Refrigerant R410A
INVERTER

AIR CONDITIONER

Duct type

DESIGN & TECHNICAL MANUAL

INDOOR



AR∗G45LHTA
AR∗G54LHTA

OUTDOOR



AO∗G45LETL
AO∗G54LETL

FUJITSU GENERAL LIMITED

1. INDOOR UNIT

DUCT TYPE :

AR∗G45LHTA
AR∗G54LHTA

DTR_AR066E_03
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DUCT TYPE
AR∗G45-54LHTA

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1. FEATURES

■ MODEL

AR∗G45LHTA / AO∗G45LETL
AR∗G54LHTA / AO∗G54LETL





■ FEATURES

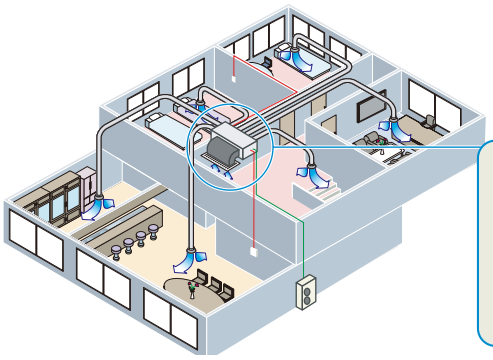
● Improvement of market suitability

Considerable improvement of installation work by compact size and light weight considering with the conditions of installation in the ceiling.

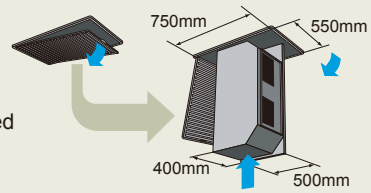
The size which the indoor unit can be installed in the spacing between the beams is required for the installation in the ceiling.

Restriction for dimension of width and height.

Indoor unit installation example



Carrying-in example in the ceiling

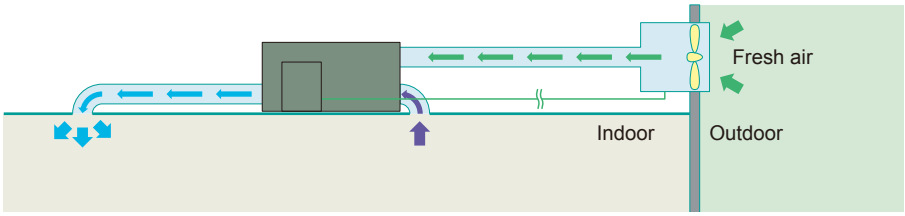


Restriction for space when being carried into the ceiling for replacement
(Ceiling intake grille)

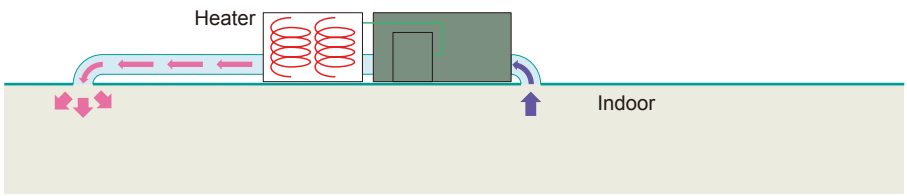
● Correspondence to Network

Various networks can be constructed according to the user needs.

1.Fresh air output port
Fresh air is connected with the fan of an indoor unit.



2.Electrical heater output port
Electrical heater operates at the time of heating.

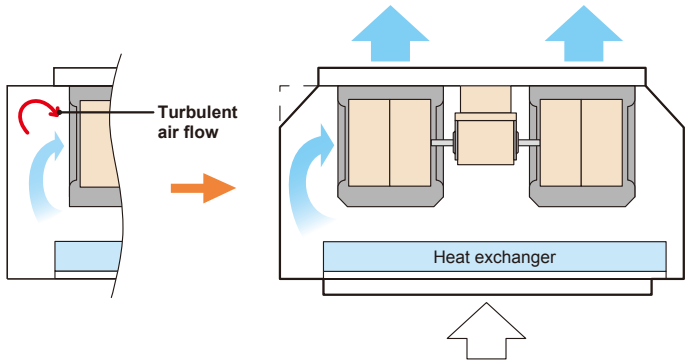


3.External input port
Start / Stop of the air conditioner can be changed from the external equipment.

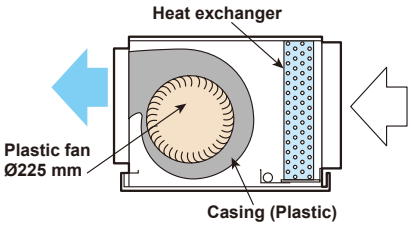
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● Operation sound (Low noise)

Turbulent air flow is reduced by cutting off the corners of conventional indoor unit front panel and fan case



Low noise is realized by adopting plastic case, plastic fan



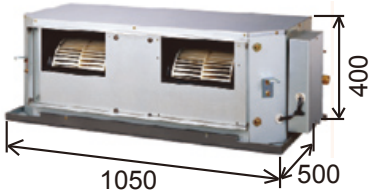
● Economy operation

The power consumption can be reduced.

● Space saving

• Compact size

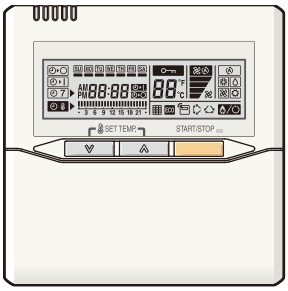
High performance has been realized with a compact indoor unit.
Due to the compact size of the indoor unit, the installation space required has been reduced allowing for a wider selection on installation locations.



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2. WIRED REMOTE CONTROLLER

■ FEATURES



- ∗ Various timer setup (ON / OFF / WEEKLY) are possible.
- ∗ Equipped with weekly timer as standard function.(2 times Start / Stop per day for a week)
- ∗ When setting up a timer, operation mode and a temperature setup can be changed.
- ∗ When a failure occurs, the error code is displayed. (Maximum of 16)
- ∗ Error indication.(A maximum of 16 error histories are memorizable.)
- ∗ Up to 16 indoor units can be simultaneously controlled.
- ∗ The room temperature can be controlled by being detected the temperature accurately with built-in thermo sensor.

● Simple function setting

Setting of the air conditioner selection function is performed by remote controller.

● High performance and compact size

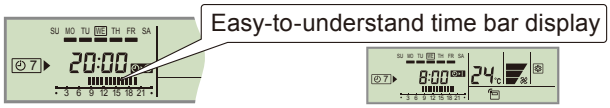
Three functions are combined in one unit.

Wired remote controller + Weekly timer + Setback timer

● Built-in timers

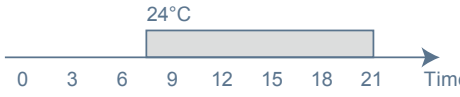
Weekly timer

Possible to set ON/OFF time to operate twice each day of the week.



Setup screen example
(Set to Wednesday: 8:00 to 20:00.)

Screen after setup

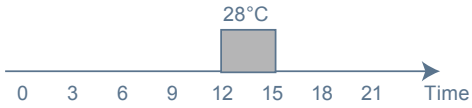


Setback timer

Possible to set temperature for two time spans and for each day of the week.

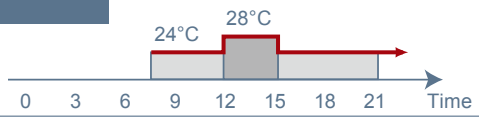


Setup screen example
(Set from Sunday to Saturday: 12:00 to 15:00, 28 °C.)

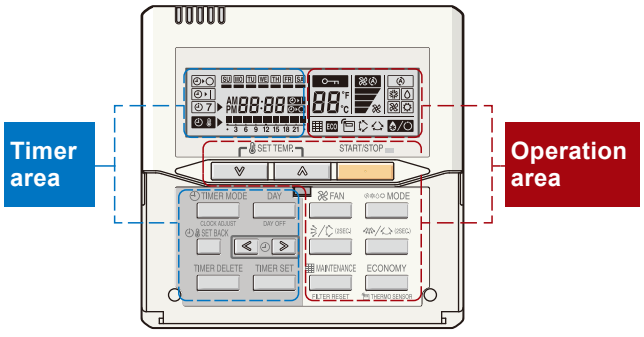


At "Weekly timer" + "Set back timer" setup

24°C → 28°C → 24°C



● Easy-to-understand operation

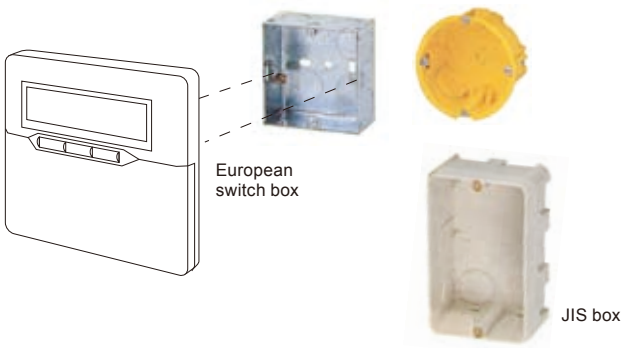


[Variable timer control]

The operation/display sections are zoned according to time and operation, enabling variable programming to match application.

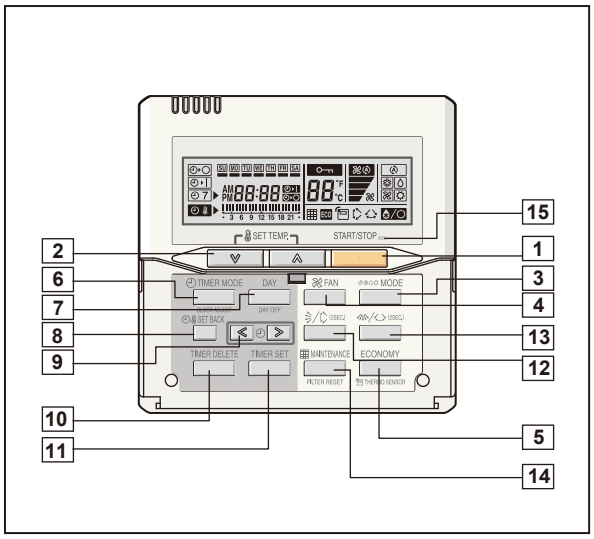
● Simple installation

Components are compatible with standard switch boxes. Flat back construction allows equipment to be installed wherever it is needed.

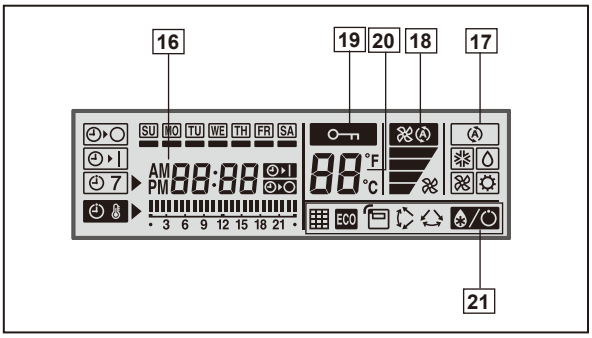


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■ FUNCTIONS



Display panel



1 START/STOP button
Pressed to start and stop operation.

2 SET TEMP. button
Selects the setting temperature.

3 MODE button
Selects the operating mode (AUTO, HEAT, FAN, COOL, DRY).

4 FAN button
Selects the fan speed (AUTO, LOW, MED, HIGH).

5 ECONOMY button
Turns the economy efficient mode on and off.

6 TIMER MODE (CLOCK ADJUST) button
Selects the timer mode (OFF TIMER, ON TIMER, WEEKLY TIMER). Set the current time.

7 DAY (DAY OFF) button
Temporarily cancels of one day timer.

8 SET BACK button
Pressed to select the set back timer.

9 Set time button
Pressed to set time.

10 TIMER DELETE button
The schedule of a weekly timer is deleted.

11 TIMER SET button
Sets the date, hour, minute and on-off time.

12 Vertical airflow direction and swing button
Push for two seconds to change the swing mode.

13 Horizontal airflow direction and swing button
Push for two seconds to change the swing mode.

14 FILTER RESET button

15 Operation lamp
Lights during operation and when the timer is on.

16 Timer and clock display

17 Operation mode display

18 Fan speed display

19 Operation lock display

20 Temperature display

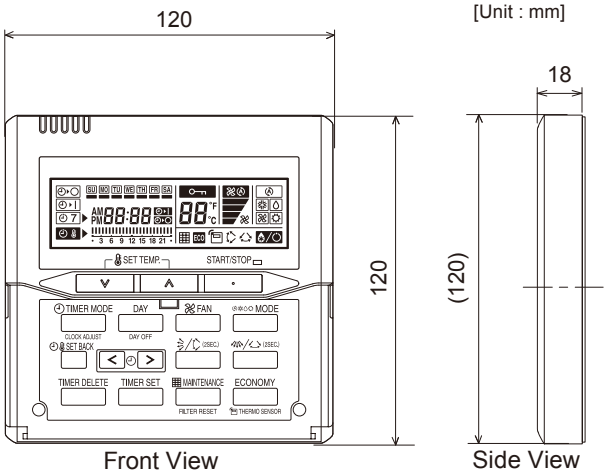
21 Function display

- Defrost display
- Thermo sensor display
- Economy display
- Vertical swing display
- Horizontal swing display
- Filter display

Functions will be different due to type of indoor unit.
For details, please see operation manual.

■ DIMENSIONS

[Unit : mm]



Front View　　Side View

■ SPECIFICATION

SIZE	(H x W x D mm)	120 x 120 x 18
WEIGHT	(g)	160
CABLE LENGTH	(m)	10
POWER	(V)	12

■ WIRING SPECIFICATIONS

Use	Size	Wire type	Remarks
Remote controller cable	0.33mm^2 (22 AWG)	Polar 3 code	Use sheathed PVC cable

3. SPECIFICATIONS

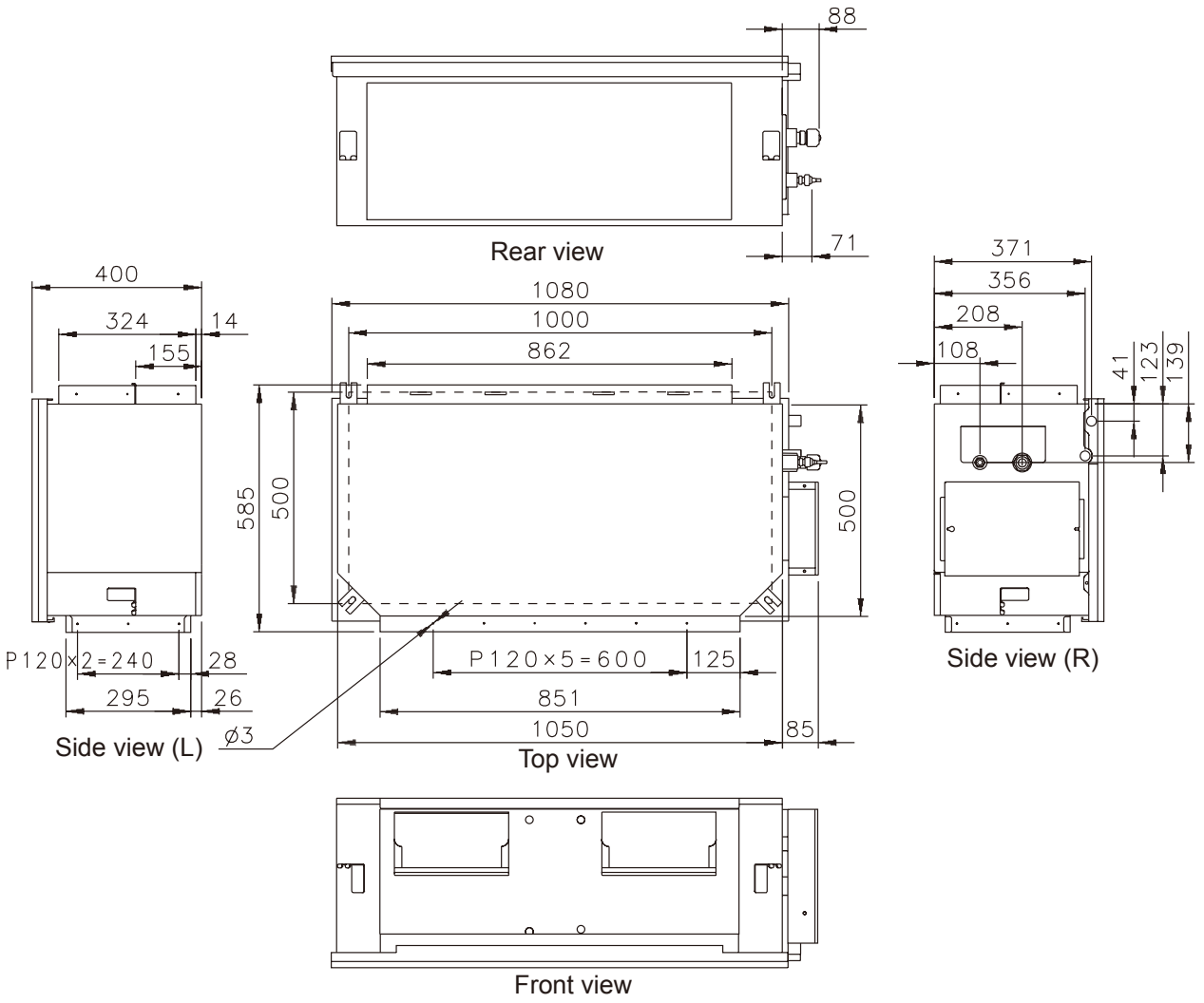
Type					DUCTED MODEL INVERTER HEATPUMP	
Model name					AR∗G45LHTA	AR∗G54LHTA
Power source					230 V~ 50 Hz	
Available voltage range					198 - 264 V	
Capacity	Cooling	Rated		kW	12.5	13.4
				BTU/h	42700	45700
		Min-Max		kW	4.5-14.0	5.0-14.5
				BTU/h	15400-47800	17100-49500
	Heating	Rated		kW	14.0	16.0
				BTU/h	47800	54600
		Min-Max		kW	5.0-16.2	5.5-18.0
				BTU/h	17100-55300	18800-61500
Input power	Cooling	Rated		kW	4.30	4.77
		Max			5.15	5.40
	Heating	Rated			3.80	4.69
		Max			5.15	5.40
Current	Cooling	Rated		A	18.9	20.9
	Heating				16.7	20.5
EER		Cooling		kW/kW	2.91	2.81
COP		Heating			3.68	3.41
Moisture removal				l/h (pints/h)	1.5 (2.6)	2.0 (3.5)
Maximum operating current*		Cooling		A	22.5	23.5
		Heating			22.5	23.5
Fan	Airflow rate	Cooling	High	m^3/h	3350	3350
			Med		2850	2850
			Low		2430	2430
			QUIET		-	-
		Heating	High		3350	3350
			Med		2850	2850
			Low		2430	2430
			QUIET		-	-
	Type × Q'ty				Sirocco × 2	
	Motor output			W	490	
Recommended static pressure				Pa	100 to 250	100 to 250
Sound pressure level		Cooling	High	dB(A)	47	47
			Med		43	43
			Low		40	40
			Quiet		-	-
		Heating	High		47	47
			Med		43	43
			Low		40	40
			Quiet		-	-
Heat exchanger type		Dimensions (H × W × D)		mm	336 × 890 × 53.2	
		Fin pitch			1.3	
		Rows x Stages			4 × 16	
		Pipe type			Copper	
		Fin type			Aluminium	
Enclosure		Material			Steel	
		Colour			-	
Dimensions (H × W × D)		Net		mm	400 × 1050 × 500	
		Gross			460 × 1230 × 640	
Weight		Net		kg	46	
		Gross			51	
Connection pipe	Size	Liquid		mm	Ø9.52 (3/8 in.)	
		Gas			Ø15.88 (5/8 in.)	
	Method				Flare	
Operation range		Cooling		°C	18 to 32	
				%RH	80 or less	
		Heating		°C	16 to 30	
Remote controller type					Wired	
Drain port	Material				Steel	
	Size			mm	Ø23.4 (I.D.), Ø25.4 (O.D.)	

