



For
internal use
only



Our vision

Why Daikin Service & Solutions?

Because we want to accompany our customers from design to installation and offer services for the entire life cycle of our products.

The proper follow-up of an HVAC system is crucial for the well-being of users and the service life of the system.

Energy consumption and environmental awareness are becoming increasingly important, new legislation is coming into force, heating and cooling needs are changing, and new, innovative technologies are being developed. There is a constant search for an optimal balance between comfort and energy consumption.

The next challenge is to ensure efficiency and performance over the long term.

Daikin offers a **range of services** such as maintenance programmes, remote monitoring, upgrades and optimisations in order to meet this challenge and **provide added value for our customers.**

Daikin Service has highly skilled, factory-trained **technicians with extensive knowledge and experience**, who can map your service needs with you. We offer customised maintenance and repair services, 24/7 assistance and temporary cooling solutions.

The Daikin service team is committed to intelligent services and solutions.

Have your HVAC systems serviced by Daikin professionals for **100% peace of mind!**

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All technical support
via 1 central contact point:

+4312532111/299

Mon. - Thu.: 8 am - 5 pm, Fri.: 8 am - 1 pm



HOTLINE

+4312532111/XXX

1

Our technical hotline helps you in real time.
Our technicians support you all year round by:

- › Answers to questions on technical problems
- › Help for installers during breakdowns
- › Selection and quotations for spare parts

service@daikin.at



PLANNING

2

Daikin offers you top-quality support during site interventions. Our technicians help you with the following activities:

- › Commissioning
- › Diagnosis and troubleshooting
- › Inspection and maintenance

service@daikin.at



PARTS

3

Our Spare Parts department is available to answer all your questions regarding:

- › Delivery of spare parts
- › Your spare parts order

spareparts@daikin.at

Online orders: access & request a password via
spareparts@daikin.at



TRAINING

4

Daikin offers you a wide variety of training courses covering the entire Daikin product range.

Aim:

- › Acquire product knowledge through real interventions on working units.

schulung@daikin.at

my.daikin.at



8:00AM 9:00AM 10:00AM 11:00AM 12:00AM 1:00PM 2:00PM 3:00PM 4:00PM 5:00PM

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

If you have a Daikin service contract or pay a permanent service fee, you will be helped by a service centre at weekends, on public holidays and outside working hours. The call centre will put you in contact with a technician.



PROJECTS

5

Our project engineers are available to answer all your questions regarding:

- › Questions and follow-up of quotations for service contracts and projects
- › Hire equipment (chiller units)
- › Energy audits

service@daikin.at



RECEPTION

6

Would you like to be connected with reception?

- › You have a general question
- › You would like to speak to someone from a different department

reception@daikin.at



STAND BY ME

Up to 5 years' warranty on a Daikin residential unit (air/air, air/water/ water/water and all combustion appliances)

<http://standbyme.daikin.at>

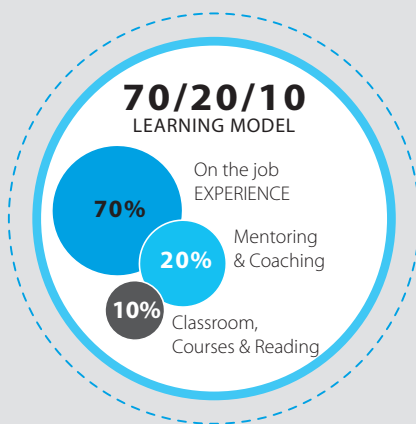
Click on "Register your account" under the "Daikin Professional?" section to request an account.

- › You register as a "Preferred Partner" and are visible to customers who want to request maintenance
- › You can register your own systems so that you are automatically notified when maintenance needs to be planned for your customers' systems
- › You generate maintenance contracts and can load commissioning and maintenance reports, technical interventions, etc. directly.

Service Academy

We train service technicians to exceed customer expectations

New learning model



The Daikin Service Academy offers **individual learning paths** covering all **service cases** for Daikin products. Our goal is to help you delivering better Service on site and therefore grow your business.

Our training packages cover following areas:

- Installation & Pre-Commissioning
- Maintenance
- Troubleshooting & Repair
- Advanced Commissioning & Advanced Troubleshooting
- Application & Design

Goals & Objectives

With the Daikin Service Academy we want to offer a uniform European learning program for service technicians (internal & external) to become the best of the best.

- Ensure that our partners have skilled labour available
- Enable and deliver high quality Service to our end users
- Enhance performance and efficiency, using less time for service interventions
- Improve quality and hence customer satisfaction on site
- Foster career paths to keep service technicians in the HVAC-R industry
- Offer trainings in local language wherever possible

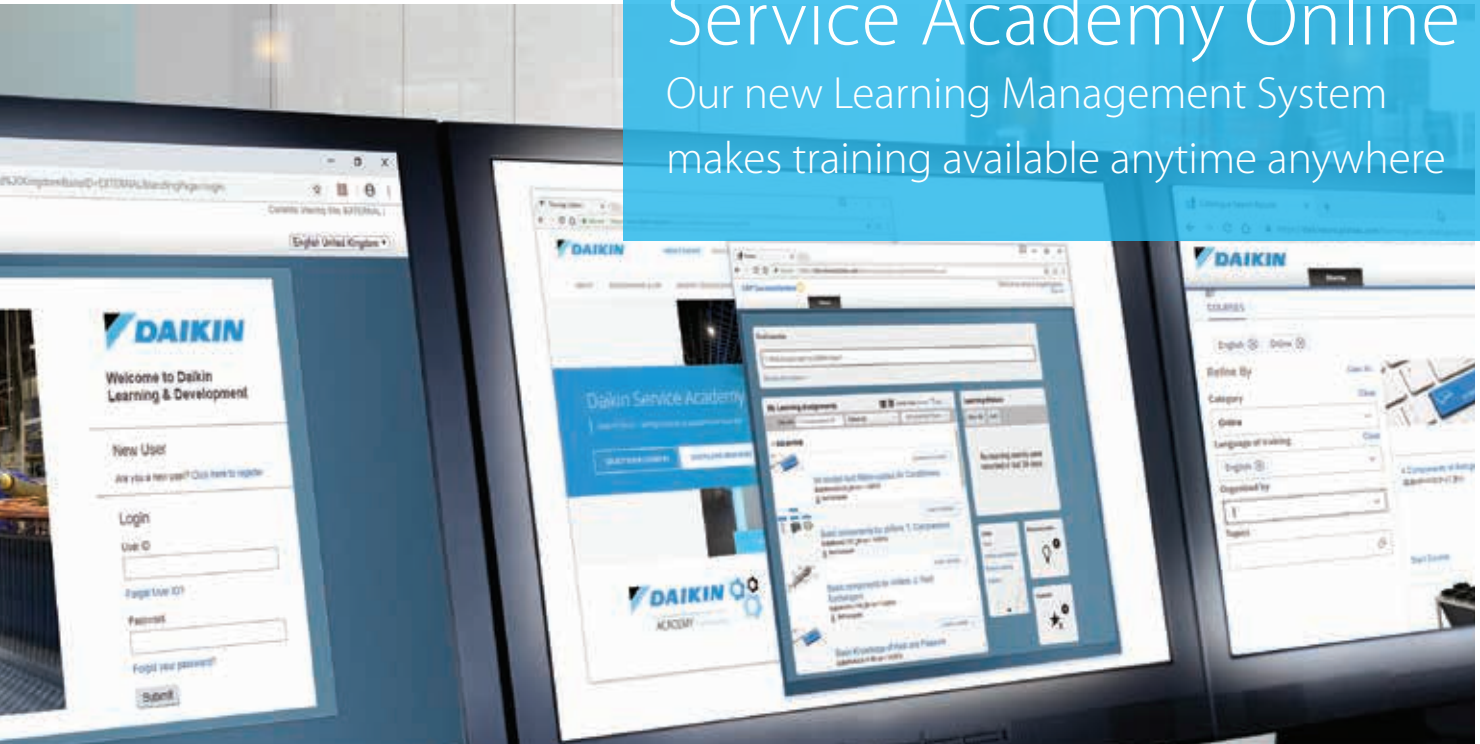
Want to know more?

Please contact us for more information about the Daikin Academy Central Europe: academy@daikin-ce.com
Or check out our new online training catalog:
<http://academy.daikin-ce.com>



Service Academy Online

Our new Learning Management System makes training available anytime anywhere



Benefits

The new Daikin Learning Management System supports different types of learning activities to help you enhance your skills and knowledge. It gives you a complete overview of the courses offered at the Daikin Academy: from classroom trainings to webinars and other online learning experiences.

Use the Daikin Learning Management System to:

- Browse the training catalog to view Daikin's vast training offer
- Put together your learning plan and view assigned learnings
- Register for trainings and launch online courses
- View your learning history and download your certificates of finished courses

3 steps to get started

1. Go to <http://academy.daikin-ce.com>
2. Request a new account using your unique, individual e-mail address (no general office address for multiple users possible). Ensure you have access to this mailbox, since this e-mail address will be used for important communication concerning your learning experiences.
3. Once your Daikin Learning Coordinator approves your account request, you will receive a notification e-mail with your login credentials and have access to the Daikin World of Learning.



Want to know more?

Please contact us for more information about the Daikin Academy Central Europe: academy@daikin-ce.com

E-Parts

Find the correct spare part for your Daikin unit, check availability (real-time) and order online.

All in just a few simple steps.

Your advantages:

- › Always available
- › Fast handling
- › „real time“ availability
- › Free shipment
- › Flexible delivery address
- › Prompt feedback

Register now to use the E-Parts service

You can find the online registration form on

www.daikin.xy/someaddress

Always accessible for you

You can find the links to E-Parts and to the spareparts bank on our Business Portal:

<http://eparts.daikin-ce.com>



Original spare parts

Original Daikin spare parts are manufactured to the same design and quality standards as Daikin units. You can rest assured that after maintenance or repair your system will continue to perform at the same high level. Spare parts are distributed via a worldwide logistics network and are distributed in the Belux zone by our European spare parts centre.

Spare Parts Kits

A number of **standard kits** have been created in order always to have the right parts for Daikin refrigeration and some heating units on hand at all times. Thanks to these kits, you can always obtain the **most critical parts** for unexpected repairs in the event of a breakdown.

Do you need help selecting a spare part?

- › **+4312532111299** to contact Technical Service
- › Work with our technician to determine the spare parts that need to be replaced.
- › Our staff will prepare a quotation for you.

Order your spare parts

- › Accept the quotation or send an order form to our spare parts department via the email address **spareparts@daikin.at**
- › Our Spare Parts department will send the spare part to you as quickly as possible.
- › You will be sent a confirmation email.

Order a part under warranty?

- › Please refer to our heading "Warranty"
- › Contact us via **spareparts@daikin.at**

Compressor oil offer

- › Offer to your customers our compressor oil selection. This is a **great value generator** while you are on-site for maintenance or any intervention.
- › Place your orders through your **Spare Parts System**.

Part number	Packing	Description	Applicable for
9993006 5004333	18 L 1 L	FVC68D	VRV systems EWYD-BZ chiller (HPI)
5013622	5 L	RL32	Multi scroll chillers (DAE manufactured)
5012866 5018318 5018317	20 L 5 L 1 L	Single screw 68	Screw chillers, centrifugal chiller (WTC)
5900797 5900796 5900795	20 L 5 L 1 L	Single screw 220	EWWD-VZ
5001896 5014436	20 L 5 L	Arctic 46	Centrifugal chillers

✓ Benefits

- › Extend lifetime.
- › Reduce operational costs.
- › Reduce the environmental footprint.

✓ Opportunities

- › Use Daikin's oil analysis program to extended oil drain intervals and avoid oil waste.

✓ Arguments

- › Using poorly performing lubricants leads to higher service costs as well as unplanned servicing.
- › Rapid lubricant aging, lower cooling efficiency, poor stability, and insufficient protective quality jeopardize the reliable operation of the equipment.
 - Therefore, longer lubricant lifetime reduces total service costs.

Product description

The compressor oil of your equipment is a vital component that provides lubrication to ensure a smooth operation while helping you avoid potential failures. Checking and replacing it regularly offer you these benefits:

- › Maximum protection of seals and moving parts.
- › High temperature and hydrolytic stability.
- › Higher reliability.
- › Maximum equipment uptime.
- › Minimum operating cost.
- › Less impact on the environment.

Our robust formula helps you extend the lifetime of your equipment while reducing operational costs and environmental impact.





MAX- the Robot for warranty claim handling

- Max is operating in DACE (Daikin Central Europe = 16 countries) in cooperation with DENV
- MAX works 24/7/365
- The customers get quick reply on their warranty claim (Yes/No)
- The customers get almost immediate Order Confirmation on their warranty parts (part is on the way!)





Available products

Site visits during installation	<ul style="list-style-type: none"> • The visiting Daikin engineer will have full review on the installation before ceilings and ducts are closed. • Remarks are reported to the installer and customer in order to meet Daikin's installation guidelines. • A visit report template is available.
Pre-commissioning	<ul style="list-style-type: none"> • A checklist document for customers to request the visit of a Daikin Commissioning expert.
Commissioning	<ul style="list-style-type: none"> • A Daikin expert checks and starts-up the installation as per Daikin's guidelines and assures the installation it tuned to its design parameters.
Optimisation	<ul style="list-style-type: none"> • A Daikin expert will re-visit the site when the building or process is in use to tune the installation and system controllers optimally in real operating conditions.

✓ Target customer

This service is strongly recommended for any larger installation and could be a mandatory or strongly advised service to guarantee the best performance and customer satisfaction.

✓ Quotation and ordering process

- › Typically a 'fixed price package' is agreed at time of equipment sales, which is subject to additional charge if extra Daikin consult , expertise or waiting time is required during the visit.
- › As per accounting manual, site inspections and commissioning visits are booked as Service Business.

Product description

A correct installation is an absolute must to assure optimal operation, safety and lifetime of the equipment and ancillaries. Daikin manufacturer trained experts are at your service when requiring support in order to assure that installations are put in operation as per Daikin's guidelines. During Daikin Commissioning a final check and tuning assures running within design parameters.

On-site assistance

Correct installation is vital for guaranteeing the optimal operation, safety and service life of the unit.

A factory-trained **expert from Daikin** is available if you need help before starting the installation following Daikin's guidelines.

We also recommend to contact Daikin Experts in the planning phase.

Each pre-commissioning visit is documented in accordance with the Daikin standard and a report of this visit provided, listing all actions carried out.



Advantages

- › Tips from a Daikin specialist during system construction
- › Any problems can be addressed before commissioning takes place.
- › Smooth and fast commissioning

Performance: pre-commissioning

- › Check of the condition of the units/materials/accessories supplied
- › Inspection of the structure of the system
- › Run-through of all system requirements with the installer
- › Run-through of all commissioning requirements with the installer

Commissioning

The commissioning of a heat pump, cooling or air-conditioning unit cannot be left to chance. You must be able to rely on the system to work efficiently and meet your requirements. Therefore, commissioning by Daikin is recommended for Daikin Altherma, gas and fuel oil boilers, VRV, Zeas and Conveni Pack units, chiller units and air handling units with integrated controller.

For the **efficient operation and flawless long-term results** of your unit, Daikin offers

professional commissioning of your system by factory-trained experts.

If Daikin carries out the commissioning, your unit will work properly and provide all the advantages of a unique climate.

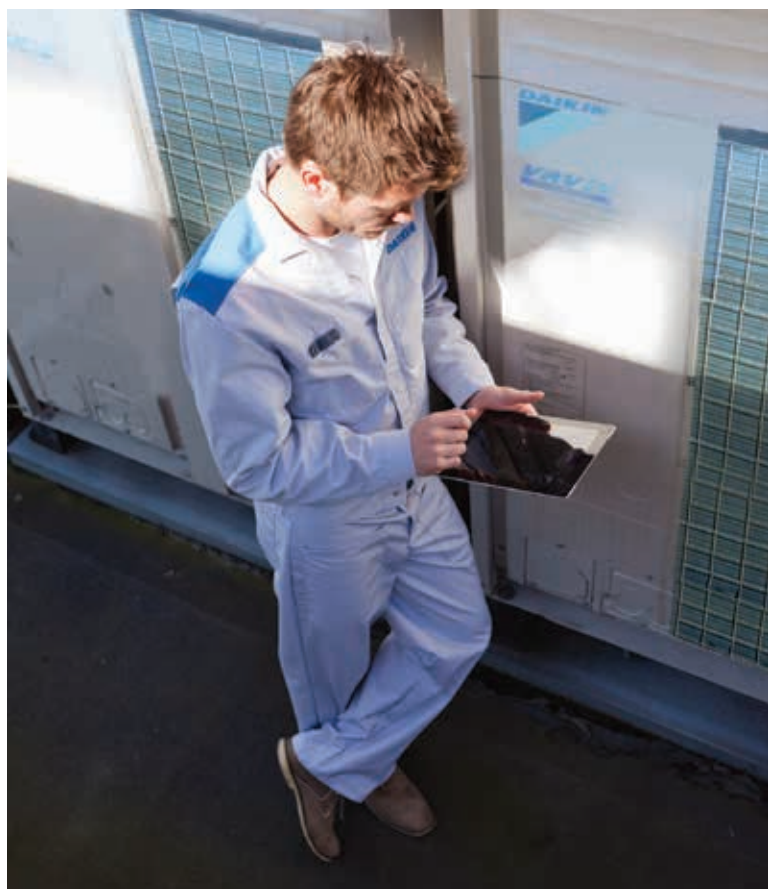
Each commissioning visit is documented in accordance with the Daikin standard and a commissioning report provided, listing all actions carried out, plus information on the operation of the units.

Advantages

- › Correct configuration of the unit in accordance with the selection specifications
- › The certainty that your unit has been tested and approved according to Daikin specifications
- › Daikin warranty, only applicable for units commissioned by a Daikin technician or authorised Daikin installer

Service: commissioning

- › General examination of the condition and set-up of the system
- › Possible connection of refrigerant lines, pressure test, vacuuming and refrigerant top-up exclusively for air/water heat pumps (if started up by company not refrigerant-certified).
- › Adjustment of necessary parameters according to the selection specifications of the unit
- › Unit start-up
- › Check of system operation
- › Detailed test report of system operation at the time of commissioning
- › Check and entry in logbook



Why Maintenance?

Because Daikin cares!

Servicing is the most important element for guaranteeing the quality, efficiency and perfect operation of all company assets. Our service contracts are based on years of experience so you can profit to the full from the expertise of Daikin-certified technicians for servicing your units.

Regular servicing ensures that energy costs and performance are not compromised and that the safety features and system integrity comply with the latest standards and regulations. Your investment is protected throughout the **entire service life of your Daikin system.**

Downtime and disruptions are reduced to a minimum, while operating costs remain low as they should be throughout the whole life cycle of the system. In addition, a service schedule ensures cost transparency, preventing unexpected repair costs of reduced comfort, quality or production loss.

For **commercial and industrial applications**, Daikin offers solutions for scheduled service to keep your system in top condition at all times, allowing you to focus on your core business. Different approaches are possible with the aim of offering you the best possible solution to meet your specific needs.

Depending on the level of involvement you expect from us, we can help you starting with a basic “Care” agreement all the way up to a “Exclusive Care” agreement. Of course, you can always upgrade your agreement at any time to a higher service level or customise the agreement to suit.



F-Gas: Regulation compliance check

✓ Why F-Gas inspections?

HVAC-R equipment that contains fluorinated greenhouse gases in quantities of 5 tonnes of CO₂ equivalent or more must be checked for F-Gas leakage by certified personnel. During these checks, precautionary measures are taken to prevent leakages; and in case a leak is detected, it is repaired without undue delay.

✓ What is the frequency of the inspections?

The frequency of the equipment's leak inspections depends on its F-Gas charge size measured in CO₂ equivalents as shown on the table.

The installation of a leakage detection system is mandatory for equipment containing 500 t CO₂ or more and its proper functioning has to be checked at least once every 12 months.

When the equipment has a leakage detection system, the frequency of required leak checks is reduced by half.

Leak checks frequency	Tonnes of CO ₂ equivalent	Refrigerant			
		R-410A (Kg)	R-407C (Kg)	R-134a (Kg)	R-32 (Kg)
12 months	$5 \leq t \text{ CO}_2\text{e} < 50$	2,4 – 24	2,8 – 28	3,5 – 35	7,4 – 74
6 months	$50 \leq t \text{ CO}_2\text{e} < 500$	24 – 240	28 – 280	35 – 350	74 – 740
3 months	$t \text{ CO}_2\text{e} \geq 500$	≥ 240	≥ 280	≥ 350	≥ 740

✓ Our offer

Daikin's certified technicians offer

- › Regular leak checks (mandatory).
- › Diligent record keeping (mandatory).
- › The installation of leakage detection systems.
- › Recovery and/or destruction of gases before the equipment is discarded.

The obligatory F-Gas inspections are ideally complemented with Daikin Service Plans.

Visit www.daikin.eu/f-gas to find out more about the F-Gas regulation.

Product description

As HVAC-R equipment contains fluorinated greenhouse gases (F-Gases) such as hydrofluorocarbons (HFCs), customers must comply with a series of requirements adopted in the European Union to ensure emission prevention, containment; and hence reduce the environmental impact of refrigerants.

F-Gas Regulation (EU) No 517/2014

- › Applies from 1 January 2015
- › Puts in place mandatory measures to reduce F-Gas emissions in the EU
- › One of these measures is the prevention of emissions of F-Gases by conducting:
 - Periodical checks.
 - Proper servicing.
 - Recovery of the gases at the end of the equipment's life.



Oil analysis: diagnostic and predictive maintenance service

✓ Oil analysis is applicable for

- › All HVAC oils.
- › All compressor technologies.

✓ Available oil analysis tools

	Spare Parts numbers
Glass sample bottle, including sample label, pre-addressed shipment label and pre-paid analysis	Number per bottle: EU.SB.5000061

✓ Process

- › A sampling bottle is available via the Spare Parts channels:
EU.SB.5000061.
- › The price of the samples already includes the cost of the analysis, therefore, you do not need to worry about any additional invoices.
- › The oil samples shall be sent to the lab, using the pre-addressed envelopes in the kit.

✓ Benefits

Reduced downtime

Oil analysis, when used as part of a maintenance program, can prevent catastrophic chiller failures and eliminate the cost of unexpected shutdowns. Knowing the current operating condition of your machine allows you to schedule repairs at a time that works best for you.

Minimize costly repairs

Because oil analysis can identify problems before you might otherwise be aware of them, conditions can be remedied before they become problems that are more expensive to repair. Oil analysis helps to pinpoint the areas that should be checked so scheduled repairs can be accomplished quickly and cost effectively.

Extend chiller life

By identifying and repairing abnormal machine conditions early, it is much easier and less expensive to keep your chiller in peak operating condition. If oil analysis is conducted on a scheduled basis, you benefit from a more reliable chiller performance for years to come.

Environment

Oil will remain in the chiller as long as analysis findings are within expected limits. Extending oil lifetime reduces handling of oil waste. It is a win-win for the environment and cost saving.

Product description

Regularly scheduled analysis of your chiller's oil is a valuable aid in assessing internal mechanical condition. Laboratory analysis of chiller oil samples can identify potential problems so they can be remedied before they become disruptive headaches.

Oil comes in contact with many important internal components and therefore holds valuable information about a chiller's condition. The presence of harmful acids, corrosion causing water and abnormal metal wear particles can all be detected by chemical analysis. By comparing the results of the analysis against your chiller's historical operating data, our analysts provide a reliable diagnosis with individualized recommendations for each system.

Identifies:

- Lubricant Condition.
- Internal Contamination.
- Abnormal Wear.
- Mechanical Condition.

