Refrigerant R410A

INVERTER

AIR CONDITIONER

Duct type

DESIGN & TECHNICAL MANUAL

INDOOR

AR∗G45LMLA

OUTDOOR

AO∗G45LETL

FUJITSU GENERAL LIMITED

1.INDOOR UNIT

DUCT TYPE :

AR∗G45LMLA

DTR_AR065E_01
2013.02.22

DUCT TYPE
AR∗G45LMLA

CONTENTS

1. INDOOR UNIT

1. FEATURES

■ MODELS

AR∗G45LMLA / AO∗G45LETL

■ FEATURES

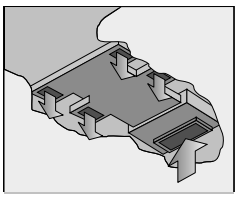
● Energy saving

High energy saving was realized converting indoor unit/outdoor unit fan motors and compressor to ALL DC, and also by optimal design of the refrigerant cycle.

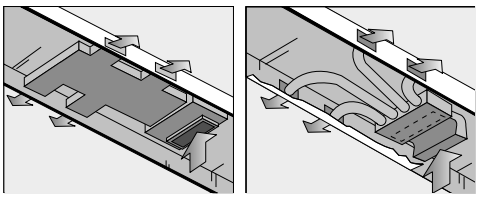
● Flexible installation

A high installation of degree of freedom according to the construction of the ceiling.

Embedded in Ceiling

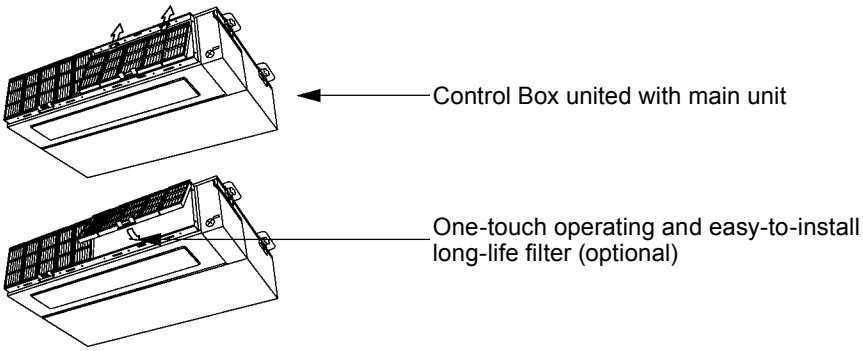


Hanging from Ceiling



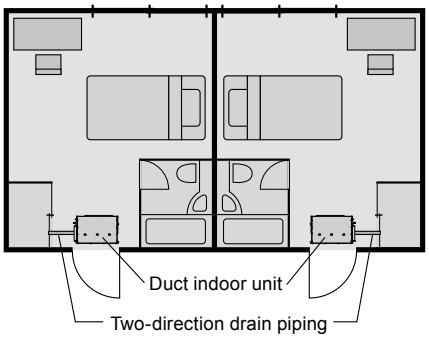
● Slim & compact design

In the case of bottom suction type, as seen from lower rear part.



In addition to the slim height of 270 mm, further compactification is attained by reducing 65 mm from the width with the flanking control box embedded inside the chassis.

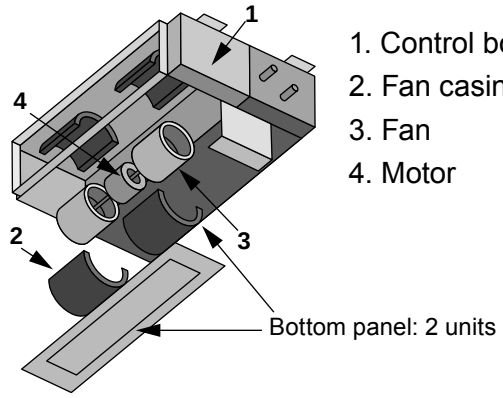
● Two-direction on drain piping



DUCT TYPE
AR∗G45LMLA

● Easy maintenance

It can easily access the fan and the motor by the divided panel structure.



1. Control box
2. Fan casing
3. Fan
4. Motor

Structural improvement is attained by making the bottom panel two pieces, front and rear.

The internal fan casing is also manufactured in two pieces, namely upper and lower. The maintenance of the motor and fan can be easily carried out by removing the rear panel and the lower part of the casing while leaving the main chassis installed.

● Quiet operation

Quiet operation at 28dB(A) is possible in quiet mode.

● Economy operation

The power consumption can be reduced.

■ FUNCTION SETTING

● Static pressure mode setting

Air flow, noise, etc. can be used under the optimum conditions by selecting the static pressure mode matched to the installation conditions.

● Room temperature sensor switching

The sensor judging the room temperature is switchable from the sensor attached to the indoor unit, to the sensor attached to the wired remote controller.

● Auto restart

The units restart automatically when the current was returned even when there was a power interruption during operation.

● Cooling room temperature correction

● Heating room temperature correction

DUCT TYPE
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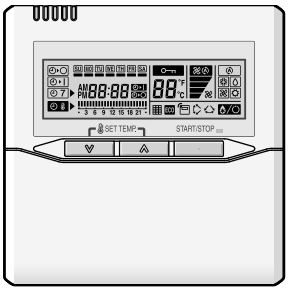
2. WIRED REMOTE CONTROLLER

■ 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

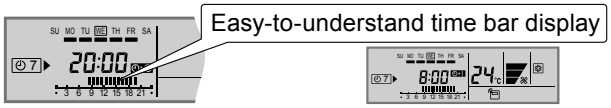
Three functions are combined in one unit.

Wired remote controller + Weekly timer + Setback timer

● Built-in timers

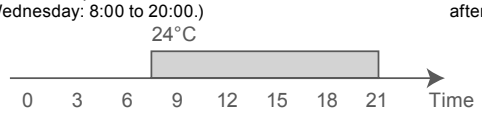
Weekly timer

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



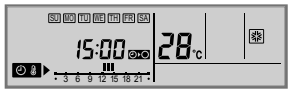
Setup screen example
(Set to Wednesday: 8:00 to 20:00.)

Screen after setup

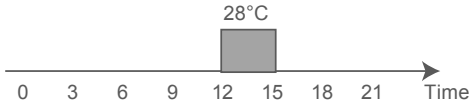


Setback timer

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

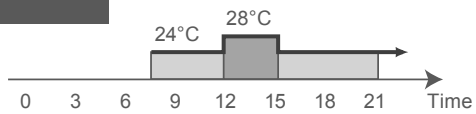


Setup screen example
(Set from Sunday to Saturday: 12:00 to 15:00, 28 °C.)

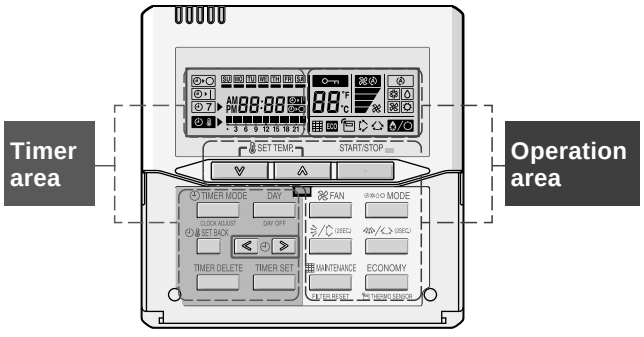


At "Weekly timer" + "Set back timer" setup

24°C → 28°C → 24°C



● Easy-to-understand operation

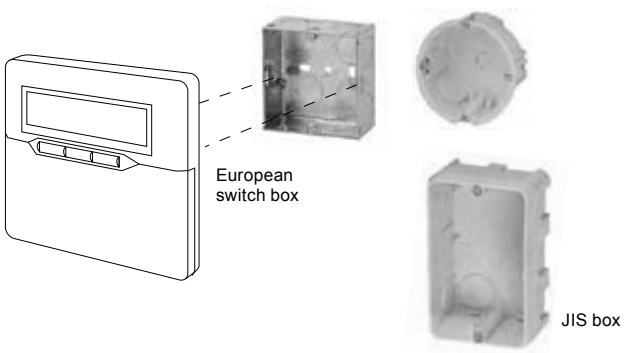


[Variable timer control]

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

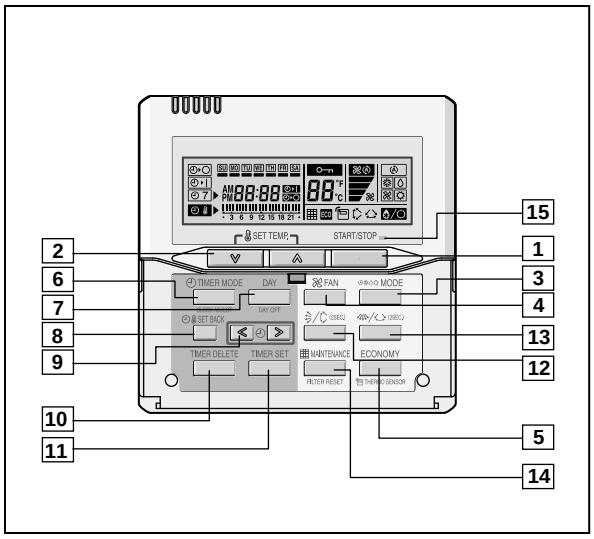
● Simple installation

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

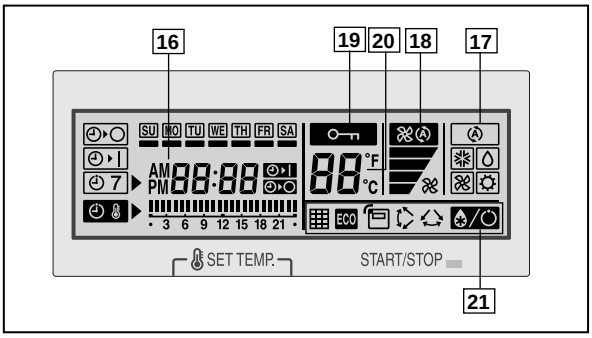


DUCT TYPE
AR∗G45LMLA

■ 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, QUIET, LOW, MED, HIGH).

5 **ECONOMY (THERMO SENSOR) 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**

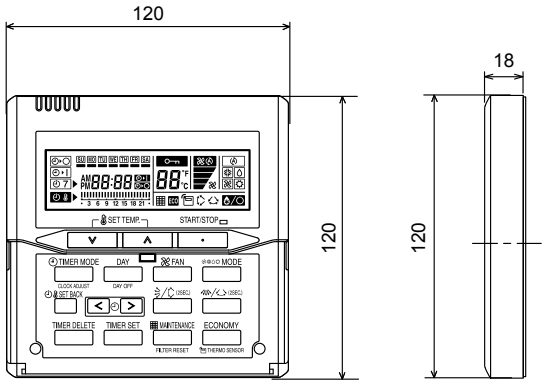
21 **Function display**

- 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.

■ DIMENSION

[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 (22AWG)	Polar 3 core	Use sheathed PVC cable.

3. SPECIFICATIONS

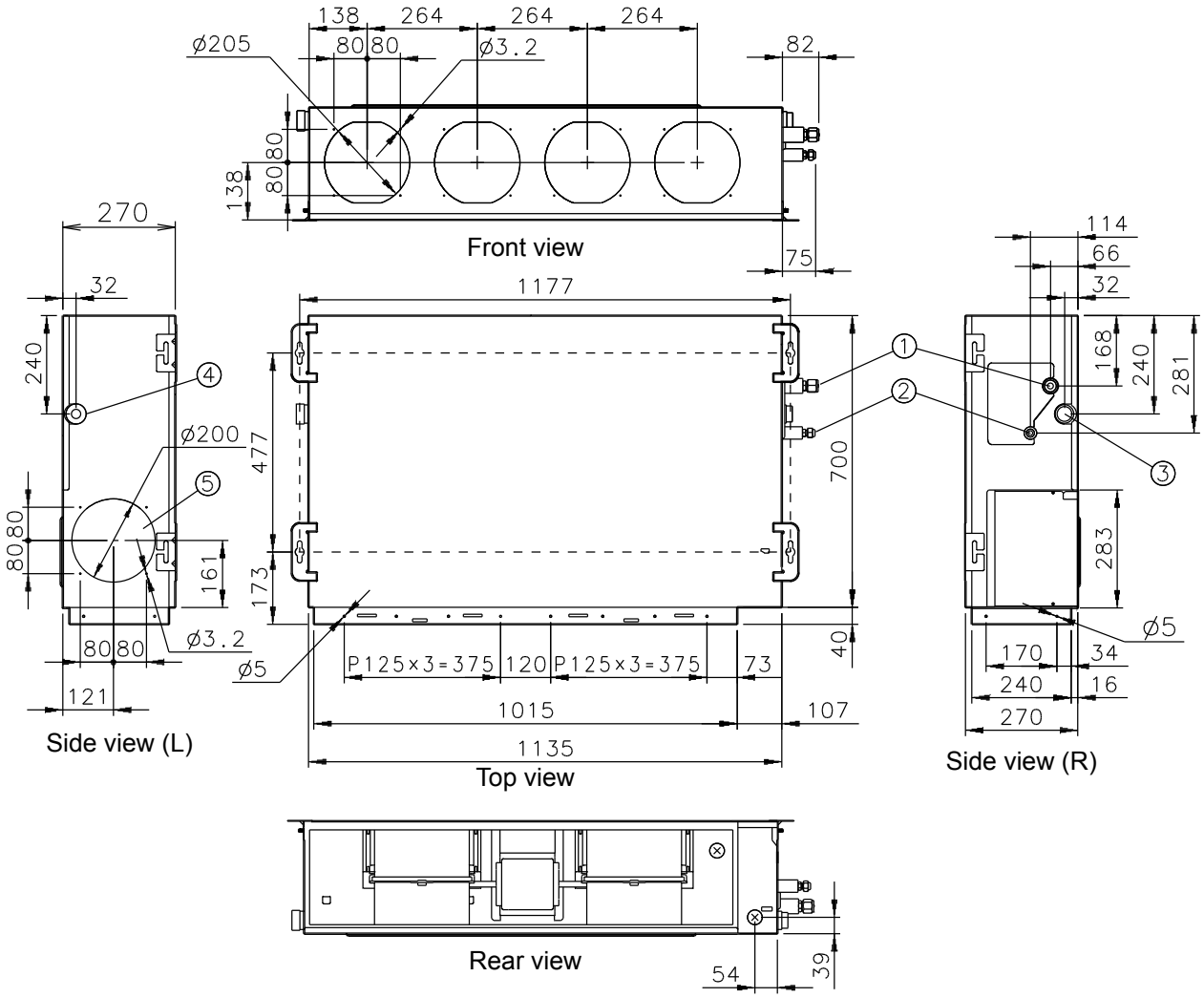
Type					DUCTED MODEL
					INVERTER HEATPUMP
Model name					AR∗G45LMLA
Power source					230V~ 50Hz
Available voltage range					198-264V ~ 50Hz
Capacity	Cooling	Rated		kW	12.1
				Btu/h	41300
		Min.-Max.		kW	4.0 - 13.3
				Btu/h	13700 - 45400
	Heating	Rated		kW	13.3
				Btu/h	45400
		Min.-Max.		kW	4.2 - 15.5
				Btu/h	14300 - 52900
Input power	Cooling	Rated		kW	3.77
		Max.			4.80
	Heating	Rated			3.68
		Max.			4.80
Current	Cooling	Rated		A	16.5
	Heating				16.1
EER		Cooling		kW/kW	3.21
COP		Heating			3.61
Moisture removal				l/h (pints/h)	4.0 (7.0)
Maximum operating current *		Cooling		A	21.0
		Heating			21.0
Fan	Airflow rate	Cooling	High	m^3/h	2100
			Med		1750
			Low		1350
			Quiet		1070
		Heating	High		2100
			Med		1750
			Low		1350
			Quiet		1070
	Type × Q'ty				Sirocco × 2
	Motor output			W	197
Recommended static pressure				Pa	30 to 150
Sound pressure level		Cooling	High	dB (A)	42
			Med		38
			Low		32
			Quiet		28
		Heating	High		42
			Med		38
			Low		32
			Quiet		28
Heat exchanger type		Dimensions (H × W × D)		mm	294 × 1000 × 53.2
		Fin pitch			1.40
		Rows x Stages			4 × 14
		Pipe type			Copper
		Fin type			Aluminium
Enclosure		Material			Steel
		Colour			-
Dimensions (H × W × D)	Net			mm	270 × 1135 × 700
	Gross				300 × 1320 × 790
Weight	Net			kg	40
	Gross				47
Connection pipe	Size	Liquid		mm	Ø 9.52 (Ø3 / 8 in.)
		Gas			Ø15.88 (Ø5 / 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	Ø35.7 (I.D.), Ø38.1 (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 :60 Pa
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 poit 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∗G45LMLA

(Unit : mm)

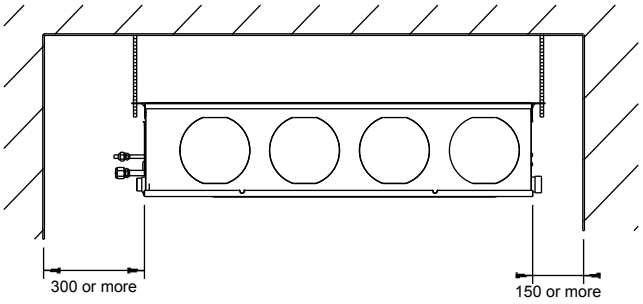


① Refrigerant piping flare connection (Gas)
② Refrigerant piping flare connection (Liquid)
③ Drain piping connection
④ Drain piping connection with cap.
⑤ Knock out hole for fresh air.

