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ETREL HOMECHARGER G5

ELECTRIC VEHICLE CHARGING STATION

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SCHEDULED MODE OR FAST CHARGING MODE.

AT THE TOUCH OF A FINGER.

Etrel's charging station offers EV users fast, smart and simple charging of any standard electric vehicle. The station is equipped with a standard AC charging socket or cable and supports single-phase or three-phase charging with power up to 22 kW. You have a choice of two charging modes – fast charging with all available power or scheduled charging that follows the charging plan you have set in the station's web interface. The charger connects to your communication network with an Ethernet cable to enable access to its web interface from any device with a web browser.

Smart Charging

An essential part of Etrel Homecharger is the dedicated software for the control and monitoring of EV charging. The web interface, which can be accessed from your favourite web browser, allows you to monitor the charging process, create useful reports (for example of your past energy consumption, costs, and CO2 footprint), set custom charging plans or limit the charging power. You can even manage charging power in accordance with your charging needs, electricity price, electricity use of other consumers in your home network and any smart grid programmes you might be taking part in.

Performance Meets Style

With its compact dimensions, Etrel Homecharger is one of the slimmest on the market. The minimalistic touch interface lets you easily control your charging and instantly switch between charging modes with just the touch of your finger. LED icons clearly show you the current charging status and warn you of any potential problems. Two distinctive designs (Pure and Minimal) give you a choice to upgrade your garage with style.

Support for Multiple Users

When installed on a publicly accessible location, the charging station can be locked and its use limited only to authorised users with the right RFID cards. The station's service area is also physically locked, allowing access to its interior only to maintenance professionals. Operators of several Etrel charging stations on the same location (for example in a parking garage) can connect them into unified communication and energy clusters to reduce system demands and costs.

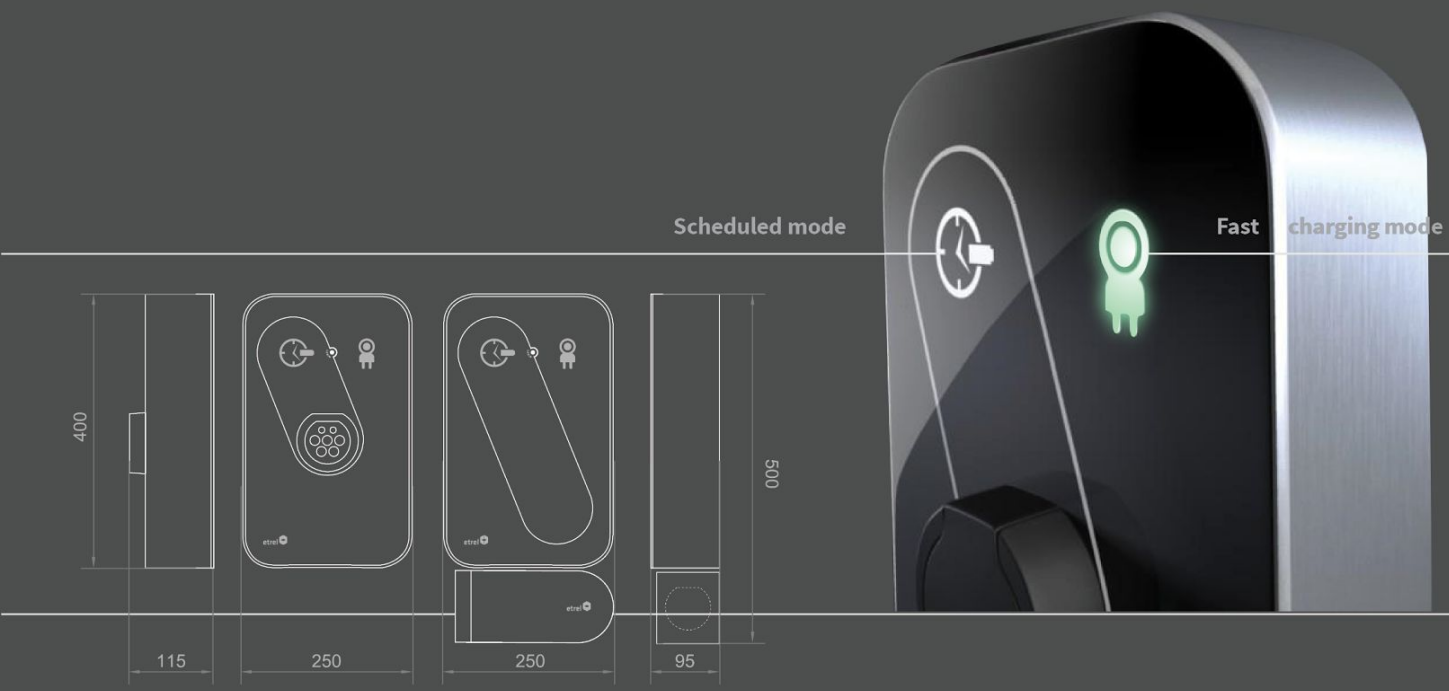
Number of charging spots	1
Type of charging spot	- 7-pole IEC 62196-2 Type 2 socket (EU standard) - Tethered charging cable with IEC 62196-2 Type 2 plug (EU standard) or SAE J1772 plug (Japan-USA standard)
Charging mode	AC single- or three-phase charging
Output power	from 3 to 22 kW
Output current	up to 32 A per phase (can be limited in the web interface)
Output voltage	230 V single-phase or 400 V three-phase (+5 %, -3 %)
Electrical protection	Overcurrent, differential (30 mA) and calculated (current measurement, contactor welding, etc.)
Grounding type	Support for different systems: TN-S, TN-C, TN-C-S and TT (under special conditions)
Supply cable	three- or five-wire cable up to 10 mm^2
Metering	Embedded smart electricity meter
Communication	Ethernet connection to local communication network
User authorisation	»Plug & Charge« or RFID card identification
Station locking	Special lock and set of keys included
Configurability	Setting can be changed in the web user interface, used also for control of charging, monitoring, and reports

