STAHL

Operating Instructions

RFIDi-RDR-2-xxx

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Version   **01.01.02**
Issue date: **28.06.2017**

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1   Preface

These operating instructions are intended for the safe installation of the RFIDi-RDR-2-xxx chipcard reader and cover all Ex-relevant aspects.

⚠   For the correct operation of all associated components please note, in addition to these operating instructions, all other operating instructions enclosed in this delivery as well as the operating instructions of the additional equipment to be connected.

2   Function RFIDi

The RFIDi-RDR-2-xxx chipcard readers are explosion-protected equipment for installation in hazardous areas of zones 1, 2, 21 and 22. The devices may be connected to intrinsically safe type RSi reader interfaces of R. STAHL HMI Systems GmbH's operator interfaces series ET/MT-xx6. Power supply and data communication takes place via this reader interface.

If you wish to use a RFIDi-RDR-2-xxx chipcard reader together with the operator interfaces of series ET/MT-xx7, a ReaderBox must also be used. This ReaderBox is an intrinsically safe power supply and barrier for this chipcard reader, amongst others.

The RFIDi chipcard readers are proximity readers that can read information from the chip cards without direct contact and transfer this to the operator interfaces.

The RFIDi chipcard readers can be mounted inside a front panel or a desktop housing.

3   Conformity to standards

The RFIDi-RDR-2-xxx chipcard readers comply with the following standards and directive 2014/34/EU:
* IEC 60079-0 : 2011 (General requirements)
* IEC 60079-11 : 2011 (Gas "i")

4   Certificates

The RFIDi-RDR-2-xxx chipcard readers are certified for installation in the following areas:
Europe:
    According to ATEX Directive 2014/34/EU
        for installation in zones 1, 2, 21 and 2
International:
    IECEx   (International Electrotechnical Commission System for Certification to Standards for Electrical Equipment for Explosive Atmospheres)
Asia:
    KGS   (Korea Gas Safety Corporation)

4.1   ATEX

The ATEX certificate is listed under the following certification number:

    Certificate number: TÜV 09 ATEX 7533 X

4.2   IECEx

The IECEx certificate is listed under the following certification number:

Certificate number: IECEx TUR 09.0005X

You can access all IECEx certificates on the official website of the IEC under their certificate number. http://iecex.iec.ch/iecex/iecexweb.nsf/welcome?openform.

4.3   KGS

The KGS certificate is listed under the following certification number:

Certificate number: 12-GA4BO-0616X

The corresponding KCC certificate is:

Certificate number: KCC-CRM-RS3-RFIDi-RDR

5   Marking

Manufacturer	R. STAHL HMI Systems GmbH	
Type code	RFIDi-RDR-2-xxx	
CE classification:	$C\epsilon$ 0158	
Testing authority and certificate number:		
ATEX	TÜV 09 ATEX 7533 X	
IECEx	IECEx TUR 09.0005X	
Ex classification:		
ATEX directive 2014/34/EU	⟨Ex⟩	II 2 G Ex ib IIC T4 Gb
		II 2 D Ex ib IIIC T90°C Db
IECEx		Ex ib IIC T4 Gb
		Ex ib IIIC T90°C Db
KGS		Ex ib IIC T4
		Ex ib IIIC T90°C

6   Permitted maximum values

Voltage:			
U_i	=	10.4	V
P_i	=	2.29	W
C_i	=	0	µF
L_i	=	0	mH

Signal input / output:							
U_i	=	5.9	V	U_o	=	11.2	V
I_i	=	50	mA	I_o	=	220	mA
P_i	=	62	mW	P_o	=	2.29	W
Group IIC							
C_i	=	0.5	µF	C_o	=	1.3	µF
L_i	=	0	mH	L_o	=	20	µH
Group IIB							
C_i	=	0.5	µF	C_o	=	10	µF
L_i	=	0	mH	L_o	=	50	µH

C_o and L_o pairs directly above/underneath each other may be used.

7   Ambient temperature range

The temperature range is –30 ... +60°C.

8   Type of protection

- Front IP 66
- Rear IP 20

9   Proof of intrinsic safety

Proof of intrinsic safety for the connection of chipcard reader RFIDi-RDR-2-xxx with ET/MT-xx6 operator interfaces, ET-Falcon and ReaderBox.

9.1   General information

Proof of intrinsic safety is based on the principles of EN 60079-14 and the standards referred to therein. Particular reference is made to Chapter 12 "Additional requirements for the type of protection i -intrinsic safety" in EN 60079-14.

Proof has been drawn up on the basis of conformity certification as per IEC 60079-0 and IEC 60079-11 or the EC type examination certificate in accordance with Directive 94/9/EC and the comparison of the safety-related data listed in these documents.

The following EC-type examination certificates were used:

Device		*EC type examination certificate*
ET-xx6	—	TÜV 05 ATEX 7176 X
MT-xx6	—	TÜV 07 ATEX 7471 X
ET-xx6-A	—	TÜV 11 ATEX 7041 X
ReaderBox	—	BVS 12 ATEX E139 X
ET-Falcon	—	BVS 03 ATEX E 226
RFIDi-RDR-2-xxx	—	TÜV 09 ATEX 7533 X

The testing authority has listed **all** conditions applicable to intrinsic safety in the EC type examination certificates.
If an EC type examination certificate for a device only specifies the input voltage (Ui), for example, intrinsic safety is guaranteed if the associated supply does not exceed this voltage (Uo is less than/equals Ui).
Other output parameters specified in the examination certificate of the power supply (e.g. Io, Po) are in this case irrelevant to intrinsic safety.

☞   The data given in this document do **NOT** absolve the fitter and/or operator of the systems from their obligation to ensure compliance with legal requirements, directives and regulations. Due diligence remains the sole responsibility of the fitter and/or operator !

9.2   Interconnection

In this part we list the voltages, currents, capacitance and inductance values of all circuits to determine whether the chipcard reader RFIDi-RDR-2-xxx may be connected to the ET/MT-xx6 and Falcon series operator interfaces **WITHOUT** cable and the ReaderBox **WITH** cable.

☞   The data given for this interconnection do **NOT** absolve the fitter and/or operator of the systems from their obligation and responsibility to ensure compliance with legal requirements, directives and regulations. Due diligence remains the sole responsibility of the fitter and/or operator !

The cable length of the chipcard reader must not exceed 2.5 m. For proof of intrinsic safety, the C and L values resulting from actual cable length and cable type **must be** taken into account.

a) ET/MT-xx6 operator interface with chipcard reader RFIDi-RDR-2-xxx (**WITHOUT** cable)

Source / active		==>	Acceptor / passive
ET/MT-xx6			RFIDi-RDR-2-xxx
Terminal X8.3+9			Chipcard reader connection 1+2
Power supply			
U_o = 10.4 VDC		≤	U_i = 10.4 VDC
I_o = 220 mA		≤	I_i = not limited
P_o = 2.29 W		≤	P_i = 2.29 W
Co_{IIC} [µF] =	2.41	≥	C_i = 0
Lo_{IIC} [mH] =	0.02	≥	L_i = 0
Co_{IIB} [µF] =	12	≥	C_i = 0
Lo_{IIB} [µH] =	50	≥	L_i = 0

C_o and L_o pairs directly above/underneath each other may be used.

Source / active		==>	Acceptor / passive
ET/MT-xx6			RFIDi-RDR-2-xxx
Terminal X8.5-6			Chipcard reader connection 5+7
Signal input / output			
U_o = 5.4 VDC		≤	U_i = 5.9 VDC
I_o = 49 mA		≤	I_i = 50 mA
P_o = 62 mW		≤	P_i = 62 mW
Co_{IIC} [µF] =	45	≥	C_i = 0.5 µF
Lo_{IIC} [µH] =	2	≥	L_i = 0
Co_{IIB} [µF] =	78	≥	C_i = 0.5 µF
Lo_{IIB} [mH] =	20	≥	L_i = 0

C_o and L_o pairs directly above/underneath each other may be used.

