Technical Documentation

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Technical Documentation

VISY-X

VISY-RF V4 Upgrade
(en)

Art. No.	Version	Edition
207216	1	2024-09

Content

1 Introduction

The **VISY-X system** is a data collection system for liquid storage tanks and environmental sensors. It consists of various sensors and the evaluation unit installed inside a building. The VISY-Command unit evaluates the measured data from the VISY-Sensors and transmits it to a higher-level system (e.g. POS) upon request.

In most cases, the VISY sensors are electrically connected to the VISY-Command evaluation unit via cables.

The **VISY-RF radio system** can be selected if there are no free cable ducts available between the sensors and the evaluation unit. For this purpose, the VISY sensors are connected to the VISY-RFT transmitters. The measured values from the sensors are then transmitted wirelessly to the VISY-Command RF evaluation unit. VISY-Command RF is a VISY-Command with VISY-RFR receiver.

1.1 In this manual ...

... you will be explained how to replace the components of a VISY-RF III radio system with the components of the VISY-RF V4 radio system.

For further information on installing the VISY-RF V4 radio system see:

Technical documentation VISY-RF V4 radio system, Art. No. 350394

During installation, the VISY-Command RF evaluation unit is configured using a PC/notebook and the VISY-Setup software, see:

Technical documentation VISY-Setup V4, art. no. 207158

1.2 Requirements of service engineers

All parts of the VISY-RF wireless system should be installed only by trained service technicians.

1.3 Recommended tools

- Notebook with VISY-Setup
- RS-232 communication cable
- 16mm open-end wrench
- Crimping tool for wire end ferrule
- Screwdriver, 2mm
- Side cutter
- Wire stripper

1.4 Safety Instructions

Useful information in this guide you should observe, appear in italics and are identified by this symbol.

Not observing these safety instructions result in the risk of accident or damages to the system.

Observe and follow all product safety instructions and operating instructions. The following safety precautions must be observed to reduce the risk of injury, electric shocks, fire or damage to the equipment:

The VISY-Command (RF) must be installed outside potentially explosive areas, e. g. inside a building.

After opening the housing door of the VISY-Command there is a risk of electric shock on touching conductive parts.

Replacing the radio system requires work on the power supply of the VISY-Command. Before starting the replacement, disconnect the VISY-Command from the power supply and secure it against being reconnected accidentally!

When installing the outdoor antenna, all applicable rules and regulations regarding lightning and surge voltage protection must be observed!

Before commissioning the VISY-RF V4 radio system, set the radio frequency permitted in your country using the DIP switches on the VISY-RFR receiver.

The VISY-RFT transmitter is approved for use in potentially explosive atmospheres.

To ensure explosion protection, only original FAFNIR batteries may be used for the VISY-RFT transmitters!

Make sure that the VISY-RFT transmitter inside a manhole is never submersed in water.

VISY-RF radio system should only be used together with FAFNIR components.

2 Components

Components for replacing a VISY-RF III radio system with the VISY-RF V4 system:

- VISY-RFT V4 transmitter (art. no. 900258) including battery
- VISY-RFR V4 antenna with 3 m antenna cable (art. no. 900259)
- 2 x Power supply connection cables (red and blue)
- 1 x Wire ferrule
- 1 x Housing blind plug (black)
- VISY-RFR V4 receiver (art. no. 908903)
- VISY-RFR V4 supply unit (art. no. 901411)

Optional extensions for the VISY-RF V4 radio system:

- FAFNIR cable extension for VISY-RFT transmitters, 100 m (art. no. 904110)
- FAFNIR IP68 cable connector (art. no. 910035)
- FAFNIR antenna cable extension, low attenuation, 25m (art. no. 900260)

The VISY-RFT transmitter is powered by an intrinsically safe battery.

The data from the VISY sensors is send by the VISY-RFT transmitter to the **VISY-RFR receiver** and is forwarded to the Interface VI-... . The VISY-RFR receiver is powered by the VISY-Command.

For installation of the VISY sensors and the VISY Command see:

 Technical Documentation VISY-Stick/Reed, art. no. 207194

 Technical Documentation VISY-Command, art. no. 207184

 Technical Documentation VISY-Setup, art. no. 207158

2.1 Structure of the VISY-RFT V4 transmitter

Figure 1: VISY-RFT V4 transmitter with cover removed

☞ *The silica gel belongs to the VISY-RFT transmitter and must be placed back into the housing of the transmitter module during assembly.*

