

Technical Information

Field Xpert SFX350, SFX370

Industrial PDA for commissioning, monitoring and maintenance

Device configurator for HART and FOUNDATION fieldbus devices in Ex and Non-Ex areas



Application

Field Xpert is an industrial PDA with integrated touchscreen for commissioning and maintaining field devices in explosion hazardous and safe areas. It allows efficient configuration of FOUNDATION fieldbus, HART 5/6/7 and WirelessHART devices via Bluetooth and/or Wifi interfaces. A HART or FOUNDATION fieldbus Bluetooth modem allows direct connection with HART or FOUNDATION fieldbus H1 devices. A Wifi interface connects to HART or FOUNDATION fieldbus devices via a corresponding gateway.

Features and benefits

- Easy device access, optimized device configuration, adaptable configuration templates and clearly laid-out configuration reports save time during commissioning
- Clear device documentation saves time when devices are replaced. Transparent information on maintenance, diagnosis and troubleshooting increase plant safety and availability
- High-resolution, full VGA touchscreen (640x480 pixels) simplifies operation
- High degree of ingress protection and explosion protection mean that the Field Xpert can be used in all industries
- Seamless integration of calibration data in calibration management solutions saves time and increases the quality of device calibrations
- Mobile phone, camera (send photos of current status immediately by email), 1D laser scanner (barcode), 2D imager (e.g. DataMatrix code, QR code) and RFID, all provided as standard or optional, increase work productivity
- The open, vendor independent operating system means that additional Asset Management applications can be executed

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Function and System Design

Function

Field Xpert is a powerful, compact industrial PDA based on the Windows Embedded Handheld operating system and offering integrated WLAN, USB, Bluetooth and infrared interfaces. Bluetooth and WLAN allow it to communicate with HART or FOUNDATION fieldbus field devices via a modem or gateway. Thanks to its numerous Ex approvals, Field Xpert also fulfils the requirements of the process industry with regard to its use within safe and explosion hazardous areas. For more detailed information on connection options, refer to the **Connection** section.

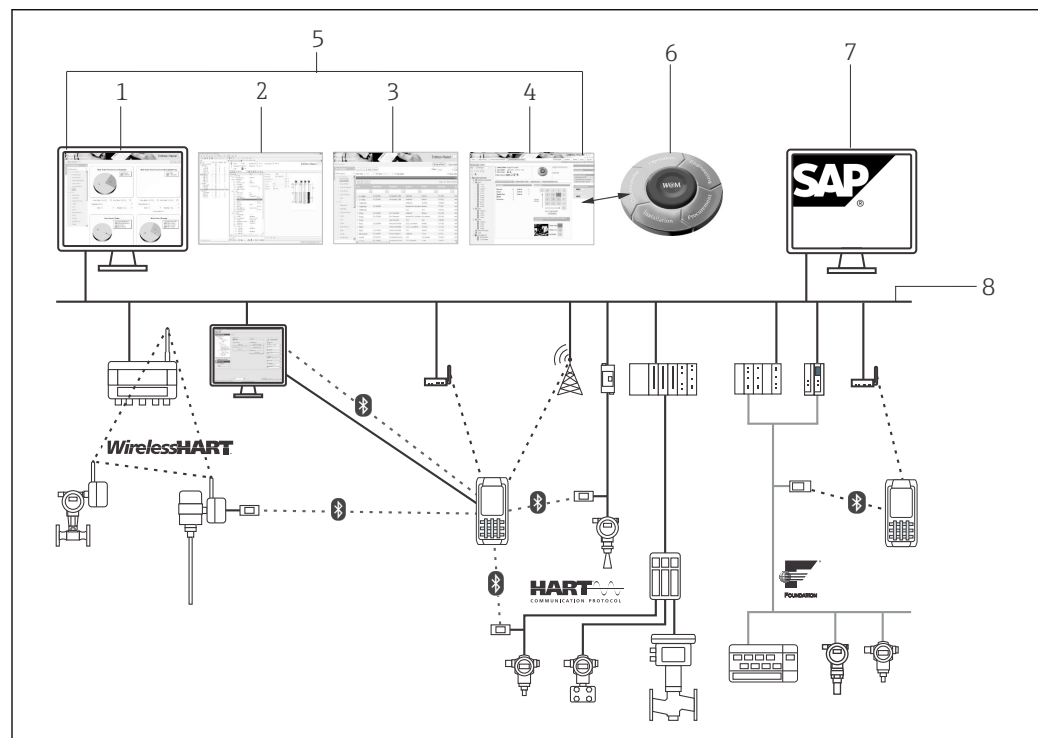
As soon as the Device Xpert software running on Field Xpert hardware establishes communication with a field device, it can be configured. Dependent upon the system architecture, either a single device is displayed, e.g. in HART point-to-point applications, or all devices on a segment, e.g. in a FOUNDATION fieldbus application.

