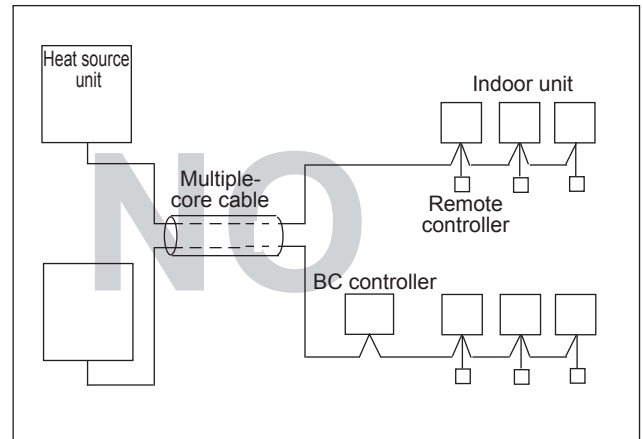
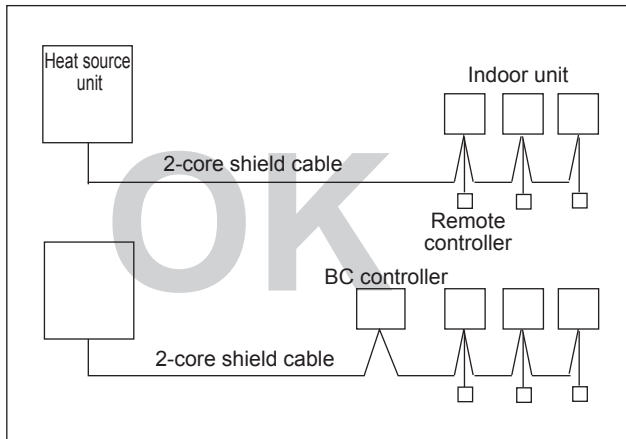


## 10-1. General cautions

- ① Follow ordinance of your governmental organization for technical standard related to electrical equipment, wiring regulations, and guidance of each electric power company.
- ② Wiring for control (hereinafter referred to as transmission cable) shall be (50mm[1-5/8in.] or more) apart from power source wiring so that it is not influenced by electric noise from power source wiring. (Do not insert transmission cable and power source wire in the same conduit.)
- ③ Be sure to provide designated grounding work to Heat source unit.
- ④ Give some allowance to wiring for electrical part box of indoor and Heat source unit, because the box is sometimes removed at the time of service work.
- ⑤ Never connect 380~415V(220~240V) power source to terminal block of transmission cable. If connected, electrical parts will be damaged.
- ⑥ Use 2-core shield cable for transmission cable. If transmission cables of different systems are wired with the same multiple-core cable, the resultant poor transmitting and receiving will cause erroneous operations.
- ⑦ When extending the transmission line, make sure to extend the shield cable as well.



10-2. Power supply for Heat source unit

10-2-1. Electrical characteristics of Heat source unit at cooling mode

Symbols: MCA (Max Circuit Amps)

RLA (Rated Load Amps), SC (Starting Current)

