Brief Operating Instructions

RIA14

Loop-powered field indicator

These Brief Operating Instructions are not a substitute for the Operating Instructions pertaining to the device. Detailed information is provided in the Operating Instructions and other documentation.

Available for all device versions via:
- Internet: www.endress.com/deviceviewer
- Smartphone/tablet: Endress+Hauser Operations app
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## 1  About this document

### 1.1  Symbols

#### 1.1.1  Safety symbols

⚠️ **DANGER**

This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.

⚠️ **WARNING**

This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in serious or fatal injury.

⚠️ **CAUTION**

This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.
**NOTICE**

This symbol contains information on procedures and other facts which do not result in personal injury.

### 1.1.2 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>
</tbody>
</table>
| ≃       | Direct current and alternating current | ≃       | Ground connection                         
A grounded terminal which, as far as the operator is concerned, is grounded via a grounding system.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>⬜️</td>
<td>Potential equalization connection (PE: protective earth)</td>
</tr>
</tbody>
</table>
Ground terminals that must be connected to ground prior to establishing any other connections.
The ground terminals are located on the interior and exterior of the device:
- Interior ground terminal: potential equalization is connected to the supply network.
- Exterior ground terminal: device is connected to the plant grounding system.

### 1.1.3 Symbols for certain types of information

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| ✔️     | Permitted                                        | ✔️     | Preferred                                        
Procedures, processes or actions that are permitted. Procedures, processes or actions that are preferred.

| ✔️     | Preferred                                        | ✔️     | Preferred                                        |
|        | Procedures, processes or actions that are preferred. |        | Procedures, processes or actions that are preferred. |

| ❌     | Forbidden                                        | ❌     | Tip                                              
Procedures, processes or actions that are forbidden. Indicates additional information.

| ✎️     | Reference to documentation                       | ✎️     | Reference to page                                |
|        | Reference to documentation                       |        | Reference to page                                |

| 📇     | Reference to graphic                             | 📇     | Series of steps                                  |
|        | Reference to graphic                             | 📇     | Series of steps                                  |

| 🔄️     | Result of a step                                 | 🔄️     | Visual inspection                               |
|        | Result of a step                                 | 🔄️     | Visual inspection                               |
1.1.4 Symbols in graphics

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2, 3,...</td>
<td>Item numbers</td>
<td>1, 2, 3,...</td>
<td>Series of steps</td>
</tr>
<tr>
<td>A, B, C,...</td>
<td>Views</td>
<td>A-A, B-B, C-C,...</td>
<td>Sections</td>
</tr>
<tr>
<td>EX</td>
<td>Hazardous area</td>
<td></td>
<td>Safe area (non-hazardous area)</td>
</tr>
</tbody>
</table>

1.2 Documentation

For an overview of the scope of the associated Technical Documentation, refer to the following:
- Device Viewer (www.endress.com/deviceviewer): Enter the serial number from the nameplate
- Endress+Hauser Operations app: Enter serial number from nameplate or scan matrix code on nameplate.

1.2.1 Document function

The following documentation may be available depending on the version ordered:

<table>
<thead>
<tr>
<th>Document type</th>
<th>Purpose and content of the document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Information (TI)</td>
<td>Planning aid for your device&lt;br&gt;The document contains all the technical data on the device and provides an overview of the accessories and other products that can be ordered for the device.</td>
</tr>
<tr>
<td>Brief Operating Instructions (KA)</td>
<td>Guide that takes you quickly to the 1st measured value&lt;br&gt;The Brief Operating Instructions contain all the essential information from incoming acceptance to initial commissioning.</td>
</tr>
<tr>
<td>Operating Instructions (BA)</td>
<td>Your reference document&lt;br&gt;The Operating Instructions contain all the information that is required in the various phases of the life cycle of the device: from product identification, incoming acceptance and storage, to mounting, connection, operation and commissioning through to troubleshooting, maintenance and disposal.</td>
</tr>
<tr>
<td>Description of Device Parameters (GP)</td>
<td>Reference for your parameters&lt;br&gt;The document provides a detailed explanation of each individual parameter. The description is aimed at those who work with the device over the entire life cycle and perform specific configurations.</td>
</tr>
<tr>
<td>Safety Instructions (XA)</td>
<td>Depending on the approval, safety instructions for electrical equipment in hazardous areas are also supplied with the device. The Safety Instructions are an integral part of the Operating Instructions. Information on the Safety Instructions (XA) relevant to the device is provided on the nameplate.</td>
</tr>
<tr>
<td>Supplementary device-dependent documentation (SD/FY)</td>
<td>Always comply strictly with the instructions in the relevant supplementary documentation. The supplementary documentation is an integral part of the device documentation.</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 Intended use

