xChargeIn

Eaton's new charging infrastructure for e-mobility

Powering Business Worldwide

The future of e-mobility

Intelligent charging infrastructure solutions for every need

E-mobility, which refers to transportation involving any vehicle equipped with batteries and an electric drive, is more than just a fad. Since 2008, the European Union has been working in concert with industry to support investments in e-mobility through so-called public-private partnerships. In addition, e-mobility is also an important aspect of "Europe 2020", the EU's energy and climate package, notably when it comes to reaching the national emissions reduction targets: e-mobility is thus a core component of the strategy for achieving a significant reduction in greenhouse gas emissions.

Corresponding incentives and support programs also exist at national level, for example through the establishment of e-mobility model regions, which are expected to contribute to a significant reduction in the carbon footprint of the transport sector. Austria, for example, aims to make its transport sector largely climate-neutral by 2050. Norway, Europe's undisputed leader in the field of e-mobility, has even announced that it will no longer be registering vehicles with internal combustion engines from 2025. And while this plan might sounds ambitious, it appears to be working: Due to substantial tax breaks and incentives, by 2017 more than half of all new cars sold were either electric or hybrid models.

From a technical point of view, there is no longer any reason why this climate-neutral technology should not be used, given the ranges that already possible today.

Eaton's answer

Where are we headed?

Within the field of e-mobility, a distinction currently exists between hybrid vehicles – with batteries that can be charged either from the grid or from an internal combustion engine – and vehicles that are exclusively powered by electricity. Depending on the make and manufacturer, the additional electric range of hybrid vehicles varies between 30 kilometers and just over 60 kilometers. For genuine electric cars, on the other hand, ranges of between 80 kilometers and more than 600 kilometers are already technically possible. As a result, the use of electrical vehicles is not only conceivable but completely feasible, given the predominant driving and commuting habits in Europe – for example for shopping trips, the daily commute to work, taking the children to school, etc. In other words, it is only for significantly longer journeys, such as trips by car to other countries, where electric vehicles reach their limits on account of the distances involved. But even this corresponds to today's mobility habits – depending on the destination, people often don't travel exclusively by car, but will instead use trains, car trains or (if even longer distances are involved) airplanes. Apart from their range, a decisive factor for the success of electric vehicles is the establishment of an appropriate infrastructure for charging them.

And this is where Eaton's xChargeIn system comes in, which can be configured and scaled as required, and thus meets all the requirements of both private and commercial use.

Eaton xChargeIn

The series in detail

Application-oriented

During the development of the xChargeIn technology, we paid particular attention to prevailing e-mobility usage habits. For this reason, this versatile system is available in four different versions – the A, X, S and M series, respectively. They cover the full range of possible applications, from simple wall-mounted systems in private homes to charging stations on company premises or in commercial buildings such as public parking garages. In addition, Eaton offers a range of accessories that help to make this innovative charging technology even more efficient and cost-effective, for example through intelligent power management.

For single-phase applications

Beginner's model

Cost-effective

Article no: EVC-A-32S200000

No special residual-current circuit breaker is necessary, thanks to the built-in 6 mA DC sensor

Eaton xChargeIn

A series

Simple and versatile, for basic needs

The A series is Eaton's most basic charging station, designed for simple single-phase applications, typically in residential environments, that do not require interoperability with other applications such as smart home systems or other charging stations.

Product features:

- 230 V for IT / TN / TT networks
- Up to 7.4 kW charging capacity
- 10 to 32 A, adjustable by means of a DIP switch (settings: 10, 13, 16, 20, 25, 32 A)
- 6 mA DC sensor, a type A RCCB is thus sufficient
- Degree of protection: IP54
- Impact strength: IK08
- Type 2 connector (can also be used for vehicles with type 1 connector)
- W / H / D: 240 mm / 495 mm / 163 mm
- Weight: 4.8 kg
- Ambient temperature range: 10 to 16 A: -25 °C to 50 °C / 20 to 32 A to +40 °C
- Connections: 16 mm²

Enhanced functionalities

For single-phase and three-phase applications

Article no.:
EVC-X-32S200010
EVC-X-32S2R0010
EVC-X-32S2K0010

Optionally without authentication, by means of a key or RFID

Digital inputs and outputs (X1/X2) for integration into building management systems

Eaton xChargeIn

X series

Simple and versatile, with remote control

The X series offers all the functionalities of the A series. In addition, the integrated connections make it possible to operate and control the device by means of external systems such as xComfort, or through other operating systems with binary signals and sensors.

For more information about using xChargeIn in combination with xComfort, please refer to page 9.

For the X series, both a 230 V single-phase or a 400 V 3+N-phase connection are possible, which results in a maximum charging capacity of either 7.4 kW or 22 kW.