PQHY-P-Y(S)LM	Unit combination	Heat source units				Compressor		RLA(A)	
		Hz	Volts	Voltage range	MCA(A)	Output (kW)	SC(A)	Cooling 380/400/415V	Heating 380/400/415V
PQHY-P200YLM	-	50/60	380 400 415	Max:456 Min:342	16.1	4.8	8	6.2/5.9/5.7	6.7/6.3/6.1
PQHY-P250YLM	-				16.1	6.2		8.2/7.8/7.5	8.5/8.1/7.8
PQHY-P300YLM	-				18.6	7.7		10.1/9.6/9.3	10.5/10.0/9.6
PQHY-P350YLM	-				23.1	9.5		12.0/11.4/11.0	12.7/12.0/11.6
PQHY-P400YLM	-				27.6	10.7		13.5/12.8/12.4	14.1/13.4/12.9
PQHY-P450YLM	-				32.9	11.6		15.6/14.8/14.3	16.5/15.7/15.1
PQHY-P500YLM	-				39.2	13.0		18.8/17.9/17.2	19.2/18.3/17.6
PQHY-P550YLM	-				40.5	15.0		21.1/20.1/19.3	20.7/19.6/18.9
PQHY-P600YLM	-				40.5	16.1		24.4/23.2/22.3	24.4/23.2/22.4
PQHY-P400YSLM	PQHY-P200YLM				16.1	4.8		6.2/5.9/5.7	6.7/6.3/6.1
	PQHY-P200YLM				16.1	4.8		6.2/5.9/5.7	6.7/6.3/6.1
PQHY-P450YSLM	PQHY-P200YLM				16.1	4.8		6.2/5.9/5.7	6.7/6.3/6.1
	PQHY-P250YLM				16.1	6.2		8.2/7.8/7.5	8.5/8.1/7.8
PQHY-P500YSLM	PQHY-P250YLM				16.1	6.2		8.2/7.8/7.5	8.5/8.1/7.8
	PQHY-P250YLM				16.1	6.2		8.2/7.8/7.5	8.5/8.1/7.8
PQHY-P550YSLM	PQHY-P250YLM				16.1	6.2		8.2/7.8/7.5	8.5/8.1/7.8
	PQHY-P300YLM				18.6	7.7		10.1/9.6/9.3	10.5/10.0/9.6
PQHY-P600YSLM	PQHY-P300YLM				18.6	7.7		10.1/9.6/9.3	10.5/10.0/9.6
	PQHY-P300YLM				18.6	7.7		10.1/9.6/9.3	10.5/10.0/9.6
PQHY-P700YSLM	PQHY-P350YLM				23.1	9.5		12.0/11.4/11.0	12.7/12.0/11.6
	PQHY-P350YLM				23.1	9.5		12.0/11.4/11.0	12.7/12.0/11.6
PQHY-P750YSLM	PQHY-P350YLM				23.1	9.5		12.0/11.4/11.0	12.7/12.0/11.6
	PQHY-P400YLM				27.6	10.7		13.5/12.8/12.4	14.1/13.4/12.9
PQHY-P800YSLM	PQHY-P400YLM				27.6	10.7		13.5/12.8/12.4	14.1/13.4/12.9
	PQHY-P400YLM				27.6	10.7		13.5/12.8/12.4	14.1/13.4/12.9
PQHY-P850YSLM	PQHY-P400YLM				27.6	10.7		13.5/12.8/12.4	14.1/13.4/12.9
	PQHY-P450YLM				32.9	11.6		15.6/14.8/14.3	16.5/15.7/15.1
PQHY-P900YSLM	PQHY-P450YLM	32.9	11.6	15.6/14.8/14.3	16.5/15.7/15.1				
	PQHY-P450YLM	32.9	11.6	15.6/14.8/14.3	16.5/15.7/15.1				

PQHY-P-Y(S)LM-A2

10-3. Power cable specifications

Thickness of wire for main power supply, capacities of the switch and system impedance

