Refrigerant
R410A

INVERTER

AIR CONDITIONER
Cassette type

DESIGN & TECHNICAL MANUAL

INDOOR

AU✻G45LRLA
AU✻G54LRLA

OUTDOOR

AO✻G45LETL
AO✻G54LETL

FUJITSU GENERAL LIMITED

1. INDOOR UNIT

CASSETTE TYPE :

AU✳G45LRLA
AU✳G54LRLA

CONTENTS

1. INDOOR UNIT

1. FEATURES

■ MODELS

AU∗G45LRLA / AO∗G45LETL
AU∗G54LRLA / AO∗G54LETL
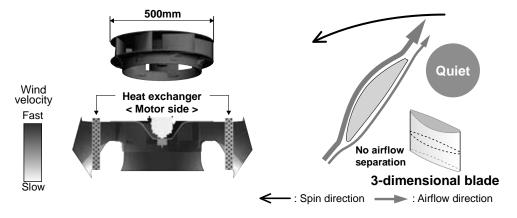
■ FEATURES

● Energy saving

• All DC design

• Heat exchange efficiency increased and larger air flow by adoption of new type turbo fan

● Advancement in comfort
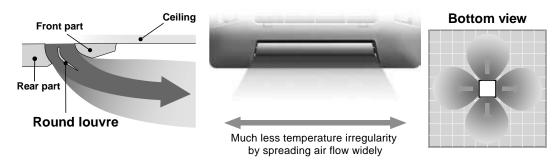
• Quiet operation was realized by adoption of new type turbo fan

• Improvement of air stream

①Adoption of high efficiency turbo fan

High efficiency and quiet operation achieved by equaling the performance of the blade and air passing the heat exchanger.

500mm

Wind velocity

Fast

Slow

Heat exchanger < Motor side >

Quiet

No airflow separation

3-dimensional blade

← : Spin direction ➡ : Airflow direction

②Improvement of the airflow distribution

Making space between the ceiling, the air flows far and wide leaving the ceiling clean.

Ceiling

Front part

Rear part

Round louvre

Bottom view

Much less temperature irregularity by spreading air flow widely

Wide & powerful airflow

[m]

Side view

3

1.5

120°

7   5   3   3   5   7

Airflow range of 2m / s

● **Economy operation**
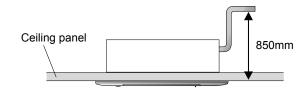
The power consumption can be reduced.

● **Improvement of installation & maintenance**

• Adjustment of hanger position is possible after installation
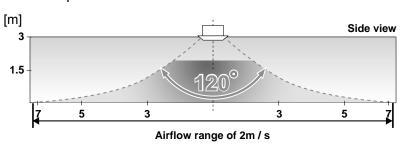
Mounting position of body can be fine adjusted after mounting the cassette grille.

Detachable grille corner

Adjustment can be done by just taking off the corner part

● **High lift drain pump**

Ceiling panel

850mm

● **Easy installation**

Easy setting by wired remote controller

● **Simplification of drain water check**

Drain and contamination check are possible without removing the cassette grille.

DRAIN CAP

DRAIN COVER

Can be easily checked by removing the drain cover.

■ FUNCTION SETTING

● Other functions

Performs operation matched to the number of outlets when 4 directions are unnecessary and outlets are blocked when the ceiling cassette is installed in a corner, etc.
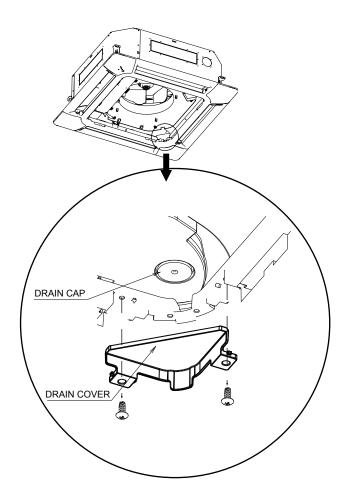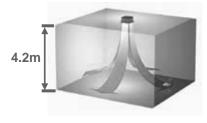
4-way direction   **3-way direction**

4-way direction mode: Set when there are 4 outlets (shipped state).
3-way direction mode: Set when there are 3 outlets.

● Ceiling switching function

Also delivers air to high ceilings by selecting the mode and raising the airflow according to the height of the ceiling.

High ceiling (Mode 1)   **Standard ceiling (Standard)**   **Low ceiling (Mode 2)**

4.2m   3.2m   2.7m

Standard ...Operates at normal airflow.

Mode 1 ...Airflow becomes greater than normal.

Mode 2 ...Airflow becomes smaller than normal.

● Cooling room temperature correction

● Heating room temperature correction

● Auto restart

The unit will restart automatically when the current returns even when there is a power interruption during operation.

● 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.

2. WIRED REMOTE CONTROLLER

■ FEATURES

∗ Various timer setup available (ON / OFF / WEEKLY).

∗ Equipped with weekly timer as standard function.
(Start/Stop function is twice per day for a week)

∗ When setting up the timer, operation mode and temperature setup can be changed.

∗ When a failure occurs, the error code is displayed.

∗ Error history. (Last 16 error codes can be accessed.)

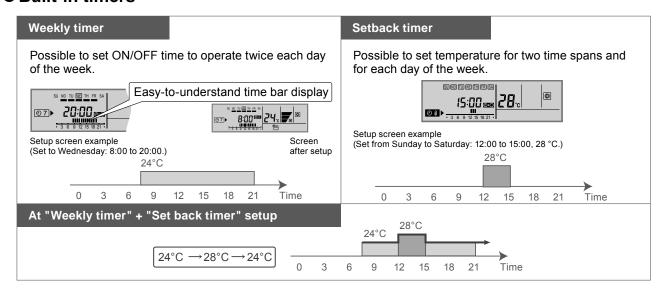∗ The room temperature can be controlled by detecting the temperature accurately with built-in thermo sensor.

● Simple function setting

Setting of the air conditioner selection function is performed by remote controller.
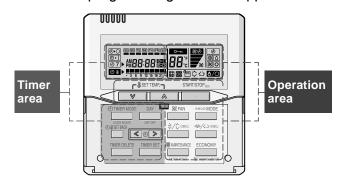
● High performance and compact size

| Individual control | + | Thermo sensor | + | Weekly timer | + | Setback timer | = | Wired remote controller |

● Built-in timers

Weekly timer

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

Easy-to-understand time bar display

SU MO TU WE TH FR SA
⊙7▶ 20:00

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

SU MO TU WE TH FR SA
⊙7▶ 8:00 24°C

Screen after setup

24°C

0 3 6 9 12 15 18 21 Time

Setback timer

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

SU MO TU WE TH FR SA
⊙8▶ 15:00 28°C

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

28°C

0 3 6 9 12 15 18 21 Time

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

24°C → 28°C → 24°C

24°C   28°C

0 3 6 9 12 15 18 21 Time

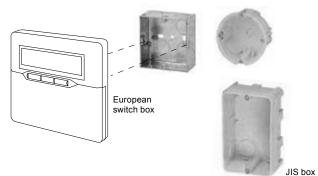### ● Easy-to-understand operation

[Variable timer control]

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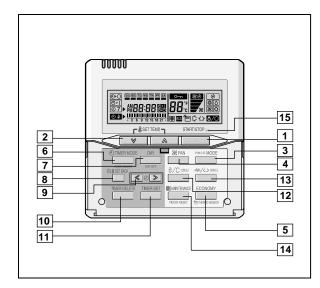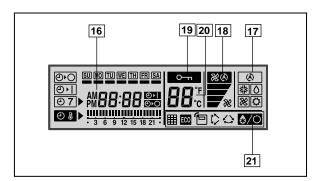
Timer area

Operation area

● Simple installation

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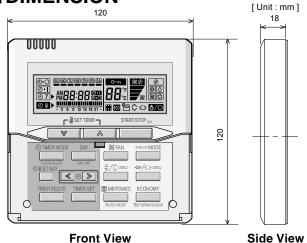
European switch box

JIS box

■ FUNCTIONS

Display panel

■ 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	Cable size	Wire type	Remarks
Remote controller cable	0.33mm^2 (22AWG)	Polar 3 core	Use sheathed PVC cable

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 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). Sets the current time.

7	**DAY(DAY OFF) button**
	Temporarily cancels 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**
	Deletes the weekly timer schedule.

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

Note: Some button operations may not be available for all units or systems. For details, please see operation manual.