Note :
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.
Standard static pressure : 100Pa.
Pipe length : 5 m, Height difference : 0 m.(Outdoor unit - Indoor unit)
Sound pressure level : Install a 2m duct to the outlet port and a 1m duct to the suction port and measure.
The protective function might work when using outside the operation range.
*: The maximum current is the maximum value when operated within the operation range.

4. DIMENSIONS

■ MODEL: AR∗G45LHTA, AR∗G54LHTA

(Unit : mm)



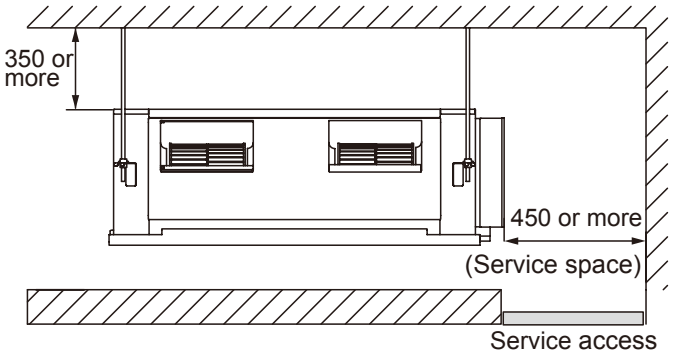
DUCT TYPE
AR∗G45-54LHTA

■ INSTALLATION PLACE

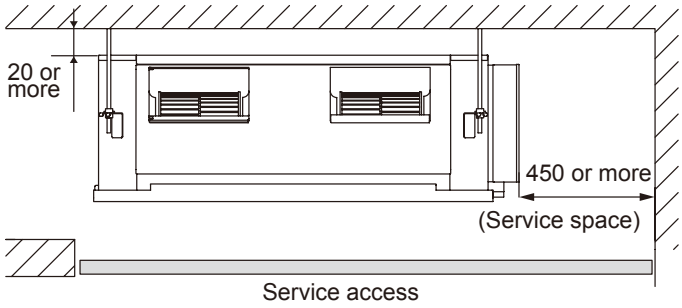
(Unit : mm)

● AR∗G45LHTA, AR∗G54LHTA

Installation by which service space is made on top of the unit (recommended).



Installation by which service is carried out from the bottom of the unit.

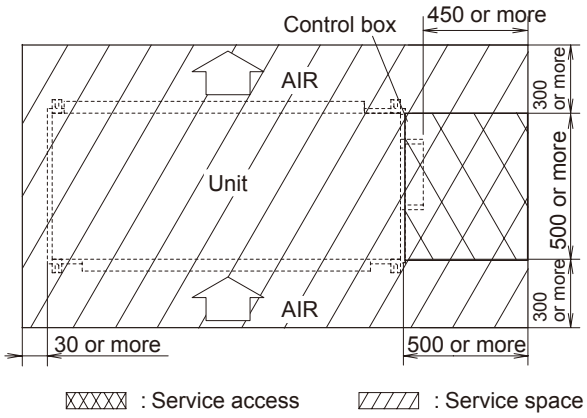


■ MAINTENANCE SPACE

Provide a maintenance space for inspection purposes as shown below.
Do not place any wiring or illumination in the service space, as they will impede service.

(Unit : mm)

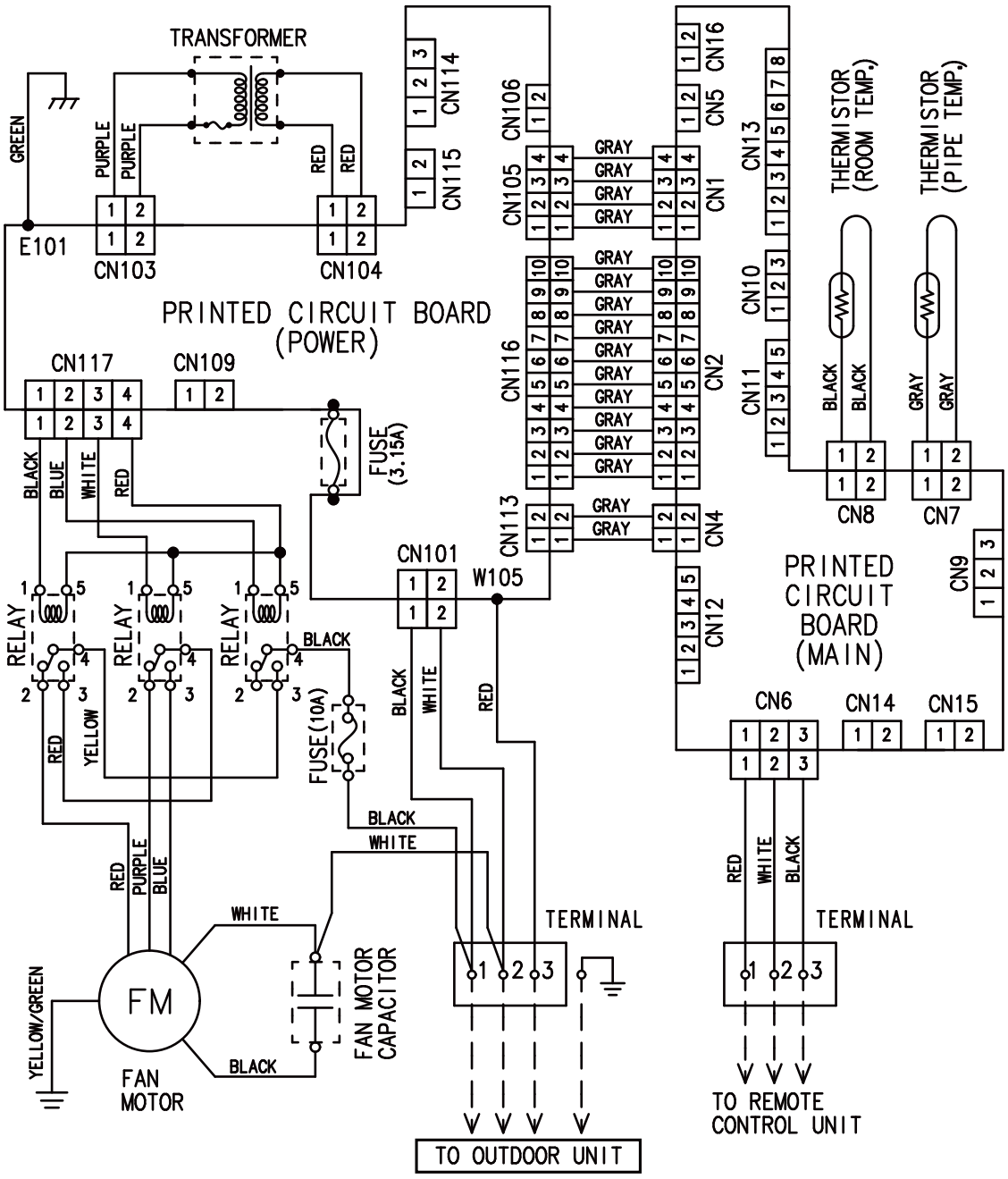
● AR∗G45LHTA, AR∗G54LHTA



DUCT TYPE
AR∗G45-54LHTA

5. WIRING DIAGRAMS

■ MODEL: AR∗G45LHTA, AR∗G54LHTA



DUCT TYPE
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6. CAPACITY TABLE

6-1. COOLING CAPACITY

■ MODEL: AR∗G45LHTA

AFR	55.8

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	11.75	10.43	2.86	13.09	10.50	2.90	13.54	11.41	2.92	14.43	11.45	2.95	14.88	12.36	2.96	15.77	12.31	2.99	16.66	13.12	3.02
	-10	11.74	10.41	2.73	13.08	10.47	2.77	13.53	11.39	2.79	14.42	11.42	2.82	14.86	12.34	2.83	15.76	12.29	2.86	16.65	13.09	2.89
	0	12.10	10.59	2.42	13.48	10.65	2.46	13.94	11.58	2.47	14.86	11.62	2.50	15.32	12.54	2.51	16.24	12.49	2.54	17.16	13.31	2.56
	5	11.72	10.41	2.55	13.06	10.47	2.59	13.50	11.38	2.60	14.39	11.42	2.63	14.84	12.33	2.64	15.73	12.28	2.67	16.62	13.08	2.69
	10	11.56	10.29	2.73	12.87	10.35	2.77	13.31	11.25	2.79	14.19	11.28	2.82	14.63	12.19	2.83	15.51	12.14	2.86	16.38	12.93	2.89
	15	11.49	10.23	2.87	12.80	10.29	2.91	13.23	11.19	2.93	14.10	11.22	2.96	14.54	12.12	2.97	15.41	12.07	3.00	16.28	12.86	3.03
	20	11.89	10.45	3.38	13.24	10.51	3.43	13.69	11.43	3.45	14.60	11.47	3.48	15.05	12.38	3.50	15.95	12.33	3.54	16.85	13.14	3.57
	25	11.49	10.24	3.65	12.80	10.30	3.70	13.24	11.20	3.72	14.11	11.23	3.76	14.55	12.13	3.78	15.42	12.08	3.82	16.30	12.87	3.86
	30	11.74	10.41	4.73	13.08	10.48	4.80	13.52	11.39	4.83	14.41	11.43	4.88	14.86	12.34	4.90	15.75	12.29	4.90	16.64	13.09	4.90
	35	11.06	9.98	4.97	12.32	10.04	5.05	12.74	10.91	5.07	13.58	10.95	5.12	14.00	11.82	5.15	14.84	11.77	5.15	15.68	12.54	5.15
	40	9.68	9.15	4.23	10.78	9.36	4.29	11.15	10.18	4.31	11.88	10.21	4.36	12.25	11.02	4.38	12.98	10.98	4.38	13.72	11.70	4.38
	46	7.37	7.36	3.55	8.21	7.81	3.61	8.49	8.46	3.62	9.05	8.52	3.66	9.33	9.20	3.68	9.89	9.16	3.68	10.45	9.76	3.68

■ MODEL: AR∗G54LHTA

AFR	55.8

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
	-15	12.72	11.08	3.16	14.17	11.14	3.21	14.66	12.12	3.23	15.62	12.15	3.26	16.11	13.13	3.28	17.07	13.07	3.31	18.04	13.93	3.34
	-10	12.71	11.05	3.04	14.16	11.12	3.08	14.64	12.09	3.10	15.61	12.13	3.13	16.09	13.10	3.15	17.06	13.05	3.18	18.02	13.90	3.21
	0	12.84	11.10	2.73	14.30	11.16	2.77	14.79	12.13	2.79	15.76	12.17	2.82	16.25	13.15	2.83	17.23	13.09	2.86	18.20	13.95	2.89
	5	12.44	10.83	2.74	13.85	10.89	2.79	14.33	11.84	2.80	15.27	11.88	2.83	15.74	12.83	2.84	16.69	12.78	2.87	17.63	13.61	2.90
	10	12.26	10.69	2.87	13.66	10.75	2.92	14.12	11.69	2.93	15.05	11.73	2.96	15.52	12.66	2.98	16.45	12.61	3.01	17.38	13.44	3.04
	15	12.02	10.51	3.17	13.39	10.57	3.22	13.85	11.49	3.24	14.76	11.53	3.27	15.22	12.45	3.29	16.13	12.40	3.32	17.05	13.21	3.36
	20	12.42	10.75	4.02	13.84	10.81	4.09	14.31	11.75	4.11	15.25	11.79	4.15	15.72	12.74	4.17	16.67	12.68	4.21	17.61	13.51	4.25
	25	12.18	10.63	4.60	13.56	10.69	4.67	14.03	11.62	4.70	14.95	11.66	4.75	15.41	12.59	4.77	16.34	12.54	4.82	17.26	13.36	4.87
	30	12.35	10.82	4.99	13.75	10.88	5.07	14.22	11.83	5.09	15.16	11.87	5.14	15.63	12.82	5.17	16.57	12.77	5.17	17.51	13.60	5.17
	35	11.46	10.21	5.10	12.76	10.27	5.17	13.20	11.17	5.20	14.07	11.20	5.25	14.50	12.10	5.28	15.37	12.05	5.28	16.24	12.84	5.28
	40	9.68	9.15	4.23	10.78	9.36	4.29	11.15	10.18	4.31	11.88	10.21	4.36	12.25	11.02	4.38	12.98	10.98	4.38	13.72	11.70	4.38
	46	7.37	7.36	3.55	8.21	7.76	3.61	8.49	8.44	3.62	9.05	8.46	3.66	9.33	9.14	3.68	9.89	9.10	3.68	10.45	9.70	3.68

AFR: Air flow rate (m^3/min)
TC : Total capacity (kW)
SHC: Sensible Heat capacity (kW)
IP : Input power (kW)

DUCT TYPE
AR∗G45-54LHTA

6-2. HEATING CAPACITY

■ MODEL: AR∗G45LHTA

AFR	55.8

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	-16	11.47	4.69	11.19	4.79	10.92	4.89	10.65	4.90	10.37	4.90
	-10	-11	12.63	4.70	12.33	4.80	12.03	4.90	11.73	4.90	11.43	4.90
	-5	-7	13.99	4.70	13.65	4.80	13.32	4.90	12.99	4.90	12.65	4.90
	0	-2	15.28	4.70	14.91	4.80	14.55	4.90	14.19	4.90	13.82	4.90
	5	3	16.36	4.70	15.97	4.80	15.58	4.90	15.19	4.90	14.80	4.90
	7	6	17.01	4.70	16.61	4.80	16.20	4.90	15.80	4.90	15.39	4.90
	10	8	18.16	4.70	17.73	4.80	17.30	4.90	16.86	4.90	16.43	4.90
	15	10	18.03	4.22	17.60	4.31	17.17	4.40	16.74	4.40	16.31	4.40
	20	15	18.59	4.22	18.14	4.31	17.70	4.40	17.26	4.40	16.82	4.40
	24	18	18.50	3.81	18.06	3.89	17.62	3.97	17.18	3.97	16.74	3.97

■ MODEL: AR∗G54LHTA

AFR	55.8

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	-16	12.10	4.92	11.81	5.03	11.52	5.13	11.23	5.23	10.94	5.28
	-10	-11	13.42	5.07	13.10	5.17	12.78	5.28	12.46	5.28	12.14	5.28
	-5	-7	15.02	5.07	14.66	5.17	14.30	5.28	13.94	5.28	13.59	5.28
	0	-2	16.24	5.07	15.86	5.17	15.47	5.28	15.08	5.28	14.70	5.28
	5	3	17.43	5.07	17.02	5.17	16.60	5.28	16.19	5.28	15.77	5.28
	7	6	18.90	5.07	18.45	5.17	18.00	5.28	17.55	5.28	17.10	5.28
	10	8	19.20	5.07	18.75	5.17	18.29	5.28	17.83	5.28	17.38	5.28
	15	10	18.03	4.22	17.60	4.31	17.17	4.40	16.74	4.40	16.31	4.40
	20	15	18.59	4.22	18.14	4.31	17.70	4.40	17.26	4.40	16.82	4.40
	24	18	18.50	3.81	18.06	3.89	17.62	3.97	17.18	3.97	16.74	3.97

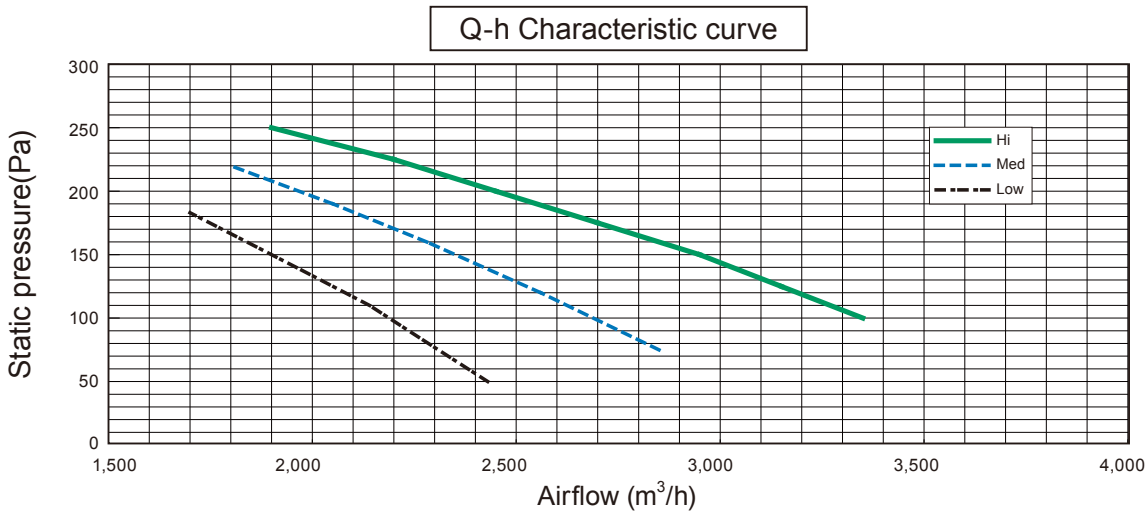
AFR: Air flow rate (m^3/min)
TC : Total capacity (kW)
IP : Input power (kW)