2.2 Structure of the VISY-RFR V4 receiver

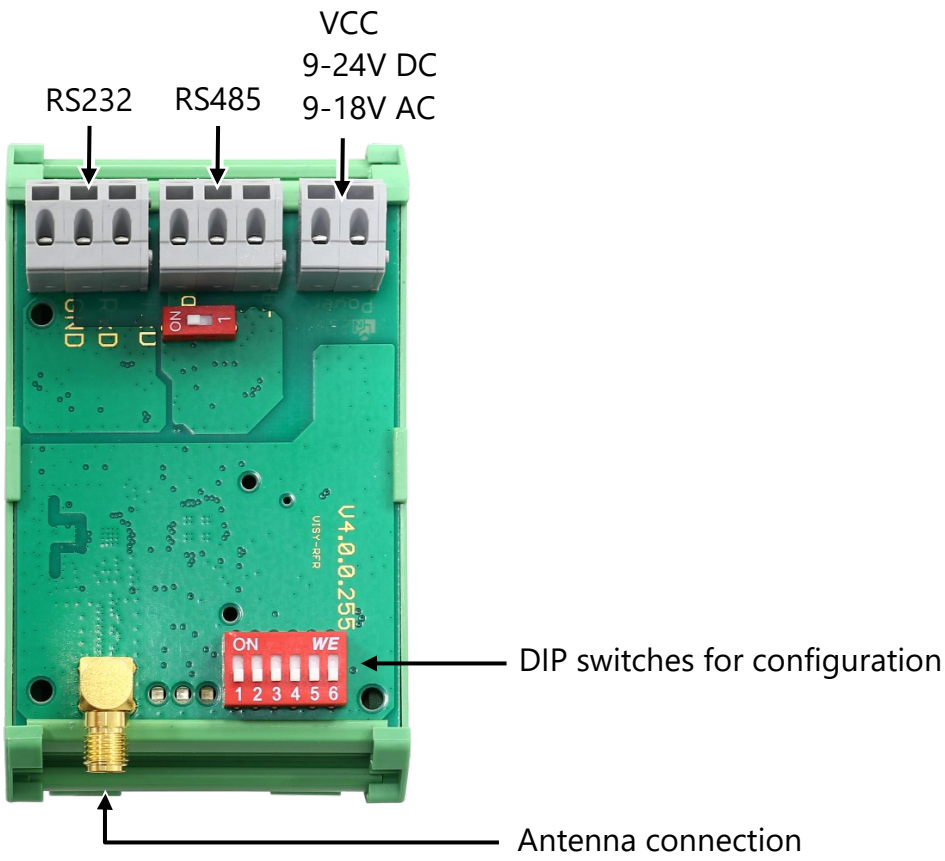


Figure 2: VISY-RFR V4 receiver

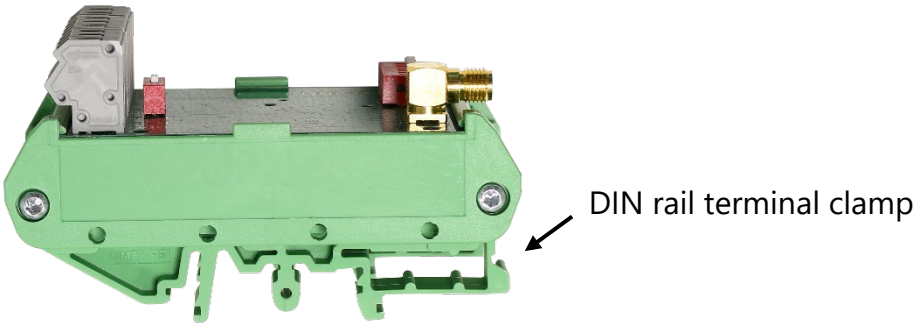


Figure 3: VISY-RFR V4 receiver, DIN rail mounting

2.3 Structure of the VISY-Command RF with VISY-RFR III receiver

