

Special Documentation

Web server

Proline flowmeters

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1 Document information

1.1 Document function

This manual is a Special Documentation; it does not replace the Operating Instructions pertaining to the device. It serves as a reference for using the Web server integrated in the measuring device.

1.2 Symbols used

1.2.1 Safety symbols

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

1.2.2 Symbols for certain types of information

Symbol	Meaning
	Permitted Indicates procedures, processes or actions that are permitted.
	Forbidden Indicates procedures, processes or actions that are forbidden.
	Tip Indicates additional information.
	Reference to documentation Refers to the corresponding measuring device documentation.
	Reference to page Refers to the corresponding page number.
	Reference to graphic Refers to the corresponding graphic number and page number.
	Series of steps
	Result of a sequence of actions

1.2.3 Symbols in graphics

Symbol	Meaning
1, 2, 3,...	Item numbers
	Series of steps

1.3 Target group

The document is aimed at specialists who work with the device over the entire life cycle and perform specific configurations.

1.4 Using this document

This Special Documentation serves as a reference for using the Web server integrated in the measuring device. It does not replace the Operating Instructions pertaining to the device.

This Special Documentation contains a range of information, including:

- Prerequisites for use on the computer and measuring device
- Connecting the computer via the service interface and Ethernet-based fieldbus
- Configuration of the communication interface
- Establishing a connection
- Diagnostics and troubleshooting

 The information and safety instructions in the Operating Instructions pertaining to the measuring device must always be observed →  5.

1.4.1 Device documentation

The Technical Documentation for the measuring device is available:

- On the CD-ROM supplied with the measuring device (depending on the device version, the CD-ROM might not be part of the delivery!)
- Via the *W@M Device Viewer* : enter the serial number from the nameplate (www.endress.com/deviceviewer)
- Via the *Endress+Hauser Operations App*: enter the serial number from the nameplate or scan the 2-D matrix code (QR code) on the nameplate.

 Technical documentation can also be downloaded from the Download Area of the Endress+Hauser web site: www.endress.com → Download. However this technical documentation applies to a particular instrument family and is not assigned to a specific measuring device.

2 Basic safety instructions

2.1 Requirements for personnel

The personnel for installation, commissioning, diagnostics and maintenance must meet the following requirements:

- ▶ Trained, qualified specialists must have a relevant qualification for this specific function and task
- ▶ Are authorized by the plant owner/operator
- ▶ Are familiar with federal/national regulations
- ▶ Before beginning work, the specialist staff must have read and understood the instructions in the manuals and supplementary documentation as well as in the certificates (depending on the application)
- ▶ Follow instructions and comply with basic conditions

The operating personnel must meet the following requirements:

- ▶ Are instructed and authorized according to the requirements of the task by the facility's owner-operator
- ▶ Follow the instructions in this manual

2.2 Designated use

The designated use of the measuring device is described in the Operating Instructions pertaining to the device →  5.

2.3 Workplace safety

For work on and with the device:

- ▶ Wear the required personal protective equipment according to federal/national regulations.

If working on and with the device with wet hands:

- ▶ It is recommended to wear gloves on account of the higher risk of electric shock.

2.4 Operational safety

Risk of injury!

- ▶ Operate the device in proper technical condition and fail-safe condition only.
- ▶ The operator is responsible for interference-free operation of the device.

Modifications to the device

Unauthorized modifications to the device are not permitted and can lead to unforeseeable dangers.

- ▶ If, despite this, modifications are required, consult with Endress+Hauser.

2.5 Product safety

This device is designed in accordance with good engineering practice 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.

It meets general safety standards and legal requirements. It also complies with the EC directives listed in the device-specific EC Declaration of Conformity. Endress+Hauser confirms this by affixing the CE mark to the device.

2.6 IT security

We only provide a warranty if the device is installed and used as described in the Operating Instructions. The device is equipped with security mechanisms to protect it against any inadvertent changes to the device settings.

IT security measures in line with operators' security standards and designed to provide additional protection for the device and device data transfer must be implemented by the operators themselves.

3 Product description

3.1 Measuring devices with an integrated Web server

A Web server is integrated in the following Proline flowmeters:

- Promass 100
- Promag 100
- Promag 400

Different communication protocols are available depending on the device version:

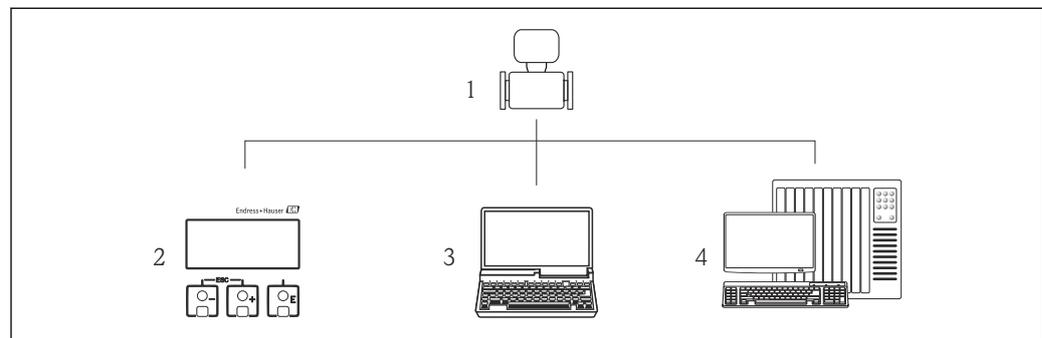
- HART
- PROFIBUS DP
- EtherNet/IP

 Measuring devices with Modbus RS485 protocol do not have an integrated Web server.

3.2 Integrated Web server

Communication can be established between the measuring device (Web server) and a computer (client) using the integrated web server of the measuring device. Once communication has been established, the measuring device can be operated and configured via the Web browser on the computer. Furthermore the measuring device data can be managed and the network parameters can be configured.

3.2.1 Operating options



- 1 Proline flowmeter with integrated Web server
 2 Local operation via display module (Promag 400 only)
 3 Computer with Web browser (e.g. Internet Explorer) or operating tool (e.g. FieldCare, AMS Device Manager, SIMATIC PDM)
 4 Automation system (e.g. PLC)

Basic procedure

Establishing a connection to the integrated Web server

1. Configure the computer →  12.
2. Check the settings on the measuring device and change them if necessary →  17.
3. Connect the measuring device to the computer →  19.
4. Establish a connection to the Web server →  24.
5. Start the Web browser and access the operating menu →  26.
 - ↳ The measuring device can be operated via the Web server.

3.3 IP address

The IP address of the measuring device is required to establish communication between the measuring device (Web server) and a computer (client). Depending on the communication protocol of the measuring device, the hardware and the software settings there are different ways of assigning or specifying the IP address.

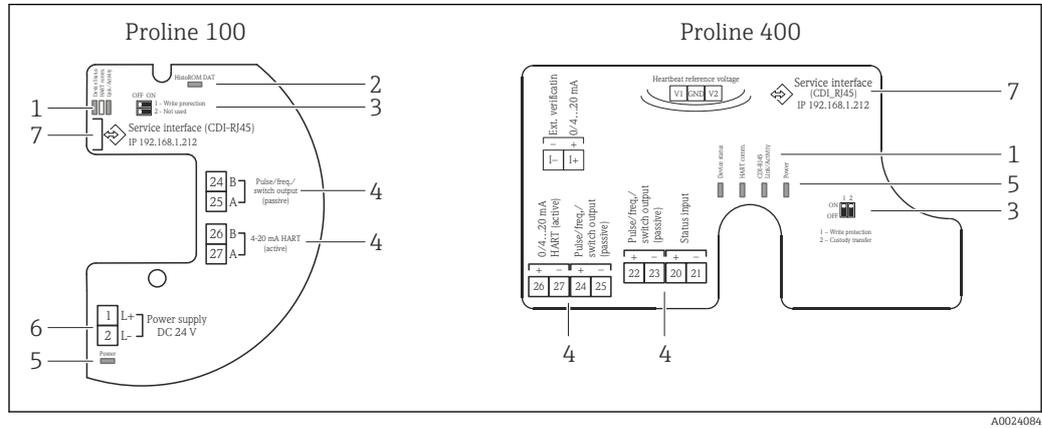
Assign or specify the IP address via:	Measuring devices with communication protocol		
	HART	PROFIBUS DP	EtherNet/IP
Use of the standard IP address ¹⁾ The measuring device uses the fixed IP address (permanently assigned IP address): 192.168.1.212 The device is connected via the CDI RJ45 service interface.			
DHCP (Dynamic Host Configuration Protocol) ²⁾ The measuring device is automatically assigned the IP address by the automation system: DHCP client →  38			
Hardware addressing The measuring device uses the IP address configured via the "IP address setting" DIP switches. "IP address setting" DIP switch = ON/OFF, depending on the address →  31			
Software addressing The measuring device uses the IP address configured in the IP address parameter →  32			
Use of the DIP switch: Default Ethernet network settings ³⁾ The measuring device uses the fixed IP address: 192.168.1.212 DIP switch: default Ethernet network settings = ON →  33 The device is connected via the CDI RJ45 service interface. After a restart the device can be connected via the CDI RJ45 service interface or via Ethernet network. So never use this DIP switch on 2 devices in the same network at the same time to avoid an IP address conflict.			

- 1) Factory setting: measuring devices with HART and PROFIBUS DP.
- 2) Factory setting: measuring devices with EtherNet/IP.
- 3) For a temporary connection, e.g. in the event of servicing or if the IP address is not known. The measuring device is disconnected from the network/automation system!

3.4 Identification in the measuring device

All the hardware components available and their functions for the measuring device are described on an adhesive label on the electronics board.

