Instruction Manual

CDCN-201 Series

Panel-Mounted Conductivity Indicators & Controllers

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M-3876/1002

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:

- CDE-201 conductivity/TDS probe
- 12 VDC adapter (CDCN-201-12VDC only)
- Mounting brackets

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

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

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

Both meters automatically compensate for the temperature variation.

The probe is easy to clean and requires little maintenance.

Measurements are highly accurate and the meters can be calibrated at one point.

Power supply, wiring and selection are made via the plug-in terminal blocks on the rear panel.

LED indicators on the front panel identify whether the controller is in set or measurement mode and if alarm is active.

SPECIFICATIONS

Range	0 to 1999 µS/cm
Resolution	1 µS/cm
Accuracy (@ 20°C)	±2% f.s.
Setpoint	Adjustable through multiturn trimmer
Alarm Condition	LED ON and alarm contact closed when measured EC value is higher than setpoint
Alarm Output	2-contact relay, no fuse protected. 5A, 240 VAC, 30 VDC
Probe	**CDE-201** conductivity/TDS probe
Temp.Compensation	Automatic from 5 to 50°C (41 to 122°F); β=2%/°C
Calibration	Manual, at one point through trimmer
Calibration Solution	1413 µS/cm
Power supply:	
CDCN-201-12VDC	12 VDC
CDCN-201	115/(230 VAC; 50/60Hz optional)
Dimensions	79 x 49 x 95 mm (3.1 x 1.9 x 3.8")

Recommendations for Users

Before using these products, make sure that they are entirely suitable for the environment in which they are used. Operation of these instruments in residential areas could cause unacceptable interferences to radio and TV equipment. The metal band at the end of the probe is sensitive to electrostatic discharges. Avoid touching this metal band at all times. During operation, ESD wrist straps should be worn to avoid possible damage to the probe by electrostatic discharges. Any variation introduced by the user to the supplied equipment may degrade the instrument's EMC performance.

To avoid electrical shock, do not use these instruments when voltage at the measurement surface exceeds 24 VAC or 60 VDC. Use plastic beakers to minimize any EMC interferences.

To avoid damage or burns, do not perform any measurement in microwave ovens.

WARRANTY

WARRANTY/DISCLAIMER

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.

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 KID 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 "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, 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 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.

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

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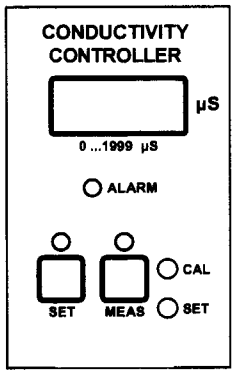
FUNCTIONAL DESCRIPTION

FRONT PANEL



Keypad

SET To display set point

MEAS To display measurement

Trimmers

CAL For calibration

SET To adjust setpoint

LEDs

SET ON when LCD displays the set value

MEAS ON when LCD displays the measured value

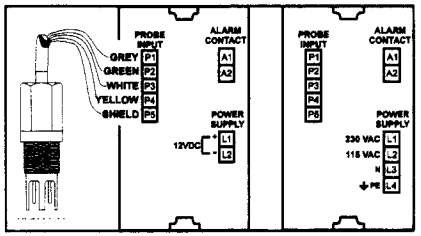
ALARM ON when alarm contact is activated

REAR PANEL

1. Power Supply:

	CDCN-201-12VDC 12 VDC	CDCN-201 115/(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



CDCN-201-12VDC CDCN-201

2. Alarm Contact: A1, A2.

3. Probe Connection: follow the above diagram and connect the colored wires of probe cable as indicated. It is recommended to connect the shield (P5) to avoid any interference.

OPERATIONAL GUIDE

POWER CONNECTION

CDCN-201-12VDC

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

CDCN-201

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

ALARM CONTACT

Use this contact (maximum 5A, 240VAC, 30VDC) for connection to an alarm or dosing system. The unit acts as a switch to control an external device.

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.

OPERATING THE METER

All operations 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 the Setpoint is properly selected before performing any measurement.

Attach the probe to the meter. Install the probe in the fittings or immerse it in the solution to be monitored, while making sure that metal pins are completely submerged. Press the "MEAS" key.

The LCD will show the conductivity value of the solution in µS/cm unit. Any initial variation on readings may be due to temperature compensation.

The "ALARM" LED will light up when the alarm contact is closed, to indicate an EC value higher than selected setpoint.

CALIBRATION

Make sure the meter is in the measurement mode (the "MEAS" LED lights on).

Immerse the probe in 1413 µS/cm calibration solution.

Shake briefly and wait for reading to stabilize.

Using a small screwdriver adjust the calibration trimmer until the meter displays "1413" on the LCD.

SETPOINT

Press the "SET" key. The display will show the default or previously adjusted value for the setpoint.

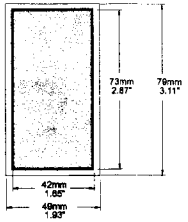
Using a small screwdriver, adjust the "SET" trimmer until the required limit value is displayed.

PROBE MAINTENANCE

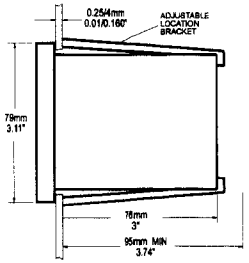
To improve probe performance and prolong its life, it is recommended to clean it regularly.

- Immerse the tip of the probe in Cleaning Solution at least for one hour.
- If a more thorough cleaning is required, brush the metal pins with very fine sandpaper.
- After cleaning, rinse the probe with tap water and recalibrate the meter.
- When not in use, clean the probe before storing it.

Front view of the panel-mounted unit



Side view of the panel-mounted unit



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

Panel-mounted unit assembling view