# OUTDOOR UNITS

# 1. SPECIFICATIONS

| Outdoor Model | | | PURY-P72ZKMU-A (-BS) | |
|---|---|---|---|---|
| Indoor Model | | | Non-Ducted | Ducted |
| Power source | | | 3-phase 3-wire 575 V ±10% 60 Hz | |
| Cooling capacity (Nominal) | *1 | BTU/h | 72,000 | |
| | | kW | 21.1 | |
| | Power input | kW | 4.82 | |
| | (575) Current input | A | 5.3 | |
| | (Rated) | BTU/h | 69,000 | |
| | | kW | 20.2 | |
| | Power input | kW | 4.29 | 4.63 |
| | (575) Current input | A | 4.7 | 5.1 |
| Temp. range of cooling | Indoor | W.B. | 59~75°F (15~24°C) | |
| | Outdoor | D.B. | 23~115°F (-5~46°C) | |
| Heating capacity (Nominal) | *2 | BTU/h | 80,000 | |
| | | kW | 23.4 | |
| | Power input | kW | 5.89 | |
| | (575) Current input | A | 6.5 | |
| | (Rated) | BTU/h | 76,000 | |
| | | kW | 22.3 | |
| | Power input | kW | 5.13 | 5.77 |
| | (575) Current input | A | 5.7 | 6.4 |
| Temp. range of heating | Indoor | D.B. | 59~81°F (15~27°C) | |
| | Outdoor | W.B. | -4~60°F (-20~15.5°C) | |
| Indoor unit connectable | Total capacity | | 50~150% of outdoor unit capacity | |
| | Model/Quantity | | P06~P96/1~18 | |
| Sound pressure level (measured in anechoic room) | | dB <A> | 58.0 | |
| Refrigerant piping diameter | High pressure | in. (mm) | 5/8 (15.88) Brazed | |
| | Low pressure | in. (mm) | 3/4 (19.05) Brazed | |
| Minimum Circuit Ampacity | | A | 11 | |
| Maximum Overcurrent Protection | | A | 15 | |
| FAN | Type x Quantity | | Propeller fan x 1 | |
| | Airflow rate | cfm | 6,550 | |
| | | $m^3$/min | 185 | |
| | | L/s | 3,080 | |
| | Control, Driving mechanism | | Inverter-control, Brushless DC motor | |
| | Motor output | kW | 0.92 | |
| *3 | External static press. | | 0 in.WG (0 Pa) | |
| Compressor | Type x Quantity | | Inverter scroll hermetic compressor | |
| | Manufacture | | AC&R Works, MITSUBISHI ELECTRIC CORPORATION | |
| | Starting method | | Inverter | |
| | Motor output | kW | 4.7 | |
| | Case heater | kW | - | |
| | Lubricant | | MEL32 | |
| External finish | | | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> | |
| External dimension H x W x D | | in. | 64-31/32 x 36-1/4 x 29-5/32 | |
| | | mm | 1,650 x 920 x 740 | |
| Protection devices | High pressure protection | | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) | |
| | Inverter circuit (COMP./FAN) | | Over-current protection | |
| | Fan motor | | - | |
| Refrigerant | Type x original charge | | R410A x 21 lbs (9.5 kg) | |
| | Control | | Indoor LEV and BC controller | |
| Net weight | | lbs (kg) | 508 (230) | |
| Heat exchanger | | | Salt-resistant cross fin & copper tube | |
| HIC circuit (HIC: Heat Inter-Changer) | | | - | |
| Defrosting method | | | Auto-defrost mode (Reversed refrigerant cycle) | |
| Drawing | External | | KS94C313 | |
| | Wiring | | KE94G117 | |
| Standard attachment | Document | | Installation Manual | |
| | Accessory | | Details refer to External Drw | |
| Optional parts | | | joint: CMY-Y102SS-G2,CMY-Y102LS-G2,CMY-R160-J1<br>BC controller: CMB-P104,105,106,108,1010,1013,1016NU-G1<br>Main BC controller: CMB-P108,1010,1013,1016NU-GA1,CMB-P108,1010,1016NU-HA1<br>Sub BC controller: CMB-P104,108NU-GB1,CMB-P1016NU-HB1 | |
| Remarks | | | Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. | |

Notes:

1.Nominal cooling conditions (Test conditions are based on AHRI 1230)
Indoor: 80°FD.B./67°FW.B. (26.7°CD.B./19.4°CW.B.), Outdoor: 95°FD.B. (35°CD.B.)
2.Nominal heating conditions (Test conditions are based on AHRI 1230)
Indoor: 70°FD.B. (21.1°CD.B.), Outdoor: 47°FD.B./43°FW.B. (8.3°CD.B./6.1°CW.B.)
3.External static pressure option is available (0.12 in.WG, 0.24 in.WG/30 Pa, 60 Pa).

* Due to continuing improvement, above specifications may be subject to change without notice.

Unit converter

| | |
|---|---|
| BTU/h | =kW x 3,412 |
| cfm | =$m^3$/min x 35.31 |
| lbs | =kg/0.4536 |

*Above specification data is subject to rounding variation.

R2 575V

| Outdoor Model | | | | PURY-P96ZKMU-A (-BS) | |
|---|---|---|---|---|---|
| Indoor Model | | | | Non-Ducted | Ducted |
| Power source | | | | 3-phase 3-wire 575 V ±10% 60 Hz | |
| Cooling capacity (Nominal) | *1 | | BTU/h | 96,000 | |
| | | | kW | 28.1 | |
| | | Power input | kW | 7.06 | |
| | (575) | Current input | A | 7.8 | |
| | (Rated) | | BTU/h | 92,000 | |
| | | | kW | 27.0 | |
| | | Power input | kW | 6.01 | 7.05 |
| | (575) | Current input | A | 6.7 | 7.8 |
| Temp. range of cooling | | Indoor | W.B. | 59~75°F (15~24°C) | |
| | | Outdoor | D.B. | 23~115°F (-5~46°C) | |
| Heating capacity (Nominal) | *2 | | BTU/h | 108,000 | |
| | | | kW | 31.7 | |
| | | Power input | kW | 8.26 | |
| | (575) | Current input | A | 9.2 | |
| | (Rated) | | BTU/h | 103,000 | |
| | | | kW | 30.2 | |
| | | Power input | kW | 7.29 | 7.99 |
| | (575) | Current input | A | 8.1 | 8.9 |
| Temp. range of heating | | Indoor | D.B. | 59~81°F (15~27°C) | |
| | | Outdoor | W.B. | -4~60°F (-20~15.5°C) | |
| Indoor unit connectable | | Total capacity | | 50~150% of outdoor unit capacity | |
| | | Model/Quantity | | P06~P96/1~24 | |
| Sound pressure level (measured in anechoic room) | | | dB <A> | 58.0 | |
| Refrigerant piping diameter | | High pressure | in. (mm) | 3/4 (19.05) Brazed | |
| | | Low pressure | in. (mm) | 7/8 (22.2) Brazed | |
| Minimum Circuit Ampacity | | | A | 15 | |
| Maximum Overcurrent Protection | | | A | 20 | |
| FAN | | Type x Quantity | | Propeller fan x 1 | |
| | | Airflow rate | cfm | 6,550 | |
| | | | $m^3$/min | 185 | |
| | | | L/s | 3,080 | |
| | | Control, Driving mechanism | | Inverter-control, Brushless DC motor | |
| | | Motor output | kW | 0.92 | |
| | *3 | External static press. | | 0 in.WG (0 Pa) | |
| Compressor | | Type x Quantity | | Inverter scroll hermetic compressor | |
| | | Manufacture | | AC&R Works, MITSUBISHI ELECTRIC CORPORATION | |
| | | Starting method | | Inverter | |
| | | Motor output | kW | 6.6 | |
| | | Case heater | kW | - | |
| | | Lubricant | | MEL32 | |
| External finish | | | | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> | |
| External dimension H x W x D | | | in. | 64-31/32 x 48-1/16 x 29-5/32 | |
| | | | mm | 1,650 x 1,220 x 740 | |
| Protection devices | | High pressure protection | | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) | |
| | | Inverter circuit (COMP./FAN) | | Over-current protection | |
| | | Fan motor | | - | |
| Refrigerant | | Type x original charge | | R410A x 22 lbs + 12 oz (10.3 kg) | |
| | | Control | | Indoor LEV and BC controller | |
| Net weight | | | lbs (kg) | 567 (257) | |
| Heat exchanger | | | | Salt-resistant cross fin & copper tube | |
| HIC circuit (HIC: Heat Inter-Changer) | | | | - | |
| Defrosting method | | | | Auto-defrost mode (Reversed refrigerant cycle) | |
| Drawing | | External | | KS94C314 | |
| | | Wiring | | KE94G117 | |
| Standard attachment | | Document | | Installation Manual | |
| | | Accessory | | Details refer to External Drw | |
| Optional parts | | | | joint: CMY-Y102SS-G2,CMY-Y102LS-G2,CMY-R160-J1<br>BC controller: CMB-P104,105,106,108,1010,1013,1016NU-G1<br>Main BC controller: CMB-P108,1010,1013,1016NU-GA1,CMB-P108,1010,1016NU-HA1<br>Sub BC controller: CMB-P104,108NU-GB1,CMB-P1016NU-HB1 | |
| Remarks | | | | Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. | |

Notes:

1.Nominal cooling conditions (Test conditions are based on AHRI 1230)
Indoor: 80°FD.B./67°FW.B. (26.7°CD.B./19.4°CW.B.), Outdoor: 95°FD.B. (35°CD.B.)
2.Nominal heating conditions (Test conditions are based on AHRI 1230)
Indoor: 70°FD.B. (21.1°CD.B.), Outdoor: 47°FD.B./43°FW.B. (8.3°CD.B./6.1°CW.B.)
3.External static pressure option is available (0.12 in.WG, 0.24 in.WG/30 Pa, 60 Pa).

* Due to continuing improvement, above specifications may be subject to change without notice.

Unit converter

| | |
|---|---|
| BTU/h | =kW x 3,412 |
| cfm | =$m^3$/min x 35.31 |
| lbs | =kg/0.4536 |

*Above specification data is subject to rounding variation.

R2 575V

# 1. SPECIFICATIONS

| Outdoor Model | | | PURY-P120ZKMU-A (-BS) | |
|---|---|---|---|---|
| Indoor Model | | | Non-Ducted | Ducted |
| Power source | | | 3-phase 3-wire 575 V ±10% 60 Hz | |
| Cooling capacity (Nominal) | *1 | BTU/h | 120,000 | |
| | | kW | 35.2 | |
| | Power input | kW | 8.62 | |
| (575) | Current input | A | 9.6 | |
| (Rated) | | BTU/h | 114,000 | |
| | | kW | 33.4 | |
| | Power input | kW | 7.65 | 8.31 |
| (575) | Current input | A | 8.5 | 9.2 |
| Temp. range of cooling | Indoor | W.B. | 59~75°F (15~24°C) | |
| | Outdoor | D.B. | 23~115°F (-5~46°C) | |
| Heating capacity (Nominal) | *2 | BTU/h | 135,000 | |
| | | kW | 39.6 | |
| | Power input | kW | 10.84 | |
| (575) | Current input | A | 12.0 | |
| (Rated) | | BTU/h | 129,000 | |
| | | kW | 37.8 | |
| | Power input | kW | 9.78 | 10.29 |
| (575) | Current input | A | 10.9 | 11.4 |
| Temp. range of heating | Indoor | D.B. | 59~81°F (15~27°C) | |
| | Outdoor | W.B. | -4~60°F (-20~15.5°C) | |
| Indoor unit connectable | Total capacity | | 50~150% of outdoor unit capacity | |
| | Model/Quantity | | P06~P96/1~30 | |
| Sound pressure level (measured in anechoic room) | | dB <A> | 60.0 | |
| Refrigerant piping diameter | High pressure | in. (mm) | 3/4 (19.05) Brazed | |
| | Low pressure | in. (mm) | 1-1/8 (28.58) Brazed | |
| Minimum Circuit Ampacity | | A | 21 | |
| Maximum Overcurrent Protection | | A | 30 | |
| FAN | Type x Quantity | | Propeller fan x 2 | |
| | Airflow rate | cfm | 11,300 | |
| | | $m^3$/min | 320 | |
| | | L/s | 5,330 | |
| | Control, Driving mechanism | | Inverter-control, Brushless DC motor | |
| | Motor output | kW | 0.92+0.92 | |
| *3 | External static press. | | 0 in.WG (0 Pa) | |
| Compressor | Type x Quantity | | Inverter scroll hermetic compressor x 1 | |
| | Manufacture | | AC&R Works, MITSUBISHI ELECTRIC CORPORATION | |
| | Starting method | | Inverter | |
| | Motor output | kW | 8.2 | |
| | Case heater | kW | - | |
| | Lubricant | | MEL32 | |
| External finish | | | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> | |
| External dimension H x W x D | | in. | 64-31/32 x 68-29/32 x 29-5/32 | |
| | | mm | 1,650 x 1,750 x 740 | |
| Protection devices | High pressure protection | | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) | |
| | Inverter circuit (COMP./FAN) | | Over-current protection | |
| | Fan motor | | - | |
| Refrigerant | Type x original charge | | R410A x 26 lbs + 1 oz (11.8 kg) | |
| | Control | | Indoor LEV and BC controller | |
| Net weight | | lbs (kg) | 772 (350) | |
| Heat exchanger | | | Salt-resistant cross fin & copper tube | |
| HIC circuit (HIC: Heat Inter-Changer) | | | - | |
| Defrosting method | | | Auto-defrost mode (Reversed refrigerant cycle) | |
| Drawing | External | | KS94C315 | |
| | Wiring | | KE94G118 | |
| Standard attachment | Document | | Installation Manual | |
| | Accessory | | Details refer to External Drw | |
| Optional parts | | | joint: CMY-Y102SS-G2,CMY-Y102LS-G2,CMY-R160-J1<br>BC controller: CMB-P104,105,106,108,1010,1013,1016NU-G1<br>Main BC controller: CMB-P108,1010,1013,1016NU-GA1,CMB-P108,1010,1016NU-HA1<br>Sub BC controller: CMB-P104,108NU-GB1,CMB-P1016NU-HB1 | |
| Remarks | | | Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. | |

Notes:

1.Nominal cooling conditions (Test conditions are based on AHRI 1230)
Indoor: 80°FD.B./67°FW.B. (26.7°CD.B./19.4°CW.B.), Outdoor: 95°FD.B. (35°CD.B.)
2.Nominal heating conditions (Test conditions are based on AHRI 1230)
Indoor: 70°FD.B. (21.1°CD.B.), Outdoor: 47°FD.B./43°FW.B. (8.3°CD.B./6.1°CW.B.)
3.External static pressure option is available (0.12 in.WG, 0.24 in.WG/30 Pa, 60 Pa).

* Due to continuing improvement, above specifications may be subject to change without notice.

Unit converter

| | |
|---|---|
| BTU/h | =kW x 3,412 |
| cfm | =$m^3$/min x 35.31 |
| lbs | =kg/0.4536 |

*Above specification data is subject to rounding variation.

R2 575V

| Outdoor Model | | | | PURY-P144ZKMU-A (-BS) | |
|---|---|---|---|---|---|
| Indoor Model | | | | Non-Ducted | Ducted |
| Power source | | | | 3-phase 3-wire 575 V ±10% 60 Hz | |
| Cooling capacity (Nominal) | | *1 | BTU/h | 144,000 | |
| | | | kW | 42.2 | |
| | | Power input | kW | 11.13 | |
| | (575) | Current input | A | 12.4 | |
| | (Rated) | | BTU/h | 137,000 | |
| | | | kW | 40.2 | |
| | | Power input | kW | 9.93 | 10.68 |
| | (575) | Current input | A | 11.0 | 11.9 |
| Temp. range of cooling | | Indoor | W.B. | 59~75°F (15~24°C) | |
| | | Outdoor | D.B. | 23~115°F (-5~46°C) | |
| Heating capacity (Nominal) | | *2 | BTU/h | 160,000 | |
| | | | kW | 46.9 | |
| | | Power input | kW | 12.86 | |
| | (575) | Current input | A | 14.3 | |
| | (Rated) | | BTU/h | 152,000 | |
| | | | kW | 44.5 | |
| | | Power input | kW | 11.80 | 12.01 |
| | (575) | Current input | A | 13.1 | 13.3 |
| Temp. range of heating | | Indoor | D.B. | 59~81°F (15~27°C) | |
| | | Outdoor | W.B. | -4~60°F (-20~15.5°C) | |
| Indoor unit connectable | | Total capacity | | 50~150% of outdoor unit capacity | |
| | | Model/Quantity | | P06~P96/1~36 | |
| Sound pressure level (measured in anechoic room) | | | dB <A> | 61.0 | |
| Refrigerant piping diameter | | High pressure | in. (mm) | 7/8 (22.2) Brazed | |
| | | Low pressure | in. (mm) | 1-1/8 (28.58) Brazed | |
| Minimum Circuit Ampacity | | | A | 23 | |
| Maximum Overcurrent Protection | | | A | 35 | |
| FAN | | Type x Quantity | | Propeller fan x 2 | |
| | | Airflow rate | cfm | 11,300 | |
| | | | $m^3$/min | 320 | |
| | | | L/s | 5,330 | |
| | | Control, Driving mechanism | | Inverter-control, Brushless DC motor | |
| | | Motor output | kW | 0.92+0.92 | |
| | *3 | External static press. | | 0 in.WG (0 Pa) | |
| Compressor | | Type x Quantity | | Inverter scroll hermetic compressor x 1 | |
| | | Manufacture | | AC&R Works, MITSUBISHI ELECTRIC CORPORATION | |
| | | Starting method | | Inverter | |
| | | Motor output | kW | 9.5 | |
| | | Case heater | kW | - | |
| | | Lubricant | | MEL32 | |
| External finish | | | | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> | |
| External dimension H x W x D | | | in. | 64-31/32 x 68-29/32 x 29-5/32 | |
| | | | mm | 1,650 x 1,750 x 740 | |
| Protection devices | | High pressure protection | | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) | |
| | | Inverter circuit (COMP./FAN) | | Over-current protection | |
| | | Fan motor | | - | |
| Refrigerant | | Type x original charge | | R410A x 26 lbs + 1 oz (11.8 kg) | |
| | | Control | | Indoor LEV and BC controller | |
| Net weight | | | lbs (kg) | 772 (350) | |
| Heat exchanger | | | | Salt-resistant cross fin & copper tube | |
| HIC circuit (HIC: Heat Inter-Changer) | | | | - | |
| Defrosting method | | | | Auto-defrost mode (Reversed refrigerant cycle) | |
| Drawing | | External | | KS94C315 | |
| | | Wiring | | KE94G118 | |
| Standard attachment | | Document | | Installation Manual | |
| | | Accessory | | Details refer to External Drw | |
| Optional parts | | | | joint: CMY-Y102SS-G2,CMY-Y102LS-G2,CMY-R160-J1<br>BC controller: CMB-P104,105,106,108,1010,1013,1016NU-G1<br>Main BC controller: CMB-P108,1010,1013,1016NU-GA1,CMB-P108,1010,1016NU-HA1<br>Sub BC controller: CMB-P104,108NU-GB1,CMB-P1016NU-HB1 | |
| Remarks | | | | Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. | |

Notes:

1.Nominal cooling conditions (Test conditions are based on AHRI 1230)
Indoor: 80°FD.B./67°FW.B. (26.7°CD.B./19.4°CW.B.), Outdoor: 95°FD.B. (35°CD.B.)
2.Nominal heating conditions (Test conditions are based on AHRI 1230)
Indoor: 70°FD.B. (21.1°CD.B.), Outdoor: 47°FD.B./43°FW.B. (8.3°CD.B./6.1°CW.B.)
3.External static pressure option is available (0.12 in.WG, 0.24 in.WG/30 Pa, 60 Pa).

* Due to continuing improvement, above specifications may be subject to change without notice.

Unit converter

| | |
|---|---|
| BTU/h | =kW x 3,412 |
| cfm | =$m^3$/min x 35.31 |
| lbs | =kg/0.4536 |

*Above specification data is subject to rounding variation.

R2 575V

# 1. SPECIFICATIONS

| Outdoor Model | | | PURY-P168ZSKMU-A (-BS) | |
|---|---|---|---|---|
| Indoor Model | | | Non-Ducted | Ducted |
| Power source | | | 3-phase 3-wire 575 V ±10% 60 Hz | |
| Cooling capacity (Nominal) | *1 | BTU/h | 168,000 | |
| | | kW | 49.2 | |
| | Power input | kW | 13.66 | |
| (575) | Current input | A | 15.2 | |
| (Rated) | | BTU/h | 161,000 | |
| | | kW | 47.2 | |
| | Power input | kW | 12.19 | 13.10 |
| (575) | Current input | A | 13.5 | 14.6 |
| Temp. range of cooling | Indoor | W.B. | 59~75°F (15~24°C) | |
| | Outdoor | D.B. | 23~115°F (-5~46°C) | |
| Heating capacity (Nominal) | *2 | BTU/h | 188,000 | |
| | | kW | 55.1 | |
| | Power input | kW | 15.42 | |
| (575) | Current input | A | 17.2 | |
| (Rated) | | BTU/h | 179,000 | |
| | | kW | 52.5 | |
| | Power input | kW | 13.84 | 14.71 |
| (575) | Current input | A | 15.4 | 16.4 |
| Temp. range of heating | Indoor | D.B. | 59~81°F (15~27°C) | |
| | Outdoor | W.B. | -4~60°F (-20~15.5°C) | |
| Indoor unit connectable | Total capacity | | 50~150% of outdoor unit capacity | |
| | Model/Quantity | | P06~P96/1~42 | |
| Sound pressure level (measured in anechoic room) | | dB <A> | 61.0 | |
| Refrigerant piping diameter | High pressure | in. (mm) | 7/8 (22.2) Brazed | |
| | Low pressure | in. (mm) | 1-1/8 (28.58) Brazed | |

Set Model

| Model | | | PURY-P96ZKMU-A (-BS) | PURY-P72ZKMU-A (-BS) |
|---|---|---|---|---|
| Minimum Circuit Ampacity | | A | 15 | 11 |
| Maximum Overcurrent Protection | | A | 20 | 15 |
| FAN | Type x Quantity | | Propeller fan x 1 | Propeller fan x 1 |
| | Airflow rate | cfm | 6,550 | 6,550 |
| | | $m^3$/min | 185 | 185 |
| | | L/s | 3,080 | 3,080 |
| | Control, Driving mechanism | | Inverter-control, Brushless DC motor | Inverter-control, Brushless DC motor |
| | Motor output | kW | 0.92 | 0.92 |
| *3 | External static press. | | 0 in.WG (0 Pa) | 0 in.WG (0 Pa) |
| Compressor | Type x Quantity | | Inverter scroll hermetic compressor x 1 | Inverter scroll hermetic compressor x 1 |
| | Manufacture | | AC&R Works, MITSUBISHI ELECTRIC CORPORATION | AC&R Works, MITSUBISHI ELECTRIC CORPORATION |
| | Starting method | | Inverter | Inverter |
| | Motor output | kW | 6.6 | 4.7 |
| | Case heater | kW | - | - |
| | Lubricant | | MEL32 | MEL32 |
| External finish | | | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> |
| External dimension H x W x D | | in. | 64-31/32 x 48-1/16 x 29-5/32 | 64-31/32 x 36-1/4 x 29-5/32 |
| | | mm | 1,650 x 1,220 x 740 | 1,650 x 920 x 740 |
| Protection devices | High pressure protection | | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) |
| | Inverter circuit (COMP./FAN) | | Over-current protection | Over-current protection |
| | Fan motor | | - | - |
| Refrigerant | Type x original charge | | R410A x 22 lbs + 12 oz (10.3 kg) | R410A x 21 lbs (9.5 kg) |
| | Control | | Indoor LEV and BC controller | |
| Net weight | | lbs (kg) | 567 (257) | 508 (230) |
| Heat exchanger | | | Salt-resistant cross fin & copper tube | Salt-resistant cross fin & copper tube |
| HIC circuit (HIC: Heat Inter-Changer) | | | - | - |
| Pipe between unit and distributor | High pressure | in. (mm) | 3/4 (19.05) Brazed | 5/8 (15.88) Brazed |
| | Low pressure | in. (mm) | - | 3/4 (19.05) Brazed |
| Defrosting method | | | Auto-defrost mode (Reversed refrigerant cycle) | |
| Drawing | External | | KS94C316 | |
| | Wiring | | KE94G117 | KE94G117 |
| Standard attachment | Document | | Installation Manual | |
| | Accessory | | Details refer to External Drw | |
| Optional parts | | | Outdoor Twinning kit: CMY-R100CBK2<br>joint: CMY-Y102SS-G2,CMY-Y102LS-G2,CMY-Y202S-G2,CMY-R160-J1<br>Main BC controller: CMB-P108,1010,1013,1016NU-GA1,CMB-P108,1010,1016NU-HA1<br>Sub BC controller: CMB-P104,108NU-GB1,CMB-P1016NU-HB1 | |
| Remarks | | | Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.<br>Systems with considerably long pipe runs, in heating mode, may be subject to slightly louder than normal noise from the outdoor unit/s.<br>The outdoor twinning kit (low pressure) should be connected to the low pressure side of the outdoor unit. If the connected units are of different capacities, the outdoor twinning kit (low pressure) should be installed in the unit with the largest capacity | |

R2 575V

Notes:

1.Nominal cooling conditions (Test conditions are based on AHRI 1230)
Indoor: 80°FD.B./67°FW.B. (26.7°CD.B./19.4°CW.B.), Outdoor: 95°FD.B. (35°CD.B.)
2.Nominal heating conditions (Test conditions are based on AHRI 1230)
Indoor: 70°FD.B. (21.1°CD.B.), Outdoor: 47°FD.B./43°FW.B. (8.3°CD.B./6.1°CW.B.)
3.External static pressure option is available (0.12 in.WG, 0.24 in.WG/30 Pa, 60 Pa).

* Due to continuing improvement, above specifications may be subject to change without notice.

| Unit converter | |
|---|---|
| BTU/h | =kW x 3,412 |
| cfm | =$m^3$/min x 35.31 |
| lbs | =kg/0.4536 |

*Above specification data is subject to rounding variation.

| Outdoor Model | | | | PURY-P192ZSKMU-A (-BS) | |
|---|---|---|---|---|---|
| Indoor Model | | | | Non-Ducted | Ducted |
| Power source | | | | 3-phase 3-wire 575 V ±10% 60 Hz | |
| Cooling capacity (Nominal) | | *1 | BTU/h | 192,000 | |
| | | | kW | 56.3 | |
| | | Power input | kW | 15.92 | |
| | (575) | Current input | A | 17.7 | |
| | (Rated) | | BTU/h | 183,000 | |
| | | | kW | 53.6 | |
| | | Power input | kW | 14.61 | 14.86 |
| | (575) | Current input | A | 16.2 | 16.5 |
| Temp. range of cooling | | Indoor | W.B. | 59~75°F (15~24°C) | |
| | | Outdoor | D.B. | 23~115°F (-5~46°C) | |
| Heating capacity (Nominal) | | *2 | BTU/h | 215,000 | |
| | | | kW | 63.0 | |
| | | Power input | kW | 17.79 | |
| | (575) | Current input | A | 19.8 | |
| | (Rated) | | BTU/h | 205,000 | |
| | | | kW | 60.1 | |
| | | Power input | kW | 16.47 | 16.46 |
| | (575) | Current input | A | 18.3 | 18.3 |
| Temp. range of heating | | Indoor | D.B. | 59~81°F (15~27°C) | |
| | | Outdoor | W.B. | -4~60°F (-20~15.5°C) | |
| Indoor unit connectable | | Total capacity | | 50~150% of outdoor unit capacity | |
| | | Model/Quantity | | P06~P96/1~48 | |
| Sound pressure level (measured in anechoic room) | | | dB <A> | 61.0 | |
| Refrigerant piping diameter | | High pressure | in. (mm) | 7/8 (22.2) Brazed | |
| | | Low pressure | in. (mm) | 1-1/8 (28.58) Brazed | |

Set Model

| Model | | | PURY-P96ZKMU-A (-BS) | PURY-P96ZKMU-A (-BS) |
|---|---|---|---|---|
| Minimum Circuit Ampacity | | A | 15 | 15 |
| Maximum Overcurrent Protection | | A | 20 | 20 |
| FAN | Type x Quantity | | Propeller fan x 1 | Propeller fan x 1 |
| | Airflow rate | cfm | 6,550 | 6,550 |
| | | $m^3$/min | 185 | 185 |
| | | L/s | 3,080 | 3,080 |
| | Control, Driving mechanism | | Inverter-control, Brushless DC motor | Inverter-control, Brushless DC motor |
| | Motor output | kW | 0.92 | 0.92 |
| *3 | External static press. | | 0 in.WG (0 Pa) | 0 in.WG (0 Pa) |
| Compressor | Type x Quantity | | Inverter scroll hermetic compressor x 1 | Inverter scroll hermetic compressor x 1 |
| | Manufacture | | AC&R Works, MITSUBISHI ELECTRIC CORPORATION | AC&R Works, MITSUBISHI ELECTRIC CORPORATION |
| | Starting method | | Inverter | Inverter |
| | Motor output | kW | 6.6 | 6.6 |
| | Case heater | kW | - | - |
| | Lubricant | | MEL32 | MEL32 |
| External finish | | | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> |
| External dimension H x W x D | | in. | 64-31/32 x 48-1/16 x 29-5/32 | 64-31/32 x 48-1/16 x 29-5/32 |
| | | mm | 1,650 x 1,220 x 740 | 1,650 x 1,220 x 740 |
| Protection devices | High pressure protection | | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) |
| | Inverter circuit (COMP./FAN) | | Over-current protection | Over-current protection |
| | Fan motor | | - | - |
| Refrigerant | Type x original charge | | R410A x 22 lbs + 12 oz (10.3 kg) | R410A x 22 lbs + 12 oz (10.3 kg) |
| | Control | | Indoor LEV and BC controller | |
| Net weight | | lbs (kg) | 567 (257) | 567 (257) |
| Heat exchanger | | | Salt-resistant cross fin & copper tube | Salt-resistant cross fin & copper tube |
| HIC circuit (HIC: Heat Inter-Changer) | | | - | - |
| Pipe between unit and distributor | High pressure | in. (mm) | 3/4 (19.05) Brazed | 3/4 (19.05) Brazed |
| | Low pressure | in. (mm) | - | 7/8 (22.2) Brazed |
| Defrosting method | | | Auto-defrost mode (Reversed refrigerant cycle) | |
| Drawing | External | | KS94C317 | |
| | Wiring | | KE94G117 | KE94G117 |
| Standard attachment | Document | | Installation Manual | |
| | Accessory | | Details refer to External Drw | |
| Optional parts | | | Outdoor Twinning kit: CMY-R100CBK2<br>joint: CMY-Y102SS-G2,CMY-Y102LS-G2,CMY-Y202S-G2,CMY-R160-J1<br>Main BC controller: CMB-P108,1010,1013,1016NU-GA1,CMB-P108,1010,1016NU-HA1<br>Sub BC controller: CMB-P104,108NU-GB1,CMB-P1016NU-HB1 | |
| Remarks | | | Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.<br>Systems with considerably long pipe runs, in heating mode, may be subject to slightly louder than normal noise from the outdoor unit/s.<br>The outdoor twinning kit (low pressure) should be connected to the low pressure side of the outdoor unit. If the connected units are of different capacities, the outdoor twinning kit (low pressure) should be installed in the unit with the largest capacity | |

Notes:

1.Nominal cooling conditions (Test conditions are based on AHRI 1230)
Indoor: 80°FD.B./67°FW.B. (26.7°CD.B./19.4°CW.B.), Outdoor: 95°FD.B. (35°CD.B.)
2.Nominal heating conditions (Test conditions are based on AHRI 1230)
Indoor: 70°FD.B. (21.1°CD.B.), Outdoor: 47°FD.B./43°FW.B. (8.3°CD.B./6.1°CW.B.)
3.External static pressure option is available (0.12 in.WG, 0.24 in.WG/30 Pa, 60 Pa).

* Due to continuing improvement, above specifications may be subject to change without notice.

Unit converter

| | |
|---|---|
| BTU/h | =kW x 3,412 |
| cfm | =$m^3$/min x 35.31 |
| lbs | =kg/0.4536 |

*Above specification data is subject to rounding variation.

R2 575V

| Outdoor Model | | | PURY-P216ZSKMU-A (-BS) | |
|---|---|---|---|---|
| Indoor Model | | | Non-Ducted | Ducted |
| Power source | | | 3-phase 3-wire 575 V ±10% 60 Hz | |
| Cooling capacity *1 | | BTU/h | 216,000 | |
| (Nominal) | | kW | 63.3 | |
| | Power input | kW | 17.74 | |
| (575) | Current input | A | 19.7 | |
| (Rated) | | BTU/h | 206,000 | |
| | | kW | 60.4 | |
| | Power input | kW | 16.54 | 16.30 |
| (575) | Current input | A | 18.4 | 18.1 |
| Temp. range of | Indoor | W.B. | 59~75°F (15~24°C) | |
| cooling | Outdoor | D.B. | 23~115°F (-5~46°C) | |
| Heating capacity *2 | | BTU/h | 243,000 | |
| (Nominal) | | kW | 71.2 | |
| | Power input | kW | 20.61 | |
| (575) | Current input | A | 22.9 | |
| (Rated) | | BTU/h | 232,000 | |
| | | kW | 68.0 | |
| | Power input | kW | 19.26 | 18.90 |
| (575) | Current input | A | 21.4 | 21.0 |
| Temp. range of | Indoor | D.B. | 59~81°F (15~27°C) | |
| heating | Outdoor | W.B. | -4~60°F (-20~15.5°C) | |
| Indoor unit | Total capacity | | 50~150% of outdoor unit capacity | |
| connectable | Model/Quantity | | P06~P96/2~50 (Connectable branch pipe number is max. 48.) | |
| Sound pressure level (measured in anechoic room) | | dB <A> | 62.0 | |
| Refrigerant | High pressure | in. (mm) | 1-1/8 (28.58) Brazed | |
| piping diameter | Low pressure | in. (mm) | 1-1/8 (28.58) Brazed | |

Set Model

| Model | | | PURY-P120ZKMU-A (-BS) | PURY-P96ZKMU-A (-BS) |
|---|---|---|---|---|
| Minimum Circuit Ampacity | | A | 21 | 15 |
| Maximum Overcurrent Protection | | A | 30 | 20 |
| FAN | Type x Quantity | | Propeller fan x 2 | Propeller fan x 1 |
| | Airflow rate | cfm | 11,300 | 6,550 |
| | | $m^3$/min | 320 | 185 |
| | | L/s | 5,330 | 3,080 |
| | Control, Driving mechanism | | Inverter-control, Brushless DC motor | Inverter-control, Brushless DC motor |
| | Motor output | kW | 0.92+0.92 | 0.92 |
| *3 | External static press. | | 0 in.WG (0 Pa) | 0 in.WG (0 Pa) |
| Compressor | Type x Quantity | | Inverter scroll hermetic compressor x 1 | Inverter scroll hermetic compressor x 1 |
| | Manufacture | | AC&R Works, MITSUBISHI ELECTRIC CORPORATION | AC&R Works, MITSUBISHI ELECTRIC CORPORATION |
| | Starting method | | Inverter | Inverter |
| | Motor output | kW | 8.2 | 6.6 |
| | Case heater | kW | - | - |
| | Lubricant | | MEL32 | MEL32 |
| External finish | | | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> |
| External dimension H x W x D | | in. | 64-31/32 x 68-29/32 x 29-5/32 | 64-31/32 x 48-1/16 x 29-5/32 |
| | | mm | 1,650 x 1,750 x 740 | 1,650 x 1,220 x 740 |
| Protection | High pressure protection | | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) |
| devices | Inverter circuit (COMP./FAN) | | Over-current protection | Over-current protection |
| | Fan motor | | - | - |
| Refrigerant | Type x original charge | | R410A x 26 lbs + 1 oz (11.8 kg) | R410A x 22 lbs + 12 oz (10.3 kg) |
| | Control | | Indoor LEV and BC controller | |
| Net weight | | lbs (kg) | 772 (350) | 567 (257) |
| Heat exchanger | | | Salt-resistant cross fin & copper tube | Salt-resistant cross fin & copper tube |
| HIC circuit (HIC: Heat Inter-Changer) | | | - | - |
| Pipe between unit and | High pressure | in. (mm) | 3/4 (19.05) Brazed | 3/4 (19.05) Brazed |
| distributor | Low pressure | in. (mm) | - | 7/8 (22.2) Brazed |
| Defrosting method | | | Auto-defrost mode (Reversed refrigerant cycle) | |
| Drawing | External | | KS94C318 | |
| | Wiring | | KE94G118 | KE94G117 |
| Standard | Document | | Installation Manual | |
| attachment | Accessory | | Details refer to External Drw | |
| Optional parts | | | Outdoor Twinning kit: CMY-R100XLCBK<br>joint: CMY-Y102SS-G2,CMY-Y102LS-G2,CMY-Y202S-G2,CMY-R160-J1<br>Main BC controller: CMB-P108,1010,1013,1016NU-GA1,CMB-P108,1010,1016NU-HA1<br>Sub BC controller: CMB-P104,108NU-GB1,CMB-P1016NU-HB1 | |
| Remarks | | | Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.<br>Systems with considerably long pipe runs, in heating mode, may be subject to slightly louder than normal noise from the outdoor unit/s.<br>The outdoor twinning kit (low pressure) should be connected to the low pressure side of the outdoor unit. If the connected units are of different capacities, the outdoor twinning kit (low pressure) should be installed in the unit with the largest capacity | |

R2 575V

Notes:

1.Nominal cooling conditions (Test conditions are based on AHRI 1230)
Indoor: 80°FD.B./67°FW.B. (26.7°CD.B./19.4°CW.B.), Outdoor: 95°FD.B. (35°CD.B.)
2.Nominal heating conditions (Test conditions are based on AHRI 1230)
Indoor: 70°FD.B. (21.1°CD.B.), Outdoor: 47°FD.B./43°FW.B. (8.3°CD.B./6.1°CW.B.)
3.External static pressure option is available (0.12 in.WG, 0.24 in.WG/30 Pa, 60 Pa).

* Due to continuing improvement, above specifications may be subject to change without notice.

| Unit converter | |
|---|---|
| BTU/h | =kW x 3,412 |
| cfm | =$m^3$/min x 35.31 |
| lbs | =kg/0.4536 |

*Above specification data is subject to rounding variation.

| Outdoor Model | | | PURY-P240ZSKMU-A (-BS) | |
|---|---|---|---|---|
| Indoor Model | | | Non-Ducted | Ducted |
| Power source | | | 3-phase 3-wire 575 V ±10% 60 Hz | |
| Cooling capacity (Nominal) | *1 | BTU/h | 240,000 | |
| | | kW | 70.3 | |
| | Power input | kW | 19.62 | |
| | (575) Current input | A | 21.8 | |
| | (Rated) | BTU/h | 228,000 | |
| | | kW | 66.8 | |
| | Power input | kW | 17.99 | 18.33 |
| | (575) Current input | A | 20.0 | 20.4 |
| Temp. range of cooling | Indoor | W.B. | 59~75°F (15~24°C) | |
| | Outdoor | D.B. | 23~115°F (-5~46°C) | |
| Heating capacity (Nominal) | *2 | BTU/h | 270,000 | |
| | | kW | 79.1 | |
| | Power input | kW | 23.55 | |
| | (575) Current input | A | 26.2 | |
| | (Rated) | BTU/h | 258,000 | |
| | | kW | 75.6 | |
| | Power input | kW | 21.76 | 21.84 |
| | (575) Current input | A | 24.2 | 24.3 |
| Temp. range of heating | Indoor | D.B. | 59~81°F (15~27°C) | |
| | Outdoor | W.B. | -4~60°F (-20~15.5°C) | |
| Indoor unit connectable | Total capacity | | 50~150% of outdoor unit capacity | |
| | Model/Quantity | | P06~P96/2~50 (Connectable branch pipe number is max. 48.) | |
| Sound pressure level (measured in anechoic room) | | dB <A> | 63.0 | |
| Refrigerant piping diameter | High pressure | in. (mm) | 1-1/8 (28.58) Brazed | |
| | Low pressure | in. (mm) | 1-3/8 (34.93) Brazed | |

Set Model

| Model | | | PURY-P120ZKMU-A (-BS) | PURY-P120ZKMU-A (-BS) |
|---|---|---|---|---|
| Minimum Circuit Ampacity | | A | 21 | 21 |
| Maximum Overcurrent Protection | | A | 30 | 30 |
| FAN | Type x Quantity | | Propeller fan x 2 | Propeller fan x 2 |
| | Airflow rate | cfm | 11,300 | 11,300 |
| | | $m^3$/min | 320 | 320 |
| | | L/s | 5,330 | 5,330 |
| | Control, Driving mechanism | | Inverter-control, Brushless DC motor | Inverter-control, Brushless DC motor |
| | Motor output | kW | 0.92+0.92 | 0.92+0.92 |
| *3 | External static press. | | 0 in.WG (0 Pa) | 0 in.WG (0 Pa) |
| Compressor | Type x Quantity | | Inverter scroll hermetic compressor x 1 | Inverter scroll hermetic compressor x 1 |
| | Manufacture | | AC&R Works, MITSUBISHI ELECTRIC CORPORATION | AC&R Works, MITSUBISHI ELECTRIC CORPORATION |
| | Starting method | | Inverter | Inverter |
| | Motor output | kW | 8.2 | 8.2 |
| | Case heater | kW | - | - |
| | Lubricant | | MEL32 | MEL32 |
| External finish | | | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> |
| External dimension H x W x D | | in. | 64-31/32 x 68-29/32 x 29-5/32 | 64-31/32 x 68-29/32 x 29-5/32 |
| | | mm | 1,650 x 1,750 x 740 | 1,650 x 1,750 x 740 |
| Protection devices | High pressure protection | | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) |
| | Inverter circuit (COMP./FAN) | | Over-current protection | Over-current protection |
| | Fan motor | | - | - |
| Refrigerant | Type x original charge | | R410A x 26 lbs + 1 oz (11.8 kg) | R410A x 26 lbs + 1 oz (11.8 kg) |
| | Control | | Indoor LEV and BC controller | |
| Net weight | | lbs (kg) | 772 (350) | 772 (350) |
| Heat exchanger | | | Salt-resistant cross fin & copper tube | Salt-resistant cross fin & copper tube |
| HIC circuit (HIC: Heat Inter-Changer) | | | - | - |
| Pipe between unit and distributor | High pressure | in. (mm) | 3/4 (19.05) Brazed | 3/4 (19.05) Brazed |
| | Low pressure | in. (mm) | - | 1-1/8 (28.58) Brazed |
| Defrosting method | | | Auto-defrost mode (Reversed refrigerant cycle) | |
| Drawing | External | | KS94C319 | |
| | Wiring | | KE94G118 | KE94G118 |
| Standard attachment | Document | | Installation Manual | |
| | Accessory | | Details refer to External Drw | |
| Optional parts | | | Outdoor Twinning kit: CMY-R100XLCBK<br>joint: CMY-Y102SS-G2,CMY-Y102LS-G2,CMY-Y202S-G2,CMY-R160-J1<br>Main BC controller: CMB-P108,1010,1013,1016NU-GA1,CMB-P108,1010,1016NU-HA1<br>Sub BC controller: CMB-P104,108NU-GB1,CMB-P1016NU-HB1 | |
| Remarks | | | Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.<br>Systems with considerably long pipe runs, in heating mode, may be subject to slightly louder than normal noise from the outdoor unit/s.<br>The outdoor twinning kit (low pressure) should be connected to the low pressure side of the outdoor unit. If the connected units are of different capacities, the outdoor twinning kit (low pressure) should be installed in the unit with the largest capacity | |

Notes:

1.Nominal cooling conditions (Test conditions are based on AHRI 1230)
Indoor: 80°FD.B./67°FW.B. (26.7°CD.B./19.4°CW.B.), Outdoor: 95°FD.B. (35°CD.B.)
2.Nominal heating conditions (Test conditions are based on AHRI 1230)
Indoor: 70°FD.B. (21.1°CD.B.), Outdoor: 47°FD.B./43°FW.B. (8.3°CD.B./6.1°CW.B.)
3.External static pressure option is available (0.12 in.WG, 0.24 in.WG/30 Pa, 60 Pa).

* Due to continuing improvement, above specifications may be subject to change without notice.

Unit converter

| | |
|---|---|
| BTU/h | =kW x 3,412 |
| cfm | =$m^3$/min x 35.31 |
| lbs | =kg/0.4536 |

*Above specification data is subject to rounding variation.

R2 575V

| Outdoor Model | | | PURY-P264ZSKMU-A (-BS) | |
|---|---|---|---|---|
| Indoor Model | | | Non-Ducted | Ducted |
| Power source | | | 3-phase 3-wire 575 V ±10% 60 Hz | |
| Cooling capacity *1 | | BTU/h | 264,000 | |
| (Nominal) | | kW | 77.4 | |
| | Power input | kW | 22.69 | |
| (575) | Current input | A | 25.3 | |
| (Rated) | | BTU/h | 251,000 | |
| | | kW | 73.6 | |
| | Power input | kW | 20.79 | 21.22 |
| (575) | Current input | A | 23.1 | 23.6 |
| Temp. range of | Indoor | W.B. | 59~75°F (15~24°C) | |
| cooling | Outdoor | D.B. | 23~115°F (-5~46°C) | |
| Heating capacity *2 | | BTU/h | 295,000 | |
| (Nominal) | | kW | 86.5 | |
| | Power input | kW | 25.94 | |
| (575) | Current input | A | 28.9 | |
| (Rated) | | BTU/h | 281,000 | |
| | | kW | 82.4 | |
| | Power input | kW | 24.18 | 23.84 |
| (575) | Current input | A | 26.9 | 26.5 |
| Temp. range of | Indoor | D.B. | 59~81°F (15~27°C) | |
| heating | Outdoor | W.B. | -4~60°F (-20~15.5°C) | |
| Indoor unit | Total capacity | | 50~150% of outdoor unit capacity | |
| connectable | Model/Quantity | | P06~P96/2~50 (Connectable branch pipe number is max. 48.) | |
| Sound pressure level (measured in anechoic room) | | dB <A> | 63.5 | |
| Refrigerant | High pressure | in. (mm) | 1-1/8 (28.58) Brazed | |
| piping diameter | Low pressure | in. (mm) | 1-3/8 (34.93) Brazed | |

Set Model

| Model | | | PURY-P144ZKMU-A (-BS) | PURY-P120ZKMU-A (-BS) |
|---|---|---|---|---|
| Minimum Circuit Ampacity | | A | 23 | 21 |
| Maximum Overcurrent Protection | | A | 35 | 30 |
| FAN | Type x Quantity | | Propeller fan x 2 | Propeller fan x 2 |
| | Airflow rate | cfm | 11,300 | 11,300 |
| | | $m^3$/min | 320 | 320 |
| | | L/s | 5,330 | 5,330 |
| | Control, Driving mechanism | | Inverter-control, Brushless DC motor | Inverter-control, Brushless DC motor |
| | Motor output | kW | 0.92+0.92 | 0.92+0.92 |
| *3 | External static press. | | 0 in.WG (0 Pa) | 0 in.WG (0 Pa) |
| Compressor | Type x Quantity | | Inverter scroll hermetic compressor x 1 | Inverter scroll hermetic compressor x 1 |
| | Manufacture | | AC&R Works, MITSUBISHI ELECTRIC CORPORATION | AC&R Works, MITSUBISHI ELECTRIC CORPORATION |
| | Starting method | | Inverter | Inverter |
| | Motor output | kW | 9.5 | 8.2 |
| | Case heater | kW | - | - |
| | Lubricant | | MEL32 | MEL32 |
| External finish | | | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> |
| External dimension H x W x D | | in. | 64-31/32 x 68-29/32 x 29-5/32 | 64-31/32 x 68-29/32 x 29-5/32 |
| | | mm | 1,650 x 1,750 x 740 | 1,650 x 1,750 x 740 |
| Protection | High pressure protection | | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) |
| devices | Inverter circuit (COMP./FAN) | | Over-current protection | Over-current protection |
| | Fan motor | | - | - |
| Refrigerant | Type x original charge | | R410A x 26 lbs + 1 oz (11.8 kg) | R410A x 26 lbs + 1 oz (11.8 kg) |
| | Control | | Indoor LEV and BC controller | |
| Net weight | | lbs (kg) | 772 (350) | 772 (350) |
| Heat exchanger | | | Salt-resistant cross fin & copper tube | Salt-resistant cross fin & copper tube |
| HIC circuit (HIC: Heat Inter-Changer) | | | - | - |
| Pipe between unit and | High pressure | in. (mm) | 7/8 (22.2) Brazed | 3/4 (19.05) Brazed |
| distributor | Low pressure | in. (mm) | - | 1-1/8 (28.58) Brazed |
| Defrosting method | | | Auto-defrost mode (Reversed refrigerant cycle) | |
| Drawing | External | | KS94C319 | |
| | Wiring | | KE94G118 | KE94G118 |
| Standard | Document | | Installation Manual | |
| attachment | Accessory | | Details refer to External Drw | |
| Optional parts | | | Outdoor Twinning kit: CMY-R100XLCBK<br>joint: CMY-Y102SS-G2,CMY-Y102LS-G2,CMY-Y202S-G2,CMY-R160-J1<br>Main BC controller: CMB-P108,1010,1016NU-HA1<br>Sub BC controller: CMB-P104,108NU-GB1,CMB-P1016NU-HB1 | |
| Remarks | | | Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.<br>Systems with considerably long pipe runs, in heating mode, may be subject to slightly louder than normal noise from the outdoor unit/s.<br>The outdoor twinning kit (low pressure) should be connected to the low pressure side of the outdoor unit. If the connected units are of different capacities, the outdoor twinning kit (low pressure) should be installed in the unit with the largest capacity | |

R2 575V

Notes:

1.Nominal cooling conditions (Test conditions are based on AHRI 1230)
Indoor: 80°FD.B./67°FW.B. (26.7°CD.B./19.4°CW.B.), Outdoor: 95°FD.B. (35°CD.B.)
2.Nominal heating conditions (Test conditions are based on AHRI 1230)
Indoor: 70°FD.B. (21.1°CD.B.), Outdoor: 47°FD.B./43°FW.B. (8.3°CD.B./6.1°CW.B.)
3.External static pressure option is available (0.12 in.WG, 0.24 in.WG/30 Pa, 60 Pa).

* Due to continuing improvement, above specifications may be subject to change without notice.

| Unit converter | |
|---|---|
| BTU/h | =kW x 3,412 |
| cfm | =$m^3$/min x 35.31 |
| lbs | =kg/0.4536 |

*Above specification data is subject to rounding variation.

| Outdoor Model | | | PURY-P288ZSKMU-A (-BS) | |
|---|---|---|---|---|
| Indoor Model | | | Non-Ducted | Ducted |
| Power source | | | 3-phase 3-wire 575 V ±10% 60 Hz | |
| Cooling capacity (Nominal) | *1 | BTU/h | 288,000 | |
| | | kW | 84.4 | |
| | Power input | kW | 25.23 | |
| | (575) Current input | A | 28.1 | |
| | (Rated) | BTU/h | 274,000 | |
| | | kW | 80.3 | |
| | Power input | kW | 23.33 | 23.39 |
| | (575) Current input | A | 26.0 | 26.0 |
| Temp. range of cooling | Indoor | W.B. | 59~75°F (15~24°C) | |
| | Outdoor | D.B. | 23~115°F (-5~46°C) | |
| Heating capacity (Nominal) | *2 | BTU/h | 323,000 | |
| | | kW | 94.7 | |
| | Power input | kW | 28.13 | |
| | (575) Current input | A | 31.3 | |
| | (Rated) | BTU/h | 304,000 | |
| | | kW | 89.1 | |
| | Power input | kW | 26.31 | 25.77 |
| | (575) Current input | A | 29.3 | 28.7 |
| Temp. range of heating | Indoor | D.B. | 59~81°F (15~27°C) | |
| | Outdoor | W.B. | -4~60°F (-20~15.5°C) | |
| Indoor unit connectable | Total capacity | | 50~150% of outdoor unit capacity | |
| | Model/Quantity | | P06~P96/2~50 (Connectable branch pipe number is max. 48.) | |
| Sound pressure level (measured in anechoic room) | | dB <A> | 64.0 | |
| Refrigerant piping diameter | High pressure | in. (mm) | 1-1/8 (28.58) Brazed | |
| | Low pressure | in. (mm) | 1-3/8 (34.93) Brazed | |

Set Model

| Model | | | PURY-P144ZKMU-A (-BS) | PURY-P144ZKMU-A (-BS) |
|---|---|---|---|---|
| Minimum Circuit Ampacity | | A | 23 | 23 |
| Maximum Overcurrent Protection | | A | 35 | 35 |
| FAN | Type x Quantity | | Propeller fan x 2 | Propeller fan x 2 |
| | Airflow rate | cfm | 11,300 | 11,300 |
| | | $m^3$/min | 320 | 320 |
| | | L/s | 5,330 | 5,330 |
| | Control, Driving mechanism | | Inverter-control, Brushless DC motor | Inverter-control, Brushless DC motor |
| | Motor output | kW | 0.92+0.92 | 0.92+0.92 |
| *3 | External static press. | | 0 in.WG (0 Pa) | 0 in.WG (0 Pa) |
| Compressor | Type x Quantity | | Inverter scroll hermetic compressor x 1 | Inverter scroll hermetic compressor x 1 |
| | Manufacture | | AC&R Works, MITSUBISHI ELECTRIC CORPORATION | AC&R Works, MITSUBISHI ELECTRIC CORPORATION |
| | Starting method | | Inverter | Inverter |
| | Motor output | kW | 9.5 | 9.5 |
| | Case heater | kW | - | - |
| | Lubricant | | MEL32 | MEL32 |
| External finish | | | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> | Pre-coated galvanized steel sheet (+powder coating for -BS type)<br><MUNSELL 5Y 8/1> |
| External dimension H x W x D | | in. | 64-31/32 x 68-29/32 x 29-5/32 | 64-31/32 x 68-29/32 x 29-5/32 |
| | | mm | 1,650 x 1,750 x 740 | 1,650 x 1,750 x 740 |
| Protection devices | High pressure protection | | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) | High pressure sensor, High pressure switch at 4.15 MPa (601 psi) |
| | Inverter circuit (COMP./FAN) | | Over-current protection | Over-current protection |
| | Fan motor | | - | - |
| Refrigerant | Type x original charge | | R410A x 26 lbs + 1 oz (11.8 kg) | R410A x 26 lbs + 1 oz (11.8 kg) |
| | Control | | Indoor LEV and BC controller | |
| Net weight | | lbs (kg) | 772 (350) | 772 (350) |
| Heat exchanger | | | Salt-resistant cross fin & copper tube | Salt-resistant cross fin & copper tube |
| HIC circuit (HIC: Heat Inter-Changer) | | | - | - |
| Pipe between unit and distributor | High pressure | in. (mm) | 7/8 (22.2) Brazed | 7/8 (22.2) Brazed |
| | Low pressure | in. (mm) | - | 1-1/8 (28.58) Brazed |
| Defrosting method | | | Auto-defrost mode (Reversed refrigerant cycle) | |
| Drawing | External | | KS94C319 | |
| | Wiring | | KE94G118 | KE94G118 |
| Standard attachment | Document | | Installation Manual | |
| | Accessory | | Details refer to External Drw | |
| Optional parts | | | Outdoor Twinning kit: CMY-R100XLCBK<br>joint: CMY-Y102SS-G2,CMY-Y102LS-G2,CMY-Y202S-G2,CMY-R160-J1<br>Main BC controller: CMB-P108,1010,1016NU-HA1<br>Sub BC controller: CMB-P104,108NU-GB1,CMB-P1016NU-HB1 | |
| Remarks | | | Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.<br>Systems with considerably long pipe runs, in heating mode, may be subject to slightly louder than normal noise from the outdoor unit/s.<br>The outdoor twinning kit (low pressure) should be connected to the low pressure side of the outdoor unit. If the connected units are of different capacities, the outdoor twinning kit (low pressure) should be installed in the unit with the largest capacity | |

Notes:

1.Nominal cooling conditions (Test conditions are based on AHRI 1230)
Indoor: 80°FD.B./67°FW.B. (26.7°CD.B./19.4°CW.B.), Outdoor: 95°FD.B. (35°CD.B.)
2.Nominal heating conditions (Test conditions are based on AHRI 1230)
Indoor: 70°FD.B. (21.1°CD.B.), Outdoor: 47°FD.B./43°FW.B. (8.3°CD.B./6.1°CW.B.)
3.External static pressure option is available (0.12 in.WG, 0.24 in.WG/30 Pa, 60 Pa).

* Due to continuing improvement, above specifications may be subject to change without notice.

Unit converter

| | |
|---|---|
| BTU/h | =kW x 3,412 |
| cfm | =$m^3$/min x 35.31 |
| lbs | =kg/0.4536 |

*Above specification data is subject to rounding variation.

R2 575V

## PURY-P72ZKMU-A(-BS)

Unit: mm (in.)

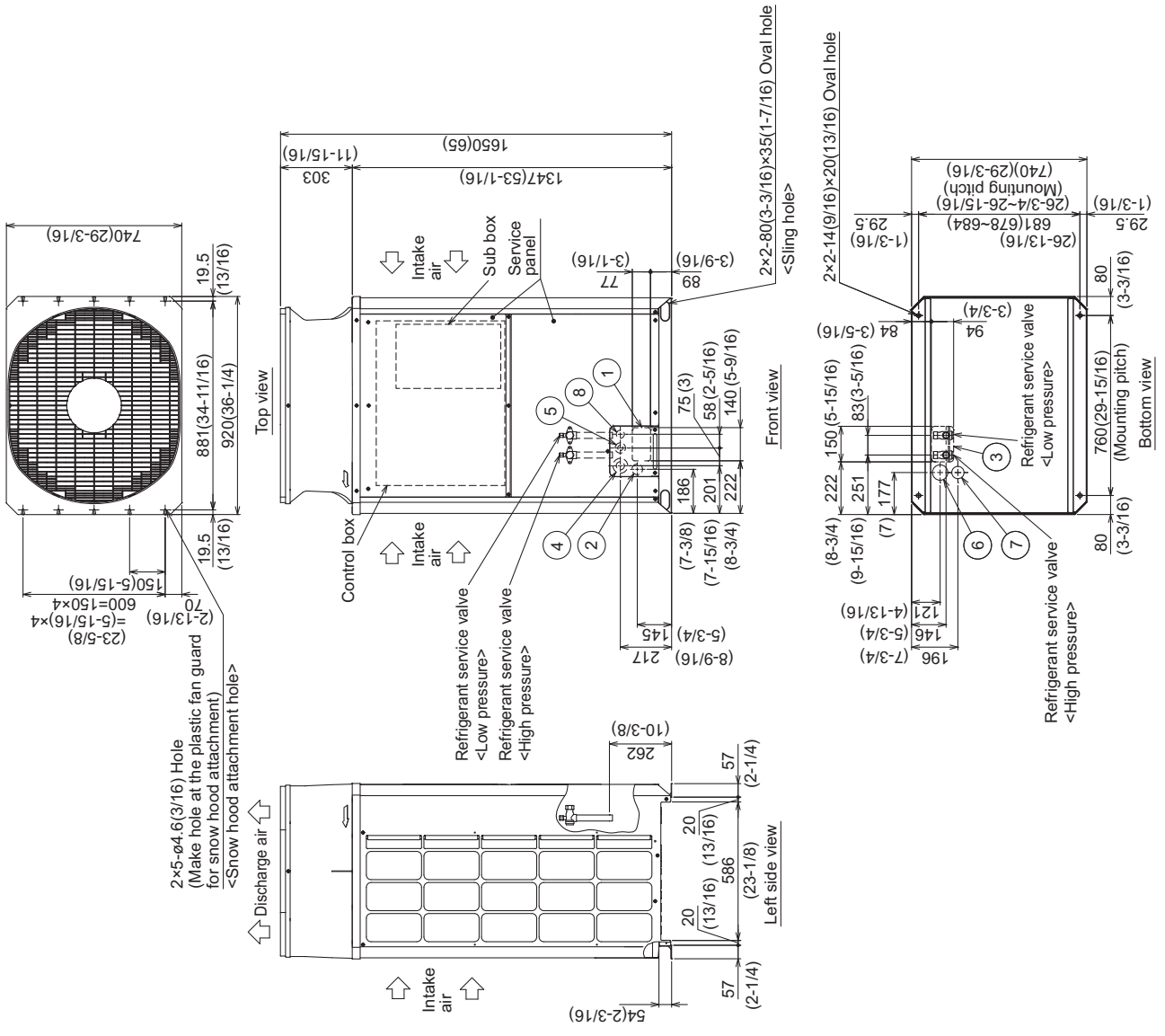
Note1.Please refer to the next page for information regarding necessary spacing around the unit and foundation work.
2.At brazing of pipes,wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C(248°F).

Connecting pipe specifications

| Model | Diameter | | | |
|---|---|---|---|---|
| | Refrigerant pipe | | Service valve | |
| | High pressure | Low pressure | High pressure | Low pressure |
| PURY-P72ZKMU | ø15.88 Brazed (5/8) *1 | ø19.05 Brazed (3/4) *1 | ø25.4 (1) | ø25.4 (1) |

*1 Use the pipe joint(field supply) and connect to the refrigerant service valve piping.

| NO. | Usage | | Specifications |
|---|---|---|---|
| ① | For pipes | Front through hole | 140 × 77 Knockout hole (5-9/16) (3-1/16) |
| ② | | Front through hole (Uses when twinning kit (optional parts) is mounted.) | ø45 Knockout hole (1-13/16) |
| ③ | | Bottom through hole | 150 × 94 Knockout hole (5-15/16) (3-3/4) |
| ④ | For wires | Front through hole | ø62.7 or ø34.5 Knockout hole (2-1/2) (1-3/8) |
| ⑤ | | Front through hole | ø43.7 or ø22.2 Knockout hole (1-3/4) (7/8) |
| ⑥ | | Bottom through hole | ø65 Knockout hole (2-9/16) |
| ⑦ | | Bottom through hole | ø52 Knockout hole (2-1/16) |
| ⑧ | For transmission cables | Front through hole | ø34 Knockout hole (1-3/8) |



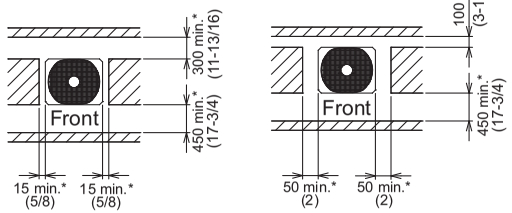
## 1.Required space around the unit

### ●In case of single installation

① Secure enough space around the unit as shown in the figure below.

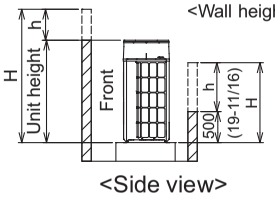
• With a space of at least 300mm(11-13/16) to the wall on the back of the unit

• With a space of at least 100mm(3-15/16) to the wall on the back of the unit




<Unit:mm(in)>

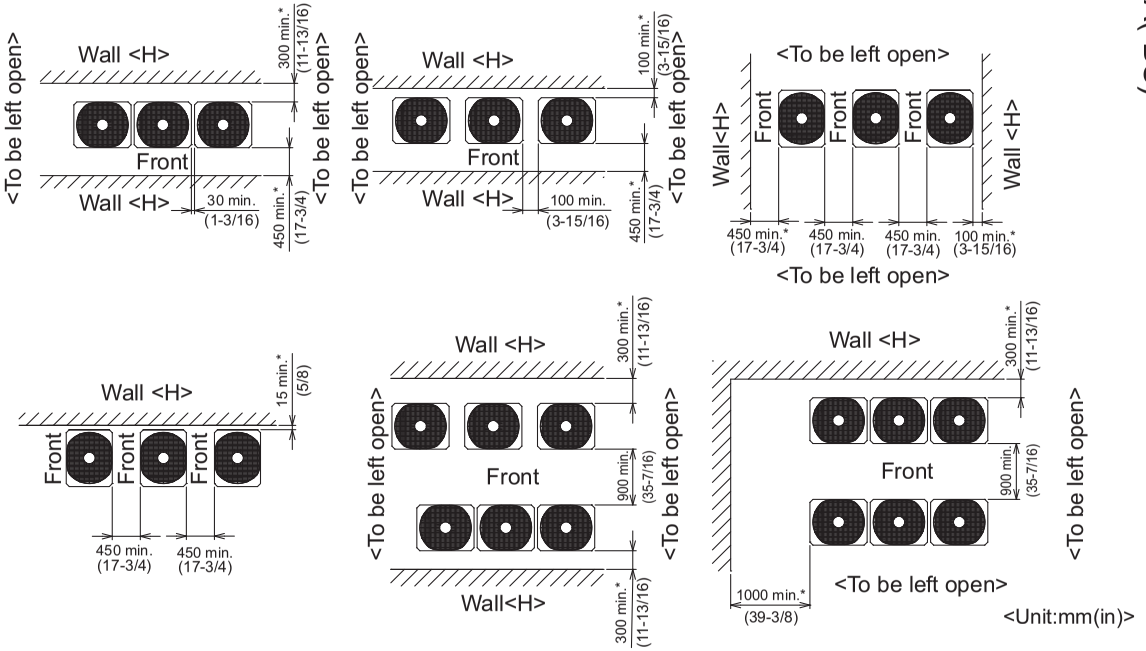
② When the height of the walls on the front,back or on the sides<H> exceeds the wall height limit as defined below add the height that exceeds the height limit <h> to the figures that are marked with an asterisk.




<Wall height limit> Front :Up to the unit height
Back :Up to 500mm(19-11/16) from the unit bottom
Side :Up to the unit height

### ●In case of collective installation

① When multiple units are installed adjacent to each other, secure enough space to allow for air circulation and walkway between groups of units as shown in the figures below.
② At least two sides must be left open.
③ As with the single installation, add the height that exceeds the height limit<h> to the figures that are marked with an asterisk.
④ If there is a wall at both the front and the rear of the unit, install up to six units consecutively in the side direction and provide a space of 1000mm(39-3/8) or more as inlet space/ passage space for each six units.




<Unit:mm(in)>

## 2.Foundation work

① Take into consideration the surface strength,water drainage route, piping route,and wiring route when preparing the installation site. <Note that the drain water comes out of the unit during operation.>
② Build the foundation in such way that the corner of the installation leg is securely supported as shown in the right figure.(Fig.A) When using a rubber isolating cushion, please ensure it is large enough to cover the entire width of each of the unit's legs.
③ The protrusion length of the anchor bolt must not exceed 30mm(1-3/16).(Fig.A)
④ Use four fixing plates as shown in the right figure <field supply required> when using post-installed anchor bolts.(Fig.B)
⑤ To prevent small animals and water and snow from entering the unit and damaging its parts, close the gap around the edges of through holes for pipes and wires with filler plates <field supply required>.
⑥ When the pipes or cables are routed at the bottom of the unit, make sure that the through hole at the base of the unit does not get blocked with the installation base.
⑦ Refer to the Installation Manual when installing units on an installation base.

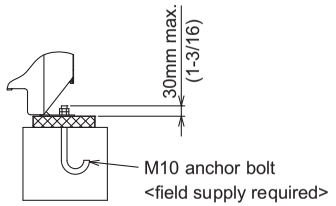



Fig.A

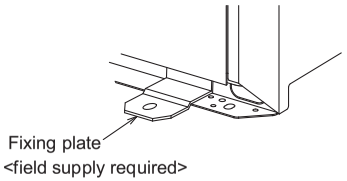



Fig.B

Unit: mm (in.)

## PURY-P96ZKMU-A(-BS)

Unit: mm (in.)

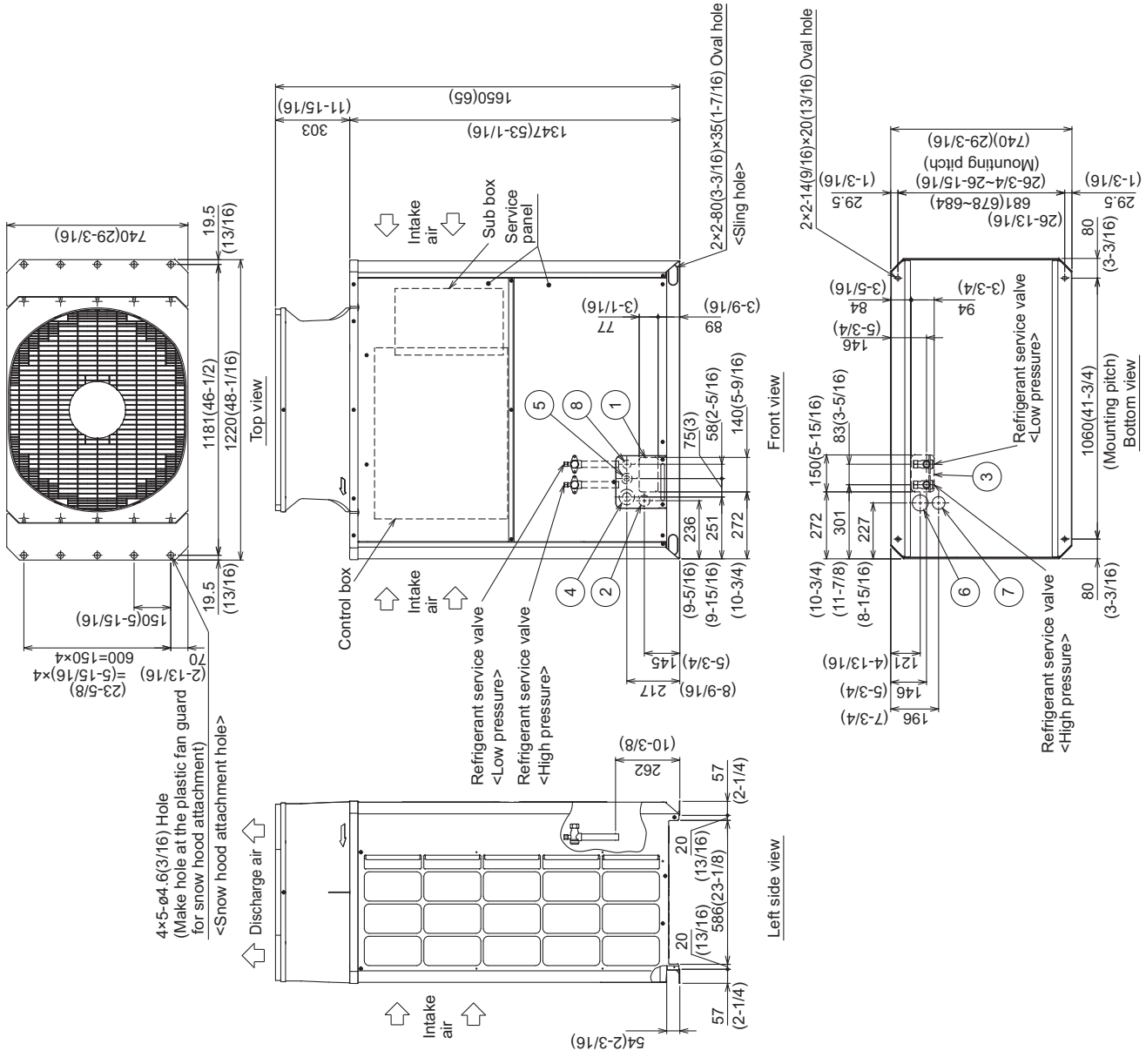
Note1.Please refer to the next page for information regarding necessary spacing around the unit and foundation work.
2.At brazing of pipes,wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C(248 °F).

Connecting pipe specifications

| Model | Diameter | | | |
|---|---|---|---|---|
| | Refrigerant pipe | | Service valve | |
| | High pressure | Low pressure | High pressure | Low pressure |
| PURY-P96ZKMU | ø19.05 Brazed (3/4) *1 | ø22.2 Brazed (7/8) *1 | ø25.4 (1) | ø25.4 (1) |

*1 Use the pipe joint(field supply) and connect to the refrigerant service valve piping.

| NO. | Usage | | Specifications |
|---|---|---|---|
| ① | For pipes | Front through hole | 140 × 77 Knockout hole (5-9/16) (3-1/16) |
| ② | | Front through hole (Uses when twinning kit (optional parts) is mounted.) | ø45 Knockout hole (1-13/16) |
| ③ | | Bottom through hole | 150 × 94 Knockout hole (5-15/16) (3-3/4) |
| ④ | For wires | Front through hole | ø62.7 or ø34.5 Knockout hole (2-1/2) (1-3/8) |
| ⑤ | | Front through hole | ø43.7 or ø22.2 Knockout hole (1-3/4) (7/8) |
| ⑥ | | Bottom through hole | ø65 Knockout hole (2-9/16) |
| ⑦ | | Bottom through hole | ø52 Knockout hole (2-1/16) |
| ⑧ | For transmission cables | Front through hole | ø34 Knockout hole (1-3/8) |




R2 575V

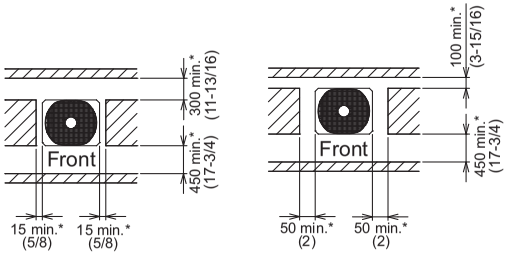
## 1.Required space around the unit

### ●In case of single installation

① Secure enough space around the unit as shown in the figure below.

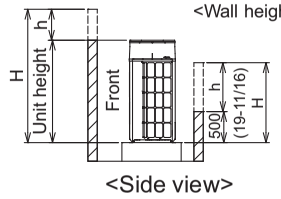
• With a space of at least 300mm(11-13/16) to the wall on the back of the unit

• With a space of at least 100mm(3-15/16) to the wall on the back of the unit




<Unit:mm(in)>

② When the height of the walls on the front,back or on the sides<H> exceeds the wall height limit as defined below add the height that exceeds the height limit <h> to the figures that are marked with an asterisk.




<Wall height limit> Front :Up to the unit height
Back :Up to 500mm(19-11/16) from the unit bottom
Side :Up to the unit height

## 2.Foundation work

① Take into consideration the surface strength,water drainage route, piping route,and wiring route when preparing the installation site. <Note that the drain water comes out of the unit during operation.>

② Build the foundation in such way that the corner of the installation leg is securely supported as shown in the right figure.(Fig.A) When using a rubber isolating cushion, please ensure it is large enough to cover the entire width of each of the unit's legs.

③ The protrusion length of the anchor bolt must not exceed 30mm(1-3/16).(Fig.A)

④ Use four fixing plates as shown in the right figure <field supply required> when using post-installed anchor bolts.(Fig.B)

⑤ To prevent small animals and water and snow from entering the unit and damaging its parts, close the gap around the edges of through holes for pipes and wires with filler plates <field supply required>.

⑥ When the pipes or cables are routed at the bottom of the unit, make sure that the through hole at the base of the unit does not get blocked with the installation base.

⑦ Refer to the Installation Manual when installing units on an installation base.

