Refrigerant R410A

INVERTER

AIR CONDITIONER

Duct type

DESIGN & TECHNICAL MANUAL

INDOOR

ARTG30LHTA
ARTG36LHTA

ARTG45LHTA
ARTG54LHTA

OUTDOOR

AOTG30LATL
AOTG36LATL
AOTG45LATL
AOTG54LATL

FUJITSU GENERAL LIMITED

1. INDOOR UNIT

DUCT TYPE :

ARTG30LHTA
ARTG36LHTA
ARTG45LHTA
ARTG54LHTA

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1. FEATURE

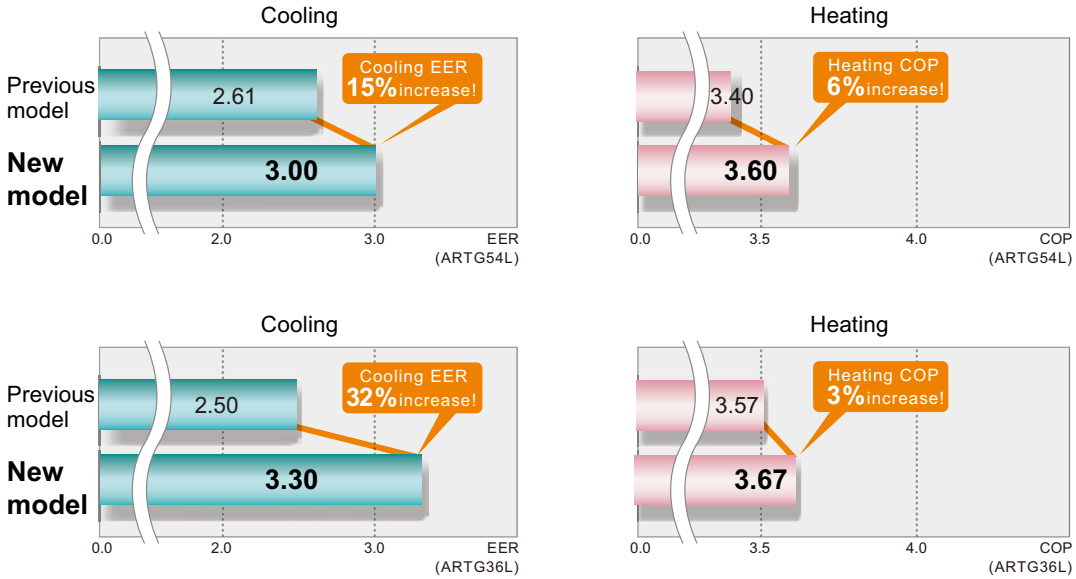
■ MODEL

ARTG30LHTA / AOTG30LATL
ARTG36LHTA / AOTG36LATL
ARTG45LHTA / AOTG45LATL
ARTG54LHTA / AOTG54LATL

■ FEATURES

● Significantly improved EER/COP

Significantly improved Hi-efficiency is realized by the use of a ALL-DC components, inverter technology, and large heat exchanger.



● Energy saving technology (ALL DC)

OUTDOOR UNIT

DC inverter compressor from FGL

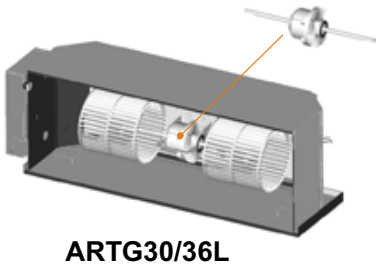
Realize high efficiency by optimizing cylinder capacity design and magnetic field analysis technology.

DC fan motor

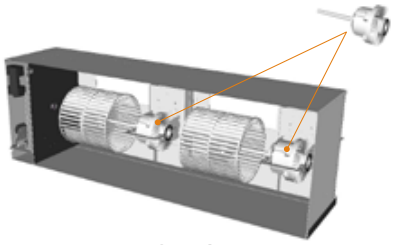
High performance and high efficiency compact DC fan motor.

INDOOR UNIT

DC fan motor



ARTG30/36L



ARTG45/54L

The power consumption has been reduced drastically by the introduction of DC fan motors.

DUCT TYPE
ARTG30-54L

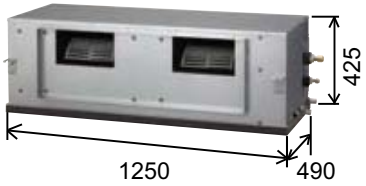
● Space saving

• Compact size

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

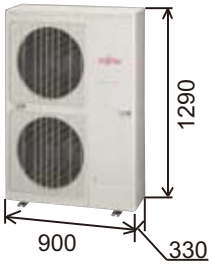
INDOOR UNIT

ARTG30/36L



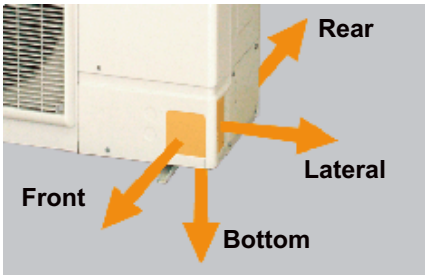
ARTG45/54L
(New chassis)

OUTDOOR UNIT



• 4-directions piping connection

Four directions piping connection is possible. The perfect route can be selected according to the installation.



● Quiet operation

INDOOR UNIT

ARTG45/54L: New chassis

The fan noise is reduced by improving the structure of the indoor unit.

Previous model	New model
49dB(A)	**45dB(A)**

* ARTG54L at 100Pa, fan mode : Hi

Previous model	New model
49dB(A)	**43dB(A)**

* ARTG45L at 100Pa, fan mode : Hi

OUTDOOR UNIT

Low noise mode (Optional parts: UTY-XWZXZ3)

Introduction of a low outdoor noise operation mode allow the outdoor unit to have two quiet mode operation settings.

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

1) Level1 (Rated noise value -2dB)

2) Level2 (Rated noise value -4dB)

DUCT TYPE
ARTG30-54L

● Peak cut operation

Peak cut mode (Optional parts: UTY-XWZXZ3)

The introduction of a peak power consumption mode control 4 steps outdoor operation control to cut down energy usage at peak energy usage times.

* Performance drops by reducing the power consumption preferentially.

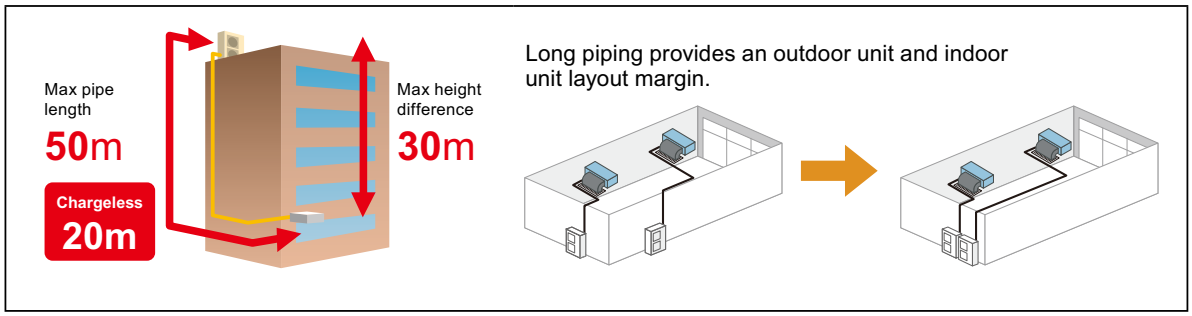
Level 1 ... Performs operation which suppresses the power consumption to almost 0% by stopping the compressor.

Level 2 ... Performs operation which suppresses the power consumption to 50% of the rated power consumption value.

Level 3 ... Performs operation which suppresses the power consumption to 75% of the rated power consumption value.

Level 4 ... Performs operation which suppresses the power consumption to the rated power consumption value (100%).

● High install ability long piping correspondence



● Low outdoor air temperature correspondence

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

Cooling	-5 °C	Heating	Dry-bulb -15 °C Wet-bulb -20 °C

● External output (option)

• **Compressor status output**

This output indicates the outdoor unit compressor status.

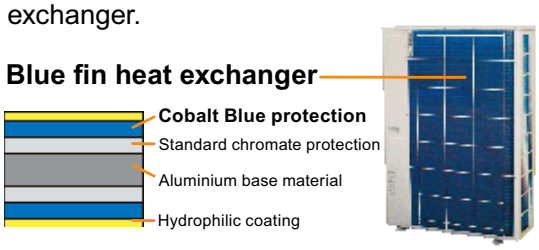
• **Error status output**

This output indicates the outdoor unit and connected indoor unit's Normal / Error.

● 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.

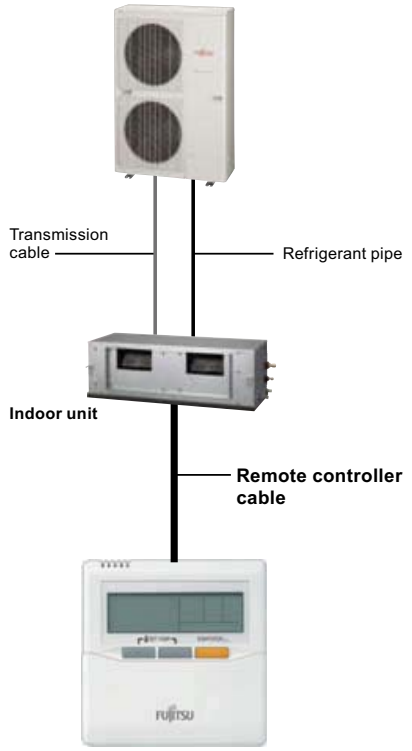
• Pump down operation can be performed by one button when refrigerant recovery.

DUCT TYPE
ARTG30-54L

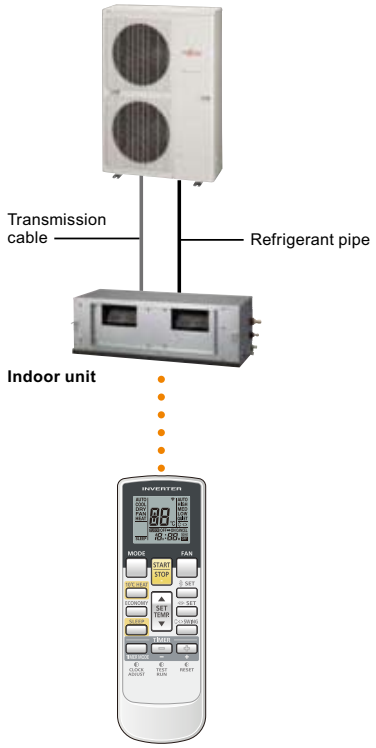
● Control system

• 1-Remote controller control

This is the most basic system. Wired type or wireless type remote controller can be selected.



Wired R.C.



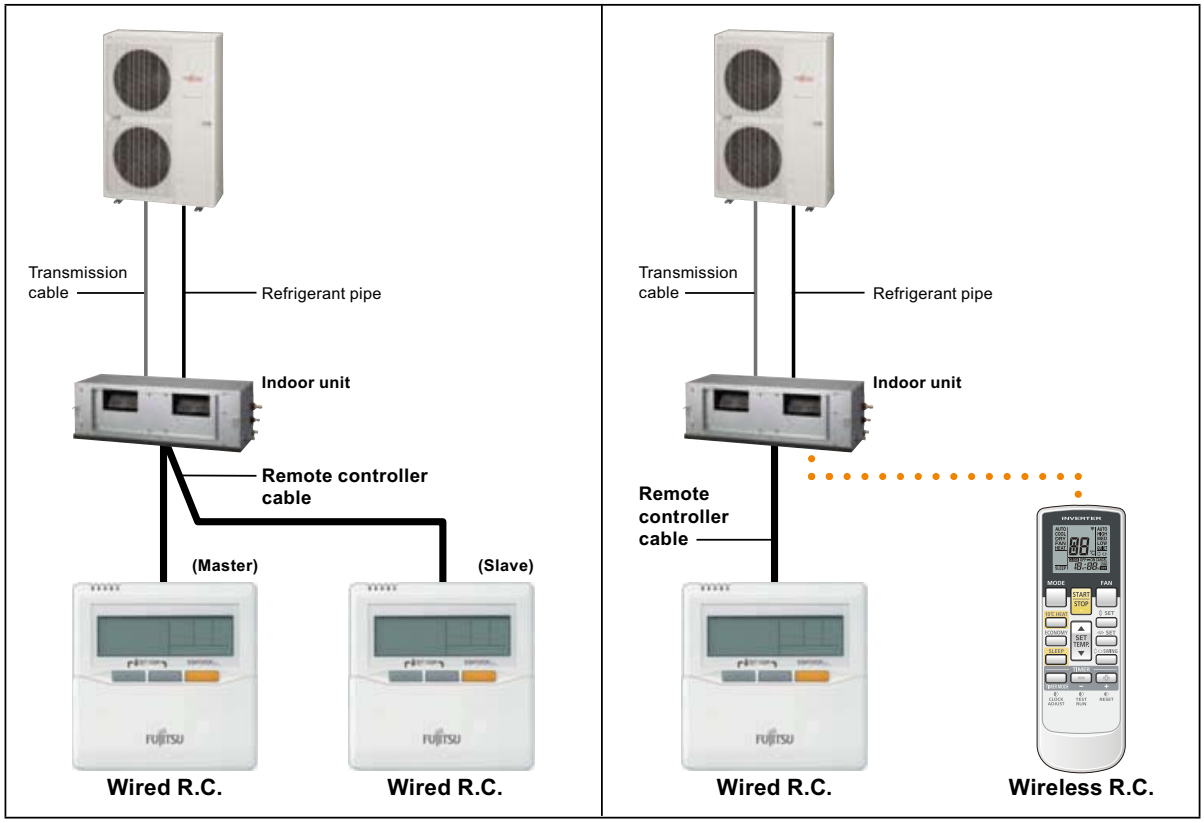
Wireless R.C.

* When using a wireless type remote controller, install “IR Receiver unit (UTY-LRHYM)” to the indoor units.

DUCT TYPE
ARTG30-54L

• 2-Remote controllers control

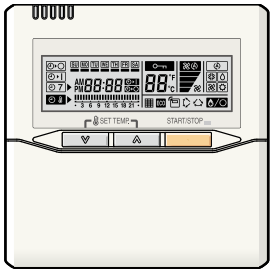
Control locally and from a remote point is possible using 2-remote controllers.



* For 2-wired type remote controllers, specify a Master and a Slave remote controller.
* The timer function of the remote controller specified the Slave cannot be used.
* When using a wireless type remote controller, install “IR Receiver unit (UTY-LRHYM)” to the indoor units.

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.
- ∗ Economy operation are possible.
- ∗ Easy installation with a slim shape with no bulge in the back.
- ∗ 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.

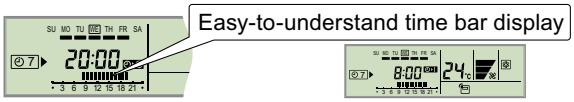
● High performance and compact size

Three functions are combined in one unit.

● Built-in timers

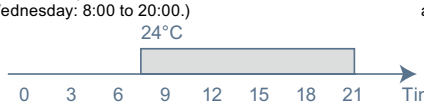
Weekly timer

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



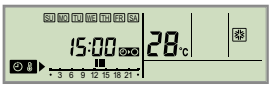
Setup screen example
(Set to Wednesday: 8:00 to 20:00.)

Screen after setup

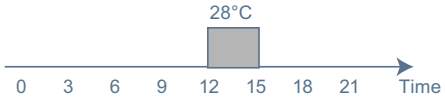


Setback timer

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

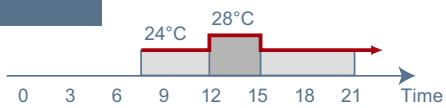


Setup screen example
(Set from Sunday to Saturday: 12:00 to 15:00, 28 °C.)

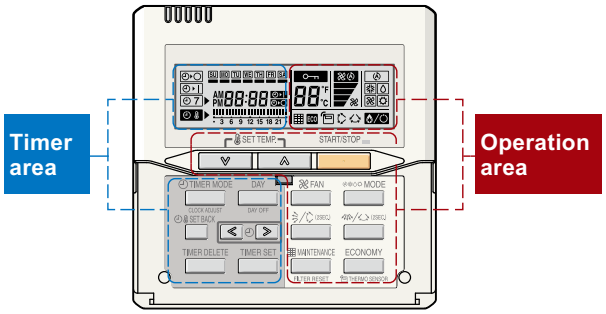


At "Weekly timer" + "Set back timer" setup

24°C → 28°C → 24°C



● Easy-to-understand operation

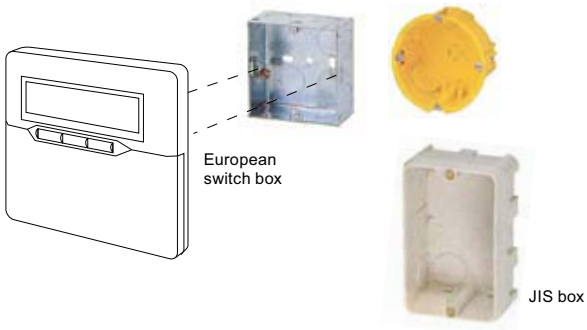


[Variable timer control]

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

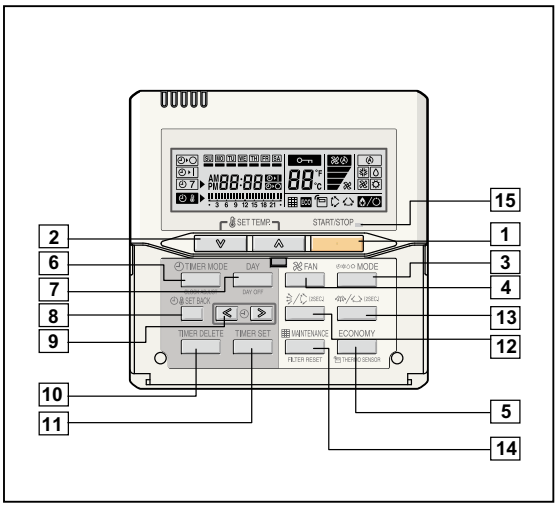
● Simple installation

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

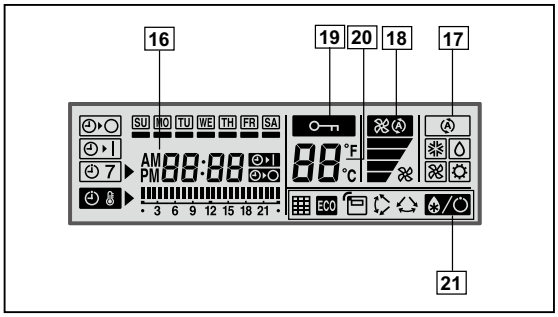


DUCT TYPE
ARTG30-54L

■ FUNCTIONS



Display panel



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

2 **Set temperature 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 **Delete button**
The schedule of a weekly timer is deleted.

