RFID105-L1

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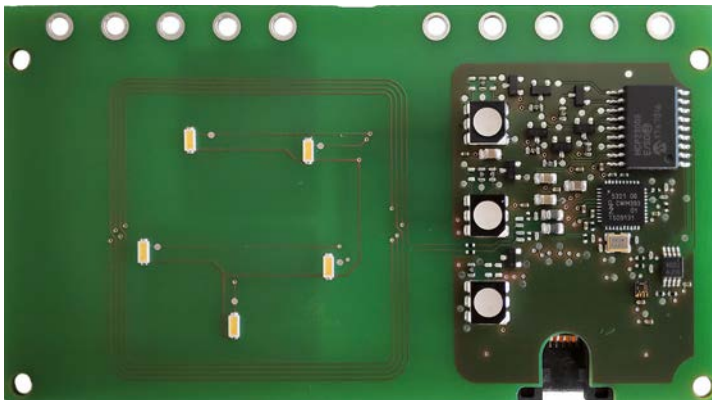

Illustration similar

Service and support for Bender-products

First-level support
Technical support
Carl-Benz-Strasse 8 • 35305 Grünberg • Germany
Telephone: +49 6401 807-760
0700BenderHelp * / Fax: +49 6401 807-629
E-mail: support@bender-service.de
365 days from 7.00 a.m. to 8.00 p.m. (MEZ/UTC +1)
* Landline German Telekom:
Mon-Fri from 9.00 a.m. to 6 p.m.: 6.3 cents/30 sec.;
remaining time: 6.3 cents/min.
Mobile phone: higher, depending on mobile phone tariff

Repair service
Repair, calibration and replacement service
Londorfer Strasse 65 • 35305 Grünberg • Germany
Telephone: +49 6401 807-780 (technical issues) or
+49 6401 807-784, -785 (commercial issues)
Fax: +49 6401 807-789
E-mail: repair@bender-service.de

Field service
On-site service
Telephone: +49 6401 807-752, -762 (technical issues) or +49 6401 807-753 (commercial issues)
Fax: +49 6401 807-759
E-mail: fieldservice@bender-service.de
Mon-Thu 7.00 a.m. to 4.00 p.m., Fri 7.00 a.m. to 1 p.m. (MEZ/UTC +1)

Table of contents

1 General instructions

1.1 How to use this manual

This manual is intended for qualified personnel working in electrical engineering and electronics! Part of the device documentation, in addition to this manual, is the enclosed "Safety instructions for Bender products".

Read the manual before installing, connecting and commissioning the device. Always keep the manual within easy reach for future reference.

1.2 Indication of important instructions and information

DANGER! Indicates a high risk of danger that will result in death or serious injury if not avoided.

WARNING! Indicates a medium risk of danger that can lead to death or serious injury, if not avoided.

CAUTION! Indicates a low-level risk that can result in minor or moderate injury or damage to property if not avoided.

Information can help to optimise the use of the product.

1.2.1 Signs and symbols

	Disposal		Temperature range		protect from dust
	protect from wetness		Recycling		RoHS guidelines

1.3 Training courses and seminars

www.bender.de > Know-how-> Seminars.

1.4 Delivery conditions

The conditions of sale and delivery set out by Bender apply. These can be obtained from Bender in printed or electronic format.

The following applies to software products:

ZVEI: Die Elektroindustrie

"Software clause in respect of the licensing of standard software as part of deliveries, modifications and changes to general delivery conditions for products and services in the electrical industry."

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1.5   Inspection, transport and storage

Check the shipping and device packaging for transport damage and scope of delivery. The following must be observed when storing the devices:

1.6   Warranty and liability

Warranty and liability claims in the event of injury to persons or damage to property are excluded in case of:

- Improper use of the device.
- Incorrect mounting, commissioning, operation and maintenance of the device.
- Failure to observe the instructions in this operating manual regarding transport, commissioning, operation and maintenance of the device.
- Unauthorised changes to the device made by parties other than the manufacturer.
- Non-observance of technical data.
- Repairs carried out incorrectly.
- Use of accessories and spare parts not recommended by Bender.
- Catastrophes caused by external influences and force majeure.
- Mounting and installation with device combinations not recommended by the manufacturer.