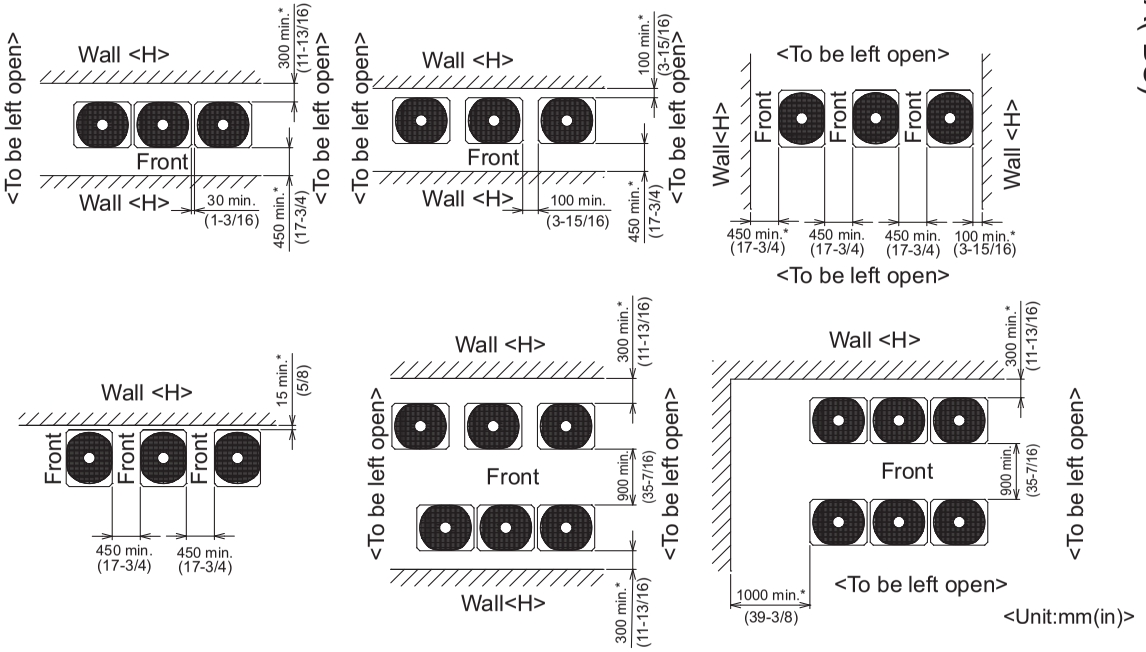
### ●In case of collective installation

① When multiple units are installed adjacent to each other, secure enough space to allow for air circulation and walkway between groups of units as shown in the figures below.

② At least two sides must be left open.

③ As with the single installation, add the height that exceeds the height limit<h> to the figures that are marked with an asterisk.

④ If there is a wall at both the front and the rear of the unit, install up to six units consecutively in the side direction and provide a space of 1000mm(39-3/8) or more as inlet space/ passage space for each six units.




<Unit:mm(in)>

Fig.A

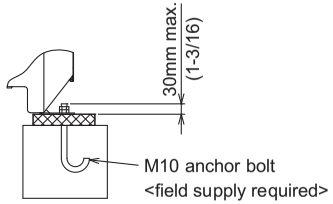
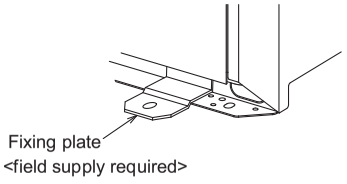



Fig.B




Unit: mm (in.)

# 2. EXTERNAL DIMENSIONS

## PURY-P120, 144ZKMU-A(-BS)

Unit: mm (in.)

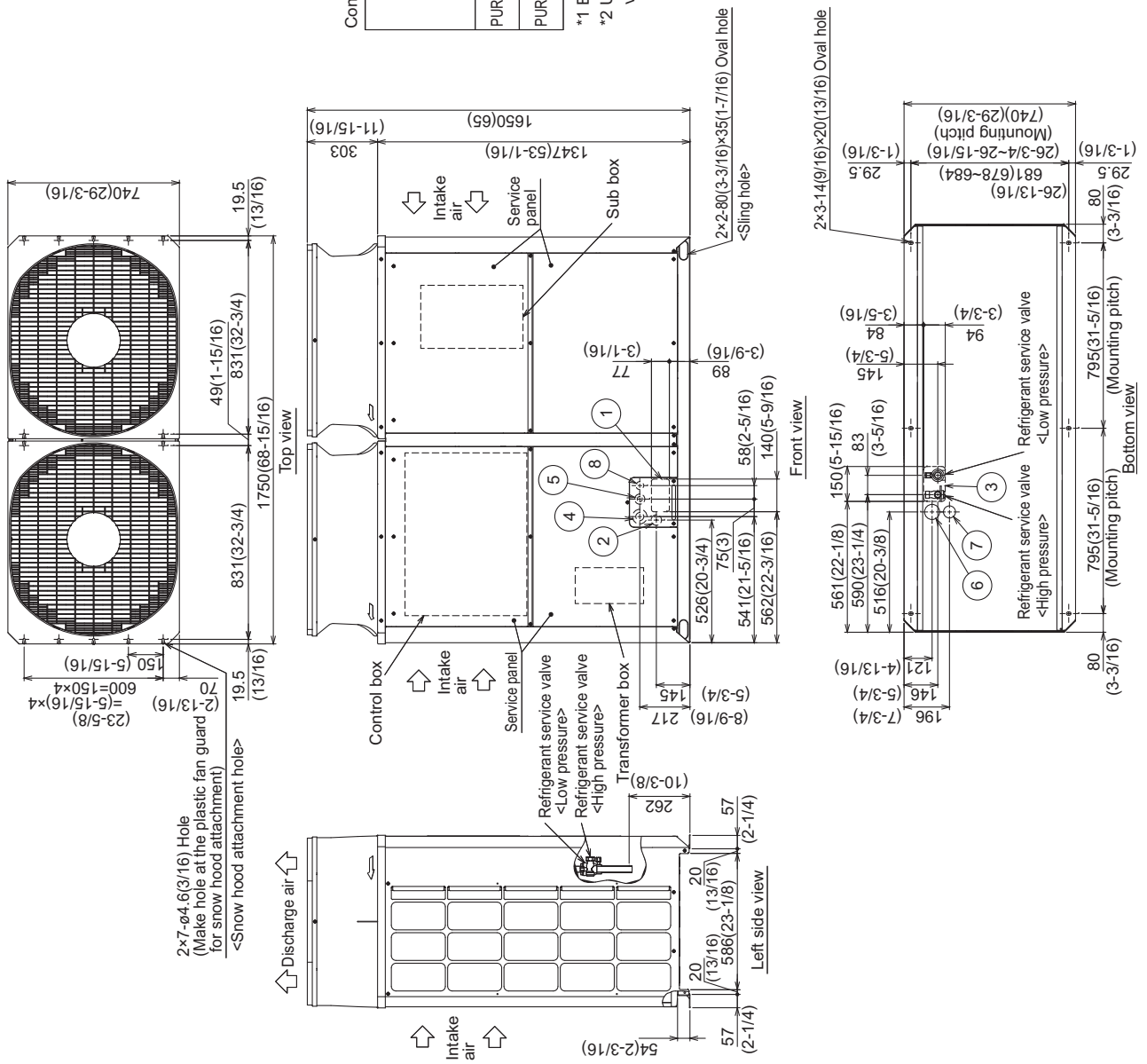
Note1.Please refer to the next page for information regarding necessary spacing around the unit and foundation work.
2.At brazing of pipes,wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C(248 °F).

Connecting pipe specifications

| Model | Diameter | | | |
|---|---|---|---|---|
| | Refrigerant pipe | | Service valve | |
| | High pressure | Low pressure | High pressure | Low pressure |
| PURY-P120ZKMU | ø19.05 Brazed (3/4) *2 | ø28.58 Brazed (1-1/8) *1 | ø25.4 (1) | ø28.58 (1-1/8) |
| PURY-P144ZKMU | ø22.2 Brazed (7/8) *2 | ø28.58 Brazed (1-1/8) *1 | ø25.4 (1) | ø28.58 (1-1/8) |

*1 Expand the on-site piping and connect to the refrigerant service valve piping.
*2 Use the pipe joint(field supply) and connect to the refrigerant service valve piping.

| NO. | Usage | | Specifications |
|---|---|---|---|
| ① | For pipes | Front through hole | 140 × 77 Knockout hole (5-9/16) (3-1/16) |
| ② | | Front through hole (Uses when twinning kit (optional parts) is mounted.) | ø45 Knockout hole (1-13/16) |
| ③ | | Bottom through hole | 150 × 94 Knockout hole (5-15/16) (3-3/4) |
| ④ | For wires | Front through hole | ø62.7 or ø34.5 Knockout hole (2-1/2) (1-3/8) |
| ⑤ | | Front through hole | ø43.7 or ø22.2 Knockout hole (1-3/4) (7/8) |
| ⑥ | | Bottom through hole | ø65 Knockout hole (2-9/16) |
| ⑦ | | Bottom through hole | ø52 Knockout hole (2-1/16) |
| ⑧ | For transmission cables | Front through hole | ø34 Knockout hole (1-3/8) |




R2 575V

PURY-P120, 144ZKMU-A(-BS)

Unit: mm (in.)

## 1.Required space around the unit

### ●In case of single installation

① Secure enough space around the unit as shown in the figure below.

- With a space of at least 300mm(11-13/16) to the wall on the back of the unit
- With a space of at least 100mm(3-15/16) to the wall on the back of the unit







② When the height of the walls on the front,back or on the sides<H> exceeds the wall height limit as defined below add the height that exceeds the height limit <h> to the figures that are marked with an asterisk.




### ●In case of collective installation

① When multiple units are installed adjacent to each other, secure enough space to allow for air circulation and walkway between groups of units as shown in the figures below.
② At least two sides must be left open.
③ As with the single installation, add the height that exceeds the height limit<h> to the figures that are marked with an asterisk.
④ If there is a wall at both the front and the rear of the unit, install up to three units consecutively in the side direction and provide a space of 1000mm(39-3/8) or more as inlet space/ passage space for each three units.



















## 2.Foundation work

① Take into consideration the surface strength,water drainage route, piping route,and wiring route when preparing the installation site.
<Note that the drain water comes out of the unit during operation.>
②Build the foundation in such way that the corner of the installation leg is securely supported as shown in the right figure.(Fig.A)
When using a rubber isolating cushion, please ensure it is large enough to cover the entire width of each of the unit's legs.
③The protrusion length of the anchor bolt must not exceed 30mm(1-3/16).(Fig.A)
④Use four fixing plates as shown in the right figure <field supply required>
when using post-installed anchor bolts.(Fig.B)
⑤To prevent small animals and water and snow from entering the unit and damaging its parts, close the gap around the edges of through holes for pipes and wires with filler plates <field supply required>.
⑥When the pipes or cables are routed at the bottom of the unit, make sure that the through hole at the base of the unit does not get blocked with the installation base.
⑦Refer to the Installation Manual when installing units on an installation base.




Fig.A

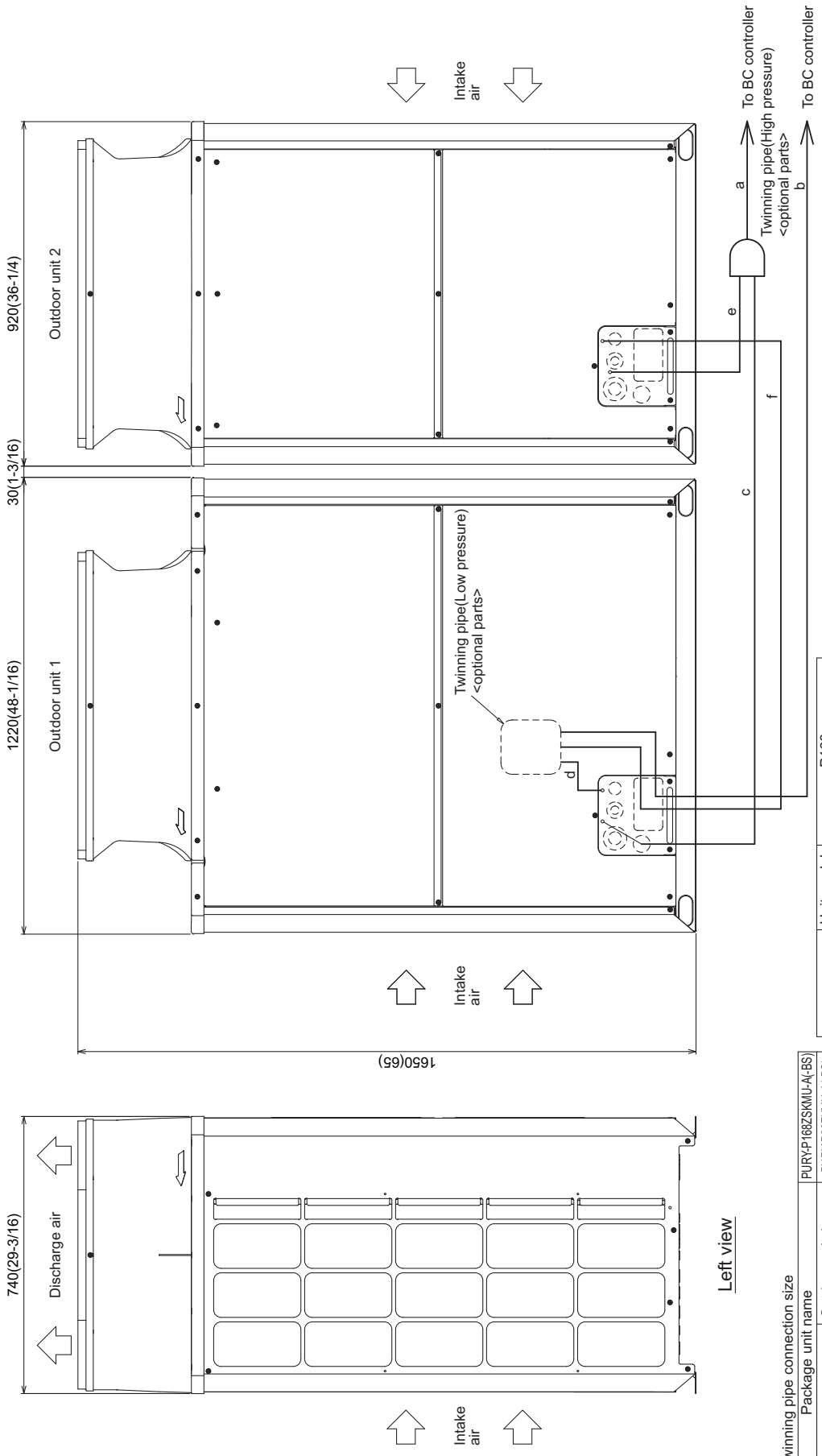



Fig.B

R2 575V

PURY-P168ZSKMU-A(-BS)

Unit: mm (in.)




| | | Unit model | P168 | |
|---|---|---|---|---|
| | | Component unit model | P96 | P72 |
| Twinning Kit ~Outdoor unit | High pressure | c | ø19.05(3/4) | e ø15.88(5/8) |
| | Low pressure | d | - (Note 5) | f ø19.05(3/4) |

Twinning pipe connection size

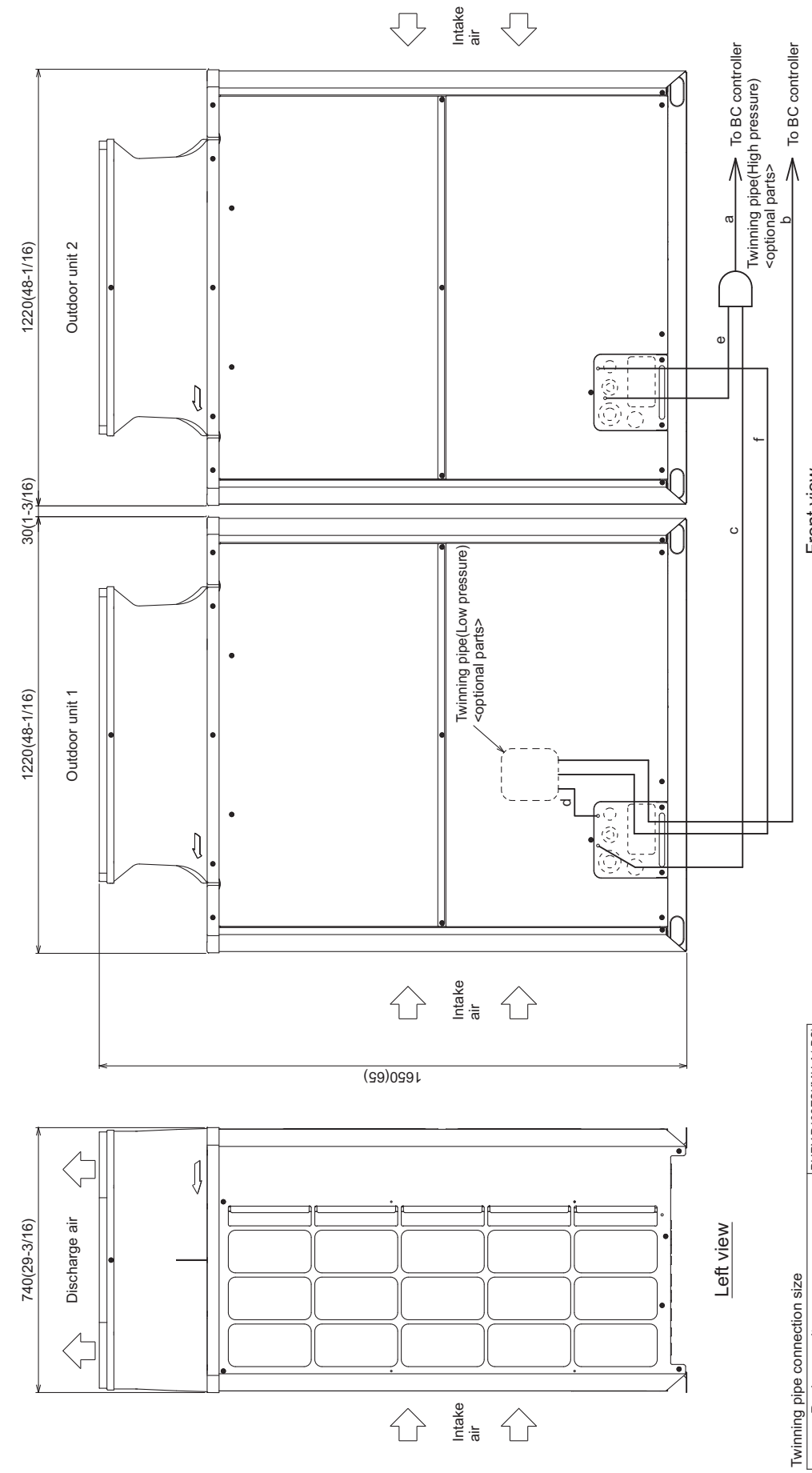
| Package unit name | | | PURY-P168ZSKMU-A(-BS) |
|---|---|---|---|
| Component unit name | Outdoor unit 1 | | PURY-P96ZKMU-A(-BS) |
| | Outdoor unit 2 | | PURY-P72ZKMU-A(-BS) |
| Outdoor Twinning Kit(optional parts) | | | CMY-R100CBK2 |
| BC controller~Twinning pipe | High pressure | a | ø22.2(7/8) |
| | Low pressure | b | ø28.58(1-1/8) |

Note 1.Connect the pipes as shown in the figure above. Refer to the table above for the pipe size.
2.Twinning pipe (High pressure) should not be tilted more than 15 degrees from the horizontal plane.
Be sure to see the Installation Manual for details of Twinning pipe installation.
3.The pipe section before the Twinning pipe (section "a" in the figure) must have at least 500mm(19-11/16) of straight section (*including the straight pipe that is supplied with the Twinning pipe).
4.Only use the Twinning pipe by Mitsubishi (optional parts).
5.Connect the outdoor unit 1 with the Twinning pipe (Low pressure) (section "d" in the figure).

R2 575V

## PURY-P192ZSKMU-A(-BS)

Unit: mm (in.)




| | | Unit model | P192 | | | |
|---|---|---|---|---|---|---|
| | | Component unit model | P96 | | P96 | |
| Twinning Kit ~Outdoor unit | High pressure | c | ø19.05(3/4) | e | ø19.05(3/4) | |
| | Low pressure | d | - (Note 5) | f | ø22.2(7/8) | |

Twinning pipe connection size

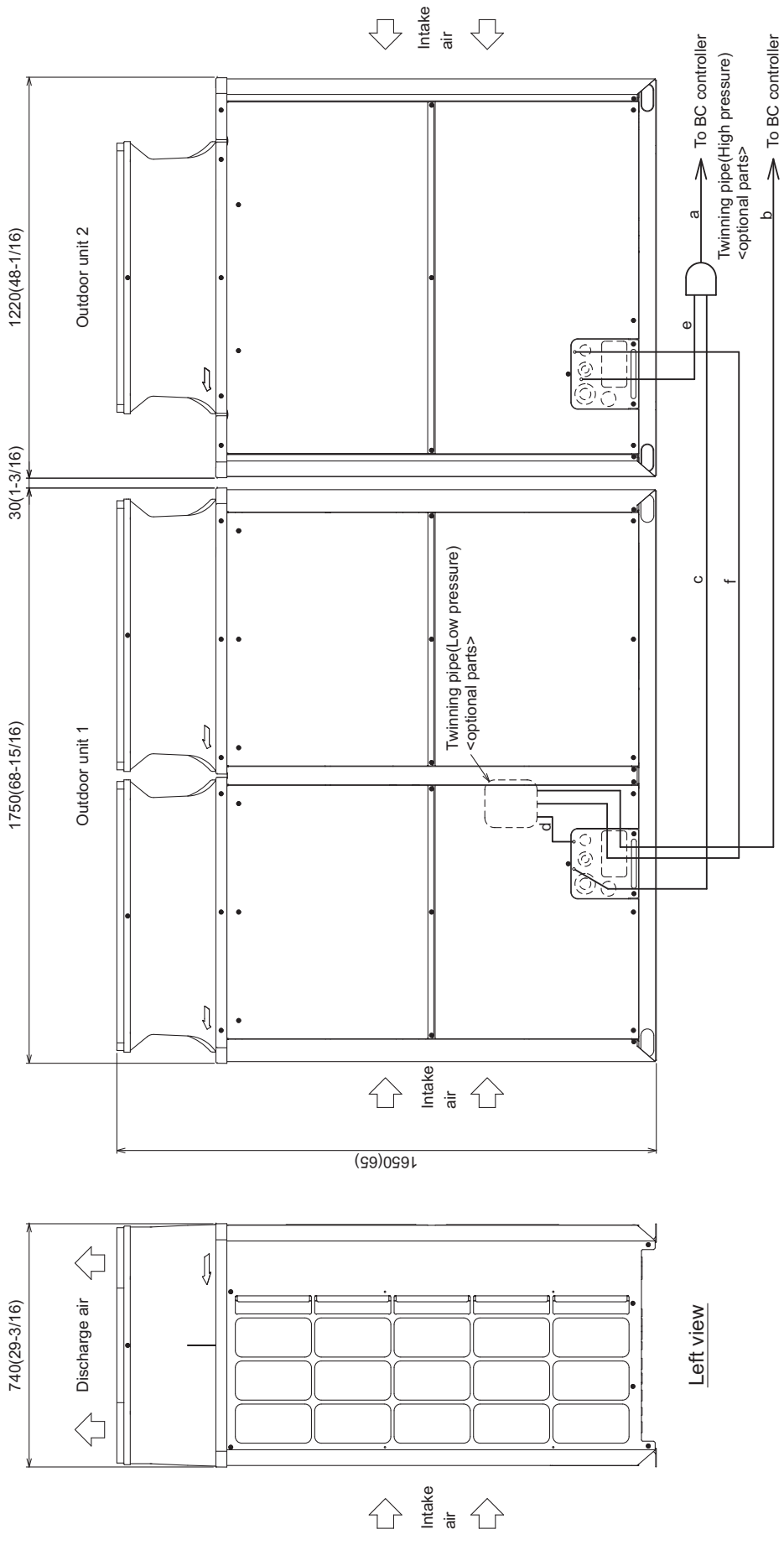
| Package unit name | | | PURY-P192ZSKMU-A(-BS) |
|---|---|---|---|
| Component unit name | Outdoor unit 1 | | PURY-P96ZKMU-A(-BS) |
| | Outdoor unit 2 | | PURY-P96ZKMU-A(-BS) |
| Outdoor Twinning Kit(optional parts) | | | CMY-R100CBK2 |
| BC controller~Twinning pipe | High pressure | a | ø22.2(7/8) |
| | Low pressure | b | ø28.58(1-1/8) |

Note 1.Connect the pipes as shown in the figure above. Refer to the table above for the pipe size.
2.Twinning pipe (High pressure) should not be tilted more than 15 degrees from the horizontal plane.
Be sure to see the Installation Manual for details of Twinning pipe installation.
3.The pipe section before the Twinning pipe (section "a" in the figure) must have at least 500mm(19-11/16) of straight section
(*including the straight pipe that is supplied with the Twinning pipe).
4.Only use the Twinning pipe by Mitsubishi (optional parts).
5.Connect the outdoor unit 1 with the Twinning pipe (Low pressure) (section "d" in the figure).

R2 575V

PURY-P216ZSKMU-A(-BS)

Unit: mm (in.)




Twinning pipe connection size

| Package unit name | | | PURY-P216ZSKMU-A(-BS) |
|---|---|---|---|
| Component unit name | Outdoor unit 1 | | PURY-P120ZKMU-A(-BS) |
| | Outdoor unit 2 | | PURY-P96ZKMU-A(-BS) |
| Outdoor Twinning Kit(optional parts) | | | CMY-R100XLCBK |
| BC controller~Twinning pipe | High pressure | a | ø28.58(1-1/8) |
| | Low pressure | b | ø28.58(1-1/8) |

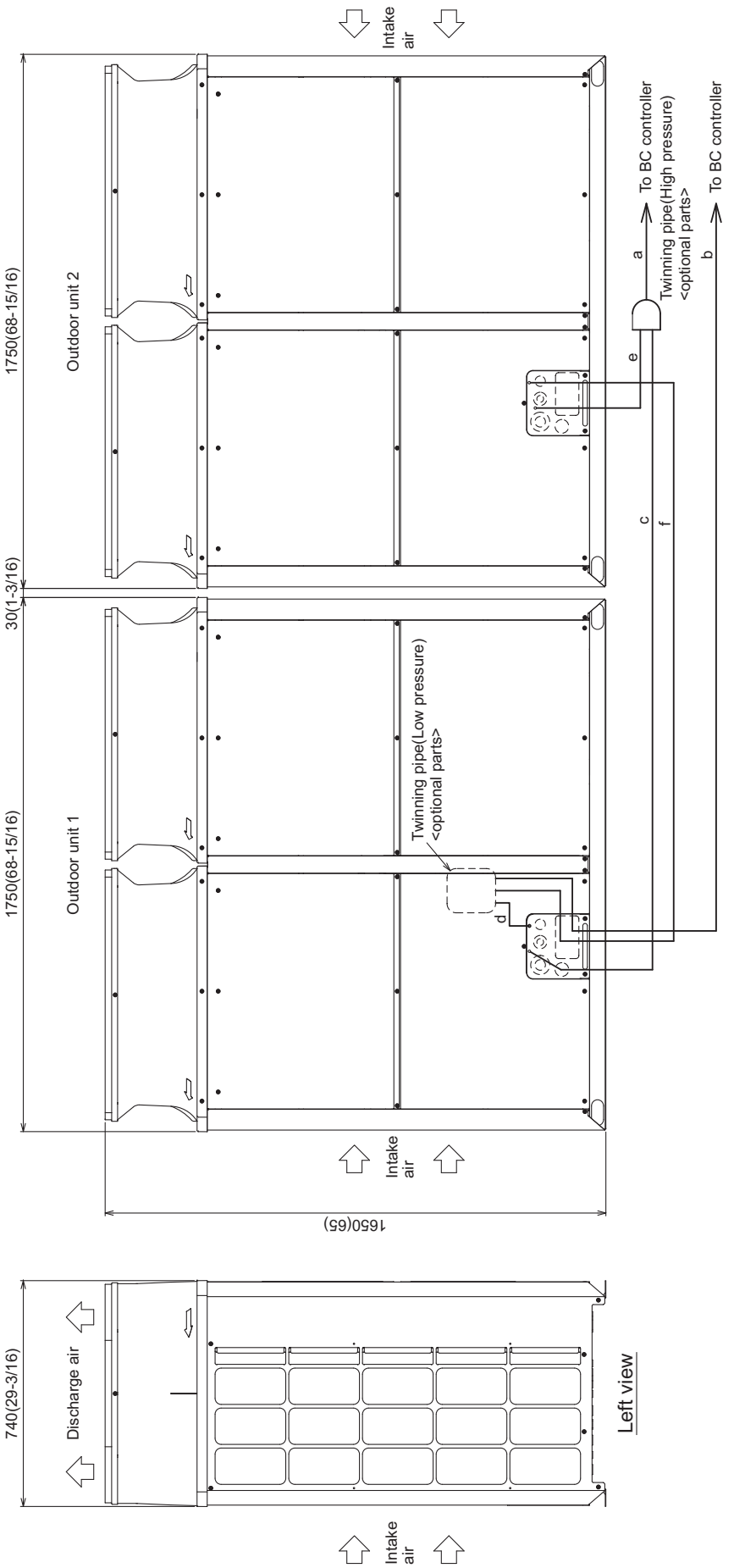
| | Unit model | P216 | | |
|---|---|---|---|---|
| | Component unit model | P120 | | P96 |
| Twinning Kit ~Outdoor unit | High pressure | c | ø19.05(3/4) | e ø19.05(3/4) |
| | Low pressure | d - (Note 5) | | f ø22.2(7/8) |

Note 1.Connect the pipes as shown in the figure above. Refer to the table above for the pipe size.
2.Twinning pipe (High pressure) should not be tilted more than 15 degrees from the horizontal plane.
Be sure to see the Installation Manual for details of Twinning pipe installation.
3.The pipe section before the Twinning pipe (section "a" in the figure) must have at least 500mm(19-11/16) of straight section (*including the straight pipe that is supplied with the Twinning pipe).
4.Only use the Twinning pipe by Mitsubishi (optional parts).
5.Connect the outdoor unit 1 with the Twinning pipe (Low pressure) (section "d" in the figure).

R2 575V

PURY-P240, 264, 288ZSKMU-A(-BS)

Unit: mm (in.)




Twinning pipe connection size

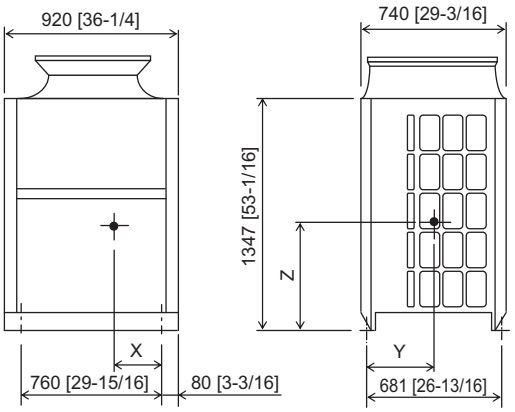
| Package unit name | | PURY-P240ZSKMU-A(-BS) | PURY-P264ZSKMU-A(-BS) | PURY-P288ZSKMU-A(-BS) |
|---|---|---|---|---|
| Component unit name | Outdoor unit 1 | PURY-P120ZKMU-A(-BS) | PURY-P144ZKMU-A(-BS) | PURY-P144ZKMU-A(-BS) |
| | Outdoor unit 2 | PURY-P120ZKMU-A(-BS) | PURY-P120ZKMU-A(-BS) | PURY-P144ZKMU-A(-BS) |
| Outdoor Twinning Kit(optional parts) | | CMY-R100XLCBK | | |
| BC controller-Twinning pipe | High pressure a | ø28.58(1-1/8) | | |
| | Low pressure b | ø34.93(1-3/8) | | |

| Twinning Kit - Outdoor unit | Unit model | P240 | | | P264 | | | P288 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Component unit model | P120 | P120 | | P144 | P120 | | P144 | | P144 | |
| | High pressure | c | ø19.05(3/4) | e | ø22.2(7/8) | ø19.05(3/4) | c | ø22.2(7/8) | e | ø22.2(7/8) | |
| | Low pressure | d | - (Note 5) | f | ø28.58(1-1/8) | - (Note 5) | f | ø28.58(1-1/8) | d | - (Note 5) | f | ø28.58(1-1/8) |

Note 1. Connect the pipes as shown in the figure above. Refer to the table above for the pipe size.
2. Twinning pipe (High pressure) should not be tilted more than 15 degrees from the horizontal plane.
Be sure to see the Installation Manual for details of Twinning pipe installation.
3. The pipe section before the Twinning pipe (section "a" in the figure) must have at least 500mm(19-11/16) of straight section (*including the straight pipe that is supplied with the Twinning pipe).
4. Only use the Twinning pipe by Mitsubishi (optional parts).
5. Connect the outdoor unit 1 with the Twinning pipe (Low pressure) (section "d" in the figure).

R2 575V

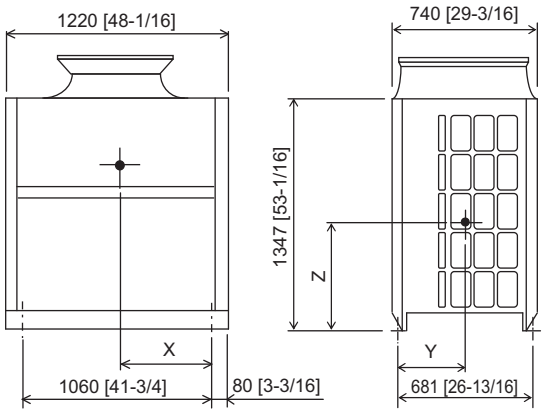
## PURY-P72ZKMU-A (-BS)




Unit: mm[in.]

| Model | X | Y | Z |
|---|---|---|---|
| PURY-P72ZKMU-A(-BS) | 324[12-13/16] | 297[11-3/4] | 670[26-7/16] |

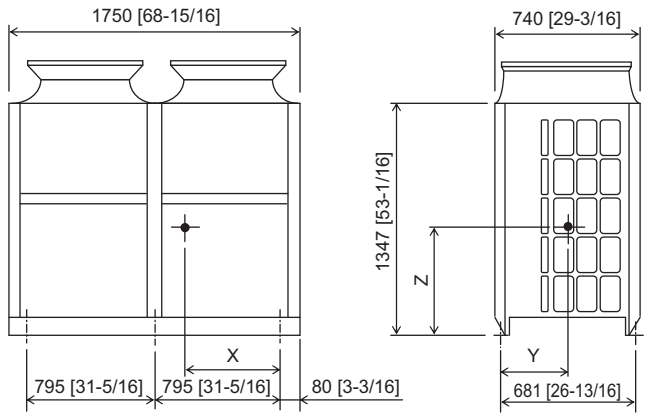
## PURY-P96ZKMU-A (-BS)




Unit: mm[in.]

| Model | X | Y | Z |
|---|---|---|---|
| PURY-P96ZKMU-A(-BS) | 441[17-3/8] | 312[12-5/16] | 655[25-13/16] |

## PURY-P120, 144ZKMU-A (-BS)

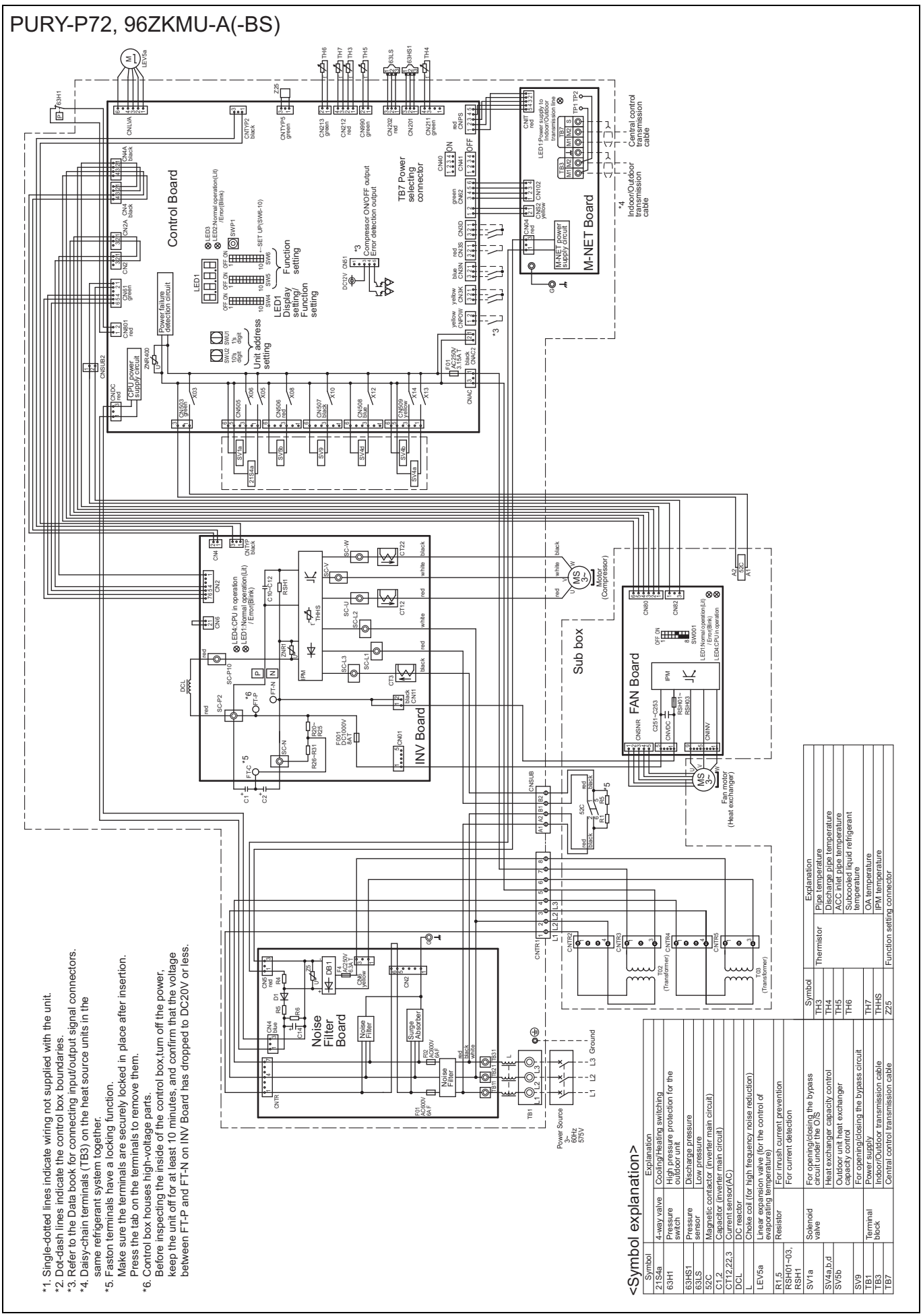



Unit: mm[in.]

| Model | X | Y | Z |
|---|---|---|---|
| PURY-P120ZKMU-A(-BS) | 713[28-1/8] | 319[12-9/16] | 660[26] |
| PURY-P144ZKMU-A(-BS) | 713[28-1/8] | 319[12-9/16] | 660[26] |

R2 575V

## PURY-P72, 96ZKMU-A(-BS)



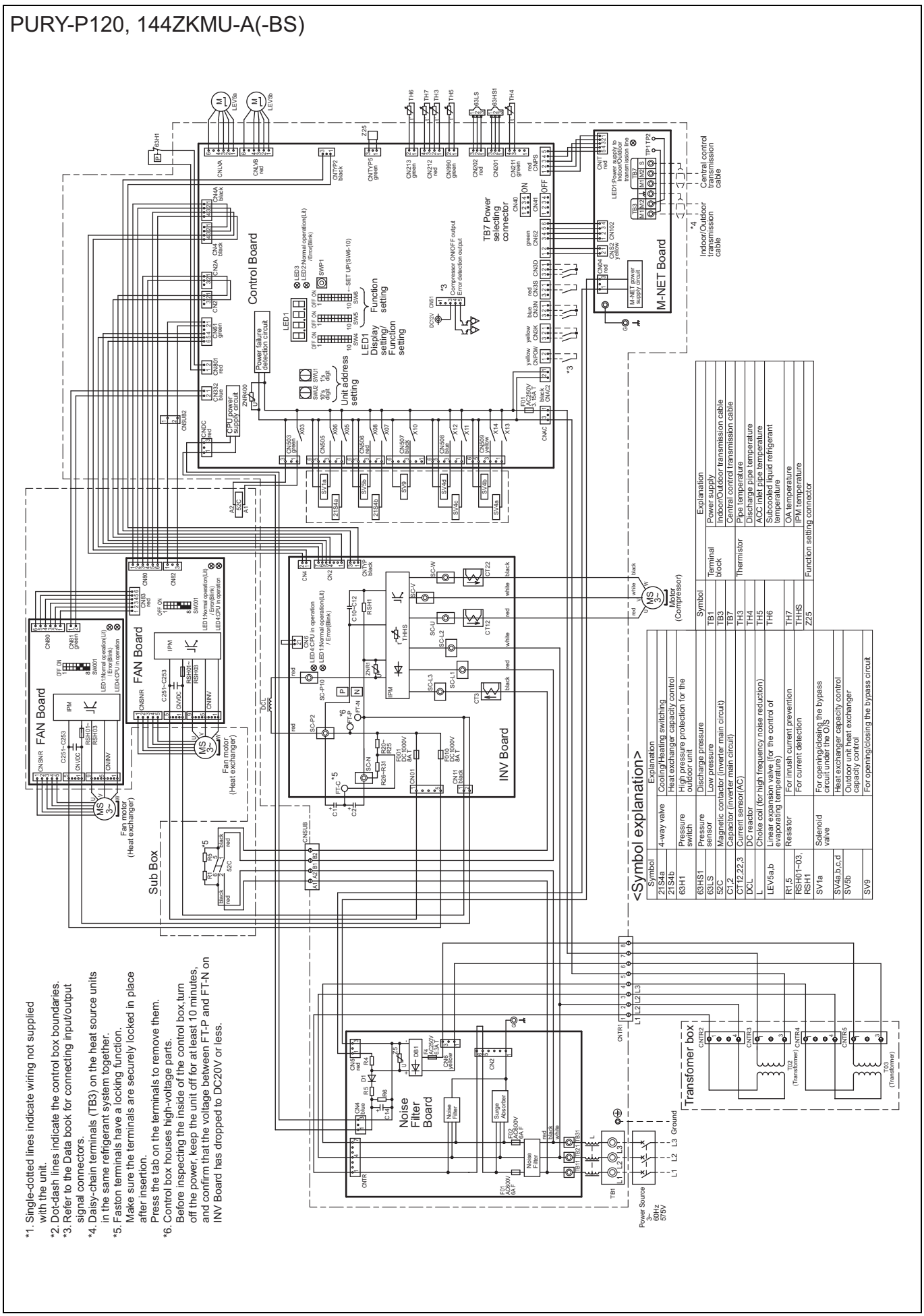

<Symbol explanation>

| Symbol | | Explanation |
|---|---|---|
| 21S4a | 4-way valve | Cooling/Heating switching |
| 63H1 | Pressure switch | High pressure protection for the outdoor unit |
| 63HS1 | Pressure sensor | Discharge pressure |
| 63LS | Low pressure | |
| 52C | Magnetic contactor (inverter main circuit) | |
| C1,2 | Capacitor (inverter main circuit) | |
| CT12,22,3 | Current sensor(AC) | |
| DCL | DC reactor | |
| L | Choke coil (for high frequency noise reduction) | |
| LEV5a | Linear expansion valve (for the control of evaporating temperature) | |
| R1,5 | Resistor | For inrush current prevention |
| RSH101~03, RSH1 | | For current detection |
| SV1a | Solenoid valve | For opening/closing the bypass circuit under the O/S |
| SV4a,b,d | | Heat exchanger capacity control |
| SV5b | | Outdoor unit heat exchanger capacity control |
| SV9 | | For opening/closing the bypass circuit |
| TB1 | Terminal block | Power supply |
| TB3 | | Indoor/Outdoor transmission cable |
| TB7 | | Central control transmission cable |

| Symbol | | Explanation |
|---|---|---|
| TH3 | Thermistor | Pipe temperature |
| TH4 | | Discharge pipe temperature |
| TH5 | | ACC inlet pipe temperature |
| TH6 | | Subcooled liquid refrigerant temperature |
| TH7 | | OA temperature |
| THHS | | IPM temperature |
| Z25 | | Function setting connector |

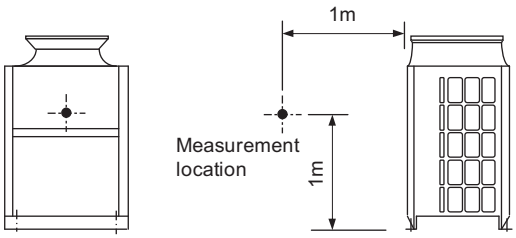
R2 575V

PURY-P120, 144ZKMU-A(-BS)

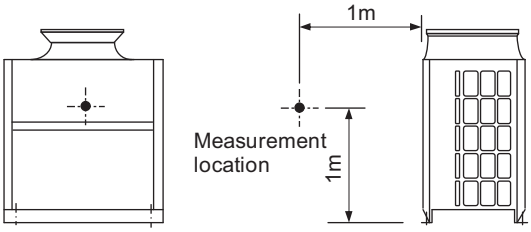



R2 575V

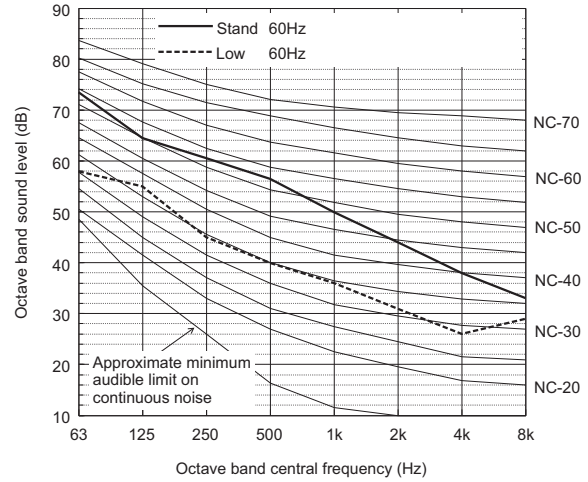
**Measurement condition**
**PURY-P72ZKMU**




**Measurement condition**
**PURY-P96ZKMU**



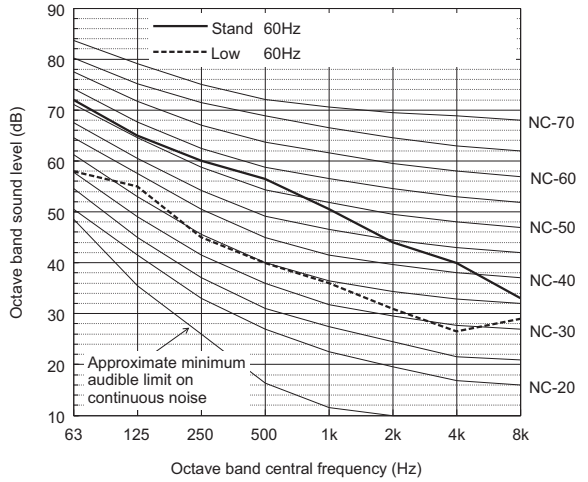

**Sound level of PURY-P72ZKMU-A(-BS)**




| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|
| Standard | 60Hz | 73.5 | 64.5 | 60.5 | 56.5 | 50.0 | 44.0 | 38.0 | 33.0 | 58.0 |
| Low noise mode | 60Hz | 58.0 | 55.0 | 45.0 | 40.0 | 36.0 | 31.0 | 26.0 | 29.0 | 44.0 |

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

**Sound level of PURY-P96ZKMU-A(-BS)**

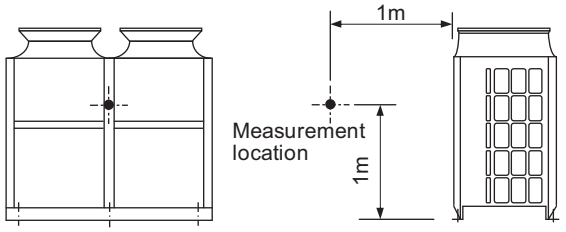



| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|
| Standard | 60Hz | 72.0 | 65.0 | 60.0 | 56.5 | 50.5 | 44.0 | 40.0 | 33.0 | 58.0 |
| Low noise mode | 60Hz | 58.0 | 55.0 | 45.0 | 40.0 | 36.0 | 31.0 | 26.5 | 29.0 | 44.0 |

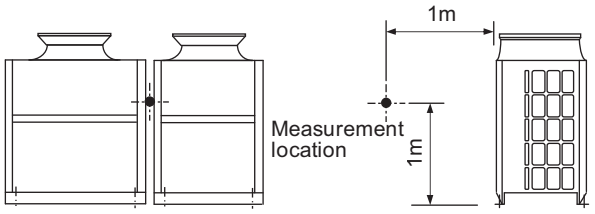
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

R2 575V

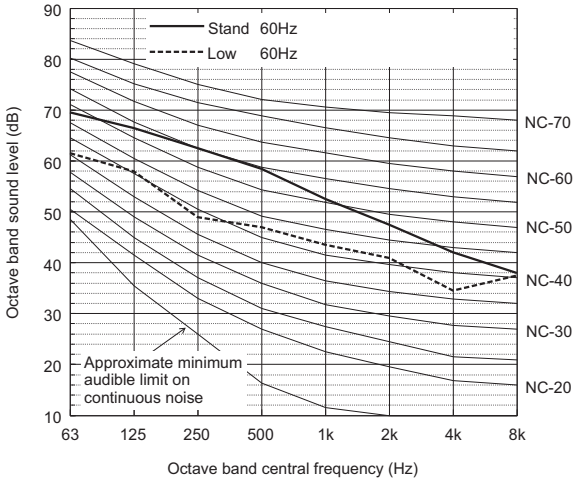
**Measurement condition**
**PURY-P120, 144ZKMU**




**Measurement condition**
**PURY-P168ZSKMU**



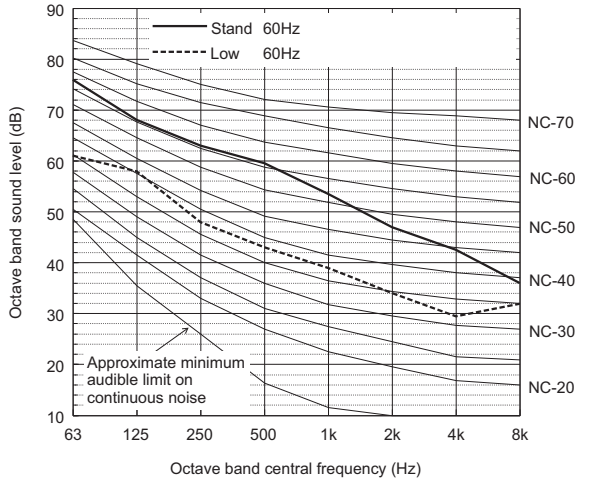

**Sound level of PURY-P120ZKMU-A(-BS)**




| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|
| Standard | 60Hz | 69.5 | 66.5 | 62.5 | 58.5 | 52.5 | 47.5 | 42.0 | 38.0 | 60.0 |
| Low noise mode | 60Hz | 61.5 | 58.0 | 49.0 | 47.0 | 43.5 | 41.0 | 34.5 | 37.5 | 50.0 |

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

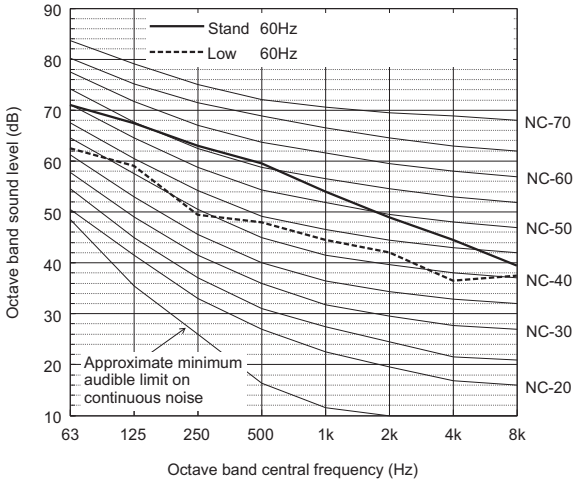
**Sound level of PURY-P168ZSKMU-A(-BS)**




| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|
| Standard | 60Hz | 76.0 | 68.0 | 63.0 | 59.5 | 53.5 | 47.0 | 42.5 | 36.0 | 61.0 |
| Low noise mode | 60Hz | 61.0 | 58.0 | 48.0 | 43.0 | 39.0 | 34.0 | 29.5 | 32.0 | 47.0 |

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

**Sound level of PURY-P144ZKMU-A(-BS)**

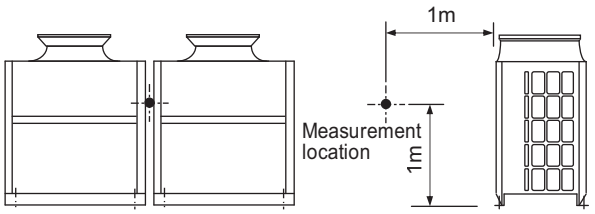



| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|
| Standard | 60Hz | 71.0 | 67.5 | 63.0 | 59.5 | 54.0 | 49.0 | 44.5 | 39.5 | 61.0 |
| Low noise mode | 60Hz | 62.5 | 59.0 | 49.5 | 48.0 | 44.5 | 42.0 | 36.5 | 37.5 | 51.0 |

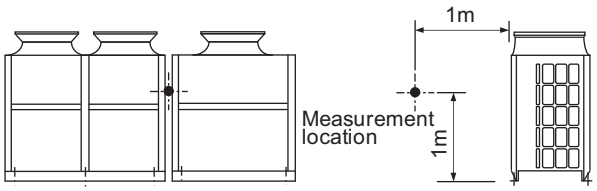
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

R2 575V

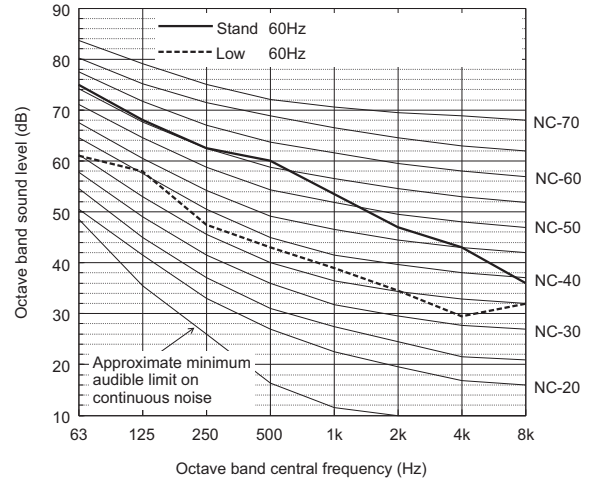
**Measurement condition**
**PURY-P192ZSKMU**




**Measurement condition**
**PURY-P216ZSKMU**



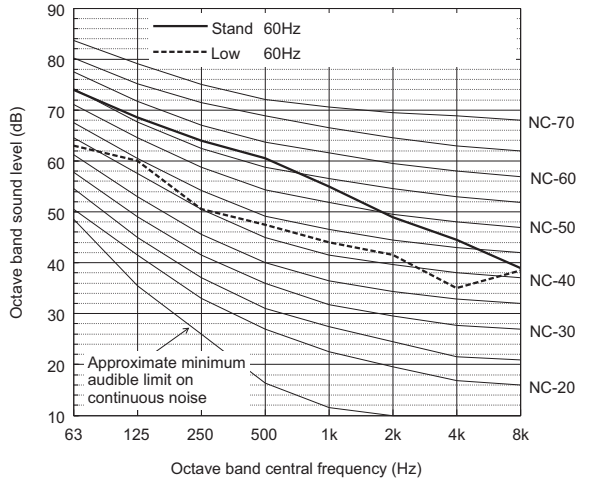

**Sound level of PURY-P192ZSKMU-A(-BS)**




| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|
| Standard | 60Hz | 75.0 | 68.0 | 62.5 | 60.0 | 53.5 | 47.0 | 43.0 | 36.0 | 61.0 |
| Low noise mode | 60Hz | 61.0 | 58.0 | 47.5 | 43.0 | 39.0 | 34.5 | 29.5 | 32.0 | 47.0 |

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

**Sound level of PURY-P216ZSKMU-A(-BS)**

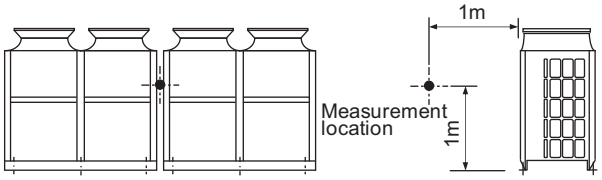



| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|
| Standard | 60Hz | 74.0 | 68.5 | 64.0 | 60.5 | 55.0 | 49.0 | 44.5 | 39.0 | 62.0 |
| Low noise mode | 60Hz | 63.0 | 60.0 | 50.5 | 47.5 | 44.0 | 41.5 | 35.0 | 38.5 | 51.0 |

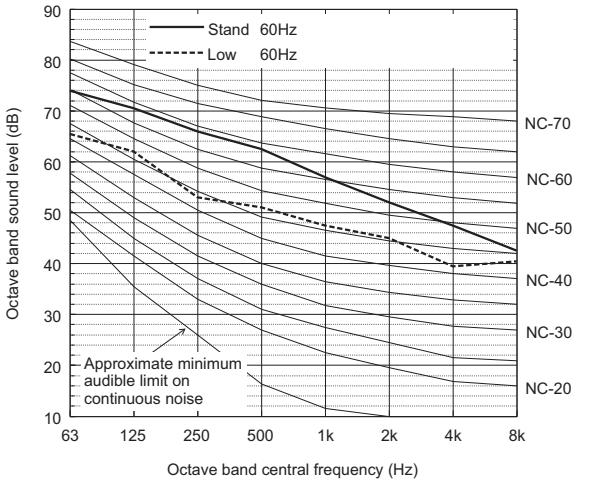
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

R2 575V

**Measurement condition**
**PURY-P240, 264, 288ZSKMU**



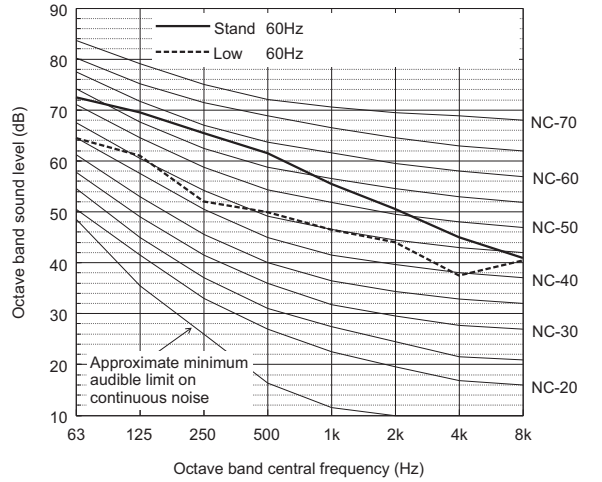

**Sound level of PURY-P288ZSKMU-A(-BS)**




| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|
| Standard | 60Hz | 74.0 | 70.5 | 66.0 | 62.5 | 57.0 | 52.0 | 47.5 | 42.5 | 64.0 |
| Low noise mode | 60Hz | 65.5 | 62.0 | 53.0 | 51.0 | 47.5 | 45.0 | 39.5 | 40.5 | 54.0 |

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

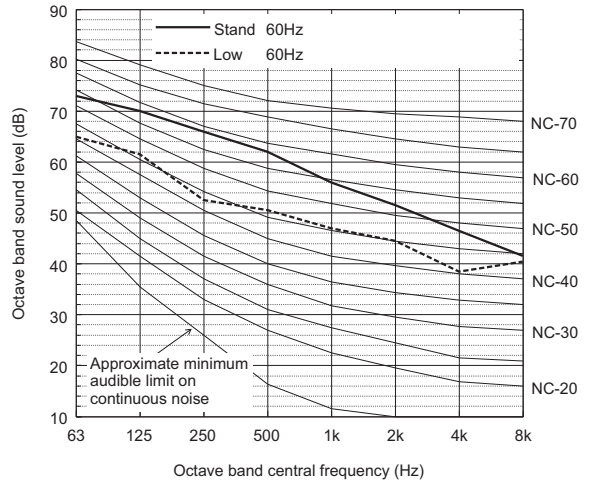
**Sound level of PURY-P240ZSKMU-A(-BS)**




| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|
| Standard | 60Hz | 72.5 | 69.5 | 65.5 | 61.5 | 55.5 | 50.5 | 45.0 | 41.0 | 63.0 |
| Low noise mode | 60Hz | 64.5 | 61.0 | 52.0 | 50.0 | 46.5 | 44.0 | 37.5 | 40.5 | 53.0 |

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

**Sound level of PURY-P264ZSKMU-A(-BS)**




| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|
| Standard | 60Hz | 73.0 | 70.0 | 66.0 | 62.0 | 56.0 | 51.5 | 46.5 | 41.5 | 63.5 |
| Low noise mode | 60Hz | 65.0 | 61.5 | 52.5 | 50.5 | 47.0 | 44.5 | 38.5 | 40.5 | 53.5 |

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

R2 575V

## [PURY-P72-144ZKMU, PURY-P168-288ZSKMU]

Measurement condition

Measurement frequency: 1 Hz-80 Hz

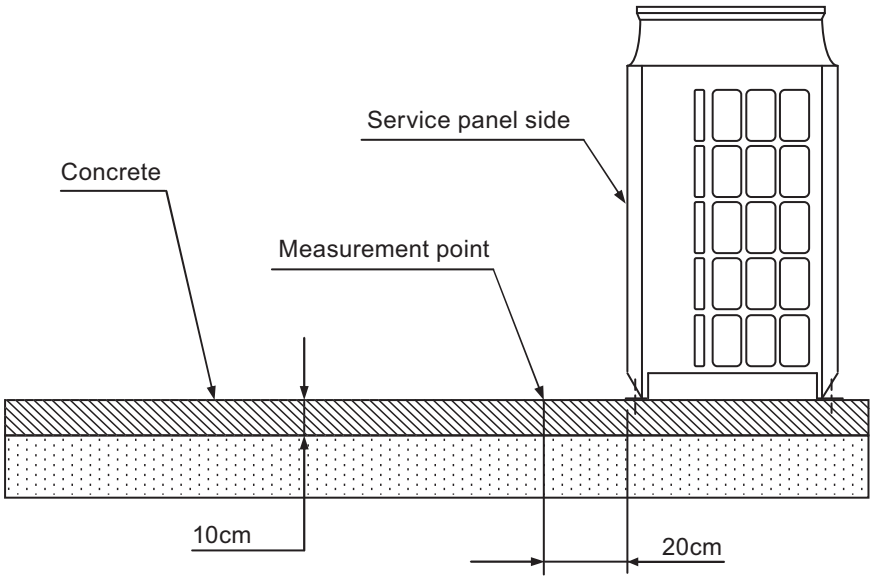
Measurement point: Ground surface 20 cm away from the unit leg

Installation condition: Direct installation on the concrete floor

Power source: 3-phase 3-wire 575 V 60 Hz

Operation condition: JIS condition (cooling, heating)

Measurement device: Vibration level meter for vibration pollution VM-1220C (JIS-compliant product)



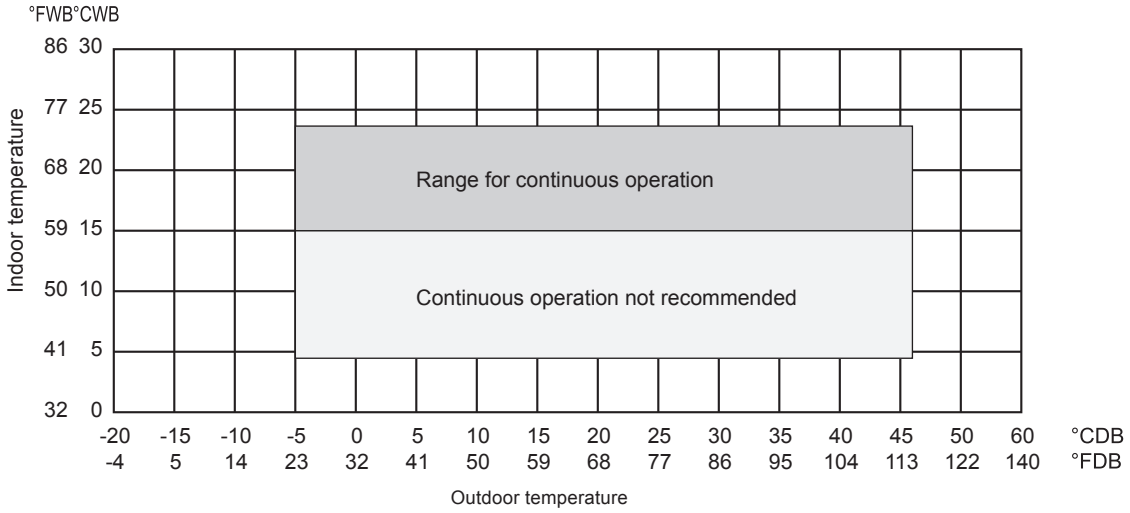

Vibration level

| Model | Vibration level (dB) |
|---|---|
| PURY-P72ZKMU-A(-BS) | 45 |
| PURY-P96ZKMU-A(-BS) | 46 |
| PURY-P120ZKMU-A(-BS) | 47 |
| PURY-P144ZKMU-A(-BS) | 47 |
| PURY-P168ZSKMU-A(-BS) | 48.5 |
| PURY-P192ZSKMU-A(-BS) | 49 |
| PURY-P216ZSKMU-A(-BS) | 49.5 |
| PURY-P240ZSKMU-A(-BS) | 50 |
| PURY-P264ZSKMU-A(-BS) | 50 |
| PURY-P288ZSKMU-A(-BS) | 50 |

* Vibration level varies depending on the conditions of actual installation site.

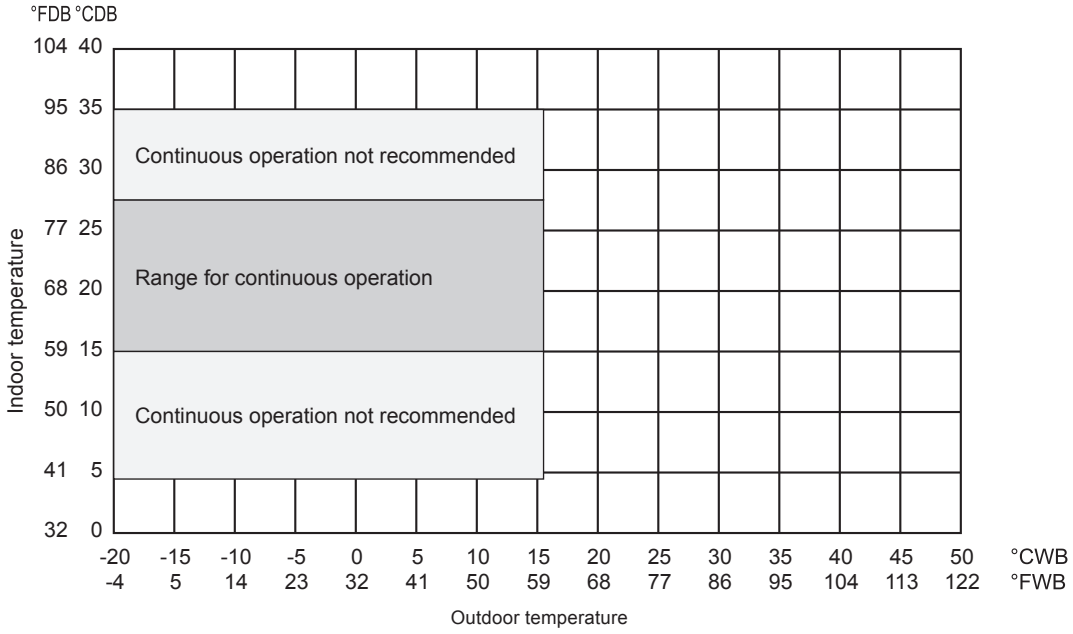
R2 575V

• **Cooling**




* The operation temperature of outdoor unit is limited into 0~43°CDB(32~109°FDB) when the outdoor unit is installed in a location that is positioned lower than the indoor units.

• **Heating**




• **Combination of cooling/heating operation (Cooling main or Heating main)**

| Outdoor temperature | Indoor temperature | |
|---|---|---|
| | Cooling | Heating |
| 14 to 70˚FDB (-10 to 21˚CDB) | —— | 59 to 81˚FDB (15 to 27˚CDB) |
| 12 to 60˚FWB (-11 to 15.5˚CWB) | 59 to 75˚FWB (15 to 24˚CWB) | —— |

Installation of the low ambient kit is recommended to operate in cooling and cooling main mode in conditions under 50°F [10°C].

R2 575V

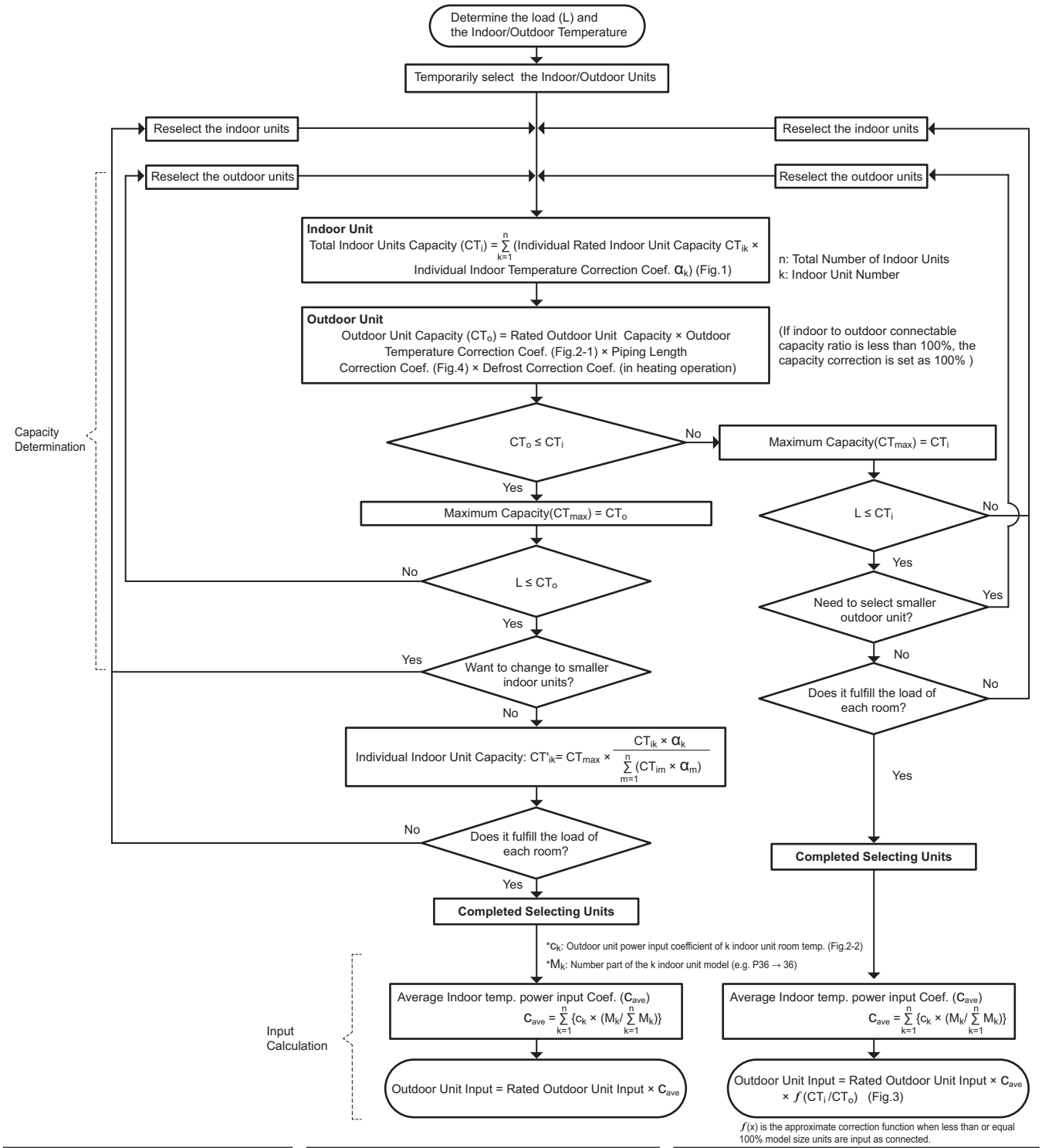
Section 8-1.
Shows an example of how to select the indoor and outdoor units according to the required heating/cooling load.

Section 8-2. through 8-5.
Show the actual correction data of indoor and outdoor units.

## 8-1. Selection of Cooling/Heating Units

### How to determine the capacity when less than or equal 100% indoor model size units are connected in total:

The purpose of this flow chart is to select the indoor and outdoor units. For other purposes, this flow chart is intended only for reference.



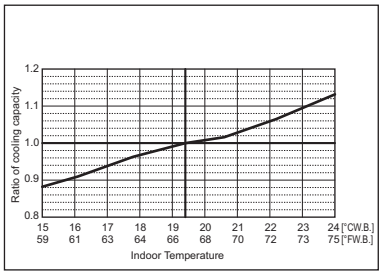




Fig.1 Indoor unit temperature correction

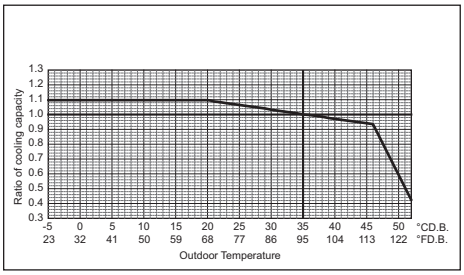



Fig.2-1 Outdoor unit temperature correction (capacity)

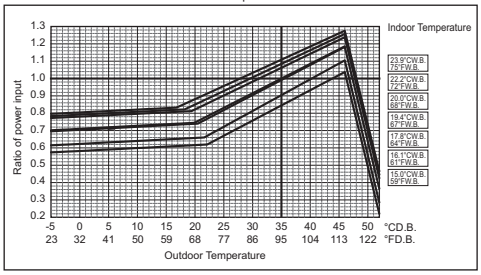



Fig.2-2 Outdoor unit temperature correction (power input)



R2 575V

## How to determine the capacity when greater than 100% indoor model size units are connected in total:

The purpose of this flow chart is to select the indoor and outdoor units. For other purposes, this flow chart is intended only for reference.

Determine the load (L) and the Indoor/Outdoor Temperature

Temporarily select the indoor/outdoor units

Reselect the indoor units / Reselect the outdoor units

**Indoor Unit**
Total Indoor Units Capacity ($CT_i$) = $\sum_{k=1}^{n}$ (Individual Rated Indoor Unit Capacity $CT_{ik}$ × Individual Indoor Temperature Correction Coef. $\alpha_k$) (Fig.1)

n: Total Number of Indoor Units
k: Indoor Unit Number

**Outdoor Unit**
Outdoor Unit Capacity ($CT_o$) = Rated Outdoor Unit Capacity × $G$ (Model Size Ratio) × Outdoor Temperature Correction Coef. (Fig.2-1) × Piping Length Correction Coef. (Fig.4) × Defrost Correction Coef. (in heating)

$G$ (x) is the approximate correction function when greater than 100% model size units are connected (Fig.3)

$CT_o \le CT_i$ ? No → Maximum Capacity($CT_{max}$) = $CT_i$ → $L \le CT_i$ ? No → Reselect the indoor units / Yes → Need to select smaller outdoor unit? Yes → Reselect the outdoor units / No → Does it fulfill the load of each room? No → Reselect the indoor units / Yes → **Completed Selecting Units**

Yes → Maximum Capacity($CT_{max}$) = $CT_o$ → $L \le CT_o$ ? No → Reselect the outdoor units / Yes → Want to change to smaller indoor units? Yes → Reselect the indoor units / No → Individual Indoor Unit Capacity: $CT'_{ik} = CT_{max} \times \frac{CT_{ik} \times \alpha_k}{\sum_{m=1}^{n} (CT_{im} \times \alpha_m)}$ → Does it fulfill the load of each room? No → Reselect the indoor units / Yes → **Completed Selecting Units**

**Completed Selecting Units** → Rated Outdoor Unit Capacity < Total Indoor Units Capacity ? No → Outdoor Unit Input = Rated Outdoor Unit Input × Outdoor Temperature Correction Coef. (Fig.2-2) × $f$($CT_i$ / Rated Outdoor Capacity) (Fig.3)

$f$(x) is the approximate correction function when less than or equal 100% model size units are input as connected.

Yes →

*$c_k$: Outdoor unit power input coefficient of k indoor unit room temp. (Fig.2-2)
*$M_k$: Number part of the k indoor unit model (e.g. P36 → 36)

Average Indoor temp. power input Coef. ($C_{ave}$) = $\sum_{k=1}^{n} \{c_k \times (M_k / \sum_{k=1}^{n} M_k)\}$

Outdoor Unit Input = Rated Outdoor Unit Input × $C_{ave}$ × $F$ (Model Size Ratio) (Fig.3)

Outdoor Unit Input = Rated Outdoor Unit Input × $C_{ave}$ × $F$ ($CT_i$ /Rated Outdoor Capacity) (Fig.3)

$F$(x) is the approximate correction function when greater than 100% model size units are input as connected.

