

Split type room air conditioner  
Wall-mounted type



# SERVICE MANUAL



Indoor unit	Outdoor unit
ASHG07KPCA	AOHG07KPCA
ASHG09KPCA	AOHG09KPCA
ASHG12KPCA	AOHG12KPCA

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# Specifications

Type				Wall mounted				
				Inverter heat pump				
Model name				ASHG07KPCA	ASHG09KPCA	ASHG12KPCA		
Power supply				230 V ~ 50 Hz				
Power supply intake				Outdoor unit				
Available voltage range				198—264 V				
Capacity	Cooling	Rated	kW	2.00	2.50	3.40		
			Btu/h	6,800	8,500	11,600		
		Min.—Max.	kW	0.9—2.8	0.9—3.0	0.9—3.7		
	Heating	Rated	Btu/h	3,100—9,600	3,100—10,200	3,100—12,600		
			kW	2.50	2.80	3.80		
		Min.—Max.	kW	0.9—3.4	0.9—3.8	0.9—4.80		
Btu/h		8,500	9,500	13,000				
Btu/h		3,100—11,600	3,100—12,900	3,100—16,400				
Input power	Cooling	Rated	kW	0.48	0.71	1.00		
				Min.—Max.	0.25—1.03	0.25—1.05	0.25—1.14	
	Heating	Rated	kW	0.63	0.79	1.14		
				Min.—Max.	0.25—1.39	0.25—1.39	0.25—1.60	
	Fan	HIGH	MED	LOW	QUIET	W	21.5	26.9
							12.5	14.5
							6.3	7.1
							3.0	3.0
Current	Cooling	Rated	A	2.7	3.5	4.7		
	Heating			3.2	3.8	5.6		
EER	Cooling			4.17	3.52	3.40		
COP	Heating			3.97	3.54	3.33		
Sensible capacity	Cooling			1.9	2.1	2.6		
Power factor	Cooling			77	87	92		
	Heating			85	90	89		
Moisture removal			L/h (pints/h)	1.0 (1.8)	1.3 (2.30)	1.8 (3.20)		
Maximum operating current *1	Cooling			6.5	6.5	6.5		
	Heating			9.0	9.0	9.0		
Fan	Airflow rate	Cooling	m <sup>3</sup> /h	HIGH	580	630		
				MED	460	490		
				LOW	340	360		
				QUIET	240	240		
		Heating	HIGH	580	630			
			MED	460	490			
			LOW	380	380			
			QUIET	260	260			
	Type × Q'ty	Cross flow fan × 1						
	Motor output			W	27	27	27	
Sound pressure level *2	Cooling	dB (A)	HIGH	45	45	46		
			MED	38	38	40		
			LOW	31	31	33		
			QUIET	22	22	22		
	Heating	HIGH	45	45	46			
		MED	40	40	40			
		LOW	36	36	35			
		QUIET	28	26	27			
		Heat exchanger type	Dimensions (H × W × D)		mm	210 × 600 × 26.6		
			Fin pitch			1.3		
Rows × Stages			2 × 10					
Pipe type			Copper tube					
Fin type			Aluminum					
Enclosure	Material		Polystyrene					
	Color		White Approximate color of Munsell N 9.25/					
Dimensions (H × W × D)	Net	mm	270 × 784 × 224					
	Gross		279 × 864 × 334					
Weight	Net	kg	8.0					
	Gross		11.0					
Connection pipe	Size	Liquid	mm (in)	Ø 6.35 (1/4)				
		Gas		Ø 9.52 (3/8)				
Drain hose	Method		Flare					
	Material	PP+HDPE						
Operation range	Size	mm	Ø 11.8 (I.D.), Ø 15 to Ø 16.8 (O.D.)					
			Cooling	°C	18 to 32			
Remote controller type	Heating	°C	80 or less					
			16 to 30					
				Wireless				

## NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 27 °CDB/19 °CWB, and outdoor temperature of 35 °CDB/24 °CWB.
  - Heating: Indoor temperature of 20 °CDB/15 °CWB, and outdoor temperature of 7 °CDB/6 °CWB.
  - Pipe length: 5 m, Height difference: 0 m. (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- \*1: Maximum current is maximum value when operated within the operation range.
- \*2: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

Specifications for Lot10					
Model name		ASHG07KPCA		ASHG09KPCA	ASHG12KPCA
Energy efficiency class	Cooling	A <sup>++</sup>			
	Heating (Average)	A <sup>+</sup>			
P design	Cooling	kW	2.0 (35 °C)	2.5 (35 °C)	3.4 (35 °C)
	Heating (Average)		2.2 (-10 °C)	2.4 (-10 °C)	2.5 (-10 °C)
SEER	Cooling	kWh/kWh	6.7	6.7	6.3
SCOP	Heating (Average)		4.0	4.0	4.1
Annual energy consumption	QCE	kWh/a	104	131	189
	QHE (Average)		769	840	853
Sound power level	Cooling	HIGH	dB (A)	57	58
	Heating			58	58