- The device is a configurable field indicator with one sensor input.
- It is designed for mounting in the field.
- The manufacturer accepts no liability for damages resulting from improper or non-intended use.
- Safe operation is only guaranteed if the Operating Instructions are observed.
- Only operate the device in the permitted temperature range.

2.3 Workplace safety
When working on and with the device:

‣ Wear the required personal protective equipment as per national regulations.

2.4 Operational safety
Damage to the device!

‣ Operate the device in proper technical condition and fail-safe condition only.
‣ The operator is responsible for the 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. The manufacturer confirms this by affixing the CE mark to the device.
3  Incoming acceptance and product identification

3.1  Incoming acceptance
Proceed as follows on receipt of the device:

1. Check whether the packaging is intact.

2. If damage is discovered:
   Report all damage immediately to the manufacturer.

3. Do not install damaged components, as the manufacturer cannot otherwise guarantee
   the material resistance or compliance with the original safety requirements, and can
   also not be held responsible for the consequences that may result.

4. Compare the scope of delivery against the contents of your order.

5. Remove all the packaging material used for transportation.

6. Do the data on the nameplate match the ordering information on the delivery note?

7. Are the technical documentation and all other necessary documents provided, e.g.
   certificates?

If one of the conditions is not satisfied, contact your Sales Center.

3.2  Product identification
The following options are available for identification of the device:

- Nameplate specifications
- Enter the serial number from the nameplate in the Device Viewer
  www.endress.com/deviceviewer: all the information about the device and an overview of
  the Technical Documentation supplied with the device are displayed.
- Enter the serial number on the nameplate into the Endress+Hauser Operations App or scan
  the 2-D matrix code (QR code) on the nameplate with the Endress+Hauser Operations App:
  all the information about the device and the technical documentation pertaining to the
  device is displayed.

3.2.1  Nameplate
The right device?
The nameplate provides you with the following information on the device:

- Manufacturer identification, device designation
- Order code
- Extended order code
- Serial number
- Tag name (TAG)
- Technical values: supply voltage, current consumption, ambient temperature,
  communication-specific data (optional)
- Degree of protection
- Approvals with symbols
Compare the information on the nameplate with the order.

3.2.2 Name and address of manufacturer

<table>
<thead>
<tr>
<th>Name of manufacturer:</th>
<th>Endress+Hauser Wetzer GmbH + Co. KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address of manufacturer:</td>
<td>Obere Wank 1, D-87484 Nesselwang or <a href="http://www.endress.com">www.endress.com</a></td>
</tr>
</tbody>
</table>

3.3 Storage and transport

Storage temperature: –40 to +80 °C (–40 to +176 °F)

Maximum relative humidity: < 95 % as per IEC 60068-2-30

Pack the device for storage and transportation in such a way that it is reliably protected against impact and external influences. The original packaging offers the best protection.

Avoid the following environmental influences during storage:
- Direct sunlight
- Proximity to hot objects
- Mechanical vibration
- Aggressive media

3.4 Certificates and approvals

Current certificates and approvals for the product are available at www.endress.com on the relevant product page:

1. Select the product using the filters and search field.
2. Open the product page.
3. Select Downloads.

3.4.1 UL approval

More information under UL Product iq™, search for keyword "E225237"

4 Mounting

4.1 Mounting requirements

The device is designed for use in the field.

