

AIR CONDITIONER
Ceiling type

DESIGN & TECHNICAL MANUAL



AB*****G45LRTA

OUTDOOR



AO*G45LETL

FUJITSU GENERAL LIMITED

1. INDOOR UNIT

CEILING TYPE : AB*G45LRTA

> DTR_AB038E_04 2016.11.07



1. INDOOR UNIT

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1. FEATURES ■ MODEL AB*G45LRTE / AO*G45LETL





FEATURES

Energy saving

High energy saving was realized by making the indoor unit and outdoor unit fan motor and compressor all DC and optimal design of the refrigerant cycle.

Quiet operation

Air flow mode can be set in 4 steps and more detailed air flow setting is possible. 45 type: 34 dB at operation in the Quiet mode.

• Filter sign

Dirtying of filter is detected by air conditioner operating time and the user is informed.

Economy operation

The power consumption can be reduced.

• Wired/wireless simultaneous use possible

Wired remote controller and wireless remote controller can be simultaneously used.

Flexible installation

A high installation of the construction of the ceiling and degree of freedom corresponding to height is possible.



Double auto swing

Combination of up/down and right/left air direction swing allows three-dimensional air direction control.

Since up/down air direction flaps operate automatically, according to the operating mode of the unit, it is possible to set the air direction based on the operating mode.



CEILING TYPE AB*G45LRTA

• Fresh-air intake



2. WIRELESS REMOTE CONTROLLER

FEATURES



- * 4 mode timer setup available (ON / OFF / PROGRAM / SLEEP).
- * Easy operation.
- * Easy to change custom code (max. 4 units) by button operation.

• Simple function setting

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

Built-in timers

Select from four different timer programs (ON / OFF / PROGRAM / SLEEP).

Program timer

The program timer operates the on and off timer once within a 24 hour period.

Sleep timer

The sleep timer function automatically corrects the temperature thermostat setting according to the time setting to prevent excessive cooling and heating while sleeping.

Cooling operation/dry operation

When the sleep timer is set, the set temperature automatically rises 1° C every hour. The set temperature can rise up to a maximum of 2° C.



Heating operation

When the sleep timer is set, the set temperature automatically drops 1°C every 30 minutes. The set temperature can drop to a maximum of 4°C.



• Switching remote controller custom code



• Code selector switch eliminates unit being wrongly switched. (Up to 4 codes can be set.)

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*I.U.=Indoor unit
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FUNCTIONS



Display panel



- 1 MODE button Selects the operating mode (AUTO, COOL, DRY, FAN, HEAT). /Start / end R.C. custom code change. (Max 4 types) 10°C HEAT button SET TEMP. button (▲ / ▼) Sets the indoor temp./ Sets R.C. custom code. ECONOMY button SLEEP button Pressed to select sleep timer. FAN button Selects the fan speed (AUTO, HIGH, MED, LOW, QUIET).
- START/STOP button 7 Pressed to start and stop operation.

2

3

4

5

6

- 8 SET button (Vertical) Air flow direction vertical set button.
- 9 SET button (Horizontal) Air flow direction horizontal set button.
- SWING button 10 Air flow direction swing button.
- 11 TIMER MODE button Pressed to select the timer mode. (OFF TIMER, ON TIMER, PROGRAM TIMER, TIMER RESET)
- 12 TIMER SET (± / =) button Sets the current time and on-off time.
- **CLOCK ADJUST button** 13 Sets the current time.
- 14 RESET button Used when replacing batteries.
- 15 **TEST RUN button** Used when testing the air conditioner after installation.
- 16 Signal transmitter
- 17 Temperature set display
- 18 Operating mode display
- 19 Sleep display
- 20 Transmit indicator
- 21 Fan speed display
- 22 Swing display
- Timer mode display 23
- 24 Clock display
- Note: Functions will be different due to type of indoor unit. For details, please see operation manual.