Source / active		==>	Acceptor / passive
RFIDi-RDR-2-xxx			ET/MT-xx6
Chipcard reader connection 5+7			Terminal X8.5-6
Signal input / output			
U_o = 11.2 VDC		≤	U_i = 15 VDC
I_o = 220 mA		≤	I_i = 500 mA
P_o = 2.29 W		≤	P_i = 2.5 W
Co_{IIC} [µF] =	1.3	≥	C_i = 0
Lo_{IIC} [µH] =	20	≥	L_i = 0
Co_{IIB} [µF] =	10	≥	C_i = 0
Lo_{IIB} [µH] =	50	≥	L_i = 0

C_o and L_o pairs directly above/underneath each other may be used.

b) ET-xx6-A operator interface with chipcard reader RFIDi-RDR-2-xxx (**WITHOUT** cable)

Source / active		==>	Acceptor / passive
ET-xx6-A			RFIDi-RDR-2-xxx
Terminal X8.0+3			Chipcard reader connection 1+2
Power supply			
Uo = 10.4 VDC		≤	Ui = 10.4 VDC
Io = 220 mA		≤	Ii = not limited
Po = 2.29 W		≤	Pi = 2.29 W
Co [µF] =	0.8	≥	Ci = 0 µF
Lo [mH] =	0.01	≥	Li = 0 mH

Source / active		==>	Acceptor / passive
ET-xx6-A			RFIDi-RDR-2-xxx
Terminal X8.5-6			Chipcard reader connection 5+7
Signal input / output			
Uo = 5.36 VDC		≤	Ui = 5.9 VDC
Io = 46 mA		≤	Ii = 50 mA
Po = 62 mW		≤	Pi = 62 mW
Co_{IIC} [µF] =	46	≥	Ci = 0.5 µF
Lo_{IIC} [µH] =	2	≥	Li = 0 mH
Co_{IIB} [µF] =	79	≥	Ci = 0.5 µF
Lo_{IIB} [mH] =	20	≥	Li = 0 mH

Source / active		==>	Acceptor / passive
RFIDi-RDR-2-xxx			ET-xx6-A
Chipcard reader connection 5+7			Terminal X8.5-6
Signal input / output			
Uo = 11.2 VDC		≤	Ui = 15 VDC
Io = 220 mA		≤	Ii = 500 mA
Po = 2.29 W		≤	Pi = 2.5 W
Co_{IIC} [µF] =	1.3	≥	Ci = 0 µF
Lo_{IIC} [µH] =	20	≥	Li = 0 mH
Co_{IIB} [µF] =	10	≥	Ci = 0 µF
Lo_{IIB} [µH] =	50	≥	Li = 0 mH

c) ET-Falcon operator interface with chipcard reader RFIDi-RDR-2-xxx (**WITHOUT** cable)

Source / active		==>	Acceptor / passive
9143/10-104-220-*0			ET-**-RS-422-***
Terminal 10 & 11			Terminal X7, 1 & 2
Power supply reader module			
U_o = 10.4 VDC		≤	U_i = 12.4 VDC
I_o = 220 mA		≤	I_i = 220 mA
Co_{IIC} [µF] =	2.4	≤	C_i negligible
Lo_{IIC} [µH] =	240	≤	L_i negligible
Co_{IIB} [µF] =	16.8	≤	C_i negligible
Lo_{IIB} [mH] =	1.5	≤	L_i negligible

C_o and L_o pairs directly above/underneath each other may be used.

Source / active			==>	Acceptor / passive
ET-**-RS-422-RSi				RFIDi-RDR-2-xxx
Terminal X7, 3 & 9				Chipcard reader connection 1+2
Power supply reader				
U_o = 10.4 V			≤	U_i = 10.4 VDC
I_o = 220 mA			≤	I_i = not limited
Co_{IIC} [µF] =	60	1.8	≥	C_i = 0
Lo_{IIC} [mH] =	0.1	0.05	≥	L_i = 0
Co_{IIB} [µF] =	1000	5.1	≥	C_i = 0
Lo_{IIB} [mH] =	2	1	≥	L_i = 0

C_o and L_o pairs directly above/underneath each other may be used.

Source / active		==>	Acceptor / passive
ET-**-RS-422-RSi			RFIDi-RDR-2-xxx
Terminal X7, 5 & 6			Chipcard reader connection 5+7
Signal input / output			
U_o = 5.4 VDC		≤	U_i = 5.9 VDC
I_o = 49 mA		≤	I_i = 50 mA
P_o = 62 mW		≤	P_i = 62 mW
C_o [µF] =	65	≥	C_i = 0.5 µF
L_o [mH] =	14	≥	L_i = 0

C_o and L_o pairs directly above/underneath each other may be used.

Source / active		==>	Acceptor / passive
RFIDi-RDR-2-xxx			ET-**-RS-422-RSi
Chipcard reader connection 5+7			Terminal X7, 5 & 6
Signal input / output			
U_o = 11.2 VDC		≤	U_i = 15 VDC
I_o = 220 mA		≤	I_i = 500 mA
P_o = 2.29 W		≤	P_i = 2.5 W
Co_{IIC} [µF] =	1.3	≥	C_i negligible
Lo_{IIC} [µH] =	20	≥	L_i negligible
Co_{IIB} [µF] =	10	≥	C_i negligible
Lo_{IIB} [µH] =	50	≥	L_i negligible

C_o and L_o pairs directly above/underneath each other may be used.

a) ReaderBox with chipcard reader RFIDi-RDR-2-xxx (**WITH** cable)

The cable of the ReaderBox has a maximum length of 1.8 m.

Source / active			==>	Acceptor / passive
ReaderBox-104-*-*				RFIDi-RDR-2-xxx
Connection X3 wire 1 & 2				Chipcard reader connection 1+2
Power supply reader				
Uo = 10.36 V			≤	Ui = 10.4 VDC
Io = 555 mA			≤	Ii = not limited
Po = 2.258 W			≤	Pi = 2.29 W
Co_{IIC} [µF] =	2.5	1.1	≥	Ci = 0
Lo_{IIC} [µH] =	20	100	≥	Li = 0

Co and Lo pairs directly above/underneath each other may be used.

Source / active			==>	Acceptor / passive
ReaderBox-104-*-*				RFIDi-RDR-2-xxx
Connection X3 wire 3 & 4				Chipcard reader connection 5+7
Signal input / output				
Uo = 5.4 VDC			≤	Ui = 5.9 VDC
Io = 12 mA			≤	Ii = 50 mA
Po = 16 mW			≤	Pi = 62 mW
Co_{IIC} [µF] =	65	14	≥	Ci = 0.5 µF
Lo_{IIC} [µH] =	1	10	≥	Li = 0

Co and Lo pairs directly above/underneath each other may be used.

Source / active		==>	Acceptor / passive
RFIDi-RDR-2-xxx			ReaderBox-104-*-*
Chipcard reader connection 5+7			Connection X3 wire 3 & 4
Signal input / output			
Uo = 11.2 VDC		≤	Ui = 12.5 VDC
Io = 220 mA		≤	Ii = not limited
Po = 2.29 W		≤	Pi = not limited
Co_{IIC} [µF] =	1.3	≥	Ci negligible
Lo_{IIC} [µH] =	20	≥	Li negligible

Co and Lo pairs directly above/underneath each other may be used.

10 Type code

Type code:

        RFIDi-RDR-2-xxx-xx

                    └──── Function
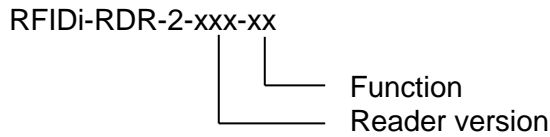
                └──────── Reader version

Product type:

Order number	Description
	Version
RFIDi-RDR-2-MIF-CRYPT	Mifare reader, protocol-based, for Falcon and ET/MT-300
RFIDi-RDR-2-MIF-ASC	Mifare reader, sends ASCII value with CR and LF, for ET/MT-4x6 and ET/MT-5x6

10.1 Software function

Two chipcard readers that differ in their firmware are available for connection to the R. STAHL HMI Systems GmbH operator interfaces. The type of chipcard reader to be connected is determined by which operator interface it is to be connected to.
Both types based on Mifare technology.
For the Falcon and ET/MT-300 series operator interfaces, this is the protocol-based RFIDi-RDR-2-MIF-CRYPT Mifare reader.
For the ET/MT-4x6, ET/MT-5x6 series and the ReaderBox, this is the serial RFIDi-RDR-2-MIF-ASC Mifare reader, which sends the card information to the operator interface as an ASCII value with CR and LF.

11 Safety Advice

This chapter is a summary of the key safety measures. The summary is supplementary to existing rules which staff also have to study.
The safety of persons and equipment in hazardous areas depends on compliance with all relevant safety regulations. Thus, the installation and maintenance staff carry a particular responsibility, requiring precise knowledge of the applicable regulations and conditions.

11.1 Installation and operation

Please note the following when installing and operating the device:

- The national regulations for installation and assembly apply (e.g. EN 60079-14).

- The devices may be installed in zones 1 or 2 and 21 or 22.

