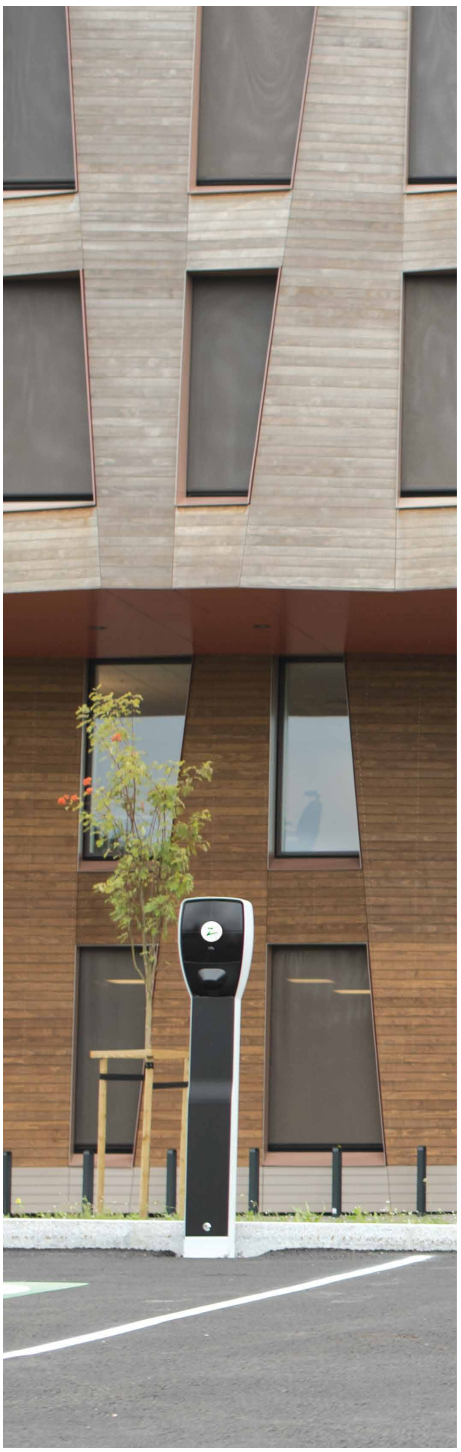
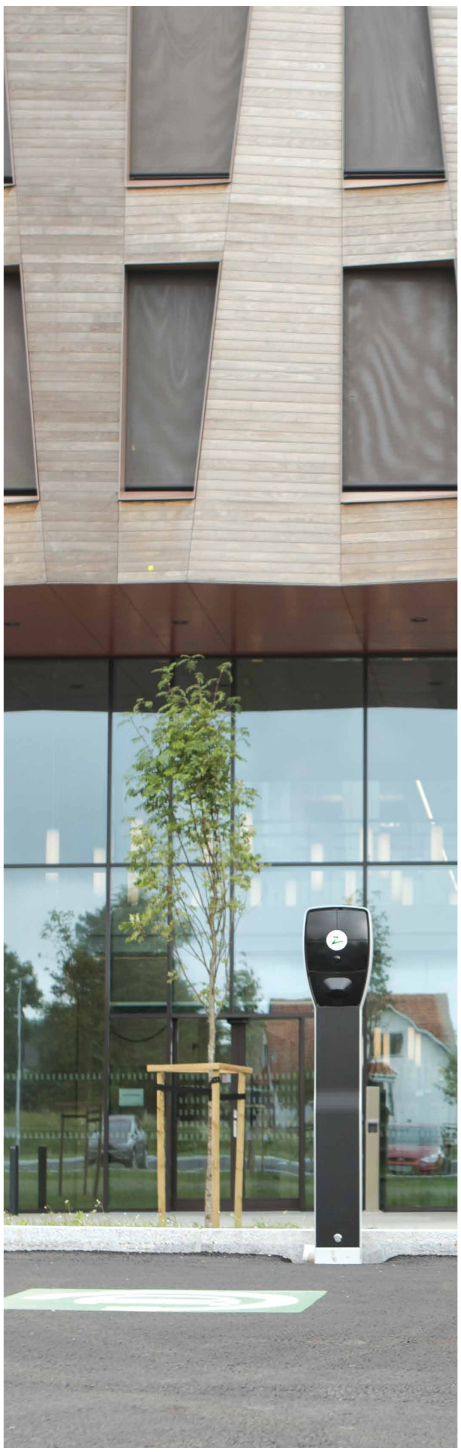
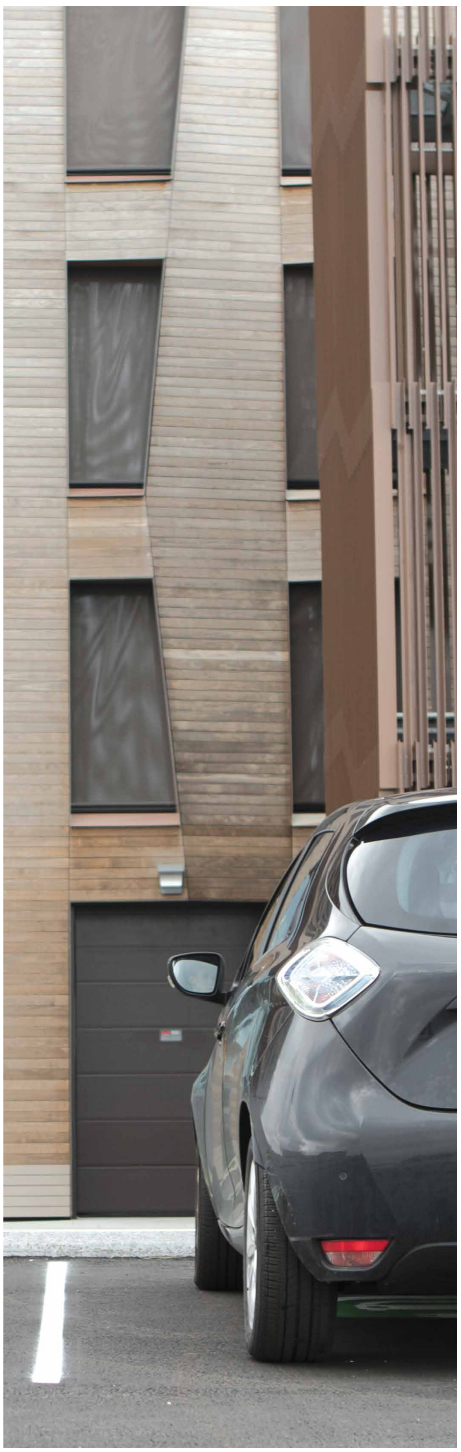
Qcharge

eleQtron







# THE NEXT STEP IN CHARGING ELECTRIC VEHICLES

# ELEQTRON AND OUR BRANDS

## ELEQTRON

Eleqtron has its roots in the development of electric plug-and-play systems. After all, we were around 30 years ago when plug-and-play systems were introduced into the Netherlands. This, combined with our enterprising and innovative spirit, means we can always offer you exactly the solution you need.

## QCHARGE

With the Qcharge total concept, you gain the advantages of dynamic charging combined with a flat cable installation, a highly flexible form of energy distribution. Thanks to the dynamic load-phase balancing, in combination with the queueing software, it is (theoretically) possible to charge no less than 100 electric vehicles with one 63 amp system. This means that an optimum charging solution can often be offered within the existing supply capacity of a building or apartment complex. Future expansions are straightforward to install.