SPECIFICATION

SIZE	(H × W × D mm)	170 × 56 × 19
WEIGHT	(g)	85 (w/o batteries)
ACCESSORY		Holder

3. SPECIFICATIONS

Type CELINO MODEL Media ratio International productional productinal productional productional product						
n NVARTER	Туре					CEILING MODEL
Model norm Material Material Material Material Available voltage regeneration Rate KM 12.1 Available voltage regeneration Rate KM 13.2 Available voltage regeneration Rate KM 14.2 Available voltage regeneration	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					INVERTER HEATPUMP
Prove source with source wither source with source with source with source with sour	Model name					AB*G45LRTA
Available voltige :reg : viet is in the second is a second is in the second is in th	Power source					230 V ~ 50 Hz
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	(H×W×D) Weight	Gross Net Gross			kg	46 58
$ \begin{array}{ c c c c } \hline \mbox{Method} & & & & & & & \\ \hline \mbox{Poperation range} & & & & & \\ \hline \mbox{Operation range} & & & & & \\ \hline \mbox{Operation range} & & & & & \\ \hline \mbox{Operation range} & & & & & \\ \hline \mbox{Period} & & & & & \\ \hline \mbox{Remote control III} & & & & & \\ \hline \mbox{Remote control IIII} & & & & & \\ \hline \mbox{Remote control IIII} & & & & & \\ \hline \mbox{Remote control IIIII} & & & & & \\ \hline Remote control IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII$	(H×W×D) Weight	Gross Net Gross Size	Liquid		kg mm	46 58 Ø9.52 (3/8 in.)
Operation range Cooling °C 18 to 32 %RH 80 or less Heating °C 16 to 30 Remote controller type °C 16 to 30 Drain port Material ABS Size mm Ø21.5 (I.D.), Ø26.0 (O.D.)	(H×W×D) Weight Connection pipe	Gross Net Gross Size	Liquid Gas		kg mm	46 58 Ø9.52 (3/8 in.) Ø15.88 (5/8 in.)
Operation range ° %RH 80 or less Heating °C 16 to 30 Remote controller type Vireless Drain port Material ABS Size mm Ø 21.5 (I.D.), Ø 26.0 (O.D.)	(H×W×D) Weight Connection pipe	Gross Net Gross Size Method	Liquid Gas		kg mm	46 58 Ø9.52 (3/8 in.) Ø15.88 (5/8 in.) Flare
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Remote controller type Wireless Drain port Material ABS Size mm Ø 21.5 (I.D.), Ø 26.0 (O.D.)	(H×W×D) Weight Connection pipe Operation range	Gross Net Gross Size Method	Liquid Gas Cooling		kg mm °C %RH	46 58 Ø9.52 (3/8 in.) Ø15.88 (5/8 in.) Flare 18 to 32 80 or less
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Size mm Ø 21.5 (I.D.), Ø26.0 (O.D.)	(H×W×D) Weight Connection pipe Operation range Remote controller t	Gross Net Gross Size Method	Liquid Gas Cooling Heating		kg mm °C %RH °C	46 58 Ø9.52 (3/8 in.) Ø15.88 (5/8 in.) Flare 18 to 32 80 or less 16 to 30 Wireless
	(H×W×D) Weight Connection pipe Operation range Remote controller t Drain port	Gross Net Gross Size Method	Liquid Gas Cooling Heating		kg mm °C %RH °C	46 58 Ø9.52 (3/8 in.) Ø15.88 (5/8 in.) Flare 18 to 32 80 or less 16 to 30 Wireless ABS

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 outside the operation range. *The maximum current is the maximum value when operated with in the operation range.

4. DIMENSIONS ■ MODEL: AB*G45LRTA

(Unit : mm)

CEILING TYPE AB*G45LRTA



- ① Refrigerant piping flare connection (Gas)
- ^② Refrigerant piping flare connection (Liquid)
- ③ Drain piping connection
- \circledast Knock out hole for fresh air
- $\ensuremath{\mathbb{S}}$ Knock out hole for refrigerant piping
- $^{\textcircled{6}}$ Hole for lifting bolt (Use M10 screw bolt)

■ INSTALLATION PLACE

80 or more

CEILING TYPE AB*G45LRTA

Ceiling Ceiling



CEILING TYPE AB*G45LRTA



6. CAPACITY TABLE

6-1. COOLING CAPACITY

This table is created using the maximum capacity.

