SPLIT TYPE ROOM AIR CONDITIONER WALL MOUNTED type INVERTER

SERVICE INSTRUCTION

Models

Indoor unit

AS*G07LUCA AS*G09LUCA AS*G12LUCA AS*G14LUCA AS*G09LTCA AS*G12LTCA Outdoor unit AO*G07LUC AO*G09LUC AO*G12LUC AO*G14LUC AO*G09LTC

AO*G12LTC



FUJITSU GENERAL LIMITED

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WALL MOUNTED type INVERTER

1. DESCRIPTION OF EACH CONTROL OPERATION

1. COOLING OPERATION

A sensor (room temperature thermistor) built in the indoor unit body will usually perceive difference or variation between a set temperature and present room temperature, and controls the operation frequency of the compressor.

- * If the room temperature is 2°C higher than a set temperature, the compressor operation frequency will attain to maximum performance.
- * If the room temperature is some degrees lower than a set temperature, the compressor will be stopped.
- * When the room temperature is between +2°C to -2.5°C of the setting temperature, the compressor frequency is controlled within the range shown in Table1. However, the maximum frequency is limited in the range shown in Fig.1 based on the indoor fan mode and the outdoor temperature.

(Table 1 : Compressor frequency range)

	Minimum frequency	Maximum frequencyⅡ	Maximum frequency I
AS*G07/ 09LUCA	22rps	76rps	79rps
AS*G12LUCA		80rps	96rps
AS*G14LUCA	18rps	88rps	105rps
AS*G09LTCA		76rps	96rps
AS*G12LTCA	15rps	57rps	76rps

When the compressor operates for 30 minutes continuously at over the maximum frequency II, the maximum frequency is changed from Maximum Frequency I to Maximum Frequency II.



(Fig.1: Outdoor temperature zone)

(Table 2 : Lim	nit of maximum	n speed based	on outdoor	temperature))
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ble 2 : Limit of maximum speed based on outdoor tempera							
	Outdoor		Indoor fan mode				
	temp. zone	Hi	Me	Lo	Quiet		
AS*G07/09LUCA	A zone	79rps	61rps	52rps	37rps		
	B zone	79rps	61rps	52rps	37rps		
	C zone	79rps	61rps	52rps	37rps		
	D zone	52rps	43rps	37rps	28rps		
	E zone	64rps	55rps	49rps	36rps		
	F zone	64rps	55rps	49rps	36rps		
AS*G12LUCA	A zone	96rps	61rps	51rps	33rps		
	B zone	96rps	61rps	51rps	33rps		
	C zone	96rps	61rps	51rps	33rps		
	D zone	57rps	42rps	36rps	27rps		
	E zone	73rps	54rps	45rps	30rps		
	F zone	73rps	54rps	45rps	30rps		
AS*G14LUCA	A zone	105rps	64rps	54rps	42rps		
	B zone	105rps	64rps	54rps	42rps		
	C zone	105rps	64rps	54rps	42rps		
	D zone	61rps	51rps	45rps	30rps		
	E zone	84rps	54rps	45rps	30rps		
	F zone	84rps	54rps	45rps	30rps		
AS*G09LTCA	A zone	96rps	61rps	51rps	33rps		
	B zone	96rps	61rps	51rps	33rps		
	C zone	96rps	61rps	51rps	33rps		
	D zone	57rps	42rps	36rps	27rps		
	E zone	57rps	42rps	36rps	27rps		
	F zone	57rps	42rps	36rps	27rps		
AS*G12LTCA	A zone	76rps	45rps	37rps	29rps		
	B zone	76rps	45rps	37rps	29rps		
	C zone	76rps	45rps	37rps	26rps		
	D zone	43rps	35rps	26rps	20rps		
	E zone	51rps	37rps	31rps	22rps		
	F zone	51rps	37rps	31rps	22rps		

2. HEATING OPERATION

A sensor (room temperature thermistor) built in the indoor unit body will usually perceive difference or variation between a set temperature and present room temperature, and controls the operation frequency of the compressor.

- * If the room temperature is lower by 3°C than a set temperature, the compressor operation frequency will attain to maximum performance.
- * If the room temperature is some degrees higher than a set temperature, the compressor will be stopped.
- * When the room temperature is between +2.5°C to -3°C of the setting temperature, the compressor frequency is controlled within the range shown in Table 3. However, the maximum frequency is limited shown in Table 4 based on the fan mode.

	Minimum frequency	Maximum frequency
AS*G07/09LUCA	23rps	99rps
AS*G12LUCA AS*G14LUCA AS*G09LTCA	18rps	130rps
AS*G12LTCA	16rps	119rps

(Table 3 : Compressor frequency range)

3. DRY OPERATION

The compressor frequency shall change according to the temperature, set temperature, and room temperature variation which the room temperature sensor of the indoor unit body has detected as shown in the Table 5.

However, after the compressor is driven, the indoor unit shall run at operation frequency of 70rps (07/09LUCA), 56rps (09LTCA/12LUCA), 56rps (14LUCA), 40rps (12LTCA) for 80 seconds.

		Operating frequency			Operating frequency			Operating frequency
07/09	X zone	37rps	12LUCA	X zone	33rps	14LUCA	X zone	42rps
LUCA	J zone	28rps		J zone	25rps		J zone	25rps
	Y zone	0rps		Y zone	0rps		Y zone	0rps

(Table 5 : Compressor frequency in Dry mode)

		Operating frequency			Operating frequency
09LTCA	X zone	33rps	12LTCA	X zone	26rps
	J zone	25rps		J zone	18rps
	Y zone	Orps		Y zone	0rps

(Fig.2: Compressor control based on room temperature)



4. AUTO CHANGEOVER OPERATION

When the air conditioner is set to the AUTO mode by remote control, operation starts in the optimum mode from among the Heating, Cooling, Dry and Monitoring modes.

During operation, the optimum mode is automatically switched in accordance with temperature changes. The temperature can be set between 18°C and 30°C in 1°C steps.



(Fig. 3 : Operation flow chart in Auto changeover)

1. Fan speed

(Table 6 : Indoor fan speed)

	Speed (rpm)				
Operation mode	Air flow mode	AS*G07LUCA	AS*G09LUCA AS*G09LTCA	AS*G12LUCA AS*G12LTCA	AS*G14LUCA
	Powerful	1290	1410	1470	1620
Heating	Hi	1180	1300	1370	1510
-	Me+	1120	1220	1260	1440
	Me	1050	1120	1180	1220
	Lo	930	960	960	1030
	Quiet	650	650	650	790
	Cool air prevention	610	610	610	610
	S-Lo	570	570	570	570
Cooling/ Fan	Powerful	1220	1410	1470	1550
	Hi	1140	1300	1370	1440
	Me	1050	1080	1120	1220
	Lo	930	960	960	980
	Quiet	650	650	650	740
Dry		X zone: 650 J zone: 610	X zone: 650 J zone: 610	X zone: 650 J zone: 610	X zone: 740 J zone: 710

2. FAN OPERATION

The airflow can be switched in 5 steps such as Auto, Quiet, Lo, Me, Hi, while the indoor fan only runs. When fan mode is set at [Auto], it operates on [Me] fan Speed.

