DAIKIN

Warning

- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorised parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any enquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.

DAIKIN AIRCONDITIONING (SINGAPORE) PTE. LTD.
No. 10 Ang Mo Kio Industrial Park II Singapore 569501
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DAIKIN

PCRID1408

urusara 7

Daikin Air Conditioner Made in Japan

Split Type Air Conditioners

DC Inverter Power Control Heat Pump [50 Hz]

R-32

A New Level of Comfort

Urusara 7 offers a unique, total comfort experience for any lifestyle. Powerful year-round cooling and dehumidifying is just the beginning.

Urusara 7 puts the latest advances in Japanese air-conditioning technology at your fingertips. Features like the new circulation airflow wrap you in a cloud of effortless comfort while advanced streamer technology effectively purifies air. This design excellence extends to the sleek, award-winning indoor unit[1].

Urusara 7 is also the world's first air conditioner to use next-generation R-32 refrigerant[2]. Along with its many energy-saving features, this higher performance refrigerant gives Urusara 7 unrivaled energy efficiency[3].

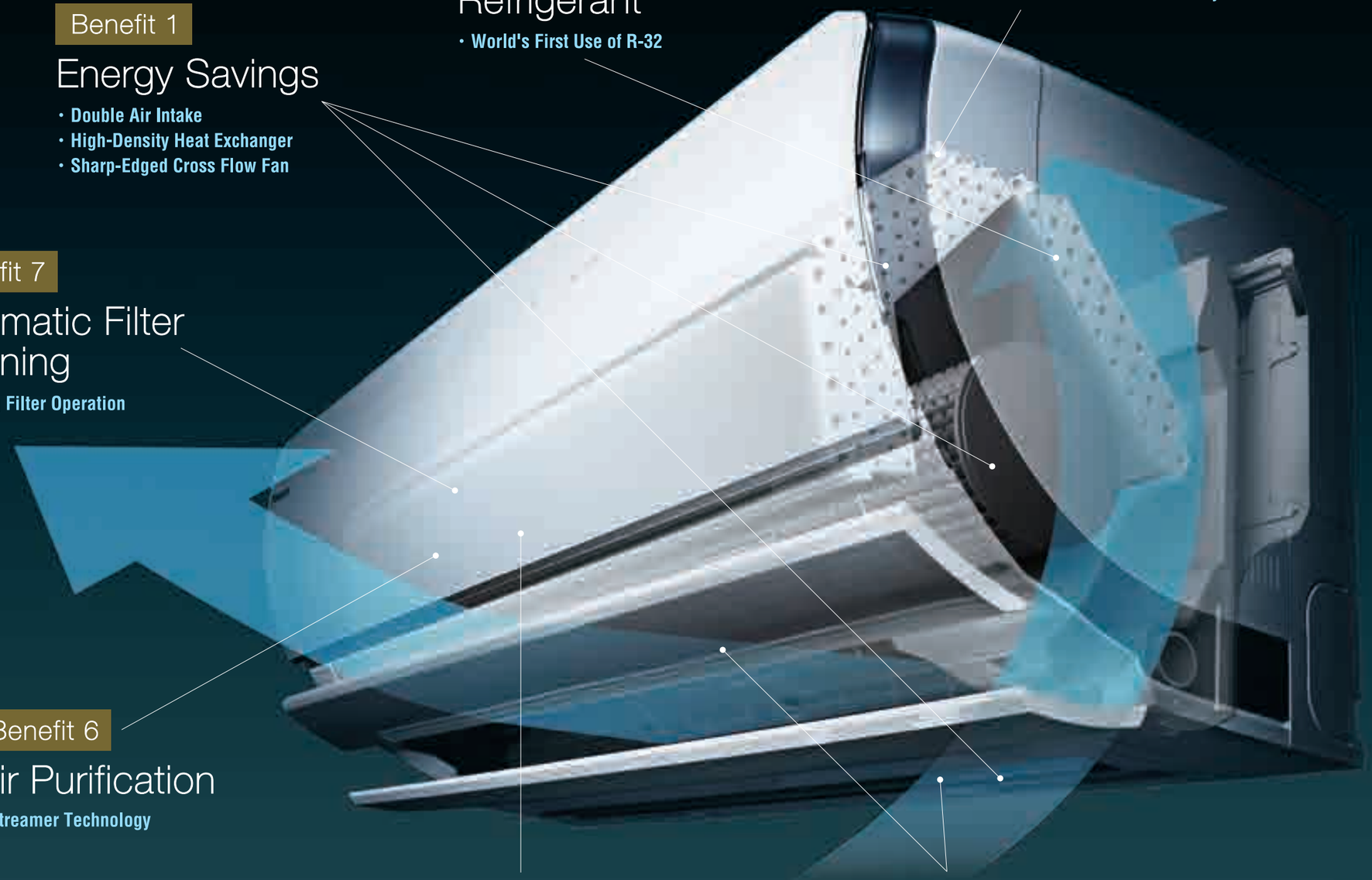
urusara 7

Daikin Air Conditioner Made in Japan

Notes: 1. Urusara 7 received a prestigious Red Dot Award: Product Design 2013 from the Design Zentrum Nordrhein Westfalen in Germany.
2. For residential-use wall-mounted type air conditioners as of November 2012, when Daikin launched Urusara 7 in the Japanese market.
3. In January 2013, the 4.0 to 7.1 kW class models for the Japanese market received the Minister's Prize from Japan's Ministry of Economy, Trade and Industry in the Fiscal 2012 Grand Prizes for Excellence in Energy Efficiency and Conservation.

Seven Benefits of Urusara 7

Contents



Benefit 1

Energy Savings

- Double Air Intake
- High-Density Heat Exchanger
- Sharp-Edged Cross Flow Fan

Benefit 2

Next-Generation Refrigerant

- World's First Use of R-32

Benefit 3

Humidity Control

- World's First Use of Humidity Control

Benefit 4

Airflow Control

- Circulation Airflow
- Coanda Mechanism
- Double Air Intake

Benefit 5

Designed in Japan

- Innovative Design

Benefit 6

Air Purification

- Streamer Technology

Benefit 7

Automatic Filter Cleaning

- Cleaning Filter Operation

Lineup

FTXZ25/35/50NVM4

RXZ25/35/50NVM4

2.5 kW Class

FTXZ25NVM4 / RXZ25NVM4	
Cooling Capacity Rated (Min.-Max.)	2.45 (0.6-3.9) kW
	8,400 (2,000-13,300) Btu/h
Heating Capacity Rated (Min.-Max.)	3.6 (0.6-7.5) kW
	12,300 (2,000-25,600) Btu/h

3.5 kW Class

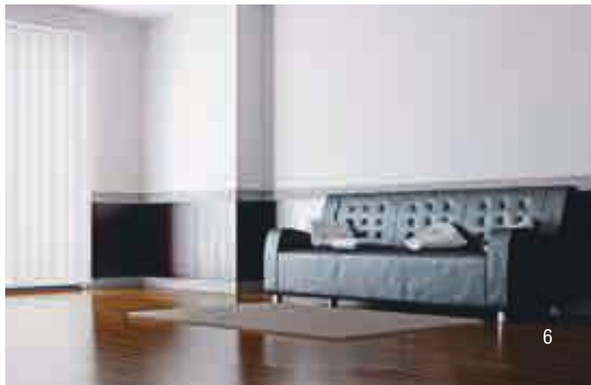
FTXZ35NVM4 / RXZ35NVM4	
Cooling Capacity Rated (Min.-Max.)	3.45 (0.6-5.3) kW
	11,800 (2,000-18,100) Btu/h
Heating Capacity Rated (Min.-Max.)	5.0 (0.6-9.0) kW
	17,100 (2,000-30,700) Btu/h

5.0 kW Class

FTXZ50NVM4 / RXZ50NVM4	
Cooling Capacity Rated (Min.-Max.)	4.95 (0.6-5.8) kW
	16,900 (2,000-19,800) Btu/h
Heating Capacity Rated (Min.-Max.)	6.3 (0.6-9.4) kW
	21,500 (2,000-32,100) Btu/h

reddot design award
winner 2013

Category: Product Design 2013

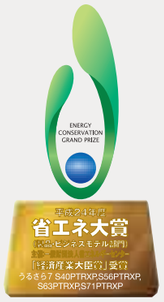


A New Era for Energy Efficiency

2012 Grand Prize for Excellence in Energy Efficiency and Conservation

Daikin has always pushed to achieve higher levels of energy efficiency. After reviewing Urusara's performance, Daikin engineers decided to use next-generation R-32 refrigerant due to its superior energy efficiency. They also developed a new indoor heat exchanger, double air intake and revised DC Inverter Power Control.

Thanks to these efforts, Urusara 7 delivers greater energy efficiency. In January 2013, Urusara 7's 4.0 to 7.1 kW class models for the Japanese market received the Minister's Prize from Japan's Ministry of Economy, Trade and Industry in the Fiscal 2012 Grand Prizes for Excellence in Energy Efficiency and Conservation.



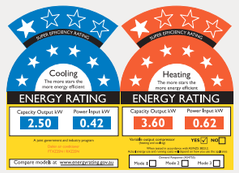
Product: Urusara 7 (S40PTRXP, S56PTRXP, S63PTRXP, S71PTRXP), Minister's Prize, Ministry of Economy, Trade and Industry, Fiscal 2012 Grand Prize for Excellence in Energy Efficiency and Conservation (Product Category and Business Model Category), Sponsor: Energy Conservation Center, Japan

First 7-Star Rating for Australia

Urusara 7 achieves high COPs of 4.30 to 5.70 during cooling operation thanks to Daikin's combined energy-saving technologies and DC Inverter Power Control. The 2.5 kW model for the Australian market is the first split-type air conditioner to receive the country's top 7-Star Super Efficiency rating. No other air conditioner has obtained this rating as of February 2014. The models for Europe have also received top ratings.

The Urusara 7 models listed below have received Singapore's 4 Tick Energy Label, which is the country's highest energy-efficiency rating for inverter type air conditioners.