- For use in zones 21 or 22 the RFIDi chipcard reader has to be installed in a suitable enclosure with a minimal type of protection of IP 6x according to IEC 60529.

- If the RFIDi chipcard reader is mounted inside a cut out of a suitable housing with protection type Ex-e, its mechanical protection regarding impact and IP code protection up to IP 66 is maintained even after the chipcard reader has been installed. The internal separation requirements and the temperature assessment of the Ex-e housing must be in accordance with the applicable standards. The clearance of RFIDi chipcard reader terminals to other bare conducting parts (excepting ground) inside the Ex-e housing shall be at least 50 mm.

- The RFIDi chipcard reader housing must be earthed via the earth connection (earthing screw) with a wire minimum diameter of 4 mm² at the back of the housing !

- The intrinsically safe circuits must be installed according to applicable regulations.

- The safety values of the RFIDi chipcard reader must match those of the device to which it is connected.

- The devices must only be operated when it is closed.

- If the front plate is in any way damaged, the RFIDi chipcard reader must be shut down immediately !

- During assembly and operation of the chipcard reader electrostatic surface charging must not exceed that caused by manual rubbing.

- National safety and accident prevention rules.

- Generally accepted technical rules.

- Safety instructions contained in these operating instructions.

- Any damage may compromise the explosion protection.

Use the device for its intended purpose only (see "Device Function").
Incorrect or unauthorized use and non-compliance with the instructions in this manual will void any warranty on our part.
No changes to the device that compromise its explosion protection are permitted !
The devices may only be installed and operated in an undamaged, dry and clean condition !

Caution !
The device surface may heat up at ambient temperatures higher than 45 °C ! Caution at contact !
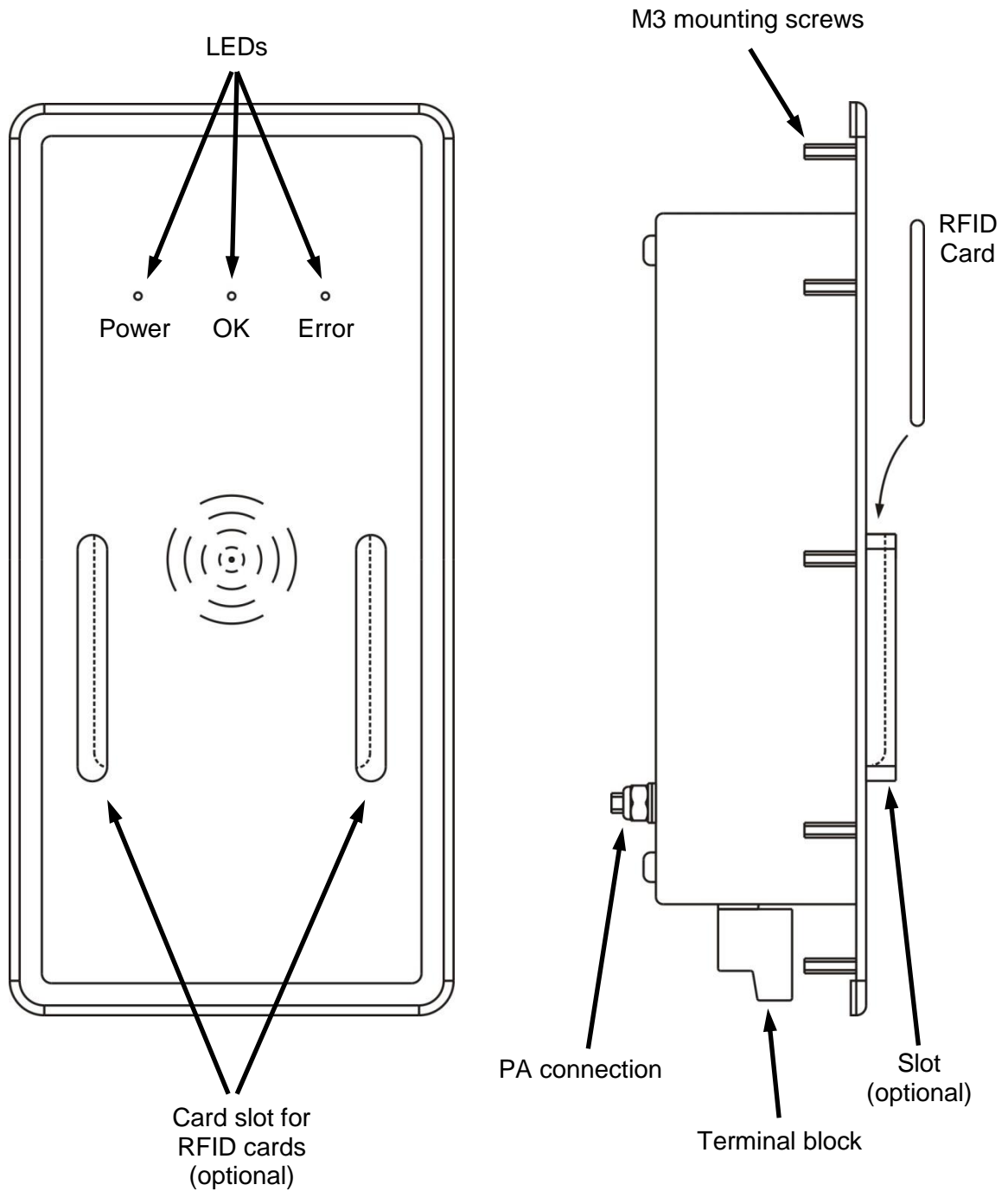
---

12 Assembly and disassembly
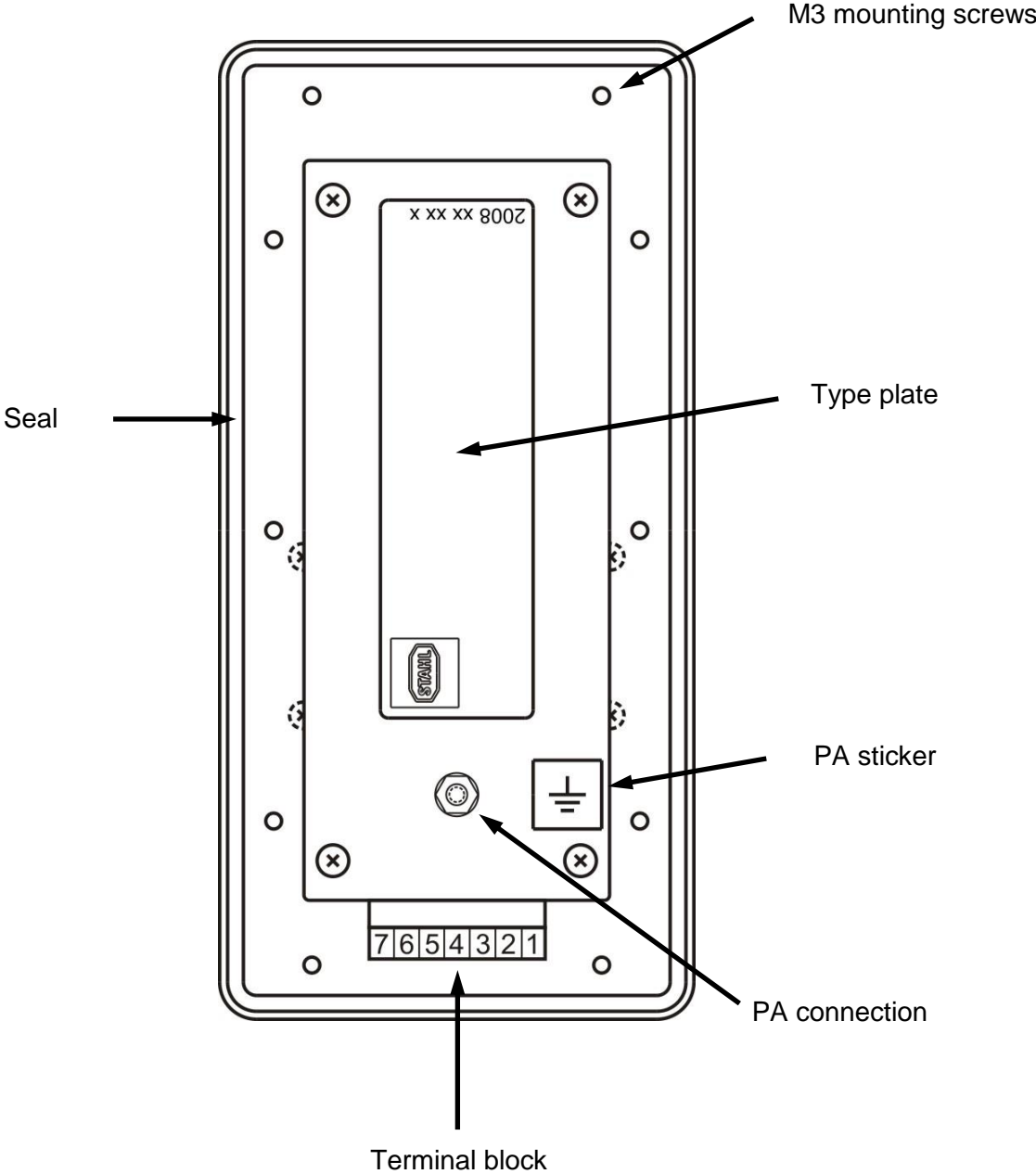
12.1 General information

Assembly and disassembly are subject to general technical rules. Additional, specific safety regulations apply to electronic and pneumatic installations.