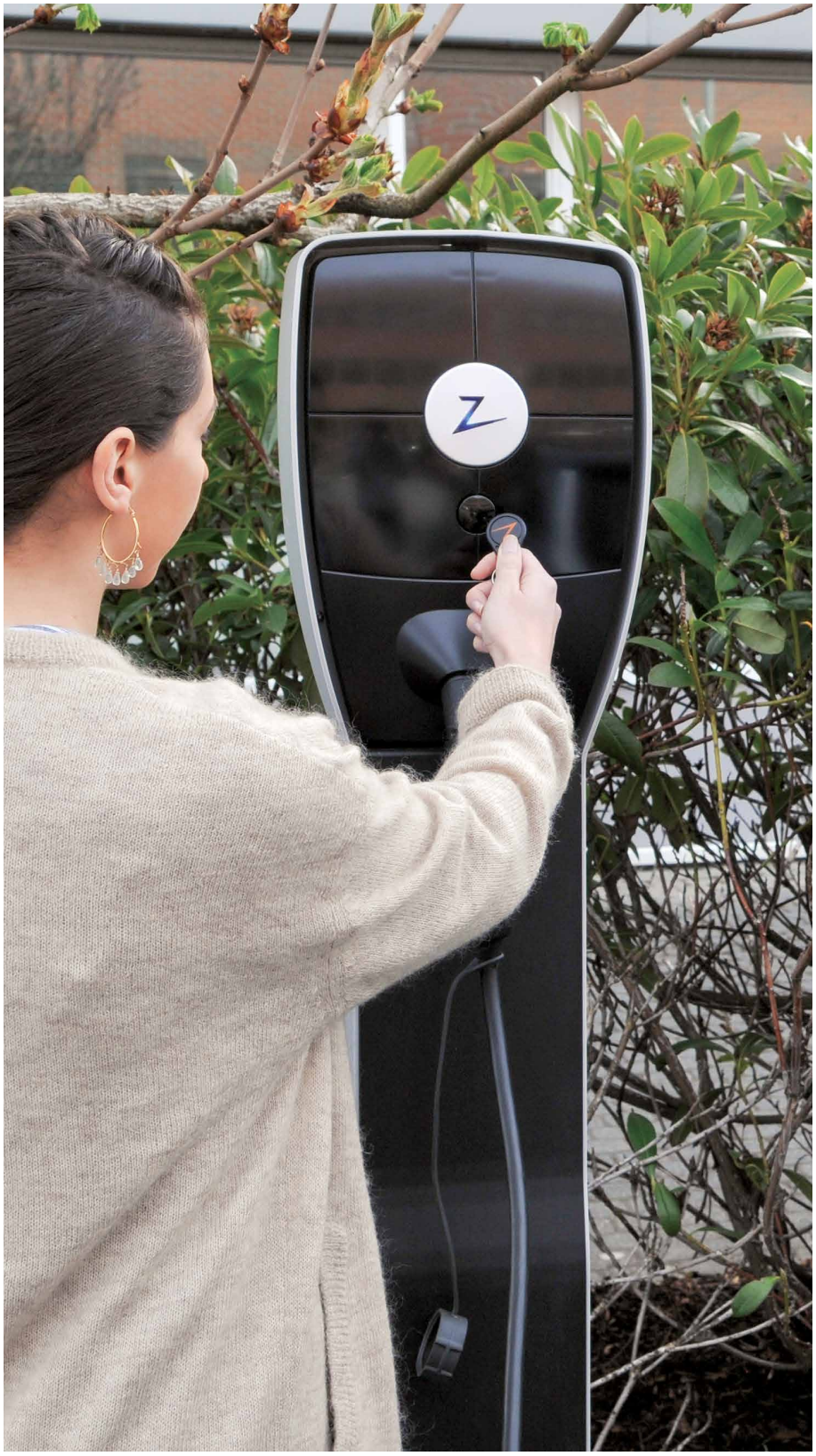
## QNEQT

The Qneqt range for plug-and-play installation in the electrical engineering sector occupies a leading position in the Netherlands. With Qneqt, installation times are reduced significantly, flexibility is always possible in a project, and the system can easily be expanded. In short, installing with Qneqt saves you money and installation time.

## QBRIGHT

With its innovative Qbright LED lighting range, Eleqtron is making an important contribution to energy savings and environmental awareness. This is because this lighting system lets you achieve a 60% reduction in energy consumption and it lasts eight times longer! Qbright LED lighting is generally installed as plug-and-play.

# LEADING THE WAY IN PLUG-AND-PLAY



Driving on electricity is becoming ever more popular in the Netherlands: in 2017, there were already around 120,000 electric vehicles (fully electric and plug-in hybrid) on the Dutch roads. Car drivers opt for electric driving mainly because it is better for the environment. It also helps the Dutch government with its objectives in this area. Part of this is that from 2030 new vehicles in the Netherlands may no longer emit harmful substances. In 2050, the $CO_2$ emissions will have to be reduced by 60 per cent compared with 1990. The electric vehicle makes a big contribution to this. The number of vehicles with this technology is going to keep increasing in the future.

# THE NETHERLANDS AND ELECTRIC DRIVING

## CURRENT SITUATION

Usually, there is only limited power available to connect charger points for electric vehicles in a building. This is because usually no account is taken of charging facilities for electric vehicles. To realise charging capacity, a new energy connection is often needed. This solution is very costly, is often done purely on an individual basis (for each use of an electric vehicle) and results in an extra installation component in the building. The absence of charging facilities could have a stagnating effect on consumers opting for an electric vehicle.

## TOTAL SOLUTION WITH QCHARGE

With Qcharge, the problems just sketched out are history. The flexible and attractively-priced flat cable installation, in combination with the ZapCharger Pro charging point with its dynamic charging software, makes the Qcharge total concept unique. Eleqtron represents the manufacturer Zaptec from Norway for the Qcharge concept in the Netherlands: Zaptec is an innovative producer of charging technology for electric vehicles. Zaptec produces the ZapCharger Pro: a single type of charging point that is suitable for all types of vehicle. With Qcharge, Eleqtron uses its prefab Qneqt flat cable from the Swiss manufacturer Woertz.

Through the use of Qneqt flat cable, which is suitable for 63 amps, a central infrastructure for an EV system can be installed. From the flat cable, it is straightforward to make branches off to the ZapCharger Pro, so the parking places are suitable for electric charging. You can make 70% of the preparations for the infrastructure by putting in the central infrastructure in advance.

Once the backplates have been fitted, it is only a question of clicking in the charging stations, setting them up and charging.

With the ZapCharger Pro, you can do ‘dynamic charging’, a unique technology in this market. Using this, it is possible to charge up to three times as many electric vehicles as with traditional solutions. This can reduce your capacity demand for charging by 90%! This is possible through smart power management: the automatic distribution of the available power to multiple charging points. Thanks to the dynamic load-phase balancing, the phases are always symmetrically loaded and the power available is used optimally.

ZAPTEC

With our Qcharge total concept, Eleqtron is offering the next step in vehicle charging. This has become possible thanks to the following unique technological developments.

## NO POWER LIMITATIONS

With the ZapCharger Pro from Zaptec, you theoretically have no more restrictions as regards the power of an installation. This is because the charging point has built-in functions that support phase-switching and current distribution. This means the charging points can take optimum advantage of the power available.

## FLEXIBLE SOLUTION

With its ZapCharger Pro, Zaptec offers a highly flexible solution: one type of charging point that is suitable for all vehicles. Also, the ZapCharger Pro is delivered with a backplate as standard. You can install this in advance if you wish. Once the installation is complete, you can just click the charging point onto the backplate, set it up and activate it. All this without the help of an installer, now or in the future, whenever you want. This use of a backplate also makes things easy in case of a fault: you can click another charging point in straight away.

# THE NEXT STEP IN CHARGING

## SIMPLE COMMUNICATION

If Wi-Fi is available, you do not need any additional components. If no Wi-Fi connection is available, you only need a Zaptec PLC module for communication. Using this module, the ZapCharger Pro can communicate via the supply cable. This provides you with the advantages of a simple and cost-saving solution.

## EACH CHARGING POINT ACCESSIBLE SEPARATELY

Most traditional charging systems still work with the 'Master-Slave' technique. This more old-fashioned technique forms a static solution that is out of place in the new generation of charging solutions.

The ZapCharger Pro charging point, working with its dynamic charging solutions, is not a Master-Slave system. This is because the ZapCharger Pro works fully 'standalone' in the network, on an IP basis. This makes each ZapCharger Pro separately accessible in the ZapCloud.

## UNIQUE DYNAMIC PHASE BALANCING

In three-phase mode, the ZapCharger Pro can supply up to 22 kW. In single-phase mode, up to 7.4 kW. The charging station's mode depends on the total load on the system and the status of the ZapCloud algorithm. The unique dynamic phase-balancing allows the system to choose automatically between single- and three-phase so that imbalance in the system is avoided.