Australia's 7-Star Efficiency rating



Singapore's 4 Tick rating

RXZ25N RXZ35N RXZ50N

Europe's A+++ rating

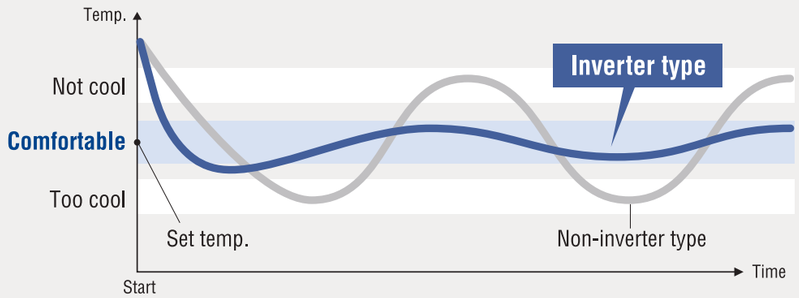
What Is COP? An air conditioner's COP (Coefficient of Performance) indicates how efficiently the unit uses energy. A higher COP means greater energy efficiency. It also means lower electricity consumption, so you save money.

$$\text{COP} = \frac{\text{Capacity (W)}}{\text{Power consumption (W)}}$$

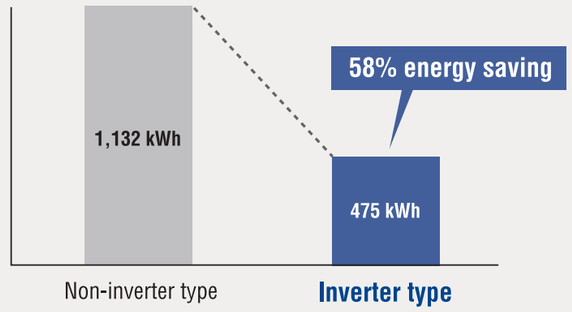
Inverter Advantages Compared to Non-Inverter

Inverters are devices which are able to vary their operating capacity by adjusting frequency. Inverter air conditioners can vary their capacity by adjusting the power supply frequency of their compressors. In contrast, non-inverter air conditioners have a fixed capacity and can only control the indoor temperature by starting or stopping their compressors. Inverter air conditioners are more powerful, energy-efficient and comfortable than non-inverter models.

Comfortable Temperature Control



Electricity Consumption after One Year of Operation[1]



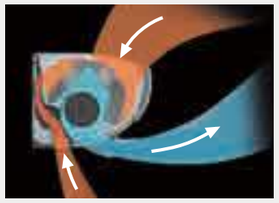
Compared to non-inverter models, Urusara 7 cuts power consumption by up to 58%. This helps to reduce electricity bills for the user and also decreases CO_2 emissions caused by power generation.

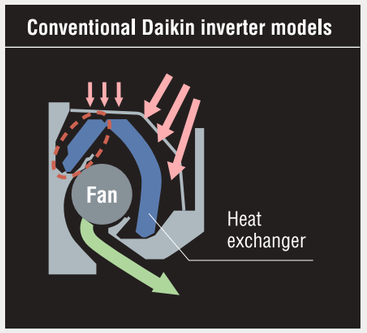
Note: 1. Test method: In-house simulation based on the principles of JIS-C9612B.1.6.5 for inverter models and JIS-C9612B.1.6.4 for non-inverter models
Test inverter model: 3.5 kW class model of Urusara 7 for the Thailand market, rated COP 5.00, COP in the partial load region 6.39
Test non-inverter model: 3.5 kW class Daikin non-inverter model for the Thailand market, COP 3.45
Test location: Bedroom of 24 m^2
Test conditions: Annual average outdoor temperature in Bangkok
Test period: 9 hours of operation from 10:00 p.m. to 7:00 a.m.

Advanced Daikin Technologies Ma de in Japan

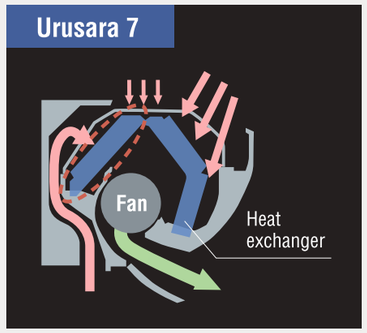
Double Air Intake

The indoor unit features air intakes on both the top and bottom. The double intakes maintain a large airflow volume by drawing in additional air from the bottom intake. Urusara 7 improves the operational efficiency of the indoor heat exchanger by also utilising the back of the device.

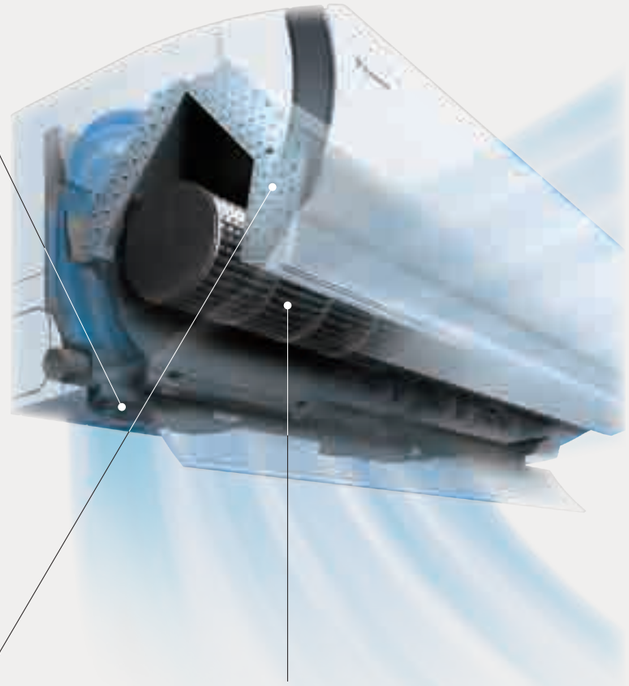




The back part of the heat exchanger is only partially used.

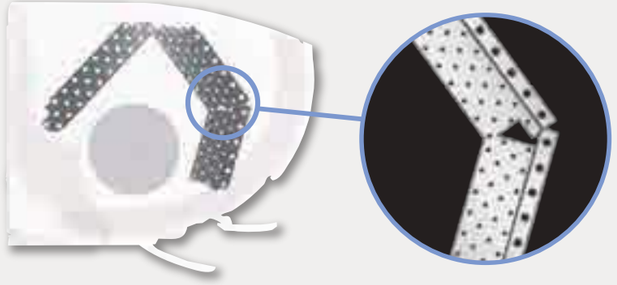


Air intake from both the top and bottom allows the back part of the heat exchanger to be used fully, resulting in higher energy efficiency.



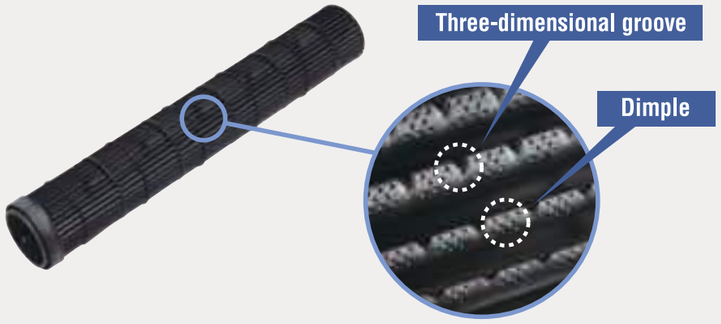
High-Density Heat Exchanger

An improved indoor heat exchanger design significantly increases cooling/heating performance. The new structure uses thin copper piping densely packed in five layers, allowing it to exchange heat more effectively.



Sharp- Edged Cross Flow Fan

The new ind oor cross flow fan features sharp-edged dimples and impellers. This innovative shape increases ai rflow volume as well as energy effic iency.



DC Inverter Power Control

DC Inverter is Daikin's term for an inverter air conditioner equipped with a DC motor. These motors use the power of magnets to generate rotation, making them more efficient than AC motors. Advanced DC motors for compressors and fan motors equipped with high-power neodymium magnets are capable of even greater efficiency. These motors are called Reluctance DC motors.

Swing Compressor

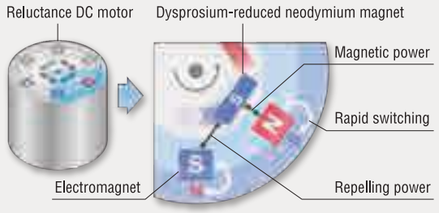
Thanks to its smooth rotation, the swing compressor decreases friction and vibration. It also prevents the leakage of refrigerant gas during compression. These advantages provide quiet and efficient compression.

Interleaved PAM Control

PAM (pulse amplitude modulation) control reduces energy loss by specifying how often the converter switches on and off. Urusara 7 is equipped with twin interleaved PAM circuits. This ensures efficiency for both high and low output.

Reluctance DC Motor for Compressors

The compressor is one of an air conditioner's core components and its performance is directly linked to the motor. Daikin was the first to successfully use the Reluctance DC motor with a scroll compressor in commercial-use air conditioners[1]. This motor has now been installed in the swing compressors used for residential-use air conditioners.



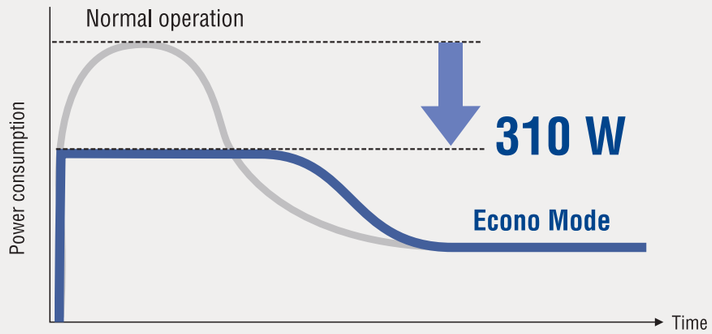
Embedding a high-strength neodymium magnet in the rotating shaft turns the entire centre of the motor into a powerful magnet. By rapidly switching the electromagnet from the N to S-pole, the Reluctance DC motor is able to produce greater speed and power. Urusara 7 uses a new dysprosium-reduced neodymium magnet.

Note: 1. Daikin's achievement was recognised by the Institute of Electrical Engineers of Japan at the 54th Academic Promotion and Technical Development Awards in 1998.