11 **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**

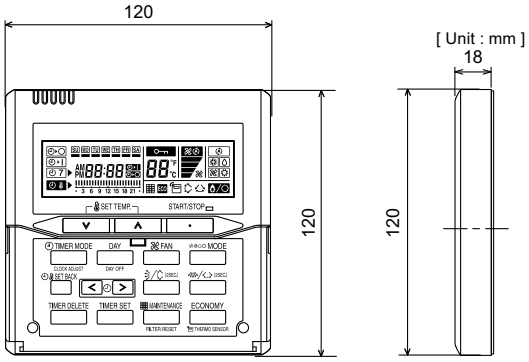
19 **Operation lock display**

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



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 Twisted pair	Use shield cable in accordance with local rules for cable

3. SPECIFICATIONS

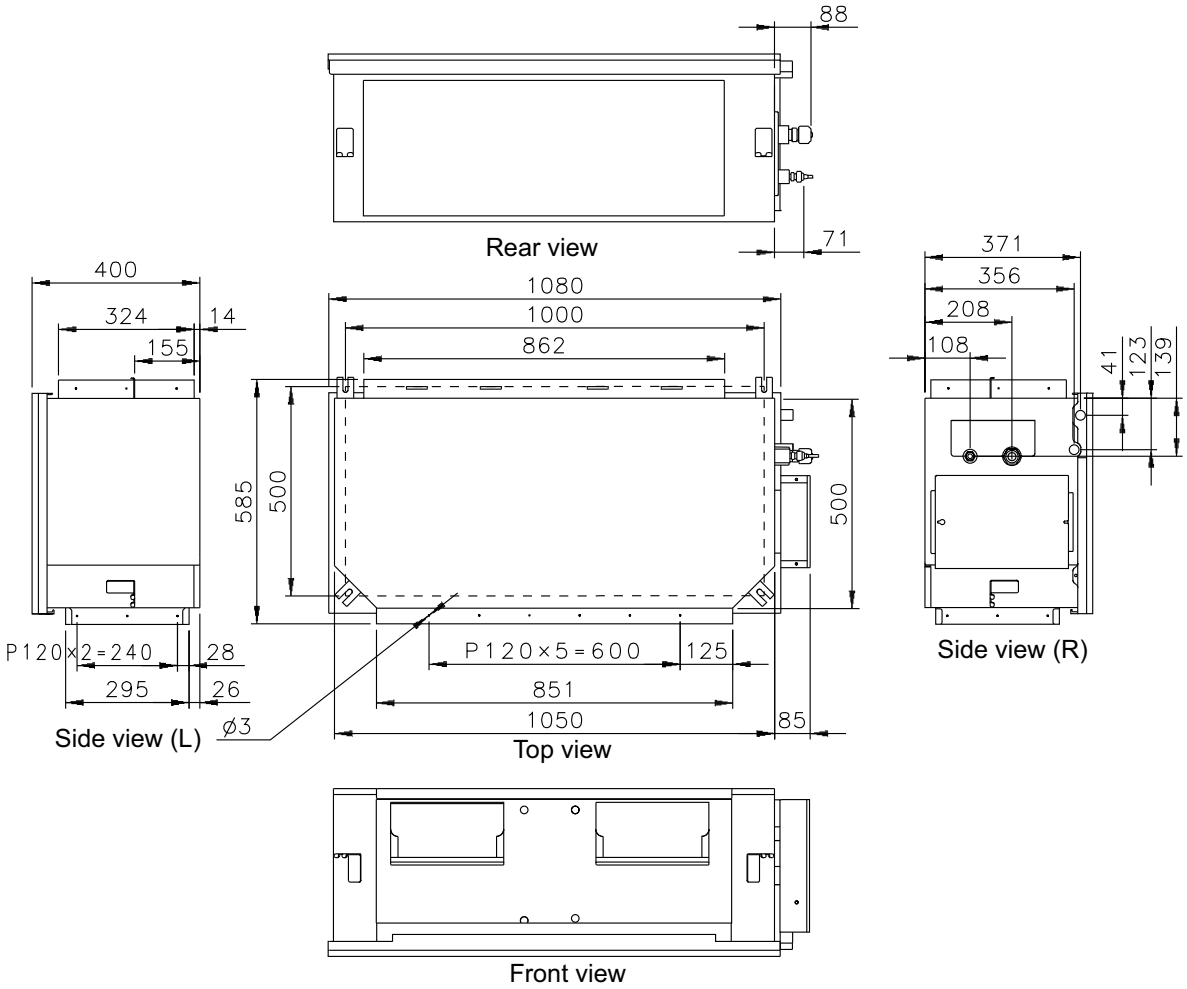
Type					DUCTED MODEL			
					INVERTER HEATPUMP			
Model name					ARTG30LHTA	ARTG36LHTA	ARTG45LHTA	ARTG54LHTA
Power source					1φ 240V ~ 50Hz			
Available voltage range					198-264V ~ 50Hz			
Capacity	Cooling	Rated		kW	9.0	10.5	12.5	14.0
				BTU/h	30,700	35,800	42,700	47,800
		Min - Max.		kW	4.7-10.0	5.0-11.4	5.7-14.0	6.2-15.2
				BTU/h	16,000-34,100	17,100-38,900	19,500-47,800	21,200-51,900
	Heating	Rated		kW	11.2	12.1	14.0	16.0
				BTU/h	38,200	41,300	47,800	54,600
		Min - Max.		kW	5.0-12.1	5.1-14.0	6.0-16.0	6.2-18.0
				BTU/h	17,100-41,300	17,400-47,800	20,500-54,600	21,200-61,500
Input power	Cooling	Rated		kW	2.70	3.18	4.03	4.66
		Max			4.30	4.67	5.38	5.63
	Heating	Rated			2.95	3.30	3.80	4.44
		Max			4.30	4.80	5.38	5.63
Current	Cooling	Rated		A	11.4	13.4	16.9	19.5
		Max			18.1	19.6	22.5	23.5
	Heating	Rated			12.4	13.9	16.0	18.6
		Max			18.1	20.1	22.5	23.5
EER		Cooling		kW/kW	3.33	3.30	3.10	3.00
COP		Heating			3.80	3.67	3.68	3.60
Moisture removal				l/h (pints/h)	1.0 (2.1)	1.5 (3.2)	1.0 (2.1)	1.0 (2.1)
Fan	Air flow rate	Cooling	High	l/s (m^3/h)	700 (2,500)		900 (3,250)	990 (3,550)
			Med		580 (2,100)		760 (2,750)	830 (3,000)
			Low		490 (1,750)		630 (2,250)	680 (2,450)
		Heating	High		700 (2,500)		900 (3,250)	990 (3,550)
			Med		580 (2,100)		760 (2,750)	830 (3,000)
			Low		490 (1,750)		630 (2,250)	680 (2,450)
	Type × Q'ty				Sirocco x 2			
	Motor output			W	197		197 x 2	
External static pressure		Rated / (High)		Pa	60 / (100)		60 / (100/150)	60 / (100)
		Operation range			60-210		60-260	60-260
Sound pressure level		Cooling	High	dB(A)	41		43	45
			Med		38		39	40
			Low		36		35	36
		Heating	High		41		43	45
			Med		38		39	40
			Low		36		35	36
Heat exchanger type		Dimensions (H × W × D)		mm	336 x 890 x 53.2		378 x 1,090 x 53.2	
		Fin pitch			1.3		1.3	
		Rows x Stages			4 x 16		4 x 18	
		Pipe type			Copper			
		Fin type			Aluminium			
Enclosure		Material			Steel			
		Colour			-			
Dimensions (H×W ×D)	Net			mm	400 x 1,050 x 500		425 x 1,250 x 490	
	Gross				460 x 1,230 x 640		490 x 1,440 x 655	
Weight	Net			kg(lb.)	39 (86)		54 (119)	
	Gross				46 (101)		61 (134)	
Connection pipe	Size	Liquid		mm	Φ 9.52 (Φ 3/8 in.)			
		Gas			Φ 15.88 (Φ 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 pipe	Material				Steel			
	Size			mm	Outer diameter: 25.4 / Inner diameter: 23.4			

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 : 7.5 m, Height difference : 0 m.(Outdoor unit - Indoor unit)
The maximum current is the maximum value when operated within the operation range(temperature)

4. DIMENSIONS

■ MODEL: ARTG30L, ARTG36L

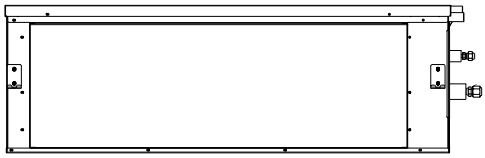
(Unit : mm)



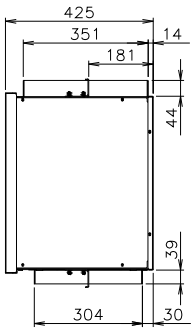
DUCT TYPE
ARTG30-54L

■MODEL: ARTG45L, ARTG54L

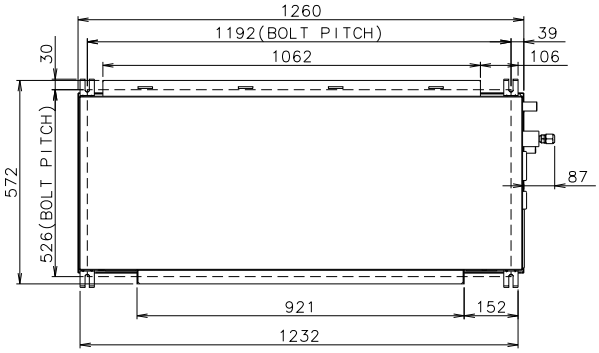
(Unit : mm)



REAR VIEW

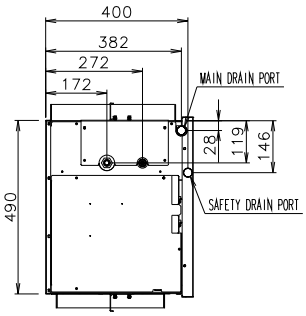


SIDE VIEW (L)

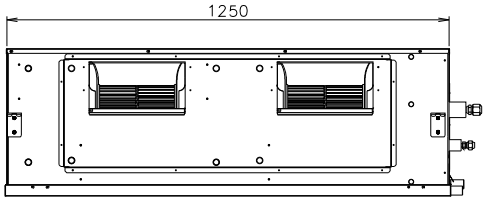


AIR FLOW

TOP VIEW



SIDE VIEW (R)



FRONT VIEW

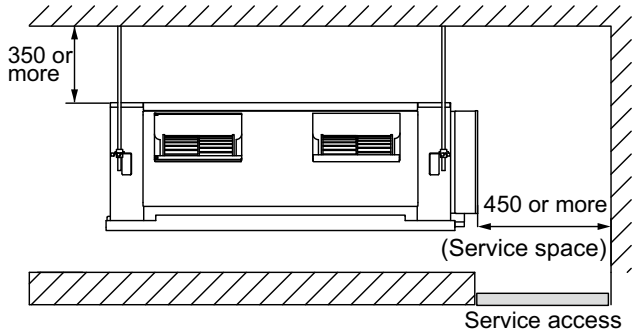
DUCT TYPE
ARTG30-54L

■ INSTALLATION PLACE

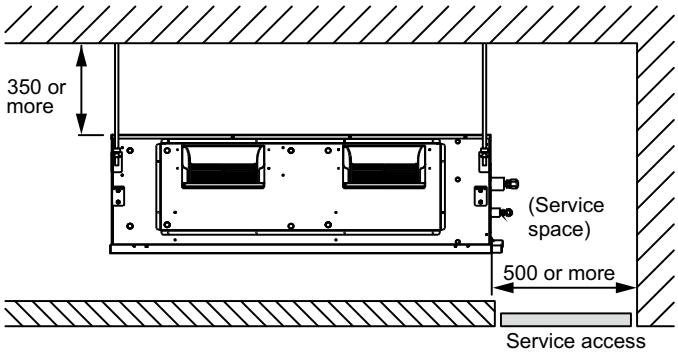
(Unit : mm)

● ARTG30L, ARTG36L

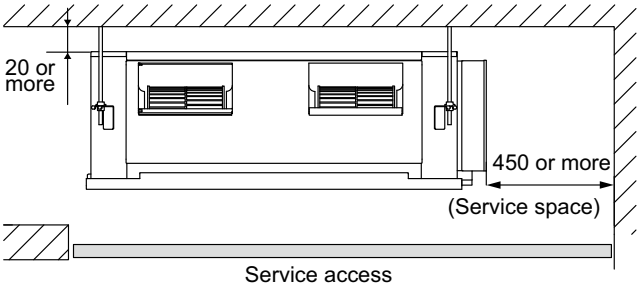
Installation by which service space is made on top of the unit (recommended).

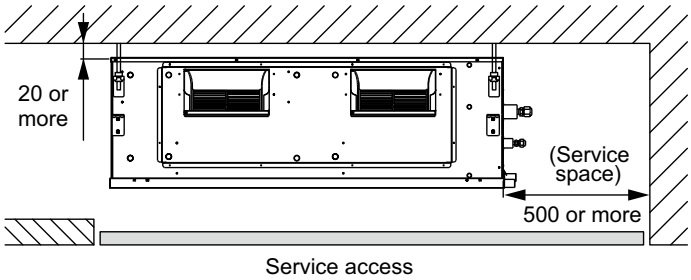


● ARTG45L, ARTG54L



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



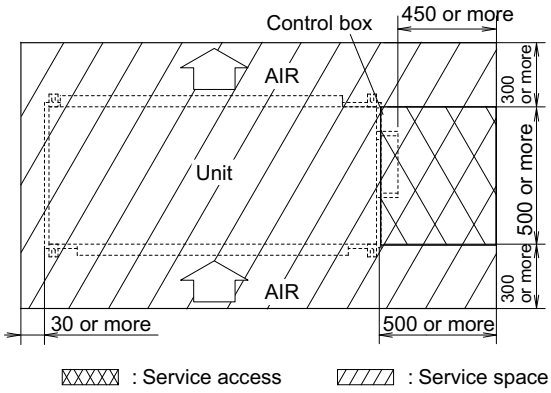


■ MAINTENANCE SPACE

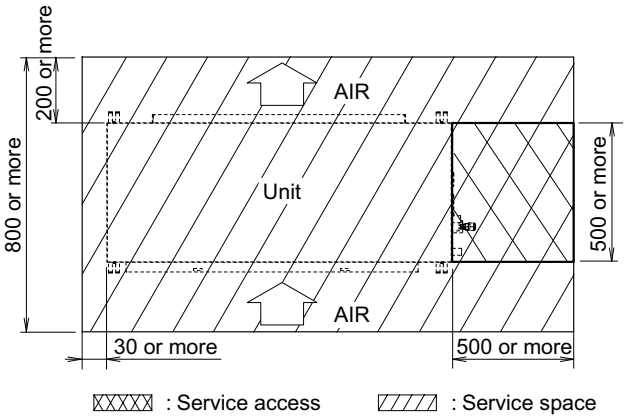
Provide a maintenance space for inspection purposes as shown below.
Do not place any wiring or illumination in the service space, as they will impede service.

(Unit : mm)

● ARTG30L, ARTG36L

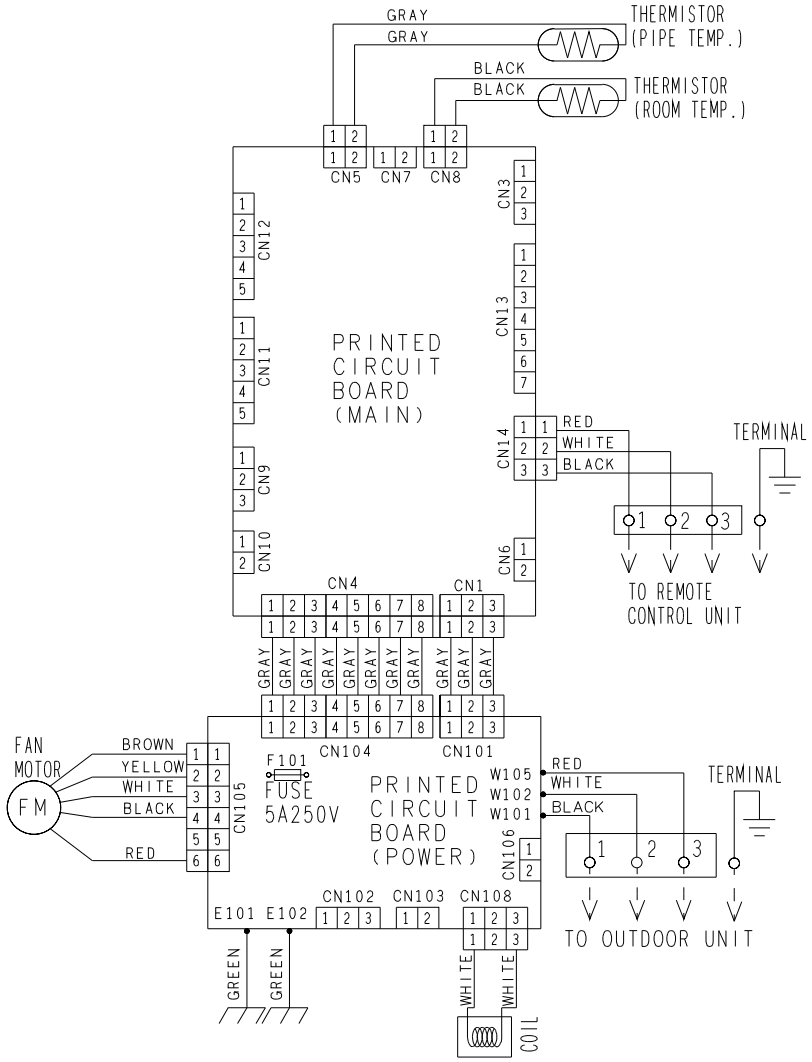


● ARTG45L, ARTG54L

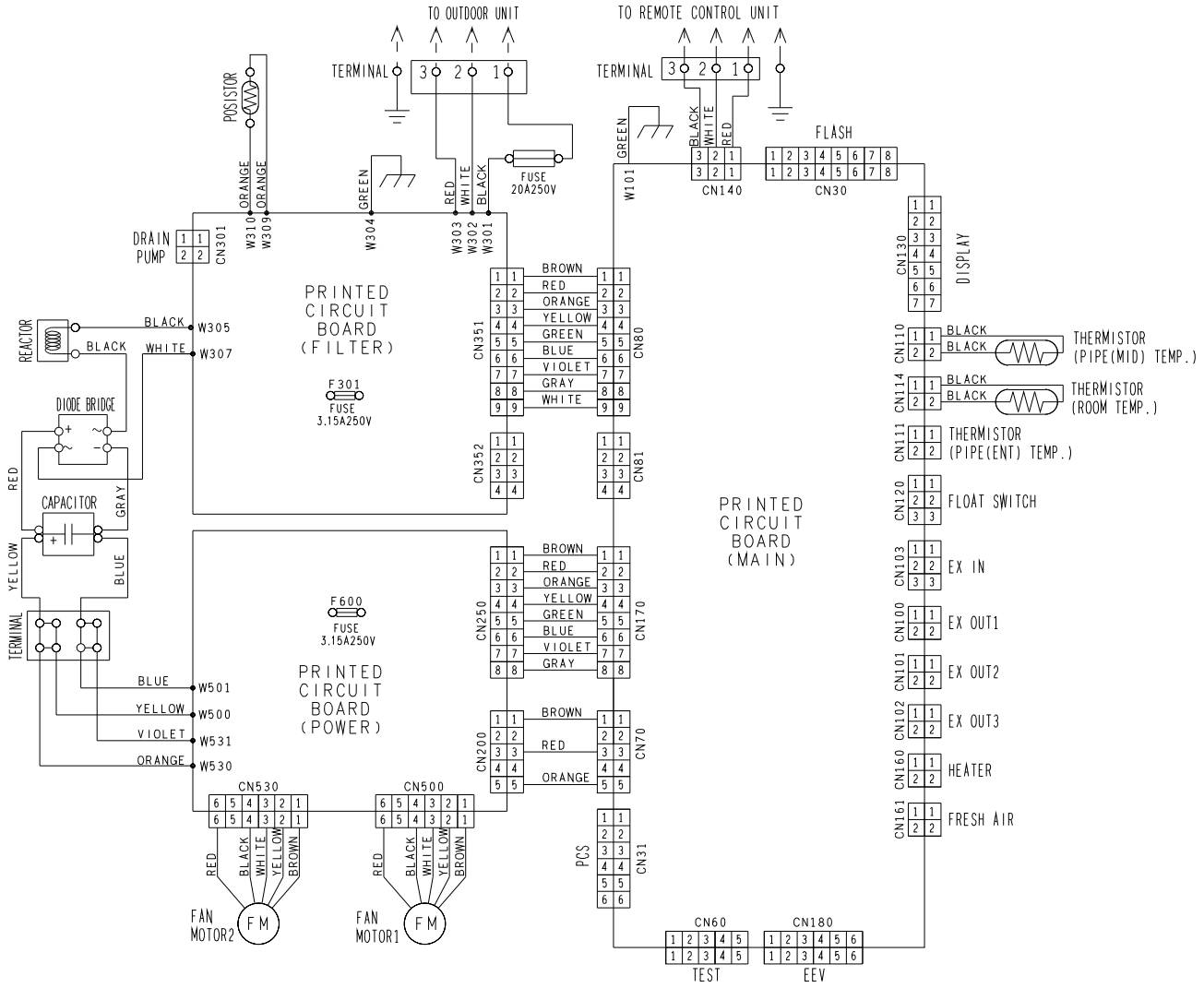


5. WIRING DIAGRAMS

■ MODEL: ARTG30L, ARTG36L



■MODEL: ARTG45L, ARTG54L



6. CAPACITY TABLE

6-1. COOLING CAPACITY

■ MODEL: ARTG30L

AFR	41.7

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	-5	8.84	8.22	1.52	9.85	8.27	1.55	10.19	8.99	1.55	10.86	9.02	1.57	11.20	9.74	1.58	11.87	9.70	1.59	12.54	10.33	1.61
	0	8.86	8.23	1.52	9.86	8.28	1.54	10.20	9.00	1.55	10.87	9.03	1.57	11.21	9.75	1.58	11.88	9.71	1.59	12.56	10.34	1.61
	5	8.94	8.25	1.49	9.96	8.29	1.52	10.30	9.02	1.52	10.98	9.05	1.54	11.32	9.77	1.55	11.99	9.73	1.56	12.67	10.37	1.58
	10	8.77	8.14	1.61	9.77	8.19	1.64	10.10	8.90	1.65	10.77	8.93	1.66	11.10	9.64	1.67	11.76	9.60	1.69	12.43	10.23	1.71
	15	8.46	8.01	1.71	9.43	8.06	1.74	9.75	8.76	1.74	10.39	8.79	1.76	10.71	9.49	1.77	11.36	9.46	1.79	12.00	10.07	1.81
	20	8.34	7.97	1.70	9.29	8.01	1.73	9.60	8.71	1.74	10.24	8.74	1.76	10.55	9.44	1.76	11.19	9.40	1.78	11.82	10.01	1.80
	25	7.88	7.66	1.97	8.77	7.70	2.00	9.07	8.38	2.01	9.67	8.40	2.03	9.97	9.07	2.05	10.57	9.04	2.07	11.17	9.63	2.09
	30	7.49	7.34	2.26	8.34	7.38	2.29	8.62	8.02	2.31	9.19	8.05	2.33	9.48	8.69	2.34	10.04	8.66	2.36	10.61	9.22	2.39
	35	7.11	6.99	2.61	7.92	7.06	2.65	8.19	7.68	2.66	8.73	7.70	2.69	9.00	8.32	2.70	9.54	8.29	2.73	10.08	8.83	2.75
	40	6.79	6.74	2.72	7.57	6.81	2.76	7.83	7.40	2.78	8.34	7.43	2.81	8.60	8.02	2.82	9.12	7.99	2.85	9.63	8.51	2.88
	46	6.29	6.29	2.96	7.01	6.76	3.01	7.25	7.25	3.02	7.72	7.37	3.05	7.96	7.96	3.07	8.44	7.93	3.10	8.92	8.45	3.13