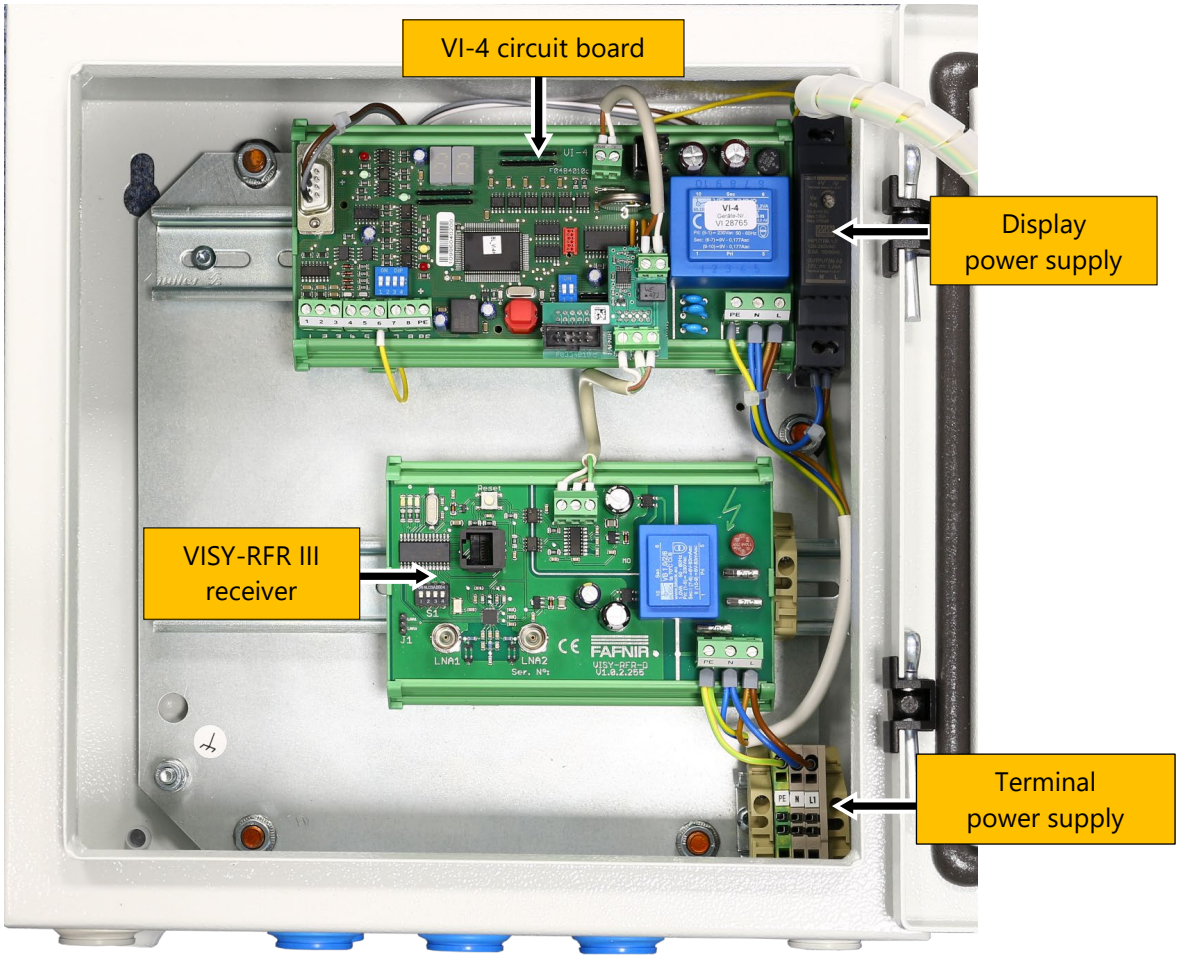


Figure 4: VISY-Command RF with VISY-RFR III receiver

2.1 Structure of the VISY-Command RF with VISY-RFR V4 receiver

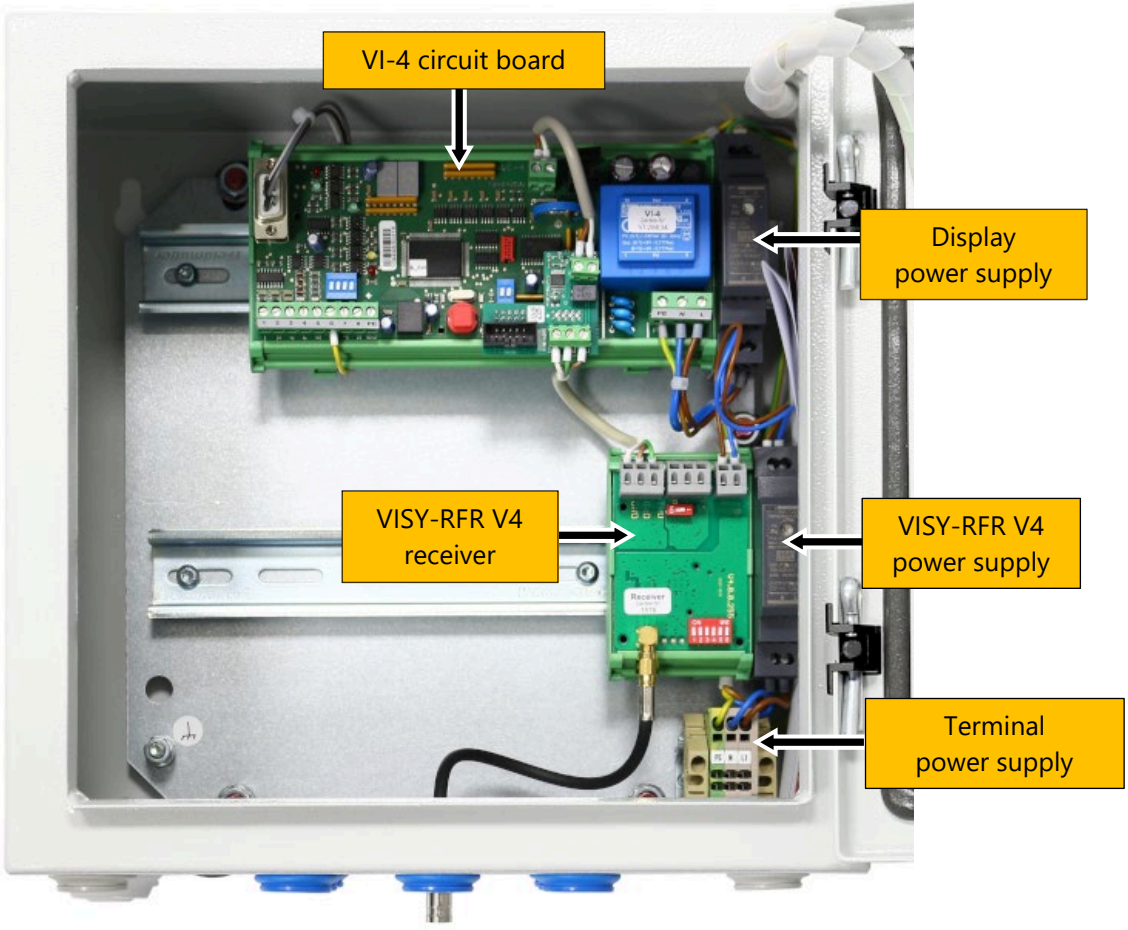


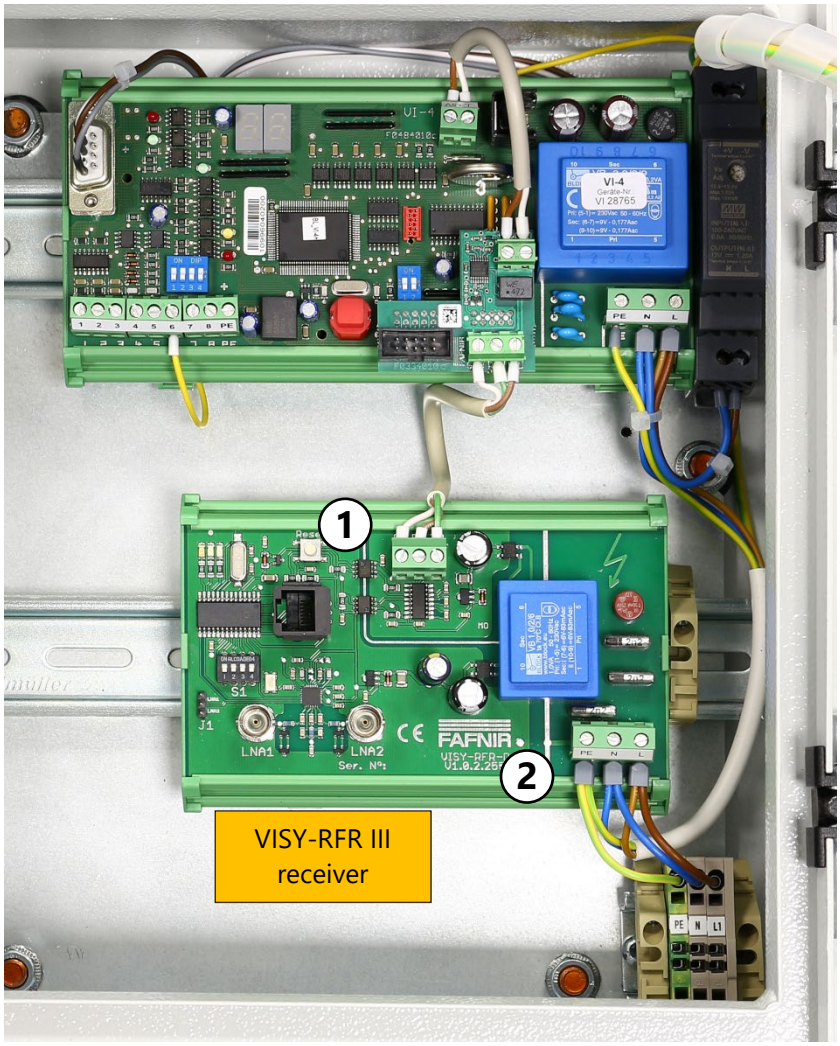
Figure 5: VISY-Command RF with VISY-RFR V4 receiver

