KeContact

KeContact P20_2.5a3
FW-Releasenotes

Product **KeContact P20**

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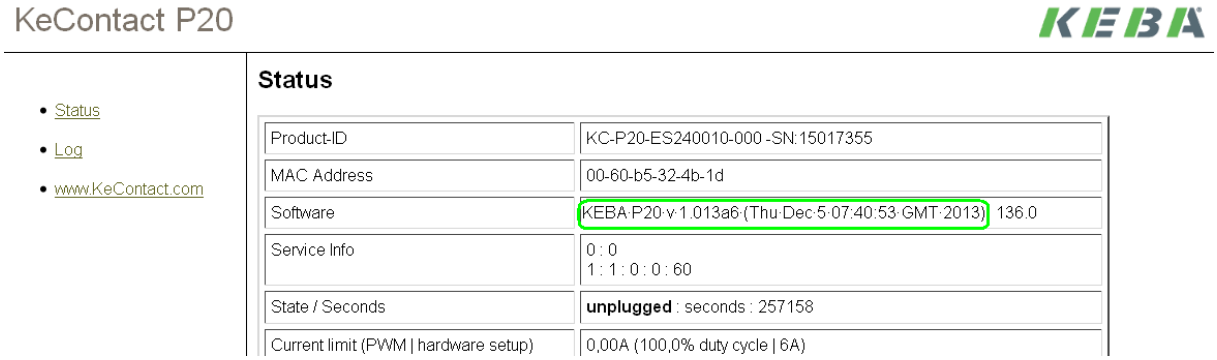
Content

1 General

This document describes changes of the latest firmware version. The content is categorized as enhancements, changes because of normative requirements and bug fixes.

1.1 Identification:

The current version can be read on the web interface. Follows an example how the web interface looks like.



1.2 Further Documents and Information

http://www.keba.com/en/emobility/service-support/downloads/Downloads

- User manual
- Installation manual
- FAQ for users and commissioning
- Smart Home UDP programming instructions (UDP Programmers‘ Guide

2 Version 2.5a3

2.1 Identification

The current version of the firmware can be read on the web interface.

“KEBA P20 v 2.5a3 (160613-061001):29309:143.0“

2.2 Compatibility information

This firmware is compatible with all KeContact P20 charging stations of the type KC-P20-xxxxxxxx-00x-xx.

2.3 Resolved issues, new features and improvements

2.3.1 Unlock command TCH (Feature)

This feature allows you to unlock via UDP the connector plugged to the P20.
The UDP command is “unlock”.
Before sending this command to the P20, the charging session has to be stopped with the UDP command "ena 0" (see the UDP Programmer's Guide).

2.3.2 Unlock retries (Feature)

In case the plug is blocked, the P20 tries three more times to unlock the plug before to report an error. See the following picture which show the colours combination of the leds in case of error.

2.3.3 EEPROM (Bug)

A EEPROM error is fixed with this release. The error is sometimes occurred due to an incorrect writing and reading sequence of the EEPROM, which had the clacking of P20 as a consequence.

2.3.4 UDP commands in e and b-series (Feature)

Both the e-series and b series are UDP capable and are able to reply to the following UDP commands (see the UDP Programmer's Guide):
“i”
”report 1”

2.3.5 Authorisation logic when DSW 1.1 =OFF) (Feature)

If the dip switch DSW 1.1 is Off, then the charge can be released either by X1 **or** RFID.
If dip switch DSW 1.1 is ON, then the charge can be only released by both X1 **and** RFID
In both cases, if the P20 is not equipped with a RFID reader, then for the logic it is like the RFID authorisation is always enabled and therefore X1 does not need to be bridged.

2.3.6 Reading RFID Timing improvement (Feature)

The timing by reading the card has been changed in order to avoid reading the same RFID card two times.

2.3.7 Tesla charging switching from single phase to three phase (Feature)

The P20 used to detect a failure in case of switching the supply from single phase to three phase while charging a Tesla. An Overcurrent failure occurred after switching during operation. With this release is now possible to switch from single phase to three phase without a failure being detected.

2.3.8 TCP connecting Timeout improvement

The TCP connection has been improved.
When the P20 is connected as a Slave to a master, in case that 10 consecutive connections via TCP with the master will fail, then the P20 will be rebooted.

2.3.9 IP Address assignment improvement

The P20 will attempt up to three times to obtain an IP address from dhcp server.
In this way it is improved the reliability of the P20 by the assignment of an IP address even with slow routers / dhcp.

