Conductivity Controller

Committed to Process Automation Solutions

Datasheet

ECM01

Introduction

The model ECM01 is used for the conductive measurement / control of electrolytic conductivity, resistivity or the TDS value. Conductivity is a function of ion concentration, ionic charge, and ion mobility. Ions in water conduct current when an electrical potential is applied across electrodes immersed in the solution. A controller system consists of a microprocessor-based controller and a conductivity probe.

4 Electrode cells (K=0.01, 0.1, 1.0 and 10.0) can be connected to the device. Temperature serves as the second input variable, measured by a NTC10K/ PT1000 probe. Depending on the measured variable, it is therefore possible to implement specific, automatic temperature compensation.

All adjustments to the current outputs, alarm relays, and calibration of the conductivity and temperature inputs can be made using the controller's membrane keypad.

Features

- Direct change over to
  - Conductivity (µS/cm)
  - Resistivity (MΩ x cm)
  - TDS measurement (ppm)
- Automatic temperature compensation
- 4-20 mA Isolated Output
- IP54 water resistant and corrosion proof enclosure
- Using the setup program: user-friendly programming
- RS485 communication
- Relay output
- Large LCD display with background lighting

Applications

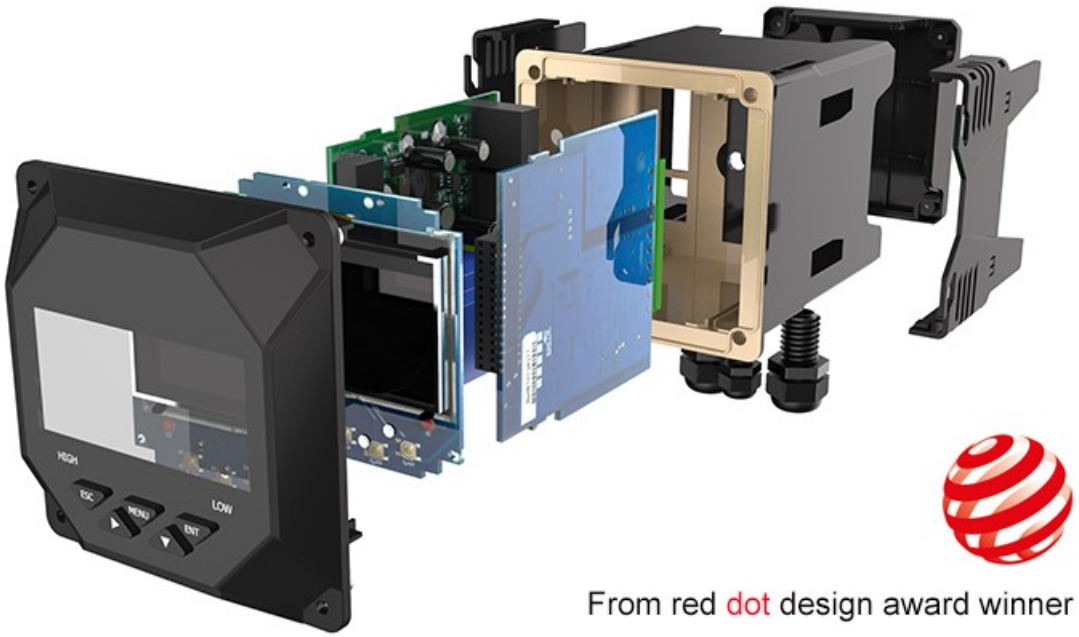
- Reverse Osmosis
- Process Control
- Seawater Desalination
- Food Processing
- Plating
- Power Plants
- Laboratories
- Printing
- Aquaculture
- Agriculture
- Environmental Studies
- Medical
- Boilers
- Cooling Towers

Benefits

- Affordable
- Ease of Operation
- Low Maintenance
- Ensures Product Quality

Industrial instrumentation

Professional industrial design team design the product appearance!
Industrial conductivity meter, support 4-20mA, relay and RS485 communication.