System design

From a user perspective, Field Xpert is the mobile platform for Endress+Hauser Plant Asset Management applications:

- Device Xpert software covers all aspects of efficient device configuration and documentation.
- Cal Xpert is a mobile software solution for calibration management which optimizes the efficiency and quality of calibration and supports the quality standards for paperless calibration management
- Field Xpert's flexible design means that it is easy to extend its functionality through an RFID head module thus providing the basis for efficient and comprehensive device management.
- Optimum support for maintenance procedures:
 - Access to extended device diagnostics as well as interactive diagnostic categories, possible causes and remedies
 - Remote connection to maintenance experts via WLAN and telephone

Overview of Field Xpert's areas of application

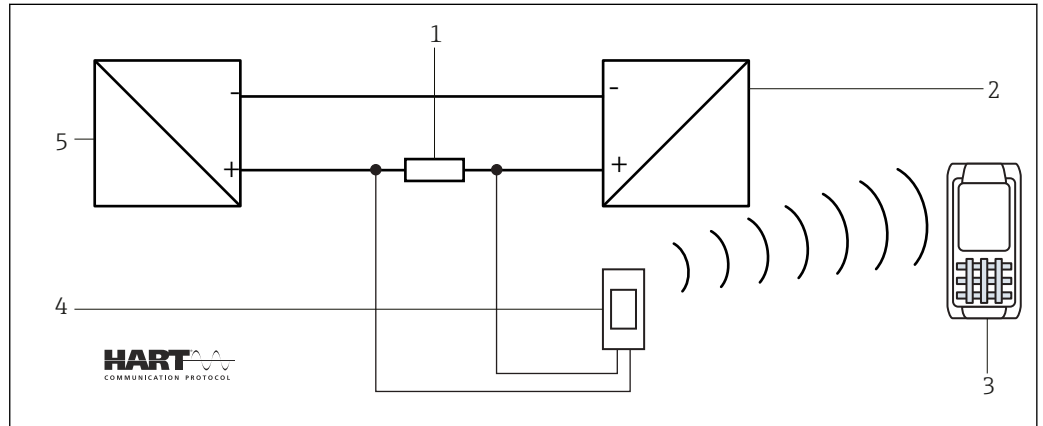


- 1 Maintenance management
- 2 Device configuration management
- 3 Calibration management
- 4 Asset Information Management
- 5 Asset Management System
- 6 W@M Life Cycle Management
- 7 ERP/MES/LIMS e.g. SAP PM

Connection

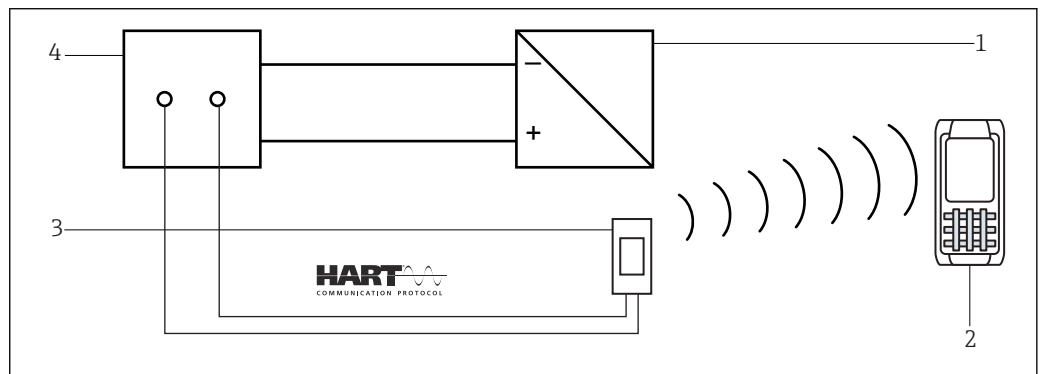
Connection to HART devices VIATOR Bluetooth modem

Connection via a load resistor

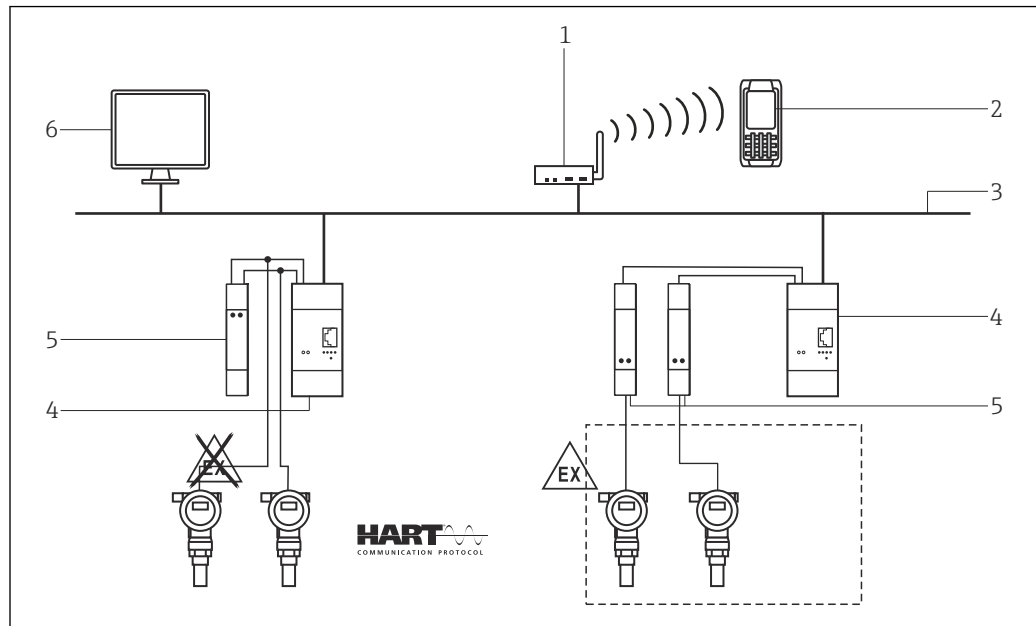


- 1 Load resistance: 250 to 1 100 Ω
- 2 HART device
- 3 Field Xpert
- 4 VIATOR Bluetooth modem
- 5 Transmitter power supply unit

