

AIRSTAGE

AIR CONDITIONER

Cassette type

FUJITSU

REFRIGERANT **R32**
INVERTER

SERVICE MANUAL

INDOOR



AUUH18KUAS
AUUH24KUAS



AUUH30KUAS
AUUH36KUAS
AUUH42KUAS
AUUH48KUAS

OUTDOOR



AOUH18KUAS1



AOUH24KUAS1



AOUH30KUAS1
AOUH36KUAS1
AOUH42KUAS1
AOUH48KUAS1

FUJITSU GENERAL LIMITED

SR_AU056ES_03
2025.01.17

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

1. GENERAL INFORMATION

2. TECHNICAL DATA AND PARTS LIST

3. TROUBLESHOOTING

4. CONTROL AND FUNCTIONS

5. FIELD WORKING

1. GENERAL INFORMATION

CONTENTS

1. GENERAL INFORMATION

1. Specifications	01-1
1-1. Indoor unit	01-1
1-2. Outdoor unit.....	01-7
2. Dimensions	01-11
2-1. Indoor unit	01-11
2-2. Outdoor unit.....	01-15

1. Specifications

1-1. Indoor unit

Type				Cassette			
				Inverter, Heat pump			
Model name				AUUh18KUAS	AUUh24KUAS		
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)				208/230			
Capacity	Cooling	Rated	kW	5.28	7.03		
			Btu/h	18,000	24,000		
		Min.—Max.	kW	0.91—5.89	1.58—8.21		
			Btu/h	3,100—20,100	5,400—28,000		
		Heating	47°FDB (Outdoor temp.)	Rated	kW	6.33	7.91
				Btu/h	21,600	27,000	
	Min.—Max.		kW	0.91—7.03	1.58—9.38		
			Btu/h	3,100—24,000	5,400—32,000		
	17°FDB (Outdoor temp.)*1		Rated	kW	4.22	5.22	
			Btu/h	14,400	17,800		
		Max.	kW	5.66	7.62		
		Btu/h	19,300	26,000			
5°FDB (Outdoor temp.)*2	Rated	kW	5.01	6.92			
	Btu/h	17,100	23,600				
	Max.	kW	5.01	6.92			
	Btu/h	17,100	23,600				
Input power	Cooling	Rated	kW	1.32			
		Min.—Max.		0.18—1.94			
		47°FDB (Outdoor temp.)		Rated	1.66		
		Min.—Max.		0.14—2.70			
	Heating	17°FDB (Outdoor temp.)*1	Rated	1.40			
		Max.	2.34				
		5°FDB (Outdoor temp.)*2	Rated	2.20			
		Max.	2.20				
	Fan	HIGH	W	16			
				MED	12		
				LOW	11		
				QUIET	7		
	Current	Cooling	A	5.9			
		Heating		7.5			
EER2	Cooling	Btu/hW	13.6				
	Heating		3.8				
COP2	Cooling	kW/kW	3.8				
	Heating		3.9				
SEER2	Cooling	Btu/hW	26.3				
	Heating		11.4				
HSPF2	Cooling	%	97.3				
	Heating		96.2				
Moisture removal			pints/h (L/h)	3.6 (1.7)	6.1 (2.9)		
Maximum operating current*3		Cooling	A	12.2			
		Heating		14.8			
Fan	Airflow rate	Cooling	HIGH	618 (1,050)			
			MED	565 (960)			
			LOW	530 (900)			
			QUIET	459 (780)			
		Heating	HIGH	618 (1,050)			
			MED	565 (960)			
			LOW	530 (900)			
			QUIET	459 (780)			
	Type × Qty			Turbo fan × 1			
	Motor output	W		81			
Sound pressure level*4	Cooling	dB (A)	HIGH	34			
			MED	32			
			LOW	31			
			QUIET	28			
	Heating	HIGH	34				
		MED	32				
		LOW	31				
		QUIET	28				
		Dimensions (H × W × D)		in (mm)	Main 1: 8-1/4 × 83-3/4 × 1/2 (210 × 2,127 × 13.3) Main 2: 8-1/4 × 81-1/16 × 1/2 (210 × 2,059 × 13.3)		
		Fin pitch		FPI	Main 1: 21 Main 2: 21		
Rows × Stages		Main 1: 1 × 10 Main 2: 1 × 10					
Pipe type		Copper tube					
Fin type		Aluminum					
Dimensions (H × W × D)	Net	in (mm)	9-11/16 × 33-1/16 × 33-1/16 (246 × 840 × 840)				
	Gross		11-3/4 × 37-3/8 × 38-3/16 (298 × 950 × 970)				
Weight	Net	lb (kg)	53 (24)				
	Gross		64 (29)				
Connection pipe	Size	in (mm)	Ø1/4 (Ø6.35)				
	Method		Ø1/2 (Ø12.70)				
Drain hose	Material	Flare					
	Tip diameter	in (mm)	Polyvinyl chloride Ø13/16 (Ø20.7) (I.D.), Ø1-1/16 (Ø26.6) (O.D.)				
Operation range	Cooling	°F (°C)	64 to 90 (18 to 32)				
	Heating	%RH	80 or less				
		°F (°C)	60 to 86 (16 to 30)				

Type				Cassette		
				Inverter, Heat pump		
Model name				AUUh18KUAS	AUUh24KUAS	
Cassette grille	Enclosure	Material	Polystyrene			
		Color	White (UTG-LCGVCW)			
	Approximate color of Munsell N9.25/ Black (UTG-LCGVCB)					
	Dimensions (H × W × D)	Net	in (mm)	Approximate color of Munsell N2		
		Gross		2-1/16 × 37-3/8 × 37-3/8 (53 × 950 × 950)		
	Weight	Net	lb (kg)	4-5/16 × 39-3/8 × 39-3/4 (110 × 1,000 × 1,010)		
Gross		13 (6)				
Remote controller type (Option)				Wired, Wireless, Mobile app*5 (AIRSTAGE Mobile)		
<p>NOTES:</p> <ul style="list-style-type: none"> Specifications are based on the following conditions: <ul style="list-style-type: none"> Cooling: Indoor temperature of 80°FDB/67°F WB (26.67°CDB/19.44°CWB), and outdoor temperature of 95°FDB/75°F WB (35°CDB/23.9°CWB). Heating: Indoor temperature of 70°FDB/60°F WB (21.11°CDB/15.56°CWB), and outdoor temperature of 47°FDB/43°F WB (8.33°CDB/6.11°CWB). *1: Heating (17°F): Indoor temperature of 70°FDB/60°F WB (21.11°CDB/15.56°CWB), and outdoor temperature of 17°FDB/15°F WB (-8.33°CDB/-9.44°CWB). *2: Heating (5°F): Indoor temperature of 70°FDB/60°F WB (21.11°CDB/15.56°CWB), and outdoor temperature of 5°FDB/4°F WB (-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: <ul style="list-style-type: none"> The maximum value when operated within the operation range. The total current of indoor unit and outdoor unit. *4: Sound pressure level: <ul style="list-style-type: none"> 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. 						

Type				Cassette					
				Inverter, Heat pump					
Model name				AUUH30KUAS		AUUH36KUAS			
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					
Capacity		Cooling		Rated	kW	8.79	10.55		
					Btu/h	30,000	36,000		
				Min.—Max.	kW	2.81—10.26	2.81—11.43		
					Btu/h	9,600—35,000	9,600—39,000		
		Heating		47°FDB (Outdoor temp.)		Rated	kW	9.38	11.14
							Btu/h	32,000	38,000
				Min.—Max.	kW	2.70—11.14	2.70—12.60		
					Btu/h	9,200—38,000	9,200—43,000		
				17°FDB (Outdoor temp.)*1		Rated	kW	6.21	7.44
							Btu/h	21,200	25,400
		Max.	kW			9.05	10.11		
			Btu/h			30,900	34,500		
5°FDB (Outdoor temp.)*2		Rated	kW	8.21	9.09				
			Btu/h	28,000	31,000				
		Max.	kW	8.21	9.09				
			Btu/h	28,000	31,000				
Input power		Cooling		Rated	kW	2.4	3.2		
				Min.—Max.		0.39—3.55	0.39—4.08		
				47°FDB (Outdoor temp.)		Rated		2.32	2.82
						Min.—Max.		0.59—3.61	0.59—3.97
		Heating		17°FDB (Outdoor temp.)*1		Rated		1.96	2.38
						Max.		3.8	4.2
				5°FDB (Outdoor temp.)*2		Rated		3.87	4.29
						Max.		3.87	4.29
		Fan				HIGH		52	87
						MED		39	52
						LOW		31	39
						QUIET		20	23
Current		Cooling		Rated	A	10.6	14.1		
		Heating				10.2	12.4		
EER2		Cooling			Btu/hW	12.5	11.2		
COP2		Heating			kW/kW	4.04	3.94		
SEER2		Cooling				22.4	21.3		
HSPF2		Heating			Btu/hW	10.6	10.5		
Power factor		Cooling			%	98.4	98.7		
		Heating				98.9	98.7		
Moisture removal				pints/h (L/h)		6.3 (3.0)	7.8 (3.7)		
Maximum operating current*3		Cooling		A		19.8	20.8		
		Heating				19.8	20.8		
Fan		Airflow rate		Cooling		HIGH	942 (1,600)	1,118 (1,900)	
						MED	848 (1,440)	942 (1,600)	
						LOW	771 (1,310)	848 (1,440)	
						QUIET	677 (1,150)	695 (1,180)	
				Heating		HIGH	942 (1,600)	1,118 (1,900)	
						MED	848 (1,440)	942 (1,600)	
						LOW	771 (1,310)	848 (1,440)	
						QUIET	677 (1,150)	695 (1,180)	
		Type × Qty						Turbo fan × 1	
		Motor output				W		81	
Sound pressure level*4		Cooling		dB (A)		HIGH	40	45	
						MED	38	41	
						LOW	36	38	
						QUIET	33	34	
		Heating				HIGH	40	45	
						MED	38	41	
						LOW	36	38	
						QUIET	33	34	
Heat exchanger type		Dimensions (H × W × D)		in (mm)		Main 1: 9-15/16 × 83-3/4 × 1/2 (252 × 2,127 × 13.3) Main 2: 9-15/16 × 81-1/16 × 1/2 (252 × 2,059 × 13.3)			
		Fin pitch		FPI		Main 1: 21 Main 2: 21			
		Rows × Stages				Main 1: 1 × 12 Main 2: 1 × 12			
		Pipe type				Copper tube			
		Fin type				Aluminum			
Dimensions (H × W × D)		Net		in (mm)		11-5/16 × 33-1/16 × 33-1/16 (288 × 840 × 840)			
		Gross				13-3/8 × 37-3/8 × 38-3/16 (340 × 950 × 970)			
Weight		Net		lb (kg)		57 (26)			
		Gross				68 (31)			
Connection pipe		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)			

Type				Cassette	
				Inverter, Heat pump	
Model name				AUUh30KUAS	AUUh36KUAS
Cassette grille	Enclosure	Material	Polystyrene		
		Color	White (UTG-LCGVCW)		
	Approximate color of Munsell N9.25/ Black (UTG-LCGVCB)				
	Dimensions (H × W × D)	Net	in (mm)	Approximate color of Munsell N2	
		Gross		2-1/16 × 37-3/8 × 37-3/8 (53 × 950 × 950)	
	Weight	Net	lb (kg)	4-5/16 × 39-3/8 × 39-3/4 (110 × 1,000 × 1,010)	
Gross		13 (6)			
Remote controller type (Option)				Wired, Wireless, Mobile app*5 (AIRSTAGE Mobile)	
<p>NOTES:</p> <ul style="list-style-type: none"> Specifications are based on the following conditions: <ul style="list-style-type: none"> Cooling: Indoor temperature of 80°FDB/67°F WB (26.67°CDB/19.44°CWB), and outdoor temperature of 95°FDB/75°F WB (35°CDB/23.9°CWB). Heating: Indoor temperature of 70°FDB/60°F WB (21.11°CDB/15.56°CWB), and outdoor temperature of 47°FDB/43°F WB (8.33°CDB/6.11°CWB). *1: Heating (17°F): Indoor temperature of 70°FDB/60°F WB (21.11°CDB/15.56°CWB), and outdoor temperature of 17°FDB/15°F WB (-8.33°CDB/-9.44°CWB). *2: Heating (5°F): Indoor temperature of 70°FDB/60°F WB (21.11°CDB/15.56°CWB), and outdoor temperature of 5°FDB/4°F WB (-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: <ul style="list-style-type: none"> The maximum value when operated within the operation range. The total current of indoor unit and outdoor unit. *4: Sound pressure level: <ul style="list-style-type: none"> 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. 					

Type				Cassette			
				Inverter, Heat pump			
Model name				AUUh42KUAS	AUUh48KUAS		
Power supply intake				Outdoor unit			
System power supply		Voltage		208/230			
		Frequency		60			
		Available voltage range		187—253			
Indoor unit power supply (from outdoor unit)				208/230			
Capacity	Cooling	Rated	kW	12.31	13.48		
			Btu/h	42,000	46,000		
		Min.—Max.	kW	4.00—13.19	4.50—14.07		
			Btu/h	13,600—45,000	15,400—48,000		
	Heating	47°FDB (Outdoor temp.)	Rated	kW	13.77	14.95	
				Btu/h	47,000	51,000	
			Min.—Max.	kW	4.20—14.95	4.70—16.12	
				Btu/h	14,300—51,000	16,000—55,000	
		17°FDB (Outdoor temp.)*1	Rated	kW	9.38	10.55	
				Btu/h	32,000	36,000	
			Max.	kW	12.02	12.67	
				Btu/h	41,000	43,200	
5°FDB (Outdoor temp.)*2	Rated	kW	10.84	11.28			
		Btu/h	37,000	38,500			
	Max.	kW	10.84	11.28			
		Btu/h	37,000	38,500			
Input power	Cooling	Rated	kW	3.89	4.55		
				0.63—4.35	0.63—4.83		
		Heating	47°FDB (Outdoor temp.)	Rated	3.74	4.32	
					0.67—4.39	0.67—4.67	
	17°FDB (Outdoor temp.)*1		Rated	3.02	3.57		
				Max.	4.60	4.83	
	5°FDB (Outdoor temp.)*2	Rated	4.60	4.83			
			Max.	4.60	4.83		
	Fan			W	HIGH	106	129
					MED	60	95
					LOW	45	55
					QUIET	30	34
Current		Cooling	Rated	A	17.3	20.0	
		Heating			16.8	19.0	
EER2		Cooling		Btu/hW	10.8	10.1	
COP2		Heating		kW/kW	3.68	3.46	
SEER2		Cooling			19.0	18.2	
HSPF2		Heating			10.4	10.2	
Power factor		Cooling		%	97.8	98.9	
		Heating			96.8	98.9	
Moisture removal				pints/h (L/h)	9.3 (4.4)	10.6 (5.0)	
Maximum operating current*3		Cooling		A	24.0	25.0	
		Heating			24.0	25.0	
Fan	Airflow rate	Cooling	HIGH	CFM (m ³ /h)	1,177 (2,000)	1,236 (2,100)	
			MED		971 (1,650)	1,048 (1,780)	
			LOW		859 (1,460)	942 (1,600)	
			QUIET		765 (1,300)		
					1,177 (2,000)	1,236 (2,100)	
		Heating	HIGH	971 (1,650)	1,048 (1,780)		
			MED	859 (1,460)	942 (1,600)		
			LOW	765 (1,300)			
			QUIET	Turbo fan × 1			
				81			
Type × Qty							
Motor output		W		81			
Sound pressure level*4	Cooling		dB (A)	HIGH	47	48	
				MED	42	44	
				LOW	39	41	
				QUIET	36		
	Heating			dB (A)	HIGH	47	48
					MED	42	44
					LOW	39	41
					QUIET	36	
Dimensions (H × W × D)		in (mm)		Main 1: 9-15/16 × 83-7/8 × 1/2 (252 × 2,131 × 13.3) Main 2: 9-15/16 × 81-1/4 × 1/2 (252 × 2,064 × 13.3) Main 3: 9-15/16 × 78-11/16 × 1/2 (252 × 1,999 × 13.3)			
Fin pitch		FPI		Main 1: 20 Main 2: 20 Main 3: 20			
Rows × Stages				Main 1: 1 × 12 Main 2: 1 × 12 Main 3: 1 × 12			
Pipe type				Copper tube			
Fin type				Aluminum			
Dimensions (H × W × D)		Net		in (mm)			
		Gross		11-5/16 × 33-1/16 × 33-1/16 (288 × 840 × 840) 13-3/8 × 37-3/8 × 38-3/16 (340 × 950 × 970)			
Weight		Net		lb (kg)			
		Gross		64 (29) 73 (33)			
Connection pipe		Liquid		in (mm)			
		Gas		Ø3/8 (Ø9.52) 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)			
		Heating		%RH			
				80 or less			
				°F (°C)			
				60 to 86 (16 to 30)			

Type				Cassette	
				Inverter, Heat pump	
Model name				AUUh42KUAS	AUUh48KUAS
Cassette grille	Enclosure	Material	Polystyrene		
		Color	White (UTG-LCGVCW) Approximate color of Munsell N9.25/		
		Color	Black (UTG-LCGVCB) Approximate color of Munsell N2		
	Dimensions (H × W × D)	Net	in (mm)	2-1/16 × 37-3/8 × 37-3/8 (53 × 950 × 950)	
		Gross		4-5/16 × 39-3/8 × 39-3/4 (110 × 1,000 × 1,010)	
	Weight	Net	lb (kg)	13 (6)	
		Gross		22 (10)	
Remote controller type (Option)				Wired, Wireless, Mobile app*5 (AIRSTAGE Mobile)	
<p>NOTES:</p> <ul style="list-style-type: none"> • Specifications are based on the following conditions: <ul style="list-style-type: none"> – Cooling: Indoor temperature of 80°FDB/67°F WB (26.67°CDB/19.44°CWB), and outdoor temperature of 95°FDB/75°F WB (35°CDB/23.9°CWB). – Heating: Indoor temperature of 70°FDB/60°F WB (21.11°CDB/15.56°CWB), and outdoor temperature of 47°FDB/43°F WB (8.33°CDB/6.11°CWB). – *1: Heating (17°F): Indoor temperature of 70°FDB/60°F WB (21.11°CDB/15.56°CWB), and outdoor temperature of 17°FDB/15°F WB (-8.33°CDB/-9.44°CWB). – *2: Heating (5°F): Indoor temperature of 70°FDB/60°F WB (21.11°CDB/15.56°CWB), and outdoor temperature of 5°FDB/4°F WB (-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: <ul style="list-style-type: none"> – The maximum value when operated within the operation range. – The total current of indoor unit and outdoor unit. • *4: Sound pressure level: <ul style="list-style-type: none"> – 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. 					

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 7.5	
Fan	Airflow rate	Cooling	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)	
	Size		in (mm)	Liquid Ø1/4 (Ø6.35)
Method	Gas Ø1/2 (Ø12.70)			
	Flare			
Connection pipe	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:				
<ul style="list-style-type: none"> • Specifications are based on the following conditions: <ul style="list-style-type: none"> – 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 <ul style="list-style-type: none"> – 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 				

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 8.9			
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	66 (20)		
			Min. length	ft (m)	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

Models: AOUH30KUAS1, AOUH36KUAS1, AOUH42KUAS1 and AOUH48KUAS1

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	
Fan	Airflow rate	Cooling	10.6	
		Heating	14.1	
	Type × Qty	CFM (m ³ /h)	2,301 (3,910)	2,502 (4,250)
	Motor output		2,219 (3,770)	2,431 (4,130)
Sound pressure level*2			W	
Heat exchanger type	Dimensions (H × W × D)	Cooling	53	
		Heating	55	
	Fin pitch	in (mm)	Main 1: 38-1/16 × 35-5/8 × 11/16 (966 × 905 × 18.19)	
		FPI	Main 2: 38-1/16 × 35-5/8 × 11/16 (966 × 905 × 18.19)	
	Rows × Stages		Main 1: 18	
	Pipe type		Main 2: 18	
	Fin type	Type (Material)	Main 1: 1 × 46	
	Surface treatment	Main 2: 1 × 46		
Compressor			Copper tube	
Refrigerant	Type		Aluminum	
	Motor output	W	Blue fin	
	Type		DC twin rotary	
Refrigerant oil	Charge	lb oz	1,830	
		g	R32	
Enclosure	Type		4 lb 7 oz	
	Amount	in ³ (cm ³)	2,000	
Dimensions (H × W × D)	Material		RmM68AF	
	Color		48.8 (800)	
Weight	Net	in (mm)	Steel sheet	
	Gross		Beige	
Connection pipe	Size		Approximate color of Munsell 10YR 7.5/1.0	
	Method		39-5/16 × 37 × 12-5/8 (998 × 940 × 320)	
Operation range	Pre-charge length		46-5/16 × 40-7/16 × 17-1/2 (1,176 × 1,027 × 445)	
	Min. length			
Drain hose	Max. length			
	Max. height difference			
Material	Liquid	in (mm)	137 (62)	
	Gas		157 (71)	
Tip diameter	Pre-charge length		Ø3/8 (Ø9.52)	
	Min. length		Ø5/8 (Ø15.88)	
Heating	Max. length		Flare	
	Max. height difference		66 (20)	
Cooling	Min. length	ft (m)	16 (5)	
	Max. length		164 (50)	
Heating	Max. height difference		98 (30)	
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			
Cooling	Max. height difference			
	Min. length			
Heating	Max. length			
	Max. height difference			
Cooling	Min. length			
	Max. length			
Heating	Max. height difference			
	Min. length			
Cooling	Max. length			
	Max. height difference			
Heating	Min. length			
	Max. length			

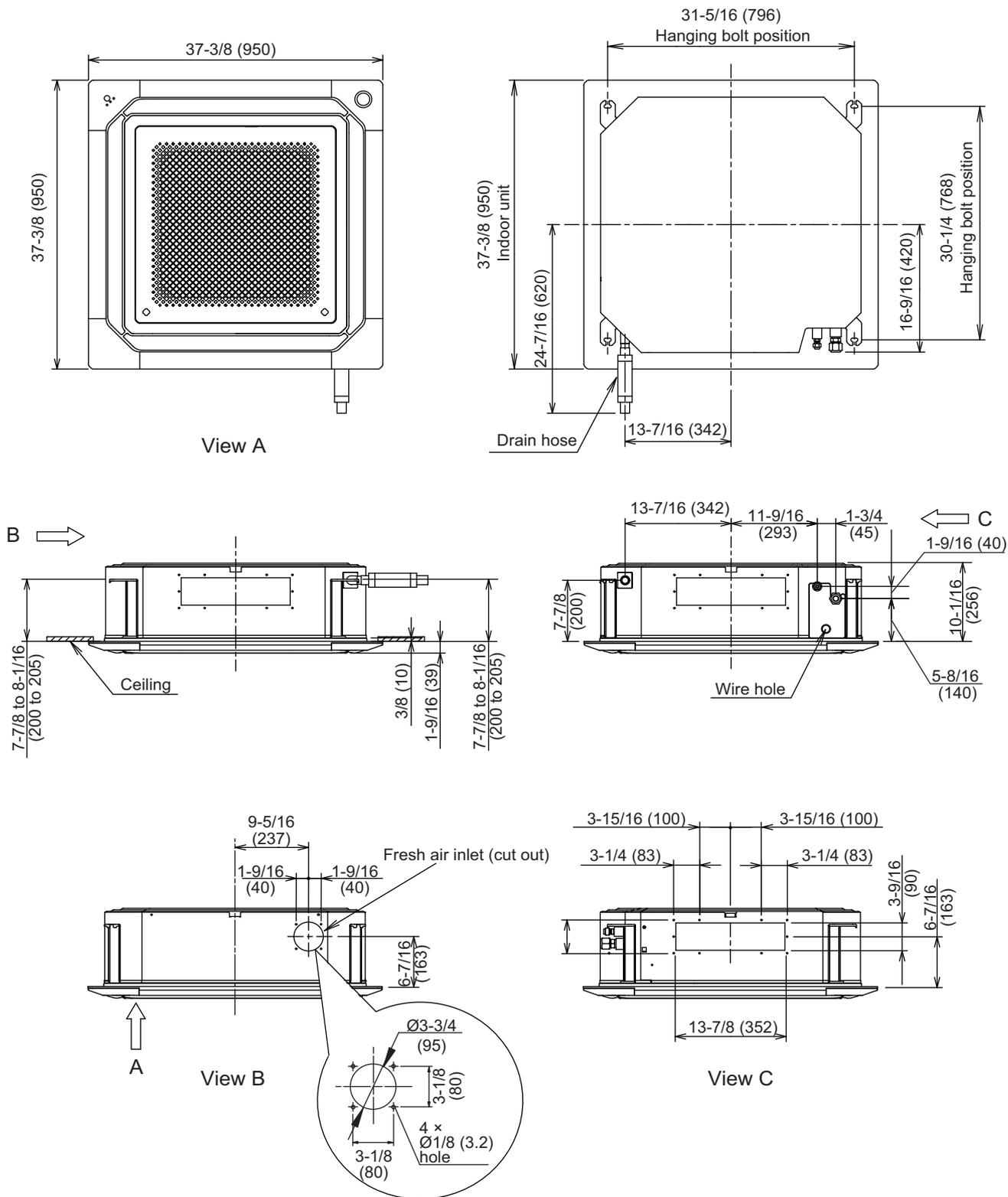
Type			Inverter, Heat pump				
Model name			AOUH42KUAS1	AOUH48KUAS1			
Power supply			208/230 V~ 60 Hz				
Power supply intake			Outdoor unit				
Available voltage range			187—253 V				
Starting current			A				
			17.3	20.0			
Fan	Airflow rate	Cooling	CFM (m ³ /h)	2,443 (4,150)	2,619 (4,450)		
		Heating					
	Type × Qty	Propeller fan × 1					
Motor output			W	120			
Sound pressure level*1			dB (A)	55	57		
				57	59		
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)	
			Sub: 38-1/16 × 21-3/8 × 11/16 (966 × 543 × 18.19)				
			Fin pitch	FPI		Main 1: 18 Main 2: 18 Sub: 18	
			Rows × Stages			Main 1: 1 × 46 Main 2: 1 × 46 Sub: 1 × 46	
			Pipe type			Copper tube	
			Fin type	Aluminum			
			Type (Material)	Blue fin			
Compressor			Type	DC twin rotary			
			Motor output	W	2,550		
Refrigerant			Type	R32			
			Charge	lb oz	5 lb 15 oz		
				g	2,700		
Refrigerant oil			Type	RmM68AF			
			Amount	in ³ (cm ³)	70.2 (1,150)		
Enclosure			Material	Steel sheet			
			Color	Beige			
			Approximate color of Munsell 10YR 7.5/1.0				
Dimensions (H × W × D)			Net	in (mm)			
			Gross	39-5/16 × 37 × 12-5/8 (998 × 940 × 320)			
			46-5/16 × 40-7/16 × 17-1/2 (1,176 × 1,027 × 445)				
Weight			Net	lb (kg)			
			Gross	157 (71)			
			176 (80)				
Connection pipe			Size	Liquid	in (mm)		
				Gas			Ø3/8 (Ø9.52)
							Ø5/8 (Ø15.88)
			Method			Flare	
			Pre-charge length			98 (30)	
			Min. length			16 (5)	
Max. length			246 (75)				
Max. height difference			98 (30)				
Operation range			Cooling	°F (°C)			
			Heating	-5 to 122*2 (-21 to 50*2)			
			-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:							
<ul style="list-style-type: none"> Specifications are based on the following conditions: <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 							

2. Dimensions

2-1. Indoor unit

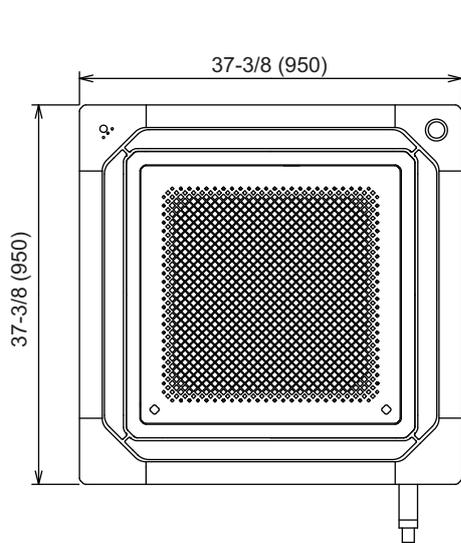
■ Models: AUUH18KUAS and AUUH24KUAS

Unit: in (mm)

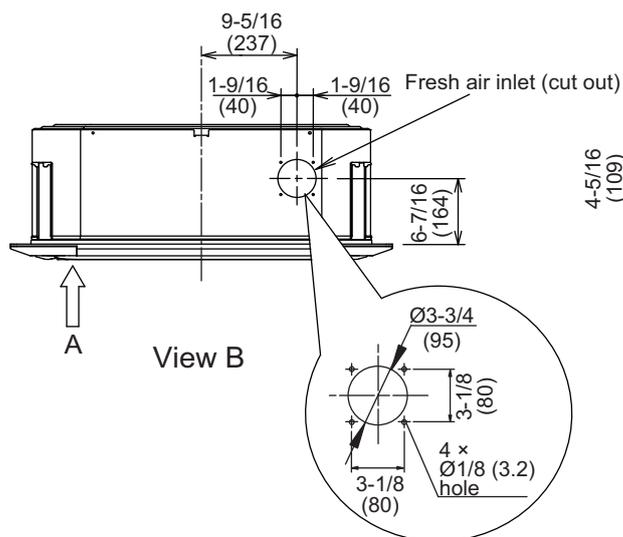
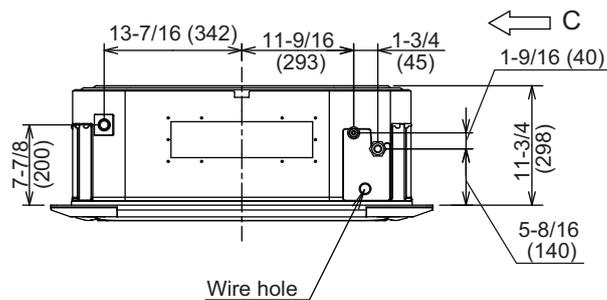
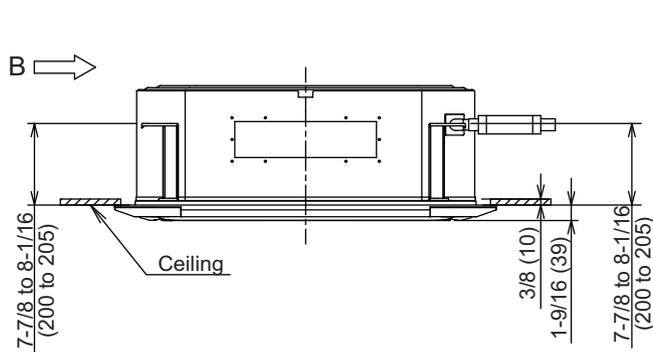
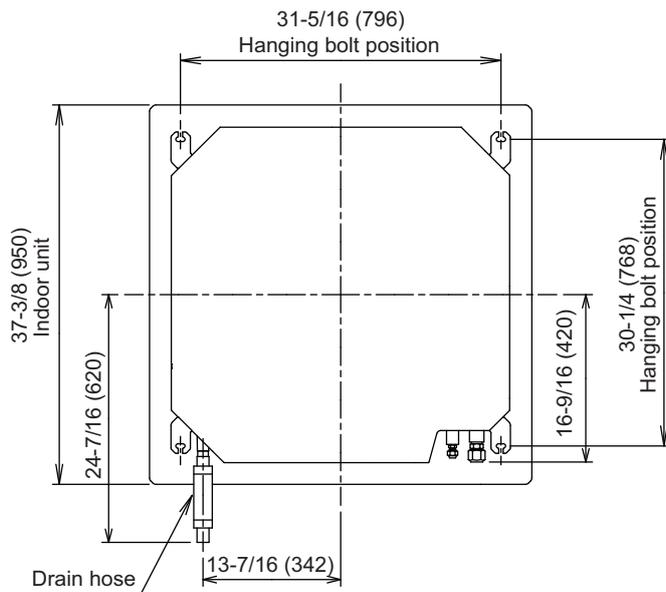


■ Models: AUUH30KUAS, AUUH36KUAS, AUUH42KUAS, and AUUH48KUAS

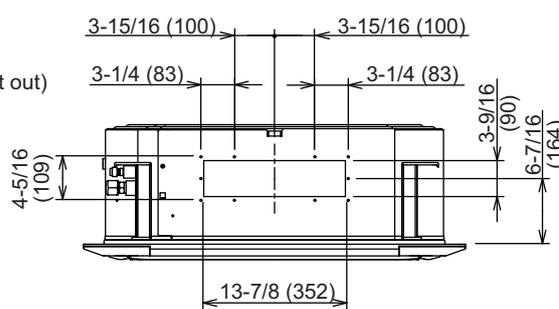
Unit: in (mm)



View A



View B

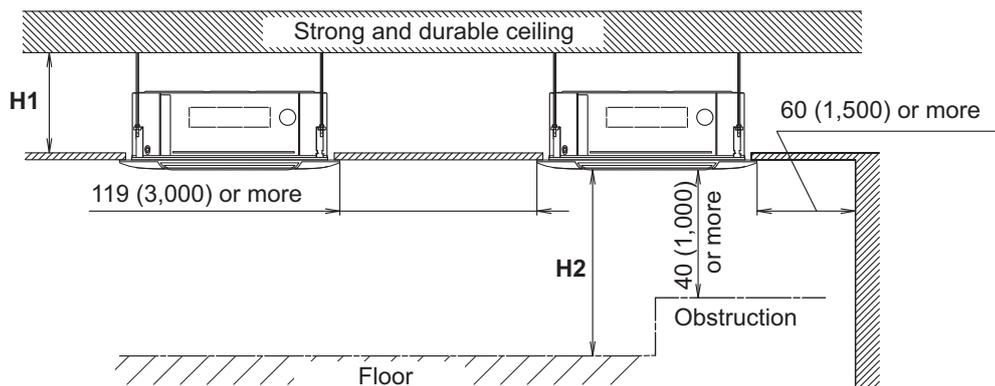


View C

■ Installation space requirement

Provide sufficient installation space for product safety.

Unit: in (mm)



- **H1: Minimum height from bottom of the product to ceiling**

AUUh18-24KUAS	AUUh30-48KUAS
11 (256)	12 (298)

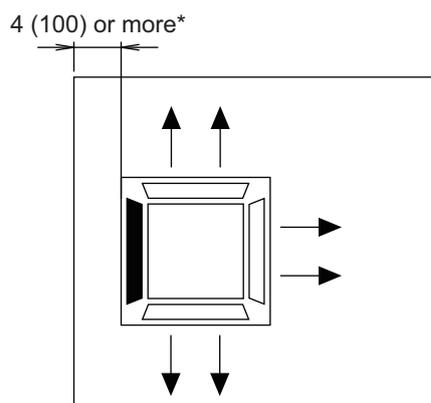
- **H2: Maximum height from floor to ceiling**

Function setting number 20	Minimum height	Maximum height	
		AUUh18-24KUAS	AUUh30-48KUAS
00: Standard	99 (2,500)	119 (3,000)	126 (3,200)
01: High ceiling		138 (3,500)	166 (4,200)
02: Low ceiling		107 (2,700)	

Be sure to make the function settings with the remote controller according to the installed ceiling height.

● For 3-direction setting

Unit: in (mm)

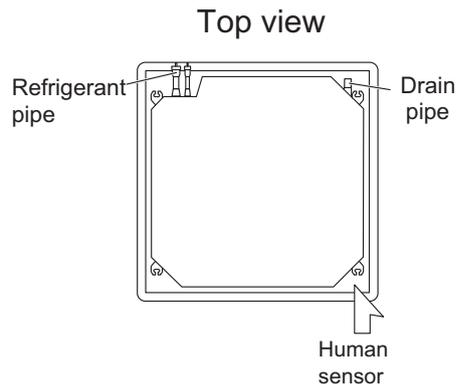


NOTES:

- To set "3-direction", optional Air Outlet Shutter Plate (UTR-YDZK) must be installed, and the "outlet-direction" need to be switched to "3-way" by remote controller.
- *: When installing the indoor unit, be careful about the maintenance space.
- The ceiling height cannot be set in the 3-way outlet mode. Therefore, ceiling height setting change by function setting 20 is prohibited.

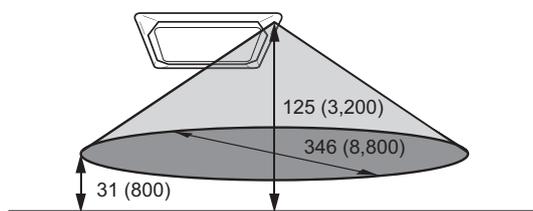
● Human Sensor (Option)

NOTE: A separate device capable of controlling the human sensor (energy saving) function, such as the Touch Panel Controller, is required for use.



Example of sensitivity range:

Unit: in (mm)



Equal sensitivity range of temperature	Ceiling height	125 (3,200)
	Detecting position	31 (800) from floor surface

NOTE: When the installation height gets higher, the temperature sensitivity decreases.

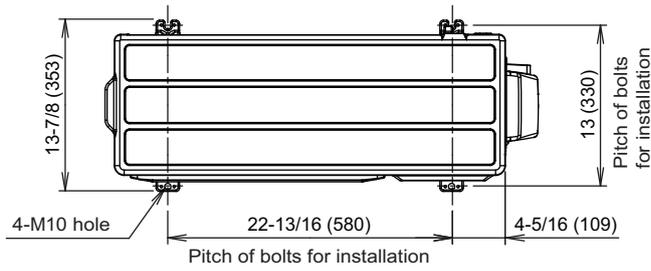
⚠ CAUTION

Do not place large objects near the human sensor. Also keep heating units outside the sensor's detection area.

