



## DNSS EcoSave

A/C remote monitoring and malfunction prediction



# What is DNSS EcoSave?

The **Daikin Network Service System (DNSS EcoSave)** is a Daikin developed internet based remote energy saving and system performance monitoring service. A team of Daikin experts will monitor the operating status of the entire system 24 hours a day, 365 days a year. The primary aim for this service is to prevent malfunction and prolong the lifespan of the systems, furthermore the energy saving feature will optimise the efficiency of the equipment resulting in reduced CO<sub>2</sub> emissions and lower running costs of up to 25%. The diagram below illustrates how this technology works.

## ON-SITE EQUIPMENT



### ON-SITE CONTROLLER

The operating data of the Daikin systems is monitored 24/7. The monitoring device stores this information and sends a daily report to the monitoring station in Japan.



### ON-SITE CONTROLLER

Energy saving commands are sent to the monitoring device, this information is then transmitted to the air conditioners.



### DNSS MONITORING STATION JAPAN

The data sent from the monitored site is analysed for any abnormal trends in performance, it is through this extensive observation that DNSS is able to predict potential problems.



### DNSS MONITORING STATION JAPAN

Optimum energy saving control settings are calculated using the data from remote weather stations and information collected from the site.



### DAIKIN UK

In the event of any abnormality the Daikin UK DNSS team will be notified, the data will be reviewed once more, and where necessary the maintenance contractor will be informed.



### UK WEATHER STATION DATA



### MAINTENANCE CONTRACTOR

The maintenance contractor will be able to attend with the advantage of knowing the nature of the call out resulting in a greatly improved service to the building owners and occupiers.

# 24/7 Remote monitoring

Maintenance – be proactive not reactive



## Prevent product malfunctions (Malfunction prediction service)

The DNSS EcoSave will analyse the data from your Daikin equipment every minute of the day and will alert us before the equipment actually breaks down. In this way, failures can be prevented and possible down time reduced to an absolute minimum.

This feature will also flag certain operational issues such as gas leakages and blocked/contaminated air filters or heat exchangers, this information will be passed on to the customer to improve performance and efficiency.