	Model	Minimum wire thickness (mm <sup>2</sup> )			Ground-fault interrupter *1	Local switch (A)		Breaker for wiring (A) (Non-fuse breaker)	Max. Permissible System Impedance
		Main cable	Branch	Ground		Capacity	Fuse		
Heat source unit	PQHY-P200YLM	4.0	-	4.0	30A 100mA 0.1sec. or less	25	25	30	*2
	PQHY-P250YLM	4.0	-	4.0	30A 100mA 0.1sec. or less	25	25	30	*2
	PQHY-P300YLM	4.0	-	4.0	30A 100mA 0.1sec. or less	25	25	30	*2
	PQHY-P350YLM	4.0	-	4.0	30A 100mA 0.1sec. or less	25	25	30	*2
	PQHY-P400YLM	4.0	-	4.0	30A 100mA 0.1sec. or less	32	32	30	0.26Ω
	PQHY-P450YLM	6.0	-	6.0	40A 100mA 0.1sec. or less	40	40	40	0.22Ω
	PQHY-P500YLM	6.0	-	6.0	40A 100mA 0.1sec. or less	40	40	40	0.18Ω
	PQHY-P550YLM	10.0	-	10.0	60A 100mA 0.1sec. or less	63	63	60	0.17Ω
Total operating current of the indoor unit	F0 = 16A or less *3	1.5	1.5	1.5	20A current sensitivity *4	16	16	20	(apply to IEC61000-3-3)
	F0 = 25A or less *3	2.5	2.5	2.5	30A current sensitivity *4	25	25	30	(apply to IEC61000-3-3)
	F0 = 32A or less *3	4.0	4.0	4.0	40A current sensitivity *4	32	32	40	(apply to IEC61000-3-3)

\*1 The Ground-fault interrupter should support Inverter circuit.  
The Ground-fault interrupter should combine using of local switch or wiring breaker.

\*2 Meet technical requirements of IEC61000-3-3.

\*3 Please take the larger of F1 or F2 as the value for F0.

F1 = Total operating maximum current of the indoor units × 1.2

F2 = {V1 × (Quantity of Type1)/C} + {V1 × (Quantity of Type2)/C} + {V1 × (Quantity of Type3)/C} + {V1 × (Quantity of Type4)/C} + {V1 × (Quantity of Type5)/C} + {V1 × (Quantity of Type6)/C} + {V1 × (Quantity of Type7)/C} + {V1 × (Quantity of Others)/C}

Indoor unit		V1	V2
Type1	PEFY-VMS, PFFY-VKM, PFFY-VLRMM	18.6	2.4
Type2	PEFY-VMA	38	1.6
Type3	PEFY-P200, 250VMHS	13.8	4.8
Type4	PEFY-P40-140VMHS	26.8	1.6
Type5	PLFY-VBM, PCFY-VKM	19.8	2.4
Type6	PMFY-VBM, PKFY-VKM, PKFY-VHM	9.9	2.4
Type7	PLFY-VEM, PLFY-VFM	17.1	2.4
Others	Other indoor unit	0	0

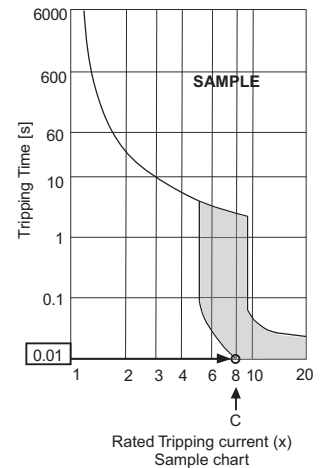
C: Multiple of tripping current at tripping time 0.01s  
Please pick up "C" from the tripping characteristic of the breaker.

<Example of "F2" calculation>

\*Condition PEFY-VMS1 × 4 + PEFY-VMA × 1, C = 8 (refer to right sample chart)

F2 = 18.6 × 4/8 + 38 × 1/8  
= 14.05

→16 A breaker (Tripping current = 8 × 16 A at 0.01s)



\*4 Current sensitivity is calculated using the following formula.

G1 = (V2 × Quantity of Type1) + (V2 × Quantity of Type2) + (V2 × Quantity of Type3) + (V2 × Quantity of Type4) + (V2 × Quantity of Type5) + (V2 × Quantity of Type6) + (V2 × Quantity of Type7) + (V2 × Quantity of Others) + (V3 × Wire length [km])

G1	Current sensitivity	Wire thickness	V3
30 or less	30 mA 0.1sec or less	1.5 mm <sup>2</sup>	48
100 or less	100 mA 0.1sec or less	2.5 mm <sup>2</sup>	56
		4.0 mm <sup>2</sup>	66

