Panasonic
ideas for life

2010

DOMESTIC BALTIC CATALOGUE // HEATING AND COOLING SYSTEMS

EVERY ROOM MATTERS

FLAGSHIP

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NORDIC HEAT PUMP

eco ideas

'ECO IDEAS' FOR PRODUCTS
We will produce energy-efficient products

'ECO IDEAS' FOR MANUFACTURING
We will reduce CO_2 emissions across all our manufacturing sites

'ECO IDEAS' FOR EVERYBODY, EVERYWHERE
We will encourage the spread of environmental activities throughout the world

For further information visit www.panasonic.se

PANASONIC HEATING AND COOLING SYSTEMS
TECHNOLOGY MAKES US BETTER

Panasonic understands the Baltic customers requirements of a heat pump in Nordic climate.

Panasonic has delivered Over 500,000 units over more than 30 years in Nordic and Baltic Countries. This has given Panasonic a vast knowledge of the Nordic and Baltic customer's need when it comes to heat pumps. It's not only high technology included in the product but also packaged in a stylish design for Nordic and Baltic homes.

Panasonic has experience of delivering heat pumps for more than 30 years in more than 120 countries. When you buy a Panasonic heat pump you don't only improve your private economy, the environment, your indoor climate, get healthier air but you also get:

- QUALITY
- COMFORT
- BETTER ECONOMY
- DESIGN

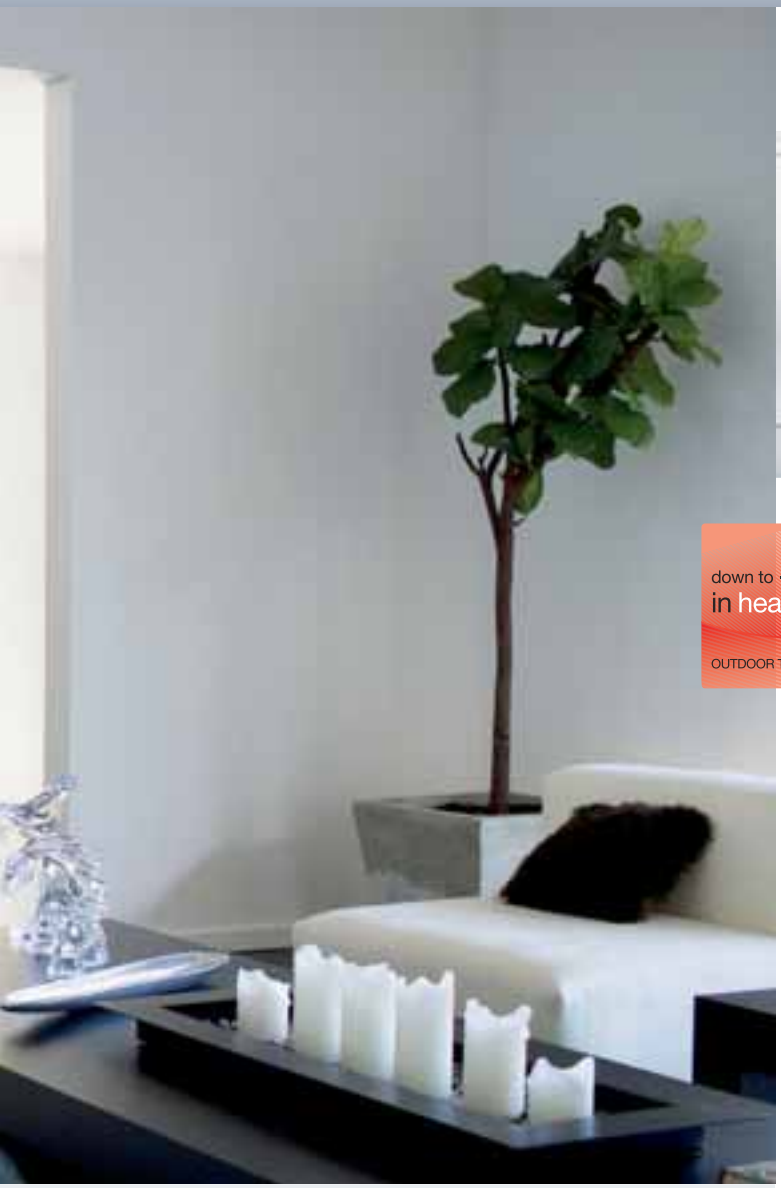
Panasonic's accumulated experience and competence has over the years developed a heat pump fitted for the Nordic and Baltic customers.

BECAUSE OFFERING YOUR BEST SOLUTION ON HEATING SYSTEMS MATTERS.
EVERYTHING MATTERS.

HEAT PUMPS SYSTEM

PANASONIC OFFERS YOU THE BEST HEAT PUMP SOLUTION FOR COMFORTABLE LIVING

A full line up of heat pump solutions have been specially designed for Nordic lifestyles.
From wall mounted to floor console types and from mono split to multi split units, Panasonic helps you to find the best possible heat pump system for your home.
Furthermore, all Panasonic wall mounted heat pumps heat up to -20°C and are extremely efficient and environmentally friendly.



down to -20°C
in heat pump
OUTDOOR TEMPERATURE

RELIABLE HEATING EVEN IN THE MIDDLE OF WINTER

HEATING UP TO AN OUTSIDE TEMPERATURE OF -20°C [1]

Providing outstanding cold climate performance, Panasonic heatpumps let you enjoy stable heating even when the outside temperature is below freezing.

1) Operating temperature limit is -20ºC with performance data guaranteed down to -15ºC.

Simply press a button to set for low-temperature heating.

KEEPS THE TEMPERATURE ABOVE FREEZING +8˚C/+10˚C LOW-TEMPERATURE HEATING

During the severe winter period, you can set the unit to provide low-temperature heating to prevent freezing. Minimizing the heating energy required to protect your property, this is an ideal feature for temperature control in your summer house, garage and basement.

ECONOMICAL, ENVIRONMENT-FRIENDLY OPERATION HIGH COP (COEFFICIENCY OF PERFORMANCE)

Original Panasonic inverter technology and a high-performance compressor provide top-class operating efficiency. This lets you enjoy lower electricity bills while contributing to environmental protection.

EFFICIENCY COMPARISON

Electric Heater

1kW **INPUT** → → 1kW **OUTPUT**

Heat pumps

1kW **INPUT** → → 5.52kW **(HE9LKE) OUTPUT**

DESIGNED FOR NORDIC LIFESTYLES

Based on 30 years of experience in the Nordic market, Panasonic has implemented various technologies and countermeasures to meet the needs of Nordic lifestyles.

- Crankcase Heater prevents the compressor from freezing.
- Sound-proof material. The compressor is thoroughly protected to prevent annoying noises.
- Freezing resistance and field tests are conducted under actual conditions of use in the middle of winter.

HEAT PUMPS SYSTEM
POWERFUL, COMFORTABLE HEATING EVEN IN THE COLDEST MONTHS!

Reliable, High-Performance Heatpumps Designed for Nordic Lifestyles
Boosting exceptional heating performance, Panasonic heatpumps are ready to deliver the power you need for all-day comfort even during the harsh Nordic winter*.
Top-class, high-efficiency operation also means amazing energy savings even when heating for a long time.
All this and more from heatpumps designed with Nordic lifestyles in mind.

* Panasonic heat pumps are reliable as secondary heating system, with high efficiency in order to reduce the heating cost.

INVERTER PLUS SYSTEM. The Inverter plus range provides greater efficiency, more comfort and less noise than classic inverter units. This is Panasonic's top-end, environmentally friendly range. It is the range of the future within your reach today. Energy saving A+ products improve on the characteristics of standard heating systems by over 20% regarding a standard A class. This means 20% less consumption and 20% off your electric bill.

SUPER QUIET MODE. The indoor unit emits an almost imperceptible 23 dB cooling mode.

DOWN TO -20ºC IN HEAT PUMP. The Panasonic Heat Pump works till an outdoor temperature as low as -20ºC.

MAX RELIABILITY. The first scroll compressor in the world used for air conditioning is the essence of Panasonic most advanced technology. Besides having a low vibration of approximately one tenth that of conventional models, this compressor is very powerful and yet power-saving.
Always thinking about making air conditioning user-friendly, Panasonic has every confidence in this product.

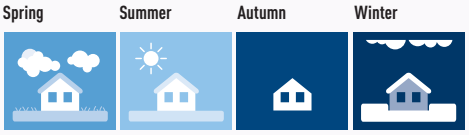
SUPER ALLERU-BUSTER FILTER
The super alleru-buster filter eliminates the allergens it captures. It combines three functions in one (anti-allergen, anti-virus and anti-bacteria) to keep room air clean and healthy.
ANTI-ALLERGEN PROTECTION
Inactivates more than 99% of filter-captured allergens.
ANTI-VIRUS PROTECTION
Inactivates more than 99% of filter-captured viruses.
ANTI-BACTERIA PROTECTION
The filter inactivates more than 99% of captured bacteria and mould spores.

ECOIDEAS. Panasonic inverter heating systems provide exceptional energy-saving performance that ranks among the highest in the industry. This dramatically cuts electricity consumption and CO2 emissions, allowing an environment-friendly operation.

5 YEARS. Warranty on the compressor.*

* For further details, please contact your delaer.

FLAGSHIP
your best energy savings



PANASONIC 1X4. COMFORT ALL YEAR ROUND

With 30 years of experience on the Northern European market, Panasonic has developed specific technologies that respond to the different needs of this territory.
Our heat pumps are the most efficient and comprehensive alternative to traditional heating systems.
With a single installation, Panasonic offers the ideal climate in any season – heating, cooling or dehumidifying depending on the weather. Moreover, its solutions provide healthy and comfortable air with total reliability and energy savings even in the most extreme conditions.

down to -20°C in heat pump
OUTDOOR TEMPERATURE

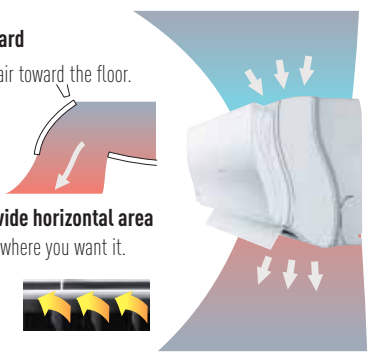
HEATING UP TO AN OUTSIDE TEMPERATURE OF -20˚C

Providing outstanding cold climate performance, Panasonic heatpumps let you enjoy stable heating even when the outside temperature is below freezing. And to ensure uniform heating throughout the house, a big flap deflects warm air toward the floor to keep your feet comfortable.

