These instructions are Brief Operating Instructions; they are not a substitute for the Operating Instructions pertaining to the device.

**Transmitter Brief Operating Instructions**
Contain information about the transmitter.

Sensor Brief Operating Instructions → 3
1. Proline 300 HART

2. Order code: XXXXXXXX
   Ext. ord. cd.: XXXXX
   Ser. no.: XXXXX.XX

3. www.endress.com/deviceviewer

Endress+Hauser Operations App

Serial number

1.
3.
2.
**Brief Operating Instructions for the device**

The device consists of a transmitter and a sensor.

The process of commissioning these two components is described in two separate manuals:
- Sensor Brief Operating Instructions
- Transmitter Brief Operating Instructions

Please refer to both Brief Operating Instructions when commissioning the device as the contents of the manuals complement one another:

**Sensor Brief Operating Instructions**
The Sensor Brief Operating Instructions are aimed at specialists with responsibility for installing the measuring device.
- Incoming acceptance and product identification
- Storage and transport
- Installation

**Transmitter Brief Operating Instructions**
The Transmitter Brief Operating Instructions are aimed at specialists with responsibility for commissioning, configuring and parameterizing the measuring device (until the first measured value).
- Product description
- Installation
- Electrical connection
- Operation options
- System integration
- Commissioning
- Diagnostic information

**Additional device documentation**

These Brief Operating Instructions are the **Transmitter Brief Operating Instructions**.

The "Sensor Brief Operating Instructions" are available via:
- Internet: [www.endress.com/deviceviewer](http://www.endress.com/deviceviewer)
- Smart phone/tablet: *Endress+Hauser Operations App*

Detailed information about the device can be found in the Operating Instructions and the other documentation:
- Internet: [www.endress.com/deviceviewer](http://www.endress.com/deviceviewer)
- Smart phone/tablet: *Endress+Hauser Operations App*
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1 Document information

1.1 Symbols used

1.1.1 Safety symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>⚠️ DANGER!</td>
<td>This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.</td>
</tr>
<tr>
<td>⚠️ WARNING!</td>
<td>This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in serious or fatal injury.</td>
</tr>
<tr>
<td>⚠️ CAUTION!</td>
<td>This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.</td>
</tr>
<tr>
<td>📌 NOTICE</td>
<td>This symbol contains information on procedures and other facts which do not result in personal injury.</td>
</tr>
</tbody>
</table>

1.1.2 Symbols for certain types of information

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️</td>
<td>Permitted Procedures, processes or actions that are permitted.</td>
<td>✔️ ✔️</td>
<td>Preferred Procedures, processes or actions that are preferred.</td>
</tr>
<tr>
<td>❌</td>
<td>Forbidden Procedures, processes or actions that are forbidden.</td>
<td>Info</td>
<td>Tip Indicates additional information.</td>
</tr>
<tr>
<td>📚</td>
<td>Reference to documentation</td>
<td>📚</td>
<td>Reference to page</td>
</tr>
<tr>
<td>📣</td>
<td>Reference to graphic</td>
<td>1, 2, 3...</td>
<td>Series of steps</td>
</tr>
<tr>
<td>←</td>
<td>Result of a step</td>
<td>🎤</td>
<td>Visual inspection</td>
</tr>
</tbody>
</table>

1.1.3 Electrical symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>⚡️</td>
<td>Direct current</td>
<td>⚡️</td>
<td>Alternating current</td>
</tr>
<tr>
<td>⚡️</td>
<td>Direct current and alternating current</td>
<td>⚡️</td>
<td>Ground connection A grounded terminal which, as far as the operator is concerned, is grounded via a grounding system.</td>
</tr>
</tbody>
</table>
### Protective Earth (PE)
A terminal which must be connected to ground prior to establishing any other connections.

The ground terminals are situated inside and outside the device:
- **Inner ground terminal:** Connects the protective earth to the mains supply.
- **Outer ground terminal:** Connects the device to the plant grounding system.