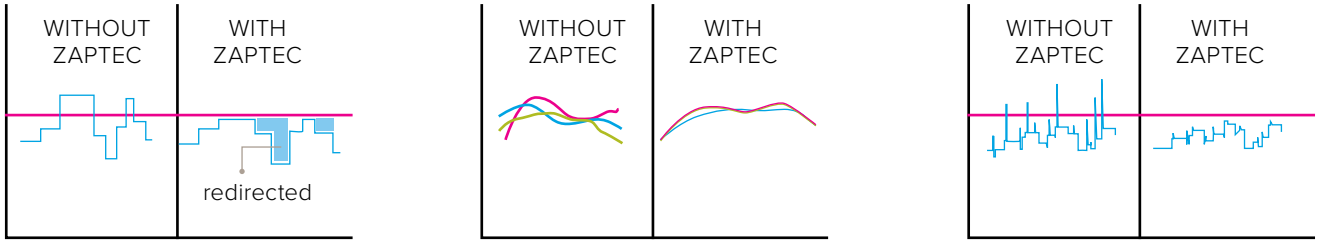
The phase-balancing is also described as full load symmetry. This means the load is distributed fully symmetrically over the three phases. No current flows in the return (neutral) conductor any more. This means that no (extra) capacity losses occur so that there are no direct consequences for the load capacity of the cables or possible damage to the battery.

### QCHARGE, FULLY SYMMETRICAL SYSTEM

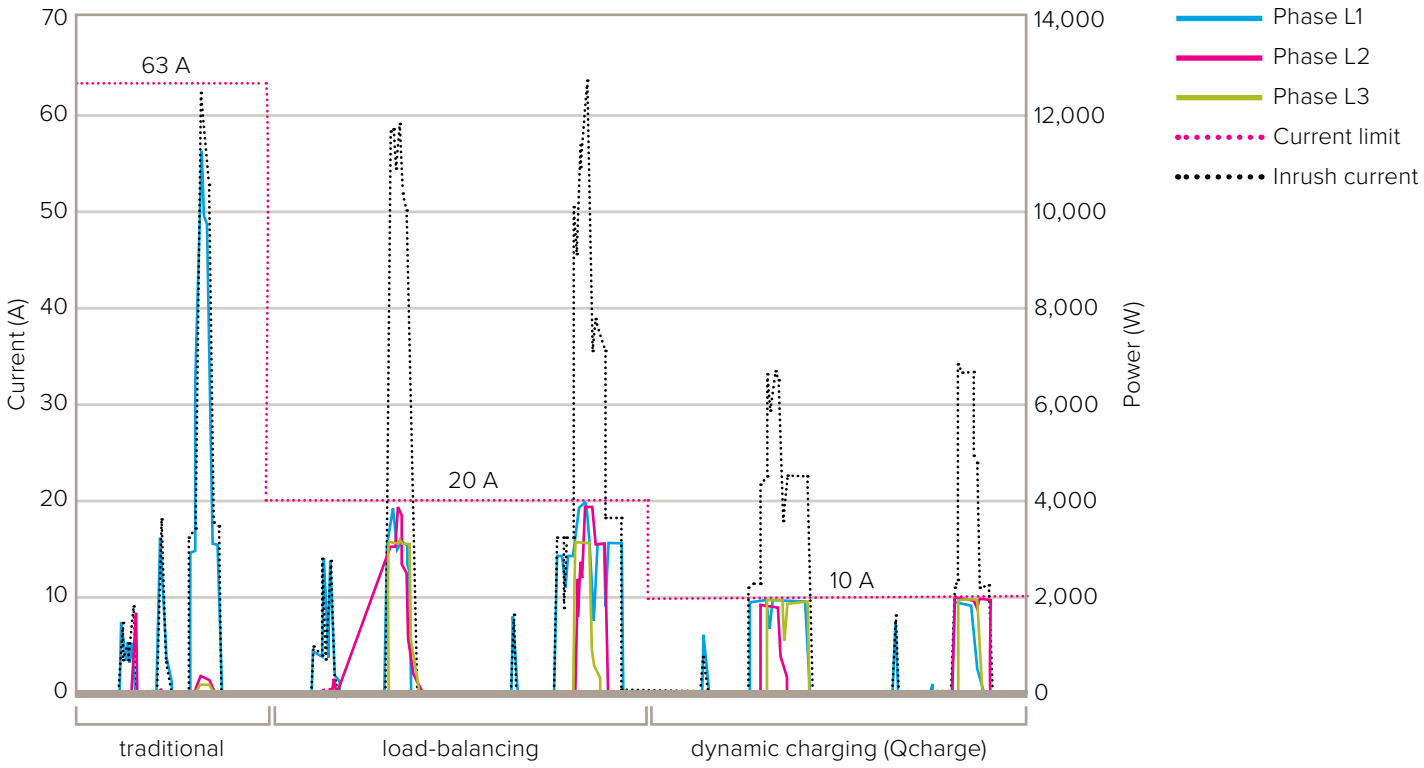
| PHASE 1 L1 32 A | PHASE 2 L2 32 A | PHASE 3 L3 32 A | ZAPTEC TOTAL | |
|---|---|---|---|---|
| 7.36 kW | 7.36 kW | 7.36 kW | 22 kW | VEHICLE 1 3 x 7.36 = 22 kW |
| 3.68 kW<br>3.68 kW | 3.68 kW<br>3.68 kW | 3.68 kW<br>3.68 kW | 22 kW | VEHICLE 1 3 x 3.68=11 kW<br>VEHICLE 2 3 x 3.68=11 kW |
| 7.36 kW | 7.36 kW | 7.36 kW | 22 kW | VEHICLE 1 7.36 kW<br>VEHICLE 2 7.36 kW<br>VEHICLE 3 7.36 kW |
| 3.68 kW<br>3.68 kW | 7.36 kW | 7.36 kW | 22 kW | VEHICLE 1 3.68 kW<br>VEHICLE 2 3.68 kW<br>VEHICLE 3 7.36 kW<br>VEHICLE 4 7.36 kW |

## LOAD AND ASSOCIATED PHASE BALANCING: HOW DOES THIS WORK?

Opposite it is made clear how the load as regards electric charging is related to the phase-balancing of the Qcharge concept.



## TEST AT EWZ SWITZERLAND




### CHARGE UP TO 3X AS MANY ELECTRIC VEHICLES

The Qcharge concept offers significant advantages compared with traditional charging systems. It is clear that up to three times as many electric vehicles can be charged with the ZapCharger Pro charging point. By this means, the capacity demand can be reduced by 90%.

### ELECTRICAL PROTECTION BUILT-IN

The 40 A type C MCB, energy meter and residual current device are all already integrated into the ZapCharger Pro charging point (or charging post). This provides attractive advantages compared with a traditional system. Because there are no more separate components: everything is in one housing. This means the installation costs are 25% less.

### DYNAMIC CHARGING: ONLY ONE 10 A FUSE NEEDED!

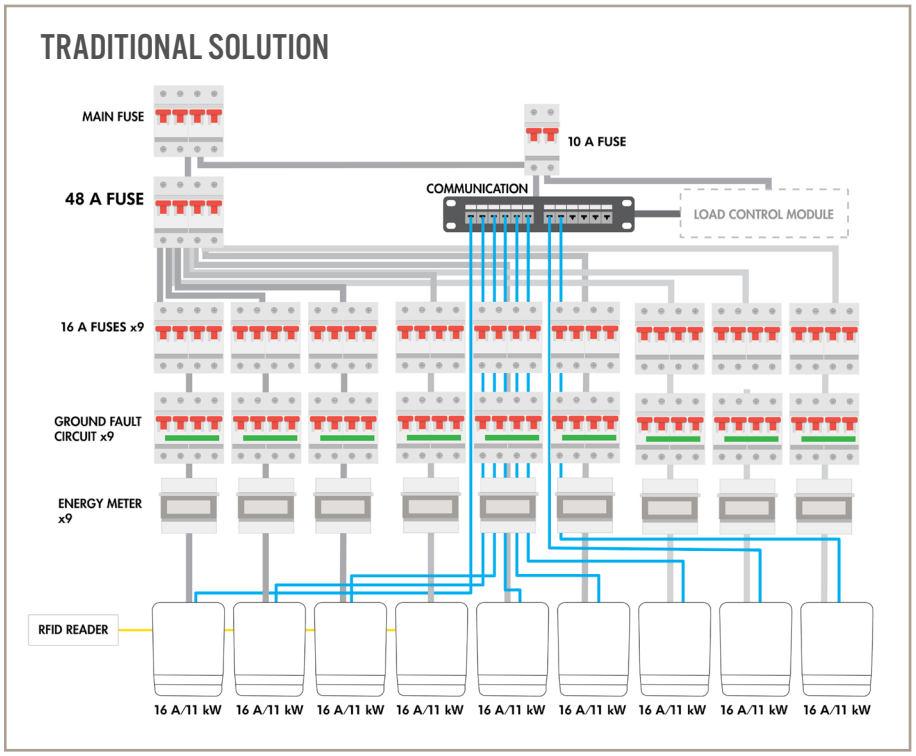
Tests and measurements on load- and charge-balancing have been conducted at EWZ (Elektrizitätswerk der Stadt Zürich) in Switzerland (see graph above). One thing that was demonstrated is that a traditional charging system without load-balancing would need a 63 A fuse in order to charge all the vehicles at once. With the ZapCharger Pro, the same number of electric vehicles can be charged with only a 10 A fuse.