Type				Inverter heat pump			
Model name				AOHG07KPCA	AOHG09KPCA	AOHG12KPCA	
Power supply				230 V ~ 50 Hz			
Power supply intake				Outdoor unit			
Available voltage range				198—264 V			
Starting current				A	3.2	3.8	5.6
Fan	Airflow rate	Cooling	m <sup>3</sup> /h	1,650	1,650	1,700	
		Heating		1,450	1,450	1,470	
	Type × Q'ty	Propeller fan × 1					
Motor output			W	23			
Sound pressure level *1	Cooling	Heating	dB (A)	45	47	49	
				46	47	51	
Sound power level	Cooling	Heating	dB (A)	57	59	62	
				58	59	62	
Heat exchanger type	Dimensions (H × W × D)		mm	504 × 650 × 18.2		504 × 630 × 36.4	
	Fin pitch			1.3			
	Rows × Stages			1 × 24		2 × 24	
	Pipe type			Copper			
	Fin type		Type (Material)	Corrugate (Aluminum)			
		Surface treatment	PC Fin				
Compressor	Type × Q'ty			DC Rotary × 1			
	Motor output			W			
			850				
Refrigerant	Type (Global warming potential)			R32 (675)			
	Charge			g		550	590
Refrigerant oil	Type			POE			
	Amount			cm <sup>3</sup>			
			240				
Enclosure	Material			Steel sheet			
	Color			Beige			
			Approximate color of Munsell 10YR 7.5/1.0				
Dimensions (H × W × D)	Net		mm	541 × 663 × 290			
	Gross			596 × 798 × 369			
Weight	Net		kg	23		25	
	Gross			25		27	
Connection pipe	Size	Liquid	mm (in)	Ø 6.35 (1/4)			
		Gas		Ø 9.52 (3/8)			
	Method			Flare			
	Pre-charge length			m			
	Max. length			15			
Max. height difference			20				
			15				
Operation range	Cooling	Heating	°C	-10 to 46			
				-15 to 24			
Drain hose	Material			PP			
	Size			mm			
			Ø 13.0 (I. D.), Ø 16.0 to Ø 16.8 (O. D.)				

