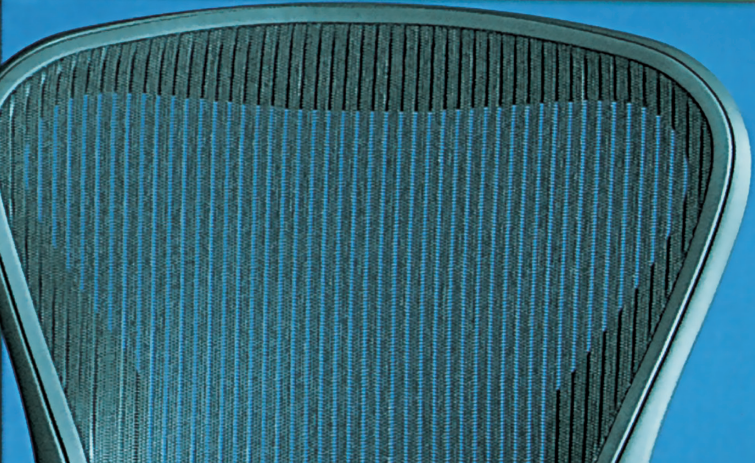


# Approach to New Energy Efficiency Standard

Fujitsu General Air Conditioners



FUJITSU GENERAL LIMITED



# Creation of Comfort

Fujitsu General creates high-quality and environmentally-friendly products that provide good comfort in accordance with our basic policy to a “create comfortable environment” by utilizing the air conditioning technology and creativity we have fostered over many years.



# Fujitsu General's Action



**FUJITSU GENERAL provides the products that meet the EU action plan 20/20/20<sup>\*1</sup> and the implementing measures for air-conditioners in the ECO-Design Directive (ErP)<sup>\*2</sup>**

FUJITSU GENERAL is focusing on the development of high seasonal efficiency products that are adapted to meet the new energy efficiency requirements<sup>\*3</sup> starting from January 2013 and reinforcement demands starting from 2014. Highest energy class products are already available.

<sup>\*1</sup>. By 2020, CO2 emission -20%, Renewable energy share 20%, Primary energy use -20%

<sup>\*2</sup>. Commission Regulation 206 / 2012 / EU

<sup>\*3</sup>. New Energy Labelling Requirement 626 / 2011 / EU

## Approach to The New Energy Efficiency Standard



Better seasonal efficiency improving total operation performance



Product development that is optimised for the European environment and lifestyle

Strengthened heating performance and efficiency, low noise, etc.



New expanding CLASS A to A+++ products lineup

From residential to commercial use development of a series of new Class A and higher products

# Efficiency in Actual Operation

Fujitsu General following the EU climate action plan **20/20/20** by 2020

**20% less**

#### Primary Energy Use :

Fujitsu General products with high efficiency and therefore low electricity input and low primary energy usage

**20% less**

#### CO<sub>2</sub> Emissions :

Fujitsu General products sharply following the F-Gas regulation 842 / 2006 / EC

**20% share**

#### of Renewable Energy :

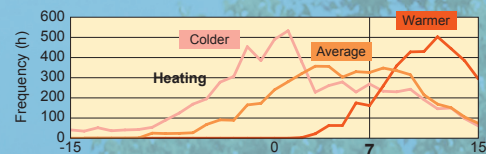
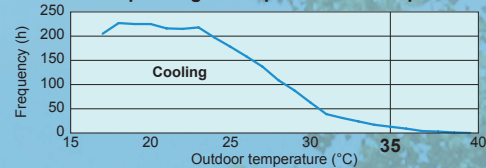
Fujitsu General promoting air sourced heat pumps as renewable energy source heating systems

## Pursuit of Energy Saving Taking Actual Operation into Consideration

The heat load varies greatly depending on the time and season. However, the operation ratio EER or COP up to now has been calculated based on the rated value and the annual operating hours per outdoor temperatures was not taken into consideration. For this reason, SEER and SCOP\* have been made the standard in terms of actual operating hours throughout the year.

\*: SEER = Seasonal Energy Efficiency Ratio  
SCOP = Seasonal Coefficient Of Performance

Annual operating hours per outdoor temperature



**Fujitsu General provides air conditioners with higher SEER and SCOP.**

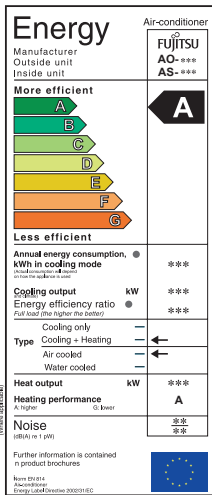
\*SEER and SCOP are indexes that express the annual energy efficiency calculated based on the regulations of (EU) 626/2011.