Connection via a HART communication sockets

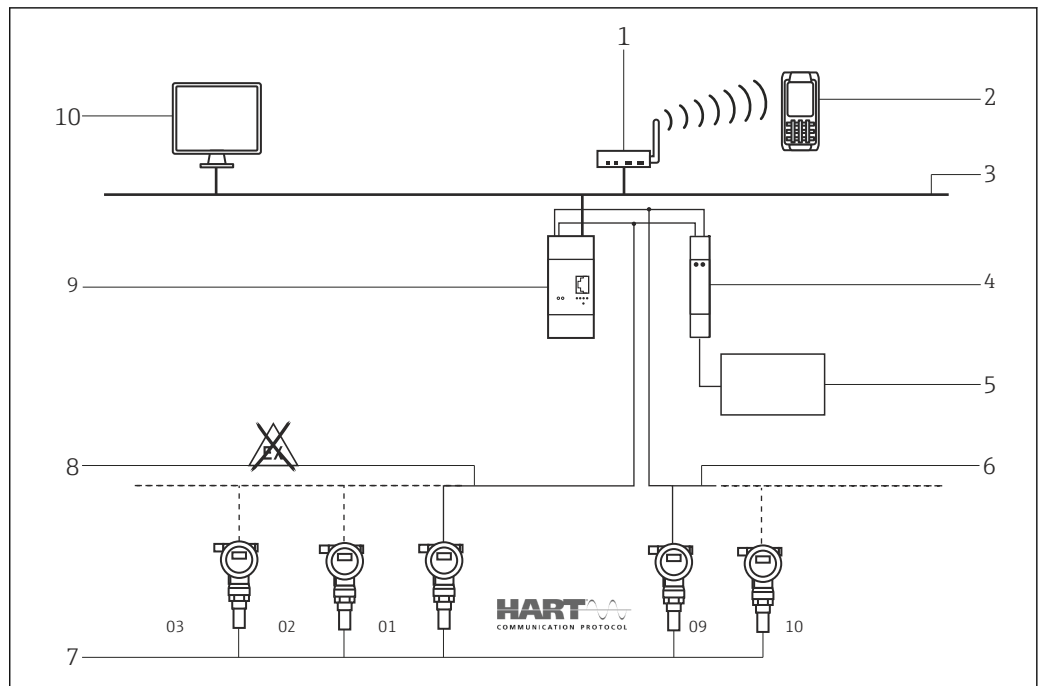


- 1 HART device
- 2 Field Xpert
- 3 VIATOR Bluetooth modem
- 4 Transmitter power supply unit

Wifi connection*Point-to-point connection via Fieldgate FXA520*

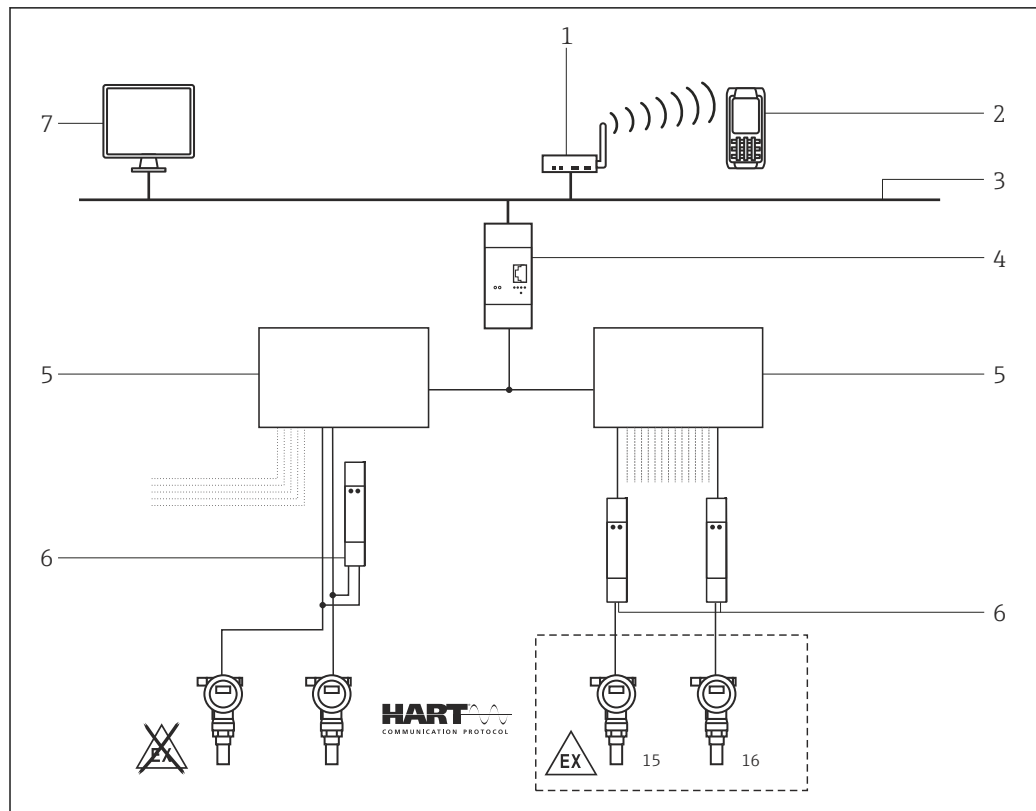
- 1 WiFi Access Point
- 2 Field Xpert
- 3 Ethernet
- 4 Fieldgate FXA520
- 5 e.g. RN221N-B
- 6 SCADA visualization