Simple Installation and Maintenance

Due to its high level of IP protection, Etrel Homecharger can be installed anywhere and can endure even the most unfavourable weather conditions. The station is mounted to the wall with a special mounting bracket that is delivered together with the charger. It can also be installed on a dedicated self-standing pedestal. Easily accessible service doors at the bottom of the station can only be unlocked with a special key and allow you to quickly check the status of protection devices. To keep your charger up to date, you can always download the latest firmware updates directly through the web user interface.

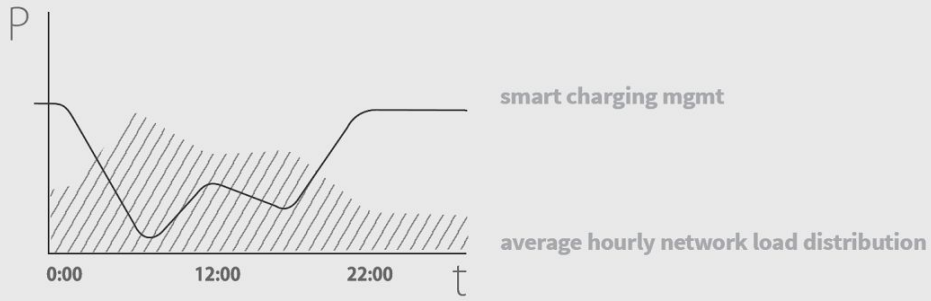
Safety and Standards

The station is equipped with overcurrent and ground fault protection devices and constantly monitors their status. No voltage is present in the charging socket or cable until your vehicle is properly connected and ready to start charging. The charging socket has complete electrical protection and can monitor the charging coupler connection status. In case of power outages, the charging process continues automatically once the power supply is reestablished. The charging station fulfils all electromagnetic compatibility requirements and is compliant with the IEC 61851 standard.



SCHEDULED CHARGING MODE CUSTOMISABLE VIA APP.

STATUS AND SETTINGS FROM THE COMFORT OF YOUR COUCH.