# Energy Efficiency Classifications

## New Energy Labelling Requirement 626 / 2011 / EU

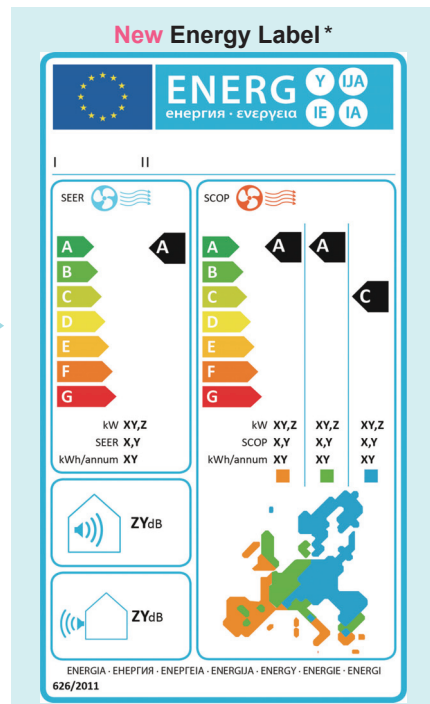
Our models are reaching the "Class A" ranking, the highest energy efficiency level that is now shown on energy labels in Europe.

### Current Energy Label



- Performance notation based on multiple points calculations that better matches the actual operation
- Energy labelling revision
- Raising of the CLASS A level

- Three climate zone for heating (Average zone : mandatory) (Warmer and colder zone are optional)
- Seasonal efficiency
- Sound power level



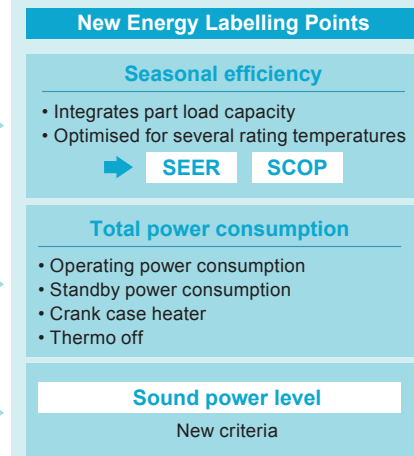
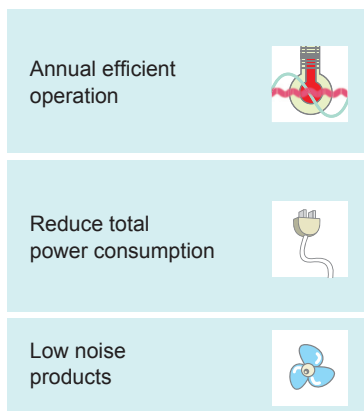
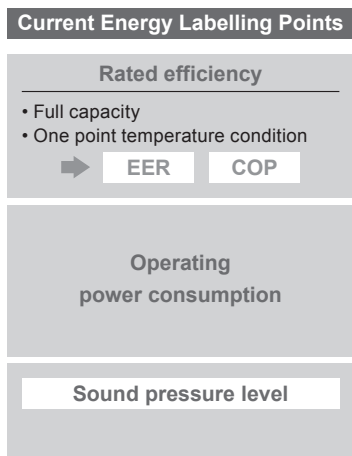
EER (Cooling mode)	COP (Heating mode)
<b>A</b> 3.20 < EER	3.60 < COP
<b>B</b> 3.20 ≥ EER > 3.00	3.60 ≥ COP > 3.40
<b>C</b> 3.00 ≥ EER > 2.80	3.40 ≥ COP > 2.80
<b>D</b> 2.80 ≥ EER > 2.60	3.20 ≥ COP > 2.80
<b>E</b> 2.60 ≥ EER > 2.40	2.80 ≥ COP > 2.60
<b>F</b> 2.40 ≥ EER > 2.20	2.60 ≥ COP > 2.40
<b>G</b> 2.20 ≥ EER	2.40 ≥ COP

### Gradual ranking regulation up to A+++ (2013 ~ 2019)

- 2013~: A, B, C, D, E, F, G
- 2015~: A+, A, B, C, D, E, F
- 2017~: A++, A+, A, B, C, D, E
- 2019~: A+++, A++, A+, A, B, C, D

