Dear Customer,

Thank you for choosing a Hanna product.

This manual will provide you with the necessary information for the correct operation of the meter. Please read it carefully before using the instrument.

If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com.

These instruments are in compliance with the CE directives.

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**Preliminary Examination**

Remove the instrument from the packing material and examine it carefully. If any damage has occurred during shipment, immediately notify your Dealer or the nearest Hanna Customer Service Center.

Each meter is supplied with:

- Mounting brackets
- Instruction manual

Note: Conserve all packing material until the instrument has been observed to function correctly. Any defective item must be returned in its original packing.

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**General Description**

BL981411-0 and BL981411-1 are panel-mounted pH indicators and controllers designed for simplicity of use in a wide range of industrial applications.

Connections and wiring to electrode, power supply and contacts are made via the terminal blocks on the rear panel.

The meters are equipped with a BNC socket and accept input from conventional pH electrodes.

Other features include:

- Overtime control system, selection of dosing direction (Acid/Alk), one dosing contact, multi-colour LED for indicating if the meter is in measurement/dosage/alarms condition, possibility to set (Off-Auto-On switch) dosing action mode.

Two models are available:

- **BL 981411-0** powered at 12 Vdc
- **BL 981411-1** powered at 115 or 230 Vac

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**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0.0 to 14.0 pH</td>
</tr>
<tr>
<td>Resolution</td>
<td>±0.1 pH</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.2 pH</td>
</tr>
<tr>
<td>Typical EMC Deviation</td>
<td>±0.1 pH</td>
</tr>
<tr>
<td>Calibration</td>
<td>Manual, through CAL (Offset) trimmer</td>
</tr>
<tr>
<td>Dosing Contact</td>
<td>Maximum 2A (fuse protected), 250 Vac, 30 Vdc</td>
</tr>
<tr>
<td>Dosing Selection</td>
<td>Acid or Alk, selectable on the back panel</td>
</tr>
<tr>
<td>Contact Open</td>
<td>Acidity dosage = Relay ON if Measure &gt; Setpoint</td>
</tr>
<tr>
<td>Contact Close</td>
<td>Alkalinity dosage = Relay ON if Measure &lt; Setpoint</td>
</tr>
<tr>
<td>Setpoint</td>
<td>Adjustable, from 0 to 14 pH</td>
</tr>
<tr>
<td>Overtime</td>
<td>Adjustable, typically from 5 to approx. 30 minutes</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>10 VA</td>
</tr>
<tr>
<td>Power supply</td>
<td>External (fuse protected)</td>
</tr>
<tr>
<td>BL981411-0</td>
<td>12 Vdc</td>
</tr>
<tr>
<td>BL981411-1</td>
<td>115/230 Vac, 50/60 Hz</td>
</tr>
<tr>
<td>Dimensions</td>
<td>83 x 53 x 99 mm (3.3x2.1x3.9&quot;)</td>
</tr>
</tbody>
</table>

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**Accessories**

- **pH Calibration Solutions**
  - HI 7006M/L  pH 6.86 buffer solution, 230/500 ml bottle
  - HI 7007M/L  pH 7.01 buffer solution, 230/500 ml bottle

- **Other Solutions**
  - HI 7030M/L  Electrode storage solution, 230/500 ml bottle
  - HI 7061M/L  Electrode general cleaning solution, 230/500 ml bottle
  - HI 7073M/L  Protein cleaning solution, 230/500 ml bottle
  - HI 7074M/L  Inorganic cleaning solution, 230/500 ml bottle
  - HI 7077M/L  Oil & Fat cleaning solution, 230/500 ml

- **Refilling Electrolyte Solutions (50 ml, 4 pcs.)**
  - HI 7071  3.5M KCl, for single junction electrodes
  - HI 7072  1M KNO3, solution
  - HI 7082  3.5M KCl, for double junction electrodes

- **pH Electrodes**
  - HI 1002/S  BNC connector, double junction, plastic-body w/external thread & 5 m (16.5") cable
  - HI 1090T  Screw connector, double junction, glass-body with external thread
  - HI 1110S  Screw connector, single junction, glass-body
  - HI 1210T  Screw connector, double junction, plastic-body with external thread
  - HI 214P/2  BNC connector, double junction, plastic-body with 2 m (6.6") cable
  - HI 2910B/S  BNC connector, double junction, plastic-body, with 5 m (16.5") cable

