

PRODUCT CHANGE NOTIFICATION

PLC STAMP MINI 2

Control information

Area of validity: in-tech smart charging GmbH	Version: 1.1
Title: Product Change Notification	Status: approved
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Change history

Version	Content	Author, Date	Approved by, Date
1.0	Initial version	Michael Heimpold, 2020-04-15	Christian Aurich, 2020-05-04
1.1	Add section: 3.5 Coupling capacitance too large on PEV/EVSE Modules Complete section 5 and 6 add availability date for modules with order codes I2PLC*MN-E-004- and I2PLC*MN-*P-004-*	Viktor Bauer, 2020-08-05	Christian Aurich, 2020-09-10

1. TOPIC

This document is to inform you that changes are being made to the part(s) identified in this notice. The change may affect the fit, form, function or appearance of the parts, or it may result in a change to the specification.

For this specific PCN, several changes are bundled as part of general product maintenance:

- new company name / style
- updated firmware by chip vendor
- general maintenance topics
- change of coupling capacitor for EVSE/PEV applications for solving issue #4 from errata

2. RELATED PRODUCTS

Product names: PLC Stamp mini 2

Affected order codes:

Version 002 modules		
I2PLCAMN-ISC-002-T	I2PLCAMN-CSC-002-T	I2PLCBMN-ISC-002-T
I2PLCAMN-ISC-002-R	I2PLCAMN-CSC-002-R	I2PLCBMN-ISC-002-R
I2PLCAMN-ISN-002-T	I2PLCAMN-CSN-002-T	I2PLCBMN-ISN-002-T
I2PLCAMN-ISN-002-R	I2PLCAMN-CSN-002-R	I2PLCBMN-ISN-002-R
I2PLCAMN-ISE-002-T	I2PLCAMN-CSE-002-T	I2PLCBMN-ISE-002-T
I2PLCAMN-ISE-002-R	I2PLCAMN-CSE-002-R	I2PLCBMN-ISE-002-R
I2PLCAMN-ISP-002-T	I2PLCAMN-CSP-002-T	I2PLCBMN-ISP-002-T
I2PLCAMN-ISP-002-R	I2PLCAMN-CSP-002-R	I2PLCBMN-ISP-002-R
I2PLCAMN-IUC-002-T	I2PLCAMN-CUC-002-T	I2PLCBMN-IUC-002-T
I2PLCAMN-IUC-002-R	I2PLCAMN-CUC-002-R	I2PLCBMN-IUC-002-R
I2PLCAMN-IUN-002-T	I2PLCAMN-CUN-002-T	I2PLCBMN-IUN-002-T
I2PLCAMN-IUN-002-R	I2PLCAMN-CUN-002-R	I2PLCBMN-IUN-002-R
I2PLCAMN-IUE-002-T	I2PLCAMN-CUE-002-T	I2PLCBMN-IUE-002-T
I2PLCAMN-IUE-002-R	I2PLCAMN-CUE-002-R	I2PLCBMN-IUE-002-R
I2PLCAMN-IUP-002-T	I2PLCAMN-CUP-002-T	I2PLCBMN-IUP-002-T
I2PLCAMN-IUP-002-R	I2PLCAMN-CUP-002-R	I2PLCBMN-IUP-002-R

