

MITSUBISHI ELECTRIC

Air-Conditioners For Building Application

External Heater Adapter

PAC-YU25HT



Installation Manual

R410A Series

This manual describes installation of the PAC-YU25HT that connects to CITY MULTI R410A series indoor units. This product is the special adapter necessary to operate an electric heater with the air conditioner. Please refer to the technical manual for further details. For your safety, be sure to read "1 Safety Precaution" described below thoroughly before installing the PAC-YU25HT.

1 Safety Precaution

- The following two symbols are used to denote dangers that may be caused by incorrect use.

 WARNING	This symbol denotes what could lead to serious injury or death if you misuse the PAC-YU25HT.
 CAUTION	This symbol denotes what could lead to a personal injury or property damage if you misuse the PAC-YU25HT.

- After reading this instruction manual, keep it in a place where the end user can find it anytime he or she wants to it. When someone moves, repairs or uses the PAC-YU25HT, make sure that this manual is forwarded to the final user.

WARNING

Ask your dealer or technical representative to install the unit.

Any deficiency caused by your own installation may result in an electric shock or fire.

Ensure that installation work is done correctly following this instruction manual

Any deficiency caused by installation may result in an electric shock or fire.

Firmly connect the wiring using the specified cables.

Carefully check that the cables do not exert any forces on the terminals.

Improper wiring connections may produce heat and possibly a fire.

Never modify or repair the PAC-YU25HT.

Any deficiency caused by your modification or repair may result in an electric shock or fire.

Consult with your dealer about repair.

All electrical work must be performed by a licenced technician, according to local regulations and the instructions given in this manual.

Any lack of electric circuit or any deficiency caused by installation may result in an electric shock or fire.

Do not move and re-install the PAC-YU25HT yourself.

Any deficiency caused by installation may result in an electric shock or fire. Ask your distributor or special vendor for moving and installation.

Cease operation if malfunction occurs.

If malfunction occurs (burning smell, etc.) stop the operation and turn off the power supply. Contact your dealer or technical representative. If the controller continues to operate after a malfunction occurs, this may cause damage, electric shock or fire.

Do not turn on the main power until installation has been completed.

Doing so may result in electric shock or fire.

Leave sufficient space between heater and indoor unit to allow for air movement to prevent the indoor unit from overheating.

If they are installed too closely and the indoor unit temperature exceeds 40 °C (104 °F), malfunctions or fire may result.

Keep the heater clean to keep the indoor unit from sucking in accumulated dust on the heater.

Dust particles that enter the indoor unit may cause fire.

When air conditioner and heater are configured to perform an inter-locked operation, do not use any other type of cables.

The use of any other type of cables may result in malfunctions or fire.

Do not install a heater inside the indoor unit.

Doing so may result in fire.

CAUTION

Do not install in any place exposed to flammable gas leakage.

Flammable gases accumulated around the body of above PAC-YU25HT may cause an explosion.

Do not use in any special environment.

Using in any place exposed to oil (including machine oil), steam and sulfuric gas may deteriorate the performance significantly or give damage to the component parts.

Wire so that it does not receive any tension.

Tension may cause wire breakage, heating or fire.

Do not install in any place where acidic or alkaline solution or special spray are often used.

Doing so may cause an electric shock or malfunction.

Do not install in any steamy place such a bathroom or kitchen.

Avoid any place where moisture is condensed into dew. Doing so may cause an electric shock or malfunction.

Do not wash with water.

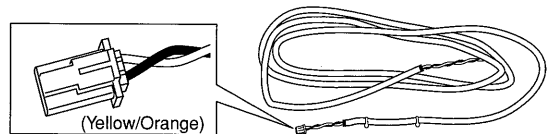
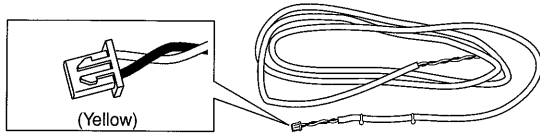
Doing so may cause an electric shock or malfunction.

Do not install in any place at a temperature of more than 40 °C (104 °F) or less than 0 °C (32 °F) or exposed to direct sunlight.

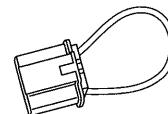
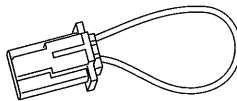
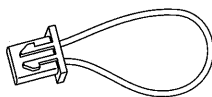
2 Parts list

This Installation Manual and the parts listed below are included with the PAC-YU25HT.

