KeContact

P30

Charging Station

Operating instructions V 3.31

Translation of the original instructions

KEBA®

Automation by innovation.

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For information about KEBA and our subsidiaries please look at www.keba.com.

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1 Introduction

This manual is valid for KeContact P30.

The pictured devices used in this manual are visual examples. The figures and explanations contained in this manual refer to a typical device design. The devices used by you may differ in their appearance.

1.1 Representation of safety instructions

At various points in this manual, you will see notes and precautionary warnings regarding possible hazards. The symbols used have the following meaning:

DANGER!

indicates an imminently hazardous situation, which will result in death or serious bodily injury if the corresponding precautions are not taken.

WARNING!

indicates a potentially hazardous situation, which can result in death or serious bodily injury if the corresponding precautions are not taken.

CAUTION!

means that if the corresponding safety measures are not taken, a potentially hazardous situation can occur that may result in slight bodily injury.

Caution

means that damage to property can occur if the corresponding safety measures are not taken.

ESD

This symbol reminds you of the possible consequences of touching electrostatically sensitive components.

Information

Identifies practical tips and useful information. No information that warns about potentially dangerous or harmful functions is contained.

1.2 Purpose of the document

This document describes the operation of KeContact P30.

1.3 Requirements

This document contains information for people who want to operate a charging station.

1.4 Intended use

The charging station is intended for charging electric vehicles (such as electric cars). The connection of other devices (such as power tools) is not allowed.

The charging station is suitable for indoor and outdoor use. The charging station has to be installed vertically on a wall or on a floor-mounted column. The surface for the installation must be flat and suitably stable (e.g. brick wall, concrete wall). The respective national regulations must be observed with regard to the installation and connection of the charging station.

The intended use of the device always includes the compliance with the environmental conditions for which this device was developed.

The charging station has been developed, manufactured, tested and documented in accordance with the appropriate safety standards. If the instructions and safety instructions described for the intended use are observed, the product will normally not pose a risk to the health of persons or damage to property.

Not observing the safety instructions can result in risk of death, injuries and damage to the device!

The device manufacturer assumes no liability for resulting claims!

1.5 Warranty

Only general maintenance work that is expressly permitted by KEBA may be performed. Any other tampering to the device will result in a loss of the warranty claim.

A device with a broken manufacturer's seal or removed lead seal may no longer be put into operation. The necessary steps must be taken for having the charging station replaced or repaired by a specialist dealer or service partner.

1.6 Notes on this document

The manual is part of the product. It is to be retained over the entire life cycle of the product and should be forwarded to any subsequent owners or users of the product.

The instructions contained in this manual must be followed precisely. Failure to do so could result in the creation of potential sources of danger or the disabling of safety devices. Apart from the safety instructions given in this manual, the safety precautions and accident prevention measures appropriate to the situation in question must also be observed.

1.6.1 Contents of the document

- Description of the charging station
- Operating behavior of the charging station
- Operation of the charging station

1.6.2 Not contained in this document

- Assembly/disassembly of the charging station
- Commissioning of the charging station
- Troubleshooting

1.7 Further documentation

Manuals and additional information are available on our website:

www.keba.com/emobility-downloads

2 Safety notes

WARNING!

Risk of electric shock and fire hazard!

- Installation, commissioning, maintenance or retrofitting of the charging station must be performed by correctly trained, qualified and authorized electricians[1)] who are fully responsible for the compliance with existing standards and installation regulations. For details, see the "installation manual".
- The charging station does not have its own power switch. The line circuit breaker of the supply line serves as a mains disconnector.
- The charging station may only be operated in a perfect condition.
- A damaged charging station must be taken out of commission and repaired or replaced by a qualified and authorized electrician.
- A repair of the charging station is not permitted and may only be carried out by the manufacturer.
- No unauthorized conversions and modifications may be made to the charging station.
- No markings (such as safety signs, warnings, wire markings...) may be removed from the charging station.
- Never use faulty, worn-out or dirty charging connectors.
- The use of cable extension sets is prohibited.
- The use of adapters of any kind is prohibited.
- The charging station must be checked regularly for damage to the housing as well as for defects, wear and soiling of the charging socket or the charging connector including the charging cable.
- Observe the information and instructions for your vehicle carefully before you charge the vehicle using the charging station.

