

## Instruction Manual

# PHCN-201 Series Panel-Mounted pH Indicators & Controllers

Dear Customer,

Thank you for choosing an Omega Engineering product. This manual will provide you with the necessary information for the correct operation of the meter. Please read it carefully before using the meter.

These instruments are in compliance with the CE directives EN 50081-1 and EN 50082-1.

## PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it carefully. If any damage has occurred during shipment, immediately notify Omega Customer Service.

The meter is supplied with:

- Mounting brackets
- 12 VDC adapter (PHCN-201-12VDC only)

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

## GENERAL DESCRIPTION

PHCN-201 and PHCN-201-12VDC are pH indicators and controllers with a relay output designed for simplicity of use in a wide range of applications.

The models are panel-mounted with membrane keypads on the front panel and an easy-to-read LCD display.

Power supply, wiring and selection are made via the plug-in terminal blocks on the rear panel. The instruments are equipped with a BNC socket and accept input from conventional combination pH electrode.

LED indicators on the front panel identify whether the controller is in set or reading mode, and if dosing device is activated.

## SPECIFICATIONS

Range	0.0 to 14.0 pH
Resolution	0.1 pH
Accuracy (@ 20°C/68°F)	±0.2 pH
Offset Calibration	Manual, through trimmer
Setpoint	Adjustable, from 0.0 to 14.0 pH
Dosing Selection	Acid or Alkaline, selectable on the back panel
Contact Open = Acid dosage = Relay ON if Measure < Setpoint	
Contact Close = Alkaline dosage = Relay ON if Measure > Setpoint	
Power supply:	External 12/24 VDC (incl.)
PHCN-201-12VDC	115/230 VAC, 50/60Hz
PHCN-201	79 x 49 x 95 mm (3.1 x 1.9 x 3.8")
Dimensions	



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### Recommendations for Users

Before using this product, make sure that it is entirely suitable for the environment in which it is used. Operation of this instrument in residential areas could cause unacceptable interferences to radio and TV equipment.

The glass bulb at the end of the electrode is sensitive to electrostatic discharges. Avoid touching this glass bulb at all times. During operation, ESD wrist straps should be worn to avoid possible damage to the electrode by electrostatic discharges.

Any variation introduced by the use of the supplied equipment may degrade the instrument's EMC performance.

To avoid electrical shock, do not use this instrument when voltages at the measurement surface exceed 24 VAC or 60 VDC. To avoid damages or burns, do not perform any measurement in microwave ovens.

It is the policy of OMEGA to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives.

The information contained in this document is believed to be correct, but OMEGA Engineering, Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, patient-connected applications.



These instruments are in compliance with the CE Directives

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## OPERATIONAL GUIDE

### POWER CONNECTION

#### PHCN-201-12VDC

Connect a 2-wire power cable to the terminal strip while paying attention to the correct positive and negative contacts (12VDC).

#### PHCN-201

Connect a 3-wire power cable to the terminal strip while paying attention to the correct earth, neutral and line contacts (115 or optional 230 VAC).

### Notes:

- All external cables connected to the rear panel should end with wire lugs.
- It is recommended to cover the unused terminals with insulating tape.
- At start up the meter needs a few seconds to stabilize. Wait until a stable reading is displayed.

### DOSING CONTACT

This contact (maximum 5A, 240VAC, 30VDC) is used for connection to an alarm or dosing system. The relay contact acts as a power switch for the controlling device.

### OPERATING THE METER

All settings of the parameters can be controlled via front panel keys and trimmers. "SET" and "MEAS" LEDs light up to indicate which is the operating function.

Make sure that the meter is calibrated and that the Setpoint is properly adjusted before proceeding.

Attach the pH-electrode to the meter with a BNC connector. Install the electrode in the fittings or immerse it in the solution to be monitored. Press the "MEAS" key.

The LCD will show the pH value. Any initial variation on readings may be due to temperature compensation.

The "DOSING" LED will light up when the dosing contact is closed.

