List of contents
KeContact

KEBA and e-mobility

Designing the future.

The role of energy as a key resource is continuously gaining importance and constitutes an issue of vast significance for our society. For this reason, e-mobility and energy automation have been an integral part of KEBA's product and services range since 2009.

Comprehensive competence – concentrated know-how

KEBA's portfolio of e-mobility solutions represents a blend of the company's profound knowledge of electronics manufacturing and years of experience in the automat production area. This combination results in the development of innovative concepts and their subsequent progress to marketability.

From the outset, know-how from safety technology and payment solutions areas has flowed into this process in order to meet the differing requirements of e-mobility, not only today, but also in years to come.

Ongoing developments

In 2009, KEBA began with the development of a reliable and easy to use charging column. However, only a year later, the constant changes in e-mobility markets demanded a product development rethink.

It had become evident that electricity would be charged at points where electric vehicles (EVs) would be parked for an extended period of time, for example in a private garage or company parking areas. Therefore, the logical consequence for KEBA was to move away from charging stations located in public areas towards systems suited to private and semi-public applications.

This type of charging station, a wall box, which today represents KEBA's core product in the e-mobility sector, has been subject to continuous further development over the years and is already in its second generation.

The KeContact P20 is far more than "just" a charging station. It is an intelligent e-mobility solution that already meets the future needs of smart charging infrastructure with high levels of availability and numerous additional functions such as intelligent load management and open charge point protocols (OCPP).

One-stop-shopping

With its own production facilities in Linz, Austria, KEBA is able to deliver combined hard- and software solutions on a one-stop-shopping basis. Moreover, KEBA's in-house laboratory regularly tests its products with the latest available EVs.

The results of these tests and possible changes in standards are directly integrated into firmware updates and future developments. This not only offers safety, but also flexibility.

Intelligent infrastructure solution
KeContact P20

Charge while you park

In recent years, the KeContact P20 wall box has developed into a core KEBA product in the e-mobility infrastructure area. The background to this evolution is formed by current trends, which show that in future electric power will be charged at locations where an EV is parked for longer periods of time.

Irrespective of whether this involves a private garage, company parking areas or park&ride facilities, such locations offer the greatest potential for the successful implementation of e-mobility infrastructure when the various types of application are accounted for.

Flexible variations for specific requirements

The KeContact P20 charging station is available in three basic versions in order to meet the requirements of a diverse range of EVs. Type 1 charges single-phase with up to 7.4kW and 32A, and with this plug type is primarily suitable for Japanese and American makes.

Type 2 offers three-phase charging up to 22kW and 32A. Most European vehicles use this plug type and with a fixed cable it is perfect for domestic areas. With the basic type 2 socket, every type of EV can be charged. It is the ideal version for deployment in public and semi-public areas.

Your advantages at a glance:

Simplicity
- Straightforward, on the spot configuration
- Easy installation
- Intuitive operation

Flexibility
- An extensive range of versions to match the EV
- Three equipment series
- Multiple installation possibilities

Quality and safety
- Highest availability
- Genuine outdoor capability (even at -25°C)
- CE conformity, UL and VDE certification

Intelligent infrastructure solution
KeContact P20

Simplicity

The claim “easy to use” is always oriented towards user needs, though in KEBA’s understanding the term “user” not only encompasses end customers. Naturally, the wall box is simple to operate for this group, e.g. owing to its multicolour LEDs, which show the current operational status of the charging station at any time.

However, KEBA’s understanding of usability goes a decisive step further. “Easy to use” already begins with the straightforward installation process, which can be completed by just one specialist. It extends to guided start-up, support during the initial system check, on-the-spot configuration and zero touch operation with the optional KeContact M10 load management system.

Flexibility

KEBA is well aware of the fact that every customer and application is different. And as we are familiar with the specific requirements of our customers, KeContact offers a wealth of differing versions, equipment series and installation possibilities.

Quality and safety

For KEBA, quality is the key to success and this aspiration to top quality also applies to the area of e-mobility infrastructure. We are deeply convinced that a high degree of availability is of crucial importance to both the quality of e-mobility and the full use of its advantages. Because who wishes to find an EV that is not fully charged?

KeContact P20 is available in three equipment series, which cover your needs to perfection.