[1)] Persons who, due to their special training, expertise and experience as well as knowledge of current standards, are able to assess the work performed and the possible hazards.

Caution

Possible damage to property!

- Pull the charging cable out of the plug holder only by the plug and not by the cable.
- The charging cable may not be not damaged mechanically (kinked, pinched or driven over) and the contact area is not allowed to come into contact with sources of heat, dirt or water.
- Never clean the charging station with aggressive solvents and cleaning products, scouring materials, water jets (e.g. garden hose, pressure cleaner etc.) or excessive pressure.

3 Description of the charging station

3.1 Front view

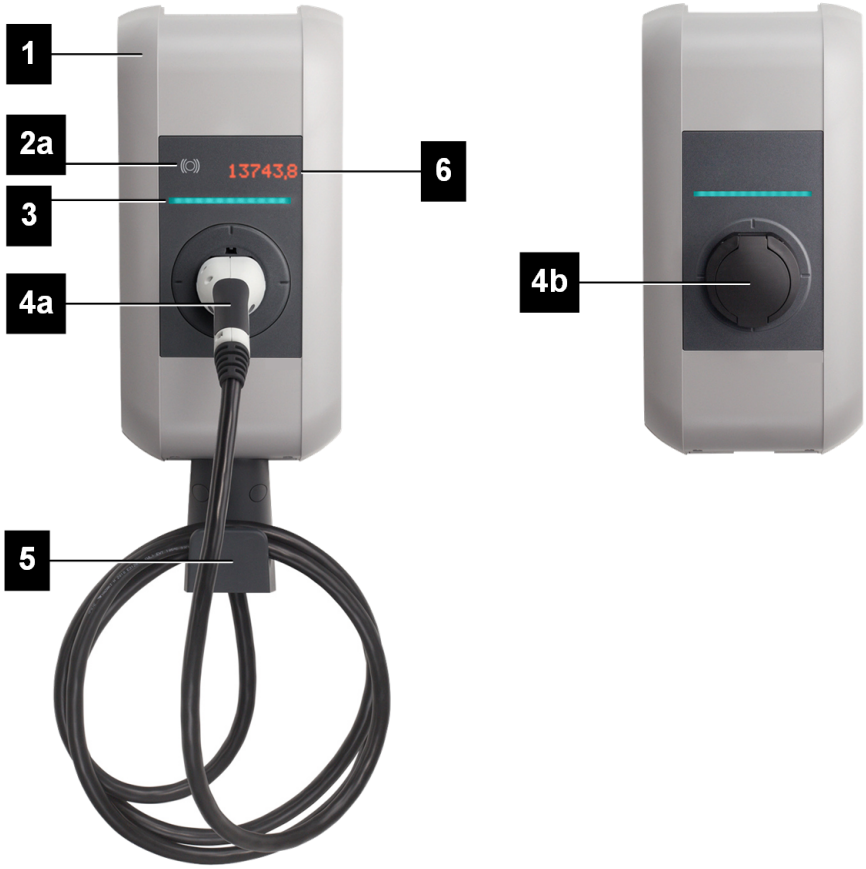


Fig. 3-1: Overview of charging station

1 ... Housing cover	2a ... RFID reader (optional)
3 ... LED bar	4a ... Permanently installed charging cable (optional)
4b ... Charging socket with cover (optional)	5 ... Holder for charging cable (optional)
6 ... Display (optional)	

Information

Depending on the design of the charging station, the charging socket or charging cable may deviate from the shape shown.

3.2 Type plate

The type plate is located at the top of the charging station.

Information

The type plate shown is an example. The actual data on the type plate depends on the variant.