■ MODEL: ARTG36L

AFR	41.7

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	-5	10.19	8.98	1.70	11.35	9.03	1.72	11.74	9.82	1.73	12.51	9.85	1.75	12.90	10.64	1.76	13.67	10.60	1.78	14.44	11.29	1.79
	0	10.19	8.95	1.71	11.35	9.01	1.74	11.73	9.79	1.74	12.51	9.82	1.76	12.89	10.61	1.77	13.67	10.57	1.79	14.44	11.26	1.81
	5	10.10	8.91	1.94	11.25	8.97	1.97	11.64	9.75	1.98	12.41	9.78	2.00	12.79	10.56	2.01	13.56	10.52	2.03	14.32	11.21	2.05
	10	9.92	8.85	2.03	11.05	8.90	2.06	11.42	9.68	2.07	12.18	9.71	2.09	12.55	10.48	2.10	13.31	10.44	2.12	14.06	11.12	2.14
	15	9.73	8.77	2.18	10.84	8.82	2.21	11.21	9.59	2.22	11.95	9.62	2.25	12.32	10.39	2.26	13.06	10.35	2.28	13.80	11.02	2.30
	20	9.63	8.69	2.04	10.73	8.74	2.07	11.09	9.51	2.08	11.83	9.54	2.10	12.19	10.30	2.12	12.92	10.26	2.14	13.65	10.93	2.16
	25	9.16	8.51	2.36	10.20	8.56	2.40	10.55	9.30	2.41	11.25	9.33	2.44	11.59	10.08	2.45	12.29	10.04	2.47	12.99	10.69	2.50
	30	8.73	8.24	2.71	9.72	8.29	2.75	10.06	9.01	2.76	10.72	9.04	2.79	11.05	9.76	2.81	11.71	9.72	2.83	12.38	10.36	2.86
	35	8.30	8.00	3.07	9.24	8.05	3.12	9.56	8.75	3.13	10.19	8.78	3.16	10.50	9.48	3.18	11.13	9.44	3.21	11.76	10.06	3.24
	40	7.81	7.72	3.17	8.70	7.77	3.22	9.00	8.45	3.24	9.59	8.47	3.27	9.88	9.15	3.29	10.48	9.11	3.32	11.07	9.71	3.35
	46	6.90	6.85	3.36	7.68	7.18	3.41	7.95	7.81	3.43	8.47	7.84	3.47	8.73	8.46	3.48	9.26	8.43	3.52	9.78	8.98	3.55

shows rated capacity

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

DUCT TYPE
ARTG30-54L

■ MODEL: ARTG45L

AFR	54.2

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	-5	12.11	11.46	2.14	13.49	11.53	2.17	13.95	12.54	2.18	14.87	12.58	2.21	15.33	13.58	2.22	16.24	13.53	2.24	17.16	14.41	2.26
	0	11.95	11.48	2.15	13.31	11.55	2.19	13.76	12.56	2.20	14.67	12.60	2.22	15.13	13.60	2.23	16.03	13.55	2.25	16.94	14.43	2.28
	5	12.06	11.50	2.44	13.44	11.57	2.48	13.89	12.58	2.49	14.81	12.62	2.52	15.27	13.63	2.53	16.19	13.58	2.56	17.10	14.46	2.58
	10	11.83	11.35	2.56	13.18	11.42	2.60	13.63	12.42	2.61	14.53	12.46	2.63	14.97	13.45	2.65	15.87	13.40	2.67	16.77	14.27	2.70
	15	11.42	11.18	2.75	12.72	11.25	2.79	13.15	12.23	2.80	14.02	12.27	2.83	14.46	13.25	2.84	15.32	13.19	2.87	16.19	14.05	2.90
	20	11.25	11.11	2.57	12.53	11.18	2.61	12.96	12.15	2.63	13.81	12.19	2.65	14.24	13.17	2.67	15.10	13.11	2.69	15.95	13.97	2.72
	25	11.07	10.89	2.98	12.34	11.08	3.02	12.76	12.05	3.04	13.60	12.09	3.07	14.02	13.05	3.08	14.86	13.00	3.12	15.70	13.85	3.15
	30	10.53	10.36	3.41	11.73	10.42	3.46	12.13	11.33	3.48	12.93	11.37	3.52	13.33	12.27	3.54	14.13	12.22	3.57	14.93	13.02	3.61
	35	9.88	9.79	3.89	11.00	10.02	3.95	11.38	10.89	3.97	12.13	10.93	4.01	12.50	11.80	4.03	13.25	11.75	4.07	14.00	12.52	4.11
	40	9.61	9.56	4.67	10.71	9.62	4.75	11.07	10.46	4.77	11.80	10.49	4.82	12.17	11.33	4.84	12.90	11.28	4.89	13.63	12.02	4.94
	46	7.02	7.02	3.56	7.82	7.55	3.62	8.09	8.00	3.64	8.62	8.23	3.67	8.89	8.89	3.69	9.42	8.85	3.73	9.96	9.43	3.76

■ MODEL: ARTG54L

AFR	59.2

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
Outdoor temperature	°CDB	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
	-5	13.03	12.31	2.78	14.51	12.38	2.82	15.01	13.46	2.83	16.00	13.51	2.86	16.49	14.59	2.88	17.48	14.53	2.90	18.47	15.48	2.93
	0	13.03	12.33	2.79	14.51	12.40	2.84	15.00	13.48	2.85	15.99	13.53	2.88	16.49	14.61	2.89	17.48	14.55	2.92	18.47	15.50	2.95
	5	12.92	12.35	3.17	14.39	12.43	3.22	14.88	13.51	3.23	15.86	13.55	3.27	16.35	14.64	3.28	17.33	14.58	3.32	18.32	15.53	3.35
	10	12.68	12.19	3.31	14.13	12.27	3.37	14.61	13.33	3.38	15.57	13.38	3.42	16.05	14.45	3.44	17.02	14.39	3.47	17.98	15.33	3.50
	15	12.45	12.00	3.56	13.86	12.08	3.62	14.34	13.13	3.63	15.28	13.17	3.67	15.76	14.22	3.69	16.70	14.17	3.73	17.65	15.09	3.76
	20	12.32	12.00	3.34	13.72	12.08	3.39	14.19	13.13	3.41	15.12	13.17	3.44	15.59	14.22	3.46	16.53	14.17	3.49	17.46	15.09	3.53
	25	12.21	11.85	3.86	13.60	11.92	3.92	14.06	12.96	3.94	14.99	13.01	3.98	15.45	14.05	4.00	16.38	13.99	4.04	17.31	14.90	4.08
	30	11.69	11.62	4.43	13.03	11.74	4.49	13.47	12.77	4.52	14.36	12.81	4.56	14.80	13.83	4.59	15.69	13.78	4.63	16.58	14.68	4.68
	35	11.06	11.04	4.50	12.32	11.29	4.57	12.74	12.28	4.59	13.58	12.32	4.64	14.00	13.30	4.66	14.84	13.25	4.71	15.68	14.11	4.75
	40	10.27	10.26	4.89	11.44	10.50	4.96	11.83	11.41	4.99	12.61	11.45	5.04	13.00	12.36	5.06	13.78	12.31	5.11	14.56	13.12	5.16
	46	7.14	7.14	3.66	7.95	7.67	3.71	8.22	8.13	3.73	8.76	8.36	3.77	9.03	9.03	3.79	9.57	9.00	3.83	10.12	9.58	3.87

shows rated capacity

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

DUCT TYPE
ARTG30-54L

6-2. HEATING CAPACITY

■ MODEL: ARTG30L

AFR	41.7

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
Outdoor temperature	-15	-16	10.32	3.86	10.07	3.94	9.83	4.02	9.58	4.10	9.34	4.18
	-10	-11	11.39	3.87	11.12	3.95	10.84	4.03	10.57	4.11	10.30	4.20
	-5	-7	12.46	3.87	12.16	3.95	11.86	4.04	11.57	4.12	11.27	4.20
	0	-2	13.66	3.86	13.33	3.94	13.01	4.02	12.68	4.10	12.36	4.18
	5	3	14.99	3.86	14.63	3.94	14.27	4.02	13.92	4.10	13.56	4.18
	7	6	11.76	2.83	11.48	2.89	11.20	2.95	10.92	3.01	10.64	3.07
	10	8	13.13	2.73	12.82	2.79	12.51	2.84	12.19	2.90	11.88	2.96
	15	10	14.31	2.84	13.97	2.90	13.63	2.96	13.29	3.02	12.94	3.07
	20	15	14.20	2.73	13.86	2.78	13.52	2.84	13.18	2.90	12.84	2.94
	24	18	15.70	2.84	15.32	2.90	14.95	2.96	14.58	3.02	14.20	3.07

■ MODEL: ARTG36L

AFR	41.7

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
Outdoor temperature	-15	-16	11.07	4.32	10.80	4.41	10.54	4.50	10.28	4.59	10.01	4.68
	-10	-11	12.17	4.27	11.88	4.36	11.59	4.45	11.30	4.54	11.01	4.63
	-5	-7	13.34	4.31	13.03	4.40	12.71	4.49	12.39	4.58	12.07	4.67
	0	-2	14.69	4.32	14.34	4.41	13.99	4.50	13.64	4.59	13.29	4.68
	5	3	16.05	4.30	15.67	4.39	15.29	4.48	14.90	4.57	14.52	4.66
	7	6	12.71	3.17	12.40	3.23	12.10	3.30	11.80	3.37	11.50	3.43
	10	8	14.03	3.07	13.70	3.13	13.37	3.20	13.03	3.26	12.70	3.32
	15	10	15.21	3.15	14.85	3.22	14.49	3.29	14.12	3.35	13.76	3.40
	20	15	15.07	3.03	14.72	3.09	14.36	3.15	14.00	3.22	13.64	3.26
	24	18	16.70	3.18	16.30	3.25	15.90	3.32	15.51	3.38	15.11	3.43

shows rated capacity

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

DUCT TYPE
ARTG30-54L

■ MODEL: ARTG45L

AFR	54.2

			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
Outdoor temperature	-15	-16	10.98	4.41	10.72	4.51	10.46	4.60	10.20	4.69	9.93	4.78
	-10	-11	12.96	4.51	12.65	4.61	12.34	4.70	12.03	4.80	11.73	4.89
	-5	-7	14.83	4.61	14.48	4.71	14.13	4.80	13.77	4.90	13.42	5.00
	0	-2	16.11	4.63	15.73	4.72	15.35	4.82	14.96	4.92	14.58	5.01
	5	3	17.42	4.63	17.01	4.73	16.60	4.83	16.18	4.92	15.77	5.02
	7	6	14.70	3.65	14.35	3.72	14.00	3.80	13.65	3.88	13.30	3.95
	10	8	16.12	3.41	15.74	3.48	15.36	3.55	14.97	3.62	14.59	3.69
	15	10	16.56	3.38	16.16	3.45	15.77	3.52	15.37	3.59	14.98	3.65
	20	15	16.95	3.32	16.55	3.39	16.15	3.46	15.74	3.53	15.34	3.58
	24	18	18.84	3.49	18.39	3.56	17.95	3.63	17.50	3.70	17.05	3.76

■ MODEL: ARTG54L

AFR	59.2

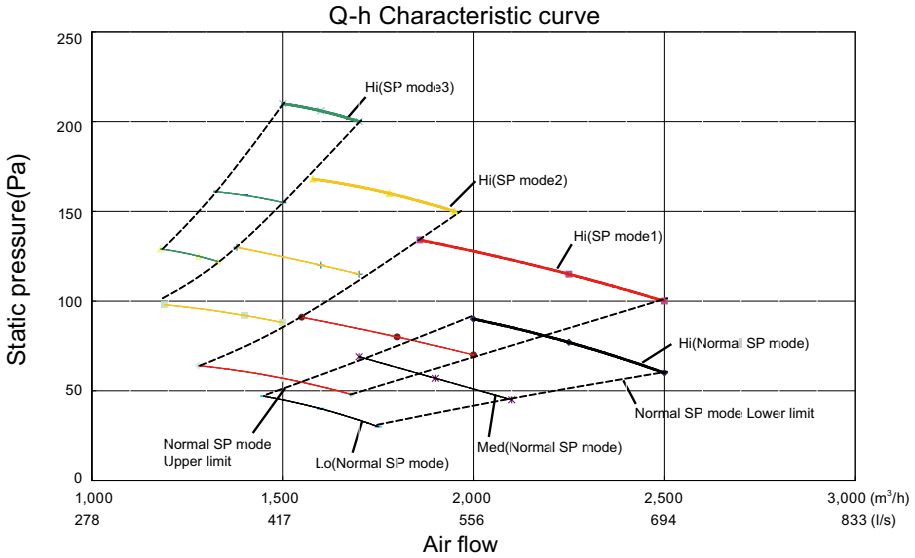
			Indoor temperature									
		°CDB	16		18		20		22		24	
	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
Outdoor temperature	-15	-16	11.37	4.50	11.10	4.59	10.83	4.68	10.55	4.78	10.28	4.87
	-10	-11	13.38	4.64	13.06	4.74	12.74	4.83	12.42	4.93	12.10	5.03
	-5	-7	15.42	4.91	15.05	5.01	14.69	5.12	14.32	5.22	13.95	5.32
	0	-2	16.98	4.91	16.58	5.01	16.17	5.11	15.77	5.22	15.37	5.32
	5	3	18.62	4.88	18.18	4.99	17.73	5.09	17.29	5.19	16.85	5.29
	7	6	16.80	4.26	16.40	4.35	16.00	4.44	15.60	4.53	15.20	4.62
	10	8	18.44	4.12	18.00	4.21	17.56	4.30	17.12	4.38	16.68	4.47
	15	10	19.80	4.24	19.33	4.33	18.86	4.41	18.39	4.50	17.92	4.57
	20	15	19.23	3.78	18.77	3.85	18.31	3.93	17.85	4.01	17.40	4.07
	24	18	19.91	3.76	19.43	3.84	18.96	3.91	18.48	3.99	18.01	4.05

shows rated capacity

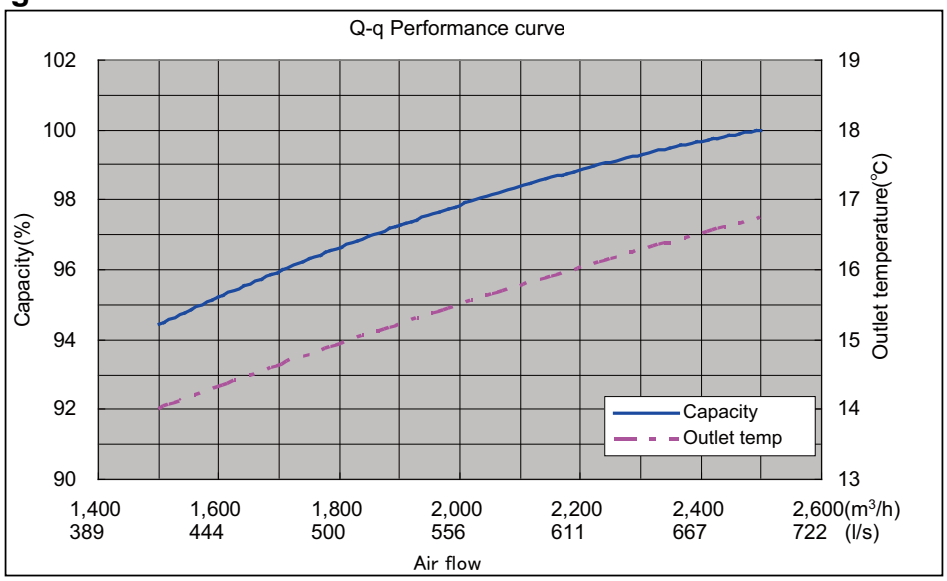
AFR: Air flow rate (m^3/min)
TC : Total capacity (kW)
PI : Power Input (kW)