From red dot design award winner

Parameters

Screen Size	2.8 inch
Dimensions	Overall Dimensions: 100mm*100mm*150mm(H*W*D) Cutout Dimensions：92.5mm*92.5mm(H*W)
Weight	0.65Kg
Ingress Protection	IP54
Measure Variables	EC / TDS / Resistivity
Measure Range	0.01 Electrode ： 0.02 ~ 20.00μS/cm 0.1 Electrode ： 0.20 ~ 200.0μS/cm 1.0 Electrode ： 2.00 ~ 2000μS/cm 10.0 Electrode ： 0.02 ~ 20.00mS/cm Measure range for extended range controller： 0.01 Electrode ： 0.20 ~ 200.0μS/cm 0.1 Electrode ： 2.00 ~ 2000μS/cm 0.1 Electrode ： 0.02 ~ 20.0mS/cm 10.0 Electrode ： 0.20 ~ 200.0mS/cm Temperature Range : -10 ~130°C
Temperature Compensation	NTC10K / PT1000 Temperature Compensation ： Manual / Automatic
Accuracy	EC / TDS / Resistivity : ±1%FS NTC10K ： (-10~5°C) ±2°C; (5~60°C) ±0.2°C; (60~130°C) ±2°C PT1000 ： (-10~5°C) ±2°C; (5~130°C) ±0.2°C
Output	Isolated 4-20mA output maximum loop is 750Ω, ±0.2%FS
Communication Protocol	MODBUS-RTU RS485
Alarm Relay	Pickup / Breakaway AC250V / 3A
Relative Humidity	10 ~ 85 % RH (No Condensation)
Operating Temperature	0 ~ 60°C
Power Supply	220VAC ±10% 50Hz/60Hz
Storage Conditions	Temperature ： -15 ~ 65°C Relative Humidity ： 5 ~ 95 % RH (No Condensation)

Electrodes

ECPK=0.01 Electrode

Suitable for pure water ultrapure water testing

ECPK=0.1 Electrode

Suitable for drinking water testing

ECPK=1.0 Electrode

Suitable for rive raw water testing

ECPK=10.0 Electrode

Suitable for sewage waste testing

The device offers a far wider dynamic range on the input side, the range must be matched to the operating range of the cell.

Cell Constant (ECPK)	Material	Length	Diameter	Hole size	Thread	Recommended/practical measuring span(depending on the conductivity cell)
0.01	Stainless steel	77mm	13mm	6mm		0.02 ~ 20 μs/cm
0.1	Stainless steel	59mm	13mm	6mm		0.20 ~ 200.0μs/cm
1.0	Stainless steel	59mm	13.5mm	6mm		2.00 ~ 2000μs/cm
10.0	Polysulfone	60.5mm	23.3mm	6mm		0.10 ~ 20 ms/cm

Example :

A measurement is to be carried out in the 10 μS/cm to 100 μS/cm range. A conductivity cell with the cell constant ECPK = 0.1 is chosen.

Note :

When electrode works with ECM01 (0-20,000us/cm)

Measuring span = 20,000 μs/cm x cell constant (K)

Product Description

EMC01 Conductivity Controller

1 Temperature : Compensation temperature

2 Analog Output : Analog output

3 Measured Value : Real-time measurements value

4 High Alarm : High alarm

5 Low Alarm : Low alarm

6 EXIT: Check related warning status on the "**Monitoring Page**";

Return to previous level page in the up & down level page linked to "**Menu Page**"

7 MENU : Enter the MENU on the "**Monitoring Page**"

Exit the MENU on the "**Menu Page**"

8 RIGHT: Enter the menu under "**Monitoring Interface**"

Exit the menu under "**Monitoring Interface**"

DOWN: Relevant menu is selected under the "**Menu Interface**"

