance from the PCB to the connected unit within 10 m.
- Use non-polar relays and switches.

Indoor unit type		1-pin (Polarity)	3-pin (Polarity)
Compact cassette		-	+
Slim duct		-	+
Wall mounted	LJ	+	-
	LU	-	+
	LM	-	+
	LF	-	+
	KM	-	+
Floor/Ceiling		-	+
Floor		-	+

– When function setting is "Operation/Stop" mode

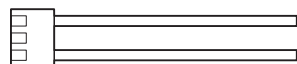


– When function setting is "Forced stop" mode

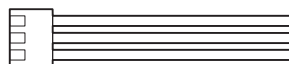


• Optional part

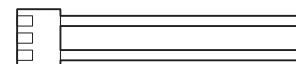
Indoor unit type		Part name	Model name
Compact cassette		External connect kit	UTY-XWZX
Slim duct			UTD-ECS5A
Wall mounted	LJ		UTY-XWZX
	LU/LM/KM		UTY-XWZXZ5
	LF		UTY-XWZX
Floor/Ceiling			UTY-XWZX
Floor			UTY-XWZX



UTY-XWZX



UTD-ECS5A



UTY-XWZXZ5

Indoor unit type		Part name	Model name
Compact cassette		—	—
Slim duct		—	—
Wall mounted	LJ	Communication kit	UTY-XCBXZ1
	LU		UTY-TWBXF
	LM		UTY-XCBXZ2
	KM		UTY-TWBXF2
	LF		—
Floor/Ceiling		—	—
Floor		—	—

External output

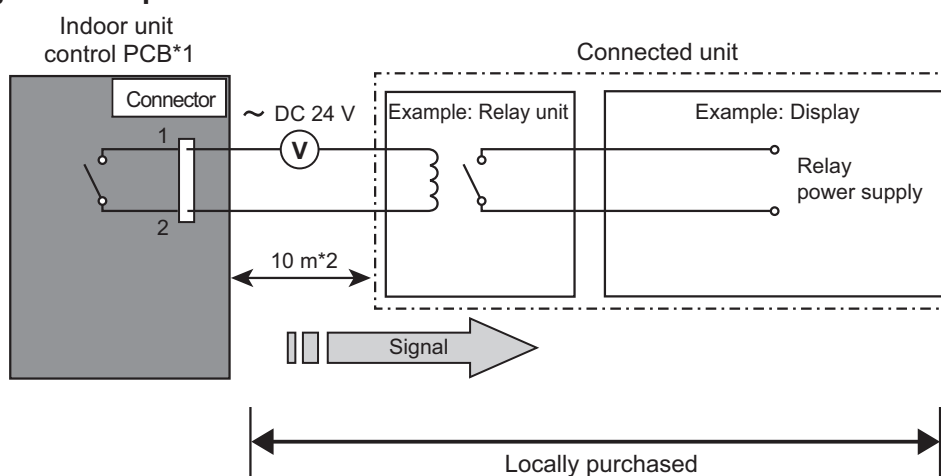
Use an external output cable with appropriate external dimension, depending on the number of cables to be installed.

● Operation status output

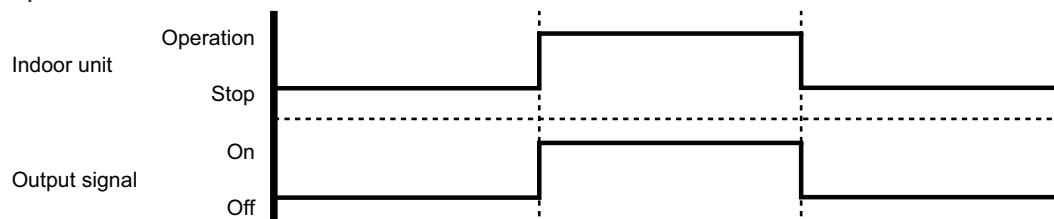
Indoor unit type		Connector
Compact cassette		CN103
Slim duct		CN103
Wall mounted	LJ	CN304
	LU/LM/KM	CNB01
	LF	CN16
Floor/Ceiling		CN103
Floor		CN20

Air conditioner operation status signal can be output.