Results:

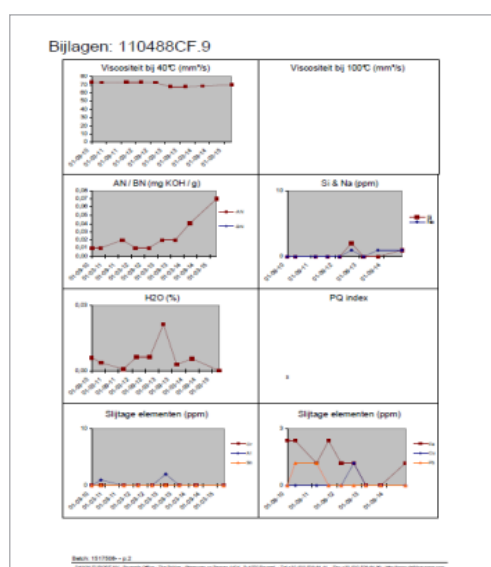
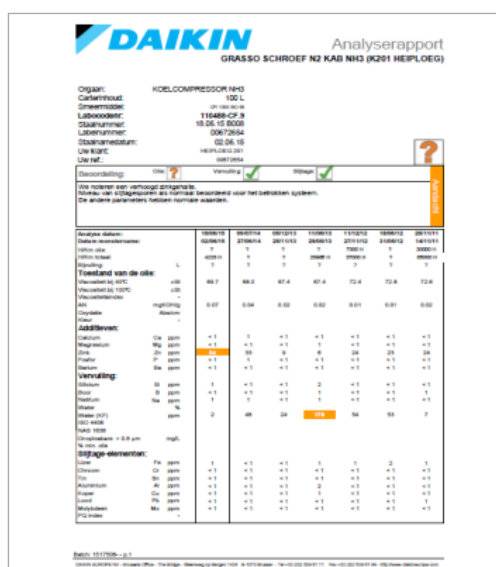
- Earlier detection of problems.
- Lower operating costs.
- Increased reliability.





		oil types: Emkarate RL68H (POE) MOBIL EAL ARTIC 68 (POE) DAPHNE HERMETIC OIL FW56EA (PVE) DAPHNE HERMETIC OIL FCV68D(PVE)			oil types: Daphne hermetic FVC D 132			oil types: general polyolester		
test		Result			Result			Result		
		Normal	Resample after 1000 hrs	Investigate for cause. Replace oil, filter and dryer	Normal	Resample after 1000 hrs	Investigate for cause. Replace oil, filter and dryer	Normal	Resample after 1000 hrs	Investigate for cause. Replace oil, filter and dryer
Visco	cSt	± 10%	±10% - 15%	> 15%	± 10%	±10% - 15%	> 15%	± 10%	±10% - 15%	> 15%
water	ppm	< 50	150 - 200	> 200	< 400	400 - 800	> 800	< 400	400 - 800	> 800
Si	ppm	< 50	50 - 100	> 100	< 10	10 - 20	> 20	< 50	50 - 100	> 100
Na	ppm				< 10	10 - 20	> 20			
Fe	ppm	< 100	100 - 150	> 150	< 10	10 - 20	> 20	< 100	100 - 150	> 150
Cr	ppm	≤ 10		> 10	< 10	10 - 20	> 20	≤ 10		> 10
Mo	ppm	≤ 10		> 10	< 10	10 - 20	> 20	≤ 10		> 10
Al	ppm	< 100	100 - 150	> 150	< 10	10 - 20	> 20	< 100	100 - 150	> 150
Cu	ppm	< 100	100 - 150	> 150	< 10	10 - 20	> 20	< 100	100 - 150	> 150
Pb	ppm	≤ 10		> 10	< 10	10 - 20	> 20	≤ 10		> 10
Sn	ppm	≤ 10		> 10	< 10	10 - 20	> 20	≤ 10		> 10
TAN	mg / kg oil	< 0,10	0,10 - 0,20	> 0,20	< 0,20	0,20 - 0,40	> 0,40	< 0,20	0,20 - 0,40	> 0,40

Oil limits



Report example: analysis through time of the same machine in the back

Service Plan for DX and Applied

Frequently asked questions

1 How to quote?

In a collaboration between DENV and several affiliates we have worked 2 quotation tools for maintenance contracts. These can be localised and adapted to your needs.

Ask **fqs.servicebusiness@daikineurope.com** how to access these tools and how can they be adapted to your country specific needs.

2 Will a Service Plan be cheaper than ad-hoc service interventions?

It will. The reason is that preventive maintenance allows us to plan in advance and avoid rush interventions, this means a Service Plan is always cheaper in the long run. Our specialists will come prepared, thus avoiding repeated visits and extra interruptions for the customer.

3 I have x years of warranty on my equipment. Why should I consider a Daikin Service Plan for the start-up date?

Warranty coverage and Maintenance Plans go hand in hand, but are not the same. It is evident that maintenance should be organized from the start-up date of the installation. Lacking to do so, will undeniably result in a drop in comfort and energy efficiency. With Daikin's Service Plans, we aim to keep the installation's performance optimal from start and over time. By choosing a Daikin Extended Care package, the coverage is extended. To be able to extend coverage, a maintenance program is mandatory from the start.

4 Extended Care seems expensive. Where is the value?

Service Plans are designed to give our customers "maximum comfort at minimum total cost of ownership". Extended Care packages do just that: everything is included, meaning Daikin simply assures that the unit is always running in optimal conditions and if a breakdown occurs, necessary interventions are covered.

Daikin products are designed to keep energy costs as low as possible. By keeping the optimal installation performance, the energy requirements will also remain optimal over the whole period, providing the lowest lifecycle costs possible.

An added advantage is that the lifetime of the installation is maximized.

Maintenance Heating

Maintenance is the key element to ensure the quality, efficiency and flawless operation of any asset.

Our Care agreements are based on years of experience to ensure you reap the full benefits of having Daikin Certified engineers maintain your equipment.

- Be prepared for the cold season
- Lower energy bill & CO₂ emissions
- Ensure silent operation

The care packages are available for:

- Residential / Commercial owners of Daikin Heating appliances
- Home owners with Daikin Heating
- Tenants using Daikin Heating

Daikin Cares contains 3 different levels of maintenance agreements catering to your every need. In addition to these 3 Care packages Daikin offers a comprehensive set of options you can choose from.

Care	F-Gas Care is the minimal requirement to fulfil current legislation requirements, and makes sure your unit is not impacting global warming.
Preventive Care	Preventive Care ensures that your Heat Pump is running energy efficiently with that latest software adapted to your needs.
Exclusive Care	Exclusive Care ensures that your Heat Pump is running energy efficiently, adapted to your needs. To avoid surprises, support is available within 24 hours.

Services

	Inspection	Maintenance	
	Care	Preventive Care	Exclusive Care
Leak check Inspection based on predefined activities	✓	✓	✓
Validated Log book according to F-Gas	✓	✓	✓
Labor- & travel cost	✓	✓	✓
Soft- and firmware upgrades as required	-	✓	✓
Inspection of the heat exchangers	-	✓	✓
On-site system diagnostic and/or analysis during service intervention	-	✓	✓
Cleaning of filters, water and air side (as applicable)	-	✓	✓
Comprehensive, predictive status & measurement report	-	✓	✓
Recorded, retrievable service history of each unit	-	✓	✓
Access to technical assistance and repair service	-	✓	✓
Planned maintenances are included	-	✓	✓
Emergency support & callout	-	✓	✓
Change of filters	-	-	✓
Spare parts for planned maintenances are included	-	-	✓
Filters, spare parts and refrigerant are included	-	-	✓
Extension of warranty	-	-	✓
Intervention time within 24 hours	-	-	✓
Only for Combustion Units:			
Emission test	-	✓	✓
Safety check	✓	✓	✓
Boiler cleaning	-	✓	✓

Description	Inspection	Maintenance	
	Care	Preventive Care	Exclusive Care
Maintenance Boiler	on request	on request	on request
Maintenance Ground source heat pump	on request	on request	on request
Maintenance HT heat pump	on request	on request	on request
Maintenance LT monobloc heat pump	on request	on request	on request
Maintenance LT Split heat pump	on request	on request	on request
Maintenance Hybrid heat pump	on request	on request	on request
Maintenance Solar	on request	on request	on request

Options

Description	Per Hour			
	on request			
Energy audit & report	on request			
Refrigerant analysis	on request			
Emergency support	Monday-Friday 17-22h		Weekend, Holiday, Nights	
	on request		on request	
Call out Time (48h included in PR. and EX. CARE)	Call out Time 24h	Call out Time 16h	Call out Time 8h	Call out Time 4h
	on request	on request	on request	on request

Maintenance Split and Sky Air

Maintenance is the key element to ensure the quality, efficiency and flawless operation of any asset.

Our Care agreements are based on years of experience to ensure you reap the full benefits of having Daikin Certified engineers maintain your equipment.

- Be prepared for the hot season
- Lower energy bill & CO₂ emissions
- Reduce the impact of virus, bacteria and pollen through clean filters
- Ensure silent operation

Our Care packages also include a comprehensive test of the unit using special Daikin developed diagnostic software to check for leaks and trouble spots.

Daikin Cares contains 3 different levels of maintenance agreements catering to your every need. In addition to these 3 Care packages Daikin offers a comprehensive set of options you can choose from.

Care	F-Gas Care is the minimal requirement to fulfil current legislation requirements, and makes sure your unit is not impacting global warming.
Preventive Care	Preventive Care ensures that your Air conditioning is running optimally with clean filters.
Exclusive Care	Exclusive Care ensures that your Air conditioning is running optimally with clean filters and without any surprises.

Services

	Inspection	Maintenance	
	Care	Preventive Care	Exclusive Care
Leak check Inspection based on predefined activities	✓	✓	✓
Validated Log book according to F-Gas	✓	✓	✓
Soft- and firmware upgrades as required	-	✓	✓
Inspection of the heat exchangers	-	✓	✓
On-site system diagnostic and/or analysis during service intervention	-	✓	✓
Cleaning of filters, water and air side (as applicable)	-	✓	✓
Comprehensive, predictive status & measurement report	-	✓	✓
Recorded, retrievable service history of each unit	-	✓	✓
Access to technical assistance and repair service	-	✓	✓
Labor- & travel cost, planned maintenances are included	-	✓	✓
Emergency support & callout	-	✓	✓
Change of filters	-	-	✓
Labor- & travel cost, spare parts for planned maintenances are included	-	-	✓
Filters, spare parts and refrigerant are included	-	-	✓
Extension of warranty	-	-	✓

Description	Inspection	Maintenance	
	Care	Preventive Care	Exclusive Care
Maintenance Monosplit & SkyAir Pair	on request	on request	on request
Maintenance Multisplit and SkyAir up to 3 I/U	on request	on request	on request
Maintenance Multisplit and SkyAir up to 5 I/U	on request	on request	on request

Options

Description	Per Hour			
Energy audit & report	on request			
Refrigerant analysis	on request			
Specialist support and consultancy	on request			
Emergency support	Monday-Friday 17-22h		Weekend, Holiday, Nights	
	on request		on request	
Call out Time (48h included in PR. and EX. CARE)	Call out Time 24h	Call out Time 16h	Call out Time 8h	Call out Time 4h
	on request	on request	on request	on request

Maintenance VRV

Maintenance is the key element to ensure the quality, efficiency and flawless operation of any asset.

Our Care agreements are based on years of experience to ensure you reap the full benefits of having Daikin Certified engineers maintain your equipment.

Preventive maintenance and regular service is a key component in securing your investment. Dust, temperature, humidity and load degrade the reliability and performance of a VRV system over time.

Regular maintenance of a unit or system ensures that electricity costs and performance are not jeopardized, and that the safety features and the entire system are in line with the latest standards and regulations.

Daikin Cares contains 3 different levels of maintenance agreements catering to your every need. In addition to these 3 Care packages Daikin offers a comprehensive set of options you can choose from.

Care	F-Gas Care is the minimal requirement to fulfil current legislation requirements, and makes sure your unit is operating under the F-Gas directive.
Preventive Care	Preventive Care secures your VRV system and keeps it running under optimal conditions for the long time.
Exclusive Care	Exclusive Care provides maximum equipment availability at the minimum Total Cost of Ownership. This includes access to experts through remote monitoring and actionable yearly energy reports.

Services

	Inspection	Maintenance	
	Care	Preventive Care	Exclusive Care
Leak check Inspection based on predefined activities	✓	✓	✓
Validated Log book according to F-Gas	✓	✓	✓
Maintenance based on predefined activities	-	✓	✓
Optimizations and analysis of the retrieved data	-	✓	✓
On-site VRV system diagnostic and/or analysis during service intervention	-	✓	✓
Recorded, retrievable service history of each VRV system	-	✓	✓
Access to technical assistance and repair service	-	✓	✓
Soft- and firmware upgrades as needed and if required	-	✓	✓
Validated Log book	-	✓	✓
Access to Emergency support & callout	-	✓	✓
Lifecycle report	-	-	✓
DCS - Remote connection for troubleshooting & support	-	-	✓
Yearly actionable report on energy optimization and usage	-	-	✓
Spring Cleaning: Outdoor units		option	option
Spring Cleaning: Indoor units		option	option
Night Time Surcharge		option	option

Description	Care: Leak Check VRV	Preventive Care	Exclusive Care
Outdoor unit VRV Mini	CE.S_VRV_C_FGAS	CE.S_VRV_PC_MI	CE.S_VRV_EC_MI
Outdoor unit VRV ≤12 HP	CE.S_VRV_C_FGAS	CE.S_VRV_PC_12	CE.S_VRV_EC_12
Outdoor unit VRV ≥14 HP	CE.S_VRV_C_FGAS	CE.S_VRV_PC_14	CE.S_VRV_EC_14
Outdoor unit VRV HR+W	CE.S_VRV_C_FGAS	CE.S_VRV_PC_HRW	CE.S_VRV_EC_HRW
AHU+ERQ	CE.S_VRV_C_FGAS	CE.S_AHU_PC_ERQ	CE.S_AHU_EC_ERQ
BIDDLE+ERQ	CE.S_VRV_C_FGAS	CE.S_BIDDLE_ERQ_PC	CE.S_BIDDLE_ERQ_EC
Indoor unit Cassette	CE.S_VRV_C_FGAS	CE.S_VRV_PC_IU_CAS	CE.S_VRV_EC_IU_CAS
Indoor unit Ceiling	CE.S_VRV_C_FGAS	CE.S_VRV_PC_IU_CEI	CE.S_VRV_EC_IU_CEI
Indoor unit Floorstanding	CE.S_VRV_C_FGAS	CE.S_VRV_PC_IU_FLO	CE.S_VRV_EC_IU_FLO
Indoor unit Wall Mounted	CE.S_VRV_C_FGAS	CE.S_VRV_PC_IU_WAL	CE.S_VRV_EC_IU_WAL
Indoor unit BIDDLE DX	CE.S_VRV_C_FGAS	CE.S_VRV_PC_IU_BID	CE.S_VRV_EC_IU_BID
ACC	CE.S_VRV_C_FGAS	CE.S_VRV_PC_ACC	CE.S_VRV_EC_ACC
Spring cleaning outdoor		CE.S_VRV_CL_OU	CE.S_VRV_CL_OU
Spring cleaning indoor		CE.S_VRV_CL_IU	CE.S_VRV_CL_IU
Night time working		CE.S_LA_HOUR100	CE.S_LA_HOUR100

Options

Description				
Repairs	on request			
Inspection DX LARGE >20HP	CE.S_VRV_INSP_L			
Inspection DX MID 10hp -20	CE.S_VRV_INSP_M			
Inspection DX SMALL <10HP	CE.S_VRV_INSP_S			
Chemical analyse of refrigerant	CE.S_REF_ANALYSIS			
Power supply analyse	CE.S_PWR_ANALYSIS			
Oil analysis	CE.S_MA_ACIDTEST			
	Monday-Friday 17-22h		Weekend, Holiday, Nights	
Emergency support	on request		on request	
	Call out Time 24h	Call out Time 16h	Call out Time 8h	Call out Time 4h
Call out Time (48h included in PR. and EX. CARE)	on request	on request	on request	on request

Maintenance Chiller

Maintenance is the key element to ensure the quality, efficiency and flawless operation of any asset.

Our Care agreements are based on years of experience to ensure you reap the full benefits of having Daikin Certified engineers maintain your equipment.

Preventive maintenance and regular service is a key component in securing your investment. Dust, temperature, humidity and load degrade the reliability and performance of a HVAC system over time.

Regular maintenance of a unit or system ensures that electricity costs and performance are not jeopardized, and that the safety features and the entire system are in line with the latest standards and regulations.

Daikin Cares contains 3 different levels of maintenance agreements catering to your every need. In addition to these 3 Care packages Daikin offers a comprehensive set of options you can choose from.

Care	F-Gas Care is the minimal requirement to fulfil current legislation requirements, and makes sure your unit is operating under the F-Gas directive.
Preventive Care	Preventive Care for your Chiller secures your investment and keeps it running under optimal conditions for the long time.
Exclusive Care	Exclusive Care provides maximum equipment availability at the minimum Total Cost of Ownership. This includes access to experts trough remote monitoring and actionable yearly energy reports.

Services

	Inspection	Maintenance	
	Care	Preventive Care	Exclusive Care
Leak check inspection of 1 circuit based on predefined activities	✓	✓	✓
Validated Log book according to F-Gas	✓	✓	✓
1 year remote monitoring via Daikin on Site (>200kW)	✓	✓	✓
Mechanical inspection (star gate) of screw compressor	-	✓	✓
Capacity regulator overhaul	-	✓	✓
Comprehensive oil analysis	-	✓	✓
Lifecycle report with status & mismeasurement report	-	✓	✓
Technical assistance and repair service	-	✓	✓
On-site system diagnostic and/or analysis during service intervention	-	✓	✓
Recorded, retrievable service history of each machine	-	✓	✓
Validated Log book	-	✓	✓
Access to Emergency support & callout	-	✓	✓
Lifecycle report	-	-	✓
Daikin on Site - Remote connection for troubleshooting & support	-	-	✓
Yearly actionable report on energy optimization and usage	-	-	✓

Description	Care: Leak Check Chiller (per circuit)	Preventive Care	Exclusive Care
Screw Chiller, Size: 0-300 kW	CE.S_AS_C_FGAS	CE.S_AS_PC_SCREW_S	CE.S_AS_EC_SCREW_S
Screw Chiller, Size: 300-599 kW	CE.S_AS_C_FGAS	CE.S_AS_PC_SCREW_M	CE.S_AS_EC_SCREW_M
Screw Chiller, Size: 600 kW -1 MW	CE.S_AS_C_FGAS	CE.S_AS_PC_SCREW_L	CE.S_AS_EC_SCREW_L
Screw Chiller, Size: above 1 MW	CE.S_AS_C_FGAS	CE.S_AS_PC_SCREW_SP	CE.S_AS_EC_SCREW_SP
Scroll Chiller, Size: 0-300 kW	CE.S_AS_C_FGAS	CE.S_AS_PC_SCROLL_S	CE.S_AS_EC_SCROLL_S
Scroll Chiller, Size: 300-599 kW	CE.S_AS_C_FGAS	CE.S_AS_PC_SCROLL_M	CE.S_AS_EC_SCROLL_M
Mono Centrifugal Chiller	CE.S_AS_C_FGAS	CE.S_AS_PC_CENT_MO	CE.S_AS_EC_CENT_MO
Dual Centrifugal Chiller	CE.S_AS_C_FGAS	CE.S_AS_PC_CENT_DU	CE.S_AS_EC_CENT_DU

Options

Description	
Energy audit & report using DOS	on request
Upgrade and retrofit options and project management	on request
Fleet management for larger systems ICM	on request
Specialist support and consultancy	on request
Repairs	on request
Inspections	on request
Adiabatic add on solutions	on request
Chemical analysis of refrigerant	CE.S_REF_ANALYSIS
Oil analysis	CE.S_MA_ACIDTEST

Maintenance Air Handling Unit

Maintenance is the key element to ensure the quality, efficiency and flawless operation of any asset.

Our Care agreements are based on years of experience to ensure you reap the full benefits of having Daikin. Certified engineers maintain your equipment.

Preventive maintenance and regular service is a key component in securing your investment.

Dust, temperature, humidity and load degrade the reliability and performance of a HVAC system over time.

Regular maintenance of a unit or system ensures that electricity costs and performance are not jeopardized, and that the safety features and the entire system are in line with the latest standards and regulations.

Daikin Cares contains 3 different levels of maintenance agreements catering to your every need. In addition to these 3 Care packages Daikin offers a comprehensive set of options you can choose from.

Care	F-Gas Care is the minimal requirement to fulfil current legislation requirements, and makes sure your unit is operating under the F-Gas directive.
Preventive Care	Preventive Care for your AHU secures your investment and keeps it running under optimal conditions for the long time.
Exclusive Care	Exclusive Care provides maximum equipment availability at the minimum Total Cost of Ownership. This includes access to experts through remote monitoring and actionable yearly energy reports.

Services	Inspection	Maintenance	
	Care	Preventive Care	Exclusive Care
Leak check inspection of 1 circuit based on predefined activities	✓	✓	✓
Validated Log book according to F-Gas	✓	✓	✓
Air flow regulator overhaul	-	✓	✓
Comprehensive oil analysis	-	✓	✓
Lifecycle report with status & mismeasurement report	-	✓	✓
Technical assistance and repair service	-	✓	✓
On-site system diagnostic and/or analysis during service intervention	-	✓	✓
Recorded, retrievable service history of each machine	-	✓	✓
Validated Log book	-	✓	✓
Access to Emergency support & callout	-	✓	✓
Lifecycle report	-	-	✓
Daikin on Site - Remote connection for troubleshooting & support	-	-	✓
Yearly actionable report on energy optimization and usage	-	-	✓

Description	Care: Leak Check	Preventive Care	Exclusive Care
Digital AHU Small (own controller)	CE.S_AS_C_FGAS	CE.S_DAHU_PC_S	CE.S_DAHU_EC_S
Digital AHU Medium (own controller)	CE.S_AS_C_FGAS	CE.S_DAHU_PC_M	CE.S_DAHU_EC_M
Digital AHU Large (own controller)	CE.S_AS_C_FGAS	CE.S_DAHU_PC_L	CE.S_DAHU_EC_L
AHU Small (without own controller)	CE.S_AS_C_FGAS	CE.S_AHU_PC_S	CE.S_AHU_EC_S
AHU Medium (without own controller)	CE.S_AS_C_FGAS	CE.S_AHU_PC_M	CE.S_AHU_EC_M
AHU Large (without own controller)	CE.S_AS_C_FGAS	CE.S_AHU_PC_L	CE.S_AHU_EC_L
Rooftop	CE.S_AS_C_FGAS	CE.S_ROOFTOP_PC	CE.S_ROOFTOP_EC
Rooftop with built-in gasburner	CE.S_AS_C_FGAS	CE.S_ROOFT_GAS_PC	CE.S_ROOFT_GAS_EC
Fancoil Indoor Unit	CE.S_AS_C_FGAS	CE.S_FC_IU_PC	CE.S_FC_IU_EC
Fancoil Outdoor Unit	CE.S_AS_C_FGAS	CE.S_FC_OU_PC	CE.S_FC_OU_EC

Options

Description	
Energy audit & report using DOS	on request
Upgrade and retrofit options and project management	on request
Specialist support and consultancy	on request
Repairs	on request
Inspections	on request

Maintenance Refrigeration

Maintenance is the key element to ensure the quality, efficiency and flawless operation of any asset.

Our Care agreements are based on years of experience to ensure you reap the full benefits of having Daikin. Certified engineers maintain your equipment.

Preventive maintenance and regular service is a key component in securing your investment.

Dust, temperature, humidity and load degrade the reliability and performance of a refrigeration system over time.

Regular maintenance of a unit or system ensures that electricity costs and performance are not jeopardized, and that the safety features and the entire system are in line with the latest standards and regulations.

Daikin Cares contains 3 different levels of maintenance agreements catering to your every need. In addition to these 3 Care packages Daikin offers a comprehensive set of options you can choose from.

Care	F-Gas Care is the minimal requirement to fulfil current legislation requirements, and makes sure your unit is operating under the F-Gas directive.
Preventive Care	Preventive Care for your Refrigeration unit secures your investment and keeps it running under optimal conditions for the long time.
Exclusive Care	Exclusive Care provides maximum equipment availability at the minimum Total Cost of Ownership. This includes access to experts through remote monitoring and actionable yearly energy reports.

Services

	Inspection	Maintenance	
	Care	Preventive Care	Exclusive Care
Leak check Inspection based on predefined activities	✓	✓	✓
Validated Log book according to F-Gas	✓	✓	✓
Maintenance based on predefined activities	-	✓	✓
Optimizations and analysis of the retrieved data	-	✓	✓
On-site system diagnostic and/or analysis during service intervention	-	✓	✓
Recorded, retrievable service history of each refrigeration system	-	✓	✓
Access to technical assistance and repair service	-	✓	✓
Soft- and firmware upgrades as needed and if required	-	✓	✓
Validated Log book	-	✓	✓
Access to Emergency support & callout	-	✓	✓
Lifecycle report	-	-	✓
Remote connection for troubleshooting & support	-	-	✓
Yearly actionable report on energy optimization and usage	-	-	✓

Description	Care	Preventive Care	Exclusive Care
Maintenance CCU	on request	on request	on request
Maintenance ZEAS 6-12 HP	on request	on request	on request
Maintenance ZEAS 15-20 HP	on request	on request	on request
Maintenance MULTI-ZEAS	on request	on request	on request
Maintenance CVP INC. ITM	on request	on request	on request
Maintenance CVP EXC. ITM	on request	on request	on request

Options

Description	Per Hour	
Specialist support and consultancy	on request	
Energy audit & reporting	on request	
Remote monitoring	on request	
Remote analysis	on request	
Fleet management for larger systems or multi-site systems	on request	
Refrigerant analysis	on request	
Oil analysis	on request	
	on request	
	Monday-Friday 17-22h	Weekend, Holiday, Nights
Emergency support	on request	on request
	Call out Time 8h	Call out Time 4h
Call out Time	on request	on request

Stand By Me,

A journey to customer satisfaction

It's time to relax. With your customer's new Daikin installation and Stand By Me service programme, you can rest assured they are benefiting from the best comfort, energy efficiency, usability and service available on the market. Stand By Me eliminates your clients' worries and provides them with a free, extended warranty, quick follow-up from Daikin service providers, and additional warranties for specific parts.

Please adapt locally!



Free warranty extension



The first advantage of **Stand By Me** is a free warranty extension:

- ✓ applies to both labour and parts
- ✓ begins immediately after registration



Quick follow-up by Daikin service partners

Daikin service partners are automatically notified when a customer registers their installation on **www.standbyme.daikin.eu** and needs maintenance.

