



## Dual Channel Conductivity/ Resistivity Controller

### CDCN-91 Series



#### Features

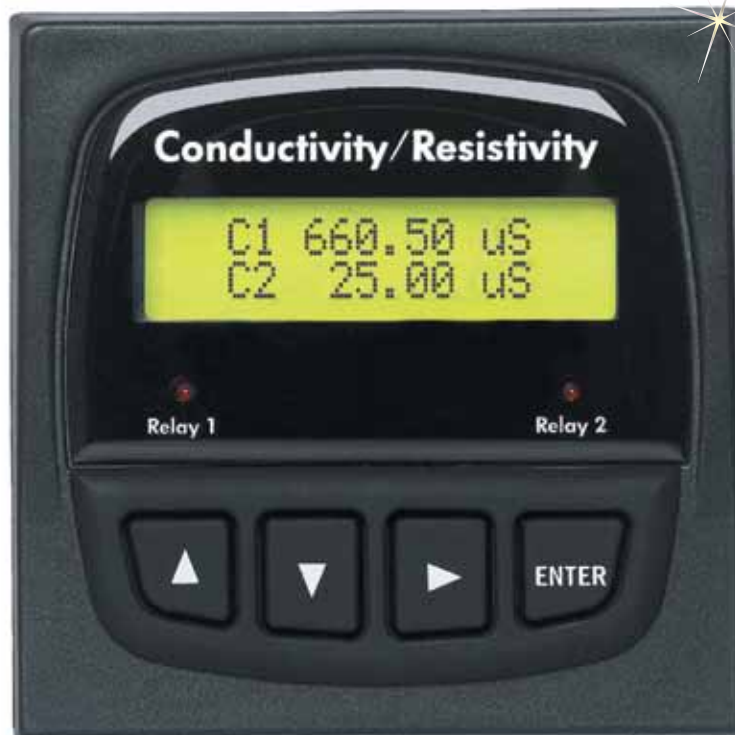
- ✓ 2-Channel Input
- ✓ Simultaneous Display
- ✓ AC Line-Voltage or DC Powered
- ✓ Display and/or Control:  $\mu\text{S}$ ,  $\text{mS}$ , PPM or PPB (TDS),  $\text{k}\Omega$ ,  $\text{M}\Omega$ , % Rejection, Difference, Ratio,  $^{\circ}\text{C}$  or  $^{\circ}\text{F}$
- ✓ 3 Fully Scalable  
4 to 20 mA Outputs
- ✓ Up to 4 Programmable Relays
- ✓ Time Delay Relay Function
- ✓ Proportional Pulse  
Control Capability
- ✓ Meets USP Requirements
- ✓ Programmable Temperature  
Compensation
- ✓ Output Simulation for Complete  
System Testing
- ✓ Simple Push-Button Operation
- ✓  $\frac{1}{4}$  DIN, NEMA 4X (IP65) Enclosure  
with Self-Healing Window

#### Application

- ✓ RO/DI System Control
- ✓ Demineralizer Regeneration  
and Rinse
- ✓ Scrubber, Cooling Tower  
and Boiler Protection
- ✓ Chemical Concentration
- ✓ Rinse Tank Water Quality
- ✓ Desalinization
- ✓ Leak Detection
- ✓ Aquatic Animal  
Life Support Systems
- ✓ Aquaculture
- ✓ Environmental Studies

#### Installation

- ✓ Front Panel provides  
NEMA 4X (IP65) protection
- ✓ Standard  $\frac{1}{4}$  DIN panel cutout
- ✓ 102 mm (4") mounting depth
- ✓ Optional NEMA 4X (IP65) rear cover  
kit with knockout ports  
for cable access
- ✓ 158 mm (6.3") mounting depth with  
optional rear cover installed



CDCN-91, shown actual size.

The CDCN-91 Series dual channel conductivity/resistivity controller is a two-channel input device equipped with three scalable 4 to 20 mA outputs and four programmable relays. A selector switch activates two open collector outputs in place of two of the relays for extraordinary output versatility. Dual input and advanced control capability, including percent rejection, difference and ratio calculations, together with the CDCE-91 Series conductivity sensors listed below, form the perfect measurement and control system for water treatment applications and more. Two versions are available: one accepts AC line-voltage, the other low voltage DC for power. The four-button keypad arrangement with intuitive software design is user-friendly, and the NEMA 4X (IP65) integrity of the front panel can be extended to the entire enclosure by using the optional rear cover kit.

#### Specifications

##### General

**Compatible Sensors:** CDCE-90 Series standard conductivity/resistivity sensors

##### Operating Range:

**Conductivity:** 0.055 to 400,000  $\mu\text{S}/\text{cm}$   
**Resistivity:** 10  $\text{k}\Omega/\text{cm}$  to 18.26  $\text{M}\Omega/\text{cm}$   
 (0.055 to 100  $\mu\text{S}/\text{cm}$ )