This operating manual and the enclosed safety instructions must be observed by all persons working with the device. Furthermore, the rules and regulations that apply for accident prevention at the place of use must be observed.

1.7   Disposal of Bender devices

Abide by the national regulations and laws governing the disposal of this device.

For more information on the disposal of Bender devices, refer to

www.bender.de -> Service & support.

1.8   Safety

If the device is used outside the Federal Republic of Germany, the applicable local standards and regulations must be complied with. In Europe, the European standard EN 50110 applies.

⚠ *DANGER! Risk of electrocution due to electric shock!*
Touching live parts of the system carries the risk of:

- A fatal electric shock
- Damage to the electrical installation
- Destruction of the device

Before installing and connecting the device, make sure that the installation has been de-energised. The rules for working on electrical systems must be observed.
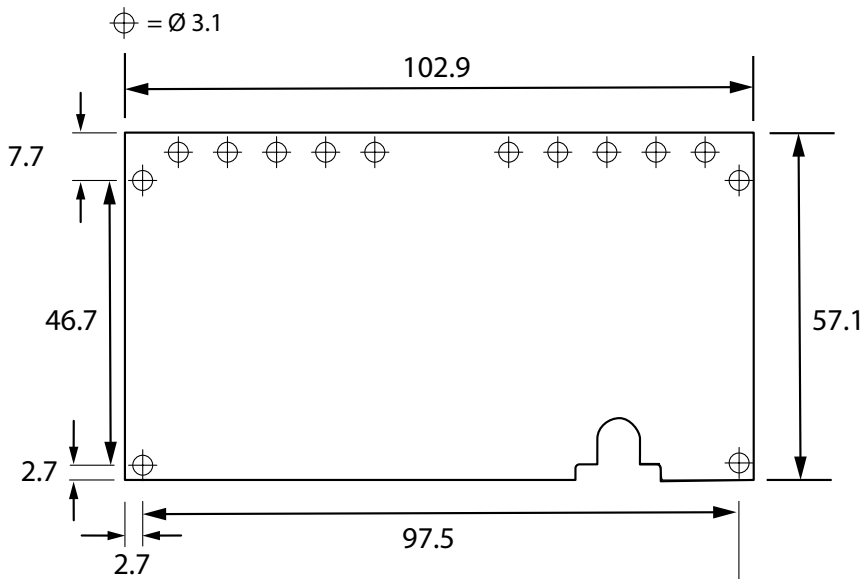
2   RFID module

2.1   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.

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.

2.2   Dimensions and mounting

2.2.1   Dimensions for mounting

Note: Tolerance acc. to ISO 2768-m; DImensions in mm

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.

The module is placed under a semi-transparent part of the charging system housing. It 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.

The RFID frequency is 13.56 MHz. Bender uses the PN532 Near Field Communication (NFC) controller 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.

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⚠ **C**AUTION**! 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.*

2.3 LED status
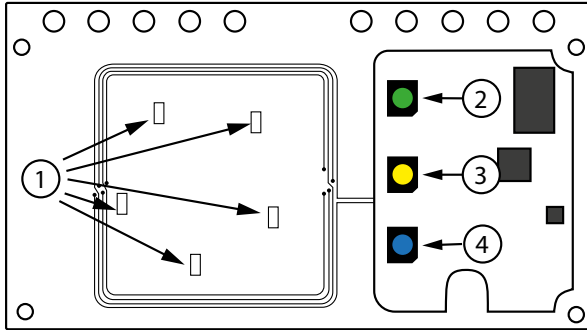
Abb. 2–1 Illustration similar

LED	Status	
1	lighting parallel to 3	• Authorization process is running • The signalisation of the current authorisation by circular light patterns
2	continuously lighting	• Charging system is free • No vehicle is connected
	slow flashing	• Charging system is free • Vehicle is connected
3	continuously lighting	• Charging system is reserved • No vehicle is connected
	slow flashing	• Charging system is reserved • Vehicle is connected
	fast flashing	• Charging system is exchanging data with the backend • Waiting for an authorisation
4	slow flashing	• Charging has been authorised • Vehicle is charging
	fast flashing	• Charging has been authorised • Vehicle is not yet connected or has just been disconnected from the charging system
2,3,4*	fast flashing	• Authorization has been rejected. • Fault in the charging system. • The backend is not available

ℹ **Measures for fault correction can be consulted in the manual of the charge controller.*

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2.4   Operation

The 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.