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ETREL G6

CHARGING STATION FOR ELECTRIC VEHICLES

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COMPACT, POWERFUL, AND COST-OPTIMISED SOLUTION

BASIC FEATURES

The public charging station from Etrel is highly configurable and can be tailored to the specific needs of your business. It allows simultaneous charging of two vehicles with power of up to 2x22 kW and can be equipped with any standard type of AC charging sockets. Smart energy meters as well as all optional utility feeder equipment are embedded in the station. The station is equipped with an RFID identification module, which prevents unauthorised use.

MODULAR STRUCTURE

The station is designed to be easily installed and seamlessly incorporated into any environment. Its modular structure allows future upgrades and simplifies the maintenance process. Its vital parts are protected from weather and vandalism with a robust enclosure that is locked and easily accessed by the maintenance staff. The charging station can be additionally protected with a pair of steel railings. Appearance of the station can be adjusted to correspond to your visual identity.

ADVANCED CHARGING

Charging station operators and electromobility service providers can rely on Etrel's charging stations to fully support their electromobility business models. With the open protocol connection to the charging infrastructure control centre (OCPP), the station supports user identification, reservation of charging spots, and remote power management.

USER-FRIENDLINESS

The intuitive multi-lingual interface leads the EV user through the whole charging process. Current status of ongoing charging processes is clearly displayed on the LCD screen, while the different colours of LED lighting of the charging sockets (available as an option) make sure that the availability of the charging station is clearly visible to all passing drivers. The ergonomic design makes the charging station simple and easy to use, maintain and operate.

choose practicality.

Number of charging sockets:	2 sockets for simultaneous charging
Socket type:	Three or single-phase 7 pole IEC 62196-2 Type 2 Mode 3, with optional lid locking and LED signalization
Type of charging:	AC charging single or three-phase
Output power of each socket:	Up to 22 kW per socket
Output current of each socket:	Up to 32 A per socket (per phase)
Output voltage:	230 V single-phase or 400 V three-phase
Electrical protection:	Overcurrent, differential (fast RCD), overvoltage (optional), and software protection (current measurement, contactor welding, etc.)
Grid connection:	All grid connection point equipment can be installed inside the station - no need to install a separate cabinet
Dimension of supply power cable:	Up to 16 mm2
Energy metering:	Embedded smart energy meter for each socket
Communication::	Ethernet (standard) or GSM (optional)
User identification:	RFID identification (13,56 MHz, supports smart cards compliant with ISO/IEC 14443 A and ISO/IEC 15693 standards)
User interface:	LCD display on the station
Locking:	Robust single point locking system with front side opening of service doors
Enclosure:	Robust single point locking system with front side opening of service doors
Installation:	Stainless steel, powder coated with anti-graffiti coating
Installation height of charging sockets:	1105 mm