MODEL: AB*G45LRTA / AO*G45LETL

AFR 35.0

			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
	-15	11.08	8.53	2.62	12.35	8.58	2.66	12.77	9.32	2.67	13.61	9.35	2.70	14.03	10.10	2.71	14.87	10.06	2.74	15.71	10.72	2.76
	-10	11.01	8.53	2.63	12.26	8.58	2.68	12.68	9.33	2.69	13.51	9.36	2.72	13.93	10.11	2.73	14.77	10.07	2.76	15.60	10.73	2.78
Ð	0	11.20	8.64	2.36	12.47	8.69	2.40	12.90	9.44	2.41	13.75	9.47	2.44	14.18	10.23	2.45	15.03	10.19	2.47	15.88	10.86	2.50
atur	5	11.02	8.56	2.37	12.28	8.61	2.41	12.69	9.36	2.42	13.53	9.39	2.45	13.95	10.14	2.46	14.79	10.10	2.48	15.62	10.76	2.51
pen	10	10.84	8.48	2.73	12.08	8.53	2.77	12.49	9.27	2.79	13.31	9.30	2.82	13.72	10.04	2.83	14.55	10.00	2.86	15.37	10.66	2.89
tem	15	10.73	8.45	2.84	11.95	8.50	2.88	12.35	9.24	2.90	13.17	9.27	2.93	13.58	10.01	2.94	14.39	9.97	2.97	15.21	10.62	3.00
oor	20	10.87	8.52	3.17	12.11	8.57	3.22	12.52	9.31	3.24	13.35	9.34	3.27	13.76	10.09	3.29	14.59	10.05	3.32	15.41	10.71	3.36
outd	25	10.74	8.49	3.46	11.96	8.54	3.52	12.37	9.28	3.54	13.19	9.32	3.57	13.59	10.06	3.59	14.41	10.02	3.63	15.23	10.67	3.66
0	30	10.73	8.48	4.27	11.95	8.53	4.33	12.36	9.27	4.35	13.17	9.30	4.40	13.58	10.05	4.42	14.39	10.01	4.42	15.21	10.66	4.42
	35	10.51	8.46	4.27	11.70	8.51	4.33	12.10	9.26	4.35	12.90	9.29	4.40	13.30	10.03	4.42	14.10	9.99	4.42	14.90	10.64	4.42
	40	8.41	7.33	3.84	9.37	7.49	3.90	9.69	8.15	3.92	10.33	8.17	3.96	10.65	8.83	3.98	11.29	8.79	3.98	11.92	9.36	3.98
	46	6.42	6.41	3.17	7.16	6.59	3.21	7.40	7.17	3.23	7.89	7.19	3.26	8.13	7.77	3.28	8.62	7.73	3.28	9.11	8.24	3.28

CEILING TYPE AB*G45LRTA

AFR : Airfl ow 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: AB*G45LRTA / AO*G45LETL

AFR 35.0

			Indoor temperature										
		°CDB	1	6	18		20		22		24		
	°CDB	°CWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	
	-15	-16	10.71	4.21	10.46	4.30	10.20	4.39	9.95	4.48	9.69	4.57	
d)	-10	-11	11.68	4.23	11.41	4.32	11.13	4.41	10.85	4.50	10.57	4.59	
atur	-5	-7	12.67	4.25	12.37	4.34	12.06	4.43	11.76	4.43	11.46	4.43	
pera	0	-2	13.64	4.25	13.31	4.34	12.99	4.43	12.66	4.43	12.34	4.43	
tem	5	3	14.97	4.25	14.61	4.34	14.26	4.43	13.90	4.43	13.55	4.43	
oor	7	6	16.28	4.25	15.89	4.34	15.50	4.43	15.11	4.43	14.73	4.43	
outd	10	8	16.45	4.25	16.06	4.34	15.66	4.43	15.27	4.43	14.88	4.43	
0	15	10	16.22	3.80	15.84	3.88	15.45	3.96	15.06	3.96	14.68	3.96	
	20	15	15.78	3.35	15.40	3.42	15.03	3.49	14.65	3.49	14.28	3.49	
	24	18	16.62	3.35	16.22	3.42	15.82	3.49	15.43	3.49	15.03	3.49	

AFR : Air flow rate (m³/min) TC : Total capacity (kW) IP : Input Power(kW)



