

KeContact

P30

Charging Station

FAQ V 1.04

Translation of the original instructions

KEBA[®]

Automation by innovation.

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Table of contents

1	Introduction	4
1.1	Purpose of the document.....	4
1.2	Requirements.....	4
1.3	Notes on this document	4
2	Frequently asked questions (FAQ).....	6
2.1	General	6
2.2	Installation and dimensioning.....	6
2.3	Energy display (c-series and x-series).....	9
2.4	DC fault detection (DC fault current monitoring)	9
2.5	RFID (teaching).....	10
2.6	Access web interface (MAC address / IP address).....	10
2.7	Software update	11
2.8	Log file	14
2.9	Network and communication (x-series).....	14
3	Assistance in case of problems.....	20
3.1	General troubleshooting measures	20
3.2	Blue/Red error displays.....	21
3.3	Red/White error displays.....	23
4	Diagnostic options	25
4.1	Blue/Red error displays.....	26
4.2	Red/White error displays.....	30

1 Introduction

Information

*This document refers to the following device version and software version:
P30 from software version 1.5 and higher*

1.1 Purpose of the document

This document contains a collection of Frequently Asked Questions and Answers (FAQs) to P30 and provides help with error detection and troubleshooting.

Information

This document is an extension to the supplied manuals of P30. You must comply with all instructions and safety notes in these manuals!

1.2 Requirements

This document contains information for persons with the following requirements:

Target group	Required knowledge and abilities
End customer	Knowledge of: <ul style="list-style-type: none"> the mode of operation of the charging station, the displays and operating elements of the charging station.
Service technician	Electrician with suitable basic technical basic education Knowledge of: <ul style="list-style-type: none"> current valid safety information, the mode of operation of the charging station, the displays and operating elements of the charging station, basics of network technology, diagnostic options, Systematic fault analysis and rectification, the setting options on the charging station.

1.3 Notes on this document

1.3.1 Contents of the document

- Frequently asked questions and answers
- Diagnostic options

- Display of errors
- Measures to limit or rectify errors

1.3.2 Not included in this document

- Description of the charging station
- Assembly and disassembly of the charging station
- Configuration of the charging station

2 Frequently asked questions (FAQ)

This chapter lists frequently asked questions and their answers.

2.1 General

Which charging station (e-series, b-series, c-series or x-series) should I order?

The choice of charging station depends on the purpose. More detailed information is available on the KEBA website under https://www.keba.com/en/emobility/products/product-overview/product_overview.

How do I know which charging station I have and what the charging station is equipped with (for example, DC fault detection, energy meter, WLAN, RFID)?

The charging station type and its features can be derived from the product name. The "Operating instructions" describe how to derive this information. The product designation (**Example:** KC-P30- ES240032-000-xx) is found on the type plate.

What is the anticipated charging power per vehicle?

Depending on the vehicle model, charging with a maximum power of 22 kW (32 A) is possible. The charging power is shown in the technical data of the vehicle.

Are periodic system tests required?

Periodic system tests must be conducted in accordance with local regulations.

2.2 Installation and dimensioning

Which upstream residual-current device (FI/RCD) do I need?

P30 with DC fault detection: A FI/RCD Type A is sufficient.

P20: It should be a FI/RCD Type B or a FI/RCD Type A with DC fault detection and 6 mA DC tripping current.

How must the upstream line circuit breaker be dimensioned?

The line circuit breaker selected should be one level higher than the maximum current value set via the DIP switches. The information in the "Installation Manual" must be observed.

Example: With a DIP switch setting of 16 A, a line circuit breaker with 20 A can be used.

What is the required connected load per charging station?

For the connected load, there is no defined value but it is dependent on the available connected load. For each charging station, the connected load may be max. 32 A. The maximum permissible current (10 A, 13 A, 16 A, 20 A, 25 A, 32 A) is configured via the DIP switches in the housing.

What should I do if the power supply terminals cannot be opened?

To open the power supply terminal, a screwdriver with the following properties is required:

- Flathead screwdriver
- Blade length: front of at least 3 cm bare blade (no plastic covering)
- Blade width: 4 - 5.5 mm (3/16")

To open the power supply terminal, proceed as follows:

Caution

Risk of breaking the power supply terminal!

Do not press the screwdriver up, down or to the side in the power supply terminal.

-
- 1) Insert the screwdriver into the power supply terminal as shown

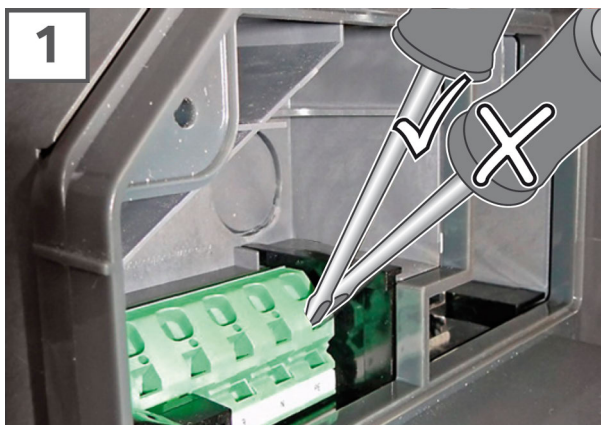


Fig. 2-1: Power supply terminal

- 2) Using moderate force, press the screwdriver straight into the power supply terminal until the contact opens. The angle of the screwdriver changes while pressing in.