Fig. 3-2: Example type plate

1 ... Manufacturer	2 ... Manufacturer's address
3 ... PN: Material number SN: Serial number	4 ... Product designation
5 ... Technical data	6 ... Marking of the approval
7 ... Type examination number	8 ... Accuracy class in accordance with EN 50470-1, -3
9 ... CE marking of conformity	10 ... Public key information
11 ... Production date	12 ... Production site

Fig. 3-3: Example type plate

1 ... Manufacturer	2 ... Manufacturer's address

3 ... Product designation	4 ... Material number
5 ... Technical data	6 ... CE marking of conformity
7 ... MID type examination number	8 ... MID accuracy class
9 ... MID marking	10 ... Serial number
11 ... Production date	12 ... Production site

3.3 Overview of variants

The type and features of the charging station can be determined from the product designation. The product designation is specified on the type plate.

Due to technical or legal restrictions, not all versions/options are available in all countries.

Product designation (example)	KC-P30-	E	C	2	4	00	1	2	-	0	0	R	-xx
Product and series	x												
Country-specific version		x											
Europe IEC		E											
Great Britain / United Kingdom		G											
Cable / Socket			x	x	x								
Socket			S										
Cable			C										
Type 1				1									
Type 2				2									
Shutter				S									
13 A					1								
16 A					2								
20 A					3								
32 A					4								
Cable type						x							
No cable						00							
4 m cable						01							
6 m cable						04							
5,5 m cable						07							
Device series							x						
e-series							0						
b-series							1						
c-series							2						
a-series							3						
x-series WLAN							B						
x-series WLAN, 4G							E						
x-series 4G							H						
x-series 4G, w/o LM							S						

Product designation (example)	KC-P30-	E	C	2	4	00	1	2	-	0	0	R	-xx
x-series WLAN, w/o LM							U						
Switching element								**x**					
1-phase contactor								1					
3-phase contactor								2					
Energy meter										**x**			
None										0			
Energy meter, not calibrated										E			
Calibratable energy meter, MID[1)]										M			
Calibratable measuring instrument for electrical energy[2)] with national approval										L			
X2 functionality											**x**		
Switch contact output											0		
Authorization												**x**	
None												0	
RFID, PLC[3)]												A	
PLC[3)]												P	
RFID												R	
Customer options													**xx**

[1)] MID (Measuring Instruments Directive): Measuring Instruments Directive
[2)] In accordance with § 46 of the German Measurement and Verification Act (REA No. 6.8)
[3)] The ISO 15118 functionalities are not yet available, but the charging stations are prepared for them.

Calibratable energy meter: Variants with this option are authorized for the measurement of active energy for billing purposes (in accordance with MID 2014/32/EU or specified national regulations). For these devices, there is an identifier of the approval on the type plate. The associated type examination refers to the complete unit. The measurement of the transmitted energy takes place by means of transducers on all phases to be contacted. Supporting documents (e.g. on the test mode) can be requested from KEBA.

Not all variants deriving from the product designation are available with a calibratable energy meter. A list of possible variants is included in the type examination certificate.

Information

There are additional requirements regarding installation and operation for calibratable energy meters. More information on this is available on our website: www.keba.com/emobility-downloads

3.4 Options

This chapter lists the possible options of the charging station.

3.4.1 RFID

The RFID reader is used for the non-contact authorization of a charging process with MIFARE cards or tags according to ISO 14443 and ISO 15693.

Fig. 3-4: RFID

1 ... RFID reader	

4 Displays and operating elements

4.1 LED bar

Fig. 4-5: Segments of the LED bar

The LED bar provides visual information about the current operating status of the charging station. It consists of 4 segments (S1 to S4), which can light up or flash, together or individually, in various colors.

The LED bar is only visible with activated power supply.