Your customer is guaranteed:

- ✓ quick and reliable service
- ✓ management of all information related to their installation such as, registration documents, attendance records, maintenance records, etc.
- ✓ realtime error codes are informing the service partner about possible issues



Extended warranty on parts

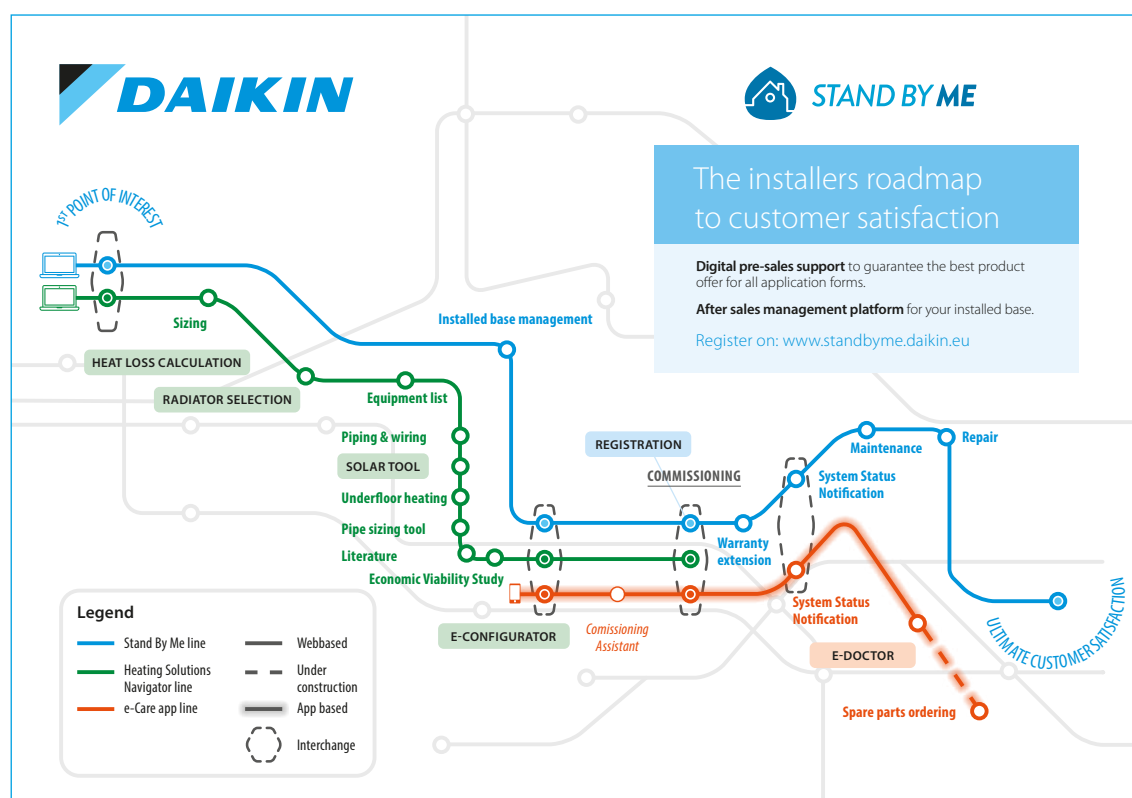
For a small fee, customers can extend the warranty on specific parts. Contact your local Daikin branch to have more information about the specific offer in your country.

Stand By Me guarantees:

- ✓ that each component is replaced quickly
- ✓ helps avoid financial surprises
- ✓ long life and smooth operation and all other benefits of a Daikin installation
- ✓ reliable service from official Daikin service partners

Daikin service partners work exclusively with Daikin parts and have all of the necessary technical knowledge to solve any issue that may arise

Stand By Me roadmap overview



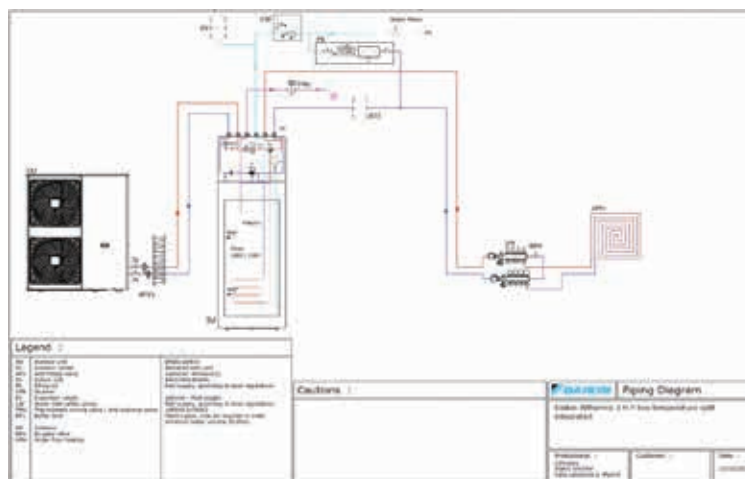


Heating Solutions Navigator



Want to know more about our Heating Solutions Navigator?

- › The Heating Solutions Navigator is a digital toolbox developed for Daikin professionals with the aim to assist in providing the best fit solution for your customers home.
- › With this tool you can configure your installation, create custom made piping & wiring diagrams, set the configuration on your installation and much more.



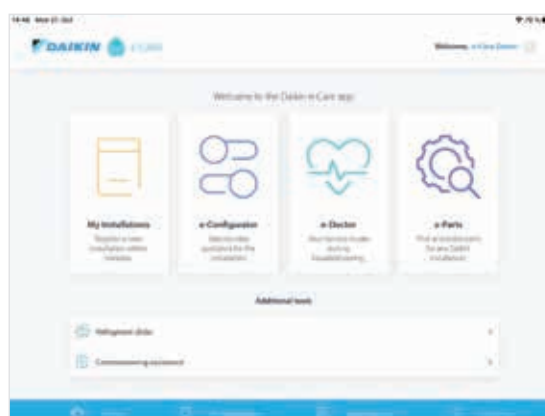
E-Care app



The Daikin e-Care app wants to make the life of a Daikin installer easier by offering Stand By Me registrations via QR code scanning, easy configuration of your heating installation and trouble-shooting via the e-Doctor part.

NEW

Order your **spareparts** directly via the e-Care app, update the settings of your installation with a **Wifi USB** stick and avoid any possible mistake during commissioning of your installation thanks to the easy guidance of the **Commissioning Assistant**.





STAND BY ME

www.standbyme.daikin.eu

Stand By Me and the Heating Solutions Navigator are built to connect between yourself and Daikin to make your life easier.



Interested in how the platform operates? Please scan the QR-codes to see a demo for each tool.



HEATING SOLUTIONS NAVIGATOR (HSN)

professional.standbyme.daikin.eu

The Heating Solutions Navigator is a digital toolbox developed for Daikin professionals with the aim to assist in providing the best fit solution for your customers homes. With this tool you can configure your installation, create custom made piping & wiring diagrams, set the configuration on your installation and much more.



SIZING

HSN Heat loss calculation tool/ Room by Room

The optional 'Room by Room' heat load calculation tool, is a tool which enable you to calculate the heat load in a property. Next to the Room by Room, a simplified heat load calculation is available.

SOLAR

HSN Solar Selection Tool

The Solar Selection Tool shows the benefits of a DAIKIN solar system and supports professionals in selecting the right solar system for a house.

PIPE SIZING TOOL

Calculate the maximum hydronic piping length from the indoor unit to the outdoor unit based on the emitter pressure drop or the other way around.

ECONOMIC VIABILITY STUDY

Compare your Daikin solution with a benchmark solution.

INSTALLED BASE MANAGEMENT



EQUIPMENT LIST



RADIATOR

HSN Radiator Selection Tool

This Radiator selector tool supports customers in selecting the appropriate radiator size for each room.

UNDERFLOOR HEATING

The underfloor Heating Tool gives the customer an indication of material that is needed for a specific project. A detailed calculation and floorplan can also be asked via this toolbox.

PIPING & WIRING

Customized piping and wiring diagrams are generated for each and every project, taking into account many parameters such as heat generator, zoning, emitter type and options.

CONFIGURATION TOOL

The e-Configurator is a web based tool and app which allows installers to configure the settings of Daikin Altherma heat pumps remotely. Thanks to its user friendly and intuitive interface, configuration can be completed in a couple of steps. Then it can be stored as a pdf or saved in the USB stick/SD card to upload it in the heat pump on site.





**CONTACT YOUR LOCAL
SBM/HSN SPECIALIST**

REGISTRATION

Installation Registration SBM is an after-sales service tool where end-users can extend the warranty on their installation or order maintenance packages. All Daikin professionals have an essential role in these service offerings.

With Stand By Me, you, as Daikin professional, can keep a complete digital logbook of your installed base of Daikin products and consult it via any mobile device.

COMMISSIONING

COMMISSIONING ASSISTANT

Use this special hydro check module during commissioning.



DEMO

WARRANTY EXTENSION

SYSTEM STATUS NOTIFICATION

SYSTEM STATUS NOTIFICATION

Receive malfunction codes of your installations directly on your Stand By Me platform or via a notification in the e-Care app.

MAINTENANCE



DEMO

REPAIR

SPARE PARTS ORDERING

E-DOCTOR

Part of e-Care
Daikin e-Doctor is part of e-Care, an application to guide our Daikin colleagues and installers in troubleshooting a unit.

ULTIMATE CUSTOMER SATISFACTION

E-CARE



DAIKIN

*Stand By Me, a journey towards
customer satisfaction*

Active Monitoring with Daikin on Site

for Chiller and Air handling units

Daikin on Site is a cloud-based monitoring and control tool with a unique range of smart services.

Daikin guarantees the highest levels of support and monitoring with its advanced cloud technology.

Benefits

Daikin on Site is designed to:

- › Increase uptime and limit unplanned interruptions
- › Optimise efficiency, reduce energy waste and save running costs
- › Extend the service life and reduce wear through incorrect use
- › Provide an insight into optimal use of units, including advice from Daikin experts.



Overview of functions

Web-based application

User-friendly and pre-defined user interface for each user role.

The interface can be adapted to specific user needs. This application allows you to monitor and analyse a wide range of information relating to the operating data from the unit.

Alarm notification

Alarms are communicated in real time (or scheduled if necessary).

Alarms are available on the unit controls or the Daikin on Site website and are sent by email to specified people. The assigned user or the responsible service will carry out the necessary checks and analyses in preparation for corrective action.

Performance analysis

Daikin on Site allows to monitor the working data of the unit in our central cloud server (in the EU). That way we can analyse operating trends and statistical data from units.

This information is available online in the form of interactive graphics, values lists, alarm and event lists.

Active Monitoring Package

This package includes:

- › Modem (factory mounted) is available choosing option 155 during chiller order process
- › Data Sim Card
- › Cloud license
- › Dedicated report

MODEM (choose Option 155)

DATA SIM CARD

CLOUD LICENCE

REPORT





ACTIVE MONITORING

- › Increased reliability through advanced error notification
- › Increased comfort by optimized settings
- › Regularly maintained site
- › Access to call out / intervention team



Maintenance Contract

Active Monitoring (Materials)	Partner	Premium
Chiller Active monitoring: Data Sim Card, Cloud licence, report	On request	CE.S_DOS_AS_AC_MON
AHU Active monitoring: Data Sim Card, Cloud licence	On request	CE.S_DOS_AH_AC_MON
Daikin on Site modem (with antenna) – factory mounted	Option 155	
Trial session - 1 year for free	CE.S_REM_ANALYSIS	

Good to know

What are the main benefits of DoS?

- › Increases your equipment life-time by having preventive diagnostics features
- › Offers running cost reduction possibilities with a dedicated report

What materials need to be ordered to have DoS Active Monitoring?

CE.S_DOS_AS_AC_MON for Chillers

CE.S_DOS_AH_AC_MON for AHU

OPTION 155 – Factory mounted modem

Note that a maintenance contract is mandatory to acquire this service.

Is there a recurring fee?

First time investment consists of the following items:

CE.S_DOS_AS_AC_MON for Chillers

CE.S_DOS_AH_AC_MON for AHU

OPTION 155 – Factory mounted modem

This price includes 1 year Active Monitoring from the date of commissioning: cloud license + dedicated report + sim-card data

In order to continue with the Active Monitoring in the upcoming years the purchase of the following materials is mandatory (i.e. this can be seen as a recurring fee):

CE.S_DOS_AS_AC_MON for Chillers

CE.S_DOS_AH_AC_MON for AHU

What is the dedicated report offered within the all connected package?

It is a tailor-made analysis done by the Daikin engineers on the actual running system. It is to help building owners/managers to identify possible energy saving actions to reduce the running costs.

Is it possible to have DoS - Active Monitoring for more than 1 year?

Yes, you can have it by purchasing it for more than 1 year. The price would be:

Example: 5 years

Price of CE.S_DOS_AS_AC_MON for Chiller x 5 years

Price of CE.S_DOS_AH_AC_MON for AHU x 5 years

You can purchase all at once at the beginning to avoid recurring payments.

What is the pricing if there are more than one Chiller/AHU?

Example: 5 years Active Monitoring for 5 Chillers

Price of CE.S_DOS_AS_AC_MON x 5 x 5 will give you the total purchasing price.

You can purchase all at once at the beginning to avoid recurring payments.

Is having DoS – Active Monitoring possible on an older Chiller/AHU?

For all chillers equipped with MT-III (Siemens) controller, DoS can be installed. For units with older controllers (eg. MT-II) it is possible but an additional gateway box is needed. In this case, please contact your Daikin representative.

Can the modem be ordered separately?

Yes, it is possible by contacting Daikin Service.

However, factory mounted solution is highly recommended as this will save installation and commissioning time on the field.

When is the DoS activated?

DoS is activated when the Chiller(s) is commissioned. For the initial report an account with E-Mail is required.












Is it possible to have a trial/free session before investing further?

Yes, DoS can be provided for free for the first year in case the following conditions are met:

- You have ordered a Chiller and/or an AHU with already equipped modem (i.e. OPT 155 which is mandatory for all medium and large Chiller ranges)
- The material code CE.S_REM_ANALYSIS is ordered (this is the one year access code).

Why stay with us?







After your first year of free monitoring you have now the option to further enjoy the full range of benefits for a yearly special fee. Take the advantages of remote monitoring by signing the maintenance contract: you can choose between two Daikin on Site packages.

DoS Packages main features		DoS Partner	DoS Premium
	Geo-localization and KPI Overview of the plants installed and Key Performance Indicator to understand at hand if there are units with alarms, energy meters installed, master/slave configurations and many more.	✓	✓
	Remote alarm notifications Receive real-time notifications of a unit alarms via e-mail and provide remote support to solve and restore the unit operations.	✓	✓
	Alarm Dashboard Troubleshoot every alarm through a comprehensive dashboard that will advise on possible causes and suggest actions to be taken.	✓	✓
	Trend viewer Create and organize in trend and graphs your unit value and thermodynamic information in order to keep always monitored the unit performance.	✓	✓
	Scheduler Define your plant schedule and setpoint directly from Daikin on Site scheduler section.	✓	✓
	Web Access Access remotely to the HMI from Daikin on Site and operate as you are in front of the unit.	✓	✓
	Datapoints List	Real-time list of up to 200 datapoints with 1-year history access.	Real-time list of datapoints directly from the controller. It is possible to keep track in a graph of one or more datapoints as well as pin them in the main Dashboard. 10 years history.
	Unit Dashboard	Overview of the plant operation data and setpoint. Trend and graphical representation of the most important unit and thermodynamic values.	Fully customizable overview of the plant operation data and setpoint. Trend and graphical representation of all unit and thermodynamic values.
	Web Graphics Visualize data and change settings and parameters in a structured web graphical representation of the unit.		✓
	Advanced Features Gain the most of Daikin on Site benefits through the usage of advanced features such as Leak Detection, Predictive Maintenance, Trend Analysis and remote optimization.		✓
	Reporting Receive monthly and semestral reports of your Plants.		✓



Daikin on Site

✓ Connectivity

Chillers MT3 controlled chillers		
	<ul style="list-style-type: none"> › Chiller software is 'DoS ready'. › No extra hardware required. 	<p>Find the overall DoS software release planning in the compatibility list on www.mydaikin.eu</p>
AHU – MT3 controlled		
	<ul style="list-style-type: none"> › Uses IP port of controller to connect to LAN or modem. 	<ul style="list-style-type: none"> › New chillers: delivered from factory 'DoS ready'. <p>Installed base:</p> <ul style="list-style-type: none"> › Chiller software update is required; see compatibility list on www.mydaikin.eu.
Chillers MT2 controlled		
	<ul style="list-style-type: none"> › Unique device for any MTII controlled Unit. › New features, as the possibility to control additional sensors. › Possibility to connect the unit with BMS of the customer. <div>  ALC DC8 </div>	<p>ALC DC8 EU.SB.5000081</p> <p>Unified version of Gateway to connect chillers controlled by MTII (Carel pCO₂-pCO₃-pCO₅) to DoS.</p> <p>Supersede existing models: EU.SB.5000052 EU.SB.5000001 EU.SB.5000004</p>
iCM – Chiller plant manager		
	<ul style="list-style-type: none"> › iCM is DoS-ready. › No extra hardware required. › Uses IP port of controller to connect iCM has a modem onboard. 	<p>Look for iCM documentation on my.daikin.eu</p>
Measurement and Monitoring kitfor targeted energy audit		
	<ul style="list-style-type: none"> › M&M is DoS-ready. › No extra hardware require. › Uses IP port of controller to connect to LAN or modem. 	<p>Look for sales index 'target energy audit'.</p>

A compatibility table is available on Daikin Extranet.
If you do not find it, then contact your local service department.

The table provides information of required hardware, software and monitoring features for each chiller model.

✓ Roles and access levels

Operator	Operator (trained)	External Service	Daikin Service
<ul style="list-style-type: none"> Plant dashboard Data points Alarms Web graphic History Schedulers Documentation 	<ul style="list-style-type: none"> Plant dashboard Data points Alarms Web access Web graphic History Schedulers Documentation 	<ul style="list-style-type: none"> Plant dashboard Data points Alarms Web access Web graphic History Schedulers Documentation 	<ul style="list-style-type: none"> Plant dashboard Data points Alarms Web access Web graphic Upgrade History Schedulers Tasks Documentation Plant settings

✓ Few screenshot examples (more on Daikin on Site)



Circuit overview – real-time data
For maintenance check and diagnostics.



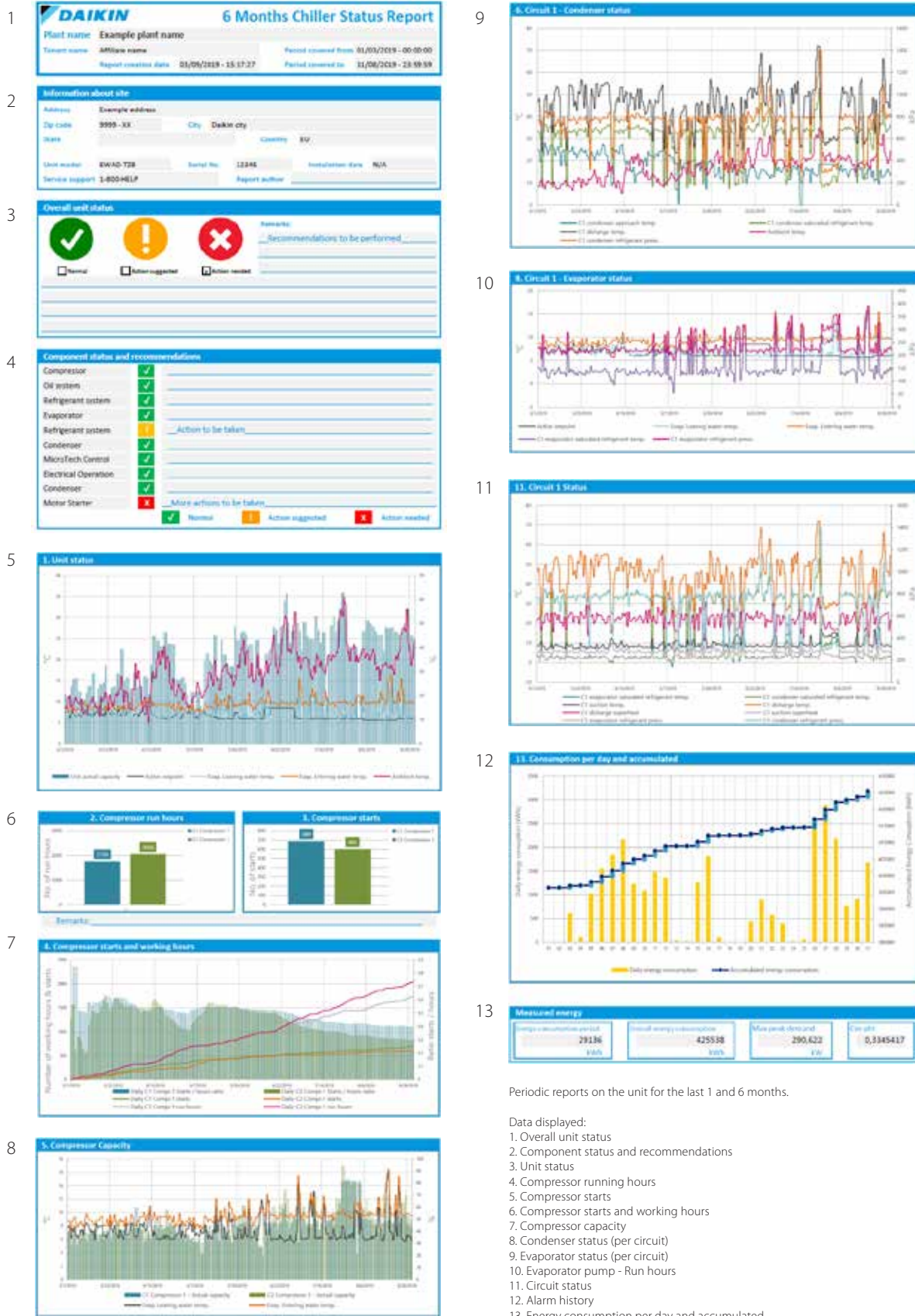
Plant overview, with real-time data
Full insight in the plant operation for commissioning and optimization.



Historical data: select parameters, select period, zoom, ...
Full insight in the equipment operation for diagnostics and optimization.

Daikin on Site

✓ Periodic reports



Periodic reports on the unit for the last 1 and 6 months.

Data displayed:

- Overall unit status
- Component status and recommendations
- Unit status
- Compressor running hours
- Compressor starts
- Compressor starts and working hours
- Compressor capacity
- Condenser status (per circuit)
- Evaporator status (per circuit)
- Evaporator pump - Run hours
- Circuit status
- Alarm history
- Energy consumption per day and accumulated

Leak detection function on DoS

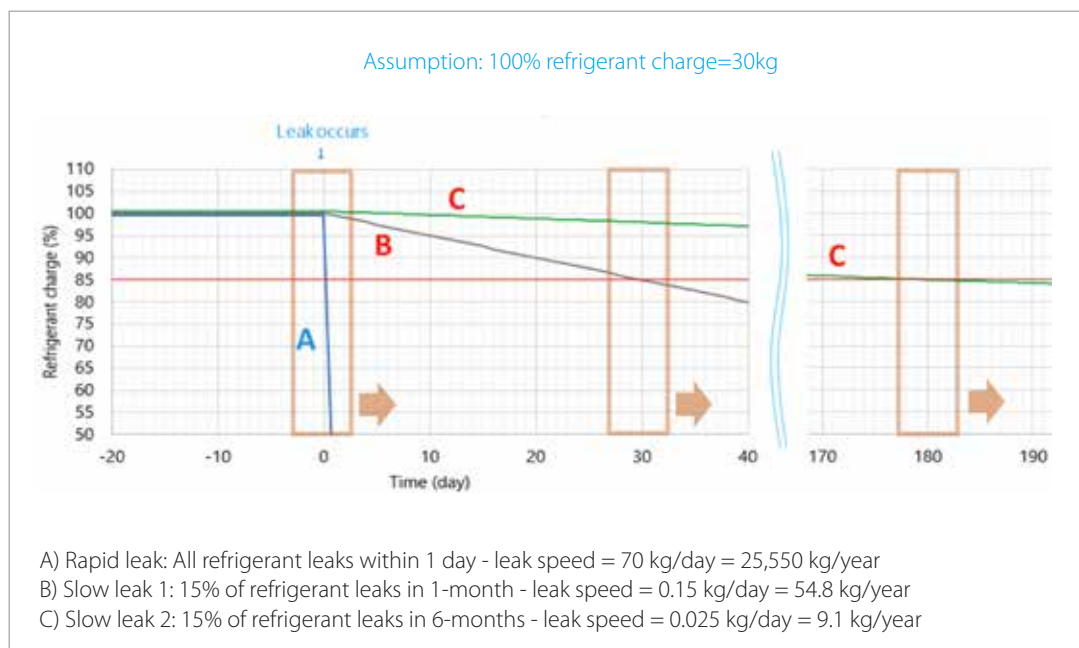
✓ Description

Through an extensive analysis of working data of the unit, a Machine Learning algorithm will detect potential gas losses by notifying the Operator. The algorithm can detect losses that are in a range of 0-15% of the total amount of gas.

Automatically available on DoS PREMIUM plants → Tz units equipped with liquid temperature sensor.

In case of potential slow leakages, it notifies the operator raising an Alarm.

Through a dedicated section the Operator can see the status of the Unit and if the probability of a gas leakage.



✓ Available informations on dashboard

- › Last Check: indicates when the algorithm performed for the last time.
- › Cx Status: indicates if there are leakages or not in the circuit.
- › Cx Leak occurrences: indicates how many times the algorithm detected a possible leakage
- › Cx Avg prob of Leakage: indicates the probability to have leakages
- › Cx Messages: indicates in case of no data availability if the algorithm performed or not

Daikin Cloud Service



✓ Proposition

It is the target for Daikin Service and partners to keep the equipment in premium condition. Using Daikin Cloud Service as a tool, the following services can be provided:

Control and Monitoring:

It helps keeping the installation in top condition (maximum uptime).

