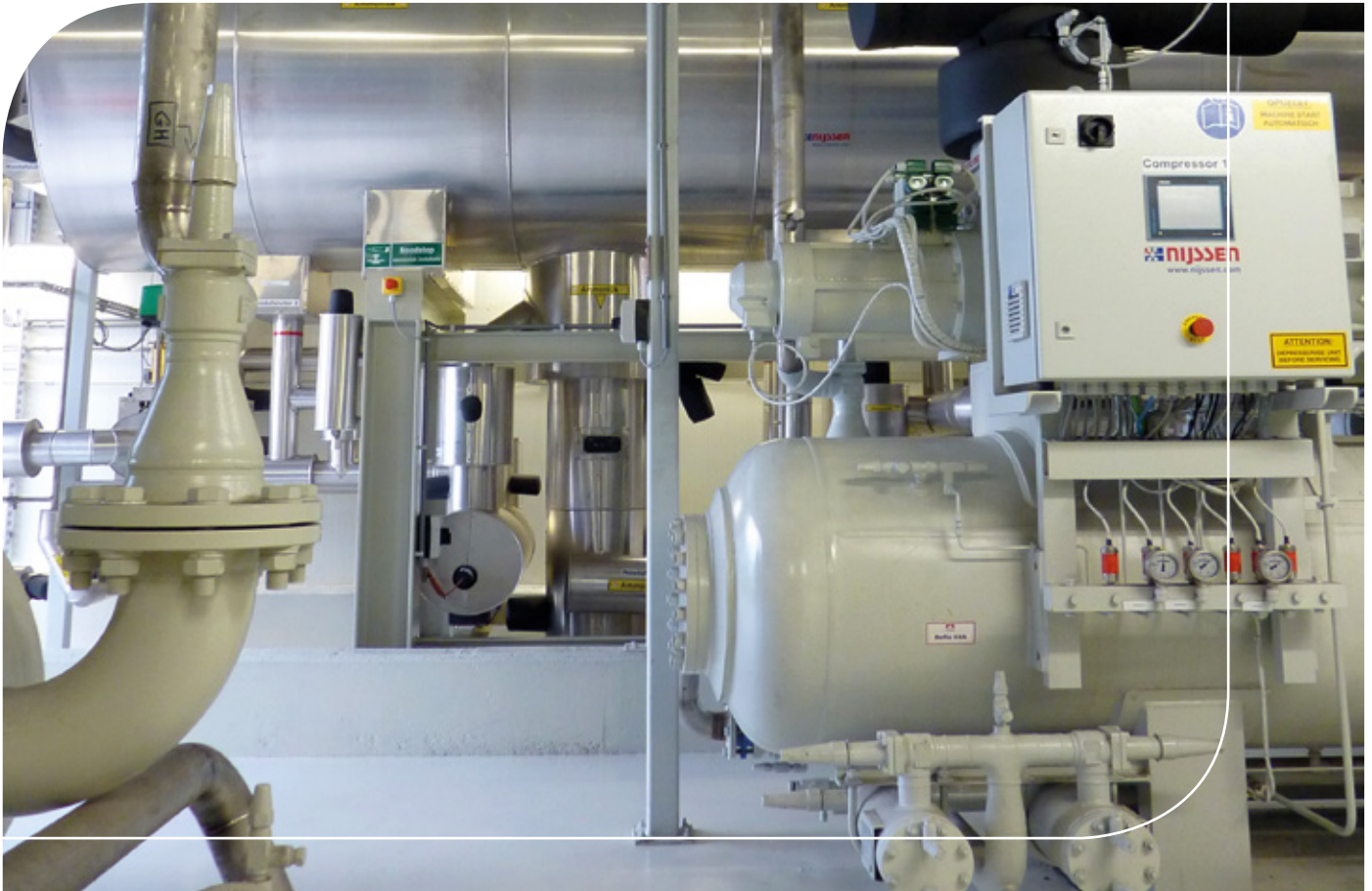




# Nijssen Control Systems



Custom-built software for perfect controlled environmental conditions



# Smart control for optimal conditions

Our advanced Nijssen control systems ensure perfect conditions in your controlled environments – precisely regulated, and continuously monitored and registered.