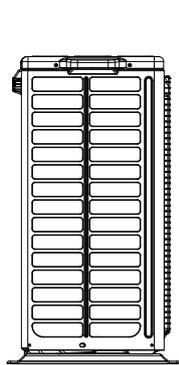
2-2. Outdoor unit

■ Model: AOUH18KUAS1

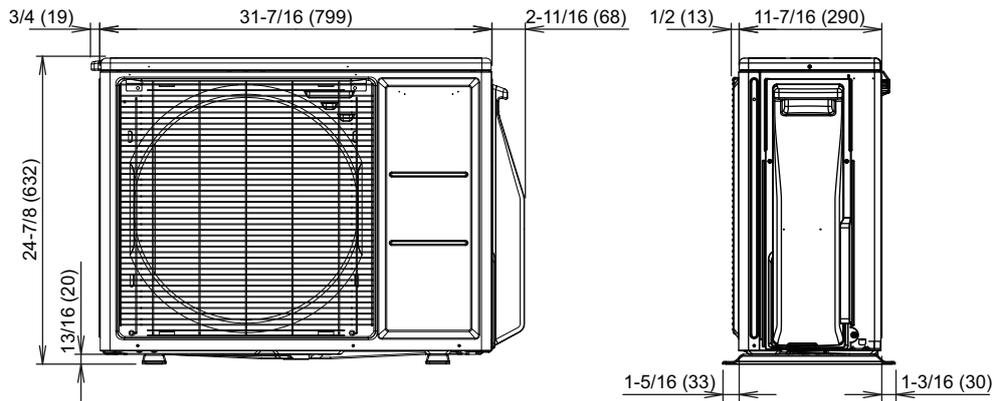
Unit: in (mm)



Top view



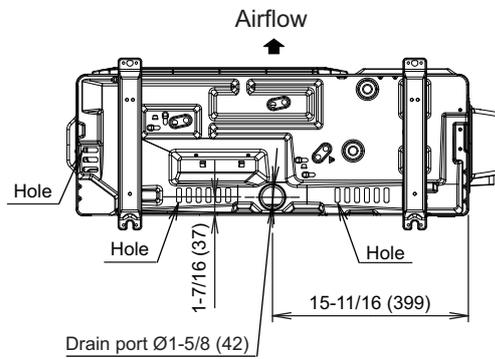
Side view



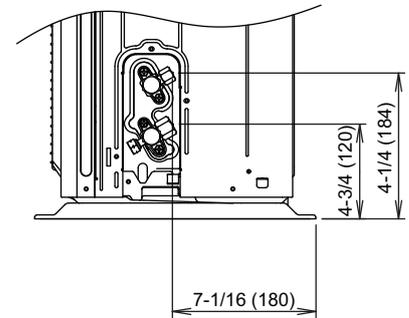
Front view



Side view



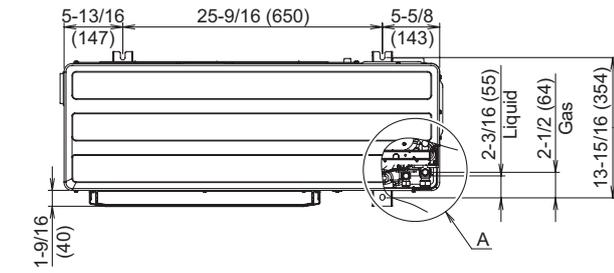
Bottom view



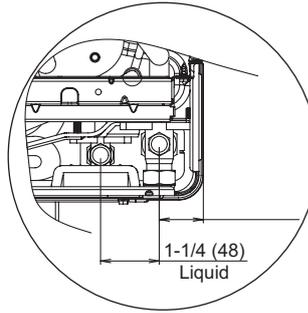
Side view (Valve part)

Model: AOUH24KUAS1

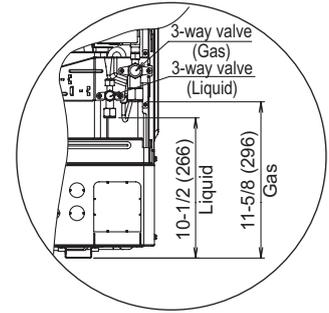
Unit: in (mm)



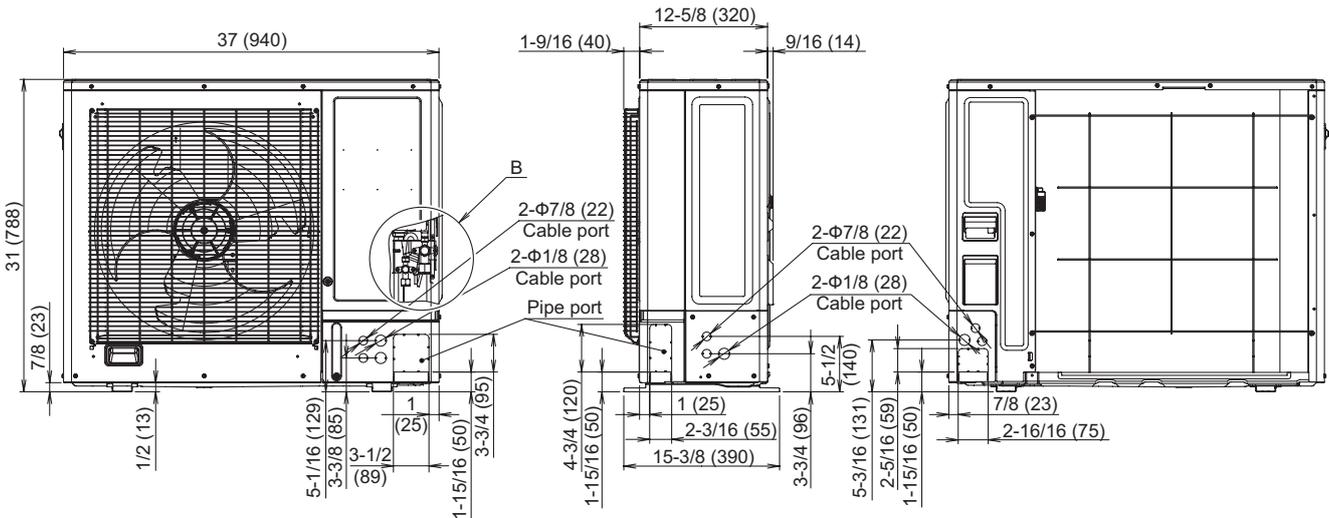
Top view



Detail A



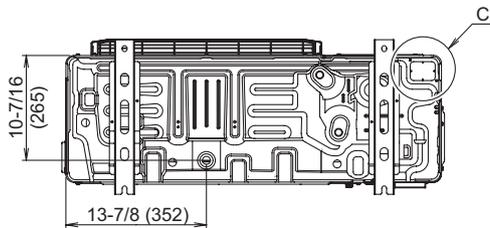
Detail B



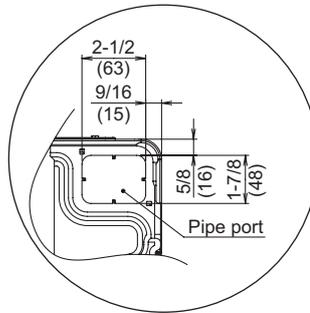
Front view

Side view

Rear view



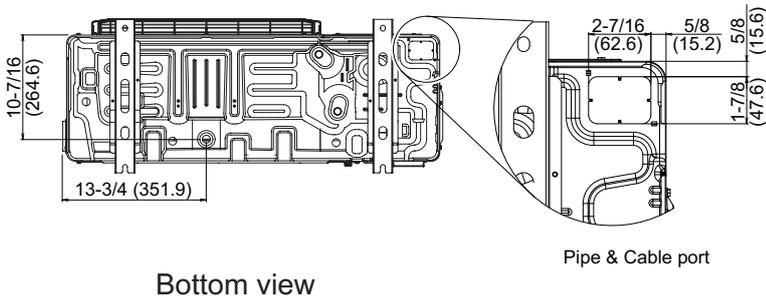
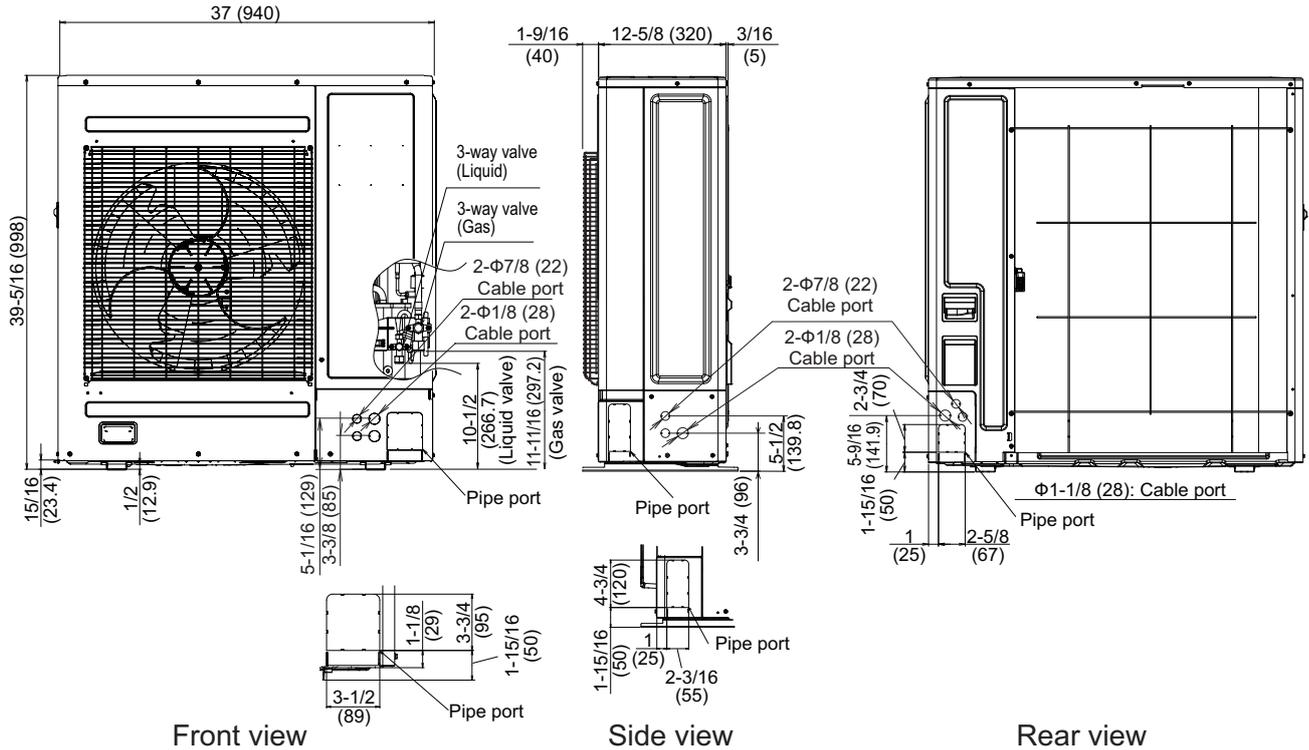
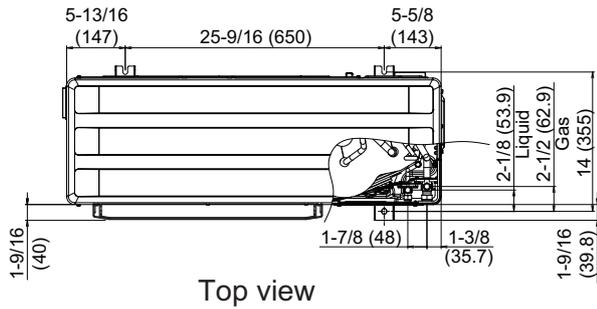
Bottom view



Detail C

Models: AOUH30KUAS1, AOUH36KUAS1, AOUH42KUAS1 and AOUH48KUAS1

Unit: in (mm)



2. TECHNICAL DATA AND PARTS LIST

CONTENTS

2. TECHNICAL DATA AND PARTS LIST

1. Precautions	02-1
2. Cassette Grille (option) parts list	02-2
2-1. Models: UTG-LCGVCW and UTG-LCGVCB	02-2
3. Indoor unit parts list	02-4
3-1. Models: AUUH18KUAS and AUUH24KUAS	02-4
3-2. Models: AUUH30KUAS, AUUH36KUAS, AUUH42KUAS, and AUUH48KUAS.....	02-8
4. Outdoor unit parts list	02-12
4-1. Model: AOUH18KUAS1.....	02-12
4-2. Model: AOUH24KUAS1.....	02-16
4-3. Models: AOUH30KUAS1, AOUH36KUAS1, AOUH42KUAS1 and AOUH48KUAS1	02-20
5. Accessories	02-26
5-1. Indoor unit	02-26
5-2. Outdoor unit.....	02-27
6. Optional parts	02-28
6-1. Indoor unit	02-28
6-2. Outdoor unit.....	02-31
7. Refrigerant system diagrams	02-32
7-1. Model: AOUH18KUAS1.....	02-32
7-2. Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1	02-33
7-3. Models: AOUH42KUAS1 and AOUH48KUAS1	02-34
8. Wiring diagrams	02-35
8-1. Indoor unit	02-35
8-2. Outdoor unit.....	02-36
9. PC board diagrams	02-38
9-1. Models: AUUH18KUAS, AUUH24KUAS, AUUH30KUAS, AUUH36KUAS, AUUH42KUAS, and AUUH48KUAS	02-38
9-2. Model: AOUH18KUAS1.....	02-39
9-3. Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1	02-40
9-4. Models: AOUH42KUAS1 and AOUH48KUAS1	02-41

1. Precautions

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

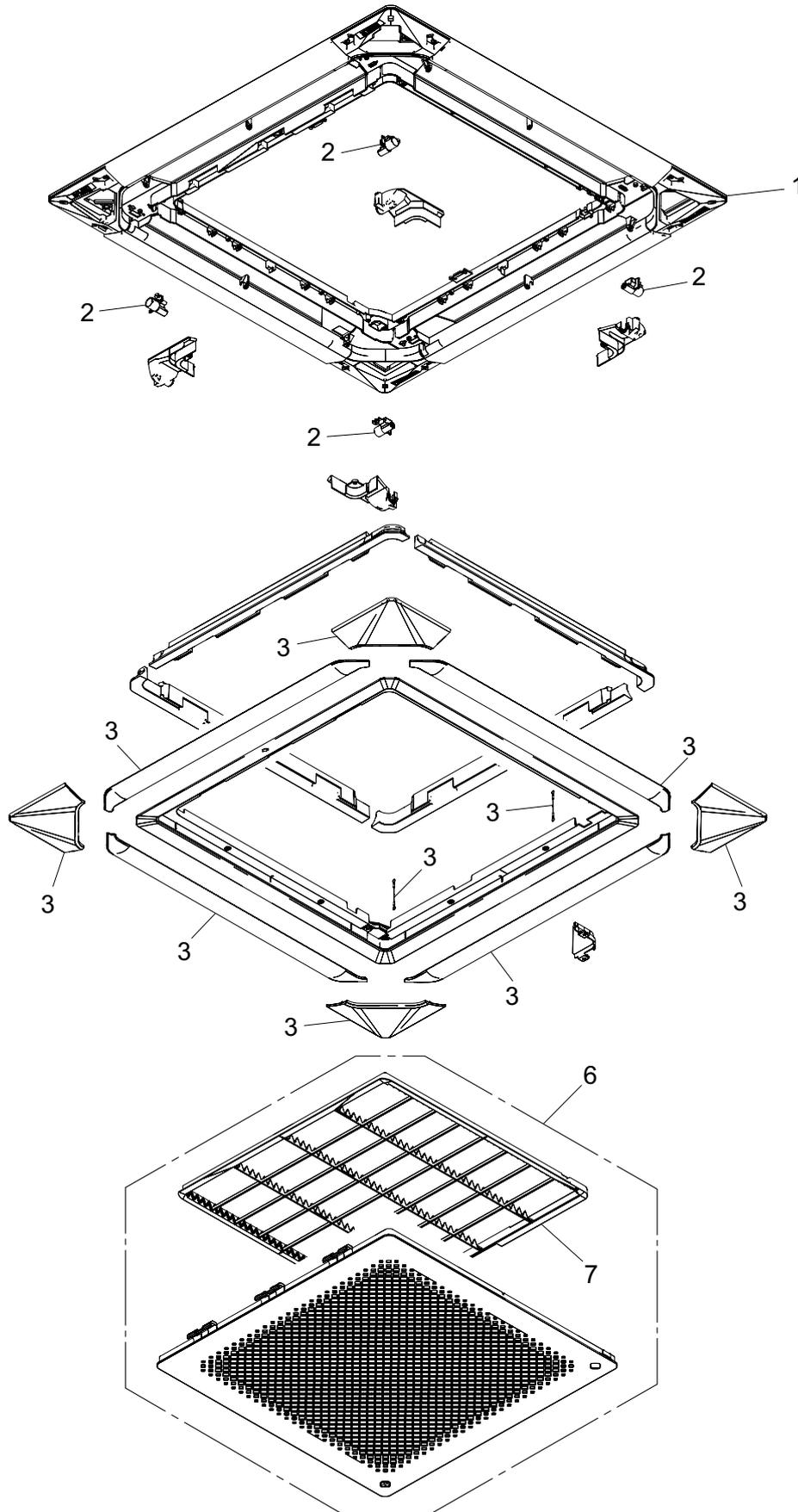
⚠ CAUTION

- 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.

2. Cassette Grille (option) parts list

2-1. Models: UTG-LCGVCW and UTG-LCGVCB

Overall

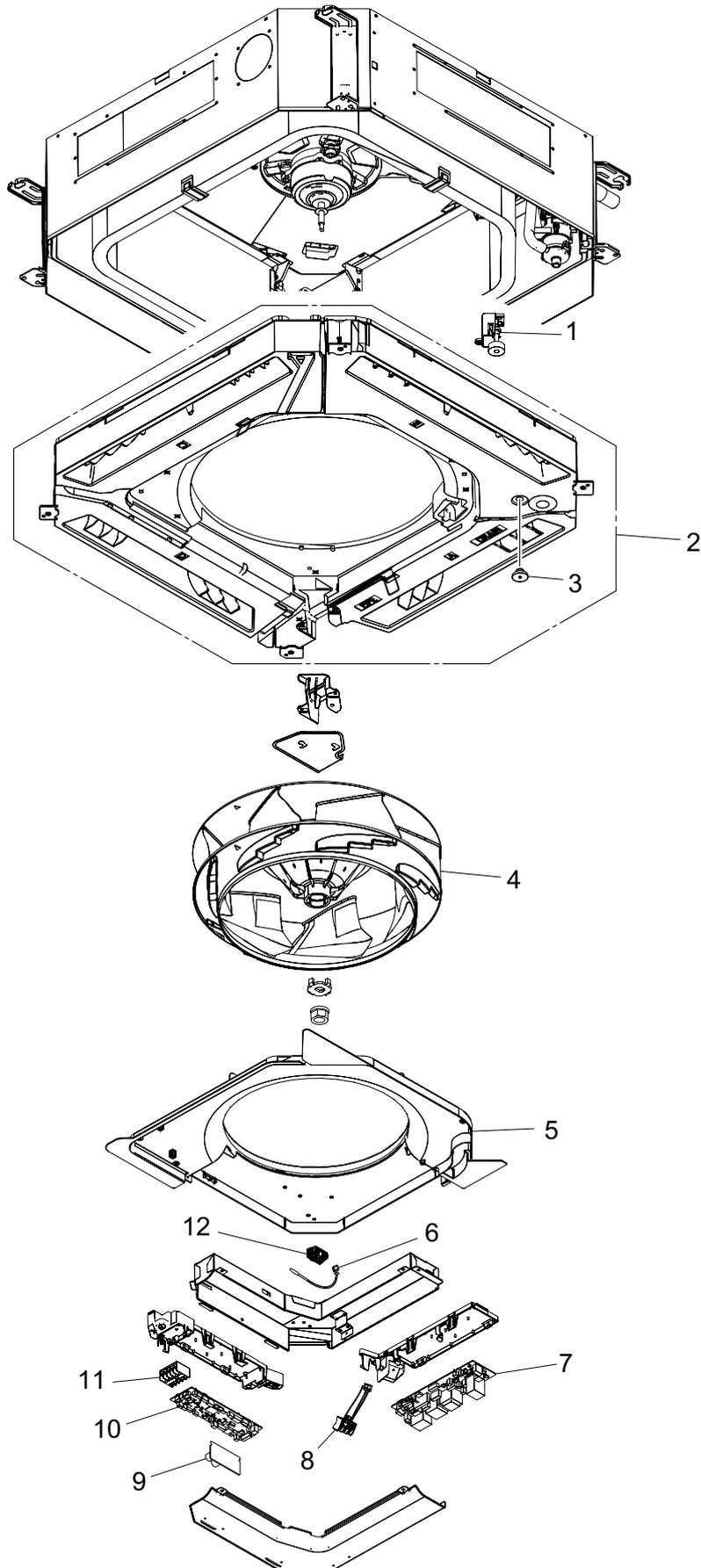


Item no.	Part no.	Part name
1	9381352005	Decoration panel (White)
	9381352012	Decoration panel (Black)
2	9381712007	Motor case assy (White)
	9381712014	Motor case sub assy (Black)
3	9381693009	Louver assy (White)
	9381693016	Louver assy (Black)
4	9381711000	Corner panel assy (White)
	9381711017	Corner panel assy (Black)
5	9378597020	Hook wire
6	9381691111	Intake grille assy (White)
	9381691043	Intake grille sub assy (Black)
7	9378252028	Long-life filter
—	9710175008	Wire with connector (Motor case assy—CN37 on Main PCB of the indoor unit)

3. Indoor unit parts list

3-1. Models: AUUH18KUAS and AUUH24KUAS

■ Fan and PC boards

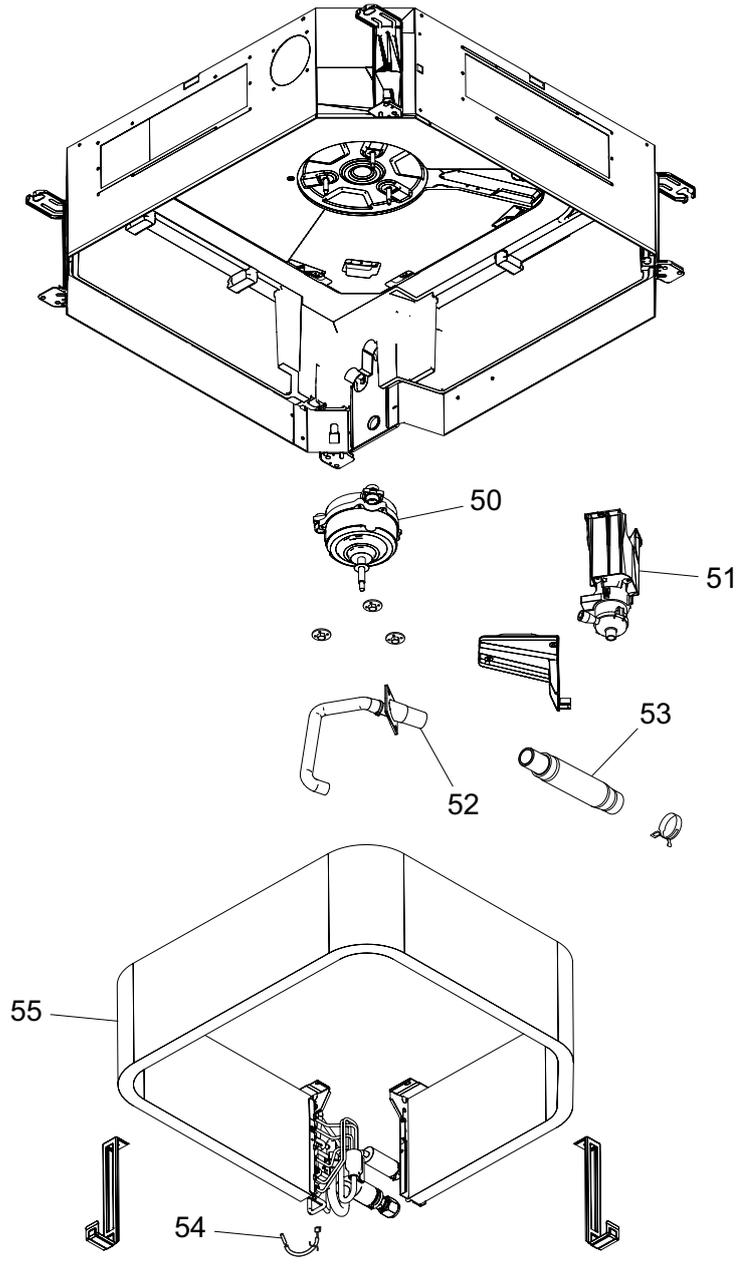


Item no.	Part no.	Part name
1	9381794003	Float switch sub assy
2	9381789023	Drain pan sub assy
3	9375502010	Drain cap
4	9381303007	Turbo fan assy
5	9381484010	Bell-mouth hood L
6	9900822002	Thermistor (Room temp.)
7	9712450011	Power supply PCB
8	9900720032	Terminal block 3P
9	9710019005	Communication PCB
10	9712270329	Main PCB (18 model)
	9712270336	Main PCB (24 model)
11	9901150012	Terminal block 5P
12	9381348008	Room temp. thermistor holder
—	9710177002	Wire with connector (CN46 on Main PCB—1, 2 on Terminal block 5P)
—	9712283039	Wire with connector (CN54 on Main PCB—CN303 on Power supply PCB)
—	9710172007	Wire with connector (CN55 on Main PCB—CN304 on Power supply PCB)
—	9712410039	Wire with connector (CN300 on Main PCB—Y1, Y2 on Terminal block 5P)
—	9707411027	Wire with terminal (W100 on Main PCB—GND)
—	9711199003	Wire with terminal (T303 on Power supply PCB—GND)

■ Chassis

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST



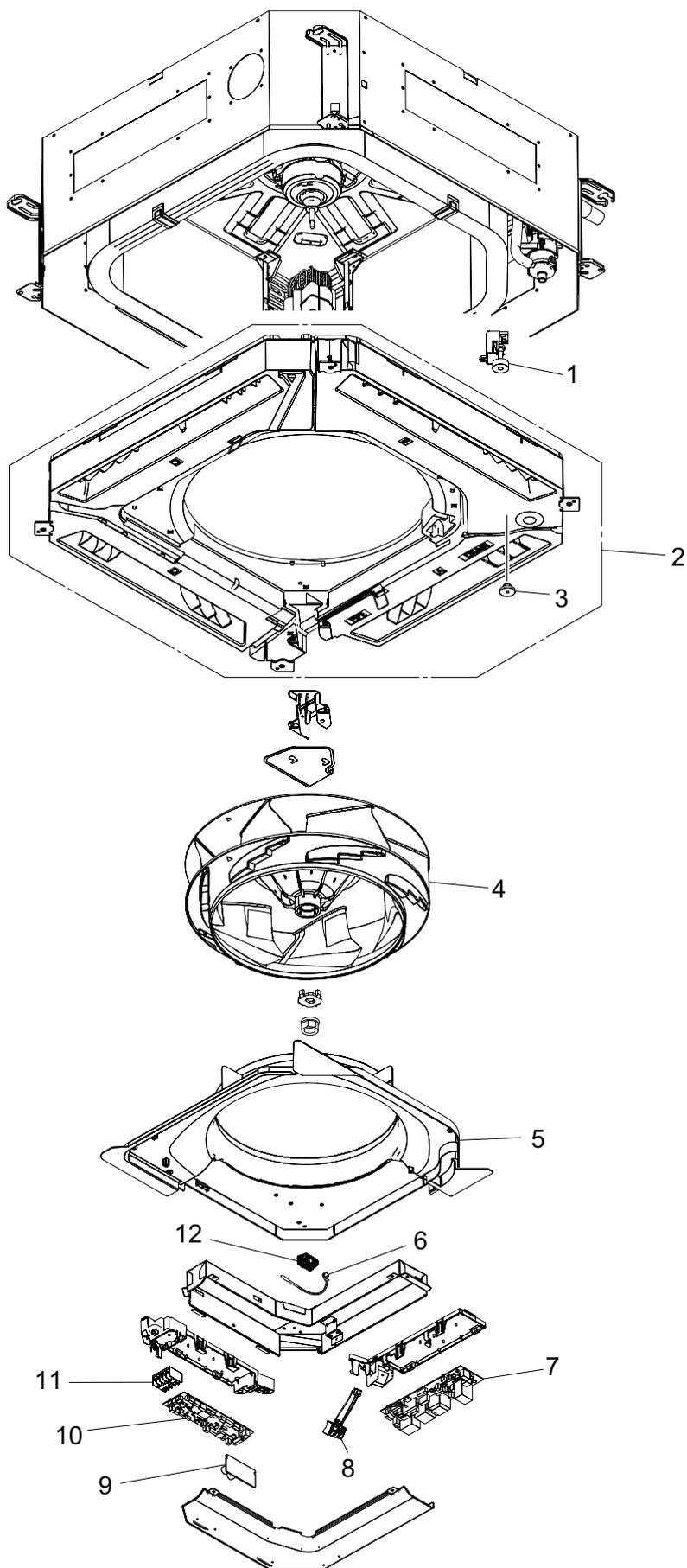
Item no.	Part no.	Part name
50	9381912018	DC fan motor
51	9381793006	Drain pump sub assy
52	9381788002	Drain port sub assy
53	9377785022	Drain hose assy
54	9900347024	Thermistor (Pipe temp.)
55	9360033048	Evaporator total assy (18 model)
	9360033024	Evaporator total assy (24 model)

3-2. Models: AUUH30KUAS, AUUH36KUAS, AUUH42KUAS, and AUUH48KUAS

■ Fan and PC boards

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST

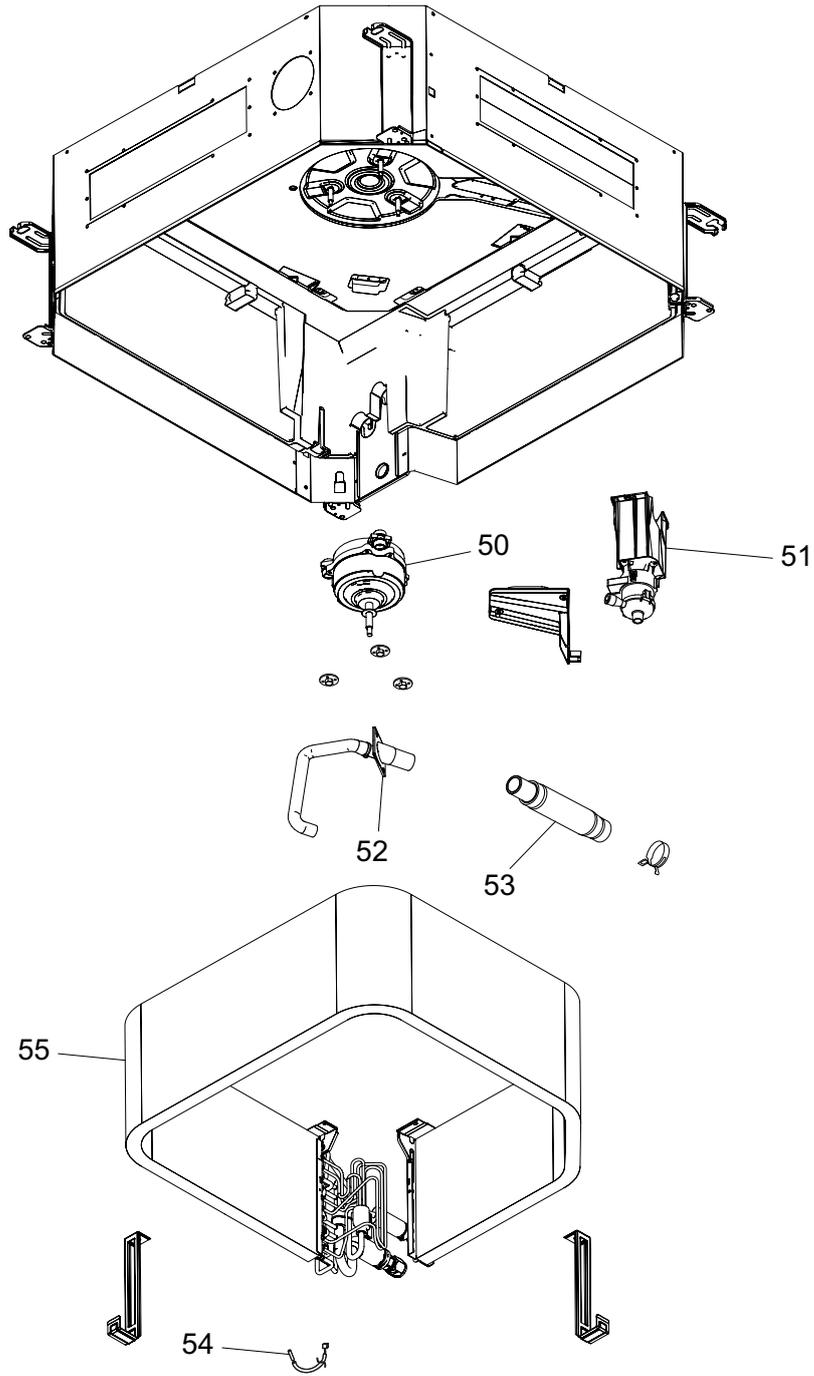


Item no.	Part no.	Part name
1	9381794003	Float switch sub assy
2	9381789023	Drain pan sub assy
3	9375502010	Drain cap
4	9381303007	Turbo fan assy
5	9381345014	Bell-mouth hood H
6	9900822002	Thermistor (Room temp.)
7	9712450011	Power supply PCB
8	9900720032	Terminal block 3P
9	9710019005	Communication PCB
10	9712270343	Main PCB (30 model)
	9712270350	Main PCB (36 model)
	9712270367	Main PCB (42 model)
	9712270374	Main PCB (48 model)
11	9901150012	Terminal block 5P
12	9381348008	Room temp. thermistor holder
—	9710177002	Wire with connector (CN46 on Main PCB—1 and 2 on Terminal block 5P)
—	9712283039	Wire with connector (CN54 on Main PCB—CN303 on Power supply PCB)
—	9710172007	Wire with connector (CN55 on Main PCB—CN304 on Power supply PCB)
—	9712410039	Wire with connector (CN300 on Main PCB—Y1 and Y2 on Terminal block 5P)
—	9707411027	Wire with terminal (W100 on Main PCB—GND)
—	9711199003	Wire with terminal (T303 on Power supply PCB—GND)

■ Chassis

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST



Item no.	Part no.	Part name
50	9381912001	DC fan motor
51	9381793006	Drain pump sub assy
52	9381788002	Drain port sub assy
53	9377785022	Drain hose assy
54	9900347024	Thermistor (Pipe temp.)
55	9360033017	Evaporator total assy (30 and 36 models)
	9360033000	Evaporator total assy (45 and 54 models)

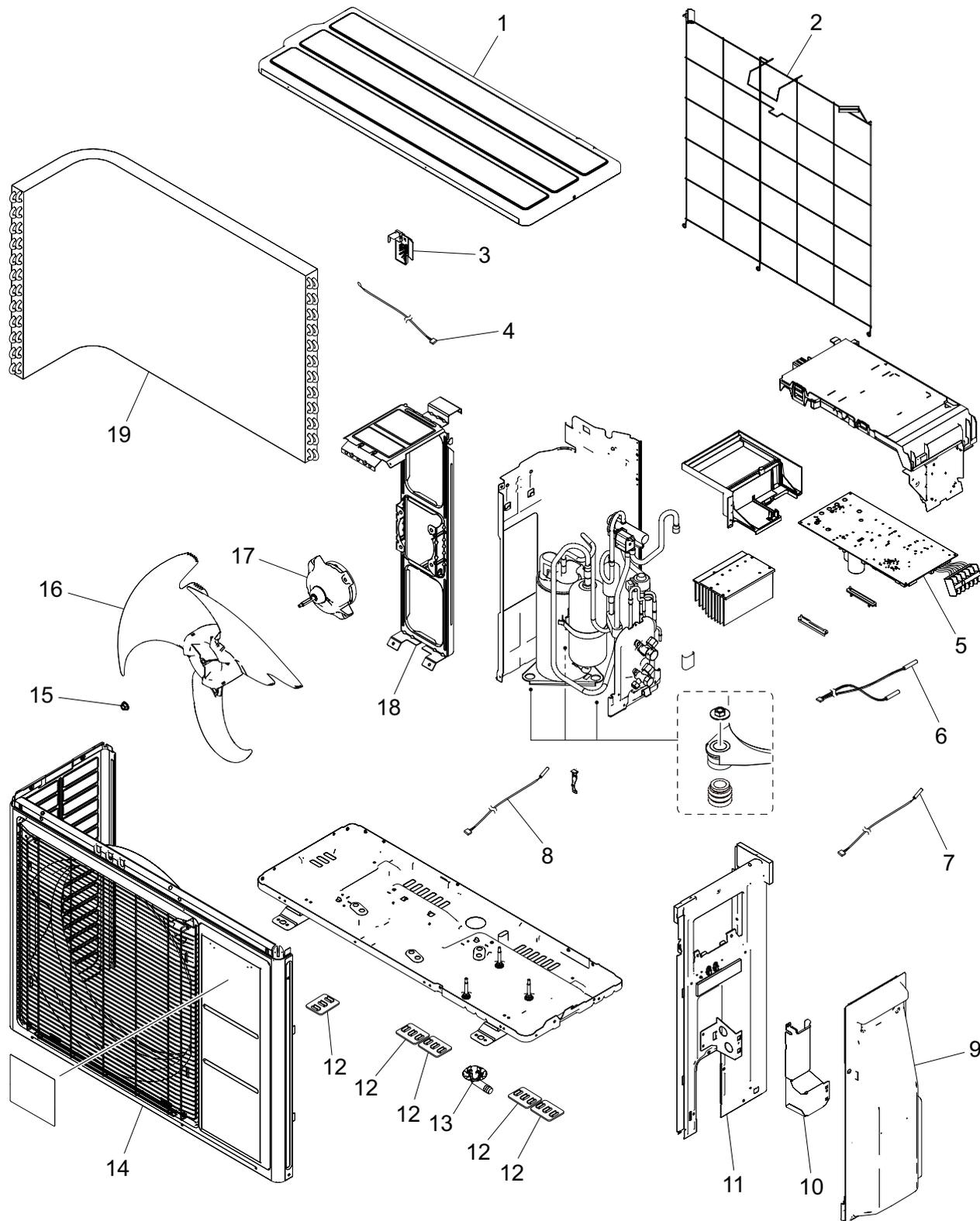
4. Outdoor unit parts list

4-1. Model: AOUH18KUAS1

■ Exterior parts and Chassis

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST

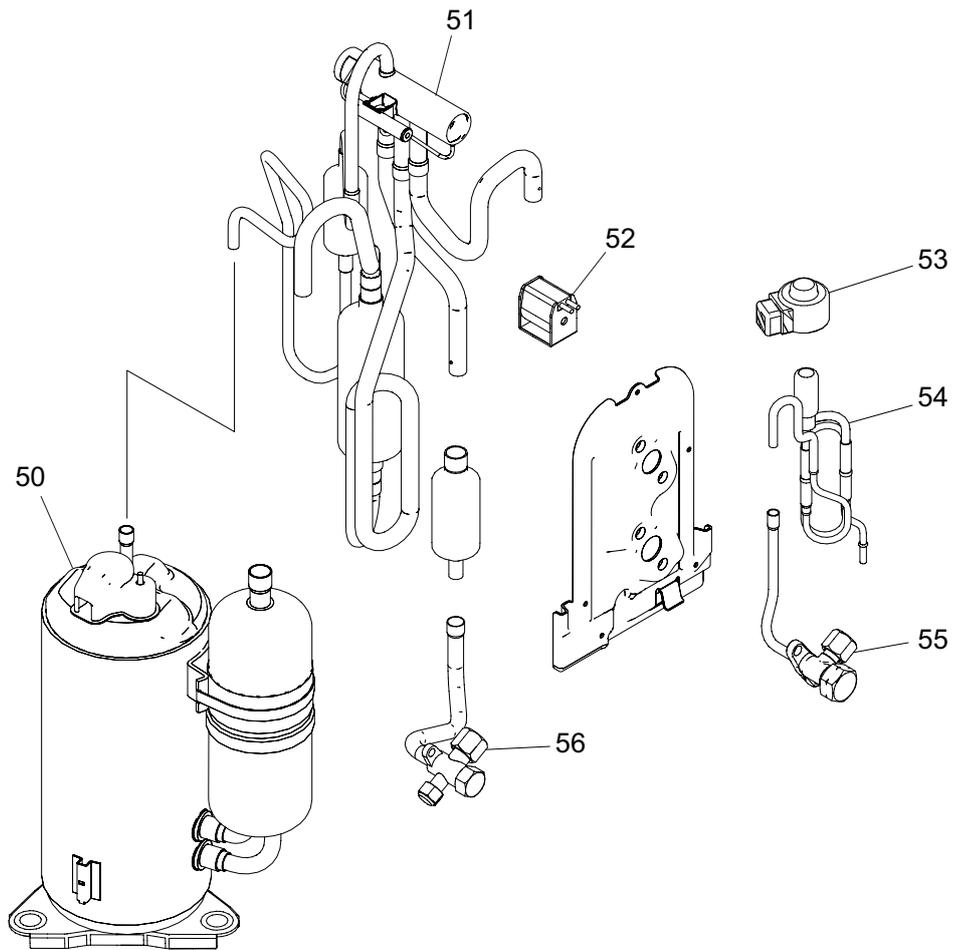


Item no.	Part no.	Part name
1	9322556028	Top panel assy
2	9377854001	Protective net
3	9322327000	Thermistor holder
4	9900565145	Thermistor (Outdoor temp.)
5	9712996052	Main PCB
6	9900935054	Thermistor assy
7	9900984014	Thermistor (Heat exchanger temp.)
8	9900985011	Thermistor (Compressor temp.)
9	9322570178	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

■ Compressor

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST



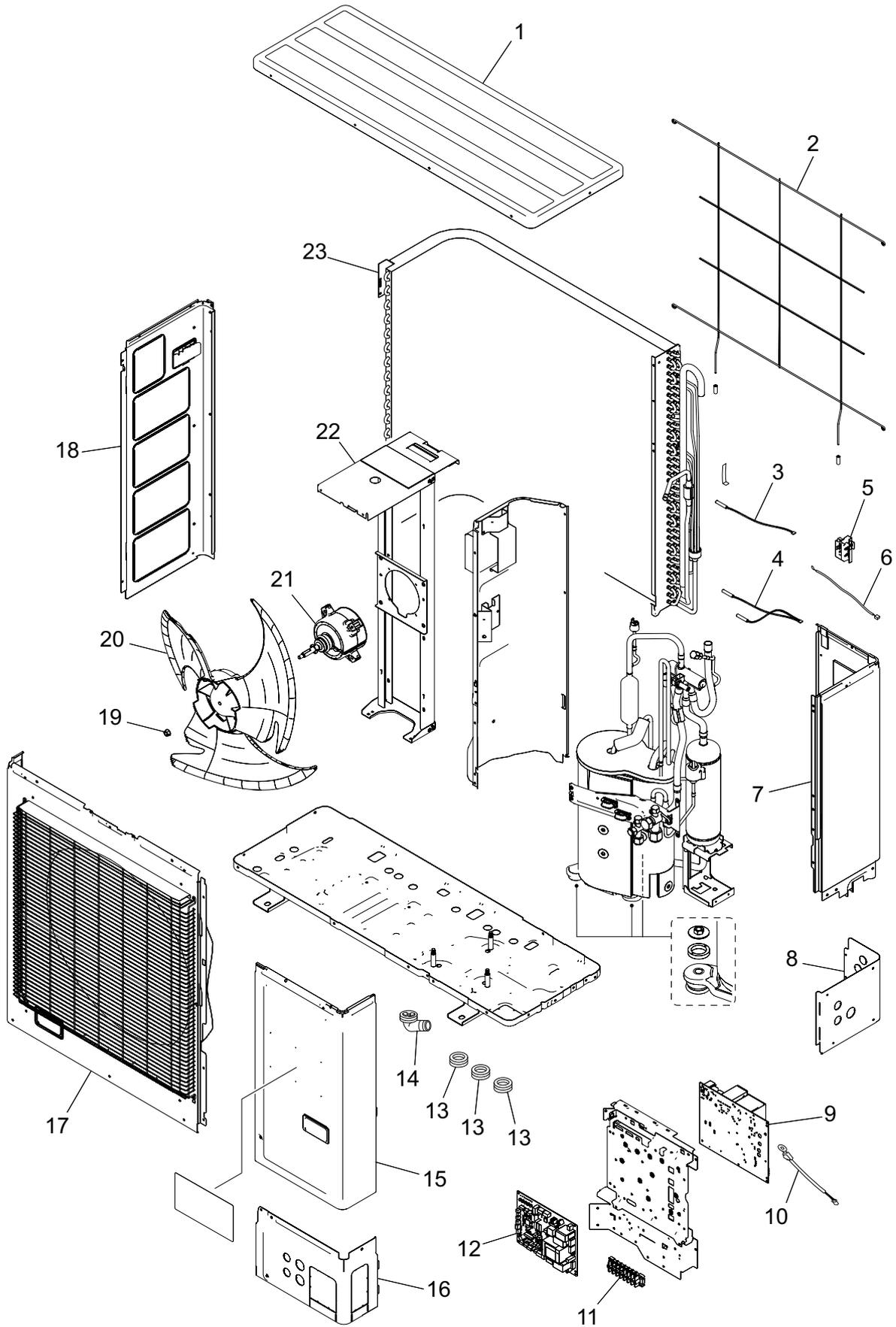
Item no.	Part no.	Part name
50	9810521002	Compressor
51	9322446015	4-way valve assy
52	9970194023	Solenoid
53	9970222016	Expansion valve coil
54	9322463029	Pulse motor valve assy
55	9322474001	2-way valve assy
56	9387831016	3-way valve assy