3. SPECIFICATIONS

| Type				CASSETTE MODEL	
				INVERTER HEATPUMP	
Model name				AU∗G45LRLA	AU∗G54LRLA
Power source				230V ~ 50Hz	
Available voltage range				198-264V ~ 50Hz	
Capacity	Cooling	Rated	kW	12.5	13.3
			Btu/h	42700	45400
		Min.-Max.	kW	4.0-14.0	4.5-14.5
			Btu/h	13700-47800	15400-49500
	Heating	Rated	kW	14.0	16.0
			Btu/h	47800	54600
		Min.-Max.	kW	4.2-16.2	4.7-16.5
			Btu/h	14300-55300	16000-56300
Input power	Cooling	Rated	kW	3.88	4.42
		Max.		4.70	4.94
	Heating	Rated		3.77	4.69
		Max.		4.70	4.94
Current	Cooling	Rated	A	16.9	19.3
	Heating			16.5	20.5
EER	Cooling		kW/kW	3.22	3.01
COP	Heating			3.71	3.41
Moisture removal			l/h (pints/h)	4.5 (7.9)	5.0 (8.8)
Maximum operating current *	Cooling		A	20.5	21.5
	Heating			20.5	21.5
Fan	Airflow rate	Cooling	High	1900	2000
			Med	1640	1700
			Low	1460	1530
			Quiet l/s (m³/h)	1250	1300
		Heating	High	1900	2000
			Med	1640	1700
			Low	1460	1530
			Quiet	1250	1300
	Type × Q'ty			Turbo × 1	
	Motor output		W	80	
Sound pressure level	Cooling		High	46	47
			Med	42	43
			Low	40	41
			Quiet dB(A)	36	37
	Heating		High	46	47
			Med	42	43
			Low	40	41
			Quiet	36	37
Heat exchanger type	Dimensions (H × W × D)		mm	252×2021×13.3 / 252×2087×13.3 / 252×2153×13.3	
	Fin pitch			1.3	
	Rows x Stages			3 x 12	
	Pipe type			Copper	
	Fin type			Aluminium	
Dimensions (H × W × D)	Net		mm	288×840×840	
	Gross			360×960×985	
Weight	Net		kg	26	
	Gross			31	
Connection pipe	Size	Liquid	mm	Ø9.52 (3/8 in.)	
		Gas		Ø15.88 (5/8 in.)	
	Method			Flare	
Drain hose	Material			PVC	
	Size			VP25 [Ø25(I.D.), Ø32(O.D.)]	
Operation range	Cooling		°C	18 to 32	
			%RH	80 or less	
	Heating		°C	16 to 30	
Cassette grille	Model name			UTG-UG∗A-W	
	Material			PS	
	Colour			WHITE / Approximate colour of MUNSELL N 9.25 /	
	Dimensions (H × W × D)	Net	mm	50×950×950	
		Gross		115×1020×1000	
	Weight	Net	kg	5.5	
		Gross		8.5	
Remote controller type				Wired [Wireless (option)]	
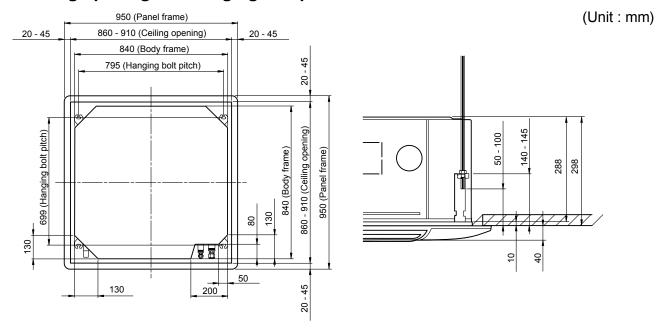
Note :
Specifications are based on the following conditions.
Cooling : Indoor temperature of 27 °CDB / 19 °CWB.and outdoor temperature of 35 °CDB/24 °CWB.
Heating : Indoor temperature of 20 °CDB / 15 °CWB.and outdoor temperature of 7 °CDB/6 °CWB.
Pipe length : 5 m, Height difference : 0 m.(Outdoor unit - Indoor unit)
The protective function might work when using it outside the operation range.
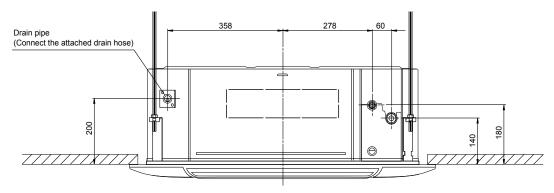*: The maximum current is the maximum value when operated within the operation range.
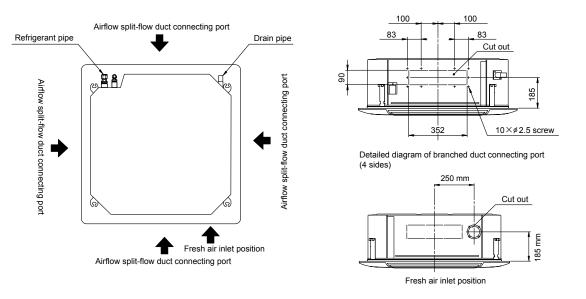
4. DIMENSIONS

■MODELS : AU✻G45LRLA, AU✻G54LRLA
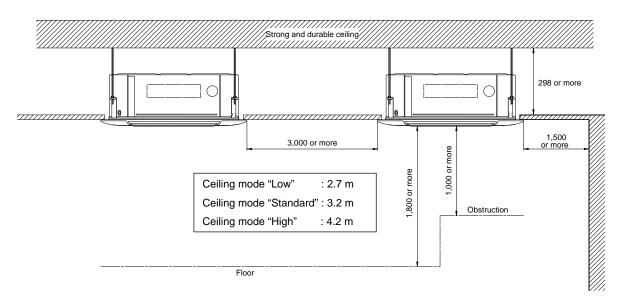
●Ceiling opening and hanging bolt pitch

(Unit : mm)

●Refrigerant piping and drain piping positions
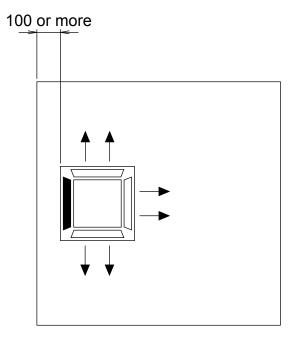
●Airflow split-flow duct and fresh air inlet positions

Detailed diagram of branched duct connecting port
(4 sides)

Fresh air inlet position

■ INSTALLATION PLACE

(Unit : mm)

Strong and durable ceiling

298 or more

3,000 or more

1,500 or more

1,800 or more

1,000 or more

Ceiling mode "Low"   : 2.7 m
Ceiling mode "Standard" : 3.2 m
Ceiling mode "High"   : 4.2 m
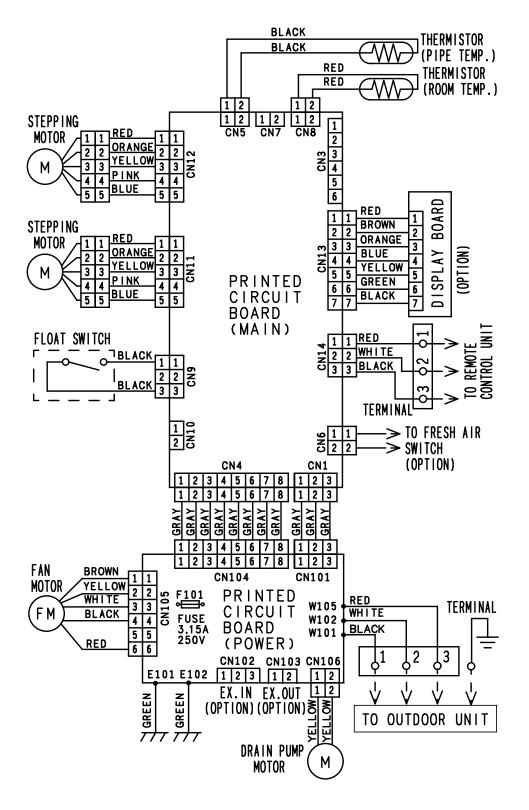
Obstruction

Floor

● 3-way directions setting

100 or more

To set "3-way directions", the air outlet shutter plate (UTR-YDZC) sold separately must be installed and "outlet-direction" switched to "3-way" by remote controller.

5. WIRING DIAGRAMS

■MODELS : AU＊G45LRLA, AU＊G54LRLA

6. CAPACITY TABLE

6-1. COOLING CAPACITY

This table is created using the maximum capacity.

■ MODEL: AU∗G45LRLA

AFR	31.7

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
Outdoor temperature	-15	11.34	8.71	2.56	12.63	8.76	2.60	13.06	9.52	2.62	13.92	9.55	2.64	14.35	10.32	2.66	15.21	10.28	2.68	16.07	10.95	2.71
	-10	11.44	8.70	2.46	12.74	8.75	2.50	13.17	9.51	2.51	14.04	9.55	2.54	14.48	10.31	2.55	15.35	10.27	2.58	16.21	10.94	2.60
	0	11.55	8.77	2.23	12.87	8.83	2.26	13.31	9.60	2.28	14.18	9.63	2.30	14.62	10.40	2.31	15.50	10.35	2.33	16.38	11.03	2.36
	5	11.37	8.78	2.30	12.67	8.84	2.34	13.10	9.61	2.35	13.96	9.64	2.37	14.40	10.41	2.39	15.26	10.37	2.41	16.12	11.04	2.43
	10	11.11	8.78	2.49	12.37	8.83	2.53	12.79	9.60	2.54	13.64	9.63	2.57	14.06	10.40	2.58	14.90	10.36	2.61	15.74	11.04	2.63
	15	10.84	8.68	2.69	12.07	8.74	2.73	12.48	9.50	2.74	13.31	9.53	2.77	13.72	10.29	2.78	14.54	10.25	2.81	15.37	10.92	2.84
	20	11.22	8.69	3.15	12.49	8.74	3.20	12.92	9.50	3.22	13.77	9.53	3.25	14.20	10.29	3.27	15.05	10.25	3.30	15.90	10.92	3.33
	25	11.10	8.78	3.36	12.36	8.83	3.41	12.79	9.60	3.43	13.63	9.63	3.46	14.05	10.40	3.48	14.89	10.36	3.51	15.74	11.03	3.55
	30	11.34	8.84	4.27	12.63	8.89	4.34	13.06	9.67	4.36	13.92	9.70	4.41	14.35	10.48	4.43	15.21	10.43	4.43	16.07	11.11	4.43
	35	11.06	8.82	4.53	12.32	8.87	4.60	12.74	9.64	4.62	13.58	9.68	4.67	14.00	10.45	4.69	14.84	10.41	4.69	15.68	11.09	4.69
	40	8.79	7.66	3.92	9.79	7.83	3.98	10.13	8.52	4.00	10.80	8.54	4.04	11.13	9.23	4.06	11.80	9.19	4.06	12.47	9.79	4.06
	46	6.69	6.63	3.24	7.45	6.87	3.29	7.71	7.47	3.31	8.22	7.49	3.34	8.47	8.09	3.36	8.98	8.06	3.36	9.49	8.58	3.36