SENDS A JET STREAM OF WARM AIR TOWARD YOUR FEET

Forces warm air downward

The big flap deflects warm air toward the floor.
- The flap opens downward and forces warm air down.
- Delivers a powerful flow of warm air toward your feet.



Sends warm air over a wide horizontal area

You can direct the warm air where you want it.

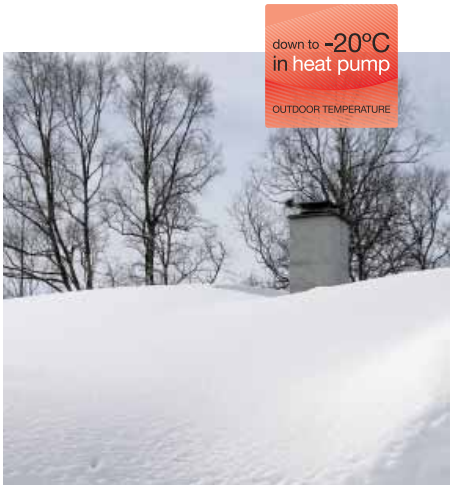
allergy prevention air
ALLERU-BUSTER FILTER

SUPER ALLERU-BUSTER FILTER

The SUPER alleru-buster filter combines three effects in one—anti-allergen, anti-virus, anti-bacteria protection —to keep room air clean and healthful.
- Anti-allergen protection Inactivates more than 99% of all filter-captured allergens.
  Here, inactivate means to suppress normal activity. This inactivation of mite allergens has been verified by the University of Edinburgh in the UK.
- Anti-virus protection Inactivates more than 99% of all filter-captured viruses.
- Anti-bacteria Enzymatic action eliminates more than 99% of all filter-captured bacteria.

ELEGANT DESIGN

Featuring a Drive Flat Panel that opens only during operation, the curved form of the elegant, stylish design projects the image of naturally flowing air.



DESIGNED FOR NORDIC LIFESTYLES

NORDIC HEAT PUMP

WALL MOUNTED ETHEREA

ECO INSPIRED DESIGN. COOL, STYLISH AND ENERGY-SAVING

Panasonic heating systems have been redesigned in a beautiful and stylish way. With a highly functional and beautiful new design, they add refinement to the interior of your room.

The fresh horizontal curved form characterizes the heat pump's new design. The gentle curve at the center stylishly conceals the complex high-performance mechanisms inside, while thin ends emphasize the heat pump's slim style. This allows it to blend into the wall in an attractive manner, and to add harmony to virtually any room interior.

ETHEREA

designed to care for you

RELAXATION

A comfortable and open living room full of light can create a kind of resort atmosphere. Here, the heat pump's smooth front panel reflects the light shining through the trees outside and into the room, increasing the sense of relaxation.
The gently curving shape is conceptualized by a yacht's sail in the wind. It symbolizes the spreading of the breeze that is led into the room by the heat pump.

COMFORT

A cozy room, surrounded by your favorite furniture. Panasonic heating systems fit in wonderfully here too, even with warm, cozy interiors, and their gentle design helps to create comfortable living spaces.
The new models feature a refreshingly beautiful and sleek, ventless front grille. In addition to its sophisticated design, this grille prevents dust from accumulating, to simplify cleaning and maintenance. The front panel can also be easily removed for washing.

PATROL SENSOR. Air is monitored both during heat pump operation and when switched off. When dirt is detected, the air purifying function starts up to immediately clean the air in the room.

E-ION PLUS AIR PURIFYING SYSTEM. Active e-ions are shot out to catch and inactivate airborne bacteria and mould. The positively charged mega filter attracts dust to thoroughly clean the room.

INVERTER PLUS SYSTEM. The Inverter plus range provides greater efficiency, more comfort and less noise than classic inverter units. This is Panasonic's top-end, environmentally friendly range. It is the range of the future within your reach today. Energy saving A+ products improve on the characteristics of standard heating systems by over 20% regarding a standard A class. This means 20% less consumption and 20% off your electric bill.

MAX AIR FLOW. These models have 10% more air flow compared to last year models on automode fan. More air flow to reach the desired temperature easily and to enjoy a nice temperature at home.

MAX RELIABILITY. The first scroll compressor in the world used for air conditioning is the essence of Panasonic most advanced technology. Besides having a low vibration of approximately one tenth that of conventional models, this compressor is very powerful and yet power-saving.
Always thinking about making air conditioning user-friendly, Panasonic has every confidence in this product.

SUMMER HOUSE MODE. You can also use +8ºC/+10ºC low-temperature heating. This lets you prevent your home from freezing during the midwinter months by maintaining indoor temperature with minimum heating energy.

SUPER QUIET MODE. The indoor unit emits an almost imperceptible 23 dB.

DOWN TO -20ºC IN HEAT PUMP. The Panasonic Heat Pump works till an outdoor temperature as low as -20ºC.

ECOIDEAS. Panasonic inverter heating systems provide exceptional energy-saving performance that ranks among the highest in the industry. This dramatically cuts electricity consumption and CO2 emissions, allowing an environment-friendly operation.

5 YEARS. Warranty on the compressor.*

* For further details, please contact your delaer.

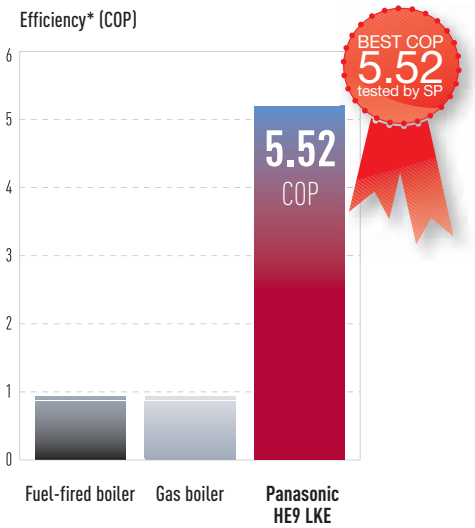
eco ideas

"GREEN" HIGHLY-EFFICIENT HEATING WITH PANASONIC HEAT PUMPS

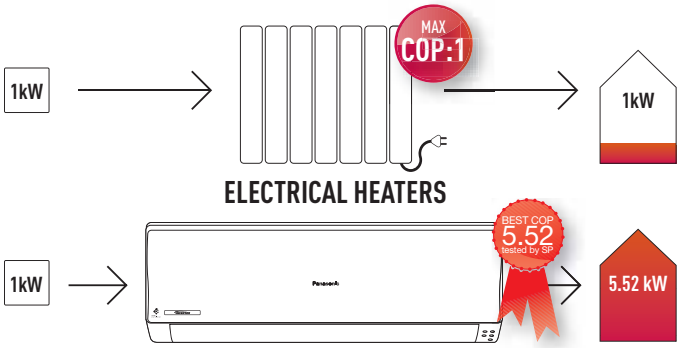
UP TO 82% ENERGY SAVINGS*

max reliability
SCROLL COMPRESSOR

MAX RELIABILITY. The first scroll compressor in the world used for air conditioning is the essence of Panasonic most advanced technology. Besides having a low vibration of approximately one tenth that of conventional models, this compressor is very powerful and yet power-saving.
Always thinking about making air conditioning user-friendly, Panasonic has every confidence in this product.



*Efficiency measured at an outside air temperature of +7°C
Heat pumps : more efficient than the others heating systems
Panasonic heat pumps have a COP of maximum 4,4 at -7°C 1) which makes them much more efficient than fuel-fired boilers, gas boilers and electrical heaters.
1) Under the following conditions : Water input temperature : 30°c, water output temperature : 35°C



PANASONIC'S HEAT PUMP
HE9 OF MAX 6.5 kW has a COP coeffcient of 5.52

SAVE UP TO 82% ON HEATING EXPENSES

Panasonic's heat pump provides a saving of up to 82% on heating expenses compared with electrical heaters.
For example, the HE9 heat pump of 6.5 kW has a COP coefficient of 5.52 : for every kW of electricity consumed, it returns 5.52 kW of energy, i.e. 4.52 kW more than a conventional electrical heating system, which is equivalent to an 82% saving*.

*Up to 82% of the heat produced by a heat pump is free, since it comes from the outside air. This percentage is compared with electrical heaters. This calculation is based on nominal specifications of manufactures at +7°C.

GLOBAL REMARKS

Rating conditions	Cooling	Heating
Inside air temperature	27°C DB / 19°C WB	20°C DB
Outside air temperature	35°C DB / 24°C WB	7°C DB / 6°C WB

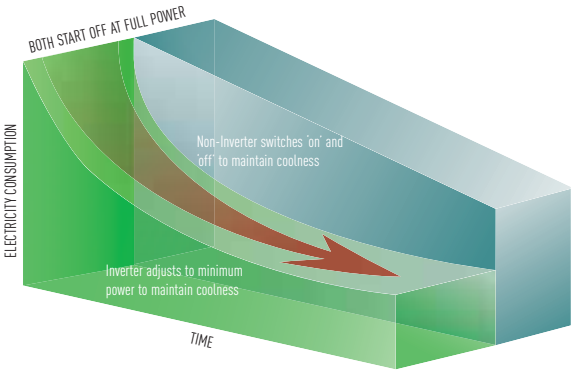
DB : Dry Buld; WB : Wet Buld

OUTSTANDING ENERGY-SAVING PERFORMANCE

You will always be comfortable with an Inverter heat pump. After reaching the set temperature quickly, the power will be adjusted smoothly to keep the temperature constant, there will be no sharp temperature changes and you will save power The ample range of output power also guarantees a pleasant temperature at all times, even when the number of people in the room fluctuates.
This way, inverter heat pumps provide more precise temperature control than non-inverter models.

THE KEY LIES IN THE INVERTER'S SMART CONTROL

After reaching the set temperature, an inverter heat pump continues operating with minimum power to avoid unnecessary electricity consumption.