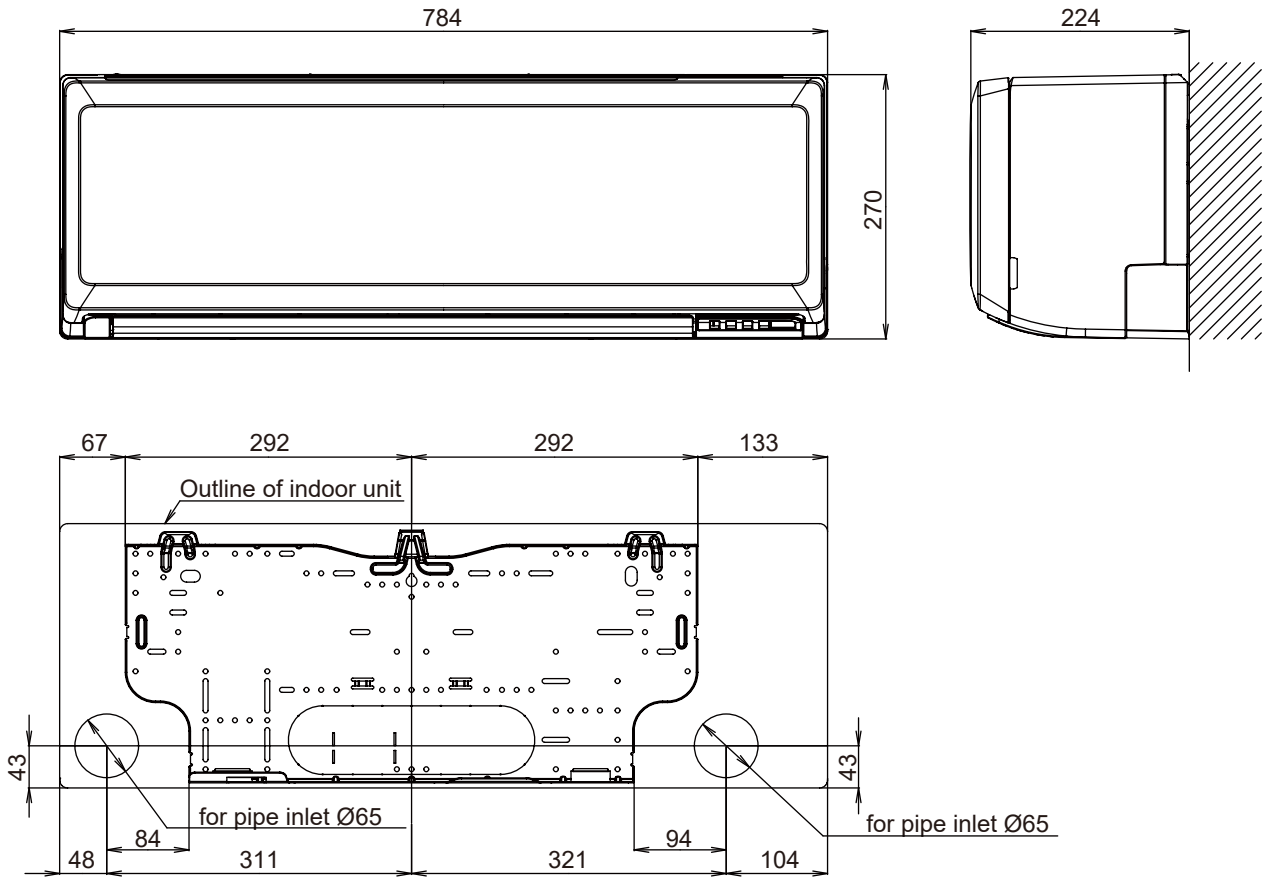
**NOTES:**

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# Dimensions

## Models: ASHG07KPCA, ASHG09KPCA, and ASHG12KPCA

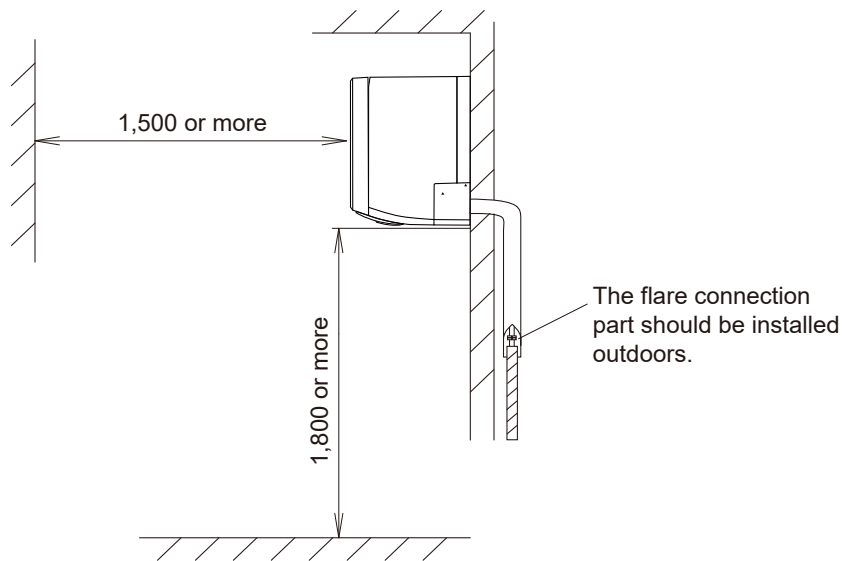
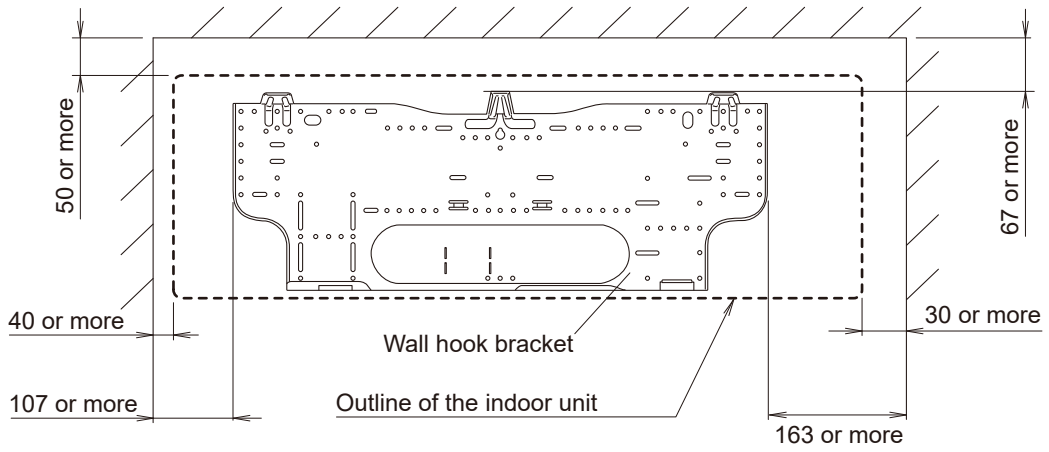
Unit: mm



## ■ Installation space requirement

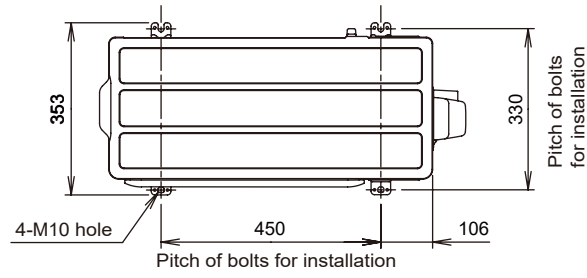
Provide sufficient installation space for product safety.

