AIRSTAGE

AIR CONDITIONER

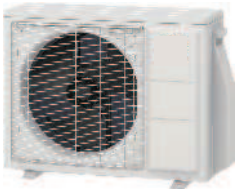
Ceiling type

FUJITSU

REFRIGERANT R32

INVERTER

SERVICE MANUAL

INDOOR			
	ABUH18KUAS	ABUH24KUAS ABUH30KUAS	ABUH36KUAS
OUTDOOR			
	AOUH18KUAS1	AOUH24KUAS1	AOUH30KUAS1 AOUH36KUAS1

FUJITSU GENERAL LIMITED

SR_AB018ES_01
2024.11.21

Notices:
- Product specifications and design are subject to change without notice for future improvement.
- For further details, please check with our authorized dealer.

Trademarks

“AIRSTAGE Mobile” is a trademark of FUJITSU GENERAL LIMITED.

Google Play™ is trademark of Google LLC.

App Store® is a service mark of Apple Inc., registered in the U.S. and other countries.

CONTENTS

REFRIGERANT R32
INVERTER

1. GENERAL INFORMATION

CONTENTS

1. GENERAL INFORMATION

GENERAL INFORMATION

1. Specifications

1-1. Indoor unit

Type					Ceiling
					Inverter, Heat pump
Model name					**ABUH18KUAS**
Power supply intake					Outdoor unit
System power supply		Voltage		V	208/230
		Frequency		Hz	60
		Available voltage range		V	187—253
Indoor unit power supply (from outdoor unit)				V	208/230
Capacity	Cooling		Rated	kW	5.28
				Btu/h	18,000
			Min.—Max.	kW	0.91—5.89
				Btu/h	3,100—20,100
	Heating	47°FDB (Outdoor temp.)	Rated	kW	6.33
				Btu/h	21,600
			Min.—Max.	kW	0.91—7.50
				Btu/h	3,100—25,600
		17°FDB (Outdoor temp.)*1	Rated	kW	4.22
				Btu/h	14,400
			Max.	kW	5.66
				Btu/h	19,300
		5°FDB (Outdoor temp.)*2	Rated	kW	5.01
				Btu/h	17,100
			Max.	kW	5.01
				Btu/h	17,100
Input power	Cooling		Rated	kW	1.39
			Min.—Max.		0.18—2.01
	Heating	47°FDB (Outdoor temp.)	Rated		1.73
			Min.—Max.		0.15—2.86
		17°FDB (Outdoor temp.)*1	Rated		1.45
			Max.		2.40
		5°FDB (Outdoor temp.)*2	Rated		2.22
			Max.		2.22
	Fan		HIGH	W	36
			MED		28
			LOW		21
			QUIET		18
Current		Cooling	Rated	A	6.2
		Heating			7.6
EER2		Cooling		Btu/hW	12.9
COP2		Heating		kW/kW	3.64
SEER2		Cooling		Btu/hW	23.4
HSPF2		Heating			11.2
Power factor		Cooling		%	97.5
		Heating			99.0
Moisture removal				pints/h (L/h)	4.9 (2.3)
Maximum operating current*3		Cooling		A	12.2
		Heating			14.8
Fan	Airflow rate	Cooling	HIGH	CFM (m^3/h)	494 (840)
			MED		465 (790)
			LOW		418 (710)
			QUIET		383 (650)
		Heating	HIGH		494 (840)
			MED		465 (790)
			LOW		418 (710)
			QUIET		383 (650)
	Type × Qty				Sirocco fan × 2
	Motor output			W	50
Sound pressure level*4		Cooling	HIGH	dB (A)	38
			MED		36
			LOW		33
			QUIET		31
		Heating	HIGH		38
			MED		36
			LOW		33
			QUIET		31
Heat exchanger type		Dimensions (H × W × D)		in (mm)	11-9/16 × 28-1/8 × 1-9/16 (294 × 715 × 39.9)
		Fin pitch		FPI	20
		Rows × Stages			3 × 14
		Pipe type			Copper tube
		Fin type			Aluminum
Enclosure		Material			Steel sheet
		Color			White Approximate color of Munsell N9.25/
Dimensions (H × W × D)	Net			in (mm)	9-1/4 × 42-1/2 × 27-3/4 (235 × 1,080 × 705)
	Gross				13 × 45-7/8 × 32-1/2 (330 × 1,165 × 825)
Weight	Net			lb (kg)	53 (24)
	Gross				73 (33)
Connection pipe	Size	Liquid		in (mm)	Ø1/4 (Ø6.35)
		Gas			Ø1/2 (Ø12.70)
	Method				Flare
Drain hose	Material				Polyvinyl chloride
	Tip diameter			in (mm)	Ø13/16 (Ø20.7) (I.D.), Ø1-1/16 (Ø26.6) (O.D.)
Operation range		Cooling		°F (°C)	64 to 90 (18 to 32)
				%RH	80 or less
		Heating		°F (°C)	60 to 86 (16 to 30)

GENERAL INFORMATION

Type	Ceiling
	Inverter, Heat pump
Model name	**ABUH18KUAS**
Remote controller type (Option)	Wired, Wireless, Mobile app*5 (AIRSTAGE Mobile)

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80°FDB/67°FWB (26.67°CDB/19.44°CWB), and outdoor temperature of 95°FDB/75°FWB (35°CDB/23.9°CWB).
  - Heating: Indoor temperature of 70°FDB/60°FWB (21.11°CDB/15.56°CWB), and outdoor temperature of 47°FDB/43°FWB (8.33°CDB/6.11°CWB).
  - *1: Heating (17°F): Indoor temperature of 70°FDB/60°FWB (21.11°CDB/15.56°CWB), and outdoor temperature of 17°FDB/15°FWB (-8.33°CDB/-9.44°CWB).
  - *2: Heating (5°F): Indoor temperature of 70°FDB/60°FWB (21.11°CDB/15.56°CWB), and outdoor temperature of 5°FDB/4°FWB (-15.0°CDB/-15.56°CWB).
  - Test conditions are based on AHRI 210/240 2023.
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *3: Maximum current:
  - The maximum value when operated within the operation range.
  - The total current of indoor unit and outdoor unit.
- *4: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.
- *5: Available on Google Play™ store or on App Store®. Optional WLAN Adapter is also required. For details, refer to the setting manual.

GENERAL INFORMATION

Type					Ceiling	
					Inverter, Heat pump	
Model name					ABUH24KUAS	ABUH30KUAS
Power supply intake					Outdoor unit	
System power supply		Voltage		V	208/230	
		Frequency		Hz	60	
		Available voltage range		V	187—253	
Indoor unit power supply (from outdoor unit)				V	208/230	
Capacity	Cooling		Rated	kW	7.03	8.79
				Btu/h	24,000	30,000
			Min.—Max.	kW	1.58—8.21	2.81—10.26
				Btu/h	5,400—28,000	9,600—35,000
	Heating	47°FDB (Outdoor temp.)	Rated	kW	7.91	9.38
				Btu/h	27,000	32,000
			Min.—Max.	kW	1.58—9.38	2.70—11.14
				Btu/h	5,400—32,000	9,200—38,000
		17°FDB (Outdoor temp.)*1	Rated	kW	5.22	6.21
				Btu/h	17,800	21,200
			Max.	kW	7.62	9.05
				Btu/h	26,000	30,900
		5°FDB (Outdoor temp.)*2	Rated	kW	6.92	8.21
				Btu/h	23,600	28,000
			Max.	kW	6.92	8.21
				Btu/h	23,600	28,000
Input power	Cooling		Rated	kW	1.87	2.50
			Min.—Max.		0.42—2.82	0.42—3.63
	Heating	47°FDB (Outdoor temp.)	Rated		1.97	2.40
			Min.—Max.		0.47—3.00	0.63—3.83
		17°FDB (Outdoor temp.)*1	Rated		1.60	2.02
			Max.		3.24	3.92
		5°FDB (Outdoor temp.)*2	Rated		3.33	3.95
			Max.		3.33	3.95
	Fan		HIGH	W	48	69
			MED		27	38
			LOW		19	26
			QUIET		12	16
Current		Cooling	Rated	A	8.3	11.0
		Heating			8.7	10.6
EER2		Cooling		Btu/hW	12.8	12.0
COP2		Heating		kW/kW	4.0	3.9
SEER2		Cooling		Btu/hW	21.7	20.8
HSPF2		Heating			10.8	10.5
Power factor		Cooling		%	98.0	98.8
		Heating			98.5	98.4
Moisture removal				pints/h (L/h)	6.1 (2.9)	8.2 (3.9)
Maximum operating current*3		Cooling		A	15.9	19.8
		Heating			15.9	19.8
Fan	Airflow rate	Cooling	HIGH	CFM (m^3/h)	724 (1,230)	824 (1,400)
			MED		583 (990)	659 (1,120)
			LOW		506 (860)	577 (980)
			QUIET		412 (700)	471 (800)
		Heating	HIGH		724 (1,230)	824 (1,400)
			MED		583 (990)	659 (1,120)
			LOW		506 (860)	577 (980)
			QUIET		412 (700)	471 (800)
	Type × Qty				Sirocco fan × 3	
	Motor output			W	80	
Sound pressure level*4		Cooling	HIGH	dB (A)	41	45
			MED		36	40
			LOW		32	35
			QUIET		29	32
		Heating	HIGH		41	45
			MED		36	40
			LOW		32	35
			QUIET		29	32
Heat exchanger type		Dimensions (H × W × D)		in (mm)	11-9/16 × 40-3/8 × 1-9/16 (294 × 1,025 × 39.9)	
		Fin pitch		FPI	20	
		Rows × Stages			3 × 14	
		Pipe type			Copper tube	
		Fin type			Aluminum	
Enclosure		Material			Steel sheet	
		Color			White Approximate color of Munsell N9.25/	
Dimensions (H × W × D)	Net			in (mm)	9-1/4 × 54-3/4 × 27-3/4 (235 × 1,390 × 705)	
	Gross				13 × 58-1/16 × 32-1/2 (330 × 1,475 × 825)	
Weight	Net			lb (kg)	68 (31)	
	Gross				90 (41)	
Connection pipe	Size	Liquid		in (mm)	Ø1/4 (Ø6.35)	Ø3/8 (Ø9.52)
		Gas			Ø1/2 (Ø12.70)	Ø5/8 (Ø15.88)
	Method				Flare	
Drain hose	Material				Polyvinyl chloride	
	Tip diameter			in (mm)	Ø13/16 (Ø20.7) (I.D.), Ø1-1/16 (Ø26.6) (O.D.)	
Operation range		Cooling		°F (°C)	64 to 90 (18 to 32)	
				%RH	80 or less	
		Heating		°F (°C)	60 to 86 (16 to 30)	
Remote controller type (Option)					Wired, Wireless, Mobile app*5 (AIRSTAGE Mobile)	

GENERAL INFORMATION

Type	Ceiling	
	Inverter, Heat pump	
Model name	ABUH24KUAS	ABUH30KUAS

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80°FDB/67°FWB (26.67°CDB/19.44°CWB), and outdoor temperature of 95°FDB/75°FWB (35°CDB/23.9°CWB).
  - Heating: Indoor temperature of 70°FDB/60°FWB (21.11°CDB/15.56°CWB), and outdoor temperature of 47°FDB/43°FWB (8.33°CDB/6.11°CWB).
  - *1: Heating (17°F): Indoor temperature of 70°FDB/60°FWB (21.11°CDB/15.56°CWB), and outdoor temperature of 17°FDB/15°FWB (-8.33°CDB/-9.44°CWB).
  - *2: Heating (5°F): Indoor temperature of 70°FDB/60°FWB (21.11°CDB/15.56°CWB), and outdoor temperature of 5°FDB/4°FWB (-15.0°CDB/-15.56°CWB).
  - Test conditions are based on AHRI 210/240 2023.
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *3: Maximum current:
  - The maximum value when operated within the operation range.
  - The total current of indoor unit and outdoor unit.
- *4: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.
- *5: Available on Google Play™ store or on App Store®. Optional WLAN Adapter is also required. For details, refer to the setting manual.

GENERAL INFORMATION

Type					Ceiling
					Inverter, Heat pump
Model name					**ABUH36KUAS**
Power supply intake					Outdoor unit
System power supply		Voltage		V	208/230
		Frequency		Hz	60
		Available voltage range		V	187—253
Indoor unit power supply (from outdoor unit)				V	208/230
Capacity	Cooling		Rated	kW	10.55
				Btu/h	36,000
			Min.—Max.	kW	2.81—11.43
				Btu/h	9,600—39,000
	Heating	47°FDB (Outdoor temp.)	Rated	kW	11.14
				Btu/h	38,000
			Min.—Max.	kW	2.7—12.6
				Btu/h	9,200—43,000
		17°FDB (Outdoor temp.)*1	Rated	kW	7.44
				Btu/h	25,400
			Max.	kW	10.11
				Btu/h	34,500
		5°FDB (Outdoor temp.)*2	Rated	kW	9.09
				Btu/h	31,000
			Max.	kW	9.09
				Btu/h	31,000
Input power	Cooling		Rated	kW	3.21
			Min.—Max.		0.42—4.08
	Heating	47°FDB (Outdoor temp.)	Rated		2.82
			Min.—Max.		0.63—4.13
		17°FDB (Outdoor temp.)*1	Rated		2.39
			Max.		4.27
		5°FDB (Outdoor temp.)*2	Rated		4.33
			Max.		4.33
	Fan		HIGH	W	94
			MED		51
			LOW		34
			QUIET		22
Current		Cooling	Rated	A	14.1
		Heating			12.4
EER2		Cooling		Btu/hW	11.2
COP2		Heating		kW/kW	3.94
SEER2		Cooling		Btu/hW	21.3
HSPF2		Heating			10.4
Power factor		Cooling		%	99.0
		0Heating			98.9
Moisture removal				pints/h (L/h)	9.1 (4.3)
Maximum operating current*3		Cooling		A	20.8
		Heating			20.8
Fan	Airflow rate	Cooling	HIGH	CFM (m^3/h)	1,089 (1,850)
			MED		865 (1,470)
			LOW		765 (1,300)
			QUIET		618 (1,050)
		Heating	HIGH		1,059 (1,800)
			MED		865 (1,470)
			LOW		765 (1,300)
			QUIET		618 (1,050)
	Type × Qty				Sirocco fan × 4
	Motor output			W	110
Sound pressure level*4		Cooling	HIGH	dB (A)	44
			MED		40
			LOW		37
			QUIET		32
		Heating	HIGH		44
			MED		40
			LOW		37
			QUIET		32
Heat exchanger type		Dimensions (H × W × D)		in (mm)	11-9/16 × 52-9/16 × 1-9/16 (294 × 1,335 × 39.9)
		Fin pitch		FPI	20
		Rows × Stages			3 × 14
		Pipe type			Copper tube
		Fin type			Aluminum
Enclosure		Material			Steel sheet
		Color			White Approximate color of Munsell N9.25/
Dimensions (H × W × D)	Net			in (mm)	9-1/4 × 66-15/16× 27-3/4 (235 × 1,700 × 705)
	Gross				13 × 70-1/4 × 32-1/2 (330 × 1,785 × 825)
Weight	Net			lb (kg)	84 (38)
	Gross				106 (48)
Connection pipe	Size	Liquid		in (mm)	Ø3/8 (Ø9.52)
		Gas			Ø5/8 (Ø15.88)
	Method				Flare
Drain hose	Material				Polyvinyl chloride
	Tip diameter			in (mm)	Ø13/16 (Ø20.7) (I.D.), Ø1-1/16 (Ø26.6) (O.D.)
Operation range		Cooling		°F (°C)	64 to 90 (18 to 32)
				%RH	80 or less
		Heating		°F (°C)	60 to 86 (16 to 30)
Remote controller type (Option)					Wired, Wireless, Mobile app*5 (AIRSTAGE Mobile)

GENERAL INFORMATION

Type	Ceiling
	Inverter, Heat pump
Model name	ABUH36KUAS

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80°FDB/67°FWB (26.67°CDB/19.44°CWB), and outdoor temperature of 95°FDB/75°FWB (35°CDB/23.9°CWB).
  - Heating: Indoor temperature of 70°FDB/60°FWB (21.11°CDB/15.56°CWB), and outdoor temperature of 47°FDB/43°FWB (8.33°CDB/6.11°CWB).
  - *1: Heating (17°F): Indoor temperature of 70°FDB/60°FWB (21.11°CDB/15.56°CWB), and outdoor temperature of 17°FDB/15°FWB (-8.33°CDB/-9.44°CWB).
  - *2: Heating (5°F): Indoor temperature of 70°FDB/60°FWB (21.11°CDB/15.56°CWB), and outdoor temperature of 5°FDB/4°FWB (-15.0°CDB/-15.56°CWB).
  - Test conditions are based on AHRI 210/240 2023.
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *3: Maximum current:
  - The maximum value when operated within the operation range.
  - The total current of indoor unit and outdoor unit.
- *4: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.
- *5: Available on Google Play™ store or on App Store®. Optional WLAN Adapter is also required. For details, refer to the setting manual.

GENERAL INFORMATION

1-2. Outdoor unit

■ Model: AOUH18KUAS1

Type				Inverter, Heat pump
Model name				**AOUH18KUAS1**
Power supply				208/230 V~ 60 Hz
Power supply intake				Outdoor unit
Available voltage range				187—253 V
Starting current			A	7.6
Fan	Airflow rate	Cooling	CFM (m^3/h)	1,318 (2,240)
		Heating		1,154 (1,960)
	Type × Qty			Propeller fan × 1
	Motor output		W	49
Sound pressure level*1		Cooling	dB (A)	52
		Heating		55
Heat exchanger type		Dimensions (H × W × D)	in (mm)	Main 1: 23-1/8 × 34-11/16 × 11/16 (588 × 881 × 18.19) Main 2: 23-1/8 × 33-1/2 × 11/16 (588 × 851 × 18.19)
		Fin pitch	FPI	Main 1: 20 Main 2: 20
		Rows × Stages		Main 1: 1 × 28 Main 2: 1 × 28
		Pipe type		Copper tube
		Fin type	Type (Material)	Aluminum
			Surface treatment	PC fin
Compressor		Type		DC twin rotary
		Motor output	W	1,030
Refrigerant		Type		R32
		Charge	lb oz	2 lb 12 oz
			g	1,250
Refrigerant oil		Type		RmM68AF
		Amount	in^3 (cm^3)	24.4 (400)
Enclosure		Material		Steel sheet
		Color		Beige Approximate color of Munsell 10YR 7.5/1.0
Dimensions (H × W × D)		Net	in (mm)	24-7/8 × 31-7/16 × 11-7/16 (632 × 799 × 290)
		Gross		27-1/4 × 37 × 14-3/4 (692 × 940 × 375)
Weight		Net	lb (kg)	84 (38)
		Gross		93 (42)
Connection pipe	Size	Liquid	in (mm)	Ø1/4 (Ø6.35)
		Gas		Ø1/2 (Ø12.70)
	Method			Flare
	Pre-charge length		ft (m)	66 (20)
	Min. length			16 (5)
	Max. length			98 (30)
	Max. height difference			49 (15)
Operation range		Cooling	°F (°C)	-5 to 122*2 (-21 to 50*2)
		Heating		-5 to 75 (-21 to 24)
Drain hose		Material		Low-density polyethylene
		Tip diameter	in (mm)	Ø1/2 (Ø13.0) (I.D.), Ø5/8 to Ø11/16 (Ø16.0 to Ø16.7) (O.D.)

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80°FDB (26.67°CDB)/67°FWB (19.44°CWB), and outdoor temperature of 95°FDB (35°CDB)/75°FWB (23.9°CWB).
  - Heating: Indoor temperature of 70°FDB (21.11°CDB)/59°FWB (15°CWB), and outdoor temperature of 47°FDB (8.33°CDB)/43°FWB (6.11°CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: Sound pressure level
  - Measured values in manufacturer's semi-anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.
- *2: Suction temperature of the outdoor unit

GENERAL INFORMATION

■ Model: AOUH24KUAS1

Type				Inverter, Heat pump
Model name				**AOUH24KUAS1**
Power supply				208/230 V~ 60 Hz
Power supply intake				Outdoor unit
Available voltage range				187—253 V
Starting current			A	8.7
Fan	Airflow rate	Cooling	CFM (m^3/h)	2,187 (3,715)
		Heating		2,187 (3,715)
	Type × Qty			Propeller fan × 1
	Motor output		W	100
Sound pressure level*1		Cooling	dB (A)	52
		Heating		54
Heat exchanger type		Dimensions (H × W × D)	in (mm)	Main 1: 29-3/4 × 35-5/8 × 11/16 (756 × 905 × 18.19) Main 2: 29-3/4 × 35-5/8 × 11/16 (756 × 905 × 18.19)
		Fin pitch	FPI	Main 1: 18 Main 2: 18
		Rows × Stages		Main 1: 1 × 36 Main 2: 1 × 36
		Pipe type		Copper tube
		Fin type	Type (Material)	Aluminum
			Surface treatment	Blue fin
Compressor		Type		DC twin rotary
		Motor output	W	1,360
Refrigerant		Type		R32
		Charge	lb oz	3 lb 5 oz
			g	1,500
Refrigerant oil		Type		RmM68AF
		Amount	in^3 (cm^3)	48.8 (800)
Enclosure		Material		Steel sheet
		Color		Beige Approximate color of Munsell 10YR 7.5/1.0
Dimensions (H × W × D)		Net	in (mm)	31 × 37 × 12-5/8 (788 × 940 × 320)
		Gross		38-1/16 × 40-7/16 × 17-1/2 (966 × 1,027 × 445)
Weight		Net	lb (kg)	115 (52)
		Gross		132 (60)
Connection pipe	Size	Liquid	in (mm)	Ø1/4 (Ø6.35)
		Gas		Ø1/2 (Ø12.70)
	Method			Flare
	Pre-charge length		ft (m)	66 (20)
	Min. length			16 (5)
	Max. length			164 (50)
	Max. height difference			98 (30)
Operation range		Cooling	°F (°C)	-5 to 122*2 (-21 to 50*2)
		Heating		-5 to 75 (-21 to 24)
Drain hose		Material		Low-density polyethylene
		Tip diameter	in (mm)	Ø1/2 (Ø13.0) (I.D.), Ø5/8 to Ø11/16 (Ø16.0 to Ø16.7) (O.D.)

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80°FDB (26.67°CDB)/67°FWB (19.44°CWB), and outdoor temperature of 95°FDB (35°CDB)/75°FWB (23.9°CWB).
  - Heating: Indoor temperature of 70°FDB (21.11°CDB)/59°FWB (15°CWB), and outdoor temperature of 47°FDB (8.33°CDB)/43°FWB (6.11°CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: Sound pressure level
  - Measured values in manufacturer's semi-anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.
- *2: Suction temperature of the outdoor unit

GENERAL INFORMATION

■ Models: AOUH30KUAS1 and AOUH36KUAS1

Type				Inverter, Heat pump	
Model name				AOUH30KUAS1	AOUH36KUAS1
Power supply				208/230 V~ 60 Hz	
Power supply intake				Outdoor unit	
Available voltage range				187—253 V	
Starting current			A	11.0	14.1
Fan	Airflow rate	Cooling	CFM (m^3/h)	2,301 (3,910)	2,502 (4,250)
		Heating		2,219 (3,770)	2,431 (4,130)
	Type × Qty			Propeller fan × 1	
	Motor output		W	120	
Sound pressure level*2		Cooling	dB (A)	53	54
		Heating		55	56
Heat exchanger type		Dimensions (H × W × D)	in (mm)	Main 1: 38-1/16 × 35-5/8 × 11/16 (966 × 905 × 18.19) Main 2: 38-1/16 × 35-5/8 × 11/16 (966 × 905 × 18.19)	
		Fin pitch	FPI	Main 1: 18 Main 2: 18	
		Rows × Stages		Main 1: 1 × 46 Main 2: 1 × 46	
		Pipe type		Copper tube	
		Fin type	Type (Material)	Aluminum	
			Surface treatment	Blue fin	
Compressor		Type		DC twin rotary	
		Motor output	W	1,830	
Refrigerant		Type		R32	
		Charge	lb oz	4 lb 7 oz	
			g	2,000	
Refrigerant oil		Type		RmM68AF	
		Amount	in^3 (cm^3)	48.8 (800)	
Enclosure		Material		Steel sheet	
		Color		Beige Approximate color of Munsell 10YR 7.5/1.0	
Dimensions (H × W × D)		Net	in (mm)	39-5/16 × 37 × 12-5/8 (998 × 940 × 320)	
		Gross		46-5/16 × 40-7/16 × 17-1/2 (1,176 × 1,027 × 445)	
Weight		Net	lb (kg)	137 (62)	
		Gross		157 (71)	
Connection pipe	Size	Liquid	in (mm)	Ø3/8 (Ø9.52)	
		Gas		Ø5/8 (Ø15.88)	
	Method			Flare	
	Pre-charge length		ft (m)	66 (20)	
	Min. length			16 (5)	
	Max. length			164 (50)	
	Max. height difference			98 (30)	
Operation range		Cooling	°F (°C)	-5 to 122*2 (-21 to 50*2)	
		Heating		-5 to 75 (-21 to 24)	
Drain hose		Material		Low-density polyethylene	
		Tip diameter	in (mm)	Ø1/2 (Ø13.0) (I.D.), Ø5/8 to Ø11/16 (Ø16.0 to Ø16.7) (O.D.)	

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80°FDB (26.67°CDB)/67°FWB (19.44°CWB), and outdoor temperature of 95°FDB (35°CDB)/75°FWB (23.9°CWB).
  - Heating: Indoor temperature of 70°FDB (21.11°CDB)/59°FWB (15°CWB), and outdoor temperature of 47°FDB (8.33°CDB)/43°FWB (6.11°CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: Sound pressure level
  - Measured values in manufacturer's semi-anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.
- *2: Suction temperature of the outdoor unit

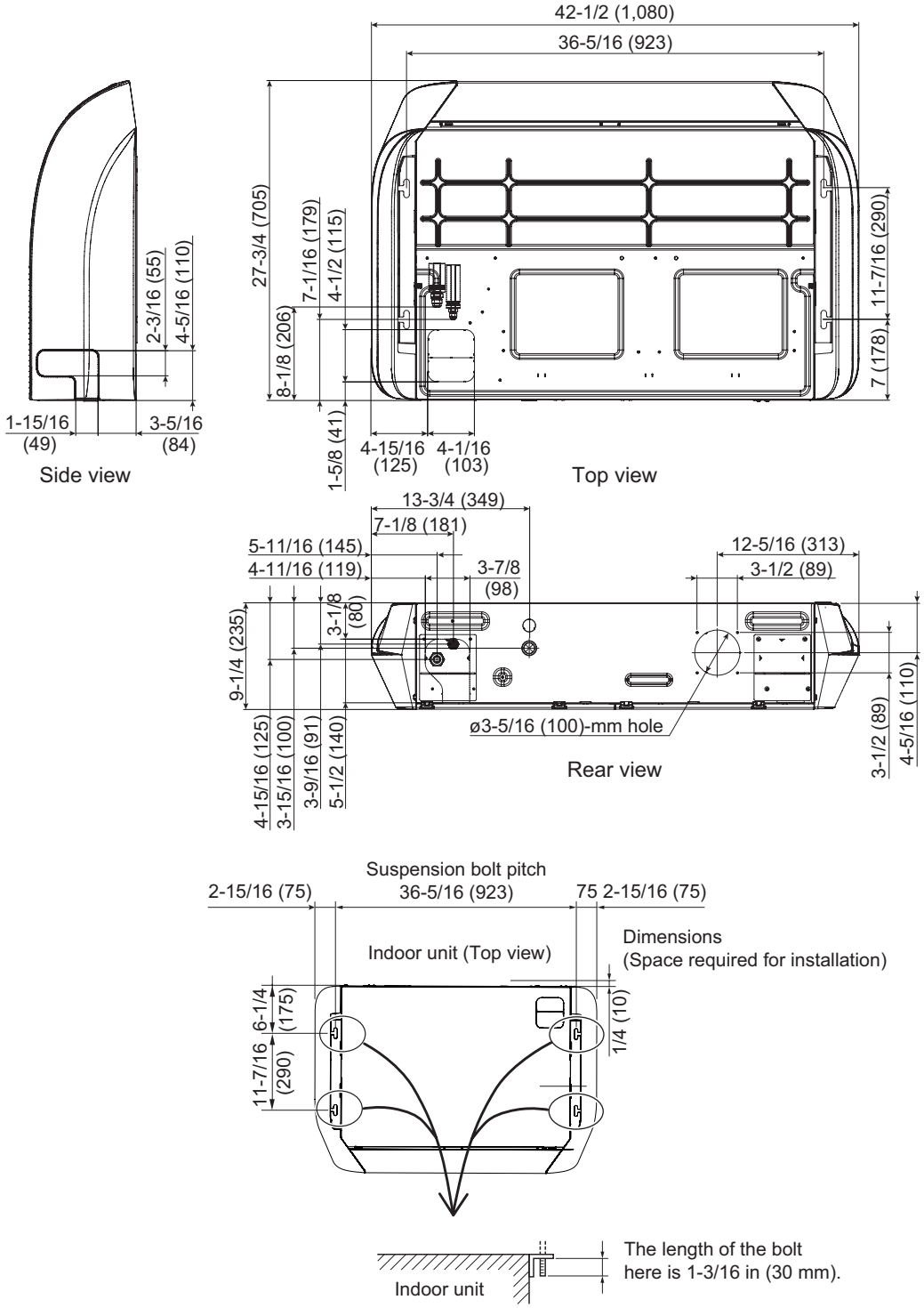
GENERAL INFORMATION

2. Dimensions

2-1. Indoor unit

■ Model: ABUH18KUAS

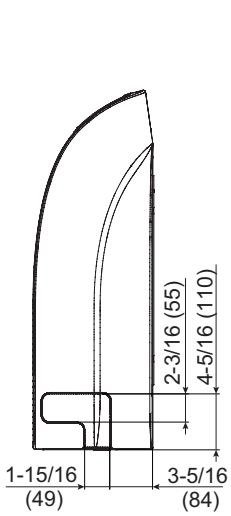
Unit: in (mm)



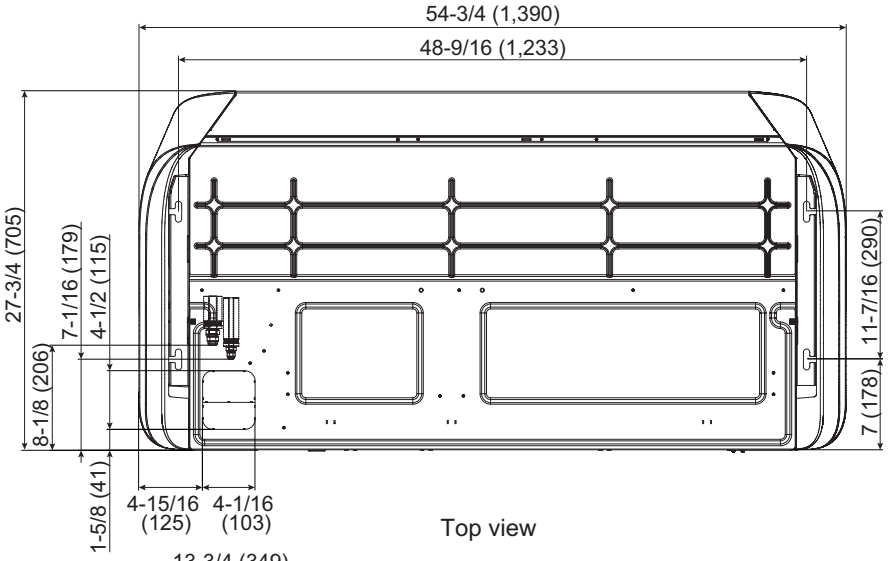
GENERAL INFORMATION

■ Models: ABUH24KUAS and ABUH30KUAS

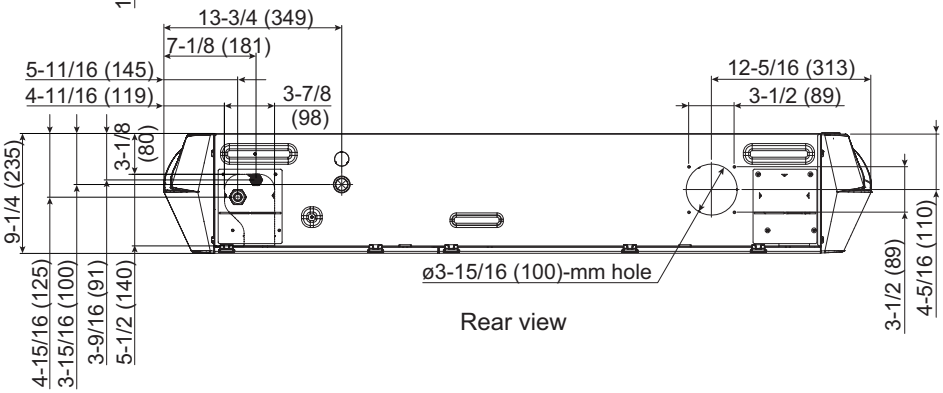
Unit: in (mm)



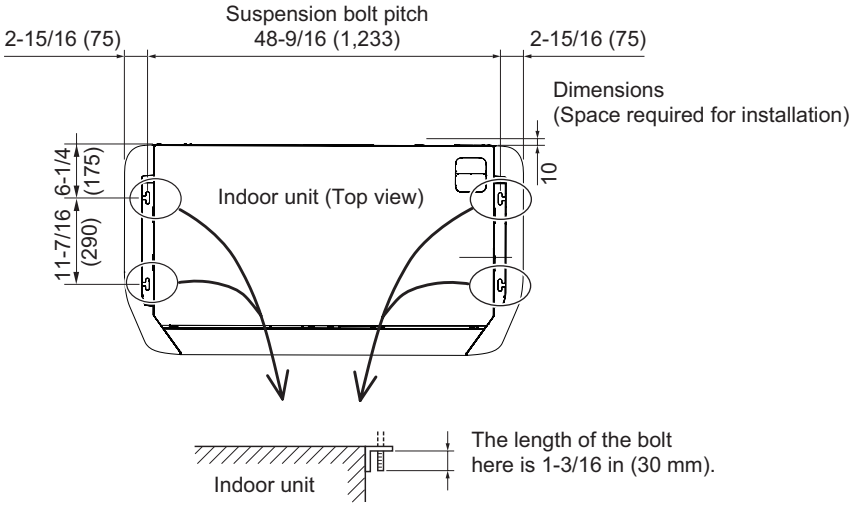
Side view



Top view



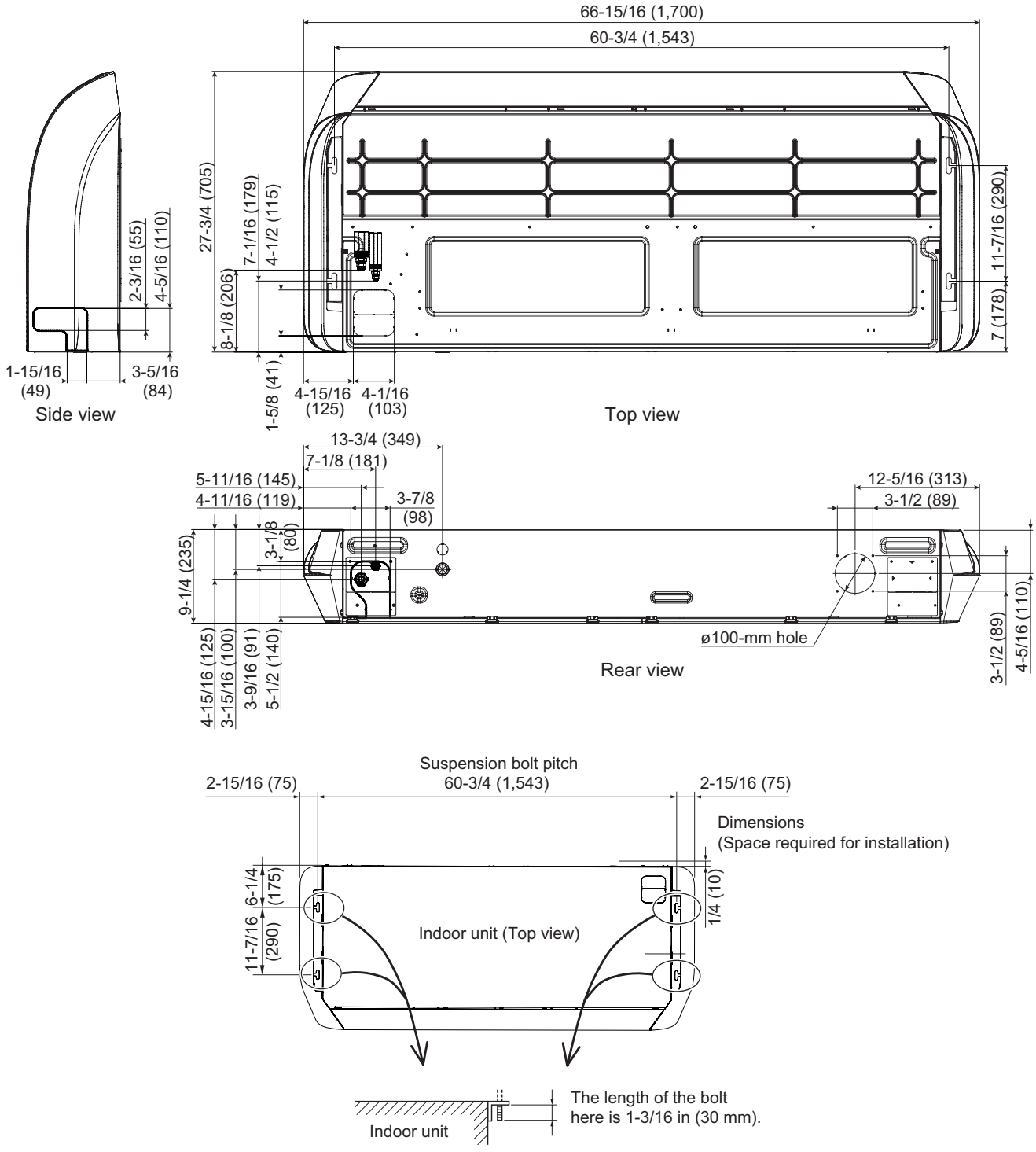
Rear view



GENERAL INFORMATION

■ Model: ABUH36KUAS

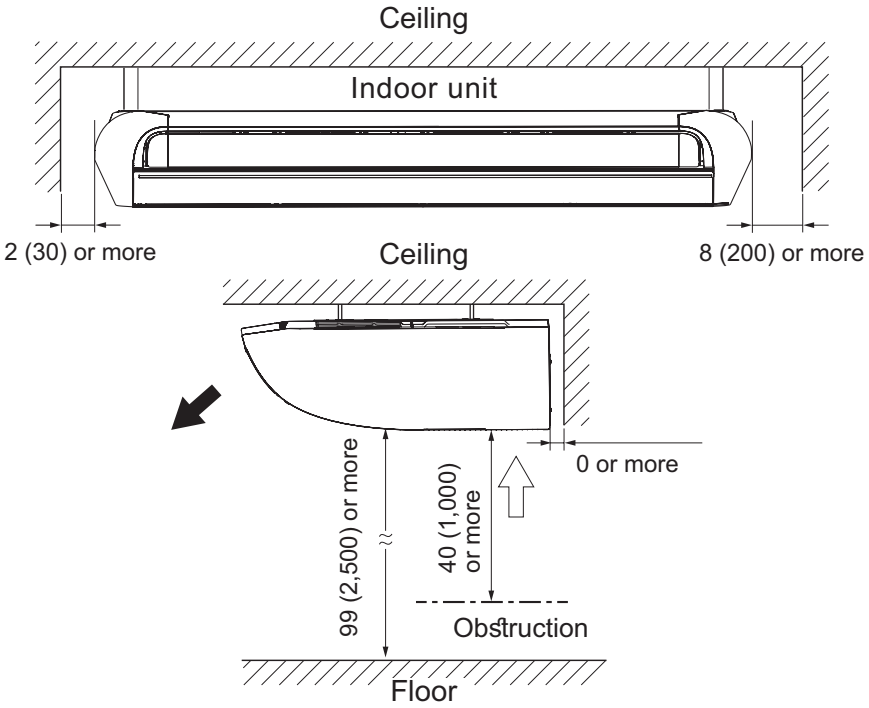
Unit: in (mm)



GENERAL INFORMATION

■ Installation space requirement

Unit: in (mm)



Required ceiling height varies according to the ceiling mode setting of function setting No. 20.

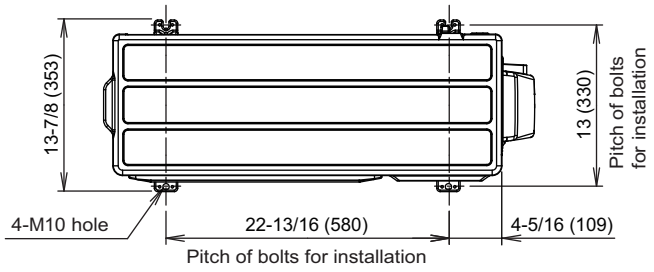
Ceiling height		
in (mm)		
Ceiling mode	Standard	High ceiling
18, 24, and 30 models	107 (2,700)	138 (3,500)
36 model	138 (3,500)	170 (4,300)

GENERAL INFORMATION

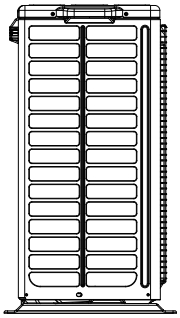
2-2. Outdoor unit

■ Model: AOUH18KUAS1

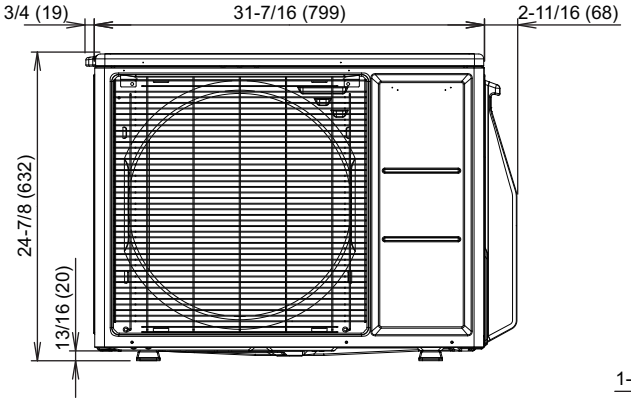
Unit: in (mm)



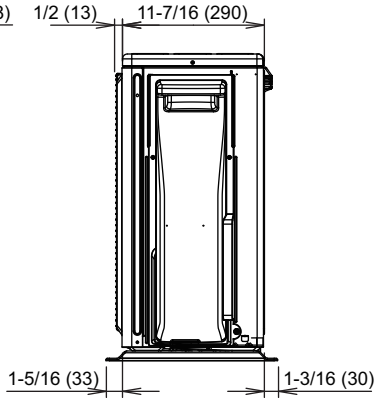
Top view



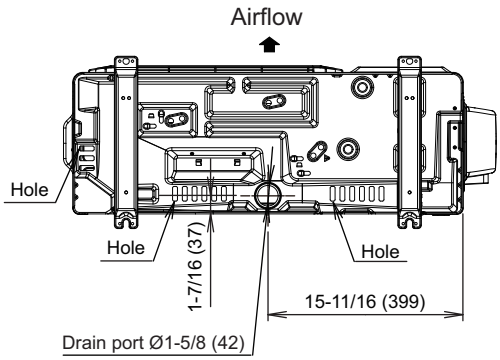
Side view



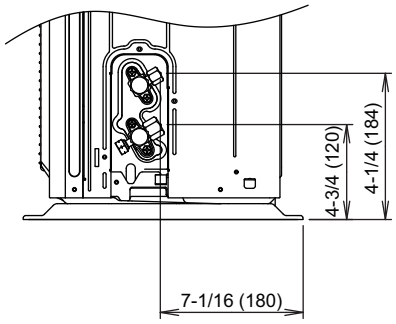
Front view



Side view



Bottom view

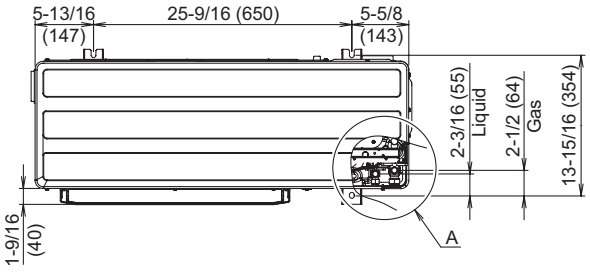


Side view (Valve part)

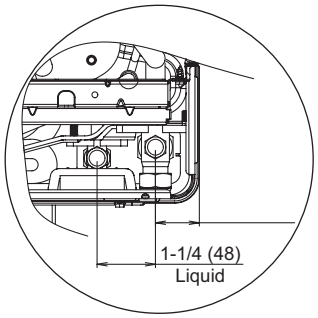
GENERAL INFORMATION

■ Model: AOUH24KUAS1

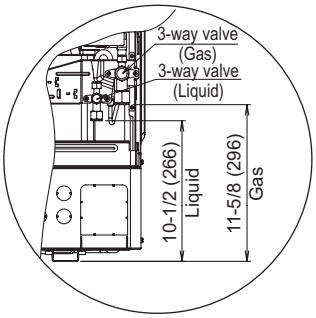
Unit: in (mm)



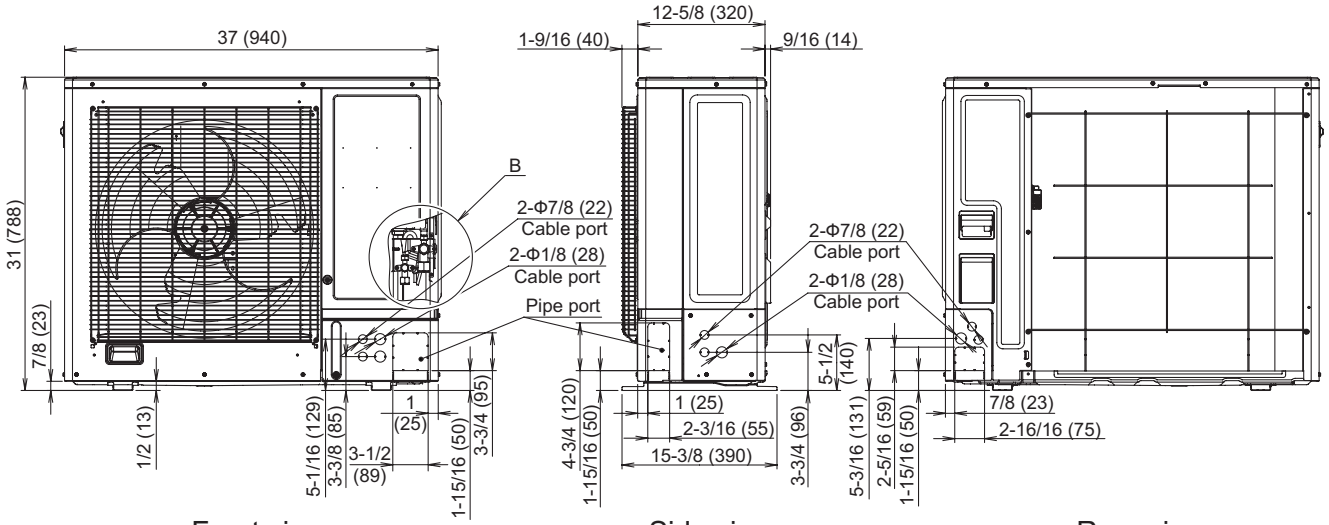
Top view



Detail A



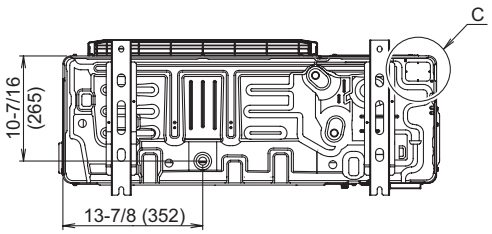
Detail B



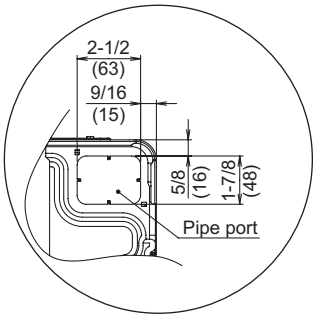
Front view

Side view

Rear view



Bottom view

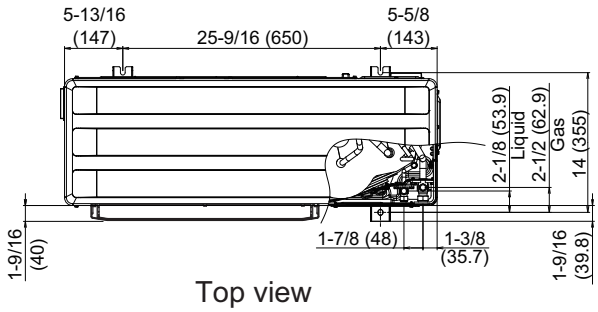


Detail C

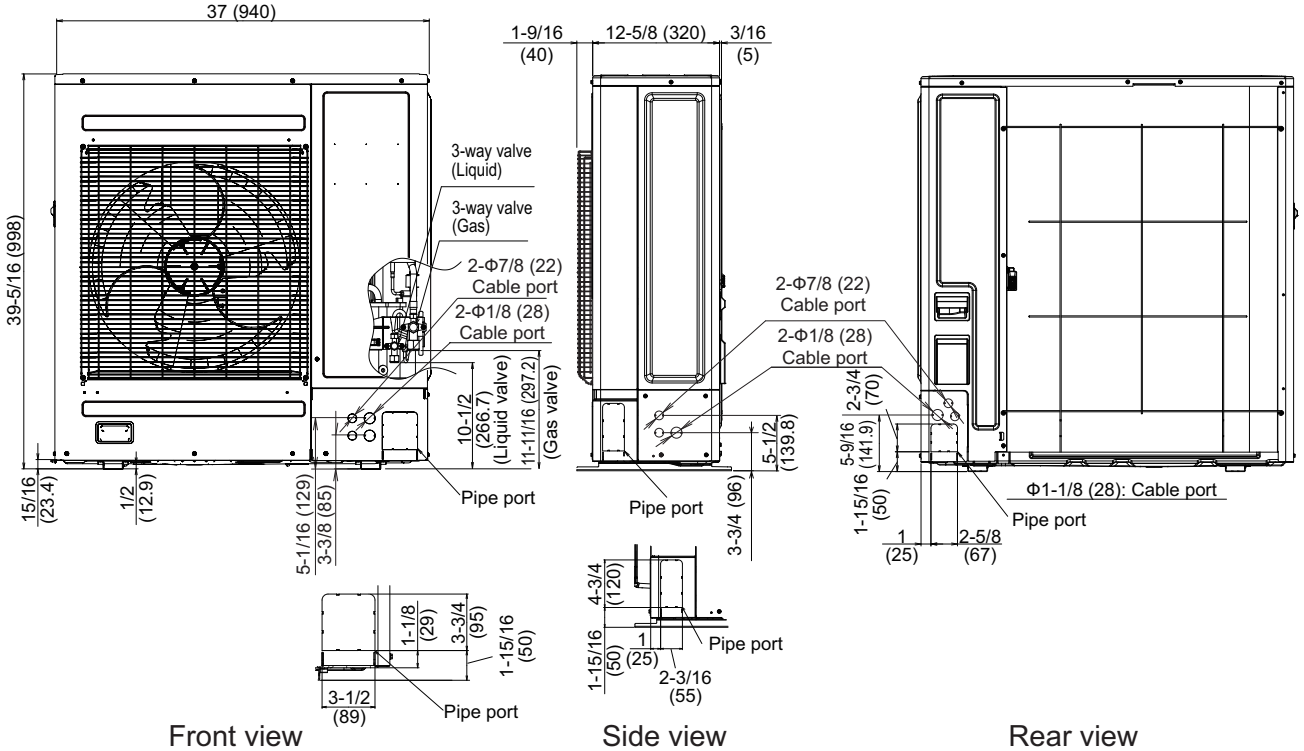
GENERAL INFORMATION

■ Models: AOUH30KUAS1 and AOUH36KUAS1

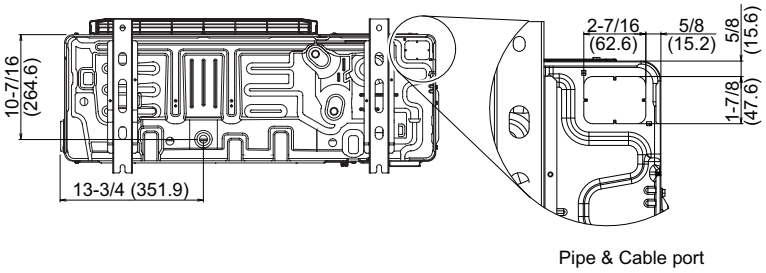
Unit: in (mm)



Top view



Front view Side view Rear view



Bottom view

REFRIGERANT R32
INVERTER

2. TECHNICAL DATA AND PARTS LIST

2024.11.06
SR_CH02_AB018ES_01

CONTENTS

2. TECHNICAL DATA AND PARTS LIST

TECHNICAL DATA AND PARTS LIST

1. Precautions

When you start servicing, pay attention to the following points. For detailed precautions, refer to the installation manual of the products.

⚠ CAUTION

- Service personnel
  - Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognized assessment specification.
  - Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.
  - Servicing shall be performed only as recommended by the manufacturer.
- Work
  - Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. When repairing the refrigerant system, refer to the precautions written in the installation manual of the products before you start servicing.
  - Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.
  - All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out.
  - Work in confined spaces shall be avoided.
  - The area around the workspace shall be sectioned off.
  - Ensure that the conditions within the area have been made safe by control of flammable material.
  - Electric shock may occur. After turning off the power, always wait 5 minutes before touching electrical components.
  - Do not touch the fins of the heat exchanger. Touching the heat exchanger fins could result in damage to the fins or personal injury such as skin rupture.
  - Do not place any other electrical products or household belongings under the product.
  - Condensation dripping from the product might get them wet, and may cause damage or malfunction to the property.
- Checking for presence of refrigerant
  - The area shall be checked with an appropriate refrigerant leak detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres.
  - Ensure that the leak detector being used is suitable for use with flammable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

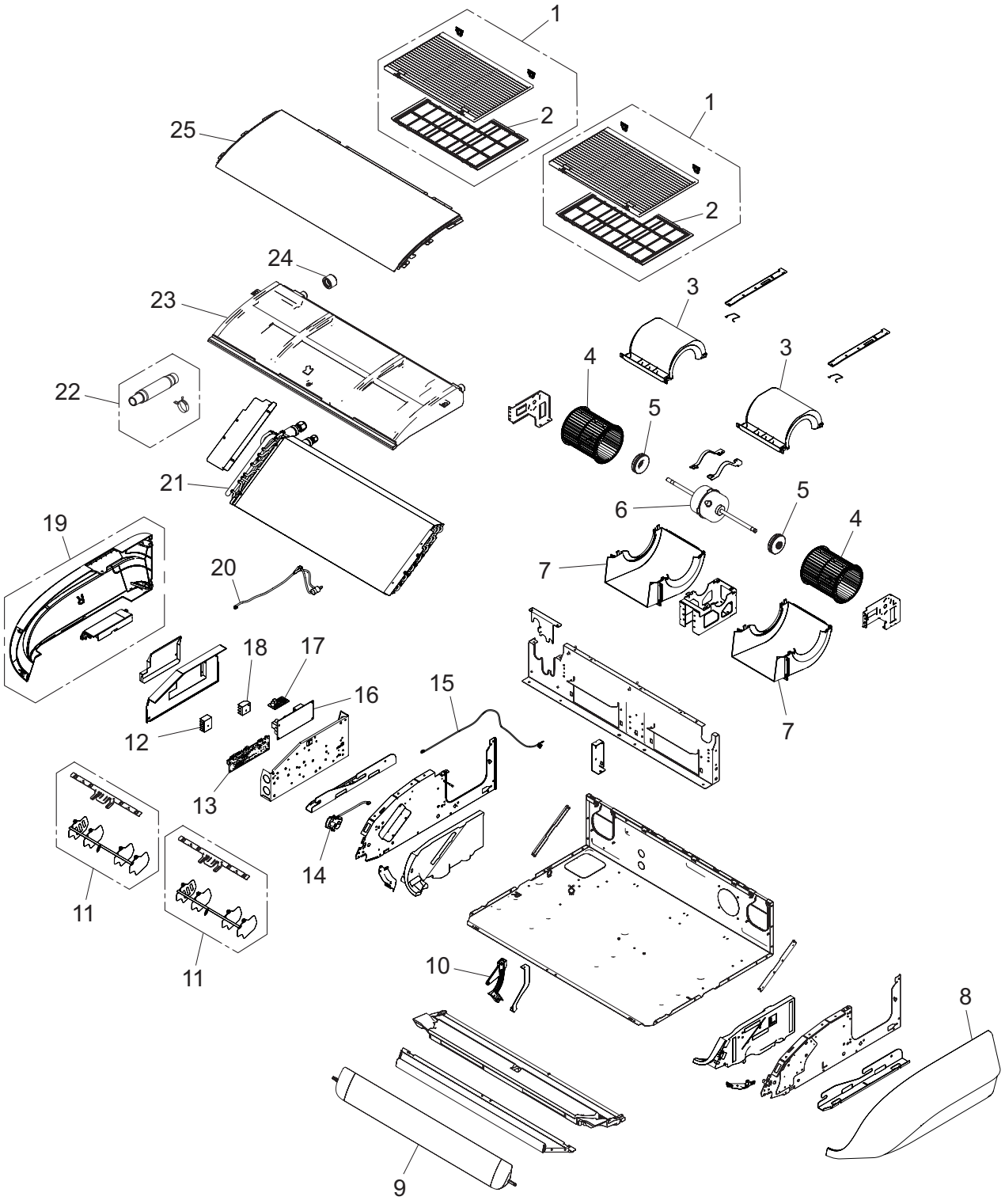
- Service parts information and design are subject to change without notice for product improvement.
- For the latest information of the service parts, refer to our Service Portal.
  https://fujitsu-general.force.com/portal/
- Precise figure of the service parts listed in this manual may differ from the actual service parts.

