

# Technical Information

## Field Xpert SMT70

Universal, high-performance tablet PC for device configuration in Ex Zone 2 and non-Ex areas



### Application

The Field Xpert SMT70 tablet PC for device configuration enables mobile plant asset management in hazardous (Ex Zone 2) and non-hazardous areas. It is suitable for commissioning and maintenance staff. It manages Endress+Hauser and third-party field instruments with a digital communication interface and documents the progress of the work. The SMT70 is designed as a complete solution. It comes with a pre-installed driver library and is an easy-to-use, touch-enabled tool for managing field devices throughout their entire life cycle.

### Your benefits

- Touch-enabled device configuration software with a direct link to the Netilion Platform for optimized plant asset management.
  - Pre-installed device driver libraries for all of the important industrial protocols.
  - Fast connection to devices with a single click thanks to automatic hardware detection. Online application software and DTM/driver update service offer new functionality and maximum security.
  - Integrated Heartbeat Verification incl. PDF documentation.
  - Connection to Endress+Hauser Bluetooth and WLAN devices - perfect for difficult-to-access instruments.
- High-performance, robust tablet with large 11.6" display and a battery runtime of up to 14 hours.





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## About this document

### Symbols used

### Safety symbols

Symbol	Meaning
	<b>DANGER!</b> This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.
	<b>WARNING!</b> This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in serious or fatal injury.
	<b>CAUTION!</b> This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.
	<b>NOTE!</b> This symbol contains information on procedures and other facts which do not result in personal injury.

### Symbols for certain types of information

Symbol	Meaning
	<b>Permitted</b> Procedures, processes or actions that are permitted.
	<b>Preferred</b> Procedures, processes or actions that are preferred.
	<b>Forbidden</b> Procedures, processes or actions that are forbidden.
	<b>Tip</b> Indicates additional information.
	Reference to documentation.
	Reference to page.
	Reference to graphic.
	Visual inspection.

## Function and system design

### Function

The Field Xpert SMT70 tablet PC for universal device configuration supports a variety of protocols, the Endress+Hauser service protocols, and connection to Endress+Hauser Bluetooth field devices. The field devices can be connected directly via a suitable interface, such as a modem (point-to-point), a bus system (point-to-bus) or a wireless connection (WLAN/Bluetooth). The Field Xpert software package is fast, easy and intuitive to use. The Field Xpert device library has more than 2,700 pre-installed device and communication drivers. They can be used to operate practically all HART and FOUNDATION Fieldbus devices (FieldComm Group libraries). Furthermore all Endress+Hauser field device drivers are installed. Further device drivers (DTMs) can be installed additionally. The generic HART DTM and PROFIBUS profile DTMs also enable operation of all the important basic functionalities of the relevant field devices.

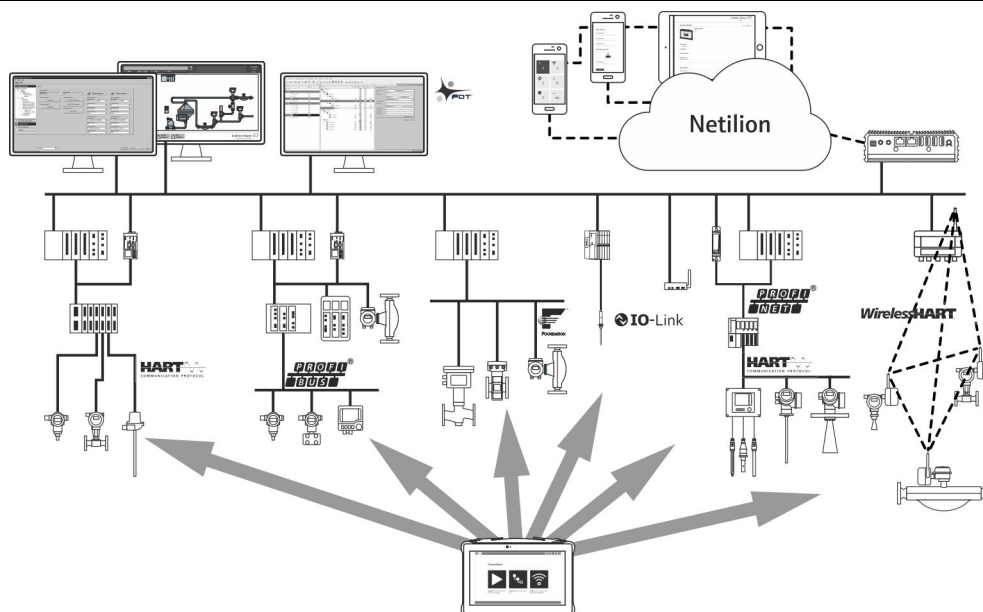
**Supported field devices and protocols**

