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

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 status 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.
- The device is designed for installation in a panel and must only be operated in an installed state.

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.

Incorporating acceptance and product identification

Product identification

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>

Certificates and approvals

For certificates and approvals valid for the device: see the data on the nameplate

Approval-related data and documents: www.endress.com/deviceviewer ➔ (enter the serial number)
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)

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

Installation Instructions
- 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

Installation in a panel with a panel cutout 92x45 mm (3.62x1.77 in), max. panel thickness 13 mm (0.51 in)
1. Slot the device into the panel cutout from the front.
2. 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
1. Open the housing.
2. Use the device as a stencil for 4.6 mm (0.24 in) bore holes, 99 mm (3.23 in) apart on the horizontal plane, 66 mm (2.6 in) apart on the vertical plane.
3. Secure the indicator on the wall with 4 screws.
4. Close the cover and tighten the housing screws.

Wall mounting with mounting kit (optionally available)
1. 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).
2. Open the housing.
3. Secure the indicator on the mounting plate with the 4 screws supplied.
4. Close the cover and tighten the screws.

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?

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.

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

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

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>Positive connection, current measurement</td>
</tr>
<tr>
<td>-</td>
<td>Negative connection, current measurement (without backlighting)</td>
</tr>
<tr>
<td>LED</td>
<td>Negative connection, current measurement (with backlighting)</td>
</tr>
<tr>
<td></td>
<td>Auxiliary terminal (electrically connected internally)</td>
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<tr>
<td></td>
<td>Functional grounding:</td>
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<tr>
<td></td>
<td>- Panel-mounted device: Terminal in the housing</td>
</tr>
<tr>
<td></td>
<td>- Terminal in the housing</td>
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</tbody>
</table>

#### 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 device 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).

#### Operation

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.

**NOTICE**

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

No special maintenance work is required for the device.

A clean, dry cloth can be used to clean the device.