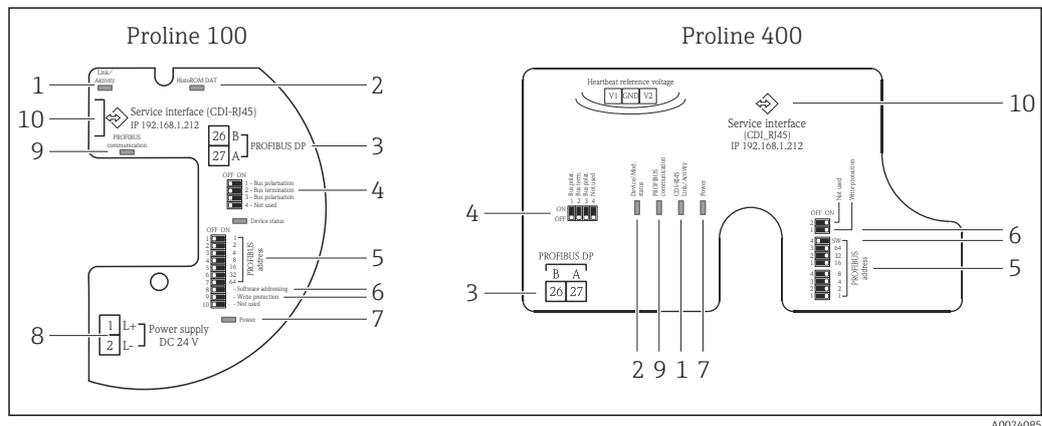
3.4.1 Measuring devices with HART protocol



1 Example: Proline 100 and Proline 400 HART transmitters

- 1 LED: Measuring device status, HART communication and link/activity
- 2 LED: HistoROM DAT
- 3 DIP switch: Write protection
- 4 Terminals: Inputs/outputs
- 5 LED: Power
- 6 Terminals: Supply voltage
- 7 Service interface (CDI-RJ45)

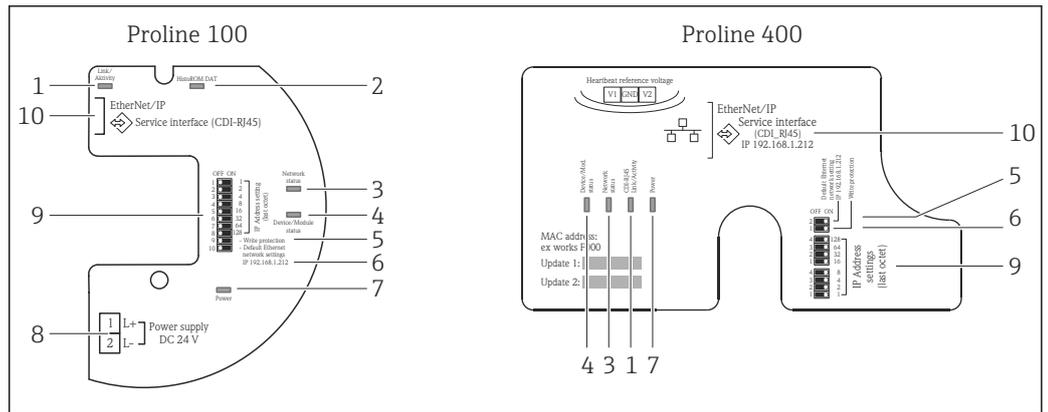
3.4.2 Measuring devices with PROFIBUS DP protocol



2 Example: Proline 100 and Proline 400 PROFIBUS DP transmitters

- 1 LED: Link/Activity
- 2 LED: HistoROM DAT
- 3 Terminals: PROFIBUS DP
- 4 DIP switch: Bus termination/polarization
- 5 DIP switch: Profibus address
- 6 DIP switch: Software addressing, write protection
- 7 LED: Power
- 8 Terminals: Supply voltage
- 9 LED: Profibus communication
- 10 Service interface (CDI-RJ45)

3.4.3 Measuring devices with EtherNet/IP protocol



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3 Example: Proline 100 and Proline 400 EtherNet/IP transmitters

- 1 LED: Link/Activity
- 2 LED: HistoROM DAT
- 3 LED: Network status
- 4 LED: Measuring device status/module status
- 5 DIP switch: Write protection
- 6 DIP switch: Default addressing (IP 192.168.1.212)
- 7 LED: Power
- 8 Terminals: Supply voltage
- 9 DIP switch: EtherNet/IP address
- 10 Service interface (CDI-RJ45)

4 Prerequisites: computer

4.1 Hardware

Interface	The computer must have an RJ45 interface.
Connecting cable	Standard Ethernet cable with RJ45 connector.
Screen	Recommended size: $\geq 12"$ (depends on the screen resolution)  Web server operation is not optimized for touch screens!

4.2 Software

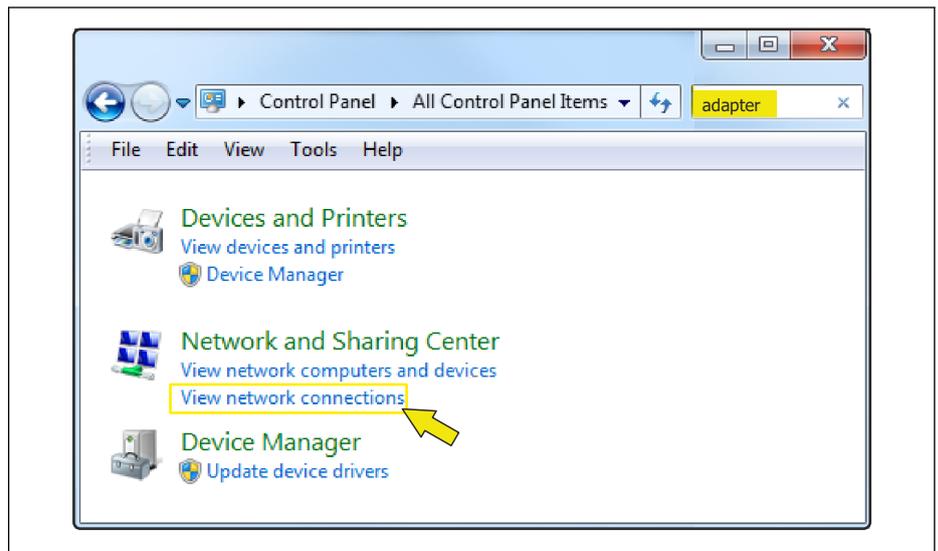
Recommended operating systems	Microsoft Windows 7 or higher  Microsoft Windows XP is supported.
Web browser	<ul style="list-style-type: none"> ▪ Microsoft Internet Explorer 8 or higher ▪ Mozilla Firefox ▪ Google Chrome

4.3 Configuring the computer

User rights	Appropriate user rights (e.g. administrator rights) for TCP/IP and proxy server settings are necessary (for adjusting the IP address, subnet mask etc.).
Proxy server settings of the Web browser	The Web browser setting <i>Use a Proxy Server for Your LAN</i> must be deselected →  16.
JavaScript	JavaScript must be enabled.  If JavaScript cannot be enabled: enter <code>http://XXX.XXX.X.XXX/basic.html</code> in the address line of the Web browser, e.g. <code>http://192.168.1.212/basic.html</code> . A fully functional but simplified version of the operating menu structure starts in the Web browser. When installing a new firmware version: To enable correct data display, clear the temporary memory (cache) of the Web browser under Internet options .
Network connections	Only the active network connections to the measuring device should be used. Switch off all other network connections such as WLAN for example.

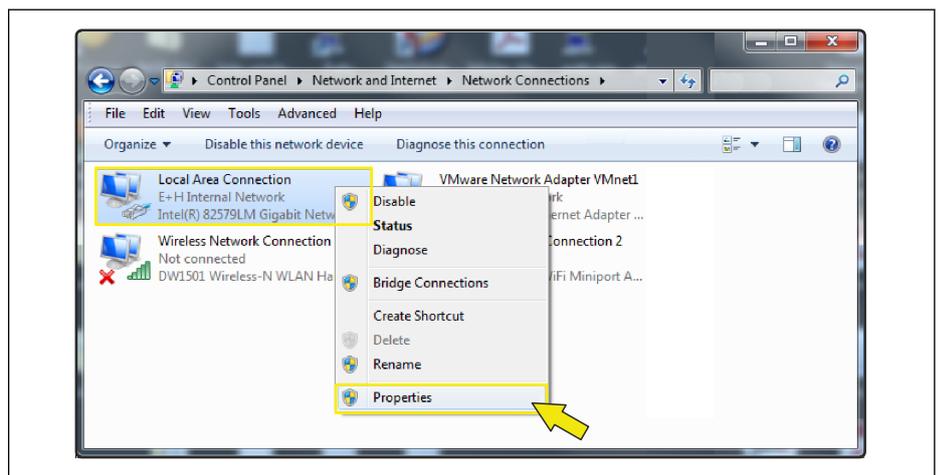
4.3.1 Configuring IP settings for Windows

- i
 - To configure the IP settings, appropriate user rights (e.g. administrator rights) are required for the computer.
 - Before configuring the IP settings, close all the windows of the Web browser.
1. Click *Start* (Windows icon).
 - ↳ The Start menu appears.
 2. In the Start menu, select *Control Panel*.
 - ↳ This opens a new window with the control panel elements.