7. FAN PERFORMANCE AND CAPACITY

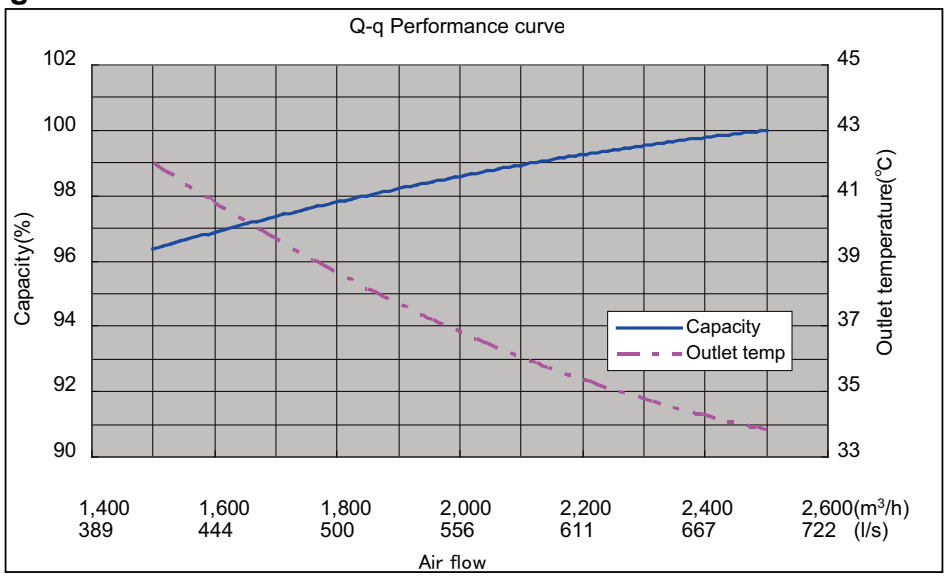
■ MODEL: ARTG30L



● Cooling

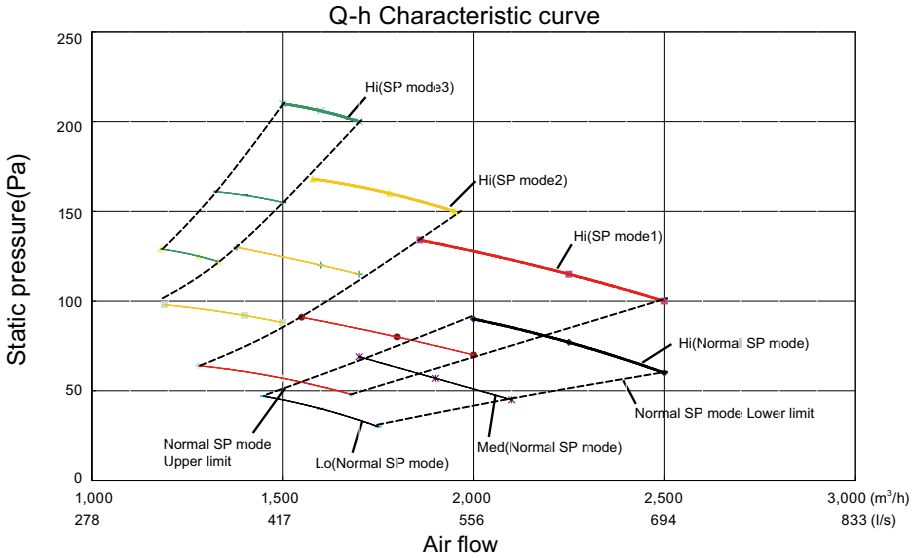


● Heating

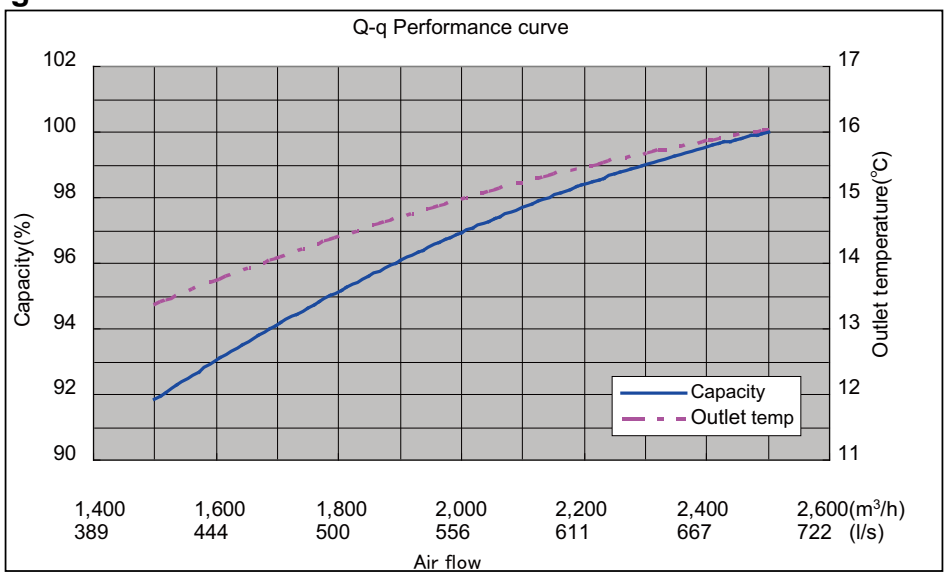


DUCT TYPE
ARTG30-54L

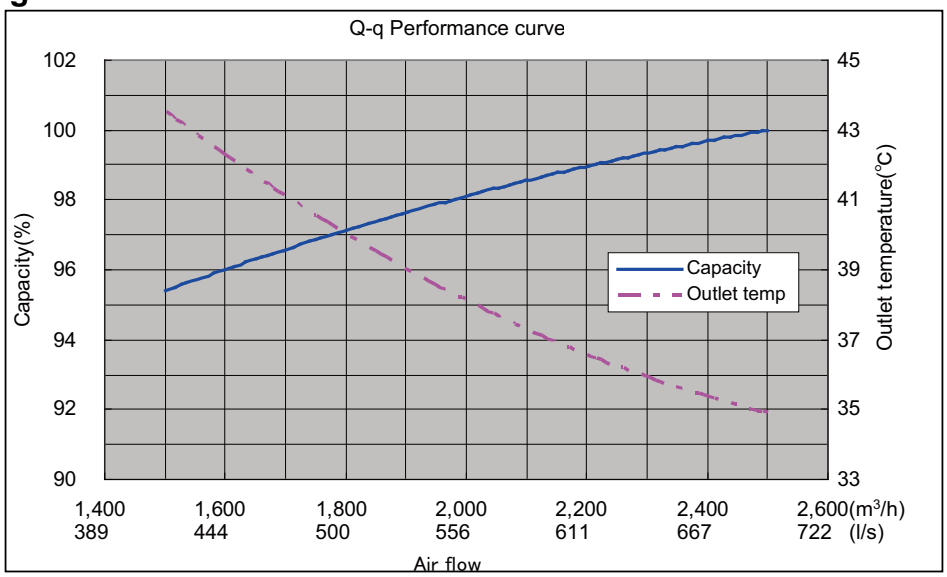
■ MODEL: ARTG36L



● Cooling

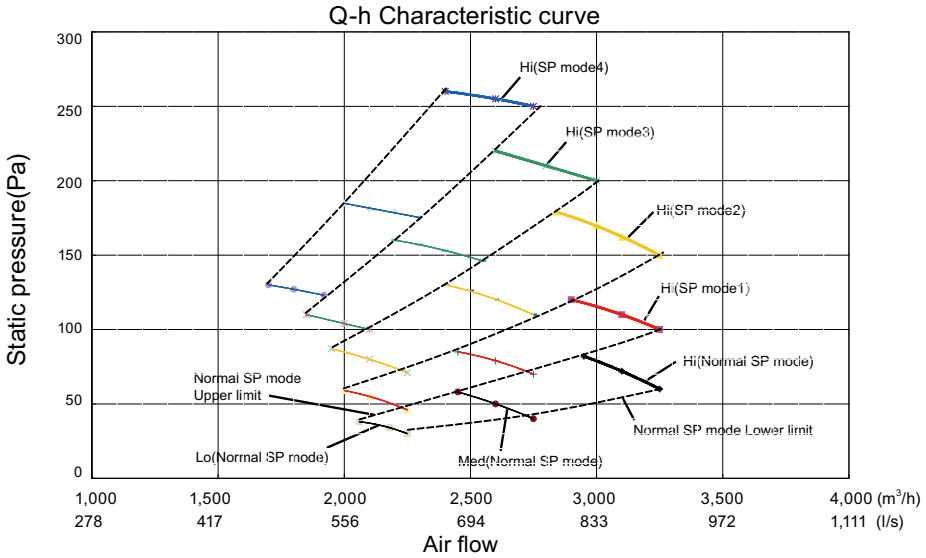


● Heating

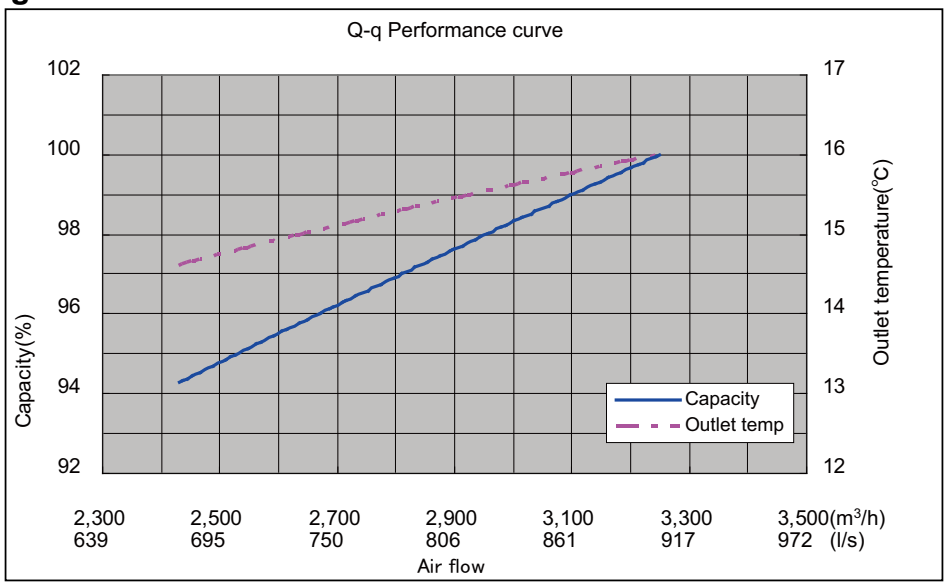


DUCT TYPE
ARTG30-54L

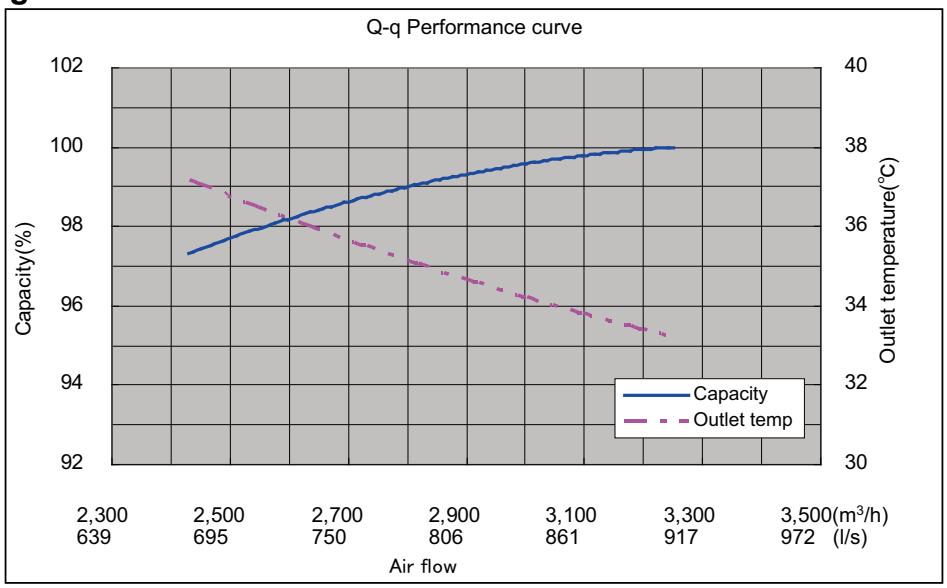
■ MODEL: ARTG45L



● Cooling

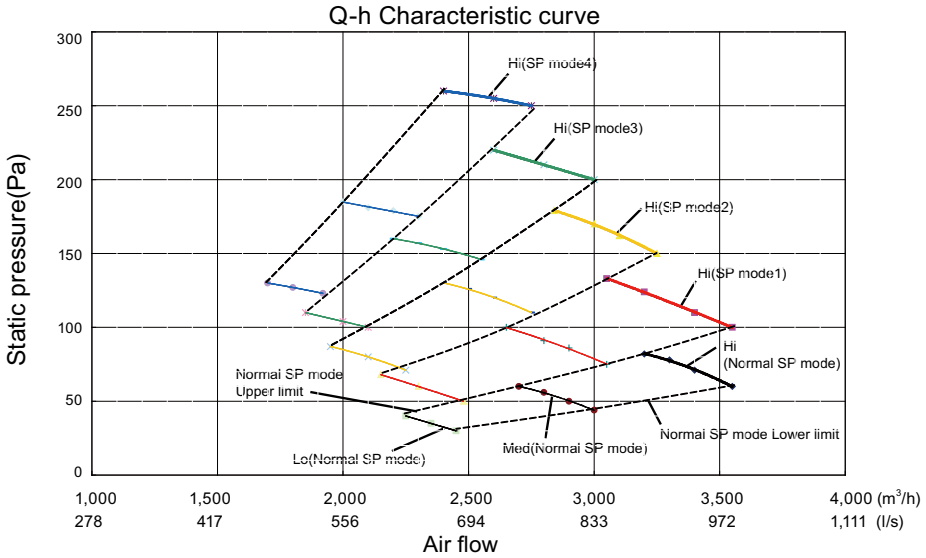


● Heating

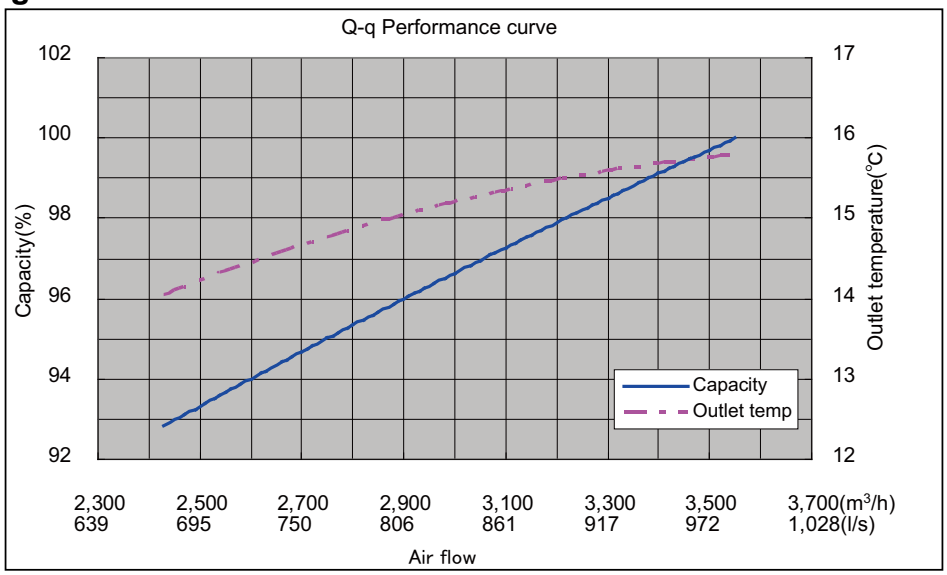


DUCT TYPE
ARTG30-54L

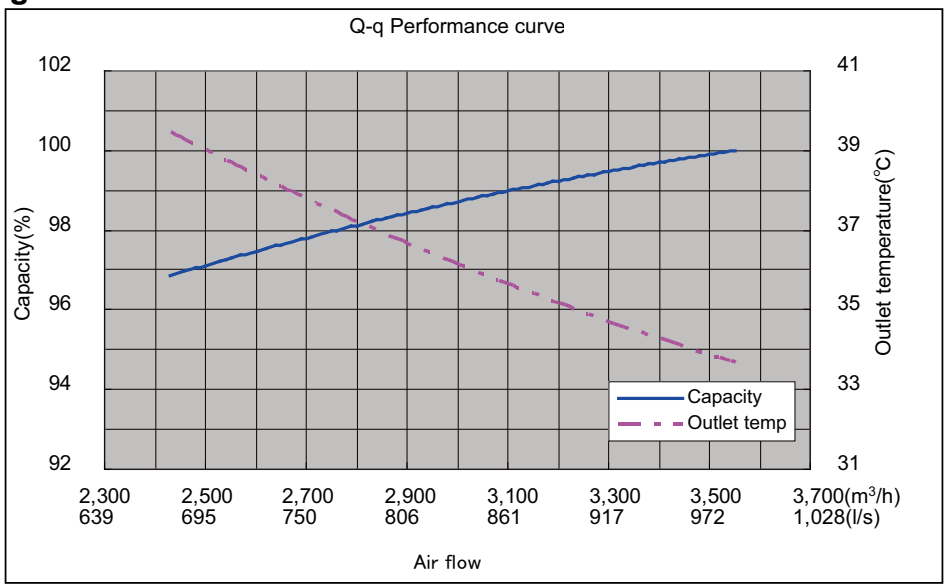
■ MODEL: ARTG54L



● Cooling



● Heating



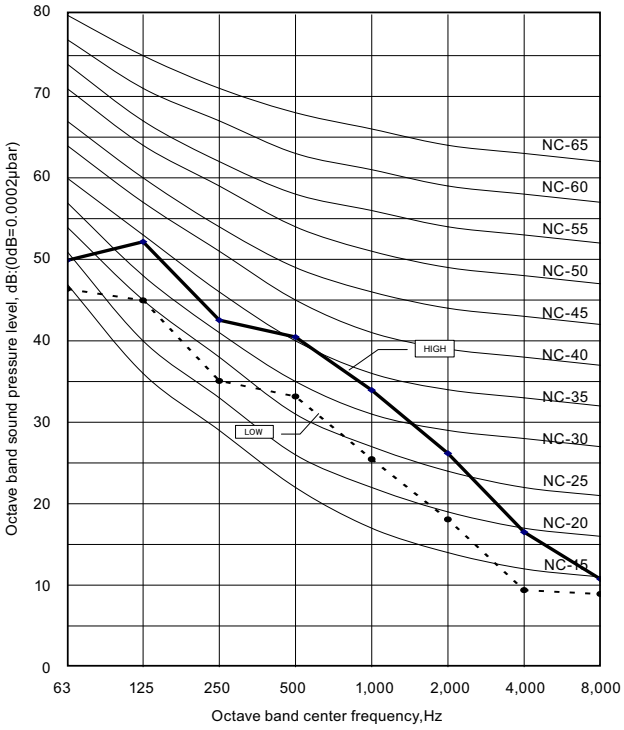
8. OPERATION NOISE

8-1. NOISE LEVEL CURVE

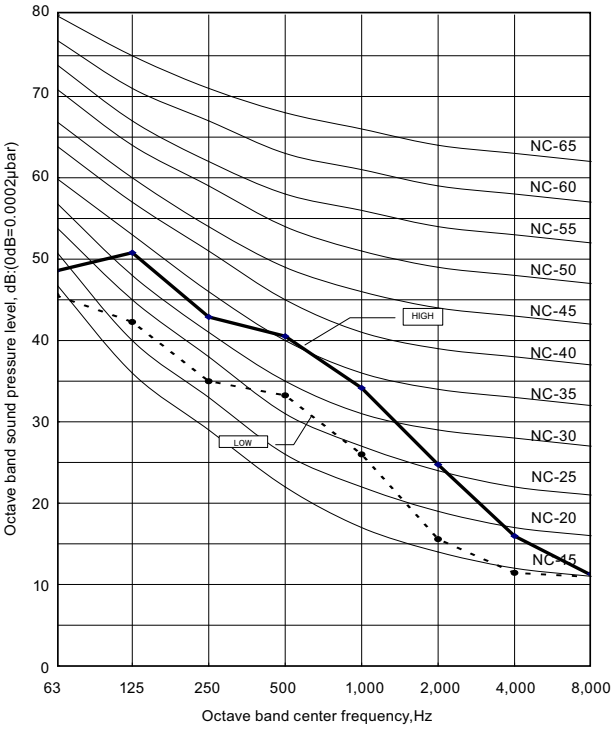
Condition
Static pressure : 60Pa
Static pressure mode : Normal

■ MODEL: ARTG30L, ARTG36L

● Cooling

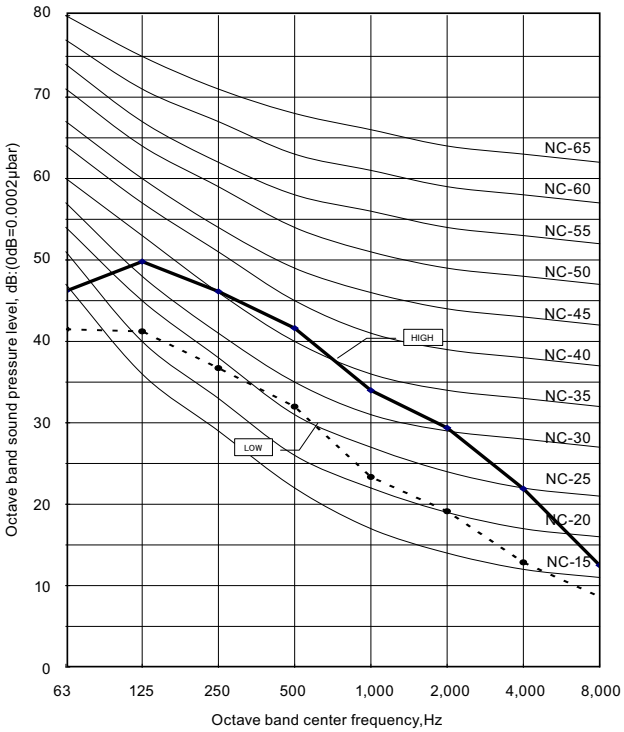


● Heating

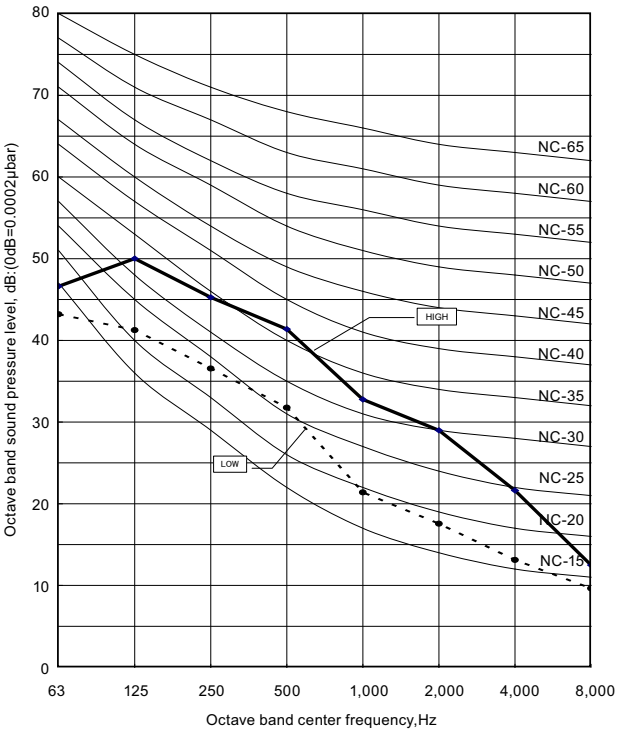


■ MODEL: ARTG45L

● Cooling



● Heating

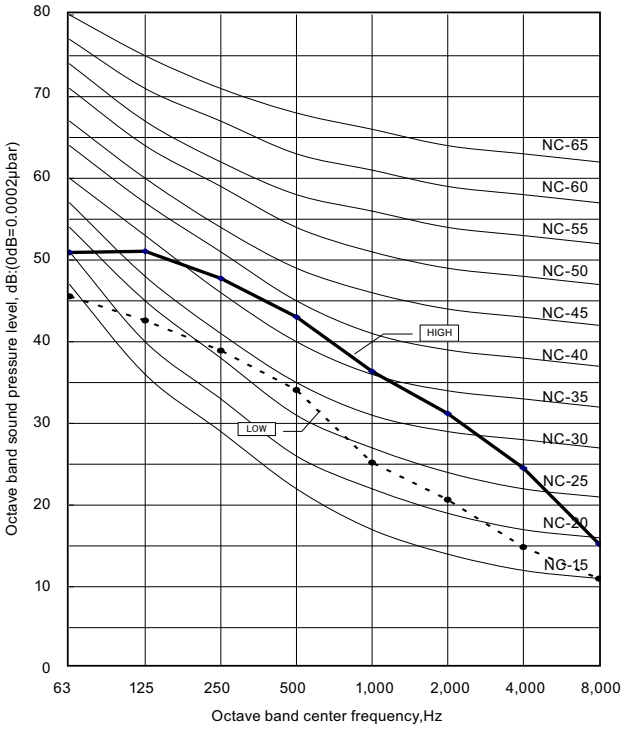


DUCT TYPE
ARTG30-54L

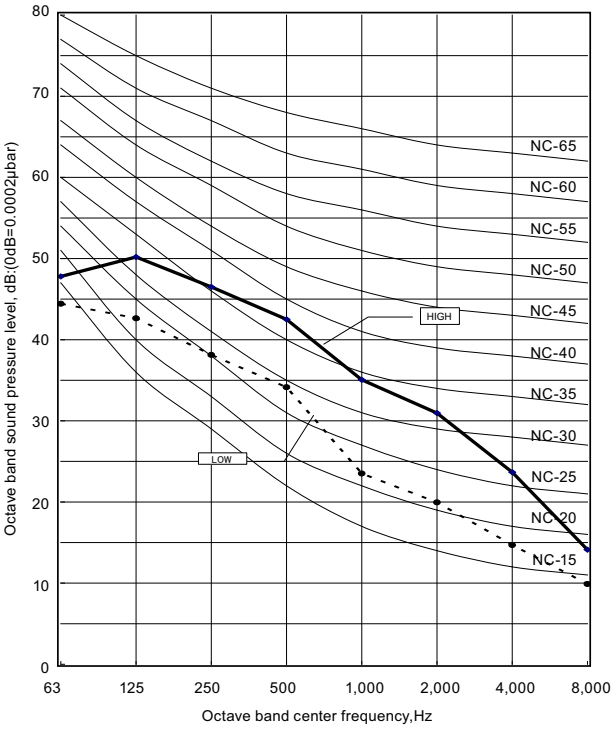
Condition
Static pressure : 60Pa
Static pressure mode : Normal

■ MODEL: ARTG54L

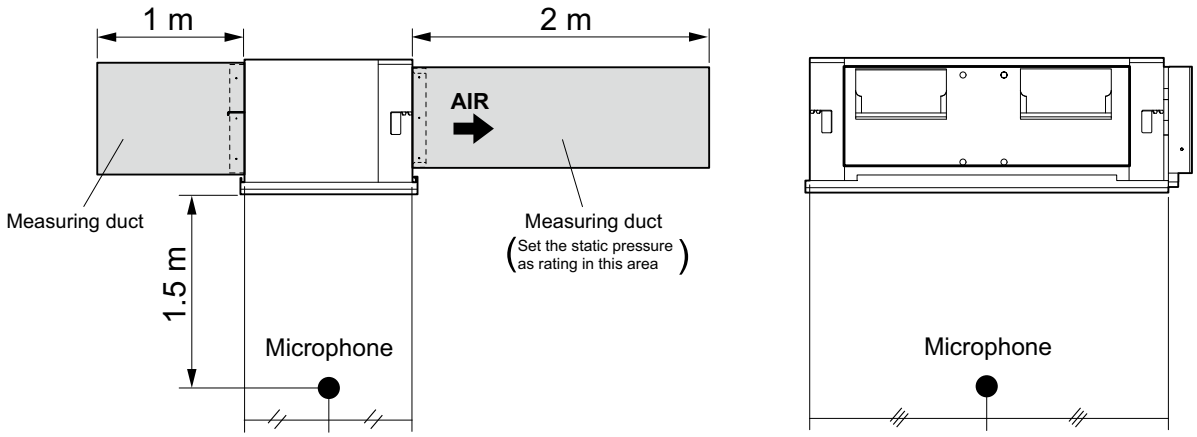
● Cooling



● Heating



8-2. SOUND LEVEL CHECK POINT



DUCT TYPE
ARTG30-54L

9. ELECTRIC CHARACTERISTICS

Model name			ARTG30L ARTG36L	ARTG45L ARTG54L
Power supply	Voltage	V	240~	
	Frequency	Hz	50	
Max Operating Current		A	2.1	3.5
Wiring spec.	Connection cable	mm^2	1.5-2.5	
	Limited wiring length	m	50	

DUCT TYPE
ARTG30-54L

10. SAFETY DEVICES

	Protection form	Model	
		ARTG30L ARTG36L	ARTG45L ARTG54L
Circuit protection	Current fuse (PCB)	5A 250V	20A 250V
Fan motor protection	Thermal protector	112±10°C OFF 70°C ON	112±10°C OFF 70°C ON

DUCT TYPE
ARTG30-54L

11. EXTERNAL INPUT & OUTPUT

INPUT	OUTPUT	AR30, AR36		AR45, AR54	
		Function	Connector	Function	Connector
CONTROL INPUT	—	○	CN102	○	CN103
—	OPERATION STATUS	○	CN103	○	CN100
—	ERROR STATUS	—	—	○	CN101
—	FRESH AIR CONTROL	○	CN6	○	CN161
—	AUXILIARY HEATER	○	CN10	○	CN160

11-1. EXTERNAL INPUT

■ CONTROL INPUT (Operation/Stop or Forced stop)

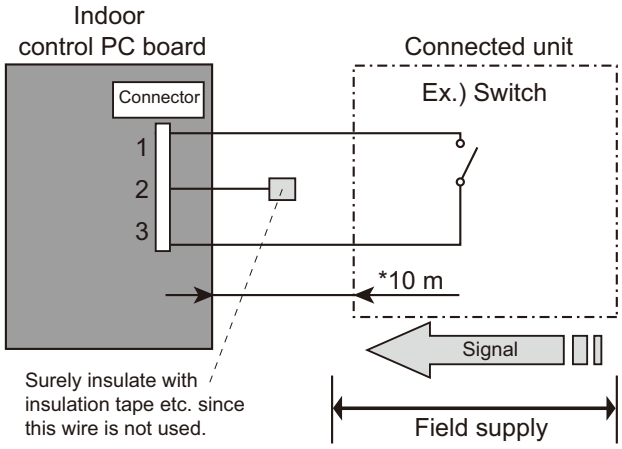
The air conditioner can be remotely operated by means of the following on-site work.