Multidrop connection via Fieldgate FXA520



- 1 WiFi Access Point
- 2 Field Xpert
- 3 Ethernet
- 4 Multidrop Connector FXN520
- 5 Supply voltage 24 VDC
- 6 Channel 2, up to 8 devices
- 7 Device addresses
- 8 Channel 1, up to 8 devices
- 9 Fieldgate FXA520
- 10 SCADA visualization

Multiplexer connection via Fieldgate FXA520

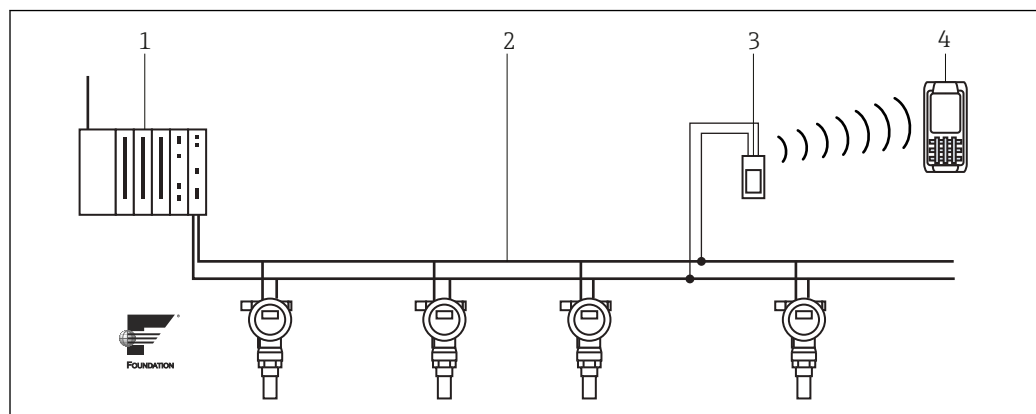


- 1 WiFi Access Point
- 2 Field Xpert
- 3 Ethernet
- 4 Fieldgate FXA520
- 5 MASTER HART Multiplexer, e.g. Pepperl+Fuchs KFD2-HMM-16 with a maximum of 15 devices
- 6 e.g. RN221N-B
- 7 SCADA visualization

Connection to FOUNDATION fieldbus devices

FFblue Bluetooth modem

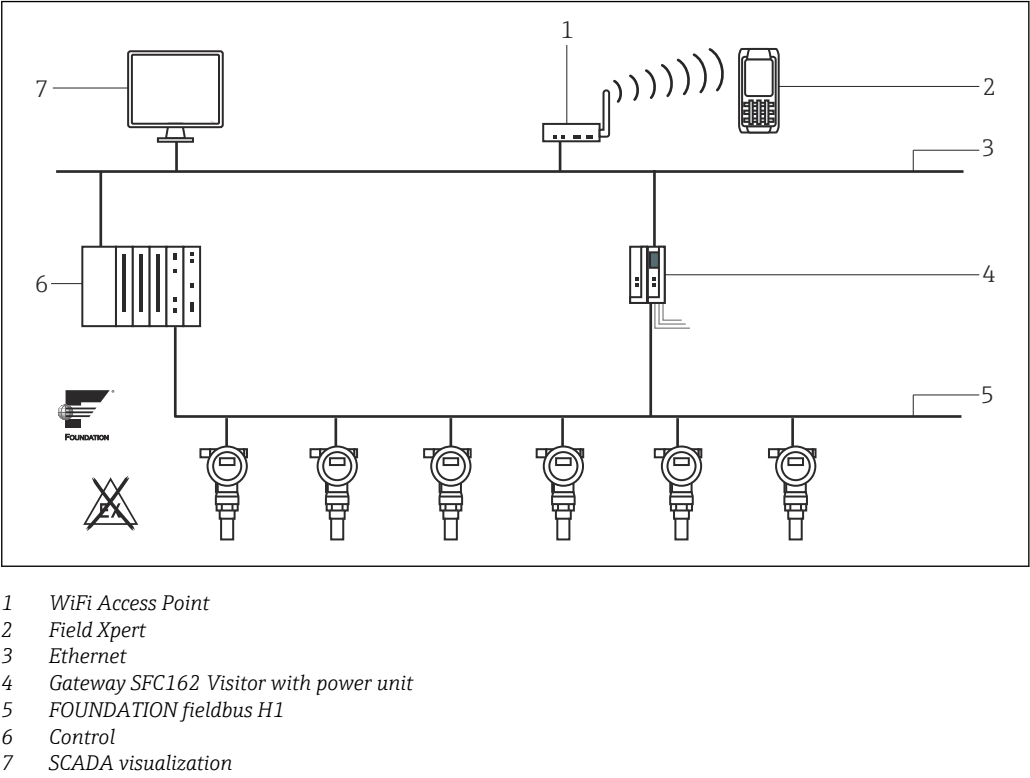
Direct connection via the bus



- 1 Operated by fieldbus power supply
- 2 FOUNDATION fieldbus H1
- 3 FFblue modem
- 4 Field Xpert

