



LF-134-CAN-M

Low Frequency RFID Reader

User Manual

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Revision table

#	Date	Revision	Description	Name
01	2012/07/12	01	Split LF-134-CAN Rev13, new Layout	CGU
02	2012/07/12	02	Update Antenna information	CGU
03	2012/07/13	03	Update drawings and schematics	CGU
04	2012/07/13	04	Update technical data	CGU
05	2012/07/16	05	Added CE-Declaration	CGU
06	2012/07/16	06	Update technical data and drawings	CGU
07	2012/08/01	07	Update available product revisions	CGU
08	2015/03/19	08	Content update for V3.1, new layout	NEL
09	2015/08/25	09	Add Operational description (chapter 2.2)	NEL

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1 General information

The present instruction manual is the original instruction manual for the product LF-134-CAN-M of Roth & Rau - Ortner GmbH.

The declaration of conformity is contained in the appendix of the instruction manual.

The instruction manual is intended to enable the operator to safely operate the system as intended and warn them of foreseeable misuse. The manual is intended for the operating company's specialized staff.

This instruction manual must be kept for reference purposes!

Warning	
	<p>Retain this manual for future reference! The instruction manual must be accessible to operators and maintenance personnel at all times during installation, operation and troubleshooting!</p>

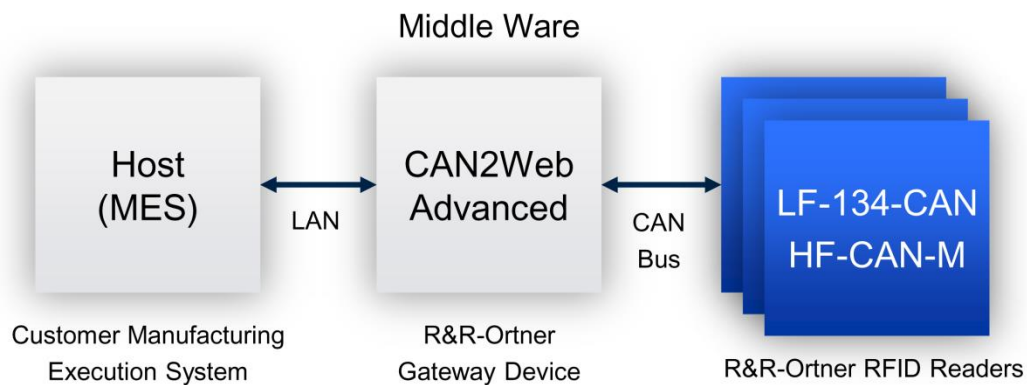
A copy of the instruction manual must be kept in a suitable and accessible place.

The explanation of the hazard pictograms is contained in chapter 3.1.

2 Product overview

2.1 General function

The LF-134-CAN-M reader is designed for operate in reader-networks based on CAN bus. For connecting the reader network to a Host system (MES), a Roth & Rau - Ortner CAN2Web Middleware is necessary.



The LF-134-CAN-M reader is an RFID module which supports 134.2 kHz half duplex transponders. The device works with 64bit “read-only” and 80 bit “read-write” transponder types and with 1360 bit “read-write” multipage transponders. 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 (Uplink and Downlink)
- Reads and writes RO/RW/MPT types transponders
- Powerful and efficient output stage

2.2 Operational description

2.2.1 How the device operates?

- The LF-134-CAN device reads FDX 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 134KHz in 50msec length. After the burst, the transponder answers back FSK signal shifting between 124KHz and 134KHz.
- The modulation follows ISO18000-2 FDX mode.

2.2.3 Short description of the device

- RFID reader for ISO18000-2 FDX transponder (mainly TI TIRIS transponder)

2.2.4 Pulse rate

- At fastest 100msec cycle. 50msec charge, 20msec listen, 30msec pause.

2.2.5 Signal type

- FSK signal from transponder
- ASK signal from reader

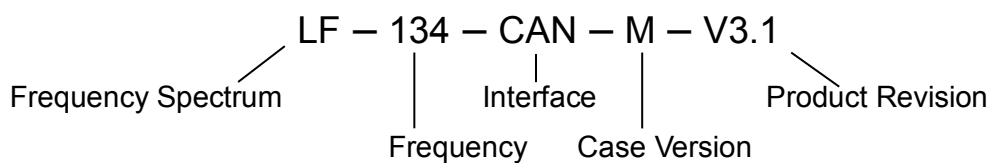
2.2.6 Information being sent

- 8bytes of data + CRC

2.3 Product Revision

Product Code	Product Revision	Hardware Version	Available Software Version
LF-134-CAN-M	3.1	1.3	Slave, Master, DMS

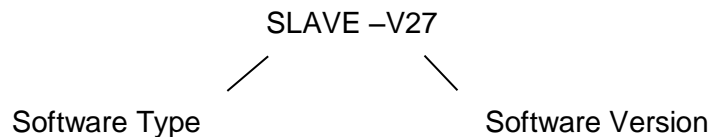
The product code consists of following information:




The available software versions are:

Software	Description
Slave-V27	Device will be controlled completely by CAN2Web Box or CAN-Controller.
SDO Master_V4_1_130112	Version for readers with display and IFD transponder structure
dms10d	Software for readers with display and DMS transponder structure (reticle), version without external interface (IFD)
dms22	Software for readers with display and DMS transponder structure (reticle), reading by IRG possible, texts in English (SkWs)

Our software code consists of following information:




Note	
	<p>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, design.</p> <p>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.</p>


3 Safety instructions


This chapter explains general safety guidelines along with an explanation of the symbols. The user is informed about dangers, residual risks and measures for reducing risks in the chapter safety regulations.