SEER (Cooling mode)	SCOP (Heating mode)
<b>A+++</b> SEER ≥ 8.50	SCOP ≥ 5.10
<b>A++</b> 6.10 ≤ SEER < 8.50	4.60 ≤ SCOP < 5.10
<b>A+</b> 5.60 ≤ SEER < 6.10	4.00 ≤ SCOP < 4.60
<b>A</b> 5.10 ≤ SEER < 5.60	3.40 ≤ SCOP < 4.00
<b>B</b> 4.60 ≤ SEER < 5.10	3.10 ≤ SCOP < 3.40
<b>C</b> 4.10 ≤ SEER < 4.60	2.80 ≤ SCOP < 3.10
<b>D</b> 3.60 ≤ SEER < 4.10	2.50 ≤ SCOP < 2.80
<b>E</b> 3.10 ≤ SEER < 3.60	2.20 ≤ SCOP < 2.50
<b>F</b> 2.60 ≤ SEER < 3.10	1.90 ≤ SCOP < 2.20
<b>G</b> SEER < 2.60	SCOP < 1.90

\* Enforcement on January 1, 2013 Air conditioners below 12 kW

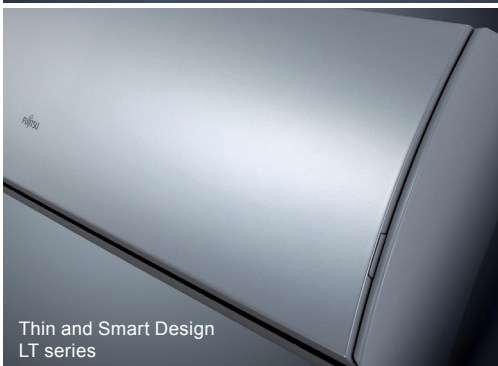


# Creating Top-class Products With Core Technology

Fujitsu General has achieved annual efficiency by adopting a DC rotary compressor, All DC inverter control, efficient heat exchanger and high-density heat exchanger technology. Economical and comfortable air conditioning is realized by various energy saving technologies such as sensor technology and economical set temperature control, etc. In addition, we also create a comfortable environment at all times by developing original air flow control.



Wide high efficiency range  
DC Twin Rotary Compressor

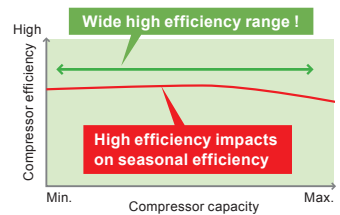


Thin and Smart Design  
LT series

## High Efficiency

### DC Twin Rotary Compressor

The high efficiency DC inverter type "2-cylinder rotary compressor" is used for large capacity split systems. It has achieved higher energy efficiency compared with similar compressors by optimizing the structure inside the compressor.



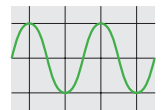
### DC Fan Motor

A DC fan motor produces high power, wide operation range, and high efficiency.



### Sine-Wave DC inverter control

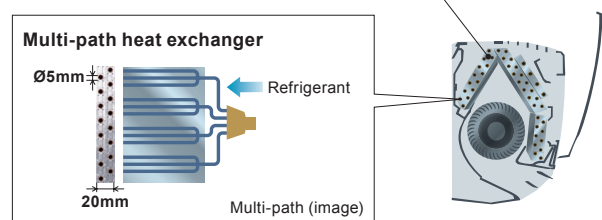
High efficiency operation is realized by using a sine wave DC inverter control.



### High density multi-path heat exchanger

Heat exchange performance is substantially improved by thin and high-density heat exchanger and multi-path efficiency technology.

#### Lambda heat exchanger



High Efficiency

More Comfort

Energy Saving Control

## Energy Saving Control

### Human sensor control

Human sensor catches movements of people in a room, and operates with lower capacity when people leave the room. When people come back to the room, it automatically returns to previous operating mode.



### 3 Mode timer (Weekly / Program / Sleep)

The weekly timer can be easily set by wireless remote controller. ON, OFF can be set up to 4 times in 1 day and up to 28 times in 1 week. For other modes, the program timer and sleep timer can also be selected by one push of a button.

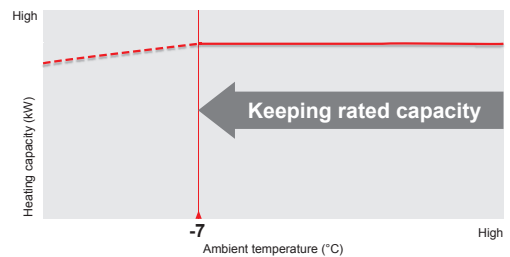
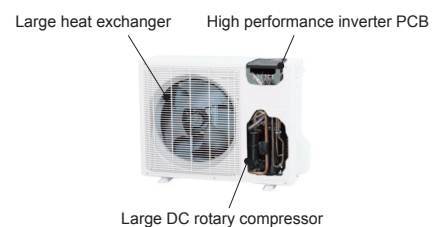
### Economy operation

Limits the maximum operation current, and the power consumption is cut down and the maximum load is suppressed.