Endress+Hauser field devices and 3rd-party field devices

- HART
- PROFIBUS DP/PA
- FOUNDATION Fieldbus
- Modbus
- IO-Link

**Endress+Hauser service protocols**

- CDI
- ISS
- IPC
- PCP

**System design**

1 Network architecture

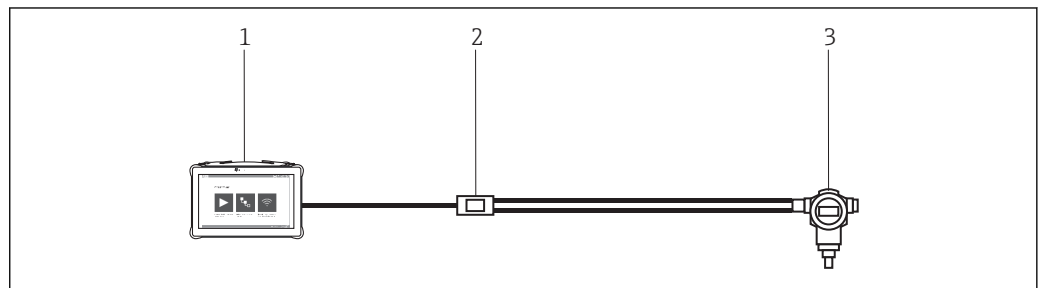
The following communication methods are supported by the Field Xpert SMT tablet PC:

Communication	Interface / modem / gateway	Use in non-hazardous zone permitted?	Use in hazardous zone permitted?
HART	Commubox FXA195 (4 to 20 mA)	Yes	No
	MACTek Bluetooth modem (4 to 20 mA)	Yes	Yes
	Memograph RSG45 (4 to 20 mA)	Yes	No
	MACTek USB modem (4 to 20 mA)	Yes	No
	FieldPort SFP50	Yes	Yes
	Fieldgate SFG250	Not applicable	Not applicable
	Tank Scanner NXA820	Not applicable	Not applicable
	BARTEC add-on module	Yes	Yes
HART via PROFINET together with Fieldgate PAM SFG600		Yes	Yes
PROFIBUS	Softing PROFlusb	Yes	No
	Softing PBpro USB	Yes	No
	FieldPort SFP50	Yes	Yes
	Fieldgate SFG500	Not applicable	Not applicable

Communication	Interface / modem / gateway	Use in non-hazardous zone permitted?	Use in hazardous zone permitted?
FOUNDATION Fieldbus	NI USB	Yes	No
	Softing FFusb	Yes	No
	FieldPort SFP50	Yes	Yes
Bluetooth		Not applicable	Not applicable
Modbus	Modbus serial	Yes	No
WirelessHART	WirelessHART adapter SWA70	Yes	Yes
	WirelessHART Fieldgate SWG70	Yes	Yes
Endress+Hauser service interfaces	Commubox FXA291	Yes	No
	Commubox FXA193	Yes	No
	TXU10 V2	Yes	No
	TXU10 V1	Yes	No
	CDI USB	Yes	No
	CDI TCP/IP	Yes	Yes
IO-Link	FieldPort SFP20	Yes	No

### HART point-to-point connection via Commubox FXA195

This diagram shows a HART point-to-point connection with an FXA195 USB/HART modem. If an FXA195 is connected to the computer, the Field Xpert SMT70 tablet PC can connect to the device automatically.