2.4.1 RJ45 connector pin assignment

Pin number	Describtion
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

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3   Technical Data

Insulation coordination acc. to IEC 60664-1/ IEC 60664-3
Rated voltage .... 12.5 V
Overvoltage category...III
Pollution degree 2
Rated impulse withstand voltage .... 800 V
Rated insulation voltage... 12.5 V
Altitude ....≤ 2,000 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

Environment/EMC
Operating temperature... -30…+70 ℃

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) 2K11
Long-term storage (IEC 60721-3-1)...1K21

Mechanical conditions acc. toIEC 60721:
Stationary use (IEC 60721-3-3) 3M11
Transport (IEC 60721-3-2) 2M4
Long-term storage (IEC 60721-3-1) 1M12

Connection
Connection to charge controller..................................via RJ45 cable
Maximum cable length..< 3 m

Other
Protection class IP00
Maximum read distance. ....100 mm
Weight ....25 g

3.1   Standards, approvals, certifications

The RFID has been developed in compliance with:

- ISO 14443A/MIFARE
- EN 50364: 2010
- EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + AC: 2011 + A2: 2013
- EN 61851-1: 2011
- EN 61851-22: 2002
- EN 50581: 2012
- ETSI EN 301 489-1 V2.1.1: 2017
- ETSI EN 301 489-3 V2.1.1 Final Draft: 2017
- EN 300 330 V2.1.1: 2017

CE UK CA

3.2   Ordering information

Type	Art.-No.
RFID105-L1	B 94060105

3.3   Declaration of conformity

Bender GmbH & Co. KG

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BENDER
The Power in Electrical Safety®

CE

EU - Konformitätserklärung
EU - Declaration of Conformity

Hersteller: **Bender GmbH & Co. KG**
Manufacturer:

erklärt in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product

Produktbezeichnung: **RFID-Modul RFID10x (siehe Anlage)**
Product name: *RFID module RFID10x (see annex)*

auf das sich diese Erklärung bezieht, mit den Vorschriften
folgender Europäischen Richtlinien übereinstimmt.
to which this declaration relates, is in conformity with the
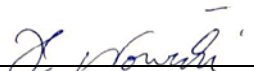*following European directives.*

Directives: **2011/65/EU**   **RoHS-Richtlinie**   *RoHS directive*
                      2014/53/EU   **RED**   *Radio Equipment Direc*

Zur Beurteilung der Konformität wurden folgende Normen herangezogen:
The assessment of this product has been based on the following standards:
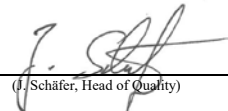
Applied standards:

EN 50364	**:2010**
EN 60950-1	**:2006 ... A2:2013**
EN 61851-1	**:2011**
EN 61851-22	**:2002**
EN IEC 63000	**:2018**
ETSI EN 300 330	**V2.1.1 :2017**
ETSI EN 301 489-1	**V2.1.1 :2017**
ETSI EN 301 489-3	**V2.1.1 :2019-03**

Grünberg, den 30.06.2021

(H. Nowicki, General Manager)   (J. Schäfer, Head of Quality)

Anmerkung: Die Anlagen sind Bestandteil dieser EU-Konformitätserklärung.
                *Evtl. Normen Einschränkungen sind gerätespezifisch in der Typenliste gekennzeichnet.

Remark: *The annexes are part of this EU declaration.*
                Limitation of standards are marked with a sign in the attached type list.