• Circuit diagram example

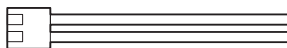


- *1: PCB of communication kit is used for wall mounted type (LU, LM, and KM).
- *2: Make the distance from the PCB to the connected unit within 10 m.
- Relay spec: Max. DC 24 V, 10 mA to less than 500 mA.



• Optional part

Indoor unit type		Part name	Model name
Compact cassette		External connect kit	UTY-XWZX
Slim duct			UTD-ECS5A
Wall mounted	LJ		UTY-XWZX
	LU/LM/KM		UTY-XWZXZ5
	LF		UTY-XWZX
Floor/Ceiling			UTY-XWZX
Floor			UTY-XWZX



Indoor unit type		Part name	Model name
Compact cassette		—	—
Slim duct		—	—
Wall mounted	LJ	Communication kit	UTY-XCBXZ1
	LU		UTY-TWBXF
	LM		UTY-XCBXZ2
	KM		UTY-TWBXF2
	LF	—	—
Floor/Ceiling		—	—
Floor		—	—

*For operating the external output function, the wall mounted type (LU, LM, and KM) requires the following communication kit (UTY-TWBXF, UTY-TWBXF2 or UTY-XCBXZ2) in addition to the wire (UTY-XWZXZ5 or UTY-XWZX).

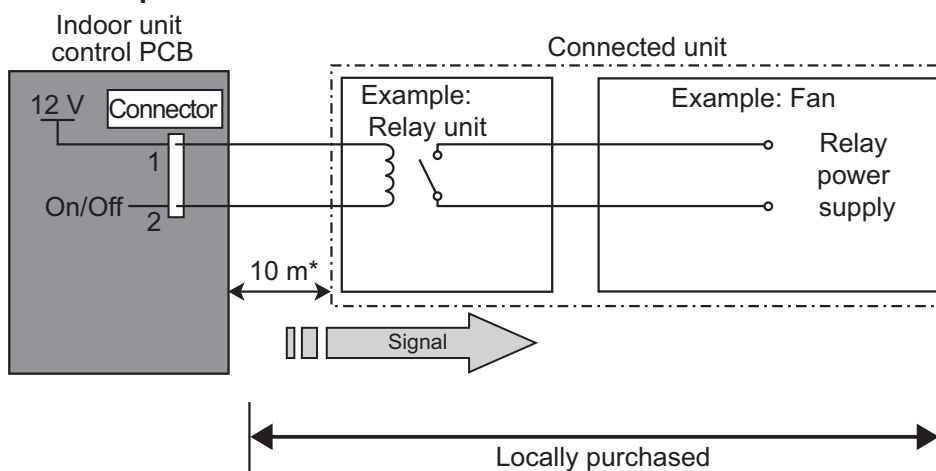
● Fresh air control output

Indoor unit type	Connector
Compact cassette	CN6
Slim duct	
Wall mounted	—
Floor/Ceiling	—
Floor	—

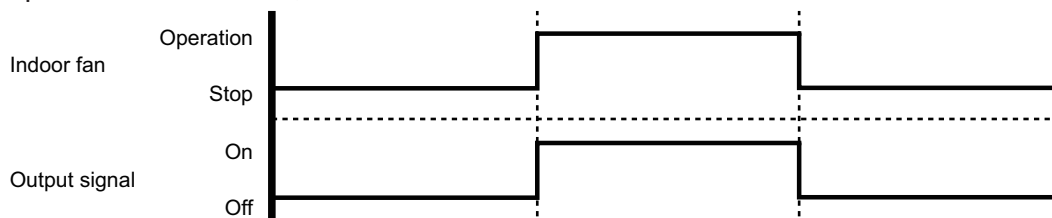
Signal linked to air conditioner indoor fan on can be output.

* However, signal becomes off during cold air prevention control operation.

• Circuit diagram example



- *: Make the distance from the PCB to the connected unit within 10 m.
- Relay spec.: Rated DC 12 V, 50 mA to less.