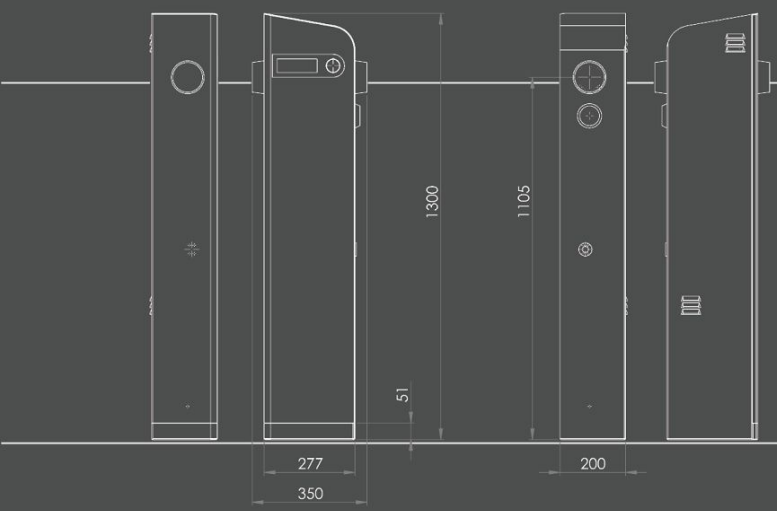
COMMUNICATION AND REMOTE CONTROL

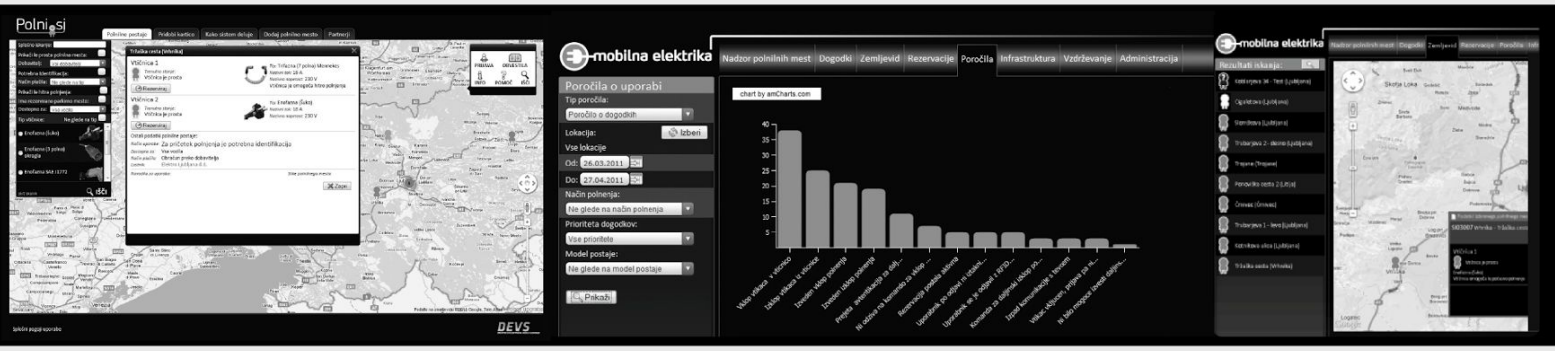
The charging station connects to the charging infrastructure control centre via high-level TCP protocols, which enables effortless integration with customer's legacy systems. Each station sends live status updates, handles user authorisations, and receives charging plans, instructions for operation, and reservations. The station can respond in real-time to power management commands from the operator.

Communication with the control centre uses web services and is carried out via a GSM network or an existing local communication network. In clusters of charging stations, a single master station can act as the main communication gateway for the whole cluster to reduce system demands and costs. All stations can be remotely parameterised or updated with the latest firmware.

SAFETY & STANDARDS

The station is equipped with overcurrent, differential and ground fault protection devices and constantly monitors their status. No voltage is present in the charging sockets until the vehicle is properly connected and the user successfully authorised. During charging, the cable is locked into the socket. Optionally, the socket's lid can be locked whenever not in use. The charging station achieves level 54 IP and 08 IK protection and is compliant with the IEC 61851 standard.





CONTROL CENTRE
FOR CHARGING INFRASTRUCTURE OPERATORS

Open multi-level architecture

Control centre comprises communication, data, and application servers. Communication with charging stations takes place on the lowest level. Industry standard protocols (e.g. OCCP, etc.) are supported to allow bi-directional communication with a large number of charging stations from various manufacturers. The middle level supports and optimises operator's internal processes; the highest level is represented by communication with other actors in the electromobility ecosystem.

Real-time handling of data, reservations and EV user requests

The online interface displays locations of all charging stations in a single list or on a map and shows real-time data about their operation and current status. The centre also handles user authorisation requests, reservations and transfers billing data. A list of all charging events is created automatically. Charging stations can be remotely controlled, parameterised or updated with the latest firmware. The built-in asset management functionality allows management of charging stations' technical data and dynamic upgrades of the charging infrastructure.

Automated operation

The system can operate automatically with almost no need for manual intervention and constant monitoring of charging infrastructure. Communication with charging stations can be performed automatically or initiated on demand. In the event of malfunctions or other charging events, the system automatically notifies the maintenance crew.

Reports and maintenance of infrastructure

An in-depth analysis of charging infrastructure usage and energy consumption quickly identifies the most and least utilised charging stations, allowing the operator to plan the future investments accordingly.