Unit: mm

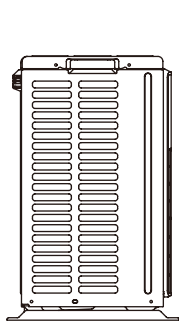


# Models: AOHG07KPCA, AOHG09KPCA, and AOHG12KPCA

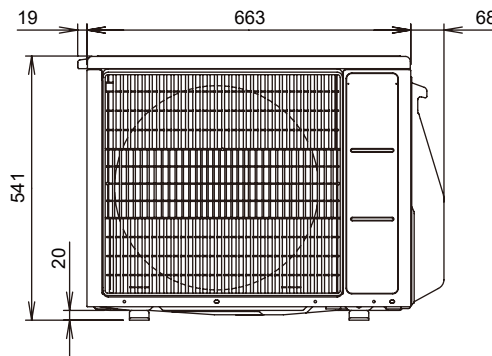
Unit: mm



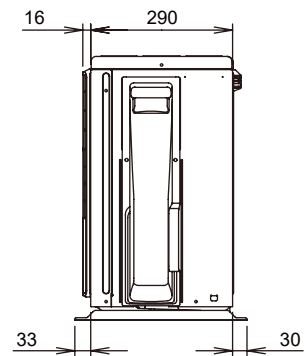
Top view



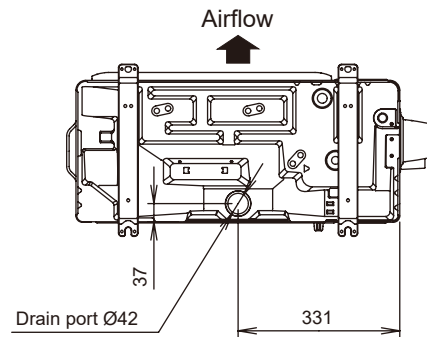
Side view



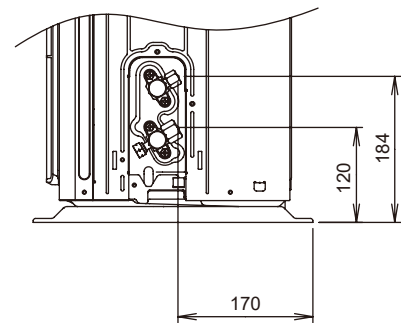
Front view



Side view

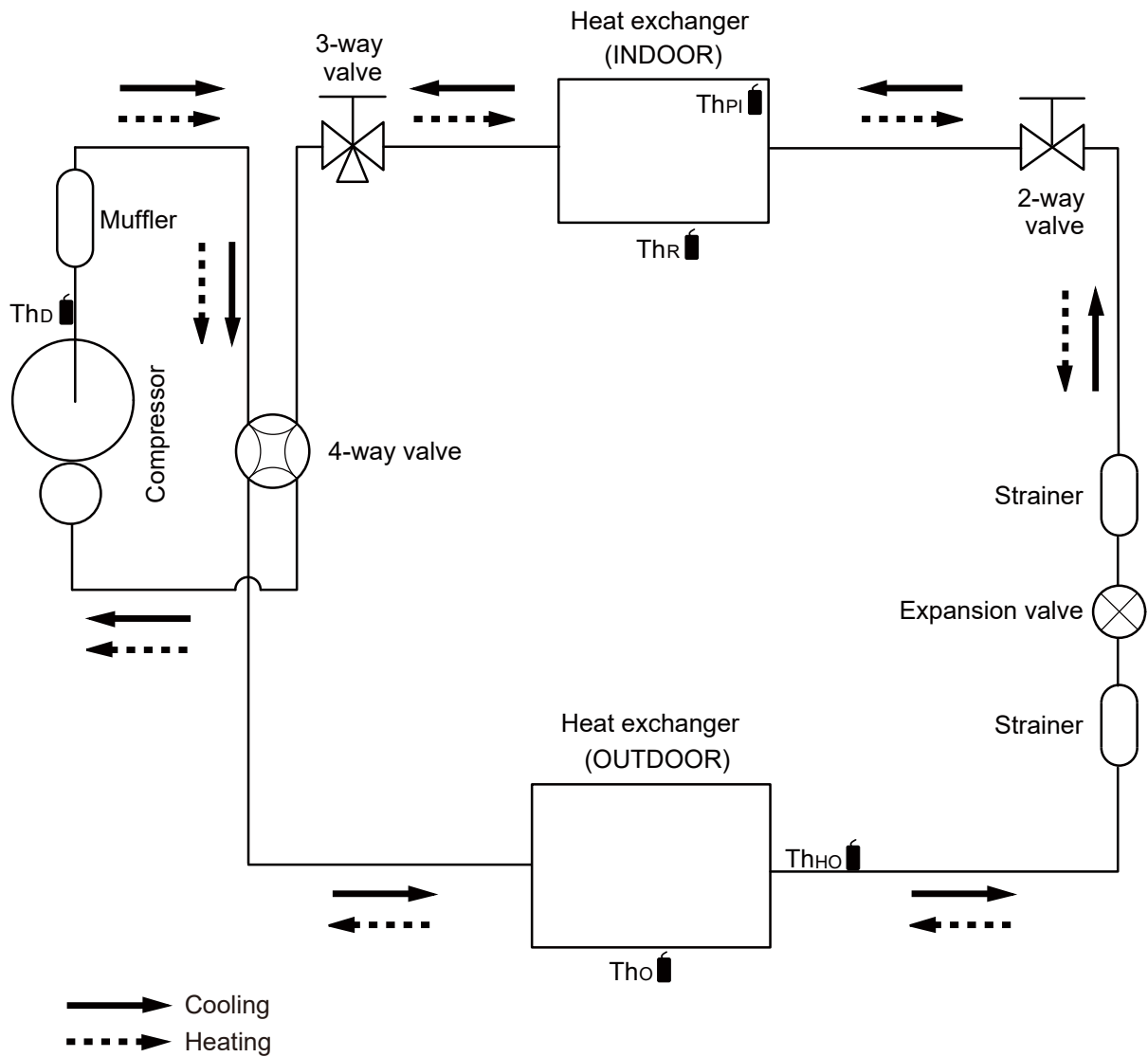


Bottom view



Side view (Bulb part)

# Refrigerant circuit



- Th<sub>D</sub> : Thermistor (Discharge temperature)
