Technical Information

Commubox FXA195

Intrinsically safe interface for Smart transmitters.
Converts HART protocols to USB signals.

Application

Commubox FXA195 connects intrinsically safe Smart transmitters with HART protocol to the USB port of a personal computer or laptop. This makes the remote operation of the transmitters possible with the aid of the Endress+Hauser FieldCare and ReadWin operating programs.

Commubox FXA195 is powered by means of the USB port. It is supplied with a 4mm/2mm adapter cable.

Your benefits

- Remote commissioning of field devices directly from the control room or anywhere in the current loop.
- Full support for FieldCare and ReadWin operating programs.
- For connection to intrinsically safe circuits (4...20 mA).
- Reactionless in accordance with IEC 61508 for connection to 4...20 mA SIL 2 loops.
- Switchable communication resistor

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Function and system design

Measuring system

In HART operation, a transmitter is operated by means of a minimum load of 250 Ω.

Note!
Please observe the max. total load of the Smart transmitter!

Note!
The communication resistor (270 Ω) integrated in Commubox should not be connected in parallel to a power supply point greater than 15 V. If the communication resistor is used, it should always be looped into the 4...20 mA circuit

Note!
Once Commubox FXA195 has been used in a non–Ex installation, it should never be used in an Ex installation, as there is a danger that the protective circuits have been inadvertently overloaded and no longer function correctly. See also Safety Instructions XA336F/00/a3.
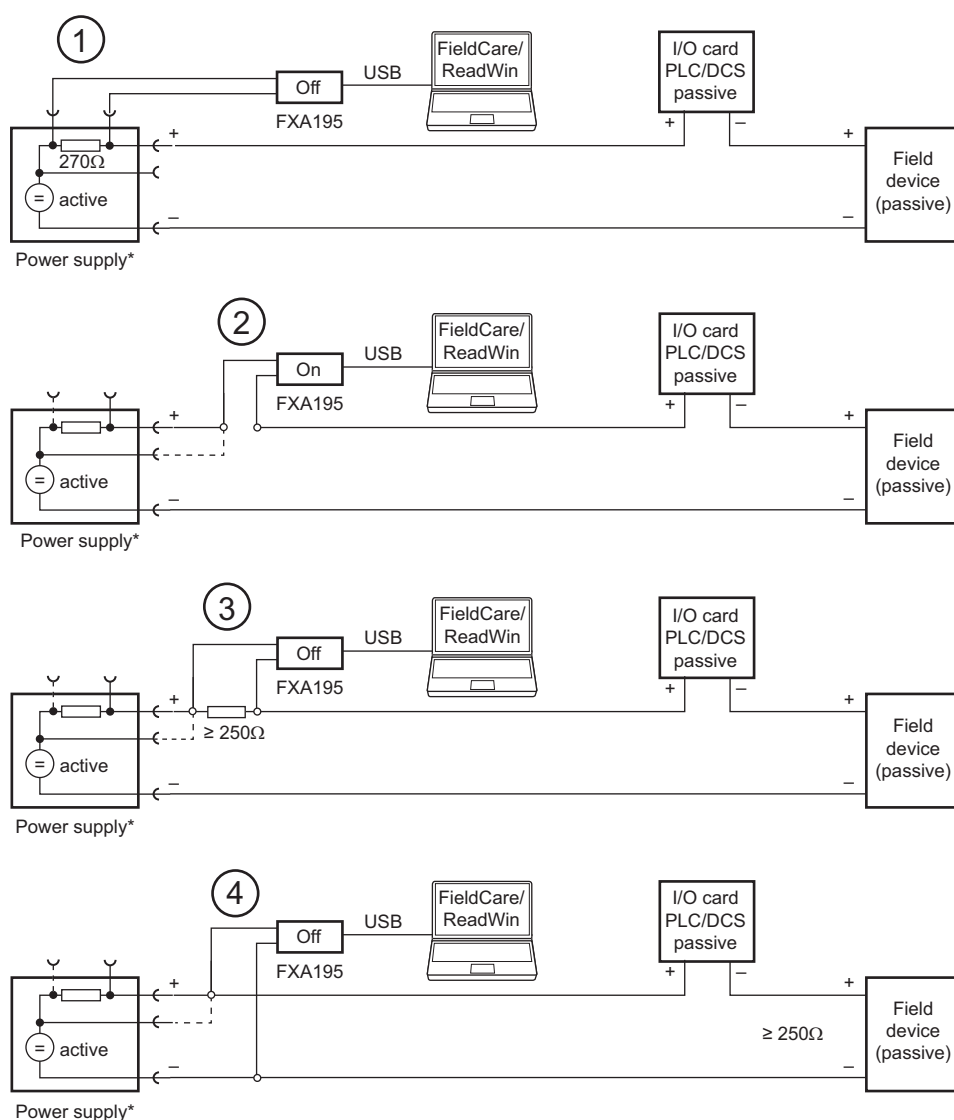
Fig. 1: Operation of Commubox FXA195 in a loop powered by a transmitter power supply
    ① *From the controlroom via the communication sockets of the transmitter power supply*
    ② *In the loop (communication resistor of FXA195 on)*
    ③ *Via a ≥ 250 Ω resistor (recommended 270 Ω – 330 Ω) in the loop*
    (communication resistor of FXA195 off)
    ④ *In the loop (loop resistance ≥ 250 Ω)*