DUCT TYPE
AR∗G45-54LHTA

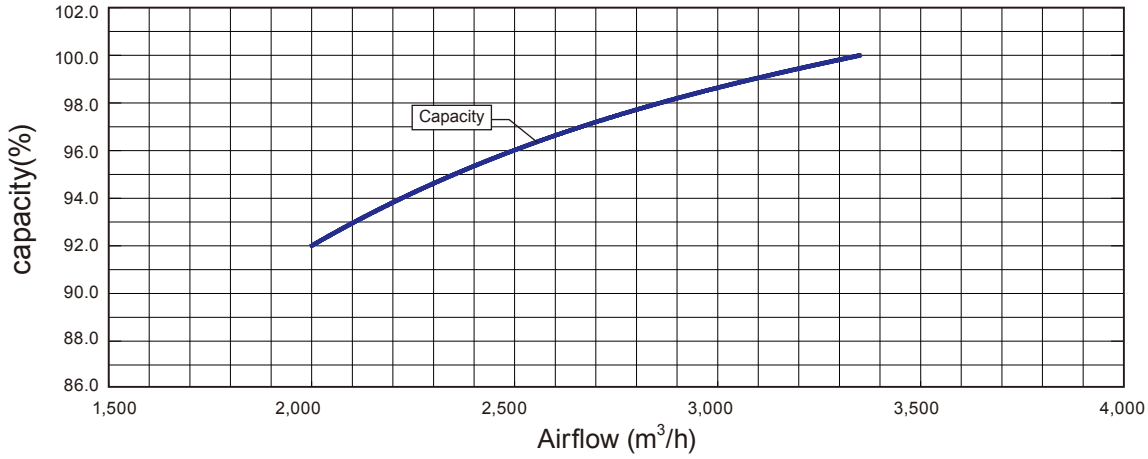
7. FAN PERFORMANCE AND CAPACITY

■ MODEL: AR∗G45LHTA

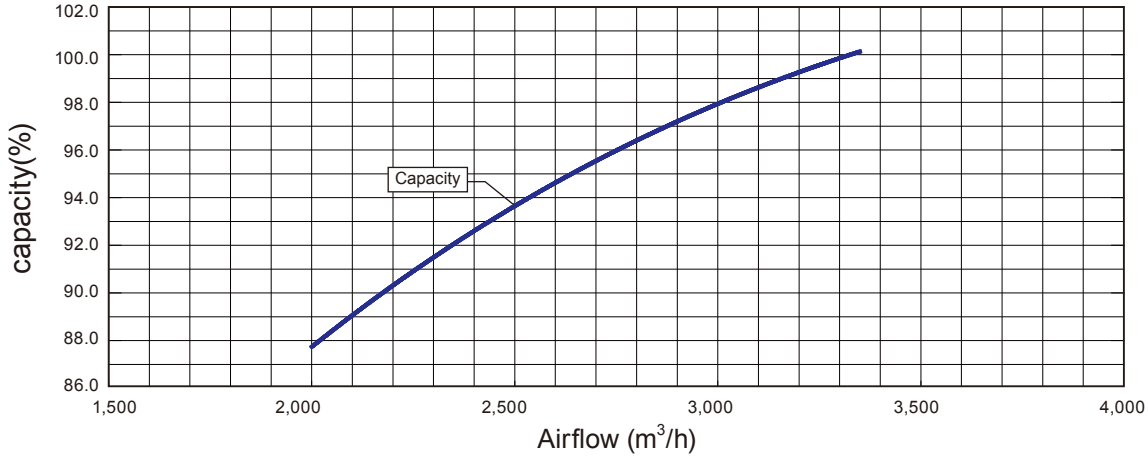
			Static pressure (Pa)								
			50	75	100	125	150	175	200	225	250
FAN SPEED	Hi	m^3/h	-	-	3350	3150	2950	2700	2450	2280	1900
		l/s	-	-	931	875	819	750	681	633	528
		CFM	-	-	1972	1854	1736	1589	1442	1342	1118
	Med	m^3/h	-	2850	2700	2520	2350	2160	1970	1750	-
		l/s	-	792	750	700	653	600	547	486	-
		CFM	-	1677	1589	1483	1383	1271	1159	1030	-
	Low	m^3/h	2430	2310	2180	2050	1900	1750	-	-	-
		l/s	675	642	606	569	528	486	-	-	-
		CFM	1430	1360	1283	1207	1118	1030	-	-	-



● Cooling



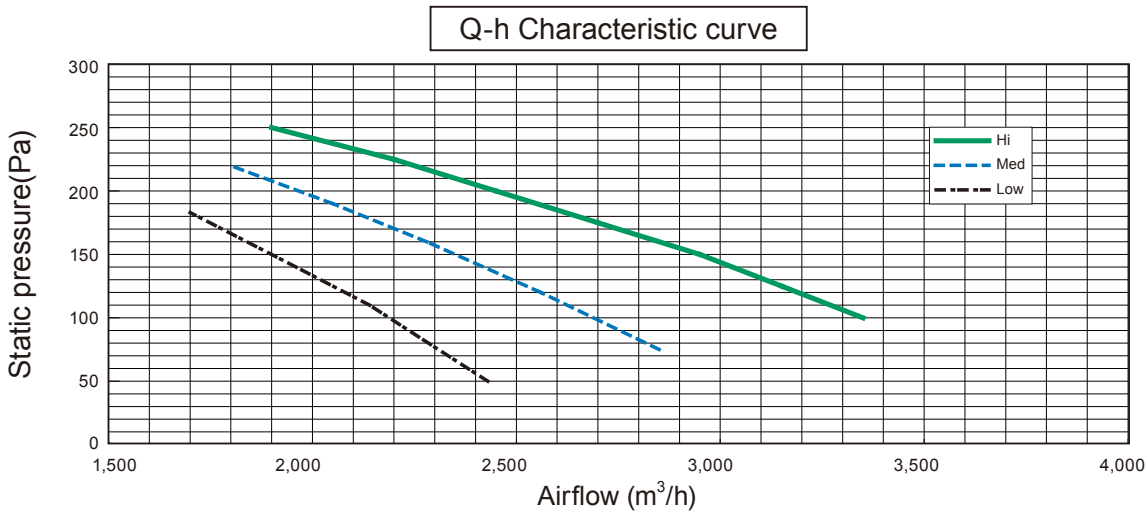
● Heating



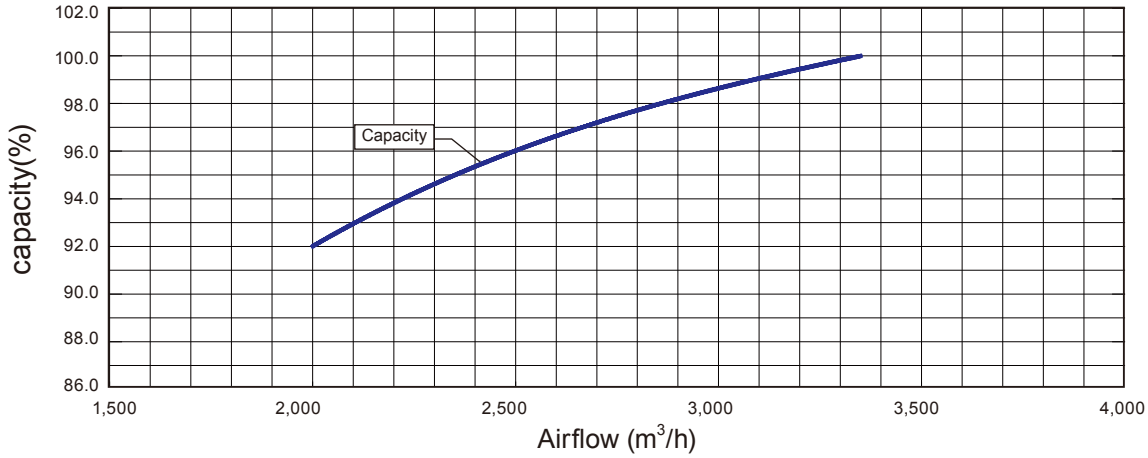
DUCT TYPE
AR∗G45-54LHTA

■MODEL: AR∗G54LHTA

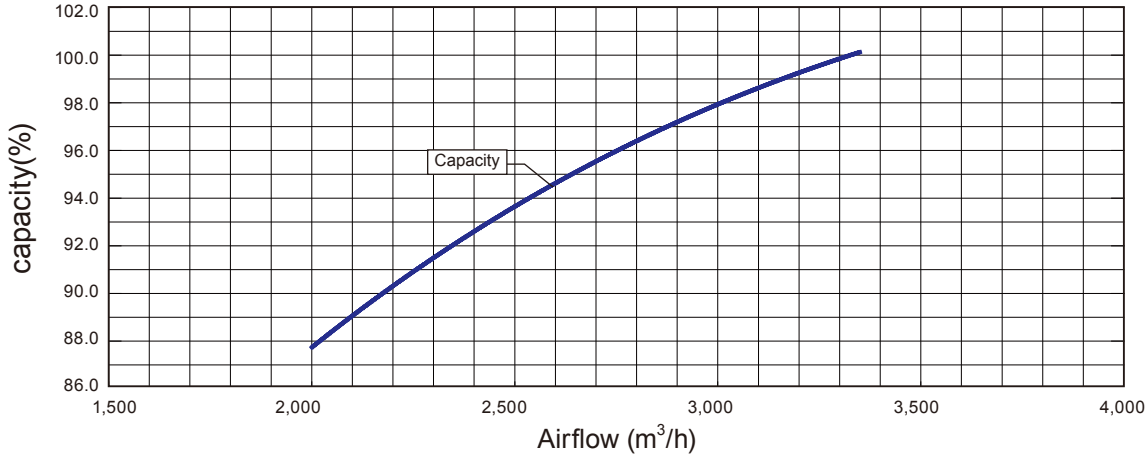
			Static pressure (Pa)								
			50	75	100	125	150	175	200	225	250
FAN SPEED	Hi	m^3/h	-	-	3350	3150	2950	2700	2450	2280	1900
		l/s	-	-	931	875	819	750	681	633	528
		CFM	-	-	1972	1854	1736	1589	1442	1342	1118
	Med	m^3/h	-	2850	2700	2520	2350	2160	1970	1750	-
		l/s	-	792	750	700	653	600	547	486	-
		CFM	-	1677	1589	1483	1383	1271	1159	1030	-
	Low	m^3/h	2430	2310	2180	2050	1900	1750	-	-	-
		l/s	675	642	606	569	528	486	-	-	-
		CFM	1430	1360	1283	1207	1118	1030	-	-	-



●Cooling



●Heating



DUCT TYPE
AR∗G45-54LHTA

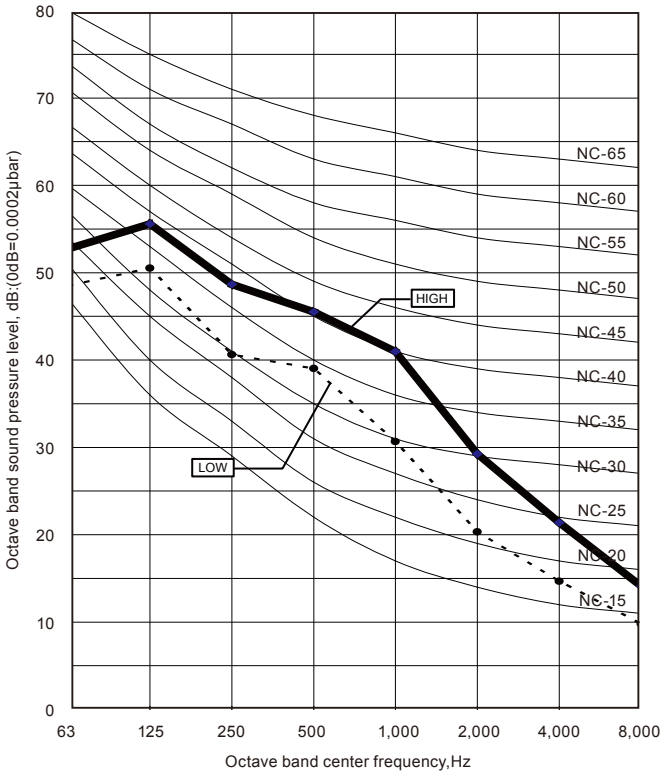
8. OPERATION NOISE

8-1. NOISE LEVEL CURVE

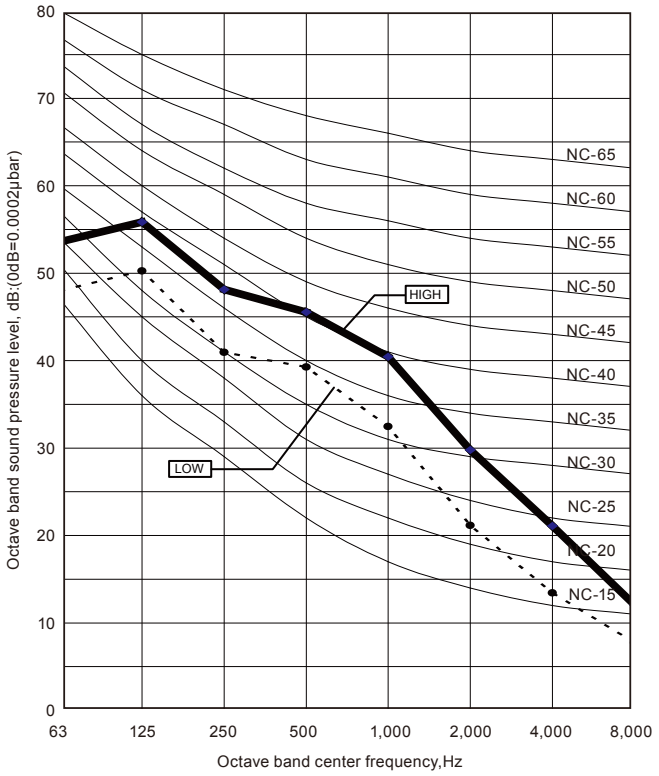
Condition
Static pressure : 100Pa

■ MODEL: AR∗G45LHTA

● Cooling

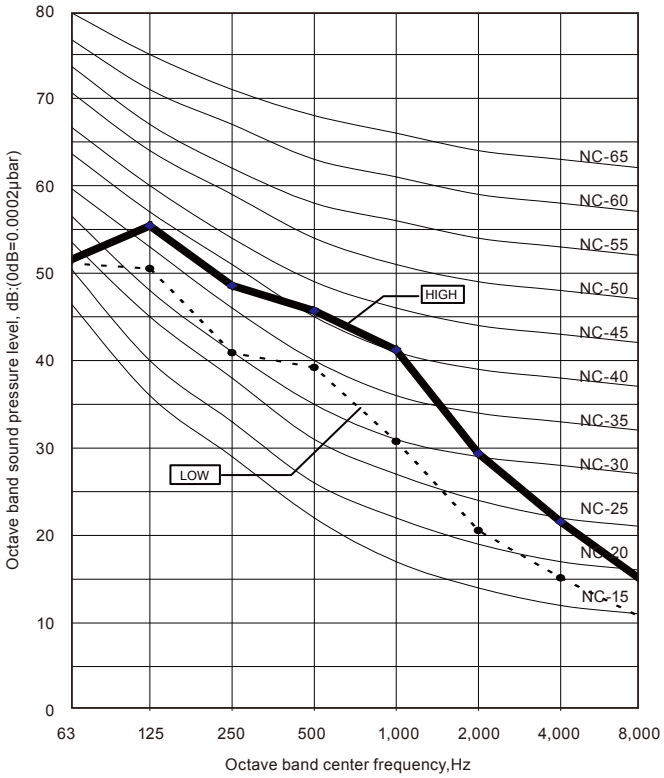


● Heating

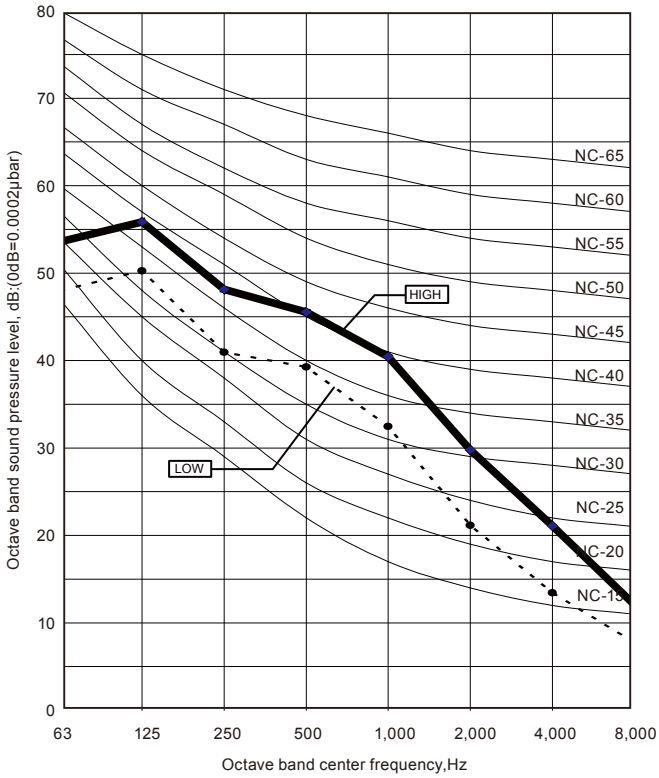


■ MODEL: AR∗G54LHTA

● Cooling

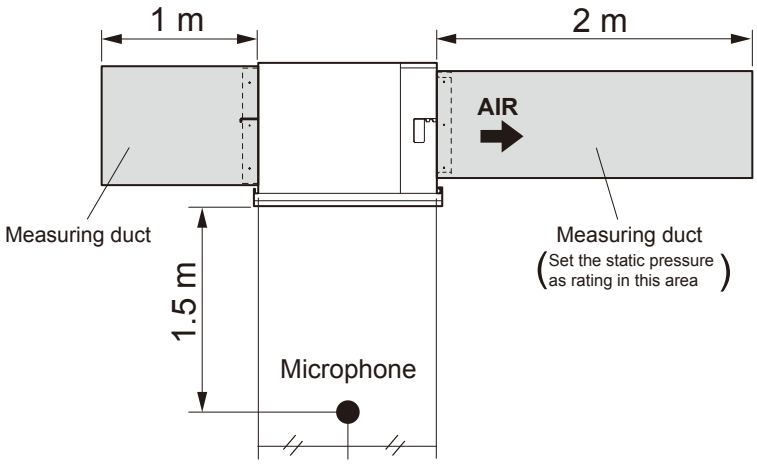


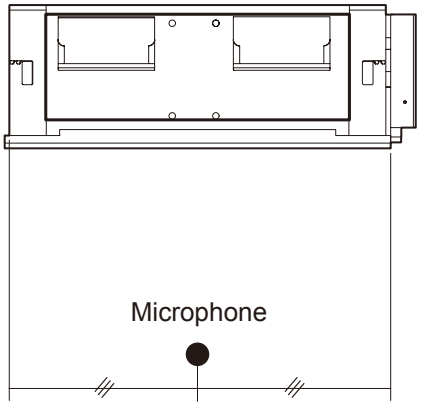
● Heating



DUCT TYPE
AR∗G45-54LHTA

8-2. SOUND LEVEL CHECK POINT





9. ELECTRIC CHARACTERISTICS

Model name			AR∗G45LHTA AR∗G54LHTA
Power supply	Voltage	V	230~
	Frequency	Hz	50
Max Operating Current		A	4.0
Wiring spec.	Connection cable	mm^2	1.5
	Limited wiring length	m	50

Note: Wiring specification
1. Selected sample
   (Selected based on Japan Electrotechnical Standards and Codes Committee E0005)
2. Limited wiring length : Limit voltage drop to less than 2%. Increase cable gauge if voltage drop is 2% or more.