DUCT TYPE
AR∗G45LMLA

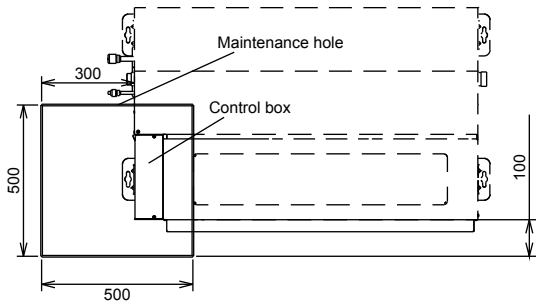
■ INSTALLATION PLACE

(Unit : mm)

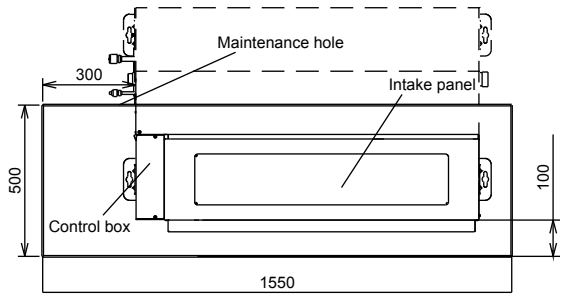


■ MAINTENANCE HOLE

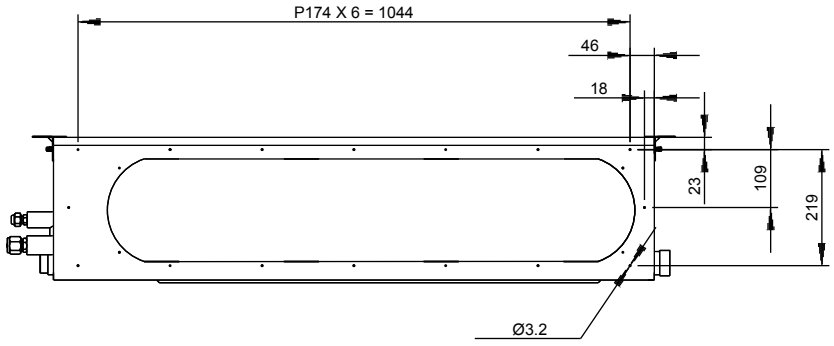
It is possible to install and remove the control box.



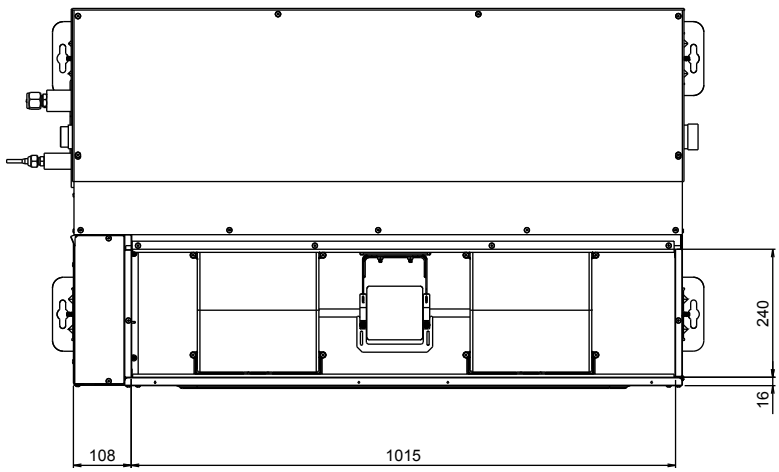
It is possible to install and remove the control box, fan units and filter.



■ WHEN USING A SQUARE DUCT

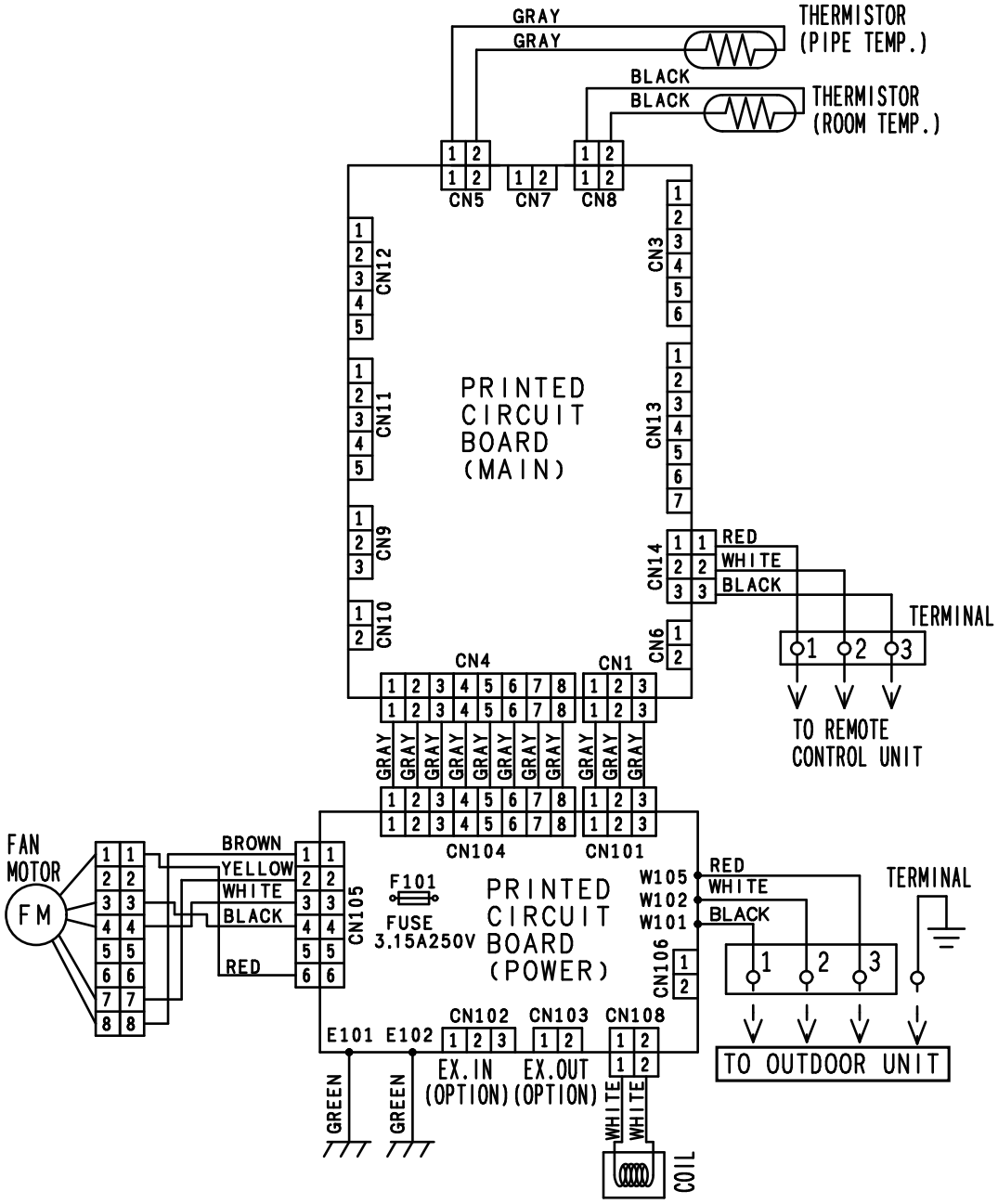


■ BOTTOM AIR INTAKE HOLE



5. WIRING DIAGRAMS

■ MODEL: AR∗G45LMLA



DUCT TYPE
AR∗G45LMLA

6. CAPACITY TABLE

6-1. COOLING CAPACITY

This table is created using the maximum capacity.

■ MODEL: AR∗G45LMLA

AFR	35.0

		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	11.23	8.75	2.66	12.50	8.81	2.70	12.93	9.57	2.72	13.78	9.60	2.74	14.21	10.37	2.76	15.06	10.33	2.79	15.91	11.01	2.81
	-10	11.32	8.89	2.56	12.61	8.94	2.60	13.04	9.72	2.61	13.90	9.76	2.64	14.33	10.54	2.65	15.19	10.49	2.68	16.05	11.18	2.70
	0	11.51	9.00	2.33	12.83	9.06	2.36	13.26	9.85	2.37	14.14	9.88	2.40	14.57	10.67	2.41	15.45	10.63	2.43	16.32	11.32	2.46
	5	11.26	8.89	2.40	12.54	8.94	2.44	12.97	9.72	2.45	13.83	9.75	2.47	14.25	10.53	2.49	15.11	10.49	2.51	15.96	11.17	2.53
	10	11.00	8.69	2.59	12.25	8.74	2.63	12.67	9.51	2.64	13.50	9.54	2.67	13.92	10.30	2.68	14.75	10.26	2.71	15.59	10.93	2.73
	15	10.73	8.62	2.78	11.95	8.67	2.83	12.36	9.43	2.84	13.18	9.46	2.87	13.58	10.22	2.88	14.40	10.18	2.91	15.21	10.84	2.94
	20	11.11	8.67	3.25	12.37	8.72	3.30	12.79	9.48	3.31	13.64	9.52	3.35	14.06	10.28	3.37	14.90	10.23	3.40	15.74	10.90	3.43
	25	10.95	8.62	3.45	12.19	8.67	3.51	12.61	9.43	3.53	13.44	9.46	3.56	13.86	10.21	3.58	14.69	10.17	3.62	15.52	10.84	3.65
	30	10.79	8.58	4.43	12.02	8.63	4.50	12.43	9.38	4.52	13.25	9.41	4.57	13.66	10.16	4.59	14.48	10.12	4.59	15.29	10.78	4.59
	35	10.51	8.46	4.43	11.70	8.51	4.50	12.10	9.25	4.52	12.90	9.28	4.57	13.30	10.02	4.59	14.10	9.98	4.59	14.90	10.63	4.59
	40	8.54	7.62	3.98	9.51	7.80	4.04	9.84	8.48	4.06	10.48	8.51	4.10	10.81	9.19	4.12	11.46	9.15	4.12	12.10	9.75	4.12
	46	6.55	6.52	3.30	7.30	6.79	3.35	7.55	7.39	3.37	8.04	7.41	3.40	8.29	8.00	3.42	8.79	7.97	3.42	9.29	8.49	3.42

AFR : Air Flow Rate (m^3/min)
TC : Total Capacity (kW)
SHC : Sensible Heat Capacity (kW)
IP : Input Power (kW)

DUCT TYPE
AR∗G45LMLA

6-2. HEATING CAPACITY

This table is created using the maximum capacity.

■ MODEL: AR∗G45LMLA

AFR	35.0

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
Outdoor temperature	-15	-16	10.89	4.23	10.63	4.32	10.37	4.41	10.12	4.50	9.86	4.59
	-10	-11	11.84	4.35	11.56	4.44	11.28	4.53	11.00	4.62	10.72	4.71
	-5	-7	12.83	4.41	12.53	4.50	12.22	4.59	11.91	4.59	11.61	4.59
	0	-2	13.77	4.41	13.44	4.50	13.12	4.59	12.79	4.59	12.46	4.59
	5	3	15.06	4.41	14.70	4.50	14.34	4.59	13.98	4.59	13.62	4.59
	7	6	16.28	4.41	15.89	4.50	15.50	4.59	15.11	4.59	14.73	4.59
	10	8	16.78	4.41	16.38	4.50	15.98	4.59	15.58	4.59	15.18	4.59
	15	10	16.55	3.96	16.16	4.04	15.77	4.12	15.37	4.12	14.98	4.12
	20	15	15.79	3.50	15.42	3.58	15.04	3.65	14.66	3.65	14.29	3.65
	24	18	16.63	3.50	16.23	3.58	15.84	3.65	15.44	3.65	15.04	3.65

AFR : Air Flow Rate (m^3/min)
TC : Total Capacity (kW)
IP : Input Power (kW)

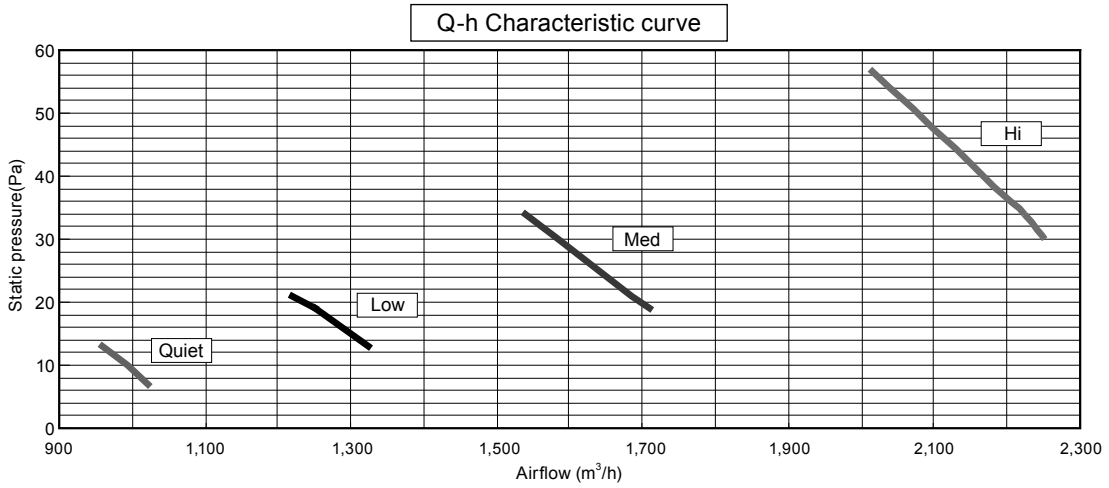
DUCT TYPE
AR∗G45LMLA

7. FAN PERFORMANCE AND CAPACITY

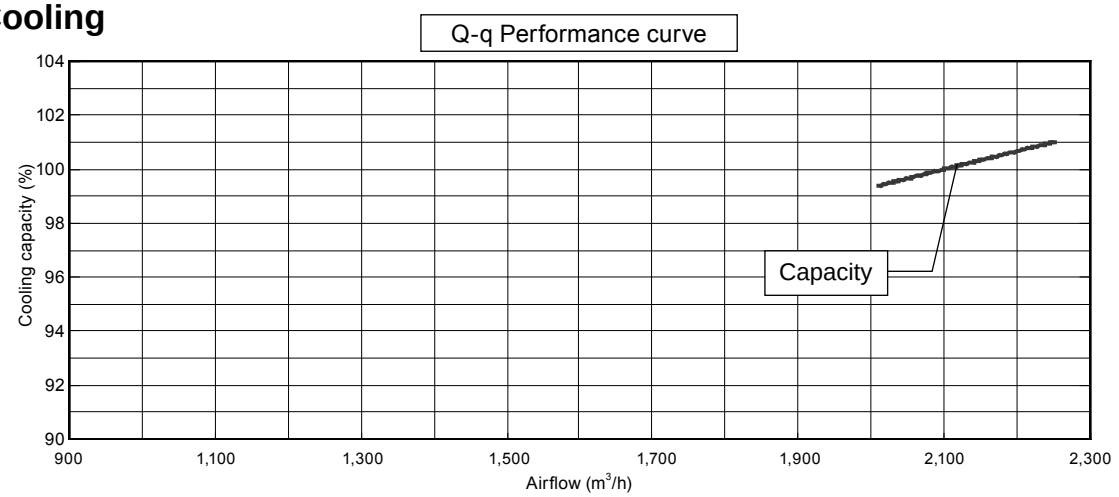
7-1. NORMAL MODE

■MODEL: AR∗G45LMLA

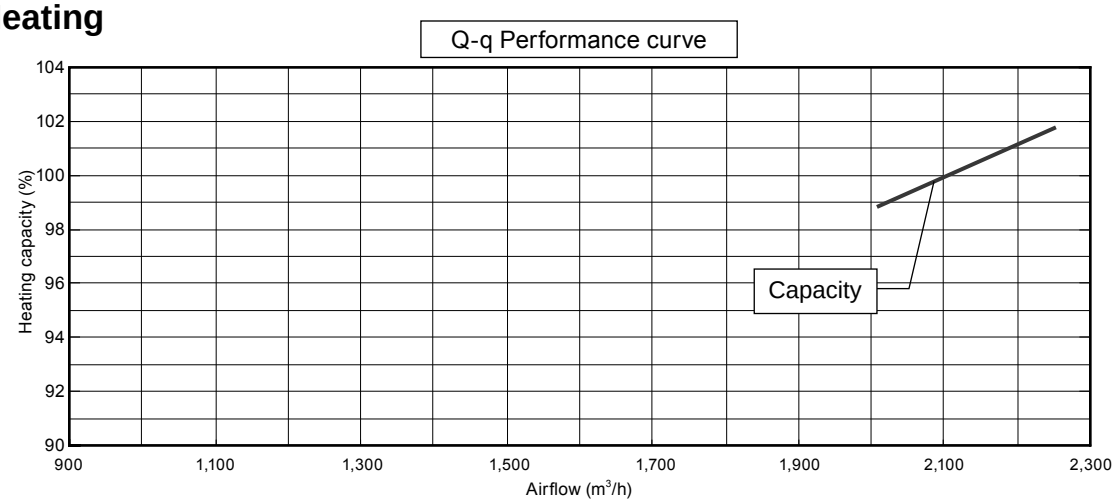
			Static pressure (Pa)							
			7	10	13	19	21	30	34	57
FAN SPEED	Hi	m^3/h	–	–	–	–	–	2250	2223	2010
		l/s	–	–	–	–	–	625	618	558
		CFM	–	–	–	–	–	1324	1308	1183
	Med	m^3/h	–	–	–	1710	1685	1585	1540	–
		l/s	–	–	–	475	468	440	428	–
		CFM	–	–	–	1006	992	933	906	–
	Low	m^3/h	–	–	1325	1250	1220	–	–	–
		l/s	–	–	368	347	339	–	–	–
		CFM	–	–	780	736	718	–	–	–
	Quiet	m^3/h	1020	995	960	–	–	–	–	–
		l/s	283	276	267	–	–	–	–	–
		CFM	600	586	565	–	–	–	–	–