Technical features
KeContact P20

Availability

The KEBA KeContact P20 charging station offers a broad range of features, which maintain availability at a constantly high level:

Outdoor capability

With its ability to withstand ambient temperatures of -25°C to +40°C, the wall box can operate even in the toughest environmental conditions. This outdoor capability is continually reaffirmed under practical conditions.

Temperature de-rating

The KeContact P20 specifies a permitted ambient temperature of -25°C to +40°C during charging with 32A. If charging takes place with just 16A, the highest ambient temperature allowed is +50°C.

Even if these limits are exceeded, the wall box does not simply shut down the charging process, but instead reduces the current level with the result that its internal temperature remains within the specified limits of the individual components at all times.

Current monitoring

The integrated multi-rating device, which measures voltage, current and energy during operation, not only increases the safety of the charging station, but also its availability. With its multi-rating device, the type 2 socket version with 32A is predestined for semi-public and public areas and also accepts charging cables with current ratings lower than 32A.

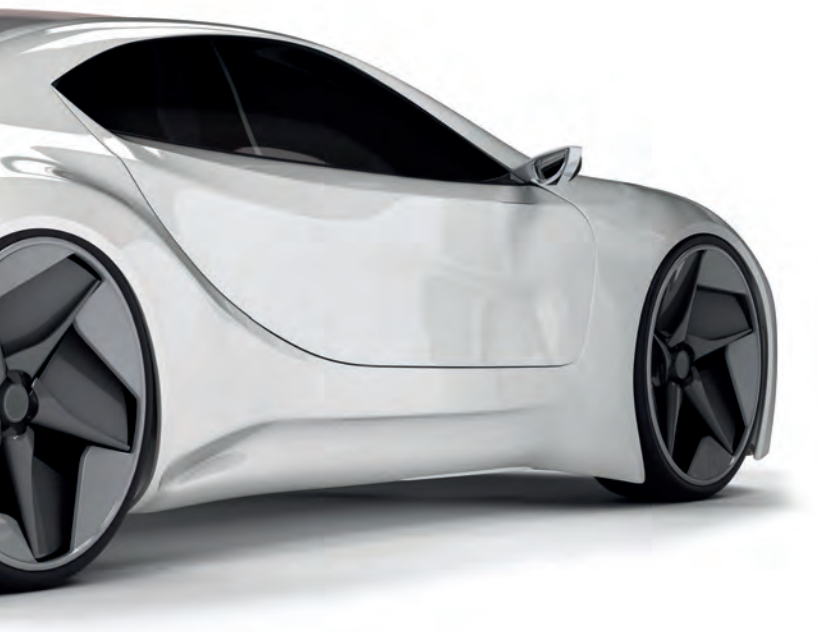
Auto-recovery

In order to maximize charging availability, if an error occurs the charging station cyclically attempts to auto-recover. Charging only recommences when all the preconditions regarding the vehicle, the charging cable, the wall box and the environment are fulfilled.

Standards and certifications

The KeContact P20 complies with all statutory requirements, safety standards and accreditations. It bears the CE marking, is UL-certified and was the first wall box on the world market to be tested and certificated by the VDE, the German Association for Electrical, Electronic and Information Technologies. VDE accreditation is regarded as a mark of top quality.

The separate connection area ensures additional safety during start-up and operation.



Equipment series
KeContact P20 e-series

Version overview

Each of the KeContact P20 equipment series is available in the following product versions:

Type 2

- Ideal for public and semi-public applications
- Suitable for all EVs with the appropriate charging cable

Type 2 with fixed cable

- Mainly for European makes

Type 1

- Mainly for Japanese and American makes

e-series

Overview

The entry-level version. Cost-optimized charging station. Simple and convincing.

Product features

- Single-phase up to 20A (corresponds to max. 4.6kW)
- CE marking
- Offline operation

www.kecontact.com

KEBA
Automation by innovation.

Equipment series
KeContact P20 b-series

b-series (supplementary to the e-series)

Overview

The charging station with a high level of individual design possibilities.

Product features

- Three-phase up to 32A (corresponds to max. 22kW)
- VDE certification
- UL-marking
- Available for Europe, North America and Japan
- Numerous options and features for optimum modification to your needs:

Metering

An integrated multi-rating device ensures that EVs can be charged using cables with differing cross-sections, irrespective of the fuse protection of the charging station. The multi-rating device (non-calibrated) supplies operators with important information regarding charging activities.