12.2 Views

Type with card slot:

Card slot for
RFID cards
(optional)

LEDs

Power   OK   Error

M3 mounting screws

RFID
Card

PA connection

Terminal block

Slot
(optional)

Back view with terminals:

M3 mounting screws

Seal

2008 xx xx x

STAHL

Type plate

PA sticker

7 6 5 4 3 2 1

PA connection

Terminal block

12.3   Mechanical dimensions

Dimensions in mm

12.3.1   Overview

Chipcard reader	Front plate (hxw)	Cut-out (hxw)	Hole pattern	Material thickness
RFIDi-RDR-2-xxx	185 x 90	152 x 60 (±1)	see diagram	up to 6
	Depth of cut-out (depth)		**Design front (height)**	
	50		9 with slot 3 without slot	

12.3.2   Dimensional drawing

Front view:
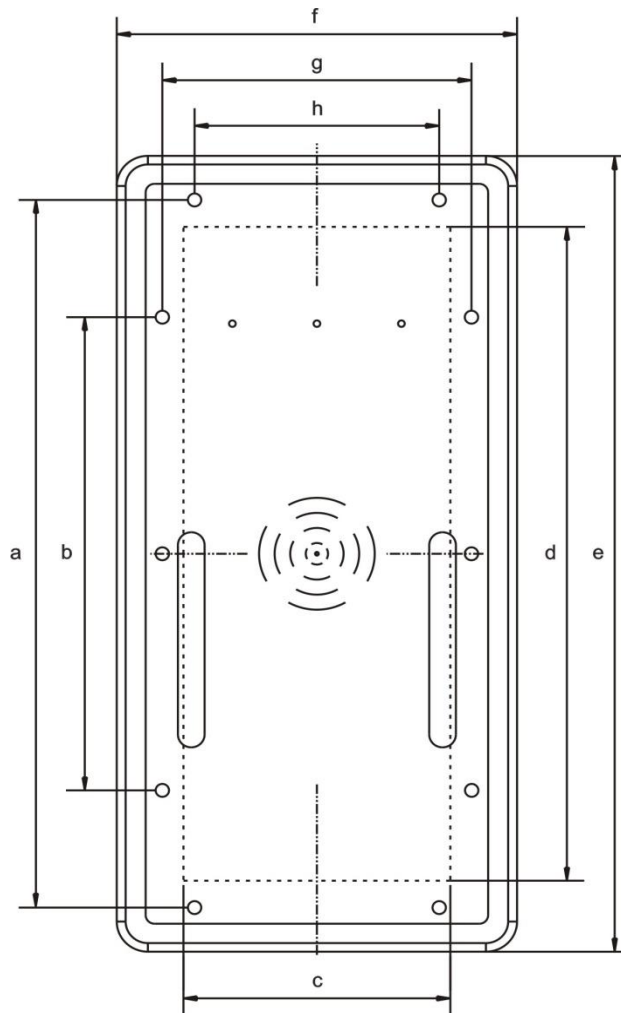
e	=	dimensions front plate height (h)	= 185	
f	=	dimensions front plate width (w)	= 90	
c	=	cut-out width (w)	= 60 (± 1)	
d	=	cut-out height (h)	= 152 (± 1)	
a	=	distance fitting holes	= 164.5	
b	=	distance fitting holes	= 110	
g	=	distance fitting holes	= 69.5	
hb	=	distance fitting holes	= 55	

Lateral view:
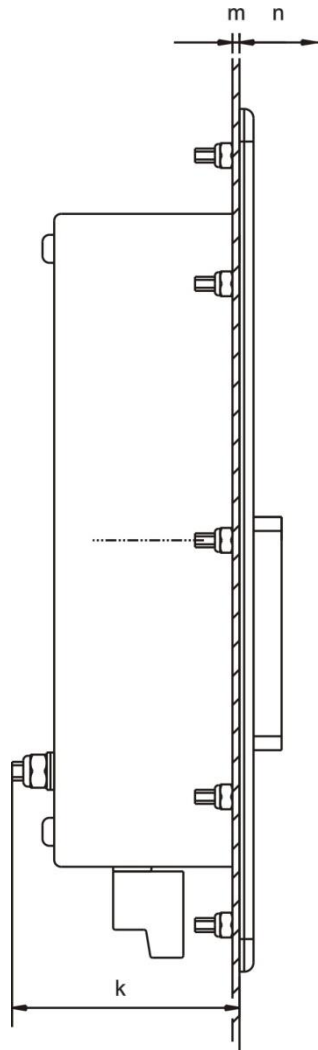
k	=	depth of cut-out	= 50
m	=	material thickness	= 1.5 mm up to 6 mm for metallic enclosures
			2.5 mm up to 6 mm for plastic enclosures
n	=	Design front height	
		with slot	= 9
		without slot	= 3

12.4   Installation instructions

The RFIDi chipcard reader is intended for installation in an appropriate desk housing or control panel. It may be installed in any position.

For use in zones 21 or 22 the RFIDi chipcard reader has to be installed in a suitable enclosure with a minimal type of protection of IP 6x according to IEC 60529.

If the RFIDi chipcard reader has **NOT** been mounted by the manufacturer, a sufficiently large cut-out and a hole pattern for mounting the chipcard reader must be provided.

- Make a cut-out with the following dimensions:
  152 (±1) mm (height) x 60 (±1) mm (width).
- Drill 10 holes of a diameter of 3.5 mm according to the hole pattern.
- Mount the chipcard reader inside the cut-out and use the self-locking nuts (10x M3) provided to affix the chipcard reader.

Optimum sealing:
- Tighten the nuts lightly.
- Check the position of the chipcard reader, ensuring above all that it **is correctly positioned**.
- Now fully tighten the nuts.
- Connect the reader's cable to the corresponding terminal at the operator interface according to the connection diagram .(terminal X8 for ET/MT-xx6 or terminal X7 for Falcon). As a standard, the ReaderBox is fitted with a connection cable (PWR/data current X3 – intrinsically safe) which can be connected directly to the chipcard reader.

⚠ **Earth:**
    The chipcard reader's housing must be earthed via the PA connection (earthing screw) at the back of the housing !
    The wire used must have a minimum diameter of 4 mm² !

13   Operation

13.1   General information

When operating the devices, particular care shall be taken that:
- The chipcard reader has been properly installed according to instructions,
- the chipcard reader is not damaged,
- all screws are tightened fast,
- the cable is connected properly.
- the chipcard reader's housing has been connected to earth via the PA connection.

13.2   Connections RFIDi-RDR-2-MIF

The chipcard readers may be fitted with a connection cable of a maximum length of 2.5 m. If mounted at the factory, the chipcard reader is wired and ready to run. If the customer installs the chipcard reader, the cable has to be connected to terminal X8 (ET/MT-xx6) or X7 (Falcon) of the operator interface, according to the diagram below.

As a standard, the ReaderBox is fitted with a connection cable (PWR/data current X3 – intrinsically safe) which can be connected directly to the chipcard reader.

⚠   Please note the different wiring for the power supply of the chipcard readers, which result from the different hardware revisions of the ET/MT-xx6 series !