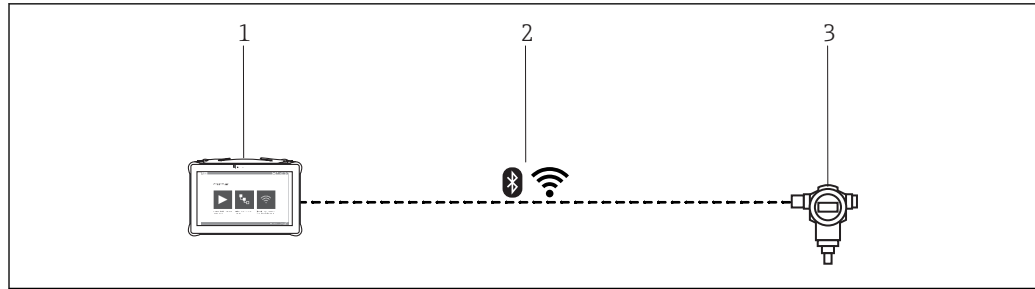
**2** Point-to-point connection with a HART field device

- 1 Field Xpert SMT70 tablet PC
- 2 HART Commubox FXA195
- 3 Field device

To establish communication with the HART device, a resistor of at least 250  $\Omega$  must be provided in the circuit. The way in which this is done depends upon the system architecture and power source used. Please read the FXA195 manual carefully.

### Connection via WLAN and Bluetooth

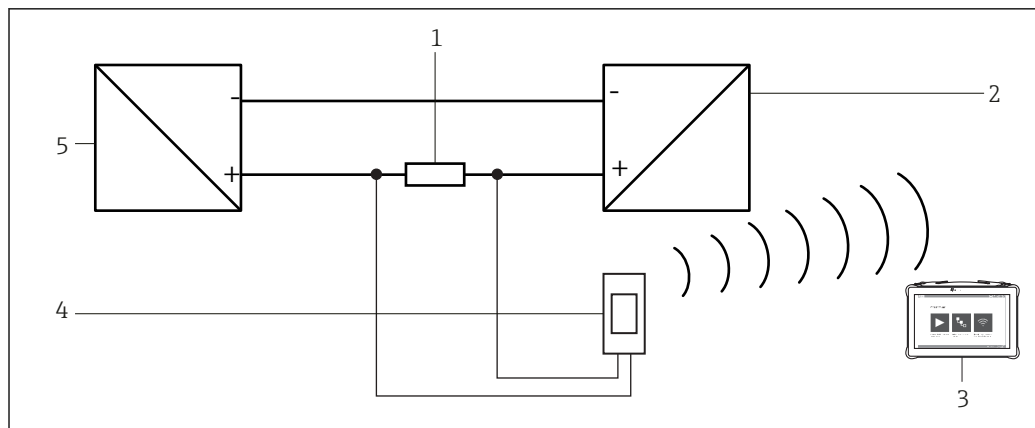
This diagram shows how to establish a connection to a WLAN-enabled or Bluetooth-enabled Endress+Hauser device.



3 Connection via WLAN and Bluetooth

- 1 Field Xpert SMT70 tablet PC
- 2 WLAN or Bluetooth
- 3 Field device

### HART point-to-point communication via FieldPort SFP50

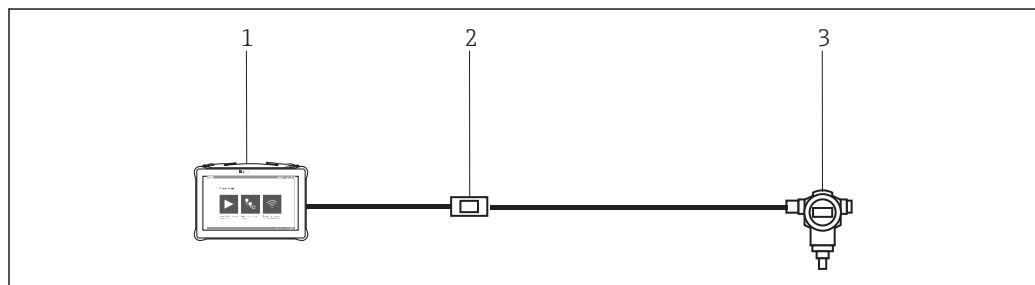


4 Point-to-point connection via a load resistor

- 1 Load resistor: 250 to 1 100  $\Omega$
- 2 HART device
- 3 Field Xpert SMT70 tablet PC
- 4 FieldPort SFP50
- 5 Transmitter power supply unit