Remote support & diagnostic:

Aims to optimise the comfort, reducing the downtime with predictive and preventive actions.

Optimisation:

Taking an extra step in identifying and acting on Energy Saving Opportunities.

		Available for ITM/LC8			
		Available for iTab			
		Control and monitoring	Remote support and diagnostics	Advice and optimisation	
fDCSeatures	Remote control, scheduling and interlocking*	• (iTablet only)	• (iTablet only)	• (iTablet only)	Access license per controller
	Energy monitoring	•	•	•	
	Multi-site benchmark	•	•	•	
	Alarm history and e-mail notifications**	•	•	•	
	Predictions and e-mail notifications**		•	•	Service license per IU range
	Operation data access		•	•	
	Indoor use analysis		•	•	
	Outdoor use analysis		•	•	
Daikin Service	Remote diagnostic and support from Daikin		•	•	
	Periodical analysis and optimisation advice from Daikin			•	
	Can be combined with maintenance programmes: › Technical inspection › Preventive Maintenance Plan › Comprehensive Maintenance Plan			•	

* Possible via ITM link for sites using an ITM controller

** VRV units only

Product description

<https://cloud.daikineurope.com/>

Daikin Cloud Service is the cloud-based monitoring for DX installations. It offers an advanced set of intelligent services such as control, scheduling, prediction logic, multisite comparison, energy monitoring, among others.

Daikin can secure the highest support and control levels thanks to our state of art cloud technology, which is fully complementary with Daikin Service Plan.

Daikin Cloud Service



✓ Interface

The user interface is optimized to be easy to use for all stakeholders.
The user management is built to empower partnerships and collaboration across all stakeholders (users, service partners, Daikin).

✓ Key functions and features



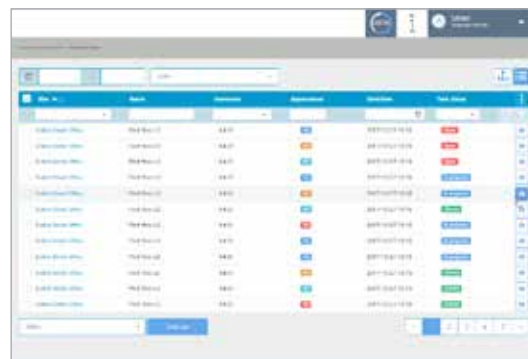
Control function (only available on iTab).



Energy monitoring incl indication heating, cooling mode.
Incl multi-site comparison.



Comfort monitoring.



Alarm dashboard For Daikin affiliate service and professional users
(access mgmt by aff)

- Keep track of alarms and events.
- Daikin's unique prediction algorithms (VRV only).
- Remote pre-diagnose for first time fix.
- Collaboration with professional users.

Daikin Cloud Service

Daikin Cloud Service is a cloud-based remote control and monitoring solution for Daikin's Commercial DX systems. Using enhanced control, monitoring and predictive logic, Daikin Cloud Service provides near real-time data and the support from Daikin experts to help identify cost-saving opportunities, increase the lifetime of your equipment and reduce the risk of unexpected issues. Daikin Cloud Service is offered in 3 levels to fit the different needs of the partners and customers:

1. Remote control and energy visualization.
2. Remote support and diagnostic.
3. Optimization and advice.


Daikin Cloud Service is offered in 3 levels to fit the different needs of the professional partners and users.



✓ Levels

Level	Delivery
Control and Monitoring	<ul style="list-style-type: none"> › System Control (for iTablet only). › Energy monitoring. › Multi-site benchmark. › Alarm indication. › Alarm notification to customer by e-mail. › Access to Daikin Cloud Service web application.
Remote support and diagnostic	<ul style="list-style-type: none"> › Event and prediction indication and notification. › Access to operational system data for remote diagnostics. › Smart mobilization of authorized service personnel.
Advice and Optimization	<ul style="list-style-type: none"> › Periodical evaluation of the system with Daikin expert advise on health, comfort and/or energy saving opportunities.

✓ Hardware requirement

Local controller	Requirement
iTab Controller (DCC601A51)	<ul style="list-style-type: none"> › Gateway function is embedded in iTab, no other hardware needed. › Modem or Lan: to be provided locally as needed.
iTM (DCM601A51)	 <ul style="list-style-type: none"> › An IoT gateway with pre-loaded DCS-specific software is required. › Modem or Lan: to be provided locally as needed.
LC8 (999156A)	
	<ul style="list-style-type: none"> • pn EU.SB5000072 IoT Gateway DCS (iTM) • pn 999175A AC-DC converter

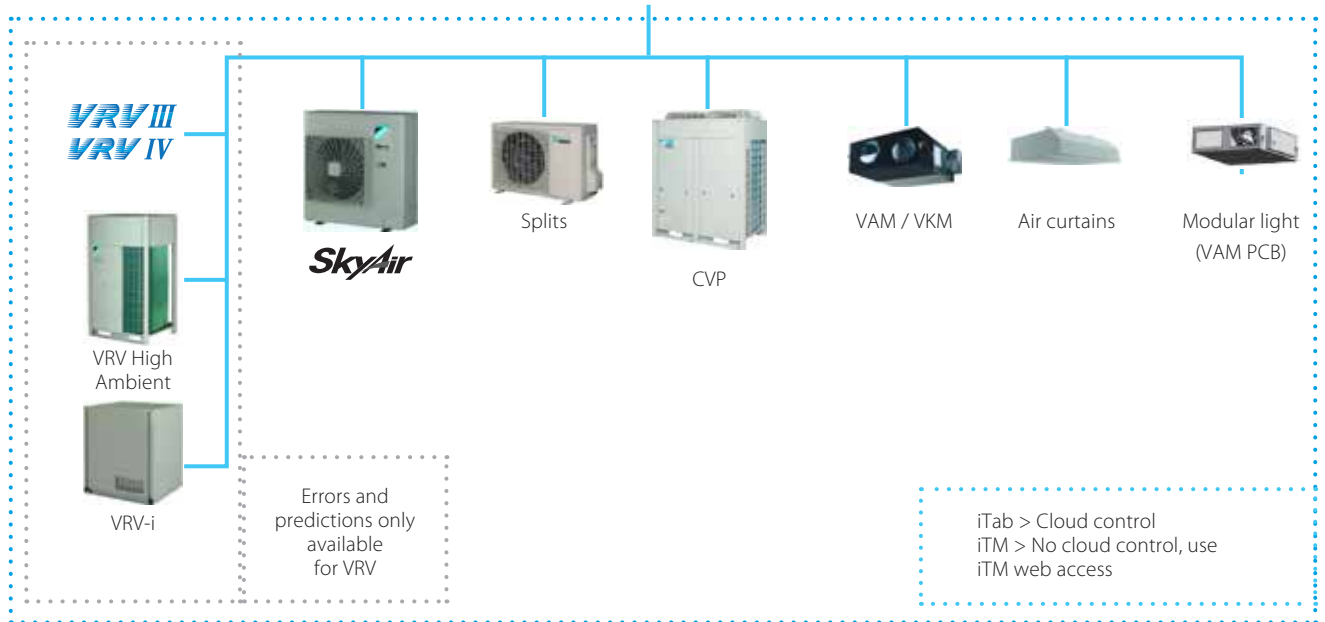
✓ License

License type	Content
Access license	<ul style="list-style-type: none"> › Target: end-user; service providers and professionals Price: <ul style="list-style-type: none"> • Depending on the controller used • Depending on the license duration › Unlock following functions: <ul style="list-style-type: none"> • Control (in case of iTab only) • Energy monitoring • Basic alarm function
Service license	<ul style="list-style-type: none"> › Target: Daikin Affiliate Service, trained professionals under supervision of Daikin Price: <ul style="list-style-type: none"> • Complementary to Access license • Depending on number of indoor units › Unlocks additional functions: <ul style="list-style-type: none"> • Alarm dashboard, including predictions (external access is mgmt by affiliate Service team) • Indoor and outdoor use analyzer • Operation Data download

Daikin Cloud Service



✓ Compatibility



Remote Monitoring Services

The latest technology matched with superb service to improve the efficiency and reliability of your HVAC-R installation.

Connected air conditioning works smarter. We offer several ways to manage your products and installations remotely. From performance monitoring to predictive logic and analyses and more, our Intelligent Network is a cost-efficient way to increase the security, uptime and reliability of your installation.



Predicting breakdowns ahead of time



Analytics

Data is our raw material, and data analytics is our product. The continuous monitoring and analysis of a system's operating data is not only the key to ensuring efficient operation, cutting operating and maintenance costs and optimizing user comfort. Data analysis also provides further valuable and often surprising insights.



Hassle-free connection

We know that connecting a system to the cloud can often be a real challenge – but that's no longer your problem. We'll take care of the connection, including the mobile network and the router, both of which are remotely monitored to maximize infrastructure reliability.



Daikin Cloud Service

Our web-based service provides reliable and secure remote monitoring. Our top priority is to earn your trust. Daikin Cloud Service meets the highest security standards in all respects – safeguarding your data privacy as well as transporting and storing your data securely at all times.

The benefits of remote monitoring



Remote Monitoring or control

Daikin Cloud Service is a web-based remote monitoring and control solution for HVAC systems that can even manage the energy consumption of several buildings at once. There's no need to install any special software. Everything is accessible using a standard browser, whether via a computer or a mobile device.



No potential problem goes unnoticed

What's more, Daikin Cloud Service provides automatic notification if it detects a possible malfunction. This unique predictive notification feature enables service measures to be initiated even before the user notices that a problem has arisen – thus maximizing reliability and minimizing service costs.



Maximum performance

The performance of even the best system can be impaired if it is not properly operated. Continuous monitoring allows load profiles, usage patterns and operating conditions to be closely followed. The data obtained is the basis for optimizing a system's operation and maintenance as well as its return on investment.



Real case

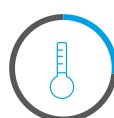
Real life examples, how continuous monitoring and data analysis could be useful:



-20%

Lower VRV consumption

Thanks to analysis of the VRV systems energy consumption data, we could provide the recommendation, how to change the usage pattern. The result was 20% reduction of electricity costs for cooling and about 15% in heating.



30%

Higher outlet temperature

Thanks to operation data analysis, we identified the possible comfort issues. Following operation assessment provided the base for taking the countermeasures to increase their comfort.



40%

Spare refrigeration capacity

Long term monitoring of the Conveni pack, identified that the client has a 40% spare refrigeration capacity. This allowed to reduce the number of installed devices and thus save the investment costs.



-20%

Lower investment costs

Operation data analysis of the old VRV system confirmed, that the replacement capacity and system layout could be optimized. This allowed to decrease investment costs of the replacement system and to resolve comfort issues.

Energy Audit (remote) VRV by European Remote Monitoring Centre (ERMC)

✓ Order process

Contact ERM

- > Martin Durian ☎+421 903 829 276
- > ✉ durian.m@daikin.sk

Lead time

- > Periodical reports: on schedule.
- > Ad hoc reports 1 week.

✓ Benefits

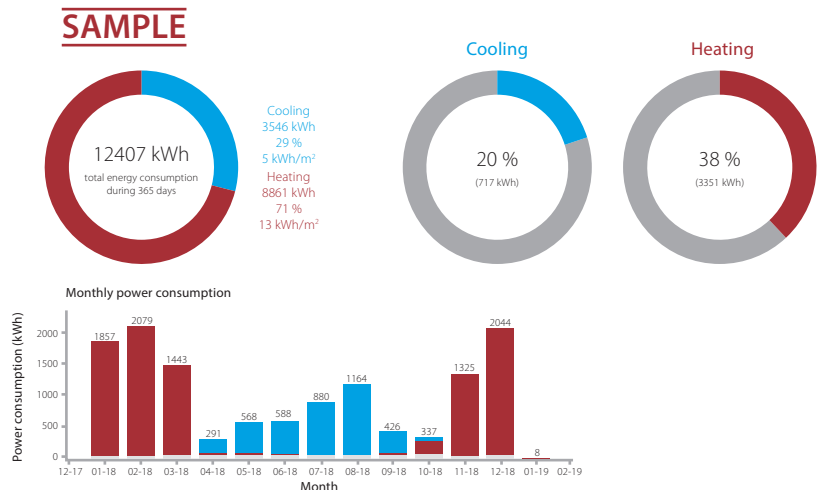
For the customer:

- > Save money: propose actions to save energy and identify areas of improvement.
- > Have peace of mind by having Daikin assessing the operation of equipment and providing an overview of the reliability and comfort level.

For Daikin:

- > Add value to your DCS-connected maintenance contracts.
- > Save money & staff: it is remotely & automatedly done by ERM.
- > Uncover potential service opportunities. Focus on service sales.

✓ Energy savings estimate based on actual measurement!



Energy Conservation Opportunity (ECO)	Energy Savings [%]
Cooling: shut down A/C when not required	Xx
Cooling: increase indoor units setpoint	Xx
Cooling: adjust target evaporating temperature	Xx
Cooling: all ECOs applied	Xx
Heating: setback A/C during non working time	Xx
Heating: decrease indoor units setpoint	Xx
Heating: adjust target condensing temperature	Xx
Heating: all ECOs applied	Xx

Product description

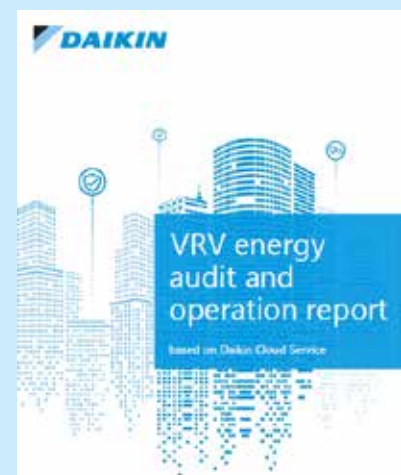
To effectively propose energy saving solutions, an accurate measuring of the current situation and modelling of the potential energy savings is a must. For such energy audit, Daikin at the European Remote Monitoring Centre (ERMC) utilises the data coming from Daikin Cloud Service (DCS) and developed an automated system to perform energy saving and operation assessment report for VRV; complete with customer advice and actions.

Content

An actionable energy audit and operation report to save energy by re-commissioning your VRV equipment:

Executive summary

1. Building description & energy use analysis
 - a. Building
 - b. Energy consumption breakdown
2. Energy savings
 - a. Energy savings estimate and applicable ECOs
 - b. Wasted energy
 - c. Indoor unit and evaporating setpoint in cooling
 - d. Indoor unit and condensing setpoint in heating
3. Operation & comfort
 - a. Capacity
 - b. Reliability
 - c. Comfort



Energy Audit (on-site) Chillers by Thermal & Electrical Energy Measuring & Monitoring

✓ Available kits

These are Daikin tools, NOT available for external sales.

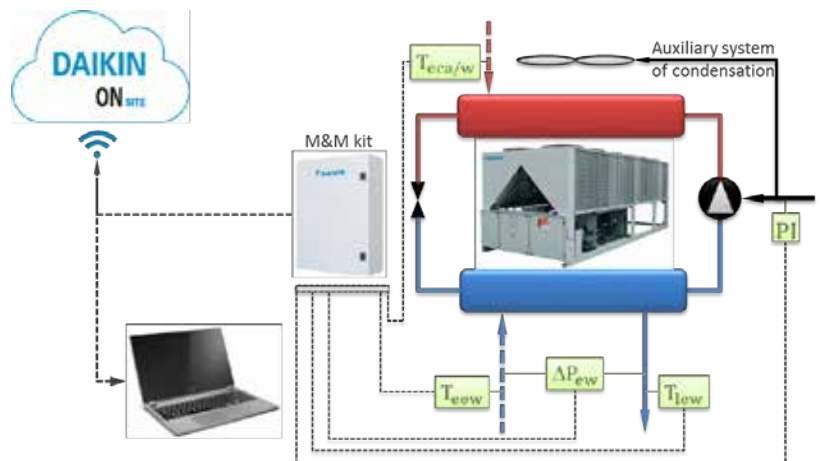
✓ Order process

- › Select the required kit:
 - **Thermal Energy kit:** Measures the thermal energy and sends information to the cloud (this kit has the main components – Main box).
 - **Electrical Energy kit:** Measures electrical energy in different points and sends the information to the cloud (this kit complements the Thermal Energy kit – EM box).
- › For additional information: review manual on extranet page or contact your local Service Department

Detail	Kit number
Thermal Energy kit + Communication (Main kit)	5901115
Electrical Energy kit (Additional option)	EU.SB.5000054
Option	Part number
A Differential Pressure (DP) sensor needs to be ordered depending on the pressure drop throughout the evaporator	Request the part number according to the range you need to: contact your local Service Department [0...200] kPa [0...500] kPa [0...1000] kPa

✓ Benefits

- › The M&M kit is not for sale. It is a 'Daikin only' tool which allows us to approach the market with upgrade proposals which are based on real data.
- › Confidently optimizing a chiller plant requires a clear view on the initial performance. By measuring the different points where the energy consumption is concentrated, you can assertively propose the necessary actions for optimization.
- › Daikin Energy Monitoring kits allow customers and our technicians to better understand the chillers' performance and the impact of all actions taken. Because accurate data is the base for correct decisions, both thermal and electrical measurements are recommended.



Product description

To effectively propose energy saving solutions, an accurate measuring of the current situation is a must. For such targeted energy audit, Daikin developed its own tool: Measurement and Monitoring kit (M&M). All data measured by the Monitoring kit is logged and available in a user friendly way on 'Daikin on Site'. (The DoS connection is charged separately)

And more, because the measurement kit measures on the hydraulic side, it is suitable for any chiller brand.

Content

Thermal Energy & Communication kit

- › MT-III Controller
- › 4 temperature sensors
- › Modem 3G and antenna (sim card not included)

Electrical Energy kit

- › Energy metering module (Nemo)
- › Electrical probes (2 for voltage and 2 for current)

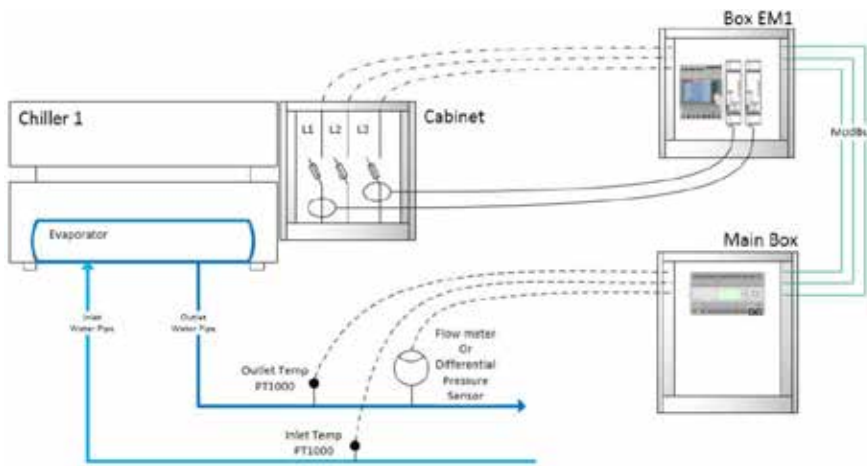
Options

- › 1 DP sensor

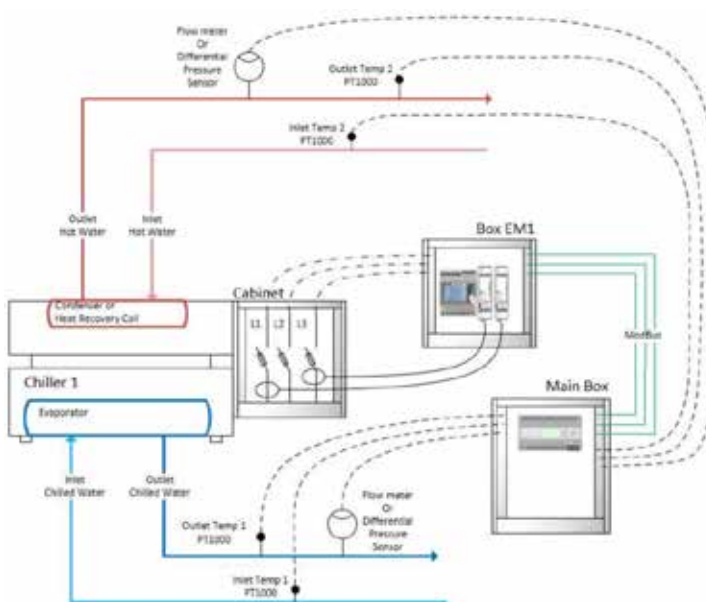


Energy Audit (on-site) Chillers by Thermal & Electrical Energy Measuring & Monitoring

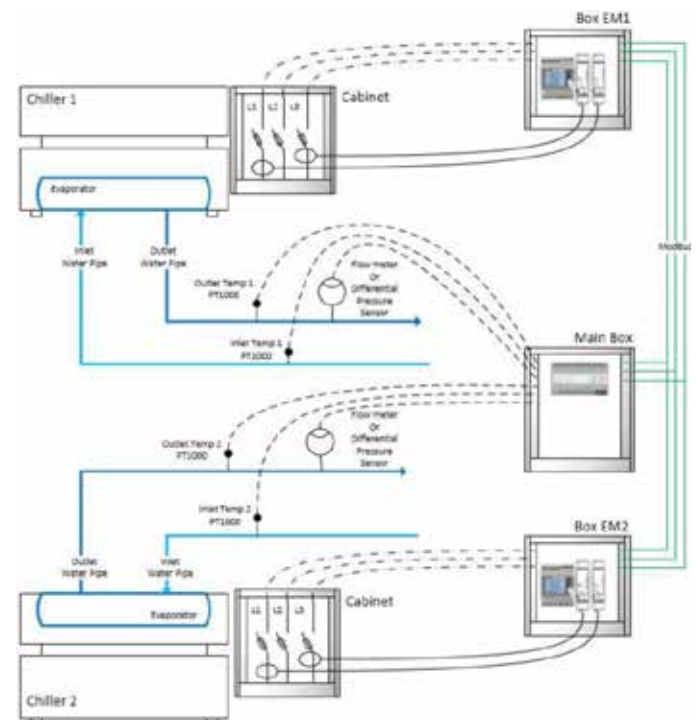
✓ Configuration 1: One loop in one chiller




✓ Configuration 2: Two loops in one chiller



✓ Configuration 3: Two independent chillers



✓ Daikin on Site web graphic

 <p>M&M Kit</p>		Chiller No. 1		Chiller No. 2	
General 2.00.A		State Off Mode Cool		State Off Mode Cool	
Ambient temperature 0.000 °C Ambient humidity 0.000 %r.H. External alarm No. 1 NoAlarm External alarm No. 2 NoAlarm Sample period 1.000 s		Loop No. 1 - Thermal energy		Loop No. 2 - Thermal energy	
		Temperature inlet 0.000 °C Temperature outlet 0.000 °C ΔT 0.000 dK Flow rate Pressure drop -4.00 kPa Thermal power Cooling energy 0.000 kWh Heating energy 0.000 kWh		Temperature inlet 0.000 °C Temperature outlet 0.000 °C ΔT 0.000 dK Flow rate Pressure drop Thermal power 0.000 kW Cooling energy 0.000 kWh Heating energy 0.000 kWh	
Loop No. 1 - Setup		Loop No. 1 - Electrical energy		Loop No. 2 - Electrical energy	
Flow sensing type DiffPress Flow sensor signal type 0-10V Diff. pressure drop scale 20.0 kPa Nominal flow 45.0 l/s Coefficient 1.80 Fluid type EthylGlycol Ethylene 40.0 % Error temp. sensors 2.00 % Error diff. pressure sensor 1.000 % Error energy meter 2.00 %		Cooling electrical energy 0.000 kWh Heating electrical energy 0.000 kWh Active energy Maximum peak demand 0.000 kW Active power 0.000 kW Average power 0.000 kW Voltage line 1 0.000 V Voltage line 2 0.000 V Voltage line 3 0.000 V Current line 1 0.000 A Current line 2 0.000 A Current line 3 0.000 A Cosinus φ 0.000		Cooling electrical energy 0.000 kWh Heating electrical energy 0.000 kWh Active energy Maximum peak demand 0.000 kW Active power 0.000 kW Average power 0.000 kW Voltage line 1 0.000 V Voltage line 2 0.000 V Voltage line 3 0.000 V Current line 1 0.000 A Current line 2 0.000 A Current line 3 0.000 A Cosinus φ 0.000	
Loop No. 2 - Setup		Loop No. 1 - Energy performance		Loop No. 2 - Energy performance	
Flow sensing type FixValue Fixed flow 50.0 l/s Fluid type Water Error temp. sensors 2.00 % Error energy meter 2.00 %		EER Instantaneous ERR Minimum ERR Maximum ERR Year to date 0.000 ERR Year to date Minimum 0.000 ERR Year to date Maximum 0.000 COP Instantaneous 0.000 COP Minimum 0.000 COP Maximum 0.000 COP Year to date 0.000 COP Year to date Minimum 0.000 COP Year to date Maximum 0.000 Measurement uncertainty 2.88 %		EER Instantaneous 0.000 ERR Minimum 0.000 ERR Maximum 0.000 ERR Year to date 0.000 ERR Year to date Minimum 0.000 ERR Year to date Maximum 0.000 COP Instantaneous 0.000 COP Minimum 0.000 COP Maximum 0.000 COP Year to date 0.000 COP Year to date Minimum 0.000 COP Year to date Maximum 0.000 Measurement uncertainty 0.000 %	

Energy metering kit

Retrofit for MT3 controlled chillers

✓ Available kits

✓ Quotation and order process

› Select the kit to fit the unit main switch.

