General Description

The CDPM-70 and CDPM-71 panel mounted conductivity meters measure conductivity from 0.1 μS to 200 mS in four switchable ranges. To ensure accurate readings, automatic temperature compensation is provided over the range 0 to 50°C. The meters have the unique feature of a digital readout and setting of cell constant to a resolution of 0.01 to overcome the normal problems of cell calibration; they require the CDCN-83 conductivity sensor. The meters are housed in rugged steel panel mounting DIN cases, allowing installation from the front to fit in limited access situations. The CDPM-71 has the additional feature of a HI/LO alarm system that consists of two independent alarm points with their own relay indicator.

Sensor and Output Connections

Connect the conductivity cell to the input terminals on the rear panel connector block. The connections are as follows:

| Terminal 1 & 2: | Recorder output option if installed (observe polarity) |
| Terminal 3: | Braided screen |
| Terminals 4 & 5: | Temperature compensation probe (no polarity) |
| Terminals 6 & 7: | Conductivity cell plates (no polarity) |

Note: The screen on the cable must be connected to Terminal 3. This is especially important when measuring low conductivities.

Typical cable colors and their respective terminals are as follows:

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Typical Color</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Screen</td>
<td>Screen</td>
</tr>
<tr>
<td>4</td>
<td>Yellow</td>
<td>A.T.C.</td>
</tr>
<tr>
<td>5</td>
<td>Black</td>
<td>A.T.C.</td>
</tr>
<tr>
<td>6</td>
<td>Blue</td>
<td>Cell Plate</td>
</tr>
<tr>
<td>7</td>
<td>Brown</td>
<td>Cell Plate</td>
</tr>
</tbody>
</table>
CDPM-70/71 Conductivity Meters

Alarm Connections

For units with the HI/LO Alarm option, the lower connector block should be connected as follows to give the required alarm output operation.

The following terminals should be linked to give the corresponding function on the front panel LED alarm indicators:

1 to 2   Alarm 2 LED lights when conductivity is above Set point 2.
2 to 3   Alarm 2 LED lights when conductivity is below Set point 2.
10 to 11  Alarm 1 LED lights when conductivity is above Set point 1.
11 to 12  Alarm 1 LED lights when conductivity is below Set point 1.

Any external alarm circuitry can be activated by utilizing the changeover relay contacts available on terminals 4, 5 and 6 (ALARM 2) and 7, 8 and 9 (ALARM 1).

Terminals 5 and 6: Shorted when the reading is above Set point 2.
Terminals 4 and 5: Shorted when the reading is below Set point 2.
Terminals 8 and 9: Shorted when the reading is above Set point 1.
Terminals 7 and 8: Shorted when the reading is below Set point 1.

These contacts are rated at 240V-2A (110V-4A) into a resistive load.
Note: Each relay contact has a spark suppression circuit connected across it. This consists of a 0.01µF capacitor in series with a 100Ω resistor.

When switching low current relays from the AC, the reactance of the capacitor may be low enough to cause the external relay to stay on and not de-energize. If this occurs, it may be necessary to remove the capacitor or replace it with one of a smaller value. The working voltage of this capacitor must be at least 630 VDC (for 240V).

WARNING

This operation should only be carried out by qualified personnel as the unit contains potentially hazardous voltages. This procedure should be carried out only after the unit has been disconnected from the power supply.

To gain access to the capacitors, remove the four screws at the top and side of the unit and remove the top cover. The capacitors are located at the rear of the alarm printed circuit board, near the relays.
CDPM-70/71 Conductivity Meters

Setting Alarm Levels

To set the levels at which the alarms operate, press the button on the front of the unit and set the display to the level required with the control located below the button. The relay is energized when the temperature is below the set point.

Conductivity Measurement

Press the SET K button and adjust display with pre-set multi-turn potentiometer to the cell constant value marked on the conductivity cell. For example, if K = 1.07 is marked on the cell, set the display to 107 with the SET K button.

Select the range on the front panel rotary switch.

Specifications

Ranges: 0 to 20 mS, 0 to 200 mS, 0 to 200 µS, 0 to 2000 µS
Accuracy: ±0.5%, ±2 digits
Resolution: 0.01 mS, 0.1 mS, 0.1 µS, 1.0 µS
Automatic Temperature Compensation: 0 to 50°C
Reference Temperature: 25°C
Cell Constant Range: 0.5 to 2.0
Recorder Output: 4 to 20 mA
Power: 110/240 Vac, user switchable
Dimensions: 96 mm H x 96 mm W x 149.9 mm D
(3.78” x 3.78” x 5.9”)
Weight: CDPM-70: 1.1 kg (2.4 lb.)
CDPM-71: 1.4 kg (3.0 lb.)
WARRANTY

OMEGA warrants this unit to be free of defects in materials and workmanship and to give satisfactory service for a period of 13 months from date of purchase. OMEGA 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 should malfunction, it must be returned to the factory for evaluation. OMEGA’s Customer Service Department will issue an authorization number immediately upon return. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. However, this WARRANTY is void if the unit shows evidence of having been tampered with or shows evidence of being 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 or which are damaged by misuse are not warranted. These include contact points, fuses, and triacs.

OMEGA is glad to offer suggestions on the use of its various products. Nevertheless, OMEGA only warrants that the parts manufactured by it will be as specified and free of defects.

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SPECIAL CONDITION: Should this equipment be used in or with any nuclear installation or activity, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the equipment in such a manner.

RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA ENGINEERING Customer Service Department. Before returning any product(s) to OMEGA, purchaser must obtain an authorized return (R) number from OMEGA’s Customer Service Department (in order to avoid processing delays). The assigned R number should then be marked on the outside of the return package and on any correspondence.

FOR WARRANTY RETURNS, please have the following information available before contacting OMEGA:
1. P.O. 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 OR CALIBRATION, consult OMEGA for current repair/calibration charges. Have the following information available before contacting OMEGA:
1. P.O. number to cover the cost of the repair/calibration,
2. Model and serial number of product, and
3. Repair instructions and/or specific problems relative to the product.

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