

Main distribution board

# quadro+, tried and tested.

Verified performance.  
Time-tested robustness.

:hager

# What do you need from us?

As a consultant, you have specific requirements. That's why we always start any partnership by listening to you. Once we've identified your needs, we work with you to build your solution, making sure you always have all the support and advice you expect. And, while our solutions are tried and tested, the way we get there is adaptable and flexible. It's all about offering you a truly tailored experience.



**“My job is to give advice on robust, high-performance solutions. For that, I need full manufacturer support and complete product data.”**





# Tried and trusted expertise



Factory production of enclosures.  
Bleskastel, Germany.



As a family-owned company, we put a high value on relationships. Since our beginnings in Germany over 60 years ago, we've grown to become the trusted partner of customers in over 120 countries all over the world. How? By remaining true to our founding principles of respecting, understanding and supporting the people we do business with.

Today, our wide range of solutions covers electrical installations in residential and commercial buildings. We can help you with everything from energy distribution and cable management to wiring accessories and building automation.

**22**  
production sites  
worldwide

**> 120**  
countries where  
Hager solutions  
are available

**11 500**  
employees

**3 000**  
active patents

**6 %**  
of turnover  
invested in  
Research &  
Development

**30 000**  
training sessions  
(face to face  
& e-learning)

**ISO 9001**  
certified sites



# IEC 61439: compliance for peace of mind

The IEC 61439 standard establishes the rules and regulations governing low-voltage switchgear and controlgear assemblies (known collectively as Assemblies). It was introduced in 2011 to make requirements and checks more rigorous and consistent.

In particular, the standard distinguishes between the responsibilities of the original manufacturer and those of the assembly manufacturer:

Original manufacturer	Assembly manufacturer (panel builder)
Designs the system	Manufactures the assembly according to the original manufacturer's rules
Issues system check principles to assembly manufacturer	Becomes the original manufacturer if any change is made to the original system
	Carries out routine tests of the final Assembly (tests, calculations, rules)



## The different components of IEC 61439

**IEC 61439-1**  
General rules

**IEC 61439-2**  
Power switchgear and controlgear assemblies

**IEC 61439-3**  
Distribution boards

**IEC 61439-4**  
Assemblies for construction site

**IEC 61439-5**  
Assemblies for public distribution networks

**IEC 61439-6**  
Busbar trunking systems

**IEC 61439-7**  
Particular applications (e.g. charging stations...)

For each Assembly it produces, the original manufacturer must carry out 12 verifications to ensure it meets the standard. This is a rigorous process, requiring a combination of tests, calculations/measurements and evaluations before each verification can be fulfilled. Only then will the system be approved as IEC 61439 compliant.

No.	Features to check	Articles or paragraphs	Available verification options		
			Tests	Comparison with a reference design	Evaluation
1	Resistance of materials and parts	10.2	-	-	-
	Corrosion resistance	10.2.2	yes	no	no
	Properties of insulating materials	10.2.3	-	-	-
	Thermal stability	10.2.3.1	yes	no	no
	Resistance of insulating materials to abnormal heat and fire due to internal electric effects	10.2.3.2	yes	no	yes
	Resistance to ultraviolet radiation (UV)	10.2.4	yes	no	yes
	Lifting	10.2.5	yes	no	no
	Mechanical impact	10.2.6	yes	no	no
	Marking	10.2.7	yes	no	no
2	Degree of protection	10.3	yes	no	yes
3	clearance and creepage distances	10.4	yes	no	no
4	Protection against electric shock and integrity of the protection circuits:	10.5	-	-	
	Continuity between the grounds of the Assembly and the protection circuit	10.5.2	yes	no	no
	Resistance to short-circuit of the protection circuit	10.5.3	yes	yes	no
5	Integration of connection devices and components	10.6	no	no	yes
6	Internal electric circuits and connections	10.7	no	no	yes
7	External conductor terminals	10.8	no	no	yes
8	Dielectric properties:	10.9			
	Power-frequency withstand voltage	10.9.2	yes	no	no
	Impulse withstand voltage	10.9.3	yes	no	yes
9	Heating limits	10.10	yes	yes	yes
10	Resistance to short-circuits	10.11	yes	yes	no
11	Electromagnetic compatibility (CEM)	10.12	yes	no	yes
12	Mechanical operation	10.13	yes	no	no



Find out more at  
[africa.hager.com/standard-IEC61439](https://africa.hager.com/standard-IEC61439)

# A complete range with proven versatility

By working with us, you can design and implement your entire low-voltage electrical distribution solution using a single supplier. That means you'll have a single point of contact for all your needs, making your life easier while also optimising maintenance costs.



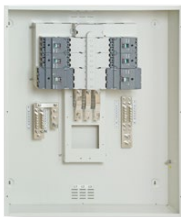


## Main Distribution Board



quadro+

## Sub-main Distributions Boards



invicta panel boards



quadro 4



quadro 5

## Final Distribution Boards



invicta DR boards



invicta TPN boards

## Consumer Units



invicta consumer units  
with busbars



invicta consumer units  
without busbars

# quadro+: five key benefits of a fully-tested system

When you choose quadro+, you choose a low-voltage electrical distribution solution that has continually proven its worth:

## 01

### Tested performance

quadro+ is fully design verified to IEC standards EN-61439-1&2. This means it meets the highest international standards of security, performance and reliability.