3 Replacement and installation of the radio system

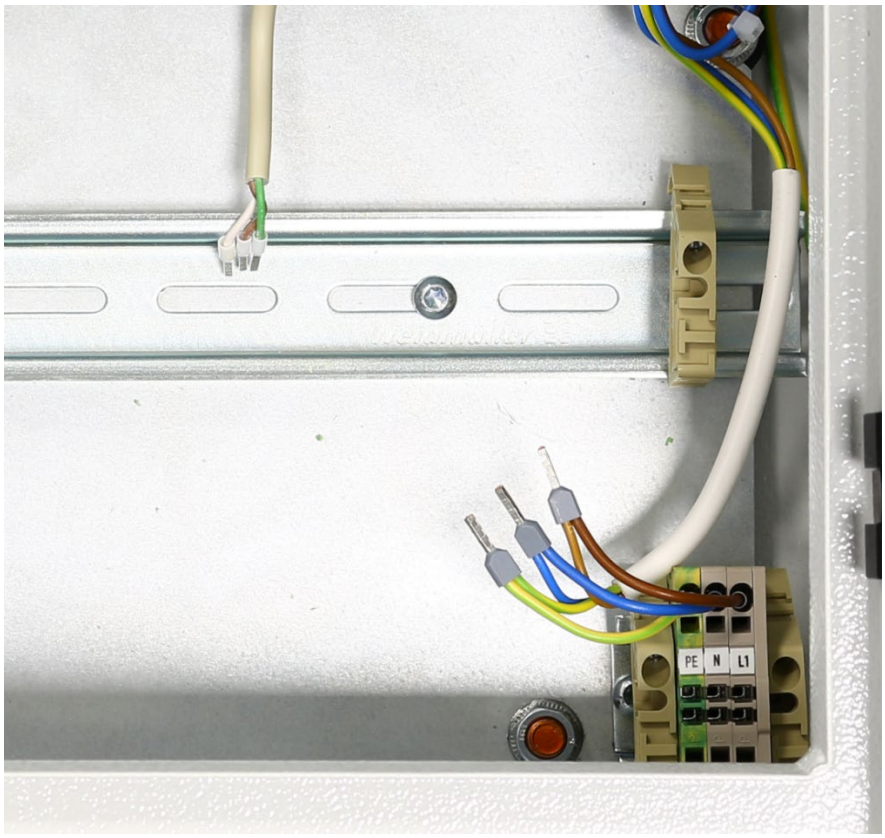
⚠ *Before starting the replacement, disconnect the VISY-Command from the power supply and secure it against being reconnected accidentally!*

3.1 Replacing the VISY-RFR III receiver

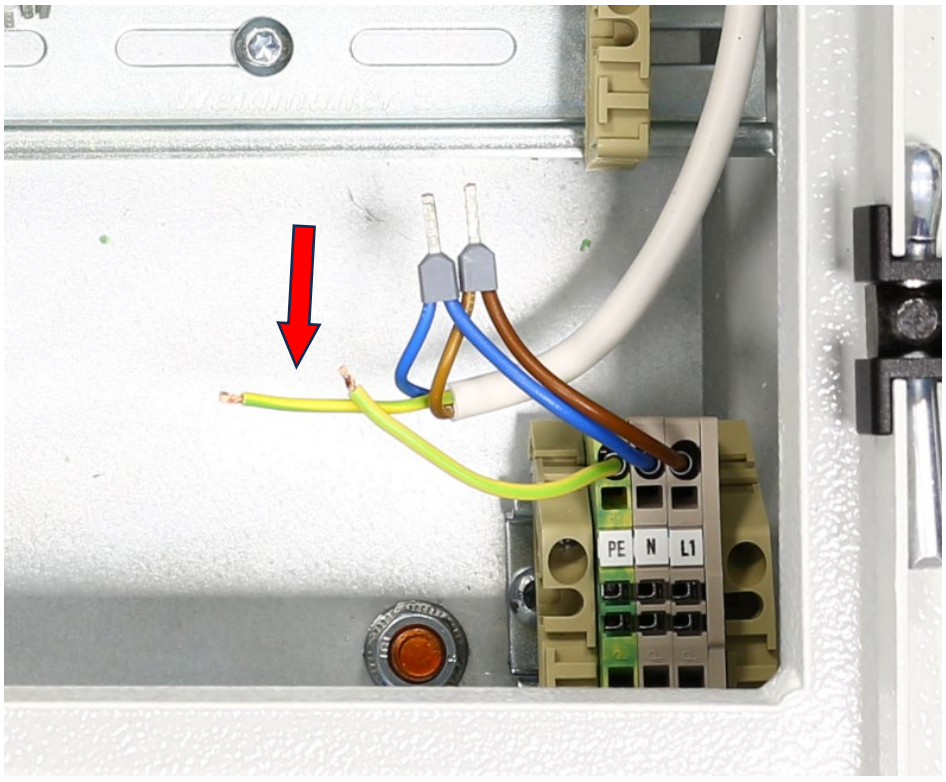
➔ Remove the cables ① and ② from the VISY-RFR III receiver



