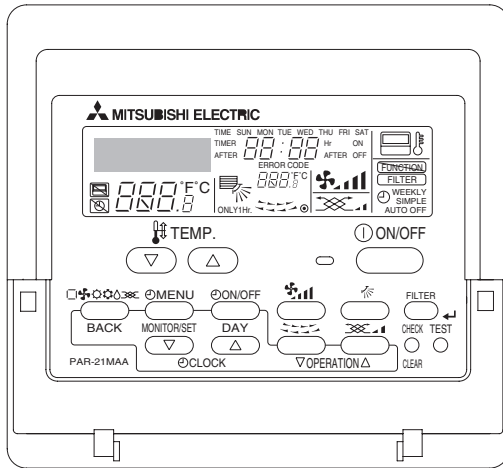


[1] Microprocessor Control

1. Cool operation



<How to operate>

1. Press POWER [ON/OFF] button.
2. Press the operation [Mode] button to display COOL.
3. Press the [Set Temperature] button to set the desired temperature.

Note

The set temperature changes 2°F when the [Set Temperature] button is pressed one time. Cooling 67 to 87°F

1. Thermoregulating function

(1) Thermoregulating function (Function to prevent restarting for 3 minutes)

- Room temperature $\geq$ desired temperature + 2°F ...Thermo ON
- Room temperature $\leq$ desired temperature ...Thermo OFF

(2) Anti-freezing control

•Detected condition :

When the liquid pipe temp. (TH22) is 32°F or less in 16 minutes from compressors start up, anti-freezing control starts and the thermo OFF.

•Released condition :

The timer which prevents reactivating is set for 3 minutes, and anti-freezing control is cancelled when any one of the following conditions is satisfied.

- 1) Liquid pipe temp. (TH22) turns 50°F or above.
- 2) The condition of the thermo OFF has become complete by thermoregulating, etc.
- 3) The operation modes became mode other than COOL.
- 4) The operation stopped.

2. Fan

(1) By the remote controller setting (switch of 3 speeds+Auto)

Type	Fan speed notch
3 speeds + Auto type	[Low], [Med], [High], [Auto]

- When [Auto] is set, fan speed is changed depending on the value of: Room temperature - Desired temperature

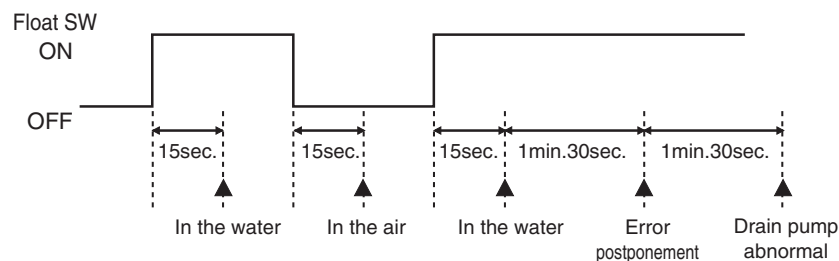
3. Drain pump

(1) Drain pump control

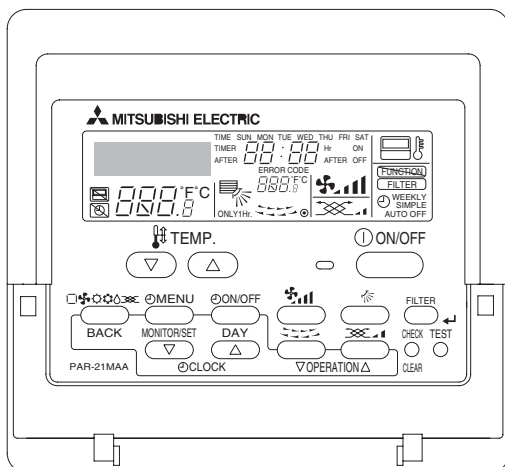
- Always drain pump ON during the COOL and DRY mode operation. (Regardless of the thermo ON/ OFF)
- When the operation mode has changed from the COOL or DRY to the others (including Stop), OFF the control after the drain pump ON for 3 minutes.

(2) Float switch control

- Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF.
In the water : Detected that the float switch is ON for 15 seconds.



2. Dry operation



<How to operate>

1. Press POWER [ON/OFF] button.
2. Press the operation [Mode] button to display DRY.
3. Press the [Set Temperature] button to set the desired temperature.