4-2. Model: AOUH24KUAS1

■ Exterior parts and chassis

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST

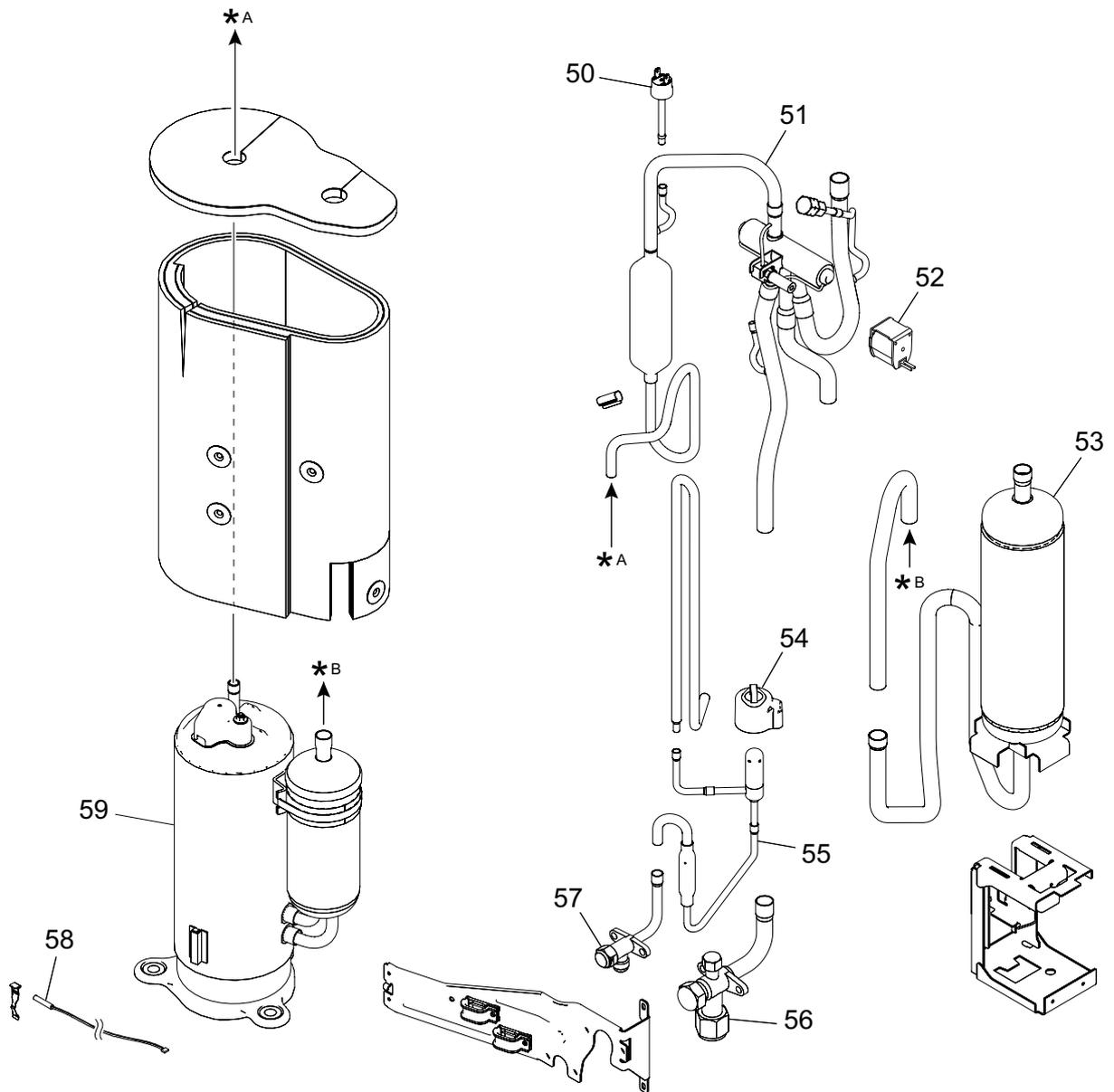


Item no.	Part no.	Part name
1	9383880001	Top panel sub assy
2	9383779008	Protective net
3	9900984038	Thermistor (Heat exchanger temp.)
4	9900727154	Thermistor assy
5	9900565152	Thermistor (Outdoor temp.)
6	9383607004	Thermostat holder
7	9383874000	Right panel sub assy
8	9384997005	Rear pipe cover
9	9712996083	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])

Compressor

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST



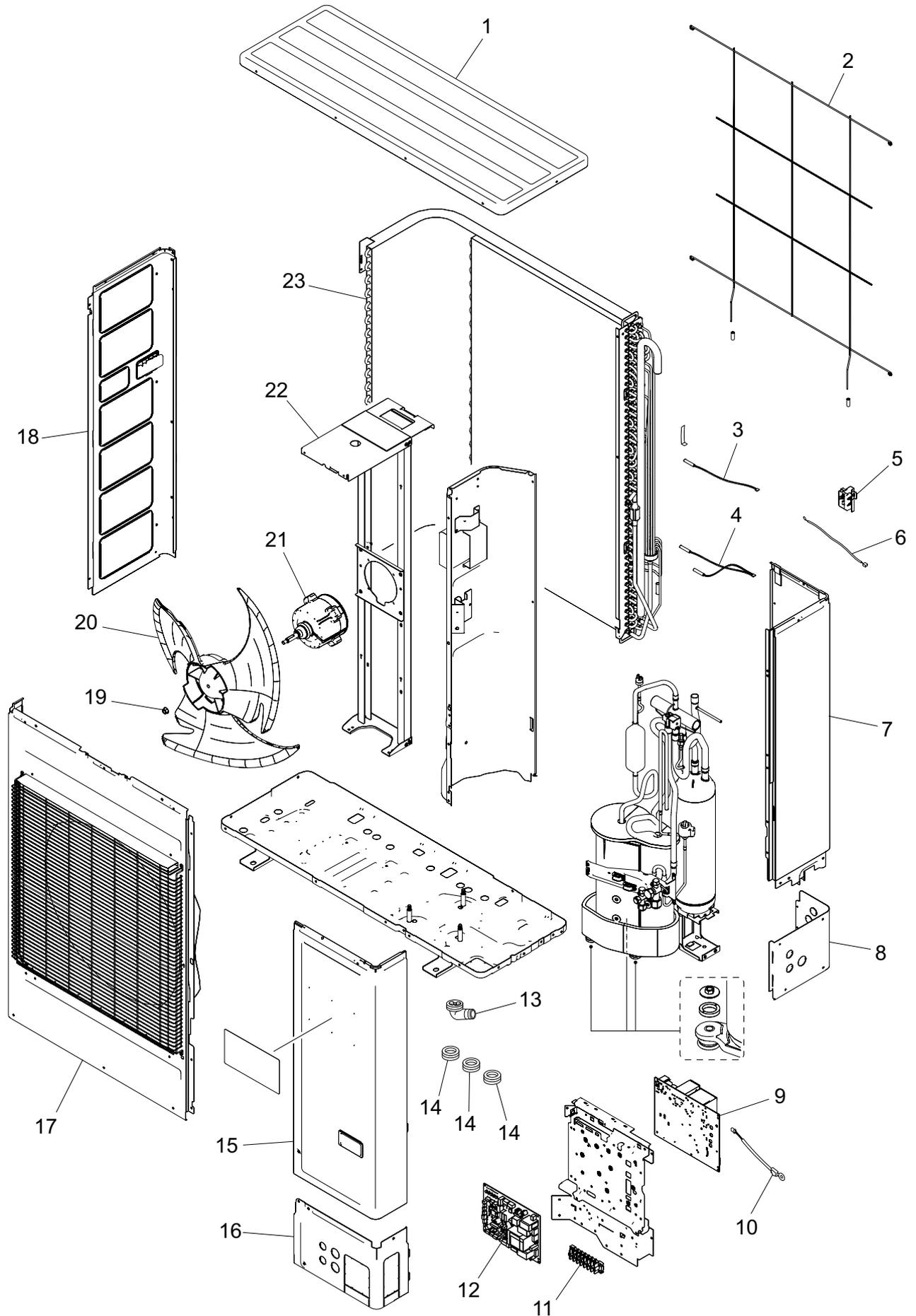
Item no.	Part no.	Part name
50	9900186029	Pressure switch
51	9374425723	4-way valve assy
52	9970194016	Solenoid
53	9375250263	Accumulator assy
54	9970209000	Expansion valve coil
55	9370947373	Expansion valve assy
56	9970221002	3-way valve assy
57	9317171182	2-way valve assy
58	9900985035	Thermistor (Compressor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

4-3. Models: AOUH30KUAS1, AOUH36KUAS1, AOUH42KUAS1 and AOUH48KUAS1

Exterior parts and chassis

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST

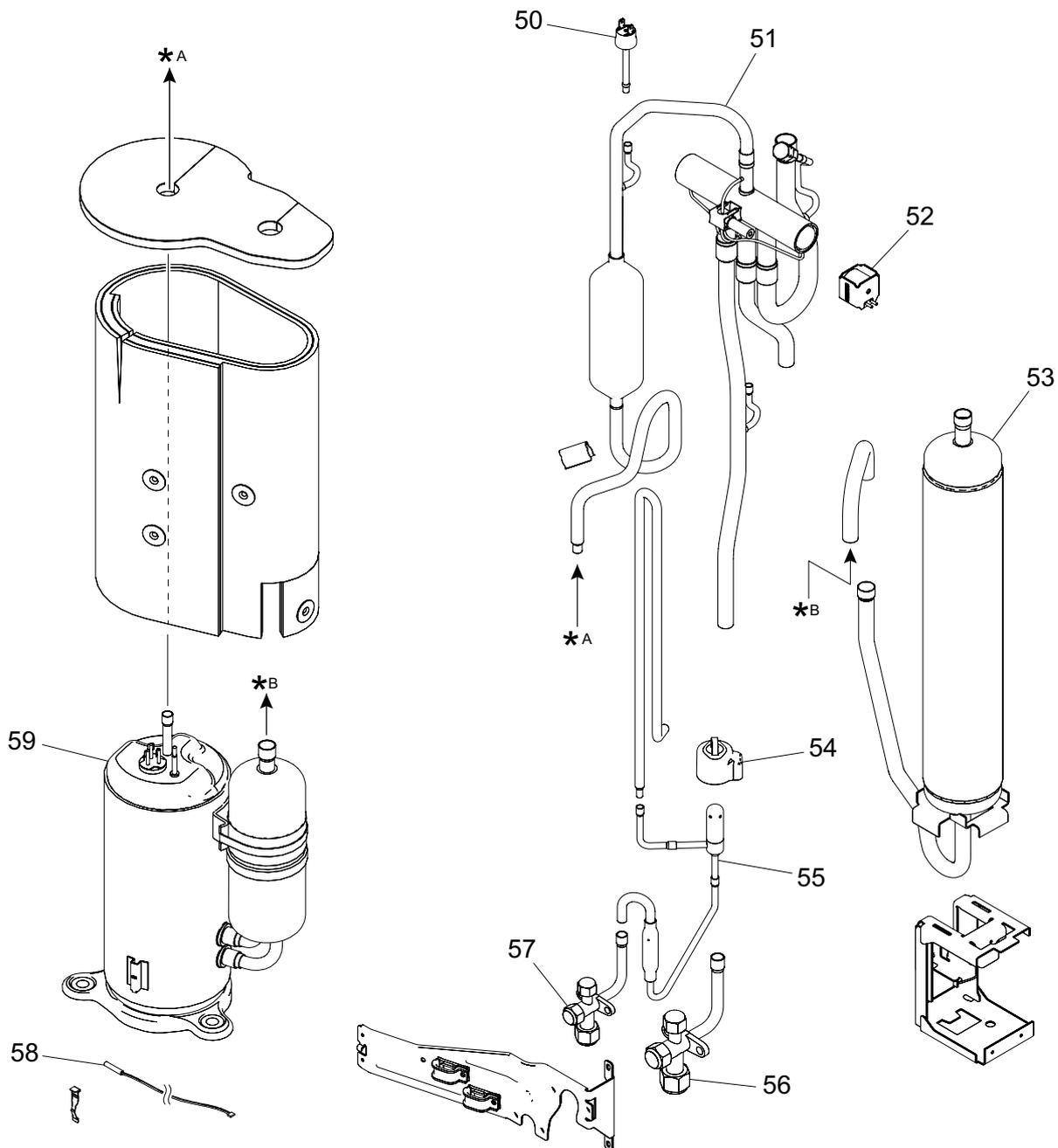


Item no.	Part no.	Part name
1	9383880001	Top panel assy
2	9381013005	Protective net
3	9900984038	Thermistor (Heat exchanger temp.)
4	9900727154	Thermistor assy
5	9383607004	Thermostat holder
6	9900565152	Thermistor (Outdoor temp.)
7	9383874017	Right panel sub assy
8	9384997005	Rear pipe cover
9	9712996090	Inverter PCB (30 and 36 models)
	9712996137	Inverter PCB (42 and 48 models)
10	9901031014	Thermistor (Heat sink temp.)
11	9900203061	Terminal block 7P
12	9711434654	Main PCB (30 model)
	9711434647	Main PCB (36 model)
	9711434777	Main PCB (42 model)
	9711434784	Main PCB (48 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 (30 and 36 models)
	9383862014	Motor bracket assy (42 and 48 models)
23	9374420759	Condenser sub assy (30 and 36 models)
	9374420797	Condenser sub assy (42 and 48 models)
—	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])

Compressor (for 30 and 36 models)

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST

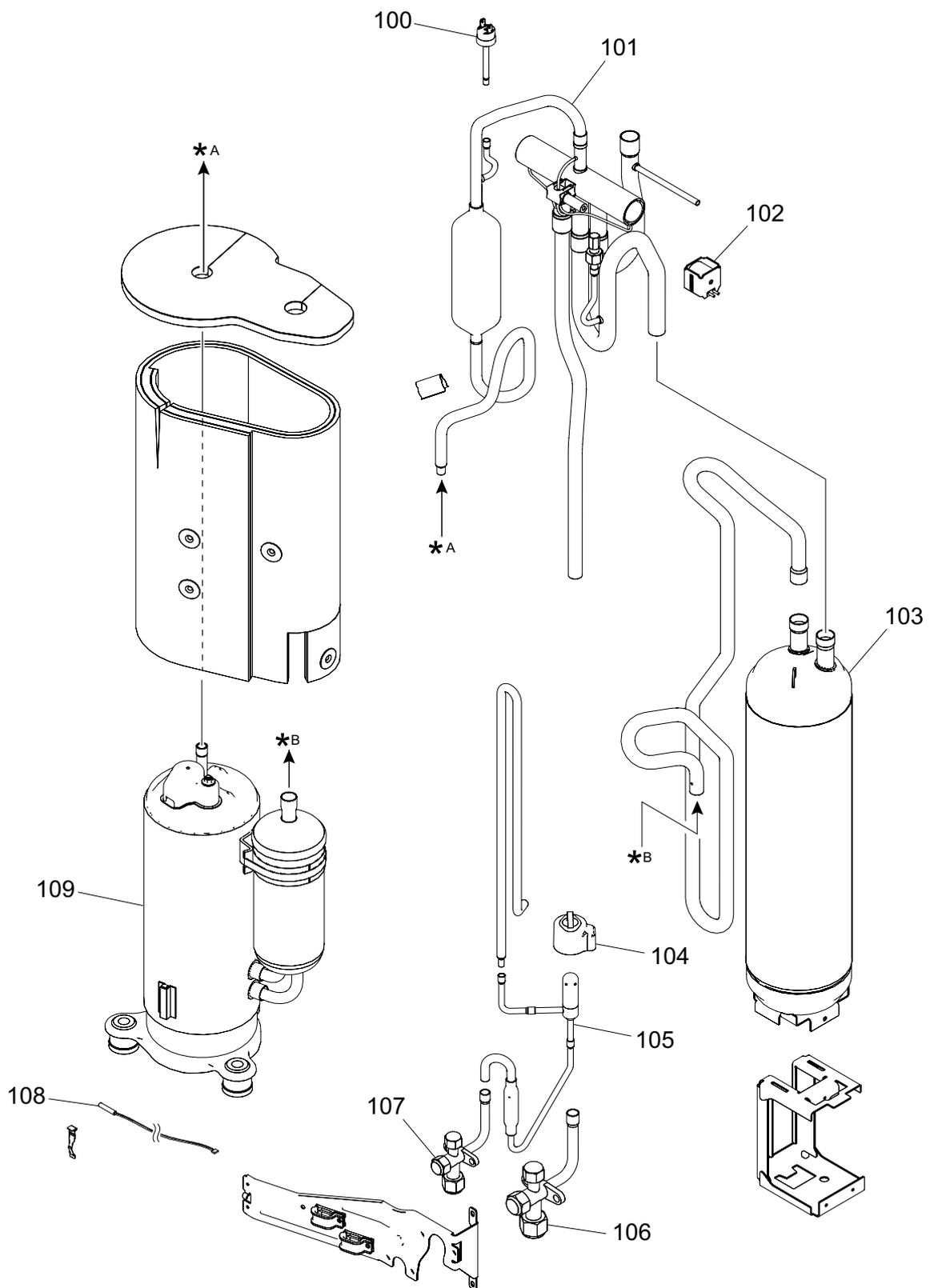


Item no.	Part no.	Part name
50	9900186029	Pressure switch
51	9374425761	4-way valve assy
52	9970194016	Solenoid
53	9375250232	Accumulator assy
54	9970209000	Expansion valve coil
55	9370947427	Expansion valve assy
56	9379079037	3-way valve assy
57	9387794007	3-way valve assy
58	9900985028	Thermistor (Compressor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

Compressor (for 42 and 48 models)

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST

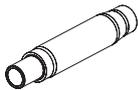
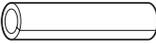


Item no.	Part no.	Part name
100	9900186029	Pressure switch
101	9374425792	4-way valve assy
102	9970194016	Solenoid
103	9388312002	Accumulator assy
104	9970209000	Expansion valve coil
105	9370947441	Expansion valve assy
106	9379079013	3-way valve assy
107	9377958037	3-way valve assy
108	9900985028	Thermistor (Compressor temp.)
109	9810622006	Compressor

5. Accessories

5-1. Indoor unit

■ Models: AUUH18KUAS, AUUH24KUAS, AUUH30KUAS, AUUH36KUAS, AUUH42KUAS, and AUUH48KUAS

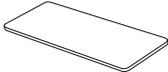
Part name	Exterior	Qty	Part name	Exterior	Qty
Installation manual		1	Insulation		1
Operation manual		1	Drain hose		1
Coupler heat insulation (large)		1	Cable tie (large)		4
Coupler heat insulation (small)		1	Cable tie (small)		2
Template (carton top)		1	Hose band		1
Washer A (with insulation)		4	Drain hose heat insulation		1
Washer B		4			

5-2. 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			

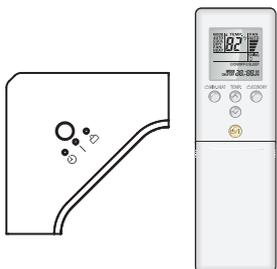
■ Models: AOUH24KUAS1, AOUH30KUAS1, AOUH36KUAS1, AOUH42KUAS1, and AOUH48KUAS1

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

6. Optional parts

6-1. Indoor unit

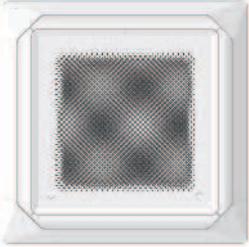
■ Controllers

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-LBTUC	Unit control is performed by Wireless Remote Controller. Connecting point: CN48 on Main PCB

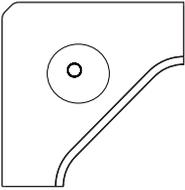
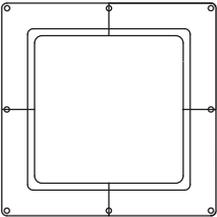
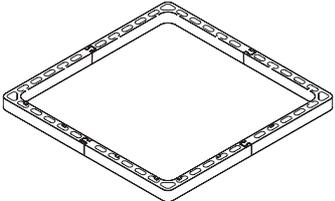
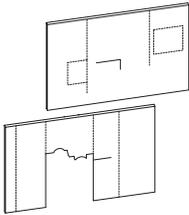
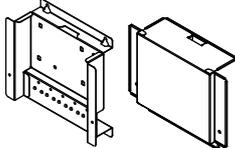
NOTES:

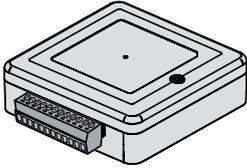
- Available functions may differ by the remote controller. For details, refer to the operation manual.
- When using the group controlling system of the Wired Remote Controller, using WLAN Adapter is prohibited.

■ Cassette Grille

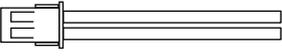
Exterior	Part name	Model name	Summary
	Cassette Grille	UTG-LCGVCW	This cassette grille to blow airflow in 360° direction by unique seamless airflow louver design.
	Cassette Grille	UTG-LCGVCB	This cassette grille to blow airflow in 360° direction by unique seamless airflow louver design. Black color model.

Others

Exterior	Part name	Model name	Summary
	Human Sensor Kit	UTY-SHZXC	For circular flow cassette type. Connecting point: CN67 on Main PCB
	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
	Air Outlet Shutter Plate	UTR-YDZK	Installed at the air outlet when 3-directions mode is performed.
	Wide Panel	UTG-AKXA-W	Hides the gap between the ceiling hole and the cassette grille.
	Panel Spacer	UTG-BKXA-W	If there is not enough height in the ceiling space, by inserting this spacer between the cassette grille and the ceiling surface, the height of the unit body goes into the ceiling space become 50-mm lower.
	Fresh Air Intake Kit	UTZ-VXRA	By attaching Fresh Air Intake Kit to the indoor unit, it can be taken in fresh air of up to 10% of "high" air volume of the indoor unit. Do not branch the connecting duct into multiple rooms. Connecting point: CN47 on Main PCB
	Insulation Kit for High Humidity	UTZ-KXRA	Install when the under-roof condition is expected to be the humidity of over 80% and the temperature of over 86 °F (30 °C).
	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-GXRA	For installing the External input and output PCB.

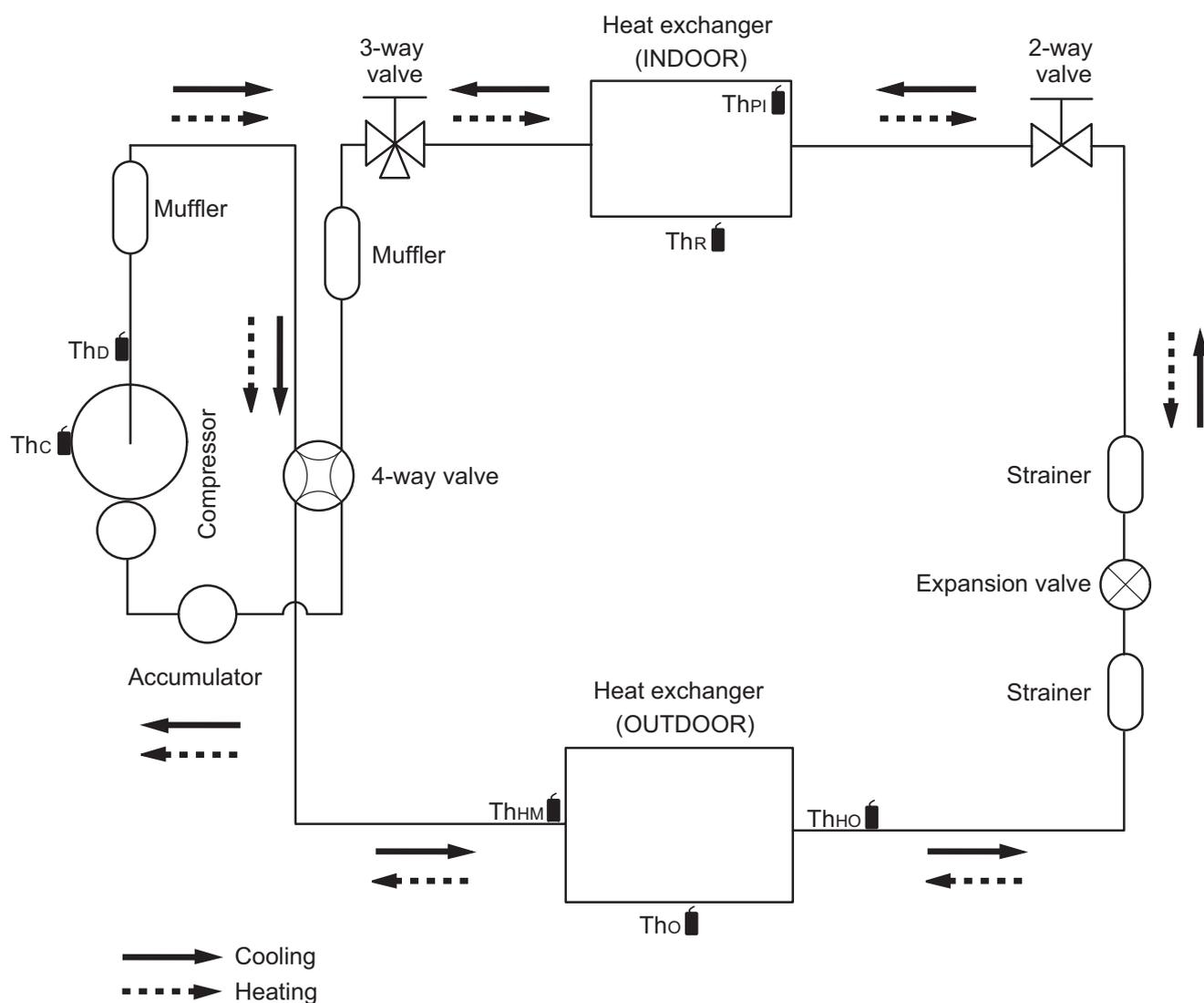
Exterior	Part name	Model name	Summary
	WLAN Adapter	UTY-TFSXJ4	Remotely manage an air conditioning system using mobile devices such as smartphones and tablets. For connection indoor unit with UART interface. Appropriate application for each region is required to use this option. For details, contact 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)
	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)

6-2. 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 24-48 model)

7. Refrigerant system diagrams

7-1. Model: AOUH18KUAS1

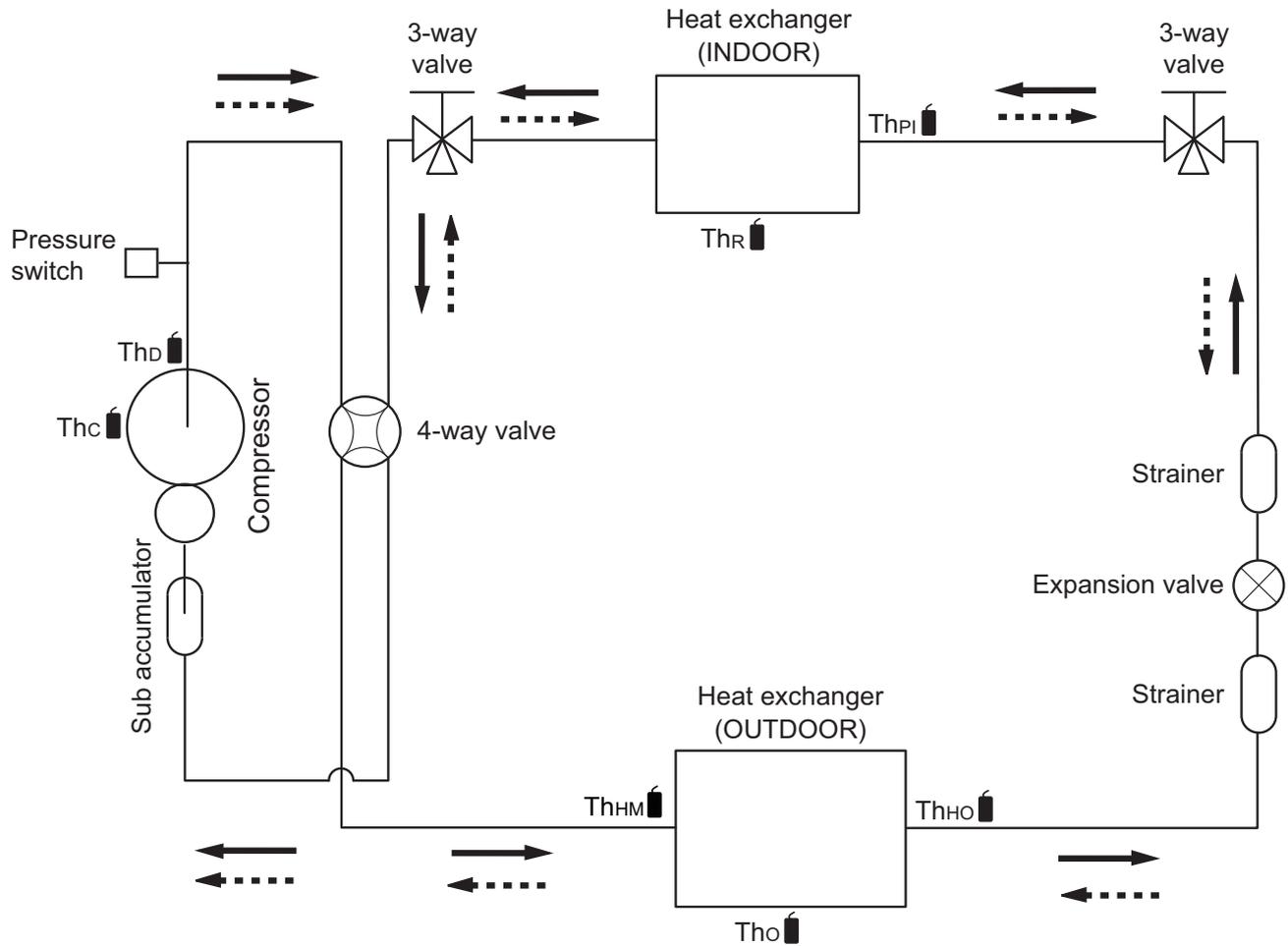


- Thc : Thermistor (Compressor temperature)
- Thd : Thermistor (Discharge temperature)
- Thm : Thermistor (Heat exchanger middle temperature)
- Tho : Thermistor (Outdoor temperature)
- Tho : Thermistor (Heat exchanger out temperature)
- Thpi : Thermistor (Pipe temperature)
- Thr : Thermistor (Room temperature)

7-2. Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST



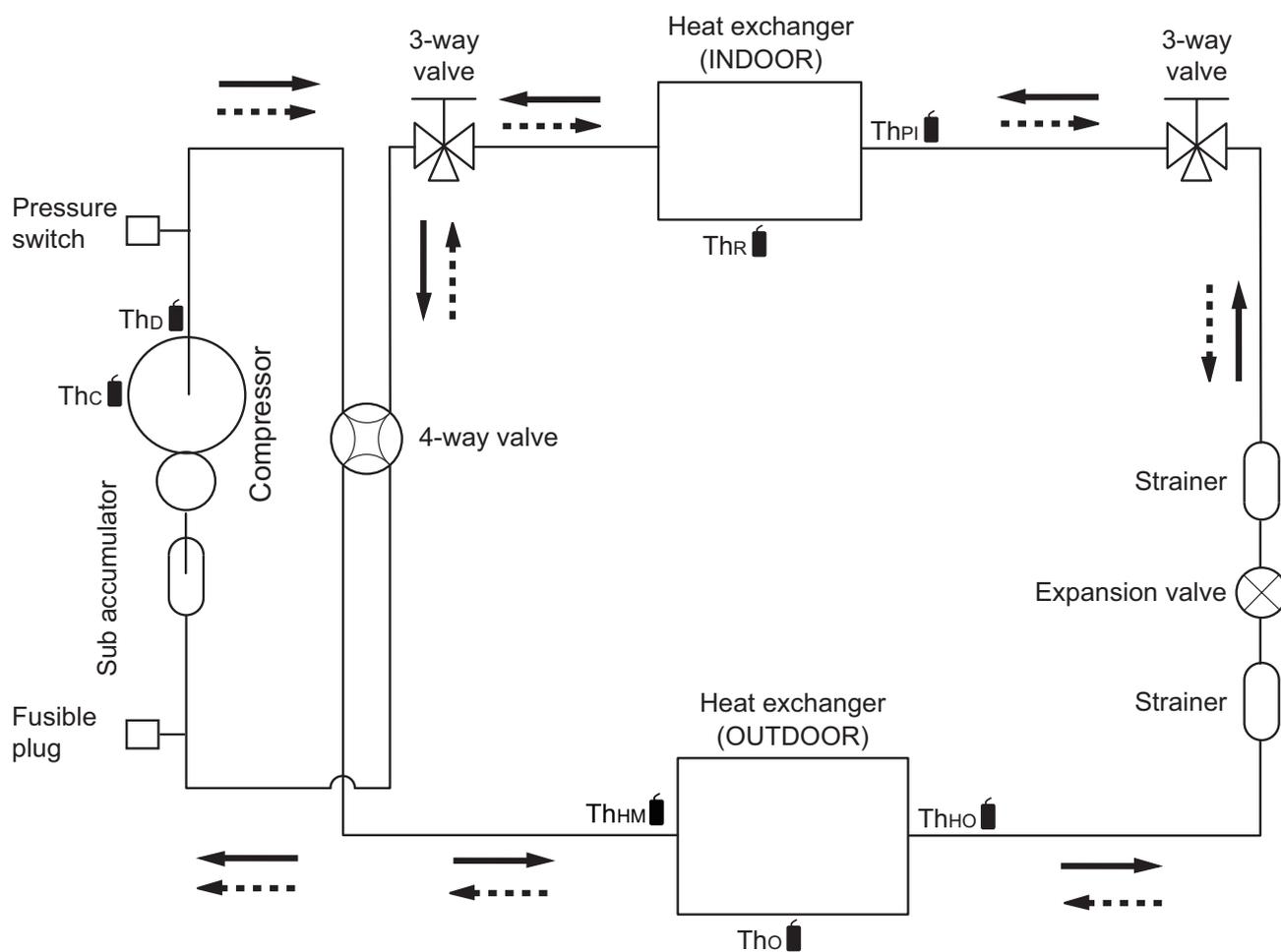
—————> : Cooling
 - - - - -> : Heating

- 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)

7-3. Models: AOUH42KUAS1 and AOUH48KUAS1

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST



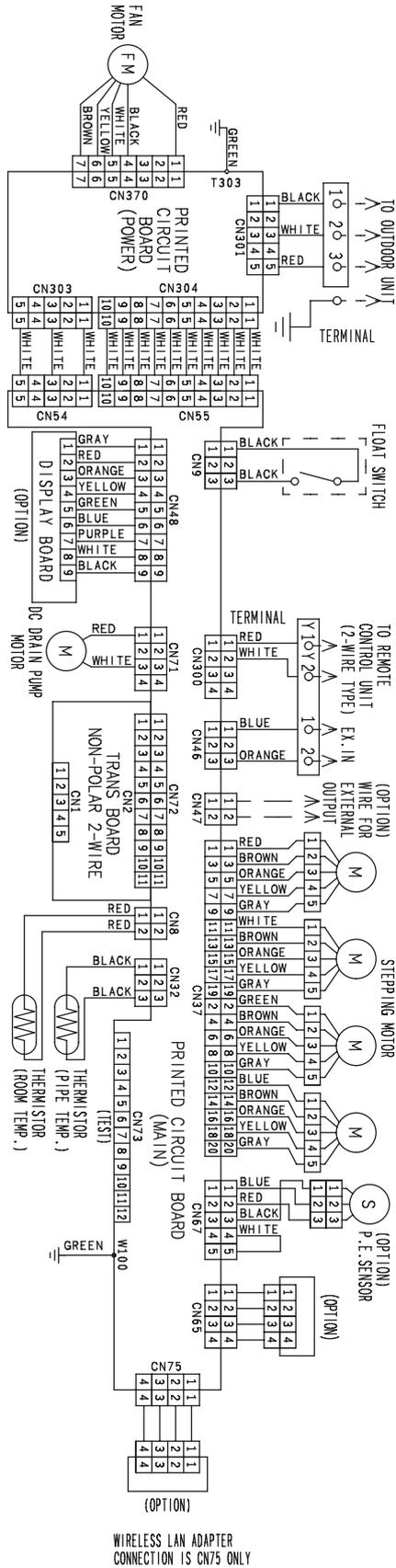
—————▶ : Cooling
 - - - - -▶ : Heating

- Th_c : Thermistor (Compressor temperature)
- Th_d : Thermistor (Discharge temperature)
- Th_m : Thermistor (Heat exchanger middle temperature)
- Th_o : Thermistor (Outdoor temperature)
- Th_ho : Thermistor (Heat exchanger out temperature)
- Th_{pi} : Thermistor (Pipe temperature)
- Th_r : Thermistor (Room temperature)