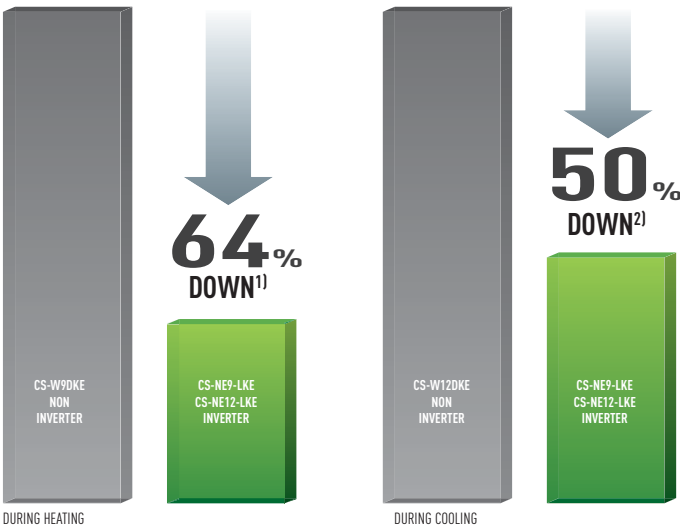


* Comparison of 1.5 HP Inverter and non-Inverter air conditioners operating 8 hours a day for one year.
* Test Conditions <Room Size> 16.2 m²; Outside temp.: DB 35°C / WB 24 °C. Set temp.: 25 °C; Fan Speed / Airflow Direction: Hi Fan / Auto Swing.
* Operation starts from indoor temperature DB 35 °C / WB 24 °C, until it achieves the set temperature 25 °C, total operation for 8 hours.

HIGH ENERGY SAVINGS WITH PANASONIC INVERTER HEAT PUMPS

Panasonic Inverter air conditioners provide exceptional energy-saving performance that ranks among the highest in the industry. This dramatically cuts electricity consumption and CO_2 emissions, allowing an environment-friendly operation.

1) Comparison of cumulative electricity consumption during heating to reach the setting temperature (Panasonic in-house comparison) Test conditions: Indoor and outdoor temperature: 7ºC/ Setting temperature: 25ºC/ Fan speed: High.
2) Comparison of cumulative electricity consumption during 8 hours of cooling (Panasonic in-house comparison) Test conditions: Room temperature at start: 35ºC/ Setting temperature: 25ºC.



A: THE MOST EFFICIENT

Our new models have obtained the highest energy performance classification, Class A, which puts them in the highest energy saving class. This means you can use these models every day, without having to worry about the electric bill.

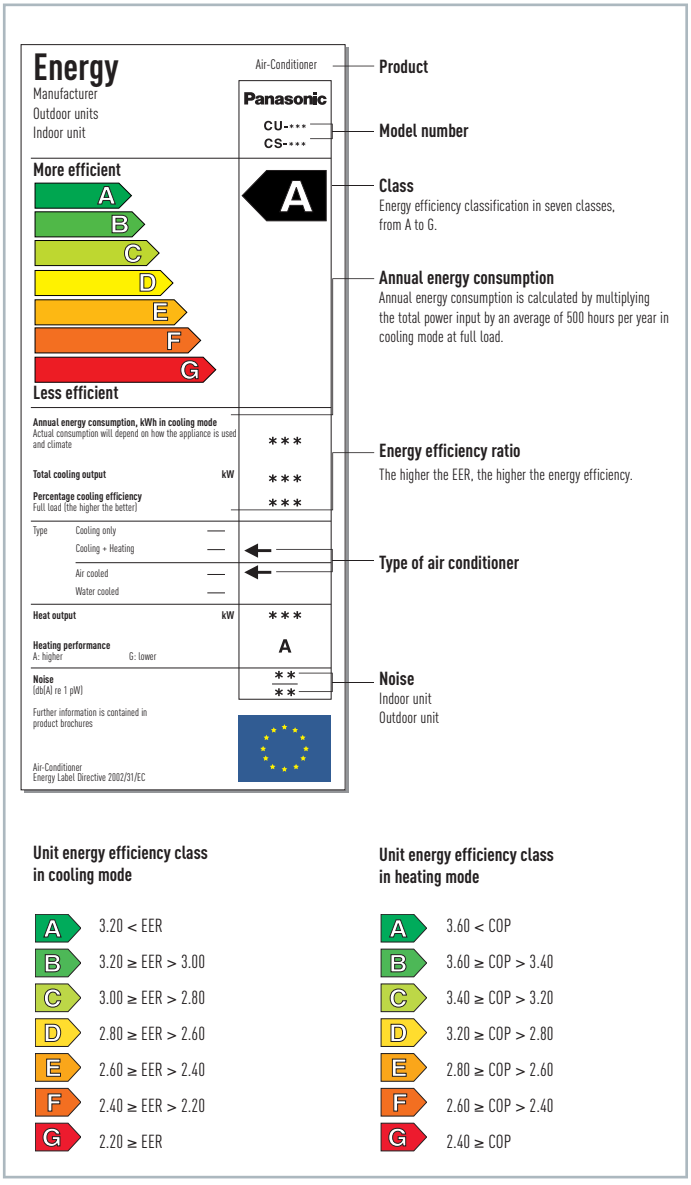
ENERGY EFFICIENCY CLASSIFICATIONS

A European Community directive requiring energy labelling of domestic appliances came into effect in 2005. Since then, all manufacturers have been required to label each product with an efficiency level represented by a letter from A to G. This means that a class B domestic appliance consumes approximately 10% more than an A, a C 20% more than an A, etc.
As well as the corresponding letter, further information on each domestic appliance appears on the right-hand part of the sticker.
In the tables which appear alongside the product in this catalogue, the energy efficiency is referenced with the corresponding letter in white on a black arrow.

CLASSIFICATIONS

There are seven energy efficiency classifications, from A to G.
The highest efficiency level is A and the lowest is G.

These classifications are for split and multi split air conditioning units.



Unit energy efficiency class in cooling mode

A	3.20 < EER
B	3.20 ≥ EER > 3.00
C	3.00 ≥ EER > 2.80
D	2.80 ≥ EER > 2.60
E	2.60 ≥ EER > 2.40
F	2.40 ≥ EER > 2.20
G	2.20 ≥ EER

Unit energy efficiency class in heating mode

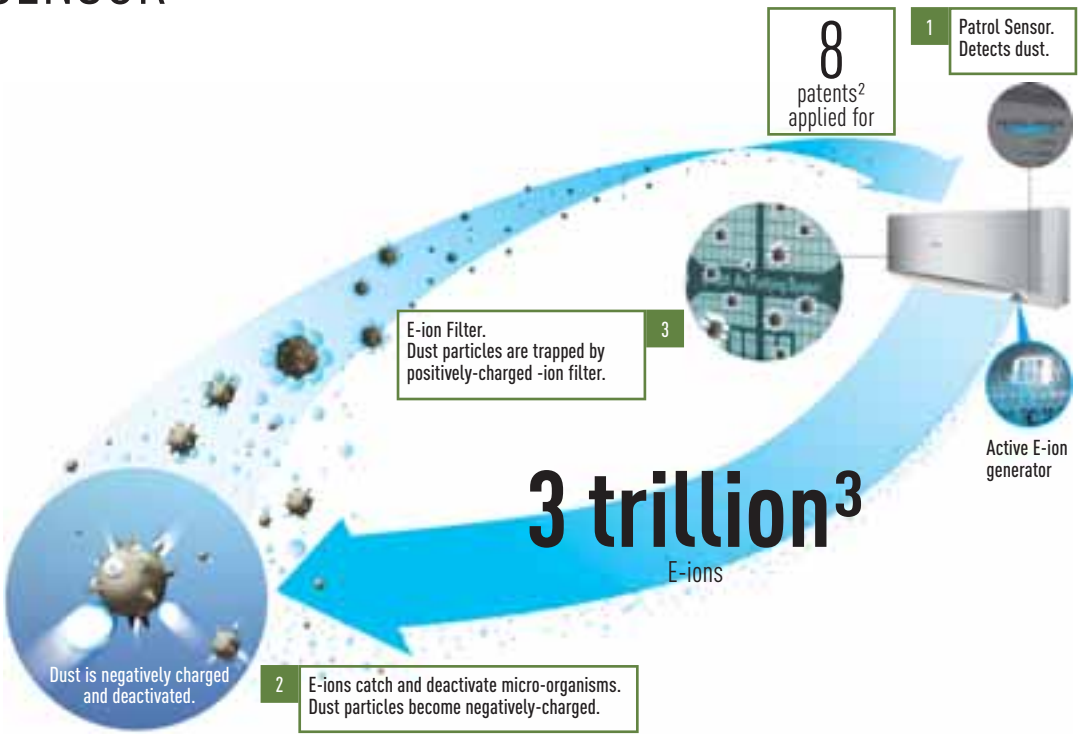
A	3.60 < COP
B	3.60 ≥ COP > 3.40
C	3.40 ≥ COP > 3.20
D	3.20 ≥ COP > 2.80
E	2.80 ≥ COP > 2.60
F	2.60 ≥ COP > 2.40
G	2.40 ≥ COP

ADVANCED+PLUS. E-ION AIR PURIFYING SYSTEM WITH PATROL SENSOR

24h qualityair control PATROL SENSOR

pureair system e-ION PLUS

Panasonic's original, highly acclaimed e-ion Air Purifying System is now 15%[1] more efficient than before. Active e-ions are released to catch dust particles and bring them back to the large filter. Thanks to this revolutionary boomerang-like mechanism, air is purified throughout the room to provide a healthy, relaxing living environment.



1. Compared to 2007 year's models.
2. Panasonic has applied for 8 patents related to e-ion Air Purifying technology. (As of May, 2010)
3. 3 trillion is the simulated number of active e-ions under the mentioned conditions. Actual measured active e-ions at the centre of the room (13 m²):100k/cc Calculated number of active e-ions in the entire room assuming they are evenly distributed.

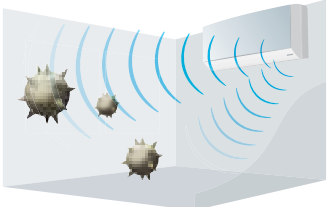
This is Panasonic's revolutionary mechanism

Air is monitored both during air conditioner operation and when it's switched off. When dirt is detected, the air purifying function is started to immediately clean the air in the room.

DETECTS

PATROL SENSOR

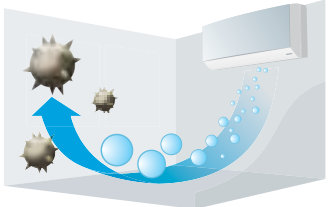
The sensor measures the dirt in the air, and above a certain level the air is judged to be dirty.
If dirt concentration exceeds the sensing level, the Air Purifying System is switched on.