- Th<sub>O</sub> : Thermistor (Outdoor temperature)
- Th<sub>HO</sub> : Thermistor (Heat exchanger out temperature)
- Th<sub>R</sub> : Thermistor (Room temperature)
- Th<sub>PI</sub> : Thermistor (Pipe temperature)



# PCB circuit diagram

Models : ASHG07KPCA  
 ASHG09KPCA  
 ASHG12KPCA

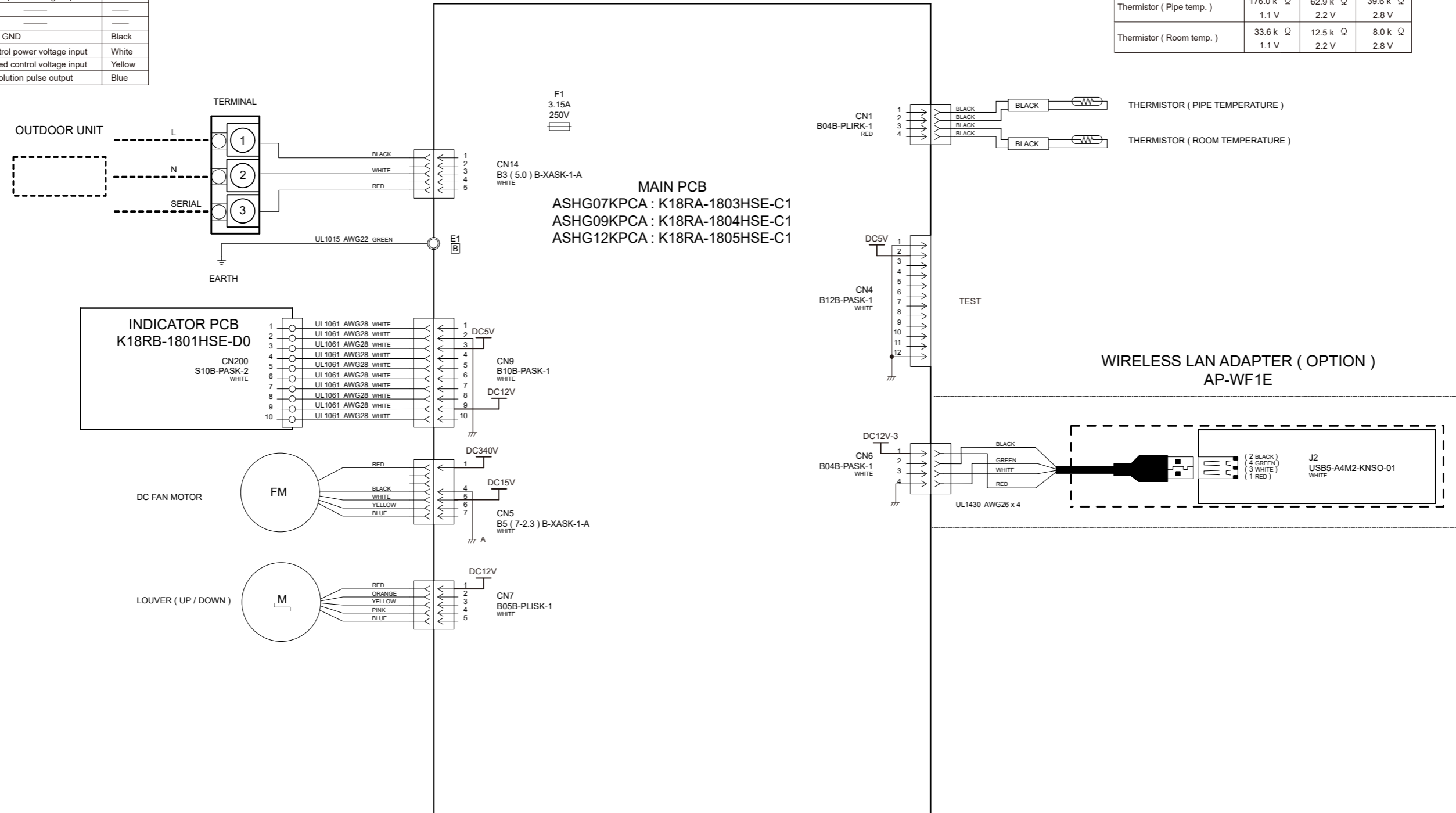
CONTROL UNIT  
 ASHG07KPCA : EZ-0180BHSE  
 ASHG09KPCA : EZ-0180CHSE  
 ASHG12KPCA : EZ-0180DHSE