TECHNICAL DATA AND PARTS LIST

2. Indoor unit parts list

2-1. Model: ABUH18KUAS

■ Chassis



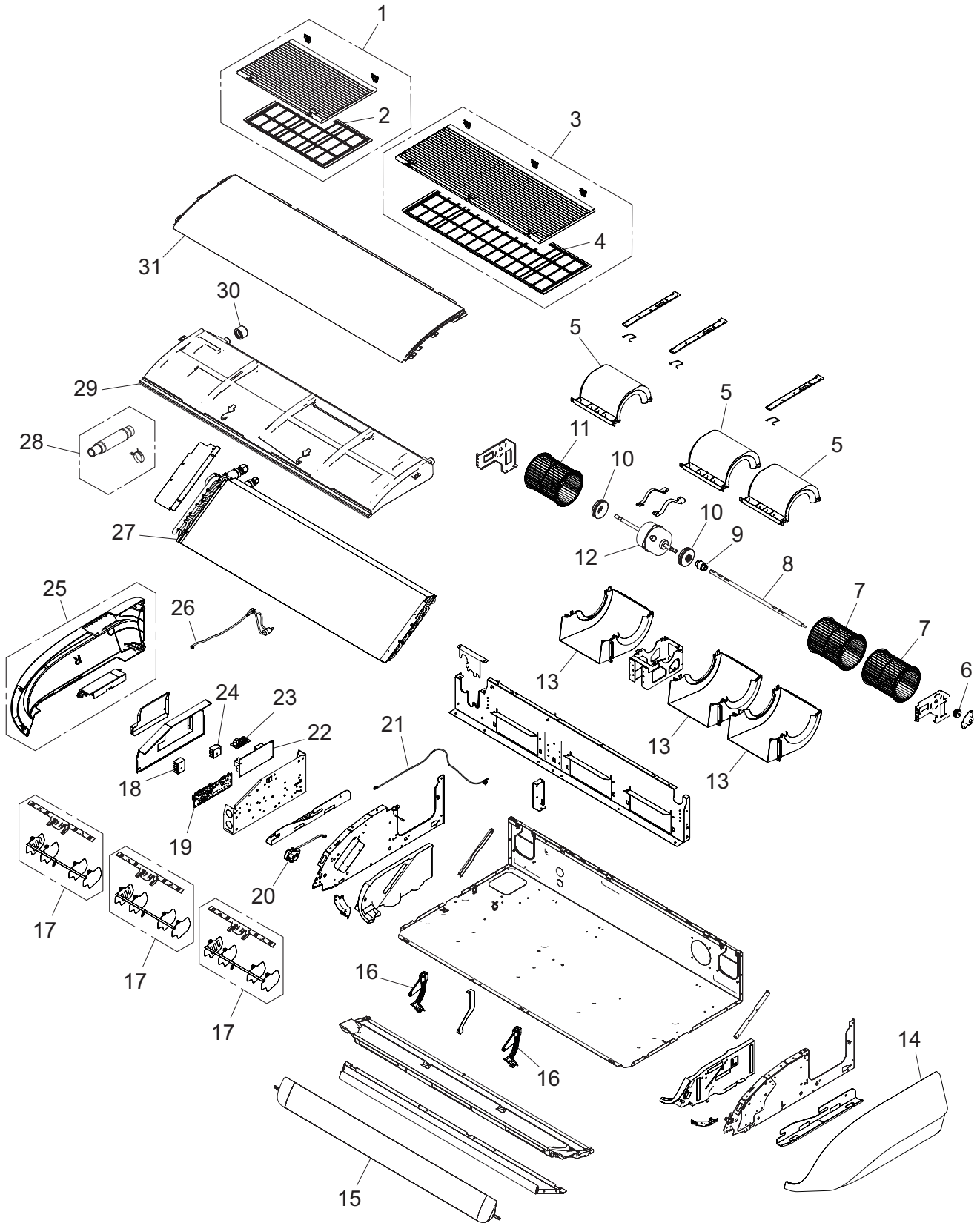
TECHNICAL DATA AND PARTS LIST

Item no.	Part no.	Part name
1	9384321015	Intake grille B sub assy
2	9383342011	Air filter B
3	9384307002	Casing U assy
4	9384110015	Sirocco fan assy
5	9383443008	Rubber (Vibration proof)
6	9603817008	DC fan motor
7	9384311009	Casing B assy
8	9383406003	Side panel L
9	9384144027	Flap assy (2-fan)
10	9383386008	Flap hinge
11	9384375001	L and R louver assy
12	9901150012	Terminal block 5P
13	9712270381	Main PCB
14	9384312013	Gear box sub assy (including stepping motor)
15	9900960049	Thermistor (Room temp.)
16	9712452039	Power supply PCB
17	9710019005	Communication PCB
18	9306489045	Terminal block 3P
19	9384320001	Side panel R sub assy
20	9900892029	Thermistor (Pipe temp.)
21	9384287106	Evaporator total assy
22	9384324016	Hose sub assy
23	9384364029	Drain pan total assy (2-fan)
24	9358746004	Drain cap
25	9384241023	Front panel (2-fan) assy
—	9710177095	Wire with connector (CN46 on Main PCB—1 and 2 on Terminal block 5P)
—	9712283046	Wire with connector (CN54 on Main PCB—CN262 on Power supply PCB)
—	9710206047	Wire with connector (CN55 on Main PCB—CN263 on Power supply PCB)
—	9712410022	Wire with connector (CN300 on Main PCB—Y1 and Y2 on Terminal block 5P)
—	9712510005	Wire with connector (CN205 on Power supply PCB—Terminal block 3P)

TECHNICAL DATA AND PARTS LIST

2-2. Models: ABUH24KUAS and ABUH30KUAS

■ Chassis



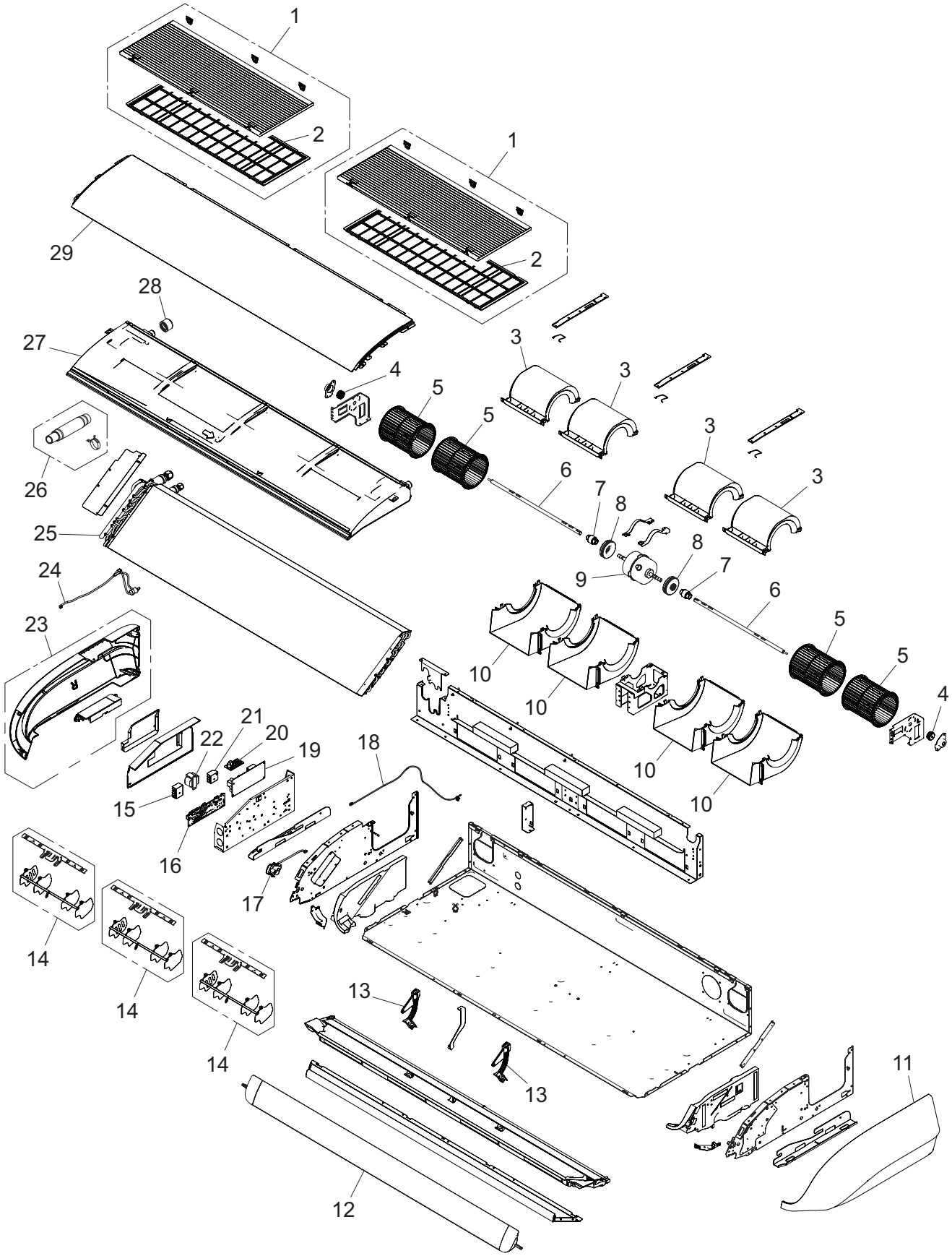
TECHNICAL DATA AND PARTS LIST

Item no.	Part no.	Part name
1	9384321015	Intake grille B sub assy
2	9383342011	Air filter B
3	9384321008	Intake grille A sub assy
4	9383342004	Air filter A
5	9384307002	Casing U assy
6	9357921006	Bearing B assy
7	9384110008	Sirocco fan assy
8	9384270009	Shaft
9	9378038011	Joint assy
10	9383443008	Rubber (Vibration proof)
11	9384110015	Sirocco fan assy
12	9603816001	DC fan motor
13	9384311009	Casing B assy
14	9383406003	Side panel L
15	9384144010	Flap assy (3-fan)
16	9383386008	Flap hinge
17	9384375001	L and R louver assy
18	9901150012	Terminal block 5P
19	9712270398	Main PCB (24 model)
	9712270404	Main PCB (30 model)
20	9384312013	Gear box sub assy (including stepping motor)
21	9900960049	Thermistor (Room temp.)
22	9712452039	Power supply PCB
23	9710019005	Communication PCB
24	9306489045	Terminal block 3P
25	9384320001	Side panel R sub assy
26	9900892029	Thermistor (Pipe temp.)
27	9384287175	Evaporator total assy (24 model)
	9384287113	Evaporator total assy (30 model)
28	9384324016	Hose sub assy
29	9384364012	Drain pan total assy (3-fan)
30	9358746004	Drain cap
31	9384241016	Front panel (3-fan) assy
—	9710177095	Wire with connector (CN46 on Main PCB—1 and 2 on Terminal block 5P)
—	9712283046	Wire with connector (CN54 on Main PCB—CN262 on Power supply PCB)
—	9710206047	Wire with connector (CN55 on Main PCB—CN263 on Power supply PCB)
—	9712410022	Wire with connector (CN300 on Main PCB—Y1 and Y2 on Terminal block 5P)
—	9712510005	Wire with connector (CN205 on Power supply PCB—Terminal block 3P)

TECHNICAL DATA AND PARTS LIST

2-3. Model: ABUH36KUAS

■ Chassis



TECHNICAL DATA AND PARTS LIST

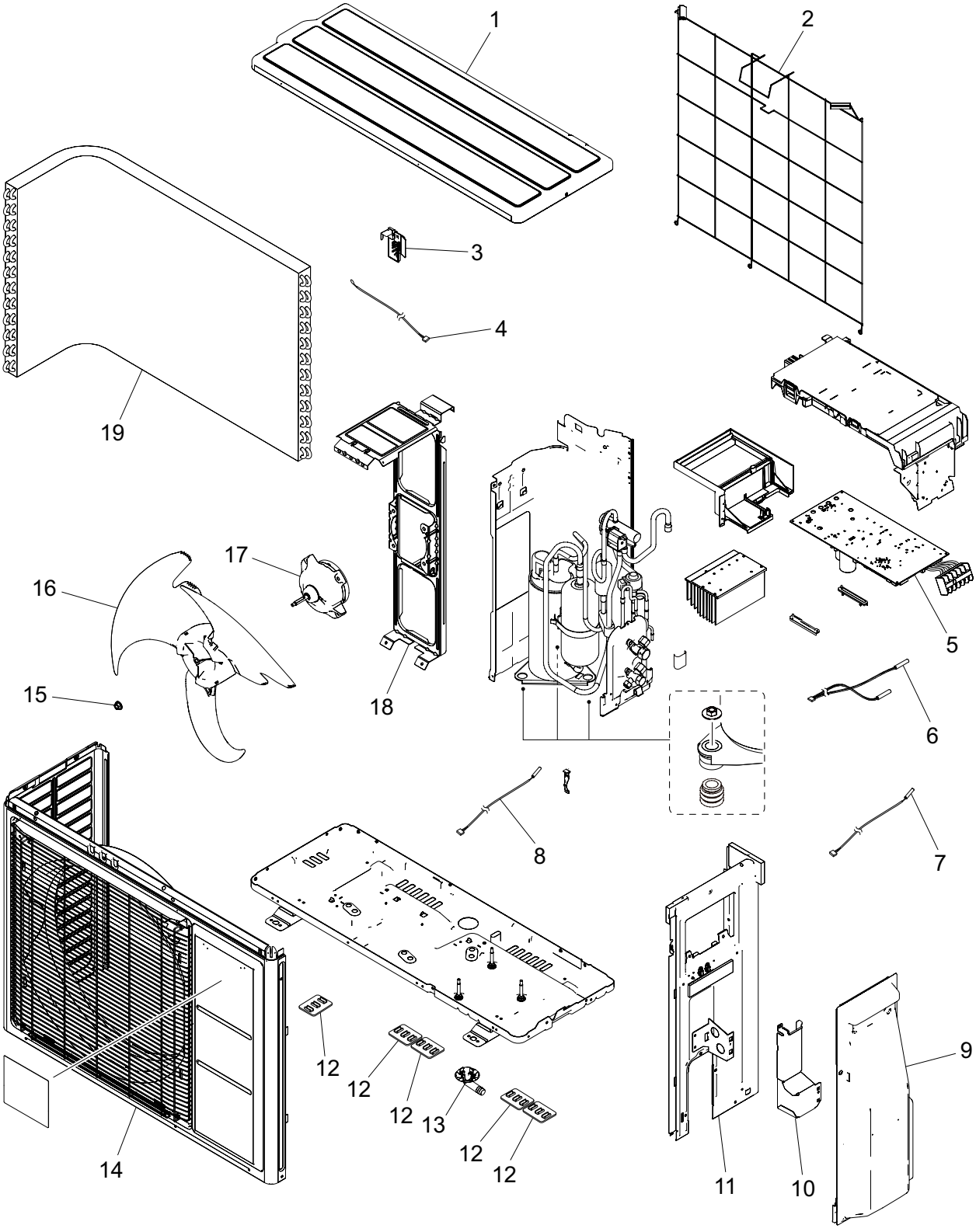
Item no.	Part no.	Part name
1	9384321008	Intake grille A sub assy
2	9383342004	Air filter A
3	9384307002	Casing U assy
4	9357921006	Bearing B assy
5	9384110008	Sirocco fan assy
6	9384270009	Shaft
7	9378038011	Joint assy
8	9383443008	Rubber (Vibration proof)
9	9603815004	DC fan motor
10	9384311009	Casing B assy
11	9383406003	Side panel L
12	9384144003	Flap assy (4-fan)
13	9383386008	Flap hinge
14	9384375001	L and R louver assy
15	9901150012	Terminal block 5P
16	9712270411	Main PCB
17	9384312013	Gear box sub assy (including stepping motor)
18	9900960049	Thermistor (Room temp.)
19	9712452046	Power supply PCB
20	9710019005	Communication PCB
21	9306489045	Terminal block 3P
22	9707457056	Reactor assy
23	9384320001	Side panel R sub assy
24	9900892029	Thermistor (Pipe temp.)
25	9384287120	Evaporator total assy
26	9384324016	Hose sub assy
27	9384364005	Drain pan total assy (4-fan)
28	9358746004	Drain cap
29	9384241009	Front panel (4-fan) assy
—	9710177095	Wire with connector (CN46 on Main PCB—1 and 2 on Terminal block 5P)
—	9712283046	Wire with connector (CN54 on Main PCB—CN262 on Power supply PCB)
—	9710206047	Wire with connector (CN55 on Main PCB—CN263 on Power supply PCB)
—	9712410022	Wire with connector (CN300 on Main PCB—Y1 and Y2 on Terminal block 5P)
—	9712510005	Wire with connector (CN205 on Power supply PCB—Terminal block 3P)

TECHNICAL DATA AND PARTS LIST

3. Outdoor unit parts list

3-1. Model: AOUH18KUAS1

■ Exterior parts and Chassis

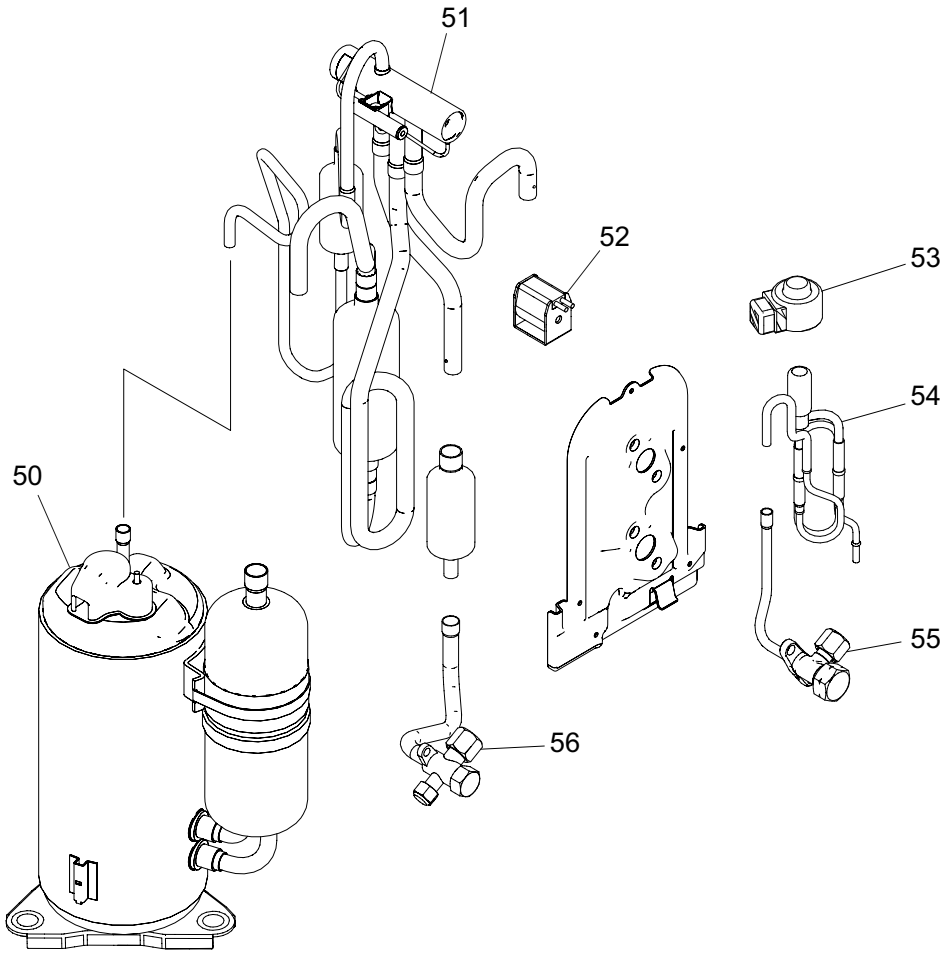


TECHNICAL DATA AND PARTS LIST

Item no.	Part no.	Part name
1	9322556028	Top panel assy
2	9377854001	Protective net
3	9322327000	Thermistor holder
4	9900565145	Thermistor (Outdoor temp.)
5	9712996052	Main PCB
6	9900935054	Thermistor assy
7	9900984014	Thermistor (Heat exchanger temp.)
8	9900985011	Thermistor (Compressor temp.)
9	9322570062	Switch cover assy
10	9384276001	Conduit cover
11	9322552365	Cabinet right assy
12	9383720000	Drain cap assy
13	9322144003	Drain pipe
14	9322555182	Front panel assy
15	0700103070	Nut
16	9322150004	Propeller fan
17	9604091001	DC fan motor
18	9322553027	Motor bracket assy
19	9323834330	Heat exchanger unit

TECHNICAL DATA AND PARTS LIST

■ Compressor



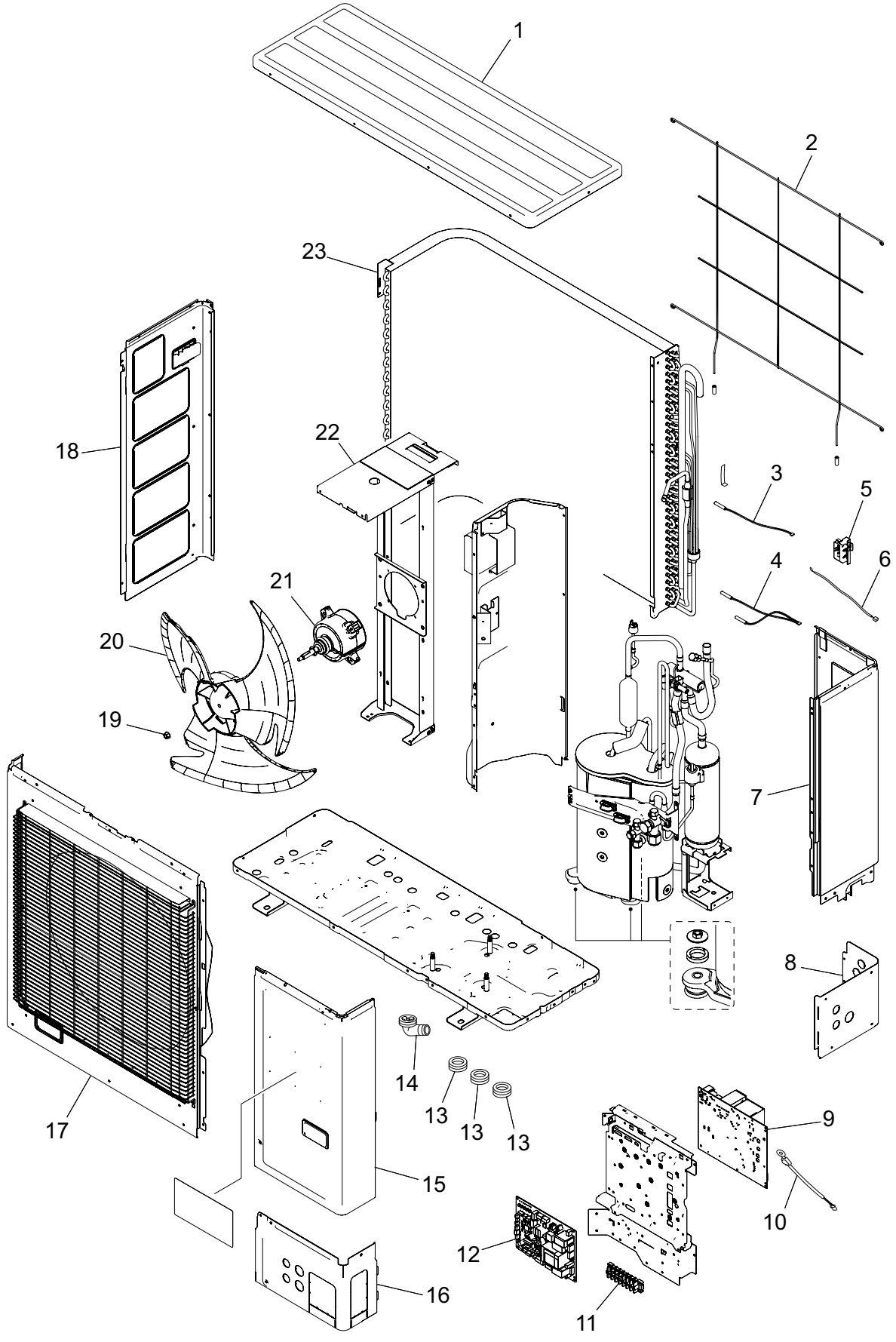
TECHNICAL DATA AND PARTS LIST

Item no.	Part no.	Part name
50	9810521002	Compressor
51	9322446015	4-way valve assy
52	9970194023	Solenoid
53	9970222016	Expansion valve coil
54	9322463029	Pulse motor valve assy
55	9322474001	2-way valve assy
56	9387831016	3-way valve assy

TECHNICAL DATA AND PARTS LIST

3-2. Model: AOUH24KUAS1

■ Exterior parts and chassis

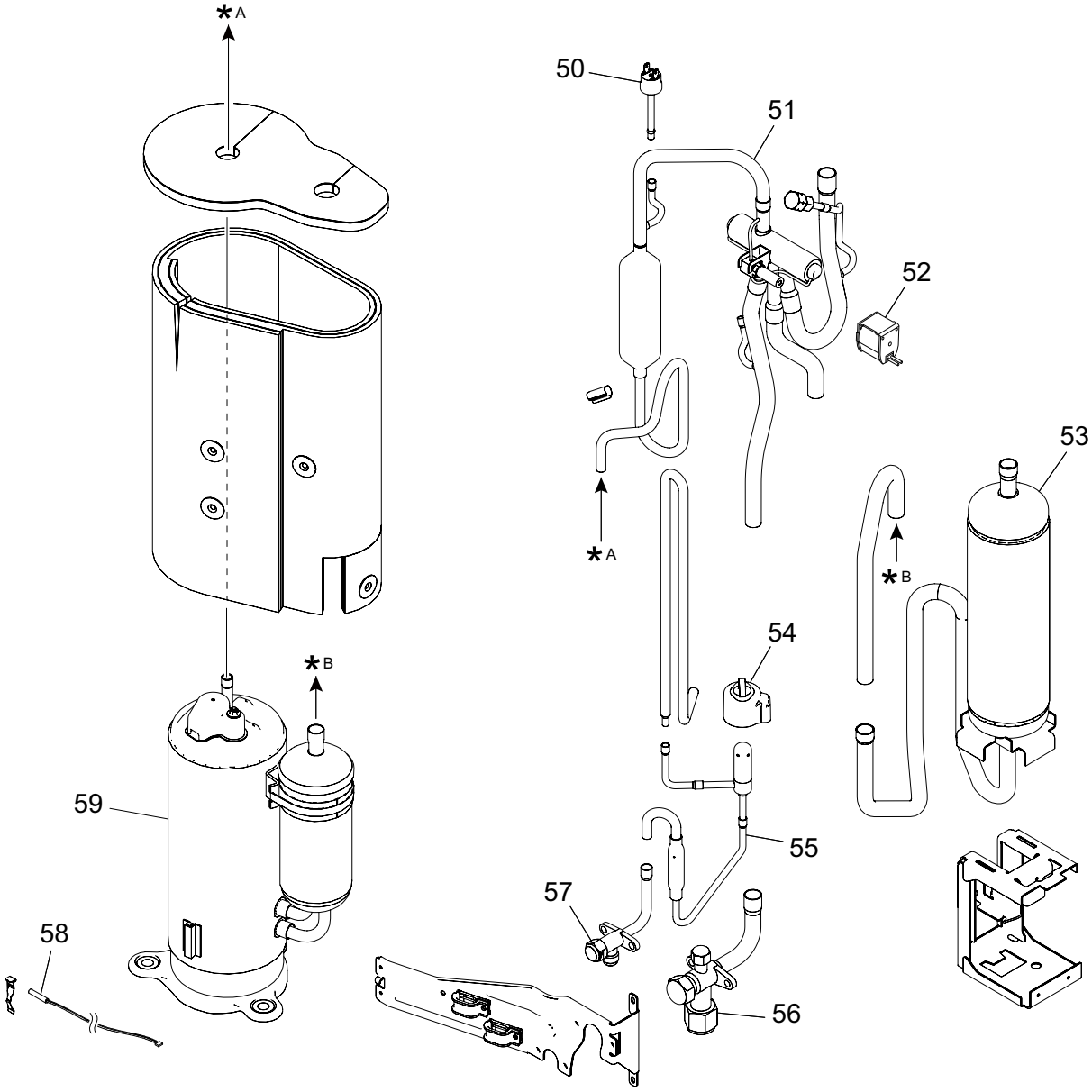


TECHNICAL DATA AND PARTS LIST

Item no.	Part no.	Part name
1	9383880001	Top panel sub assy
2	9383779008	Protective net
3	9900984038	Thermistor (Heat exchanger temp.)
4	9900727154	Thermistor assy
5	9900565152	Thermistor (Outdoor temp.)
6	9383607004	Thermostat holder
7	9383874000	Right panel sub assy
8	9384997005	Rear pipe cover
9	9712996083	Inverter PCB
10	9901031014	Thermistor (Heat sink temp.)
11	9900203061	Terminal block 7P
12	9711434661	Main PCB
13	313166024302	Drain cap
14	9303029015	Drain assy
15	9383876103	Service panel sub assy
16	9384196019	Front pipe cover
17	9383863066	Front panel assy
18	9383882005	Left panel sub assy
19	0700103063	Nut
20	9383336003	Propeller fan
21	9603732011	DC fan motor
22	9383862007	Motor bracket assy
23	9374420711	Condenser sub assy
—	9711332004	Wire with terminal (P102 on Main PCB—L1 on Terminal block 7P)
—	9711332011	Wire with terminal (P103 on Main PCB—L2 on Terminal block 7P)
—	9712261037	Wire with connector (P108 on Main PCB—1, 2, and 3 on Terminal block 7P)
—	9711199003	Wire with connector (P109 on Main PCB—GND)
—	9711203038	Wire with connector (P660 on Main PCB—P662 on Inverter PCB)
—	9711204004	Wire with connector (P661 on Main PCB—P663 on Inverter PCB)
—	9712265011	Wire with connector (P350 on Main PCB—P351 on Inverter PCB)
—	9711206060	Wire with terminal (P400, 401, 402 on Inverter PCB—Compressor)
—	9711212009	Wire with connector (P650 on Inverter PCB—Fan motor [joint])
—	9712264014	Wire with connector (P770 on Inverter PCB—Pressure switch [joint])
—	9711214003	Wire with connector (Pressure switch—Wire with connector [to Inverter PCB])

TECHNICAL DATA AND PARTS LIST

■ Compressor



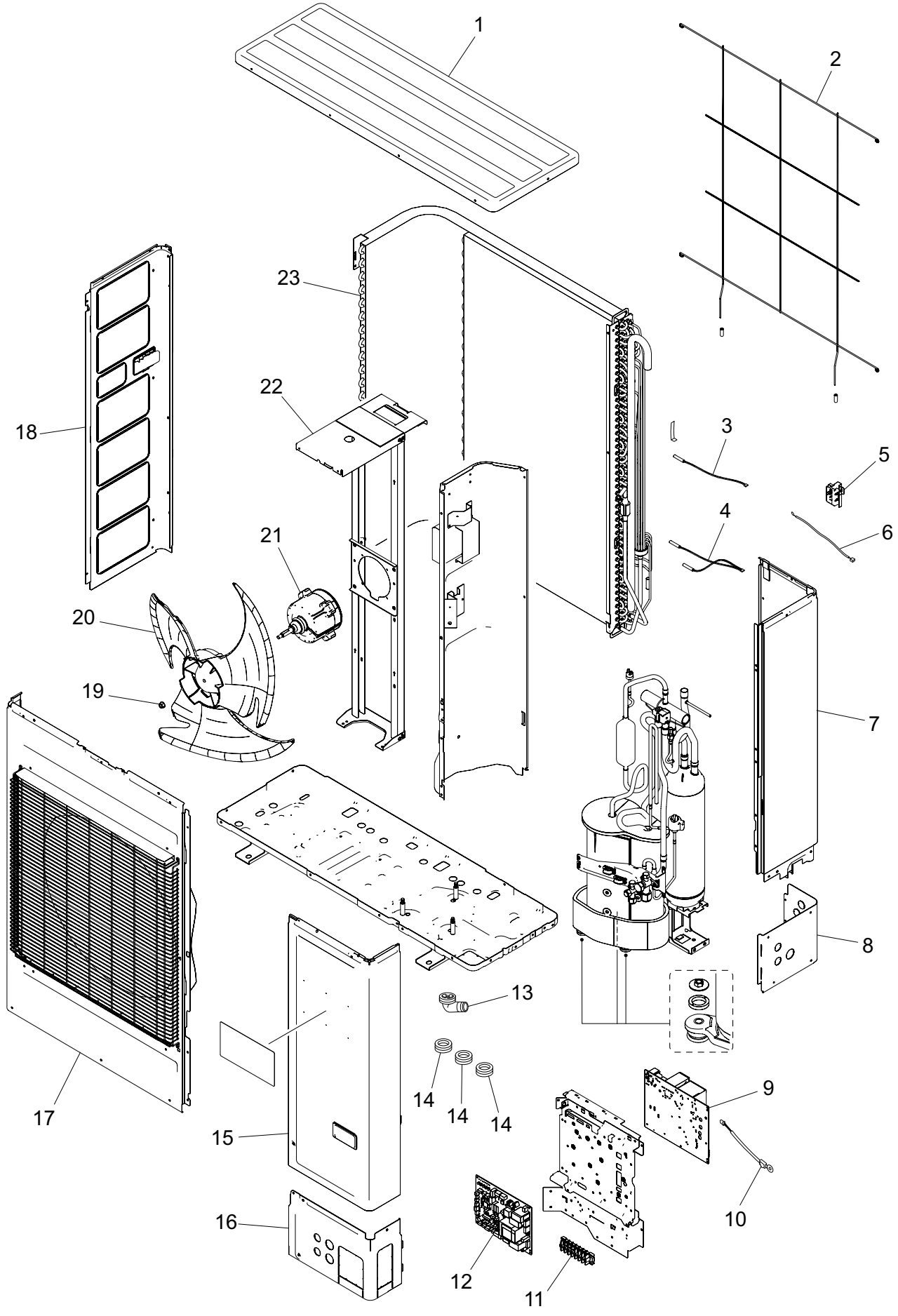
TECHNICAL DATA AND PARTS LIST

Item no.	Part no.	Part name
50	9900186029	Pressure switch
51	9374425723	4-way valve assy
52	9970194016	Solenoid
53	9375250263	Accumulator assy
54	9970209000	Expansion valve coil
55	9370947373	Expansion valve assy
56	9970221002	3-way valve assy
57	9317171182	2-way valve assy
58	9900985035	Thermistor (Compressor temp.)
59	9811000001	Compressor

TECHNICAL DATA AND PARTS LIST

3-3. Models: AOUH30KUAS1 and AOUH36KUAS1

■ Exterior parts and chassis

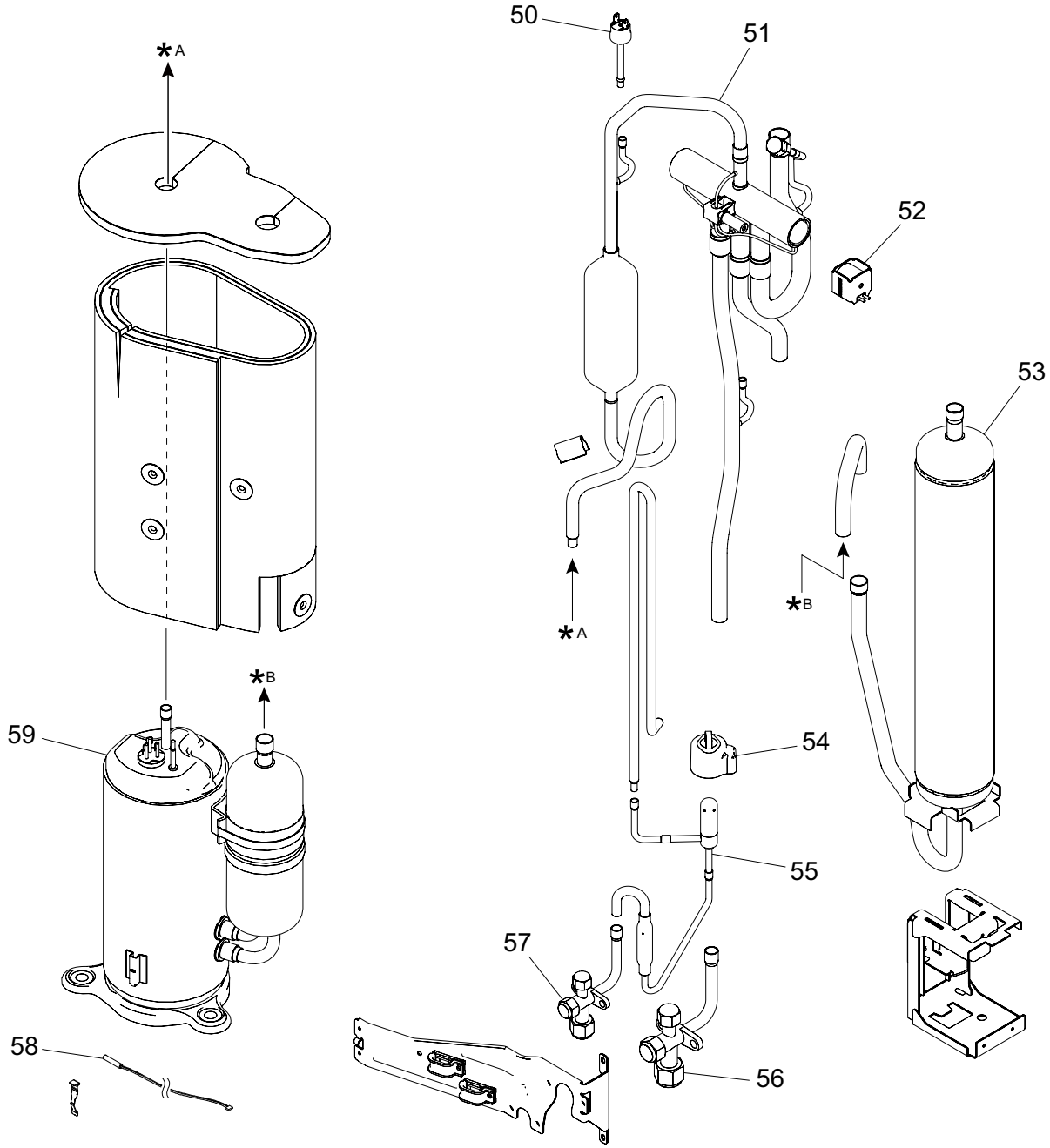


TECHNICAL DATA AND PARTS LIST

Item no.	Part no.	Part name
1	9383880001	Top panel assy
2	9381013005	Protective net
3	9900984038	Thermistor (Heat exchanger temp.)
4	9900727154	Thermistor assy
5	9383607004	Thermostat holder
6	9900565152	Thermistor (Outdoor temp.)
7	9383874017	Right panel sub assy
8	9384997005	Rear pipe cover
9	9712996090	Inverter PCB
10	9901031014	Thermistor (Heat sink temp.)
11	9900203061	Terminal block 7P
12	9711434654	Main PCB (30 model)
	9711434647	Main PCB (36 model)
13	9303029015	Drain assy
14	313166024302	Drain cap
15	9383876127	Service panel sub assy
16	9384196019	Front pipe cover
17	9383863073	Front panel assy
18	9383882012	Left panel sub assy
19	0700103063	Nut
20	9383336003	Propeller fan
21	9603733018	DC fan motor
22	9383862021	Motor bracket assy
23	9374420759	Condenser sub assy
—	9711332004	Wire with terminal (P102 on Main PCB—L1 on Terminal block 7P)
—	9711332011	Wire with terminal (P103 on Main PCB—L2 on Terminal block 7P)
—	9712261037	Wire with connector (P108 on Main PCB—1, 2, and 3 on Terminal block 7P)
—	9711199003	Wire with connector (P109 on Main PCB—GND)
—	9711203038	Wire with connector (P660 on Main PCB—P662 on Inverter PCB)
—	9711204004	Wire with connector (P661 on Main PCB—P663 on Inverter PCB)
—	9712265011	Wire with connector (P350 on Main PCB—P351 on Inverter PCB)
—	9711206053	Wire with terminal (P400, 401, 402 on Inverter PCB—Compressor)
—	9711212009	Wire with connector (P650 on Inverter PCB—Fan motor [joint])
—	9712264014	Wire with connector (P770 on Inverter PCB—Pressure switch [joint])
—	9711214003	Wire with connector (Pressure switch—Wire with connector [to Inverter PCB])

TECHNICAL DATA AND PARTS LIST

■ Compressor



TECHNICAL DATA AND PARTS LIST

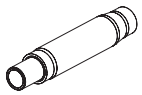
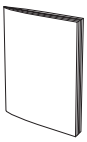
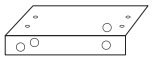
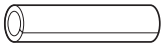
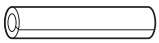
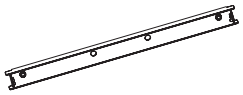
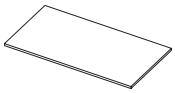
Item no.	Part no.	Part name
50	9900186029	Pressure switch
51	9374425761	4-way valve assy
52	9970194016	Solenoid
53	9375250232	Accumulator assy
54	9970209000	Expansion valve coil
55	9370947427	Expansion valve assy
56	9379079037	3-way valve assy
57	9387794007	3-way valve assy
58	9900985028	Thermistor (Compressor temp.)
59	9810621009	Compressor

TECHNICAL DATA AND PARTS LIST

4. Accessories

4-1. Indoor unit

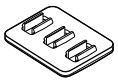
■ Models: ABUH18KUAS, ABUH24KUAS, ABUH30KUAS, and ABUH36KUAS

Part name	Exterior	Qty	Part name	Exterior	Qty
Operation manual		1	Drain hose		1
Installation manual		1	Hose band		1
Template		1	Cable tie (large)		4
Washer A (with insulation)		4	Cable tie (small)		1
Washer B		4	Cable hole cap		1
Coupler heat insulation (large)		1	Self-tapping screw (white)		6
Coupler heat insulation (small)		1	Casing guard (for 24, 30, and 36 model)		1
Insulation		1	Self-tapping screw		3

TECHNICAL DATA AND PARTS LIST

4-2. Outdoor unit

■ Model: AOUH18KUAS1

Part name	Exterior	Qty	Part name	Exterior	Qty
Installation manual		1	Cable tie		2
Drain pipe		1	Protection label		1
Drain cap		5			

■ Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1

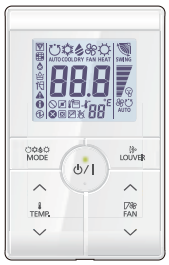
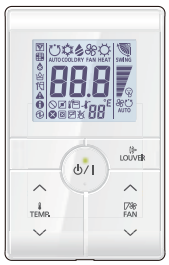
Part name	Exterior	Qty	Part name	Exterior	Qty
Installation manual		1	Drain pipe		1
Protection label		1	Drain cap		3

TECHNICAL DATA AND PARTS LIST

5. Optional parts

5-1. Indoor unit

■ Controllers

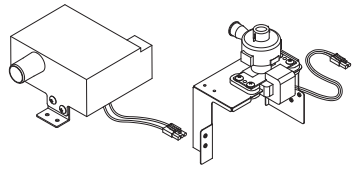
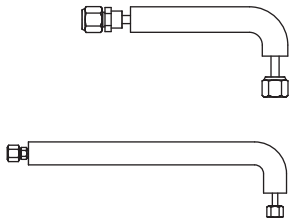
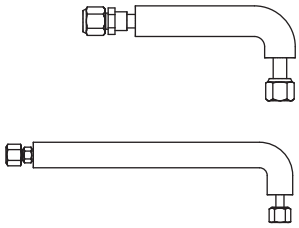
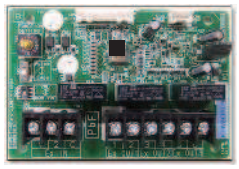
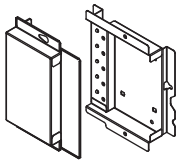
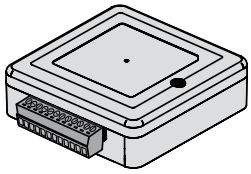
Exterior	Part name	Model name	Summary
	Wired Remote Controller (Touch Panel)	UTY-RVRU	Remote controller that provides the functions you need in a sleek design that uniquely transforms itself to blend with any interior. Connecting point: Terminal block (Y1 and Y2)
	Wired Remote Controller (Touch Panel)	UTY-RNRUZ*	Easy finger touch operation with LCD panel. Backlit LCD enables easy operation in a dark room. Connecting point: Terminal block (Y1 and Y2)
	Simple Remote Controller	UTY-RSRY	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting, and operation mode. Connecting point: Terminal block (Y1 and Y2)
	Simple Remote Controller	UTY-RHRY	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, and temperature setting. Connecting point: Terminal block (Y1 and Y2)
	IR Receiver Kit with Wireless Remote Controller	UTY-LBTUH	Unit control is performed by Wireless Remote Controller. Connecting point: CN48 on Main PCB

NOTES:

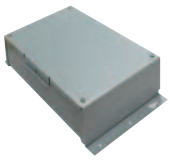
- Available functions may differ by the remote controller. For details, refer to the operation manual.
- When using the group controlling system of the Wired Remote Controller, using WLAN Adapter is prohibited.

TECHNICAL DATA AND PARTS LIST

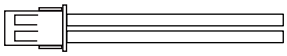
■ Others

Exterior	Part name	Model name	Summary
	Drain Pump Unit	UTZ-PU1EBB	Optional drain lift up mechanism allows more flexible installation.
	Auxiliary Pipe Assembly	UTP-FX24A	For piping of upward direction only. • For liquid: 1/4 in (6.35 mm) • For gas: 1/2 in (12.70 mm)
	Auxiliary Pipe Assembly	UTP-FX35A	For piping of upward direction only. • For liquid: 3/8 in (9.52 mm) • For gas: 5/8 in (15.88 mm)
	External Connect Kit	UTY-XWZXZG	Use to connect with various peripheral devices and air conditioner PCB. For control output port. Connecting point: CN47 on Main PCB
	External Input and Output PCB	UTY-XCSX	Use to connect with external devices and air conditioner PCB. Connecting point: CN65 or CN75 on Main PCB
	External Input and Output PCB Box	UTZ-GXEA	For installing the External input and output PCB.
	WLAN Adapter	UTY-TFSXJ4	Remotely manage an air conditioning system using mobile devices such as smartphones and tablets. For connection indoor unit with UART interface. Appropriate application for each region is required to use this option. For details, contact FGL sales company. Connecting point: CN75 on Main PCB
	Modbus Converter	UTY-VMSX	For connection between indoor unit with UART interface and a Modbus open network. Connecting point: CN65 or CN75 on Main PCB
	Thermostat Converter	UTY-TTRXZ*	This converter can control Fujitsu General products using a third-party thermostat controller. Connecting point: Terminal block (Y1 and Y2)

TECHNICAL DATA AND PARTS LIST

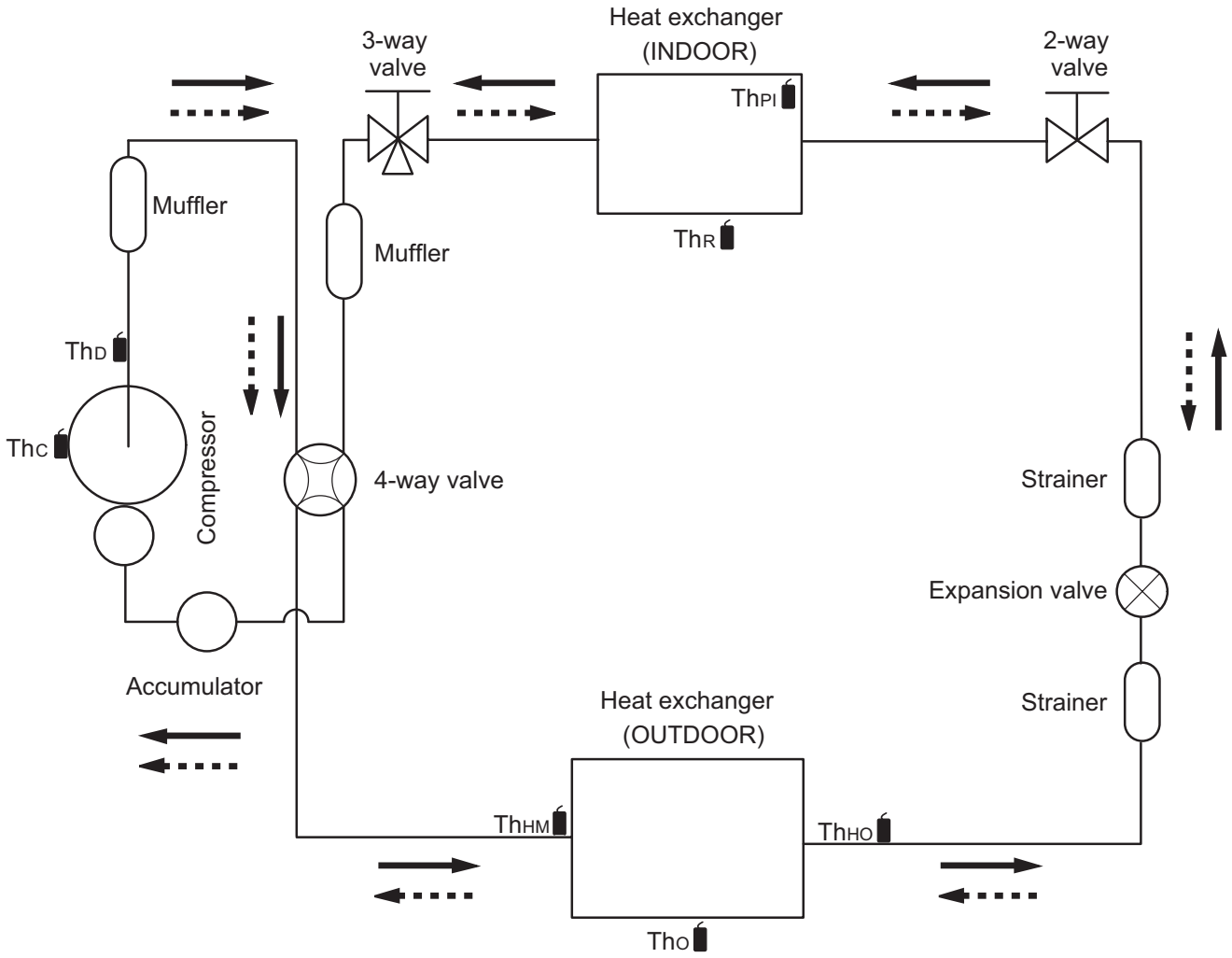
Exterior	Part name	Model name	Summary
	Network Converter	UTY-VTGX	This converter is required when connecting single split system to VRF network system. Connecting point: Terminal block (Y1 and Y2)
	Network Converter (AC power supply)	UTY-VTGXV	This converter is required when connecting single split system to VRF network system. Connecting point: Terminal block (Y1 and Y2)
	External Switch Controller	UTY-TERX	Air conditioner switching can be controlled by connecting other external sensor switches. Connecting point: Terminal block (Y1 and Y2)

5-2. Outdoor unit

Exterior	Part name	Model name	Summary
	External Connect Kit	UTY-XWZXZ3	Use to operate the external input and output functions of outdoor unit. (for 24–36 model)

6. Refrigerant system diagrams

6-1. Model: AOUH18KUAS1



ThC : Thermistor (Compressor temperature)

ThD : Thermistor (Discharge temperature)

ThHM : Thermistor (Heat exchanger middle temperature)

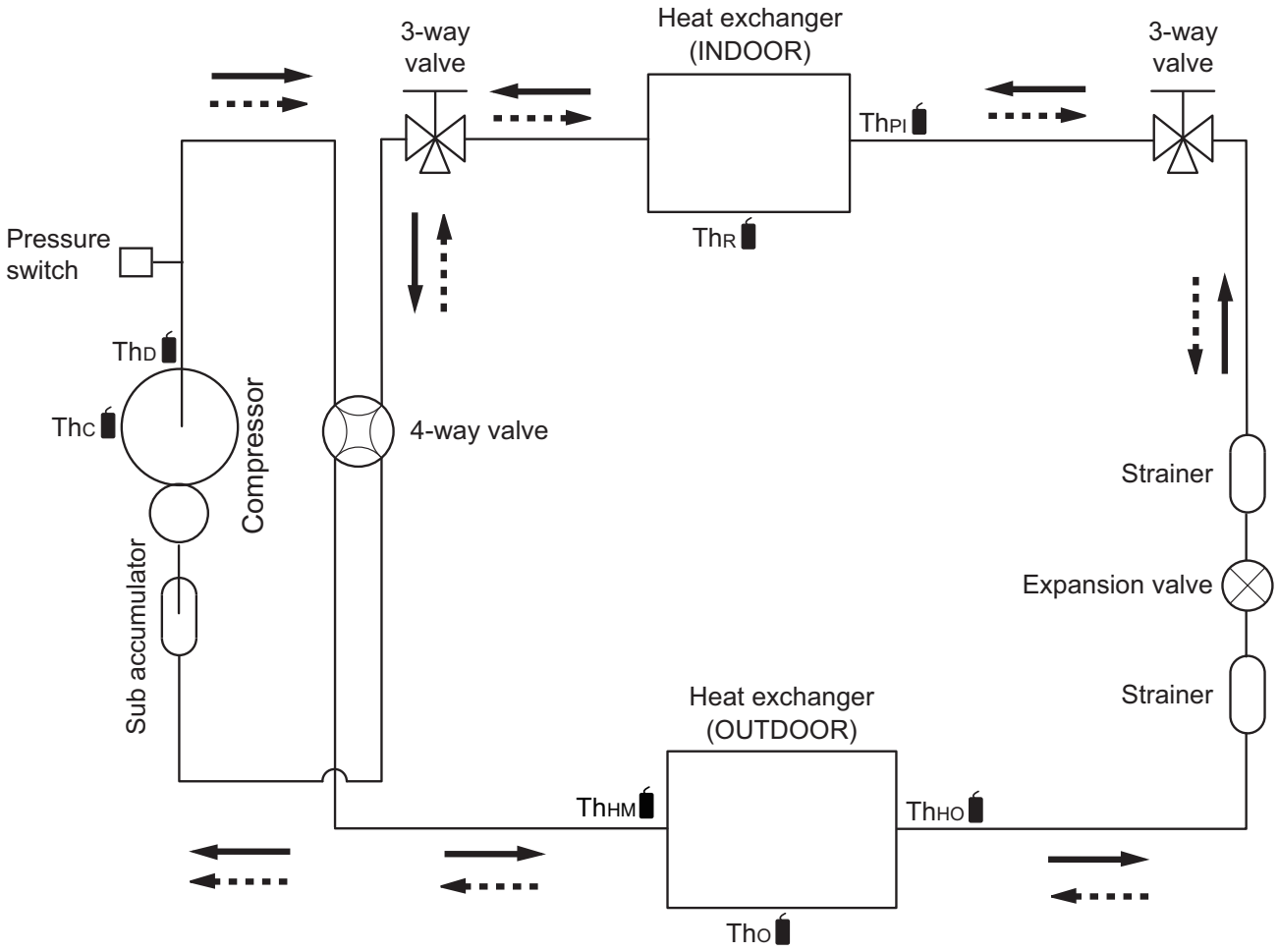
ThO : Thermistor (Outdoor temperature)

ThHO : Thermistor (Heat exchanger out temperature)

ThPI : Thermistor (Pipe temperature)

ThR : Thermistor (Room temperature)