Chiller Main Switch	Kit number
250 A	EU.SB.5000015
400 A	EU.SB.5000016
630 A	EU.SB.5000017
800 A	EU.SB.5000018
1000 A	EU.SB.5000019
1250 A	EU.SB.5000020
1600 A	EU.SB.5000021

✓ Why to buy

› Energy metering is a product aimed at customers who care about their costs and environmental impact.

› By measuring energy consumption, proper follow-up and improvement actions can be put in place.

✓ Characteristics

The Digital Display is mounted inside the panel on a DIN rail, but also includes a RS485 communication module.

Main electrical parameters which are displayed are:

- › Line-to-line power supply
- › Phase and average current
- › Active and reactive Power
- › Active and reactive Energy
- › Frequency



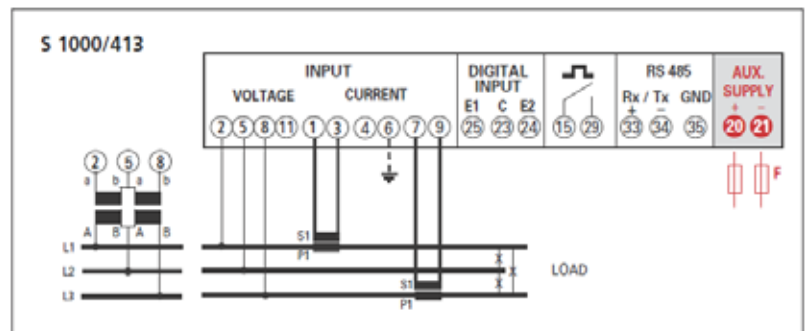
Multi-Function Digital Display

Technical data:

- › 3-phase network
- › 115 Vac power supply
- › DIN rail mount
- › RS485 communication
- › 5A current input

Current transformers

Primary current 200 .. 1600 A
Secondary current 1A..5A
Housing: self extinguishing polycarbonate IP20



Product description

In recent years, Energy control has become more important, due to the increasing need for optimization and reduction of power consumption. Two important factors drive this situation: environmental impact and cost. Sustainable impact of the installed equipment can only be controlled through evidence of energy consumption.

For Daikin chillers, there is now a **'Energy metering' Retrofit kit** for already installed chillers.

Recording the power consumption of the chiller shows if the climate comfort is optimized for minimum energy absorbed and, if not, promotes the start of actions to increase the efficiency of the system with proper maintenance, and fine tuning of the source and the system in general.

The 'Energy metering kit' includes:

- › 1x Multi-Function Digital Display.
- › 2x Current Transformers.



✓ Daikin on Site compatibility

Predefined dashboard for the NEMO meter:

- › Unit power
- › Unit voltage
- › Unit current
- › Active energy
- › Maximum peak demand
- › Active power
- › Average power
- › Cos phi



Heat recovery HR2: upgrade program for air-cooled screw chillers

✓ HR2 is applicable for

Daikin chiller type	McQuay chiller type
EWAD-BJYNN	ALS (from 2002 onwards)
EWAD-C	McEnergy
EWAD-D	McEnergy Evolution
	AWS
EWAD-CZ	AWS inverter

IMPORTANT: Check in the chiller's IOM, that the inlet/outlet water temperatures are within the envelope for the unit. For other chiller types, partial heat recovery can be evaluated.

✓ Benefits

Energy and environmental savings

Energy savings

- › The heat (or energy) recovery kits complements Daikin's range of Energy Saving Solutions. Pre-evaluate, analyze and realize the real savings potential of the installation.
- › Heat recovery reduces Total Life Cycle Cost. It is an investment which will return year after year.

Highest return: High running hours chillers and/or high consumption of sanitary water (such as hotels (with swimming pool), hospitals, industry...)

- › The HR2 kits will provide substantial energy savings when used in high operating hour applications. The recovery and savings are maximized when the need for cooling and heating is simultaneous.

Environmental savings Value for the customer is ROI

- › The energy saving and carbon footprint reduction go hand in hand.
- › The energy recovered by HR2 results as well in a net saving on carbon emissions.

✓ KITS for MT2-controlled chillers (DUMMY materials – for price reference only)

Circuits to be equipped with HR compressor family (MT2)	1	2	3	4
3100	EU.SB.5000030	EU.SB.5000031	-	-
3200	EU.SB.5000032	EU.SB.5000033	-	-
FR4	EU.SB.5000034	EU.SB.5000035	EU.SB.5000036	EU.SB.5000037
FR3A	-	-	-	-
FR4A	-	-	-	-

✓ KITS for MT3-controlled chillers (DUMMY materials – for price reference only)

Circuits to be equipped with HR compressor family (MT3)	1	2	3	4
3100	EU.SB.5000038	EU.SB.5000039	-	-
3200	EU.SB.5000040	EU.SB.5000041	-	-
FR4	-	-	-	-
FR3A	EU.SB.5000042	EU.SB.5000043	EU.SB.5000044	-
FR4A	EU.SB.5000045	EU.SB.5000046	EU.SB.5000047	-

A typical kit contains heat recovery heat exchanger, subcooler (if applicable), solenoid valves, expansions valve, temp sensors, pressure transducer, For MT2 a HR2 control box is required / for MT3, a control expansion module is required.

Product description

- › The energy used to produce cooling with chillers is mostly lost into the atmosphere. With the HR2 Heat Recovery Retrofit solution, this wasted energy will be provided for heating requirements in the same plant at the same time.
- › HR2 incorporates a control system that optimizes the heating output, while maintaining priority for the cooling side. Thanks to the advanced control logic, units are always able to respond to building climate control requirements.
- › The chiller will produce cooling and heating simultaneously, reducing the energy bill.



✓ Pre-checks

- › Check that the chiller is compatible with this solution.
- › Check in the chiller's IOM, that the inlet/outlet water temperatures are within the envelope for the unit.

✓ Quotation flow

- › if support required to select the HR2 kit: contact your local sales or service sales department
- › Published Kit numbers are to communicate kit prices for quotation ONLY. DO NOT use these number to register your PO.

✓ Order flow

- › At time of order, DAE/DENV will create the unique kit number for the specific chiller. Contact your local sales or service sales department
- › Affiliate can register PO in SAP when unique kit number has been released.

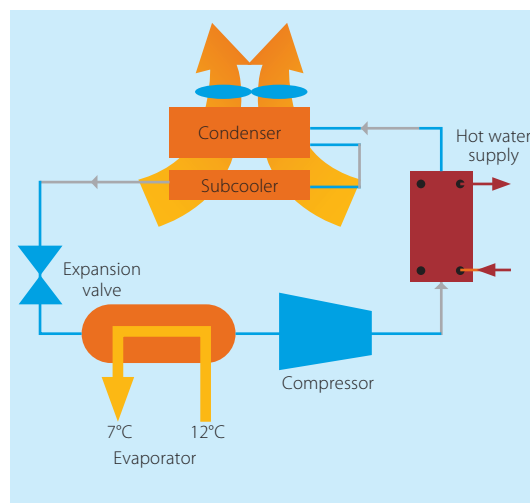
✓ Delivery flow

- › Delivery will be Ex-DAE factory
- › Example:

Description
PIPING TUBE D66,67 X 2,5 - L 2M
PIPING TUBE CURVE 25° D66,67
PIPING TUBE CURVE 30° D66,67
PIPING TUBE CURVE 45° D66,67
PIPING TUBE CURVE 90° D66,67
PIPING TUBE CONNECTOR D66,67
PIPING CONNECTION HEAT EXCHANGER D66,67
FLEXIBLE PIPE INOX D65 0,975M

✓ Installation: large diameter piping

- › HR2 installation requires re-piping on-site. Piping is not included in the HR2 kits. However, following large diameter Cu pipe is available for order in SAP (delivery ex-McQuay Cecchina factory) for your convenience.

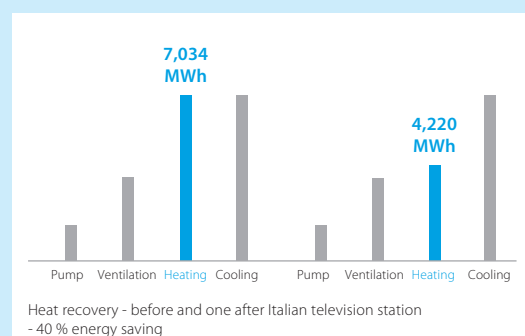


Product description

Controlled heat recovery system HR2

A plate to plate heat exchanger in series with the condenser. The HR2-controller adjusts the condensing temperature to meet the hot water set point and assure that priority is always given to the cooling side.

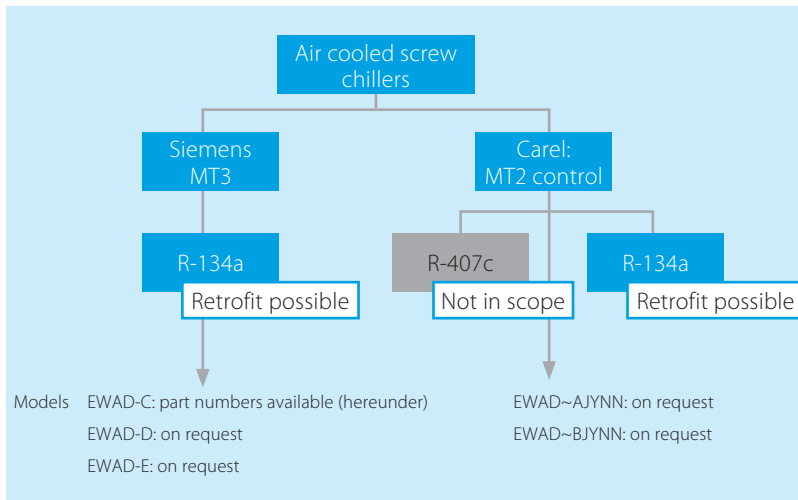
Heat recovery Retrofitting projects like this one benefit companies by reducing their carbon footprint, reducing net operating costs, and providing an economical way to heat water.



Inverter Retrofit for screw chillers: program for air-cooled chillers

✓ Eligibility

Important: Inverter Retrofit is possible up to 3 circuits.



✓ Inverter type

There are six different inverter Retrofit packages available. Depending on the compressor(s) present in your chiller the right package can be identified. Every inverter Retrofit package mentions the range of compressors it covers in its description (see below).

All the inverter types are enclosed in an IP 54 cabinet. This provides the inverter protection against dust & splashing water.

✓ Order through spare parts platform

You can order your inverter Retrofit through Spare Parts.

Part number DENV	Description
EU.SB.5000064	INVERTER UPGRADE BOX SIZE 3100/3200
EU.SB.5000065	INVERTER UPGRADE BOX SIZE FR3AL/FR3AS/4221
EU.SB.5000066	INVERTER UPGRADE BOX SIZE FR3BS/4222
EU.SB.5000067	INVERTER UPGRADE BOX SIZE FR3BL/4223
EU.SB.5000068	INVERTER UPGRADE BOX SIZE FR4AS/4224
EU.SB.5000069	INVERTER UPGRADE BOX SIZE FR4AL

✓ Content order

- › Cabinet IP54 with inverter for 1 compressor including prewired cooling fan.
- › Installation guide: wire diagram, dimension drawing, instructions to adapt parameters.

Not included: shielded power cables.

Product description

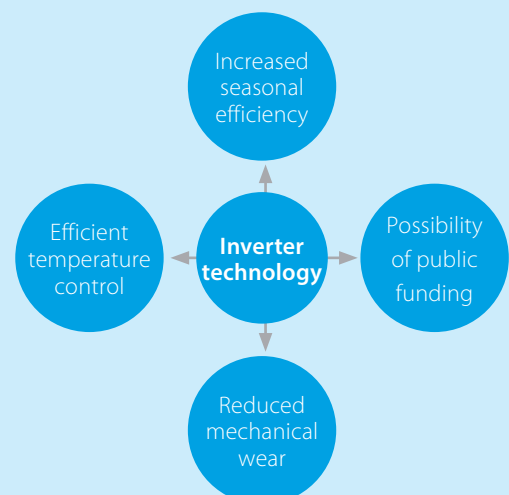
Many fixed speed chillers out in the market are not operating in optimal conditions as the compressor is constantly running at full speed. By having an inverter connected to your unit this can, however, be prevented. The compressor speed is then adapted based on the user needs. This leads to various benefits. The main ones are the following:

Thanks to the 'Inverter Retrofit Solution' the benefits of inverter technology can be added to your unit, even after installation.



The decision to Retrofit will be driven by the time required to payback the investment.

- This pay-back period is determined by:
- % of partial load operation (in others words when compressor is not running at full speed)
 - Operating hours
 - Cost of electricity
 - Public funding

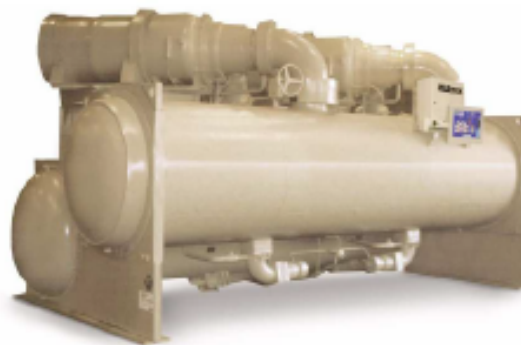


Inverter Retrofit for centrifugal chillers: upgrade program for R-134a chillers

Application Manual	Rev. 2.8
Original Instructions	Date: January 2018
	Supersedes: Rev. 3.5

VFD for Centrifugal Chillers – B-Vintage

WBC/WDC 082, 078, 087, 100, 112, 128, Cooling Only



CE

Chiller modernisation: upgrade program for chillers

✓ Modernisation is applicable for

McQuay chiller type	Old compressor	New compressor
ALR - prior 2002	Piston	Screw F3100 or F3200
WHR	Piston	
ALS - prior 2002	Oil free screw Frame 2	

✓ Available modernisation kits

Chiller	Compressor	With soft starter	With inverter
2 circuit	F3100	EU.SB.5000008	EU.SB.5000005
	F3200	EU.SB.5000011	-
3 circuit	F3100	EU.SB.5000009	EU.SB.5000006
	F3200	EU.SB.5000012	-
4 circuit	F3100	EU.SB.5000010	EU.SB.5000007
	F3200	EU.SB.5000013	-

✓ Quotation and ordering process

- › For support to select the 'best fit' kit: contact your local sales or service sales department
- › Above kit numbers are ONLY to communicate kit prices.
- › Only at order process stage, DAE/DENV will create the unique kit number per chiller contact your local sales or service sales department

✓ Benefit

Chiller modernisation is about advising and consulting customers in the search for the 'best fit' solution for their situation. It requires to team-up with the customer, taking into consideration site conditions and accessibility, chiller condition and expected remaining lifetime, criticality of the installation and customer's budget (maintenance, operation, energy or investment budget ...).

- › Tune to today's needs: energy cost and cooling load requirement have changed significantly over the life time of the chiller. Fit the chiller to the new circumstances, with limited investment.
- › Focus on chillers which have accessibility restrictions and/or suffer reduced reliability. In these circumstances, benefit of modernisation will be highest.
- › Cost of modernisation is to be compared with the total installation cost of a new chiller: craning and handling of removing the old chiller, installing a new chiller, re-pipe and reconnect, re-wiring.

While many manufacturers can quote for a new chiller, only Daikin can modernize the chiller.

Product description

The chiller is a critical component in the customer's own production and/or comfort processes. Hence, keeping the equipment fit and reliable is the key. When chillers need compressor exchange while the unit is still in good shape. When refrigerant upgrade is required. When the time is there to consider renewal, but logistic and handling costs are expensive because of basement installation or crane manipulation in the middle of the city centre... For these situations, Daikin offers a **strong alternative solution: Chiller modernisation.**

Daikin will team-up with these customers and work out a 'best fit' solution.

Benefits of chiller modernisation:

1. Critical components are replaced and upgraded to latest technology:
 - Extends the lifetime
 - Increased reliability and maintenance efficiency
 - Best fit compressors, controls and soft starter/inverter upgrade will enhance energy efficiency up to +20% ESEER.
2. Convert to R-134a or R-407C.
3. Budget management: avoid the expense, operational and safety risks of chiller removal and installation.

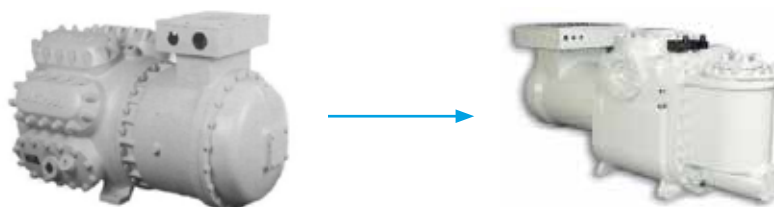


✓ Modernisation kit content



The modernisation kit

- 1 **Compressor** upgrade
Recip or oil-free frame 4 screw will be replaced by the latest F3100 or F3200 screw compressor technology.

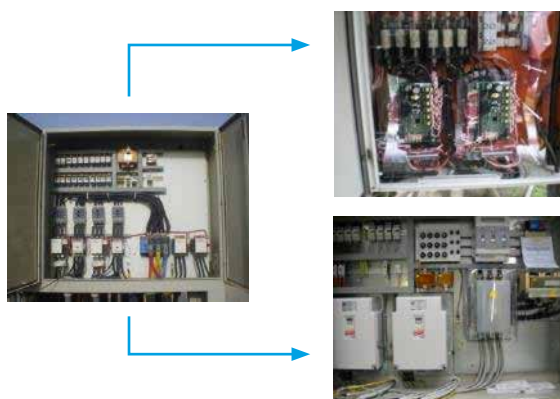


- 2 **Controller** is upgraded to Microtech 2 or Microtech 3 when possible.

- 3 Upgrade of **expansion valve**.



- 4 Upgrade to **soft starter or inverter** technology.



- 5 R-22 to R-407C refrigerant upgrade.

YES: R-22 → R-407C
R-407C → R-407C
R-134a → R-134a

NO: R-22 → R-134a
R-134a → R-134a
R-134a → R-407C

✓ What is involved to execute?

From DAE/DENV	Modernization kit, wiring diagram and instructions. On-site support can be ordered directly from DAE Italy.
From affiliate	<ul style="list-style-type: none"> › Material: piping, small installation material & refrigerant . › Labour (general estimated 10 days for 2 persons) to replace components, wiring the new MT2, cabling of soft starter or inverter, brazing work). › Transport of the material.

VRV Compressor Retrofit: upgrade VRV III to the latest technology

✓ Materials available in SAP

Category	Reference	Sales BOM in SAP	Description	Models
VRV Retrofit Compressor kit	AA	D_SV2010500	VRV Retrofit Compressor kit H/P Model	Heat pump
	AB	D_SV2011009	VRV Retrofit Compressor kit H/A Model	High Ambient
VRV Retrofit Sensor kit	A	D_SV2010516	VRV Retrofit Sensor kit RXYQ5P7W	RXYQ5P7W1B
	B	D_SV2010522	VRV Retrofit Sensor kit RXYQ8P7 - 8P8W	"RXYQ8P7W1B RXYQ8P8W1B"
	C	D_SV2010538	VRV Retrofit Sensor kit RXYQ10P7 - 12P7W	RXYQ10P7W1B RXYQ12P7W1B
	D	D_SV2010544	VRV Retrofit Sensor kit RXYQ14P7 - 18P7W	RXYQ14P7W1B RXYQ16P7W1B RXYQ18P7W1B RXYQ14P7W1BA RXYQ16P7W1BA RXYQ18P7W1BA
	E	D_SV2010550	VRV Retrofit Sensor kit RXYQ5P9W	RXYQ5P9W1B
	F	D_SV2010566	VRV Retrofit Sensor kit RXYQ8P9W	RXYQ8P9W1B
	G	D_SV2010572	VRV Retrofit Sensor kit RXYQ10P9 - 12P9W	RXYQ10P9W1B RXYQ12P9W1B
	H	D_SV2010588	VRV Retrofit Sensor kit RXYQ14P9 - 18P9W	RXYQ14P9W1B RXYQ16P9W1B RXYQ18P9W1B
	I	D_SV2011015	VRV Retrofit Sensor kit RXYQ8P7Y	RXYQ8P7Y1K
	J	D_SV2011021	VRV Retrofit Sensor kit RXYQ10P7 - 12P7Y	RXYQ10P7Y1K RXYQ12P7Y1K

✓ Benefits

Improve comfort

- › Frequently starting and stopping of indoor cassettes is avoided, which increases the tenant's comfort. The cold draught-feeling is prevented by higher out-blow temperatures.

Extend life time

- › The new Japanese manufactured compressor is designed for even longer lifetime.
- › Combined with the preventive exchange of highly used parts (sensor kit), avoids unscheduled unit breakdown.

Improve efficiency in partial load

- › Thanks to its revolutionary Variable Refrigerant Temperature technology, VRV Retrofit adjusts both the inverter compressor speed and refrigerant temperature in cooling and heating, providing the necessary capacity to meet the building load with the highest efficiency at all times.

Product description

This upgrade introduces the revolutionary Variable Refrigerant Temperature technology on existing installations (VRV IV technology).

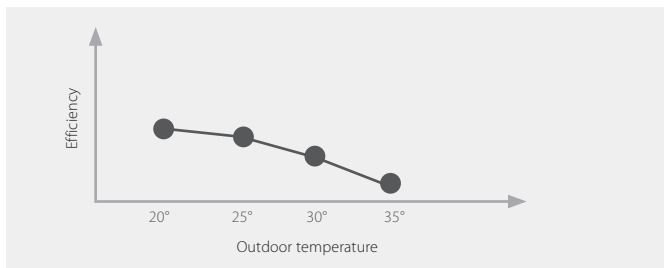
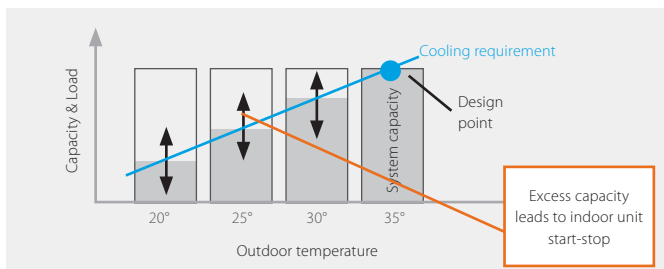
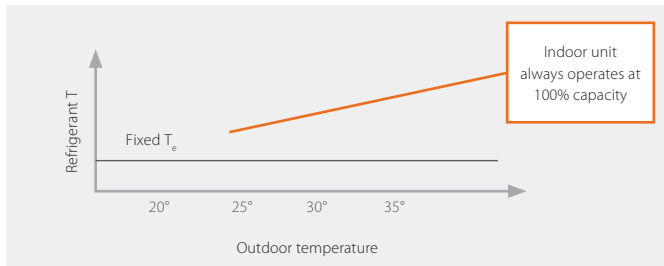
The upgrade is applicable for VRV3 heat pumps and will provide solution in case of compressor repair or to upgrade and optimize VRV installations. The lifetime of VRV III units is extended by a newly designed and Japan-manufactured compressor, together with an upgraded control PCB and related sensor parts.



✓ Software [Variable Refrigerant Temperature control VRT]

Existing machines

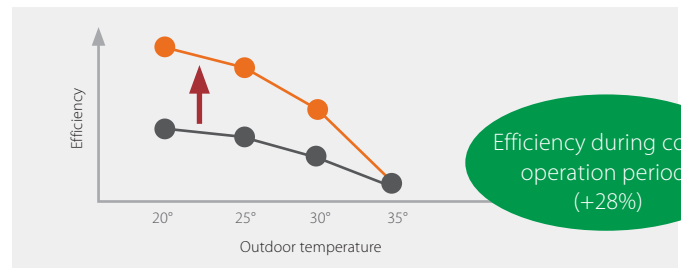
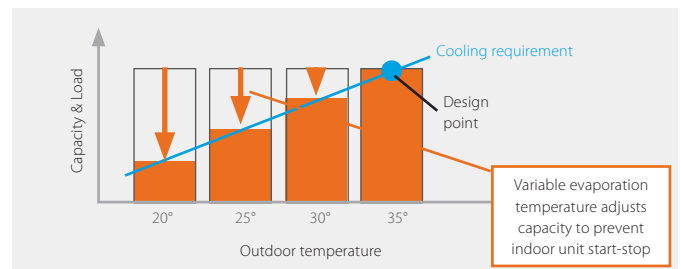
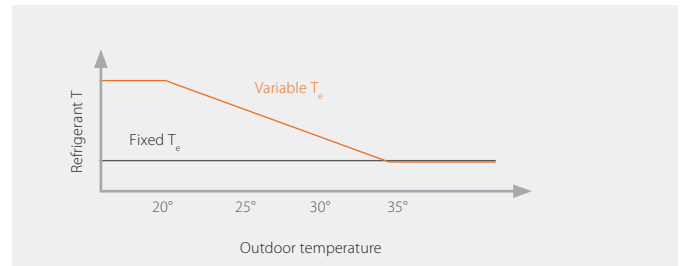
AC capacity adjusted through compressor inverter control and start-stop of indoor unit



Example: cooling

Retrofitted

AC capacity adjusted through compressor inverter control and evaporation temperature control



Example: cooling

The air-conditioner capacity needed as related to the outdoor temperature is monitored in real-time. The system adjusts the optimal refrigerant temperature to throttle compressor speed and raise efficiency. Variable evaporation temperature adjusts capacity to prevent indoor unit start-stop.

