![ElectroAir - Quality and Innovation]

# CHARGING STATIONS
## ONE-STOP SOLUTION

# You are well connected!

MADE IN ESTONIA

ElectroAir

100 kW

EV CHARGER

# ELECTROAIR

"Today we power for a Green Technological Future"

Aleksei Snitsarenko, CEO

We are an Estonian manufacturer of electric vehicle charging stations committed to establishing a robust and accessible charging infrastructure that accelerates the widespread adoption of electric vehicles, contributing to a sustainable and greener future.

Leveraging our extensive expertise in manufacturing service equipment for aviation, we oversee every step of the production process, from planning and design to commissioning and client support. With our comprehensive workflow, you can trust us to deliver reliable and efficient EV charging solutions tailored to your needs.

## 2006
Establishment of Company

## > 500
Clients all over the world

## 16 000 m2
Production area

## > 100
Countries we are producing for

## 13 M
Turnover 2023

## 100
Employees

## EUR 1    ISO 9001    ISO 14001
## ISO 45001

Certificates

**The best Estonian factory of the year**



**Product innovation of the year**



**Product design of the year**



**Investing to innovation activities**



# 2023

Recognition as **the best Estonian factory** underscores our steadfast dedication to manufacturing excellence, fueled by innovation, efficiency, and commitment to quality.

# 2022

The International Trade Council's Go Global Awards celebrated ElectroAir in nomination **Product innovation of the year** as one of the company which driving the economy forward through innovations, technologies and strategies.

# 2021

ElectroAir won the entrepreneurship Award as Design applier of the Year 2021 from Enterprise Estonia and Estonian government. And was recognized as top 10 Estonian companies in **Exporter and Innovator nominations.**

# 2020

Electroair is a proud member of **the community of entrepreneurs** who invest **more than 2%** of their companies' turnover or one million euros per year in **innovation activities.**
We are continuously developing and have achievements confirming our commitment to quality and innovation.

DESIGN

SUSTAINABLE
FUTURE

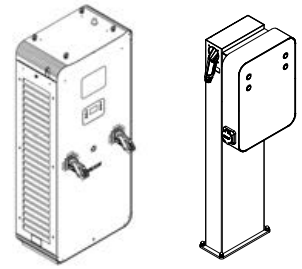SPARE PARTS

# WORKFLOW



MANUFACTURING

COMMISSIONING

CLIENT'S SUPPORT

## ELECTRIC VEHICLE CHARGING STATIONS

# EACHARGER

ElectroAir offers a diverse range of charging solutions tailored to the unique needs of electric mobility from 22 kW AC fast-charging to 600 kW High Power Charging DC models. Our products are suitable for various climates, including moderate, desert, or tropical regions. Each solution provides a wide array of add-on and customization options to meet specific requirements and comply with industry regulations and safety standards.

## Our Products:

- **EACharger AC**. Fast-charging solution for parking lots

- **EACharger DC**. Ultra-fast charging solution for urban areas and highways

- **EACharger HPC**. Lightning-fast charging solution for fleet depots

- **EACharger HUB.** Centralized solution with satellite units

# NEW! 4th GENERATION RELEASED!

IEC 61851

EN 61643

IEC 62196

CCS Combo

EN62052–11

EN62053

EN61010–1

ISO 15118

EN 50160

Directives 2014/30/EU, 2014/35/EU, 2014/53/EU

Real-time monitoring of charging progress, power levels, vehicle status, and charger status with reporting capabilities

Seamless backend integration, providing comprehensive charging process data for existing information systems or introducing new software solutions

Near-field communication (NFC) compatibility enables wireless authorization using smartphones, tablets, and other devices, alongside RFID

Easy setup and maintenance procedures for user convenience

Support for all connector types and charging protocols, ensuring compatibility with a wide range of electric vehicles.