Additionally, action-related and situational safety instructions have been placed in the corresponding chapter of the instruction manual.

3.1 Description

Danger	
	This symbol refers to major hazards to life and health for persons. Pay strict attention to the information provided in these sections and proceed with the utmost care!

Warning	
	This symbol refers to hazards to life and health for persons. Pay strict attention to the information provided in these sections and proceed with the utmost care!


Caution	
	This symbol warns of minor injury and material damage to the product as well potentially unsafe use.

Note	
	Information serves to warn against operating errors and to highlight important topics and respectively gain a better understanding of the product.






3.2 General safety instructions

The LF-134-CAN-M is considered state-of-the-art technology and meets the recognized safety rules and regulations. Nevertheless, dangers may still arise.

The product may only be operated in perfect condition and in compliance with the present instruction manual.


Warning	
	<p>You must read and understand all safety and operating instructions before using the product!</p> <p>The product may only be operated in perfect technical condition and in compliance with all chapters of the instruction manual!</p>

The following safety information is understood to be in addition to the existing accident prevention regulations and laws. Existing safety prevention measures and laws must be followed at all costs.

Danger	
	<p>All antenna resonant circuit components carry high voltage!</p> <p>The installer is responsible for installing the device to comply with FCC requirements of human exposure to radio frequency.</p>
Warning	
	<p>To prevent fire, shock hazard, or annoying interference, use recommended accessories only.</p>
Warning	
	<p>When removing the housing lid, note that the housing lid is connected to the case with a cable. Remove the lid carefully to prevent damage – do not pull it! Do not operate the device when the housing lid is removed!</p>
Warning	
	<p>Never locate the antenna so that it is very close to or touching parts of the body while transmitting.</p>
Caution	
	<p>Do NOT operate this device without a proper antenna attached. Proper antennas are antennas supplied by the manufacturer and listed in section spare parts.</p>

Only use accessories, extensions and connection cables which have been approved for use by Roth & Rau - Ortner.

The Roth & Rau - Ortner sales team is available to answer questions about approved accessories.

Note	
	When removing a cable, only pull on the connector and not the cable itself. Make sure that the connectors are properly fixed to avoid bending the pins. Ensure that the pins are in the correct position when connecting a cable.

In the event of mechanical damage to the product, the LF-134-CAN-M must be disconnected from the power supply.

3.3 ESD Instructions

Static electricity can harm electronic components inside the device. All persons who install or maintain the device must be trained in ESD protection. ESD protection measures must be observed when opening the device.

Before removing or inserting components, disconnect the power supply.

To prevent electrostatic damage, static electricity must be discharged from the body and tools before touching components inside the device.

Touch electro-sensitive components carefully at their edges only.

3.4 Intended Use

This product was developed for reading and writing the TIRIS® transponder only. Any other use of this device would constitute abuse.

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.

3.5 Qualifications of the operating and maintenance personnel




The intended group of users of the product is the operating personnel (system operators) and the maintenance personnel.

It is assumed that all users have been acquainted with the function and dangers of the overall system before beginning work.

All operators, service personnel, fitters and maintenance personnel should be instructed on 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 operating instructions were designed for trained personnel. The device may only be installed and serviced by Roth & Rau - Ortner or personnel trained for this purpose.

Warning	
	Interventions and troubleshooting which are not described in this instruction manual may only be carried out by Roth & Rau - Ortner.
Warning	
	The commonly accepted regulations for work safety must be adhered to!
Caution	
	Operation and troubleshooting may only be carried out by specially trained personnel. The prerequisite is that the operating instructions have been read and understood. Should you be unsure as to which qualifications must be present, then contact Roth & Rau - Ortner!

4 Compliances

4.1 USA Federal Communications Commission (FCC)

LF-134-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 reader LF-134-CAN-M complies with FCC15.203.

4.1.3 Labeling Requirements


The described reader LF-134-CAN-M 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

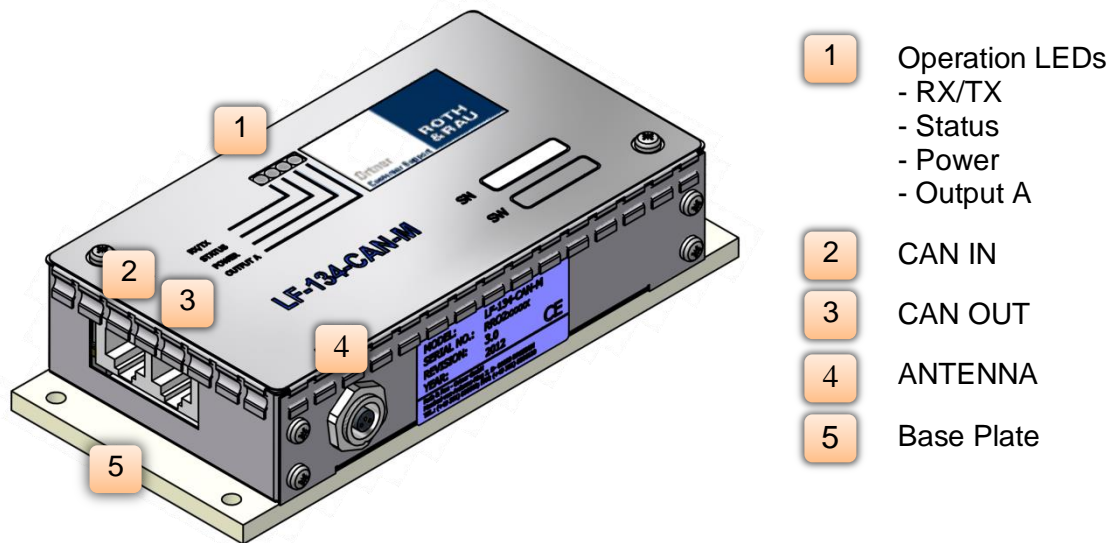
The EC-declaration of conformity is included in appendix in chapter 13.1.