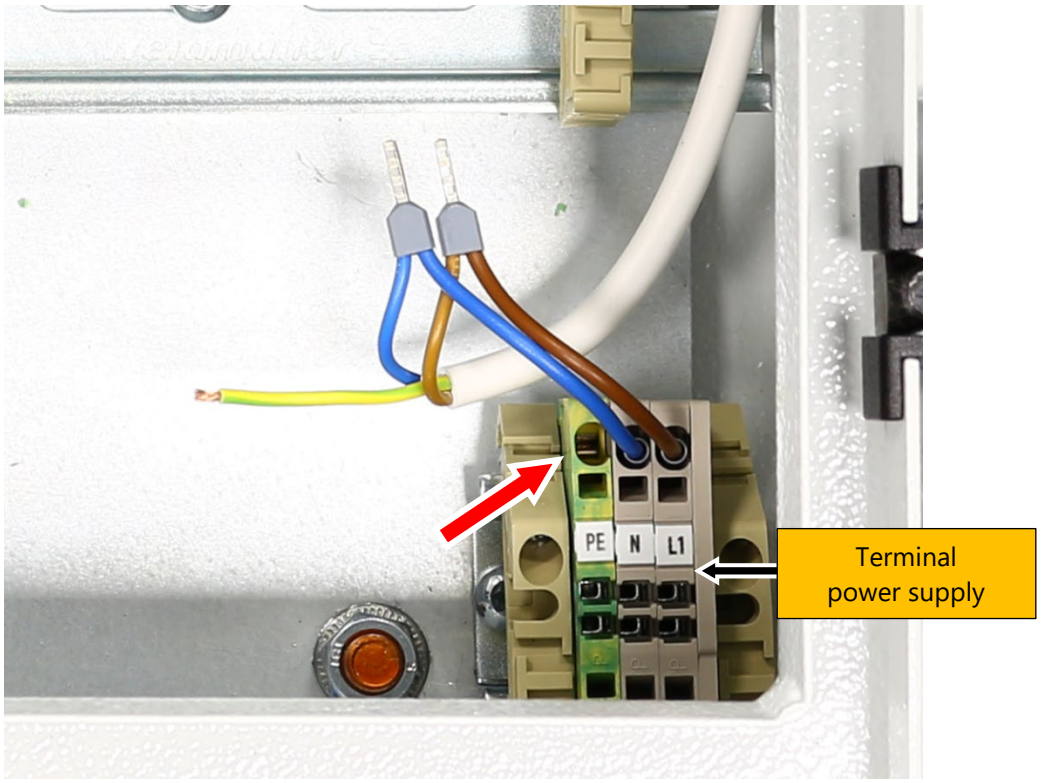
Remove the VISY-RFR III receiver



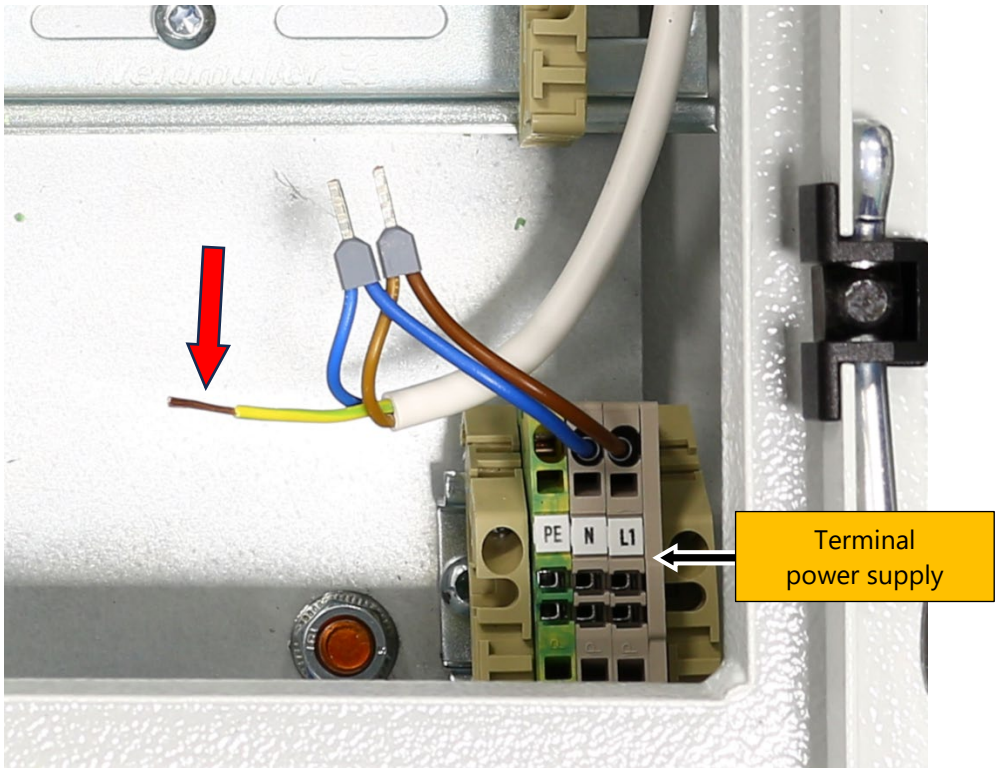
Remove the wire end ferrule from the PE cable



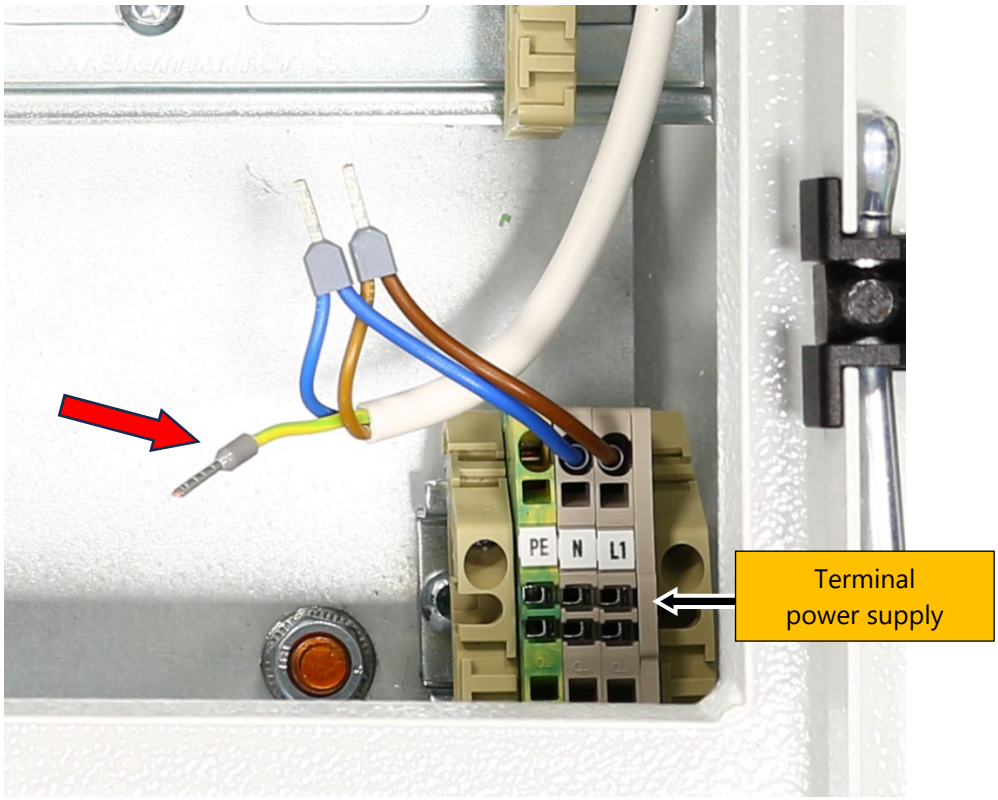
Remove the PE cable from the power supply terminal