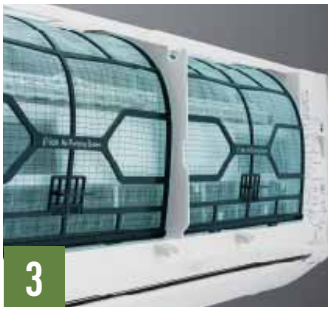


CATCHES & INACTIVATES

E-ION ACTION

Three trillion e-ions are released to catch floating dust particles. The ions also deactivate bacteria and viruses.

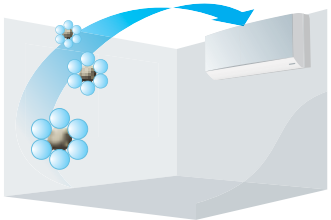




CAPTURES ELECTRICALLY

E-ION FILTER

The filter is positively-charged, so negatively-charged dust particles are electrically attracted. This electrical action assures that dust is efficiently captured.

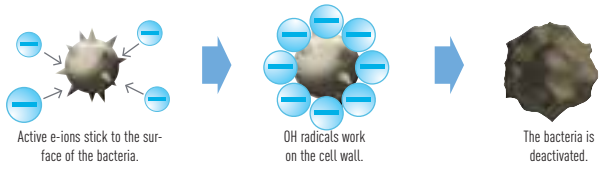


Active E-ion

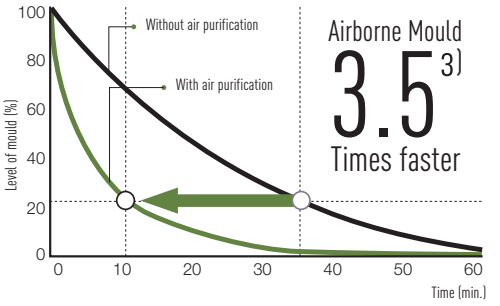
- Active e-ions can deactivate bacteria and virus activities.
- E-ions Air Purifying System can rapidly reduce airborne mould and bacteria[1)]

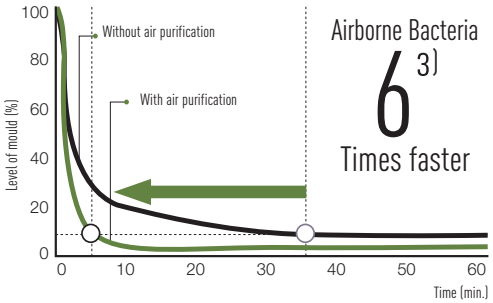
Certified by Japan Food Research Laboratories
1) Test report number: 304110078-001 Test method: The e-ion Air Purifying System was operated in a test room (10 m²) and changes in airborne mould and bacteria were measured by means of the Air Sampler Method (MAS100)

DEACTIVATING MECHANISM



REMOVAL PERFORMANCE



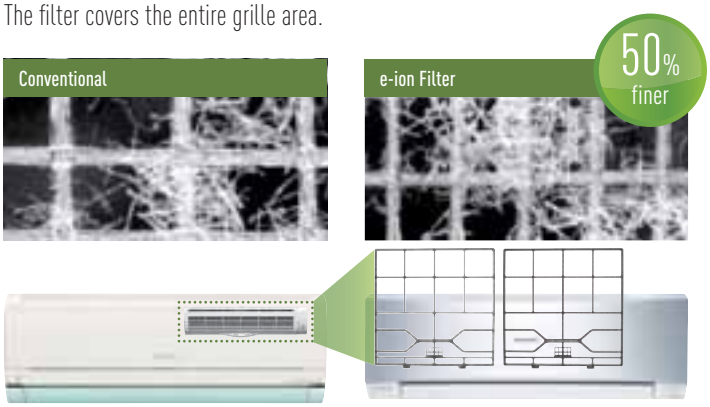


E-ion Filter

Using the force of attraction between positive and negative charges, the e-ion Filter – which is 7 times bigger and finer than ever – powerfully captures airborne dust particles.

BIGGER SIZE, FINER MESH

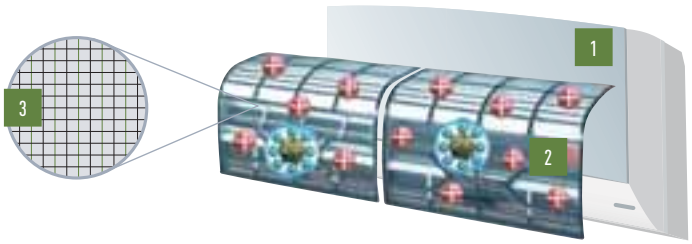
The filter covers the entire grille area.



Also captures microscopic dust (100~1,000μm)

ELECTRIC CHARGING

Electric Induction Fibres extend across the entire area of the filter for charging.

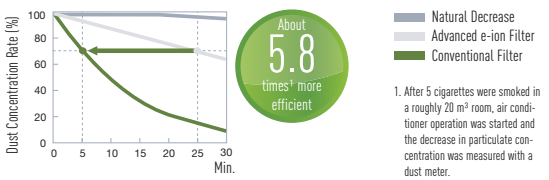


1. Active e-ion Power Module
2. Positive Charging Electric Wire
3. Electric Induction Fibres positively charge the entire filter

ELECTRIC DUST COLLECTION FOR MORE EFFICIENT PURIFICATION

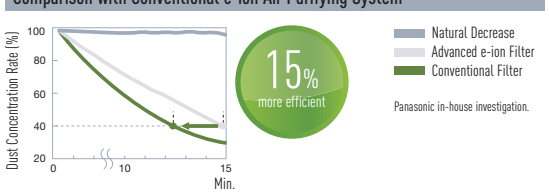
A smoke collection test demonstrates the exceptional purifying performance.

Comparison with Conventional Filter



1. After 5 cigarettes were smoked in a roughly 20 m³ room, air conditioner operation was started and the decrease in particulate concentration was measured with a dust meter.

Comparison with Conventional e-ion Air Purifying System



Panasonic in-house investigation.

FEATURE EXPLANATIONS

Healthy Air Quality

ADVANCED E-ION+ AIR PURIFYING SYSTEM
E-ions are shot out to catch dust and inactivate airborne bacteria and mould. The positively charged e-ion filter attracts dust to thoroughly clean the room.

NEWLY DESIGNED PATROL SENSOR
The patrol sensor monitors microscopic dirt in the air and air purifying starts as soon as it is detected. It continues to operate 24-hr a day even when the heat pump is switched OFF to maintain room air quality.

SUPER ALLERU-BUSTER FILTER
The super alleru-buster filter eliminates the allergens it captures. It combines three functions in one (anti-allergen, anti-virus and anti-bacteria) to keep room air clean and healthy.

ANTI-ALLERGEN PROTECTION
Inactivates more than 99% of filter-captured allergens.

ANTI-VIRUS PROTECTION
Inactivates more than 99% of filter-captured viruses.

ANTI-BACTERIA PROTECTION
The filter inactivates more than 99% of captured bacteria.

ONE-TOUCH ANTI-MOULD AIR FILTER

ODOUR-REMOVING FUNCTION
Allows the exchanger to be cleaned, preventing possible odours. While this function is activated, the fan is momentarily switched off to avoid unpleasant odours while the exchanger is being cleaned.

REMOVABLE, WASHABLE PANEL
The front panel is easy to keep clean. It can be removed quickly in one single step and can be washed in water. A clean front panel ensures smoother, more efficient operation, which can save energy.

Comfort

INVERTER PLUS SYSTEM
Inverter plus products improve the characteristics of the standard Inverter heat pumps by over 20%. This means 20% less consumption and 20% off your electric bill. A Inverter plus is also A class on cooling and heating mode.

INVERTER SYSTEM
The Inverter range provides greater efficiency, more comfort and less noise than classic inverter units. The Inverter system provides more precise temperature control, without highs and lows, and keeps the ambient temperature constant with lower energy consumption and a significant reduction in noise and vibration levels.

SUPER QUIET MODE
The indoor unit emits an almost imperceptible 23 dB.

DOWN TO -20ºC IN HEAT PUMP
The Panasonic Heat Pump works till an outdoor temperature as low as -20ºC.

SUMMER HOUSE FUNCTION
During the coldest times of the year, you can set heating to the optimum temperature to prevent freezing (+8˚C/+10˚C). This handy feature helps minimize heating costs for your summer house, garage and basement. And because it's a heatpump system, energy saving is boosted for a dramatic reduction in electricity consumption.

MAX AIR FLOW
These models have 10% more air flow on automode fan compared to last year models. More air flow to reach the desired temperature easily and to enjoy a nice temperature at home.

POWERFUL MODE
High power for immediate air conditioning. The rapid and effective powerful mode is ideal for when you come home on the hottest or coldest days. It works at maximum power to reach the desired temperature in 15 minutes.

SOFT DRY OPERATION MODE
The soft dry mode eliminates excess moisture with a soft breeze and provides a sense of wellbeing without significant change in temperature.

WIDE & LONG AIRFLOW VANE
This vane has been designed so that the air goes further. It sends air to every corner of the room to keep the whole room in the comfort zone.

PERSONAL AIRFLOW CREATION
Permits the air direction to be adjusted vertically and horizontally. This feature can be conveniently selected by remote control.

AUTOMATIC VERTICAL AIRFLOW CONTROL
The flap swings up and down automatically, making a vertical sweep which spreads the flow throughout the room. The flow can also be set a fixed angle with the remote control.

MANUAL HORIZONTAL AIRFLOW CONTROL

AUTO MODE (INVERTER)
Change automaticaly from cooling to heating in function of the temperature of the room.

HOT START MODE
On the start of the heating cycle and after the defrost cycle, the indoor fan will start up once the indoor heat exchanger is warm.

Use

24-HOUR ON&OFF REAL SETTING TIMER
The start or stop operation time (hour and minute) can be set at one time. Or both times for start and stop operation can be set.

LCD WIRELESS REMOTE CONTROLLER
Remote control with all function menus. Enables you to start, stop, programme and select functions or change the temperature without moving from your couch.

Reliability

AUTOMATIC RESTART
This function permits automatic restart in safe mode operation when the unit has stopped for some unusual reason, such as after a power cut. As soon as the power is back, the unit restarts with the parameters selected before it stopped.

LONG PIPING
This is a figure which indicates the maximum length of pipe between the outdoor unit and the indoor unit(s). The long distances permitted are demonstration of the many installations possible.

TOP-PANEL MAINTENANCE ACCESS
Maintenance of an outdoor unit used to be quite a tedious task. Now, with the possibility of removing the top cover, maintenance is quick and easy.

SELF-DIAGNOSIS FUNCTION
With this function the unit carries out a process self-diagnosis when a particular function does not work correctly. This allows faster servicing.