3. COOLING OPERATION

Switch the airflow [Auto], and the indoor fan motor will run according to a room temperature, as shown in Figure3.

On the other hand, if switched in [Hi] \sim [Quiet], the indoor motor will run at a constant airflow of [Cool] operation modes Quiet, Lo, Me, Hi, as shown in Table 6.

(Fig.4 : Airflow change - over (Cooling : Auto))



4. DRY OPERATION

Refer to the Table 6. During the dry mode operation, the fan speed setting can not be changed.

5. HEATING OPERATION

Switch the airflow [Auto], and the indoor fan motor will run according to a room temperature, as shown in Fig. 5

On the other hand, if switched in [Hi] \sim [Quiet], the indoor motor will run at a constant airflow of [Heat] operation modes Quiet, Lo, Me, High, as shown in Table 6.





6. COOL AIR PREVENTION CONTROL (Heating mode)

The maximum value of the indoor fan speed is set as shown in Fig.6 based on the detected temperature by the indoor heat-exchanger sensor on heating mode.





<Powerful operation>



7. MOISTURE RETURN PREVENTION CONTROL (Cooling mode& Dry mode)

Switch the airflow [Auto] at cooling mode, and the indoor fan motor will run as shown in Fig.7.



		Cooling		
	X zone J zone			
AS*G07/09/12LUCA AS*G09/12LTCA	650rpm	610rpm	0⇔570rpm	650rpm
AS*G14LUCA	740rpm	710rpm	0⇔570rpm	740rpm

1. Outdoor Fan Motor

Following table shows the type of the outdoor fan motor. The control method is different between AC motor and DC motor.

(Table 8 : Type of Motor)

	AC Motor	DC Motor
AS*G07/ 09/ 12/ 14LUCA AS*G09/ 12LTCA		0

2. Fan Speed

(Table 9 : Outdoor fan speed)

(14510 0 . 044400	i ian opeea	/		((PIII)
	Zone 💥	Cooling	Heating	Dry
	Y	730/ 650/ 580/ 470		
	Z	730/ 470/ 230	000/ 650/ 580/ 470	720/ 470
AS GUILUCA	F	230/ 200	900/050/580/470	730/470
	G	150		
	Y	860/ 780/ 720/ 680/ 470		
	Z	860/ 470/ 330	900/ 760/ 720/ 680/ 470	760/470
AS GUYLUCA	F	330/ 280	300/ 700/ 720/ 000/ 470	
	G	230/ 200		
	Y	850/ 750/ 670/ 500		760/ 470
AS*G12LUCA	Z	850/ 500/ 350	950/ 850/ 750/ 670/ 550/ 450	
AS*G09LTCA	F	330/ 300	330/ 330/ 730/ 670/ 330/ 430	
	G	280/ 230		
	Y	850/ 750/ 670/ 500		
	Z	850/ 500/ 350	050/ 850/ 750/ 670/ 550/ 450	760/ 470
	F	400/ 330/ 300	950/850/750/870/550/450	780/470
	G	300/ 280/ 230		
	Y	1050/ 870/ 720/ 590/ 530		520
	Z	870/ 530/ 300	1100/ 870/ 780/ 720/ 500/ 480	
	F	300/ 250		000
	G	250/ 200		

(rnm)

※ Refer to Fig.8

(Fig.8: Outside air temperature zone selection)



* The outdoor fan speed mentioned above depends on the compressor frequency.

(When the compressor frequency increases, the outdoor fan speed also changes to the higher speed. When the compressor frequency decreases, the outdoor fan speed also changes to the lower speed.)

* After the defrost control is operated on the heating mode, the fan speed keeps at the higher speed as table10 without relating to the compressor frequency.

AS*G07/ 09LUCA	900rpm	
AS*G12/ 14LUCA	950rpm	
AS*G09LTCA	550rpm	
AS*G12LTCA	1100rpm	

7. LOUVER CONTROL

1. VERTICAL LOUVER CONTROL

(Function Range)

Each time the button is pressed, the air direction range will change as follow:

 $(1) \overrightarrow{\leftarrow} 2) \overrightarrow{\leftarrow} 3 \overrightarrow{\leftarrow} 4) \overrightarrow{\leftarrow} 5 \overrightarrow{\leftarrow} 6) \overrightarrow{\leftarrow} 7$

Types of Air flow Direction Setting:

(1,2,3,4): During Cooling/Dry modes (4,5,6,7): During Heating

The Remote Controller's display does not change.

Fig.9 : Air Direction Range

· Use the air direction adjustments within the ranges shown above.

• The vertical airflow direction is set automatically as shown, in accordance with the type of operation selected.

Cooling / Dry mode : Horizontal flow ① Heating mode : Downward flow ⑥

• During AUTO mode operation, for the first a few minutes after beginning operation, air-flow will be horizontal 1; the air direction cannot be adjusted during this period. The air flow direction setting will temporarily become 1 when the temperature of the air -flow is low at the start of the Heating mode.

2. ADJUST THE RIGHT-LEFT LOUVERS

• Move the Right-Left louvers to adjust air flow in the direction you prefer.



2. SWING OPERATION

To select Vertical Airflow Swing Operation

When the swing signal is received from the remote controller, the vertical louver starts to swing.

(Table11 : Swinging Range)

	Range
Cooling / Dry mode Fan mode ($1 \sim 4$)	$(1) \Leftrightarrow (4)$
Heating mode Fan mode (④ \sim ⑦)	$\textcircled{4} \Leftrightarrow \textcircled{7}$

• The SWING operation may stop temporarily when the air conditioner's fan is not operating, or when operating at very low speeds.

To select Horizontal Airflow Swing Operation

(No function)

1. OPEARTION FREQUENCY RANGE

The operation frequency of the compressor is different based on the operation mode as shown in the Table 12.