Version 003 modules		
I2PLCAMN-ISC-003-T	I2PLCAMN-CSC-003-T	I2PLCBMN-ISC-003-T
I2PLCAMN-ISC-003-R	I2PLCAMN-CSC-003-R	I2PLCBMN-ISC-003-R
I2PLCAMN-ISN-003-T	I2PLCAMN-CSN-003-T	I2PLCBMN-ISN-003-T
I2PLCAMN-ISN-003-R	I2PLCAMN-CSN-003-R	I2PLCBMN-ISN-003-R
I2PLCAMN-ISE-003-T	I2PLCAMN-CSE-003-T	I2PLCBMN-ISE-003-T
I2PLCAMN-ISE-003-R	I2PLCAMN-CSE-003-R	I2PLCBMN-ISE-003-R
I2PLCAMN-ISP-003-T	I2PLCAMN-CSP-003-T	I2PLCBMN-ISP-003-T
I2PLCAMN-ISP-003-R	I2PLCAMN-CSP-003-R	I2PLCBMN-ISP-003-R
I2PLCAMN-IUC-003-T	I2PLCAMN-CUC-003-T	I2PLCBMN-IUC-003-T
I2PLCAMN-IUC-003-R	I2PLCAMN-CUC-003-R	I2PLCBMN-IUC-003-R
I2PLCAMN-IUN-003-T	I2PLCAMN-CUN-003-T	I2PLCBMN-IUN-003-T
I2PLCAMN-IUN-003-R	I2PLCAMN-CUN-003-R	I2PLCBMN-IUN-003-R
I2PLCAMN-IUE-003-T	I2PLCAMN-CUE-003-T	I2PLCBMN-IUE-003-T
I2PLCAMN-IUE-003-R	I2PLCAMN-CUE-003-R	I2PLCBMN-IUE-003-R
I2PLCAMN-IUP-003-T	I2PLCAMN-CUP-003-T	I2PLCBMN-IUP-003-T
I2PLCAMN-IUP-003-R	I2PLCAMN-CUP-003-R	I2PLCBMN-IUP-003-R

3. DESCRIPTION OF CHANGE

in-tech smart charging GmbH always aims to deliver up-to-date products to its customers and pass technology changes and improvements as soon as available. As such, several independent changes are now applied to the PLC Stamp mini 2 modules as part of our general product maintenance process.

3.1 QCA 7000 firmware update

While our current PLC Stamp mini 2 modules ship with QCA firmware version 1.1.3, we now update to the latest firmware version 1.2.5 provided by Qualcomm Atheros. See attached changelog for details.

3.2 EN50561 support

QCA firmware version 1.2.5 includes support for EN50561 norm which is mandatory for new powerline products in the European Union. All PLC Stamp mini 2 modules which target affected markets and use-cases (I2PLCxMN-xxC-004-x) now ships which support for EN50561 enabled.

3.3 Branding changes

The former I2SE GmbH was bought by in-tech GmbH in 2019 and meanwhile renamed to in-tech smart charging GmbH. To complete this acquisition, changes are required for product names, product marking, corporate identity topics like styles and logos etc. in general.

The PLC Stamp mini 2 modules previously shipped with a "I2SE" lettering on the device label, which is now replaced with an "in-tech" lettering.

Also labels on packaging, boxes etc. are updated to reflect this new company branding.

3.4 Factory default settings

Due to branding changes, the factory default settings are adapted accordingly for contain the vendor string "in-tech" instead of "I2SE GmbH".

Another, not branding related change is, that for each module a random Network Management Key (NMK) is generated during module production. Previously, all PLC Stamp mini 2 modules shipped with the well-known default NMK "HomePlugAV". This default NMK was recommended by the HomePlugAV specification for improved user experience during first installation of multiple devices. However, this leaves room for security problems in case the user does not change the NMK after installation and thus a potential attacker could connect to the powerline network by using this well-known key.

Since in-tech smart charging GmbH feels responsible to provide customers which ready-to-use but still highly secure solutions, it was decided to ship each PLC Stamp mini 2 module with a randomly generated NMK. This requires customer and end users to explicitly pair the desired powerline devices to create a powerline network which is in turn encrypted with an individual key.

The mentioned settings are stored in the PIB configuration block of the powerline modules, especially in the factory default area. Customers still can update the working set PIB as usual.

3.5 Coupling capacitance value change on PEV/EVSE Modules

Fall and rise times in IEC 61851-1 for the CP PWM make it necessary to have a coupling capacitor of smaller value. For the PEV/EVSE Modules (Parameter Optimization E and P) we therefore changed that capacitor from 4700 pF to 1000 pF.