The orientation is determined by the legibility of the display.
Operating temperature range:
- –40 to +80 °C (–40 to +176 °F)
- –20 to +80 °C (–4 to +176 °F) when using the open collector output

Operating the device in the upper temperature limit range decreases the operating life of the display.

The display may react slowly at temperatures < –20 °C (–4 °F).
At temperatures < –30 °C (–22 °F) the readability of the display can no longer be guaranteed.

<table>
<thead>
<tr>
<th>Altitude</th>
<th>Up to 2 000 m (6 561.7 ft) above sea level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overvoltage category</td>
<td>Overvoltage category II</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>Pollution degree 2</td>
</tr>
</tbody>
</table>

### 4.1.1 Dimensions

![Device dimensions](A001152)

1 Device dimensions; specified in mm (in)

### 4.1.2 Mounting location

Information about the conditions (such as the ambient temperature, degree of protection, climate class, etc.) that must be present at the mounting location so that the device can be mounted correctly is provided in the "Technical data" section ➔ BA00278R.

### 4.2 Mounting the measuring device

The device can either be mounted directly on the wall or mounted on a pipe using the optional mounting kit ➔ 10.

The backlit display can be mounted in four different positions ➔ 9.

It is essential that you clean and lubricate the thread prior to mounting.
### 4.2.1 Turning the display

1. Remove the cover clamp (1) and the housing cover (2).
2. Remove the display (3) from the electronics unit (4).
3. Turn the display to the desired position and then attach it to the electronics unit.
4. Clean the thread in the housing cover and housing base and lubricate if necessary.  
   (Recommended lubricant: Klüber Syntheso Glep 1)
5. Screw the housing cover (2) and O-ring together and fit the cover clamp (1) back on.

#### 4.2.2 Direct wall mounting

Procedure for direct wall mounting of the device:

1. Drill 2 holes (see dimensions, → 2, 9)
2. Attach the device to the wall with 2 screws Ø5 mm (0.2 in).

#### 4.2.3 Pipe mounting

The mounting bracket is suitable for pipes with a diameter of 38 to 84 mm (1.5 to 3.3 in).
1. Applies to pipes with a diameter of 38 to 56 mm (1.5 to 2.2 in). Attach the mounting bracket to the pipe.
2. Push the mounting plate onto the mounting bracket.
3. Fit the device on the mounting bracket with the two nuts (M6) supplied. The mounting plate is not necessary for pipes with a diameter of 56 to 84 mm (2.2 to 3.3 in).

4.3 Post-installation check
Perform the following checks after mounting the device:

<table>
<thead>
<tr>
<th>Device condition and specifications</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the measuring device damaged?</td>
<td>Visual inspection</td>
</tr>
<tr>
<td>Is the seal undamaged?</td>
<td>Visual inspection</td>
</tr>
<tr>
<td>Is the device fixed securely to the wall or mounting plate?</td>
<td>-</td>
</tr>
<tr>
<td>Is the housing cover firmly mounted?</td>
<td>-</td>
</tr>
<tr>
<td>Does the device match the measuring point specifications (ambient temperature, measuring range etc.)?</td>
<td>See &quot;Technical data&quot; section</td>
</tr>
</tbody>
</table>

5 Electrical connection

5.1 Connection requirements

NOTICE
Destruction or malfunction of parts of the electronics

➤ ESD - Electrostatic discharge. Protect the terminals from electrostatic discharge.
CAUTION

Destruction of parts of the electronics
▶ Switch off the power supply before installing and connecting the device.

NOTICE

Loss of Ex approval if connected incorrectly
▶ When connecting Ex-certified devices, please take special note of the instructions and connection schematics in the Ex-specific supplement to these Operating Instructions.

First open the housing of the device.