6-2. Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1



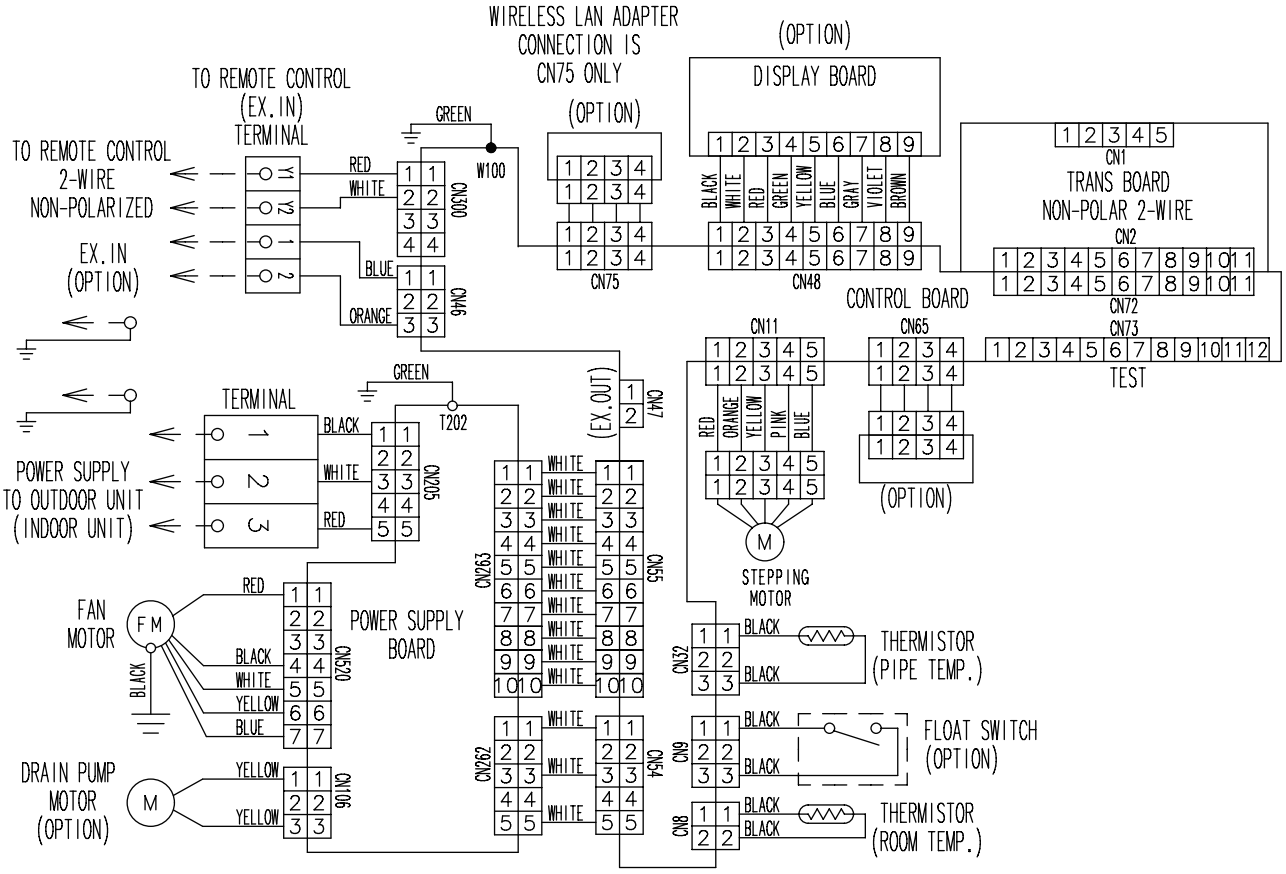
: Cooling
: Heating

ThC : Thermistor (Compressor temperature)
ThD : Thermistor (Discharge temperature)
ThHM : Thermistor (Heat exchanger middle temperature)
ThO : Thermistor (Outdoor temperature)
ThHO : Thermistor (Heat exchanger out temperature)
ThPI : Thermistor (Pipe temperature)
ThR : Thermistor (Room temperature)

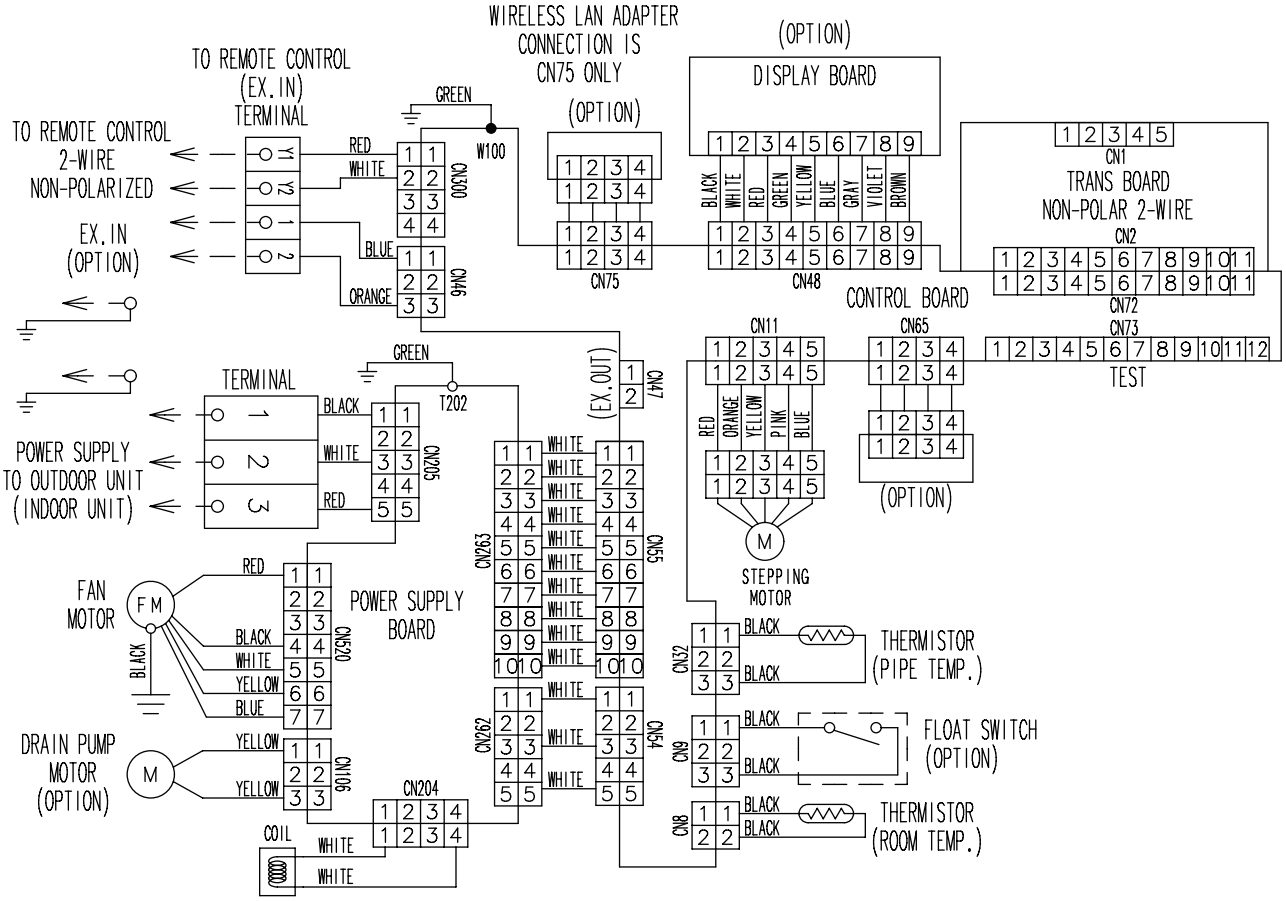
7. Wiring diagrams

7-1. Indoor unit

■ Models: ABUH18KUAS, ABUH24KUAS, and ABUH30KUAS

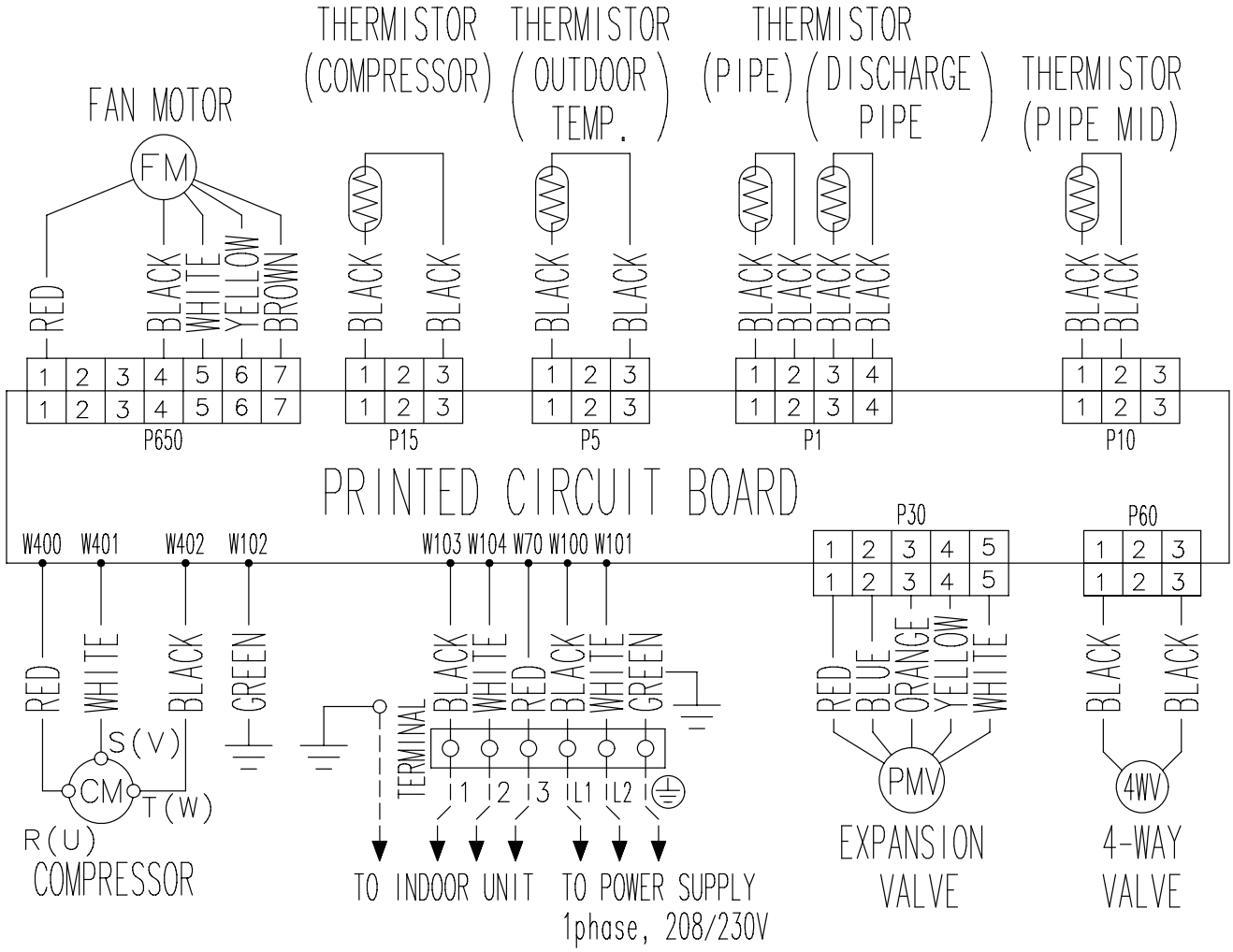


■ Model: ABUH36KUAS

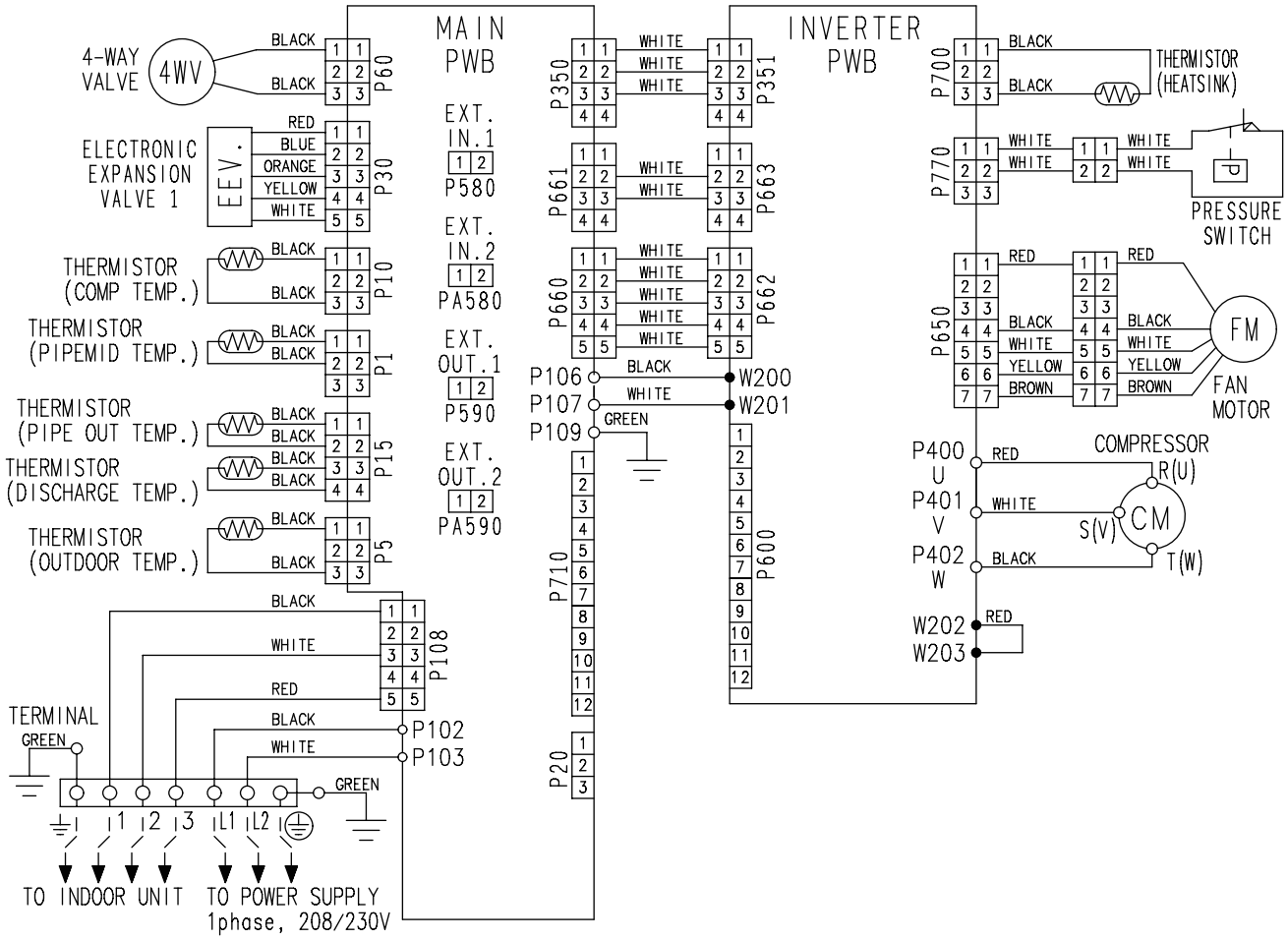


7-2. Outdoor unit

■ Model: AOUH18KUAS1

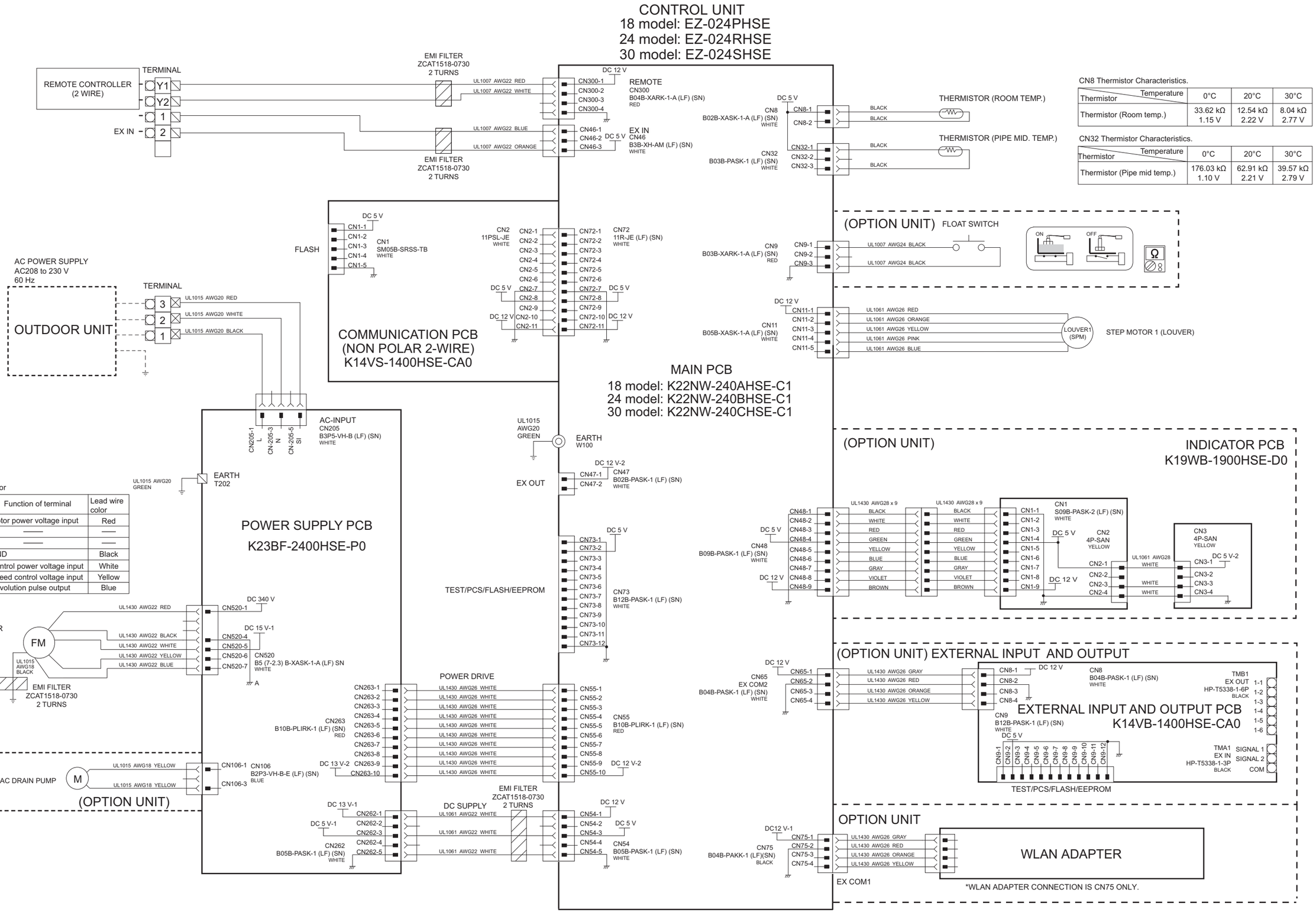


■ Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1

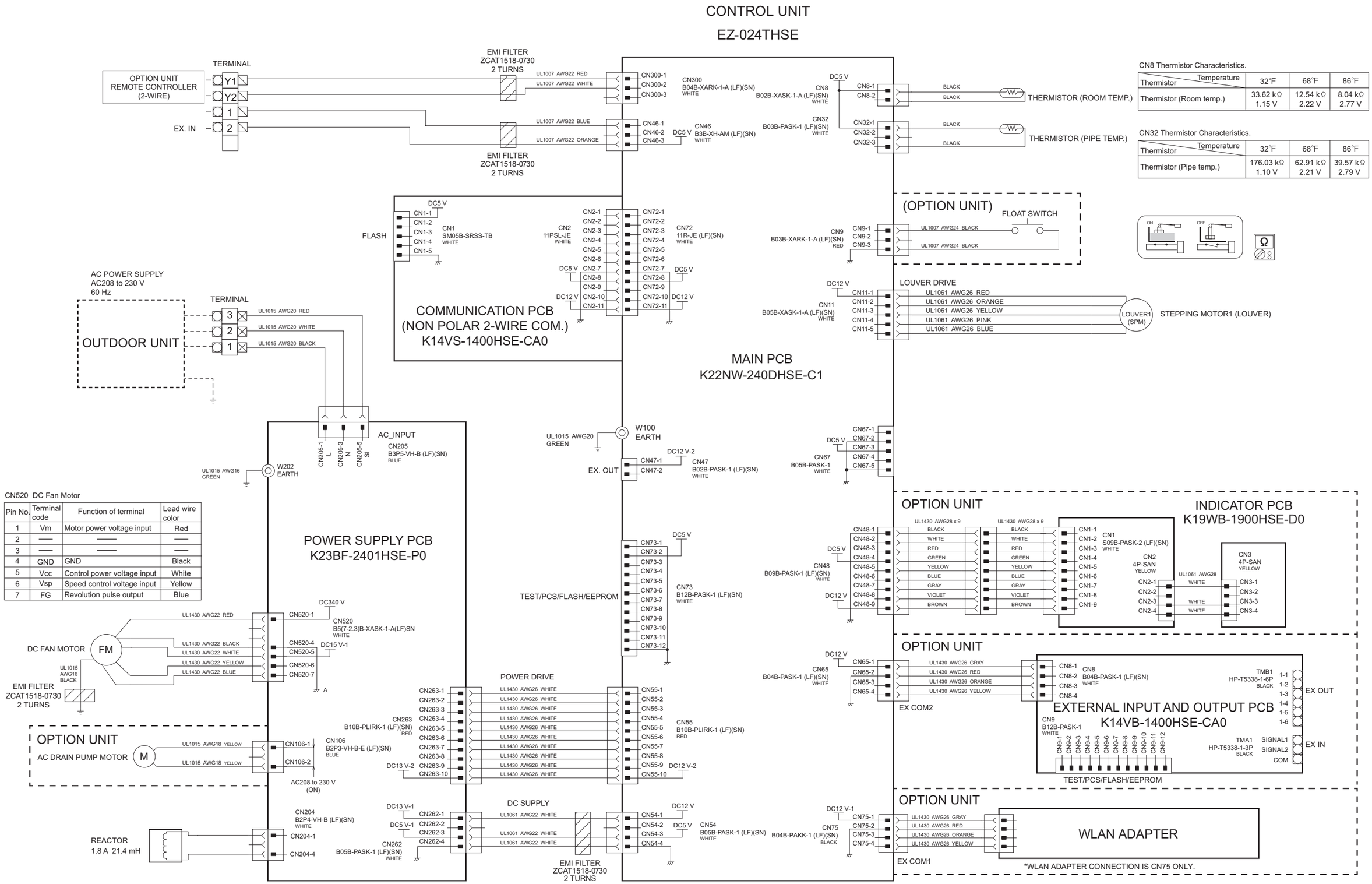


8. PC board diagrams

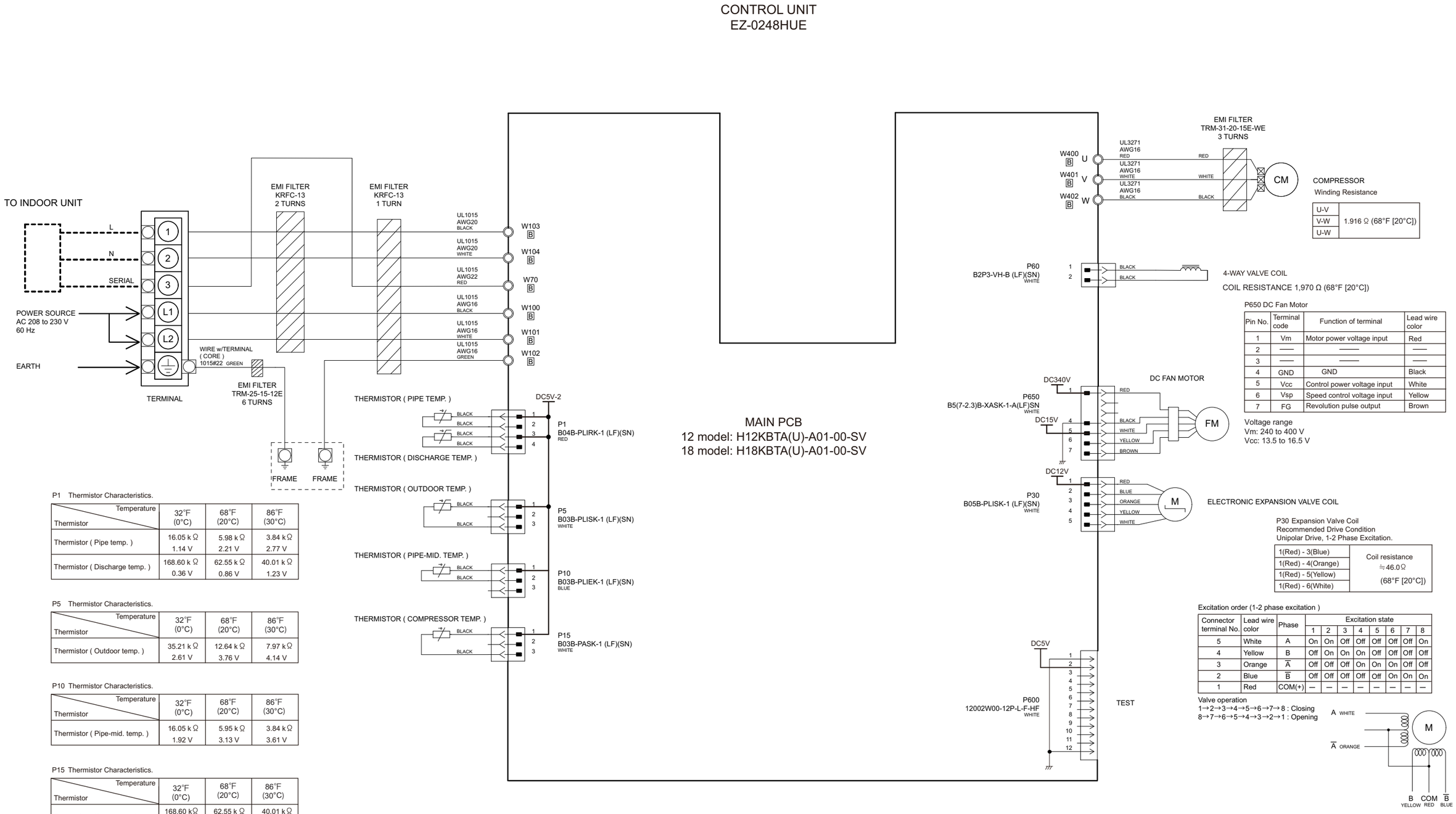
8-1. Models: ABUH18KUAS, ABUH24KUAS, and ABUH30KUAS



8-2. Model: ABUH36KUAS



8-3. Model: AOUH18KUAS1



P650 DC Fan Motor

Pin No.	Terminal code	Function of terminal	Lead wire color
1	Vm	Motor power voltage input	Red
2	——	——	——
3	——	——	——
4	GND	GND	Black
5	Vcc	Control power voltage input	White
6	Vsp	Speed control voltage input	Yellow
7	FG	Revolution pulse output	Brown

Excitation order (1-2 phase excitation)

Connector terminal No.	Lead wire color	Phase	Excitation state							
			1	2	3	4	5	6	7	8
5	White	A	On	On	Off	Off	Off	Off	Off	On
4	Yellow	B	Off	On	On	On	Off	Off	Off	Off
3	Orange	Ā	Off	Off	On	On	On	Off	Off	Off
2	Blue	B̄	Off	Off	Off	Off	Off	On	On	On
1	Red	COM(+)	—	—	—	—	—	—	—	—

P1 Thermistor Characteristics.

Thermistor \ Temperature	32℉ (0°C)	68℉ (20°C)	86℉ (30°C)
Thermistor (Pipe temp.)	16.05 k Ω 1.14 V	5.98 k Ω 2.21 V	3.84 k Ω 2.77 V
Thermistor (Discharge temp.)	168.60 k Ω 0.36 V	62.55 k Ω 0.86 V	40.01 k Ω 1.23 V

P5 Thermistor Characteristics.

Thermistor \ Temperature	32℉ (0°C)	68℉ (20°C)	86℉ (30°C)
Thermistor (Outdoor temp.)	35.21 k Ω 2.61 V	12.64 k Ω 3.76 V	7.97 k Ω 4.14 V

P10 Thermistor Characteristics.

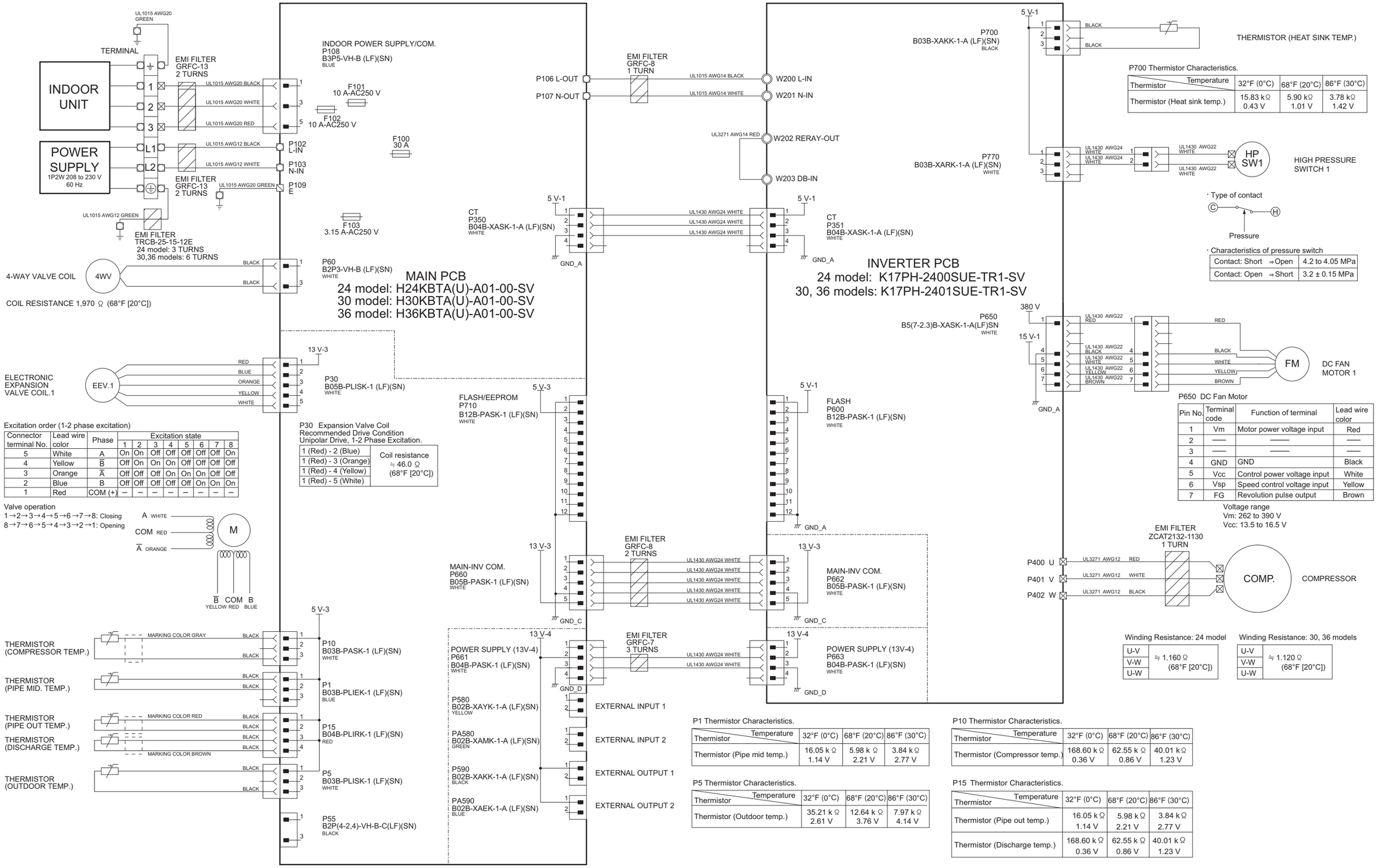
Thermistor \ Temperature	32℉ (0°C)	68℉ (20°C)	86℉ (30°C)
Thermistor (Pipe-mid. temp.)	16.05 k Ω 1.92 V	5.95 k Ω 3.13 V	3.84 k Ω 3.61 V

P15 Thermistor Characteristics.

Thermistor \ Temperature	32℉ (0°C)	68℉ (20°C)	86℉ (30°C)
Thermistor (Compressor temp.)	168.60 kΩ 0.36 V	62.55 k Ω 0.86 V	40.01 k Ω 1.23 V

8-4. Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1

CONTROL UNIT
24 model: EZ-0245HUE
30, 36 models: EZ-0246HUE



REFRIGERANT R32
INVERTER

3. TROUBLESHOOTING

CONTENTS

3. TROUBLESHOOTING

CONTENTS (continued)

TROUBLESHOOTING

1. Error code

When a problem occurs in the system or the connected device, the error content is notified by displaying the code.

NOTE: This function is only available in a system with indoor or IR receiver units equipped with indicator lamps to show the error content.

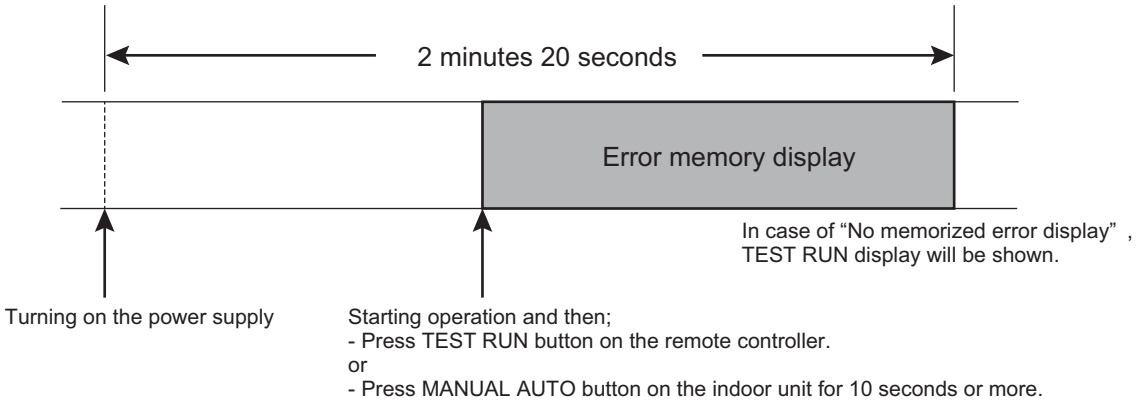
Errors, once displayed, will be automatically stored in the PC board of the indoor unit. Even if the power is disconnected, the memory containing the error history will not be erased.

If another error occurs later, the stored error memory will be updated automatically and replaced with the new one. (Previous error will be erased.)

1-1. How to check the error memory

When an error occurs, the operation lamp (Green) and the timer lamp (Orange) indicate the error content by blinking. To check the error memory, follow the procedures below.

1. Stop the operation of the air conditioner, and then disconnect the power supply.
2. Reconnect the power supply.
3. In one of the following two methods, the memorized error is only displayed during the “3 minutes ST”* state period.
   - Start the operation and then press the TEST RUN button on the remote controller.
   - Press the MANUAL AUTO button on the indoor unit for 10 seconds or more.



*: The “3 minutes ST” period lasts 2 minutes and 20 seconds after turning on the power supply.

1-2. How to erase the error memory

The error memory can be erased in one of the following two methods.

- Manual erase: Pressing the MANUAL AUTO button on the indoor unit while the “Error memory display” is being shown. (Short beep emits for about 3 seconds.)

- Automatic erase: After continuing the normal operation of the air conditioner without error for 2 hours or longer after displaying the error memory as described in How to check the error memory. (Except FAN operation mode.)

1-3. Error code table (Wired remote controller)

The operation, timer, and economy indicators operate according to the error contents.
For confirmation of the error contents, refer the flashing pattern as follows.

Error contents	Wired remote controller display
E: 11.X. Serial communication error (Serial reverse transfer error) (Outdoor unit)	11
E: 11.X. Serial communication error (Serial forward transfer error) (Indoor unit)	11
E: 12.X. Wired remote controller communication error (Indoor unit)	12
E: 15.X. Automatic air flow adjustment error (Indoor unit)	15
E: 22.X. Indoor unit capacity error (Indoor unit)	22
E: 23.X. Combination error (Outdoor unit)	23
E: 26.X. Address setting error in wired remote controller (Indoor unit)	26
E: 29.X. Connected unit number error (Indoor unit)	29
E: 32.X. Indoor unit main PCB error (Indoor unit)	32
E: 33.X. Indoor unit motor electricity consumption detection error (Indoor unit)	33
E: 35.X. MANUAL AUTO button error (Indoor unit)	35
E: 39.X. Indoor unit power supply error for fan motor (Indoor unit)	39
E: 3A.X. Indoor unit communication circuit (wired remote controller) error	3A
E: 41.X. Room temperature sensor error (Indoor unit)	41
E: 42.X. Indoor unit heat exchanger sensor error (Indoor unit)	42
E: 51.X. Indoor unit fan motor error (Indoor unit)	51
E: 53.X. Drain pump error (Indoor unit)	53
E: 58.X. Intake grille error (Indoor unit)	58
E: 62.X. Outdoor unit main PCB error (Outdoor unit)	62
E: 63.X. Inverter error (Outdoor unit)	63
E: 64.X. PFC circuit error (Outdoor unit)	64
E: 65.X. Trip terminal L error (Outdoor unit)	65
E: 71.X. Discharge thermistor error (Outdoor unit)	71
E: 72.X. Compressor thermistor error (Outdoor unit)	72
E: 73.X. Heat exchanger (Middle/Outlet) temperature thermistor error (Outdoor unit)	73
E: 74.X. Outdoor temperature thermistor error (Outdoor unit)	74
E: 77.X. Heat sink thermistor error (Outdoor unit) (24/30/36 model)	77
E: 84.X. Current sensor error (Outdoor unit)	84
E: 86.X. High pressure switch error (Outdoor unit) (24/30/36 model)	86
E: 94.X. Trip detection (Outdoor unit)	94
E: 95.X. Compressor motor control error (Outdoor unit)	95
E: 97.X. Outdoor unit fan motor error (Outdoor unit)	97
E: 99.X. 4-way valve error (Outdoor unit)	99
E: A1.X. Discharge temperature error (Outdoor unit)	A1
E: A3.X. Compressor temperature error (Outdoor unit)	A3
E: AC.X. Heat sink temperature error (Outdoor unit) (24/30/36 model)	AC

TROUBLESHOOTING

1-4. Error code table (Outdoor unit: for 24/30/36 model only)

The operation status is determined by the lighting up and blinking of the LED lamp.
After check that ERROR LED lamp blinks, press the ENTER button once.

NOTE: For the positions of LED lamp and buttons, refer to "Function settings (for 24–36 outdoor units)" in Chapter 5. FIELD WORKING on page 05-11.

Error contents	POWER/ MODE	ERROR	PUMP DOWN	LOW NOISE		PEAK CUT		
			L1	L2	L3	L4	L5	L6
E: 11.X. Serial communication error (Serial forward transfer error) (Indoor unit) (Occurs immediately after starting operation)	■ 2	●	■ 1	■ 1	○	○	●	●
E: 11.X. Serial communication error (Serial forward transfer error) (Indoor unit) (Occurs during operation)	■ 2	●	■ 1	■ 1	○	●	○	○
E: 12.X. Wired remote controller communication error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 23.X. Combination error (Outdoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 26.X. Address setting error in wired remote controller (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 29.X. Connected unit number error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 32.X. Indoor unit main PCB error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 35.X. MANUAL AUTO button error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 3A.X. Indoor unit communication circuit (wired remote controller) error	■ 2	●	■ 5	■ 15	○	○	○	●
E: 41.X. Room temperature sensor error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 42.X. Indoor unit heat exchanger sensor error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 51.X. Indoor unit fan motor error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 62.X. Outdoor unit main PCB error (Outdoor unit)	■ 2	●	■ 6	■ 2	○	○	○	●
E: 63.X. Inverter error (Outdoor unit)	■ 2	●	■ 6	■ 3	○	○	○	●
E: 71.X. Discharge thermistor error (Outdoor unit)	■ 2	●	■ 7	■ 1	○	○	○	●
E: 72.X. Compressor thermistor error (Outdoor unit)	■ 2	●	■ 7	■ 2	○	○	○	●
E: 73.X. Heat exchanger (Middle/Outlet) temperature thermistor error (Outdoor unit)	■ 2	●	■ 7	■ 3	○	○	●	○
E: 74.X. Outdoor temperature thermistor error (Outdoor unit)	■ 2	●	■ 7	■ 4	○	○	○	●
E: 77.X. Heat sink thermistor error (Outdoor unit) (24/30/36 model)	■ 2	●	■ 7	■ 7	○	○	○	●
E: 84.X. Current sensor error (Outdoor unit)	■ 2	●	■ 8	■ 4	○	○	○	●
E: 86.X. High pressure switch error (Outdoor unit) (24/30/36 model)	■ 2	●	■ 8	■ 6	○	●	○	○
E: 94.X. Trip detection (Outdoor unit)	■ 2	●	■ 9	■ 4	○	○	○	●

Error contents	POWER/ MODE	ERROR	PUMP DOWN	LOW NOISE		PEAK CUT		
			L1	L2	L3	L4	L5	L6
E: 95.X. Compressor motor control error (Outdoor unit)	■ 2	●	■ 9	■ 5	○	○	○	●
E: 97.X. Outdoor unit fan motor error (Outdoor unit)	■ 2	●	■ 9	■ 7	○	○	●	●
E: 99.X. 4-way valve error (Outdoor unit)	■ 2	●	■ 9	■ 9	○	○	○	●
E: A1.X. Discharge temperature error (Outdoor unit)	■ 2	●	■ 10	■ 1	○	○	○	●
E: A3.X. Compressor temperature error (Outdoor unit)	■ 2	●	■ 10	■ 3	○	○	○	●
E: AC.X. Heat sink temperature error (Outdoor unit) (24/30/36 model)	■ 2	●	■ 10	■ 11	○	○	●	●

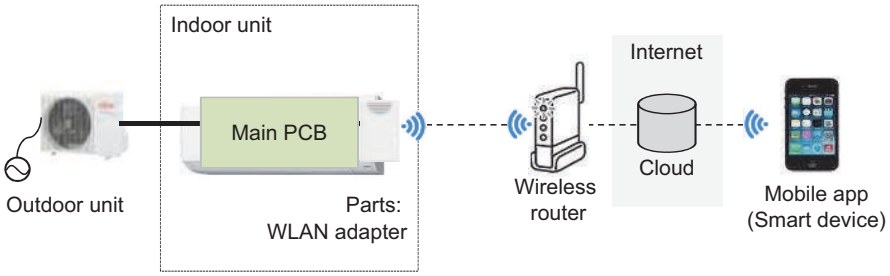
● : Light on ○ : Light off ■ (n) : n Times blinking

TROUBLESHOOTING

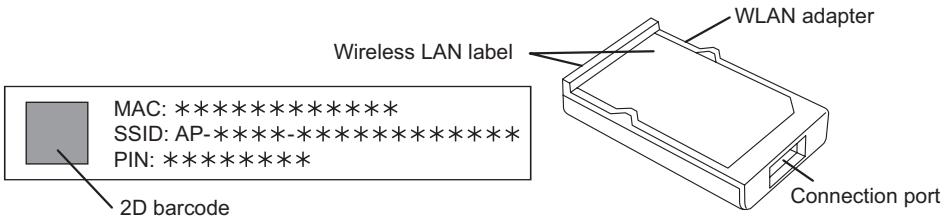
1-5. Error code table (Wireless LAN indicator)

TROUBLESHOOTING

- Wireless LAN control system diagram example



- Name of parts



- Wireless LAN indicator lamps
  For confirmation of the error contents, refer to the following flashing patterns.
  Wireless LAN indicator lamp (orange) on the indoor unit operate according to the error contents.

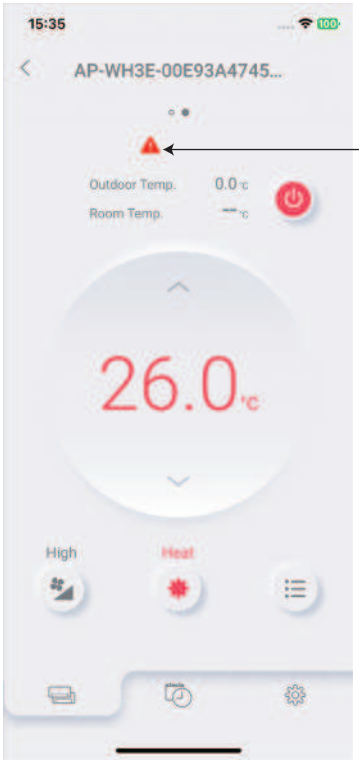
Error contents	Wireless LAN indicator lamp (orange)	Error code
E: 18.X. External communication error between indoor unit and wireless LAN adapter	Flashing slowly	18
Network communication error between wireless LAN router and wireless LAN adapter	Flashing slowly	No error
E: 18.X. Communication error	Flashing slowly	18
E: 18.X. Wireless LAN adapter non-energized	Off	18

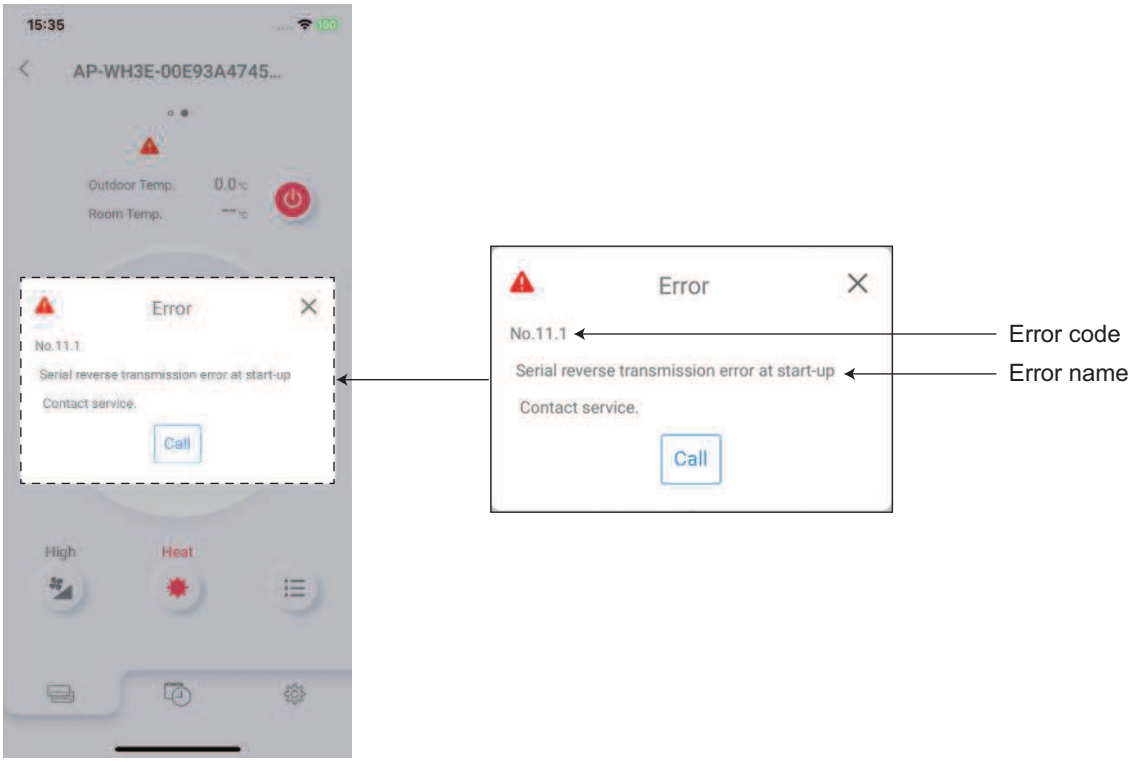
Flashing slowly: Repeating 7 seconds on/2 seconds off

1-6. How to check the error code on Mobile app

If there is an abnormality on the air conditioning, refer to ⚠ as follows.

When the ⚠ (error button) on the home screen is tapped, error code and error name is displayed.





TROUBLESHOOTING

1-7. Error code table (Mobile app)

Error message	Error contents	Error code
Serial reverse transmission error at start-up	E: 11.X. Serial communication error (Serial reverse transfer error) (Outdoor unit)	11.1
Serial reverse transmission error during operation		11.2
Serial forward transmission error at start-up	E: 11.X. Serial communication error (Serial forward transfer error) (Indoor unit)	11.3
Serial forward transmission error during operation		11.4
Wired remote controller communication error	E: 12.X. Wired remote controller communication error (Indoor unit)	12.1
Wired remote controller signal error		12.2
Excess number of devices in wired remote controller system		12.3
Wired remote controller system start-up error		12.4
Configuration data acquisition error during scan	E: 15.X. Automatic air flow adjustment error (Indoor unit)	15.4
Check run unfinished		15.6
Indoor unit capacity error	E: 22.X. Indoor unit capacity error (Indoor unit)	22.1
Connection forbidden (series error)	E: 23.X. Combination error (Outdoor unit)	23.1
Unit combination error		23.2
Address duplication in wired remote controller system	E: 26.X. Address setting error in wired remote controller (Indoor unit)	26.4
Address setting error in wired remote controller system		26.5
Connection unit number error (indoor unit in wired remote controller system)	E: 29.X. Connected unit number error (Indoor unit)	29.1
Indoor unit PCB model information error	E: 32.X. Indoor unit main PCB error (Indoor unit)	32.1
Constant correction control error		32.6
Indoor unit motor electricity consumption detection microcomputers error	E: 33.X. Indoor unit motor electricity consumption detection error (Indoor unit)	33.2
Indoor unit manual auto switch error	E: 35.X. MANUAL AUTO button error (Indoor unit)	35.1
Indoor unit power supply error for fan motor 1	E: 39.X. Indoor unit power supply error for fan motor (Indoor unit)	39.1
Indoor unit communication circuit (wired remote controller) microcomputers communication error	E: 3A.X. Indoor unit communication circuit (wired remote controller) error	3A.1
Indoor unit suction air temp. thermistor error	E: 41.X. Room temperature sensor error (Indoor unit)	41.1
Indoor unit heat ex. middle temp. thermistor error	E: 42.X. Indoor unit heat exchanger sensor error (Indoor unit)	42.2
Indoor unit fan motor 1 lock error	E: 51.X. Indoor unit fan motor error (Indoor unit)	51.1
Indoor unit fan motor 1 rotation speed error		51.2
Drain pump error	E: 53.X. Drain pump error (Indoor unit)	53.1
Indoor unit limit switch error	E: 58.X. Intake grille error (Indoor unit)	58.1
Outdoor unit PCB model information error	E: 62.X. Outdoor unit main PCB error (Outdoor unit)	62.1
Outdoor unit PCB microcomputer communication error		62.2
Outdoor unit inverter error	E: 63.X. Inverter error (Outdoor unit)	63.1
Outdoor unit abnormal voltage error (permanent stop)	E: 64.X. PFC circuit error (Outdoor unit)	64.1
Outdoor unit abnormal voltage error (automatic restore)		64.3
Outdoor unit over current error (permanent stop)		64.4
Outdoor unit PFC hardware error		64.8
Outdoor unit trip terminal L error	E: 65.X. Trip terminal L error (Outdoor unit)	65.3

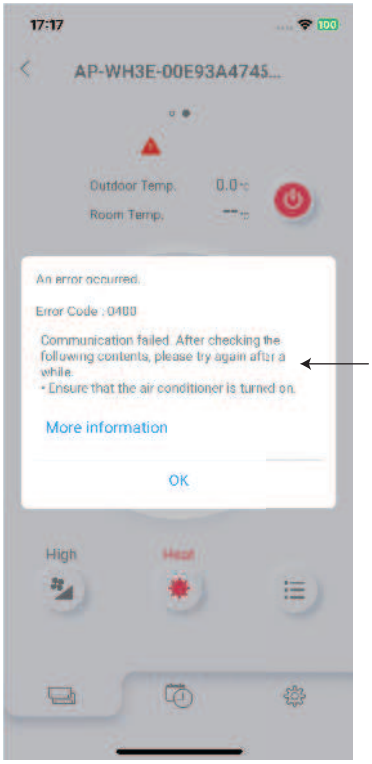
TROUBLESHOOTING

Error message	Error contents	Error code
Outdoor unit discharge temp. thermistor 1 error	E: 71.X. Discharge thermistor error (Outdoor unit)	71.1
Outdoor unit discharge temp. thermistor 1 error	E: 72.X. Compressor thermistor error (Outdoor unit)	72.1
Outdoor unit heat ex. liquid temp. thermistor error	E: 73.X. Heat exchanger (Middle/Outlet) temperature thermistor error (Outdoor unit)	73.3
Outside air temp. thermistor error	E: 74.X. Outdoor temperature thermistor error (Outdoor unit)	74.1
Outdoor unit heat sink temp. thermistor error	E: 77.X. Heat sink thermistor error (Outdoor unit) (24/30/36 model)	77.1
Outdoor unit current sensor 1 error (permanent stop)	E: 84.X. Current sensor error (Outdoor unit)	84.1
Outdoor unit discharge pressure sensor error	E: 86.X. High pressure switch error (Outdoor unit) (24/30/36 model)	86.1
Outdoor unit trip detection	E: 94.X. Trip detection (Outdoor unit)	94.1
Outdoor unit compressor rotor position detection error (permanent stop)	E: 95.X. Compressor motor control error (Outdoor unit)	95.1
Outdoor unit fan motor 1 power source duty error	E: 97.X. Outdoor unit fan motor error (Outdoor unit)	97.3
Outdoor unit 4-way valve error	E: 99.X. 4-way valve error (Outdoor unit)	99.1
Outdoor unit discharge temperature 1 error (permanent stop)	E: A1.X. Discharge temperature error (Outdoor unit)	A1.1
Outdoor unit compressor 1 temperature error	E: A3.X. Compressor temperature error (Outdoor unit)	A3.1
Operation over upper range limit error	E: AC.X. Heat sink temperature error (Outdoor unit) (24/30/36 model)	AC.1
Operation under lower range limit error		AC.2

1-8. Error message for wireless LAN control (Mobile app)

■ Error display

If there is an abnormality on the wireless control system, refer to error messages as follows.



Error message

TROUBLESHOOTING

■ Error message list

- **Registration error**

Error code	Error message	Cause Solution
2400	Communication failed. After checking the following contents, please try again after a while. • Ensure that the air conditioner is turned on.	Communication with the air conditioner failed. Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** – Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. – Check that the power plug of the air conditioner main unit is plugged in. • **When lighting** Use a smartphone to check that the wireless router to which the air conditioner is connected is connected to the Internet. If the smartphone cannot connect to the Internet, reboot the wireless router. When rebooting the wireless router does not solve the problem, contact the manufacturer of the wireless router. • **When blinking** Wait for a while until the indicator lamp lights and then operate again. If the indicator lamp is still blinking after waiting for a while, check that the wireless router is turned on.
2930	Cannot connect to your air conditioner. Check if the WiFi setting of the mobile device is turned on. When problems are not resolved, there may be other causes. Tap the link below to check other solutions.	Failed because the smartphone could not connect to the air conditioner. Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** 1. Check that the 2D barcode is for the air conditioner to be registered. 2. Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. 3. Check that the power plug of the air conditioner main unit is plugged in. 4. Retry the connection step procedure for the air conditioner registration displayed in the application to set the lamp to the blinking state. • **When lighting or blinking** 1. Check that the 2D barcode is for the air conditioner to be registered. 2. Check that the wireless LAN setting of smartphone is set to ON.

TROUBLESHOOTING

TROUBLESHOOTING

Error code	Error message	Cause Solution
2931	WLAN adapter password is wrong. Enter it again. When problems are not resolved, there may be other causes. Tap the link below to check other solutions.	Failed because the smartphone could not connect to the air conditioner.
		Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** 1. Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. 2. Check that the power plug of the air conditioner main unit is plugged in. 3. Retry the connection step procedure for the air conditioner registration displayed in the application to set the lamp to the blinking state. • **When lighting or blinking** 1. Check that the entered SSID and PIN numbers of WLAN Adapter are correct. 2. Check that the wireless LAN setting of smartphone is set to ON.
2932 2933	Failed to connect to wireless router. Check if the WiFi setting of the mobile device is turned on. When problems are not resolved, there may be other causes. Tap the link below to check other solutions.	• Registration failed because the smartphone cannot connect to the network. • Connection to the WLAN Adapter was disconnected during processing.
		1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet.
2934	Wi-Fi router password is wrong. Tap “From the beginning” to enter it again. When problems are not resolved, there may be other causes. Tap the link below to check other solutions.	• The wireless router password is not correct. • The air conditioner is not connected to the same wireless router as the smartphone.
		Check the following contents and operate again. 1. Check that the wireless router password is correct. 2. Check that the smartphone and the air conditioner are connected to the same wireless router. 3. The wireless router encryption method WPA3 is not supported. Check if SSID other than WPA3 is selected. 4. Check that the local network setting of the smartphone is “Enabled”. (Only for smartphones with iOS14 or later)
2935 2937 2939 2941	Failed to register the air conditioner. Make sure the wireless router is connected to the Internet, and then tap “Re-register” to perform the registration process again. When problems are not resolved, there may be other causes. Tap the link below to check other solutions.	Registration failed because the air conditioner cannot connect to the Internet.
		Check the following contents and operate again. 1. Use a smartphone to check that the wireless router to which the air conditioner is connected is connected to the Internet. 2. If the smartphone cannot connect to the Internet, reboot the wireless router. When rebooting the wireless router does not solve the problem, contact the manufacturer of the wireless router. 3. Check that the MAC address filter and privacy separator settings are not “enabled” on the wireless router.