Easy to operate, thanks to the intuitive visualisation. With superior energy performance thanks to the Nijssen Power Saving system.

Our IT-specialists translate their knowledge of refrigeration technology and storage conditions into easy-to-use operating software, optimally tailored to your system, from controlling a single mobile unit to facility-wide integrated control.

Our web application guarantees 24/7 control and monitoring functionality from any web enabled device.

## NIJSSEN ADVANCED CONTROL SYSTEMS

- Intuitive control visualisation
- Available in multiple languages
- User friendly menus
- Available for multiple PLC-platforms: CodeSys v3, Hitachi, Siemens
- Multiple configuration options from stand-alone system to integrated virtual servers
- Tailored integration e.g. with your building management systems
- Password protection with multiple authorisation levels
- 24/7 Remote support and helpdesk

# Perfect control anytime, anywhere

## EASY TO OPERATE

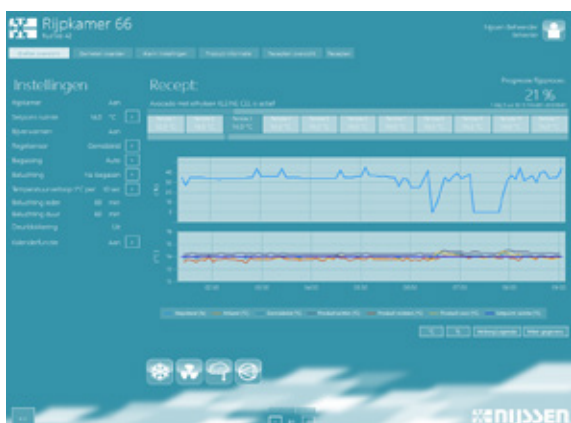
The dashboard with live tiles provides real-time supervision with a clear overview of multiple rooms and their actual conditions. The intuitive user interface, with menus and submenus, guarantees fast and convenient operation.



## EASY TO MONITOR

Set points and measured data are displayed in easy-to-navigate lists and charts. Trend graphs can be viewed directly on screen for both set points and actual conditions.

Alarm thresholds can be set for any measured data. Alarms are shown on the screen with their actual status. Notifications can be forwarded by phone or e-mail.



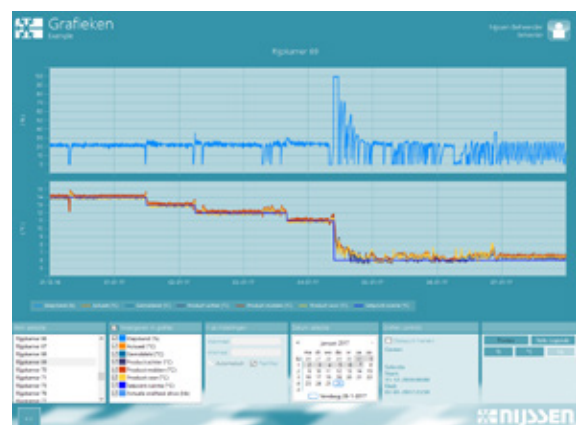
## EASY TO EVALUATE

The software administrates all measured data, alarms and error messages. In detailed reports, parameters can be viewed for specific rooms, chosen time intervals or error classes.

Additional reports can be easily created and compiled. For further evaluation, data can be printed and exported in several formats.

## EASY TO INTEGRATE

The Nijssen software can be seamlessly integrated with client systems, e.g. building management systems. Tailor-made solutions for data export can be implemented as well.



*Any other requirements?  
Our automation engineers will be  
pleased to find the best suitable  
solution, in a joint effort with you.*



# Optimal conditions in any application

Our installations are designed to provide optimal conditions in any situation and for different purposes. Through the years our advanced control software has proven itself in any (combined) application in refrigeration and climate technology.

## (PRE-)COOLING

Rapid pre-cooling of fresh produce, facilitating maximum interaction between the 'breathing' crops and the storage conditions.

## RIPENING

Advanced recipes facilitate easy operation in large facilities. Our Recipe Wizard contains a progress indicator and facilitates easy recipe definition or modification.

## RAPID FREEZING

Rapid freezing in full control, preventing ice accretion during storage. Less energy costs by maximum use of off-peak hours.