8. Wiring diagrams

8-1. Indoor unit

■ Models: AUUH18KUAS, AUUH24KUAS, AUUH30KUAS, AUUH36KUAS, AUUH42KUAS, and AUUH48KUAS



TECHNICAL DATA AND PARTS LIST

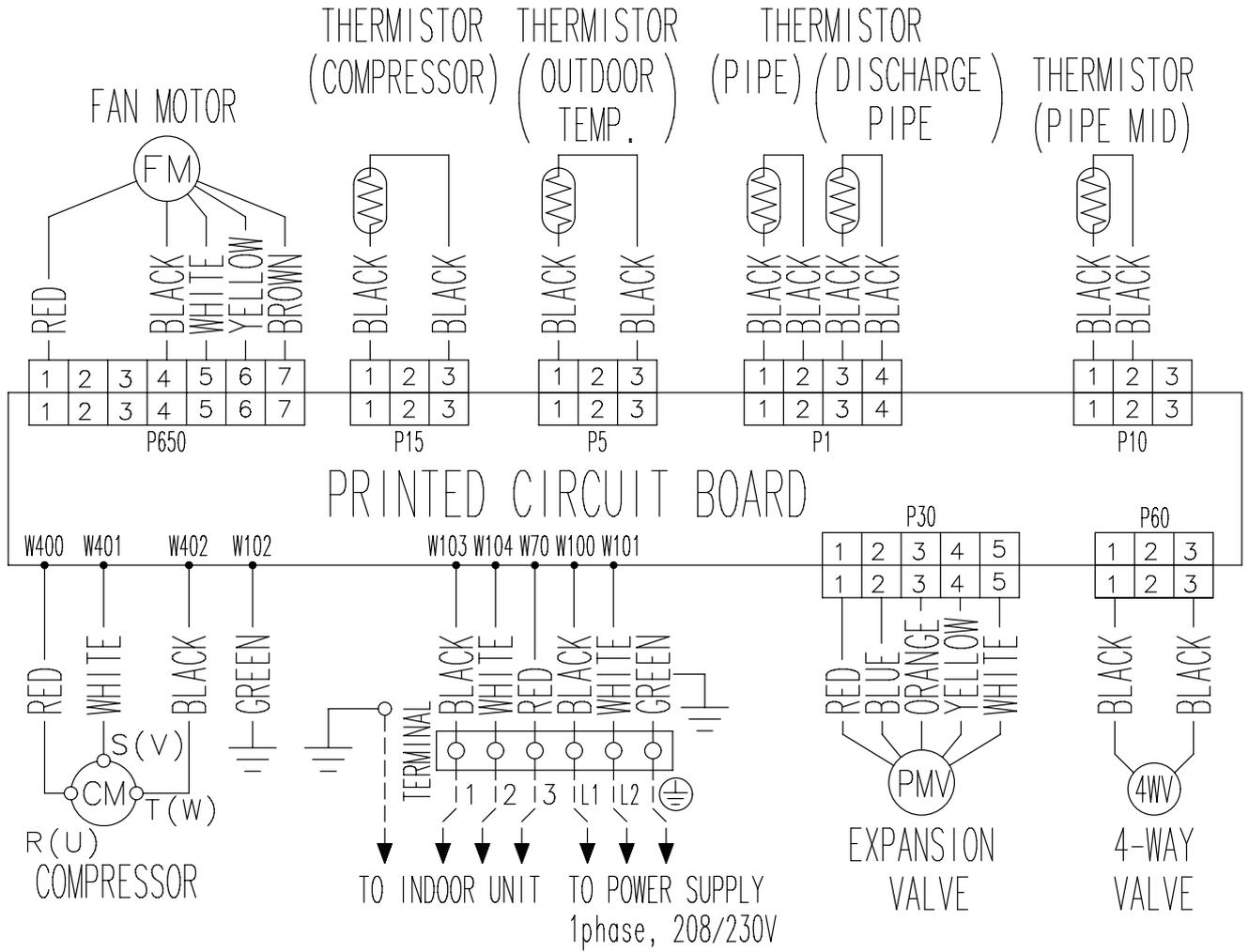
TECHNICAL DATA AND PARTS LIST

8-2. Outdoor unit

Model: AOUH18KUAS1

TECHNICAL DATA
AND PARTS LIST

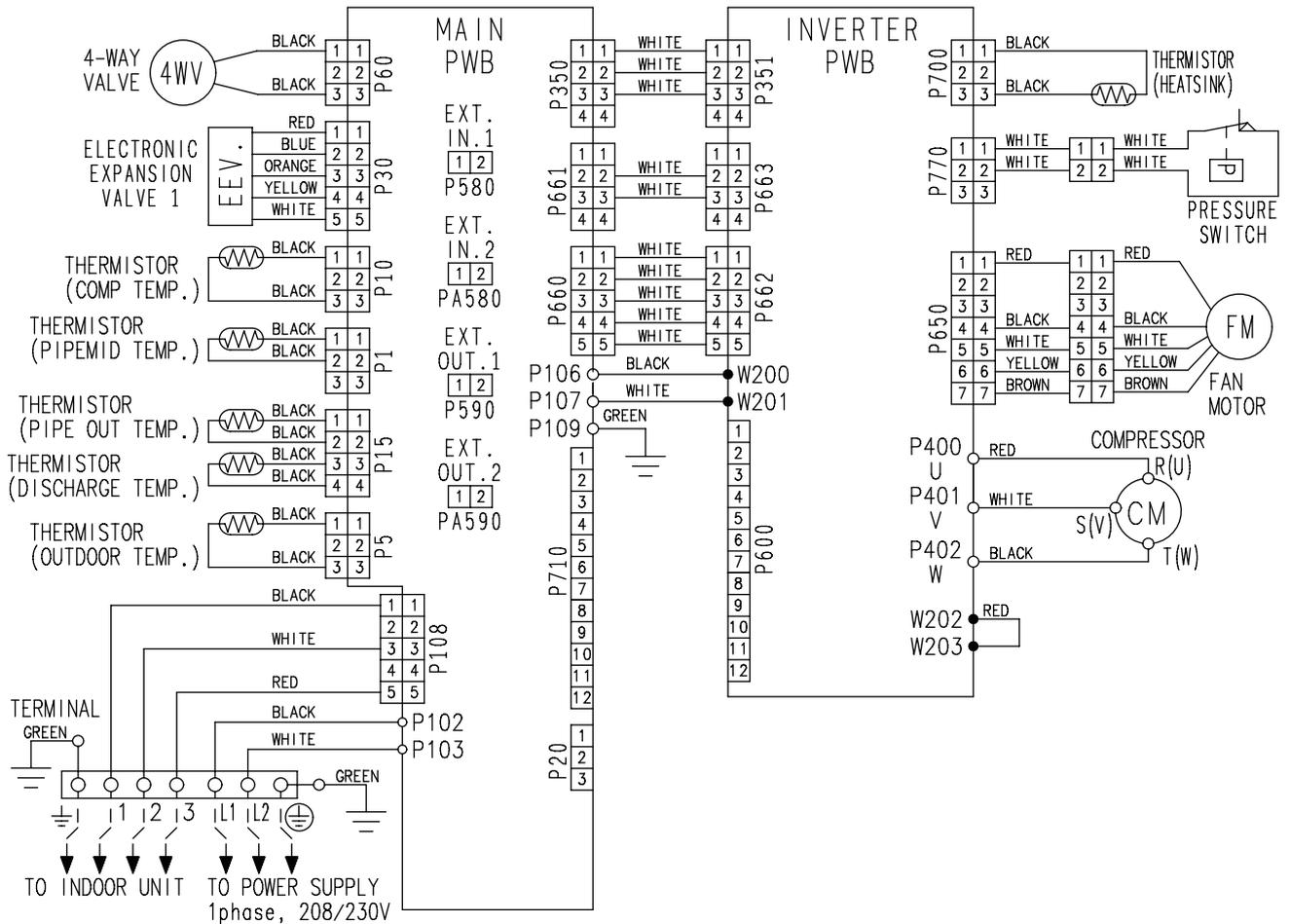
TECHNICAL DATA
AND PARTS LIST



Models: AOUH24KUAS1, AOUH30KUAS1, AOUH36KUAS1, AOUH42KUAS1, and AOUH48KUAS1

TECHNICAL DATA AND PARTS LIST

TECHNICAL DATA AND PARTS LIST

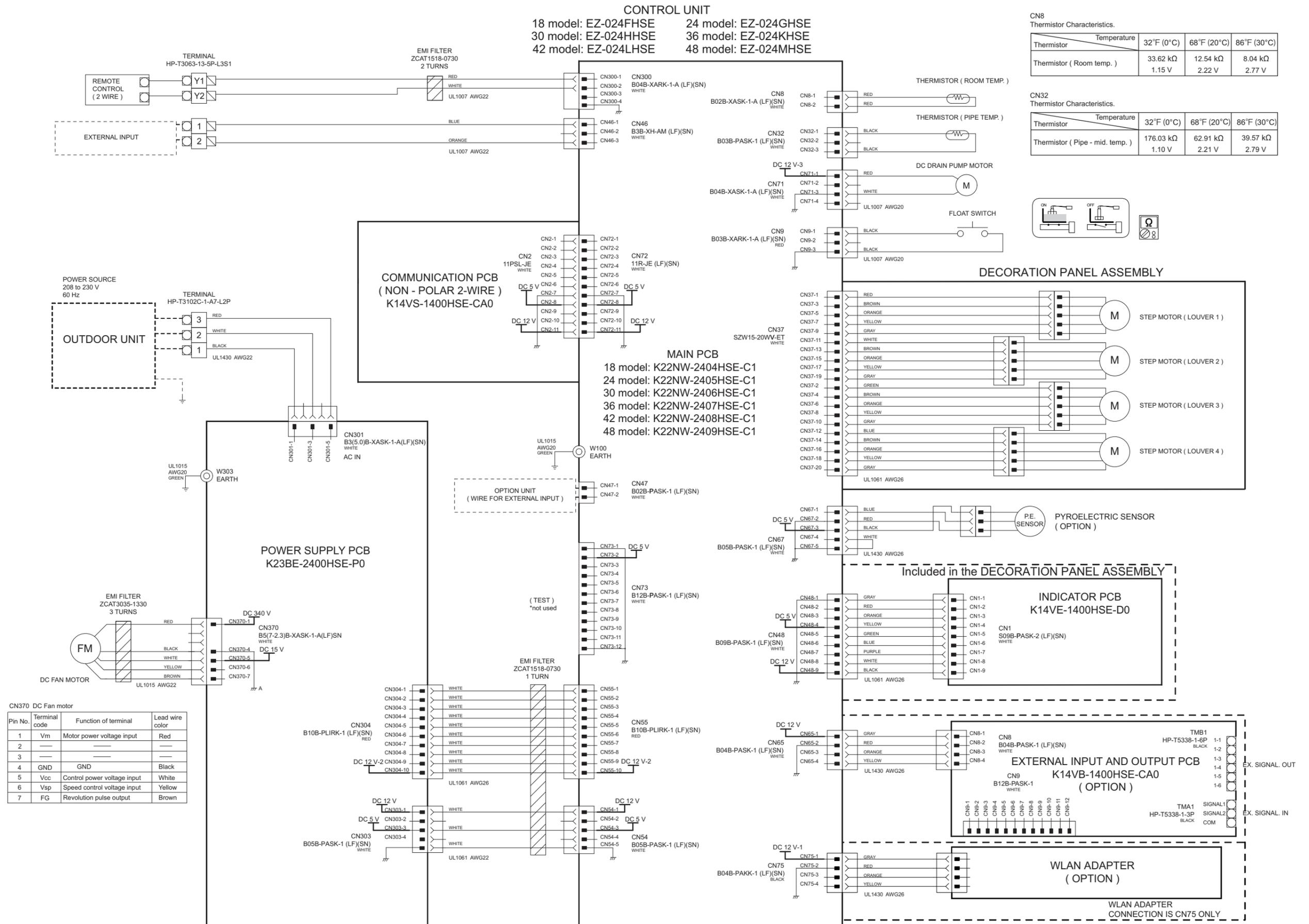


9. PC board diagrams

9-1. Models: AUUH18KUAS, AUUH24KUAS, AUUH30KUAS, AUUH36KUAS, AUUH42KUAS, and AUUH48KUAS

TECHNICAL DATA AND PARTS LIST

TECHNICAL DATA AND PARTS LIST

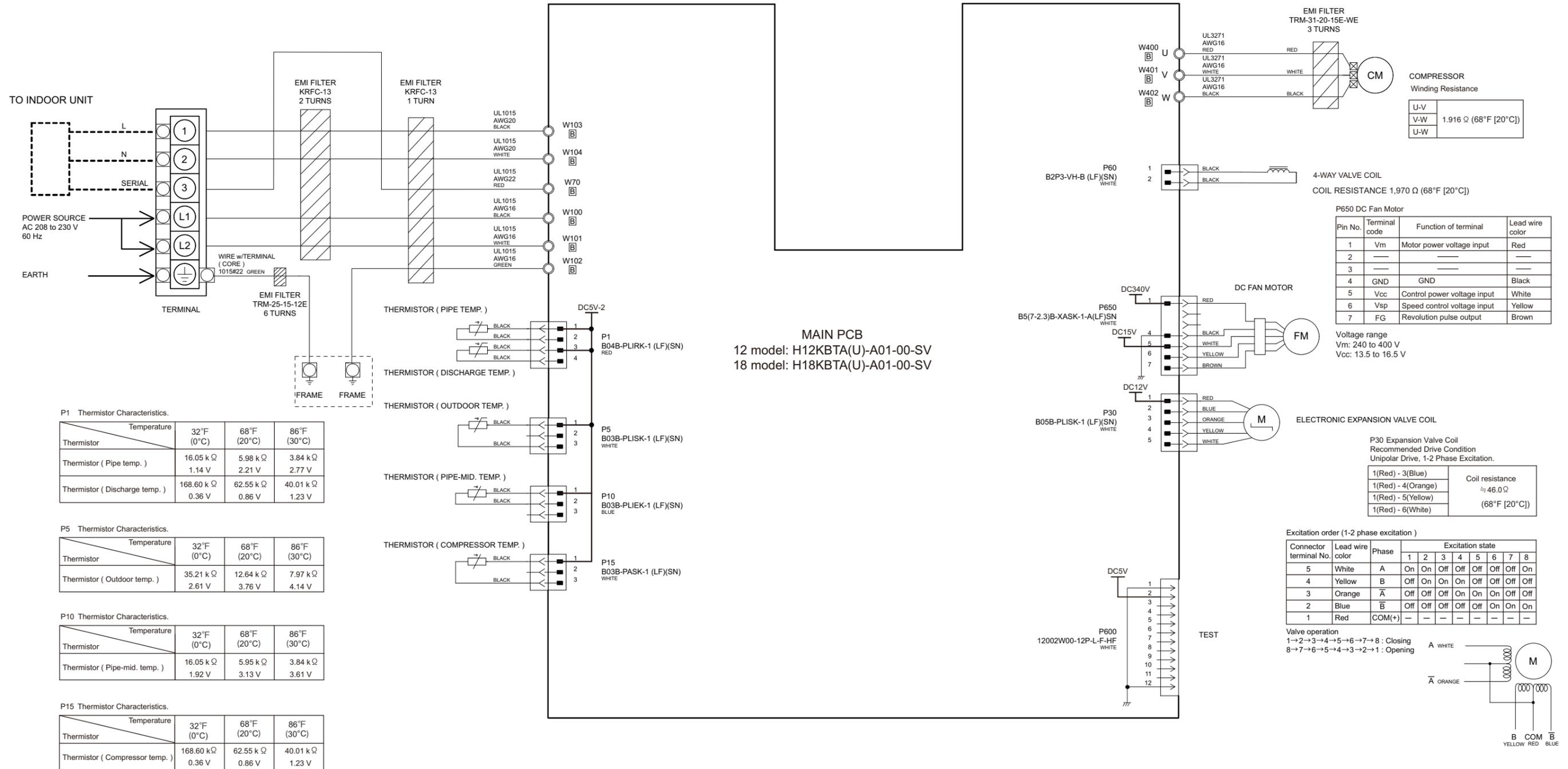


9-2. Model: AOUH18KUAS1

CONTROL UNIT EZ-0248HUE

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST

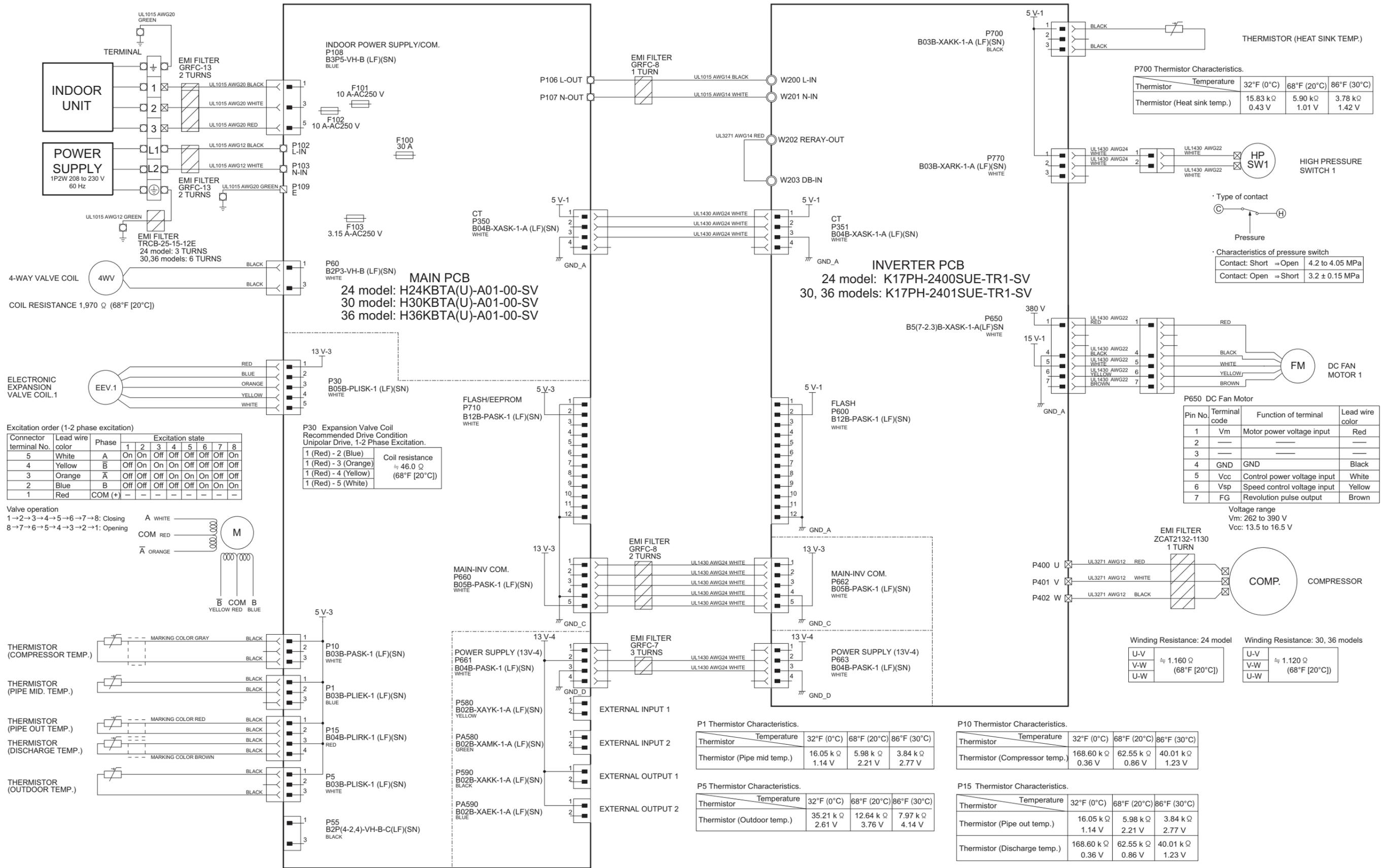


9-3. Models: AOUH24KUAS1, AOUH30KUAS1, and AOUH36KUAS1

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

TECHNICAL DATA
AND PARTS LIST

TECHNICAL DATA
AND PARTS LIST



9-4. Models: AOUH42KUAS1 and AOUH48KUAS1

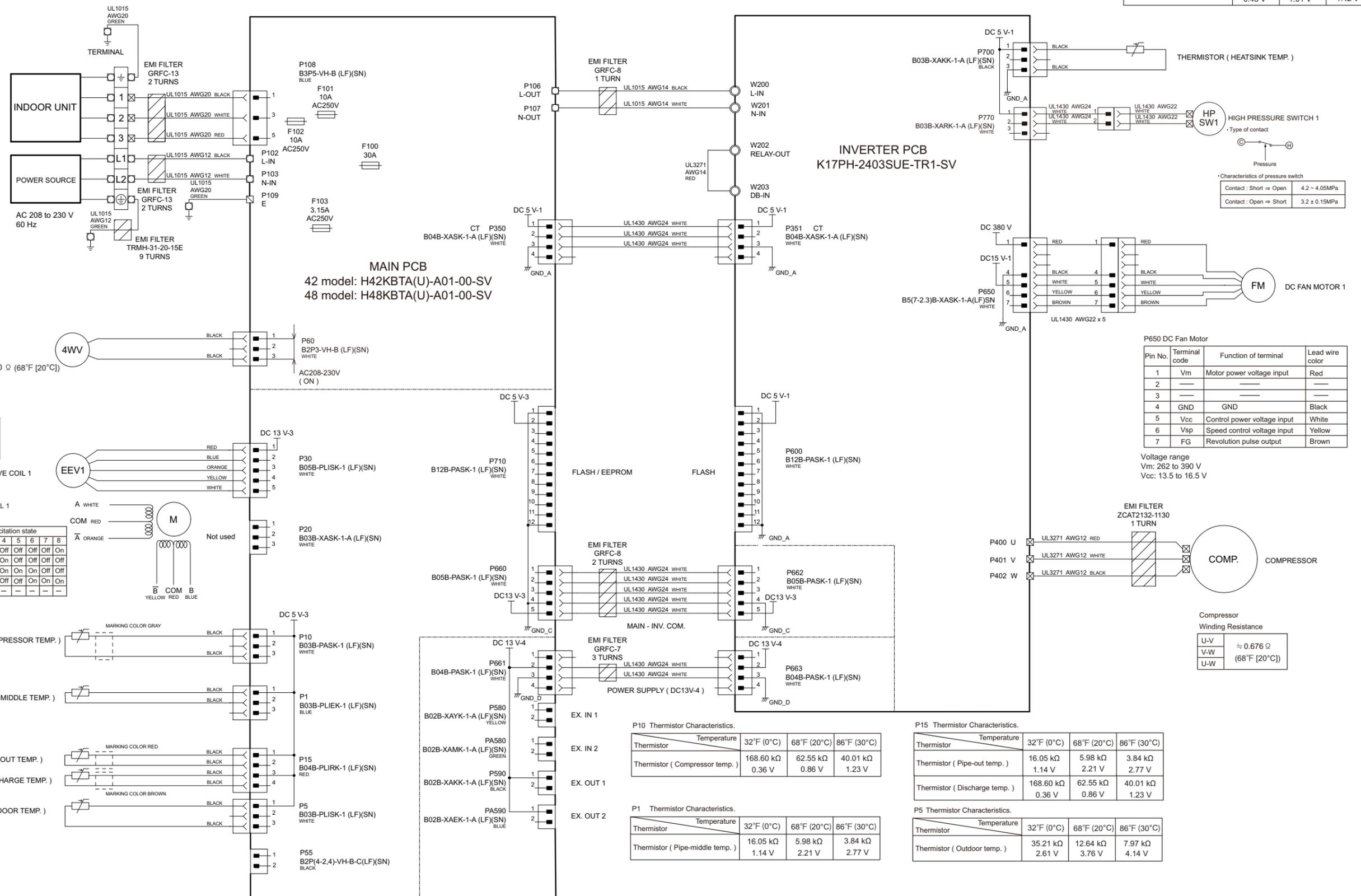
TECHNICAL DATA AND PARTS LIST

TECHNICAL DATA AND PARTS LIST

CONTROL UNIT EZ-024FHUE

P700 Thermistor Characteristics.

Thermistor	Temperature	32°F (0°C)	68°F (20°C)	86°F (30°C)
Thermistor (Heatsink temp.)		15.83 kΩ 0.43 V	5.90 kΩ 1.01 V	3.78 kΩ 1.42 V



3. TROUBLESHOOTING

CONTENTS

3. TROUBLESHOOTING

1. Error code	03-1
1-1. How to check the error memory.....	03-1
1-2. How to erase the error memory	03-1
1-3. Error code table (Wired remote controller).....	03-2
1-4. Error code table (Outdoor unit).....	03-3
1-5. Error code table (Wireless LAN indicator).....	03-5
1-6. How to check the error code on Mobile app	03-6
1-7. Error code table (Mobile app)	03-7
1-8. Error message for wireless LAN control (Mobile app).....	03-9
2. Troubleshooting with error code	03-23
2-1. E: 11.X. Serial communication error (Serial reverse transfer error) (Outdoor unit)	03-23
2-2. E: 11.X. Serial communication error (Serial forward transfer error) (Indoor unit)	03-25
2-3. E: 12.X. Wired remote controller communication error (Indoor unit)	03-27
2-4. E: 15.X. Automatic air flow adjustment error (Indoor unit)	03-28
2-5. E: 18.X. External communication error (Indoor unit)	03-29
2-6. E: 22.X. Indoor unit capacity error (Indoor unit)	03-30
2-7. E: 23.X. Combination error (Outdoor unit)	03-31
2-8. E: 26.X. Address setting error in wired remote controller (Indoor unit)	03-32
2-9. E: 29.X. Connected unit number error (Indoor unit)	03-33
2-10. E: 32.X. Indoor unit main PCB error (Indoor unit)	03-34
2-11. E: 33.X. Indoor unit motor electricity consumption detection error (Indoor unit).....	03-35
2-12. E: 35.X. MANUAL AUTO button error (Indoor unit)	03-36
2-13. E: 39.X. Indoor unit power supply error for fan motor (Indoor unit)	03-37
2-14. E: 3A.X. Indoor unit communication circuit (wired remote controller) error	03-38
2-15. E: 41.X. Room temperature sensor error (Indoor unit).....	03-39
2-16. E: 42.X. Indoor unit heat exchanger sensor error (Indoor unit).....	03-40
2-17. E: 44.X. Human sensor error	03-41
2-18. E: 51.X. Indoor unit fan motor error (Indoor unit)	03-42
2-19. E: 53.X. Drain pump error (Indoor unit).....	03-43
2-20. E: 62.X. Outdoor unit main PCB error (Outdoor unit).....	03-44
2-21. E: 63.X. Inverter error (Outdoor unit)	03-45
2-22. E: 64.X. PFC circuit error (Outdoor unit).....	03-46
2-23. E: 65.X. Trip terminal L error (Outdoor unit)	03-47
2-24. E: 71.X. Discharge thermistor error (Outdoor unit)	03-48
2-25. E: 72.X. Compressor thermistor error (Outdoor unit)	03-49
2-26. E: 73.X. Heat exchanger (Middle/Outlet) temperature thermistor error (Outdoor unit).....	03-50
2-27. E: 74.X. Outdoor temperature thermistor error (Outdoor unit)	03-51
2-28. E: 77.X. Heat sink thermistor error (Outdoor unit) (24/30/36/42/48 model).....	03-52
2-29. E: 84.X. Current sensor error (Outdoor unit).....	03-53
2-30. E: 86.X. High pressure switch error (Outdoor unit) (24/30/36/42/48 model)	03-55
2-31. E: 94.X. Trip detection (Outdoor unit)	03-56

CONTENTS (continued)

2-32. E: 95.X. Compressor motor control error (Outdoor unit)	03-57
2-33. E: 97.X. Outdoor unit fan motor error (Outdoor unit).....	03-58
2-34. E: 99.X. 4-way valve error (Outdoor unit)	03-60
2-35. E: A1.X. Discharge temperature error (Outdoor unit).....	03-62
2-36. E: A3.X. Compressor temperature error (Outdoor unit)	03-64
2-37. E: AC.X. Heat sink temperature error (Outdoor unit) (24/30/36/42/48 model)	03-66
3. Troubleshooting without error code.....	03-67
3-1. Indoor unit—No power.....	03-67
3-2. Outdoor unit—No power	03-68
3-3. No operation (Power is on).....	03-69
3-4. No cooling/No heating	03-70
3-5. Abnormal noise.....	03-72
3-6. Water leaking.....	03-73
4. Troubleshooting with error code (For wireless LAN adapter).....	03-74
4-1. E: 18.X. External communication error between indoor unit and wireless LAN adapter	03-74
4-2. Network communication error between wireless LAN router and wireless LAN adapter	03-75
4-3. E: 18.X. Communication error	03-77
4-4. E: 18.X. Wireless LAN adapter non-energized	03-79
4-5. Mobile app setting method.....	03-80
5. Service parts information	03-82
5-1. Compressor	03-82
5-2. Inverter compressor.....	03-83
5-3. Outdoor unit Electronic Expansion Valve (EEV)	03-85
5-4. Indoor unit fan motor	03-89
5-5. Outdoor unit fan motor	03-90
5-6. Pressure switch	03-90
5-7. 4-way valve coil (solenoid coil)/4-way valve	03-91
6. Thermistor resistance values.....	03-92
6-1. Indoor unit	03-92
6-2. Outdoor unit.....	03-93

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.

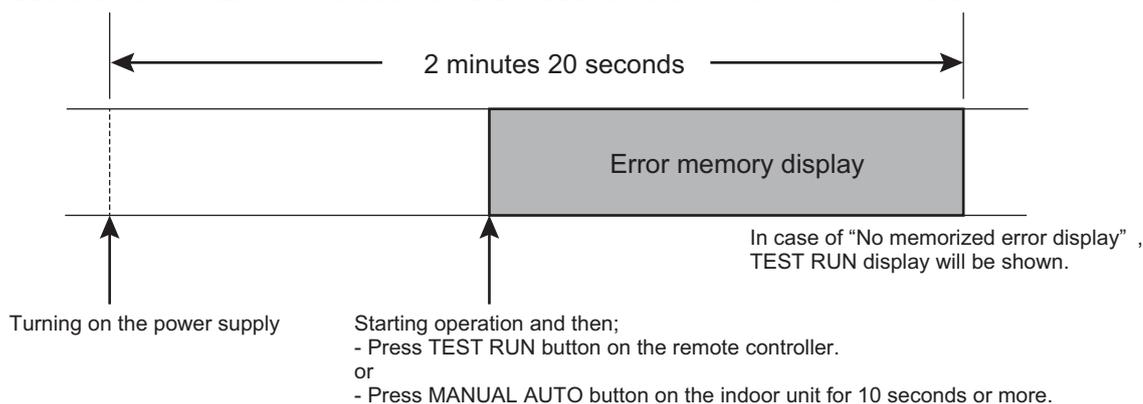
Errors, once displayed, will be automatically stored in the PC board of the indoor unit. Even if the power is disconnected, the memory containing the error history will not be erased.

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: 18.X. External communication error (Indoor unit)	18
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: 44.X. Human sensor error	44
E: 51.X. Indoor unit fan motor error (Indoor unit)	51
E: 53.X. Drain pump error (Indoor unit)	53
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) (24/30/36/42/48 model)	77
E: 84.X. Current sensor error (Outdoor unit)	84
E: 86.X. High pressure switch error (Outdoor unit) (24/30/36/42/48 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) (24/30/36/42/48 model)	AC

1-4. Error code table (Outdoor unit)

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 24–48 outdoor units)" in Chapter 5. FIELD WORKING on page 05-10.

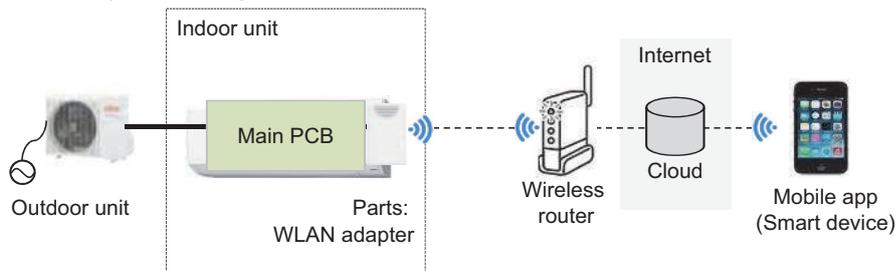
Error contents	POWER/ MODE	ERROR	PUMP DOWN	LOW NOISE		PEAK CUT		
			L1	L2	L3	L4	L5	L6
E: 11.X. Serial communication error (Serial forward transfer error) (Indoor unit) (Occurs immediately after starting operation)	■ 2	●	■ 1	■ 1	○	○	●	●
E: 11.X. Serial communication error (Serial forward transfer error) (Indoor unit) (Occurs during operation)	■ 2	●	■ 1	■ 1	○	●	○	○
E: 12.X. Wired remote controller communication error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 15.X. Automatic air flow adjustment error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 18.X. External communication error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 22.X. Indoor unit capacity 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: 33.X. Indoor unit motor electricity consumption detection error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 39.X. Indoor unit power supply error for fan motor (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: 44.X. Human sensor error	■ 2	●	■ 5	■ 15	○	○	○	●
E: 51.X. Indoor unit fan motor error (Indoor unit)	■ 2	●	■ 5	■ 15	○	○	○	●
E: 53.X. Drain pump 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: 65.X. Trip terminal L error (Outdoor unit)	■ 2	●	■ 6	■ 5	○	○	●	●
E: 71.X. Discharge thermistor error (Outdoor unit)	■ 2	●	■ 7	■ 1	○	○	○	●

Error contents	POWER/ MODE	ERROR	PUMP DOWN	LOW NOISE			PEAK CUT		
			L1	L2	L3	L4	L5	L6	
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) (24/30/36/42/48 model)	■ 2	●	■ 7	■ 7	○	○	○	○	●
E: 84.X. Current sensor error (Outdoor unit)	■ 2	●	■ 8	■ 4	○	○	○	○	●
E: 86.X. High pressure switch error (Outdoor unit) (24/30/36/42/48 model)	■ 2	●	■ 8	■ 6	○	●	○	○	○
E: 94.X. Trip detection (Outdoor unit)	■ 2	●	■ 9	■ 4	○	○	○	○	●
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) (24/30/36/42/48 model)	■ 2	●	■ 10	■ 11	○	○	○	●	●

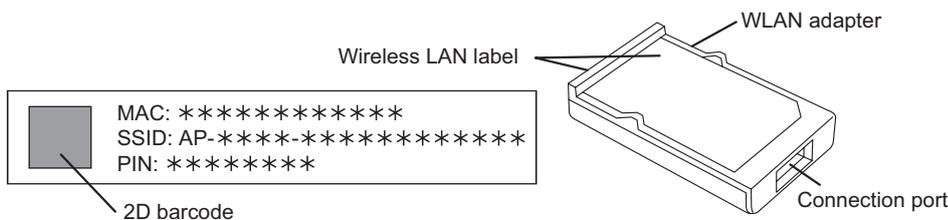
● : Light on ○ : Light off ■ (n) : n Times blinking

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

- 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

TROUBLESHOOTING

TROUBLESHOOTING

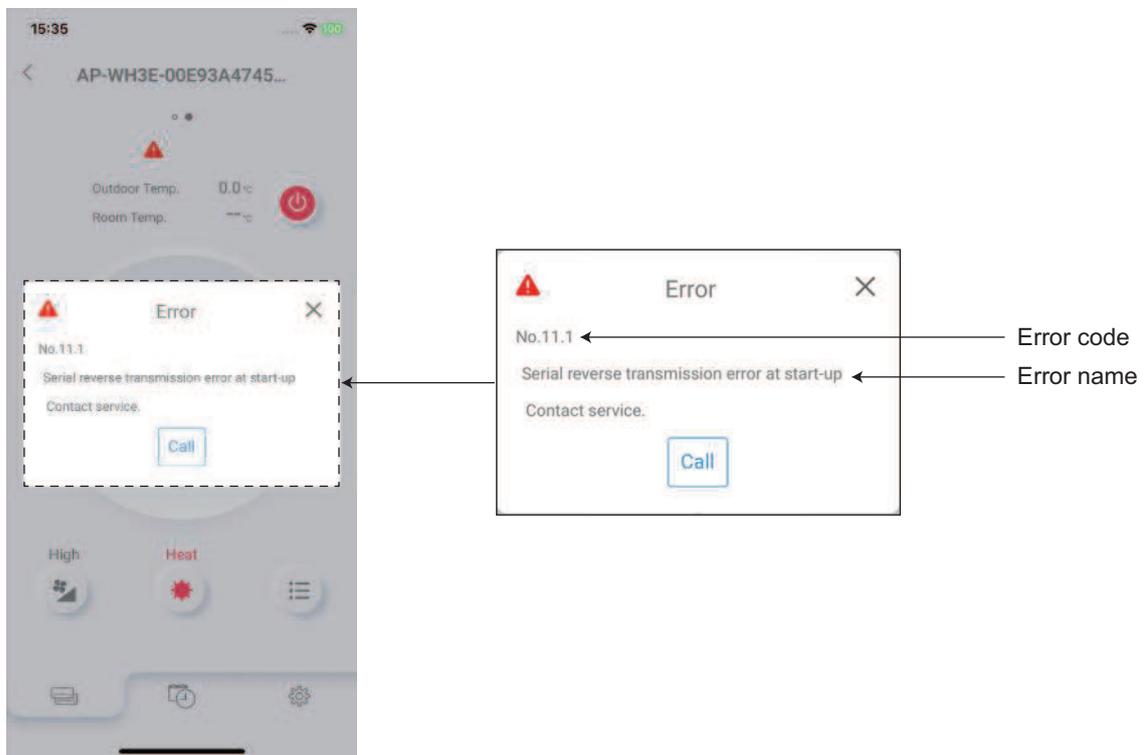
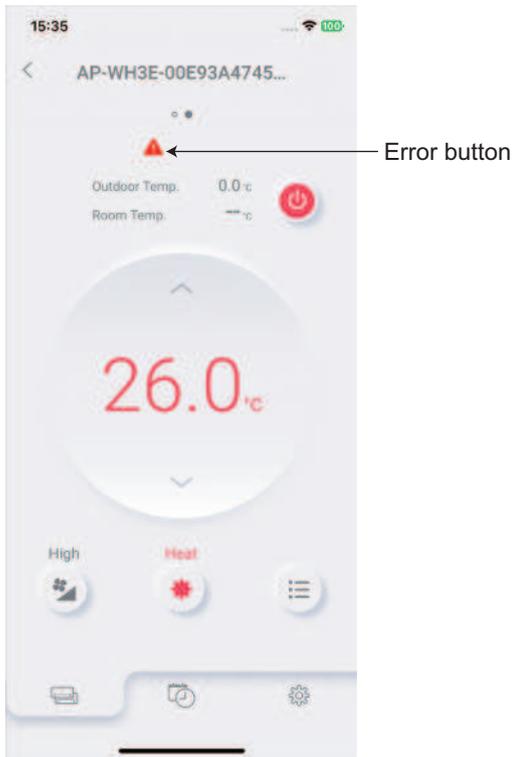
1-6. How to check the error code on Mobile app

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

TROUBLESHOOTING



1-7. Error code table (Mobile app)

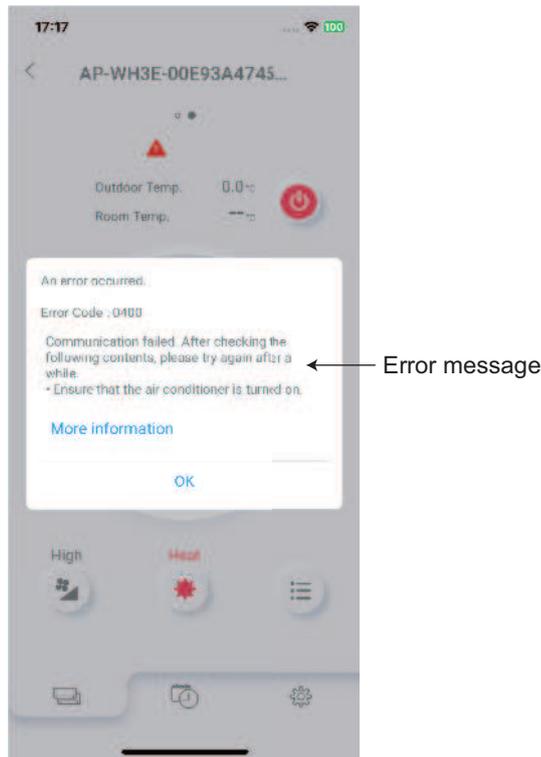
Error message	Error contents	Error code
Serial reverse transmission error at start-up	E: 11.X. Serial communication error (Serial reverse transfer error) (Outdoor unit)	11.1
Serial reverse transmission error during operation		11.2
Serial forward transmission error at start-up	E: 11.X. Serial communication 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
External communication 1 error	E: 18.X. External communication error (Indoor unit)	18.1
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
Human detection sensor error	E: 44.X. Human sensor error	44.1
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
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

Error message	Error contents	Error code
Outdoor unit trip terminal L error	E: 65.X. Trip terminal L error (Outdoor unit)	65.3
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) (24/30/36/42/48 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) (24/30/36/42/48 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	AC.1
Operation under lower range limit error	(Outdoor unit) (24/30/36/42/48 model)	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 list

- Registration error

Error code	Error message	Cause
		Solution
2400	<p>Communication failed. After checking the following contents, please try again after a while.</p> <ul style="list-style-type: none"> • Ensure that the air conditioner is turned on. 	<p>Communication with the air conditioner failed.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> • When not lighting <ul style="list-style-type: none"> – 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 <p>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.</p> • When blinking <p>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.</p>
		<p>Failed because the smartphone could not connect to the air conditioner.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> • When not lighting <ol style="list-style-type: none"> 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 <ol style="list-style-type: none"> 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.
2930	<p>Cannot connect to your air conditioner. Check if the WiFi setting of the mobile device is turned on.</p> <p>When problems are not resolved, there may be other causes. Tap the link below to check other solutions.</p>	<p>Failed because the smartphone could not connect to the air conditioner.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> • When not lighting <ol style="list-style-type: none"> 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 <ol style="list-style-type: none"> 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.
		<p>Failed because the smartphone could not connect to the air conditioner.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> • When not lighting <ol style="list-style-type: none"> 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 <ol style="list-style-type: none"> 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.

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.
		<ul style="list-style-type: none"> • When not lighting <ol style="list-style-type: none"> 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 <ol style="list-style-type: none"> 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.	<ul style="list-style-type: none"> • Registration failed because the smartphone cannot connect to the network. • Connection to the WLAN Adapter was disconnected during processing.
		<ol style="list-style-type: none"> 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.	<ul style="list-style-type: none"> • 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. <ol style="list-style-type: none"> 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. <ol style="list-style-type: none"> 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.

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.	<ul style="list-style-type: none"> 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. <p>Check the following contents and operate again.</p> <ol style="list-style-type: none"> Tap "Re-register" and conduct the registration processing again. Delete from another account or initialize the WLAN Adapter. Check that the wireless router is turned on. 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. 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.	<ul style="list-style-type: none"> 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. <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> When not lighting <ol style="list-style-type: none"> 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. Check that the wireless router is turned on. 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 <ol style="list-style-type: none"> Check that the air conditioner and the smartphone are connected to the same wireless router. 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. <ol style="list-style-type: none"> Open the Wi-Fi setting screen of your device. Connect your mobile device to the {ssid}. Return to the application screen and tap "Re-register". <p>When problems are not resolved, there may be other causes. Tap the link below to check other solutions.</p>	<p>Registration failed because the air conditioner cannot connect to the Internet.</p> <p>Check the following contents and operate again.</p> <ol style="list-style-type: none"> Check that the wireless LAN setting of smartphone is set to ON. Check that the smartphone is connected to the Internet. Set the connection setting with the wireless router to Auto Connection in the smartphone settings. Check that the wireless router is turned on.

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.

• 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.

Error code	Error message	Cause
		Solution
4420	Loading of user information failed. Check the following contents. <ul style="list-style-type: none"> 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. <ol style="list-style-type: none"> Check that the wireless LAN setting of smartphone is set to ON. Check that the smartphone is connected to the Internet. 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. <ul style="list-style-type: none"> 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. <ol style="list-style-type: none"> Check that the wireless LAN setting of smartphone is set to ON. Check that the smartphone is connected to the Internet. Check that the wireless router is turned on.

- General error

Error code	Error message	Cause
		Solution
0100 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. <ul style="list-style-type: none"> • Ensure that the air conditioner is turned on. 	<p>Communication with the air conditioner failed.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> • When not lighting <ul style="list-style-type: none"> – 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 <p>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.</p>
0810 0811 0812 1510 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. <ul style="list-style-type: none"> • Ensure that your mobile device is connected to the internet. 	<ul style="list-style-type: none"> • 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. <p>Check the following contents and operate again.</p> <ol style="list-style-type: none"> 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.

Error code	Error message	Cause
		Solution
0820	<p>Loading of outdoor low noise timer failed. Check the following contents.</p> <ul style="list-style-type: none"> Ensure that your mobile device is connected to the internet. 	<p>The outdoor unit low noise timer information could not be obtained because communication with the server (cloud) failed.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> When not lighting <ul style="list-style-type: none"> 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 <p>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.</p> When blinking <p>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.</p>
1520	<p>Loading of weekly timer failed. Check the following contents.</p> <ul style="list-style-type: none"> Ensure that your mobile device is connected to the internet. 	<p>The weekly timer setting information could not be obtained because communication with the server (cloud) failed.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> When not lighting <ul style="list-style-type: none"> 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 <p>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.</p> When blinking <p>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.</p>

Error code	Error message	Cause
		Solution
1720	<p>Loading of error history failed. Check the following contents.</p> <ul style="list-style-type: none"> Ensure that your mobile device is connected to the internet. 	<p>The error history information could not be obtained because communication with the server (cloud) failed.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> When not lighting <ul style="list-style-type: none"> 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 <p>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.</p> When blinking <p>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.</p>
3110	<p>Communication failure prevented the group movement processing from being conducted. After checking the following contents, please try again after a while.</p> <ul style="list-style-type: none"> Ensure that your mobile device is connected to the internet. 	<p>Air conditioner group setting has not been completed because communication with air conditioner failed.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> When not lighting <ul style="list-style-type: none"> 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 <p>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.</p> When blinking <p>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.</p>

Error code	Error message	Cause
		Solution
3111	<p>Communication failure prevented the group creation processing from being conducted. After checking the following contents, please try again after a while.</p> <ul style="list-style-type: none"> Ensure that your mobile device is connected to the internet. 	<p>Air conditioner group setting has not been completed because communication with air conditioner failed.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> When not lighting <ul style="list-style-type: none"> 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 <p>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.</p> When blinking <p>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.</p>
		<p>Air conditioner group setting has not been completed because communication with air conditioner failed.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> When not lighting <ul style="list-style-type: none"> 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 <p>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.</p> When blinking <p>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.</p>
3112	<p>Communication failure prevented the group name change processing from being conducted. After checking the following contents, please try again after a while.</p> <ul style="list-style-type: none"> Ensure that your mobile device is connected to the internet. 	<p>Air conditioner group setting has not been completed because communication with air conditioner failed.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> When not lighting <ul style="list-style-type: none"> 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 <p>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.</p> When blinking <p>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.</p>
		<p>Air conditioner group setting has not been completed because communication with air conditioner failed.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> When not lighting <ul style="list-style-type: none"> 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 <p>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.</p> When blinking <p>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.</p>

Error code	Error message	Cause
		Solution
3113	<p>Communication failure prevented the group deletion processing from being conducted. After checking the following contents, please try again after a while.</p> <ul style="list-style-type: none"> Ensure that your mobile device is connected to the internet. 	<p>Air conditioner group setting has not been completed because communication with air conditioner failed.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> When not lighting <ul style="list-style-type: none"> 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 <p>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.</p> When blinking <p>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.</p>
3114	<p>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.</p> <ul style="list-style-type: none"> Ensure that your mobile device is connected to the internet. 	<p>Air conditioner group setting has not been completed because communication with air conditioner failed.</p> <p>Check the following contents depending on the status of indoor unit wireless LAN indicator lamp or WLAN Adapter LED 2 and operate again.</p> <ul style="list-style-type: none"> When not lighting <ul style="list-style-type: none"> 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 <p>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.</p> When blinking <p>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.</p>

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. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> When not lighting <ul style="list-style-type: none"> 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 <p>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.</p> When blinking <p>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.</p>
5320	Loading of air conditioner information failed. Check the following contents. <ul style="list-style-type: none"> Ensure that your mobile device is connected to the internet. 	Air conditioner information could not be obtained because communication with server (cloud) failed.
		<ol style="list-style-type: none"> Check that the wireless LAN setting of smartphone is set to ON. Check that the smartphone is connected to the Internet. Check that the wireless router is turned on.
5531 5540	New firmware update failed.	Firmware update failed.
		Check the following contents and operate again. <ol style="list-style-type: none"> Check that the wireless LAN setting of smartphone is set to ON. Check that the smartphone is connected to the Internet. Check that the wireless router is turned on. 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. <ol style="list-style-type: none"> When 2D barcode label is used, scan 2D barcode label again. 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. <ul style="list-style-type: none"> 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. <ol style="list-style-type: none"> Check that the smartphone is connected with the air conditioner. 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.