- Use dedicated power supplies for the outdoor unit and indoor unit. Ensure OC and OS are wired individually.
- Bear in mind ambient conditions (ambient temperature, direct sunlight, rain water, etc.) when proceeding with the wiring and connections.
- The wire size is the minimum value for metal conduit wiring. If the voltage drops, use a wire that is one rank thicker in diameter. Make sure the power-supply voltage does not drop more than 10%. Make sure that the voltage imbalance between the phases is 2% or less.
- Specific wiring requirements should adhere to the wiring regulations of the region.
- Power supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord (design 245 IEC57). For example, use wiring such as YZW.
- A switch with at least 3 mm contact separation in each pole shall be provided by the Air Conditioner installer.

**WARNING**

- Be sure to use specified wires for connections and ensure no external force is imparted to terminal connections. If connections are not fixed firmly, heating or fire may result.
- Be sure to use the appropriate type of overcurrent protection switch. Note that generated overcurrent may include some amount of direct current.

**CAUTION**

- The breakers for current leakage should support Inverter circuit. (e.g. Mitsubishi Electric's NV-S-Series or equivalent). If no earth leakage breaker is installed, it may cause an electric shock.
- Breakers for current leakage should combine using of switch.
- Do not use anything other than a breaker with the correct capacity. Using a breaker of too large capacity may cause malfunction or fire.
- If a large electric current flows due to malfunction or faulty wiring, earth-leakage breakers on the unit side and on the upstream side of the power supply system may both operate. Depending on the importance of the system, separate the power supply system or take protective coordination of breakers.

**Note**

- This device is intended for the connection to a power supply system with a maximum permissible system impedance shown in the above table at the interface point (power service box) of the user's supply.
- The user must ensure that this device is connected only to a power supply system which fulfils the requirement above. If necessary, the user can ask the public power supply company for the system impedance at the interface point.
- This equipment complies with IEC 61000-3-12 provided that the short-circuit power Ssc is greater than or equal to Ssc(\*2) at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power Ssc greater than or equal to Ssc(\*2).

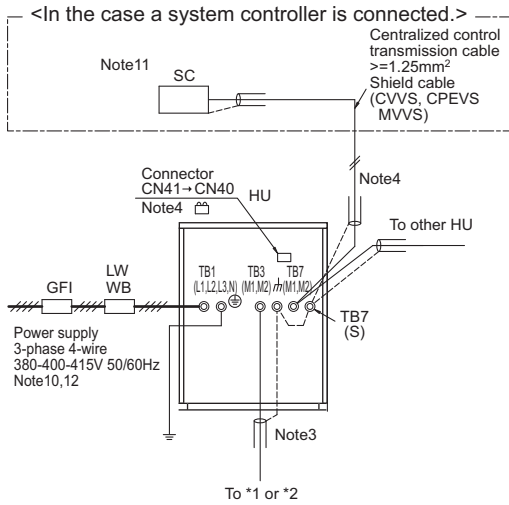
Ssc(\*2)

Model	PQHY-P200YLM	PQHY-P250YLM	PQHY-P300YLM	PQHY-P350YLM	PQHY-P400YLM	PQHY-P450YLM	PQHY-P500YLM	PQHY-P550YLM	PQHY-P600YLM
Ssc (MVA)	1.25	1.25	1.44	1.79	2.14	2.55	3.04	3.14	3.14