AFR : Air Flow Rate (m³/min)
TC : Total Capacity (kW)
SHC : Sensible Heat Capacity (kW)
IP : Input Power (kW)

■ MODEL: AU∗G54LRLA

AFR	33.3

		Indoor temperature																				
	°CDB	18			21			23			25			27			29			32		
	°CWB	12			15			16			18			19			21			23		
	°CDB	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
Outdoor temperature	-15	11.73	9.03	2.69	13.07	9.08	2.73	13.52	9.87	2.75	14.41	9.90	2.78	14.85	10.69	2.79	15.74	10.65	2.82	16.64	11.35	2.85
	-10	11.72	9.04	2.59	13.06	9.10	2.63	13.50	9.89	2.64	14.39	9.92	2.67	14.84	10.71	2.68	15.73	10.67	2.71	16.62	11.37	2.73
	0	11.84	9.12	2.33	13.19	9.17	2.36	13.64	9.97	2.37	14.54	10.01	2.40	14.99	10.81	2.41	15.89	10.76	2.43	16.78	11.46	2.46
	5	11.60	8.96	2.42	12.92	9.02	2.46	13.37	9.80	2.47	14.25	9.83	2.50	14.69	10.62	2.51	15.57	10.58	2.54	16.45	11.27	2.56
	10	11.44	8.90	2.54	12.74	8.95	2.58	13.18	9.73	2.59	14.04	9.76	2.62	14.48	10.54	2.63	15.35	10.50	2.66	16.22	11.18	2.68
	15	11.22	8.99	2.80	12.50	9.04	2.85	12.92	9.83	2.86	13.77	9.86	2.89	14.20	10.65	2.91	15.05	10.61	2.93	15.90	11.30	2.96
	20	12.06	9.55	3.73	13.43	9.61	3.79	13.89	10.45	3.81	14.81	10.48	3.85	15.26	11.32	3.87	16.18	11.27	3.90	17.10	12.01	3.94
	25	11.82	9.10	4.31	13.17	9.15	4.38	13.62	9.95	4.40	14.52	9.98	4.45	14.97	10.78	4.47	15.86	10.73	4.51	16.76	11.43	4.56
	30	11.62	8.98	4.52	12.95	9.04	4.59	13.39	9.82	4.61	14.27	9.86	4.66	14.71	10.64	4.68	15.59	10.60	4.68	16.48	11.29	4.68
	35	11.46	8.89	4.75	12.76	8.95	4.82	13.20	9.73	4.85	14.07	9.76	4.90	14.50	10.54	4.92	15.37	10.50	4.92	16.24	11.18	4.92
	40	9.11	8.03	3.94	10.15	8.21	4.00	10.49	8.93	4.02	11.18	8.96	4.06	11.53	9.67	4.08	12.22	9.63	4.08	12.91	10.26	4.08
	46	6.94	6.91	3.26	7.73	7.16	3.31	7.99	7.78	3.33	8.52	7.81	3.36	8.78	8.43	3.38	9.31	8.40	3.38	9.83	8.94	3.38

AFR : Air Flow Rate (m³/min)
TC : Total Capacity (kW)
SHC : Sensible Heat Capacity (kW)
IP : Input Power (kW)

6-2. HEATING CAPACITY

This table is created using the maximum capacity.

■MODEL: AU✳G45LRLA

AFR	31.7

			Indoor temperature								
		°CDB	16		18		20		22		24	
°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
-15	-16	10.90	4.14	10.64	4.22	10.38	4.31	10.12	4.40	9.86	4.48
-10	-11	11.86	4.29	11.57	4.38	11.29	4.47	11.01	4.56	10.73	4.65
-5	-7	12.96	4.25	12.65	4.34	12.34	4.43	12.03	4.43	11.73	4.43
0	-2	14.01	4.25	13.68	4.34	13.35	4.43	13.01	4.43	12.68	4.43
5	3	15.51	4.25	15.14	4.34	14.77	4.43	14.40	4.43	14.03	4.43
7	6	17.01	4.25	16.61	4.34	16.20	4.43	15.80	4.43	15.39	4.43
10	8	17.29	4.25	16.88	4.34	16.46	4.43	16.05	4.43	15.64	4.43
15	10	16.80	3.80	16.40	3.88	16.00	3.96	15.60	3.96	15.20	3.96
20	15	16.27	3.80	15.88	3.88	15.49	3.96	15.10	3.96	14.72	3.96
24	18	16.79	3.26	16.39	3.33	15.99	3.40	15.60	3.40	15.20	3.40

(Outdoor temperature)

AFR : Air Flow Rate (m³/min)
TC : Total Capacity (kW)
IP : Input Power (kW)

■MODEL: AU✳G54LRLA

AFR	33.3

			Indoor temperature								
		°CDB	16		18		20		22		24	
°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
-15	-16	11.00	4.16	10.73	4.24	10.47	4.33	10.21	4.42	9.95	4.50
-10	-11	12.08	4.31	11.79	4.40	11.50	4.49	11.22	4.58	10.93	4.67
-5	-7	13.30	4.49	12.99	4.59	12.67	4.68	12.35	4.68	12.04	4.68
0	-2	14.44	4.49	14.10	4.59	13.75	4.68	13.41	4.68	13.07	4.68
5	3	16.01	4.49	15.62	4.59	15.24	4.68	14.86	4.68	14.48	4.68
7	6	17.33	4.49	16.91	4.59	16.50	4.68	16.09	4.68	15.68	4.68
10	8	17.61	4.49	17.19	4.59	16.77	4.68	16.35	4.68	15.93	4.68
15	10	16.97	3.82	16.57	3.90	16.16	3.98	15.76	3.98	15.35	3.98
20	15	16.43	3.37	16.04	3.44	15.65	3.51	15.25	3.51	14.86	3.51
24	18	16.96	3.37	16.56	3.44	16.15	3.51	15.75	3.51	15.35	3.51

(Outdoor temperature)

AFR : Air Flow Rate (m³/min)
TC : Total Capacity (kW)
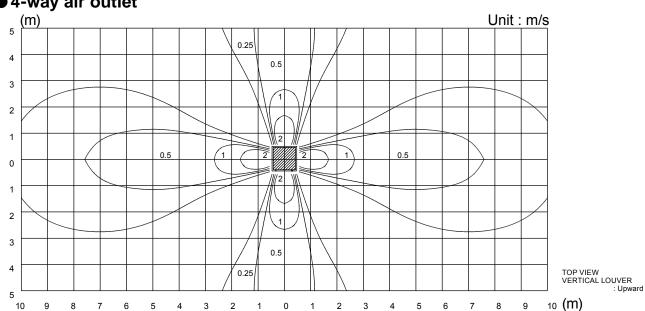IP : Input Power (kW)

7. FAN PERFORMANCE

7-1. AIR VELOCITY DISTRIBUTION

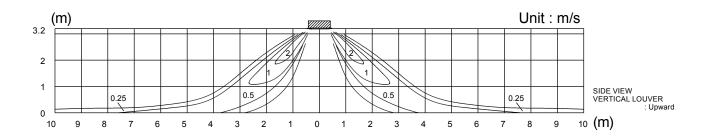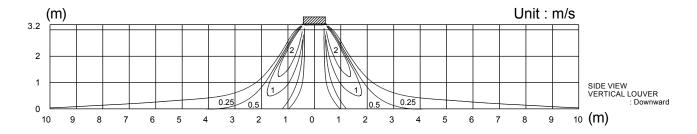## 7-1-1. STANDARD MODE

■ MODEL: AU∗G45LRLA

● 4-way air outlet

Note:
 Condition
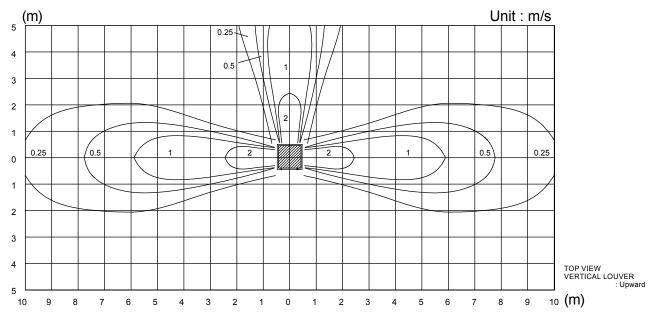 Fan speed : High
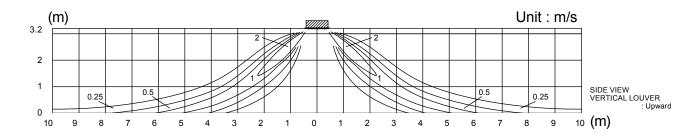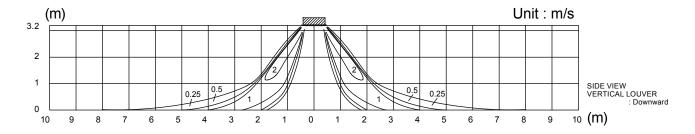 Operation mode : FAN
  Ceiling mode : Standard