A Variety of Energy-Saving Functi ons

Econo Mode

This function limits the maximum power consumption to 310 W during cooling operation and 470 W during heating operation for the 2.5 kW model. It is particularly effective if the cooling load is high, for example, at startup or during large gatherings and periods of direct sunshine. (Maximum capacity decreases during Econo Mode, requiring more time to reach the set temperature.)



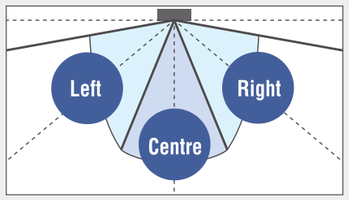
Standby Electricity Saving

Even when the air conditioner is not operating, it requires standby power. However, thanks to the Standby Electricity Saving function, the required standby power can be reduced.

3-Area Intelligent Eye

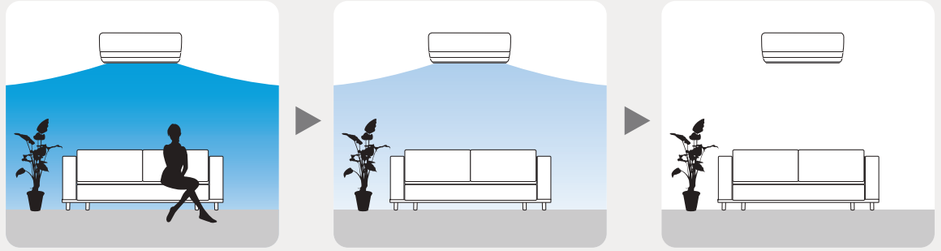
3-Area Intelligent Eye prevents energy wastage by using its infrared sensors to detect human movement in a room. It has two infrared sensors and detects the location of a person in an area divided into left, right and centre zones.

When there is no movement, Intelligent Eye automatically adjusts the set temperature by 2°C to achieve energy savings. It can also be set to automatically stop operation. Airflow can either be directed toward or away from people to increase comfort.



Auto Off Operation

3-Area Intelligent Eye can be set to automatically stop operation after one or three hours if there is no movement in a room. With Auto Off Operation, you never have to worry about forgetting to turn off the air conditioner again.

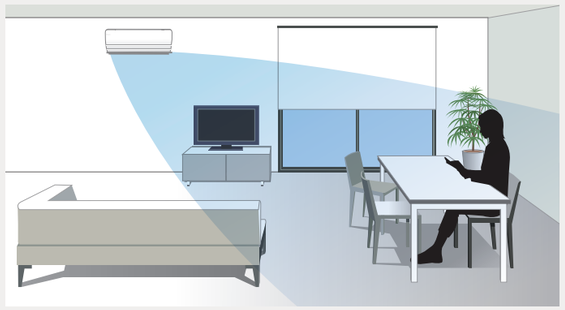


When there is no movement, Intelligent Eye automatically adjusts the set temperature by 2°C.

It automatically stops operation after one or three hours.

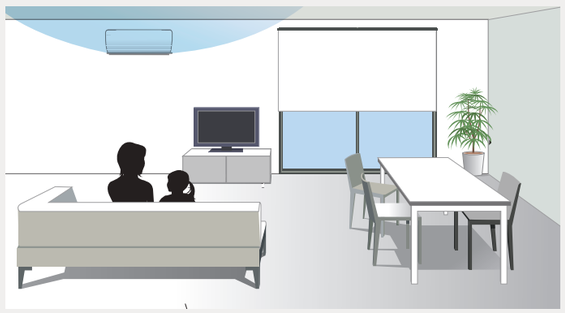
3-Area Intelligent Eye (Focus)

Intelligent Eye sensors detect an area where there is a person and adjust the horizontal airflow to send air directly to the person.



3-Area Intelligent Eye (Comfort)

Intelligent Eye sensors detect an area where there is a person and adjust the horizontal airflow to avoid blowing air directly onto the person.



R-32 Refrigerant: A Better Choice for Climate Change

One Million Units in Cumulative Sales

1,000,000 Units in Cumulative Sales
For R-32 residential-use split-type air conditioners in the Japanese market

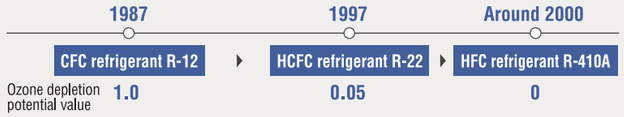
Daikin is the sole manufacturer to produce both air conditioning equipment and refrigerants around the world. As a refrigerant manufacturer, Daikin believes it has a responsibility to expand the use of substances with zero ozone-layer depletion and to reduce greenhouse gas emissions.

As an equipment manufacturer, Daikin believes it must work to reduce these greenhouse emissions throughout the entire product lifecycle. By combining R-32 refrigerant and Urusara 7's operational efficiency, Daikin has taken the next step in reducing environmental impact.

Daikin has adopted R-32 for all models of its residential-use wall-mounted split-type air conditioners in the Japanese market. These systems achieved one million units in cumulative sales as of November 2013[1].

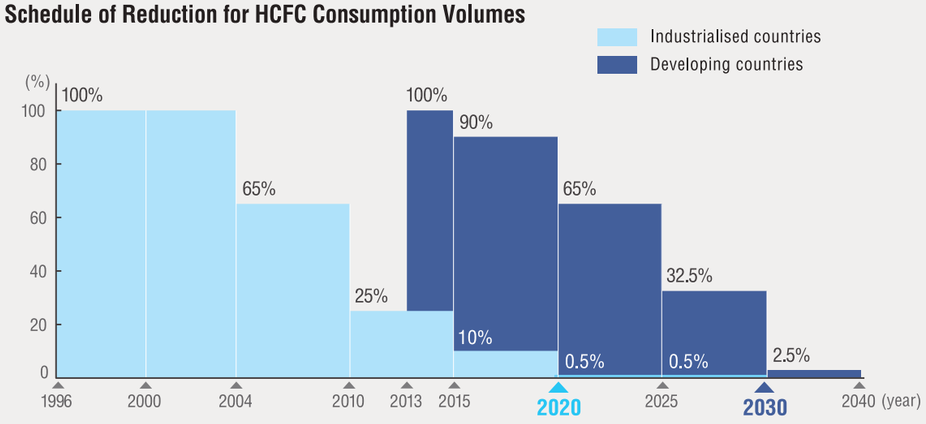
No Impact on Ozone-Layer Depletion

The Montreal Protocol was adopted in 1987 to specify substances which are potentially harmful to the ozone layer and to restrict the production, consumption and trade of relevant substances. Based on the adoption of this protocol, industrialised countries are required to eliminate alternative fluorocarbons including R-22 (HCFC) by 2020, while developing countries are obliged to gradually reduce their use from 2013, and to eliminate them by 2030.



In industrialised countries, the changeover from R-22 (HCFC) to R-410A (HFC) is well underway. Through replacement with R-410A, ozone depletion potential has been reduced to zero. However, R-410A still has a high global warming potential.

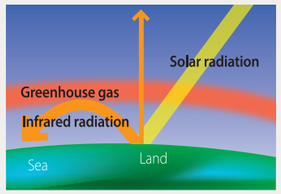
Schedule of Reduction for HCFC Consumption Volumes



Lower Global Warming Potential

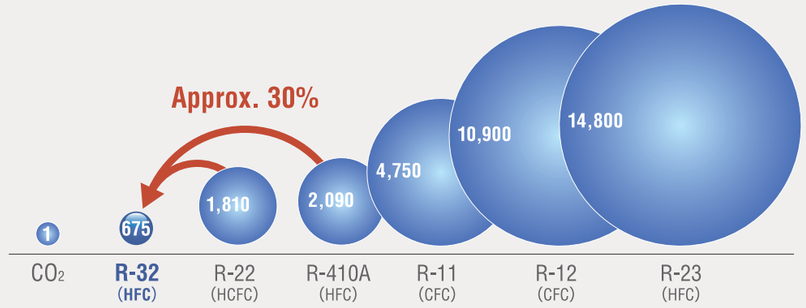
The Kyoto Protocol was adopted in 1997 to reduce greenhouse gases which cause climate change. Greenhouse gases include carbon dioxide (CO_2), hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), chlorofluorocarbons (CFCs) and various other substances.

To reduce greenhouse gases, manufacturers of air conditioning equipment are urgently required to find refrigerants with a lower global warming potential than R-410A (HFC). At the same time, they must also reduce energy consumption, enabling CO_2 emissions to be decreased.



Greenhouse gases trap heat (infrared wavelengths) in sunlight which enters the Earth's atmosphere from space. This thermal energy warms the atmosphere.

100 Year Global Warming Potential of Different Refrigerants[2]

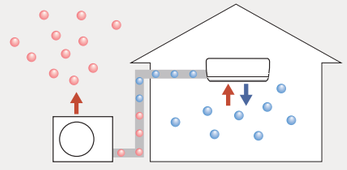


Energy Efficiency

Air conditioners are major consumers of electricity but about half of the energy[3] they use is still generated by fossil fuel power plants. The CO_2 discharged in this process is a known greenhouse gas. Air conditioning manufacturers must be responsible for providing energy efficient equipment.

Daikin has redesigned its residential-use air conditioners to use R-32. This enables its systems to achieve new levels of energy efficiency while reducing environmental impact.

Refrigerant Refrigerant is changed from gas to liquid in the outdoor unit, after which it is evaporated in the indoor unit. During cooling operation, cool air is discharged from the indoor unit while heat is removed from the air taken in from inside the room. This heat is delivered to the outdoor unit and released.



Notes: 1. This value is based on in-house research.
2. Source: Values for 100 year global warming potential (GWP) from IPCC Fourth Assessment Report. Comparative 100 year GWP: HFC410A, 2,090; HFC32, 675.
3. Global energy production in 2008. Source: IEA, World Energy Outlook 2010

Dehumidifying: A New Level in Co mfort

Two Dehumidifying Choices

Daikin launched the world's first[1] residential-use air conditioner to control both humidity and temperature in 1999. By controlling humidity as well as temperature, Urusara 7 provides dehumidifying choices like you have never experienced before.

Even at a relatively high set temperature, selecting dehumidifying allows you to feel cool, helping to save power. With Urusara 7, you can control the indoor humidity directly from the wireless remote controller.

Two dehumidifying functions are available: Sarara Dry Operation and Dry Cooling Operation. Sarara Dry prevents any decrease in indoor temperature while Dry Cooling activates both cooling and dehumidifying functions at the same time.