13.2.1   Connection cable Falcon

If the chipcard readers are to be operated together with operator interfaces of the Falcon series, this requires an additional power supply type 9143/10-104-220-x0 !
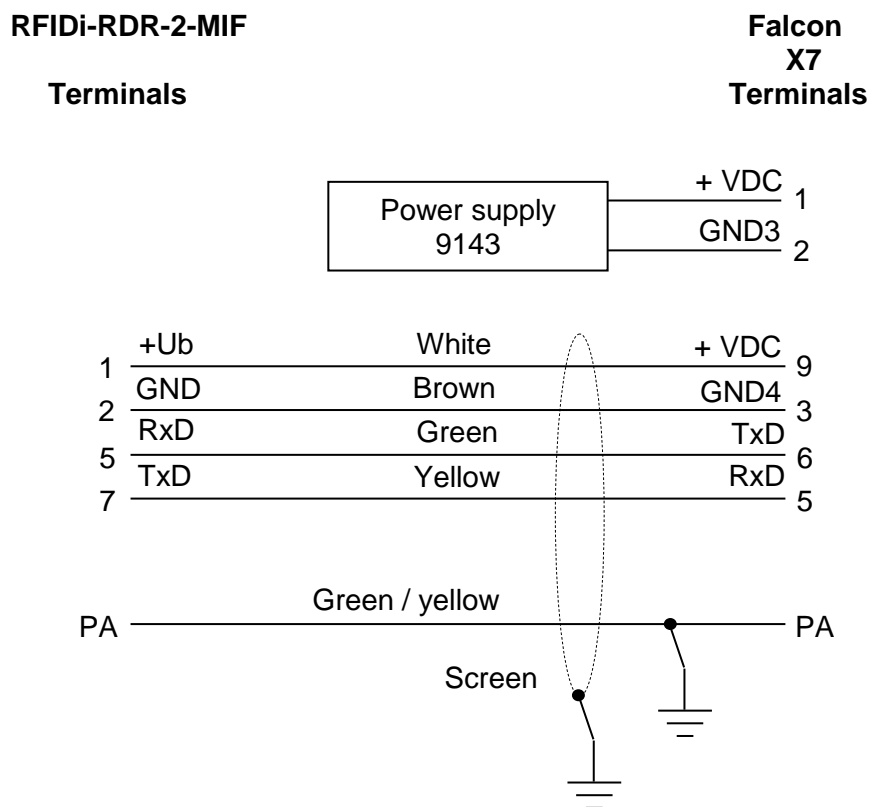
⚠   The shielding connection (green/yellow cable) must be connected to the PA terminal of the operator interfaces !

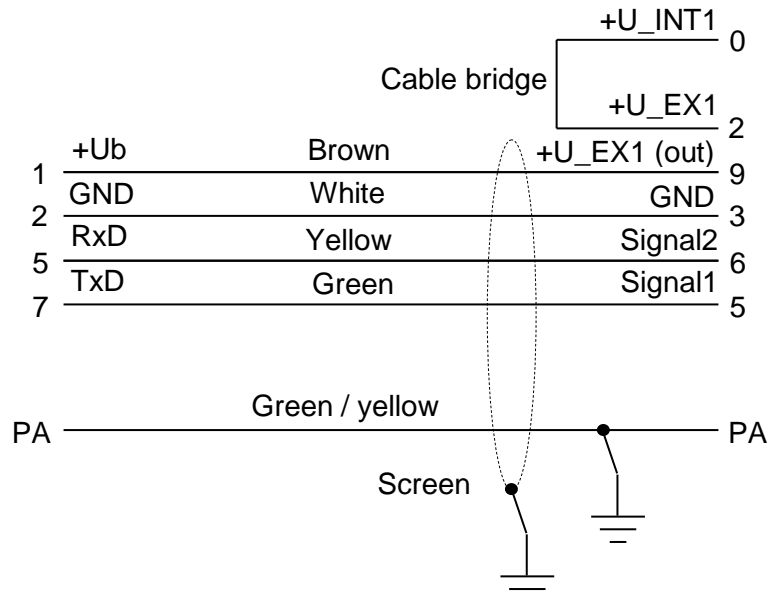### 13.2.2   Connection cable ET/MT-xx6 HW-Rev. 2

RFIDi-RDR-2-MIF   **ET/MT-xx6**
                                                                           X8
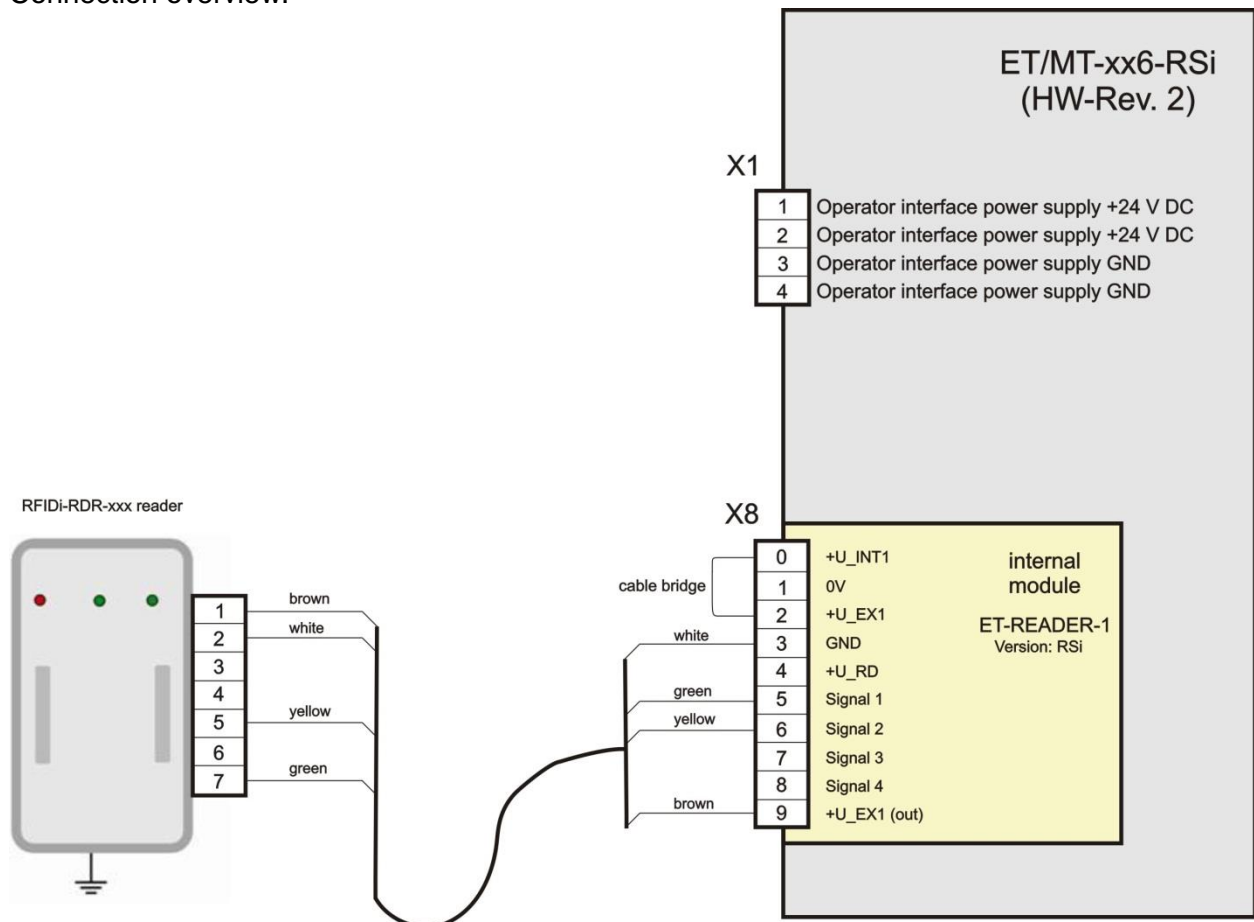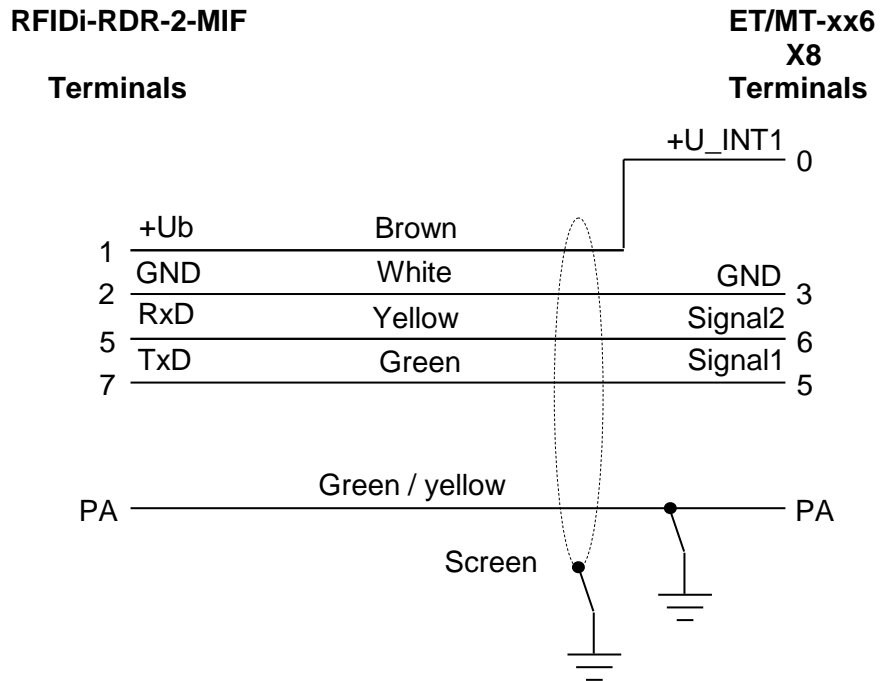**Terminals**   **Terminals**

⚠ The shielding connection (green/yellow cable) must be connected to the PA terminal block of the operator interfaces !