Caution	
	<p>Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.</p>

5 Construction Design

This chapter specifies all the essential hardware components. Block diagrams serve to present the product's essential hardware components. The table on technical data lists and numbers all known technical details which are necessary for distinctively labeling the product.

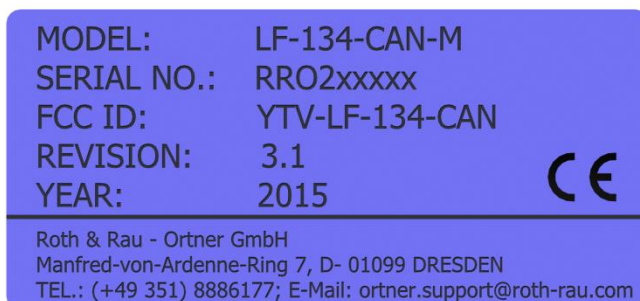
5.1 General Layout



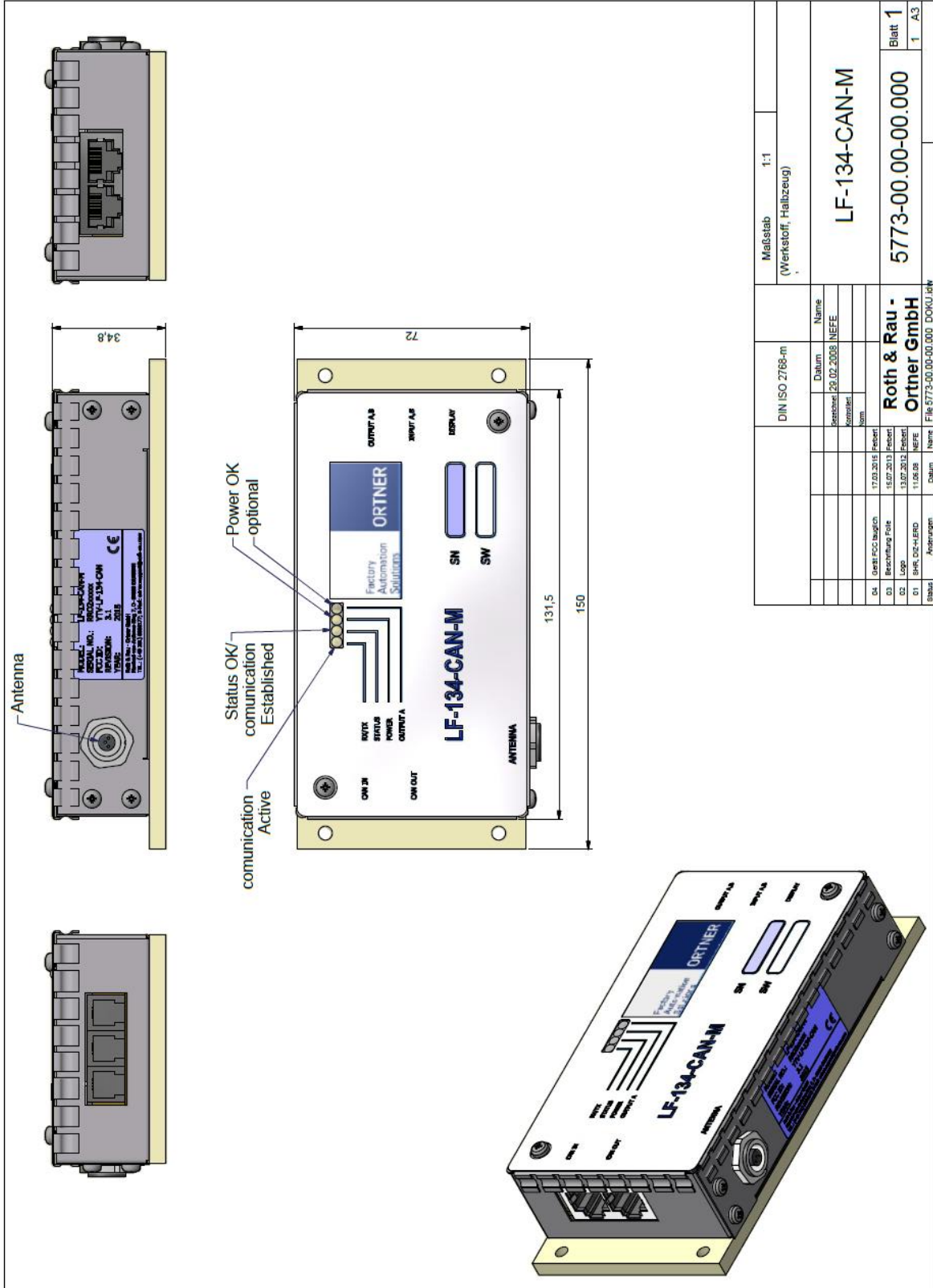
5.2 Product Information Label

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-LF-134-CAN is listed and the CE-mark.