CN5 DC Fan motor

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

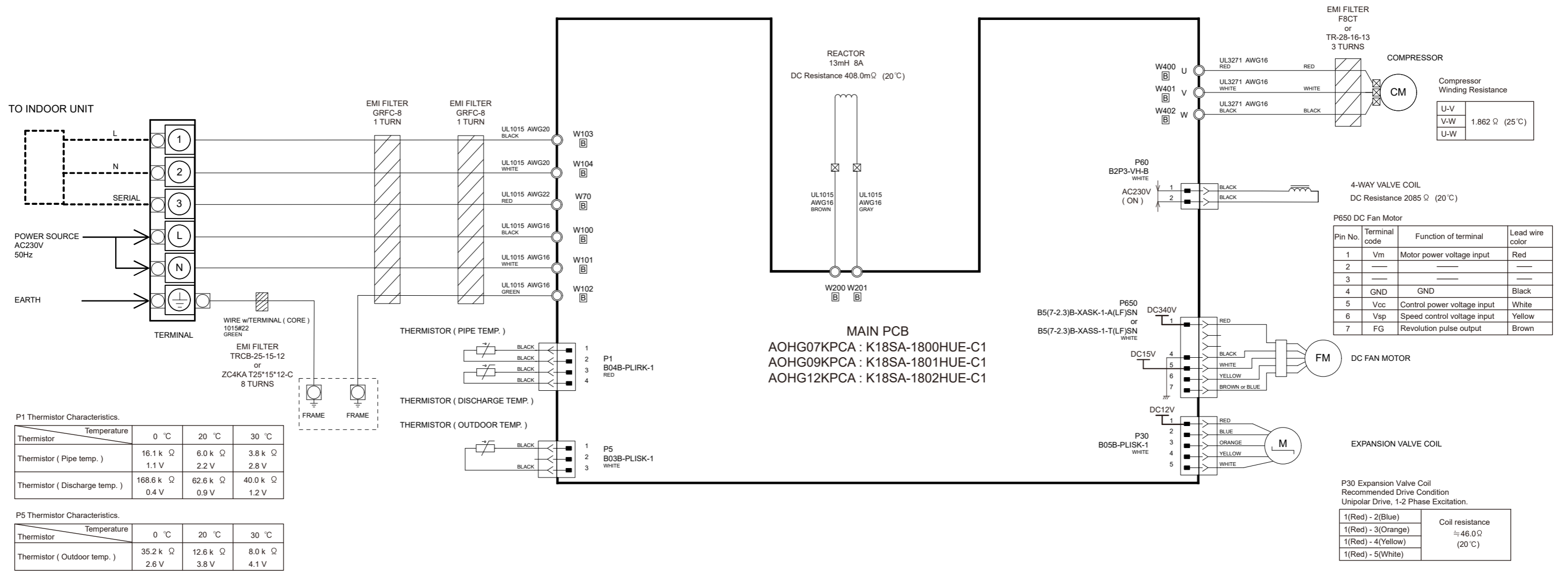
CN1 Thermistor Characteristics.