(Table 12 : Compressor frequency range)

	Coolin	Cooling / Dry Heating		ting
	Minimum Maximum		Minimum	Maximum
AS*G07/ 09LUCA	22rps	79rps	23rps	99rps
AS*G12LUCA		96rps		
AS*G14LUCA	18rps	105rps	18rps	130rps
AS*G09LTCA		96rps		
AS*G12LTCA	15rps	76rps	16rps	119rps

2. OPEARTION FREQUENCY CONTROL AT NORMAL START UP

The compressor frequency soon after the start-up is controlled as shown in the Fig.10



(Frequency)						
	Frequency I	Frequency II	Frequency III	FrequencyIV	Frequency V	FrequencyVI
AS*G07/ 09LUCA	70rps	82rps	92rps	96rps		
AS*G12/ 14LUCA AS*G09LTCA	56rps	74rps	87rps	97rps	108rps	119rps
AS*G12LTCA	40rps	57rps	72rps	80rps	101rps	110rps

(Time)

(11110)						
	Time①	Time 2	Time ③	Time④	Time (5)	Time ⑥
AS*G07/ 09LUCA	80sec	140sec	200sec	440sec		
AS*G12/ 14LUCA AS*G09LTCA	80sec	140sec	200sec	380sec	440sec	500sec
AS*G12LTCA	80sec	110sec	140sec	200sec	350sec	410sec

3. LIMITATION OF COMPRESSOR FREQUENCY BY OUTDOOR TEMPERATURE

The minimum compressor frequency is limited by outdoor temperature as shown in the Table13.

(Table13 : Limitation of Compressor Frequency)

[Cooling/ Dry]

	10	°C	14	°C	40	°C
	Under	Over	Under	Over	Under	Over
AS*G07/ 09LUCA	34rps	28rps		22rps		30rps
AS*G12/ 14LUCA AS*G09LTCA	39rps	27	rps	18	rps	30rps
AS*G12LTCA	31rps	18	rps	15	rps	15rps

[Heating]

-								
	- 3	°C	7	°C	14'	°C	40°	°C
	Under	Over	Under Over I Orps 28rps		Under	Over	Under	Over
AS*G07/ 09LUCA	42rps	39	rps	s 28rps		ps 23rps		30rps
AS*G12/ 14LUCA AS*G09LTCA	36rps	27rps		27rps		18	rps	30rps
AS*G12LTCA	35rps	29	rps	18r	ps	16	rps	16rps

9. TIMER OPEARTION CONTROL

9-1 WIRELESS REMOTE CONTROLLER

The Table 14 shows the available timer setting based on the product model.

(Table 14 : Timer Setting)

	ON TIMER / OFF TIMER	PROGRAM TIMER	SLEEP TIMER	WEEKLY TIMER
AS*G07/09/12/14LUCA AS*G09/12LTCA	0	0	0	0

1. OPEARTION FREQUENCY RANGE

• OFF timer : When the clock reaches the set time, the air conditioner will be turned off.



• ON timer : When the clock reaches the set time, the air conditioner will be turned on.



2. PROGRAM TIMER

• The program timer allows the OFF timer and ON timer to be used in combination one time.



- Operation will start from the timer setting (either OFF timer or ON timer) whichever is closest to the clock's current timer setting.
 - The order of operations is indicated by the arrow in the remote control unit's display.
- SLEEP timer operation cannot be combined with ON timer operation.

3. SLEEP TIMER

If the sleep is set, the room temperature is monitored and the operation is stopped automatically. If the operation mode or the set temperature is change after the sleep timer is set, the operation is continued according to the changed setting of the sleep timer from that time ON.

In the cooling operation mode

When the sleep timer is set, the setting temperature is increased 1°C. It increases the setting temperature another 1°C after 1 hour. After that, the setting temperature is not changed and the operation is stopped at the time of timer setting.



In the heating operation mode

When the sleep timer is set, the setting temperature is decreased 1°C. It decreases the setting temperature another 1°C every 30 minutes. Upon lowering 4°C, the setting temperature is not changed and the operation stops at the time of timer setting.



4. WEEKLY TIMER

This timer function can set operation times of the each day of the week. All days can be set together, the weekly timer can be used to repeat the timer setting for all of the days.



9-2 WIRED REMOTE CONTROLLER (OPTION)

The Table15 shows the available timer setting based on the product model.

(Table 15 . Timer Setting)	Setting	Timer	:	(Table15	(
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	ON TIMER / OFF TIMER	WEEKLY TIMER	TEMPERATURE SET BACK TIMER
AS*G07/09/12/14LUCA AS*G09/12LTCA	0	0	0

1. ON TIMER / OFF TIMER

Same to 9-1 1.ON TIMER / OFF TIMER and shown in those.

2. WEEKLY TIMER

This timer function can set operation times of the each day of the week. All days can be set together, the weekly timer can be used to repeat the timer setting for all of the days.



3. TEMPERATURE SET BACK TIMER

This timer function can change setting temperature of setting operation times of the each day of the week. This can be together with other timer setting.



10. ELECTRONIC EXPANSION VALVE CONTROL

The most proper opening of the electronic expansion valve is calculated and controlled under the present operating condition based on the Table16.

The compressor frequency, the detected temperature by the discharge temperature sensor,

the indoor heat exchanger sensor, the outdoor heat exchanger sensor, and the outdoor temperature sensor.

(Table16: The pulse range of the electronic expansion valve control)

	Operation mode	Pulse range	
AS*G07LUCA AS*G09LUCA AS*G12LUCA AS*G14LUCA AS*G09LTCA	Cooling / Dry mode	Retween 60 to 180 pulses	
	Heating mode	Between 60 to 480 pulses.	
AS*G12LTCA	Cooling / Dry mode	between 60 to 480 pulses.	
	Heating mode	between 45 to 480 pulses.	

* The expansion valve is set at 480 pulses 110seconds after the compressor had stopped.

- * Initialization will start after 24 hours pass from the last initialization, and the compressor stops
- * At the time of supplying the power to the outdoor unit, the initialization of the electronic expansion valve is operated (528 pulses are input to the closing direction).

11. TEST OPERATION CONTROL

[Operation method]

The outdoor unit, may not operate, depending on the room temperature.

In this case, keep on pressing the MANUAL AUTO button of the indoor unit for more than 10 seconds. The Operation lamp and Timer lamp will begin to flash simultaneously during cooling test run. Then, heating test run will begin in about 3 minutes when HEAT is selected by the remote control operation. (When the air conditioner is running by pressing the test run button, the Operation lamp and Timer lamp will simultaneously flash slowly.)

[Release]

Perform the test operation for 60 minutes.

Pressing the MANUAL AUTO button of the indoor unit for more than 3 seconds.

[Using the Wired remote control (Option)]

If the Operation lamp is on, press the START/STOP button to turn it off. Press the MODE and the FAN buttons at the same time for more than two seconds to start the test operation. The operation lamp will light up and "o1" will be displayed on the set temperature display.