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

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.

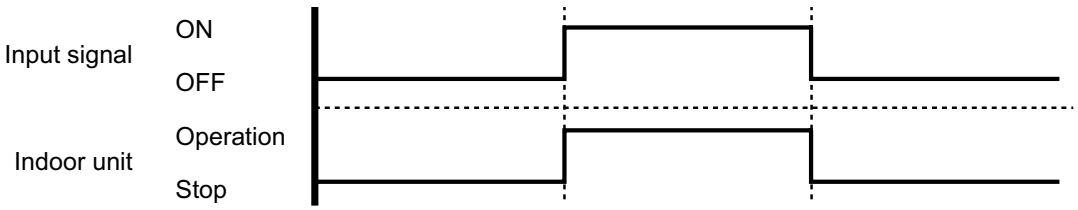
	Initial starting after power turned on	Starting other than at the left
Operation mode	Auto changeover	Mode at previous operation
Set temperature	24°C	Temperature at previous operation
Air flow mode	AUTO	Mode at previous operation

● Circuit diagram example



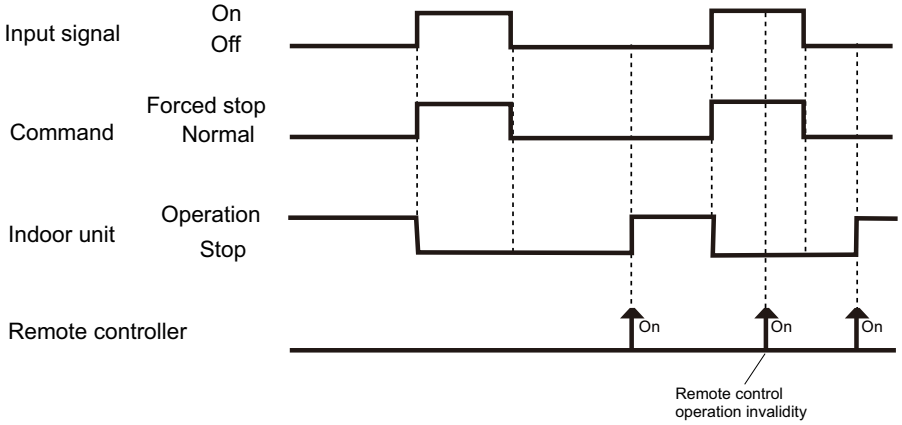
* Make the distance from the PC board to the connected unit within 10 m.
Contact capacity : 5VDC or more, 15mA or more.
Please use the non-polar relays and switches.

• When function setting is "Operation/Stop" mode



DUCT TYPE
ARTG30-54L

● When function setting is "Forced stop" mode



● Parts (Optional)

Model name
UTD-ECS5A

Wire (External input)

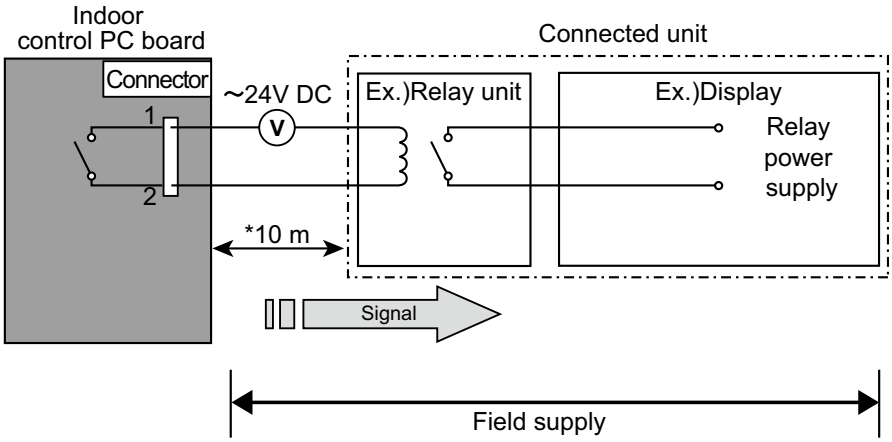
DUCT TYPE
ARTG30-54L

11-2. EXTERNAL OUTPUT

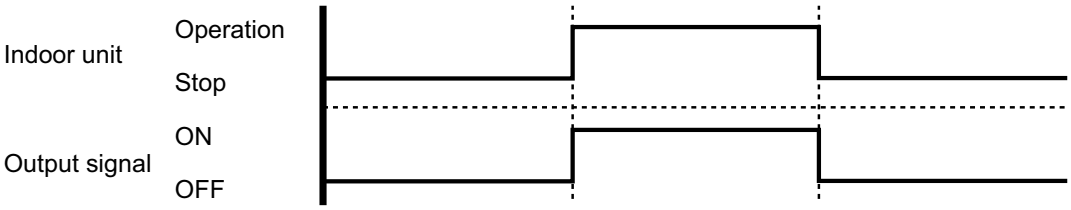
■ OPERATION STATUS OUTPUT

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

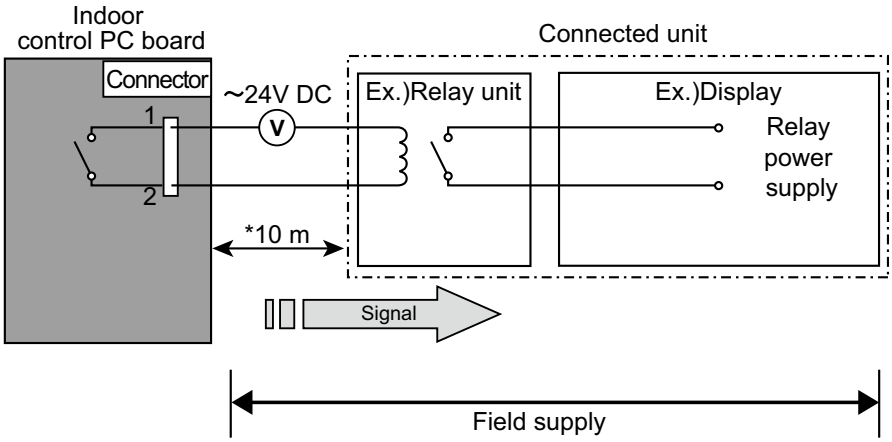
Wire (External output)

DUCT TYPE
ARTG30-54L

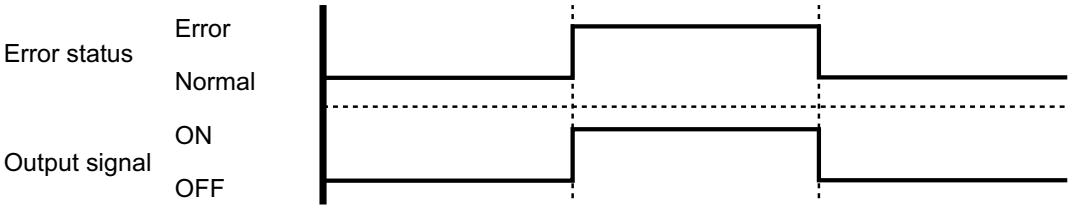
■ ERROR STATUS OUTPUT

An air conditioner condition normal/error 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)

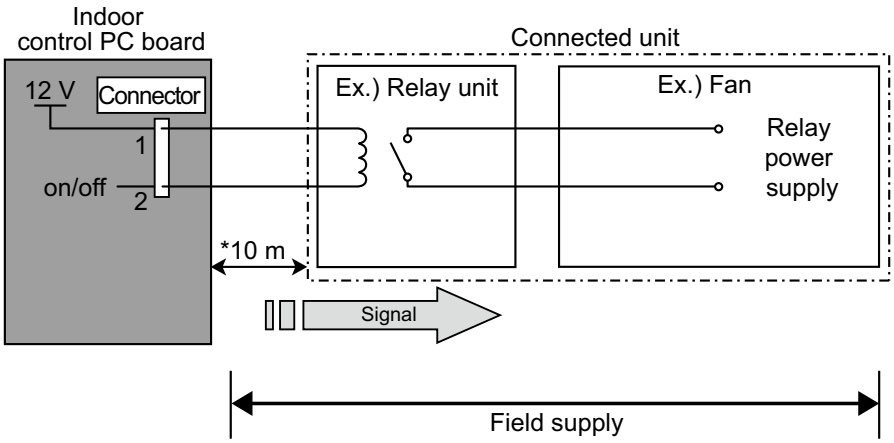
DUCT TYPE
ARTG30-54L

■ FRESH AIR CONTROL OUTPUT

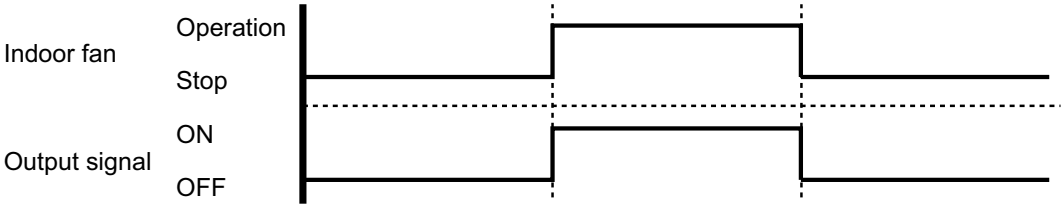
A signal linked to air conditioner indoor fan ON can be output.

* 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
ARTG30-54L

■ AUXILIARY HEATER OUTPUT

A signal linked to heating operation, indoor fan ON, and compressor ON can be output.

*Output remains ON until the room temperature nears the set temperature.

When the room temperature reaches the set temperature, the output turns OFF. (Set temperature -1°C or more)

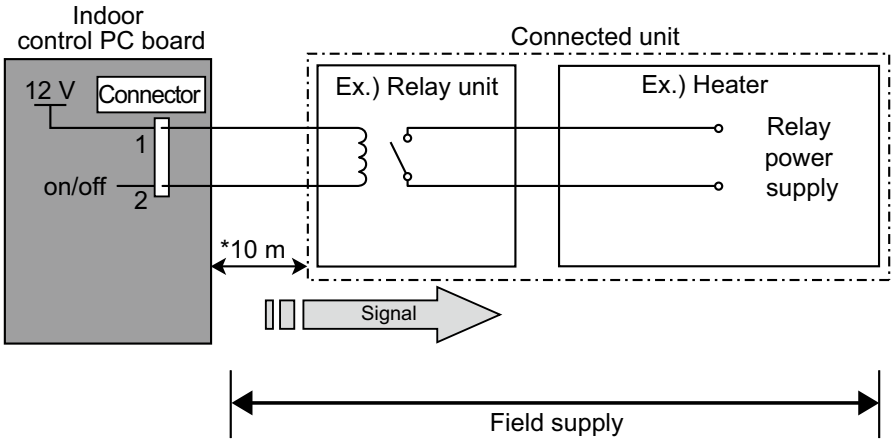
When the room temperature is substantially different than the set temperature, the output turns OFF. (Set temperature -10°C or less)

● Jumper wire (Indoor Unit)

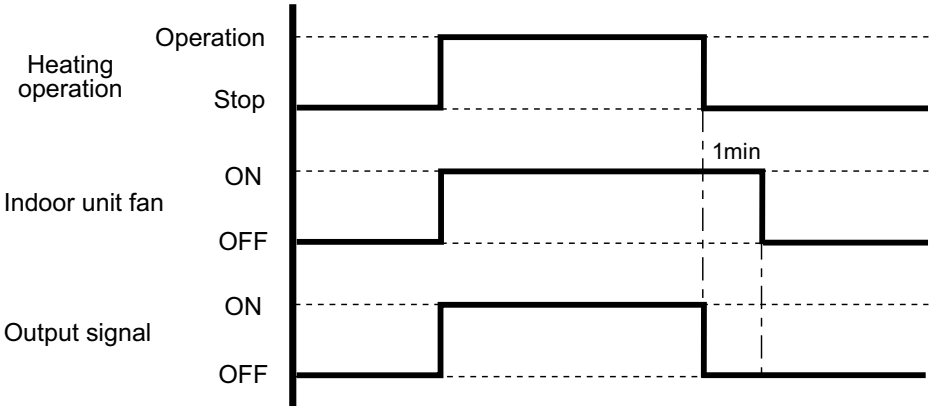
This is used to continue indoor unit fan operation for 1 minute after thermo OFF in heating mode.

1 minute delay control set by cutting jumper wire on PCB.

● Circuit diagram example

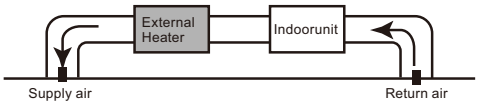


* Make the distance from the PC board to the connected unit within 10m.
Relay spec. : Rated 12VDC, 50mA or less.



⚠CAUTION

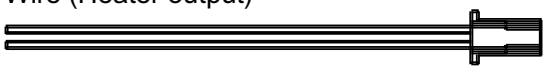
Please locate external a heater between the indoor unit and the ductwork.
Please be sure to use delay control of a fan.



● Parts (Optional)

Model name
UTD-ECS5A

Wire (Heater output)



12. FUNCTION SETTING

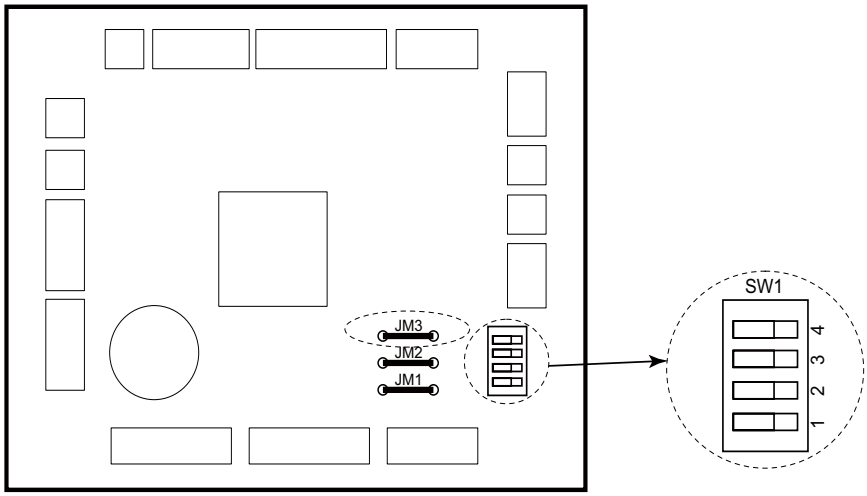
12-1. INDOOR UNIT

INDOOR UNIT			
	AR30, 36	AR45, 54	
DIP-SW1 / DIP-SW50	1	1	Indoor unit address setting
	2	2	
	3	3	
	4	4	
Jumper Wire	JM1	JM40	Forbidden
	JM2	JM41	
	JM3	JM42	Fan delay setting

■ SWITCH POSITION

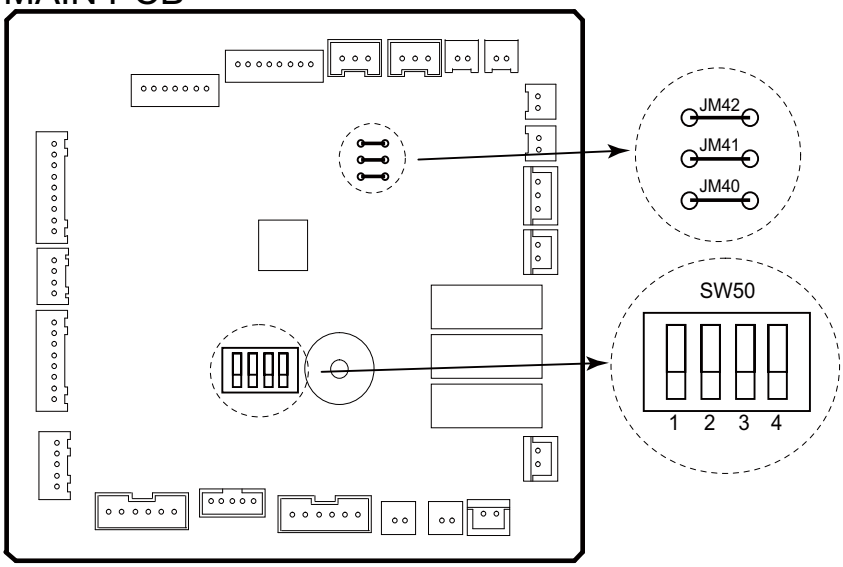
● **ARTG30L, ARTG36L**

MAIN PCB



● **ARTG45L, ARTG54L**

MAIN PCB



DUCT TYPE
ARTG30-54L

■ DIP-SW SETTING

● Indoor unit address setting (SW1/ SW50)

A number of indoor units can be operated at the same time using a single 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)

	Indoor unit 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

■ JUMPER WIRE SETTING

● JM1, 2 / JM40, 41 setting forbidden

● Fan delay setting (JM3 / JM42)

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 42	JM state
◆	Connect	Invalid
	Disconnect	Valid

DUCT TYPE
ARTG30-54L

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

■ FUNCTION SETTING METHOD (for Wired remote controller)

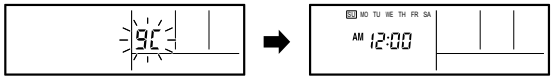
⚠CAUTION
• Confirm whether the wiring work for outdoor unit has been finished.
• Confirm whether the cover for electric control box on the outdoor unit is closed.

● Turning on the power

(1) Check the remote controller wiring and DIP switch settings.

(2) Install the front case. When installing the front case, connect the connector to the front case.

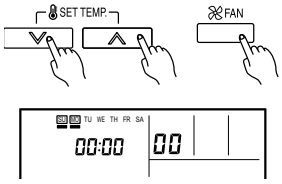
(3) Check the indoor and outdoor unit wiring and circuit board switch settings, and then turn on the indoor and outdoor units. After "9C" has flashed on the set temperature display for several seconds, the clock display will appear in the center of the remote controller display.



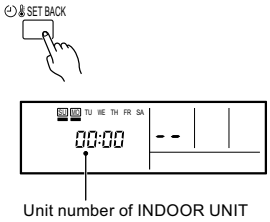
● Setting method

- The function settings of the control of the indoor can be changed by this procedure according to the installation conditions. Incorrect settings can cause the indoor unit 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.

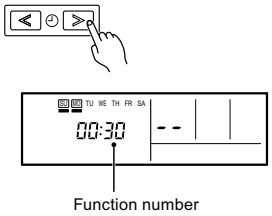
(1) Press the set temperature buttons (∨) (∧) and fan control button simultaneously for more than 5 seconds to enter the function setting mode.



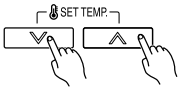
(2) Press the SET BACK button to select the indoor unit number.



3) Press the set time buttons to select the function number.

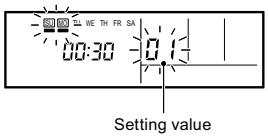


(4) Press the set temperature buttons (∨) (∧) to select the setting value. The display flashes as shown to the right during setting value selection.



DUCT TYPE
ARTG30-54L

(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 temperature 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 doesn't become effective if it doesn't do so.

■ CONTENTS FUNCTION SETTING

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". (The unit is factory-set to "03".)

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. Setting the Static Pressure

• Select appropriate static pressure according to the installation conditions. (The unit is factory-set to "00".)
Refer to the technical manual for details or follow the instructions of the duct designer.

Setting description		Function number	Setting value
AR30, 36	AR45, 54		
Normal (60Pa)	Normal (60Pa)	21	00
Static pressure 1 (100Pa)	Static pressure 1 (100Pa)		02
Static pressure 2 (150Pa)	Static pressure 2 (150Pa)		03
Static pressure 3 (200Pa)	Static pressure 3 (200Pa)		04
—	Static pressure 4 (250Pa)		05

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. (The unit is factory-set to "00".)

Setting description	Function number	Setting value
Standard (No correction)	30	00
Lower control (-1.0°C)		01
Slightly lower control (-0.5°C)		02
Slightly warmer control (+0.5°C)		03
Warmer control (+1.0°C)		04

DUCT TYPE
ARTG30-54L

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. (The unit is factory-set to “00”.)

Setting description	Function number	Setting value
Standard (No correction)	31	00
Lower control (-1.0°C)		01
Slightly lower control (-0.5°C)		02
Slightly warmer control (+0.5°C)		03
Warmer control (+1.0°C)		04

5. Auto Restart

- (The setting value is factory-set to “00”.)

Setting description	Function number	Setting value
Yes	40	00
No		01

6. Indoor Room Temperature Sensor Switching Function (Wired remote controller only)

- (The setting value is factory-set to “00”.)

Setting description	Function number	Setting value
Only the sensor of the indoor unit is used	42	00
The sensor of the wired remote controller is used		01

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. (The unit is factory-set to “00”.)