Display	Description
Dark	No power supply or defect; for details, see "Diagnostics"
Flashing green (every 3 seconds)	Ready for operation or with authorization option: Authorization done correctly
Flashing blue (every 3 seconds)	The charging station is waiting for authorization to enable a charging process.
Flashing green (after plugging in)	Locking of the charging cable to the charging socket
Green	The plugged-in charging cable is locked and charging can be started by the vehicle.
Flashing green (every second)	Execution of a charging process (applies to "EN 61851 Mode 3" charging process)
Flashing green (every 3 seconds)	Charging process finished and charging socket unlocked. The charging cable can be unplugged.
Flashing orange (every 5 seconds)	If the charging station is out of service (for example, because the temperature got too high), the charging process is temporarily interrupted and resumed after the station cools down.
Blue and orange	The charging station is starting up.
Orange (5 seconds)	Self-test during start-up
Orange (S3)	The charging station is in commissioning mode.
Flashing red	Malfunction; for details, see "Diagnostics"
Blue/red Red/white	Error display via color code; for details on possible causes of error and troubleshooting, see "FAQs" on our website

4.2 Display (optional)

Devices with energy meters (P30 c-series and x-series) have a (dot matrix LED) display.

Fig. 4-6: Display

The display may show different information depending on the operating status (e.g., software version, IP address, authorization request). The main task, however, is to display the status of the internal energy meter. The display lights up through the housing and is only visible when the power supply is active.

4.2.1 Display with energy meter

The following information is shown on the display:

Display	Description
∑ kWh 12345,6	Sum of total transmitted energy Display during startup of the charging station
kWh 12,3	Transmitted energy of the current charging process Display at start and after completion of a charging process
AbCdEfGh	Text display, e.g. call to action or information about the charging process

4.2.2 Display with calibratable energy meter

MID

For calibratable energy meters, additional MID-relevant contents are displayed. These are furnished with a special marking:

Display	Description
≦ ∑ kWh ≦ 12345,6	Sum of total transmitted energy Display during start-up of the charging station as well as at the start and after completion of a charging process

Display	Description
MI MID MI 12.34 MI b_56 MI A1B2	Displays of the firmware version Display during start-up of the charging station and when starting a charging process 1. "MID" 2. Firmware version 3. Build version 4. Checksum On the left is an example of the firmware version 12.34.56.
M! XXXXX	If the display is marked with a preceding "M!", an internal message was stored in the memory of the charging station during the charging process. When restarting the charging station, the marking is reset.
M! Error	MID-relevant error. The charging station must be returned for repair.

National approval

Calibratable energy meters with national approval also feature the following displays:

Display	Description
1,2 kWh	Transmitted energy of the current charging process Display during a charging process

Relevant displays are furnished with a special marking for the national approval:

Display	Description
ME vX#1A2B	Firmware version Display during start-up of the charging station and when starting a charging process The individual characters of the firmware version have the following meaning: vX: Version X, #1A2B: Checksum
ME kWh ME 12,3	Transmitted energy of the current charging process Display at start and after completion of a charging process
ME Id: *xxxxx	Identification data for the current charging process (e.g. serial number of the RFID card being used), for traceability of the transaction in billing. Display during the start of a charging process The second part of the identification data is displayed, while the first is replaced by an asterisk (*).

5 Authorization

This section covers the RFID authorization function of the charging station. For a description of the authorization function of x-series see "Configuration Manual".

With input X1 it is possible to authorize the charging process via external components (e.g., house control, etc.). For more information, see "Installation Manual".

5.1 Displays and signals

During authorization, the charging station can display different light patterns on the LED bar and emit acoustic signals.

LED bar

Display	Description
Flashing green (every 3 seconds)	Authorization done correctly. / No authorization required.
Flashing blue (every 3 seconds)	The charging station is waiting for authorization to enable a charging process. Authorization necessary (e.g. RFID card).
Orange (S4)	The teach-in of an RFID client card must be confirmed by holding the RFID master card in front again.

Acoustic signals

Signal	Description
Single tone	Authorization by key is done correctly. / RFID card has been read.
Rising tone sequence	RFID card has been accepted.
Falling tone sequence	RFID card has been rejected (no authorization).

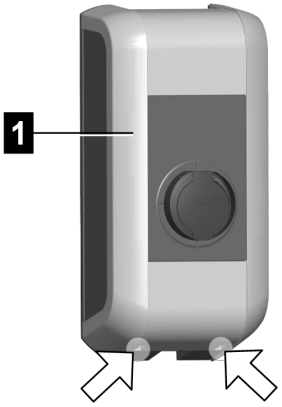
5.2 Authorization via RFID

By default, a charging process can be started without authorization. In order to use the authorization via RFID, RFID cards need to be taught-in.