• Optional part

Indoor unit type	Part name	Model name
Compact cassette	Fresh air intake kit	UTZ-VXAA*
Slim duct	External control set	UTD-ECS5A
Wall mounted	—	—
Floor/Ceiling	—	—
Floor	—	—



*: This wire is included in fresh air intake kit (UTZ-VXAA).

● Auxiliary heater output

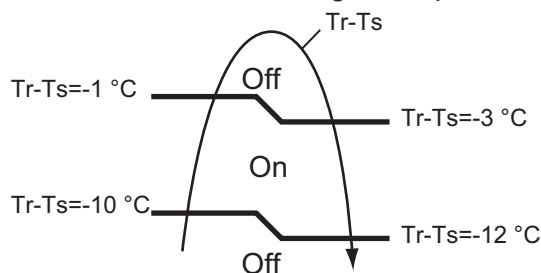
Indoor unit type	Connector
Compact cassette	—
Slim duct	CN10
Wall mounted	—
Floor/Ceiling	—
Floor	—

Signal is output from connector when indoor fan and compressor turn on under heating operation.

*Signal output performance specifications are as shown as follows:

Example: When Set Temperature (T_s) is 22 °C

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

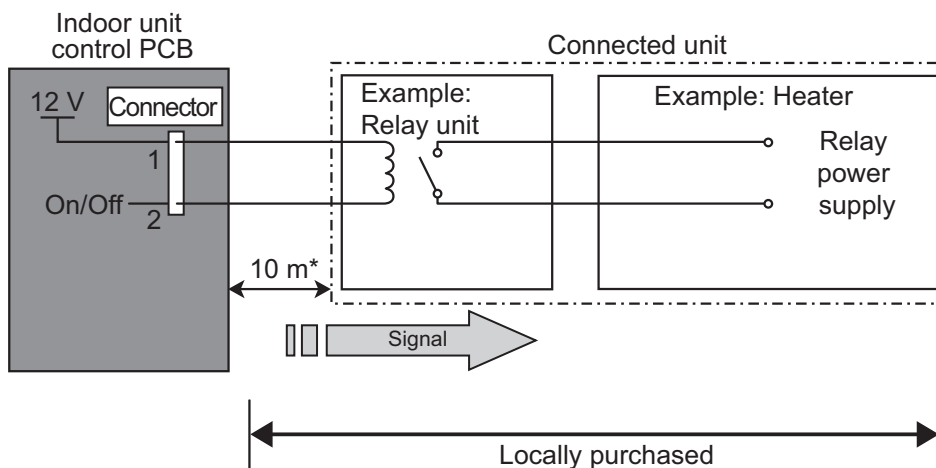


• Fan delay setting (JM3)

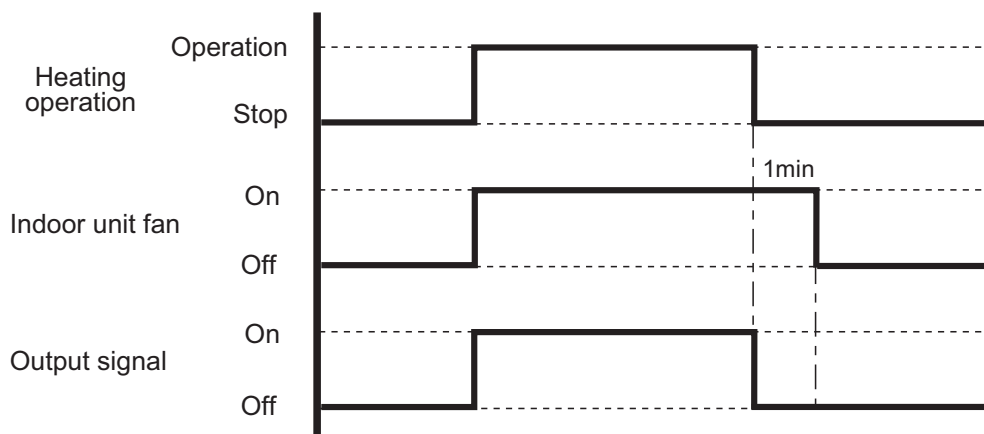
This is used to continue indoor unit fan operation for 1 minute after thermostat "Off" in heating mode.