Customization options available to tailor the unit to meet each client's specific requirements

Grouping functionality (DLM) facilitates remote data exchange with the backend server or direct data exchange within the local network
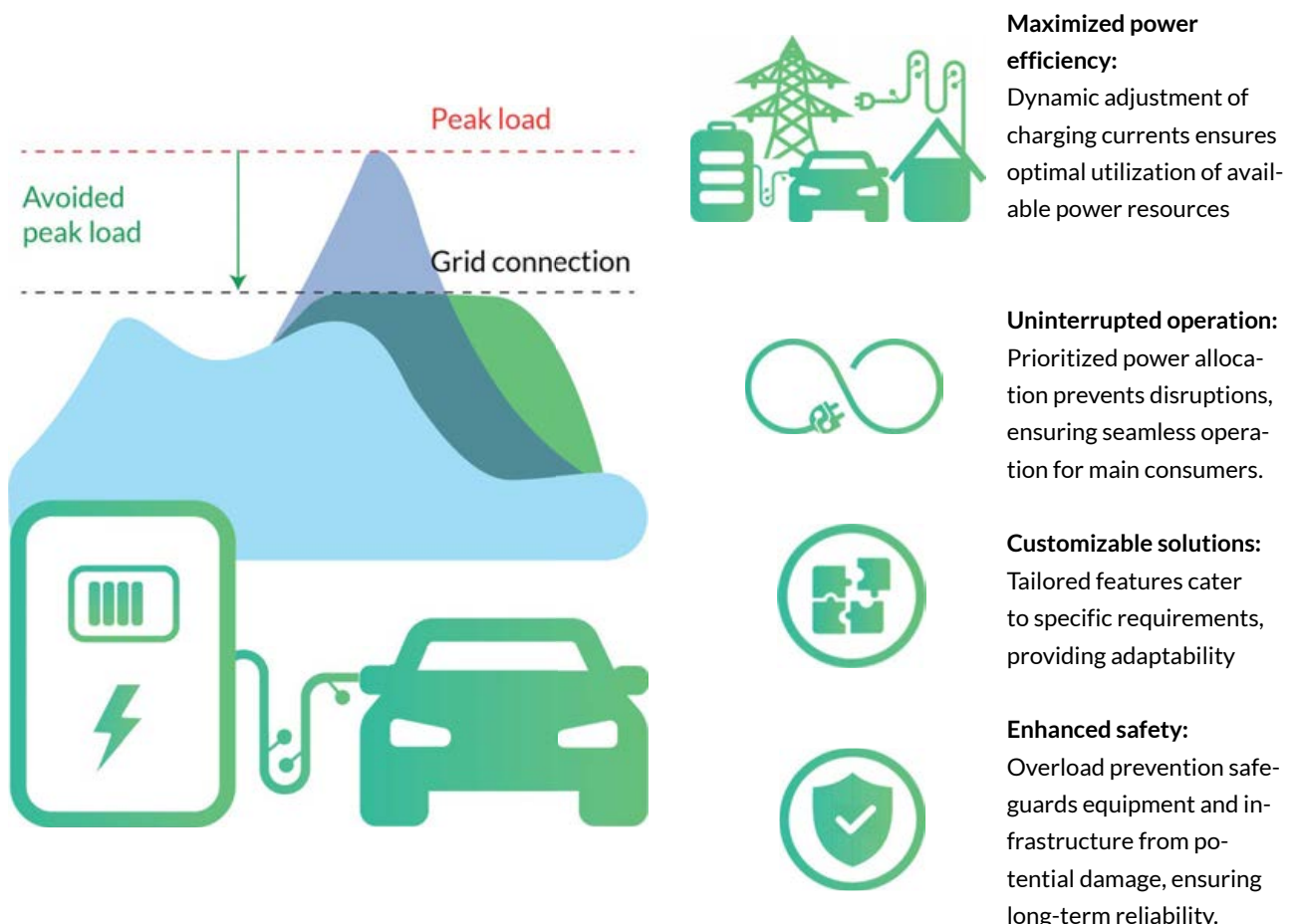
# DYNAMIC 1

DLM revolutionizes energy management with innovative consumption limiting and advanced algorithms, ensuring seamless operation in high-demand environments.

It prioritizes power for main consumers like commercial and institutional facilities while efficiently managing others, maximizing resource utilization and enhancing overall efficiency.