Control of Both Humidity and Temperature

Even if the indoor temperature is the same, you usually feel cooler with lower humidity. This is because people release body heat by evaporating sweat on their skin. When the air is relatively dry, sweat evaporates quickly, releasing a large amount of heat.

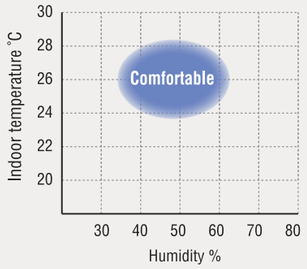
However, when the air is humid, heat is not released and people feel hot and uncomfortable. With this in mind, Daikin has developed technologies that create a more comfortable balance between indoor temperature and humidity.

Temp.: 25°C
Humidity: 80%

Hot and humid

Temp.: 25°C
Humidity: 50%

Comfortable



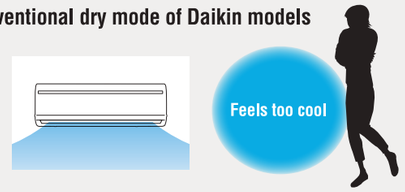
You can experience the same comfort with an indoor humidity of 40 to 60% even at 2°C above the set temperature.

Sarara Dry Operation

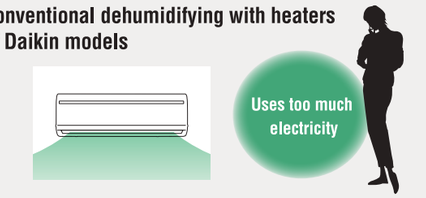
Urusara 7 lets you adjust the dehumidifying volume from low to high to achieve consistent comfort. At night on rainy days, the humidity can leave you feeling hot even though the temperature is relatively low. However, using the air conditioner with conventional dry mode leads to overcooling.

Urusara 7 maintains comfort levels by premixing the dehumidified air with room air to stabilise the temperature. This prevents overcooling, even for people who are sensitive to cold such as children, older people and women.

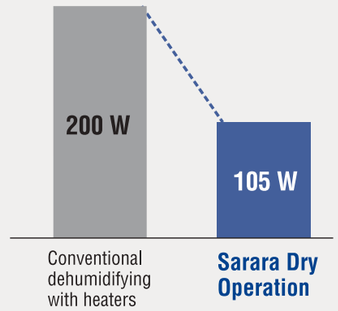
Conventional dry mode of Daikin models

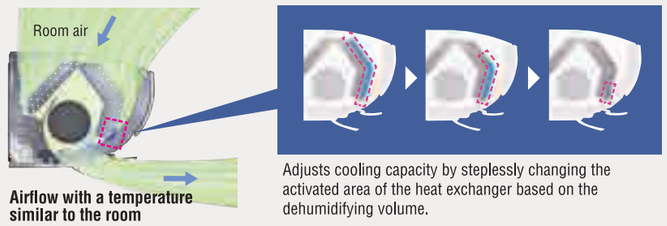


Conventional dehumidifying with heaters of Daikin models



Electricity Consumption Compared with Conventional Daikin Dehumidifying[2]





Adjusts cooling capacity by steplessly changing the activated area of the heat exchanger based on the dehumidifying volume.

Dry Cooling Operation[3]

Selecting this function starts dehumidifying operation during cooling operation. It dehumidifies by cooling at a low airflow rate, resulting in a lower room temperature.

Notes: 1. As of 1999, when Daikin launched Ururu Sarara in the Japanese market.
2. This is is an in-house test using models for the Japanese market.
Test conditions: Continuous operation with discharged airflow temp. 26°C, dehumidifying volume 300 cc/h in a thermostatic chamber with indoor temp. 28°C, indoor humidity 60%, outdoor temp. 28°C.
3. To lower the humidity, Dry Cooling uses a lower airflow rate than standard cooling.

Guides the airflow along the ceiling to avoid people and furniture.

Discharges a large air volume with the Coanda mechanism.

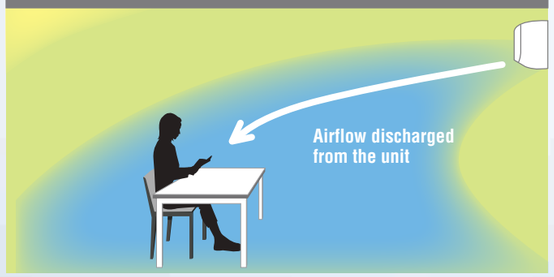
Delivers airflow far from the indoor unit.

Circulates airflow by taking in air from the bottom as well as the top.

Circulation Airflow Rapi dly Cools a Large Room

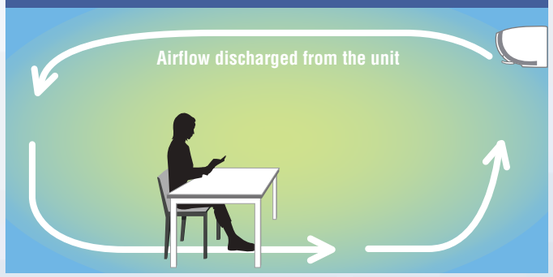
Urusara 7 circulates airflow and prevents temperatu re fluctuations even in large spaces. Daikin's original Coanda mechanism and Double Air Intake rapidly ma ke even the corners of a large room feel comfortable.

Conventional airflow of Daikin models[1]



It takes a long time to achieve a similar temperature in all corners of the room.

Circulation Airflow[1]



Circulation Airflow rapidly achieves a uniform temperature in each corner of the room.

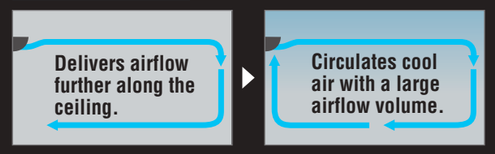
Circulation Airflow

A new air discharge pattern using the Coanda effect provides a longer airflow, rapidly achieving the set temperature throughout a room. The double air intakes and sharp-edged cross flow fan also increase airflow volume. This helps to circulate air around a room, preventing temperature fluctuations.

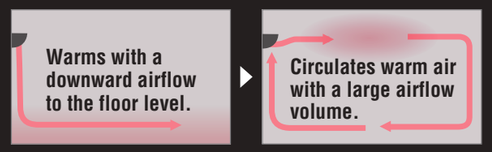
Temperature distribution when cooling for seven minutes

For the 5.0 kW model, the airflow distance is 12 metres[2].
The time required to reach the set temperature is only half of that for a conventional Daikin inverter model[3] for the Japanese market.

Cooling[4]



Heating[5]



Coanda Mechanism

This natural phenomenon was discovered by Henri Coanda, developer of the jet engine. The mechanism causes the airflow direction to alter along the surface of an object. Daikin has used it in Urusara 7 to provide greater airflow along the ceiling.

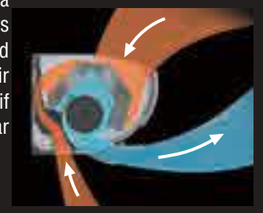
Coanda effect
The airflow direction alters along the surface of an object.

Without the Coanda mechanism

With the Coanda mechanism

Double Air Intake

The indoor unit features air intakes on both the top and bottom. The double intakes maintain a large airflow volume by drawing in additional air from the bottom intake. The Coanda mechanism also directs increased airflow toward the ceiling. This helps air to circulate fully, even if the unit is installed near the ceiling.



Notes: 1. Temperature distribution after seven minutes of Circulation Airflow operation
[Temperature distribution measurement conditions]
Test models: 4.0 kW class model of Urusara 7 for the Japanese market
4.0 kW class Daikin inverter model for the Japanese market withoutCirculation Airflow
Test location: Daikin laboratory (room of approx. 23 m²)
Test conditions: Preset temperature 26°C, fan speed H, room temperature 35°C, outdoor temperature 35°C

2. [Measurement conditions]
Test model: 4.0 kW class model of Urusara 7 for the Japanese market
Test location: Daikin laboratory
Test condition: Airflow of wind speed 0.4 m/s at a position of 12 metres from the unit and 30 millimetres from the ceiling when setting Automatic for vertical airflow direction during cooling

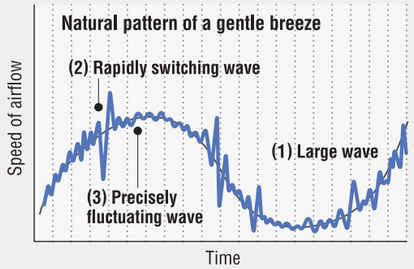
3. It takes seven minutes with Circulation Airflow and 15 minutes without Circulation Airflow to reach 26°C at a position six metres from the unit during cooling operation.
[Temperature distribution measurement conditions]
Test models: 4.0 kW class model of Urusara 7 for the Japanese market
4.0 kW class Daikin inverter model for the Japanese market without Circulation Airflow
Test location: Daikin laboratory
Test conditions: Preset temperature 26°C, fan speed H, room temperature 35°C, outdoortemperature 35°C

4. It indicates when setting Circulation Airflow during cooling, Dry Cooling or dehumidifying. It also includes when setting Automatic for vertical airflow direction during cooling, Dry Cooling or dehumidifying.

5. It includes when setting Automatic for vertical airflow direction during heating.

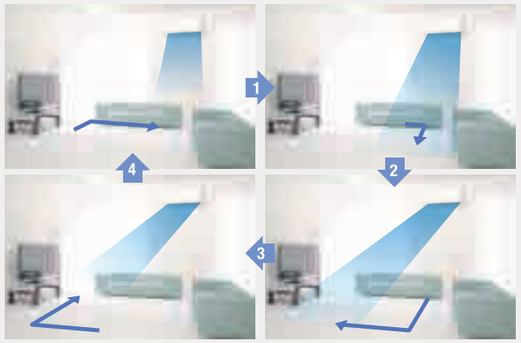
Breeze Airflow

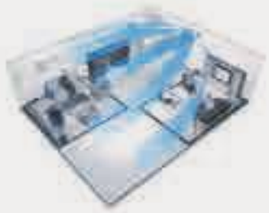
Urusara 7 recreates the natural pattern of a gentle breeze, providing a cool airflow without direct draft. Based on research by Daikin and the Prefectural University of Kumamoto in Japan, natural breeze actually has three components: large waves, rapidly switching waves and precisely fluctuating waves[1]. Daikin has recreated this variable rhythm using its advanced airflow control technology and coanda air direction system.