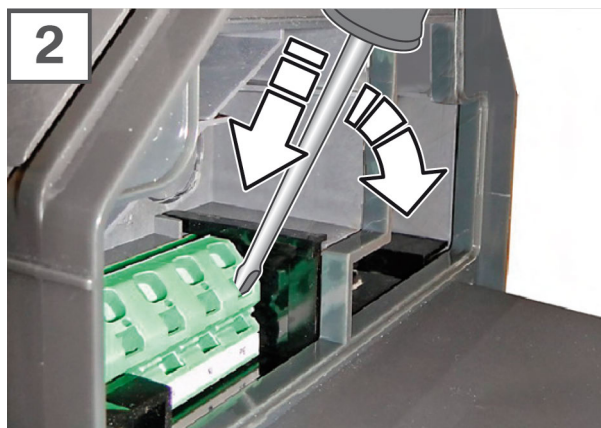


Fig. 2-2: Opening the power supply terminal

Are there options for controlling the charging current?

- Enable input [X1] to activate or deactivate the charging process
- Smarthome Interface (UDP), e.g. Loxone, Cohere, Smartfox
- Local charging management with P30 x-series
- For connection to an OCPP backend: Specification by the OCPP backend

What must be observed for installation in a (underground) garage?

- Official requirements
- Fire service regulations (ventilation systems, emergency shut-off devices)
- When using mobile network, check the signal strength in advance
- When laying power supply cables and network cables, steel conduit pipes should be used for surface installation (sabotage-proof)

Are there any additional installation options?

Yes, on a column base. The information in the corresponding installation instructions must be observed.

When is the system ready for operation?

The charging station is ready for use if at least the left 3 segments of the LED bar are flashing.

2.3 Energy display (c-series and x-series)

When is the charged power shown on the display?

Following a charging session, the energy of the completed charging session is displayed. When starting up the device, the total energy output of the charging station is displayed.

Can the power display be deactivated or permanently displayed?

No.

Does the charging station have a calibrated meter (MID certification)?

Certain variants of the c-series and x-series have a calibrated meter. Whether the charging station has a calibrated meter can be determined by the product name. The "User's Manual" describes how to determine this information from the product designation. The product designation is shown on the type plate.

2.4 DC fault detection (DC fault current monitoring)

Can I disable the DC fault detection?

No. DC fault detection is a safety-related feature and cannot be disabled.

Can the triggering current of DC fault detection be set?

No, the value is fixed at P30 with a maximum of 6 mA tripping current.

Does the charging station restart after a detected DC fault and how often?

If a DC fault has been detected, P30 attempts to restart up to 5 times (auto-recovery).

What happens after the restart (auto-recovery)?

If the restart (auto-recovery) was unsuccessful, the vehicle must be disconnected.

How can the DC fault detection be checked during the initial commissioning?

The charging station has an initial start-up mode. In this mode, a check with a corresponding vehicle simulator or a suitable test device is possible.

2.5 RFID (teaching)

Which RFID cards/RFID tags am I allowed to use?

RFID cards / RFID tags according to ISO 14443 and ISO 15693

Why is my RFID card not recognized?

- An incorrect format was used.
- The RFID card is not in the local whitelist. For the RFID card to be recognized, it must be taught in.
Charging network (x-series): The RFID card must be taught in at the master charging station.
Single charging station (c-series): The RFID card must be taught in directly at the charging station.
- For connection to an external OCPP backend: The RFID card is not in the whitelist of the OCPP backend. For the RFID card to be recognized, it must be stored on the OCPP backend.

How many RFID cards can be taught in on P20 or P30?

P20 and P30 b-series and c-series: up to 20 RFID cards

P30 x-series: up to 1,024 RFID cards

P30 x-series with connection to an OCPP backend: unlimited

2.6 Access web interface (MAC address / IP address)

Where can I see the MAC address?

In the web interface of the charging station

How can I set the IP address?

P30 b-series and c-series without network connection: If the charging station is not in any network, the IP address can be set permanently via the DIP switches (see "Installation Manual"). The charging station can be assigned an IP address in the range of 192.168.25.11 to 192.168.25.26.

P30 c-series with network connection: If the charging station is located in a network (master/slave network), the IP address is assigned automatically by the router or by the master charging station (**x-series** with activated DHCP server). When assigned by the master charging station, the IP address cannot be changed. When assigned by the router, the IP address can be changed in the user interface of the router. This is done by assigning the desired IP address to the MAC address of the respective charging station.

