Level | Pressure | Flow | Temperature | Liquid Analysis | Registration | Systems Components | Services | Solutions

Technical Information

Fieldgate FXA720

Ethernet gateway with integrated Web server for communication with PROFIBUS devices

Application

Fieldgate FXA720 is an Ethernet/PROFIBUS DP gateway with integrated Web server. It may be equipped with up to three PROFIBUS DP ports.

Fieldgate FXA720 is suitable for several applications:
- Inventory control
- Remote monitoring and device diagnosis
- Plant access point

For inventory control, remote monitoring and device diagnosis, the connected devices can be viewed with a Web browser: limit values can be set by the user. In pass through mode, Fieldgate FXA720 acts as a simple PROFIBUS DP gateway for host applications.

Features and Benefits
- Quick set-up via Web browser
  – No configuration tool necessary
- Communication via Internet
  – Worldwide access to sensor data
- User Management
  – Limits access to authorised persons
- Integrated Web server
  – Values available to any Web browser
- Alarming and event messaging
  – E-mail about device status
- Data offered in HTML and XML format
  – Seamless data integration into MS Office, P View and FieldCare
- CommDTM supplied
  – Simple integration into FDT frame applications, e.g. FieldCare
- Monitoring via OPC
  – OPC server can be supplied.

TI020S/04/en/07.07
56004869

Endress+Hauser
People for Process Automation

Function and System Design

Function

Fieldgate FXA720 is a Ethernet/PROFIBUS gateway with integrated Web server that can be used as:

- a pass-through interface within a PROFIBUS monitoring and control system
- a plant access point for device diagnostics and maintenance
- a remote data acquisition module for PROFIBUS devices connected to its output ports

It connects host systems to PROFIBUS DP networks via Ethernet and can be equipped with up to three PROFIBUS DP channels, each giving access to up to 125 PROFIBUS DP devices.

Within a control system, Fieldgate ensures transparent vertical communication by acting as a simple pass-through gateway. A CommDTM allows it to be integrated into a FDT frame application such as FieldCare. For Web applications, the unit contains a Web server that generates HTML pages for viewing in a standard internet Web browser. It also offers XML data for e.g. Office applications. An optional PROFIBUS OPC server facilitates data exchange with HMI/SCADA applications such as ControlCare P View or with PROFIBUS devices.

System design
Network applications

In this application, Fieldgate FXA720 provides the connection between host applications running on Ethernet and PROFIBUS devices connected to a PROFIBUS DP or PROFIBUS PA network.

Examples of applications running on Ethernet are:

- HMI/SCADA programs, e.g. ControlCare P View
- Asset Management tools, e.g. FieldCare
- Configuration tools, e.g. FieldCare
- Microsoft® Office and ERP applications

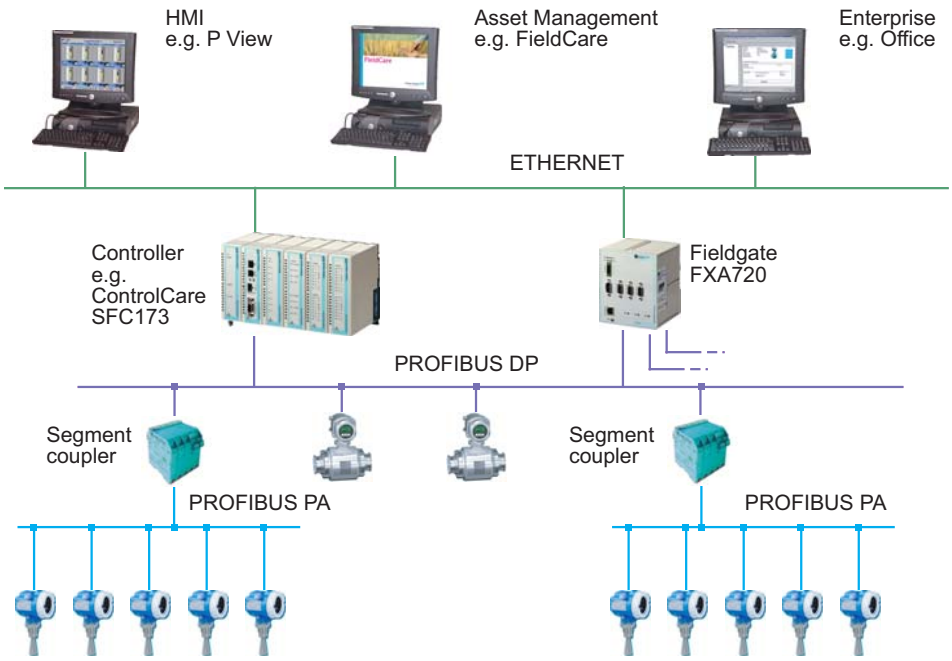


Fig. 1: Transparent communication in a PROFIBUS Network

Web-based applications

In this application Fieldgate works together with a standard Web browser and related technologies. The devices to be monitored or configured are connected to the Fieldgate FXA720 via max. three PROFIBUS DP channels, to which PROFIBUS DP devices can be connected directly. PROFIBUS PA devices are connected to the DP segment via a segment coupler.