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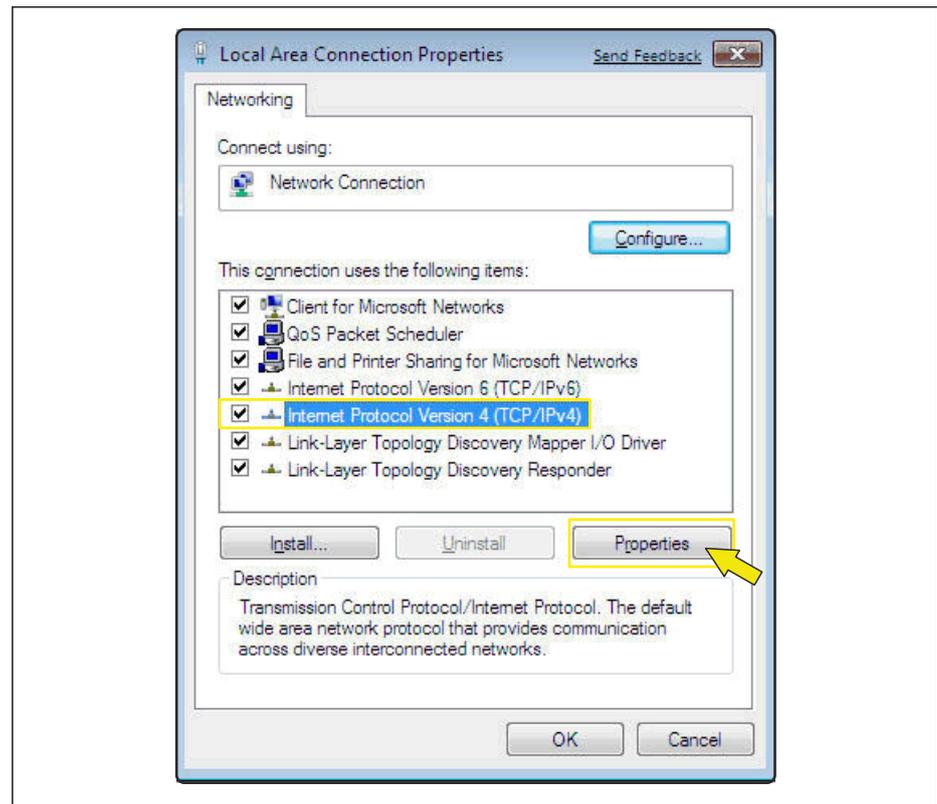
3. Enter the term "adapter" in the search field.
 - ↳ The *Network and Sharing Center* is listed in the search results.
4. Select the *Network Connections* option under *Network and Sharing Center*.
 - ↳ This opens a new window with the network connections.



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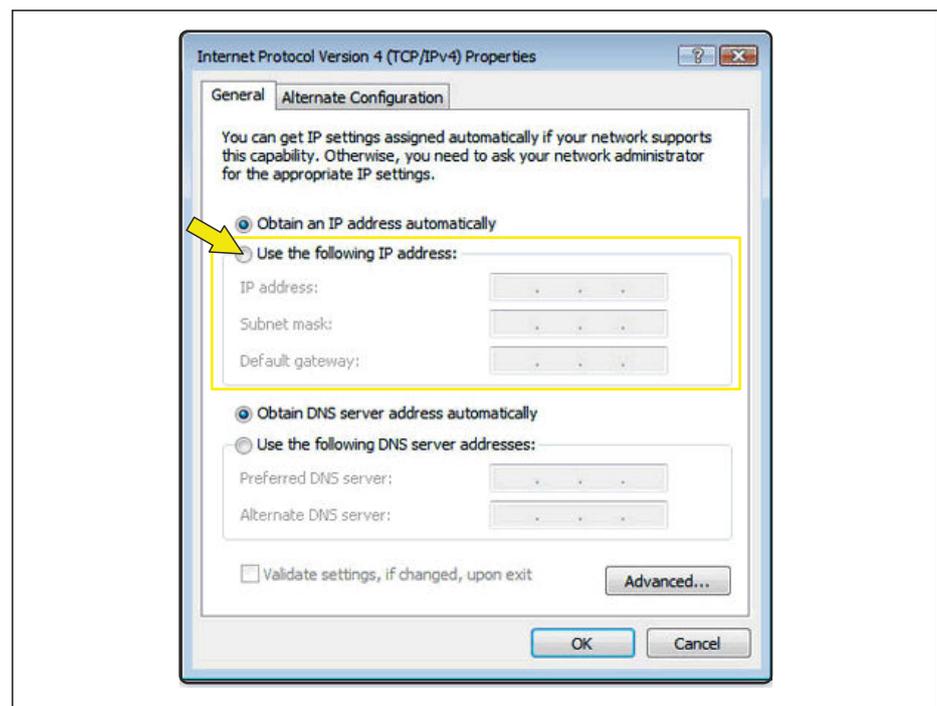
5. In this window, select the *Local Area Connection* (LAN).

6. Right-click to open the picklist and select *Properties*.
 - ↳ The *Local Area Connection Properties* dialog box opens.



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7. Select the *Internet Protocol Version 4 (TCP/IPv4)* item.
8. Click the *Properties* button.
 - ↳ The *Internet Protocol Version 4 (TCP/IPv4) Properties* window opens.



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9. In the *General* tab, select the *Use the Following IP Address* option.

10. Enter the IP address, subnet mask and default gateway as indicated in the following table and then click *Ok* to confirm.

Standard settings for IP address, subnet mask and default gateway

IP address	192.168.1.XXX  For XXX, all numerical values except: 0, 212 and 255 → e.g. 192.168.1.213
Subnet mask	255.255.255.0
Default gateway	192.168.1.212 or leave cells empty

-  The standard settings correspond to those for private networks. In the case of Ethernet-based networks, the settings can deviate from these standard settings and must be changed if necessary.

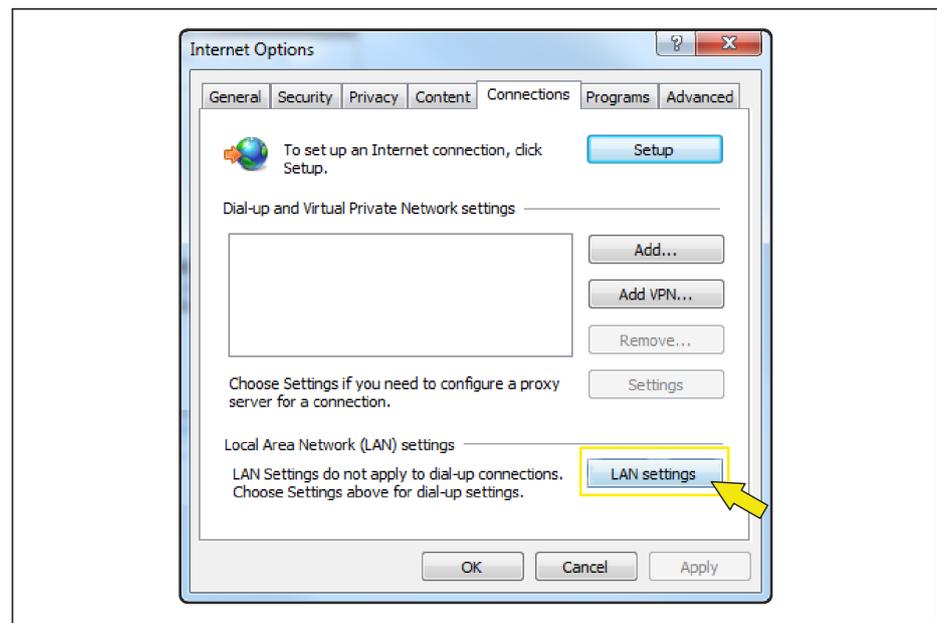
4.3.2 Changing the proxy server settings

To establish communication, the proxy server setting *Use a Proxy Server for Your LAN* must be deselected for the Web browser.

i To change the proxy server setting, appropriate user rights (e.g. administrator rights) are required for the computer.

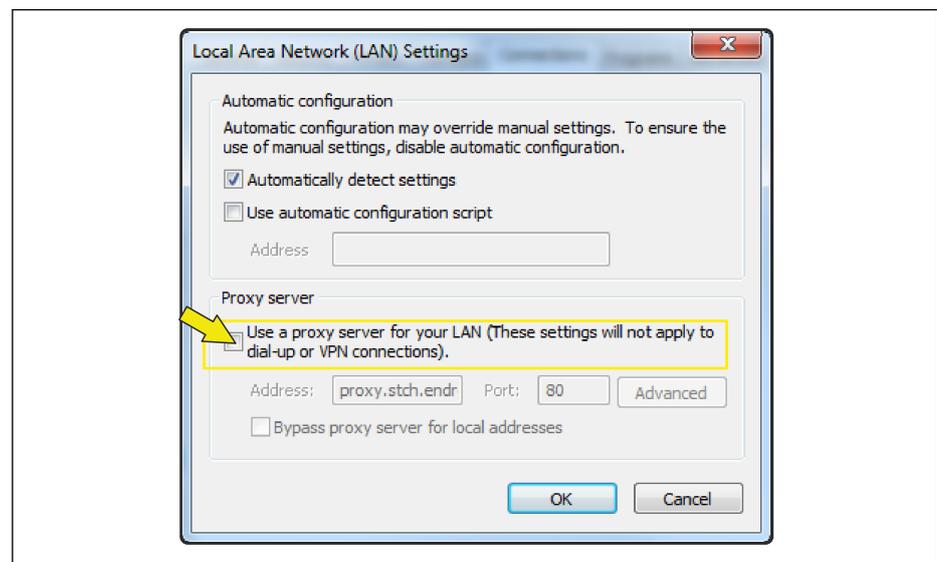
Changing the proxy server settings taking Internet Explorer as the sample browser

1. Open the Web browser.
2. In the *Options* menu, select the *Internet Options* item.
 - ↳ This opens a new window with the Internet options.



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3. Select the *Connections* tab.
4. Under *Local Area Network Settings* click the *LAN Settings* button.
 - ↳ This opens a new window with the *Local Area Network Settings*.



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5. Deselect the *Use a Proxy Server for Your LAN* checkbox and then click *Ok* to confirm.

5 Prerequisites: measuring device

5.1 Enabling the Web server

The Web server must be enabled in the measuring device (factory setting: Web server enabled).