7-2. AIRFLOW ■MODEL: AB*G45LRTA

Cooling

Fan speed	Number of rotations (r.p.m.)	Airl	low
		m³/h	2100
HIGH	1200	l/s	583
		CFM	1236
		m³/h	1700
MED	1000	l/s	472
		CFM	1000
		m³/h	1400
LOW	830	l/s	389
		CFM	824
		m³/h	1100
QUIET	680	l/s	306
		CFM	647

Heating

Fan speed	Number of rotations (r.p.m.)	Airl	flow
		m³/h	2100
HIGH	1200	l/s	583
		CFM	1236
		m³/h	1700
MED	1000	l/s	472
		CFM	1000
		m³/h	1400
LOW	830	l/s	389
		CFM	824
		m³/h	1100
QUIET	680	l/s	306
		CFM	647

7-3. FRESH AIR CHARACTERISTIC ■ MODEL: AB*G45LRTA



8. OPERATION NOISE 8-1. NOISE LEVEL CURVE



8-2. SOUND LEVEL CHECK POINT



9. ELECTRIC CHARACTERISTICS

Model name			AB*G45LRTA
Power supply	Voltage	V	230 ~
Fower suppry	Frequency	Hz	50
Max. operating curre	ent (Indoor unit)	А	0.8
*1) Wiring spec.	Connection cable	mm²	1.5 ~ 2.5
outdoor unit)	Limited wiring length	m	50

*1) Wiring Spec.

Selected Sample

(Selected based on Japan Electrotechnical Standards and Codes Committee E0005)

10. SAFETY DEVICES

2	SEILING TYPE	AB*G45LRTA
	ΰ	◄

	Protoction form	Model
		AB*G45LRTA
Circuit protection	Current fuse (PCB)	250V 3.15A
Fan motor protection	Thermal protection program	135±15°C OFF 115±15°C ON

11. EXTERNAL INPUT & OUTPUT

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

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 starting after turned power on	Other than initial starting
Operation mode	Auto changeover	Mode at previous operation
Set temperature	24°C	Temperature at previous operation
Air flow mode	AUTO	Mode at previous operation
Air direction (swing)	Standard air direction (swing OFF)	Air direction at previous operation

Circuit diagram example



• When function setting is "Forced stop" mode





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
	UTY-XWZX
Wir	e (External output)
B	

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

12. FUNCTION SETTINGS

12-1. INDOOR UNIT

INDOOR UNIT			
	1		
אא מוט	2	Pomoto controllor address sotting	
DIP 3W	3	Remote controller address setting	
	4		
	JM1		
Jumper Wire	JM2	Setting prohibited	
	JM3		

SWITCH POSITION



DIP-SW SETTING

• Remote controller address setting

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

The DIP switches are normally set to make the unit number 00.

				(♦ Fact	ory setting)
	Pomoto controllor address	DIP switch No.			
	Remote controller address	1	2	3	4
٠	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)

- CEILING TYP AB×G45LRT
- 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 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.
- * By turning on the power indoor units, so make sure the piping air-tight test and vacuuming have been conducted before turning on the power.
- * Also check again to make sure no wiring mistakes were made before turning on the power.

FUNCTION SETTING METHOD (for Wireless remote controller)

Entering the Function Setting Mode

• While pressing the FAN button and SET TEMP. (▲) simultaneously, press the RESET button to enter the function setting mode.

STEP 1

Setting the Remote controller Custom code

Use the following steps to select the custom code of the remote controller. (Note that the air conditioner cannot receive a signal if the air conditioner has not been set for the matching costom code.) The custom codes that are set through this process are applicable only to the signals in the FUNCTION SETTING. For details on how to set the custom codes through the normal process, refer to REMOTE CONTROLLER Custom code SETTING.

(If the custom code does not need to be selected, press the MODE button and proceed to STEP 2.)

- 2. Press the TIMER MODE button and check that the indoor unit can receive signals at the displayed custom code.
- 3. Press the MODE button to accept the custom code, and proceed to STEP 2.

The air conditioner custom code is set to A prior to shipment.

The remote controller resets to custom code A when the batteries in the remote controller are replaced. If you use a custom code other than custom code A, reset the custom code after replacing the batteries. If you do not know the air conditioner custom code setting, try each of the custom codes $(A \rightarrow b \rightarrow c \rightarrow d)$ until you find the code which operates the air conditioner.

