



# RFID module



**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

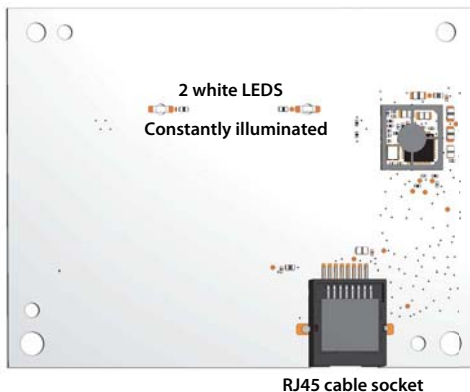
This manual provides a description of an RFID module, which can only be used in combination with Bender charge controllers. The charge controller is designed for use in electric vehicle (EV) charging stations, wall boxes and street light charging points. This document should be used together with the charge controller operating manual(s), 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 an antenna and 2 LEDs for illumination.



It is a separate PCB that should ideally be placed under a semi-transparent part of the charging system housing.



*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.*





## 2.2 RFID LEDs

As well as the RFID antenna, the RFID module contains 2 white LEDs. The white LEDs are always illuminated.

## 2.3 Operation

Charging is initiated by holding a valid RFID card close to the reader on the RFID module. Charging can be terminated when the RFID card is again held in front of the charging system.

## 2.4 Integration

The RFID module is integrated solely in conjunction with Bender 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.

## 2.4.1 RJ45 connector pin assignment

Pin number	Description
1	I2C (not used for the RFID functionality)
2	I2C (not used for the RFID functionality)
3	GND
4	RX PN532
5	TX PN532
6	3.3 V
7	5 V (not used for the RFID functionality)
8	GND

## 2.4.2 Host labelling requirements:

The RFID module is provided with a special label which contains all necessary information. The use of the RFID module in combination with a special host may, depending on the circumstances, require additional documentation if:

- The module's Federal Communications Commission (FCC) ID is not visible when installed in the host
- Or the host is such that end users cannot easily access it (using standard methods) in order to make its FCC ID visible.

In the above two cases, an additional permanent label is then required which may state one of the following:

- "Contains RFID module FCC ID: 2AHQO-RFID"
- "Contains FCC ID: 2AHQO-RFID"

## 2.5 User information

### 2.5.1 FCC und ISED statements:

#### FCC § 15.19

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

### 2.5.2 Canada RSS-GEN § 8.4

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

1. This device may not cause interference
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. l'appareil ne doit pas produire de brouillage;
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

#### FCC § 15.21 (Warning statement)

[Any] changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



## 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 3.3/5 V
Rated voltage tolerance .....	± 5 %
Rated current .....	140/64 mA

#### Frequency

Radio frequency .....	13.56 MHz
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#### Environment/EMC

EMC .....	EN 61851-22 and EN 301 489-1/-3
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) .....	2K2
Long-term storage (IEC 60721-3-1) .....	1K2

#### 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 .....	< 3 m

## Other

Protection class .....	IP00
Maximum read distance .....	100 mm
Weight.....	XX g

## 3.2 Standards, approvals, certifications

The RFID has been developed in compliance with:

- ISO14443A/MIFARE
- EN 61851-1:2011
- EN 61851-22:2002
- FCC ID: 2AHQO-RFID (FCC Part 15.207/15.209)
- IC: 21240-RFID (ICES 003/RSS 210/RSS Gen)

## 3.3 Ordering information

Type	Art. No.
RFID112-L1(RJ45 cable (length 500 mm) included)	B94060112





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