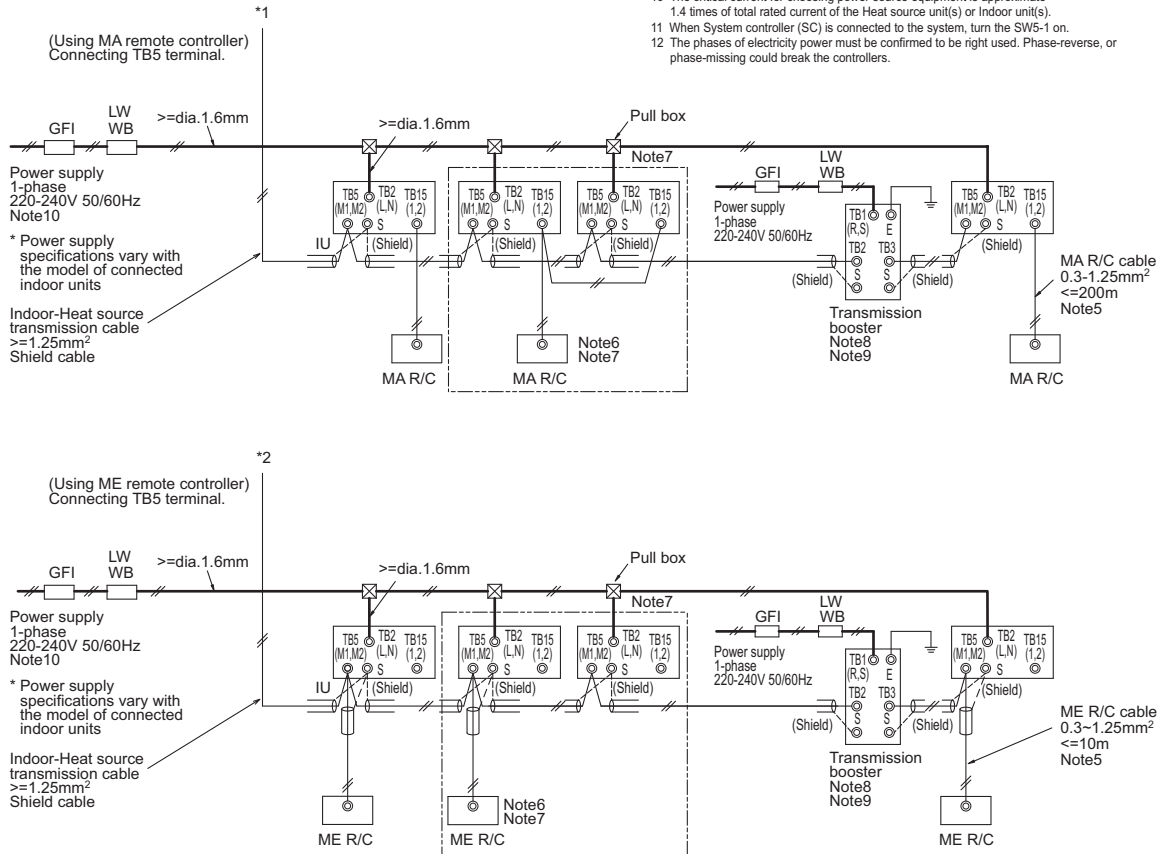
10-4. Power supply examples

The local standards and/or regulations is applicable at a higher priority.