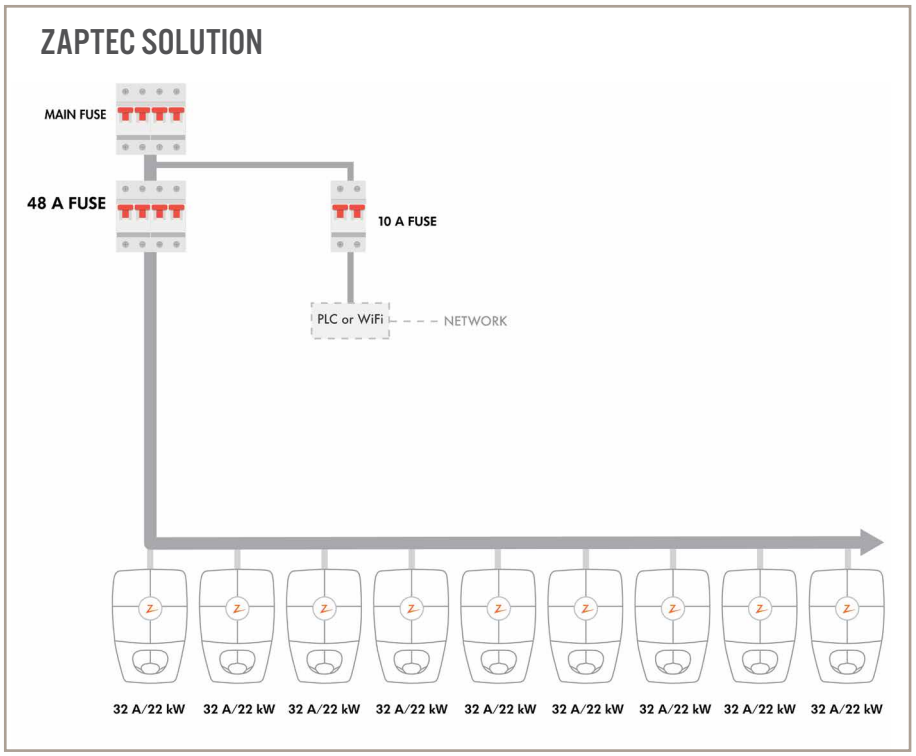
It is even possible to apply load-balancing over the entire system. By this means, the total power can be used optimally over the various circuit runs and circuits.

# WHAT IS DYNAMIC CHARGING?

With the Qcharge concept, the system can be set up flexibly and it is perfectly ‘scalable’. This means you can easily save 25% on your installation costs because with the ZapCharger Pro, you only need one system and one single supply cable. The communication between the chargers and the Cloud proceeds via the same supply cable and/or WiFi.

With a ZapCharger Pro charging station, you can choose to put in the installation first. Later, you can connect the charging stations as electric vehicles are purchased and the demand for charging stations increases. Thanks to the ZapCharger Pro all-in-one charging point, with the integrated 40A type C system MCB, energy meter and electronic residual current device, the system can be applied in a much simpler installation than with traditional solutions.




# SAVE 25% ON INSTALLATION COSTS


That more electric vehicles are coming onto the roads is a fact. Ensure therefore that your property is prepared for this. With Qcharge, it is possible to install significantly more electric charging points with a limited investment. Contact Eleqtron for an advisory report tailored to your needs. You can request a checklist to rapidly gain insight into the possibilities for your location.

## 100% PREPARED

Optimally prepared for the future of electric charging. Can be rolled out in one go thanks to the Qcharge concept. With the ZapCharger Pro charging point, connected to the ZapCloud technology, you are ready for all future challenges. This is possible thanks to features including the advanced software, the live dashboard and the reporting tools.

## 90% PREPARED

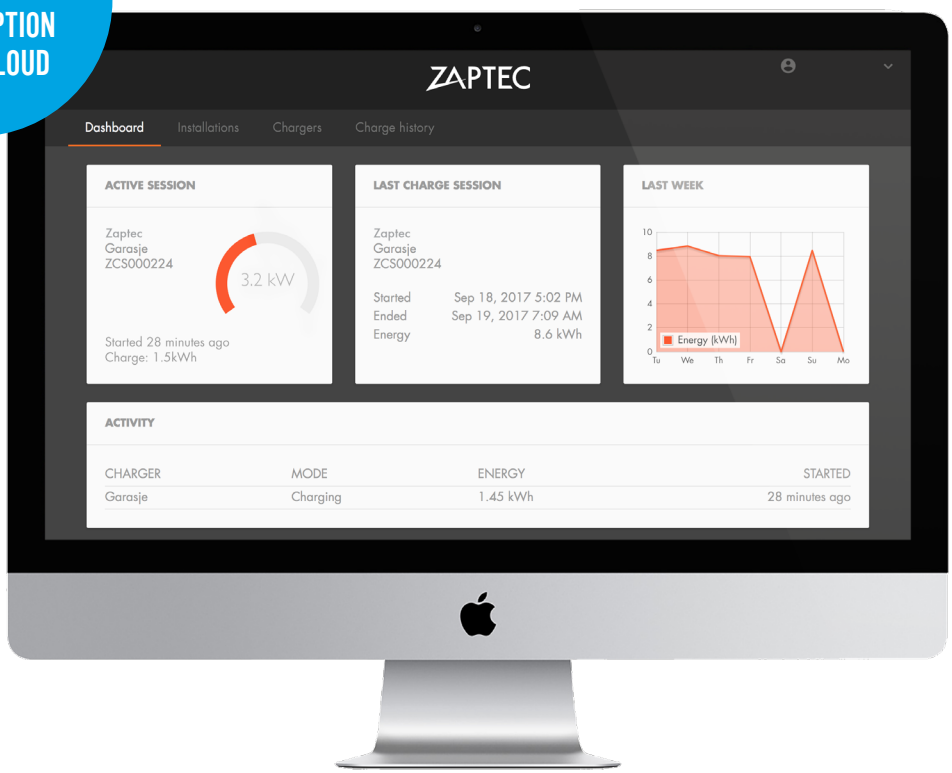
By installing not only the electrical system, but also the branches and backplates. You then only need to click a ZapCharger Pro in to the backplate and set it up. In this way, you finalise the electrical installation entirely and you do not need an installer for the later addition of the charging units.

## 70% PREPARED

With Qneqt flat cable you can meanwhile put in the electrical installation for future EV charging facilities. Eleqtron offers you a made-to-measure advisory reportand also advice regarding the connection possibilities for your existing system.

# PREPARE FOR ELECTRIC DRIVING

**FREE**
**SUBSCRIPTION TO ZAPCLOUD**




By connecting a ZapCharger Pro charging point to the internet, a whole range of possibilities becomes available. This is because the most advanced load-balancing system for electric vehicles runs in the ZapCloud, intended to distribute the available energy as efficiently as possible. With ZapCloud (based on Microsoft Azure technology), you enjoy the advantages of a reliable, quick and scalable platform. The possibilities at a glance:

## PORTAL FUNCTION

With the ZapCharger Pro charging point, Eleqtron offers, free of charge, the full-feature cloud solution ZapCloud. This is a web portal with which you, as owner or service partner of an EV charging system, have a full overview of the charging system. With it, you can monitor the system fully, look at charging statistics, prepare reports and carry out user registration.

## QUEUEING SYSTEM FOR INTELLIGENT MANAGEMENT

Within ZapCloud, a queueing system is available so that there is theoretically no limit to the number of charging points you can install. With the queueing system, the ZapCharger Pro firstly distributes the available current between the connected vehicles. If the settable minimum charging current cannot be guaranteed, the remaining vehicles are put into the queue.