Frequently asked questions

1 How do I know the result (energy)?

Overall, energy saving starts with measuring and following up your energy consumers. Daikin offers a great tool, which is Daikin Cloud Service (ITab controller) and VRV Cloud (LC8 or iTM). We strongly promote to connect the installations and utilize Daikin's cloud technology to monitor the results.

2 Why is the sensor overhaul recommended?

A sensor, thermistor with an offset has an immediate negative impact on the performance of the VRV equipment. During the compressor exchange, the refrigerant will be evacuated. Combining preventive sensor exchange during the same intervention is very cost effective solution.

3 Is the upgrade kit also available for heat recovery units?

No, the heat recovery variant has not been developed yet. This development project can be initiated if there is sufficient market request.

4 The kit only contains the inverter compressor. Why?

Yes. The kit only includes inverter compressor. Due to the concept of VRV III, the on/off compressor will have less running hours (at least half) then the inverter. The inverter compressor ramps up and when more capacity is asked then it can supply, the on/off will kick in.

Next to this from experience, most sites run on very low part loads which means that the capacity is met with inverter compressor only and the on/off will not even start.

Only in case the site is running 24 hours and/or the system is really undersized, then the technician can consider to replace the on/off as it might have high operating hours.

5 What is the reason for the label in the kit?

This label needs to be put on next to the original name label. The first reason is to show that the unit has already been modified with a new model name on it. The second reason is because the new compressor and PCB have new spare part numbers, thus it will be easier to find out by searching the new model name on the Spare Parts Bank.

6 What about warranty?

The kit follow the spare part warranty policy if locally available.

Our recommendation is to evaluate the warranty period based on the condition of the site which is retrofitted and keep this to the commercial minimum. This should not exceed 12 months.

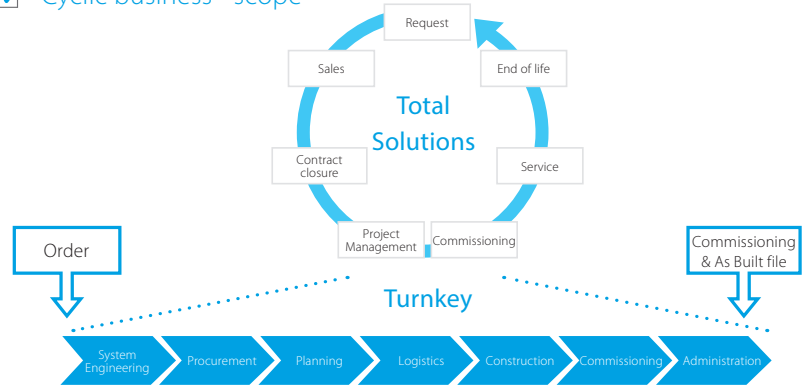
Turnkey: closing the cyclic business loop

✓ Turnkey is applicable for

Target group:

- › Market: Industrial, Commercial market segment.
Pillar: Applied.
- › Priority goes to existing clients who have a maintenance contract with Daikin.
- › New clients where Daikin conducted an Energy audit in order to propose a more efficient system with Daikin units.
- › End-users who want to trade exclusively with the manufacturer.

✓ Cyclic business - scope



✓ Benefits

Standardised approach for project execution

Centralizing setup of processes and tools will standardise the execution and consolidation of turnkey activities throughout the EMEA region. This will enable quality control and will benefit international clients, offering them a standardized approach.

Shared services

All services that can be centralized, will be offered to affiliates who need it to execute a project or to set up their own execution team. This will enable us to develop turnkey activities in a lean way. And ensures sharing of best practices between all affiliates.

Solution approach – tailor made to the needs of the end-user

System engineering is our Unique Selling Proposition. By offering smart, tailor made solutions, including Daikin and third party material, we can make the difference with our competition. Doing so we will avoid mere price discussions and enable WIN-WIN situation with our clients.

Turnkey is essential to close the cyclic business loop and to enable complex business models such as operating leasing and PAAS.

Product description

Closing the cyclic business loop by enabling 'New Installation'.

Turnkey stands for projects that include engineering, procurement, installation and commissioning services.

A turnkey project is typically non-standard and tailor made to the needs of an end-user. By providing engineering services we are able to offer solutions including every aspect of an HVAC system. Project management skills will ensure a streamlined process from order to start up of the system. At the end the client is offered the 'key' to the system, tailor made and ready to go.

We can rely on a network of pre-qualified subcontractors during the execution phase.

This offering is for applied applications and orients towards Industrial and large commercial end-users.

Turnkey capabilities enables also more complex business models like Operational leasing and PAAS.

Our expertise at your fingertips:

- › Project management.
- › System engineering.
- › Pre-qualified subcontractor network.



Daikin Rental Services – Chillers

- › Solutions for cooling emergencies
- › Standby cooling for critical applications and processes
- › Cooling supply during planned shutdowns and outages
- › Solutions for cooling load fluctuations & special events



Why use temporary cooling from Daikin?

Daikin is the largest air conditioning, heating, ventilating and refrigeration (HVACR) company in the world. We have earned a worldwide reputation for providing HVAC systems that can save you money while providing optimal overall system performance and occupant comfort. Our Rental machines are typical high Daikin built quality. Reliability and compact size make Daikin machines an excellent choice for all Rental applications.

Benefits

Many reasons to use temporary cooling

Daikin Rental is offering rental chillers and services to meet your temporary cooling needs while reducing CAPEX (capital expenditures) and optimizing your OPEX (operational expenditure). Daikin Rental covers:

1. Solutions for COOLING EMERGENCIES

Whether a natural disaster and/or an equipment failure takes your cooling system down, Daikin temporary cooling can get you up and running again fast!

3. Cooling supply during PLANNED SHUTDOWNS AND OUTAGES

• Planned maintenance on cooling equipment

Daikin temporary cooling is an excellent way to supply cooling during planned equipment maintenance, which elevates the time pressure to get your primary cooling system back on line. This way, the work can be completed correctly the first time, and avoid costly overtime.

• Replacement of older equipment

Daikin temporary cooling makes it possible for your facility to maintain full cooling capabilities during retrofit, renovation, or replacement.

2. Standby cooling for CRITICAL APPLICATIONS and PROCESSES

A temporary cooling system is sometimes used to back-up manufacturing, and chemical processes, or when a hospital's required system redundancy has been reduced.

4. Solutions for COOLING LOAD FLUCTUATIONS

• Load adjustments during facility expansion

During facility expansions there is a need to test equipment and process areas but not sufficient load to keep new or large chillers running. A simple rental solution ensures the correct load and energy efficiency while the expansion new build is being finalized.

• Peak load support & seasonality

When the cooling demand of your facility or process exceeds your current system's capacity because of record high temperatures or changes to the cooling requirements, Daikin temporary cooling can be used to increase your cooling output. By eliminating the need to purchase additional cooling equipment which might be only used part of the year, you save on capital expenditures.

✓ Daikin Rental Chiller offering

Comprehensive packages - for all your needs

We offer a complete package with your rental chiller, which includes everything you need including pumps and other equipment:

- Water and air-cooled chillers at most used capacities ranging from small air-cooled to large water-cooled in the range from 10kW to 10MW
- Flexible water piping connections with quick, easy set-up
- Electrical connections to chillers work with your current power supply conditions including transformers

Whether you have long or short-term cooling needs, we deliver reliable chiller products, applications expertise, and responsive support.

Services offered

- Assistance in determining rental chiller capacity and power generation requirements
- Typically a chiller is up and running within the same day of a chiller delivered to your site
- Daikin can support with contingency planning, including disaster recovery planning and support to meet your industry compliance requirements
- Our portfolio is supplemented by rental heating, emergency generators, supporting accessories and services
- Please contact your local Daikin affiliate for availability

Daikin undertakes the delivery, assembly and connections of the plants as well as start-up, if required also in partnership with your own technical staff or technicians.

FROM
10 kW
to
MW

Large stock available

Daikin and partners stock most capacity units. If your requested unit is not available, we will strive to find a suitable solution for you.

For available units and pricing please contact your local Daikin sales or service sales department.

Rental offering for other temporary cooling applications

Daikin can also support for requirements outside of traditional process cooling with chillers / cold water machines. This offering includes:

REFRIGERATION/ COLD STORAGE

Cold storage rooms, Refrigerated containers, Tempering cold storage rooms, Modular cold rooms, Freezer rooms, Shock freezers/Blast freezers, Ultra low freezers, Tempering freezer rooms, Modular freezer rooms, Freezer containers, Ice rinks, Wineries

AIRCONDITIONING

Air-handling units
Rooftops

HEATING

Heatpump
Heatpump Rooftops

ACCESSORIES

Hydraulic
Air side distribution
Electrical cables and inverters

SERVICES

Installation & Commissioning
Service & maintenance
Remote monitoring as an additional service



Peace of mind

The Daikin Rental service team delivers reliable rental chiller solutions and peace of mind, no matter how urgent or complicated your situation. For assistance with your temporary cooling needs, please contact your local service representative.

Daikin R-Cycle Portable Refrigerant Recycling Unit



World's First
Electrostatic
Separation
Technology

High purity of recycled refrigerant (Applicable to R-410A, R-32, R-134a)
For recycling & recovering from most HVAC-R applications

- › Refrigerant recovery & recycling portable unit
- › Electrostatic separation method:
 - Does not only remove oil & contamination as a large distillation apparatus, but also moisture & acid by a large filter dryer
- › Applicable for mixed refrigerants such as R-410A:
 - Possible to keep mixed refrigerants with minimum changes of the composition, because it directly absorbs the refrigerant in liquid state & fills it into a cylinder



R-Cycle is easy to use. It can be connected directly to the installed HVAC-R equipment. After connecting the refrigerant recovery bottle, the recovery and recycling process is automatic.

High purity is achieved by using three methods of filtering. The unique electrostatic separation technology, the high performance filter drier and the evaporation of refrigerant removes the maximum of impurities, such as oil and moisture.



The cost =
260kg of R-410A
at € 35/kg



Key features:

- › Three steps of recycling to maximize the quality:
 - › Oil separation and electrostatic filtering
 - › Filter drier to remove moisture
 - › Liquid separation via evaporation
- › Oil-free compressor preventing cross contamination of the refrigerant.
- › Unique electrostatic filtering technology allowing increased oil and moisture removal from the recovered refrigerant.
- › Constant recovery and recycling volume for all refrigerant gases both high pressure and low pressure ones (vapour phase).

Orderability and Warranty

The unit can be ordered through the finished units route via material code RRDQ220V1.

Warranty period is 1 year.

Consumables

For the optimal use of the unit the following consumables are offered as spare parts:

1. Molecular sieve: 5034893
2. Drier Filter: EU.SB.5000086 (standard) or EU.SB.5000087 (high capacity)

Both can be ordered at eparts.daikin-ce.com

Specification

Description	Refrigerant Recycle Equipment RR-220			
Code No.	AR023E			
Recycle refrigerant	R-410A, R-32, R-134a			
Recycle method	Liquid recycle method (possible to vapor recycle)			
Recycle method	Electric statistic separation reclaim method			
Power supply	V / Hz	220–240V 1-phase / 50/60 Hz / 8A minimum		
Compressor	750W (1HP) Oil-free			
Dimension (LxWxH)	mm	562 x 538x 976		
Weight	kg	60		
Electric current operation	A / Hz	8,0/6,0 / 50/60		
Operating temperature	°C	5-35		
Degrees of protection	IP10			
Noise value	dB (A)	Max 75.8 at normal operating condition (in accordance with 2006/42/EC cl. 1.7.4.2		
Applicable cylinder	Refrigerant Recycle Cylinder (minimum working pressure of 400psi)			
Recycle rate		R-410A	R-32	R-134a
Liquid	g/min	220	100	100
Vapor	g/min		90	
Specifications are subject to change without prior notice. Recycle rates vary under different conditions. When recycle R-134a, follow P11 in the operation manual.				
Recycle refrigerant		R-410A	R-32	R-134a
Performance standard		AHRI 740		
Moisture	ppm	≤20	≤20	≤20
Total residueu on evaporation	%	≤0,01	≤0,01	≤0,01
Non condensable gas	%	≤2,0	≤2,0	≤2,0

Recycle capacity will vary depending on the contamination of the recovered refrigerant. When recycle R-134a, follow P11 in the operation manual.

✓ Gas composition analyser

Purpose is to provide to our technicians and partners tools that will allow them fast, accurate testing of a wide variety of refrigerants. This is an essential tool for pre-screening refrigerant prior recovery.

The unit is available for ordering through the spare part route (E-parts also) with a code **EU.SB.5000078**

✓ Unique points

- › Weight: less than 10 Lbs
- › Analysed Refrigerants: R-22, R-32, R-134a, R-404A, R-407C, R-410a, Hydrocarbons (HC) and Air
- › Identified Refrigerants: R-12, R-1234yf, R-408A, R-409A, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-427A and Hydrocarbons (HC)
- › Accuracy: +/- 2% of indicated gasses or better
- › Power Requirements: 12 VDC @ 2A
via 110/220 VAC Adapter
- › Approvals: CE, UL and CUL
- › User Interface: graphic display, soft keys, built in printer
- › Sample Gas Extraction: pressure from cylinder or system
- › Temperature Range: 50 to 120°F
- › Response Time: less than 3 minutes
- › Humidity: 0-95% RH non-condensing
- › Test Sample Size: 5 g per test
- › Test Pressure: 50 psi - 500 psi

How does it work?

Key features:

- › Oil contamination resistant
- › Fast test results
- › Internal thermal printer
- › Greater accuracy in less time
- › Wide refrigerant range
- › Refrigerant composition breakdown
- › Remote software updates for new refrigerants
- › 1/4" Flare sample hose
- › Vapor or liquid sample analysis



ReFilter Program

✓ ReFilter Program is applicable for

Target group

- › Technical Inspection: visit for IAQ inspection or Audit.
- › Fresh Air Re-commissionings: action on the settings of the units (recirculation, ventilation) and recommissioning.
- › Air filtration: filter upgrade sales.
- › Air / Surface disinfection: cleaning & disinfect business.

Facilities already in operation, willing to invest in safety proofing their buildings.

✓ Benefits

Improve IAQ with our strategic approach and knowhow

- › Providing a technical audit and a range of proposals to improve the IAQ enables the client to assess the state of the HVAC system in view of it's impact on the IAQ. The audit report can act as a risk assessment but also as a supporting document for future improvements that will eventually lead to optimised safety and air quality.

Our expertise at your finger tips

- › Our technicians will carefully examine your facility and identify how you can improve your air quality and lower the risk of spreading infectious aerosol recirculation. After the visit we will provide you with a status assessment of your HVAC system and proposal for future improvements.
- › Our Report will give the opportunity to implement possible solutions to improve and keep under control the IAQ.
- › The quicker and easier countermeasure will be the finetune of AHU and VAM recovery system. Our team will asses if it may

✓ Process

- › A **Framework** to assess the status of an HVAC system from an Indoor Air Quality (IAQ) standpoint.
- › Implement **Rehva & Ashrae's** recommendations with regard to fresh air operation given the existing installation without heavy modifications.
- › Recommendations to improve air filtration as an important contribution to reduce any infection diffusion.
- › A wide range of existing **technologies** and **products** to disinfect air and surfaces.

be beneficial for you to avoid the heat recovery function . The recovery system can allow up to 20% of exhaust air to re-enter. According with the requirement of the building, our technicians will guarantee reduced dust inside the ambient with a 24/7 operation and increasing the volume of fresh air.

- › Second level of action is the implementation of all available product to increase the air quality or air fresh volume in the ambient, from new filter to modular light units or air purifiers.
- › Finally we can apply available solutions in order to disinfect surfaces and and sanitize air flow.

Product description

First step to creating a long term relationship with the end-user, providing a healthy and productive workplace.

As technical experts, we work closely with building owners, installers and engineers to identify the condition of the HVAC system. We evaluate the impact on the indoor air quality and the risk of spread of diseases within workplaces.

A technical audit report enables our customer to understand the state of the installation and take the due countermeasures to lower the risk of **airborne** infections. Our focus is to provide technical solutions and support that adhere to the guidelines established by local authorities.

We advise our customers on how to improve the IAQ:

- › How to properly set your system for a safe operation
- › Which type of further countermeasures can be implemented:
 - New filters.
 - New components or products.
 - Proper air or surface disinfection.



AstroPure

Air purification system

Product description

AstroPure is a totally self-contained stand-alone Recirculation Unit for areas where additional, extra high, filtration performance is needed against any type of contamination including viruses.

AstroPure, which can also be used as a Negative Pressure Unit, combines state-of-the-art HEPA filtration with optionally available UV germicidal irradiation (UVGI) to create total clean air solutions fulfilling all relevant guidelines such as the VDI 6022. Thanks to the insulated double-wall constructions leading to whisper-quiet operation, it is ideally suitable for indoor use in for example offices, schools, health care facilities or hotel lobbies, just to name a few. When properly sheltered outdoor use with duct connection is also possible.

Together with the ability to take various filter combinations and variance of optional features, AstroPure provides herewith highest flexibility to meet all customer-specific requirements at point of use.

The unit contains a high performance encapsulated AAF optimized direct driven backward curved EC fan/ motor combination with variable speed and control options with CE compliance.

Plug & Play Design

To allow economical and easy installation AstroPure is designed as a Plug & Play unit hence no modifications required at your premises. Simply install the selected air filters and dispose it when no longer effective.

Maintaining the unit is as easy as the installation itself. The sliding tray design provides easy access to and servicing of the fan. The easy to access instrument panel provides easy access and servicing of gauges and speed control.

Features & Benefits

- › Suitable for in-room use or sheltered outdoor installation
- › Combines HEPA filters and optional UV germicidal irradiation (UVGI)
- › Designed with internal variable speed fan (electronically commutated) and filter combinations to meet specific application requirements
- › Insulated double-wall construction provides whisper-quiet operation
- › Easy installation, operation, and maintenance in a totally self-contained system
- › Sliding tray design provides easy access and servicing of filters
- › CE-compliance, VDI 6022 guided design



Applications



Schools and Universities



Commercial Buildings



Healthcare



Hospitality



Shops and Shopping malls

Highly Adaptable

Available as recirculation or negative pressure unit

Clean Air supply options

AstroPure is used to draw out the indoor contaminated air in a room, the contaminated air passes the HEPA filter before releasing it to the outside environment.

Negative pressure from a room prevents the spread of virus to other rooms, areas and environment.

Highly recommended to improve IAQ by recirculating indoor air and providing occupants with better health and comfort.



- A** Fan / Motor Unit
- B** HEPA Filter
- C** Prefilter
- D** Control panel providing indication for filter change, speed control and on/off switch
- E** Air outlet grill
- F** UV lamp
- G** 4-Wheel foundation

Unit control options

On the front side AstroPure is as a standard equipped with control lights to indicate necessary changes of the pre- or the HEPA filter. Switching the unit on and off as well as the speed control is done via integrated knobs. As an option AstroPure can be delivered with a fully digital LCD Display, which then replaces indicator lights and control knobs.



Fan/motor combination

AstroPure contains a high performance encapsulated, direct driven, backward curved fan/ motor combination. Motor options are available to create air flows up to 2000 m³/h. The specialized electronic commutation motor design permits variable speed control via Potentiometer. The complete section is mounted on a sliding tray providing easy access to service the fan.



Prefilter options

In its standard configuration AstroPure is equipped with an RedPleat ISO coarse 70% prefilter. As an option the unit can also be equipped with RedPleat Carb, an ISO coarse 65% Prefilter including active carbon media able to additionally control unpleasant odors in the room.



Air supply options

When operated as a Recirculation Unit, AstroPure releases the cleaned air via a perforated outlet grill on the top side of the unit into the room. Optionally, the air outlet can be designed so that the AstroPure unit can be connected to ventilation ducts.



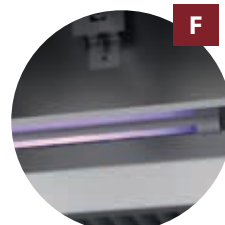
Easy filter installation and maintenance

The unique design of the clamping system is designed to take various AAF pre and main filters and hereby ensures easy installations and filter maintenance and dispose when no longer effective. The complete servicing is done from the back-side.



Optional UV lamp

Intelligently engineered to kill pathogens while maintaining higher filtration performance. The optional available fluorescent UV-C irradiation unit radiates 255 nm germicidal wavelength which prevents the Ozon production that is responsible for faster degradation of filters while keeping the appropriate range to kill bacteria and viruses. Installing UV lamp will provide wider germicidal coverage without affecting the filtration efficiency.



For your home & for your business

Improve your Indoor Air Quality with air purifying technology from Daikin. For clean and healthy air no matter where you are.

Daikin streamer technology air purifier (MC55W) & Humidifying streamer technology air purifier (MCK55W)

- › Pure air thanks to active plasma ion flow out and flash streamer technology
- › High performance HEPA filter to catch fine particles of dust
- › Humidification and purification in one (MCK55W only)
- › Powerful suction and whisper quiet
- › New stylish and compact design

AAF AstroPure 2000

- › Self-contained stand-alone recirculation unit (1628mm height)
- › Standard high efficiency HEPA H14 filters
- › Optional UV germicidal irradiation
- › Plug & Play
- › Air flow rate 2000 m³/h
- › For commercial areas up to 200 m²

www.daikin-ce.com/iaq



Providing high-efficiency 2-stage filtration

Prefilters

The Standard installation includes an ISO Coarse 70% pre-filter providing the lowest possible total cost of ownership with lower resistance, longer filter life and protection of the installed HEPA filter.

RedPleat

- › ISO 16890: ISO coarse 70%
- › Low pressure drop
- › High dustholding capacity (DHC)
- › Available with Antimicrobial treated media (RedPleat ULTRA)



RedPleat Carb

- › ISO 16890: ISO coarse 65%
- › Low pressure drop
- › High dustholding capacity (DHC)
- › Effectively removes offensive odors

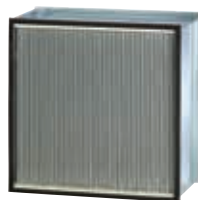


Main filters

The HEPA filter features eFRM filtration media which combines ultra-high efficiency and particulate loading to remove 99.99% of dust, pollen, mold, bacteria, viruses, and any airborne particle with a size of 0.3 microns or greater.

MEGAcel® I eFRM

- › H14 filtration efficiency according EN 1822
- › eFRM media combines ultra-high efficiency with the lowest possible pressure drop
- › Highly resistant to corrosive environments (acids, alkalis, and organic substances)
- › No boron outgassing
- › Compatible with Discrete Particle Counter (DPC) test methods



AstroCel® III

- › H14 filtration efficiency according EN 1822
- › V-shaped filter configuration, combined with microglass media, delivers higher flow and the lowest possible pressure drop vs traditional box style HEPA filters
- › Utilizes high performance microglass media to provide high efficiency particulate removal
- › Compatible with Discrete Particle Counter (DPC) and photometric test methods as access and instrumentation allow



Indoor Air Quality Facts & Figures

Air pollutants are important risk factors for various diseases such as allergies, heart disease, lung cancer and respiratory infections.

Air pollutants & their sources



Spores



Germs



Pollen



Dust



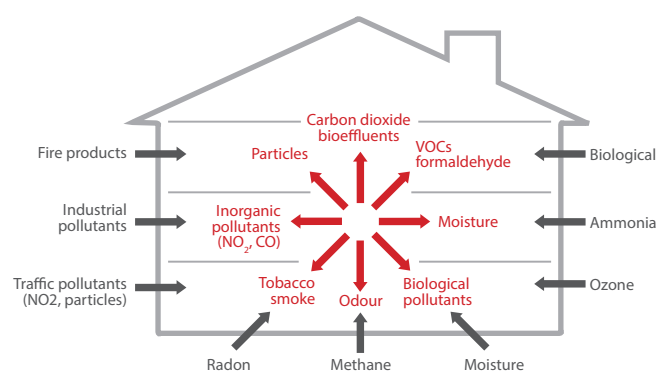
Microbes
bacteria, viruses &
microorganisms



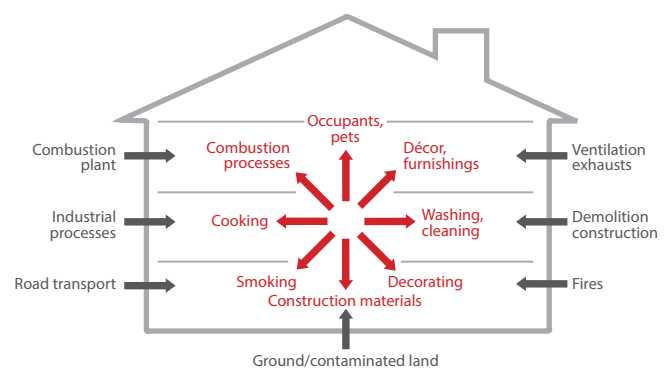
Carbon Dioxide

Air pollutants around us are generated through external and internal factors.