[Release]

Perform the test operation for 60 minutes. Pressing the START/STOP button will stop the test operation.

12. PREVENT TO RESTART FOR 3 MINUTES (3 MINUTES ST)

The compressor won't enter operation status for 2 minutes and 20 seconds after the compressor is stopped, even if any operation is given.

13. FOUR-WAY VALVE EXTENSION SELECT

At the time when the air conditioner is switched from the cooling mode to heating mode, the compressor is stopped, and the four-way valve is switched in 3 minutes later after the compressor stopped.

14. AUTO RESTART

When the power was interrupted by a power failure, etc. during operation, the operation contents at that time are memorized and when power is recovered, operation is automatically started with the memorized operation contents.

When the power is interrupted and recovered during timer operation, since the timer operation time is shifted by the time the power was interrupted, an alarm is given by blinking (7 sec ON/2 sec OFF) the indoor unit body timer lamp.

[Operation contents memorized when the power is interrupted]

- Operation mode
- Set temperature
- Set air flow
- Timer mode and set time (set by wireless remote controller)
- Set air flow Direction
- Swing
- ECONOMY operation
- 10°C HEAT operation
- Outdoor low noise operation
- Human sensor (For AS*G09/12LTCA)

15. MANUAL AUTO OPERATION (Indoor unit body operation)

When the remote control is lost or battery power dissipated, this function will work without the remote control. When MANUAL AUTO button is set more than 3seconds and less than 10seconds, MANUAL AUTO OPERATION will be started as shown in Table17.

To stop operation, press the MANUAL AUTO button for 3seconds.

(Table17 : MANUAL AUTO OPERATION)

	Manual auto operation
OPERATION MODE	Auto changeover
FAN CONT. MODE	Auto
TIMER MODE	Continuous (No timer setting available)
SETTING TEMP.	24°C
SETTING LOUVER	Standard
SWING	OFF
ECONOMY	OFF





Press and hold MANUAL AUTO button for 3 ~ 10seconds

MANUAL AUTO

16. FORCED COOLING OPERATION (TEST OPERATION)

When FORCED COOLING OPERATION is set, the operation is controlled as shown in Table18.

	Forced cooling operation
OPERATION MODE	Cooling
FAN CONT. MODE	Hi
TIMER MODE	-
SETTING TEMP.	Room Temp is not controlled
SETTING LOUVER	Horizontal (It is changed follow as setting of remote controller)
SWING	OFF
ECONOMY	-

(Table18: FORCED COOLING OPERATION)

· Forced cooling operation is started when press MANUAL AUTO button for 10 seconds or more.

• During the forced cooling operation, it operates regardless of room temperature sensor.

Operation LED and timer LED blink at the same time during the forced cooling operation.

They blink for 1 second ON and 1 second OFF on both operation LED and timer LED (same as test operation).

• Forced cooling operation is released after 60 minutes of starting operation or pressing MANUAL AUTO button for 3 seconds.

17. COMPRESSOR PREHEATING

When the outdoor temperature is lower than 20°C and the heating operation has been stopped for 30 minutes, power is applied to the compressor and the compressor is heated. (By heating the compressor, warm air is quickly discharged when operation is started.) When operation was started and when the outdoor temperature rises to 25°C or greater, preheating is ended.

18. 10°C HEAT OPERATION

10°C HEAT operation performs as below when pressing 10°C HEAT button or Weekly timer setting on the remote controller.

(Table 19: 10°C HEAT operation)

Mode	Heating
Setting temperature	10°C
Fan mode	Auto
LED display	Economy
Defrost operation	Operate as normal

19. ECONOMY OPERATION

The ECONOMY operation functions by pressing ECONOMY button on the remote controller. At the maximum output, ECONOMY Operation is approximately 70% of normal air conditioner operation for cooling and heating.

The ECONOMY operation is almost the same operation as below settings.

(Table 20)

Mode	Cooling/ Dry	Heating
Target temperature	Setting temp.+1°C	Setting temp1°C

20. HUMAN SENSOR CONTROL (For AS*G09/12LTCA)

The HUMAN SENSOR functions by pressing SENSOR button on the remote controller. When the sensor detects that there is no one in the room for 20 minutes or more,

it automatically changes the operation as below settings.

When someone comes back into the room, the human sensor will detect this, and automatically revert to the original settings.

(Table 21)

Mode	Cooling/ Dry	Heating
Target temperature	Setting temp.+2°C	Setting temp4°C

(Application range)

Vertical angle 90°(Side view)





% The sensor unit should detect when the human body (estimate: 100cmX30cm) or the object which has more than 4 degreesC temp, difference from the background and are crossed with 1.0m/s speed in front of the sensor unit.

21. OUTDOOR UNIT LOW NOISE OPERATION

The OUTDOOR UNIT LOW NOISE Operation functions by pressing OUTDOOR UNIT LOW NOISE button on the remote controller.

This operation stops the PFC control, and changes the Current release operation/release value.

OUTDOOR UNIT LOW NOISE Operation mode can be used during cooling, heating and automatic operation. It can not be used in Fan and Dry mode

(Table 22)

	Control / Release
Current release operation/release value	3.5A / 3.0A

22. POWERFUL OPERATION

The POWERFUL OPERATION functions by pressing POWERFUL button on the remote controller.

The indoor unit & outdoor unit will operate at maximum power as shown in Table23.

(Table23)

	Powerful operation
COMPRESSOR FREQUENCY	Maximum
FAN CONT. MODE	Powerful
SETTING LOUVER	Cooling/ Dry : 3, Heating : 5

Release Condition is as follows.

[Cooling / Dry]

- Room tenperature < Setting temperature - 1.5°C or Operation time has passed 20 minutes.

[Heating]

- Room tenperature > Setting temperature +1.5°C or Operation time has passed 20 minutes.

23. DEFROST OPERATION CONTROL

1. CONDITION OF STARTING THE DEFROST OPERATION

The defrost operation starts as shown in the following Table 24.

(Table 24 : Condition of starting Defrost Operation)

Normal defrost	Compressor integrating operation time	
Less than Does no	Less than 25 minutes	More than 25 minutes
	Does not operate	Outdoor heat exchanger temp.
		Outdoor heat exchanger temp. ≦ Outside air temp 7°C or Outdoor heat exchanger temp. ≦ - 20°C (LUCA) - 25°C (LTCA) (at outside air temp. < -10°C)

Integrating defrost	Compressor integrating operation time			
	More than 240 minutes (For continuous operation)	More than 213 minutes (For continuous operation)	Less than 10 minutes * (For intermittent operation)	
	Outdoor heat exchanger temperature below -3°C	Outdoor heat exchanger temperature below -5°C	OFF count of the compressor 40 times	

*If the compressor continuous operation time is less than 10 minutes, the OFF number of the compressor is counted.