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



5.3 Engineer Drawing



Schutzmerkmal DIN 34 beachten

DIN ISO 2768-m		Maßstab 1:1 (Werkstoff, Halbzeug)	
Name		LF-134-CAN-M	
Datum		23.02.2018	
Gezeichnet		MEFE	
Kontrolliert			
Name			
Geht. FZG. Ing. Ch.		17.03.2018	
Beschreibung		RFID-Reader	
Lage		13.07.2013	
SWR. CD+EPD		MEFE	
Status		Anfragen	
Datei		File 5773-00-00-00-000_DOKU.dwg	
Roth & Rau - Ortner GmbH		5773-00-00-00-000	
		Blatt 1	
		1 A3	

6 Hardware Design

6.1 Technical Data

Designation	LF-134-CAN-M	
Dimensions (w-h-d)	without Base plate: 130 x 80 x 30mm	with Base plate: 150 x 80 x 35mm
Weight	273g (with Base plate)	
Case Material	Case: Tin plate	Base Plate: POM
Operating temperature	0°C to +50°C	
Storage temperature	-25°C to +50°C	
Voltage power supply (typical)	24V +/- 3%	
Power consumption	5.0W reading / 1.3W stand-by (typical)	
Antenna	ferrite coil and air coil	
RFID frequency	134.2kHz	
Readable transponder types	134.2kHz HDX/FSK, MPT, SAMPT, RW, RO (e.g. TI 32 mm Glass Transponder RI-TRP-DR2B)	
MTBF	≥ 40,000h	
MCBF	≥ 1,000,000 reading cycles	
Reading time one page	Average 110msec	
Speed of CAN-Bus	adjustable up to 1MBit/sec, typical 100kBit/sec	
Max. CAN cable length	100 m	
Connectors	CAN In (RJ45) CAN-Bus / power in CAN Out (RJ45) CAN-Bus / power out Antenna (RJ10) external antenna Output A,B (RJ10) 2 digital channels out Input A,B (RJ10) 2 digital channels in Display (RJ10) powered serial display link	

6.2 Operation LED signals (Indicator light)

In the table below the meaning of each status lights on the device top cover is describe in detail.

LED name	Color	Description
RX/TX	Yellow	ON – CAN Data transfer active
Status	Red	ON – Communication with CAN-Master established
Power	Green	ON – 24V Power OK
Output A	Yellow	Optional

6.3 Connector Assignments

6.3.1 Pin configuration of CAN IN/OUT connectors

Both CAN connectors (CAN-IN and CAN-OUT) are RJ45, 8 poles and have the following pin configuration:

PIN number	Description
1	CAN_H
2	CAN_L
3	CAN_GND
4	CAN_V+ (12-30VDC)
5	n.c.
6	CAN_SHIELD
7	CAN_GND
8	CAN_V+ (12-30VDC)

6.3.2 Pin configuration of Antenna connector

The antenna connector is 4P4C (RJ10), 4 poles and has the following pin configuration:

PIN number	Description
1	antenna OUT
2	antenna OUT
3	antenna IN
4	antenna IN

6.4 External Antenna specification

The external antenna will be connected to the antenna Binder Plug Socket. Antenna wire thickness should be at least 0.5 mm but it can be an air coil or ferrite coil.

Antenna specification	
Frequency	134,2 kHz
Inductivity	48 μ H ^{+/- 3%}

Our most common used antenna design is a 65mm ferrite coil. It can provide reading ranges for at least 200mm with a 23mm glass tube read-only transponder.

This is just an example Antenna-Design. For detailed information about all available Antenna types and corresponding reading ranges, please refer to the separate Datasheets like:

- **ANT04-35EB**
- **ANT08-65EBF** (High Flex Cable)
- **ANT10-100EBF** (High Flex Cable)



6.5 Reading and writing ranges

The following antenna range figures are measured by using our most common antenna type ANT08-65EB. This is just an example to show how the antenna ranges are correlating with different transponder (tag) positions.

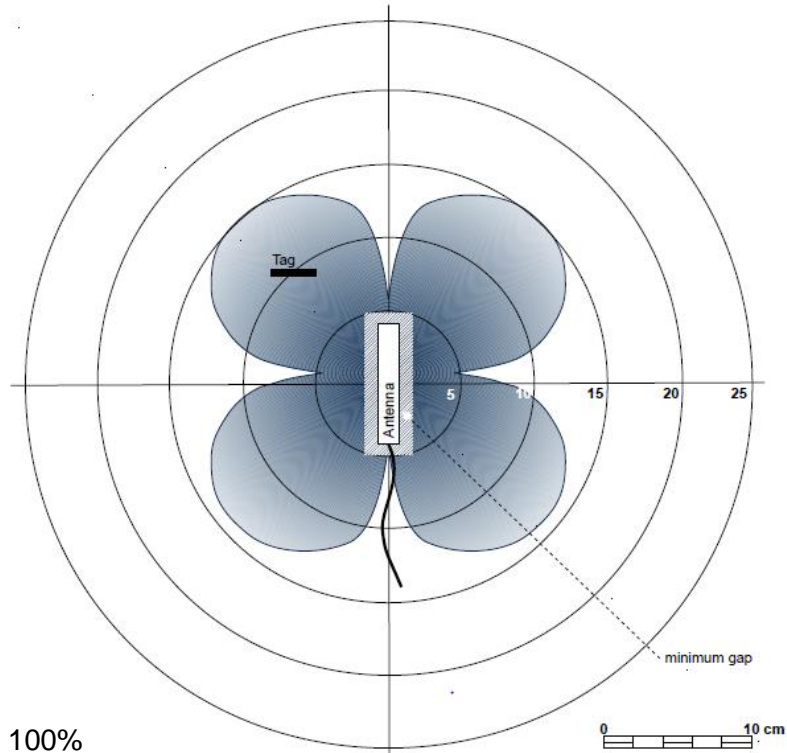
Detailed information about all available antenna types and their corresponding ranges, please refer to chapter 12.5 and the separate antenna data sheets like:

- **ANT04-35EB**
- **ANT08-65EBF** (High Flex Cable)
- **ANT10-100EBF** (High Flex Cable)

The following reading ranges are measured with best conditions; in real environment the ranges will be much smaller due to disturbing material, like metal or other electro-magnetically fields near the antenna location. Please improve the condition before finally decision of the antenna location.