# ZAPCLOUD
# EFFICIENT ZAPCLOUD


In this, the principle ‘first come, first served’ applies. The priority of charging each vehicle changes again once one vehicle is fully charged, or is no longer connected.

## SYSTEM OVERVIEW

In this part in ZapCloud, you find the overview of all charging points in real time in the current status. The information reported includes the present electricity consumption, divided between the different phases. The system overview also shows which vehicles are already charged.

## LOAD STATISTICS

Graphical presentation of kWh consumption for the total charging system and individually for each charging station.

## CHARGING REPORT

Table of actual consumption for each charging station or user, with information about the number of charging sessions, the time the vehicle was connected and the total electricity consumption in kWh.

## DETAILED COST SPECIFICATION

With the ZapCharger Pro charging point, you get a detailed overview of the current consumption and the costs to the user. The invoicing can be adapted to the system’s specific needs, for example, with a calculation in which a fixed cost factor for the system is included, in combination with the costs for each kilowatt-hour (kWh) supplied. The costs can be charged on by making use of users or visitors, for example by making a connection to Easy Park’s parking app. The ZapCharger Pro is suitable for the Open Charge Point Protocol (OCPP). Thanks to this protocol, communication can be realised between the ZapCharger Pro and back-office systems.

For each charging point, you can read out the energy supplied via a built-in energy meter. The system admin can generate consumption reports for each charging point or each user, in order to divide up the costs accurately based on the consumption.

If the charging point is shared with multiple users, authentication can be set up with RFID or the ZapCharger app to obtain individual charging histories. This also offers the option of granting special access to particular users.

## USER REGISTRATION

Each charging station can be linked to a ‘user profile’. The ‘Administrator’ has the option of inviting new users via e-mail.

## USER GROUPS

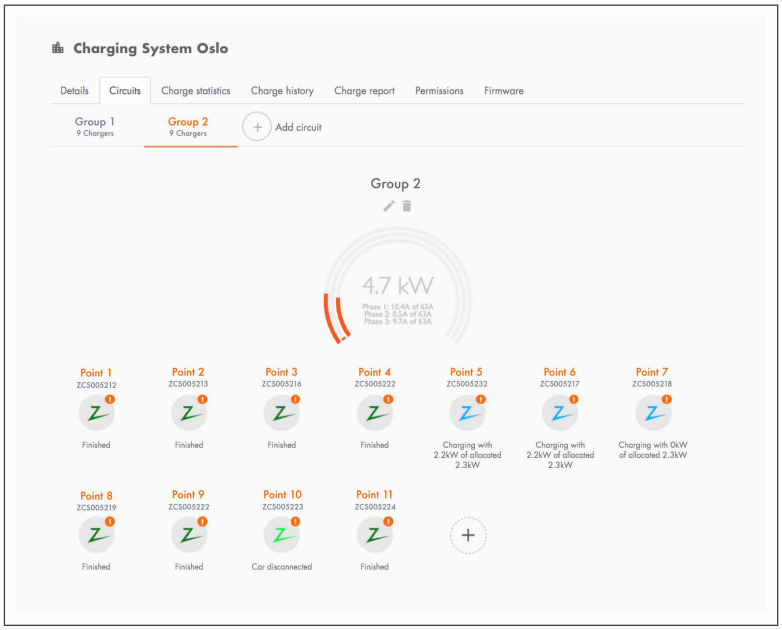
This makes it possible to combine ‘open for guests’ and ‘closed, for private use’ in one charging system.

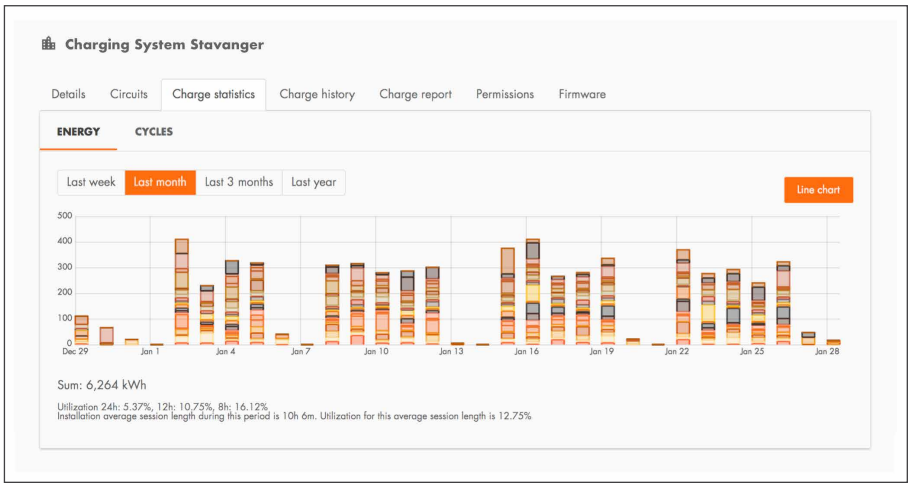
## COMMUNICATION IN CASE OF FAULT

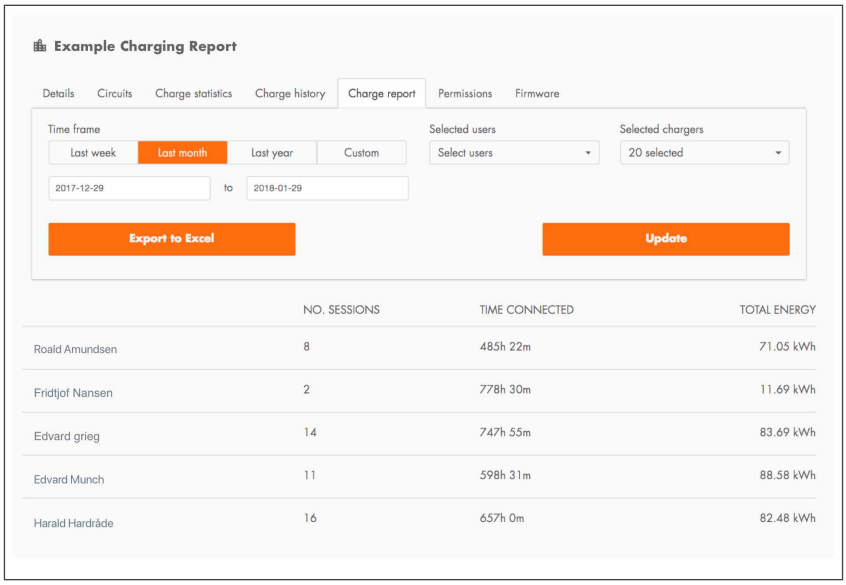
Contact can always be made with the ZapCharger Pro charging point via the ZapCloud. This also applies if there is a fault. A charging point can always for example be started up remotely.