If any defrost operated, the compressor OFF count is cleared.

2. CONDITION OF THE DEFROST OPERATION COMPLETION

Defrost operation is released when the conditions become as shown in Table 25.

(Table 25 : Defrost Release Condition)

Rele	ease Condition	
Outdoor heat exchanger temper	rature sensor value is higher than +16°C or passed 15 minutes	

3. Defrost Flow Chart

The defrosting shall proceed by the integrating operation time, outdoor temperature and outdoor heat exchanger temperature as follows.



24. OFF DEFROST OPEARTION CONTROL

When operation stops in the [Heating operation] mode, if frost is adhered to the outdoor unit heat exchanger, the defrost operation will proceed automatically. In this time, if indoor unit operation lamp flashes slowly (7 sec ON / 2 sec OFF), the outdoor unit will allow the heat exchanger to defrost, and then stop.

1. OFF DEFROST OPERATION CONDITION

In heating operation, the outdoor heat exchanger temperature is less than - 4°C, compressor continuous operation more than 10 minutes, and compressor operation integrating time lasts for more than 30 minutes.

2. OFF DEFROST END CONDITION

Release Condition

Outdoor heat exchanger temperature sensor value is higher than 16°C or Compressor operation time has passed 15 minutes.

OFF Defrost Flow Chart



25. VARIOUS PROTECTIONS

1. DISCHARGE GAS TEMPERATURE OVERRISE PREVENSION CONTROL

The discharge gas thermosensor (discharge thermistor : Outdoor side) will detect discharge gas temperature.

When the discharge temperature becomes higher than Temperature I, the compressor frequency is decreased 20rps, and it continues to decrease the frequency for 20rps every 120 seconds until the temperature becomes lower than Temperature I.

When the discharge temperature becomes lower than Temperature II, the protection control of the compressor frequency will be released.

When the discharge temperature becomes higher than Temperature III, the compressor is stopped and the indoor unit LED starts blinking.

(Table 26 : Discharge temperature over rise prevension control / Release temperature)

	Temperature I	Temperature II	Temperature III	
AS*G07/09/12/14LUCA AS*G09/12LTCA	104°C	101°C	110°C	

2. CURRENT RELEASE CONTROL

The compressor frequency is controlled so that the outdoor unit input current does not exceed the current limit value that was set up with the outdoor temperature.

The compressor frequency returns to the designated frequency of the indoor unit at the time when the frequency becomes lower than the release value.

[Heating]

(Table 27 : Current release operation value / Release value)

[Heating]



OT : Outdoor Temperature

[Cooling]

AS*G07LUCA AS*G09LUCA				
OT (Control / Release)				
3.5A / 3.0A				
40 C 4.0A / 3.5A	_			
40°C	_			

OT : Outdoor Temperature

AS*G12LUCA AS*G09LTCA							
OT (0	OT (Control / Release)						
17°0	5.5A / 5.0A						
7.0A / 6.5A							
7.5A / 7.0A							
8.5A / 8.0A							

OT : Outdoor Temperature

[Cooling]					
AS*G12LUCA AS*G09LTCA					
OT (C	OT (Control / Release)				
16°C	4.0A / 3.5A				
40°C	5.0A / 4.5A				
40 0	6.0A / 5.5A				

OT : Outdoor Temperature

5°C ______ 10.0A / 9.5A

[Heating]

17°C

12°C

OT : Outdoor Temperature

AS*G14LUCA

AS*G12LTCA

OT (Control / Release)

7.0A / 6.5A

9.0A / 8.5A

10.0A / 9.5A

[Cooling]				
AS*G14LUCA AS*G12LTCA				
OT (Control / Release)				
4.5A / 4.0A				
6.0A / 5.5A				
40 C				

OT : Outdoor Temperature

3. ANTIFREEZING CONTROL (Cooling and Dry mode)

The compressor frequency is decrease on cooling & dry mode when the indoor heat exchanger temperature sensor detects the temperature lower than Temperature I. Then, the anti-freezing control is released when it becomes higher than Temperature II.

`	•	•		
Outdoor temperature	Temperature I	Temperature II		
Over than 10°C *1 or 12°C *2	4°C	7°C		
Less than 10°C *1 or 12°C *2	4 C	13°C		

(Table 28 : Anti-freezing Protection Operation / Release Temperature)

*1. When the temperature rises.

*2. When the temperature drops.

4. COOLING PRESSURE OVERRISE PROTECTION

When the outdoor unit heat exchange sensor temperature rises to 67°C or greater, the compressor and the outdoor fan motor are stopped and trouble display is performed.

5. HIGH TEMPERATURE RELEASE CONTROL (HEATING MODE)

On heating mode, the compressor frequency is controlled as following based on the detection value of the indoor heat exchanger temperature sensor.





WALL MOUNTED type INVERTER

2. TROUBLE SHOOTING

2. TROUBLESHOOTING

2-1 ERROR DISPLAY

2-1-1 INDOOR UNIT AND WIRED REMOTE CONTROLLER DISPLAY

Please refer the flashing pattern as follows.

Indoor Unit : AS*G07/ 09/ 12/ 14LUCA, AS*G09/ 12LTCA

The OPERATION, TIMER and ECONOMY lamps operate as follows according to the error contents.

	Inc	loor Unit Display	Wired Remote	Trouble		
Error Contents	OPERATION []] (Green)	TIMER [싄] (Orange)	ECONOMY [岱] (Green)	Controller Display	shooting	
Serial communication error	1 times	1 times	Continuous	11	1	
Wired remote controller communication error	1 times	2 times	Continuous	12	2	
Indoor unit model information error EEPROM access abnormal	3 times	2 times	Continuous	32	3	
Manual auto switch error	3 times	5 times	Continuous	35	4	
Indoor room thermistor error	4 times	1 times	Continuous	41	5	
Indoor heat Ex. thermistor error	4 times	2 times	Continuous	42	6	
Indoor unit fan motor error	5 times	1 times	Continuous	51	7	
Intake grille error	5 times	8 times	Continuous	58	8	
Outdoor unit main PCB error	6 times	2 times	Continuous	62	9	
PFC circuit error	6 times	4 times	Continuous	64	10	
IPM error	6 times	5 times	Continuous	65	11	
Discharge thermistor error	7 times	1 times	Continuous	71	12	
Heat Ex. liquid outlet thermistor error	7 times	3 times	Continuous	73	13	
Outdoor thermistor error	7 times	4 times	Continuous	74	14	
Current sensor error	8 times	4 times	Continuous	84	15	
Over current error	9 times	4 times	Continuous	94	16	
Compressor control error	9 times	5 times	Continuous	95	17	
Outdoor unit fan motor error	9 times	7 times	Continuous	97	18	
4 Way valve error	9 times	9 times	Continuous	99	19	
Discharge temp. error	10 times	1 times	Continuous	A1	20	

2-1-2 WIRED REMOTE CONTROLLER DISPLAY (OPTION)

1. SELF - DIAGNOSIS

When " Er " in Temperature Display is displayed, inspection of the air conditioning system is necessary. Please consult authoilzed servise personnel.



ex. Self-diagnosis check

2. ERROR CODE HISTORY DISPLAY

Up to 16 memorized error codes may be displayed for the indoor unit connected to the remote controller.



