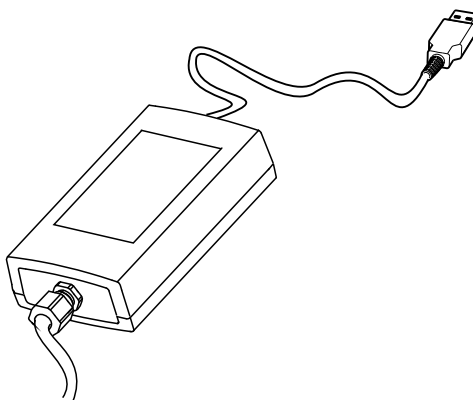



# Operating Instructions

## Commubox FXA291

Intrinsically safe interface for connecting intrinsically safe and non-intrinsically safe transmitters to a USB port



# Konformitätserklärung / Declaration of Conformity





Products	Solutions	Services
<b>EG-Konformitätserklärung</b> <b>EC Declaration of Conformity</b> <b>CE Déclaration de Conformité</b>		
<p>Wir erklären in alleiniger Verantwortung, dass das Produkt          We declare in sole responsibility that the product          Nous déclarons sous la seule responsabilité que le produit</p> <p><b>Commubox FXA291</b></p>		
<p>EG-Baumusterprüfbescheinigung:          EC type examination certificate:          Certificat d'examen CE de type :</p>		
<p>ausgestellt von   issued by   exposé par:</p>		
<p>mit den Vorschriften folgender Europäischer Richtlinien übereinstimmt:          is in conformity with the regulations of the following European Directives:          est conforme aux prescriptions des directives Européennes suivantes :</p>		
<p><b>94/9/EC</b></p>	<p>Geräte zur Verwendung in explosionsgefährdeten Bereichen.          Equipment for use in potentially explosive atmospheres.          Appareils pour application en atmosphère explosive.</p>	
<p><b>2004/108/EC</b></p>	<p>Elektromagnetische Verträglichkeit.          Electromagnetic Compatibility.          Compatibilité électromagnétique.</p>	
<p>Angewandte harmonisierte Normen oder normative Dokumente:          Applied harmonized standards or normative documents:          Normes harmonisées ou documents normatifs appliqués:</p>		
<p><b>EN 60079-0:2012, EN 60079-11:2012</b>  <b>EN 61326-1:2013</b></p>		
<p>Kennnummer des Managementsystem-Zertifikats:          Identification number of management system certificate:          Numéro d'identification de certificat système de management :</p>		
<p>Benannte Stelle für QS-Überwachung, Kennnummer          Notified body for QAN, Identification number          Organisme notifié pour l'assurance qualité, Numéro d'identification</p>		
<p>Erste Anbringung der CE-Kennzeichnung          First year in which the CE marking was affixed          Première année d'apposition du marquage CE:</p>		
<p>Endress+Hauser Conducta          Gesellschaft für Mess- und Regeltechnik mbH+Co. KG          Dieselstraße 24, 70839 Gerlingen, Germany</p>		
<p>Date: 02-10-2015</p>		
<p>i. V. Jörg Martin Müller          Director Technology</p>		
<p>i. V. Gunnar Fischer          Technology Certifications and Approvals</p>		
<p>Zertifikats-Nr.   Certificate-no.: EC_198_C_15          Seite   Page 1</p>		
<p><b>Endress+Hauser</b>           People for Process Automation</p>		

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# 1 Document information

## 1.1 Warnings

Structure of information	Meaning
 <b>DANGER</b> <b>Causes (/consequences)</b> If necessary, Consequences of non-compliance (if applicable) ► Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation <b>will</b> result in a fatal or serious injury.
 <b>WARNING</b> <b>Causes (/consequences)</b> If necessary, Consequences of non-compliance (if applicable) ► Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation <b>can</b> result in a fatal or serious injury.
 <b>CAUTION</b> <b>Causes (/consequences)</b> If necessary, Consequences of non-compliance (if applicable) ► Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or more serious injuries.
 <b>NOTICE</b> <b>Cause/situation</b> If necessary, Consequences of non-compliance (if applicable) ► Action/note	This symbol alerts you to situations which may result in damage to property.