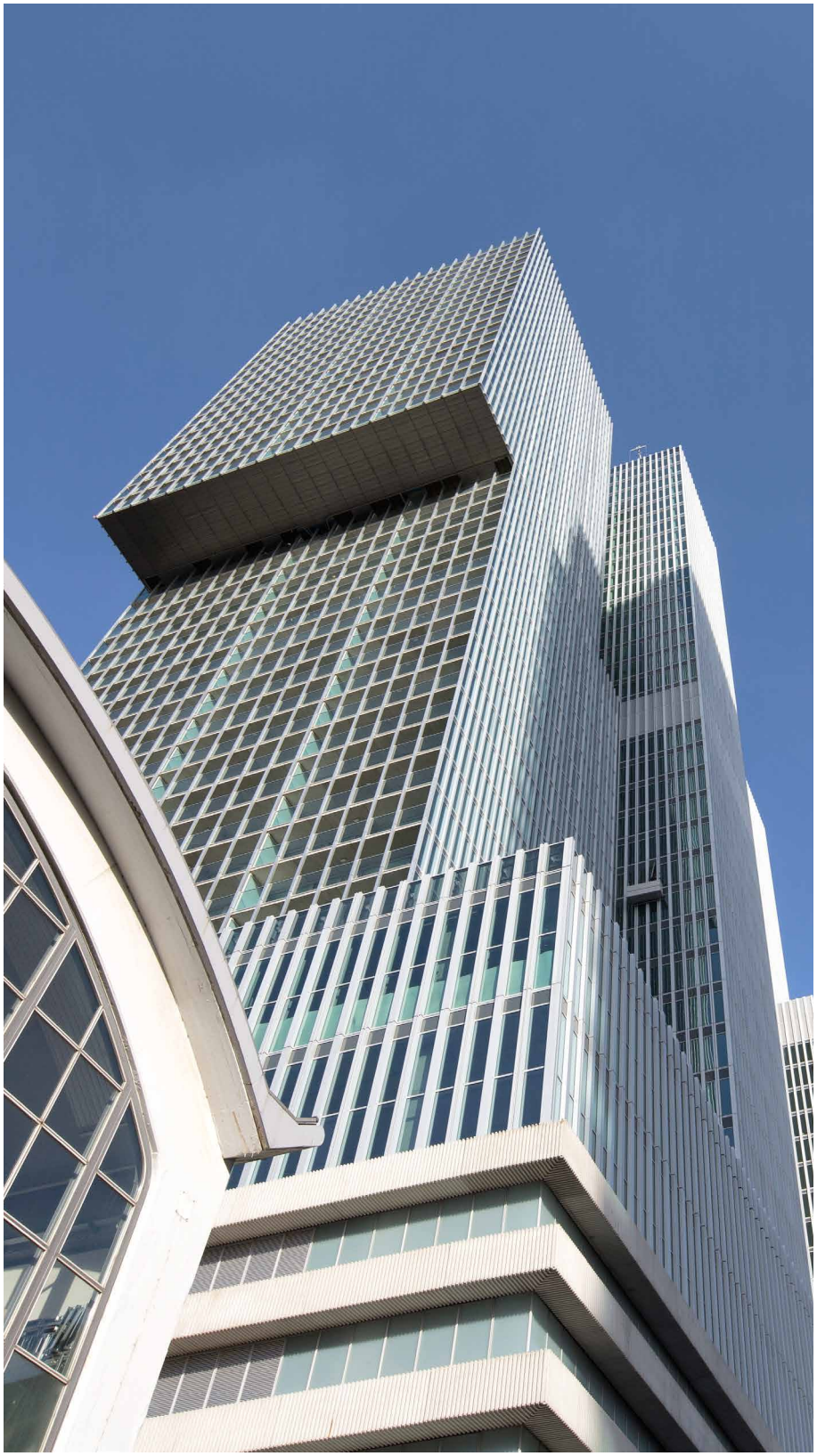
## FUTURE UPDATES

Just like the ZapCharger Pro charging point, the ZapCloud web portal is a live product that is continually provided with updates and improved functions. Updates for the basic package are free. The activation of options such as energy-saving, reservation and integration with other software is in general made available at cost price.





# SMART BUILDING

The use of smart technology is making buildings ever more efficient and sustainable. System integration, in which the various building systems are used within one overarching building information system, is the basis of a Smart Building. The ZapCharger Pro, the world's smartest charging point, can play a major role in this. Connections can be made with other systems that can for example display the ZapCharger Pro's status and control it remotely. Another possibility is energy efficiency in your building by means of a connection between your main distribution unit and the ZapCloud, in order to achieve a better balance, or more insight. Or what about external batteries, as extra sustainable energy, to charge your electric vehicles? These are just a few of the many smart technological connections that can be realised with Qcharge. This is what we mean by 'smart charging'.

## SUITABLE FOR OCPP

The ZapCharger Pro is suitable for the Open Charge Point Protocol (OCPP), a protocol that describes how the communication between the charging point for electric vehicles and a back-office system is to take place. OCPP ensures that different systems can communicate with each other in a uniform way. By means of pre-programmed APIs, connections can be made with other systems.

Very soon, the ZapCharger Pro will be suitable for the Open Charge Point Interface (OCPI).

The ZapCharger Pro has been designed to the most stringent requirements: safety guaranteed! The charging point is approved to TÜV and associated European standards.

The 40 A type C MCB, energy meter, residual current device and temperature sensors are all already built into the charging point. Also, over-current and over-voltage checks are present to guarantee the highest safety level for both the user and the electricity grid. The type 2 connection, the international standard for the charging of electric vehicles, can withstand high loads.

In case of a fault, the ZapCharger Pro charging point will no longer supply the electric vehicle concerned with current. The other charging points will simply remain in operation.

# SAFETY GUARANTEED

## COMPARISON OF TRADITIONAL CHARGING SYSTEM WITH QCHARGE TOTAL CONCEPT

| Traditional charging system | Qcharge total concept |
|---|---|
| Charge two vehicles (100% EV) with a 63 A system in theory. | Charge 100 vehicles (100% EV) with a 63 A system in theory. |
| High installation costs. | Low installation costs (25% cheaper). Moreover: add an extra charging point later, by pre-installing backplates. |
| Ordinary charging system. | Charge up to 3x as many electric vehicles. Capacity requirement of charging points can thus reduce by 90%. |
| Static charging solution (load-balancing is static). | Dynamic charging. Fully automated load-phase balancing. |
| Extra technology to be built into the installation separately: electrical protection, energy meter and residual current protection. | Technology already built into the charging point: integrated electrical protection, energy meter and residual current protection. |
| Phases are loaded asymmetrically, with result: much capacity loss and high peak loads. | Phases are loaded fully symmetrically: no capacity loss, peak loads smoothed out. |
| Not suitable for automatic distribution of available power over multiple charging points. | Suitable for automatic distribution of available power over multiple charging points. |
| Different types of charging point for different electric vehicles. | One type of charging point for all and future electric vehicles. |
| Charging unit is not prepared for future communication protocols from the electric vehicle. | Only a software update needed in the charging point to allow it to communicate with electric vehicles. |
| Possibility to connect two electric vehicles to one charging point. | New generation of charging points: always one connection to the charging point. |
| Costs for cloud solution. | No costs for cloud solution (ZapCloud). |
| 1-2 years' product guarantee. | 5 years' product guarantee. |

# TRADITIONAL VERSUS QCHARGE

SAVE
**25%**
ON INSTALLATION COSTS

Because you only need one installation and one single supply cable.

CHARGE UP TO
**3X**
AS MANY ELECTRIC VEHICLES

Compared with traditional solutions: your capacity requirement can thus reduce by up to 90%.

**FREE**
SUBSCRIPTION TO ZAPCLOUD

Unique in the market!

**ONE TYPE**
OF CHARGER SUITABLE FOR ALL VEHICLES

## ALL-IN-ONE
### EVERYTHING IN ONE HOUSING

Electrical protection built into charging point (or charging post): 40 A type C MCB, energy meter and residual current device.

## STANDARDS
### ALWAYS A FIRM FOUNDATION

Approved to TÜV and associated European standards.

## SIMPLE INSTALLATION

Straightforward and highly compact electrical installation with flexible Qneqt flat cable.

## FLEXIBLE

Expand flexibly to 100 EV chargers on one 63 A circuit.

**FIVE YEAR**
PRODUCT GUARANTEE

# ADVANTAGES OF QCHARGE TOTAL CONCEPT

# COMMUNICATION

## OVER POWER LINE AND/OR WI-FI

Always the best solution for your application.

# ZAPCLOUD

## AN EFFICIENT CLOUD PLATFORM FOR CONFIGURATION, CONSUMPTION MEASUREMENT AND CONNECTION TO OTHER SYSTEMS

# YOUR PROPERTY PREPARED

Prepare your property!
You can determine to what extent:
100%, 90% or 70%.

# FUTURE-PROOF

Prepare for the future, by working with the flexible Qneqt flat cable and the use of the backplates for the charging points.

# SMART SOLUTION

## AUTOMATIC DISTRIBUTION OF AVAILABLE POWER OVER MULTIPLE CHARGING POINTS

Thanks to the dynamic load-phase balancing, the phases are always symmetrically loaded and peak loads are smoothed out. Thanks to this there is no voltage drop.

# SMART BUILDING

## CONNECTIONS WITH BUILDING MANAGEMENT SYSTEMS

By means of pre-programmed APIs, connections can be made with other systems.

## TRAINING COURSES

Eleqtron can arrange a training course for you, so you can realise an optimally operating Qcharge system.
We can also advise you as regards the options for management and control of your charging points.
We deliver these courses to installers, support managers and building administrators, for example.

