



# RFID113



**For use in combination with charge controllers used in electric vehicle charging stations, wall boxes and street light charging points**



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# 1. Important information

## 1.1 How to use this manual



*This manual is intended for **qualified personnel** working in electrical engineering and electronics!*

**Always keep this manual within easy reach for future reference.**



*This symbol denotes information intended to assist the user in making **optimum use** of the product.*

## 1.2 Technical support: service and support

Technical support by phone or e-mail for all Bender products.

- Questions concerning specific customer applications
- Commissioning
- Troubleshooting

**Telephone:** +49 6401 807-760\*  
**Fax:** +49 6401 807-259  
In Germany only: 0700BenderHelp (Tel. and Fax)  
**E-mail:** support@bender-service.de

\*Available from 7.00 a.m. to 8.00 p.m. 365 days a year (CET/UTC+1)

### 1.3 Delivery conditions

Bender sale and delivery conditions apply. These can be obtained from Bender in printed or electronic format.

### 1.4 Inspection, transport and storage

Inspect the dispatch and equipment packaging for damage, and compare the contents of the package with the delivery documents. In the event of damage in transit, please contact Bender immediately. The devices must only be stored in areas where they are protected from dust, damp, and spray and dripping water, and in which the specified storage temperatures can be ensured.

### 1.5 Disposal

Abide by the national regulations and laws governing the disposal of this device. Ask your supplier if you are not sure how to dispose of the old equipment. For more information on the disposal of Bender devices, refer to our homepage at [www.bender.de](http://www.bender.de) -> Service & support.

### 1.6 Intended use

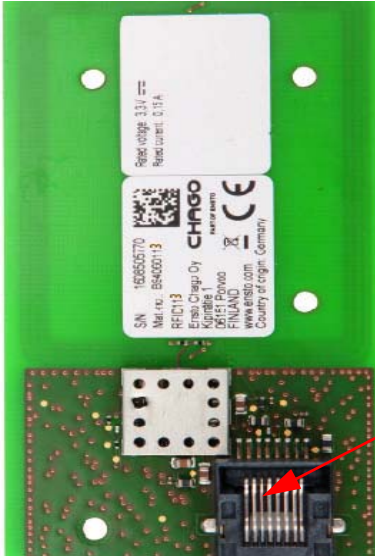
This manual provides a description of an RFID module which can only be used in combination with the ICC1612 charge controller. The charge controller is designed for use in electric vehicle (EV) charging stations, wall boxes and street light charging points. This document should be used together with the ICC1612 charge controller operating manual, and the AN119 and LEDM100 module operating manuals, all of which can be downloaded from: [www.bender.de/manuals](http://www.bender.de/manuals).

The RFID module is a separate PCB which facilitates user interaction with the charging system and is designed according to ISO14443A/MIFARE. It can be connected to the charge controller, the main component of a charging system, using a standard **RJ45 cable**.

Charging is initiated by holding a valid RFID card, which is registered to a backend system, close to the reader on the RFID module. Charging starts when the contactor in the charging system is switched on to provide power flow. In offline operation, the charge controller can optionally allow charging without authorization or it can authorize users based on RFID and a local white list of authorized RFID cards.

## 2. RFID module

The RFID module, shown below, contains a card reader .



Socket for RJ45 cable



*The RFID module must be placed at a distance of at least 20 mm from any significant metal surface or metal parts to ensure optimum RFID reading performance.*



**CAUTION**

*Electrostatic discharge (ESD) can damage electronic components. Observe the precautions for handling electrostatically sensitive components in accordance with DIN EN 61340-5-1 and DIN EN 61340-5-2.*

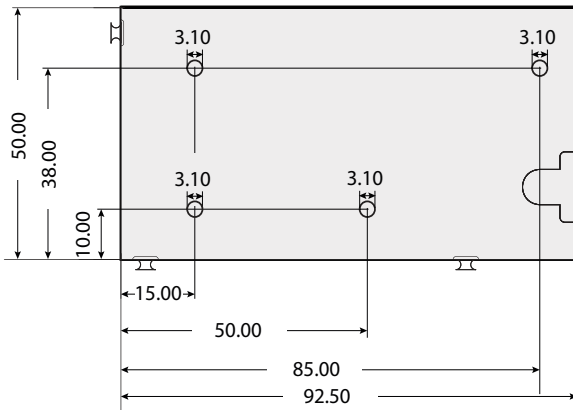


The **RFID frequency is 13.56 MHz**. The PN532 Near Field Communication (NFC) controller is used for contactless communication, which supports virtually all RFID/NFC communication means on this frequency. Currently only passive tags with a UID are read. Further functionality is possible upon request.