- (1) External output cable 2 cables total
 ① CN24 without lock mechanism (Yellow) : 1 ② CN24 with lock mechanism (Yellow/Orange) : 1



- (2) Fan control connector 3 connectors total
 ① CN22 without lock mechanism (Green) : 1 ② CN22 with lock mechanism (Green) : 1 ③ CN4Y (White) : 1



3 Connecting to the Indoor Unit

Use the chart below to see which external output cable and fan control connector is compatible with each indoor unit.

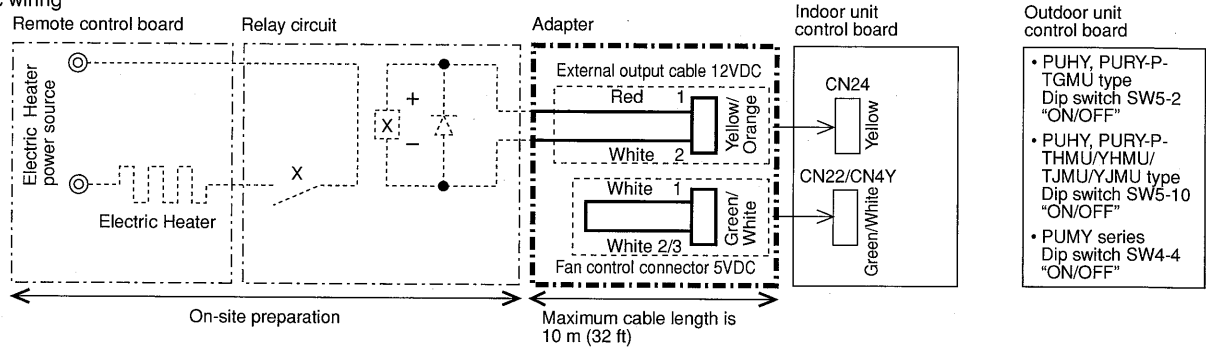
- (1) External output cable
 Use these cables to connect the unit with a relay for interlocked heater operation.
 Connect to CN24 on the indoor unit.
- (2) Fan control connector
 These connectors are for exclusive use with ducted units and are used to stop the indoor unit fan when interlocking with the heater. Select one of the connectors according to the unit model, and connect to CN22 or CN4Y.

Compatibility chart

Model		Parts				
		(1) External output cable		(2) Fan control connector (for use with ducted models only)		
		① CN24 without lock mechanism	② CN24 with lock mechanism	① CN22 without lock mechanism	② CN22 with lock mechanism	③ CN4Y
Ducted unit	PEFY-P-NMAU-E		✓		✓	
	PEFY-P-NMSU-E		✓			✓
	PEFY-P-NMHU-E	✓		✓		
	PFFY-P-NEMU-E	✓		✓		
	PFFY-P-NRMU-E	✓		✓		
	PVfy-P-E00A		✓		✓	
Non ducted unit	PLFY-P-NLMU-E		✓			
	PLFY-P-NCMU-E		✓			
	PLFY-P-NBMU-E		✓			
	PMFY-P-NBMU-E		✓			
	PCFY-P-NKMU-E		✓			
	PKFY-P-NHMU-E		✓			
	PKFY-P-NKMU-E		✓			

4 Field-supplied Wiring

(1) Basic wiring



Use X relay having the following specifications

Rated voltage : 12VDC

Power consumption : 0.9W or less

* Always insert a diode on both ends the relay coil.

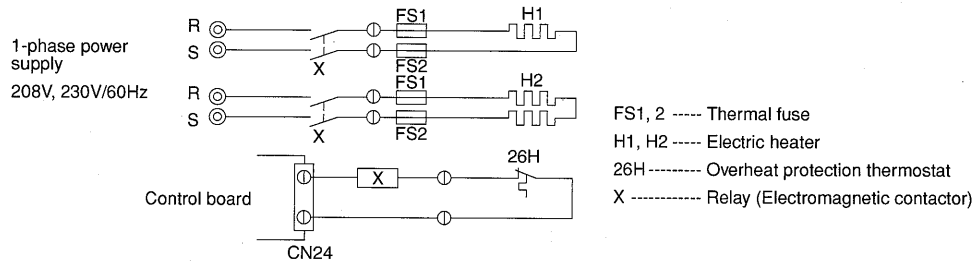
The length of the electrical wiring for the PAC-YU25HT is 2 meters (6-1/2 ft).

For longer lengths, up to no more than 10 m (32ft), 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)

(2) Recommended circuit



5 Wiring Restrictions

Any cable the length of cable connecting the heater adapter 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 the wiring.