## 1.2 Symbols

-  Additional information, tips
-  Permitted or recommended
-  Forbidden or not recommended
-  An explanatory video clip on the topic is provided on the DVD

## 2 Basic safety instructions

### 2.1 Requirements for personnel

- Installation, commissioning, operation and maintenance of the measuring system may be carried out only by specially trained technical personnel.
- The technical personnel must be authorized by the plant operator to carry out the specified activities.
- The electrical connection may be performed only by an electrical technician.
- The technical personnel must have read and understood these Operating Instructions and must follow the instructions contained therein.
- Faults at the measuring point may only be rectified by authorized and specially trained personnel.

 Repairs not described in the Operating Instructions provided must be carried out only directly at the manufacturer's site or by the service organization.

### 2.2 Designated use

- The Commubox FXA291 connects Endress+Hauser field devices with a CDI interface (CDI = Endress+Hauser Common Data Interface) and the USB port of a computer or laptop. This enables the remote operation and execution of service functions of the field devices using an Endress+Hauser operating program, e.g. FieldCare for plant-specific asset management for example.
- The Commubox is a USB low-power device that is powered via the USB port of the computer.

Use of the device for any purpose other than that described, poses a threat to the safety of people and of the entire measuring system and is therefore not permitted.

The manufacturer is not liable for damage caused by improper or non-designated use.

### 2.3 Workplace safety

As the user, you are responsible for complying with the following safety conditions:

- Installation guidelines
- Local standards and regulations
- Regulations for explosion protection

#### Electromagnetic compatibility

- The product has been tested for electromagnetic compatibility in accordance with the applicable European standards for industrial applications.
- The electromagnetic compatibility indicated applies only to a product that has been connected in accordance with these Operating Instructions.

### 2.4 Operational safety

1. Before commissioning the entire measuring point, verify that all connections are correct. Ensure that electrical cables and hose connections are undamaged.
2. Do not operate damaged products, and safeguard them to ensure that they are not operated inadvertently. Label the damaged product as defective.
3. If faults cannot be rectified:  
Take the products out of operation and safeguard them to ensure that they are not operated inadvertently.

## 2.5 Product safety

The product is designed to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which it is safe to operate. The relevant regulations and European standards have been observed.

Devices connected to the sampler must comply with the applicable safety standards.

## 3 Incoming acceptance and product identification

### 3.1 Incoming acceptance

1. Verify that the packaging is undamaged.
  - ↳ Notify your supplier of any damage to the packaging.  
Keep the damaged packaging until the matter has been settled.
2. Verify that the contents are undamaged.
  - ↳ Notify your supplier of any damage to the delivery contents.  
Keep the damaged products until the matter has been settled.
3. Check the delivery for completeness.
  - ↳ Check it against the delivery papers and your order.
4. Pack the product for storage and transportation in such a way that it is protected against impact and moisture.
  - ↳ The original packaging offers the best protection.  
The permitted ambient conditions must be observed (see "Technical data").

If you have any questions, please contact your supplier or your local sales center.

### 3.2 Product identification

#### 3.2.1 Nameplate

The nameplate provides you with the following information on your device:

- Manufacturer identification
- Order code
- Extended order code
- Serial number
- Firmware version
- Ambient and process conditions
- Input and output values
- Activation codes
- Safety information and warnings
- Cell constant (nominal value)
- Protection class
- Ex labeling on hazardous area versions

-  Compare the data on the nameplate with your order.

#### 3.2.2 Product identification

Product page

[www.endress.com/fxa291](http://www.endress.com/fxa291)

### 3.3 Scope of delivery

The scope of delivery comprises:

- Commubox FXA291
- USB cable, ready-wired on box side
- Connecting cable, ready-wired on box side
- Cable for standard adapter FXA291
- Installation CD

**USB Commubox FXA291 Serial Port Driver:**

Is automatically installed via the hardware detection function. See the documentation on the installation setup for this purpose. Follow the installation instructions.

### 3.4 Certificates and approvals

#### 3.4.1 CE mark

The product meets the requirements of the harmonized European standards. As such, it complies with the legal specifications of the EC directives. The manufacturer confirms successful testing of the product by affixing to it the **CE** mark.