Unit : m/s

TOP VIEW
VERTICAL LOUVER
 : Upward

Unit : m/s

SIDE VIEW
VERTICAL LOUVER
 : Upward

Unit : m/s

SIDE VIEW
VERTICAL LOUVER
 : Downward

Note:
  Condition
    Fan speed : High
    Operation mode : FAN
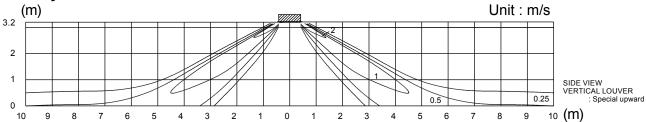   Ceiling mode : Standard

● **3-way air outlet**

TOP VIEW
VERTICAL LOUVER
    : Upward

SIDE VIEW
VERTICAL LOUVER
    : Upward

SIDE VIEW
VERTICAL LOUVER
    : Downward
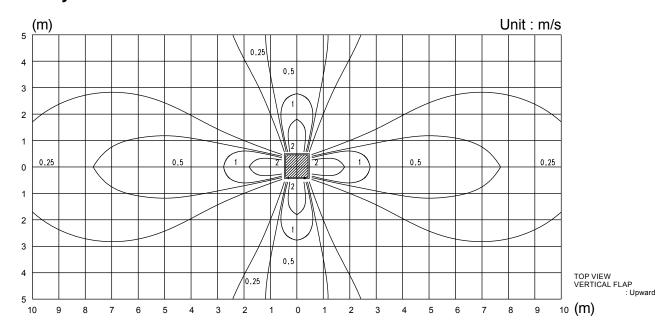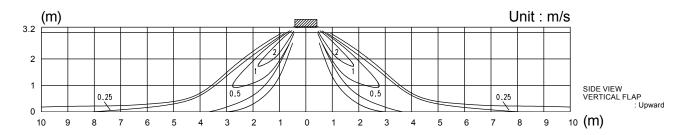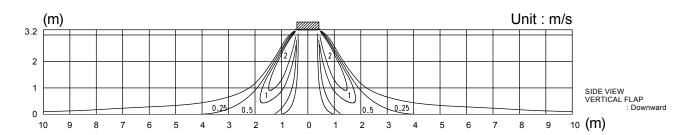
Note:
  Condition
    Fan speed : High
    Operation mode : FAN
    Ceiling mode : Standard

■MODEL：AU∗G54LRLA

●4-way air outlet

TOP VIEW
VERTICAL FLAP
    : Upward

SIDE VIEW
VERTICAL FLAP
    : Upward

SIDE VIEW
VERTICAL FLAP
    : Downward

Note:
  Condition
    Fan speed : High
    Operation mode : FAN
    Ceiling mode : Standard

● 3-way air outlet

(m)   Unit : m/s

TOP VIEW
VERTICAL FLAP
    : Upward

(m)   Unit : m/s

SIDE VIEW
VERTICAL FLAP
    : Upward

(m)   Unit : m/s

SIDE VIEW
VERTICAL FLAP
    : Downward

7-1-2. SPECIAL UPWARD MODE

Note:
  Condition
    Fan speed : High
    Operation mode : FAN
    Ceiling mode : Standard
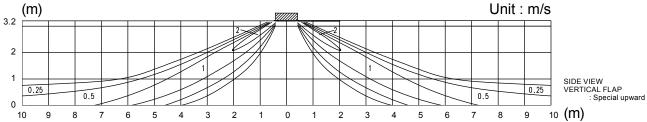
■MODEL：AU∗G45LRLA

●4-way air outlet

■MODEL：AU∗G54LRLA

●4-way air outlet

7-2. AIRFLOW

7-2-1. 4-WAY OUTLET

■ MODEL : AU∗G45LRLA

● Cooling / Heating

Fan speed	Number of rotations (r.p.m.)	Airflow	
HIGH	690	m^3/h	1900
		l/s	528
		CFM	1118
MED	610	m^3/h	1640
		l/s	456
		CFM	965
LOW	550	m^3/h	1460
		l/s	406
		CFM	859
QUIET	470	m^3/h	1250
		l/s	347
		CFM	736

■ MODEL : AU∗G54LRLA

● Cooling / Heating

Fan speed	Number of rotations (r.p.m.)	Airflow	
HIGH	720	m^3/h	2000
		l/s	556
		CFM	1177
MED	630	m^3/h	1700
		l/s	472
		CFM	1000
LOW	570	m^3/h	1530
		l/s	425
		CFM	900
QUIET	480	m^3/h	1300
		l/s	361
		CFM	765

7-2-2. 3-WAY OUTLET

■ MODEL: AU✻G45LRLA

● Cooling / Heating

Fan speed	Number of rotations (r.p.m.)	Airflow	
HIGH	720	m^3/h	1690
		l/s	469
		CFM	995
MED	640	m^3/h	1490
		l/s	414
		CFM	877
LOW	580	m^3/h	1340
		l/s	372
		CFM	789
QUIET	500	m^3/h	1140
		l/s	317
		CFM	671

■ MODEL: AU✻G54LRLA

● Cooling / Heating

Fan speed	Number of rotations (r.p.m.)	Airflow	
HIGH	740	m^3/h	1740
		l/s	483
		CFM	1024
MED	650	m^3/h	1520
		l/s	422
		CFM	895
LOW	590	m^3/h	1360
		l/s	378
		CFM	800
QUIET	500	m^3/h	1140
		l/s	317
		CFM	671
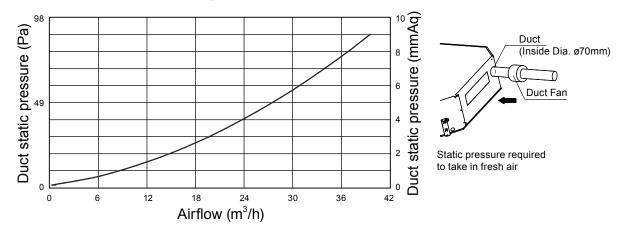
*Airflow can be changed according to the direction in which the outlet is blocked.
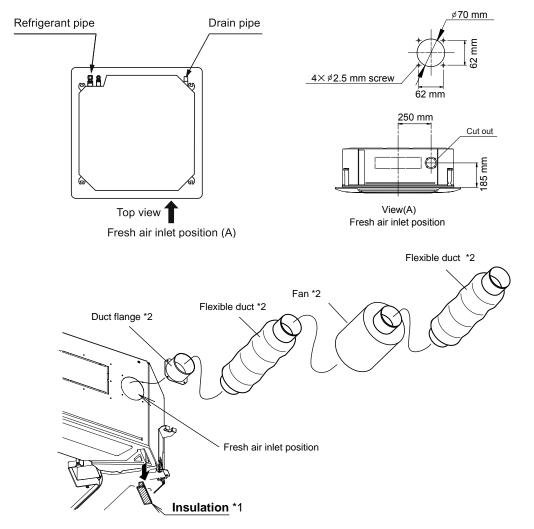
7-3. FRESH AIR

■ MODELS : AU∗G45LRLA, AU∗G54LRLA

● Airflow volume - Static pressure of Fresh air intake characteristic

Duct
(Inside Dia. ø70mm)

Duct Fan

Static pressure required
to take in fresh air

● Installation

Refrigerant pipe

Drain pipe

Top view

Fresh air inlet position (A)

ø70 mm

62 mm

4 × ø2.5 mm screw

62 mm

250 mm

Cut out

185 mm

View(A)
Fresh air inlet position

Flexible duct *2

Fan *2

Flexible duct *2

Duct flange *2

Fresh air inlet position

Insulation *1

*1 : In case of fresh air intake, please remove the insulation.

*2 : Locally procured parts
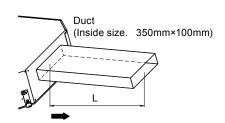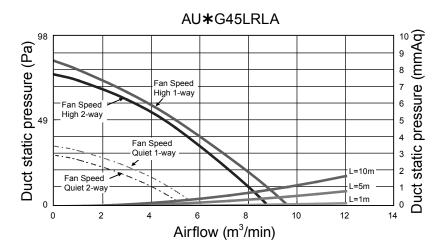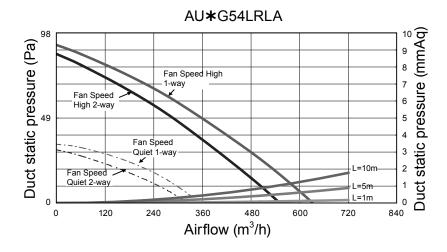
7-4. DUCT CONNECTION

■MODELS : AU∗G45LRLA, AU∗G54LRLA

●Outlet air

Duct
(Inside size.　350mm×100mm)

L

AU∗G45LRLA

Duct static pressure (Pa)

Duct static pressure (mmAq)

Fan Speed
High 1-way

Fan Speed
High 2-way

Fan Speed
Quiet 1-way

Fan Speed
Quiet 2-way

L=10m

L=5m

L=1m

Airflow (m³/min)

AU∗G54LRLA

Duct static pressure (Pa)

Duct static pressure (mmAq)

Fan Speed High
1-way

Fan Speed
High 2-way

Fan Speed
Quiet 1-way

Fan Speed
Quiet 2-way

L=10m

L=5m

L=1m

Airflow (m³/h)

■ PRECAUTIONS WHILE CONNECTING AIR OUTLET DUCT
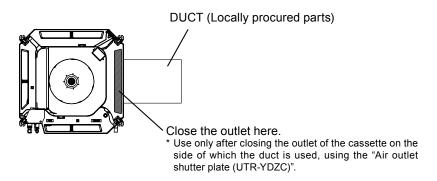
● **Connect the air outlet duct to maximum two locations among the four duct connection locations. (Do not connect ducts to three or more locations.)**

A

D

B

C

● **Blow-off pattern when a branch duct is installed
Bi-directional branching, main unit bi-directional branching**

Close

Close

Branch

Branch

Branch

Close

Close

Close

Branch

● **Once the location where the duct is to be connected is decided, always be sure to close the outlets in the same direction.**

DUCT (Locally procured parts)

Close the outlet here.
* Use only after closing the outlet of the cassette on the side of which the duct is used, using the "Air outlet shutter plate (UTR-YDZC)".