Connection overview:

13.2.3　　Connection cable ET/MT-xx6 HW-Rev. 3

Type RSi1 connection version 2

⚠ The shielding connection (green/yellow cable) must be connected to the PA terminal block of the operator interfaces !
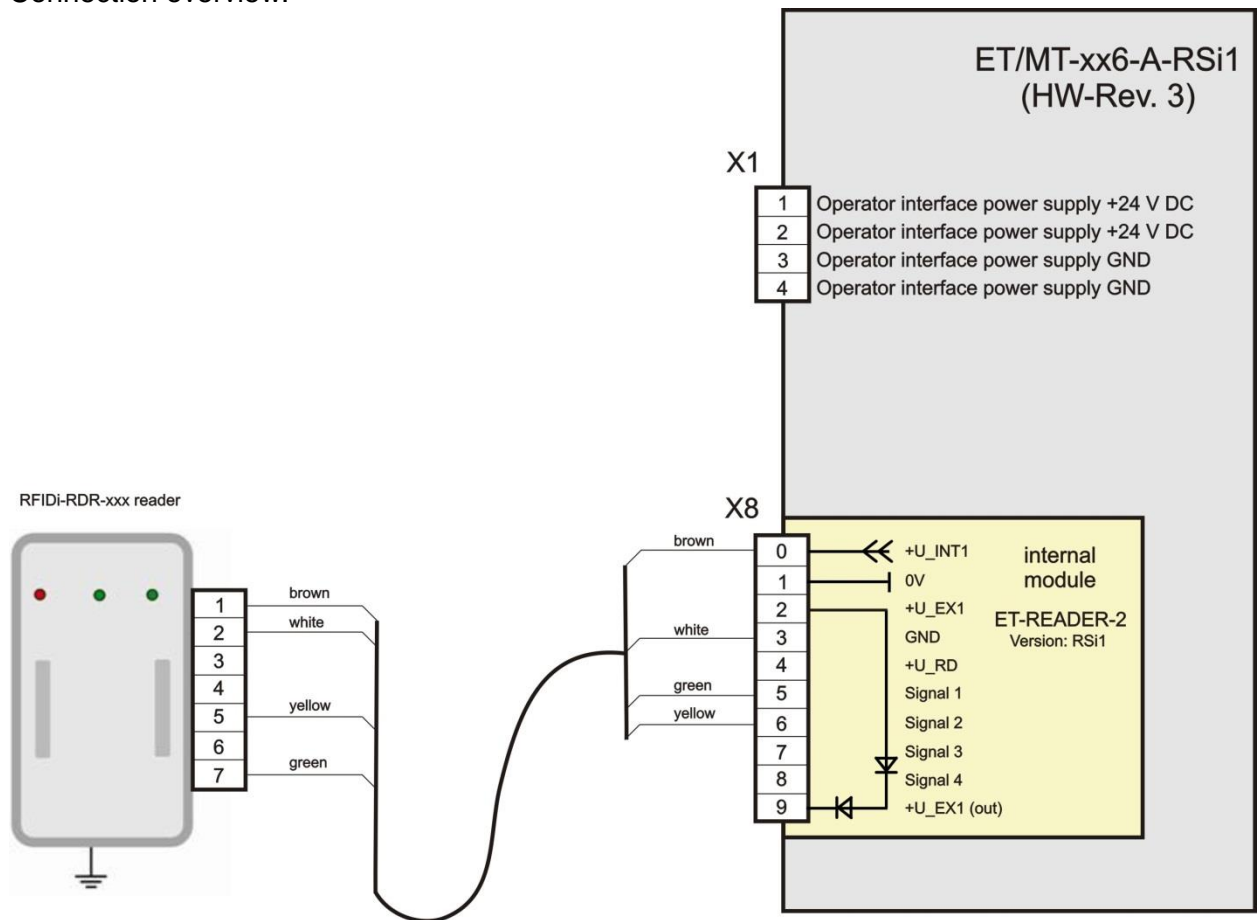
Connection overview:

13.2.4   Connection RFIDi-RDR-2-MIF an ReaderBox

<div align="center">

RFIDi-RDR-2-MIF-ASC   **ReaderBox-104-*-***
X3
Terminals   **end of wires**

</div>

1	+Ub	Grey	+ VDC	1
2	GND	Black	GND	2
5	RxD	Brown	TxD	3
7	TxD	Blue	RxD	4

RFIDi-RDR-2-MIF-xx reader
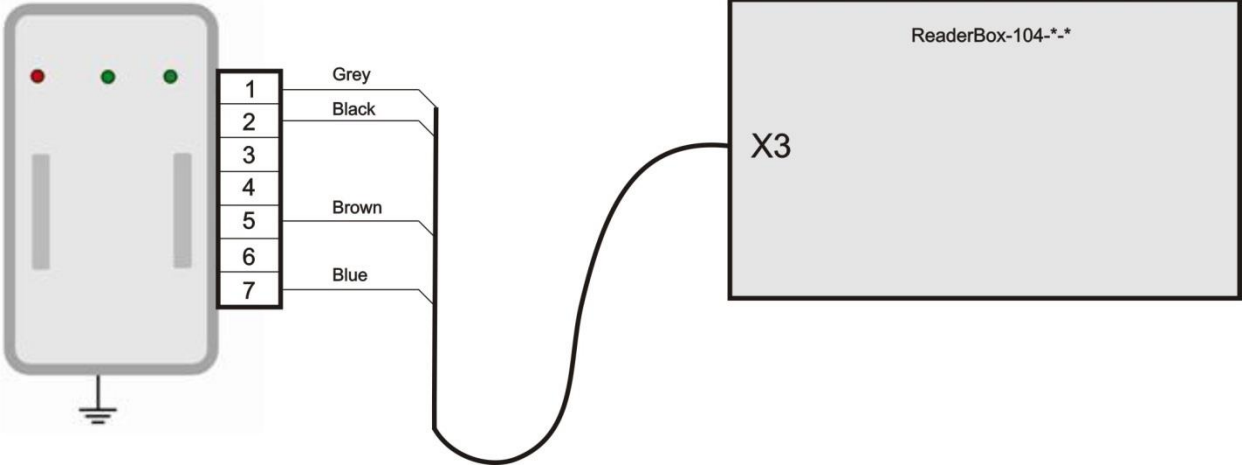
14 Maintenance, service

Associated equipment is subject to maintenance, service and testing according to guidelines 1999/92/EC, IEC/EN 60079-14 and IEC/EN 60079-19 and occupational health and safety guidelines.

The chipcard readers contain no replaceable parts. It is therefore not necessary to carry out regular adjustments.
Maintenance should focus on the following:

- Seal wear
- Damage to the front plate
- All cables and lines are properly connected and undamaged
- Housing damage

14.1 Servicing

It is the responsibility of the operator of an electrical plant in a hazardous environment to have the plant serviced. Please also note the appropriate national rules and regulations.

15 Troubleshooting

The RFIDi chipcard readers cannot be repaired.

In addition, the following applies:

Devices operated in hazardous areas must not be modified. Repairs may only be carried out by qualified, authorized staff specially trained for this purpose.

☞ Repairs may only be carried out by specially trained staff who are familiar with all basic conditions of the applicable user regulations and – if necessary – have been authorized by the manufacturer.

16 Disposal

Disposal of packaging and used parts is subject to regulations valid in whichever country the device has been installed.

The disposal of devices sold after August 13th, 2005, and installed in countries under the jurisdiction of the EU is governed by directive 2002/96/EC on waste electrical and electronic equipment (WEEE). Under this directive, the devices are listed in category 9 (monitoring and control instruments).