2-2 TROUBLE SHOOTING WITH ERROR CODE









Check Indoor unit electric components

(loose connector or incorrect wiring)

Check any shortage or corrosion on PCB.

Check Point 3 : Replace Controller PCB

Change Controller PCB.

· Check all connectors.

Note : EEPROM

Check external cause such as noise

 Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic

Check if the ground connection is proper.

equipment which causes harmonic wave).

EEPROM(Electronically Erasable and Programmable Read Only Memory) is a nonvolatile memory which keeps memorized information even if power is turned off. It can change the contents electronically. To change the contents, it uses higher voltage than normal, and it can not change a partial contents. (Rewriting shall be done upon erasing the all contents.) There is a limit in a number of rewriting.

Trouble shooting 4 INDOOR UNIT Error Method:	Indicate or Display:				
Manual auto switch error	Refer to error code table.				
Detective Actuators:	Detective details:				
Indoor unit Controller PCB Indicator PCB Manual auto switch	When the Manual Auto Switch becomes ON for consecutive 60 or more seconds.				
Forecast of Cause :					
1. Manual auto switch failure	2.Controller PCB and Indicator PCB failure				
Check Point 1 : Check the Manual auto	switch				
Check if Manual auto switch is kept pressed.					
 Check ON/OFF switching operation by using a meter. >If Manual Auto Switch is disabled (on/off switching), replace it. 					
Check Point 2 : Replace Controller PCB					

▶ If Check Point 1 do not improve the symptom, change Controller PCB and Indicator PCB.



Trouble shooting 6 INDOOR UNIT Error Metho Indoor unit Heat Ex. sens	<u>Inc</u> F	Indicate or Display: Refer to error code table.							
Detective Actuators: Detective details: Indoor unit Controller PCB When Heat Ex. Temperature Thermistor open or short-circuit is detected Heat Ex. temperature thermistor When Heat Ex. Temperature Thermistor open or short-circuit is detected					is detected.				
Forecast of Cause : 1. Connector connection failure 2. Thermistor failure 3. Controller PCB failure									
Check Point 1 : Check connection of Connector Check if connector is removed. Check erroneous connection. Check if thermistor cable is open. >Upon correcting the removed connector or mis-wiring, reset the power. OK									
Check Point 2 : Remove co Thermistor Characteristics	nnector a	nd check value)	Thermis	tor resist	ance valı	le			-Ω-
Temperature	-30°C	-20°C	-10°C	-5°C	0°C	5°C	10°C	20°C	$\oslash \$$
Resistance Value (kΩ)	1131.9 30°C	579.6 40°C	312.3 50°C	233.2 60°C	176.0 63°C	134.2	103.3	62.9	
Resistance Value ($k\Omega$)	39.6	25.6	17.1	11.6	10.4				
► If Thermistor is either open or shorted, replace it and reset the power.									
Check Point 3 : Check volta Make sure circuit diagram THERMISTOR (PIPE) BLACK BLACK BLACK THERMISTOR (ROOM TEMP.)	age of Con n of indoo	ntroller P r unit and	CB (DC5 I check te	.0V) erminal vo	oltage at	Thermist	or (DC5.	0V)	






Trouble shooting 10	Indicate or Display:	
OUTDOOR UNIT Error Method:	Refer to error code table.	
Detective Actuators:	Detective details:	
Outdoor unit Main PCB	When inverter output DC voltage is higher than 41 the compressor stops. If the same operation is repeated 5 times, the con	15V for over 3 seconds, npressor stops permanently.
Forecast of Cause : 1. External cause 2. Connecto	r connection failure 3. Main PCB failure	
Check Point 1 : Check external cause at	Indoor and Outdoor (Voltage drop or Noise)	
 Instant drop : Check if there is a large load electric apparatus in the same circuit. Momentary power failure : Check if there is a defective contact or leak current 		
 Noise : Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave) Check the complete insulation of grounding. 		
ОК		
Check Point 2 : Check connection of Connector		
 Check if connector is removed. Check erroneous connection. Check if cable is open. >>Upon correcting the removed connector or mis-wiring, reset the power. 		
ок		
Check Point 3 : Replace Main PCB		
▶ If Check Point 1, 2 do not improve the symptom, change Main PCB.		











Trouble shooting 16 OUTDOOR UNIT Error Method: Trip detection	Indicate or Display: Refer to error code table.	
Detective Actuators:	Detective details:	
Outdoor unit Main PCB Compressor	 "Protection stop by overcurrent generation after inverter compressor start processing completed" generated consecutively 10 times. * The number of generations is reset if the start-up of the compressor succeeds. 	
Forecast of Cause : 1. Outdoor unit fan operation defective, foreign matter on hear exchanger.		

- excessive rise of ambient temperature
- 2. Inverter PCB failure
- 3. Inverter compressor failure (lock, winding short)





Trouble shooting 18 <u>OUTDOOR UNIT Error Method:</u> Outdoor unit fan motor error	Indicate or Display: Refer to error code table.	
Detective Actuators: Outdoor unit Main PCB Outdoor unit Fan motor	 Detective details: ① When outdoor fan rotation speed is less than 100rpm in 20 seconds after fan motor starts, fan motor stops. ② After fan motor restarts, if the same operation within 60sec is repeated 3 times in a row, compressor and fan motor stops. ③ If ① and ② repeats 5 times in a row, compressor and fan motor stops permanently. 	

Forecast of Cause:

- 1. Fan rotation failure 2. Motor protection by surrounding temperature rise 3. Main PCB failure
- 4. Outdoor unit fan motor





Trouble shooting 20 OUTDOOR UNIT Error Method: Discharge temperature error	Indicate or Display: Refer to error code table.
Detective Actuators: Outdoor unit Main PCB Discharge temperature thermistor	 Detective details: "Protection stop by "discharge temperature ≥ 110degC during compressor operation"" generated 2 times within 24 hours.