DUCT TYPE
AR∗G45-54LHTA

10. SAFETY DEVICES

	Protection form	Model
		AR∗G45LHTA AR∗G54LHTA
Circuit protection	Current fuse (PCB)	250V 3.15A
Fan motor protection	Thermal protector	145±5°C OFF

DUCT TYPE
AR∗G45-54LHTA

11. EXTERNAL INPUT & OUTPUT

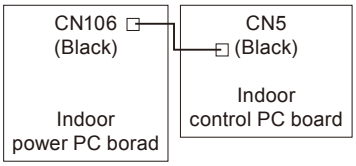
INPUT	OUTPUT	Connector	REMARKS
CONTROL INPUT	—	CN114	See external input / output settings for details.
—	OPERATION STATUS	CN115	
—	FRESH AIR CONTROL	CN14	
—	AUXILIARY HEATER	CN15	

■ PREPARATION

Before connecting the external input, preparation is necessary using the signal wire in the figure below.



When the external input/output is used, connect the external signal wire as shown in the figure.



DUCT TYPE
AR∗G45-54LHTA

11-1. EXTERNAL INPUT

■ CONTROL INPUT (Operation/Stop or Forced stop)

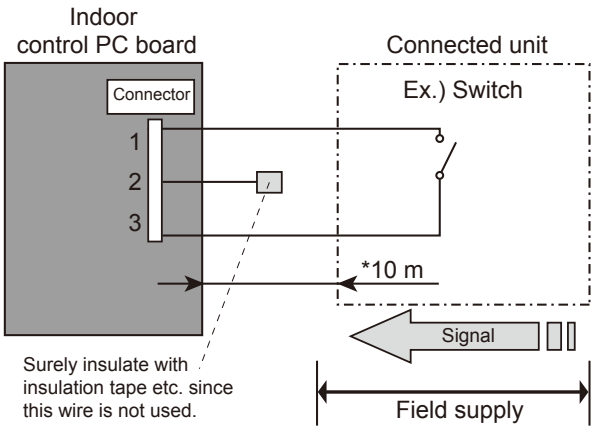
The air conditioner can be remotely operated by means of the following on-site work.

"Operation / Stop" mode or "Forced stop" mode can be selected with function setting of indoor unit.

Unit operation is started at the following contents by adding the contact input of a commercial ON/OFF switch to a connector on the external control PC board and turning it ON.

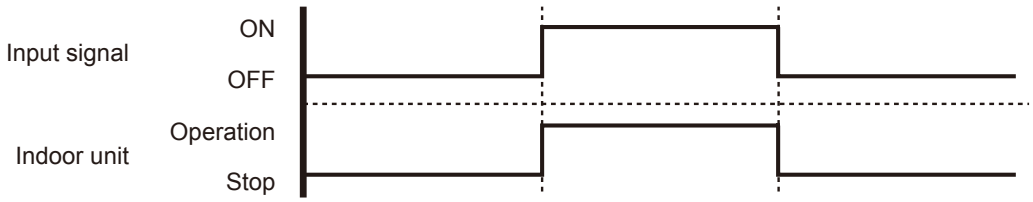
	Initial setting after power is ON	Starting mode other than initial setting
Operation mode	Auto changeover	Mode at previous operation
Set temperature	24°C	Temperature at previous operation
Air flow mode	AUTO	Mode at previous operation

● Circuit diagram example

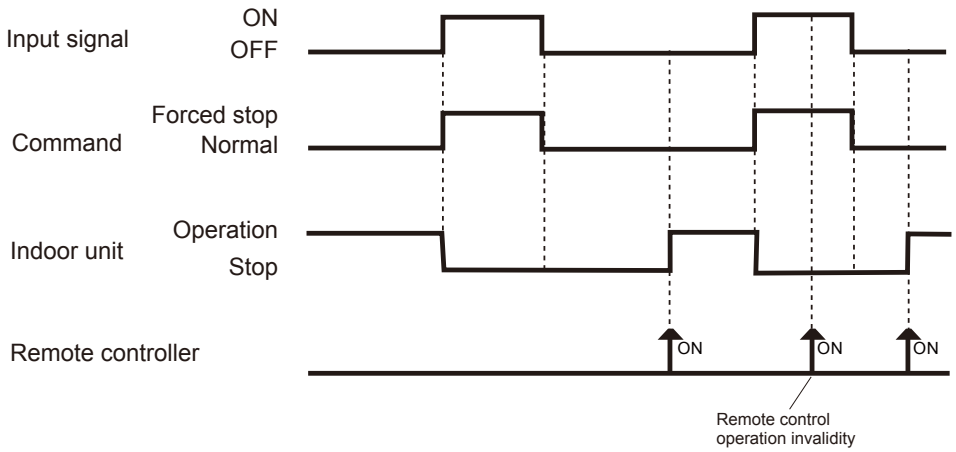


* Make the distance from the PC board to the connected unit within 10 m.
Contact capacity : 5VDC or more, 15mA or more.
Please use non-polar relays and switches.

• When function setting is in "Operation/Stop" mode



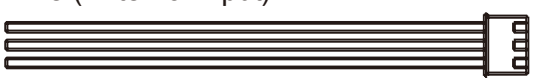
• When function setting is in "Forcrd stop" mode



● Parts (Optional)

Model name
UTD-ECS5A

Wire (External input)



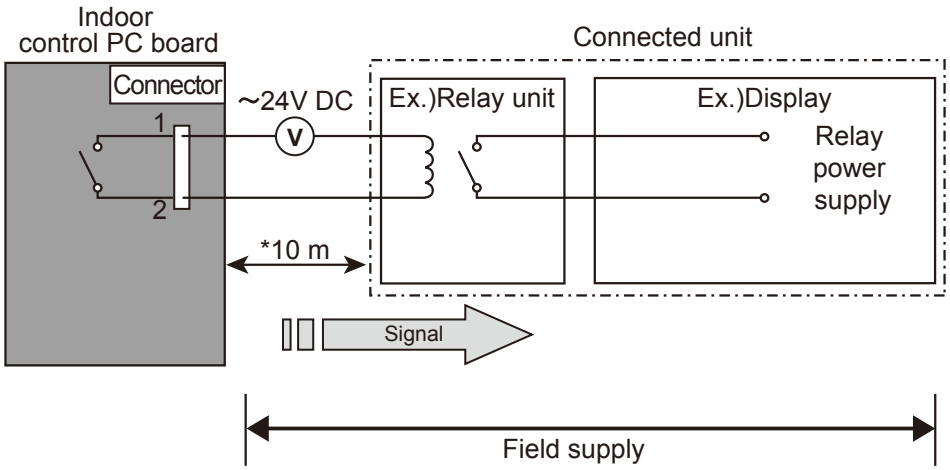
DUCT TYPE
AR∗G45-54LHTA

11-2. EXTERNAL OUTPUT

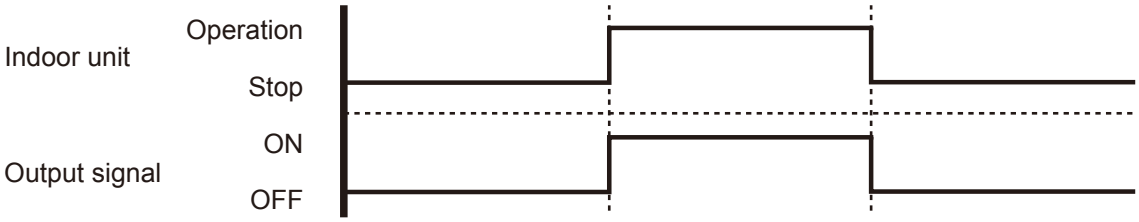
■ OPERATION STATUS OUTPUT

An air conditioner operation status signal can be output.

● Circuit diagram example



* Make the distance from the PC board to the connected unit within 10m.
Relay spec. : Max.24VDC, 10mA to less than 500mA.



● Parts (Optional)

Model name
UTD-ECS5A

Wire (External output)



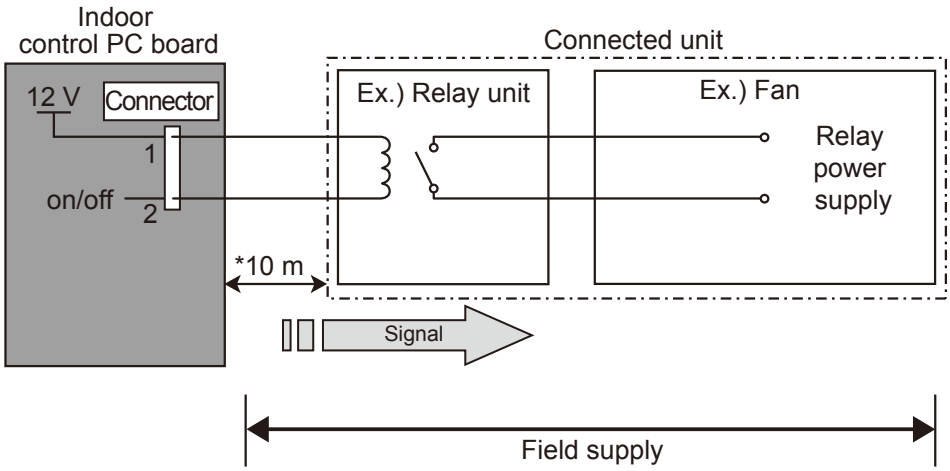
DUCT TYPE
AR∗G45-54LHTA

■ FRESH AIR CONTROL OUTPUT

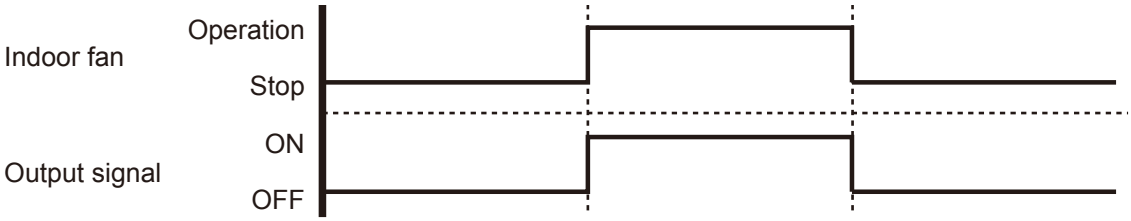
A signal linked to air conditioner indoor fan ON can be output.

* However, signal becomes OFF during cold air prevention control operation.

● Circuit diagram example



* Make the distance from the PC board to the connected unit within 10m.
Relay spec. : Rated 12VDC, 50mA or less.



● Parts (Optional)

Model name
UTD-ECS5A

Wire (Fresh air output)

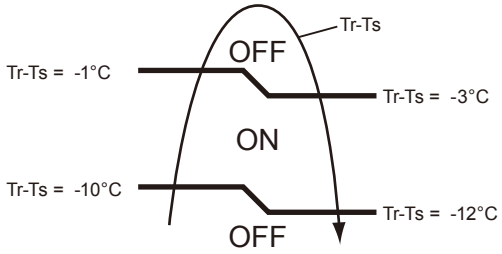


DUCT TYPE
AR∗G45-54LHTA

■ AUXILIARY HEATER OUTPUT

A signal is outputed from Connector when indoor fan and compressor is turned on under heating operation.

*Signal output performance specifications are as shown on the right.



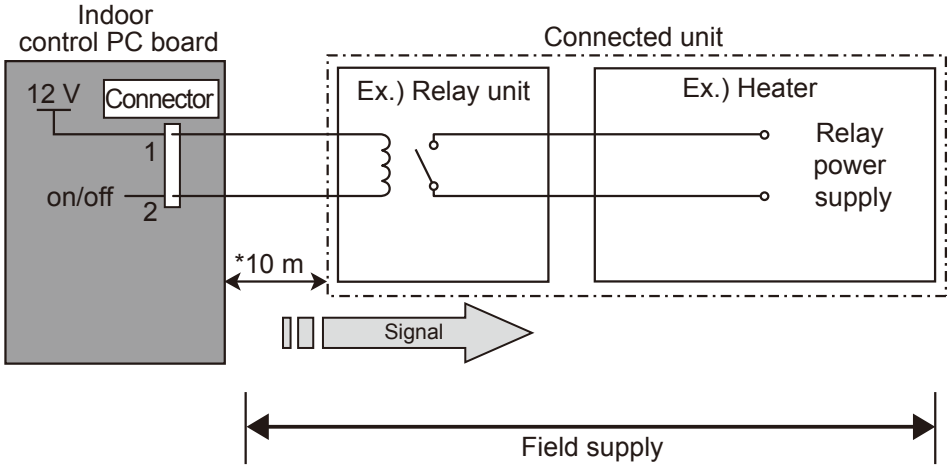
Ex. When Set Temperature(Ts) is 22°C;

- and Room Temperature(Tr) increase above 12°C, signal output is on.
- and Room Temperature(Tr) increase above 21°C, signal output is off.
- and Room Temperature(Tr) decrease below 19°C, signal output is on.
- and Room Temperature(Tr) decrease below 10°C, signal output is off.

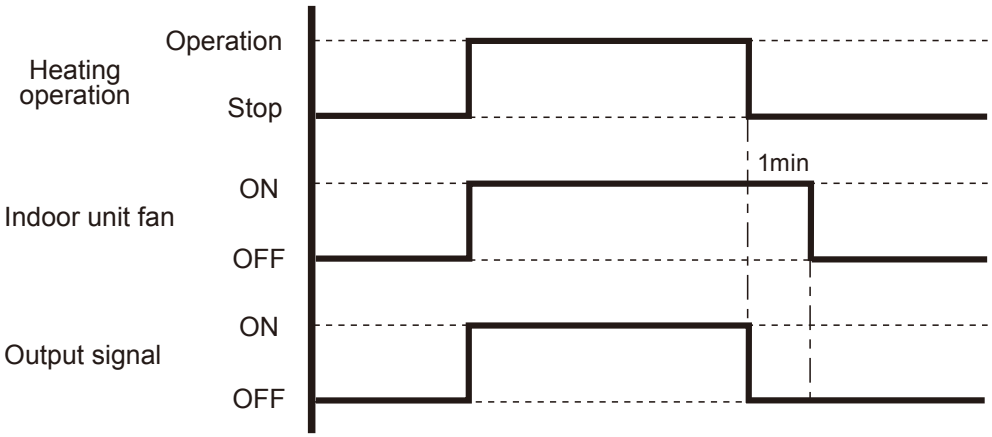
● Jumper wire (Indoor Unit)

This is used to continue indoor unit fan operation for 1 minute after thermo OFF in heating mode.
1 minute delay control set by cutting jumper wire on PCB.

● Circuit diagram example

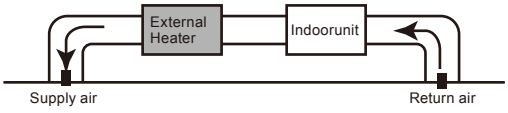


* Make the distance from the PC board to the connected unit within 10m.
Relay spec. : Rated 12VDC, 50mA or less.



⚠CAUTION

Please place an external a heater between the indoor unit and the ductwork.
Please be sure to use delay control of the fan.

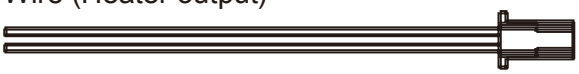


DUCT TYPE
AR∗G45-54LHTA

● Parts (Optional)

Model name
UTD-ECS5A

Wire (Heater output)



DUCT TYPE
AR∗G45-54LHTA

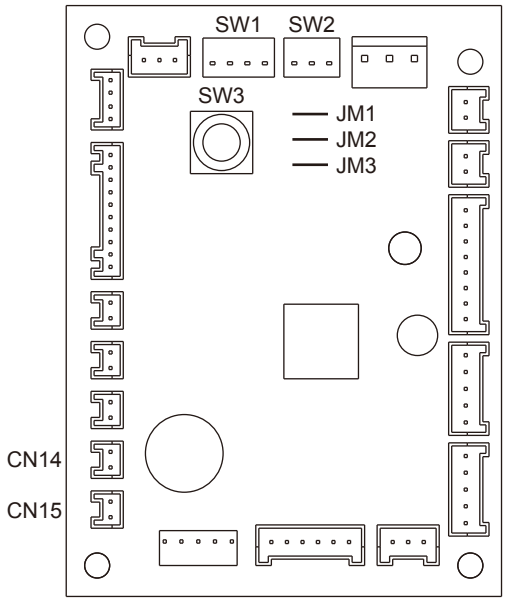
12. FUNCTION SETTINGS

12-1. INDOOR UNIT

INDOOR UNIT			
DIP SW	SW 1	1	Prohibited
		2	
		3	
		4	
	SW 2	1	
		2	
		3	
Rotary SW	SW 3		Remote controller address setting
Jumper Wire		JM 1	Prohibited
		JM 2	
		JM 3	Fan delay setting

■ SWITCH POSITION

Control PC board



DUCT TYPE
AR∗G45-54LHTA

■ ROTARY SWITCH SETTING

● Remote controller address setting (SW3)

This switch can be used when group control system. Set the remote controller address in the 1,2,-,15 order.