#### 1.1.4 Communication symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Wireless Local Area Network (WLAN)" /></td>
<td>Wireless Local Area Network (WLAN) Communication via a wireless, local network.</td>
</tr>
<tr>
<td><img src="image" alt="LED" /></td>
<td>Light emitting diode is on.</td>
</tr>
<tr>
<td><img src="image" alt="LED" /></td>
<td>Light emitting diode is off.</td>
</tr>
<tr>
<td><img src="image" alt="LED" /></td>
<td>Light emitting diode is flashing.</td>
</tr>
</tbody>
</table>

#### 1.1.5 Tool symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Torx screwdriver" /></td>
<td>Torx screwdriver</td>
</tr>
<tr>
<td><img src="image" alt="Flat blade screwdriver" /></td>
<td>Flat blade screwdriver</td>
</tr>
<tr>
<td><img src="image" alt="Cross-head screwdriver" /></td>
<td>Cross-head screwdriver</td>
</tr>
<tr>
<td><img src="image" alt="Allen key" /></td>
<td>Allen key</td>
</tr>
<tr>
<td><img src="image" alt="Open-ended wrench" /></td>
<td>Open-ended wrench</td>
</tr>
</tbody>
</table>

#### 1.1.6 Symbols in graphics

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="1, 2, 3,..." /></td>
<td>Item numbers</td>
</tr>
<tr>
<td><img src="image" alt="1, 2, 3,..." /></td>
<td>Series of steps</td>
</tr>
<tr>
<td><img src="image" alt="A, B, C,..." /></td>
<td>Views</td>
</tr>
<tr>
<td><img src="image" alt="A-A, B-B, C-C,..." /></td>
<td>Sections</td>
</tr>
<tr>
<td><img src="image" alt="Hazardous area" /></td>
<td>Hazardous area</td>
</tr>
<tr>
<td><img src="image" alt="Safe area (non-hazardous area)" /></td>
<td>Safe area (non-hazardous area)</td>
</tr>
<tr>
<td><img src="image" alt="Flow direction" /></td>
<td>Flow direction</td>
</tr>
</tbody>
</table>
2 Basic safety instructions

2.1 Requirements for the personnel

The personnel must fulfill the following requirements for its tasks:

- 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 starting work, read and understand the instructions in the manual and supplementary documentation as well as the certificates (depending on the application).
- Follow instructions and comply with basic conditions.

2.2 Designated use

Application and media

- The measuring device described in these Brief Operating Instructions is intended only for flow measurement of liquids and gases.
- The measuring device described in these Brief Operating Instructions is intended only for flow measurement of liquids.

Depending on the version ordered, the measuring device can also measure potentially explosive, flammable, poisonous and oxidizing media.

Measuring devices for use in hazardous areas, in hygienic applications or where there is an increased risk due to process pressure, are labeled accordingly on the nameplate.

To ensure that the measuring device remains in proper condition for the operation time:

- Keep within the specified pressure and temperature range.
- Only use the measuring device in full compliance with the data on the nameplate and the general conditions listed in the Operating Instructions and supplementary documentation.
- Based on the nameplate, check whether the ordered device is permitted for the intended use in the hazardous area (e.g. explosion protection, pressure vessel safety).
- Use the measuring device only for media to which the process-wetted materials are sufficiently resistant.
- If the measuring device is not operated at atmospheric temperature, compliance with the relevant basic conditions specified in the associated device documentation is absolutely essential: "Documentation" section.
- Protect the measuring device permanently against corrosion from environmental influences.

Incorrect use

Non-designated use can compromise safety. The manufacturer is not liable for damage caused by improper or non-designated use.

⚠️ WARNING

Danger of breakage due to corrosive or abrasive fluids!

- Verify the compatibility of the process fluid with the sensor material.
- Ensure the resistance of all fluid-wetted materials in the process.
- Keep within the specified pressure and temperature range.
NOTICE

Verification for borderline cases:
▶ For special fluids and fluids for cleaning, Endress+Hauser is glad to provide assistance in verifying the corrosion resistance of fluid-wetted materials, but does not accept any warranty or liability as minute changes in the temperature, concentration or level of contamination in the process can alter the corrosion resistance properties.

Residual risks

⚠️ WARNING

The electronics and the medium may cause the surfaces to heat up. This presents a burn hazard!
▶ For elevated fluid temperatures, ensure protection against contact to prevent burns.

*Only applies for Proline Promass E, F, O, X and Cubemass C*

⚠️ WARNING

Danger of housing breaking due to measuring tube breakage!
▶ In the event of a measuring tube breakage for a device version without rupture disk it is possible for the pressure loading capacity of the sensor housing to be exceeded. This can lead to rupture or failure of the sensor housing.