3 Version 2.3a3

3.1 Identification

The current version of the firmware can be read out via the web interface.

"KEBA P20 v 2.3a3 (150709-081632) : 92 : 141.0"

3.2 Compatibility information

This firmware is compatible with all KeContact P20 charging stations of the type KC-P20-xxxxxxxx-00x-xx.

3.3 Resolved issues

RFID fail function caused by a short power loss

After a power loss between one or two seconds, it can happen, that the RFID-Reader does not operate any more. This fail function could not be solved by resetting the Wallbox through the service button.

4 Version 2.3a2

4.1 Identification

The current version of the firmware can be read out via the web interface.

“KEBA P20 v 2.3a2 (150527-044713) : 47630 : 141.0”

4.2 Compatibility information

This firmware is compatible with all KeContact P20 charging stations of the type KC-P20-xxxxxxxx-00x-xx.

4.3 Enhancements

Adjustment of the value „hardware setup“ on the web interface

The value "hardware setup" under the heading "Current Limit" on the web interface has been indicated with 6A, when no vehicle is plugged in. Now, for this parameter 0A is displayed in this state.

Adjustment of the value „curr HW“ of the Smart Home UDP-Interface

The value "Curr HW" in report 2 so far delivered "6000" when no vehicle is connected. This value shows now „0“ as maximum possible charging current and the value can therefore be more clearly included into a current regulation.

Readability of the status LEDs in color "blue"

The color „blue“ was changed to “light blue” to improve the visibility.


Old color definition

New color definition

Communication Hub mode

In the Communication Hub mode the wallbox tries to establish a connection to a superordinate communication module via the network.
This mode is activated by setting the DIP-switch 2.5.

Connection state of a superordinate Communication module

In the Communication Hub mode the connection state to the Communication Hub and the OCPP-host is displayed with the Status-LED as follows:

No connection to the Communication Hub and the OCPP-host.

Established connection to the Communication Hub but no connection to the OCPP-host.

Established connection to the Communication Hub and to the OCPP-host.

4.4 Resolved issues

RFID Teaching error with mixed card usage

With mixed usage of RFID cards with an UID 4 byte (KEBA-RFID card) or 7 byte (e.g. debit card or credit card with contactless payment function) on a P20, the 4 byte cards worked only in the same order as they were teached once.

If the 4 byte card was teached first, it did not work anymore, after a 7 byte card was read.

5 Version 2.2a1

5.1 Identification:

The current version of the firmware can be read out via the web interface.

“KEBA P20 v 2.2a1 (150316-124953) : 61388 : 141.0”

5.2 Compatibility Information

This firmware is compatible with all KeContact P20 charging stations of the type KC-P20-xxxxxxxx-00x-xx.

5.3 Resolved Defects

Charging problem with KEY versions

This version resolves the problem, that the charging procedure can be started without authorization through a key. The Issue is occurred in version 2.01m21.

This bug only affects charging stations of the type KC-P20-xxxxxxxx-00K-xx.

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6 Version 2.01m21.141.0

6.1 Identification:

The current version of the firmware can be read out via the web interface.

"KEBA P20 v 2.01m21 (140923-100445) : 11556 : 141.0"

6.2 Compatibility Information

This firmware is compatible with all KeContact P20 wall boxes of the type KC-P20-xxxxxxxx-00x-xx.

6.3 Enhancements

Deactivation of RFID authentication

With this firmware release it becomes possible to deactivate RFID authentication functions in RFID product variants. RFID will be deactivated if a full reset is being performed (press the reboot button in the connection area longer than 5 seconds) and no Master Tag is being taught within the first minute.
For re-activating the RFID function, another full reset needs to be performed and a Master Tag needs to be swiped over the RFID reader within the first minute upon reboot/startup.

Signaling of „wall box engaged state" via relay output X2

A new default function for the relay output X2 has been defined. In a ready-to-operate state (no vehicle connected), the relay contacts will be closed. As soon as a vehicle is connected, the relay contacts open until the vehicle is disconnected again.
This function is useful for illuminated signs or integration into central building control systems.

Apart from this new default setting the usual special functions such as Z.E.Ready (DIP-Switch 1.2) and SmartHome interface (Dip-Switch 1.3) can be configured.

6.4 Resolved Defects

Non-detection of interlocking errors

In very rare instances interlocking errors were not detected in the wall box. This issue has been solved with this firmware version.