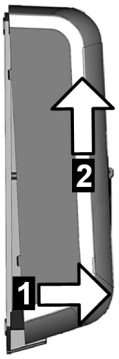
A maximum of 20 RFID cards can be taught into a charging station. An RFID master card must first be taught-in for this. Using this master card, additional RFID client cards can subsequently be taught-in.

5.2.1 Preparing the charging station

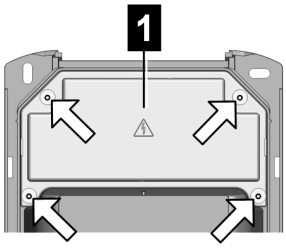
To teach in the RFID master card and to delete the taught-in RFID cards, the charging station must be rebooted via the service button. To access the service button, proceed as follows:



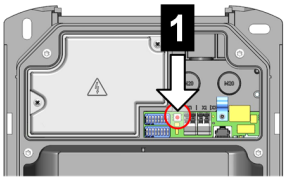
1) Unscrew the two screws on the bottom of the housing cover 1.



2) Lift the housing cover at bottom max. 1 cm 1 and then push upwards 2.



3) Unscrew the four screws of the connection panel cover 1 and remove the connection panel cover upwards.



The service button 1 in the connection panel is now accessible.

5.2.2 Teaching in the RFID master card

The RFID master card is the card that is taught in as the first card at the charging station. It is required for teaching in additional RFID client cards. In addition, it can also be used to authorize a charging process.

No charging session may be active for the teaching in and no vehicle may be connected to the charging station.

Information

If RFID cards have previously been taught in, they will be deleted in the course of the teaching-in procedure!

To teach in the RFID master card, proceed as follows:

1) Remove the housing cover and connection panel cover to access the service button (see 5.2.1 Preparing the charging station).
2) Hold the service button pressed in the connection panel until the second signal tone sounds (approx. 10 seconds).
   The charging station now performs a restart automatically.
3) Immediately after rebooting the charging station, an RFID master card must be taught in within 60 seconds by holding it in front of the RFID reader.

A successful teaching-in process is confirmed by a signal tone.

Information

After teaching in the RFID master card, the LED bar flashes green for a further 60 seconds and a charging session authorized by the RFID master card can be started. After this, the LED bar flashes blue to indicate that authorization to start a charge is required.

5.2.3 Teaching in the client card

The RFID client card can be used to authorize a charging process. The RFID master card is required to teach in an RFID client card.

No charging session may be active for the teaching in and no vehicle may be connected to the charging station. The LED bar must flash blue.

To teach in the RFID client card, proceed as follows:

1) Hold the RFID master card in front of the RFID reader until a signal tone sounds.
2) Within 3 seconds hold the new RFID client card to be taught in front of the RFID reader. A successful programming process is confirmed by a rising tone sequence.
3) Confirm the teach-in process within 3 seconds by holding the RFID master card in front of the RFID reader again. The procedure is concluded by a further rising tone sequence.

The LED bar then flashes blue to indicate that authorization to start a charge is required.

5.2.4 Deleting RFID cards

In some cases, it is necessary to delete the taught-in RFID cards. For example, after loss of an RFID card or in oder to charge without authorization. It is only possible to delete all taught-in RFID cards; deleting a single RFID card is not possible.

To do this, proceed as follows:

1) Remove the housing cover and connection panel cover to access the service button (see 5.2.1 Preparing the charging station).
2) Hold the service button pressed in the connection panel until the second signal tone sounds (approx. 10 seconds).
   The charging station will now automatically perform a restart, deleting all previously taught-in cards in the process.

If the deletion was successful, the LED bar flashes green and charging without authorization is possible.

5.2.5 RFID authorization at charging network

If the charging station: is part of a charging network (P30 c-series as client charging station: in a master/client network), then all RFID cards must be taught in on the master charging station (P30 x-series). The administration of the permitted RFID cards for the entire charging network is carried out at the master charging station. Information on this can be found in the specific "Configuration Manual".