If the Web server is disabled, it can be enabled again via the **Web server functionality** parameter. To do so, users can choose from the following operation options:

- Local display (Promag 400)
- Operating tool, e.g. FieldCare, AMS Device Manager, SIMATIC PDM (all measuring devices)

"Expert" menu → Communication → Web server

Parameter overview with brief description

Parameter	Description	Options	Factory setting
Web server functionality	Switch the Web server on and off.	<ul style="list-style-type: none"> ▪ Off ▪ On 	On

5.2 Determining the IP address of the measuring device

The IP address of the measuring device is required to establish communication between the measuring device (Web server) and a computer (client). The IP address used depends on the measuring device's communication protocol and the DIP switch settings →  9.

5.2.1 Measuring devices with PROFIBUS DP and HART protocol

Measuring devices with PROFIBUS DP and HART protocol have a fixed standard IP address, namely 192.168.1.212. This can be entered in the Web browser on the computer to establish communication.

5.2.2 Measuring devices with EtherNet/IP protocol

The IP address can be assigned to the measuring device in a variety of ways:

- Dynamic Host Configuration Protocol (DHCP), factory setting:
The IP address is automatically assigned to the measuring device by the automation system (DHCP server).
- Hardware addressing:
The IP address is set via DIP switches →  31
- Software addressing:
The IP address is entered via the **IP address** parameter →  32
- DIP switch for "Default Ethernet Network Settings":
For establishing the network connection via the service interface (CDI-RJ45). The fixed IP address 192.168.1.212 is used →  33.

Determining the IP address of the measuring device

IP address assigned or specified via:	Determine IP address settings via parameters or DIP switches		
	Local display (if available)	Operating tool, e.g. FieldCare, AMS Device Manager, SIMATIC PDM	DIP switches in electronics compartment
Dynamic Host Configuration Protocol (DHCP), factory setting	✓	✓	✗
Hardware addressing of the IP address via DIP switches	✓	✓	✓
Software addressing of the IP address via the IP address parameter	✓	✓	✗
DIP switch for "Default Ethernet Network Settings", use the fixed IP address: 192.168.1.212	✗	✗	✓

 Position of DIP switches on Proline 100 and 400 EtherNet/IP transmitters →  11

Using the local display or an operating tool

Zum Ermitteln der IP-Adresse über die Vor-Ort-Anzeige (Promag 400) oder einem Bedientool z.B. The **IP address** parameter can be used to determine the IP address using the local display (Promag 400) or an operating tool e.g. FieldCare, AMS Device Manager or SIMATIC PDM.

Navigation

"Diagnostics" menu → Device information → IP address

6 Connecting the computer to the measuring device

The measuring device can be connected to the computer via:

- The service interface (CDI-RJ45)
- Ethernet-based fieldbuses (only measuring devices with EtherNet/IP protocol)

6.1 The service interface (CDI-RJ45)

NOTICE

Risk of electric shock! Components carry dangerous voltages!

- ▶ Never open the measuring device while it is connected to the supply voltage.

 The information and safety instructions in the Operating Instructions pertaining to the measuring device must always be observed →  5.

Promass 100 and Promag 100

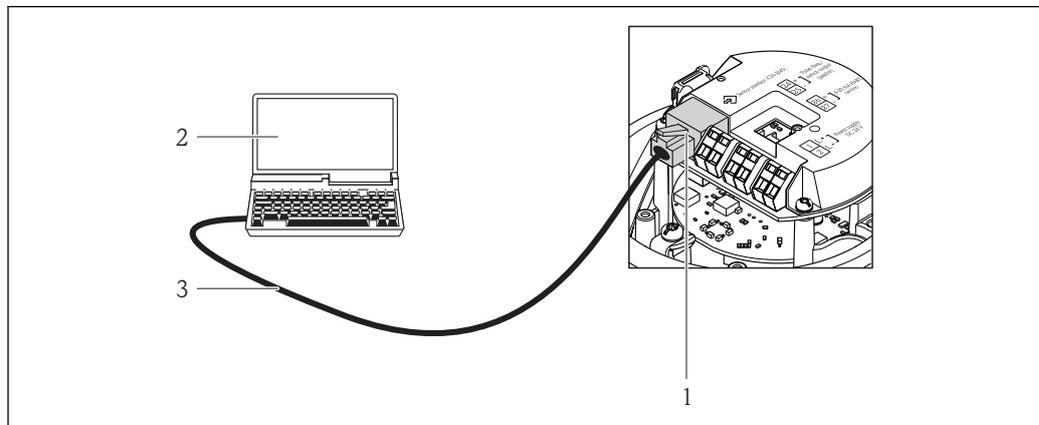
1. Depending on the housing version, loosen the securing clamp or fixing screw of the housing cover.
2. Depending on the housing version, unscrew or open the housing cover.
3. Connect the computer to the RJ45 connector via the standard Ethernet connecting cable.
 - ↳ The location of the connection socket depends on the measuring device and the communication protocol: see the following sections.

Promag 400

1. Loosen the 4 fixing screws on the housing cover.
2. Open the housing cover.
3. Connect the computer to the RJ45 connector via the standard Ethernet connecting cable.
 - ↳ The location of the connection socket depends on the measuring device and the communication protocol: see the following sections.

6.1.1 HART protocol

Promass 100 and Promag 100

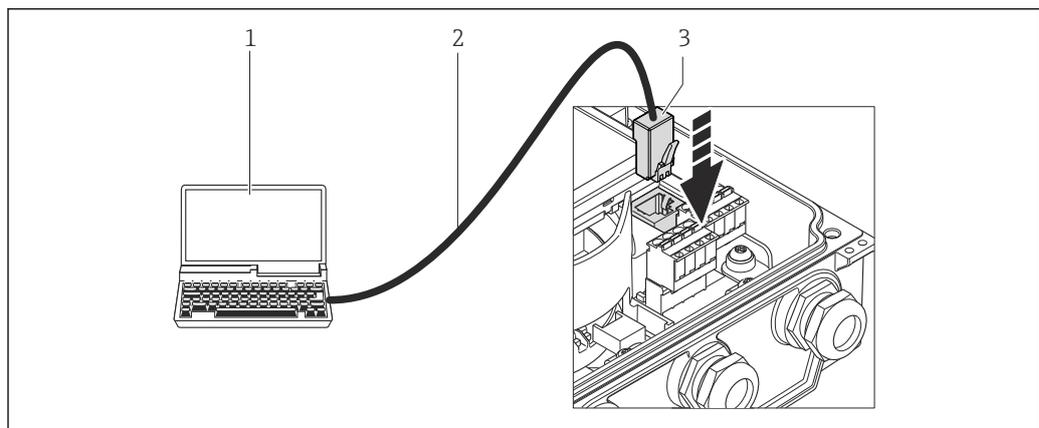


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4 Connection for the order code for "Output", option B: 4-20 mA HART, pulse/frequency/switch output

- 1 Service interface (CDI -RJ45) of the measuring device with access to the integrated Web server
- 2 Computer with Web browser (e.g. Internet Explorer) for accessing the integrated device Web server or with "FieldCare" operating tool with COM DTM "CDI Communication TCP/IP"
- 3 Standard Ethernet connecting cable with RJ45 connector

Promag 400

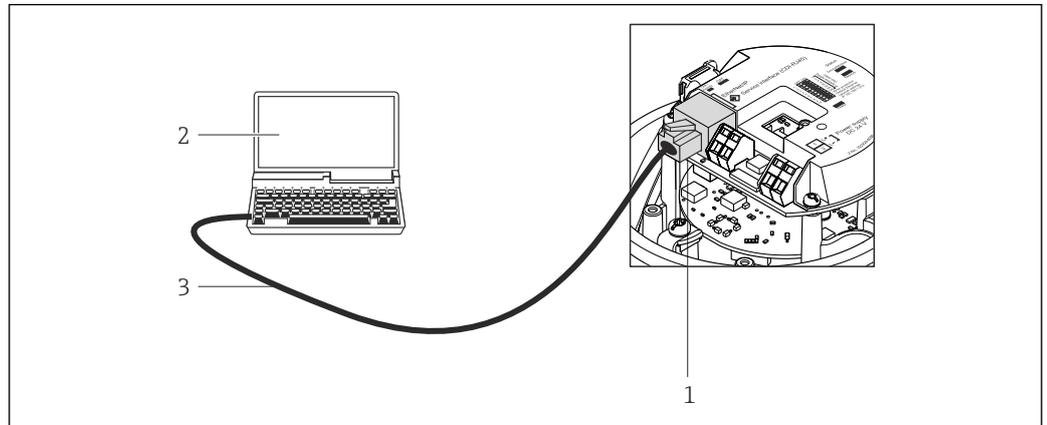


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- 1 Computer with Web browser (e.g. Internet Explorer) for accessing the integrated device Web server or with "FieldCare" operating tool with COM DTM "CDI Communication TCP/IP"
- 2 Standard Ethernet connecting cable with RJ45 connector
- 3 Service interface (CDI -RJ45) of the measuring device with access to the integrated Web server