Setting description	Function number	Setting value
Super low	43	00
Follow the setting on the remote controller (corresponding to ventilation)		01

8. Custom Mode of Remote Controller

- When 2 or more air conditioners are installed in the same room or adjacent rooms, the signal of each remote controller is switched to prevent erroneous operation of wireless remote controllers. (The unit is factory-set to “00”.)

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

9. External input control

- "Operation/Stop" mode or "Forced stop" mode can be selected. (The unit is factory-set to “00”.)

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

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. (The unit is factory-set to “00”.)

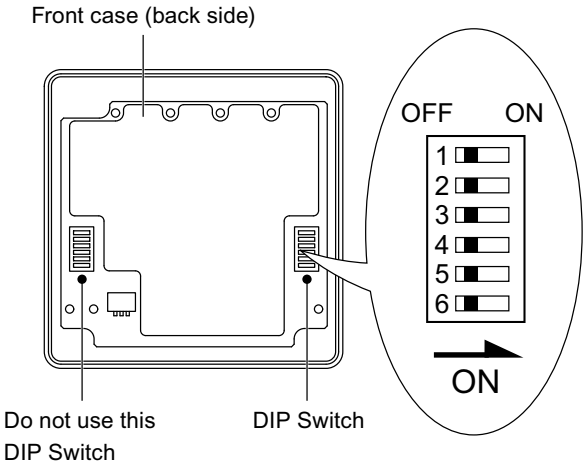
Setting description	Function number	Setting value
Control by the sensors of both the indoor unit and the wired remote controller.	48	00
Control only by the sensor of the wired remote controller		01

DUCT TYPE
ARTG30-54L

12-3. WIRED REMOTE CONTROLLER

DIP SW	1	Can not be used. (Do not change)
	2	Dual remote controller setting
	3	Can not be used. (Do not change)
	4	Can not be used. (Do not change)
	5	Can not be used. (Do not change)
	6	Memory backup setting

■ SWITCH POSITION



■ DIP SWITCH SETTING

● Dual remote controller setting

Set the remote controller DIP switch No.2 according to the following table.

(◆…Factory setting)

	Number of remote controller	Master unit	Slave unit
		DIP-SW No.2	DIP-SW No.2
◆	1 (Normal)	OFF	—
	2 (Dual)	OFF	ON

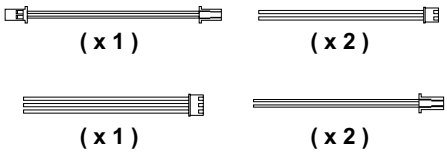
● Memory backup setting

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)

	DIP-SW No.6	Memory backup
◆	OFF	Invalidity
	ON	Validity

13. OPTIONAL PARTS

Exterior	Parts name	Model No.	Summary
	Wired remote controller	UTY-RNNYN	Unit control is performed by **wired remote controller**. Wired remote controller is attached in one as accessories. Wired remote controller is two installation possibility in one indoor unit.
	IR Receiver	UTY-LRHYM	Indoor unit can be controlled with wireless remote controller if the IR receiver unit is used.
	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. For ARTG30L/, ARTG36L
	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 :

AOTG30LATL
AOTG36LATL
AOTG45LATL
AOTG54LATL

DTR_AO071E_01
2010.12.17

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14. OPTIONAL PARTS ..... 02 - 26

1. SPECIFICATIONS

Model name					AOTG30LATL	AOTG36LATL	AOTG45LATL	AOTG54LATL
Power source					1φ 240V~ 50Hz			
Available voltage range					198-264V~ 50Hz			
Starting current				A	12.4	13.9	16.9	19.5
Fan	Airflow rate	Cooling		l/s (m^3/h)	1,653 (5,950)	1,722 (6,200)	1,875 (6,750)	1,875 (6,750)
		Heating			1,611 (5,800)	1,722 (6,200)	1,722 (6,200)	1,903 (6,850)
	Type × Q'ty				Propeller × 2			
	Motor output			W	104	104	104	104
Sound pressure level		Cooling		dB(A)	52	52	55	55
		Heating			53	54	55	56
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			R410A			
		Charge		g	3350			
Refrigerant oil		Type			RB			
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(lb.)	86 (190)			
	Gross				94 (208)			
Connection pipe	Size (Standard)	Liquid		mm	Ø 9.52 (Ø 3/8 in.)			
		Gas			Ø 15.88 (Ø 5/8 in.)			
	Method				Flare			
	Max. length			m	50			
	Max. height difference				30			
Operation range		Cooling		°C	-5 to 46			
		Heating			-15 to 24			

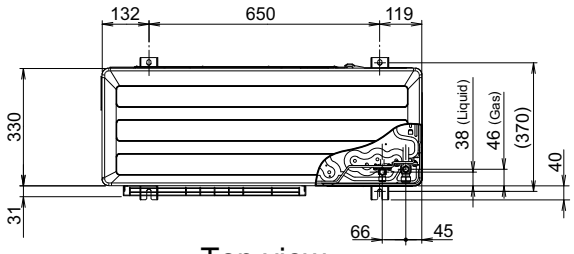
Note :
Specifications are based on the following conditions.
Cooling : Indoor temperature of 27 °CDB / 19 °CWB.and outdoor temperature of 35 °CDB/24 °CWB.
Heating : Indoor temperature of 20 °CDB / 15 °CWB.and outdoor temperature of 7 °CDB/6 °CWB.
Pipe length : 7.5 m, Height difference : 0 m.(Outdoor unit - Indoor unit)

OUTDOOR UNIT
AOTG30-54L

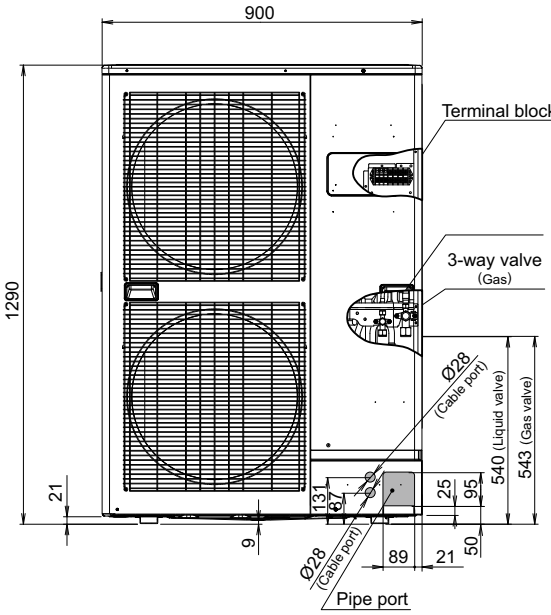
2. DIMENSIONS

■ MODEL: AOTG30L, AOTG36L, AOTG45L, AOTG54L

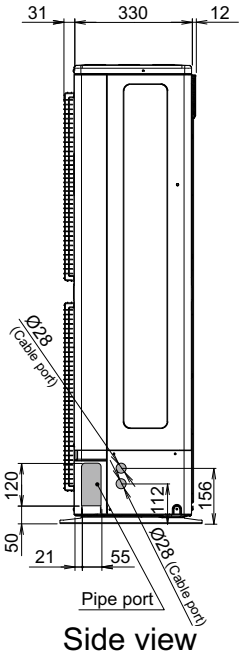
(Unit : mm)



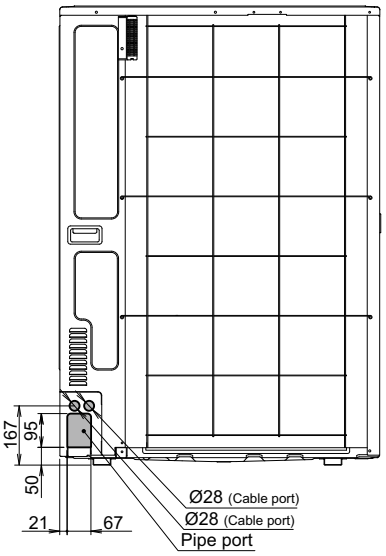
Top view



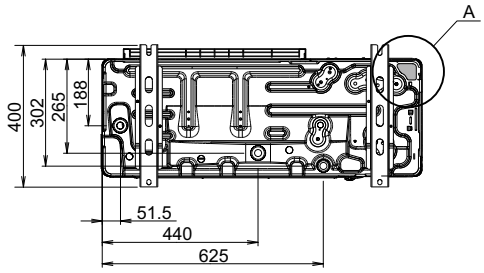
Front view



Side view

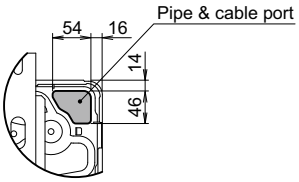


Rear view



Bottom view

Detail A



OUTDOOR UNIT
AOTG30-54L

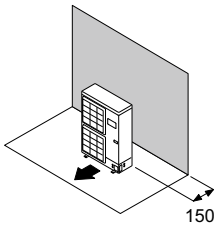
3. INSTALLATION PLACE

3-1. SINGLE OUTDOOR UNIT INSTALLATION

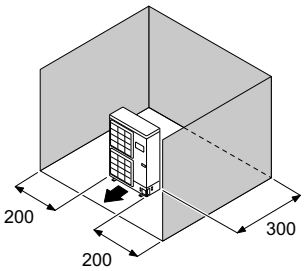
■ WHEN THE UPWARD AREA IS OPEN

(Unit : mm)

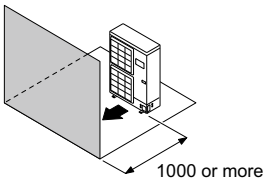
Obstacles at rear only



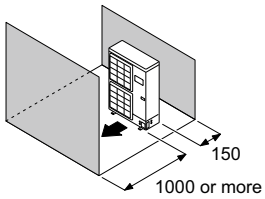
Obstacles at rear and sides only



Obstacles at front only



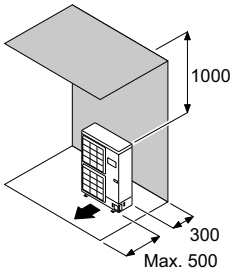
Obstacles at front and rear only



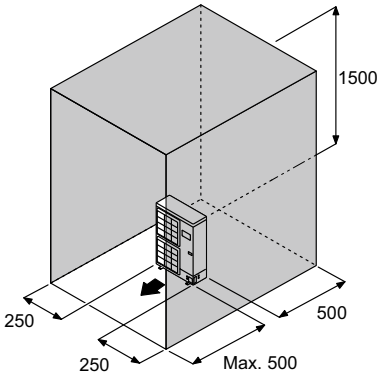
■ WHEN AN OBSTRUCTION IS PRESENT ALSO IN THE UPWARD AREA

(Unit : mm)

Obstacles at rear and above only



Obstacles at rear, sides, and above only



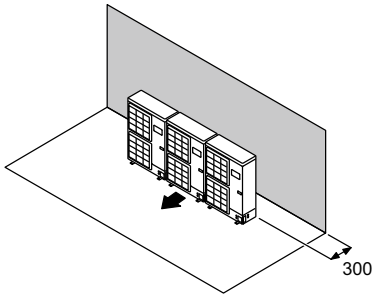
OUTDOOR UNIT
AOTG30-54L

3-2. MULTIPLE OUTDOOR UNIT INSTALLATION

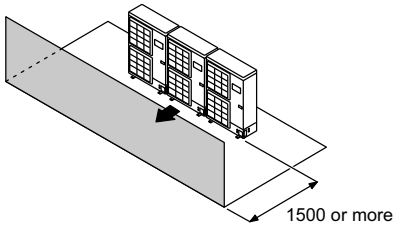
■ WHEN THE UPWARD AREA IS OPEN

(Unit : mm)

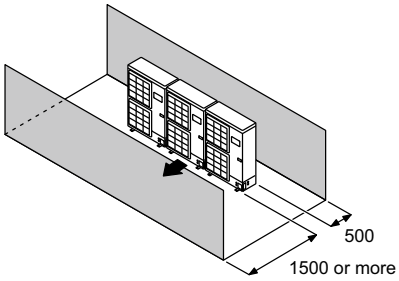
Obstacles at rear only



Obstacles at front only



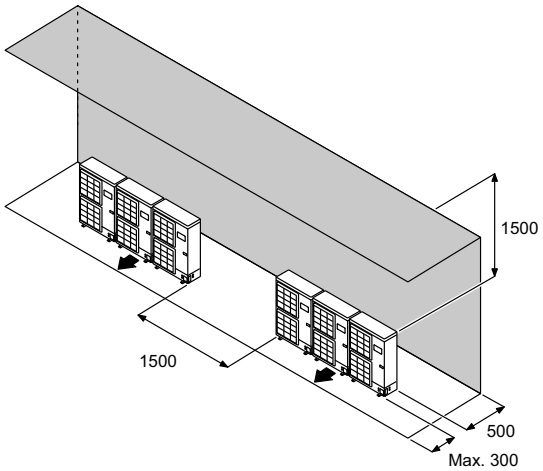
Obstacles at front and rear only



■ WHEN AN OBSTRUCTION IS PRESENT ALSO IN THE UPWARD AREA

(Unit : mm)

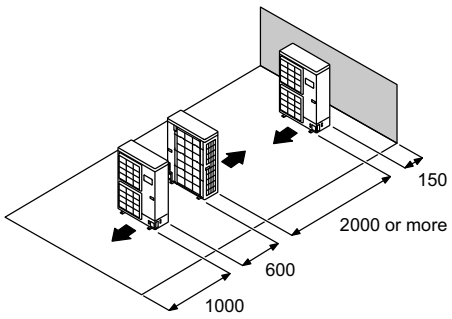
Obstacles at rear and above only



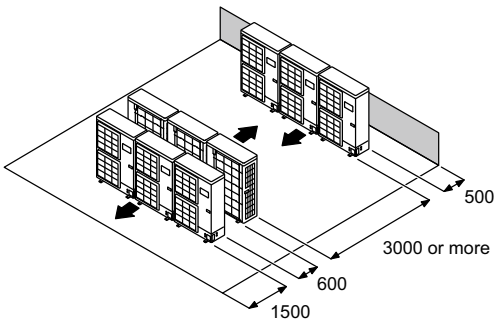
3-3. OUTDOOR UNIT INSTALLATION IN MULTI ROW

(Unit : mm)

Single parallel unit arrangement

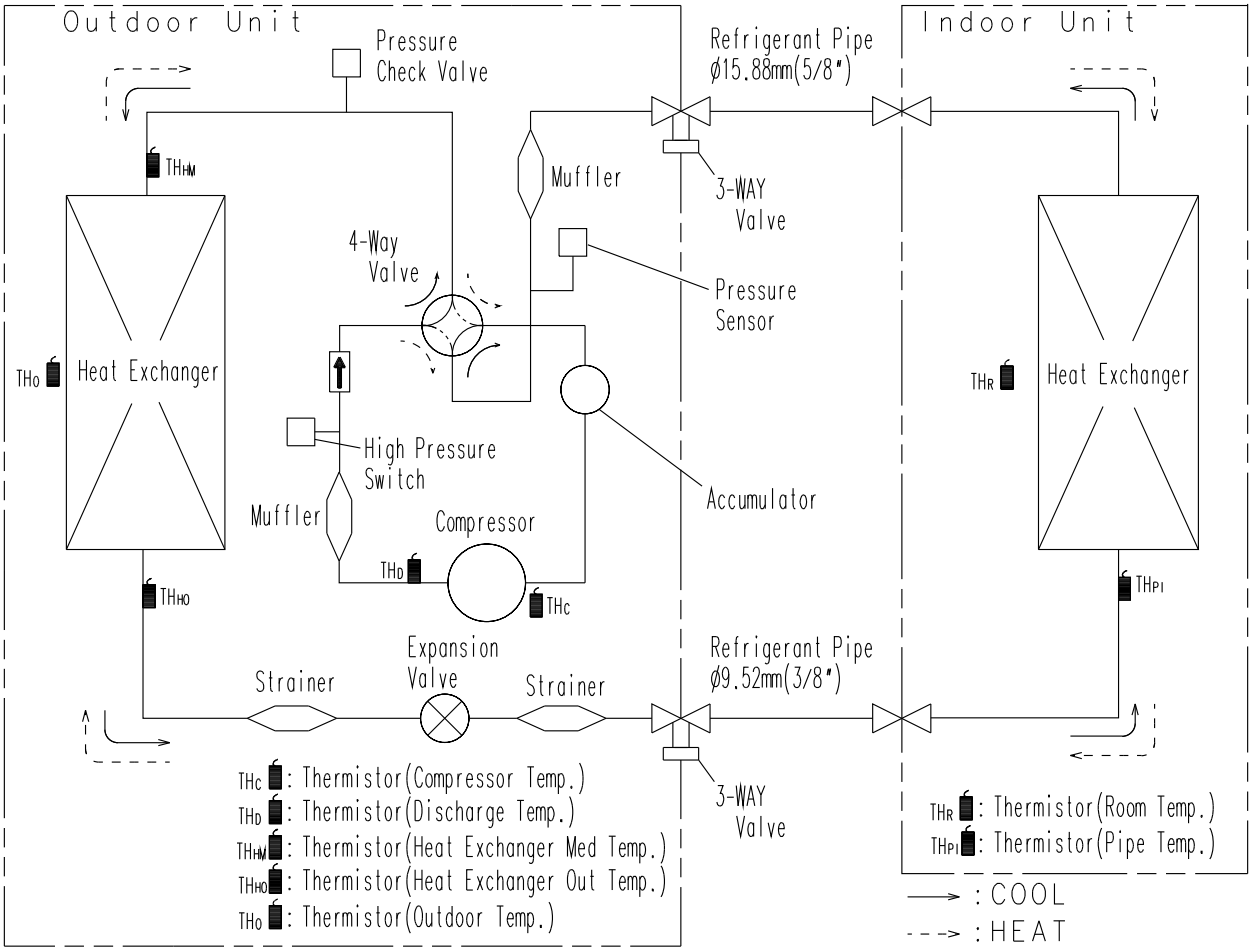


Multiple parallel unit arrangement



4. REFRIGERANT CIRCUIT

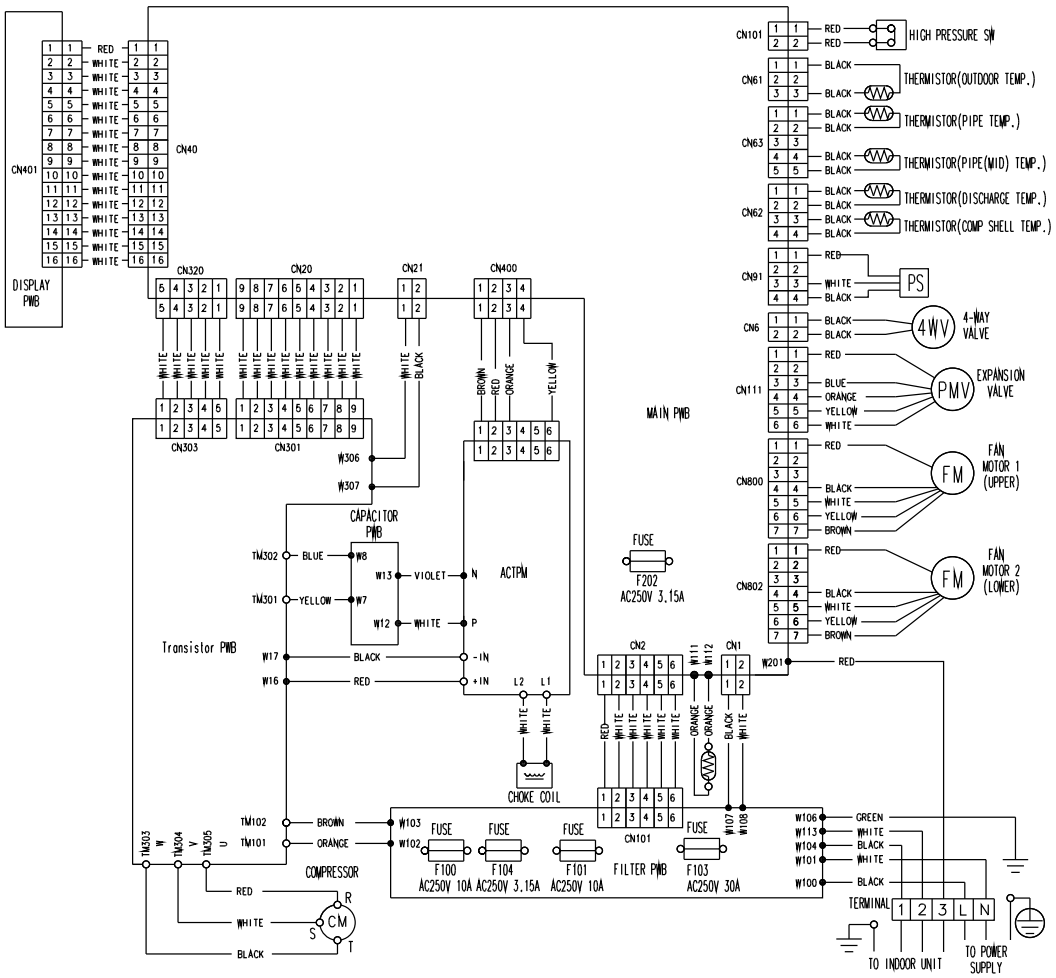
■ MODEL: AOTG30L, AOTG36L, AOTG45L, AOTG54L



