HF-CAN-M
User Manual

Revision: 03

Document date: August 25, 2015

Factory
Automation
Solutions

ORTNER

Revision History

#	Date	Revision	Description	Editor
1	14.01.2015	01	initial version	JGE
2	19.03.2015	02	Add technical parameters, add FCC	NEL
3	25.08.2015	03	Add Operational description (chapter 2.2)	NEL

Content

1   General Information

This manual is the original operation instruction for the high frequency RFID reader device HF-CAN-M.

The declaration of conformity of the product is included in the appendix of this manual.

The operating instructions should allow the operator the proper and safe operation and warn of foreseeable misuse. It is intended for the professional staff of the operator.

These instructions must be retained for future reference!

| CAUTION! |
| --- |
| Keep these instructions! Access to the operating instructions by the operator and maintenance personnel must be ensured at all times during installation, operation and troubleshooting! |

A copy of the instructions must therefore be stored in a suitable and accessible location!

The explanation of hazard symbols is contained in section 3.1.

2 Product Overview

2.1 General Function

The HF-CAN-M reader is designed for operate in ID reader networks, based on CAN-Bus. For connecting the reader network to a host system (MES), Roth & Rau – Ortner provides CAN2Web middleware components also.

Middle Ware
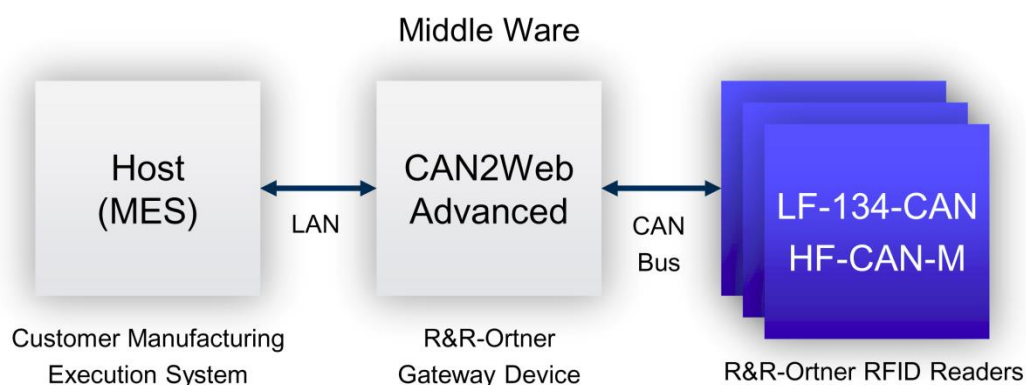
The HF-CAN-M reader is an RFID module which supports ISO 15963, I-code transponders and Infineon transponders my-d vicinity version 2.0. The module contains a CAN uplink for establish the connection to the CAN-bus controller and a downlink for extending the ID reader network.

Features:

- CAN interface (CAN IN and CAN OUT)
- Reads and writes ISO 15963, I-code transponders and my-d vicinity version 2.0 transponders
- Powerful and efficient output stage

2.2 Operational description

2.2.1 How the device operates?

The HF-CAN reader slave device reads ISO15693 (same as ISO18000-3 mode 1) transponder on request from a master device (CAN2Web box).

2.2.2 How is the device modulated?

The reader sends out a charge burst of 13.56MHz as long as needed to read the transponder (depending on command). The answer to and from transponder is ASK or FSK depending on selectable RF mode.

The modulation follows ISO18000-3 mode 1 (ISO15693).

2.2.3 Short description of the device

– RFID reader for ISO18000-3 Mode 1 HF transponder

2.2.4 Pulse rate

– See ISO18000-3 Mode 1

2.2.5 Signal type

− ASK or FSK signal from transponder
− ASK signal from reader

2.2.6 Information being sent

− 8bytes of data + status + CRC

2.3 Product Revision

Available Product Versions	Product Revision	Hardware Revision (PBC)
HF-CAN-M	2.0	1.1

Product Code Description:

$$\text{HF - CAN - M - V2.0}$$

Frequency Spectrum   Interface   Metal case   Product Revision

Available Software Versions:

Software Code	Description
HF CANopen reader trampoline 0x80008000.hex 11.02.2015	Device will be controlled completely by CAN2Web Box or CAN-Controller. Using SDO CAN protocol.
hf reader boot-loader.hex 06.02.2015	Devices can be updated over CAN2Web Box.

NOTE!
The product revisions are denoted by revision numbers. The respective revision numbers of the three components of each product belong to the product revision numbers: Hardware, Software, and Design. Each product revision number is distinctive and denotes a particular design or a particular function of the product. Changes in design necessitate a new product revision number. Changes in the two product components hardware and software may, but don´t have to result in a new product revision number.

3 Safety instructions

In this chapter, universal and general safety instructions to be followed, are listed and explained. The user will be informed about risks, residual risks and risk mitigation measures.

In addition, action- and situation-related safety notes are placed in the appropriate sections in the operating instructions.

3.1 Depiction

DANGER!

This symbol indicates a serious risk to life and health of personnel. Follow these guidelines, and act with extreme caution in these cases!

CAUTION!

This symbol indicates danger to life and health of personnel. Follow these guidelines, and act with extreme caution in these cases!

ATTENTION!

This symbol refers to slight wound or damage to the product, as well as from potentially unsafe operation.

NOTE!

Notes serve as a warning against operating errors and to highlight important issues, as well as for better understanding of the product.