4. Open the housing of the field indicator
5.2 Connecting the device

Both the terminal assignment and the connection values of the device correspond to those of the Ex-version. The device is only designed for operation in a 4 to 20 mA measuring circuit. There must be potential equalization along the circuits (within and outside the hazardous area).
5.3 Ensuring the degree of protection

The devices meet all the requirements of IP67. It is absolutely essential to comply with the following points to ensure this protection is guaranteed after mounting or servicing the device:

- The housing seal must be clean and undamaged when inserted into the groove. The seal must be cleaned, dried or replaced if necessary.
- The cables used for connection must have the specified outer diameter (e.g., M20 x 1.5, cable diameter 8 to 12 mm (0.3 to 0.47 in)).
- Route the cable in a loop before cable entry (→ 6, 14). This means that any moisture that may form cannot enter the gland. Mount the measuring device so that the cable entries are not facing upwards.
- Replace unused cable entries with dummy plugs.
- Do not remove the grommet used from the cable entry.
- The housing cover and the cable entry must be firmly tightened.

5.4 Post-connection check

Perform the following checks after electrical installation:

<table>
<thead>
<tr>
<th>Device condition and specifications</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are cables or the device damaged?</td>
<td>Visual inspection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the cable type route completely isolated? No loops and cross-overs?</td>
<td>-</td>
</tr>
<tr>
<td>Are the mounted cables strain-relieved?</td>
<td>-</td>
</tr>
<tr>
<td>Is the terminal assignment correct? Compare the connection diagram of terminal block.</td>
<td>5, 13</td>
</tr>
<tr>
<td>Are all the screws firmly tightened?</td>
<td>Visual inspection</td>
</tr>
</tbody>
</table>
## Operation options

### 6.1 Overview of operation options

#### 6.1.1 Display

1. **Bar graph display**
2. **Mark for underranging**
3. **Mark for overranging**
4. **Measured value display, digit height 20.5 mm (0.8 in)**
5. **14-segment display for units and messages**
6. **“Programming locked” symbol**
7. **Unit “%”**
8. **“Fault” warning icon**

### 6.2 Access to the operating menu via operating keys

**NOTICE**

**Loss of explosion protection when housing is open**

- Parameter configuration must take place outside of the hazardous area.
8 Operating keys of the field indicator ("-", "+", "E")

The display must remain connected to the electronics unit during configuration.

1. Remove the housing cover
2. Remove the display
3. The operating keys on the device are accessible.
4. Configure the device via the operating keys.
5. Position the display at the desired angle.

6.2.1 Navigation

The operating panels are divided into 2 levels.

Menu: Various menu items can be selected in the menu level. The individual menu items are a summary of the associated operating functions.

Operating function: An operating function can be viewed as a summary of operating parameters. The operating functions perform the actual operation or configuration of the device.

Operating keys:

"E" key: Enter the programming menu if the "E" key is pressed for longer than 3 seconds.
- Select operating functions.
- Apply values.
- If the "E" key is pressed for longer than 3 seconds, the display returns directly to the Home position. You are first asked if the data entered until now should be saved.
- Save data entered.
"+ / -" selection keys:
- Select the menus.
- Configure parameters and numerical values.
- Once the operating function has been selected, the "+" or "-" keys are used to enter the value or change the setting.

If the keys are pressed for longer, the numbers change with increasing speed.

For the "program name" and "program version" operating items, the display is scrolled horizontally when the "+" or "-" keys are pressed as these items (7-digit) cannot be shown completely in the 14-segment display.

6.2.2 Programming in the operating menu

9 Programming the field indicator

1. Enter the operating menu
2. Select the menu with "+" or "-"
3. Select the operating function
4. Enter parameters in editing mode (enter/select data with "+" or "-" and apply with "E")
5. Jump to the home position directly. You are first asked if the data entered until now should be saved.
6. Exit the menu using "+ / -". You are asked whether the data entered should be saved.
7. Confirm whether data should be saved. Select yes/no with the "+" or "-" operating key and confirm with "E".
6.3 Device configuration
Detailed information on device configuration via operating tools can be found in the Operating Instructions.