## CA-STORAGE

Integrated control of (Dynamic) Controlled Atmosphere components (e.g. CO<sub>2</sub> scrubbers, nitrogen generator, aeration). Storage conditions automatically adjustable based on user-defined decision rules.

## RESEARCH AND TESTING

Easy and time-saving operation for multiple trials and batches. Pre-defined tests ensure repeatability and reproducibility. Extensive data logging and easy export.

## MYGROWTHROOM MOBILE UNIT

Simple and intuitive stand-alone control display to set up, monitor and log all plant growth parameters. Easy to expand with environmental variables, e.g. CO<sub>2</sub>, irrigation and fertilisation. MyGrowthRoom enables testing varieties in an efficient, accurate and flexible way.

## VERTICAL FARMING

State-of-the-art technology for programming, logging and supervising all growth conditions. Settings can be easily saved as a growth recipe, for any growth stage, for every variety. The ideal solution for efficient management of multiple plant growth units. From a stand-alone unit to a large scale production facility.



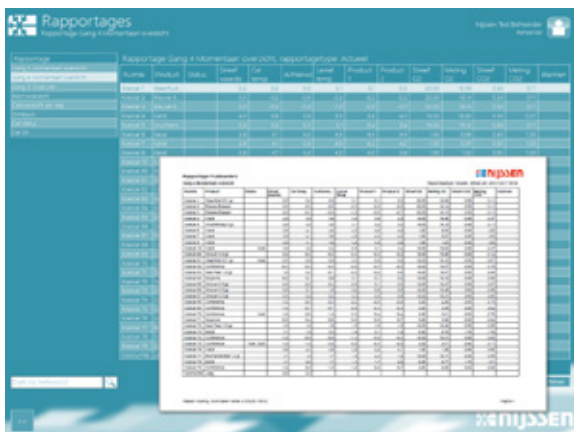
# Advanced modules, more options

## DYNAMIC RECIPES

With our Dynamic Recipe module an almost unlimited number of recipes consisting of multiple phases can be defined, stored and recalled to run both simple and complex growth recipes, ripening batches or test routines.

## ADVANCED REPORTING

All registered system actions, alarms and logged data are available for further analysis. With our Advanced Reporting module customised reports can be compiled, as well as automated documentation, e.g. for quality management or statutory HACCP guidelines. Data selections can also be printed and exported (pdf, csv).



The screenshot displays a software interface with a teal header. The main window shows a table with columns for 'Product', 'Batch', 'Start', 'End', 'Status', and 'Action'. A smaller window in the foreground shows a detailed report with multiple columns of data, including 'Product', 'Batch', 'Start', 'End', 'Status', 'Action', 'Temperature', 'Humidity', and 'CO2'. The Nijssen logo is visible in the bottom right corner of the interface.

## PRODUCT MANAGEMENT

Our Product Management module facilitates the definition of product categories (e.g. varieties by supplier). Easily matching products to growth rooms and recipes facilitates your administrative control.

## ENERGY MANAGEMENT

Our Energy Management module supports active energy management through graphical analysis tools. Based on analysis of measured data, energy saving potentials can be identified and measures for increasing energy efficiency can be evaluated. Automated peakshaving or optimum use of off-peak hours offers additional costs benefits.

## QUEUE MANAGEMENT

Our Queue Management module lists and prioritizes cooling demands from all cold stores. This guarantees a steady and energy efficient process with optimal use of compressor capacities. Resulting in lower energy and maintenance costs.

## USER MANAGEMENT

The User Management module contains user roles and password protection with multiple authorisation levels.

## NIJSSEN POWER SAVING SYSTEM

Our advanced Nijssen Power Saving (NPS) system guarantees substantial energy savings. It constantly optimizes the working conditions of the compressors, based on cooling requirements and outdoor temperature. The result is an approx. 15 percent lower energy consumption compared to traditional refrigeration systems. The NPS system is included in all Nijssen control systems.

# Tailored to your systems

The configuration and accessibility of our control software and hardware can be customized to your existing IT-infrastructure and processes. With their functionality, reliability, durability and cost-effectiveness, our control set-ups are simply the best choice available.