Forecast of Cause :	1. 3-way valve not opened	2. EEV defective, strainer clogged
	3. Outdoor unit operation failure, foreign matter of	on heat exchanger
	4. Discharge temperature thermistor failure	5. Insufficient refrigerant
	6. Main PCB failure	





2-3 TROUBLE SHOOTING WITH NO ERROR CODE

Trouble shooting 21

Indoor Unit - No Power

Forecast of Cause:

- 1. Power supply failure 2. External cause
- 3. Electrical components defective



Trouble shooting 22

Outdoor Unit - No Power

Forecast of Cause:

Power supply failure
 External cause
 Electrical Components defective



▶ If the symptom does not change by above Check 3, replace Main PCB.

Trouble shooting 23

No Operation (Power is ON)

Forecast of Cause:

- 1. Setting/ Connection failure 2. External cause
- 3. Electrical component defective

Indoor Unit - Check incorrect wiring between Indoor Unit - Remote Control.	
Are these Indoor Unit, Outdoor Unit, and Remote Control suitable model numbers to connect? <a href="https://www.itage.com/itage.co</th> <th></th>	
ОК	
Furn off Power and check/ correct followings.	
Is there loose or removed communication line of Indoor Unit and Outdoor Unit?	
ОК	
eck Point 2 : Check external cause at Indoor and Outdoor (Voltage drop or Noise)	
Instant drop Check if there is a large load electric apparatus in the same circuit. Iomentary power failure Check if there is a defective contact or leak current in the power supply oise Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave)	circuit.
Instant drop Check if there is a large load electric apparatus in the same circuit. Iomentary power failure Check if there is a defective contact or leak current in the power supply oise Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave) Check the complete insulation of grounding. OK	circuit.
Instant drop Check if there is a large load electric apparatus in the same circuit. Iomentary power failure Check if there is a defective contact or leak current in the power supply oise Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave) Check the complete insulation of grounding. OK eck Point 3 : Check Electrical Components at Indoor and Outdoor	circuit.
Instant drop Check if there is a large load electric apparatus in the same circuit. Iomentary power failure Check if there is a defective contact or leak current in the power supply oise Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave) Check the complete insulation of grounding. OK eck Point 3 : Check Electrical Components at Indoor and Outdoor heck Voltage at CNC01 (terminal 1-3) of UTY-TWBXF(Communication kit). Power supply to Remote Control)	circuit.
Instant drop Check if there is a large load electric apparatus in the same circuit. Iomentary power failure Check if there is a defective contact or leak current in the power supply oise Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave) Check the complete insulation of grounding. OK eck Point 3 : Check Electrical Components at Indoor and Outdoor heck Voltage at CNC01 (terminal 1-3) of UTY-TWBXF(Communication kit). Power supply to Remote Control > If it is DC13V, Remote Control is failure. (Controller PCB is normal) >> Replace Re > If it is normal, replace Control PCB. If it is normal, replace Control PCB. If it is apportant, replace Indoor unit fan motor and Controller PCB.	circuit.





2-4 SERVICE PARTS INFORMATION

SERVICE	PARTS	INFORMATI	ON 1

Compressor



SERVICE PARTS INFORMATION 2

Inverter Compressor





Check Point 3 : Replace Main PCB

▶ If the symptom does not change with above Check 1, 2, replace Main PCB.





Check Point 6 : Check Strainer

Strainer normally does not have temperature difference between inlet and outlet as shown in 1, but if there is a difference as shown in 2, there is a possibility of inside clogged. In this case, replace Strainer.



SERVICE PARTS INFORMATION 4

Indoor unit fan motor

Check Point 1 : Check rotation of Fan

Rotate the fan by hand when operation is off.

(Check if fan is caught, dropped off or locked motor)

>>If Fan or Bearing is abnormal, replace it.

Check Point 2 : Check resistance of Indoor Fan Motor

Refer to below. Circuit-test "Vm" and "GND" terminal.
 (Vm: DC voltage, GND: Earth terminal)
 >If they are short-circuited (below 300 kΩ), replace Indoor fan motor and Controller PCB.

Pin number (wire color)	Terminal function (symbol)	
1 (Blue)	Feed back (FG)	
2 (Yellow)	Speed command (Vsp)	
3 (White)	Control voltage (Vcc)	
4 (Black)	Earth terminal (GND)	
5	No function	
6 (Red)	DC voltage (Vm)	

SERVICE PARTS INFORMATION 5

Outdoor unit fan motor

Check Point 1 : Check rotation of Fan

• Rotate the fan by hand when operation is off. (Check if fan is caught, dropped off or locked motor)

>>If Fan or Bearing is abnormal, replace it.

Check Point 2 : Check resistance of Outdoor Fan Motor

Refer to below. Circuit-test "Vm" and "GND" terminal.
 (Vm: DC voltage, GND: Earth terminal)
 >If they are short-circuited (below 300 kΩ), replace Outdoor fan motor and Main PCB.

Pin number (wire color)	Terminal function (symbol)	
1 (Red)	DC voltage (Vm)	
2	No function	
3	No function	
4 (Black)	Earth terminal (GND)	
5 (White)	Control voltage (Vcc)	
6 (Yellow)	Speed command (Vsp)	
7 (Brown or Blue)	Feed back (FG)	



WALL MOUNTED type INVERTER

3. APPENDING DATA

3-1-1 INDOOR UNIT

- 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.

1-1. Setting the Filter Sign

The indoor unit has a sign to inform the user that it is time to clean the filter.

Select the time setting for the filter sign display interval in the table

below according to the amount of dust or debris in the room.

If you do not wish the filter sign to be displayed, select the setting value for "No indication".

	(�.	Factory setting)
Setting Description	Function Number	Setting Value
Standard (400 hours)		00
Long interval (1000 hours)	11	01
Short interval (200 hours)		02
No indication		03

1-2. Cooling 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		00
Slightly lower control	30	01
Lower control		02
Warmer control		03

1-3. Heating 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.

			Tactory Setting
	Setting Description	Function Number	Setting Value
٠	Standard		00
	Lower control	.31	01
	Slightly warmer control		02
	Warmer control		03

(Factory setting)

1-4. Setting the Auto Restart

Enable or disable automatic system restart after a power outage.

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

1-5. Indoor room temperature sensor switching function (Only for Wired remote controller)

The following settings are needed when use 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.

(Factory setting)

1-6. Remote controller signal code

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

		(�.	Factory setting)
	Setting Description	Function Number	Setting Value
٠	А		00
	В	44	01
	С		02
	D		03

1-7. External input control

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

	(�.	Factory setting)
Setting Description	Function Number	Setting Value
Operation/Stop mode		00
(Setting forbidden)	46	01
Forced stop mode		02

3-1-2 Procedures to change the Function Setting for wireless RC

- This procedure changes to the function settings used to control the indoor unit 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.
- Settings will not be changed if invalid numbers or setting values are selected.