- **Extension Cables, Screw to BNC Connector**
  - HI 7855/S  Extension cable 5 m (16.5") long
  - HI 7855/10  Extension cable 10 m (33") long

- **Other Accessories**
  - BL PUMPS  Dosing Pumps (flow rate from 1.5 to 20LPH)
  - HI 6050  Submersible electrode holder, 60 cm (24")
  - HI 6051  Submersible electrode holder, 110 cm (43")
  - HI 6054B  Electrode holder for in-line applications
  - HI 6054T  Electrode holder for in-line applications
  - HI 71000S  12 Vdc power adapter, US plug
  - HI 71000E  12 Vdc power adapter, European plug
  - HI 731326  Calibration screwdriver (20 pcs)
  - HI 740146  Mounting brackets
  - HI 7871  Level Controller (min and max)
  - HI 7873  Level Controller (min, max and overflow)
REAR PANEL CONNECTIONS

Terminals #1, #2 and #3: Electrode
- Connect a pH-electrode to the meter BNC plug (#1).
- To benefit from the differential input, connect the proper electrode wire (if available) or a cable with a potential matching pin (grounding bar) to the relevant terminal (#3) on the rear panel.

Note: When the Matching Pin can not be immersed together with the pH electrode in the solution, disable the differential input by shorting terminals #3 (Matching Pin) and #2 (Electrode Reference) with a jumper wire.

Terminals #4: Dosing selection
- For acid dosage, leave the circuit open.
- For alkaline dosage, short the terminals with a jumper wire.

Terminals #5: Not Used

Terminals #6: Power Supply
- Model BL981411-0: connect the 2 wires of a 12 Vdc power adapter to the terminals +12 Vdc and GND.
- Model BL981411-1: connect a 3-wire power cable to the terminals while paying attention to the correct earth (PE), line (L) and neutral (N1 for 115 Vac or N2 for 230 V) contacts.

Terminals #7: Dosing Contact
- This contact drives the dosing system, accordingly to the selected setpoint and dosing direction:
  - if “Acid” dosage is set, the relay is ON and dosing activated if measured value is higher than setpoint;
  - if “Alk” dosage is set, the relay is ON and dosing activated if measured value is lower than setpoint.

Note: The setpoint has a typical hysteresis value comparable to the meter accuracy.

Terminals #8: Not Used

Overtime system: jumper (#9) and trimmer (#10)
- This system allows the user to set a maximum dosing period, by adjusting the rear trimmer from 5 (min) to approx. 30 (max) minutes.
- When the set time is exceeded, any dosing action stops, the LED indicator on the front panel will blink Red and the LCD will show the “TIMEOUT” warning message. To exit the overtime condition, set the OFF/Auto/ON switch to “OFF” position, and then to “Auto” again.

OPERATIONS

For disabling the overtime feature, simply remove the jumper on the rear panel.

Note: The overtime system works only if the OFF/Auto/ON switch is in “Auto” position.

OPERATING THE METER

Before proceeding make sure that:
- the meter is calibrated;
- the setpoint value has been properly adjusted;
- all rear panel wiring and selections are correct;
- the OFF/Auto/ON switch is in the desired position.

Install or immerse the electrode in the solution to be monitored, then press the “MEAS” key (if necessary). The LCD will show the pH value. The LED indicator will light up Green when the meter is in measurement mode and dosing is not active, while will light up Orange/Yellow for signaling that a dosing action is in progress.

CALIBRATION

With meter in measurement mode, immerse electrode and Matching Pin (if available) in pH 7.01 buffer solution, shake briefly and wait for reading to stabilize. Adjust the CAL trimmer until “7.0 pH” is displayed on the LCD.

SETPOINT

Press the “SET” key: the display will show the default or previously adjusted value, together with the “SET” indicator. After 1 minute the meter automatically returns to the normal mode; or press the “MEAS” key.

ISTBL1411R2          04/05