## INTERFACES

### Multiple Access Options

Access to the Nijssen control software can be provided in various ways:

- Stand-alone control PC
- LCD display touch panels on site
- Extra user PC's via client's LAN
- Mobile devices via client's Wi-Fi
- Internet remote access via client's LAN and firewall

Configuring your system we select widely available, industry-proven hardware to ensure reliability, even in the most adverse industrial conditions.

### Seamlessly integrated

Nijssen control systems can be seamlessly integrated into your IT infrastructure, e.g.

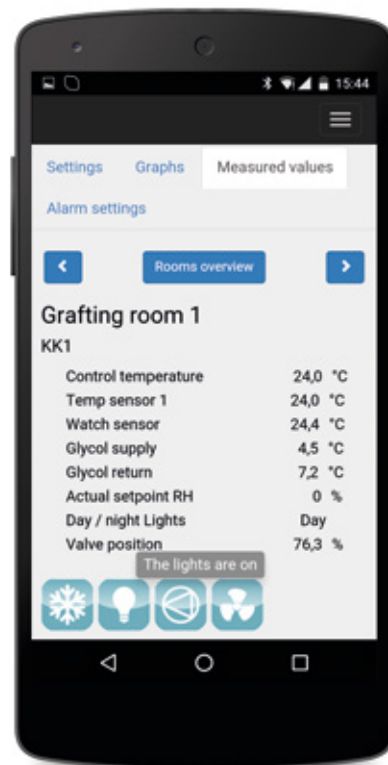
- Virtualisation of Nijssen control computer within client's infrastructure
- Connection to client's database server and/or webserver
- Integration with building management systems

### Web-app: anytime anywhere in control

With the internet-based web application Nijssen provides a control system that allows you to manage your refrigeration systems, cold stores and climate rooms using any web browser, from anywhere in the world 24/7.

## SPECIFICATIONS

- Operating System: Windows 7 and up
- Microsoft SQL Server
- OPC-based communication with PLCs
- Ethernet/IP or serial communication
- .Net Framework