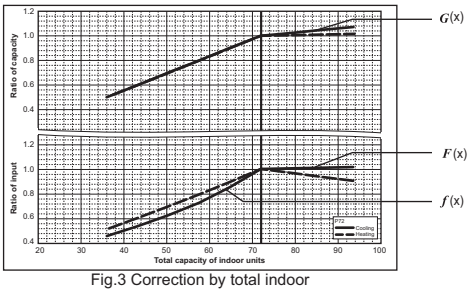



Fig.3 Correction by total indoor

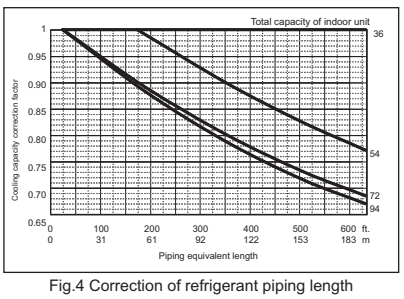



Fig.4 Correction of refrigerant piping length

R2 575V

<Cooling>

| Design Condition | |
|---|---|
| Outdoor Design Dry Bulb Temperature | **37 ºC** |
| Total Cooling Load | **18.5 kW** |
| Room1 | |
| Indoor Design Dry Bulb Temperature | **27 ºC** |
| Indoor Design Wet Bulb Temperature | **20 ºC** |
| Cooling Load | **9.0 kW** |
| Room2 | |
| Indoor Design Dry Bulb Temperature | **24 ºC** |
| Indoor Design Wet Bulb Temperature | **17.8 ºC** |
| Cooling Load | **9.5 kW** |
| <Other> | |
| Indoor/Outdoor Equivalent Piping Length | **30 m** |

1. Cooling Calculation

**(1) Temporary Selection of Indoor Units**

Room1

PEFY-P36 **10.6 kW (Rated)**

Room2

PEFY-P36 **10.6 kW (Rated)**

**(2) Total Indoor Units Capacity**

P36 + P36 = P72

**(3) Selection of Outdoor Unit**

The P72 outdoor unit is selected as total indoor units capacity is P72

PUHY-P72 **21.1 kW**

**(4) Total Indoor Units Capacity Correction Calculation**

Room1

Indoor Design Wet Bulb Temperature Correction (20ºC) 1.02 (Refer to Fig.1)

Room2

Indoor Design Wet Bulb Temperature Correction (18ºC) 0.96 (Refer to Fig.1)

Total Indoor Units Capacity (CTi)

CTi = Σ (Indoor Unit Rating × Indoor Design Temperature Correction)

= 10.6 × 1.02 + 10.6 × 0.96

= 20.9 kW

**(5) Outdoor Unit Correction Calculation**

Outdoor Design Dry Bulb Temperature Correction (37ºC) 0.99 (Refer to Fig.2)

Piping Length Correction (30 m) 0.95 (Refer to Fig.3)

Total Outdoor Unit Capacity (CTo)

CTo = Outdoor Rating × Outdoor Design Temperature Correction × Piping Length Correction

= 21.1 × 0.99 × 0.95

= 19.8 kW

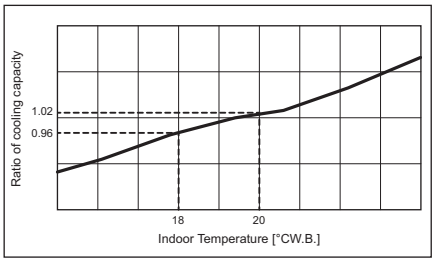



Fig.1 **Indoor unit temperature correction**
To be used to correct indoor unit only

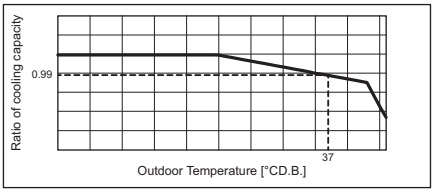



Fig.2 **Outdoor unit temperature correction**
To be used to correct outdoor unit only

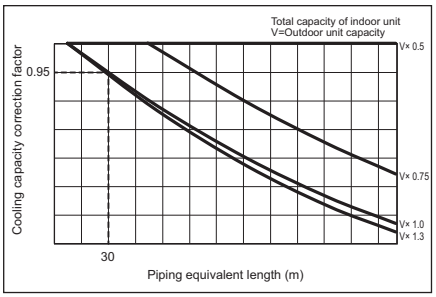



Fig.3 **Correction of refrigerant piping length**

**(6) Determination of Maximum System Capacity (CTx)**

Comparison of Capacity between Total Indoor Units Capacity (CTi) and Total Outdoor Unit Capacity (CTo)

CTi = 20.9 > CTo = 19.8, thus, select CTo.

CTx = CTo = 19.8 kW

**(7) Comparison with Essential Load**

**Against the essential load 18.5kW, the maximum system capacity is 19.8kW: Proper outdoor units have been selected.**

**(8) Calculation of Maximum Indoor Unit Capacity of Each Room**

CTx = CTo, thus, calculate by the calculation below

Room1

Maximum Capacity × Room1 Capacity after the Temperature Correction/(Room1,2 Total Capacity after the Temperature Correction

= 19.8 × (10.6 × 1.02)/(10.6 × 1.02 + 10.6 × 0.96)

= 10.2 kW **OK: fulfills the load 9.0kW**

Room2

Maximum Capacity × Room2 Capacity after the Temperature Correction/(Room1,2Total Capacity after the Temperature Correction)

= 19.8 × (10.6 × 0.96)/(10.6 × 1.02 + 10.6 × 0.96)

= 9.6 kW **OK: fulfills the load 9.5kW**

Go on to the heating trial calculation since the selected units fulfill the cooling loads of Room 1, 2.

R2 575V

<Heating>

| Design Condition | |
|---|---|
| Outdoor Design Wet Bulb Temperature | **2 ºC** |
| Total Heating Load | **18.2 kW** |
| Room1 | |
| Indoor Design Dry Bulb Temperature | **25 ºC** |
| Heating Load | **9.2 kW** |
| Room2 | |
| Indoor Design Dry Bulb Temperature | **25 ºC** |
| Heating Load | **9.0 kW** |
| <Other> | |
| Indoor/Outdoor Equivalent Piping Length | **30 m** |

2. Heating Calculation

**(1) Temporary Selection of Indoor Units**

Room1
PEFY-P36 **11.7 kW (Rated)**
Room2
PEFY-P36 **11.7 kW (Rated)**

**(2) Total Indoor Units Capacity**

P36 + P36 = P72

**(3) Selection of Outdoor Unit**

The P72 outdoor unit is selected as total indoor units capacity is P72
PUHY-P72 **23.4 kW**

**(4) Total Indoor Units Capacity Correction Calculation**

Room1
Indoor Design Dry Bulb Temperature Correction (25ºC) 0.80 (Refer to Fig.4)
Room2
Indoor Design Dry Bulb Temperature Correction (25ºC) 0.80 (Refer to Fig.4)

Total Indoor Units Capacity (CTi)
CTi = Σ (Indoor Unit Rating × Indoor Design Temperature Correction)
= 11.7 × 0.80 + 11.7 × 0.80
= 18.7 kW

**(5) Outdoor Unit Correction Calculation**

Outdoor Design Wet Bulb Temperature Correction (2ºC) 0.98 (Refer to Fig.5)
Piping Length Correction (30 m) 0.98 (Refer to Fig.6)
Defrost Correction 0.84 (Refer to Tbl.1)

Total Outdoor Unit Capacity (CTo)
CTo = Outdoor Unit Rating × Outdoor Design Temperature Correction × Piping Length Correction × Defrost Correction
= 23.4 × 0.98 × 0.98 × 0.84
= 18.8 kW

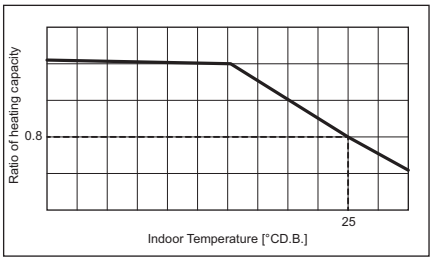



Fig.4 **Indoor unit temperature correction**
To be used to correct indoor unit only

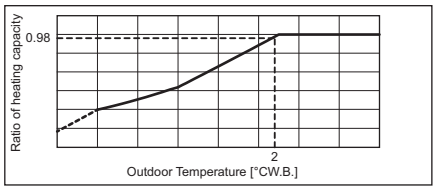



Fig.5 **Outdoor unit temperature correction**
To be used to correct outdoor unit only

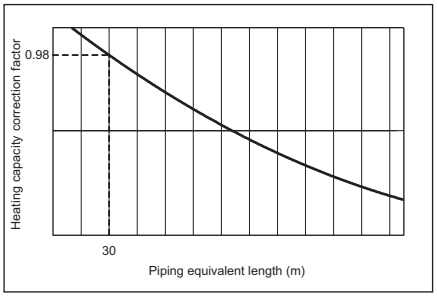



Fig.6 **Correction of refrigerant piping length**

**(6) Determination of Maximum System Capacity (CTx)**

Comparison of Capacity between Total Indoor Units Capacity (CTi) and Total Outdoor Unit Capacity (CTo)

CTi = 18.7 < CTo = 18.8, thus, select CTi.

CTx = CTi = 18.7 kW

**(7) Comparison with Essential Load**

**Against the essential load 18.2kW, the maximum system capacity is 18.7kW: Proper outdoor units have been selected.**

**(8) Calculation of Maximum Indoor Unit Capacity of Each Room**

CTx = CTi, thus, calculate by the calculation below

Room1
Indoor Unit Rating × Indoor Design Temperature Correction
= 11.7 × 0.80
= 9.4 kW **OK: fulfills the load 9.2kW**

Room2
Indoor Unit Rating × Indoor Design Temperature Correction
= 11.7 × 0.80
= 9.4 kW **OK: fulfills the load 9.0kW**

Tbl.1 Table of correction factor at frost and defrost

| **Outdoor inlet air temp. °C** | 6 | 4 | 2 | 1 | 0 | -2 | -4 | -6 | -8 | -10 | -20 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Outdoor inlet air temp. °F** | 43 | 39 | 36 | 34 | 32 | 28 | 25 | 21 | 18 | 14 | -4 |
| PUHY-P72 | 1.00 | 0.95 | 0.84 | 0.83 | 0.83 | 0.87 | 0.90 | 0.95 | 0.95 | 0.95 | 0.95 |
| PUHY-P96 | 1.00 | 0.95 | 0.84 | 0.83 | 0.83 | 0.87 | 0.90 | 0.95 | 0.95 | 0.95 | 0.95 |
| PUHY-P120 | 1.00 | 0.93 | 0.82 | 0.80 | 0.82 | 0.86 | 0.90 | 0.90 | 0.95 | 0.95 | 0.95 |
| PUHY-P144 | 1.00 | 0.93 | 0.82 | 0.80 | 0.82 | 0.86 | 0.90 | 0.90 | 0.95 | 0.95 | 0.95 |
| PUHY-P168 | 1.00 | 0.93 | 0.82 | 0.80 | 0.82 | 0.86 | 0.90 | 0.90 | 0.95 | 0.95 | 0.95 |

Completed selecting units since the selected units fulfill the heating loads of Room 1, 2.

R2 575V

3. Power input of outdoor unit

<Cooling>

**(1) Rated power input of outdoor unit** **4.55 kW (Nominal)**

**(2) Calculation of the average indoor temperature power input coefficient**

Coefficient of the outdoor unit for indoor unit 1 (Outdoor temp. 37 °CD.B., Indoor temp. 20 °CW.B.)

1.09

Coefficient of the outdoor unit for indoor unit 2 (Outdoor temp. 37 °CD.B., Indoor temp. 17.8 °CW.B.)

1.03

Average indoor temp. power input coefficient ($C_{ave}$) = $\sum_{k=1}^{n} \{c_k \times (M_k / \sum_{k=1}^{n} M_k)\}$

n: Total number of the indoor units
k: Number of the indoor unit
$c_k$: Outdoor unit power input coefficient of k indoor unit room temp.
$M_k$: Number part of the k indoor unit model (e.g. P36 → 36)

= 1.09 × 36/(36 + 36) + 1.03 × 36/(36 + 36)
= 1.06

**(3) No need to consider Coefficient of the partial load *f*(CTi/CTo)** **-**

**(4) Outdoor power input (Plo)**

Maximum System Capacity (CTx) = Total Outdoor unit Capacity (CTo), so use the following formula
Plo = Outdoor unit Cooling Rated Power Input × Correction Coefficient of Indoor temperature
=4.55 × 1.06
= 4.82 kW

R2 575V

<Heating>

**(1) Rated power input of outdoor unit** **5.48 kW (Nominal)**

**(2) Calculation of the average indoor temperature power input coefficient**

Coefficient of the outdoor unit for indoor unit 1 (Outdoor temp. 2 °CW.B., Indoor temp. 25 °CD.B.)
0.80

Coefficient of the outdoor unit for indoor unit 2 (Outdoor temp. 2 °CW.B., Indoor temp. 25 °CD.B.)
0.80

Average indoor temp. power input coefficient ($C_{ave}$) = $\sum_{k=1}^{n} \{c_k \times (M_k / \sum_{k=1}^{n} M_k)\}$

n: Total number of the indoor units
k: Number of the indoor unit
$c_k$: Outdoor unit power input coefficient of k indoor unit room temp.
$M_k$: Number part of the k indoor unit model (e.g. P36 → 36)

= 0.8 × 36/(36 + 36) + 0.8 × 36/(36 + 36)
= 0.80

**(3) Coefficient of the partial load $f$(CTi/CTo)** **0.94**

**(4) Outdoor power input (Plo)**

Maximum System Capacity (CTx) = Total Indoor unit Capacity (CTi), so use the following formula
Plo = Outdoor unit Heating Rated Power Input × Correction Coefficient of Indoor temperature × $f$(CTi/CTo)
= 5.48 × 0.8 × 0.94
= 4.10 kW

R2 575V

<Cooling>

| Design Condition | |
|---|---|
| Outdoor Design Dry Bulb Temperature | **99 ºF** |
| Total Cooling Load | **63,000 BTU/h** |
| Room1 | |
| Indoor Design Dry Bulb Temperature | **81 ºF** |
| Indoor Design Wet Bulb Temperature | **68 ºF** |
| Cooling Load | **31,000 BTU/h** |
| Room2 | |
| Indoor Design Dry Bulb Temperature | **75 ºF** |
| Indoor Design Wet Bulb Temperature | **64 ºF** |
| Cooling Load | **32,000 BTU/h** |
| <Other> | |
| Indoor/Outdoor Equivalent Piping Length | **100 ft.** |

1. Cooling Calculation

**(1) Temporary Selection of Indoor Units**

Room1

PEFY-P36 **36,000 BTU/h (Rated)**

Room2

PEFY-P36 **36,000 BTU/h (Rated)**

**(2) Total Indoor Units Capacity**

P36 + P36 = P72

**(3) Selection of Outdoor Unit**

The P72 outdoor unit is selected as total indoor units capacity is P72

PUHY-P72 **72,000 BTU/h**

**(4) Total Indoor Units Capacity Correction Calculation**

Room1

Indoor Design Wet Bulb Temperature Correction (68ºF) 1.02 (Refer to Fig.1)

Room2

Indoor Design Wet Bulb Temperature Correction (64ºF) 0.96 (Refer to Fig.1)

Total Indoor Units Capacity (CTi)

CTi = Σ (Indoor Unit Rating × Indoor Design Temperature Correction)
= 36,000 × 1.02 + 36,000 × 0.96
= 71,200 BTU/h

**(5) Outdoor Unit Correction Calculation**

Outdoor Design Dry Bulb Temperature Correction (99ºF) 0.99 (Refer to Fig.2)

Piping Length Correction (100 ft.) 0.95 (Refer to Fig.3)

Total Outdoor Unit Capacity (CTo)

CTo = Outdoor Rating × Outdoor Design Temperature Correction × Piping Length Correction
= 72,000 × 0.99 × 0.95
= 67,700 BTU/h

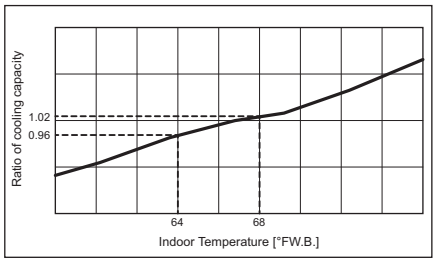



Fig.1 **Indoor unit temperature correction**
To be used to correct indoor unit only

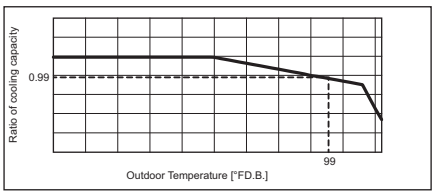



Fig.2 **Outdoor unit temperature correction**
To be used to correct outdoor unit only

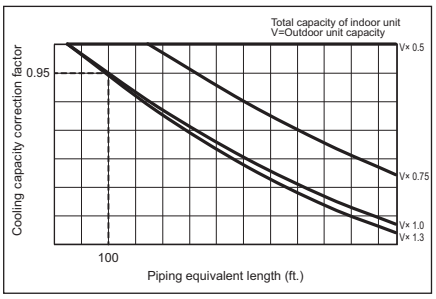



Fig.3 **Correction of refrigerant piping length**

**(6) Determination of Maximum System Capacity (CTx)**

Comparison of Capacity between Total Indoor Units Capacity (CTi) and Total Outdoor Unit Capacity (CTo)

CTi = 71,200 > CTo = 67,700, thus, select CTo.

CTx = CTo = 67,700 BTU/h

**(7) Comparison with Essential Load**

**Against the essential load 63,000BTU/h, the maximum system capacity is 67,700BTU/h: Proper outdoor units have been selected.**

**(8) Calculation of Maximum Indoor Unit Capacity of Each Room**

CTx = CTo, thus, calculate by the calculation below

Room1

Maximum Capacity × Room1 Capacity after the Temperature Correction/(Room1,2 Total Capacity after the Temperature Correction
= 67,700 × (36,000 × 1.02)/(36,000 × 1.02 + 36,000 × 0.96)
= 34,800 BTU/h **OK: fulfills the load 31,000BTU/h**

Room2

Maximum Capacity × Room2 Capacity after the Temperature Correction/(Room1,2Total Capacity after the Temperature Correction)
= 67,700 × (36,000 × 0.96)/(36,000 × 1.02 + 36,000 × 0.96)
= 32,800 BTU/h **OK: fulfills the load 32,000BTU/h**

Go on to the heating trial calculation since the selected units fulfill the cooling loads of Room 1, 2.

R2 575V

<Heating>

| Design Condition | |
|---|---|
| Outdoor Design Wet Bulb Temperature | **37 ºF** |
| Total Heating Load | **62,000 BTU/h** |
| Room1 | |
| Indoor Design Dry Bulb Temperature | **77 ºF** |
| Heating Load | **31,000 BTU/h** |
| Room2 | |
| Indoor Design Dry Bulb Temperature | **77 ºF** |
| Heating Load | **31,000 BTU/h** |
| <Other> | |
| Indoor/Outdoor Equivalent Piping Length | **100 ft.** |

2. Heating Calculation

**(1) Temporary Selection of Indoor Units**

Room1
PEFY-P36 **40,000 BTU/h (Rated)**
Room2
PEFY-P36 **40,000 BTU/h (Rated)**

**(2) Total Indoor Units Capacity**

P36 + P36 = P72

**(3) Selection of Outdoor Unit**

The P72 outdoor unit is selected as total indoor units capacity is P72
PUHY-P72 **80,000 BTU/h**

**(4) Total Indoor Units Capacity Correction Calculation**

Room1
Indoor Design Dry Bulb Temperature Correction (77ºF) 0.80 (Refer to Fig.4)
Room2
Indoor Design Dry Bulb Temperature Correction (77ºF) 0.80 (Refer to Fig.4)

Total Indoor Units Capacity (CTi)
CTi = Σ (Indoor Unit Rating × Indoor Design Temperature Correction)
= 40,000 × 0.80 + 40,000 × 0.80
= 64,000 BTU/h

**(5) Outdoor Unit Correction Calculation**

Outdoor Design Wet Bulb Temperature Correction (37ºF) 0.99 (Refer to Fig.5)
Piping Length Correction (100 ft.) 0.98 (Refer to Fig.6)
Defrost Correction 0.87 (Refer to Tbl.1)

Total Outdoor Unit Capacity (CTo)
CTo = Outdoor Unit Rating × Outdoor Design Temperature Correction × Piping Length Correction × Defrost Correction
= 80,000 × 0.99 × 0.98 × 0.87
= 67,000 BTU/h

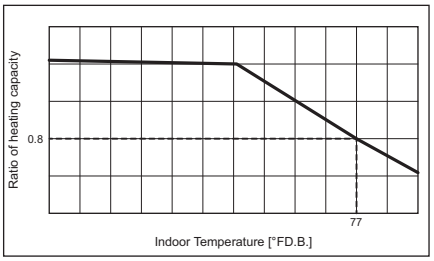



Fig.4 **Indoor unit temperature correction**
To be used to correct indoor unit only

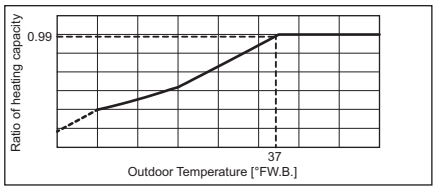



Fig.5 **Outdoor unit temperature correction**
To be used to correct outdoor unit only

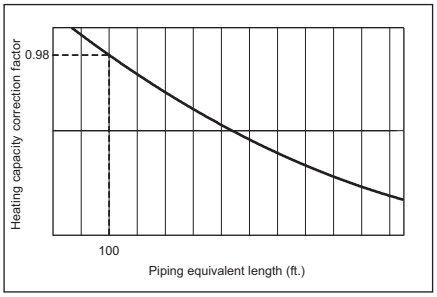



Fig.6 **Correction of refrigerant piping length**

**(6) Determination of Maximum System Capacity (CTx)**

Comparison of Capacity between Total Indoor Units Capacity (CTi) and Total Outdoor Unit Capacity (CTo)

CTi = 64,000 < CTo = 67,000, thus, select CTi.

CTx = CTi = 64,000 BTU/h

**(7) Comparison with Essential Load**

**Against the essential load 62,000BTU/h, the maximum system capacity is 64,000BTU/h: Proper outdoor units have been selected.**

**(8) Calculation of Maximum Indoor Unit Capacity of Each Room**

CTx = CTi, thus, calculate by the calculation below

Room1
Indoor Unit Rating × Indoor Design Temperature Correction
= 40,000 × 0.80
= 32,000 BTU/h **OK: fulfills the load 31,000BTU/h**

Room2
Indoor Unit Rating × Indoor Design Temperature Correction
= 40,000 × 0.80
= 32,000 BTU/h **OK: fulfills the load 31,000BTU/h**

Completed selecting units since the selected units fulfill the heating loads of Room 1, 2.

Tbl.1 Table of correction factor at frost and defrost

| **Outdoor inlet air temp. °C** | 6 | 4 | 2 | 1 | 0 | -2 | -4 | -6 | -8 | -10 | -20 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Outdoor inlet air temp. °F** | 43 | 39 | 36 | 34 | 32 | 28 | 25 | 21 | 18 | 14 | -4 |
| PUHY-P72 | 1.00 | 0.95 | 0.84 | 0.83 | 0.83 | 0.87 | 0.90 | 0.95 | 0.95 | 0.95 | 0.95 |
| PUHY-P96 | 1.00 | 0.95 | 0.84 | 0.83 | 0.83 | 0.87 | 0.90 | 0.95 | 0.95 | 0.95 | 0.95 |
| PUHY-P120 | 1.00 | 0.93 | 0.82 | 0.80 | 0.82 | 0.86 | 0.90 | 0.90 | 0.95 | 0.95 | 0.95 |
| PUHY-P144 | 1.00 | 0.93 | 0.82 | 0.80 | 0.82 | 0.86 | 0.90 | 0.90 | 0.95 | 0.95 | 0.95 |
| PUHY-P168 | 1.00 | 0.93 | 0.82 | 0.80 | 0.82 | 0.86 | 0.90 | 0.90 | 0.95 | 0.95 | 0.95 |

R2 575V

3. Power input of outdoor unit

<Cooling>

**(1) Rated power input of outdoor unit** **4.55 kW (Nominal)**

**(2) Calculation of the average indoor temperature power input coefficient**

Coefficient of the outdoor unit for indoor unit 1 (Outdoor temp. 99 °FD.B., Indoor temp. 68 °FW.B.)

1.09

Coefficient of the outdoor unit for indoor unit 2 (Outdoor temp. 99 °FD.B., Indoor temp. 64 °FW.B.)

1.03

Average indoor temp. power input coefficient ($C_{ave}$) = $\sum_{k=1}^{n} \{c_k \times (M_k / \sum_{k=1}^{n} M_k)\}$

n: Total number of the indoor units
k: Number of the indoor unit
$c_k$: Outdoor unit power input coefficient of k indoor unit room temp.
$M_k$: Number part of the k indoor unit model (e.g. P36 → 36)

= 1.09 × 36/(36 + 36) + 1.03 × 36/(36 + 36)
= 1.06

**(3) No need to consider Coefficient of the partial load *f*(CTi/CTo)** -

**(4) Outdoor power input (PIo)**

Maximum System Capacity (CTx) = Total Outdoor unit Capacity (CTo), so use the following formula
PIo = Outdoor unit Cooling Rated Power Input × Correction Coefficient of Indoor temperature
=4.55 × 1.06
= 4.82 kW

R2 575V

<Heating>

**(1) Rated power input of outdoor unit** **5.48 kW (Nominal)**

**(2) Calculation of the average indoor temperature power input coefficient**

Coefficient of the outdoor unit for indoor unit 1 (Outdoor temp. 35.6 °FW.B., Indoor temp. 77 °FD.B.)

0.80

Coefficient of the outdoor unit for indoor unit 2 (Outdoor temp. 35.6 °FW.B., Indoor temp. 77 °FD.B.)

0.80

Average indoor temp. power input coefficient ($C_{ave}$) = $\sum_{k=1}^{n} \{c_k \times (M_k / \sum_{k=1}^{n} M_k)\}$

n: Total number of the indoor units
k: Number of the indoor unit
$c_k$: Outdoor unit power input coefficient of k indoor unit room temp.
$M_k$: Number part of the k indoor unit model (e.g. P36 → 36)

= 0.8 × 36/(36 + 36) + 0.8 × 36/(36 + 36)
= 0.80

**(3) Coefficient of the partial load $f$(CTi/CTo)** **0.92**

**(4) Outdoor power input (Plo)**

Maximum System Capacity (CTx) = Total Indoor unit Capacity (CTi), so use the following formula
Plo = Outdoor unit Heating Rated Power Input × Correction Coefficient of Indoor temperature × $f$(CTi/CTo)
= 5.48 × 0.8 × 0.92
= 4.04 kW

R2 575V

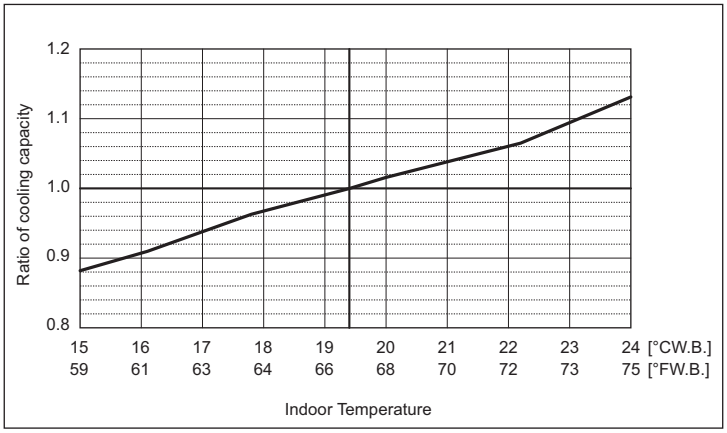
## 8-2. Correction by temperature

CITY MULTI could have varied capacity at different designing temperature. Using the nominal cooling/heating capacity value and the ratio below, the capacity can be observed at various temperature.

| PURY- | | | P72ZKMU | | P96ZKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 72,000 | | 96,000 | |
| | | kW | 21.1 | | 28.1 | |
| | Input | kW | 4.82 | | 7.06 | |
| Rated cooling capacity | | BTU/h | 69,000 | | 92,000 | |
| | | kW | 20.2 | | 27.0 | |
| | Input | kW | 4.29 | 4.63 | 6.01 | 7.05 |

### Indoor unit temperature correction

To be used to correct indoor unit capacity only

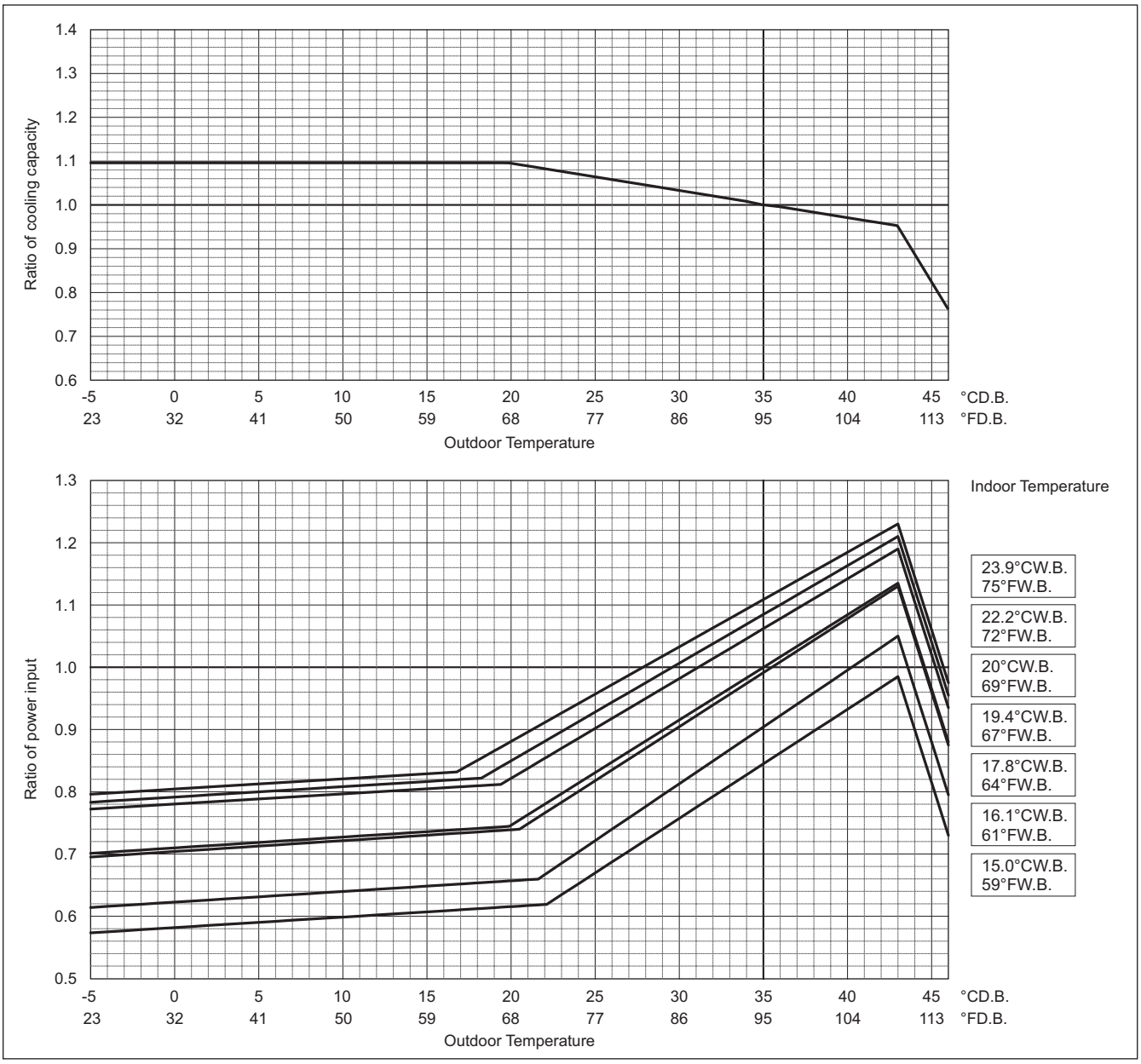



### Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.

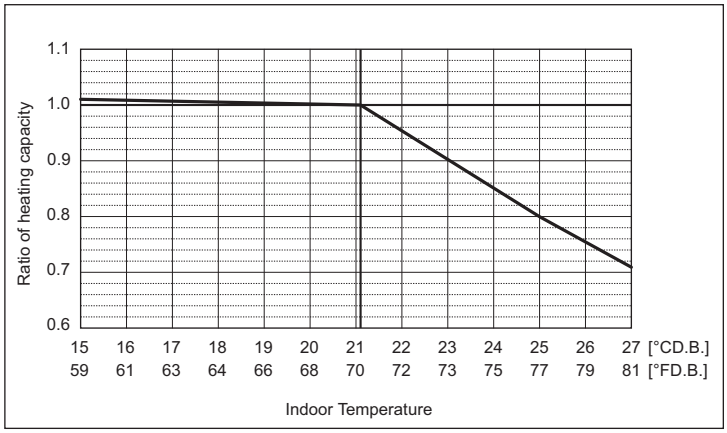



R2 575V

| PURY- | | | P72ZKMU | | P96ZKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 80,000 | | 108,000 | |
| | | kW | 23.4 | | 31.7 | |
| | Input | kW | 5.89 | | 8.26 | |
| Rated Heating capacity | | BTU/h | 76,000 | | 103,000 | |
| | | kW | 22.3 | | 30.2 | |
| | Input | kW | 5.13 | 5.77 | 7.29 | 7.99 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

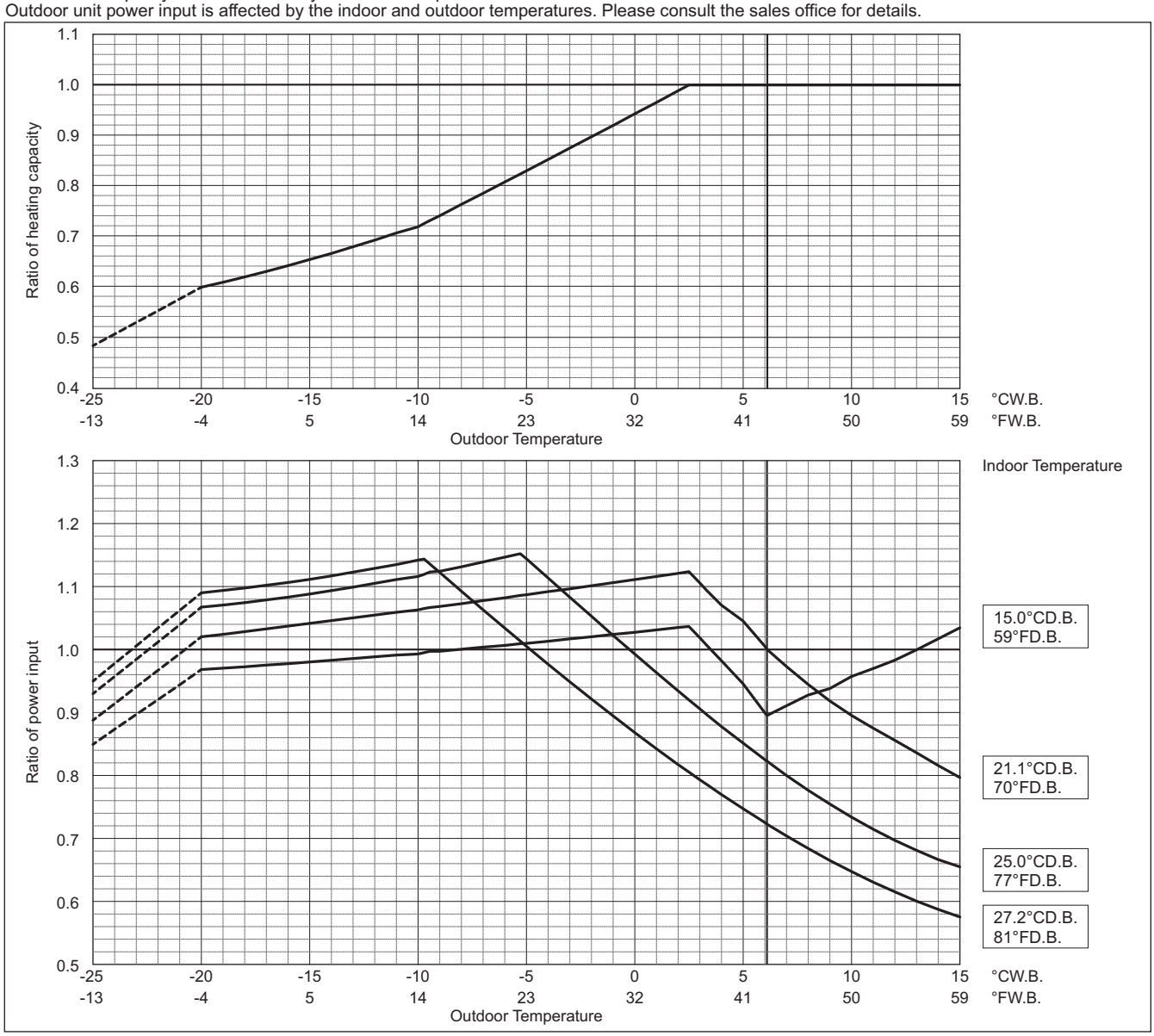



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.




Outdoor unit power input is affected by the indoor and outdoor temperatures as shown in the graph above. Please consult the sales office for details.

Values in the heating temperature correction diagram in the range below -20°C (-4°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.

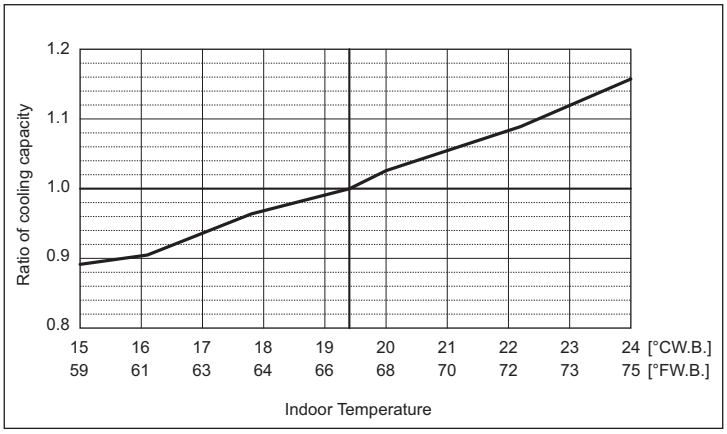
When using the units at outdoor temperatures below -20°C (-4°F), install a backup heater.

R2 575V

| PURY- | | | P120ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 12,000 | |
| | | kW | 35.2 | |
| | Input | kW | 8.62 | |
| Rated cooling capacity | | BTU/h | 114,000 | |
| | | kW | 33.4 | |
| | Input | kW | 7.65 | 8.31 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

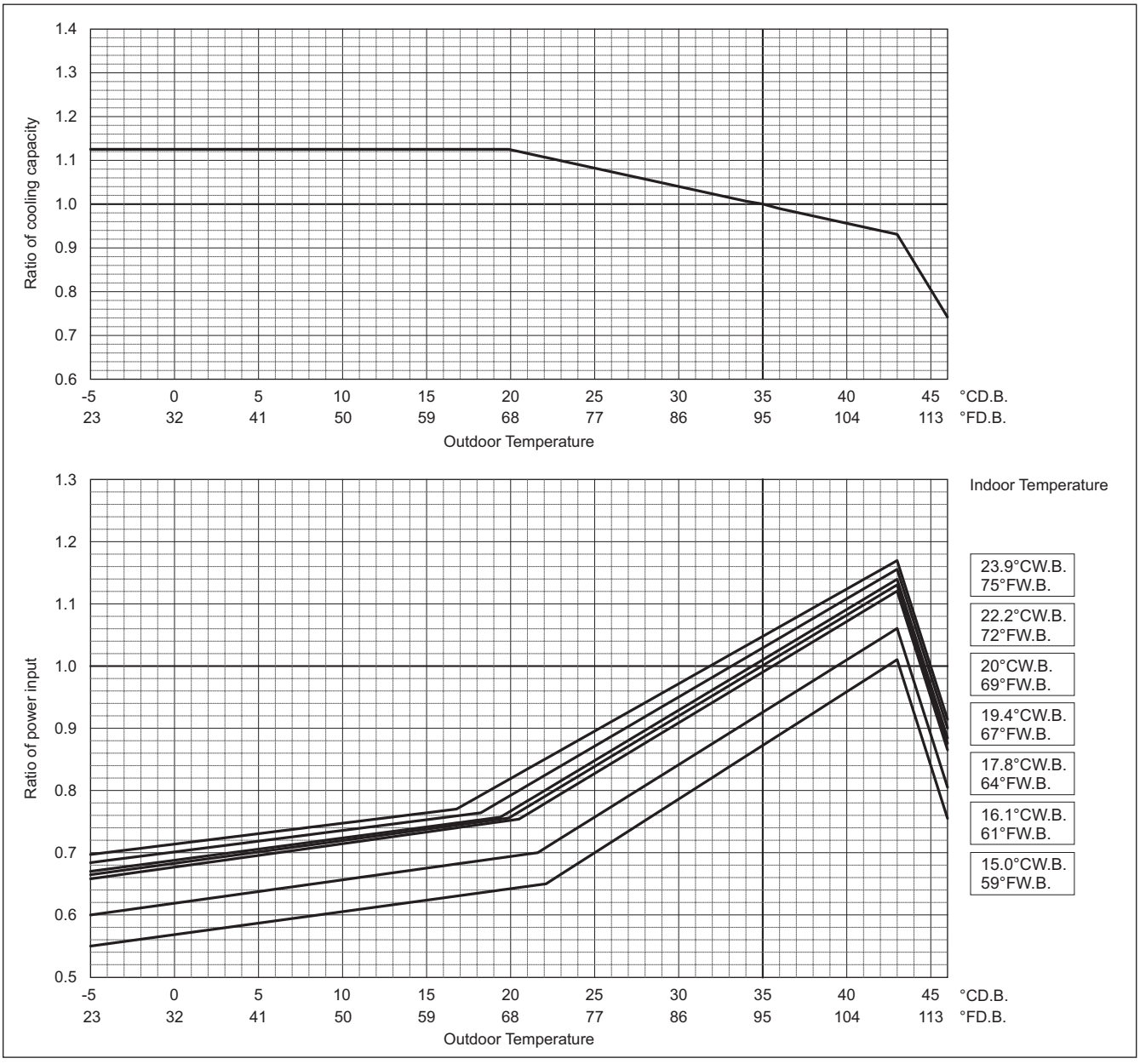



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.

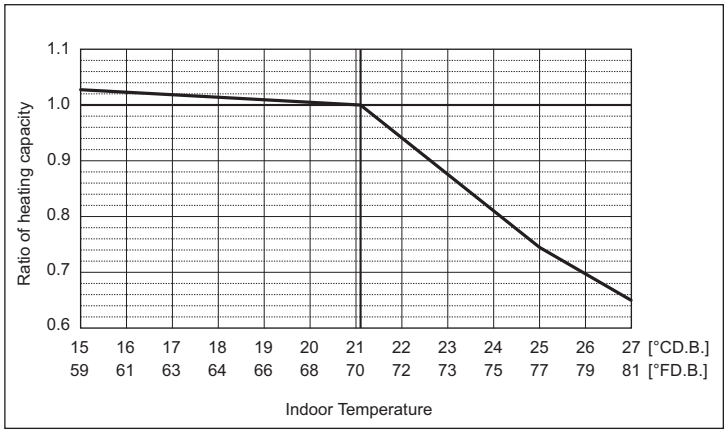



R2 575V

| PURY- | | | P120ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 135,000 | |
| | | kW | 39.6 | |
| | Input | kW | 10.84 | |
| Rated Heating capacity | | BTU/h | 129,000 | |
| | | kW | 37.8 | |
| | Input | kW | 9.78 | 10.29 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

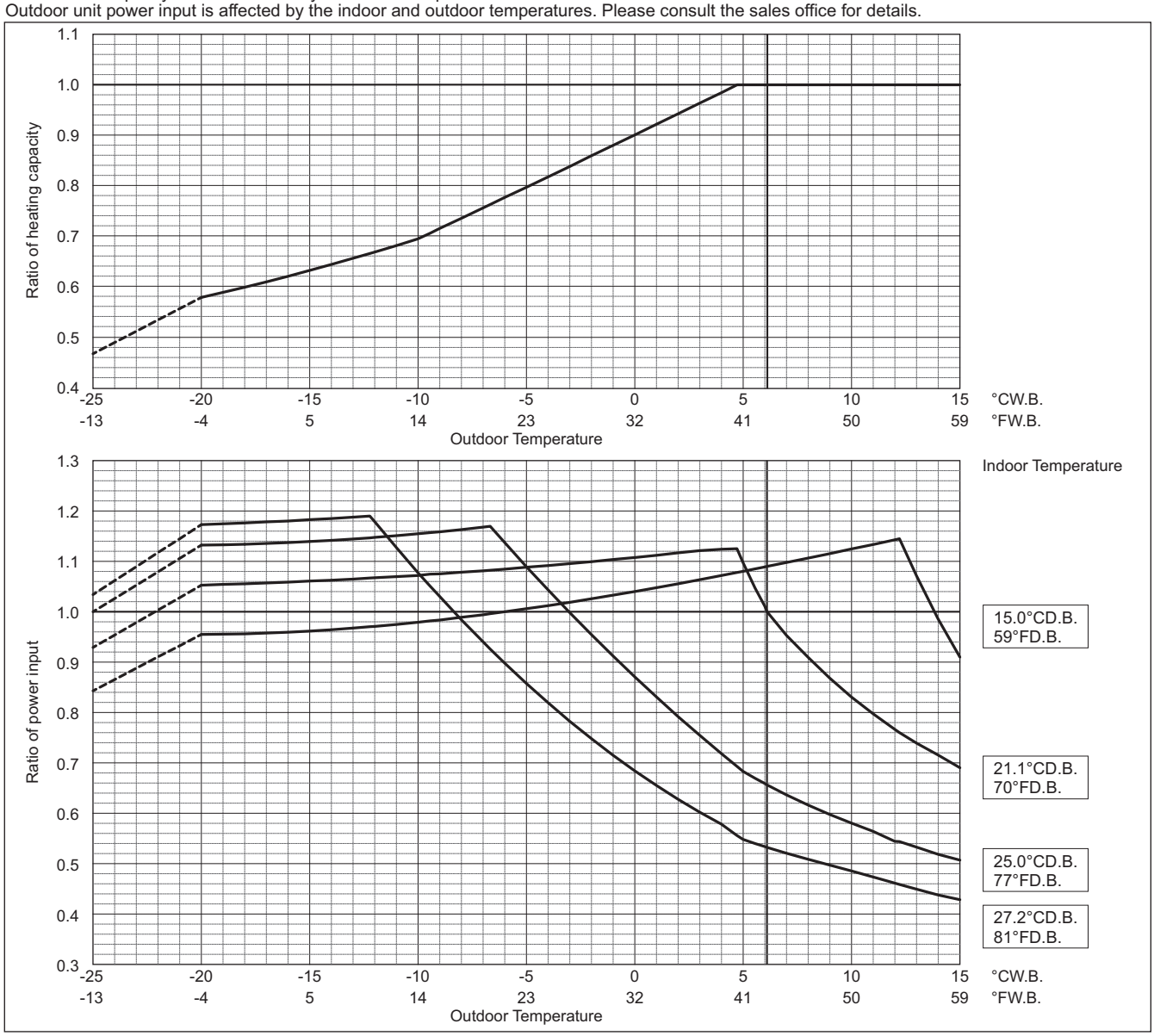



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.




Outdoor unit power input is affected by the indoor and outdoor temperatures as shown in the graph above. Please consult the sales office for details.

Values in the heating temperature correction diagram in the range below -20°C (-4°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.

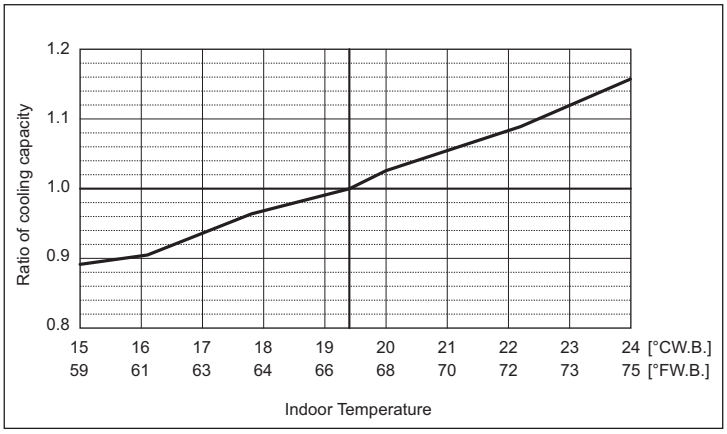
When using the units at outdoor temperatures below -20°C (-4°F), install a backup heater.

R2 575V

| PURY- | | | P144ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 144,000 | |
| | | kW | 42.2 | |
| | Input | kW | 11.13 | |
| Rated cooling capacity | | BTU/h | 137,000 | |
| | | kW | 40.2 | |
| | Input | kW | 9.93 | 10.68 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

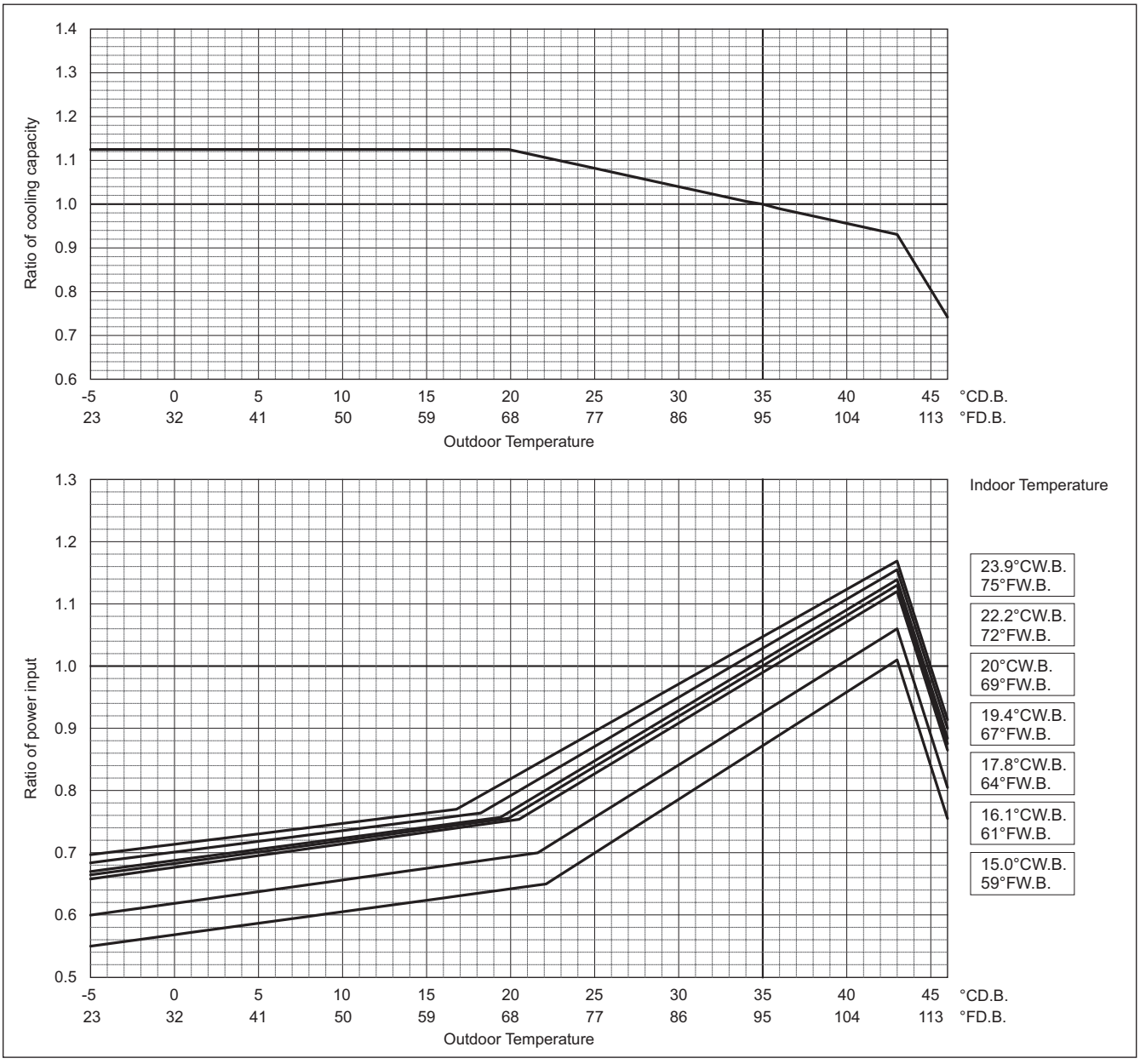



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.

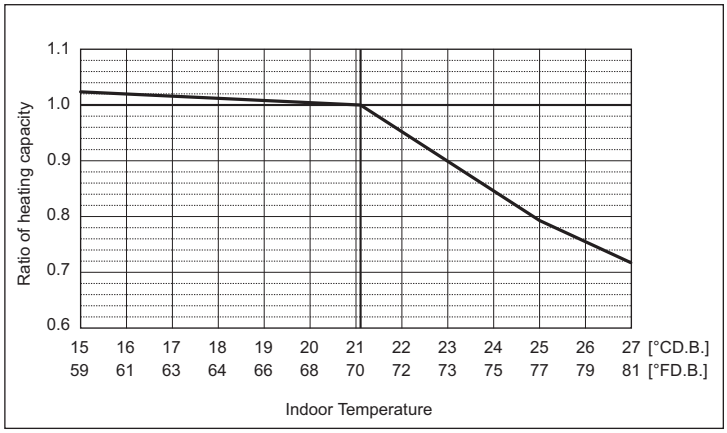



R2 575V

| PURY- | | | P144ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 160,000 | |
| | | kW | 46.9 | |
| | Input | kW | 12.86 | |
| Rated Heating capacity | | BTU/h | 152,000 | |
| | | kW | 44.5 | |
| | Input | kW | 11.80 | 12.01 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

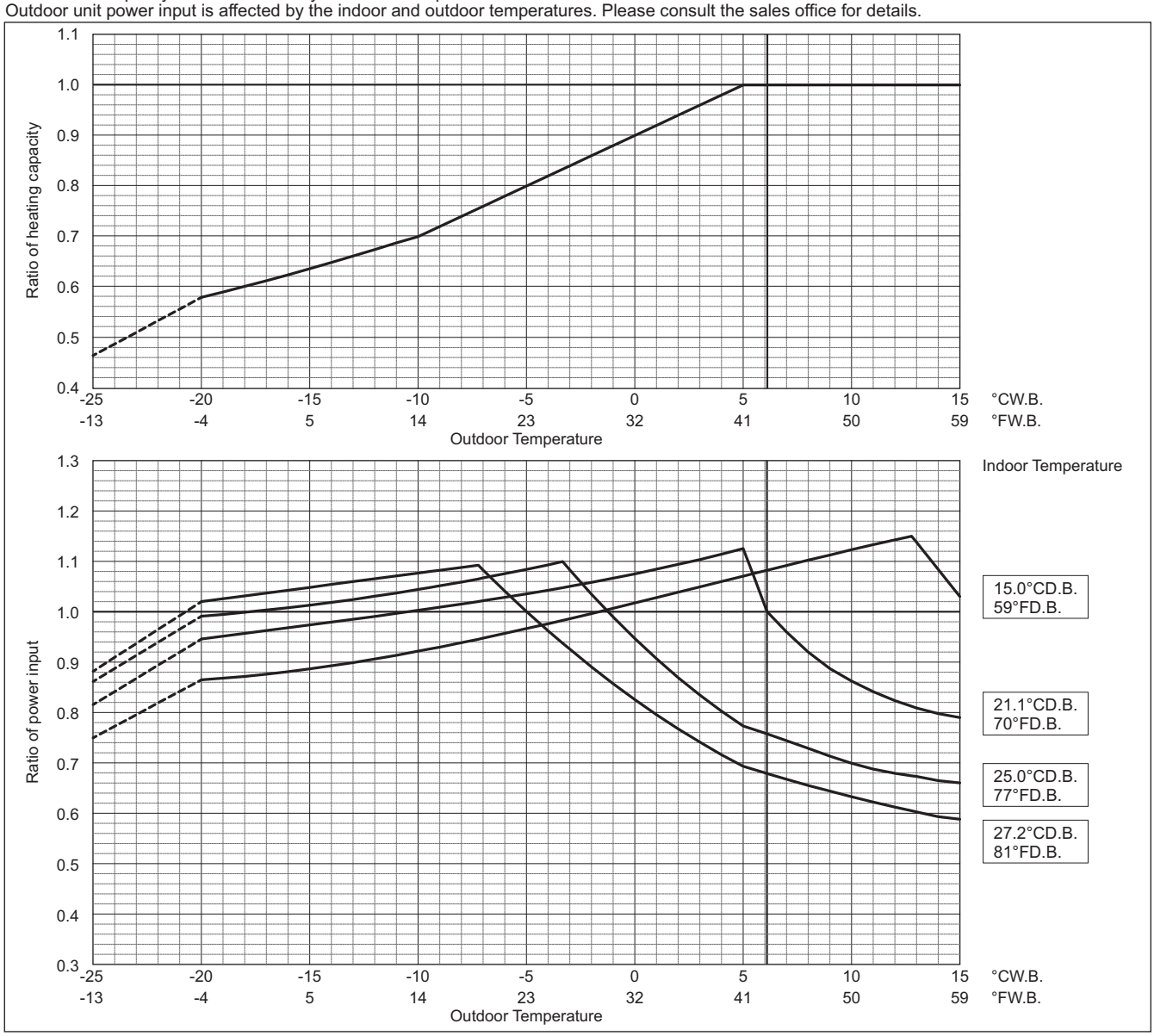



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.




Outdoor unit power input is affected by the indoor and outdoor temperatures as shown in the graph above. Please consult the sales office for details.

Values in the heating temperature correction diagram in the range below -20°C (-4°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.

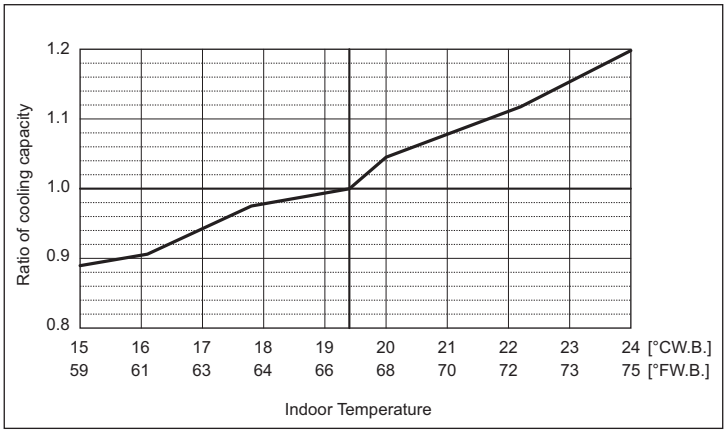
When using the units at outdoor temperatures below -20°C (-4°F), install a backup heater.

R2 575V

| PURY- | | | P168ZSKMU | | P192ZSKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 168,000 | | 192,000 | |
| | | kW | 49.2 | | 56.3 | |
| | Input | kW | 13.66 | | 15.92 | |
| Rated cooling capacity | | BTU/h | 161,000 | | 183,000 | |
| | | kW | 47.2 | | 53.6 | |
| | Input | kW | 12.19 | 13.10 | 14.61 | 14.86 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

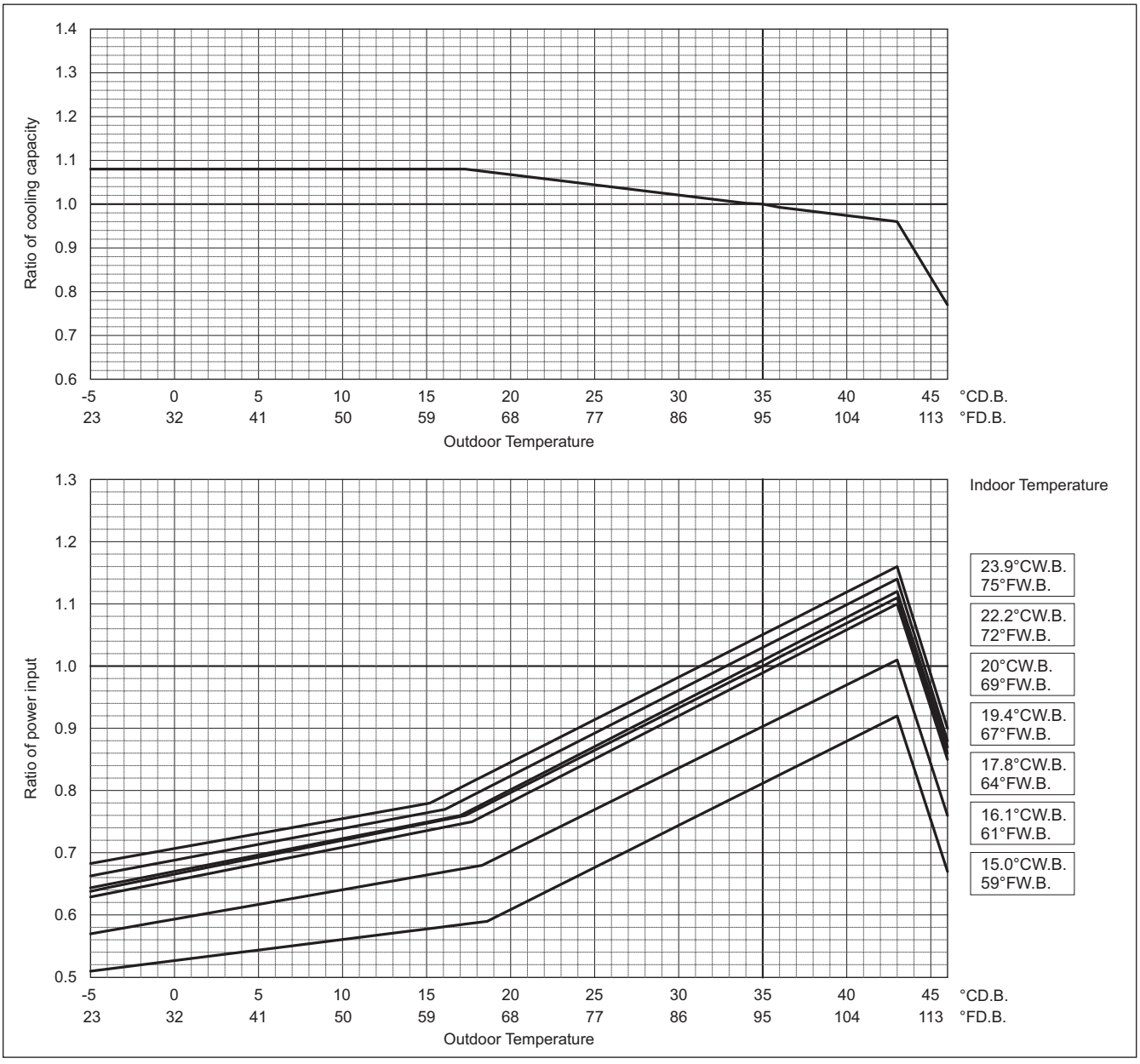



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.

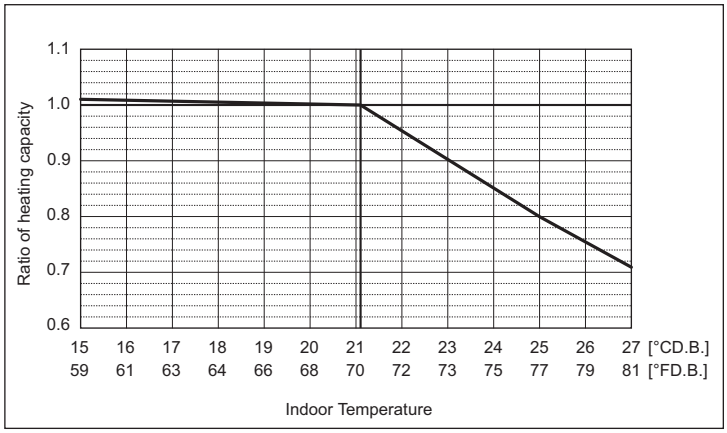



R2 575V

| PURY- | | | P168ZSKMU | | P192ZSKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 188,000 | | 215,000 | |
| | | kW | 55.1 | | 63.0 | |
| | Input | kW | 15.42 | | 17.79 | |
| Rated Heating capacity | | BTU/h | 179,000 | | 205,000 | |
| | | kW | 52.5 | | 60.1 | |
| | Input | kW | 13.84 | 14.71 | 16.47 | 16.46 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

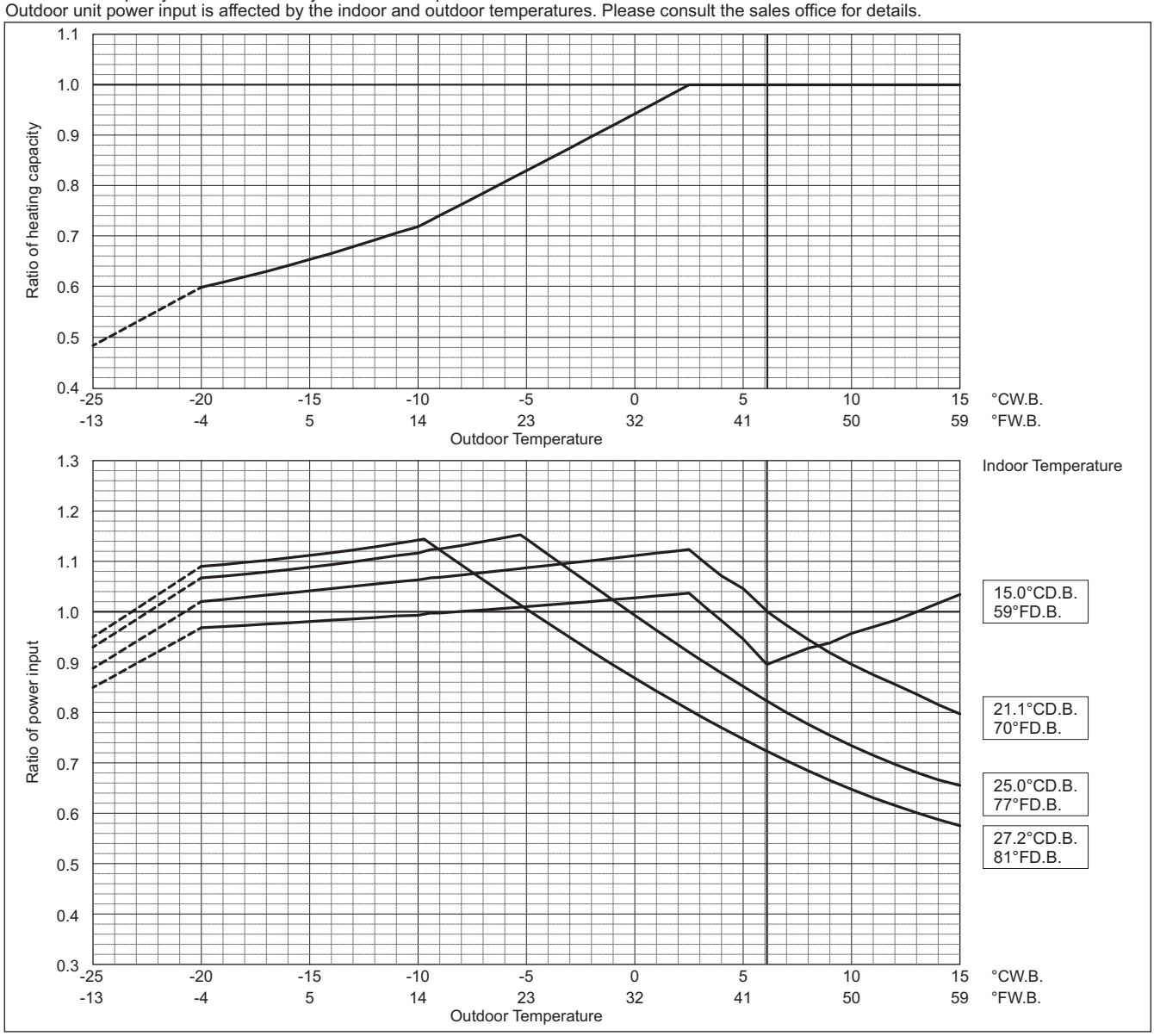



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.




Outdoor unit power input is affected by the indoor and outdoor temperatures as shown in the graph above. Please consult the sales office for details.

Values in the heating temperature correction diagram in the range below -20°C (-4°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.

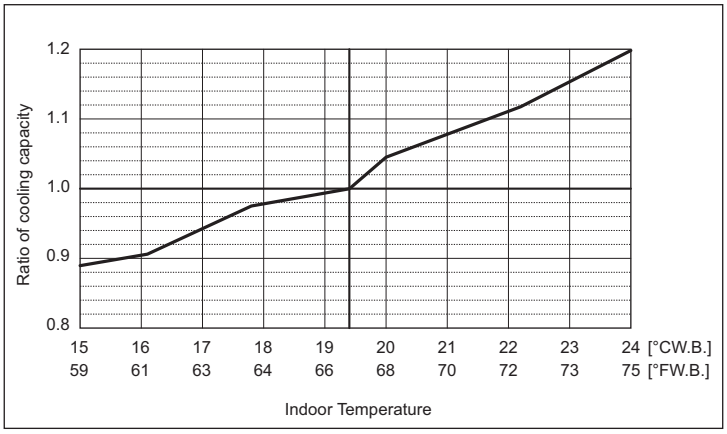
When using the units at outdoor temperatures below -20°C (-4°F), install a backup heater.

R2 575V

| PURY- | | | P216ZSKMU | | P240ZSKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 216,000 | | 240,000 | |
| | | kW | 63.3 | | 70.3 | |
| | Input | kW | 17.74 | | 19.62 | |
| Rated cooling capacity | | BTU/h | 206,000 | | 228,000 | |
| | | kW | 60.4 | | 66.8 | |
| | Input | kW | 16.54 | 16.30 | 17.99 | 18.33 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

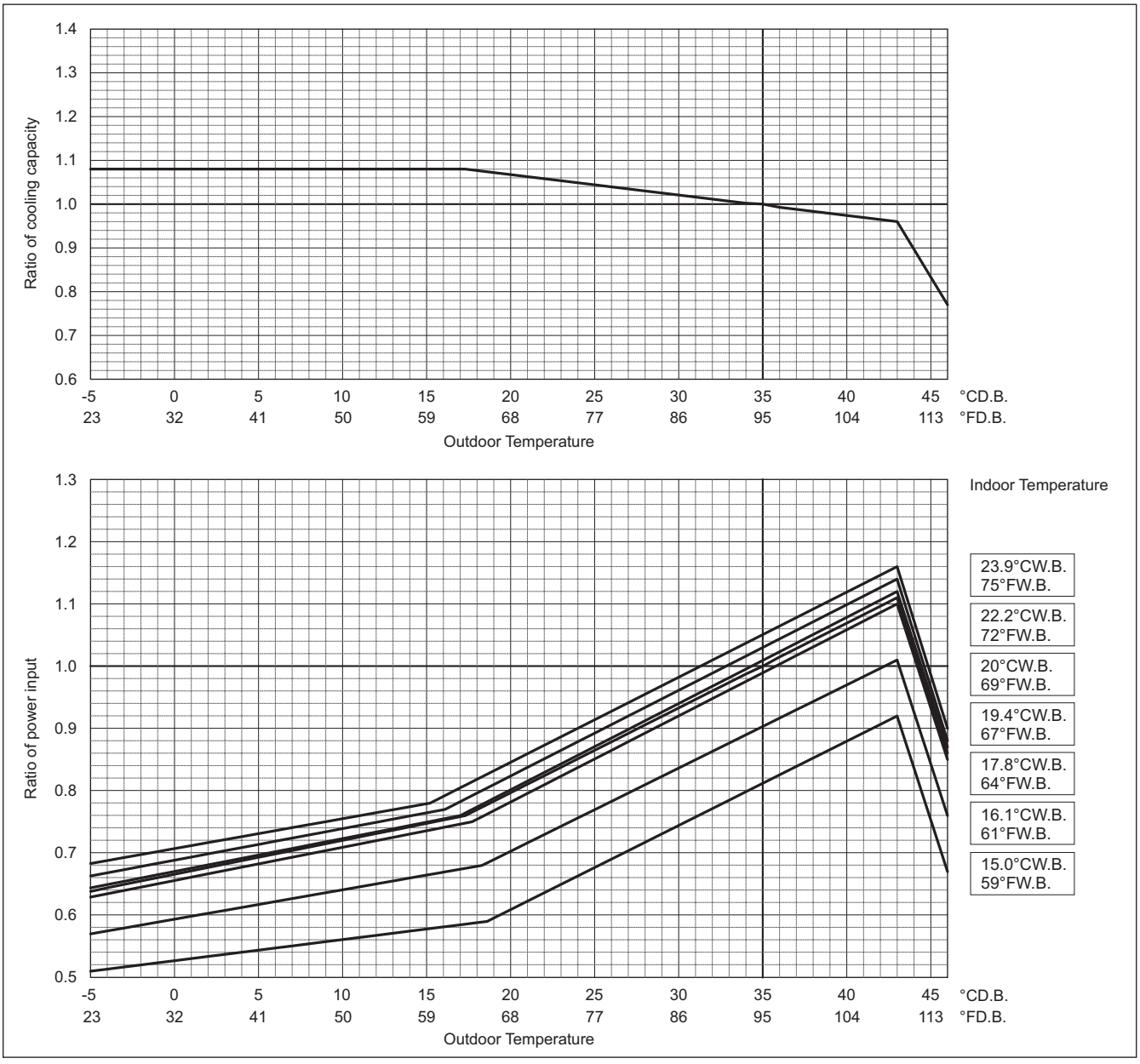



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.