Relevant numerical value is modified under the setup status

9 ENTER:Enter the sub-menu or confirm modification on the "**Menu Page**"

Instrument Wiring

ECM01 Conductivity Controller Wiring Diagram

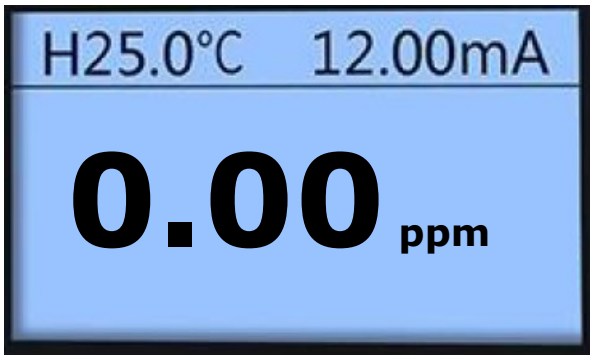
Identification of Terminals

- **ECL1** : Measuring terminal of the electrode
- **ECL2** : Reference terminal of the electrode
- **A** : Temperature compensation terminal A,NTC10K and PT1000 connect here
- **B** : Temperature compensation terminal B, NTC10K and PT1000 connect here
- **C** : Temperature compensation terminal C, PT1000 three-wire temp. grounding, PT1000 two-wire need to be short-connected to TEMPB, not NTC10K.
- **NC** : Unidentified
- **485A+** : RS485 communication interface A +
- **485B-** : RS485 communication interface B-
- **I+** : 4-20mA output end+
- **I-** : 4-20mA output end-
- **L** : AC220V Live Wire
- **N** : AC220V Neutral line
- **HO** : High alarm normally open relay
- **HC** : High alarm normally closed relay
- **LO** : Low alarm normally open relay
- **LC** : Low alarm normally closed relay

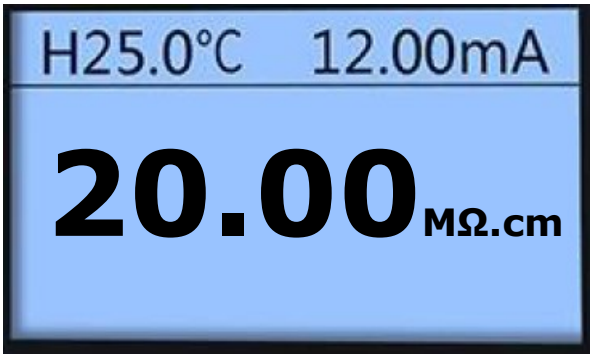
COM : Common

Display

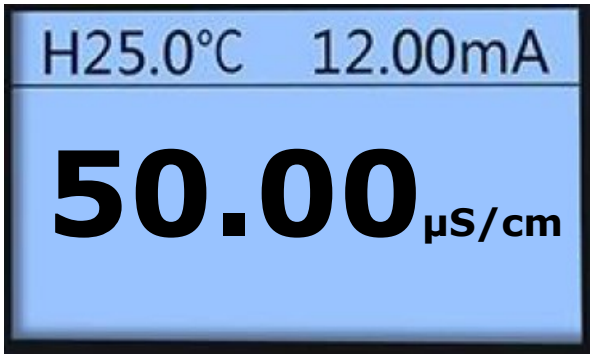
TDS Monitor Page :



EC Monitor Page :



Resistivity Monitor Page :



Product Selection

Conductivity Controller																	
ORDERING CODE	**ECM01**	**-**	**R1**	**-**	**K1**	**-**	**10**	**-**	**S**	**-**	**A**	**-**	**S1**
TYPE	ECM01												
Range	0-2000 μS/cm		R1										
	0-20000 μS/cm		R2										
Cell Constant	K=0.01 0.02 ~ 20.00μS/cm				K1								
	K=0.1 0.20 ~ 200.0μS/cm				K2								
	K=1.0 2.00 ~ 2000μS/cm				K3								
	K=10.0 0.02 ~ 20.00mS/cm				K4								
Cable Length	5 Meters						05						
	10 Meters						10						
	15 Meters						15						
	20 Meters						20						
	Others:						xx						
Signal Output	Standart Signal: 4-20mA & RS485								S				
Relay	Standart Relay Output: Two Relays (High and Low)										A		
Power Supply	220VAC												S1
	110VAC												S2

CeYeKo

Fluid Measurement Technology

www.ceyeko.com

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ECM01_V0.0