10-4-1. PQHY-P200-600YLM



- Note:
- The transmission cable is not-polarity double-wire.
  - Symbol © means a screw terminal for wiring.
  - The shield wire of transmission cable should be connected to the grounding terminal at Heat source unit. All shield wire of M-Net transmission cable among Indoor units should be connected to the S terminal at Indoor unit or all shield wire should be connected together.  
The broken line at the scheme means shield wire.
  - When the Heat source unit connected with system controller, power-supply to TB7 of the heat source unit(s) is needed. The connector change from CN41 to CN40 at one of the heat source units will enable the heat source unit to supply power to TB7, or an extra power supplying unit PAC-SC51KUA should be used. The transmission cable (above 1.25mm<sup>2</sup>, shielded, CVVS/CPEVS/MVVS) among Heat source units and system controllers is called centralized control transmission cable. The shield wire of the centralized control transmission cable must be grounded at the Heat source unit whose CN41 is changed to CN40. When the power supplying unit PAC-SC51KUA is used, connect the shielded cable to the ground terminal on the PAC-SC51KUA.
  - MA R/C transmission cable (0.3-1.25mm<sup>2</sup>) must be less than 200m in length, while ME R/C transmission cable (0.3-1.25mm<sup>2</sup>) must be less than 10m in length. But transmission cable to the ME R/C can be extended using a M-NET cable (>=1.25mm<sup>2</sup>) when the length is counted in the M-Net length.
  - MA remote controller and ME remote controller should not be grouped together. When a PAR-CT01MA or PAR-3X MA-Series (X indicates 1, 2, ...) is connected to a group, no other MA remote controllers can be connected to the same group.
  - If using 1 or 2 (main/sub) MA remote controller to control more than 1 Indoor unit, use MA transmission cable to connect all the TB15 terminals of the Indoor units. It is called "Grouping".  
If using 1 or 2 (main/sub) ME remote controller control more than 1 indoor unit, set address to Indoor unit and ME remote controller. For the method, refer to 11-4. "Address Setting".
  - Indoor board consumes power from TB3. The power balance should be considered according to System Design 11-3. "System configuration restrictions".
  - If Transmission booster is needed, be sure to connect the shield wires to the both sides to the booster.
  - The critical current for choosing power source equipment is approximate 1.4 times of total rated current of the Heat source unit(s) or Indoor unit(s).
  - When System controller (SC) is connected to the system, turn the SW5-1 on.
  - The phases of electricity power must be confirmed to be right used. Phase-reverse, or phase-missing could break the controllers.



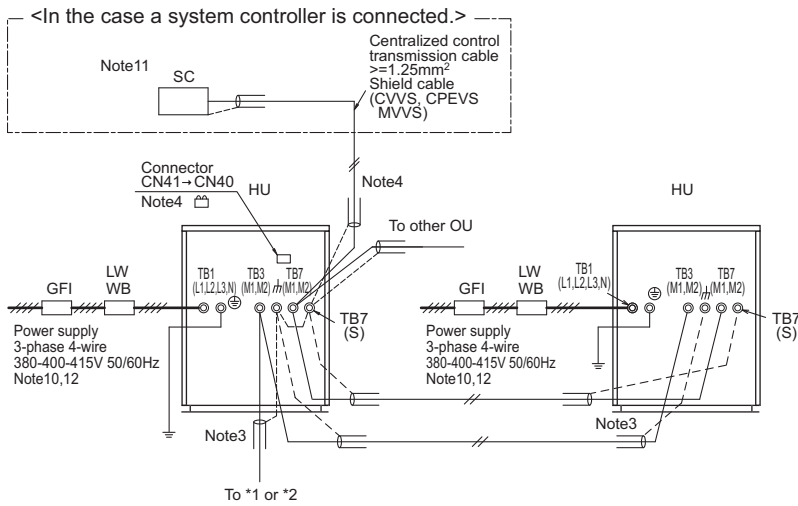
Symbol	Model	Ground-fault interrupter *1, *2, *4	Local switch		Wiring breaker*4 (NFB) <A>	Minimum Wire thickness		
			BKC <A>	OCP*3, *4 <A>		Power wire <mm <sup>2</sup> >	Earth wire <mm <sup>2</sup> >	
GFI	Ground-fault interrupter	PQHY-P200YLM	30A 100mA 0.1sec. or less	25	25	30	4	4
LW	Local switch	PQHY-P250YLM	30A 100mA 0.1sec. or less	25	25	30	4	4
BKC	Breaker capacity	PQHY-P300YLM	30A 100mA 0.1sec. or less	25	25	30	4	4
OCP	Over-current protector	PQHY-P350YLM	30A 100mA 0.1sec. or less	25	25	30	4	4
WB	Wiring breaker	PQHY-P400YLM	30A 100mA 0.1sec. or less	32	32	30	4	4
NFB	Non-fuse breaker	PQHY-P450YLM	40A 100mA 0.1sec. or less	40	40	40	6	6
HU	Heat source unit	PQHY-P500YLM	40A 100mA 0.1sec. or less	40	40	40	6	6
IU	Indoor unit	PQHY-P550YLM	60A 100mA 0.1sec. or less	63	63	60	10	10
SC	System controller	PQHY-P600YLM	60A 100mA 0.1sec. or less	63	63	60	10	10