6 Control specifications and DIP Switch settings

*Table 1 shows how the field-installed heater is controlled. Select the desired operation in the table below, and set the DIP S/W on the outdoor and indoor units as shown in Table 1. Table 2 shows Heater Control patterns #A and B.

Table.1

Outdoor unit setting	Condition of outdoor unit	Ducted unit (PEFY-NMSU-E, PEFY-NMHU-E, PVFY, PEFY-NMAU-E, PFFY-NEMU-E, PFFY-NRMU-E)		NON ducted unit (PL/PK/PC/PM)
DIP S/W OFF In the case of: • TGMU: S/W5-2 OFF • THMU/YHMU /TJMU/YJMU: S/W5-10 OFF • PUMY: S/W4-4 OFF	Applies to ALL Condenser unit models. N/A	DIP S/W3-4 OFF (Indoor unit)	Heater control #A (defrost/error: Heater OFF)	Heater control #A (defrost/error: Heater ON)*1
		DIP S/W3-4 ON (Indoor unit)*2	Heater control #A (defrost/error: Heater ON)	
DIP S/W ON In the case of: • TGMU: S/W5-2 ON • THMU/YHMU /TJMU/YJMU: S/W5-10 ON • PUMY: S/W4-4 ON	Applies to ONLY Air Cooled Condenser unit models that have OA sensor. <p>Condition of O/U</p> <p>Normal drive Defrost drive H/P drive H/P stop</p> <p>a b c d Outdoor temp. Parameters a/b/c/d are set by Maintenance Tool.</p>	Normal drive	Heater OFF	
		Defrost drive H/P drive H/P stop	DIP S/W3-4 OFF (Indoor unit)	Heater control #A (defrost/error: Heater OFF)
	DIP S/W3-4 ON (Indoor unit)*2	Heater control #B (defrost/error: Heater ON)		

*1 DIP S/W3-4 setting on NON ducted unit is used for Vane Control function. DIP S/W3-4 setting is not required.

*2 For ducted units when S/W3-4 is ON, heater is ON in defrost mode.

Table.2

Heater control #A	Heater OFF Inlet air temp. \geq set temp. Heater ON Inlet air temp. $<$ set temp. #-4°F (2°C)	Heater control #B	Heater OFF Inlet air temp. \geq set temp. Heater ON Inlet air temp. $<$ set temp. #-1.8°F (1°C)
<p>Set temp. # (Room temperature setting) Set temp. #-1.8°F (1°C) Set temp. #-4°F (2°C)</p> <p>Heater output ON OFF</p>		<p>Set temp. # (Room temperature setting) Set temp. #-1.8°F (1°C)</p> <p>Heater output ON OFF</p> <p>The heater operation interlocks with the Thermo-ON/OFF mode on the indoor units.</p>	
<p>Note: <For heater> The value "4°F (2°C)" is modifiable from 1.8°F (1°C) to 9°F (5°C) by maintenance tool.</p>			

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 SW3-4, CN24, and CN4Y (or CN22)

Table.3 Fan control in defrost

Pattern	Duct unit (PEFY-NMSU-E, PEFY-NMHU-E, PEFY-NMAU-E, PFFY-NEMU-E, PFFY-NRMU-E, PVFY)		
	CN4Y or CN22 for FAN control (YU25)	DIP S/W3-4 (Indoor unit)	Fan speed in defrost (Heater)
1	Unplugged	OFF	Stop (Heater OFF)
2		ON	See Table.4 (Heater ON)
3	Plugged	OFF	Stop (Heater OFF)
4		ON	Stop (Heater ON)

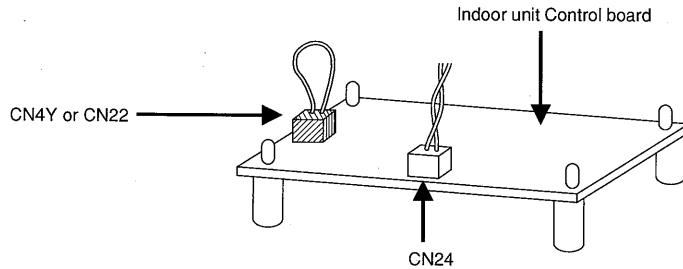
Table.4 Fan speed setting in defrost

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 fan control, the fan will follow the remote controller setting.

<Image>



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

Pattern	NON ducted unit (PLFY/PKFY/PCFY/PMFY)		
	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.

- (4) Back-up heating will not operate when the heater turns on during demand control.
(5) This is applicable only to the R410A series. Make the settings for the following dip switches on the outdoor unit control board before turning on the power.