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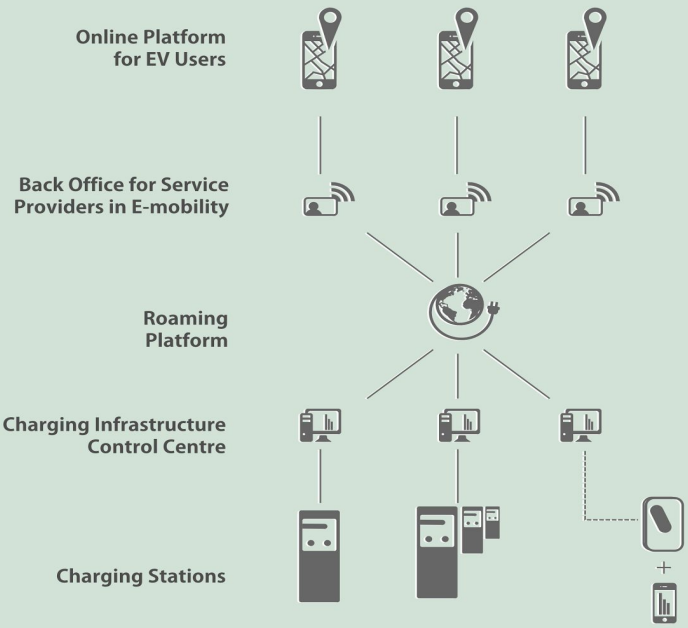
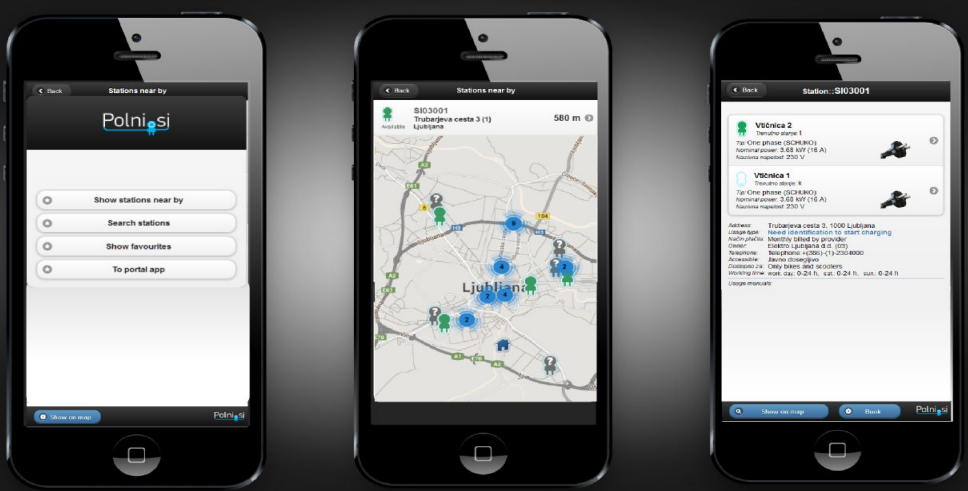




etrel ONLINE PLATFORM

Online Platform for EV Users

Interactive map with charging stations
Current charging status
Reservations
Charging reports and bills
Optimised for mobile use

Back Office for Service Providers in E-mobility

Integrated CRM and information office
Authorisation & billing of EV users
Reports and statistics on users

