SIEMENS

SIMATIC RTLS

Localization systems

SIMATIC RTLS4460T

Device manual

10/2018

C79000-G8976-C522-01

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠ WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠ CAUTION

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Agilion products

Note the following:

⚠ WARNING

Agilion products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Agilion. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Table of contents

1 Overview

1.1 General

The transponder SIMATIC RTLS4460T represents the movable device considered for localization within the Wireless Location System (WLS) localization network. It sends its positional information to the localization network's nodes (anchors and gateways) which transmit the data to the localization server for computation and visualization. The device is suitable for installation into vehicles and devices

1.2 Delivery contents

1 SIMATIC RTLS4460T (article number 6GT2700-6CE02)

Accessories (not included in scope of delivery)

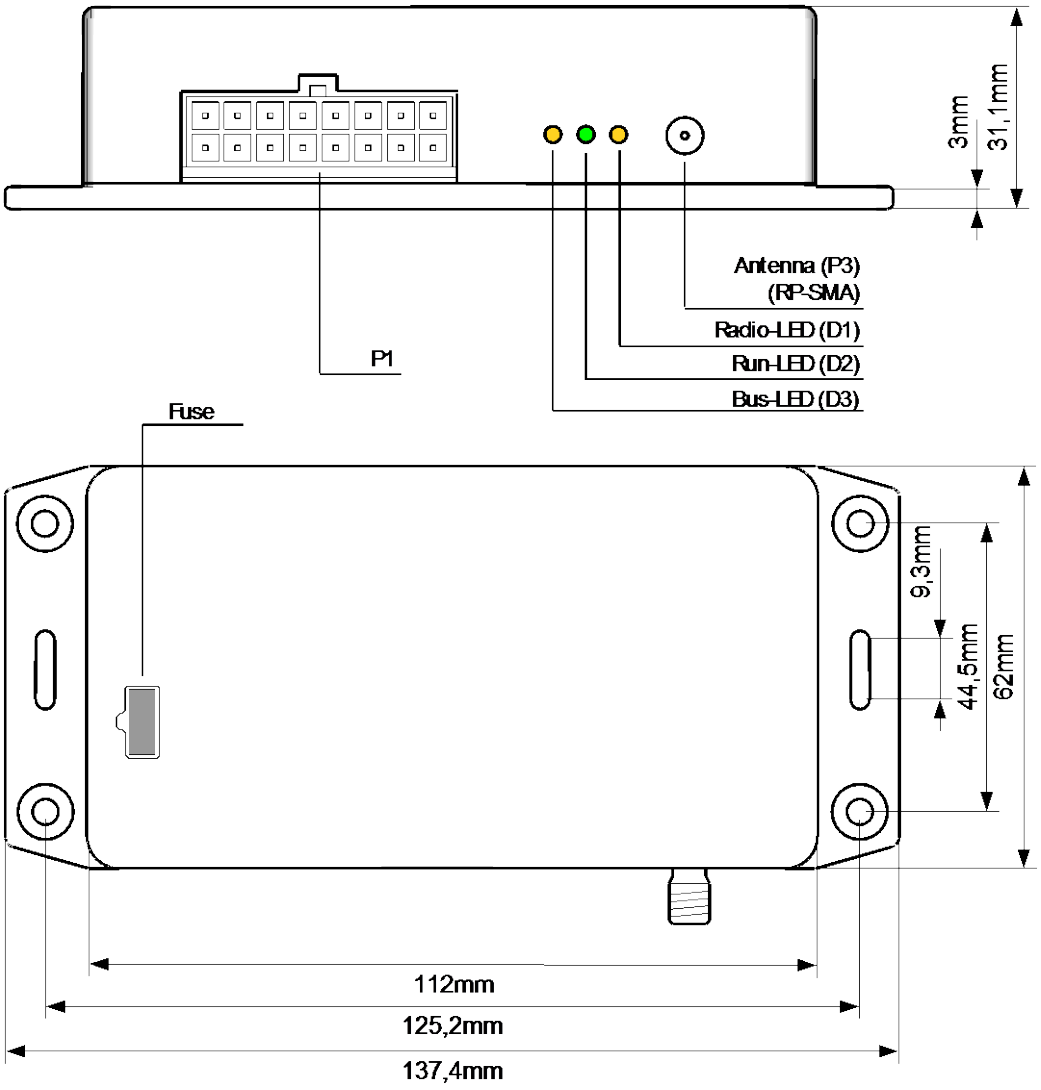
- Connector with 16 crimp contacts (article number 6GT2790-0BB00)
- Antenna cable, 2 m (article number 6GT2791-6AH20)
- Antenna cable, 3 m (article number 6GT2791-6AH30)

1.3 Power supply

The device can be operated with 24 V voltage.