We shall take back our devices according to our General Terms and Conditions.

16.1 RoHS directive 2011/65/EC

The revised version of the RoHS (restriction of hazardous substances) 2002/95/EC directive, directive 2011/65/EC, extends its area of application to all electric and electronic products.

The readers (category 9 – monitoring and controlling devices) conform with the requirements from RoHS directive 2011/65/EU, dated 03.01.2013.

16.1.1 China RoHS labelling

According to new Chinese legislation in force since 01.03.2007, all devices containing hazardous substances must be labeled accordingly.

The part of all toxic or hazardous substance contained in the homogeneous materials of the readers is below the limit required in SJ/T11363-2006.

17 Certificates

The chapter entitled "Certificates" will contain the first page of the EC type examination certificate plus the first page of the supplements.

All technical details contained in the EC type examination certificate are, however, part of these operating instructions.

The complete certificate can be downloaded from the homepage of R. STAHL HMI Systems GmbH or a copy can be ordered from R. STAHL HMI Systems GmbH.

17.1   Declaration of EC conformity

EG/EU-Konformitätserklärung
EC/EU Declaration of Conformity
Déclaration de Conformité CE/UE

STAHL

R. STAHL HMI Systems GmbH • Adolf-Grimme-Allee 8 • 50829 Köln, Germany
erklärt in alleiniger Verantwortung,   *declares in its sole responsibility,   déclare sous sa seule responsabilité,*

dass das Produkt: **RFID-Chipcard Reader**
that the product:
que le produit:

Typ(en), *type(s), type(s):*   **RFIDi-RDR-2-MIF**

mit den Anforderungen der folgenden Richtlinien und Normen übereinstimmt.
is in conformity with the requirements of the following directives and standards.
est conforme aux exigences des directives et des normes suivantes.

Richtlinie(n) / *Directive(s)* / *Directive(s)*		Norm(en) / *Standard(s)* / *Norme(s)*
Bis/*Until/Jusqu'au*** 2016-04-19:	**Ab/***From/De*** 2016-04-20:	IEC 60079-0:2011 IEC 60079-11:2011
94/9/EG *94/9/EC* *94/9/CE*	**ATEX-Richtlinie** *ATEX Directive* *Directive ATEX*	**2014/34/EU** *2014/34/EU* *2014/34/UE*	

Kennzeichnung, *marking, marquage:*   ⟨Ex⟩   **II 2 G Ex ib IIC T4 Gb**
                                                      II 2 D Ex ib IIIC T90°C Db

CE 0158

EG/EU-Baumusterprüfbescheinigung: **TÜV 09 ATEX 7533 X**
EC/EU Type Examination Certificate:
Attestation d'examen CE/UE de type: **TÜV Rheinland Industrie Service GmbH (NB 0035)**
                                                 Am grauen Stein, 51105 Köln (Cologne), Germany

Bis/*Until/Jusqu'au*** 2016-04-19:	**Ab/***From/De*** 2016-04-20:	EN 61326-1:2006
2004/108/EG *2004/108/EC* *2004/108/CE*	**EMV-Richtlinie** *EMC Directive* *Directive CEM*	**2014/30/EU** *2014/30/EU* *2014/30/UE*	

Produktnormen nach RoHS-Richtlinie (2011/65/EU):   EN 50581:2012
Product standards according to RoHS Directive:
Normes des produit pour la Directive RoHS:

Köln, 2015-12-11   i.V. *[signature]*   i.V. *[signature]*

Ort und Datum   **J. Düren**   **W. Bertges**
Place and date   Technical Director   Quality Manager
Lieu et date

17.2   EC type examination certificate

(1) **EC - TYPE EXAMINATION CERTIFICATE**

(2) Equipment and Protective Systems intended for use in
Potentially Explosive Atmosphere - **Directive 94/9/EC**

(3) EC-Type Examination Certificate Number

TÜV 09 ATEX 7533 X

(4) Equipment: **RFID- Chipcard Reader**   **RFIDi-RDR-1-xxx**

(5) Manufacturer: **R. Stahl HMI Systems GmbH**

(6) Address: **Im Gewerbegebiet Pesch 14**   **D- 50 767 Köln**

(7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate
and the documents therein referred to.

(8) The TÜV CERT-Zertifizierungsstelle for ex-protected products of TÜV Rheinland Industrie Service
GmbH, TÜV Rheinland Group, Notified Body No. 0035 in accordance with Article 9 of the Council
Directive 94/9/EC of 23 March 1994, certifies this equipment has been found to comply with the
Essential Health and Safety Requirements relating to the design and construction of equipment and
protective systems intended for use in potentially explosive atmosphere, given in Annex II to the
Directive.

The examination and test results are recorded in the confidential report: 296 / Ex 533.00 / 09

(9) Compliance with the Essential Health and Safety Requirements, with the exception of those listed
in the schedule of this certificate, has been assessed by reference to:

EN 60079-0: 2006   EN 60079-11: 2007
EN 61241-0: 2006   EN 61241-11: 2006

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special
conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type-Examination Certificate relates only to the design and specification for construction of
the equipment or protective system. It does not cover the process for actual manufacture or supply
of the equipment or protective system, for which further requirements of the directive are applicable.

(12) The marking of the equipment shall include the following:

II 2 G   Ex ib IIC T4
II 2 D   Ex ibD 21 T90

TÜV CERT-Zertifizierungsstelle für Explosionsschutz   Cologne, 16th December 2009

Dipl.- Ing. Heinz Farke

Translation!
This EC-Type Examination Certificate shall not be valid without signature and stamp.
This EC-Type Examination Certificate may be circulated without alteration only. Extracts or alterations are subject to approval by the:
TÜV Rheinland Industrie Service GmbH Am Grauen Stein 51105 Köln
Tel.+ 49 (0) 221 806-0 Fax. + 49 (0) 221 806 114

www.tuv.com

△ **TÜV**Rheinland®
Genau. Richtig.

1st Supplement

acc. to directive 94/9/EC, Appendix III, No 6

to the EC-Type Examination Certificate

TÜV 09 ATEX 7533 X

⟨Ex⟩

Device: RFID- Chipcard Reader   RFIDi-RDR-2-MIF-*

Manufacturer: R. Stahl HMI Systems GmbH

Address: Im Gewerbegebiet Pesch 14   D – 50767 Köln, Germany

Description of supplements and modifications:

(15)   The following modifications are valid for this 1st supplement

Verwendete Normen   IEC 60079-0: 2011 ;IEC 60079-11: 2011
Standard basis

Schutzartkennzeichnung
Code for type of protection

⟨Ex⟩	II 2 G Ex ib IIC T4 Gb
alternativ	II 2 G Ex ib IIC T4
⟨Ex⟩	II 2 D Ex ib IIIC T90°C Db
alternativ	II 2 D Ex ib IIIC T90°C

This 1st supplement to the EC-Type-Examination Certificate without signature and official stamp shall not be valid. The certificate may be circulated only without alteration. Extracts or alterations are subject to approval by
TÜV Zertifizierungsstelle of TÜV Rheinland Industrie Service GmbH
In case of dispute, the German text shall prevail
page 1 / 4

www.tuv.com

△ TÜVRheinland®
Precisely Right.