7 Version 2.01m11.141.0

7.1 Identification:

The current version of the firmware can be read out via the web interface.

“KEBA P20 v 2.01m11 (140610-073512) : 20910 : 141.0”

7.2 Compatibility Information

This firmware is compatible with all KeContact P20 wall boxes of the type KC-P20-xxxxxxxx-00x-xx.

7.3 Enhancements

Failsafe function for Smart Home UDP interface

With this function an idle mode state for the wall box can be defined. This is applicable in Smart Home applications when no connection to a server system can be established. After a configurable timespan, the wall box can either reduce the maximum charging current allowed or completely interrupt and prevent from further charging.

Enhancements in Smart Home UDP report commands

In ordert o improve identification of UDP responses from single wall boxes, the response messages now contain serial numbers of the respective units. For further information please refer to the current “UDP Programmers’ Guide”.

Use of Mifare 7 Byte RFID cards /Tags

This version enables to use of contactless bank or debit cards which support Mifare communication. Already taught RFID cards or tags remain stored in the unit, even if the firmware is being updated.
Remark: When downgrading to an older firmware version, RFID cards/tags must be taught again.

Relay monitoring; external protection circuit for Z.E.Ready ®

In case of an internal contactor fault (welded contacts), the X2 switch output contacts close. With this feature it is possible to trip a safety element, e.g. circuit breaker, RCD or another contactor, in the upstream installation. Such an external safety circuitry might be required in some countries (e.g. France, Renault Z.E.Ready ®). The function must be activated using DIP Switch 1.2. The previous fan activation function on DIP Switch 1.2 is no longer available.

Enhanced voltage checking before charging session start

Adaptations in logic and less strict voltage thresholds in order to avoid errors if sporadic grid/voltage fluctuations occur.

Enhanced logging functions at the web interface

In addition to an improved internal error analysis, “started” log entries now also contain the respective DIP switch configuration. This information helps with error diagnosis and analysis for the Helpdesk. Moreover, additional information for particular errors are now provided.

7.4 Resolved Defects

Charging errors during firmware updates

Some vehicles react in an undefined manner if a firmware update is being performed during a present charging session. The current firmware version first stops a present session (similar to a deactivation using the X1 input) and then performs the update.

Re-initialization of phase monitoring after enable signal

With this function it is now possible to switch off L2 and L3 after an enable signal coming from X1 input or the Smart Home interface. After an enable signal the energy metering device will be configured for single phase operation only, which results in improved measuring accuracy.

Total amount of energy in previous charging session

The total amount of energy is now reset to zero right after the charging session is closed (unlike previous versions which reset to zero as soon as a new charging session was initiated).

Flaws in reception with multiple wall boxes in a Smart Home network

When multiple wall boxes were present in one network, disturbances could occur because neighboring units tried to answer/interpret broadcasts from other units.

8 Version 1.013a8.137.0

8.1 Identification:

The current version of the firmware can be read out via the web interface.

“KEBA P20 v 1.013a8 (Thu Jan 30 13:07:44 GMT 2014)”

8.2 Compatibility Information

This firmware is compatible with all KeContact P20 wall boxes of type KC-P20-xxxxxxxx-00x-xx.

This version contains minor bug fixes which were tackled before its general release to the public.

8.3 Enhancements

Firmware update via network

With this version a P20 wall box no longer needs to be within the same network address range for future updates, since the wall box now answers with a broadcast upon request. For instance, if the wall box has obtained an IP address from a DHCP server, the computer used for the update (e.g. usual off-the-shelf laptop) can have a different address within the same network.

