



# EMERSON AVENTICS ST6 Sensor Instruction Manual

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**AVENTICS ST6 Sensor  
Instruction Manual**



**R412024085-BAL-001-AE**  
**2022-01, Replaces: 2021-04**

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## About this documentation

Read this documentation completely, especially chapter Safety before working with the product.

These instructions contain important information on the safe and appropriate assembly, operation, and maintenance of the product and how to remedy simple malfunctions yourself.

### 1.1 Additional documentation

Apart from this documentation, you will not receive any further documentation on the product or on the system or

machine in which the product is installed. Additionally, always observe the following regulations:

- General, statutory, and other binding rules of the European and national laws.
- Applicable regulations for accident prevention and environmental protection.

## 1.2 Presentation of information

### 1.2.1 Warnings

Warnings of personal injury and damage to property are highlighted in this documentation. The measures described to avoid these hazards must be followed.

#### Display as a highlighted box

Warnings that are displayed in the form of highlighted boxes have the following structure:



#### SIGNAL WORD

##### Hazard type and source

Consequences of non-observance

Precautions

##### Presentation with the highlighted signal word

Instructions and lists often contain warnings that are integrated into the text. Inline warnings are introduced with a bold signal word:

**CAUTION!** Do not exceed permissible bending radii.

### Meaning of the signal words

Signal word	Meaning
Danger	Immediate danger to the life and health of persons. Failure to observe these notices will result in serious health consequences, including death.
Warning	Possible danger to the life and health of persons. Failure to observe these notices can result in serious health consequences, including death.
Caution	A possible dangerous situation. Failure to observe these notices may result in minor injuries or damage to property.
Notice	Possibility of damage to property or malfunction. Failure to observe these notices may result in damage to property or malfunctions, but not in personal injury.

### 1.2.2 Symbols



Recommendation for the optimum use of our products.

Observe this information to ensure the smoothest possible operation.

## 1.3 Documentation validity

These instructions contain important information on the safe and proper installation and operation of the series ST6-ATEX sensor (R412022854, R412022856, R412022860, R412022864).

## Safety

## 2.1 About this chapter

The product has been manufactured according to the accepted rules of current technology. Even so, there is a danger of injury and damage to equipment if the following chapter and safety instructions of this documentation are not followed.

- Read this chapter and this documentation completely before working with the product.
- Keep this documentation in a location where it is accessible to all users at all times.
- Always include the operating instructions when you pass the product onto third parties.

## 2.2 Intended use

- The product is intended for use in industrial applications.
- Observe the technical data and the specified operating conditions and performance limits.
- The sensor is to be used to detect magnetic fields in explosive areas.

## 2.3 Personnel qualifications

The work described in this document requires basic knowledge in the following areas, as well as knowledge of the appropriate technical terms:

- Mechanics
- Pneumatics
- Electrics

The activities described in this documentation may only be carried out by the following persons:

- by a qualified person or
- by an instructed person under the direction and supervision of a qualified person

### Definition of a qualified person



Qualified persons are those who can recognize possible hazards and institute the appropriate safety measures due to their professional training, knowledge, and experience, as well as their understanding of the relevant conditions pertaining to the work to be done. Qualified persons must observe the rules relevant to the subject area.

## 2.4 General safety instructions

- Observe the valid regulations for accident prevention and environmental protection for the country where the device is used and at the workplace.
- Do not modify or convert the product. The warranty will not apply if the product is incorrectly assembled.
- Do not place any improper mechanical loads on the product under any circumstances.

## 2.5 Safety instructions related to the product and technology

### General

- Make sure the relevant system part is without pressure and voltage.
- Do not separate plugs or lines when under voltage.

## During operation

- Only take the product into operation after it has been mounted, connected, and tested.
- Observe the operating conditions printed on the product or stated on its rating plate.

### 2.6 ATEX – information on explosion protection

The sensors are certified and labeled according to the enclosed declaration of conformity. They can be used

- with gases, mists, or vapors in zone 2
- with flammable dust particles in zone 22

#### 2.6.1 Explanations concerning identification



Year of manufacture of the sensor: The first two digits in the 5-digit date code on the rating plate indicate the year and the last two digits indicate the week.



**II 3G Ex nA IIC T4 Gc X**  
**II 3D Ex tc IIC T135°C Dc X**

Due to the small size of the sensor, the ATEX identification is located on a cable flag.



#### **WARNING**

The danger of an ignition source due to impermissible operating conditions, connections, and parameters! Operating the sensor under impermissible operating conditions can result in an explosion.

1. Observe the permissible operating conditions, in particular, the ambient temperature and the mechanical protection for the device.
2. The ATEX sensor is only intended for complete installation in suitable T-slots.
3. Note the limited temperature range for ATEX conditions.
4. Do not disconnect the plug connectors and the connecting cable from the sensor if it is under voltage.
5. Only use approved M8 and M12 connecting cables approved by AVENTICS.
6. Observe the relevant Ex guidelines for installation, maintenance, and repair, especially EN 60079-14.