2.3 Workplace safety

For work on and with the device:
▶ Wear the required personal protective equipment according to federal/national regulations.

For welding work on the piping:
▶ Do not ground the welding unit via the measuring device.

If working on and with the device with wet hands:
▶ Due to the increased risk of electric shock, gloves must be worn.

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.

2.5 Product safety

This measuring 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 EU directives listed in the device-specific EU 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.

2.7 Device-specific IT security
The device offers a range of specific functions to support protective measures on the operator's side. These functions can be configured by the user and guarantee greater in-operation safety if used correctly.

For detailed information on device-specific IT security, see the Operating Instructions for the device.

2.7.1 Access via CDI-RJ45 service interface
The device can be connected to a network via the CDI-RJ45 service interface. Device-specific functions guarantee the secure operation of the device in a network.

It is advisable to take relevant security concepts into consideration, such as those issued by the Federal Office for Information Security. This includes organizational security measures such as the assignment of access authorization as well as technical measures such as network segmentation.
3 Product description

The device consists of a Proline 300 transmitter and a Proline Promass or Cubemass Coriolis sensor.

The device is available as a compact version:
The transmitter and sensor form a mechanical unit.

Use of the device with the remote display and operating module DKX001 → 22.

For detailed information on the product description, see the Operating Instructions for the device.
4 Installation

For detailed information about mounting the sensor, see the Sensor Brief Operating Instructions → 3

4.1 Turning the transmitter housing
To provide easier access to the connection compartment or display module, the transmitter housing can be turned.

1. Depending on the device version: Loosen the securing clamp of the connection compartment cover.
2. Unscrew the connection compartment cover.
3. Release the fixing screw.
4. Turn the housing to the desired position.
5. Firmly tighten the securing screw.
6. Screw on the connection compartment cover
7. Depending on the device version: Attach the securing clamp of the connection compartment cover.
4.2 Turning the display module

The display module can be turned to optimize display readability and operability.

1. Depending on the device version: Loosen the securing clamp of the connection compartment cover.
2. Unscrew the connection compartment cover.
3. Turn the display module to the desired position: max. $8 \times 45^\circ$ in each direction.
4. Screw on the connection compartment cover.
5. Depending on the device version: Attach the securing clamp of the connection compartment cover.
4.3  Cover locking

**NOTICE**

Order code "Housing", option L "Cast, stainless": The covers of the transmitter housing are provided with a borehole to lock the cover.

The cover can be locked using screws and a chain or cable provided by the customer.

- It is recommended to use stainless steel cables or chains.
- If a protective coating is applied, it is recommended to use a heat shrink tube to protect the housing paint.

![Diagram of cover locking](image)

1  **Cover borehole for the securing screw**
2  **Securing screw to lock the cover**

4.4  Transmitter post-installation check

The post-installation check must always be performed after the following tasks:

- Turning the transmitter housing
- Turning the display module

| Is the device undamaged (visual inspection)? | ☐ |
| Turning the transmitter housing: |   |
| - Is the securing screw firmly tightened? | ☐ |
| - Is the connection compartment cover screwed on tightly? |   |
| - Is the securing clamp firmly tightened? | ☐ |
| Turning the display module: |   |
| - Is the connection compartment cover screwed on tightly? | ☐ |
| - Is the securing clamp firmly tightened? |   |
5  Electrical connection

**NOTICE**

The measuring device does not have an internal circuit breaker.

- For this reason, assign the measuring device a switch or power-circuit breaker so that the power supply line can be easily disconnected from the mains.
- Although the measuring device is equipped with a fuse, additional overcurrent protection (maximum 10 A) should be integrated into the system installation.

5.1  Connection conditions

5.1.1  Required tools

- For cable entries: Use corresponding tools
- For securing clamp: Allen key 3 mm
- Wire stripper
- When using stranded cables: Crimper for wire end ferrule
- For removing cables from terminal: Flat blade screwdriver ≤ 3 mm (0.12 in)

5.1.2  Requirements for connecting cable

The connecting cables provided by the customer must fulfill the following requirements.

**Electrical safety**

In accordance with applicable federal/national regulations.