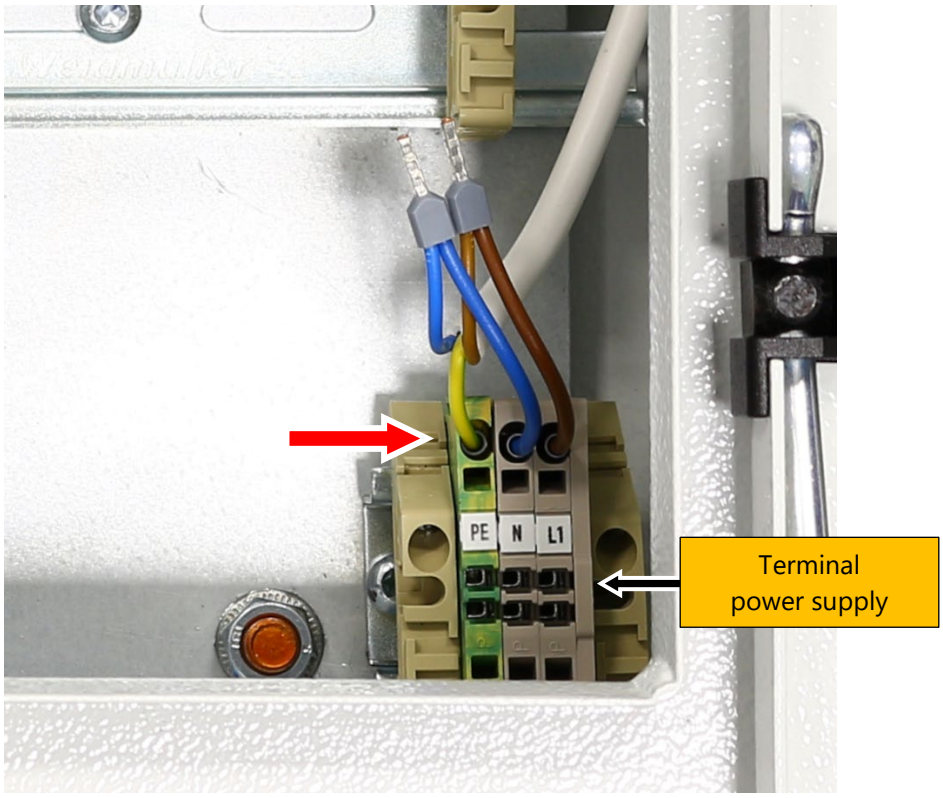
Strip the PE cable



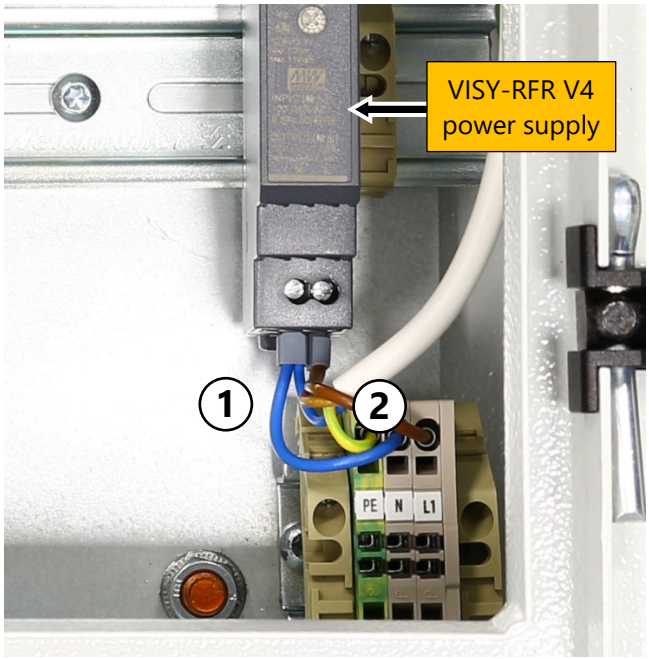
Fix the wire end ferrule to the PE cable



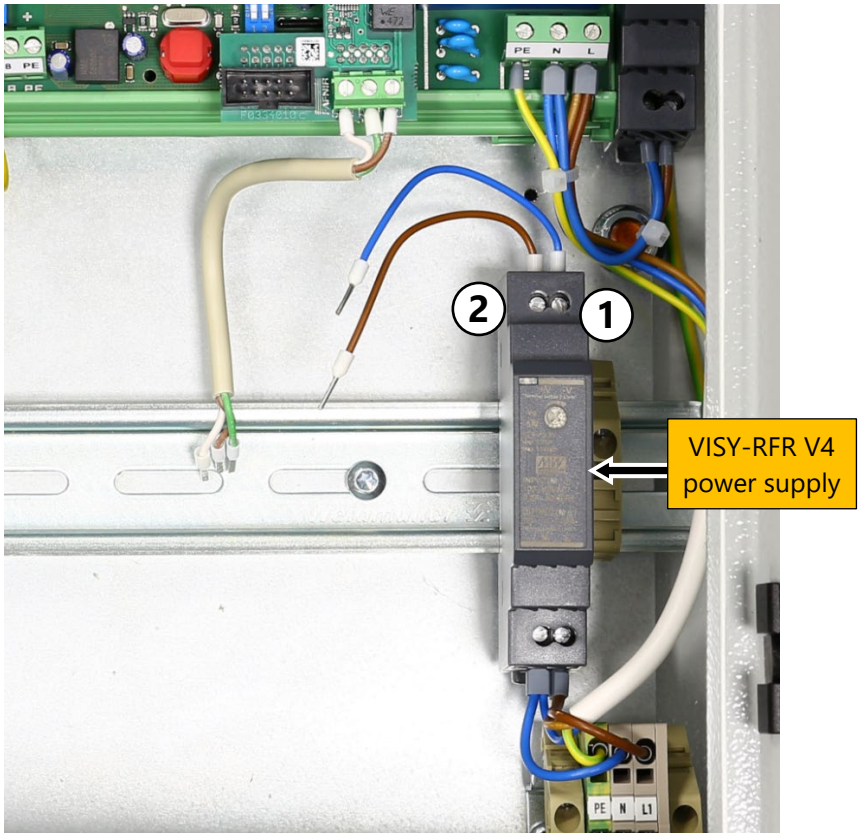
Insert the PE cable into the PE terminal