●Cooling



●Heating

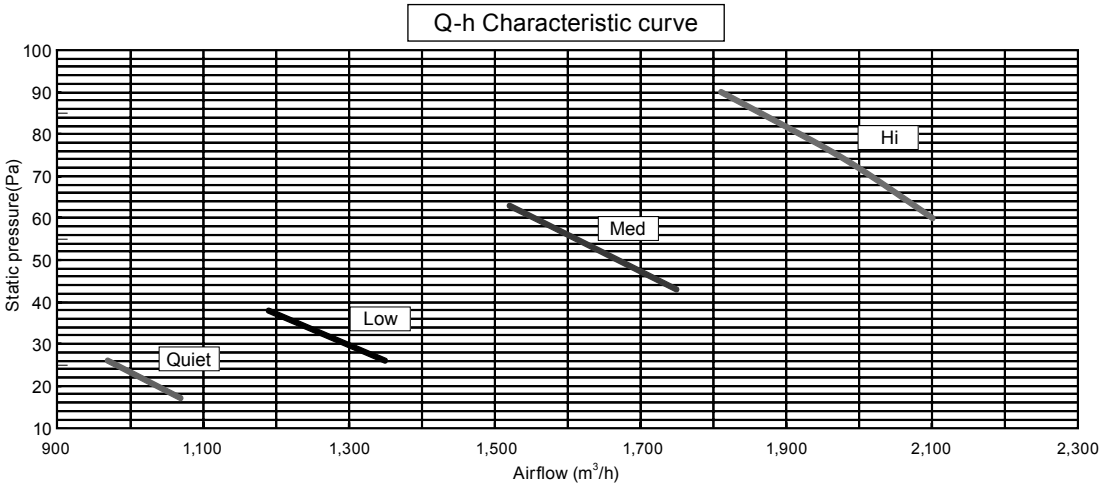


DUCT TYPE
AR∗G45LMLA

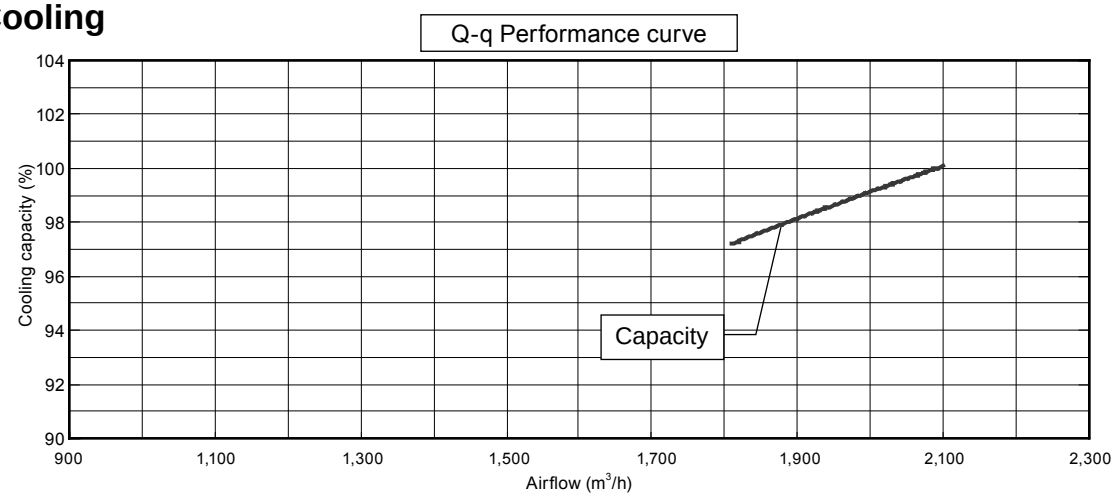
7-2. STATIC PRESSURE MODE 1

■MODEL: AR∗G45LMLA

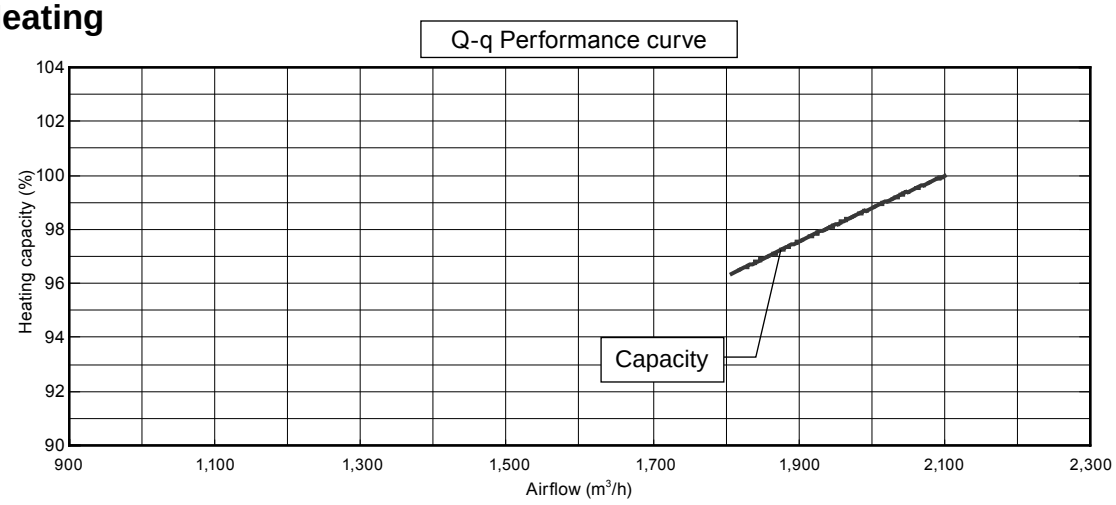
			Static pressure (Pa)							
			17	26	38	43	60	63	75	90
FAN SPEED	Hi	m^3/h	-	-	-	-	2100	2075	1970	1810
		l/s	-	-	-	-	583	576	547	503
		CFM	-	-	-	-	1236	1221	1159	1065
	Med	m^3/h	-	-	-	1750	1555	1520	-	-
		l/s	-	-	-	486	432	422	-	-
		CFM	-	-	-	1030	915	895	-	-
	Low	m^3/h	-	1350	1190	-		-	-	-
		l/s	-	375	331	-		-	-	-
		CFM	-	795	700	-		-	-	-
	Quiet	m^3/h	1070	970	-	-		-	-	-
		l/s	297	269	-	-		-	-	-
		CFM	630	571	-	-		-	-	-



●Cooling



●Heating

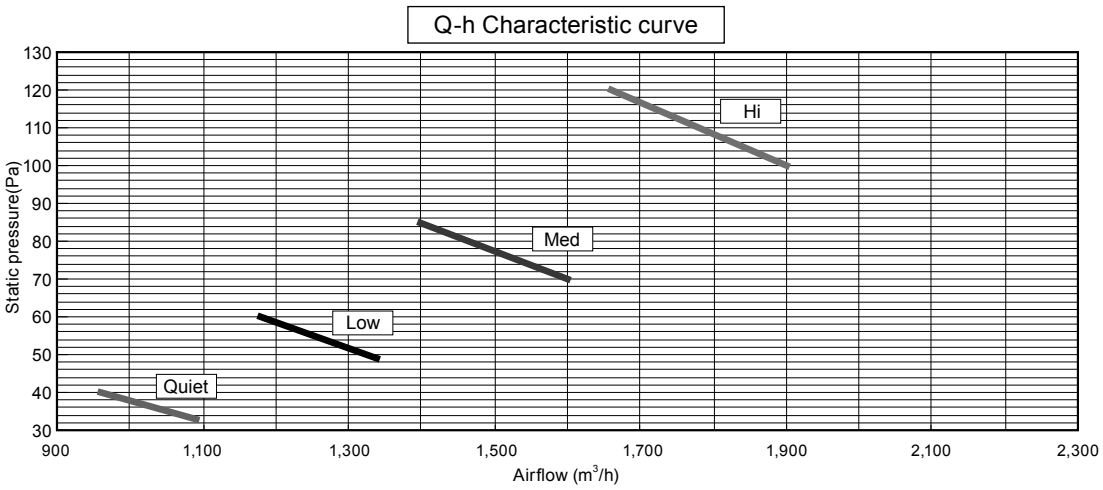


DUCT TYPE
AR∗G45LMLA

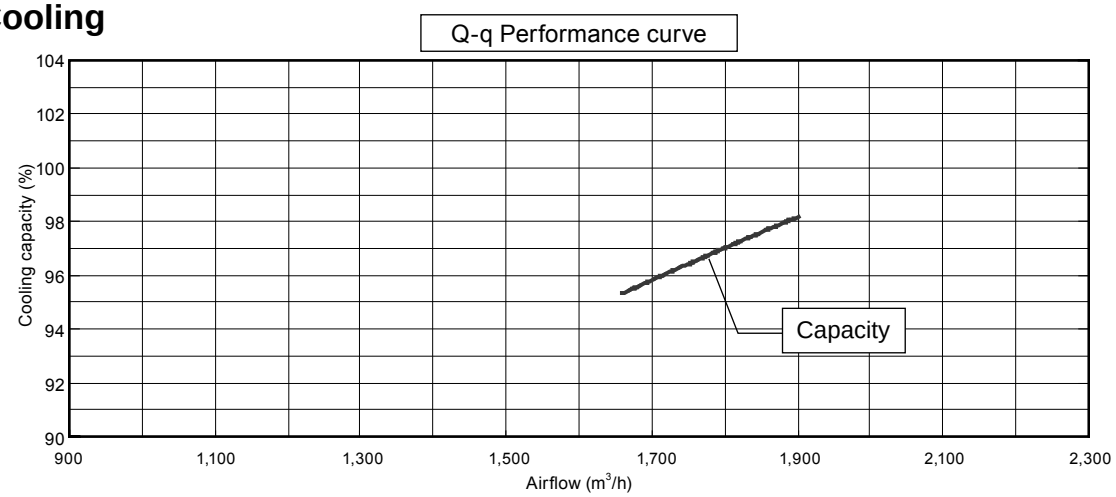
7-3. STATIC PRESSURE MODE 2

■MODEL: AR∗G45LMLA

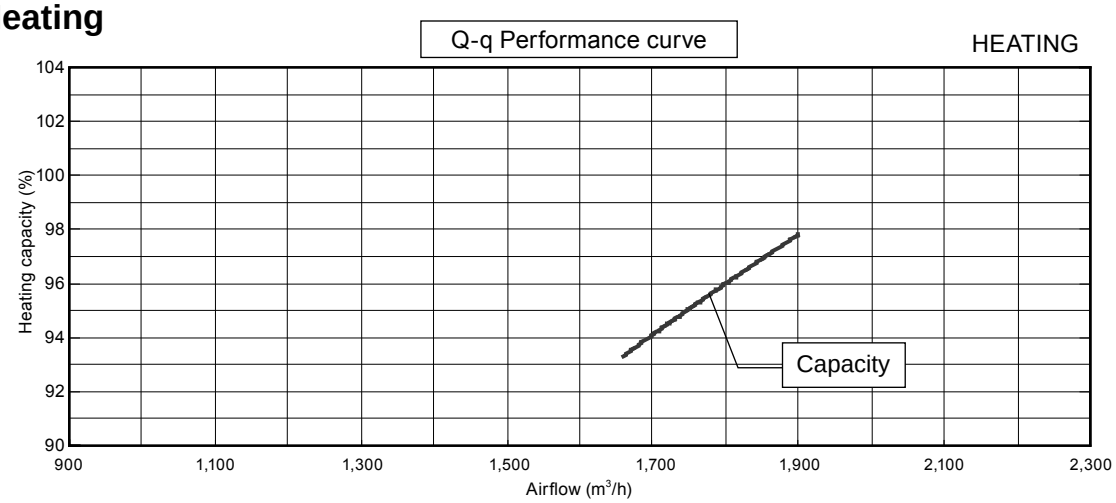
			Static pressure (Pa)							
			33	40	49	60	70	85	100	120
FAN SPEED	Hi	m^3/h	–	–	–	–	–	–	1900	1660
		l/s	–	–	–	–	–	–	528	461
		CFM	–	–	–	–	–	–	1118	977
	Med	m^3/h	–	–	–	–	1600	1400	–	–
		l/s	–	–	–	–	444	389	–	–
		CFM	–	–	–	–	942	824	–	–
	Low	m^3/h	–	–	1340	1180	–	–	–	–
		l/s	–	–	372	328	–	–	–	–
		CFM	–	–	789	695	–	–	–	–
	Quiet	m^3/h	1090	960	–	–	–	–	–	–
		l/s	303	267	–	–	–	–	–	–
		CFM	642	565	–	–	–	–	–	–