P30 x-series with connection to a router: If the charging station is connected to a router, the IP address is assigned by the router automatically. The IP address can be changed in the router's user interface by assigning the desired IP address to the charging station's MAC address.

P30 x-series with activated DHCP server: If the local DHCP server of the charging station has been activated, the charging station automatically receives the IP address 192.168.42.1. This IP address cannot be changed.

Where can I see the IP address?

P30 c-series and x-series: On the display when starting up the charging station

P30 c-series and x-series with network connection: If the charging station is located in a network (master/slave network), the IP address is displayed in the web interface of the master charging station.

How can the IP addresses of slaves be determined?

P30 c-series: On the display when starting up the charging station

P20: On the external router or with suitable scan programs.

2.7 Software update

With a software update, both the software and the firmware of the charging station are updated. All P20 and P30 charging stations have a firmware. P30 x-series has a firmware and an additional software.

Information

It is recommended to download the most-recent software for the charging station. A new software can take into account modified standards or improve the compatibility with new electric vehicles, for example.

Where can I find the most-recent software version?

The currently installed firmware version is briefly displayed when the charging station starts indicated a color code on the LED bar. The description below shows how to derive the firmware version from the color code.

Furthermore, the following charging stations have additional display options for the software and firmware version.

P20 and P30 e-series, b-series and c-series: The current firmware version is visible in the simplified web interface.

P30 x-series: The current firmware and software version can be seen in the web interface.

P30 with dot matrix LED display: The current firmware version is shown on the display when the charging station starts.

Deriving the firmware version from the color code

The firmware version consists of a major version and a subversion. Example: 3.09 (major version = 3, subversion = 09)

The **major version** is derived from the colors used. The current major version 3 has the colors blue/orange.

The **subversion** must be calculated. Each segment on the LED bar and each displayed color has a specific significance.

Significance of the LED segments:

LED segment	Value
S1	8
S2	4
S3	2
S4	1

Significance of the colors:

Color	Value
Blue	1
Orange	0

To calculate the subversion, the significance of the LED segment must first be multiplied by the significance of the color. The obtained results must then be summed.

Example:  => firmware version **3.09**

Determining the major version

Colors	Major version
blue/orange	3

Determining the subversion

LED segment	S1	S2	S3	S4
Color	Blue	Orange	Orange	Blue
Significance of the LED segment	8	4	2	1
Significance of the color	1	0	0	1
Result (LED segment x color)	8	0	0	1
Subversion	8 + 1 = 09			

Where do I find the software updates?

Software updates can be found on the KEBA website:



Manuals, software, downloads

<https://www.keba.com/en/emobility/service-support/downloads/Downloads>

How can I tell whether or not the update is suitable for my charging station?

Based on the product type and the equipment series you can compare which updates are suitable on the download page. Product type and equipment series can be determined by the product name on the type plate.

Example: KC-**[***]**- ES2400**[*]**2-000-xx

Example	Description	Options
[***]	Product type	<ul style="list-style-type: none"> • P20 • P30
[*]	Equipment series	<ul style="list-style-type: none"> • 0 ... e-series • 1 ... b-series • 2, 3, A ... c-series • B, C, D ... x-series

How are software updates performed?

P20 and P30 e-series, b-series, c-series without network connection: A description of how to perform the firmware update is included with the update file.

P20 and P30 c-series with network connection (slave charging station): The software update is carried out at the master charging station. The master charging station passes on the update to the connected slave charging stations.

P30 x-series: To bring the software of the charging station up to date, a software update in the form of a *.keb file is required. The software update can be done with a USB stick, via LAN or via the web interface. With a software update, both the software and the firmware of the charging station are updated.

Information

The software update can take up to an hour. The update process is indicated by a slow orange flashing of the LED bar.

After the software update, the charging station restarts automatically. The LED bar will flash blue or green, depending on the authorization setting.

Software update via USB stick (P30 x-series)

To perform a software update via a USB stick, proceed as follows:

- 1) Download the current software for the charging station (*.keb file).
- 2) Plug the USB stick into a PC.
- 3) Format the USB stick with FAT32.
- 4) Create a new directory on the USB stick with the name "UPD".
- 5) Copy the downloaded *.keb file into the "UPD" directory.

- 6) Connect the USB stick to the USB interface of the charging station. The update starts automatically.

Software update via web interface (P30 x-series)

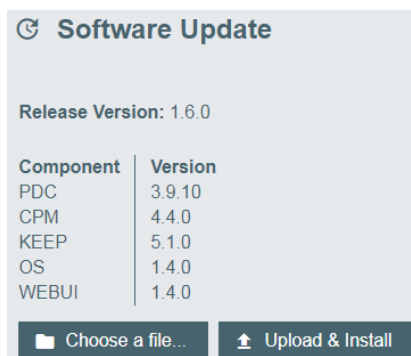


Fig. 2-3: Web interface software update

To perform a software update via the web interface, proceed as follows:

- 1) Download the current software for the charging station (*.keb file).
- 2) Log into the web interface of the charging station.
- 3) In the main menu under "System" select the item "Software Update".
- 4) Upload the current software using the "Choose a file ..." button.
- 5) Start the update process with the "Upload & Install" button.