**Protective ground cable**

Cable: 2.1 mm² (14 AWG)

The grounding impedance must be less than 1 Ω.

**Permitted temperature range**

- The installation guidelines that apply in the country of installation must be observed.
- The cables must be suitable for the minimum and maximum temperatures to be expected.

**Power supply cable**

Standard installation cable is sufficient.

**Cable diameter**

- Cable glands supplied:
  - M20 × 1.5 with cable Ø 6 to 12 mm (0.24 to 0.47 in)
- Spring-loaded terminals: Suitable for strands and strands with ferrules.
  - Conductor cross-section 0.2 to 2.5 mm² (24 to 12 AWG).
Signal cable

Current output 4 to 20 mA HART
A shielded cable is recommended. Observe grounding concept of the plant.

Current output 0/4 to 20 mA
Standard installation cable is sufficient.

Pulse/frequency/switch output
Standard installation cable is sufficient.

Double pulse output
Standard installation cable is sufficient.

Relay output
Standard installation cable is sufficient.

Current input 0/4 to 20 mA
Standard installation cable is sufficient.

Status input
Standard installation cable is sufficient.

Requirements for the connecting cable

Optionally available connecting cable
A cable is supplied depending on the order option
- Order code for measuring device: order code 030 for "Display; operation", option O
- Order code for measuring device: order code 030 for "Display; operation", option M and
- Order code for DKX001: order code 040 for "Cable", option A, B, D, E

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard cable</td>
<td>2 × 2 × 0.34 mm² (22 AWG) PVC cable with common shield (2 pairs, pair-stranded)</td>
</tr>
<tr>
<td>Flame resistance</td>
<td>According to DIN EN 60332-1-2</td>
</tr>
<tr>
<td>Oil-resistance</td>
<td>According to DIN EN 60811-2-1</td>
</tr>
<tr>
<td>Shielding</td>
<td>Tin-plated copper-braid, optical cover ≥ 85 %</td>
</tr>
<tr>
<td>Capacitance: core/shield</td>
<td>≤200 pF/m</td>
</tr>
<tr>
<td>L/R</td>
<td>≤24 µH/Ω</td>
</tr>
<tr>
<td>Available cable length</td>
<td>5 m (15 ft)/10 m (35 ft)/20 m (65 ft)/30 m (100 ft)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>When mounted in a fixed position: −50 to +105 °C (−58 to +221 °F); when cable can move freely: −25 to +105 °C (−13 to +221 °F)</td>
</tr>
</tbody>
</table>
**Standard cable - customer-specific cable**

No cable is supplied, and it must be provided by the customer (up to max. 300 m (1 000 ft)) for the following order option:

Order code for DKX001: Order code **040** for "Cable", option **1** "None, provided by customer, max 300 m"

A standard cable can be used as the connecting cable.

<table>
<thead>
<tr>
<th>Standard cable</th>
<th>4 cores (2 pairs); pair-stranded with common shield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shielding</td>
<td>Tin-plated copper-braid, optical cover ≥ 85 %</td>
</tr>
<tr>
<td>Capacitance: core/shield</td>
<td>Maximum 1 000 nF for Zone 1, Class I, Division 1</td>
</tr>
<tr>
<td>L/R</td>
<td>Maximum 24 µH/Ω for Zone 1, Class I, Division 1</td>
</tr>
<tr>
<td>Cable length</td>
<td>Maximum 300 m (1 000 ft), see the following table</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cross-section</th>
<th>Max. cable length for use in Non-hazardous area, Ex Zone 2, Class I, Division 2 Ex Zone 1, Class I, Division 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.34 mm² (22 AWG)</td>
<td>80 m (270 ft)</td>
</tr>
<tr>
<td>0.50 mm² (20 AWG)</td>
<td>120 m (400 ft)</td>
</tr>
<tr>
<td>0.75 mm² (18 AWG)</td>
<td>180 m (600 ft)</td>
</tr>
<tr>
<td>1.00 mm² (17 AWG)</td>
<td>240 m (800 ft)</td>
</tr>
<tr>
<td>1.50 mm² (15 AWG)</td>
<td>300 m (1 000 ft)</td>
</tr>
</tbody>
</table>
5.1.3 Terminal assignment

Transmitter: supply voltage, input/outputs

<table>
<thead>
<tr>
<th>Supply voltage</th>
<th>Input/output 1</th>
<th>Input/output 2</th>
<th>Input/output 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (+)</td>
<td>26 (+)</td>
<td>24 (+)</td>
<td>22 (+)</td>
</tr>
<tr>
<td>2 (-)</td>
<td>27 (-)</td>
<td>25 (-)</td>
<td>23 (-)</td>
</tr>
</tbody>
</table>

Device-specific terminal assignment: adhesive label in terminal cover.