## How It Works:

Dynamic1 constantly monitors the total current from the substation and **adjusts charging currents** for secondary consumers in real time. By installing control system boxes and current transducers, Dynamic1 enables precise measurement and calculation of allowable current for secondary consumers, ensuring compliance with power limitations. This sophisticated system not only **optimizes charging efficiency** but also **protects the electrical grid** against overload, ensuring stable operation.
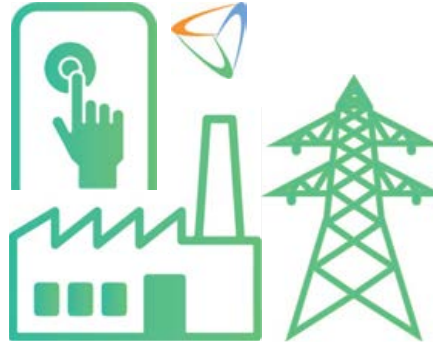
**Maximized power efficiency:**
Dynamic adjustment of charging currents ensures optimal utilization of available power resources

**Uninterrupted operation:**
Prioritized power allocation prevents disruptions, ensuring seamless operation for main consumers.

**Customizable solutions:**
Tailored features cater to specific requirements, providing adaptability

**Enhanced safety:**
Overload prevention safeguards equipment and infrastructure from potential damage, ensuring long-term reliability.

# BASIC TERMS

**Electric Vehicle Service Equipment**      **Market Players**      **Technologies & Smart Charging**
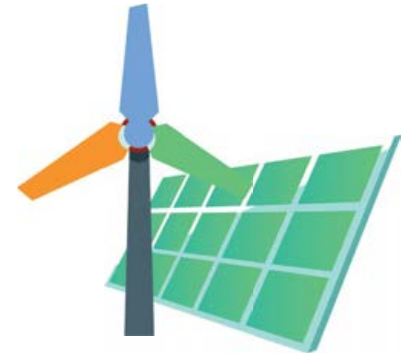
**AC —** Alternating Current Charger       **CPO —** Charge Point Operator       **DLM —** Dynamic Load Management

**DC —** Direct Current Charger       **eMPS —** E-mobility Service Provider       **OCPP —** Open Charge Point Protocol

**HPC —** Direct Current Charger       **OEM —** Original Equipment Manufacturer       **V2G —** Vehicle-to-Grid

**HUB —** Centralized Multiple Stations       **DSO —** Distribution System Operator       **V2X —** Vehicle-to-Everything

# AC & DC CHARGING

**Low-Power Charging**
AC & 50kW DC Chargers

**High-Power Charging**
All new cars can charge over 100 kW DC

| 22 kW | 50 kW | 100 kW | 150 kW | 200 kW | 300 kW | 400 kW |
|---|---|---|---|---|---|---|
| 240 min | 60 min | 30min | 20 min | 15 min | 10 min | 8 min |

# OUR PRODUCTS

## EACharger DC

## EACharger HPC

# EACharger AC

# EACharger HUB

# CONNECTOR TYPES
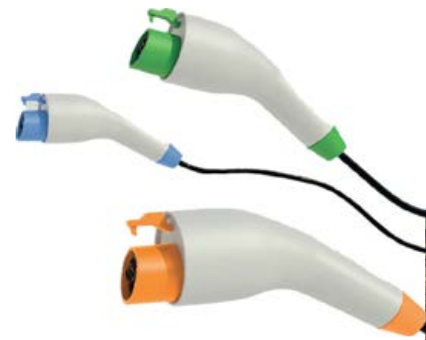
| | N. America | Japan | EU & the rest of markets | China | ALL Markets |
|---|---|---|---|---|---|
| **AC** | J1772 (Type1) | J1772 (Type1) | Mennekes (Type 2) | GB/T | **MCS** |
| **DC** | CCS1 | CHAdeMO | CCS2 | GB/T | Heavy fleet |

# INDUSTRY PLAYERS

AMPECO     be ENERGISED     chargepoint

DRIVECO
La révolution électrique à portée de main     ElectroAir
QUALITY AND INNOVATION     HUBJECT

OPEN CHARGE ALLIANCE     mer
Pure energy from Statkraft     MONTA

Spirii Simply Connect     VIRTA     zunder
Charging Hero

And many others...