Software update via OCPP backend (P30 x-series)

A software update via an OCPP backend requires an FTP link. For details on using the FTP link, contact the provider of the OCPP backend.

2.8 Log file

How can I download the log file?

Depending on the device version, the log file can be downloaded in the following ways:

- Via the web interface
- With an empty USB stick (x-series only): For downloading, the USB stick must be connected to the charging station. After this, the log files are automatically loaded onto the USB stick. When the download is complete, the charging station indicates that the USB stick can be removed.

2.9 Network and communication (x-series)

This chapter answers specific questions about networking and communication with P30 x-series.

2.9.1 Network

Why do some charging stations have two Ethernet connections?

The Ethernet1 connector [X4] (LSA+) is intended for hardwired Ethernet communication.

The Ethernet2 connector [X3] (RJ45) is for debugging purposes only.

Information

The Ethernet1 connection [X4] and Ethernet2 connection [X3] are connected in parallel on the circuit board and cannot be used at the same time! The connection that is not used must be unplugged.

Can the charging station be integrated into a network with DHCP server?

Yes, you have to deactivate the local DHCP server of P30 x-series via the configuration. P30 is then assigned an IP address by an external DHCP server.

How do I activate the local DHCP server?

With P30 x-series, the internal DHCP server can be activated via a configuration file with the parameter "localDHCPserver = true" or in the web interface.

After restarting the system, all slaves are re-assigned the same IP address with the network ID 192.168.42.xx.

What are the options for an OCPP backend connection?

- External router (LAN/WLAN) with DHCP
- Mobile network (3G/UMTS or 4G/LTE)

Which IP addresses may be assigned to the charging station?

The IP address range of an external DHCP server is **not** permitted to be 192.168.25.xxx as the charging station uses the internal IP address 192.168.25.1 and there would be an IP conflict.

2.9.2 Mobile network communication

Can an external mobile network antenna be used?

No, it is not possible to use an external aerial. In case of poor mobile radio reception, an external router should be used.

What points need to be observed for a mobile network connection?

- Check the signal strength
- Data volume
- Enable the required ports

Which SIM card type is to be used?

Mini SIM card, ISO/IEC 7810:2003, ID-000, 25.0 x 15.0 x 0.76 mm

Can mobile network communication and LAN be used simultaneously?

Yes, mobile network communication and LAN (LSA+) can be used simultaneously if:

On the LAN network there may be a switch or a router with deactivated DHCP server to avoid conflicts with the DHCP server of the mobile network modem.

What APN information do I need from the provider?

- APN
- Username and password
- PIN for the SIM card

2.9.3 WLAN

Where can I find the password for the WLAN access point (WLAN hotspot)?

The password and the IP address of the WLAN access point are listed on the configuration label. The configuration label is in a pouch which is enclosed with the mounting material. The password can be changed in the web interface.

Which WLAN channels are supported?

The WLAN channels 1 to 11 are supported.

2.9.4 Local charging network

The following figure shows an example of a local charging network with optional connection to an external OCPP backend.

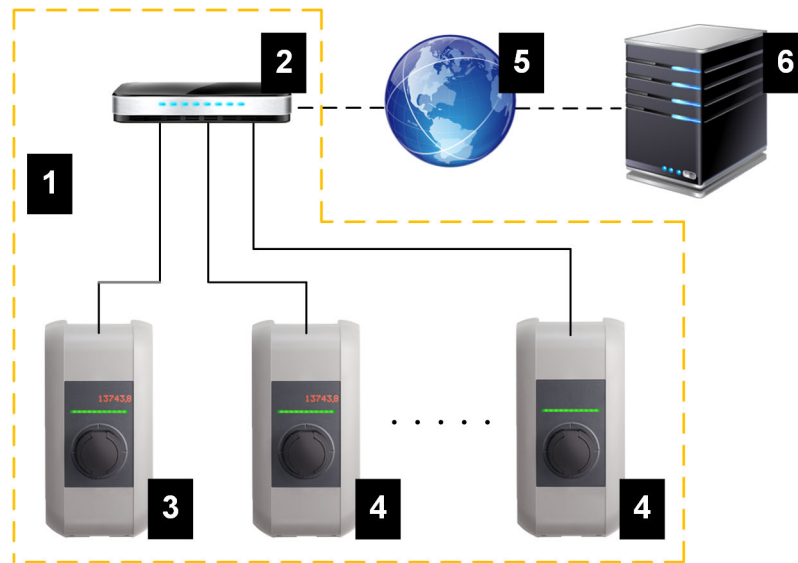


Fig. 2-4: Example network setup

1 ... Local charging network	2 ... Router/Switch
3 ... Master charging station (x-series)	4 ... Slave charging station (c-series)
5 ... Higher-level network/Internet	6 ... OCPP backend

Can I operate a local charging network?