The X series can also be used as a standalone charging station. Thanks to the available connectivity options and the adjustment range of 10 A to 32 A, the device is compatible with all standalone charging systems.

Product features:

- 230 V 1/400 V 3 + N for IT / TT / TN networks
- Up to 7.4 kW / 22 kW charging capacity
- 10 to 32 A, adjustable by means of a DIP switch (settings: 10, 13, 16, 20, 25, 32 A)
- 6 mA DC sensor, a type A RCCB is thus sufficient
- Degree of protection: IP54
- Impact strength: IK08
- Type 2 connector (can also be used for vehicles with type 1 connector)
- W / H / D: 240 mm / 495 mm / 163 mm
- Weight: 4.8 kg
- Ambient temperature range: 10 to 16 A: -25 °C to 50 °C / 20 to 32 A to +40 °C
- Connections: 16 mm²

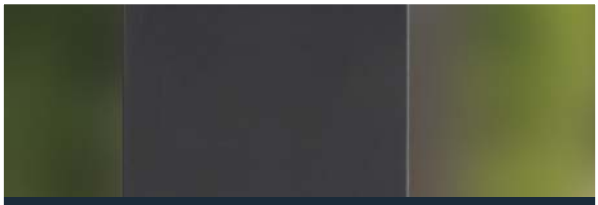
For single-phase and three-phase applications

Integration into charging infrastructure via X1/X2 and LAN

For commercial use

Intelligent load management

Article no.:
EVC-S-32S2R2120
EVC-S-32S2R3120 (MID Type)



Eaton xChargeIn

S series

A slave device for the M series, equipped with online communications

The S series offers all the functionalities of the X series. In addition, it is also UDP and OCCP enabled. UDP is the standard protocol for integrating a device into other operating systems, such as a smart home system, while OCPP is the standard protocol that is used if several charging stations are networked together.

The S series thus functions as a slave device in online or offline networks, with the M series as master.

An M Series network can be connected to up to 15 S series charging stations and will then allocate the available capacity to the network.

Product features:

- 230 V 1/400 V 3 + N for IT / TT / TN networks
- Up to 7.4 kW / 22 kW charging capacity
- 10 to 32 A, adjustable by means of a DIP switch (settings: 10, 13, 16, 20, 25, 32 A)
- 6 mA DC sensor, a type A RCCB is thus sufficient
- Degree of protection: IP54
- Impact strength: IK08
- Type 2 connector (can also be used for vehicles with type 1 connector)
- W / H / D: 240 mm / 495 mm / 163 mm
- Weight: 4.8 kg
- Ambient temperature range: 10 to 16 A: -25 °C to 50 °C / 20 to 32 A to +40 °C
- Connections: 16 mm²
- UDP and OCPP protocols

Eaton xChargeIn

M series

A master unit for the S series, equipped with online communications

The combination of the xChargeIn M and S series has been specially designed for professional use, for example in public parking garages. Both series are also available as MID (Measuring Instruments Directive) versions, which ensure accurate billing of the power that is actually consumed. The M series serves as a master device in online or offline charging systems and manages the connected vehicles via individual charging stations of the S series. A charging system can consist of one M series master station and up to 15 S series charging stations.

Product features:

- 230 V 1/400 V 3 + N for IT / TT / TN networks
- Up to 7.4 kW / 22 kW charging capacity
- 10 to 32 A, adjustable by means of a DIP switch (settings: 10, 13, 16, 20, 25, 32 A)
- Integrated DC filter, connects to 6 mA
- Degree of protection IP54
- Impact strength IK08
- Type 2 connector
- W / H / D: 240 mm / 495 mm / 163 mm
- Weight: 4.8 kg
- Ambient temperature range:
  10 to 16 A: -25 °C to 50 °C / 20 to 32 A to +40 °C
- Connections: 16 mm²
- UDP and OCPP protocols
- Master unit of the charging network