# EACHARGER DC



Introducing EACharger DC, the epitome of convenience and style for fast charging in public spaces such as highways, airports, hospitals, shopping malls, gas stations, and charging hubs. These versatile stations are built in accordance with market regulations and requirements, blended with custom preferences, and are capable of simultaneously charging two or three electric vehicles. User-friendly experiences are ensured by rapid charging, wide graphic displays, and RFID readers and card payment terminals for seamless authorization and payment. Built with durable, weather-resistant enclosures and featuring user-centric design, they prioritize user safety and ease of use for all EV drivers and Charge Point Operators.

### High Output Power

- Experience swift
- Efficient charging at ultimate speeds
- For buses and heavy-duty electric vehicles

### Multistandard Compatibility

- Support all major international charging standards: CCS 1, CCS2, ChaDeMo, GB/T, AC charging
- Compatibility with a wide range of electric vehicles

### Branding and Configuration

- Customizable station
- Advertising display enhance brand visibility and profitability with personalized options

### Network integration

- Seamless integration with any network through full compliance with the OCPP 1.6 JSON protocol, accompanied by a Dynamic Load Management system

# EACHARGER HPC



Experience the next level of high-power charging with EACharger HPC, designed to meet the demanding needs of electrical busses and heavy-duty electric vehicle applications. It not only provides lightning-fast charging but also ensures exceptional ease of use, reliability, and durability in even the most demanding environments. With customizable cable management systems and flexible implementation options, EACharger HPC offers a tailored solution that seamlessly integrates into any infrastructure, providing unparalleled efficiency and peace of mind for fleet operators or bus depots, offering charging **up to 600 kW** with pantograph.

### High Power Charging

- Experience swift and efficient charging on ultimate speeds
- For buses and heavy-duty electric vehicles

### Environmental Strength

- Engineered to withstand harsh conditions
- Consistent charging performance, regardless of the environment or vehicle type

### Versatile Applications

- Bus depots
- Logistic centers
- Construction sites
- High-demand locations

### Network integration

- Seamless integration with any network through full compliance with the OCPP 1.6 JSON protocol, accompanied by a Dynamic Load Management system

# General

- Product Line: EACharger DC G4
- Series: Workplace, Public and Special
- Execution: Floor mount
- Application: Indoor or Outdoor
- Charging System: DC Mode 4
- Charge Speed: Level 3
- EMC (IEC 610000–6–3): Class B
- Communication Protocol: OCPP 1.6 J
- Number of Channels: Up to 3 channels
- Station Rated Power: from 50 kW up to 400 kW
- Connector Types: AC Plug Type 1 / Type 2, CCS1 /CCS2 or CHAdeMO or Pantograph

# Input parameters

- Voltage, V: 3 x 400/230 VAC ±10%, 3P–5 W
- Frequency, Hz: 50/60 ± 5%
- Current, I (at Station Rated Power): 160 A@100 kW, 240 A@150 kW, 320 @200 kW, 480 A@300 kW, 640 A@400 kW
- Harmonic Filter: < 5 % THD
- Efficiency: Min. 95 % (Load ≥ 50 %)
- Power Factor: Min. 0.98 (Load ≥ 50 %)
- MTBF: > 1 000 000 hours
- Idle Power Consumption: Up to 50 W
- Minimal Input Cable Cross-section: Cu/Al Up to 300 mm²

# Functions by default

- Display: 32-inch sunlight- readable touchscreen
- Display Brightness: Auto-adjustment (up to 1500 nits) with a built-in lighting sensor
- Energy Metering: Dual-channel Smart DC Meter with shunts for billing
- Modem: 3 G/4 G/LTE Modem
- Charge Protocol: CAN or PLC 30 MHz
- Internal Communication Protocol: RS-485 ModBus RTU, CAN Open
- External Communication Protocol: RS-485 ModBus RTU, OCPP 1.6/2.0 J by LTE/Ethernet
- Remote Software Update: wireless LTE or wired LAN
- WEB-Interface: wireless LTE or wired LAN
- Power Limiting: by external request via OCPP
- Service Socket: Schuko AC 230 V/16 A inside the housing
- Cable: 5 m with Plug CCS2
- Manual Cable Management: side-mounted hook
- Self Consumption: up to 50 W standby
- CCS Plug Holders with Actuators: Automatic lock-ing of the Plug in the Holder
- LED Lighting Static Green LED around plug holders and rear side perimeter