3-D Airflow

Vertical Auto-Swing automatically moves the flaps up and down and Horizontal Auto-Swing automatically moves the louvers to the left and right. 3-D Airflow combines Vertical and Horizontal Auto-Swing to circulate air to every part of a room for uniform cooling/heating of even large spaces.





The flaps and louvers swing in turn, expanding the comfort zone.

Installation Position Setting

A pattern for the room shape and installation position can be selected with the wireless remote controller. This enables control of the horizontal airflow direction to be optimised.

Six patterns can be selected.

Note: 1. Based on a report issued by the Prefectural University of Kumamoto on August 31, 2012.
Test model: 4.0 kW class Daikin inverter model for the Japanese market
Test conditions: In an environment with a temperature of 27°C and relative humidity of 50%, subjects evaluated their comfort levels while seated at rest in a chair 2 m in front of the air conditioner and 850 mm above the floor. Valid responses were gathered from 16 Japanese male and female subjects in their twenties. The evaluations of comfort/discomfort levels and airflow patterns were made over an extended period.

Innovative Design Wins Red Dot

Inspired by Japanese "Ogi"

In 2013, Urusara 7 received a prestigious Red Dot Award: Product Design 2013 from the Design Zentrum Nordrhein Westfalen in Essen, Germany. The internationally recognised Red Dot has been awarded to products of outstanding quality since 1954.

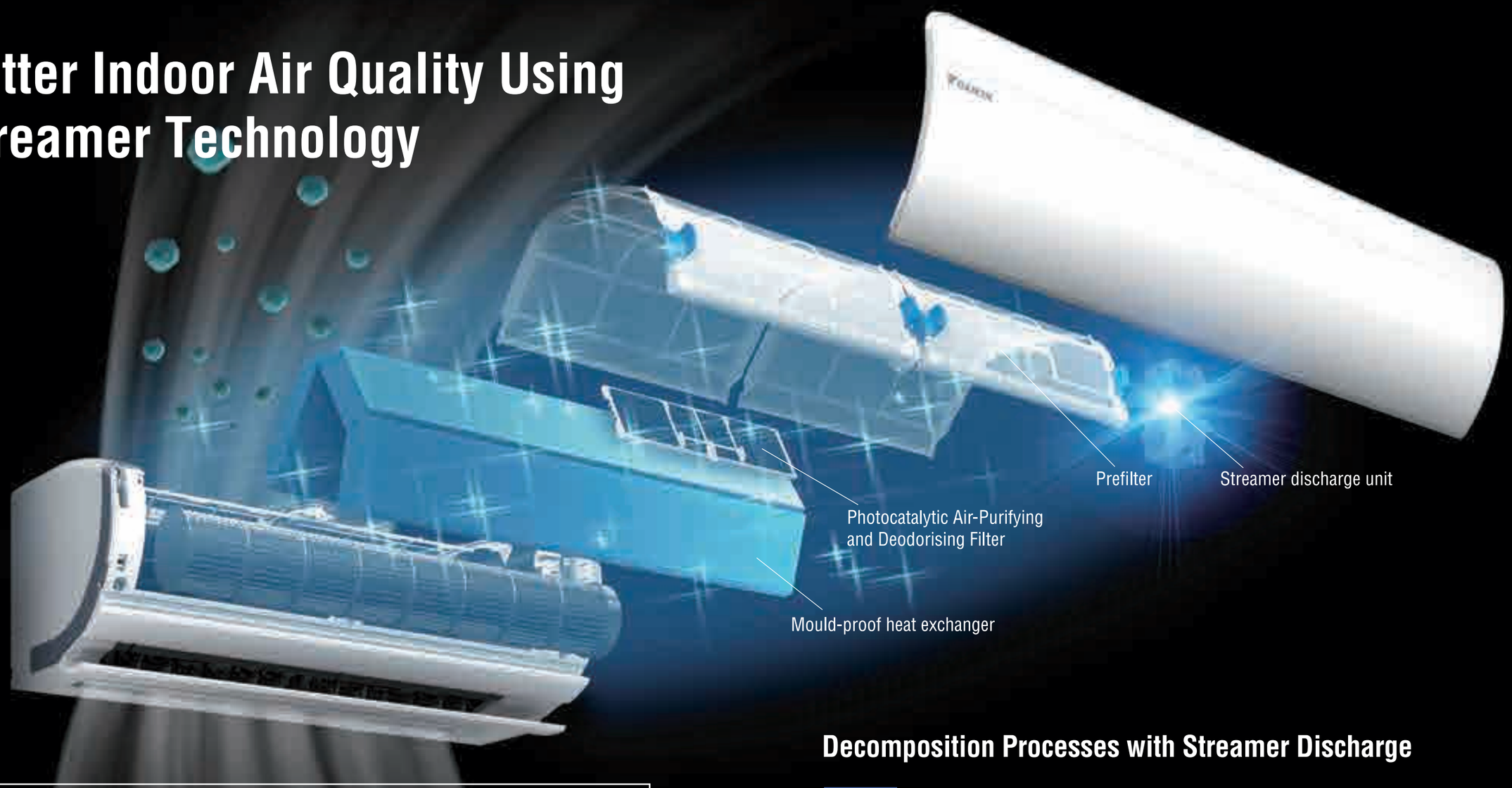
Urusara 7 was praised for its innovative design, inspired by the Japanese "ogi" folding fan. This is exemplified by the Coanda flap mechanism, which modifies the airflow to create a pleasant indoor environment. Daikin's use of R-32 refrigerant and other advanced technologies also reduces energy consumption and environmental impact.

Daikin believes with Urusara 7 it has created a leading air conditioner integrating a new shape and cutting-edge technologies developed in Japan.

reddot design award
winner 2013

Category: Product Design 2013

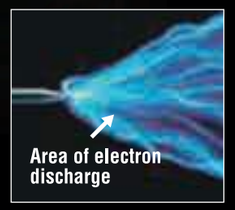
Better Indoor Air Quality Using Streamer Technology



Streamer Technology

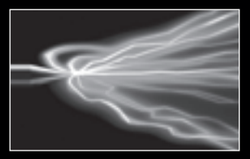
Streamer discharge decomposes bacteria and mould adsorbed on the filter by irradiating them with an advanced plasma electric discharge. It provides highly effective oxidative decomposition. Streamer discharge is one of the methods of plasma electric discharge. With the same electrical power, the oxidative decomposition speed is over 1,000 times faster than ordinary plasma electric discharge (glow discharge).
To achieve this performance, Daikin developed original technologies which successfully stabilise the flow of electrons.

1,000 Times Faster
than ordinary plasma electric discharge

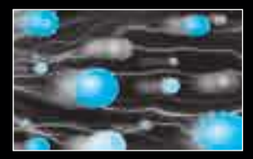


Decomposition Processes with Streamer Discharge

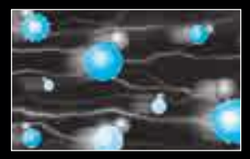
Step 1 Generates Decomposition Elements



The streamer discharge generates high-speed electrons.



The high-speed electrons hit and combine with nitrogen and oxygen in the air.



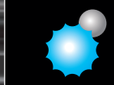
This generates high-strength decomposition elements.

Step 2 Decomposes Allergic Substances

Primary decomposition (decomposes surface)

Oxygen radical
OH radical
Excited oxygen

Secondary decomposition (decomposes centre)



Excited nitrogen

Streamer Discharge Air Purifying

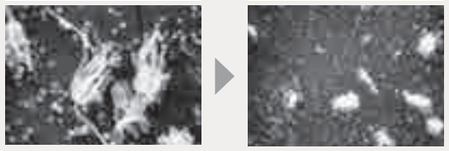
Mould and pollen are trapped and adsorbed on the Photocatalytic Air-Purifying and Deodorising Filter. The streamer discharge then irradiates and decomposes the trapped particles[1]. It powerfully removes mould, viruses, allergic substances and harmful chemical substances. The following tests are individual simulations which use Daikin's streamer device[2].

Photocatalytic Air-Purifying and Deodorising Filter

Mould and Viruses[3]

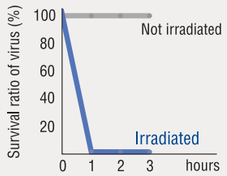
The streamer discharge has a powerful effect on particles captured by the filter.

Before irradiation | After 15 minutes of irradiation



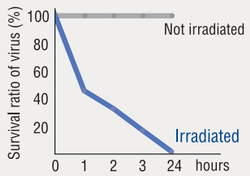
Cladosporium was placed on an electrode of the streamer discharge unit and a picture was taken using an electron microscope after 15 minutes of discharge.

Virus Decomposition



Test virus: Influenza virus (type A, H1N1)
Test method: Virus inactivation test
Test organisation: Japan Food Research Laboratories
Result certificate: 10029107001-01
Results: The streamer unit removed 99% of the virus in one hour. A single type of virus was used in the simulation. The test showed the unit has a powerful effect on virus particles captured by the filter.

Mould Decomposition and Removal

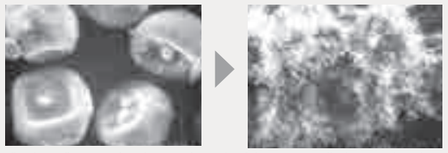


Test mould: Cladosporium
Test method: Antibacterial test, mould removal test
Test organisation: Japan Food Research Laboratories
Result certificate: 204041635-001
Results: The streamer unit removed 99% of the bacteria and mould. It has a powerful effect on particles captured by the filter.

Allergic Substances

The streamer discharge decomposes the centre of pollen and dead mites.

Before irradiation | After 15 minutes of irradiation

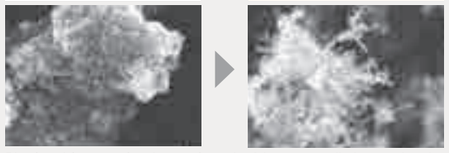


Ceadar pollen was placed on an electrode of the streamer discharge unit and a picture was taken using an electron microscope after 15 minutes of discharge.

