

I-Net

An intelligent approach to air conditioning management



Your partner for
successful life cycle cost
management





Daikin services

An air conditioning system is one of your building's most important facilities. It affects everyone and everything working in the building.

The initial challenge is choosing the most efficient system, making sure it has the correct specifications and that it runs with optimum efficiency. There is a second challenge, and that is guaranteeing its efficiency and performance over the long term.

Daikin Service and its partners can help you to meet this second challenge. We offer you energy-efficiency and long-term performance solutions. These solutions include maintenance programmes, monitoring, upgrades and options. So you can focus on what you do best, while we look after your comfort.

What is I-Net?

A service based on our global remote monitoring technology, keeping your system trouble-free and working with top efficiency.



What does I-Net offer you

Safeguarding the lifelong optimum operation of your air conditioning system means getting geared up to operate the system in a energy efficient way and reduce unexpected breakdowns and costs to the absolute minimum. This is where I-Net helps to improve the effectiveness of your building management.

I-Net is about 'being connected' with Daikin, the Internet-based link between you, your air conditioning system and Daikin's Remote Monitoring Centre. This allows you to monitor your energy consumption and Daikin's expert service engineers to monitor your entire system's status non-stop, all year round. Through predicting malfunctions and offering technical advice from data analysis, you can maximise equipment uptime, as well as controlling energy costs with no sacrifice in comfort levels. By doing this, i-Net will prevent problems, prolong your system's service life while reducing the energy bill.

I-Net Services

i-Net consists of 2 main services: the VRV Cloud and I-Net performance monitoring and analysis.