●Cooling



●Heating

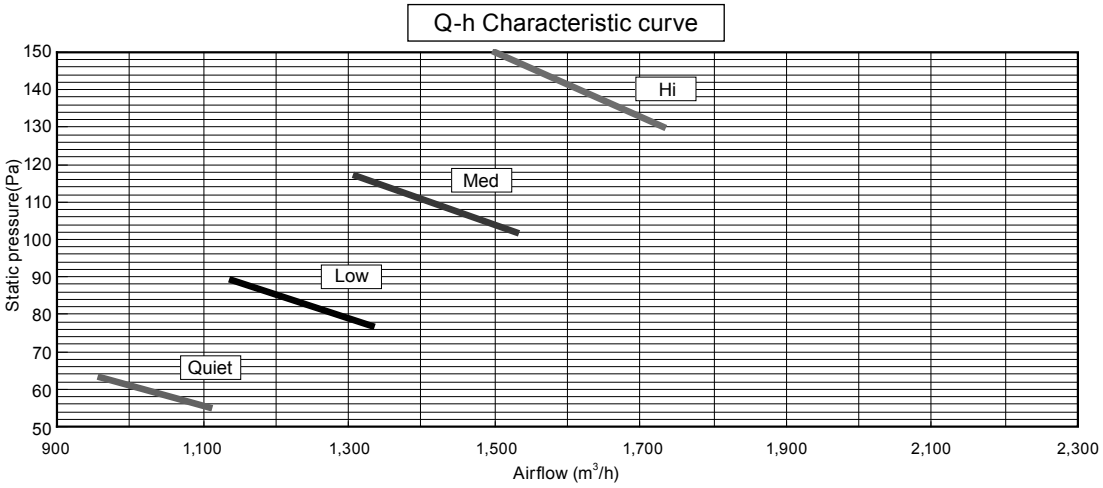


DUCT TYPE
AR∗G45LMLA

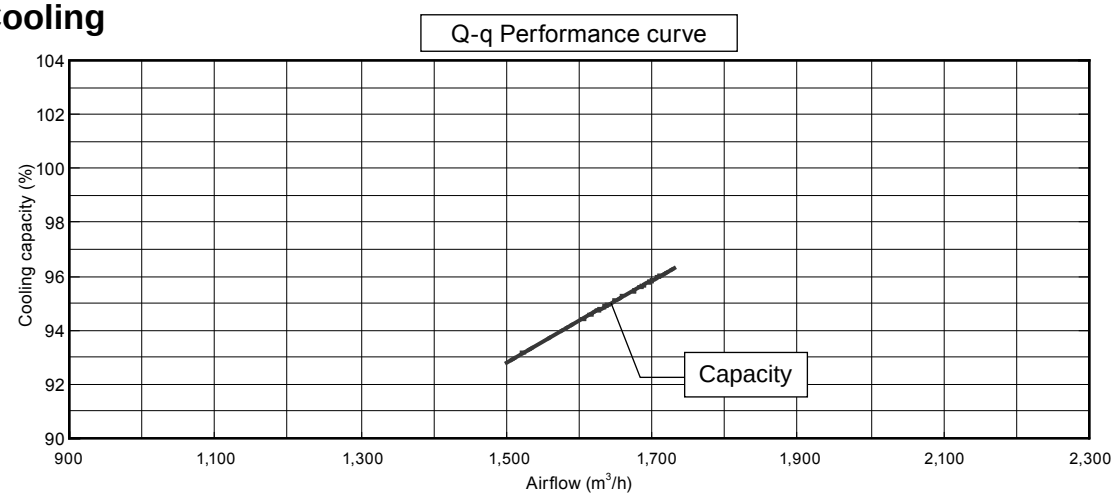
7-4. STATIC PRESSURE MODE 3

■MODEL: AR∗G45LMLA

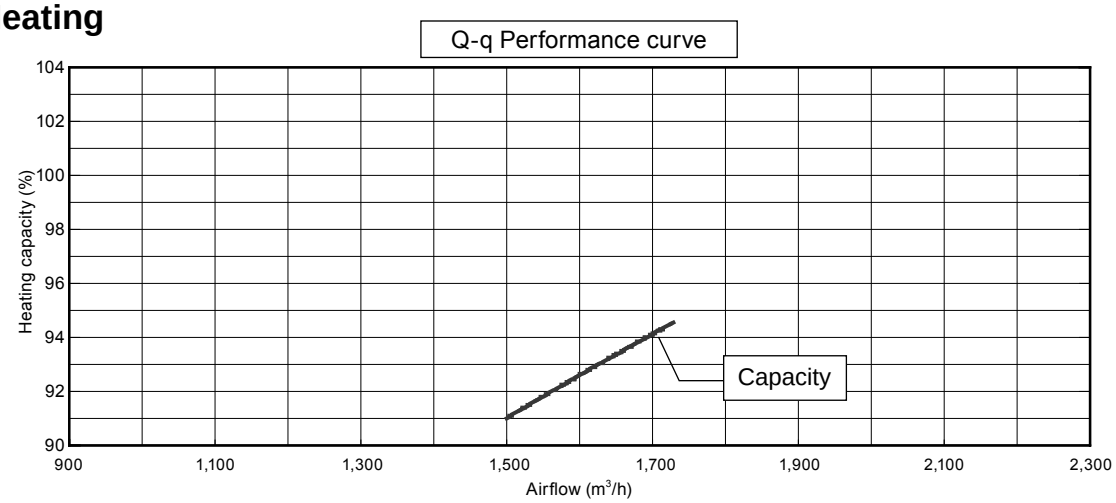
			Static pressure (Pa)							
			55	63	77	89	102	117	130	150
FAN SPEED	Hi	m^3/h	–	–	–	–	–	–	1730	1500
		l/s	–	–	–	–	–	–	481	417
		CFM	–	–	–	–	–	–	1018	883
	Med	m^3/h	–	–	–	–	1530	1310	–	–
		l/s	–	–	–	–	425	364	–	–
		CFM	–	–	–	–	901	771	–	–
	Low	m^3/h	–	–	1330	1140	–	–	–	–
		l/s	–	–	369	317	–	–	–	–
		CFM	–	–	783	671	–	–	–	–
	Quiet	m^3/h	1110	960	–	–	–	–	–	–
		l/s	308	267	–	–	–	–	–	–
		CFM	653	565	–	–	–	–	–	–



●Cooling



●Heating



DUCT TYPE
AR∗G45LMLA

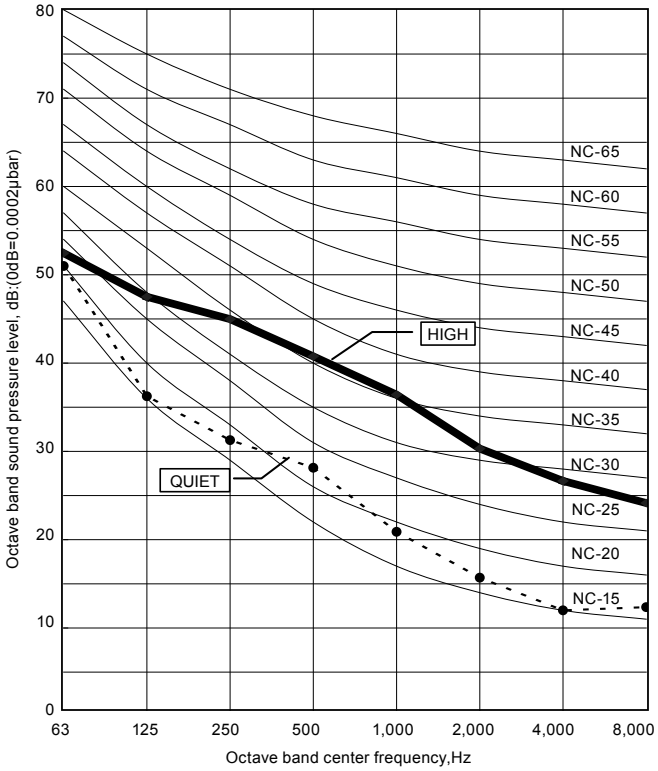
8. OPERATION NOISE

8-1. NOISE LEVEL CURVE

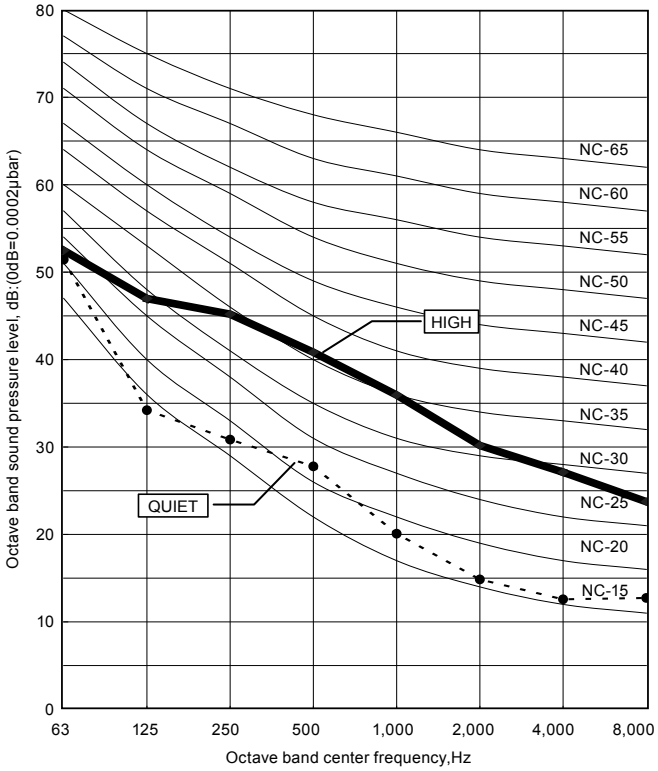
Condition
Static pressure : 60Pa
Static pressure mode : High Static (Mode 1)

■MODEL: AR∗G45LMLA

●Cooling

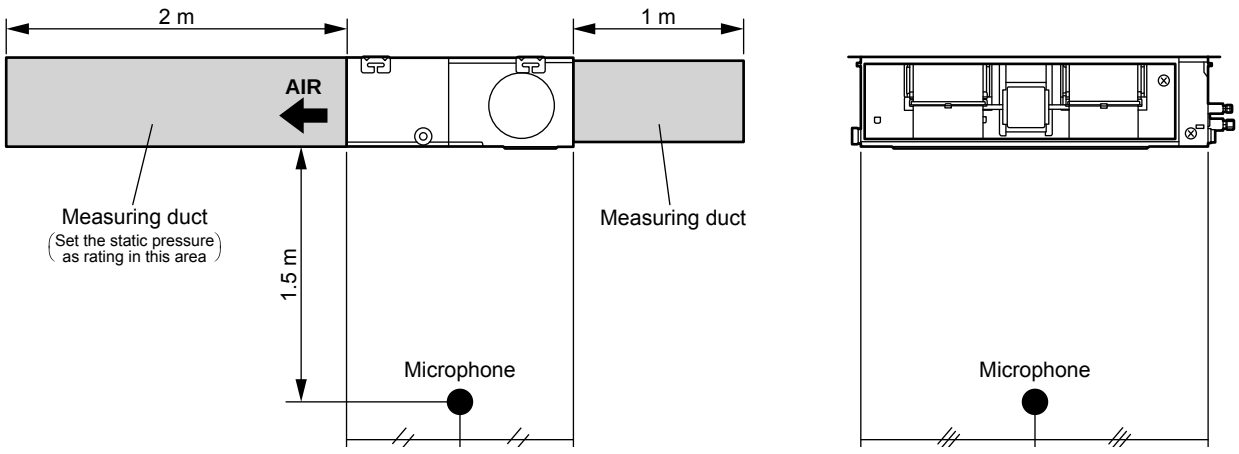


●Heating



DUCT TYPE
AR∗G45LMLA

8-2. SOUND LEVEL CHECK POINT



9. ELECTRIC CHARACTERISTICS

Model name			AR∗G45LMLA
Power supply	Voltage	V	230 ~
	Frequency	Hz	50
Max. operating current (Indoor unit)		A	2.1
Wiring spec. (Indoor unit to outdoor unit)	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.

10. SAFETY DEVICES

	Protection form	Model
		AR∗G45LMLA
Circuit protection	Current fuse (PCB)	250V 3.15A
Fan motor protection	Thermal protection program	115±15°C OFF 70°C ON

DUCT TYPE
AR∗G45LMLA

11. EXTERNAL INPUT & OUTPUT

Connector	INPUT	OUTPUT	REMARKS
CN102	Control input	—	See external input/output settings for details.
CN103	—	Operation status output	
CN6	—	Fresh air control output	
CN10	—	Auxiliary heater output	

11-1. EXTERNAL INPUT

■ CONTROL INPUT (Operation/Stop or Forced stop)

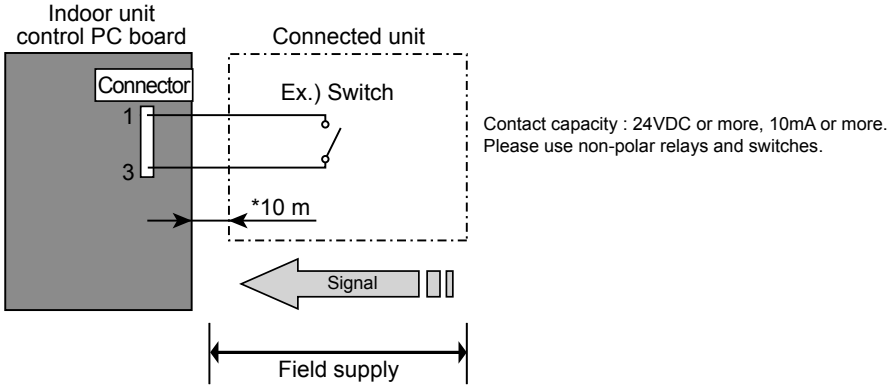
The air conditioner can be remotely operated by means of the following on-site work.

"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.

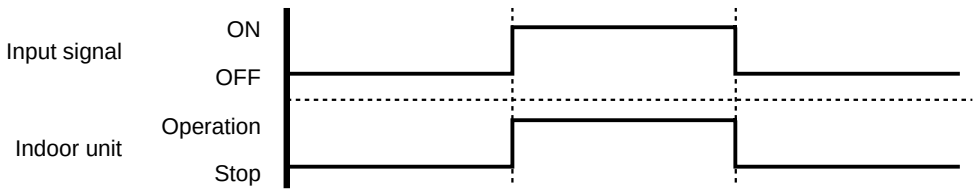
Unit operation	Initial setting after power is ON	Starting mode other than initial setting
Operation mode	Auto changeover	Mode at previous operation
Set temperature	24°C	Temperature at previous operation
Air flow mode	AUTO	Mode at previous operation
Up-down air direction (swing)	Standard air direction (swing OFF)	Air direction at previous operation
Left-right air direction (swing)	Standard air direction (swing OFF)	Air direction at previous operation

● Circuit diagram example

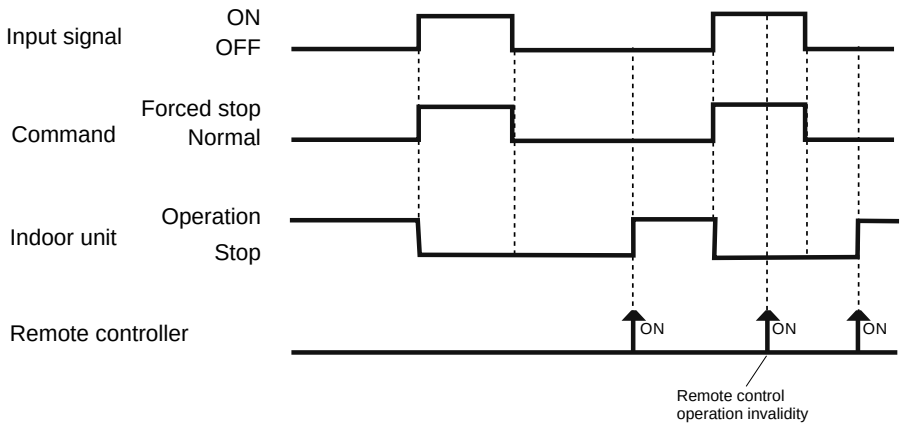


* Make the distance from the PC board to the connected unit within 10m.

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



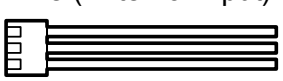
● When function setting is in "Forced stop" mode



● Parts (Optional)

Model name
UTD-ECS5A

Wire (External input)



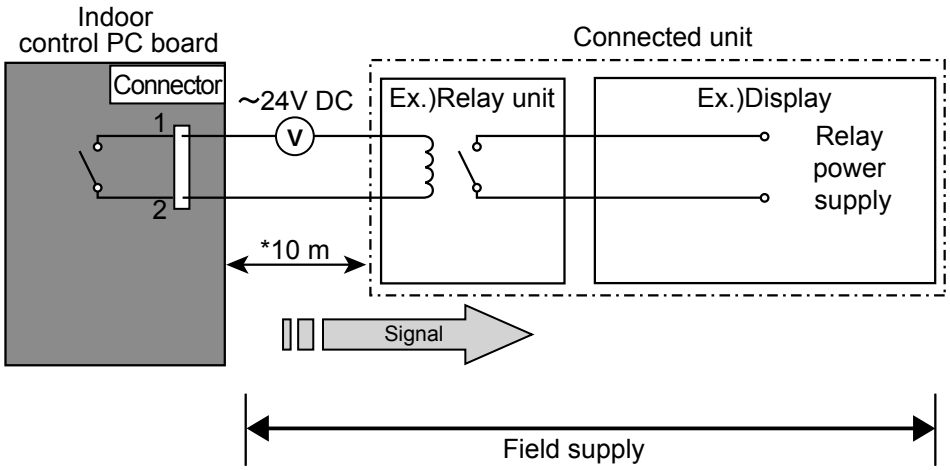
DUCT TYPE
AR∗G45LMLA

11-2. EXTERNAL OUTPUT

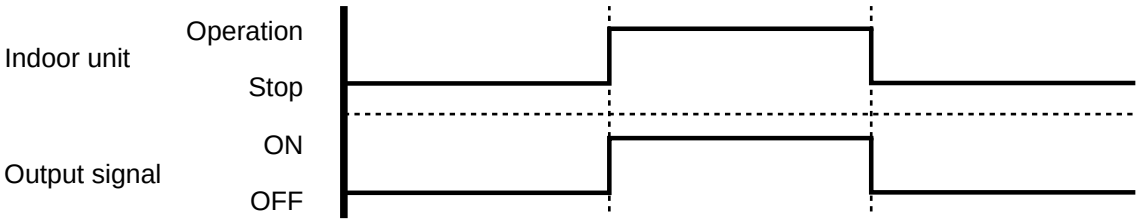
■ OPERATION STATUS OUTPUT

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)

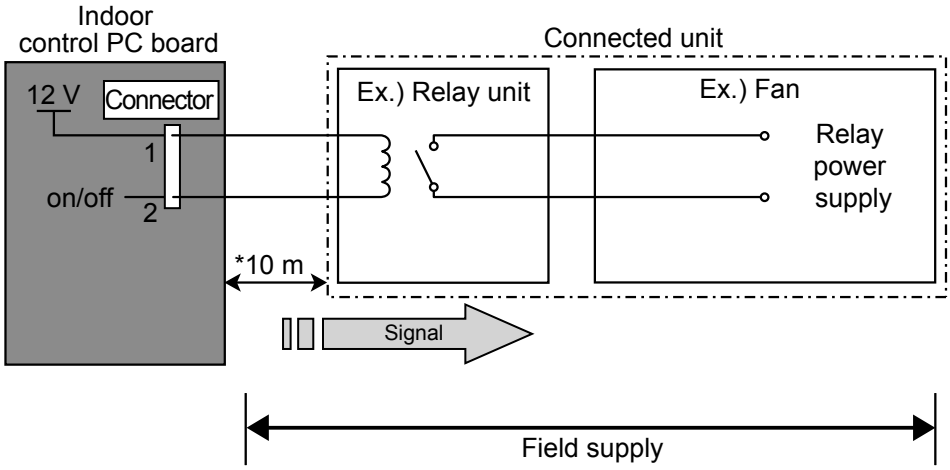
DUCT TYPE
AR∗G45LMLA

■ FRESH AIR CONTROL OUTPUT

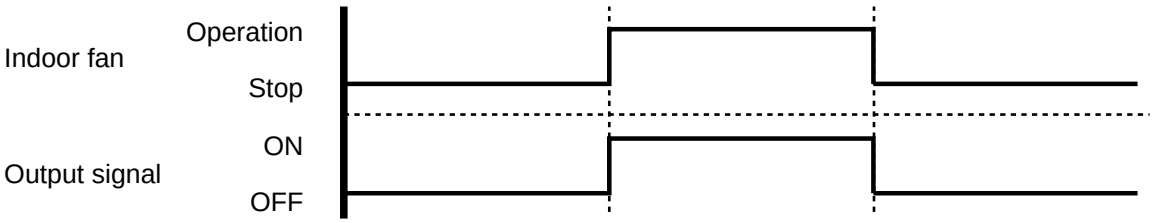
A signal linked to air conditioner indoor fan ON can be output.