**ZapCharger Pro charging point**
Item number ZM000437

**Backplate for ZapCharger Pro**
Item number ZM000438

**RFID tag with Zaptec logo**
Item number ZM000473

**PLC communication module**
Item number ZB100055

**Charging post excluding ZapCharger Pro charging point, standard type**
Item number ZM000453

**Charging post excluding ZapCharger Pro charging point, standard type for mounting two units**
Item number ZM000454

**Charging post excluding ZapCharger Pro charging point, premium type**
Item number ZM000415

**Charging post excluding ZapCharger Pro charging point, premium type for mounting two charging points**
Item number ZM000266

## AVAILABLE SOON

A charging point suitable for ceiling mounting (excluding ZapCharger Pro charging point) will be available soon.

# ZAPTEC PRODUCTS

Qcharge

**Flat cable type 5G16**

**Flat cable 5G16, PVC**
Item number 49605
**Flat cable 5G16 hv, halogen-free**
Item number 49606

**Connection box for 5G16 flat cable**
Item number 49615

**Connection box 2 x 6mm²/1 x 10mm² for 5G16 flat cable**
Item number 49616

**End piece for 5G16 flat cable**
Item number 49630

**Cable saddle for 5G16 flat cable**
Item number 49634

Within the Qcharge concept, we work with Qneqt flat cable, which is available in ratings of up to 63 amps. Of course, flat cable with a lower current rating is also available.
This flat cable, from the Swiss manufacturer Woertz, gives you an extremely flexible form of energy distribution. The unique engineering means for instance that a branch can be screwed onto a cable relatively easily. Wherever you like.
There is also the advantage of a prefab product: immediate, uncomplicated installation.

## ADVANTAGES

- Simple to expand later on
- Very flexible concept, branch off where needed
- Takes up little installation space
- Cable is flexible: easily follows vaulting or trusses in a parking garage
- Handy prefab solution

In some applications, the use of conventional cable or bus bars (bus conduits) is recommended. Eleqtron can advise you about this.

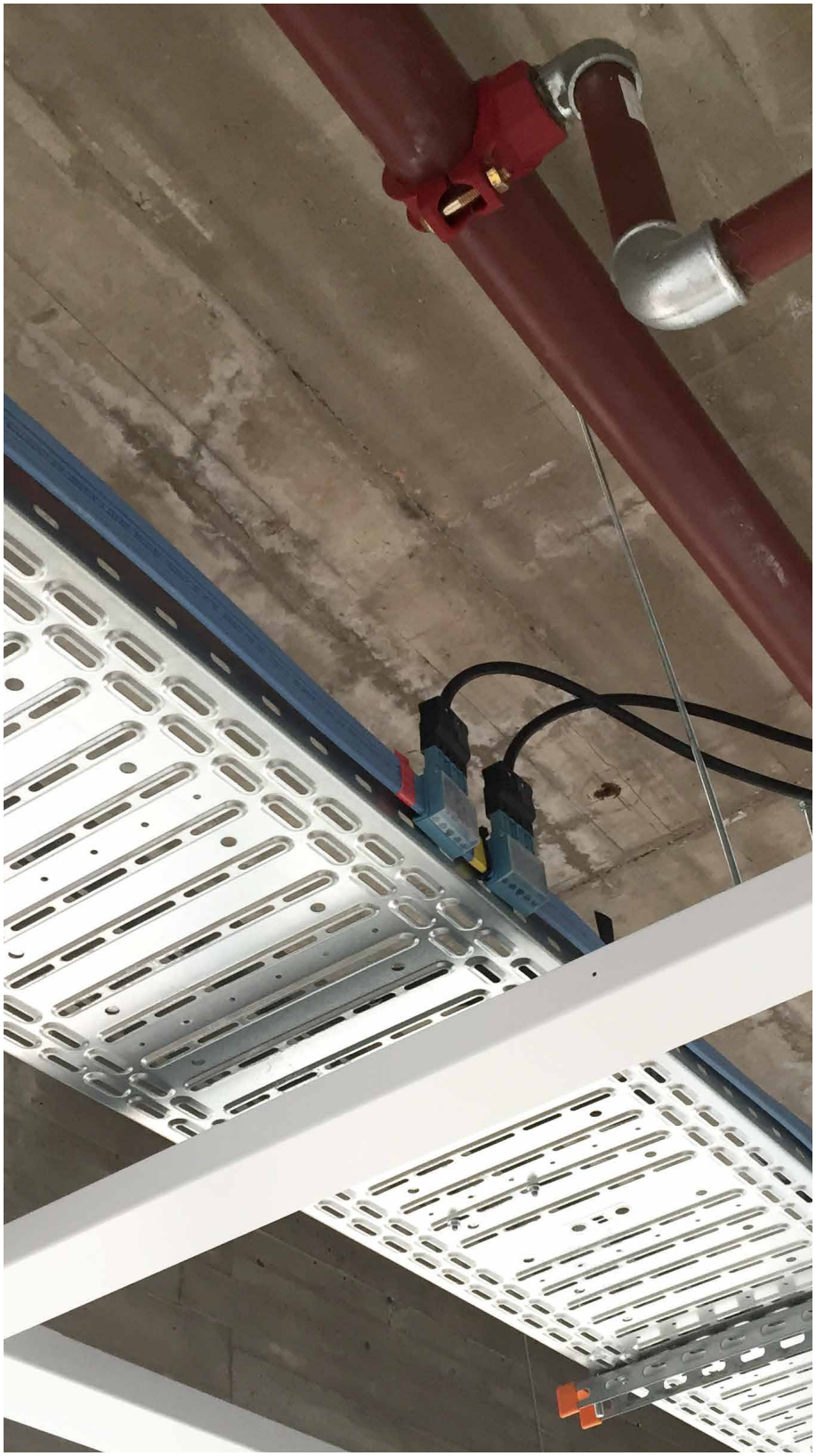
## ONLINE CATALOGUE

Eleqtron has an Online Catalogue on our website.
You can always find an up-to-date overview of the products available here.

## OTHER PRODUCTS FOR PARKING GARAGES

Eleqtron products such as LED lighting, lighting control units and presence detectors are also widely used in parking garages. These allow you to achieve huge energy savings. We would be glad to advise you on these.

# FLAT CABLE Qneqt



## FLEXIBILITY

- Simple to install
- Rapidly available
- Straightforward to connect to other systems (Smart Building)
- Applicable in new construction, renovation and existing buildings

