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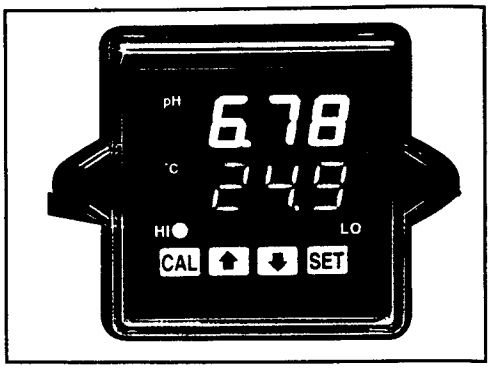
# PHCN-70

## 1/16 DIN pH Controller

INSTRUCTION SHEET

M3715/0801

1 YEAR WARRANTY




## SECTION 1. INTRODUCTION

Thank you for selecting **OMEGA"S PHCN-70** controller. This 1/16 DIN controller offers dual display, high resolution, alarm and control relays, and automatic temperature compensation.

### 1.1 Specifications

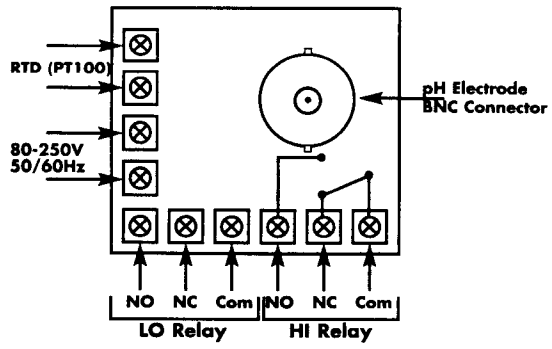
| | |
|---|---|
| Range | pH: 0.01 to 14.00pH |
| Temp. Compensation | Automatic 0-100°C via RTD Pt100 Sensor |
| Control / Alarm Relays | Two, SPDT, 3 Amp at 115V |
| Deadband | 0.00 - 2.25 pH, adjustable |
| Resolution / Accuracy | 0.01pH, 0.01°C /±(0.01pH = 1 digit). ±0.5°C |
| Display (2) | 3 1/2 Digit, 3/8" LED (pH-red, Temp.-green) |
| Relay Status Indicators | Red LED's |
| Memory Back-up | All Parameters and Calibration |
| Auto Calibration | Automatic Recognition of pH 7.00, 4.00, 10.00 |
| Power | 80-250 VAC 50/60Hz |
| Panel Cutout | 1/6 DIN 3.58"x3.58" (45mm x 45mm) |
| Dimensions | 4.7"x1.77"x1.77" (105x45x45mm) |
| Weight | 5 oz. (142gm) |

## SECTION 2. INSTALLATION

### 2.1 Mounting The Controller

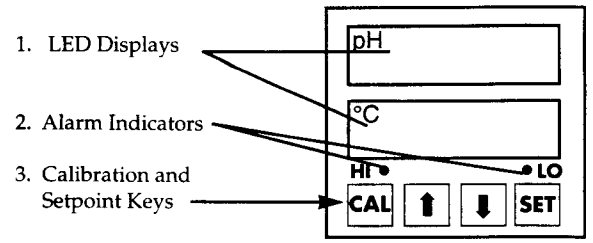
a) Make a 1.77 x 1.77" (45mm x 45mm) panel cutout (1/8" to 3/8" thickness)
b) Slide the controller into the cutout until the bezel is flush with the panel.
c) Slide the mounting bracket over the rear of the controller and press snugly against the rear of the panel.

### 2.2 Rear Panel Connections




a) Connect AC power to the terminal as indicated in the diagram.
b) Connect the RTD probe to the screw terminals as indicated or optionally connect a 108Ω resistor to simulate 25°C.
c) Connect the pH electrode to the BNC connector.
d) Connect the alarm/control device to the HI or LO screw terminals. Typical connections are between the Com and NO (normally open) connections.

## SECTION 3. FRONT PANEL DESCRIPTION




## SECTION 4. OPERATION

### 4.1 pH Calibration

The electrical output of pH electrodes varies with age. Calibration should be performed frequently using a pH buffer solution of 7.0 and either 4.0 or 10.0 (use whichever most closely represents the expected pH measurement values.