Exhaust Gas and Diesel Particles

The streamer discharge decomposes exhaust gas and diesel particles.

Before irradiation | After 15 minutes of irradiation



Diesel particles were placed on an electrode of the streamer discharge unit and a picture was taken using an electron microscope after 15 minutes of discharge.

Odour

Odour-causing particles are adsorbed by the filter and decomposed by the streamer. There is little loss of deodorising effect due to the automatic regeneration of adsorption power.

Cause of odour: Rubbish, Pets, Toilets, Mould, Cooking, Tobacco

Removable allergic substances

- Mould: Alternaria, aspergillus, eurotium, cladosporium, fusarium, penicillium
- Pollen: Cedar, alder, birch, Japanese cypress, pencil cedar, bald cypress, mugwort, orchard grass, ragweed, sweet vernal grass, timothy grass, plantain, beech tree
- Biological: House dust mite (dermatophagoides pteronyssinus) (droppings and dead mites), house dust mite (dermatophagoides farunae) (droppings and dead mites), American cockroach (droppings), German cockroach (droppings), dog epitherium (dander), cat epitherium (dander), flea (droppings), hamster epitherium (dander)
- Other: Wheat flour dust [30 allergic substances in total]

Removable harmful chemical substances

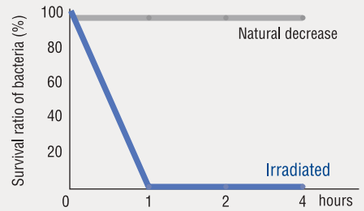
- Diesel particles (DEP)
- VOC (volatile organic compound)-type harmful chemical substances: Acetone, 2-propanol, dichloromethane, ethyl acetate, hexane, 2,4-dimethylpentane, benzene, 1,2-dichloropropane, trichloroethylene, methyl isobutyl ketone, butyl acetate, octane [12 substances in total]

Mould-Proof Operation

The streamer discharge irradiates and dries the inside of the indoor unit, heat exchanger and airflow routes. Conventional Mould-Proof Operation prevents the growth of mould, but it still cannot eliminate odour-causing bacteria. The new Mould-Proof Operation can do both thanks to streamer discharge and a higher operation frequency.

Odour-Causing Bacteria

Removal of Odour-Causing Bacteria

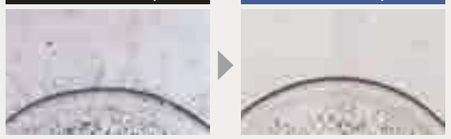


Test method: Filters were compared on a testing device with and without the streamer discharge to check their ability to adsorb mould and odour-causing bacteria.
Test organisation: Japan Food Research Laboratories
Test location: Japan
Result certificate: 10072482001-01
Results: The streamer discharge decomposed and removed 99.9% of mould in 24 hours and 99.7% of odour-causing bacteria in one hour. The test was conducted using only one type of bacterium.

Mould inside Indoor Unit

Mould-Proof Operation prevents the growth of mould. The pictures below show the mould growth after three days of cooling operation.

Without Mould-Proof Operation | With Mould-Proof Operation



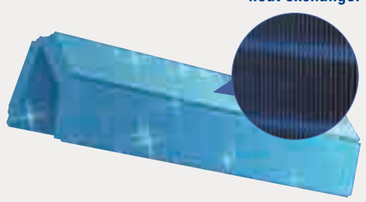
Mould continued to grow | Mould was prevented

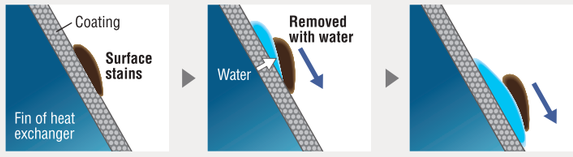
Test room: Chamber of approx. 10 m^2 in a laboratory at the Institute of Environmental Biology in Japan
Test method: Two indoor units were fitted with mould sensors owned by the Institute of Environmental Biology. One unit was run using Mould-Proof Operation during cooling operation while the other was run using only cooling operation. After two weeks of use (8 hours per day), the lengths of hyphae on the sensors were compared.
Test conditions: Temperature: 27°C, humidity: 70%, mould attached to the sensors: Eurotium herbariorum J-183
Test organisation: Institute of Environmental Biology
Result certificate: 100805, 100806, 100807
Test machine: Model for the Japanese market similar to the 2.5 kW class Urusara 7 model

Mould-Proof Heat Exchanger

Surface stains are washed off the indoor heat exchanger using water generated by the cooling or dry operations. The surface is protected with a mould-proof coating.

Mould-proof heat exchanger[4]





Cleaning of the heat exchanger may be required if the indoor unit is installed in a kitchen where oil is used, or a hair salon where dyes and chemicals are used.

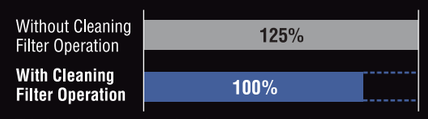
Notes: 1. The decomposition is effective only for substances adsorbed on the Photocatalytic Air-Purifying and Deodorising Filter. This product is not designed as a medical device and should not be used for medical applications.
2. The results may differ slightly from actual conditions as they are based on simulations using a testing device equipped with a streamer unit. They do not use an actual air conditioner.
3. Virus particles with the same characteristics as those adsorbed on a filter were irradiated in a testing device. The test used both the same type of discharge unit and same action as those in an actual product. The distance and installation position were also the same. This in-house simulation was conducted in Japan.
4. Testing method: Harrow method based on the standards of the Home Electric Appliances Fair Trade Conference; Testing organisation: Kyoto Biseibutu Kenkyusho; Result certificate: 09217433-1

Clean Air, Every Day

Cleaning Filter Operation

You no longer have to clean the prefilter. After operation stops, this function automatically brushes dust off the prefilter and collects it in the installed dust box. Cleaning automatically starts after 18 hours or more of cumulative operation. The cleaning lasts a maximum of 11 minutes and once the Mould-Proof/Cleaning Filter lamp starts blinking, you only need to discard the dust collected in the box. This helps to maintain filter performance and prevent energy loss.

Electricity Consumption after One Year of Operation



This function prevents reduced operational performance caused by dust collecting on the prefilter. It decreases annual electricity consumption by 25%[1].

How Is the Filter Cleaned?

The prefilter is automatically moved downwards.

The brush removes dust attached to the prefilter.

The removed dust is collected in the dust box.

Note: 1. Test method: In-house simulation based on JRA4046-2004
Test conditions: Approx. 2 g of material was attached to the filter to represent one year of use.
Test model: Model for the Japanese market similar to Urusara 7
Annual electricity consumption: 1,145 kWh when the Cleaning Filter Operation was used; 1,432 kWh when the Cleaning Filter Operation was not used.

Quiet Operation and Timers

Quiet Operating Sound of 19 dB (A)

Indoor Unit Quiet Operation

This series gives you a choice of 5-step, Quiet or Automatic settings for the fan speed. The Quiet setting selects Indoor Unit Quiet Operation, which decreases the sound pressure level by 7 to 10 dB (A) below the Low setting.

This wide range of settings allows you to precisely control the fan speed according to your needs. For example, the Quiet function will help you to sleep comfortably at night. The sound pressure level for the FTXZ25N and FTXZ35N is 19 dB (A).

FTXZ35N during cooling operation

Fan speeds	Sound pressure levels
High (H)	42 dB (A)
Low (L)	27 dB (A)
Quiet (SL)	19 dB (A)

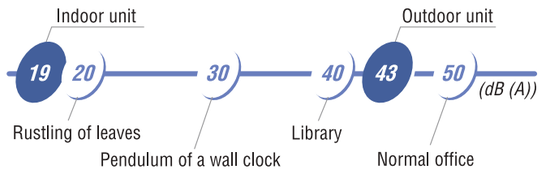
8 dB (A)

	Auto	SL	L	M	H
Fan speed		Low ←			→ High
Sound pressure level		Each decrease in airflow volume reduces the sound pressure level.			

Outdoor Unit Quiet Operation

This function decreases the sound pressure level from the rated operation (H). It can be started easily from the wireless remote controller. (Capacity may decrease during Outdoor Unit Quiet Operation.)

19 dB (A) Is So Quiet You Can Even Hear Whispers[1]



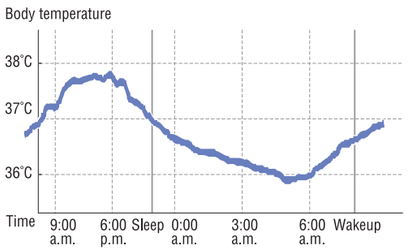
Note: 1. Based on "Examples of Sound Pressure Levels", Ministry of the Environment, Japan, November 12, 2002

Promising You a Good Night's Sleep

Comfort Sleep Timer

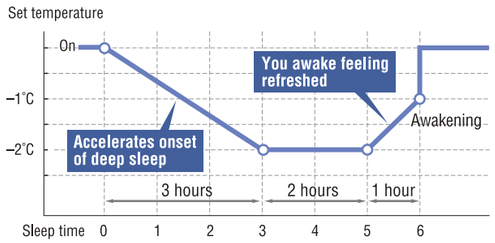
This function controls the indoor temperature while you are asleep, helping to produce body temperature patterns which promote restful sleep. The programme controls the temperature using a V-shaped pattern which is similar to the human body's normal temperature fluctuation pattern. You only need to set your wakeup time.

Body temperature fluctuation pattern



Body temperatures drop slowly as people begin to sleep and rise as their wakeup time approaches.

V-shaped pattern programme



Accelerates onset of deep sleep
The room temperature drops slowly as you begin to sleep, lowering your body temperature while you are asleep.

You awake feeling refreshed
The room temperature rises as your wakeup time approaches, causing your body temperature to rise just before you awake.

Daily On/Off Timer

Both the operation start and stop time can be preset. With this timer, the air conditioner starts and stops at the same time every day. Using the Daily On Timer ensures your living room and bedroom are cool when you come home and go to sleep.

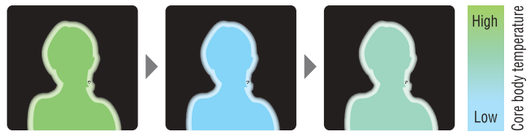
Countdown Off Timer

The operation stop time can be set with the touch of a single button and preset for a period of 0.5 to 9.5 hours in 30 minute increments. Set 4 and the unit will stop after four hours. This is convenient if you want to maintain cooling or dry operation during the night even if you do not use the Daily Off Timer.