**TDS:** 0.001 to 999999 ppm or ppb  
 (display limit)

**Temperature:** PT1000: -25 to 120 $^{\circ}\text{C}$   
 (-13 to 248 $^{\circ}\text{F}$ )

##### Accuracy:

**Conductivity/Resistivity:**

$\pm 2\%$  of reading

**Temperature:**  $\pm 0.5^{\circ}\text{C}$

##### Power Requirements:

**100 to 240 Vac:**

$\pm 10\%$ , 50 to 60 Hz, 20 VA

**11 to 24 Vdc:**  $\pm 10\%$  reg., 0.5A max

**Display:** Alphanumeric 2 x 16 LCD

**Contrast:** User selected, 5 levels

**Update rate:** 1.5 seconds

**Current Outputs:** (3 each) 4 to 20 mA,  
isolated, fully adjustable and reversible

**Max Loop Impedance:** 150  $\Omega$  @ 12V,

450  $\Omega$  @ 18V, 750  $\Omega$  @ 24V

**Update Rate:** Approx. 100 mS

**Accuracy:**  $\pm 0.03$  mA @ 25 $^{\circ}\text{C}$ , 24 Vdc

**Open Collector Outputs:** (2 each)

Isolated, 50 mA sink or source, 30 Vdc  
max pull-up voltage

**Operational Settings:** Hi, Lo, USP,  
Pulse, Off

**Hysteresis:** User adjustable

**Time Delay:** 0 to 6400 seconds

**Maximum Pulse Rate:**

400 pulses/minute

**Alarm Contacts:** (up to 4 each)

SPDT Relays

**Maximum Voltage Ratings:**

5A @ 30 Vdc or 5A @ 250 Vac

**Operational Settings:** Hi, Lo, USP,  
Pulse, Off



**Hysteresis:** User adjustable  
**Time Delay:** 0 to 6400 seconds  
**Maximum Pulse Rate:**  
 400 pulses/minute

## Enclosure

**Rating:** NEMA 4X (IP65) front and back with optional NEMA 4X (IP65) rear cover kit

## Materials:

**Case:** PBT

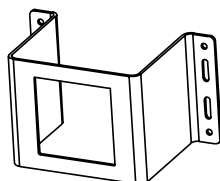
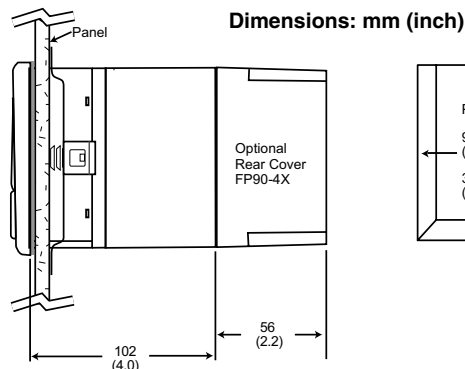
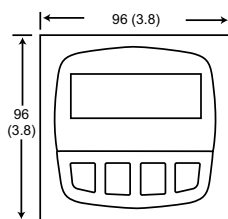
**Window:** Polyurethane-coated polycarbonate

**Keypad:** Sealed 4-key silicone rubber

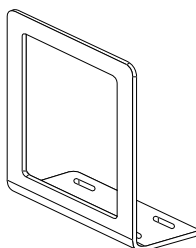
## Weight:

**CDCN-91AC:** Approx. 581 g (20.5 oz)

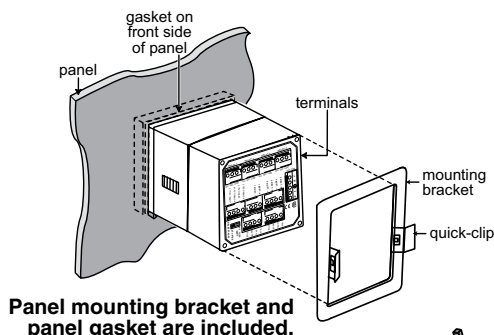
**CDCN-91:** Approx. 544 g (19.2 oz)



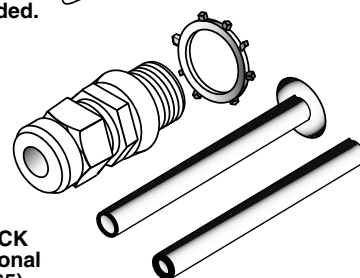
Optional heavy-duty wall mount bracket CDCN-91-WMB.



Optional surface mounting bracket FPM-5000-MB.



Panel mounting bracket and panel gasket are included.



Liquid tight connector kit 3 sets per kit, FPM-5000-LTCK. Use with optional NEMA 4X (IP65) rear cover kit, FP90-4X.

## To Order

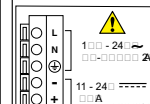
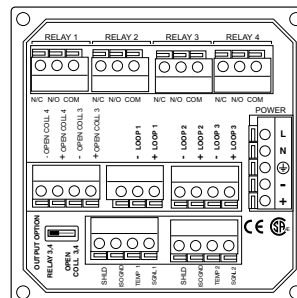
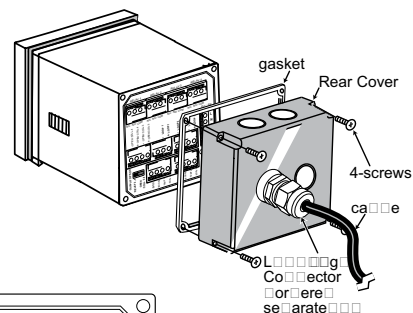
Model No.	Description
CDCN-91	Conductivity/resistivity controller DC power
CDCN-91AC	Conductivity/resistivity controller AC/DC power

## Accessories

Model No.	Description
FP90-4X	NEMA 4X (IP65) rear cover kit
FPM-5000-LTCK	Liquid-tight kit for rear cover
CDCN-91-WMB	Wall mount bracket
FPM-5000-MB	Surface mount bracket
FP90RC	RC filter kit for relays
CDCE-90-001	Conductivity cell constant = 0.01
CDCE-90-01	Conductivity cell constant = 0.1
CDCE-90-1	Conductivity cell constant = 1.0
CDCE-90-10	Conductivity cell constant = 10.0
CDCE-90-20	Conductivity cell constant = 20.0

Comes complete with mounting bracket, panel gasket and operator's manual. Additional cells available.

**Ordering Example:** CDCN-91 conductivity/resistivity controller DC power, with CDCE-90-1 conductivity cell constant.



**Note:** This label appears on the side of the instrument case