\*1 The Ground-fault interrupter should support Inverter circuit. (e.g. Mitsubishi Electric's NV-S-Series or equivalent).  
 \*2 Ground-fault interrupter should combine using of local switch or wiring breaker.  
 \*3 It shows data for B-type fuse of the breaker for current leakage.  
 \*4 If a large electric current flows due to malfunction or faulty wiring, earth-leakage breakers on the unit side and on the centralized controller side may both operate.  
 Depending on the importance of the system, separate the power supply system or take protective coordination of breakers.

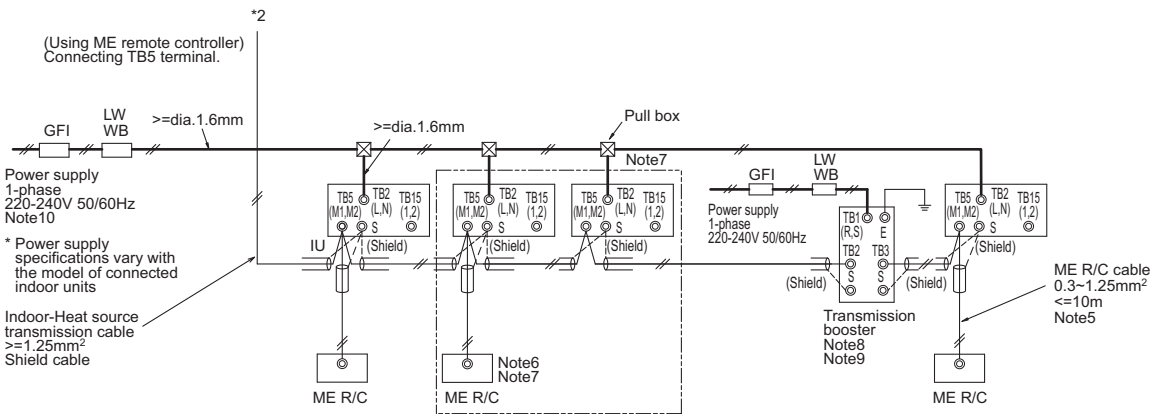
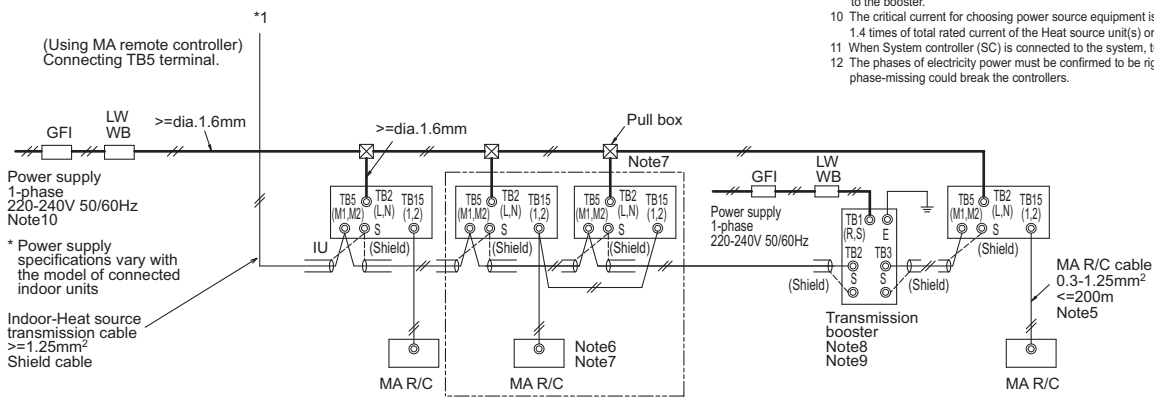
PQHY-P-Y(S)LM-A2

The local standards and/or regulations is applicable at a higher priority.