STEP 2

Selecting the Function Number and Setting Value

- Press the SET TEMP. (▲) (▼) buttons to select the function number.
 (Press the MODE button to switch between the left and right
 - (Press the MODE button to switch between the left and right digits.)
- Press the FAN button to proceed to setting the value. Press the FAN button again to return to the function number selection.)
- Press the SET TEMP. (▲) (▼) buttons to select the setting value. (Press the MODE button to switch between the left and right digits.)
- 4. Press the TIMER MODE button, and START/STOP button, in the order listed to confirm the settings.
- 5. Press the RESET button to cancel the function setting mode.
- 6. After completing the FUNCTION SETTING, be sure to turn off the power and turn it on again.

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 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)	Room temperature control for cooling
4)	Room temperature control for heating
5)	Auto restart
6)	Room temperature sensor switching
7)	Remote controller custom code
8)	External input control
9)	Room temperature sensor switching (Aux.)
10)	Indoor unit fan control for energy saving for cooling

1) Filter sign

Select appropriate intervals for displaying the filter sign on the indoor unit according to the estimated amount of dust in the air of the room.

If the indication is not required, select "No indication" (03).

			(Factory setting)
	Setting Description	Function Number	Setting Value
	"Standard (2,500 hours)"		00
	"Long interval (4,400 hours)"	11	01
	"Short interval (1,250 hours)"		02
•	No indication		03

2) Ceiling height

Select the appropriate ceiling height according to the place of installation.

			(♦Factory setting)
	Setting Description	Function Number	Setting Value
•	Standard (2.5m to 3.0m)	20	00
	High ceiling (3.0m or more)	20	01

3) Room temperature control for cooling

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

Select the appropriate control setting according to the installed environment.

			(♦Factory setting)
	Setting Description	Function Number	Setting Value
٠	Standard		00
	Slightly lower control	20	01
	Lower control] 30	02
	Higher control		03

4) Room temperature control for heating

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

Select the appropriate control setting according to the installed environment..

			(♦Factory setting)
	Setting Description	Function Number	Setting Value
•	Standard		00
	Lower control	21	01
	Slightly higher control] 31	02
	Higher control		03

5) Auto restart

Enable or disable automatic restart after a power interruption.

			(♦Factory setting)
	Setting Description	Function Number	Setting Value
•	Enable	40	00
	Disable	40	01

* Auto restart is an emergency function such as for power outage etc.
 Do not attempt to use this function in normal operation.
 Be sure to operate the unit by remote controller or external device.

6) Room temperature sensor switching

(Only for wired remote controller)

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

			(♦Factory setting)
	Setting Description	Function Number	Setting Value
٠	Indoor unit	40	00
	Both	42	01

00: Sensor on the indoor unit is active.

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

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

7) Remote controller custom code

(Only for wireless remote controller)

The indoor unit custom code can be changed.

Select the appropriate custom code.

			(♦Factory setting)
	Setting Description	Function Number	Setting Value
٠	A		00
	В	44	01
	С	44	02
	D		03

8) External input control

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

			(Factory setting)
	Setting Description	Function Number	Setting Value
٠	Operation/Stop mode		00
	(Setting prohibited)	46	01
	Forced stop mode		02

9) Room temperature sensor switching (Aux.)

To use the temperature sensor on the wired remote controller only, change the setting to "Wired remote controller" (01).

This function will only work if the function setting 42 is set at "Both" (01).

			(♦Factory setting)
	Setting Description	Function Number	Setting Value
•	Both	10	00
	Wired remote controller	40	01

10) Indoor unit fan control for energy saving for cooling

Enables or disables the power-saving function by controlling the indoor unit fan rotation when the outdoor unit is stopped during cooling operation.

			(♦Factory setting)
	Setting Description	Function Number	Setting Value
	Disable	40	00
٠	Enable	49	01

- 00: When the outdoor unit is stopped, the indoor unit fan operates continuously following the setting on the remote controller.
- 01: When the outdoor unit is stopped, the indoor unit fan operates intermittently at a very low speed.

■ REMOTE CONTROLLER CUSTOM CODE SETTING

Use the following steps to select the custom code of the remote controller.

(Note that the air conditioner cannot receive a signal if the conditioner has not been set for the matching custom code.) 1. Press the START/STOP button until only the clock is displayed on the remote controller display.

