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.

ACAUTION

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

Symbol	Meaning	Symbol	Meaning
	Direct current	\sim	Alternating current
~	Direct current and alternating current	<u> </u>	Ground connection A grounded terminal which, as far as the operator is concerned, is grounded via a grounding system.

Symbol	Meaning
	Potential equalization connection (PE: protective earth) 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

Symbol	Meaning	Symbol	Meaning
	Permitted Procedures, processes or actions that are permitted.		Preferred Procedures, processes or actions that are preferred.
X	Forbidden Procedures, processes or actions that are forbidden.	i	Tip Indicates additional information.
	Reference to documentation		Reference to page
	Reference to graphic	1., 2., 3	Series of steps
4	Result of a step		Visual inspection

1.1.4 Symbols in graphics

Symbol	Meaning	Symbol	Meaning
1, 2, 3,	Item numbers	1., 2., 3	Series of steps
A, B, C,	Views	A-A, B-B, C-C,	Sections
EX	Hazardous area	×	Safe area (non-hazardous area)

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:

Document type	Purpose and content of the document	
Technical Information (TI)	Planning aid for your device 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.	
Brief Operating Instructions (KA)	Guide that takes you quickly to the 1st measured value The Brief Operating Instructions contain all the essential information from incoming acceptance to initial commissioning.	
Operating Instructions (BA)	Your reference document 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.	
Description of Device Parameters (GP)	Reference for your parameters 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.	
Safety Instructions (XA)	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.	
Supplementary device-dependent documentation (SD/FY)	Always comply strictly with the instructions in the relevant supplementary documentation. The supplementary documentation is an integral part of the device documentation.	

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 stateof-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

Name of manufacturer:	Endress+Hauser Wetzer GmbH + Co. KG
Address of manufacturer:	Obere Wank 1, D-87484 Nesselwang or www.endress.com

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 <u>www.endress.com</u> 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 $^\circ C$ (–22 $^\circ F) the readability of the display can no longer be guaranteed.$

Altitude Up to 2 000 m (6 561.7 ft) above sea level	
Overvoltage category	Overvoltage category II
Pollution degree	Pollution degree 2

4.1.1 Dimensions



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 $\rightarrow \square$ 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 $\rightarrow \cong 10$.

The backlit display can be mounted in four different positions $\rightarrow \square 9$.



It is essential that you clean and lubricate the thread prior to mounting.

4.2.1 Turning the display



2 Field indicator, 4 display positions, can be fitted in 90° steps

The display can be turned in 90° steps.

- 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, $\rightarrow \square 1$, $\square 9$)
- 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).



- I 3 Pipe mounting of the device with mounting bracket
- 1 Mounting plate
- 2 Mounting bracket
- 3 2 M6 nuts
- 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:

Device condition and specifications	Notes
Is the measuring device damaged?	Visual inspection
Is the seal undamaged?	Visual inspection
Is the device fixed securely to the wall or mounting plate?	-
Is the housing cover firmly mounted?	-
Does the device match the measuring point specifications (ambient temperature, measuring range etc.)?	See "Technical data" section

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.

ACAUTION

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.



Image: A Open the housing of the field indicator

5.2 Connecting the device



5 Terminal assignment of the field indicator

Terminal	Terminal assignment	Input and output
+	Measuring signal (+) 4 to 20 mA	Signal input
-	Measuring signal (-) 4 to 20 mA	Signal input
1	Terminal for further instruments	Support terminal
2	Digital limit switch (collector)	Switch output
3	Digital limit switch (emitter)	Switch output

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)).
- 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.



Connection tips to retain IP67 protection

5.4 Post-connection check

Perform the following checks after electrical installation:

Device condition and specifications	Note
Are cables or the device damaged?	Visual inspection

Electrical connection	Note
Is the cable type route completely isolated? No loops and cross-overs?	-
Are the mounted cables strain-relieved?	-
Is the terminal assignment correct? Compare the connection diagram of terminal block.	→ 🖻 5, 🖺 13
Are all the screws firmly tightened?	Visual inspection

Electrical connection	Note
Is the cable gland sealed tight?	Visual inspection
Is the housing cover firmly tightened?	Visual inspection

6 Operation options

6.1 Overview of operation options

6.1.1 Display



☑ 7 LC display of the field indicator (backlit, fitted in steps of 90 °)

- 1 Bar graph display
- 1a Mark for underranging
- 1b Mark for overranging
- 2 Measured value display, digit height 20.5 mm (0.8 in)
- 3 14-segment display for units and messages
- 4 "Programming locked" symbol
- 5 Unit "%"
- 6 "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.



Ø 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.

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"+ / -" 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.



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