Error code	Error message	Cause
		Solution
6201	Failed to update the screen. After checking the following contents, please try again after a while. <ul style="list-style-type: none"> 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. <ol style="list-style-type: none"> Check that the wireless LAN setting of smartphone is set to ON. Check that the smartphone is connected to the Internet. Check that the wireless router is turned on.
7610	Communication failed. Check the following contents. <ul style="list-style-type: none"> 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. <ol style="list-style-type: none"> Check that the wireless LAN setting of smartphone is set to ON. Check that the smartphone is connected to the Internet. Check that the wireless router is turned on.

2. Troubleshooting with error code

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

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.)

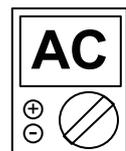
→ If there is an abnormal condition, correct it by referring to the installation manual or the "DESIGN & TECHNICAL MANUAL".



Check point 3. Check the voltage of power supply

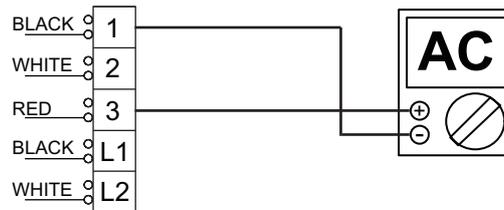
Check the voltage of power supply

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



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

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.)

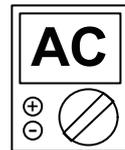
→ If there is an abnormal condition, correct it by referring to the installation manual or the "DESIGN & TECHNICAL MANUAL".



Check point 3. Check the voltage of power supply

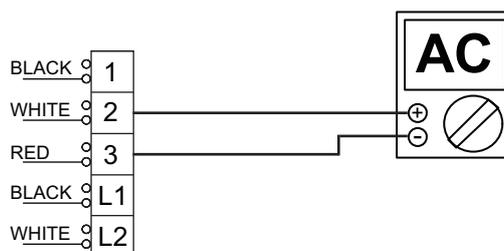
Check the voltage of power supply

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



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)

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)

Indicator	Wired remote controller	Error code	E: 15
Detective actuator	Indoor unit	Main PCB	<ul style="list-style-type: none"> 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 750W 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 03-82.)
→ 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: 18.X. External communication error (Indoor unit)

Indicator	Wired remote controller	Error code	E: 18
Detective actuator	Indoor unit	External communication error	After receiving a signal from the external input and output PCB, the same signal has not been received for 15 seconds.
Forecast of cause			Connection failure
			WLAN Adapter failure
			Main PCB

Check point 1. Check the connection

- Check any loose or removed connection between the main PCB to the WLAN Adapter.
-> If there is an abnormal condition, correct it by refer to the installation manual or the "DESIGN & TECHNICAL MANUAL".
- Check the connection condition on the WLAN Adapter and the main PCB (If there is loose connector, open cable or mis-wiring.)



Check point 2. Replace the WLAN Adapter

If check point 1 do not improve the symptom, change WLAN Adapter.



Check point 3. Replace the main PCB

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



End

2-6. 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

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

2-7. 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

2-8. E: 26.X. Address setting error in wired remote controller (Indoor unit)

Indicator	Wired remote controller	Error code	E: 26
Detective actuator	Wired remote controller (2-wire)	Indoor unit controller PCB	<ul style="list-style-type: none"> 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
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

2-9. 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	

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

2-10. 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

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 (Electrically 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.

2-11. 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

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 03-82.)
→ 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.



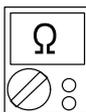
End

2-12. 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

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

2-13. E: 39.X. Indoor unit power supply error for fan motor (Indoor unit)

Indicator	Wired remote controller	Error code	E: 39
Detective actuator	Indoor unit main PCB		<ul style="list-style-type: none"> 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

2-14. 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)	Indoor unit controller PCB circuit	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

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

2-15. 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	

Check point 1. Check connection of connector

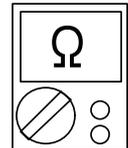
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> 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 03-92.
- 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 02-35.



If the voltage does not appear, replace main PCB.



End

2-16. E: 42.X. Indoor unit heat exchanger sensor error (Indoor unit)

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

Check point 1. Check connection of connector

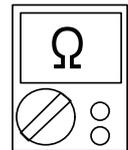
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> 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 03-92.
- 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 02-35.



If the voltage does not appear, replace main PCB.



End

2-17. E: 44.X. Human sensor error

Indicator	Wired remote controller	Error code	E: 44
Detective actuator	Indoor unit main PCB		1. Detect the open condition of the sensor. 2. When signal from sensor is "L" (0 V) for more than 20 min.
Forecast of cause			Connector connection failure
			Sensor failure
			Main PCB failure

Check point 1. Check the connector connection and cable open

- Check if connector is loose or removed.
- Check erroneous connection.
- Check if sensor cable is open
→ Reset power when reinstalling due to removed connector or incorrect wiring.



Check point 2. Check the conduction or voltage

- **Conduction check (sensor connections error)**
 Disconnect the sensor and check the 2—3 pin on sensor connector.
 → With conduction: Sensor failure
 → Without conduction: Main PCB failure
- **Voltage check (sensor signal error)**
 Disconnect the sensor and check the voltage of 3 pin of the CN67 on the main PCB.
 → 5 V: Sensor failure
 → Other than 5 V: Main PCB failure



End

2-18. 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

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 03-82.)
→ 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

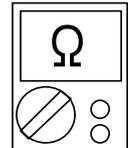
2-19. E: 53.X. Drain pump error (Indoor unit)

Indicator	Wired remote controller	Error code	E: 53
Detective actuator	Indoor unit main PCB Float switch		When Float switch is ON for more than 3 minutes.
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 02-35.



End

2-20. 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

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

2-21. 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

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

2-22. E: 64.X. PFC circuit error (Outdoor unit)

Indicator	Wired remote controller	Error code	E: 64
Detective actuator	Outdoor unit	Main PCB	<ul style="list-style-type: none"> 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 24/30/36/42/48 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

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

2-23. 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 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

2-24. E: 71.X. Discharge thermistor error (Outdoor unit)

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

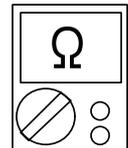
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

→ 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 03-92.
- 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 02-35.



If the voltage does not appear, replace main PCB.



End

2-25. E: 72.X. Compressor thermistor error (Outdoor unit)

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

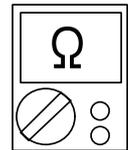
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

→ 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 03-92.
- 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 02-35.



If the voltage does not appear, replace main PCB.



End

2-26. E: 73.X. Heat exchanger (Middle/Outlet) temperature thermistor error (Outdoor unit)

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		• Heat exchanger middle temperature thermistor short or open detected
Forecast of cause			Connector failure
			Thermistor failure
			Main PCB failure

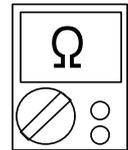
Check Point 1 : Check the connector connection and cable open

- 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 03-92.
- 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 02-35.



If the voltage does not appear, replace main PCB.



End

2-27. E: 74.X. Outdoor temperature thermistor error (Outdoor unit)

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

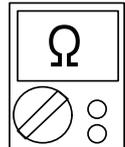
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> 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 03-92.
- 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 02-35.



If the voltage does not appear, replace main PCB.



End

2-28. E: 77.X. Heat sink thermistor error (Outdoor unit) (24/30/36/42/48 model)

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

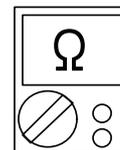
- Check if connector is loose or removed.
- Check erroneous connection.
- Check if thermistor cable is open

-> 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 03-92.
- 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 02-35.



If the voltage does not appear, replace inverter PCB.



End

2-29. E: 84.X. Current sensor error (Outdoor unit)

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 56 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 miswiring, 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**

2-30. E: 86.X. High pressure switch error (Outdoor unit) (24/30/36/42/48 model)

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.



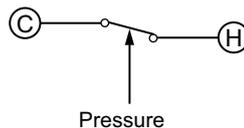
Check point 3. Replace main PCB

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

2-31. E: 94.X. Trip detection (Outdoor unit)

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

2-32. E: 95.X. Compressor motor control error (Outdoor unit)

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 24/30/36/42/48 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 03-82.)

→ 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

2-33. E: 97.X. Outdoor unit fan motor error (Outdoor unit)

Indicator	Wired remote controller	Error code	E: 97
Detective actuator	Outdoor unit	Inverter PCB	<ol style="list-style-type: none"> When outdoor fan rotation speed is less than 100 rpm in 20 seconds after fan motor starts, fan motor stops. After fan motor restarts, if the same operation within 60 seconds is repeated 3 times in a row, compressor and fan motor stops. If 1. and 2. repeats 5 times in a row, compressor and fan motor stops permanently.
		Main PCB	
		Fan motor	
Forecast of cause			Fan rotation failure Motor protection by surrounding temperature rise Inverter PCB failure Main PCB failure 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 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.



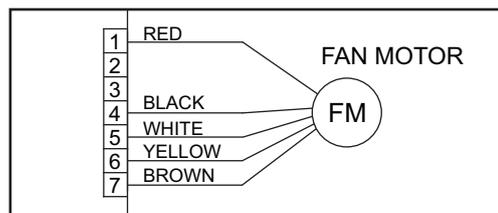
Check point 3. Check outdoor unit fan motor

Check outdoor unit fan motor. (Refer to outdoor unit fan motor in "[Service parts information](#)" on page 03-82.)
 → If outdoor unit fan motor is abnormal, replace outdoor unit fan motor and main PCB.



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 02-35.

Read wire	DC voltage
Red—Black	18 model: 240 V to 400 V, 24/30/36/42/48 model: 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

2-34. E: 99.X. 4-way valve error (Outdoor unit)

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		
Forecast of cause	4-way valve		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 03-92.

→ 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 03-82.

- **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

2-35. E: A1.X. Discharge temperature error (Outdoor unit)

Indicator	Wired remote controller	Error code	E: A1
Detective actuator	Outdoor unit main PCB		Protection stop by discharge temperature $\geq 230^{\circ}\text{F}$ (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 03-82.
- 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 03-82.)



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 03-92.



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

2-36. E: A3.X. Compressor temperature error (Outdoor unit)

Indicator	Wired remote controller	Error code	E: A3
Detective actuator	Outdoor unit main PCB		Protection stop by compressor temperature $\geq 226.4^{\circ}\text{F}$ (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 03-82.
- 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 03-82.)



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 03-92.



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

2-37. E: AC.X. Heat sink temperature error (Outdoor unit) (24/30/36/42/48 model)

Indicator	Wired remote controller	Error code	E: AC
Detective actuator	Outdoor unit inverter PCB		Protection stop by heat sink temperature $\geq 176^{\circ}\text{F}$ (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 03-92.



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

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

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.

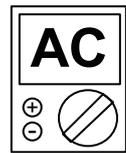


Check point 3. Check electrical components

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

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 (terminal 1—3, terminal 1—2) of main PCB.
(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

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

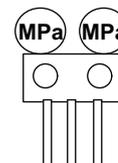
- Check connection pipe (specified pipe length and pipe diameter?)
- Check any loose or removed communication line.

→ 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 03-82.
- Check compressor.
Refer to compressor in "[Service parts information](#)" on page 03-82.
Refer to inverter compressor in "[Service parts information](#)" on page 03-82.



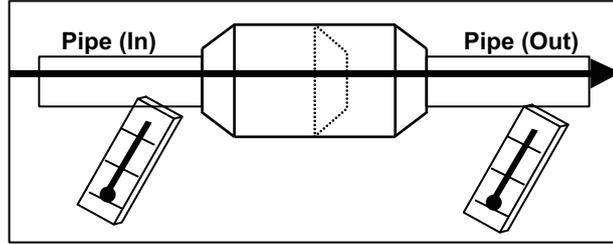
NOTE: When recharging the refrigerant, make sure to perform vacuuming, and recharge the specified amount.



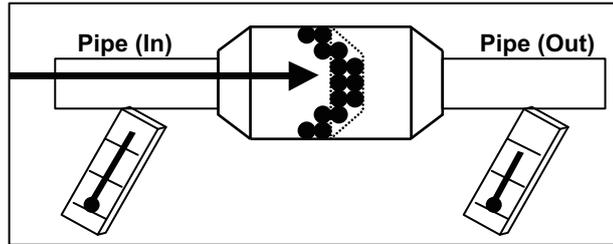
End

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.



3-5. Abnormal noise

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

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 03-82.



End

3-6. Water leaking

Forecast of cause

Erroneous installation

Drain hose failure

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?



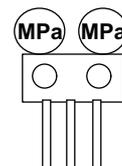
End

Diagnosis method when water is spitting out

Is the filter clogged?



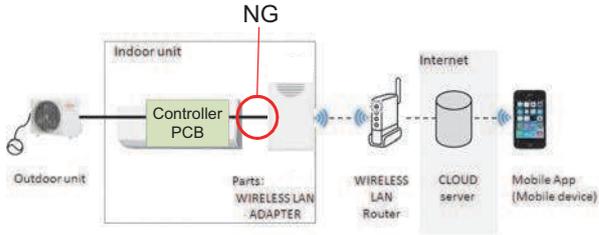
Check gas pressure and correct it if there was a gas leak.



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

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 03-80.



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

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 03-80.



End

Check point 2-2. Check the transmission state

Check the wireless transmission state of 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

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 router	<p>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.</p>	
	Wireless LAN adapter PCB		
	Indoor unit controller PCB		
Forecast of cause	Connection cable failure of wireless LAN router		
	Wireless LAN router failure		
	Connection between indoor unit and wireless LAN adapter failure		
	Connection between wireless LAN adapter and wireless LAN router 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 03-80.



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 03-80.



End

Check point 5-2. Check the transmission state

Check the wireless transmission state of 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	

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 03-80.



End

4-5. Mobile app setting method

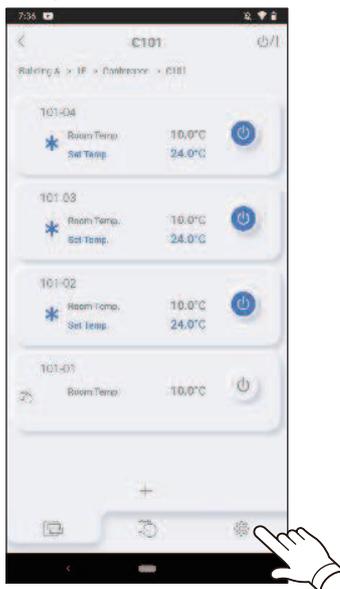
■ Air conditioner delete method

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

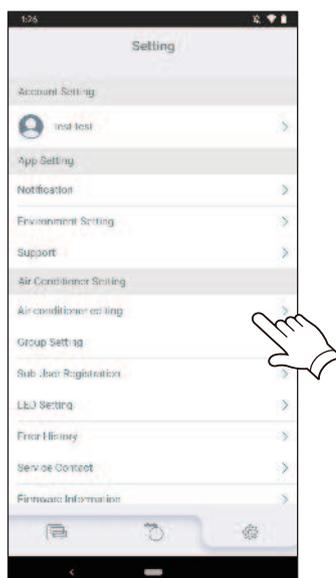
1. Launch the mobile app.



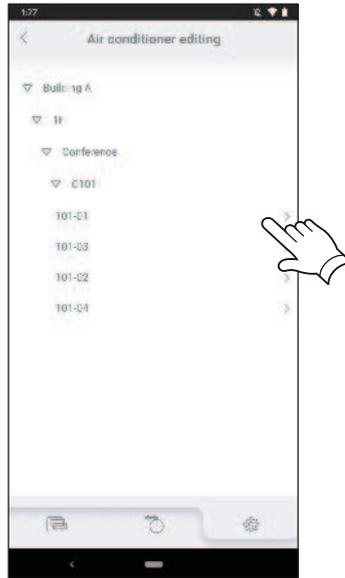
2. Tap the  icon to display the Setting screen.



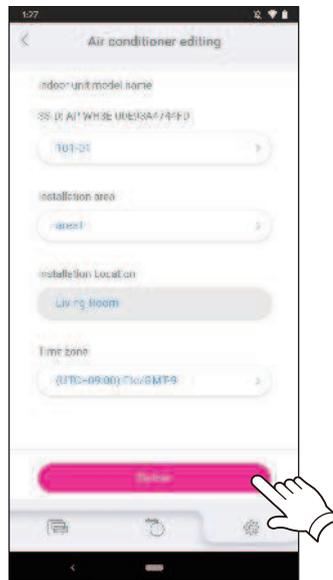
3. Tap the “Air conditioner editing”.



4. Tap the air conditioner to be deleted.



5. Tap the Delete button.



6. Tap the OK button.

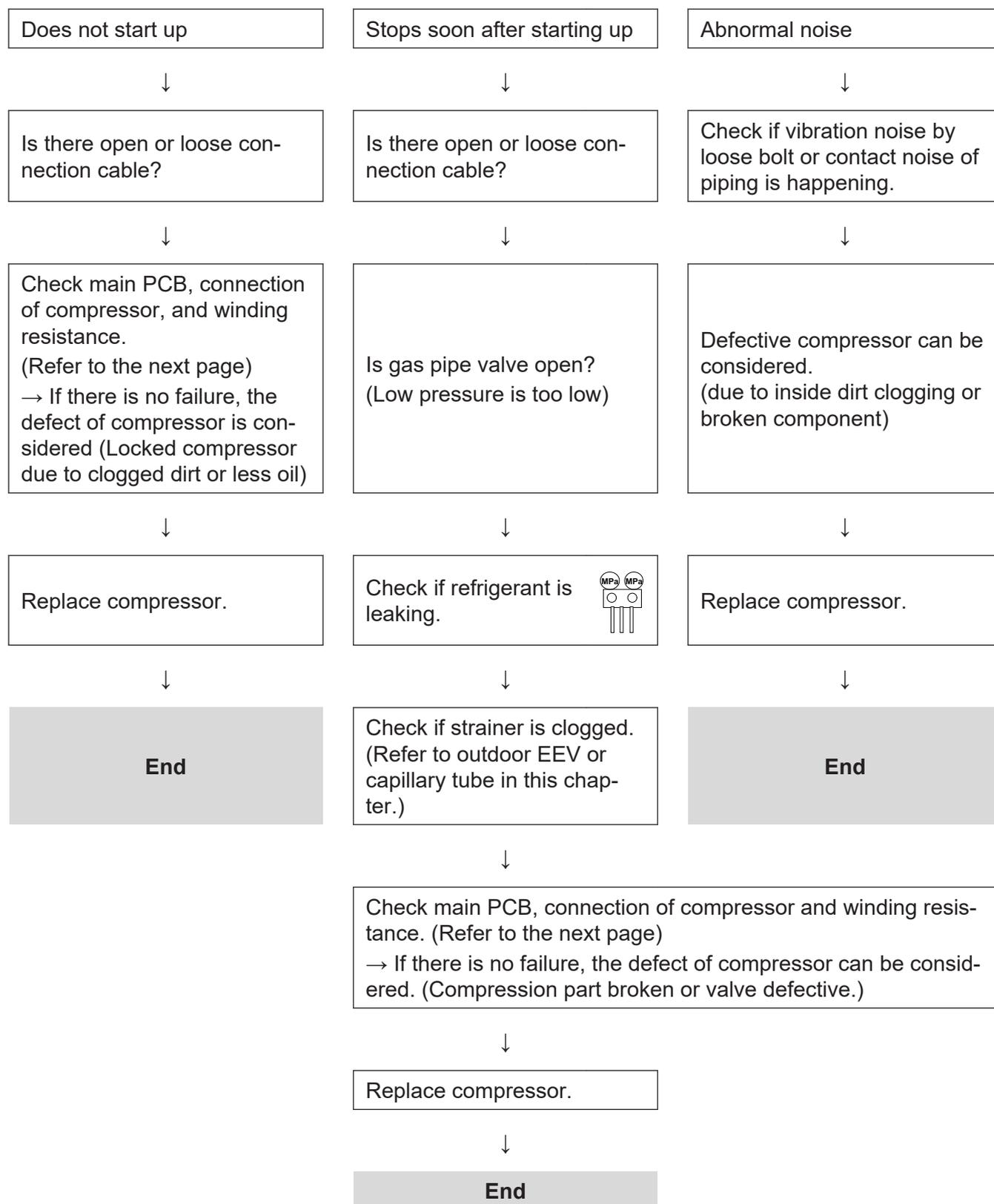


7. Deletion of the air conditioner registered in the mobile app is completed.

5. Service parts information

5-1. Compressor

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

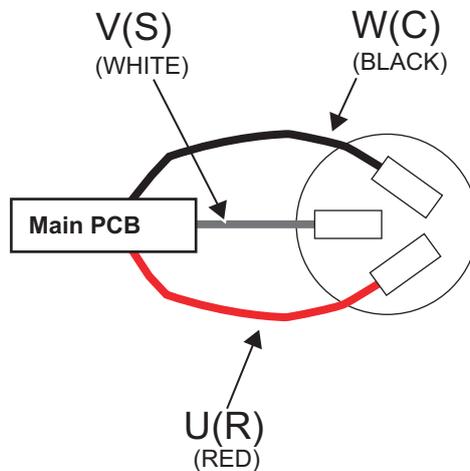


5-2. Inverter compressor

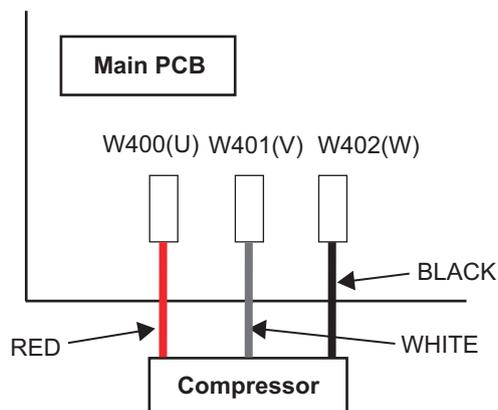
■ Model: AOUH18KUAS1

Check point 1. Check connection

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



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

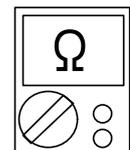
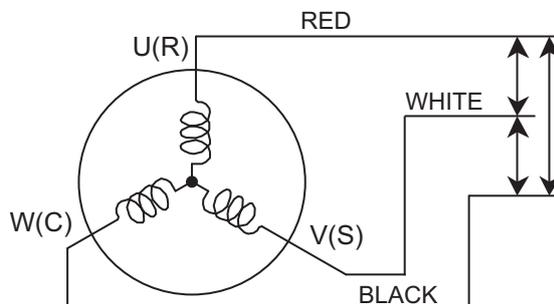


↓

Check point 2. Check winding resistance

Check winding resistance of each terminal.

Resistance value: $1.916 \Omega \pm 8\%$ at 68°F (20°C)



→ If the resistance value is 0Ω 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, AOUH36KUAS1, AOUH42KUAS1, and AOUH48KUAS1

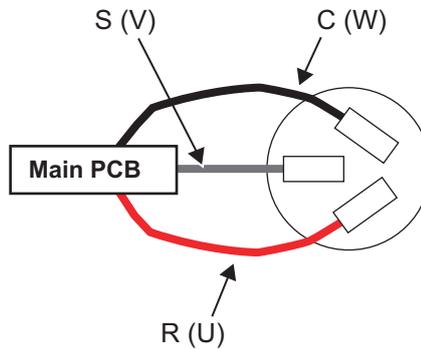
TROUBLESHOOTING

TROUBLESHOOTING

Check point 1. Check the terminal connection.

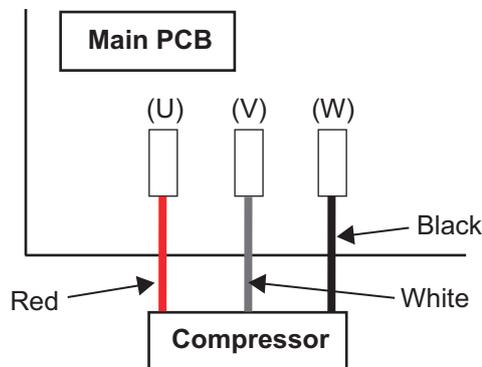
- Check the following terminal connections of the compressor. (Loosening or incorrect wiring.)

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

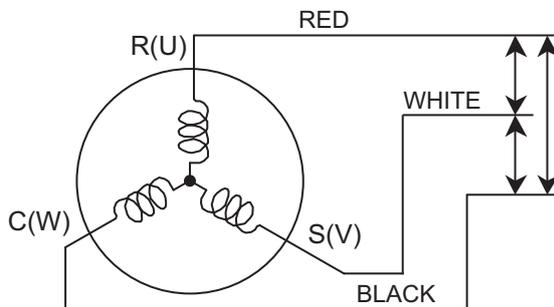
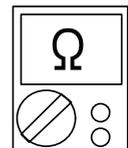


Check point 2. Check the winding resistance.

Check the winding resistance of each terminal.

Resistance value

- 24 model: $1.160 \Omega \pm 8\%$ at 68°F (20°C)
- 30/36 model: $1.120 \Omega \pm 8\%$ at 68°F (20°C)
- 42/48 model: $0.676 \Omega \pm 8\%$ 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

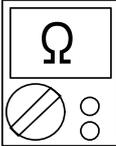
Check point 1. Check connections

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 02-35.

Check point 2. Check coil of EEV

Remove connector, check each winding resistance of coil.

Read wire	Resistance value
White - Red	$46 \Omega \pm 3.7 \Omega$ 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.

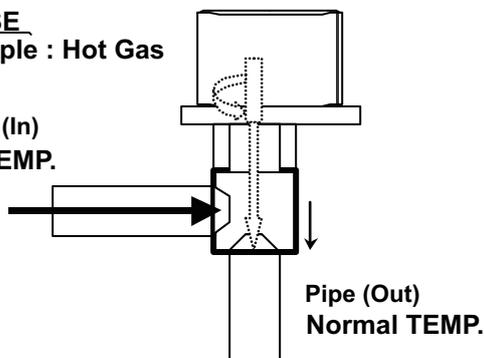
→ If an abnormal noise does not show, replace main PCB.

Check point 5. Check opening and closing operation of valve

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

CLOSE
Example : Hot Gas

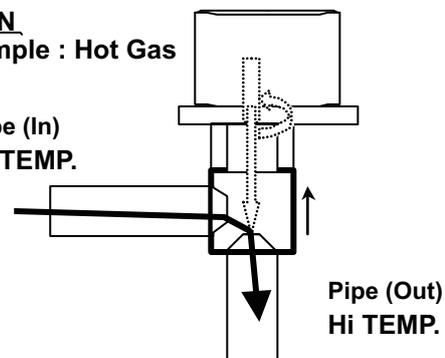
Pipe (In)
Hi TEMP.



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

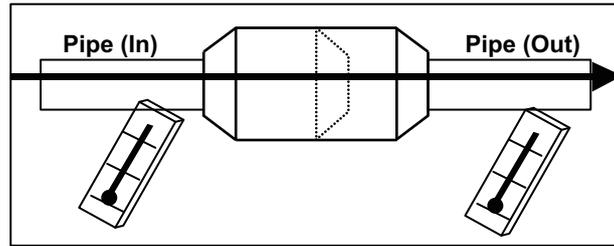
OPEN
Example : Hot Gas

Pipe (In)
Hi TEMP.

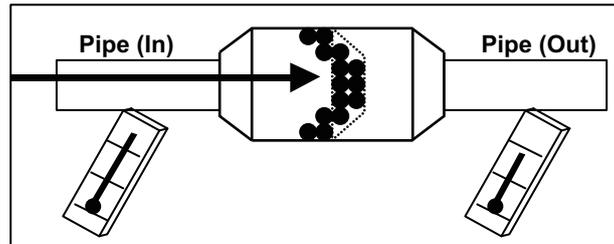


Check point 6. Check strainer

- 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, AOUH36KUAS1, AOUH42KUAS1, and AOUH48KUAS1

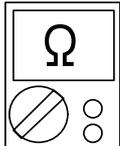
Check point 1. Check connections

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 02-35.

Check point 2. Check coil of EEV

Remove connector, check each winding resistance of coil.

Read wire	Resistance value
1 (Red) - 2 (Blue)	$46 \Omega \pm 3.0 \Omega$ 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.

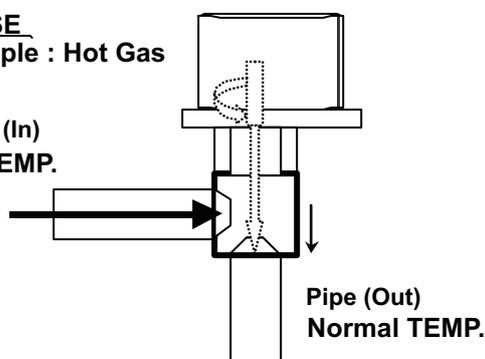
→ If an abnormal noise does not show, replace main PCB.

Check point 5. Check Opening and Closing Operation of Valve

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

CLOSE
Example : Hot Gas

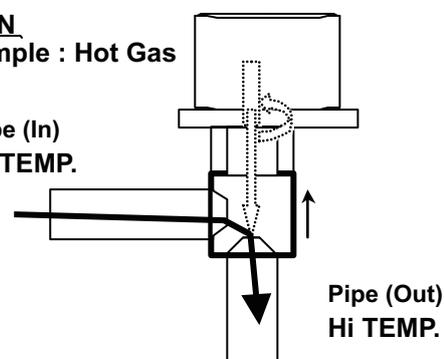
Pipe (In)
Hi TEMP.



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

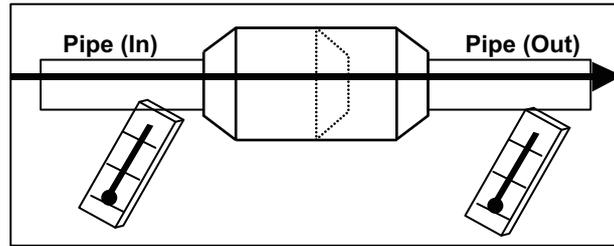
OPEN
Example : Hot Gas

Pipe (In)
Hi TEMP.

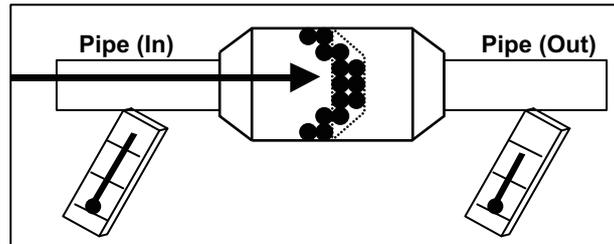


Check point 6. Check strainer

- 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

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.

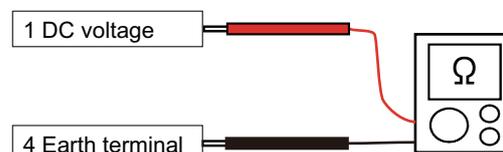
Check point 2. Check resistance of indoor fan motor

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 (Brown)	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.

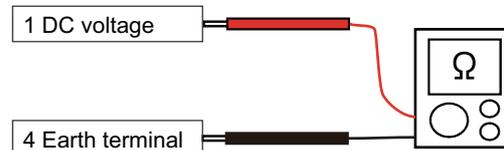
Check point 2. Check resistance of outdoor fan motor

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.

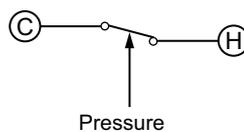
Pin number (wire color)	Terminal function (symbol)
1 (Red)	DC voltage (Vm)
2	No function
3	No function
4 (Black)	Earth terminal (GND)
5 (White)	Control voltage (Vcc)
6 (Yellow)	Speed command (Vsp)
7 (Brown)	Feed back (FG)



5-6. Pressure switch

■ Models: AOUH24KUAS1, AOUH30KUAS1, AOUH36KUAS1, AOUH42KUAS1, and AOUH48KUAS1

- Type of contact



- Characteristics of pressure switch

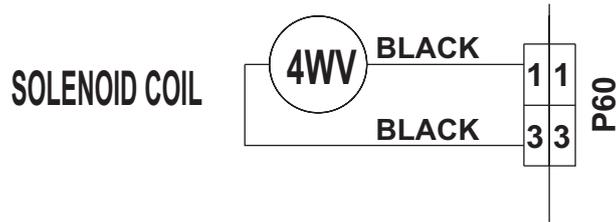
Pressure switch 1	
Contact: Short → Open	4.2 — 4.05 MPa
Contact: Open → Short	3.2 ± 0.15 MPa

P770

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

Check point 1. Check connection

- Check the connection of connector P60.

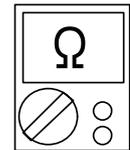
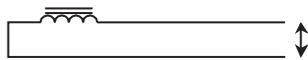


↓

Check Point 2 : Check solenoid coil

Remove P60 from PCB and check the resistance value of coil.

Resistance value $\approx 1.970 \text{ k}\Omega$

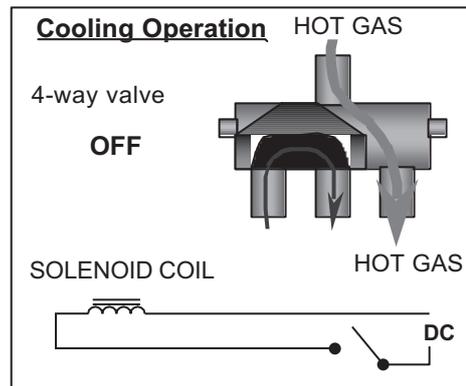
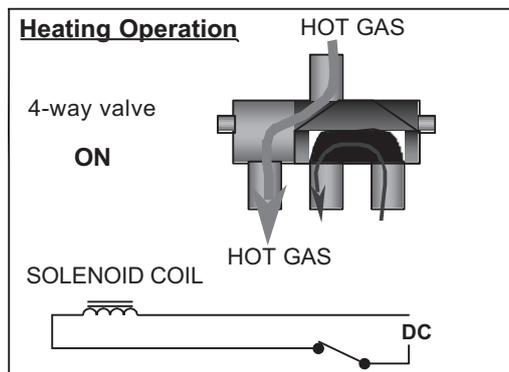


→ If it is Open or abnormal resistance value, replace solenoid coil.

↓

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

6-2. Outdoor unit

■ Heat sink thermistor

- Models: AOUH24KUAS1, AOUH30KUAS1, AOUH36KUAS1, AOUH42KUAS1, and AOUH48KUAS1

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

■ 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

■ 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

■ 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

4. CONTROL AND FUNCTIONS

CONTENTS

4. CONTROL AND FUNCTIONS

1. Rotation number control of compressor.....	04-1
1-1. Cooling operation	04-1
1-2. Heating operation	04-3
1-3. Dry operation	04-4
1-4. Rotation number of compressor at normal start-up	04-5
1-5. Limitation of compressor rotation number by outdoor temperature.....	04-8
2. Auto changeover operation.....	04-12
3. Fan control.....	04-14
3-1. Indoor fan control.....	04-14
3-2. Outdoor fan control	04-17
4. Louver control	04-21
4-1. Individual louver control	04-21
4-2. All louver control	04-21
4-3. Swing operation.....	04-22
5. Timer operation control	04-23
5-1. Wireless remote control	04-23
5-2. Wired remote control	04-25
6. Defrost operation control	04-28
6-1. Defrost operation in heating operation stopped	04-29
7. Various control	04-30
7-1. Auto restart.....	04-30
7-2. MIN. HEAT operation	04-30
7-3. ECONOMY operation	04-30
7-4. Fresh air control.....	04-30
7-5. Compressor preheating operation	04-31
7-6. External electrical heater control	04-32
7-7. Electronic expansion valve control	04-32
7-8. Drain pump control	04-33
7-9. Prevention to restart for 3 minutes (3 minutes st)	04-35
7-10. 4-way valve control.....	04-35
7-11. Human sensor for energy saving.....	04-35
7-12. Peak cut operation (for 24/30/36/42/48 model).....	04-36
7-13. Unit status monitoring and the detected value indication	04-37
8. Various protections.....	04-40
8-1. Discharge gas temperature over-rise prevention control	04-40
8-2. Anti-freezing control (cooling and dry mode)	04-40
8-3. Current release control	04-41
8-4. Compressor temperature protection	04-43
8-5. High pressure protection (for 24/30/36/42/48 model).....	04-43
8-6. Low outdoor temperature protection.....	04-43

CONTENTS (continued)

8-7. High temperature and high pressure release control	04-44
---	-------

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.

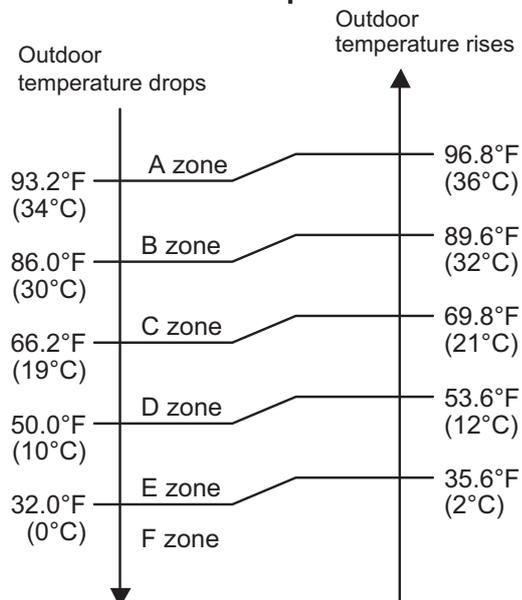
- If the room temperature is 11°F (6.0°C) higher than a set temperature, the operation rotation number of compressor will attain to maximum performance.
- If the room temperature is 2°F (1.0°C) lower than a set temperature, the compressor will be stopped.
- When the room temperature is within the range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

- **Rotation number range of compressor**

Unit: rps

Model name	Minimum frequency	Maximum frequency
AUUh18KUAS	10	101
AUUh24KUAS	10	94
AUUh30KUAS AUUh36KUAS	13	103
AUUh42KUAS AUUh48KUAS	14	95

• Limit of maximum speed based on outdoor temperature



Unit: rps

Model name	Outdoor temperature zone	Indoor unit fan mode			
		HIGH	MED	LOW	QUIET
AUUH18KUAS	A zone	101	58	46	32
	B zone	101	58	46	32
	C zone	83	51	38	32
	D zone	58	36	32	19
	E zone	58	36	32	19
	F zone	58	36	32	19
AUUH24KUAS	A zone	94	54	46	34
	B zone	94	54	46	34
	C zone	68	50	39	34
	D zone	54	39	34	20
	E zone	54	39	34	20
	F zone	54	39	34	20
AUUH30KUAS AUUH36KUAS	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
AUUH42KUAS AUUH48KUAS	A zone	95	57	44	28
	B zone	95	57	44	28
	C zone	69	44	36	28
	D zone	48	36	30	23
	E zone	48	36	30	23
	F zone	48	36	30	23

CONTROL AND FUNCTIONS

CONTROL AND FUNCTIONS

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
AUJH18KUAS AUJH24KUAS	10	130
AUJH30KUAS AUJH36KUAS	13	120
AUJH42KUAS AUJH48KUAS	14	120

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.

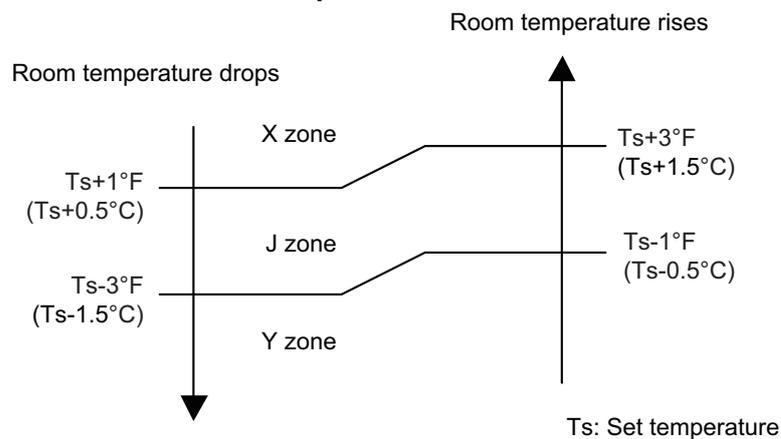
Zone is defined by set temperature and room temperature.