- 2. Press the MODE button for at least five seconds to display the current custom code (initially set to $\frac{1}{4}$).
- 3. Press the SET TEMP. (**(**) (**v**) button to change the custom code between $\square \to \square \to \square \to \square$. Match the code on the display to the air conditioner custom code.
- 4. Press the MODE button again to return to the clock display. The custom code will be changed.



If no buttons are pressed within 30 seconds after the custom code is displayed, the system returns to the original clock display. In this case, start again from step 1.

The air conditioner custom code is set to A prior to shipment. Contact your retailer to change the custom code.

The remote controller resets to custom code A when the batteries in the remote controller are replaced. If you use a custom code other than custom code A, reset the custom code after replacing the batteries. If you do not know the air conditioner custom code setting, try each of the custom codes ($\mathbf{F} \rightarrow \mathbf{F} \rightarrow \mathbf{r} \rightarrow \mathbf{f}$.) until you find the code which operates the air conditioner.

13. OPTIONAL PARTS 13-1. CONTROLLER

CEILING TYPE AB*G45LRTA

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	Unit control is performed by wired remote controller
	Simple remote controller	UTY-RSN*M	Unit control is performed by simple remote controller.

13-2. OTHERS

Exterior	Parts name	Model No.	Summary
	Drain pump unit	UTR-DPB24T	Optional drain lift-up mechanism allows more flexible installation.
um 8020 85 mm	Round flange	UTD-RF204	Round flange is used when the fresh air duct is installed.
	External connect kit	UTY-XWZX	Use to connect with various peripheral devices and air conditioner PC board.
(x1) (x2) (x1) (x2)	External control set	UTD-ECS5A	Use to connect with various peripheral devices and air conditioner PC board. (Set of 6)

2. OUTDOOR UNIT

SINGLE TYPE : AO*G45LETL AO*G54LETL

> DTR_AO136E_04 2016.04.22

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2. OUTDOOR UNIT

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1. FEATURE FEATURES

• Peak cut operation

Peak cut mode

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

Level 1 ... Suppresses the power consumption to almost 0% by stopping the compressor.

Level 2 ... Suppresses the power consumption to 50% of the rated power consumption value.

Level 3 ... Suppresses the power consumption to 75% of the rated power consumption value.

Level 4 ... Suppresses the power consumption to the rated power consumption value (100%).



• High installation capability long piping correspondence



Compact size

OOR UNIT

High performance has been realized with a compact outdoor unit.

Due to the compact size, the space required for installation has been reduced, allowing a wider selection of installation locations.



• 4-direction piping connection

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



• Low outdoor air temperature correspondence

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



• External output (option)

Compressor status output

This output indicates the outdoor unit compressor status.

• 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.



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

Error status output

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

• 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.





2. SPECIFICATIONS

Model name					AO*G45LETL	AO*G54LETL	
Power source				1Ø 230 V~ 50 Hz			
Available voltage r	ange				198 -	264 V	
Starting current				A	18.9	20.9	
Model name Power source Available voltage rar Starting current Fan Sound pressure leve Heat exchanger type Compressor Refrigerant Refrigerant oil Enclosure Dimensions (H×W×D) Weight	Airflow	Cooling		(3/1-)	6,750	6,750	
Fan	rate	Heating		1 (^{m /n})	6,200	6,850	
Fan	Type × Q'ty	/		·	Prope	eller × 2	
	Motor outp	ut		W	104	104	
		Cooling			55	55	
Sound pressure le	vei	Heating			55	57	
		Dimension	s (H × W × D)	1	1260 × 9	900 × 36.4	
		Fin pitch		1 ^{mm}	1.	.30	
Available voltage range Starting current Fan Typ Mot Sound pressure level Heat exchanger type Compressor Refrigerant Refrigerant oil Enclosure Dimensions Net Grc Veight Net Grc Connection pipe Pre		Rows x Stages			2 >	× 60	
Heat exchanger type Pipe type Fin type Type (Material) Surface treatment		Pipe type			Co	pper	
		Type (Material)		Corrugate	(Aluminium)		
			Corrosion resistance (Blue fin)				
C	Type × Q'ty Motor output			Twin Rotary × 1			
Compressor	mpressor Type × Q'ty Motor output Type (Global Warming Potential			W	2'	100	
Defrigenent		Type (Glob	al Warming Potential)	<u>^</u>	R410A	A (1975)	
Reingerant		Charge		g	3350		
Refrigerant oil		Туре	, <u> </u>		RB68		
		Material			Stee	l sheet	
Enclosure		Colour			BEIGE		
		Coloui			(Approximate colour of M	MUNSELL 10YR 7.5 / 1.0)	
Dimensions	Net				1290 × 9	900 × 330	
(H×W×D)	Gross				1460 × 1	050 × 445	
Weight	Net			ka	8	36	
Weight	Gross			_ ^ĸ ġ	9	95	
	Sizo	Liquid			Ø 9.52 ((Ø 3/8 in.)	
	3120	Gas			Ø 15.88	(Ø 5/8 in.)	
Connection nine	Method				FI	are	
Connection pipe	Pre-charge	elength				20	
	Max. length	1		m		50	
	Max. heigh	t difference				30	
Operation range		Cooling		°C	-15	to 46	
operation range		Heating			-15	to 24	