TROUBLESHOOTING

Error code	Error message	Cause Solution
2936 2940	Air conditioner registration failed. Tap “Re-register” and conduct the registration processing again. If not successful after multiple attempts, tap “From the beginning” and then initialize the WLAN and start over from the beginning.	• The air conditioner you are trying to register is already registered to another account. • Registration failed because the air conditioner cannot connect to the Internet. • Immediately after turning on the power of the air conditioner, wait for about 5 minutes before registering it. Check the following contents and operate again. 1. Tap “Re-register” and conduct the registration processing again. 2. Delete from another account or initialize the WLAN Adapter. 3. Check that the wireless router is turned on. 4. Check that wireless router is connected to the Internet. If not connected, reboot the wireless router. When rebooting does not solve the problem, contact the manufacturer of the wireless router. 5. Check that the MAC address filter and privacy separator settings are not “enabled” on the wireless router.
2938	Registration failed because the air conditioner could not connect to the Internet. Perform the WPS connection procedure again and confirm that the WLAN lamp on the indoor unit or LED2 on the WLAN adapter is lit before registering. When problems are not resolved, there may be other causes. Tap the link below to check other solutions.	• Registration failed because the air conditioner cannot connect to the Internet. • Registration failed because the air conditioner is not connected to the same wireless router as the smartphone. Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** 1. Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. 2. Check that the power plug of the air conditioner main unit is plugged in. 3. Check that the wireless router is turned on. 4. Retry the connection step procedure for the air conditioner registration displayed in the application and complete WPS connection with wireless router to set the lamp to the blinking state. • **When lighting** 1. Check that the air conditioner and the smartphone are connected to the same wireless router. 2. Check that the local network setting of the smartphone is “Enabled”. (Only for smartphones with iOS14 or later)
2942	Your mobile device is not connected to WiFi. Connect to the target wireless router through the OS WiFI setting and restart the procedure. 1. Open the Wi-Fi setting screen of your device. 2. Connect your mobile device to the {ssid}. 3. Return to the application screen and tap “Re-register”. When problems are not resolved, there may be other causes. Tap the link below to check other solutions.	Registration failed because the air conditioner cannot connect to the Internet. Check the following contents and operate again. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Set the connection setting with the wireless router to Auto Connection in the smartphone settings. 4. Check that the wireless router is turned on.

TROUBLESHOOTING

Error code	Error message	Cause Solution
2944	Communication failed.	Registration may have failed because a problem occurred in communication with the server (cloud). Wait for a while and then operate again.
2946	The connected air conditioner cannot use the Direct control.	Your air conditioner does not support Direct Control. Operate the air conditioner with Cloud Control.
2947	Already reached the max number of air conditioners per user.	The number of air conditioners that can be registered on AIRSTAGE Mobile has reached the maximum limit. Check the number of air conditioners registered on AIRSTAGE Mobile. (Maximum number of registered units: 50 units for Cloud Control, 50 units for Direct Control) Delete the unused air conditioners on the “Air conditioner editing” screen before registration.
2949	The number of air conditioners registered by the entered user has reached the upper limit, so registration is not possible.	The number of sub users that can be registered has reached the maximum limit. Check the number of registered sub users. (Maximum number of registered sub users: 4 sub users) Delete the unused sub users on the “Sub User Registration” screen.
2953	The specified air conditioner is already registered. To Reregister, delete the air conditioner information on the air conditioner edit screen and initialize the wireless LAN adapter with the remote control.	The specified air conditioner was already registered. Check that the specified air conditioner is displayed on the air conditioner list screen. To register again, delete the air conditioner on the air conditioner editing screen.
2954	The wireless router to which the mobile device and the wireless LAN adapter are connected must be the same. Follow the steps below. 1. Please open the Wi-Fi setting screen of the mobile device. 2. Connect your mobile device to the wireless router that you pressed the automatic connection button. 3. Return to the app screen and tap “OK”.	The air conditioner and the smartphone are not connected to the same wireless router network. Check the following contents and operate again. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Check that the wireless router is turned on. 4. Check that the air conditioner and the smartphone are connected to the same wireless router.

TROUBLESHOOTING

- **Sign in error**

Error code	Error message	Cause / Solution
4010 4410 4610 4810 4910	Communication failed. After checking the following contents, please try again after a while. • Ensure that your mobile device is connected to the internet.	Various settings could not be completed because communication with the server (cloud) failed.
		Check the following contents and operate again. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Check that the wireless router is turned on.
4100	The account you are currently signed in to may have been deleted. If necessary, please create the account again.	Token has been disabled because the signed-in account has been deleted or certain amount of time has elapsed.
		Restart the application and check that you can sign in.If you cannot sign in, create the account again.
4101	The session has expired. Please sign in again to continue.	Token has been disabled because the signed-in account has been deleted or certain amount of time has elapsed.
		Restart the application and check that you can sign in. If you cannot sign in, create the account again.
4102	Your session has expired. Please sign in again. *If you cannot sign in, your account may have been deleted. If necessary, please create an account again.	Token has been disabled because the signed-in account has been deleted or certain amount of time has elapsed.
		Restart the application and check that you can sign in. If you cannot sign in, create the account again.
4110	Failed to connect to the server. Some functions can be used with Direct Control. Do you want to switch to direct control?	• Communication with the server (cloud) failed at sign in. • Registration process of Account registration procedure verification email has not been completed.
		Check the following contents and sign in again. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Check that the wireless router is turned on. 4. Tap the link of Account registration procedure verification email and check that registration process has completed.
4111	Failed to read the device. Since some functions are available in Direct control, switch to Direct control.	Air conditioner information could not be obtained because communication with the server (cloud) failed after sign in.
		Check the following contents and sign in again. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Check that the wireless router is turned on.
4112	Failed to connect to the server. Some functions are limited.	• Communication with the server (cloud) failed at sign in. • Registration process of Account registration procedure verification email has not been completed.
		Check the following contents and sign in again. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Check that the wireless router is turned on. 4. Tap the link of Account registration procedure verification email and check that registration process has completed.
4113	Failed to connect to the server. Would you like to sign in again? Yes: Sign in again No: Return to the sign-in screen	Air conditioner information could not be obtained because communication with the server (cloud) failed after sign in.
		Check the following contents and sign in again. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Check that the wireless router is turned on.

TROUBLESHOOTING

Error code	Error message	Cause Solution
4420	Loading of user information failed. Check the following contents. • Check that your mobile device is connected to the internet.	User information or temperature unit information could not be obtained because communication with the server (cloud) failed. Check the following contents and operate again. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Check that the wireless router is turned on.
4530	Password update failed. Please check if the entered current password is correct.	Password update failed because the entered password was not correct. Check that the entered “Current password” is correct and operate again.
4920	Loading of time zone failed. Check the following contents. • Check that your mobile device is connected to the internet.	Time zone information could not be obtained because communication with server (cloud) failed. Check the following contents and operate again. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Check that the wireless router is turned on.

TROUBLESHOOTING

- **General error**

Error code	Error message	Cause Solution
0100		Communication with the air conditioner failed.
0200 0300 0400 0500 0501 0600 0601 0800 0900 1000 1200 1400 1500 3200 5500 5700 5900 6200	Communication failed. After checking the following contents, please try again after a while. • Ensure that the air conditioner is turned on.	Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** – Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. – Check that the power plug of the air conditioner main unit is plugged in. • **When lighting** Use a smartphone to check that the wireless router to which the air conditioner is connected is connected to the Internet. If the smartphone cannot connect to the Internet, reboot the wireless router. When rebooting the wireless router does not solve the problem, contact the manufacturer of the wireless router.
0810 0811 0812 1510		• Various settings could not be completed because communication with the server (cloud) failed. • Air conditioner information could not be obtained because communication with server (cloud) failed.
1511 1512 3010 5510 5520 5530 6001 6002 6003 6010 6011 6012 6013 6310	Communication failed. After checking the following contents, please try again after a while. • Ensure that your mobile device is connected to the internet.	Check the following contents and operate again. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Check that the wireless router is turned on.

TROUBLESHOOTING

Error code	Error message	Cause Solution
0820	Loading of outdoor low noise timer failed. Check the following contents. • Ensure that your mobile device is connected to the internet.	The outdoor unit low noise timer information could not be obtained because communication with the server (cloud) failed.
		Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** – Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. – Check that the power plug of the air conditioner main unit is plugged in. • **When lighting** Use a smartphone to check that the wireless router to which the air conditioner is connected is connected to the Internet. If the smartphone cannot connect to the Internet, reboot the wireless router. When rebooting the wireless router does not solve the problem, contact the manufacturer of the wireless router. • **When blinking** Wait for a while until the indicator lamp lights and then operate again. If the indicator lamp is still blinking after waiting for a while, check that the wireless router is turned on.
1520	Loading of weekly timer failed. Check the following contents. • Ensure that your mobile device is connected to the internet.	The weekly timer setting information could not be obtained because communication with the server (cloud) failed.
		Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** – Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. – Check that the power plug of the air conditioner main unit is plugged in. • **When lighting** Use a smartphone to check that the wireless router to which the air conditioner is connected is connected to the Internet. If the smartphone cannot connect to the Internet, reboot the wireless router. When rebooting the wireless router does not solve the problem, contact the manufacturer of the wireless router. • **When blinking** Wait for a while until the lamp lights and then operate again. If the lamp is still blinking after waiting for a while, check that the wireless router is turned on.

TROUBLESHOOTING

Error code	Error message	Cause Solution
1720	Loading of error history failed. Check the following contents. • Ensure that your mobile device is connected to the internet.	The error history information could not be obtained because communication with the server (cloud) failed. Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** – Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. – Or check that the power plug of the air conditioner main unit is plugged in. • **When lighting** Use a smartphone to check that the wireless router to which the air conditioner is connected is connected to the Internet. If the smartphone cannot connect to the Internet, reboot the wireless router. When rebooting the wireless router does not solve the problem, contact the manufacturer of the wireless router. • **When blinking** Wait for a while until the indicator lamp lights and then operate again. If the indicator lamp is still blinking after waiting for a while, check that the wireless router is turned on.
3110	Communication failure prevented the group movement processing from being conducted. After checking the following contents, please try again after a while. • Ensure that your mobile device is connected to the internet.	Air conditioner group setting has not been completed because communication with air conditioner failed. Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** – Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. – Check that the power plug of the air conditioner main unit is plugged in. • **When lighting** Use a smartphone to check that the wireless router to which the air conditioner is connected is connected to the Internet. If the smartphone cannot connect to the Internet, reboot the wireless router. When rebooting the wireless router does not solve the problem, contact the manufacturer of the wireless router. • **When blinking** Wait for a while until the indicator lamp lights and then operate again. If the indicator lamp is still blinking after waiting for a while, check that the wireless router is turned on.

TROUBLESHOOTING

Error code	Error message	Cause Solution
3111	Communication failure prevented the group creation processing from being conducted. After checking the following contents, please try again after a while. • Ensure that your mobile device is connected to the internet.	Air conditioner group setting has not been completed because communication with air conditioner failed. Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** – Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. – Check that the power plug of the air conditioner main unit is plugged in. • **When lighting** Use a smartphone to check that the wireless router to which the air conditioner is connected is connected to the Internet. If the smartphone cannot connect to the Internet, reboot the wireless router. When rebooting the wireless router does not solve the problem, contact the manufacturer of the wireless router. • **When blinking** Wait for a while until the indicator lamp lights and then operate again. If the indicator lamp is still blinking after waiting for a while, check that the wireless router is turned on.
3112	Communication failure prevented the group name change processing from being conducted. After checking the following contents, please try again after a while. • Ensure that your mobile device is connected to the internet.	Air conditioner group setting has not been completed because communication with air conditioner failed. Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** – Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. – Check that the power plug of the air conditioner main unit is plugged in. • **When lighting** Use a smartphone to check that the wireless router to which the air conditioner is connected is connected to the Internet. If the smartphone cannot connect to the Internet, reboot the wireless router. When rebooting the wireless router does not solve the problem, contact the manufacturer of the wireless router. • **When blinking** Wait for a while until the indicator lamp lights and then operate again. If the indicator lamp is still blinking after waiting for a while, check that the wireless router is turned on.

TROUBLESHOOTING

Error code	Error message	Cause Solution
3113	Communication failure prevented the group deletion processing from being conducted. After checking the following contents, please try again after a while. • Ensure that your mobile device is connected to the internet.	Air conditioner group setting has not been completed because communication with air conditioner failed. Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** – Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. – Check that the power plug of the air conditioner main unit is plugged in. • **When lighting** Use a smartphone to check that the wireless router to which the air conditioner is connected is connected to the Internet. If the smartphone cannot connect to the Internet, reboot the wireless router. When rebooting the wireless router does not solve the problem, contact the manufacturer of the wireless router. • **When blinking** Wait for a while until the indicator lamp lights and then operate again. If the indicator lamp is still blinking after waiting for a while, check that the wireless router is turned on.
3114	The room temperature display indoor unit setting could not be made due to a communication failure. After checking the following contents, please try again after a while. • Ensure that your mobile device is connected to the internet.	Air conditioner group setting has not been completed because communication with air conditioner failed. Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** – Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. – Check that the power plug of the air conditioner main unit is plugged in. • **When lighting** Use a smartphone to check that the wireless router to which the air conditioner is connected is connected to the Internet. If the smartphone cannot connect to the Internet, reboot the wireless router. When rebooting the wireless router does not solve the problem, contact the manufacturer of the wireless router. • **When blinking** Wait for a while until the indicator lamp lights and then operate again. If the indicator lamp is still blinking after waiting for a while, check that the wireless router is turned on.

TROUBLESHOOTING

Error code	Error message	Cause Solution
3115	Some device group move processing could not be conducted due to communication failure. After checking the following contents, please try again after a while. • Ensure that your mobile device is connected to the internet.	Air conditioner group setting has not been completed because communication with air conditioner failed. Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again. • **When not lighting** – Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. – Check that the power plug of the air conditioner main unit is plugged in. • **When lighting** Use a smartphone to check that the wireless router to which the air conditioner is connected is connected to the Internet. If the smartphone cannot connect to the Internet, reboot the wireless router. When rebooting the wireless router does not solve the problem, contact the manufacturer of the wireless router. • **When blinking** Wait for a while until the indicator lamp lights and then operate again. If the indicator lamp is still blinking after waiting for a while, check that the wireless router is turned on.
5320	Loading of air conditioner information failed. Check the following contents. • Ensure that your mobile device is connected to the internet.	Air conditioner information could not be obtained because communication with server (cloud) failed. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Check that the wireless router is turned on.
5531 5540	New firmware update failed.	Firmware update failed. Check the following contents and operate again. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Check that the wireless router is turned on. 4. Refer to the operation manual of air conditioner and check the indicator lamp state of air conditioner indoor unit.
5601	Failed to get the air conditioner information.	Failed to obtain air conditioner information by Direct Control. Sign in again.
5602	Failed to add the air conditioner.	Failed to add air conditioner by Direct Control. Check the following contents and operate again. 1. When 2D barcode label is used, scan 2D barcode label again. 2. When 2D barcode label is not used, check that the entered SSID or PIN code is correct.
5630	Device disconnection failed.After checking the following contents, please try again after a while. • Ensure that your mobile device is connected to the internet.	Failed to disconnect the connection with air conditioner by Direct Control. Check the following contents and operate again. 1. Check that the smartphone is connected with the air conditioner. 2. Check that the Electrical panel (Switch breaker) to the air conditioner is turned on. 3. Check that the power plug of the air conditioner main unit is plugged in.

Error code	Error message	Cause Solution
6201	Failed to update the screen. After checking the following contents, please try again after a while. • Ensure that your mobile device is connected to the internet.	Various settings could not be completed because communication with the server (cloud) failed. Check the following contents and operate again. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Check that the wireless router is turned on.
7610	Communication failed. Check the following contents. • Ensure that your mobile device is connected to the internet.	Various settings could not be completed because communication with the server (cloud) failed. Check the following contents and operate again. 1. Check that the wireless LAN setting of smartphone is set to ON. 2. Check that the smartphone is connected to the Internet. 3. Check that the wireless router is turned on.

TROUBLESHOOTING

2. Troubleshooting with error code

2-1. E: 11.X. Serial communication error (Serial reverse transfer error) (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 11
Detective actuator	Outdoor unit	Main PCB	When the indoor unit cannot receive the serial signal from outdoor unit more than 2 minutes after power on, or the indoor unit cannot receive the serial signal more than 15 seconds during normal operation.
		Fan motor	
Forecast of cause			Connection failure
			External cause
			Main PCB failure
			Outdoor unit fan motor failure

Check point 1. Reset the power and operate

Does error indication show again?
→ If no, go to "Check point 1-2".

↓

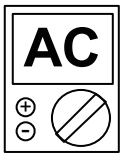
Check point 2. Check connection

Check any loose or removed connection line of indoor unit and outdoor unit.
Check connection condition is control unit. (If there is loose connector, open cable or mis-wiring.)
→ If there is an abnormal condition, correct it by referring to the installation manual or the “DESIGN & TECHNICAL MANUAL”.

↓

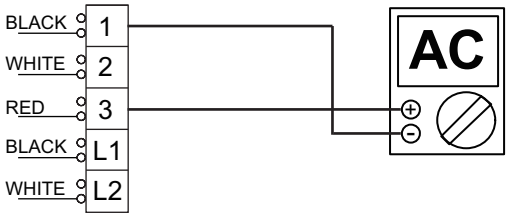
Check point 3. Check the voltage of power supply

Check the voltage of power supply
Check if AC 187 V (AC 208 V -10%) to AC 253 V (AC 230 V +10%) appears at outdoor unit terminal L1—L2.



↓

TROUBLESHOOTING

Check point 4. Check serial signal (Reverse transfer signal)
Check serial signal (Reverse transfer signal)    • Check if indicated value swings between AC 90 V and AC 270 V at the outdoor unit terminal 1 —3. • If it is abnormal, check the parts below. – Outdoor unit fan motor • If outdoor fan motor is abnormal, replace outdoor unit fan motor and main PCB. • If the checked parts are normal, replace the main PCB.

↓

End

Check point 1-2. Check external cause such as noise
• Check the complete insulation of the grounding. • Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

↓

End

2-2. E: 11.X. Serial communication error (Serial forward transfer error) (Indoor unit)

Indicator	Wired remote controller	Error code	E: 11
Detective actuator	Indoor unit	Main PCB	When the outdoor unit cannot receive the serial signal from indoor unit more than 10 seconds.
Forecast of cause			Connection failure
			External cause
			Main PCB failure

TROUBLESHOOTING

Check point 1. Reset the power and operate

Does error indication show again?
→ If no, go to "Check point 1-2".

↓

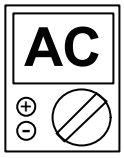
Check point 2. Check connection

Check any loose or removed connection line of indoor unit and outdoor unit.
Check connection condition is control unit. (If there is loose connector, open cable or mis-wiring.)
→ If there is an abnormal condition, correct it by referring to the installation manual or the “DESIGN & TECHNICAL MANUAL”.

↓

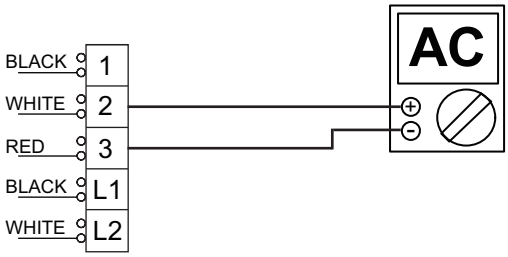
Check point 3. Check the voltage of power supply

Check the voltage of power supply
Check if AC 187 V (AC 208 V -10%) to AC 253 V (AC 230 V +10%) appears at outdoor unit terminal L1—L2.



↓

TROUBLESHOOTING

Check point 4. Check serial signal (Forward transfer signal)
Check serial signal (Forward transfer signal)    • Check if indicated value swings between AC 30 V and AC 130 V at outdoor unit terminal 2—3. • If it is abnormal, replace main PCB.

↓

End

Check point 1-2. Check external cause such as noise
• Check the complete insulation of the grounding. • Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

↓

End

2-3. E: 12.X. Wired remote controller communication error (Indoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 12
Detective actuator	Indoor unit	Main PCB	When the indoor unit cannot receive the signal from Wired remote controller more than 1 minute during normal operation.
	Wired remote control		
Forecast of cause			Terminal connection abnormal
			Wired remote control failure
			Main PCB failure

Check point 1. Check the connection of terminal

After turning off the power, check & correct the followings.

- Check the connection of terminal between wired remote controller and indoor unit, and check if there is a disconnection of the cable.

↓

Check Point 1-2 : Check Wired remote controller and main PCB

Check voltage at CN300 of main PCB (terminal 1—3, terminal 1—2). (Power supply to the remote controller)

Upon correcting the removed connector or mis-wiring, reset the power.

- If it is DC 12 V, remote controller is failure. (Main PCB is normal) => Replace remote control.
- If it is DC 0 V, Main PCB is failure. (Check remote controller once again) => Replace Main PCB.

↓

End

Check Point 2 : Wire installation wrong remote controller group setting

- Wrong wire connection in remote controller group (Please refer to the installation manual)
- The number of connecting indoor unit and remote controller in one remote controller group were less than 16 units.

↓

Check Point 2-1 : Check Indoor unit main PCB

- Check if main PCB damage
- Change main PCB and check the error after setting remote controller address

↓

End

2-4. E: 15.X. Automatic air flow adjustment error (Indoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 15
Detective actuator	Indoor unit	Main PCB	• On automatic airflow adjustment operation, when the fan speed other than 0rpm is detected at the 0rpm operation. • On automatic airflow adjustment operation, when the fan speed is not reach the target speed, after 2 minutes from the fan started. • On automatic airflow adjustment operation operation, when the 72:750W,90:1000W of input power is detected.
Forecast of cause			Fan rotation failure
			Fan motor winding open
			Indoor unit main PCB

Check point 1. Check the rotation of fan

Rotate the fan by hand when the operation is off. (Check if fan is caught, drop off or locked motor)
→ If fan or bearing is abnormal, replace it.

↓

Check point 2. Check ambient temperature around the motor

Check excessively high temperature around the motor. (If there is any surrounding equipment that causes heat.)
→ Upon the temperature coming down, restart operation.

↓

Check point 3. Check indoor unit fan motor

Check indoor unit fan motor. (Refer to indoor unit fan motor in "Service parts information" on page 03-81.)
→ If indoor unit fan motor is abnormal, replace it.

↓

Check point 4. Replace main PCB

If check point 1-3 does not improve the symptom, change main PCB.

↓

End

2-5. E: 22.X. Indoor unit capacity error (Indoor unit)

Detective actuator	Indoor unit main PCB	When the total capacity of the indoor units does not match outdoor unit capacity while 3 minutes after power on.
Forecast of cause		Indoor unit selection is incorrect.
		Main PCB failure

TROUBLESHOOTING

Check point 1. Check the total capacity of indoor units
Check the total capacity of the indoor units. → If abnormal condition is found, correct it referring to the installation manual or DESIGN & TECHNICAL MANUAL.

↓

Check point 2. Replace the main PCB
If check point 1 does not improve the symptom, replace the main PCB.

↓

End

2-6. E: 23.X. Combination error (Outdoor unit)

Indicator	Wired remote controller	Error code	E: 23
Detective actuator	Indoor unit		The outdoor unit receives the serial signal of applied refrigerant information from indoor unit.
Forecast of cause			Incorrect indoor unit is selected.

Check point 1. Check the type of indoor unit
• Check the type of the connected indoor unit. -> If there is an abnormal condition, correct it by refer to the installation manual or the “DESIGN & TECHNICAL MANAL”.

↓

Check point 2. Replace the main PCB
If check point 1 do not improve the symptom, replace the main PCB of the outdoor unit.

↓

End

2-7. E: 26.X. Address setting error in wired remote controller (Indoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 26
Detective actuator	Wired remote controller (2-wire)		• When the address number set by auto setting and manual setting are mixed in one remote controller group • When the duplicated address number exists in one remote controller group
	Indoor unit controller PCB		
Forecast of cause			Wrong wiring of remote controller group
			Wrong remote controller address setting
			Indoor unit main PCB failure
			Remote controller failure

Check point 1. Wire installation

- Check the wire connection in the remote controller group (For installation method, refer to installation manual)
  -> If there is an abnormal condition, correct it by refer to the installation manual or the “DESIGN & TECHNICAL MANUAL”.

↓

Check point 2. Wrong remote controller group setting

- The given address number by auto setting (00) and the manual set number (except 00) are not existing in one remote controller group.
- The remote controller address setting by UI is not existing same address.
- The duplicate address number is not existing in one remote controller group.

↓

Check point 3. Check indoor unit main PCB

- Check if main PCB is damaged.
- Change main PCB and check the error after setting remote controller address.

↓

End

2-8. E: 29.X. Connected unit number error (Indoor unit)

Indicator	Wired remote controller	Error code	E: 29
Detective actuator	Wired remote controller (2-wire)		When the number of the connected indoor unit exceeds the limitation.
	Indoor unit main PCB		
Forecast of cause			Wrong wiring of indoor unit or remote controller
			Number of indoor unit or remote controller in remote controller group
			Indoor unit main PCB failure

TROUBLESHOOTING

Check point 1. Wire installation
• Wrong number of connected indoor unit -> If there is an abnormal condition, correct it by refer to the installation manual or the “DESIGN & TECHNICAL MANUAL”.

↓

Check point 2. Check indoor unit main PCB
• Check if main PCB is damaged. • Change main PCB and check the error after setting remote controller address.

↓

End

2-9. E: 32.X. Indoor unit main PCB error (Indoor unit)

Indicator	Wired remote controller	Error code	E: 32
Detective actuator	Indoor unit	Main PCB	When power is on and there is some below case. 1. When model information of EEPROM is incorrect. 2. When the access to EEPROM failed.
Forecast of cause			External cause
			Defective connection of electrical components
			Main PCB failure

TROUBLESHOOTING

Check point 1. Reset power supply and operate

Does error indication show again?
→ If no, go to "Check point 1-2".

↓

Check point 2. Check Indoor unit electrical components

- Check all connectors. (loose connector or incorrect wiring)
- Check any shortage or corrosion on PCB.

↓

Check point 3. Replace the main PCB

Replace the main PCB.

↓

End

Check point 1-2. Check external cause such as noise

- Check if the ground connection is proper.
- Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

↓

End

NOTE: EEPROM

EEPROM (Electronically Erasable and Programmable Read Only Memory) is a non-volatile memory which keeps memorized information even if the power is turned off. It can change the contents electronically. To change the contents, it uses higher voltage than normal, and it cannot change a partial contents. (Rewriting shall be done upon erasing the all contents.) There is a limit in a number of rewriting.

2-10. E: 33.X. Indoor unit motor electricity consumption detection error (Indoor unit)

Indicator	Wired remote controller	Error code	E: 33
Detective actuator	Indoor unit motor electricity consumption detection		When the voltage value or the current value of the motor go beyond the limits
Forecast of cause			Fan motor failure
			Main PCB failure

TROUBLESHOOTING

Check point 1. Check the rotation of fan

Rotate the fan by hand when the operation is off. (Check if fan is caught, drop off or locked motor)
→ If fan or bearing is abnormal, replace it.

↓

Check point 2. Check ambient temperature around the motor

Check excessively high temperature around the motor. (If there is any surrounding equipment that causes heat.)
→ Upon the temperature coming down, restart operation.

↓

Check point 3. Check indoor unit fan motor

Check indoor unit fan motor. (Refer to indoor unit fan motor in "Service parts information" on page 03-81.)
→ If indoor unit fan motor is abnormal, replace it.

↓

Check point 4. Replace the main PCB

If check point 1-3 does not improve the symptom, replace the main PCB.

↓

End

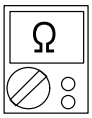
2-11. E: 35.X. MANUAL AUTO button error (Indoor unit)

Indicator	Wired remote controller	Error code	E: 35
Detective actuator	Indoor unit controller PCB		When the MANUAL AUTO button becomes on for consecutive 60 or more seconds.
	Indicator PCB		
	Manual auto switch		
Forecast of cause			MANUAL AUTO button failure
			Controller PCB and indicator PCB failure

TROUBLESHOOTING

Check point 1. Check the MANUAL AUTO button

- Check if MANUAL AUTO button is kept pressed.
- Check ON/OFF switching operation by using a meter.



If MANUAL AUTO button is disabled (ON/OFF switching), replace it.

↓

Check point 2. Replace the main PCB and indicator PCB

If Check Point 1 does not improve the symptom, replace the main PCB and indicator PCB.

↓

End

2-12. E: 39.X. Indoor unit power supply error for fan motor (Indoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 39
Detective actuator	Indoor unit main PCB		• When a momentary power cut off • When do not start fan motor
Forecast of cause			External cause
			Connector connection failure
			Main PCB failure

Check point 1. Check external cause at indoor and outdoor (Voltage drop or Noise)

- Instant drop: Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure: Check if there is a defective contact or leak current in the power supply circuit.
- Noise: Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave)
  Check the complete insulation of grounding.

↓

Check point 2. Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if cable is open.

→ Upon correcting the removed connector or mis-wiring, reset the power.

↓

Check point 3. Replace the main PCB

If check point 1 to 2 do not improve the symptom, replace the main PCB.

↓

End

2-13. E: 3A.X. Indoor unit communication circuit (wired remote controller) error

Indicator	Wired remote controller	Error code	E: 3A
Detective actuator	Wired remote controller (2-wire)		Detect the communication error of microcomputer and communication PCB.
	Indoor unit controller PCB circuit		
Forecast of cause			Communication PCB defective
			Indoor unit main PCB defective

TROUBLESHOOTING

Check point 1. Check the connection of terminal
• After turning off the power supply, check and correct the followings Indoor unit - Check the connection the communication PCB and the main PCB

↓

Check Point 2 : Replace the communication PCB
If the Check point 1 is ok, replace the communication PCB

↓

Check Point 3 : Replace the main PCB
If condition is doesn't change, replace the main PCB

↓

End

2-14. E: 41.X. Room temperature sensor error (Indoor unit)

Indicator	Wired remote controller	Error code	E: 41
Detective actuator	Indoor unit main PCB		Room temperature thermistor is open or short is detected always.
	Room temperature thermistor		
Forecast of cause			Connector failure
			Thermistor failure
			Main PCB failure

TROUBLESHOOTING

Check point 1. Check connection of connector

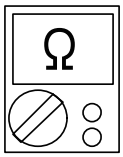
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> Reset power when reinstalling due to removed connector or incorrect wiring.

↓

Check point 2. Remove connector and check thermistor resistance value

- For the room thermistor resistance value, refer to "Thermistor resistance values" on page 03-91.
- If thermistor is either open or shorted, replace it and reset the power.



↓

Check point 3. Check voltage of main PCB

Make sure circuit diagram of each indoor unit and check terminal voltage at thermistor (DC 5.0 V).

NOTE: For details of thermistor connector, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-27.

If the voltage does not appear, replace main PCB.

↓

End

2-15. E: 42.X. Indoor unit heat exchanger sensor error (Indoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 42
Detective actuator	Indoor unit main PCB		When heat exchanger temperature thermistor open or short circuit is detected.
	Heat exchanger temperature thermistor		
Forecast of cause			Connector connection failure
			Thermistor failure
			Main PCB failure

Check point 1. Check connection of connector

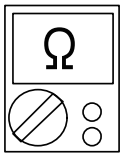
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> Reset power when reinstalling due to removed connector or incorrect wiring.

↓

Check point 2. Remove connector and check thermistor resistance value

- For the heat exchanger thermistor resistance value, refer to "Thermistor resistance values" on page 03-91.
- If thermistor is either open or shorted, replace it and reset the power.



↓

Check point 3. Check voltage of main PCB

Make sure circuit diagram of each indoor unit and check terminal voltage at thermistor (DC 5.0 V).

NOTE: For details of thermistor connector, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-27.

If the voltage does not appear, replace main PCB.

↓

End

2-16. E: 51.X. Indoor unit fan motor error (Indoor unit)

Indicator	Wired remote controller	Error code	E: 51
Detective actuator	Indoor unit	Main PCB	When the actual rotation number of the indoor unit fan motor is below 1/3 of the target rotation number continuously for more than 56 seconds.
		Fan motor	
Forecast of cause			Fan rotation failure
			Fan motor winding open
			Motor protection by surrounding temperature rise
			Control PCB failure
			Indoor unit fan motor failure

TROUBLESHOOTING

Check point 1. Check rotation of fan

Rotate the fan by hand when operation is off. (Check if fan is caught, dropped off or locked motor)
→ If fan or bearing is abnormal, replace it.

↓

Check point 2. Check ambient temperature around motor

Check excessively high temperature around the motor. (If there is any surrounding equipment that causes heat)
→ Upon the temperature coming down, restart operation.

↓

Check point 3. Check indoor unit fan motor

Check Indoor unit fan motor. (Refer to indoor unit fan motor in "Service parts information" on page 03-81.)
→ If Indoor unit fan motor is abnormal, replace Indoor unit fan motor.

↓

Check point 4. Replace the main PCB

If Check Point 1 to 3 do not improve the symptom, replace the main PCB.

↓

End

2-17. E: 53.X. Drain pump error (Indoor unit)

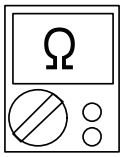
TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 53
Detective actuator	Indoor unit main PCB		When Float switch is ON for more than 3 minutes.
	Float switch		
Forecast of cause			Float switch failure
			Shorted connector/wire failure
			Main PCB failure
			Drain pump failure
			Hose clogging

Check point 1. Check float switch

- Check operation of float switch. (any blocking by dust, etc.)
- Remove float switch and check ON/OFF switching operation by using a meter.

-> If float switch is abnormal, replace it.



↓

Check point 2. Check connector and wire

Check loose contact of CN9 and shorted wire (pinched wire).
-> Replace float switch if the wire is abnormal

↓

Check point 3. Check drain hose

Check drain hose.
-> If there is hose clogging. Please clear the clog.

↓

Check point 4. Check voltage of power supply and drain pump

Check drain pump
-> If drain pump is not run on the working condition, check the voltage of the CN71 on the main PCB.

Measurement result

- 12V: Replace the drain pump
- Other than 12V: Replace the main PCB

NOTE: For details of thermistor connector, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-27.

↓

End

2-18. E: 58.X. Intake grille error (Indoor unit)

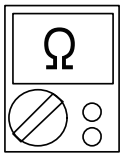
Indicator	Wired remote controller	Error code	E: 58
Detective actuator	Indoor unit main PCB		When the Micro switch is detected open while running the compressor.
	Micro switch		
Forecast of cause			Micro switch failure
			Shorted connector/wire
			Main PCB failure

TROUBLESHOOTING

Check point 1. Check limit switch

- Check operation of Micro switch. (any blocking by dust, etc.)
- Remove Micro switch and check ON/OFF switching operation by using a meter.

-> If micro switch is detective, replace it.



↓

Check point 2. Check connector (CN11)/wire

Check loose contact of CN11/shorted wire (pinched wire).
-> Replace micro switch if the wire is abnormal

↓

Check point 3. Replace the main PCB

If Check Point 1 and 2 do not improve the symptom, replace the main PCB.

↓

End

2-19. E: 62.X. Outdoor unit main PCB error (Outdoor unit)

Indicator	Wired remote controller	Error code	E: 62
Detective actuator	Outdoor unit	Main PCB	Access to EEPROM failed due to some cause after outdoor unit started.
Forecast of cause			External cause (Noise, temporary open, voltage drop)
			Main PCB failure

TROUBLESHOOTING

Check point 1. Reset power supply and operate
Does error indication show again?

If no, go to "Check point 1-2".

↓

Check point 2. Replace the main PCB
Replace the main PCB.

↓

End

Check point 1-2. Check external cause
• Check if temporary voltage drop was not generated. • Check if momentary open was not generated. • Check if ground is connection correctly or there are no related cables near the power line.

↓

End

2-20. E: 63.X. Inverter error (Outdoor unit)

Indicator	Wired remote controller	Error code	E: 63
Detective actuator	Outdoor unit	Inverter PCB	Error information received from inverter PCB
Forecast of cause			External cause
			Power supply to inverter PCB wiring disconnection or open
			Inverter PCB failure
			Outdoor unit main PCB failure

TROUBLESHOOTING

Check point 1. Turn the power on again?

Error displayed again?

If no, go to "Check point 1-2".

↓

Check point 2. Check the wiring

- Connector and wiring connection state check.
- Cable open check.

↓

Check point 3. Replace inverter PCB

Replace inverter PCB.

↓

Check point 4. Replace main PCB

If check point 1 to 3 do not improve the symptom, change main PCB.

↓

End

Check point 1-2. Check external cause

- Check if temporary voltage drop was not generated.
- Check if momentary open was not generated.
- Check if ground is connection correctly or there are no related cables near the power line.

↓

End

2-21. E: 64.X. PFC circuit error (Outdoor unit)

Indicator	Wired remote controller	Error code	E: 64
Detective actuator	Outdoor unit	Main PCB	• When inverter input DC voltage is higher than 425 V or lower than 80 V (for 18 model) or higher than 420 V for over 3 seconds (for 24/30/36 model), the compressor stops. • If the same operation is repeated 5 times, the compressor stops permanently.
Forecast of cause			External cause
			Connector connection failure
			Main PCB failure

TROUBLESHOOTING

Check point 1. Check external cause at indoor and outdoor (Voltage drop or Noise)

- Instant drop: Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure: Check if there is a defective contact or leak current in the power supply circuit.
- Noise: Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave)
  Check the complete insulation of grounding.

↓

Check point 2. Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if cable is open.

→ Upon correcting the removed connector or mis-wiring, reset the power.

↓

Check point 3. Replace the main PCB

If check point 1 to 2 do not improve the symptom, replace the main PCB.

↓

End

2-22. E: 65.X. Trip terminal L error (Outdoor unit)

Indicator	Wired remote controller	Error code	E: 65
Detective actuator	Outdoor unit	Main PCB	When the signal from FO terminal (13—15) of IPM is “L” (0 V) during the compressor stopping.
Forecast of cause			Main PCB failure

Check point 1. Check main PCB
Replace the outdoor unit main PCB.

↓

End

TROUBLESHOOTING

2-23. E: 71.X. Discharge thermistor error (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 71
Detective actuator	Outdoor unit main PCB		When discharge pipe temperature thermistor open or short circuit is detected at power on or while running the compressor
	Discharge pipe temperature thermistor		
Forecast of cause			Connector failure
			Thermistor failure
			Main PCB failure

Check point 1. Check connection of connector

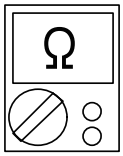
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

→ Reset power when reinstalling due to removed connector or incorrect wiring.

↓

Check point 2. Remove connector and check thermistor resistance value

- For the discharge temperature thermistor resistance value, refer to "Thermistor resistance values" on page 03-91.
- If thermistor is either open or shorted, replace it and reset the power.



↓

Check point 3. Check voltage of main PCB

Make sure circuit diagram of outdoor unit and check terminal voltage at thermistor (DC 5.0 V).

NOTE: For details of thermistor connector, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-27.

If the voltage does not appear, replace main PCB.

↓

End

2-24. E: 72.X. Compressor thermistor error (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 72
Detective actuator	Outdoor unit main PCB		When compressor temperature thermistor open or short circuit is detected at power on or while running the compressor
	Compressor temperature thermistor		
Forecast of cause			Connector failure
			Thermistor failure
			Main PCB failure

Check point 1. Check connection of connector

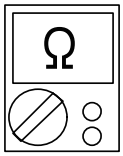
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

→ Reset power when reinstalling due to removed connector or incorrect wiring.

↓

Check point 2. Remove connector and check thermistor resistance value

- For the compressor thermistor resistance value, refer to "Thermistor resistance values" on page 03-91.
- If thermistor is either open or shorted, replace it and reset the power.



↓

Check point 3. Check voltage of main PCB

Make sure circuit diagram of outdoor unit and check terminal voltage at thermistor (DC 5.0 V).

NOTE: For details of thermistor connector, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-27.

If the voltage does not appear, replace main PCB.

↓

End

2-25. E: 73.X. Heat exchanger (Middle/Outlet) temperature thermistor error (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 73
Detective actuator	Heat exchanger liquid temperature thermistor		• Heat exchanger liquid temperature thermistor short or open detected • Heat exchanger middle temperature thermistor short or open detected
	Heat exchanger middle temperature thermistor		
Forecast of cause			Connector failure
			Thermistor failure
			Main PCB failure

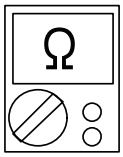
Check Point 1 : Check the connector connection and cable open

- Connector connection state check
- Cable open check

↓

Check Point 2 : Check the thermistor

- For the outdoor unit heat exchanger thermistor resistance value, refer to "Thermistor resistance values" on page 03-91.
- If thermistor is either open or shorted, replace it and reset the power.



↓

Check point 3. Check voltage of main PCB

Make sure circuit diagram of outdoor unit and check terminal voltage at thermistor (DC 5.0 V).

NOTE: For details of thermistor connector, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-27.

If the voltage does not appear, replace main PCB.

↓

End

2-26. E: 74.X. Outdoor temperature thermistor error (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 74
Detective actuator	Outdoor unit main PCB		When outdoor temperature thermistor open or short circuit is detected at power on or while running the compressor
	Outdoor temperature thermistor		
Forecast of cause			Connector failure
			Thermistor failure
			Main PCB failure

Check point 1. Check connection of connector

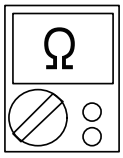
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> Reset power when reinstalling due to removed connector or incorrect wiring.

↓

Check point 2. Remove connector and check thermistor resistance value

- For the outdoor temperature thermistor resistance value, refer to "Thermistor resistance values" on page 03-91.
- If thermistor is either open or shorted, replace it and reset the power.



↓

Check point 3. Check voltage of main PCB

Make sure circuit diagram of outdoor unit and check terminal voltage at thermistor (DC 5.0 V).

NOTE: For details of thermistor connector, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-27.

If the voltage does not appear, replace main PCB.

↓

End

2-27. E: 77.X. Heat sink thermistor error (Outdoor unit) (24/30/36 model)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 77
Detective actuator	Heat sink temperature thermistor		Heat sink temperature thermistor short or open detected
Forecast of cause			Connector failure
			Thermistor failure
			Inverter PCB failure

Check point 1. Check connection of connector

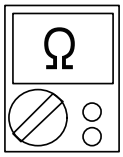
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> Reset power when reinstalling due to removed connector or incorrect wiring.

↓

Check point 2. Remove connector and check thermistor resistance value

- For the Heat sink thermistor resistance value, refer to "Thermistor resistance values" on page 03-91.
- If thermistor is either open or shorted, replace it and reset the power.



↓

Check point 3. Check voltage of inverter PCB

Make sure circuit diagram of outdoor unit and check terminal voltage at thermistor (DC 5.0 V).

NOTE: For details of thermistor connector, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-27.

If the voltage does not appear, replace inverter PCB.

↓

End

2-28. E: 84.X. Current sensor error (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 84
Detective actuator	Outdoor unit	Main PCB	When input current sensor has detected 0 A, while inverter compressor is operating at higher than 50 rps, after 1 minute upon starting the compressor. (Except during the defrost operation)
		Inverter PCB	
Forecast of cause			Defective connection of electrical components
			External cause
			Inverter PCB failure
			Main PCB failure

Check point 1. Reset power supply and operate

Does error indication show again?

If no, go to "Check point 1-2".

↓

Check point 2. Check connections of outdoor unit electrical components

- Check if the terminal connection is loose.
- Check if connector is removed.
- Check erroneous connection.
- Check if cable is open.

Upon correcting the removed connector or mis-wiring, reset the power.

↓

Check point 3. Replace the Inverter PCB

If Check point 1, 2 do not improve the symptom, replace the Inverter PCB.

If the model does not have an Inverter PCB, go to "Check point 4".

↓

Check point 4. Replace the Main PCB

If Check point 3 do not improve the symptom, replace the Main PCB.

↓

End

Check point 1-2. Check external cause at Indoor and Outdoor (Voltage drop or Noise)
• Instant drop: Check if there is a large load electric apparatus in the same circuit. • Momentary power failure: Check if there is a defective contact or leak current in the power supply circuit. • Noise: Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave) Check the complete insulation of grounding.

↓

End

TROUBLESHOOTING

2-29. E: 86.X. High pressure switch error (Outdoor unit) (24/30/36 model)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 86
Detective actuator	Outdoor unit main PCB		When pressure switch open is detected in 10 seconds after the power is turned on.
	High pressure switch		
Forecast of cause			High pressure switch connector disconnection or open
			High pressure switch characteristics failure
			Main PCB failure

Check point 1. Check the high pressure switch connection state

- Check connector and wiring connection state.
- Check if cable is open

-> Reset power when reinstalling due to removed connector or incorrect wiring.

↓

Check point 2. Check the high pressure switch characteristics

- Check switch characteristics.
  For the characteristics of the high pressure switch, refer to below.

↓

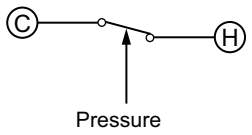
Check point 3. Replace main PCB

Change main PCB and check operation again.

↓

End

- Type of contact



- Characteristics of pressure switch

Pressure switch 1	
Contact: Short → Open	4.2—4.05 MPa
Contact: Open → Short	3.2±0.15 MPa

P770

2-30. E: 94.X. Trip detection (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 94
Detective actuator	Outdoor unit	Inverter PCB	Protection stop by over-current generation after inverter compressor start processing completed generated consecutively 10 times. **NOTE:** The number of generations is reset when the compressor starts up.
		Main PCB	
		Compressor	
Forecast of cause			Outdoor unit fan operation defective, foreign matter on heat-exchanger, excessive rise of ambient temperature
			Main PCB failure
			Inverter compressor failure (lock, winding short)
			Inverter PCB

Check point 1. Check the outdoor unit fan operation, heat-exchanger, ambient temperature

- No obstructions in air passages?
- Heat exchange fins clogged
- Outdoor unit fan motor check
- Ambient temperature not raised by the effect of other heat sources?
- Discharged air not sucked in?

↓

Check point 2. Replace inverter PCB

If Check point 1 do not improve the symptom, change inverter PCB.

↓

Check point 3. Replace main PCB

If Check point 1, 2 do not improve the symptom, change main PCB.

↓

Check point 4. Replace compressor

If Check point 3 do not improve the symptom, change compressor.

↓

End

2-31. E: 95.X. Compressor motor control error (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 95
Detective actuator	Outdoor unit	Inverter PCB	"Protection stop by "overcurrent generation at inverter compressor starting" restart" generated consecutively 50 times x 3 sets (total 150 times) (for 18 model) or 10 times x 3 sets (total 30 times) (for 24/30/36 model).
		Main PCB	
		Compressor	
Forecast of cause			Defective connection of electrical components
			Inverter PCB failure
			Main PCB failure
			Compressor failure

Check point 1. Check noise from compressor

Turn on power and check operation noise.
→ If an abnormal noise show, replace compressor.

↓

Check point 2. Check connection of around the compressor components

For compressor terminal, main PCB

- Check if connector is removed.
- Check erroneous connection.
- Check if cable is open. (Refer to inverter compressor in "Service parts information" on page 03-81.)

→ Upon correcting the removed connector or mis-wiring, reset the power.

↓

Check point 3. Replace inverter PCB

If Check point 1, 2 do not improve the symptom, change inverter PCB.

↓

Check point 4. Replace main PCB

If Check point 3 do not improve the symptom, change main PCB.

↓

Check point 5. Replace compressor

If Check point 4 do not improve the symptom, change compressor.

↓

End

2-32. E: 97.X. Outdoor unit fan motor error (Outdoor unit)

TROUBLESHOOTING

<table>
<tr><td>Indicator</td><td>Wired remote controller</td><td>Error code</td><td>E: 97</td></tr>
<tr><td rowspan="3">Detective actuator</td><td rowspan="3">Outdoor unit</td><td>Inverter PCB</td><td rowspan="3">1. When outdoor fan rotation speed is less than 100 rpm in 20 seconds after fan motor starts, fan motor stops.
2. After fan motor restarts, if the same operation within 60 seconds is repeated 3 times in a row, compressor and fan motor stops.
3. If 1. and 2. repeats 5 times in a row, compressor and fan motor stops permanently.</td></tr>
<tr><td>Main PCB</td></tr>
<tr><td>Fan motor</td></tr>
<tr><td colspan="3" rowspan="5">Forecast of cause</td><td>Fan rotation failure</td></tr>
<tr><td>Motor protection by surrounding temperature rise</td></tr>
<tr><td>Inverter PCB failure</td></tr>
<tr><td>Main PCB failure</td></tr>
<tr><td>Outdoor unit fan motor</td></tr>
</table>

Check point 1. Check rotation of fan
Rotate the fan by hand when operation is off. (Check if fan is caught, dropped off or locked motor) → If fan or bearing is abnormal, replace it.

↓

Check point 2. Check ambient temperature around motor
Check excessively high temperature around the motor. (If there is any surrounding equipment that causes heat) → Upon the temperature coming down, restart operation.

↓

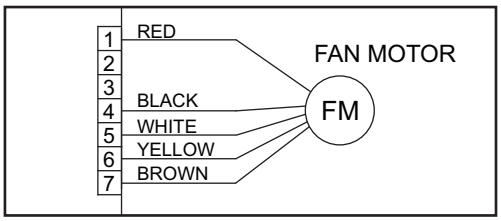
Check point 3. Check outdoor unit fan motor
Check outdoor unit fan motor. (Refer to outdoor unit fan motor in "Service parts information" on page 03-81.) → If outdoor unit fan motor is abnormal, replace outdoor unit fan motor and main PCB.

↓

TROUBLESHOOTING

Check point 4. Check output voltage of inverter PCB

Check outdoor unit circuit diagram and the voltage. (Measure at inverter PCB side connector)



NOTE: For details of wiring diagram, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-27.

Read wire	DC voltage
Red—Black	18 model: 240 V to 400 V, 24/30/36 models: 262 V to 390 V
White—Black	15±1.5 V

-> If the voltage is not correct, replace inverter PCB.

↓

Check point 5. Replace main PCB

If Check point 1 to 4 do not improve the symptom, change main PCB.

↓

End

2-33. E: 99.X. 4-way valve error (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: 99
Detective actuator	Indoor unit	main PCB	When the indoor heat exchanger temperature is compared with the room temperature, and either following condition is detected continuously two times, the compressor stops. Indoor heat exchanger temp. - Room temp. > 18°F (10°C) (Cooling or Dry operation) Indoor heat exchanger temp. - Room temp. < -18°F (-10°C) (Heating operation) If the same operation is repeated 5 times, the compressor stops permanently.
	Heat exchanger temperature thermistor		
	Room temperature thermistor		
	4-way valve		
Forecast of cause			Air filter clogged
			Connector connection failure
			Thermistor failure
			Coil failure
			4-way valve failure
			Main PCB failure

Check point 1. Check air filter condition

Check air filter dirty.
→ If the air filter dirty, clean up the air filter.

↓

Check point 2. Check connection of connector

- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

→ Upon correcting the removed connector or mis-wiring, reset the power.

↓

Check point 3. Check each thermistor

- Isn’t it fallen off the holder?
- Is there a cable pinched?

Check characteristics of room thermistor and indoor unit heat exchanger thermistor.
For the thermistor resistance value, refer to "Thermistor resistance values" on page 03-91.
→ If defective, replace the thermistor.

↓

Check point 4. Check the solenoid coil and 4-way valve
NOTE: Refer solenoid coil and 4-way valve in "Service parts information" on page 03-81. • **Solenoid coil** Remove P60 from PCB and check the resistance value of coil. Resistance value is 1.970 kΩ (at 68°F [20°C]). → If it is open or abnormal resistance value, replace solenoid coil. • **4-way valve** Check each piping temperature, and the location of the valve by the temperature difference. If the value location is not proper, replace 4-way valve.

↓

Check point 5. Replace main PCB
If Check Point 1 to 4 do not improve the symptom, replace main PCB.

↓

End

TROUBLESHOOTING

2-34. E: A1.X. Discharge temperature error (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: A1
Detective actuator	Outdoor unit main PCB		Protection stop by discharge temperature ≥ 230°F (110°C) during compressor operation generated 2 times within 24 hours.
	Discharge temperature thermistor		
Forecast of cause			3-way valve not opened
			EEV or capillary tube defective, strainer clogged
			Outdoor unit operation failure, foreign matter on heat exchanger
			Discharge temperature thermistor failure
			Insufficient refrigerant
			Main PCB failure

Check point 1. Check if 3-way valve is open

If the 3-way valve is closed, open the 3-way valve and check operation.

NOTE: For cooling operation, check gas side of the 3-way valve.
For heating operation, check liquid side of the 3-way valve.

↓

Check point 2. Check any of the electronic expansion valve (EEV), capillary tube, or strainer, or all

- Check if EEV open or there is a capillary tube defect.
  Refer to outdoor unit Electronic Expansion Valve (EEV) or Capillary tube in "Service parts information" on page 03-81.
- Check the strainer clogging.

↓

Check point 3. Check the outdoor unit fan and heat exchanger

- Check for foreign object at heat exchanger
- Check if fan can be rotated by hand.
- Check the motor. (Refer to outdoor unit fan motor in "Service parts information" on page 03-81.)

↓

Check point 4. Check the discharge thermistor

The discharge temperature thermistor characteristics check. (Check by disconnecting thermistor from PCB.)

NOTE: For the characteristics of the thermistor, refer to "Thermistor resistance values" on page 03-91.

↓

Check point 5. Check the refrigerant amount
Check the refrigerant leakage.

↓

Check point 6. Replace the main PCB
If check point 1 to 5 do not improve the symptom, replace the main PCB.

↓

End

TROUBLESHOOTING

2-35. E: A3.X. Compressor temperature error (Outdoor unit)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: A3
Detective actuator	Outdoor unit main PCB		Protection stop by compressor temperature ≥ 226.4°F (108°C) during compressor operation generated 2 times within 24 hours.
	Compressor temperature thermistor		
Forecast of cause			3-way valve not opened
			EEV defective, strainer clogged
			Outdoor unit operation failure, foreign matter on heat exchanger
			Compressor temperature thermistor failure
			Insufficient refrigerant
			Main PCB failure

Check point 1. Check if 3-way valve is open

If the 3-way valve is closed, open the 3-way valve and check operation.

NOTE: For cooling operation, check gas side of the 3-way valve.
For heating operation, check liquid side of the 3-way valve.

↓

Check point 2. Check the electronic expansion valve (EEV) and strainer

- Check if EEV open.
  Refer to outdoor unit Electronic Expansion Valve (EEV) in "Service parts information" on page 03-81.
- Check the strainer clogging.

↓

Check point 3. Check the outdoor unit fan and heat exchanger

- Check for foreign object at heat exchanger
- Check if fan can be rotated by hand.
- Check the motor. (Refer to outdoor unit fan motor in "Service parts information" on page 03-81.)

↓

Check point 4. Check the compressor thermistor

The compressor temperature thermistor characteristics check. (Check by disconnecting thermistor from PCB.)

NOTE: For the characteristics of the thermistor, refer to "Thermistor resistance values" on page 03-91.

↓

Check point 5. Check the refrigerant amount
Check the refrigerant leakage.

↓

Check point 6. Replace the main PCB
If check point 1 to 5 do not improve the symptom, replace the main PCB.

↓

End

TROUBLESHOOTING

2-36. E: AC.X. Heat sink temperature error (Outdoor unit) (24/30/36 model)

TROUBLESHOOTING

Indicator	Wired remote controller	Error code	E: AC
Detective actuator	Outdoor unit inverter PCB		Protection stop by heat sink temperature ≥ 176°F (80°C) during heat sink operation generated 2 times within 24 hours.
	Heat sink temperature thermistor		
Forecast of cause			Foreign matter on heat sink, heat sink dirty
			Foreign matter on heat exchanger, excessive ambient temperature rise
			Heat sink temp. thermistor defective

Check point 1. Check the heat sink state

Heat sink foreign matter, soiling check

↓

Check point 2. Check the foreign matter and ambient temperature of heat exchanger

- Heat exchange foreign matter check
- Ambient temperature not raised by effect of other heat sources?
- Discharged air not sucked in?

↓

Check point 3. Check the heat sink temperature thermistor

The heat sink temperature thermistor characteristics check. (Check by disconnecting thermistor from PCB.)

NOTE: For the characteristics of the thermistor, refer to "Thermistor resistance values" on page 03-91.

↓

Check point 4. Replace inverter PCB

Replace inverter PCB

↓

End

3. Troubleshooting without error code

3-1. Indoor unit—No power

Forecast of cause	Power supply failure
	External cause
	Electrical components defective

TROUBLESHOOTING

Check point 1. Check installation condition

- Isn't the breaker down?
- Check loose or removed connection cable.

-> If abnormal condition is found, correct it by referring to the installation manual or the "DESIGN & TECHNICAL MANUAL".

↓

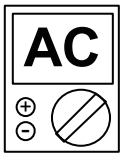
Check point 2. Check external cause at indoor and outdoor (voltage drop or noise)

- Instant drop: Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure: Check if there is a defective contact or leak current in the power supply circuit.
- Noise: Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave)
  Check the complete insulation of grounding.