1 minute delay control set by cutting jumper wire on PCB (For details, refer to ["Function settings"](#) on page 207).

• **Circuit diagram example**

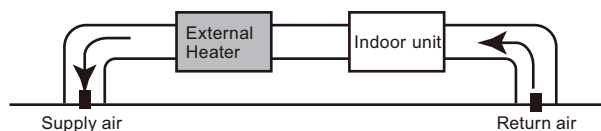


- Relay spec.: Rated DC 12 V, 50 mA to less.
- *: Make the distance from the PCB to the connected unit within 10 m.



CAUTION

- Locate an external heater between the indoor unit and the outlet.



- Be sure to use delay control of a fan.

• **Optional part**

Indoor unit type	Part name	Model name
Compact cassette	—	—
Slim duct	External control set	UTD-ECS5A
Wall mounted	—	—
Floor/Ceiling	—	—
Floor	—	—

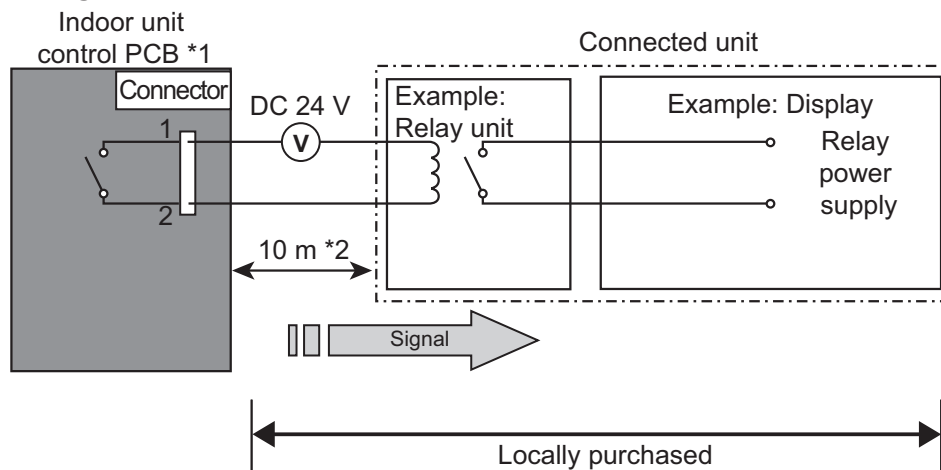


● Error status output

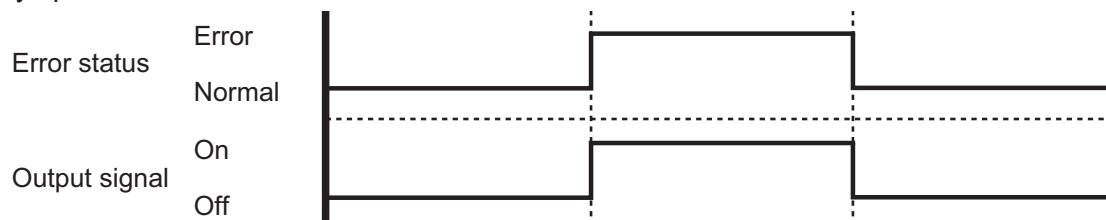
Indoor unit type		Connector
Compact cassette		—
Slim duct		—
Wall mounted	LU, LM, KM	CNB02
	LF	—
Floor/Ceiling		—
Floor		—

Air conditioner error status signal can be output.

• Circuit diagram example

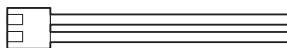


- *1: PCB of communication kit is used for wall mounted type .
- *2: Make the distance from the PCB to the connected unit within 10 m.
- Relay spec.: Max. DC 24 V, 10 mA to less than 500 mA.