OUTDOOR UNIT AO*G45-54LETL

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

119

38 (Liquid) 46 (Gas) (370)

650

132

330

(Unit : mm)

OUTDOOR UNIT AO*G45-54LETL



4. INSTALLATION PLACE 4-1. SINGLE OUTDOOR UNIT INSTALLATION ■ WHEN THE UPWARD AREA IS OPEN



500

Max. 500

OUTDOOR UNIT AO*G45-54LETL

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

250

250

Max. 500

4-2. MULTIPLE OUTDOOR UNIT INSTALLATION ■ WHEN THE UPWARD AREA IS OPEN



WHEN AN OBSTRUCTION IS PRESENT ALSO IN THE UPWARD AREA





4-3. OUTDOOR UNIT INSTALLATION IN MULTI ROW

(Unit : mm)



Multiple parallel unit arrangement



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

5. REFRIGERANT CIRCUIT MODELS: AO*G45LETL, AO*G54LETL



OUTDOOR UNIT AO*G45-54LETL

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

OUTDOOR UNIT AO*G45-54LETL



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	
		30	-	-	-	-	0.879	0.846	0.814	
	*1	20	-	-	-	0.926	0.893	0.861	0.828	
	Indoor unit is higher than	10	-	-	0.975	0.942	0.908	0.875	0.841	
	outdoor unit.	7.5	-	0.988	0.979	0.946	0.912	0.878	0.845	
Height		5	0.992	0.992	0.983	0.949	0.916	0.882	0.848	
difference H		0	1.000	1.000	0.991	0.957	0.923	0.889	0.855	
(m)		-5	1.000	1.000	0.991	0.957	0.923	0.889	0.855	
	*2	-7.5	-	1.000	0.991	0.957	0.923	0.889	0.855	
	Indoor unit is lower than outdoor unit.	-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		
		30	-	-	-	-	0.978	0.968	0.958		
	*1	20	-	-	-	0.988	0.978	0.968	0.958		
	Indoor unit is	10	-	-	0.998	0.988	0.978	0.968	0.958		
	outdoor unit.	7.5	-	1.000	0.998	0.988	0.978	0.968	0.958		
Height		5	1.000	1.000	0.998	0.988	0.978	0.968	0.958		
difference H		0	1.000	1.000	0.998	0.988	0.978	0.968	0.958		
(m)	*2 Indoor unit is	-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		
	outdoor unit.	-20	-	-	-	0.968	0.958	0.949	0.939		
		-30	-	-	-	-	0.949	0.939	0.929		



Height difference H



■ MODEL: AO*G54LETL

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

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



Height difference H

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)	40.a/m
Additional charge	g	0	400	800	1200	409/11

9. AIR FLOW

■ MODELS: AO*G45LETL, AO*G54LETL

• Cooling

OUTDOOR UNIT AO*G45-54LETL

MODEL		Number of rotations (r.p.m.)		Air flow
Upper fan		850	m³/h	6750
AO*G45LETL	Lower fan		l/s	1875
		800	CFM	3974
	Upper fan	850	m³/h	6750
AO*G54LETL			l/s	1875
	Lower fan	Lower fan 800		3974