↓

Check point 3. Check electrical components

Check the voltage of power supply.
Check if AC 187 to 253 V appears at outdoor unit terminal L1—L2.
-> If no, go to "Check point 1" and "Check point 2".



↓

- Check fuse in filter PCB.
  If fuse is open, check if the wiring between terminal and filter PCB is loose, and replace fuse.
- Check varistor in filter PCB.
  If varistor is defective, there is a possibility of an abnormal power supply.
  Check the correct power supply and replace varistor.
  Upon checking the normal power supply, replace varistor.

↓

End

3-2. Outdoor unit—No power

Forecast of cause	Power supply failure
	External cause
	Electrical components defective

TROUBLESHOOTING

Check point 1. Check installation condition

- Is the circuit breaker on or off?
- Check loose or removed connection cable.

→ If abnormal condition is found, correct it by referring to the installation manual or the *DESIGN & TECHNICAL MANUAL*.

↓

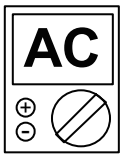
Check point 2. Check external cause at indoor and outdoor (voltage drop or noise)

- Instant drop: Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure: Check if there is a defective contact or leak current in the power supply circuit.
- Noise: Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave)
  Check the complete insulation of grounding.

↓

Check point 3. Check electrical components

Check the voltage of power supply.
Check if AC 187 to 253 V appears at outdoor unit terminal L1—L2
→ If no, go to "Check point 1" and "Check point 2".



↓

- Check fuse in main PCB.
  If fuse is open, check if the wiring between terminal and main PCB is loose, and replace the Main PCB.
- Check varistor in the Main PCB.
  If varistor is defective, there is a possibility of an abnormal power supply. Check the correct power supply and replace the Main PCB.
  → Upon checking the normal power supply, replace the Main PCB.

↓

Check point 4. Replace the main PCB

If check point 1 to 3 do not improve the symptom, replace the main PCB.

↓

End

3-3. No operation (Power is on)

Forecast of cause	Setting/ Connection failure
	External cause
	Electrical components defective

TROUBLESHOOTING

Check point 1. Check indoor and outdoor installation condition

- Indoor unit:
  - Check incorrect wiring between indoor unit and remote controller.
  - Check if there is an open cable connection.
- Are these indoor unit, outdoor unit, and remote controller suitable model names to connect?

-> If there is some abnormal condition, correct it by referring to the installation manual and “DESIGN & TECHNICAL MANUAL”.

↓

Turn off the power and check correct followings.

- Is there loose or removed communication line of indoor unit and outdoor unit?

↓

Check point 2. Check external cause at indoor and outdoor (Voltage drop or Noise)

- Instant drop: Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure: Check if there is a defective contact or leak current in the power supply circuit.
- Noise: Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave)
  Check the complete insulation of grounding.

↓

Check point 3. Check wired remote controller and controller PCB

Check voltage at CN300 of main PCB (terminal 1—3, terminal 1—2).
(Power supply to remote controller)

- If it is DC 12 V, remote controller is failure. (The controller PCB is normal)
  -> Replace remote controller.
- If it is DC 0 V, controller PCB is failure. (Check the remote controller once again)
  -> Replace controller PCB.

↓

Check point 4. Replace main PCB

If check point 1 to 3 do not improve the symptom, change main PCB.

↓

End

3-4. No cooling/No heating

Forecast of cause	Indoor unit error
	Outdoor unit error
	Effect by surrounding environment
	Connection pipe/Connection wire failure
	Refrigeration cycle failure

TROUBLESHOOTING

Check point 1. Check Indoor unit

- Does Indoor unit fan run in the HIGH mode?
- Is air filter dirty?
- Is heat exchanger clogged?
- Check if energy save function is operated.

↓

Check point 2. Check outdoor unit operation

- Check if outdoor unit is operating.
- Check any objects that obstruct the air flow route.
- Check if heat exchanger is clogged.
- Is the valve open?

↓

Check point 3. Check site condition

- Is capacity of Indoor unit fitted to the room size?
- Any windows open or direct sunlight?

↓

Check point 4. Check indoor/outdoor installation condition

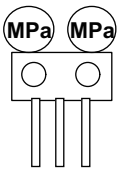
- Check connection pipe (specified pipe length and pipe diameter?)
- Check any loose or removed communication line.

→ If there is an abnormal condition, correct it by referring to the installation manual or the “DESIGN & TECHNICAL MANUAL”.

↓

Check point 5. Check Refrigeration cycle

- Check if strainer is clogged (Refer to the figure below).
- Measure gas pressure, and if there is a leakage, correct it.
- Check if EEV open or there is a capillary tube defect.
  Refer to outdoor unit Electronic Expansion Valve (EEV) or Capillary tube in "Service parts information" on page 03-81.
- Check compressor.
  Refer to compressor in "Service parts information" on page 03-81.
  Refer to inverter compressor in "Service parts information" on page 03-81.



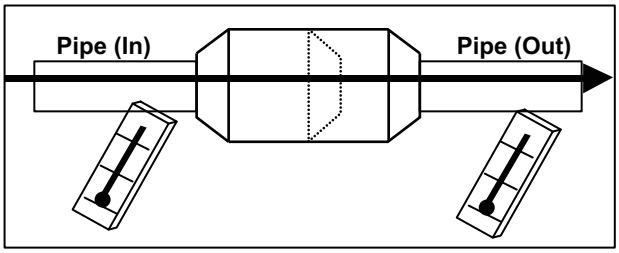
NOTE: When recharging the refrigerant, make sure to perform vacuuming, and recharge the specified amount.

↓

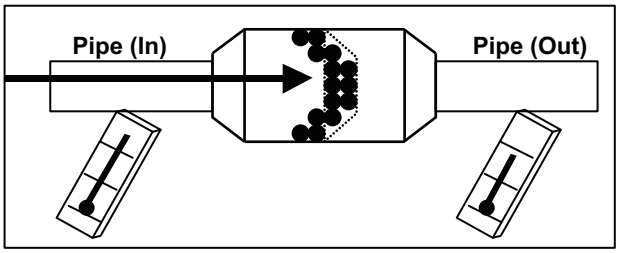
End

NOTES:

- Strainer normally does not have temperature difference between inlet and outlet as shown below.



- If there is a difference like shown below, there is a possibility of inside clogged. In this case, replace the strainer.



TROUBLESHOOTING

3-5. Abnormal noise

Forecast of cause	Abnormal installation (indoor unit/outdoor unit)
	Fan failure (indoor unit/outdoor unit)
	Compressor failure (outdoor)

TROUBLESHOOTING

Diagnosis method when abnormal noise is occurred

Abnormal noise is coming from Indoor unit.
(Check and correct followings)

↓

- Is main unit installed in stable condition?
- Is the installation of air suction grille and front panel normal?

↓

- Is fan broken or deformed?
- Is the screw of fan loose?
- Is there any object which obstruct the fan rotation?

↓

End

Abnormal noise is coming from Outdoor unit.
(Check and correct followings)

↓

- Is main unit installed in stable condition?
- Is fan guard installed normally?

↓

- Is fan broken or deformed?
- Is the screw of fan loose?
- Is there any object which obstruct the fan rotation?

↓

Check if vibration noise by loose bolt or contact noise of piping is happening.

↓

Is compressor locked?

- Check Compressor
  Refer to compressor and inverter compressor in "Service parts information" on page 03-81.

↓

End

3-6. Water leaking

Forecast of cause	Erroneous installation
	Drain hose failure

TROUBLESHOOTING

Diagnosis method when water leak occurs

- Is main unit installed in stable condition?
- Is main unit broken or deformed at the time of transportation or maintenance?

↓

- Is drain hose connection loose?
- Is there a trap in drain hose?
- Is drain hose clogged?

↓

Is fan rotating?

↓

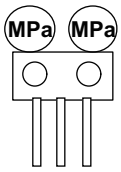
End

Diagnosis method when water is spitting out

Is the filter clogged?

↓

Check gas pressure and correct it if there was a gas leak.



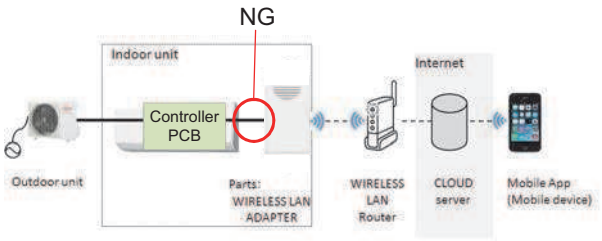
↓

End

4. Troubleshooting with error code (For wireless LAN adapter)

4-1. E: 18.X. External communication error between indoor unit and wireless LAN adapter

TROUBLESHOOTING

Indicator	Indoor unit	Operation indicator	1 time flash
		Timer indicator	8 time flash
		Economy indicator	Continuous flash
		Wireless LAN indicator	Flashing slowly
		Error code	E: 18
	Mobile app		E: 18.1
Detective actuator	Wireless LAN adapter PCB		After receiving a signal from the wireless LAN adapter, the same signal has not been received for 15 seconds. 
	Controller PCB		
Forecast of cause			Connection between indoor unit and wireless LAN adapter failure
			Wireless LAN adapter PCB failure
			Controller PCB failure

Check point 1. Check the connection

- Check any loose or removed connection of between the wireless LAN adapter PCB and controller PCB.
  -> If there is abnormal condition, correct it.

- Check the connection condition on the controller PCB.
  -> If there is loose connector, open cable or mis-wiring, correct it.

↓

Check point 2. Replace wireless LAN adapter.

If check point 1 do not improve the symptom, replace the wireless LAN adapter and cancel the registration of air conditioner on the Mobile app.
After replacing the adapter, perform the pairing on the Mobile app.

For the method of the Mobile app, refer to "Mobile app setting method" on page 03-79.

↓

Check point 3. Replace controller PCB

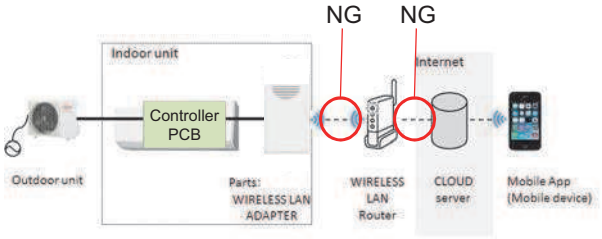
If check point 1 to 2 do not improve the symptom, replace the controller PCB.

↓

End

4-2. Network communication error between wireless LAN router and wireless LAN adapter

TROUBLESHOOTING

Indicator	Indoor unit	Operation indicator	No indication
		Timer indicator	No indication
		Economy indicator	No indication
		Wireless LAN indicator	Flashing slowly
		Error code	—
	Mobile app		No indication
Detective actuator	Wireless LAN router		When the not connection between wireless LAN adapter and wireless LAN router. 
	Wireless LAN adapter PCB		
Forecast of cause			Connection cable failure of wireless LAN router
			Connection between wireless LAN adapter and wireless LAN router failure
			Wireless LAN router failure
			Wireless LAN adapter PCB failure

Check point 1. Check the connection cable

Check the connection cable on the wireless LAN router.
-> If there is loose connector, open cable or mis-wiring, correct it.

↓

Check point 2. Check the connection status.

Check the connection status to the Internet and wireless LAN router.
-> If the wireless LAN router is not connected to the Internet, check the transmission between wireless LAN products (ex. PC or game console, etc.) other than air conditioner and wireless LAN router.

If no, go to "Check point 2-2".

↓

Check point 3. Turn on the power again of air conditioner.

If check point 1 to 2 do not improve the symptom, turn on the power of the air conditioner again and wait for 60 seconds.

↓

Check point 4. Replace wireless LAN adapter.
If check point 3 do not improve the symptom, replace the wireless LAN adapter and cancel the registration of air conditioner on the Mobile app. After replacing the adapter, perform the pairing on the Mobile app. For the method of the Mobile app, refer to "Mobile app setting method" on page 03-79.

↓

End

TROUBLESHOOTING

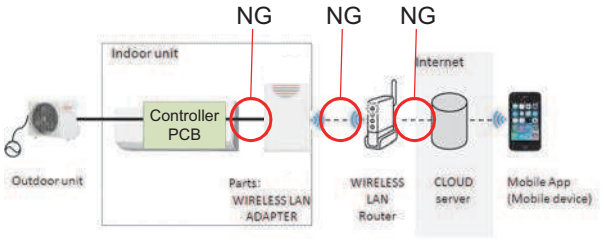
Check point 2-2. Check the transmission state
Check the wireless transmission state pf the wireless LAN router (indicator lamp status). -> If the wireless transmission from the wireless LAN router has not been outgoing, inquire to the wireless LAN router maker.

↓

End

4-3. E: 18.X. Communication error

TROUBLESHOOTING

<table>
<tr><td rowspan="5">Indicator</td><td rowspan="4">Indoor unit</td><td>Operation indicator</td><td>1 time flash</td></tr>
<tr><td>Timer indicator</td><td>8 time flash</td></tr>
<tr><td>Economy indicator</td><td>Continuous flash</td></tr>
<tr><td>Wireless LAN indicator</td><td>Flashing slowly</td></tr>
<tr><td>Error code</td><td>E: 18</td></tr>
<tr><td colspan="2">Mobile app</td><td>E: 18.1</td></tr>
<tr><td rowspan="3">Detective actuator</td><td colspan="2">Wireless LAN router</td><td rowspan="3">When the external communication error between indoor unit and wireless LAN adapter and network communication error between wireless LAN router and wireless LAN adapter has occurred simultaneously.
 
</td></tr>
<tr><td colspan="2">Wireless LAN adapter PCB</td></tr>
<tr><td colspan="2">Indoor unit controller PCB</td></tr>
<tr><td rowspan="6">Forecast of cause</td><td colspan="3">Connection cable failure of wireless LAN router</td></tr>
<tr><td colspan="3">Wireless LAN router failure</td></tr>
<tr><td colspan="3">Connection between indoor unit and wireless LAN adapter failure</td></tr>
<tr><td colspan="3">Connection between wireless LAN adapter and wireless LAN router failure</td></tr>
<tr><td colspan="3">Wireless LAN adapter PCB failure</td></tr>
<tr><td colspan="3">Controller PCB failure</td></tr>
</table>

Check point 1. Check the connection

- Check any loose or removed connection of between the wireless LAN adapter PCB and controller PCB.
  -> If there is abnormal condition, correct it.

- Check the connection condition on the controller PCB.
  -> If there is loose connector, open cable or mis-wiring, correct it.

↓

Check point 2. Replace wireless LAN adapter.

If check point 1 do not improve the symptom, replace the wireless LAN adapter and cancel the registration of air conditioner on the Mobile app.
After replacing the adapter, perform the pairing on the Mobile app.

For the method of the Mobile app, refer to "Mobile app setting method" on page 03-79.

↓

Check point 3. Replace controller PCB

If check point 1 to 2 do not improve the symptom, replace the controller PCB.

↓

Check point 4. Check the connection cable
Check the connection cable on the wireless LAN router. -> If there is loose connector, open cable or mis-wiring, correct it.

↓

Check point 5. Check the connection status.
Check the connection status to the Internet and wireless LAN router. -> If the wireless LAN router is not connected to the Internet, check the transmission between wireless LAN products (ex. PC or game console, etc.) other than air conditioner and wireless LAN router. If no, go to "Check point 5-2".

↓

Check point 6. Turn on the power again of air conditioner.
If check point 1 to 2 do not improve the symptom, turn on the power of the air conditioner again and wait for 60 seconds.

↓

Check point 7. Replace wireless LAN adapter.
If check point 3 do not improve the symptom, replace the wireless LAN adapter and cancel the registration of air conditioner on the Mobile app. After replacing the adapter, perform the pairing on the Mobile app. For the method of the Mobile app, refer to "Mobile app setting method" on page 03-79.

↓

End

Check point 5-2. Check the transmission state
Check the wireless transmission state pf the wireless LAN router (indicator lamp status). -> If the wireless transmission from the wireless LAN router has not been outgoing, inquire to the wireless LAN router maker.

↓

End

4-4. E: 18.X. Wireless LAN adapter non-energized

Indicator	Indoor unit	Operation indicator	1 time flash
		Timer indicator	8 time flash
		Economy indicator	Continuous flash
		Wireless LAN indicator	No indication
		Error code	E: 18
	Mobile app		No indication
Detective actuator	Indoor unit controller PCB		When the voltage (DC 12 V) does not output from the controller PCB.
	Wireless LAN adapter PCB		
Forecast of cause			Indoor unit controller PCB failure
			Wireless LAN adapter PCB failure
			Wiring connection failure

TROUBLESHOOTING

Check point 1. Check the connection.

- Check any loose or removed connection of between the wireless LAN adapter PCB and controller PCB.
  -> If there is abnormal condition, correct it.

- Check the connection condition on the controller PCB.
  -> If there is loose connector, open cable or mis-wiring, correct it.

↓

Check point 2. Check the wireless LAN adapter PCB and the controller PCB

Check voltage at CN6 (terminal 1—3) of main PCB.
(Power supply to remote controller)

- If it is DC 0 V, controller PCB is failure.
  -> Replace controller PCB.
- If it is DC 12 V, wireless LAN adapter PCB is failure.
  -> Replace the wireless LAN adapter and cancel the registration of air conditioner on the Mobile app.
  After replacing the adapter, perform the pairing on the Mobile app.

  For the method of the Mobile app, refer to "Mobile app setting method" on page 03-79.

↓

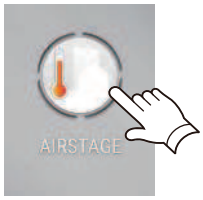
End

4-5. Mobile app setting method

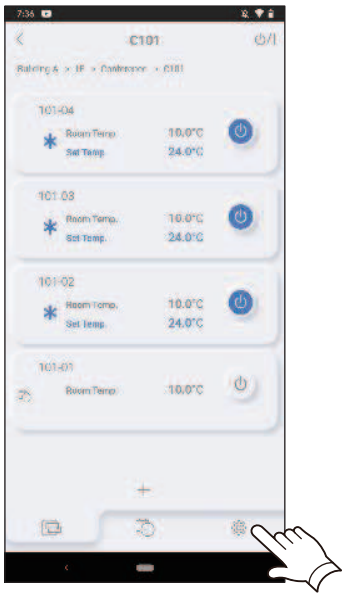
■ Air conditioner delete method

When the wireless LAN adapter is replaced, delete of all air conditioner is necessary on the mobile app.

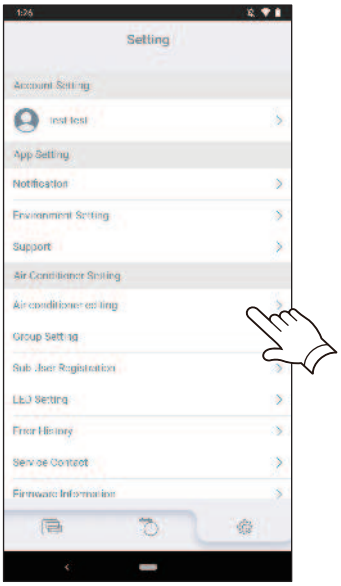
1. Launch the mobile app.



2. Tap the ⚙ icon to display the Setting screen.

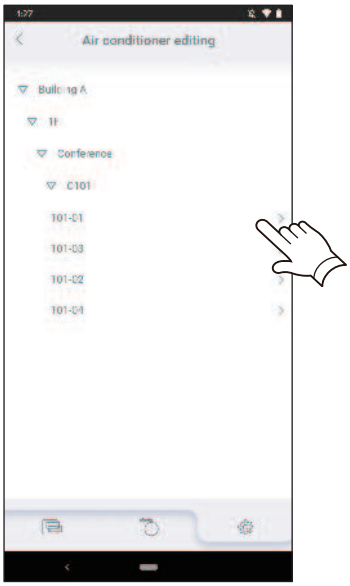


3. Tap the “Air conditioner editing”.

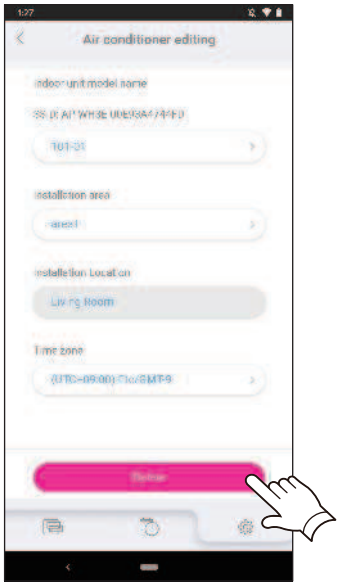


TROUBLESHOOTING

4. Tap the air conditioner to be deleted.



5. Tap the Delete button.



6. Tap the OK button.

7. Deletion of the air conditioner registered in the mobile app is completed.

5. Service parts information

5-1. Compressor

TROUBLESHOOTING

Diagnosis method of compressor (If outdoor unit LED displays error, refer to troubleshooting)

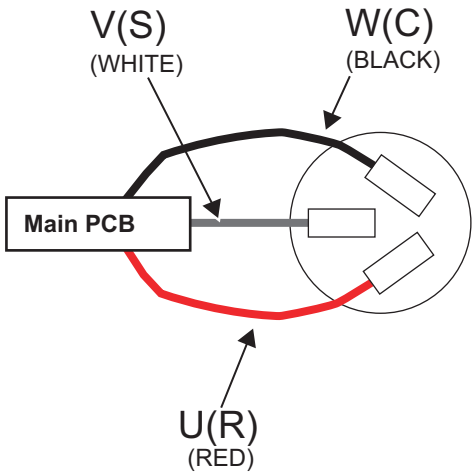
Does not start up	Stops soon after starting up	Abnormal noise
↓	↓	↓
Is there open or loose connection cable?	Is there open or loose connection cable?	Check if vibration noise by loose bolt or contact noise of piping is happening.
↓	↓	↓
Check main PCB, connection of compressor, and winding resistance. (Refer to the next page) → If there is no failure, the defect of compressor is considered (Locked compressor due to clogged dirt or less oil)	Is gas pipe valve open? (Low pressure is too low)	Defective compressor can be considered. (due to inside dirt clogging or broken component)
↓	↓	↓
Replace compressor.	Check if refrigerant is leaking. 	Replace compressor.
↓	↓	↓
End	Check if strainer is clogged. (Refer to outdoor EEV or capillary tube in this chapter.)	**End**
	↓	
	Check main PCB, connection of compressor and winding resistance. (Refer to the next page) → If there is no failure, the defect of compressor can be considered. (Compression part broken or valve defective.)	
	↓	
	Replace compressor.	
	↓	
	End	

5-2. Inverter compressor

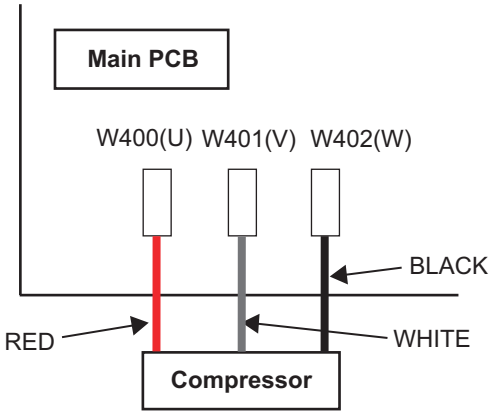
■ Model: AOUH18KUAS1

Check point 1. Check connection

- Check terminal connection of compressor (loose or incorrect wiring)



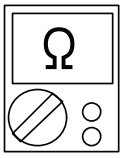
- Check terminal connection of main PCB (loose or incorrect wiring)

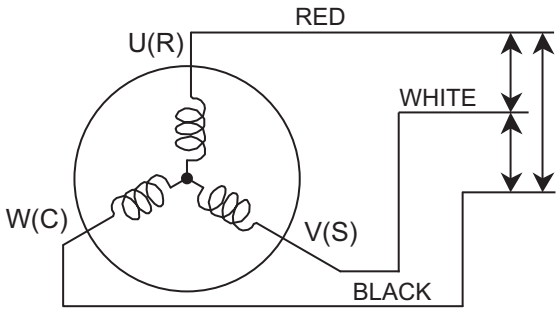


↓

Check point 2. Check winding resistance

Check winding resistance of each terminal.
Resistance value: 1.916 Ω ±8% at 68°F (20°C)





→ If the resistance value is 0 Ω or infinite, replace compressor.

↓

Check point 3. Replace inverter PCB

If check point 1 to 2 do not improve the symptom, replace main PCB.

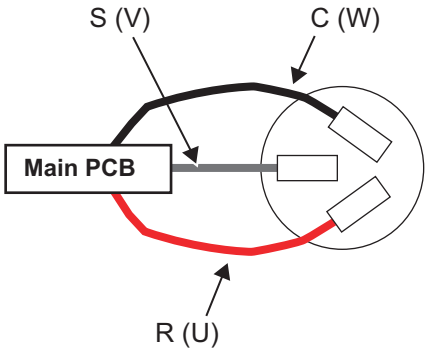
■ Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1

TROUBLESHOOTING

Check point 1. Check the terminal connection.

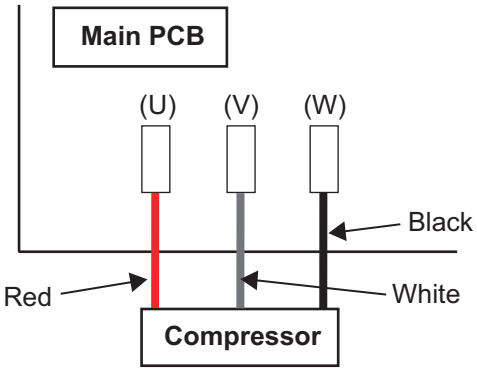
- Check the following terminal connections of the compressor. (Loosening or incorrect wiring.)

R (U): Red
S (V): White
C (W): Black



- Check the following terminal connections of the Main PCB. (Loosening or incorrect wiring.)

P400 (U): Red
P401 (V): White
P402 (W): Black

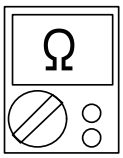


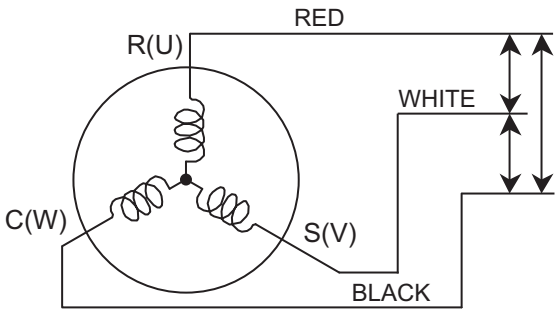
↓

Check point 2. Check the winding resistance.

Check the winding resistance of each terminal.
Resistance value

- 24 model: 1.160 Ω ±8% at 68°F (20°C)
- 30/36 model: 1.120 Ω ±8% at 68°F (20°C)





→ If the resistance value is 0 Ω or infinite, replace the compressor.

↓

Check point 3. Replace the Inverter PCB.

If check point 1 to 2 do not improve the symptom, replace the Inverter PCB.

5-3. Outdoor unit Electronic Expansion Valve (EEV)

■ Model: AOUH18KUAS1

TROUBLESHOOTING

Check point 1. Check connections

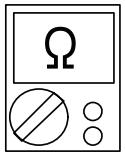
Check connection of connector. (Loose connector or open cable)

NOTE: For details of wiring diagram, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-27.

Check point 2. Check coil of EEV

Remove connector, check each winding resistance of coil.

Read wire	Resistance value
White - Red	46 Ω ±3.7 Ω at 68°F (20°C)
Yellow - Red	
Orange - Red	
Blue - Red	



→ If Resistance value is abnormal, replace EEV.

Check point 3. Check voltage from main PCB

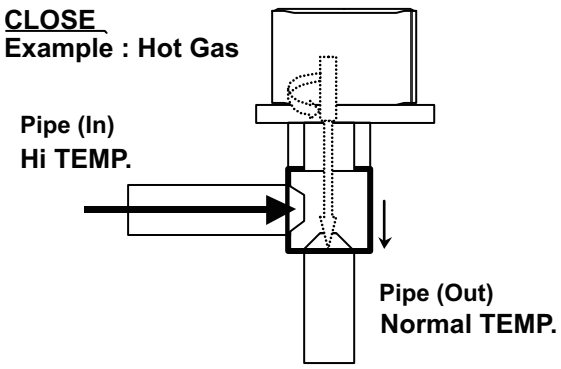
Remove connector and check voltage (DC 12 V)
→ If it does not appear, replace main PCB.

Check point 4. Check noise at start up

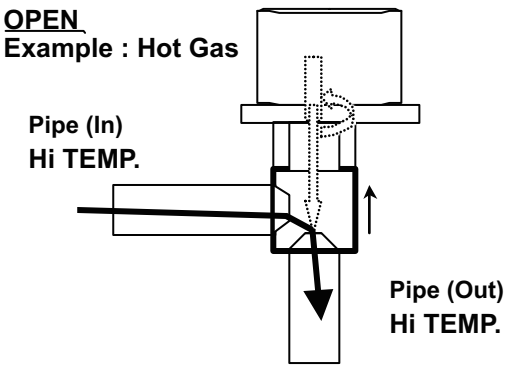
Turn on the power and check the operation noise.
→ If an abnormal noise does not show, replace main PCB.

Check point 5. Check opening and closing operation of valve

When valve is closed, it has a temp. difference between inlet and outlet



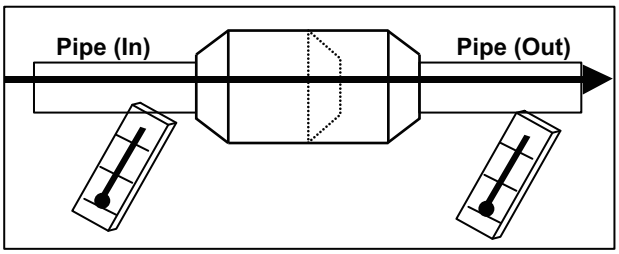
If it is open, it has no temp. difference between inlet and outlet



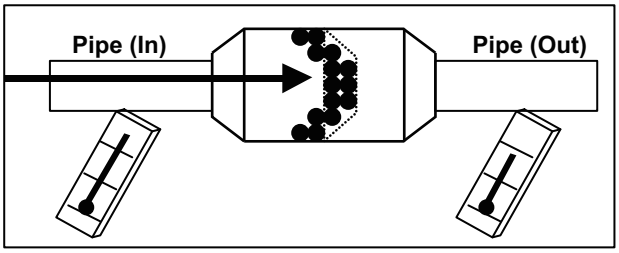
TROUBLESHOOTING

Check point 6. Check strainer

- Strainer normally does not have temperature difference between inlet and outlet as shown below.



- If there is a difference like shown below, there is a possibility of inside clogged. In this case, replace the strainer.



■ Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1

TROUBLESHOOTING

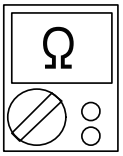
Check point 1. Check connections

Check connection of connector. (Loose connector or open cable)

NOTE: For details of wiring diagram, refer to "Wiring diagrams" in Chapter 2. TECHNICAL DATA AND PARTS LIST on page 02-27.

Check point 2. Check coil of EEV

Remove connector, check each winding resistance of coil.

Read wire	Resistance value
1 (Red) - 2 (Blue)	46 Ω ±3.0 Ω at 68°F (20°C) 
1 (Red) - 3 (Orange)	
1 (Red) - 4 (Yellow)	
1 (Red) - 5 (White)	

→ If Resistance value is abnormal, replace EEV.

Check point 3. Check Voltage from main PCB

Remove connector and check voltage (DC 12 V)

→ If it does not appear, replace main PCB.

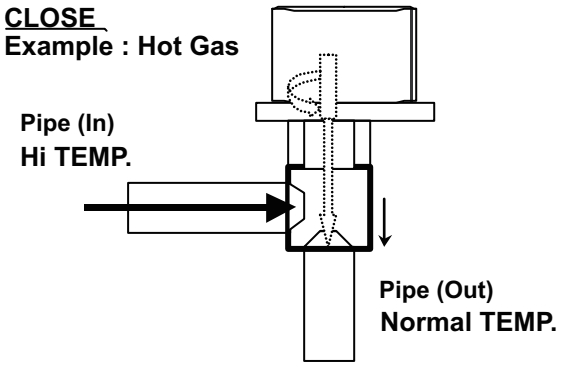
Check point 4. Check noise at start up

Turn on the power and check the operation noise.

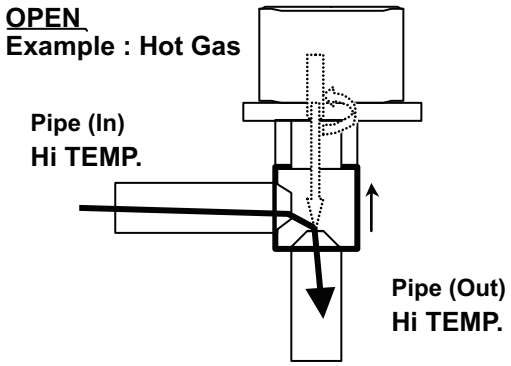
→ If an abnormal noise does not show, replace main PCB.

Check point 5. Check Opening and Closing Operation of Valve

When valve is closed, it has a temp. difference between inlet and outlet



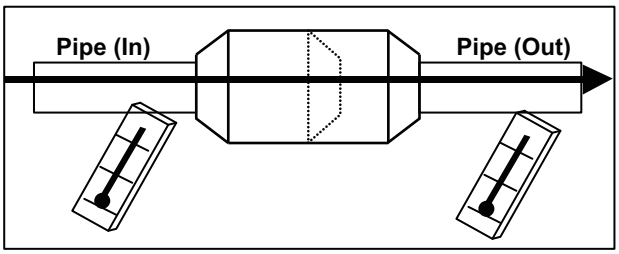
If it is open, it has no temp. difference between inlet and outlet



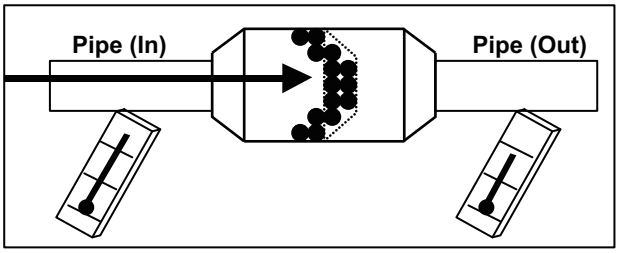
TROUBLESHOOTING

Check point 6. Check strainer

- Strainer normally does not have temperature difference between inlet and outlet as shown below.



- If there is a difference like shown below, there is a possibility of inside clogged. In this case, replace the strainer.



5-4. Indoor unit fan motor

TROUBLESHOOTING

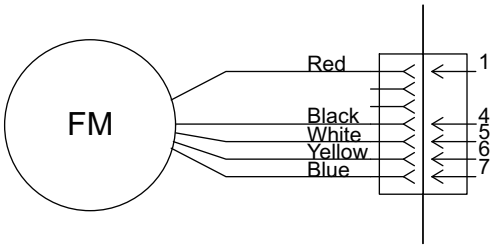
Check point 1. Check rotation of fan

Rotate the fan by hand when operation is off.
(Check if fan is caught, dropped off or locked motor)
→ If fan or bearing is abnormal, replace it.

Check point 2. Check resistance of indoor fan motor

Refer to below. Circuit-test “Vm” and “GND” terminal
NOTE: Vm: DC voltage, GND: Earth terminal

→ If they are short-circuited (below 300 kΩ), replace indoor fan motor and controller PCB.



Pin number (wire color)	Terminal function (symbol)
1 (Red)	DC voltage (Vm)
2	No function
3	No function
4 (Black)	Earth terminal (GND)
5 (White)	Control voltage (Vcc)
6 (Yellow)	Speed command (Vsp)
7 (Blue)	Feed back (FG)

5-5. Outdoor unit fan motor

Check point 1. Check rotation of fan
Rotate the fan by hand when operation is off. (Check if fan is caught, dropped off or locked motor) → If fan or bearing is abnormal, replace it.

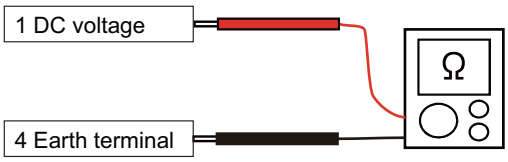
Check point 2. Check resistance of outdoor fan motor

Refer to below. Circuit-test “Vm” and “GND” terminal

NOTE: Vm: DC voltage, GND: Earth terminal

→ If they are short-circuited (below 300 kΩ), replace outdoor fan motor and controller PCB.

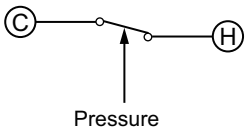
Pin number (wire color)	Terminal function (symbol)
1 (Red)	DC voltage (Vm)
2	No function
3	No function
4 (Black)	Earth terminal (GND)
5 (White)	Control voltage (Vcc)
6 (Yellow)	Speed command (Vsp)
7 (Brown)	Feed back (FG)



5-6. Pressure switch

■ Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1

- Type of contact



- Characteristics of pressure switch

Pressure switch 1	
Contact: Short → Open	4.2 — 4.05 MPa
Contact: Open → Short	3.2 ± 0.15 MPa

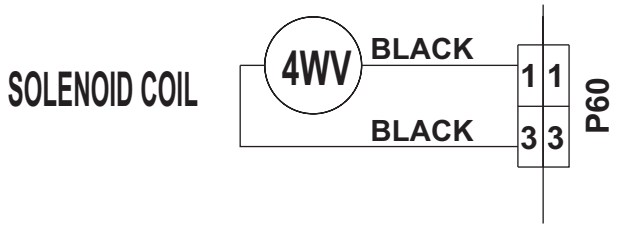
P770

5-7. 4-way valve coil (solenoid coil)/4-way valve

TROUBLESHOOTING

Check point 1. Check connection

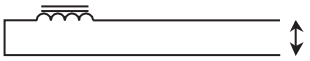
- Check the connection of connector P60.

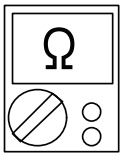


↓

Check Point 2 : Check solenoid coil

Remove P60 from PCB and check the resistance value of coil.
Resistance value ≈ 1.970 kΩ



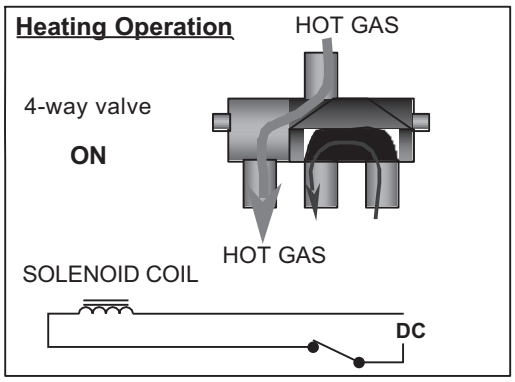


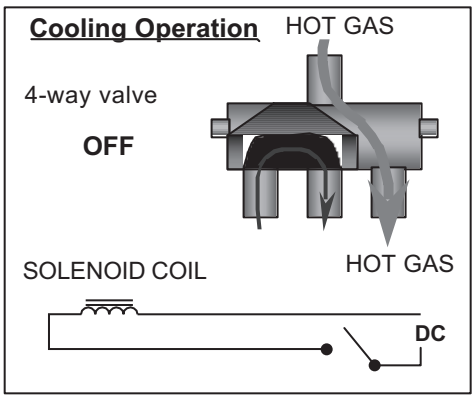
→ If it is Open or abnormal resistance value, replace solenoid coil.

↓

Check Point 3: Check the 4-way valve operation

Check each piping temperature, and confirm the location of the valve by the temperature difference





→ If the valve location is not proper, replace the 4-way valve.

↓

Check Point 4: Replace Main PCB

If none of Checks 1 to 3 apply, replace the Main PCB.

6. Thermistor resistance values

6-1. Indoor unit

■ Room temperature thermistor

Temperature °F (°C)	Resistance (kΩ)	Voltage (V)
14.0 (-10.0)	58.25	0.73
23.0 (-5.0)	44.03	0.93
32.0 (0.0)	33.62	1.15
41.0 (5.0)	25.92	1.39
50.0 (10.0)	20.17	1.66
59.0 (15.0)	15.84	1.94
68.0 (20.0)	12.54	2.22
77.0 (25.0)	10.00	2.50
86.0 (30.0)	8.04	2.77
95.0 (35.0)	6.51	3.03
104.0 (40.0)	5.30	3.27
113.0 (45.0)	4.35	3.48

■ Heat exchanger temperature thermistor

Temperature °F (°C)	Resistance (kΩ)	Voltage (V)
-22.0 (-30.0)	1,131.91	0.21
-13.0 (-25.0)	804.52	0.29
-4.0 (-20.0)	579.59	0.40
5.0 (-15.0)	422.89	0.53
14.0 (-10.0)	312.27	0.69
23.0 (-5.0)	233.21	0.88
32.0 (0.0)	176.03	1.10
41.0 (5.0)	134.23	1.36
50.0 (10.0)	103.34	1.63
59.0 (15.0)	80.28	1.92
68.0 (20.0)	62.91	2.21
77.0 (25.0)	49.70	2.51
86.0 (30.0)	39.57	2.79
95.0 (35.0)	31.74	3.06
104.0 (40.0)	25.64	3.30
113.0 (45.0)	20.85	3.53
122.0 (50.0)	17.06	3.73
131.0 (55.0)	14.05	3.90
140.0 (60.0)	11.64	4.05
149.0 (65.0)	9.69	4.19

TROUBLESHOOTING

6-2. Outdoor unit

■ Heat sink thermistor

● Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1

Temperature °F (°C)	Resistance (kΩ)	Voltage (V)
-22.0 (-30.0)	94.26	0.08
-12.0 (-25.0)	67.95	0.11
-4.0 (-20.0)	49.62	0.15
5.0 (-15.0)	36.68	0.20
14.0 (-10.0)	27.42	0.26
23.0 (-5.0)	20.73	0.34
32.0 (0.0)	15.83	0.43
41.0 (5.0)	12.21	0.55
50.0 (10.0)	9.50	0.68
59.0 (15.0)	7.46	0.84
68.0 (20.0)	5.90	1.01
77.0 (25.0)	4.71	1.21
86.0 (30.0)	3.78	1.42
95.0 (35.0)	3.06	1.64
104.0 (40.0)	2.50	1.88
113.0 (45.0)	2.05	2.11
122.0 (50.0)	1.69	2.35
131.0 (55.0)	1.40	2.58
140.0 (60.0)	1.17	2.81
149.0 (65.0)	0.98	3.02
158.0 (70.0)	0.83	3.22
167.0 (75.0)	0.70	3.41
176.0 (80.0)	0.60	3.58
185.0 (85.0)	0.51	3.73
194.0 (90.0)	0.44	3.87
203.0 (95.0)	0.38	3.99
212.0 (100.0)	0.33	4.10

TROUBLESHOOTING

TROUBLESHOOTING

■ Discharge temperature thermistor

Temperature °F (°C)	Resistance (kΩ)	Voltage (V)
-22.0 (-30.0)	1,013.11	0.06
-12.0 (-25.0)	729.09	0.09
-4.0 (-20.0)	531.56	0.12
5.0 (-15.0)	392.31	0.16
14.0 (-10.0)	292.91	0.21
23.0 (-5.0)	221.09	0.28
32.0 (0.0)	168.60	0.36
41.0 (5.0)	129.84	0.46
50.0 (10.0)	100.91	0.57
59.0 (15.0)	79.12	0.71
68.0 (20.0)	62.55	0.86
77.0 (25.0)	49.84	1.03
86.0 (30.0)	40.01	1.23
95.0 (35.0)	32.35	1.43
104.0 (40.0)	26.34	1.65
113.0 (45.0)	21.58	1.88
122.0 (50.0)	17.79	2.11
131.0 (55.0)	14.75	2.34
140.0 (60.0)	12.30	2.57
149.0 (65.0)	10.32	2.79
158.0 (70.0)	8.69	3.00
167.0 (75.0)	7.36	3.19
176.0 (80.0)	6.27	3.37
185.0 (85.0)	5.36	3.54
194.0 (90.0)	4.60	3.69
203.0 (95.0)	3.96	3.83
212.0 (100.0)	3.43	3.96
221.0 (105.0)	2.98	4.07
230.0 (110.0)	2.60	4.17
239.0 (115.0)	2.27	4.26
248.0 (120.0)	2.00	4.33

TROUBLESHOOTING

■ Compressor temperature thermistor

Temperature °F (°C)	Resistance (kΩ)	Voltage (V)
-22.0 (-30.0)	1,013.11	0.06
-12.0 (-25.0)	729.09	0.09
-4.0 (-20.0)	531.56	0.12
5.0 (-15.0)	392.31	0.16
14.0 (-10.0)	292.91	0.21
23.0 (-5.0)	221.09	0.28
32.0 (0.0)	168.60	0.36
41.0 (5.0)	129.84	0.46
50.0 (10.0)	100.91	0.57
59.0 (15.0)	79.12	0.71
68.0 (20.0)	62.55	0.86
77.0 (25.0)	49.84	1.03
86.0 (30.0)	40.01	1.23
95.0 (35.0)	32.35	1.43
104.0 (40.0)	26.34	1.65
113.0 (45.0)	21.58	1.88
122.0 (50.0)	17.79	2.11
131.0 (55.0)	14.75	2.34
140.0 (60.0)	12.30	2.57
149.0 (65.0)	10.32	2.79
158.0 (70.0)	8.70	3.00
167.0 (75.0)	7.36	3.19
176.0 (80.0)	6.27	3.37
185.0 (85.0)	5.36	3.54
194.0 (90.0)	4.60	3.69
203.0 (95.0)	3.96	3.83
212.0 (100.0)	3.43	3.96
221.0 (105.0)	2.98	4.07
230.0 (110.0)	2.60	4.17
239.0 (115.0)	2.27	4.26
248.0 (120.0)	2.00	4.33

TROUBLESHOOTING

■ Heat exchanger temperature thermistor

Temperature °F (°C)	Resistance (kΩ)	Voltage (V)
-22.0 (-30.0)	95.57	0.24
-12.0 (-25.0)	68.89	0.32
-4.0 (-20.0)	50.31	0.43
5.0 (-15.0)	37.19	0.57
14.0 (-10.0)	27.81	0.73
23.0 (-5.0)	21.02	0.92
32.0 (0.0)	16.05	1.14
41.0 (5.0)	12.38	1.39
50.0 (10.0)	9.63	1.65
59.0 (15.0)	7.56	1.93
68.0 (20.0)	5.98	2.21
77.0 (25.0)	4.77	2.49
86.0 (30.0)	3.84	2.77
95.0 (35.0)	3.11	3.02
104.0 (40.0)	2.53	3.26
113.0 (45.0)	2.08	3.48
122.0 (50.0)	1.71	3.67
131.0 (55.0)	1.42	3.85
140.0 (60.0)	1.19	4.00
149.0 (65.0)	1.00	4.13
158.0 (70.0)	0.84	4.25
167.0 (75.0)	0.71	4.35
176.0 (80.0)	0.61	4.43

■ Heat exchanger (Middle) temperature thermistor

Temperature °F (°C)	Resistance (kΩ)	Voltage (V)
-22.0 (-30.0)	95.57	0.24
-12.0 (-25.0)	68.89	0.32
-4.0 (-20.0)	50.31	0.43
5.0 (-15.0)	37.19	0.57
14.0 (-10.0)	27.81	0.73
23.0 (-5.0)	21.02	0.92
32.0 (0.0)	16.05	1.14
41.0 (5.0)	12.38	1.39
50.0 (10.0)	9.63	1.65
59.0 (15.0)	7.56	1.93
68.0 (20.0)	5.98	2.21
77.0 (25.0)	4.77	2.49
86.0 (30.0)	3.84	2.77
95.0 (35.0)	3.11	3.02
104.0 (40.0)	2.53	3.26
113.0 (45.0)	2.08	3.48
122.0 (50.0)	1.71	3.67
131.0 (55.0)	1.42	3.85
140.0 (60.0)	1.19	4.00
149.0 (65.0)	1.00	4.13
158.0 (70.0)	0.84	4.25
167.0 (75.0)	0.71	4.35
176.0 (80.0)	0.61	4.43

■ Outdoor temperature thermistor

Temperature °F (°C)	Resistance (kΩ)	Voltage (V)
-22.0 (-30.0)	224.33	0.73
-12.0 (-25.0)	159.71	0.97
-4.0 (-20.0)	115.24	1.25
5.0 (-15.0)	84.21	1.56
14.0 (-10.0)	62.28	1.90
23.0 (-5.0)	46.58	2.26
32.0 (0.0)	35.21	2.61
41.0 (5.0)	26.88	2.94
50.0 (10.0)	20.72	3.25
59.0 (15.0)	16.12	3.52
68.0 (20.0)	12.64	3.76
77.0 (25.0)	10.00	3.97
86.0 (30.0)	7.97	4.14
95.0 (35.0)	6.40	4.28
104.0 (40.0)	5.18	4.41
113.0 (45.0)	4.21	4.51
122.0 (50.0)	3.45	4.59
131.0 (55.0)	2.85	4.65

TROUBLESHOOTING

REFRIGERANT R32
INVERTER

4. CONTROL AND FUNCTIONS

CONTENTS

4. CONTROL AND FUNCTIONS

1. Rotation number control of compressor

1-1. Cooling operation

A sensor (room temperature thermistor) built in the indoor unit body will usually perceive difference or variation between a set temperature and present room temperature, and controls the operation rotation number of the compressor.

- If the room temperature is 11°F (6.0°C) higher than a set temperature, the operation rotation number of compressor will attain to maximum performance.
- If the room temperature is 2°F (1.0°C) lower than a set temperature, the compressor will be stopped.
- When the room temperature is within the range of +11°F (6.0°C) to -2°F (1.0°C) of the setting temperature, the rotation number of compressor is controlled within the range shown in the table below. However, the maximum rotation number is limited in the range shown in the figure below based on the indoor fan mode and the outdoor temperature.

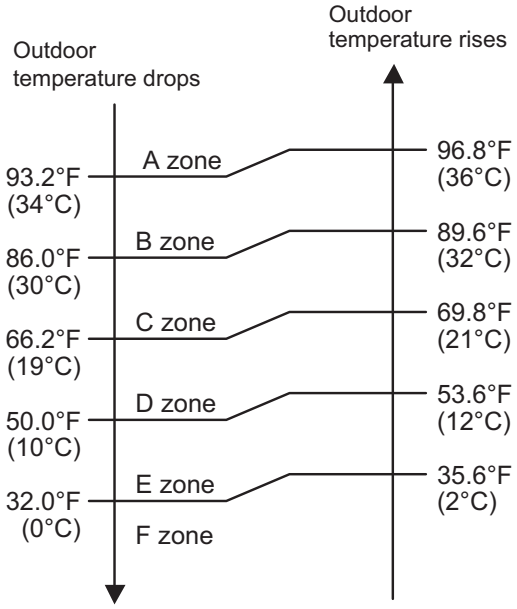
CONTROL AND FUNCTIONS

- **Rotation number range of compressor**

Unit: rps

Model name	Minimum frequency	Maximum frequency
ABUH18KUAS	10	106
ABUH24KUAS	10	102
ABUH30KUAS ABUH36KUAS	13	103

- **Limit of maximum speed based on outdoor temperature**



Unit: rps

Model name	Outdoor temperature zone	Indoor unit fan mode			
		HIGH	MED	LOW	QUIET
ABUH18KUAS	A zone	106	62	51	42
	B zone	106	62	51	42
	C zone	75	54	51	42
	D zone	51	46	36	32
	E zone	51	46	36	32
	F zone	51	46	36	32
ABUH24KUAS	A zone	102	61	50	34
	B zone	102	61	50	34
	C zone	68	50	39	34
	D zone	54	39	34	32
	E zone	54	39	34	32
	F zone	54	39	34	32
ABUH30KUAS	A zone	103	54	41	34
	B zone	103	54	41	34
	C zone	65	45	37	30
	D zone	45	34	29	25
	E zone	45	34	29	25
	F zone	45	34	29	25
ABUH36KUAS	A zone	103	69	54	37
	B zone	103	69	54	37
	C zone	85	54	45	37
	D zone	54	45	37	30
	E zone	54	45	37	30
	F zone	54	45	37	30

1-2. Heating operation

A sensor (room temperature thermistor) built in indoor unit body will usually perceive difference or variation between setting temperature and present room temperature, and controls operation rotation number of compressor.

- If the room temperature is 11°F (6.0°C) lower than a set temperature, the operation rotation number of compressor will attain to maximum performance.
- If the room temperature is 2°F (1.0°C) higher than a set temperature, the compressor will be stopped.
- When the room temperature is within the range of +2°F (1.0°C) to -11°F (6.0°C) of the setting temperature, the rotation number of compressor is controlled within the range shown below.

- **Rotation number range of compressor**

Unit: rps

Model name	Minimum frequency	Maximum frequency
ABUH18KUAS ABUH24KUAS	10	130
ABUH30KUAS ABUH36KUAS	13	120

CONTROL AND FUNCTIONS

1-3. Dry operation

The rotation number of compressor shall change according to the temperature, set temperature, and room temperature variation which the room temperature sensor of the indoor unit has detected as shown in the table below.

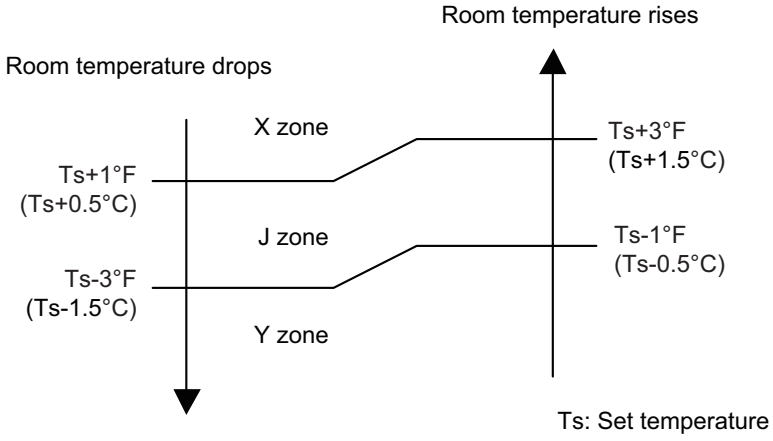
Zone is defined by set temperature and room temperature.

- **Rotation number range of compressor**

Unit: rps

Model name	Outdoor temperature zone	Operating frequency
ABUH18KUAS	X zone	42
	J zone	42
	Y zone	0
ABUH24KUAS ABUH30KUAS	X zone	34
	J zone	34
	Y zone	0
ABUH36KUAS	X zone	37
	J zone	37
	Y zone	0

- **Compressor control based on room temperature**

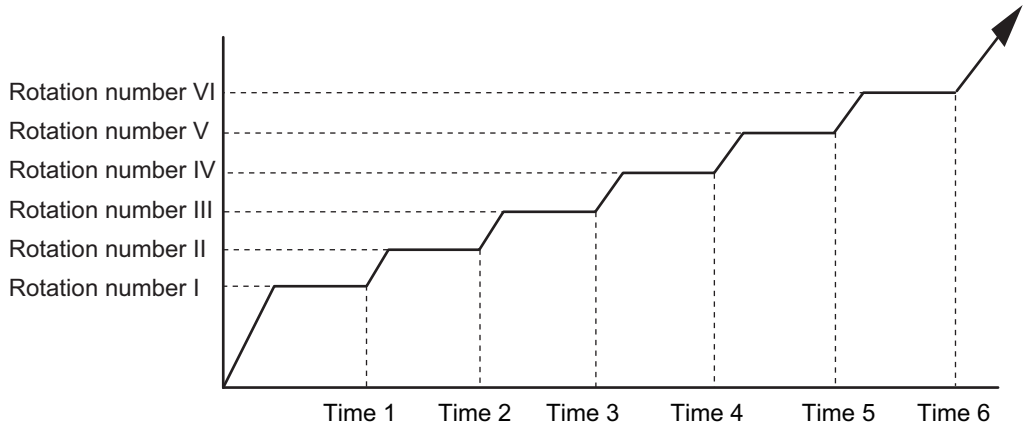


CONTROL AND FUNCTIONS

1-4. Rotation number of compressor at normal start-up

■ Model: AOUH18KUAS1

Rotation number of compressor soon after starting is controlled as below.