### CDI point-to-point connection

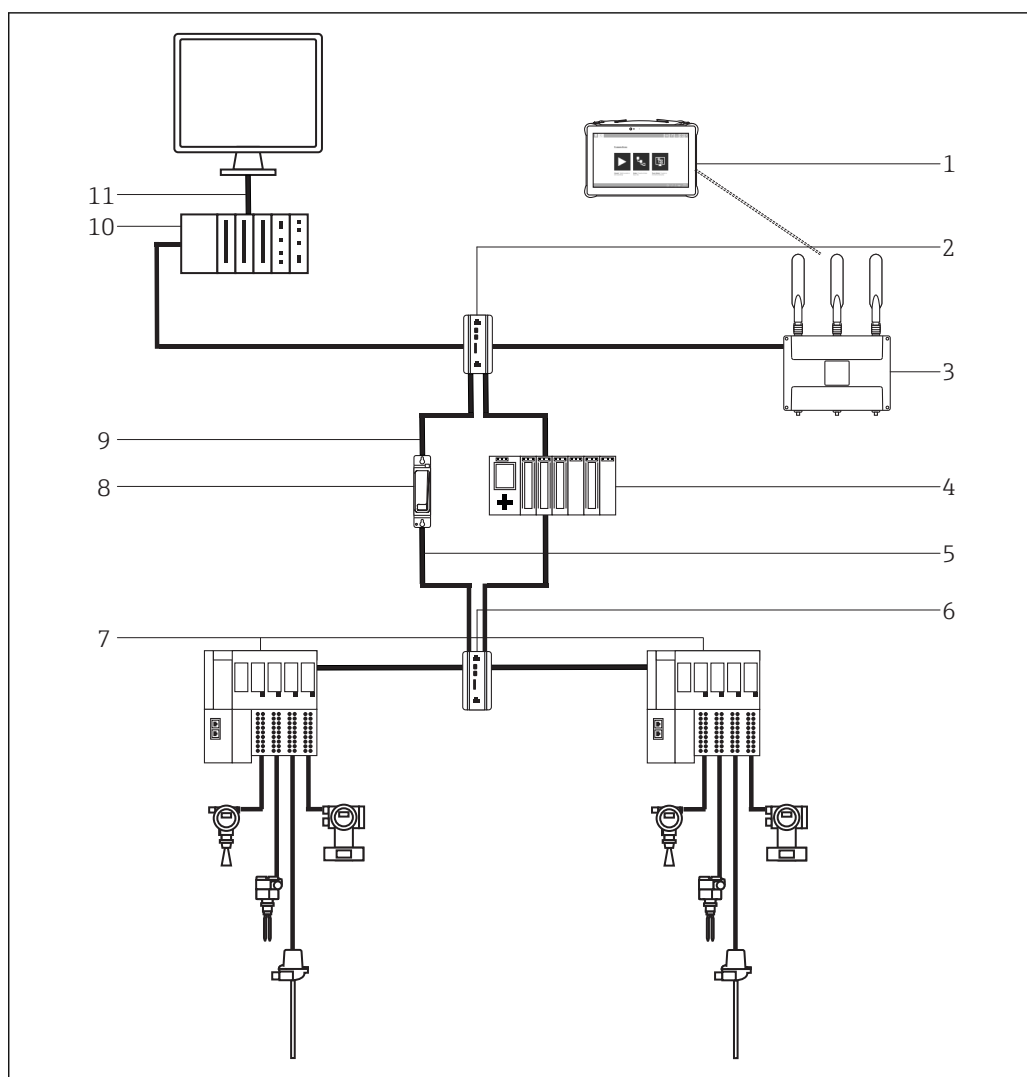
This diagram shows a CDI point-to-point connection with a Commubox FXA291 interface. If this Commubox is connected to the computer, the Field Xpert SMT70 tablet PC can connect to the device automatically.