3.2 General Safety Instructions

The HF-CAN-M High Frequency RFID-reader corresponds to the prior art and the approved safety rules. Nevertheless, there are potential risks.

The product may only be operated in good condition in accordance with the present operating instructions.

CAUTION!
Read all safety and operating instructions and make sure they have been understood, before using this product! The product may only be used in technically perfect condition and in accordance with all sections of the operating instructions!

The following safety instructions are intended to supplement the applicable accident prevention regulations and laws. Existing safety regulations and laws must be complied in any case!

CAUTION!
Repairs and modifications inside the product are NOT destined for the operator. The casing only must be opened by a qualified electrician or by Roth & Rau - Ortner.

CAUTION!
Products may not be converted or modified by the operator. Otherwise, the warranty expires.

CAUTION!
When opening the housing, be careful to avoid damage to the product. Do not use sharp objects and protect your eyes from possible burst off parts!

ATTENTION!
Make sure the device is powered off before remove the top cover!

ATTENTION!
HF-CAN-M devices may be operated with approved equipment only. Doing so may cause a product defect or hazards (e.g. fire or electric shock) during operation.

Available accessories of this product are listed in section 12.7.

Only use extensions, accessories and connection cables which are approved by Roth & Rau - Ortner. For questions about approved accessories, please contact our sales department (see section 12.1).

NOTE!
If you remove a cable, pull the plug, not the cable itself. Make sure that any connectors are attached properly, to avoid damage of the pins. If a cable is to be connected, ensure that there are no bent pins on the connectors.

In case of mechanical damage to the product, the device or system must be disconnected from the power supply!

3.3 Qualified Personnel

The intended users of the product are factory operating personnel (system operator) and maintenance personnel.

It is assumed that all users are familiar with the function and the risks of the entire system before use.

All operators should be trained in at least the following topics:

- Basic functions of the system in which the HF-CAN-M readers are installed (operator)
- Manual (operator)
- Software for configuration (set-up and maintenance staff)

The manual is designed for trained staff. The device may only be installed and serviced by Roth & Rau - Ortner or especially therefor trained staff.

CAUTION!
Interventions and bug fixes that are not described in this manual may only be performed of Roth & Rau - Ortner.

CAUTION!
Standard regulations for safety must be observed!

ATTENTION!
Operation and troubleshooting must be carried out by specially trained staff.
Basic requirement is that the instruction manual was read and understood. If you are unsure about necessary qualifications therefor, please contact Roth & Rau - Ortner!

3.4 Intended use

This product was developed for reading and writing the transponder types only, specified in this manual. Proper antennas for reading and writing are antennas supplied by the manufacturer. Never locate the reader with antenna so that it is very close to or touching parts of the body while transmitting.

This product is designed to be mounted and operated in an industrial environment as a built-in-device only. It is not designed to be used as a stand-alone or a portable device in a non-industrial environment, such as a household, automotive or open-air environment.

The device may be used no closer than 20cm to the human body.

Any use outside of the general conditions described in the existing instruction manual constitutes improper use.

4 Compliances

4.1 USA Federal Communications Commission (FCC)

HF-CAN-M is a Class A digital device. It is a digital device that is marketed for use in a commercial, industrial or business environment, exclusive of a device which is marketed for use by the general public or is intended to be used in the home.

4.1.1 Compliance

The product complies with FCC Subpart C – Intentional Radiators §15.201 and with Subpart J – Equipment Authorization Procedures § 2.209, when used for its intended purpose. All emissions are at least 40 dB below the limits in § 15.209 and are verified pursuant to the procedures in FCC Subpart J of part 2. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

4.1.2 Antenna Requirements

The antenna is removable and does not employ a unique connector; however, the device is professionally installed and maintained. Therefore, the described HF Reader complies with FCC15.203.

4.1.3 Labeling Requirements

The described HF Reader is not large enough to accommodate a label with the standard FCC compliance statement. It is therefore provided here as follows:

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, and (2) this device must accept any interference received, including interference that may cause undesired.

For further information please see chapter 5.2.

4.2 Europe CE-Conformity

The EC-declaration of conformity is included in appendix in chapter 13.1.
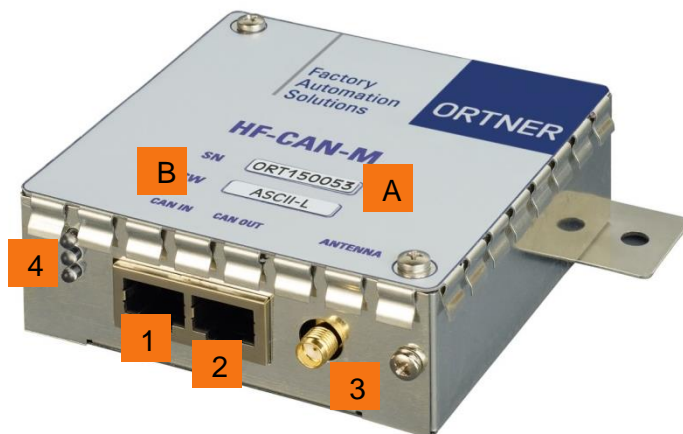
ATTENTION!	
⚠️	Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.

5 Construction Design

5.1 General Layout / Design

Following figures show the RFID reader HF-CAN-M.

All versions of the HF-CAN-M are built in a tin plate case.