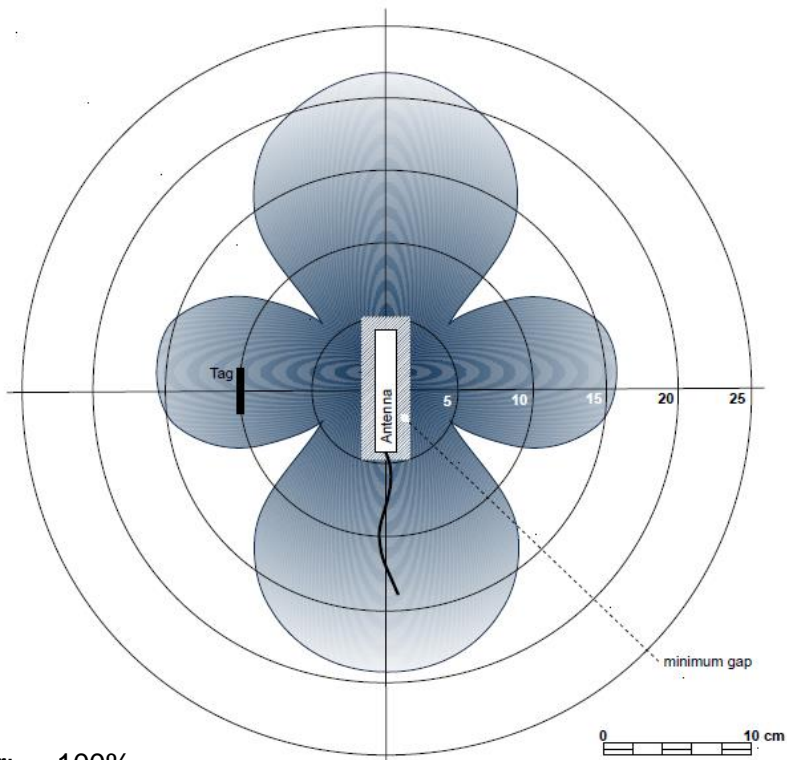
Writing ranges under same conditions are approx. 60% of the below described reading ranges. Close to the antenna tag reading and writing will also be not possible, so prevent a tag placement very close to the antenna, as a guide value prevent a distance below 10 mm.

6.5.1 Reading range – orthogonal alignment (ANT08-65EB)



Output power: 100%
Alignment: Antenna/Tag parallel (50 mm/div)

6.5.2 Reading range – parallel alignment (ANT-08-65EB)



Output power: 100%
Alignment: Antenna/Tag parallel (50 mm/div)

7 Hardware Configuration

7.1 CAN-Bus Address Configuration

To change the CAN-Address it's necessary to open the device by removing two screws on the top cover.

ATTENTION:

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

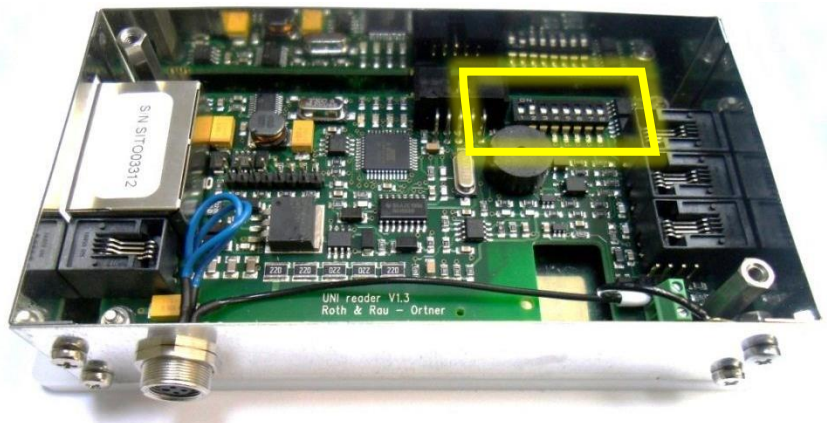


The CAN-ID will be read on every power up cycle. That means if the CAN-ID became changed during power on, the device must be restarted by power off and on again to be able to use the new ID.

The ID can set from 1 to 127 in binary code by using the DIP-Switches No.1-7.

The DIP-Switch No.8 has to be off at all time.

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

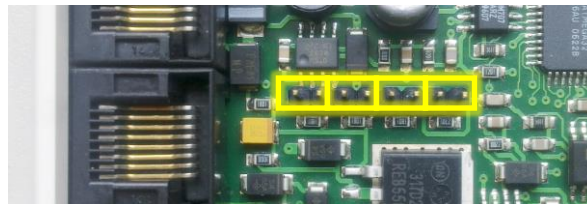


Following table shows some configuration examples of how to set the CAN-ID (Reader Address).

DIP-Switches	CAN-ID (Reader Address)
1 2 3 4 5 6 7 8	
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
... 0	...
1 1 1 1 1 1 1 0	127

7.2 Adjustment of reading range

Jumper J1 – J4 settings for RF power level on LF-134-CAN-M. This setting defines the power level for the transmitting amplifier. All values are calculated values and might be differ a bit.