## 02

### Trusted robustness

quadro+ enclosures are designed with a rigid structure for extra durability, and are manufactured to the highest European standards in our factories in Italy.



# 03

## Tried flexibility

Thanks to its modular design, quadro+ fits any project in the commercial or residential sector, meeting all your requirements day in day out, year after year.

# 04

## Complete solution

To address the growing need for energy efficiency, quadro+ can be completed with agardio.manager monitoring solution.

# 05

## Reliable support

With 60 years of experience, we pride ourselves on guiding you, sharing our expertise, and responding swiftly to all your requests. And with 30,000 training sessions under our belt, we know how to help you through every phase of your project.





# quadro+, the complete solution

At every phase of your project, we're there to make your life easier, offering the support and expertise you need to work better and faster.



# Proven tools



## Project management software

### hagercad

More planning security, less time required and increased convenience – hagercad offers you this and much more. The design software makes the configuration of low-voltage systems three dimensional – and therefore even more transparent and simpler:

- Creates single- and all-pole circuit diagrams automatically, based on the required devices
- Helps you with the cabinet calculation
- Meets the latest standards such as EN 61439.

### ElcomNet\*

The user-friendly software is designed to calculate low voltage electrical installations in accordance to international standards - such as IEC 60634:

- Performs all calculations for short circuit, discrimination study, voltage drop, protective device sizing and cable sizing
- Offers a wide variety of reports such as line diagrams, calculation sheets, discrimination curves, circuit specifications and equipment lists.



To benefit from a free hagercad training session, please go to [africa.hager.com/hagercad](http://africa.hager.com/hagercad)



## Ready-to-use data: specification texts

We make tendering phase simpler with our prepared specification texts.



Find out more at [africa.hager.com/specificationtexts](http://africa.hager.com/specificationtexts)

# Trusted support



## Customer service: local support

Throughout your project, you'll be able to rely on Hager's time-tested expertise and support. Our partners will be ready to guide you, share their experience, and respond swiftly to all your requests.

\* From version 4.4, the software name changes to hagercad.net

# Fully-tested system up to 1600 A

## 01

### Main distribution board

Segregation form 2b  
InA up to 1600A  
IP 55  
IK 10  
Class 1

- Fully design-verified in line with IEC standards EN-61439 for performance and safety
- Enclosure structure designed for fast, easy mounting by one person
- Rigid and flat-packed for ease of transport
- Wide range of enclosure dimensions to fit any multi-residential or commercial project

## 02

### Main Incomers and Protection Devices

#### HW ACB

Ratings: 630 – 5000A with 3 frames  
Breaking capacity: 50 to 100kA

- Top performance operation
- Compliant with IEC 60947-2

#### H3 MCCB

Ratings: 16 to 1600A  
Breaking capacity: 18 to 70kA

- Large choice of ratings and breaking capacities to match any project specifications
- Compliant with IEC 60947-2

## 03

### Energy Monitoring Solution

More information, more efficiency, more building value: our **agardio solution** bundles all the benefits into one system.

- Continuous network analysis
- Analysis of harmonics for timely detection of network problems
- Prevention of plant downtimes
- On time illustration of energy efficiency class.







# Trusted design. Tested reliability.

Our quadro enclosures are designed, manufactured and tested to the highest international standards. And they are available in a range of shapes and forms to fit any project.



## **Made in Europe**

All quadro enclosures are manufactured in our factories in Porcia, Italy.





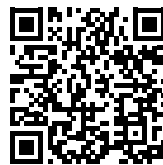
**“Thanks to its VDE accredited laboratory, Hager tests all its products to the highest standards.”**

**Antonio Petris**  
Product Manager for Enclosures,  
Hager Group Italy



## Looking for flexibility?

quadro+ features a modular design that comes in a wide range of dimensions. Choose from 2 heights (1900 or 2100mm), 3 depths (400, 600, 800mm) and 4 widths (450, 700, 900, 1000mm). It's an enclosure that will fit anywhere - which can prove essential for projects where space is limited.



**Scan the code to find more about the certifications and test reports**





# Tested in the real world

Nelo is the world's leading manufacturer of top performance kayaks and canoes. With a network of 40 dealers, the company sells to over 100 countries. Its recently-built factory, home to 150 employees, was equipped with our energy distribution solutions.