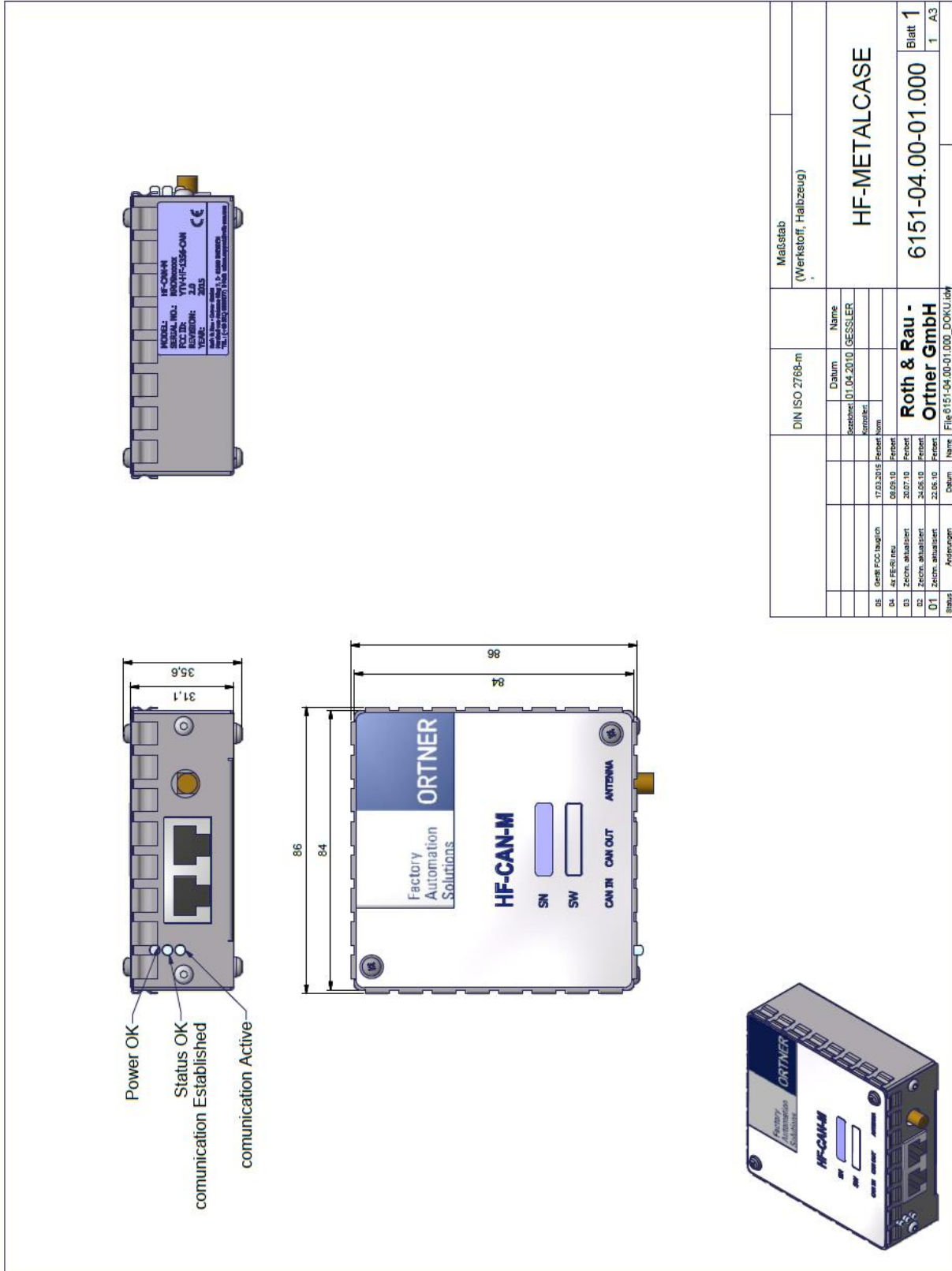|		
1	CAN-Bus/Power In	RJ45
2	CAN-Bus/Power Out	RJ45
3	External Antenna	SMA
4	Operation LEDs:	
	- RX/TX	
	- Status OK	
	- Power OK	
A	Serial number	
B	Software type/version	

5.2 Product Information Label

The product information label is located on the back side (see also engineer drawing in chapter 5.3) and contains the product name (Model), product revision, serial number and year of production. Serial number is RRO9xxxxx starting with 2012. Before 2012 it was ORT15xxxx. Furthermore the FCC number YTV-HF-1356-CAN is listed and the CE-mark.

The dimension of label is 21,5mm x 46 mm.

MODEL: HF-CAN-M
SERIAL NO.:   RRO9xxxxx
FCC ID: YTV-HF-1356-CAN
REVISION: 2.0
YEAR: 2015   CE

Roth & Rau - Ortner GmbH
Manfred-von-Ardenne-Ring 7, D- 01099 DRESDEN
TEL.: (+49 351) 8886177; E-Mail: ortner.support@roth-rau.com
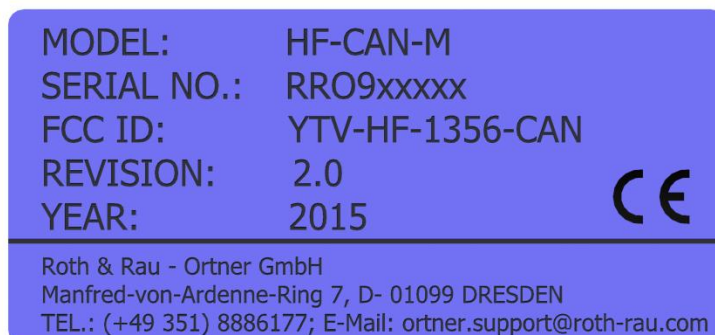
5.3 Engineer Drawing HF-CAN-M