Terminal assignment of the remote display and operating module → 22.

5.1.4 Preparing the measuring device

NOTICE

Insufficient sealing of the housing!
Operational reliability of the measuring device could be compromised.
► Use suitable cable glands corresponding to the degree of protection.

1. Remove dummy plug if present.
2. If the measuring device is supplied without cable glands:
   Provide suitable cable gland for corresponding connecting cable.
3. If the measuring device is supplied with cable glands:
   Observe requirements for connecting cables → 14.

5.2 Connecting the measuring device

NOTICE

Limitation of electrical safety due to incorrect connection!
► Have electrical connection work carried out by appropriately trained specialists only.
► Observe applicable federal/national installation codes and regulations.
► Comply with local workplace safety regulations.
► Always connect the protective ground cable ☭ before connecting additional cables.
► For use in potentially explosive atmospheres, observe the information in the device-specific Ex documentation.
5.2.1 Connecting the transmitter

1. **Terminal connection for supply voltage**
2. **Terminal connection for signal transmission, input/output**
3. **Terminal connection for signal transmission, input/output or terminal connection for network connection via service interface (CDI-RJ45); optional: connection for external WLAN antenna or remote display and operating module DKX001**
4. **Protective earth (PE)**

1. Loosen the securing clamp of the connection compartment cover.
2. Unscrew the connection compartment cover.
3. Squeeze the tabs of the display module holder together.
4. Remove the display module holder.
5. Attach the holder to the edge of the electronics compartment.

6. Open the terminal cover.

7. Push the cable through the cable entry. To ensure tight sealing, do not remove the sealing ring from the cable entry.

8. Strip the cable and cable ends. In the case of stranded cables, also fit ferrules.

9. Connect the protective ground.
10. Connect the cable in accordance with the terminal assignment.
   • **Signal cable terminal assignment:** The device-specific terminal assignment is documented on an adhesive label in the terminal cover.
   **Supply voltage terminal assignment:** Adhesive label in the terminal cover or → 17.

11. Firmly tighten the cable glands.
   • This concludes the cable connection process.

12. Close the terminal cover.

13. Fit the display module holder in the electronics compartment.

14. Screw on the connection compartment cover.

15. Secure the securing clamp of the connection compartment cover.
Removing a cable

1. To remove a cable from the terminal, use a flat-blade screwdriver to push the slot between the two terminal holes

2. while simultaneously pulling the cable end out of the terminal.
5.2.2 Connecting the remote display and operating module DKX001

The remote display and operating module DKX001 is available as an optional extra.

- The remote display and operating module DKX001 is only available for the following housing version: order code for "Housing": option A "Aluminum, coated"
- The remote display and operating module DKX001 is only available for the following housing versions, order code for "Housing":
  - Option A "Aluminum, coated"
  - Option L "Cast, stainless"
- The measuring device is always supplied with a dummy cover when the remote display and operating module DKX001 is ordered directly with the measuring device. Display or operation at the transmitter is not possible in this case.
- If ordered subsequently, the remote display and operating module DKX001 may not be connected at the same time as the existing measuring device display module. Only one display or operation unit may be connected to the transmitter at any one time.

![Diagram of remote display and operating module DKX001](image)

1 Remote display and operating module DKX001
2 Protective earth (PE)
3 Connecting cable
4 Measuring device
5 Protective earth (PE)

5.3 Ensuring potential equalization

5.3.1 Requirements

No special measures for potential equalization are required.

For devices intended for use in hazardous locations, please observe the guidelines in the Ex documentation (XA).
5.4 **Ensuring the degree of protection**

The measuring device fulfills all the requirements for the IP66/67 degree of protection, Type 4X enclosure.