For instance, pets and humans living indoors, as well as activities such as cooking, washing and cleaning, smoking are the internal pollutant sources, while cars and factories are the most known external pollutants affecting the indoor air quality.



External and internal pollutants



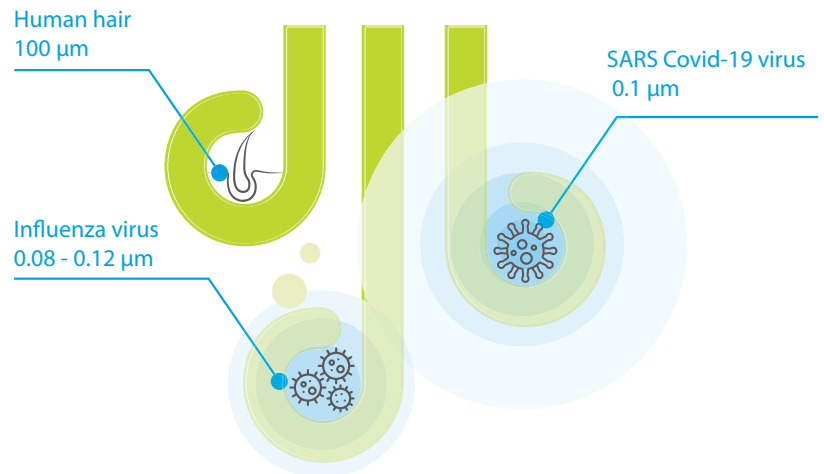
Sources of pollutants affecting IAQ

- external pollutants
- internal pollutants

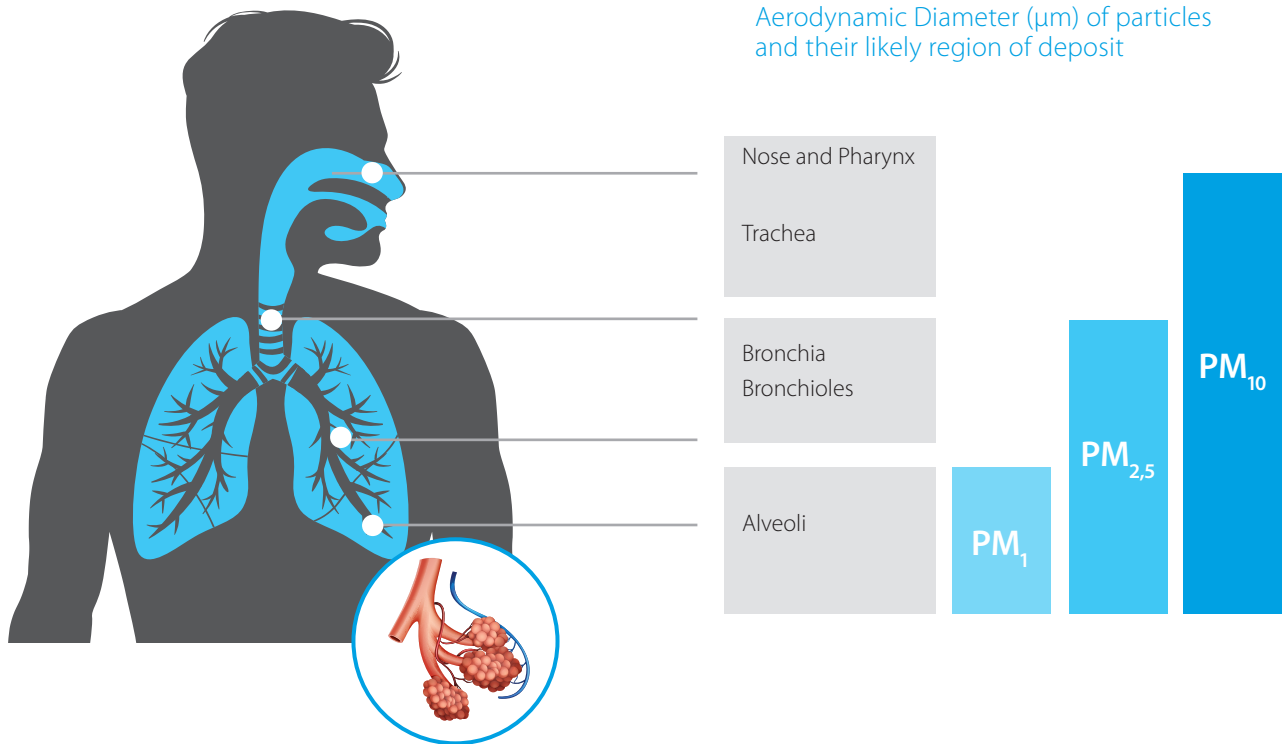
Particulate Matter

While breathing, we expose our lungs to various invisible pollutants which are called particulate matter (PM).

Particulate matter are categorized based on their size. PMs can be as big as a human hair or as small as a virus. The smaller the particle, the more dangerous for our health.



Pollutants can go deep into the human body

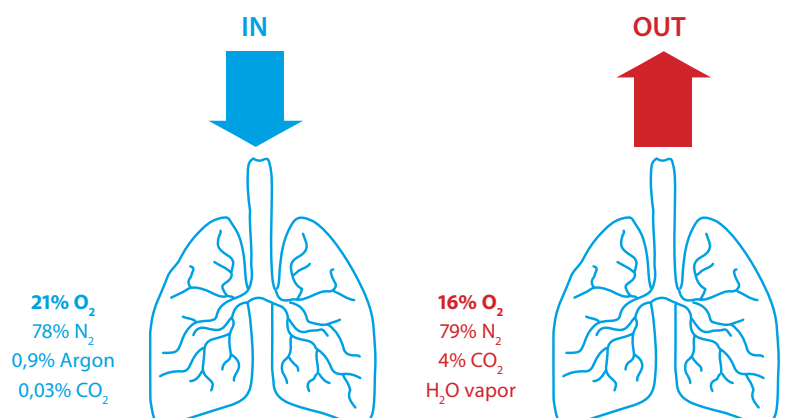


Why is air supply in a closed room essential?

Humans need fresh air to survive:

- > An adult male is breathing typically 8 litres per minute (in 16 in/ex-hale movements) or 11.000 litres per day
- > Oxygen consumption: 250~350 ml/min

Low levels of oxygen concentration in an indoor environment or high CO₂ concentration levels can lead to drowsiness, headaches, poor concentration and even to increased heart rates.



Particulate matter (PM) as virus carrier

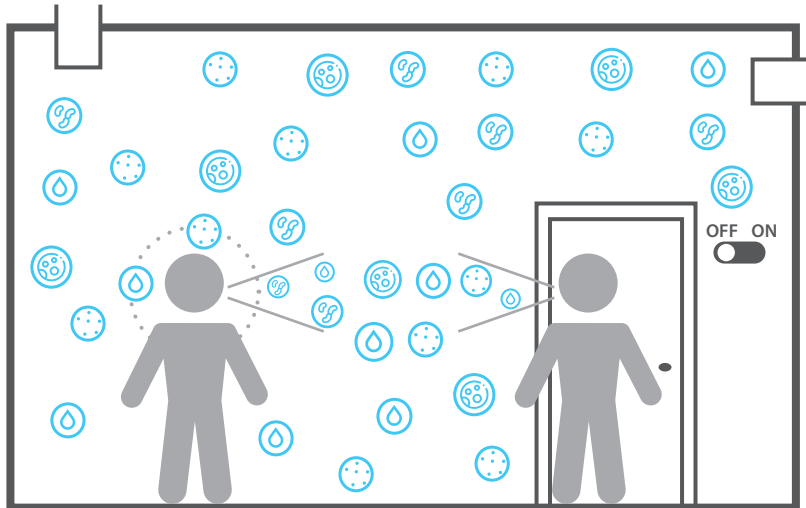
Viruses require a carrier to move around within a room. Particulate matter such as cough or sneeze droplets are potential carriers for viruses.

Small droplets are more dangerous since they are more likely to hang (suspend) in the air. It therefore makes them the perfect carriers for the virus. Larger droplets are heavier and will fall down with gravity or deposit on surfaces.



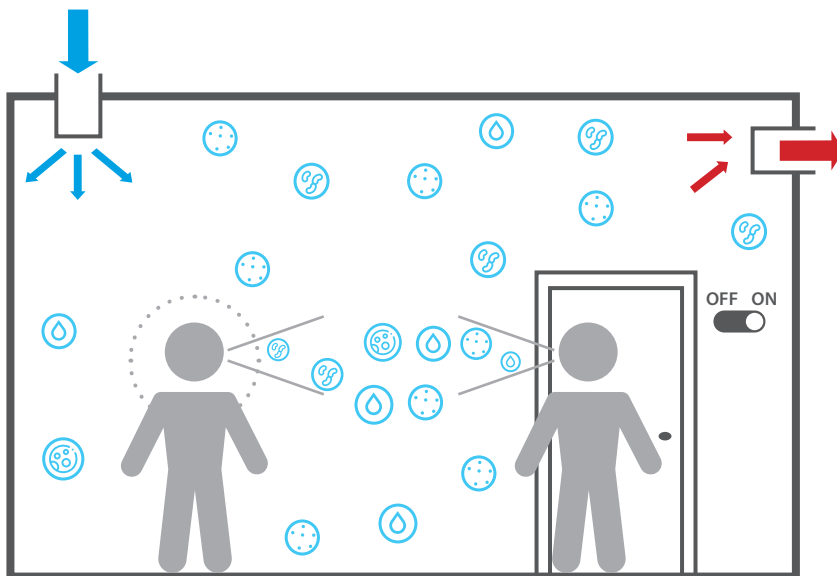
Source: Dynamics of respiratory droplets carrying SARS-CoV-2 virus in closed atmosphere, Results in Physics, ELSEVIER. <https://www.sciencedirect.com/science/article/pii/S2211379720319392>

Reducing the particulate matter indoors will lower the chances for viruses to find a carrier & travel within the room.



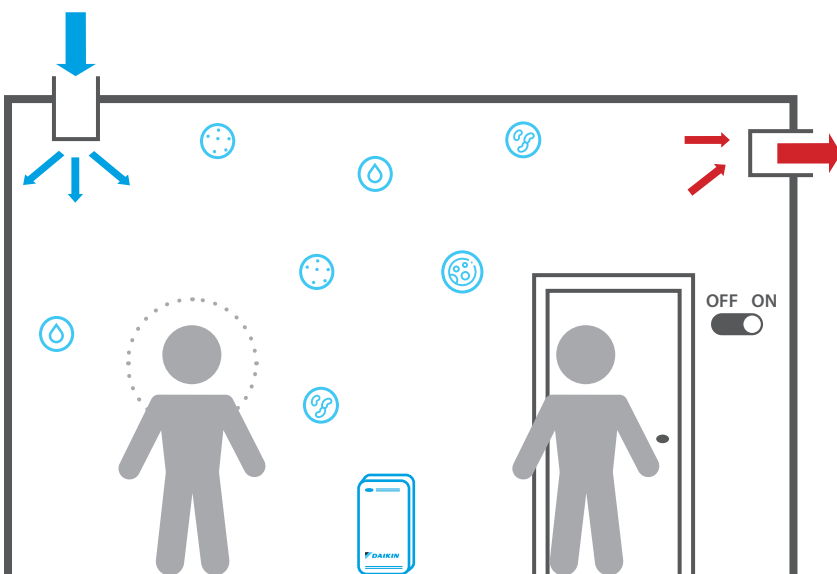
Without ventilation, Without air purifiers

- › Various invisible particles and respiratory droplets will be floating in the room when there is no active ventilation system running or no windows are frequently opened to allow fresh air circulation.
- › Without adequate ventilation, CO₂ concentration levels will also be high.



With ventilation, Without air purifiers

- › Through ventilation (fresh air supply and elimination of stale air) less particulate matter will be present in the room.
- › CO₂ concentration levels will be reduced.



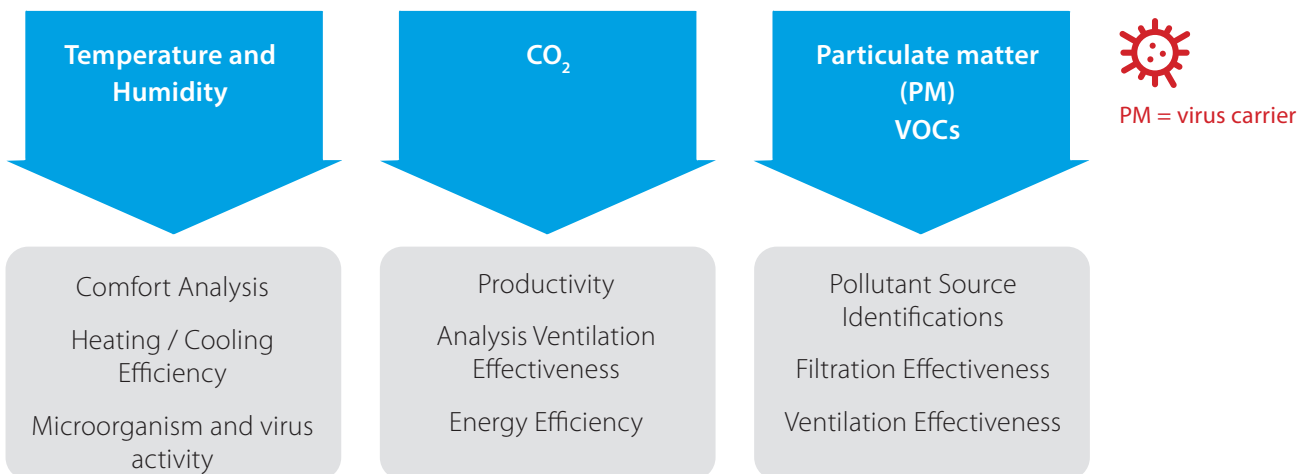
With ventilation, With air purifiers

- › When proper ventilation (either via a ventilation system or opening the windows frequently) is complemented with air purifiers, the amount of particulate matter in the room will reduce even more.
- › CO₂ concentration levels will still be low thanks to the ventilation. Air purifiers do not have an effect on CO₂ levels.
- › Proper ventilation and air purification solutions are key to reach high indoor air quality.

Daikin Indoor Air Quality Monitoring

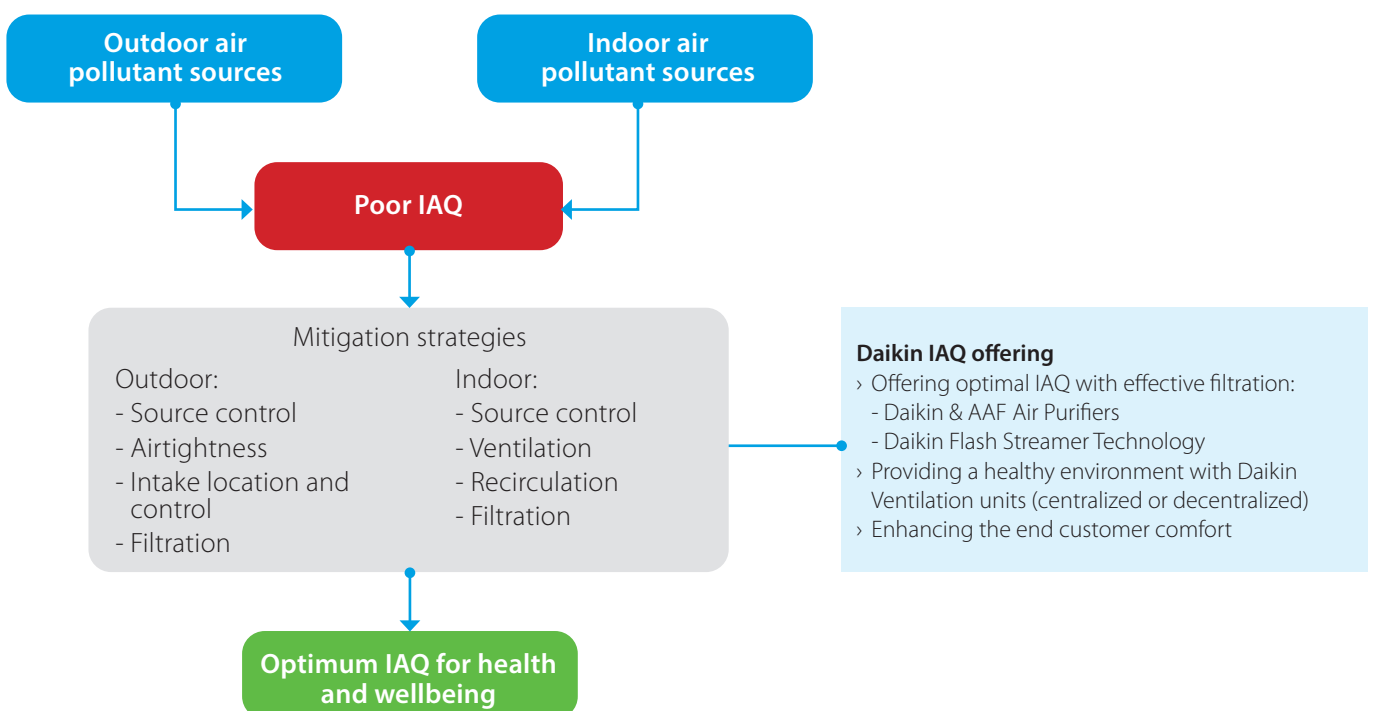
Air quality parameters & HVAC

Measuring and assessing indoor air quality can help to identify improvement areas for a facility's HVAC system performance, which when resolved will enhance building occupants comfort level and experience. Different air quality parameters come into play and need to be assessed and addressed:



Air pollution mitigation strategies to improve indoor air quality

After the assessment of indoor air quality and analysis of air pollution sources (indoor and outdoor pollutants) different mitigation strategies can be applied to improve IAQ. Those mitigation strategies again either focus on outdoor or indoor factors.



Why is an Indoor Air Quality Audit essential?

It is an important first step to start monitoring the indoor air quality within your daily environment in order to prevent harmful consequences which can be caused by invisible pollutants.

As technical experts we can assess your indoor air quality based on European norms & WHO guidelines and make necessary technical audits on your HVAC system to take countermeasures, lowering the risk of airborne infections.

We are focused on providing technical solutions and support that adhere to the guidelines established by local authorities.

Benefits for you

1 Improve IAQ with our strategic approach and know-how

- › Providing a technical audit enables the client to assess the state of the indoor air quality and HVAC system in view of it's impact on the IAQ. The audit report can serve as a risk assessment but also as a supporting document for future improvements that will eventually lead to optimised safety and air quality.



2 Technical solution and support that adheres to local guidelines

- › The audit will assess if the HVAC system is compliant with local guidelines and will offer technical solutions for improvements.
- › The audit will assess the current state of indoor air quality based on EN norms and WHO guidelines and will offer suggestions and recommendations for improvements.

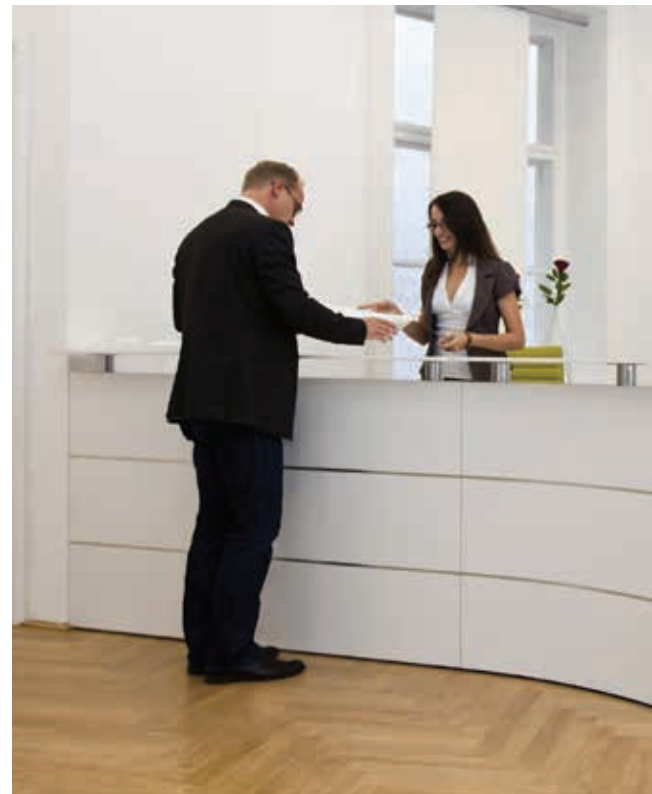


3 Our expertise at your finger tips

- › Our technicians will carefully examine your facility by taking surface & air samples to be analyzed in a European microbiology lab and identify how you can improve your air quality and lower the risk of spreading infectious aerosol recirculation.
- › After the visit and monitoring your indoor air quality for 2 weeks, we will provide you with a status assessment report on your current HVAC system and IAQ status, as well as solution proposals to improve these.

Good indoor air quality is essential to maintain a healthy and productive workplace.





How does Daikin IAQ Monitoring work?

The Daikin Indoor Air Quality Monitoring process comprises several steps.





Step 4

Continuous IAQ monitoring & support

Further monitoring of the indoor air quality is also offered in order to continuously evaluate the status-quo and take necessary countermeasures if needed.

The result

Peace of mind for your customers

Continuous visualization of the IAQ via a digital screen in your premises in order to provide peace of mind for your customers. Daikin also provides an IAQ quality seal which can be placed on any surface.

Based on the results, some of the solutions could be:

- › HVAC indoor units and filter assessment
- › Fresh air supply units and filter assessment (for centralised or decentralised ventilation systems)
- › Optimal fresh air requirement analysis
- › Air purification solutions

Daikin IAQ Sensor Features

The Daikin IAQ Sensor measures your well-being by tracking indoor air quality values, environmental comfort, and electromagnetic pollution. It is available with 12 sensors and 15 parameter measures, and connects through your Wi-Fi network or via NB-IoT technology.



Complete Standalone Installation

The Daikin IAQ Sensor does not have to be paired with another product, for an **extremely easy and completely standalone installation** that takes about a minute. The device can be powered up with **microUSB power supply (included)**.



Caelum Monitoring Platform

The device connects to Caelum, Daikin's monitoring platform, at daikiniaq.com. This **enables you to easily monitor Indoor Air Quality levels and create regular reports based on the data detected by the sensor**. You can even use the platform to show your indoor air quality levels to your visitors.



Configuration App

The **configuration app is available as Daikin AirSense on both the App Store and Play Store**. Once installed on your mobile device and logged in, scan the QR code on the IAQ sensor and **the app will guide you through the entire configuration process**.



Connectivity

The IAQ sensor ensures **perfect integration with Daikin on Site and Daikin Cloud Service, Daikin's remote monitoring and smart maintenance platform**. It gives you perfect control over the entire heating, ventilation and air conditioning system installed in your building.



Green Building Certification

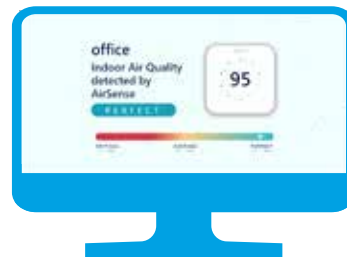
Installing the Daikin IAQ sensor can help you achieve better sustainability ratings and green building projects certified with **LEED and WELL certification** thanks to **Indoor Environmental Quality credits**.





Video wall

The video wall is a great tool to have a general overview of the measurements conducted by the device. This screen can be shared with the occupants of the buildings to show in each moment the Indoor Air Quality status.



Communication capability

IoTNB: Good penetration. Complete standalone installation. This is a perfect solution for service purposes where access to local Wi-Fi is not allowed or not available.

Wi-Fi: Easy. Complete standalone installation.