• Optional part

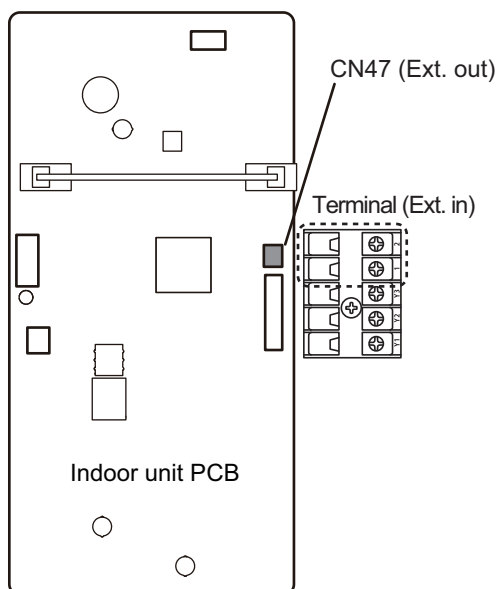
Indoor unit type		Part name	Model name
Compact cassette		—	—
Slim duct		—	—
Wall mounted	LU	External connect kit	UTY-XWZXZ5
	LM, KM		UTY-XWZXZ5
	LF	—	—
Floor/Ceiling		—	—
Floor		—	—



Indoor unit type		Part name	Model name
Compact cassette		—	—
Slim duct		—	—
Wall mounted	LU	Communication kit	UTY-TWBXF
	LM		UTY-XCBXZ2
	KM		UTY-TWBXF2
	LF	—	—
Floor/Ceiling		—	—
Floor		—	—

*For operating the external output function, the wall mounted type (LU, LM, and KM) requires the following communication kit (UTY-TWBXF, UTY-TWBXF2, or UTY-XCBXZ2) in addition to the wire (UTY-XWZXZ5 or UTY-XWZX).

11-2. Mini duct type



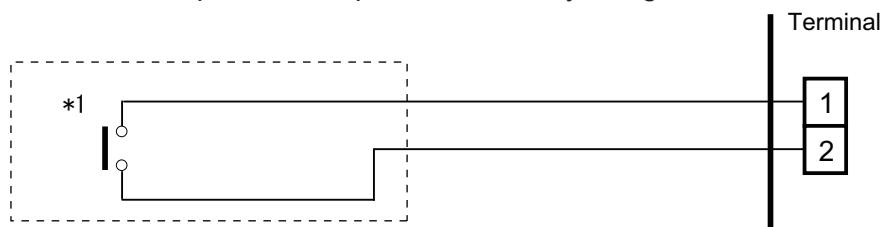
External input and output		Connector	Input select	Input signal	External connect kit (Optional parts)
External input	Operation/Stop Forced stop	Terminal	Dry contact	Edge	—
External output	Operation status	CN47	—	—	UTY-XWZXZG
	Error status				
	Indoor unit fan operation status				
	External heater output				

External input

With using external input function, some functions on this product can be controlled from an external device.

- “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 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.

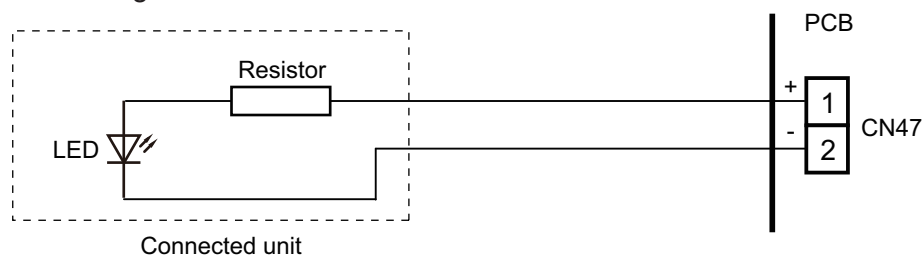
External output

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

- 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 ["Combination of external input and output"](#) on page 159.