8. OPERATION NOISE (SOUND PRESSURE)

8-1. NOISE LEVEL CURVE

Condition
Ceiling mode : Standard
Air outlet : 4-way air outlet

■ MODEL：AU∗G45LRLA

● Cooling

● Heating

Condition
Ceiling mode : Standard
Air outlet : 4-way air outlet

■ MODEL：AU∗G54LRLA

● Cooling

● Heating
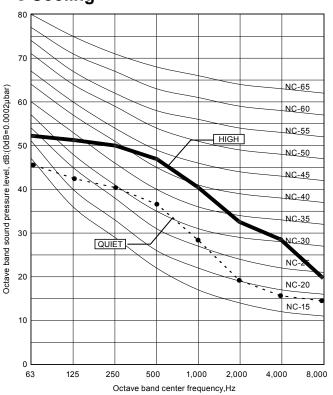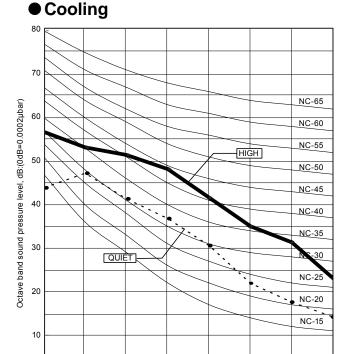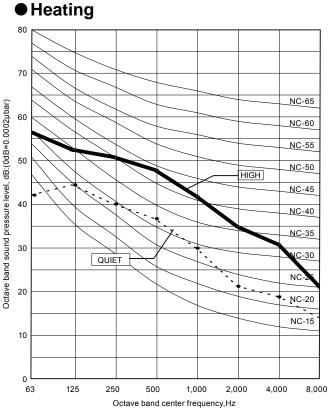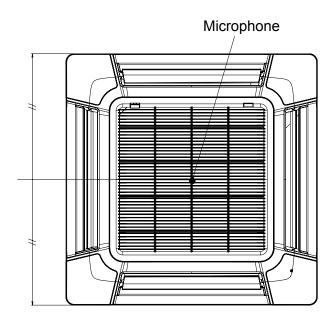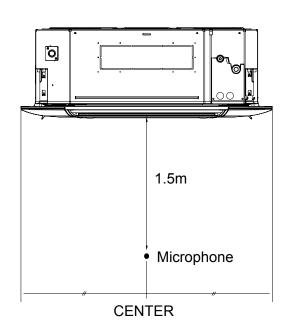
8-2. SOUND LEVEL CHECK POINT

Microphone

1.5m

Microphone

CENTER

9. ELECTRIC CHARACTERISTICS

Model name			AU∗G45LRLA AU∗G54LRLA
Power supply	Voltage	V	230 ~
	Frequency	Hz	50
Max. operating current (Indoor unit)		A	1.2
*1) Wiring spec. (Indoor unit to outdoor unit)	Connection cable	mm^2	1.5 (Min.)
	*2) Limited wiring length	m	51

*1) Wiring Spec.
   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

		Model
	Protection form	AU✳G45LRLA AU✳G54LRLA
Circuit protection	Current fuse (PCB)	250V 3.15A
Fan motor protection	Thermal protection program	$110^{+15}_{-10}°C$ OFF $105^{+15}_{-10}°C$ ON

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	

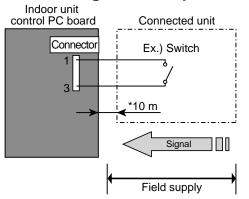# 11-1. EXTERNAL INPUT

■ 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
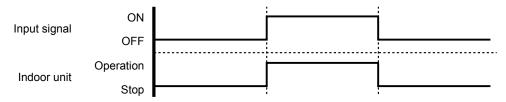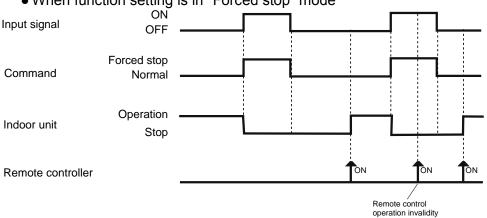
Contact capacity : 5VDC or more, 15mA or more.
Please use non-polar relays and switches.

* 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)

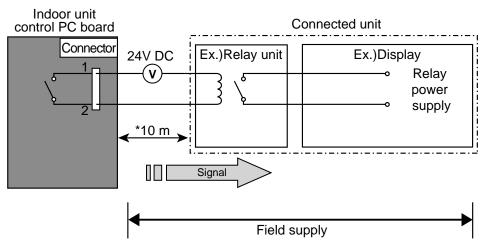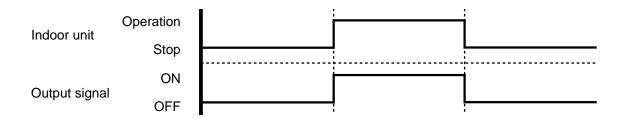| Model name |
|---|
| UTY-XWZX |

Wire (External input)

- (01 - 26) -

11-2. EXTERNAL OUTPUT

■ OPERATION STATUS OUTPUT

An air conditioner operation status signal can be output.

● Circuit diagram example

Indoor unit
control PC board

Connected unit

Connector

24V DC

Ex.)Relay unit

Ex.)Display

1

(V)

Relay
power
supply

2

*10 m

Signal

Field supply

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

Indoor unit

Operation

Stop

Output signal
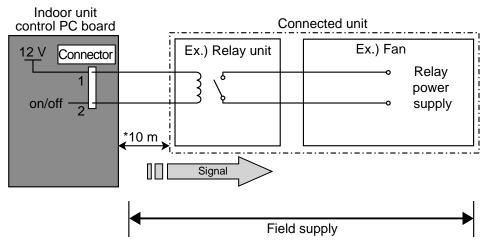
ON

OFF

● Parts (Optional)

Model name
UTY-XWZX

Wire (External output)

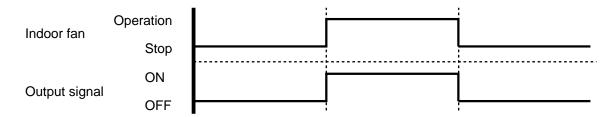# ■ FRESH AIR CONTROL OUTPUT

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

Indoor unit
control PC board

Connected unit

12 V   Connector

Ex.) Relay unit

Ex.) Fan

1

on/off

2

*10 m

Signal

Relay
power
supply

Field supply

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

Indoor fan   Operation / Stop

Output signal   ON / OFF

● Parts (Optional)

The table below outlines the required wire in diffrent fresh air intake options.

	No Fresh air intake	Built in Fresh air inlet	Fresh air intake kit
Wire required	N/A	UTD-ECS5A	Wire included in UTZ-VXGA

Note: This wire is included in both Fresh air intake kit (UTZ-VXGA) and External control set (UTD-ECS5A).
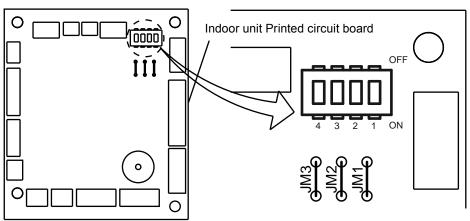
12. FUNCTION SETTINGS

12-1. INDOOR UNIT

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

■ SWITCH POSITION

MAIN PCB

Indoor unit Printed circuit board

■ 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.)

(◆. . .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

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.
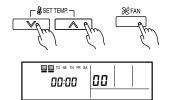- Settings will not be changed if invalid numbers or setting values are selected.

■ 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.

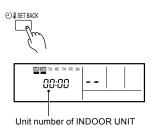* Also check again to make sure no wiring mistakes were made before turning on the power.

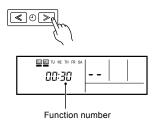## ■ FUNCTION SETTING METHOD (for Wired remote controller)

● Setting method

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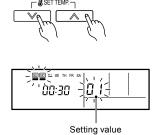
(2) Press the SET BACK button to select the indoor unit number.

Unit number of INDOOR UNIT

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

Function number

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

Setting value

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

(6) Repeat steps 2 to 5 to perform additional settings. Press the SET TEMP. buttons (∨) (∧) and FAN 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)	Ceiling height
3)	Outlet directions
4)	Vertical wind direction adjustment range
5)	Cooler room temperature correction
6)	Heater room temperature correction
7)	Auto restart
8)	Indoor room temperature sensor switching function
9)	Remote controller signal code
10)	External input control
11)	Indoor unit fan control for energy saving

1) Filter sign

The indoor unit displays 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 (2,500 hours)"	11	00
	"Long interval (4,400 hours)"		01
	"Short interval (1,250 hours)"		02
◆	No indication		03

2) Ceiling height

Select the setting values in the table below according to the height of the ceiling.

(◆. . .Factory setting)

	Setting Description	Function Number	Setting Value
◆	Standard 3.2m	20	00
	High ceiling 4.2m		01
	Low ceiling 2.7m		02

The ceiling height values are for the 4-way outlet mode.