8.4 Adaptions due to Changes in applicable Standard (IEC-61851-3)

8.5 Resolved Defects

Inaccuracies of energy measuring in single phase installations

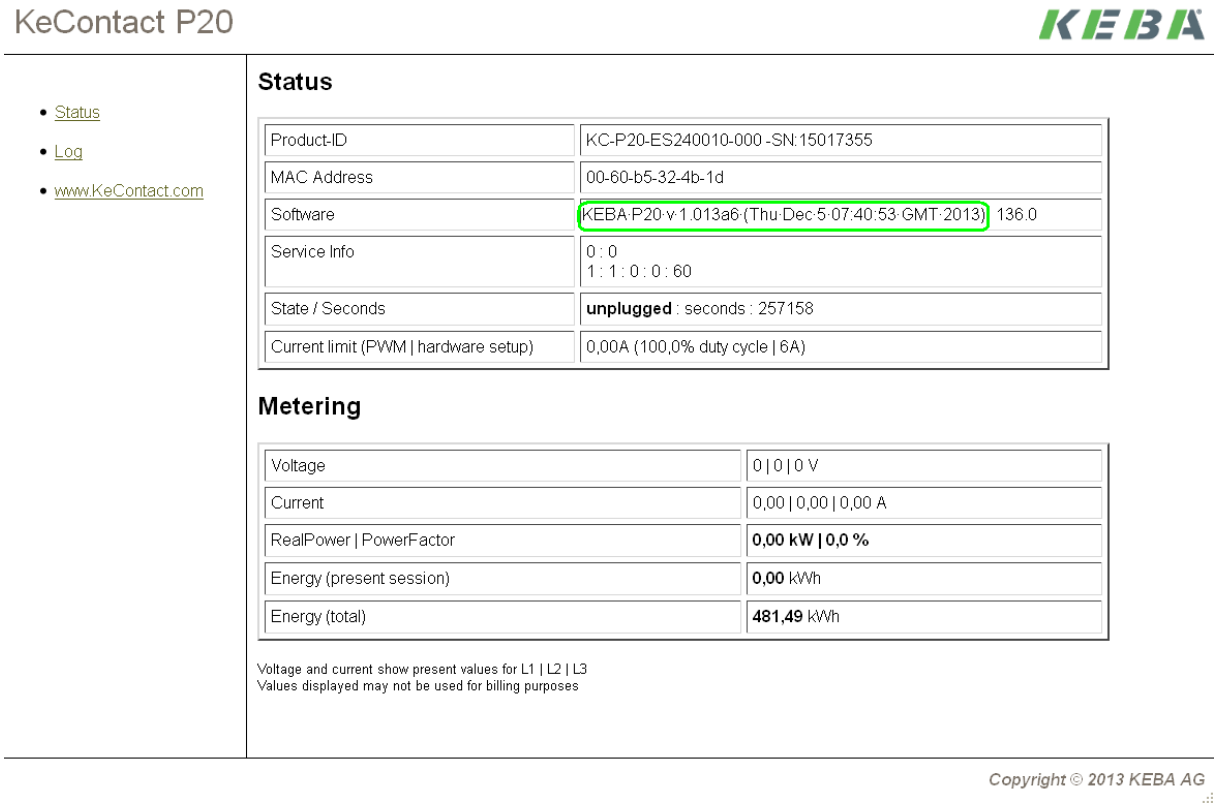
In single phase installations, disturbances due to unconnected terminals L2 and L3 could result in minor inaccuracies in energy measurements. The current version now detects unconnected terminals and deactivates these preventively for energy measuring.

9 Version 1.013a6.136.0

9.1 Identification:

The current version can be read on the web interface or using the new UDP Smart Home interface.

“KEBA P20 v 1.013a6 (Thu Dec 5 07:40:53 GMT 2013)”



9.2 Compatibility Information

This firmware is compatible with all KeContact P20 wall boxes of type KC-P20-xxxxxxxx-00x-xx.

The new version at hand now features measurement values of the energy meter at the web interface as well as supporting a Smart Home interface via Ethernet. Moreover, handling of authorization functions has been improved.

9.3 Enhancements

Smart Home-Interface for load management via Ethernet

The new firmware features external control of the wall box via its standard Ethernet port (UDP protocol). With this feature it is, for instance, possible to optimize energy consumption in conjunction with a photovoltaic system or energy storage systems.

The following control and monitoring functions are available:

- Current state of wall box (Stand by, Charging, Error)
- Active reporting of state changes, e.g. plug connected or EV connected to the network
- Voltage, current, active power, power factor (cos. phi)
- Amount of energy, present charging session
- Amount of energy, total
- Blocking and unblocking of charging sessions
- Presetting of max. current beginning from 6.00A up to nominal current
- Readout of X1 input and control of X2 output within the connection area
    - e.g. for mode switch and additional display next to wall box
- Parameter setting of X2 output as S0-interface; including configurable impulse value up to 150 Imp/kWh

These functions are only available in wall boxes with full Ethernet configuration, i.e. where the LSA+ interface in the connection area is assembled. Supported wall box types:

- KC-P20-xxxxxx**2**x-xxx
- KC-P20-xxxxxx**3**x-xxx

For further information and a detailed description of this functionality please refer to the “UDP programmers’ guide” at www.kecontact.com

Improvement of charging current presetting resolution

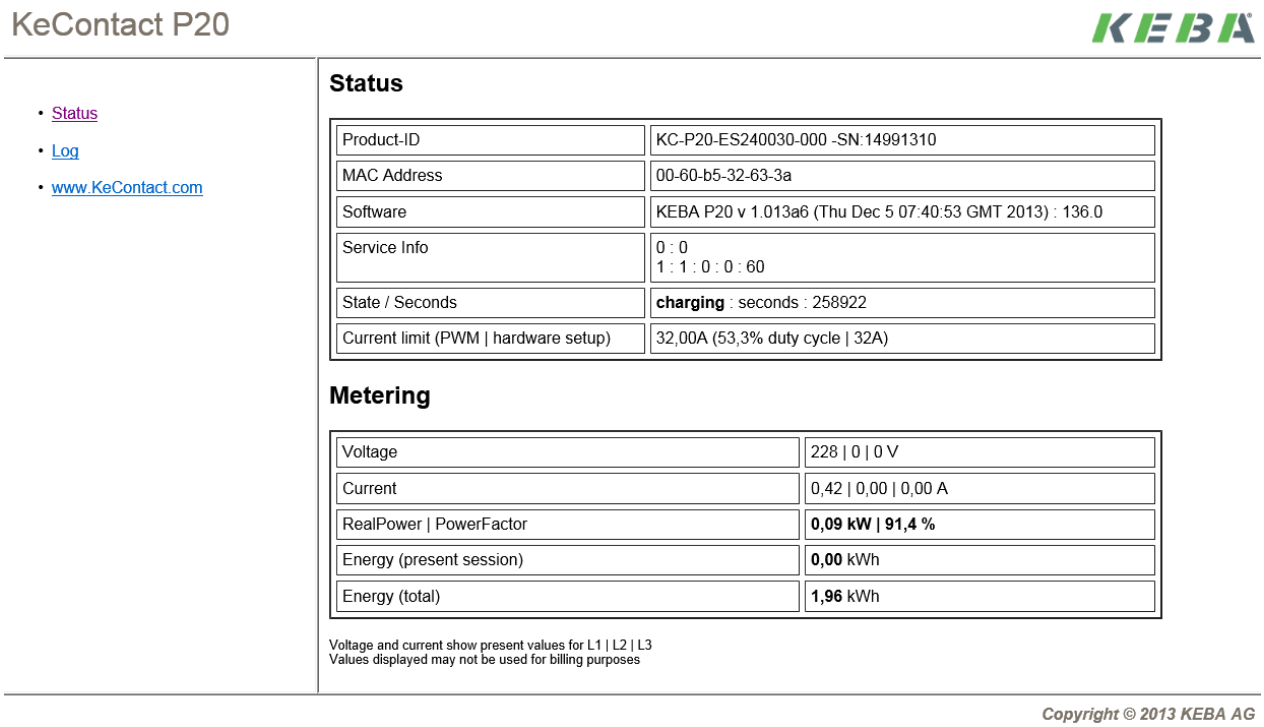
The new firmware version at hand has an improved PWM resolution of 0.1%, and can now be set to full 16A, resulting in a 2.6% higher power output, when configured for 16A. Later firmware versions only supported a resolution of 1% PWM signaling, resulting in a max. current of 15.6A.

Improvement of the internal web interface

The until now only rudimentary web interface for visualization of wall box states has been improved.

Additionally to the already available log file, the following values are available now, too:

- Product ID
- Serial number
- Software version
- Current wall box state (Stand by, Charging, Error)
- Present current presetting
- Present max. available charging current (e.g. cable resistance coding)
- Present voltage, charging current, active power and power factor (cos. phi)
- Amount of energy, present charging session
- Amount of energy, total



Unlocking the connector because of disable on input X1

In previous firmware versions, plugs were unlocked if the enable input was deactivated. This led to limited applicability in public and semi-public areas. In the new version, the plug remains interlocked, even if X1 is being deactivated.

Improved Error Handling

As of software version 1.009.128.0, all errors had been treated in the same way and had been limited to max. five occurrences. After the fifth occurrence, charging was stopped permanently and the wall box had to be rebooted again.

