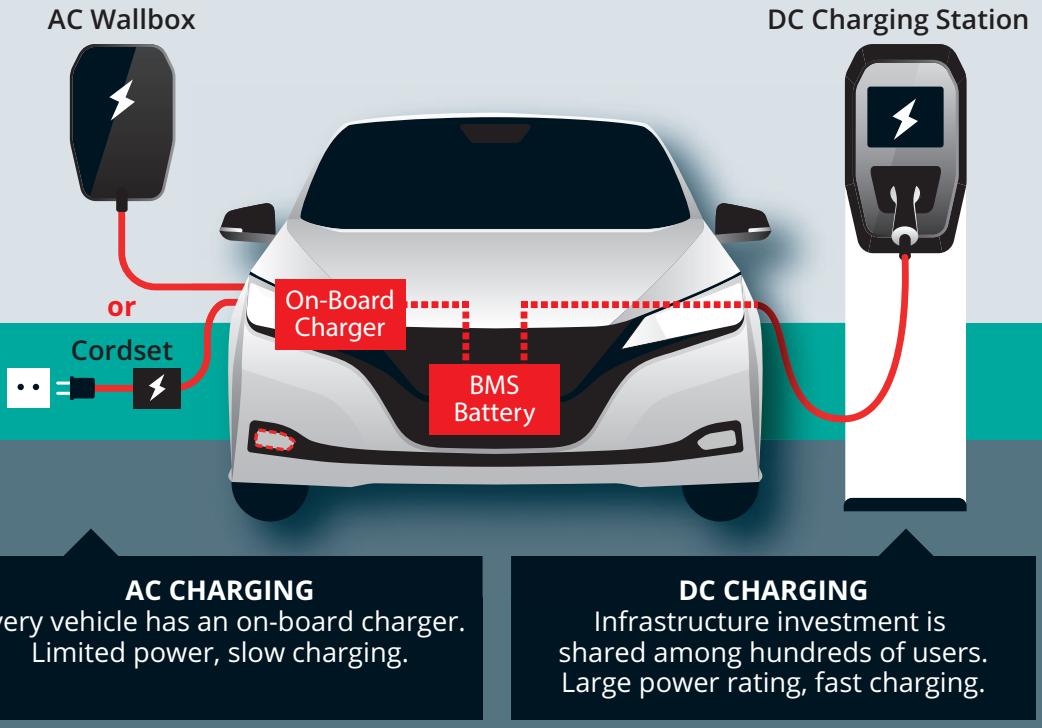
CODICO®

E-Mobility& Charging

ACTIVE COMPONENTS | PASSIVE COMPONENTS | CONNECTORS

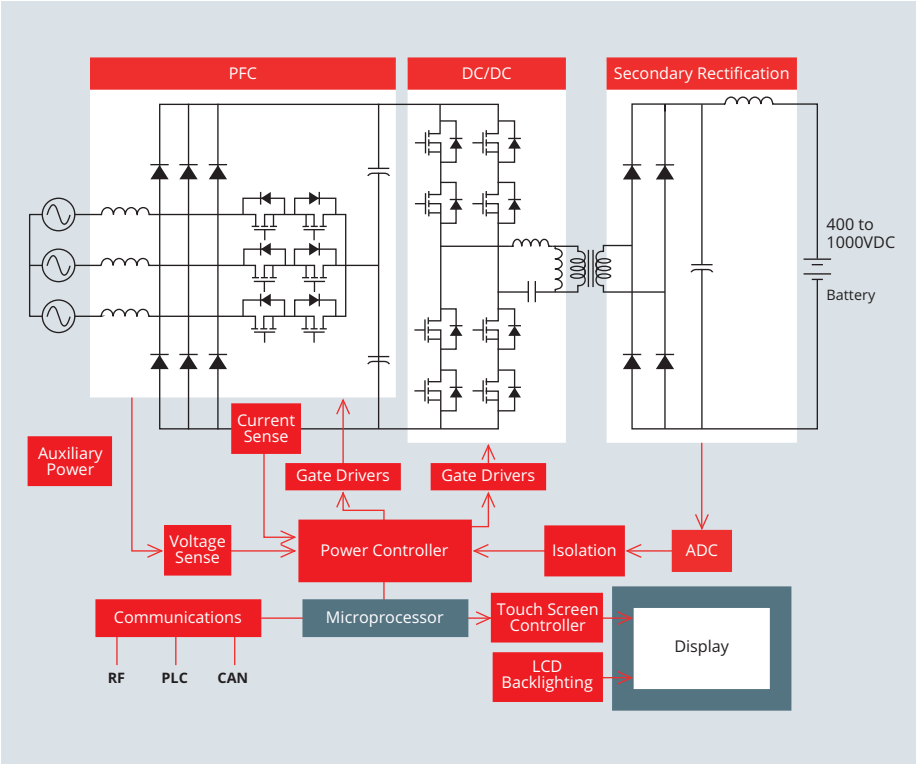
Solution Provider for
E-Mobility & Charging