6 Hardware Design

6.1 Technical Data

Dimensions (w h d)	90 x 90 x 30 mm
Weight	185,4 g
Case Material	Tin plate
Operating temperature	5 °C to +50 °C
Storage temperature	-25 °C to +50 °C
Voltage power supply	24 V/DC ±3%
Power consumption Standard antenna	2.7W reading / 0.5W stand-by (typical)
Power consumption maximum	6.0W reading ANTD-HF-120-120E
Antenna	13,56 MHz 50 Ohm impedance 1 Watt
RFID frequency	13,56MHz
Readable transponder types	ISO 15963; ISO 18000-3 (e.g. card RI-TRP-W4FF; disk RF-PT-25-10) IFX SRF55V02P (e.g. card my-d vicinity)
MTBF	≥ 40,000 h
MCBF	≥ 1,000,000 reading cycles
CAN-Bus speed	adjustable up to 1 Mbit/s, typical 100 Kbit/s
Max. CAN cable length	100 m
Available CAN protocols	SDO
Available Connectors	CAN In (RJ45) CAN-Bus / power in CAN Out (RJ45) CAN-Bus / power out Antenna (SMA) 50 ohm impedance

6.2 Operation LEDs

The table below describes the meaning of each status light on top of the device cover.

| LED name	Color	Description
RX/TX	Yellow	CAN-bus data transfer is active
Status	Red	communication with master established, initialized
Power	Green	/DC power ok

6.3 Reading and Writing Ranges

The provided reading ranges shown here and in their respective Antenna datasheets are measured with best conditions. In real environment the ranges can be differ due to disturbing material like metal or any kind of electro-magnetically fields near to the Antenna location. Please thorough improve the conditions before make final decisions about the Antenna location.

Writing ranges in general are approximately 60% of the reading ranges.

For detailed information about individual range characteristics of available Antenna-Types please refer to the corresponding data sheets like ANT-HF-25E / ANT-HF-33E / ANT-HF-87-54E.

6.3.1 Example range measures with Antenna ANT-HF-87-54E

For the external high frequency RFID PCB antenna for 13.56 MHz band, see picture above, the antenna resonance frequency can be adjusted through a hole in the housing. A detuning of the antenna by environment can thus be compensated.
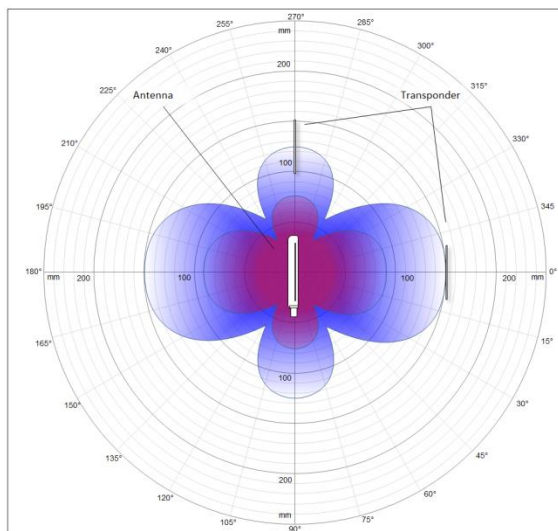
Antenna aligned parallel to the ID Tag card, reading range up to 150mm
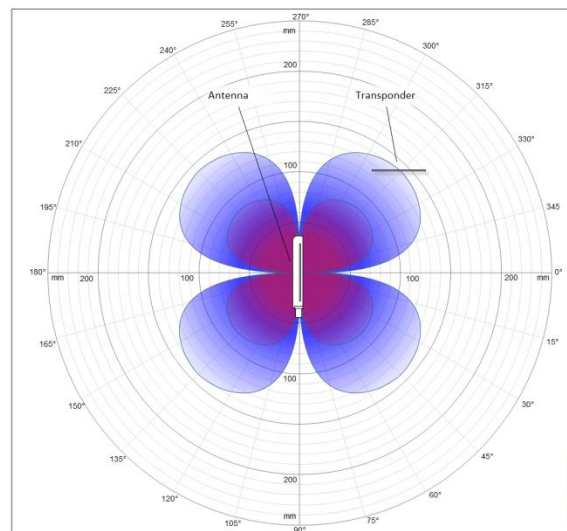
Antenna aligned orthogonal to the ID Tag card, reading rage up to 140mm

7 Hardware Configuration

7.1 Address Configuration

The CAN-ID will be read on every power up cycle. If the CAN-ID became changed during power on, the device must be restarted by power off and on again to be able to use the new ID.

To change the CAN-address it's necessary to open the device by removing the top cover. Turn the unit to the back side and start do bend one side panel of the top cover away from the bottom part, during pulling them apart. Repeat the same action for both sides and lift off the top cover completely thereafter. This can done by hand, tools are not necessary.

ATTENTION!

⚠️ Make sure the device is powered off before remove the top cover!

The CAN-bus ID can set from 1 to 127 in binary code by using the DIP-Switches No.1 to 7. The DIP-Switch No.8 has to be off at all time.

