PCN-4: Charge Control C V0R4/V0R5 Hardware Revision

chargebyte GmbH

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Contents

1 Revisions

Revision	Release Date	Changes
1.3	October 26, 2023	Updated company logo
1.2	April 16, 2021	- Updated Change History table - Improved Effective Date section
1.1	April 15, 2021	- Added information of the affected products in section TOPIC - Removed internal control information table - Reworked Change History table - Reworked Changed Part Identification section
1.0	March 23, 2021	Initial version

2 Topic

This document informs our customers that changes have been 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.

This specific PCN covers changes on two major hardware revisions V0R4 and V0R5. The reasons for the new hardware revisions are stability and lifetime improvements, improved compatibility for peripheral devices and general product maintenance.

Affected order codes are described in section CHANGED PART IDENTIFICATION and are shipped until stock is empty. After this, the affected order codes will be discontinued and customers have to switch to the latest order codes.

3 Related Products

Product names:

- Charge Control C 100
- Charge Control C 200
- Charge Control C 300

Affected order codes:

Charge Control C Family		
I2CCSC-P00-100	I2CCSC-A00-200	I2CCSC-A00-300
I2CCSC-P01-100	I2CCSC-A01-200	I2CCSC-A01-300
I2CCSC-P00-101	I2CCSC-A00-201	I2CCSC-A00-301
I2CCSC-P01-101	I2CCSC-A01-201	I2CCSC-A01-301
I2CCSC-P00-102	I2CCSC-A00-202	I2CCSC-A00-302
I2CCSC-P01-102	I2CCSC-A01-202	I2CCSC-A01-302
		I2CCSC-Q00-302

4   Description of Change

chargebyte GmbH always aims to deliver up-to-date products to its customers which satisfy all customer needs. As such, several hardware changes were necessary to improve overall product performance.

4.1   Hardware changes to improve the stability and lifetime

Several hardware components, mostly resistors and capacitors, were fine-tuned to improve long-term stability and performance and also to address supply chain aspects.

These changes are part of general product maintenance. They have no impact for customers.

4.2   Improved compatibility and stability of the EIA-485 interface

Up to hardware revision V0R3, the EIA-485 #1 isolated interface (X7) did not include failsafe biasing resistors. This reduced the compatibility with some peripheral devices since customers were required to add such biasing resistors on their own, or use the EIA-485 #2 interface (X8). Hardware revision V0R3 and earlier can be identified by the product code: I2CCSC-xxx-xx**0**

Since hardware revision V0R4, both EIA-485 interfaces are equipped with such failsafe biasing resistors. Hardware revision V0R4 can be identified by the product code: I2CCSC-xxx-xx**1**

These hardware changes do not have any software impact.

4.3   Improved board reset behavior

Since hardware revision V0R4, the hardware circuit was improved to also trigger the reset pin of the eMMC in case of a CPU reset. This hardware change is intended to improve the stability of the internal eMMC storage.

Documented customer I/O pins of the hardware are not affected by this improvement.

However, these hardware changes required adaptions to software: the Linux Device Tree received updates to address changed pin muxing. The changes are public available in chargebyte's GitHub repository: https://github.com/chargebyte/linux/tree/v6.1-tarragon

Shipped boards automatically included updated firmware which can be identified by version 0.6.0 or later.

However, customers who modify/extend the shipped firmware should either rebase their customizations or firmware version 0.6.0 or later, or ensure that they use at least commit id 954db5b581ff5c0a50e18aee3f5af71b76e5914f from the mentioned repository to include support for hardware revision V0R4 and later.

4.4   Hardware changes in eMMC power supply

In hardware revision V0R4, an alternative approach of the eMMC power supply circuit was evaluated. However, the overall performance did not improve, only complexity was added. This resulted in the decision to revert these changes for V0R5 again.

These changes do not have any impact for customers.

5   Affected Change Categories

- Product Design
- Hardware Interface
- Software
- Software Configuration

6 Anticipated Impact of Product Change

	Anticipated Impact
Form	-none-
Fit	-none-
Function	No impact for customers who use the standard firmware without customizations. Our customers with modified software need to rebase their own software on at least firmware revision 0.6.0 released by chargebyte.
Reliability	Improved board stability
Quality	-none-

7 Changed Part Identification

Each Charge Control C controller is marked with a label including the order code amongst other things. This label is placed on the bottom side of the board.

Hardware Revision	Hardware changes to improve the stability and lifetime	Improved compatibility and stability of the EIA-485 interface	Improved board reset behavior	Hardware changes in eMMC power supply	Order Code Identification	Product Status
V0R3 and earlier	Baseline				I2CCSC-xxx-xx**0**	EOL
V0R4	✅	✅	✅	✅	I2CCSC-xxx-xx**1**	EOL
V0R5a	✅	✅	✅	❌	I2CCSC-xxx-xx**2**	EOL
V0R5b	✅	✅	✅	❌	not released	-
V0R5c	✅	✅	✅	❌	I2CCSC-xxx-xx**3**	In Production

8 Effictive Dates

All affected order codes which are marked EOL in table above, are low on stock and shipped only in sample quantities until stock is empty. After this, customers have to switch to the latest order codes. The latest hardware revision V0R5c is available instantly also in larger quantities. Our sales team is ready to assist new customers during this migration.

9 Attachments

None.

10 Contact

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