- **Rotation number range of compressor**

Unit: rps

Model name	Outdoor temperature zone	Operating frequency
AUUH18KUAS	X zone	32
	J zone	32
	Y zone	0
AUUH24KUAS	X zone	34
	J zone	34
	Y zone	0
AUUH30KUAS AUUH36KUAS	X zone	37
	J zone	37
	Y zone	0
AUUH42KUAS AUUH48KUAS	X zone	28
	J zone	28
	Y zone	0

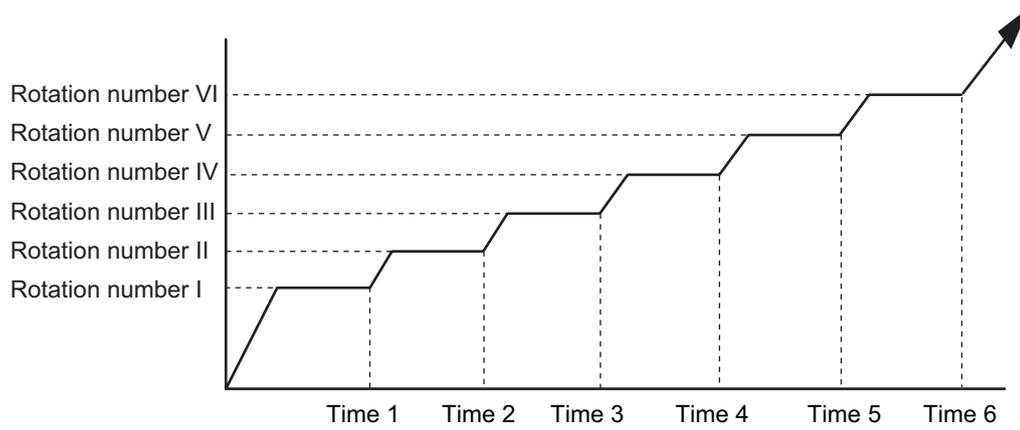
- **Compressor control based on room temperature**



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

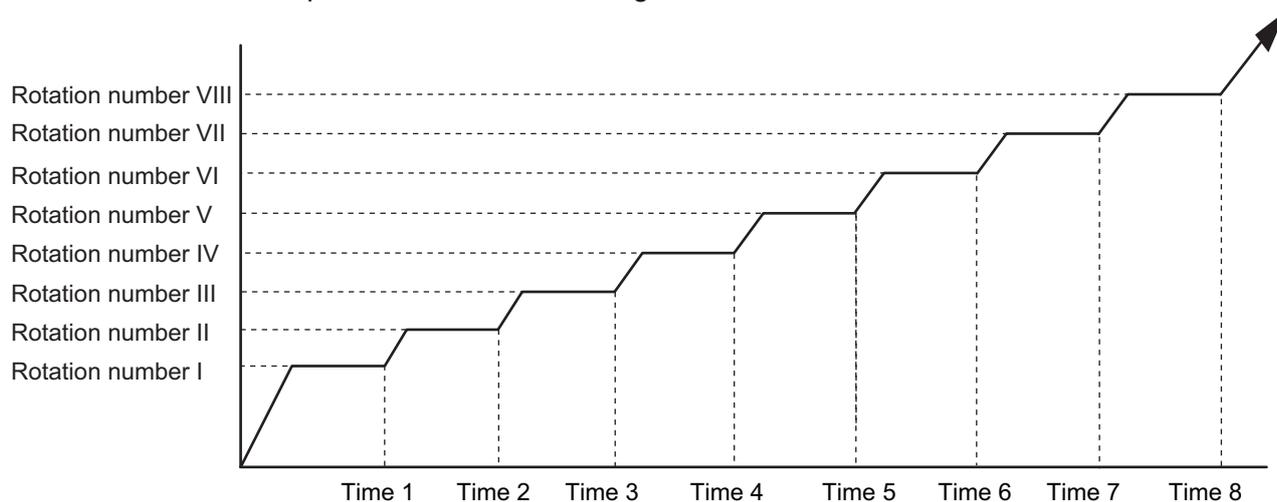
*: Cooling operation: 29

CONTROL AND FUNCTIONS

CONTROL AND FUNCTIONS

■ Model: AOUH24KUAS1

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



- 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

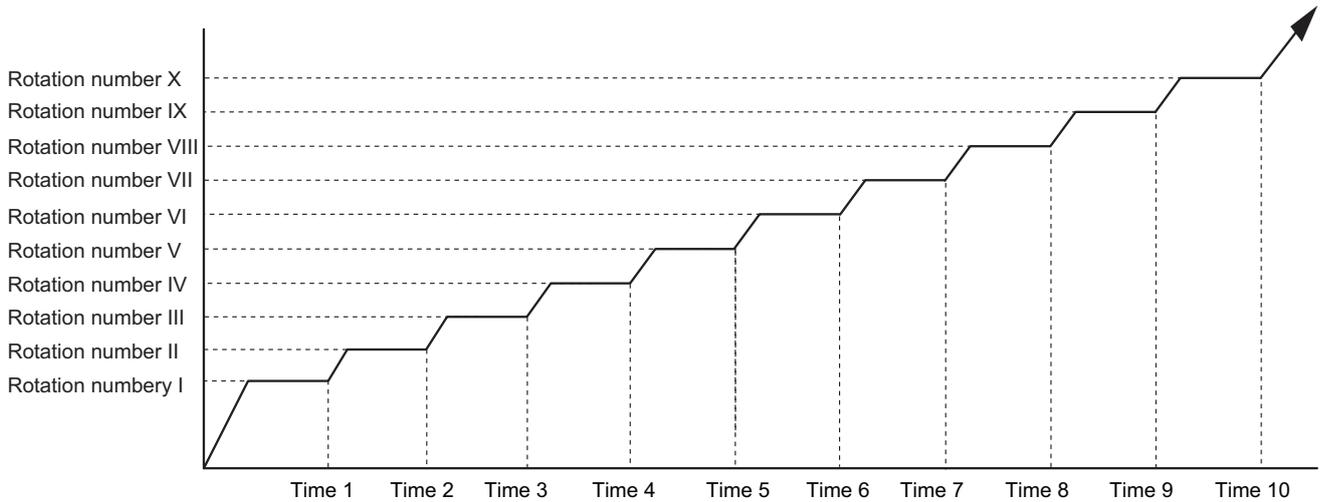
Rotation number (rps)	I	II	III	IV	V	VI	VII	VIII
	25	42	53	61	65	75	85	92
Time (sec)	1	2	3	4	5	6	7	8
	225	305	605	665	725	785	855	1,000

NOTES:

- Normal operation:
 - Cooling and dry mode
 - Below 3 hours from the compressor stop and the compressor thermistor $\geq 59^{\circ}\text{F}$ (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, AOUH36KUAS1, AOUH42KUAS1 and AOUH48KUAS1

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



• 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 $\geq 59^{\circ}\text{F}$ (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

100.4°F (38°C)	F zone
66.2°F (19°C)	E zone
50.0°F (10°C)	D zone
32.0°F (0°C)	C zone
14.0°F (-10°C)	B zone
	A zone

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

- Heating mode

66.2°F (19°C)	F zone
41.0°F (5°C)	E zone
32.0°F (0°C)	D zone
5.0°F (-15°C)	C zone
-13.0°F (-25°C)	B zone
	A zone

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

■ Models: AOUH24KUAS1, AOUH30KUAS1, AOUH36KUAS1, AOUH42KUAS1, and AOUH48KUAS1

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

- **Cooling/Dry mode**

125.6°F (52°C)	K zone
122.0°F (50°C)	J zone
114.8°F (46°C)	I zone
87.8°F (31°C)	H zone
69.8°F (21°C)	G zone
55.4°F (13°C)	F zone
44.6°F (7°C)	E zone
35.6°F (2°C)	D zone
23.0°F (-5°C)	C zone
14.0°F (-10°C)	B zone
	A zone

Unit: rps

Outdoor temperature zone	Limitation of compressor frequency		
	AOUH24KUAS1	AOUH30KUAS1 AOUH36KUAS1	AOUH42KUAS1 AOUH48KUAS1
A zone	55	60	30
B zone	52	57	30
C zone	47	48	30
D zone	39	36	26
E zone	33	27	19
F zone	25	24	17
G zone	18	15	14
H zone	20	20	14
I zone	20	20	15
J zone	21	26	20
K zone	24	30	24

- Heating mode

68.0°F (20°C)	I zone
60.8°F (16°C)	H zone
53.6°F (12°C)	G zone
44.6°F (7°C)	F zone
35.6°F (2°C)	E zone
19.4°F (-7°C)	D zone
14.0°F (-10°C)	C zone
5.0°F (-15°C)	B zone
	A zone

Unit: rps

Outdoor temperature zone	Limitation of compressor frequency		
	AOUH24KUAS1	AOUH30KUAS1 AOUH36KUAS1	AOUH42KUAS1 AOUH48KUAS1
A zone	58	55	39
B zone	52	51	36
C zone	43	42	30
D zone	38	39	27
E zone	28	28	20
F zone	23	24	18
G zone	20	21	15
H zone	17	16	12
I zone	17	20	14

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, 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
$T_r > T_s + 3.6^{\circ}\text{F}$ (2°C)	Cooling
$T_s + 3.6^{\circ}\text{F}$ (2°C) $\geq T_r \geq T_s - 3.6^{\circ}\text{F}$ (2°C)	Middle zone
$T_r < T_s - 3.6^{\circ}\text{F}$ (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.

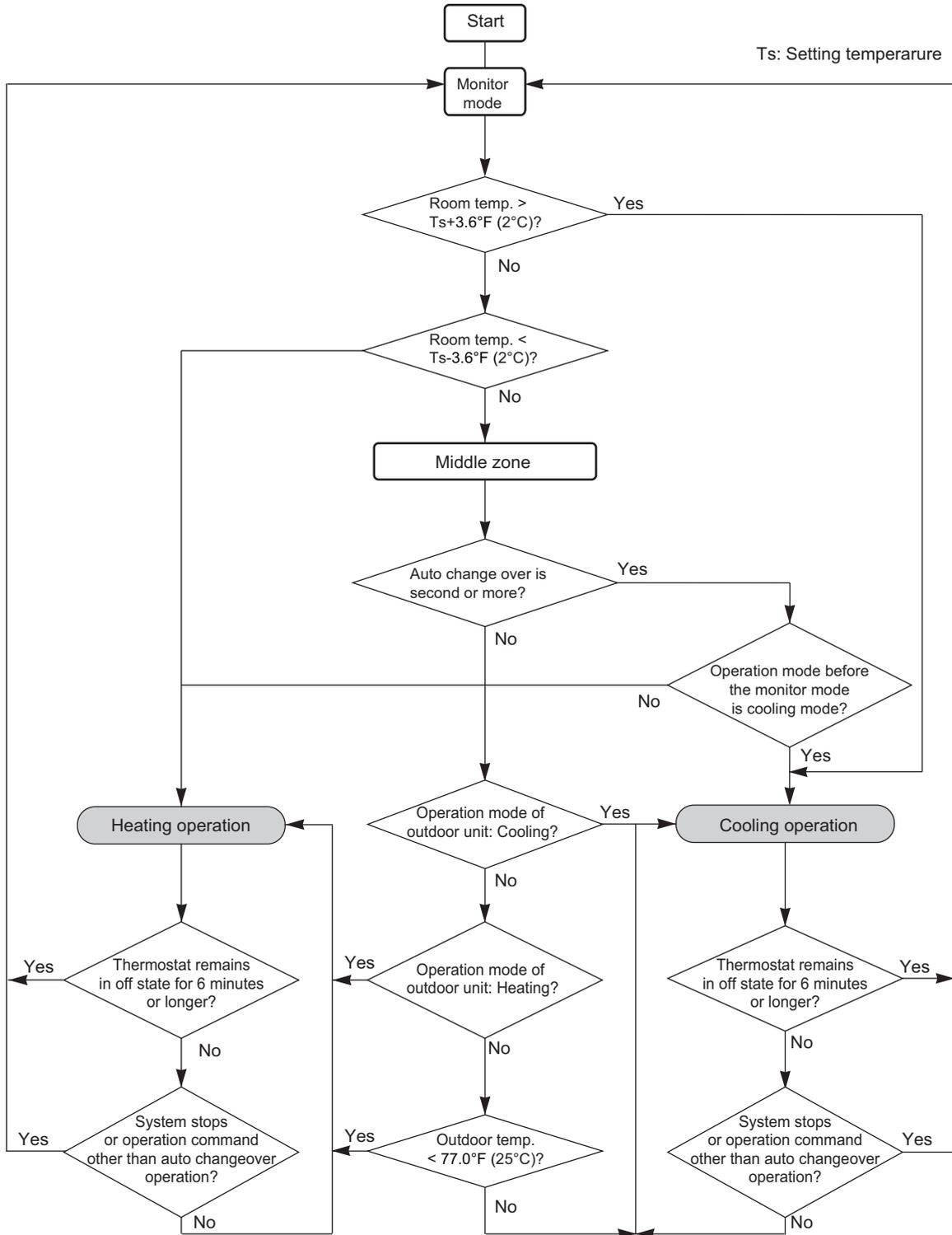
- Same operation mode is selected as outdoor unit.
If outdoor unit is operating in cooling and heating mode, indoor unit will be operated by the same operation mode.
- Selected by outdoor temperature.
If outdoor unit is operating in other than cooling and heating mode, indoor unit will be operated according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

Operation flow chart

Ts: Setting temperature



CONTROL AND FUNCTIONS

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)					
		18	24	30	36	42	48
Heating	HIGH	390	430	560	660	700	740
	MED+	380	410	530	600	630	680
	MED	360	390	510	560	590	630
	LOW	340	370	470	510	530	570
	QUIET	300	330	420	430	470	470
	Cool air prevention	300	300	300	300	300	300
Cooling/Fan	S-LOW	270	270	270	270	270	270
	HIGH	390	430	560	660	700	740
	MED	360	390	510	560	590	630
	LOW	340	370	470	510	530	570
	QUIET	300	330	420	430	470	470
	Soft quiet	270* ¹	300* ¹				
Dry	S-LOW	270* ²					
		X zone: 300 J zone: 300	X zone: 330 J zone: 330	X zone: 420 J zone: 420	X zone: 430 J zone: 430	X zone: 470 J zone: 470	X zone: 470 J zone: 470

*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.

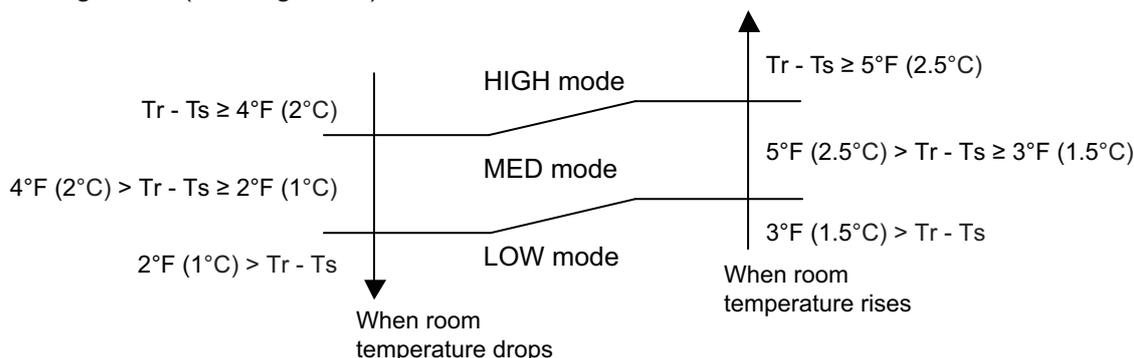
When fan mode is set at AUTO, it operates on MED fan speed.

■ 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)



■ Dry operation

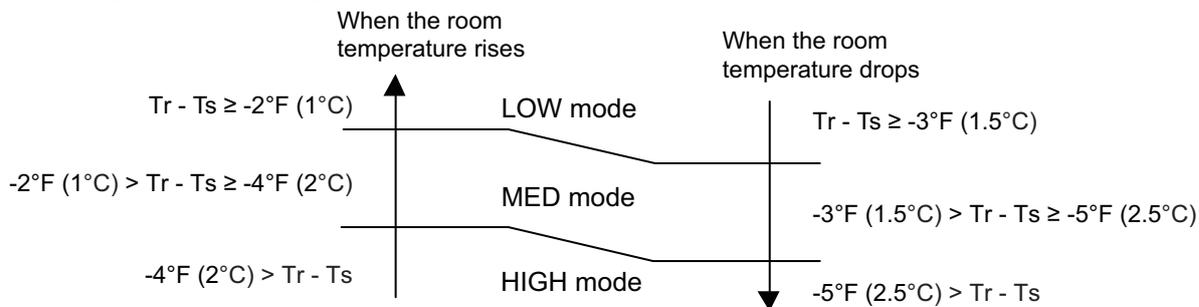
During dry operation, fan speed setting can not be changed as shown in “Fan speed” above.

■ 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.

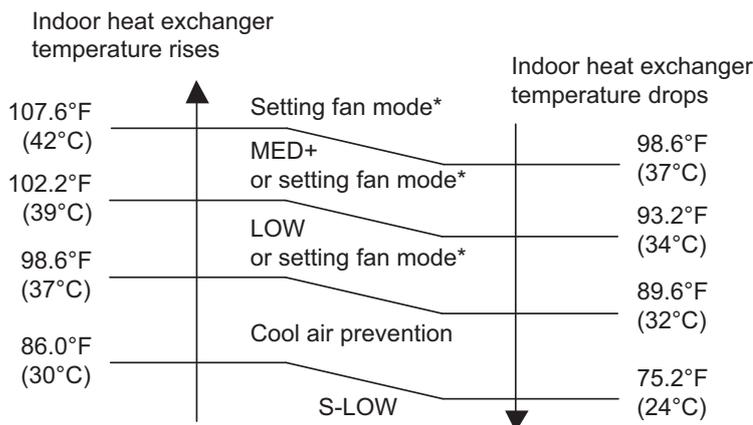
Airflow change over (Heating: Auto)



■ Cool air prevention control (heating mode)

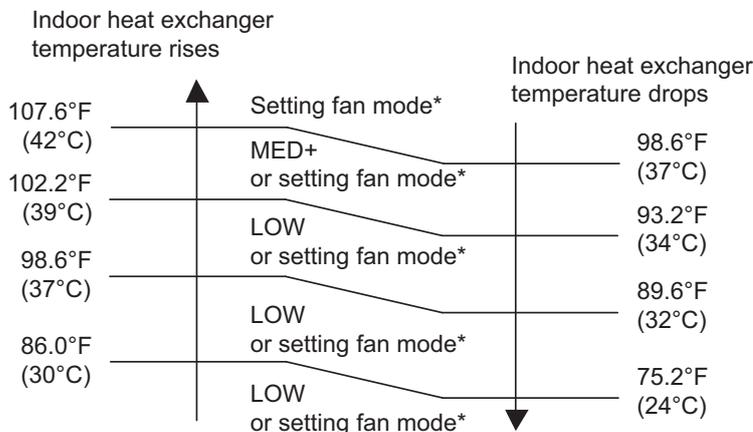
The maximum value of the indoor fan speed is set as shown below, based on the detected temperature by the indoor heat exchanger sensor on heating mode.

• Normal operation



*: Lower speed is selected.

13 minutes later:



*: Lower speed is selected.

3-2. Outdoor fan control

■ Outdoor fan motor

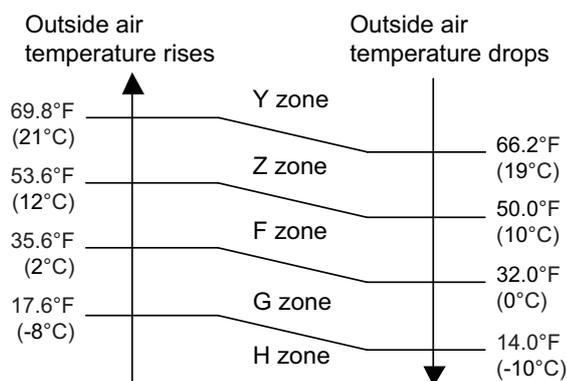
This outdoor unit has a DC fan motor. (Control method is different between AC and DC motors.)

■ 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

● 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

- 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

- 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

● Models: AOUH42KUAS1 and AOUH48KUAS1

Fan speed is defined by outdoor temperature and compressor frequency.

Unit: rpm

Fan step	Cooling or dry	Heating
13	990	—
12	920	—
11	860	—
10	800	990
9	740	900
8	650	820
7	600	740
6	530	650
5	490	540
4	400	460
3	330	380
2	270	290
1	200	200
S-HIGH	—	990

- 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

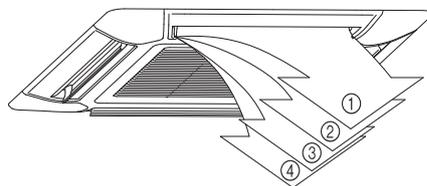
To independently can be set the airflow pattern of each louver as follows:



This function is given priority to overall louver control. But this function is release during the following operation.

- Cold air prevention control
- Monitor mode on the auto change over operation
- Defrost operation

The air direction range will change as follows:



Use the wired remote controller to set this function. This function is only available by 2-wire remote controller.

NOTE: When the 2-wire remote controller is disconnected, clear the individual setting. Otherwise, this setting can't change.

4-2. All louver control

- **All louver operation**

When the mode is selected, the standard louver position of the each mode is set.

model name	Operation mode	Standard Position
AUUH18KUAS AUUH24KUAS AUUH30KUAS AUUH36KUAS	Cooling	2
	Dry	2
	Heating	4
	Monitor	2
AUUH42KUAS AUUH48KUAS	Cooling	2
	Dry	2
	Heating	3
	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 ↔ 4
 - Heating mode: 1 ↔ 4
 - 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.

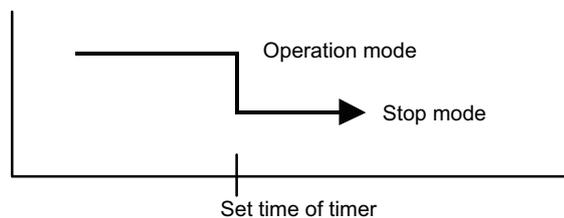
5. Timer operation control

5-1. Wireless remote control

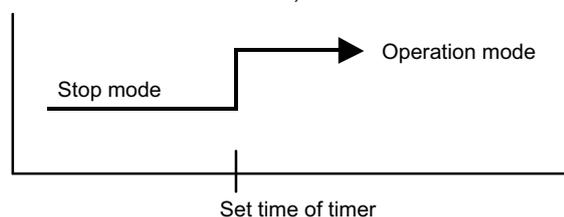
On/Off timer	Program timer	Sleep timer	Weekly timer
○	○	○	—

■ On/Off timer

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

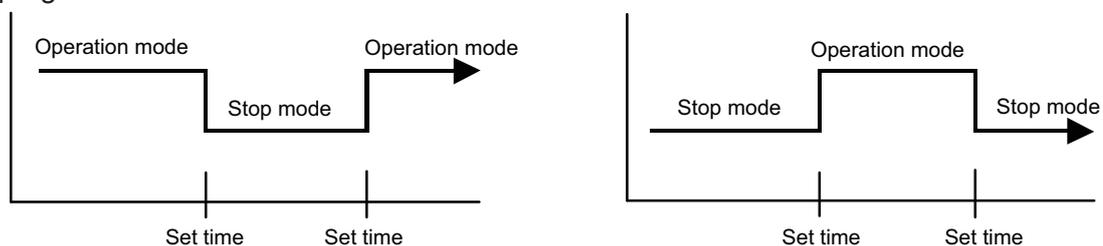


- On timer: When the clock reaches the set timer, the air conditioner will be turned on.



■ Program timer

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



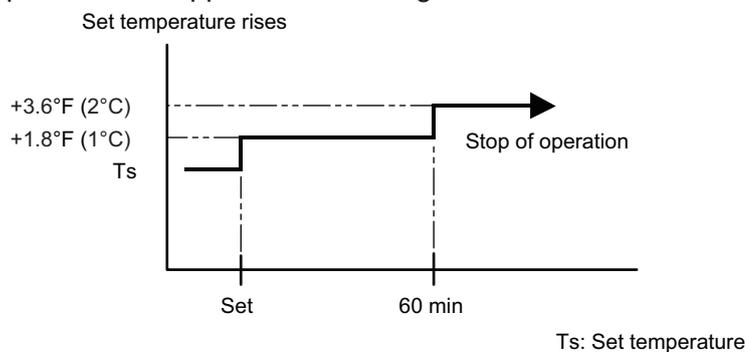
- Operation will start from the timer setting (either off timer and on timer) whichever is closest to the clock current timer setting. The order of operations is indicated by the allow in the remote controller screen.
- Sleep timer operation cannot be combined with on timer operation.

■ 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.

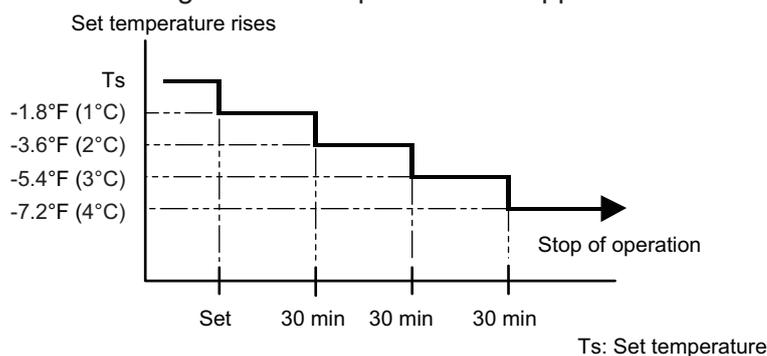
- In the cooling operation mode

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.

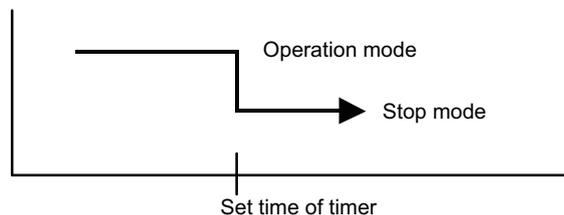


5-2. Wired remote control

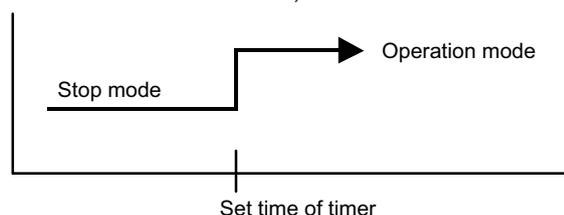
On/Off timer	Program timer	Sleep timer	Weekly timer	Temperature Setback Timer
○	○	○	○	○

■ On/Off timer

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

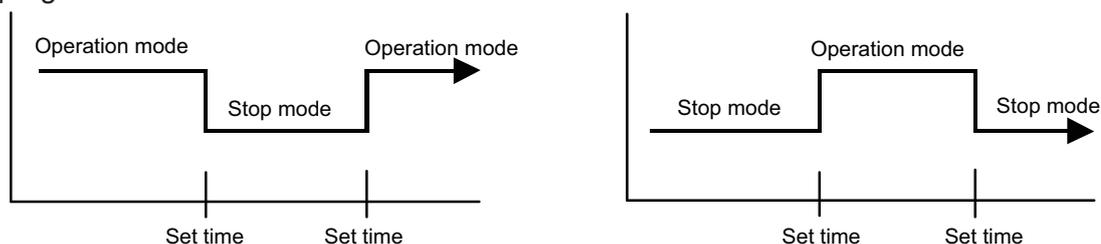


- On timer: When the clock reaches the set timer, the air conditioner will be turned on.



■ Program timer

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



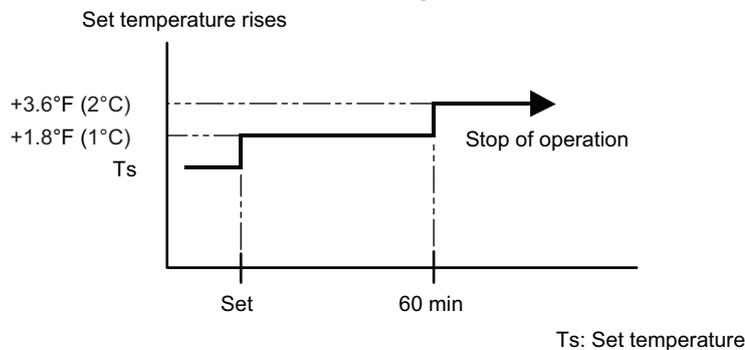
- Operation will start from the timer setting (either off timer and on timer) whichever is closest to the clock current timer setting. The order of operations is indicated by the allow in the remote controller screen.
- Sleep timer operation cannot be combined with on timer operation.

■ 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.

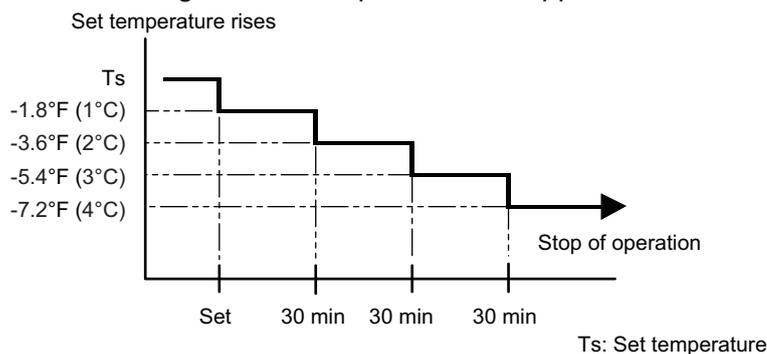
- In the cooling operation mode

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.



- 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.



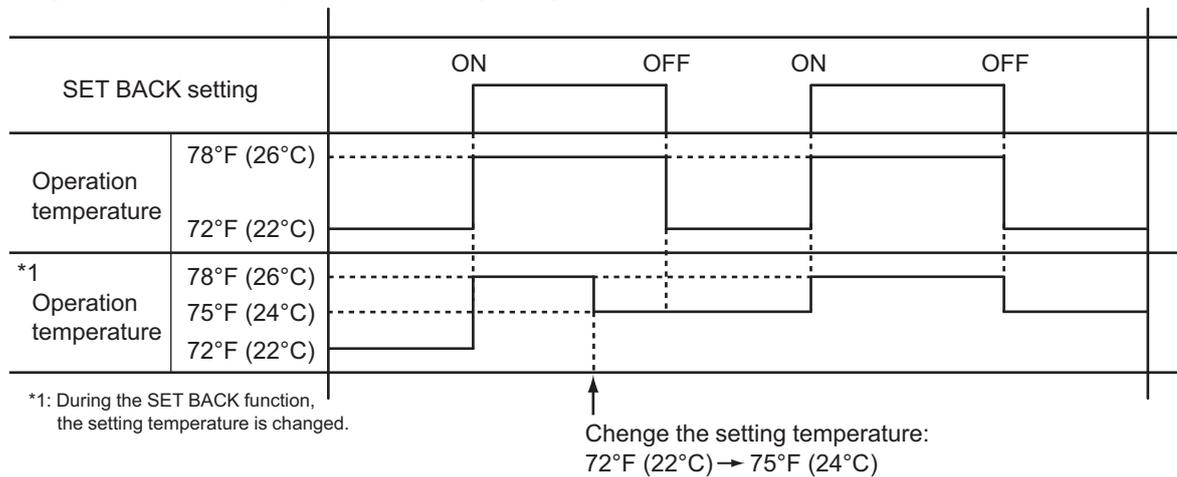
■ Weekly timer

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])



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	$T_n \leq 15.8^\circ\text{F} (-9^\circ\text{C})$ and $T_n - T_a \geq 9.0^\circ\text{F} (5^\circ\text{C})$	$T_n \leq 23.0^\circ\text{F} (-5^\circ\text{C})$

– 2nd time and after

• Model: AOUH18KUAS1

Compressor integrating operation time	Less than 40 min.	More than 40 min.
Condition	Does not operate	$T_n - T_{n10} < -9.0^\circ\text{F} (-5^\circ\text{C})$ ($T_n \leq 21.2^\circ\text{F} [-6^\circ\text{C}]$) $T_n - T_{nb} < -3.6^\circ\text{F} (-2^\circ\text{C})$ ($T_n \leq 21.2^\circ\text{F} [-6^\circ\text{C}]$) $T_n \leq -4.0^\circ\text{F} (-20^\circ\text{C})$ ($T_a \geq 14.0^\circ\text{F} [-10^\circ\text{C}]$) $T_n \leq T_a + 19.4^\circ\text{F} (-7^\circ\text{C})$ or $T_n \leq -22.0^\circ\text{F} (-30^\circ\text{C})$ $(T_a < 14.0^\circ\text{F} [-10^\circ\text{C}])$

• Models: AOUH24KUAS1, AOUH30KUAS1, AOUH36KUAS1, AOUH42KUAS1, and AOUH48KUAS1

Compressor integrating operation time	Less than 35 min.	More than 35 min.
Condition	Does not operate	$T_n - T_{n10} < -9.0^\circ\text{F} (-5^\circ\text{C})$ ($T_n \leq 14.0^\circ\text{F} [-10^\circ\text{C}]$) $T_n - T_{nb} < -3.6^\circ\text{F} (-2^\circ\text{C})$ ($T_n \leq 14.0^\circ\text{F} [-10^\circ\text{C}]$) $T_n \leq -22.0^\circ\text{F} (-30^\circ\text{C})$ ($T_a \geq -22.0^\circ\text{F} [-30^\circ\text{C}]$) $T_n < T_a + 19.4^\circ\text{F} (-7^\circ\text{C})$ or $T_n \leq -22.0^\circ\text{F} (-30^\circ\text{C})$ $(T_a < -22.0^\circ\text{F} [-30^\circ\text{C}])$

– 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	$T_n \leq 26.6^\circ\text{F} (-3^\circ\text{C})$	$T_n \leq 23.0^\circ\text{F} (-5^\circ\text{C})$	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	

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

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	

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

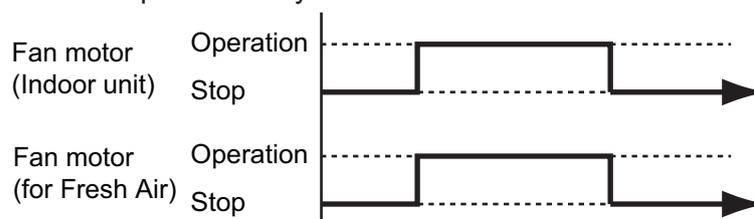
7-3. ECONOMY operation

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

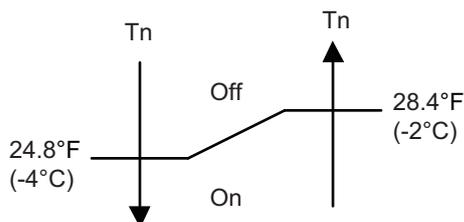
To perform the preheat operation, turn on the power for the outdoor unit at least 12 hours before the operation. Especially in cold climate regions, the compressor may fail if the outdoor unit is on for less than 12 hours.

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.

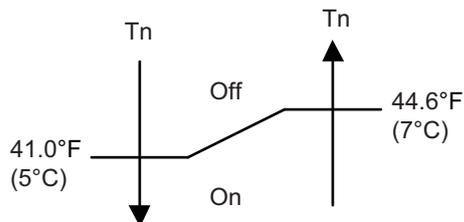
• Model: AOUH18KUAS1

– Triggering condition

- 30 minutes after compressor stopped.
- Outdoor unit heat exchanger temperature (Tn)



When the jumper wire (JM2) is disconnected:

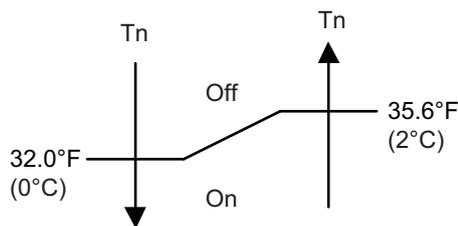


• Models: AOUH24KUAS1, AOUH30KUAS1, AOUH36KUAS1, AOUH42KUAS1, and AOUH48KUAS1

– Triggering condition 1

- Outdoor temperature $\leq 68^{\circ}\text{F}$ (20°C)
When outdoor temperature reaches 78.8°F (26°C), compressor preheating stops.
- 30 minutes after compressor stopped

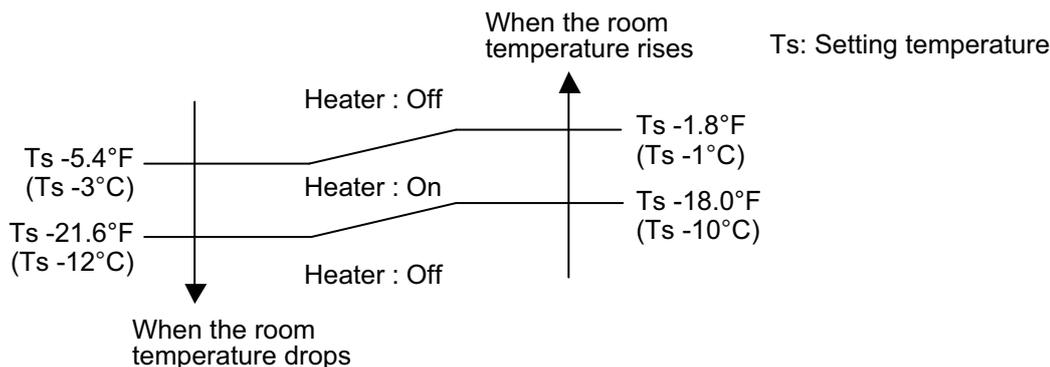
– Triggering condition 2



Tn: Outdoor unit heat exchanger temp.

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.)

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, AOUH36KUAS1, AOUH42KUAS1, and AOUH48KUAS1**

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

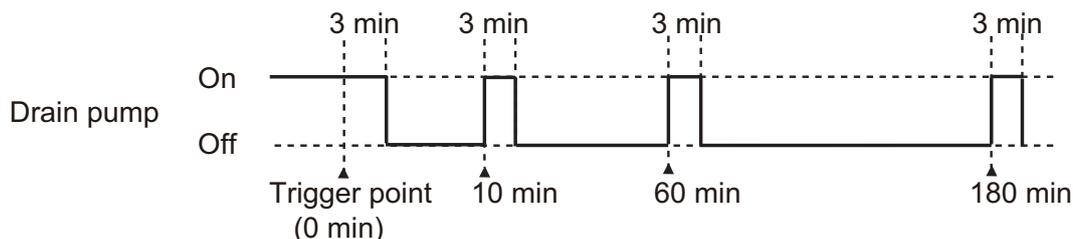
■ Drain control for cooling operation

● During the compressor in operation

- **Triggering condition**
The thermostat is turned on during cooling or dry mode.
- **Operation details**
The drain pump is turned on.
- **Release condition**
 - The thermostat is turned off.
Refer to "When the compressor is not in operation" for the operation after release.
 - The compressor is stopped.
Refer to "When the compressor is not in operation" for the operation after release.
 - The operation is switched to heating mode.
Refer to "When the compressor is not in operation" for the operation after release.
 - The float switch is turned on.
Refer to "Overflow control" for the operation after release.
 - The compressor is stopped by Anti-freezing control.
Refer to "The compressor is stopped by Anti-freezing control" for the operation after release.

● When the compressor is not in operation

- **Triggering condition**
 - The thermostat is turned off.
 - The compressor is stopped.
 - The operation is switched to heating mode.
 - The float switch is turned off.
- **Operation details**
 - Count 180 minutes.
 - Start drain pump intermittent operation.



- **Release condition**
 - 3 minutes drain pump operation is finished after 180 minutes count.
 - The operation is switched to cooling or dry mode.
Refer to "During the compressor in operation" for the operation after release.
 - The float switch is turned on.
Refer to "Overflow control" for the operation after release.
- **Operation after release**
The drain pump is turned off and the air conditioner operate according the settings.

● Overflow control

- **Triggering condition**

The float switch is turned on.

- **Operation details**

- The drain pump is turned on.
- When the operation mode is cooling or dry, operate the followings.
 - The compressor is stopped.
 - Then indoor fan control is turned off.

- **Release condition**

- The float switch is turned off.
 - In the case that on the cooling or dry mode the thermostat is on, refer to "[During the compressor in operation](#)" for the operation after release.
 - In other case, refer to "[When the compressor is not in operation](#)" for the operation after release.
- 3 minutes passed

- **Operation after release**

The compressor stopps permanently.

● The compressor is stopped by Anti-freezing control

- **Triggering condition**

During the compressor in operation, the compressor is stopped by Anti-freezing control.

- **Operation details**

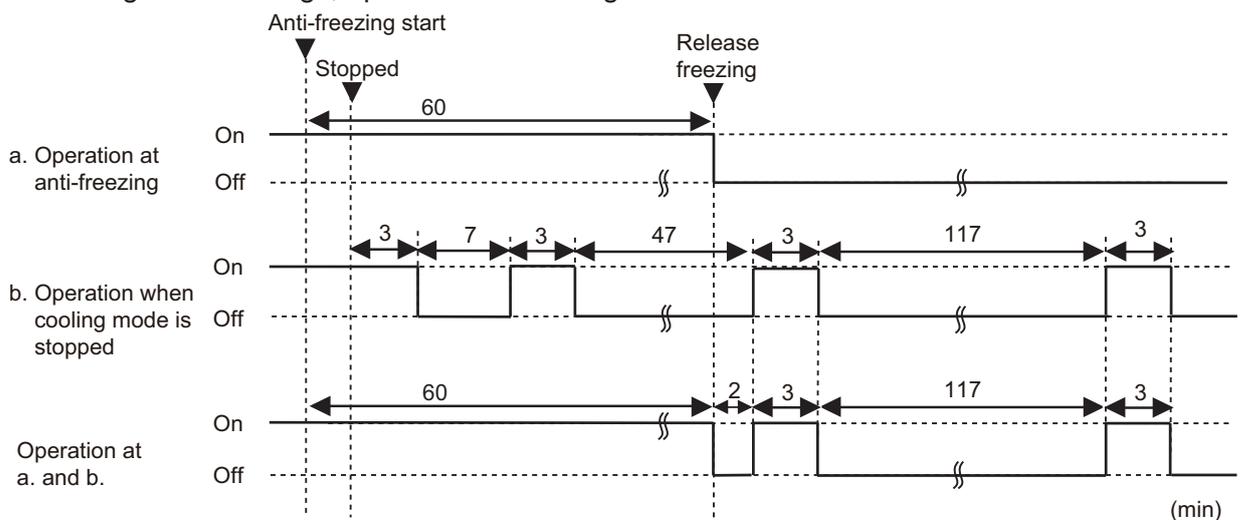
The drain pump is kept on in 60 minutes after Anti-freezing control released.

- **Release condition**

60 minutes passed

- **Operation after release**

According to the settings, operate the followings.



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, AOUH36KUAS1, AOUH42KUAS1, and AOUH48KUAS1**

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.

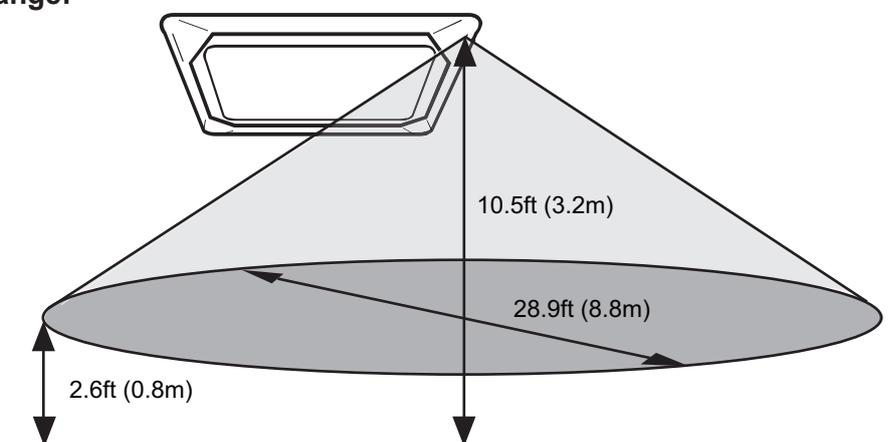
18 model	140 seconds
24/30/36 model	3 minutes

7-11. Human sensor for energy saving

If no one enters the room for the set time, the set temperature is automatically controlled. (When someone comes back into the room, the human sensor detect this, and automatically revert to the original settings.)

Operation mode	Operation details (If there is no one in the room for a while)
Cooling/Dry	The setting temperature is increased by maximum 3.6°F (2°C). (Maximum setting temperature: 86°F [30°C])
Heating	The setting temperature is decreased by maximum 3.6°F (2°C). (Minimum setting temperature: 60.8°F [16°C])
Auto	Energy saving function is performed automatically for the selected mode (cooling/heating/dry).

- **Application range:**



- **Details about detection with the human sensor:**

The human sensor detects whether there are people in the room by looking for movement by people in the room.

7-12. Peak cut operation (for 24/30/36/42/48 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.

7-13. 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.