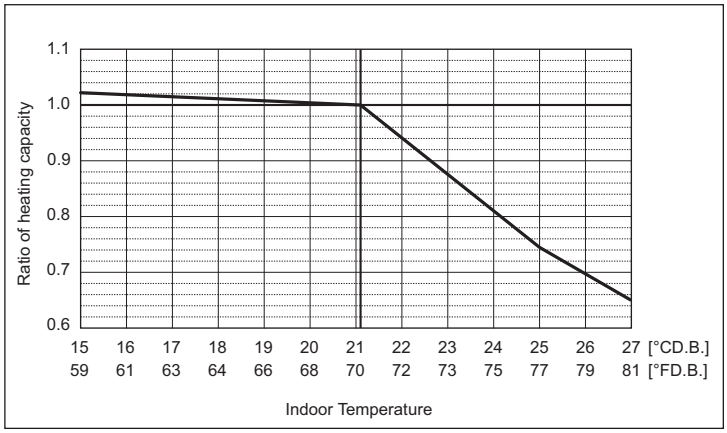



R2 575V

| PURY- | | | P216ZSKMU | | P240ZSKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 243,000 | | 270,000 | |
| | | kW | 71.2 | | 79.1 | |
| | Input | kW | 20.61 | | 23.55 | |
| Rated Heating capacity | | BTU/h | 232,000 | | 258,000 | |
| | | kW | 68.0 | | 75.6 | |
| | Input | kW | 19.26 | 18.90 | 21.76 | 21.84 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

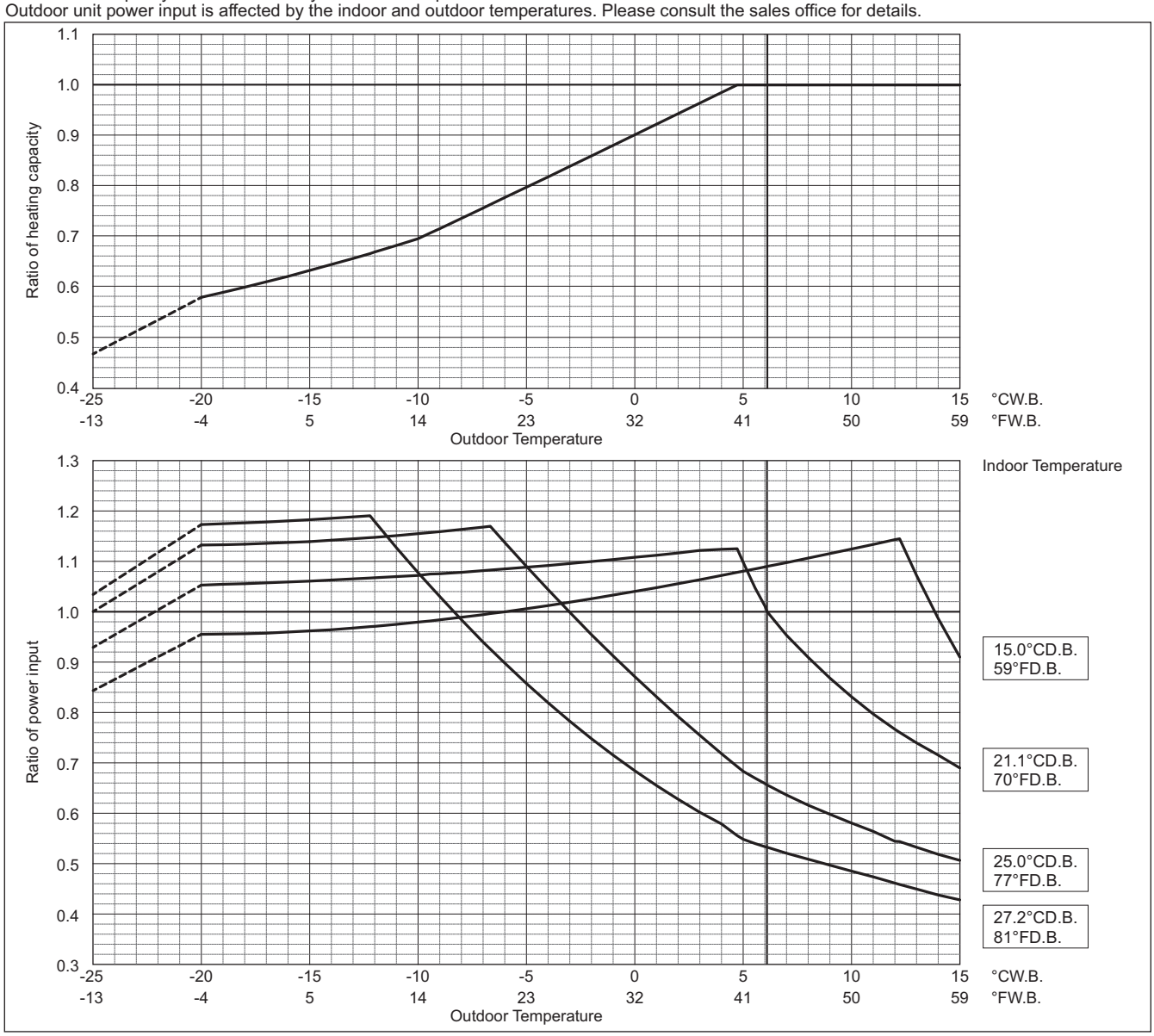



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.




Outdoor unit power input is affected by the indoor and outdoor temperatures as shown in the graph above. Please consult the sales office for details.

Values in the heating temperature correction diagram in the range below -20°C (-4°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.

When using the units at outdoor temperatures below -20°C (-4°F), install a backup heater.

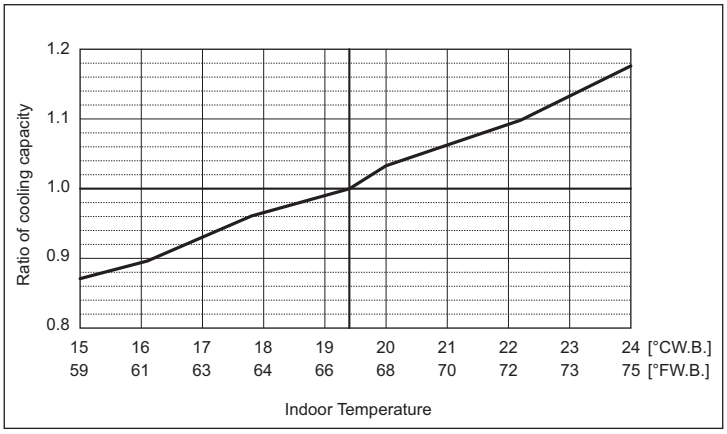
R2 575V

# 8. CAPACITY TABLES

| PURY- | | | P264ZSKMU | | P288ZSKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 264,000 | | 288,000 | |
| | | kW | 77.4 | | 84.4 | |
| | Input | kW | 22.69 | | 25.23 | |
| Rated cooling capacity | | BTU/h | 251,000 | | 274,000 | |
| | | kW | 73.6 | | 80.3 | |
| | Input | kW | 20.79 | 21.22 | 23.33 | 23.39 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

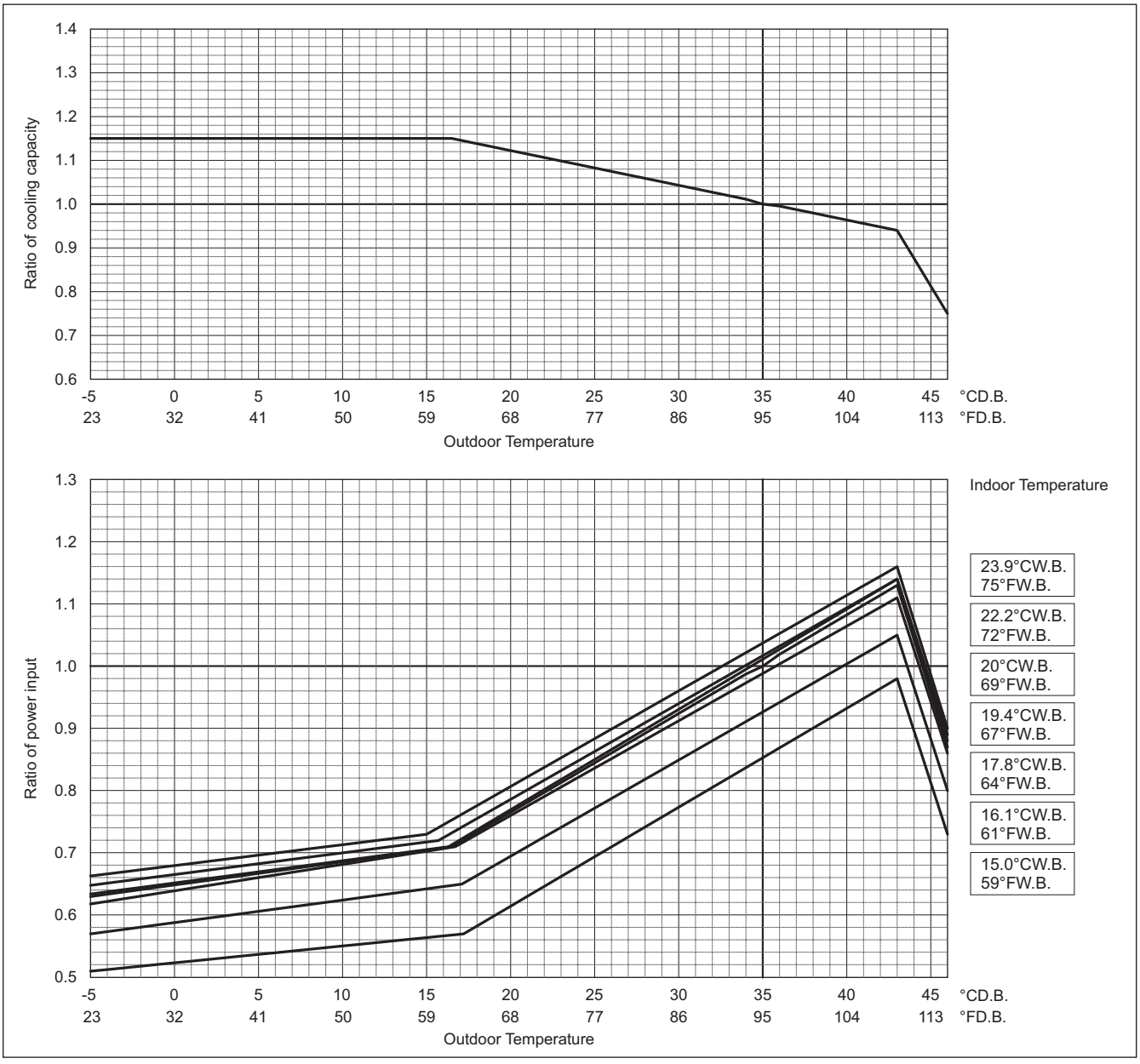



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.

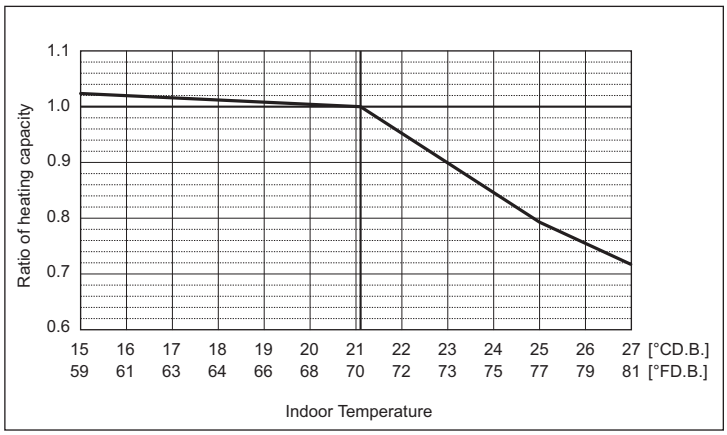



R2 575V

| PURY- | | | P264ZSKMU | | P288ZSKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 295,000 | | 323,000 | |
| | | kW | 86.5 | | 94.7 | |
| | Input | kW | 25.94 | | 28.13 | |
| Rated Heating capacity | | BTU/h | 281,000 | | 304,000 | |
| | | kW | 82.4 | | 89.1 | |
| | Input | kW | 24.18 | 23.84 | 26.31 | 25.77 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

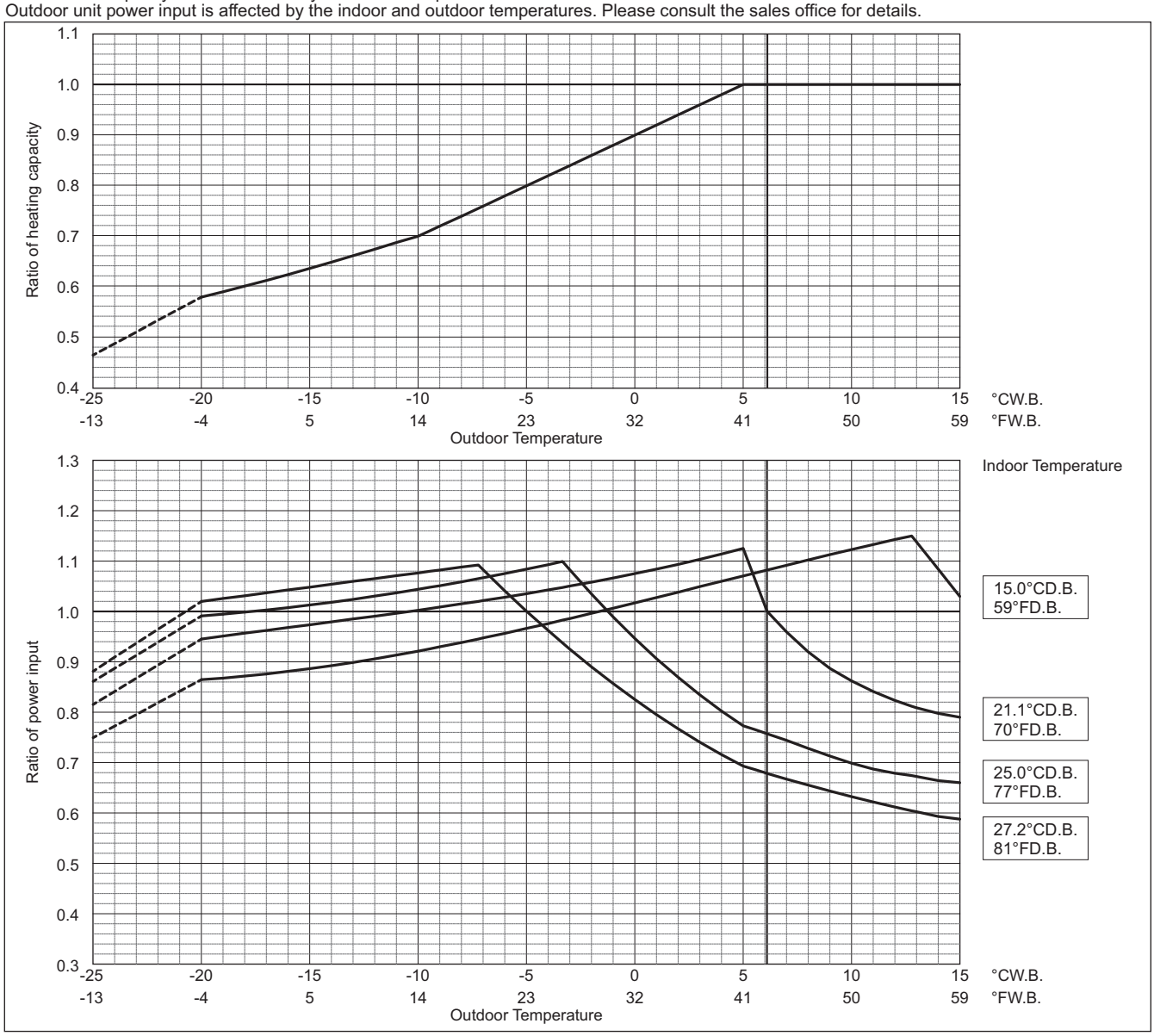



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.




Outdoor unit power input is affected by the indoor and outdoor temperatures as shown in the graph above. Please consult the sales office for details.

Values in the heating temperature correction diagram in the range below -20°C (-4°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.

When using the units at outdoor temperatures below -20°C (-4°F), install a backup heater.

R2 575V

**Correction by temperature (High Heating Performance Mode)**

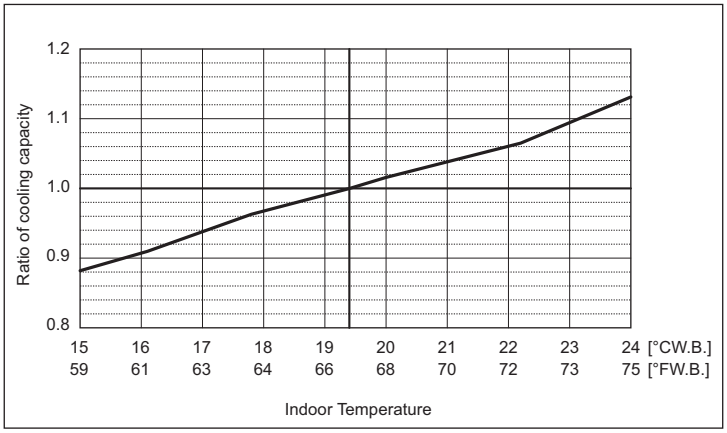
CITY MULTI could have various capacities at different designing temperatures. Using the nominal cooling/heating capacity values and the ratios below, the capacity can be found for various temperatures.

To select high heating performance mode, DipSW 6-2 must be set to ON. (In the low ambient temperature, heating capacity and power input become higher than those under standard mode.)

| PURY- | | | P72ZKMU | | P96ZKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 72,000 | | 96,000 | |
| | | kW | 21.1 | | 28.1 | |
| | Input | kW | 4.82 | | 7.06 | |
| Rated cooling capacity | | BTU/h | 69,000 | | 92,000 | |
| | | kW | 20.2 | | 27.0 | |
| | Input | kW | 4.29 | 4.63 | 6.01 | 7.05 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

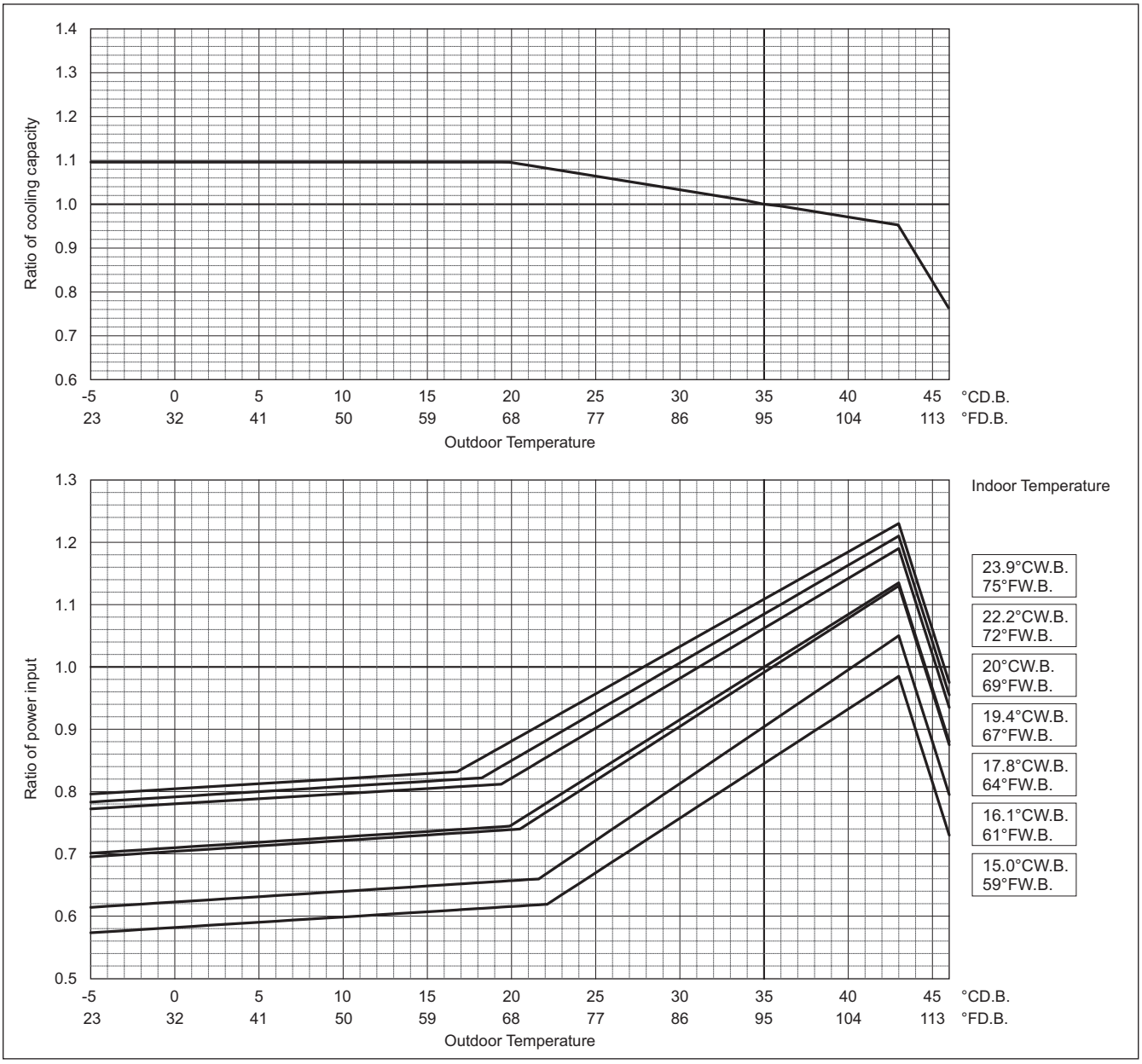



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.



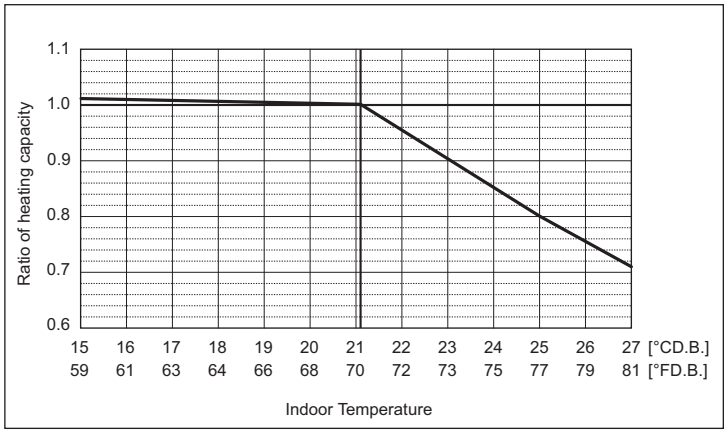

R2 575V

High Heating Performance Mode

| PURY- | | | P72ZKMU | | P96ZKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 80,000 | | 108,000 | |
| | | kW | 23.4 | | 31.7 | |
| | Input | kW | 5.89 | | 8.26 | |
| Rated Heating capacity | | BTU/h | 76,000 | | 103,000 | |
| | | kW | 22.3 | | 30.2 | |
| | Input | kW | 5.13 | 5.77 | 7.29 | 7.99 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

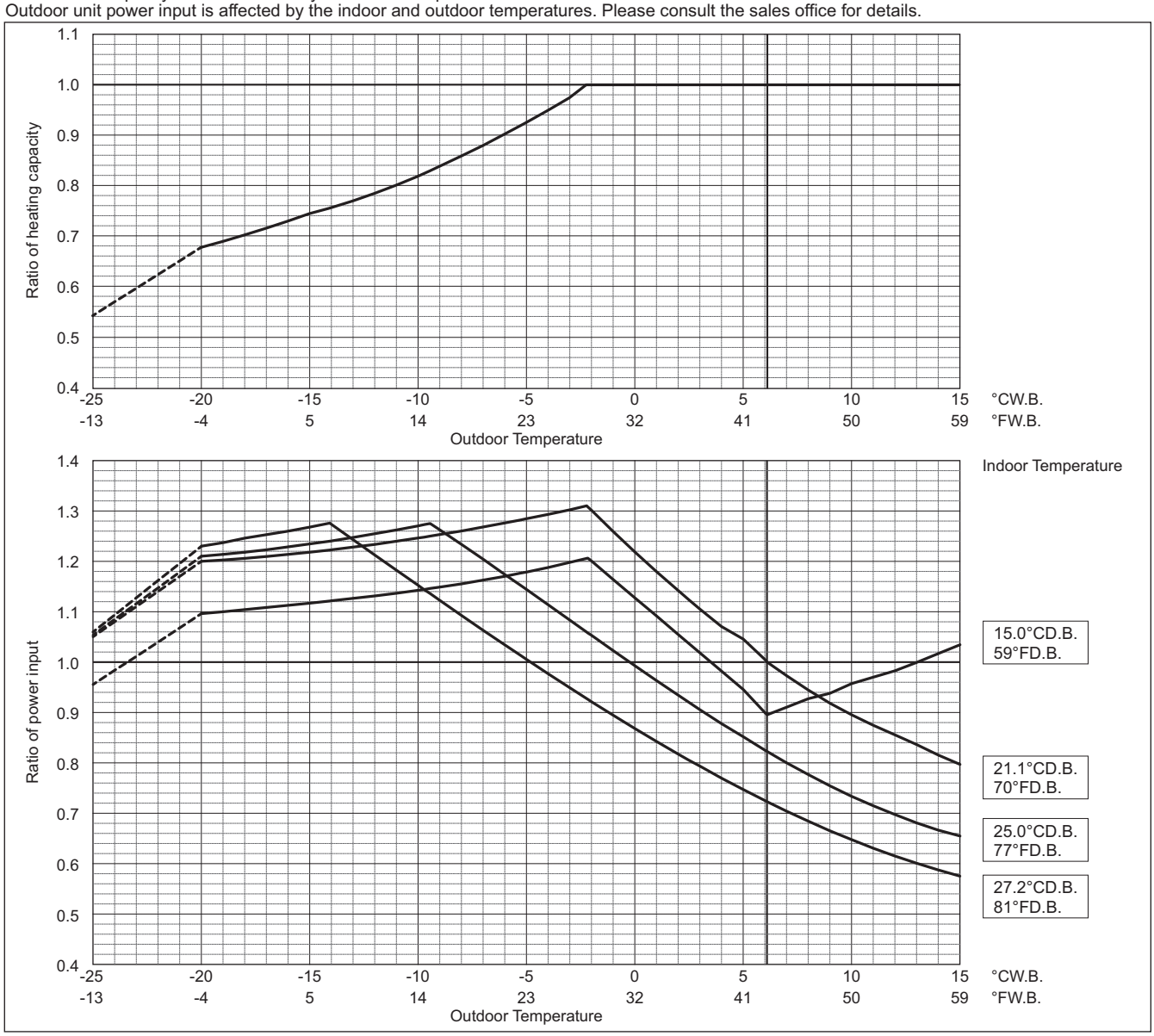



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.




Outdoor unit power input is affected by the indoor and outdoor temperatures as shown in the graph above. Please consult the sales office for details.

Values in the heating temperature correction diagram in the range below -20°C (-4°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.

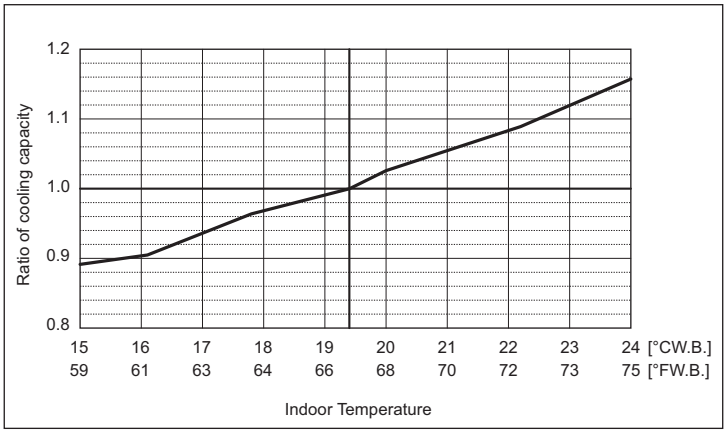
When using the units at outdoor temperatures below -20°C (-4°F), install a backup heater.

R2 575V

| PURY- | | | P120ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 12,000 | |
| | | kW | 35.2 | |
| | Input | kW | 8.62 | |
| Rated cooling capacity | | BTU/h | 114,000 | |
| | | kW | 33.4 | |
| | Input | kW | 7.65 | 8.31 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

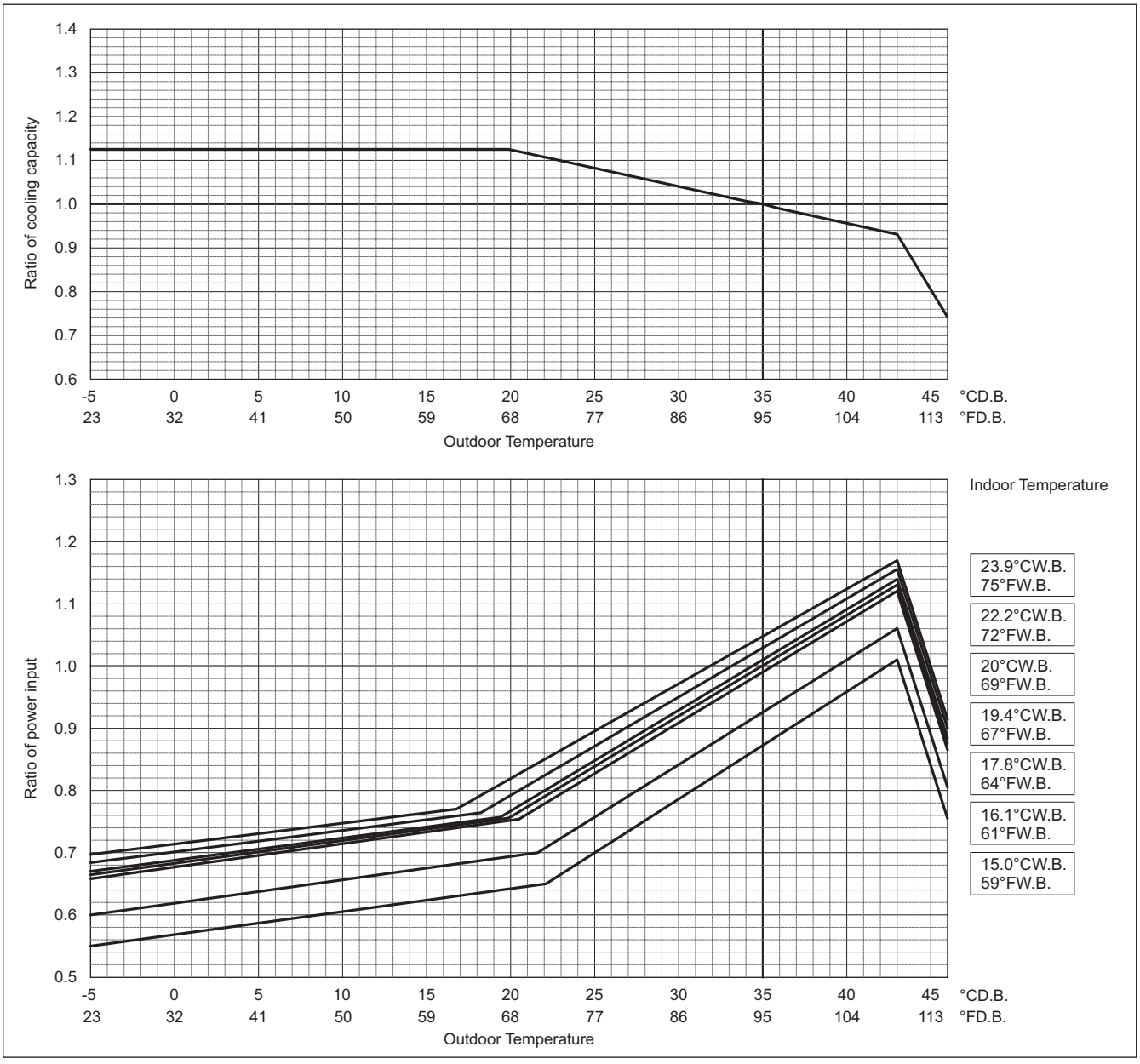



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.



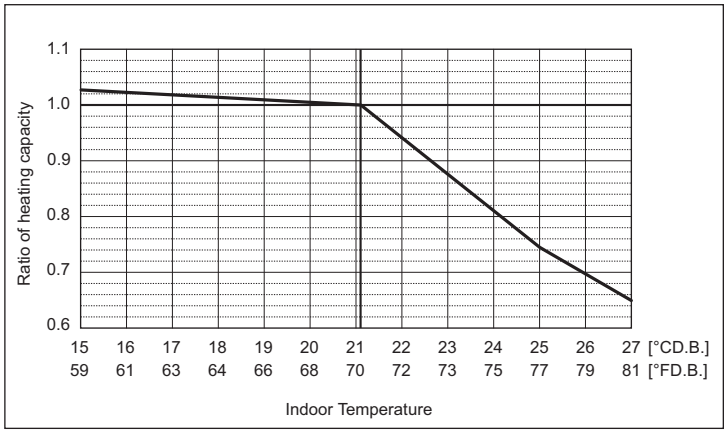

R2 575V

High Heating Performance Mode

| PURY- | | | P120ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 135,000 | |
| | | kW | 39.6 | |
| | Input | kW | 10.84 | |
| Rated Heating capacity | | BTU/h | 129,000 | |
| | | kW | 37.8 | |
| | Input | kW | 9.78 | 10.29 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

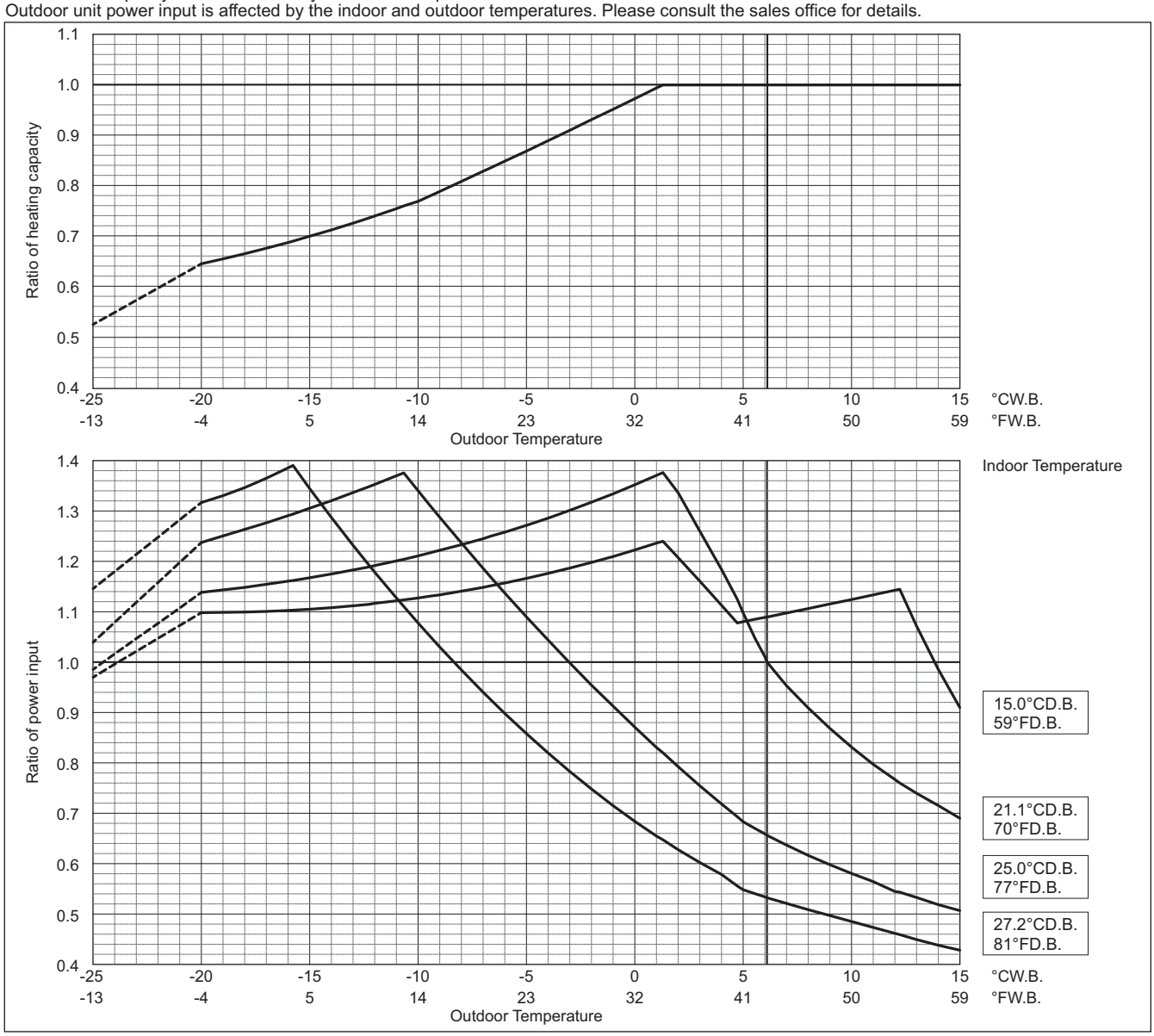



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.




Outdoor unit power input is affected by the indoor and outdoor temperatures as shown in the graph above. Please consult the sales office for details.

Values in the heating temperature correction diagram in the range below -20°C (-4°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.

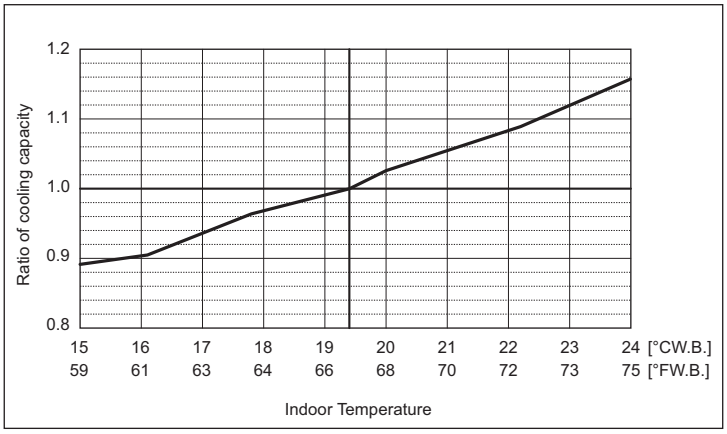
When using the units at outdoor temperatures below -20°C (-4°F), install a backup heater.

R2 575V

| PURY- | | | P144ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 144,000 | |
| | | kW | 42.2 | |
| | Input | kW | 11.13 | |
| Rated cooling capacity | | BTU/h | 137,000 | |
| | | kW | 40.2 | |
| | Input | kW | 9.93 | 10.68 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

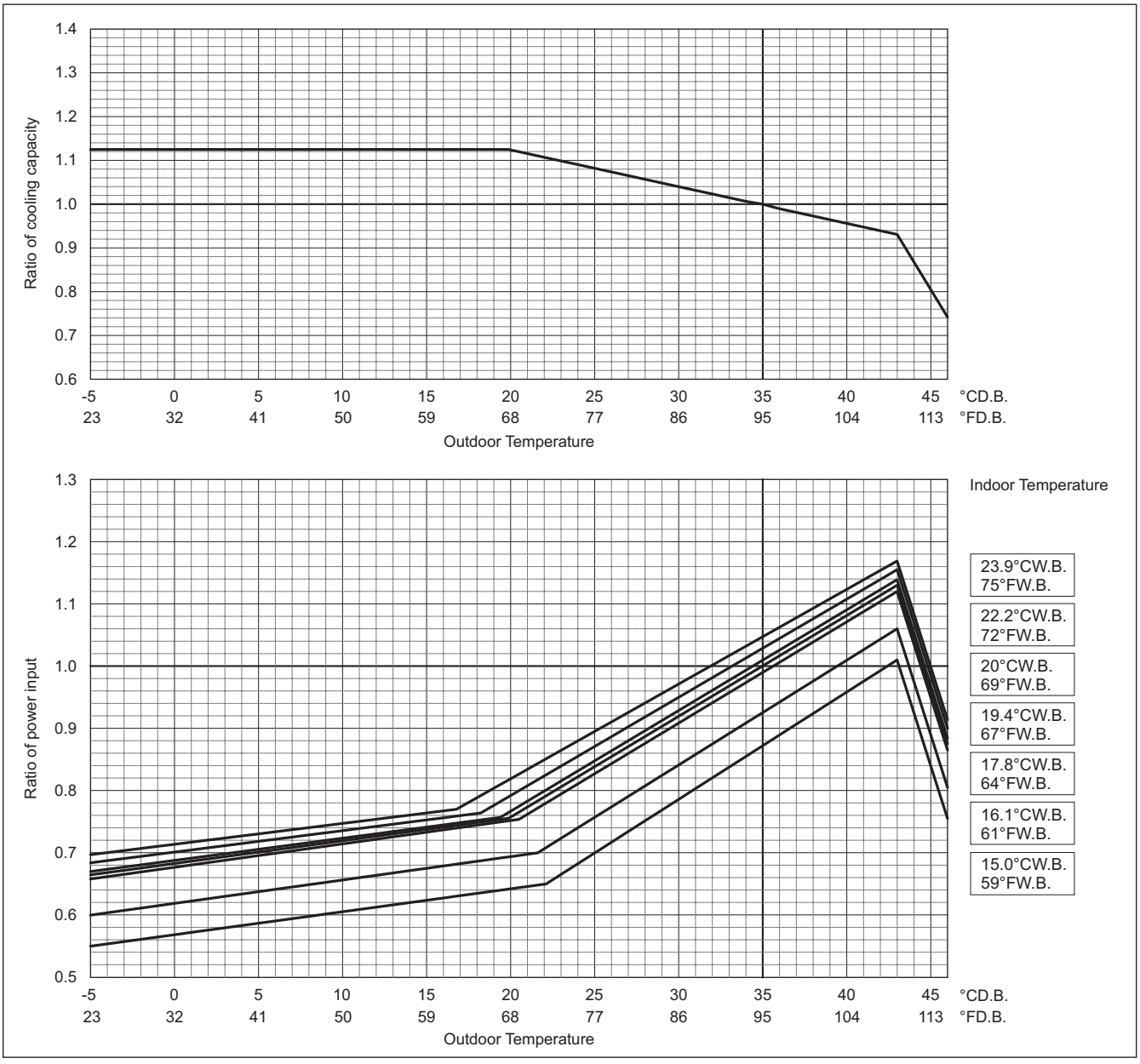



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.



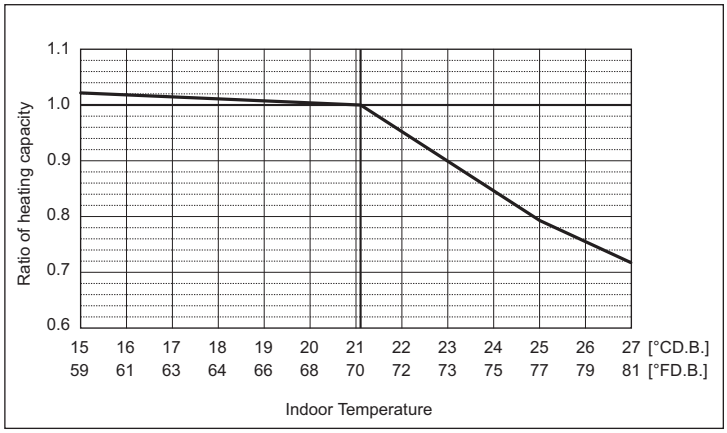

R2 575V

High Heating Performance Mode

| PURY- | | | P144ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 160,000 | |
| | | kW | 46.9 | |
| | Input | kW | 12.86 | |
| Rated Heating capacity | | BTU/h | 152,000 | |
| | | kW | 44.5 | |
| | Input | kW | 11.80 | 12.01 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

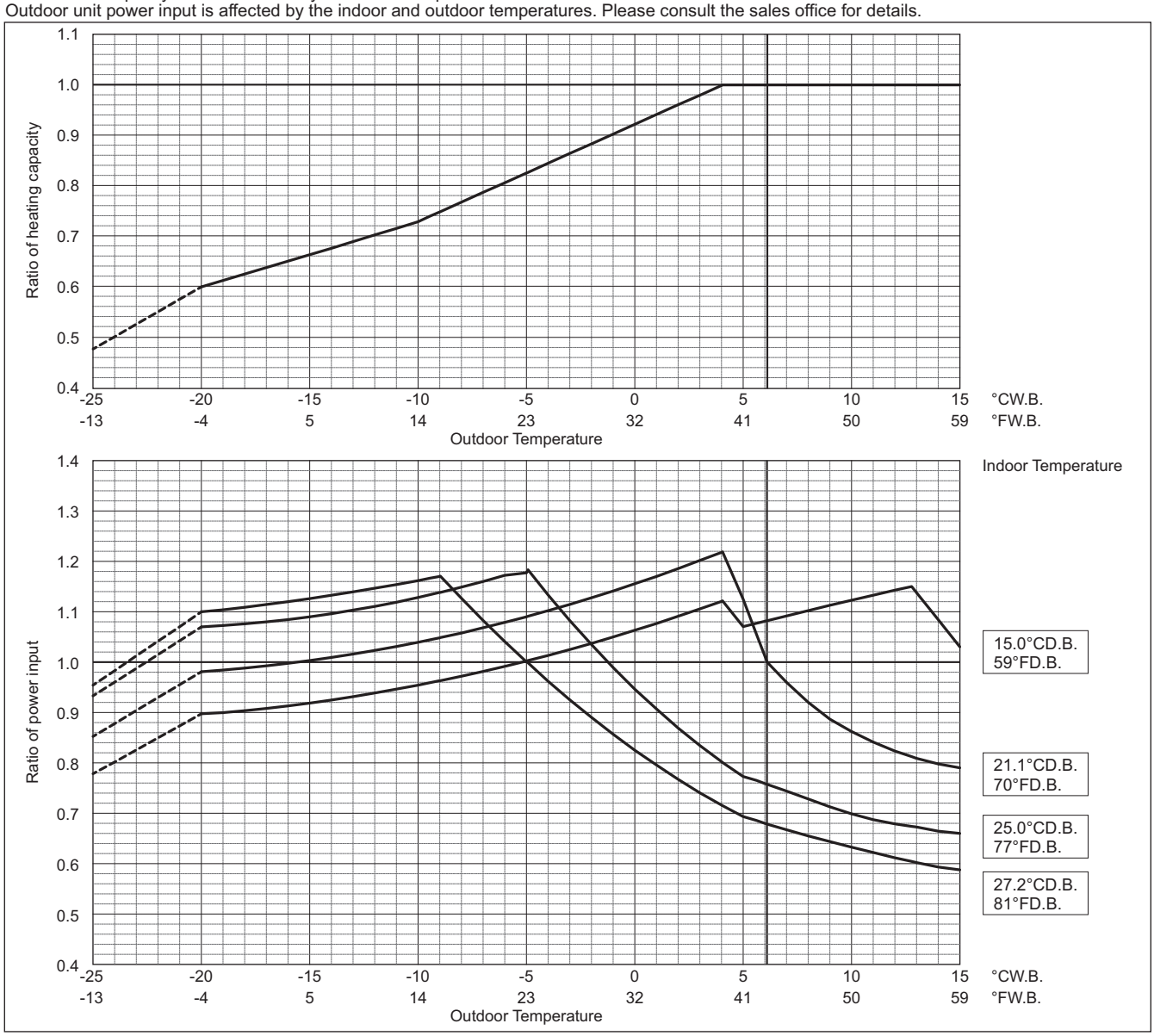



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.




Outdoor unit power input is affected by the indoor and outdoor temperatures as shown in the graph above. Please consult the sales office for details.

Values in the heating temperature correction diagram in the range below -20°C (-4°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.

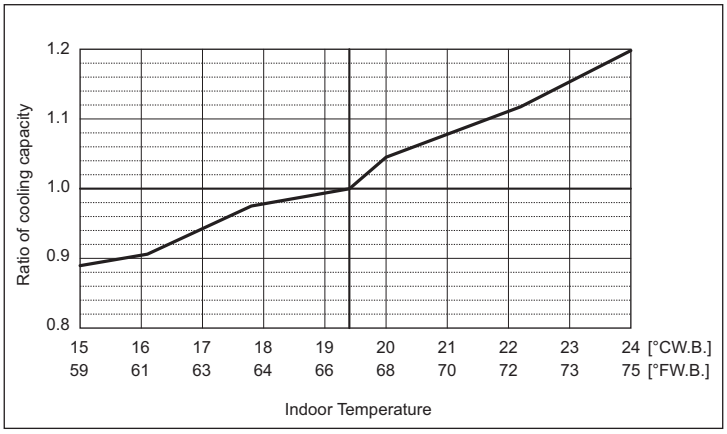
When using the units at outdoor temperatures below -20°C (-4°F), install a backup heater.

R2 575V

| PURY- | | | P168ZSKMU | | P192ZSKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 168,000 | | 192,000 | |
| | | kW | 49.2 | | 56.3 | |
| | Input | kW | 13.66 | | 15.92 | |
| Rated cooling capacity | | BTU/h | 161,000 | | 183,000 | |
| | | kW | 47.2 | | 53.6 | |
| | Input | kW | 12.19 | 13.10 | 14.61 | 14.86 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

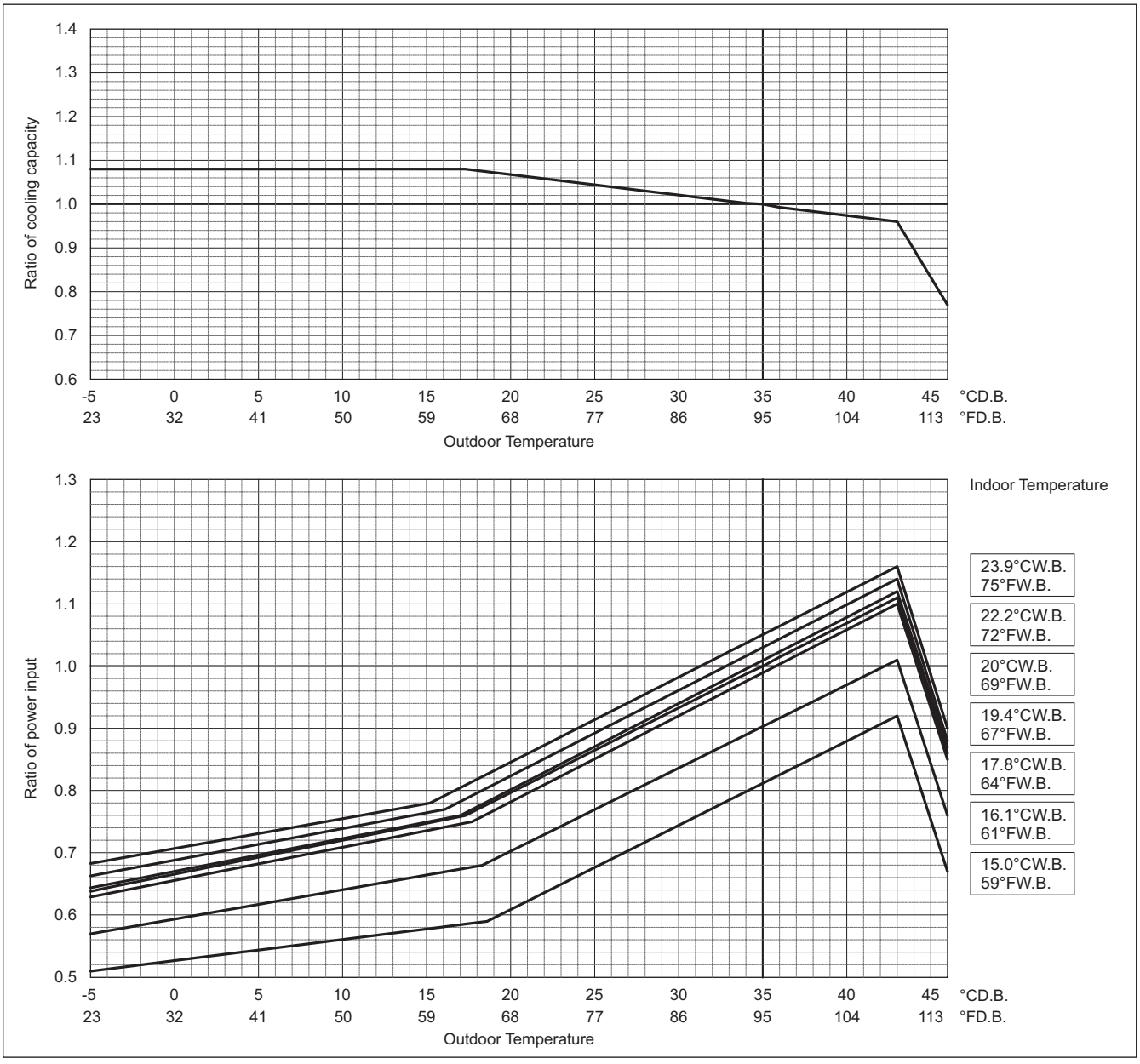



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.



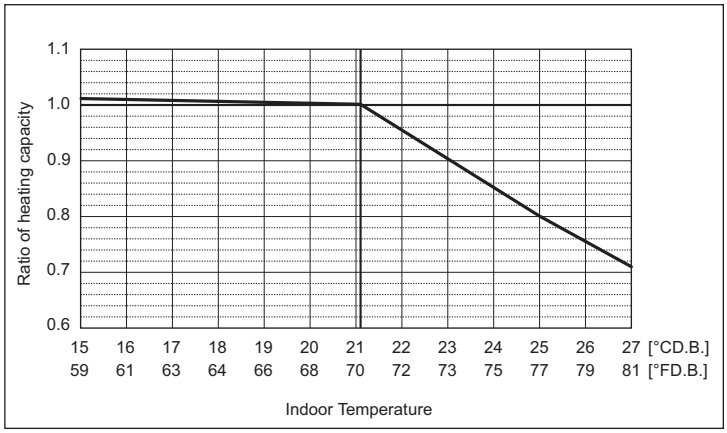

R2 575V

High Heating Performance Mode

| PURY- | | | P168ZSKMU | | P192ZSKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 188,000 | | 215,000 | |
| | | kW | 55.1 | | 63.0 | |
| | Input | kW | 15.42 | | 17.79 | |
| Rated Heating capacity | | BTU/h | 179,000 | | 205,000 | |
| | | kW | 52.5 | | 60.1 | |
| | Input | kW | 13.84 | 14.71 | 16.47 | 16.46 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

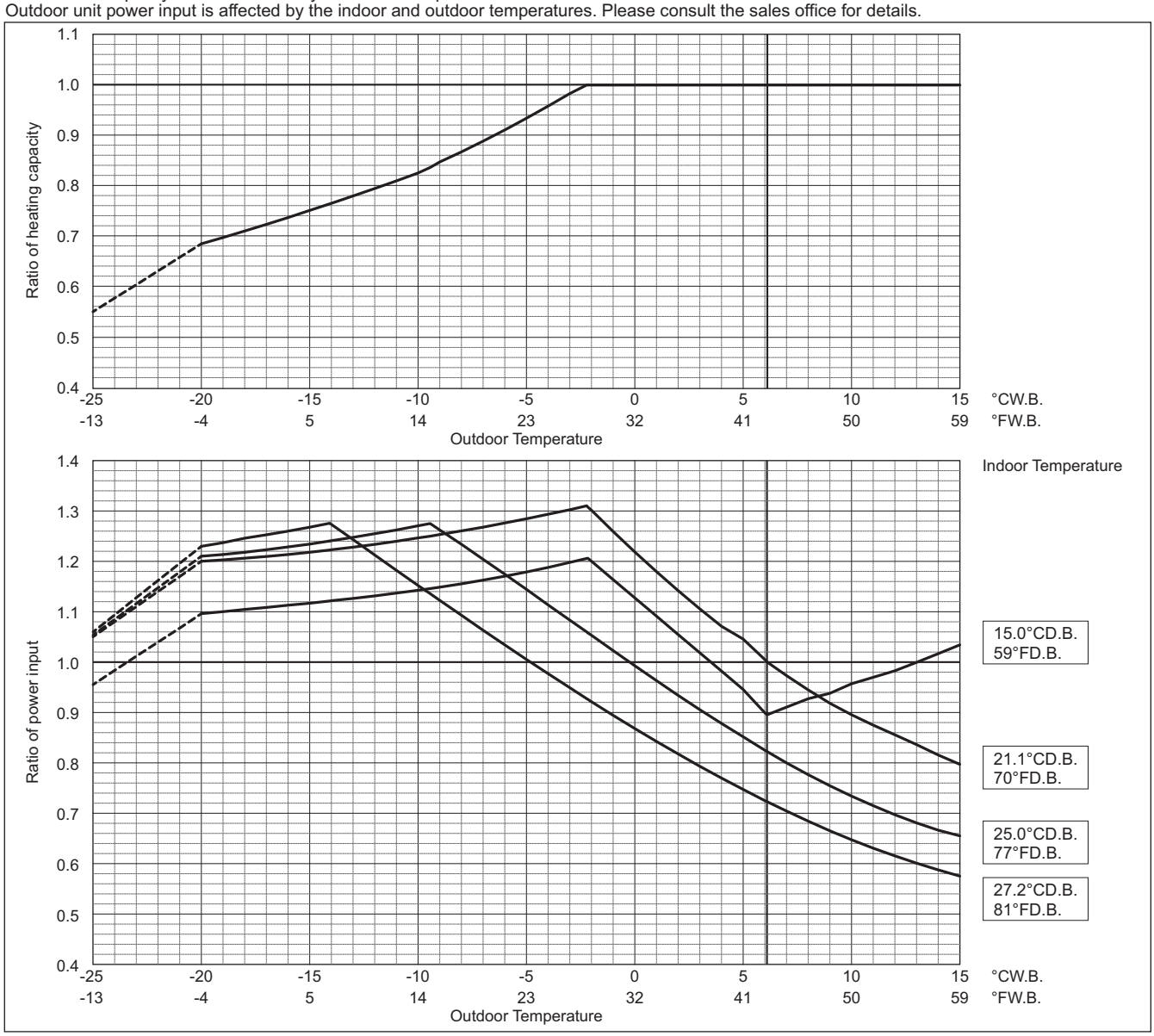



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.




Outdoor unit power input is affected by the indoor and outdoor temperatures as shown in the graph above. Please consult the sales office for details.

Values in the heating temperature correction diagram in the range below -20°C (-4°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.

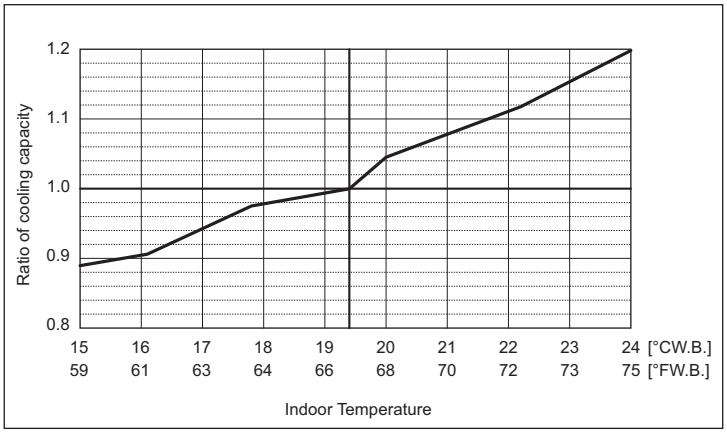
When using the units at outdoor temperatures below -20°C (-4°F), install a backup heater.

R2 575V

| PURY- | | | P216ZSKMU | | P240ZSKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 216,000 | | 240,000 | |
| | | kW | 63.3 | | 70.3 | |
| | Input | kW | 17.74 | | 19.62 | |
| Rated cooling capacity | | BTU/h | 206,000 | | 228,000 | |
| | | kW | 60.4 | | 66.8 | |
| | Input | kW | 16.54 | 16.30 | 17.99 | 18.33 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

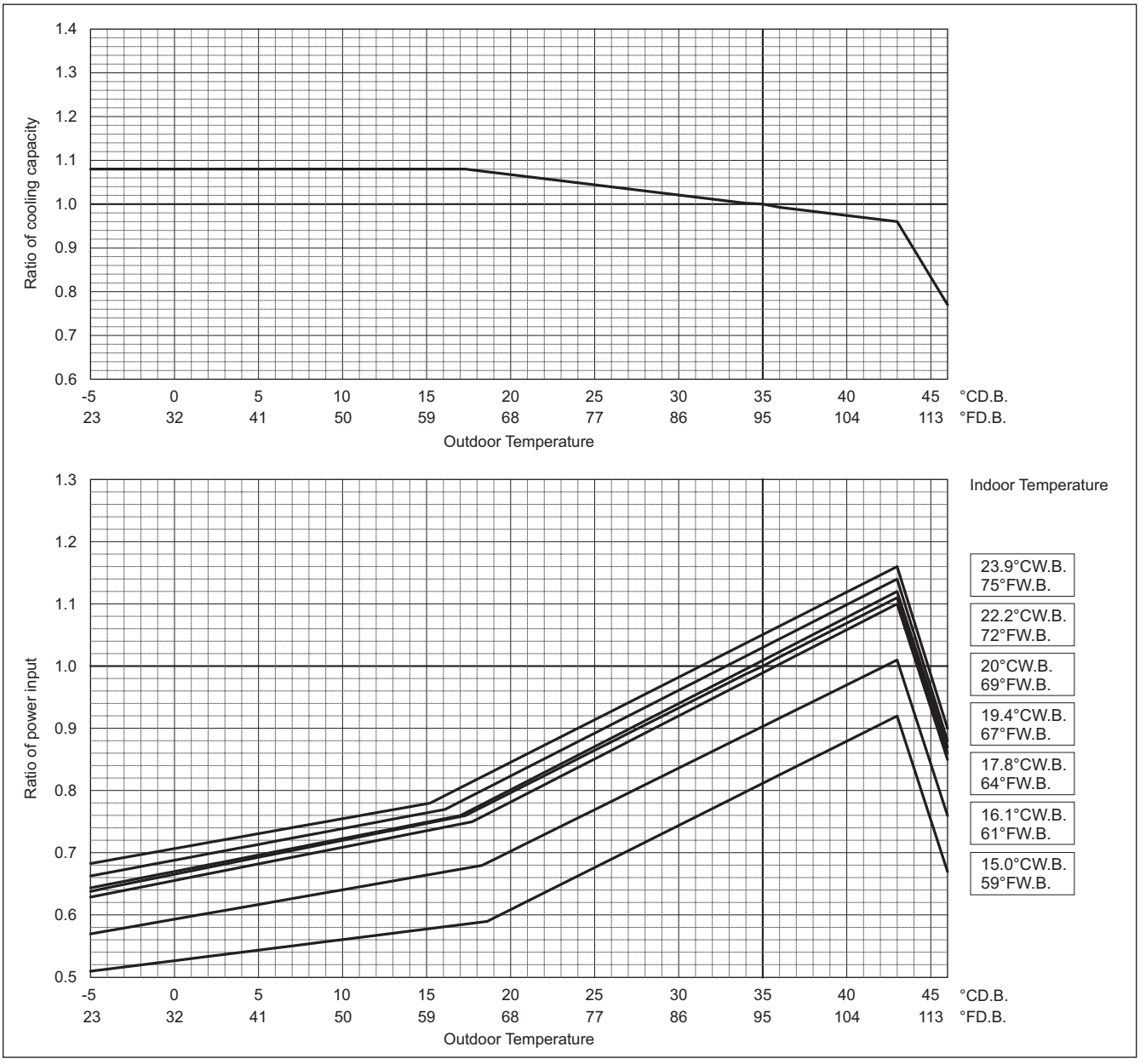



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.



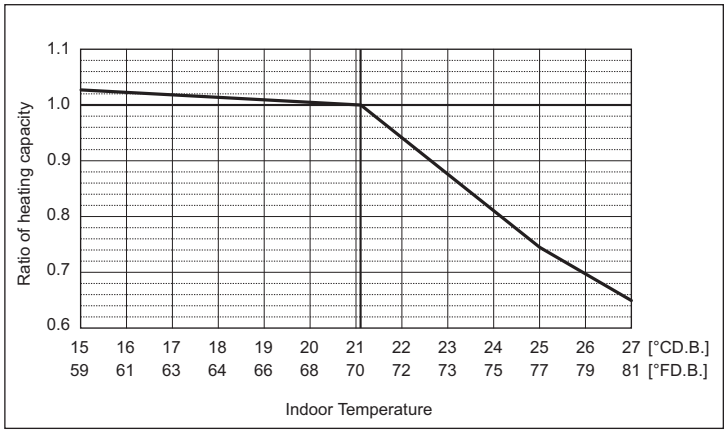

R2 575V

High Heating Performance Mode

| PURY- | | | P216ZSKMU | | P240ZSKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 243,000 | | 270,000 | |
| | | kW | 71.2 | | 79.1 | |
| | Input | kW | 20.61 | | 23.55 | |
| Rated Heating capacity | | BTU/h | 232,000 | | 258,000 | |
| | | kW | 68.0 | | 75.6 | |
| | Input | kW | 19.26 | 18.90 | 21.76 | 21.84 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

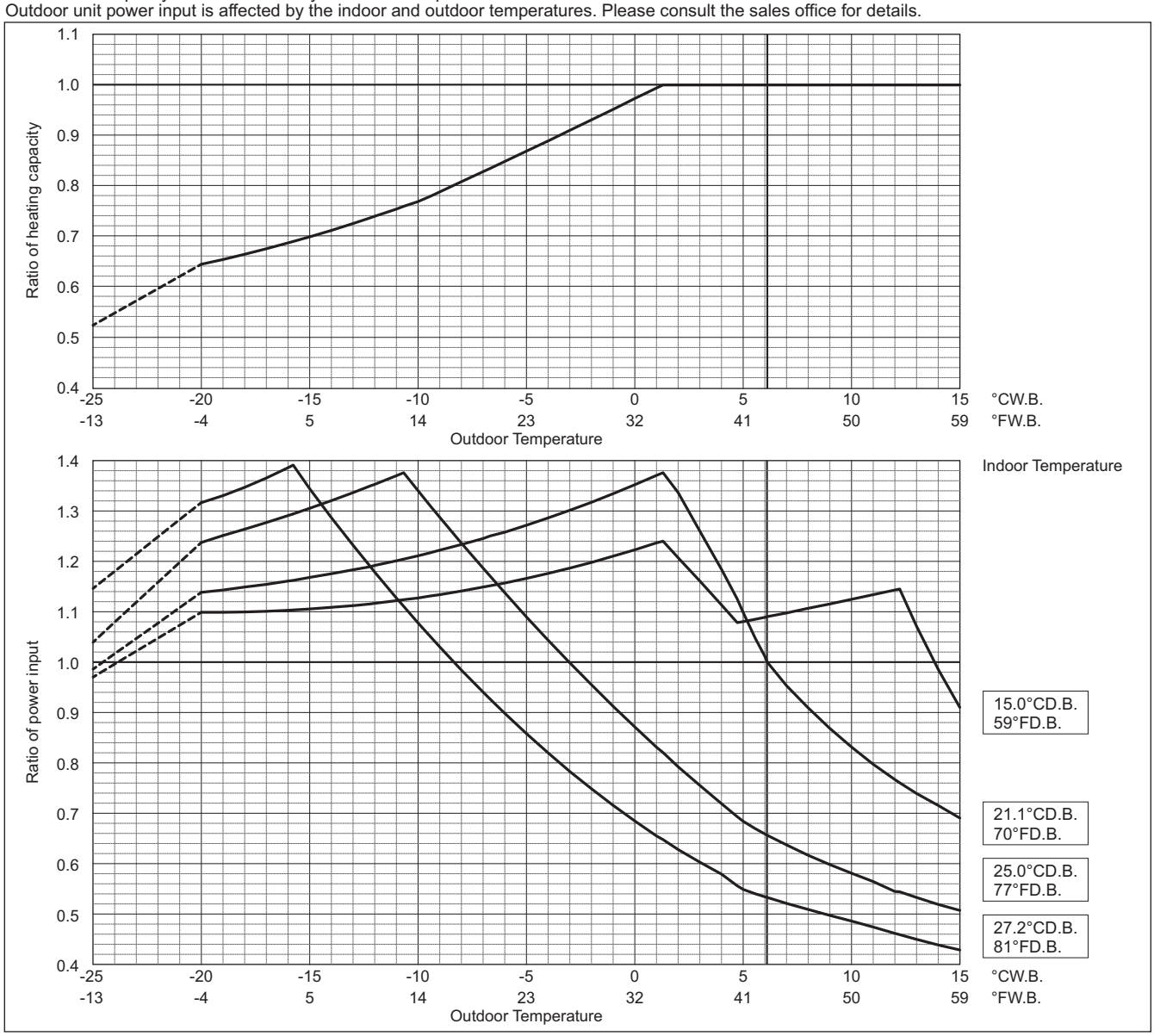



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.




Outdoor unit power input is affected by the indoor and outdoor temperatures as shown in the graph above. Please consult the sales office for details.

Values in the heating temperature correction diagram in the range below -20°C (-4°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.

When using the units at outdoor temperatures below -20°C (-4°F), install a backup heater.

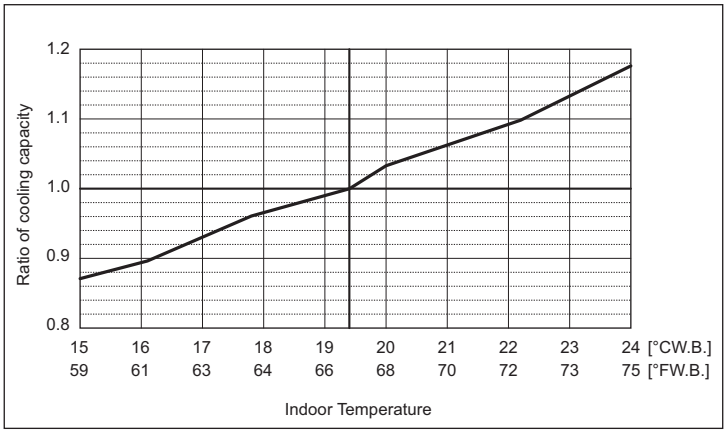
R2 575V

# 8. CAPACITY TABLES

| PURY- | | | P264ZSKMU | | P288ZSKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 264,000 | | 288,000 | |
| | | kW | 77.4 | | 84.4 | |
| | Input | kW | 22.69 | | 25.23 | |
| Rated cooling capacity | | BTU/h | 251,000 | | 274,000 | |
| | | kW | 73.6 | | 80.3 | |
| | Input | kW | 20.79 | 21.22 | 23.33 | 23.39 |

## Indoor unit temperature correction

To be used to correct indoor unit capacity only

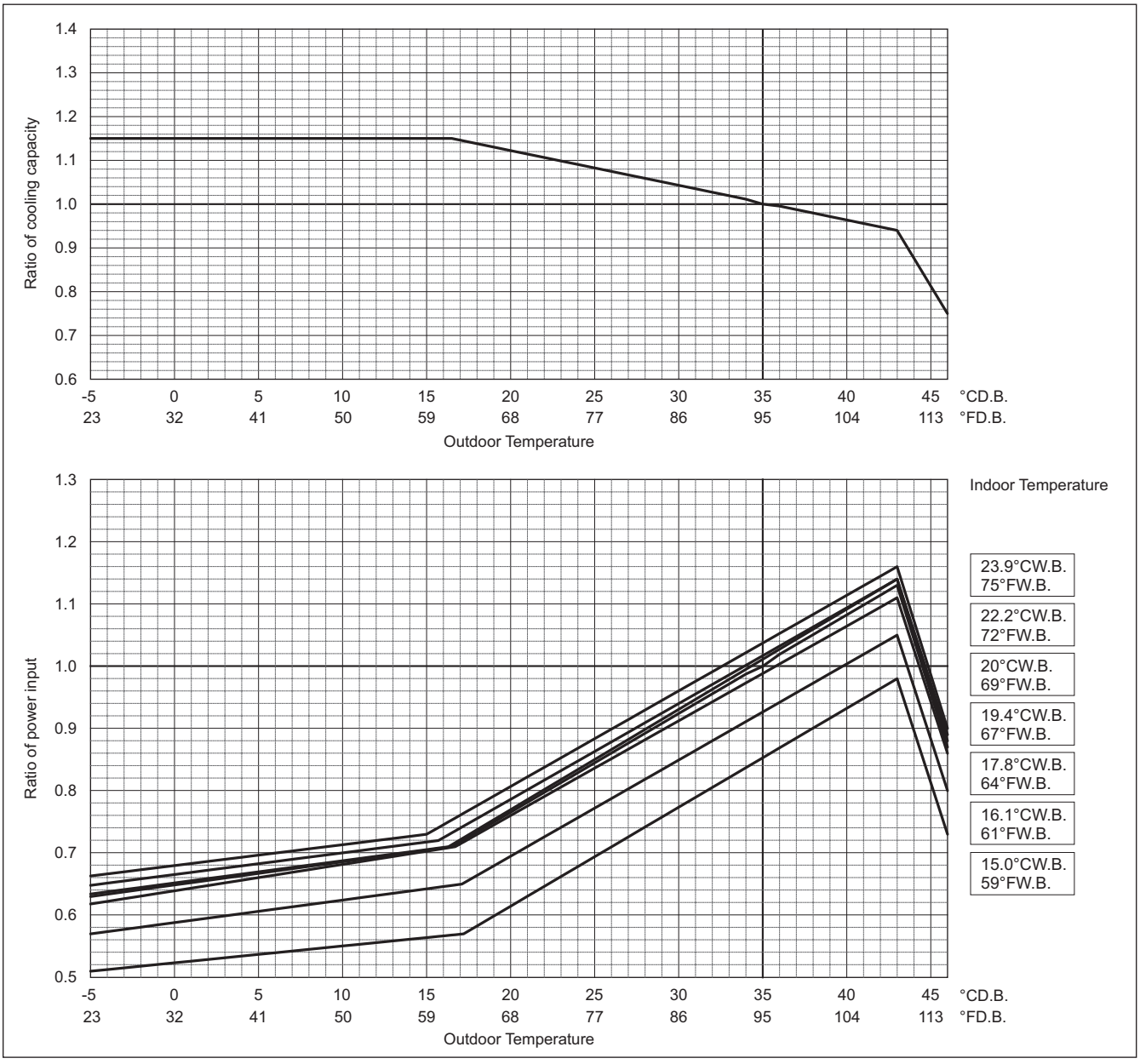



## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.



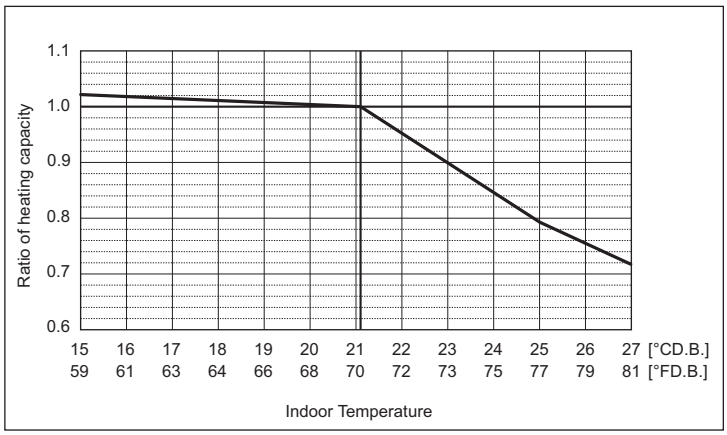

R2 575V

High Heating Performance Mode

| PURY- | | | P264ZSKMU | | P288ZSKMU | |
|---|---|---|---|---|---|---|
| | | | Non-Ducted | Ducted | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 295,000 | | 323,000 | |
| | | kW | 86.5 | | 94.7 | |
| | Input | kW | 25.94 | | 28.13 | |
| Rated Heating capacity | | BTU/h | 281,000 | | 304,000 | |
| | | kW | 82.4 | | 89.1 | |
| | Input | kW | 24.18 | 23.84 | 26.31 | 25.77 |

## Indoor unit temperature correction

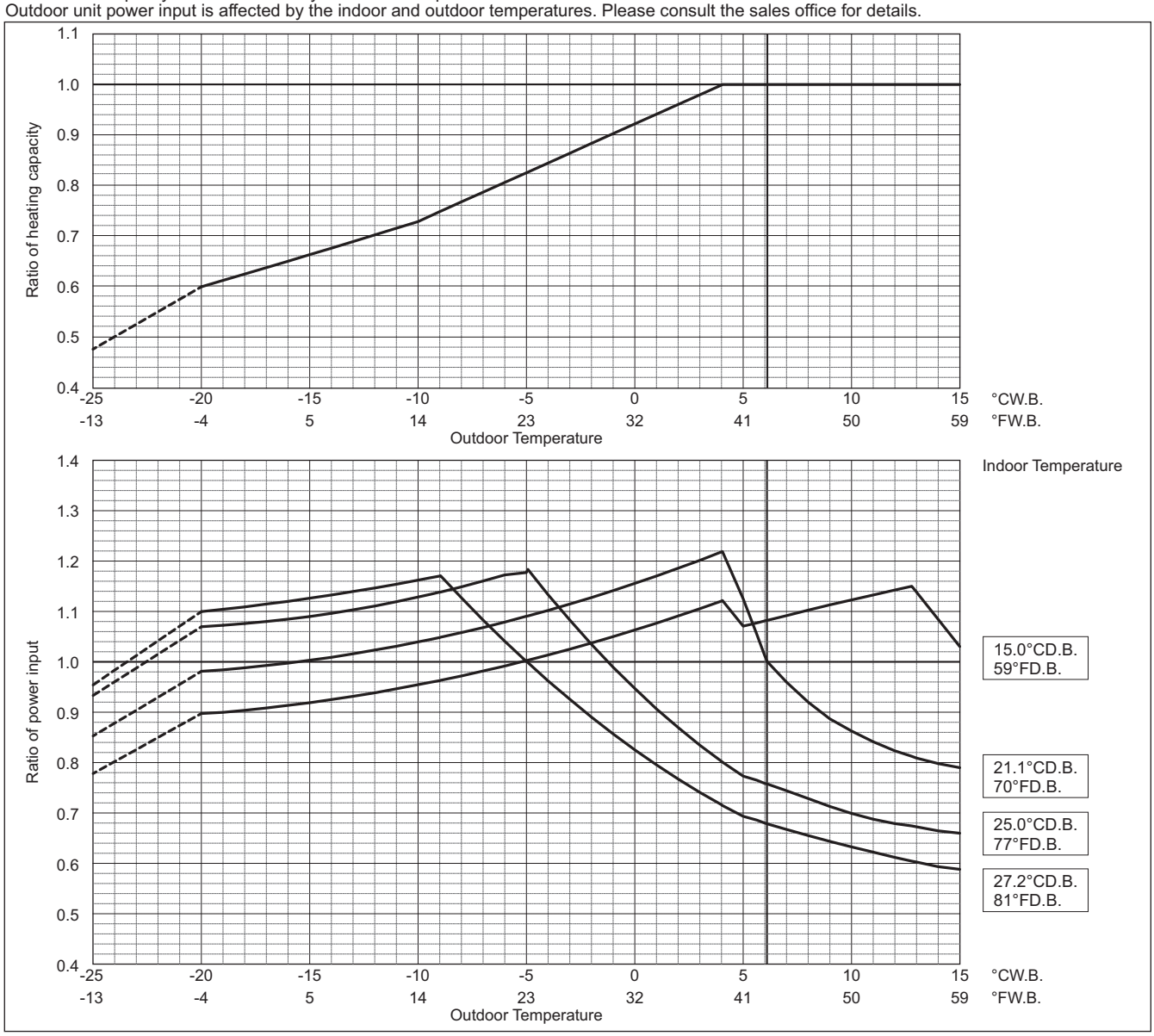
To be used to correct indoor unit capacity only




## Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.
Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.