Another important feature for operational safety and availability is the temperature derating function. The charging station continues to operate even when temperatures increase. It merely reduces the limit of maximum charging current accordingly. This is of particular relevance when the wall box is exposed to direct sunlight and it prolongs the lifetimes of both components and the product as a whole.

Enable input

Among other possibilities, the enable input for external release is suitable for simple smart home applications (e.g. switching the wall box on and off via smart home controls).

Authorization possibilities

Various authorization options prevent unauthorized persons from using the charging station. Authorization options include either identification by RFID in accordance with ISO14443 or authentication by means of a key switch.

RFID

Key switch

Individual branding

The KeContact P20 b-series design hood can be branded according to customers' own corporate designs.

"The ideal place for your logo!"

Equipment series
KeContact P20 c-series

c-series (supplementary to the b-series)

Overview

More than just charging. A charging station as a communication interface for intelligently controlled charging.

Product features

- PLC modem
- Ethernet interface

PLC-Modem

The KeContact P20 c-series features an integrated PLC modem for charging in line with ISO 15118.

The modem facilitates Internet connection to the vehicle, which enables the operator and the user to retrieve information regarding its charging status.

Ethernet interface

An Ethernet interface with LSA+ terminal provides simple connection to an existing router.

The following applications are thus possible:
- Smart home integration via UDP
- Connection to a backend system via OCPP
- Connection to the local KeContact M10 load management system

Applications
KeContact P20 c-series

Smart home integration via UDP

This function allows an upstream control system to control the wall box and receive status information via the user datagram protocol (UDP).

This extends from the simple starting and stopping of the charging process to complex regulation of the maximum permitted charging current of the EV in conjunction with photovoltaic, battery, heat pump or similar systems.

Connection to a backend system via OCPP

The open charge point protocol (OCPP) is a standardized communication protocol with which charging systems can be linked to a central system (host or backend).

OCPP communication with a host facilitates global load management and the control of charging in accordance with numerous parameters, e.g. grid load, electricity price, a surplus of volatile energy, etc.

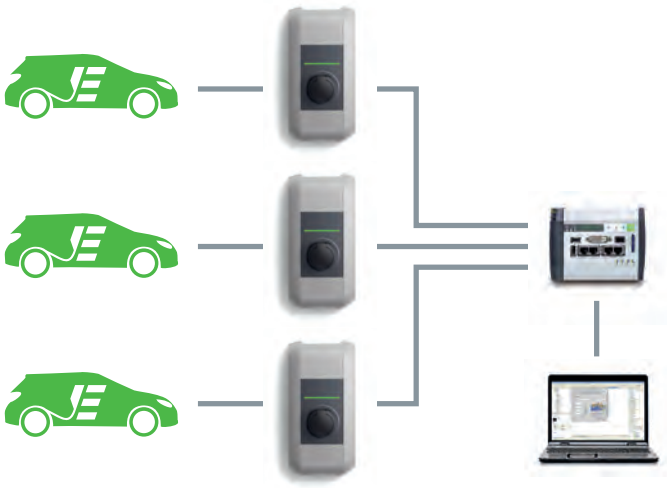
Further applications for connecting charging infrastructure to a host via OCPP include monitoring, remote configuration of charging stations, transmission of transaction data, and the central authorization of charging procedures. Either the charge point or the central system can initiate OCPP transactions.

Connection to the KeContact M10 local load management system

When several EVs are being charged simultaneously, it is possible that the combined power demand of all the vehicles may exceed the actual available charging capacity in the installation.

The prevention of cost-intensive load peaks while maintaining charging capacity requires a solution that facilitates cost-optimized charging through the intelligent management of the single charging procedures.

Local load management smooths the load curves of the connected vehicles by means of re-timing, prioritization or power distribution. This results in the maximum use of charging capacity, lasting cost cuts and optimized resource consumption. The aim of the load management system is to reduce power peaks, thereby smoothing the curves of the energy obtained.



Applications
KeContact P20 c-series

Features of the local KeContact M10 load management system

Load management profile

The KeContact M10 load management system distributes the available power among the vehicles to be charged in optimum fashion. Limiting the power available at the charge point to the lowest possible level cuts costs.

The KeContact M10 supports configurable load management strategies such as “first come, first served” and “equal distribution”.

Plug & charge with ISO 15118

The high-level ISO 15118 protocol facilitates truly intelligent EV charging. The KeContact M10 informs the vehicle when and at what price which amount of energy is available. Based on this information, in conjunction with the planned departure time and the charging status of the battery, the vehicle then determines the most favourable, charging curve in terms of cost.