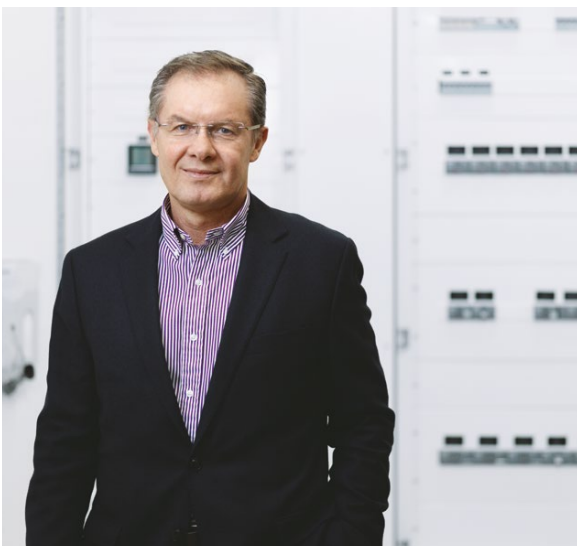
To view the full project reference, go to [africa.hager.com/nelo-portugal](https://africa.hager.com/nelo-portugal)

Our offer included everything from the main switchboard quadro+ to small enclosures from the ranges Vector IP55 / IP65, FW and Orion+, all fully equipped with modular protection devices and domotics. The offer was completed with floor trunking systems and wiring accessories from the systo and cubuko ranges.

#### **Did you know?**

Since Athens 2004, Nelo has been the Official Provider in Canoe Sprint for the Olympic Games. Their boats have collected a total of 93 Olympic medals. During the last Olympic Games in Rio, they won 27 of the 36 available medals.

Place	Vila do Conde, Portugal
Construction Time	2 years
Open since	August 2017
Factory size	20000m <sup>2</sup>
Electrical Engineering Consultancy	Sincrono
Panel Building	Quadrina
Electrical Installation	Undel



**“When we need Hager, they respond in a timely and very practical way. They’re very objective and very concise, and we’ve got used to this over the last few years. Our relationship with Hager always turns out to be the best solution.”**

**Antônio Romano**  
Co-founder of Sincrono

# agardio solution: enhance energy efficiency

International standards increasingly oblige you to make better use of electrical energy. And that's precisely where agardio solution comes in. It displays and clarifies information. It helps to interpret data. And it empowers you to make better decisions to plan, install and manage the day-to-day operation of low-voltage installations.

## 01 Measure & collect

Linked to Hager Smart meters, the agardio.manager server functions as the brain of our energy monitoring solution. It measures the consumption of your electrical installations by recording and querying the activities of connected devices.

- Ideal for Hager devices and any other modbus devices, thanks to the plug-in communication module
- Plug-and-play installation
- Easy configuration
- Integration of third-party devices such as gas, water or energy meters
- E-mail alerts if limits exceeded.



Energy meters



Multifunction measuring device for DIN rail



Multifunction measuring device for door installation



Air Circuit Breaker



H3+ MCCB



Third party modbus devices



# 02

## Monitor & analyse

Configure your system on a laptop or tablet – directly in a web browser, without the need for extra software.

- Different visualisation methods (complete application or individual consumer) for all applications
- All values can be exported in CSV format for further processing (e.g.: in Microsoft Excel).

Internet browser



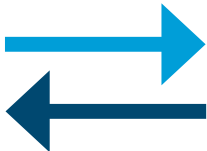
Data Logger



Through the BACnet/IP protocol, agardio also communicates with Building Management Systems.

Wi-fi

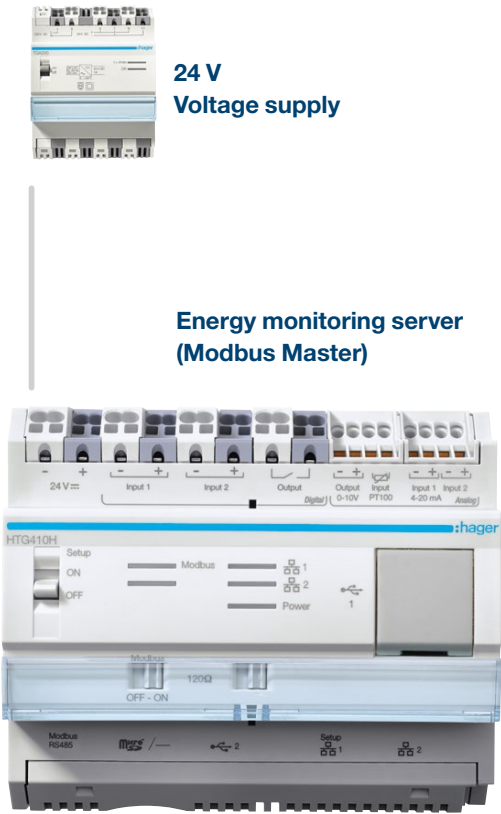
BACnet/IP



# 03

## Act

Make graphical comparisons and set alerts so you can intervene when energy consumption is too high.



24 V Voltage supply

Energy monitoring server (Modbus Master)



# Tried and true support

Our network of partners is on hand whenever you need assistance. Their role is to understand your needs and provide the right support for all your projects. What's more, they offer training sessions on Hager products and solutions all through the year.



**On-site training**  
Our partners offer on-site training throughout the year.



To get trained on our products and solutions, contact your partner at [africa.hager.com/partners](https://africa.hager.com/partners)



**Interested in the  
quadro+ solution?**

**Visit [africa.hager.com/quadro](https://africa.hager.com/quadro)  
for full details.**











**Hager Group**  
132 Boulevard d'Europe  
67215 Obernai cedex  
France

[africa.hager.com](http://africa.hager.com)