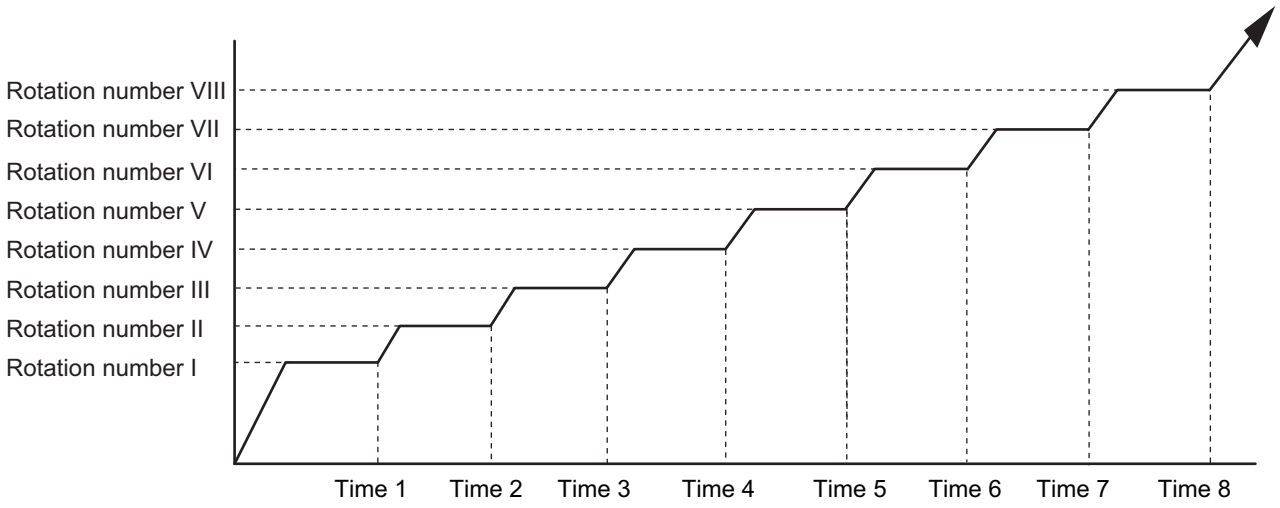
Rotation number (rps)	I	II	III	IV	V	VI
	35*	52	64	71	89	97
Time (sec)	1	2	3	4	5	6
	60	140	170	200	350	410

*: Cooling operation: 29

CONTROL AND FUNCTIONS

■ Model: AOUH24KUAS1

Rotation number of compressor soon after starting is controlled as below.



CONTROL AND FUNCTIONS

- Normal operation

Rotation number (rps)	I	II	III	IV	V	VI	VII	VIII
	25	42	53	61	65	75	85	92
Time (sec)	1	2	3	4	5	6	7	8
	90	150	270	330	390	450	570	630

- Special operation

Rotation number (rps)	I	II	III	IV	V	VI	VII	VIII
	25	42	53	61	65	75	85	92
Time (sec)	1	2	3	4	5	6	7	8
	225	305	605	665	725	785	855	1,000

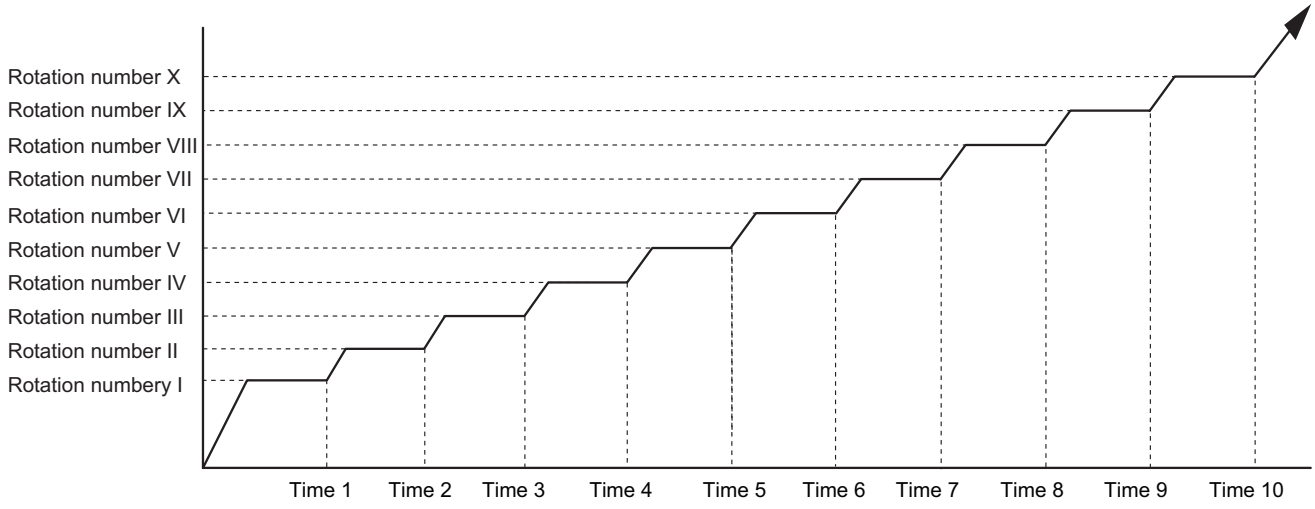
NOTES:

- Normal operation:
  - Cooling and dry mode
    - Below 3 hours from the compressor stop and the compressor thermistor ≥ 59°F (15°C)
    - After defrost operation
  - Other than when the compressor starts for the first time since the breaker turns on

- Special operation:
  - Other than the normal operation condition
  - When the compressor starts for the first time since the breaker turns on

■ Models: AOUH30KUAS1 and AOUH36KUAS1

Rotation number of compressor soon after starting is controlled as below.



CONTROL AND FUNCTIONS

- Normal operation

Rotation number (rps)	I	II	III	IV	V	VI	VII	VIII	IX	X
	41	46	51	57	60	72	81	91	100	110
Time (sec)	1	2	3	4	5	6	7	8	9	10
	60	120	180	240	360	420	480	540	600	660

- Special operation

Rotation number (rps)	I	II	III	IV	V	VI	VII	VIII	IX	X
	41	46	51	57	60	72	81	91	100	110
Time (sec)	1	2	3	4	5	6	7	8	9	10
	120	185	245	305	605	665	725	785	845	1,000

NOTES:

- Normal operation:
  - Cooling and dry mode
    - Below 3 hours from the compressor stop and the compressor thermistor ≥ 59°F (15°C)
    - After defrost operation
  - Other than when the compressor starts for the first time since the breaker turns on

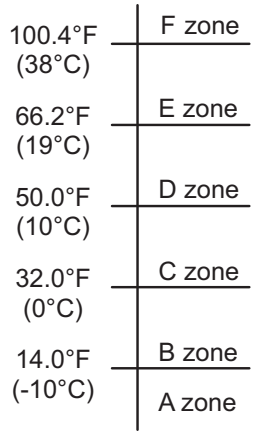
- Special operation:
  - Other than the normal operation condition
  - When the compressor starts for the first time since the breaker turns on

1-5. Limitation of compressor rotation number by outdoor temperature

■ Model: AOUH18KUAS1

The minimum rotation number of compressor is limited by outdoor temperature as below.

- **Cooling/Dry mode**

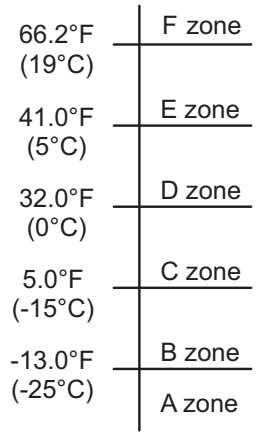


Unit: rps

Outdoor temperature zone	Limitation of compressor rotation number
	AOUH18KUAS1
A zone	33
B zone	33
C zone	31
D zone	19
E zone	1
F zone	20

CONTROL AND FUNCTIONS

- **Heating mode**



Unit: rps

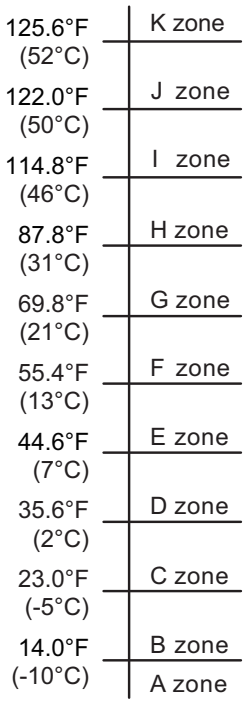
Outdoor temperature zone	Limitation of compressor rotation number
	AOUH18KUAS1
A zone	31
B zone	31
C zone	21
D zone	13
E zone	1
F zone	1

CONTROL AND FUNCTIONS

■ Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1

The minimum rotation number of compressor is limited by outdoor temperature as below.

- **Cooling/Dry mode**



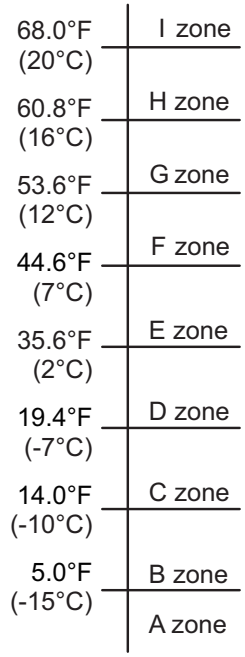
Unit: rps

Outdoor temperature zone	Limitation of compressor frequency	
	AOUH24KUAS1	AOUH30KUAS1 AOUH36KUAS1
A zone	55	60
B zone	52	57
C zone	47	48
D zone	39	36
E zone	33	27
F zone	25	24
G zone	18	15
H zone	20	20
I zone	20	20
J zone	21	26
K zone	24	30

CONTROL AND FUNCTIONS

CONTROL AND FUNCTIONS

- **Heating mode**



Unit: rps

Outdoor temperature zone	Limitation of compressor frequency	
	AOUH24KUAS1	AOUH30KUAS1 AOUH36KUAS1
A zone	58	55
B zone	52	51
C zone	43	42
D zone	38	39
E zone	28	28
F zone	23	24
G zone	20	21
H zone	17	16
I zone	17	20

2. Auto changeover operation

When the air conditioner is set to AUTO mode by remote controller, operation starts in the optimum mode from among heating, cooling, dry and monitoring modes. During operation, the optimum mode is automatically switched in accordance with temperature changes. The temperature can be set between 64.4 °F (18 °C) and 86.0 °F (30 °C) in 1.0 °F (0.5 °C) steps.

- When operation starts, indoor fan and outdoor fan are operated for around 1 minute.
  Room temperature and outdoor temperature are sensed, and the operation mode is selected in accordance with the table below.

Room temperature	Operation mode
Tr > Ts + 3.6°F (2°C)	Cooling
Ts + 3.6°F (2°C) ≥ Tr ≥ Ts - 3.6°F (2°C)	Middle zone
Tr < Ts - 3.6°F (2°C)	Heating

Tr: Room temperature

Ts: Setting temperature

NOTE: When the operation mode is middle zone, indoor unit operation mode is selected as below.

- Same operation mode is selected as outdoor unit.
  If outdoor unit is operating in cooling and heating mode, indoor unit will be operated by the same operation mode.
- Selected by outdoor temperature.
  If outdoor unit is operating in other than cooling and heating mode, indoor unit will be operated according to the outdoor temperature as below.

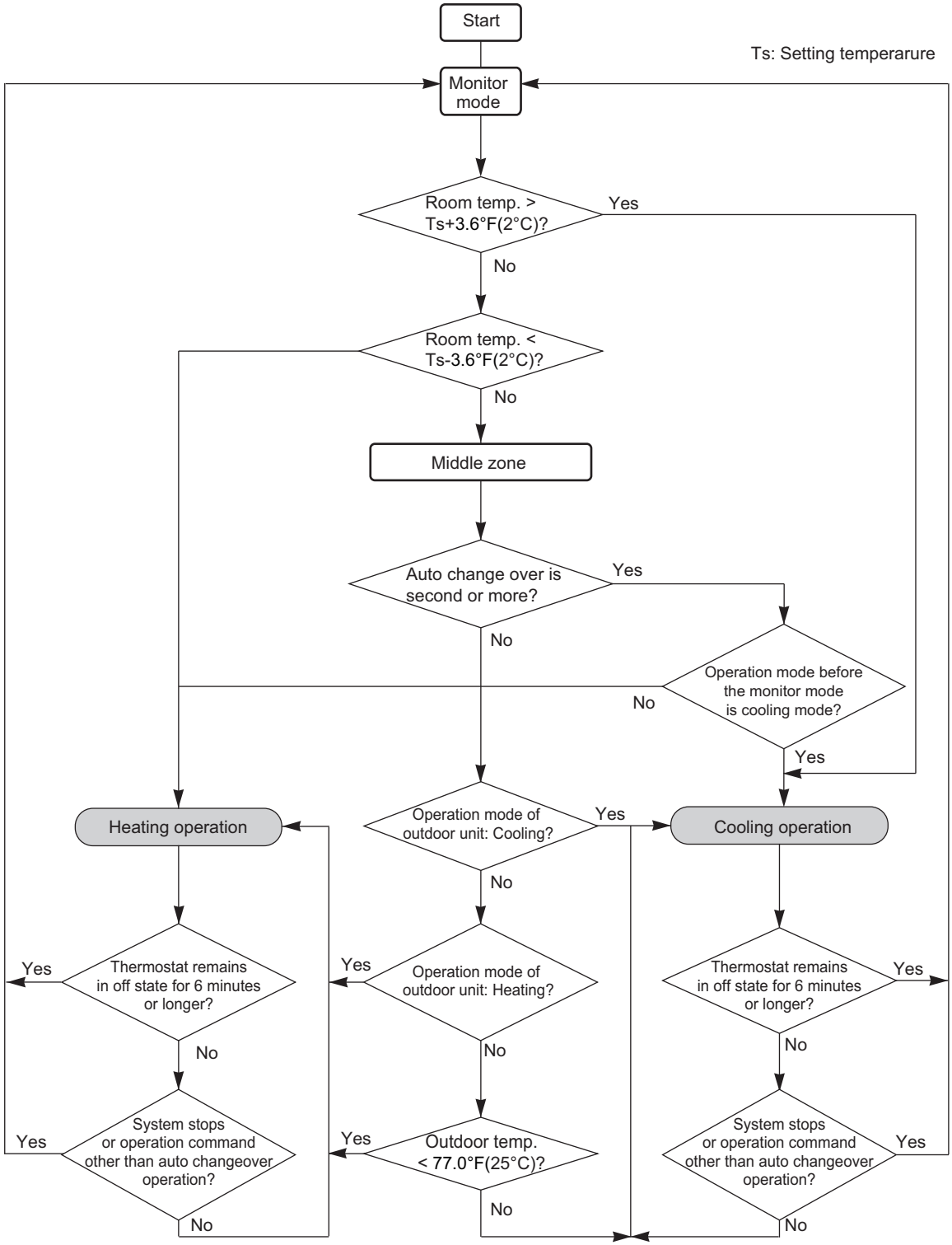
Outdoor temp.	Operation mode
77.0°F (25°C) or more	Cooling
Less than 77.0°F (25°C)	Heating

- When the compressor was stopped for 6 consecutive minutes by temperature control function after the cooling or heating mode was selected as above, operation is switched to monitoring mode and the operation mode selection is done again.

- When the middle zone is selected on the predetermining of the operation mode, the operation mode before the changing to the monitoring mode is selected.

CONTROL AND FUNCTIONS

Operation flow chart



CONTROL AND FUNCTIONS

3. Fan control

Tr: Room temperature
Ts: Setting temperature

3-1. Indoor fan control

■ Fan speed

Indoor fan speed is defined as below.

Operation mode	Fan mode	Speed (rpm)			
		ABUH18KUAS	ABUH24KUAS	ABUH30KUAS	ABUH36KUAS
Heating	HIGH	950	970	1,090	1,090
	MED+	900	890	1,000	1,020
	MED	880	810	900	920
	LOW	800	720	800	830
	QUIET	750	620	680	700
	Cool air prevention	500	500	500	500
	S-LOW	300	300	300	300
Cooling/Fan	HIGH	950	970	1,090	1,120
	MED	880	810	900	920
	LOW	800	720	800	830
	QUIET	750	620	680	700
	Soft quiet	500*1	500*1	500*1	500*1
	S-LOW	300*2	300*2	300*2	300*2
Dry		X zone: 750 J zone: 750	X zone: 620 J zone: 620	X zone: 680 J zone: 680	X zone: 700 J zone: 700

*1: Fan mode only
*2: Cooling mode only

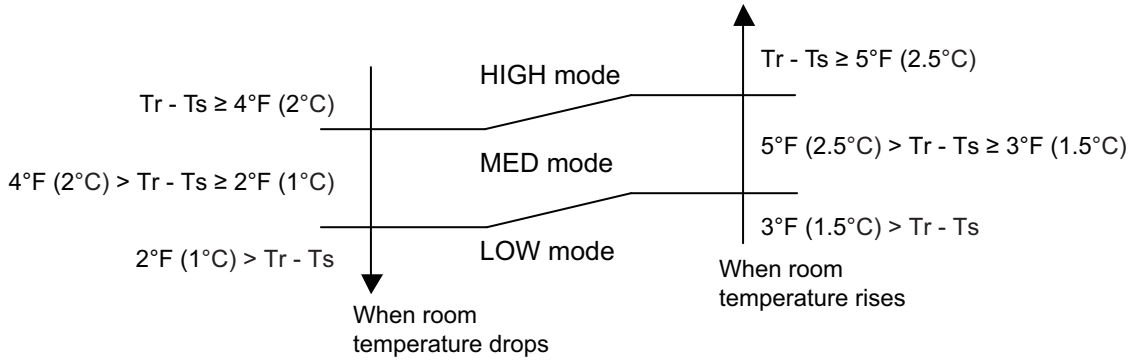
■ Fan operation

Airflow can be switched in 5 steps such as AUTO, QUIET, LOW, MED, HIGH while indoor unit fan only runs.
When fan mode is set at AUTO, it operates on MED fan speed.

■ Cooling operation

Switch the airflow AUTO, and indoor fan motor will run according to room temperature, as below.
On the other hand, if switched in HIGH—QUIET, indoor motor will run at a constant airflow of COOL operation modes QUIET, LOW, MED, HIGH as shown in “Fan speed” above.

Airflow change over (Cooling: Auto)



CONTROL AND FUNCTIONS

■ Dry operation

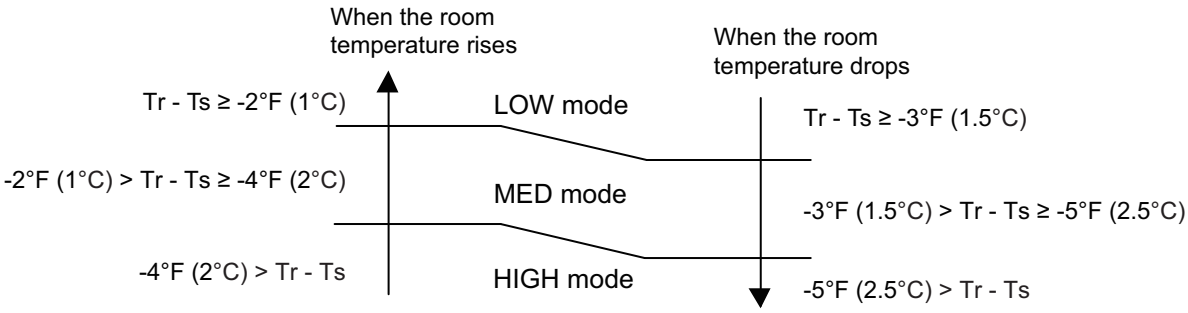
During dry operation, fan speed setting can not be changed as shown in “Fan speed” above.

■ Heating operation

Switch the airflow AUTO, and the indoor fan motor will run according to a room temperature, as below.

On the other hand, if switched in HIGH—QUIET, the indoor motor will run at a constant airflow of HEAT operation modes QUIET, LOW, MED, HIGH as shown in “Fan speed” above.

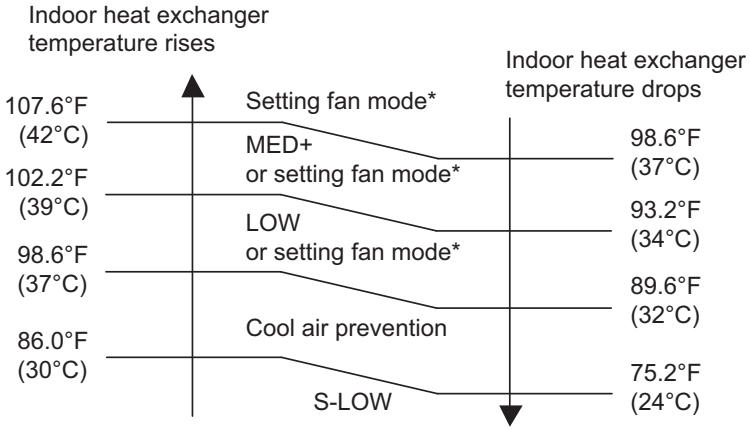
Airflow change over (Heating: Auto)



■ Cool air prevention control (heating mode)

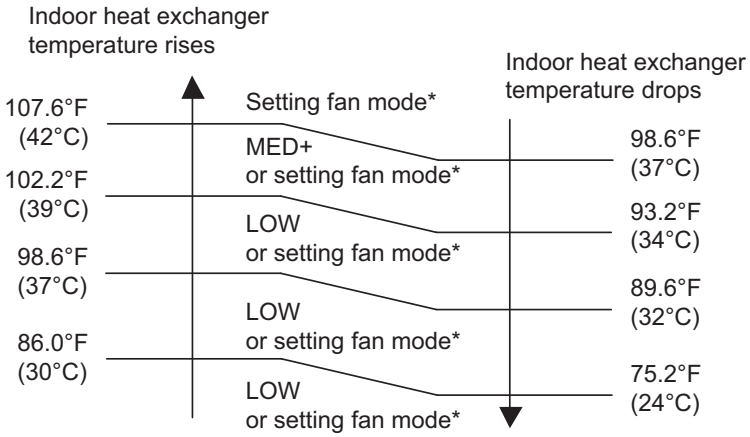
The maximum value of the indoor fan speed is set as shown below, based on the detected temperature by the indoor heat exchanger sensor on heating mode.

- **Normal operation**



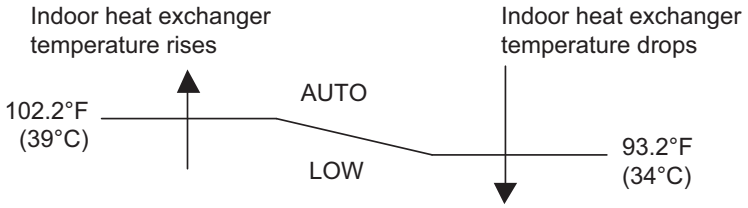
*: Lower speed is selected.

13 minutes later:



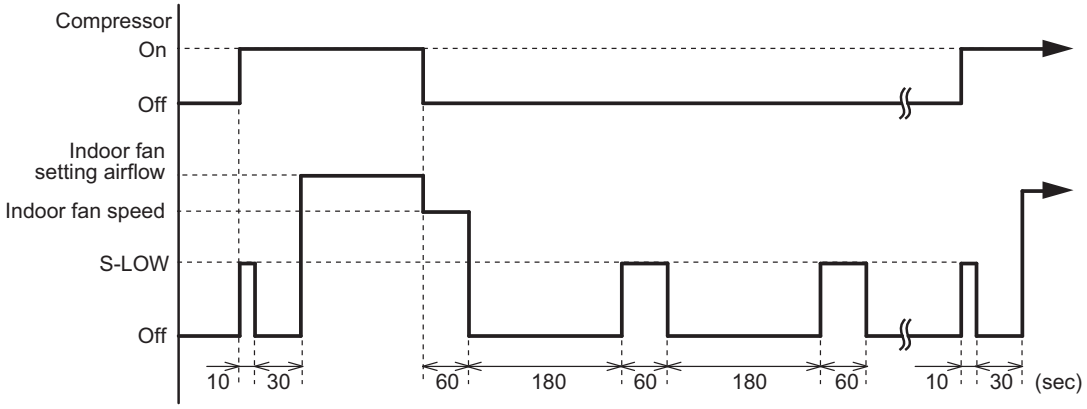
*: Lower speed is selected.

- **MIN. HEAT operation**



■ Moisture return prevention control (cooling and dry mode)

Switch the airflow AUTO at cooling mode, and the indoor fan motor will run as shown below.



CONTROL AND FUNCTIONS

3-2. Outdoor fan control

■ Outdoor fan motor

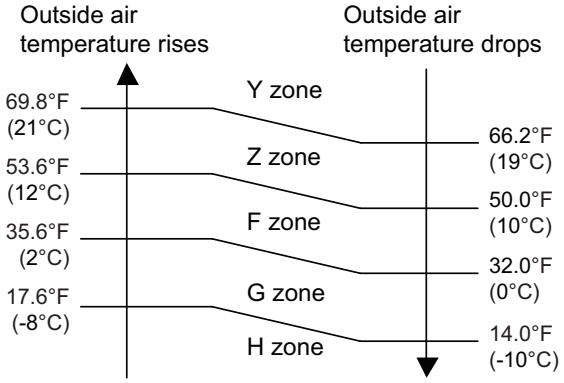
This outdoor unit has a DC fan motor. (Control method is different between AC and DC motors.)

■ Fan speed

● Model: AOUH18KUAS1

Fan speed is defined by outdoor temperature and compressor frequency.

- **Outside air temperature zone selection**



Unit: rpm

Fan step	Cooling	Heating	Dry	Cooling or dry at low outdoor temp.			
	Y zone		Y zone	Z zone	F zone	G zone	H zone
S-HIGH2	—	1,100	—	—	—	—	—
S-HIGH1	1,050	1,100	—	—	—	—	—
HIGH	1,050	1,100	—	—	—	—	—
10	—	1,100	—	—	—	—	—
9	1,050	1,100	1,050	850	320	270	270
8	950	800	950	850	320	270	270
7	900	680	900	770	320	270	270
6	860	570	860	630	270	230	230
5	690	510	690	440	270	230	230
4	550	470	550	320	270	230	230
3	440	420	440	320	270	230	230
2	400	420	400	320	270	230	230
1	400	420	400	320	270	230	230

NOTE: After defrost control on the heating mode, the fan speed is kept higher regardless of the compressor frequency.

Fan speed after defrost control: 1,100 rpm

CONTROL AND FUNCTIONS

● Model: AOUH24KUAS1

Fan speed is defined by outdoor temperature and compressor frequency.

Unit: rpm

Fan step	Cooling or dry	Heating
13	830	—
12	830	—
11	740	—
10	700	830
9	650	670
8	570	590
7	570	530
6	570	420
5	570	360
4	540	340
3	440	310
2	400	270
1	200	200
S-HIGH	—	830

CONTROL AND FUNCTIONS

- When the compressor frequency increases, the outdoor fan speed also changes to the higher speed.
- When the compressor frequency decreases, the outdoor fan speed also changes to the lower speed.

NOTE: After defrost control on the heating mode, the fan speed is kept higher regardless of the compressor frequency.
Fan speed after defrost control: 830 rpm

● Models: AOUH30KUAS1 and AOUH36KUAS1

Fan speed is defined by outdoor temperature and compressor frequency.

Unit: rpm

Fan step	Cooling or dry	Heating
13	970	—
12	900	—
11	830	—
10	760	990
9	690	880
8	620	800
7	550	720
6	480	630
5	420	520
4	360	440
3	300	360
2	240	270
1	200	200
S-HIGH	—	990

CONTROL AND FUNCTIONS

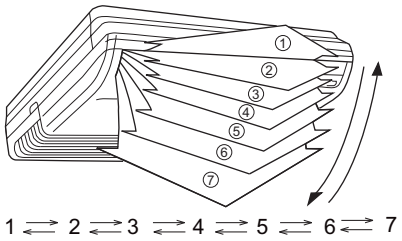
- When the compressor frequency increases, the outdoor fan speed also changes to the higher speed.
- When the compressor frequency decreases, the outdoor fan speed also changes to the lower speed.

NOTE: After defrost control on the heating mode, the fan speed is kept higher regardless of the compressor frequency.
Fan speed after defrost control: 990 rpm

4. Louver control

4-1. Individual louver control

Each time the button is pressed, the air direction range will change as below:



- Remote controller display is not changed.
- Vertical airflow direction is set automatically as shown, in accordance with the type of operation selected.

  Cooling/dry mode : Horizontal flow 1

  Heating mode : Downward flow 7
- During AUTO operation, for the first a few minutes after beginning operation, airflow will be horizontal 1; the air direction cannot be adjusted during this period.
  The airflow direction setting will temporarily become 1 when the temperature of the airflow is low at the start of the Heating mode.
- After beginning of AUTO/HEAT mode operated and automatic defrosting operation, the airflow will be horizontal 1. However, the airflow direction cannot be adjusted at beginning AUTO operation mode.

4-2. All louver control

- **All louver operation**
  When the mode is selected, the standard louver position of the each mode is set.

Operation mode	Standard Position
Cooling	2
Dry	2
Heating	4
Monitor	2

NOTES:

- Setting of the wireless remote controller is not displayed on the wired remote controller.
- The setting louver of the individual control function cannot be controlled.

4-3. Swing operation

- To select up/down airflow swing operation
  When the swing signal is received, the horizontal louver starts to swing.
  - Swinging range
    - Cooling mode/dry mode/fan mode: 1 ↔ 7
    - Heating mode: 1 ↔ 7
  - When the indoor fan is S-LOW or stop mode, the swing operation is interrupted and it stops at either upper end or bottom end.

CONTROL AND FUNCTIONS

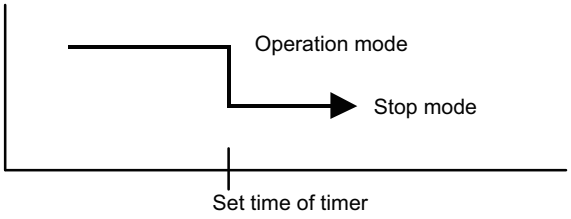
5. Timer operation control

5-1. Wireless remote control

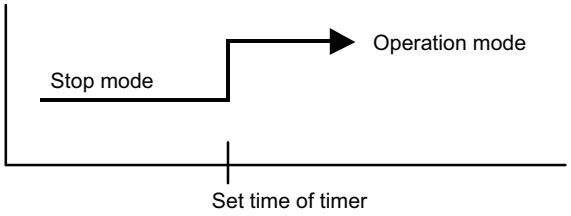
On/Off timer	Program timer	Sleep timer	Weekly timer
○	○	○	—

■ On/Off timer

- Off timer: When the clock reaches the set timer, the air conditioner will be turned off.

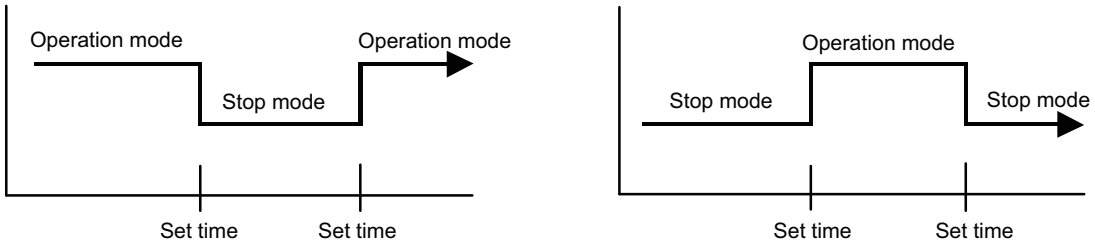


- On timer: When the clock reaches the set timer, the air conditioner will be turned on.



■ Program timer

- The program timer allows the off timer and the on timer to be used in combination one time.



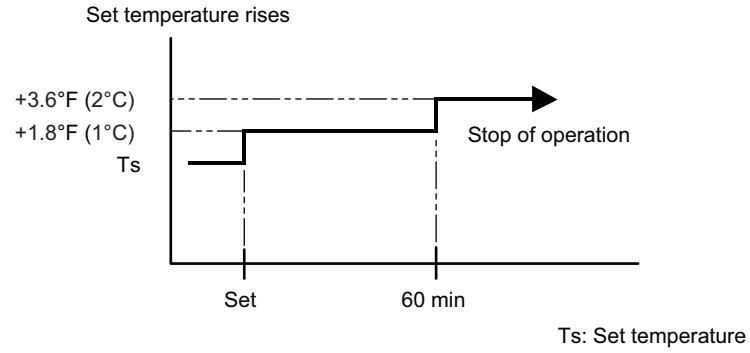
- Operation will start from the timer setting (either off timer and on timer) whichever is closest to the clock current timer setting. The order of operations is indicated by the allow in the remote controller screen.
- Sleep timer operation cannot be combined with on timer operation.

CONTROL AND FUNCTIONS

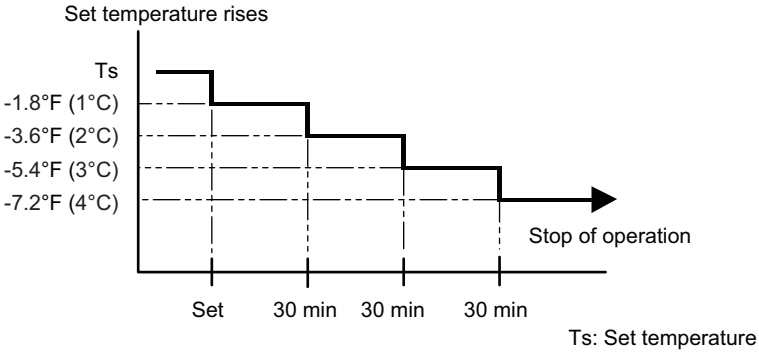
■ Sleep timer

If the sleep timer is set, the room temperature is monitored and the operation is stopped automatically. If the operation mode or the set temperature is change after the sleep timer is set, the operation is continued according to the changed setting of the sleep timer from that time on.

- In the cooling operation mode
  When the sleep timer is set, the setting temperature is increased 1.8°F (1°C). It increases the setting temperature another 1.8°F (1°C) after 1 hour. After that, the setting temperature is not changed and the operation is stopped at the setting time.



- In the heating operation mode
  When the sleep timer is set, the setting temperature is decreased 1.8°F (1°C). It decreases the setting temperature another 1.8°F (1°C) every 30 minutes. Upon lowering 7.2°F (4°C), the setting temperature is not changed and the operation is stopped at the setting time.



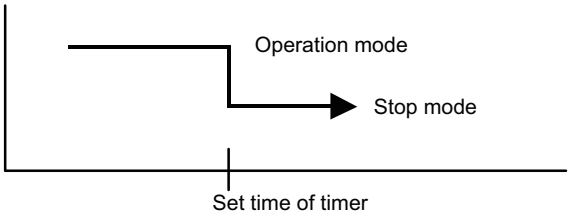
CONTROL AND FUNCTIONS

5-2. Wired remote control

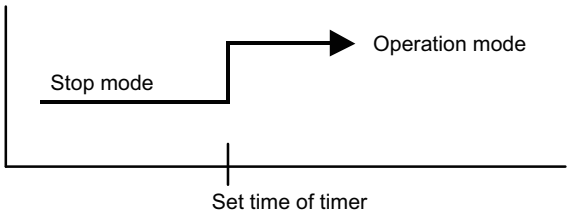
On/Off timer	Program timer	Sleep timer	Weekly timer	Temperature Setback Timer
○	○	○	○	○

■ On/Off timer

- Off timer: When the clock reaches the set timer, the air conditioner will be turned off.



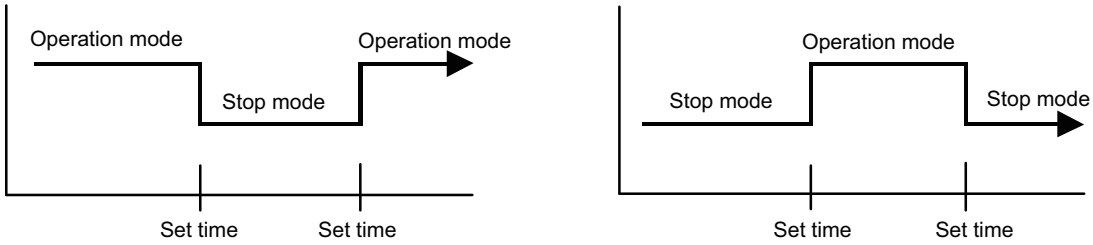
- On timer: When the clock reaches the set timer, the air conditioner will be turned on.



CONTROL AND FUNCTIONS

■ Program timer

- The program timer allows the off timer and the on timer to be used in combination one time.

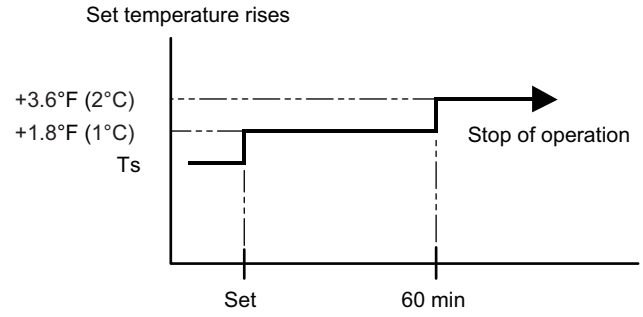


- Operation will start from the timer setting (either off timer and on timer) whichever is closest to the clock current timer setting. The order of operations is indicated by the allow in the remote controller screen.
- Sleep timer operation cannot be combined with on timer operation.

■ Sleep timer

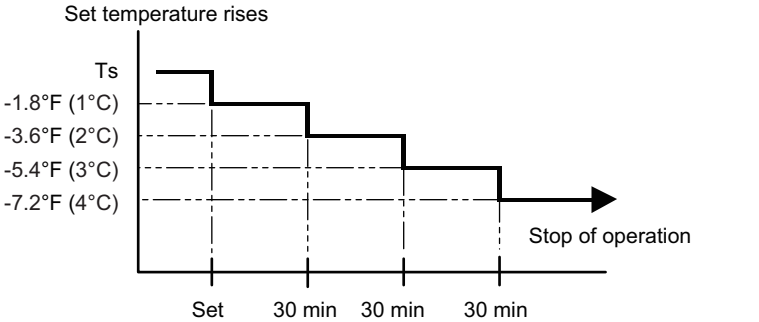
If the sleep timer is set, the room temperature is monitored and the operation is stopped automatically. If the operation mode or the set temperature is change after the sleep timer is set, the operation is continued according to the changed setting of the sleep timer from that time on.

- In the cooling operation mode
  When the sleep timer is set, the setting temperature is increased 1.8°F (1°C). It increases the setting temperature another 1.8°F (1°C) after 1 hour. After that, the setting temperature is not changed and the operation is stopped at the setting time.



Ts: Set temperature

- In the heating operation mode
  When the sleep timer is set, the setting temperature is decreased 1.8°F (1°C). It decreases the setting temperature another 1.8°F (1°C) every 30 minutes. Upon lowering 7.2°F (4°C), the setting temperature is not changed and the operation is stopped at the setting time.



Ts: Set temperature

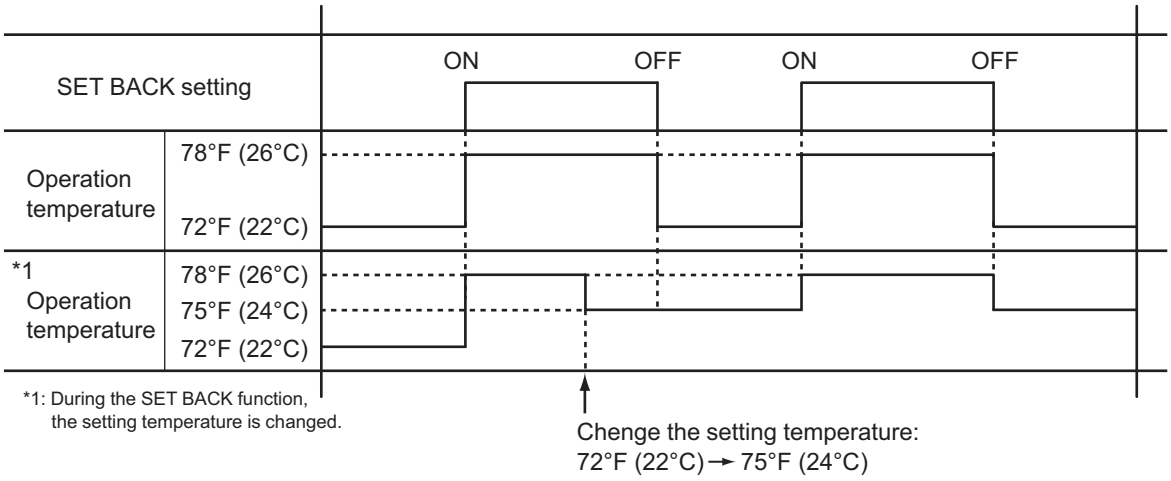
■ Weekly timer

On and off timer can be combined, and up to 4 reservations per day and 28 reservations per week. Before setting the program, set the week and time of the air conditioner at first. If the week and time are not set, the weekly timer will not operate correctly at the setting time.

■ Temperature Setback Timer

- The temperature setback timer only changes the set temperature for 7 days, it cannot be used to start or stop air conditioner operation.
- The temperature setback timer can be set to operate up to two times per day but only one temperature setting can be used.
- During COOLING/DRY mode, the air conditioner will operate at a minimum of 64°F (18°C) even if the SET BACK temperature is set to 63°F (17°C) or lower.

Case of Temperature Setback Timer on the Cooling operation. (Setting temperature :72°F [22°C], SET BACK temperature :78°F [26°C])



CONTROL AND FUNCTIONS

6. Defrost operation control

Tn: Outdoor unit heat exchanger temperature
Ta: Outdoor temperature
Tn10: Temperature at 10 minutes after compressor start
Tnb: Temperature before 5 minutes

• Triggering condition

The defrost operation starts when outdoor unit heat exchanger temperature sensor detects the temperature lower than the values shown below.

– **1st time defrosting after starting operation**

Compressor integrating operation time	Less than 17 min.	17 to 57 min.	More than 57 min.
Condition	Does not operate	Tn ≤ 15.8°F (-9°C) and Tn-Ta ≥ 9.0°F (5°C)	Tn ≤ 23.0°F (-5°C)

– **2nd time and after**

• **Model: AOUH18KUAS1**

Compressor integrating operation time	Less than 40 min.	More than 40 min.
Condition	Does not operate	Tn-Tn10 < -9.0°F (-5°C) (Tn ≤ 21.2°F [-6°C]) Tn-Tnb < -3.6°F (-2°C) (Tn ≤ 21.2°F [-6°C]) Tn ≤ -4.0°F (-20°C) (Ta ≥ 14.0°F [-10°C]) Tn ≤ Ta+19.4°F (-7°C) or Tn ≤ -22.0°F (-30°C) (Ta < 14.0°F [-10°C])

• **Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1**

Compressor integrating operation time	Less than 35 min.	More than 35 min.
Condition	Does not operate	Tn-Tn10 < -9.0°F (-5°C) (Tn ≤ 14.0°F [-10°C]) Tn-Tnb < -3.6°F (-2°C) (Tn ≤ 14.0°F [-10°C]) Tn ≤ -22.0°F (-30°C) (Ta ≥ -22.0°F [-30°C]) Tn < Ta+19.4°F (-7°C) or Tn ≤ -22.0°F (-30°C) (Ta < -22.0°F [-30°C])

– **Integrating defrost (Constant monitoring)**

Compressor integrating operation time	More than 240 min. (For long continuous operation)	More than 215 min. (For long continuous operation	Less than 10 min.* (For intermittent operation)
Condition	Tn ≤ 26.6°F (-3°C)	Tn ≤ 23.0°F (-5°C)	Count of the compressor off: 40 times

*: If the compressor continuous operation time is less than 10 minutes, the number of the compressor off is counted. If any defrost operated, the compressor off count is cleared.

• Release condition

The defrost operation is released when either one of the conditions below is satisfied.

Outdoor unit heat exchanger temperature (after 1 minute or later since compressor start)	18 model	55.4°F (13°C) or more
	24/30/36 model	53.6°F (12°C) or more
Compressor operation time		15 minutes

CONTROL AND FUNCTIONS

6-1. Defrost operation in heating operation stopped

If the outdoor unit is frosted when stopping the heating operation, it stops after performing the automatic defrosting operation.

In this time, if the indoor unit operation lamp flashes slowly (6 sec on/2 sec off), the outdoor unit allow the heat exchanger to defrost, and then stop.

• Triggering condition

When all of the following conditions are satisfied in heating operation

– Compressor operation integrating time: 30 minutes or more
– Compressor continuous operation time: 10 minutes or more
– Outdoor unit heat exchanger temperature: 24.8°F (-4°C) or less

• Release condition

The defrost operation is released when either one of the conditions below is satisfied.

Outdoor unit heat exchanger temperature (after 1 minute or later since compressor start)	18 model	55.4°F (13°C) or more
	24/30/36 model	53.6°F (12°C) or more
Compressor operation time		15 minutes

CONTROL AND FUNCTIONS

7. Various control

7-1. Auto restart

When the power was interrupted by a power failure etc. during operation, the operation contents at that time are memorized and when the power is recovered, operation is automatically started with the memorized operation contents.

Operation contents memorized when the power is interrupted
Operation mode
Setting temperature
Fan mode setting
Timer mode and set time (set by wireless remote controller)
Airflow direction setting
Swing
ECONOMY operation
MIN. HEAT operation

CONTROL AND FUNCTIONS

7-2. MIN. HEAT operation

MIN. HEAT operation performs as below setting when pressing MIN. HEAT button.

Operation mode	Heating
Setting temperature	50°F (10°C)
Fan mode	AUTO
LED display	Economy
Defrost operation	Operate as normal

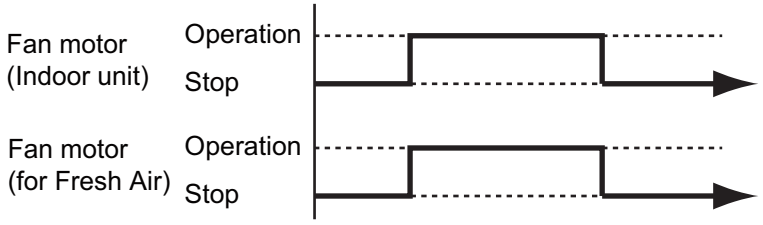
7-3. ECONOMY operation

The ECONOMY operation starts by pressing ECONOMY button on the remote controller.
The ECONOMY operation is almost the same operation as below settings.

Mode	Cooling/Dry	Heating
Target temperature	Setting temperature +2°F (1°C)	Setting temperature -2°F (1°C)

7-4. Fresh air control

The fan motor for Fresh Air is operated in synchronization with the indoor fan operation as below.



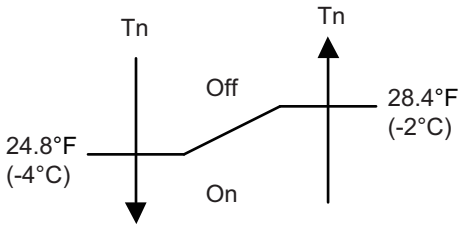
7-5. Compressor preheating operation

⚠ CAUTION

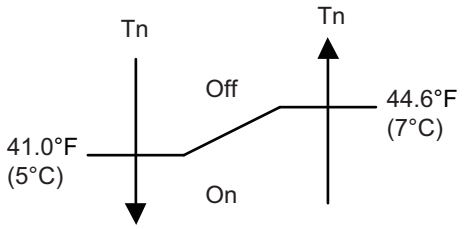
To perform the preheat operation, turn on the power for the outdoor unit at least 12 hours before the operation. Especially in cold climate regions, the compressor may fail if the outdoor unit is on for less than 12 hours.

Compressor preheating operation prevents the damage caused by the refrigerant in the compressor from soaking into the oil. By preheating the compressor, warm airflow is quickly discharged when the operation is started.

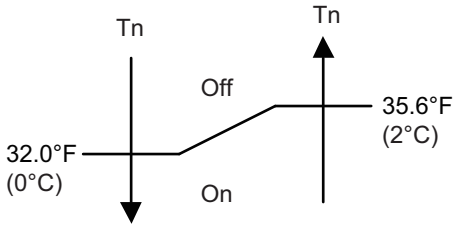
- **Model: AOUH18KUAS1**
  - **Triggering condition**
    - 30 minutes after compressor stopped.
    - Outdoor unit heat exchanger temperature (Tn)



When the jumper wire (JM2) is disconnected:



- **Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1**
  - **Triggering condition 1**
    - Outdoor temperature ≤ 68°F (20°C)
      When outdoor temperature reaches 78.8°F (26°C), compressor preheating stops.
    - 30 minutes after compressor stopped
  - **Triggering condition 2**

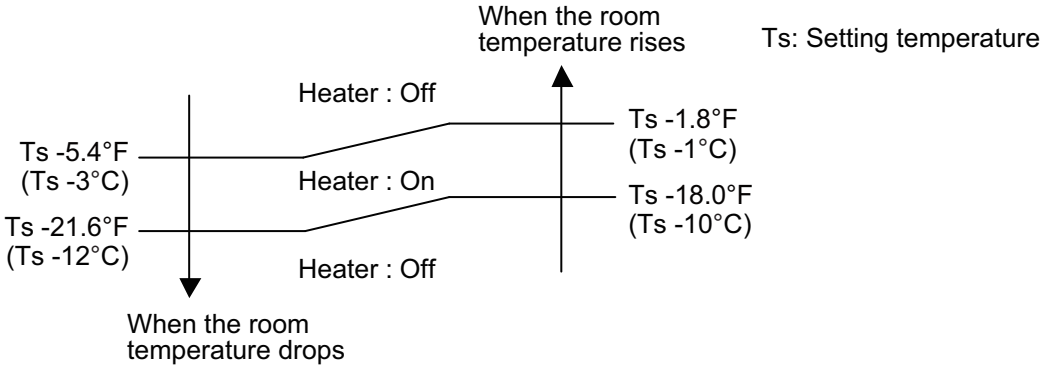


Tn: Outdoor unit heat exchanger temp.

CONTROL AND FUNCTIONS

7-6. External electrical heater control

The external electrical heater is operated as below.



NOTES:

- When the compressor stop, external electric heater is off.
- It operates only in heating mode and when the indoor fan operates. (However, S-LOW is excluded.)

CONTROL AND FUNCTIONS

7-7. Electronic expansion valve control

The most proper opening of the electronic expansion valve is calculated and controlled under the present operating condition based on the table below.

- **Model: AOUH18KUAS1**

Operation mode	Pulse range
Cooling/dry mode	Between 52 and 480 pulses
Heating mode	

- **Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1**

Operation mode	Pulse range
Cooling/dry mode	Between 47 and 480 pulses
Heating mode	Between 39 and 480 pulses

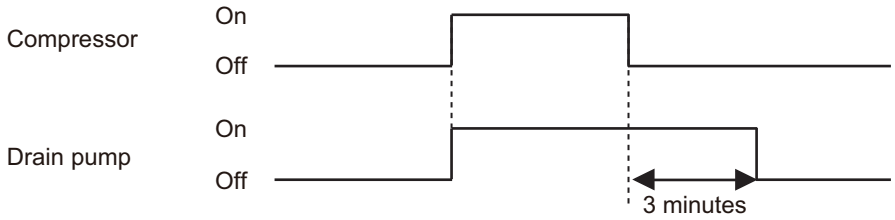
NOTE: At the time of supplying the power to the outdoor unit, the initialization of the electronic expansion valve is operated (528 pulses are input to the closing direction).

7-8. Drain pump control

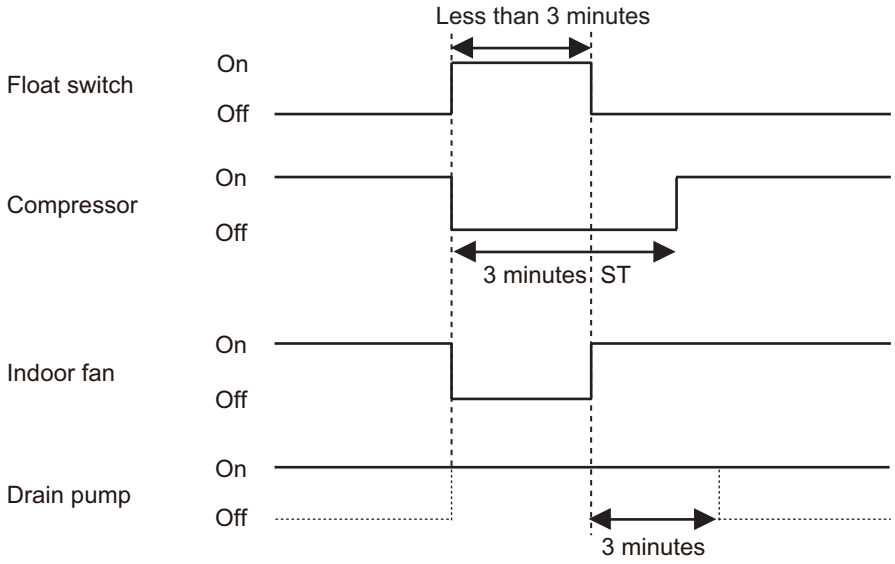
■ Drain control for defrosting operation

● During cooling or dry mode

- When the compressor starts, the drain pump starts simultaneously.
- The drain pump operates continuously for 3 minutes after the compressor is turned off.



- When the compressor stops by the "Anti-freezing control (cooling and dry mode)" on page 04-37, the drain pump is turned off in 1 hour after the compressor stops.
- When the float switch is on, the compressor, indoor and outdoor fan motor operation are stopped.
- Drain pump operates continuously for 3 minutes after the float switch is turned off and then drain pump is turned off.
- When the float switch turns on continuously for 3 minutes, "failure indication" operates. (It is necessary to turn off power for release it.)
- When the float switch turns off less than 3 minutes, the unit starts cooling operation. Indoor fan motor starts after the float switch is turned off and the compressor starts after 3 minutes st.

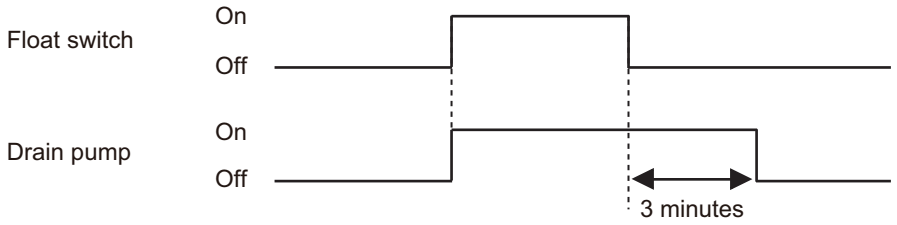


CONTROL AND FUNCTIONS

● During heating mode or fan mode and when operation is stopped

- **Triggering condition**
  Drain pump is turned on at the same time that the float switch is turned on.

- **Operation details**
  When the float switch turns on continuously for 3 minutes, "failure indication" operates. Thereafter, even if the float switch turns off, the "failure indication" is not released. (It is necessary to turn off power for release it.)



- **Release condition**
  Drain pump operates continuously for 3 minutes after the float switch is turned off and then drain pump is turned off.

CONTROL AND FUNCTIONS

7-9. Prevention to restart for 3 minutes (3 minutes st)

When the compressor fails to start for the number of times below, it does not enter operation status for 3 minutes.

- **Model: AOUH18KUAS1**

Retry number	50
Retry set number	3

- **Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1**

Retry number	10
Retry set number	3

When the compressor fails to start in the retry set number above, the compressor is stopped.

7-10. 4-way valve control

- If heating mode is selected at the compressor start, 4-way valve is energized for heating.
- When the air conditioner is switched between cooling and heating mode, compressor is stopped, and the 4-way valve is switched when the following time passes and the compressor is started.

18 model	140 seconds
24/30/36 model	3 minutes

CONTROL AND FUNCTIONS

7-11. Peak cut operation (for 24/30/36 model)

The current value is limited to reduce the power consumption by external input.

Peak cut level	Level 1	Level 2	Level 3	Level 4
Peak cut for rated capacity	Forced thermostat off	50%	75%	100%

NOTES:

- During defrost operation, peak cut operation becomes invalid.
- Even during the peak cut operation, the operations of current overload, economy, and low noise are effective and the outdoor unit operates by lowest current of them.

7-12. Unit status monitoring and the detected value indication

The wired remote controller can monitor the indoor and outdoor units' status and display the detected result as a relevant ID.

For details of the display method, refer to the Chapter of “Display Sensor Values” in the *Installation Manual* of Wired Remote Controller (Touch Panel).

The status can be monitored and displayed on the wired remote controller by assigning an arbitrary ID. For available ID list, refer to the table below.

NOTE: Operating time for each part cannot be reset when the part is replaced. Take notes of the operating time before replacing to count the operating time of the replaced part.

CONTROL AND FUNCTIONS

Available Sensor ID				
Sensor ID		**Item**	**Unit**	**Remarks**
00: Indoor unit				
00	000	Suction temp.	01: °F or °C	
00	001	Room temp.	01: °F or °C	When the wired remote controller thermistor is enabled, temperature of the wired remote controller thermistor is displayed.
00	002	Wired remote controller detected temp.	01: °F or °C	
00	006	Heat exchanger middle temp.	01: °F or °C	
00	020	Fan rotation number	03: rpm	
00	021	Fan 2 rotation number	03: rpm	
00	051	Float switch On/Off	08: On/Off	0: Off, 1: On (When the water level rises)
00	052	Drain pump On/Off	08: On/Off	0: Off, 1: On
00	080	Indoor unit total energized hours	11: h	
00	081	Total filtering hours	11: h	
00	082	Indoor unit fan total operation hours	11: h	
00	083	Indoor unit fan 2 total operation hours	11: h	
00	095	Presence or absence detected by human sensor	00: —	0: Absence, 1: Presence —: Human sensor error or No human sensor
00	140	Operation or Stop (External input)	00: —	0: Off, 1: On —: When the function setting 46 is not set **NOTE:** Available only for external input port of the indoor unit
00	141	Emergency stop (External input)	00: —	0: Off, 1: On —: When the function setting 46 is not set **NOTE:** Available only for external input port of the indoor unit
00	142	Forced stop (External input)	00: —	0: Off, 1: On —: When the function setting 46 is not set **NOTE:** Available only for external input port of the indoor unit
00	143	Operation or Stop 2 (External input)	00: —	0: Off, 1: On —: When the function setting 46 is not set **NOTE:** Available only for external input port of the indoor unit
00	155	Operation or Stop On/Off (External output)	00: —	0: Off, 1: On **NOTE:** The value is output even if the function setting or rotary switch is not set.