Wifi connection

Connection via a SFC162 Visitor



Communication

Standard interfaces

SFX350

USB	Full Speed 2.0 Client + Host
Wireless LAN	<ul style="list-style-type: none">IEEE802.11 a/b/g/n Dual Band (2.4/5 GHz) WLANSecurity: WiFi Certified for WPA2 and WPAWAPI CertifiedAuthentication: 802.1xCisco Compatibility: CCXv4Encryption: WEP (64 or 128 bit), AES, TKIP
Bluetooth	Class II Version 2.1 + EDR
Infrared	IrDA Infrared Interface

SFX370

USB	Full Speed 2.0 Client
Wireless LAN	<ul style="list-style-type: none">IEEE802.11 a/b/g/n Dual Band (2.4/5 GHz) WLANSecurity: WiFi Certified for WPA2 and WPAWAPI CertifiedAuthentication: 802.1xCisco Compatibility: CCXv4Encryption: WEP (64 or 128 bit), AES, TKIP
Bluetooth	Class II Version 2.1 + EDR
Infrared	IrDA Infrared Interface

Options**SFX350**

Wireless WAN	3G WWAN for voice and data communication: <ul style="list-style-type: none"> ■ UMTS/HSPA (7.2 Mbps D/L, 5.76 Mbps U/L peak); frequencies: 800.850.900.1900.2100 MHz ■ CDMA/EV-DO Rev A (3.1 Mbps D/L, 1.8 Mbps U/L peak); frequencies: 800.1900 MHz ■ GSM, GPRS; frequencies: 850.900.1800.1900 MHz
GPS	12-channel GPS

SFX370

Wireless WAN	3G WWAN for data communication: <ul style="list-style-type: none"> ■ UMTS/HSDPA/HSUPA (14.4 Mbps D/L, 5.76 Mbps U/L peak); frequencies: 850.900.1800.1900 MHz ■ CDMA/EV-DO Rev A (3.1 Mbps D/L, 1.8 Mbps U/L peak); frequencies: 800.850.1900.2100 MHz ■ GSM, GPRS, EDGE; frequencies: 850.900.1800.1900 MHz
GPS	A-GPS

Power supply**Battery****SFX350**

Type	Removable, rechargeable Li-ion battery, compliant with IEEE 1725
Designation	1000AB01
Voltage	3.7 V
Capacity	4 000 mAh

SFX370

Type	Removable, rechargeable Li-ion battery, compliant with IEEE 1725
Designation	AM Ci70 -Ex
Voltage	3.7 V
Capacity	4 000 mAh

Environment**SFX350**

Ambient temperature	-20 to +60 °C (-4 to +140 °F)
Storage temperature	-30 to +70 °C (-22 to +158 °F)
Battery charging temperature range	5 to +35 °C (41 to 95 °F)
Relative humidity	5 to 95 %, no condensate; for operation and storage
Drop test	1.8 m (6 ft) on concrete over the entire operating temperature range in accordance with MIL-STD 810G, 2.4 m (8 ft) on concrete in accordance with MIL-STD-810G, 2000 (1 m) free fall in accordance with IEC 60068-2-32

Electrostatic discharge	±8 kV contact discharge, ±15 kV air discharge
Electromagnetic Compatibility	Interference conformance to <ul style="list-style-type: none"> ■ EN 55022: 2006 + A1: 2007 ■ EN 61000-3-2: 2006 ■ EN 61000-3-3: 2008 Immunity conformance to EN 55024: 1998 + A1: 2001 + A2: 2003

SFX370

Ambient temperature	−20 to +50 °C (−4 to +120 °F)
Storage temperature	−20 to +60 °C (−4 to 140 °F)
Battery charging temperature range	5 to 35 °C (41 to 95 °F)
Relative humidity	5 to 95 %, no condensate; for operation and storage
Drop test	1.2 m (4 ft) on concrete over the entire operating temperature range in accordance with MIL-STD 810G
Electrostatic discharge	±8 kV contact discharge, ±15 kV air discharge
Electromagnetic Compatibility	Interference conformance to EN 55022: 2006 + A1: 2007 Immunity conformance to EN 55024: 1998 + A1: 2001 + A2: 2003