* 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

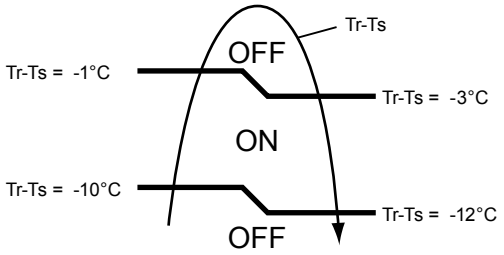
Wire (Fresh air output)

DUCT TYPE
AR∗G45LMLA

■ 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



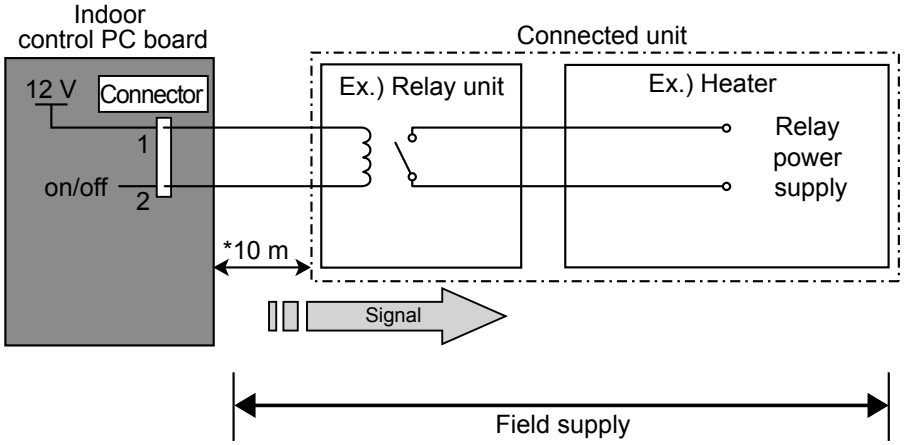
Ex. When Set Temperature(Ts) is 22°C;

- ▪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.

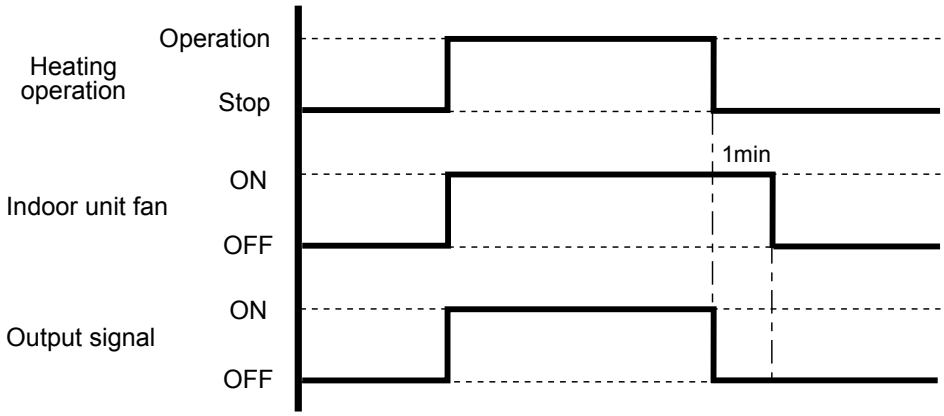
● Jumper wire (Indoor Unit)

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

● Parts (Optional)

Model name
UTD-ECS5A

Wire (Heater output)

DUCT TYPE
AR∗G45LMLA

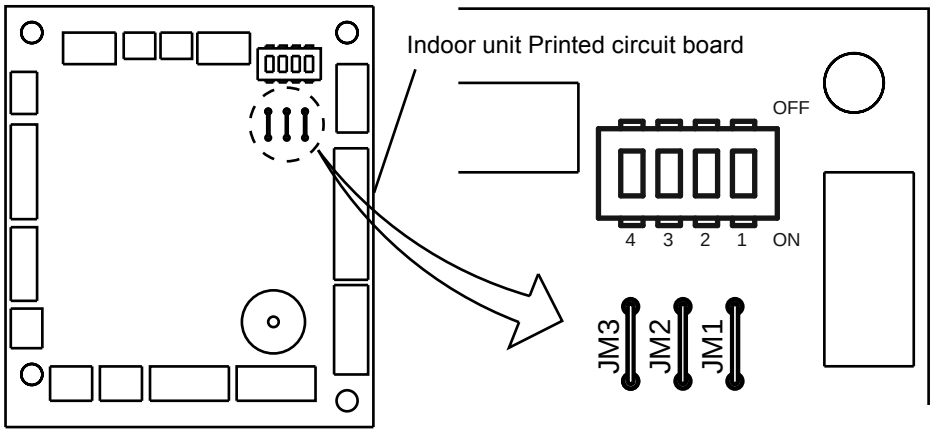
12. FUNCTION SETTING

12-1. INDOOR UNIT

INDOOR UNIT		
DIP SW	1	Remote controller address setting
	2	
	3	
	4	
Jumper Wire	JM1	Setting forbidden
	JM2	
	JM3	Fan delay setting

■ SWITCH POSITION

MAIN PCB



■ DIP-SW SETTING

● Remote controller address setting

A number of indoor units can be operated at the same time using a wired remote controller.
Set the unit number of each indoor unit using the DIP switches on the indoor unit circuit board.
(See the following table.)
The DIP switches are normally set to make the unit number 00.

(◆. . .Factory setting)

	Remote controller address	DIP switch No.			
		1	2	3	4
◆	00	OFF	OFF	OFF	OFF
	01	ON	OFF	OFF	OFF
	02	OFF	ON	OFF	OFF
	03	ON	ON	OFF	OFF
	04	OFF	OFF	ON	OFF
	05	ON	OFF	ON	OFF
	06	OFF	ON	ON	OFF
	07	ON	ON	ON	OFF
	08	OFF	OFF	OFF	ON
	09	ON	OFF	OFF	ON
	10	OFF	ON	OFF	ON
	11	ON	ON	OFF	ON
	12	OFF	OFF	ON	ON
	13	ON	OFF	ON	ON
	14	OFF	ON	ON	ON
	15	ON	ON	ON	ON

DUCT TYPE
AR∗G45LMLA

■ JUMPER WIRE SETTING

● Setting forbidden (JM1, JM2)

● 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 3	JM state
◆	Connect	Invalid
	Disconnect	Valid

DUCT TYPE
AR∗G45LMLA

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.

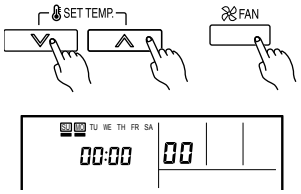
■ PREPARATION

- Turn on the power.
  * Before turning on the power of the indoor units, make sure the piping air-tight test and vacuuming have been conducted.
  * Also check again to make sure no wiring mistakes were made before turning on the power.

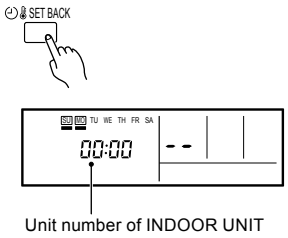
■ FUNCTION SETTING METHOD (for Wired remote controller)

● Setting method

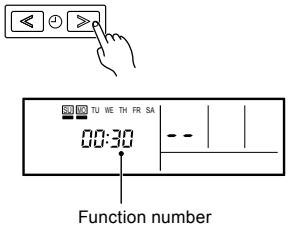
(1) Press the SET TEMP. buttons (▽) (△) and FAN button simultaneously for more than 5 seconds to enter the function setting mode.



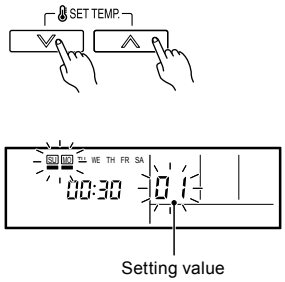
(2) Press the SET BACK button to select the indoor unit number.



(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.



(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.)

DUCT TYPE
AR∗G45LMLA

(6) Repeat steps 2 to 5 to perform additional settings. Press the SET TEMP. buttons (⩛) (⩓) and FAN 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 OF 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)	Static pressure
3)	Cooler room temperature correction
4)	Heater room temperature correction
5)	Auto restart
6)	Indoor room temperature sensor switching function
7)	Cool air prevention
8)	Remote controller signal code
9)	External input control
10)	Room temperature control switching
11)	Indoor unit fan control for energy saving

1) Filter sign

The indoor unit has a sign to inform the user that it is time to clean the filter. Select the time setting for the filter sign display interval in the table below according to the amount of dust or debris in the room. If you do not wish the filter sign to be displayed, select the setting value for “No indication”.

(◆. . .Factory setting)

	Setting Description	Function Number	Setting Value
	Standard (2500 hours)	11	00
	Long interval (4400 hours)		01
	Short interval (1250 hours)		02
◆	No indication		03

2) Setting the static pressure

Select appropriate static pressure according to the installation conditions.
Refer to the technical manual for details or follow the instructions of the duct designer.

(◆. . .Factory setting)

	Setting Description	Function Number	Setting Value
◆	Normal	21	00
	High static pressure 1		01
	High static pressure 2		02
	High static pressure 3		03

3) Setting the cooler room temperature correction

Depending on the installed environment, the room temperature sensor may require a correction. The settings may be selected as shown in the table below.

(◆. . .Factory setting)

	Setting Description	Function Number	Setting Value
◆	Standard	30	00
	Slightly lower control		01
	Lower control		02
	Warmer control		03

DUCT TYPE
AR∗G45LMLA

4) Setting the heater room temperature correction

Depending on the installed environment, the room temperature sensor may require a correction. The settings may be changed as shown in the table below.

(◆. . .Factory setting)

	Setting Description	Function Numbe	Setting Value
◆	Standard	31	00
	Lower control		01
	Slightly warmer control		02
	Warmer control		03

5) Auto restart

Enable or disable automatic system restart after a power outage.

(◆. . .Factory setting)

	Setting Description	Function Number	Setting Value
◆	Yes	40	00
	No		01

* Auto restart is an emergency function such as for power failure etc.
Do not start and stop the indoor unit by this function in normal operation.
Be sure to operate by the control unit, or external input device.

6) Indoor room temperature sensor switching function

(Only for Wired remote controller)

The following settings are needed when using the control by Wired remote controller temperature sensor.

(◆. . .Factory setting)

	Setting Description	Function Number	Setting Value
◆	No	42	00
	Yes		01

* If setting value is “00”:
Room temperature is controlled by the indoor unit temperature sensor.

* If setting value is “01”:
Room temperature is controlled by either indoor unit temperature sensor or remote controller unit sensor.

7) Cool air prevention

This setting is used to set the fan speed when the compressor stops once the room temperature has reached the set temperature during heating operation.

(◆. . .Factory setting)

	Setting Description	Function Number	Setting Value
◆	Super low	43	00
	Follow the setting on the remote controller (corresponding to ventilation)		01

8) Remote controller signal code

Change the indoor unit Signal Code, depending on the remote controllers.

(◆. . .Factory setting)

	Setting Description	Function Number	Setting Value
◆	A	44	00
	B		01
	C		02
	D		03

9) 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 forbidden)		01
	Forced stop mode		02

DUCT TYPE
AR∗G45LMLA

10) Room temperature control switching

This setting is used to set the room temperature control method when the wired remote controller is selected by the Indoor Room Temperature Sensor Switching Function.

(◆. . .Factory setting)

	Setting Description	Function Number	Setting Value
◆	Control by the sensors of both the indoor unit and the wired remote controller.	48	00
	Control only by the sensor of the wired remote controller		01

11) Indoor unit fan control for energy saving (Only cooling mode)

Enable or disable indoor unit fan control when the outdoor unit is stopped.

(◆. . .Factory setting)

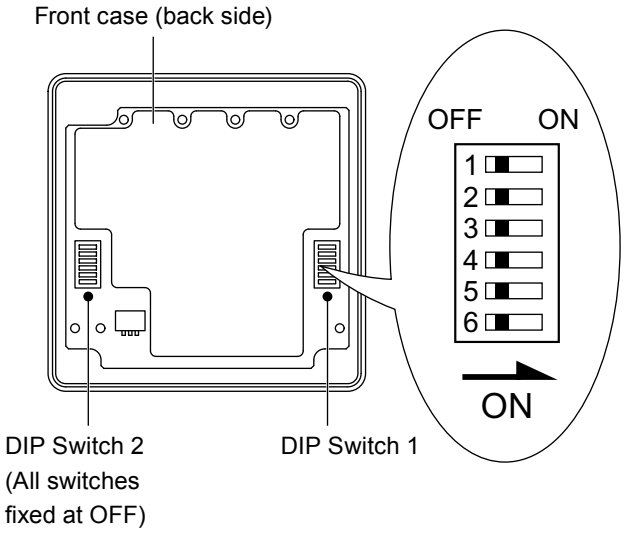
	Setting Description	Function Number	Setting Value
	No	49	00
◆	Yes		01

* If setting value is “00”:
  When the outdoor unit is stopped, the indoor unit fan operates following the setting on the remote controller continuously.
* If setting value is “01”:
  When the outdoor unit is stopped, the indoor unit fan operates at very low speed intermittently.

DUCT TYPE
AR∗G45LMLA

12-3. WIRED REMOTE CONTROLLER

■ SWITCH POSITION



■ DIP SWITCH 1 SETTING

DIP Switch 1	SW1	Forbidden*
	SW2	Dual remote controller setting
	SW3	Forbidden*
	SW4	Forbidden*
	SW5	Forbidden*
	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.

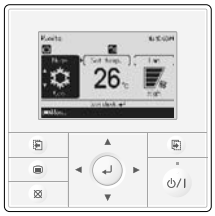
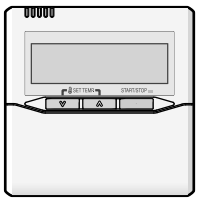
(◆··· Factory setting)

	SW6	Memory backup
◆	OFF	Invalidity
	ON	Validity

DUCT TYPE
AR∗G45LMLA

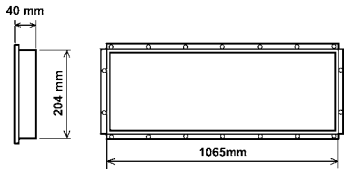
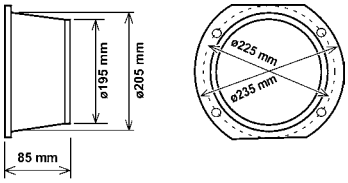
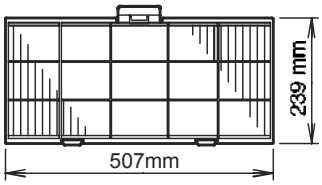
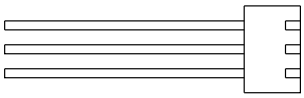
13. OPTIONAL PARTS

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.
	IR receiver unit	UTY-LRH∗M	Unit control is performed by wireless remote controller.

DUCT TYPE
AR∗G45LMLA

13-2. OTHERS

Exterior	Parts name	Model No.	Summary
	Square flange	UTD-SF045T	Both the **Square flange** and the **Round flange** can be selected. **Round flange** is also used when the fresh air duct is installed
	Round flange	UTD-RF204	
	Long-life filter	UTD-LF25NA	**Long-life filter** can be mounted to the indoor unit.
	Remote sensor	UTY-XSZX	New amenity space can be offered by installing the **Remote sensor** in the remote controller.
	External control set	UTD-ECS5A	Use to connect with various peripheral devices and air conditioner PC board.
	Drain pump unit	UTZ - PX1NBA	Optional drain lift up mechanism allows more flexible installation.