FEATURE COMPARISON

	MODELS	CS-HE9-LKE CS-HE12-LKE	CS-NE9-LKE CS-NE12-LKE	CS-CE9-LKE CS-CE12-LKE
HEALTHY AIR QUALITY	Advanced e-ion+ Air Purifying System		✘	
	Newly Designed Patrol Sensor		✘	
	Super Alleru-buster filter	✘		
	One-Touch anti-mould air filter	✘	✘	✘
	Odour-removing function	✘	✘	✘
	Removable, washable panel	✘	✘	✘
COMFORT	Inverter+ system	✘	✘	
	Inverter system			✘
	Super Quiet mode	✘	✘	
	Down to -20°C in heat pump	✘	✘	✘
	Summer house function	✘	✘	
	Max air flow		✘	✘
	Powerful mode	✘	✘	
	Soft dry operation mode		✘	✘
	Wide & long airflow vane		✘	✘
	Personal airflow creation	✘		
	Automatic vertical airflow control		✘	✘
	Manual horizontal airflow control		✘	✘
	AUTO mode (Inverter)	✘	✘	✘
USE	Hot start mode	✘	✘	✘
	24-Hour ON&OFF real setting timer	✘	✘	✘
RELIABILITY	LCD Wireless remote controller	✘	✘	✘
	Automatic restart	✘	✘	✘
	Long piping	✘ 15m	✘ 15m	✘ 15m
	Top-Panel maintenance access	✘	✘	✘
	Self-diagnosis function	✘	✘	✘

DOMESTIC HEAT PUMP RANGE

INDOOR UNITS	3.6 kW	4.8 kW	5.8 kW
WALL MOUNTED FLAGSHIP // INVERTER+ PAGE 32	 CS-HE9-LKE	 CS-HE12-LKE	
WALL MOUNTED ETHEREA NE DELUXE // INVERTER+ // WHITE PAGE 36	 CS-NE9-LKE	 CS-NE12-LKE	
WALL MOUNTED CE // INVERTER PAGE 38	 CS-CE9-LKE	 CS-CE12-LKE	

NEW10

WALL MOUNTED FLAGSHIP // INVERTER+

FLAGSHIP IS AN EXTREMELY EFFICIENT AND POWERFUL HEATPUMP SYSTEM, DESIGNED FOR NORDIC LIFESTYLES

Panasonic top class heatpumps are ready to deliver the power you need for all-day comfort even during the harsh Nordic winter and always with super high-efficiency.
With Panasonic Flagship heatpumps, you can make amazing energy savings even when you are heating for a long time.
Flagship also has the summer house system, which keeps the summer house, the garage or the basement at +8°C/+10°C to prevent freezing.
Furthermore, with the 10 years long life antiallergic filter alleru-buster, you can always enjoy pure and healthy air at home.

FOR HE9

* For further details, please contact your delaer.

WALL MOUNTED FLAGSHIP // INVERTER+

Max capacity (heat pump mode)			**6,5 kW**	**7,7 kW**
Indoor			**CS-HE9LKE**	**CS-HE12LKE**
Outdoor			**CU-HE9LKE**	**CU-HE12LKE**
Heating capacity	Nominal (Min - Max)	kW	3.20 (0.60-6.50)	4.20 (0.60-7.70)
COP [1]	**Nominal (Min - Max)**	**Energy Saving Classification**	**5.52 (5.22-3.78) A**	**4.94 (5.22-3.38) A**
Power input Heating	Nominal (Min - Max)	kW	0.580 (0.115-1.72)	0.850 (0.115-2.28)
Cooling capacity	Nominal (Min - Max)	kW	2.50 (0.60-3.00)	3.50 (0.60-4.00)
EER [1]	**Nominal (Min - Max)**	**Energy Saving Classification**	**5.21 (5.00-4.29) A**	**3.98 (5.00-3.81) A**
Power input Cooling	Nominal (Min - Max)	kW	0.480 (0.120-0.700)	0.880 (0.120-1.050)
Annual Energy Consuption [2]		kWh	240	440
Indoor unit				
Power source		V	230	230
Inter connection		mm^2	4 x 1.5	4 x 1.5
Current Cooling	Nominal	A	2.3	4.2
Current Heating	Nominal	A	2.8	4.0
Air Volume	Cooling	m^3/h	630	678
	Heating	m^3/h	750	810
Moisture removal volume		l/h	1.5	2.0
Sound pressure Level [3]	Cooling (Hi / Lo / S-Lo)	dB(A)	39 / 26 / 23	42 / 29 / 26
	Heating (Hi / Lo / S-Lo)	dB(A)	42 / 27 / 24	44 / 33 / 30
Sound power Level	Cooling (Hi)	dB	55	58
	Heating (Hi)	dB	58	60
Dimensions, indoor	H x W x D	mm	298 x 870 x 199	298 x 870 x 199
Net weight		Kg	12	12
Dust filter			Yes	Yes
Air purifier filter			Super alleru-buster filter	Super alleru-buster filter
Outdoor unit				
Air Volume	Cooling / Heating	m^3/h	1,428 / 1,368	1,428 / 1,488
Sound pressure Level [3]	Cooling (Hi)	dB(A)	46	48
	Heating (Hi)	dB(A)	47	50
Sound power Level	Cooling (Hi)	dB	61	63
	Heating (Hi)	dB	62	65
Dimensions [4]	H x W x D	mm	540 x 780 x 289	540 x 780 x 289
Net weight		Kg	37	37
Piping connections	Liquid pipe	inch (mm)	1/4" (6.35)	1/4" (6.35)
	Gas pipe	inch (mm)	3/8" (9.52)	3/8" (9.52)
Elevation difference (in/out) [5]	Max	m	5	5
Piping length	Min / Max	m	3-15	3-15
Piping length without refegirent increase	Max	m	7.5	7.5
Additional gas		g/m	20	20
Operating range	Cooling Min / Max	°C	+16 / +43	+16 / +43
	Heating Min / Max	°C	-20 / +24	-20 / +24

GLOBAL REMARKS

Rating conditions	Heating	Cooling
Inside air temperature	20°C DB	27°C DB / 19°C WB
Outside air temperature	7°C DB / 6°C WB	35°C DB / 24°C WB

DB: Dry Bulb; WB: Wet Bulb
The average heating capacity goes down once the de-icing cycle starts at -10°C

1) EER and COP classification is at 230V in accordance with EU directive 2002/31/EC.
2) The annual consumption is calculated by multiplying the input power at 230V by an avarage of 500 hours per year in cooling mode.
3) The Sound pressure level of the units shows the value measured of a position 1 meter in front of the main body and 0,8 meters below the unit. The sound pressure is measured in accordance with Eurovent 6/C/006-97 specification.
4) Add 70mm for piping port.
5) When installing the outdoor unit at a higher position than the indoor unit.

FLAGSHIP
your best energy savings

BEST COP 5.52* tested by SP

NORDIC HEAT PUMP

* FOR HE9-LKE

TECHNICAL FOCUS

- EXTREMELY HIGH ENERGY SAVING (COP: 5.52)
- HEATING AT -20°C
- 10 YEARS LONG LIFE OF THE ANTIALLERGIC ALLERU-BUSTER FILTER
- LINEUP SPECIALLY DESIGN FOR NORDIC LIFESTYLES WITH SUMMER HOUSE FUNCTION
- BASE PAN WITH HEATHER CABLE
- SCROLL COMPRESSOR FOR MAXIMUM RELIABILITY

eco ideas

CS-HE9-LKE // CS-HE12-LKE

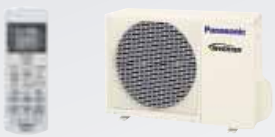
HEALTHY AIR
- 10 years long life of the antiallergic alleru-buster filter
- Anti-mould filter with one-touch air filter for easy cleaning
- Odour-removing function
- Removable and washable panel

ENERGY EFFICIENCY AND ECOLOGY
- R410A refrigerant gas
- Inverter control
- Maximum efficiency inverter system, for bigger savings even at -20°C

COMFORT
- Quiet mode
- Powerful mode
- Summer house system, to keep the house at +8/+10°C to prevent freezing
- Personal Airflow control
- Auto changeover
- Hot start control
- Base pan with heater cable

EASE OF USE
- 24-hour on/off real setting timer
- LCD wireless remote controller
- Random auto restart when power failure

EASY INSTALLATION AND MAINTENANCE
- 15m long piping
- Top-panel maintenance access
- Self-diagnosis function



CU-HE9LKE
CU-HE12LKE

A+ energy saving air INVERTER+

WALL MOUNTED ETHEREA NE DELUXE // INVERTER+ // WHITE

ETHEREA, A NEW CONCEPT IN HEATPUMPS: AIR PURIFYING SYSTEM, STYLISH DESIGN AND HIGH EFFICIENCY EVEN AT -20°C

Cool and stylish, the distinctive, beautifully rounded form is designed to complement today's modern interiors.
Etherea has an advanced air purifying system with the new Patrol Sensor to detect and eliminate contaminants.
Etherea also have the summer house system, which keeps the summer house, the garage or the basement at +8°C/+10°C to prevent freezing.
Furthermore, Etherea is more efficient than ever with 64% less consumption for the non-inverter model.
More efficiency for bigger savings!

FORNE9

* For further details, please contact your delaer.