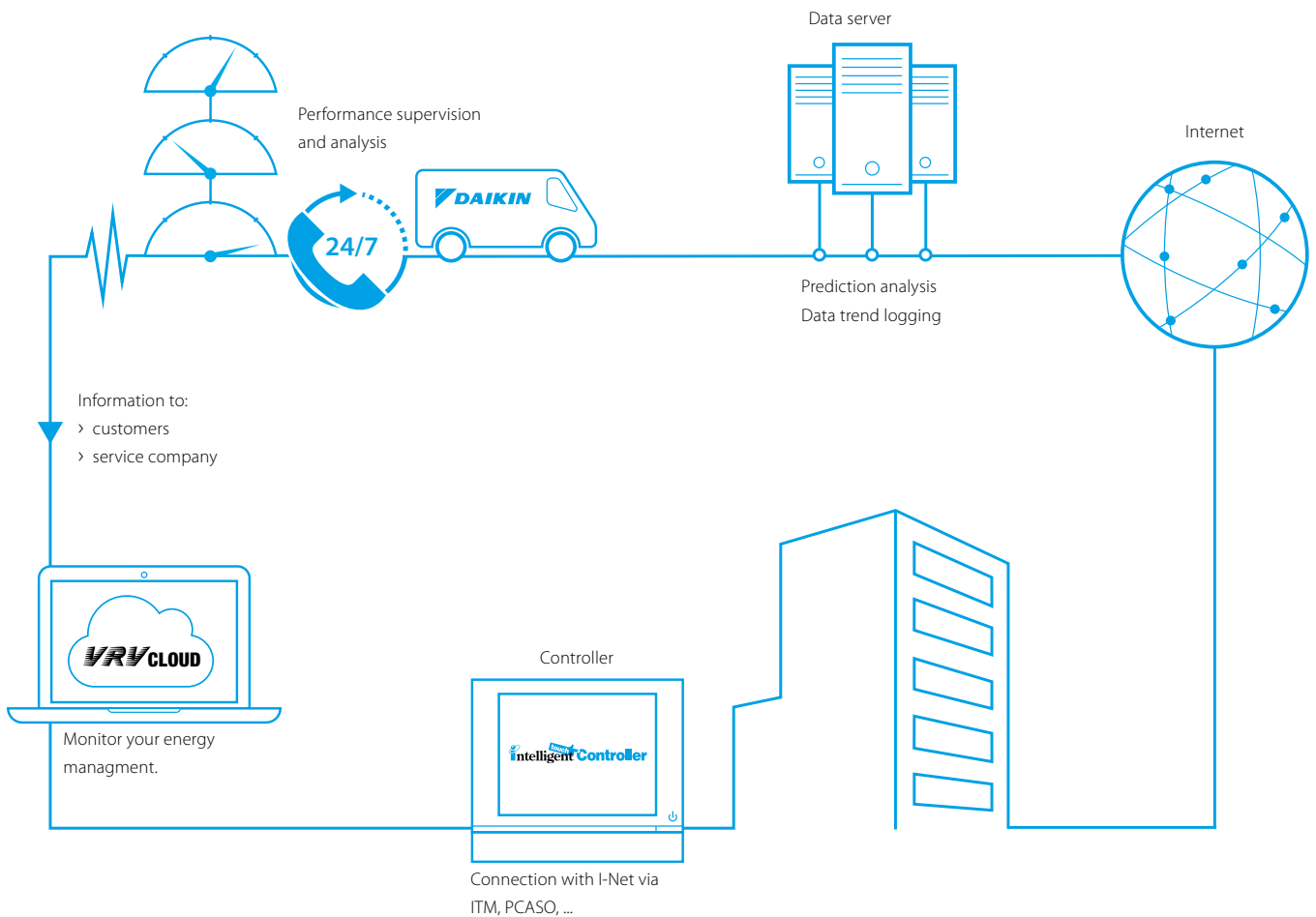
VRV Cloud

The VRV Cloud puts you in the driving seat of your energy management. The easy-to-use energy data trending and analytic tools puts you in control and shows you CO2 footprint reduction opportunities and energy savings of up to 15%.

Saving starts by measuring. Enhance your company's sustainability !

I-Net performance monitoring and analysis

Focus on your core business and hand the HVAC over to Daikin. Daikin I-Net connects your system continuously with Daikin. It notifies alarms and early warnings of system deviations to maximise system uptime and the comfort of the people in the building. Service providers have webbased access to operation data so that they are fully prepared when they arrive on-site. Specialists run trend analyses. All of which boosts your system's reliability by ensuring that it is running at optimum efficiency.



i-Net

Daikin VRV Cloud

Helps you manage your energy through Daikin technology.

- > Intelligent energy visualization tool that helps you with your energy management
- > 24/7 online monitoring by the customer from any location.
- > User friendly visualization of VRV energy management (kWh)
- > Analysis support of waste operation
- > Multiple site monitoring

More details on page 6-7

- > Performance Supervision by Daikin experts enhances a maintenance plan.
- > This service aims to enhance the service level, to respond fast and accurate, to save on unexpected repair costs and assure the peace of mind. Repetitive interventions and disturbance of building tenants and maintenance teams are kept to a minimum.

Long lifetime systems

- > I-Net will maximise the installation's lifetime, by assuring the equipment runs in optimal conditions and avoid unnecessary stress on components.

Performance monitoring

Daikin's unique I-Net Service aims to prevent the equipment coming to an unexpected stop or needing emergency repair.

Fast response, better prepared

- > If an alarm does occur, the service provider is immediately alerted and receives all crucial information.
- > Early fault indication (predictions) : operation data are 24/7 checked by I-Net prediction algorithms to act as early as possible, averting unscheduled breakdowns.

Analysis

Be connected with Daikin's experts, this gives you a clear overview of operability and use of the air conditioning system.

- > Daikin continuously monitors energy, operation and comfort data. Thanks to periodic analysis of the data, Daikin can suggest ways of improving performance.
- > if there is a problem, Daikin specialists will analyse the operation data history to provide remote support.