Following table show some configuration examples of how to set the CAN-ID (reader address):

DIP-Switches 1 2 3 4 5 6 7 8	CAN-ID/ reader address
1 0 0 0 0 0 0 **0**	1
0 **1** 0 0 0 0 0 **0**	2
1 1 0 0 0 0 0 **0**	3
0 0 **1** 0 0 0 0 **0**	4
1 0 **1** 0 0 0 0 **0**	5
0 **1 1** 0 0 0 0 **0**	6
1 1 1 0 0 0 0 **0**	7
0 0 0 **1** 0 0 0 **0**	8
…	….
1 1 1 1 1 1 1 0	127

The CAN-ID block uses an 11 Bit identifier, not the extended 29 Bit identifier.

7.2 Connector Pinouts: CAN IN/OUT Connector

CAUTION!

⚠️ If custom accessory will be connected, make sure this is carried out by qualified personnel only, to prevent electrical damage to the device!

Connector	PIN number	Description
8P8C (RJ45/48)	1	CAN high
	2	CAN low
	3,6,7	GND
	4,5,8	24 V/DC

7.3   Reading Range configuration

In order to define and position the HF antenna, a so called HF Detector C was developed, see the following picture.

The HF Detector C corresponds in design to transponder cards ISO 15693. The LED of RF Detector C is illuminating depending on the surrounding RFID magnetic field strength. Is the detector in a stronger magnetic field, the LED is illuminating stronger and vice versa. The electronics are designed so that the LED starts illuminating, when the RFID magnetic field strength corresponds to the strength required for sending data from transponder.

For more detail please see datasheet of HF Detector C.

8 Installation

8.1 General Connection

All ID readers will be connected through CAN-bus to the CAN2Web-Advanced box. Depending on your CAN2Web Version (MINI/MIDI/MAXI), a maximum number of 8 (MINI) or 50 (MIDI, MAXI) ID readers can be connected to one box.

If more than 10 reader devices (MIDI, MAXI) need to be connected, a special CAN-bus power splitter needs to be installed. Please refer to the separate data sheet of CAN-POWER-INJECTOR and the user manual of CAN2Web Advanced.

Before power on the ID-reader Network, it's necessary to make sure the CAN-ID (address) for each ID-reader device is setup correctly like in the following figures.

Changing the CAN-IDs of each ID reader is explained in section 7.1.

| NOTE! |
| --- |
| The CAN2Web-Gateways are preconfigured with CAN-ID 0 – there is no need for change. The readers usually will be delivered with preconfigured CAN-IDs depending on customer requests. |

8.2 CAN-BUS / Power Connection Layout (CAN2Web Advanced MINI)

Up to 8 CAN RFID-readers can be connected, depending on cable length of CAN-Bus. The maximum cable length is 100 m.
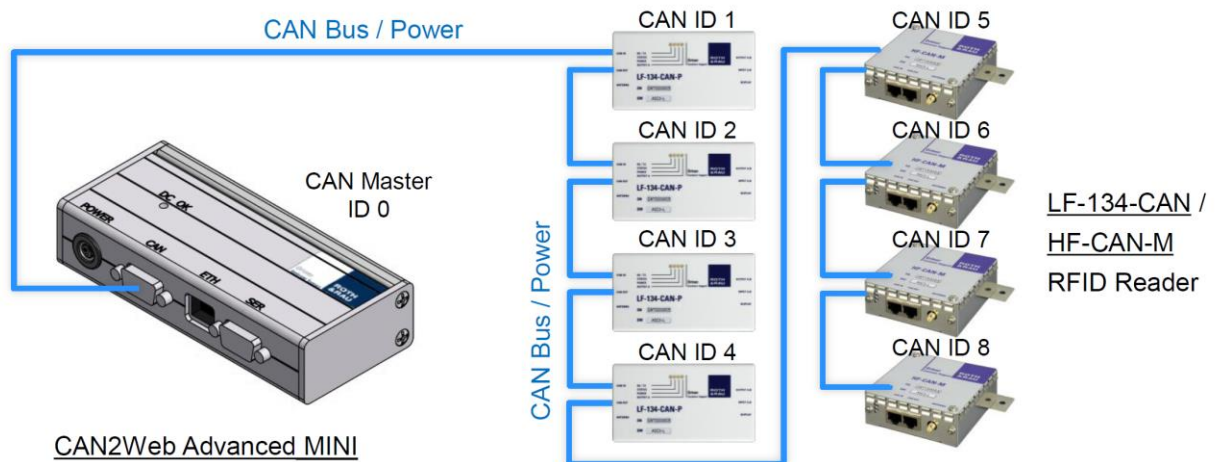
8.3 CAN-BUS / Power Connection Layout (CAN2Web Advanced MAXI)