Heating

MODEL		Number of rotations (r.p.m.)		Air flow
	Upper fan	780	m³/h	6200
AO*G45LETL			l/s	1722
	Lower fan	750	CFM	3650
	Upper fan	850	m³/h	6850
AO*G54LETL			l/s	1903
	Lower fan	830	CFM	4033

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



MODEL: AO*G54LETL



10-2. SOUND LEVEL CHECK POINT



OUTDOOR UNIT AO*G45-54LETL

11. ELECTRIC CHARACTERISTICS

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

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

*2) Wiring spec. :

Selected sample (Selected based on Japan Electrotechnical Standards and Codes Committee E0005)

12. SAFETY DEVICES

	Drotaction form	Model		
	FIOLECLIOITIOITI	AO*G45LETL	AO*G54LETL	
	Current fuse	250V 30A, 250V 10A x2, 250V 3.15A		
Circuit protection	(Filter printed circuit board)			
	Current fuse	250\/	3 15 4	
	(Main printed circuit board)	230 V	5:15A	
Ean motor protoctor	Thormal protoctor	OFF : 150±15°C		
Fail motor protector	mermai protector	ON : 120±15°C		
	Thermal protection program	OFF : 108°C		
Comprossor protection	(Compressor temp.)	ON : 80°C		
	Thermal protection program	OFF : 110°C		
	(Discharge temp.)	ON : After 7 minutes		
High proceure protection	Brocouro owitch	OFF : 4.2±0.1MPa		
Fight pressure protection	Flessule switch	ON : 3.2±0.15MPa		
Low procesure protection	Brossure consor	OFF : 0.12MPa		
Low pressure protection		ON : 0.15MPa		

13. EXTERNAL INPUT & OUTPUT

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

13-1. EXTERNAL INPUT

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

LOW NOISE MODE

- The following reduces the operating sound of the outdoor unit from the normal sound. The air conditioner is set to the "Low noise mode" when closing the contact input of a commercial timer or ON/OFF switch to a connector on the outdoor control PC board.
- * Performance may drop depending on the outside air temperature condition, etc.

• Circuit diagram example



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

- Use the following parts and construct a circuit as shown above.
- Input Signal···ON : Low noise mode, Input Signal···OFF : Normal operation
- *To set the "Low noise mode" level, refer to "13.FUNCTION SETTINGS".



Parts (Optional)

Parts name	External connect kit
Model name	UTY-XWZXZ3



PEAK CUT MODE

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

• Circuit diagram example



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

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



Parts (Optional)

Parts name	External connect kit
Model name	UTY-XWZXZ3



13-2. EXTERNAL OUTPUT

ERROR STATUS OUTPUT

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

• Circuit diagram example



1) Power supply •Voltage (Chart sign=Vcc) : DC 24V or less 2) Load

•Load : DC 500mA or less is recommended

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



Parts (Optional)





PDOOR UNIT kG45-54LETL

■ COMPRESSOR STATUS OUTPUT

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

• Circuit diagram example



DUTDOOR UNIT AO*G45-54LETL

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



Parts (Optional)





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

OOR UNIT 345-54LETL



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

DOOR UNIT :G45-54LETL



- (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		PUMP DOWN	PUMP DOWN LOW NOISE		PEAK CUT		
MODE	LINION	(L1)	(L2)	(L3)	(L4)	(L5)	(L6)
Blinks (9 times)	0	0	0	0	0	0	0
Sign " _O " : Lights off							

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



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



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

	I	PEAK CUT		
	(L4) (L5) (L6)			
MODE 1: Rated noise value -2dB	0	0	Blink	
MODE 2: Rated noise value -4dB	O Blink O			

The noise of MODE2 is lower than that of MODE1.

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

	F	PEAK CUT		
1	(L4) (L5) (L6)			
MODE 1: Rated noise value -2dB	0	0		
MODE 2: Rated noise value -4dB	0 • 0			

(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

TDOOR UNIT *G45-54LETL



- (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			LOW NOISE		PEAK CUT		
MODE	LINION	(L1)	(L2)	(L3)	(L4)	(L5)	(L6)
Blinks (9 times)	0	0	0	0	0	0	0

Sign " _O " : Lights off

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



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



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

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

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

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

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

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

15. OPTIONAL PARTS

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

OUTDOOR UNIT AO*G45-54LETL