Yes, with P30 x-series, you can locally control up to 15 charging stations of the type P20 c-series or P30 c-series. For details, refer to the "P30 x-series Configuration Manual".

Is an external charging network possible?

Yes, an external charging network can be realized via UDP and/or OCPP.

How do I know if the charging station is connected to the OCPP backend?

On the master charging station, all 4 segments of the LED bar flash green or they flash blue if authorization is required. The requirement is that the DIP switch 2.5 has been set to ON.

When do 3 or 4 segments of the LED bar flash?

3 segments of the LED bar are flashing: Master and slave are ready for operation but not connected to the OCPP backend.

4 segments of the LED bar are flashing: Master and slave are ready for operation and connected to the OCPP backend.

The requirement is that the DIP switch 2.5 has been set to ON.

Am I permitted to control a master charging station via UDP?

Yes.

What is the anticipated data volume?

The data volume for communication via OCPP 1.5 SOAP is between 10 and 50 MB per month. The amount of data depends on the number of charging sessions.

Which parameters are required for commissioning?

In general:

- Total current of the system

For connection to an OCPP backend:

- Mobile network communication:
 - OCPP URL
 - APN data of the provider
 - Port for incoming and outgoing communication
- LAN/WLAN:
 - OCPP URL

What factors should be considered when dimensioning a local charging network?

- Parallel charging
- Charging duration
- Charging power
- Connected load for the entire system

2.9.5

Master/Slave

Is it possible to connect a master charging station and a slave charging station via direct cabling?

One master charging station and **one** slave charging station can be directly connected via the Ethernet1 connector (LSA+). The corresponding connection cable must not be crossed. In this case the Ethernet2 connector (RJ45), which is used for debugging purposes, cannot be used any more.

A master charging station and **multiple** slave charging stations must always be connected via a router or switch.

How do I tell when a slave is connected to the master?

- In the web interface
- On the LED bar
 - Without OCPP connection: On the slave charging station, the left 3 segments of the LED bar flash green or they flash blue if authorization is required.
 - With OCPP connection: On the slave charging station, all 4 segments of the LED bar flash green or they flash blue if authorization is required.

How many slave charging stations can I connect to a master charging station?

Up to 15 slave charging stations in a local charging network can be connected to a master charging station.

2.9.6 Router/Switch

Which router/switches can be used?

All.

How should be the router/switches be configured?

Information about this can be found in the configuration manual of the router/switch.

What must be observed when using a router?

Port forwarding must be activated.

Am I permitted to attach two master charging stations with activated internal DHCP server to the same switch?

No. The use of two master charging stations in the same network is only permitted if an external DHCP server is used (DHCP function of both master deactivated).

2.9.7 Configuration

Which USB sticks can I use for the configuration?

All USB sticks that are formatted with FAT32 can be used.

Information

For further information, please refer to the "P30 x-series Configuration Manual".

3 Assistance in case of problems

The tables below should help you to identify a problem and perform the recommended measures.

Caution

Improper repair can lead to damage of the charging station!

Repairs to the charging station may only be carried out by authorized specialists (such as service technicians).

P30 outputs error messages via the LED bar in the event of faults that may occur during operation or after plugging in the charging cable. In addition, these errors are stored with additional in a log file (except for the e-series).

Error displays are shown in the following color combinations:

- Blue/red
- Red/white

Appropriate measures can be derived based on the error display.

Whenever an error occurs, it is recommended that you first perform the general troubleshooting steps.

3.1 General troubleshooting measures

If the charging station indicates an error on the LED bar, general troubleshooting steps can be performed first. After each step, it must be checked whether the error is still displayed. Specifically, these are the following steps:

- **Stop the charging procedure** by unplugging the vehicle from the charging station. Then start the charging procedure again.
- **Restart the charging station:** Disconnect the vehicle from the charging station and switch off the charging station for a short time (30 seconds) via the line circuit breaker.
- **Perform a software update.**

If the error continues to be displayed, the measures from the following tables must be carried out.

Contact a service technician

Some errors can only be resolved by a service technician. The measure is then "Contact service technician". With "service technician" it is meant the dealer or service partner where the charging station was purchased or the electrician who installed the charging station.





Helpful information








In order for the service technician to perform a quick troubleshooting, he will require various information about the charging station. It is recommended that you have the following information ready before contacting the service technician:


- Product name and serial number of the charging station (on the type plate)
- Installed software version
- Activity during which the error occurs
- Vehicle brand and model

3.2 Blue/Red error displays

This chapter covers the error messages shown in blue/red on the LED bar.