Available Sensor ID				
Sensor ID		**Item**	**Unit**	**Remarks**
00	156	Error On/Off (External output)	00: —	0: Off, 1: On **NOTE:** The value is output even if the function setting or rotary switch is not set.
00	157	Indoor unit fan interlocking On/Off (External output)	00: —	0: Off, 1: On **NOTE:** The value is output even if the function setting or rotary switch is not set.
00	158	Cooling thermostat On/Off (External output)	00: —	0: Off, 1: On **NOTE:** The value is output even if the function setting or rotary switch is not set.
00	159	Requested cooling strength On/Off (External output)	00: —	0: Off, 1: On **NOTE:** The value is output even if the function setting or rotary switch is not set.
00	160	External heater On/Off (External output)	00: —	0: Off, 1: On **NOTE:** The value is output even if the function setting or rotary switch is not set.
00	162	External output command by remote controller (External output)	00: —	0: Off, 1: On **NOTE:** The value is output even if the function setting or rotary switch is not set.
00	163	Set-point temp. not reached in server room function On/Off (External output)	00: —	0: Off, 1: On **NOTE:** The value is output even if the function setting or rotary switch is not set.
01: Outdoor unit				
01	000	Outdoor temp.	01: °F or °C	
01	001	Discharge temp.	01: °F or °C	
01	003	Heat exchanger middle temp.	01: °F or °C	
01	004	Heat exchanger outlet temp.	01: °F or °C	
01	007	Compressor temp.	01: °F or °C	
01	008	Heat sink temp.	01: °F or °C	
01	042	Gas pipe pressure for outdoor unit	02: MPa	
01	050	Fan 1 rotation number	03: rpm	
01	051	Fan 2 rotation number	03: rpm	
01	055	Compressor rotation number	04: rps	
01	060	Expansion valve (Upstream during heating)	05: pls	
01	080	4-way valve output status	07: Cooling/ Heating	0: Cooling, 1: Heating
01	085	Pressure switch (High pressure)	08: On/Off	0: Off (Close), 1: On (Open)
01	088	Crankcase heater output On/Off	08: On/Off	0: Off, 1: On
01	089	Base pan heater output On/Off	08: On/Off	0: Off, 1: On
01	090	Belt heater output On/Off	08: On/Off	0: Off, 1: On
01	100	Operating current	09: A	
01	110	Outdoor unit total power-on hours	11: h	
01	111	Compressor total heating operation hours	11: h	
01	112	Compressor total cooling operation hours	11: h	
01	113	Compressor total operation hours	11: h	
01	114	Outdoor unit fan 1 total operation hours	11: h	

CONTROL AND FUNCTIONS

Available Sensor ID				
Sensor ID		Item	Unit	Remarks
01	115	Outdoor unit fan 2 total operating hours	11: h	
01	145	Outdoor low noise input (External input)	00: —	0: Off, 1: On
01	146	Outdoor peak cut (External input)	00: —	0: Off 1: Mode 4 (100%) 2: Mode 3 (75%) 3: Mode 2 (50%) 4: Mode 1 (Forced thermostat off)
01	147	Demand response (External input)	00: —	0: Normal, 1: DRM1, 2: DRM2, 3: DRM3
01	155	Compressor status (External output)	00: —	0: Off, 1: On
01	156	Error status (External output)	00: —	0: Off, 1: On

CONTROL AND FUNCTIONS

8. Various protections

8-1. Discharge gas temperature over-rise prevention control

The discharge gas temperature sensor (discharge thermistor: outdoor unit side) detects the discharge gas temperature.

- When the discharge temperature becomes higher than the trigger condition, the rotation number of compressor is decreased as the table below, and it continues to decrease until the discharge temperature becomes lower than the trigger condition.
- When the discharge temperature becomes lower than the release condition, control of rotation number of compressor is released.
- When the discharge temperature becomes higher than the compressor protection temperature, the compressor is stopped and the indoor unit indicator lamp starts blinking.

- **Model: AOUH18KUAS1**

Trigger condition	219.2°F (104°C)
Compressor frequency	-20 rps/120 seconds
Release condition	213.8°F (101°C)
Compressor protection temperature	230.0°F (110°C)

- **Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1**

Trigger condition	219.2°F (104°C)
Compressor frequency	-14 rps/120 seconds
Release condition	213.8°F (101°C)
Compressor protection temperature	230.0°F (110°C)

8-2. Anti-freezing control (cooling and dry mode)

The rotation number of compressor is decrease in cooling and dry mode when the indoor unit heat exchanger temperature sensor detects the temperature lower than the trigger condition.

When the indoor unit heat exchanger temperature reaches release condition, the anti-freezing control is stopped.

Trigger condition		39.2°F (4°C)
Release condition	Outdoor temp. ≥ 50°F (10°C)*1 Outdoor temp. ≥ 53.6°F (12°C)*2	44.6°F (7°C)
	Outdoor temp. < 50°F (10°C)*1 Outdoor temp. < 53.6°F (12°C)*2	55.4°F (13°C)

*1: During the outdoor temperature dropping

*2: During the outdoor temperature rising

8-3. Current release control

The rotation number of compressor is controlled so that the outdoor unit input current does not exceeds current limit value set according to the outdoor temperature.

The rotation number of compressor returns according to the operation mode, when the current becomes lower than the release value.

■ Model: AOUH18KUAS1

Operation mode	Outdoor temp. (Ta)	Trigger condition	Release condition
Cooling	114.8°F (46°C) ≤ Ta	4.5 A	4.0 A
	104.0°F (40°C) ≤ Ta < 114.8°F (46°C)	6.0 A	5.5 A
	Ta < 104.0°F (40°C)	10.0 A	9.5 A
Heating	62.6°F (17°C) ≤ Ta	7.0 A	6.5 A
	53.6°F (12°C) ≤ Ta < 62.6°F (17°C)	9.0 A	8.5 A
	Ta < 53.6°F (12°C)	12.5 A	12.0 A

■ Model: AOUH24KUAS1

Operation mode	Outdoor temp. (Ta)	Trigger condition	Release condition
Cooling	125.6°F (52°C) ≤ Ta	8.0 A	7.5 A
	122.0°F (50°C) ≤ Ta < 125.6°F (52°C)	10.0 A	9.5 A
	107.6°F (42°C) ≤ Ta < 122.0°F (50°C)	12.0 A	11.5 A
	69.8°F (21°C) ≤ Ta < 107.6°F (42°C)	13.5 A	13.0 A
	Ta < 69.8°F (21°C)	9.5 A	9.0 A
Heating	68.0°F (20°C) ≤ Ta	11.0 A	10.5 A
	53.6°F (12°C) ≤ Ta < 68.0°F (20°C)	13.0 A	12.5 A
	Ta < 53.6 °F (12 °C)	13.5 A	13.0 A

■ Model: AOUH30KUAS1

Operation mode	Outdoor temp. (Ta)	Trigger condition	Release condition
Cooling	125.6°F (52°C) ≤ Ta	8.0 A	7.5 A
	122.0°F (50°C) ≤ Ta < 125.6°F (52°C)	12.0 A	11.5 A
	107.6°F (42°C) ≤ Ta < 122.0°F (50°C)	14.0 A	13.5 A
	Ta < 107.6°F (42°C)	16.0 A	15.5 A
Heating	53.6°F (12°C) ≤ Ta	13.0 A	12.5 A
	Ta < 53.6 °F (12 °C)	16.0 A	15.5 A

■ Model: AOUH36KUAS1

Operation mode	Outdoor temp. (Ta)	Trigger condition	Release condition
Cooling	125.6°F (52°C) ≤ Ta	8.0 A	7.5 A
	122.0°F (50°C) ≤ Ta < 125.6°F (52°C)	12.0 A	11.5 A
	107.6°F (42°C) ≤ Ta < 122.0°F (50°C)	14.0 A	13.5 A
	69.8°F (21°C) ≤ Ta < 107.6°F (42°C)	17.0 A	16.5 A
	Ta < 69.8°F (21°C)	16.0 A	15.5 A
Heating	53.6°F (12°C) ≤ Ta	13.0 A	12.5 A
	Ta < 53.6 °F (12 °C)	17.0 A	16.5 A

CONTROL AND FUNCTIONS

8-4. Compressor temperature protection

When the compressor temperature sensor detects higher than the trigger condition below, the compressor is stopped. When the compressor temperature sensor detects the release condition, the protection is released.

Trigger condition	226.4°F (108°C)
Release condition	176.0°F (80°C) (3 minutes after compressor stop)

8-5. High pressure protection (for 24/30/36 model)

Trigger condition	Pressure switch: Off (Open: Higher than 4.2 MPa) Compressor stop
Release condition	Pressure switch: On (Close: Lower than 3.2 MPa) (3 minutes after compressor stop) Compressor restart

CONTROL AND FUNCTIONS

8-6. Low outdoor temperature protection

When the outdoor temperature sensor detects lower than the trigger condition below, the compressor is stopped.

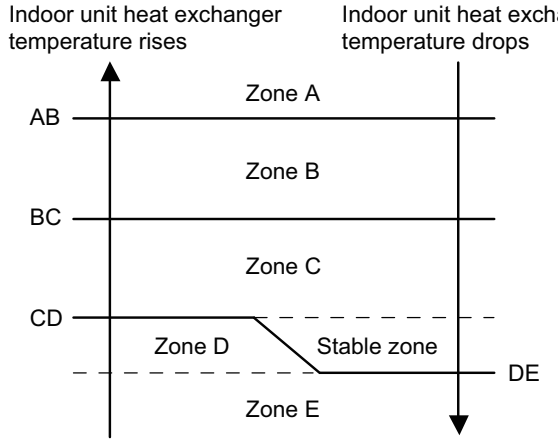
Operation mode	Cooling/Dry
Trigger condition	-13°F (-25°C)
Release condition	-4°F (-20°C)

8-7. High temperature and high pressure release control

The compressor is controlled as follows.

■ Model: AOUH18KUAS1

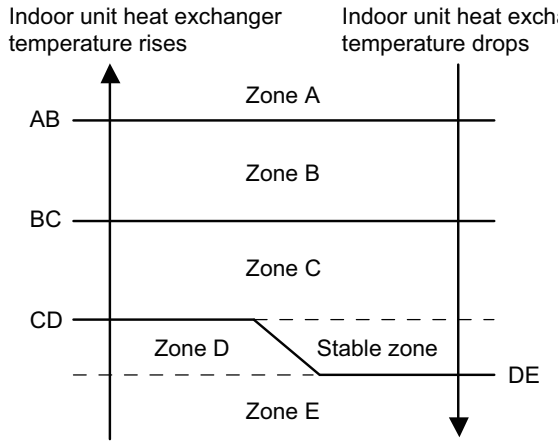
- **Cooling mode**



AB: 141.8°F (61°C)
BC: 140.0°F (60°C)
CD: 138.2°F (59°C)
DE: 129.2°F (54°C)

Zone	Operation	
Zone A	Compressor is stopped.	
Zone B	The compressor frequency is decreased.	-30 rps/30 sec.
Zone C		-5 rps/60 sec.
Zone D	The protection is released and the operation is returned to normal mode.	
Zone E		

- **Heating mode**



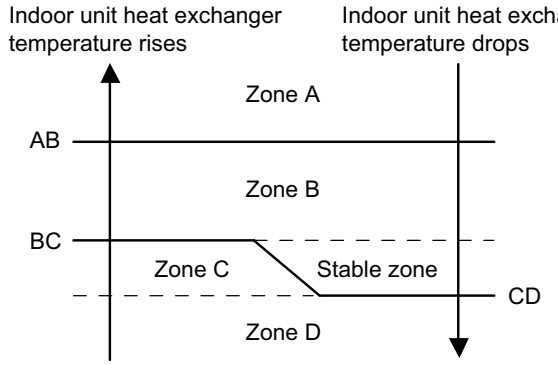
AB: 141.8°F (61°C)
BC: 131.0°F (55°C)
CD: 127.4°F (53°C)
DE: 122.0°F (50°C)

Zone	Operation	
Zone A	Compressor is stopped.	
Zone B	The compressor frequency is decreased.	-25 rps/120 sec.
Zone C		-3 rps/60 sec.
Zone D	The protection is released and the operation is returned to normal mode.	
Zone E		

CONTROL AND FUNCTIONS

■ Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1

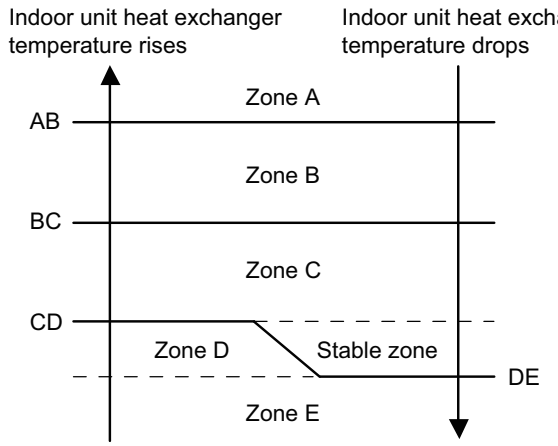
- **Cooling mode**



AB: 147.2°F (64°C)
BC: 140.0°F (60°C)
CD: 136.4°F (58°C)

Zone	Operation	
Zone A	Compressor is stopped.	
Zone B	The rotation number of compressor is decreased.	-7 rps/120 sec.
Zone C	The protection is released and the operation is returned to normal mode.	
Zone D		

- **Heating mode**



AB: 145.4°F (63°C)
BC: 131.0°F (55°C)
CD: 127.4°F (53°C)
DE: 122.0°F (50°C)

Zone	Operation	
Zone A	Compressor is stopped.	
Zone B	The rotation number of compressor is decreased.	-15 rps/120 sec.
Zone C		-2 rps/120 sec.
Zone D	The protection is released and the operation is returned to normal mode.	
Zone E		

CONTROL AND FUNCTIONS

CONTROL AND FUNCTIONS

REFRIGERANT R32
INVERTER

5. FIELD WORKING

CONTENTS

5. FIELD WORKING

1. Function settings (for indoor unit)

To adjust the functions of this product according to the installation environment, various types of function settings are available.

NOTE: Incorrect settings can cause a product malfunction.

1-1. Function settings by using remote controller

Some function settings can be changed on the remote controller. After confirming the setting procedure and the content of each function setting, select appropriate functions for your installation environment.

■ Setting procedure by using remote controller

Remote controller is not attached for this product. For details of the installing remote controller, refer to following information.

- Overview information: Operating manual of the remote controller
- Setting procedure: Installation manual of the remote controller

■ Contents of function setting

Each function setting listed in this section is adjustable in accordance with the installation environment.

NOTE: Setting will not be changed if invalid numbers or setting values are selected.

● Function setting list

	Function no.	Functions
1)	11	Filter sign
2)	20	Ceiling height
3)	28	Horizontal louver direction switching for dew condensation prevention
4)	30/31	Room temperature control for indoor unit sensor
5)	35/36	Room temperature control for wired remote controller sensor
6)	40	Auto restart
7)	42	Room temperature sensor switching
8)	44	Remote controller custom code
9)	46	External input control
10)	48	Room temperature sensor switching (Aux.)
11)	49	Indoor unit fan control for energy saving for cooling
12)	60	Switching functions for external output terminal
13)	61	Control switching of external heaters
14)	62	Operating temperature switching of external heaters
15)	66	Outdoor temperature zone boundary temperature A
16)	67	Outdoor temperature zone boundary temperature B
17)	68	Auto mode type
18)	69	Deadband value
19)	71	Standby time for auxiliary equipment operation
20)	72	Heat pump backup setting
21)	73	Emergency heat for external output terminal
22)	74	Fan delay time
23)	75	External heater use in defrosting
24)	94	Fixed operation mode switching

FIELD WORKING

1) Filter sign

Select appropriate intervals for displaying the filter sign on the indoor unit according to the estimated amount of dust in the air of the room.

If the indication is not required, select "No indication" (03).

Function number	Setting value	Setting description	Factory setting
11	00	Standard (2,500 hours)	
	01	Long interval (4,400 hours)	
	02	Short interval (1,250 hours)	
	03	No indication	♦

2) Ceiling height

Select the appropriate ceiling height according to the place of installation.

Function number	Setting value	Setting description	Factory setting
20	00	Standard	♦
	01	High ceiling	

For the specific height for each setting value, refer to “Installation space” in Chapter 2. "Dimensions" in Chapter 1. GENERAL INFORMATION on page 01-10.

3) Horizontal louver direction switching for dew condensation prevention

Automatically switches the position of the horizontal louver if the airflow direction is set at lower than the dew condensation limit position in cooling or drying operation.

Select suitable adjustment position according to the customer’s preference.

Function number	Setting value	Setting description	Factory setting
28	00	Adjust to dew condensation limit position	♦
	01	Adjust to cooling standard position	

FIELD WORKING

4) Room temperature control for indoor unit sensor

Depending on the installed environment, correction of the room temperature sensor may be required. Select the appropriate control setting according to the installed environment.

The temperature of the room temperature sensor is corrected as follows:

Corrected temp. = Temp. of the room temp. sensor - Correction temp. value

Example of correction:

When the temperature of the room temp. sensor is 78°F and the setting value is “03” (-2°F), the corrected temp. will be 80°F (78°F - [-2°F]).

The temperature correction values show the difference from the Standard setting “00” (manufacturer’s recommended value).

Function number		Setting value	Setting description		Factory setting
30 (For cooling)	31 (For heating)	00	Standard setting		♦
		01	No correction 0.0°F (0.0°C)		
		02	-1°F (-0.5°C)	More cooling Less heating	
		03	-2°F (-1.0°C)		
		04	-3°F (-1.5°C)		
		05	-4°F (-2.0°C)		
		06	-5°F (-2.5°C)		
		07	-6°F (-3.0°C)		
		08	-7°F (-3.5°C)		
		09	-8°F (-4.0°C)		
		10	+1°F (+0.5°C)	Less cooling More heating	
		11	+2°F (+1.0°C)		
		12	+3°F (+1.5°C)		
		13	+4°F (+2.0°C)		
		14	+5°F (+2.5°C)		
		15	+6°F (+3.0°C)		
		16	+7°F (+3.5°C)		
		17	+8°F (+4.0°C)		

FIELD WORKING

5) Room temperature control for wired remote controller sensor

Depending on the installed environment, correction of the wire remote temperature sensor may be required. Select the appropriate control setting according to the installed environment.

To change this setting, set Function 42 to “Both” (01).

Ensure that the Thermo Sensor icon is displayed on the remote controller screen.

Function number		Setting value	Setting description		Factory setting
35 (For cooling)	36 (For heating)	00	Standard setting		♦
		01	No correction 0.0°F (0.0°C)		
		02	-1°F (-0.5°C)	More cooling Less heating	
		03	-2°F (-1.0°C)		
		04	-3°F (-1.5°C)		
		05	-4°F (-2.0°C)		
		06	-5°F (-2.5°C)		
		07	-6°F (-3.0°C)		
		08	-7°F (-3.5°C)		
		09	-8°F (-4.0°C)		
		10	+1°F (+0.5°C)	Less cooling More heating	
		11	+2°F (+1.0°C)		
		12	+3°F (+1.5°C)		
		13	+4°F (+2.0°C)		
		14	+5°F (+2.5°C)		
		15	+6°F (+3.0°C)		
		16	+7°F (+3.5°C)		
		17	+8°F (+4.0°C)		

FIELD WORKING

FIELD WORKING

6) Auto restart

Enables or disables automatic restart after a power interruption.

Function number	Setting value	Setting description	Factory setting
40	00	Enable	♦
	01	Disable	

NOTE: Auto restart is an emergency function such as for power outage etc. Do not attempt to use this function in normal operation. Be sure to operate the unit by remote controller or external device.

7) Room temperature sensor switching

(Only for wired remote controller)

When using the wired remote controller temperature sensor, change the setting to “Both” (01).

Function number	Setting value	Setting description	Factory setting
42	00	Indoor unit	♦
	01	Both	

00: Sensor on the indoor unit is active.

01: Sensors on both indoor unit and wired remote controller are active.

NOTE: Remote controller sensor must be turned on by using the remote controller.

8) Remote controller custom code

(Only for wireless remote controller)

The indoor unit custom code can be changed. Select the appropriate custom code.

Function number	Setting value	Setting description	Factory setting
44	00	A	♦
	01	B	
	02	C	
	03	D	

9) External input control

"Operation/Stop" mode or "Forced stop" mode can be selected.

Function number	Setting value	Setting description	Factory setting
46	00	Operation/Stop mode 1 (Remote controller enabled)	♦
	01	(Setting prohibited)	
	02	Forced stop mode	
	03	Operation/Stop mode 2 (Remote controller disabled)	

FIELD WORKING

10) Room temperature sensor switching (Aux.)

To use the temperature sensor on the wired remote controller only, change the setting to "Wired remote controller" (01).

This function will only work if the function setting 42 is set at "Both" (01).

When the setting value is set to "Both" (00), more suitable control of the room temperature is possible by setting function setting 30 and 31 too.

Function number	Setting value	Setting description	Factory setting
48	00	Both	♦
	01	Wired remote controller	

11) Indoor unit fan control for energy saving for cooling

Enables or disables the power-saving function by controlling the indoor unit fan rotation when the outdoor unit is stopped during cooling operation.

Function number	Setting value	Setting description	Factory setting
49	00	Disable	
	01	Enable	
	02	Remote controller	♦

00: When the outdoor unit is stopped, the indoor unit fan operates continuously following the setting on the remote controller.

01: When the outdoor unit is stopped, the indoor unit fan operates intermittently at a very low speed.

02: Enable or disable this function by remote controller setting.

NOTE: Set to "00" or "01" when connecting a remote controller that cannot set the Fan control for energy saving function or connecting a network converter. To confirm if the remote controller has this setting, refer to the operating manual of each remote controller.

12) Switching functions for external output terminal

Functions of the external output terminal can be switched. For details, refer to “External input and output”.

Function number	Setting value	Setting description	Factory setting
60	00	Operation status	♦
	01—04	Cooling thermostat On	
	05	Heating operation	
	06	Operation/Stop	
	07—08	Cooling thermostat On	
	09	Error status	
	10	Indoor unit fan operation status	
	11	External heater	

13) Control switching of external heaters

Sets the control method for external heater to be used.

For details, refer to “External heater output” in "Details of control output function" on page 05-25.

Function number	Setting value	Setting description	Factory setting
61	00	Auxiliary heater control 1	♦
	01	Auxiliary heater control 2	
	02	Heat pump prohibition control	
	03	Auxiliary heater control by outdoor temperature 1	
	04	Auxiliary heater control by outdoor temperature 2	
	05	Auxiliary heater control by outdoor temperature 3	
	06	Auxiliary heat pump control	
	07	Auxiliary heat pump control by outdoor temperature 1	
	08	Auxiliary heat pump control by outdoor temperature 2	
	09	Auxiliary heat pump control by outdoor temperature 3	

FIELD WORKING

14) Operating temperature switching of external heaters

Sets the temperature conditions when the external heater is ON.

For details, refer to “External heater output” in "Details of control output function" on page 05-25.

Function number	Setting value	Setting description				Factory setting
		Setting value of function 61:				
		00		01 to 09		
		Heater: On	Heater: Off	Heater: On	Heater: Off	
62	00	-5.4 °F (-3 °C)	-1.8 °F (-1 °C)	-0.9 °F (-0.5 °C)	0.9 °F (0.5 °C)	♦
	01	-3.6 °F (-2 °C)	-1.8 °F (-1 °C)	-1.8 °F (-1 °C)	0.9 °F (0.5 °C)	
	02	-3.6 °F (-2 °C)	-1.8 °F (-1 °C)	-3.6 °F (-2 °C)	0.9 °F (0.5 °C)	
	03	-5.4 °F (-3 °C)	-1.8 °F (-1 °C)	-5.4 °F (-3 °C)	0.9 °F (0.5 °C)	
	04	-7.2 °F (-4 °C)	-1.8 °F (-1 °C)	-7.2 °F (-4 °C)	0.9 °F (0.5 °C)	
	05	-9.0 °F (-5 °C)	-1.8 °F (-1 °C)	-9.0 °F (-5 °C)	0.9 °F (0.5 °C)	
	06	-5.4 °F (-3 °C)	-0.9 °F (-0.5 °C)	-0.9 °F (-0.5 °C)	0 °F (0 °C)	
	07	-3.6 °F (-2 °C)	-0.9 °F (-0.5 °C)	-1.8 °F (-1 °C)	0 °F (0 °C)	
	08	-3.6 °F (-2 °C)	-0.9 °F (-0.5 °C)	-3.6 °F (-2 °C)	0 °F (0 °C)	
	09	-5.4 °F (-3 °C)	-0.9 °F (-0.5 °C)	-5.4 °F (-3 °C)	0 °F (0 °C)	
	10	-7.2 °F (-4 °C)	-0.9 °F (-0.5 °C)	-7.2 °F (-4 °C)	0 °F (0 °C)	
	11	-9.0 °F (-5 °C)	-0.9 °F (-0.5 °C)	-9.0 °F (-5 °C)	0 °F (0 °C)	
	12	-5.4 °F (-3 °C)	0 °F (0 °C)	-0.9 °F (-0.5 °C)	-0.9 °F (-0.5 °C)	
	13	-3.6 °F (-2 °C)	0 °F (0 °C)	-1.8 °F (-1 °C)	-0.9 °F (-0.5 °C)	
	14	-3.6 °F (-2 °C)	0 °F (0 °C)	-3.6 °F (-2 °C)	-0.9 °F (-0.5 °C)	
	15	-5.4 °F (-3 °C)	0 °F (0 °C)	-5.4 °F (-3 °C)	-0.9 °F (-0.5 °C)	
	16	-7.2 °F (-4 °C)	0 °F (0 °C)	-7.2 °F (-4 °C)	-0.9 °F (-0.5 °C)	
	17	-9.0 °F (-5 °C)	0 °F (0 °C)	-9.0 °F (-5 °C)	-0.9 °F (-0.5 °C)	

15) Outdoor temperature zone boundary temperature A

Setting required if changing of the outdoor temperature setting for heat pump prohibition zone is required when auxiliary heater control by outdoor temperature 1 and 2 are performed on the indoor unit.

For details, refer to “External heater output” in "Details of control output function" on page 05-25.

Function number	Setting value	Setting description	Factory setting
66	00	-4.0°F (-20°C)	♦
	01	-0.4°F (-18°C)	
	02	3.2°F (-16°C)	
	03	6.8°F (-14°C)	
	04	10.4°F (-12°C)	
	05	14.0°F (-10°C)	
	06	17.6°F (-8°C)	
	07	21.2°F (-6°C)	
	08	24.8°F (-4°C)	

16) Outdoor temperature zone boundary temperature B

Setting required if changing of the outdoor temperature setting for heat pump only zone is required when auxiliary heater control by outdoor temperature 1 and 3 is performed on the indoor unit.

For details, refer to “External heater output” in "Details of control output function" on page 05-25.

Function number	Setting value	Setting description	Factory setting
67	00	42.8°F (6°C)	♦
	01	14.0°F (-10°C)	
	02	17.6°F (-8°C)	
	03	21.2°F (-6°C)	
	04	24.8°F (-4°C)	
	05	28.4°F (-2°C)	
	06	32.0°F (0°C)	
	07	35.6°F (2°C)	
	08	39.2°F (4°C)	
	09	42.8°F (6°C)	
	10	46.4°F (8°C)	
	11	50.0°F (10°C)	
	12	53.6°F (12°C)	
	13	57.2°F (14°C)	
	14	60.8°F (16°C)	
	15	64.4°F (18°C)	

FIELD WORKING

17) Auto mode type

Switches the setting method of the auto mode between single or dual (cooling and heating.)

Set the primary indoor unit using a wired remote controller for heat pump systems.

Function number	Setting value	Setting description	Factory setting
68	00	Single setpoint auto mode	♦
	01	Dual setpoint auto mode	

NOTE: The auto mode type setting is available only if a compatible operating device is connected.

18) Deadband value

Sets the minimum temperature of the deadband in the dual setpoint auto mode (the setting value 01 of the function setting number 68: Auto mode type.)

Function number	Setting value	Setting description	Factory setting
69	00	0°F (0°C)	♦
	01	0.9°F (0.5°C)	
	02	1.8°F (1.0°C)	
	03	2.7°F (1.5°C)	
	04	3.6°F (2.0°C)	
	05	4.5°F (2.5°C)	
	06	5.4°F (3.0°C)	
	07	6.3°F (3.5°C)	
	08	7.2°F (4.0°C)	
	09	8.1°F (4.5°C)	

NOTE: The deadband setting is available only if a compatible operating device is connected.

19) Standby time for auxiliary equipment operation

Sets the standby time until the auxiliary equipment operation starts during primary equipment operation.

For details, refer to "Details of control output function" on page 05-25.

Function number	Setting value	Setting description	Factory setting
71	00	Disable	♦
	01	1 minute	
	02	2 minutes	
	•	•	
	•	•	
	•	•	
	98	98 minutes	
	99	99 minutes	

20) Heat pump backup setting

Enables or disables the heat pump backup operation.

Function number	Setting value	Setting description	Factory setting
72	00	Disable	♦
	01	Enable	

FIELD WORKING

21) Emergency heat for external output terminal

Enables or disables emergency heat input.

Function number	Setting value	Setting description	Factory setting
73	00	Disable	♦
	01	Enable	

NOTE: When this function is used, IR Receiver Unit or Wired Remote Controller is necessary.

22) Fan delay time

Sets the fan delay time when the heater is turned off.

Function number	Setting value	Setting description	Factory setting
74	00	1 minute	♦
	01	50 seconds	
	02	40 seconds	
	03	30 seconds	

23) External heater use in defrosting

Enables or disables external heater use in defrosting.

NOTE: Inappropriate heater selection may cause cold air in defrosting.

Function number	Setting value	Setting description	Factory setting
75	00	Disable	♦
	01	Enable	

24) Fixed operation mode switching

Sets the operation mode to heat pump, heating only, or cooling only.

Function number	Setting value	Setting description	Factory setting
94	00	Heat pump	♦
	01	Heating only	
	02	Cooling only	

FIELD WORKING

2. Function settings (for 24–36 outdoor units)

Perform appropriate function setting locally according to the installation environment.

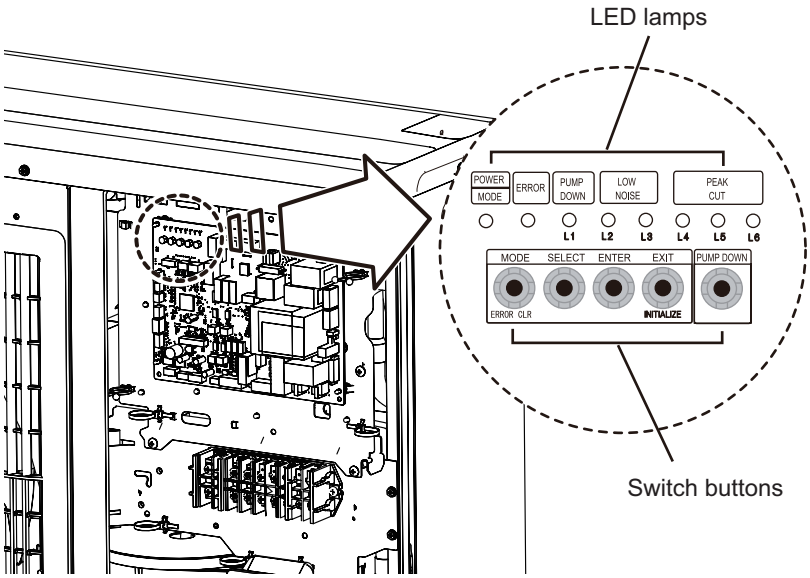
NOTE: Incorrect settings can cause a product malfunction.

⚠ CAUTION

- Before setting up the switch buttons, discharge the static electricity from your body.
- Never touch the terminals or the patterns on the parts that are mounted on the PCB.

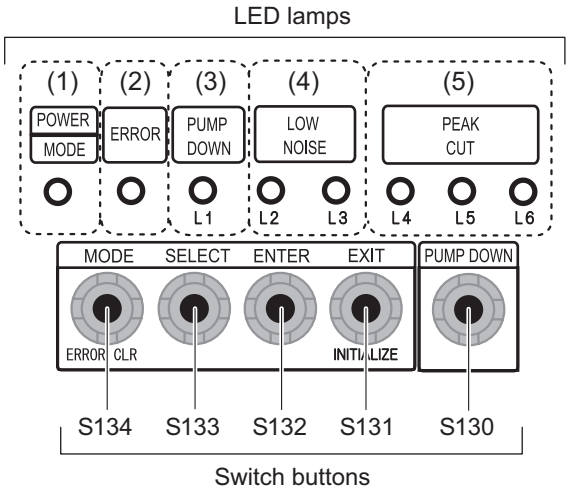
2-1. Control PCB and switch buttons location

Control PCB of the outdoor unit is located as shown in the following figure.



FIELD WORKING

■ Switch buttons and the functions



LED lamp			Function or operation method
(1)	POWER/MODE	Green	Lights on while power on. Blinks to show the local setting on the outdoor unit or the error code.
(2)	ERROR	Red	Blinks during error operation.
(3)	PUMP DOWN (L1)	Orange	Lights on during pump down operation.
(4)	LOW NOISE MODE (L2 and L3)	Orange	Lights on during “Low noise mode” when local setting is activated. (Light pattern of L2 and L3 indicates the low noise level.)
(5)	PEAK CUT MODE (L4, L5, and L6)	Orange	Lights on during “Peak cut mode” when local setting is activated. (Light pattern of L4, L5, and L6 indicates the peak cut level.)

Switch button		Function or operation method
S134	MODE	Switches between “Local setting” and “Error code display”.
S133	SELECT	Switches between the individual “Local settings” and the “Error code displays”.
S132	ENTER	Switches between the individual “Local settings” and the “Error code displays”.
S131	EXIT	Returns to “Operation status display”.
S130	PUMP DOWN	Starts the pump down operation.

FIELD WORKING

2-2. Local setting procedure

NOTE: Before performing the function setting, be sure to stop the operation of the air conditioner.

■ Low noise mode

1. Press the MODE switch button (S134) for 3 seconds or more to switch to “Local setting mode”.
2. After confirming the LED lamp of POWER/MODE blinks 9 times, press the ENTER switch button (S132).

POWER / MODE	ERROR	PUMP DOWN (L1)	LOW NOISE (L2)	LOW NOISE (L3)	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
Blinks (9 times)	○	○	○	○	○	○	○

Sign “ ○ ”: Lights off

3. Press the SELECT switch button (S133), and adjust the LED lamp as shown below. Then the LED lamp indicates the current setting.

	LOW NOISE (L2)	LOW NOISE (L3)
LOW NOISE MODE	○	Blink

4. Press the ENTER switch button (S132).

	LOW NOISE (L2)	LOW NOISE (L3)
LOW NOISE MODE	○	●

Sign “ ●”: Lights on

5. Press the SELECT switch button (S133), and adjust the LED lamps as shown below.

	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
MODE 1: Low	○	○	Blink
MODE 2: Lower	○	Blink	○

6. Press the ENTER switch button (S132) and fix it.

	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
MODE 1: Low	○	○	●
MODE 2: Lower	○	●	○

7. To return to “Operating status display (Normal operation)”, press the EXIT switch button (S131).

In case of missing how many times you pressed the SELECT and ENTER switch buttons:

1. To return to “Operation status display (Normal operation)”, press the EXIT switch button once.
2. Restart from the beginning of setting procedure.

FIELD WORKING

■ Peak cut mode

1. Press the MODE switch button (S134) for 3 seconds or more to switch to “Local setting mode”.
2. After confirming the LED lamp of POWER/MODE blinks 9 times, press the ENTER switch button (S132).

POWER / MODE	ERROR	PUMP DOWN (L1)	LOW NOISE (L2)	LOW NOISE (L3)	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
Blinks (9 times)	○	○	○	○	○	○	○

Sign “ ○ ”: Lights off

3. Press the SELECT switch button (S133), and adjust the LED lamp as shown below. Then the LED lamp indicates the current setting.

	LOW NOISE (L2)	LOW NOISE (L3)
PEAK CUT MODE	Blink	○

4. Press the ENTER switch button (S132).

	LOW NOISE (L2)	LOW NOISE (L3)
PEAK CUT MODE	●	○

Sign “ ● ”: Lights on

5. Press the SELECT switch button (S133), and adjust the LED lamps as shown below.

	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
0 % of rated input ratio	○	○	Blink
50 % of rated input ratio	○	Blink	○
75 % of rated input ratio	○	Blink	Blink
100 % of rated input ratio	Blink	○	○

6. Press the ENTER switch button (S132) and fix it.

	PEAK CUT (L4)	PEAK CUT (L5)	PEAK CUT (L6)
0 % of rated input ratio	○	○	●
50 % of rated input ratio	○	●	○
75 % of rated input ratio	○	●	●
100 % of rated input ratio	●	○	○

7. To return to “Operating status display (Normal operation)”, press the EXIT switch button (S131).

NOTE: When pressed number is lost during setting, you must redo the setting procedure. Return to “Operation status display (Normal operation)” by pressing the EXIT switch button once, and restart from the beginning of the setting procedure.

FIELD WORKING

3. External input and output (for indoor unit)

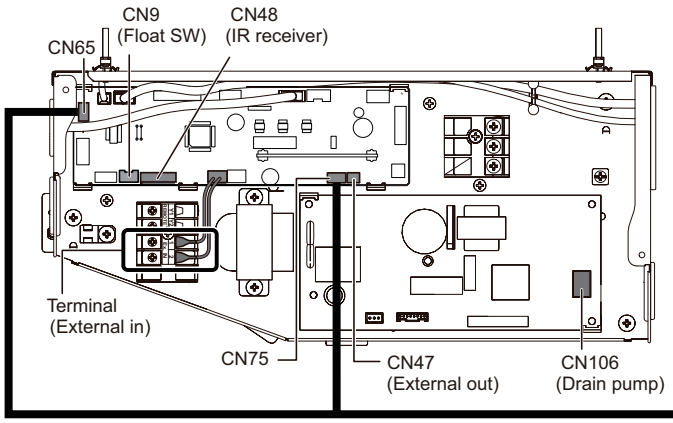


Fig. Indoor unit PCB

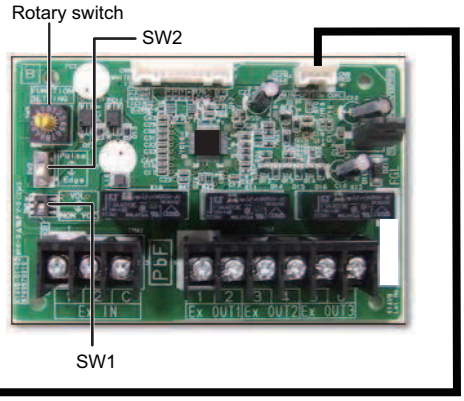


Fig. External input and output PCB

Connecting point		Input/Output	Function	Input select	Input signal
Indoor unit	Terminal	Input	Operation/Stop	Dry contact	Edge
			Forced stop		
	CN47	Output	Operation/Stop	—	—
			Error status		
			Indoor unit fan operation status		
			Cooling thermostat On		
			Heating thermostat On		
			External heater output		
External Input and Output PCB (UTY-XCSX)	Ex IN 1/2	Input	Operation/Stop	Dry contact/Apply voltage	Edge/Pulse
	Ex IN 1		Forced thermostat off		Edge
	Ex OUT 1 Ex OUT 2 Ex OUT 3	Output	Operation/Stop	—	—
			Error status		
			Indoor unit fan operation status		
			External heater output		
			Cooling high/low output		
			Heating thermostat On		

NOTE: For details of the switching function, refer to "Setting of external input and output" on page 05-19.

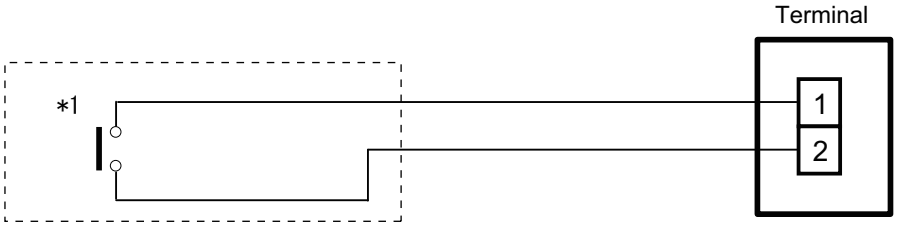
FIELD WORKING

3-1. External input

- “Operation/Stop” mode or "Forced stop" mode can be selected with function setting of indoor unit.
- A twisted pair cable (22 AWG) should be used. Maximum length of cable is 492 ft (150 m).
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- The wire connection should be separate from the power cable line.

■ Indoor unit

Indoor unit functions such as Operation/Stop can be done by using indoor unit terminal.

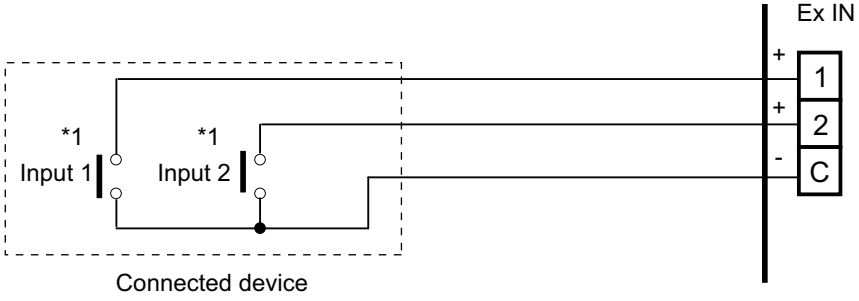


*1: The switch can be used on the following condition: DC 12 V to 24 V, 1 mA to 15 mA.

■ External Input and Output PCB

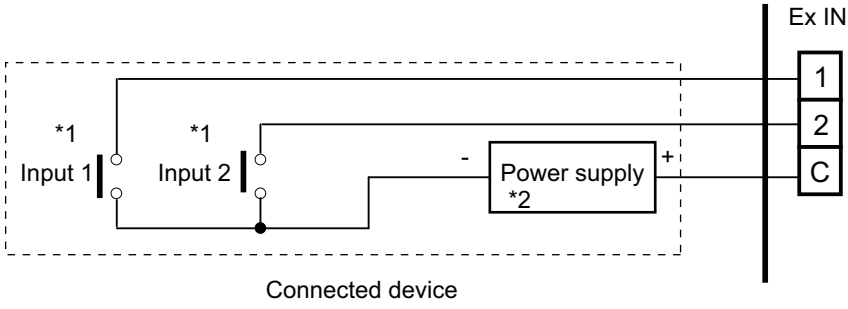
The indoor unit Operation/Stop can be set by using the input terminal on the PCB.

- **Input select**
  Use either one of these types of terminal according to the application. (Both types of terminal cannot be used simultaneously.)
  – **Dry contact**
  In case of internal power supply, set the slide switch of SW1 to "NON VOL" side.



*1: The switches can be used on the following condition: DC 12 V to 24 V, 1 mA to 15 mA.

  – **Apply voltage**
  In case of external power supply, set the slide switch of SW1 to “VOL” side.

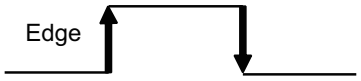


*1: The switches can be used on the following condition: DC 12 V to 24 V, 1 mA to 15 mA.
*2: Make the power supply DC 12 V to 24 V, 10 mA or more.

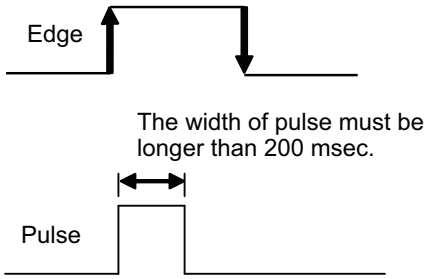
FIELD WORKING

■ Input signal type

- **Indoor unit**
  Input signal type is only "Edge".



- **External Input and Output PCB**
  The input signal type can be selected.
  Signal type (edge or pulse) can be switched by the DIP switch 2 (SW2) on the External Input and Output PCB.



NOTE: The input signal supports the following switch type:
- Edge: Alternate type switch
- Pulse: Momentary type switch

FIELD WORKING

3-2. External output

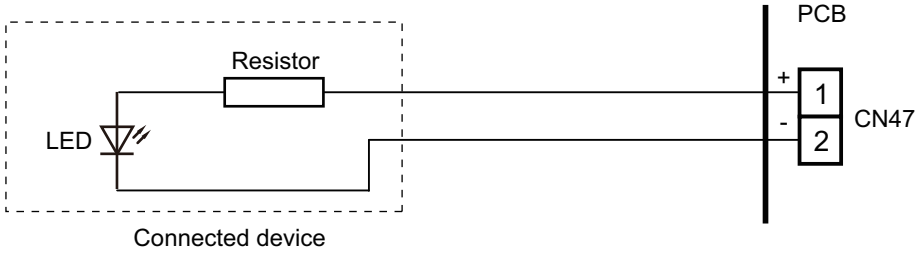
Use an external output cable with appropriate external dimension, depending on the number of cables to be installed.

■ Indoor unit

- A twisted pair cable (22 AWG) should be used. Maximum length of cable is 82 ft (25 m).
- Output voltage: High DC 12 V ±2 V, Low 0 V.
- Permissible current: 50 mA
- For details, refer to "Setting of external input and output" on page 05-19.

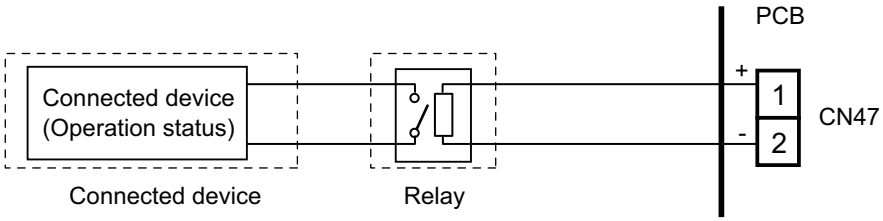
- **When indicator, etc. are connected directly**

Example: Function setting number 60 is set to "00"



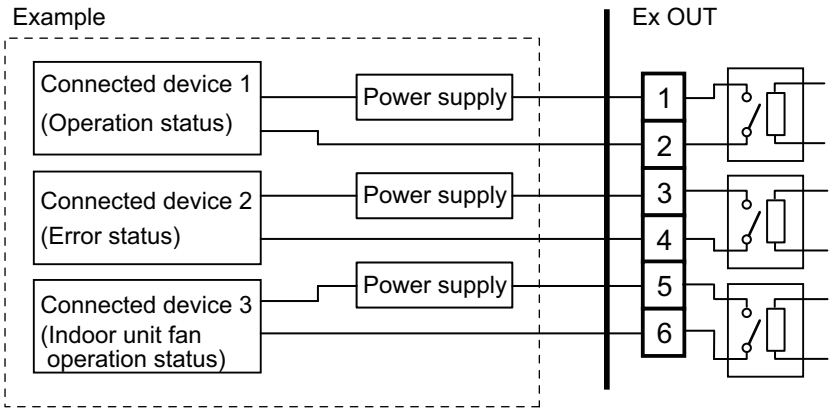
- **When connecting with a device equipped with a power supply**

Example: Function setting number 60 is set to "00"



■ External Input and Output PCB

- A twisted pair cable (22 AWG) should be used.
- Permissible voltage and current: DC 5 V to 30 V/3 A, AC 30 V to 250 V/3 A
- For details, refer to "Setting of external input and output" on page 05-19.



FIELD WORKING

3-3. Setting of external input and output

- **Indoor unit**

Input		
Connecting point	**Function setting number 46**	**Function**
Terminal	00	Operation/Stop mode 1
	01	(Setting prohibited)
	02	Forced stop mode
	03	Operation/Stop mode 2

Output		
Connecting point	**Function setting number 60**	**Function**
CN47	00	Operation/Stop
	01—04	Cooling thermostat On
	05	Heating thermostat On
	06	Operation/Stop
	07—08	Cooling thermostat On
	09	Error status
	10	Indoor unit fan operation status
	11	External heater output

FIELD WORKING

- **External Input and Output PCB**

Switch setting		Ex IN		Ex OUT		
Rotary switch	**SW2**	**1**	**2**	**1**	**2**	**3**
1	Edge	Operation/Stop	Not available	Operation/Stop	Error status	Indoor unit fan operation status
	Pulse	Operation	Stop			
2	Edge*1	Forced thermostat off	Not available	Error status	Indoor unit fan operation status	External heater output
3		Mechanical cooling off	Not available	Error status	Indoor unit fan operation status	External heater output
4		Forced thermostat off	Not available	Error status	Operation/Stop	External heater output
5		Mechanical cooling on*2	Not available	Cooling high/low output	Operation/Stop	External heater output
6		Mechanical cooling on*2	Not available	Error status	Operation/Stop	Cooling high/low output
7		Forced thermostat off	Not available	Error status	Indoor unit fan operation status	External heater output
8		Forced thermostat off	Not available	Error status	Indoor unit fan operation status	Heating thermostat on
9		Mechanical cooling off	Not available	Error status	Heating thermostat on	External heater output
A		Forced thermostat off	Not available	Heating thermostat on	Operation/Stop	External heater output
B		Forced thermostat off	Not available	Operation/Stop	Indoor unit fan operation status	External heater output
C		Forced thermostat off	Not available	Operation/Stop	Error status	External heater output
D		Forced thermostat off	Not available	Operation/Stop	Indoor unit fan operation status	Error status

NOTES:

- When the rotary switch is selected to “1", the operation of the terminal input of the indoor unit and the External Input and Output PCB input are the same. The operation content depends on the setting of function setting number 46.
- *1: The external input other than “Operation/Stop” is available only when the SW2 is set to “Edge”.
- *2: The external input of “Mechanical cooling on” is available only when the function setting number 60 is set to “03” or “04”.

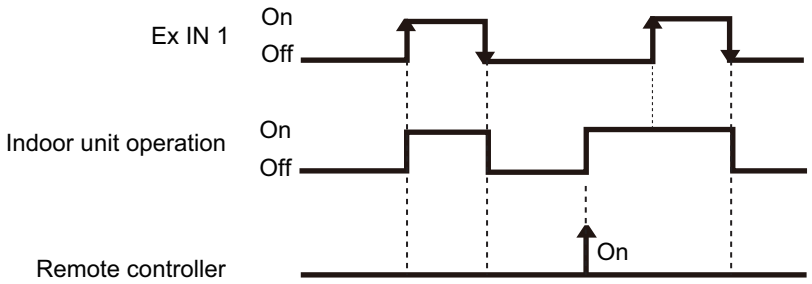
FIELD WORKING

3-4. Details of control input function

■ Operation/Stop mode 1

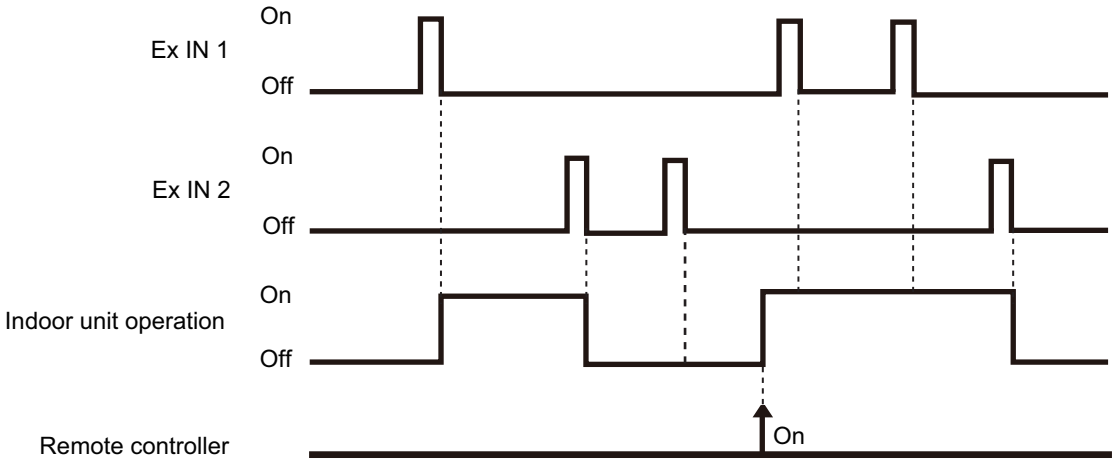
- **In the case of "Edge" input**

Function setting	External Input and Output PCB		External input		Input signal	Command
	Rotary switch	SW2				
46-00	—		Input of indoor unit	Terminal	Off → On	Operation
					On → Off	Stop
	1	Edge	External Input and Output PCB	Ex IN 1	Off → On	Operation
					On → Off	Stop



- **In the case of "Pulse" input**

Function setting	External Input and Output PCB		External input		Input signal	Command
	Rotary switch	SW2				
46-00	1	Pulse	External Input and Output PCB	Ex IN 1	Pulse	Operation
				Ex IN 2		Stop



NOTES:

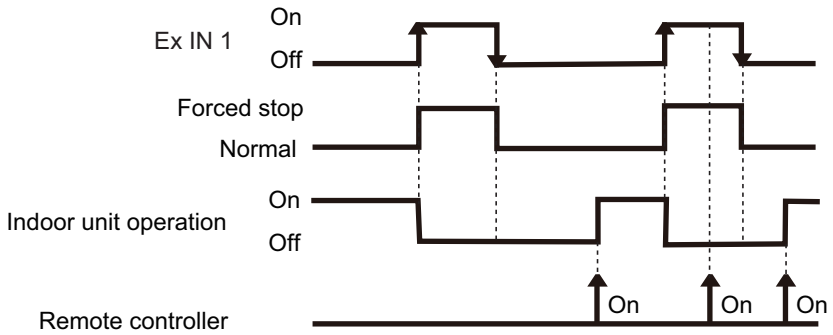
- The last command has priority.
- The indoor units within the same remote controller group operates in the same mode.