Do not change this setting in the 3-way outlet mode.

3) Outlet directions

Select the setting values in the table below when using a 3-way outlet.

(◆. . .Factory setting)

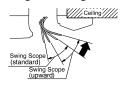|	Setting Description	Function Number	Setting Value
◆	4-way	22	00
	3-way		01

4) Vertical wind direction adjustment range

The use of "upward" is recommended if you wish to prevent draft.

Note that the ceiling may become dirty depending on your usage condition. To prevent this, we recommend the use of the optional "PANEL SPACER KIT".

(◆. . .Factory setting)

	Setting Description	Function Number	Setting Value
◆	Standard	23	00
	Upward		01

We recommend the use of "Upward" when using the "High ceiling mode".

5) 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

6) 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 Number	Setting Value
◆	Standard	31	00
	Lower control		01
	Slightly warmer control		02
	Warmer control		03

7) 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 using the remote controller or external input device.

8) 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.

9) Remote controller signal code

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

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

(♦ mark indicates row A)

10) External input control

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

(♦. . . Factory setting)

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

(♦ mark indicates Operation/Stop mode)

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

(♦ mark indicates Yes)

*If setting value is "00":
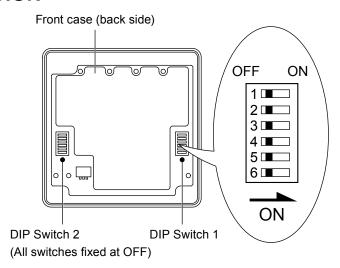 When the outdoor unit is stopped, the indoor unit fan operates following the setting on the remote controller continuously.

*If setting value is "01":
 When the outdoor unit is stopped, the indoor unit fan operates at very low speed intermittently.

12-3. WIRED REMOTE CONTROLLER

■ SWITCH POSITION

Front case (back side)

OFF   ON

ON

DIP Switch 2   DIP Switch 1
(All switches fixed at OFF)

■ 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

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.
	IR receiver kit	UTY-LRH∗A2	Unit control is performed by wireless remote controller.
	Simple remote controller	UTY-RSN∗M	Compact remote controller concentrates on the basic functions such as Start/Stop, Fan Control, Temperature Setting and Operation mode.

13-2. CASSETTE GRILLE

Exterior	Parts name	Model No.	Summary
	Cassette grille	UTG-UG∗A-W	The form of the grille discharges wind away from the ceiling making it difficult to leave dirt marks.

13-3. OTHERS

Exterior	Parts name	Model No.	Summary
	Air outlet shutter plate	UTR-YDZC	Air outlet shutter plate is installed at the air outlet when 3-way direction is performed.
	Wide panel	UTG-AGYA-W	Wide panel hides the gap between the ceiling hole and the Cassette grille.
	Panel spacer	UTG-BGYA-W	Installation in a space of 256mm or greater is possible by using panel spacer when the height behind the ceiling is low. (Normal installation height behind the ceiling is 298mm.)
	Insulation kit for high humidity	UTZ-KXGA	Install when the condition under the roof is expected to have humidity of over 80% and temperature of over 30°C.
	External connect kit	UTY-XWZX	Use to connect with various peripheral devices and air conditioner PC board.
(x 1) (x 2) (x 1) (x 2)	External control set	UTD-ECS5A	Use to connect with various peripheral devices and air conditioner PC board. (Set of 6)
	Fresh air intake kit	UTZ-VXGA	Enables to take in fresh air of up to 10% of "high" air volume of the indoor unit by attaching the Fresh air intake kit.

2. OUTDOOR UNIT

SINGLE TYPE :
AO∗G45LETL
AO∗G54LETL

CONTENTS
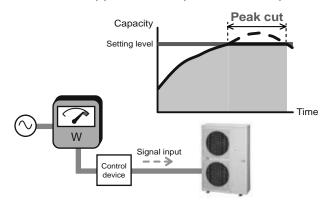
2. OUTDOOR UNIT

1. FEATURE

■ FEATURES
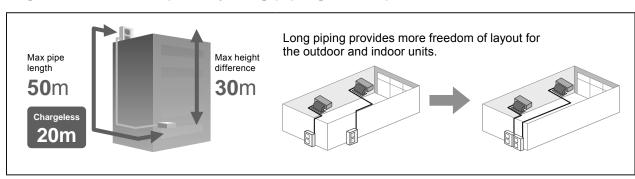
● Peak cut operation

<u>Peak cut mode</u>

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%).

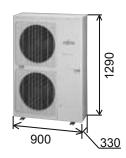### ● High installation capability long piping correspondence
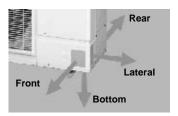
● Space saving

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.

1290

900   330

● 4-direction piping connection

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

Rear

Lateral

Front

Bottom

● Low outdoor air temperature correspondence

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

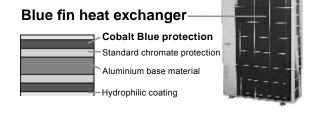| **Cooling** | -15 °C |

| **Heating** | Dry-bulb -15 °C |
| | Wet-bulb -20 °C |

● External output (option)

Compressor status output

This output indicates the outdoor unit compressor status.

Error status output

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

● Blue fin heat exchanger

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

Blue fin heat exchanger

- **Cobalt Blue protection**
- Standard chromate protection
- Aluminium base material
- Hydrophilic coating

● 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
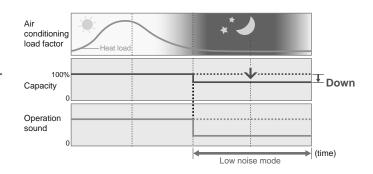
Low noise mode

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.

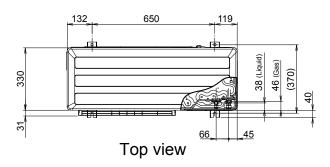Level 1 ... Rated noise value -2dB

Level 2 ... Rated noise value -4dB

Air conditioning load factor

Heat load

100%

Capacity

0

Operation sound

0

Down

(time)

Low noise mode

2. SPECIFICATIONS

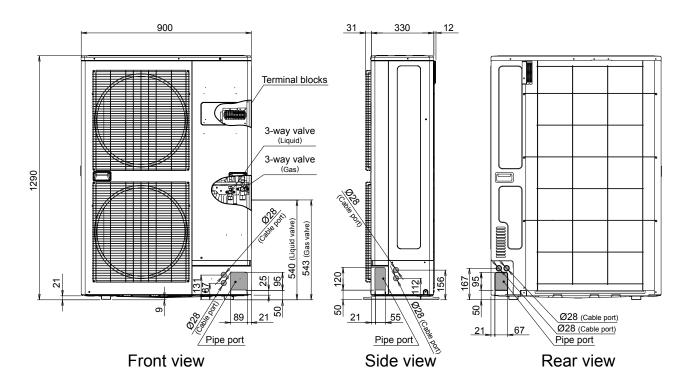| Model name				AO✳G45LETL	AO✳G54LETL
Power source				1Ø 230V~ 50Hz	
Available voltage range				198-264V~ 50Hz	
Starting current			A	18.9	20.9
Fan	Airflow rate	Cooling	(m³/h)	6,750	6,750
		Heating		6,200	6,850
	Type × Q'ty			Propeller × 2	
	Motor output		W	104	104
Sound pressure level	Cooling		dB(A)	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.
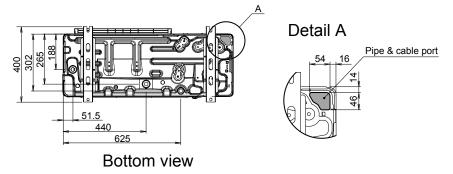
3. DIMENSIONS

■ MODELS: AO✱G45LETL, AO✱G54LETL

(Unit : mm)

Top view

132 650 119
330
31
38 (Liquid) 46 (Gas) (370) 40
66 45

Front view

900
1290
21
9
Terminal blocks
3-way valve (Liquid)
3-way valve (Gas)
Ø28 (Cable port)
540 (Liquid valve)
543 (Gas valve)
131 67
25 95
Ø28 (Cable port)
89 21 50
Pipe port

Side view

31 330 12
Ø28 (Cable port)
120
112 156
50 21 55
Ø28 (Cable port)
Pipe port

Rear view

167 95
50
21 67
Ø28 (Cable port)
Ø28 (Cable port)
Pipe port

Bottom view

A
400
302
265
188
51.5
440
625

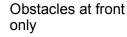Detail A

Pipe & cable port
54 16
14
46

4. INSTALLATION PLACE

4-1. SINGLE OUTDOOR UNIT INSTALLATION

■ WHEN THE UPWARD AREA IS OPEN

(Unit : mm)
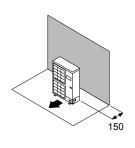
Obstacles at rear only

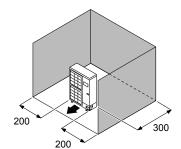Obstacles at rear and sides only
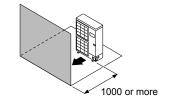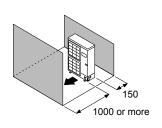
Obstacles at front only

Obstacles at front and rear only

150

200   200   300

1000 or more

150

1000 or more

■ WHEN AN OBSTRUCTION IS PRESENT ALSO IN THE UPWARD AREA

(Unit : mm)
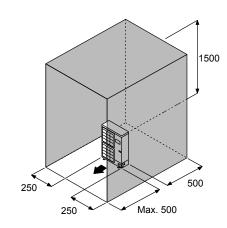
Obstacles at rear and above only