LED bar	Cause	Measure
	The switch-on test failed. The contactor in the charging station could not be switched on.	The charging station is defective and must be repaired or replaced.
	An incorrect supply voltage has been detected.	Contact a qualified electrician to check the correct connection of the charging station to the mains. If the device is correctly connected and the error persists: The charging station is defective and must be repaired or replaced.
	The charging current is too high. The connected vehicle charges with more current than permitted.	Compare the DIP switch settings of the charging station with the maximum charging current in the technical data of the vehicle. If the configuration of the charging station is lower, then the configuration must be adapted via the DIP switches. The configuration may only be adapted if this does not overload the connection. Compare the displayed value in the charging current display of the vehicle with the technical data of the vehicle. If the value in the charging current display is higher, then the vehicle must be checked in the workshop. If the check in the workshop does not provide a result: Contact a service technician
	The charging station has received an unexpected signal.	Check cables and connectors for possible damage and replace if necessary.




LED bar	Cause	Measure
	<p>The internal fault current monitoring of the charging station was triggered.</p>	<p>If the error occurs during startup without a connected vehicle: Disconnect the charging station for a short time (30 seconds) via the line circuit breaker.</p> <p>If the error occurs when the vehicle is plugged in: Cancel charging and switch off charging station for a short time (30 seconds) via the line circuit breaker. Then restart the charging process.</p> <p>If the error occurs repeatedly on the same vehicle: Have the vehicle checked in the workshop. It may be necessary to replace the charge controller in the vehicle.</p>
	<p>The charging station has detected a communication error with the display or a configuration error.</p>	<p>Verify that the DIP switches are configured correctly (see the "Installation Manual").</p> <p>If the error persists: Contact a service technician</p>
	<p>The internal switching-current or fault-current mechanism has triggered.</p>	<p>Cancel charging and switch off charging station for a short time (30 seconds) via the line circuit breaker. Then restart the charging process.</p> <p>If the error persists: The charging station is defective and must be repaired or replaced.</p>
	<p>The internal system configuration is faulty.</p>	<p>Contact a service technician</p>
	<p>A previously occurring error persists.</p>	<p>Contact a service technician</p>
	<p>Internal error</p>	<p>Contact a service technician</p>
	<p>Internal error</p>	<p>Cancel charging and switch off charging station for a short time (30 seconds) via the line circuit breaker. Then restart the charging process.</p> <p>If the error persists: The charging station is defective and must be repaired or replaced.</p>

LED bar	Cause	Measure
	Internal error	<p>Disconnect the vehicle from the charging station and restart the charging process.</p> <p>If a firmware/software update is running: Update has failed. Download the update again. If this does not solve the problem, a deep firmware update must be performed, see "Firmware Update Instructions".</p> <p>If the error persists: Contact a service technician</p>

3.3 Red/White error displays

This chapter covers the error messages shown in red/white on the LED bar.

LED bar	Cause	Measure
	The plug was pulled out of the socket during charging or the plug was not properly locked and released from the socket during charging.	Disconnect plug and reconnect, paying attention to the correct locking.
	The plug was not recognized.	Check if the plug is compliant with the standard.
	Overtemperature shutdown: The permissible temperature in the charging station has been exceeded.	<p>Disconnect the plug and wait until the charging station has cooled down.</p> <p>If the error occurs repeatedly: Check that the device is mounted in a suitable place.</p>
	The plug could not be locked.	<p>Unplug the plug and quickly plug it in again.</p> <p>If the problem persists, check the following: Contamination of the socket; use of a standard-compliant plug; mechanical damage of the plug; cable defect.</p>
	The charging station has not detected an electric vehicle but rather an unauthorized consumer. Only standard-compliant electrically operated vehicles may be charged.	Remove the unauthorized consumer and restart the charging process.
	The charging station is in commissioning mode.	Check the DIP switch settings for correct configuration and restart the charging process (see the "Installation Manual").

LED bar	Cause	Measure
	<p>The charging station has detected a short circuit.</p>	<p>Check cable and plug for damage and replace defective component.</p> <p>If the error persists: Contact a service technician</p>
	<p>The charging station has detected a configuration error.</p>	<p>Check the DIP switch settings for correct configuration and restart the charging process (see the "Installation Manual").</p>
	<p>The charging station has detected an invalid cable. For compatibility reasons, the charging station does not accept charging cables with a charging current of 13 A or less.</p>	<p>Use a charging cable with a higher charging current.</p>

4 Diagnostic options

This chapter provides in-depth information to help service technicians diagnose and troubleshoot.

It is recommended you perform the general measures for troubleshooting first, see 3.1 General troubleshooting measures.

Log file

Details about the error messages can be found in the log file (except for the e-series). There the error history and detailed information about the errors can be called up in the log file.

Depending on the device version, the log file can be downloaded in the following ways:

- Via the web interface
- With a USB stick (x-series only)

Via the web interface

- P30 x-series: The log files can be viewed and downloaded in the "System" area under "Logging".
- All other P30 series: The logging can be viewed in the web interface and copied from there.