2 Layout and connections

2.1 Dimensions



2.2 Connections and displays

Connection	Description
P1 - Power, Digital	Power supply and digital input signals
P3 - Antenna	RP-SMA - Antenna screw connector
Fuse	Mini blade fuse, 2 A

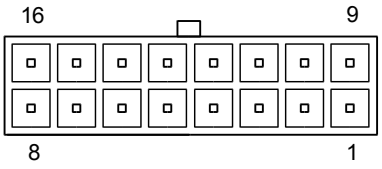
Display	Description
D1 - Radio LED (yellow)	LED signaling the activity of the WLS (sending and receiving radio signals)
D2 - Run LED (green)	LED signaling the device’s operating status
D3 - Bus LED (yellow)	LED signaling activity of the bus system (CAN-bus or IBIS)

2.2.1 Possible states of the LEDs

D1 - Radio LED	D2 - Run LED	D3 - Bus LED	Description
Off			Device is inactive
Flashes once for 0.5 second	flashes once for 0.5 second	flashes once for 0.5 second	Device start up test Carry out a start-up test in order to test proper functionality of the LEDs and the device. To this end, observe all three LEDs whilst switching on the device’s power supply. All three LEDs flashing simultaneously once for half a second indicates the just operating status of both device and LEDs.
any	flashes every 3 seconds	any	Device operating in “SLOW” state
any	flashes permanently	any	Device operating in “FAST” state

2.3 Pin allocation

2.3.1 P1 - Power, Digital output - plug-in connector



16-pin plug-in connector WR-MPC4

0.33 mm² by 1.31 mm²

Pin	Description	Pin	Description
1	n.c.	9	n.c.
2	Digital input 7	10	Digital input 8*
3	Digital input 5	11	Digital input 6
4	Digital input 3	12	Digital input 4
5	Digital input 1	13	Digital input 2
6	CAN-high	14	CAN-low
7	Digital output 1	15	Digital output 2
8	24 V DC (e.g. Terminal 30)	16	GND (e.g. Terminal 31)

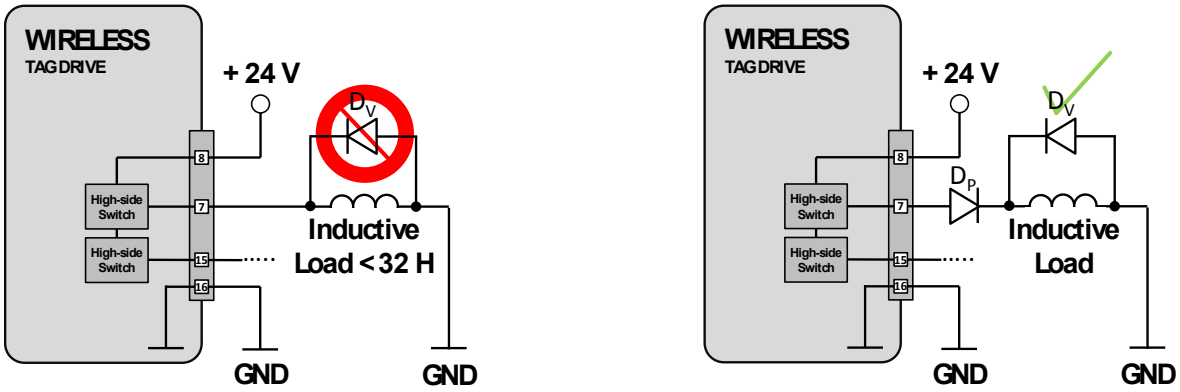
* switchable input impedance

2.3.2 Digital output

Both of the device digital outputs can drive ohmic, capacitive and inductive loads. The current will be limited automatically at this.

In case of inductive loads (e.g. relays) consider the following: Inductivities up to 32 H can be turned off without flyback diode D_V. Higher inductivities require the insertion a flyback diode D_V.

When using flyback diode D_V, an additional polarity protection diode D_P has to be inserted.



2.3.3 Digital Input

The device has 8 digital inputs, 1 to 8. Each ranges from 0 to 24 V with an impedance of 4.7 kOhm.

Input 8 differs in order that the impedance resistor can be switched off. In that case the input impedance is 110 kOhm.

2.3.4 P3 - Antenna – RP-SMA connector

Pin	Description
1	Antenna
Shield	GND, Shield

3 Installation, initial start-up, safety

3.1 General information

- The devices can only be used in combination with the WLS.
- Buildup, installation as well as the use of the tools and clients of the localization system are described in the corresponding guides and manuals.