WALL MOUNTED ETHEREA NE DELUXE // INVERTER+ // WHITE

Max capacity (heat pump mode)			5.4 kW	6.6 kW
Indoor			**CS-NE9LKE**	**CS-NE12LKE**
Outdoor			**CU-NE9LKE**	**CU-NE12LKE**
Heating capacity	Nominal (Min - Max)	kW	3.40 (0.60-5.40)	4.00 (0.60-6.60)
COP [1]	**Nominal (Min - Max)**	**Energy Saving Classification**	**4.66 (5.22-3.97)** A	**4.17(5.22-3.57)** A
Power input Heating	Nominal (Min - Max)	kW	0.730 (0.115-1.36)	0.960 (0.115-1.85)
Cooling capacity	Nominal (Min - Max)	kW	2.50 (0.60-3.00)	3.50 (0.60-4.00)
EER [1]	**Nominal (Min - Max)**	**Energy Saving Classification**	**4.63 (5.00-4.03)** A	**3.85 (5.00-3.42)** A
Power input Cooling	Nominal (Min - Max)	kW	0.540 (0.120-0.745)	0.910 (0.120-1.170)
Annual Energy Consuption [2]		kWh	270	455
Indoor unit				
Power source		V	230	230
Connection		mm^2	4 x 1.5	4 x 1.5
Current Cooling	Nominal	A	2.6	4.3
Current Heating	Nominal	A	3.5	4.5
Air Volume	Cooling	m^3/h	678	750
	Heating	m^3/h	714	768
Moisture removal volume		l/h	1.5	2.0
Sound pressure Level [3]	Cooling (Hi / Lo / S-Lo)	dB(A)	39 / 26 / 23	42 / 29 / 26
	Heating (Hi / Lo / S-Lo)	dB(A)	40 / 27 / 24	42 / 33 / 30
Sound power Level	Cooling (Hi)	dB	55	58
	Heating (Hi)	dB	56	58
Dimensions	H x W x D	mm	290 x 870 x 204	290 x 870 x 204
Net weight		Kg	9	9
Dust filter			Yes	Yes
Air purifier filter			Patrol sensor. E-ion +	Patrol sensor. E-ion +
Outdoor unit				
Air Volume	Cooling / Heating	m^3/h	1,788 / 1,764	1,860 / 1,812
Sound pressure Level [3]	Cooling (Hi)	dB(A)	46	48
	Heating (Hi)	dB(A)	47	50
Sound power Level	Cooling (Hi)	dB	61	63
	Heating (Hi)	dB	62	65
Dimensions [4]	H x W x D	mm	540 x 780 x 289	540 x 780 x 289
Net weight		Kg	35	35
Piping connections	Liquid pipe	inch (mm)	1/4" (6.35)	1/4" (6.35)
	Gas pipe	inch (mm)	3/8" (9.52)	3/8" (9.52)
Elevation difference (in/out) [5]	Max	m	5	5
Piping length	Min / Max	m	3-15	3-15
Piping length without refegirent increase	Max	m	7.5	7.5
Additional gas		g/m	20	20
Operating range	Cooling Min / Max	°C	-15 / +43	-15 / +43
	Heating Min / Max	°C	-20 / +24	-20 / +24

GLOBAL REMARKS	Rating conditions	Heating	Cooling
	Inside air temperature	20°C DB	27°C DB / 19°C WB
	Outside air temperature	7°C DB / 6°C WB	35°C DB / 24°C WB

DB: Dry Bulb; WB: Wet Bulb
The average heating capacity goes down once the de-icing cycle starts at -10°C

1) EER and COP classification is at 230V in accordance with EU directive 2002/31/EC.
2) The annual consumption is calculated by multiplying the input power at 230V by an avarage of 500 hours per year in cooling mode.
3) The Sound pressure level of the units shows the value measured of a position 1 meter in front of the main body and 0,8 meters below the unit. The sound pressure is measured in accordance with Eurovent 6/C/006-97 specification.
4) Add 70mm for piping port.
5) When installing the outdoor unit at a higher position than the indoor unit.

ETHEREA

designed to care for you

NORDIC HEAT PUMP

TECHNICAL FOCUS

- VERY EXCLUSIVE WHITE DESIGN
- HEATING UP TO AN OUTSIDE TEMPERATURE OF -20ºC
- SUPER QUIET INDOOR UNITS
- NEW GENERATION OF E-ION AIR PURIFYING SYSTEM WITH 24-HR PATROL SENSOR
- SCROLL COMPRESSOR FOR MAXIMUM RELIABILITY

eco ideas

CS-NE9-LKE // CS-NE12-LKE

HEALTHY AIR
- Patrol sensor to detect and eliminate contaminants
- E-ion plus air purifying system
- Heat pump and purifier with simultaneous or independent operation
- Anti-mould filter with one-touch air filter for easy cleaning
- Odour-removing function
- Removable and washable panel

ENERGY EFFICIENCY AND ECOLOGY
- R410A refrigerant gas
- Inverter control

COMFORT
- Quiet mode
- Powerful mode
- Summer house system, to keep the house at +8/+10°C to prevent freezing
- Soft dry operation mode
- Airflow direction control (up and down) with the remote control
- Auto changeover
- Hot start control
- Base pan with heater cable
- Annual cooling

EASE OF USE
- 24-hour on/off real setting timer
- LCD wireless remote controller
- Random auto restart when power failure

EASY INSTALLATION AND MAINTENANCE
- 15m long piping
- Top-panel maintenance access
- Self-diagnosis function

CU-NE9LKE
CU-NE12LKE

WALL MOUNTED CE // INVERTER

CE Inverter models are powerful, highly efficient and are always there when you need them. These models have 10% more air flow on automode fan compared to last year models. More air flow to reach the desired temperature easily and to enjoy a nice temperature at home.

* For further details, please contact your delaer.

WALL MOUNTED CE // INVERTER

Max capacity (heat pump mode)			**5.0 kW**	**6.5 kW**
Indoor			**CS-CE9LKE**	**CS-CE12LKE**
Outdoor			**CU-CE9LKE**	**CU-CE12LKE**
Heating capacity	Nominal (Min - Max)	kW	3.40 (0.60-5.00)	4.0 (0.60-6.50)
COP [1]	**Nominal (Min - Max)**	**Energy Saving Classification**	**4.59 (5.00-3.73) A**	**4.04 (5.00-3.44) A**
Power input Heating	Nominal (Min - Max)	kW	0.740 (0.120-1.340)	0.990 (0.120-1.89)
Cooling capacity	Nominal (Min - Max)	kW	2.50 (0.60-3.00)	3.50 (0.60-4.00)
EER [1]	**Nominal (Min - Max)**	**Energy Saving Classification**	**4.59 (4.80-4.00) A**	**3.68 (4.80-3.39) A**
Power input Cooling	Nominal (Min - Max)	kW	0.545 (0.125-0.750)	0.950 (0.125-1.18)
Annual Energy Consuption [2]		kWh	273	475
Indoor unit				
Power source		V	230	230
Connection		mm^2	4 x 2.5	4 x 2.5
Current Cooling	Nominal	A	2.6	4.5
Current Heating	Nominal	A	3.5	4.7
Air Volume	Cooling	m^3/h	678	750
	Heating	m^3/h	714	768
Moisture removal volume		l/h	1.5	2.0
Sound pressure Level [3]	Cooling (Hi / Lo)	dB(A)	39 / 25	42 / 28
	Heating (Hi / Lo)	dB(A)	40 / 27	42 / 33
Sound power Level	Cooling (Hi)	dB	55	58
	Heating (Hi)	dB	56	58
Dimensions	H x W x D	mm	290 x 870 x 204	290 x 870 x 204
Net weight		Kg	9	9
Dust filter			Yes	Yes
Outdoor unit				
Air Volume	Cooling / Heating	m^3/h	1,788 / 1,764	1,860 / 1,812
Sound pressure Level [3]	Cooling (Hi)	dB(A)	46	48
	Heating (Hi)	dB(A)	47	50
Sound power Level	Cooling (Hi)	dB	61	63
	Heating (Hi)	dB	62	65
Dimensions [4]	H x W x D	mm	540 x 780 x 289	540 x 780 x 289
Net weight		Kg	35	35
Piping connections	Liquid pipe	inch (mm)	1/4" (6.35)	1/4" (6.35)
	Gas pipe	inch (mm)	3/8" (9.52)	3/8" (9.52)
Elevation difference (in/out) [5]	Max	m	5	5
Piping length	Min / Max	m	3-15	3-15
Piping length without refegirent increase	Max	m	7.5	7.5
Additional gas		g/m	20	20
Operating range	Cooling Min / Max	°C	+16 / +43	+16 / +43
	Heating Min / Max	°C	-20 / +24	-20 / +24

GLOBAL REMARKS	Rating conditions	Heating	Cooling
	Inside air temperature	20°C DB	27°C DB / 19°C WB
	Outside air temperature	7°C DB / 6°C WB	35°C DB / 24°C WB

DB: Dry Bulb; WB: Wet Bulb
The average heating capacity goes down once the de-icing cycle starts at -10°C

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2) The annual consumption is calculated by multiplying the input power at 230V by an avarage of 500 hours per year in cooling mode.
3) The Sound pressure level of the units shows the value measured of a position 1 meter in front of the main body and 0,8 meters below the unit. The sound pressure is measured in accordance with Eurovent 6/C/006-97 specification.
4) Add 70mm for piping port.
5) When installing the outdoor unit at a higher position than the indoor unit.

TECHNICAL FOCUS

- HEATING UP TO AN OUTSIDE TEMPERATURE OF -20ºC
- BASE PAN WITH HEATER CABLE
- AIRFLOW DIRECTION CONTROL (UP AND DOWN) WITH THE REMOTE CONTROL
- SCROLL COMPRESSOR FOR MAXIMUM RELIABILITY

CS-CE9-LKE // CS-CE12-LKE

HEALTHY AIR
- Odour-removing function
- Removable and washable panel

ENERGY EFFICIENCY AND ECOLOGY
- R410A refrigerant gas
- Inverter control

COMFORT
- Soft dry operation mode
- Airflow direction control (up and down) with the remote control
- Auto changeover
- Hot start control
- Base pan with heater cable

EASE OF USE
- 24-hour on/off real setting timer
- LCD wireless remote controller
- Random auto restart when power failure

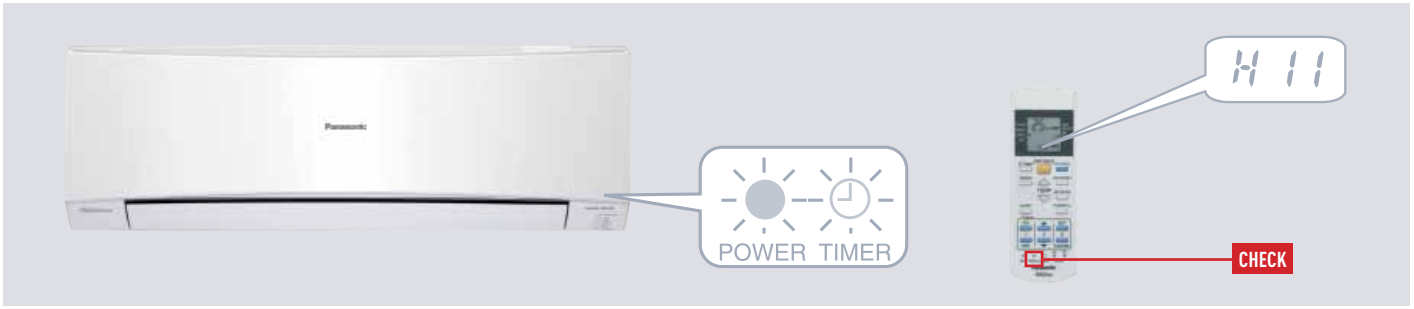
EASY INSTALLATION AND MAINTENANCE
- 15m long piping
- Top-panel maintenance access
- Self-diagnosis function

CU-CE9LKE
CU-CE12LKE

SELF DIAGNOSIS DESCRIPTION AND CHECK POINT TABLE

In the event of breakdown, proceed as follows to detect the error code.