#### 3.4.2 Ex approvals

- ATEX II (1) G [Ex ia Ga] IIC
- ATEX II (1) D [Ex ia Da] IIIC
- FM IS Circuits Cl. I, Div. 1, Gr. A-D
- CSA IS Outputs Cl. I, Div. 1, Gr. A-D

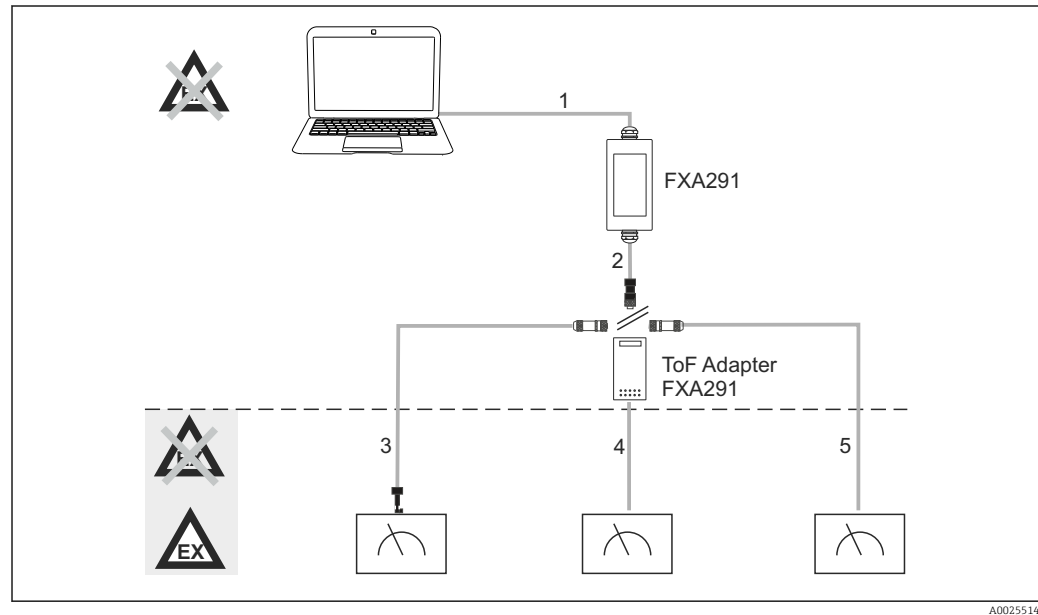
## 4 Power supply

### 4.1 Connection conditions

#### NOTICE

**Non-designated use in hazardous areas can damage the device**

- ▶ Only use the Commubox FXA291 in non-explosive atmospheres.
- ▶ Comply with the warning, installation and operating instructions in the Ex documentation for field devices with a CDI interface.



**1** Possible applications of Commubox FXA291

- 1 Cable between FXA291 and USB of the computer
- 2 Cable between FXA291 and M8 connector
- 3 Cable of standard adapter FXA291 (for measuring devices in all work areas)
- 4 Cable for ToF field devices (for pressure and level)
- 5 Cable for additional level measuring devices

**i** For reasons of safety, only the ToF adapter FXA291 may be used to connect to devices FMR2xx, FMR53x, FMR540, FMP4x, FMU4x, PMC71, PMP7x, PMD7x, FMD7x, FMB70, FMG60.

For information on the field devices, see [www.endress.com/FXA291](http://www.endress.com/FXA291).

### 4.2 Connection

- For computers: USB 1.1 and 2.0 compatibility, 4-pin USB connector, type A
- For transmitters: CDI connectors, short-circuit proof with reverse polarity protection

**i** The USB and adapter cable are ready-wired on the box side upon delivery and secured with a cable gland.

### 4.3 Supply voltage

- Voltage range: from the USB port on the PC, typically 5VDC
- Field devices powered up to 100 mW via VCC, reverse polarity protection



## 4.4 Intrinsically safe signal circuit

For connecting an intrinsically safe circuit with type of protection [Ex ia] IIC with:

- Connection voltage: < 7 VDC
- $U_m$ : 260V

**i** With Commubox FXA291, the intrinsically safe connection and non-intrinsically safe connection are protected. Therefore, it is possible to connect non-Ex devices to the intrinsically safe side of a Commubox FXA291 without this affecting approval to connect an Ex-device subsequently.