5 CDI point-to-point connection with a field device

- 1 Field Xpert SMT70 tablet PC
- 2 Commubox FXA291 CDI
- 3 Field device with CDI interface

## HART via PROFINET

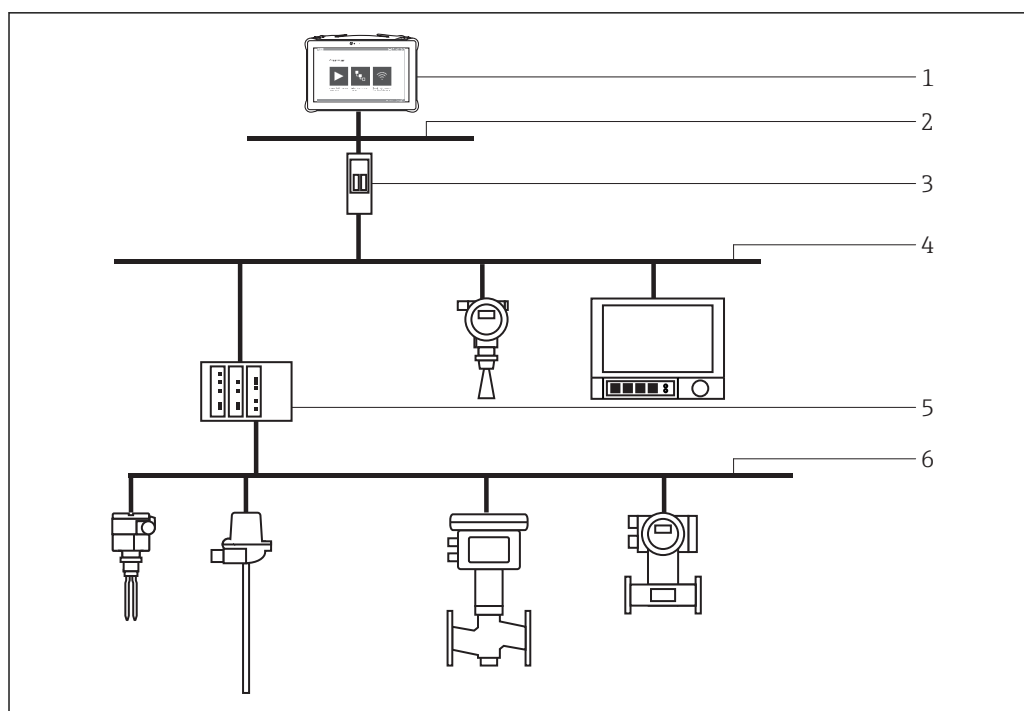


## 6 Network architecture

- 1 Field Xpert SMT70 tablet PC
- 2 Switch
- 3 Wireless router
- 4 PROFINET controller
- 5 PROFINET segment ETH1
- 6 PROFINET switch
- 7 Siemens ET200SP IM 155-6PN HF
- 8 Fieldgate PAM SFG600
- 9 Plant network PAM Client ETH2
- 10 Firewall
- 11 Office network

### PROFIBUS point-to-bus connection

This diagram shows how the connection from PROFIBUS DP to PROFIBUS PA can be established using a Siemens DP/PA Link or a Pepperl+Fuchs SK3.



7 PROFIBUS point-to-bus connection via Fieldgate SFG500

- 1 Field Xpert SMT70 tablet PC
- 2 Ethernet
- 3 Fieldgate SFG500
- 4 PROFIBUS DP
- 5 Segment coupler
- 6 PROFIBUS PA

#### Communication and data processing

USB	2 x USB 3.0
Wireless LAN	Intel Wireless AC7260 802.11 a/b/g/n/ac, DUAL Band WLAN
Bluetooth	Bluetooth 4.0 BLE, Class 1
Wireless WAN + GPS	4G LTE WWAN + 12 channel GPS (optional)