2. OUTDOOR UNIT

SINGLE TYPE :

AO∗G45LETL

AO∗G54LETL

DTR_AO136E_01
2013.02.22

CONTENTS

2. OUTDOOR UNIT

OUTDOOR UNIT
AO∗G45-54LETL

OUTDOOR UNIT
AO∗G45-54LETL

1. FEATURE

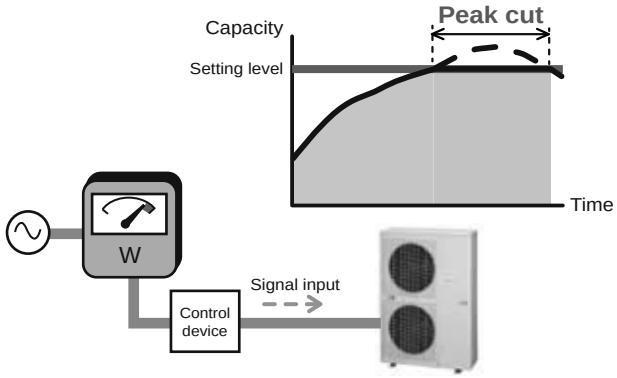
■ FEATURES

● Peak cut operation

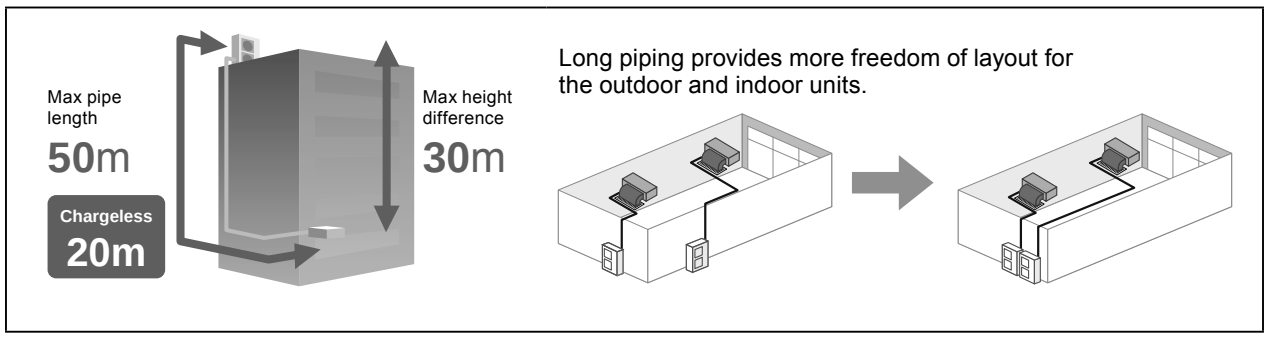
Peak cut mode

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

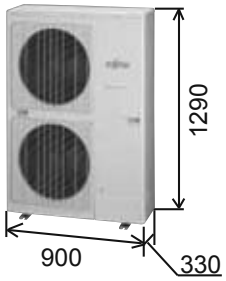


OUTDOOR UNIT
AO∗G45-54LETL

● Space saving

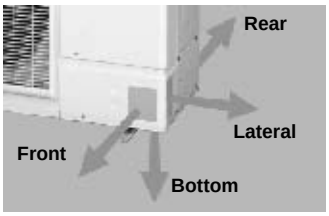
Compact size

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 ºC	**Heating**	Dry-bulb -15 ºC Wet-bulb -20 ºC

● External output (option)

Compressor status output

This output indicates the outdoor unit compressor status.

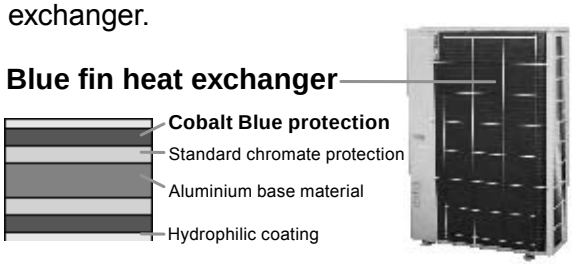
Error status output

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.

Blue fin 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

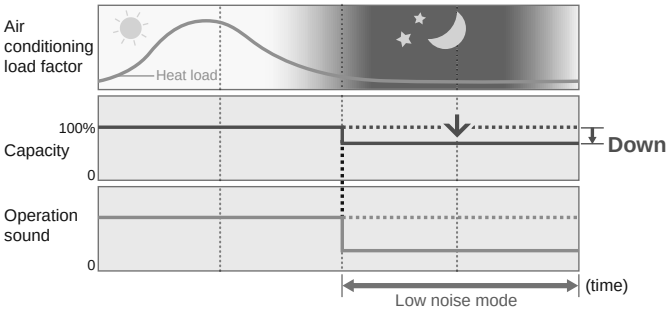
Suppresses operating sound.

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

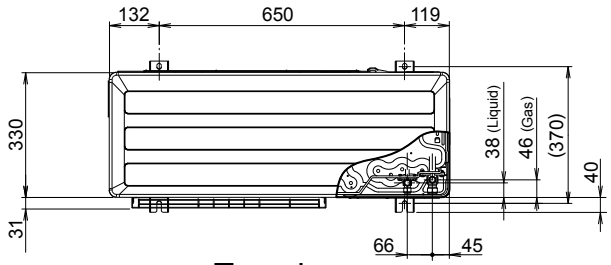
Model name					AO∗G45LETL	AO∗G54LETL
Power source					1Ø 230V~ 50Hz	
Available voltage range					198-264V~ 50Hz	
Starting current				A	18.9	20.9
Fan	Airflow rate	Cooling		(m^3/h)	6,750	6,750
		Heating			6,200	6,850
	Type × Q'ty				Propeller × 2	
	Motor output			W	104	104
Sound pressure level		Cooling		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.

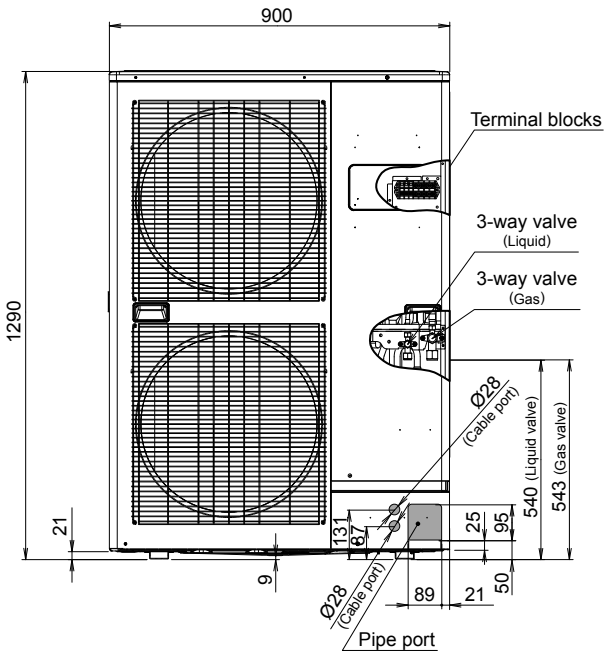
3. DIMENSIONS

■MODELS: AO∗G45LETL, AO∗G54LETL

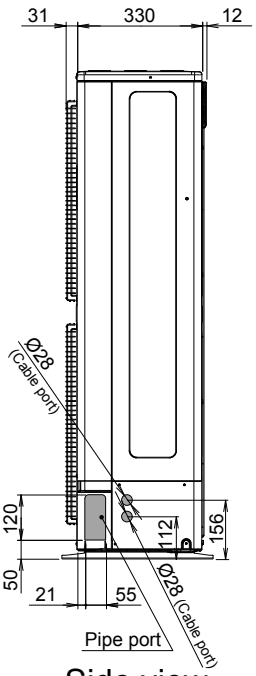
(Unit : mm)



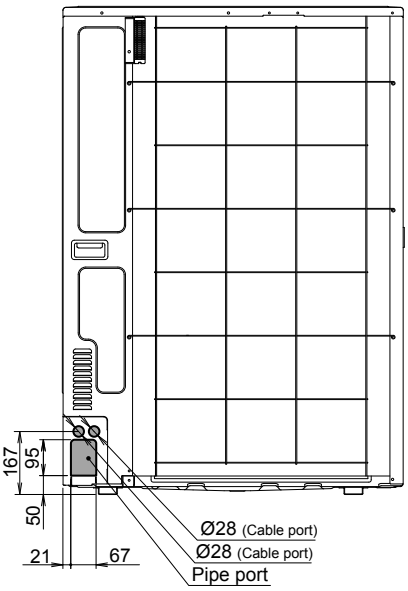
Top view



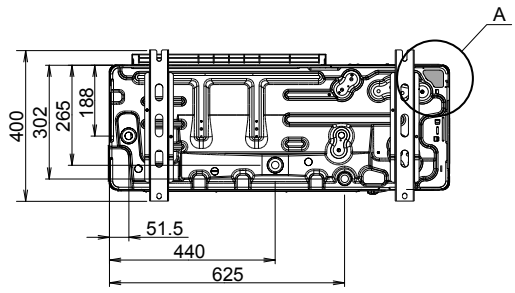
Front view



Side view

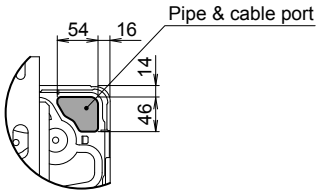


Rear view



Bottom view

Detail A



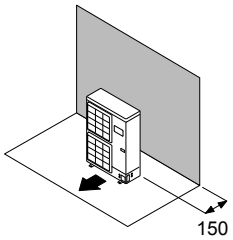
4. INSTALLATION PLACE

4-1. SINGLE OUTDOOR UNIT INSTALLATION

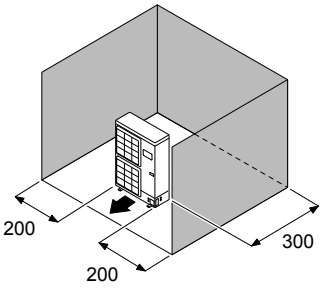
■ WHEN THE UPWARD AREA IS OPEN

(Unit : mm)

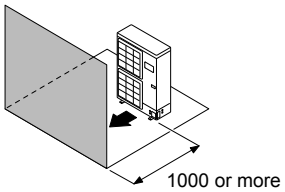
Obstacles at rear only



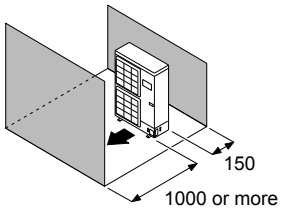
Obstacles at rear and sides only



Obstacles at front only



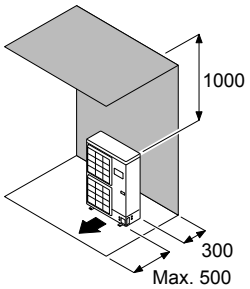
Obstacles at front and rear only



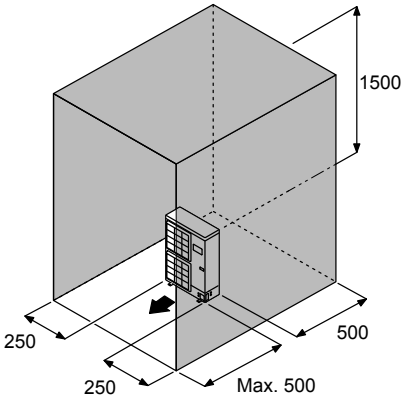
■ WHEN AN OBSTRUCTION IS PRESENT ALSO IN THE UPWARD AREA

(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.

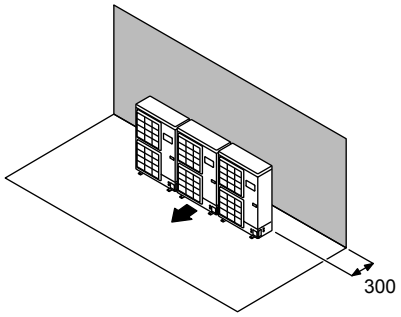
OUTDOOR UNIT
AO∗G45-54LETL

4-2. MULTIPLE OUTDOOR UNIT INSTALLATION

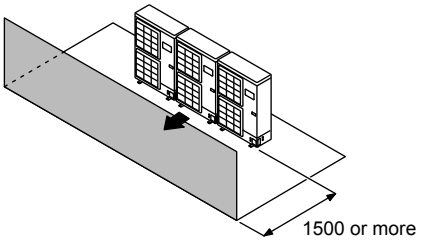
■ WHEN THE UPWARD AREA IS OPEN

(Unit : mm)

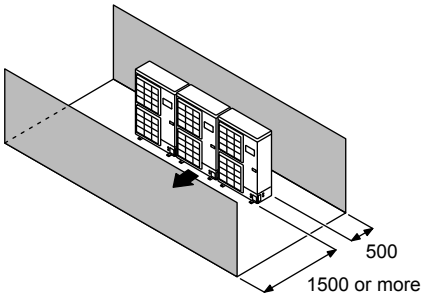
Obstacles at rear only



Obstacles at front only



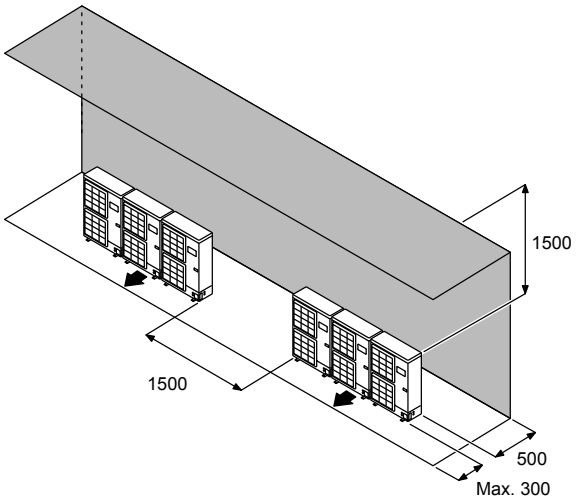
Obstacles at front and rear only



■ WHEN AN OBSTRUCTION IS PRESENT ALSO IN THE UPWARD AREA

(Unit : mm)

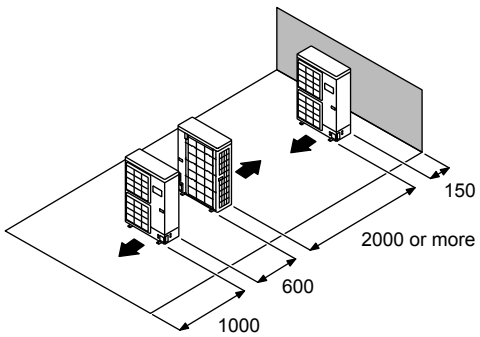
Obstacles at rear and above only



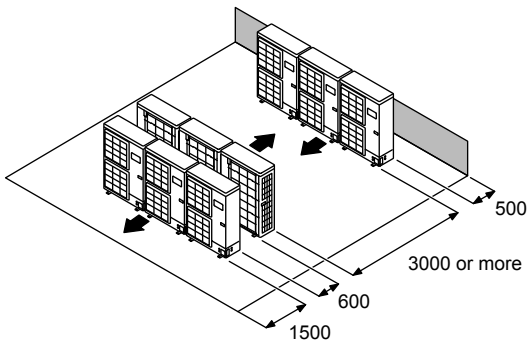
4-3. OUTDOOR UNIT INSTALLATION IN MULTI ROW

(Unit : mm)