We develop solutions to enable your future products!

With e-mobility spreading across the globe the demand for charging solutions is growing rapidly. Designing a charging station that supports the charging standards as well as meeting the demand to seamlessly integrate into the existing power network is a challenge.

For the past 10 years CODICO has built up an unique engineering competence around vehicle charging. Today, CODICO offers a broad range of products for the complete vehicle charging ECO-System as well as deep knowledge in how to put the different building blocks together.



COMMUNICATION

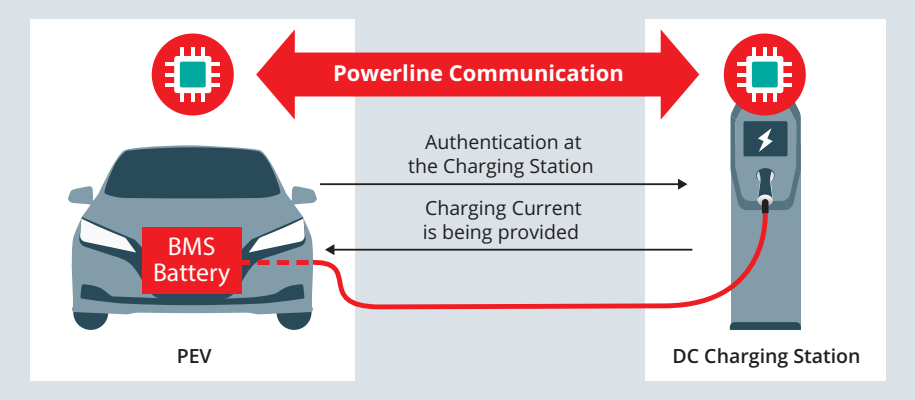
Communication

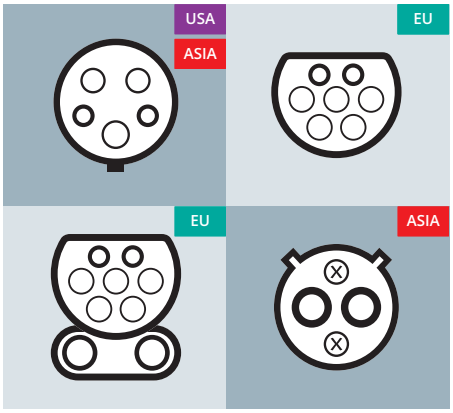
DC charging stations need to communicate and exchange data with the vehicle, e.g. identification, battery-status, charging currents, etc. This communication link utilises powerline technology (PLC) over the Control Pilot Wire. IEC61851-1 and ISO15118 standards describe the necessary commands and data-formats.

There may also be a requirement to have a communication interface to the user to inform about charging status and billing options. This type of communication link normally utilises low power wireless technologies like Wi-Fi and Bluetooth™.

In most cases the charging station needs to communicate with the power grid. This communication link is normally implemented with powerline technology (PLC) or cellular technology (2G/4G/5G).

COMMUNICATION	PRODUCTS	SUPPLIERS
Powerline Communication Between Vehicle and Charger	HomePlug GreenPHY ICs	Qualcomm
	HomePlug GreenPHY Modules	8Devices
	PLC-Transformers	Elytone
Wirelss Communication Vehicle-User-Charger	Wi-Fi & BT-Modules	8Devices, Compex, FN-Link
Communication Charger – Power-Network	GSM/LTE/5G & Cloud Services	Quectel
	Cloud Services (SIM)	1NCE
Internal Antenna Connection	Micro-Co-Ax Connectors & Cables	Hirose





SAFETY

Safety

When charging an electric vehicle, significant amounts of power flows from the charging station to the car.