## Power supply

#### Supply voltage

Voltage	19 V
Current	3.42 A
Capacity	65 W

#### Battery

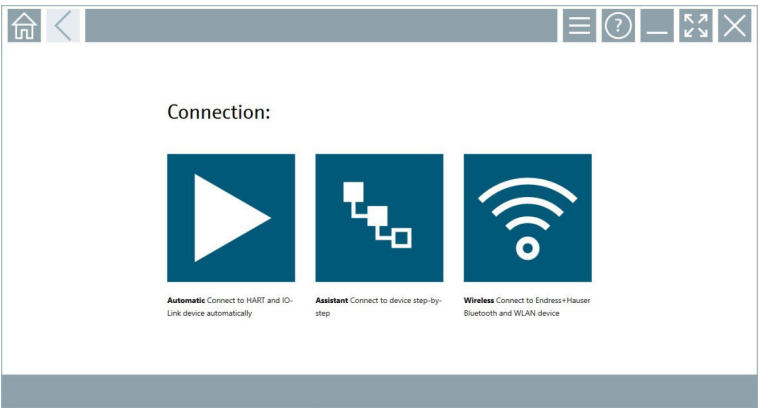
Replaceable, rechargeable lithium polymer battery

Type	R11AH	R11AH2
Voltage	11.1 V <sub>DC</sub>	11.1 V <sub>DC</sub>
Capacity	4 100 mAh (45 Wh)	7 800 mAh (86 Wh) (optional)
Battery life	Up to 7 h	Up to 14 h

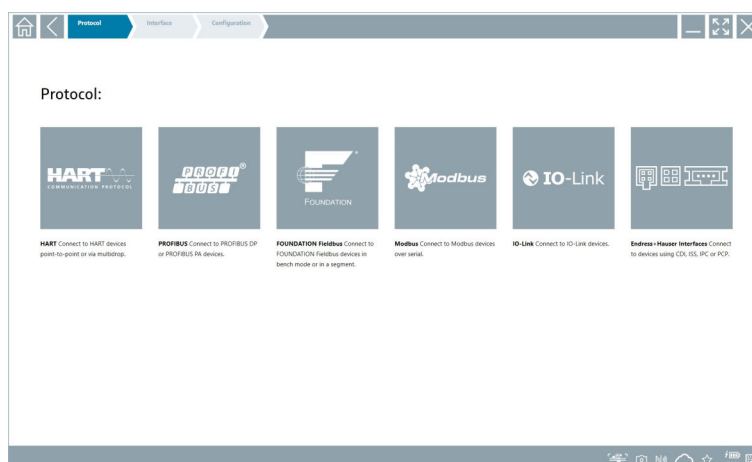


Performance characteristics

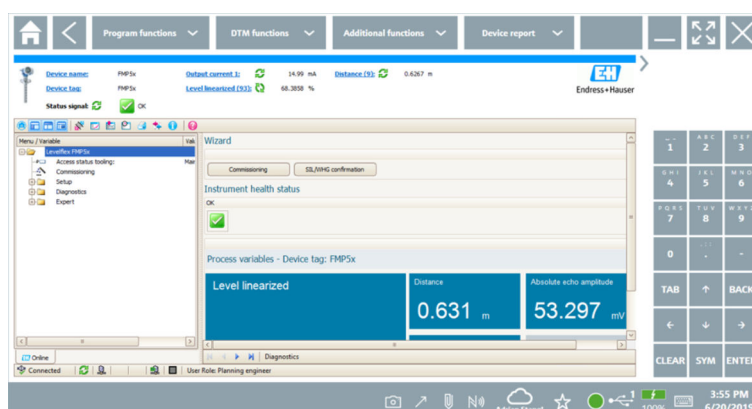
Hardware	CPU	Intel Core i5-5200U (2.2 to 2.7 GHz)
	Working memory	8 GB with DDR3L adapter
	Storage	256 GB SSD M2-SATA in the robust version
	User interface	11.6" (1366 x 768) LCD display, with Gorilla Glass protector Capacitive multi-touch screen Optical bonding, sunlight readable, LCD (730 Nit) Ambient light sensor
	Keys	On/off Volume Touch button for Windows Touch button for barcode/camera Programmable touch button
	Audio	Speaker 70 dB @ 0.5 m Microphone
	Scanner	1D/2D barcode scanner
	Camera	2 MP camera on the front 5 MP camera on the back with auto focus and LED flash with 1 500 mcd Supports geotagging (optional)
	Sensor	Integrated acceleration sensor, gyroscope and eCompass
	Connections	Headphones output jack Microphone input jack Docking port Extension connection for add-on modules HF pass-through socket for WWAN and GPS
	Expansion slots	Micro SD card slot, support for SDHC/SDXC SIM card slot for WWAN data communication
Software	Operating system	Windows 10 IoT Enterprise
	Configured software	Touch-enabled device configuration software optimized for Field Xpert
	Standard software	Standard configurable Windows graphical user interface with icons, short cuts etc.