More details on page 8-9

Daikin's VRV Cloud

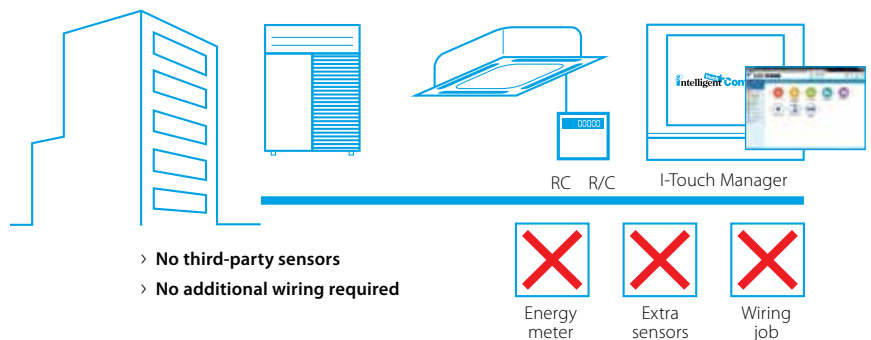
will help you to plan and meet your annual energy target.

VRV Cloud

The VRV Cloud's user interface helps you to assess your energy consumption at a glance from anywhere.

Packaged concept

The VRV Cloud is a packaged system which delivers all the information you need, without any additional wiring or sensors. Once the system is installed, you can immediately start managing your energy use.



Benefits for building owners and facility managers

Boost your energy management with lower manpower requirement.

- > Increased tenant satisfaction
- > Reduced energy consumption and CO₂ emissions
- > Enhances your CSR profile



How does the VRV Cloud work?

The system helps you to plan your annual energy target based on data stored from the previous year, or from a target which you set.

First year

The first step towards managing your energy use involves understanding usage trends. The VRV Cloud's user interface displays this graphically, so you get a quick and clear picture of the amount of energy your VRV system is using.

Subsequent years

Once you understand your current levels of energy use, you can start to look at managing your long-term use by setting an annual energy target. Daikin has a unique Target Energy Assister function which helps you to meet your energy use targets.

Daily management

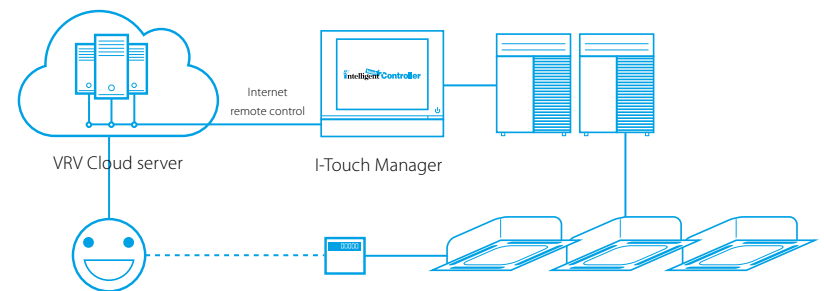
The VRV Cloud manages your annual energy target remotely and sends daily control commands to the VRV system via the Internet. This frees you from constant tiresome monitoring and allows you to concentrate on your core business.

Monitoring and checking progress

The VRV Cloud monitors the evolution of your annual energy plan. If the energy consumption exceeds your target, you will be prompted to take action. Comprehensive analytics will help you to identify the origin of the problem.

Execute Daily Energy Management

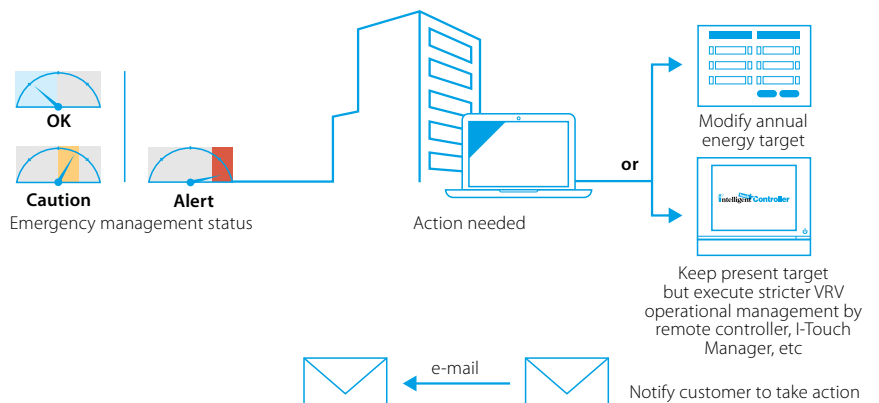
VRV Cloud is showing the impact of daily operation of the system.