Obstacles at rear, sides, and above only

1000

300
Max. 500

1500

250   250   500   Max. 500

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

4-2. MULTIPLE OUTDOOR UNIT INSTALLATION

■ WHEN THE UPWARD AREA IS OPEN

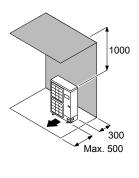(Unit : mm)

Obstacles at rear only

Obstacles at front only

Obstacles at front and rear only

300

1500 or more

500
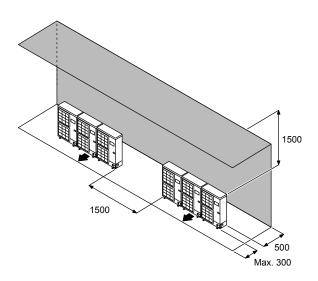
1500 or more

■ WHEN AN OBSTRUCTION IS PRESENT ALSO IN THE UPWARD AREA

(Unit : mm)

Obstacles at rear and above only

1500

1500

500

Max. 300
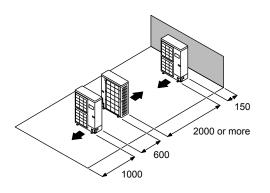
4-3. OUTDOOR UNIT INSTALLATION IN MULTI ROW
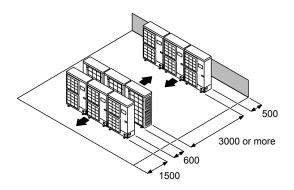
(Unit : mm)

Single parallel unit arrangement

Multiple parallel unit arrangement
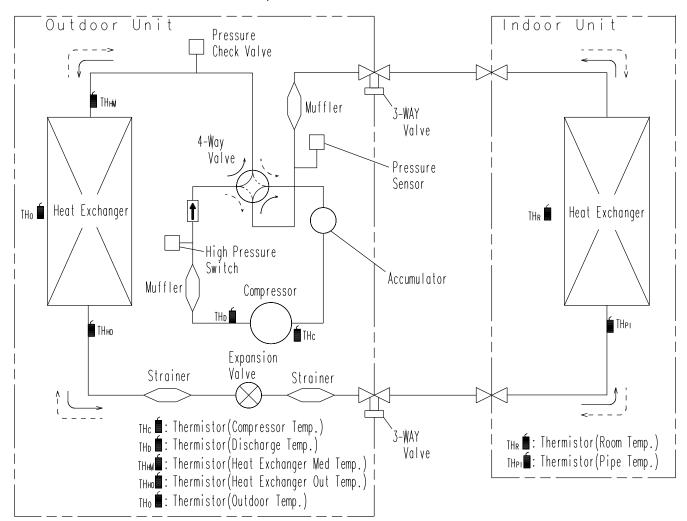
150

2000 or more

600

1000

500

3000 or more

600

1500

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

Outdoor Unit

Indoor Unit

Pressure Check Valve

TH HM

Muffler

3-WAY Valve

Pressure Sensor

4-Way Valve

TH o

Heat Exchanger

TH R

Heat Exchanger

High Pressure Switch

Accumulator

Muffler

Compressor

TH D

TH c

TH HO

TH PI

Expansion Valve

Strainer

Strainer

3-WAY Valve

TH c ▌: Thermistor(Compressor Temp.)
TH D ▌: Thermistor(Discharge Temp.)
TH HM ▌: Thermistor(Heat Exchanger Med Temp.)
TH HO ▌: Thermistor(Heat Exchanger Out Temp.)
TH o ▌: Thermistor(Outdoor Temp.)

TH R ▌: Thermistor(Room Temp.)
TH PI ▌: Thermistor(Pipe Temp.)

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

CN401
DISPLAY PWB
CN40
RED
WHITE

CN101 — RED — HIGH PRESSURE SW
CN61 — BLACK — THERMISTOR(OUTDOOR TEMP.)
CN63 — BLACK — THERMISTOR(PIPE TEMP.)
BLACK — THERMISTOR(PIPE(MID) TEMP.)
CN62 — BLACK — THERMISTOR(DISCHARGE TEMP.)
BLACK — THERMISTOR(COMP SHELL TEMP.)
CN91 — RED / WHITE / BLACK — PS
CN6 — BLACK — 4WV 4-WAY VALVE
CN111 — RED / BLUE / ORANGE / YELLOW / WHITE — PMV EXPANSION VALVE
CN800 — RED / BLACK / WHITE / YELLOW / BROWN — FM FAN MOTOR 1 (UPPER)
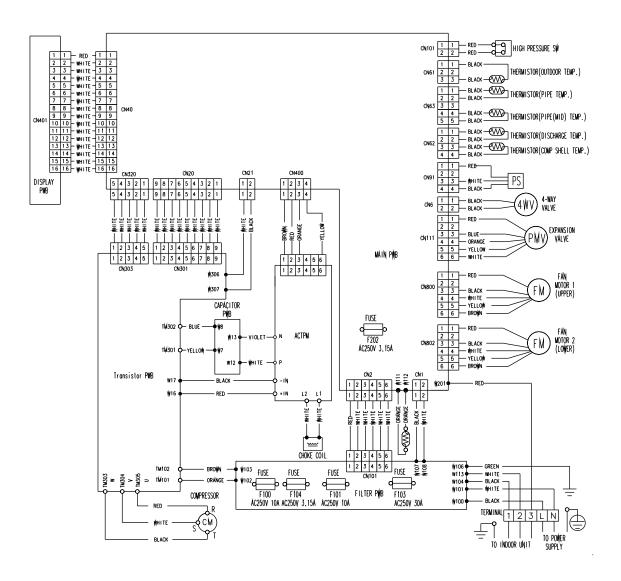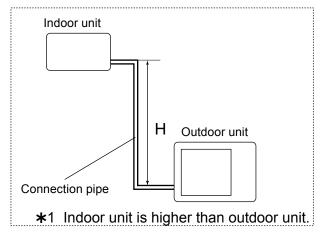CN802 — RED / BLACK / WHITE / YELLOW / BROWN — FM FAN MOTOR 2 (LOWER)

CN320
CN20
CN21
CN400
MAIN PWB
CN303
CN301
W306
W307
WHITE BLACK
BROWN RED ORANGE YELLOW

CAPACITOR PWB
TM302 — BLUE — W8
TM301 — YELLOW — W7
W13 — VIOLET — N
W12 — WHITE — P
ACTPM
Transistor PWB
W17 — BLACK — -IN
W16 — RED — +IN
L2 L1
WHITE WHITE
CHOKE COIL

FUSE F202 AC250V 3.15A

CN2
CN1
W111 W112
W201 — RED
RED WHITE WHITE WHITE ORANGE ORANGE BLACK WHITE
CN101
W107 W108

W106 — GREEN
W113 — WHITE
W104 — BLACK
W101 — WHITE
W100 — BLACK
TERMINAL 1 2 3 L N
TO INDOOR UNIT TO POWER SUPPLY

TM303 W
TM304 V
TM305 U
TM102 — BROWN — W103
TM101 — ORANGE — W102
FUSE F100 AC250V 10A
FUSE F104 AC250V 3.15A
FUSE F101 AC250V 10A
FILTER PWB
FUSE F103 AC250V 30A
COMPRESSOR
RED — R
WHITE — S — CM
BLACK — T

7. CAPACITY COMPENSATION RATE FOR PIPE LENGTH AND HEIGHT DIFFERENCE
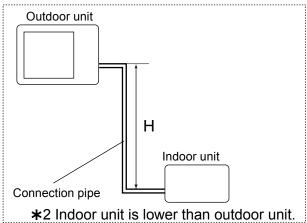
■ MODEL: AO✳G45LETL

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.
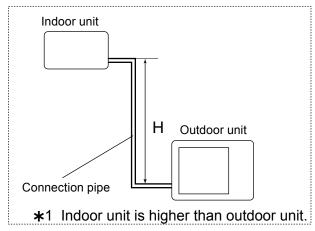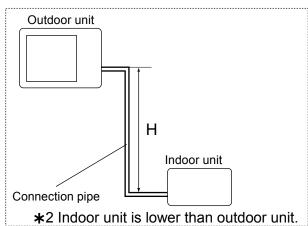
■ MODEL: AO∗G54LETL

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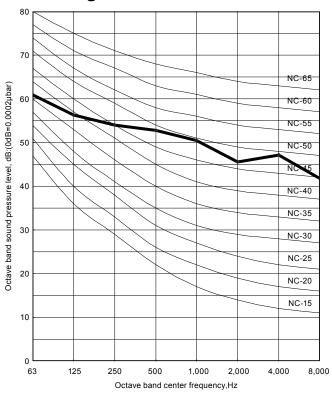
MODEL		Number of rotations (r.p.m.)	Airflow	
AO∗G45LETL	Upper fan	780	m^3/h	6200
			l/s	1722
	Lower fan	750	CFM	3650
AO∗G54LETL	Upper fan	850	m^3/h	6850
			l/s	1903
	Lower fan	830	CFM	4033