8 Start screen with one-click automatic scan button



9 Protocol selection for manual selection of connection



10 Device configuration

## Environment

**Ambient temperature range** -10 to 55 °C (14 to 131 °F)

**Storage temperature** -20 to 60 °C (-4 to 140 °F)

**Humidity** 5 to 95%

**Operating height** Max. 4 572 m (15 000 ft)

**Degree of protection** IP65

**Shock resistance**

- MIL-STD 810G 516.6 Procedure IV
- 6 impacts from a height of 1.2 m (4 ft) onto plywood over concrete

**Vibration resistance** MIL-STD 810G 514.6 Procedure I Cat. 24, Fig. 514.6E-1

**Electromagnetic compatibility**

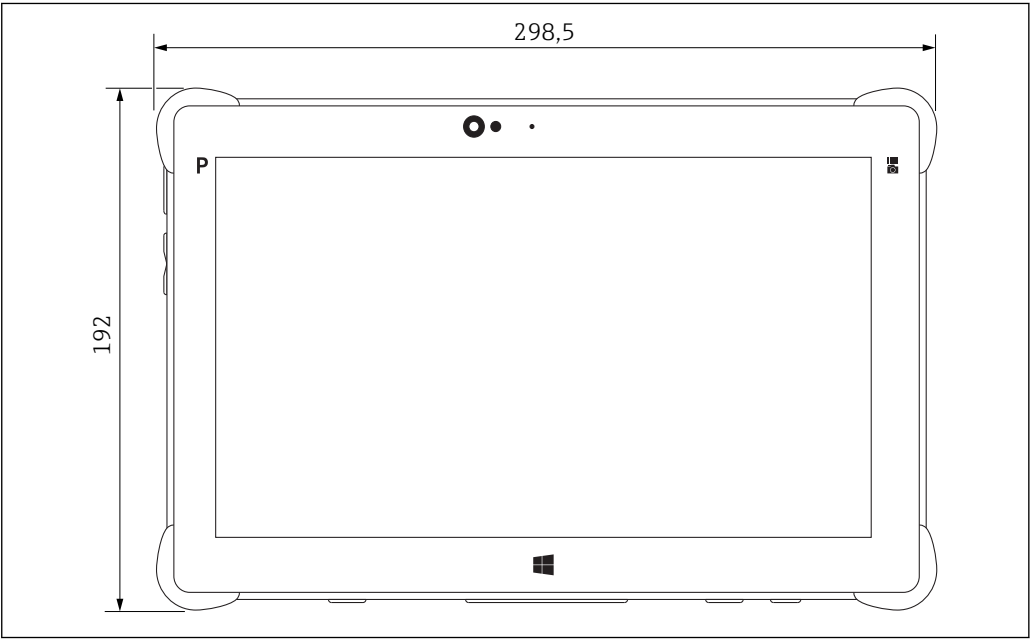
Interference conformance to:

- EN 55022: 2010+ AC: 2011
- EN 55022 Class B
- EN 61000-3-2
- EN 61000-3-3

Interference immunity:

- EN 55024: 2010
- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC 61000-4-8
- IEC 61000-4-11