Note

The set temperature changes 2°F when the [Set Temperature] button is pressed one time. Dry 67 to 87°F

1. Termoregulating function

- (1) Thermo regulating function (Function to prevent restarting for 3 minutes)

- ◆Setting the Dry thermo by the thermo regulating signal and the room temperature (TH21).

Dry thermo ON Room temperature $\geq$ desired temperature + 2°F

Dry thermo OFF Room temperature $\leq$ desired temperature

Room temperature	3 min. passed since starting operation		Dry thermo ON time (min)	Dry thermo OFF time (min)
	Thermo regulating signal	Room temperature (T1)		
Over 64°F	ON	T1 ≥ 83°F	9	3
		83°F > T1 ≥ 79°F	7	3
		79°F > T1 ≥ 75°F	5	3
		75°F > T1	3	3
	OFF	Unconditional	3	10
Less than 64°F	Dry thermo OFF			

- (2) Frozen prevention control

- ◆ No control function

2. Fan

- (1) Indoor fan operation controlled depends on the compressor conditions.

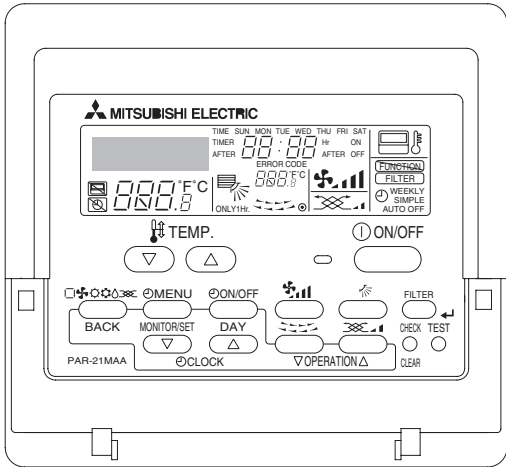
Dry thermo	Fan speed notch	
ON	[Low]	
OFF	Excluding the following	Stop
	Room temp. < 64°F	[Low]

Note

Remote controller setting is not acceptable.

- 3. Drain pump
- (1) Same control as COOL operation

3. Fan operation



<How to operate>

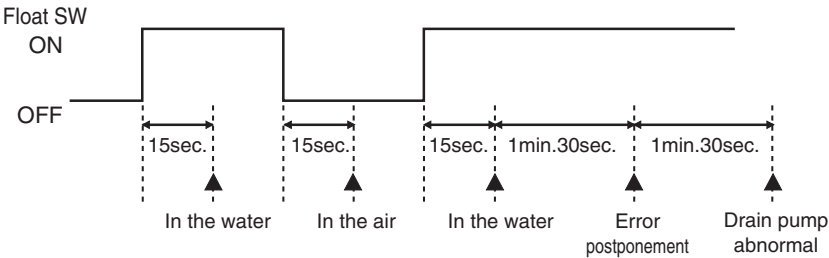
- 1. Press POWER [ON/OFF] button.
- 2. Press the operation [Mode] button to display FAN.

- 1. Fan
- (1) Set by remote controller.

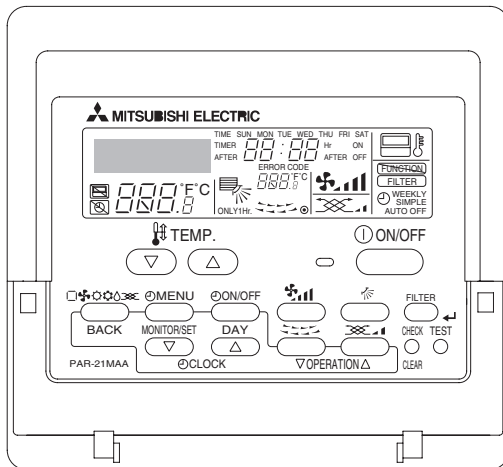
Type	Fan speed notch
3 speeds + Auto type	[Low], [Med], [High], [Auto]

♦When [Auto] is set, fan speed becomes [Low].

- 2. Drain pump
- (1) Drain pump control
 - ♦The drain pump turns ON for the specified amount of time when any of the following conditions is met:
 - 1) ON for 3 minutes after the operation mode is switched from COOL or DRY to another operation mode (FAN).
 - 2) ON for 6 minutes after the float switch is submerged in the water when the float switch control judges the sensor is in the water.
- (2) Float switch control
 - ♦Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF.
 - In the water : Detected that the float switch is ON for 15 seconds.
 - In the air : Detected that the float switch is OFF for 15 seconds.



4. Heat operation



<How to operate>

1. Press POWER [ON/OFF] button.
2. Press the operation [Mode] button to display HEAT.
3. Press the [Set Temperature] button to set the desired temperature.