The remote connection is made either by:
- Ethernet port/Remote wireless LAN access points
- Ethernet port/Internet

The following applications may be running on the monitoring station:
- Microsoft® Office applications (on-line data acquisition and display)
- Fieldgate Viewer (data acquisition and simple visualization)
- ControlCare P View (SCADA application with trends and historian)
- FieldCare (Asset Management, configuration) or other configuration tool

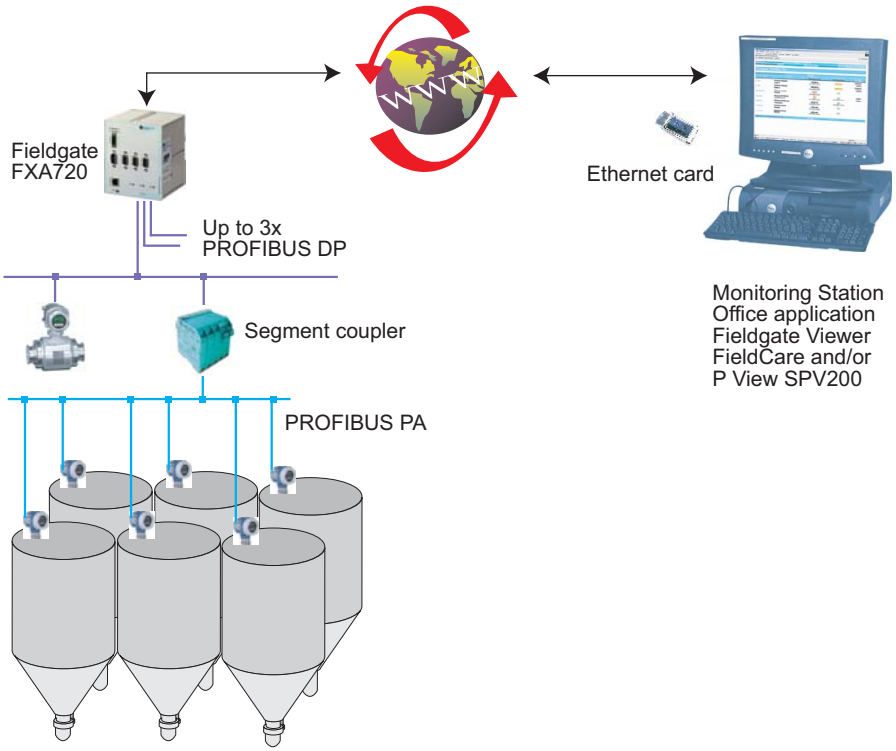


Fig 2: Remote monitoring via Ethernet

Input

PROFIBUS DP Input

Channels

One, two or three PROFIBUS DP input channels (RS-485), depending upon version.

Communication type

PROFIBUS DP/V1, Master Class II

Profile type:

Profile 3.0 for PROFIBUS PA devices
The live list and scan functions are designed to work for PROFIBUS Profile 3.0 devices. Depending upon the device, Profile 2.0 devices may work correctly, but no guarantee can be given

Transmission rate

Selectable for Web browser: 9.6 kbit/s, 19.2 kbit/s, 45.45 kbit/s, 93.75 kbit/s, 187.5 kbit/s, 500 kbit/s, 750 kbit/s, 1.5 Mbit/s, 3 Mbit/s, 6 Mbit/s, 12 Mbit/s

Galvanic isolation

Up to 500 VDC

Connector

9-pin female D-sub connector with following pin assignment:

Pin #	Signal	Description
1	SHIELD	Housing
2	NC	Not assigned
3	RxD/TxD-P	PROFIBUS signal B/B'
4	/RTS	RTS
5	GND	Ground
6	VCC	Bus-termination power supply (load 10mA max.)
7	NC	Not assigned
8	RxD/TxD-N	PROFIBUS signal A/A'
9	NC	Not assigned

Cable

Standard RS-485 cable

Cable length

Max. length dependent upon transmission rate:

Transmission rate (kbit/s)	9.6 – 93.75	187.5	500	750	1500	≥ 3000
Max. length (m)	1200	1000	400	300	200	100

Cable length can be increased by the use of max. three repeaters

No. of devices

Physical: Max. 31 PROFIBUS DP devices per channel,
Max. 125 PROFIBUS DP devices if repeaters are used
Logical Max. 125 PROFIBUS DP devices

Network topology

In accordance with the recommendations of the PROFIBUS DP specification, see also Operating Instructions BA 034S/04/en.