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	

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

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, AOUH36KUAS1, AOUH42KUAS1, and AOUH48KUAS1**

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. \geq 50°F (10°C)*1	44.6°F (7°C)
	Outdoor temp. \geq 53.6°F (12°C)*2	
	Outdoor temp. $<$ 50°F (10°C)*1	55.4°F (13°C)
	Outdoor temp. $<$ 53.6°F (12°C)*2	

*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	$114.8^{\circ}\text{F} (46^{\circ}\text{C}) \leq \text{Ta}$	4.5 A	4.0 A
	$104.0^{\circ}\text{F} (40^{\circ}\text{C}) \leq \text{Ta} < 114.8^{\circ}\text{F} (46^{\circ}\text{C})$	6.0 A	5.5 A
	$\text{Ta} < 104.0^{\circ}\text{F} (40^{\circ}\text{C})$	10.0 A	9.5 A
Heating	$62.6^{\circ}\text{F} (17^{\circ}\text{C}) \leq \text{Ta}$	7.0 A	6.5 A
	$53.6^{\circ}\text{F} (12^{\circ}\text{C}) \leq \text{Ta} < 62.6^{\circ}\text{F} (17^{\circ}\text{C})$	9.0 A	8.5 A
	$\text{Ta} < 53.6^{\circ}\text{F} (12^{\circ}\text{C})$	12.5 A	12.0 A

■ Model: AOUH24KUAS1

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

■ Model: AOUH30KUAS1

Operation mode	Outdoor temp. (Ta)	Trigger condition	Release condition
Cooling	$125.6^{\circ}\text{F} (52^{\circ}\text{C}) \leq \text{Ta}$	8.0 A	7.5 A
	$122.0^{\circ}\text{F} (50^{\circ}\text{C}) \leq \text{Ta} < 125.6^{\circ}\text{F} (52^{\circ}\text{C})$	12.0 A	11.5 A
	$107.6^{\circ}\text{F} (42^{\circ}\text{C}) \leq \text{Ta} < 122.0^{\circ}\text{F} (50^{\circ}\text{C})$	14.0 A	13.5 A
	$\text{Ta} < 107.6^{\circ}\text{F} (42^{\circ}\text{C})$	16.0 A	15.5 A
Heating	$53.6^{\circ}\text{F} (12^{\circ}\text{C}) \leq \text{Ta}$	13.0 A	12.5 A
	$\text{Ta} < 53.6^{\circ}\text{F} (12^{\circ}\text{C})$	16.0 A	15.5 A

■ Model: AOUH36KUAS1

Operation mode	Outdoor temp. (Ta)	Trigger condition	Release condition
Cooling	$125.6^{\circ}\text{F} (52^{\circ}\text{C}) \leq \text{Ta}$	8.0 A	7.5 A
	$122.0^{\circ}\text{F} (50^{\circ}\text{C}) \leq \text{Ta} < 125.6^{\circ}\text{F} (52^{\circ}\text{C})$	12.0 A	11.5 A
	$107.6^{\circ}\text{F} (42^{\circ}\text{C}) \leq \text{Ta} < 122.0^{\circ}\text{F} (50^{\circ}\text{C})$	14.0 A	13.5 A
	$69.8^{\circ}\text{F} (21^{\circ}\text{C}) \leq \text{Ta} < 107.6^{\circ}\text{F} (42^{\circ}\text{C})$	17.0 A	16.5 A
	$\text{Ta} < 69.8^{\circ}\text{F} (21^{\circ}\text{C})$	16.0 A	15.5 A
Heating	$53.6^{\circ}\text{F} (12^{\circ}\text{C}) \leq \text{Ta}$	13.0 A	12.5 A
	$\text{Ta} < 53.6^{\circ}\text{F} (12^{\circ}\text{C})$	17.0 A	16.5 A

■ Model: AOUH42KUAS1

Operation mode	Outdoor temp. (Ta)	Trigger condition	Release condition
Cooling	$125.6^{\circ}\text{F} (52^{\circ}\text{C}) \leq \text{Ta}$	10.0 A	9.5 A
	$122.0^{\circ}\text{F} (50^{\circ}\text{C}) \leq \text{Ta} < 125.6^{\circ}\text{F} (52^{\circ}\text{C})$	13.0 A	12.5 A
	$107.6^{\circ}\text{F} (42^{\circ}\text{C}) \leq \text{Ta} < 122.0^{\circ}\text{F} (50^{\circ}\text{C})$	15.0 A	14.5 A
	$104.0^{\circ}\text{F} (40^{\circ}\text{C}) \leq \text{Ta} < 107.6^{\circ}\text{F} (42^{\circ}\text{C})$	18.0 A	17.5 A
	$69.8^{\circ}\text{F} (21^{\circ}\text{C}) \leq \text{Ta} < 104.0^{\circ}\text{F} (40^{\circ}\text{C})$	19.0 A	18.5 A
	$\text{Ta} < 69.8^{\circ}\text{F} (21^{\circ}\text{C})$	16.0 A	15.5 A
Heating	$68.0^{\circ}\text{F} (20^{\circ}\text{C}) \leq \text{Ta}$	14.5 A	14.0 A
	$53.6^{\circ}\text{F} (12^{\circ}\text{C}) \leq \text{Ta} < 68.0^{\circ}\text{F} (20^{\circ}\text{C})$	16.5 A	16.0 A
	$\text{Ta} < 53.6^{\circ}\text{F} (12^{\circ}\text{C})$	19.0 A	18.5 A

■ Model: AOUH48KUAS1

Operation mode	Outdoor temp. (Ta)	Trigger condition	Release condition
Cooling	$125.6^{\circ}\text{F} (52^{\circ}\text{C}) \leq \text{Ta}$	10.0 A	9.5 A
	$122.0^{\circ}\text{F} (50^{\circ}\text{C}) \leq \text{Ta} < 125.6^{\circ}\text{F} (52^{\circ}\text{C})$	13.0 A	12.5 A
	$107.6^{\circ}\text{F} (42^{\circ}\text{C}) \leq \text{Ta} < 122.0^{\circ}\text{F} (50^{\circ}\text{C})$	15.0 A	14.5 A
	$104.0^{\circ}\text{F} (40^{\circ}\text{C}) \leq \text{Ta} < 107.6^{\circ}\text{F} (42^{\circ}\text{C})$	18.0 A	17.5 A
	$69.8^{\circ}\text{F} (21^{\circ}\text{C}) \leq \text{Ta} < 104.0^{\circ}\text{F} (40^{\circ}\text{C})$	20.0 A	19.5 A
	$\text{Ta} < 69.8^{\circ}\text{F} (21^{\circ}\text{C})$	16.0 A	15.5 A
Heating	$68.0^{\circ}\text{F} (20^{\circ}\text{C}) \leq \text{Ta}$	14.5 A	14.0 A
	$53.6^{\circ}\text{F} (12^{\circ}\text{C}) \leq \text{Ta} < 68.0^{\circ}\text{F} (20^{\circ}\text{C})$	16.5 A	16.0 A
	$\text{Ta} < 53.6^{\circ}\text{F} (12^{\circ}\text{C})$	20.0 A	19.5 A

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 24/30/36/42/48 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

8-6. Low outdoor temperature protection

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

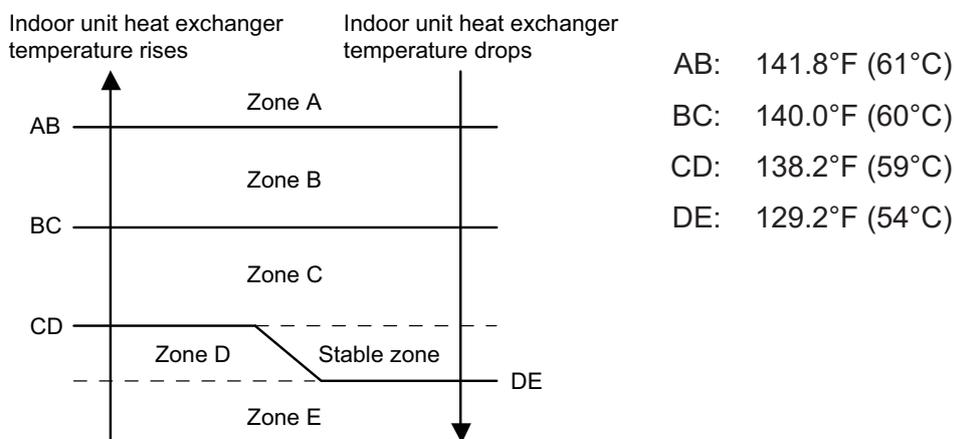
Operation mode	Cooling/Dry
Trigger condition	-13°F (-25°C)
Release condition	-4°F (-20°C)

8-7. High temperature and high pressure release control

The compressor is controlled as follows.

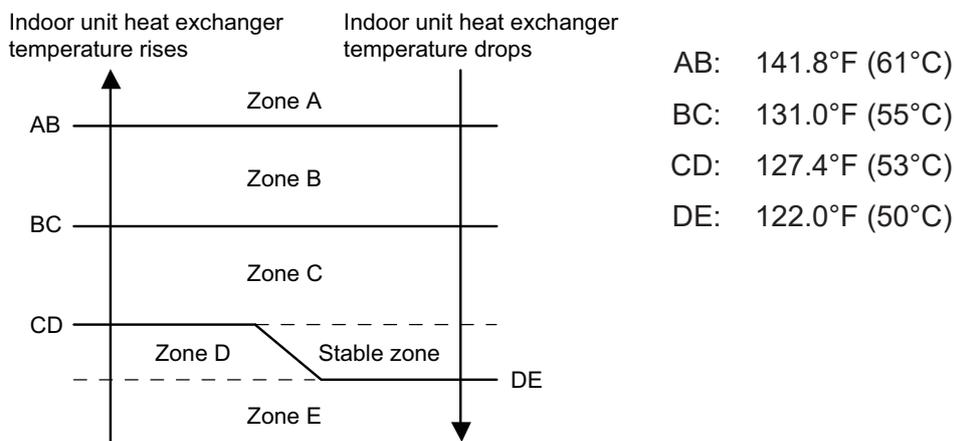
■ Model: AOUH18KUAS1

• Cooling mode



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		

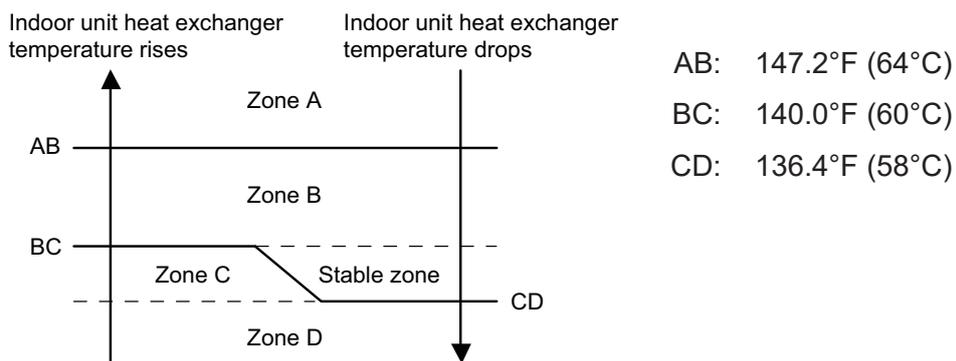
• Heating mode



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		

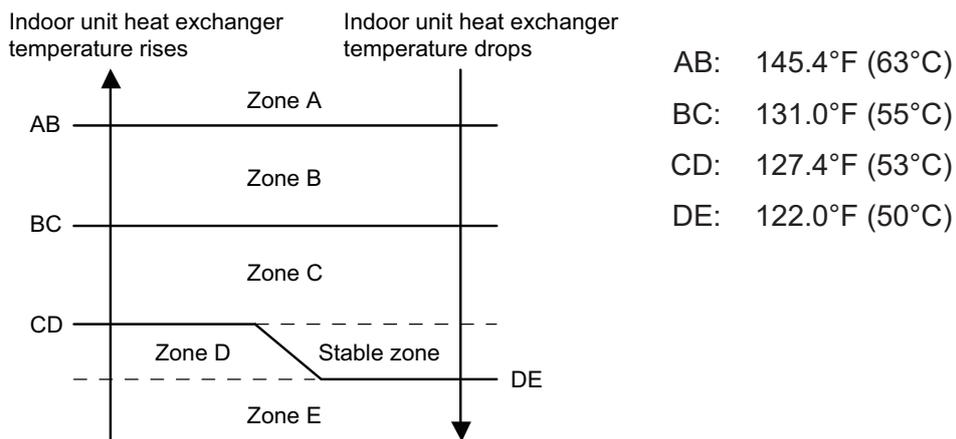
Models: AOUH24KUAS1, AOUH30KUAS1, AOUH36KUAS1, AOUH42KUAS1, and AOUH48KUAS1

• Cooling mode



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



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		

5. FIELD WORKING

CONTENTS

5. FIELD WORKING

1. Function settings (for indoor unit).....	05-1
1-1. Function settings by using remote controller	05-1
2. Function settings (for 24–48 outdoor units)	05-10
2-1. Control PCB and switch buttons location.....	05-10
2-2. Local setting procedure	05-12
3. External input and output (for indoor unit)	05-14
3-1. External input.....	05-15
3-2. External output	05-17
3-3. Setting of external input and output	05-18
3-4. Details of control input function.....	05-20
3-5. Details of control output function	05-24
4. External input and output (for 24–48 outdoor units).....	05-45
4-1. External input.....	05-45
4-2. External output	05-47

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)	22	Outlet directions
4)	23	Vertical airflow direction range control
5)	30/31	Room temperature control for indoor unit sensor
6)	35/36	Room temperature control for wired remote controller sensor
7)	40	Auto restart
8)	42	Room temperature sensor switching
9)	44	Remote controller custom code
10)	46	External input control
11)	48	Room temperature sensor switching (Aux.)
12)	49	Indoor unit fan control for energy saving for cooling
13)	60	Switching functions for external output terminal
14)	61	Control switching of external heaters
15)	62	Operating temperature switching of external heaters
16)	66	Outdoor temperature zone boundary temperature A
17)	67	Outdoor temperature zone boundary temperature B
18)	68	Auto mode type
19)	69	Deadband value
20)	71	Standby time for auxiliary equipment operation
21)	72	Heat pump backup setting
22)	73	Emergency heat for external output terminal
23)	75	External heater use in defrosting
24)	94	Fixed operation mode switching

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	
	02	Low ceiling	

For the specific height for each setting value, refer to "Installation space" in Chapter 2. "Dimensions" in Chapter 1. GENERAL INFORMATION on page 01-11.

NOTE: The ceiling height values are for the 4-way outlet. Do not change this setting in the 3-way outlet mode.

3) Outlet directions

Select the appropriate number of outlet directions according to the installation conditions.

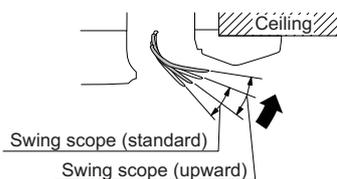
Function number	Setting value	Setting description	Factory setting
22	00	4-way	◆
	01	3-way	

4) Vertical airflow direction range control

To prevent draft, change the setting to "Upward" (01).

Note that the airflow in certain usage conditions may leave the ceiling dirty. In such cases, the use of the optional Panel Spacer is recommended.

Function number	Setting value	Setting description	Factory setting
23	00	Standard	◆
	01	Upward	



5) 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
WORKINGFIELD
WORKING

6) 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)				

7) 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.

8) 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.

9) 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	

10) 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)	

11) 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	

12) 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.

13) 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	

14) 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 05-24.

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	

15) 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 05-24.

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)		

16) 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 05-24.

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)	

17) 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 05-24.

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)		

18) 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.

19) 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.

20) 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 05-24.

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

21) 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	

22) 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.

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	

2. Function settings (for 24–48 outdoor units)

Perform appropriate function setting locally according to the installation environment.

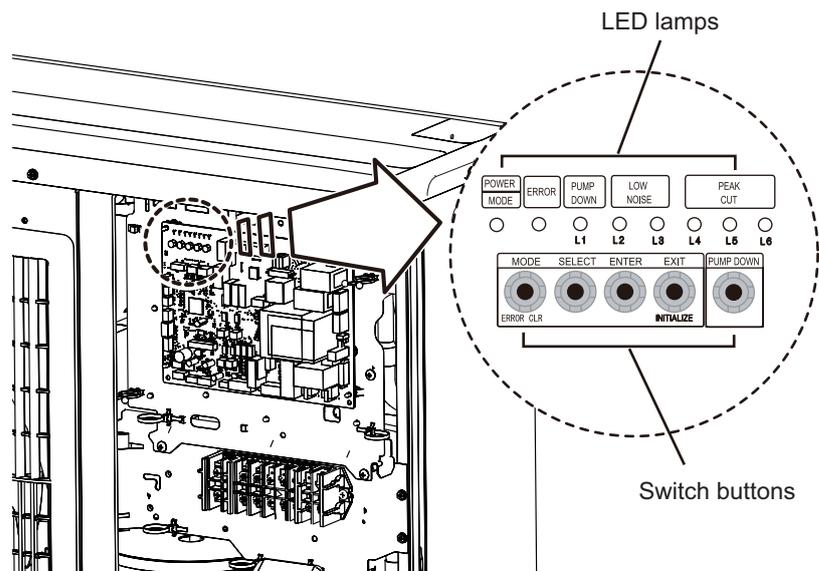
NOTE: Incorrect settings can cause a product malfunction.

⚠ CAUTION

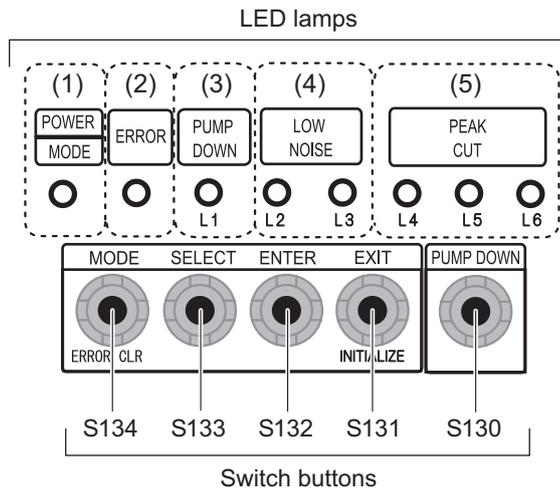
- Before setting up the switch buttons, discharge the static electricity from your body.
- Never touch the terminals or the patterns on the parts that are mounted on the PCB.

2-1. Control PCB and switch buttons location

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



■ 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

FIELD WORKING

2-2. Local setting procedure

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

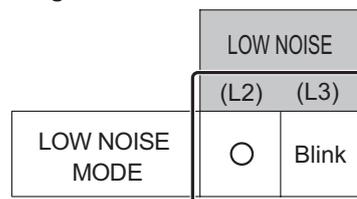
■ Low noise mode

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).

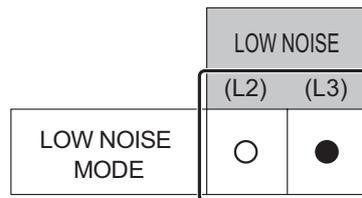
POWER MODE	ERROR	PUMP DOWN (L1)	LOW NOISE		PEAK CUT		
			(L2)	(L3)	(L4)	(L5)	(L6)
Blinks (9 times)	○	○	○	○	○	○	○

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.

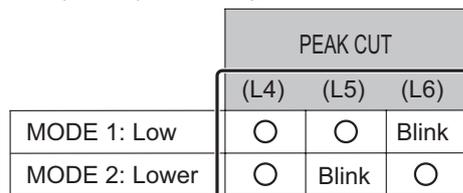


4. Press the ENTER switch button (S132).

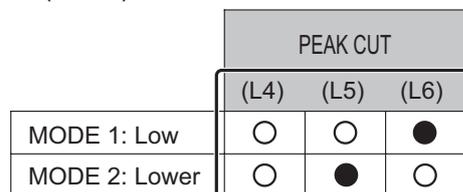


Sign “●”: Lights on

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



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



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.

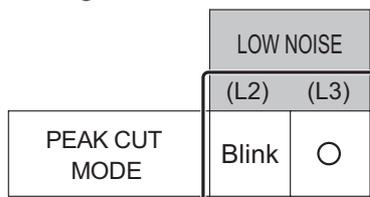
■ Peak cut mode

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).

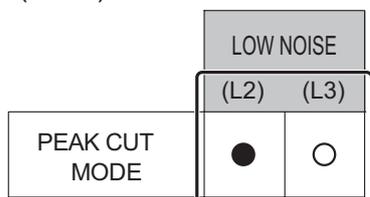
POWER MODE	ERROR	PUMP DOWN (L1)	LOW NOISE		PEAK CUT		
			(L2)	(L3)	(L4)	(L5)	(L6)
Blinks (9 times)	○	○	○	○	○	○	○

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.



4. Press the ENTER switch button (S132).



Sign “●”: Lights on

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

	PEAK CUT		
	(L4)	(L5)	(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)	(L5)	(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.

3. External input and output (for indoor unit)

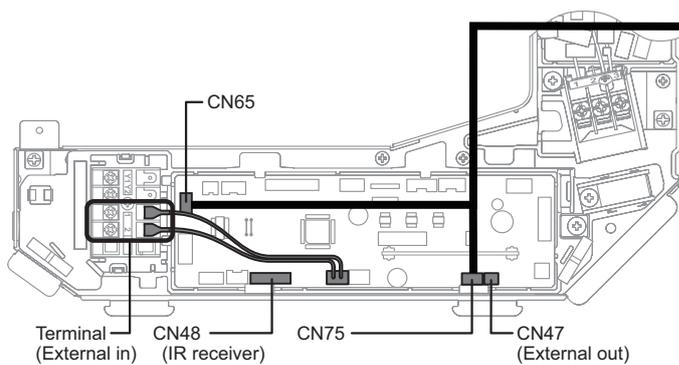


Fig. Indoor unit PCB

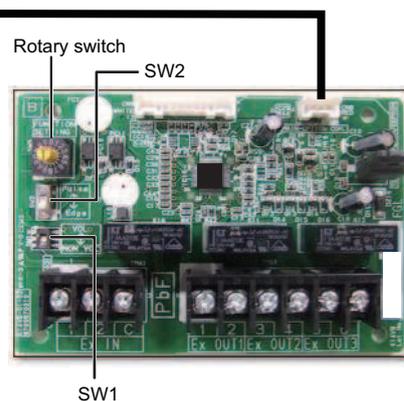


Fig. External input and output PCB

Connecting point		Input/Output	Function	Input select	Input signal
Indoor unit	Terminal	Input	Operation/Stop Forced stop	Dry contact	Edge
	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
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 05-18.

FIELD WORKING

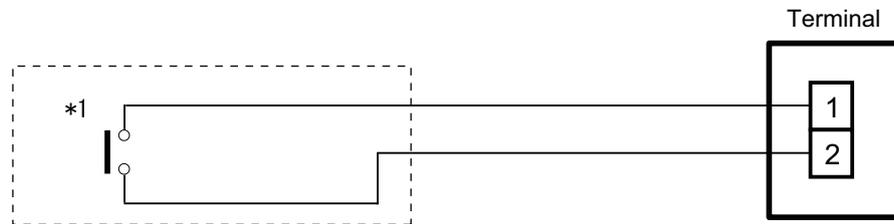
FIELD WORKING

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

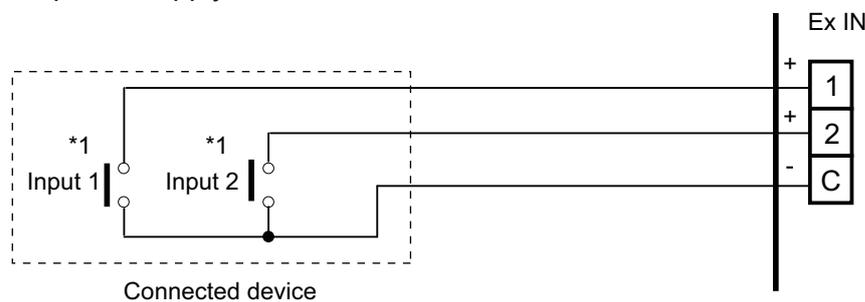
The indoor unit Operation/Stop can be set by using the input terminal on the PCB.

Input select

Use either one of these types of terminal according to the application. (Both types of terminal cannot be used simultaneously.)

– Dry contact

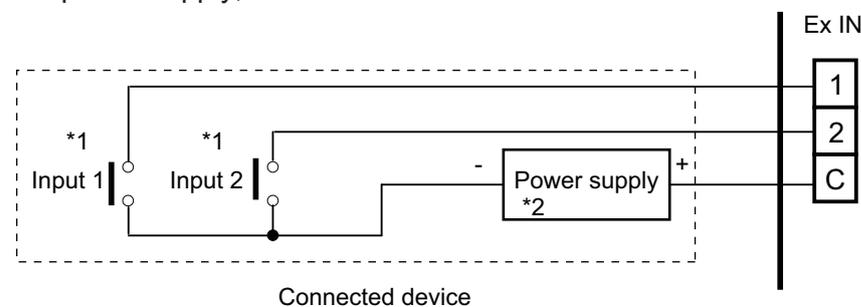
In case of internal power supply, set the slide switch of SW1 to “NON VOL” side.



*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.



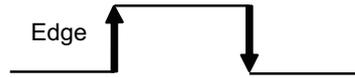
*1: The switches can be used on the following condition: DC 12 V to 24 V, 1 mA to 15 mA.

*2: Make the power supply DC 12 V to 24 V, 10 mA or more.

■ Input signal type

- **Indoor unit**

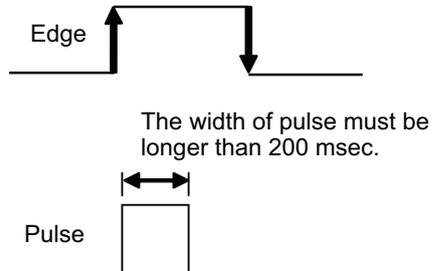
Input signal type is only "Edge".



- **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

3-2. External output

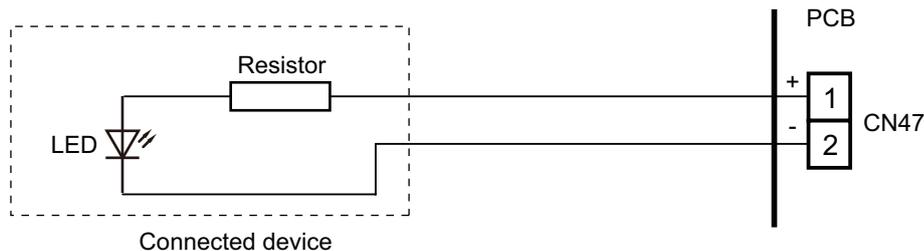
Use an external output cable with appropriate external dimension, depending on the number of cables to be installed.

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 \pm 2 V, Low 0 V.
- Permissible current: 50 mA
- For details, refer to "[Setting of external input and output](#)" on page 05-18.

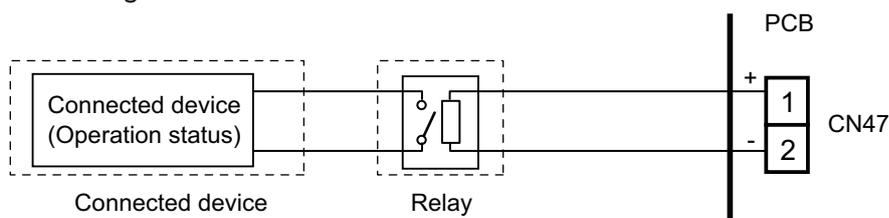
When indicator, etc. are connected directly

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



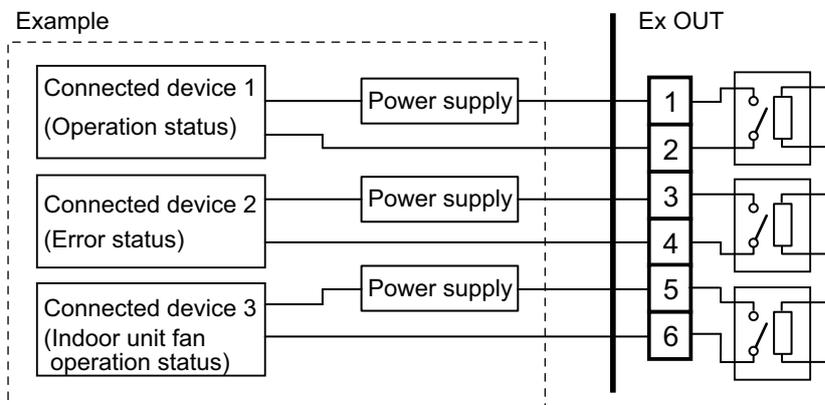
When connecting with a device equipped with a power supply

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 05-18.



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

- 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:

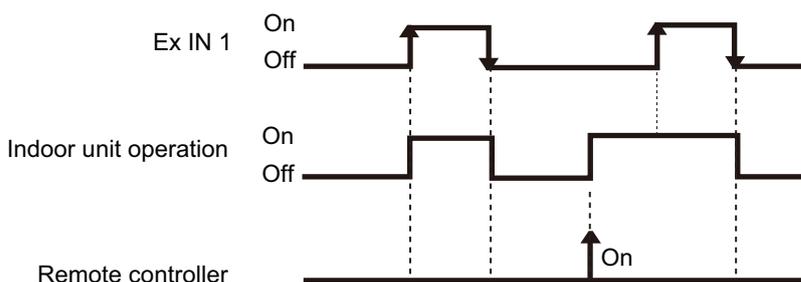
- When the rotary switch is selected to "1", the operation of the terminal input of the indoor unit and the External Input and Output PCB input are the same. The operation content depends on the setting of function setting number 46.
- *1: The external input other than "Operation/Stop" is available only 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".

3-4. Details of control input function

■ Operation/Stop mode 1

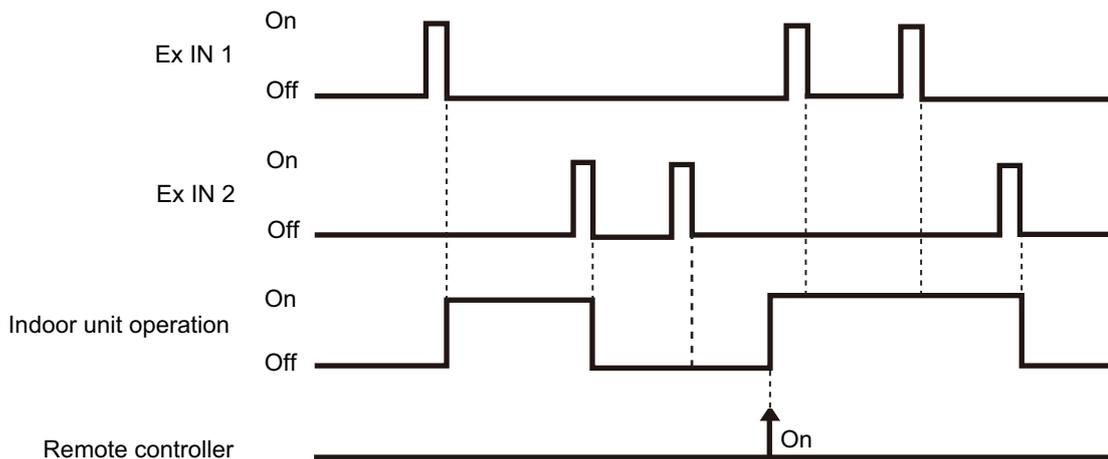
- In the case of "Edge" input

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.

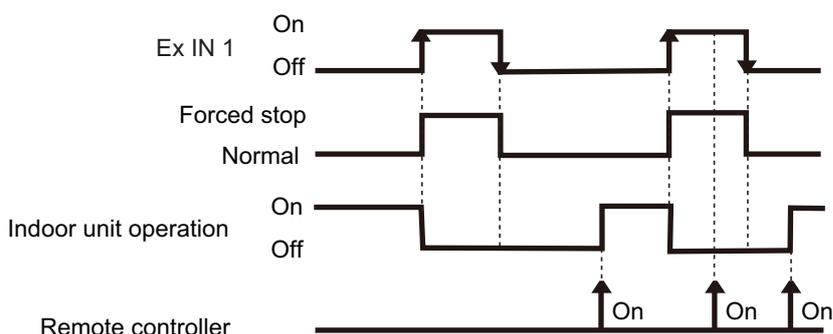
FIELD WORKING

FIELD WORKING

■ Forced stop

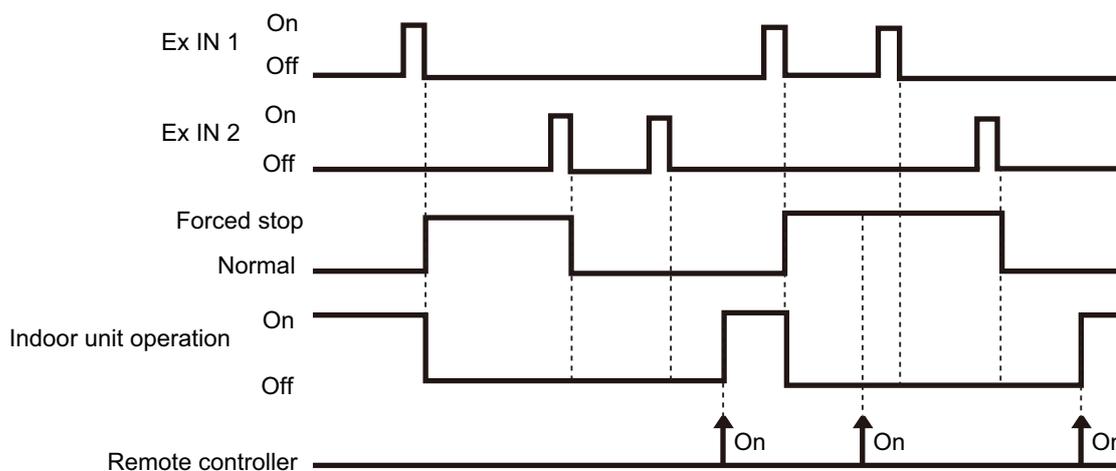
- In the case of "Edge" input

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)



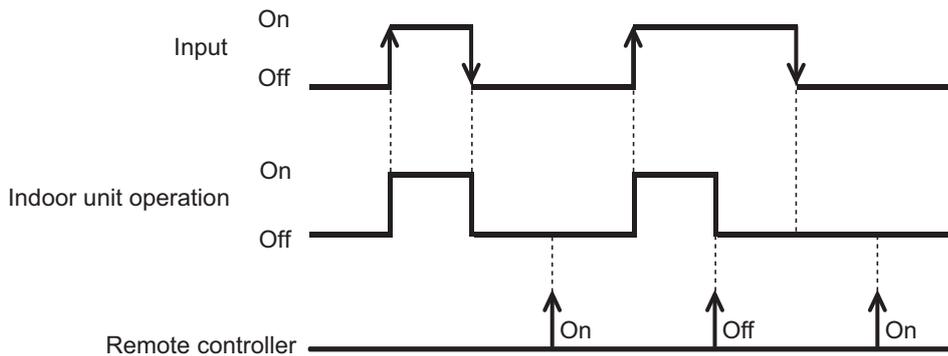
NOTES:

- 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

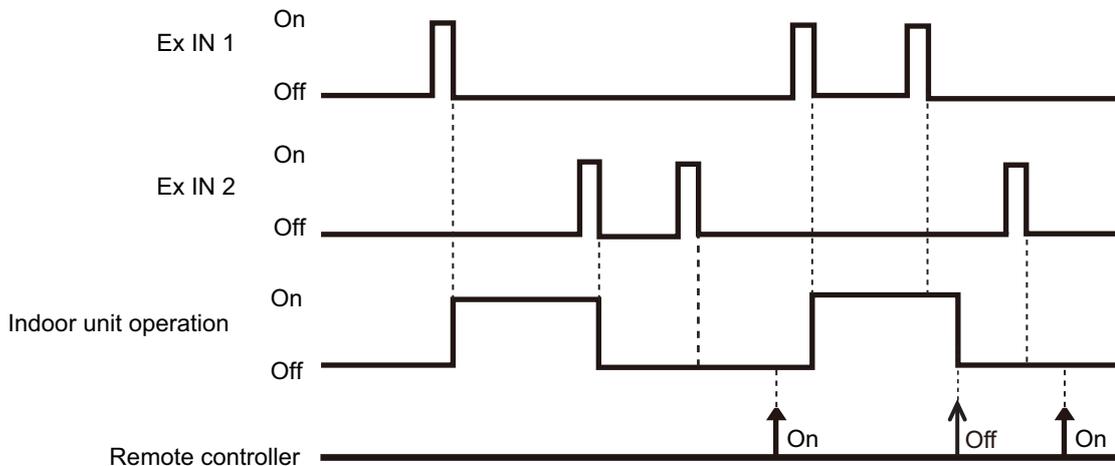
- In the case of "Edge" input

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

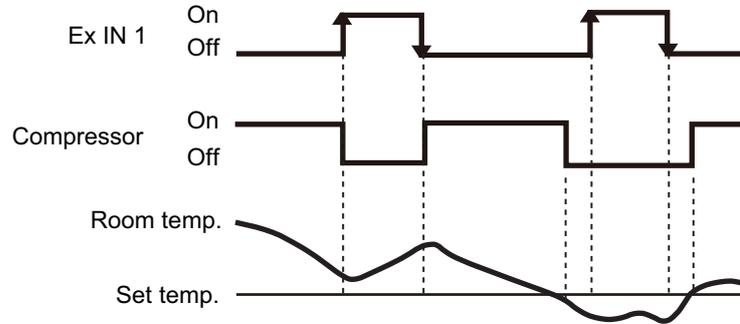
Function setting	External Input and Output PCB		External input		Input signal	Command
	Rotary switch	SW2				
46-03	1	Pulse	External Input and Output PCB	Ex IN 1	Pulse	Operation (R.C. enabled)
				Ex IN 2		Stop (R.C. disabled)



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.

■ 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

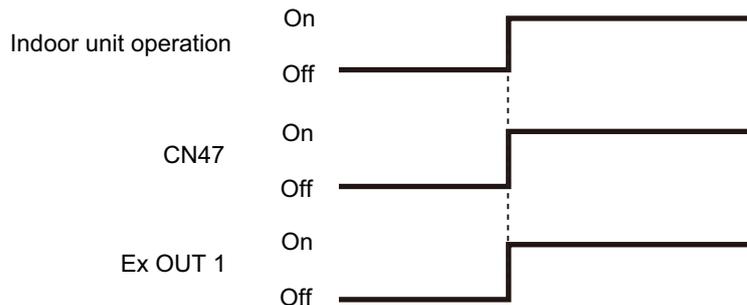


3-5. Details of control output function

■ Operation status

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

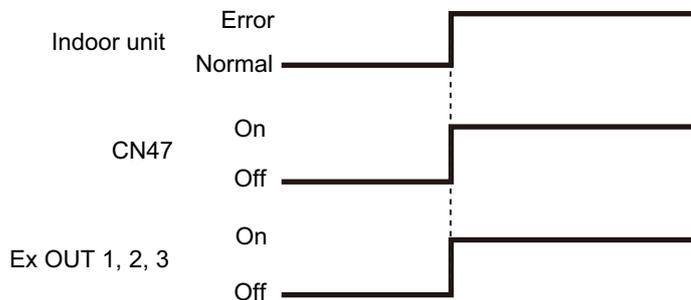
The output is low when the unit is stopped.



■ Error status

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

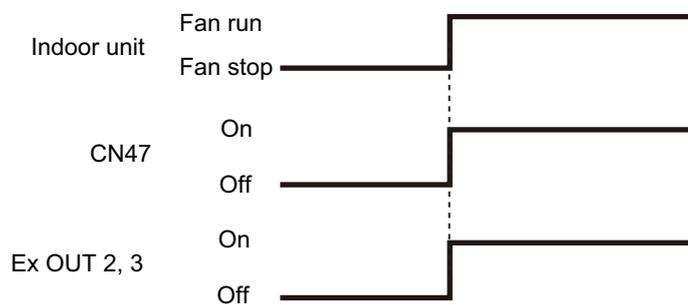
The output is on when an error is generated for the indoor unit.



■ 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.



External heater output

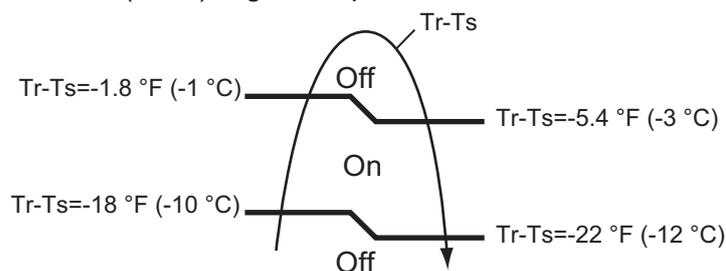
Function setting	External Input and Output PCB	External output		Output signal	Control
	Rotary switch				
60-11	—	Output of indoor unit	CN47	Off → On	Heater on
				On → Off	Heater off
—	2, 3, 4, 5, 7, 9, A, B, C	External Input and Output PCB	Ex OUT 3	Off → On	Heater on
				On → Off	Heater off

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 <ul style="list-style-type: none"> • 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 (T_s) is set at 72°F (22°C);

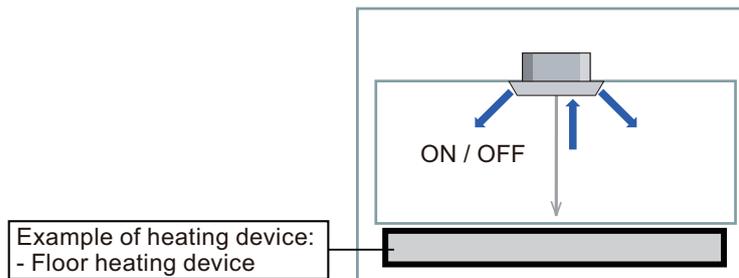
- And room temperature (T_r) increase above 53.6°F (12°C), signal output is on.
- And T_r increase above 69.8°F (21°C), signal output is off.
- And T_r decrease below 66.2°F (19°C), signal output is on.
- And T_r decrease below 50°F (10°C), signal output is off.



The output also turns off in defrost operation.