Note

The set temperature changes 2°F when the [Set Temperature] button is pressed one time. Heating 63 to 83°F.

<Display in HEAT operation>

[DEFROST]

The [DEFROST] symbol is only displayed during the defrost operation.

[STANDBY]

The [STANDBY] symbol is only displayed during the hot adjust mode.

1. Thermoregulating function

(1) Thermoregulating function (Function to prevent restarting for 3 minutes)

- ♦Room temperature $\leq$ desired temperature -2°F ...Thermo ON
- ♦Room temperature $\geq$ desired temperature ...Thermo OFF

2. Fan

(1) By the remote controller setting (switch of 3 speeds+Auto)

Type	Fan speed notch
3 speeds + Auto type	[Low], [Med], [High], [Auto]

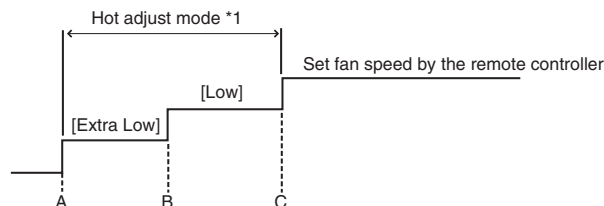
- ♦When [Auto] is set, fan speed is changed depending on the value of:
Desired temperature - Room temperature
Give priority to under-mentioned controlled mode

- 1) Hot adjust mode
- 2) Preheating exclusion mode
- 3) Thermo OFF mode (When the compressor off by the thermoregulating)
- 4) Cool air prevention mode (Defrosting mode)
- 5) Capacity increasing mode

(2) Hot adjust mode

- ♦The fan controller becomes the hot adjuster mode for the following conditions.

- 1) When starting the HEAT operation
- 2) When the thermoregulating function changes from OFF to ON.
- 3) When release the HEAT defrosting operation



A: Hot adjust mode starts.

B: 5 minutes have passed since the condition A or the indoor liquid pipe temperature turned 95°F or more.

C: 2 minutes have passed since the condition A. (Terminating the hot adjust mode)

Note

*1 "STAND BY" will be displayed during the hot adjust mode.

(3) Preheating exclusion mode

- ♦When the condition changes the auxiliary heater ON to OFF (thermoregulating or operation stop, etc.), the indoor fan operates in [Low] mode for 1 minute.

Note

This control is same for the model without auxiliary heater.

(4) Thermo OFF mode

♦When the thermoregulating function changes to OFF, the indoor fan operates in [Extra low].

(5) Heat defrosting mode

♦The indoor fan stops.

3. Drain pump

(1) Drain pump control

♦The drain pump turns ON for the specified amount of time when any of the following conditions is met:

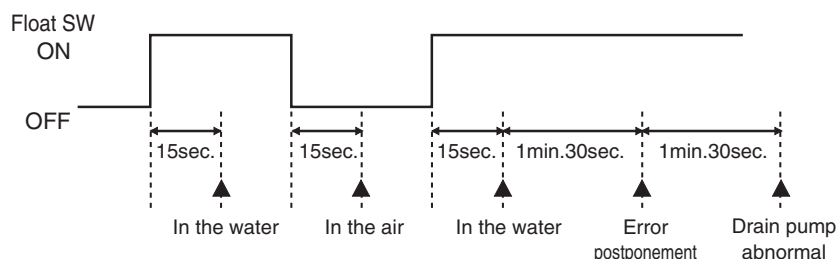
- 1) ON for 3 minutes after the operation mode is switched from COOL or DRY to another operation mode (FAN).
- 2) ON for 6 minutes after the float switch is submerged in the water when the float switch control judges the sensor is in the water.

(2) Float switch control

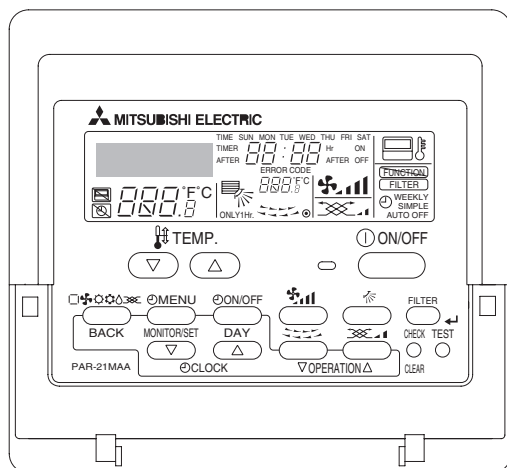
♦Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF.