To guarantee IP66/67 degree of protection, Type 4X enclosure, carry out the following steps after the electrical connection:

1. Check that the housing seals are clean and fitted correctly.
2. Dry, clean or replace the seals if necessary.
3. Tighten all housing screws and screw covers.
4. Firmly tighten the cable glands.
5. To ensure that moisture does not enter the cable entry:
   Route the cable so that it loops down before the cable entry ("water trap").

6. Insert dummy plugs into unused cable entries.

5.5 **Post-connection check**

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are cables or the device undamaged (visual inspection)?</td>
<td>☐</td>
</tr>
<tr>
<td>Do the cables used meet the requirements?</td>
<td>☐</td>
</tr>
<tr>
<td>Do the cables have adequate strain relief?</td>
<td>☐</td>
</tr>
<tr>
<td>Are all the cable glands installed, firmly tightened and leak-tight?</td>
<td>☐</td>
</tr>
<tr>
<td>Cable run with &quot;water trap&quot; ?</td>
<td>☐</td>
</tr>
<tr>
<td>If supply voltage is present, do values appear on the display module?</td>
<td>☐</td>
</tr>
</tbody>
</table>
6 Operation options

6.1 Overview of operation options

1 Local operation via display module
2 Computer with Web browser (e.g. Internet Explorer) or with operating tool (e.g. FieldCare, DeviceCare, AMS Device Manager, SIMATIC PDM)
3 Field Xpert SFX350 or SFX370
4 Mobile handheld terminal
5 Control system (e.g. PLC)
6.2 Structure and function of the operating menu

6.2.1 Structure of the operating menu

![Schematic structure of the operating menu]

6.2.2 Operating philosophy

The individual parts of the operating menu are assigned to certain user roles (operator, maintenance etc.). Each user role contains typical tasks within the device lifecycle.

For detailed information on the operating philosophy, see the Operating Instructions for the device.

*Only applies for Proline Promass F, O, Q and X*

For custody transfer, once the device has been put into circulation or sealed, its operation is restricted.
6.3 Access to the operating menu via the local display

1 Operational display with measured value shown as "1 value, max." (example)
   1.1 Device tag
   1.2 Display area for measured values (4-line)
   1.3 Explanatory symbols for measured value: Measured value type, measuring channel number, symbol for diagnostic behavior
   1.4 Status area
   1.5 Measured value
   1.6 Unit for the measured value
   1.7 Operating elements
2 Operational display with measured value shown as "1 bar graph + 1 value" (example)
   2.1 Bar graph display for measured value 1
   2.2 Measured value 1 with unit
   2.3 Explanatory symbols for measured value 1: measured value type, measuring channel number
   2.4 Measured value 2
   2.5 Unit for measured value 2
   2.6 Explanatory symbols for measured value 2: measured value type, measuring channel number
3 Navigation view: picklist of a parameter
   3.1 Navigation path and status area
   3.2 Display area for navigation: ✓ designates the current parameter value
4 Editing view: text editor with input mask
5 Editing view: numeric editor with input mask
6.3.1  Operational display

<table>
<thead>
<tr>
<th>Explanatory symbols for the measured value</th>
<th>Status area</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Depending on the device version, e.g.:</td>
<td>The following symbols appear in the status area of the operational display at the top right:</td>
</tr>
<tr>
<td>- Q: Volume flow</td>
<td>- Status signals</td>
</tr>
<tr>
<td>- m: Mass flow</td>
<td>- F: Failure</td>
</tr>
<tr>
<td>- ρ: Density</td>
<td>- C: Function check</td>
</tr>
<tr>
<td>- G: Conductivity</td>
<td>- S: Out of specification</td>
</tr>
<tr>
<td>- t: Temperature</td>
<td>- M: Maintenance required</td>
</tr>
<tr>
<td>• Σ: Totalizer</td>
<td>- Diagnostic behavior</td>
</tr>
<tr>
<td>• G: Output</td>
<td>- Alarm</td>
</tr>
<tr>
<td>• ⊕: Input</td>
<td>- Warning</td>
</tr>
<tr>
<td>• 1), 2): Measurement channel number 1)</td>
<td>- Locking (locked via hardware))</td>
</tr>
<tr>
<td>• Diagnostic behavior 2)</td>
<td>- Communication via remote operation is active.</td>
</tr>
<tr>
<td>- ×: Alarm</td>
<td></td>
</tr>
<tr>
<td>- △: Warning</td>
<td></td>
</tr>
</tbody>
</table>

1) If there is more than one channel for the same measured variable type (totalizer, output etc.).
2) For a diagnostic event that concerns the displayed measured variable.