Up to 50 CAN RFID-readers can be connected, depending on cable length of CAN-Bus and antenna type.
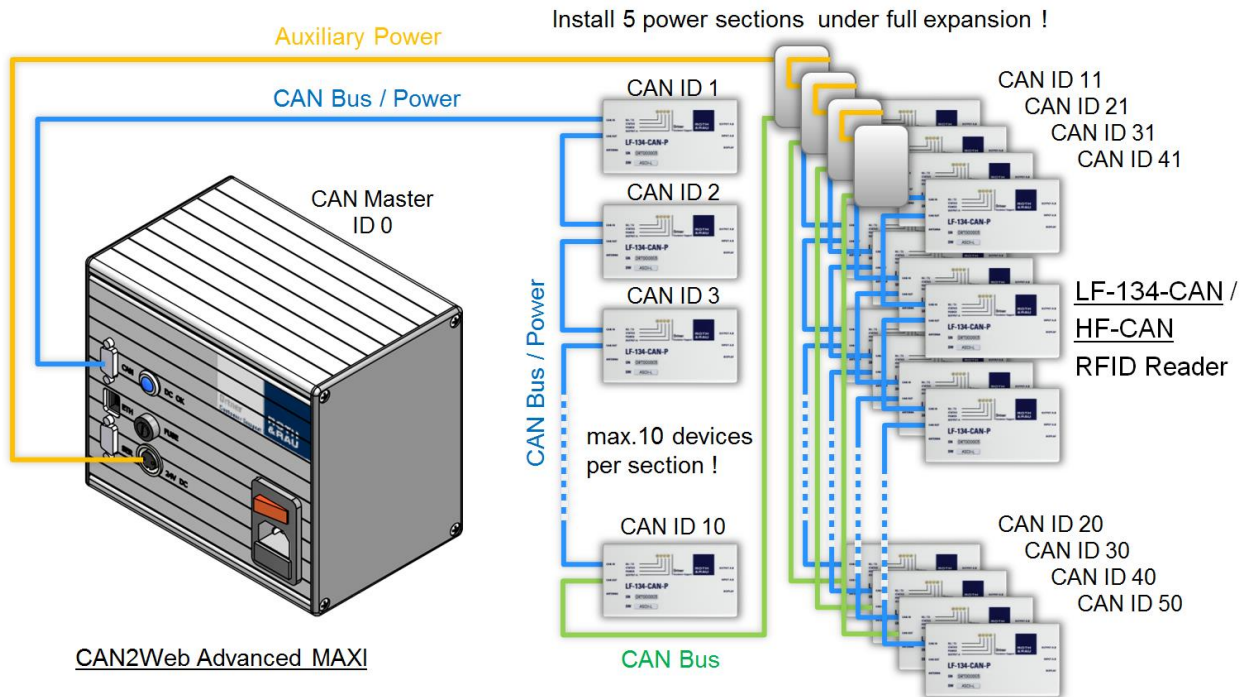
9 Software Configuration

This chapter serves to familiarize the user with software-related configuration.

The exact software configuration depends on the software or interface package which has been ordered. Please refer to interface documentation for details.

9.1 Content global.cfg at CAN2Web Advanced

//set globals for all gateways

offline_time 30

gateway_one_rs232 0

transponder_type 3

max_socket_server 1

accept_tcpip_connection 1

auto_adjustment 1

iso15693_rf_mode 0x2c

// End of global.cfg

9.2 HF relevant settings in global.cfg at CAN2Web Advanced

9.2.1 Parameter transponder_types

Transponder type	Value at global.cfg	Transponder example
LF_SINGLE	0	(for LF single page transponders)
LF_MULTI	1	(for LF multi page transponders)
HF_ISO_15693	2	TI card RI-TRP-W4FF
HF_IFX	3	IFX card my-d vicinity v2.0 (SRF55V02P)

9.2.2 Parameter iso15693_rf_mode

RF Mode	Value*	RF Mode	Value*
HF_1OF4_10_FM_LOW	0x20	HF_1OF4_100_AM_HIGH	0x2E
HF_1OF4_10_FM_HIGH	0x22	HF_1OF256_10_FM_LOW	0x30
HF_1OF4_10_AM_LOW	0x24	HF_1OF256_10_FM_HIGH	0x32
HF_1OF4_10_AM_HIGH	0x26	HF_1OF256_10_AM_LOW	0x34
HF_1OF4_100_FM_LOW	0x28	HF_1OF256_10_AM_HIGH	0x36
HF_1OF4_100_FM_HIGH	0x2A	HF_1OF256_100_FM_LOW	0x38
HF_1OF4_100_AM_LOW	0x2C	HF_1OF256_100_AM_LOW	

*at global.cfg

10 Operation

10.1 Start-up procedure

Before delivery, the product is factory-tested as part of the quality assurance throughout the production process.

Start-up of the RFID system with HF-CAN-M is carried out by trained personnel (see chapter 3.3) Requirements for the start-up by the customer are:

- The user manual of reader and of used CAN2Web Advanced is available to the start-up personnel.
- The mains supply is connected.
- The configuration in CAN2Web Advanced has been made.

Via the power switch on the CAN2Web Advanced box, the overall system and all connected readers are supplied with the supply voltage (24 VDC) and the CAN bus signal.

NOTE!
The system needs approx. 3 seconds to be ready for operation!

10.2 During operation

After completing the configuration and the start-up, the product is in operation.

Switching or control operations are not required during operation.

10.3 Shutdown

The HF-CAN-M can be shut down for a longer period of time without any additional risks. No special maintenance work is necessary during this period.

The decommissioning is performed by connecting off the CAN cable on the HF-CAN-M.

11 Maintenance

The plant operator is responsible for the maintenance.

11.1 Cleaning

Cleaning of the surfaces is possible with Isopropanol (IPA).

DANGER!		
⚠️	Before using IPA (Isopropanol), shut down any electrical power for the system! Otherwise there is a potential high risk on fire outbreak, caused by short circuit or heated components.	🔥
CAUTION!		
⚠️	Isopropanol (IPA) vapors are anesthetic. The contact causes irritation of eyes and mucous membranes. Ensure adequate ventilation when handling.	❗
ATTENTION!		
⚠️	Before start working on the system, always check for mechanical damage and pay attention to any unusual odors, discoloration and noises!	