To protect the user, it is critical to detect leakage currents to quickly abort the charging process. Detecting leakage currents is also important in order to avoid incorrect billing information. Additionally, the charger itself needs to be protected from inrush-currents. Internal signals and power levels need to be isolated and shortages of basics need to be detected.

SAFETY	PRODUCTS	SUPPLIERS
Main Safety	Residual Current (RCD) Sensors	Kemet
	Relays	Song Chuan
Isolation	Isolated Gate Driver ICs	MPS
	Isolated Gate Driver Modules	RECOM
	Signal Isolators	MPS
	Isolated Power Module ICs	MPS
	Isolated Amplifiers	MPS
Current Measurement	Shunt Resistors	Isabellenhütte
	Current Sensor ICs	MPS
Overvoltage & Inrush Protection	Surge Protection	Panjit, TKS
	Varistors	Panasonic, TKS
	Inrush Current Limiters	Panasonic, TKS
	Fuses	Eaton, Panasonic
Electronic Locking Function	Motors	Nidec, Piezo Motion

POWER

Power

The main purpose of a charger is to supply controlled power according to the actual charging requirements of the battery.

In addition, all the internal electronics of the charger must be supplied with power. CODICO offers a broad range of power solutions supporting customer designs, from Passive Components to discrete Power-ICs and complete Power Supplies.

POWER	PRODUCTS	SUPPLIERS
PFC Stage	PFC Capacitors	Aishi, Kemet, Panasonic
	PFC Chokes	Elytone, Sumida, TPE
	Snubber Capacitors	Aishi, Kemet, Panasonic, Rubycon
	PFC Controller ICs	MPS
Filtering	EMI Filters	Aishi, Kemet, Panasonic
	Common Mode & Differential Chokes	Eaton, Sagami, Sumida
Inverter	Resonant Capacitors	Aishi, Kemet
	LLC Resonant Inductors & LLC Transformers	Elytone, Sumida, TPE
	DC-Link & Snubber Capacitors	Aishi, Kemet, Panasonic, Rubycon
	SIC Diodes	Panjit
	Complete Inverters	Astrodyne
Auxiliary Power & Component Supply	AC/DC Modules	Aimtec, Recom
	AC/DC Converter ICs	MPS
	DC/DC Converters	Aimtec, Recom
	DC/DC Converter ICs	MPS, Nisshinbo, Torex
	Capacitors	Aishi, Kemet, Panasonic, Rubycon, SUN
	Ferrite & Metal Composite Inductors	Eaton, Panasonic, Sagami, Sumida
Main Power Line	AC/DC Charging Guns	Amphenol, Sinbon
Power To Board	Lever Terminal Blocks	Dinkle
Internal Power Distribution	Wire-To-Board Connectors	Cvilux, Hirose
Cooling	AC Fans	Strikefan

USER INTERFACE

User Interface

An important part of the charging station is the user interaction. Today it is common to use touchscreen monitors and touch panels where the user interacts with the charging station to enter billing information and check the charging status.

To improve the user experience, sensors can be deployed to detect when a person or vehicle approaches the charging station causing the display to switch on. Typically radar sensors or gesture recognition sensors can be used to implement this function.

TERMINAL / OPERATOR UNIT / HMI	PRODUCTS	SUPPLIERS
Displays	OLEDs	Multi-Inno, Raystar, WiseChip
	LCDs & Touchscreens	Ampire, Multi-Inno, Raystar, Yeebo
Display Connection	HDMI Connectors & Cables	Cable Assemblies
	FFC/FPC Connectors & Cables	Cvilux, Hirose
Computer Control Board	Board-to-Board Connectors	Cvilux, Hirose
	I/O Connectors	Amphenol, Cvilux, Hirose
Presence & Movement Detection	Radar Sensors	Acconeer
	Gesture Recognition	PixArt
	GPS/GNSS	Quectel

FOLLOW US

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