Energy assessment at a glance

Monitor and Check Progress

VRV Cloud monitors the progress of your annual energy plan. If projected annual energy consumption exceeds the target value, blue, yellow and red symbols prompt you to take countermeasures.



Performance monitoring & Analysis

When uptime, peace of mind and budget control really matter.

I-Net performance monitoring and analysis

Experience an enhanced service level

You can take your HVAC management to another level by letting Daikin take care of it for you. Your air conditioning system will be linked via the Internet to Daikin's Remote Monitoring Centre. Expert Daikin engineers, supported by algorithms, will monitor your system's operating status non-stop. They will ensure that your system's energy efficiency is maximised by running optimally at all times. Through this constant monitoring, they can alert you or your maintenance service provider to any potential issues. This will not only help to prevent problems, but it will also prolong the system's service life. With VRV systems, Daikin's unique online diagnostic system can predict failures and prevent breakdowns or emergency repairs. So you and your customers can relax, secure in the knowledge that your system is in good hands.

Benefits

Your equipment is more durable and lasts longer

- › Deviations are detected earlier, avoiding breakdowns and resultant damage.
- › Your equipment always runs at optimum levels, avoiding unnecessary stress on the system and prolonging its service life.

Faster response time

- › If a breakdown does occur, the service company is immediately alerted and provided with a detailed record of the system.

Clear overview of the operation and use of your air conditioning system

- › Reports giving the history of the system's operational management and its operation.

Stay in control

If you are looking for optimum uptime and reliability, it is vital to intercept deviations as early as possible. Daikin can help you to get the most out of your system by regularly analysing its condition.

Prediction examples

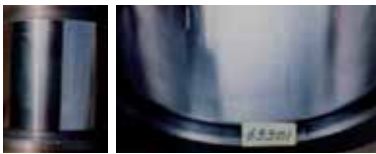
Prediction 1

Preventing wet operation that would be caused by dirty indoor unit air filter.

Crankshaft journal

Bearing metal

Proper operation



mirror surface

Wet operation continued



wear-cut or seizure

Prediction 2

Preventing power-waste and high-stress operation that would be caused by dirty indoor-unit heat exchanger.

Movable scroll (compressor component)

Lubricant

Proper operation



enlarged

Overloaded operation continued



enlarged

Prediction 3

Preventing an unexpected stop and compressor damage that would be caused by refrigerant shortage (out of gas)

Stationary and movable scrolls (compressor component)

Proper operation



Refrigerant-shortage operation continued



Sludge (carbide) deposits

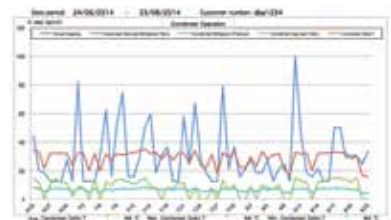
Learn from the data

Daikin has created its own 'prediction analytics', a 'virtual service engineer', to predict HVAC behaviour. This 'engineer' constantly analyses the system's operational parameters (such as actuator status, operation mode or operation status) to check on its behaviour. These are the same logical checks that a service engineer would carry out. They are used to generate predictions, which makes them much more comprehensive than simple pre-alarm temperature/pressure level monitoring.

Team up with Daikin

Daikin will keep you updated about the condition of your system through a comprehensive traffic light report, records of alarms and graphics, plus trends of its key operational parameters.

Operation data graph



Unit operation summary

Unit operation summary	
Overall Unit Operation	1 Above issue(s) are effecting unit performance; recommend servicing
Compressor Operation	X Inspection complete
DI System Operation	X Inspection complete
Refrigerant System Operation	1 Discharge pressure above normal range; recommend servicing
Evaporator Operation	1 Evaporator water flow outside design range; recommend servicing
Condenser Operation	X Inspection complete
Indoor Unit Control Operation	X Inspection complete
Electrical Operation	X Inspection complete
Motor Fan Operation	1 Critical Alarms have occurred since last inspection; recommend servicing

Technical details

This connectivity table is subject to updates and changes and is for reference only.