1. Press "CHECK" button at the remote control continuously for more than five seconds to turn on diagnosis mode. "_ _" will be displayed at the remote control LCD.
2. By pressing the TIMER "▲" button once, the next error code (if any) will be displayed; press "▼" button once, previous error code will be displayed.
3. If error code displayed matches the error code saved in unit memory (abnormality detected) Indoor PCB will buzzer for 4 seconds to indicate the correct error code.
4. If "CHECK" button is pressed again or without any operation for 30 seconds, the diagnosis mode will turn off.
5. Turn ON the unit and reset the error code by pressing the AC reset.



ERROR CODES TABLE

Warning: Electrical power must be disconnected when terminal protective cover is not in place to protect against electrocution.

Diagnosis Display	Abnormality / Protection Control	Diagnosis Method	Diagnosis Checkpoint
H11	Indoor/Outdoor abnormal communication	This trouble display appears when indoor/outdoor unit communication fails to be established after 30 or more seconds.	Measure the voltages of the indoor/outdoor unit communication cables, and check whether the voltage is being supplied properly to the outdoor unit or whether it is being returned from the outdoor unit to the indoor units.
H12	Indoor unit capacity unmatched	This trouble display appears when wrong in the total connection capacity and wrong connection in each capacity. The trouble is determined within 2 minutes after the power is turned on.	Check the total capacity of the units connected and check that the models are compatible for connection.
H14	Intake air temp. sensor	This trouble display appears when the intake air temperature has exceeded above 46°C continuously for 2 minutes or dropped below -54°C continuously for 5 seconds during operation.	This trouble display appears when a temperature which is impossibly high or low from a normal standpoint has been detected. Check the sensor, and if open-circuiting (0L or ∞) or short-circuit is not found, defective contact of the connector is to blame.
H15	Outdoor compressor temperature sensor abnormality	—	Check the sensor, and if open-circuit (more than 500 k) or (short-circuit) (less than 6.5 k) is not found, defective contact of the connector is to blame.
H16	Outdoor Current Transformer	CU-2E: When a value of under 1.5A has been detected for the total current during operation beyond the set capacity, the compressor operates with its operating frequency controlled to a maximum of 38Hz for 3 minutes, and if it continues to operate at a total current of under 1.5A for another 3 minutes, its operation stops. CU-3E/4E: When the total current has dropped below the set current level continuously for 20 seconds during operation beyond the set capacity, operation is stopped. Three minutes later, operation is started up again, and when the trouble occurs on 4 successive occasions, the trouble display appears (the timer lamp blinks).	1. Check the refrigerant cycle: Gas may be leaking (the amount of refrigerant is extremely low). 2. Check the control PCB: Check for a broken wire (open circuit) in the current transformer. (If an open circuit is found, replace the control PCB) In the case of a scroll compressor (DC motor), H16 is detected only when the regular compressor is operating.
H19	Indoor fan motor mechanism lock	• High-voltage PWM: When a state in which the fan motor speed is not synchronized with the control signal has been detected on 7 successive occasions. • Low-voltage PAM: When the fan lock detection signal has been detected on 7 successive occasions or it has been detected continuously for 25 seconds or when a state in which the fan motor speed is not synchronized with the control signal has been detected on 7 successive occasions: The trouble display appears (the timer lamp blinks).	1. Check the nature of the fan lockup trouble. 2. Check for disconnections of the fan motor connectors and for defects in contact, in the fan motor and in the control PCB.
H23	Indoor heat exchanger temp. sensor	This trouble display appears when a temperature of under approximately -40°C or above approximately 80°C has been detected by the heat exchanger temperature sensor continuously for 5 seconds. (This trouble is not detected during de-icing.)	This trouble display appears when a temperature which is impossibly high or low from a normal standpoint has been detected. Check the sensor, and if (open-circuit) (0L or ∞) or short-circuit is not found, defective contact of the connector or a defective control PCB is to blame.
H26	Ionizer Abnormality	—	1. Measure the voltages of the indoor unit communication cables, and check whether the voltage is being supplied properly. 2. Check the ionizer needle and grounding plate is dust free.
H27	Outdoor air temp. sensor	This trouble display appears when a temperature of under approximately -40°C or above approximately 150°C has been detected by the outside air temperature sensor for 2 to 5 seconds. (This trouble is not detected during de-icing.)	This trouble display appears when a temperature which is impossibly high or low from a normal standpoint has been detected. Check the sensor, and if open-circuiting (0L or ∞) or short-circuit isnot found, defective contact of the connector or a defective control PCB is to blame.
H28	Outdoor heat exchanger temp. sensor 1	This trouble display appears when a temperature of under approximately -60°C or above approximately 110°C has been detected by the heat exchanger temperature sensor for 2 to 5 seconds. (This trouble is not detected during de-icing.)	This trouble display appears when a temperature which is impossibly high or low from a normal standpoint has been detected. Check the sensor, and if open-circuiting (0L or ∞) or short-circuit is not found, defective contact of the connector or a defective control PCB is to blame.
H30	Outdoor discharge pipe temp. sensor	CU-2E: This trouble display appears when a temperature of under approximately -16°C or above approximately 200°C has been detected by the outlet temperature sensor for 2 to 5 seconds. CU-3E/4E: Disconnected discharge sensor • When the condensation temperature is higher than the discharge temperature + (plus) 6°C, a sensor disconnection is detected, operation stops, and the trouble display appears (the timer lamp blinks).	This trouble display appears when a temperature which is impossibly high or low from a normal standpoint has been detected. Check the sensor, and if open-circuiting (0L or ∞) or short-circuit is not found, defective contact of the connector or a defective control PCB is to blame.
H32	Outdoor heat exchanger temp. sensor 2 (discharge pipe temp.)	This trouble display appears when a temperature of under approximately -60°C or over approximately 110°C has been detected continuously for 2 to 5 seconds by the outlet temperature sensor of the heat exchanger.	This trouble display appears when a temperature which is impossibly high or low from a normal standpoint has been detected. Check the sensor, and if open-circuiting (0L or ∞) or short-circuit is not found, defective contact of the connector or a defective control PCB is to blame.
H33	Indoor / Outdoor wrong connection	Indoor / Outdoor different model junction, 100V charge into 200V outdoor unit.	Check whether the voltage is being supplied properly to the outdoor unit or whether it is being returned from the outdoor unit to the indoor units.
H34	Outdoor heat sink temp. sensor	This trouble display appears when a temperature of under -43°C or above 80°C has been detected by the outdoor unit radiator fin sensor continuously for 2 seconds.	This trouble display appears when a temperature which is impossibly high or low from a normal standpoint has been detected. Check the sensor, and if open-circuiting (0L or ∞) or short-circuit is not found, defective contact of the connector or a defective control PCB is to blame.
H36	Abnormal gas pipe temp. sensor	This trouble display appears when a temperature of under approximately -45°C or above approximately 149°C has been detected by the outdoor unit gas side pipe temperature sensor continuously for 2 to 5 seconds.	This trouble display appears when a temperature which is impossibly high or low from a normal standpoint has been detected. Check the sensor, and if open-circuiting (0L or ∞) or short-circuit is not found, defective contact of the connector or a defective control PCB is to blame.
H37	Outdoor liquid pipe temp. sensor	This trouble display appears when a temperature of under -45°C or above 149°C has been detected by the outdoor unit liquid side pipe temperature sensor continuously for 2 seconds.	This trouble display appears when a temperature which is impossibly high or low from a normal standpoint has been detected. Check the sensor, and if open-circuiting (0L or ∞) or short-circuit is not found, defective contact of the connector or a defective control PCB is to blame.
H38	Indoor / Outdoor mismatch (brand code)	—	—
H39	Abnormal indoor operating unit or standBy units	This display appears in Rooms other than one in which indoor freezing trouble has occurred when the pipes have been connected incorrectly, when an outdoor expansion valve is defective or when an expansion valve connector has become disconnected.	—