Mechanical construction

Dimensions**SFX350**

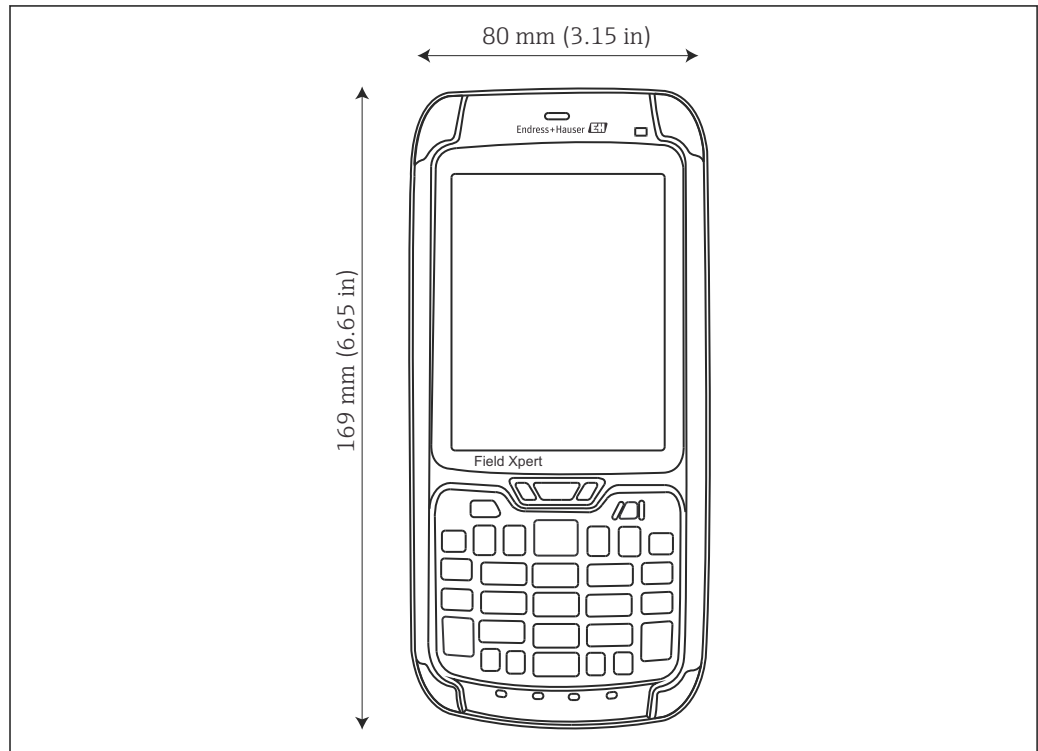
169 mm*80 mm*34 mm (6.65 in*3.15 in*1.34 in)

SFX370

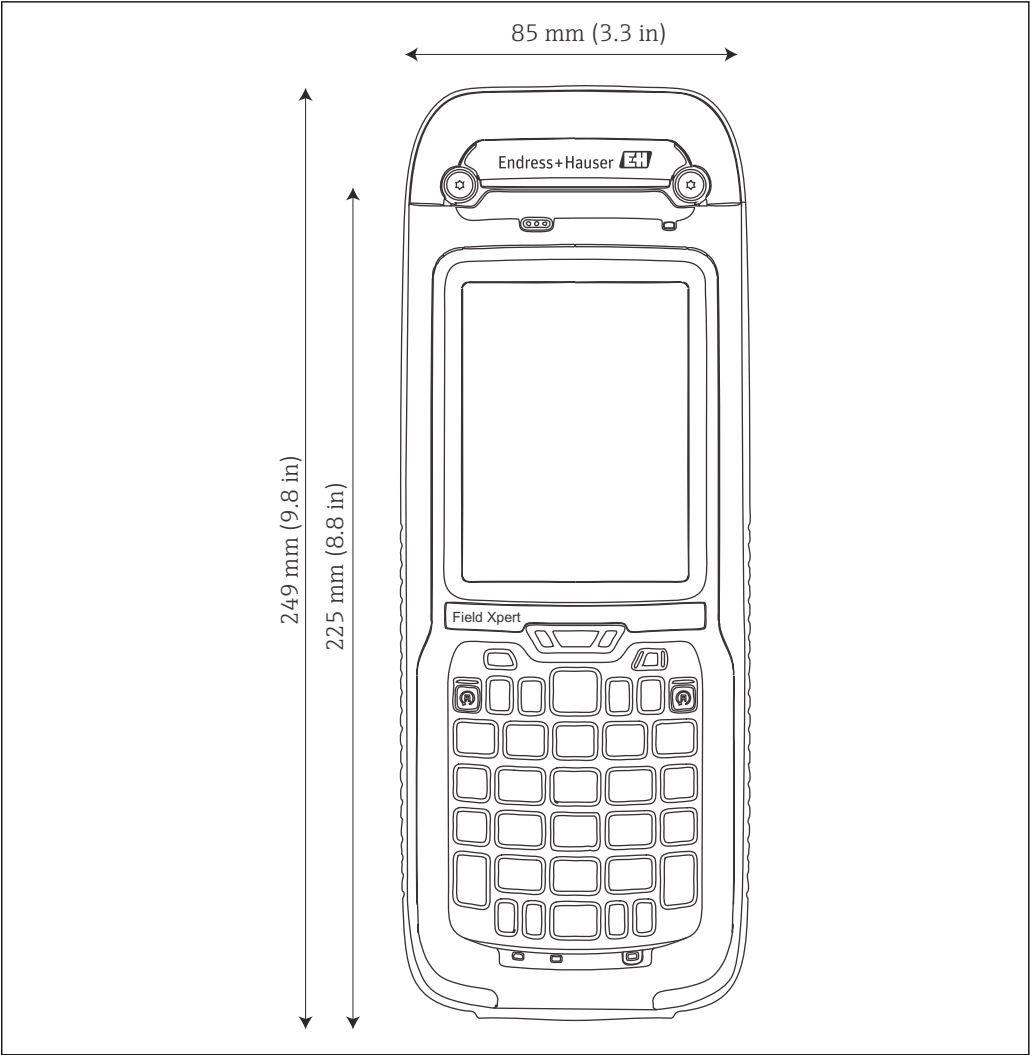
- Standard version 225 mm*85 mm*58 mm (8.8 in*3.3 in*2.3 in)
- With optional head module 249 mm*85 mm*58 mm (9.8 in*3.3 in*2.3 in)