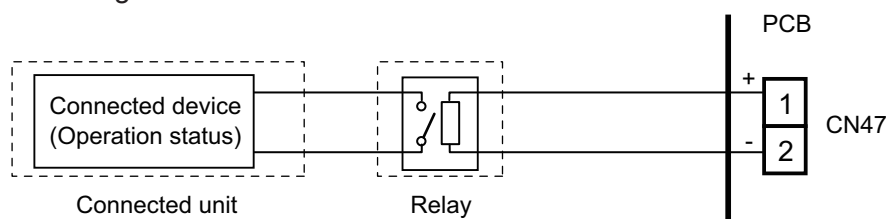
When indicator, etc. are connected directly

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"



■ Combination of external input and output

By combining the function setting of the indoor unit, you can select various combinations of functions.

Combination examples of external input and output are as follows:

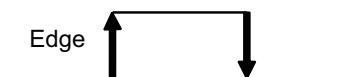
Mode	Function setting	External input	External output
		Terminal	CN47
0	60—00	Operation/Stop	
1—8	60—01 to 60—08	(Setting prohibited)	
9	60—09	Operation/Stop	Error status
10	60—10	Operation/Stop	Indoor unit fan operation status
11	60—11	Operation/Stop	External heater output

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".

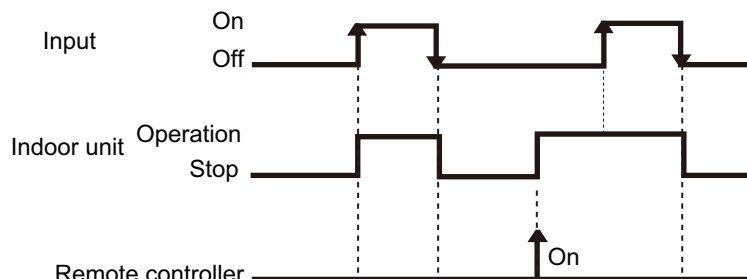


■ Details of function

● Control input function

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

Function setting	External input	Input signal	Command
46—00	Terminal	Off → On	Operation
		On → Off	Stop

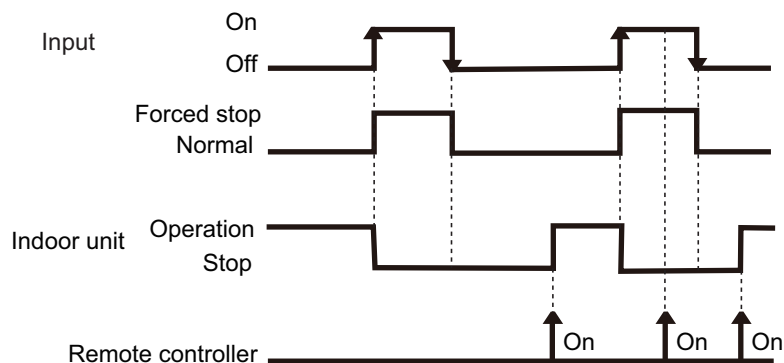


NOTES:

- 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

Function setting	External input	Input signal	Command
46—02	Terminal	Off → On	Forced stop
		On → Off	Normal

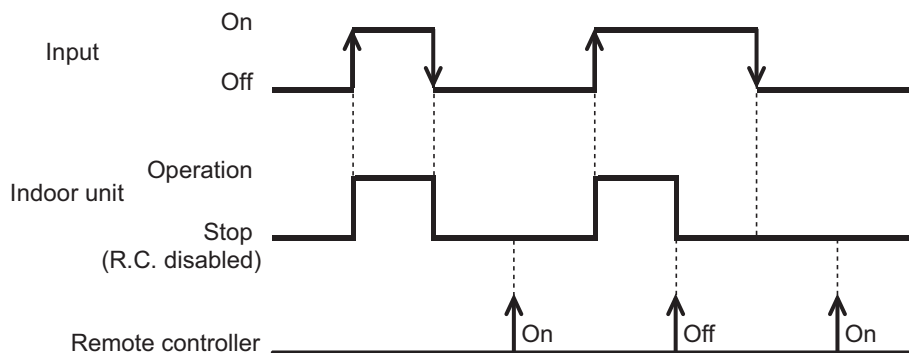


NOTES:

- 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

Function setting	External input	Input signal	Command
46—03	Terminal	Off → On	Operation
		On → Off	Stop (R.C. disabled)