17.3   IECEx certificate

IECEx Certificate
of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx TUR 09.0005X		issue No.:0	Certificate history:
Status:	Current			
Date of Issue:	2009-12-16		Page 1 of 4	

Applicant: **R. Stahl HMI Systems GmbH**
Im Gewerbegebiet Pesch 14
50767 Cologne
Germany

Electrical Apparatus: **RFID- Chipcard Reader, RFIDi-RDR-1-xxx**
Optional accessory:

Type of Protection: **Intrinsic Safety i (Gb and Db)**

Marking: **Ex ib IIC T4 Gb**
                 Ex ib IIIC T90°C Db

Approved for issue on behalf of the IECEx   Dipl.-Ing. Heinz Farke
Certification Body:

Position: Deputy Head of ExCB

Signature:
(for printed version)

Date: 2009-12-16

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

TUV Rheinland Industrie Service GmbH
Am Grauen Stein
51105 Cologne
Germany

TÜVRheinland

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx TUR 09.0005X issue No.:1	Certificate history: Issue No. 2 (2012-11-28) Issue No. 1 (2011-5-27) Issue No. 0 (2009-12-16)
Status:	Current	
Date of Issue:	2011-05-27 Page 1 of 5	

Applicant: **R. Stahl HMI Systems GmbH**
Im Gewerbegebiet Pesch 14
50767 Cologne
Germany

Electrical Apparatus: RFID- Chipcard Reader, RFIDi-RDR-1-xxx
Optional accessory:

Type of Protection: **Intrinsic Safety i (Gb and Db)**

Marking: Ex ib IIC T4 Gb
Ex ib IIIC T90°C Db

Approved for issue on behalf of the IECEx   Dipl.-Ing. Heinz Farke
Certification Body:

Position: Deputy Head of ExCB

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

TUV Rheinland Industrie Service GmbH
Am Grauen Stein
51105 Cologne
Germany

TÜVRheinland®

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx TUR 09.0005X	issue No.:2	Certificate history:
Status:	Current		Issue No. 2 (2012-11-28)
Date of Issue:	2012-11-28	Page 1 of 4	Issue No. 1 (2011-5-27)
			Issue No. 0 (2009-12-16)

Applicant: R. Stahl HMI Systems GmbH
                    Im Gewerbegebiet Pesch 14
                    50767 Cologne
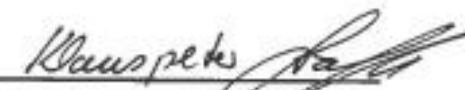   **Germany**

Electrical Apparatus: **RFID- Chipcard Reader, RFIDi-RDR-2-MIF-***
Optional accessory:

Type of Protection: **Intrinsic Safety i (Gb and Db)**

Marking: Ex ib IIC T4 Gb
                     Ex ib IIIC T90°C Db

Approved for issue on behalf of the IECEx   Dipl.-Ing. Klauspeter Graffi
Certification Body:

Position: Head of Certification Body

Signature:
(for printed version)

Date: 2012 - 11 - 28

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

TUV Rheinland Industrie Service GmbH
Am Grauen Stein
51105 Cologne
Germany

TÜVRheinland

17.4 KGS certificate

KCs

제12-0616호

안 전 인 증 서

R. STAHL HMI Systems GmbH

Im Gewerbegebiet Pesch 14, 50767 Cologne Germany

위 사업장에서 제조하는 아래의 품목이 「산업안전보건법」 제34조 및 같은 법 시행
규칙 제58조의4제4항에 따른 안전인증 심사 결과 안전·보건기준에 적합하므로 안전인
증표시의 사용을 인증합니다.

—————— 품   목 ——————

RFIDi Chipcard Reader

—————— 형식 · 모델 / 용량 · 등급 / 인증번호 ——————

형식·모델	용량 · 등급	인증번호
RFIDi-RDR-1-***	첨부 인증조건(12-616) 참조 Ex ib IIC T4 Ex ib IIIC T90℃	12-GA4BO-0616X

—————— 인   증   기   준 ——————

방호장치 의무안전인증 고시(고용노동부고시 제2010-36호)

—————— 인   증   조   건 ——————

-30 ℃ ≤ Ta ≤ +60 ℃

2012 년 10 월 8 일

한국가스안전공사 사장

17.4.1   KCC certificate

92D5-9755-1A65-330B

방송통신기자재등의 적합인증서
Certificate of Broadcasting and Communication Equipments

상호 또는 성명 *Trade Name or Applicant*	R. STAHL HMI Systems GmbH
기기 명칭 *Equipment Name*	RFID/USN용 무선기기(13.56MHz 대역 사용 기기)
기본모델명 *Basic Model Number*	RFIDi-RDR-1-MIF-ASC
파생모델명 *Series Model Number*	
인증번호 *Certification No.*	KCC-CRM-RS3-RFIDi-RDR
제조자/제조국가 *Manufacturer/* *Country of Origin*	R. STAHL HMI Systems GmbH / 독일
형식기호 *Type Identification*	RFID3-IO2R13.5610TRA1D1
인증연월일 *Date of Certification*	2012-09-17
기타 *Others*	

위 기기는 「전파법」 제58조의2 제2항에 따라 인증되었음을 증명합니다.

It is verified that foregoing equipment has been certificated under the Clause 2, Article 58-2 of Radio Waves Act.

2012년(Year) 09월(Month) 17일(Date)

국립전파연구원장

Director General of Radio Research Agency
Korea Communications Commission Republic of Korea

※ 인증 받은 방송통신기자재는 반드시 "적합성평가표시" 를 부착하여 유통하여야 합니다.
위반시 과태료 처분 및 인증이 취소될 수 있습니다.
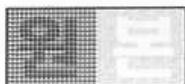
18 Assessment of transponder media

18.1 RFID chip cards

Disclaimer: This is a translation of the original German certificate. In the case of discrepancies or translation errors, the original applies.

18.1.1 BVS Electrostatic test

Test Report **BVS PS 23691,** date 12.04.2010

job identification number: 20100206	SO Nummer: 180208766 30	Expert: Ha
Test specimen	Chip cards	
Applicant	R. Stahl HMI Systems GmbH	
Manufacturer	dto.	
Type designation	Wiegand, RFID.MIFARE 13.8 MHz	
Type of protection	Kat. 1G, 2G, 10, 20	
Date of order	10.03.08	
Reg.-number	086/10	
Drawing number	-	

Date of test: 25.03.10

Testing engineer: Dr.-Ing. Wittler

Test: Electrostatic test of specimen cards according to IEC 60079-0: 2007

Test conditions:
Ambient conditions: Room temperature 23°C, relative humidity 28…29 %. Before starting the test, the test specimen was cleaned with isopropanol, rinsed with distilled water and then stored in the climate described above for 24 hours.
The test specimen was then charged with a leather cloth, a polyamide cloth and a cotton cloth (20 strokes each) and with high voltage of 40 kV.
It was then attempted to trigger individual discharges to an earthed 15 mm spherical electrode.

Results:

Test specimen	Maximum charge after manual charging (relevant for cat. 2G)	Maximum charge after charging with high voltage (relevant for cat. 1G, 10 and 20)
RFID.MIFARE 13.8 MHz	18 nC*	50 nC**
Wiegand	17 nC*	85 nC***

*   Brush discharges > 10 nC (30 nC) are electrostatically critical for group IIC and non-critical for groups IIB and IIA.
**   Brush discharges > 30 nC (60 nC) are electrostatically critical for groups IIB and IIC and non-critical for group IIA.
***   Brush discharges > 60 nC are electrostatically critical for group IIA,; brush discharges < 200 nC are non-critical for categories 10 and 20.

Test apparatus: coulometer

18.2   RFID Tag

Konformitätsbewertung
Conformity Assessment

STAHL

R. STAHL HMI Systems GmbH · Im Gewerbegebiet Pesch 14 · 50767 Köln · Germany

erklärt, dass das Produkt
declares that the product

RFID-Tag Typ: Mifare-eXis-1K-S50-ISO14443-*

gefahrlos in den Bereich einer explosionsgefährdeten Atmosphäre der Kategorie 2
G/D und 3 G/D eingebracht werden kann unter Beachtung der folgenden
Bedingungen gemäß Namur NE127:

- Umgebungsfeldstärken von ≤ 1 A/m oder ≤ 3 V/m;
- Umgebungstemperatur an der Außenseite des Transponders ≤ 40 °C für die
  Betrachtung nach Temperaturklasse T6;
- Frequenzbereich > 10 MHz.

Eine Gefährdung durch statische Aufladung wird unter Berücksichtigung der
Forderungen aus EN/IEC 60079-0 ausgeschlossen.

can be utilised without risk in areas with a potentially explosive atmosphere of
category 2 G/D and 3 G/D under the following conditions according to Namur NE127:

- *Ambient field strengths of ≤ 1 A/m or ≤ 3 V/m;*
- *Ambient temperature on the transponder exterior ≤ 40 °C for consideration in*
  compliance with temperature class T6;
- *Frequency range > 10 MHz.*

The potential for electrostatic charging has been taken into consideration according
to the requirements of EN/IEC 60079-0.

Köln, 12 April 2013   W. Bertges
_____   _____
Ort und Datum   Quality Manager
Place and date
Lieu et date

Datei: RFID-exis_Konfbew_20130412.docx

19 Release notes

Version 1.01.00

- OI changed to include RFIDi-RDR-2-xxx

Version 01.01.01

- Inclusion of KGS certification
- Renew Declaration of EC conformity
- Inclusion of assessment of transponder media

Version 01.01.02

- Change of address
- Changes to chapter "Disposal"
- Addition of Warning "High Temperature" in section "Warnings"
- Changing Conformity to standards
- Adaption section "RoHS directive" with device conformity
- Renew declaration of EC conformity
- Layout and formal corrections