Eaton xChargeIn

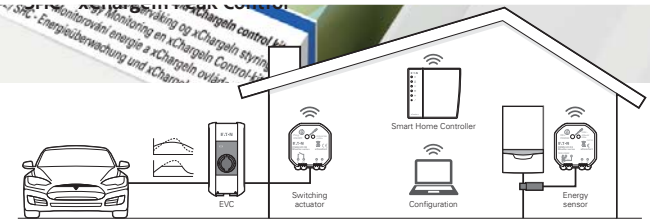
Intelligent power management

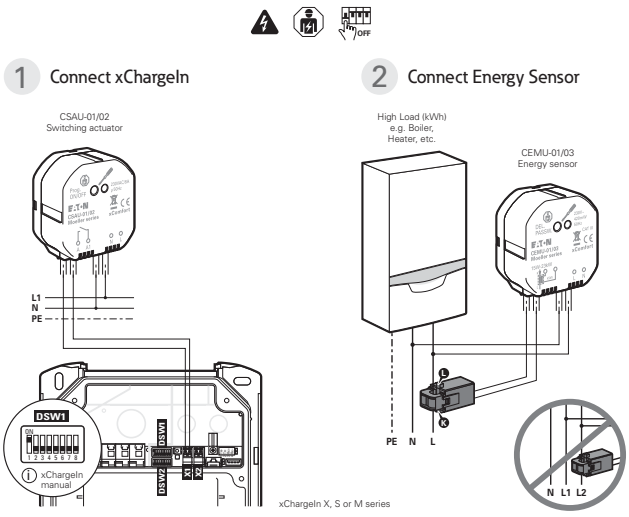
Power management with the xComfort Smart Home System

The charging stations of the X, S and M series can be externally controlled by means of one integrated connection X1. Via the Smart Home Controller (SHC) app, Eaton offers a complete package of pre-selected xComfort components, as well as a matching control system for the charging stations.

The X1 contact is controlled by a potential-free output, which, when active, will cause the charging station to start the charging process.

In addition, an energy meter measuring up to 23 kW, is included. This device is used for other large loads in the house, such as a hob. This makes it possible to implement load control management. The "load shifting" and "peak shaving" principles used for this purpose interrupt the charging process during periods of high power consumption and bring the system back online once consumption levels have returned to normal. If xComfort is used in combination with the SHC xChargeIn peak control mechanism, it is possible to prioritize the supply of the more important devices at any time.





- Use energy more efficiently with xComfort
- SHC-xChargeIn Peak Control Package by xComfort:
  Package order number: 195567 (SHC not included)
- Optional xComfort energy sensor:
  Order number: 136476

Overview of the various series and their features

Article no.	Product description	Type 2 Socket	1-phase	3-phase	10A	13A	16A	20A	25A	32A	DC Leakage detection	Energy Meter	Enable input	Switch contact output	Ethernet LSA+ / RJ45	UDP	OCPP	WLAN	Master - load management	Slave – load management	GSM/3G	RFID	Key switch	MID
EVC-A-32S200000	EV Charging Station A series	▪	▪		▪	▪	▪	▪	▪	▪	▪													
EVC-X-32S200010	EV Charging Station X series	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪		▪	▪										
EVC-X-32S2R0010	EV Charging Station X series with RFID	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪		▪	▪								▪		
EVC-X-32S2K0010	EV Charging Station X series with Key	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪		▪	▪									▪	
EVC-S-32S2R2120	EV Charging Station S series	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪				▪		▪		
EVC-M-32S2R2350	EV Charging Station M series	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪		▪	▪		
EVC-S-32S2R3120	EV Charging Station S series with MID	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪				▪		▪		▪
EVC-M-32S2R3350	EV Charging Station M series with MID	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪		▪		▪	▪		▪

Accessories

Accessories: Pedestals, replacement covers, etc.

Eaton pedestals with pre-drilled threaded mounting holes.

Simple pedestal
Order number: EVC-PED1

Double pedestal
Order number: EVC-PED2

Double pedestal
Order number: EVC-PED3

Should the charging station cover break, a replacement cover featuring the same Eaton design can be ordered at any time.

Replacement cover
Order number: EVC-COVER

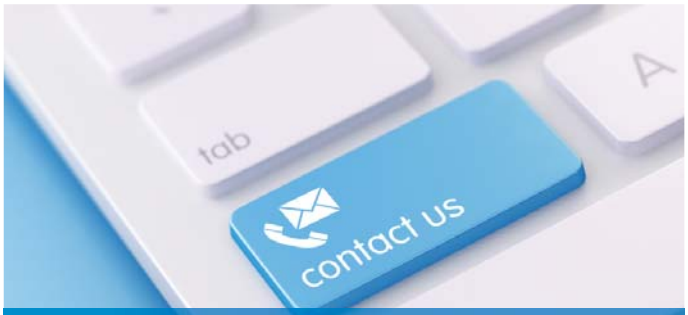
Cable holder
Order number:
EVC-CABLEHOLDER

From the xChargeIn X series (RFID) and up, the power supply of a charging station can be easily authorized or blocked by means of RFID master cards.

RFID module
Order number: EVC-RFID
(10 units)

Eaton is a power management company with 2017 sales of $20.4 billion. We provide energy-efficient solutions that help our customers effectively manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. Eaton is dedicated to improving the quality of life and the environment through the use of power management technologies and services. Eaton has approximately 96,000 employees and sells products to customers in more than 175 countries.

For more information, visit **Eaton.com.**



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