Thermistor	Temperature		
	( 0°C )	( 20°C )	( 30°C )
Thermistor ( Pipe temp. )	176.0 k Ω 1.1 V	62.9 k Ω 2.2 V	39.6 k Ω 2.8 V
Thermistor ( Room temp. )	33.6 k Ω 1.1 V	12.5 k Ω 2.2 V	8.0 k Ω 2.8 V



Models : AOHG07KPCA  
 AOHG09KPCA  
 AOHG12KPCA

INVERTER ASSEMBLY  
 AOHG07KPCA : EZ-018GHUE  
 AOHG09KPCA : EZ-018HHUE  
 AOHG12KPCA : EZ-018KHUE



P1 Thermistor Characteristics.

Thermistor	Temperature	0 °C	20 °C	30 °C
Thermistor ( Pipe temp. )		16.1 k Ω	6.0 k Ω	3.8 k Ω
		1.1 V	2.2 V	2.8 V
Thermistor ( Discharge temp. )		168.6 k Ω	62.6 k Ω	40.0 k Ω
		0.4 V	0.9 V	1.2 V

P5 Thermistor Characteristics.

Thermistor	Temperature	0 °C	20 °C	30 °C
Thermistor ( Outdoor temp. )		35.2 k Ω	12.6 k Ω	8.0 k Ω
		2.6 V	3.8 V	4.1 V

EMI FILTER F8CT or TR-28-16-13 3 TURNS

COMPRESSOR

Compressor Winding Resistance

U-V	
V-W	1.862 Ω (25 °C)
U-W	

4-WAY VALVE COIL

DC Resistance 2085 Ω (20 °C)

P650 DC Fan Motor

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

P30 Expansion Valve Coil

Recommended Drive Condition

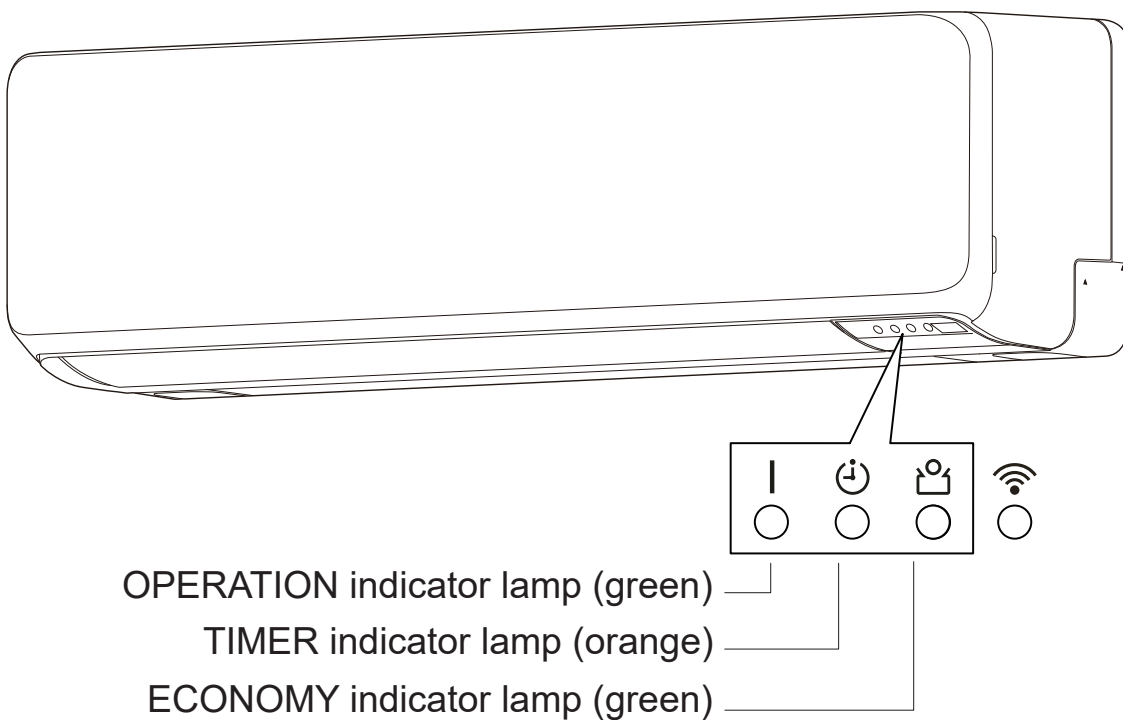
Unipolar Drive, 1-2 Phase Excitation.

1(Red) - 2(Blue)	Coil resistance ≈ 46.0 Ω (20 °C)
1(Red) - 3(Orange)	
1(Red) - 4(Yellow)	
1(Red) - 5(White)	

## Error detection

If you use a wireless remote controller, the lamp on the photo detector unit will output error codes by way of blinking patterns. If you use a wired remote controller, error codes will appear on the remote control display. See the lamp blinking patterns and error codes in the table. An error display is displayed only during operation.