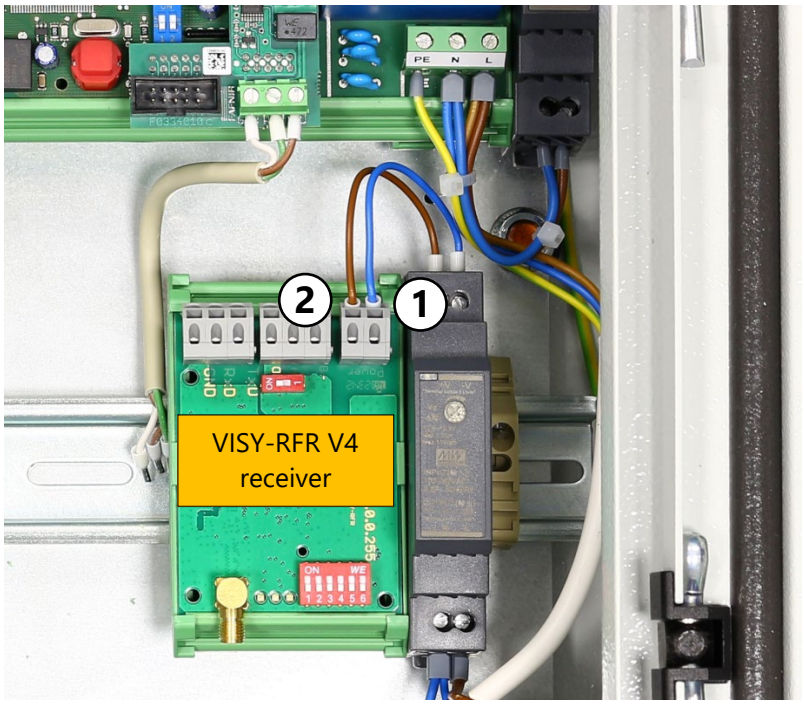
- Connect the blue cable ① to the N terminal and connect the brown cable ② to the L terminal of the VISY-RFR power supply input



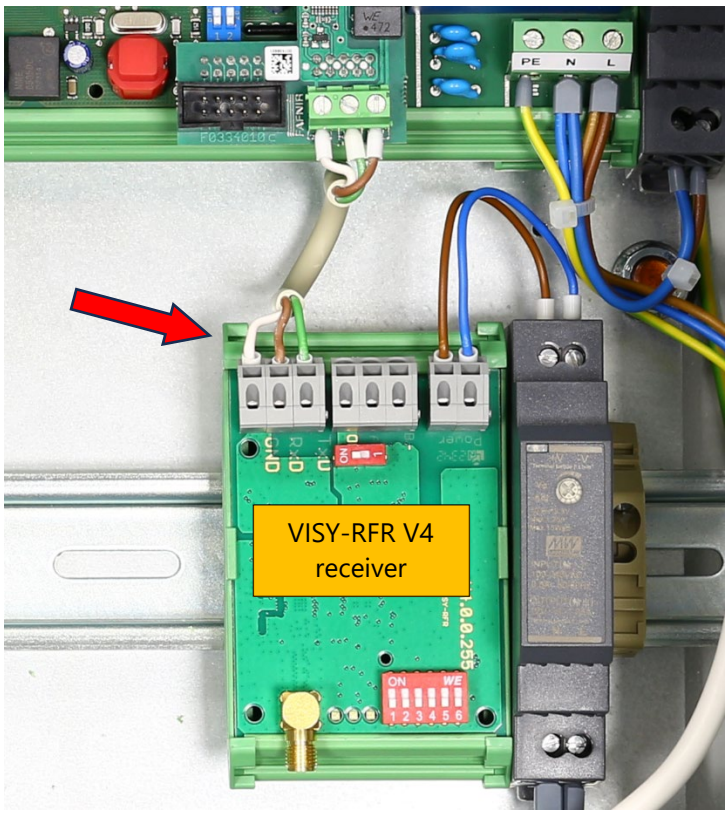
- Connect the blue cable ① to the N terminal and connect the brown cable ② to the L terminal of the VISY-RFR power supply output



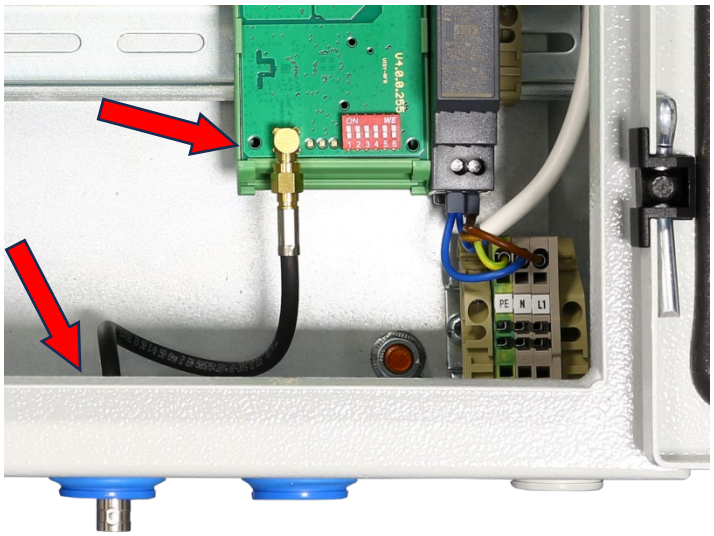
➔ Install the VISY-RFR V4 receiver module and connect the blue ① and brown ② cable



➔ Connect the cables coming from the VI-4 board (white, brown, green)

