



# Brief Operating Instructions

## RIA15

Loop-powered Ex ia process indicator as a field device or panel-mounted instrument for 4 to 20 mA signals or HART® protocol



These Brief Operating Instructions are not a substitute for the Operating Instructions pertaining to the device. Detailed information can be found in the Operating Instructions and the additional documentation.

Available for all device versions via:

- Internet: [www.endress.com/deviceviewer](http://www.endress.com/deviceviewer)
- Smartphone/tablet: Endress+Hauser Operations app

## Safety instructions

### 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.

### Intended use

The process indicator displays analog process variables or HART process variables (option) on its screen.

By means of HART communication, selected Endress+Hauser field devices/sensors (with the appropriate option) can also be very flexibly configured and commissioned or their diagnostic messages read out and displayed.

The device is powered via the 4 to 20 mA current loop and does not require an additional power supply.

- The manufacturer accepts no liability for damages resulting from improper or non-intended use. The device must not be converted or modified in any way.
- Panel-mounted device:  
The device is designed for installation in a panel and must only be operated in an installed state.
- Field device:  
The device is designed for mounting in the field.

- The device may be operated only under the permitted ambient conditions .

### Product liability

The manufacturer does not accept any responsibility for damage that results from non-designated use and from failure to comply with the instructions in this manual.

### Workplace safety

When working on and with the device:

- ▶ Wear the required personal protective equipment as per national regulations.

### 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.

### 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.

## Incoming acceptance and product identification

### Product identification

Name and address of manufacturer

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

## Mounting

### Installation conditions

- Operating altitude: according to IEC61010-1 up to 5 000 m (16 400 ft) above MSL
- Electrical safety: protection class III, overvoltage protection category II, pollution degree 2
- The permitted storage temperature is:  $-40$  to  $+85$  °C ( $-40$  to  $+185$  °F); it is possible to store the device at borderline temperatures for a limited period (48 hours maximum).

Permitted ambient temperature:  $-40$  to  $60$  °C ( $-40$  to  $140$  °F)

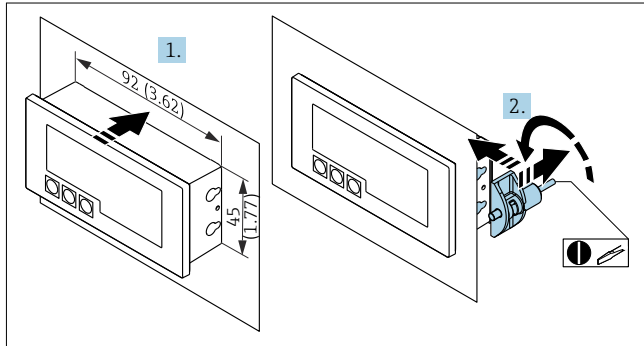
**i** At temperatures below  $-25$  °C ( $-13$  °F) the readability of the display can no longer be guaranteed.

### Installation instructions

**i** For the dimensions of the device, see the "Technical data" section in the relevant Operating Instructions.

#### Panel housing

- Degree of protection: IP65 front, IP20 rear (not evaluated by UL)
- Mounting position: horizontal



**1** Installation instructions for the panel housing

Installation in a panel with a panel cutout 92x45 mm (3.62x1.77 in), max. panel thickness 13 mm (0.51 in).

- Slot the device into the panel cutout from the front.
- Fit the mounting clips on the side of the housing and tighten the threaded rods (tightening torque: 0.4 to 0.6 Nm).

#### Field housing

- Degree of protection for aluminum housing: IP66/67, NEMA 4X (not evaluated by UL)
- Degree of protection for plastic housing: IP66/67 (not evaluated by UL)

### Wall mounting

#### Wall mounting without a mounting kit:

- Open the housing.
- Use the device as a stencil for 4 6 mm (0.24 in) bore holes, 99 mm (3.9 in) apart on the horizontal plane, 66 mm (2.6 in) apart on the vertical plane.
- Secure the indicator on the wall with 4 screws.
- Close the cover and tighten the housing screws.