6.3.2  Navigation view

<table>
<thead>
<tr>
<th>Status area</th>
<th>Display area</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following appears in the status area of the navigation view in the top right corner:</td>
<td>- Icons for menus</td>
</tr>
<tr>
<td>• In the submenu</td>
<td>- ⊗: Operation</td>
</tr>
<tr>
<td>- The direct access code for the parameter you are navigating to (e.g. 0022-1)</td>
<td>- ↕: Setup</td>
</tr>
<tr>
<td>- If a diagnostic event is present, the diagnostic behavior and status signal</td>
<td>- ⊗: Diagnostics</td>
</tr>
<tr>
<td>• In the wizard</td>
<td>- ☑: Expert</td>
</tr>
<tr>
<td>If a diagnostic event is present, the diagnostic behavior and status signal</td>
<td>- ▼: Submenus</td>
</tr>
<tr>
<td>- Wizards</td>
<td>- ☑: Parameters within a wizard</td>
</tr>
<tr>
<td>- ☑: Parameter locked</td>
<td></td>
</tr>
</tbody>
</table>

6.3.3  Editing view

<table>
<thead>
<tr>
<th>Text editor</th>
<th>Correction symbols under ✗‰ ‹ –</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>Confirms selection.</td>
</tr>
<tr>
<td>✗</td>
<td>Exits the input without applying the changes.</td>
</tr>
<tr>
<td>✗</td>
<td>Moves the input position one position to the right.</td>
</tr>
<tr>
<td>✗</td>
<td>Moves the input position one position to the left.</td>
</tr>
<tr>
<td>✗</td>
<td>Deletes one character immediately to the left of the input position.</td>
</tr>
<tr>
<td>✗</td>
<td>Switches to the selection of the correction tools.</td>
</tr>
<tr>
<td>✗</td>
<td>Toggle</td>
</tr>
<tr>
<td>- Between upper-case and lower-case letters</td>
<td>- Between upper-case and lower-case letters</td>
</tr>
<tr>
<td>- For entering numbers</td>
<td>- For entering numbers</td>
</tr>
<tr>
<td>- For entering special characters</td>
<td>- For entering special characters</td>
</tr>
</tbody>
</table>
### Numeric editor

<table>
<thead>
<tr>
<th>Key</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td>Confirms selection.</td>
</tr>
<tr>
<td>✗</td>
<td>Exits the input without applying the changes.</td>
</tr>
<tr>
<td>←</td>
<td>Moves the input position one position to the left.</td>
</tr>
<tr>
<td>-</td>
<td>Inserts decimal separator at the input position.</td>
</tr>
<tr>
<td>-</td>
<td>Inserts minus sign at the input position.</td>
</tr>
<tr>
<td>C</td>
<td>Clears all entered characters.</td>
</tr>
</tbody>
</table>

### 6.3.4 Operating elements

#### Keys and meaning

##### Enter key

*For operational display*
- Pressing the key briefly opens the operating menu.
- Pressing the key for 2 s opens the context menu.

*In a menu, submenu*
- Pressing the key briefly:
  - Opens the selected menu, submenu or parameter.
  - Starts the wizard.
  - If help text is open: Closes the help text of the parameter.
- Pressing the key for 2 s for parameter: If present, opens the help text for the function of the parameter.

*With a wizard:* Opens the editing view of the parameter.

*With a text and numeric editor:*
- Pressing the key briefly:
  - Opens the selected group.
  - Carries out the selected action.
- Pressing the key for 2 s: Confirms the edited parameter value.

##### Minus key

*In a menu, submenu:* Moves the selection bar upwards in a choose list.
*With a wizard:* Confirms the parameter value and goes to the previous parameter.
*With a text and numeric editor:* Moves the selection bar to the left (backwards) in an input screen.

##### Plus key

*In a menu, submenu:* Moves the selection bar downwards in a choose list.
*With a wizard:* Confirms the parameter value and goes to the next parameter.
*With a text and numeric editor:* Moves the selection bar to the right (forwards) in an input screen.