Mechanical construction

Design, dimensions	Standard version: 298.5 mm · 192 mm · 20 mm (11.4 in · 7.48 in · 0.78 in)
<div></div> <p>11 Front view</p>	
Weight	1.2 kg (2.65 lb) with standard battery
Materials	Outer housing: MN-3600 type polycarbonate Inner housing: AlMg metal, type AZ91D
<p>Operation</p> <ul style="list-style-type: none"><li>▪ Automatic connection to field devices or via wizard</li><li>▪ Choice of languages within Field Xpert software: AR, CS, DE, ES, FI, FR, ID, IT, JA, KO, NL, PL, PT, RU, EN, SV, TH, TR, VI, ZH</li><li>▪ DTM graphical user interface and language depend on the device and supplier</li></ul>	
<p>Certificates and approvals</p>	
CE approval	Field Xpert SMT70 meets all the legal requirements of the relevant EU directives. The manufacturer has affixed the CE mark as confirmation that the Field Xpert SMT70 has been successfully tested.

**Radio approval**

CE, FCC, IC, Japan

**Ex approval****ATEX (Europe)**

Valid for Field Xpert SMT70-B1 ...

- ATEX II 3G Ex ic IIC T4 Gc IP64
- ATEX II 3D Ex ic IIIB T135°C Dc IP 64

**NEC/CEC (North America)**

Valid for Field Xpert SMT70-C1 ...

- NEC/CEC Class 1, Div. 2, Group A-D T4
- NEC/CEC Class 1, Zone 2, Group IIC T4

**IECEX (International)**

Valid for Field Xpert SMT70-I1 ...

- IECEX Ex ic IIC T4 Gc IP64
- IECEX Ex ic IIIB T135° Dc IP64

**CML (Japan)**

Valid for Field Xpert SMT70-JA ...

CML 19 JPN2478X Ex ic IIC T4 Gc

## Ordering Information

Please contact your Endress+Hauser sales center for detailed information on the product structure:  
[www.addresses.endress.com](http://www.addresses.endress.com) or at [www.endress.com/smt70](http://www.endress.com/smt70)

**Scope of delivery**

The scope of delivery comprises:

- Field Xpert SMT70 tablet PC with handle
- AC charger (100 to 240 V<sub>AC</sub>, 1.5 A, 50 to 60 Hz) with connecting cable EU, US, UK, CH, IT, ZA, AU
- Software and interfaces/modem as per order

## Accessories

Optional accessories:

- X-strap
- Shoulder strap
- Leather case
- Office docking station (2 x USB 3.0, 2 x USB 2.0, 1 x RS232, HDMI, 1 Gbit Ethernet)
- Vehicle docking station with vehicle adapter (2 x USB 3.0, 2 x USB 2.0, 1 x RS232, HDMI, 1 Gbit Ethernet, WWAN + GPS antenna connection)
- Extra battery, high capacity 7 800 mAh
- Extra battery, standard capacity 4 100 mAh
- Battery charger
- Connecting cable EU, US, UK, CH, IT, AU

Please contact your Endress+Hauser sales center for detailed information on accessories:  
[www.addresses.endress.com](http://www.addresses.endress.com) or at [www.endress.com/smt70](http://www.endress.com/smt70)

## Documentation

**Field Xpert SMT70**

- Operating Instructions BA01709S/04/EN
- Innovation Brochure IN01069S/04/EN

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**Field Xpert SMT77**

- Technical Information TI01418S/04/EN
- Operating Instructions BA01923S/04/EN

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**Fieldgate PAM SFG600**

- Technical Information TI01408S/04/EN
- Brief Operating Instructions KA01400S/04/EN

## Registered trademarks

Windows 10 IoT Enterprise® is a registered trademark of Microsoft Corporation, Redmond, Washington, USA.

Intel® Core™ is a registered trademark of Intel Corporation, Santa Clara, USA.

Durabook is a registered trademark of Twinhead International Corp., Taiwan.

FOUNDATION™ Fieldbus is the trademark of the FieldComm Group, Austin, TX 78759, USA.

HART®, WirelessHART® is the registered trademark of the FieldComm Group, Austin, TX 78759, USA.

PROFIBUS® is a registered trademark of the PROFIBUS User Organization, Karlsruhe/Germany.

Modbus is the registered trademark of Modicon, Incorporated.

IO-Link® is a registered trademark of the IO-Link Community c/o PROFIBUS User Organization, (PNO) Karlsruhe/ Germany - [www.io-link.com](http://www.io-link.com)

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