11.2 Error Handling

In case of serious system disorders please contact the Roth & Rau – Ortner Support:

Phone: +49 351 888 61 77   (only daytime CET)
Fax: +49 351 888 61 20
Mail: ortner.support@roth-rau.com

12 Service Information

12.1 Contact

Address	Roth & Rau - Ortner GmbH
	Manfred-von-Ardenne-Ring 7
	01099 Dresden
	GERMANY

Phone:	+49 351 888 61 0	(only daytime CET)
Fax:	+49 351 888 61 20	
Mail:	ortner.sales@roth-rau.com	
Web:	www.the-missing-link.com	www.rr-ortner.com	

12.2 Support

For all purchased RFID components, RR-Ortner provides free phone and email support. This includes support for components operation as well as support for the integration and installation of components into customer equipment.

The phone support will be available at common working times between 8:00 am and 5:00 pm CET. Beyond, a voice mail box is available.

Phone:	+49 351 888 61 77	(only daytime CET)
Fax:	+49 351 888 61 20	
Mail:	ortner.support@roth-rau.com	

12.3 Return Material Authorization (RMA)

Before returning a defective device to Ortner, it is necessary to request a RMA number. This process ensures the proper return of the product and enables a faster classification and repair or replacement of the defective device. Please follow the below steps:

1. Please contact our support to get the RMA form and RMA number

2. Ortner generates a RMA number

3. Customer completes the RMA form by using the received RMA number

4. Customer ship the defective unit with attached RMA-Report to:

Roth & Rau - Ortner GmbH
Manfred-von-Ardenne-Ring 7
01099 Dresden
GERMANY

RMA
000-000-000

5. Ortner acknowledge the receipt and processing the RMA request

6. Returning the repaired or replaced device to Customer

IMPORTANT!
Please prominently display the RMA number on the packaging, to allow us to serve you faster.

12.4 Warranty

The warranty period is 24 months and begins with the moment of delivery of the device as proved by an invoice or other documents. The warranty includes the repair of all damages to the device that occurs within the warranty period and which is evidently caused by faults of the material or production defects.

The warranty does not include damages caused by incorrect connection, inappropriate handling and non-observance of the technical reports.

12.5 Disposal

Within the European Union Roth & Rau – Ortner will take back any delivered equipment for disposal. For further information on the return, please contact the Roth & Rau – Ortner Support.

NOTE!
For disposal the equipment by your own, make sure to observe all applicable laws.

12.6 Spare Parts

The components in our current array of products are available as spare parts to our customers. In case of spare part requests for products which are already removed from our actual array of products, Roth & Rau – Ortner requires detailed product information of the defective unit. All components have an expected product lifetime of 10 years. For this time period we are able to provide spare parts.
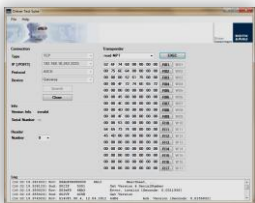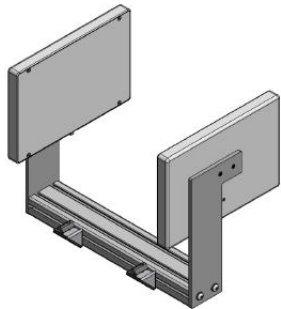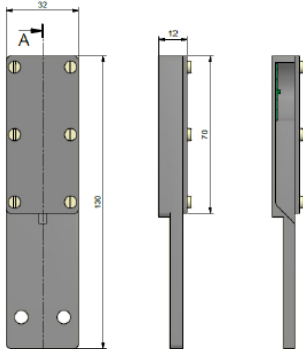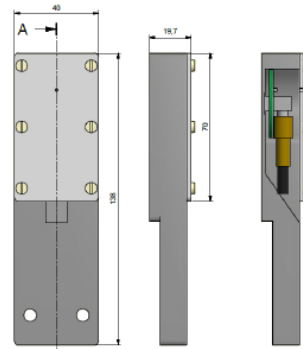
NOTE!
Before ordering spare parts, make sure to choose the right type (hardware / software) of the considered unit. Search for the product information label.

12.7 Accessories & Spare Part Overview

Component	Description		Order Codes
HF-CAN-M	Multifunctional 13.56 MHz high frequency RFID-reader with tinplate metal case. Multiple readers can be connected to one CAN2Web-gateway by RJ45 CAN-bus cable.		
	HF-CAN-M		**000562**
Cable-ETH	CAN-bus cable for direct connection between all variants of Ortner LF-/HF-RFID-readers. RJ45 to RJ45. NOTE: The cable cannot be replaced by any Ethernet cable!		
	cable lengths will be customized		**000144**
Cable-CAN-SER	CAN-bus cable for connecting all versions of a CAN2Web-gateway to the first ID-reader in a CAN-bus network. DE9 to RJ45.		
	cable length 1.5m		**000130**
CAN2Web Advanced MINI	Multifunctional CAN-bus to Ethernet gateway device to connect Ortner RFID-readers to a host system. Supplies up to 8 devices.		
	CAN2Web-A-MINI 64	w/o base plate	**000076-64MB**
	CAN2Web-A-MINI 64	with base plate	**000170-64MB**
CAN2Web Advanced MIDI	Multifunctional CAN-bus to Ethernet gateway device to connect Ortner RFID-readers to a host system. Supplies up to 25 devices with integrated 50W wide range switched mode power supply.		
	CAN2Web-A-MIDI 64		**000079-64MB**