Daily On/Off Timer	Starts and/or stops daily operation at the same time.
Countdown Off Timer	Stops operation in 30 minute increments.

Mechanism of Good Sleep

More than 50% of people claim to have disturbed sleep[1]. Daikin has developed the new Comfort Sleep Timer specifically to address this problem. The timer utilises the core body temperature concept, in which a lower temperature is thought to deepen sleep while a higher temperature makes it easier to wake up. Restful sleep is achieved by gradually changing the body temperature during the night.

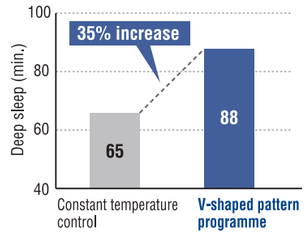


Normal core body temperature before sleep

During the night, you feel sleepier as your core body temperature falls.

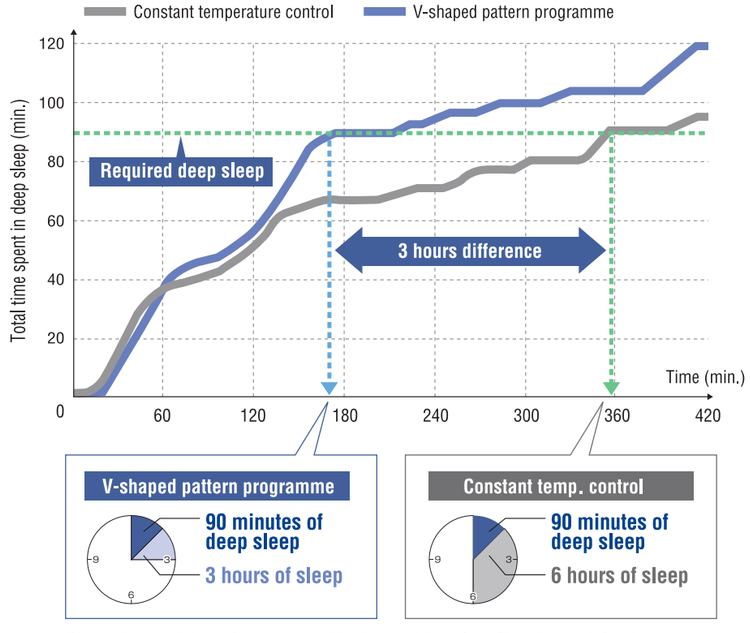
In the morning, you gradually wake up as your core body temperature rises.

Increase in Deep Sleep



The increase in deep sleep was tested by Daikin Environmental Laboratory, Ltd. The V-shaped pattern programme increased deep sleep by 35%[2] (Data for 5 hours of sleep).

Total Time Spent in Deep Sleep (Experiment Results)



To experience satisfying sleep, you need 90 minutes of deep sleep. Three hours of sleep is necessary with the V-shaped pattern programme and six with the constant temperature control.

Notes: 1. Japanese Society of Sleep Research, "Comfort Sleep Experiment Research 2002"
2. This result was obtained through research. There are wide differences between individuals.

Controller

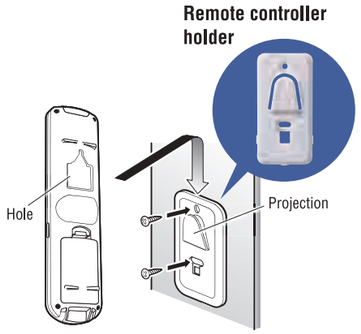
Easy to See during the Night

Humidity and Energy Indications

Frequently used functions are located on the front of the wireless remote controller for quick access. A large liquid crystal display and backlit buttons also allow easy operation in the dark. The LCD provides a range of information, including indoor and outdoor temperatures, humidity and power consumption.

Backlit buttons are easy to see in the dark.

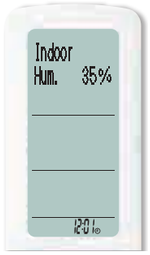
The rounded controller is easy to operate even for elderly people.



The remote controller holder is a standard accessory.

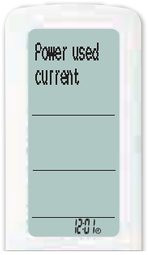
Pushing the Information Display button allows you to check the humidity and power consumption.

Indoor temperature

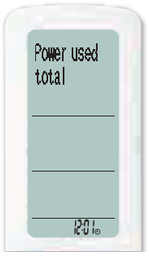


Indoor humidity

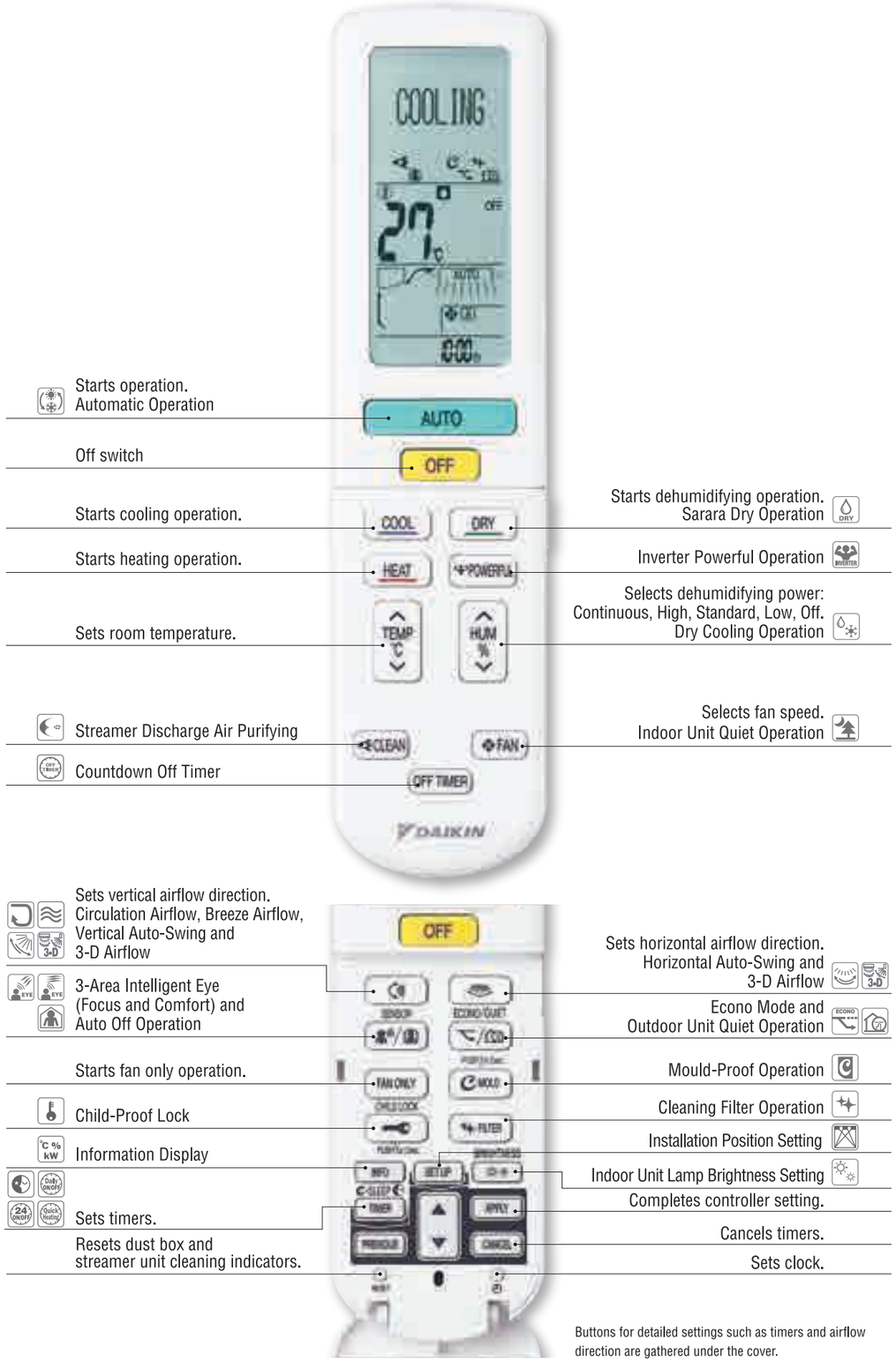
Outdoor temperature



Current power consumption



Total power consumption



Buttons for detailed settings such as timers and airflow direction are gathered under the cover.

Functions

Comfortable Airflow

3-Area Intelligent Eye (Focus)
Intelligent Eye has infrared sensors which detect human movement in left, right and centre zones. Intelligent Eye Focus automatically adjusts horizontal airflow to send air directly to a person.
▶ See page 11

3-Area Intelligent Eye (Comfort)
Intelligent Eye has infrared sensors which detect human movement in left, right and centre zones. Intelligent Eye Comfort automatically adjusts horizontal airflow to avoid blowing air onto a person.
▶ See page 11

Circulation Airflow
This function uses the Coanda effect to rapidly achieve the set temperature. The double air intakes and cross flow fan increase airflow to circulate air around a room.
▶ See page 17

Breeze Airflow
This function recreates the natural rhythm of a gentle breeze. With this airflow pattern, even people who are sensitive to drafts feel comfortable when air is directed towards them.
▶ See page 19

Power-Airflow Flap
The Power-Airflow Flap can flatten out during cooling operation to deliver cool air to the corners of a room. The flap can direct warm air straight down to the floor during heating operation.

Wide-Angle Louvers
The smoothly curved Wide-Angle Louvers provide wide airflow coverage for effective operation no matter where the indoor unit is placed in a room.

Installation Position Setting
The room shape and installation position can be set on the wireless remote controller. This enables optimal control of the horizontal airflow direction.
▶ See page 19

Vertical Auto-Swing (up and down)
This function automatically moves the flaps up and down to distribute air across a room.

Horizontal Auto-Swing (left and right)
Horizontal Auto-Swing automatically moves the louvers to the left and right to cover a room with cool/warm air.