- PROFIBUS PA devices are integrated via segment couplers
- By using the appropriate certified network components, it is possible to operate both PROFIBUS DP and PROFIBUS PA devices in explosion hazardous areas.

Output

Ethernet Output

Communication type	10Base-T/100Base-TX
Transmission rate	10 Mbits/s and 100 Mbits/s with automatic recognition
Connector	RJ45 male connector
Cable	Twisted pair category 5 cable. ▪ Use a crossover cable if Fieldgate is to be connected directly to a Ethernet NIC card ▪ Use a straight through cable if the connection is to be made via a hub or switch
Cable length	In accordance with Ethernet specifications

Web Server Output

Access	Via standard Web browser, e.g. Internet Explorer, Netscape etc.
Security	Password protected with user roles executive, maintenance and administrator, each with specific access rights
Main pages	HTML pages with possibility of export as XML document ▪ Overview of measured values and status from PROFIBUS DP networks connected to Web server ▪ Live list of devices from PROFIBUS DP networks connected to Web server
Functionality	Security setup, Network setup, PROFIBUS setup (Web server connections), Localisation, HH, H, L, LL limit values with corresponding alarming (Web server values), Event monitoring, e-mail service (Web server values)

Power Supply

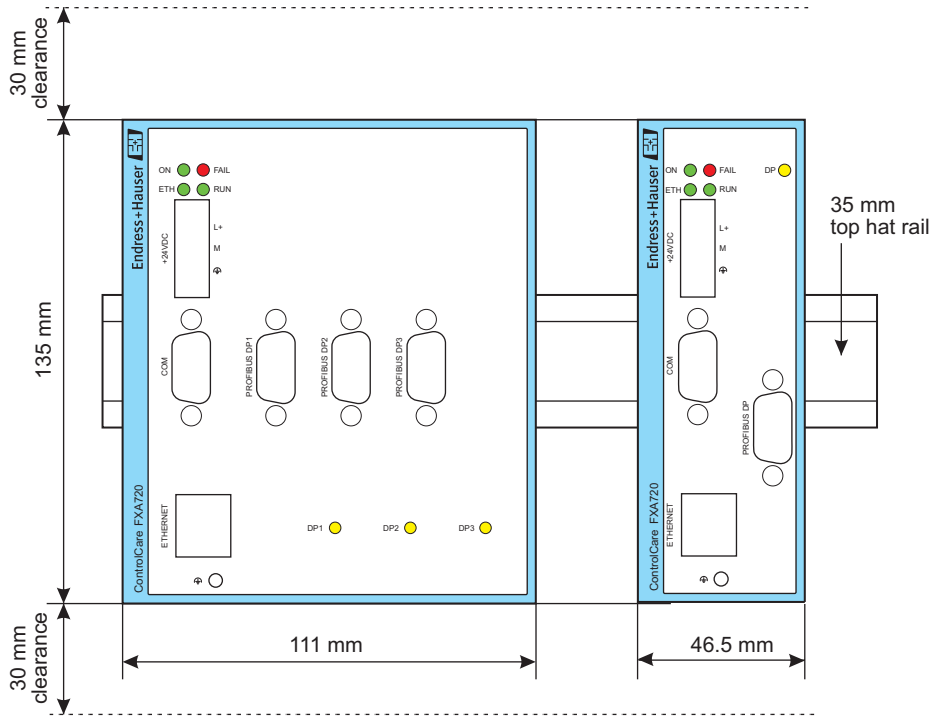
Electrical connection	Via female power supply socket on front panel, Supplied with male power connector for wires of cross-section 0.75 to 1.5 mm^2 Grounding via socket to protective ground with wire of cross-section1.5 mm^2 Additional grounding screw on front panel for use in areas with high electromagnetic interference
Power supply	24 VDC ± 10%, including residual ripple
Current consumption	0.6 A, depending upon load
Start-up current	Max. 3 A
Fuse	Internal 30 V safety fuse, replacable by manufacturer only

Operating Conditions

Installation

Installation instructions

Location:	Control cabinet or protective outdoor enclosure not mounted in direct sunlight.
Mounting:	TS35 DIN top hat rails (EN 50022)
Orientation:	Vertical with ventilating ducts are at the top and bottom of the unit
Ventilation:	The device is convection-cooled. A ventilation space of at least 30 mm above and below the device is required.