### [Troubleshooting with the indoor unit display]



Error display			Error code	Description
OPERATION lamp (green)	TIMER lamp (orange)	ECONOMY lamp (green)		
●(1)	●(1)	◇	11	Serial communication error
●(1)	●(2)	◇	12	<ul style="list-style-type: none"> <li>• Wired remote controller communication error</li> <li>• Server room control communication error</li> </ul>
●(1)	●(5)	◇	15	Check run unfinished Automatic airflow adjustment error
●(1)	●(8)	◇	18	External communication error
●(2)	●(2)	◇	22	Indoor unit capacity error
●(2)	●(3)	◇	23	Combination error
●(2)	●(6)	◇	26	Indoor unit address setting error
●(2)	●(9)	◇	29	Connection unit number error in wired remote controller system
●(3)	●(1)	◇	31	Power supply interruption error
●(3)	●(2)	◇	32	Indoor unit PCB model information error
●(3)	●(3)	◇	33	Indoor unit motor electricity consumption detection error
●(3)	●(5)	◇	35	Manual auto switch error
●(3)	●(9)	◇	39	Indoor unit power supply error for fan motor
●(3)	●(10)	◇	3A	Indoor unit communication circuit (wired remote controller) error
●(4)	●(1)	◇	41	Room temp. sensor error

Display mode ● : 0.5s ON / 0.5s OFF  
◇ : 0.1s ON / 0.1s OFF  
( ) : Number of flashing


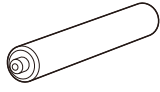



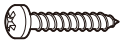
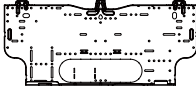
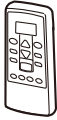
Error display			Error code	Description
OPERATION lamp (green)	TIMER lamp (orange)	ECONOMY lamp (green)		
●(4)	●(2)	◇	42	Indoor unit heat ex. middle temp. sensor error
●(5)	●(1)	◇	51	Indoor unit fan motor error
●(5)	●(15)	◇	5U	Indoor unit error
●(6)	●(2)	◇	62	Outdoor unit main PCB model information error or communication error
●(6)	●(3)	◇	63	Inverter error
●(6)	●(4)	◇	64	Active filter error, PFC circuit error
●(6)	●(5)	◇	65	Trip terminal L error
●(6)	●(8)	◇	68	Outdoor unit rush current limiting resistor temp. rise error
●(6)	●(10)	◇	6A	Display PCB microcomputers communication error
●(7)	●(1)	◇	71	Discharge temp. sensor error
●(7)	●(2)	◇	72	Compressor temp. sensor error
●(7)	●(3)	◇	73	Outdoor unit Heat Ex. liquid temp. sensor error
●(7)	●(4)	◇	74	Outdoor temp. sensor error
●(7)	●(5)	◇	75	Suction Gas temp. sensor error
●(7)	●(6)	◇	76	• 2-way valve temp. sensor error • 3-way valve temp. sensor error
●(7)	●(7)	◇	77	Heat sink temp. sensor error


Display mode ● : 0.5s ON / 0.5s OFF  
◇ : 0.1s ON / 0.1s OFF  
( ) : Number of flashing

Error display			Error code	Description
OPERATION lamp (green)	TIMER lamp (orange)	ECONOMY lamp (green)		
●(8)	●(2)	◇	82	<ul style="list-style-type: none"> <li>• Sub-cool Heat Ex. gas inlet temp. sensor error</li> <li>• Sub-cool Heat Ex. gas outlet temp. sensor error</li> </ul>
●(8)	●(3)	◇	83	Liquid pipe temp. sensor error
●(8)	●(4)	◇	84	Current sensor error
●(8)	●(6)	◇	86	<ul style="list-style-type: none"> <li>• Discharge pressure sensor error</li> <li>• Suction pressure sensor error</li> <li>• High pressure switch error</li> </ul>
●(9)	●(4)	◇	94	Trip detection
●(9)	●(5)	◇	95	Compressor rotor position detection error (permanent stop)
●(9)	●(7)	◇	97	Outdoor unit fan motor 1 error
●(9)	●(8)	◇	98	Outdoor unit fan motor 2 error
●(9)	●(9)	◇	99	4-way valve error
●(10)	●(1)	◇	A1	Discharge temp. error
●(10)	●(3)	◇	A3	Compressor temp. error
●(10)	●(4)	◇	A4	High pressure error
●(10)	●(5)	◇	A5	Low pressure error

Display mode ● : 0.5s ON / 0.5s OFF  
◇ : 0.1s ON / 0.1s OFF  
( ) : Number of flashing



# Accessories

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Operating manual		1	Battery		2
Operating manual (CD-ROM)		1	Cloth tape		1
Installation manual		1	Tapping screw		5
Wall hook bracket		1	Remote controller		1

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Drain pipe		1			



# Optional parts

Exterior	Part name	Model name	Summary
	Remote controller holder	UTZ-RXLA	Wall or pillar mountable, and holds the wireless remote controller.
	Wireless LAN adapter	UTY-TFSXF2	Remotely manage an air conditioning system using mobile devices such as smartphones and tablets.

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