(◆. . .Factory setting)

	SW 3	SW state
◆	0	single
	1-15	Remote controller address

■ JUMPER WIRE SETTING

● JM1, 2 setting prohibited

● Fan delay setting (JM3)

When the indoor unit is stopped while operating in conjunction with auxiliary heater, the indoor unit fan operation will continue for one minute.

(◆. . .Factory setting)

		JM state
◆	Connect	Invalid
	Disconnect	Valid

DUCT TYPE
AR∗G45-54LHTA

12-2. INDOOR UNIT (Setting by remote controller)

- The function settings of the control of the indoor unit can be changed by this procedure according to the installation conditions. Incorrect settings can cause the indoor unit to malfunction.
- After the power is turned on, perform The Function Setting according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function Number or Setting Value.
- Settings will not be changed if invalid numbers or setting values are selected.

■ PREPARATION

● Turn on the power.

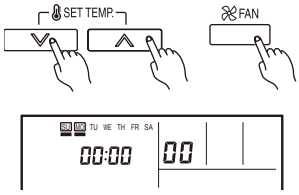
* Before turning on the power of the indoor units, make sure the piping air-tight test and vacuuming havebeen conducted.

* Also check again to make sure no wiring mistakes were made before turning on the power.

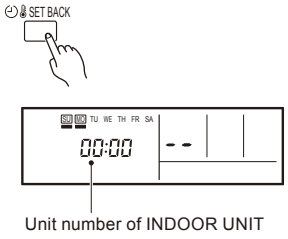
■ FUNCTION SETTING METHOD (for Wired remote controller)

● Setting method

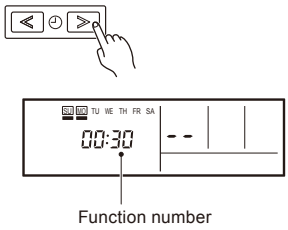
(1) Press the SET TEMP. buttons (∨) (∧) and FAN button simultaneously for more than 5 seconds to enter the function setting mode.



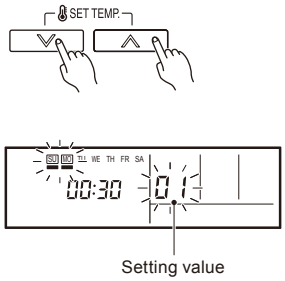
(2) Press the SET BACK button to select the indoor unit number.



(3) Press the Set time buttons to select the function number.



(4) Press the SET TEMP. buttons (∨) (∧) to select the setting value. The display flashes during setting value selection.



DUCT TYPE
AR∗G45-54LHTA

(5) Press the TIMER SET button to confirm the setting. Press the TIMER SET button for a few seconds until the setting value stops flashing. If the setting value display changes or if "- -" is displayed when the flashing stops, the setting value has not been set correctly. (An invalid setting value may have been selected for the indoor unit.)

(6) Repeat steps 2 to 5 to perform additional settings. Press the SET TEMP. buttons (⩛) (⩓) and FAN control button simultaneously again for more than 5 seconds to cancel the function setting mode. In addition, the function setting mode will be automatically canceled after 1 minute if no operation is performed.

(7) After completing the FUNCTION SETTING, be sure to turn off the power and turn it on again.

⚠CAUTION
• After turning off the power, wait 30 seconds or more before turning on it again. The Function Setting will not become active unless the power is turned off then on again.

■ CONTENTS FUNCTION SETTING

- Follow the instructions in the Local Setup Procedure, which is supplied with the remote control, in accordance with the installed condition.
  After the power is turned on, perform the Function Setting on the remote control.
- The settings may be selected between the following two: Function Number or Setting Value.
- Settings will not be changed if invalid numbers or setting values are selected.

1)	Filter sign
2)	Room temperature control for cooling
3)	Room temperature control for heating
4)	Auto restart
5)	Room temperature sensor switching
6)	Cool air prevention
7)	Remote controller custom code
8)	External input control
9)	Room temperature sensor switching (Aux.)

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).

(◆... Factory setting)

	Setting description	Function number	Setting value
	Standard (2500 hours)	11	00
	Long interval (5000 hours)		01
	Short interval (1250 hours)		02
◆	No indication		03

2) Room temperature control for cooling

Depending on the installed environment, correction of the room temperature sensor may be required.

Select the appropriate control setting according to the installed environment.

(◆... Factory setting)

	Setting description	Function number	Setting value
◆	Standard	30	00
	Higher control		01
	Slightly lower control		02
	Lower control		03

DUCT TYPE
AR∗G45-54LHTA

3) Room temperature control for heating

Depending on the installed environment, correction of the room temperature sensor may be required.

Select the appropriate control setting according to the installed environment.

(◆... Factory setting)

	Setting description	Function number	Setting value
◆	Standard	31	00
	Higher control		01
	Slightly higher control		02
	Lower control		03

4) Auto restart

Enable or disable automatic restart after a power interruption.

(◆... Factory setting)

	Setting description	Function number	Setting value
◆	Enable	40	00
	Disable		01

*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.

5) Room temperature sensor switching

(Only for wired remote controller)

When using the Wired remote controller temperature sensor, change the setting to "Both" (01).

(◆... Factory setting)

	Setting description	Function number	Setting value
◆	Indoor unit	42	00
	Both		01

00: Sensor on the indoor unit is active.

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

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

6) Cool air prevention

This setting is to disable the cold air prevention function during heating operation. When disabled, the fan setting will always follow the setting on the remote controller. (Excluding defrost mode)

(◆... Factory setting)

	Setting description	Function number	Setting value
◆	Enable	43	00
	Disable		01

DUCT TYPE
AR∗G45-54LHTA

7) Remote controller custom code

(Only for wireless remote controller)
The indoor unit custom code can be changed.
Select the appropriate custom code

(◆... Factory setting)

	Setting description	Function number	Setting value
◆	A	44	00
	B		01
	C		02
	D		03

8) External input control

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

(◆... Factory setting)

	Setting description	Function number	Setting value
◆	Operation/Stop mode	46	00
	(Setting prohibited)		01
	Forced stop mode		02

9) 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).

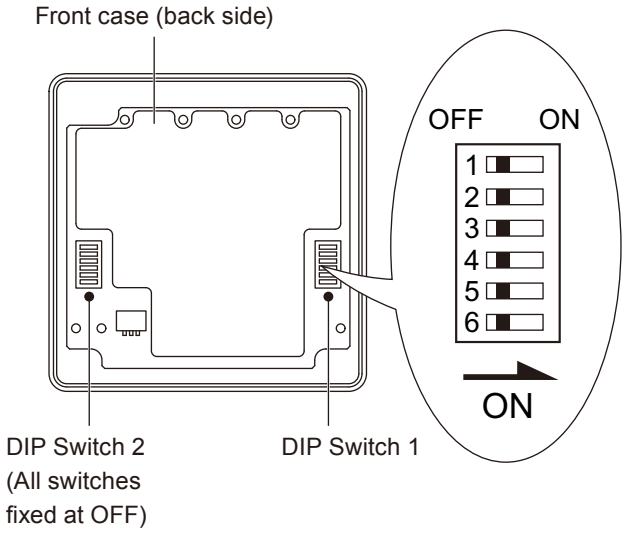
(◆... Factory setting)

	Setting description	Function number	Setting value
◆	Both	48	00
	Wired remote controller		01

DUCT TYPE
AR∗G45-54LHTA

12-3. WIRED REMOTE CONTROLLER

■ SWITCH POSITION



■ DIP SWITCH 1 SETTING

DIP Switch 1	SW1	Prohibited*
	SW2	Dual remote controller setting
	SW3	Prohibited*
	SW4	Prohibited*
	SW5	Prohibited*
	SW6	Memory backup setting

*Switches are fixed at OFF.

● Dual remote controller setting

Set the remote controller SW2 according to the following table.

(◆··· Factory setting)

	Number of remote controller	Primary unit	Secondary unit
		SW2	SW2
◆	1 (Normal)	OFF	—
	2 (Dual)	OFF	ON

● Memory backup setting

Set to ON to use batteries for the memory backup. If batteries are not used, all of the settings stored in memory will be deleted if there is a power failure.

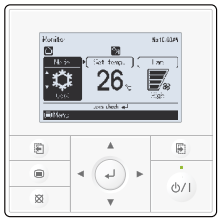
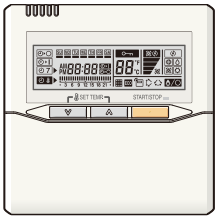
(◆··· Factory setting)

	SW6	Memory backup
◆	OFF	Invalidity
	ON	Validity

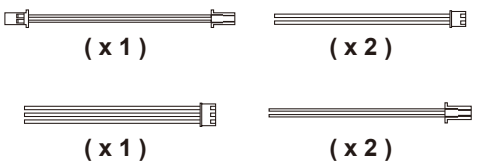
DUCT TYPE
AR∗G45-54LHTA

13. OPTIONAL PARTS

13-1. CONTROLLER

Exterior	Parts name	Model No.	Summary
	Wired remote controller	UTY-RVN∗M	Large and full-dot liquid crystal screen, wide and large keys easy to press, user-intuitive arrow key.
	Wired remote controller	UTY-RNN∗M	The room temperature can be controlled by detecting the temperature accurately with built-in thermo sensor.
	Simple remote controller	UTY-RSN∗M	Compact remote controller concentrates on the basic functions such as Start/Stop, Fan Control, Temperature Setting and Operation mode.

13-2. OTHERS

Exterior	Parts name	Model No.	Summary
	Remote sensor	UTY-XSZX	New amenity space can be offered by installing the **Remote sensor** in the remote controller.
	Long-life filter	UTD-LF60KA	Long- life filter can be mounted to the indoor unit.
 (x 1) (x 2) (x 1) (x 2)	External control set	UTD-ECS5A	Use to connect with various peripheral devices and air conditioner PC board. (Set of 6)

2. OUTDOOR UNIT

SINGLE TYPE :

AO∗G45LETL

AO∗G54LETL

DTR_AO136E_03
2014.05.16

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OUTDOOR UNIT
AO*G45-54LETL

OUTDOOR UNIT
AO∗G45-54LETL

1. FEATURE

■ FEATURES

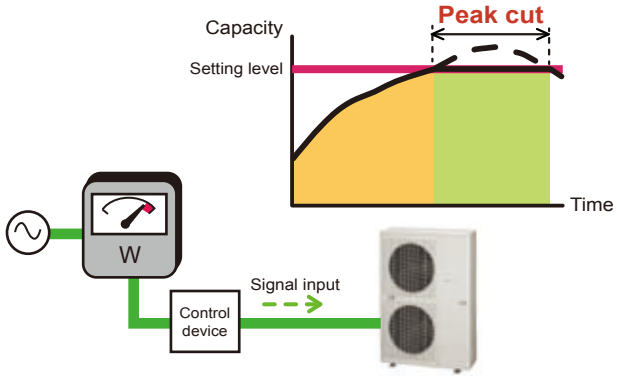
● Peak cut operation

Peak cut mode

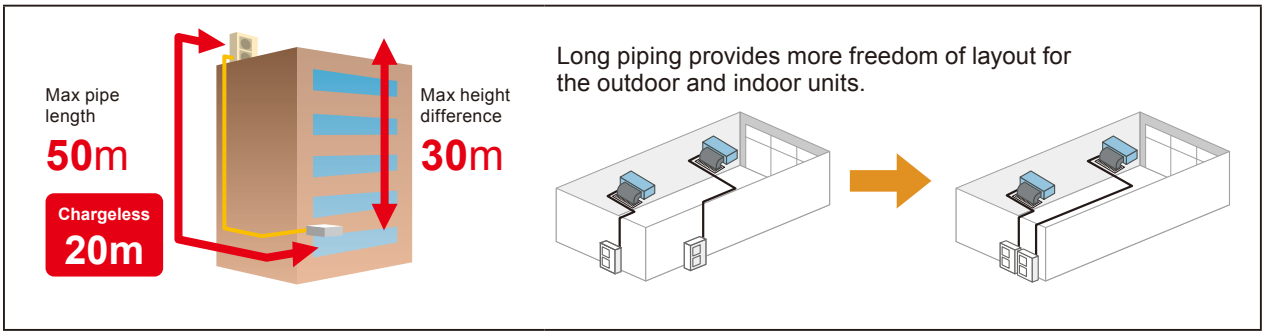
Suppresses maximum capacity to perform energy-saving operation, preventing breaker tripping.
This function operates by setting a peak current value and reducing the power consumption.

* Performance drops by reducing the power consumption preferentially.

Level 1 ... Suppresses the power consumption to almost 0% by stopping the compressor.
Level 2 ... Suppresses the power consumption to 50% of the rated power consumption value.
Level 3 ... Suppresses the power consumption to 75% of the rated power consumption value.
Level 4 ... Suppresses the power consumption to the rated power consumption value (100%).



● High installation capability long piping correspondence

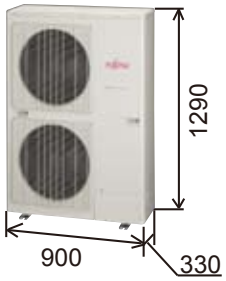


OUTDOOR UNIT
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● Space saving

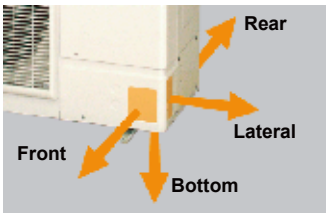
Compact size

High performance has been realized with a compact outdoor unit.
Due to the compact size, the space required for installation has been reduced, allowing a wider selection of installation locations.



● 4-direction piping connection

Piping is connectable in any of the four directions. The perfect route can be selected according to the installation.



● Low outdoor air temperature correspondence

Both cooling and heating operations can be performed when the outdoor air temperature is low.

Cooling -15 °C

Heating Dry-bulb -15 °C / Wet-bulb -20 °C

● External output (option)

Compressor status output

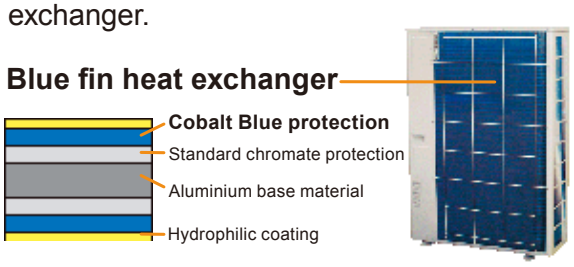
This output indicates the outdoor unit compressor status.

Error status output

This output indicates the Normal / Error status of the outdoor unit and connected indoor unit.

● Blue fin heat exchanger

Corrosion-resistance of the heat exchanger even in coastal areas has been improved by blue fin treatment of the outdoor unit heat exchanger.



● Service, maintenance

- "Error display" and "Operating information" can be explained by LED display.
- Pump down operation can be performed by one button during refrigerant recovery.



● Quiet operation

Low noise mode

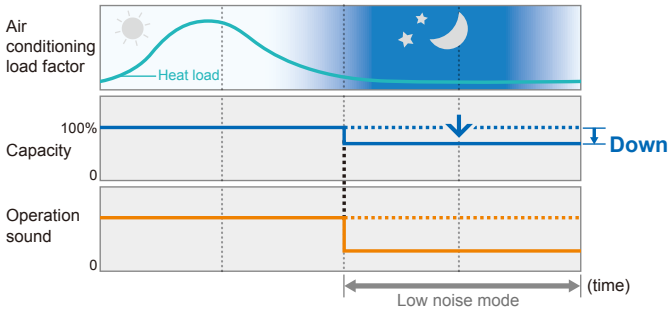
Suppresses operating sound.

This function suppresses the outdoor unit noise value to the following 2 levels.

* Performance may drop depending on the outside air temperature condition, etc.

Level 1 ... Rated noise value -2dB

Level 2 ... Rated noise value -4dB



2. SPECIFICATIONS

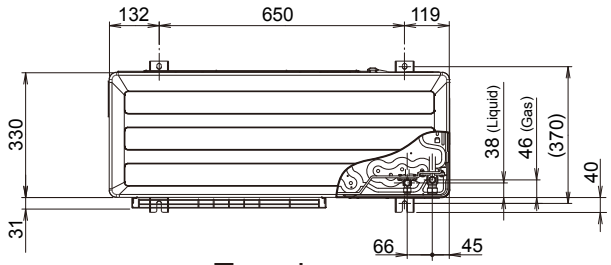
Model name					AO∗G45LETL	AO∗G54LETL
Power source					1Ø 230 V~ 50 Hz	
Available voltage range					198 - 264 V	
Starting current				A	18.9	20.9
Fan	Airflow rate	Cooling		(m^3/h)	6,750	6,750
		Heating			6,200	6,850
	Type × Q'ty				Propeller × 2	
	Motor output			W	104	104
Sound pressure level		Cooling		dB(A)	55	55
		Heating			55	57
Heat exchanger type		Dimensions (H × W × D)		mm	1260 × 900 × 36.4	
		Fin pitch			1.30	
		Rows x Stages			2 × 60	
		Pipe type			Copper	
		Fin type	Type (Material)		Corrugate (Aluminium)	
			Surface treatment		Corrosion resistance (Blue fin)	
Compressor	Type × Q'ty				Twin Rotary × 1	
	Motor output			W	2100	
Refrigerant		Type (Global Warming Potential)			R410A (1975)	
		Charge		g	3350	
Refrigerant oil		Type			RB68	
Enclosure		Material			Steel sheet	
		Colour			BEIGE (Approximate colour of MUNSELL 10YR 7.5 / 1.0)	
Dimensions (H×W×D)	Net			mm	1290 × 900 × 330	
	Gross				1430 × 1050 × 445	
Weight	Net			kg	86	
	Gross				94	
Connection pipe	Size	Liquid		mm	Ø 9.52 (Ø 3/8 in.)	
		Gas			Ø 15.88 (Ø 5/8 in.)	
	Method				Flare	
	Pre-charge length			m	20	
	Max. length				50	
	Max. height difference				30	
Operation range		Cooling		°C	-15 to 46	
		Heating			-15 to 24	

Note :
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.(Outdoor unit - Indoor unit)
The protective function may work when using it outside the operation range.