Component	Description		Order Codes
CAN2Web Advanced MAXI	Multifunctional CAN-bus to Ethernet gateway device to connect Ortner RFID-readers to a host system. Supplies up to 50 devices with integrated 100W wide range switched mode power supply.		
	CAN2Web-A-MAXI 64		**000078-64MB**
Ortner Test Suite	Comprehensive software tool for testing all Ortner CAN/Serial LF and HF ID-readers in conjunction with a CAN2Web gateway. For further information please contact our support: ortner.support@roth-rau.com		
ANT-HF-87 54ES800	External HF Antenna − dimensions: 73 × 96 x 10 mm − connector type: SMA female − available cable lengths: up to 3.6m		
	ANT-HF-87-54ES**0800**	cable length 0.8m	**000568**
Set ANT-HF-87 54ES with pluggable high-flex 800 mm cable	External HF Antenna − dimensions: 73 × 96 x 10 mm − connector type: SMA female/ SMA male − case material: ABS, black − available cable lengths: up to 3.6m		
	Set ANT-HF-87-54ES	cable length 0.8m	**000871**

Component	Description		Order Codes
ANTD-HF-140-220E	External HF Antenna − dimensions: 226 × 156 x 20 mm − connector type: SMA female − case material: PP − available cable lengths: up to 3.6m		
	ANTD-HF-140-220E	cable length 2.2m	**000803**
ANT-HF-BOS-25ES300	External HF Antenna − dimensions: 32 × 130 x 12 mm − connector type: SMA female − case material: PP wite − available cable lengths: up to 3.6m		
	ANT-HF-BOS-25ES300	cable length 0.3m	**00036-BOS300**
ANT-HF-BOS-33ES300	External HF Antenna − dimensions: 40 × 138 x 19.7 mm − connector type: SMA female − case material: PP wite − available cable lengths: up to 3.6m		
	ANT-HF-BOS-33ES300	cable length 0.3m	**000883**
HF-Detector-C V1.0	HF Detector − dimensions: 85 × 33 x 1 mm − available with transparent card holder		
	HF-Detector-C V1.0		**000867**

* For custom configuration requests please contact us at: ortner.sales@roth-rau.com

13 Appendix

13.1 Europe CE-Conformity

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EG-Konformitätserklärung

EC-Declaration of Conformity
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gemäß dem Gesetz über Funkanlagen und Telekommunikationsendeinrichtungen (FTEG) und der Richtlinie 1999/5/EG (R&TTE) in accordance with the Radio and Telecommunications Terminal Equipment Act (FTEG) And Directive 1999/5/EC (R&TTE Directive)

Hiermit erklären wir, dass nachstehend bezeichnetes Produkt in seiner Konzeption und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den grundlegenden Sicherheits- und Gesundheitsanforderungen der **EG-Richtlinie 1999/5/EG** entspricht. Bei einer mit uns nicht abgestimmten Änderung des Produkts verliert diese Erklärung ihre Gültigkeit.

We hereby declare that, to our best knowledge, the following described product in its design and construction of us in the circulated version is in accordance with all the relevant essential health and safety requirements of the **EC directive 1999/5/EC** as amended and the national laws and regulations adopting this directive. This declaration is no longer valid if the product is modified without our consent.
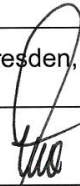
Firma Company	Roth & Rau – Ortner GmbH Manfred-von-Ardenne-Ring 7 01099 Dresden Germany
Produktbezeichnung Designation of product	HF-CAN-M V2.0
Serien-Nummer / Typ Serial number / Type	RRO9xxxxx

Außerdem wird die Übereinstimmung mit folgenden weiteren Richtlinien erklärt:
Furthermore we declare the compliance with other applicable directives:

- **Niederspannungsrichtlinie 2006/95/EG (low voltage directive 2006/95/EC)**

Folgende Normen wurden angewandt:
The following standards were applied:

- EN 60950-1:2006 + A11:2009 + A1:2010
- DIN EN 61000-6-2:2005
- DIN EN 61000-6-4:2007 + A1:2011

Ort, Datum Place and date of issue	Dresden, den 4.3.2015
Unterschrift Signature	
Name / Funktion Name and function	Heinz Martin Esser Geschäftsführer / Managing Director

13.2 Glossary

ASCII	American Standard Code of Information Inter-exchange
CAN	Controller Area Network
RF	Radio Frequency
RFID	Radio Frequency IDentification
LF / HF	Low / High Frequency
HDX	Half DupleX
ISP	In-Circuit Programmer
FSK	Frequency Shift Keying
MPT / SPT	Multi / Single Page Transponder
RO / RW	Read Only / Read and Write
SAMPT	Selective Addressable Multi Page Transponder
ABS	Acrylonitrile Butadiene Styrene (plastic material)
POM	Polyoxymethylen (plastic material)
SMPS	Switched Mode Power Supply
MES	Manufacturing Execution System
SEMI	Semiconductor Equipment and Materials International
SECS	SEMI Equipment Communication Standard
MTBF	Mean Time Between Failures
MCBF	Mean Cycles Between Failures
TIRIS	Texas Instruments Registration and Identification System (RFID Standard)

13.3 Related documents

- UMA_CAN2Web-Advanced_Rev12_Eng

The documents apply in their respective current version.

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