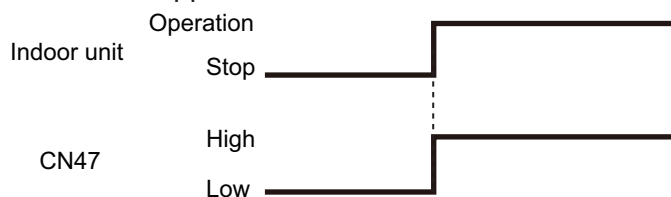


NOTE: When "Operation/Stop" mode 2 function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

● Control output function

Function setting	External output	Output signal	Command
60—00	CN47	Low → High	Operation
		High → Low	Stop

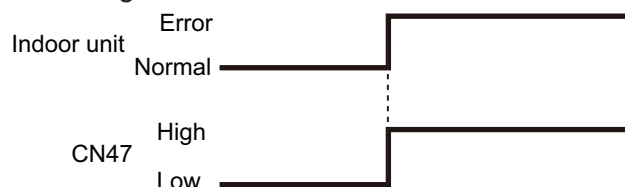
The output is low when the unit is stopped.



● Error status

Function setting	External output	Output signal	Command
60—09	CN47	Low → High	Error
		High → Low	Normal

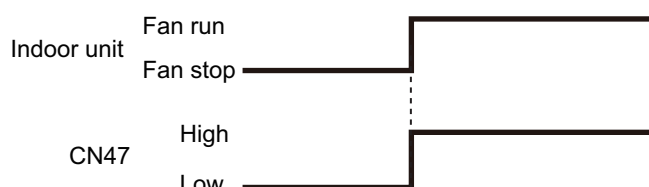
The output is ON when an error is generated for the indoor unit.



● Indoor unit fan operation status

Function setting	External output	Output signal	Command
60—10	CN47	Low → High	Fan run
		High → Low	Fan stop

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



● External heater output

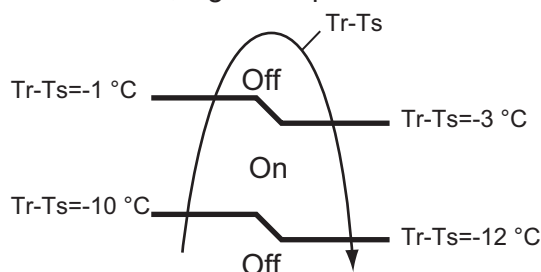
Function setting	External output	Output signal	Command
60—11	CN47	Low → High	Heater on
		High → Low	Heater off

Output signal	Condition
Low → High	Heater turns on as shown in diagram of heating temperature
Off → On	
High → Low	Heater turns off as shown in diagram of heating temperature
On → Off	<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.

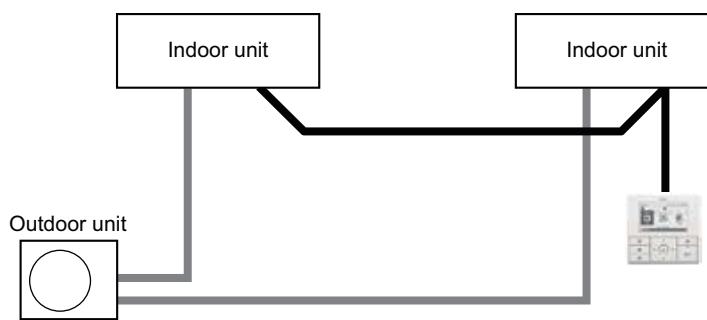


The output also turns off in defrost operation.

12. Group connection

Wiring regulation on the remote controllers in the multi-split systems are reviewed and allowed for group connection.

Example of group connection



*Exterior of each device shown above might be different from the actual one.

NOTES:

- Group connection is applicable for multi-split system consists of following products that are produced in 2013 or later:
 - LU/LM/LF/KM series in wall mounted type
 - Floor type
- Maximum number of connectable indoor units is depend on the outdoor unit.
- Non-polar 2-wired remote controller and Polar 3-wired remote controller cannot be connected within same group connection.