Connectivity table - VRV

	VRV Cloud	i-Net functions				
		Malfunction / prediction / monitoring				
	iTM	iTM	iM-3	ITC-C	LC7	LC8
VRV-K H/P		•	•	•	•	•
VRV-K H/R		•	•	•	•	•
VRV-K R407c		•	•	•	•	•
VRV-L R407c		•	•	•	•	•
VRV-M H/P & H/R		•	•	•	•	•
VRVII-S		•	•	•	•	•
VRV-WII		•	•	•	•	•
VRVIII H/P & H/R	•	•	•	•	•	•
VRVIII-S	•	•	•	•	•	•
VRV-WIII	•	•	•	•	•	•
VRVIII-C*	•	•			•	•
VRVIII-Q**	•	•	•	•	•	•
VRV-CO2					•	
VRV IV	•	•	•	•		•

* Booster unit data cannot be monitored
 ** RQYQ8-48P is supported by LC7, LC8 and iTM

Connectivity table - Chillers

Chiller Compressor	Controller	Alarm notification	Prediction algorithms	Remote controller access	Analysis report
Multiscroll	PCASO	•	•		•
	MT3	•			•
Screw	MT2	•		read only	•
	MT3	•		read & write	•
Centrif	MT2 (PCO2)	•	•	read & write	•
	MTE	•	•	read & write	•

- Supported
- Partially supported

What else does Daikin service offer?



Other Daikin service packages

Genuine Daikin Parts

These are built to the same design and quality as Daikin equipment. We guarantee that your system will perform to the same high level after servicing.

Start-up and commissioning

Experts trained by Daikin ensure the installation runs exactly as specified.

Emergency support

Available 24/7.

Technical assistance and repair service

You can count on us whenever you need help.

Service Plan

Maintenance plans tuned to your needs to keep your system in top condition.

Energy optimisation and upgrades

Energy costs are rising and building cooling/heating requirements may change over time. Daikin has a wide range of upgrades and retrofits to help you to stay ahead in a changing world.

Renewals and modernisation

Daikin can modernise existing systems to deliver the best value for money, solve logistical headaches or to conform to regulations.

For information on Daikin Service consult our service brochure on www.daikineurope.com/service or contact one our service staff.

Daikin - Your service partner

World class logistics

Wherever you are, Daikin genuine parts are rapidly delivered to your door, thanks to an extensive European network of warehouses and forwarders.

Global company, local presence

You will find Daikin affiliates and partners in almost every European country. These local teams deliver manufacturer services in your local language. Nevertheless, they are all part of Daikin's worldwide service network.

Dedicated people

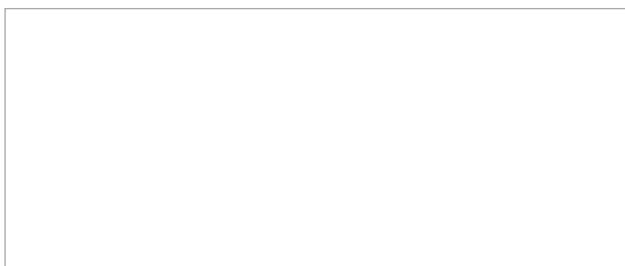
To ensure the quality of the service we deliver, we invest continuously in the know-how and skills of our staff. We train and update them on the latest technical developments and service methods.

Daikin – your partner

'Absolute credibility' is one of Daikin's core values. We are committed to building long-term relationships based on trust and openness. Sustainable customer relationships are what have made Daikin the world leader in HVAC equipment.



Daikin Europe N.V. Naamloze Vennootschap Zandvoordestraat 300 · 8400 Oostende · Belgium · www.daikin.eu · BE 0412 120 336 · RPR Oostende (Responsible Editor)



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