3.2 Installation and operation

- Carefully read all items listed in section 3 (Installation, initial start-up, safety) before installing the devices in order to safeguard correct installation and operation.
- The device is destined for installation into a vehicle.
- The installation has to be carried out by appropriately qualified and trained personnel and according to the installation guide.
- Follow the references concerning the surrounding conditions when installing and operating the devices.
- The device has to be protected against moisture.
- The ambient temperature must not exceed 70 °C. Avoid installing devices at locations exposed to direct sunlight.
- The installation of the devices has to be carried out according to the applicable provisions for the installation of electrical systems and utilities.

3.3 Connecting the cables

Make sure that any wiring has been carried out correctly before the start-up of the device.

3.3.1 Power supply

- When connecting the power supply to the power connector, all LEDs flash for an instant. The power LED is on, if power is supplied (cf. states of the LEDs 2.2.1).
- Check whether the nominal voltage of the power supply is in accordance with the values stated in section “Technical data” (cf. 4).

3.4 Connecting the antenna

- The antenna has to be connected to the RP-SMA screw connector (P2).
- The device must not be operated without antenna. The device has to be switched off or voltage-free before replacing the antenna.
- The antennas of all wireless devices should be aligned similarly.

4 Technical data

4.1 Connectors and power supply

Connectors and power supply	
Voltage	24 V DC
Power consumption	Max. 1.6 W /0.06 A
Power connector (P1)	16-pin plug-in connector WR-MPC4, 0.33 mm² by 1.31mm²
Antenna connector	RP-SMA connector
Fuse	Mini blade fuse, 2 A

4.2 In- and outputs

In- and outputs	
Input voltage	0 … 24 V DC
Input impedance	4.7 kOhm, Input 8 selectable 4.7 kOhm or 110 kOhm
Output	High-side-switch -> Connect to input voltage
Output current	Max. 250 mA, short-circuit proof
Output voltage	0 V or supply voltage
Load	Any; inductive loads up to 32 H do not require a flyback diode. Use of a polarity protection diode is imperative when using a flyback diode.

4.3 Radio

Radio	
Wireless technology	IEEE 802.15.4a nanoLOC - Chirp Spread Spectrum (CSS)
Data rates	1 MBit/s
Operating frequency	2.45 GHz ISM-Band
Chirp bandwidth	80 MHz
Output power	Max. 100 mW, adjustable
Range at 1 Mbit	Indoor: max. 90m Outdoor: max. 1000 m (typically 500 m)

4.4 Environment

Environment and dimensions	
Case	Plastic housing
IP-protection	IP 20
Dimension	138 x 62 x 31 mm
Weight	125 g
Mounting	4 mounting holes for M4 countersunk head screw
Temperature range	-40 … + 70 °C

5 Approvals

5.1 EU declaration of conformity

The EC Declaration of Conformity is available for all responsible authorities at:
Agilion GmbH
Blankenauer Straße 74
09113 Chemnitz
Bundesrepublik Deutschland

You can find the current EU declaration of conformity for these products on the Internet pages under Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/ps/14970/cert)

The products described in this document meet the requirements of the following EC directives:

- RoHS directive 2011/65/EU
  Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 01/07/2011, pages 88-110
- Radio equipment directive 2014/53/EU (RED, Radio Equipment Directive)
  Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the Member States relating to the making available on the market of radio equipment; official journal of the EU L153, 22/05/2014, pages 62-106

5.2 RoHS

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU for the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
  Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

5.3 RED

5.3.1 Protection of health and safety

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) protection of health and safety

- EN 62368-1
  Information technology equipment - Safety - Part 1: General requirements
- EN 62311
  Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Art. 3 (1) b) EMC:

- ETSI EN 301 489-1
  Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
  Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17:
  Specific conditions for Broadband Data Transmission Systems
- EN 55011
  Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement
- EN 55032 Class A, Class B
  Electromagnetic compatibility of multimedia equipment - Emission requirements
- EN 55035
  Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
  Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity standard for residential, commercial and light-industrial environments
- EN 61000-6-2
  Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments
- EN 61000-6-3
  Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments

- EN 61000-6-4
  Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

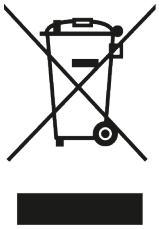
Art. 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
  Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

Note

The specified approvals apply only when the corresponding mark is printed on the device.

5.4 Recycling and disposal



The products are low in harmful substances, can be recycled and meet the requirements of the Directive 2012/19/EU for disposal of waste electrical and electronic equipment (WEEE).

Do not dispose of the products at public disposal sites.

For environmentally compliant recycling and disposal of your electronic waste, please contact a company certified for the disposal of electronic waste or your Siemens representative.

Note the different national regulations.