● Installation configuration of individual connection

External heating device is installed individually. (No use of indoor unit fan)



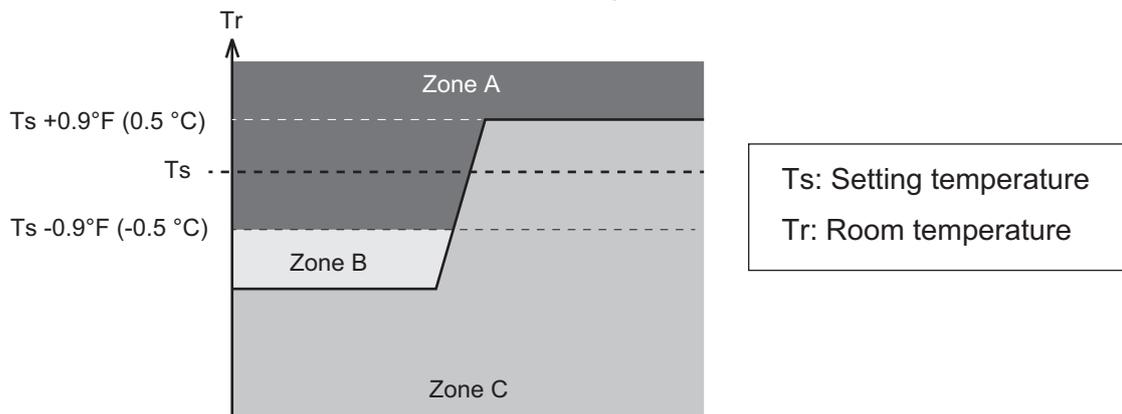
⚠ WARNING

Operation	Condition
Heater off	<ul style="list-style-type: none"> • 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.

● 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.



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.

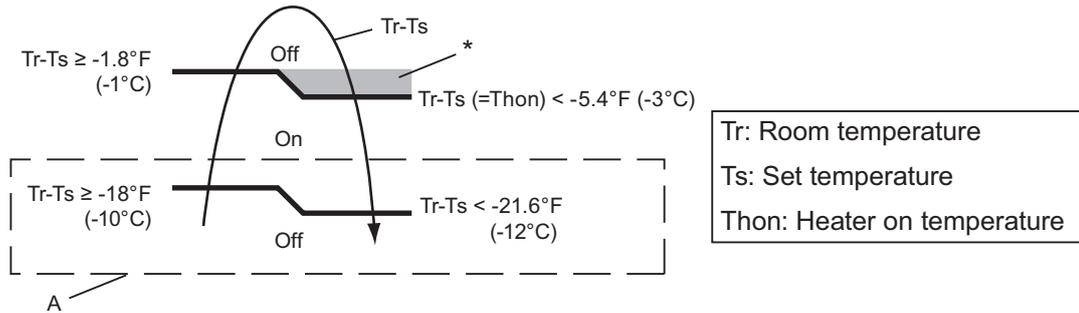
*2: When indoor unit function number 61 is set to "00", auxiliary equipment operates according to the following conditions.

- Ts - Tr > 21.6 °F (-12.0 °C): Auxiliary equipment turn off.
- Ts - Tr > 18.0 °F (-10.0 °C): Auxiliary equipment turn on.

● Auxiliary heater control 1

Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	<ul style="list-style-type: none"> • 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”.



*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

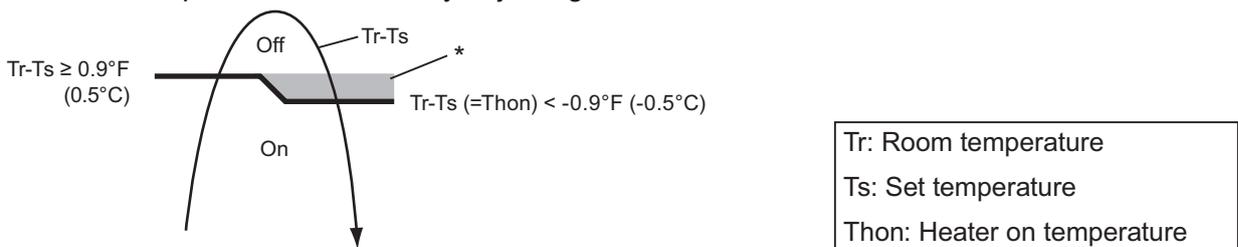
Example: When set temperature (Ts) is 72°F (22°C) (Factory setting),

- 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	<ul style="list-style-type: none"> • 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”.



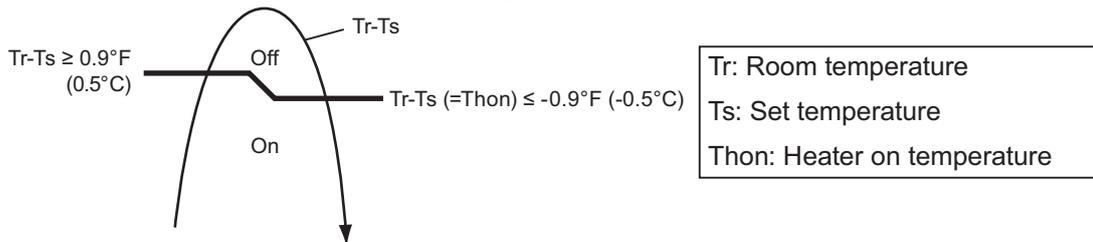
*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

● Heat pump prohibition control

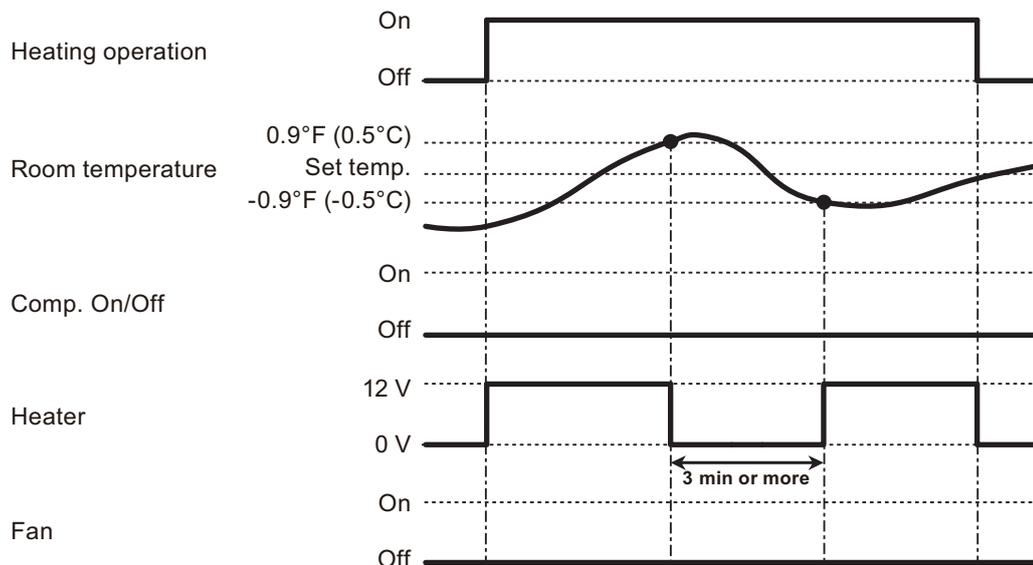
Perform heating by external heater only. Indoor unit is continuous thermostat off.

Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	<ul style="list-style-type: none"> • 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”.



• Operation status



NOTE: In following operations, compressor will be on.

- Other than heating
- Test run

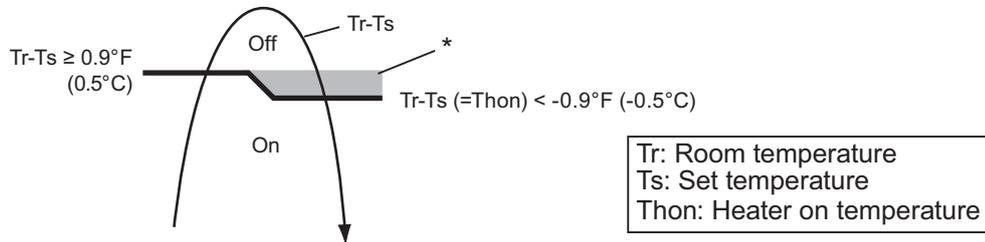
● Auxiliary heater control by outdoor temperature 1

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	<ul style="list-style-type: none"> • Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Heat pump only zone

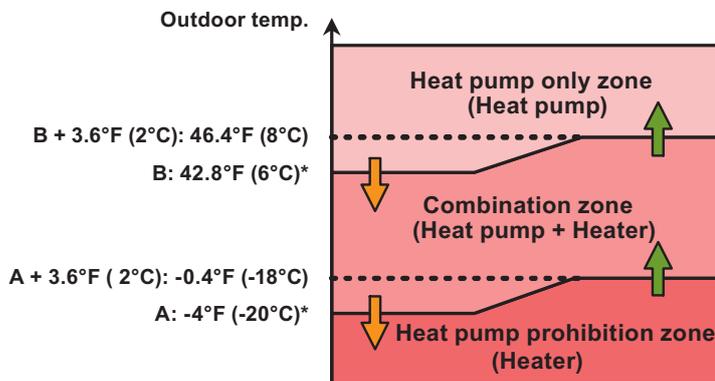
- Temperature of heater on (Thon): Adjustable by function number 62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting "Thon".
- Outdoor temperature zone boundary A and B: Adjustable individually by function setting number 66 and 67.

• External heater output



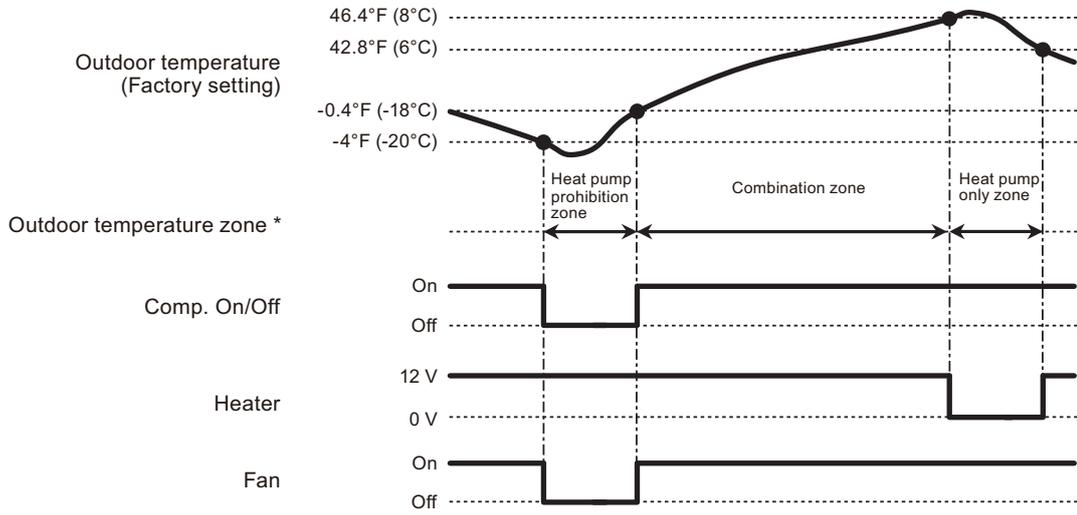
*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

• Outdoor temperature zone



*: Adjustable by function setting 66 and 67

• 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

FIELD WORKING

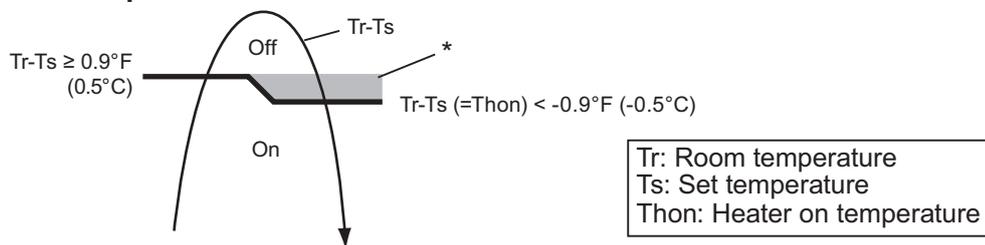
● Auxiliary heater control by outdoor temperature 2

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	<ul style="list-style-type: none"> • Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

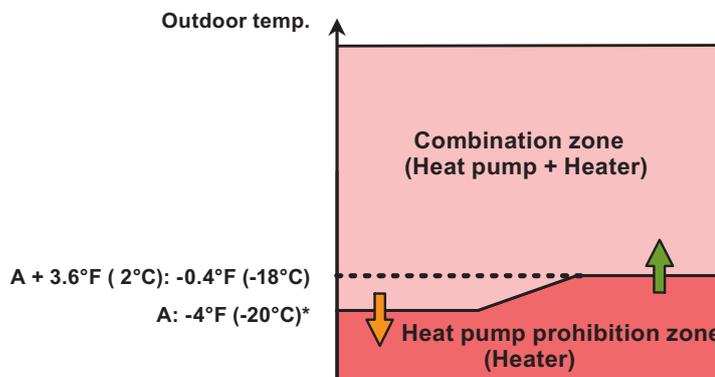
- Temperature of heater on (Thon): Adjustable by function number 62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting "Thon".
- Outdoor temperature zone boundary A: Adjustable by function setting number 66.

• 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

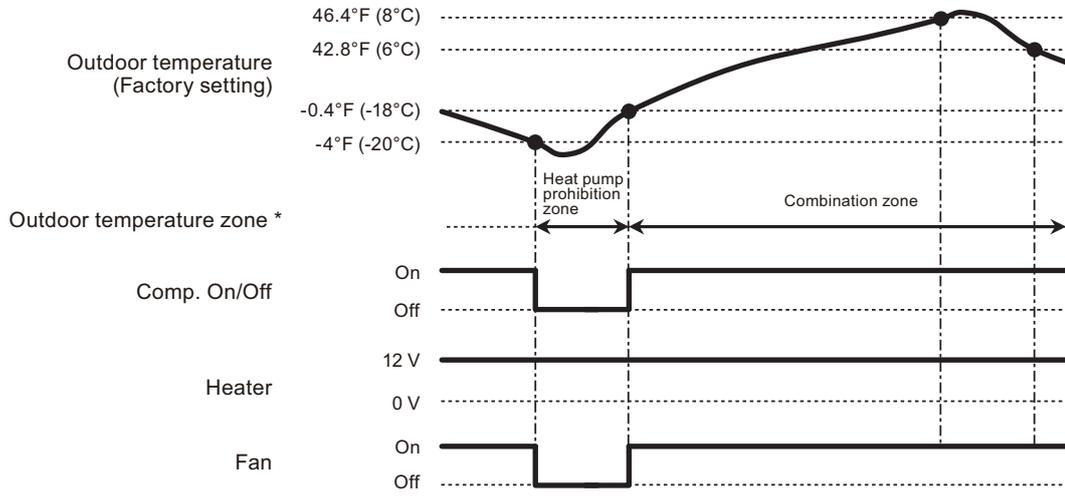


*: Adjustable by function setting 66

FIELD WORKING

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

FIELD WORKING

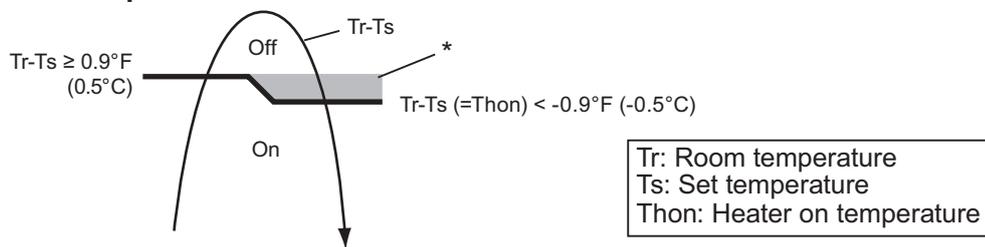
● Auxiliary heater control by outdoor temperature 3

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	<ul style="list-style-type: none"> • Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

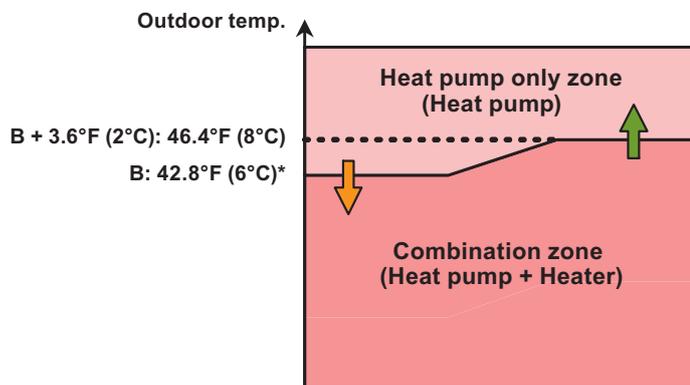
- Temperature of heater on (Thon): Adjustable by function number 62 (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting "Thon".
- Outdoor temperature zone boundary B: Adjustable by function setting number 67.

• 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

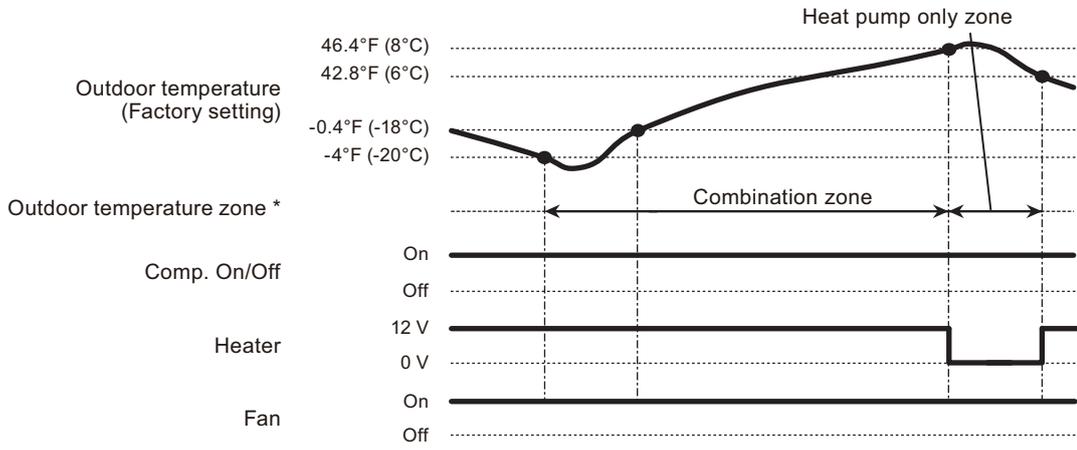


*: Adjustable by function setting 67

FIELD WORKING

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

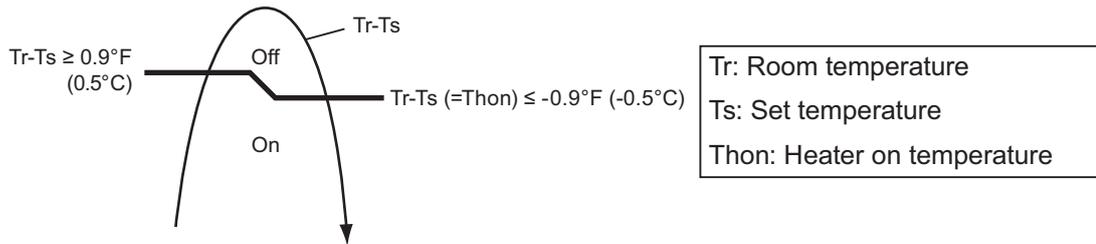
FIELD WORKING

● Auxiliary heat pump control

• External heater output

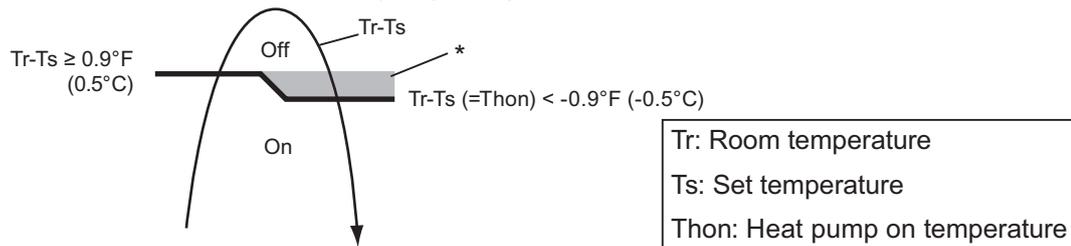
Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	<ul style="list-style-type: none"> • Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

- 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)



• 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”.



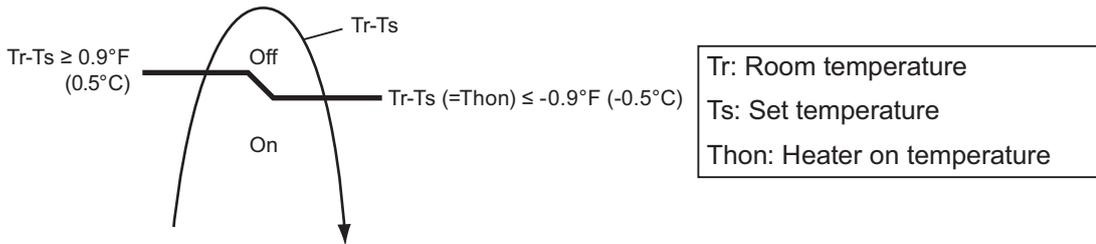
*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

● Auxiliary heat pump control by outdoor temperature 1

• External heater output

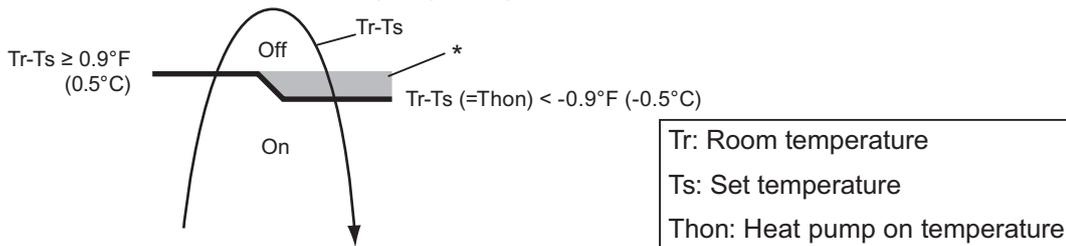
Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	<ul style="list-style-type: none"> • Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

- 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)



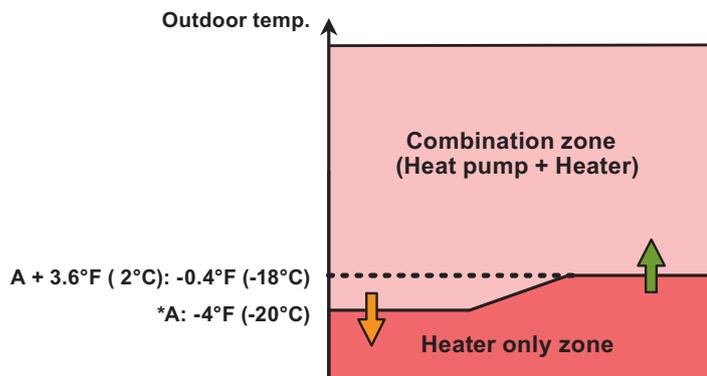
• Auxiliary heat pump On/Off

- 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”.



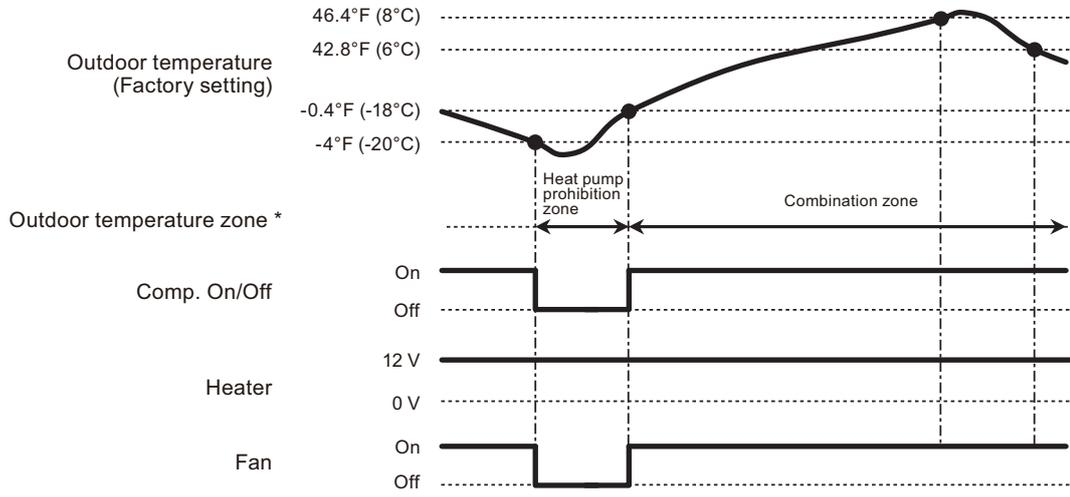
*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

• 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

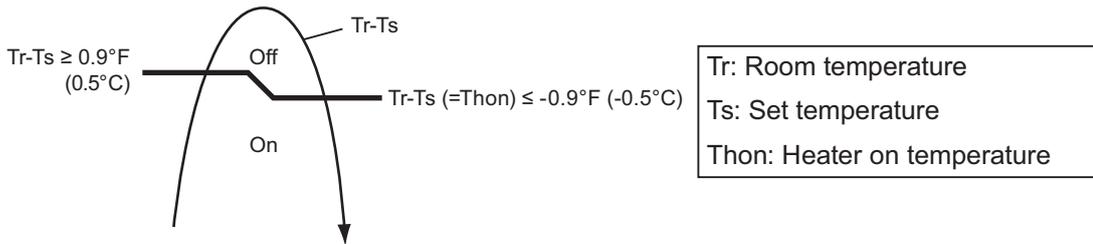
FIELD WORKING

● Auxiliary heat pump control by outdoor temperature 2

• External heater output

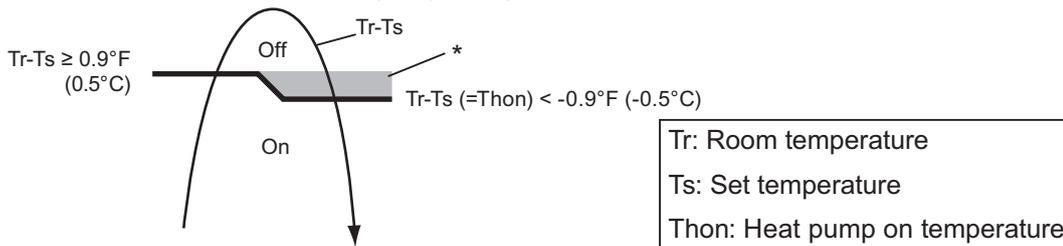
Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	<ul style="list-style-type: none"> • Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

- 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)



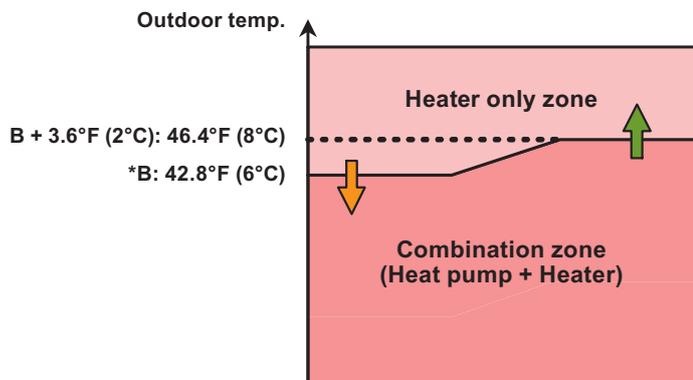
• Auxiliary heat pump On/Off

- 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”.



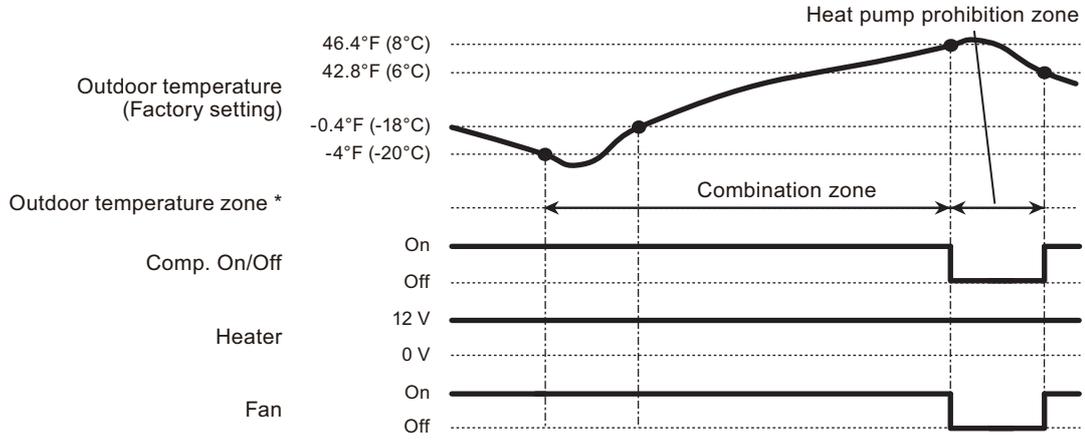
*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

• 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

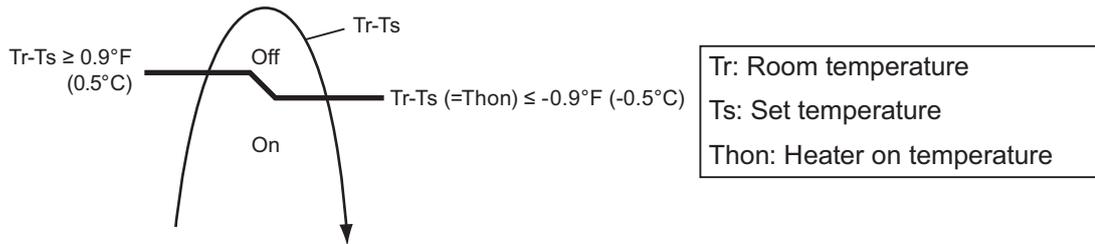
FIELD WORKING

● Auxiliary heat pump control by outdoor temperature 3

• External heater output

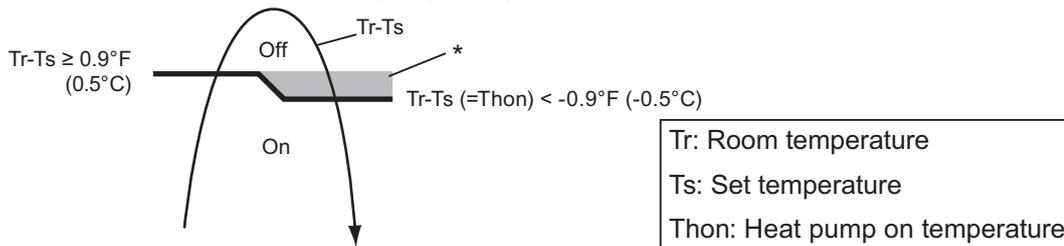
Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	<ul style="list-style-type: none"> • Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

- 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)



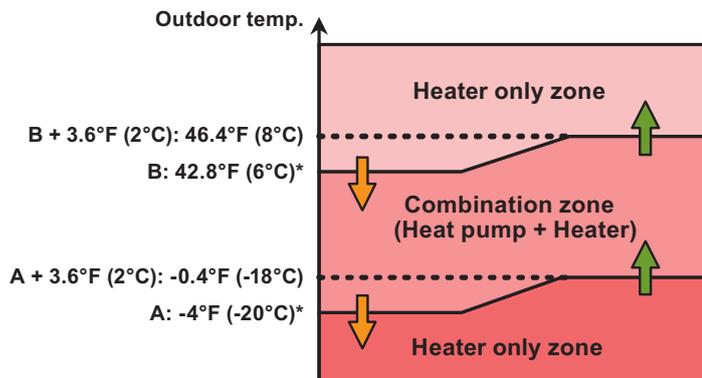
• Auxiliary heat pump On/Off

- 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”.



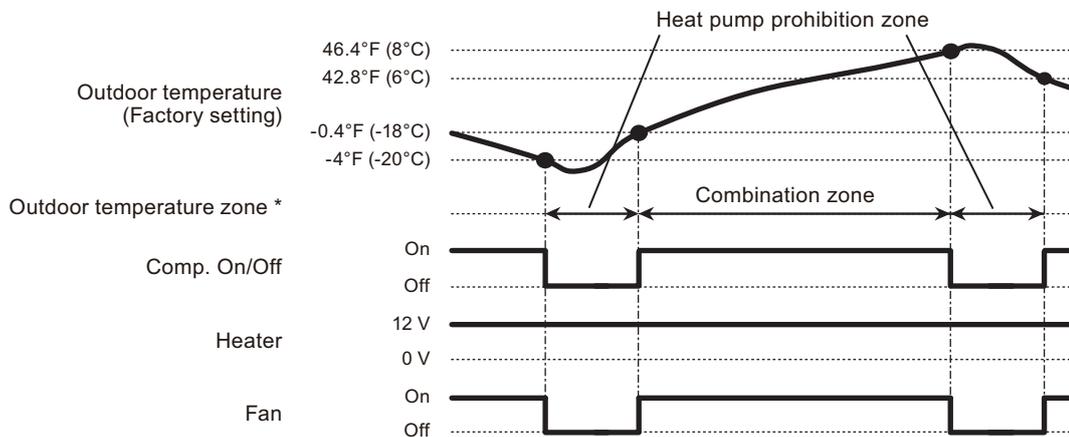
*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71.

• 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

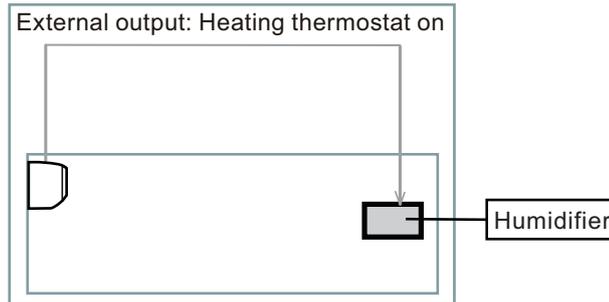
FIELD WORKING

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	

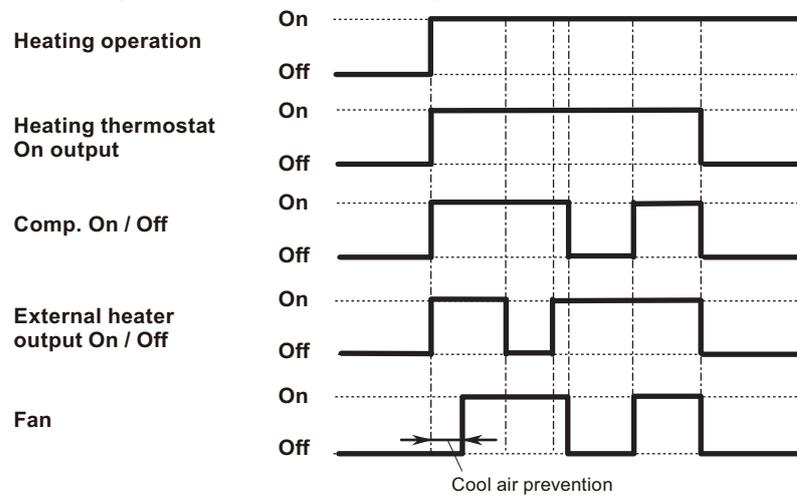
- Example of individual connection



- 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

FIELD WORKING

4. External input and output (for 24–48 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.

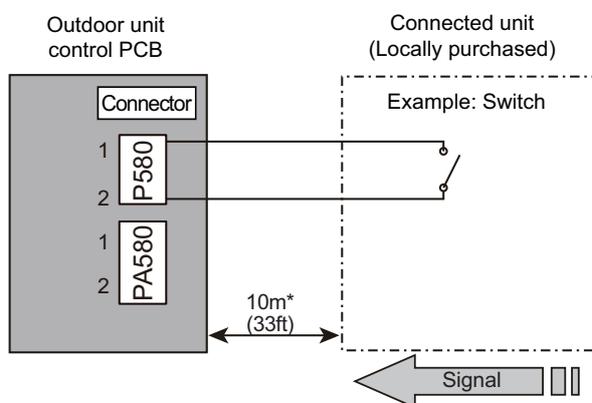
■ Low noise mode

In following condition, the operating noise of the outdoor unit reduces comparing from the one in normal operating condition:

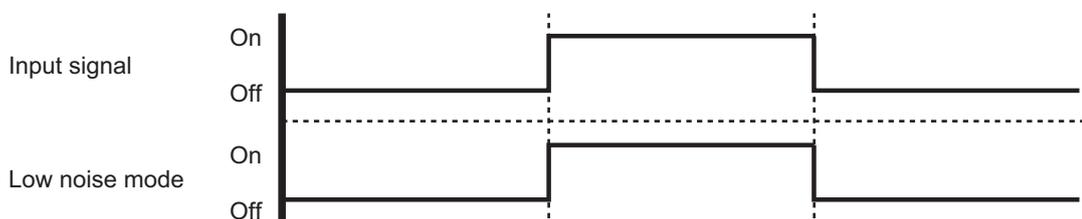
The air conditioner is set to the “Low noise mode” when closing the contact input of a commercial timer or on/off switch to a connector on the control PCB of the outdoor unit.

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 05-12 (under “Local setting procedure”).



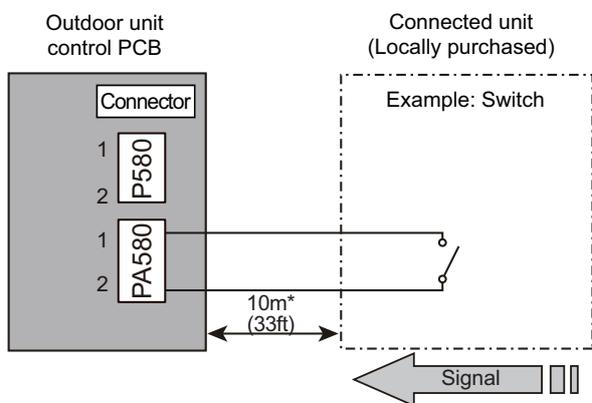
• Optional part

Part name	Model name	Exterior
External Connect Kit	UTY-XWZXZ3	External input wire

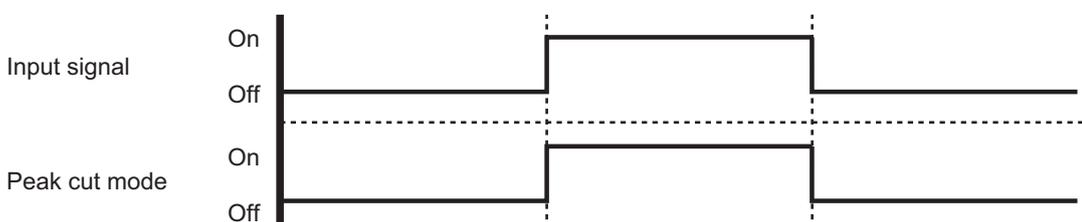
■ Peak cut mode

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.

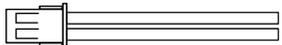
• Circuit diagram example



- 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 05-13 (under “Local setting procedure”).



• Optional part

Part name	Model name	Exterior
External Connect Kit	UTY-XWZXZ3	External input wire 

FIELD WORKING

FIELD WORKING

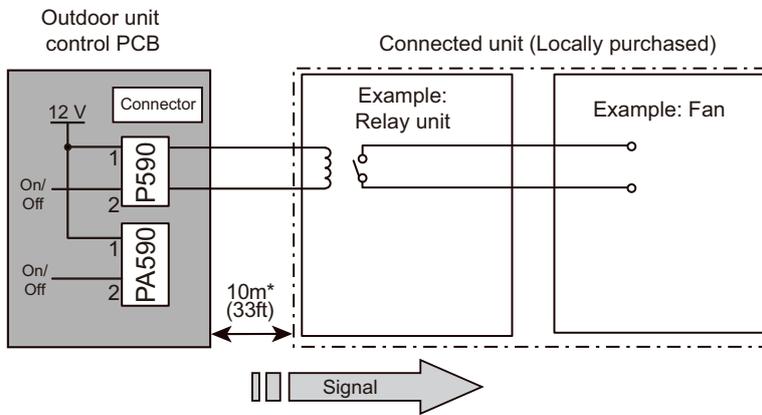
4-2. External output

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.

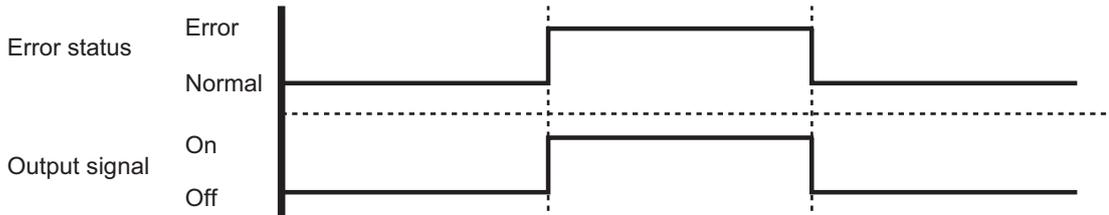
■ Error status output

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 

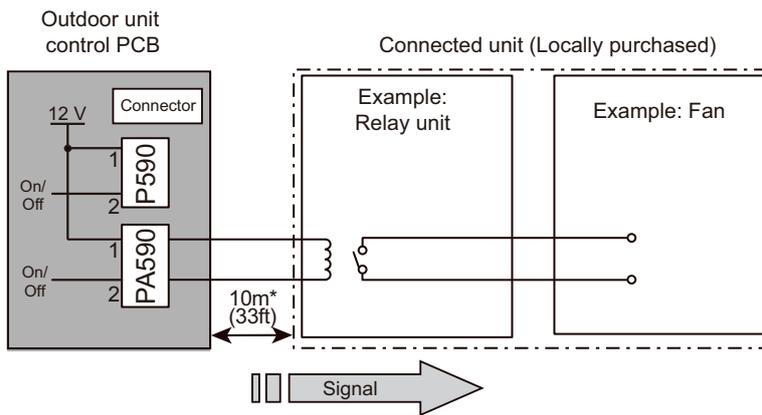
FIELD WORKING

FIELD WORKING

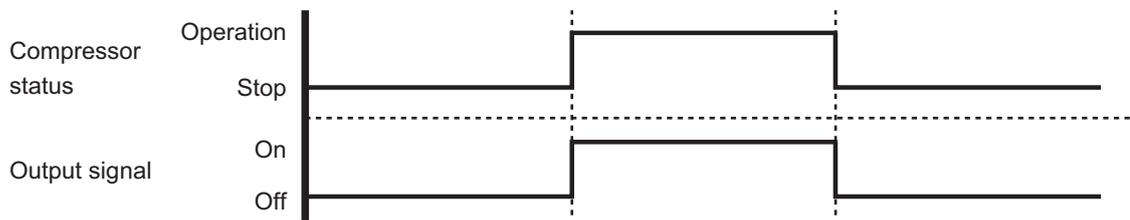
■ Compressor status output

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

FIELD WORKING