Outdoor unit power input is affected by the indoor and outdoor temperatures as shown in the graph above. Please consult the sales office for details.
Values in the heating temperature correction diagram in the range below -20°C (-4°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.
When using the units at outdoor temperatures below -20°C (-4°F), install a backup heater.

R2 575V

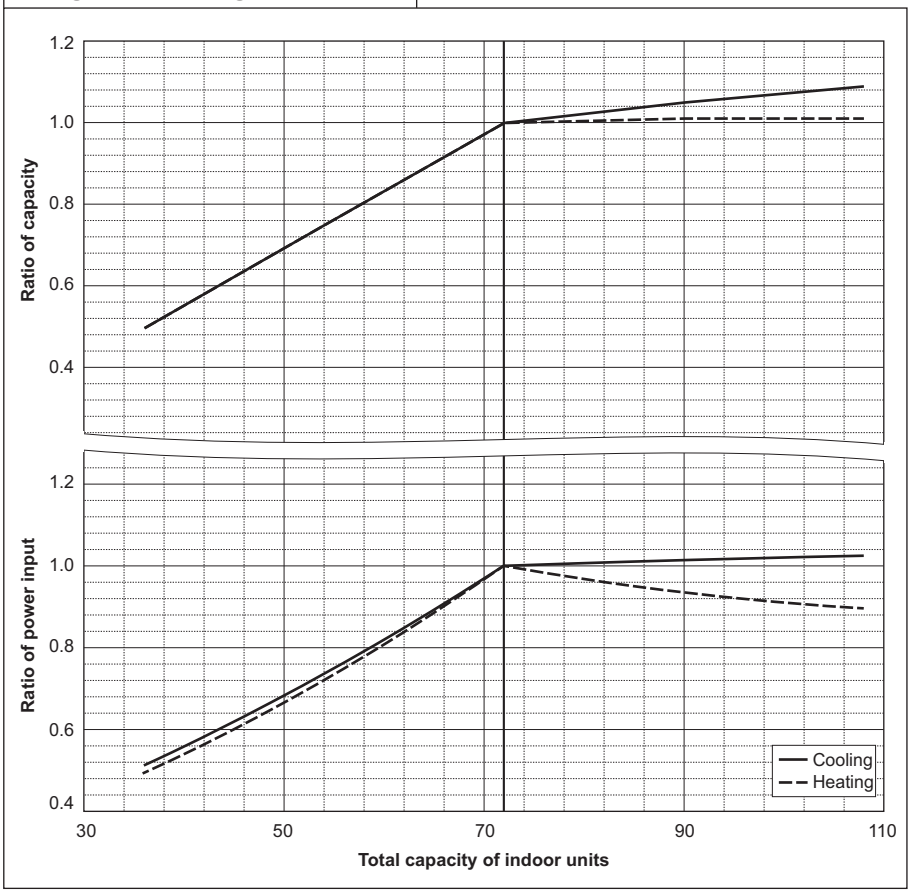
## 8-3. Correction by total indoor

CITY MULTI system have different capacities and inputs when many combinations of indoor units with different total capacities are connected. Using following tables, the maximum capacity can be found to ensure the system is installed with enough capacity for a particular application.

| PURY- | | | P72ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 72,000 | |
| | | kW | 21.1 | |
| | Input | kW | 4.82 | |
| Rated cooling capacity | | BTU/h | 69,000 | |
| | | kW | 20.2 | |
| | Input | kW | 4.29 | 4.63 |

| PURY- | | | P72ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 80,000 | |
| | | kW | 23.4 | |
| | Input | kW | 5.89 | |
| Rated Heating capacity | | BTU/h | 76,000 | |
| | | kW | 22.3 | |
| | Input | kW | 5.13 | 5.77 |

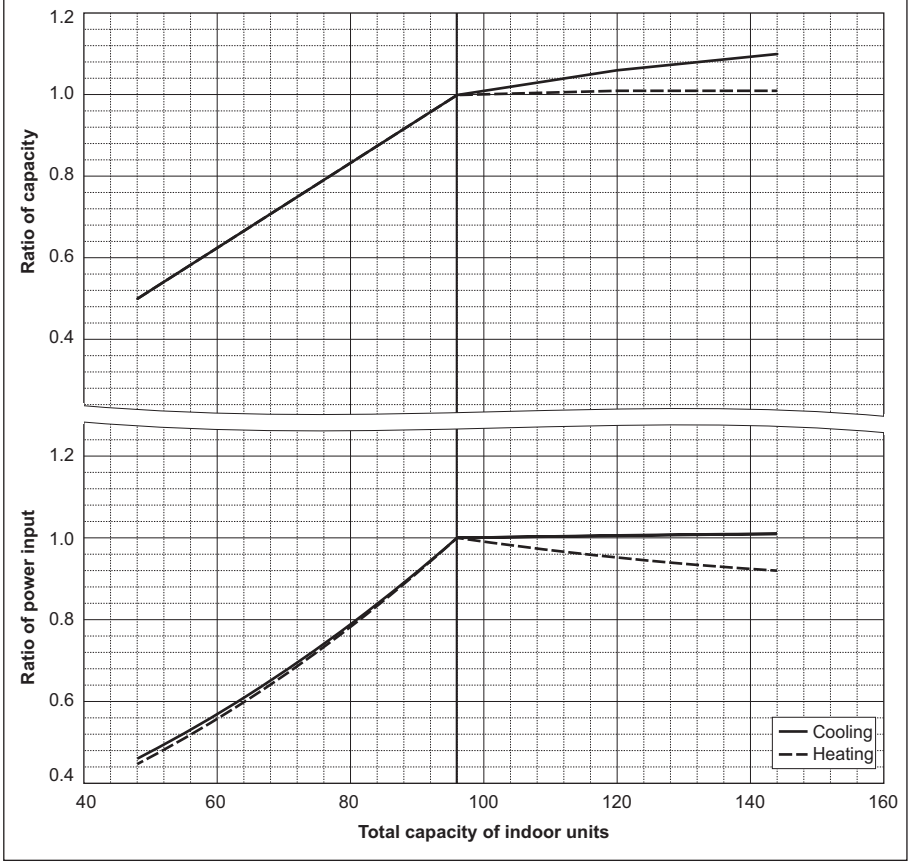
**PURY-P72ZKMU-A**




| PURY- | | | P96ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 96,000 | |
| | | kW | 28.1 | |
| | Input | kW | 7.06 | |
| Rated cooling capacity | | BTU/h | 92,000 | |
| | | kW | 27.0 | |
| | Input | kW | 6.01 | 7.05 |

| PURY- | | | P96ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 108,000 | |
| | | kW | 31.7 | |
| | Input | kW | 8.26 | |
| Rated Heating capacity | | BTU/h | 103,000 | |
| | | kW | 30.2 | |
| | Input | kW | 7.29 | 7.99 |

**PURY-P96ZKMU-A**

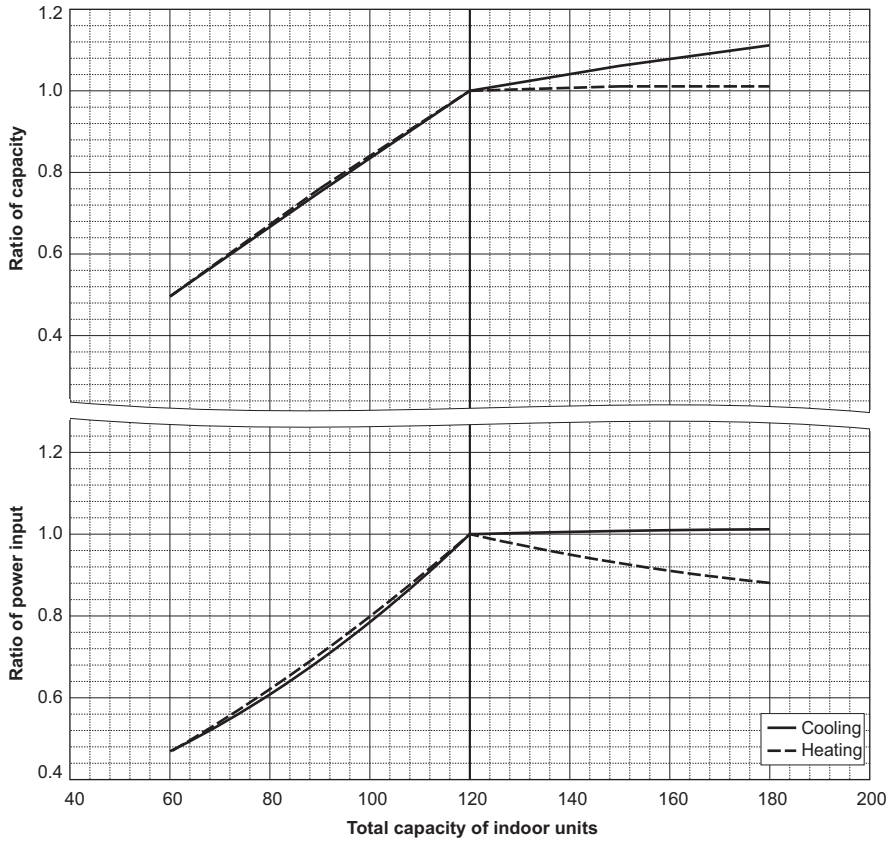



R2 575V

| PURY- | | | P120ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 120,000 | |
| | | kW | 35.2 | |
| | Input | kW | 8.62 | |
| Rated cooling capacity | | BTU/h | 114,000 | |
| | | kW | 33.4 | |
| | Input | kW | 7.65 | 8.31 |

| PURY- | | | P120ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 135,000 | |
| | | kW | 39.6 | |
| | Input | kW | 10.84 | |
| Rated Heating capacity | | BTU/h | 129,000 | |
| | | kW | 37.8 | |
| | Input | kW | 9.78 | 10.29 |

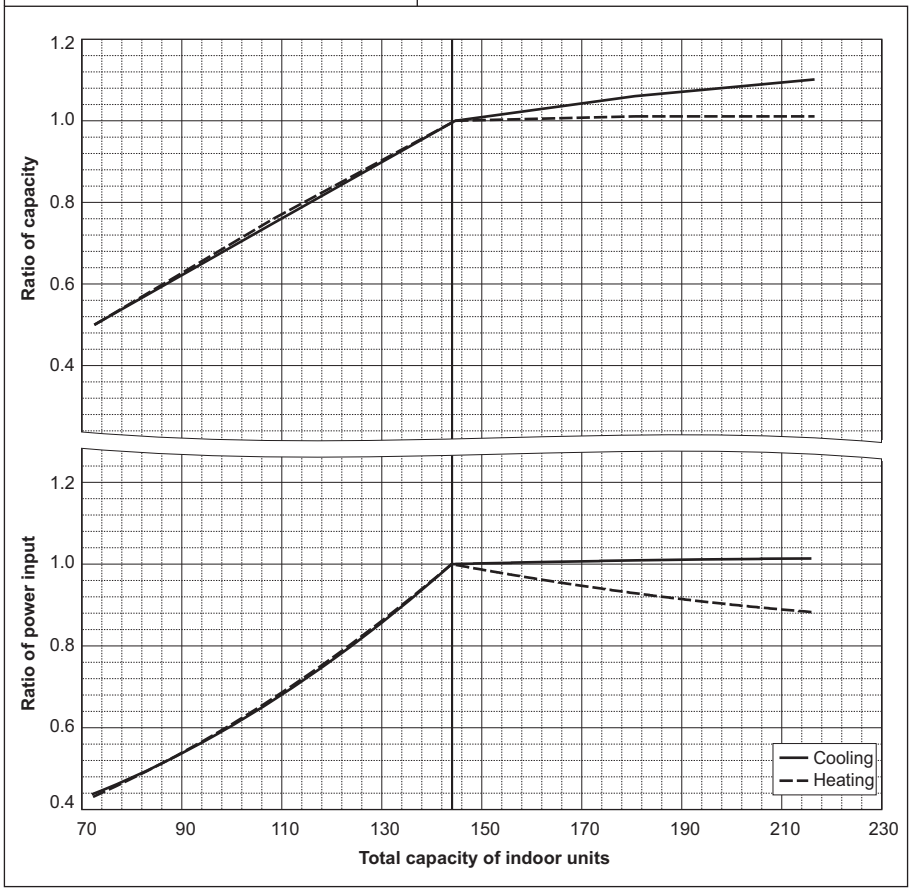
**PURY-P120ZKMU-A**




| PURY- | | | P144ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 144,000 | |
| | | kW | 42.2 | |
| | Input | kW | 11.13 | |
| Rated cooling capacity | | BTU/h | 137,000 | |
| | | kW | 40.2 | |
| | Input | kW | 9.93 | 10.68 |

| PURY- | | | P144ZKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 160,000 | |
| | | kW | 46.9 | |
| | Input | kW | 12.86 | |
| Rated Heating capacity | | BTU/h | 152,000 | |
| | | kW | 44.5 | |
| | Input | kW | 11.80 | 12.01 |

**PURY-P144ZKMU-A**

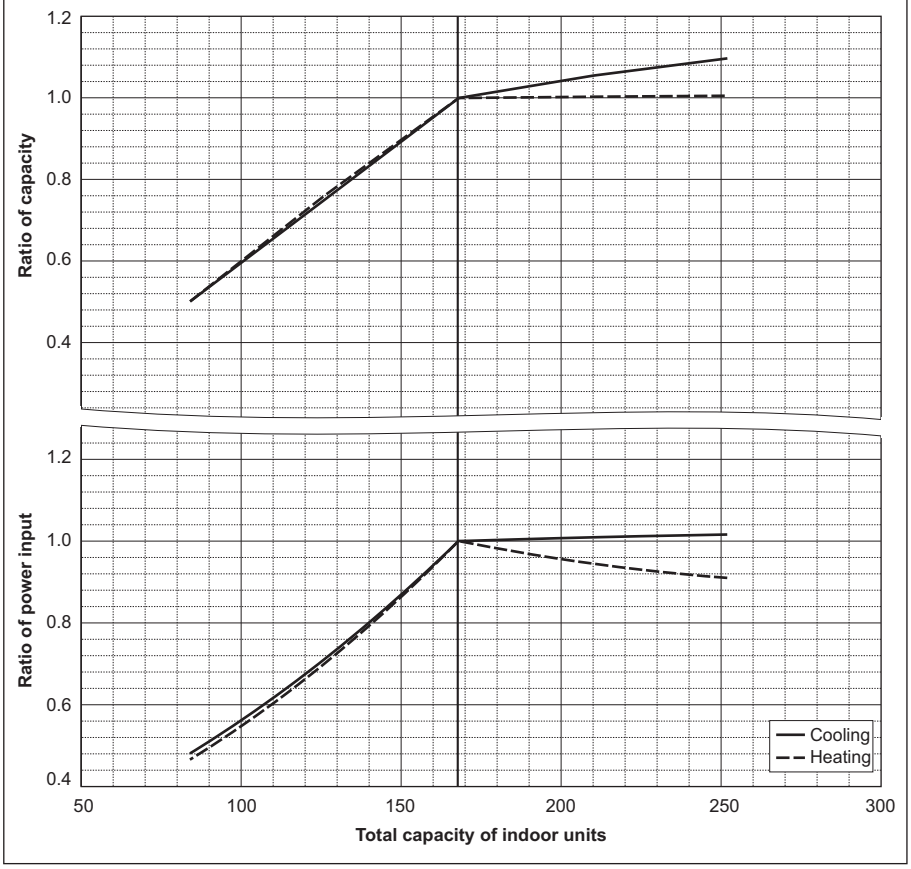



R2 575V

| PURY- | | | P168ZSKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 168,000 | |
| | | kW | 49.2 | |
| | Input | kW | 13.66 | |
| Rated cooling capacity | | BTU/h | 161,000 | |
| | | kW | 47.2 | |
| | Input | kW | 12.19 | 13.10 |

| PURY- | | | P168ZSKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 188,000 | |
| | | kW | 55.1 | |
| | Input | kW | 15.42 | |
| Rated Heating capacity | | BTU/h | 179,000 | |
| | | kW | 52.5 | |
| | Input | kW | 13.84 | 14.71 |

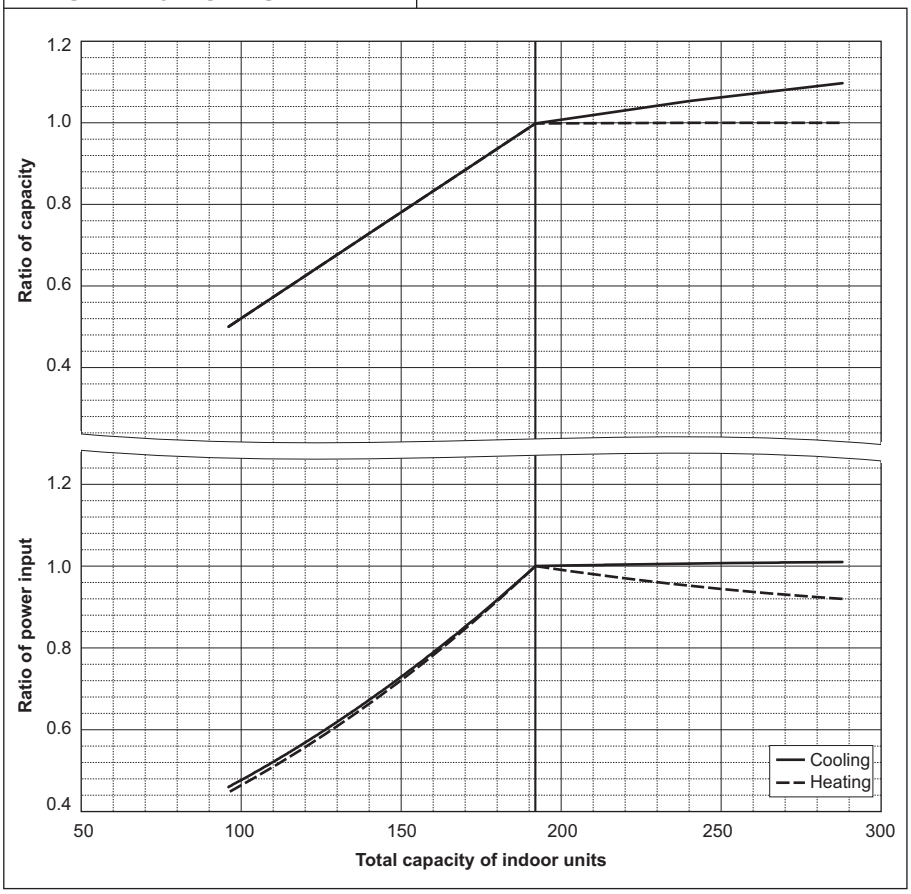
**PURY-P168ZSKMU-A**




| PURY- | | | P192ZSKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 192,000 | |
| | | kW | 56.3 | |
| | Input | kW | 15.92 | |
| Rated cooling capacity | | BTU/h | 183,000 | |
| | | kW | 53.6 | |
| | Input | kW | 14.61 | 14.86 |

| PURY- | | | P192ZSKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 215,000 | |
| | | kW | 63.0 | |
| | Input | kW | 17.79 | |
| Rated Heating capacity | | BTU/h | 205,000 | |
| | | kW | 60.1 | |
| | Input | kW | 16.47 | 16.46 |

**PURY-P192ZSKMU-A**

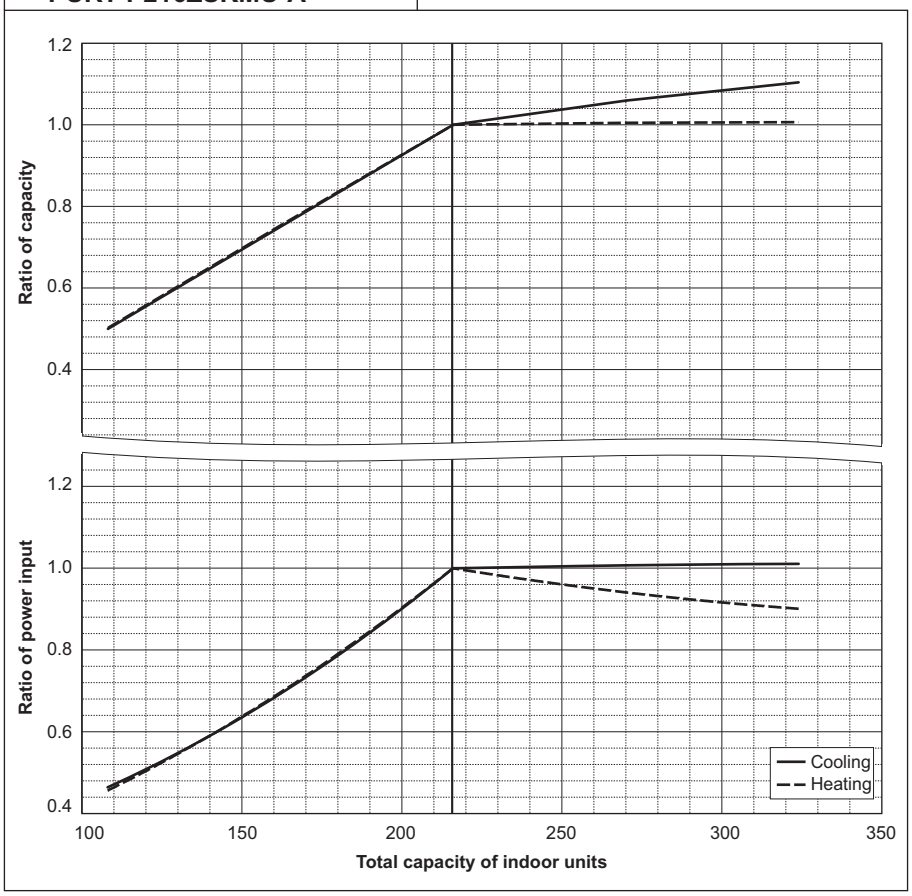



R2 575V

| PURY- | | | P216ZSKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 216,000 | |
| | | kW | 63.3 | |
| | Input | kW | 17.74 | |
| Rated cooling capacity | | BTU/h | 206,000 | |
| | | kW | 60.4 | |
| | Input | kW | 16.54 | 16.30 |

| PURY- | | | P216ZSKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 243,000 | |
| | | kW | 71.2 | |
| | Input | kW | 20.61 | |
| Rated Heating capacity | | BTU/h | 232,000 | |
| | | kW | 68.0 | |
| | Input | kW | 19.26 | 18.90 |

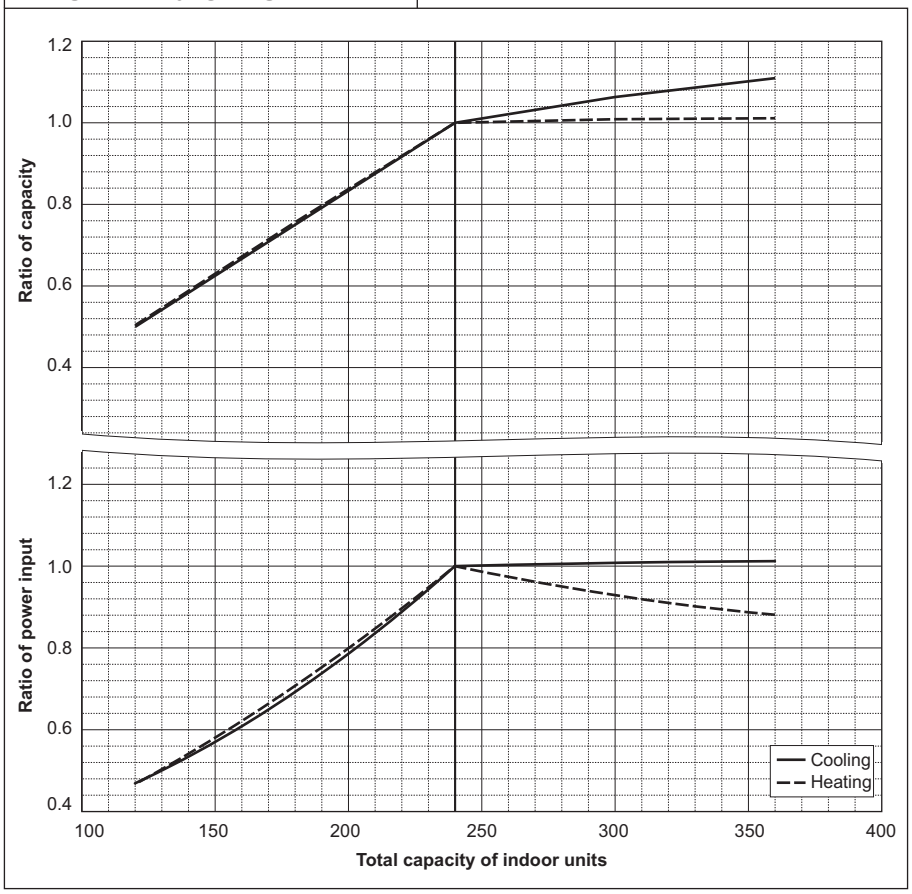
**PURY-P216ZSKMU-A**




| PURY- | | | P240ZSKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 240,000 | |
| | | kW | 70.3 | |
| | Input | kW | 19.62 | |
| Rated cooling capacity | | BTU/h | 228,000 | |
| | | kW | 66.8 | |
| | Input | kW | 17.99 | 18.33 |

| PURY- | | | P240ZSKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 270,000 | |
| | | kW | 79.1 | |
| | Input | kW | 23.55 | |
| Rated Heating capacity | | BTU/h | 258,000 | |
| | | kW | 75.6 | |
| | Input | kW | 21.76 | 21.84 |

**PURY-P240ZSKMU-A**

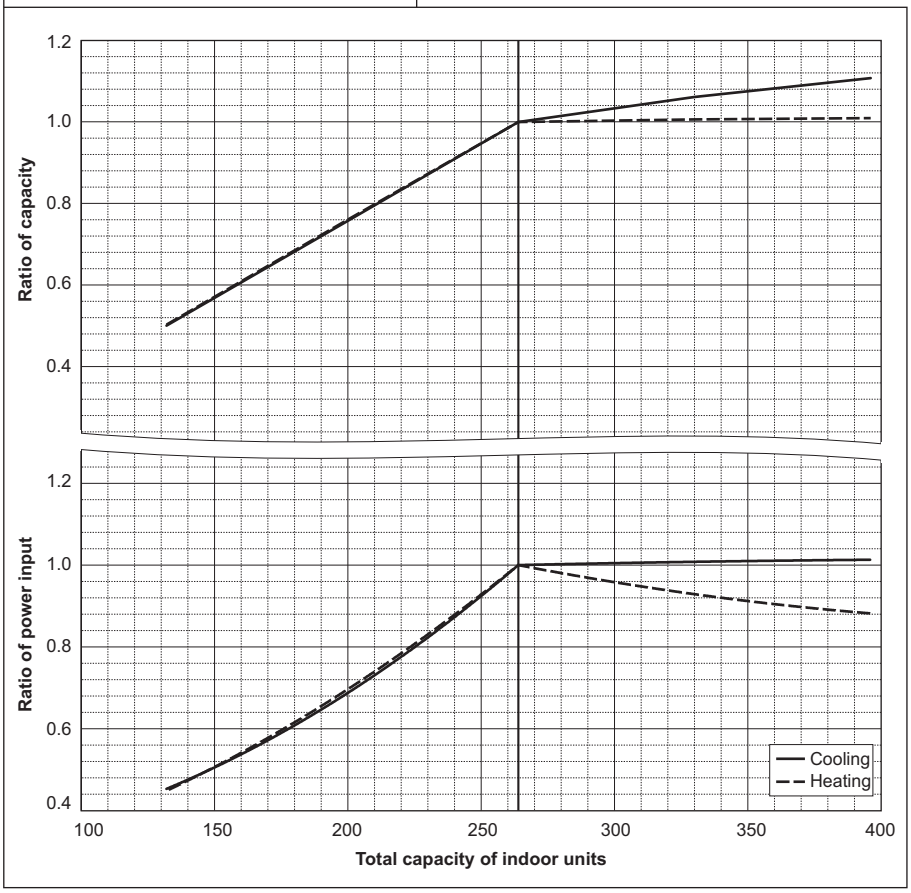



R2 575V

| PURY- | | | P264ZSKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 264,000 | |
| | | kW | 77.4 | |
| | Input | kW | 22.69 | |
| Rated cooling capacity | | BTU/h | 251,000 | |
| | | kW | 73.6 | |
| | Input | kW | 20.79 | 21.22 |

| PURY- | | | P264ZSKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 295,000 | |
| | | kW | 86.5 | |
| | Input | kW | 25.94 | |
| Rated Heating capacity | | BTU/h | 281,000 | |
| | | kW | 82.4 | |
| | Input | kW | 24.18 | 23.84 |

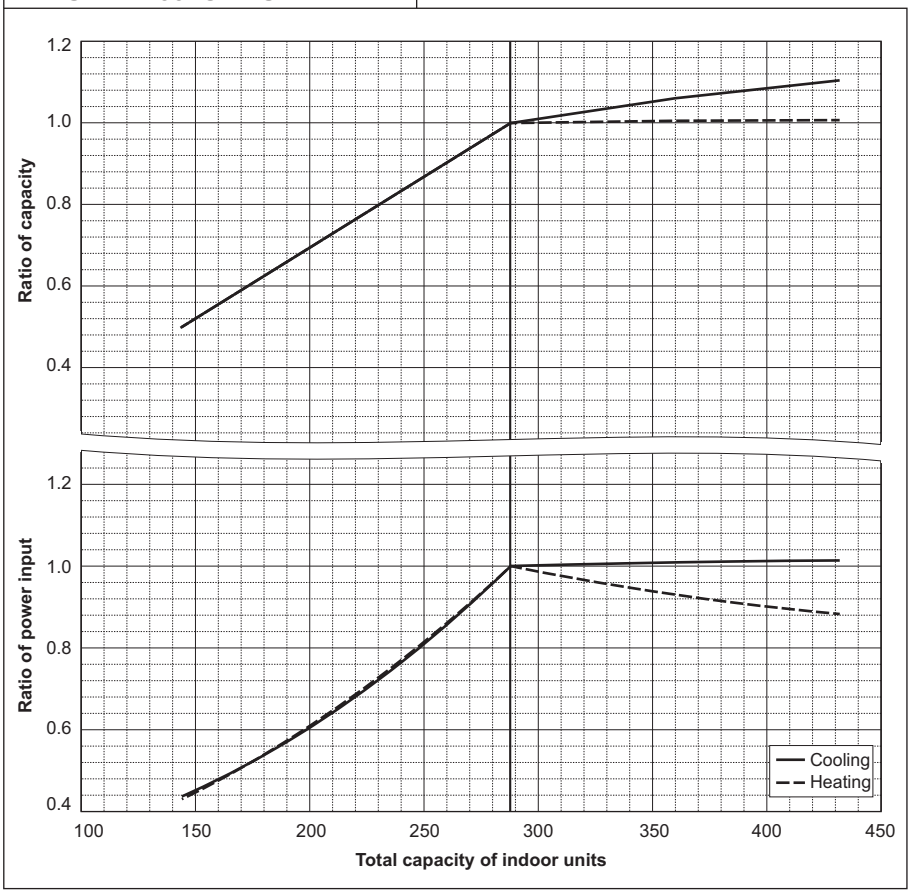
**PURY-P264ZSKMU-A**




| PURY- | | | P288ZSKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal cooling capacity | | BTU/h | 288,000 | |
| | | kW | 84.4 | |
| | Input | kW | 25.23 | |
| Rated cooling capacity | | BTU/h | 274,000 | |
| | | kW | 80.3 | |
| | Input | kW | 23.33 | 23.39 |

| PURY- | | | P288ZSKMU | |
|---|---|---|---|---|
| | | | Non-Ducted | Ducted |
| Nominal Heating capacity | | BTU/h | 323,000 | |
| | | kW | 94.7 | |
| | Input | kW | 28.13 | |
| Rated Heating capacity | | BTU/h | 304,000 | |
| | | kW | 89.1 | |
| | Input | kW | 26.31 | 25.77 |

**PURY-P288ZSKMU-A**

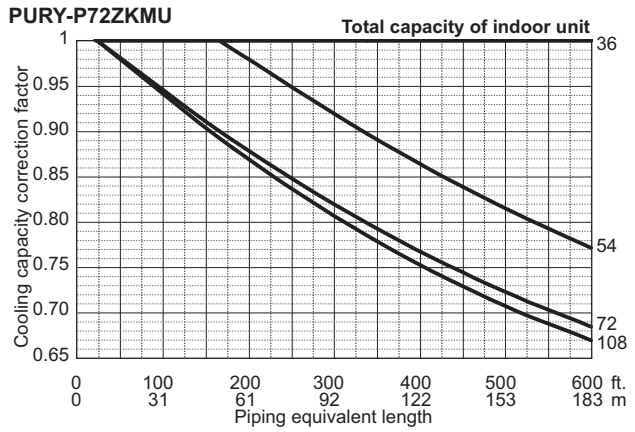


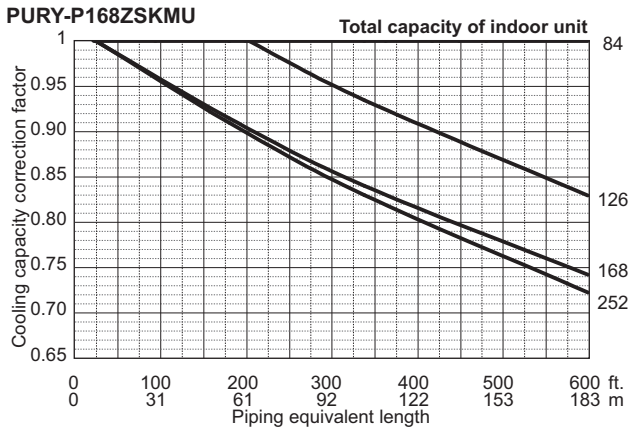

R2 575V

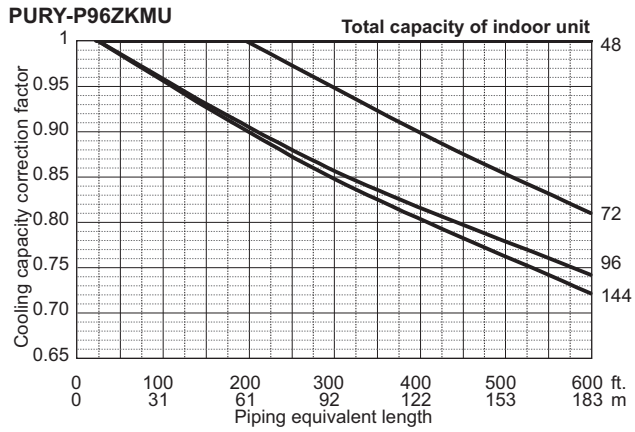
## 8-4. Correction by refrigerant piping length

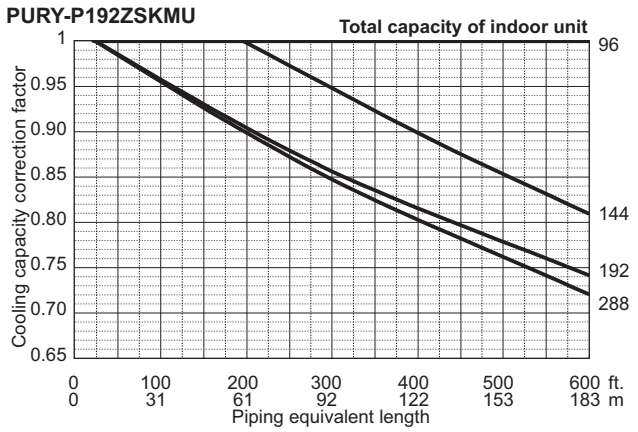
CITY MULTI system can extend the piping flexibly within its limitation for the actual situation. However, a decrease of cooling/heating capacity could happen correspondently. Using following correction factor according to the equivalent length of the piping shown at 8-4-1 and 8-4-2, the capacity can be observed. 8-4-3 shows how to obtain the equivalent length of piping.

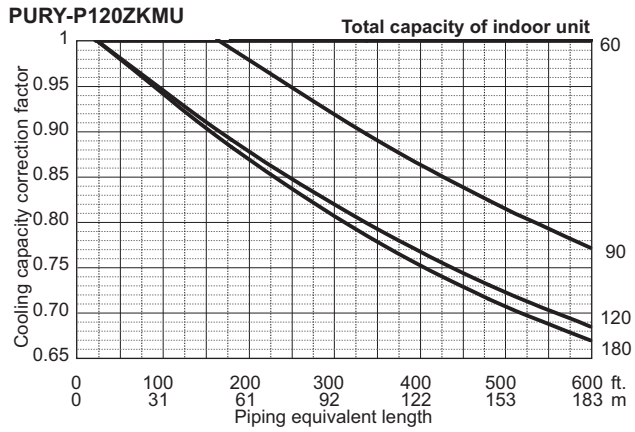
### 8-4-1. Cooling capacity correction

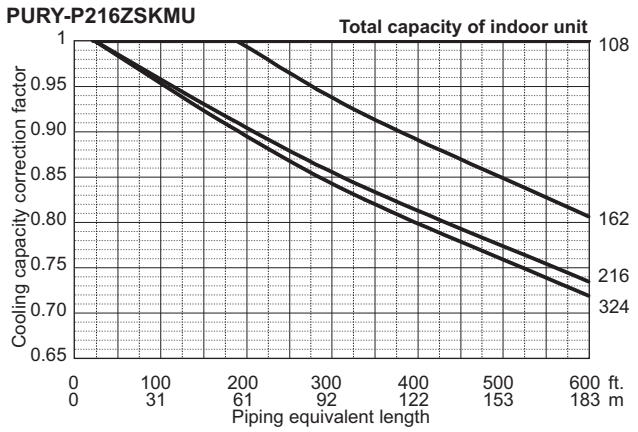


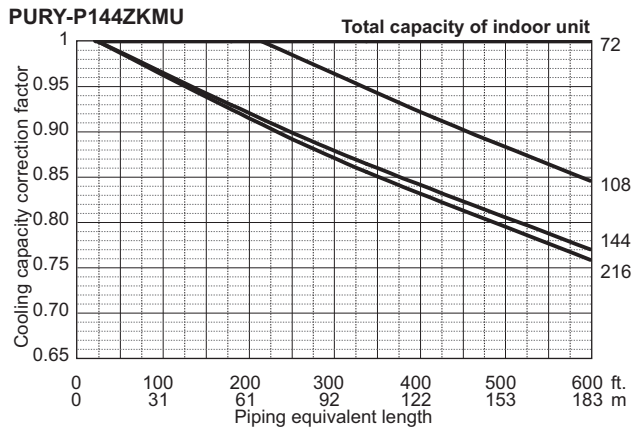



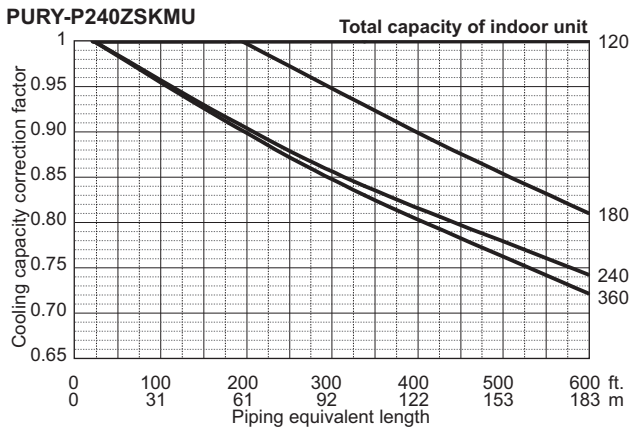



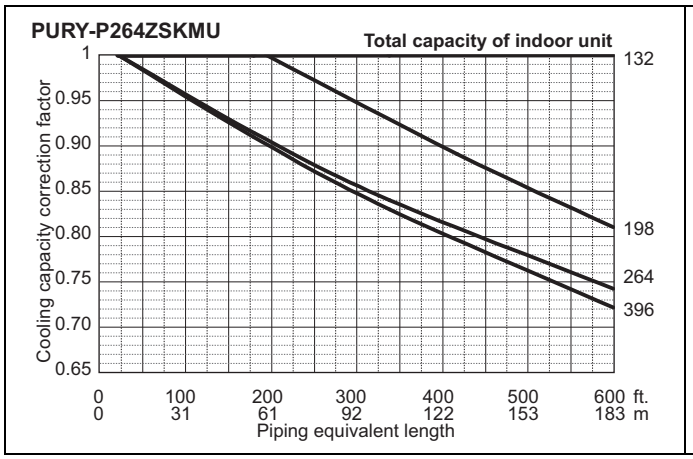



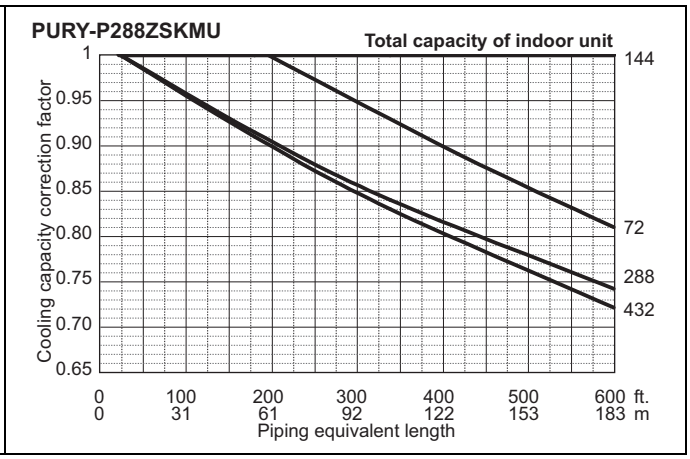




R2 575V

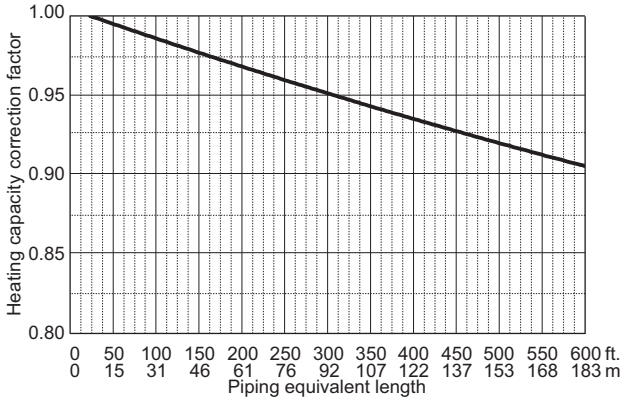

PURY-P264ZSKMU
Total capacity of indoor unit
Cooling capacity correction factor
1
0.95
0.90
0.85
0.80
0.75
0.70
0.65
132
198
264
396
0 100 200 300 400 500 600 ft.
0 31 61 92 122 153 183 m
Piping equivalent length


PURY-P288ZSKMU
Total capacity of indoor unit
Cooling capacity correction factor
1
0.95
0.90
0.85
0.80
0.75
0.70
0.65
144
72
288
432
0 100 200 300 400 500 600 ft.
0 31 61 92 122 153 183 m
Piping equivalent length

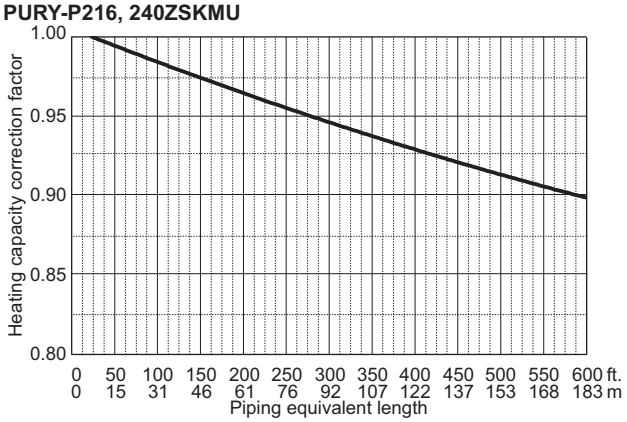
R2 575V

## 8-4-2. Heating capacity correction

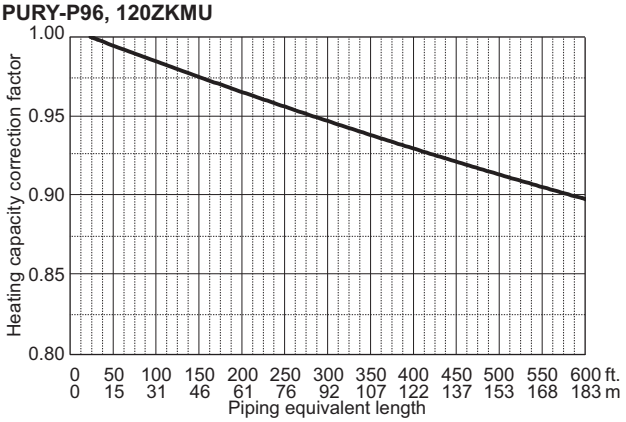
**PURY-P72ZKMU**



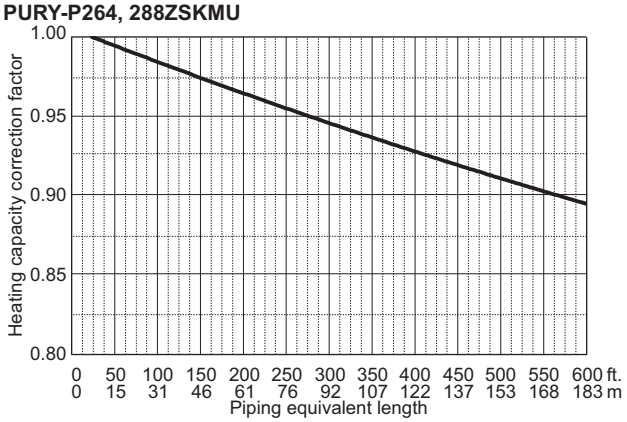

**PURY-P216, 240ZSKMU**



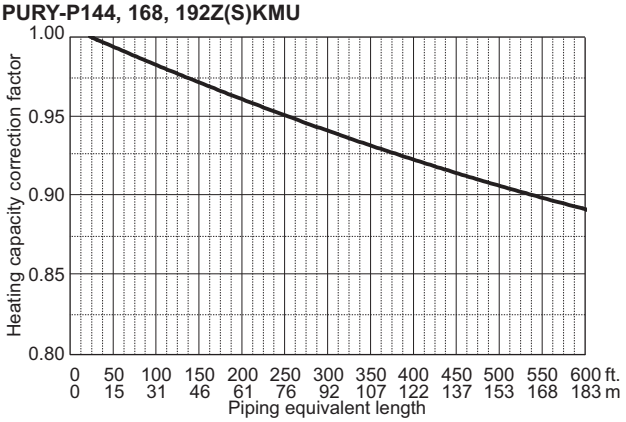

**PURY-P96, 120ZKMU**




**PURY-P264, 288ZSKMU**




**PURY-P144, 168, 192Z(S)KMU**




R2 575V

## 8-4-3. How to obtain the equivalent piping length

**1. PURY-P72ZKMU**

Equivalent length = (Actual piping length to the farthest indoor unit) + (1.15 x number of bent on the piping) [ft.]
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.35 x number of bent on the piping) [m]

**2. PURY-P96ZKMU**

Equivalent length = (Actual piping length to the farthest indoor unit) + (1.38 x number of bent on the piping) [ft.]
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.42 x number of bent on the piping) [m]

**3. PURY-P120ZKMU**

Equivalent length = (Actual piping length to the farthest indoor unit) + (1.64 x number of bent on the piping) [ft.]
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.50 x number of bent on the piping) [m]

**4. PURY-P144ZKMU**

Equivalent length = (Actual piping length to the farthest indoor unit) + (1.64 x number of bent on the piping) [ft.]
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.50 x number of bent on the piping) [m]

**5. PURY-P168ZSKMU**

Equivalent length = (Actual piping length to the farthest indoor unit) + (1.64 x number of bent on the piping) [ft.]
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.50 x number of bent on the piping) [m]

**6. PURY-P192ZSKMU**

Equivalent length = (Actual piping length to the farthest indoor unit) + (1.64 x number of bent on the piping) [ft.]
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.50 x number of bent on the piping) [m]

**7. PURY-P216ZSKMU**

Equivalent length = (Actual piping length to the farthest indoor unit) + (1.64 x number of bent on the piping) [ft.]
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.50 x number of bent on the piping) [m]

**8. PURY-P240ZSKMU**

Equivalent length = (Actual piping length to the farthest indoor unit) + (1.64 x number of bent on the piping) [ft.]
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.50 x number of bent on the piping) [m]

**9. PURY-P264ZSKMU**

Equivalent length = (Actual piping length to the farthest indoor unit) + (2.30 x number of bent on the piping) [ft.]
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.70 x number of bent on the piping) [m]

**10. PURY-P288ZSKMU**

Equivalent length = (Actual piping length to the farthest indoor unit) + (2.30 x number of bent on the piping) [ft.]
Equivalent length = (Actual piping length to the farthest indoor unit) + (0.70 x number of bent on the piping) [m]

## 8-5. Correction at frost and defrost

Due to frost at the outdoor heat exchanger and the automatic defrost operation, the heating capacity of the outdoor unit can be calculated by multiplying the correction factor shown in the table below.

Table of correction factor at frost and defrost

| **Outdoor inlet air temp. °C** | 6 | 4 | 2 | 1 | 0 | -2 | -4 | -6 | -8 | -10 | -20 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Outdoor inlet air temp. °F** | 43 | 39 | 36 | 34 | 32 | 28 | 25 | 21 | 18 | 14 | -4 |
| PURY-P72ZKMU-A (-BS) | 1.00 | 0.95 | 0.84 | 0.83 | 0.83 | 0.87 | 0.90 | 0.93 | 0.93 | 0.95 | 0.95 |
| PURY-P96ZKMU-A (-BS) | 1.00 | 0.95 | 0.84 | 0.83 | 0.83 | 0.87 | 0.90 | 0.93 | 0.93 | 0.95 | 0.95 |
| PURY-P120ZKMU-A (-BS) | 1.00 | 0.93 | 0.85 | 0.83 | 0.84 | 0.86 | 0.90 | 0.90 | 0.92 | 0.95 | 0.95 |
| PURY-P144ZKMU-A (-BS) | 1.00 | 0.93 | 0.85 | 0.83 | 0.84 | 0.86 | 0.90 | 0.90 | 0.92 | 0.95 | 0.95 |
| PURY-P168ZSKMU-A (-BS) | 1.00 | 0.98 | 0.89 | 0.87 | 0.89 | 0.90 | 0.91 | 0.92 | 0.92 | 0.95 | 0.95 |
| PURY-P192ZSKMU-A (-BS) | 1.00 | 0.98 | 0.89 | 0.86 | 0.88 | 0.90 | 0.91 | 0.92 | 0.92 | 0.95 | 0.95 |
| PURY-P216ZSKMU-A (-BS) | 1.00 | 0.94 | 0.87 | 0.86 | 0.87 | 0.88 | 0.90 | 0.90 | 0.92 | 0.95 | 0.95 |
| PURY-P240ZSKMU-A (-BS) | 1.00 | 0.94 | 0.84 | 0.86 | 0.87 | 0.88 | 0.90 | 0.90 | 0.92 | 0.95 | 0.95 |
| PURY-P264ZSKMU-A (-BS) | 1.00 | 0.98 | 0.89 | 0.88 | 0.89 | 0.90 | 0.92 | 0.95 | 0.92 | 0.95 | 0.95 |
| PURY-P288ZSKMU-A (-BS) | 1.00 | 0.98 | 0.89 | 0.88 | 0.89 | 0.90 | 0.92 | 0.95 | 0.92 | 0.95 | 0.95 |

*The correction factors in the table above are used for a full-load and above.

Use the formula below to calculate the correction factor to use for a partial load.

Correction factor for partial load: K

Correction factor for a full load and above: $K_0$

Partial load factor: A

$K = 1 - (1 - K_0) \times A$

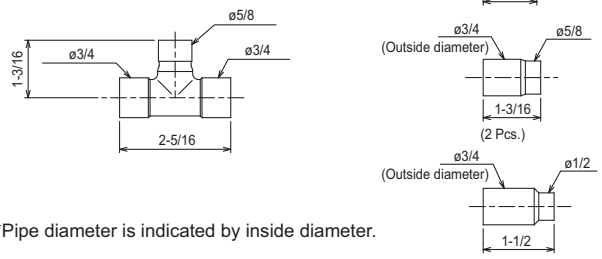
## 9-1. JOINT

CITY MULTI units can be easily connected by using Joint sets and Header sets provided by Mitsubishi Electric. Three kinds of Joint sets are available for use. Refer to section 3 in "System Design" or the Installation Manual that comes with the Joint set for how to install the Joint set.

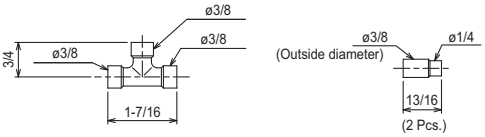
### CMY-Y102SS-G2

in.

For Gas pipe:




For Liquid pipe:

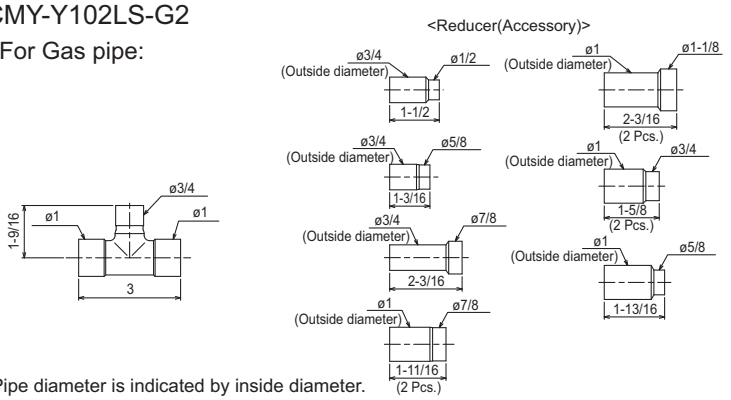



*Pipe diameter is indicated by inside diameter.

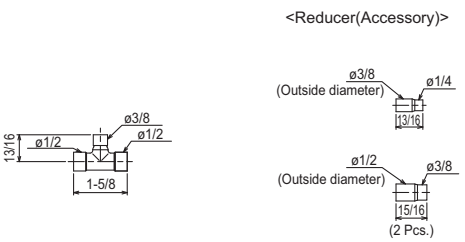
### CMY-Y102LS-G2

in.

For Gas pipe:




For Liquid pipe:

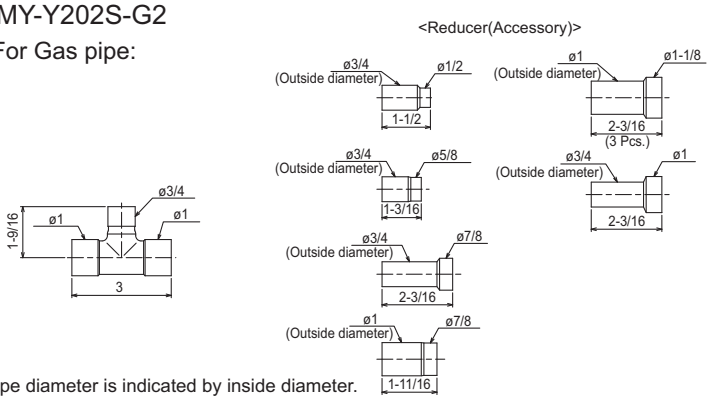



*Pipe diameter is indicated by inside diameter.

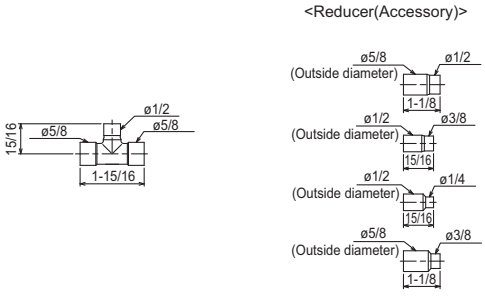
### CMY-Y202S-G2

in.

For Gas pipe:




For Liquid pipe:



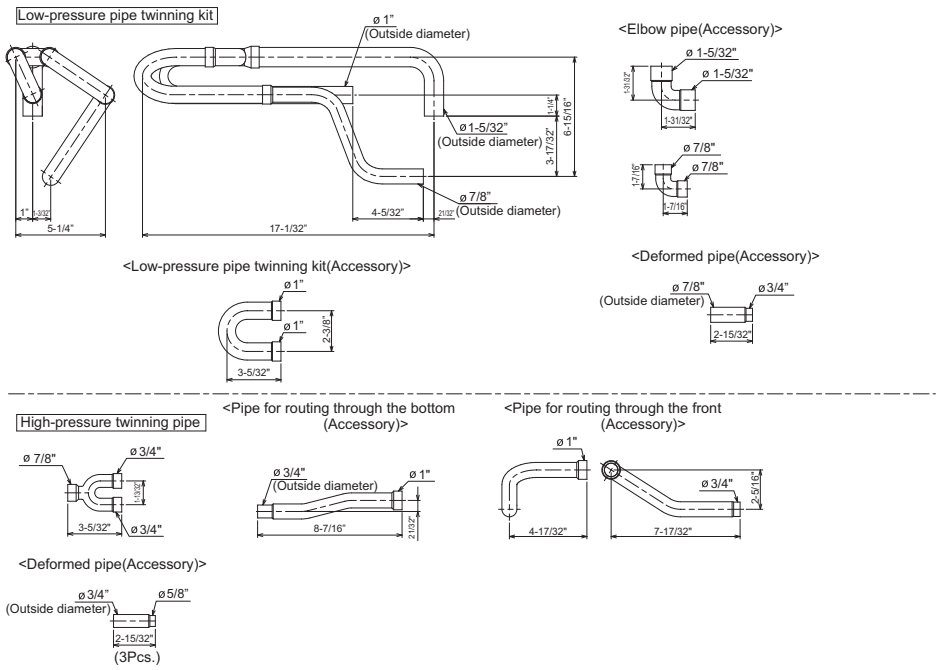

*Pipe diameter is indicated by inside diameter.

R2 575V

## 9-2. OUTDOOR TWINNING KIT

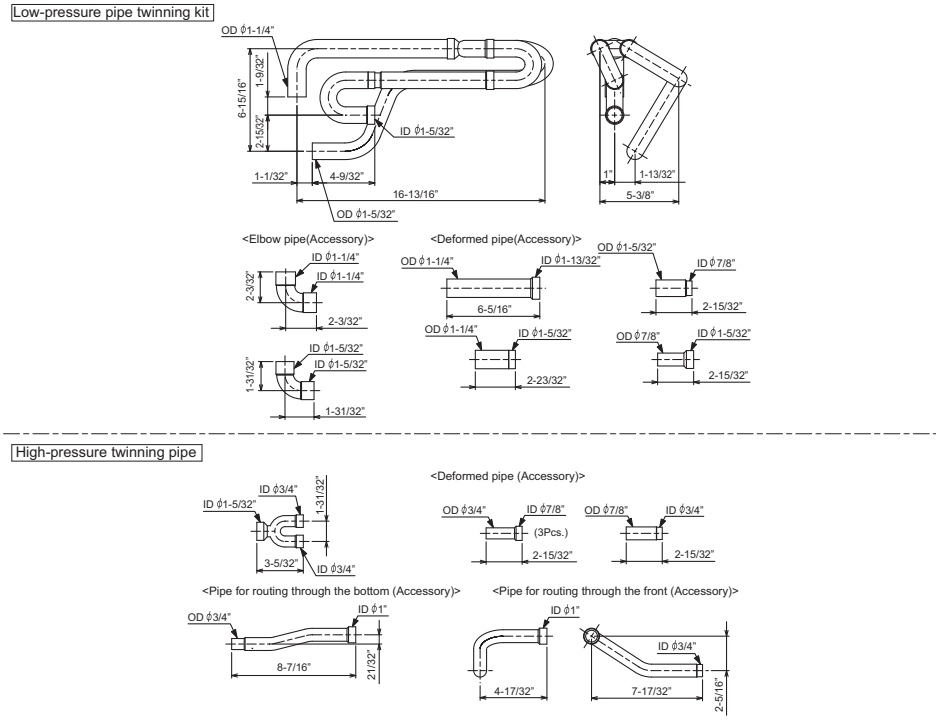
The following optional Outdoor Twinning Kit is needed to use to combine multiple refrigerant pipes. Refer to the chapter entitled System Design Section for the details of selecting a proper twinning kit.

CMY-R100CBK2

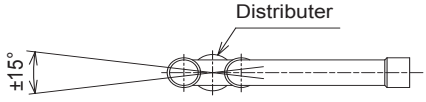



CMY-R100XLCBK

unit : inch




Note 1. Reference the attitude angle of the branch pipe below the fig.




The angle of the branch pipe for hign pressure is within ±15° against the horizontal plane.

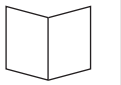
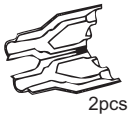
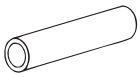
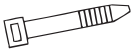
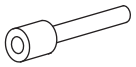
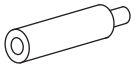
2. Use the attached pipe to braze the port-opening of the distributer.
3. Pipe diameter is indicated by inside diameter.
4. Only use the Twinning pipe by Mitsubishi (optional parts) .

R2 575V

## 9-3. JOINT KIT "CMY-R160-J1" FOR BC CONTROLLER

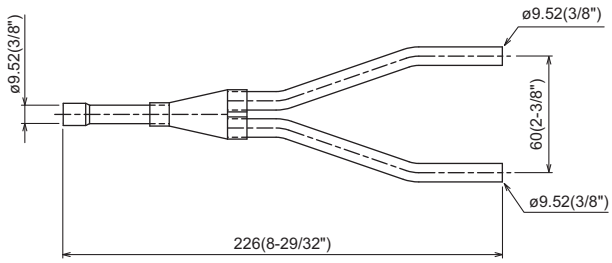
Joint kit "CMY-R160-J1" for BC controller is used to combine 2 ports of the BC controller at a PURY/PQRY system so as to enable down-stream Indoor capacity above P54 as shown in Fig. 1.

**The Joint kit include following items:**

| ①Instruction | ②Joint pipe(Small) | ③Joint pipe(Large) | ④Cover 1 | ⑤Cover 2 | ⑥Cover 3 | ⑦Band | ⑧Reducer 1 | ⑨Reducer 2 |
|---|---|---|---|---|---|---|---|---|
|  This sheet 1pc |  1pc |  1pc |  2pcs |  1pc for gas side |  1pc for liquid side |  8pcs | OD19.05-ID22.2  1pc | OD19.05-ID15.88  1pc |

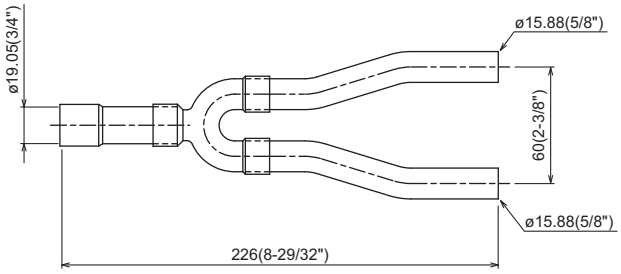
Please prepare the following items in the field. ①Tape for insulation material sealing ②Extension pipe for refrigerant circuit

②Joint pipe (for liquid side)




③Joint pipe (for gas side)

mm (in.)




**1. Designing CMY-R160-J1 to a PURY/PQRY system**

The maximum down-stream Indoor capacity for 1 port of BC controller is P54. When the down-stream Indoor capacity is above P54, Joint kit CMY-R160-J1 is needed to combined 2 ports of BC controller to enlarge the capacity, like Group 2 and 3 in Fig. 1.

Maximum 3 Indoor units are allowed to connect to 1 port of BC controller or 2 combined ports of BC controller using CMY-R160-J1.

When connecting Indoor units to 1 port of BC controller or 2 combined ports of BC controller using CMY-R160-J1 or CMY-Y102SS-G2 is applicable, like Group 1 and 2 in Fig. 1

Caution: Mixed cooling and heating mode at the same time for Indoor units connecting to 1 port or 2 combined ports is not available.

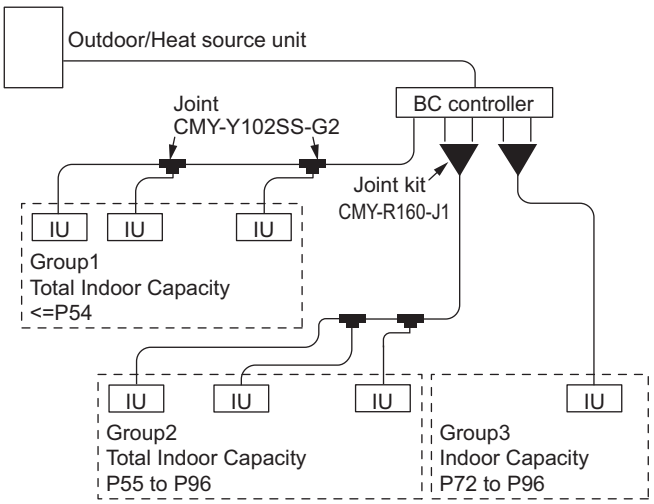
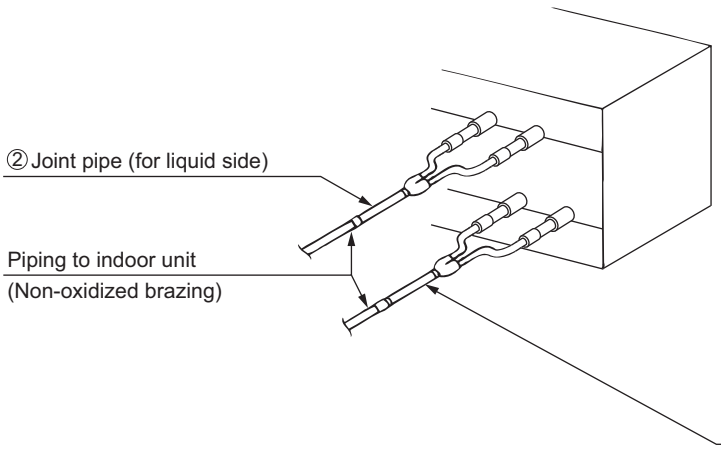


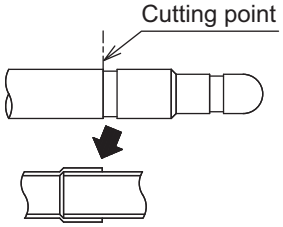

Fig.1. CMY-R160-J1 applying scheme

**2. Piping at the installation site**

The connection of CMY-R160-J1 to BC controller and pipe leading to Indoor units is referable to Fig. 2. Non-oxidized brazing is necessary. All piping must be careful to avoid foreign material getting inside.

After piping and air-tight testing, insulation work to the Joint and pipe should be done. Details is available at the Installation Manual.




Have pipe expansion of indoor unit connecting port by cutting the piping at the cutting point.
Remove burr after cutting the piping to prevent entering the piping.
Check that there is no crack at the pipe expansion part.

Fig.2. Connecting CMY-R160-J1

R2 575V

# CITY MULTI
# SYSTEM DESIGN R2 SERIES - 575V

## 1-1. 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.)

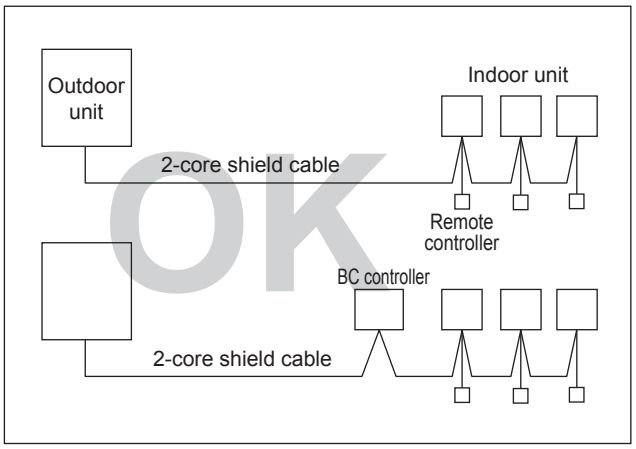
③ Be sure to provide designated grounding work to outdoor unit.

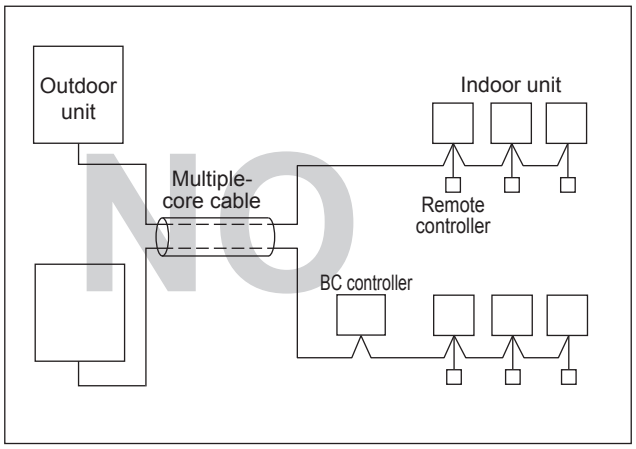
④ Give some allowance to wiring for electrical part box of indoor and outdoor unit, because the box is sometimes removed at the time of service work.

⑤ Never connect 100V, 208-230V, 575V 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 multiplecore 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.