6 Charging process

6.1 Starting the charging process

The starting of a charging process depends on whether the charging station has authorization. This is visible on the LED bar:

- Flashing green: No authorization required
- Flashing blue: Authorization required

Information

If the charging station is authorized without a vehicle plugged in, a vehicle can be plugged in for 60 seconds and this will start a charging session.

Starting the charging process

To start, proceed as follows:

1) For charging station with charging socket: Plug the charging cable into the charging socket of the charging station.
2) Plug the charging cable into the vehicle.
3) At charging station with authorization: Carry out authorization at the charging station by holding an RFID card.

The charging process can now be started by the vehicle.

If an interruption occurs during the plugging-in or charging process, the charging station will attempt to automatically restart the charging process (max. 5 times). If the charging process is still not able to be started after max. 5 attempts, the charging station goes into an error state. This can be remedied by properly terminating the charging process and possibly restarting the charging station. If the error occurs repeatedly, please contact your service partner.

6.2 Ending the charging process

To properly end the charging process, proceed as follows:

1) End the charging process on the vehicle
2) For charging station with charging socket: Disconnect the charging cable at the charging station
3) For charging stations with permanently installed charging cable: Stowing of the charging cable on the holder of the charging station

The charging process is completed.

7 Error diagnosis

Errors	Possible causes	Remedy
LED bar does not light up	No supply voltage	Check the RCD and line circuit breaker and switch on if necessary
	The charging station is faulty	Contact your service partner
Charging process is not started	The charging cable is not plugged in correctly	Unplug the charging cable and plug it in again
	The charging process was not carried out correctly	Follow the instructions in "Charging process"
	The charging socket may be soiled or damaged in the locking area	Clean the charging socket or have it replaced
	The vehicle does not require energy or it has an error	Check the vehicle
	The vehicle is programmed to charge at a later start point	-
	Lack of approval due to external control device (energy supplier, photovoltaic system, ...)	-
The vehicle not fully charged / longer charging time	Electricity reduction or interruption of the charging process by vehicle or charging station due to high temperature	When the charging station has cooled down, the charging process is continued and the charging current may be increased again. Protect the vehicle and the charging station from direct sunlight during the charging process (carport, garage, etc.).
	-	Visual inspection of the charging socket for soiling, wear or damage
	-	Contact your service partner as necessary
Charging cable cannot be unplugged	Charging process was not completed by the vehicle	Complete the charging process as per the vehicle manufacturer's instructions
	The charging socket may not unlock due to tensile stress on the charging cable	Press the plug in and connect to the vehicle again. Then, complete the charging process again.
LED bar flashes red	Error	Errors must always be acknowledged by unplugging the charging cable. For more information, see "FAQs" on our website.
	-	Switch off the supply voltage of the charging station (installed or superordinate RCD and line circuit breaker). Unplug the charging cable from the vehicle and the charging station. Switch the voltage supply back on.
	The charging station is faulty	Contact your service partner

If you have any questions or problems, please contact your service partner. For this purpose, make a note of the product designation and serial number of the device (see "Type plate").

8 Maintenance

The hardware of the charging station is basically maintenance-free, but must be checked regularly by the customer or system operator for defects of the charging socket or charging plug (including charging cable) and for damage to the housing (visual inspection).

Cleaning

Use a soft, damp cloth for cleaning. Stubborn dirt can be removed using a mild, solvent-free, non-scouring cleaning agent. The cleaning agent must not contain anionic surfactants.

8.1 Software update

The software of the charging station is subject to the update obligation in accordance with EU directive "Sales of goods 2019/771" and "Digital content 2019/770" and their national versions.

The software of the charging station must therefore always be kept up to date, as it may contain security updates, functional enhancements and bug fixes. A software update is available on our website:

www.keba.com/emobility-downloads

The information and instructions for the current software package from the associated release notes must also be observed.

The instructions for updating the software on P30 via USB or the network connection are contained in the *.zip file. For the P30 x-series, the configuration manual must also be observed.

Information

A software update process on the charging station is indicated by the LED bar slowly flashing orange.

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Automation by innovation.