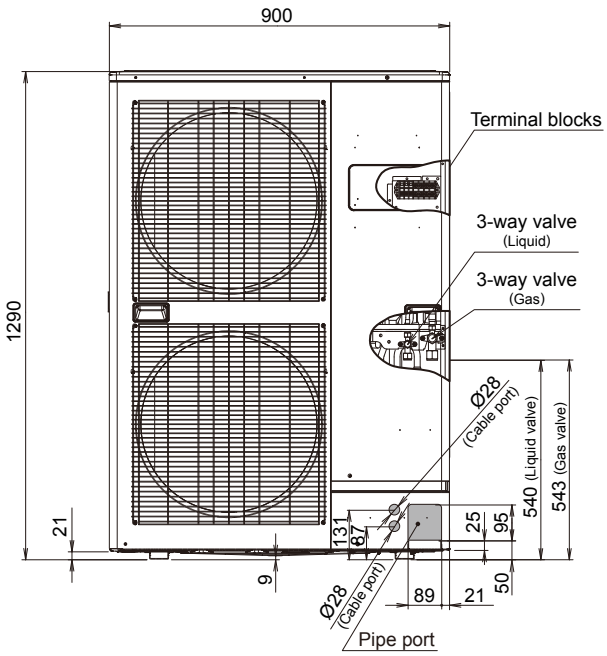
3. DIMENSIONS

■ MODELS: AO∗G45LETL, AO∗G54LETL

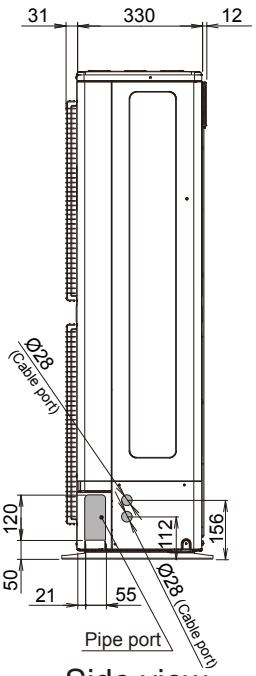
(Unit : mm)



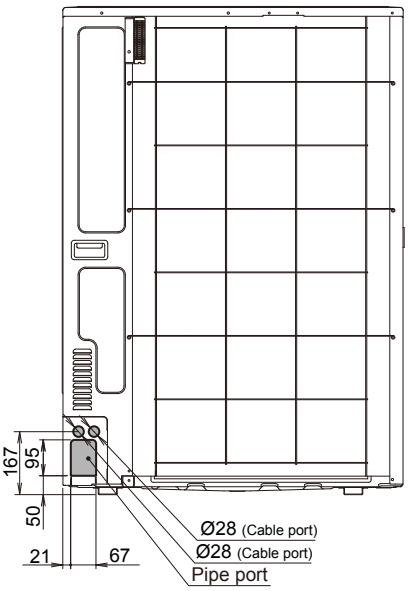
Top view



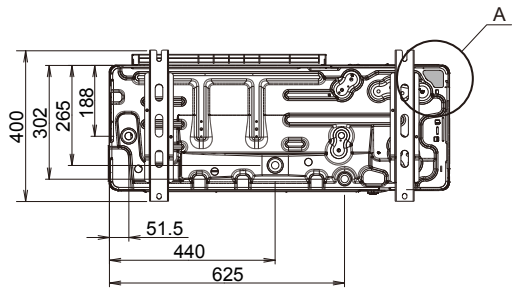
Front view



Side view

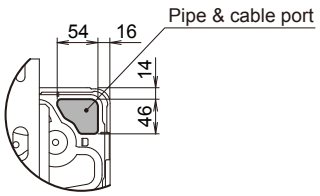


Rear view



Bottom view

Detail A



OUTDOOR UNIT
AO∗G45-54LETL

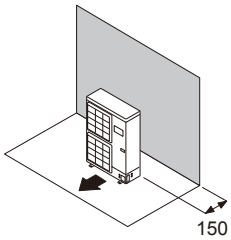
4. INSTALLATION PLACE

4-1. SINGLE OUTDOOR UNIT INSTALLATION

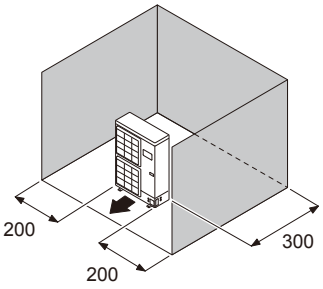
■ WHEN THE UPWARD AREA IS OPEN

(Unit : mm)

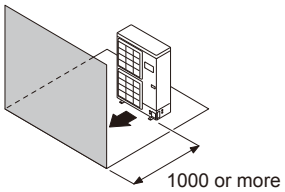
Obstacles at rear only



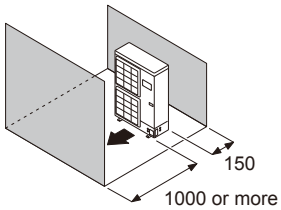
Obstacles at rear and sides only



Obstacles at front only



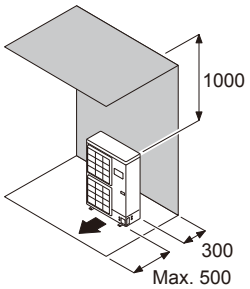
Obstacles at front and rear only



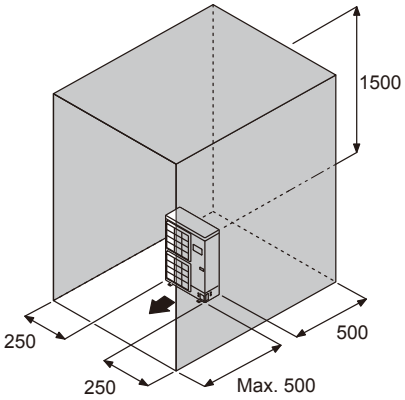
■ WHEN AN OBSTRUCTION IS PRESENT ALSO IN THE UPWARD AREA

(Unit : mm)

Obstacles at rear and above only



Obstacles at rear, sides, and above only



If the space is larger than stated, the condition will be the same as those without any obstacles.

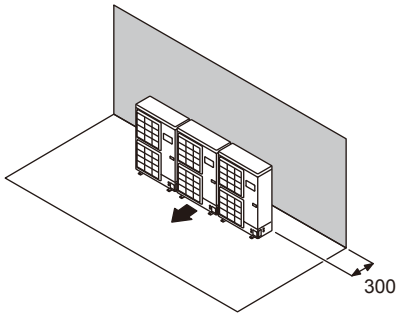
OUTDOOR UNIT
AO∗G45-54LETL

4-2. MULTIPLE OUTDOOR UNIT INSTALLATION

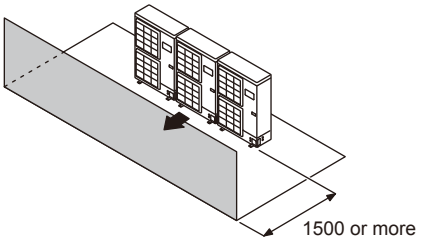
■ WHEN THE UPWARD AREA IS OPEN

(Unit : mm)

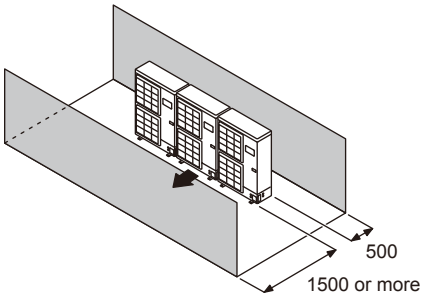
Obstacles at rear only



Obstacles at front only



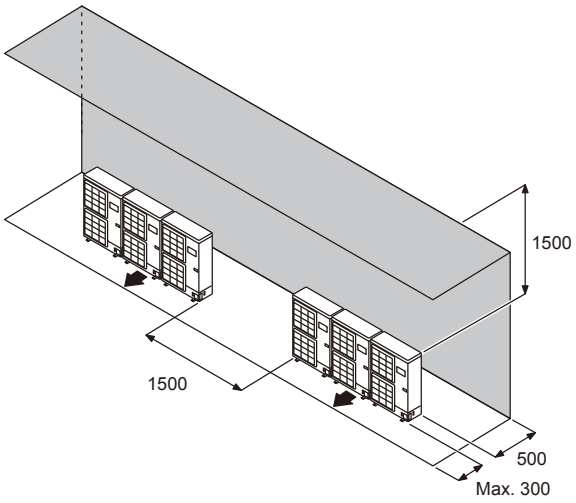
Obstacles at front and rear only



■ WHEN AN OBSTRUCTION IS PRESENT ALSO IN THE UPWARD AREA

(Unit : mm)

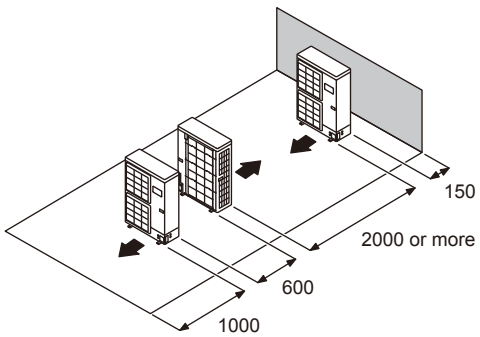
Obstacles at rear and above only



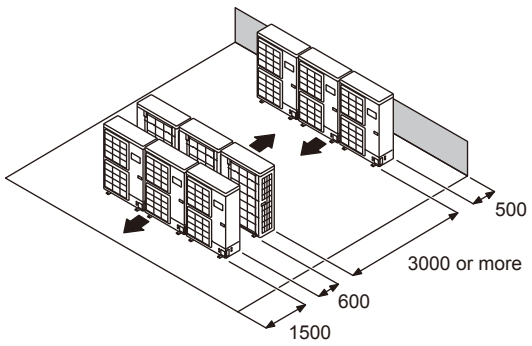
4-3. OUTDOOR UNIT INSTALLATION IN MULTI ROW

(Unit : mm)

Single parallel unit arrangement



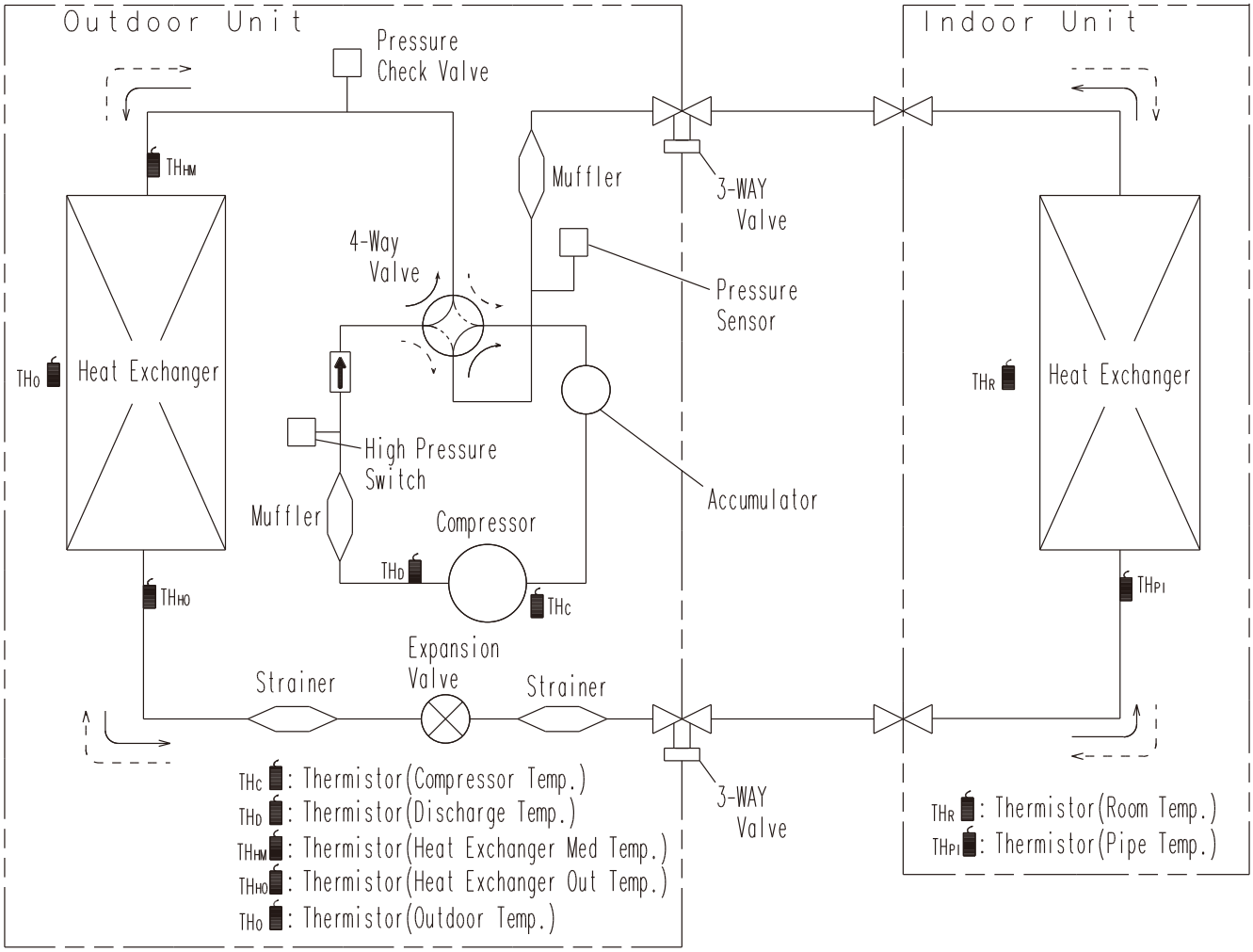
Multiple parallel unit arrangement



If the space is larger than stated, the condition will be the same as those without any obstacles.

5. REFRIGERANT CIRCUIT

■ MODELS: AO∗G45LETL, AO∗G54LETL



Refrigerant direction

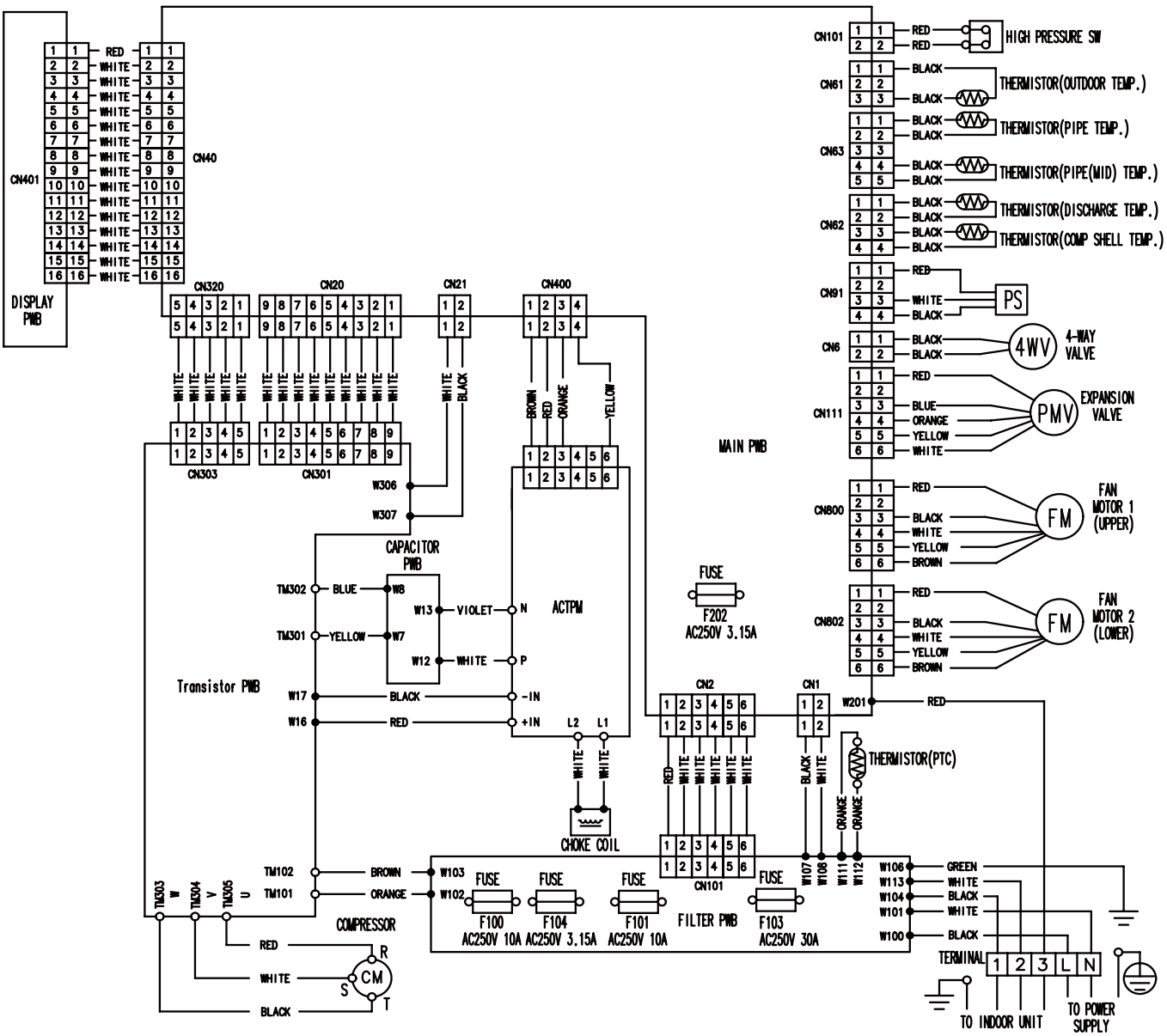
⟶ Cooling

- - -> Heating

Refrigerant pipe diameter
Liquid : 9.52mm (3/8")
Gas : 15.88mm (5/8")