J1 J2 J3 J4

J1	J2	J3	J4	RF supply Voltage (approx.)	Read distance (approx.)
OFF	OFF	OFF	OFF	23,75 V	100%
OFF	OFF	OFF	ON	14,75 V	85%
ON	OFF	OFF	OFF	12,50 V	81%
ON	OFF	OFF	ON	9,70 V	74%
ON	ON	OFF	OFF	8,75 V	71%
ON	ON	OFF	ON	7,40 V	67%
ON	ON	ON	OFF	6,87 V	66%
ON	ON	ON	ON	6,07 V	63%

8 Installation

8.1 General

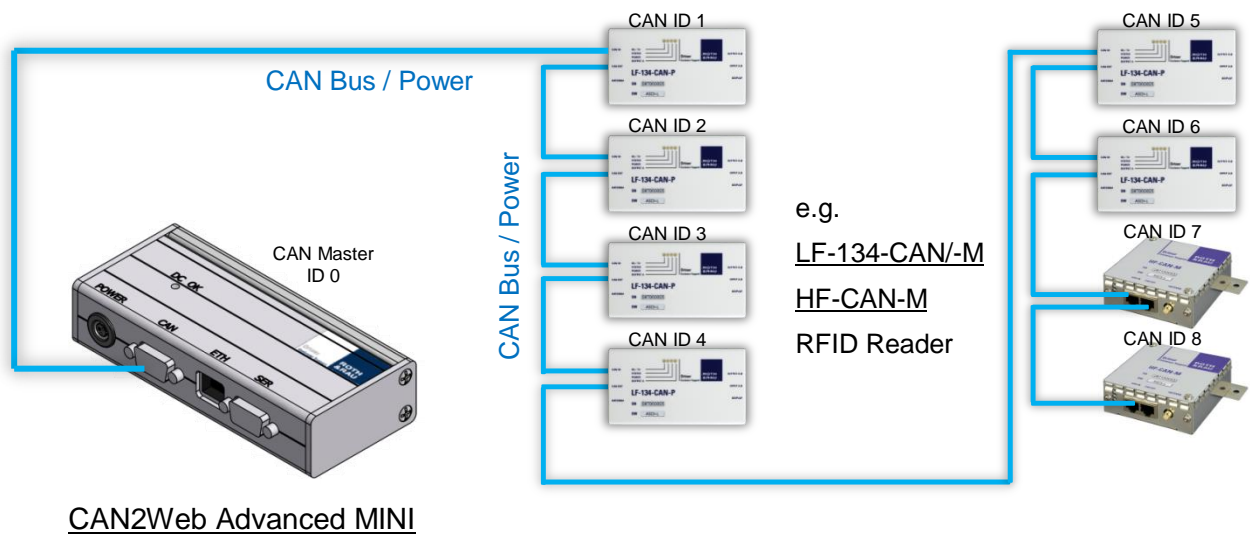
All ID-Readers will be connected through CAN-Bus to the CAN2Web-Advanced box. Depending on your CAN2Web Version (MINI/MIDI/MAXI) a maximum number of 8 (MINI) or 50 (MIDI/MAXI) readers can be connected to one box. The maximum CAN-cable length is 100 m.

If more than 10 Reader Devices (MIDI/MAXI) needs to be connected, a special CAN/Power split cable is necessary. Please refer to the separate data sheet of CAN-POWER-INJECTOR and the user manual of CAN2Web Advanced.

NOTE: 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. 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. In case of changes needs to be done, it is shown how to change the CAN-IDs in Section 0.

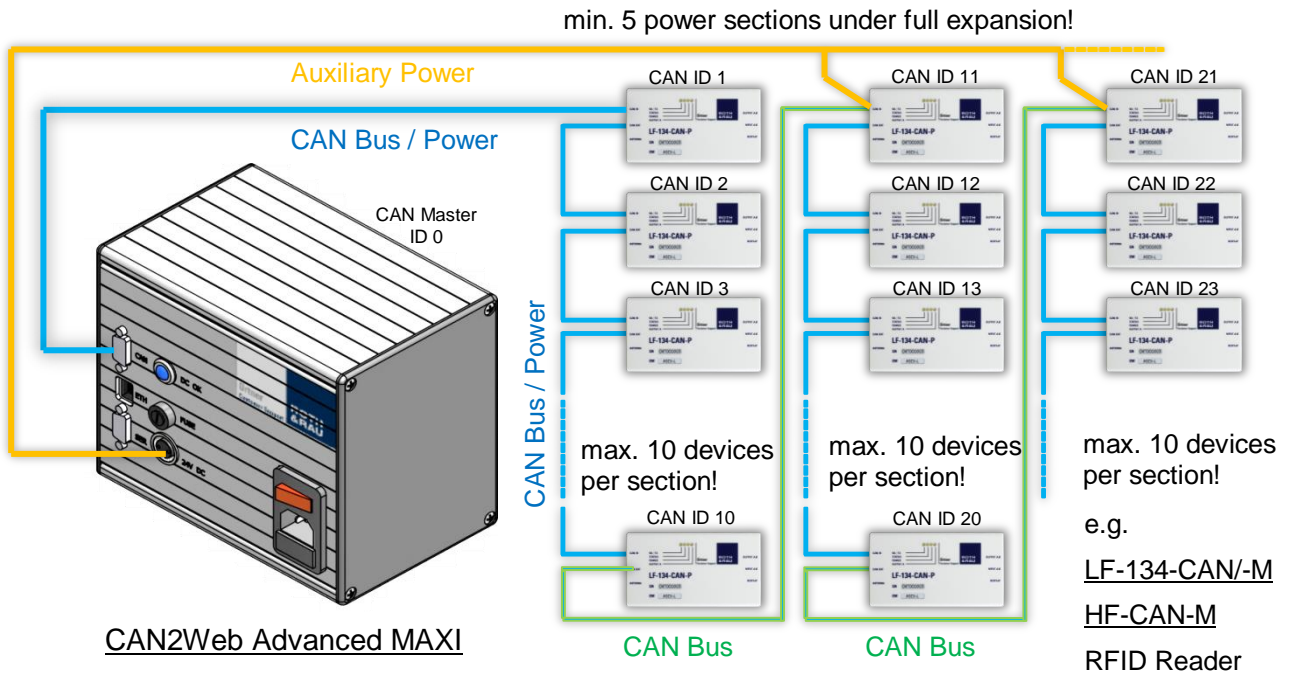
8.2 Connection Layout for CAN-BUS / Power (CAN2Web-A-MINI)

This two example figures are showing how the ID-Reader Network can be built.