## Wiring

### ⚠ WARNING

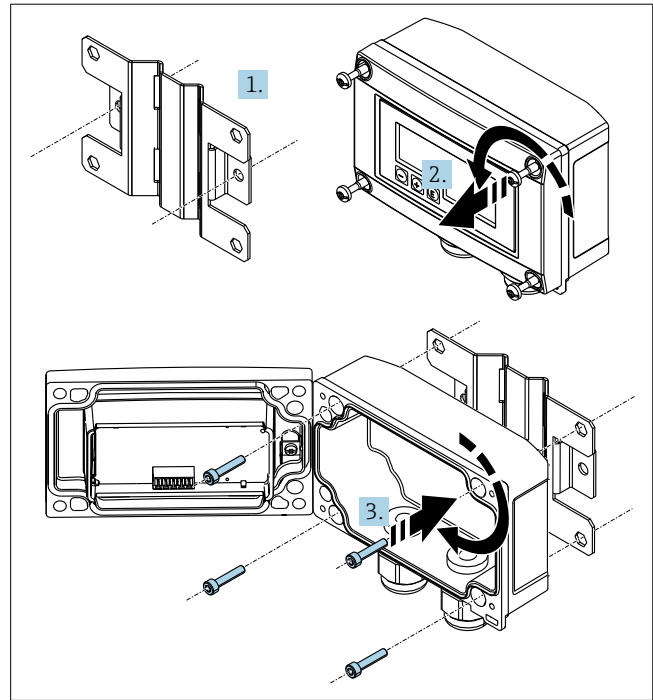
#### Danger! Electric voltage

- The entire connection of the device must take place while the device is de-energized.

Only certified devices (optionally available) may be connected in the hazardous area

- Observe the corresponding notes and wiring diagrams in the Ex-specific supplement to these Operating Instructions.

#### Wall mounting with mounting kit (optionally available):



**2** Mounting the process indicator on a wall

- Use the mounting plate as a stencil for 2 6 mm (0.24 in) bore holes, 82 mm (3.23 in) apart, and secure the plate on the wall with 2 screws (not supplied).
- Open the housing.
- Secure the indicator on the mounting plate with the 4 screws supplied.
- Close the cover and tighten the screws.

**i** For information on pipe mounting of the field housing, see the relevant Operating Instructions.

**i** For information on mounting the optional HART communication resistance module, see the relevant Operating Instructions.

### Post-installation check

#### Display unit in the panel-mount housing

- Is the seal undamaged?
- Are the mounting clips securely fastened on the housing of the device?
- Are the threaded rods properly tightened?
- Is the device located in the center of the panel cutout?

#### Display unit in the field housing

- Is the seal undamaged?
- Is the housing firmly screwed to the mounting plate?
- Is the mounting bracket firmly secured on the wall/pipe?
- Are the housing screws firmly tightened?

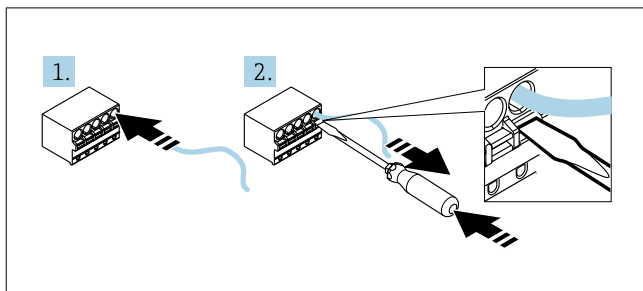
### NOTICE

#### Device destroyed if current too high

- The device must be powered only by a power unit with an energy-limited circuit in accordance with UL/EN/IEC 61010-1, Section 9.4 and the requirements in Table 18.
- Do not operate the device at a voltage source without a current limiter. Instead, operate the device only in the current loop with a transmitter.

- **Panel housing:**  
The terminals are located on the rear of the housing.
- **Field housing:**  
The terminals are located inside the housing. The device has two M16 cable entries. The housing must be opened for wiring purposes.

#### Operation of the spring terminals



3 Operation of the spring terminals

1. If using rigid cables or flexible cables with a ferrule, insert only the cable into the terminal to connect. No tools required. If using flexible cables without ferrules, the spring mechanism must be activated as shown in step 2.
2. In order to loosen the cable, push the spring mechanism in completely using a screwdriver or other suitable tool and pull out the cable.



For details on the HART connection (option), see the relevant Operating Instructions.



For details on the connection to functional ground, see the relevant Operating Instructions.