In the case of changing parameters such as the amount of energy available or other vehicle parameters, both the vehicle and the load management system can initiate a “renegotiation” of the charging curve. In addition, ISO 15118 allows the “plug and charge” function. Once the EV has been connected to the wall box, the board computer not only completes the handling of the charging parameters, but also all other necessary activities such as an authorization check or the comparison of electricity measurement values.

Charging according to EN 61851 Mode 3

EVs that only support charging based on EN 61851 Mode 3 are also accounted for by the KeContact M10 load management system. However, as compared to vehicles that employ ISO 15118, limitations with regard to possibilities and efficiency have to be accepted. For vehicles using EN 61851 Mode 3 charging, authorization can take place by means of a chip card (RFID).

Monitoring and diagnosis tools

A web-based graphic user interface (GUI) is provided for monitoring KeContact M10 and the connected KeContact P20 charging stations.

The status of every connected charging station (free, occupied, offline) and technical information such as maximum current and the number of phases that can be used for charging are displayed. The system also provides a complete charging history.

Current and energy measurement in the connected wall boxes periodically transmit this data to the KeContact M10. The energy data can be exported and analyzed for planning, controlling and other purposes.

Zero touch operation

The KeContact M10 is delivered with sensible pre-settings. Once the KeContact M10 and the KeContact P20 charging stations are installed and connected to the electricity grid, all that is required is the configuration of essential system parameters such as the maximum available output of the entire system. During system start-up, information pertaining to the connected KeContact P20 wall boxes such as the highest possible charging current at each wall box is submitted to the KeContact M10 automatically and need not be re-entered separately.

Authorization check

The KeContact M10 is able to administer a “white list” for charging access in which authorizations can be deposited (vehicle ID in the case of ISO 15118 or authorized RFID chip cards). White list entries and IDs can be edited easily in the web-based GUI.

Configuration and administration

If required, changes in configuration or other administrative activities can be made at any time in the web-based GUI, provided the user has the necessary access rights to the system.

Applications

Primarily, local load management will be of great interest for charging fleets and wherever a larger number of EVs needs to be charged, for instance at companies, in multi-storey and underground car parks, park & ride facilities, shopping centres, etc.

Technical data
KeContact P20

Installation variations
- In- and outdoor, wall-mounted installation, optional installation on columns for one or two charging stations
- Surface cable inlet from above, or flush mounting from behind

Electrical data
- Rated current (configurable values): 10A, 13A, 16A, 20A, 25A or 30/32A
- Grid voltage: 3x 230-400V / 208-240V
- Grid frequency: 50 Hz/ 60 Hz
- Overvoltage category: III in accordance with EN 60664
- Cable and residual current protection in the upstream house installation

Environmental conditions
- Operating temperature range:
  – at 16A: -25°C to +50°C
  – at 32A: -25°C to +40°C
- Permitted relative humidity: 5% to 95% non-condensing
- Altitude: max. 2000m above sea level
- Ingress protection rating: IP54

Product dimensions / weight
- B x H x T: 240x495x163mm (without cable)
- Weight: approx. 4.8kg (depending on version)
- Recommended installation height: approx. 1,200 mm

Colours
- Surfaces in RAL 7016 (dark grey) and RAL 7004 (light grey)
- Design hood in special colours available as an accessory

Standards and directives
- Directives: 2004/108/EG, 2006/95/EG, 1999/5/EC R&TTE, 2011/65/EU
- European standards: EN 61851-1, EN 61851-22, EN 62196-1, EN 62196-2, EN 61439-1, E DIN EN 61439-7, EN 61000-6-1, EN 61000-6-3, EN 50581:2012 (RoHS-RL) RFID: EN 301 489-1, EN 301 489-3, EN 300 330-2, EN 50364
- US/Canadian standards: SAE J1772, UL 2594, UL 2231-1, UL 2231-2, CSA107.1, NEC, CFR

Conformity and certificates:
- CE
- VDE
- UL
- Nissan EV-Ready
- Renault Z.E. Ready 1.2

EV-Ready

RENAULT Z.E. READY

Type 2

Three-phase, up to 32A, up to 22kW

Type 2 with fixed cable

Three-phase, up to 32A, up to 22kW

Type 1

Single phase, up to 32A, up to 7,4kW