In the water : Detected that the float switch is ON for 15 seconds.

In the air : Detected that the float switch is OFF for 15 seconds.



5. Auto operation [Automatic cool / heat change over operation]



<How to operate>

1. Press POWER [ON/OFF] button.
2. Press the operation [Mode] button to display AUTO.
3. Press the [Set Temperature] button to set the desired temperature.

Note

The set temperature changes 2°F when the [Set Temperature] button is pressed one time. Automatic 67 to 83°F

1. Initial value of operation mode

- (1) HEAT mode for room temperature < Desired temperature
- (2) COOL mode for room temperature ≥ Desired temperature

2. Mode change

- (1) HEAT mode -> COOL mode
Room temperature ≥ Desired temperature + 3°F. or 3 min. has passed
- (2) COOL mode -> HEAT mode
Room temperature ≤ Desired temperature - 3°F. or 3 min. has passed

3. COOL mode

- (1) Same control as cool operation

4. HEAT mode

(1) Same control as heat operation

The value "3°F" is modifiable from 1.8°F to 9°F by maintenance tool.

6. When unit is stopped control mode

1. Drain pump

(1) Drain pump control

♦The drain pump turns ON for the specified amount of time when any of the following conditions is met:

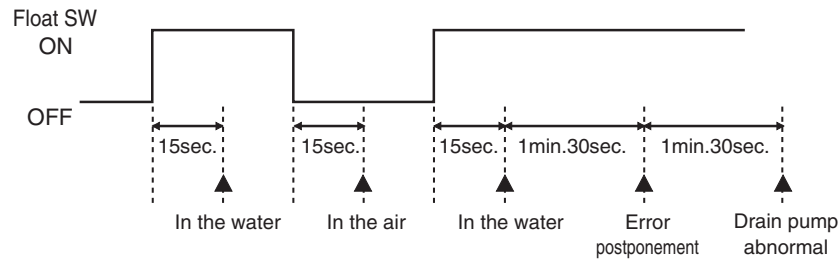
- 1) ON for 3 minutes after the operation mode is switched from COOL or DRY to another operation mode (FAN).
- 2) ON for 6 minutes after the float switch is submerged in the water when the float switch control judges the sensor is in the water.

(2) Float switch control

♦Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF.

In the water : Detected that the float switch is ON for 15 seconds.

In the air : Detected that the float switch is OFF for 15 seconds.



7. Heater control

1. Control specifications and DIP S/W setting

♦Table 1 shows how the field-installed heater is controlled. Select the desired pattern in the table below, and set the DIP S/W on the outdoor and indoor units as shown in Table 1. See section 3 "Installation" for details. The table below shows Heater Control patterns #A and B.

Table.2

Outdoor unit setting	Condition of outdoor unit		Duct unit PE/PD/PF-NR(NL) ↑ (PEFY- P06,08,12,15,18,24,27,30,36,48, 54NMAU-E)		NON duct unit (PL/PK/PC)
DIP S/W OFF In the case of: <TGMU> S/W5-2 OFF <THMU> S/W5-10 OFF <PUMY> S/W4-4 OFF	N / A		DIP S/W3-4 OFF (Indoor unit)	Heater control #A (defrost/error: Heater OFF)	Heater control #A (defrost/error: Heater ON)
			DIP S/W3-4 ON (Indoor unit)	Heater control #A (defrost/error: Heater ON)	
DIP S/W ON In the case of: <TGMU> S/W5-2 ON <THMU> S/W5-10 ON <PUMY> S/W4-4 ON	Parameters a/b/c/d are set by maintenance tool.	Normal drive	Heater OFF		Heater OFF
		Defrost drive H/P drive H/P stop	DIP S/W3-4 OFF (Indoor unit)	Heater control #A (defrost/error: Heater OFF)	Heater control #B (defrost/error: Heater ON)
			DIP S/W3-4 ON (Indoor unit)	Heater control #B (defrost/error: Heater ON)	

Table.3

Heater control #A	Heater OFF Inlet air temp. $\geq$ set temp. Heater ON Inlet air temp. $<$ set temp.-4°F	Heater control #B	Heater OFF Inlet air temp. $\geq$ set temp. Heater ON Inlet air temp. $<$ set temp.-1.8°F
Inlet air temp. Heater output ON OFF Set temp. Set temp.-1.8°F Set temp.-4°F		Inlet air temp. Heater output ON OFF Set temp. Set temp.-1.8°F	
Note <For heater> The value "4°F" is modifiable from 1.8°F to 9°F by maintenance tool.			