With a USB stick (x-series only)

An empty USB stick is required. For downloading, the USB stick must be connected to the charging station. After this, the log files are automatically loaded onto the USB stick. When the download is complete, the charging station indicates that the USB stick can be removed.

Determination of the error group

The errors are displayed in the log file via an error code. The position on the far right of the error code indicates to which error group an error code belongs. The error group can be calculated from the error display on the LED bar.

Each segment on the LED bar has a specific significance:

LED segment	Value
S1	8
S2	4
S3	2
S4	1

Each displayed color has a specific significance:

Color	Value
Blue	0
White	0
Red	1

The following steps are necessary to calculate the error group:

- 1) First, the significance of the LED segment must be multiplied by the significance of the color.
- 2) All results obtained are subsequently summed up.
- 3) The sum is now converted to a hexadecimal digit. This hexadecimal digit indicates the error group.

Example: 

LED segment	S1	S2	S3	S4
Color	Red	Red	Blue	Blue
Significance of the LED segment	8	4	2	1
Significance of the color	1	1	0	0
Result (LED segment x color)	8	4	0	0
Error group (Sum of all results)	12 (decimal) =c (hexadecimal)			

=> The error code is: **0x[xxx]c**

4.1 Blue/Red error displays

This chapter covers the error messages shown in blue/red on the LED bar.

ERROR_SCHUETZ



Error group: 0x [xxx] 1

The switch-on test failed. The contactor in the charging station could not be switched on. The contactor is not functioning or an internal function has prevented the contactor from being switched on.

Error code	Cause
0x9001	The current monitoring has not enabled the activation of the contactor. The function must be ready before the switching on.
0xa001	The charging controller has not enabled the activation of the contactor. The function must be ready before the switching on.
0xc001	The contactor is not switched on despite successful activation. The cause of the fault may lie in the contactor control but also in the contactor itself.

Measures

The charging station is defective and must be sent in for repair.

ERROR_VOLTAGES



Error group: 0x [xxxx] 2

An incorrect supply voltage has been detected. The following causes are possible:

- An undervoltage was detected on phase 1: $U < 160 \text{ V}$
- An overvoltage was detected on one of the three phases: $U > 285 \text{ V}$
- The energy meter (voltage monitor) does not work. All measured values of the last 10 seconds were outside the specified tolerance range.

Measures

Check the charging station for correct connection to the mains supply.

If the device is correctly connected and the error persists: The charging station is defective and must be sent in for repair.

ERROR_CURRENT



Error group: 0x [xxx] 3

The charging current monitoring has detected too high a charging current. The cause of the overload is most likely to be in the connected vehicle. The criterion for the overload safety cut-off is an overcurrent that has been detected for at least 8 seconds on at least one phase.

The term overcurrent is defined as follows: $I > 120\%$ of the current input through the charging station

Measures

Compare the DIP switch settings of the charging station with the maximum charging current in the technical data of the vehicle. If the configuration of the charging station is lower, then the configuration must be adapted via the DIP switches. The configuration may only be adapted if this does not overload the connection.

Compare the displayed value in the charging current display of the vehicle with the technical data of the vehicle. If the value in the charging current display is higher, then the vehicle must be checked in the workshop.

If the check in the workshop does not provide a result: Contact the KEBA support.

ERROR_PILOT



Error group: 0x [xxx] 4

Unexpected pilot signal received. The charging station has received an unexpected or undefined signal from the connected vehicle.

Measures

Check cables and connectors for possible damage and replace if necessary.

ERROR_FI



Error group: 0x [xxx] 5

The internal fault current monitoring of the charging station was triggered. An excessively high leakage or fault current has occurred in the charging station vehicle circuit.

The cause may be a failed self-test of the charging station. The error may also have been triggered by the connected vehicle.

Error code	Cause
0x8005	Self-test of fault current monitoring failed during restart of the charging station.
0x8015	Self-test of fault current monitoring failed after an error recovery. Either communication error with safety logic (error display only in firmware version 3.06) or fault current monitoring does not work.
0x8025	Self-test of fault current monitoring during connection of a vehicle failed. This self-test is indicated by the LED bar glowing orange for 3 seconds when the vehicle is plugged in.
0x8035	Check of the fault current monitoring status immediately before the contactor was switched on failed.
0x8045	Timeout during attempt to turn on the contactor.
0x8065	Switching on the contactor in the event of an error (tripping by fault current within 5 seconds -> soft fault). Charging cable must be disconnected.
0x8075	A fault current limit was exceeded during the charging procedure. The permissible limits are 6 mA for DC residual currents and 30 mA for AC residual currents.

Measures

If the error occurs during startup without a connected vehicle: Disconnect the charging station for a short time (30 seconds) via the line circuit breaker.

If the error occurs when the vehicle is plugged in: Cancel charging and switch off charging station for a short time (30 seconds) via the line circuit breaker. Then restart the charging process.