S.D. R2 575V

## 1-2. Power supply for Indoor unit and Outdoor unit

### 1-2-1. Electrical characteristics of Indoor unit

Symbols: MCA: Minimum Circuit Ampacity (=1.25xFLA) FLA: Full Load Amps
IFM: Indoor Fan Motor Output: Fan motor rated output

| Model | Indoor Unit | | | | IFM | |
|---|---|---|---|---|---|---|
| | Hz | Volts | Voltage range | MCA(A) | Output(kW) | FLA(A) |
| PLFY-P08NCMU-E | 60Hz | 208 / 230V | 198 to 253V | 0.29 / 0.29 | 0.015 / 0.015 | 0.23 / 0.23 |
| PLFY-P12NCMU-E | | | | 0.35 / 0.35 | 0.020 / 0.020 | 0.28 / 0.28 |
| PLFY-P15NCMU-E | | | | 0.35 / 0.35 | 0.020 / 0.020 | 0.28 / 0.28 |
| PLFY-P08NBMU-E2 | | | | 0.39 / 0.39 | 0.050 / 0.050 | 0.31 / 0.31 |
| PLFY-P12NBMU-E2 | | | | 0.39 / 0.39 | 0.050 / 0.050 | 0.31 / 0.31 |
| PLFY-P15NBMU-E2 | | | | 0.39 / 0.39 | 0.050 / 0.050 | 0.31 / 0.31 |
| PLFY-P18NBMU-E2 | | | | 0.42 / 0.42 | 0.050 / 0.050 | 0.33 / 0.33 |
| PLFY-P24NBMU-E2 | | | | 0.59 / 0.59 | 0.050 / 0.050 | 0.47 / 0.47 |
| PLFY-P30NBMU-E2 | | | | 0.63 / 0.63 | 0.050 / 0.050 | 0.50 / 0.50 |
| PLFY-P36NBMU-E2 | | | | 1.09 / 1.09 | 0.120 / 0.120 | 0.87 / 0.87 |
| | | | | | | |
| PMFY-P06NBMU-E | 60Hz | 208 / 230V | 198 to 253V | 0.25 / 0.25 | 0.028 / 0.028 | 0.20 / 0.20 |
| PMFY-P08NBMU-E | | | | 0.25 / 0.25 | 0.028 / 0.028 | 0.20 / 0.20 |
| PMFY-P12NBMU-E | | | | 0.26 / 0.26 | 0.028 / 0.028 | 0.21 / 0.21 |
| PMFY-P15NBMU-E | | | | 0.33 / 0.33 | 0.028 / 0.028 | 0.26 / 0.26 |
| | | | | | | |
| PEFY-P06NMAU-E3 | 60Hz | 208 / 230V | 188 to 253V | 1.05 / 1.05 | 0.085 / 0.085 | 0.84 / 0.84 |
| PEFY-P08NMAU-E3 | | | | 1.05 / 1.05 | 0.085 / 0.085 | 0.84 / 0.84 |
| PEFY-P12NMAU-E3 | | | | 1.20 / 1.20 | 0.085 / 0.085 | 0.96 / 0.96 |
| PEFY-P15NMAU-E3 | | | | 1.45 / 1.45 | 0.085 / 0.085 | 1.16 / 1.16 |
| PEFY-P18NMAU-E3 | | | | 1.56 / 1.56 | 0.085 / 0.085 | 1.25 / 1.25 |
| PEFY-P24NMAU-E3 | | | | 2.73 / 2.73 | 0.121 / 0.121 | 2.18 / 2.18 |
| PEFY-P27NMAU-E3 | | | | 2.73 / 2.73 | 0.121 / 0.121 | 2.18 / 2.18 |
| PEFY-P30NMAU-E3 | | | | 2.73 / 2.73 | 0.121 / 0.121 | 2.18 / 2.18 |
| PEFY-P36NMAU-E3 | | | | 3.32 / 3.32 | 0.244 / 0.244 | 2.66 / 2.66 |
| PEFY-P48NMAU-E3 | | | | 3.41 / 3.41 | 0.244 / 0.244 | 2.73 / 2.73 |
| PEFY-P54NMAU-E3 | | | | 3.31 / 3.31 | 0.244 / 0.244 | 2.65 / 2.65 |
| | | | | | | |
| PEFY-P06NMSU-E | 60Hz | 208 / 230V | 188 to 253V | 0.47 / 0.50 | 0.023 / 0.023 | 0.32 / 0.31 |
| PEFY-P08NMSU-E | | | | 0.47 / 0.50 | 0.023 / 0.023 | 0.41 / 0.39 |
| PEFY-P12NMSU-E | | | | 0.68 / 0.74 | 0.032 / 0.032 | 0.46 / 0.43 |
| PEFY-P15NMSU-E | | | | 1.20 / 1.33 | 0.130 / 0.130 | 0.47 / 0.45 |
| PEFY-P18NMSU-E | | | | 1.20 / 1.33 | 0.130 / 0.130 | 0.64 / 0.60 |
| PEFY-P24NMSU-E | | | | 1.57 / 1.73 | 0.180 / 0.180 | 0.88 / 0.83 |
| PEFY-P15NMHU-E2 | | | | 1.63 / 1.50 | 0.17 | 1.30 / 1.20 |
| PEFY-P18NMHU-E2 | | | | 1.63 / 1.50 | 0.17 | 1.30 / 1.20 |
| PEFY-P24NMHU-E2 | | | | 2.11 / 1.83 | 0.25 | 1.69 / 1.46 |
| PEFY-P27NMHU-E2 | | | | 2.35 / 2.13 | 0.26 | 1.88 / 1.70 |
| PEFY-P30NMHU-E2 | | | | 2.70 / 2.45 | 0.31 | 2.16 / 1.96 |
| PEFY-P36NMHU-E2 | | | | 4.16 / 3.67 | 0.49 | 3.32 / 2.94 |
| PEFY-P48NMHU-E2 | | | | 4.16 / 3.67 | 0.49 | 3.32 / 2.94 |
| PEFY-P54NMHU-E2 | | | | 4.18 / 3.69 | 0.55 | 3.34 / 2.95 |
| PEFY-P72NMHSU-E | | | 187 to 253V | 7.7 | 0.87 | 6.2 |
| PEFY-P96NMHSU-E | | | | 8.2 | 0.87 | 6.6 |

S.D. R2 575V

Symbols: MCA: Minimum Circuit Ampacity (=1.25xFLA) FLA: Full Load Amps
IFM: Indoor Fan Motor Output: Fan motor rated output

| Model | Indoor Unit | | | | IFM | |
|---|---|---|---|---|---|---|
| | Hz | Volts | Voltage range | MCA(A) | Output(kW) | FLA(A) |
| PCFY-P15NKMU-E | 60Hz | 208 / 230V | 198 to 253V | 0.44 / 0.44 | 0.090 / 0.090 | 0.35 / 0.35 |
| PCFY-P24NKMU-E | | | | 0.52 / 0.52 | 0.095 / 0.095 | 0.41 / 0.41 |
| PCFY-P30NKMU-E | | | | 1.22 / 1.22 | 0.160 / 0.160 | 0.97 / 0.97 |
| PCFY-P36NKMU-E | | | | 1.22 / 1.22 | 0.160 / 0.160 | 0.97 / 0.97 |
| | | | | | | |
| PKFY-P06NBMU-E2 | 60Hz | 208 / 230V | 198 to 253V | 0.19 / 0.19 | 0.008 / 0.008 | 0.15 / 0.15 |
| PKFY-P08NHMU-E2 | | | | 0.38 / 0.38 | 0.030 / 0.030 | 0.30 / 0.30 |
| PKFY-P12NHMU-E2 | | | | 0.38 / 0.38 | 0.030 / 0.030 | 0.30 / 0.30 |
| PKFY-P15NHMU-E2 | | | | 0.38 / 0.38 | 0.030 / 0.030 | 0.30 / 0.30 |
| PKFY-P18NHMU-E2 | | | | 0.38 / 0.38 | 0.030 / 0.030 | 0.30 / 0.30 |
| PKFY-P24NKMU-E2 | | | | 0.63 / 0.63 | 0.056 / 0.056 | 0.50 / 0.50 |
| PKFY-P30NKMU-E2 | | | | 0.63 / 0.63 | 0.056 / 0.056 | 0.50 / 0.50 |
| | | | | | | |
| PFFY-P06NEMU-E | 60Hz | 208 / 230V | 188 to 253V | 0.32 / 0.34 | 0.015 / 0.015 | 0.25 / 0.27 |
| PFFY-P08NEMU-E | | | | 0.32 / 0.34 | 0.015 / 0.015 | 0.25 / 0.27 |
| PFFY-P12NEMU-E | | | | 0.34 / 0.38 | 0.018 / 0.018 | 0.27 / 0.30 |
| PFFY-P15NEMU-E | | | | 0.40 / 0.44 | 0.030 / 0.030 | 0.32 / 0.35 |
| PFFY-P18NEMU-E | | | | 0.48 / 0.53 | 0.035 / 0.035 | 0.38 / 0.42 |
| PFFY-P24NEMU-E | | | | 0.59 / 0.64 | 0.063 / 0.063 | 0.47 / 0.51 |
| | | | | | | |
| PFFY-P06NRMU-E | 60Hz | 208 / 230V | 188 to 253V | 0.32 / 0.34 | 0.015 / 0.015 | 0.25 / 0.27 |
| PFFY-P08NRMU-E | | | | 0.32 / 0.34 | 0.015 / 0.015 | 0.25 / 0.27 |
| PFFY-P12NRMU-E | | | | 0.34 / 0.38 | 0.018 / 0.018 | 0.27 / 0.30 |
| PFFY-P15NRMU-E | | | | 0.40 / 0.44 | 0.030 / 0.030 | 0.32 / 0.35 |
| PFFY-P18NRMU-E | | | | 0.48 / 0.53 | 0.035 / 0.035 | 0.38 / 0.42 |
| PFFY-P24NRMU-E | | | | 0.59 / 0.64 | 0.063 / 0.063 | 0.47 / 0.51 |
| | | | | | | |
| PVFY-P12NAMU-E | 60Hz | 208 / 230V | 188 to 253V | 3.00 / 3.00 | 0.121 / 0.121 | 2.4 / 2.4 |
| PVFY-P18NAMU-E | | | | 3.00 / 3.00 | 0.121 / 0.121 | 2.4 / 2.4 |
| PVFY-P24NAMU-E | | | | 3.00 / 3.00 | 0.121 / 0.121 | 2.4 / 2.4 |
| PVFY-P30NAMU-E | | | | 4.13 / 4.13 | 0.244 / 0.244 | 3.3 / 3.3 |
| PVFY-P36NAMU-E | | | | 4.13 / 4.13 | 0.244 / 0.244 | 3.3 / 3.3 |
| PVFY-P48NAMU-E | | | | 5.63 / 5.63 | 0.430 / 0.430 | 4.5 / 4.5 |
| PVFY-P54NAMU-E | | | | 5.63 / 5.63 | 0.430 / 0.430 | 4.5 / 4.5 |

## 1-2-2. Electrical characteristics of Outdoor unit at cooling mode

Symbols: MCA: Minimum Circuit Ampacity

PURY-P-Z(S)KMU SC: Starting Current MOP: Maximum Overcurrent Protection

| Model | Unit combination | Outdoor units | | | | | Compressor | | Fan |
|---|---|---|---|---|---|---|---|---|---|
| | | Hz | Volts | Voltage range | MCA(A) | MOP(A) | Output(kW) | SC(A) | Output(kW) |
| PURY-P72ZKMU-A(-BS) | - | 60Hz | 575V | 518 to 632V | 11 | 15 | 4.7 | 7 | 0.92 |
| PURY-P96ZKMU-A(-BS) | - | | | | 15 | 20 | 6.6 | 7 | 0.92 |
| PURY-P120ZKMU-A(-BS) | - | | | | 21 | 30 | 8.2 | 7 | 0.92+0.92 |
| PURY-P144ZKMU-A(-BS) | - | | | | 23 | 35 | 9.5 | 7 | 0.92+0.92 |
| PURY-P168ZSKMU-A(-BS) | PURY-P96ZKMU-A(-BS) | | | | 15 | 20 | 6.6 | 7 | 0.92 |
| | PURY-P72ZKMU-A(-BS) | | | | 11 | 15 | 4.7 | 7 | 0.92 |
| PURY-P192ZSKMU-A(-BS) | PURY-P96ZKMU-A(-BS) | | | | 15 | 20 | 6.6 | 7 | 0.92 |
| | PURY-P96ZKMU-A(-BS) | | | | 15 | 20 | 6.6 | 7 | 0.92 |
| PURY-P216ZSKMU-A(-BS) | PURY-P120ZKMU-A(-BS) | | | | 21 | 30 | 8.2 | 7 | 0.92+0.92 |
| | PURY-P96ZKMU-A(-BS) | | | | 15 | 20 | 6.6 | 7 | 0.92 |
| PURY-P240ZSKMU-A(-BS) | PURY-P120ZKMU-A(-BS) | | | | 21 | 30 | 8.2 | 7 | 0.92+0.92 |
| | PURY-P120ZKMU-A(-BS) | | | | 21 | 30 | 8.2 | 7 | 0.92+0.92 |
| PURY-P264ZSKMU-A(-BS) | PURY-P144ZKMU-A(-BS) | | | | 23 | 35 | 9.5 | 7 | 0.92+0.92 |
| | PURY-P120ZKMU-A(-BS) | | | | 21 | 30 | 8.2 | 7 | 0.92+0.92 |
| PURY-P288ZSKMU-A(-BS) | PURY-P144ZKMU-A(-BS) | | | | 23 | 35 | 9.5 | 7 | 0.92+0.92 |
| | PURY-P144ZKMU-A(-BS) | | | | 23 | 35 | 9.5 | 7 | 0.92+0.92 |

S.D. R2 575V

### 1-2-3. Electrical characteristics of BC controller

Symbols: MCA: Minimum Circuit Ampacity
FLA: Full Load Amps RLA: Rated Load Amps

| Model | Hz | Volts | Voltage range | MCA(A) | FLA(A) | RLA(A) |
|---|---|---|---|---|---|---|
| CMB-P104NU-G1 | 60Hz | 208 / 230V | 198 to 253V | 0.36 / 0.33 | 15 / 15 | 0.29 / 0.26 |
| CMB-P105NU-G1 | | | | 0.44 / 0.40 | 15 / 15 | 0.35 / 0.32 |
| CMB-P106NU-G1 | | | | 0.52 / 0.47 | 15 / 15 | 0.41 / 0.37 |
| CMB-P108NU-G1 | | | | 0.68 / 0.61 | 15 / 15 | 0.54 / 0.49 |
| CMB-P1010NU-G1 | | | | 0.83 / 0.75 | 15 / 15 | 0.66 / 0.60 |
| CMB-P1013NU-G1 | | | | 1.08 / 0.97 | 15 / 15 | 0.86 / 0.77 |
| CMB-P1016NU-G1 | | | | 1.30 / 1.18 | 15 / 15 | 1.04 / 0.94 |
| CMB-P108NU-GA1 | | | | 0.68 / 0.61 | 15 / 15 | 0.54 / 0.49 |
| CMB-P1010NU-GA1 | | | | 0.83 / 0.75 | 15 / 15 | 0.66 / 0.60 |
| CMB-P1013NU-GA1 | | | | 1.08 / 0.97 | 15 / 15 | 0.86 / 0.77 |
| CMB-P1016NU-GA1 | | | | 1.30 / 1.18 | 15 / 15 | 1.04 / 0.94 |
| CMB-P104NU-GB1 | | | | 0.32 / 0.29 | 15 / 15 | 0.25 / 0.23 |
| CMB-P108NU-GB1 | | | | 0.64 / 0.58 | 15 / 15 | 0.51 / 0.46 |
| CMB-P108NU-HA1 | | | | 1.45 / 1.70 | 15 / 15 | 1.16 / 1.36 |
| CMB-P1010NU-HA1 | | | | 1.60 / 1.88 | 15 / 15 | 1.28 / 1.50 |
| CMB-P1016NU-HA1 | | | 188 to 253V | 1.65 / 1.93 | 15 / 15 | 1.32 / 1.54 |
| CMB-P1016NU-HB1 | | | | 1.46 / 1.71 | 15 / 15 | 1.17 / 1.37 |

S.D. R2 575V

## 1-3. Power cable specifications

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

| 3-phase 3-wire, 575V, 60Hz | | Minimum wire thickness ($mm^2$/AWG) | | |
|---|---|---|---|---|
| | | Main cable | Branch | Ground |
| PURY-P-ZKMU-A | P72 | 2.1/14 | - | 2.1/14 |
| | P96 | 2.1/14 | - | 2.1/14 |
| | P120 | 5.3/10 | - | 5.3/10 |
| | P144 | 5.3/10 | - | 5.3/10 |
| Total operating current of the indoor unit | F0 = 15 or less *1 | 2.1/14 | 2.1/14 | 2.1/14 |
| | F0 = 20 or less *1 | 3.3/12 | 3.3/12 | 3.3/12 |
| | F0 = 30 or less *1 | 5.3/10 | 5.3/10 | 5.3/10 |

*1 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 Others)/C}

| Indoor unit | | V1 | V2 |
|---|---|---|---|
| Type1 | PLFY-NBMU, PMFY-NBMU, PEFY-NMSU, PCFY-NKMU, PKFY-NHMU, PKFY-NKMU | 18.6 | 2.4 |
| Type2 | PEFY-NMAU | 38 | 1.6 |
| Type3 | PEFY-NMHSU | 13.8 | 4.8 |
| 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.

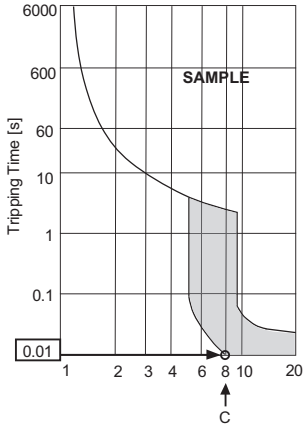
<Example of "F2" calculation>

*Condition PEFY-NMSU × 4 + PEFY-NMAU × 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)




*2 Current sensitivity is calculated using the following formula.

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

| G1 | Current sensitivity |
|---|---|
| 30 or less | 30 mA 0.1sec or less |
| 100 or less | 100 mA 0.1sec or less |

| Wire thickness | V3 |
|---|---|
| 1.5 $mm^2$ | 48 |
| 2.5 $mm^2$ | 56 |
| 4.0 $mm^2$ | 66 |

1. Use dedicated power supplies for the outdoor unit and indoor unit. Ensure OC and OS are wired individually.
2. Bear in mind ambient conditions (ambient temperature,direct sunlight, rain water,etc.) when proceeding with the wiring and connections.
3. 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.
4. Specific wiring requirements should adhere to the wiring regulations of the region.
5. 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.
6. A switch with at least 3 mm [1/8 in.] 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

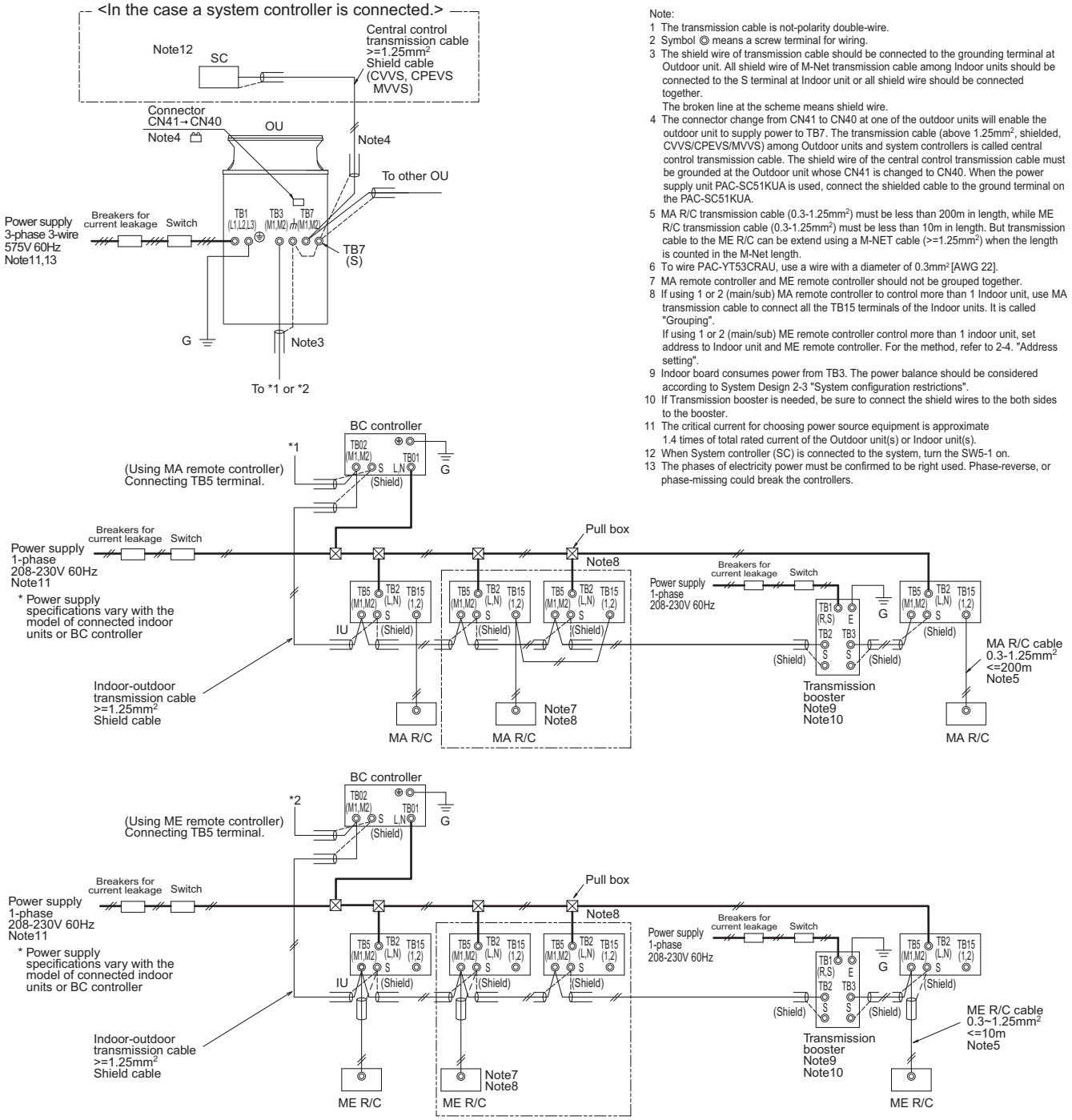
- The breakers for current leakage should support Inverter circuit. (e.g. Mitsubishi Electric's NV-C series or equivalent). If no earth leakage breaker is installed, it may cause an electric shock.
- Breakers for current leakage should combine using of switch.
- Do not use anything other than a breaker 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.

S.D. R2 575V

## 1-4. Power supply examples

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

### 1-4-1. PURY-P72, 96, 120, 144ZKMU



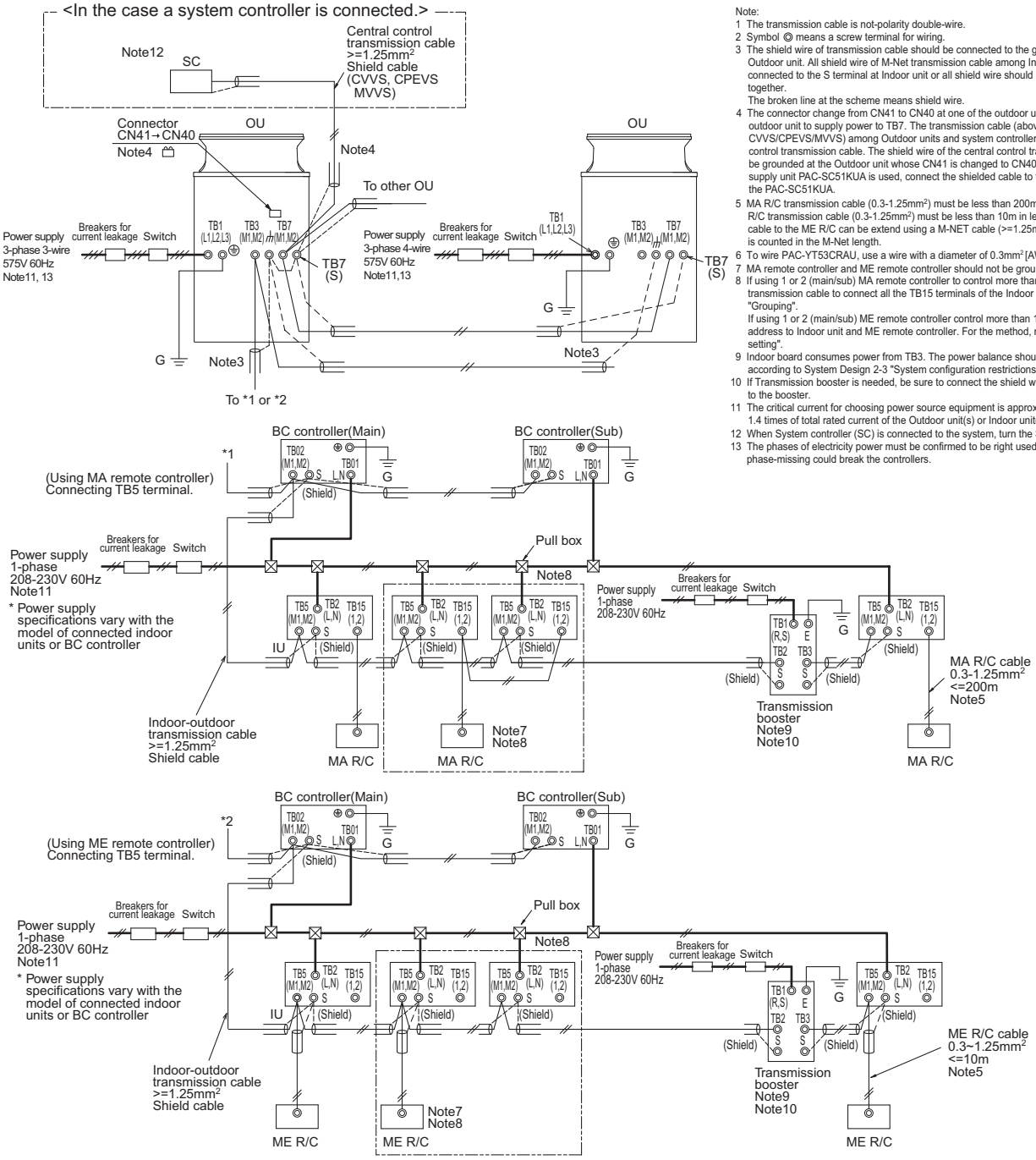

Note:
1 The transmission cable is not-polarity double-wire.
2 Symbol ◎ means a screw terminal for wiring.
3 The shield wire of transmission cable should be connected to the grounding terminal at Outdoor unit. All shield wire of M-Net transmission cable among Indoor units should be connected to the S terminal at Indoor unit or all shield wire should be connected together.
The broken line at the scheme means shield wire.
4 The connector change from CN41 to CN40 at one of the outdoor units will enable the outdoor unit to supply power to TB7. The transmission cable (above 1.25mm², shielded, CVVS/CPEVS/MVVS) among Outdoor units and system controllers is called central control transmission cable. The shield wire of the central control transmission cable must be grounded at the Outdoor unit whose CN41 is changed to CN40. When the power supply unit PAC-SC51KUA is used, connect the shielded cable to the ground terminal on the PAC-SC51KUA.
5 MA R/C transmission cable (0.3-1.25mm²) must be less than 200m in length, while ME R/C transmission cable (0.3-1.25mm²) must be less than 10m in length. But transmission cable to the ME R/C can be extend using a M-NET cable (>=1.25mm²) when the length is counted in the M-Net length.
6 To wire PAC-YT53CRAU, use a wire with a diameter of 0.3mm² [AWG 22].
7 MA remote controller and ME remote controller should not be grouped together.
8 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 2-4. "Address setting".
9 Indoor board consumes power from TB3. The power balance should be considered according to System Design 2-3 "System configuration restrictions".
10 If Transmission booster is needed, be sure to connect the shield wires to the both sides to the booster.
11 The critical current for choosing power source equipment is approximate 1.4 times of total rated current of the Outdoor unit(s) or Indoor unit(s).
12 When System controller (SC) is connected to the system, turn the SW5-1 on.
13 The phases of electricity power must be confirmed to be right used. Phase-reverse, or phase-missing could break the controllers.

| Symbol | | Model | Minimum Wire thickness | |
|---|---|---|---|---|
| | | | Power wire <mm²/AWG> | G wire <mm²/AWG> |
| OU | Outdoor unit | PURY-P72ZKMU | 2.1/14 | 2.1/14 |
| IU | Indoor unit | PURY-P96ZKMU | 2.1/14 | 2.1/14 |
| SC | System controller | PURY-P120ZKMU | 5.3/10 | 5.3/10 |
| MA R/C | MA remote controller | PURY-P144ZKMU | 5.3/10 | 5.3/10 |
| ME R/C | ME remote controller | | | |

S.D. R2 575V

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

## 1-4-2. PURY-P168, 192, 216, 240, 264, 288ZSKMU




Note:
1 The transmission cable is not-polarity double-wire.
2 Symbol ◎ means a screw terminal for wiring.
3 The shield wire of transmission cable should be connected to the grounding terminal at Outdoor 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.
4 The connector change from CN41 to CN40 at one of the outdoor units will enable the outdoor unit to supply power to TB7. The transmission cable (above 1.25mm², shielded, CVVS/CPEVS/MVVS) among Outdoor units and system controllers is called central control transmission cable. The shield wire of the central control transmission cable must be grounded at the Outdoor unit whose CN41 is changed to CN40. When the power supply unit PAC-SC51KUA is used, connect the shielded cable to the ground terminal on the PAC-SC51KUA.
5 MA R/C transmission cable (0.3-1.25mm²) must be less than 200m in length, while ME R/C transmission cable (0.3-1.25mm²) must be less than 10m in length. But transmission cable to the ME R/C can be extend using a M-NET cable (>=1.25mm²) when the length is counted in the M-Net length.
6 To wire PAC-YT53CRAU, use a wire with a diameter of 0.3mm² [AWG 22].
7 MA remote controller and ME remote controller should not be grouped together.
8 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 2-4. "Address setting".
9 Indoor board consumes power from TB3. The power balance should be considered according to System Design 2-3 "System configuration restrictions".
10 If Transmission booster is needed, be sure to connect the shield wires to the both sides to the booster.
11 The critical current for choosing power source equipment is approximate 1.4 times of total rated current of the Outdoor unit(s) or Indoor unit(s).
12 When System controller (SC) is connected to the system, turn the SW5-1 on.
13 The phases of electricity power must be confirmed to be right used. Phase-reverse, or phase-missing could break the controllers.

| Symbol | | Model | Minimum Wire thickness | |
|---|---|---|---|---|
| | | | Power wire <mm²/AWG> | G wire <mm²/AWG> |
| OU | Outdoor unit | PURY-P72ZKMU | 2.1/14 | 2.1/14 |
| IU | Indoor unit | PURY-P96ZKMU | 2.1/14 | 2.1/14 |
| SC | System controller | PURY-P120ZKMU | 5.3/10 | 5.3/10 |
| MA R/C | MA remote controller | PURY-P144ZKMU | 5.3/10 | 5.3/10 |
| ME R/C | ME remote controller | | | |

S.D. R2 575V

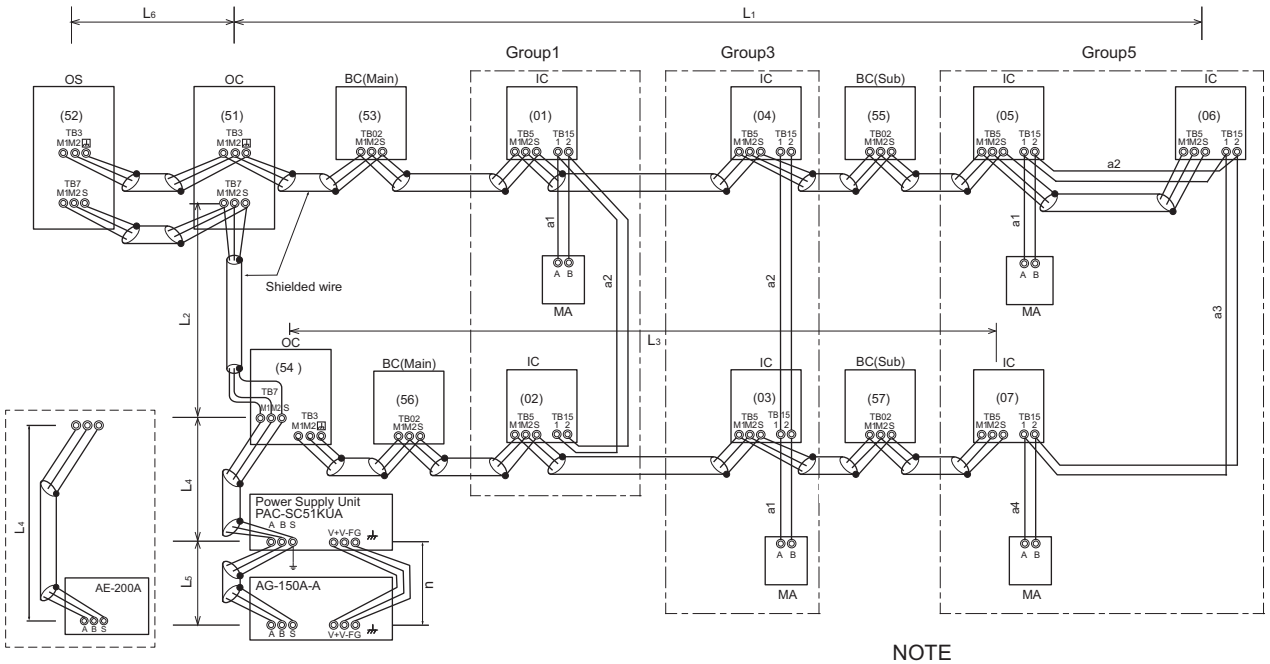
# 2-1. Transmission cable length limitation

## 2-1-1. Using MA Remote controller

MA remote controller refers to Simple MA remote controller and wireless remote controller.

Long transmission cable causes voltage down, therefore, the length limitation should be obeyed to secure proper transmission.

| | | | |
|---|---|---|---|
| Max. length via Outdoor (M-NET cable) | L1+L2+L3, L1+L2+L4+L5, L3+L4+L5, L6+L2+L3, L6+L2+L4+L5 | <=500m[1640ft.] | 1.25mm$^2$ [AWG16] or thicker |
| Max. length to Outdoor (M-NET cable) | L1+L6, L3, L2+L4+L6, L5 | <=200m[656ft.] | 1.25mm$^2$ [AWG16] or thicker |
| Max. length from MA to Indoor for each group | a1+a2, a1+a2+a3+a4 | <=200m[656ft.] | 0.3-1.25 mm$^2$ [AWG22-16] |
| 24VDC to AG-150A-A | n | <=50m[164ft.] | 0.75-2.0 mm$^2$ [AWG18-14] |




OC, OS : Outdoor unit controller; IC: Indoor unit controller; MA: MA remote controller

NOTE
Do not daisy-chain remote controllers.

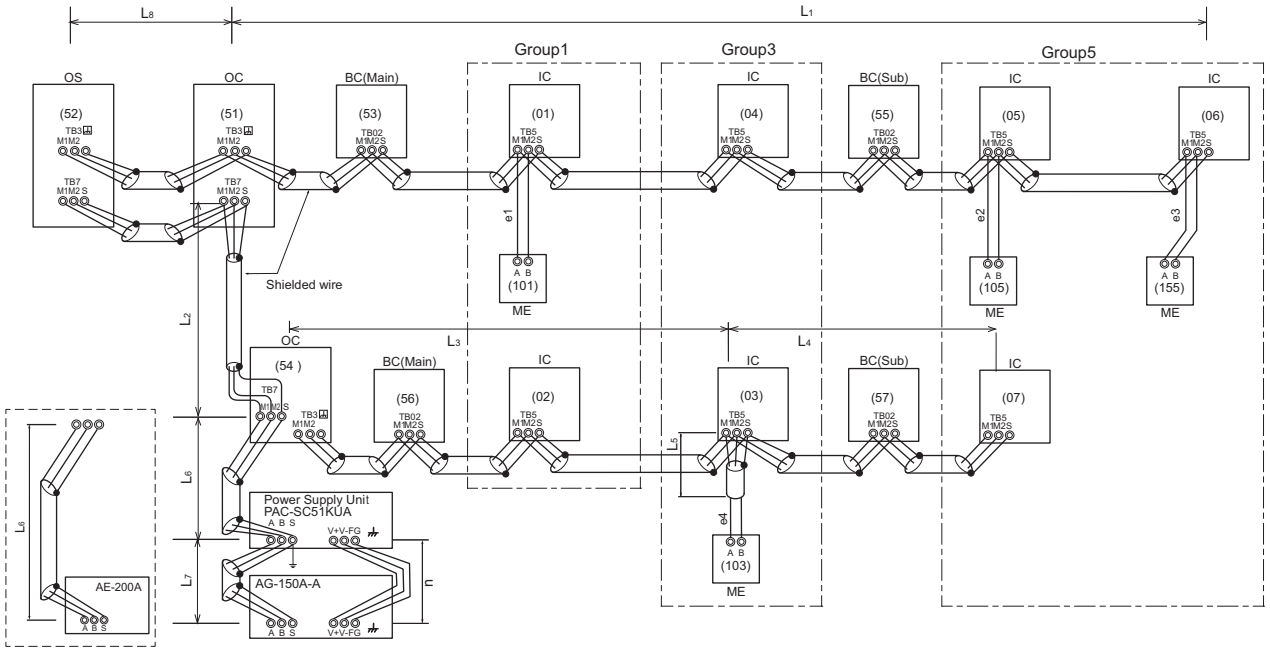
## 2-1-2. Using ME Remote controller

ME remote controller refers to Smart ME Controller.

Long transmission cable causes voltage down, therefore, the length limitation should be obeyed to secure proper transmission.

| | | | |
|---|---|---|---|
| Max. length via Outdoor (M-NET cable) | L1+L2+L3+L4, L1+L2+L6+L7,L1+L2+L3+L5, L3+L4+L6+L7, L8+L2+L3+L4, L8+L2+L3+L5, L8+L2+L6+L7 | <=500m[1640ft.] | 1.25mm$^2$ [AWG16] or thicker |
| Max. length to Outdoor (M-NET cable) | L1+L8, L3+L4, L2+L6+L8, L7, L3+L5 | <=200m[656ft.] | 1.25mm$^2$ [AWG16] or thicker |
| Max. length from ME to Indoor | e1, e2+e3, e4 | <=10m[32ft.]*1 | 0.3-1.25 mm$^2$ [AWG22-16]*1 |
| 24VDC to AG-150A-A | n | <=50m[164ft.] | 0.75-2.0 mm$^2$ [AWG18-14] |

*1. If the length from ME to Indoor exceed 10m, use 1.25 mm$^2$ [AWG16] shielded cable, but the total length should be counted into Max. length via Outdoor.




OC, OS: Outdoor unit controller; IC: Indoor unit controller; ME: ME remote controller

NOTE
Do not daisy-chain remote controllers.

S.D. R2 575V

## 2-2. Transmission cable specifications

| | Transmission cables (Li) | ME Remote controller cables | MA Remote controller cables |
|---|---|---|---|
| Type of cable | Shielding wire (2-core)<br>CVVS, CPEVS or MVVS | Sheathed 2-core cable (unshielded)<br>CVV | |
| Cable size | More than 1.25mm$^2$ [AWG16] | 0.3～1.25mm$^2$ [AWG22～16] | 0.3～1.25mm$^2$ [AWG22～16]*1 |
| Remarks | — | When 10m [32ft] is exceeded, use cables with the same specification as transmission cables. | Max length : 200m [656ft] |

*1 To wire PAC-YT53CRAU, use a wire with a diameter of 0.3 mm$^2$ [AWG22]

CVVS, MVVS: PVC insulated PVC sheathed shielded control cable
CPEVS: PE insulated PVC sheathed shielded communication cable
CVV: PVC insulated PVC sheathed control cable

S.D. R2 575V

## 2-3. System configuration restrictions

### 2-3-1. Common restrictions for the CITYMULTI system

For each Outdoor/Heat source unit, the maximum connectable quantity of Indoor unit is specified at its Specifications table.

A) 1 Group of Indoor units can have 1-16 Indoor units;

B) Maximum 2 remote controllers for 1 group;
*MA/ME remote controllers cannot be present together in 1group.
*To wire PAC-YT53CRAU, use a wire with a diameter of 0.3 $mm^2$ [AWG22]

C) 1 LOSSNAY unit can interlock maximum 16 Indoor units; 1 Indoor unit can interlock only 1 LOSSNAY unit.

D) Maximum 3 System controllers are connectable when connecting to TB3 of the Outdoor/Heat source unit.

E) Maximum 6 System controllers are connectable when connecting to TB7 of the Outdoor/Heat source unit, if the transmission power is supplied by the Outdoor/Heat source unit.
(Not applicable to the PUMY model and PUHY/PURY-TLMU/TKMU model)

F) 4 System controllers or more are connectable when connecting to TB7 of the Outdoor/Heat source unit, if the transmission power is supplied by the power supply unit PAC-SC51KUA. Details refer to 2-3-3-C.
*System controller connected as described in D) and E) would have a risk that the failure of connected Outdoor/Heat source unit would stop power supply to the System controller.

### 2-3-2. Ensuring proper communication power and the number of connected units for M-NET

In order to ensure proper communication among Outdoor/Heat source unit, Indoor unit, LOSSNAY, and Controllers, the transmission power situation for the M-NET should be observed. In some cases, Transmission booster should be used. Taking the power consumption of Indoor unit sized P06-P54 as 1, the equivalent power consumption or supply of others are listed at Table 1 and Table 2.
Both the transmission line for centralized controller and indoor-outdoor transmission line must meet the conditions listed below. (Both conditions a) and b) must be met.)

a) [Total equivalent power consumption] ≤ [The equivalent power supply]
b) [Total equivalent number of units] ≤ [40]

S.D. R2 575V

Table 1 The equivalent power consumption and the equivalent number of units

| Category | Model | The equivalent power consumption | The equivalent number of units |
|---|---|---|---|
| Indoor unit | Sized P06-P54 | 1 | 1 |
| | Sized P72, P96 | 2 | 2 |
| BC controller | CMB | 2 | 1 |
| PWFY | P36NMU-E-BU | 6 | 1 |
| | P36NMU-E2-AU | 1 | 1 |
| | P72NMU-E2-AU | 5 | 1 |
| MA remote controller/LOSSNAY | PAC-YT53CRAU<br>PAR-FA32MA<br>LGH-F-RX5-E1<br>PZ-60DR-E<br>PZ-41SLB<br>PZ-52SF | 0 | 0 |
| ME remote controller | PAR-U01MEDU<br>PAC-IF01AHC-J | 0.5 | 1 |
| System controller | AE-200A<br>AE-50A<br>EW-50A | 0 | 0 |
| | AG-150A-A<br>EB-50GU-A | 0.5 | 1 |
| | TC-24B | 1.5 | 5 |
| | PAC-YG60MCA<br>PAC-YG66DCA<br>PAC-YG63MCA | 0.25 | 1 |
| ON/OFF controller | PAC-YT40ANRA | 1 | 1 |
| MN converter | CMS-MNG-E | 2 | 1 |
| Outdoor/Heat source unit | TB7 power consumption | 0 | 0 |
| M-NET adapter | MAC-333IF-E | 0 | 0 |
| | PAC-IF01MNT-E | 1 | 2 |

Table 2 The equivalent power supply

| Category | Model | The equivalent power supply |
|---|---|---|
| Transmission Booster | PAC-SF46EPA | 25 |
| Power supply unit | PAC-SC51KUA | 5 |
| Expansion controller | PAC-YG50ECA | 6 |
| BM ADAPTER | BAC-HD150 | 6 |
| System controller | AE-200A/AE-50A | 0 *1 |
| | EW-50A | 1.5 *1 |
| Outdoor/Heat source unit | Connector TB3 and TB7 total * | 32 (except S series)/12 (S series) |
| | Connector TB7 only | 6 (except S series and TLMU/TKMU) |
| | Connector TB7 only (TLMU/TKMU) | 0 |

*If PAC-SC51KUA is used to supply power at TB7 side, no power supply need from Outdoor/Heat source unit at TB7, Connector TB3 itself will therefore have 32. Not applicable to the PUMY model.

*1 AE-200A/AE-50A/EW-50A has a built-in function to supply power to the M-NET transmission line. The amount of power that an AE-200A or an AE-50A can supply is equivalent to the power required by an MN converter (CMS-MNG-E) that is used for maintenance. An MN converter is connectable to EW-50A only when the equivalent power consumption is less than 1.5.

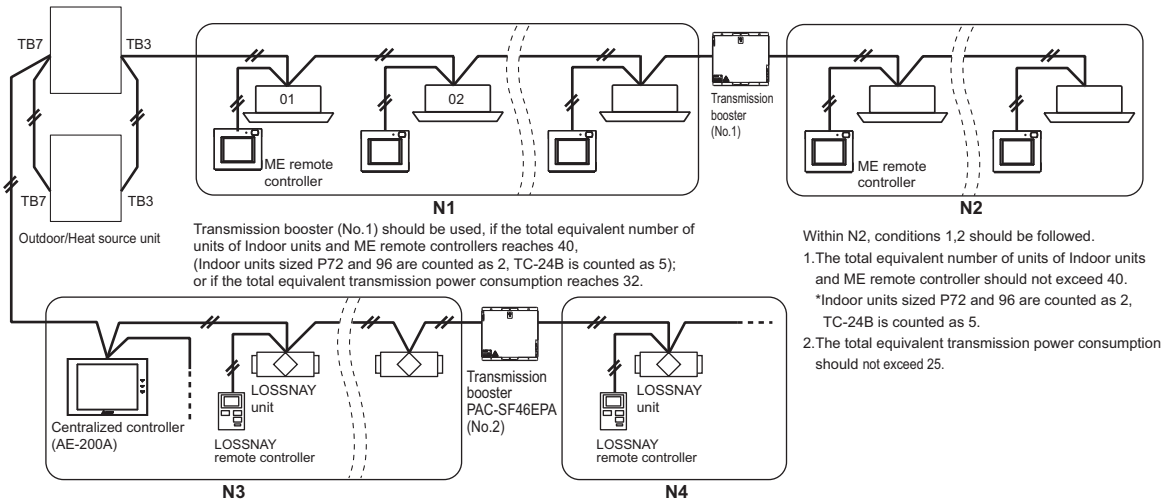
With the equivalent power consumption values and the equivalent number of units in Table 1 and Table 2, PAC-SF46EPA can be designed into the air-conditioner system to ensure proper system communication according to (A), (B), (C).

(A) Firstly, count from TB3 at TB3 side the total equivalent number of units of Indoor units, ME remote controller, and System controllers. If the total equivalent number of units reaches 40, a PAC-SF46EPA should be set. In this case, Indoor units sized P72 and 96 are counted as 2, TC-24B is counted as 5, but MA remote controller(s), PZ-60DR-E, PZ-41SLB, and PZ-52SF are NOT counted.

(B) Secondly, count from TB7 side to TB3 side the total transmission power consumption. If the total power consumption reaches 32, a PAC-SF46EPA should be set. Yet, if a PAC-SC51KUA or another controller with a built-in power supply, such as PAC-YG50ECA, is used to supply power at TB7 side, count from TB3 side only.

(C) Thirdly, count from TB7 at TB7 side the total transmission power consumption, If the total power consumption reaches 6, a PAC-SF46EPA should be set. Also, count from TB7 at TB7 side the total equivalent number of units of System controllers, and so on. If the total equivalent number of units reaches 40, a PAC-SF46EPA should be set.

■ System example




S.D. R2 575V

## 2-3-3. Ensuring proper power supply to System controller

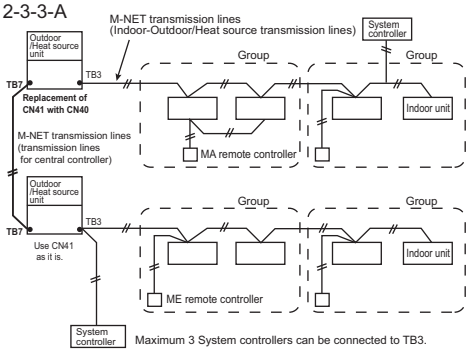
The power to System controller (excluding AE-200A, AE-50A, EW-50A, BAC-HD150, LM-AP) is supplied via M-NET transmission line. M-NET transmission line at TB7 side is called Centralized control transmission line while one at TB3 side is called Indoor-Outdoor/Heat source transmission line. There are 3 ways to supply power to the System controller .

A) Connecting to TB3 of the Outdoor/Heat source unit and receiving power from the Outdoor/Heat source unit.
B) Connecting to TB7 of the Outdoor/Heat source unit and receiving power from the Outdoor/Heat source unit.
(Not applicable to the PUMY model and PUHY/PURY-TLMU/TKMU model)
C) Connecting to TB7 of the Outdoor/Heat source unit but receiving power from power supply unit PAC-SC51KUA.
* System controllers (AE-200A, AE-50A, EW-50A, BAC-HD150, LM-AP) have a built-in function to supply power to the M-NET transmission lines, so no power needs to be supplied to the M-NET transmission lines from the Outdoor/Heat source units or from PAC-SC51KUA.

### 2-3-3-A. When connecting to TB3 of the Outdoor/Heat source unit and receiving power from the Outdoor/Heat source unit.

Maximum 3 System controllers can be connected to TB3.
If there is more than 1 Outdoor/Heat source unit, it is necessary to replace power supply switch connector CN41 with CN40 on one Outdoor/Heat source unit.

Fig. 2-3-3-A

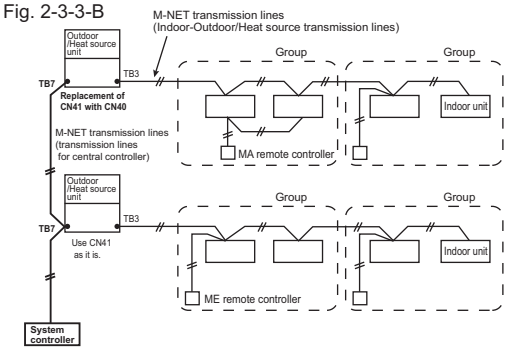



### 2-3-3-B. When connecting to TB7 of the Outdoor/Heat source unit and receiving power from the Outdoor/Heat source unit. (Not applicable to the PUMY model and PUHY/PURY-TLMU/TKMU model)

Maximum 6 System controllers can be connected to TB7 and receiving power from the Outdoor/Heat source unit.
(Not applicable to the PUMY model and PUHY/PURY-TLMU/TKMU model)
It is necessary to replace power supply switch connector CN41 with CN40 on one Outdoor/Heat source unit.

Note (only for PUHY/PURY model)
· When YLMU/YKMU Outdoor unit model is used, the male power supply connector can be connected to CN40, and the System controller can be connected to TB7 side.
· When the male power supply connector is connected from TLMU/TKMU Outdoor unit to CN40, the power is supplied to TB7 side even when the main power of the TLMU/TKMU outdoor unit is switched off, and the System controller may store an error in the error history and emit an alarm signal.
· If only LOSSNAY units or outdoor units in different refrigerant circuits are connected to TB7 side, the male power supply connector can be connected from TLMU/TKMU outdoor unit to CN40.

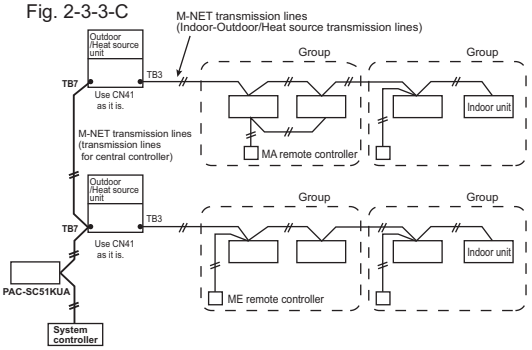
Fig. 2-3-3-B




### 2-3-3-C. When connecting to TB7 of the Outdoor/Heat source unit but receiving power from PAC-SC51KUA.

When using PAC-SC51KUA to supply transmission power, the power supply connector CN41 on the Outdoor/Heat source units should be kept as it is. It is also a factory setting.
1 PAC-SC51KUA supports maximum 1 AG-150A-A or 1 EB-50GU-A unit due to the limited power 24VDC at its TB3.
However, 1 PAC-SC51KUA supplies transmission power at its TB2 equal to 5 Indoor units, which is referable at Table 2.
If PZ-52SF, System controller, ON/OFF controller connected to TB7 consume transmission power more than 5 (Indoor units), Transmission booster PAC-SF46EPA is needed. PAC-SF46EPA supplies transmission power equal to 25 Indoor units.

Fig. 2-3-3-C

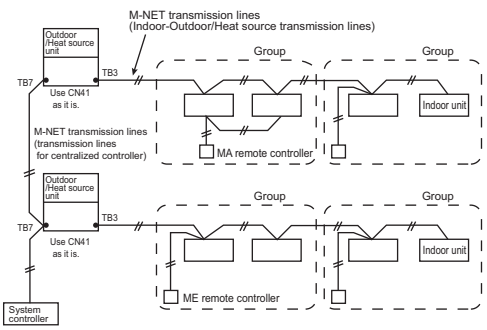



### ⚠ CAUTION

■AG-150A-A/EB-50GU-A*1 are recommended to connect to TB7 because it performs back-up to a number of data.
In an air conditioner system has more than 1 Outdoor/Heat source units, AG-150A-A/EB-50GU-A receiving transmission power through TB3 or TB7 on one of the Outdoor/Heat source units would have a risk that the connected Outdoor/Heat source unit failure would stop power supply to AG-150A-A/EB-50GU-A and disrupt the whole system.
When applying apportioned electric power function, AG-150A-A/EB-50GU-A are necessary to connected to TB7 and has its own power supply unit PAC-SC51KUA.
Note: Power supply unit PAC-SC51KUA is for AG-150A-A/EB-50GU-A.
*1: AG-150A-A is an example model of system controllers.

■How to connect system controllers (AE-200A, AE-50A, EW-50A, BAC-HD150, LM-AP) to a given system
System controllers (AE-200A, AE-50A, EW-50A, BAC-HD150, LM-AP) have a built-in function to supply power to the M-NET transmission lines, so no power needs to be supplied to the M-NET transmission lines from the Outdoor/Heat source units or from PAC-SC51KUA.
Leave the power supply connector on the Outdoor/Heat source unit connected to CN41 as it is.
Refer to 2-3-2 for information about the power-supply capacity of each system controller (EW-50A, BAC-HD150, LM-AP) to the low-level system controllers.

Fig. 2-3-3-D




S.D. R2 575V

### 2-3-4. Power supply to LM-AP

1-phase 208-230V AC power supply is needed.
The power supply unit PAC-SC51KUA is not necessary when connecting only the LM-AP. Yet, make sure to change the power supply changeover connector CN41 to CN40 on the LM-AP.

### 2-3-5. Power supply to expansion controller

1-phase 100-240VAC power supply is needed.
The power supply unit PAC-SC51KUA is not necessary.
The expansion controller supplies power through TB3, which equals 6 indoor units. (refer to Table 2)

### 2-3-6. Power supply to BM ADAPTER

1-phase 100-240VAC power supply is needed.
The power supply unit PAC-SC51KUA is not necessary when only BM ADAPTER is connected.
Yet, make sure to move the power jumper from CN41 to CN40 on the BM ADAPTER.

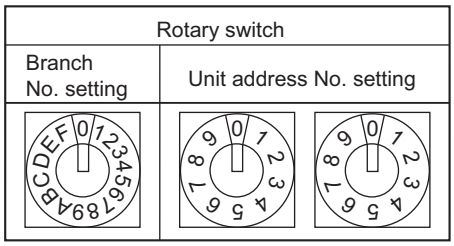
### 2-3-7. Power supply to AE-200A/AE-50A/EW-50A

1-phase 100-240VAC power supply is needed.
The power supply unit PAC-SC51KUA is not necessary when connecting only the AE-200A/AE-50A/EW-50A.

## 2-4. Address setting

### 2-4-1. Switch operation

In order to constitute CITY MULTI in a complete system, switch operation for setting the unit address No. and connection No. is required.




① Address No. of outdoor unit, indoor unit and ME remote controller.
The address No. is set at the address setting board.
In the case of R2 system, it is necessary to set the same No. at the branch No. switch of indoor unit as that of the BC controller connected. (When connecting two or more branches, use the lowest branch No.)

② Caution for switch operations

- Be sure to shut off power source before switch setting. If operated with power source on, switch can not operate properly.
- No units with identical unit address shall exist in one whole air conditioner system. If set erroneously, the system can not operate.

③ MA remote controller

- When connecting only one remote controller to one group, it is always the main remote controller.
  When connecting two remote controllers to one group, set one remote controller as the main remote controller and the other as the sub remote controller.
- The factory setting is "Main".

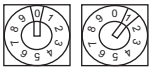
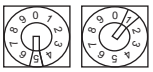
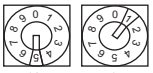
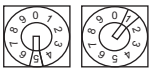
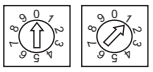
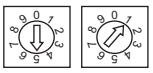
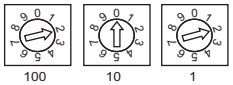
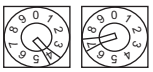
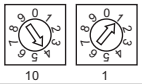
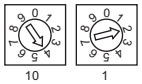
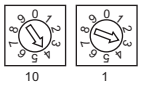
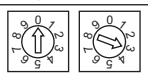
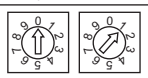
PAC-YT53CRAU

Setting the dip switches

There are switches on the back of the top case. Remote controller Main/Sub and other function settings are performed using these switches. Ordinarily, only change the Main/Sub setting of SW1.
(The factory settings are ON for SW1, 3, and 4 and OFF for SW2.)

| SW No | SW contents Main | ON | OFF | Comment |
|---|---|---|---|---|
| 1 | Remote controller Main/Sub setting | Main | Sub | Set one of the two remote controllers at one group to "ON". |
| 2 | Temperature display units setting | Celsius | Fahrenheit | When the temperature is displayed in [Fahrenheit], set to "OFF". |
| 3 | Cooling/heating display in AUTO mode | Yes | No | When you do not want to display "Cooling" and "Heating" in the AUTO mode, set to "OFF". |
| 4 | Indoor temperature display | Yes | No | When you do not want to display the indoor temperature, set to "OFF". |

## 2-4-2. Rule of setting address

| Unit | | Address setting | Example | Note |
|---|---|---|---|---|
| Indoor unit<br>System control interface<br>(MAC-333IF-E)<br>A-M converter<br>(PAC-IF01MNT-E) | | 01 ~ 50 |  <br>10 1 | Use the most recent address within the same group of indoor units. Make the indoor units address connected to the BC controller (Sub) larger than the indoor units address connected to the BC controller (Main).<br>If applicable, set the sub BC controllers in an PURY system in the following order:<br>(1) Indoor unit to be connected to the BC controller (Main)<br>(2) Indoor unit to be connected to the BC controller (No.1 Sub)<br>(3) Indoor unit to be connected to the BC controller (No.2 Sub)<br>Set the address so that (1)<(2)<(3) |
| Outdoor unit | | 51 ~ 99, 100<br>(Note1) |  <br>10 1 | The smallest address of indoor unit in same refrigerant system + 50<br>Assign sequential address numbers to the outdoor units in one refrigerant circuit system. OC and OS are automatically detected. (Note 2)<br>*Please reset one of them to an address between 51 and 99 when two addresses overlap.<br>*The address automatically becomes "100" if it is set as "01~ 50" |
| BC controller<br>(Main) | | 52 ~ 99, 100 |  <br>10 1 | The address of outdoor unit + 1<br>*Please reset one of them to an address between 51 and 99 when two addresses overlap.<br>*The address automatically becomes "100" if it is set as "01~ 50" |
| BC controller<br>(Sub) | | 52 ~ 99, 100 |  <br>10 1 | Lowest address within the indoor units connected to the BC controller (Sub) plus 50. |
| Local remote controller | ME, LOSSNAY<br>Remote controller<br>(Main) | 101 ~ 150 | 1 Fixed  <br>10 1 | The smallest address of indoor unit in the group + 100<br>*The place of "100" is fixed to "1" |
| | ME, LOSSNAY<br>Remote controller<br>(Sub) | 151 ~ 199, 200 | 1 Fixed  <br>10 1 | The address of main remote controller + 50<br>*The address automatically becomes "200" if it is set as "00" |
| System controller | ON/OFF remote<br>controller | 201 ~ 250 |  <br>100 10 1 | The smallest group No. to be managed + 200<br>* The smallest group No. to be managed is changeable. |
| | AE-200A/AE-50A<br>AG-150A-A<br>EB-50GU-A<br>EW-50A<br>TC-24B | 000, 201 ~ 250 | 0 0 0<br>100 10 1 | * TC-24B cannot be set to "000". |
| | PAC-YG50ECA | 000, 201 ~ 250 | 0 0 0<br>100 10 1 | * Settings are made on the initial screen of AG-150A-A. |
| | BAC-HD150 | 000, 201 ~ 250 | 0 0 0<br>100 10 1 | * Settings are made with setting tool of BM ADAPTER. |
| | LMAP04U-E | 201 ~ 250 | 2 Fixed  <br>10 1 | |
| PI, AI, DIDO | PAC-YG60MCA | 01 ~ 50 |  <br>10 1 | |
| | PAC-YG63MCA | 01 ~ 50 |  <br>10 1 | |
| | PAC-YG66DCA | 01 ~ 50 |  <br>10 1 | |
| LOSSNAY | | 01 ~ 50 |  <br>10 1 | After setting the addresses of all the indoor units, assign an arbitrary address. |
| PAC-IF01AHC-J | | 201 ~ 250 | 2 Fixed  <br>10 1 | |

Note1: To set the address to "100", set it to "50"
Note2: Outdoor units OC and OS in one refrigerant circuit system are automatically detected.
OC and OS are ranked in descending order of capacity. If units are the same capacity, they are ranked in ascending order of their address.

S.D. R2 575V

## 2-4-3. System examples

### Factory setting

Original switch setting of the outdoors, indoors, controllers, LM-AP, and BM ADAPTER at shipment is as follows.

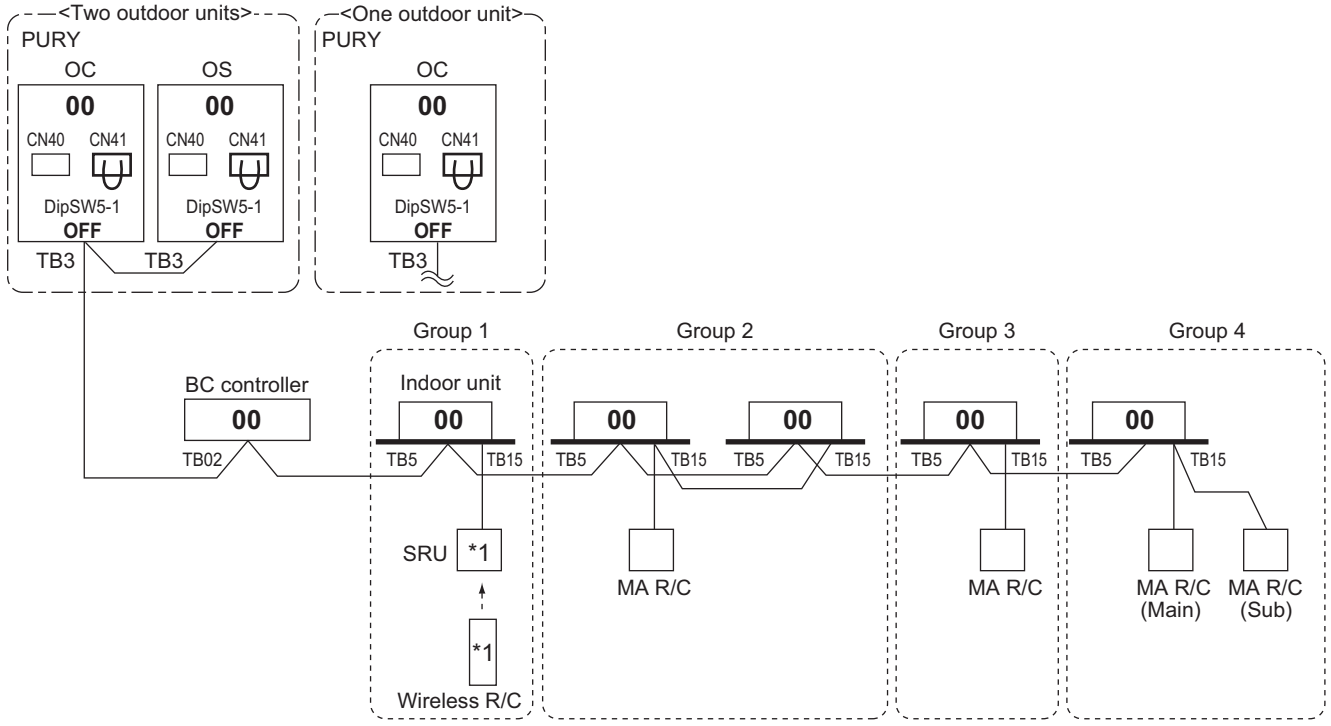
- Outdoor unit : Address: 00, CN41: ON (Jumper), DipSW5-1: OFF
- Indoor unit : Address: 00
- BC controller : Address: 00
- ME remote controller : Address: 101
- LM-AP : Address: 247, CN41: ON (Jumper), DipSW1-2: OFF
- BM ADAPTER : Address: 000, CN41: ON (Jumper)

### Setting at the site

- DipSW5-1(Outdoor) : When the System Controller is used, all the Dip SW5-1 at the outdoor units should be set to "ON". * Dip SW5-1 remains OFF when only LM-AP is used.
- DipSW1-2(LM-AP) : When the LM-AP is used together with System Controller, DipSW1-2 at the LM-AP should be set to "ON".
- CN40/CN41 : Change jumper from CN41 to CN 40 at outdoor control board will activate central transmission power supply to TB7;
  (Change jumper at only one outdoor unit when activating the transmission power supply without using a power supply unit.)
  Change jumper from CN41 to CN 40 at LM-AP will activate transmission power supply to LM-AP itself;
  Power supply unit is recommended to use for a system having more than 1 outdoor unit, because the central transmission power supply from TB7 of one of outdoor units is risking that the outdoor unit failure may let down the whole central control system.



2-4-3-1. MA remote controller, Single-refrigerant-system, No System Controller

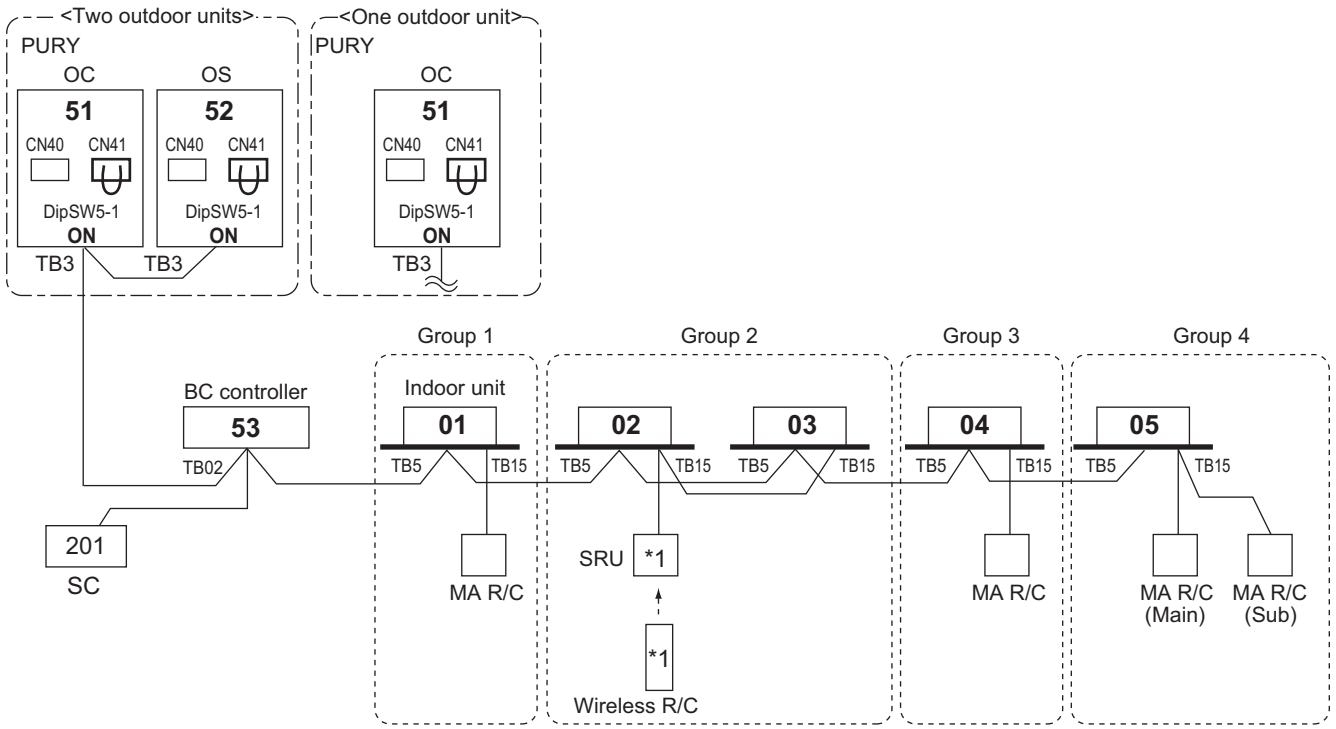



*1 For Wireless R/C and Signal receiver unit (SRU), channel 1, 2 and 3 are selectable and should be set to same channel.

NOTE:

1. Outdoor units OC and OS in one refrigerant circuit system are automatically detected.
   OC and OS are ranked in descending order of capacity. If units are the same capacity, they are ranked in ascending order of their address.
2. No address setting is needed.
3. For a system having more than 32 indoor unit (P06-P54), confirm the need of Booster at **2-3 "System configuration restrictions".**
4. Indoor units should be set with a branch number.
5. Address setting is required if a sub BC controller is connected.

2-4-3-2. MA remote controller, Single-refrigerant-system, System Controller



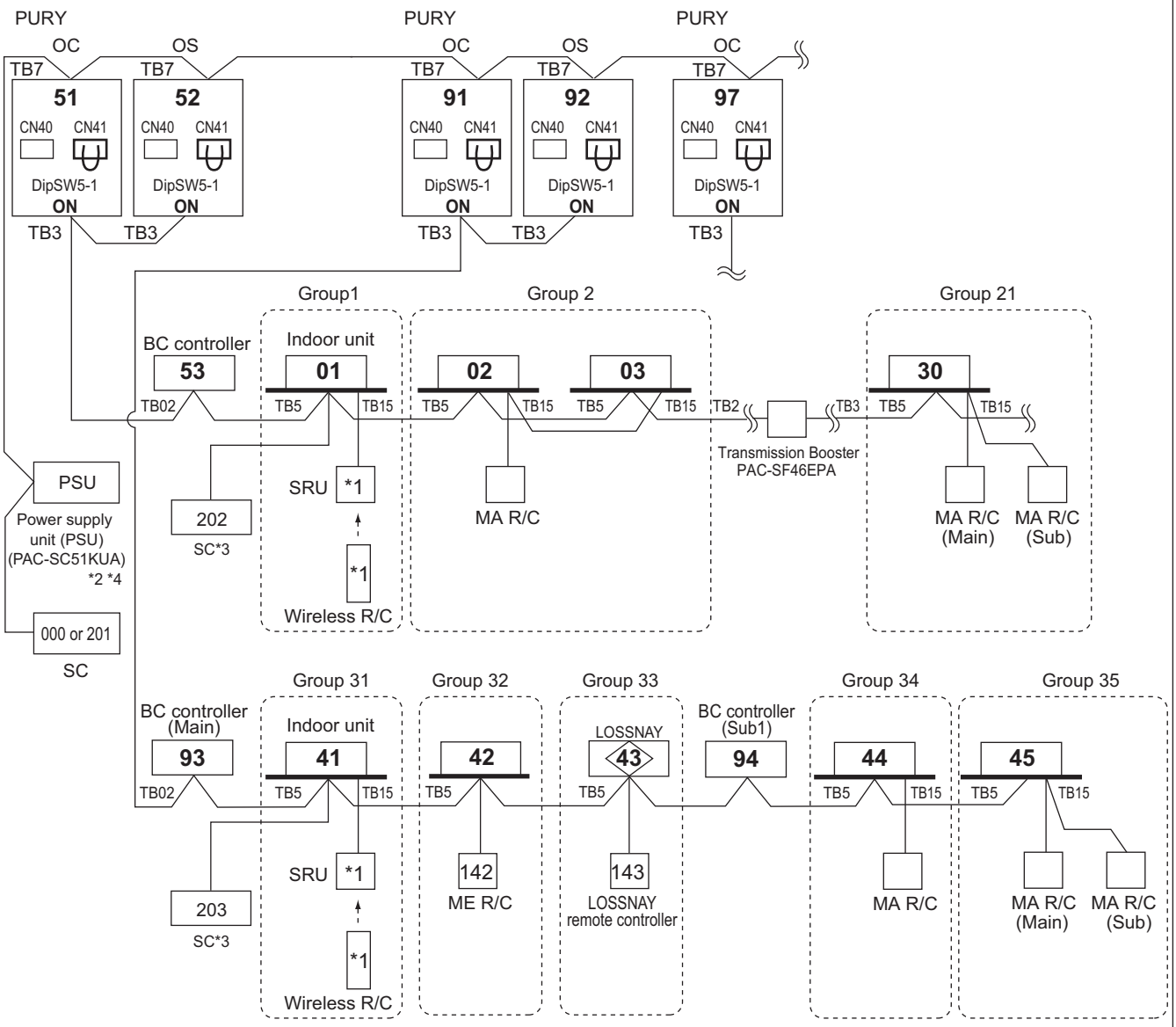

*1 For Wireless R/C and Signal receiver unit (SRU), channel 1, 2 and 3 are selectable and should be set to same channel.

*SC can be connected to TB3 side or TB7 side;
Should SC connected to TB7 side, change Jumper from CN41 to CN40 at the Outdoor unit module so as to supply power to the SC.
If a PAC-SC51KUA cannot be used, connect the System controller to TB3 side. Up to three System controllers can be connected to TB3 side.

NOTE:
1. Outdoor units OC and OS in one refrigerant circuit system are automatically detected.
   OC and OS are ranked in descending order of capacity. If units are the same capacity, they are ranked in ascending order of their address.
2. Address should be set to Indoor units and central controller.
3. For a system having more than 32 indoor unit (P06-P54), confirm the need of Booster at **2-3 "System configuration restrictions".**
4. Indoor units should be set with a branch number.

S.D. R2 575V

2-4-3-3. MA remote controller, Multi-refrigerant-system, System Controller at TB7/TB3 side, Booster for long M-NET wiring




*1 For Wireless R/C and Signal receiver unit (SRU), channel 1, 2 and 3 are selectable and should be set to same channel.

*2 System controller should connect to TB7 at Outdoor and use power supply unit together in Multi-Refrigerant-System.
For AG-150A-A, 24VDC should be used with the PAC-SC51KUA.

For AE-200A, AE-50A, and EW-50A the power supply unit PAC-SC51KUA is unused.

*3 When multiple system controllers are connected in the system, set the controller with more functions than others as a "main" controller and others as "sub".
AE-200A, AE-50A, EW-50A, BAC-HD150, and LM-AP are for exclusive use as a "main" system controller and cannot be used as a “sub” system controller. Make the setting to only one of the system controllers for "prohibition of operation from local remote controller".

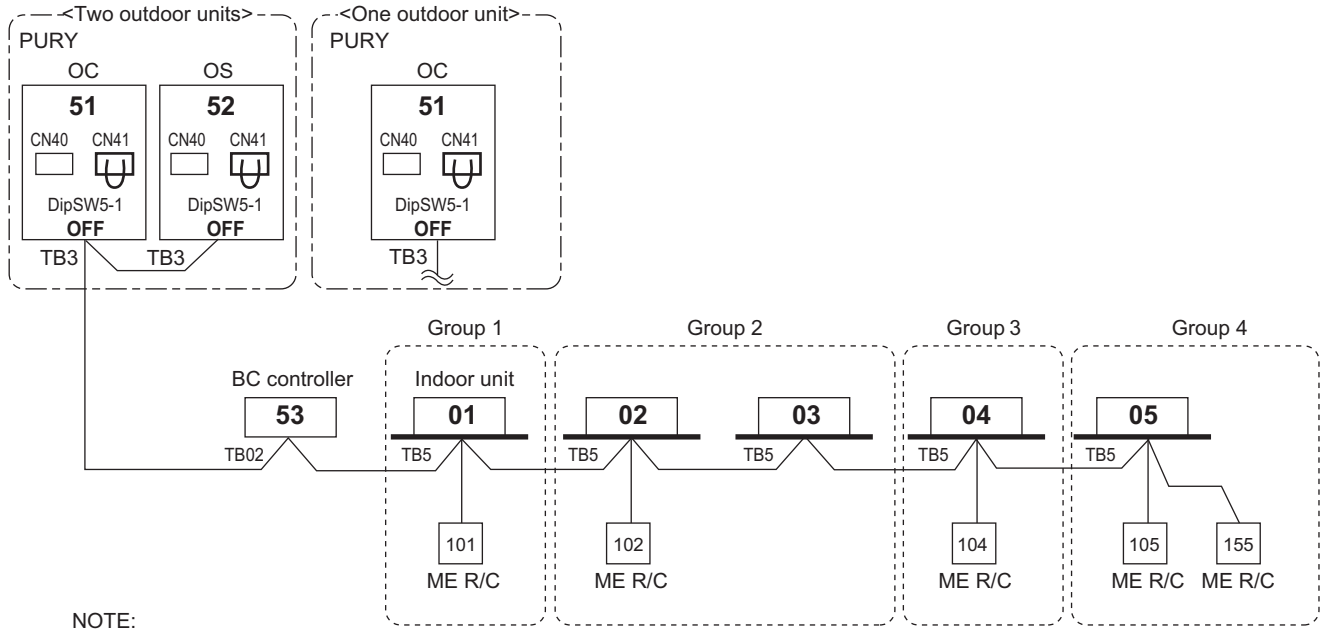
*4 The power supply unit is not necessary for AE-200A, AE-50A, EW-50A, BAC-HD150, and LM-AP.

NOTE:

1. Outdoor units OC and OS in one refrigerant circuit system are automatically detected.
   OC and OS are ranked in descending order of capacity. If units are the same capacity, they are ranked in ascending order of their address.
2. Address should be set to Indoor units, LOSSNAY and system controller.
3. M-NET power is supplied by the Outdoor unit at TB3, while Indoor unit and ME remote controller consume the M-NET power for transmission use. The power balance is needed to consider for long M-NET wiring. Details refer to **2-3 "System configuration restrictions".**
4. Indoor units should be set with a branch number.
5. Assign an address to each of the sub BC controllers which equals the sum of the smallest address of the indoor units that are connected to each sub BC controller and 50.

S.D. R2 575V

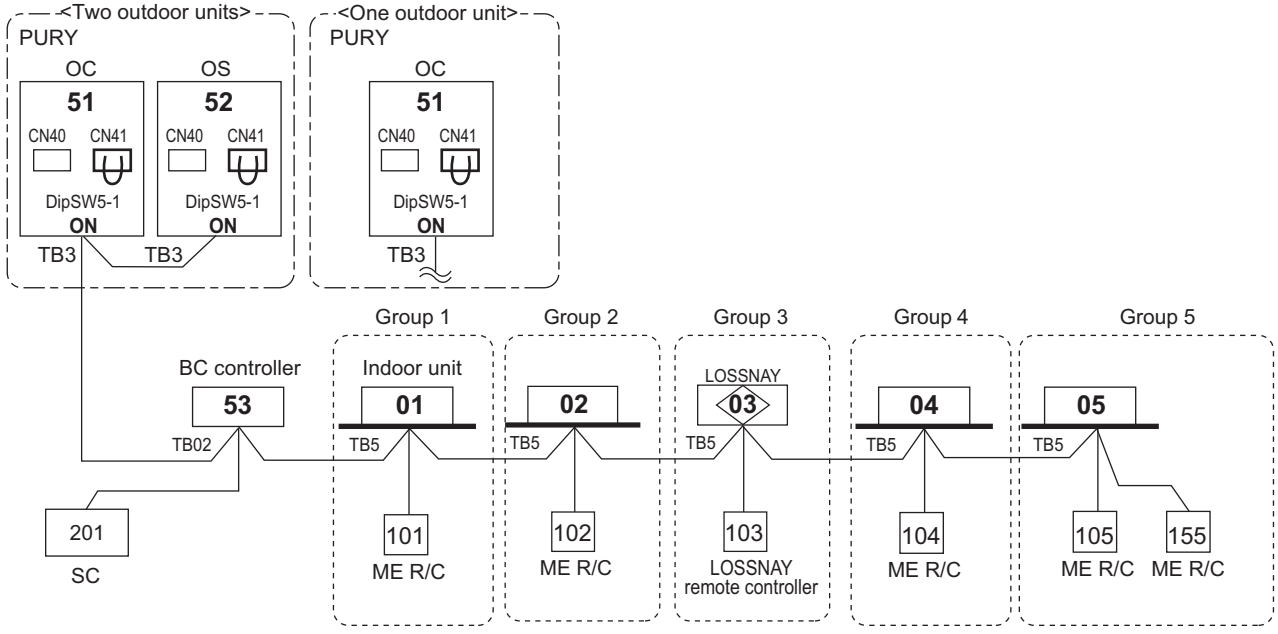
## 2-4-3-4. ME remote controller, Single-refrigerant-system, No system controller




NOTE:

1. Outdoor units OC and OS in one refrigerant circuit system are automatically detected.
   OC and OS are ranked in descending order of capacity. If units are the same capacity, they are ranked in ascending order of their address.
2. Address should be set to Indoor units, system controller and ME remote controllers.
3. M-NET power is supplied by the Outdoor unit at TB3, while Indoor unit and ME R/C consume the M-NET power for transmission use. The power balance is needed to consider for long M-NET wiring. Details refer to **2-3 "System configuration restrictions".**
4. Indoor units should be set with a branch number.