# 5 Commissioning

## 5.1 Connecting the Commubox

### 5.1.1 System requirements

- USB port (USB 1.1 or 2.0)
- DVD/CD-ROM drive
- Windows 8 / Windows 7 / Windows XP

### 5.1.2 Connecting the computer and the measuring device

#### NOTICE

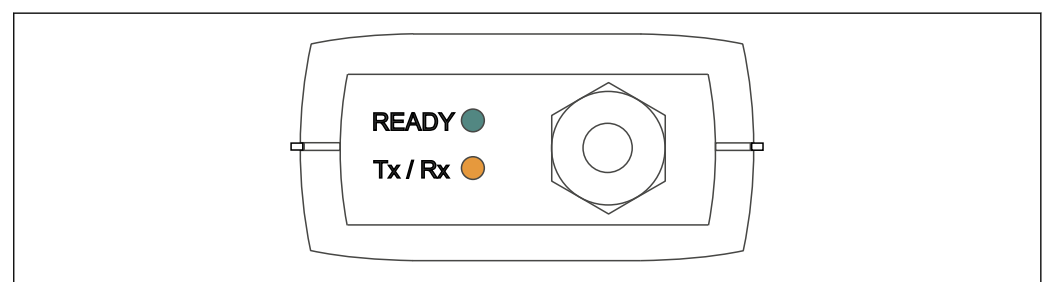
##### Incorrect adapter cable

Can render the approved explosion protection properties invalid


- Only use the TOF adapter FXA291 - which is available as a accessory - to connect the Commubox to the CDI interface of the following devices: FMR2xx, FMR53x, FMR540, FMP4x, FMU4x, PMC71, PMP7x, PMD7x, FMD7x, FMB70, FMG60.

1. Connect the CDI connector of the adapter cable to the CDI interface of your measuring device.
2. Switch on the computer.
  - ↳ Wait until your operating system is completely ready.
3. Connect the USB cable of the Commubox to a USB port of your computer.
  - ↳ Wait until the connection is detected automatically. Where applicable, confirm the installation of necessary, automatically detected drivers.
4. Start communication with the measuring device, e.g. via FieldCare for example.

## 5.2 Signals displayed



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 2 Indicator lights (USB connection/PC side)

Signal	Light	Meaning
READY	Green	Commubox FXA291 is operational
Tx / Rx	Red	Communication from computer to field device
Tx / Rx	Yellow	Communication from field device to computer
Tx / Rx	Orange	Duplex communication


## 6 Maintenance and repair

### 6.1 Cleaning

Remove any dirt on the Commubox with a damp cloth only. Depending on the type of dirt, you can also dip the cloth in cleaning agent to clean the Commubox.

1. Oily and greasy films:  
Use a grease remover, e.g. ethanol or isopropyl alcohol.
2. Lime and metal hydroxide buildup:  
Dissolve buildup with diluted hydrochloric acid (3 %). Then rinse the cloth several times with clear water and wipe again.
3. Buildup containing proteins (e.g. food industry):  
Use a mixture of hydrochloric acid (0.5 %) and pepsin (commercially available). Then rinse the cloth several times with clear water and wipe again.

### 6.2 Accessories

 The following are the most important accessories available at the time this documentation was issued. For accessories not listed here, please contact your service or sales office.

#### ToF adapter FXA291

- Including cable to ToF devices
- Power limitation for connection between FXA291 and input of intrinsically safe ToF M devices
- Prevents breaching of Ex-approved limit values of ToF devices
- Does not affect the baud rate for digital communication and the installation of software upgrades for field devices
- Order No. 71007843

### 6.3 Return

The product must be returned if repairs or a factory calibration are required, or if the wrong product was ordered or delivered. As an ISO-certified company and also due to legal regulations, Endress+Hauser is obliged to follow certain procedures when handling any returned products that have been in contact with medium.

To ensure swift, safe and professional device returns, please read the return procedures and conditions at [www.endress.com/support/return-material](http://www.endress.com/support/return-material).

### 6.4 Disposal

The device contains electronic components and must therefore be disposed of in accordance with regulations on the disposal of electronic waste.

Observe the local regulations.

# 7 Technical data

## 7.1 Communication and data processing

Communication between the computer and FXA291

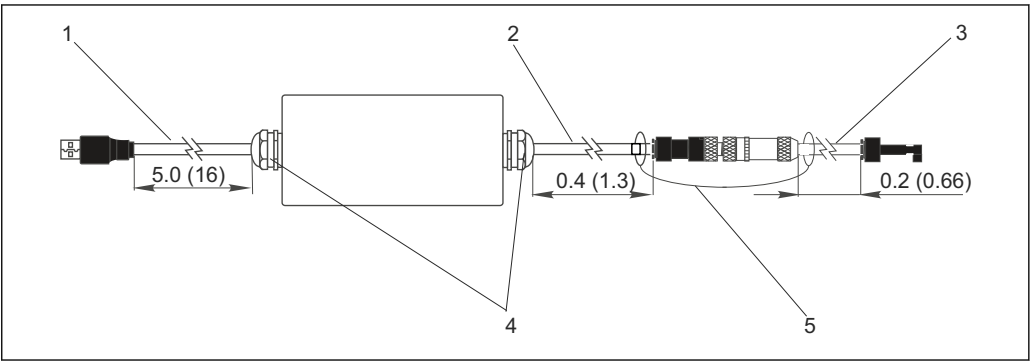
- Baud rate: 2400 to 115.2k
- Data bits: 8
- Stop bits: 1
- Parity: none
- Start bits: 1
- Duplex communication