*The RFID module is connected to the charge controller via a standard RJ45 cable.*

## 2.1 Dimensions for mounting



*All dimensions in mm*

## 2.2 Operation

Charging is initiated by holding a valid RFID card close to the reader on the RFID module. The status of the charging system is shown by the 12 RGB LEDs on the LEDM100 module.



*The LEDM100 module is described in a separate operating manual, which can be downloaded from [www.bender.de/manuals](http://www.bender.de/manuals)*

Charging can be terminated when the RFID card is again held in front of the charging system.

## 2.3 Integration

The RFID module is integrated solely in conjunction with ICC1612 charge controllers under professional installation. In most cases these charge controllers implement the functionality of an electric vehicle charging system in which the RFID module is used to authorize charging transactions.

### 2.3.1 RJ45 connector pin assignment

| Pin number | Description                               |
|------------|---|
| 1          | N/C                                       |
| 2          | N/C                                       |
| 3          | GND                                       |
| 4          | RX PN532                                  |
| 5          | TX PN532                                  |
| 6          | 3.3 V                                     |
| 7          | 5 V (not used for the RFID functionality) |
| 8          | GND                                       |

## 3. Technical data

### 3.1 Tabular data

#### Insulation coordination acc. to IEC 60664-1/IEC 60664-3

|                                      |               |
|--------------------------------------|---------------|
| Rated voltage .....                  | 12.5 V        |
| Overvoltage category .....           | III           |
| Pollution degree .....               | 3             |
| Rated impulse withstand voltage..... | 800 V         |
| Rated insulation voltage .....       | 12.5 V        |
| Altitude.....                        | ≤ 2000 m AMSL |

#### Rated voltage/rated current

|                               |          |
|-------------------------------|----------|
| Rated voltage .....           | DC 3.3 V |
| Rated voltage tolerance ..... | ±5 %     |
| Rated current.....            | 70 mA    |

#### Frequency

|                       |           |
|-----------------------|-----------|
| Radio frequency ..... | 13.56 MHz |
|-----------------------|-----------|

#### Environment/EMC

|                             |                 |
|-----------------------------|-----------------|
| EMC .....                   | IEC 61851-1/-22 |
| Operating temperature ..... | -30... +70 °C   |

#### Climatic conditions acc. to IEC 60721:

|   |   |
|---|---|
| Stationary use (IEC 60721-3-3) .....    | 3K5 (except condensation, water and formation of ice) |
| Transport (IEC 60721-3-2) .....         | 2K3   |
| Long-term storage (IEC 60721-3-1) ..... | 1K4   |

#### Mechanical conditions acc. to IEC 60721:

|   |     |
|---|-----|
| Stationary use (IEC 60721-3-3) .....    | 3M4 |
| Transport (IEC 60721-3-2) .....         | 2M2 |
| Long-term storage (IEC 60721-3-1) ..... | 1M3 |

#### Connection

|                                       |                |
|---------------------------------------|----------------|
| Connection to charge controller ..... | via RJ45 cable |
| Maximum cable length.....             | < 1 m          |

**Other**

|                            |          |
|----------------------------|----------|
| Coating.....               | certonal |
| Protection class.....      | IP00     |
| Maximum read distance..... | 100 mm   |
| Weight.....                | 13 g     |

### 3.2 Standards, approvals, certifications

The RFID module has been developed in compliance with:

- ISO14443A/MIFARE
- IEC 61851-1/-22
- IEC 60950-1

### 3.3 Ordering information

| Type    | Art. No.  |
|---------|-----------|
| RFID113 | B94060113 |







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