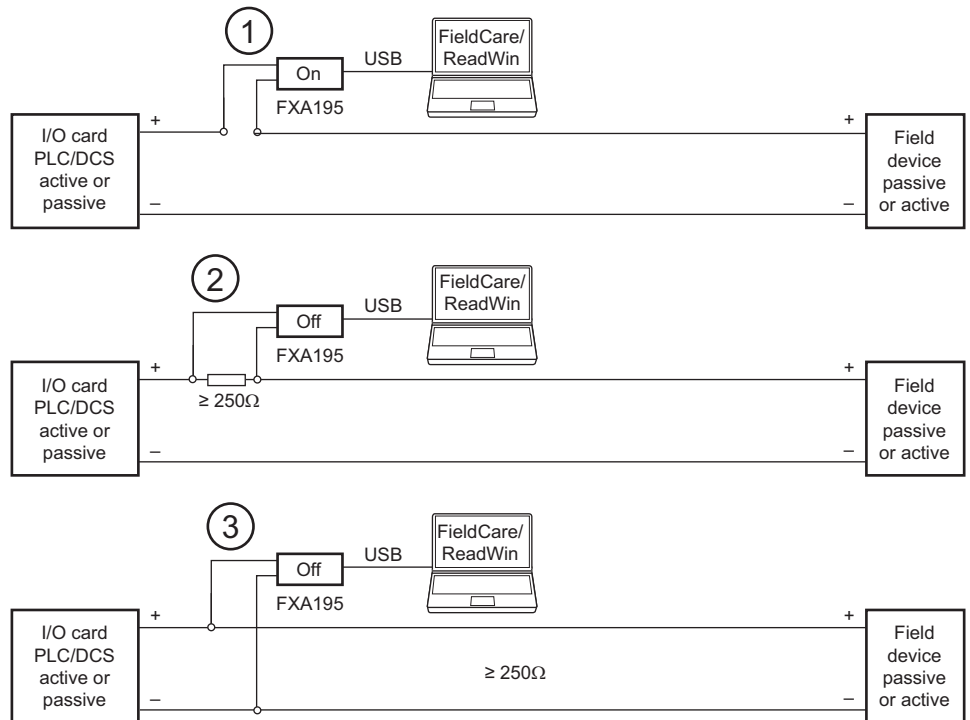**Measuring system continued**

Fig. 2: Operation of Commubox FXA195 in a control loop (I/O card active/device passive or vice versa)
  ① In the loop (communication resistor of FXA195 on)
  ② Via a ≥ 250 Ω resistor (recommended 270 Ω – 330 Ω) in the loop
  (communication resistor of FXA195 off)
  ③ In the loop (loop resistance ≥ 250 Ω)

Input/output

USB port	Personal computer ↔ Commubox FXA195 = USB signal as per USB specification.
HART interface	Measuring device(s) ↔ and Commubox FXA195 = HART signal as per HART specification.