85 x 85 x 60 mm

Sensor characteristics

AMBIENT LIGHT

Range: 0 lux to 120000 lux
Precision: $\pm 10\%$
Resolution: 0,1 lux

TEMPERATURE

Range: -40°C a 85°C
Precision: $\pm 1^{\circ}\text{C}$ (nel range $0/65^{\circ}\text{C}$)
Resolution: 0,1 $^{\circ}\text{C}$

HUMIDITY

Range: 0 to 100% RH
Precision: $\pm 3\%$ RH
Resolution: 0,1% RH

AIR PRESSURE HPA

Range: 300 to 1100 mbar (hPa)
Precision: ± 1 mbar (hPa)
Resolution: 0,18 mbar (hPa)

SOUND PRESSURE

Range: 35 to 120 dBspl
Frequency: from 50 Hz to 20 KHz
Precision: ± 1 dBspl
Resolution: 0,1 dBspl

FINE DUST

Concentration Measure PM10/PM2.5:0
 $\mu\text{g}/\text{m}^3$ to $1000 \mu\text{g}/\text{m}^3$
Precision: (from $0 \mu\text{g}/\text{m}^3$ to $100 \mu\text{g}/\text{m}^3$) : $\pm 15 \mu\text{g}/\text{m}^3$
Precision: (from $100 \mu\text{g}/\text{m}^3$ to $1000 \mu\text{g}/\text{m}^3$) : $\pm 15\%$
Resolution: $1 \mu\text{g}/\text{m}^3$

ELECTROSMOG

LF Range: 0-400000 nT - Range: 5 Hz - 120 Hz
Precision: $\pm 5\%$ - Resolution: 25nT
HF Range: 0 - 10 V/m - Range: 50 MHz - 300 GHz
Precision: $\pm 10\%$ - Resolution: 0,1 V/m
Measurements performed on 3 axes

AIR QUALITY

Range: 0 to 500
Precision: $\pm 10\%$
Resolution: 0,1

CO₂

Range: 0 to 5000 ppm
Precision: ± 30 ppm (da 0 a 1000 ppm)
 $\pm 3\%$ (over 1000 ppm)
Resolution: 1 ppm

TVOC

Range: 0 ppb to 1187 ppb
Resolution: 1 ppb
Precision: $\pm 10\%$

CO₂e

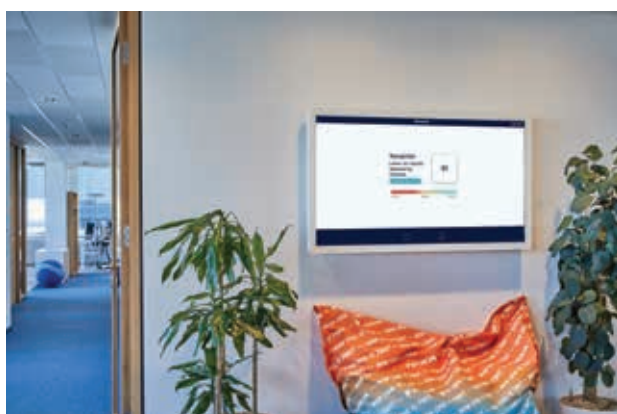
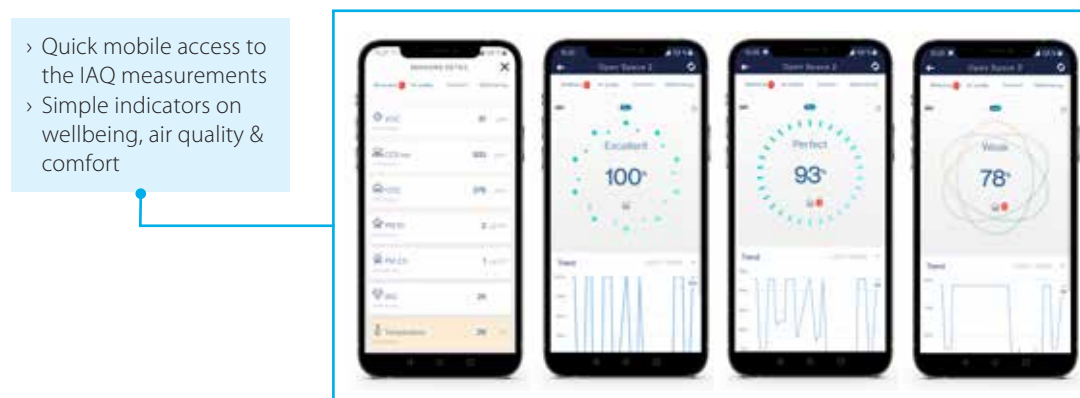
Range: 400 to 8192 ppm
Precision: $\pm 10\%$
Resolution: 1 ppm

Wi-Fi NETWORKS & LEVEL (2,4GHz band)

Detects Access Point n° in band 2.4Ghz and overall signal level (from 0 to -100 dBm)

IAQ Monitoring Deliverables

Indoor Air Quality dashboards

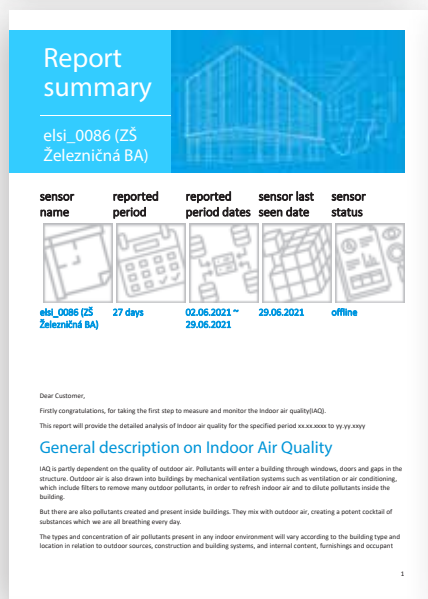


Give peace of mind to your customers by visualising the Indoor Air Quality within your premises!

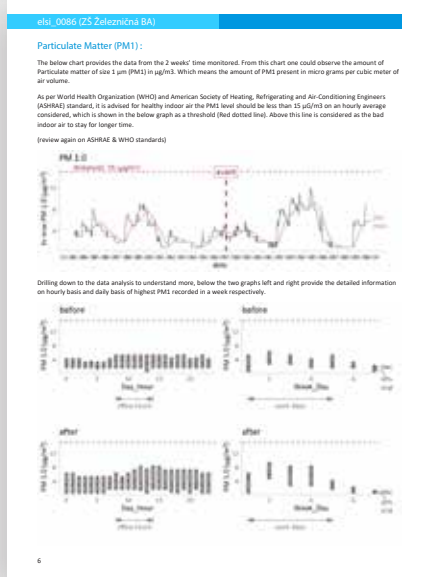
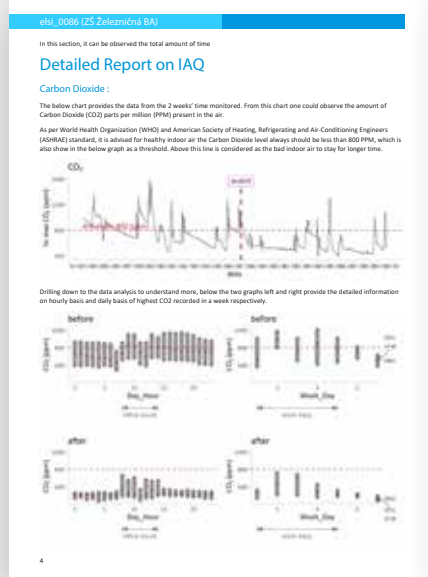
Customized IAQ assessment report with improvement recommendations



The Daikin IAQ Assessment report provides a comprehensive overview and the detailed analysis of all IAQ parameters monitored. It also includes interpretation of the data observed and improvement recommendations to take necessary action. Current ventilation rates are assessed and compared with required European Air Quality standards and norms.



Comparison of IAQ parameter results before vs. after IAQ monitoring and improvement actions. Current ventilation rates are assessed and compared with required European Air Quality standards and norms.



Detailed assessment of all parameters measured:
 › Total time measured
 › Full week cycle (daily values)
 › Full day cycle (hourly values)

Retradeables

✓ About Retradeables

What is it about?

Retradeables is the first used F-gas marketplace. Created with a mission to leverage technology and innovation to establish a transparent and competitive marketplace for the buying and selling of used F-gases across Europe. The Retradeables platform offers a responsible alternative of a viable circular economy for used F-gases.

Funded and supported by the EU, Retradeables is the only online platform where the industry can connect to recover, recycle and reclaim their own F-gas supplies or to trade recovered F-gas from

others. We want to give influential decision makers a critical edge by connecting them to a dynamic network of recycling and reclaiming data, industry contacts and live prices.

The project was funded by the LIFE Programme of the European Union. The consortium behind Retradeables consists of expert partners from different EU members states – including, Daikin Europe, Daikin Central Europe, MAT4NRG (The Society for Materials and Energy Applications) and the National Technical University of Athens (NTUA).

✓ Our goal

To provide industry players a beneficial solution as the EU aims to achieve carbon neutrality by 2050

The refrigeration and air conditioning industry is under pressure to balance increased global demand along with tightening regulatory pressures. In addition, the high costs of the proper disposal of used and old F-gases mandated by regulations has also caused another industry and environmental issue, the illegal disposal or release of used F-gases into the atmosphere.

Retradeables was established to meet these industry challenges with a responsible alternative of a viable circular economy for used F-gases, while also promoting a simple process of used F-gas recovery and disposal.



F-gases will no longer be a waste and a cost-burden but a profitable asset for installers and distributors



Full transparency and fair pricing, driven by market demand, gas type, quality and quantity

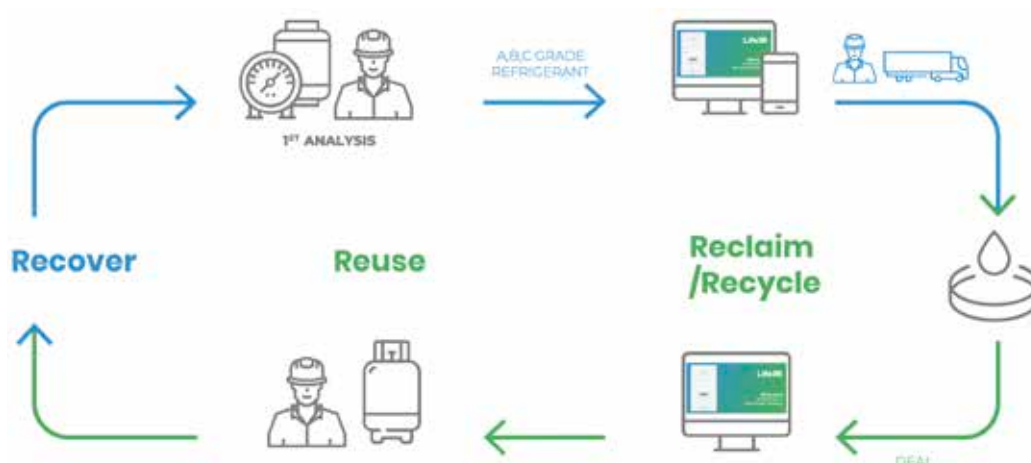
How does it work?

✓ Sell your used F-gases

Connect with other installers and distributors by putting your F-gases for sale. Through the platform you can enter your estimation of the used-gas' grade, enter the price you'd like to sell them for and wait for another member to make an offer.

✓ Buy used F-gases

Browse through available used F-gases based on quantity, grade and location and make a bid for the F-gases you would like to purchase. Once the seller approves your bid and a deal is made you can arrange the collection.



Retradeables

Why should you join?

✓ Make additional revenue

Make more money for your business by selling what was previously a bothersome asset.

✓ Meet client demands

Combat limited supply of F-gases and service limitations by buying used F-gas from other official parties.

✓ Comply with regulations

Reduce carbon emissions and meet strict climate obligations by re-using F-gases.

✓ Make history

Become a pioneer and a role-model of the HVAC-R industry by joining the first ever used F-gas trading platform

The Retradeables Platform

✓ Complete market overview

Through the platform's Sales Center you can find everything you need to initiate and complete a gas trade along with a live view of refrigerant available in the market based on type and quantity as well a view on all your current F-gas offers and bids.

✓ Simple and secure payments

Within the Retradeables platform you will also have an e-wallet used for all your payments provided by MANGOPAY. MANGOPAY is the payment provider for the Retradeables platform, adhering strictly to EU anti-fraud regulations and procedures.

✓ Arrange proper disposal

Aside from buying and selling used F-gases, through Retradeables you can also list used gases in need of disposal. Installers and distributors will provide you with competitive pricing to arrange the collection and appropriate disposal of your C-grade and lower quality F-gases.

✓ Multiple users

Under your company account you can have multiple users for other employees and partners allowing you to share information across your company with ease.

How can you join Retradeables?

Creating the account and joining the platform is free and easy

- › Register for an account on marketplace.retradeables.com
- › Add your information and F-gas certificate details
- › Complete the KYC process to activate trading
- › Start buying and selling your used F-gases



Service tools - Heating units

D-checker

D-checker is a software application used to record and monitor operation data of a selection of Daikin Units. Applicable models: check User Manual. Spare part number for required parts.

- › D-checker cable (spare part nr. 999495P)
- › Additional Daikin Altherma cable extension (spare part nr. 999491P) only for LT-B series
- › Other required parts, check User Manual

D-checker cable (USB type)



Daikin updater tool

D-checker has to be used for the hardware & can only be used with the special Updater software.

Checker III

Service Checker Type 3 (Spare Part Code 999165T), this hardware is phased out. Please see Service Checker Type 4 to order Monitors and enable record data (saving to hard disk)

- › using special cable (accessory of checker III kit) by direct pcb connection outdoor board for certain RA , Sky-Air and old VRV systems or
- › by F1F2 line communication (= DIII connection) to most VRV systems (from K-Serie R407C onwards).

Each time a new Serie is launched, Daikin creates a patch that needs to run into the directory where the file "checker3.exe" is located.

Connection to PC/Laptop are

- › USB for 5VDC power to checker Interface
- › RS232 serial port for data transmission.

In case PC/Laptop has no RS232 port available, required to purchase locally a converter RS232/USB.



HPSU RoCon updater tool

Hardware and software for internal use only. Capability on request.

Service tools - Heating units

Inverter Analyser

Check Inverter Signal towards any inverter motor (also non air conditioning equipment) by LED indication.

Part number: 2238609



Mobile Monitoring Tool

The Mobile Monitoring tool is specifically created for the gathering of data.

Analysis via graphics can be done via D-checker on your laptop (version 3.3.0.3 or more recent) after sending the recorded data via e-mail from your mobile device.

The Mobile Monitoring Tool exists of an adaptor which you connect to your unit, this adaptor connects to the App on your mobile device (smartphone, tablet, etc.) via Bluetooth.



Range	D-checker	Daikin Updater tool	Checker III	HPSU RoCon updater tool	Inverter analyser	Mobile Monitoring Tool
Daikin Altherma LT	x	x			x	x
Daikin Altherma HT			x		x	
Daikin Altherma Flex type			x			
Daikin Altherma hybrid heat pump	x	x				x
Daikin Altherma ground source heat pump	x	x				x
Combustion				x		
HPSU / GCU				x		

Service tools - VRV units

D-checker

D-checker is a software application used to record and monitor operation data of a selection of Daikin Units. Applicable models: check User Manual. Spare part number for required parts.

- › D-checker cable (spare part nr. 999495P)
- › Additional Daikin Altherma cable extension (spare part nr. 999491P) only for LT-B series
- › Other required parts, check User Manual

D-checker cable (USB type)



Configurator

The Daikin Configurator software can be used to upload and download settings from a Daikin unit.

The Daikin Configurator can configure following appliances:

- › Daikin Altherma low temperature split units (only supported till 2015).
- › VRV IV outdoor units.
- › Air-cooled refrigeration condensing units (Mini Zeas)
- › The software is intended to be used in combination with the EKPCAB* USB cable.



Checker III

Service Checker Type 3 (Spare Part Code 999165T), this hardware is phased out. Please see Service Checker Type 4 to order Monitors and enable record data (saving to hard disk)

- › using special cable (accessory of checker III kit) by direct pcb connection outdoor board for certain RA , Sky-Air and old VRV systems or
- › by F1F2 line communication (= DIII connection) to most VRV systems (from K-Series R407C onwards).

Each time a new Serie is launched, Daikin creates a patch that needs to run into the directory where the file "checker3.exe" is located.

Connection to PC/Laptop are

- › USB for 5VDC power to checker Interface
- › RS232 serial port for data transmission.

In case PC/Laptop has no RS232 port available, required to purchase locally a converter RS232/USB.



Checker 4

Service Checker Type4 (order to spare parts by nr . 999176T)

Monitors and enable record data (saving to hard disk)

- › using USB cable (accessory of checker 4 kit) to communicate to your PC. The power is given by second cable (at checker4 device micro-USB)
- › To VRV system by F1F2 line communication (= DIII connection). The zip file contains all files & sub dir need to run the program. So first create on your hard disk a new (sub) directory (example chk4 V133) where you keep your service software (example C:\daikinapps). Then open de zip file, extract all files to the new sub-directory (example C:\daikinapps\chk4 V133). Select the file "Checker4.exe" to run the program. Your recording data is kept in another directory (C:\users\.....\AppData\Local\Checker4\D3Data) so even making a new directory with new version, your recorded data is kept. Connection to PC/Laptop are :
 - › USB for 5VDC power to checker interface.
 - › USB for data transmission.
- › prior to connection first time, install the driver.



Service tools - VRV units

Inverter Analyser

Check Inverter Signal towards any inverter motor (also non air conditioning equipment) by LED indication.
Part number: 2238609



Mobile Monitoring Tool

The Mobile Monitoring tool is specifically created for the gathering of data.

Analysis via graphics can be done via D-checker on your laptop (version 3.3.0.3 or more recent) after sending the recorded data via e-mail from your mobile device.

The Mobile Monitoring Tool exists of an adaptor which you connect to your unit, this adaptor connects to the App on your mobile device (smartphone, tablet, etc.) via Bluetooth.



Range	D-checker	Configurator	Checker Type 3	Inverter analyser	Checker Type 4
VRV3 HP	Select Data Label: [VRV3HP_VRV3CO]		v1.68	+	v1.3.3.2
VRV3 HR	Select data Label: [VRV3HR]		v1.68	+	v1.3.3.2
VRV3S "Mini-VRV"	Select Data Label: [VRV3S]		v1.68	+	v1.3.3.2
VRV3 Watercooled	Select Data Label: [VRV2-W_VRV3-W]		v1.68	+	v1.3.3.2
VRV4 HP	Select Data Label:				
[VRV4]	+	v1.68	+	v1.3.3.2	
VRV4 HR	Select Data Label:				
[VRV4R]	+	v1.68	+	v1.3.3.2	
VRV 4S "Mini-VRV"	Select Data Label:				
[VRV4S_Compact] or [VRV4S_LARGE] depending on type	+	v1.68	+	v1.3.3.2	
VRV 4 Cold Region	Select Data Label: [VRV4-C]		v1.68	+	v1.3.3.2
VRV4 Watercooled	Select Data Label: [VRV4-W+]		v1.68	+	v1.3.3.2
VRV IV+ HP	Select Data Label: [VRV4U_HP]	+	v1.68	+	v1.3.3.2
VRV IV+ HR	Select Data Label: [VRV4R]	+	v1.68	+	v1.3.3.2
VRV5S	Select Data Label: [Mini_ VRV5S(RXYS44- 6A7V1B_Y1B)]	+	v1.68		v1.3.3.2

Service tools - Split / Sky Air units

D-checker

D-checker is a software application used to record and monitor operation data of a selection of Daikin Units. Applicable models: check User Manual. Spare part number for required parts.

- › D-checker cable (spare part nr. 999495P)
- › Additional Daikin Altherma cable extension (spare part nr. 999491P) only for LT-B series
- › Other required parts, check User Manual

D-checker cable (USB type)

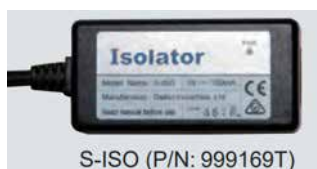


Mobile Monitoring Tool

The Mobile Monitoring tool is specifically created for the gathering of data.

Analysis via graphics can be done via D-checker on your laptop (version 3.3.0.3 or more recent) after sending the recorded data via e-mail from your mobile device.

The Mobile Monitoring Tool exists of an adaptor which you connect to your unit, this adaptor connects to the App on your mobile device (smartphone, tablet, etc.) via Bluetooth.



Inverter Analyser

Check Inverter Signal towards any inverter motor (also non air conditioning equipment) by LED indication.

Part number: 2238609



Range	D-Checker	Inverter Analyser	Mobile Monitoring Tool
All Split / Sky Air Outdoor Models	x	x	x



Mobile Monitoring Tool Video

Service tools - Applied units

D-checker

D-checker is a software application used to record and monitor operation data of a selection of Daikin Units. Applicable models: check User Manual. Spare part number for required parts.

- › D-checker cable (spare part nr. 999495P)
- › Additional Daikin Altherma cable extension (spare part nr. 999491P) only for LT-B series
- › Other required parts, check User Manual

D-checker cable (USB type)



Siemens USB service cable

For all the units equipped with Siemens Climatix Pol687.xx controller.

Application: Service operation with laptop and Siemens ScopeTM. Availability of USB service cable for connecting service laptop to Siemens PL687 Climatix controller, also known as MT3 controller. This cable will have the advantage that no LAN (Ethernet) connection or TCP/IP settings on the service laptop are required anymore. This also solves issue with the automatic disabling of the WIFI functionality on Daikin EMEA managed service laptops. Daikin Spare parts ordering reference: 5020073



Unit range	Controller platform	D-checker	MT3-Monitor	Siemens Scope Light	UPad	RS-485 converter	Siemens USB service cable
DENV small scroll	µCh Compact / µCH2 SE						
DENV small inverter	BRC21A53	X					
DENV multiple scroll	PCASO						
DENV screw	Carel pCO 2					X	
DAE scroll	Siemens MT3		X	X	X		X
DAE inverter scroll	Siemens MT3		X	X	X		X
DAE screw	Carel pCO2 / CO3					X	
DAE screw	Siemens MT3		X	X	X		X
BMS options						X	

Service tools - Refrigeration units

D-checker

D-checker is a software application used to record and monitor operation data of a selection of Daikin Units. Applicable models: check User Manual. Spare part number for required parts.

- > D-checker cable (spare part nr. 999495P)
- > Additional Daikin Altherma cable extension (spare part nr. 999491P) only for LT-B series
- > Other required parts, check User Manual

D-checker cable (USB type)



Ram monitor*

The Ram monitor is a software application used to record and monitor operation data of ZEAS, CVP and Booster units. The required software files, can be found on the software page of related product.

D-Checker Hardware: 999495P

CVP-CO2 Compatibility [LRYEN-AY1]

An extra wire harness is necessary for CVP-CO2: 999178T

CVP-CO2 is compatible on SW v2.15 and onwards

Operating data:

- > Main information
- > Operation mode
- > Sensor data (also calculated data)
- > Malfunction & Retry (standby & count)
- > Actuator state



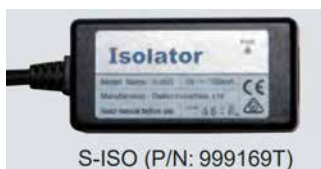
* only available for Daikin employees

Mobile Monitoring Tool

The Mobile Monitoring tool is specifically created for the gathering of data.

Analysis via graphics can be done via D-checker on your laptop (version 3.3.0.3 or more recent) after sending the recorded data via e-mail from your mobile device.

The Mobile Monitoring Tool exists of an adaptor which you connect to your unit, this adapter connects to the App on your mobile device (smartphone, tablet, etc.) via Bluetooth.



Service tools - Refrigeration units

Checker III

Service Checker Type 3 (Spare Part Code 999165T), this hardware is phased out. Please see Service Checker Type 4 to order Monitors and enable record data (saving to hard disk)

- › using special cable (accessory of checker III kit) by direct pcb connection outdoor board for certain RA , Sky-Air and old VRV systems or
- › by F1F2 line communication (= DIII connection) to most VRV systems (from K-Serie R407C onwards).

Each time a new Serie is launched, Daikin creates a patch that needs to run into the directory where the file "checker3.exe" is located.

Connection to PC/Laptop are

- › USB for 5VDC power to checker Interface
- › RS232 serial port for data transmission.

In case PC/Laptop has no RS232 port available, required to purchase locally a converter RS232/USB.



Unit	Ram monitor *1	D-checker	Checker Type 3 *2	Mobile Monitoring Tool *3	Flashsta	Daikin Updater Tool
Booster [LCBKQ-AV1]	Yes	Data Label File: [LCBKQ3AV1]	*6 *5	Yes		
Modbus GW [BRR9A]	Yes	No	No	No		
Modbus GW [BRR9B]	No	No	No	No		
Modbus GW [BRR9B]	Yes	No	v1.50b *4 *5	No		
CVP_AC17 [LRYEQ-AY1]	Yes	Data Label File: [LRYEQ16AY1]	v1.50b *4 *5	Yes		
ZEAS_A [LRLEQ-AY1, LRMEQ-AY1]	Yes	Data Label File: [LRLEQ-AY1_BY1_LRMEQ-AY1_BY1_LREQ-BY1(R)]	v1.17 *4 *5	Yes		
ZEAS_B [LREQ-BY1]	Yes	Data Label File: [LRLEQ-AY1_BY1_LRMEQ-AY1_BY1_LREQ-BY1(R)]	*6 *5	Yes		
Multi ZEAS_B [LREQ-BY1R]	Yes	Data Label File: [LRLEQ-AY1_BY1_LRMEQ-AY1_BY1_LREQ-BY1(R)]	*6 *5	Yes		
Mini ZEAS_B [LRLEQ-BY1, LRMEQ-BY1]	Yes	Data Label File: [LRLEQ-AY1_BY1_LRMEQ-AY1_BY1_LREQ-BY1(R)]	*6 *5	Yes		
CVP_CO2 [LRYEN-AY1]	Yes	Data Label File: [LRYEN10AY1]	No	Yes		
Qup [LRNUN-AY1]	Yes	No *7	No	No *7		

*1- Click on the links below to go to "Unit Software" page for relevant product, to download adr and dbg files necessary for Ram Monitor connection. Compatibility of adr and dbg files also rely on software version of the unit you are servicing. On Unit Software page, you'll also find adr and dbg files of former software versions. Consult Service Manual of relevant unit, to check how to determine software version of the unit.

*2 - Checker connection re-initializes communication. Upon app launch all units will stop. There's no official compatibility of Service Checker Type4 with refrigeration units.

*3 - Use the same data label file, mentioned at D-checker connection column.

*4 - This is a patch file. If you do not have Checker Type3 installed, go to Checker Type3 page (link at the top of this column), install any full version (links at Checker Type3 page) and then apply this patch.

*5 - There's no official support for this version.

*6 - Use the latest Checker Type3 software (from v1.60 onwards)

*7 - Q-up [LRNUN-AY1] data is transferred to D-checker/Mobile Monitoring Tool through CVP-CO2 [LRYEN-AY1] connection. Therefore, D-Checker/Mobile Monitoring Tool is not connected to Q-up Unit. The data will be available on CVP-CO2 connection.



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