3-D Airflow
This function combines Vertical and Horizontal Auto-Swing to circulate a cloud of cool/warm air right to the corners of even large spaces. The flaps and louvers swing in turn.
▶ See page 19

Lifestyle Convenience

Auto Off Operation
Auto Off Operation uses 3-Area Intelligent Eye to automatically stop operation if no movement is detected in a room. A detection period of one or three hours can be set.
▶ See page 12

Standby Electricity Saving
Even when an air conditioner is not operating, it requires standby power. However, thanks to this function, the required standby power can be reduced.
▶ See page 11

Econo Mode
This mode limits maximum running current and power consumption. This improves operating efficiency and also prevents circuit breakers from being overloaded.
▶ See page 11

Inverter Powerful Operation
This function is convenient for boosting cooling/heating performance for a 20 minute period both when the air conditioner is first turned on or it is necessary to change the room temperature quickly.

Information Display
The LCD provides various details on current operation, including temperature and humidity. It also displays information such as total energy use over several days.
▶ See page 29

Wireless Remote Controller with Backlight
The large LCD and backlit buttons allow easy operation in the dark. Frequently used functions are conveniently located on the front of the controller.
▶ See page 29

Indoor Unit Lamp Brightness Setting
The indoor unit is equipped with an operation lamp, timer lamp and various other indicators. The brightness of these lamps can be adjusted to High, Low or Off.

Indoor Unit On/Off Switch
The unit can be conveniently started manually in the event the wireless remote controller is misplaced or the wireless remote controller batteries are not charged.

Comfort Control

Sarara Dry Operation
This dehumidifying function stabilises the room temperature and prevents overcooling, even for people who are particularly sensitive to cold.
▶ See page 16

Dry Cooling Operation
This combined dehumidifying and cooling operation dehumidifies by cooling at a low airflow rate, resulting in a lower room temperature.
▶ See page 16

Indoor Unit Quiet Operation
Indoor unit operating sound pressure levels are decreased by 7 to 10 dB (A) from the Low setting fan speed using the wireless remote controller.
▶ See page 26

Outdoor Unit Quiet Operation
Outdoor unit operating sound pressure levels are decreased from the rated operation sound using the wireless remote controller.
▶ See page 26

Automatic Operation
This function automatically selects cooling or heating operation mode based on the room temperature at start-up.

Auto Fan Speed
The microprocessor automatically controls fan speed to adjust the room temperature to the set temperature.

Hot-Start Function
After defrosting or when starting heating operation, air is pre-heated before discharge to prevent uncomfortable cold drafts.

Timers

Comfort Sleep Timer
This function controls the indoor temperature using a V-shaped pattern based on sleep science, helping to promote restful sleep. It is only necessary to set a wakeup time.
▶ See page 27

Daily On/Off Timer
This timer allows users to set the operation start and stop times so the air conditioner turns on and off at the same time every day.
▶ See page 27

Countdown Off Timer
The operation stop time can be preset for a period of 0.5 to 9.5 hours in 30 minute increments.
▶ See page 27

24-Hour On/Off Timer
This timer can start or stop the air conditioner within a 24-hour period. It can be preset in 10-minute steps by pressing the On/Off timer button on the wireless remote controller. The On timer and Off timer can be used in combination.

Quick Heating Timer
Heating operation can be preset to turn on one minute after the set wakeup time. Warm airflow starts just one minute later.

Cleanliness

Streamer Discharge Air Purifying
The streamer discharge decomposes bacteria and mould adsorbed by the indoor unit's photocatalytic filter. After the particles are trapped, they are irradiated by the streamer device.
▶ See pages 21 to 23

Mould-Proof Operation
The streamer discharge dries the inside of the indoor unit, heat exchanger and airflow routes. It effectively prevents the growth of both mould and odour-causing bacteria.
▶ See page 24

Cleaning Filter Operation
After operation stops, this function automatically brushes dust off the prefilter and collects it in a box. This helps to maintain filter performance and energy efficiency.
▶ See page 25

Photocatalytic Air-Purifying and Deodorising Filter
While the filter's micron-level fibres are able to effectively trap dust, its photocatalyst has the ability to adsorb odours.
▶ See page 23

Wipe-Clean Flat Panel
The flat panel design can be cleaned with only the single pass of a cloth across its smooth surface. The flat panel can also be easily removed for more thorough cleaning.

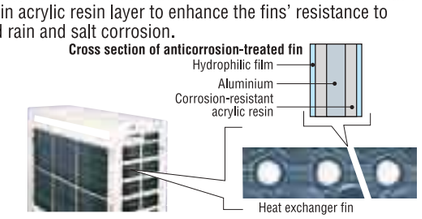
Worry Free

Child-Proof Lock
This function allows users to lock operation using the wireless remote controller. It is useful for preventing setting changes if children play with the controller.

Auto-Restart after Power Failure
The air conditioner memorises the settings for mode, airflow, temperature, etc., and automatically returns to them when power is restored after a power failure.

Self-Diagnosis with Digital Display
Malfunction codes are shown on the digital display panel of the wireless remote controller for fast and easy maintenance.

Anticorrosion Treatment of Outdoor Heat Exchanger Fins
The outdoor unit's heat exchanger fins are processed using a special anticorrosion treatment. The surface is covered with a thin acrylic resin layer to enhance the fins' resistance to acid rain and salt corrosion.



Automatic Defrosting
Before starting heating operation, a sensor checks for frost in the outdoor unit and performs automatic defrosting if necessary so that only warm air is discharged.

Specifications

Model name	Indoor unit			FTXZ25NVM4	FTXZ35NVM4	FTXZ50NVM4
	Outdoor unit			RXZ25NVM4	RXZ35NVM4	RXZ50NVM4
Capacity	Cooling	Rated (Min.-Max.)	kW	2.45 (0.6-3.9)	3.45 (0.6-5.3)	4.95 (0.6-5.8)
			Btu/h	8,400 (2,000-13,300)	11,800 (2,000-18,100)	16,900 (2,000-19,800)
	Heating	Rated (Min.-Max.)	kW	3.6 (0.6-7.5)	5.0 (0.6-9.0)	6.3 (0.6-9.4)
			Btu/h	12,300 (2,000-25,600)	17,100 (2,000-30,700)	21,500 (2,000-32,100)
Power supply				1 phase, 220-240 V, 50 Hz		
Running current (220-230-240 V, 50 Hz)	Cooling	Rated	A	2.1-2.0-2.0	3.2-3.0-2.9	5.3-5.1-4.8
	Heating			2.9-2.8-2.7	4.6-4.4-4.3	6.5-6.2-6.0
Power consumption	Cooling	Rated (Min.-Max.)	W	430 (110-880)	680 (110-1,330)	1,150 (110-1,600)
	Heating			620 (100-2,010)	1,000 (100-2,530)	1,410 (100-2,640)
COP	Cooling	Rated (Min.-Max.)	W/W	5.70 (5.45-4.43)	5.07 (5.45-3.98)	4.30 (5.45-3.63)
	Heating			5.81 (6.00-3.73)	5.00 (6.00-3.56)	4.47 (6.00-3.56)
Indoor unit				**FTXZ25NVM4**	**FTXZ35NVM4**	**FTXZ50NVM4**
Front panel colour				White		
Airflow rate (H)	Cooling		m^3/min	10.7 (379)	12.1 (428)	15.0 (545)
	Heating		(cfm)	11.7 (415)	13.3 (469)	14.4 (517)
Fan speed				5 steps, quiet and automatic		
Sound pressure levels (H/L/SL)	Cooling		dB (A)	38/26/19	42/27/19	47/30/23
	Heating			39/28/19	42/29/19	44/31/24
Dimensions (H x W x D)			mm	295 x 798 x 370		
Machine weight			kg	15		
Outdoor unit				**RXZ25NVM4**	**RXZ35NVM4**	**RXZ50NVM4**
Casing colour				Ivory white		
Compressor type				Hermetically sealed swing type		
Refrigerant charge (R-32)			kg	1.34		
Sound pressure levels (H)	Cooling		dB (A)	46	48	49
	Heating			46	48	50
Dimensions (H x W x D)			mm	595 x 795 x 300		
Machine weight			kg	43		
Operation range	Cooling		°CDB	–10 to 43		
	Heating		°CWB	–20 to 18		
Piping connection	Liquid		mm	ø6.4		
	Gas			ø9.5		
	Drain			Indoor unit: I.D. ø16.0, O.D. ø18.0		
				Outdoor unit: I.D. ø15.9		
Max. piping length			m	30		
Max. height difference				12		

Measurement conditions
1. Cooling capacity is based on: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB; piping length 7.5 m.
2. Heating capacity is based on: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB; piping length 7.5 m.
3. Sound pressure levels are based on the temperature conditions 1 and 2 above. These are anechoic conversion values. These values are normally somewhat higher during actual operation as a result of ambient conditions.

Options

Indoor Unit

No.	Item		FTXZ25/35/50N
1	5-room centralised controller	*1	KRC72A
2	Wiring adaptor for time clock/remote controller (Normal open pulse contact/normal open contact)	*2	KRP413AB1S
3	Photocatalytic air-purifying and deodorising filter set	*3	KAF046A41
4	Remote controller loss prevention with chain		KKF936A4

Notes: *1. A wiring adaptor (KRP413AB1S) is also required for each indoor unit.
*2. The time clock and other devices should be obtained locally.
*3. The filter is a standard accessory.


5-room centralised controller
KRC72A


Photocatalytic air-purifying and deodorising filter
KAF046A41


Remote controller loss prevention with chain
KKF936A4

Outdoor Unit

No.	Item		RXZ25/35/50N
1	Air direction adjustment grille		KPW937D4
2	Drain plug	*1	KKP937A4

Note: *1. One set includes 5 pieces for 5 units.


Air direction adjustment grille
KPW937D4


Drain plug
KKP937A4

Control System

No.	Item		FTXZ25/35/50N
1	Central remote controller	*1	DCS302CA61
2	Unified On/Off controller	*1	DCS301BA61
3	Schedule timer	*1	DST301BA61
4	Interface adaptor for DIII-NET use		KRP928BB2S

Note: *1. Interface adaptor for DIII-NET use (KRP928BB2S) is also required for each indoor unit.


Central remote controller
DCS302CA61


Unified On/Off controller
DCS301BA61


Schedule timer
DST301BA61