Note

(1) On the ducted model units (except the Fresh air intake type), turning on the heater with the fan setting set to OFF requires that the DIP S/W and connectors on the indoor units*1 are set on site.

*1: DIP SW 3-4, CN24, and CN4Y (or CN22)

Fan control

Pattern	Duct unit PE/PD/PF-NR(NL) ↑ (PEFY-NMSU-E, PEFY-NMAU-E)		
	CN4Y or CN22 for FAN control (YU25)	DIP S/W3-4 (Indoor unit)	Fan in defrost
1	Disabled	OFF	Stop (Heater OFF)
2		ON	L / LL / Set*1 (Heater ON)
3	Enabled	OFF	Stop (Heater OFF)
4		ON	Stop (Heater ON)

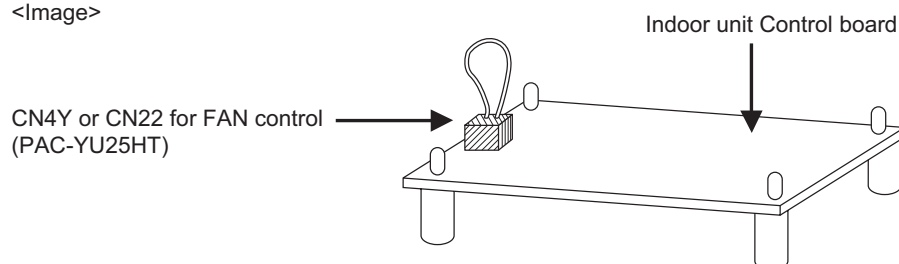
*1. depend on SW1-7/1-8

SW3-1	SW1-7	SW1-8	Fan speed*1
OFF	OFF	OFF	Very low
OFF	ON	OFF	Low
OFF	OFF	ON	Remote controller setting
OFF	ON	ON	Stop (Remote controller setting*2)
ON	ON	ON	Stop (Remote controller setting*2)

*1. The fan operates at the same speed settings as shown in this table during the Heating Thermo-OFF mode.

*2. If Pattern 2 in the table above is selected for the fan control pattern, the fan will follow the setting of the remote controller.

<Image>



- (2) On the Fresh air intake type units, the heater cannot be turned on with the fan setting set to OFF.
- (3) Non-ducted models do not require the settings described in Section (1) above.

♦Reference (not applicable to the ducted models)

Pattern	NON duct unit (PL/PK/PC)		
	CN4Y or CN22 for FAN control (YU25)*1	DIP S/W (Indoor unit)	Fan in defrost
1	N/A	N/A	Stop (Heater ON)

*1. Refer to Section 5 "Dipswitch Setting" for further information about each switch.

- (4) Back-up heating will not be performed when the heater turns on while demand control is performed (not a request item).
- (5) This is applicable only to the R410 series. Make the settings for the following dip switches on the outdoor unit control board before switching on the power.

Note

This is applicable only to the R410A series. Make the settings for the following dip switches on the indoor unit control board before switching on the power.

2. PAC-YU25HT (Optional Parts) installation

The following section describes installation of the External Heater Adapter that connects to CITY MULTI air conditioner R410A series indoor unit. This products is the special wiring parts to drive an electric heater with the air conditioner.

(1) Parts list

♦Check that the following parts are included in the package.

- 1) External output cable (with a yellow connector).....2 in total
Two types of cables with different connectors are included.
- 2) Panel heater connector..... 3 in total
White: 1
Green: 2 (2 types)

(2) Connection to the indoor unit

♦Use the cables that fit the connectors on the indoor unit control board. The items listed in this parts list cannot be used with the following models.

PMFY-BM
PMFY-AM

1) External output cable (with a yellow connector)

This cable is used to connect a relay circuit for an interlocked operation with either an electric or a panel heater. Connect the cable to CN24 on the indoor unit control board.