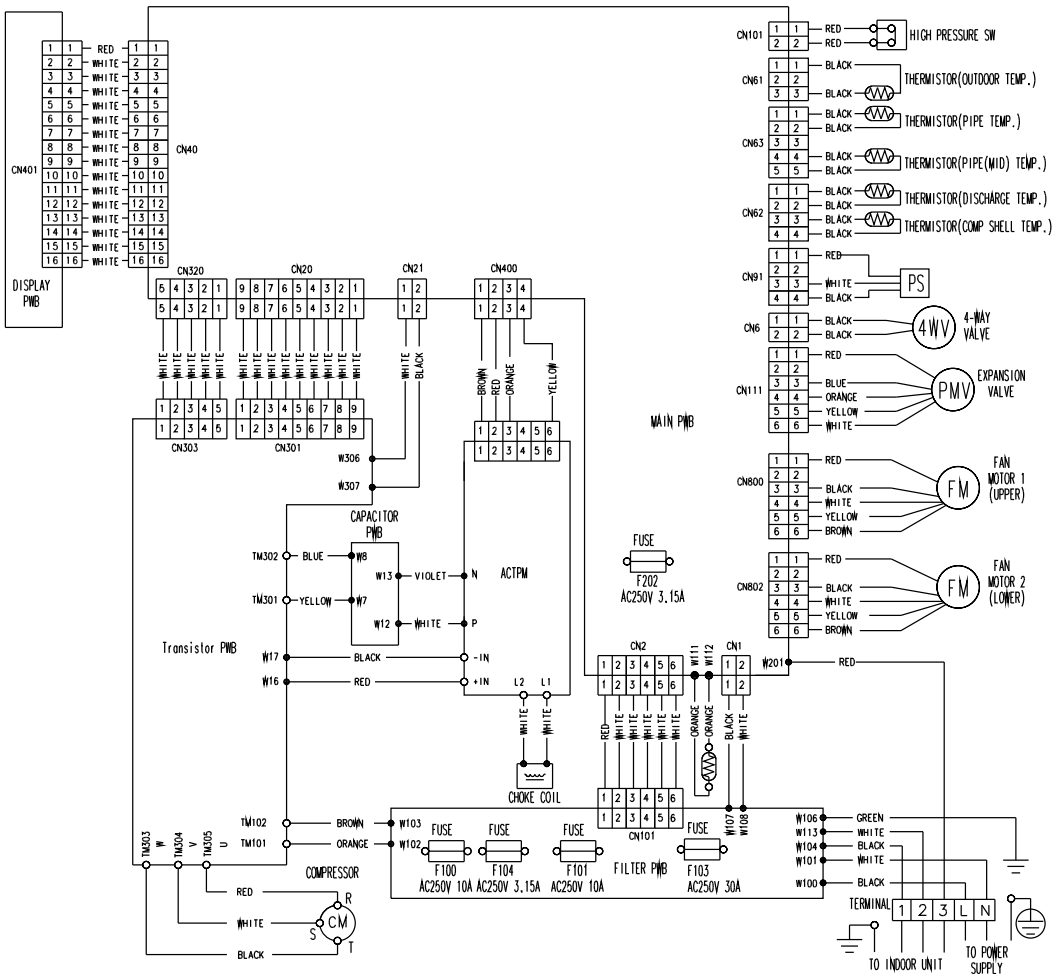
OUTDOOR UNIT
AOTG30-54L

5. WIRING DIAGRAMS

■ MODEL: AOTG30L, AOTG36L



■ MODEL: AOTG45L, AOTG54L



6. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE

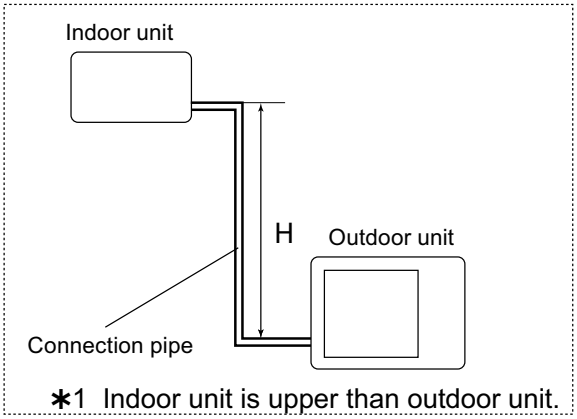
This table is created using the maximum capacity.

■ MODEL: AOTG30L

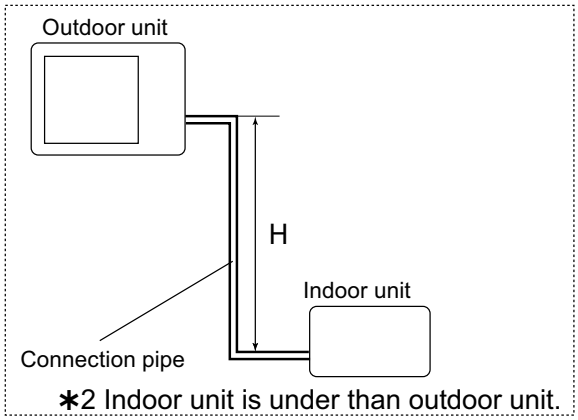
COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	30	-	-	-	-	0.884	0.882	0.862
		20	-	-	-	0.910	0.899	0.896	0.876
		10	-	-	0.969	0.925	0.914	0.911	0.891
		7.5	-	0.988	0.973	0.929	0.918	0.915	0.894
		5	0.992	0.992	0.977	0.932	0.922	0.919	0.898
		0	1.000	1.000	0.985	0.940	0.929	0.926	0.905
	∗2 Indoor unit is under than outdoor unit.	-5	1.000	1.000	0.985	0.940	0.929	0.926	0.905
		-7.5	-	1.000	0.985	0.940	0.929	0.926	0.905
		-10	-	-	0.985	0.940	0.929	0.926	0.905
		-20	-	-	-	0.940	0.929	0.926	0.905
		-30	-	-	-	-	0.929	0.926	0.905

HEATING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is upper 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	1.003	1.000	0.998	0.988	0.978	0.968	0.958
		0	1.003	1.000	0.998	0.988	0.978	0.968	0.958
	∗2 Indoor unit is under 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 upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

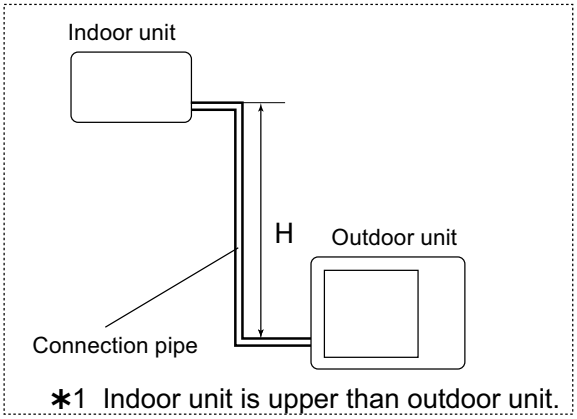
This table is created using the maximum capacity.

■ MODEL: AOTG36L

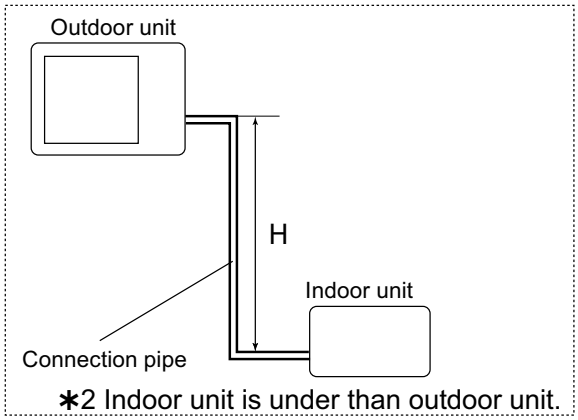
COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	30	-	-	-	-	0.898	0.874	0.850
		20	-	-	-	0.938	0.913	0.889	0.864
		10	-	-	0.978	0.953	0.928	0.903	0.879
		7.5	-	0.988	0.982	0.957	0.932	0.907	0.882
		5	0.992	0.992	0.986	0.961	0.935	0.911	0.886
		0	1.000	1.000	0.994	0.969	0.943	0.918	0.893
	∗2 Indoor unit is under than outdoor unit.	-5	1.000	1.000	0.994	0.969	0.943	0.918	0.893
		-7.5	-	1.000	0.994	0.969	0.943	0.918	0.893
		-10	-	-	0.994	0.969	0.943	0.918	0.893
		-20	-	-	-	0.969	0.943	0.918	0.893
		-30	-	-	-	-	0.943	0.918	0.893

HEATING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is upper 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	1.003	1.000	0.998	0.988	0.978	0.968	0.958
		0	1.003	1.000	0.998	0.988	0.978	0.968	0.958
	∗2 Indoor unit is under 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 upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

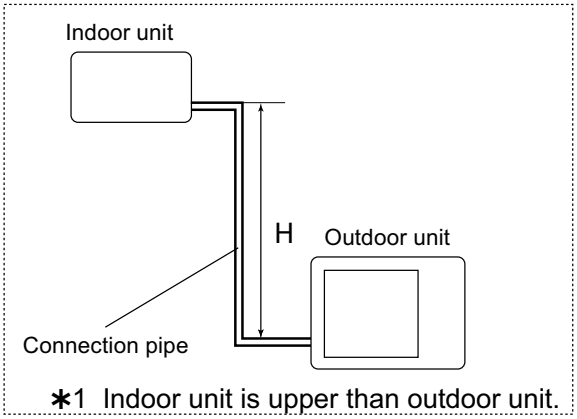
This table is created using the maximum capacity.

■ MODEL: AOTG45L

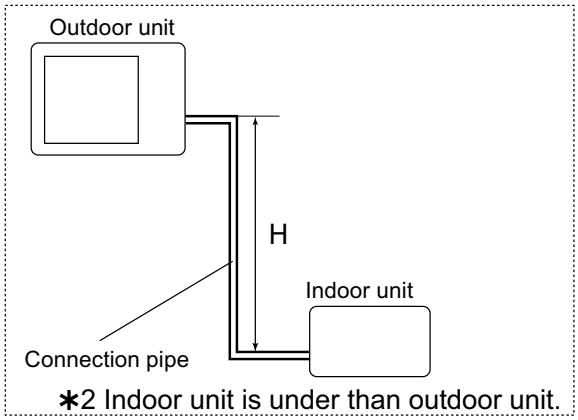
COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	30	-	-	-	-	0.879	0.846	0.814
		20	-	-	-	0.926	0.893	0.861	0.828
		10	-	-	0.975	0.942	0.908	0.875	0.841
		7.5	-	0.988	0.979	0.946	0.912	0.878	0.845
		5	0.992	0.992	0.983	0.949	0.916	0.882	0.848
		0	1.000	1.000	0.991	0.957	0.923	0.889	0.855
	∗2 Indoor unit is under 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 upper 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	1.003	1.000	0.998	0.988	0.978	0.968	0.958
		0	1.003	1.000	0.998	0.988	0.978	0.968	0.958
	∗2 Indoor unit is under 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 upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

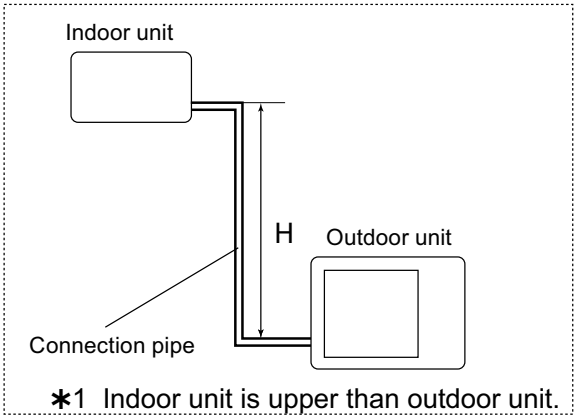
This table is created using the maximum capacity.

■ MODEL: AOTG54L

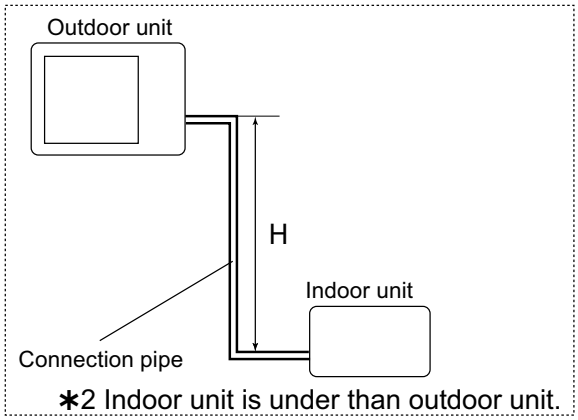
COOLING			Pipe length (m)						
			5	7.5	10	20	30	40	50
Height difference H (m)	∗1 Indoor unit is upper than outdoor unit.	30	-	-	-	-	0.871	0.837	0.803
		20	-	-	-	0.921	0.886	0.851	0.816
		10	-	-	0.971	0.936	0.900	0.865	0.830
		7.5	-	0.988	0.975	0.940	0.904	0.868	0.833
		5	0.992	0.992	0.979	0.943	0.908	0.872	0.836
		0	1.000	1.000	0.987	0.951	0.915	0.879	0.843
	∗2 Indoor unit is under 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 upper 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	1.003	1.000	0.998	0.988	0.978	0.968	0.958
		0	1.003	1.000	0.998	0.988	0.978	0.968	0.958
	∗2 Indoor unit is under 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 upper than outdoor unit.



∗2 Indoor unit is under than outdoor unit.

7. ADDITIONAL CHARGE CALCULATION

■ MODEL: AOTG30L, AOTG36L, AOTG45L, AOTG54L

Refrigerant type		R410A
Refrigerant amount	g	3,350

● REFRIGERANT CHARGE

Total pipe length	m	~ 20	30	40	50 (MAX)	40g/m
Aditional charge	g	0 (Charge less)	400	800	1200	

OUTDOOR UNIT
AOTG30-54L

8. AIR FLOW

■ MODEL: AOTG30L, AOTG36L, AOTG45L, AOTG54L

● Cooling

MODEL		Number of rotations (r.p.m.)	Air flow	
AOTG30L	Upper fan	750	m^3/h	5950
			l/s	1653
	Lower fan	700	CFM	3505
AOTG36L	Upper fan	780	m^3/h	6200
			l/s	1722
	Lower fan	750	CFM	3650
AOTG45L	Upper fan	850	m^3/h	6750
			l/s	1875
	Lower fan	800	CFM	3974
AOTG54L	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	
AOTG30L	Upper fan	720	m^3/h	5800
			l/s	1611
	Lower fan	700	CFM	3415
AOTG36L	Upper fan	780	m^3/h	6200
			l/s	1722
	Lower fan	750	CFM	3650
AOTG45L	Upper fan	780	m^3/h	6200
			l/s	1722
	Lower fan	750	CFM	3650
AOTG54L	Upper fan	850	m^3/h	6850
			l/s	1903
	Lower fan	830	CFM	4033

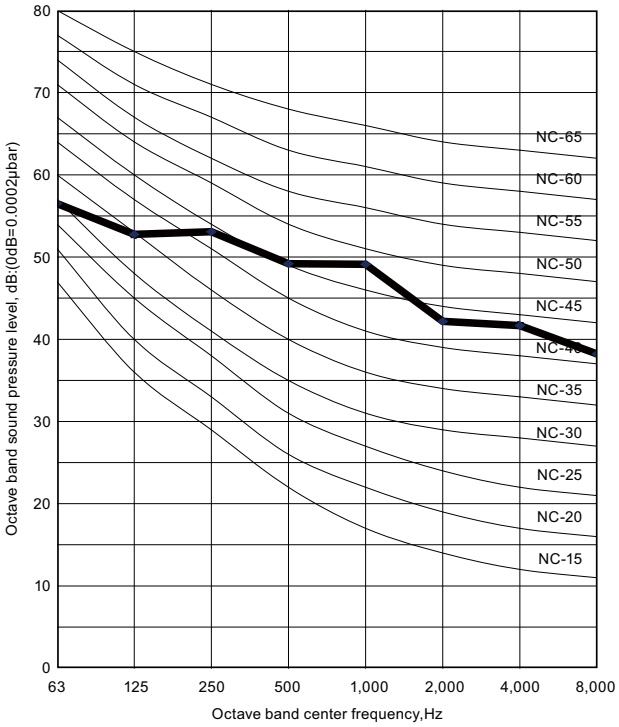
OUTDOOR UNIT
AOTG30-54L

9. OPERATION NOISE

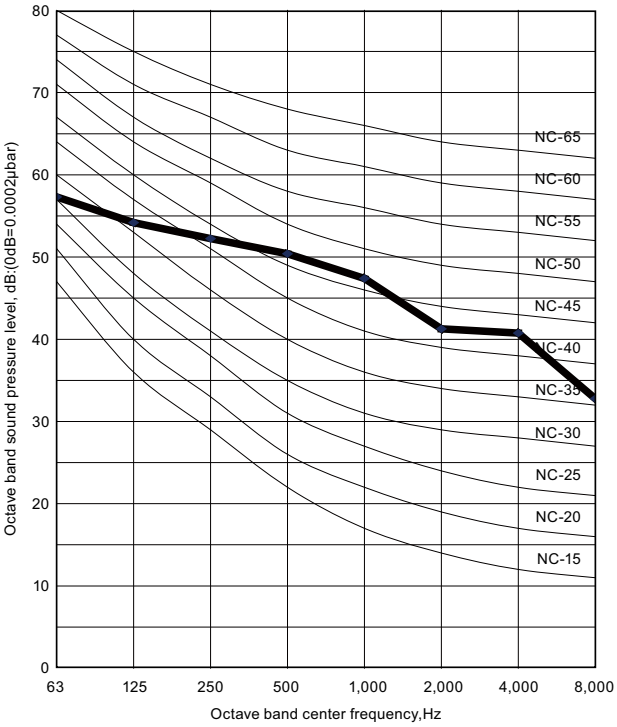
9-1. NOISE LEVEL CURVE

■ MODEL: AOTG30L

● Cooling

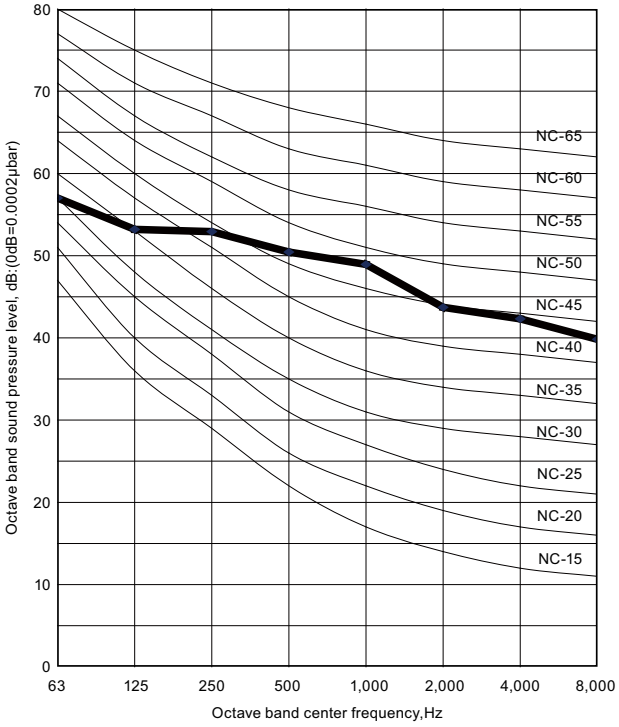


● Heating

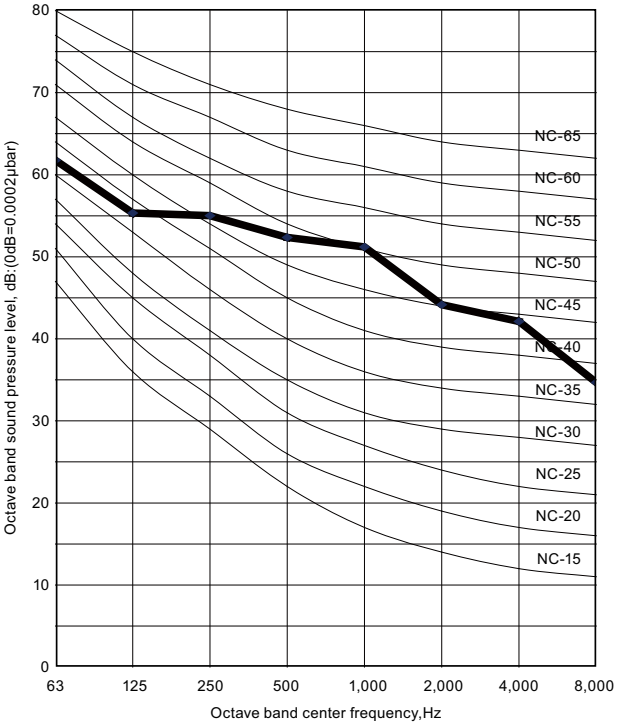


■ MODEL: AOTG36L

● Cooling



● Heating



OUTDOOR UNIT
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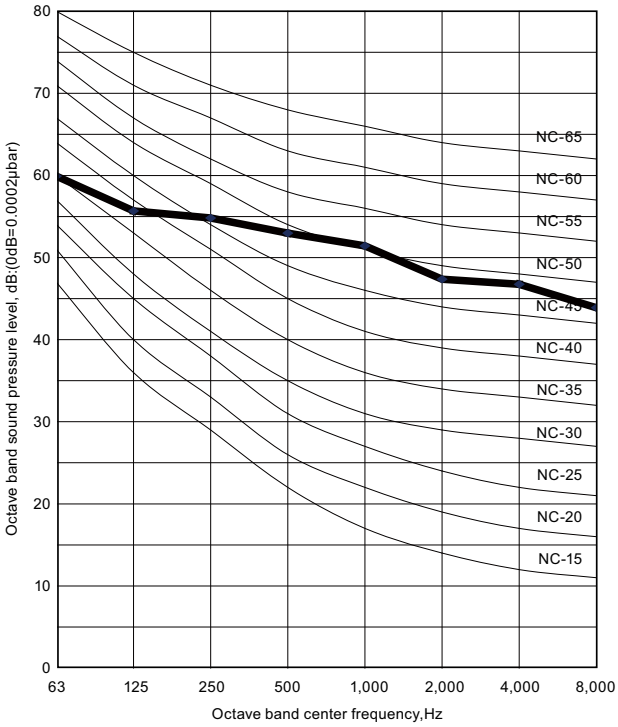
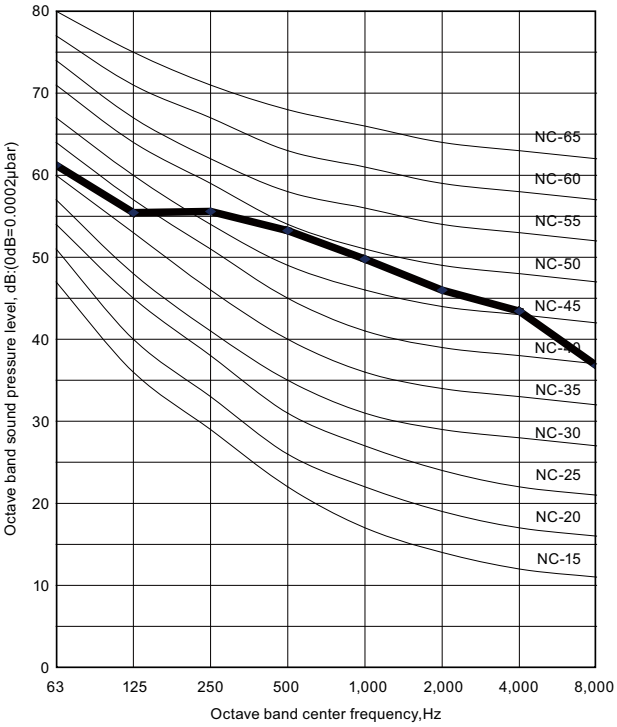
OUTDOOR UNIT
AOTG30-54L