6.1.2 PROFIBUS DP protocol

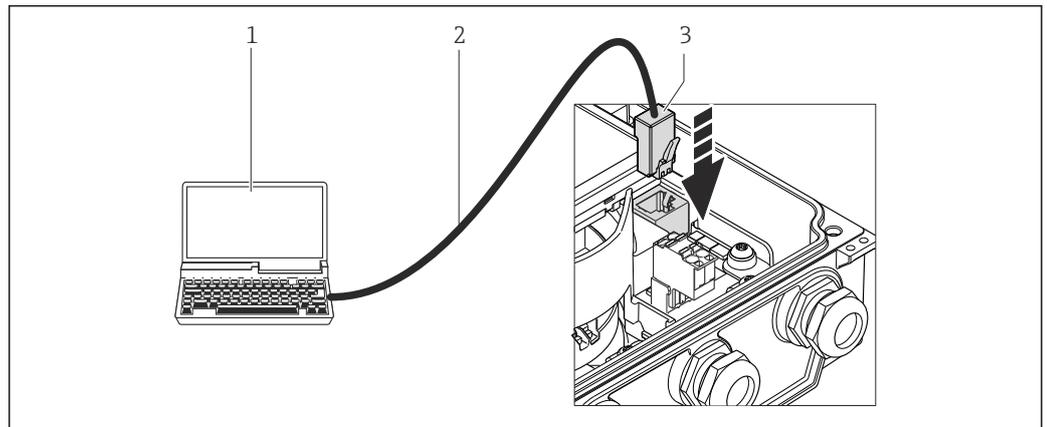
Promass 100 and Promag 100



5 Connection for order code for "Output", option L: PROFIBUS DP

- 1 Service interface (CDI -RJ45) of the measuring device with access to the integrated Web server
- 2 Computer with Web browser (e.g. Internet Explorer) for accessing the integrated device Web server or with "FieldCare" operating tool with COM DTM "CDI Communication TCP/IP"
- 3 Standard Ethernet connecting cable with RJ45 connector

Promag 400



- 1 Computer with Web browser (e.g. Internet Explorer) for accessing the integrated device Web server or with "FieldCare" operating tool with COM DTM "CDI Communication TCP/IP"
- 2 Standard Ethernet connecting cable with RJ45 connector
- 3 Service interface (CDI -RJ45) of the measuring device with access to the integrated Web server

6.1.3 EtherNet/IP protocol

The IP address can be assigned to the measuring device in a variety of ways:

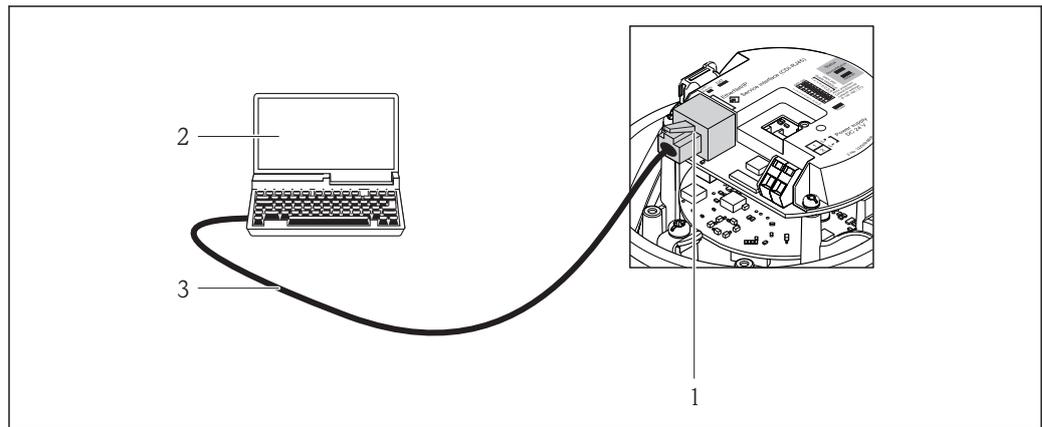
- Dynamic Host Configuration Protocol (DHCP), factory setting:
The IP address is automatically assigned to the measuring device by the automation system (DHCP server).
- Hardware addressing:
The IP address is set via DIP switches → 31
- Software addressing:
The IP address is entered via the **IP address** parameter → 32
- DIP switch for "Default Ethernet Network Settings":
For establishing the network connection via the service interface (CDI-RJ45). The fixed IP address 192.168.1.212 is used → 33.

The measuring device works with the Dynamic Host Configuration Protocol (DHCP) on leaving the factory, i.e. the IP address of the measuring device is automatically assigned by the automation system (DHCP server).

To establish a network connection via the service interface (CDI-RJ45), the "Default Ethernet Network Settings" DIP switch must be set to *ON*. The measuring device then has the fixed IP address: 192.168.1.212. This address can now be used to establish the network connection.

i If the IP address of the measuring device is assigned via hardware or software addressing, the network connection can be established directly via the Ethernet network → 23.

Promass 100 and Promag 100

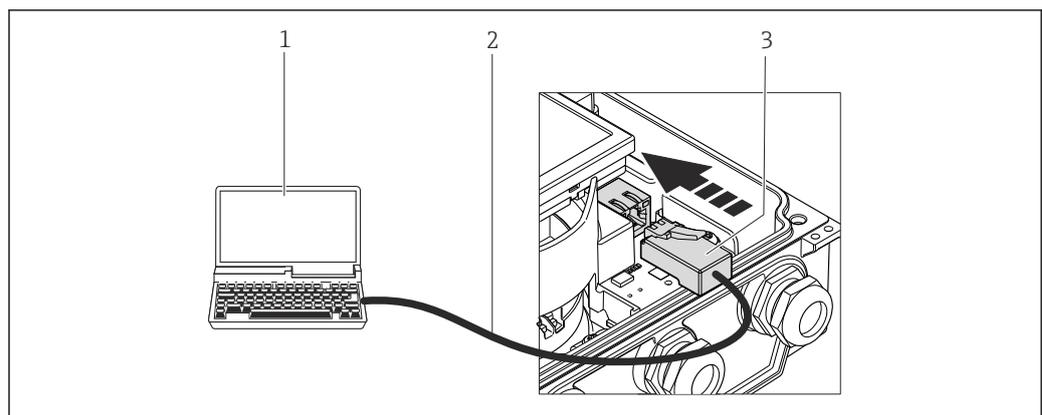


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6 Connection for order code for "Output", option N: EtherNet/IP

- 1 Service interface (CDI -RJ45) and EtherNet/IP interface of the measuring device with access to the integrated Web server
- 2 Computer with Web browser (e.g. Internet Explorer) for accessing the integrated device Web server or with "FieldCare" operating tool with COM DTM "CDI Communication TCP/IP"
- 3 Standard Ethernet connecting cable with RJ45 connector

Promag 400



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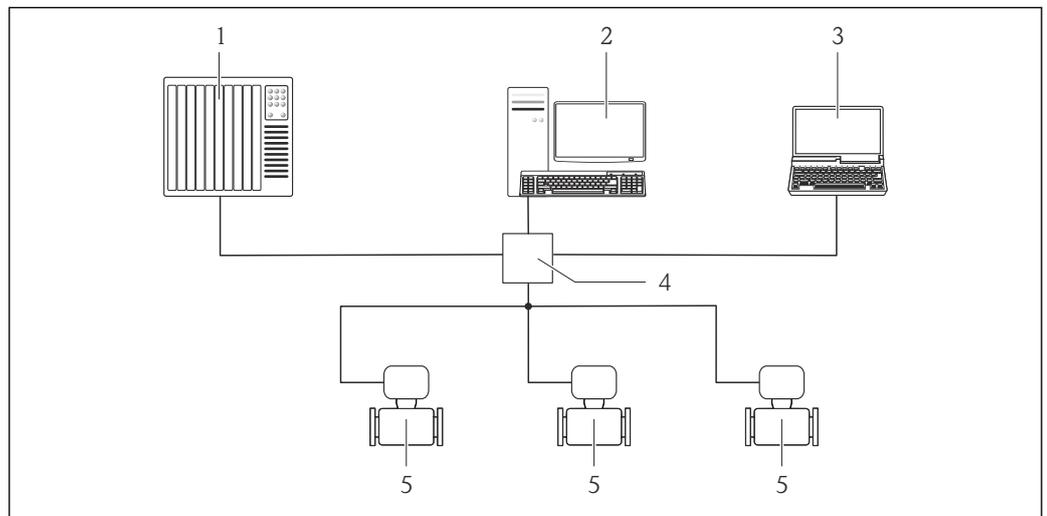
- 1 Computer with Web browser (e.g. Internet Explorer) for accessing the integrated device Web server or with "FieldCare" operating tool with COM DTM "CDI Communication TCP/IP"
- 2 Standard Ethernet connecting cable with RJ45 connector
- 3 Service interface (CDI -RJ45) of the measuring device with access to the integrated Web server

6.2 Ethernet-based fieldbus

Only available for measuring devices with EtherNet/IP protocol.

If the IP address of the measuring device is assigned via hardware or software addressing, the network connection can be established directly via the Ethernet network.

i The measuring device works with the Dynamic Host Configuration Protocol (DHCP) on leaving the factory, i.e. the IP address of the measuring device is automatically assigned by the automation system (DHCP server). To establish a network connection via the service interface (CDI-RJ45), the "Default Ethernet Network Settings" DIP switch must be set to *ON*. The measuring device then has the fixed IP address: 192.168.1.212. This address can now be used to establish the network connection →  21.



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 7 Ethernet network

- 1 Automation system, (e.g. "RSLogix" (Rockwell Automation)
- 2 Workstation for measuring device operation: with Add-on Profile Level 3 for "RSLogix 5000" (Rockwell Automation) or with Electronic Data Sheet (EDS)
- 3 Computer with Web browser (e.g. Internet Explorer) for accessing the integrated device Web server or with "FieldCare" operating tool with COM DTM "CDI Communication TCP/IP"
- 4 Ethernet switch

7 Establishing a connection to the Web server

7.1 Prerequisites

The IP settings in the measuring device and computer must match before a connection can be established successfully. In particular this concerns the IP addressing and Web browser settings.

The following conditions must be met to connect:

- The Web server of the measuring device is enabled →  17.
- The IP address of the measuring device is known →  17.
- The computer being used meets hardware and software requirements →  12.
- The measuring device and computer are connected to one another via the connecting cable →  19 or directly via the Ethernet network →  23.
- The measuring device is switched on.