Power supply

Connection	■ For computer: USB port ■ For transmitter: adapter bushing, 4 mm, independent of polarity ■ Adapter cable 4mm/2mm supplied
Supply voltage	Voltage range: from the USB port of the personal computer, $5V_{DC}$. Current consumption: < 20 mA
Intrinsically safe signal circuit	BVS 05 ATEX E 039 For connecting an intrinsically safe circuit with explosion protection [EEx ia] IIC with the following maximum value: connection voltage up to 30 V_{DC}.

Operating conditions: Environment

Permitted ambient temperatures	■ Nominal operating range: –20 °C ... +50 °C ■ Storage temperature: –40 °C ... +85 °C ■ Humidity: 0 % ... 95 % (no condensation)
Electromagnetic compatibility (EMC)	Interference Emission to EN 61326, Electrical Equipment Class B. Interference immunity to EN 61326.
Application in conjunction with protection functions	Commubox FXA195 can be connected reactionless to protection functions that are graded as SIL 2 in accordance with IEC 61508.

SFF[1]	60%

1) SFF (safe failure fraction) = proportion of safety-related faults

TI[1]	PFD_{avg}[2]
1 year	1.23×10^{-6}
5 years	6.13×10^{-6}
10 years	1.23×10^{-5}

1) TI = test interval between function tests of the protection function (in years)

2) PFD_{avg} = average probability of dangerous failure on demand

Mechanical construction

Design, dimensions	Housing dimensions: 143 x 60 x 30 mm.
Weight	approx. 200 g

Certificates and approvals

CE mark	The Commubox meets the legal requirements of the EC directives. Endress+Hauser confirms that the device has been successfully tested by applying the CE label.
Ex-approval	See ordering information.
External standards and guidelines	Other standards and guidelines that were taken into account when designing and developing FXA195.

EN 60529

Ingress protections for housing (IP code)

EN 61010

Safety requirements for electrical equipment for measurement, control and laboratory use

EN 61326

Interference emission (Class B operating equipment), interference immunity (Appendix A – industrial sector)

Ordering information

Commubox FXA195

10		Approval:
	G	ATEX II (1)GD EEx ia IIC
	P	FM IS CL.I,II,III Gr.A-G
	S	CSA IS CL.I,II,III Gr.A-G
	Y	Special version

20		Additional Option:
	1	Basic version
	9	Special version
FXA195-		Complete product designation

System requirements

Hardware and software

Hardware	Minimum
Processor	Pentium 500 MHz or higher
Interface	USB 1.1, 2.0, 3.0
Drives	CD-ROM drive

Endress+Hauser operating program
FieldCare
HART OPC server
ReadWin 2000

Operating system	Edition	Service Pack	Bits
Windows XP	Professional	SP2, SP3	32 Bit
Windows Server 2000	Standard R2 Enterprise R2	SP2 SP2	32 Bit 32 Bit
Windows Vista	Ultimate Business Enterprise	SP1, SP2 SP1, SP2 SP1, SP2	32 Bit 32 Bit 32 Bit
Windows 7	Professonal Ultimate Enterprise	No SP, SP1 No SP, SP1 No SP, SP1	32 Bit/64 Bit 32 Bit/64 Bit 32 Bit/64 Bit

Installation

Scope of delivery

A CD-ROM with the following programs is supplied with Commubox FXA195:
- **USB drivers** – these are automatically installed by means of hardware detection.
- **PreInstaller** – you can use this program to install the USB drivers manually. To do so, you must first start the executable program (.exe) from the CD-ROM, follow the installation instructions and then connect the Commubox to the personal computer.

Installing the USB driver

Note!
Please note that you require Windows Administrator rights!

1. Insert the FXA195 CD-ROM in the CD-ROM drive of your computer

2. Connect the Commubox FXA195 to a free USB interface on your computer

3. Follow the instructions of the set-up program which now appears

Documentation

Supplementary documentation
- Safety Instructions XA336F/00/a3

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