Roaming Platform

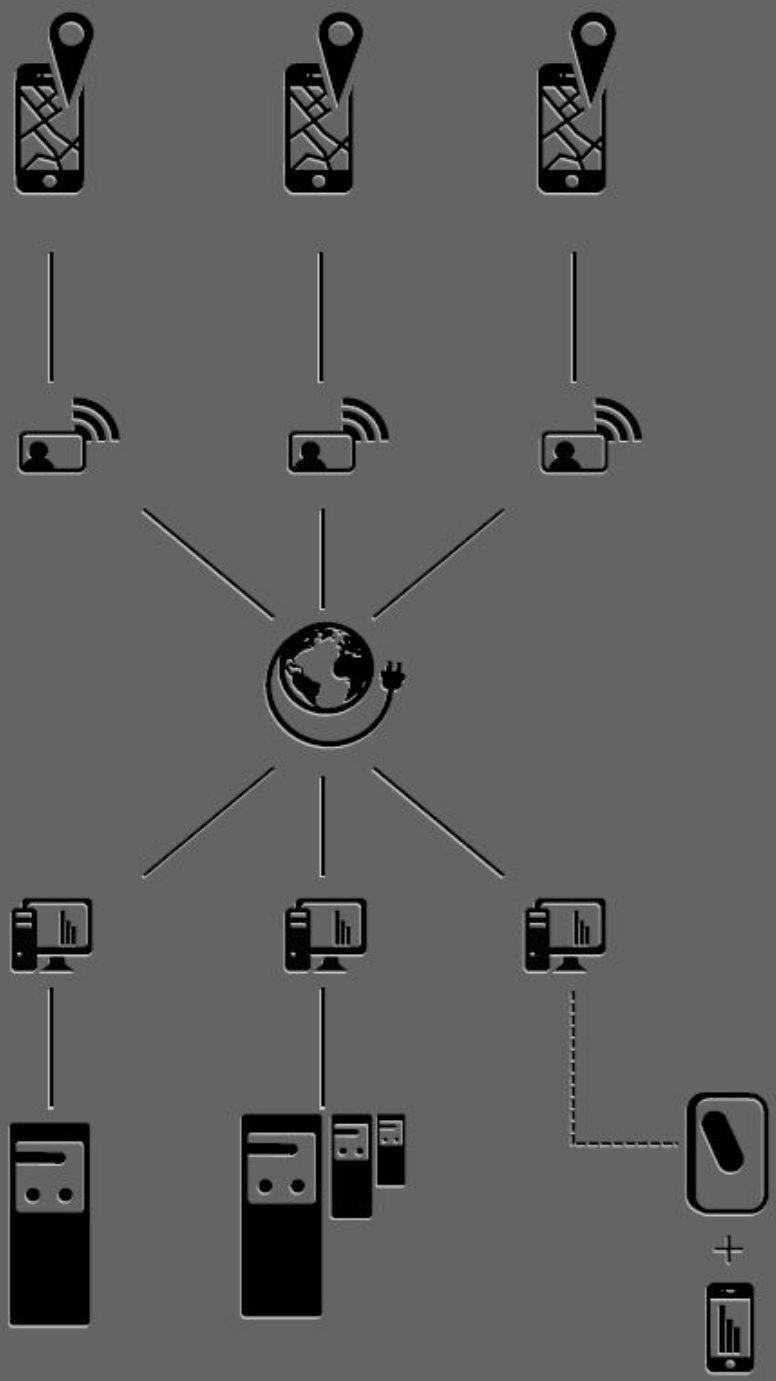
Exchange of user authorisations
Exchange of billing records
Roaming reservations
Synchronisation of charging session records

Charging Infrastructure Control Centre

Control infrastructure
Power management
Reports and statistics on usage
Asset management & maintenance
High&low level communication

Charging Stations

Home, public, and semi-public installations
Remote control
Clustering
Intelligent power management



AN
OPEN PLATFORM FOR EV ROAMING PARTNERSHIPS

GLOBAL SERVICE PROVIDER ROAMING IN ELECTROMOBILITY

The roaming system allows EV users to use all charging infrastructure with one single contract with their service provider. To do this, a Global Service Provider (GSP) is introduced to mediate between all participating charging infrastructure operators and electromobility service providers. The GSP acts in two roles: it serves as a communitation gateway between all other roaming parties and as a clearing house where all financial transactions are handled. For instance, the GSP is able to transfer user identification requests, charging data, and billing data in real-time, keep a unified log of all these data, and maintain a register of valid roaming contracts (between charging infrastructure operators and electromobility service providers). GSP also ensures that a system of unique identification codes of all business entities is implemented and observed on the highest level. It does that by assigning and validating unique identifiers for all participating electromobility business entities as well as for all charging stations on the field.

Etrel can implement an instance of the roaming system with a GSP on a regional, national, or transnational level. All instances of GSP are then part of the same hierarchic structure and do not overlap. On the level of newly participating market players, Etrel's system integration team develops and implements communication interfaces that enable connection to the roaming platform. This allows a seamless integration of roaming into the client's existing business environment.