## Extend product lifetime

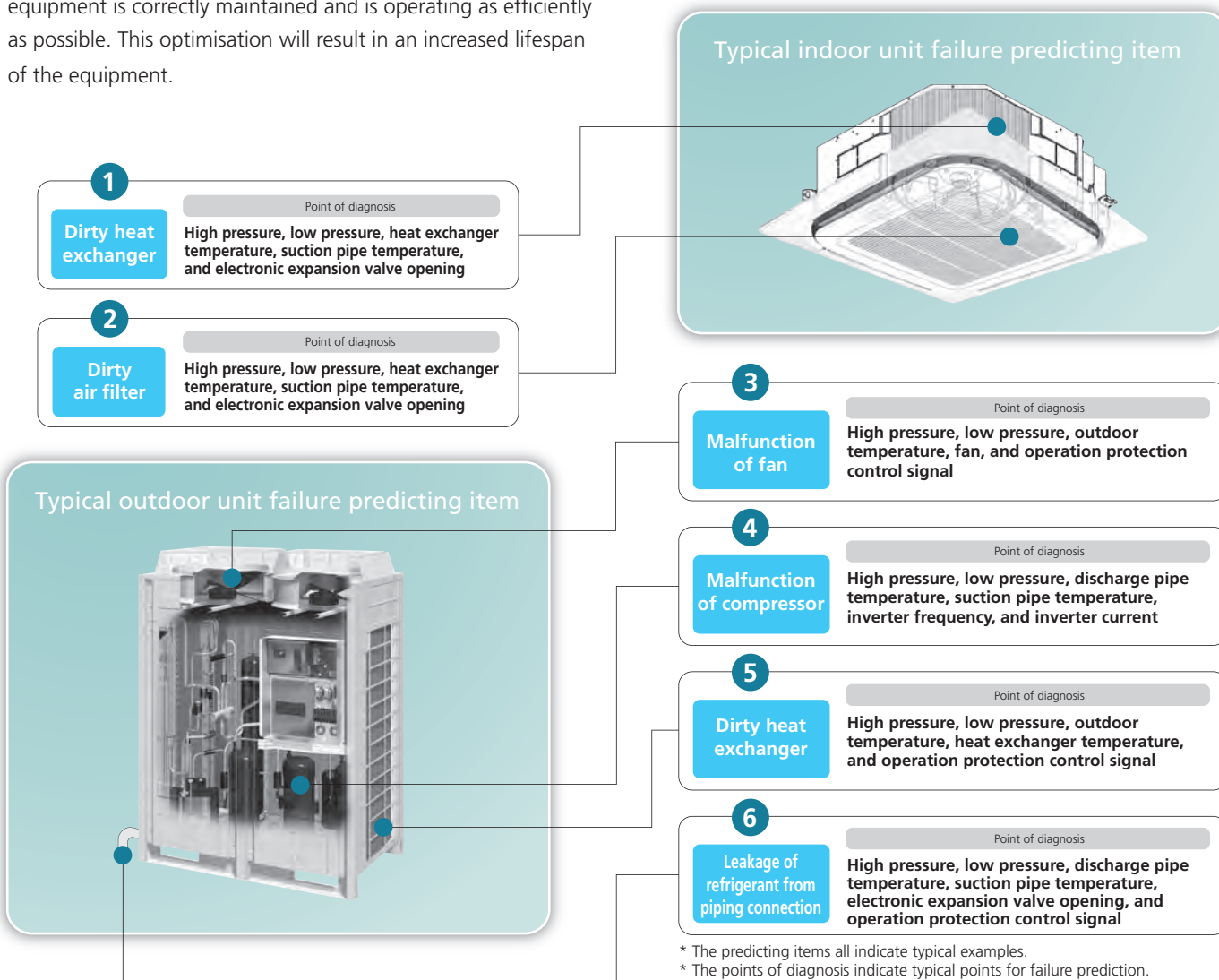
The DNSS EcoSave is designed to make sure that your equipment is correctly maintained and is operating as efficiently as possible. This optimisation will result in an increased lifespan of the equipment.

## Remote diagnostics

The DNSS EcoSave will continually monitor around 130 points of information from the air conditioners. This includes pressures, temperatures, running hours etc. When a malfunction either occurs or is predicted then Daikin engineers will analyse the data to identify the source of the problem.

## Malfunction alerts

In the unlikely event of a problem occurring, your regional Daikin office will contact you directly. Our engineers who are dedicated to your installation, will inform you regarding the nature of the abnormality and will assist you through every step until the problems are solved.



# Remote energy saving

Various factors contribute to the way in which the air conditioners operate. Installation locations, operating conditions and the weather vary from site to site.

**The energy saving control function of the DNSS EcoSave is designed to remotely adjust the operating parameters of the Daikin air conditioners to ensure optimum energy efficiency.**



## Why use DNSS EcoSave?

Daikin VRV® systems offer high levels of performance and efficiency, but the DNSS EcoSave service can maximise the equipments energy saving potential.

When the units are produced the machines are setup to operate to certain default parameters. Aspects such as installation, building occupancy and weather conditions effect the efficiency of the equipment, this service remotely adjusts these parameters to fine tune your equipment for the conditions at the specific site. Daikin will also produce an energy saving report as part of this service.

## How energy saving is achieved

The DNSS system has been designed to optimise the air conditioners operating parameters in accordance to the exact conditions on site. The DNSS system uses the VRV® operating data and weather forecast data (from weather stations in close proximity to the installed site), to judge the degree of energy saving potential. If energy saving is possible, commands are sent via the internet to the VRV® outdoor unit.