One error will be treated differently now, other errors can now be selectively cleared by unplugging the EV. With the most common errors it is no longer necessary to reboot the wall box.

The errors are now differently classified

- Permanent internal errors (up to max. five times during one charging session) can only be cleared by rebooting the wall box. Those errors will be signaled to the EV with -12V.
- Errors because of erroneous function of the vehicle or charging chord, e.g. interlocking error, short circuit at pilot signal, reaction of EV, etc. can be cleared by unplugging of the charging chord and will be signaled to the EV with +12V.
- Warnings because of erroneous function of the EV will not be limited and are signaled separately.

Authorization – Stopping a Charging Session at the Wall Box

A present charging session can now be stopped with the very same RFID tag with which the session was initiated. The same function applies to key switch versions of the wall box.

Authorization – Extension of max. RFID tags to up to 20

The new firmware version enables to teach up to 20 RFID Tags.

Authorization – …remains even if errors occur

The improved error handling enables the wall box to monitor the presence of an EV. It can be ensured that no other EV has been connected since the error, thus the authorization and consequently the charging session can be kept alive even if errors occur.

9.4 Adaption due to Changes in applicable Standard (IEC-61851-3)

Wake-up sequence to guarantee starting of charging procedure

It is possible that some EVs “overlook” the event of a plug in sporadically. Hence, a charging session would never begin. In order to compensate this EV behavior, a wake-up sequence is carried out if the charging session does not begin within 30 seconds. Such a wake-up sequence already used to be part of a plug-in event, in case of a power outage as well as a erroneous recovery. In the current firmware version, the wake-up sequence is also carried out if the X1 input is activated via the Smart Home interface.
This function is also part of the Renault Z.E.Ready® 1.2 requirements.

Pilot signal PWM – start delay

For each authorization event (Smart Home, RFID, key switch, X1 input) the PWM signal is paused for a minimum of three seconds.

Detection of simplified mode – EVs after Power Fail or Failure Recovery

According to Renault approval, the limitation of max. 10A for simplified mode EVs can be omitted even in Z.E.Ready® 1.2. This function led to unnecessary charging current limitation of 10A with some EVs. Moreover, upon wall box system boot-up the PWM signal is delayed for 10 seconds in order to enable the connected vehicles to react to a possible power outage.

Fast contactor switch-OFF after short circuit of pilot signal

Alignment with Renault Z.E.Ready® and forthcoming IEC 61851-3 (current draft). upon short circuit between pilot line and GND, the output will be switched off within 100ms. Until now, a time frame of 2 seconds was permitted.

9.5 Resolved Defects

Error "blue – red – blue – blue” after charging session stop

Some EVs react slowly upon a change in charging enable states (external input X1). In such cases, the contactor opened and the wall box signaled an error. This non standard conform EV behavior will in the new firmware version only be logged and displayed as a warning but no longer be displayed as an error.

Sporadic error code “red – blue – blue – red” during charging sessions

In few cases, charging sessions stopped because of a too restrictive parameter in a safety timing measurement of previous firmware versions. The cause for these cyclic switch-offs were triggered by component tolerances and variances that moved the timing too close to threshold values. This is fixed in the new firmware version.

Authorization – no charging session permitted if enable signal on X1 is missing

If a charging session with authorization was started when X1 was not enabled, a charging session started but was stopped 50 seconds later. This kept from using the enable input (X1) in conjunction with authorization.

Authorization – wrong LED status during missing enable signal on X1

If a charging session with authorization was started when X1 was not enabled, the LED did not show the correct color status.

Authorization – no unplug possible within one minute

If a known RFID card was swiped during a charging session, the plug was interlocked when the charging session was stopped on the EV side. The plug could be removed only if one minute had passed.

10 Version 1.012.129.0

10.1 Identification:

The current version of the firmware can now be read out via the web interface.

“KEBA PDC v 1.012 (Thu Feb 7 12:04:47 WEST 2013)”

10.2 Compatibility of this firmware version

This firmware version is compatible to all KeContact P20 wall boxes of the following types:
KC-P20-xxxxxxxx-00x-xx

10.3 Product enhancements and advancements

Authorization with RFID and key switch supported

This version supports authorization by RFID and key switch. With an RFID “master card” it is possible to teach up to 8 further RFID cards.