## More Comfort

### Powerful Heating

High heating capacity is realized even at low outdoor temperature by mounting the large heat exchanger or large DC rotary compressor and developing the high performance inverter PCB



# FUJITSU GENERAL develops new class A to A+++ products from residential to c

For Residential & Small Office



## Split

Fujitsu General offers a broad lineup of products from large living rooms to bedrooms and children's rooms.





For Large Homes & Office, Shop



### 2 - 4 Rooms Multi

- Space-saving installation
- 6 types, 20 models are lined up in the capacity range from 2 kW to 7 kW class. This means a wide range of installations can be accommodated, from domestic dwellings and hotels to large retail outlets

## Multi Split

Multi Split provides comfort in a variety of situations from home to office and store.



### Simultaneous Multi

Can serve up to different indoor units, from a single outdoor unit, to serve the needs of completely different spaces, such as offices, reception areas and retail areas.



For Office, Restaurants & Large Homes



## V R F

VRF is a large multi system that effectively air conditions a wide range of spaces from large buildings to personal residences.














































### Small VRF : J-II Series

Our advanced high-efficiency technology achieves high performance within the actual usage performance range (50% load).

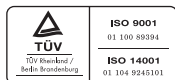
# New Products Lineup for New Energy Efficiency Standard

Capacity from 2.0kW to 12.0kW

Capacity (kW)	2.0	2.6	3.5	4.2	5.2	7.1	8.5	9.4 - 11.2	12.0
Model Code	7	9	12	14	18	24	30	36	45
<b>Split</b>									
Wall Mounted	High Spec. & Design		 ASYG09LTCA	 ASYG12LTCA					
	High COP	 ASYG07LUCA	 ASYG09LUCA	 ASYG12LUCA	 ASYG14LUCA				
	Standard	 ASYG07LMCA	 ASYG09LMCA	 ASYG12LMCA	 ASYG14LMCA	 ASYG18LFCA	 ASYG24LFCC	 ASYG30LFCA	
	Basic		 ASYG09LLCA	 ASYG12LLCA					
Floor		 AGYG09LVCA	 AGYG12LVCA	 AGYG14LVCA					
Compact Cassette			 AUYG12VLVB	 AUYG14VLVB	 AUYG18VLVB	 AUYG24VLVA			
Cassette							 AUYG30LRLE	 AUYG36LRLE AUYG36LRLA [ 3 phase ]	
Floor/Ceiling					 ABYG18LVTB	 ABYG24LVTA			
Ceiling							 ABYG30LRTE	 ABYG36LRTE ABYG36LRTA [ 3 phase ]	 ABYG45LRTA
Slim Duct / Slim Concealed Floor			 ARYG12LLTB	 ARYG14LLTB	 ARYG18LLTB				
Medium Static Pressure Duct						 ARYG24MLA	 ARYG30MLE	 ARYG36MLE ARYG36MLA [ 3 phase ]	 ARYG45MLA
<b>Multi Split</b>									
Up to 2 Units			 AOYG14LAC2	 AOYG18LAC2					
Up to 3 Units				 AOYG18LAT3	 AOYG24LAT3				
Up to 4 Units						 AOYG30LAT4			
Simultaneous Multi Twin / Triple							 AOYG36LATT		
<b>VRF</b>									
J-II series Heat Pump							 AJYA36LALH		

# FUJITSU GENERAL LIMITED

1116, Suenaga, Takatsu-ku, Kawasaki 213-8502, Japan  
<http://www.fujitsu-general.com/>



ISO 9001  
Certified number : 01 100 89394  
Fujitsu General (Thailand) Co., Ltd.

ISO 14001  
Certified number : 01 104 9245101



ISO 9001  
Certified number : 01 100 79269  
Fujitsu General (Shanghai) Co., Ltd.



ISO 14001  
Certified number : 272043



ISO 9001  
Certified number : 00608011061R2M  
Fujitsu General Central Air-conditioner (Wuxi) Co., Ltd.

ISO 14001  
Certified number : 00609E20454R2M

•Actual products' colors may be different from the colors shown in this printed material.

Distributed by :