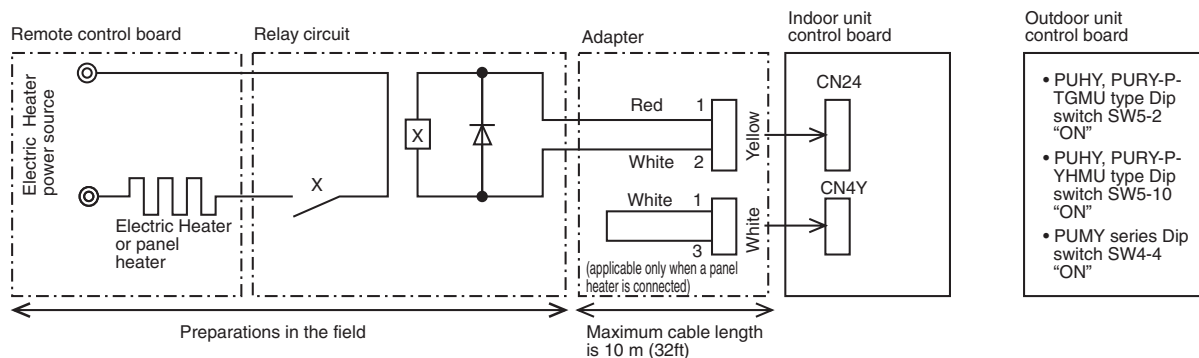
2) Panel heater connector (with a green connector)

This connector is used to perform an interlocked operation with a panel heater. Depending on the indoor unit control board specification, connect the cable either to CN4Y or CN22 as appropriate.

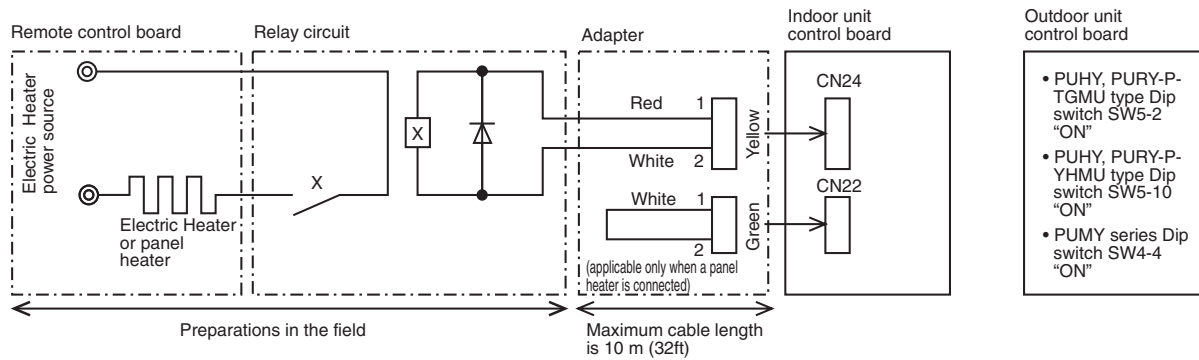
(3) Locally procured wiring

♦A basic connection method is shown below.

1) PEFY-P-NMSU-E and other models

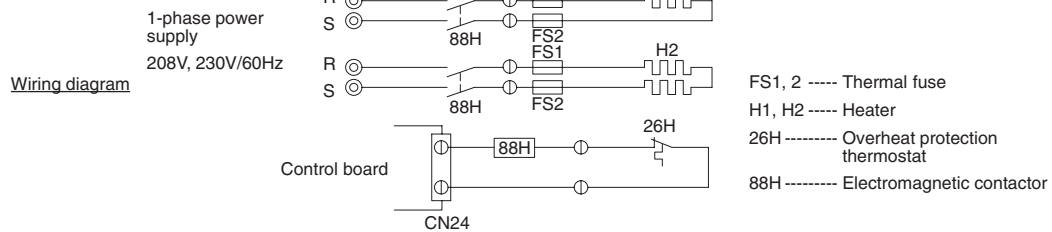


2) PEFY-P-NMAU-E, PEFY-P-NMHU-E, PDFY-P-NMU-E and other models



- ♦ For relay X use the specifications given below Operation coil
- Rated voltage: 12VDC
- Power consumption: 0.9W or less
- * Use the diode that is recommended by the relay manufacturer at both ends of the relay coil.
- ♦ The length of the electrical wiring for the PAC-YU25HT is 2 meters (6-1/2 ft.)
- ♦ To extend this length, use sheathed 2-core cable.
- Control cable type: CVV, CVS, CPEV or equivalent.
- Cable size: 0.5 mm² ~ 1.25 mm² (16 to 22 AWG)
- Don't extend the cable more than 10 meters (32ft)

Recommended circuit



(4) Wiring restrictions

- ♦ Keep the length of the cable connecting to the circuit board of the indoor unit shorter than 10 meters (32ft).
- ♦ Longer than 10 meters (32ft) could cause improper operation.
- ♦ Use a transit relay when extending wiring such as remote wiring.