## 2-4-3-5. ME remote controller, Single-refrigerant-system, System controller, LOSSNAY



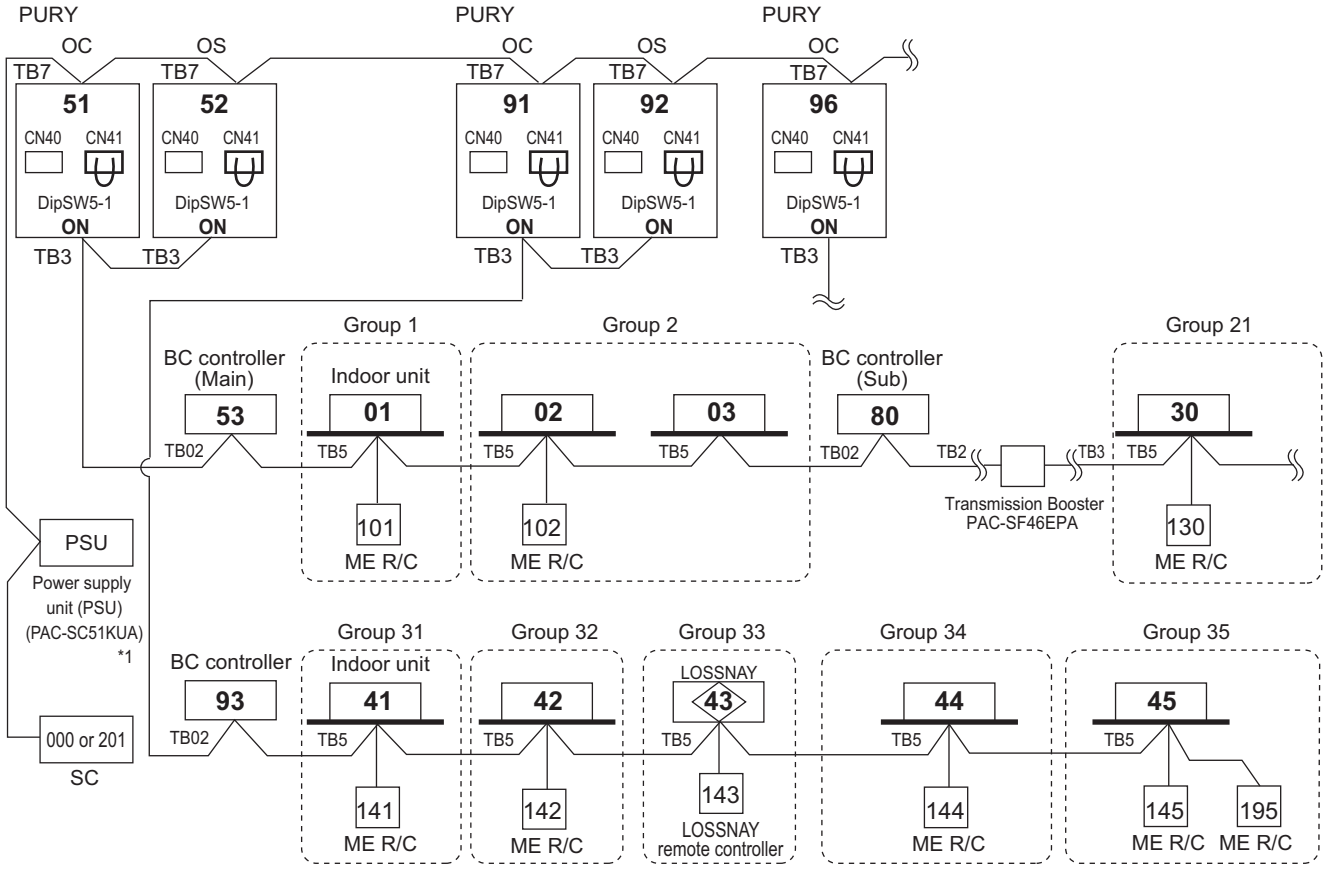

*SC can be connected to TB3 side or TB7 side;
Should SC connected to TB7 side, change Jumper from CN41 to CN40 at the Outdoor unit module so as to supply power to the SC.
If a PAC-SC51KUA cannot be used, connect the System controller to TB3 side. Up to three System controllers can be connected to TB3 side.

NOTE:

1. Outdoor units OC and OS in one refrigerant circuit system are automatically detected.
   OC and OS are ranked in descending order of capacity. If units are the same capacity, they are ranked in ascending order of their address.
2. Address should be set to Indoor units, LOSSNAY, central controller, and ME remote controllers.
3. For a system having more than 32 indoor unit (P06-P54), confirm the need of Booster at **2-3 "System configuration restrictions".**
4. Indoor units should be set with a branch number.

S.D. R2 575V

2-4-3-6. ME remote controller, Multi-refrigerant-system, System Controller at TB7 side, LOSSNAY, Booster for long M-NET wiring




*1 System controller should connect to TB7 at Outdoor and use power supply unit together in Multi-Refrigerant-System.
For AG-150A-A, 24VDC should be used with the PAC-SC51KUA. For AE-200A, AE-50A, and EW-50A the power supply unit PAC-SC51KUA is unused.

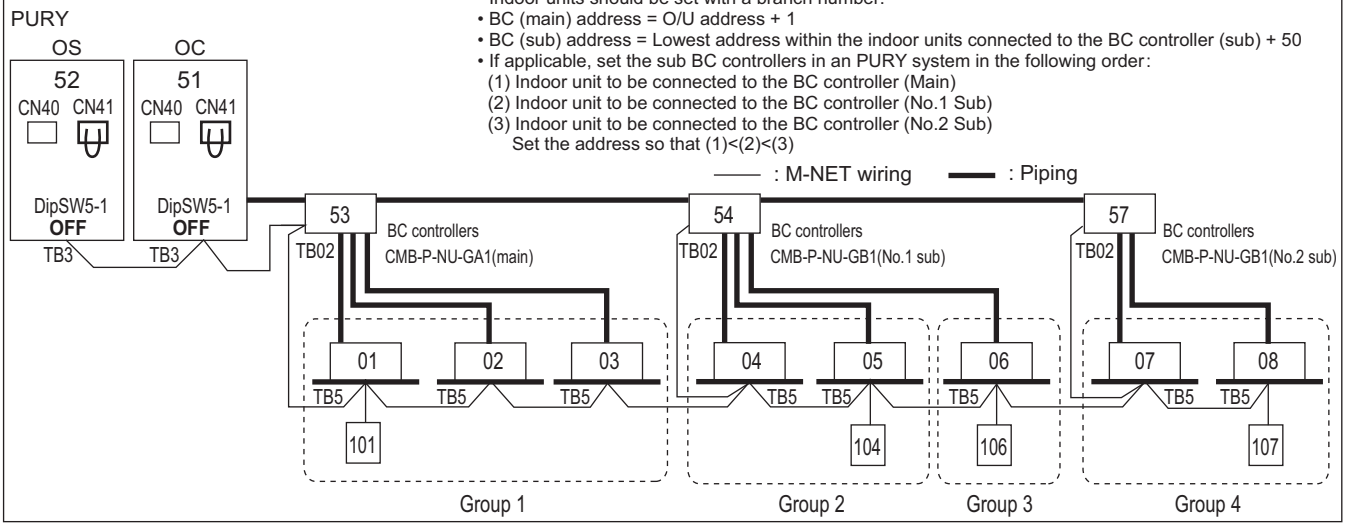
NOTE:

1. Outdoor units OC and OS in one refrigerant circuit system are automatically detected.
   OC and OS are ranked in descending order of capacity. If units are the same capacity, they are ranked in ascending order of their address.
2. M-NET power is supplied by the Outdoor unit at TB3, while Indoor unit and ME R/C consume the M-NET power for transmission use. The power balance is needed to consider for long M-NET wiring. Details refer to **2-3 "System configuration restrictions".**
3. Indoor units should be set with a branch number.
4. Assign an address to each of the sub BC controllers which equals the sum of the smallest address of the indoor units that are connected to each sub BC controller and 50.
   When the address assigned to sub BC controller overlaps those of any other units including outdoor units (OC/OS) or main BC controller, sub BC controller will be given priority to have the address.

2-4-3-7. Example: BC, BC sub

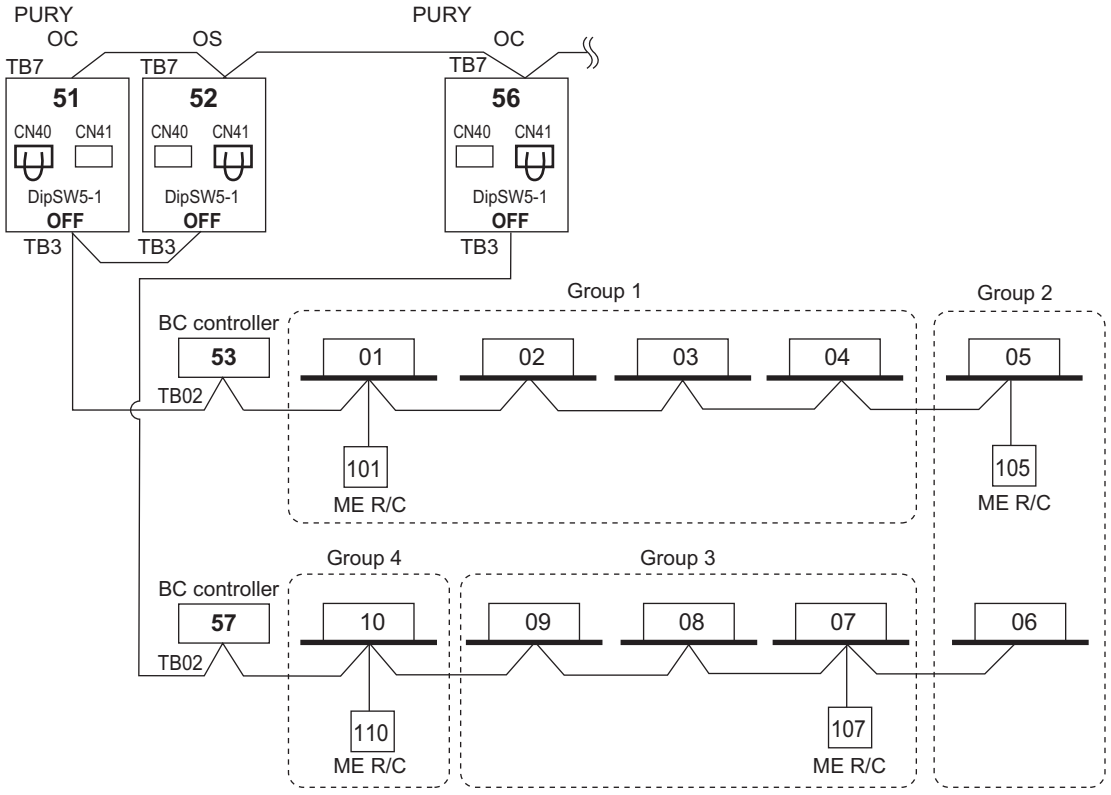
NOTE

- Indoor units should be set with a branch number.
- BC (main) address = O/U address + 1
- BC (sub) address = Lowest address within the indoor units connected to the BC controller (sub) + 50
- If applicable, set the sub BC controllers in an PURY system in the following order:
  (1) Indoor unit to be connected to the BC controller (Main)
  (2) Indoor unit to be connected to the BC controller (No.1 Sub)
  (3) Indoor unit to be connected to the BC controller (No.2 Sub)
  Set the address so that (1)<(2)<(3)



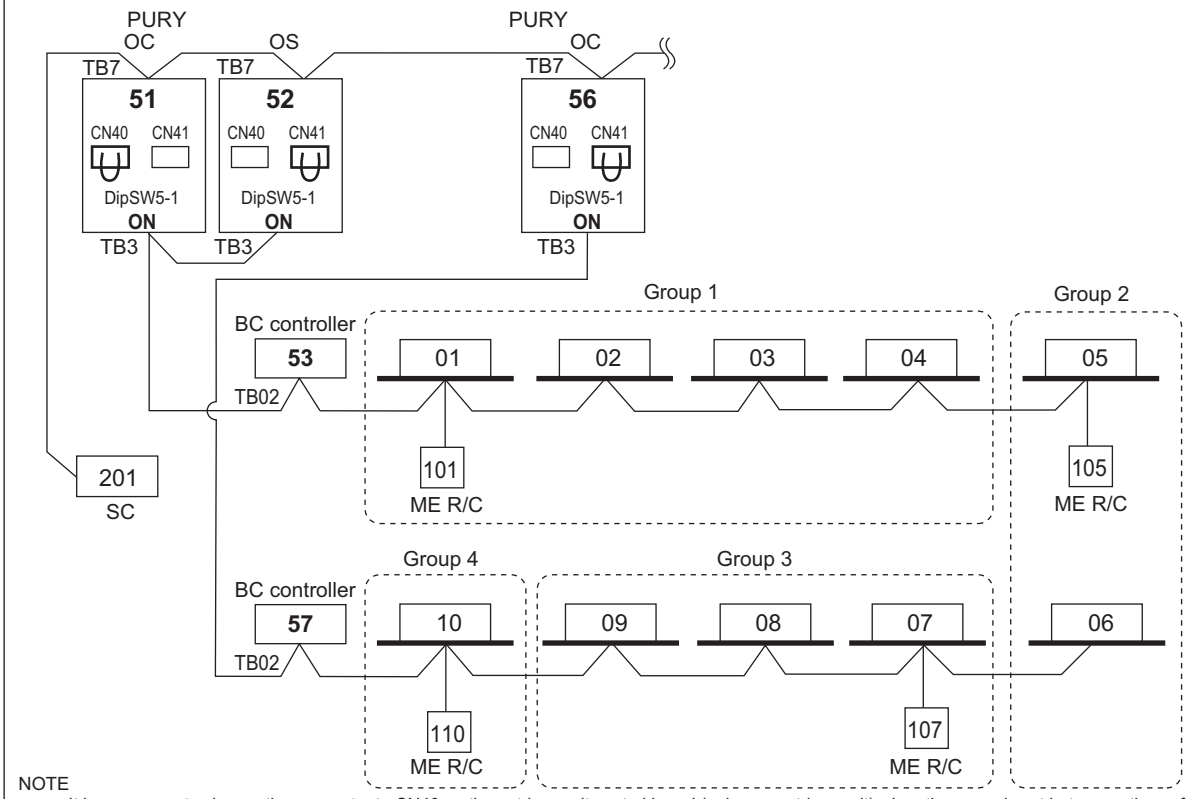

S.D. R2 575V

2-4-3-8. ME remote controller, Multi-refrigerant-system, No Power supply unit




NOTE
- It is necessary to change the connecter to CN40 on the outdoor unit control board (only one outdoor unit) when the group is set between other refrigerant systems.
- It is necessary to set on the remote controller by manual when group sets on the different refrigerant system. Please refer to remote controller installation manual.

2-4-3-9. ME remote controller, Multi-refrigerant-system, System Controller at TB7 side, No Power supply unit

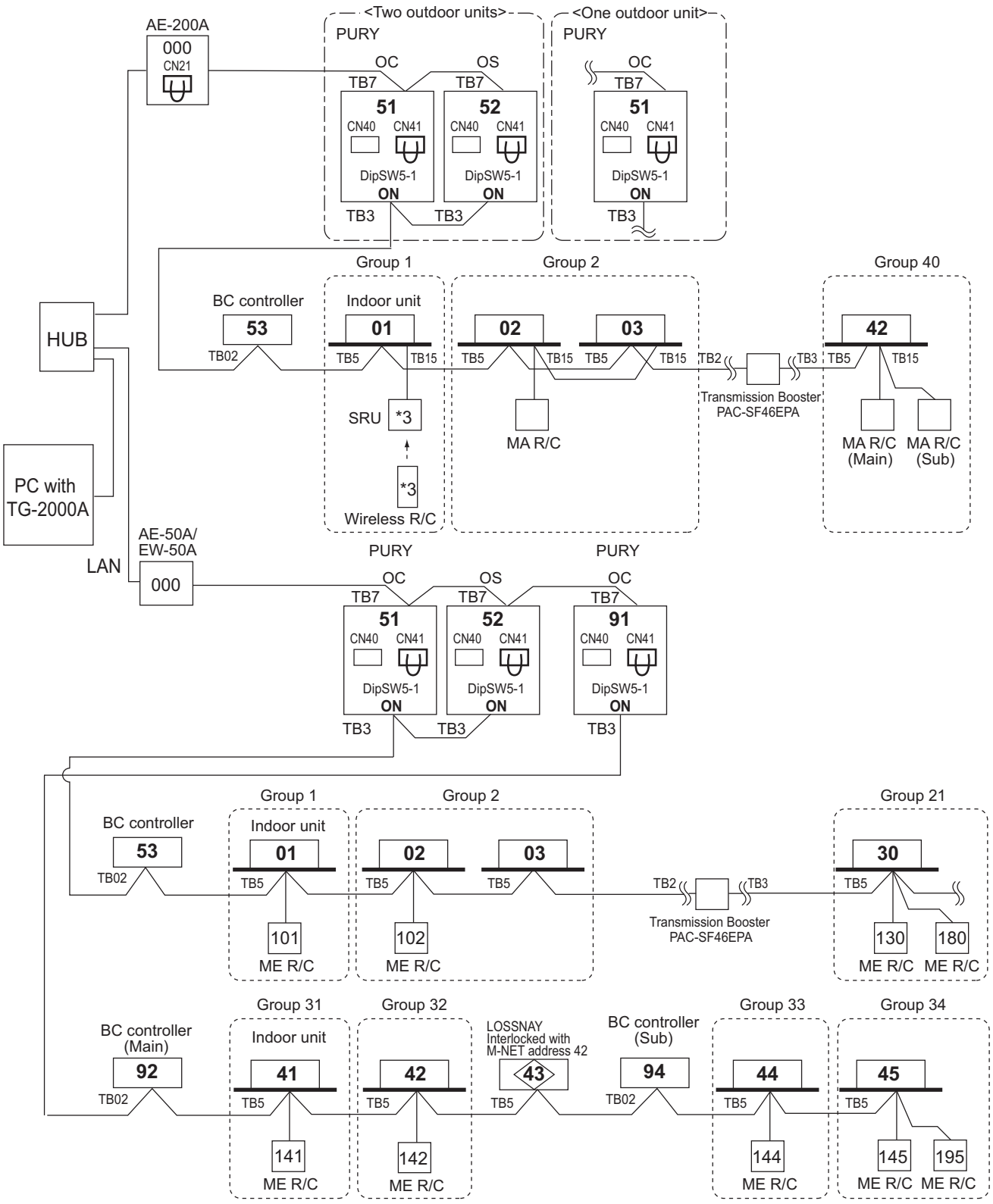



NOTE
- It is necessary to change the connecter to CN40 on the outdoor unit control board (only one outdoor unit) when the group is set between other refrigerant systems.
- If a PAC-SC51KUA cannot be used, connect the System controller to TB3 side. Up to three System controllers can be connected to TB3 side.

S.D. R2 575V

2-4-3-10. TG-2000A(*1)+AE-200A/AE-50A/EW-50A

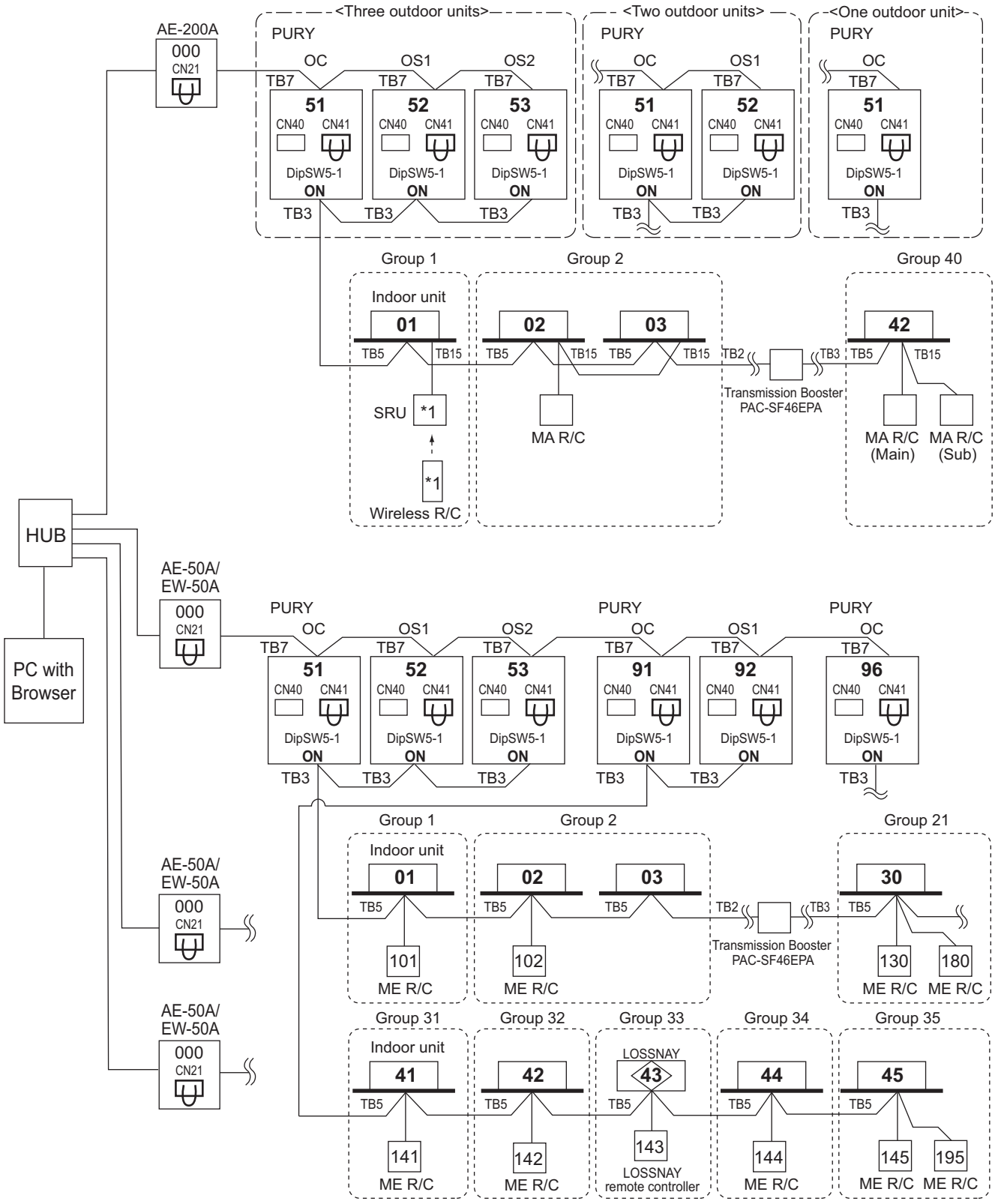
AE-200A can control max. 50 indoor units;
TG-2000A can control max. 40 AE-200A, AE-50A, and EW-50A;*2
TG-2000A can control max. 2000 indoor units.




*1 TG-2000A (Ver.6.5 or later) supports AE-200A/AE-50A (Ver.7.10 or later).
*2 When AE-200A connected with AE-50A is connected, the number of AE-50A will be the maximum controllable number.
TG-2000A can control up to 40 AE-200A/AE-50A or AE-200A without AE-50A connection.
*3 For Wireless R/C and Signal receiver unit (SRU), channel 1, 2 and 3 are selectable and should be set to same channel.

S.D. R2 575V

2-4-3-11. AE-200A + AE-50A/EW-50A
AE-200A can control max. 200 indoor units/via AE-50A.

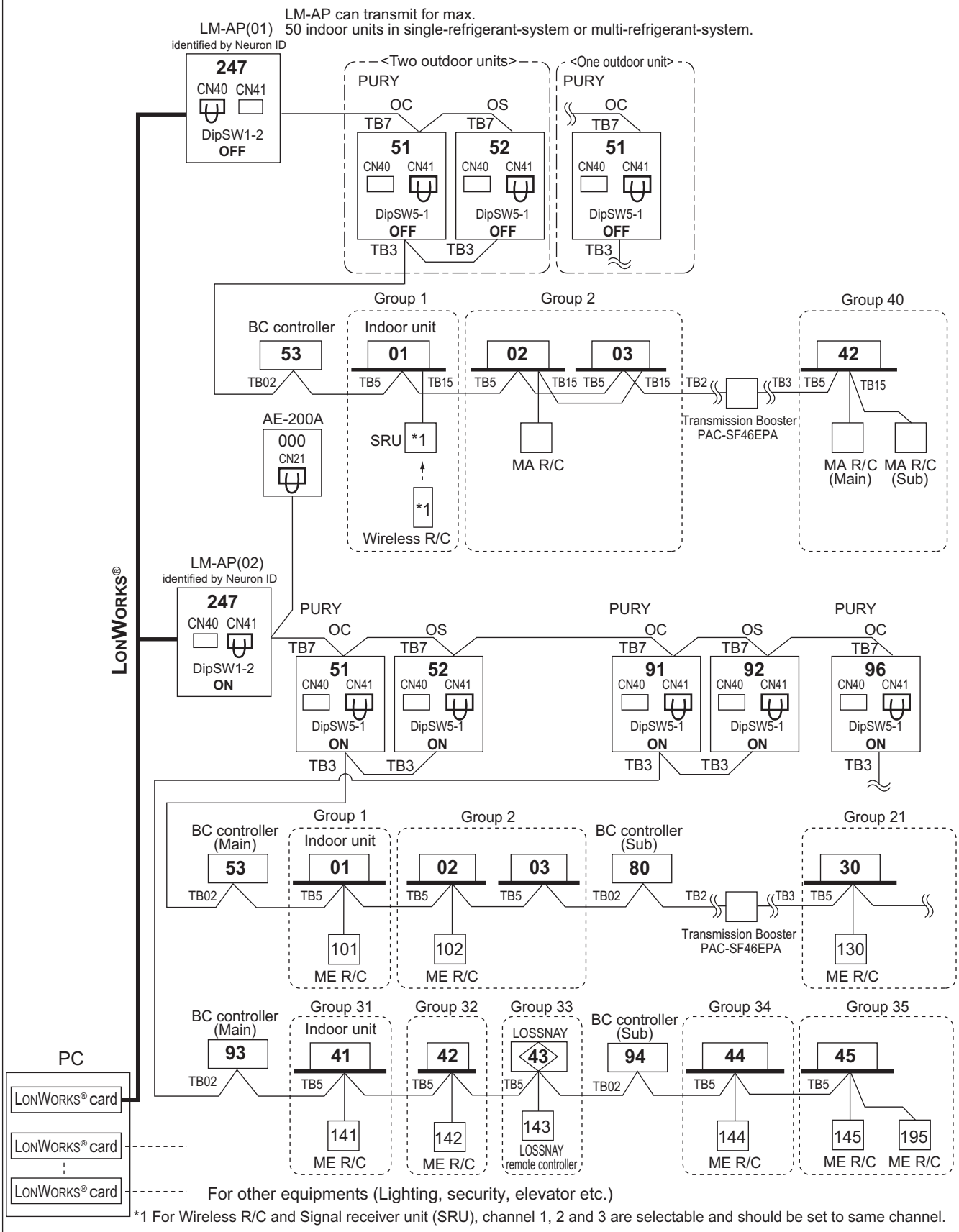



*1 For Wireless R/C and Signal receiver unit (SRU), channel 1, 2 and 3 are selectable and should be set to same channel.

S.D. R2 575V

2-4-3-12. LM-AP

LM-AP can transmit max. 50 indoor units;
If system controller (SC) is used, DipSW1-2 at LM-AP and DipSW5-1 at Outdoor unit should set to "ON".
Change Jumper from CN41 to CN40 to activate power supply to LM-AP itself for those LM-AP connected without system controller (SC).



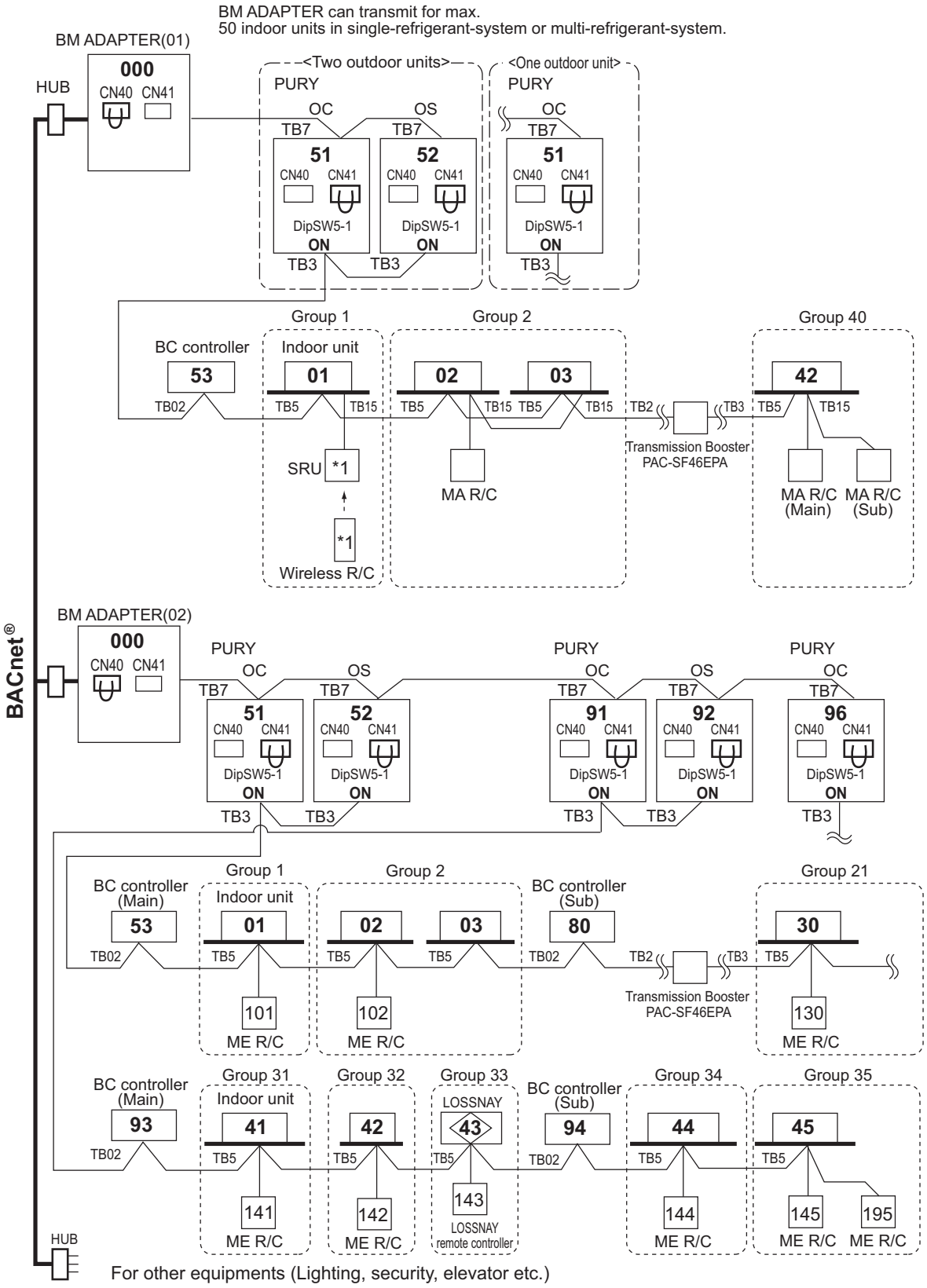

*1 For Wireless R/C and Signal receiver unit (SRU), channel 1, 2 and 3 are selectable and should be set to same channel.

S.D. R2 575V

2-4-3-13. BM ADAPTER

BM ADAPTER can transmit max. 50 indoor units;

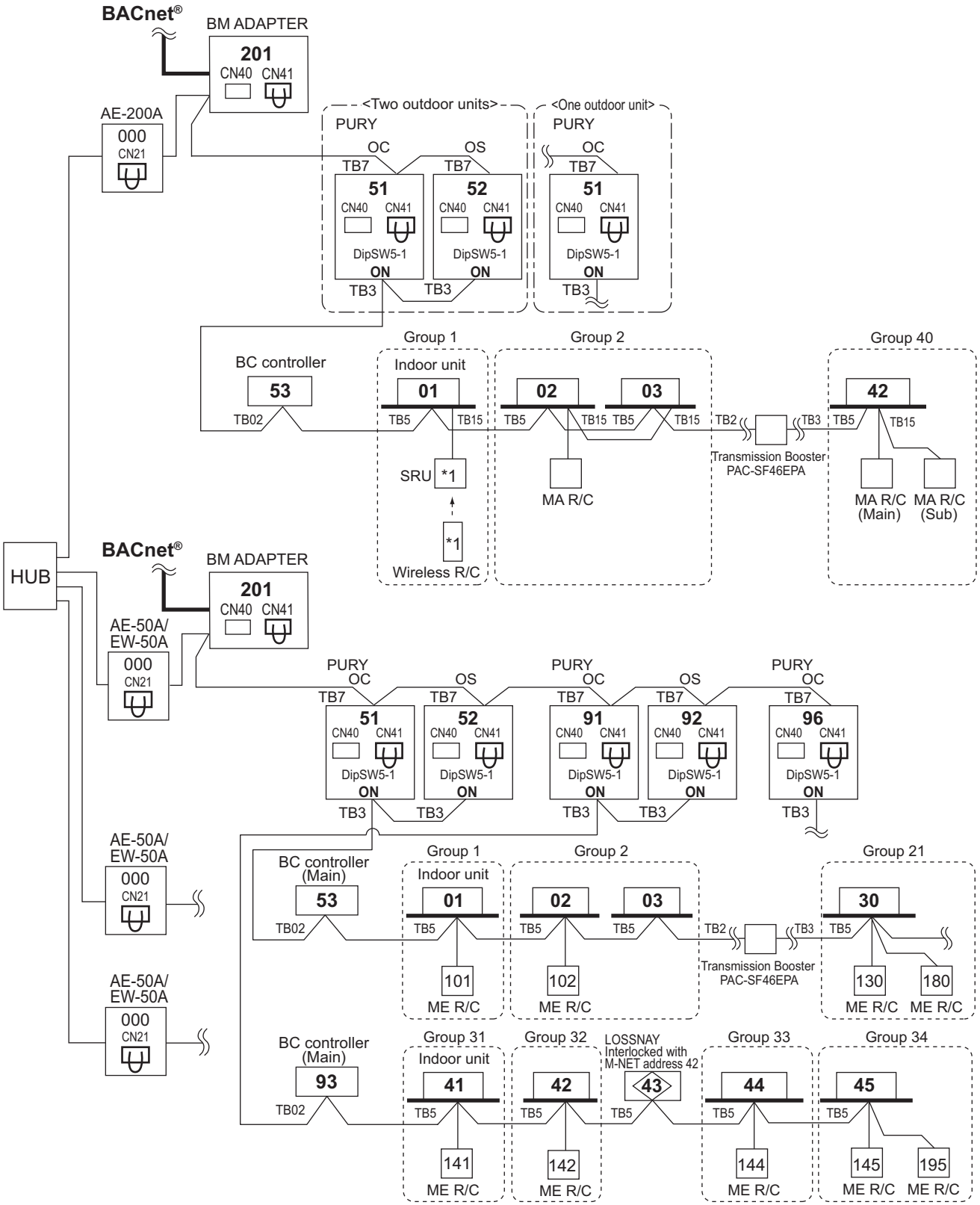
Change Jumper from CN41 to CN40 to activate power supply to BM ADAPTER itself for those BM ADAPTER connected without the power supply unit.




*1 For Wireless R/C and Signal receiver unit (SRU), channel 1, 2 and 3 are selectable and should be set to same channel.

S.D. R2 575V

2-4-3-14. BM ADAPTER+AE-200A/AE-50A/EW-50A




NOTE

•It is not necessary to connect the M-NET transmission line to the TB3 on BM ADAPTER. Leave the power jumper of BM ADAPTER connected to CN41.

*1 For Wireless R/C and Signal receiver unit (SRU), channel 1, 2 and 3 are selectable and should be set to same channel.

*2 Consult your dealer for restrictions when connecting both AE-200A/AE-50A and BM ADAPTER.

*3 In a system that uses AE-200A and/or AE-50A, each BM-ADAPTER must be connected to the M-NET line.

S.D. R2 575V

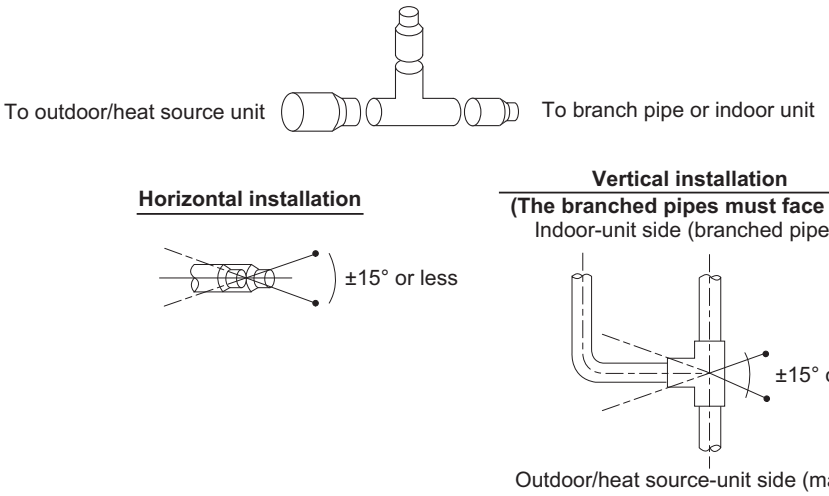
## 3-1. R410A Piping material

The maximum operation pressure of R410A air conditioner is 4.15 MPa [601 psi]. The refrigerant piping should ensure the safety under the maximum operation pressure. You shall follow the local industrial standard.

**Procedures for installing the branched pipes**

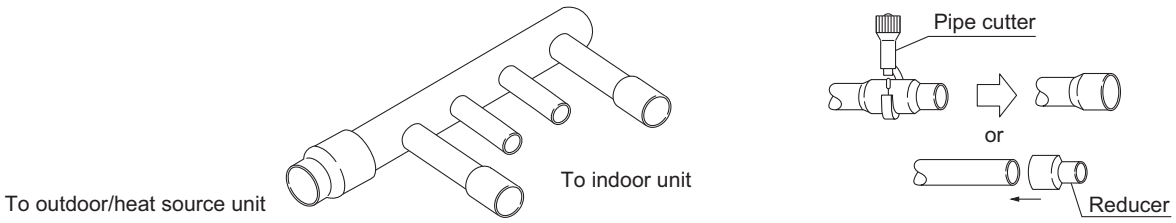
Refer to the instructions that came with the branched pipe kit (separately sold) for details.
[1] Branches on the indoor-unit side

■**Joint**




- Restrictions for installing the joint described here only apply to CMY-Y202S-G2 and CMY-Y302S-G2 in the gas line.
- CMY-Y202S-G2 and CMY-Y302S-G2 in the gas line must be installed horizontally (see figure above) or with the branched pipes facing up.
- If the size of the refrigerant pipe that is selected by following the instructions under 3-2. Piping Design does not match the size of the joint, use a reducer to connect them. A reducer is included in the kit.

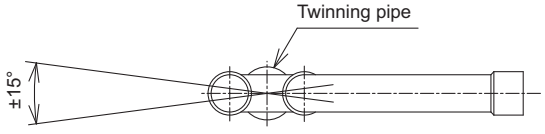
■**Header**




- No restrictions apply to the installation of the header.
- If the size of the refrigerant pipe that is selected by following the instructions under 3-2. Piping Design does not match the size of the header, cut the pipe to an appropriate size using a pipe cutter, or use a reducer to connect them.
- If the number of header branches exceeds the number of pipes to be connected, cap the unused header branches. Caps are included in the kit.

[2] Branches on the outdoor/heat source-unit side

Note. Refer to the figure below for the installation position of the twinning pipe.




Slope of the twinning pipes are at an angle within ±15° to the horizontal plane.

- Inclination of the branched pipes
  The inclination of the branched pipes must be ±15° or less against the horizontal plane.
  Excessive inclination of the branched pipes may damage the unit.

- Minimum length of the straight section of the pipe before the branched pipes
  Always use the pipes supplied in the branched pipe kit, and make sure the straight section of the pipe immediately before it connects to the branched pipe is at least 500 mm. Failure to do so may damage the unit.

S.D. R2 575V

## 3-2. Piping Design

### 3-2-1. IF 16 ports or less are in use, i.e., if only one BC controller is in use with no sub BC controller.

Note1. PURY systems do not require headers.
Note2. Indoor units sized P72-P96 should be connected to a BC controller using the Y-shaped CMY-R160-J1 joint adapter. These indoor units cannot use the same BC controller ports as other units. (They must use their own individual BC controller port.)
Note3. As bends cause pressure loss on transportation of refrigerant, the fewer bends in the system, the better it is. Piping length needs to factor in the actual length and equivalent length in which the bends are counted.
Note4. Indoor units connected to the BC controller sharing one port cannot operate separately in heating and cooling modes simultaneously; i.e., they must function in either heating or cooling in tandem.
Note5. Indoor unit capacities are included in the model name. For example, PEFY-P24NMSU-E has a capacity of 24,000 BTUs.
Note6. Total "downstream indoor capacity" is the total of all the indoor units connected downstream. For example, PEFY-P24NMSU-E + PEFY-P12NMSU-E: Total Indoor Unit Capacity = P24 + P12 = P36.

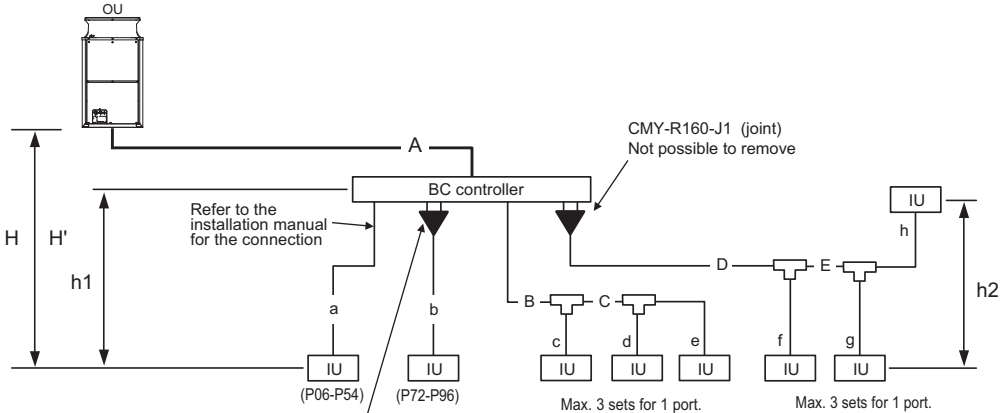



Fig. 3-2-1-1 Piping scheme

**Piping length limitation** **(m [ft.])**

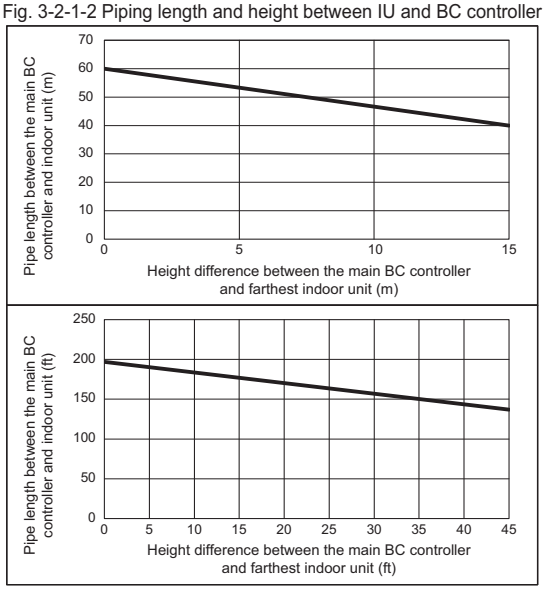
| Item | Piping in the figure | Max. length | Max. equivalent length |
|---|---|---|---|
| Total piping length | A+B+C+D+E+a+b+c+d+e+f+g+h | *1 | - |
| Farthest IU from OU | A+D+E+h | 165 [541'] | 190 [623'] |
| Distance between OU and BC | A | 110 [360'] *1 | 110 [360'] *1 |
| Farthest IU from BC controller | D+E+h | 40 [131'] *2 | 40 [131'] *2 |
| Height between OU and IU (OU above IU) | H | 50 [164'] *5 | - |
| Height between OU and IU (OU under IU) | H' | 40 [131'] *6 | - |
| Height between IU and BC | h1 | 15 [49'] (10 [32']) *3 | - |
| Height between IU and IU | h2 | 30 [98'] (20 [65']) *4 | - |

**Bent equivalent length "M"**

| Outdoor Model | M (m/bends [ft./bends]) |
|---|---|
| P72ZKMU | 0.35 [1.15'] |
| P96ZKMU | 0.42 [1.38'] |
| P120ZKMU | 0.50 [1.64'] |
| P144ZKMU | 0.50 [1.64'] |

OU : Outdoor Unit ; IU : Indoor Unit ; BC : BC controller
*1. Please refer to 3-2-4.
*2. Farthest Indoor from BC controller "D+E+h" can exceed 40 m [131 ft.] till 60 m [197 ft.] if no Indoor sized P72, P96 connected. Depending on the vertical difference between the indoor units and the BC controllers, the refrigerant piping can be extended to a maximum of 60 m [197 ft.]. Details refer to Fig.3-2-1-2
*3. Height between Indoor sized P72, P96 and BC must be less than 10 m [32 ft.], if any.
*4. Height between Indoor sized P72, P96 and IU must be less than 20 m [65 ft.], if any.
*5. 90 m [295 ft.] is available depending on the model and installation conditions. For more detailed information, contact your local distributor.
*6. 60 m [197 ft.] is available depending on the model and installation conditions. For more detailed information, contact your local distributor.

Fig. 3-2-1-2 Piping length and height between IU and BC controller




**Piping "A"size selection rule** **(mm [in.])**

| Outdoor Model | Pipe(High pressure) | Pipe(Low pressure) |
|---|---|---|
| P72ZKMU | ø15.88 [5/8"] | ø19.05 [3/4"] |
| P96ZKMU | ø19.05 [3/4"] | ø22.20 [7/8"] |
| P120ZKMU | ø19.05 [3/4"] | ø28.58 [1-1/8"] |
| P144ZKMU | ø22.20 [7/8"] | ø28.58 [1-1/8"] |

**Piping "B", "C", "D", "E" size seleciton rule** **(mm [in.])**

| Total down-stream Indoor capacity | Pipe(Liquid) | Pipe(Gas) |
|---|---|---|
| P54 or less | ø9.52 [3/8"] | ø15.88 [5/8"] |
| P55-P72 | ø9.52 [3/8"] | ø19.05 [3/4"] |
| P73-P96 | ø9.52 [3/8"] | ø22.20 [7/8"] |

**Piping "a", "b", "c", "d", "e", "f", "g", "h" size selection rule** **(mm [in.])**

| Indoor Unit size | Pipe(Liquid) | Pipe(Gas) |
|---|---|---|
| P06 to P18 | ø6.35 [1/4"] | ø12.70 [1/2"] |
| P24 to P54 | ø9.52 [3/8"] | ø15.88 [5/8"] |
| P72 | ø9.52 [3/8"] | ø19.05 [3/4"] |
| P96 | ø9.52 [3/8"] | ø22.20 [7/8"] |

S.D. R2 575V

## 3-2-2. IF more than 16 ports are in use, or if there is more than one BC controller in use for one outdoor unit

Note1. PURY systems do not require headers.
Note2. Indoor units sized P72-P96 should be connected to a BC controller using the Y-shaped CMY-R160-J1 joint adapter. These indoor units cannot use the same BC controller ports as other units. (They must use their own individual BC controller port.)
Note3. As bends cause pressure loss on transportation of refrigerant, the fewer bends in the system, the better it is. Piping length needs to factor in the actual length and equivalent length in which the bends are counted.
Note4. Indoor units connected to the BC controller sharing one port cannot operate separately in heating and cooling modes simultaneously; i.e., they must function in either heating or cooling in tandem.
Note5. For sub BC controller CMB-P-NU-GB1, the total connectable indoor unit capacity can be 126,000 BTUs or less. If two sub BC controllers are used, the total indoor unit capacity connected to BOTH sub BC controllers also cannot exceed 126,000 BTUs. For sub BC controller CMB-P1016NU-HB1 the total connectable indoor unit capacity can be 126,000 BTUs or less. However, if two sub controllers are used, the total indoor unit capacity connected to BOTH sub controllers must NOT exceed 168,000 BTUs.
Note6. Indoor unit capacities are included in the model name. For example, PEFY-P24NMSU-E has a capacity of 24,000 BTUs.
Note7. Total "downstream indoor capacity" is the total of all the indoor units connected downstream. For example, PEFY-P24NMSU-E + PEFY-P12NMSU-E: Total Indoor Unit Capacity = P24 + P12 = P36.

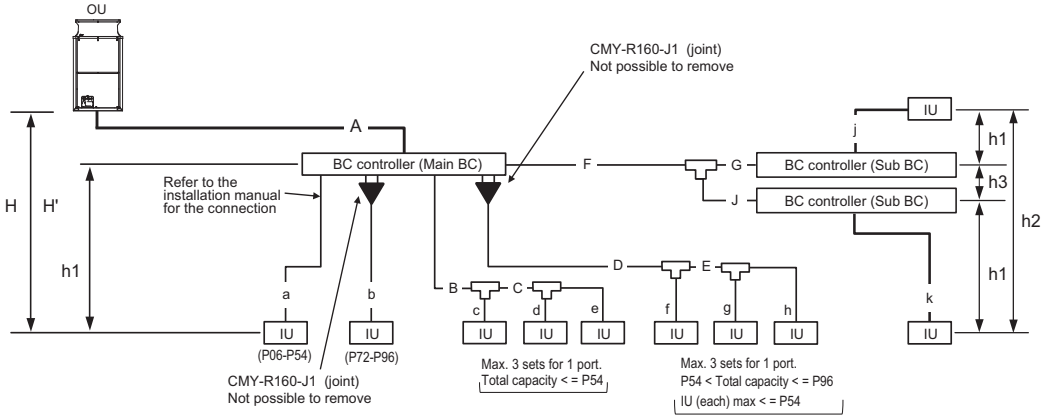



Fig. 3-2-2-1 Piping scheme

OU : Outdoor unit, IU : Indoor unit

**Piping length limitation** (m [ft.])

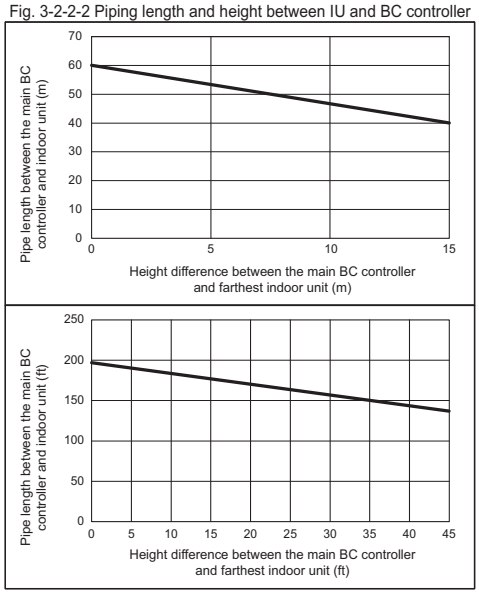
| Item | Piping in the figure | Max. length | Max. equivalent length |
|---|---|---|---|
| Total piping length | A+B+C+D+E+F+G+J+a+b+c+d+e+f+g+h+j+k | *1 | - |
| Farthest IU from OU | A+F+J+k | 165 [541'] | 190 [623'] |
| Distance between OU and BC | A | 110 [360'] *1 | 110 [360'] *1 |
| Farthest IU from BC controller | D+E+h or F+J+k | 40 [131'] *2 | 40 [131'] *2 |
| Height between OU and IU (OU above IU) | H | 50 [164'] *6 | - |
| Height between OU and IU (OU under IU) | H' | 40 [131'] *7 | - |
| Height between IU and BC | h1 | 15 [49'] (10 [32']) *3 | - |
| Height between IU and IU | h2 | 30 [98'] (20 [65']) *4 | - |
| Height between BC(Main or Sub) and BC(Sub) | h3 | 15 [49'] (10 [32']) *5 | - |

**Bent equivalent length "M"**

| Outdoor Model | M (m/bends [ft./bends]) |
|---|---|
| P72ZKMU | 0.35 [1.15'] |
| P96ZKMU | 0.42 [1.38'] |
| P120ZKMU | 0.50 [1.64'] |
| P144ZKMU | 0.50 [1.64'] |

OU : Outdoor Unit ; IU : Indoor Unit ; BC : BC controller
*1. Please refer to 3-2-4.
*2. Farthest Indoor from BC controller "D+E+h or F+J+k" can exceed 40 m [131 ft.] till 60 m [197 ft.] if no Indoor sized P72, P96 connected. Depending on the vertical difference between the indoor units and the BC controllers, the refrigerant piping can be extended to a maximum of 60 m [197 ft.]. Details refer to Fig.3-2-2-2
*3. Height between Indoor sized P72, P96 and BC must be less than 10 m [32 ft.], if any.
*4. Height between Indoor sized P72, P96 and IU must be less than 20 m [65 ft.], if any.
*5. Height between BC (Main or Sub) and BC (Sub) must be less than 10 m [32 ft.] if IU size is P72, P96.
*6. 90 m [295 ft.] is available depending on the model and installation conditions. For more detailed information, contact your local distributor.
*7. 60 m [197 ft.] is available depending on the model and installation conditions. For more detailed information, contact your local distributor.

Fig. 3-2-2-2 Piping length and height between IU and BC controller




**Piping "A"size selection rule** (mm [in.])

| Outdoor Model | Pipe(High pressure) | Pipe(Low pressure) |
|---|---|---|
| P72ZKMU | ø15.88 [5/8"] | ø19.05 [3/4"] |
| P96ZKMU | ø19.05 [3/4"] | ø22.20 [7/8"] |
| P120ZKMU | ø19.05 [3/4"] | ø28.58 [1-1/8"] |
| P144ZKMU | ø22.20 [7/8"] | ø28.58 [1-1/8"] |

**Piping "B", "C", "D", "E" size selection rule** (mm [in.])

| Total down-stream Indoor capacity | Pipe(Liquid) | Pipe(Gas) |
|---|---|---|
| P54 or less | ø9.52 [3/8"] | ø15.88 [5/8"] |
| P55-P72 | ø9.52 [3/8"] | ø19.05 [3/4"] |
| P73-P96 | ø9.52 [3/8"] | ø22.20 [7/8"] |

**Piping "F", "G", "J" size selection rule** (mm [in.])

| Total down-stream Indoor capacity | Pipe(Liquid) | Pipe(HP Gas) | Pipe(LP Gas) |
|---|---|---|---|
| P72 or less | ø9.52 [3/8"] | ø15.88 [5/8"] | ø19.05 [3/4"] |
| P73 to P108 | ø9.52 [3/8"] | ø19.05 [3/4"] | ø22.20 [7/8"] |
| P109 to P126 | ø12.70 [1/2"] | ø19.05 [3/4"] | ø28.58 [1-1/8"] |
| P127 to P144 | ø12.70 [1/2"] | ø22.20 [7/8"] | ø28.58 [1-1/8"] |
| P145 to P168 | ø15.88 [5/8"] | ø22.20 [7/8"] | ø28.58 [1-1/8"] |

HP : High pressure, LP:Low pressure

**Piping "a", "b", "c", "d", "e", "f", "g", "h", "j", "k" saize selection rule** (mm [in.])

| Indoor Unit size | Pipe(Liquid) | Pipe(Gas) |
|---|---|---|
| P06 to P18 | ø6.35 [1/4"] | ø12.70 [1/2"] |
| P24 to P54 | ø9.52 [3/8"] | ø15.88 [5/8"] |
| P72 | ø9.52 [3/8"] | ø19.05 [3/4"] |
| P96 | ø9.52 [3/8"] | ø22.20 [7/8"] |

## 3-2-3. IF more than 16 ports are in use, or if there is more than one BC controller in use for two outdoor units

Note1. PURY systems do not require headers.
Note2. Indoor units sized P72-P96 should be connected to a BC controller using the Y-shaped CMY-R160-J1 joint adapter. These indoor units cannot use the same BC controller ports as other units. (They must use their own individual BC controller port.)
Note3. As bends cause pressure loss on transportation of refrigerant, the fewer bends in the system, the better it is. Piping length needs to factor in the actual length and equivalent length in which the bends are counted.
Note4. Indoor units connected to the BC controller sharing one port cannot operate separately in heating and cooling modes simultaneously; i.e., they must function in either heating or cooling in tandem.
Note5. For sub BC controller CMB-P-NU-GB1, the total connectable indoor unit capacity can be 126,000 BTUs or less. If two sub BC controllers are used, the total indoor unit capacity connected to BOTH sub BC controllers also cannot exceed 126,000 BTUs.
For sub BC controller CMB-P1016NU-HB1 the total connectable indoor unit capacity can be 126,000 BTUs or less. However, if two sub controllers are used, the total indoor unit capacity connected to BOTH sub controllers must NOT exceed 168,000 BTUs.
Note6. Indoor unit capacities are included in the model name. For example, PEFY-P24NMSU-E has a capacity of 24,000 BTUs.
Note7. Total "downstream indoor capacity" is the total of all the indoor units connected downstream.
For example, PEFY-P24NMSU-E + PEFY-P12NMSU-E: Total Indoor Unit Capacity = P24 + P12 = P36.

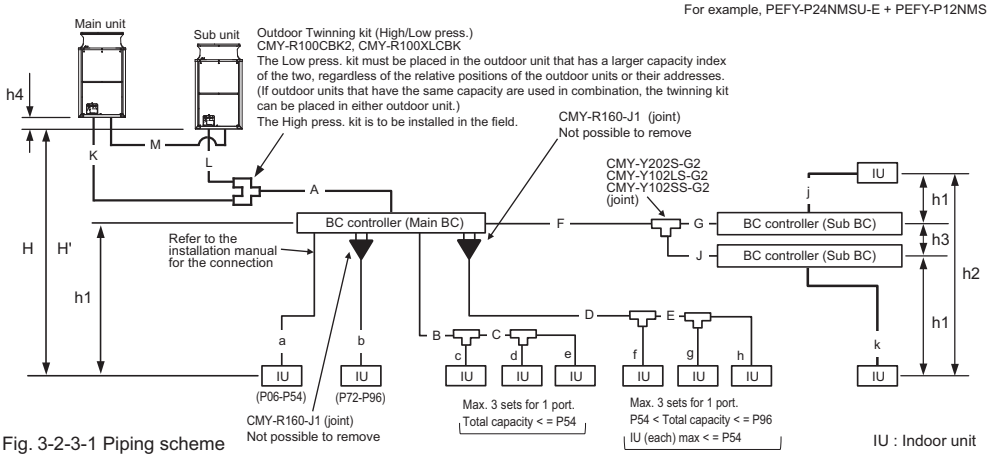



Fig. 3-2-3-1 Piping scheme

IU : Indoor unit

**Piping length limitation** (m [ft.])

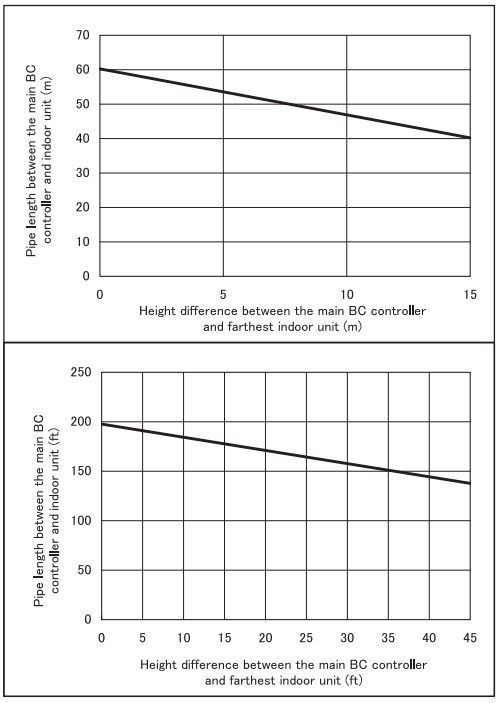
| Item | Piping in the figure | Max. length | Max. equivalent length |
|---|---|---|---|
| Total piping length | K+L+M+A+B+C+D+E+F+G+J+a+b+c+d+e+f+g+h+j+k | *1 | - |
| Farthest IU from OU | K(L)+A+F+J+k | 165 [541'] | 190 [623'] |
| Distance between OU and BC | K(L)+A | 110 [360'] *1 | 110 [360'] *1 |
| Farthest IU from BC controller | D+E+h or F+G+j or F+J+k | 40 [131'] *2 | 40 [131'] *2 |
| Height between OU and IU (OU above IU) | H | 50 [164'] *6 | - |
| Height between OU and IU (OU under IU) | H' | 40 [131'] *7 | - |
| Height between IU and BC | h1 | 15 [49'] (10 [32']) *3 | - |
| Height between IU and IU | h2 | 30 [98'] (20 [65']) *4 | - |
| Height between BC(Main or Sub) and BC(Sub) | h3 | 15 [49'] (10 [32']) *5 | - |
| Distance between Main unit and Sub unit | K+M or M | 5 [16'] | - |
| Height between Main unit and Sub unit | h4 | 0.1 [0.3'] | - |

**Bent equivalent length "M"**

| Outdoor Model | M (m/bends [ft./bends]) |
|---|---|
| P168ZSKMU | 0.50 [1.64'] |
| P192ZSKMU | 0.50 [1.64'] |
| P216ZSKMU | 0.50 [1.64'] |
| P240ZSKMU | 0.50 [1.64'] |
| P264ZSKMU | 0.70 [2.30'] |
| P288ZSKMU | 0.70 [2.30'] |

OU : Outdoor Unit ; IU : Indoor Unit ; BC : BC controller
*1. Please refer to 3-2-4.
*2. Farthest Indoor from BC controller "D+E+h or F+G+j or F+J+k" can exceed 40 m [131 ft.] till 60 m [197 ft.] if no Indoor sized P72, P96 connected.
Depending on the vertical difference between the indoor units and the BC controllers, the refrigerant piping can be extended to a maximum of 60 m [197 ft.]. Details refer to Fig.3-2-3-2
*3. Height between Indoor sized P72, P96 and BC must be less than 10 m [32 ft.], if any.
*4. Height between Indoor sized P72, P96 and IU must be less than 20 m [65 ft.], if any.
*5. Height between BC (Main or Sub) and BC (Sub) must be less than 10 m [32 ft.] if IU size is P72, P96.
*6. 90 m [295 ft.] is available depending on the model and installation conditions. For more detailed information, contact your local distributor.
*7. 60 m [197 ft.] is available depending on the model and installation conditions. For more detailed information, contact your local distributor.

Fig. 3-2-3-2 Piping length and height between IU and BC controller




**Piping "A"size selection rule** (mm [in.])

| Outdoor Model | Pipe(High pressure) | Pipe(Low pressure) |
|---|---|---|
| P168ZSKMU | ø22.20 [7/8"] | ø28.58 [1-1/8"] |
| P192ZSKMU | ø22.20 [7/8"] | ø28.58 [1-1/8"] |
| P216ZSKMU | ø28.58 [1-1/8"] | ø28.58 [1-1/8"] |
| P240ZSKMU | ø28.58 [1-1/8"] | ø34.93 [1-3/8"] |
| P264ZSKMU | ø28.58 [1-1/8"] | ø34.93 [1-3/8"] |
| P288ZSKMU | ø28.58 [1-1/8"] | ø34.93 [1-3/8"] |

**Piping "B", "C", "D", "E" size seleciton rule** (mm [in.])

| Total down-stream Indoor capacity | Pipe(Liquid) | Pipe(Gas) |
|---|---|---|
| P54 or less | ø9.52 [3/8"] | ø15.88 [5/8"] |
| P55-P72 | ø9.52 [3/8"] | ø19.05 [3/4"] |
| P73-P96 | ø9.52 [3/8"] | ø22.20 [7/8"] |

**Piping "F", "G", "J" size selection rule** (mm [in.])

| Total down-stream Indoor capacity | Pipe(Liquid) | Pipe(HP Gas) | Pipe(LP Gas) |
|---|---|---|---|
| P72 or less | ø9.52 [3/8"] | ø15.88 [5/8"] | ø19.05 [3/4"] |
| P73 to P108 | ø9.52 [3/8"] | ø19.05 [3/4"] | ø22.20 [7/8"] |
| P109 to P126 | ø12.70 [1/2"] | ø19.05 [3/4"] | ø28.58 [1-1/8"] |
| P127 to P144 | ø12.70 [1/2"] | ø22.20 [7/8"] | ø28.58 [1-1/8"] |
| P145 to P168 | ø15.88 [5/8"] | ø22.20 [7/8"] | ø28.58 [1-1/8"] |

HP : High pressure, LP:Low pressure

**Piping "K", "L", "M" size selection rule** (mm [in.])

| Outdoor Model | Pipe(High pressure) | Pipe(Low pressure) |
|---|---|---|
| P72ZKMU | ø15.88 [5/8"] | ø19.05 [3/4"] |
| P96ZKMU | ø19.05 [3/4"] | ø22.20 [7/8"] |
| P120ZKMU | ø19.05 [3/4"] | ø28.58 [1-1/8"] |
| P144ZKMU | ø22.20 [7/8"] | ø28.58 [1-1/8"] |

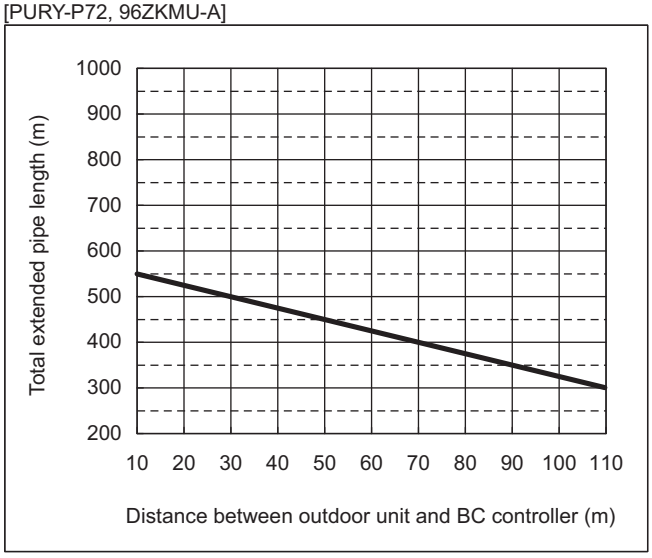
**Piping "a", "b", "c", "d", "e", "f", "g", "h", "j", "k" size selection rule** (mm [in.])

| Indoor Unit size | Pipe(Liquid) | Pipe(Gas) |
|---|---|---|
| P06 to P18 | ø6.35 [1/4"] | ø12.70 [1/2"] |
| P24 to P54 | ø9.52 [3/8"] | ø15.88 [5/8"] |
| P72 | ø9.52 [3/8"] | ø19.05 [3/4"] |
| P96 | ø9.52 [3/8"] | ø22.20 [7/8"] |

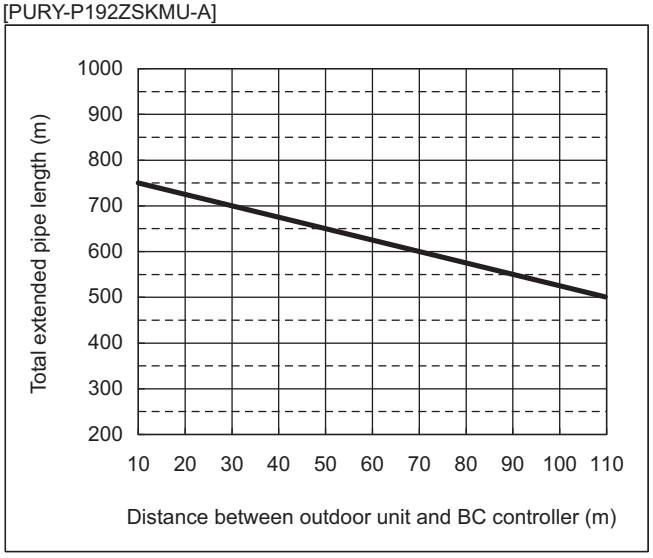
S.D. R2 575V

### 3-2-4. Total piping length restrictions(m)

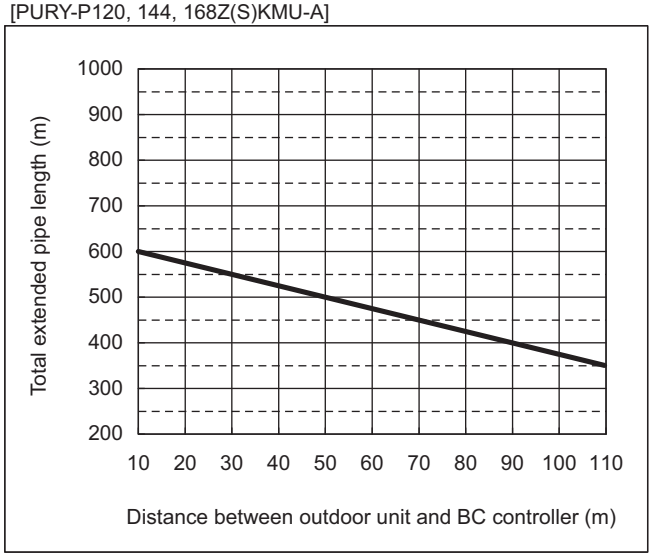
[PURY-P72, 96ZKMU-A]



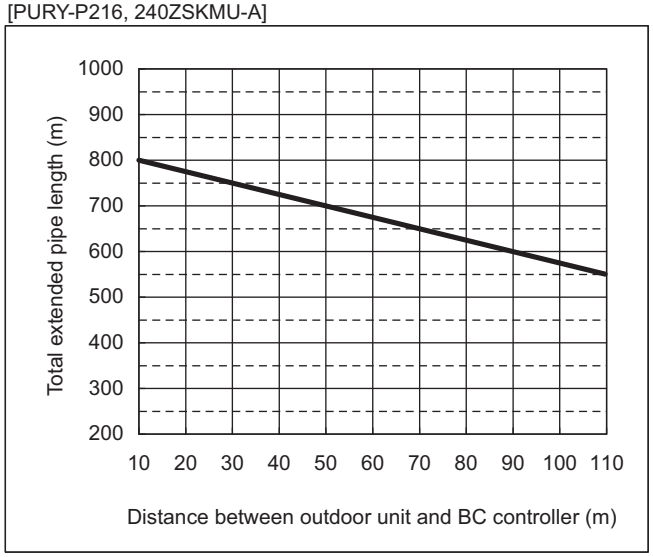

[PURY-P192ZSKMU-A]



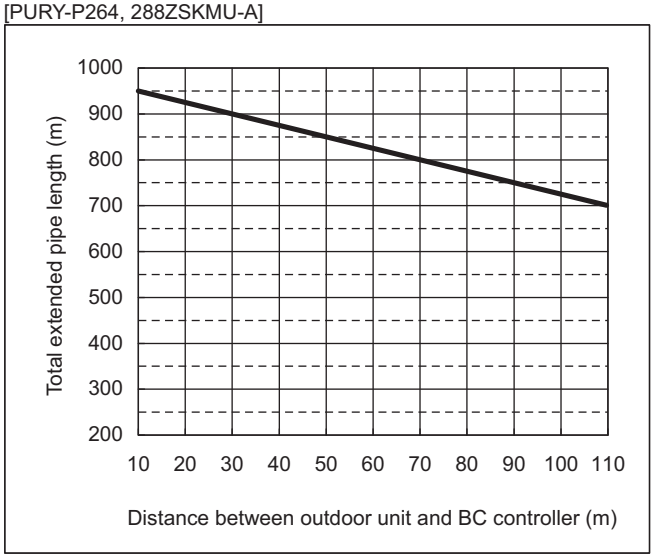

[PURY-P120, 144, 168Z(S)KMU-A]




[PURY-P216, 240ZSKMU-A]



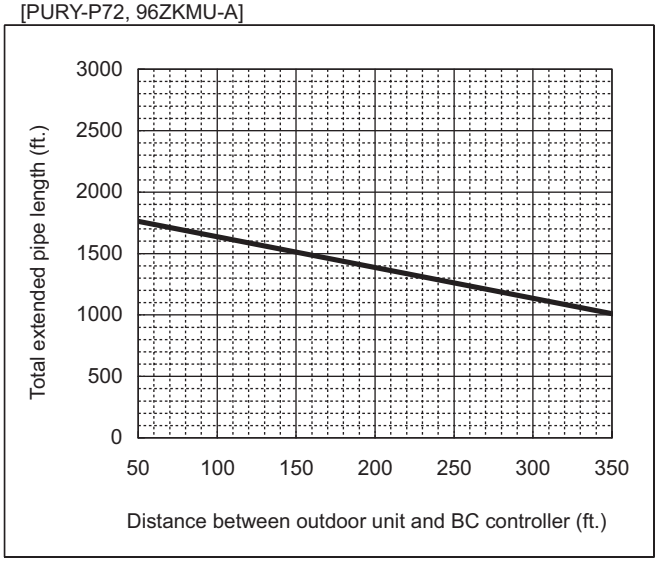

[PURY-P264, 288ZSKMU-A]



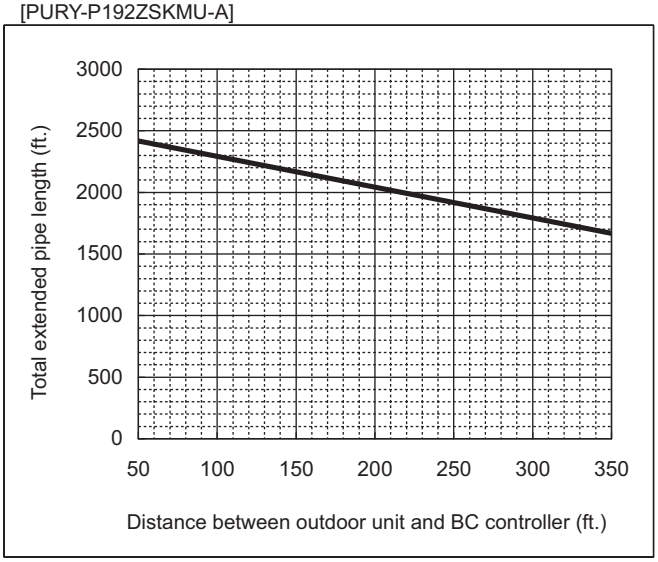

S.D. R2 575V

## Total piping length restrictions(ft.)

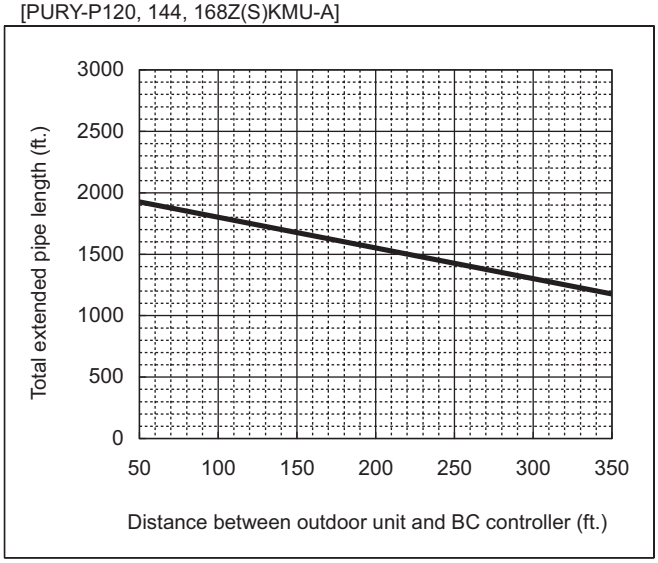
[PURY-P72, 96ZKMU-A]



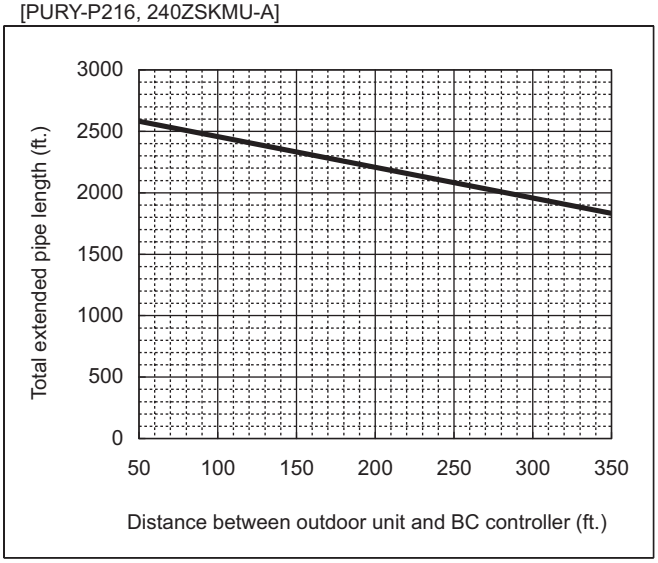

[PURY-P192ZSKMU-A]



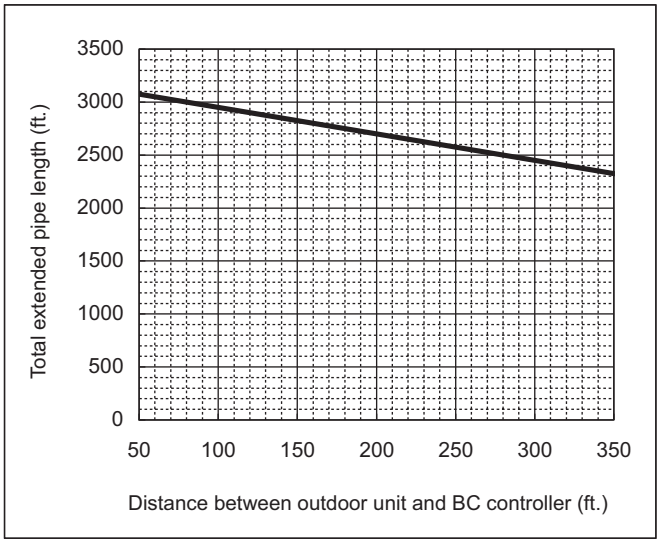

[PURY-P120, 144, 168Z(S)KMU-A]




[PURY-P216, 240ZSKMU-A]



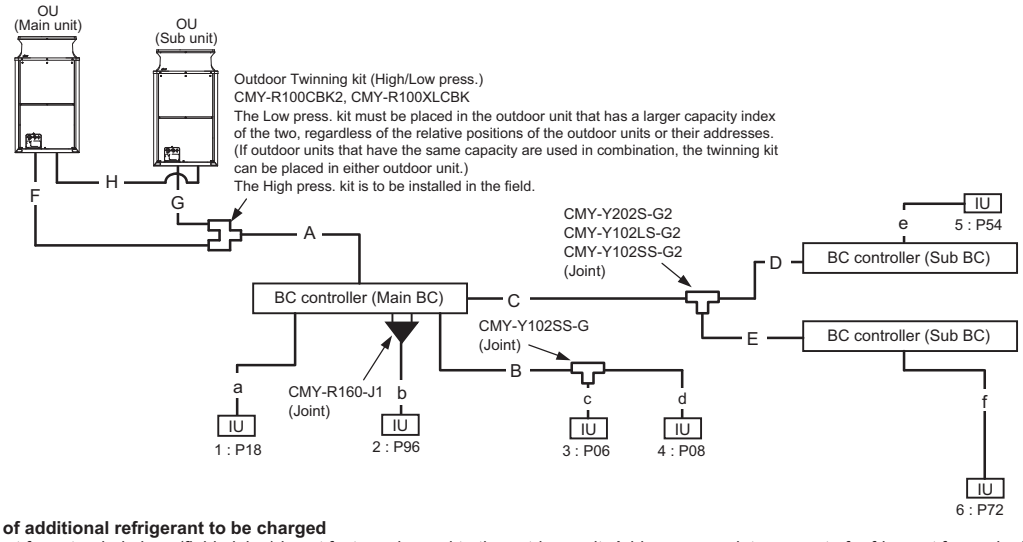

[PURY-P264, 288ZSKMU-A]




S.D. R2 575V

## 3-3. Refrigerant charging calculation

### Sample connection (with 3 BC controller and 6 indoor units)




**■Amount of additional refrigerant to be charged**

Refrigerant for extended pipes (field piping) is not factory-charged to the outdoor unit. Add an appropriate amount of refrigerant for each pipes on site.
Record the size of each high pressure pipe and liquid pipe, and the amount of refrigerant that was charged on the outdoor unit for future reference.