The result of this type of control, is the most efficient operation of the air conditioning system without compromising the comfort levels or level of control to the building occupier. It is 'behind the scenes' control that has been proven to cut electrical energy consumption and therefore, a reduction of CO<sub>2</sub> emissions and running costs by up to 25%.

**Refrigerant temperature control** – Adjustments are made to the target condensing and evaporation temperatures of the refrigerant resulting in less 'work done' (electrical energy consumption) for the compressors.

**Upper limit capacity control** – A maximum capacity setting is applied to the outdoor units to minimise the step range of the compressor, this will result in higher efficiency and reduce wasted capacity.

**Peak power cut control** – Cooling or heating levels can be reduced during periods of peak power usage to help reduce power consumption to a target value.

The DNSS EcoSave system will also account for occupancy levels and variations in installation (piping lengths etc.) when calculating energy saving potential. **Energy saving does not compromise comfort levels!**

# What equipment can be connected to DNSS EcoSave?



Daikin VRV® equipment from R22 K series to the latest models are compatible with this service providing the relevant hardware (DNSS controller) is installed on site

New Sky Air type systems are also compatible but there is a requirement for additional hardware per outdoor unit. This service is now also available for a range of Daikin water chillers.

# What hardware is required?



In order for data to be collected and sent to the remote monitoring centre there must be a DNSS compatible controller installed, this will be a Daikin Intelligent Touch Controller, Intelligent Manager or an LC Controller. A modem may also be required depending on the chosen method of connection to the internet.

## Is energy saving available for all products?

Energy saving is available for R410a VRV® equipment (from VRV®II onwards). This feature is not possible with Sky Air or chilled water systems.

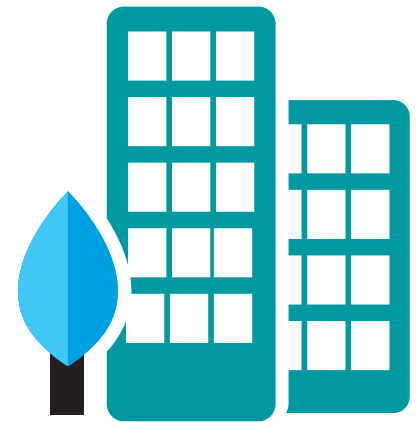
## What else is required?

There needs to be a connection to the internet in order for the DNSS EcoSave system to collect and transmit operational data/commands. The preferred connection method would be via the customers 'in house' LAN. The other options are analogue telephone line (for dial up modem), or a GPRS (wireless) modem.

# Your installation under continuous monitoring



- \* 24 hours a day, 365 days a year remote monitoring
- \* Up to 25% reduction in energy costs and CO<sub>2</sub> emissions
- \* Predictive maintenance helping to reduce maintenance cost and extend product lifetime
- \* Improved comfort levels
- \* Expert Daikin engineer involvement



## Extra value at low cost

- \* Monitoring fee starts at only £150 per year and depends on the size of your system
- \* A strategy of preventing and limiting unnecessary maintenance visits
- \* Efficiently organising site interventions by diagnosing the nature and the extent of the problem before going to site
- \* Innovative technology that helps to optimise your equipments potential
- \* Ensures the most comfortable environment in your premises





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Daikin UK is approved by LRQA for its Quality Management System in accordance with the ISO9001 standard. ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to the product.



Daikin units comply with the European regulations that guarantee the safety of the product.



ISO14001 assures an effective environmental management system in order to help protect human health and the environment from the potential impact of our activities, products and services and to assist in maintaining and improving the quality of the environment.



Daikin Europe N.V. participates in the Eurovent Certification Programme for Air Conditioners (AC), Liquid Chilling Packages (LCP) and Fan Coil Units (FC); the certified data of certified models are listed in the Eurovent Directory. Multi units are Eurovent certified for combinations up to 2 indoor units. VRV products, Rooftops, FWB-J and FWD-units are not within the scope of the Eurovent Certification Programme.

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