### CALIBRATION

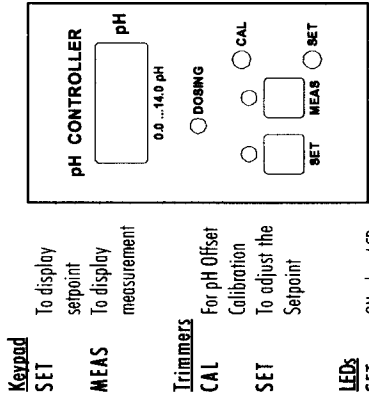
Make sure the meter is in the measurement mode (the "MEAS" LED lights on). Immerse the electrode in pH7 buffer solution (or any buffer solution close to the operating pH value). Shake briefly and wait for reading to stabilize. Adjust the calibration trimmer until "7.0" is displayed on the LCD.

### SETPOINT

Press the "SET" key. The display will show the default or previously adjusted value. Using a small screwdriver adjust the "SET" trimmer until the required value is displayed.

## FUNCTIONAL DESCRIPTION

### FRONT PANEL



**Keypad**  
SET To display setpoint  
MEAS To display measurement

**Trimmers**  
CAL For pH Offset  
SET Calibration

**LEDs**  
SET ON when LCD

**MEAS**  
ON when the LCD displays the measurement value

**DOSING**  
ON when dosing contact is activated

### REAR PANEL

1. Power Supply:

PHCN-201-12VDC PHCN-201  
12VDC 115/230 VAC optional)

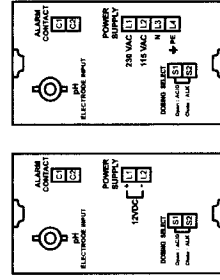
L1: Positive 230 VAC (optional)

L2: Negative 115 VAC

L3: Neutral

L4: Protection Earth

**Note:** the power input is internally protected by a 400 mA fuse.



PHCN-201-12VDC PHCN-201

2. Dosing Selection Contacts:

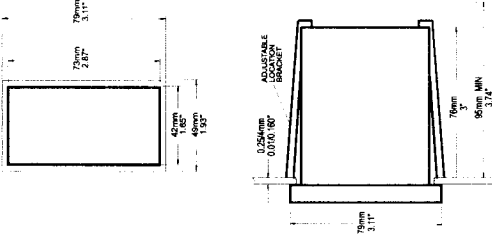
Leave S1 and S2 open to select ACID dosage;

Short S1 and S2 to select ALKALINE dosage.

3. The dosing (alarm) contact acts as a switch. The contact has to be protected outside by the user.

4. BNC socket for pH-electrode

## LAYOUT

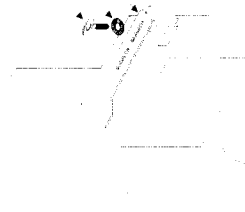


Front view of the panel-mounted unit

Side view of the panel-mounted unit

Supplied adjustable location brackets allow the controller to slide into the cutout and will hold the unit securely in place. 95mm (3.74") is the minimum amount of space required to install the controller.

Panel-mounted unit assembling view



## WARRANTY

### WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of 12 months from date of purchase. OMEGA'S WARRANTY adds an additional one (1) month grace period to the normal one (1) year product warranty to cover handling and shipping time. This assures that OMEGA'S customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA'S Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA'S WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to: reworking, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion or current heat, machine or vibration, improper specifications, misapplication, misuse or other operating conditions outside of OMEGA'S control. Components which wear are not warranted, including but not limited to contact points, fuses, and fuses.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by it will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used, (1) as a "Race Component" under 10 CFR 21 (NRC), used in or with any nuclear application or activity, or (2) in medical applications or used as a burner. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on burners, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

### RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department BEFORE RETURNING ANY PRODUCT(S) TO OMEGA. PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit.

FOR WARRANTY RETURNS, please have the following information available BEFORE contacting OMEGA:

- Purchase Order number under which the product was PURCHASED;
- Model and serial number of the product under warranty, and
- Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This entitles our customers the latest in technology and engineering.

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### FOR NON-WARRANTY REPAIRS,

consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

- Purchase Order number to cover the COST of the repair;
- Model and serial number of the product; and
- Repair instructions and/or specific problems relative to the product.