10-4-2. PQHY-P400-900YSLM



- Note:
- The transmission cable is not-polarity double-wire.
  - Symbol  $\odot$  means a screw terminal for wiring.
  - The shield wire of transmission cable should be connected to the grounding terminal at Heat source unit. All shield wire of M-Net transmission cable among Indoor units should be connected to the S terminal at Indoor unit or all shield wire should be connected together.  
The broken line at the scheme means shield wire.
  - When the Heat source unit connected with system controller, power-supply to TB7 of the heat source unit(s) is needed. The connector change from CN41 to CN40 at one of the heat source units will enable the heat source unit to supply power to TB7, or an extra power supplying unit PAC-SC51KUA should be used. The transmission cable (above  $1.25\text{mm}^2$ , shielded, CVVS/CPEVS/MVVS) among Heat source units and system controllers is called centralized control transmission cable. The shield wire of the centralized control transmission cable must be grounded at the Heat source unit whose CN41 is changed to CN40. When the power supplying unit PAC-SC51KUA is used, connect the shielded cable to the ground terminal on the PAC-SC51KUA.
  - MA R/C transmission cable (0.3-1.25mm<sup>2</sup>) must be less than 200m in length, while ME R/C transmission cable (0.3-1.25mm<sup>2</sup>) must be less than 10m in length. But transmission cable to the ME R/C can be extend using a M-NET cable ( $\geq 1.25\text{mm}^2$ ) when the length is counted in the M-Net length.
  - MA remote controller and ME remote controller should not be grouped together. When a PAR-CT01MA or PAR-3X MA-Series (X indicates 1, 2, ...) is connected to a group, no other MA remote controllers can be connected to the same group.
  - If using 1 or 2 (main/sub) MA remote controller to control more than 1 Indoor unit, use MA transmission cable to connect all the TB15 terminals of the Indoor units. It is called "Grouping".  
If using 1 or 2 (main/sub) ME remote controller control more than 1 indoor unit, set address to Indoor unit and ME remote controller. For the method, refer to 11-4. "Address Setting".
  - Indoor board consumes power from TB3. The power balance should be considered according to System Design 11-3. "System configuration restrictions".
  - If Transmission booster is needed, be sure to connect the shield wires to the both sides to the booster.
  - The critical current for choosing power source equipment is approximate 1.4 times of total rated current of the Heat source unit(s) or Indoor unit(s).
  - When System controller (SC) is connected to the system, turn the SW5-1 on.
  - The phases of electricity power must be confirmed to be right used. Phase-reverse, or phase-missing could break the controllers.



Symbol	Model	Ground-fault interrupter *1, *2, *4	Local switch		Wiring breaker*4 (NFB)	Minimum Wire thickness	
			BKC <A>	OCP*3, *4 <A>		Power wire <mm <sup>2</sup> >	Earth wire <mm <sup>2</sup> >
GFI	PQHY-P200YLM	30A 100mA 0.1sec. or less	25	25	30	4	4
LW	PQHY-P250YLM	30A 100mA 0.1sec. or less	25	25	30	4	4
BKC	PQHY-P300YLM	30A 100mA 0.1sec. or less	25	25	30	4	4
OCP	PQHY-P350YLM	30A 100mA 0.1sec. or less	25	25	30	4	4
WB	PQHY-P400YLM	30A 100mA 0.1sec. or less	32	32	30	4	4
NFB	PQHY-P450YLM	40A 100mA 0.1sec. or less	40	40	40	6	6

\*1 The Ground-fault interrupter should support Inverter circuit. (e.g. Mitsubishi Electric's NV-S-Series or equivalent).

\*2 Ground-fault interrupter should combine using of local switch or wiring breaker.

\*3 It shows data for B-type fuse of the breaker for current leakage.

\*4 If a large electric current flows due to malfunction or faulty wiring, earth-leakage breakers on the unit side and on the centralized controller side may both operate.  
Depending on the importance of the system, separate the power supply system or take protective coordination of breakers.