 Only the active network connections to the measuring device should be used. Switch off all other network connections such as WLAN for example.

7.2 Starting the Web browser

 JavaScript must be enabled.

If JavaScript cannot be enabled:

enter `http://XXX.XXX.X.XXX/basic.html` in the address line of the Web browser, e.g. `http://192.168.1.212/basic.html`. A fully functional but simplified version of the operating menu structure starts in the Web browser.

When installing a new firmware version:

To enable correct data display, clear the temporary memory (cache) of the Web browser under **Internet options**.

HART and PROFIBUS DP protocol

1. Start the Web browser on the computer.
2. Enter the IP address of the Web server in the address line of the Web browser:
192.168.1.212

EtherNetIP protocol

1. Start the Web browser on the computer.
2. Enter the IP address of the Web server in the address line of the Web browser. If the IP address is not known →  17.

The login page appears.

1 2 3

Device name

Device tag

Endress+Hauser

Webserv.language

Ent. access code

Access stat.tool

OK

A0017362

- 1 *Picture of device*
- 2 *Device name*
- 3 *Device tag*

 If a login page does not appear, or if the page is incomplete →  28.

8 Accessing the operating menu

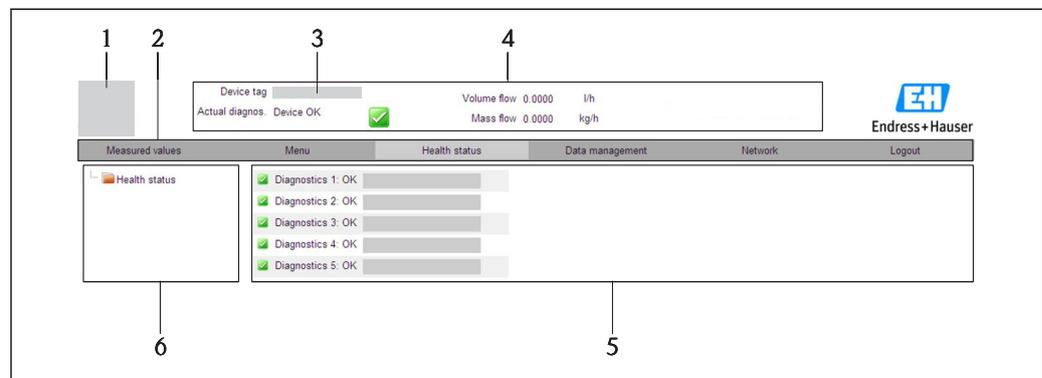
8.1 Logging on

1. Select the preferred operating language for the Web browser.
2. Enter the access code.
3. Press **OK** to confirm your entry.

Access code	0000 (factory setting); can be changed by customer
-------------	--

i If no action is performed for 10 minutes, the Web browser automatically returns to the login page.

8.2 User interface



A0017757-EN

- 1 Picture of device
- 2 Function row with 6 functions
- 3 Device tag
- 4 Header
- 5 Working area
- 6 Navigation area

8.2.1 Areas of the user interface

Header

The following information appears in the header:

- Device tag
- Device status with status signal
- Current measured values

Function row

Functions	Meaning
Measured values	Displays the measured values of the measuring device
Menu	Access to the operating menu structure of the measuring device, same as for the local display (Promag 400) and operating tool
Device status	Displays the diagnostic messages currently pending, listed in order of priority

Functions	Meaning
Data management	<ul style="list-style-type: none"> ▪ Data exchange between PC and measuring device: <ul style="list-style-type: none"> - Load the configuration from the measuring device (XML format, save configuration) - Save the configuration to the measuring device (XML format, restore configuration) - Export the event list (.csv file) - Export parameter settings (.csv file, create documentation of the measuring point configuration) - Export the Heartbeat verification log (PDF file, only available with the "Heartbeat Verification" application package) ▪ If using fieldbuses, upload device drivers for system integration from the measuring device: <ul style="list-style-type: none"> - PROFIBUS DP: GSD file - EtherNet/IP: EDS file
Network configuration	Configuration and checking of all the parameters required for establishing the connection to the measuring device: <ul style="list-style-type: none"> ▪ Network settings (e.g. IP address, MAC address) ▪ Device information (e.g. serial number, firmware version)
Logout	End the operation and call up the login page

Navigation area

If a function is selected in the function bar, the submenus of the function open in the navigation area. The user can now navigate through the menu structure.

Working area

Depending on the selected function and the related submenus, various actions can be performed in this area:

- Configuring parameters
- Reading measured values
- Calling up help text
- Starting an upload/download

8.2.2 Structure of the operating menu

The structure of the Web server operating menu corresponds to that of other operating tools, such as the local display, FieldCare etc.

 For detailed information on the structure of the operating menu, see the Operating Instructions for the measuring device

8.3 Logging out

 Before logging out, perform a data backup via the **Data Management** function (upload configuration from measuring device) if necessary.

1. Select the **Logout** entry in the function row.
 - ↳ The home page with the Login box appears.
2. Close the Web browser.
3. Reset modified settings for the Internet protocol (TCP/IP) .

 If the "Default Ethernet Network Settings" DIP switch was used to establish communication:

Once you have finished configuring the measuring device, the "Default Ethernet Network Settings" DIP switch must be disabled again (OFF) and the measuring device must be restarted. After restarted, the measuring device uses the IP address originally configured and the measuring device is reconnected to the network.

9 Diagnostics and troubleshooting

 For detailed information on all the diagnostics information, see the Operating Instructions for the measuring device →  5.

9.1 General Web server troubleshooting

Problem	Possible causes	Remedial action
No connection to Web server	Web server disabled	Check whether the Web server of the measuring device is enabled (enable if necessary) →  17
	Incorrect setting for the Ethernet interface of the computer	<ul style="list-style-type: none"> ▪ Check the properties of the Internet protocol (TCP/IP) →  13 ▪ Check the network connection →  29 ▪ Check the network settings with the IT manager.
	Incorrect IP address	Check the IP address (determine it if necessary) →  17
	Web browser setting "Use a Proxy Server for Your LAN" is enabled	Disable the Web browser setting "Use a Proxy Server for Your LAN" →  16
	Apart from the active network connections to the measuring device, other network connections are also being used.	Switch off all other network connections such as WLAN for example.
Web browser frozen and operation no longer possible	Data transfer active	Wait until data transfer or current action is finished.
	Connection lost	<ul style="list-style-type: none"> ▪ Check cable connection and power supply. ▪ Refresh the Web browser view and restart it if necessary.
Content of Web browser incomplete or difficult to read	Not using optimum version of Web server.	<ul style="list-style-type: none"> ▪ Use the correct Web browser version →  12 ▪ Clear the Web browser cache and restart the Web browser.
	Unsuitable view settings.	Change the font size/display ratio of the Web browser.
No or incomplete display of contents in the Web browser	JavaScript not enabled	<ul style="list-style-type: none"> ▪ Enable JavaScript. ▪ If JavaScript cannot be enabled, use simple format →  12

9.2 Diagnostic information in the Web browser

Diagnostic information is displayed in the function row of the Web browser user interface →  26. The content and display format are harmonized with the local display and FieldCare operating tool .

9.3 Measuring device diagnostic information

9.3.1 Overview of Web server information events

Unlike a diagnostic event, an information event is displayed in the event logbook only and not in the diagnostic list.

Information event	Event text
I1000	----- (device OK)
I1110	Write protection switch changed
I1361	Wrong web server login

9.4 Checking the network connection

The network connection between the computer and measuring device can be checked using the "ping" utility of the Internet Control Message Protocol (ICMP).

 The "ping" utility sends ICMP(v6) "echo request" packets (ping, ICMP packet type 8 (0x08)) to the target address of the measuring device. According to the protocol specification, the measuring device must send back a response: ICMP "echo reply" (pong, ICMP packet type 0 (0x00)).

1. Click *Start* (Windows icon).
 - ↳ The startup screen including the search field opens.
2. In the search field, enter "cmd" (command).
 - ↳ A link to "cmd.exe" is displayed in the results field.
3. Select "cmd.exe".
 - ↳ A new command window opens.
4. Enter ping and the IP address, e.g.: ping 192.168.1.212
 - ↳ The network connection status is displayed.

 Depending on the operating system used, or the version of the operating system, other tools can also be used, such as Powershell.exe, prompt etc.

If the measuring device cannot be reached, the router responsible will send back the message "Network unreachable" or "Host unreachable".