# Output parameters

- Number of Outputs: Up to 3 channels
- Channel Output Power: Up to 400 kW
- Channel Configuration: 2 x DC and optional AC or DC
- Power Distribution: Customizable
- AC channel Type1/2: Up to 22 kW @32 A @( 3 x 400/230 VAC±10 %)
- DC channel CHAdeMO: Up to 50 kW @125 A @(100...500 Vdc) full range 0...1000 Vdc
- DC channel CCS1/2: Up to 400 kW @250...350 A @(100...860 Vdc) full range 0...1000 Vdc

# Optional functions

- Connector Types: AC Type 1 / 2, CCS1/CCS2 or CHAdeMO with Non-standard Cable
- Adjustable Auto Heater to prevent condensation
- Backup Supply with Built-in Charger for proper completion of the charging
- Higher IP-rating additional protection for seaside locations
- Automatic Cable Management to prevent cable-ground con-tact and enhance usability
- Dynamic Load Management to protect local electrical grid from overloading
- Additional AC Meter at Input to sum the total kWh across the entire station
- RFID/NFC Reader with 10–100 Keys for user physical authentication
- RGB 3-Color Status Multi-color LED strip around each Plug Holder
- Display Custom menu languages and advertising option
- Emergency STOP Button: for manually shutdown a charging station
- Payment Terminal POS for bank card payments
- Anti-sand protection to ensure operability in the desert


UP TO 600 KW
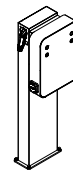
# EACHARGER AC



Step into the future of electric mobility with EACharger AC – the game-changing charging station that's set to redefine the landscape of sustainable transportation. This universal and attractive solution is perfect for urban areas, including residential municipal parking lots, airports, shopping malls, stadiums, and beyond. Experience hassle-free installation and minimal maintenance costs, with both three-phase and single-phase variants available. Each variant offers up to two channels and additional customizable features. Built to exceed Mode 3 charging standards, EACharger AC isn't just another charging solution – it's a powerhouse of innovation and efficiency designed to meet the diverse needs of modern electric mobility.

### Seamless Experience

- Easy installation
- Setup and maintenance
- Intuitive user interface
- Compatability with all Electrical Vehicles

### High-level Safety

- Full set of hardware protection inside the cabinet
- Encrypted data security on all levels, in accordance with OCPP 1.6.J

### Grid Stability

- DLM (Dynamic Load Management)
- Smart Charging functionalities protecting the grid during peak hours

### Data Management

- Comprehensive charging process history
- Real-time overviews with administration tools
- Seamlessly integrate into company's CRM or CPO

## General

- Product Line: EACharger AC
- Series: Workplace, Public and Special
- Execution: Freestanding pole or Wall-mounted
- Application: Indoor or Outdoor
- Charging System: AC Mode 3
- Charge Speed: Level 2
- EMC (IEC 610000–6–3): Class B
- Number of Channels: Up to 2 channels
- Station Rated Power: from 22 kW up to 44 kW
- Connector Types: Type 2

## Input parameters

- Voltage, V: 3 x 40 m² 30 VAC ± 10%, 3P–5 W
- Frequency, Hz: 50/60 ± 5 %
- Input terminal cross-section range: 10–16 mm²
- Power Factor: Min. 0.98 (Load ≥ 50 %)

## Functions by default

- Display 10.1" with capacitive touchscreen (ENG menu)
- Energy Metering: Smart MID E-Meter at each channel
- Charge Protocol: Control Pilot with PWM 1 kHz without HLC/PLC
- Internal Communication Protocol: RS-485 ModBus RTU
- External Communication Protocol: RS-485 ModBus RTU
- Autoreclosing of MCB & RCCB: Special control and monitoring algorithm via RS-485
- Self Consumption: up to 30 W without Auto-heater
- Status monitoring of MCB & RCCB: FULL control & monitoring via RS-485
- Basic Charger: 1 channel 22 kW

## Environment Conditions

- Humidity %:  5 … 95 RH Non-condensing
- Operating Altitude: Max. 2000 m
- Operating Temperature: −35 … +55 °C