Up to 8 CAN RFID-Readers can be connected, depending on cable length of CAN-Bus.

8.3 Connection Layout for CAN-BUS / Power (CAN2Web-A-MAXI)



Up to 50 CAN RFID-Readers can be connected, depending on cable length of CAN-Bus.

8.4 Installation guide for RFID ferrite core antennas

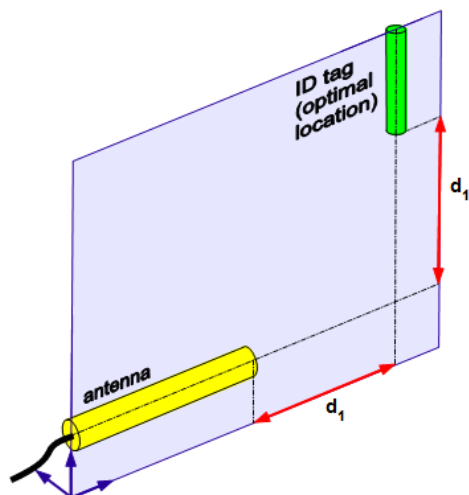
This guide shall show you the best way to install RFID antennas to your devices to achieve safe reading results. It considers two possible orientations between antenna and ID tag:

1. Antenna is orthogonal to the ID tag.
2. Antenna is parallel to the ID tag.

General information:

- Don't attach RFID antennas directly to metal surfaces and avoid ferromagnetic materials! Leave a gap of at least 5mm and use plastic mountings and screws for fixing the antenna.
- Don't install antennas, cables or reading devices close to electromagnetic radiating devices such as switched-mode power supplies!
- Only use shielded cables and try not to loop the remains!
- Try to align antenna and ID tag in one layer. (see case explanations)
- **Maximum distances are given for best surrounding conditions. In reality the maximum distances may be lower due to other electromagnetic interferences! So, try to keep the distance between antenna and ID tag as low as possible.**

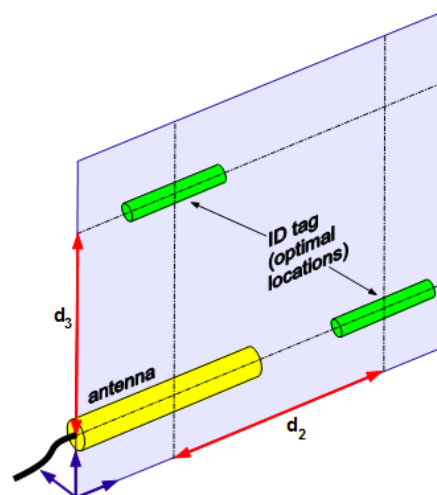
Case 1: Antenna orthogonal to ID tag



Antenna type ANT08-65E

$d_{1 \text{ min}} = 10 \text{ mm}$ $d_{1 \text{ max}} = 80 \text{ mm}$

Case 2: Antenna parallel to ID tag



Antenna type ANT08-65E

$d_{2 \text{ min}} = 10 \text{ mm}$ $d_{2 \text{ max}} = 200 \text{ mm}$
 $d_{3 \text{ min}} = 10 \text{ mm}$ $d_{3 \text{ max}} = 100 \text{ mm}$

Considering the suggested alignment between antenna and ID tag should perform best results.

If you still encounter problems or for further information please contact our Customer Support:
ortner.support@roth-rau.com

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	TI 32 mm Glass Transponder RI-TRP-RR2B
LF_MULTI	1	TI 32 mm Glass Transponder RI-TRP-DR2B
HF_ISO_15693	2	(for HF ISO_15693 transponders)
HF_IFX	3	(for HF transponders using IFX customer mode)

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 LF-134-CAN-M is carried out by trained personnel (see chapter 3.5). 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 LF-134-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 LF-134-CAN-M.




11 Maintenance, repairs, troubleshooting

11.1 Maintenance


The LF-134-CAN-M was designed so that it is nearly maintenance free.

The surfaces can be cleaned using a lint-free cloth and isopropyl.

Before starting any work on the system, the housing and functional elements must always be checked for damage and attention paid to noises!

Warning	
	Interventions in the product and the software configuration may only be carried out in coordination with Roth & Rau - Ortner or by trained users or specialist companies.
Note	
	In particular, changes to the software can lead to malfunctions and operational problems.
Note	
	The CAN bus ID's for the LF-134-CAN-M have been preset and configured ex works. Changes to the CAN bus ID are only to be made if the corresponding system is replaced.

11.2 Repairs

Warning	
	Repairs may not cause a change in function. The product may not be altered or manipulated.

The system must be shut off before each repair. The LF-134-CAN-M must be disconnected from the power supply.

System maintenance and repairs are only to be performed by Roth & Rau - Ortner or specialist companies.

11.3 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 and support

Please contact the sales team at Roth & Rau - Ortner to order components or spare parts:

Telephone +49 351 88861-0 (during business hours)
 Fax +49 351 88861-20
 Email ortner.sales@roth-rau.com

Roth & Rau - Ortner offers telephone and e-mail support for all components. This includes support for operating the components and for integrating the devices into other equipment. The telephone support is available during regular business hours (8am to 5pm CET, after hours there is an answering machine).