Front view

SFX350



SFX370



Weight	SFX350 Approx. 450 g (1 lb) with battery
	SFX370 Approx. 950 g (2 lb) with battery, without head option
Material	SFX350 <ul style="list-style-type: none">■ Housing: polycarbonate■ Rubber lining: thermoplastic polyurethane (TPU)
	SFX370 <ul style="list-style-type: none">■ Housing: polycarbonate■ Rubber lining: thermoplastic polyurethane (TPU)
Degree of protection	SFX350 IP67, NEMA Type 4
	SFX370 IP65, NEMA Type 4

Explosion protection**SFX350**

None

SFX370

- ATEX/IECEX - Intrinsically safe
 - II 2G Ex ia IIC T4 Gb IP64
 - II 2D Ex ia IIIC T135°C Db IP6X
- Class I Zone 1 IIC T4 - Protection Method
 - North America (USA): AEX ia IIC T4 Gb
 - North America (Canada): AEX ia IIC T4 Gb
- Class II Zone 21 IIIC T135°C - Protection Method (USA): AEx ia IIIC T135°C Db

Operation

Hardware**SFX350**

Processor	OMAP multi-core processor 1 GHz
Memory	512 MB RAM, 1 GB flash memory, 8 GB Micro SD card (up to 32 GB supported)
Display	3.5" touchscreen display, VGA (640 · 480 pixels), 65536 colors, ambient light sensor, LED backlight protected by Gorilla glass, automatic portrait/landscape screen rotation
Keypad	Backlit numeric, laser etched hard key caps; alphanumeric input possible
Audio	Loudspeaker, Bluetooth wireless head set support, VoIP audio support
Scanner	2D imager, 1D laser scanner
Head modules	None
Camera	Optional: 5 Megapixel, camera with auto focus and LED flash
Telephone	Optional

SFX370

Processor	OMAP multi-core processor 1 GHz
Memory	512 MB RAM, 1 GB flash memory, 8 GB Micro SD card (up to 32 GB supported)
Display	3.5" touchscreen display, VGA (640 · 480 pixels), 65536 colors, ambient light sensor, LED backlight protected by Gorilla glass, automatic portrait/landscape screen rotation
Keypad	Backlit numeric, laser etched hard key caps; alphanumeric input possible
Audio	Loudspeaker, Bluetooth wireless head set support, VoIP audio support
Scanner	see head modules
Head modules	1D laser scanner RFID HF, RFID LF
Camera	None
Telephone	Via VoIP support (BT headset)

Software

SFX350

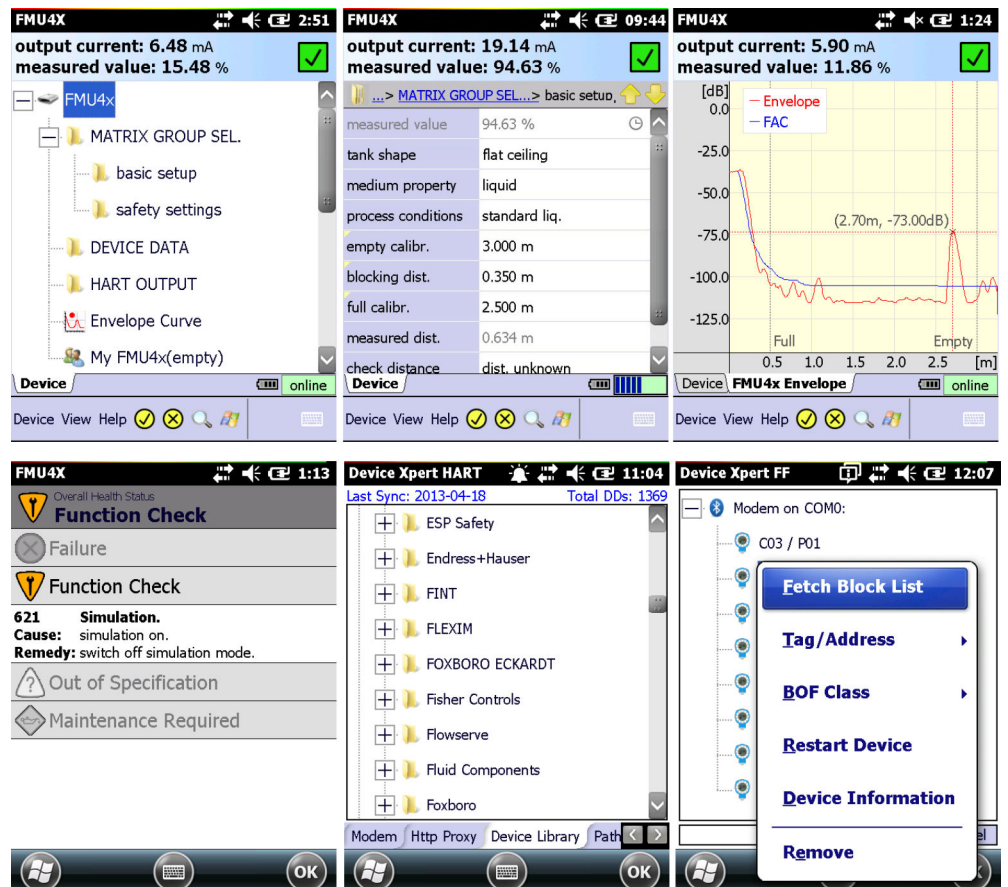
Operating system	Microsoft Windows Embedded Handheld 6.5.3, English or German, depending upon order
Configuration software	Device Xpert HART, Device Xpert FOUNDATION fieldbus or Device Xpert HART and Device Xpert FOUNDATION fieldbus
Standard software	Calendar, Contacts, E-Mail, SMS, Office Mobile (Word, Excel, Powerpoint), Calculator, Notes, Tasks, Internet Explorer, Picture&Videos, Windows Media, File Explorer, Remote Desktop Mobile