FIELD WORKING

■ Forced stop

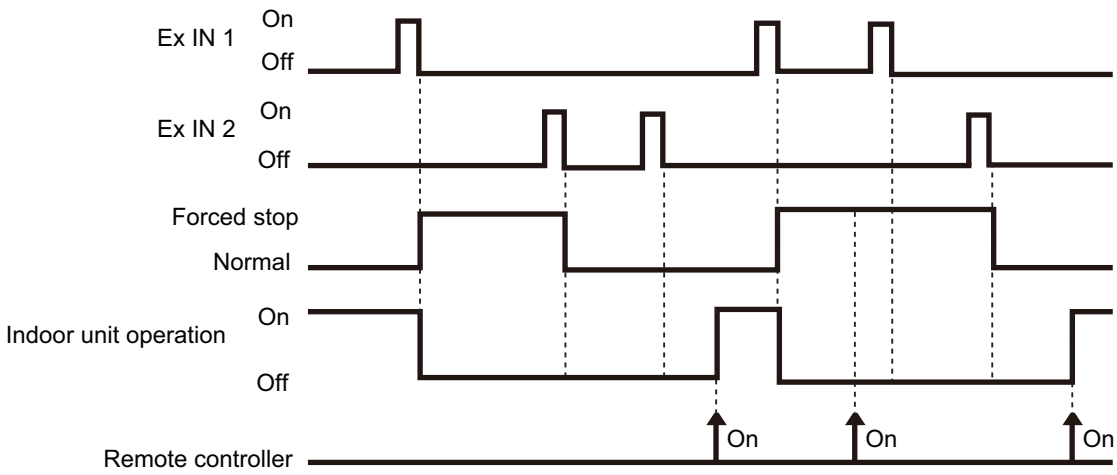
- **In the case of "Edge" input**

Function setting	External Input and Output PCB		External input		Input signal	Command
	Rotary switch	SW2				
46-02	—		Input of indoor unit	Terminal	Off → On	Forced stop (R.C. disabled)
					On → Off	Normal (R.C. enabled)
	1	Edge	External Input and Output PCB	Ex IN 1	Off → On	Forced stop (R.C. disabled)
					On → Off	Normal (R.C. enabled)



- **In the case of "Pulse" input**

Function setting	External Input and Output PCB		External input		Input signal	Command
	Rotary switch	SW2				
46-02	1	Pulse	External Input and Output PCB	Ex IN 1	Pulse	Forced stop (R.C. disabled)
				Ex IN 2		Normal (R.C. enabled)



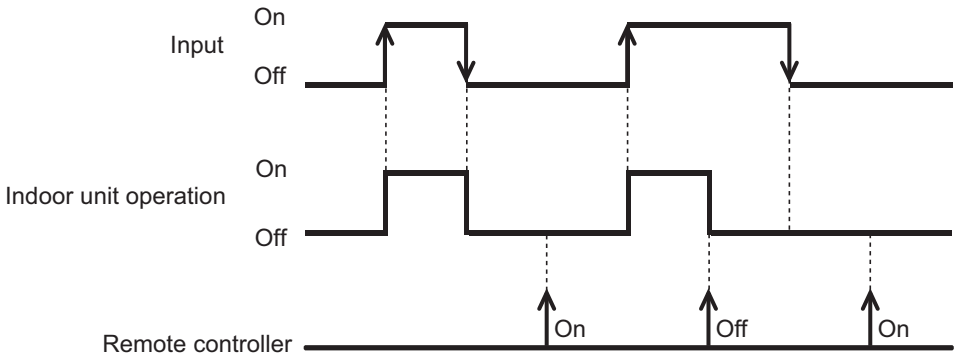
NOTES:

- When the forced stop is triggered, indoor unit stops and Operation/Stop operation by the remote controller is restricted.
- When forced stop function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

■ Operation/Stop mode 2

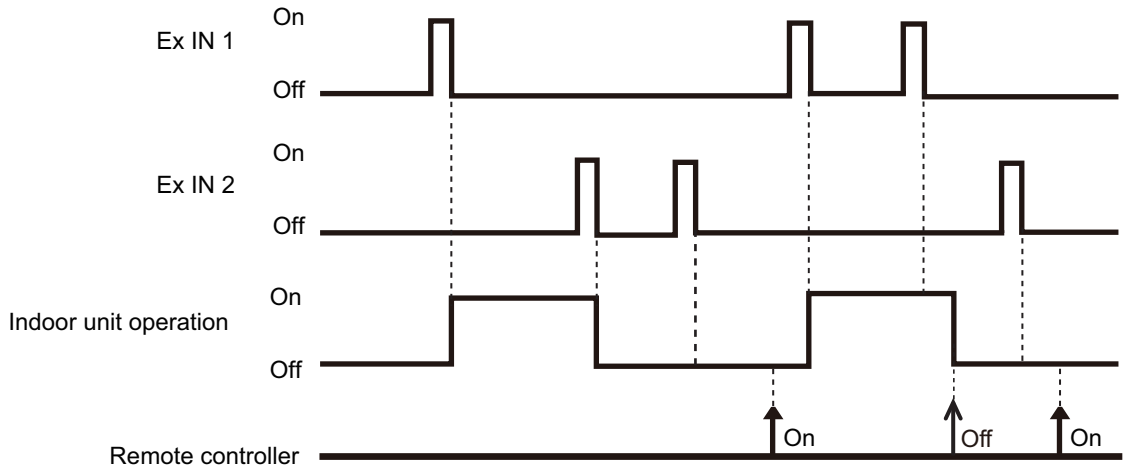
- **In the case of "Edge" input**

Function setting	External Input and Output PCB		External input		Input signal	Command
	Rotary switch	SW2				
46-03	—		Input of indoor unit	Terminal	Off → On	Operation (R.C. enabled)
					On → Off	Stop (R.C. disabled)
	1	Edge	External Input and Output PCB	Ex IN 1	Off → On	Operation (R.C. enabled)
					On → Off	Stop (R.C. disabled)



- **In the case of "Pulse" input**

Function setting	External Input and Output PCB		External input		Input signal	Command
	Rotary switch	SW2				
46-03	1	Pulse	External Input and Output PCB	Ex IN 1	Pulse	Operation (R.C. enabled)
				Ex IN 2		Stop (R.C. disabled)

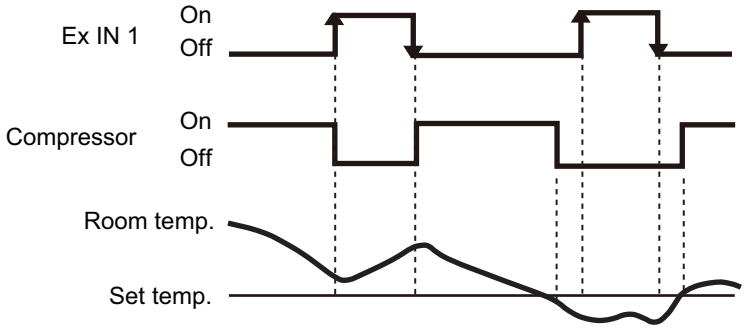


NOTE: When "Operation/Stop" mode 2 function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

FIELD WORKING

■ Forced thermostat off

External Input and Output PCB	External input		Input signal	Command
Rotary switch				
2, B, C, D	External Input and Output PCB	Ex IN 1	Off → On	Thermostat off
			On → Off	Normal operation
4, 7, 8, A	External Input and Output PCB	Ex IN 1	Off → On	Thermostat off
			On → Off	Normal operation



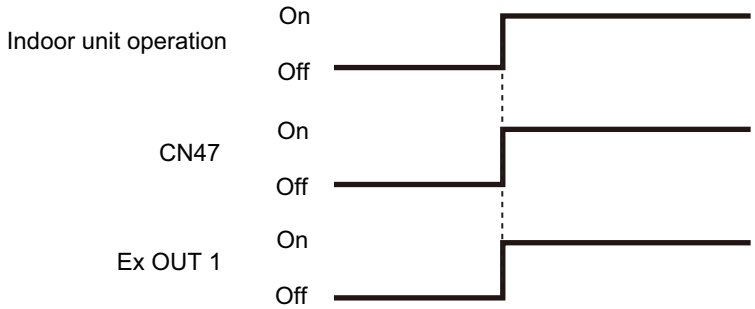
FIELD WORKING

3-5. Details of control output function

■ Operation status

Function setting	External Input and Output PCB / Rotary switch	External output		Output signal	Status
60-00 60-06	—	Output of indoor unit	CN47	Off → On	Operation
				On → Off	Stop
—	1, B, C, D	External Input and Output PCB	Ex OUT 1	Off → On	Operation
				On → Off	Stop

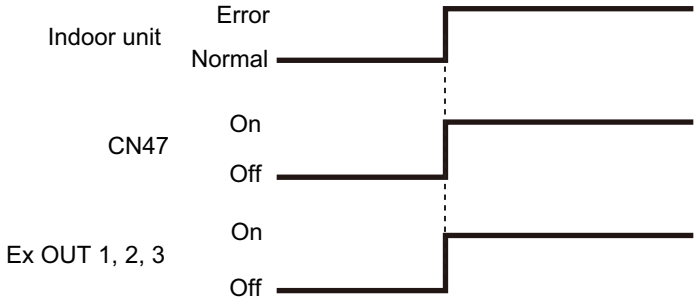
The output is low when the unit is stopped.



■ Error status

Function setting	External Input and Output PCB / Rotary switch	External output		Output signal	Status
60-09	—	Output of indoor unit	CN47	Off → On	Error
				On → Off	Normal
—	2, 3, 4, 6, 7, 8, 9	External Input and Output PCB	Ex OUT 1	Off → On	Error
				On → Off	Normal
—	1, C	External Input and Output PCB	Ex OUT 2	Off → On	Error
				On → Off	Normal
—	D	External Input and Output PCB	Ex OUT 3	Off → On	Error
				On → Off	Normal

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

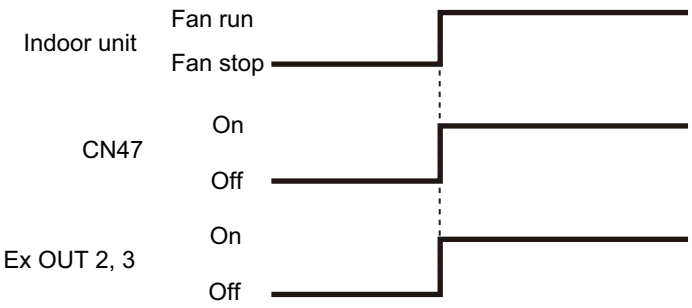


FIELD WORKING

■ Indoor unit fan operation status

Function setting	External Input and Output PCB	External output		Output signal	Status
	Rotary switch				
60-10	—	Output of indoor unit	CN47	Off → On	Fan run
				On → Off	Fan stop
—	2, 3, 7, 8, B, D	External Input and Output PCB	Ex OUT 2	Off → On	Fan run
				On → Off	Fan stop
—	1	External Input and Output PCB	Ex OUT 3	Off → On	Fan run
				On → Off	Fan stop

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



FIELD WORKING

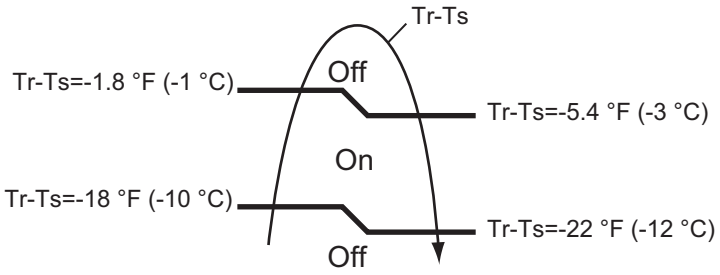
■ External heater output

Function setting	External Input and Output PCB	External output		Output signal	Control
	Rotary switch				
60-11	—	Output of indoor unit	CN47	Off → On	Heater on
				On → Off	Heater off
—	2, 3, 4, 5, 7, 9, A, B, C	External Input and Output PCB	Ex OUT 3	Off → On	Heater on
				On → Off	Heater off

Output signal	Condition
Off → On	Heater turns on as shown in diagram of heating temperature
On → Off	Heater turns off as shown in diagram of heating temperature • Other than Heating mode • Error occurred • Forced thermo off • Fan stop protection

Specifications of the signal output performance are as shown as follows:

Example: When set temperature (Ts) is set at 72°F (22°C);
- And room temperature (Tr) increase above 53.6°F (12°C), signal output is on.
- And Tr increase above 69.8°F (21°C), signal output is off.
- And Tr decrease below 66.2°F (19°C), signal output is on.
- And Tr decrease below 50°F (10°C), signal output is off.

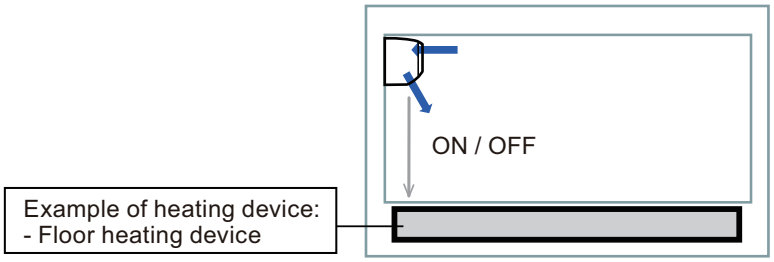


The output also turns off in defrost operation.

FIELD WORKING

● Installation configuration of individual connection

External heating device is installed individually. (No use of indoor unit fan)



⚠ WARNING

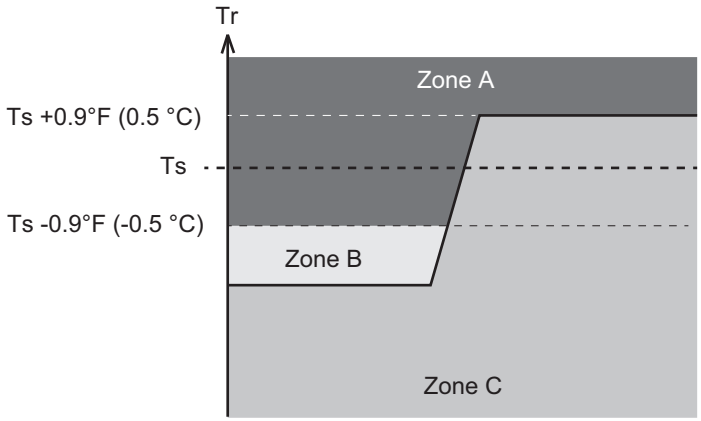
Operation	Condition
Heater off	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

- Design and install an external heater appropriately, with consideration for its protection and local codes.
- Inappropriate designing and installation of external heater may cause a fire by emitted heat from the external heater.
- Fujitsu General Ltd. is not responsible for inappropriate designing or installation of external heating device.

FIELD WORKING

● Auxiliary equipment control by room temperature

Auxiliary equipment control is switchable by room temperature. Auxiliary equipment switching is performed for each room temperature divided to following 3 zones.



Ts: Setting temperature
Tr: Room temperature

Zone	Application	When temperature dropping		When temperature rising	
		Primary	Auxiliary	Primary	Auxiliary
A	Both of primary and auxiliary equipment is unnecessary.	Off	Off	Off	Off
B	Primary heater only.When room temperature stays in zone B for a long time, auxiliary equipment also operates.	On	Off*1	—	—
C	Auxiliary equipment also operates.	On	On*2	On	On*2

*1: For standby time for auxiliary equipment operation, refer to indoor unit function number 71 "Contents of function setting" on page 05-1.

*2: When indoor unit function number 61 is set to "00", auxiliary equipment operates according to the following conditions.

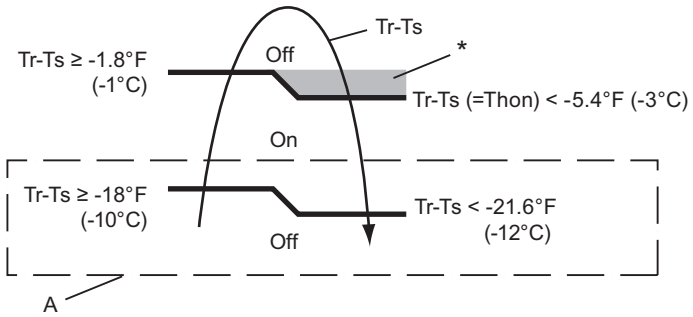
- Ts - Tr > 21.6 °F (-12.0 °C): Auxiliary equipment turn off.
- Ts - Tr > 18.0 °F (-10.0 °C): Auxiliary equipment turn on.

FIELD WORKING

● Auxiliary heater control 1

Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Fan stop protection

- Temperature of heater on (Thon): Adjustable by function number 62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting “Thon”.



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

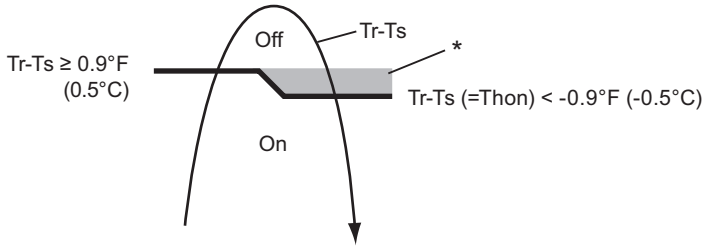
*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

Example: When set temperature (Ts) is 72°F (22°C) (Factory setting),
- and room temperature (Tr) increases above 53.6°F (12°C), signal output is on.
- and room temperature (Tr) increases above 69.8°F (21°C), signal output is off.
- and room temperature (Tr) decreases below 66.2°F (19°C), signal output is on.
- and room temperature (Tr) decreases below 50°F (10°C), signal output is off.

● Auxiliary heater control 2

Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Fan stop protection

- Temperature of heater on (Thon): Adjustable by function number 62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting “Thon”.



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

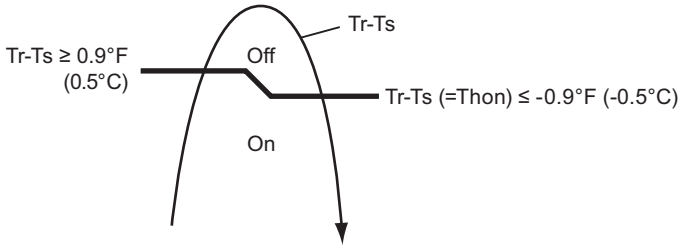
*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

● Heat pump prohibition control

Perform heating by external heater only. Indoor unit is continuous thermostat off.

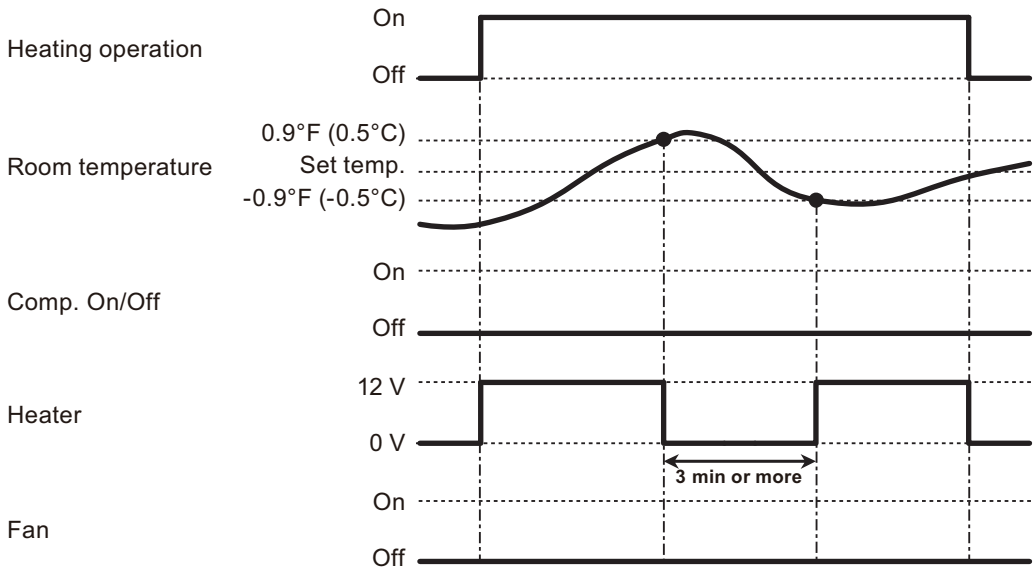
Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

- Temperature of heater on (Thon): Adjustable by function number 62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting “Thon”.



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

- **Operation status**



NOTE: In following operations, compressor will be on.
- Other than heating
- Test run

FIELD WORKING

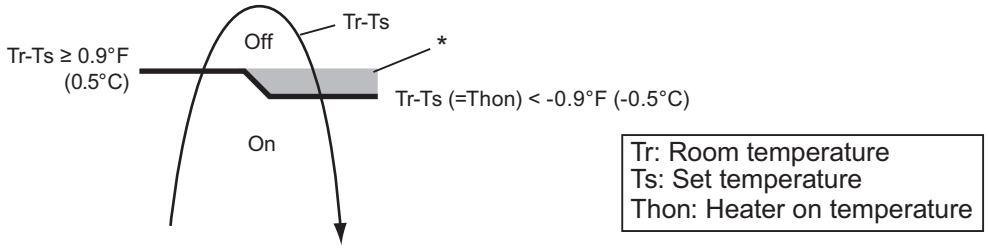
● Auxiliary heater control by outdoor temperature 1

This control selects heat pump or external heater according to the outdoor temperature. When outdoor temperature is high, the heating is performed by using heat pump only.

Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Heat pump only zone

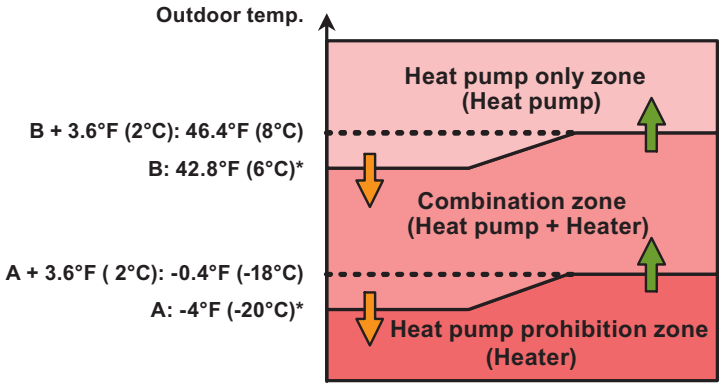
- Temperature of heater on (Thon): Adjustable by function number 62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting “Thon”.
- Outdoor temperature zone boundary A and B: Adjustable individually by function setting number 66 and 67.

- **External heater output**



*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

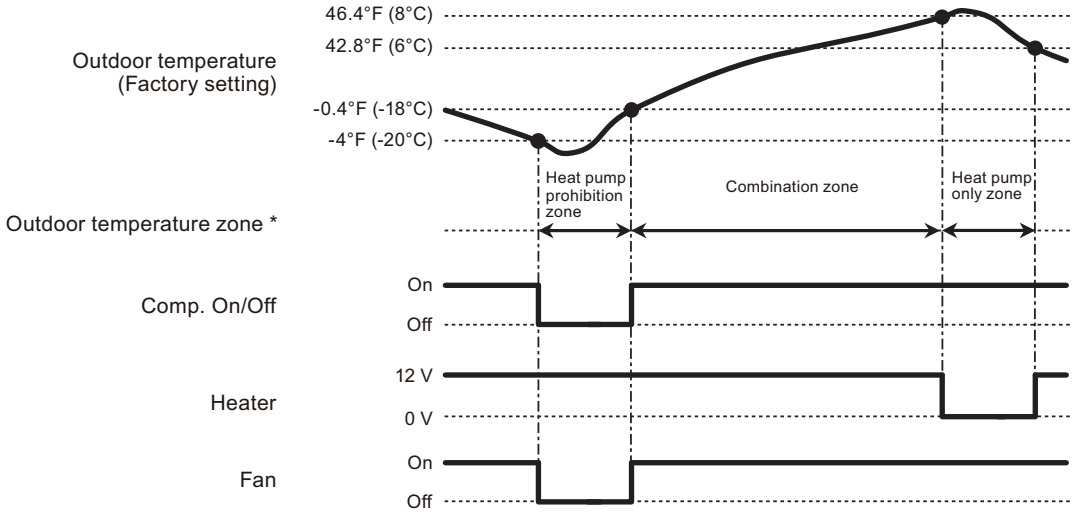
- **Outdoor temperature zone**



*: Adjustable by function setting 66 and 67

FIELD WORKING

- **Operation status**



* The outdoor temperature zone transition from one to another will stay in that zone for minimum of 30 min.

NOTE: In following operations, compressor will be on in heat pump prohibition zone.

- Other than heating
- Test run

FIELD WORKING

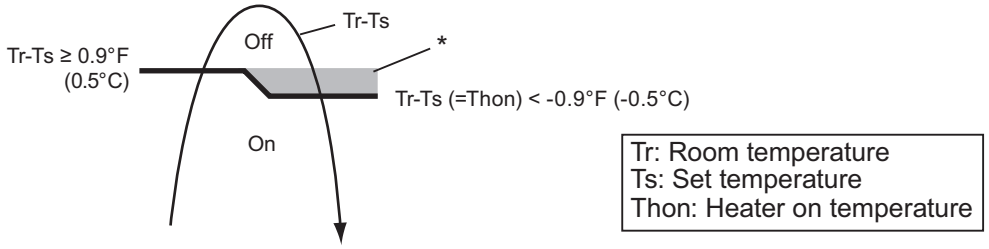
● Auxiliary heater control by outdoor temperature 2

This control selects heat pump or external heater according to the outdoor temperature. Even when outdoor temperature is high, the heating is performed by using both of heat pump and external heater.

Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

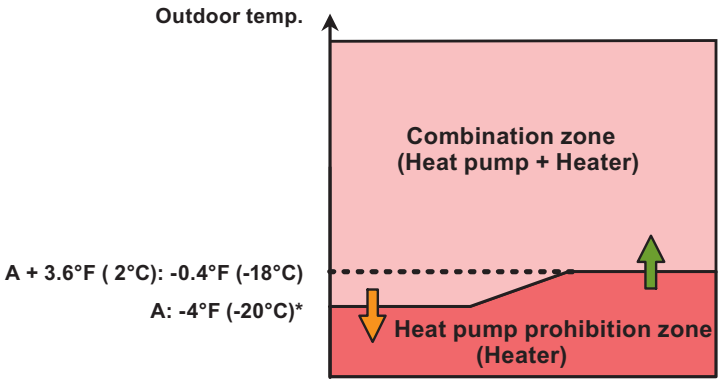
- Temperature of heater on (Thon): Adjustable by function number 62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting “Thon”.
- Outdoor temperature zone boundary A: Adjustable by function setting number 66.

- **External heater output**



*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

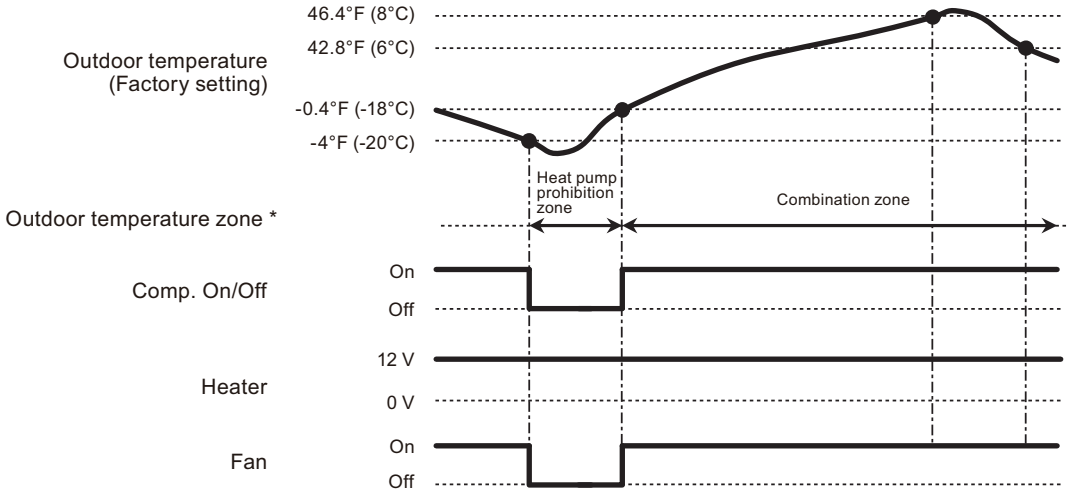
- **Outdoor temperature zone**



*: Adjustable by function setting 66

FIELD WORKING

- **Operation status**



* The outdoor temperature zone transition from one to another will stay in that zone for minimum of 30 min.

NOTE: In following operations, compressor will be on in heat pump prohibition zone.

- Other than heating
- Test run

FIELD WORKING

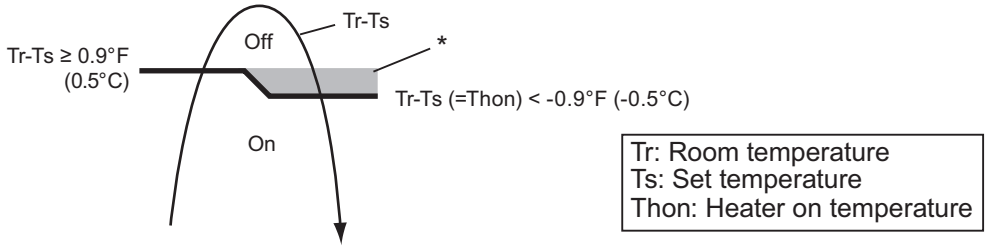
● Auxiliary heater control by outdoor temperature 3

This control selects heat pump or external heater according to the outdoor temperature. Even when outdoor temperature is high, the heating is performed by using both of heat pump and external heater.

Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

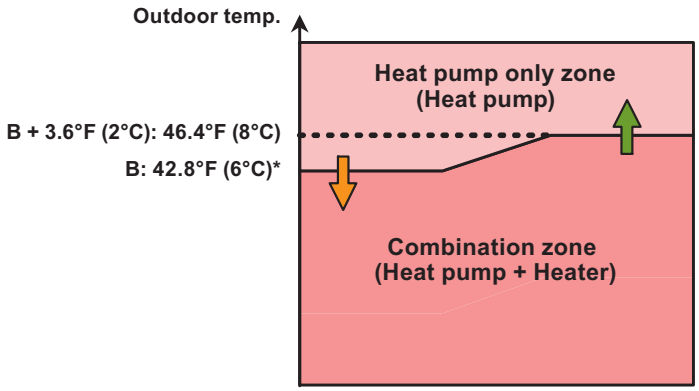
- Temperature of heater on (Thon): Adjustable by function number 62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting “Thon”.
- Outdoor temperature zone boundary B: Adjustable by function setting number 67.

- **External heater output**



*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

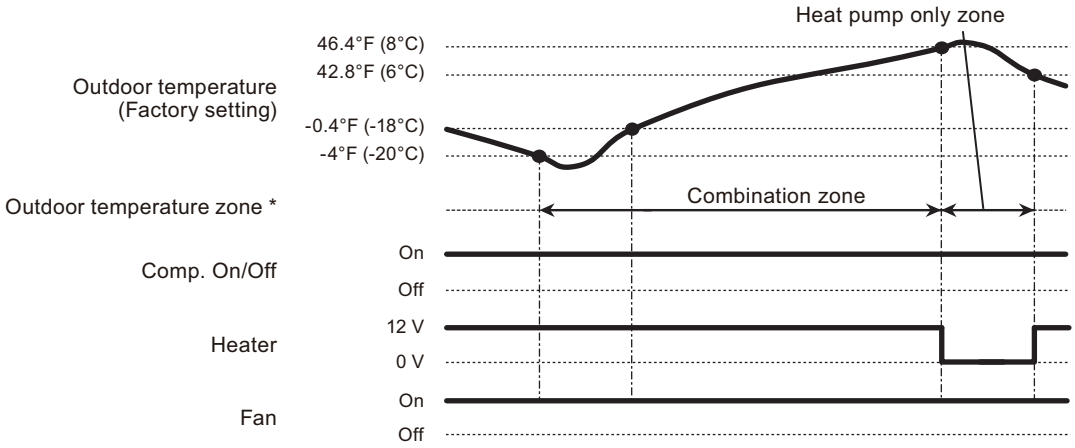
- **Outdoor temperature zone**



*: Adjustable by function setting 67

FIELD WORKING

- **Operation status**



* The outdoor temperature zone transition from one to another will stay in that zone for minimum of 30 min.

NOTE: In following operations, compressor will be on in heat pump prohibition zone.

- Other than heating
- Test run

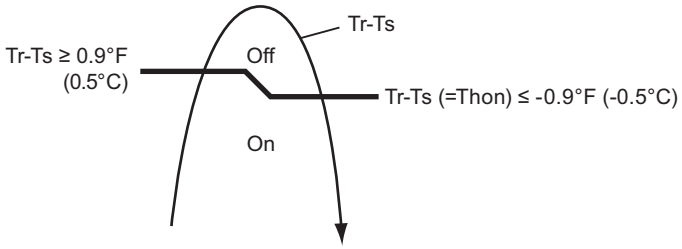
FIELD WORKING

● Auxiliary heat pump control

- **External heater output**

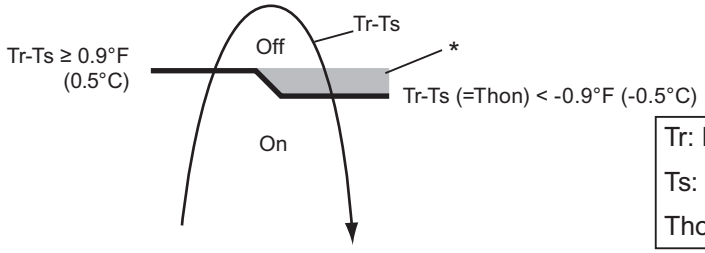
Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

– Temperature of heater on (Thon): Set temperature (Ts) -0.9°F (-0.5°C)
– Temperature of heater off: Set temperature (Ts) +0.9°F (+0.5°C)



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

- **Auxiliary heat pump On/Off**
  – Temperature of heat pump on (Thon): Adjustable by function number 62 (Operating temperature switching of heat pump).
  – All control temperatures will shift by adjusting “Thon”.



Tr: Room temperature
Ts: Set temperature
Thon: Heat pump on temperature

*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

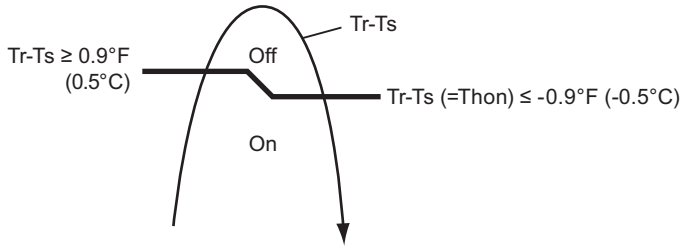
FIELD WORKING

● Auxiliary heat pump control by outdoor temperature 1

- **External heater output**

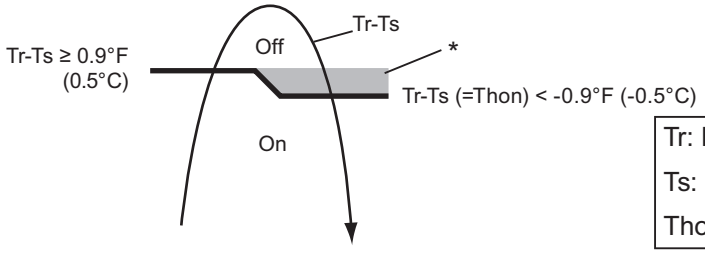
Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

– Temperature of heater on (Thon): Set temperature (Ts) -0.9°F (-0.5°C)
– Temperature of heater off: Set temperature (Ts) +0.9°F (+0.5°C)



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

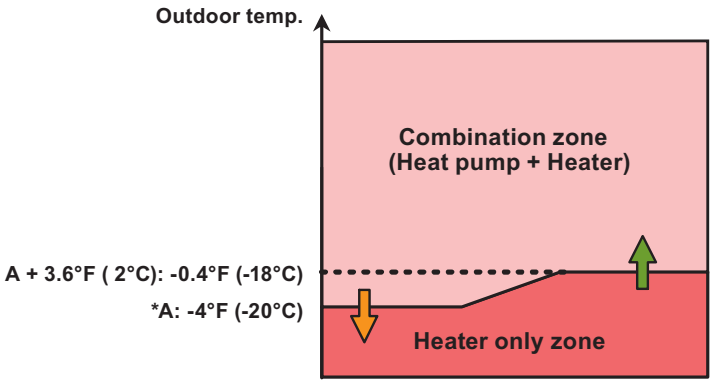
- **Auxiliary heat pump On/Off**
  – Temperature of heat pump on (Thon): Adjustable by function number 62 (Operating temperature switching of heat pump).
  – All control temperatures will shift by adjusting “Thon”.



Tr: Room temperature
Ts: Set temperature
Thon: Heat pump on temperature

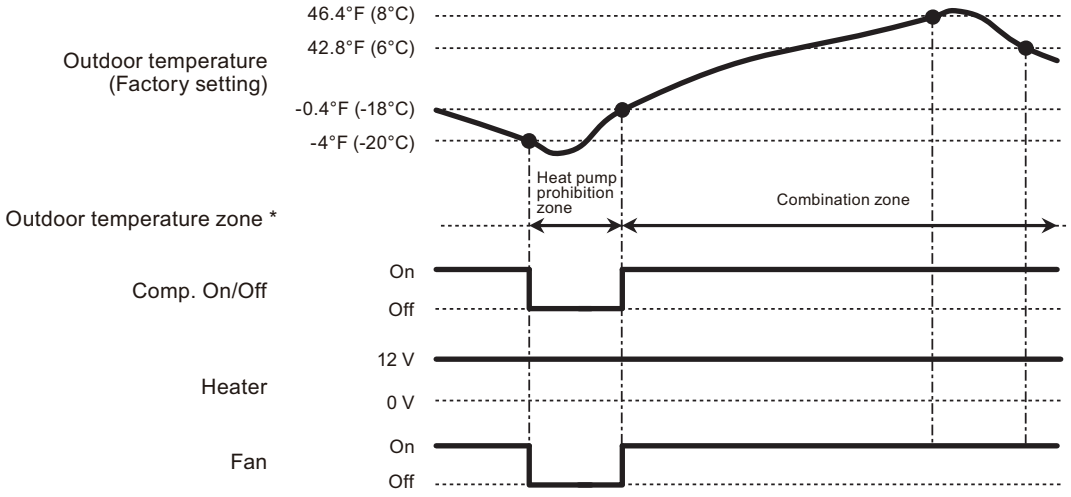
*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

- **Outdoor temperature zone**



*: Adjustable by function setting 66

- **Operation status**



* The outdoor temperature zone transition from one to another will stay in that zone for minimum of 30 min.

NOTE: In following operations, compressor will be on in heat pump prohibition zone.

- Other than heating
- Test run

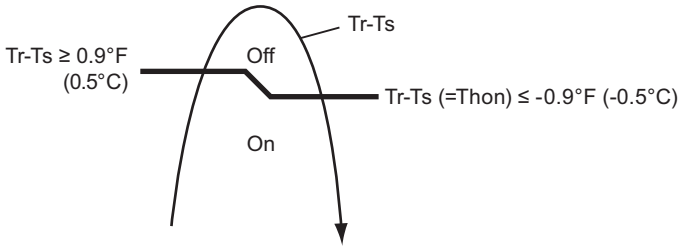
FIELD WORKING

● Auxiliary heat pump control by outdoor temperature 2

- **External heater output**

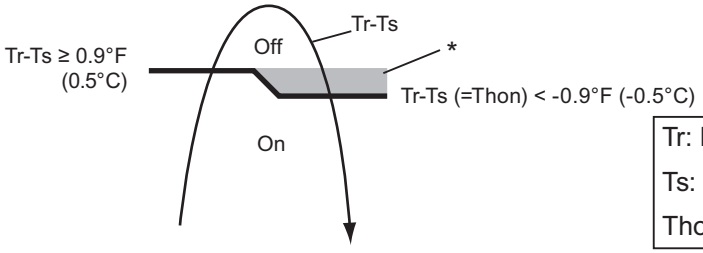
Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

– Temperature of heater on (Thon): Set temperature (Ts) -0.9°F (-0.5°C)
– Temperature of heater off: Set temperature (Ts) +0.9°F (+0.5°C)



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

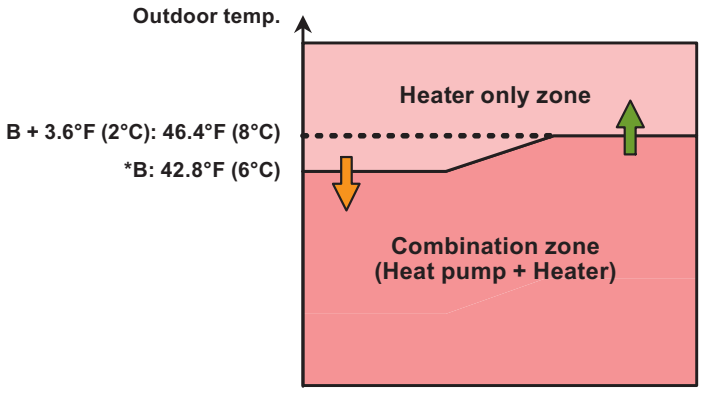
- **Auxiliary heat pump On/Off**
  – Temperature of heat pump on (Thon): Adjustable by function number 62 (Operating temperature switching of heat pump).
  – All control temperatures will shift by adjusting “Thon”.



Tr: Room temperature
Ts: Set temperature
Thon: Heat pump on temperature

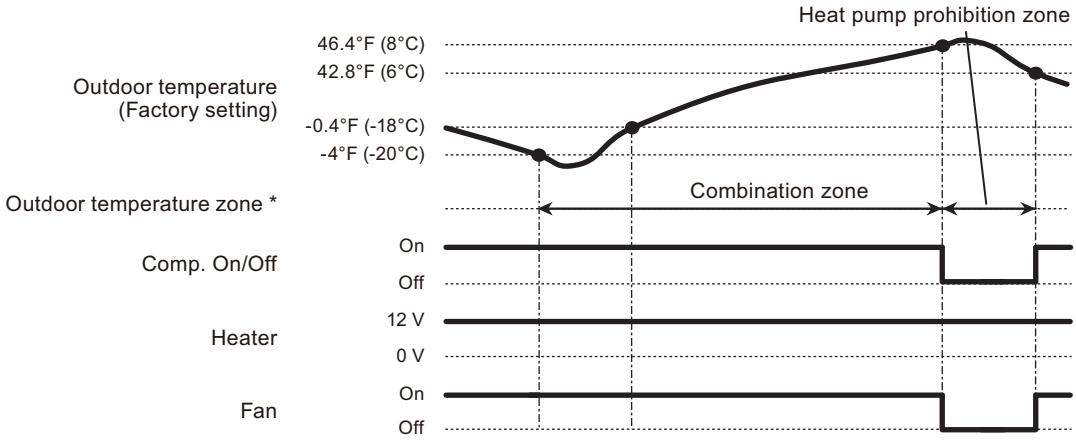
*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

- **Outdoor temperature zone**



*: Adjustable by function setting 67

- **Operation status**



* The outdoor temperature zone transition from one to another will stay in that zone for minimum of 30 min.

NOTE: In following operations, compressor will be on in heat pump prohibition zone.

- Other than heating
- Test run

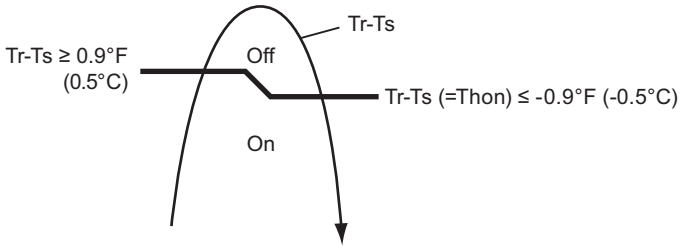
FIELD WORKING

● Auxiliary heat pump control by outdoor temperature 3

- **External heater output**

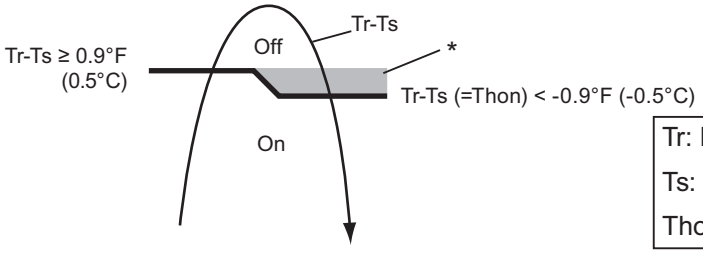
Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

– Temperature of heater on (Thon): Set temperature (Ts) -0.9°F (-0.5°C)
– Temperature of heater off: Set temperature (Ts) +0.9°F (+0.5°C)



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

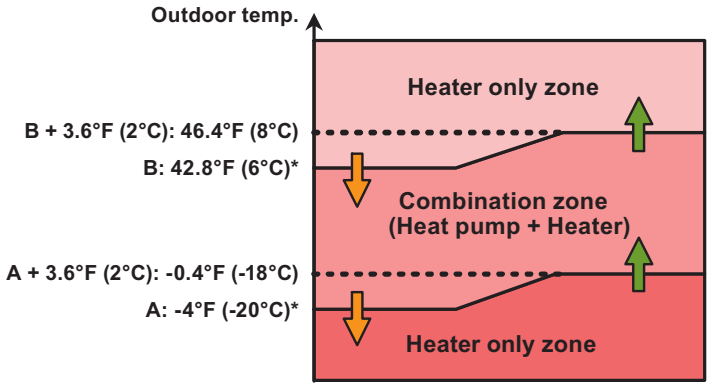
- **Auxiliary heat pump On/Off**
  – Temperature of heat pump on (Thon): Adjustable by function number 62 (Operating temperature switching of heat pump).
  – All control temperatures will shift by adjusting “Thon”.



Tr: Room temperature
Ts: Set temperature
Thon: Heat pump on temperature

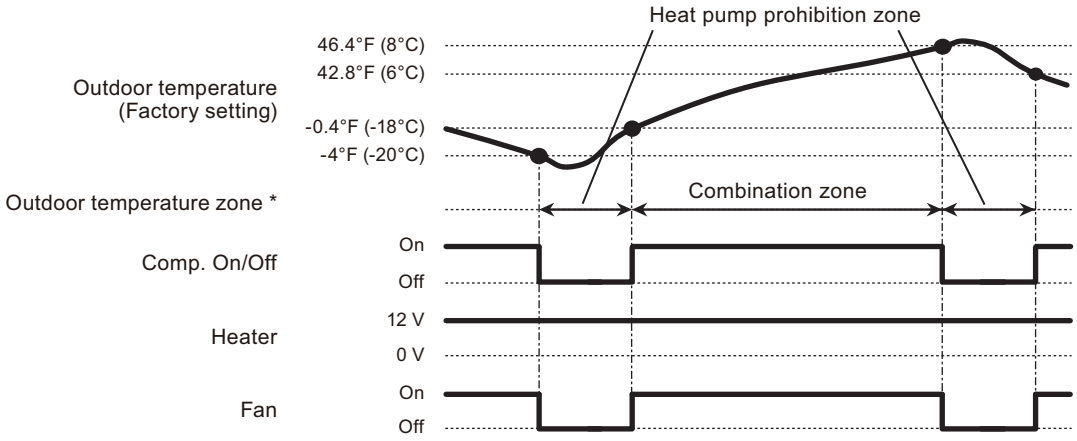
*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

- **Outdoor temperature zone**



*: Adjustable by function setting 66 and 67

- **Operation status**



* The outdoor temperature zone transition from one to another will stay in that zone for minimum of 30 min.

NOTE: In following operations, compressor will be on in heat pump prohibition zone.

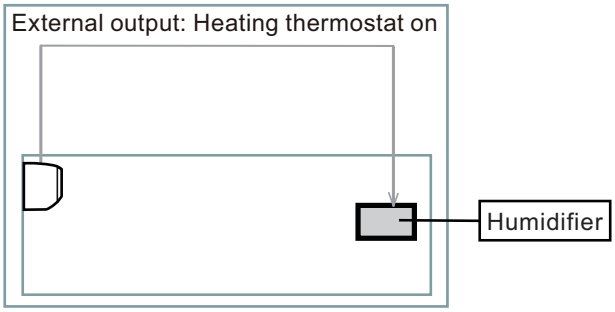
- Other than heating
- Test run

FIELD WORKING

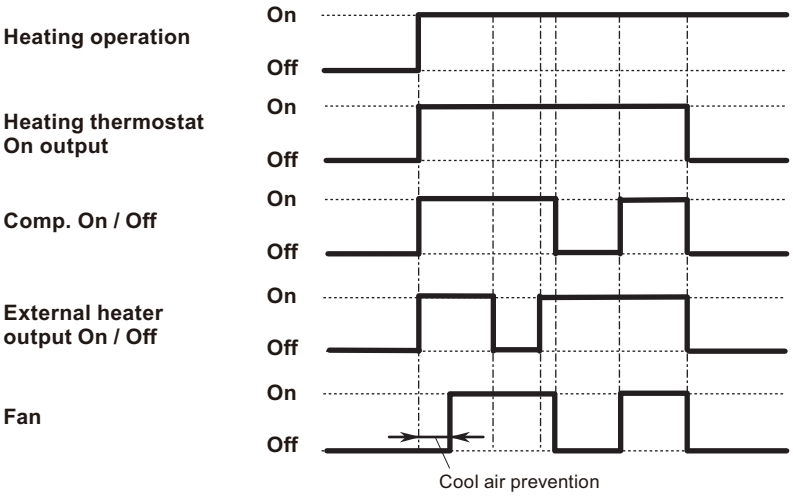
■ Heating thermostat on for humidifier

Situation	Indoor unit				
	Mode	Function setting	Rotary SW	External output	
		Heating thermostat on no. 60		Heating thermostat on	Indoor unit fan operation status
Example of individual connection	5	60-05	7	CN47	Not used
	6	60-06	8	Output 3	
	7	60-07	9	Output 2	
	8	60-08	A	Output 1	

- **Example of individual connection**



- **Operation status**
  The heating thermostat output for CN47, Output 1, Output 2, or Output 3 will be on when comp on or external heater on.
  The heating thermostat output will be off when comp off and external heater off.



FIELD WORKING

4. External input and output (for 24–36 outdoor units)

With using external input and output functions, this product can be operated inter-connectedly with an external device.

Connector	Input	Output	Remarks
P580	Low noise mode	—	See external input/output settings for details.
PA580	Peak cut mode	—	
P590	—	Error status	
PA590	—	Compressor status	

4-1. External input

With using external input function, on/off status of “Low noise mode” and “Peak cut mode” can be specified by the external signal.

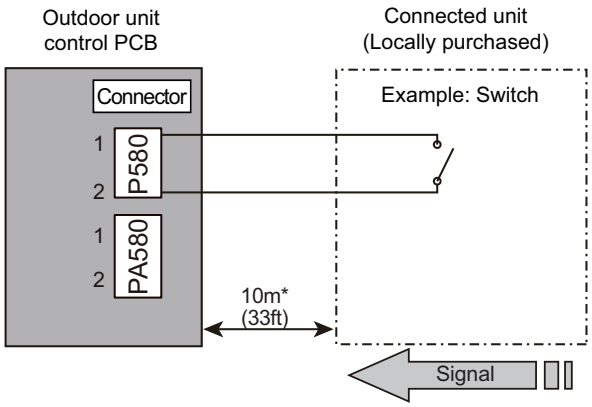
■ Low noise mode

In following condition, the operating noise of the outdoor unit reduces comparing from the one in normal operating condition:

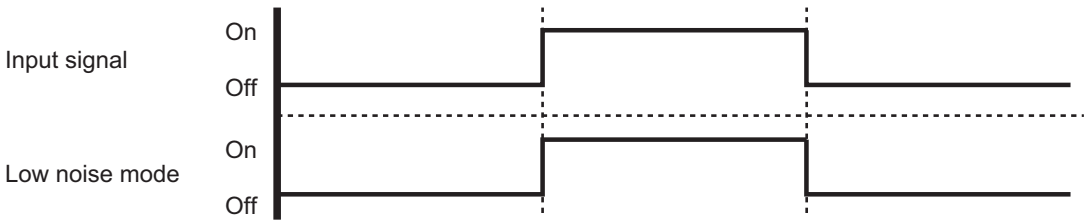
The air conditioner is set to the “Low noise mode” when closing the contact input of a commercial timer or on/off switch to a connector on the control PCB of the outdoor unit.

NOTE: Product performance may drop depending on some conditions such as the outdoor temperature.

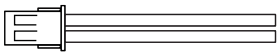
- **Circuit diagram example**



- Contact capacity: DC 24 V or more, 10 mA or more.
- *: Make the distance from the PCB to the connected unit within 33 ft (10 m).
- Construct a circuit as shown in this figure with using optional parts mentioned below.
- Input signal: On in “Low noise mode”
- Input signal: Off in normal operation
- To set the level of “Low noise mode,” refer to "Low noise mode" on page 05-13 (under “Local setting procedure”.)



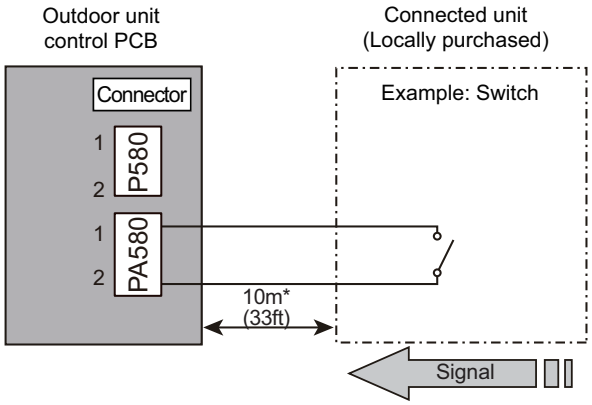
- **Optional part**

Part name	Model name	Exterior
External Connect Kit	UTY-XWZXZ3	External input wire 

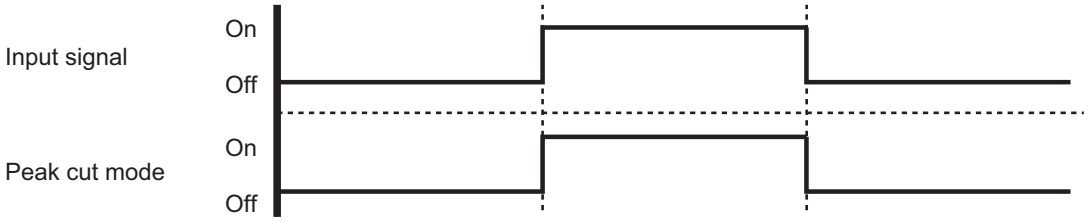
■ Peak cut mode

By performing following on-site work, operation that suppresses the current value can be enabled:
The air conditioner is set to the “Peak cut mode” when closing the contact input of a commercial timer or on/off switch to a connector on the control PCB of the outdoor unit.

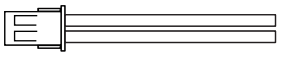
- **Circuit diagram example**



- Contact capacity: DC 24 V or more, 10 mA or more.
- *: Make the distance from the PCB to the connected unit within 33 ft (10 m).
- Construct a circuit as shown in this figure with using optional parts mentioned below.
- Input signal: On in “Peak cut mode”
- Input signal: Off in normal operation
- To set the level of “Peak cut mode,” refer to "Peak cut mode" on page 05-14 (under “Local setting procedure”.)



- **Optional part**

Part name	Model name	Exterior
External Connect Kit	UTY-XWZXZ3	External input wire 

FIELD WORKING

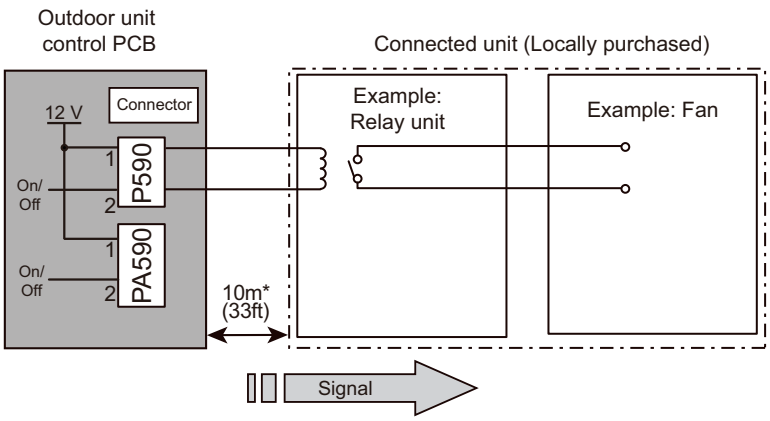
4-2. External output

With using external output function, some status signals are transmitted to the control PCB, and the related LED lamp indicates the status of this product.

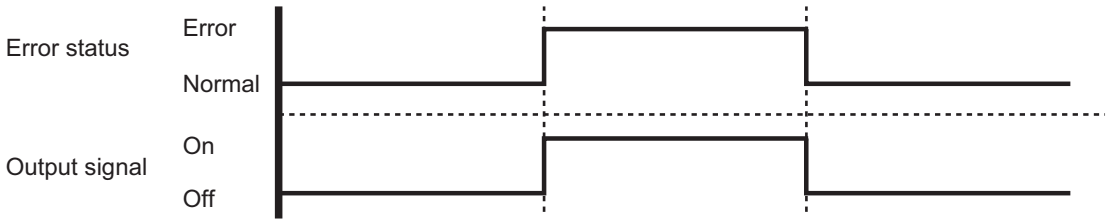
■ Error status output

Signal on air conditioner error status is generated when a malfunction occurs.

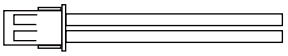
- **Circuit diagram example**



- Output voltage (Vcc): DC 12 V 50 mA or less
- *: Make the distance from the PCB to the connected unit within 33 ft (10 m).



- **Optional part**

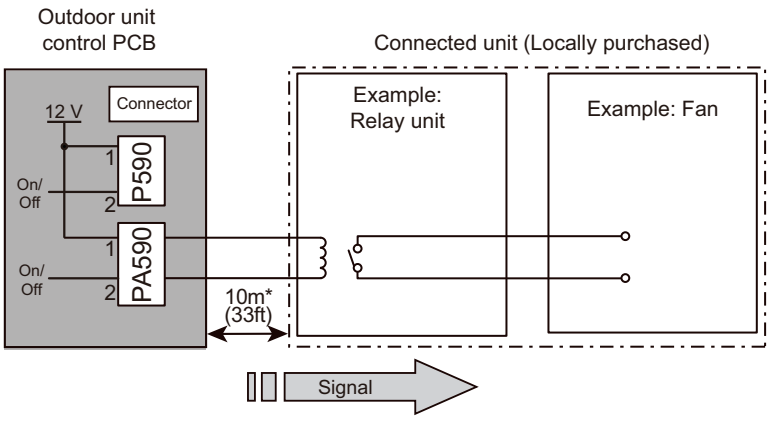
Part name	Model name	Exterior
External Connect Kit	UTY-XWZXZ3	External output wire 

FIELD WORKING

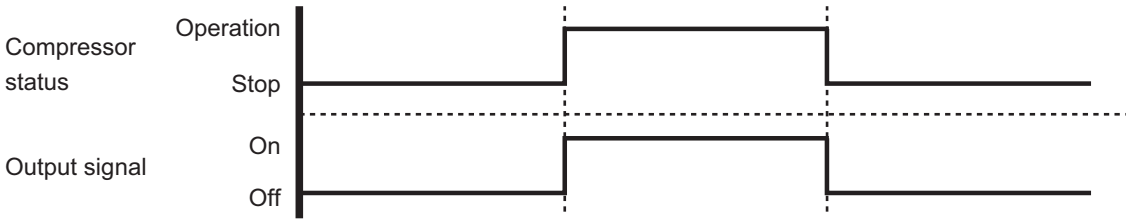
■ Compressor status output

Signal on compressor operation status is generated when the compressor is running.

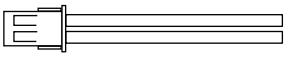
- **Circuit diagram example**



- Output voltage (Vcc): DC 12 V 50 mA or less
- *: Make the distance from the PCB to the connected unit within 33 ft (10 m).



- **Optional part**

Part name	Model name	Exterior
External Connect Kit	UTY-XWZXZ3	External output wire 

FIELD WORKING