##### Escape key combination (press keys simultaneously)

*In a menu, submenu*
- Pressing the key briefly:
  - Exits the current menu level and takes you to the next higher level.
  - If help text is open, closes the help text of the parameter.
- Pressing the key for 2 s for the parameter: Returns you to the operational display ("home position").

*With a wizard:* Exits the wizard and takes you to the next higher level.
*With a text and numeric editor:* Closes the text or numeric editor without applying changes.

##### Minus/Enter key combination (press the keys simultaneously)
### Keys and meaning

<table>
<thead>
<tr>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduces the contrast (brighter setting).</td>
<td></td>
</tr>
<tr>
<td><strong>Plus/Enter key combination</strong> (press and hold down the keys simultaneously)</td>
<td>Increases the contrast (darker setting).</td>
</tr>
<tr>
<td><strong>Minus/Plus/Enter key combination</strong> (press the keys simultaneously)</td>
<td><em>For operational display:</em> Enables or disables the keypad lock.</td>
</tr>
</tbody>
</table>

### 6.3.5 Further information

For further information on the following topics, see the Operating Instructions for the device:

- Calling up help text
- User roles and related access authorization
- Disabling write protection via access code
- Enabling and disabling the keypad lock

### 6.4 Access to the operating menu via the operating tool

The operating menu can also be accessed via the FieldCare and DeviceCare operating tools. See the Operating Instructions for the device.

### 6.5 Access to the operating menu via the Web server

The operating menu can also be accessed via the Web server. See the Operating Instructions for the device.

### 7 System integration

For detailed information on system integration, see the Operating Instructions for the device:

- Overview of device description files
  - Current version data for the device
  - Operating tools
- Measured variables via HART protocol
- Burst mode functionality in accordance with HART 7 Specification

### 8 Commissioning

#### 8.1 Function check

Before commissioning the measuring device:

- Make sure that the post-installation and post-connection checks have been performed.
8.2 Setting the operating language

Factory setting: English or ordered local language

Taking the example of the local display

8.3 Configuring the measuring device

The Setup menu with its submenus and guided wizards is used for fast commissioning of the device. They contain all the parameters required for configuration, such as for measurement or communication.

Depending on the device version, not all submenus and parameters are available in every device. The selection can vary depending on the order code.
### Example: Available submenus, wizards | Meaning
---|---
System units | Configure the units for all measured values
Medium selection | Define the medium
I/O configuration | User configurable I/O module
Current input | Configuration of the input/output type
Status input | Configure partial and empty pipe detection
Current output 1 to n | Additional parameters for configuration:
Pulse/frequency/switch output 1 to n | • Calculated values
Relay output | • Sensor adjustment
Double pulse output | • Totalizer
Display | • Display
Low flow cut off | • WLAN settings
Partially filled pipe detection | • Data backup
Advanced setup | • Administration

---

### 8.4 Protecting settings from unauthorized access

The following write protection options exist in order to protect the configuration of the measuring device from unintentional modification:

- Protect access to parameters via access code
- Protect access to local operation via key locking
- Protect access to measuring device via write protection switch

For detailed information on protecting the settings against unauthorized access, see the Operating Instructions for the device.

For detailed information on protecting the settings against unauthorized access in custody transfer applications, see the Special Documentation for the device.
9 Diagnostic information

Faults detected by the self-monitoring system of the measuring device are displayed as a diagnostic message in alternation with the operational display. The message about remedial measures can be called up from the diagnostic message, and contains important information on the fault.

Message about remedial measures

1 Diagnostic information
2 Short text
3 Service ID
4 Diagnostic behavior with diagnostic code
5 Operation time of occurrence
6 Remedial measures

1. The user is in the diagnostic message.
   Press ( symbol).
   ➔ The Diagnostic list submenu opens.

2. Select the desired diagnostic event with ( or ( and press ( .
   ➔ The message about the remedial measures opens.

3. Press ( + ( simultaneously.
   ➔ The message about the remedial measures closes.
Important

All information and technical specifications in this documentation have been carefully checked and compiled by the author. However, we cannot completely exclude the possibility of errors. TechnipFMC is always grateful to be informed of any errors. Contact us on the website.

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Literature Library:


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