Entering the Function Setting Mode

- While pressing the POWERFUL button and SET TEMP.(^) button simultaneously, press the RESET button to enter the function setting mode.

Selecting the Function Number and Setting Value

- (1) Press the SET TEMP.(∧) (∨) buttons to select the function number.
 (Press the 10°C HEAT button to switch between the left and right digits.)
- (2) Press the POWERFUL button to proceed to setting the value.(Press the POWERFUL button again to return to the function number selection.)
- (3) Press the SET TEMP.(∧) (∨) buttons to select the setting value.
 (Press the 10°C HEAT button to switch between the left and right digits.)
- (4) Press the MODE button, in the order listed to confirm the setting. Please confirm that the beep sounds.
- (5) Next, please press the START/STOP(小/I) button. Please confirm that the beep sounds.
- (6) Press the RESET button to cancel the function setting mode.
- (7) After completing the FUNCTION SETTING, be sure to turn off the power and turn it on again.

After turning off the power, wait 10 seconds or more before turning on it again. The FUNCTION SETTING doesn't become active unless the power is turned off then on again.













Selecting the Remote Controller Signal Code

- (1) Press the START/STOP(心/I) button until only the clock is displayed on the remote controller display.
- (2) Press the MODE button for at least 5 seconds to display the current signal code. (initially set to ^I/₄).
- (3) Press the SET TEMP.(∧) (∨) buttons to change the signal code between A→b→c→d.
 Match the code on the display to the air conditioner signal code.
- (4) Press the MODE button again to return to the clock display. The signal code will be changed.

- If no buttons are pressed within 30 seconds after the signal code is displayed, the system returns to the original clock display.
- In this case, start again from step 1.
- The air conditioner signal code is set to A prior to shipment.



3-2. Thermistor Resistance Values

3-2-1 INDOOR UNIT

Room temperature thermistor		
Temp (°C)	$\text{Resistance}(k\Omega)$	Voltage(V)
-10.0	58.2	0.73
-5.0	44.0	0.93
0.0	33.6	1.15
5.0	25.9	1.39
10.0	20.2	1.66
15.0	15.8	1.94
20.0	12.5	2.22
25.0	10.0	2.50
30.0	8.0	2.77
35.0	6.5	3.03
40.0	5.3	3.27
45.0	4.4	3.49

Indoor heat exchanger thermistor		
Temp (°C)	$\text{Resistance}(k\Omega)$	Voltage(V)
-30.0	1131.9	0.21
-25.0	804.5	0.29
-20.0	579.6	0.40
-15.0	422.9	0.53
-10.0	312.3	0.69
-5.0	233.2	0.88
0.0	176.0	1.10
5.0	134.2	1.36
10.0	103.3	1.63
15.0	80.3	1.92
20.0	62.9	2.21
25.0	49.7	2.51
30.0	39.6	2.79
35.0	31.7	3.06
40.0	25.6	3.30
45.0	20.8	3.53
50.0	17.1	3.73
55.0	14.1	3.90
60.0	11.6	4.05
63.0	10.4	4.14

3-2-2 OUTDOOR UNIT

Discharge thermistor			
Temp (°C)	$Resistance(k\Omega)$	Voltage(V)	
-30.0	1013.1	0.06	
-25.0	729.1	0.09	
-20.0	531.6	0.12	
-15.0	392.3	0.16	
-10.0	292.9	0.21	
-5.0	221.1	0.28	
0.0	168.6	0.36	
5.0	129.8	0.46	
10.0	100.9	0.57	
15.0	79.1	0.71	
20.0	62.5	0.86	
25.0	49.8	1.03	
30.0	40.0	1.23	
35.0	32.4	1.43	
40.0	26.3	1.65	
45.0	21.6	1.88	
50.0	17.8	2.11	
55.0	14.8	2.34	
60.0	12.3	2.57	
65.0	10.3	2.79	
70.0	8.7	3.00	
75.0	7.4	3.19	
80.0	6.3	3.37	
85.0	5.4	3.54	
90.0	4.6	3.69	
95.0	4.0	3.83	
100.0	3.4	3.96	
105.0	3.0	4.07	
110.0	2.6	4.17	
115.0	2.3	4.26	
120.0	2.0	4.33	

Outdoor heat exchanger thermistor			
Temp (°C)	${\sf Resistance}({\sf k}\Omega)$	Voltage(V)	
-30.0	95.6	0.24	
-25.0	68.9	0.32	
-20.0	50.3	0.43	
-15.0	37.2	0.57	
-10.0	27.8	0.73	
-5.0	21.0	0.92	
0.0	16.1	1.14	
5.0	12.4	1.39	
10.0	9.6	1.65	
15.0	7.6	1.93	
20.0	6.0	2.21	
25.0	4.8	2.49	
30.0	3.8	2.77	
35.0	3.1	3.02	
40.0	2.5	3.26	
45.0	2.1	3.48	
50.0	1.7	3.68	
55.0	1.4	3.85	
60.0	1.2	4.00	
65.0	1.0	4.13	
70.0	0.8	4.25	
75.0	0.7	4.35	
80.0	0.6	4.43	

Outdoor temperature thermistor		
Temp (°C)	$Resistance(k\Omega)$	Voltage(V)
-30.0	224.3	0.73
-25.0	159.7	0.97
-20.0	115.2	1.25
-15.0	84.2	1.56
-10.0	62.3	1.90
-5.0	46.6	2.26
0.0	35.2	2.61
5.0	26.9	2.94
10.0	20.7	3.25
15.0	16.1	3.52
20.0	12.6	3.76
25.0	10.0	3.97
30.0	8.0	4.14
35.0	6.4	4.28
40.0	5.2	4.41
45.0	4.2	4.51
50.0	3.5	4.59
55.0	2.8	4.65



WALL MOUNTED type INVERTER

4. REPLACEMENT PARTS

4-1 AS*G07/09/12/14LUCA, 09/12LTCA

4-1-1 PARTS LAYOUT DRAWING



1. Intake Grille Assy removal

- Open the intake grille.
- While holding the intake grille, lift up the grille stay and secure the intake grille.
- Remove the screws from the arm-cover on the top part of the front panel.
- (in 2 places, one on the left and one on the right).
- Push down the arm-cover grips to release the lock.
- Open the intake grille until it is horizontal, and pull it towards you to remove it.



2. Air Filter removal



3. Front Panel removal



4. Control cover removal



5. Controller PCB removal



6. Control Unit removal


7. Under cover removal



8. Casing assy removal





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