Please contact our team for help:


Telephone: +49 351 88861-77 (during business hours)
 Fax: +49 351 88861-20
 Email: ortner.support@roth-rau.com

12.2 Return Material Authorization

Please request an RMA number before returning a defective device to Roth & Rau - Ortner. This process ensures the return and allows for faster classification of the problem and repair/replacement of the defective device

1. Please contact us by telephone or e-mail to get an RMA form and RMA number.
2. Roth & Rau - Ortner generates an RMA number
3. With the help of the RMA number, the RMA form can be completely filled out.
4. Send the defective unit along with the completed form to:

Roth & Rau - Ortner GmbH
 R M A [Nummer]
 Manfred-von-Ardenne-Ring 7
 01099 Dresden
 GERMANY

Note	
	<p>It is imperative that the RMA number is clearly visible on the package. This ensures that your order can be processed faster.</p> <p>Pack the device suitably to avoid damage during transport!</p>

5. Acknowledgement of receipt and processing of the RMA order by Roth & Rau - Ortner.
6. The repaired/replaced device is returned to you

12.3 Warranty

The warranty period is 24 months from the delivery of the device (proof by invoice or other documents).

The warranty includes repairs for all damage to the system which occur within the warranty period and are demonstrably the result of material or production defects. The warranty does not cover any damages which are the result of incorrect connections, improper handling or disregarding the technical documentation and the instruction manual.




12.4 Disposal




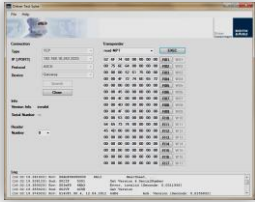
Within the EU, Roth & Rau - Ortner takes back the devices for disposal. Further information about returning the device can be obtained from the support of Roth & Rau - Ortner GmbH




If you dispose of the device yourself, please note the legal provisions.

12.5 Accessories

Roth & Rau - Ortner offers the following original accessories for the LF-134-CAN-M.

Component	Description	Order Codes
LF-134-CAN-M 	Multifunctional 134 kHz low frequency RFID-reader with tinfoil metal case. Multiple readers can be connected to one CAN2Web-gateway by RJ45 CAN-bus cable.	
	LF-134-CAN-M-0-V3.1 - SDO-S	000865
	LF-134-CAN-M-0-V3.1 - SDO-M	000864
	LF-134-CAN-M-0-V3.1 - PDO	000866
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

Component	Description	Order Codes						
<p>CAN2Web Advanced MINI</p> 	<p>Multifunctional CAN-bus to Ethernet gateway device to connect Ortner RFID-readers to a host system. Supplies up to 8 devices.</p>	<table border="1"> <tr> <td data-bbox="528 696 868 734">CAN2Web-A-MINI 64</td> <td data-bbox="868 696 1206 734">w/o base plate</td> <td data-bbox="1206 696 1437 734">000076-64MB</td> </tr> <tr> <td data-bbox="528 734 868 775">CAN2Web-A-MINI 64</td> <td data-bbox="868 734 1206 775">with base plate</td> <td data-bbox="1206 734 1437 775">000170-64MB</td> </tr> </table>	CAN2Web-A-MINI 64	w/o base plate	000076-64MB	CAN2Web-A-MINI 64	with base plate	000170-64MB
CAN2Web-A-MINI 64	w/o base plate	000076-64MB						
CAN2Web-A-MINI 64	with base plate	000170-64MB						
<p>CAN2Web Advanced MIDI</p> 	<p>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.</p>	<table border="1"> <tr> <td data-bbox="528 1077 868 1115">CAN2Web-A-MIDI 64</td> <td data-bbox="868 1077 1206 1115"></td> <td data-bbox="1206 1077 1437 1115">000079-64MB</td> </tr> </table>	CAN2Web-A-MIDI 64		000079-64MB			
CAN2Web-A-MIDI 64		000079-64MB						
<p>CAN2Web Advanced MAXI</p> 	<p>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.</p>	<table border="1"> <tr> <td data-bbox="528 1451 868 1487">CAN2Web-A-MAXI 64</td> <td data-bbox="868 1451 1206 1487"></td> <td data-bbox="1206 1451 1437 1487">000078-64MB</td> </tr> </table>	CAN2Web-A-MAXI 64		000078-64MB			
CAN2Web-A-MAXI 64		000078-64MB						
<p>Ortner Test Suite</p> 	<p>Comprehensive software tool for testing all Ortner CAN/Serial LF and HF ID-readers in conjunction with a CAN2Web gateway.</p> <p>For further information please contact our support: ortner.support@roth-rau.com</p>							

Component	Description	Order Codes
<p>ANT04-35EMB</p> 	<p>External Antenna</p> <ul style="list-style-type: none"> - core diameter (4 mm) - core length (35 mm) - connector type (Binder / RJ10) - available cable lengths (0.5m / 1m / 2m) 	
	ANT04-35EMB	different cable length available 000364, 000366, 000368
<p>ANT08-65EMB</p> 	<p>External Antenna</p> <ul style="list-style-type: none"> - core diameter (8 mm) - core length (65 mm) - connector type (Binder / RJ10) available cable lengths (0.5m / 1m / 2m) 	
	ANT08-65EMB	different cable length available 000277, 000189, 000380
<p>ANT08-65EMBF</p> 	<p>External Antenna with High Flex Cable</p> <ul style="list-style-type: none"> - core diameter (8 mm) - core length (65 mm) - connector type (Binder / RJ10) available cable lengths (0.5m / 1m / 2m) 	
	ANT08-65EMBF	different cable length available 000370, 000375, 000381

13 Attachments

13.1 Declaration of conformity LF-134-CAN-M V3.1



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	LF-134-CAN-M V3.1
Serien-Nummer / Typ Serial number / Type	RRO2xxxxx

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 <i>4.3.2015</i>
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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