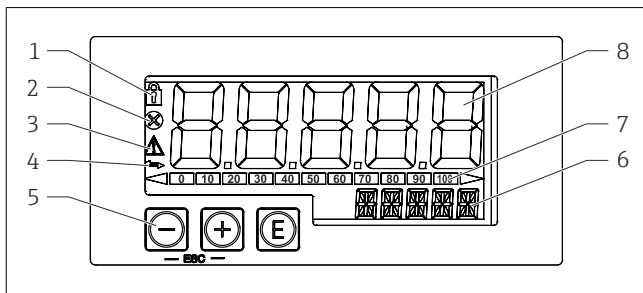


For details on wiring with switchable backlighting, see the relevant Operating Instructions.

#### Quick wiring guide

Terminal	Description
+	Positive connection, current measurement
-	Negative connection, current measurement (without backlighting)
LED	Negative connection, current measurement (with backlighting)
□	Auxiliary terminals (electrically connected internally)
⏏	Functional grounding: <ul style="list-style-type: none"> <li>▪ Panel-mounted device: Terminal on the rear of the housing</li> </ul>

## Operation



4 Display and operating elements of the process indicator

- 1 Symbol: operating menu disabled
- 2 Symbol: error
- 3 Symbol: warning
- 4 Symbol: HART communication active (option)
- 5 Operating keys "-", "+", "E"
- 6 14-segment display for unit/TAG
- 7 Bar graph with indicators for under range and over range
- 8 5-digit 7-segment display for measured value, digit height 17 mm (0.67 in)

Terminal	Description
	<ul style="list-style-type: none"> <li>▪ Field device: Terminal in the housing</li> </ul>

#### Shielding and grounding

Optimum electromagnetic compatibility (EMC) can only be guaranteed if the system components and, in particular, the lines are shielded and the shield forms as complete a cover as possible.

HART communication allows three different types of shielding:

- Shielding at both ends
- Shielding at one end on the feed side with capacitance termination at the field device
- Shielding at one end on the feed side

The best results with regard to EMC are achieved in most cases with one-sided shielding on the feed side (without capacitance termination at the field device). Operation in the event of disturbance variables as per NAMUR NE21 is thus guaranteed.

#### NOTICE

**If the shielding of the cable is grounded at more than one point in systems without potential matching, power supply frequency equalizing currents can occur that damage the signal cable or have a serious effect on signal transmission.**

- ▶ In such cases the shielding of the signal cable should be grounded on one side only, i.e. it must not be connected to the ground terminal of the housing. The shield that is not connected should be insulated!

#### Ensuring the degree of protection

##### Field housing

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 be of the specified outside diameter (e.g. M16 x 1.5, cable diameter 5 to 10 mm (0.2 to 0.39 in)).
- Mount the measuring instrument in such a way that the cable entries point downwards.
- Replace unused cable entries with dummy plugs.
- The housing cover and the cable entries must be firmly tightened.

##### Panel housing

The front of the device meets the requirements of IP65. It is absolutely essential to comply with the following points to ensure this protection is guaranteed after mounting or servicing the device:

- The seal between the front of the housing and the panel must be clean and undamaged. The seal must be cleaned, dried or replaced if necessary.
- The threaded rods of the panel mounting clips must be firmly tightened (tightening torque: 0.4 to 0.6 Nm).

The device is operated using three operating keys on the front of the housing. The device setup can be disabled with a 4-digit user code. If the setup is disabled, a padlock symbol appears on the display when an operating parameter is selected.

	Enter key; for calling up the operating menu, confirming the selection/configuration of parameters in the operating menu
A0017716	
	Selecting and setting/changing values in the operating menu; pressing the '-' and '+' keys simultaneously takes the user back up a menu level. The configured value is not saved.
A0017714	
A0017715	



For more details on operation and commissioning, see the relevant Operating Instructions.

## Maintenance and cleaning

No special maintenance work is required for the device.

### Cleaning of surfaces not in contact with the medium

- Recommendation: Use a lint-free cloth that is either dry or slightly dampened using water.
- Do not use any sharp objects or aggressive cleaning agents that corrode the surfaces (displays, housing, for example) and seals.

- Do not use high-pressure steam.
- Observe the degree of protection of the device.



The cleaning agent used must be compatible with the materials of the device configuration. Do not use cleaning agents with concentrated mineral acids, bases or organic solvents.