**NOTE**

If an error occurs during the calibration procedure, remove power and wait one minute before beginning the procedure from step one again.

1. Connect the pH electrode to the controller.
2. Place the pH electrode into a pH7 buffer solution and wait for a stable pH reading.
3. Press the CAL +▮ buttons and hold until the lower display indicates "CAL" and the upper display indicates a pH value near 7.00.
4. Press the CAL +▮ buttons momentarily. "PH-7" appears in the upper display and the temperature appears in the lower display.
5. Press the CAL +▮ buttons momentarily. "SLOP" briefly appears in the upper display. The lower display will change to "CAL" and the pH reading will appear in the upper display.
6. Rinse the electrode, immerse in a pH 4.0 or a pH 10.0 buffer solution and wait for a stable reading.
7. Press the CAL +▮ buttons simultaneously and hold until PH-4 or PH-10 will appear in the upper display.
8. Press the CAL +▮ buttons momentarily. The pH reading appears in the upper display and the temperature appears in the lower display. This is the normal measurement mode.

**NOTE**

If **"PT 100"** appears in the upper display with " EHH " in the lower display, then there is an error related to the RTD measurement. Check that the temperature probe is properly connected or that the simulation resistor is in place. This supplied resistor simulates a RTD at 25°C and can often be used in place of a temperature probe when the temperature of test sample is near room temperature

If **PH- 4,7 10 appears** in the upper display with "EHH" in the lower display then there is an error to pH measurement. The value is not within the required range to complete the calibration process. Replacement of the buffer with fresh solution or replacement of pH electrode may be required.

## Calibration Procedure

**Insert electrode into a pH7 buffer**

1. Press CAL + ⬇ and hold until 7.00 CALI appears
2. Press CAL + ⬇ momentarily 7.00 CALI then PH-7 25.0 will appear (measured temp.)

**Insert electrode into pH 4 or 10 buffer (example uses 10.00)**

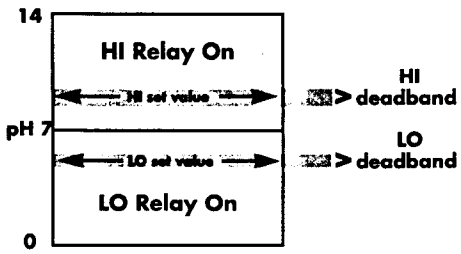
3. Press CAL + ⬇ and hold until SLOP CALI then 10.00 CALI appears
4. Press CAL + ⬇ momentarily PH-10 10.00 will appear (measured temp.)
5. Press CAL + ⬇ momentarily PH-10 10.00 then 10.00 25.0 will appear (measured temp.)

## 4.2 Relay and Deadband Adjustments

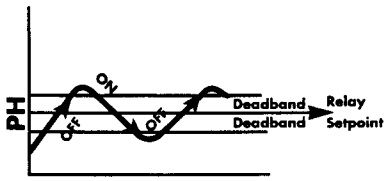
The "SET" button is used to set the relay setpoints and the deadband. Pressing the button 4 times will produce the settings "Hi","LO, "db.Hi" and "db.Lo".

### 4.2.1 HI and LO Relay and Deadband Settings

1) Press and hold the "SET" button until "HI" appears on the lower display.
2) Press the ⬇ or ⬆ buttons to adjust the HI relay to the pH value required for the high limit. (Adjust the limit to 14 to effectively disable the limit relay).
3) Press the "SET" button. "LO" will appear in the lower display.
4) Press the ⬇or ⬆ buttons to adjust the LO relay value to the pH value required for the low limit. (Adjust the limit to 0 to effectively disable the limit relay).
5) Press the "SET" button, "db.HI" will appear on the lower display. Adjust the ⬇or ⬆ buttons to the required deadband.
6) Press the "SET" button, "db.LO" will appear on the lower display. Adjust the ⬇or ⬆ buttons to the required deadband.
7) Press the "SET" button one more time to go to the measurement mode.



Relay Operation



Deadband Operation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|---|---|

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OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 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 ensures 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 mishandling, 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, moisture or vibration; improper specification; 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 triacs.

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### 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 breakage in transit.

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

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

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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