## Output parameters

- Number of Outputs: Up to 2 channels
- Channel Output Power: Up to 22 kW (3 phase 400 V)
- Output type: Type 2; Socket or Connector with cable

## Housing

- Vandal-proof: Yes
- Protection Level: IP54 / IK10 (Impact energy 20 J)
- Access to Internal Section: with tools
- Material: Al, polymer coating
- Housing Colo: grey-Black by default, customizable for commercial use
- Dimensions: 450 x 600 x 200 mm (without free-standing pole)
- Weight: Charger weight is about 35 kg (without free-standing pole)

## Optional functions

- Spiraled Cable with Plug Type 2: up to 5 m or Non-standard Cable length
- Socket Type 2 with Actuator
- Adjustable Auto Heater to prevent condensation
- Backup Supply with Built-in Charger for proper completion of the charging
- Freestanding Pole
- Second Channel 22 kW as socket or cable
- Special Housing Color customizable for commercial use
- RFID/NFC Reader with 10–100 Keys for user physical authentication
- OCPP with LTE Modem: WEB interface/Remote Software Update/DLM
- RGB 3-Color Charging Status: RGB LED 3-Color Tower
- Vandalism Indicator: pre ordering
- ISO15118 with PLC Modem: at each channel separately
- Emergency STOP Button for manually shutting down a charging station
- Payment Terminal POS with single-channel model

# UP TO 44 KW

# EACHARGER HUB



Step into the future of comprehensive charging solutions with EACharger HUB — the ultimate centralized charging solution designed to meet the diverse needs of modern electric mobility infrastructure. This innovative system combines multiple charging stations of varying power capacities into a unified, centralized system, with a total output power of up to 2 MW. Powered by Dynamic Load Management (DLM), EACharger HUB ensures optimal resource utilization and grid stability, even in high-demand environments.

## Enhanced Grid Management

- Grid stability and reliability with DLM functionality
- Intelligently distributing power to maximize efficiency and prevent overload situations

## Comprehensive Charging Solution

- Convenience and efficiency of a centralized charging system
- Capable of supporting multiple electric vehicles simultaneously across various power levels

## Seamless Integration

- Effortless integration into any infrastructure with flexible implementation options
- Customizable configurations tailored to your specific requirements

## Centralized Control & Monitoring

- Full control and visibility over your charging infrastructure
- Centralized monitoring and management capabilities
- Accessible remotely for convenient oversight and optimization

## General

- Product Line: EACharger HUB
- Series: Special
- Application: Indoor or Outdoor
- Charging System: DC Mode 4
- Total rated power: up to 2MW
- Satellites per group: up to 20
- Operating temperature -40 to +55˚C
- Humidity 5 to 95 %
- Noise level <60dBA
- Remote functions Software updates & online monitoring
- Protocols ModBus TCP, ModBus RTU, CAN, PLC, TCP/IP
- High-level protocol OCPP 1.6J (2.0.1 ready)

## Output parameters

- Channel output power: up to 400 kW
- Channels per satellite: up to 3
- Connector types: CCS2, CHAdeMO, GB/T, Type2

## Protection

- Overheat protection: PT1000 sensors
- Overcurrent protection: MCB with RS-485 control
- Earth Leakage protection: IMD ≥10mA each channel
- Overvoltage protection: SPD Class 2
- Electrical Grid: Dynamic 1 DLM

EACharger HUB offers a comprehensive solution for commercial and public charging environments, delivering unmatched efficiency, scalability, and reliability for the electric mobility infrastructure of tomorrow.

Experience the power of EACharger HUB – your **one-stop solution** for project-based charging needs. Transform your infrastructure today!

# UP TO 2 MW PER GROUP

# Stay well connected with us!

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https://www.instagram.com/electroair/

Product innovation of the year | GO GLOBAL AWARDS 2022 INTERNATIONAL TRADE COUNCIL | EESTI ELEKTROONIKA-TÖÖSTUSE LIIT | ESTONIAN ELECTRONICS INDUSTRIES ASSOCIATION | KLUBI LIIGE Uuendusmahukas ettevõte | DESIGN APPLIER OF THE YEAR ELECTROAIR OÜ | Recognized in the top 10 companies by Estonian government

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