If the error occurs repeatedly on the same vehicle: Have the vehicle checked in the workshop. It may be necessary to replace the charge controller in the vehicle.

ERROR_METER / ERROR_LED



Error group: 0x [xxx] 6

Possible causes for this error are:

- Communication error with the energy meter
- Communication error with the LED controller
- Configuration error of the energy meter

Error code	Cause
0x8006	Communication with the energy meter is faulty or not possible.
0x8046	A configuration error of the energy meter has occurred. The calibration data may possibly be incorrect.
0x8056	Communication with the LED controller is faulty or not possible. This error can occur immediately after a software update and is not critical in this case.
0x8086	The energy meter does not provide any measured values.
0xa006	The coupling between charge controller and LED controller is faulty. This error only occurs on devices with MID certification.

Measures

Verify that the DIP switches are configured correctly (see the "Installation Manual").

If the error persists: Replace the charging station

ERROR_CFB



Error group: 0x [xxx] 7

The internal switching-current or fault-current mechanism has triggered. The feedback of the contactors on a control was not OK. Possible causes include an error in the contactor monitoring function or a fused contactor. A fused contactor is a non-resettable hard fault.

Measures

Cancel charging and switch off charging station for a short time (30 seconds) via the line circuit breaker. Then restart the charging process.

If the error persists: The charging station is defective and must be sent in for repair.

Note for devices with firmware version prior to 3.06: Communication with the safety logic of the charging station may abort at irregular intervals. The error can be remedied in such cases by restarting the charging station. Since the error can occur repeatedly with old firmware versions, a software update is required.

ERROR_CONFIG



Error group: 0x [xxx] 8

The internal system configuration is faulty.

Measures

Replace the charging station.

ERROR_PERSIST



Error group: 0x [xxx] c

A previously occurring error persists despite running through the automatic error reaction. The error is displayed on the LED bar alternately with the triggering error if the original error can no longer be reset.

Measures

Contact the KEBA support.

ERROR_CON



Error group: 0x [xxx] d

Internal error

Measures

Contact the KEBA support.

ERROR_STATE



Error group: 0x [xxx] e

The internal charge controller has requested an illegal status change.

Measures

Cancel charging and switch off charging station for a short time (30 seconds) via the line circuit breaker. Then restart the charging process.

If the error persists: The charging station is defective and must be sent in for repair.

ERROR_SYSTEM



Error group: 0x [xxx] f

The communication with the charging controller of the charging station is not possible or there is an error in the firmware.

Measures

Disconnect the vehicle from the charging station and restart the charging process.

If a software update is running: Software update has failed. Download the software update again.

If the error persists: Contact the KEBA support.

4.2 Red/White error displays

This chapter covers the error messages shown in red/white on the LED bar.

AUTARK_PLUG_LOST



Error group: 0x [xxx] 1

The plug was pulled out of the socket during charging or the plug was not properly locked and released from the socket during charging.

Measures

Disconnect plug and reconnect, paying attention to the correct locking.

AUTARK_PLUG_UNDEF



Error group: 0x [xxx] 2

The plug was not recognized.

Measures

Check if the plug is compliant with the standard.

AUTARK_OVERHEAT



Error group: 0x [xxx] 3

Overtemperature shutdown: The permissible temperature in the charging station has been exceeded.

Measures

Disconnect the plug and wait until the charging station has cooled down.

If the error occurs repeatedly: Check that the device is mounted in a suitable place.

AUTARK_LOCK_FAILED



Error group: 0x [xxx] 4

The plug could not be locked.

Measures

Unplug the plug and quickly plug it in again.

If the problem persists, check the following:

- Dirt in the socket
- Use of a standard-compliant plug
- Mechanical damage of the plug
- Defect of the cable

AUTARK_OHMIC_LOAD



Error group: 0x [xxx] 5

The charging station has not detected an electric vehicle but rather an unauthorized consumer. Only standard-compliant electrically operated vehicles may be charged.

Measures

Remove the unauthorized consumer and restart the charging process.

AUTARK_IBN_MODE

Error group: 0x [xxx] 7

The charging station is in commissioning mode.

Measures

Check the DIP switch settings for correct configuration and restart the charging process (see the "Installation Manual").

AUTARK_SHORT_CIRCUIT

Error group: 0x [xxx] 8

The charging station has detected a short circuit.

Measures

Check cable and plug for damage and replace defective component.

If the error persists: Contact the KEBA support.

AUTARK_CONFIG_ERR

Error group: 0x [xxx] 9

The charging station has detected a configuration error.

Measures

Check the DIP switch settings for correct configuration and restart the charging process (see the "Installation Manual").

AUTARK_13A_ERROR

Error group: 0x [xxx] a

The charging station has detected an invalid cable. For compatibility reasons, the charging station does not accept charging cables with a charging current of 13 A or less.

Measures

Use a charging cable with a higher charging current.