■ MODEL: AOTG45L

● Cooling

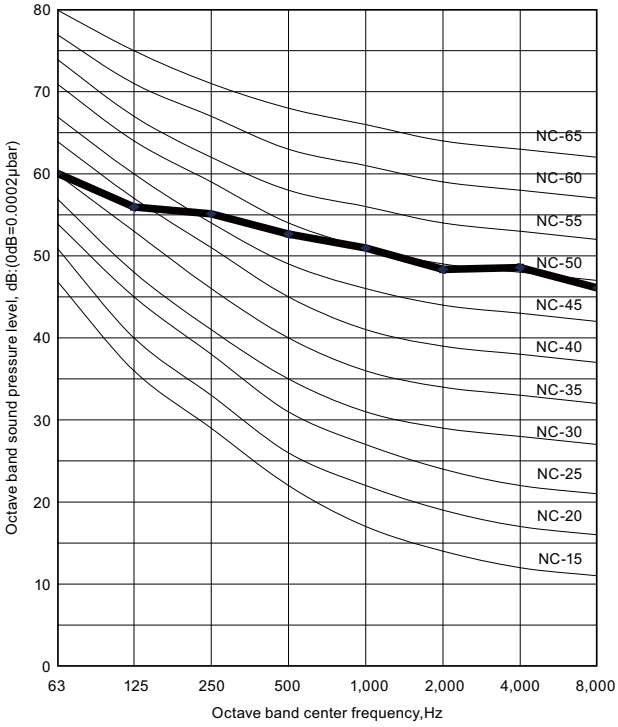


● Heating

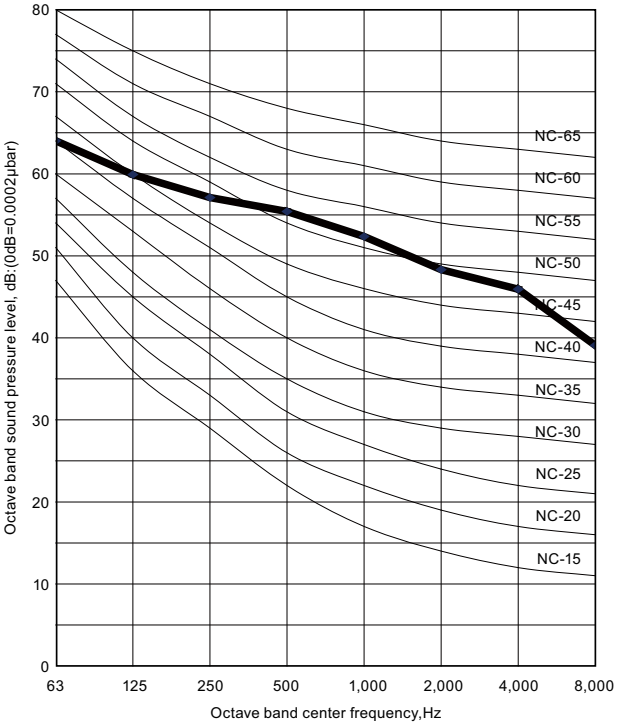


■ MODEL: AOTG54L

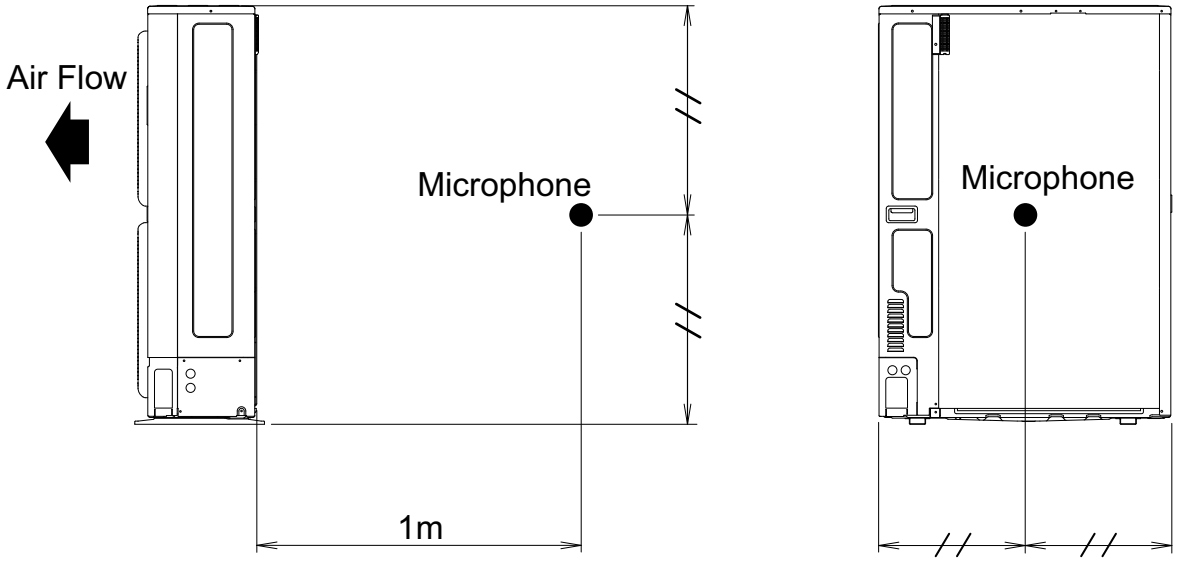
● Cooling



● Heating



9-2. SOUND LEVEL CHECK POINT



OUTDOOR UNIT
AOTG30-54L

10. ELECTRIC CHARACTERISTICS

Model name			AOTG30L	AOTG36L	AOTG45L	AOTG54L
Power supply	Voltage	V	240 ~			
	Frequency	Hz	50			
*1) Max. operating current		A	18.1	20.1	22.5	23.5
*2) Wiring spec.	Main fuse (Circuit breaker) Current	A	30			
	Power cable	mm^2	5.3			

*1) The maximum current is the total current of indoor unit and outdoor unit.
*2) Wiring spec. :
Selected sample
(Selected based on Japan Electrotechnical Standard and Codes Committee E0005)

OUTDOOR UNIT
AOTG30-54L

11. SAFETY DEVICES

	Protection form	Model			
		AOTG30L	AOTG36L	AOTG45L	AOTG54L
Circuit protection	Current fuse (Filter printed circuit board)	10A 250V, 3.15A 250V			
	Current fuse (Main printed circuit board)	3.15A 250V			
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
AOTG30-54L

12. 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
AOTG30-54L

12-1. EXTERNAL INPUT

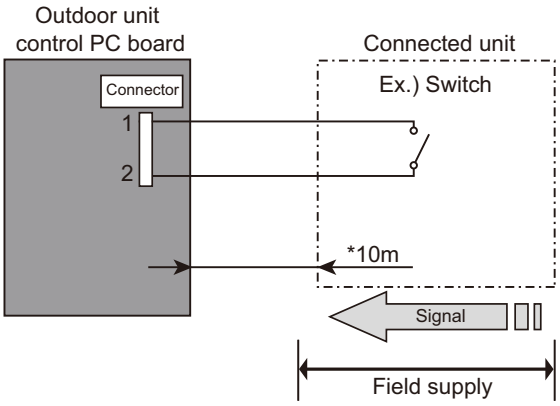
ON/OFF of the "Low noise mode" and "Peak cut mode" functions can be specified by external signal.

■ 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

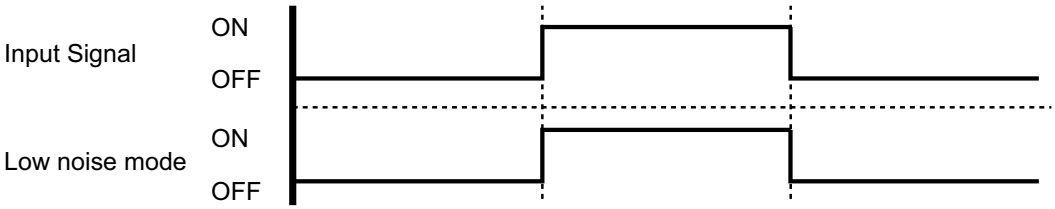


Contact capacity : 24VDC or more, 10mA or more.

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

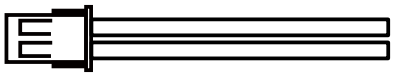
- Use the following parts and construct a circuit as shown above.
- Input Signal···ON : Low noise mode, Input Signal···OFF : Normal operation

* Set the "Low noise mode" level, refer to "13.FUNCTION SETTING".



● Parts (Optional)

Parts name	External connect kit
Model name	UTY-XWZXZ3

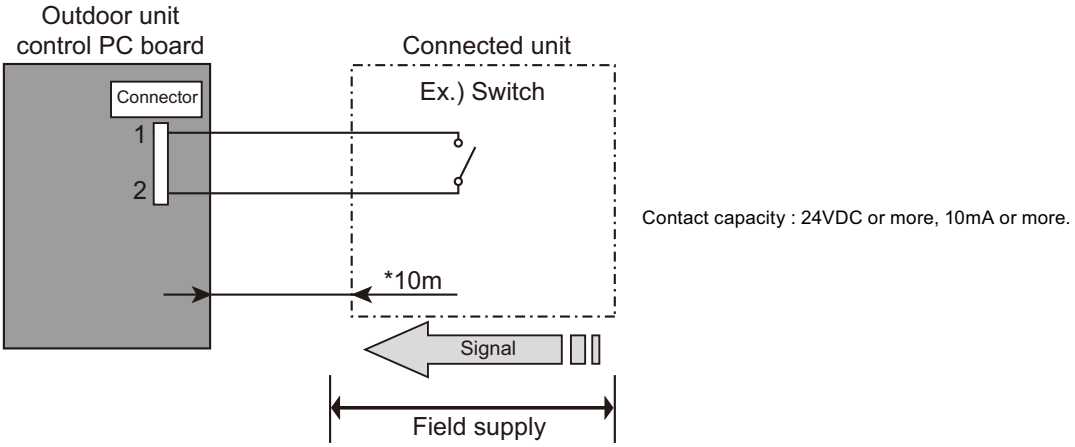


OUTDOOR UNIT
AOTG30-54L

■ PEAK CUT MODE

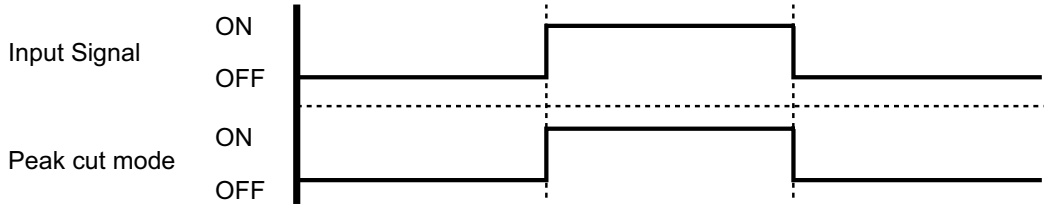
- Operation that suppressed the current value can be performed by means of the following on-site work. The air conditioner is set to the Peak cut mode when closing the contact input of a commercial ON/OFF switch to a connector on the outdoor control PC board.

● Circuit diagram example



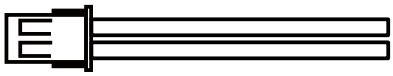
* Make the distance from the PC board to the connected unit within 10m.

- Use the following parts and construct a circuit as shown above.
- Input Signal···ON : Peak cut mode, Input Signal···OFF : Normal operation
  *Set the "Peak cut mode" level, refer to "13.FUNCTION SETTING".



● Parts (Optional)

Parts name	External connect kit
Model name	UTY-XWZXZ3

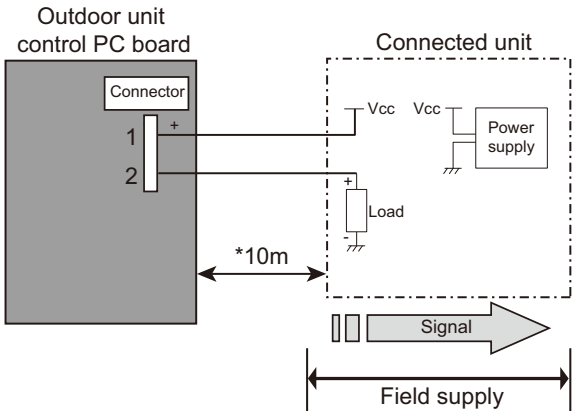


12-2. EXTERNAL OUTPUT

■ ERROR STATUS OUTPUT

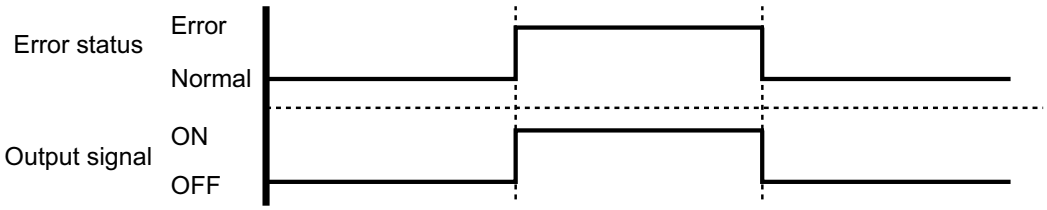
• An air conditioner error status signal is produced when a malfunction occurs.

● Circuit diagram example



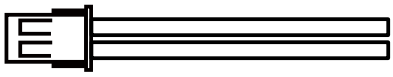
1) Power supply
●Voltage (Chart sign=Vcc) : DC 24V or less
2) Load
●Load : DC 500mA or less is recommended

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



● Parts (Optional)

Parts name	External connect kit
Model name	UTY-XWZXZ3

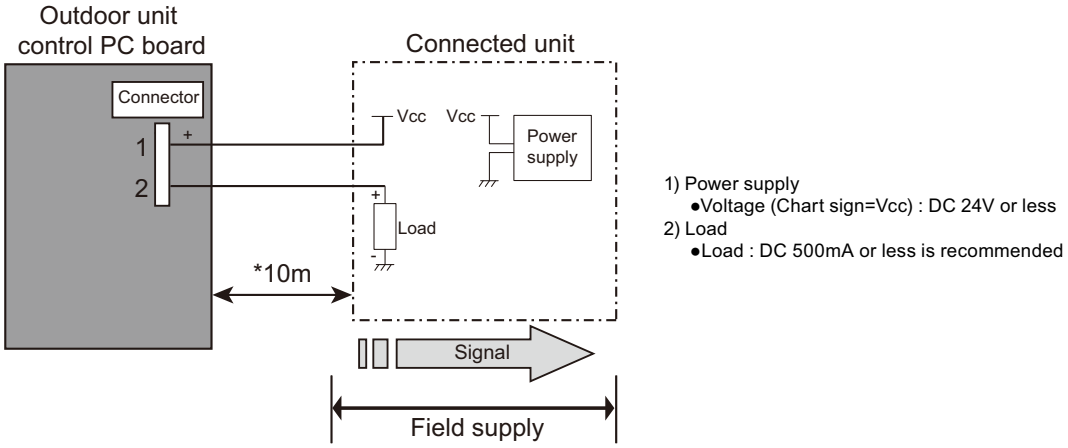


OUTDOOR UNIT
AOTG30-54L

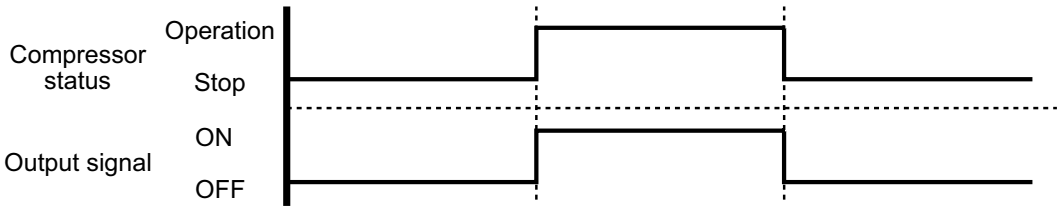
■ COMPRESSOR STATUS OUTPUT

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

● Circuit diagram example

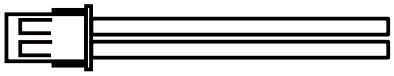


* Make the distance from the PC board to the connected unit within 10m.



● Parts (Optional)

Parts name	External connect kit
Model name	UTY-XWZXZ3



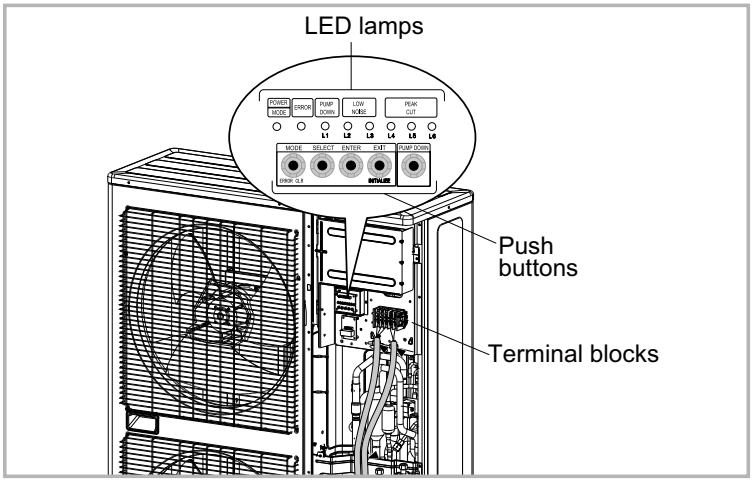
13. FUNCTION SETTING

⚠ Caution

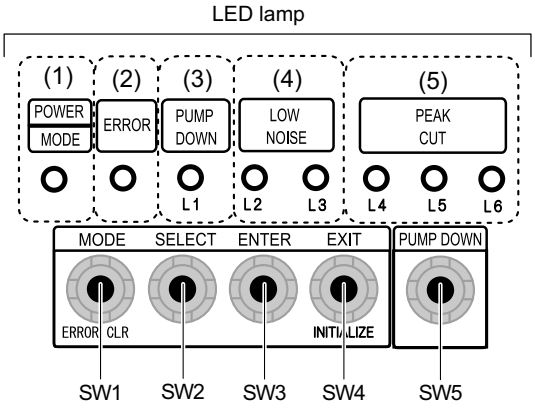
Discharge the static electricity from your body before setting up the push buttons.
Never touch the terminals or the patterns on the parts that are mounted on the board.

13-1. 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)

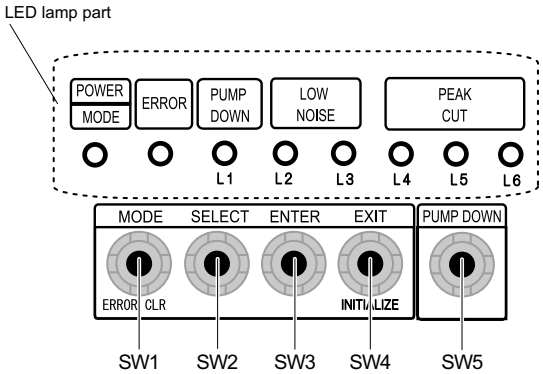
Button		Function or operation method
SW1	MODE	To switch between “Local setting” and “Error code display”.
SW2	SELECT	To switch between the individual “Local settings” and the “Error code displays”.
SW3	ENTER	To fix between the individual “Local settings” and the “Error code displays”.
SW4	EXIT	To return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

OUTDOOR UNIT
AOTG30-54L

13-2. SETTING METHOD

※ Stop the operation of air conditioner before this setting.

13-2-1. LOW NOISE MODE



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

(2) Confirm (POWER / MODE) blinks 9 times, and 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)
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)	PEAK CUT (L5)	PEAK CUT (L6)
MODE 1	○	○	Blink
MODE 2	○	Blink	○

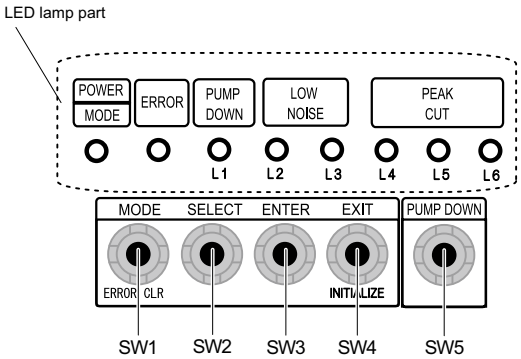
(6) Press [ENTER] button (SW3) and fix it.

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

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

- In case of missing how many times [SELECT] and [ENTER] button are pressed, restart from the beginning of operation procedure after returning to “Operation status display (normal operation)” by pressing the [EXIT] button once.

13-2-2. PEAK CUT MODE



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

(2) Confirm (POWER / MODE) blinks 9 times, and 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	○	○

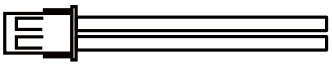
(6) Press [ENTER] button (SW3) and fix it.

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

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

- When pressed number is lost during operation, restart from the beginning of operation procedure after returning to “Operation status display (normal operation)” by pressing the [EXIT] button once.

14. 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
AOTG30-54L