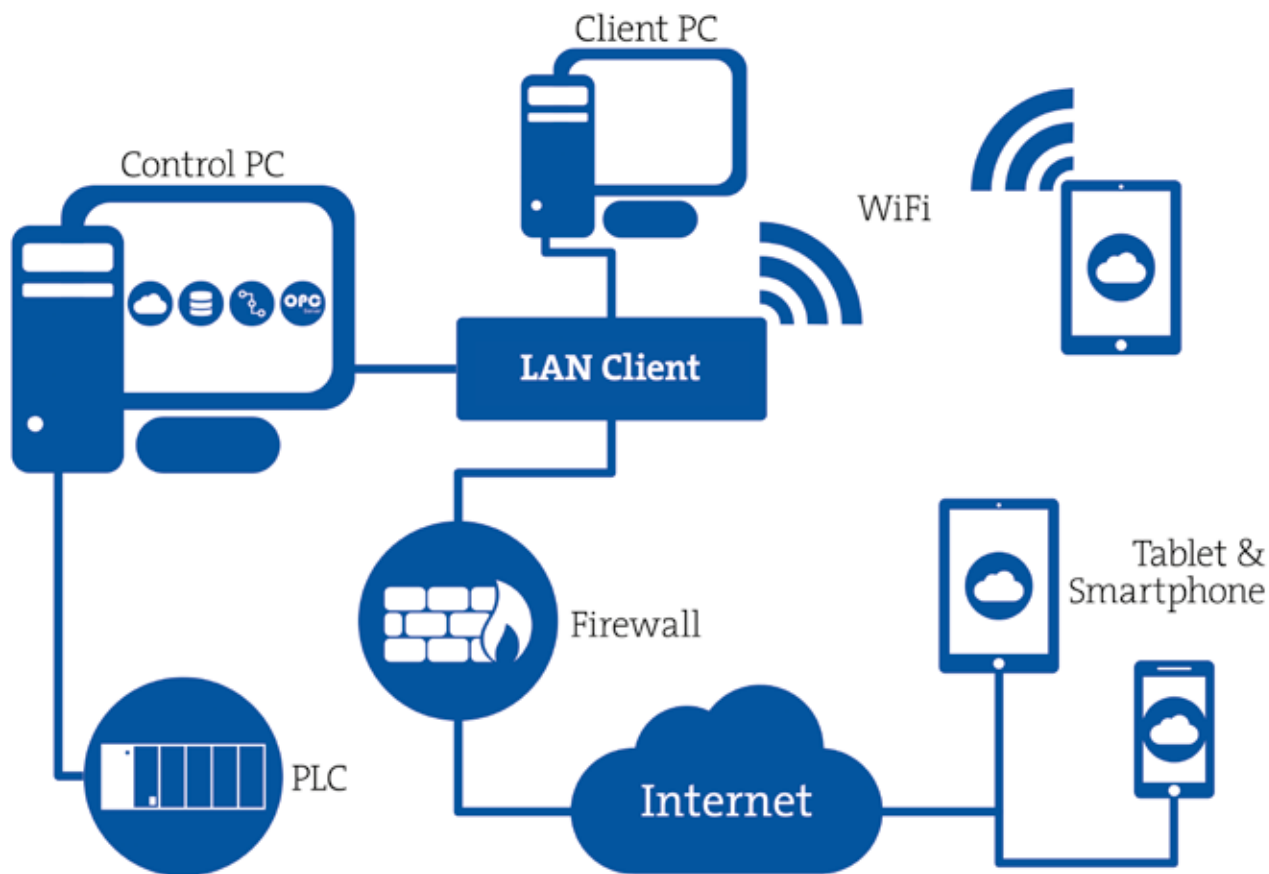
Web-app: anytime anywhere in control

## NIJSSEN CONTROL CENTER

With our Control Room services we monitor the status of your systems and ensure effective follow-up of alarms and error messages.

## UPDATES AND SERVICE

For regular software updates and error handling, our IT-specialists connect to your control system from our Leiden office. In case of computer malfunction, the PLC will automatically continue with the most recent values. If necessary, we can remotely adjust the PLCs.



## AMONG OUR CLIENTS

### Universities and Research Institutes, e.g.:

- Wageningen University
- Radboud University Nijmegen
- VU University Amsterdam
- University of Groningen
- Leuven University (B)
- Nak-tuinbouw

### Private sector, e.g.:

- Syngenta (UK/NL/D)
- Monsanto
- Hazera / Nickerson-Zwaan
- Limagrain
- Vitro Plus
- Enza Zaden (NL/ES)
- BVB Substrates.

### Farma, e.g.:

- Janssen Biologics
- OctoPlus
- Novo Nordisk
- Life Technologies

### Fruit, Vegetables and Potatoes, e.g.:

- The Greenery
- Fruitmasters
- Olympic Fruit
- Kivits
- Rosenbaum (D)
- Special Fruit (B)
- Mission Produce
- Kloosterboer
- Mooy Logistics

### Foods, e.g.:

- Jumbo
- Hoogvliet
- Spar
- Lidl (D)
- Friesland Campina
- Zandbergen Frigomundo
- Luiten Food
- WDP/Ter Beke
- Schmidt Zeevis
- Fix Fisch

### Flowers, e.g.:

- Dekker Chrysanten
- Van der Deijl Roses
- C. Steenvoorden





## ABOUT NIJSSSEN

The Nijssen family started in the refrigeration engineering business in 1948 and made its name developing state-of-the-art custom-built industrial refrigeration systems, ripening chambers and plant cultivation chambers. We expanded to become a prominent player in our industry, both at home and abroad.

Nijssen has always led the way in refrigeration technology development. As early as the 1960s, Nijssen marketed the world's best refrigeration system Filacell.

In 1986, Nijssen was the first Dutch supplier of patented LED plant growth lights. In joint research with Wageningen University we explored specific light recipes for different crops. The Nijssen Light Division was sold to a renowned lighting manufacturer. With the rapid developments in

LED technology we focus on offering our clients the LED solution that best meets their requirements.

Nijssen is one of the few companies in the industry to develop its own control software. Our IT-specialists translate their knowledge of refrigerating engineering and storage conditions into easy-to-use operating software, tailored to your system.

At Nijssen you will find specialists with a passion for refrigeration engineering. Our key concepts are strong commitment, short lines of communication, continuity and excellent business relationships. We look forward to discussing your situation and developing a solution specific to your unique requirements.

*Contact us today!*



[www.nijssen.com](http://www.nijssen.com)

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