**The device will lose its Ex approval if these instructions are not complied with!**

### Scope of delivery

- 1x Operating instructions
  - 1x Sensor
- Variants with M8 and M12 plugs:
- Line with plug and removal protection clip

### About This Product

The sensor is used to detect magnetic fields in explosive areas.

#### 4.1 Product identification

- Observe the product information on the product and packaging.

#### Assembly and commissioning

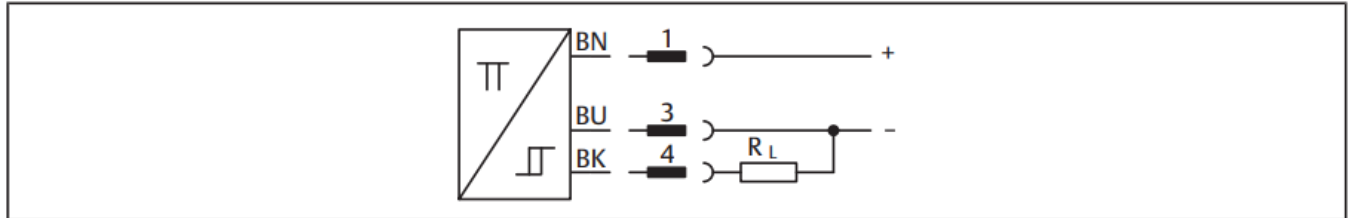


Fig. 1: Sensor porting configuration

1. Observe the Ex guidelines as per EN 60079-14.
2. The installation of electrical devices must be carried out in accordance with applicable national regulations and performed or supervised by an electrical specialist (in compliance with TRBS 1203 or equivalent).
3. Compare the information on the device with the information in the operating instructions before installation.



#### WARNING

The danger of explosion due to missing removal protection clip!  
Exposed electrical connections are an ignition source in explosive areas!

- With lines with M8 or M12 plugs, always assemble the supplied removal protection clip over the plug-type connection.



#### CAUTION

The danger of injury if assembled under pressure or voltage!  
Assembling when under pressure or voltage can lead to injuries and damage to the product or system components.

1. Make sure the relevant system part is without voltage or pressure prior to assembly.
  2. Protect the system against being restarted.
- 
1. Fit the sensor into the T-slot (any mounting orientation).
  2. Install the sensor protected against mechanical impact and UV light (depending on the requirements/operating conditions).
  3. Install lines with protection or provide for strain relief.

#### Maintenance

The product is maintenance-free. In case of technical problems, please contact one of the addresses found under [www.emerson.com/contactus](http://www.emerson.com/contactus).

## Troubleshooting

- Replace the sensor in the event of malfunctions or failure.

## Disposal

Dispose of the product in accordance with the national regulations in your country.

## Technical data

General		
Voltage	10 to 30 V DC	
Switching current	≤ 100 mA	
Ambient temperature	−20°C to +50°C	
Cable length	R412022854	3 m
	R412022856	5 m
	R412022864	0.3 m/M12
	R412022860	0.3 m/M8

This section contains an excerpt of the most important technical data. Further technical data can be found in the online catalog.


## Declaration of conformity

The declaration of conformity can be found at the end of the instructions.

### EU declaration of conformity

Declaration of Conformity in accordance with ATEX Directive 2014/34/EU and with the UK Statutory Instrument “Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016” / and in accordance with the EMC directive 2014/30/EU and with the UK Statutory Instrument “Electromagnetic Compatibility Regulations 2016

1. Apparatus model/Product: Proximity sensors, series ST6
2. Name and address of the manufacturer AVENTICS GmbH Ulmer Str. 4 30880 Laatzen, GERMANY
3. This declaration is issued under the sole responsibility of the manufacturer.
4. Object of the declaration Sensors electronic PNP, material numbers: R412022854; R412022856 R412022860; R412022864
5. The object of the declaration described above is in conformity with the relevant Union harmonization legislation and with the relevant statutory requirements: as referred to in the headlines of this document.
6. References to the relevant harmonized standards used: References to the relevant designated standards used  
EN IEC 60079-0 2018 + BS EN IEC 60079-0: 2018  
EN IEC 60947-5-2 : 2020 + BS EN IEC 60947-5-2: 2020  
EN 60079-15 : 2010 + BS EN 60079-15: 2010  
EN 60079-31 : 2014 + BS EN 60079-31: 2014

CE  || 3G Ex nA IIC T4 Gc X

|| 3D Ex tc IIIC T135°C Dc X

7. Additional information: The instructions in the Operation Manual are to be kept.

Signed for and on behalf of: AVENTICS GmbH


16.02.2021  
Datum/Date

  
Matthias Ihmann,  
Director Operations





  
Wolf Gerecke  
Director Product Marketing

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## Documents / Resources

	<p><b>EMERSON AVENTICS ST6 Sensor</b> [pdf] Instruction Manual</p> <p>AVENTICS ST6, Sensor, AVENTICS, ST6 Sensor, AVENTICS ST6 Sensor</p>
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## References

-  [AVENTICS – Smart, reliable solutions for pneumatic automation | Emerson US](#)
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