If this occurs, check the following:

- IP address settings →  17
- Web server enabling →  17

10 Technical data

Web serverStack: standard TCP stack with IPv4 functionality

Connection and session management

- All communication protocols except EtherNet/IP:
Fixed IP address, i.e. no access possible from outside the network
 - Open ports:
 - 80 (HTTP for Web server)
 - 8000 (for Endress+Hauser Service communication)
 - Under any circumstances only one connection possible via Hypertext Transfer Protocol (HTTP)
 - Time out after 10 minutes
-

Supported functions

- Java Script
 - Communication protocol: Dynamic Host Configuration Protocol (DHCP), based on RFC 2131
 - Hypertext Markup Language (HTML)
 - Cascading Style Sheets (CSS)
-

Functions not supported

- Domain Name System (DNS)
- Hyper Text Transfer Protocol Secure (HTTPS)

11 Addressing Ethernet-based fieldbuses

11.1 Setting the IP address manually

11.1.1 Hardware addressing

Addressing data

IP address and configuration options			
1st octet	2nd octet	3rd octet	4th octet
192.	168.	1.	XXX
	↓		↓
	Can only be configured via software addressing		Can be configured via software addressing and hardware addressing

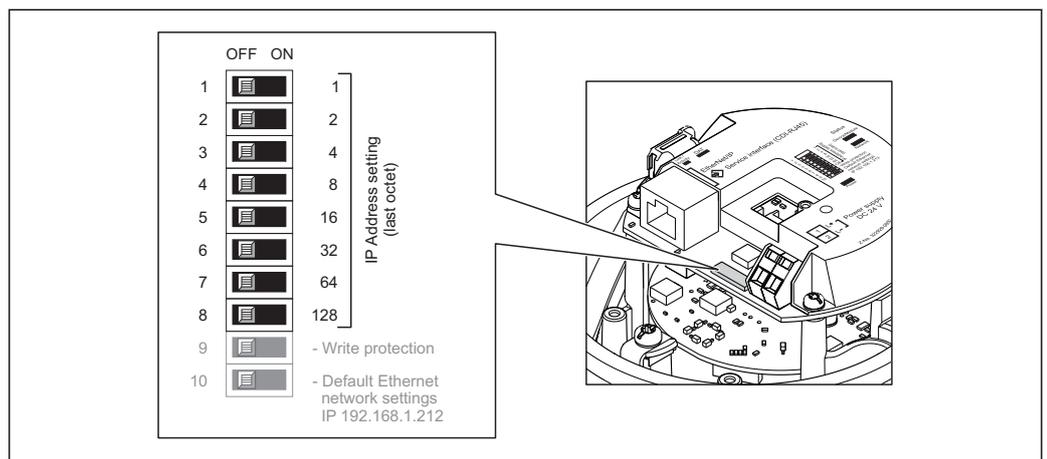
IP address range	1 to 254 (4th octet)
IP address broadcast	255
Addressing mode ex works	Software addressing; all DIP switches for hardware addressing are set to OFF.
IP address ex works	DHCP server active

Promass 100 and Promag 100

NOTICE

Risk of electric shock! Components carry dangerous voltages!

- ▶ Never open the measuring device while it is connected to the supply voltage.
- ▶ The information and safety instructions in the Operating Instructions pertaining to the measuring device must always be observed → 5.



1. Depending on the housing version, loosen the securing clamp or fixing screw of the housing cover.
2. Depending on the housing version, unscrew or open the housing cover and disconnect the local display from the main electronics module where necessary.
3. Set the desired IP address using the corresponding DIP switches on the I/O electronics module.
 - ↳ Hardware addressing with the configured IP address is enabled after 10 s.

4. Reverse the removal procedure to reassemble the transmitter.

NOTICE

When the IP address is changed via hardware addressing, the new IP address is used after 10 seconds.

Communication between the measuring device and computer is terminated.

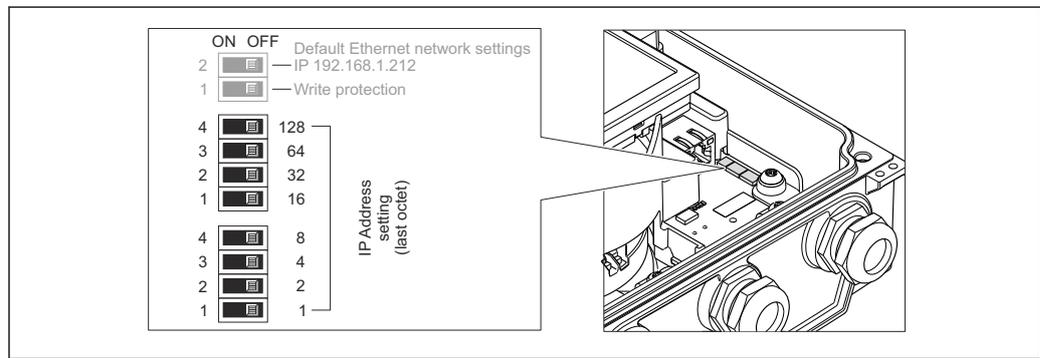
- ▶ Communication between the measuring device and computer must be reestablished with the modified IP address.

Promag 400

NOTICE

Risk of electric shock! Components carry dangerous voltages!

- ▶ Never open the measuring device while it is connected to the supply voltage.
- ▶ The information and safety instructions in the Operating Instructions pertaining to the measuring device must always be observed → 5.



A0021322

1. Loosen the 4 fixing screws on the housing cover.
2. Open the housing cover.
3. Set the desired IP address using the corresponding DIP switches on the I/O electronics module.
 - ↳ Hardware addressing with the configured IP address is enabled after 10 seconds.
4. Reverse the removal procedure to reassemble the transmitter.

NOTICE

When the IP address is changed via hardware addressing, the new IP address is used after 10 seconds.

Communication between the measuring device and computer is terminated.

- ▶ Communication between the measuring device and computer must be reestablished with the modified IP address.

11.1.2 Software addressing

When delivered, the measuring device has the following factory settings:

IP address	192.168.1.212
Subnet mask	255.255.255.0
Default gateway	192.168.1.212

- i
 - If hardware addressing is active, software addressing is disabled.
 - The "Write protection" DIP switch must be disabled (set to OFF).
 - If a switch is made to hardware addressing, the address configured via software addressing is retained for the first 9 places (the first three octets).

NOTICE

When the IP address is changed via software addressing, the new IP address is used as soon as it is confirmed.

Communication between the measuring device and computer is terminated.

- ▶ Communication between the measuring device and computer must be reestablished with the modified IP address.

The IP address can be read out and configured in the **Configuration** submenu.



In measuring devices with HART and PROFIBUS DP protocol, the IP address is fixed and cannot be modified. The IP address can be read out: "Expert" menu → Communication → Web server → IP address

Navigation

"Expert" menu → Communication → Configuration → IP address

Parameter overview with brief description

Parameter	Description	User interface	Factory setting
IP address	IP address of the Web server of the measuring device.	4 octet: 0 to 255 (in the particular octet)	192.168.1.212

11.2 DIP switch for "Default Ethernet Network Settings":

The "Default Ethernet Network Settings" DIP switch can be used in the following situations:

Measuring device receives IP address via Dynamic Host Configuration Protocol (DHCP)

The measuring device works with the Dynamic Host Configuration Protocol (DHCP) on leaving the factory, i.e. the IP address of the measuring device is automatically assigned by the automation system (DHCP server).

To establish a network connection via the service interface (CDI-RJ45), the "Default Ethernet Network Settings" DIP switch must be set to *ON*. The measuring device then has the fixed IP address: 192.168.1.212. This address can now be used to establish the network connection.

The original IP address that was automatically assigned by the DHCP server is no longer used.

IP address currently used is not known

If the IP address of the measuring device is assigned via hardware or software addressing and this IP address is not known, the network connection can be established via the service interface (CDI-RJ45).

To establish a network connection via the service interface (CDI-RJ45), the "Default Ethernet Network Settings" DIP switch must be set to *ON*. The measuring device then has the fixed IP address: 192.168.1.212. This address can now be used to establish the network connection.

The original IP address that was set via hardware addressing (DIP switch) or software addressing is no longer used.



If the IP address of the measuring device is assigned via hardware or software addressing and the IP address is known, the network connection can also be established directly via the Ethernet network → 23.

The IP address set via software addressing is to be changed via the Web server

If the IP address of the measuring device is assigned via software addressing and this IP address is to be changed via the Web server, the network connection must be established via the service interface (CDI-RJ45).

To establish a network connection via the service interface (CDI-RJ45), the "Default Ethernet Network Settings" DIP switch must be set to *ON*. The measuring device then has the fixed IP address: 192.168.1.212. This address can now be used to establish the network connection.

The original IP address that was set via software addressing is no longer used.

 Software addressing for the IP address can also be performed directly on the measuring device via the **IP address** parameter: →  32.

NOTICE

If the "Default Ethernet Network Settings" DIP switch is used, the IP address known to the network/automation system is no longer used.

The measuring device is disconnected from the network and the automation system can no longer talk to it.

► Once you have finished configuring the measuring device, the "Default Ethernet Network Settings" DIP switch must be disabled again (*OFF*) and the measuring device must be restarted. Afterwards, the original IP address that was automatically assigned by the automation system (DHCP server) or set via hardware addressing (DIP switch) or software addressing (**IP address** parameter) is used again.

 **Electrical connection between the measuring device and a computer via the CDI-RJ45 service interface** →  19

- Position of DIP switch on Proline 100 and Proline 400 EtherNet/IP transmitters →  11

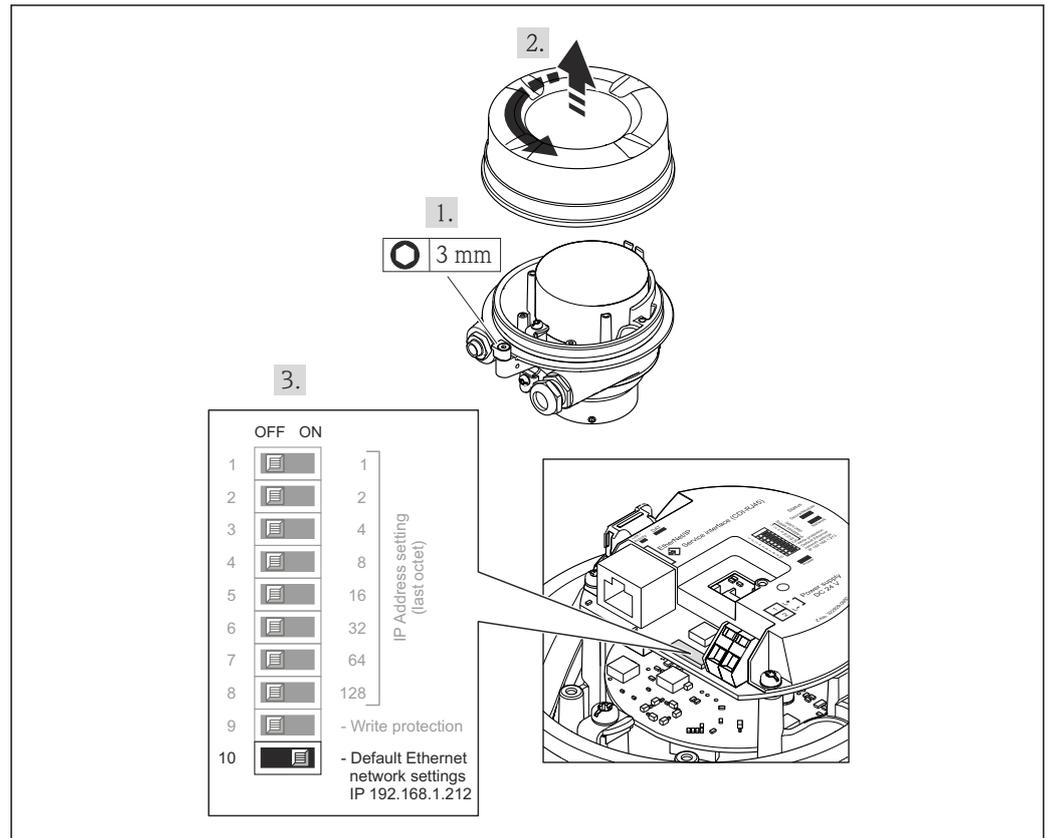
11.2.1 Promass 100 and Promag 100

NOTICE

Risk of electric shock! Components carry dangerous voltages!