Environment

Mounting location	Cabinet or protective housing
Ambient temperature range	-0° C to +55° C
Storage temperature	-20° C to +70° C
Relative air humidity	max. 90% at +25°C (non-condensing)
Vibration resistance	EN 60068-2-6: 10 Hz ≤ f ≤ 57 Hz: 0.075 mm 57 Hz ≤ f ≤ 150 Hz:1.0 g
Shock resistance	EN 60068-2-27 15 g, 11 ms
Electromagnetic compatibility	This device complies with the requirements of the EC Directives 89/336/EEC "Electromagnetic Compatibility" (EMC directive). Emission: EN 50081-2:1993 Generic Emission Standard (industrial environments) EN 50022:1998 Class A (ITE Product Standard) EN 50011:1998 Group 1 Class A (ISM Product Standard) Immunity: EN 61000-6-2:1999 Generic Immunity Standard (industrial environments)

Mechanical Construction

Dimensions	(W x H x D):	3-port version	111 mm x 135 mm x 111 mm
		1-port version	46.5 mm x 135 mm x 111 mm
Weight	3-port version.	0.9 kg	
	1-port version	0.4 kg	
Material	Housing: ABS Front panel: Aluminium with protective polycarbonate foil Colour: light grey, RAL 7035 with blue		
Protection class	III		
Degree of protection	IP 20		
Degree of contamination	1		

Operability

Display elements	LEDs	PWR (green)	Power supply status
		ETH (green)	Ethernet communication
		RUN	For application-specific purposes, off by default.
		FAIL	For application-specific purposes, off by default (reboot).
		DP1, DP2, DP3 (green)	Token LEDs of the PROFIBUS Master Normally off for pass-through and remote monitoring unless bus has not been connected or is defective.
Device address	Default address 192.168.253.1, must be changed on commissioning for safety reasons		
Remote operation	Fieldgate FXA720 is supplied with a PROFIBUS driver that can be installed on the workstation for pass-through connection to a PROFIBUS network. The general software requirements are as follows:		

Operating system:	Windows 2000, SP 1 or higher Windows XP, Professional
Web browser:	MS Internet Explorer, > 5.0 with current security updates Netscape Navigator, > 4.7 with current security updates Mozilla Firefox, ≥ 1.0 with current security updates
Remote configuration	FieldCare, Version ≥ 1.0
Visualisation	Fieldgate Viewer, Version ≥ 1.0 ControlCare P View, Version ≥ 1.0

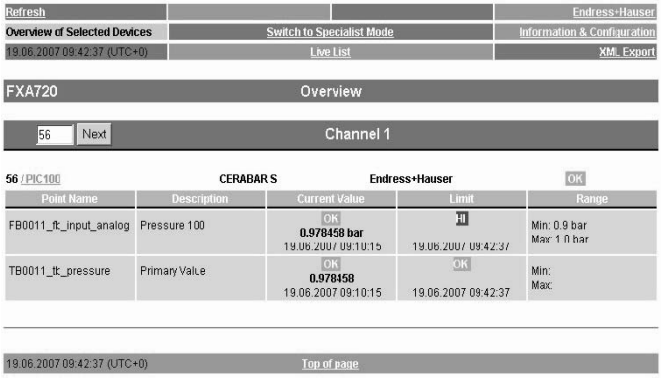


Fig. 3: Device overview page

Ordering information

Product Structure

Fieldgate FXA720					
	No. of Channels				
	1	1x PROFIBUS port			
	2	2x PROFIBUS ports			
	3	3x PROFIBUS ports			
	4	1x PROFIBUS port, small housing			
	9	Special version			
		Power Supply			
		E	24 VDC (±10%)		
		Y	Special version		
			Modem Interface		
			1	Ethernet 100Base-Tx/10Base-T	
			9	Special version	
				DAT Module	
				A	Without DAT module
				Y	Special version
FXA720-					**Product Designation**

Documentation

Fieldgate FXA720

- ❑ Fieldgate FXA720
  Operating Instructions BA030S/04/en
- ❑ Fieldgate Solutions
  Innovation Brochure IN005F/00/en
- ❑ Fieldgate Viewer SPV10
  Innovation Brochure IN001S/04/en
- ❑ PROFIBUS DP/PA Installation Guidelines
  Operating Instructions BA034S/04/en

Certificates and Approvals

CE Mark

In attaching the CE Mark, Endress+Hauser confirms that Fieldgate FXA 720 conforms to all relevant EU directives.

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

International Headquarters

Endress+Hauser
GmbH+Co. KG
Instruments International
Colmarer Str. 6
79576 Weil am Rhein
Deutschland

Tel. +49 76 21 9 75 02
Fax +49 76 21 9 75 34 5
www.endress.com
info@ii.endress.com

Endress+Hauser
People for Process Automation