6. WIRING DIAGRAMS

■ MODELS: AO*G45LETL, AO*G54LETL



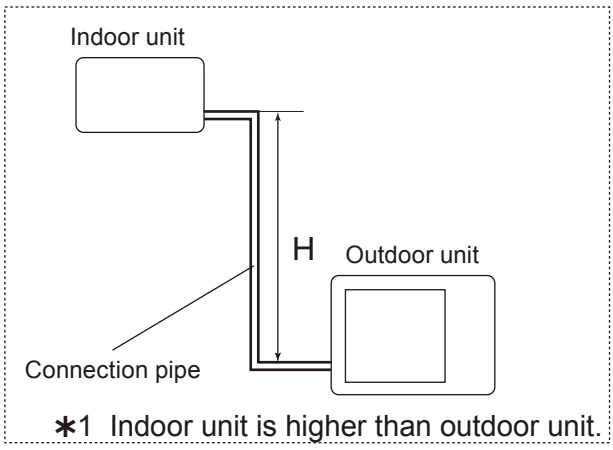
7. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

■ MODEL: AO∗G45LETL

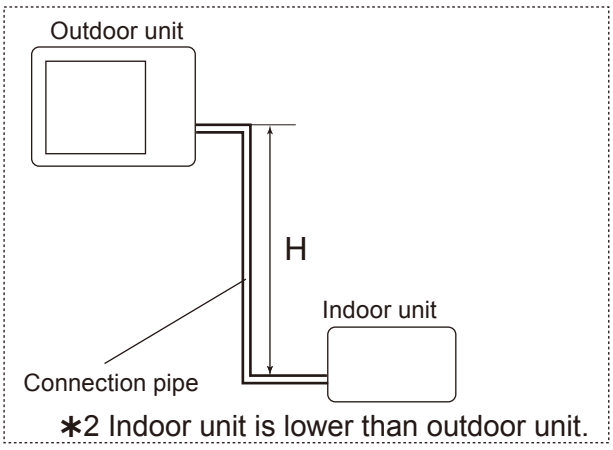
COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is higher than outdoor unit.	30	-	-	-	-	0.879	0.846	0.814
		20	-	-	-	0.926	0.893	0.861	0.828
		10	-	-	0.975	0.942	0.908	0.875	0.841
		7.5	-	0.988	0.979	0.946	0.912	0.878	0.845
		5	0.992	0.992	0.983	0.949	0.916	0.882	0.848
		0	1.000	1.000	0.991	0.957	0.923	0.889	0.855
	∗2 Indoor unit is lower than outdoor unit.	-5	1.000	1.000	0.991	0.957	0.923	0.889	0.855
		-7.5	-	1.000	0.991	0.957	0.923	0.889	0.855
		-10	-	-	0.991	0.957	0.923	0.889	0.855
		-20	-	-	-	0.957	0.923	0.889	0.855
		-30	-	-	-	-	0.923	0.889	0.855

HEATING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is higher than outdoor unit.	30	-	-	-	-	0.978	0.968	0.958
		20	-	-	-	0.988	0.978	0.968	0.958
		10	-	-	0.998	0.988	0.978	0.968	0.958
		7.5	-	1.000	0.998	0.988	0.978	0.968	0.958
		5	1.000	1.000	0.998	0.988	0.978	0.968	0.958
		0	1.000	1.000	0.998	0.988	0.978	0.968	0.958
	∗2 Indoor unit is lower than outdoor unit.	-5	0.998	0.995	0.993	0.983	0.973	0.963	0.953
		-7.5	-	0.993	0.991	0.981	0.971	0.961	0.951
		-10	-	-	0.988	0.978	0.968	0.958	0.948
		-20	-	-	-	0.968	0.958	0.949	0.939
		-30	-	-	-	-	0.949	0.939	0.929

Height difference H



∗1 Indoor unit is higher than outdoor unit.



∗2 Indoor unit is lower than outdoor unit.

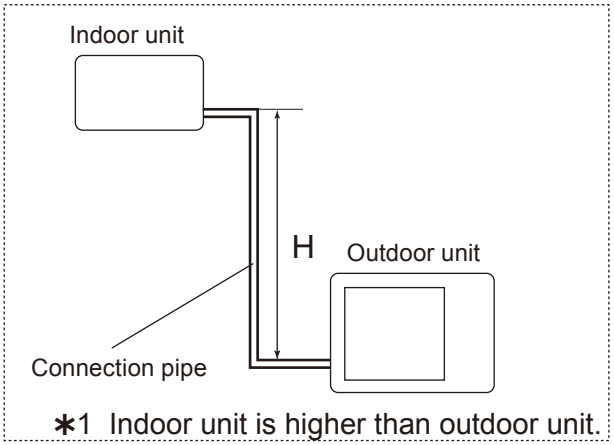
OUTDOOR UNIT
AO∗G45-54LETL

■ MODEL: AO∗G54LETL

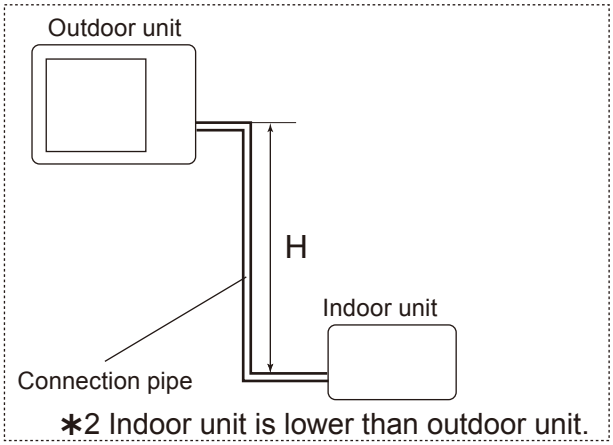
COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is higher than outdoor unit.	30	-	-	-	-	0.871	0.837	0.803
		20	-	-	-	0.921	0.886	0.851	0.816
		10	-	-	0.971	0.936	0.900	0.865	0.830
		7.5	-	0.988	0.975	0.940	0.904	0.868	0.833
		5	0.992	0.992	0.979	0.943	0.908	0.872	0.836
		0	1.000	1.000	0.987	0.951	0.915	0.879	0.843
	∗2 Indoor unit is lower than outdoor unit.	-5	1.000	1.000	0.987	0.951	0.915	0.879	0.843
		-7.5	-	1.000	0.987	0.951	0.915	0.879	0.843
		-10	-	-	0.987	0.951	0.915	0.879	0.843
		-20	-	-	-	0.951	0.915	0.879	0.843
		-30	-	-	-	-	0.915	0.879	0.843

HEATING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is higher than outdoor unit.	30	-	-	-	-	0.978	0.968	0.958
		20	-	-	-	0.988	0.978	0.968	0.958
		10	-	-	0.998	0.988	0.978	0.968	0.958
		7.5	-	1.000	0.998	0.988	0.978	0.968	0.958
		5	1.000	1.000	0.998	0.988	0.978	0.968	0.958
		0	1.000	1.000	0.998	0.988	0.978	0.968	0.958
	∗2 Indoor unit is lower than outdoor unit.	-5	0.998	0.995	0.993	0.983	0.973	0.963	0.953
		-7.5	-	0.993	0.991	0.981	0.971	0.961	0.951
		-10	-	-	0.988	0.978	0.968	0.958	0.948
		-20	-	-	-	0.968	0.958	0.949	0.939
		-30	-	-	-	-	0.949	0.939	0.929

Height difference H



∗1 Indoor unit is higher than outdoor unit.



∗2 Indoor unit is lower than outdoor unit.

8. ADDITIONAL CHARGE CALCULATION

■ MODELS: AO∗G45LETL, AO∗G54LETL

Refrigerant type		R410A
Refrigerant amount	g	3350

● Refrigerant Charge

Total pipe length	m	20 or less	30	40	50 (MAX)	40g/m
Additional charge	g	0	400	800	1200	

OUTDOOR UNIT
AO∗G45-54LETL

OUTDOOR UNIT
AO∗G45-54LETL

9. AIR FLOW

■ MODELS: AO∗G45LETL, AO∗G54LETL

● Cooling

MODEL		Number of rotations (r.p.m.)	Air flow	
AO∗G45LETL	Upper fan	850	m^3/h	6750
			l/s	1875
	Lower fan	800	CFM	3974
AO∗G54LETL	Upper fan	850	m^3/h	6750
			l/s	1875
	Lower fan	800	CFM	3974

● Heating

MODEL		Number of rotations (r.p.m.)	Air flow	
AO∗G45LETL	Upper fan	780	m^3/h	6200
			l/s	1722
	Lower fan	750	CFM	3650
AO∗G54LETL	Upper fan	850	m^3/h	6850
			l/s	1903
	Lower fan	830	CFM	4033

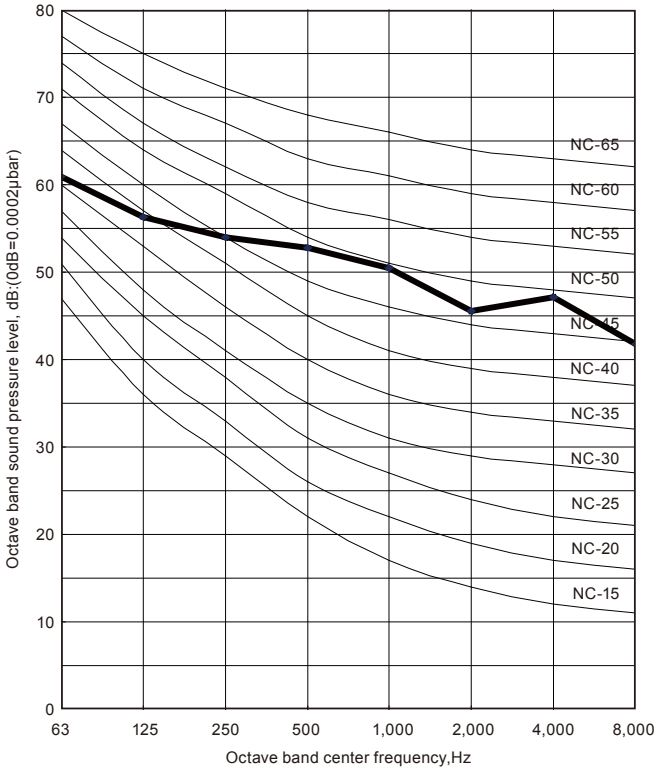
OUTDOOR UNIT
AO∗G45-54LETL

10. OPERATION NOISE (SOUND PRESSURE)

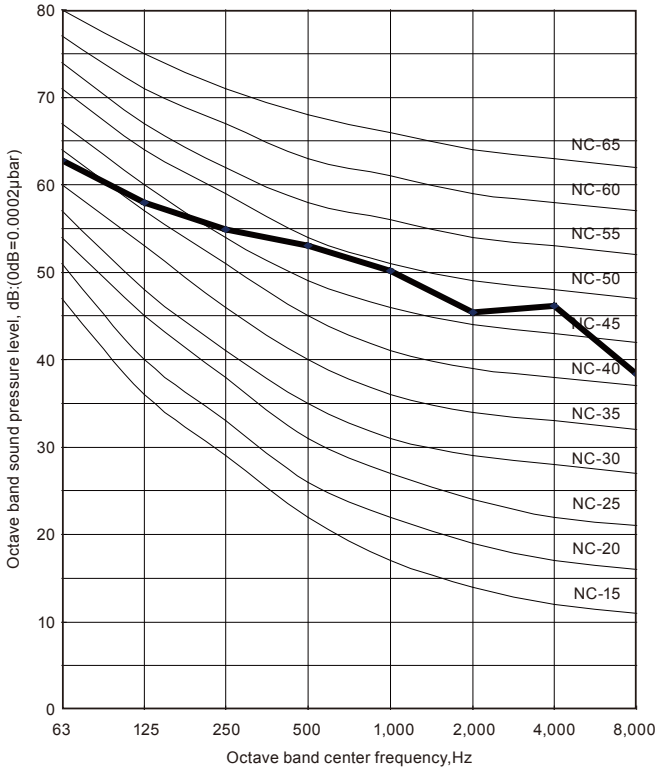
10-1. NOISE LEVEL CURVE

■ MODEL: AO∗G45LETL

● Cooling

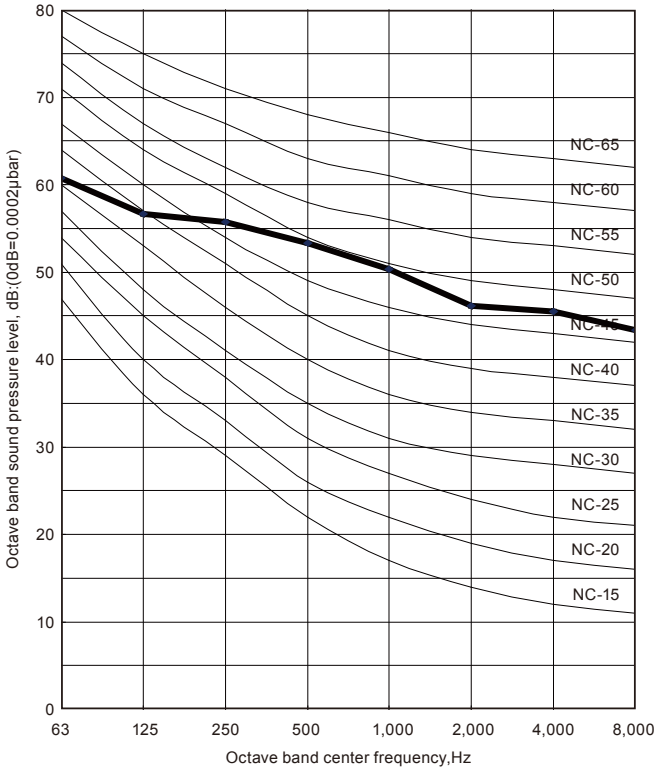


● Heating

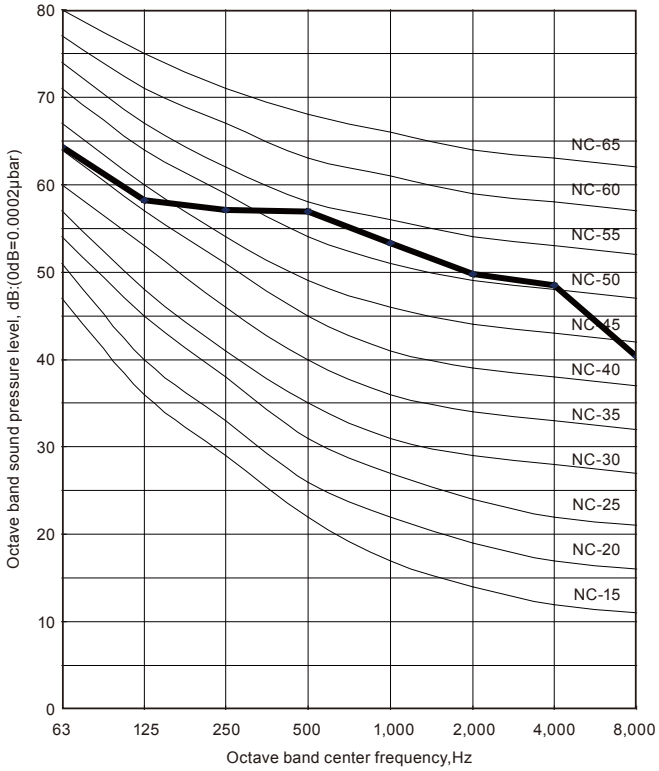


■ MODEL: AO∗G54LETL

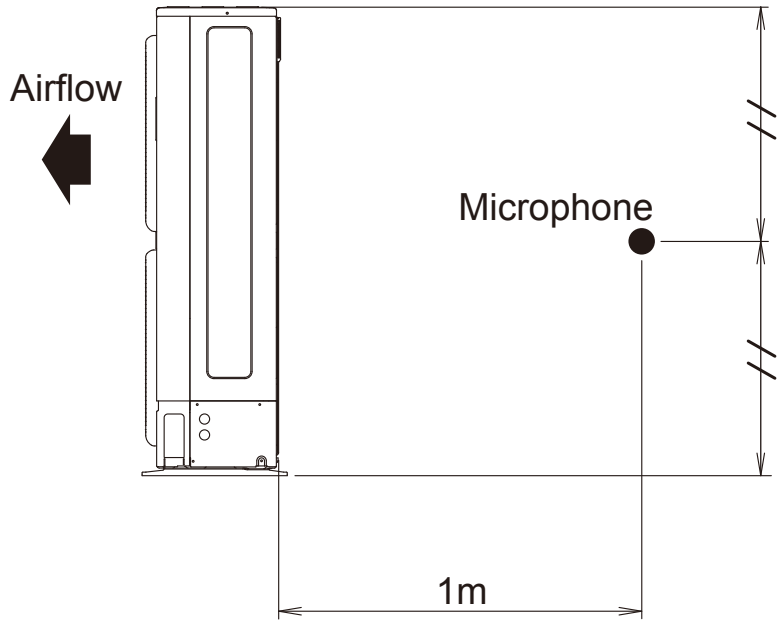
● Cooling

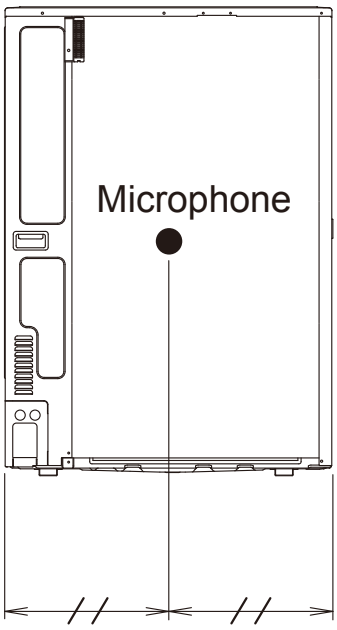


● Heating



10-2. SOUND LEVEL CHECK POINT





OUTDOOR UNIT
AO∗G45-54LETL

11. ELECTRIC CHARACTERISTICS

Model name			AO∗G45LETL	AO∗G54LETL
Power supply	Voltage	V	230 ~	
	Frequency	Hz	50	
*1) Max. operating current		A	22.5	23.5
*2) Wiring spec.	Circuit breaker current	A	30	
	Power cable	mm^2	6.0	

*1) The maximum current is the total current of indoor unit and outdoor unit.