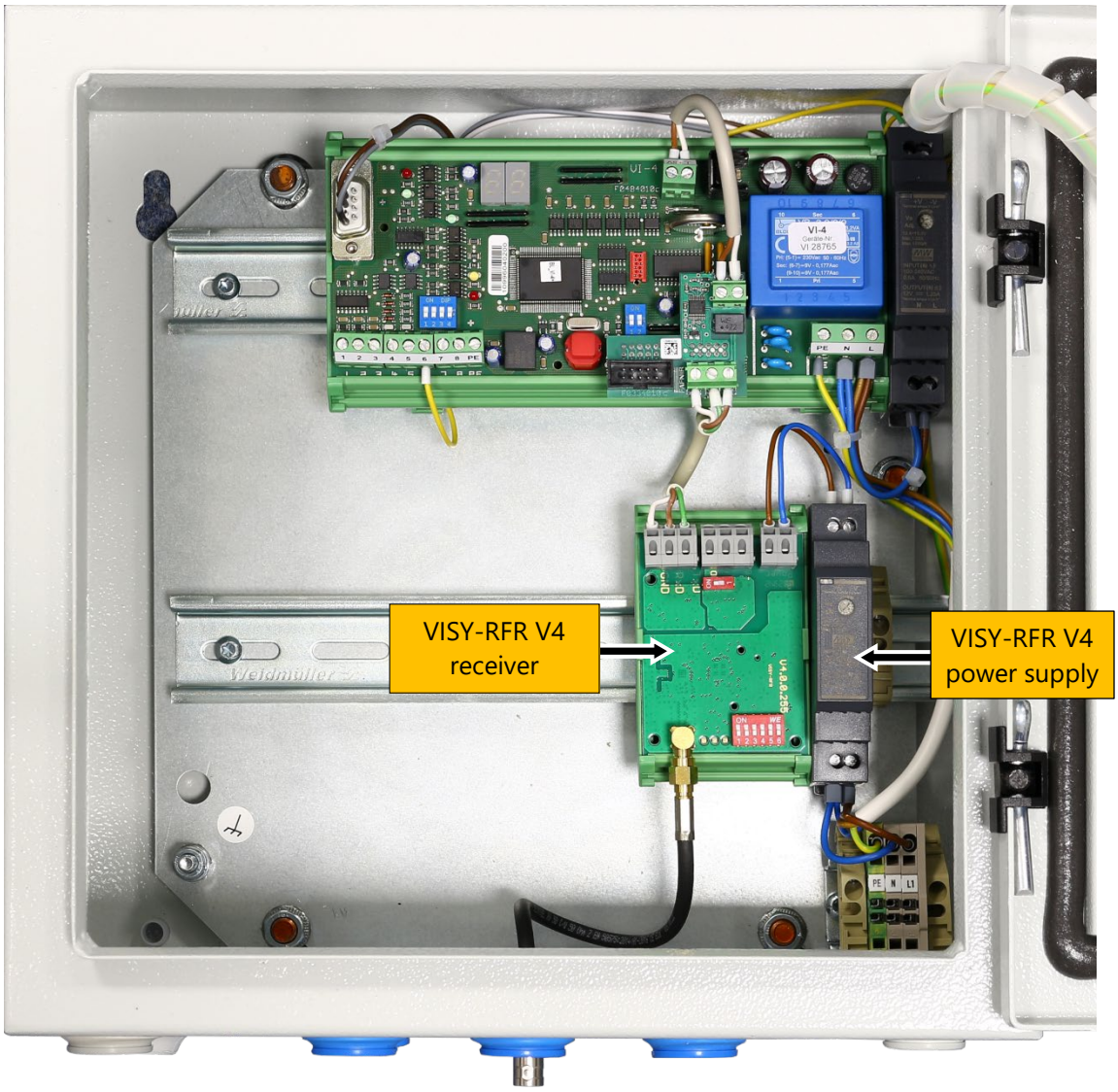


- Connect the antenna cable to the VISY-RFR V4 receiver and fix the antenna socket to the VISY-Command RF housing



- Remove the 2nd antenna socket (free connection) on the VISY-Command RF housing and close it with the blind plug

Structure of the VISY-Command RF with VISY-RFR V4 and power supply



3.1 Replacing the VISY-RFT III transmitters

Figure 6: VISY-RFT V4 transmitter

- Replace the VISY-RFT III transmitter with the VISY-RFT V4 transmitter.

The silica gel belongs to the VISY-RFT transmitter and must be placed back into the housing of the transmitter module during assembly.

The VISY-RFT transmitter should be mounted as high as possible in the manhole and with the antenna pointing towards the manhole cover.

- Connect the VISY-RFT V4 transmitter to the VISY-Stick.
- Repeat the process for all VISY-RFT III transmitters.

3.2 Replacing the VISY-RFR III receiving antenna

Figure 7: VISY-RFR V4 receiving antenna (rod antenna)

The VISY-RFR V4 receiving antenna (art. no. 900259) is supplied with a mounting bracket and a 3 m long antenna cable.

- Replace the VISY-RFR III receiving antenna with the VISY-RFR V4 receiving antenna
- Connect the receiving VISY-RFR V4 antenna to the VISY-Command RF

3.3 Further installation steps

- Reconnect the VISY-Command to the supply voltage

If the housing door of the VISY-Command is opened, there is a risk of electric shock on touching conductive parts.

- Configure the VISY-RF radio system

For further information on Configuration of the VISY-RF V4 radio system, see:

Technical documentation VISY-RF V4 radio system, Art. No. 350394

4 Technical Data

4.1 General data

Frequencies	868 MHz 915 MHz 922 MHz
Transmission distance (line of sight)	max. 250 m

4.2 VISY-RFT V4 transmitter

Radio power output	+15 dBm
Antenna	PUK-Antenna
Battery pack	Lithium
Battery capacity	19 Ah
Expected battery life at 20 °C ambient temperature and average tank filling of 30 minutes/day	
	4 years (5 minutes mode)
	2 years (1 minute mode)
Battery article number	900095
Housing	80 x 82 x 55 [mm]
Protection class	IP 67
Operating temperature range	-40 … +60 °C

4.3 VISY-RFR V4 receiver (inside VISY-Command RF)

Sensitivity	-120 dBm
Antenna connector	1 x BNC
Supply voltage	via internal power supply
Dimensions	90 x 55 x 60 [mm]

5 Annex

5.1 List of figures

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