Simplified display of error codes

Errors in the power component of the wall box (contactor control, charging current monitoring, etc.) are no longer displayed as “white – red – red – white”. In order to make the errors more distinguishable Such errors will now be displayed directly in the complementary color blue. Display time is extended in order to make reading easier. Further details you can find in the FAQ documents at www.kecontact.com

10.4 Alignments to changed standards (IEC 61851-3)

Charging chords with 13A only usable with 20A wall boxes

13A charging chords can only be used in combination with type 2 socket wall boxes with max. 20A nominal current. This is a safety feature because of the limited short-circuit strength of these chords in combination with circuit breakers with higher nominal current.

10.5 Resolved Problems

Error display of energy meter not until charging session starts

Energy meter errors have not been displayed until a charging session was started. The correct functioning of the energy meter is now tested immediately upon system startup and, if erroneous, displayed instantly.

11 Version 1.009.128.0

11.1 Identification:

The current version of the firmware can now be read out via the web interface.

“KEBA PDC v 1.009 (Thu Nov 22 07:23:43 WEST 2012)”

11.2 Compatibility of this version

This firmware version is compatible to all KeContact P20 wall boxes of the following types:
KC-P20-xxxxxxxx-000-xx

11.3 Product enhancements and advancements

General limitation of error recovery cycles

If an error occurs (e.g. interlocking failed, pilot signal failed, etc.), the wall box switches to malfunction mode after five consecutive errors. This was only the case with interlocking errors. The EV was signaled -12V. The error can be cleared by unplugging the charging chord or by rebooting the wall box.

IP addresses configurable in autonomous wall boxes

Until now, wall boxes in autonomous mode could only be operated with a DHCP. With this firmware version it is also possible to assign IP addresses by using the DIP switches. Further details you can find in the installation manual retrievable at www.kecontact.com.

11.4 Alignments to changed standards (IEC 61851-3)

11.5 Resolved Problems

EV simplified mode causes errors

If a charging session is stopped by opening the enable input X1, the wall box displays an error, because such EVs cannot react to these stopping events. If the enable input is not used, the problem does not occur.

12 Version 1.008.125.0

12.1 Identification:

The current version of the firmware can now be read out via the web interface.

“ KEBA PDC v 1.008 (Wed Oct 10 11:00:52 WEDT 2012)“

12.2 Compatibility of this version

This firmware version is compatible to all KeContact P20 wall boxes of the following types:

KC-P20-xxxxxxxx-000-xx

Newly added support for wall boxes with attached cable and units for American markets

12.3 Product enhancements and advancements

Deactivation of PLC modem via DIP Switches

If featured in the wall box, Power Line Communication can be switched off if not desired (DIP Switch 2.7 = ON). Default setting of this switch is OFF.

Delayed reaction to short circuit at pilot signal

To maximize the availability of the charging station, short circuits at the pilot line will be ignored for 2 seconds in order to rule out possible disturbances due to EMC trouble or similar issues.

Auto recovery in units with type 2 socket

In order to maximize the availability of the wall box, even units with type 2 sockets will try a cyclic auto recovery procedure. This recovery is limited to five retries.

Wake up sequence in order to start a charging session

It is possible that some EVs “overlook” the event of a plug in sporadically. Hence, a charging session would never begin. In order to compensate this EV behavior, a wake-up sequence is carried out if the charging session does not begin within 30 seconds. Such a wake-up sequence already used to be part of a plug-in event, in case of a power outage as well as a erroneous recovery.
This function is also part of the Renault Z.E.Ready® 1.2 requirements.

12.4 Alignments to changed standards (IEC 61851-3)

12.5 Resolved Problems

PWM at pilot signal stopping delayed

In the event of a opening of the enable input X1, the charging session will be stopped immediately by opening the contactor. The PWM signal is delayed for approximately 1.5 seconds. This firmware behavior can cause erroneous functions with some EVs.

In the new version, the PWM will be stopped immediately but the reaction of the EV is awaited. If the EV does not react within 3 seconds, the contactor will be forced to switch off.

13 Version 1.005.122.0

13.1 Identification:

The current version of the firmware can now be read out via the web interface.

“KEBA PDC v 1.005 (Fri Aug 17 07:18:14 WEDT 2012)“

13.2 Compatibility of this version

This firmware version is compatible to all KeContact P20 wall boxes of the following types:
KC-P20-ES2xxxxx-000-xx

13.3 Product enhancements and advancements

First version for end customers.

13.4 Alignments to changed standards (IEC 61851-3)

First version for end customers.

13.5 Resolved Problems

First version for end customers.