H41	Abnormal wiring or piping connection	CU-2E only This display appears when this kind of trouble is detected 3 minutes after a forced cooling operation was conducted for one Room during the initial operation after the power was turned on. It appears when: • The indoor unit pipe temperature in a Room without the capacity supply available at an outside air temperature above 5°C has dropped by more than 20°C to 5°C or lower 3 minutes after the compressor started up. • The outdoor unit gas pipe temperature in a Room without the capacity supply available has dropped by more than 5°C to 5°C or lower 3 minutes after the compressor started up.	—
H50	Ventilation failure	This display appears when ventilation motor is lock.	1. Check the voltage drop at pin 1 & 2 of CNVENT to have 14Vdc. 2. Check the ventilation hose condition from ventilation opening until tip cover. 3. Check air fl ow from tip cover by hand.
H51	Vacuum Nozzle Failure	This display appears when the vacuum nozzle stop.	This trouble display appears when suction nozzle stop at centre of the Filter Cleaning device: 1. Check the filter setting position. 2. Check the nozzle drive stepper motor running condition. This trouble display appears when suction nozzle stop at left side of Filter Cleaning device: 1. Check vacuum nozzle position. 2. Check the left limit switch switching function by multitester. This trouble display appears when suction nozzle stop at left side of Filter Cleaning Device: 1. Check the Right Limit Switch switching function by multitester.
H52	Limit Switch Failure	This display appears when both Limit Switch (left & right) detected short circuit.	1. Unplug the CNSIDESW connector and check Pin 1-2 and Pin 3-4 condition on PCB. 2. Check wiring condition at limit switch (left & right). 3. Check switching function of limit switch (left & right).
H97	Outdoor fan motor mechanism lock	CU-2E: When trouble, which is defi ned as a state in which the fan motor speed is not synchronized with the control signal has been detected on 5 successive occasions, has occurred for the third time in a 60-minute period and twice during a 30-minute period, the trouble display appears, and operation stops. CU-3E/4E: When the fan motor speed detected when its maximum output is demanded is below 30 rpm continuously for 15 seconds, the fan motor stops for 3 minutes and then restarted. When this happens on 16 occasions (the trouble display is cleared when the value is normal for 5 minutes), the H97 diagnostic symbol is stored in the memory, and the fan motor stops.	1. Check the nature of the fan lockup trouble. 2. Check for disconnections of the fan motor connectors and for defects in contact, in the fan motor and in the control PCB.
H98	Indoor high pressure protection	The restriction on the compressor frequency is started when the temperature of the indoor unit heat exchanger source is between 50°C and 52°C, the compressor stops at a temperature from 62°C to 65°C, it is restarted 3 minutes later at below 62°C to 65°C, and the restriction on the compressor frequency is released at a temperature between 48°C and 50°C. (No trouble display appears.)	1. Check the indoor unit heat exchanger temperature sensor (check for changes in its characteristics and check its resistance): Symptoms include no hot start when operation is started, a failure of the thermostat to turn on (no outdoor unit operation). And frequent repetition of stopping and startup. 2. Check also for short circuits indoors and clogging of the air fi lters.
H99	Indoor operating unit freezing	The restriction on the compressor frequency is started when the indoor unit heat exchanger temperature is between 8°C and 12°C. Operation stops if a temperature below 0°C continues for 6 minutes. Three minutes later, operation is started up at a temperature from 3°C to 8°C. The restriction on the compressor frequency is released at a temperature between 13°C and 14°C.	1. A cooling or dry mode operation conducted at a low outside air temperature is mainly to blame: this is not indicative of any malfunctioning. If the outside air temperature rises during automatic operation in the winter months, the dry mode operation is selected. The H99 diagnostic display also appears at such a time. 2. Check the refrigerating cycle: Gas may be leaking (the amount of refrigerant is low) or a pipe may be broken, etc. 3. Check also for short circuits indoors and clogging of the air fi lters.
F11	4-way valve switching failure	CU-2E: When the indoor unit heat exchanger temperature is under -5°C during a warming operation or above 45°C during a cooling or dry mode operation four minutes after the compressor has started up, the F11 diagnostic symbol is stored in the memory, and operation stops. 3 minutes later, operation is restarted. This trouble display appears when this happens on 4 occasions in a 30 minutes period. CU-3E/4E: When a difference of 0°C to 5°C has been detected between the outdoor unit heat exchanger temperature and liquid side pipe temperature on 5 occasions, the trouble display appears.	1. Check the 4-way valve coil: Check that no power is supplied to the coil during cooling and dry mode operations, and that power is supplied during heating operations. Inspect the coil for broken wires (open circuits). 2. If the coil is troublefree, the switching action of the 4-way valve may be defective.
F17	Indoor standBy units freezing	CU-2E: After the operation of one indoor unit stops continuously for 5 minutes. The hole operation stops when the stopping indoor unit pipe temperature is under -5°C continuously for 1 minute or under 0°C continuously for 5 minutes, and operation restarts after 3 minutes. This trouble display appears if that trouble happens on 3 occasions in a 30 minutes period. CU-3E/4E: When the difference of an intake temperature (Room temperature sensor) and the indoor unit heat exchanger temperature (piping sensor) is higher than 10°C or an indoor unit heat exchanger temperature of below -1°C has been detected continuously for 5 minutes, operation stops. Three minutes later, it is started up, and the trouble display appears when this has occurred on 3 consecutive occasions.	1. Check the refrigerating cycle: Expansion valve leakage. 2. Check the indoor unit pipe temperature sensor (check for changes in its characteristics and check its resistance).
F90	PFC circuit protection (CU-2E) Main circuit low voltage (CU-3E/4E)	CU-2E: When the rotation of the compressor is not synchronized with the control signal, the F90 diagnostic display is stored in the memory, and operation stops. 3 minutes later, operation is restarted. This trouble display appears when this happens on 4 occasions in a 10-minutes period. * With the multi 53 or above, it appears when this happens on 16 occasions. CU-3E/4E: When a DC voltage below 305V to 328V has been detected on 16 occasions, this trouble display appears.	1. To check whether the 2-way or 3-way valve has been left open by mistake, operation is performed for one to several minutes after the compressor has started up, F93 is stored in the memory as the symptom, and operation stops. 2. Check the inverter circuit (for open circuits) in the control PCB: Check the IPM base current (6 locations) within 3 minutes after the power has been turned back on. As the symptom, F93 is stored in the memory 30 seconds after the compressor has started up, and operation stops. The trouble display appears after 4 restarts. 3. Check for broken wires (open circuits) in the compressor winding: Approximately 1 ohm under normal conditions for each phase (same symptom as in 2.). 4. Check the power supply voltage has been down or not.
F91	Refrigeration cycle abnormality	CU-2E: When the rotation speed of the compressor exceeds the setting frequency and the total current is 1.5A or higher to 1.9A or lower continuously for 5 minutes, operation stops if the indoor unit heat exchanger temperature is higher than 20°C during cooling or dry operation or if it is under 25°C during heating. Three minutes later, it is restarted, and if the trouble occurs on 2 consecutive occasions in a 20 minutes period, the trouble display appears. CU-3E/4E: When the compressor frequency is above 55 Hz and the current drops below the prescribed level continuously for 7 minutes, operation stops, and it is restarted 3 minutes later. When the compressor discharge temperature has exceeded the setting and the expansion valve has remained fully open for 80 seconds, operation stops, and it is restarted 3 minutes later. When the stopping described above has occurred on 4 occasions, operation stops, and the trouble display appear.	Check the refrigerating cycle: Gas may be leaking (more than onehalf of the volume of the gas has gone). The diagnostic displays resulting from a gas leak generally change in the following sequence depending on the extent of the gas leak: H99 → F97 → F91 → H16. The range of this trouble (F91) is limited. (Compressor protection at the start of the season).
F93	Compressor abnormal revolution	CU-2E: When the reputation of the compressor is not synchronized with the control signal, the F93 diagnostic display is stored in the memory, and operation stops. 3 minutes later, operation is restarted. This trouble display appears when this happens on 4 occasions in a 20 minutes period. CU-3E/4E: When a state in which the rotation of the compressor is not synchronized with the control signal has been detected on 8 successive occasions, operation stops, and the trouble display appears.	1. To check whether the 2-way or 3 -way valve has been left open by mistake, operation is performed for one to several minutes after the compressor has started up, F93 is stopped in the memory as the symptom, and operation stops. 2. Check the inverter circuit (for open circuits) in the control PCB: Check the IPM base current (6 locations) within 3 minutes after the power has been turned back on. As the symptom, F93 is stored in the memory 30 seconds after the compressor has started up, and operation stops. The trouble display appears after 4 restarts. 3. Check for broken wires (open circuits) in the compressor winding: Approximately 1 ohm under normal conditions for each phase (same symptom as in 2.)
F95	Outdoor high pressure protection	CU-2E only: When the temperature of the outdoor unit heat exchanger temperature sensor exceeds 63°C, the F95 diagnostic symbol is stored in the memory, and operation stops. 3 minutes later, operation is restarted at a temperature below 56°C. This trouble display appears when this happens on 4 occasions in a 20-minutes period.	1. Check the outdoor unit heat exchanger temperature sensor (check for changes in its characteristics and check its resistance). 2. Check whether something is interfering with the dissipation of the heat outdoors.
F96	Power transistor module or compressor overheating (CU-2E) Compressor high discharge temperature (CU-3E/4E)	CU-2E: Heating is detected inside the IPM which shuts itself off, the F96 diagnostic symbol is stored in the memory, and operation stops. 3 minutes later, operation is restarted. The trouble display appears when this happens on 4 occasions in a 30-minutes period. CU-3E/4E: When this trouble is detected from the electrical parts radiation fi n temperature sensor and OLP output during operation, operation stops, and it is restarted 3 minutes later. If the trouble occurs on 4 occasions, operation stops, and the trouble display appears.	1. Something may be interfering with the dissipation of the heat outdoors or the outdoor unit fan may be defective. (The outdoor unit fan is not running.). 2. Defective IPM (outdoor unit control PCB). 3. Gas leaks. 2-way or 3-way valve is not opened.
F97	Compressor high discharge temperature	When the temperature of the compressor temperature sensor exceeds 112 to 120°C, the F97 diagnostic symbol is stored in the memory, and operation steps. Two minutes later, operation is restarted at a temperature below 107 to 110°C. CU-2E: The trouble display appears and operation stops when this happens on 4 occasions in a 20 minutes period. CU-3E/4E: This trouble display appears and operation stops when this happens on 6 occasions (it is cleared when the operation is normal for 20 minutes).	1. Check the refrigerating cycle: Gas may be leaking (the amount of refrigerant is low). The stopping of the outdoor unit from time to time is a symptom of this trouble. 2. When operation steps with this trouble display appearing, check the compressor temperature sensor (check for changes in its characteristics and check its resistance). 3. Something may be interfering with the dissipation of the heat outdoors or the outdoor unit fan may be defective. (The fan will not run because of an open circuit.) (The protection function may be activated by an overload, and the F97 trouble display will remain stored in the memory.).
F98	Total running current protection	CU-2E: When the total current exceeds the setting, the F98 diagnostic display is stored in the memory, and operation stops. 3 minutes later, operation is restarted. The trouble display appears and operation stops when this happens on 3 occasions in a 20-minutes period. CU-3E/4E: When the total current exceeds the setting (17A to 20A), frequency control is started, and if it then exceeds the setting, operation stops, and the trouble display appears.	1. Check the AC voltage at the outdoor unit terminal board during operation: The voltage drop must be within 5% of the voltage when operation has stopped (± 110% of rated voltage even during operation). If the voltage drop exceeds 5% or if the voltage changes suddenly, inspect whether the power supply cord and indoor/outdoor unit connection cables are too long or too small in diameter, etc. 2. Check whether something is interfering with the dissipation of the heat outdoors (during cooling operations): Normally, the capacity is limited by the current so that the outdoor unit don't stop, and the diagnostic display does not appear.
F99	DC peak detection	CU-2E: If the current level exceeds 22.5A after startup, the compressor stops, and it is restarted 3 minutes later. When this occurs on 7 consecutive occasions, operation stops, and the trouble display appears. CU-3E/4E: When "Output current trouble", which occurs when the prescribed current level is exceeded, has occurred on 16 consecutive occasions, operation stops, and the trouble display appears.	1. Check whether the compressor is defective (locked up or shorted winding). Check the outdoor unit control PCB.

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We will reduce CO_2 emissions across all our manufacturing sites

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'ECO IDEAS' FOR EVERYBODY, EVERYWHERE
We will encourage the spread of environmental activities throughout the world

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