10. OPERATION NOISE (SOUND PRESSURE)
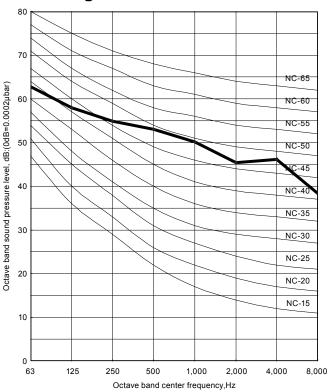
10-1. NOISE LEVEL CURVE

■MODEL: AO✳G45LETL

●Cooling
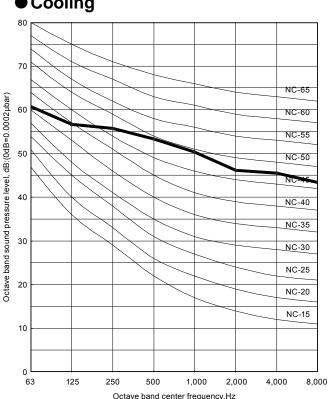
●Heating
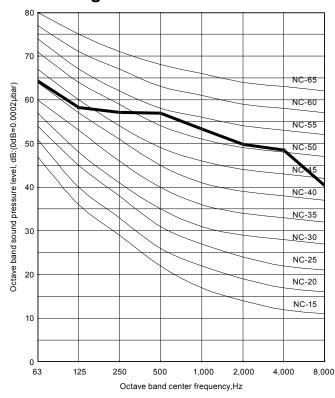
■MODEL: AO✳G54LETL
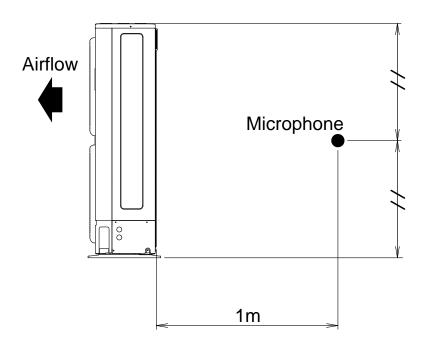
●Cooling
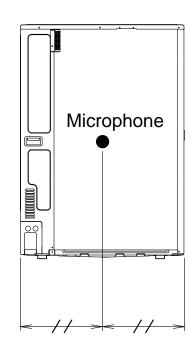
●Heating

10-2. SOUND LEVEL CHECK POINT

Airflow

Microphone

1m

Microphone

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	mm²	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	

13. EXTERNAL INPUT & OUTPUT

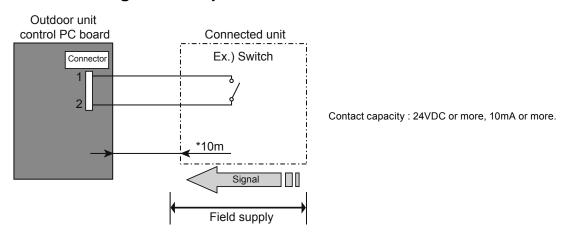| Input	Output	Connector	Remarks
Low noise mode	—	CN10	
Peak cut mode	—	CN11	See external input/output settings for details.
—	Error status	CN12	
—	Compressor status	CN13	

13-1. EXTERNAL INPUT

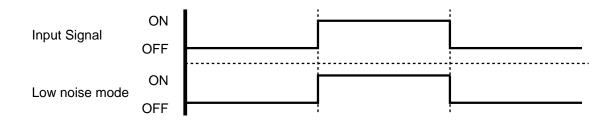ON/OFF of the "Low noise mode" and "Peak cut mode" functions can be specified by external signal.

■LOW NOISE MODE

• The following reduces the operating sound of the outdoor unit from the normal sound.
The air conditioner is set to the "Low noise mode" when closing the contact input of a commercial timer or ON/OFF switch to a connector on the outdoor control PC board.

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

●Circuit diagram example

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

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

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

• Input Signal···ON : Low noise mode, Input Signal···OFF : Normal operation

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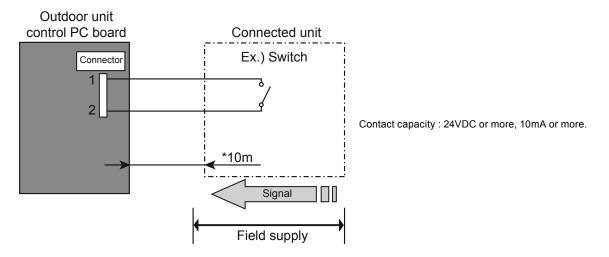

●Parts (Optional)

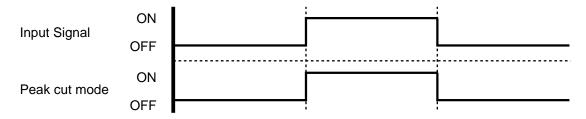| Parts name	External connect kit
Model name	UTY-XWZXZ3

■ 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

Outdoor unit
control PC board

Connected unit

Ex.) Switch

Connector

1

2

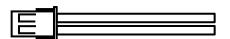Contact capacity : 24VDC or more, 10mA or more.

*10m

Signal

Field supply

* 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".

Input Signal
ON
OFF

Peak cut mode
ON
OFF

● Parts (Optional)

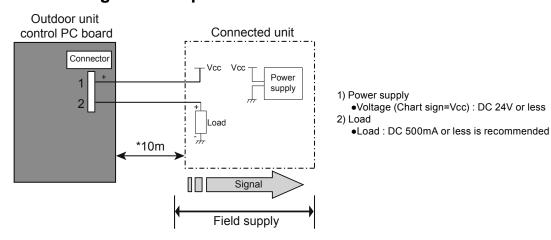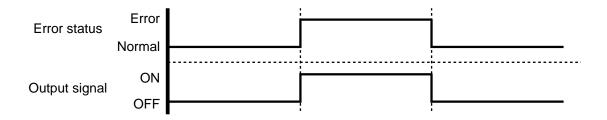| Parts name	External connect kit
Model name	UTY-XWZXZ3

13-2. EXTERNAL OUTPUT

■ ERROR STATUS OUTPUT

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

● Circuit diagram example

Outdoor unit control PC board

Connector

1 +

2

Connected unit

Vcc   Vcc

Power supply

Load

*10m

Signal

Field supply

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.

Error status — Error / Normal

Output signal — ON / OFF

● Parts (Optional)
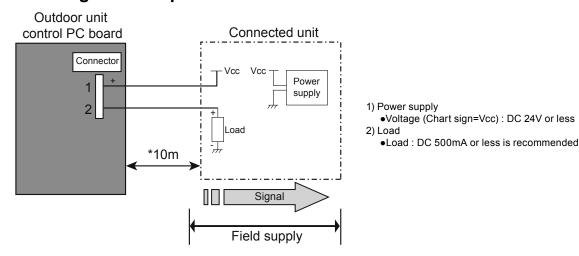
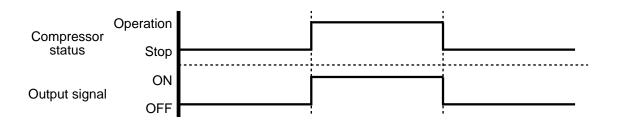| Parts name	External connect kit
Model name	UTY-XWZXZ3

■ COMPRESSOR STATUS OUTPUT

• Compressor operation status signal is produced when the compressor is running.
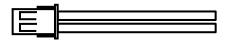
● Circuit diagram example

Outdoor unit control PC board

Connector

1 +

2

Connected unit

Vcc   Vcc

Power supply

Load

*10m

Signal

Field supply

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.

Compressor status — Operation / Stop

Output signal — ON / OFF

● Parts (Optional)

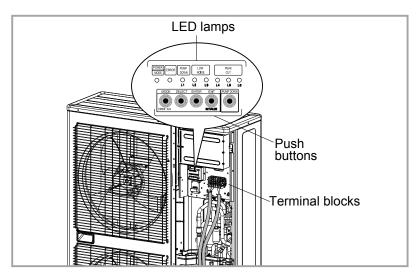| Parts name	External connect kit
Model name	UTY-XWZXZ3

14. FUNCTION SETTINGS

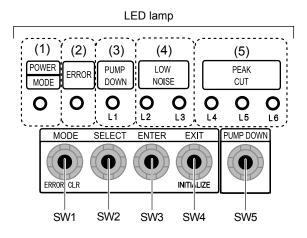| ⚠ Caution |
|---|
| Discharge the static electricity from your body before setting up the push buttons. |
| Never touch the terminals or the patterns on the parts that are mounted on the board. |

14-1. FIELD SETTING SWITCHES

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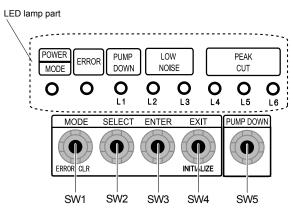

■FUNCTIONS

LED lamp

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.
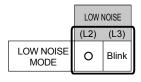
14-2-1. LOW NOISE MODE

LED lamp part

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

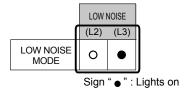(2) Confirm that the (POWER / MODE) blinks 9 times, then press [ENTER] button (SW3).

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)	(L3)
LOW NOISE MODE	○	Blink

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

	LOW NOISE	
	(L2)	(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	○
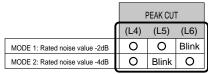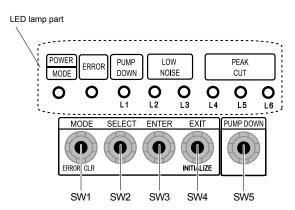
The noise of MODE2 is lower than that of MODE1.

(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.
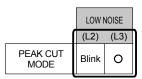
14-2-2. PEAK CUT MODE

LED lamp part

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

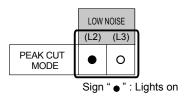(2) Confirm that the (POWER / MODE) blinks 9 times, then press [ENTER] button (SW3).

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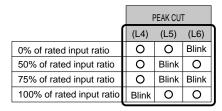
Sign " ○ " : Lights off

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

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

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

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

Sign " ● " : Lights on

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

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

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

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

(7) 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.