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Operating system	Microsoft Windows Embedded Handheld 6.5.3, English or German, depending upon order
Configuration software	Device Xpert HART, Device Xpert FOUNDATION fieldbus or Device Xpert HART and Device Xpert FOUNDATION fieldbus
Standard software	Calendar, Contacts, E-Mail, SMS, Office Mobile (Word, Excel, Powerpoint), Calculator, Notes, Tasks, Internet Explorer, Picture&Videos, Windows Media, File Explorer, Remote Desktop Mobile

Device Xpert

Designed for commissioning and maintenance tasks, Device Xpert configuration software makes Field Xpert the perfect communication device for HART and FOUNDATION fieldbus. It fulfils the daily requirements of technicians working on site. It offers flexible and efficient operation thanks to its support of special device functions, e.g. envelope curves of Endress+Hauser time-of-flight level measuring devices and the automated download of Device Descriptions (DD) via the Internet or WLAN. Device Xpert supports Endress+Hauser's Fieldgate FXA520, allowing Ethernet communication with remote HART field devices.



Cal Xpert

Cal Xpert calibration management software is designed to support complete paperless calibration work flows. Users can upload issued work orders from a CompuCal calibration management application to the Field Xpert. Field Xpert can then be taken into the field and after the calibration has been performed, the documents and/or results can be checked and stored. After all work orders have been executed, the results can be uploaded to CompuCal again. From CompuCal, the data can be stored in Endress+Hauser's W@M database and made available in ERP systems, e.g. SAP PM.

Upload WorkOrders?
☒ Yes ☐ No
Download WorkOrders?
☒ Yes ☐ No
 Continue
 Downloading Issued WorkOrders.

Tag : TT03
 WO No : P/13/09/0008
 Description : Temperature Indicator
 Area : Beer Factory
 Manufact : Endress+Hauser
 Serial No : 63012C04223
 Setup Comts.
 Entry Comts.
 Down Time : 0
 Failed By User ☐ Yes ☒ No
 Labels Updated ☐ Yes ☐ No

Result

Task	Result	Fault
General Condition	Pass	loose cable gland
Check electrical	Pass	No Problem Found
Check for leakages	Pass	No Problem Found

Cal Point

Cal Point	Input	Reading	Error
30.00	30.00	30.03	0.03
50.00	50.00	50.05	0.05
80.00	80.00	80.08	0.08

Certificates and approvals**CE Mark**

With the CE Mark, the manufacturer confirms that Field Xpert SFX350 and Field Xpert SFX370 conform to all relevant EU directives.

Ex approval**SFX350**

None

SFX370

- ATEX (Zone 1) IIC T4
ATEX (Zone 21) IIIC IP 64
- IECEx (Zone 1) IIC T4
IECEx (Zone 21) IIIC IP 64
- NEC Class I, Division 1, A-D T4
NEC Class II, Division 1, E-G T4
NEC Class III

Telecommunication approval**SFX350**

FCC w/HAC, Industries Canada, CE, A-tick (AU), C-tick (NZ), NCC, OFTA, IDA, ICASA, POSTEL, NTC, ETA, SIRIM, ANATEL, 61 countries in total

SFX370

FCC, CE

Electrical safety

SFX350

UL (DEMKO), cULus listed

SFX370

UL (DEMKO), cULus listed

Ordering Information

Product structure

Details of the product structure can be found:

- FieldXpert SFX350: www.endress.com/sfx350 → Configure/select the required product → Device configurator opens
- FieldXpert SFX370: www.endress.com/sfx370 → Configure/select the required product → Device configurator opens
- From the Endress+Hauser Sales Center: www.addresses.endress.com

Documentation

Field Xpert SFX350

- Competence Brochure CP00014S/04/en
- Hardware Operating Instructions BA01202S/04/en
- Software Operating Instructions BA01211S/04/en

Field Xpert SFX370

- Competence Brochure CP00014S/04/en
- Hardware Operating Instructions BA01202S/04/en
- Software Operating Instructions BA01211S/04/en

Fieldgate FXA520

Operating Instructions BA00051S/04/en

Fieldgate SFC162

Operating Instructions BA00069S/04/en

Plant Asset Management

Fields of Activity FA00024S/04/en

W@M

Competence Brochure CP001Z/00/en

CompuCal

Competence Brochure CP00012S/04/en

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