## 7.2 Environment

Ambient temperature range	-20 to +60 °C (0 to 140 °F)
Storage temperature	-40 to +85 °C (-40 to 185 °F)
Degree of protection	IP51, NEMA/type 3
Relative humidity	0 to 95 %, non-condensating

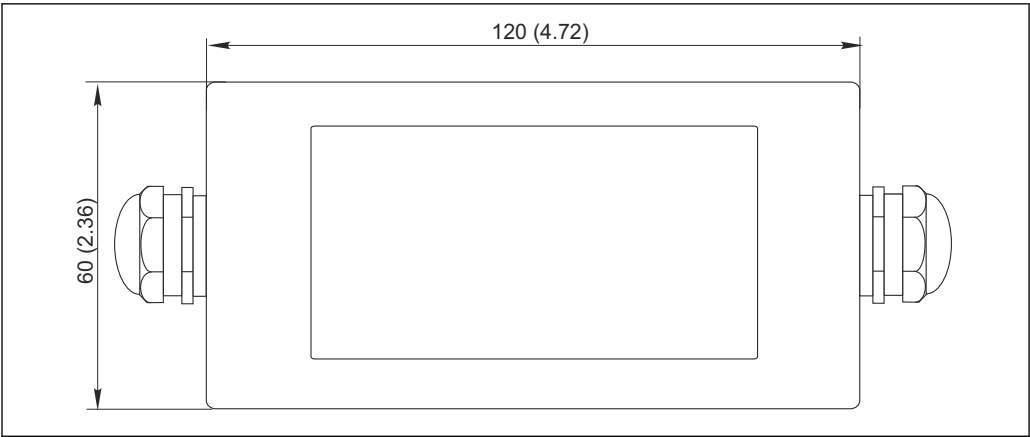
## 7.3 Mechanical construction

Design, dimensions



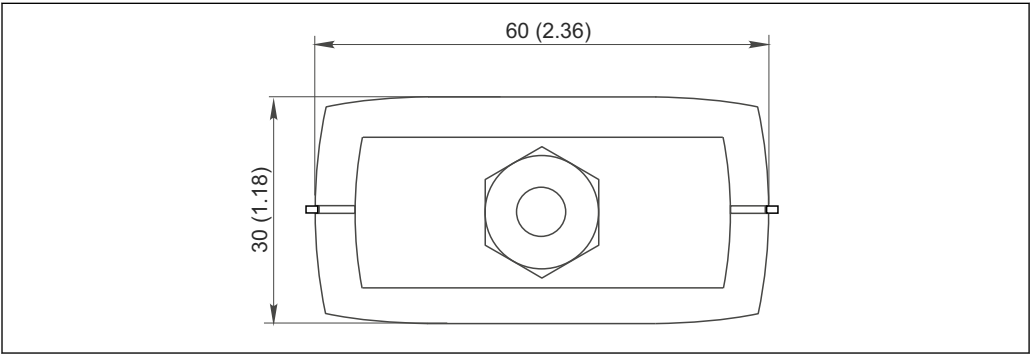
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- 3 Commubox FXA291 and components, dimensions in m (ft)
- 1 Cable between Commubox FXA291 and the USB port of the PC
  - 2 Cable with CDI connection socket and M8 connection plug for ToF adapter
  - 3 Cable for standard adapter with CDI connector
  - 4 Cable glands
  - 5 Safety cord



A0005926

4 Top view, dimensions in mm (inch)



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5 Side view (CDI connection/device side), dimensions in mm (inch)

Weight	Approx. 0.2 kg (0.44 lbs)	
Materials	Housing:	ABS
	Front foil:	Polyester
USB port	Personal computer and Commubox FXA291 = USB signal as per USB specification	
CDI interface	Measuring device(s) and Commubox FXA291 = Endress+Hauser Service protocol	









[www.addresses.endress.com](http://www.addresses.endress.com)

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