4. AFFECTED CHANGE CATEGORIES

- Product Design
- Shipping / Packaging
- Software
- Software Configuration

5. ANTICIPATED IMPACT OF PRODUCT CHANGE

Anticipated Impact	
Form	-none-
Fit	<p>Customers and/or customers suppliers might update their systems for automated optical inspection to learn the new “in-tech” lettering on product label.</p> <p>Customers and/or customers suppliers might update their systems in case the module’s barcode is read which will contain the updated order code.</p>
Function	<p>Customers and/or their customers might need to update product documentation to reflect the extra step needed during first usage of the products to establish a powerline connection. However, this highly depends on the modules use-case.</p> <p>Customer’s and/or their customer’s software might need adaptations to also recognize the new vendor name in the PIB configuration block.</p> <p>For customer’s products it should now be possible to pass EN50561 related tests in EMI certifications.</p>
Reliability	-none-

6. CHANGED PART IDENTIFICATION

The new PLC Stamp mini 2 modules can be identified by the version part in the order code which is also included in the modules Datamatrix barcode printed on the device’s label.

The order code is compiled by the following fields:

Product Family Code	Chip		Temperature Range	Serial Interface	Parameter Optimization	Version	Packaging
I2PLC	A: QCA700 B: QCA7005	MN-	I: Industrial (-40 - 85 °C) C: Commercial (0 - 70 °C) - only for QCA7000	S: SPI U: UART	C: CE Class B N: north America E: Automotive EVSE P: Automotive PEV	-002 -003 -004	-T: Tray, 20pcs -R: Tape and Reel, 240pcs

The PLC Stamp mini 2 modules which include the mentioned changes can be ordered by using version “004” order codes.

While Modules with order codes I2PLC*MN-**C-002-* and I2PLC*MN-**N-002-* are not recommended for new designs, they will remain available on request until further notice. Version “003” modules had been introduced for selected customers only and already shipped with a newer firmware version compared to version “002” modules. While also not recommended for new designs, these variants will only be manufactured on request for the existing customers.

The automotive variants for the versions I2PLC*MN-**E-002-*, I2PLC*MN-**P-002-*, I2PLC*MN-**E-003-*, I2PLC*MN-**P-003-*, will be discontinued. Only version “004” will be manufactured.

7. EFFECTIVE DATES

Modules with order codes I2PLC*MN-**C-004-* and I2PLC*MN-**N-004-*, are available immediately.

Modules with order codes I2PLC*MN-**E-004-* and I2PLC*MN-**P-004-* are available from October 1, 2020.

Even though version "002" or "003" modules, excluded automotive variants I2PLC*MN-**E-002-*, I2PLC*MN-**P-002-*, I2PLC*MN-**E-003-*, I2PLC*MN-**P-003-*, are not discontinued for the moment, we strongly recommend customer to consider switching to "004" versions.

It is possible to purchase I2PLCAMN-ISE-002-* and I2PLCAMN-ISP-002-* modules with 4700pF capacitor as long as stock lasts.

See updated datasheet for further delivery information.

8. ATTACHMENTS

8.1 QCA 7000 Firmware Changelog (Excerpt)

- Improved QCA7000/7005 power-on and reset boot time:
Faster and more consist time for the QCA7000 firmware to be ready for host communications following a PLC device power-on or reset due to internal optimization to the reset processing.
- Fast NMK updates:
The QCA7000/7005 firmware supports a PIB field that enables the firmware to apply an NMK change immediately, via a MME request, without the need to reset the PLC device.
This new feature is only available in automotive EVSE/PEV variants and was enabled by in-tech smart charging GmbH.
- Blocking FW/PIB upgrade through Powerline:
Support is added to the QCA700x device firmware to block updates from the remote host through the powerline interface.
This new feature is was enabled by in-tech smart charging GmbH only for automotive EVSE/PEV variants.