*2) Wiring spec. :
Selected sample
(Selected based on Japan Electrotechnical Standards and Codes Committee E0005)

OUTDOOR UNIT
AO∗G45-54LETL

12. SAFETY DEVICES

	Protection form	Model	
		AO∗G45LETL	AO∗G54LETL
Circuit protection	Current fuse (Filter printed circuit board)	250V 30A, 250V 10A x2, 250V 3.15A	
	Current fuse (Main printed circuit board)	250V 3.15A	
Fan motor protector	Thermal protector	OFF : 150±15°C ON : 120±15°C	
Compressor protection	Thermal protection program (Compressor temp.)	OFF : 108°C ON : 80°C	
	Thermal protection program (Discharge temp.)	OFF : 110°C ON : After 7 minutes	
High pressure protection	Pressure switch	OFF : 4.2±0.1MPa ON : 3.2±0.15MPa	
Low pressure protection	Pressure sensor	OFF : 0.12MPa ON : 0.15MPa	

OUTDOOR UNIT
AO∗G45-54LETL

13. EXTERNAL INPUT & OUTPUT

Input	Output	Connector	Remarks
Low noise mode	—	CN10	See external input/output settings for details.
Peak cut mode	—	CN11	
—	Error status	CN12	
—	Compressor status	CN13	

OUTDOOR UNIT
AO*G45-54LETL

13-1. EXTERNAL INPUT

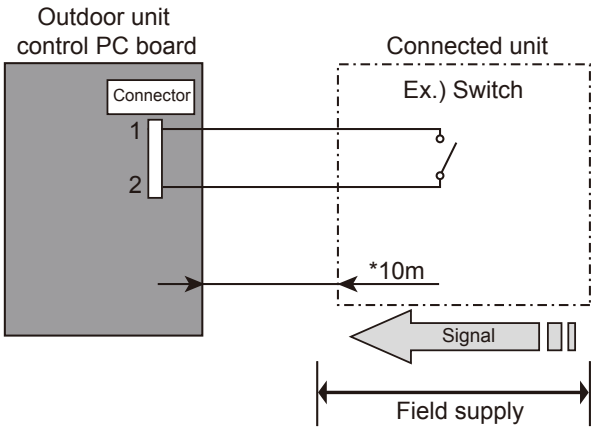
ON/OFF of the "Low noise mode" and "Peak cut mode" functions can be specified by external signal.

■ LOW NOISE MODE

- The following reduces the operating sound of the outdoor unit from the normal sound. 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 outdoor control PC board.

* Performance may drop depending on the outside air temperature condition, etc.

● Circuit diagram example

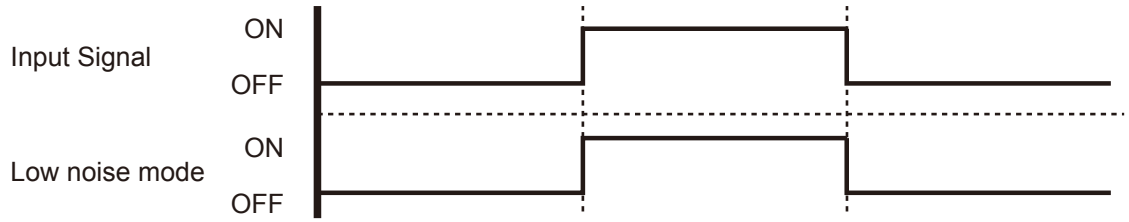


Contact capacity : 24VDC or more, 10mA or more.

* Make the distance from the PC board to the connected unit within 10m.

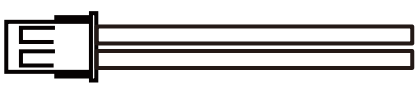
- Use the following parts and construct a circuit as shown above.
- Input Signal···ON : Low noise mode, Input Signal···OFF : Normal operation

*To set the "Low noise mode" level, refer to "13.FUNCTION SETTINGS".



● Parts (Optional)

Parts name	External connect kit
Model name	UTY-XWZXZ3

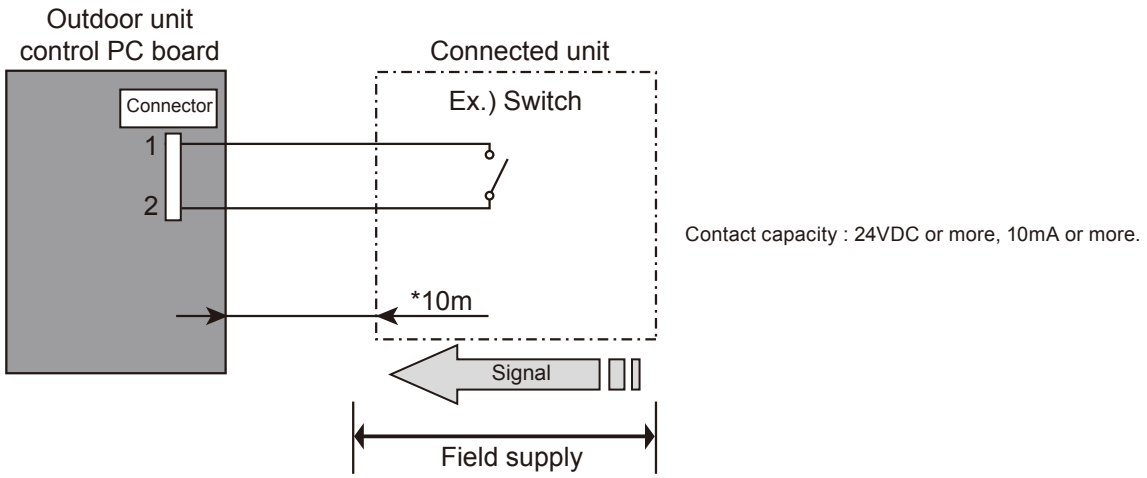


OUTDOOR UNIT
AO∗G45-54LETL

■ PEAK CUT MODE

• Operation that suppressed the current value can be performed by means of the following on-site work. The air conditioner is set to the Peak cut mode when closing the contact input of a commercial ON/OFF switch to a connector on the outdoor control PC board.

● Circuit diagram example

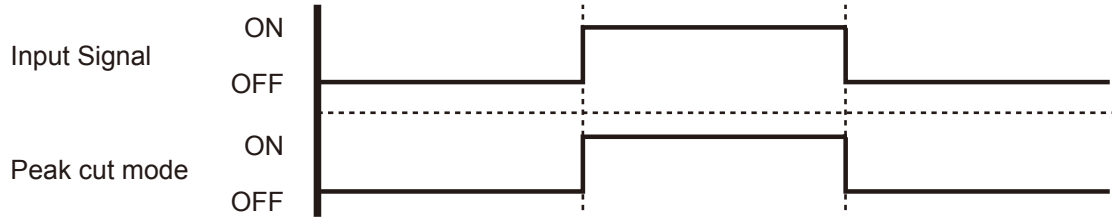


* Make the distance from the PC board to the connected unit within 10m.

• Use the following parts and construct a circuit as shown above.

• Input Signal···ON : Peak cut mode, Input Signal···OFF : Normal operation

*To set the "Peak cut mode" level, refer to "13.FUNCTION SETTINGS".



● Parts (Optional)

Parts name	External connect kit
Model name	UTY-XWZXZ3



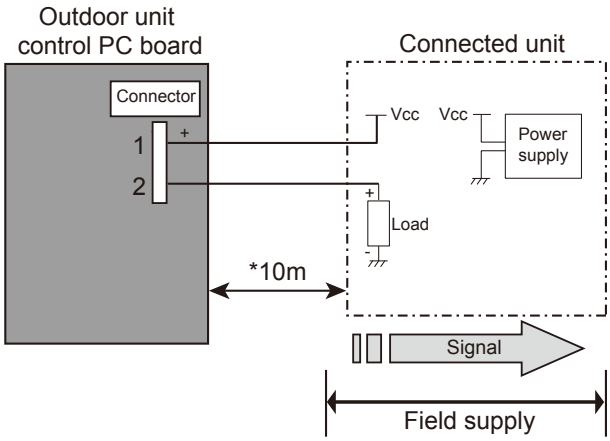
OUTDOOR UNIT
AO∗G45-54LETL

13-2. EXTERNAL OUTPUT

■ ERROR STATUS OUTPUT

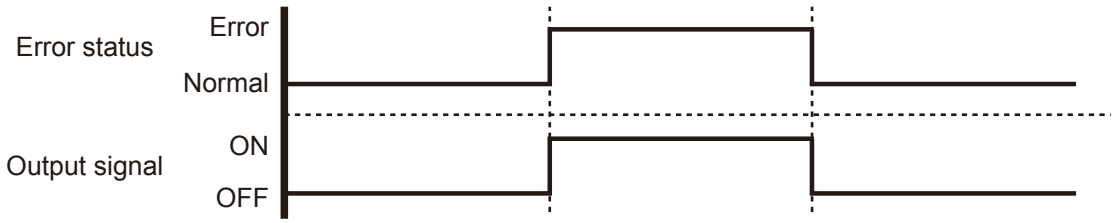
• An air conditioner error status signal is produced when a malfunction occurs.

● Circuit diagram example



1) Power supply
●Voltage (Chart sign=Vcc) : DC 24V or less
2) Load
●Load : DC 500mA or less is recommended

* Make the distance from the PC board to the connected unit within 10m.



● Parts (Optional)

Parts name	External connect kit
Model name	UTY-XWZXZ3

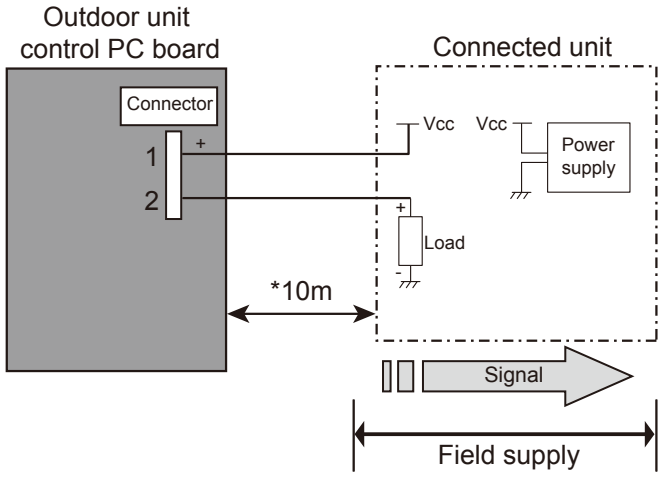


OUTDOOR UNIT
AO∗G45-54LETL

■ COMPRESSOR STATUS OUTPUT

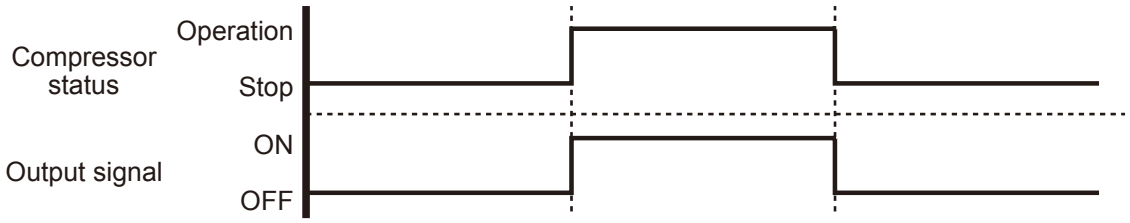
• Compressor operation status signal is produced when the compressor is running.

● Circuit diagram example



1) Power supply
●Voltage (Chart sign=Vcc) : DC 24V or less
2) Load
●Load : DC 500mA or less is recommended

* Make the distance from the PC board to the connected unit within 10m.



● Parts (Optional)

Parts name	External connect kit
Model name	UTY-XWZXZ3



14. FUNCTION SETTINGS

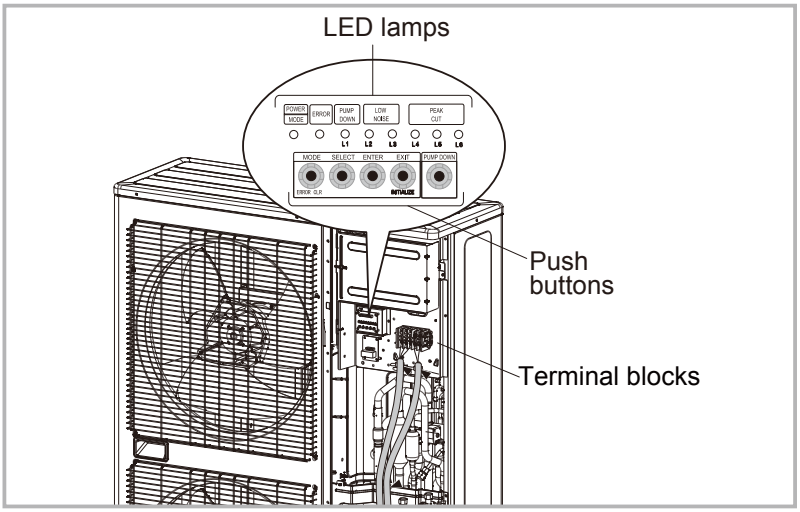
⚠ Caution

Discharge the static electricity from your body before setting up the push buttons.

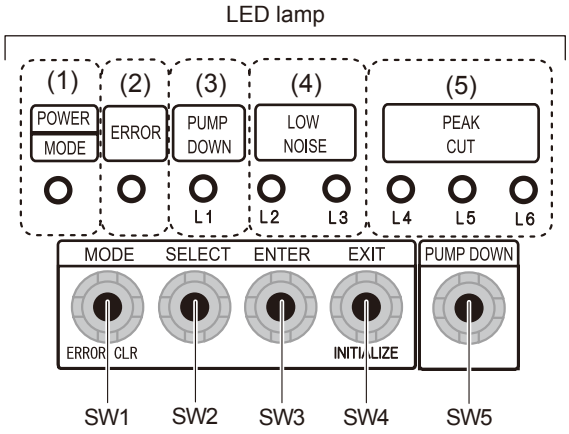
Never touch the terminals or the patterns on the parts that are mounted on the board.

14-1. FIELD SETTING SWITCHES

The positions of the switches on the outdoor unit control board are shown in the figure below.



■ FUNCTIONS



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

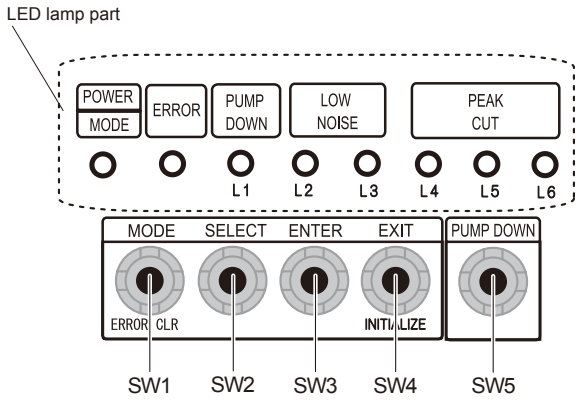
Button		Function or operation method
SW1	MODE	To switch between “Local setting” and “Error code display”.
SW2	SELECT	To switch between the individual “Local settings” and the “Error code displays”.
SW3	ENTER	To fix between the individual “Local settings” and the “Error code displays”.
SW4	EXIT	To return to “Operation status display”.
SW5	PUMP DOWN	To start the pump down operation.

OUTDOOR UNIT
AO∗G45-54LETL

14-2. SETTING METHOD

※ Stop the operation of air conditioner before this setting.

14-2-1. LOW NOISE MODE



(1) Switch to “Local setting mode” by pressing [MODE] button (SW1) for 3 seconds or more.

(2) Confirm that the (POWER / MODE) blinks 9 times, then press [ENTER] button (SW3).

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

Sign “ ○ ” : Lights off

(3) Press [SELECT] button (SW2), and adjust LED lamp as shown below. (Current setting is displayed)

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

(4) Press [ENTER] button (SW3).

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

Sign “ ● ” : Lights on

(5) Press [SELECT] button (SW2), and adjust LED lamp as shown in below figure.

	PEAK CUT (L4)	(L5)	(L6)
MODE 1: Rated noise value -2dB	○	○	Blink
MODE 2: Rated noise value -4dB	○	Blink	○

The noise of MODE2 is lower than that of MODE1.

(6) Press [ENTER] button (SW3) to fix it.

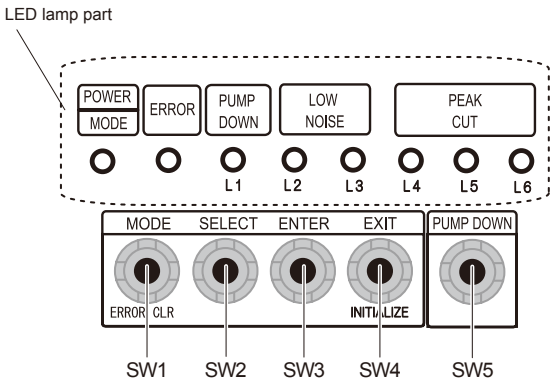
	PEAK CUT (L4)	(L5)	(L6)
MODE 1: Rated noise value -2dB	○	○	●
MODE 2: Rated noise value -4dB	○	●	○

(7) Return to “Operating status display (Normal operation)” by pressing [EXIT] button (SW4).

• To restart the setting during the process, return to "Operating status display (Normal operation)" by pressing the [EXIT] button once.

OUTDOOR UNIT
AO∗G45-54LETL

14-2-2. PEAK CUT MODE



(1) Switch to “Local setting mode” by pressing [MODE] button (SW1) for 3 seconds or more.

(2) Confirm that the (POWER / MODE) blinks 9 times, then press [ENTER] button (SW3).

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

Sign “ ○ ” : Lights off

(3) Press [SELECT] button (SW2), and adjust LED lamp as shown below. (Current setting is displayed)

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

(4) Press [ENTER] button (SW3).

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

Sign “ ● ” : Lights on

(5) Press [SELECT] button (SW2), and adjust LED lamp as shown in below figure.

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

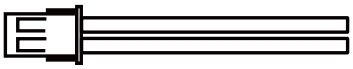
(6) Press [ENTER] button (SW3) to fix it.

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

(7) Return to “Operating status display (Normal operation)” by pressing [EXIT] button (SW4).

- To restart the setting during the process, return to "Operating status display (Normal operation)" by pressing the [EXIT] button once.

15. OPTIONAL PARTS

Exterior	Parts name	Model No.	Summary
	External connect kit	UTY-XWZXZ3	Use to operate the External input and output function of Outdoor unit.

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