Single parallel unit arrangement



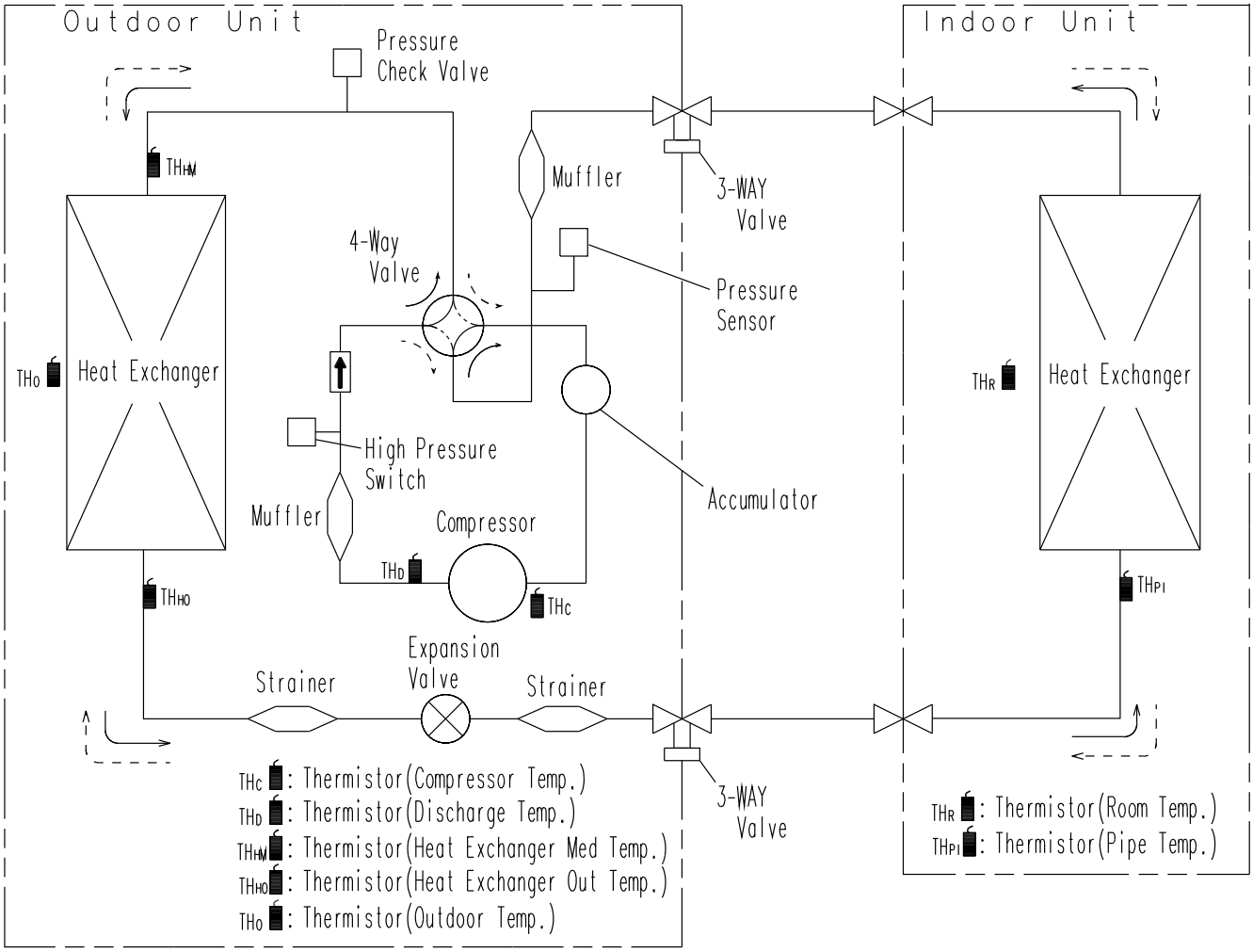
Multiple parallel unit arrangement



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

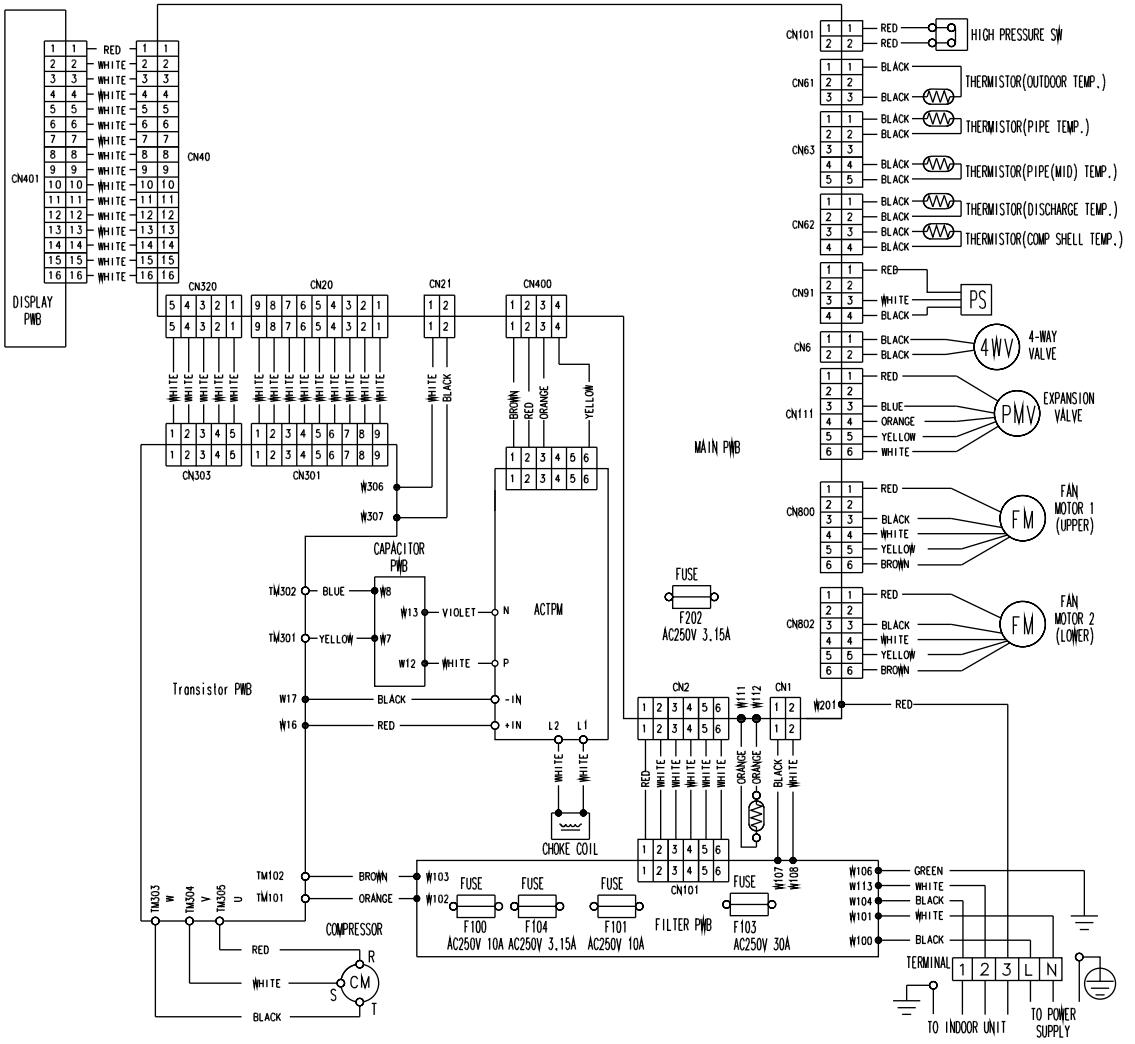
⟶ Cooling

- - -> Heating

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

6. WIRING DIAGRAMS

■ MODELS: AO∗G45LETL, AO∗G54LETL



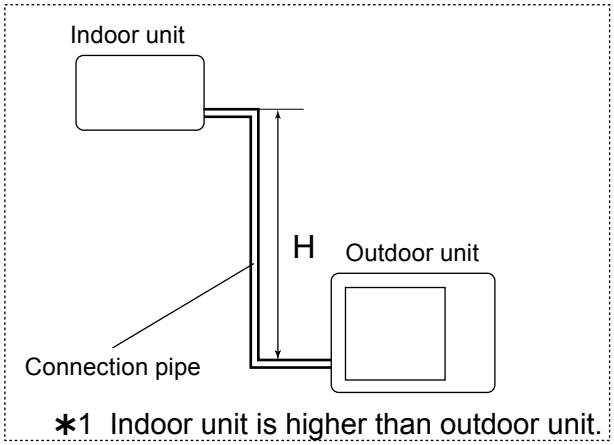
7. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

■ MODEL: AO∗G45LETL

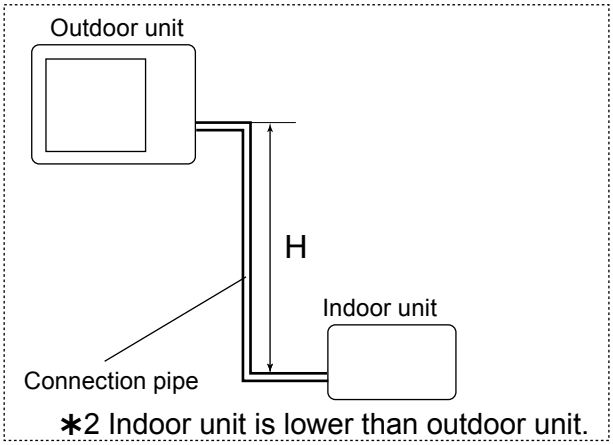
COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is higher than outdoor unit.	30	-	-	-	-	0.879	0.846	0.814
		20	-	-	-	0.926	0.893	0.861	0.828
		10	-	-	0.975	0.942	0.908	0.875	0.841
		7.5	-	0.988	0.979	0.946	0.912	0.878	0.845
		5	0.992	0.992	0.983	0.949	0.916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

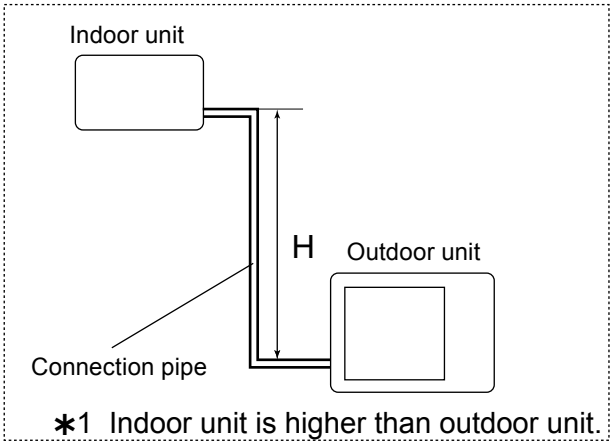
OUTDOOR UNIT
AO∗G45-54LETL

■MODEL: AO∗G54LETL

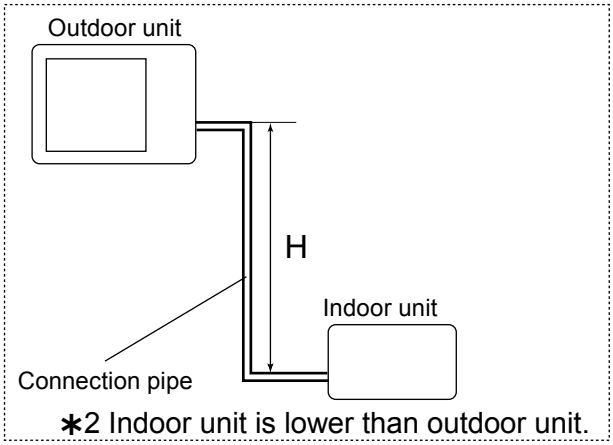
COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is higher than outdoor unit.	30	-	-	-	-	0.871	0.837	0.803
		20	-	-	-	0.921	0.886	0.851	0.816
		10	-	-	0.971	0.936	0.900	0.865	0.830
		7.5	-	0.988	0.975	0.940	0.904	0.868	0.833
		5	0.992	0.992	0.979	0.943	0.908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

9. AIRFLOW

■MODELS: AO∗G45LETL, AO∗G54LETL

●Cooling

MODEL		Number of rotations (r.p.m.)	Airflow	
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.)	Airflow	
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

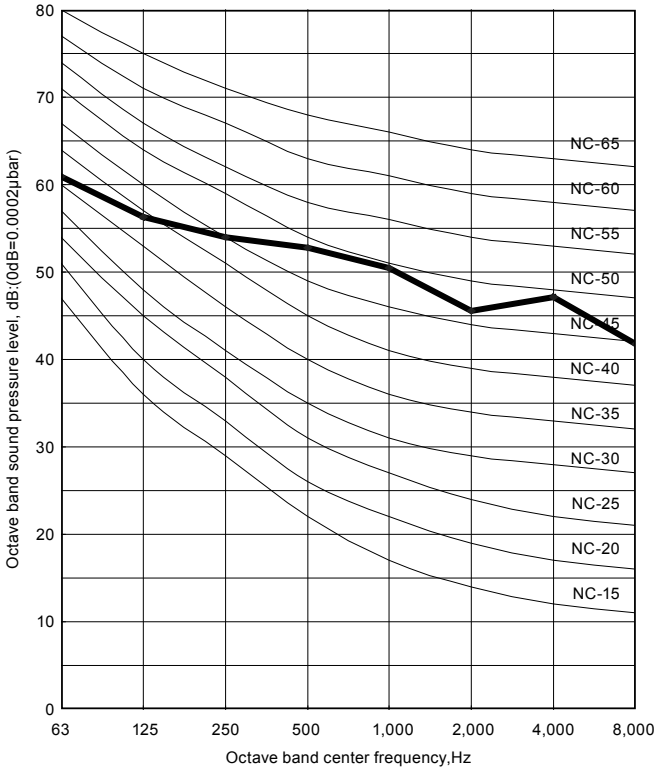
OUTDOOR UNIT
AO∗G45-54LETL

10. OPERATION NOISE (SOUND PRESSURE)

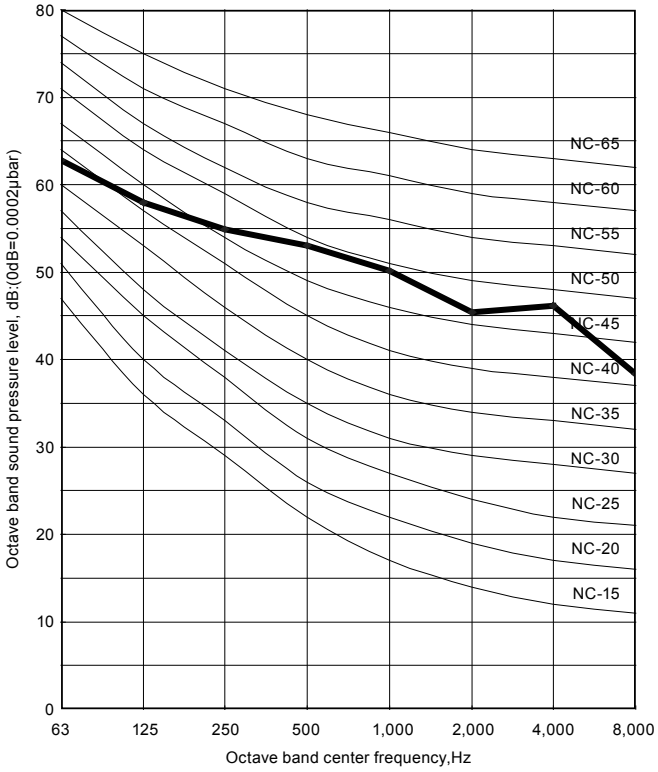
10-1. NOISE LEVEL CURVE

■MODEL: AO∗G45LETL

●Cooling

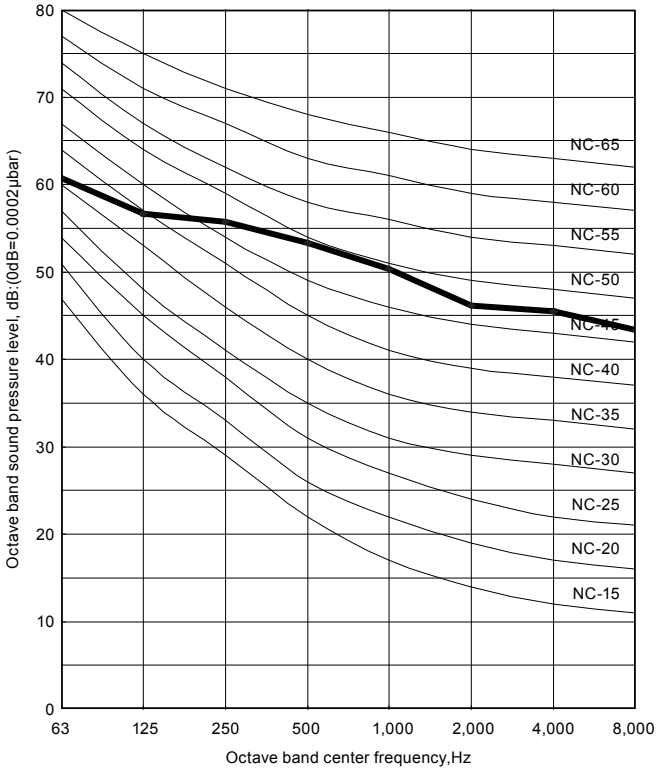


●Heating

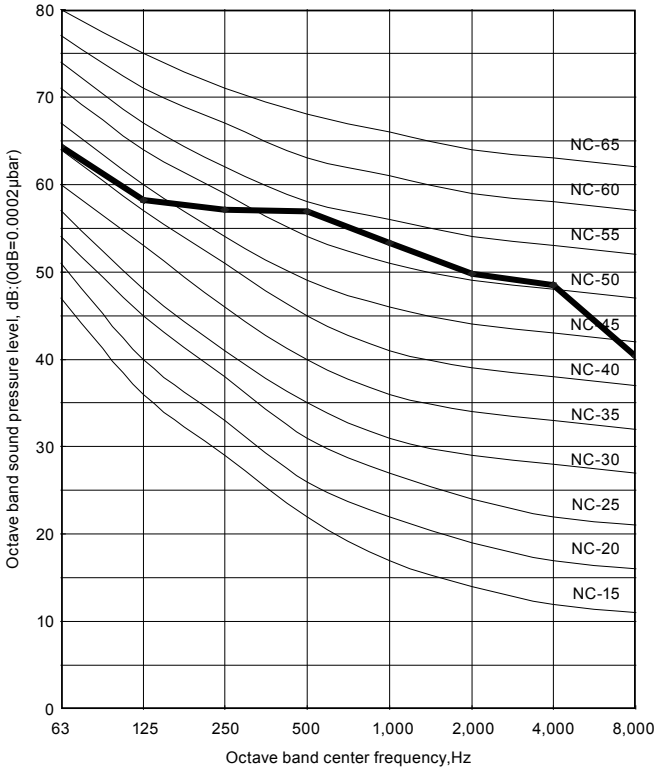


■MODEL: AO∗G54LETL

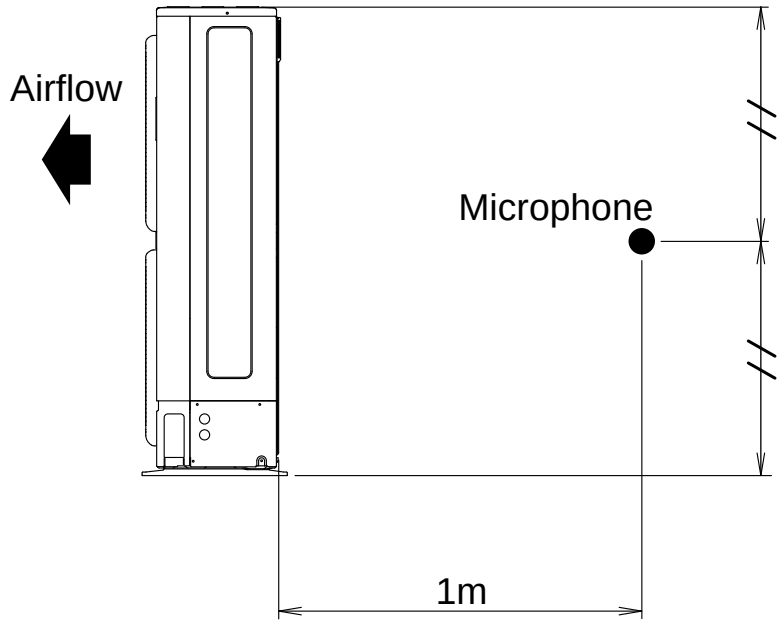
●Cooling

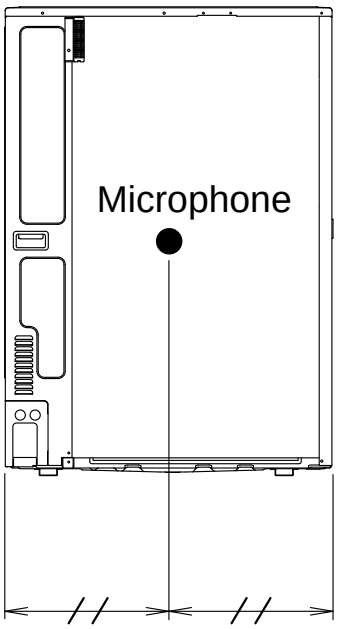


●Heating



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.	Main fuse (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)