**■Calculating the amount of additional refrigerant to be charged**

The amount of refrigerant to be charged is calculated with the size of the on-site-installed high pressure pipes and liquid pipes, and their length.
Calculate the amount of refrigerant to be charged according to the formula below.
* When connecting PLFY-P08NBMU-E2, add 0.3kg (10.6 oz) of refrigerant per indoor unit.
Round up the calculation result to the nearest 0.1kg[4oz]. (i.e., 16.08 kg = 16.1 kg)

**<Amount of additional refrigerant to be charged>**

**■Calculating the amount of additional refrigerant to be charged**

• When the piping length from the outdoor unit to the farthest indoor unit is 30.5 m (100 ft) or shorter

| Additional refrigerant charge (kg)[oz] | = | High pressure pipe size Total length of ø 28.58mm[1-1/8 in] (m) × 0.36(kg/m) (ft) × 3.88(oz/ft) | + | High pressure pipe size Total length of ø 22.2mm[7/8 in] (m) × 0.23(kg/m) (ft) × 2.48(oz/ft) | + | High pressure pipe size Total length of ø 19.05mm[3/4 in] (m) × 0.16(kg/m) (ft) × 1.73(oz/ft) | + | High pressure pipe size Total length of ø 15.88mm[5/8 in] (m) × 0.11(kg/m) (ft) × 1.19(oz/ft) |
|---|---|---|---|---|---|---|---|---|

| + | Liquid Piping size Total length of ø 15.88mm[5/8 in] (m) × 0.2(kg/m) (ft) × 2.16(oz/ft) | + | Liquid Piping size Total length of ø 12.7mm[1/2 in] (m) × 0.12(kg/m) (ft) × 1.30(oz/ft) | + | Liquid Piping size Total length of ø 9.52mm[3/8 in] (m) × 0.06(kg/m) (ft) × 0.65(oz/ft) | + | Liquid Piping size Total length of ø 6.35mm[1/4 in] (m) ×0.024(kg/m) (ft) ×0.26(oz/ft) |
|---|---|---|---|---|---|---|---|

| + | Total Outdoor Unit Model Name | Charged amount per BC controller (Standard / Main) |
|---|---|---|
| | P72 | 3.0 kg [106 oz] |
| | P96 | 4.5 kg [160 oz] |
| | P120 | |
| | P144 | 6.0 kg [212 oz] |
| | P168 | |
| | P192 | |
| | P216 | |
| | P240 | |
| | P264 | |
| | P288 | |

| + | BC controller (Main) HA-Type |
|---|---|
| | 2.0 kg [71 oz] |

| + | BC controller (Sub) Total Units | BC controller (Sub) Per Unit |
|---|---|---|
| | 1 | 1.0 kg [35 oz] |
| | 2 | 2.0 kg [71 oz] |

| + | Total Capacity of Connected Indoor Units | Charged amount |
|---|---|---|
| | Models ~ 27 | 2.0 kg [71 oz] |
| | Models 28 ~ 54 | 2.5 kg [89 oz] |
| | Models 55 ~ 126 | 3.0 kg [106 oz] |
| | Models 127 ~ 144 | 3.5 kg [124 oz] |
| | Models 145 ~ 180 | 4.5 kg [159 oz] |
| | Models 181 ~ 234 | 5.0 kg [177 oz] |
| | Models 235 ~ 273 | 6.0 kg [212 oz] |
| | Models 274 ~ 307 | 8.0 kg [283 oz] |
| | Models 308 ~ 342 | 9.0 kg [318 oz] |
| | Models 343 ~ 411 | 10.0 kg [353 oz] |
| | Models 412 ~ 450 | 12.0 kg [424 oz] |
| | Models 451 ~ | 14.0 kg [494 oz] |

| + | Model name | | Charged amount for outdoor unit(s) |
|---|---|---|---|
| | Single | P72, P96 | 0 kg [0 oz] |
| | | P120, P144 | 5.5 kg [195 oz] |
| | Combination | P168, P192 | 0 kg [0 oz] |
| | | P216 | 5.5 kg [195 oz] |
| | | P240, P264, P288 | 11.0 kg [390 oz] |

S.D. R2 575V

• When the piping length from the outdoor unit to the farthest indoor unit is longer than 30.5 m (100 ft)

| Additional refrigerant charge | = | High pressure pipe size Total length of ø 28.58mm[1-1/8 in] | + | High pressure pipe size Total length of ø 22.2mm[7/8 in] | + | High pressure pipe size Total length of ø 19.05mm[3/4 in] | + | High pressure pipe size Total length of ø 15.88mm[5/8 in] |
|---|---|---|---|---|---|---|---|---|
| (kg)[oz] | | (m) × 0.33(kg/m)<br>(ft) × 3.55(oz/ft) | | (m) × 0.21(kg/m)<br>(ft) × 2.26(oz/ft) | | (m) × 0.14(kg/m)<br>(ft) × 1.51(oz/ft) | | (m) × 0.1(kg/m)<br>(ft) × 1.08(oz/ft) |

| + | Liquid Piping size Total length of ø 15.88mm[5/8 in] | + | Liquid Piping size Total length of ø 12.7mm[1/2 in] | + | Liquid Piping size Total length of ø 9.52mm[3/8 in] | + | Liquid Piping size Total length of ø 6.35mm[1/4 in] |
|---|---|---|---|---|---|---|---|
| | (m) × 0.18(kg/m)<br>(ft) × 1.94(oz/ft) | | (m) × 0.11(kg/m)<br>(ft) × 1.19(oz/ft) | | (m) × 0.054(kg/m)<br>(ft) × 0.59(oz/ft) | | (m) ×0.021(kg/m)<br>(ft) ×0.23(oz/ft) |

| + | Total Outdoor Unit Model Name | Charged amount per BC controller (Standard / Main) |
|---|---|---|
| | P72 | 3.0 kg [106 oz] |
| | P96 | 4.5 kg [160 oz] |
| | P120 | |
| | P144 | 6.0 kg [212 oz] |
| | P168 | |
| | P192 | |
| | P216 | |
| | P240 | |
| | P264 | |
| | P288 | |

| + | BC controller (Main) HA-Type |
|---|---|
| | 2.0 kg [71 oz] |

| + | BC controller (Sub) Total Units | BC controller (Sub) Per Unit |
|---|---|---|
| | 1 | 1.0 kg [35 oz] |
| | 2 | 2.0 kg [71 oz] |

| + | Total Capacity of Connected Indoor Units | Charged amount |
|---|---|---|
| | Models ~ 27 | 2.0 kg [71 oz] |
| | Models 28 ~ 54 | 2.5 kg [89 oz] |
| | Models 55 ~ 126 | 3.0 kg [106 oz] |
| | Models 127 ~ 144 | 3.5 kg [124 oz] |
| | Models 145 ~ 180 | 4.5 kg [159 oz] |
| | Models 181 ~ 234 | 5.0 kg [177 oz] |
| | Models 235 ~ 273 | 6.0 kg [212 oz] |
| | Models 274 ~ 307 | 8.0 kg [283 oz] |
| | Models 308 ~ 342 | 9.0 kg [318 oz] |
| | Models 343 ~ 411 | 10.0 kg [353 oz] |
| | Models 412 ~ 450 | 12.0 kg [424 oz] |
| | Models 451 ~ | 14.0 kg [494 oz] |

| + | Model name | | Charged amount for outdoor unit(s) |
|---|---|---|---|
| | Single | P72, P96 | 0 kg [0 oz] |
| | | P120, P144 | 5.5 kg [195 oz] |
| | Combination | P144, P168, P192 | 0 kg [0 oz] |
| | | P216 | 5.5 kg [195 oz] |
| | | P240, P264, P288 | 11.0 kg [390 oz] |

S.D. R2 575V

**■ Limitation of the amount of refrigerant to be charged**

The above calculation result of the amount of refrigerant to be charged must become below the value in the table below.

| Total index of the outdoor units | | P72 | P96 | P120 | P144 | P168 | P192 | P216 | P240 | P264 | P288 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Maximum refrigerant charge | Factory charged | 9.5kg | 10.3kg | 11.8kg | 11.8kg | 19.8kg | 20.6kg | 22.1kg | 23.6kg | 23.6kg | 23.6kg |
| | Charged on site | 27.2kg | 35.5kg | 41kg | 46.7kg | 49.4kg | 62.7kg | 75.4kg | 75.4kg | 75.4kg | 75.4kg |
| | Total for system | 36.7kg | 45.8kg | 52.8kg | 58.5kg | 69.2kg | 83.3kg | 97.5kg | 99kg | 99kg | 99kg |
| | Factory charged | 20 lbs 16 oz | 22 lbs 12 oz | 26 lbs 1 oz | 26 lbs 1 oz | 43 lbs 11 oz | 45 lbs 7 oz | 48 lbs 12 oz | 52 lbs 1 oz | 52 lbs 1 oz | 52 lbs 1 oz |
| | Charged on site | 59 lbs 16 oz | 78 lbs 5 oz | 90 lbs 7 oz | 102 lbs 16 oz | 108 lbs 15 oz | 138 lbs 4 oz | 166 lbs 4 oz | 166 lbs 4 oz | 166 lbs 4 oz | 166 lbs 4 oz |
| | Total for system | 80 lbs 15 oz | 100 lbs 16 oz | 116 lbs 7 oz | 128 lbs 16 oz | 152 lbs 9 oz | 183 lbs 11 oz | 214 lbs 16 oz | 218 lbs 5 oz | 218 lbs 5 oz | 218 lbs 5 oz |

## 4-1. General requirements for installation

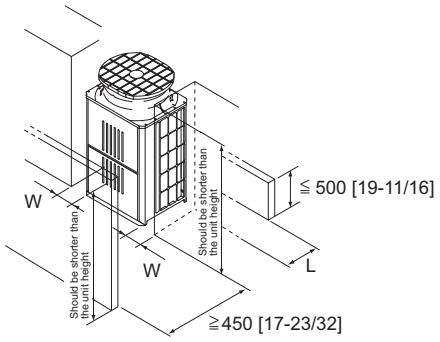
1. If possible, locate the unit to reduce the direct thermal radiation to the unit.
2. Consider the amount of noise the unit produces when choosing an installation location.
   **Valves and refrigerant flow on the outdoor/heat source unit may generate noise.**
3. Avoid sites that may encounter strong winds.
4. Ensure the installation site can bear the weight of the unit.
5. Condensation should be moved away from the unit, particularly in heating mode.
6. Provide enough space for installation and service as shown in section 4-2. Spacing.
7. Avoid sites where acidic solutions or chemical sprays (such as sulfur sprays) are used frequently.
8. The unit should be provided from combustible gas, oil, steam, chemical gas like acidic solution, sulfur gas and so on.

## 4-2. Spacing

**In case of single installation**

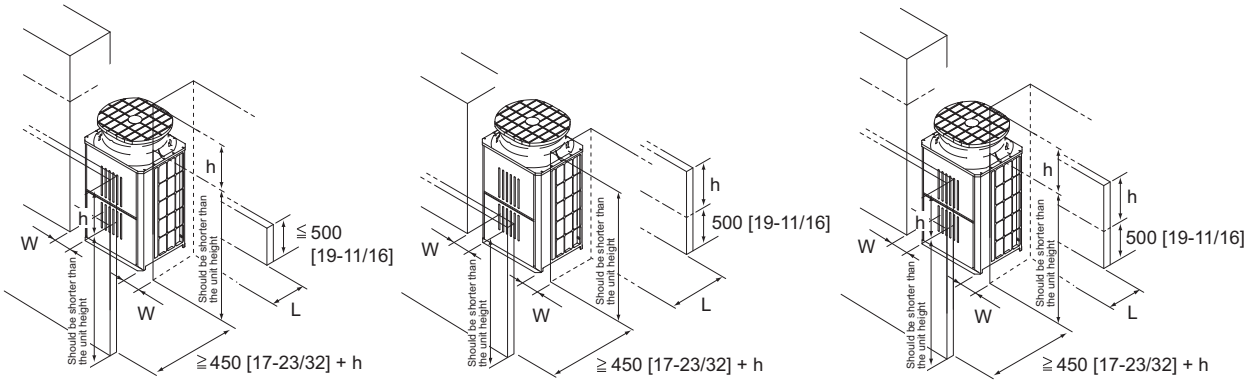
- Secure enough space around the unit as shown in the figure.
- If the wall height exceeds the height limit, widen the space labeled "L" and "W" by the amount that exceeds the limit (labeled <h> in the figure).
- Clearance shown in this section are proper airflow, installation, and service. Additional spacing maybe required depending on load code.

**(1) Walls are lower than the height limit.**



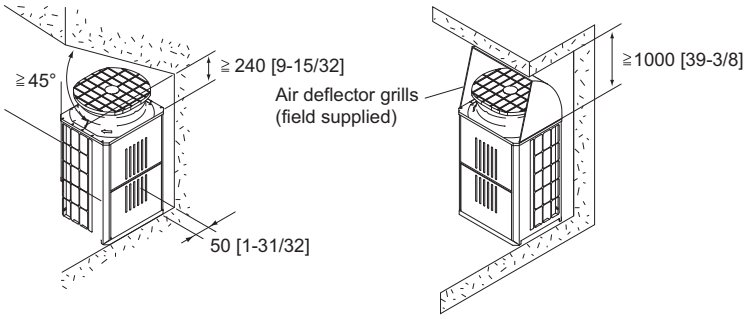

| Condition | L | W |
|---|---|---|
| Minimum space behind the unit | ≧100 [3-15/16] | ≧ 50 [1-31/32] |
| Minimum space on both sides of the unit | ≧300 [11-13/16] | ≧ 15 [19/32] |

**(2) If the wall height (H) of the front, rear or side exceeds the wall height restriction**




| Condition | L | W |
|---|---|---|
| Minimum space behind the unit | ≧ 100 [3-15/16] + h | ≧50 [1-31/32] + h |
| Minimum space on both sides of the unit | ≧ 300 [11-13/16] + h | ≧15 [19/32] + h |

**(3) If there are obstacles at the upper part of the unit**



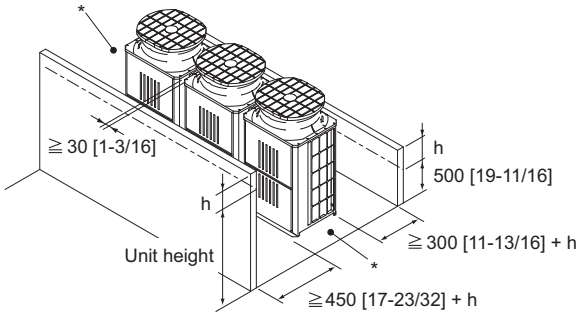

(Unit : mm [in.])

**In case of collective installation and continuous installation**

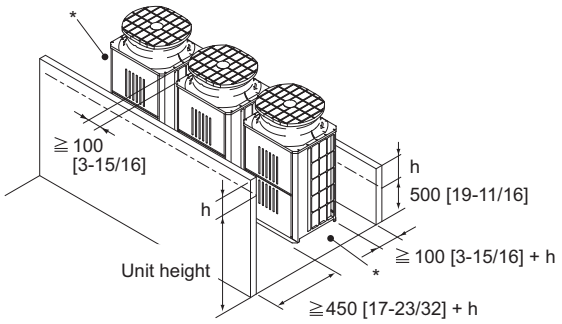
- When multiple units are installed adjacent to each other, secure enough space to allow for air circulation and passageways between groups of units as shown in the figures.
  * Leave both sides of each group of units open.
- As with single installation, if the wall height exceeds the height limit, widen the space in the front and the back of a given group of units by the amount that exceeds the limit (labeled <h> in the figure).
- If there is a wall at both the front and the rear of the unit, install up to six units (three units : P120, 144) consecutively in the side direction and provide a space of 1000mm or more as inlet space/passage space for each six units (three units : P120, 144).
- Clearance shown in this section are proper airflow, installation, and service. Additional spacing maybe required depending on load code.

**(1) Side-by-side installation**

<The space on both sides of a given group of units is minimum.>

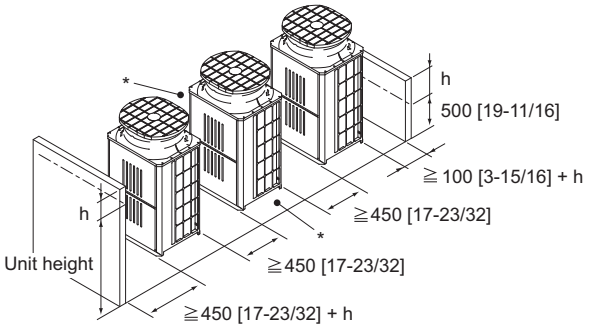



<The space on both sides of a given group of units is minimum.>

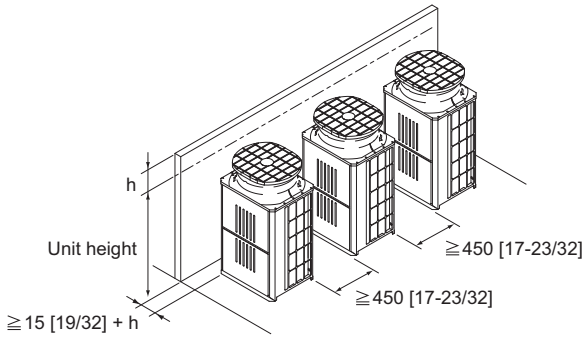



**(2) Face-to-face installation**

<There are walls in the front and the back of a given group of units.>

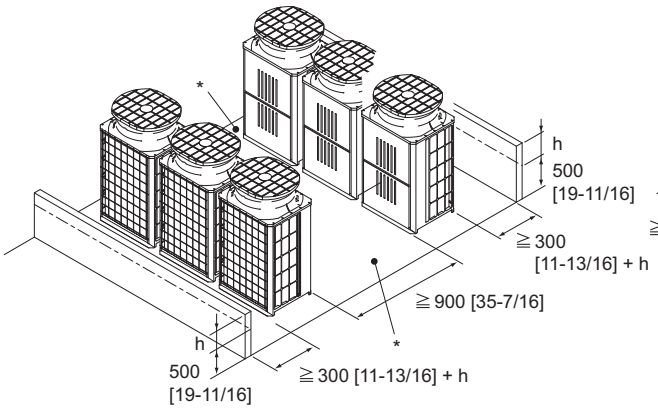



<There is a wall on one side.>

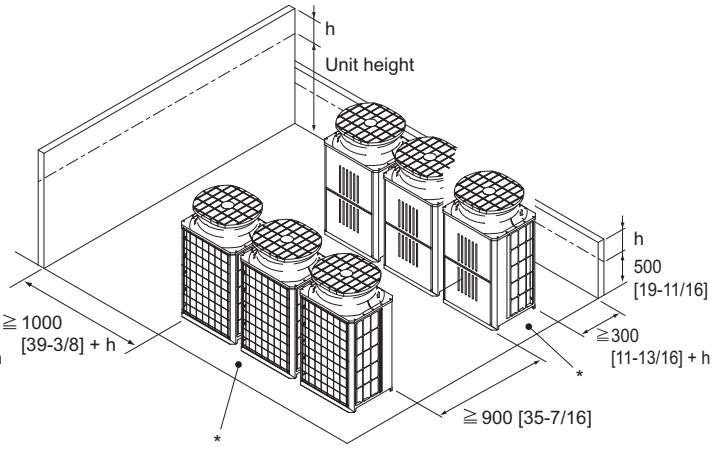



**(3) Combination of face-to-face and side-by-side installations**

<There are walls in the front and the back of a given group of units.>




<There is a wall on one side and either the front or the back of a given group of unit.>



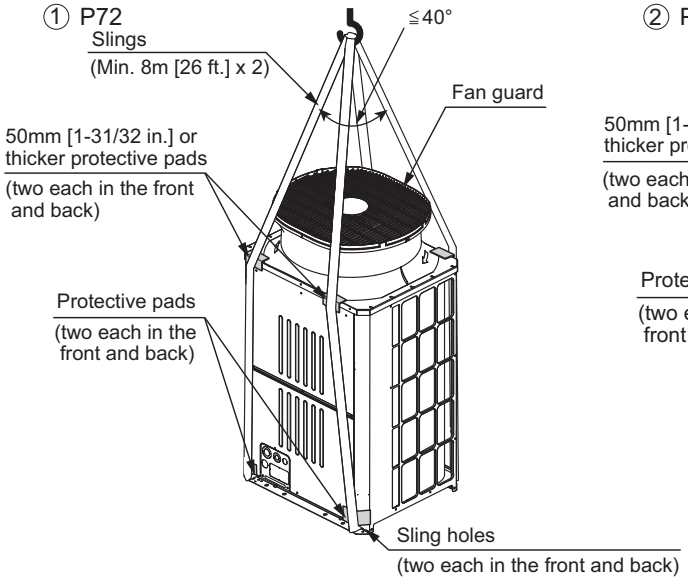

(Unit : mm [in.])

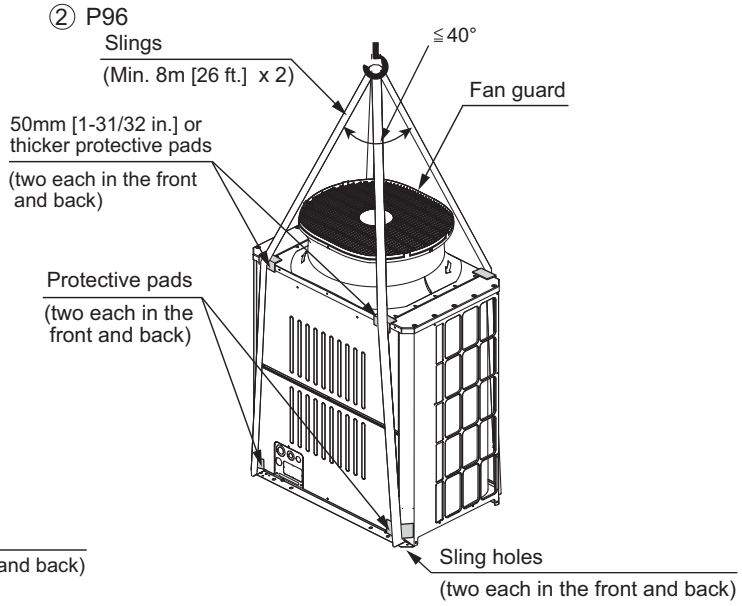
S.D. R2 575V

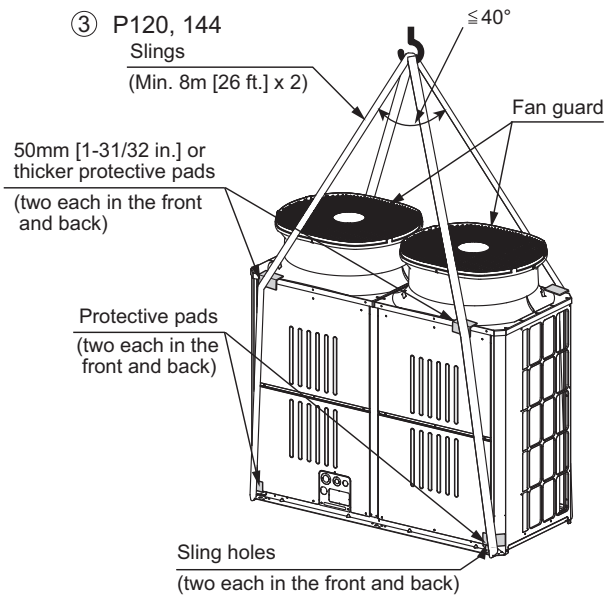
## 4-3. Piping direction

### 4-3-1. Lifting method

· When lifting the unit with ropes, run the ropes under the unit and use the lifting hole.
· Support the unit at four points with two ropes, and avoid giving mechanical shock.
· Suspension rope angle must be 40° or less, so as to avoid compressing fan guard.
· Use two ropes, each at least 8m [26 ft.] in length
· Use ropes strong enough to support the weight of the unit.
· Always suspend the unit from four corners. (It is dangerous to suspend a unit from two corners and must not be attempted.)
· Use protective pads to keep the ropes from scratching the panels on the unit.
· Use a 50mm [1-31/32 in.] or thicker cardboard or cloth as a protective pad on the top of the unit to prevent contact between the fan guard and slings.




**⚠ CAUTION**

**Exercise caution when transporting products.**

· Products weighing more than 20 kg [45 LBS] should not be carried alone.
· Do not carry the product by the PP bands.
· To avoid the risk of injury, do not touch the heat exchanger fins.
· Plastic bags may pose a risk of choking hazard to children. Tear plastic bags into pieces before disposing of them.
· When lifting and transporting outdoor units with ropes, run the ropes through lifting hole at the unit base. Securely fix the unit so that the ropes will not slide off, and always lift the unit at four points to prevent the unit from falling.

S.D. R2 575V

## 4-3-2. Installation

- Secure the unit with anchor bolts as shown in the figure below so that the unit will not topple over with strong wind or during an earthquake.
- Install the unit on a durable base made of such materials as concrete or angle steel.
- Take appropriate anti-vibration measures (e.g., vibration damper pad, vibration isolation base) to keep vibrations and noise from being transmitted from the unit through walls and floors.
- When using a rubber cushion, install it so that the cushion covers the entire width of the unit leg.
- Install the unit in such a way that the corner of the angle bracket at the base of the unit shown in the figure below is securely supported.
- Install the anchor bolt in such a way that the top end of the anchor bolt do not stick out more than 30 mm [1-3/16 in.].
- This unit is not designed to be anchored with post-installation-type anchor bolts, although by adding fixing brackets anchoring with such type of anchor bolts becomes possible.

Ⓐ : M10 anchor bolt procured at the site.

Ⓑ : Corner is not seated.

Ⓒ : Fixing bracket for hole-in anchor bolt (3 locations to fix with screws).

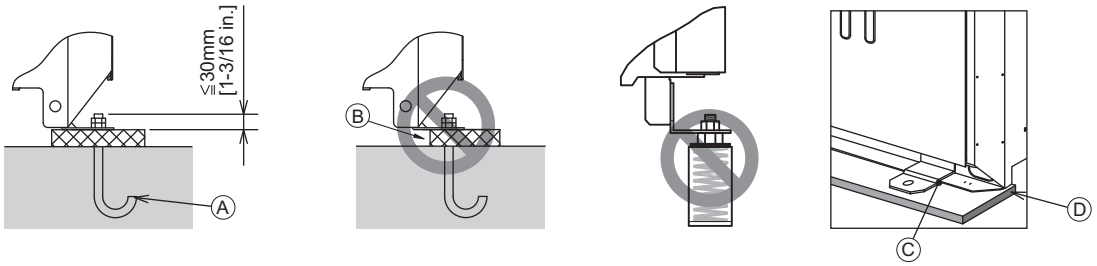
Ⓓ : Anti-vibration rubber
Install it so that the rubber covers the entire width of the unit leg.

**⚠WARNING**

Properly install the unit on a surface that can withstand the weight of the unit. Unit installed on an unstable surface may fall and cause injury.

**⚠WARNING**

Take appropriate safety measures against strong winds and earthquakes to prevent the unit from falling.



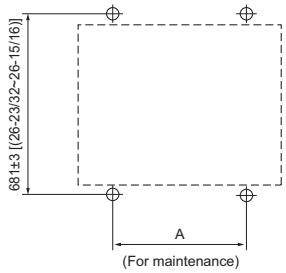

Take into consideration the durability of the base, water drainage route (Drain water is discharged from outdoor units during operation.), piping route, and wiring route when performing foundation work.

## 4-3-3. Anchor bolt positions

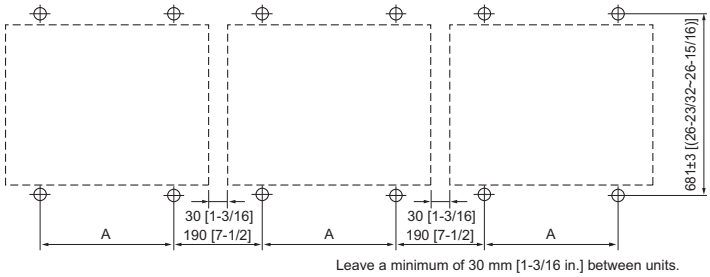
<P72, 96>

(Unit : mm [in.])

• Individual installation

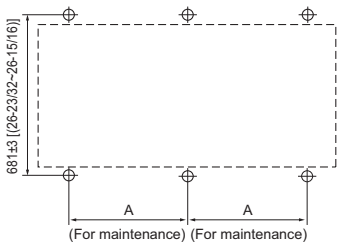



• Collective installation

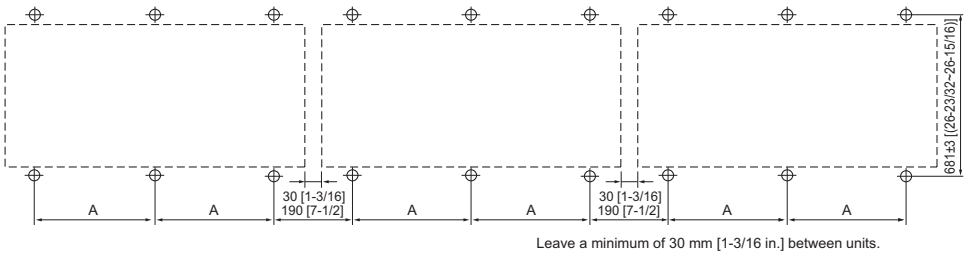



<P120, 144>

• Individual installation




• Collective installation




| PURY | P72 | P96 | P120, 144 |
|---|---|---|---|
| A | 760±2 [29-15/16(29-27/32~30)] | 1060±2 [41-3/4(41-21/32~41-13/16)] | 795±2 [31-5/16(31-1/4~31-13/32)] |

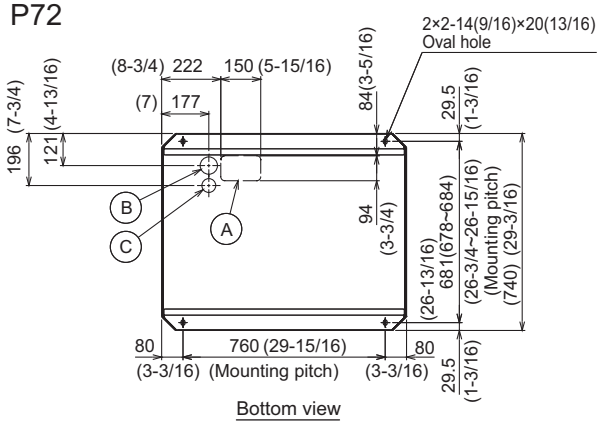
S.D. R2 575V

## 4-3-4. Installation

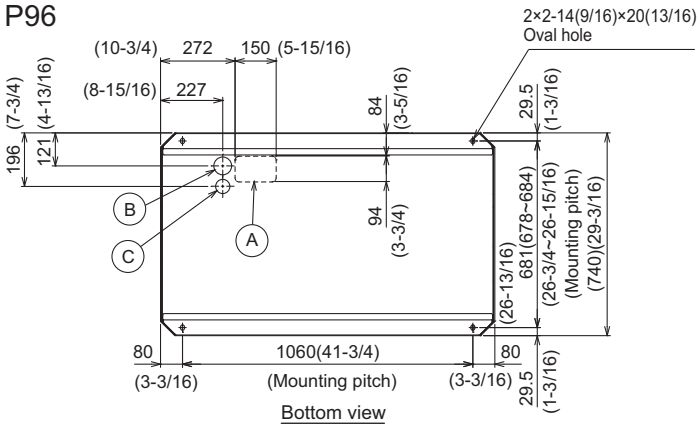
When the pipes and/or cables are routed at the bottom of the unit, make sure that the through hole at the base of the unit does not get blocked with the installation base.
When the pipes are routed at the bottom of the unit, the base should be at least 100 mm [3-15/16 in.] in height.
For the position of the service valve (High pressure, Low pressure), refer to the external dimensions.

(Unit: mm [in.])

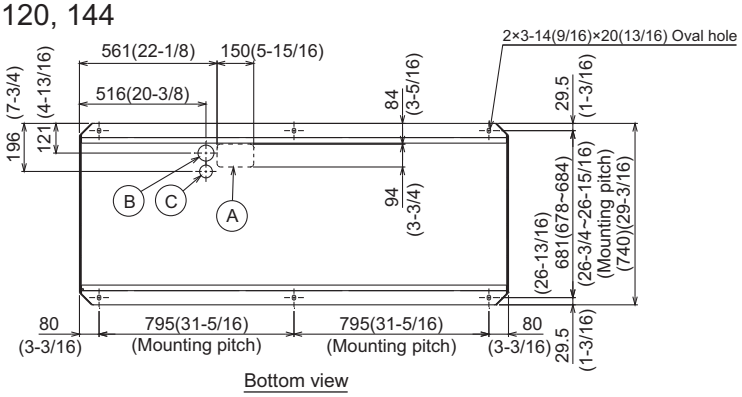
· P72




· P96

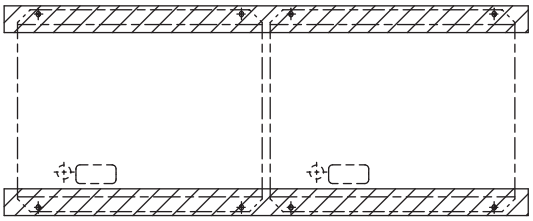



· P120, 144

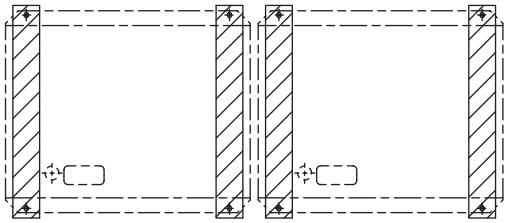



| NO. | Usage | | Specifications |
|---|---|---|---|
| Ⓐ | For pipes | Bottom through hole | 150 × 94 Knockout hole (5-29/32) (3-23/32) |
| Ⓑ | For wires | Bottom through hole | Ø65 Knockout hole (2-9/16) |
| Ⓒ | | Bottom through hole | Ø52 Knockout hole (2-1/16) |

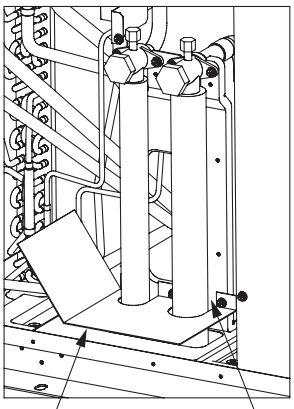
Installation base parallel to the unit's front panel



Installation base perpendicular to the unit's front panel



## 4-3-5. Refrigerant pipe routing




※ The figure above shows a unit on which a low-pressure twinning pipe kit is not installed.

The gaps around the edges of through holes for pipes and wires on the unit allow water or mice to enter the unit and damage its parts. Close these gaps with filler plates.

This unit allows two types of pipe routing:
- Bottom piping
- Front piping

**⚠ CAUTION**

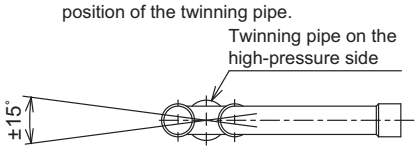
**To prevent small animals, water and snow from entering the unit and damage its parts, close the gap around the edges of through holes for pipes and wires with filler plates.**

S.D. R2 575V

## 4-3-6. Twinning on the outdoor unit side

- The tilt angle of the twinning pipe
  The tilt angle of the twinning pipe must be within ±15˚ with the horizontal plane.
  Tilting the twinning pipe more than specified will cause damage to the unit.
- The length of the straight part of the pipe before the branching (high-pressure side)
  For the twinning kit, always use the accessory piping parts.
  The length of the straight part of pipe connected in front of the twinning pipe must be 500 mm [19-11/16 in.] or longer.
  (Connect the field piping so that the length of the straight part of pipe connected in front of the twinning pipe can be 500 mm [19-11/16 in.] or longer.)
  If the length is less than 500 mm [19-11/16 in.], it will cause damage to the unit.

Note. Refer to the figure below for the installation position of the twinning pipe.

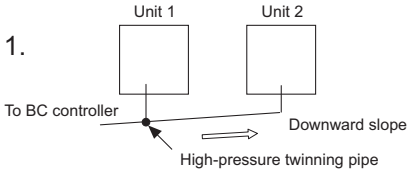


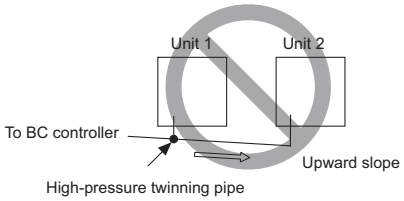

Inclination tolerance of the twinning pipe is ±15˚ relative to the horizontal plane.

- Precautions for outdoor unit combinations

  - Install the piping so that oil will not accumulate in the stopped outdoor unit. (high pressure side only)

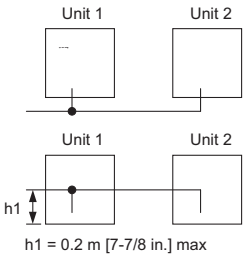
1.

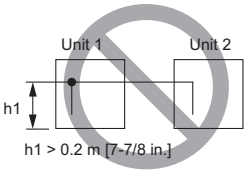



The NG example shows that oil accumulates because the units are installed on a reverse gradient while unit 1 is in operation, and unit 2 is stopped.

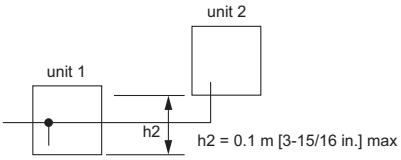
2.

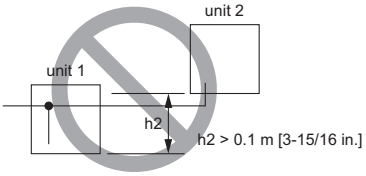



The NG example shows that oil accumulates into unit 1 while unit 2 is in operation, and unit 1 is stopped. Vertical pipe height (h) should be 0.2 m [7-7/8 in.] or below.

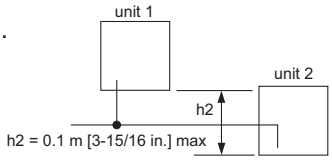
3.

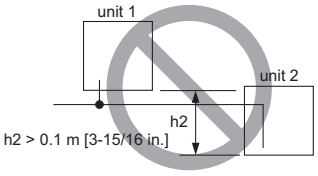



The NG example shows that oil accumulates into unit 1 while unit 2 is in operation, and unit 1 is stopped. Vertical pipe height (h) should be 0.1 m [3-15/16 in.] or below.

4.



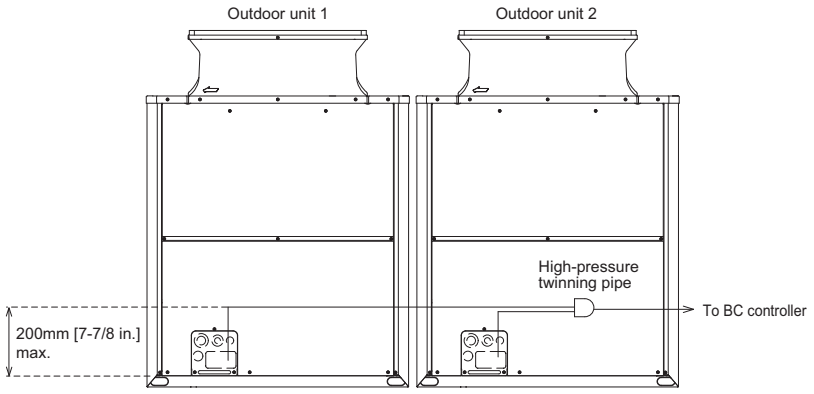




The NG example shows that oil accumulates into unit 2 while unit 1 is in operation, and unit 2 is stopped. Vertical pipe height (h) should be 0.1 m [3-15/16 in.] or below.

**⚠ Caution:**

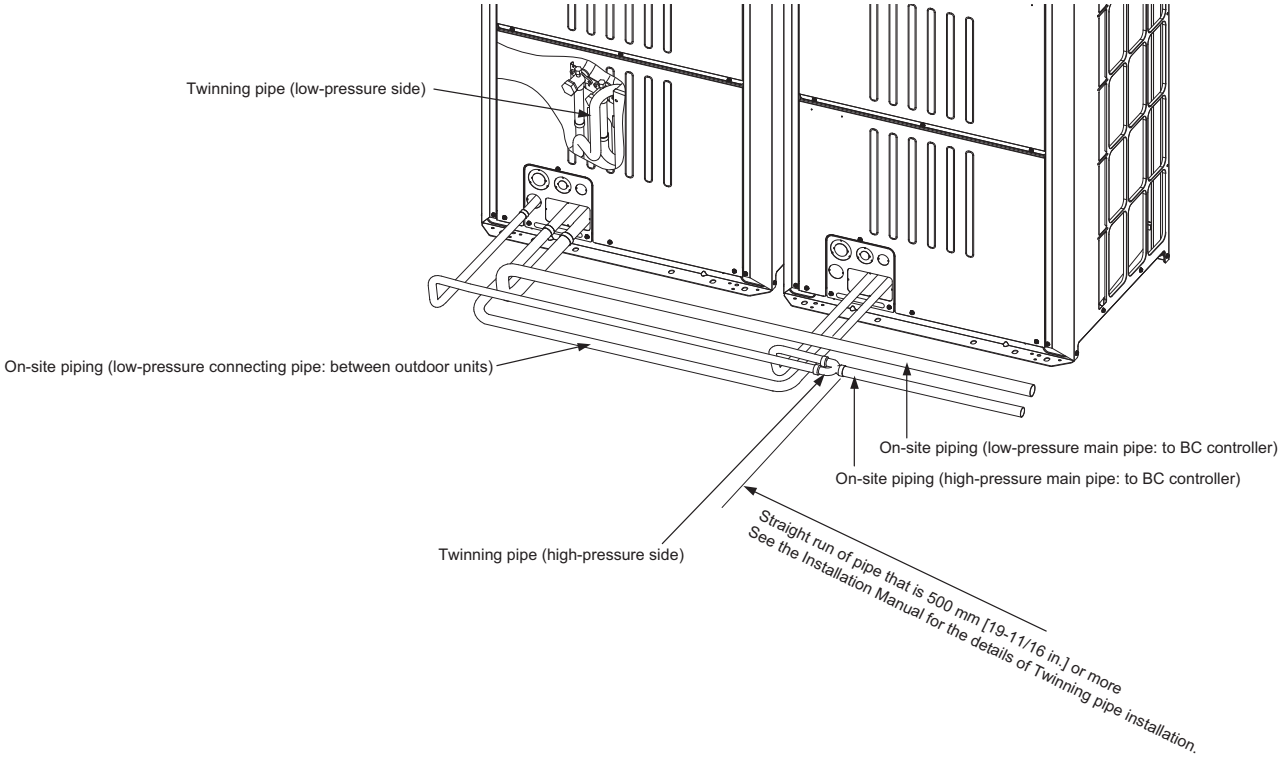
- **Do not install traps to prevent oil backflow and compressor start-up failure.**
- **Do not install solenoid valves to prevent oil backflow and compressor start-up failure.**
- **Do not install a sight glass because it may show improper refrigerant flow.**
  **If a sight glass is installed, inexperienced technicians that use the glass may overcharge the refrigerant.**

S.D. R2 575V




## 4-3-7. Twinning on the outdoor unit side

See the following drawing for connecting the pipes between the outdoor units.



## 4-4. Weather countermeasure

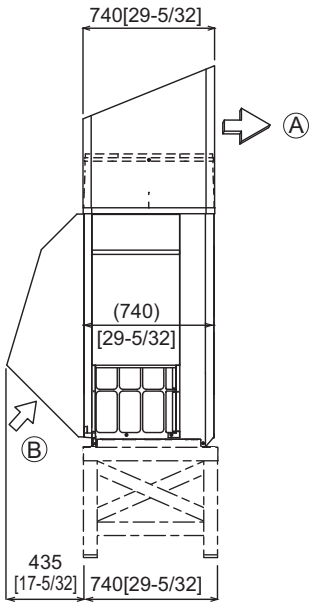
In cold and/or snowy areas, sufficient countermeasures to wind and snow damages should be taken for operating unit in normal and good condition in winter time. Surround the units with snow nets or fences to protect them from snow. Even in the other areas, full consideration is required for installation of unit in order to prevent abnormal operations caused by wind or snow. **When rain and snow directly fall on unit in the case of air-conditioning operations in 10 or less degrees centigrade outdoor air (50 or less degrees fahrenheit outdoor air) , mount inlet and outlet ducts on unit for assuring stable operations.**

Countermeasure to snow and wind

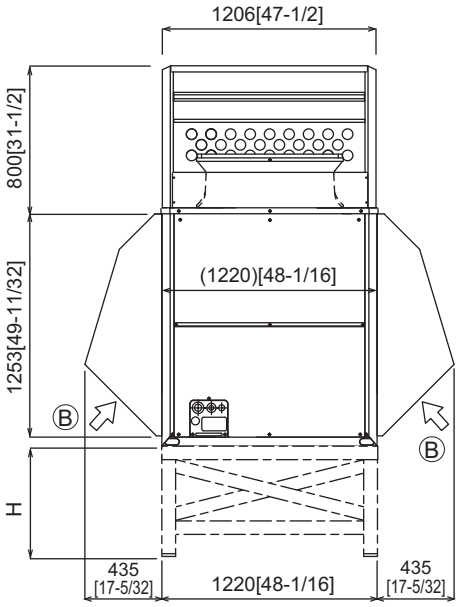
Prevention the Outdoor unit from wind and snow damages in cold or snowy areas, snow hood shown below is recommended and helpful.

*Do not use a snow hood made of stainless steel, which may cause the unit to rust. If the use of a stainless snow hood is the only option, contact the sales office before installing it.

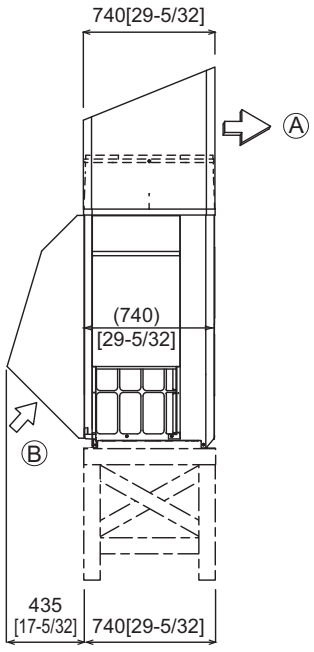
• Snow hood



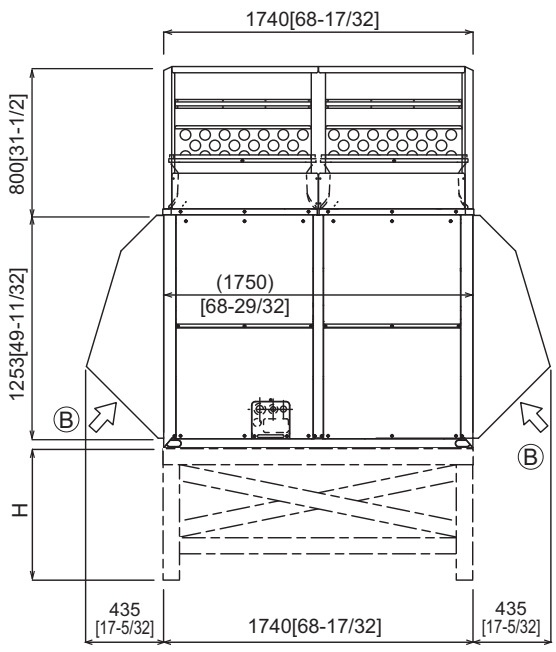

<Side view>




<Front view>




<Side view>




<Front view>

Ⓐ Outlet Ⓑ Inlet

(Unit : mm[in.])

S.D. R2 575V

Note:

1. Height of frame base for snow damage prevention (H) shall be twice as high as expected snowfall. Width of frame base shall not exceed that of the unit. The frame base shall be made of angle steel, etc., and designed so that snow and wind slip through the structure. (If frame base is too wide, snow will be accumulated on it.)
2. Install unit so that wind will not directly lash against openings of inlet and outlet ducts.
3. Build frame base at customer referring to this figure.
   Material : Galvanized steel plate 1.2T [1/16 in. T]
   Painting : Overall painting with polyester powder
   Color : Munsell 5Y8/1 (same as that of unit)
4. To install units side by side, install a filler plate between the fan guard and the outlet-side snow food as shown in Figure A.
   (The filler plate provided accommodates the installation pitch of between 30-80 mm [1-3/16~3-5/32 in.].)
5. When the unit is used in a cold region and the heating operation is continuously performed for a long time when the outside air temperature is below freezing, install a heater to the unit base or take other appropriate measures to prevent water from freezing on the base.

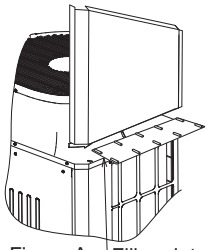
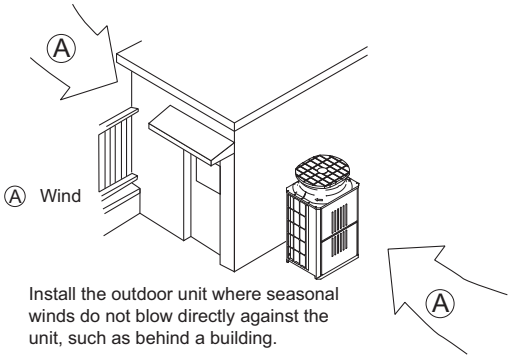


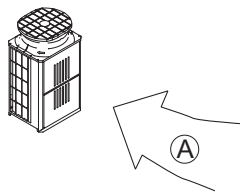
Figure A Filler plate

Countermeasure to wind

Referring to the figure shown below, take appropriate measures which will suit the actual situation of the place for installation.
A unit installed alone is vulnerable to strong winds. Select the installation site carefully to minimize the effect of winds.
To install a unit in a place where the wind always blows from the same direction, install the unit so that the outlet faces away from the direction of the wind.




Install the outdoor unit where seasonal winds do not blow directly against the unit, such as behind a building.




Install the outdoor unit to avoid having seasonal winds against the front of air outlet/inlet on the unit.

S.D. R2 575V

# CITY MULTI
# INSTALLATION INFORMATION

## 1-1. General precautions

### 1-1-1. Usage

- The air-conditioning system described in this Data Book is designed for human comfort.
- This product is not designed for preservation of food, animals, plants, precision equipment, or art objects. To prevent quality loss, do not use the product for purposes other than what it is designed for.
- To reduce the risk of water leakage and electric shock, do not use the product for air-conditioning vehicles or vessels.

### 1-1-2. Installation environment

- Do not install any unit other than the dedicated unit in a place where the voltage changes a lot, large amounts of mineral oil (e.g., cutting oil) are present, cooking oil may splash, or a large quantity of steam can be generated such as a kitchen.
- Do not install the unit in acidic or alkaline environment.
- Installation should not be performed in the locations exposed to chlorine or other corrosive gases. Avoid near a sewer.
- To reduce the risk of fire, do not install the unit in a place where flammable gas may be leaked or inflammable material is present.
- This air conditioning unit has a built-in microcomputer. Take the noise effects into consideration when deciding the installation position. Especially in a place where antenna or electronic device are installed, it is recommended that the air conditioning unit be installed away from them.
- Install the unit on a solid foundation according to the local safety measures against typhoons, wind gusts, and earthquakes to prevent the unit from being damaged, toppling over, and falling.

### 1-1-3. Backup system

- In a place where air conditioner's malfunctions may exert crucial influence, it is recommended to have two or more systems of single outdoor/heat source units with multiple indoor units.

### 1-1-4. Unit characteristics

- Heat pump efficiency of outdoor unit depends on outdoor temperature. In the heating mode, performance drops as the outside air temperature drops. In cold climates, performance can be poor. Warm air would continue to be trapped near the ceiling and the floor level would continue to stay cold. In this case, heat pumps require a supplemental heating system or air circulator. Before purchasing them, consult your local distributor for selecting the unit and system.
- When the outdoor temperature is low and the humidity is high, the heat exchanger on the outdoor unit side tends to collect frost, which reduces its heating performance. To remove the frost, Auto-defrost function will be activated and the heating mode will temporarily stop for 3-10 minutes. Heating mode will automatically resume upon completion of defrost process.
- Air conditioner with a heat pump requires time to warm up the whole room after the heating operation begins, because the system circulates warm air in order to warm up the whole room.
- The sound levels were obtained in an anechoic room. The sound levels during actual operation are usually higher than the simulated values due to ambient noise and echoes. Refer to the section on "SOUND LEVELS" for the measurement location.
- Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes even when operating normally. Please consider to avoid location where quietness is required. For BC/HBC controller, it is recommended to unit to be installed in places such as ceilings of corridor, restrooms and plant rooms.
- The total capacity of the connected indoor units can be greater than the capacity of the outdoor/heat source unit. However, when the connected indoor units operate simultaneously, each unit's capacity may become smaller than the rated capacity.
- When the unit is started up for the first time within 12 hours after power on or after power failure, it performs initial startup operation (capacity control operation) to prevent damage to the compressor. The initial startup operation requires 90 minutes maximum to complete, depending on the operation load.

### 1-1-5. Relevant equipment

- Use an earth leakage breaker (ELB) with medium sensitivity, and an activation speed of 0.1 second or less.
- Consult your local distributor or a qualified technician when installing an earth leakage breaker.
- If the unit is inverter type, select an earth leakage breaker for handling high harmonic waves and surges.
- Leakage current is generated not only through the air conditioning unit but also through the power wires. Therefore, the leakage current of the main power supply is greater than the total leakage current of each unit. Take into consideration the capacity of the earth leakage breaker or leakage alarm when installing one at the main power supply. To measure the leakage current simply on site, use a measurement tool equipped with a filter, and clamp all the four power wires together. The leakage current measured on the ground wire may not accurate because the leakage current from other systems may be included to the measurement value.
- Do not install a phase advancing capacitor on the unit connected to the same power system with an inverter type unit and its equipment.
- If a large current flows due to the product malfunctions or faulty wiring, both the earth leakage breaker on the product side and the upstream overcurrent breaker may trip almost at the same time. Separate the power system or coordinate all the breakers depending on the system's priority level.

### 1-1-6. Unit installation

- Your local distributor or a qualified technician must read the Installation Manual that is provided with each unit carefully before performing installation work.
- Consult your local distributor or a qualified technician when installing the unit. Improper installation by an unqualified person may result in water leakage, electric shock, or fire.
- Ensure there is enough space around each unit.

### 1-1-7. Optional accessories

- Only use accessories recommended by Mitsubishi Electric. Consult your local distributor or a qualified technician when installing them. Improper installation by an unqualified person may result in water leakage, electric leakage, system breakdown, or fire.
- Some optional accessories may not be compatible with the air conditioning unit to be used or may not suitable for the installation conditions. Check the compatibility when considering any accessories.
- Note that some optional accessories may affect the air conditioner's external form, appearance, weight, operating sound, and other characteristics.

### 1-1-8. Operation/Maintenance

- Read the Instruction Book that is provided with each unit carefully prior to use.
- Maintenance or cleaning of each unit may be risky and require expertise. Read the Instruction Book to ensure safety. Consult your local distributor or a qualified technician when special expertise is required such as when the indoor unit needs to be cleaned.

## 1-2. Precautions for Indoor unit and BC controller

### 1-2-1. Operating environment

- The refrigerant (R410A) used for air conditioner is non-toxic and nonflammable. However, if the refrigerant leaks, the oxygen level may drop to harmful levels. If the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration from exceeding the safety limit even if the refrigerant should leak.
- If the units operate in the cooling mode at the humidity above 80%, condensation may collect and drip from the indoor units.

### 1-2-2. Unit characteristics

- The return air temperature display on the remote controller may differ from the ones on the other thermometers.
- The clock on the remote controller may be displayed with a time lag of approximately one minute every month.
- The temperature using a built-in temperature sensor on the remote controller may differ from the actual room temperature due to the effect of the wall temperature.
- Use a built-in thermostat on the remote controller or a separately-sold thermostat when indoor units installed on or in the ceiling operate the automatic cooling/heating switchover.
- The room temperature may rise drastically due to Thermo OFF in the places where the air conditioning load is large such as computer rooms.
- Be sure to use a regular filter. If an irregular filter is installed, the unit may not operate properly, and the operation noise may increase.
- The room temperature may rise over the preset temperature in the environment where the heating air conditioning load is small.

### 1-2-3. Unit installation

- For simultaneous cooling/heating operation type air conditioners (R2, H2i R2, WR2 series), the G-type BC controller cannot be connected to the P144 outdoor/heat source unit model or above, and the G- and GA-type BC controllers cannot be connected to the P264 model or above. The GB- and HB-type BC controllers (sub) cannot be connected to the outdoor/heat source unit directly, and be sure to use them with GA- and HA-type BC controllers (main).
- The insulation for low pressure pipe between the BC controller and outdoor/heat source unit shall be at least 20 mm thick. If the unit is installed on the top floor or in a high-temperature, high-humidity environment, thicker insulation may be necessary.
- Do not have any branching points on the downstream of the refrigerant pipe header.
- When a field-supplied external thermistor is installed or when a device for the demand control is used, abnormal stop of the unit or damage of the electromagnetic contactor may occur. Consult your local distributor for details.
- When indoor units operate a fresh air intake, install a filter in the duct (field-supplied) to remove the dust from the air.
- The 4-way or 2-way Airflow Ceiling Cassette Type units that have an outside air inlet can be connected to the duct, but need a booster fan to be installed at site. Refer to the chapter "Indoor Unit" for the available range for fresh air intake volume.
- Operating fresh air intake on the indoor unit may increase the sound pressure level.

## 1-3. Precautions for Outdoor unit/Heat source unit

### 1-3-1. Installation environment

- Outdoor/heat source unit with salt-resistant specification is recommended to use in a place where it is subject to salt air.
- Even when the unit with salt-resistant specification is used, it is not completely protected against corrosion. Be sure to follow the directions or precautions described in Instructions Book and Installation Manual for installation and maintenance. The salt-resistant specification is referred to the guidelines published by JRAIA (JRA9002).
- Install the unit in a place where the flow of discharge air is not obstructed. If not, the short-cycling of discharge air may occur.
- Provide proper drainage around the unit base, because the condensation may collect and drip from the outdoor/heat source units. Provide water-proof protection to the floor when installing the units on the rooftop.
- In a region where snowfall is expected, install the unit so that the outlet faces away from the direction of the wind, and install a snow guard to protect the unit from snow. Install the unit on a base approximately 50 cm higher than the expected snowfall. Close the openings for pipes and wiring, because the ingress of water and small animals may cause equipment damage. If SUS snow guard is used, refer to the Installation Manual that comes with the snow guard and take caution for the installation to avoid the risk of corrosion.
- When the unit is expected to operate continuously for a long period of time at outside air temperatures of below 0ºC, take appropriate measures, such as the use of a unit base heater, to prevent icing on the unit base. (Not applicable to the PUMY-P-NHMU series)
- Install the snow guard so that the outlet/inlet faces away from the direction of the wind.
- When the snow accumulates approximately 50 cm or more on the snow guard, remove the snow from the guard. Install a roof that is strong enough to withstand snow loads in a place where snow accumulates.
- Provide proper protection around the outdoor/heat source units in places such as schools to avoid the risk of injury.
- A cooling tower and heat source water circuit should be a closed circuit that water is not exposed to the atmosphere. When a tank is installed to ensure that the circuit has enough water, minimize the contact with outside air so that the oxygen from being dissolved in the water should be 1 mg/L or less.
- Install a strainer (50 mesh or more recommended) on the water pipe inlet on the heat source unit.
- Interlock the heat source unit and water circuit pump.
- Note the followings to prevent the freeze bursting of pipe when the heat source unit is installed in a place where the ambient temperature can be 0ºC or below.
- Keep the water circulating to prevent it from freezing when the ambient temperature is 0ºC or below.
- Before a long period of non use, be sure to purge the water out of the unit.
- Salt-resistant unit is resistant to salt corrosion, but not salt-proof.

Please note the following when installing and maintaining outdoor units in marine atmosphere.

1. Install the salt-resistant unit out of direct exposure to sea breeze, and minimize the exposure to salt water mist.
2. Avoid installing a sun shade over the outdoor unit, so that rain will wash away salt deposits off the unit.
3. Install the unit horizontally to ensure proper water drainage from the base of the unit. Accumulation of water in the base of the outdoor unit will significantly accelerate corrosion.
4. Periodically wash salt deposits off the unit, especially when the unit is installed in a coastal area.
5. Repair all noticeable scratches after installation and during maintenance.
6. Periodically check the unit, and apply anti-rust agent and replace corroded parts as necessary.

### 1-3-2. Circulating water

- Follow the guidelines published by JRAIA (JRA-GL02-1994) to check the water quality of the water in the heat source unit regularly.
- A cooling tower and heat source water circuit should be a closed circuit that water is not exposed to the atmosphere. When a tank is installed to ensure that the circuit has enough water, minimize the contact with outside air so that the oxygen from being dissolved in the water should be 1 mg/L or less.

### 1-3-3. Unit characteristics

- When the Thermo ON and OFF is frequently repeated on the indoor unit, the operation status of outdoor/heat source units may become unstable.

### 1-3-4. Relevant equipment

- Provide grounding in accordance with the local regulations.

## 1-4. Precautions for Control-related items

### 1-4-1. Product specification

- To introduce the MELANS system, a consultation with us is required in advance. Especially to introduce the electricity charge apportioning function or energy-save function, further detailed consultation is required. Consult your local distributor for details.
- Billing calculation for AE-200A/AE-50A/EW-50A/AG-150A-A/EB-50GU-A/TG-2000A, or the billing calculation unit is unique and based on our original method. (Backup operation is included.) It is not based on the metering method, and do not use it for official business purposes. It is not the method that the amount of electric power consumption (input) by air conditioner is calculated. Note that the electric power consumption by air conditioner is apportioned by using the ratio corresponding to the operation status (output) for each air conditioner (indoor unit) in this method.
- In the apportioned billing function for AE-200A/AE-50A/EW-50A/AG-150A-A and EB-50GU-A, use separate watthour meters for A-control units, K-control units[*1], and packaged air conditioner for City Multi air conditioners. It is recommended to use an individual watthour meter for the large-capacity indoor unit (with two or more addresses).
- When using the peak cut function on the AE-200A/AE-50A/EW-50A/AG-150A-A or EB-50GU-A, note that the control is performed once every minute and it takes time to obtain the effect of the control. Take appropriate measures such as lowering the criterion value. Power consumption may exceed the limits if AE-200A/AE-50A/EW-50A/AG-150A-A or EB-50GU-A malfunctions or stops. Provide a back-up remedy as necessary.
- The controllers cannot operate while the indoor unit is OFF. (No error)
  Turn ON the power to the indoor unit when operating the controllers.
- When using the interlocked control function on the AE-200A/AE-50A/EW-50A/AG-150A-A/EB-50GU-A/PAC-YG66DCA or PAC-YG63MCA, do not use it for the control for the fire prevention or security. (This function should never be used in the way that would put people's lives at risk.) Provide any methods or circuit that allow ON/OFF operation using an external switch in case of failure.

### 1-4-2. Installation environment

- The surge protection for the transmission line may be required in areas where lightning strikes frequently occur.
- A receiver for a wireless remote controller may not work properly due to the effect of general lighting. Leave a space of at least 1 m between the general lighting and receiver.
- When the Auto-elevating panel is used and the operation is made by using a wired remote controller, install the wired remote controller to the place where all air conditioners controlled (at least the bottom part of them) can be seen from the wired remote controller. If not, the descending panel may cause damage or injury, and be sure to use a wireless remote controller designed for use with elevating panel (sold separately).
- Install the wired remote controller (switch box) to the place where the following conditions are met.
  - Where installation surface is flat
  - Where the remote controller can detect an accurate room temperature
    The temperature sensors that detect a room temperature are installed both on the remote controller and indoor unit. When a room temperature is detected using the sensor on the remote controller, the main remote controller is used to detect a room temperature. In this case, follow the instructions below.
    - Install the controller in a place where it is not subject to the heat source.
      (If the remote controller faces direct sunlight or supply air flow direction, the remote controller cannot detect an accurate room temperature.)
    - Install the controller in a place where an average room temperature can be detected.
    - Install the controller in a place where no other wires are present around the temperature sensor.
      (If other wires are present, the remote controller cannot detect an accurate room temperature.)
- To prevent unauthorized access, always use a security device such as a VPN router when connecting AE-200A/AE-50A/EW-50A/AG-150A/EB-50GU-A or TG-2000A to the Internet.

*1.EB-50GU-A, AE-200A, AE-50A, and EW-50A cannot be used to control K-control units.

# CITY MULTI
# CAUTION FOR REFRIGERANT LEAKAGE

# 1. Caution for refrigerant leakage

U11 2nd

The installer and/or air conditioning system specialist shall secure safety against refrigerant leakage according to local regulations or standards.
The following standard may be applicable if no local regulation or standard is available.

## 1-1. Refrigerant property

R410A refrigerant is harmless and incombustible. The R410A is heavier than the indoor air in density. Leakage of the refrigerant in a room has possibility to lead to a hypoxia situation. Therefore, the critical concentration specified below shall not be exceeded even if the leakage happens.

**• Critical concentration**

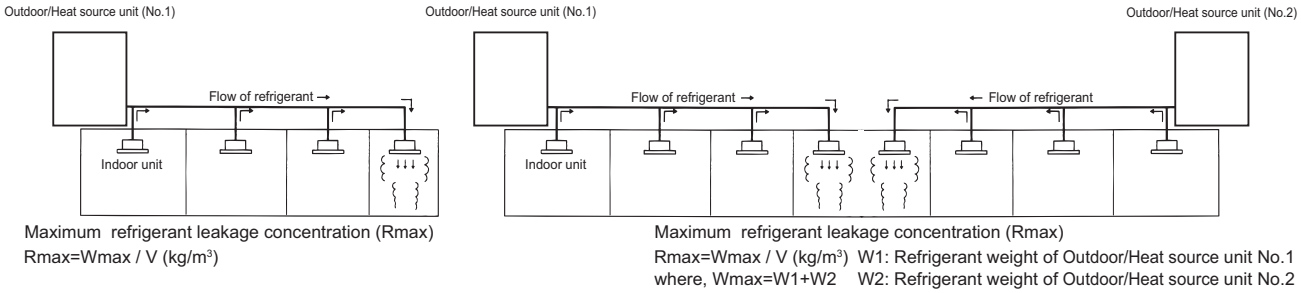
Critical concentration hereby is the refrigerant concentration in which no human body would be hurt if immediate measures can be taken when refrigerant leakage happens.

**Critical concentration of R410A: 0.44kg/m$^3$**
**(The weight of refrigeration gas per 1 m$^3$ air conditioning space.);**
* The Critical concentration is subject to ISO5149, EN378-1.

For the CITY MULTI system, the concentration of refrigerant leaked should not have a chance to exceed the critical concentration in any situation.

## 1-2. Confirm the Critical concentration and take countermeasure

The maximum refrigerant leakage concentration (Rmax) is defined as the result of the possible maximum refrigerant weight (Wmax) leaked into a room divided by its room capacity (V). It is referable to Fig.1-1. The refrigerant of Outdoor/Heat source unit here includes its original charge and additional charge at the site.
The additional charge is calculated according to the refrigerant charging calculation of each kind of Outdoor/Heat source unit, and shall not be over charged at the site. Procedure 1-2-1~3 tells how to confirm maximum refrigerant leakage concentration (Rmax) and how to take countermeasures against a possible leakage.




Maximum refrigerant leakage concentration (Rmax)
Rmax=Wmax / V (kg/m$^3$)

Maximum refrigerant leakage concentration (Rmax)
Rmax=Wmax / V (kg/m$^3$) W1: Refrigerant weight of Outdoor/Heat source unit No.1
where, Wmax=W1+W2 W2: Refrigerant weight of Outdoor/Heat source unit No.2

Fig. 1-1 The maximum refrigerant leakage concentration

1-2-1.Find the room capacity (V),
If a room having total opening area more than 0.15% of the floor area at a low position with another room/space, the two rooms/space are considered as one.The total space shall be added up.
1-2-2.Find the possible maximum leakage (Wmax) in the room.If a room has Indoor unit(s) from more than 1 Outdoor/Heat source unit, add up the refrigerant of the Outdoor/Heat source units.
1-2-3.Divide (Wmax) by (V) to get the maximum refrigerant leakage concentration (Rmax).
1-2-4.Find if there is any room in which the maximum refrigerant leakage concentration (Rmax) is over 0.44kg/m$^3$.
If no, then the CITY MULTI is safe against refrigerant leakage.
If yes, following countermeasure is recommended to do at site.
Countermeasure 1: Let-out (making V bigger)
Design an opening of more than 0.15% of the floor area at a low position of the wall to let out the refrigerant whenever leaked.
e.g.make the upper and lower seams of door big enough.
Countermeasure 2: Smaller total charge (making Wmax smaller)
e.g.Avoid connecting more than 1 Outdoor/Heat source unit to one room.
e.g.Using smaller model size but more Outdoor/Heat source units.
e.g.Shorten the refrigerant piping as much as possible.
Countermeasure 3: Fresh air in from the ceiling (Ventilation)
As the density of the refrigerant is bigger than that of the air. Fresh air supply from the ceiling is better than air exhausting from the ceiling.
Fresh air supply solution refers to Fig.1-2~4.

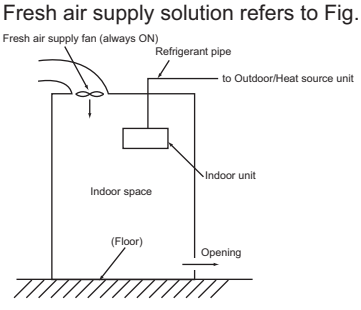



Fig.1-2.Fresh air supply always ON

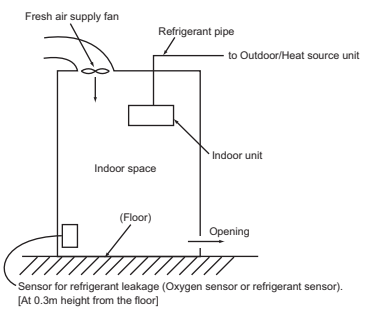



Fig.1-3.Fresh air supply upon sensor action

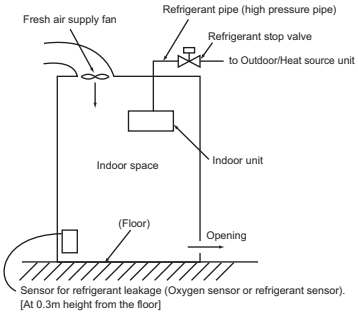



Fig.1-4.Fresh air supply and refrigerant shut-off upon sensor action

Note 1. Countermeasure 3 should be done in a proper way in which the fresh air supply shall be on whenever the leakage happens.
Note 2. In principle, MITSUBISHI ELECTRIC requires proper piping design, installation and air-tight testing after installation to avoid leakage happening.
In the area should earthquake happen, anti-vibration measures should be fully considered.
The piping should consider the extension due to the temperature variation.