► Never open the measuring device while it is connected to the supply voltage.

► The information and safety instructions in the Operating Instructions pertaining to the measuring device must always be observed →  5.



A0023447

Procedure when using the "Default Ethernet Network Settings" DIP switch:

1. Depending on the housing version, loosen the securing clamp or fixing screw of the housing cover.
2. Depending on the housing version, unscrew or open the housing cover and disconnect the local display from the main electronics module where necessary.
3. Connect the measuring device and the computer via the CDI-RJ45 service interface → 19
4. On the measuring device: set the DIP switch "Standard IP address 192.168.1.212" from OFF to ON.
5. Restart the measuring device.

↳ The measuring device now uses the following settings:

- IP address: 192.168.1.212
- Subnet mask: 255.255.255.0
- Default gateway: 192.168.1.212

Note: All parameters, such as the IP address, nevertheless retain their original values and are visible and modifiable in the operating menu.

6. On the computer: enter the IP address in the address field of the Web browser.
 - ↳ Communication between the measuring device and computer is established.

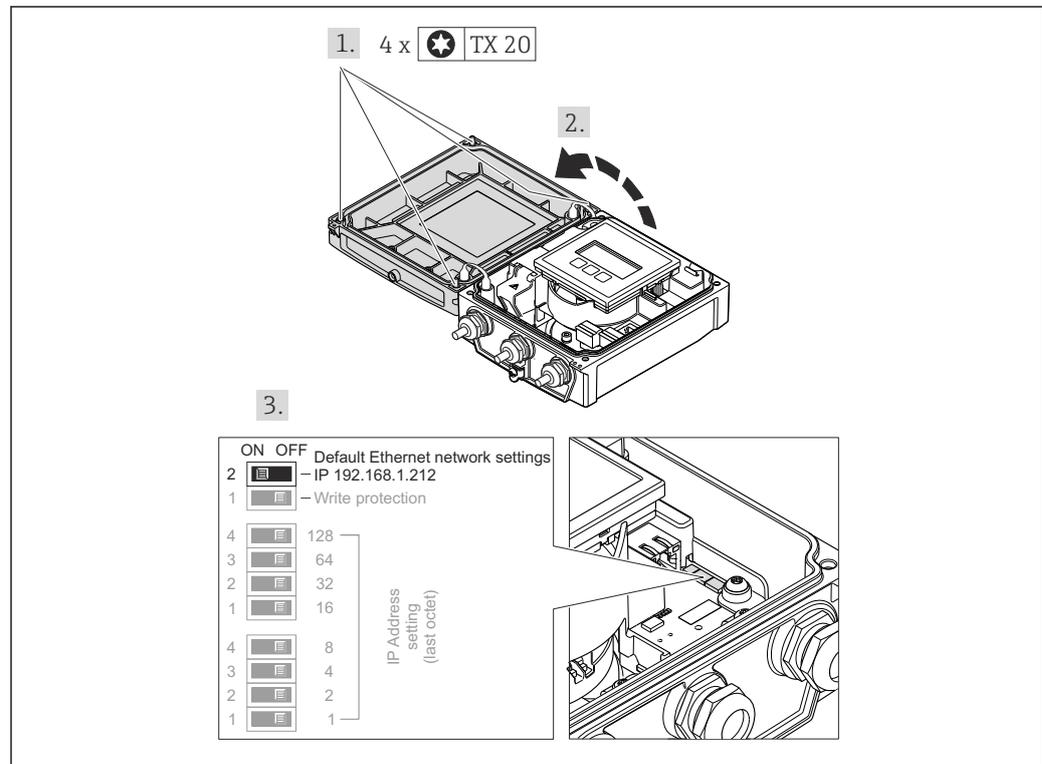
Once you have finished configuring the measuring device, the "Default Ethernet Network Settings" DIP switch must be disabled again (OFF) and the measuring device must be restarted. After restarted, the measuring device uses the IP address originally configured and the measuring device is reconnected to the network.

11.2.2 Promag 400

NOTICE

Risk of electric shock! Components carry dangerous voltages!

- ▶ Never open the measuring device while it is connected to the supply voltage.
- ▶ The information and safety instructions in the Operating Instructions pertaining to the measuring device must always be observed → 5.



A0023448

Procedure when using the "Default Ethernet Network Settings" DIP switch:

1. Loosen the 4 fixing screws on the housing cover.
2. Open the housing cover.
3. Connect the measuring device and the computer via the CDI-RJ45 service interface → 19
4. On the measuring device: set the DIP switch "Standard IP address 192.168.1.212" from OFF to ON.
5. Restart the measuring device.
 - ↳ The measuring device now uses the following settings:
 - IP address: 192.168.1.212
 - Subnet mask: 255.255.255.0
 - Default gateway: 192.168.1.212

Note: All parameters, such as the IP address, nevertheless retain their original values and are visible and modifiable in the operating menu.

6. On the computer: enter the IP address in the address field of the Web browser.
 - ↳ Communication between the measuring device and computer is established.

i Once you have finished configuring the measuring device, the "Default Ethernet Network Settings" DIP switch must be disabled again (OFF) and the measuring device must be restarted. After restarted, the measuring device uses the IP address originally configured and the measuring device is reconnected to the network.

12 Web server parameters

12.1 Language

Navigation

"Operation" menu → Web server language

Parameter overview with brief description

Parameter	Description	Selection	Factory setting
Web server language	Set web server language.	<ul style="list-style-type: none"> ▪ English ▪ Deutsch ▪ Français ▪ Español ▪ Italiano ▪ Nederlands ▪ Portuguesa ▪ Polski ▪ русский язык (Russian) ▪ Svenska ▪ Türkçe ▪ 中文 (Chinese) ▪ 日本語 (Japanese) ▪ 한국어 (Korean) ▪ Bahasa Indonesia ▪ tiếng Việt (Vietnamese) ▪ čeština (Czech) 	English

12.2 Settings: Measuring devices with HART and PROFIBUS DP

Navigation

"Expert" menu → Communication → Web server

▶ Web server

Parameter overview with brief description

Parameter	Description	Selection / User interface	Factory setting
Web server language	Set web server language.	<ul style="list-style-type: none"> ▪ English ▪ Deutsch ▪ Français ▪ Español ▪ Italiano ▪ Nederlands ▪ Portuguesa ▪ Polski ▪ русский язык (Russian) ▪ Svenska ▪ Türkçe ▪ 中文 (Chinese) ▪ 日本語 (Japanese) ▪ 한국어 (Korean) ▪ Bahasa Indonesia ▪ tiếng Việt (Vietnamese) ▪ čeština (Czech) 	English
MAC address	Displays the MAC address of the measuring device.  MAC = Media Access Control	Unique 12-digit character string comprising letters and numbers, e.g.: 00:07:05:10:01:5F	Each measuring device is given an individual address.
IP address	IP address of the Web server of the measuring device.	4 octet: 0 to 255 (in the particular octet)	192.168.1.212
Subnet mask	Displays the subnet mask.	4 octet: 0 to 255 (in the particular octet)	255.255.255.0
Default gateway	Displays the default gateway.	4 octet: 0 to 255 (in the particular octet)	0.0.0.0
Web server functionality	Switch the Web server on and off.	<ul style="list-style-type: none"> ▪ Off ▪ On 	On

12.3 Settings: Measuring devices with EtherNet/IP

Navigation

"Setup" menu → Communication

▶ Communication

Parameter overview with brief description

Parameter	Description	User interface / Selection	Factory setting
MAC address	Displays the MAC address of the measuring device.  MAC = Media Access Control	Unique 12-digit character string comprising letters and numbers, e.g.: 00:07:05:10:01:5F	Each measuring device is given an individual address.
Default network settings	Select whether to restore network settings.	<ul style="list-style-type: none"> ▪ Off ▪ On 	Off
DHCP client	Select to activate/deactivate DHCP client functionality. Result If the web server's DHCP client functionality is activated, the IP address, subnet mask and default gateway are automatically set.  Identification is via the MAC address of the measuring device.	<ul style="list-style-type: none"> ▪ Off ▪ On 	On
IP address	IP address of the Web server of the measuring device.	4 octet: 0 to 255 (in the particular octet)	192.168.1.212
Subnet mask	Displays the subnet mask.	4 octet: 0 to 255 (in the particular octet)	255.255.255.0
Default gateway	Displays the default gateway.	4 octet: 0 to 255 (in the particular octet)	0.0.0.0

www.addresses.endress.com