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

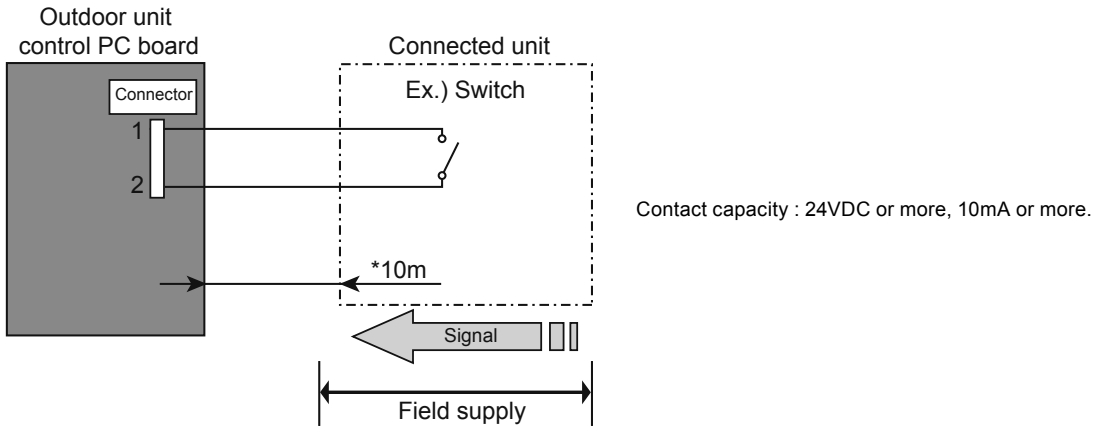
ON/OFF of the "Low noise mode" and "Peak cut mode" functions can be specified by external signal.

■ 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.

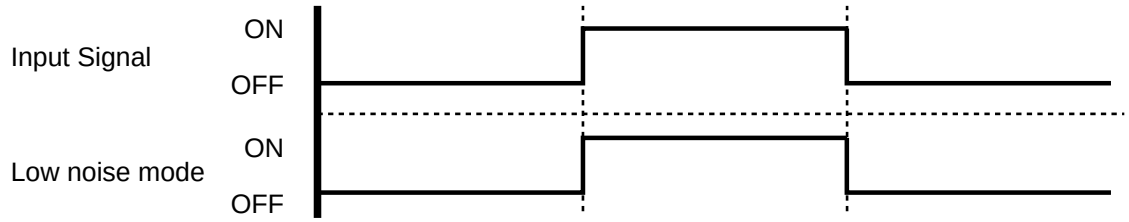
● Circuit diagram example



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

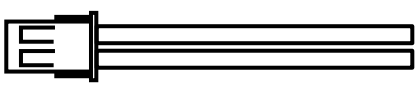
- Use the following parts and construct a circuit as shown above.
- Input Signal···ON : Low noise mode, Input Signal···OFF : Normal operation

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



● Parts (Optional)

Parts name	External connect kit
Model name	UTY-XWZXZ3

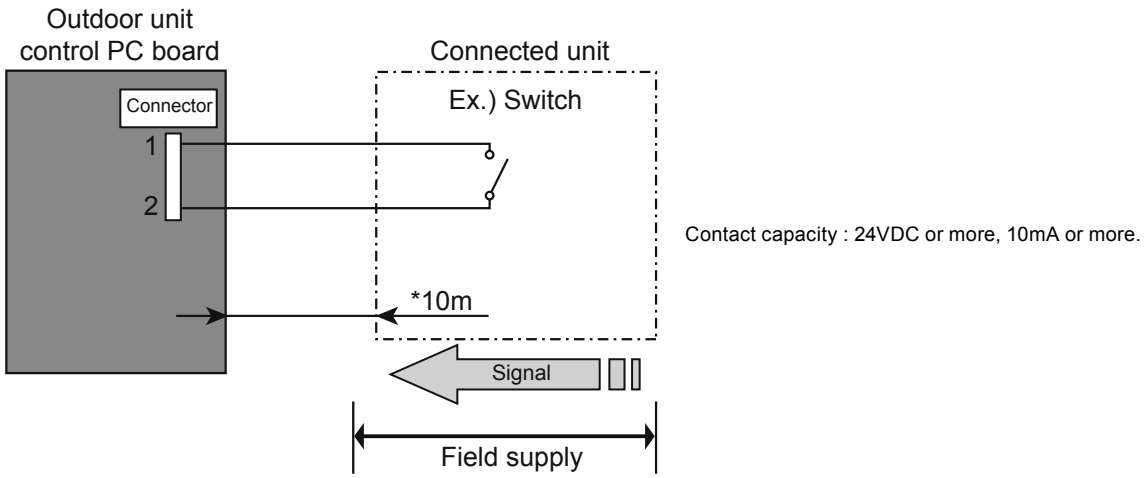


OUTDOOR UNIT
AO∗G45-54LETL

■ 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

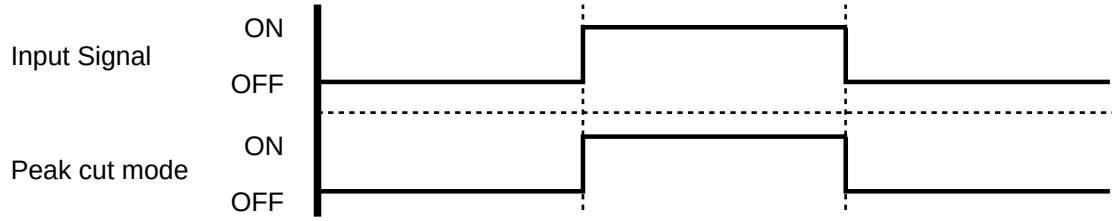


* Make the distance from the PC board to the connected unit within 10m.

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

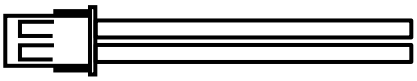
• Input Signal···ON : Peak cut mode, Input Signal···OFF : Normal operation

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



● Parts (Optional)

Parts name	External connect kit
Model name	UTY-XWZXZ3



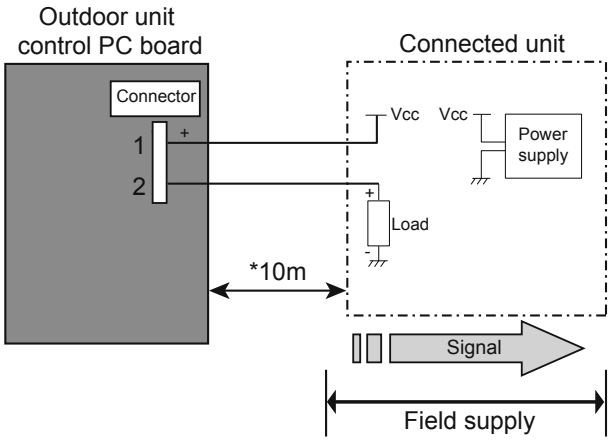
OUTDOOR UNIT
AO∗G45-54LETL

13-2. EXTERNAL OUTPUT

■ ERROR STATUS OUTPUT

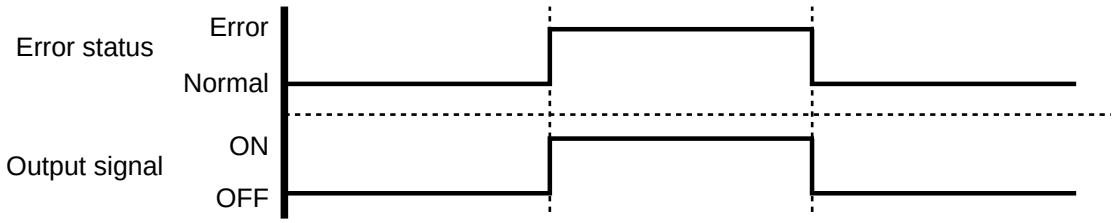
• An air conditioner error status signal is produced when a malfunction occurs.

● Circuit diagram example



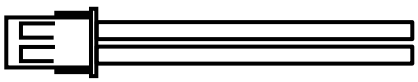
1) Power supply
●Voltage (Chart sign=Vcc) : DC 24V or less
2) Load
●Load : DC 500mA or less is recommended

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



● Parts (Optional)

Parts name	External connect kit
Model name	UTY-XWZXZ3

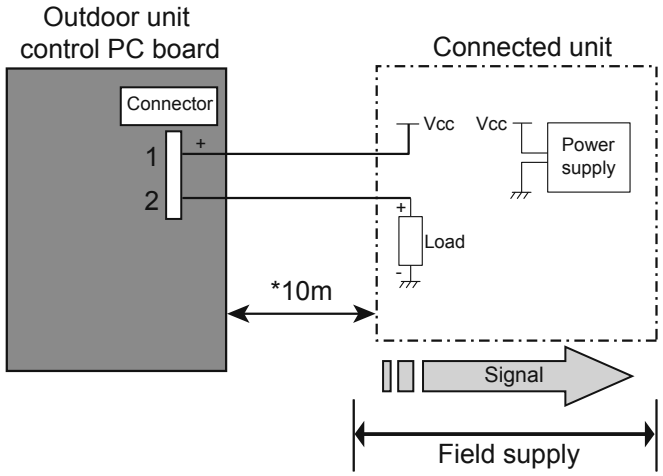


OUTDOOR UNIT
AO∗G45-54LETL

■ COMPRESSOR STATUS OUTPUT

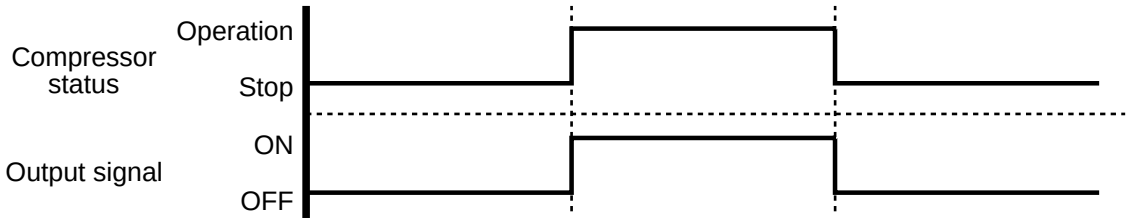
• Compressor operation status signal is produced when the compressor is running.

● Circuit diagram example



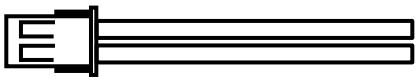
1) Power supply
●Voltage (Chart sign=Vcc) : DC 24V or less
2) Load
●Load : DC 500mA or less is recommended

* 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

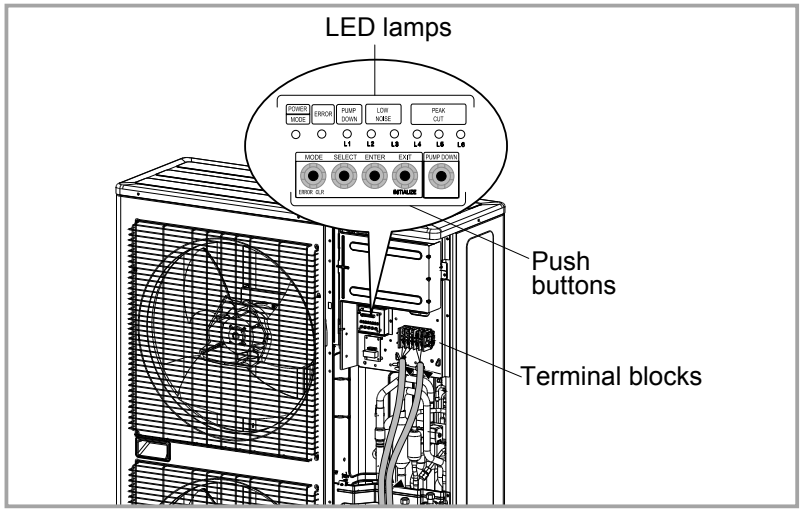
⚠ Caution

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

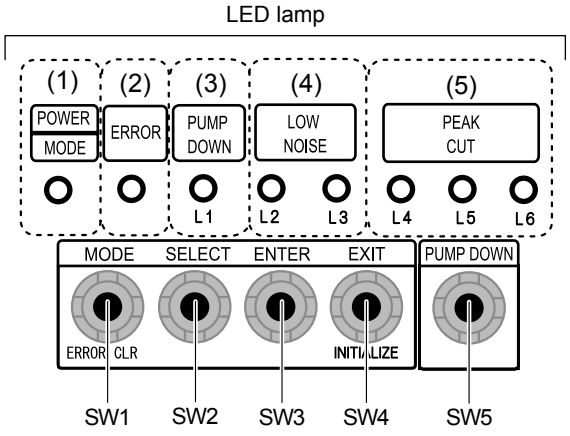
Never touch the terminals or the patterns on the parts that are mounted on the board.

14-1. FIELD SETTING SWITCHES

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



■ FUNCTIONS



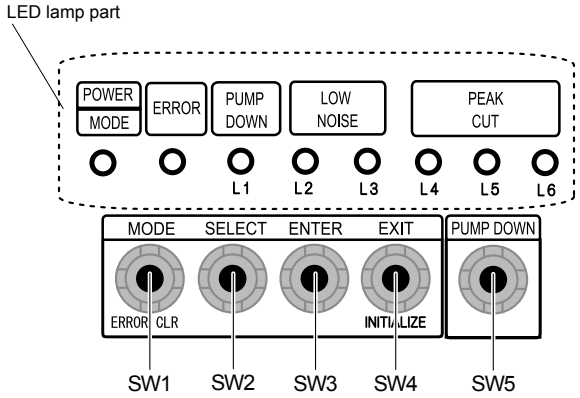
Display lamp		Function or operation method
(1) POWER / MODE	Green	Lights on while power on. Local setting in outdoor unit or error code is displayed with blink.
(2) ERROR	Red	Blinks during abnormal operation.
(3) PUMP DOWN (L1)	Orange	Lights on during pump down operation.
(4) LOW NOISE MODE (L2,L3)	Orange	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.

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.

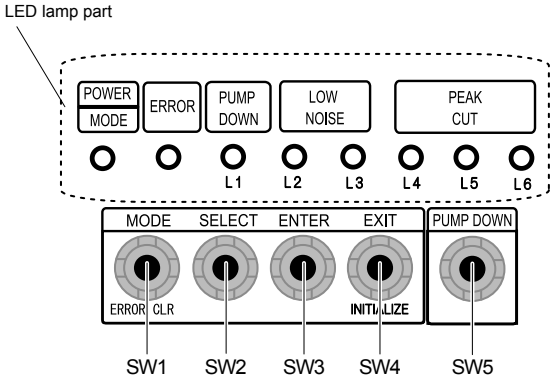
(6) Press [ENTER] button (SW3) to fix it.

	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.

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	○	○

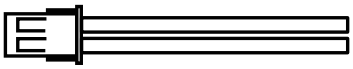
(6) Press [ENTER] button (SW3) to fix it.

	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.

OUTDOOR UNIT
AO∗G45-54LETL