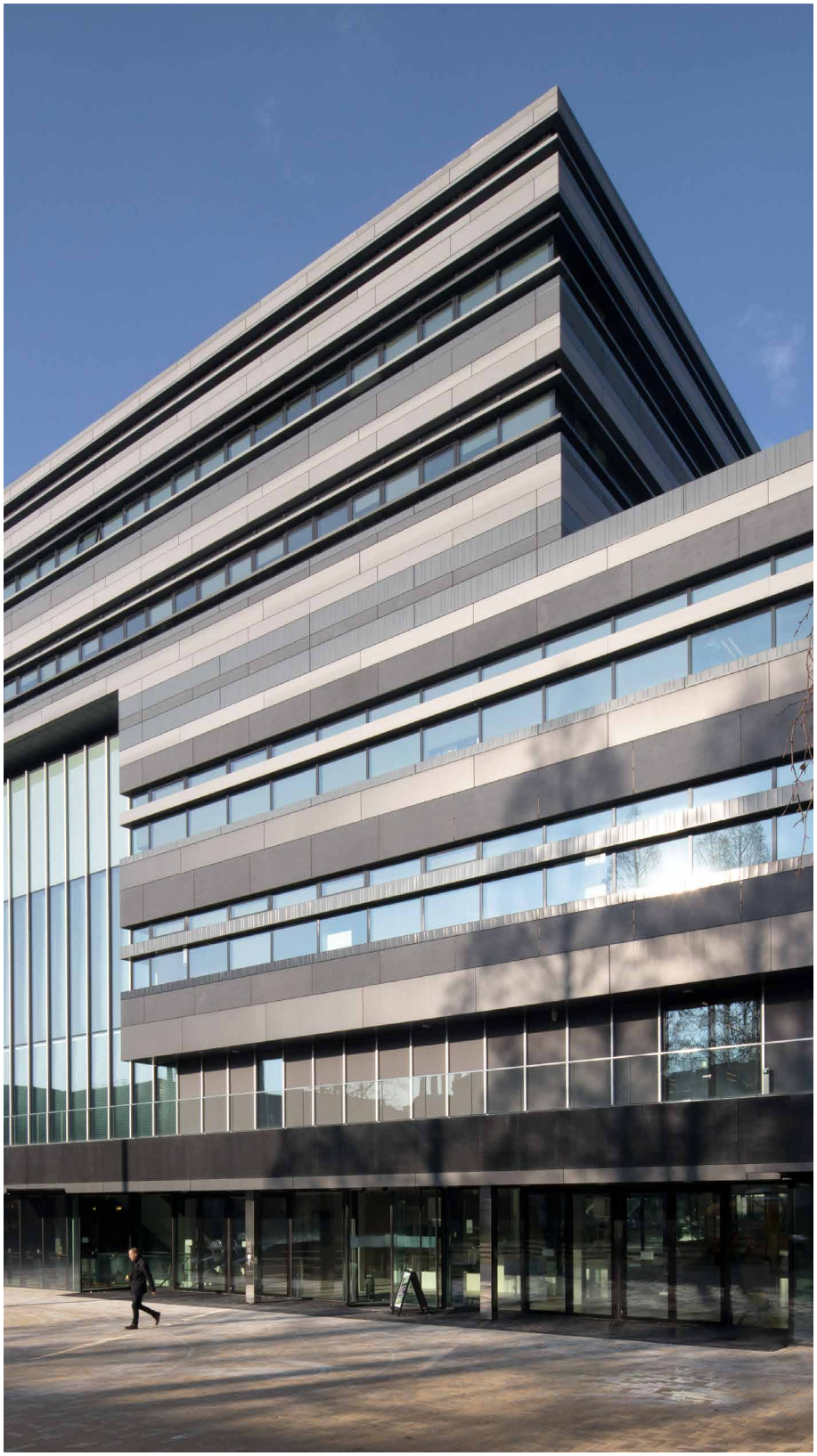
## COSTS

- Save 25% on installation costs. Because you only need one installation and one single supply cable
- Simple and very compact electrical installation with flexible Qneqt flat cable

## FUTURE-ORIENTED

- Electrical protective devices built into charging point (or post): 40 A type C MCB, energy meter and residual current device
  Everything in one housing!
- With ZapCloud, you have an efficient cloud platform for configuration, consumption measurement and connection to other systems
- Communication over power line and/or Wi-Fi
- Approved to TÜV and associated European standards
- Product guarantee of no less than 5 years
- Can be linked to a service contract

# ADVANTAGES FOR INSTALLER



## FLEXIBILITY

- Expand flexibly to 100 EV charging points on one 63 A circuit
- Charge up to three times as many electric vehicles compared with traditional solutions: your capacity requirement can thus reduce by up to 90%
- System under your own management, rather than for each user separately
- One type of charger suitable for all vehicles

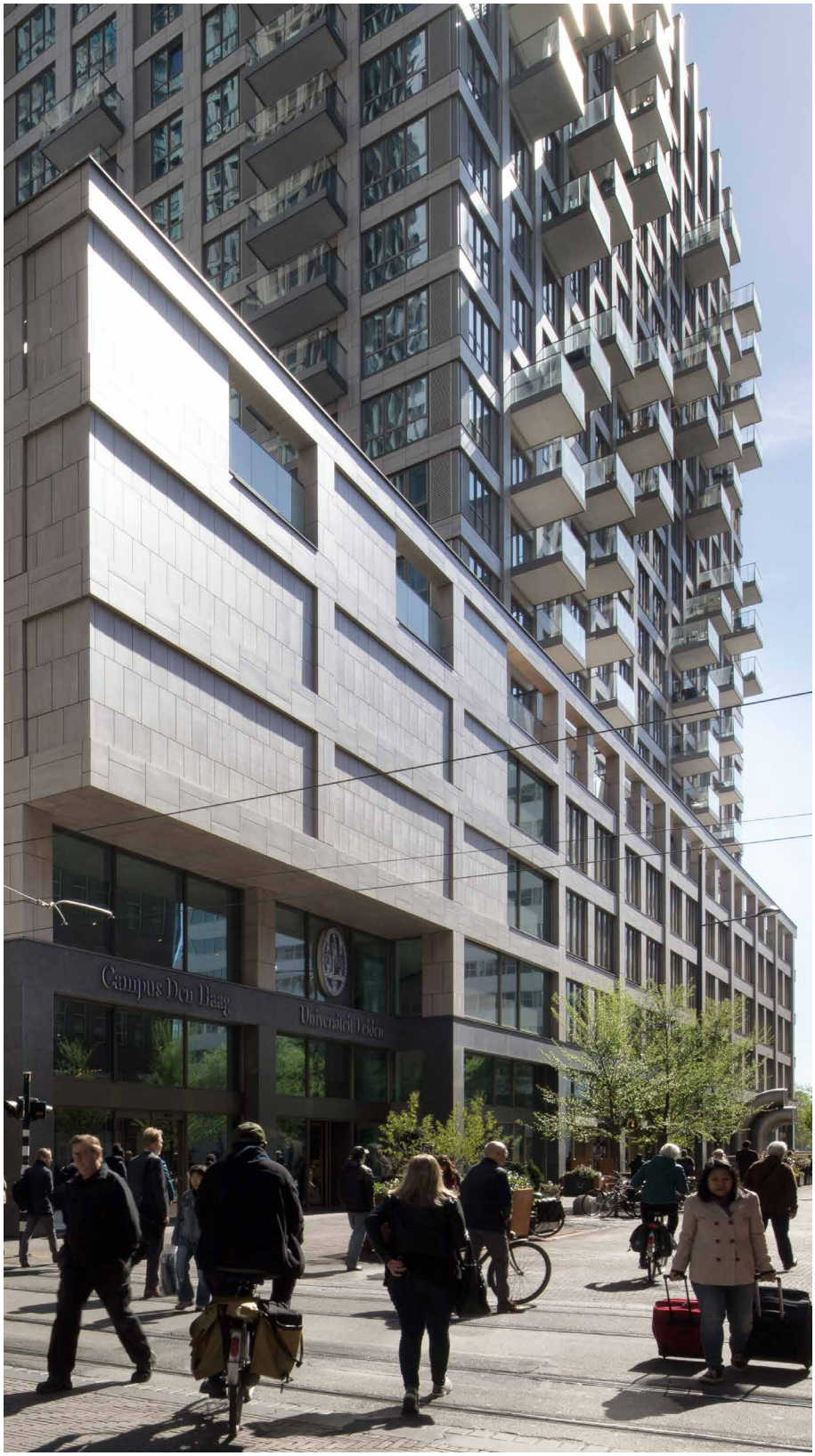
## COSTS

- Save 25% on installation costs. Because you only need one installation and one single supply cable
- Smart solution: automatic distribution of available power over multiple charging points. Thanks to the dynamic load-phase balancing, the phases are always symmetrically loaded and peak loads are smoothed out
- No extra costs for ZapCloud solution

## FUTURE-ORIENTED

- Prepared for the future, by working with the flexible Qneqt flat cable and using backplates for the charging points
- Electrical protection built-in to charging point (or post): 40 A type C MCB, energy meter and residual current device Everything in one housing!
- With ZapCloud, you have an efficient cloud platform for configuration, consumption measurement and connection to other systems
- Approved to TÜV and associated European standards
- Product guarantee of no less than 5 years
- Continually provided with updates for improved functions
- Straightforward to connect to other systems (Smart Building)

# ADVANTAGES FOR PROPERTY MANAGEMENT




## CASE STUDY

During the design phase of a new apartment complex, it was decided to double the number of charging points from 35 to 70. Eleqtron has recommended a Qcharge system within the existing design, with five circuits provided with 63 A Qneqt flat cable. By this means, the system is future-proof for up to 70 electric vehicles. The expansion can happen simply by siting a branch box in every desired position. This therefore gives the system with 35 charging points spare capacity of 56%. Even with 70 charging points, there is still a spare capacity of 13%.

## ADVICE

A Qcharge total concept is always customised. This applies to you as installer, property manager or interested party in an owners' association (in Dutch, Vereniging van eigenaars, VvE).

## SUPPORT

Eleqtron offers support and maintenance for the Qcharge total concept. We do this in close consultation with the installer.

Please contact us for more information or for an appointment.

# CASE
# ADVICE & SUPPORT

## CONTACT

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