



**DE DYNAMIC<sup>TM</sup>**  
Process Equipment

Inductive Conductivity/Concentration Transmitter  
**SmartSense CO-3002-IN-AD-C**

## Core Features of SmartSense Transmitters

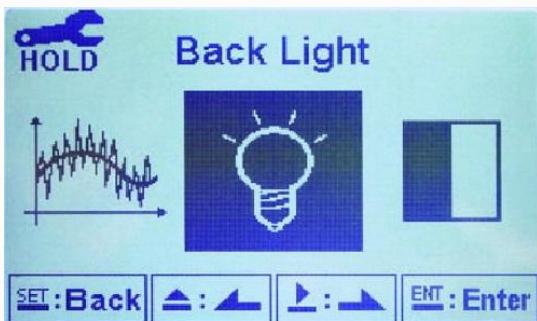
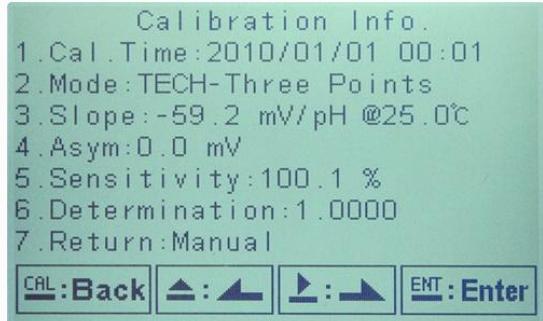


### Waterproof protection

Provides the instrument safety with IP65 waterproof protection and front flap cover design for easy installation and wiring.

### Dot-Matrix LCD

For convenience and better process safety, it reveals the last calibration records and a system setting overview

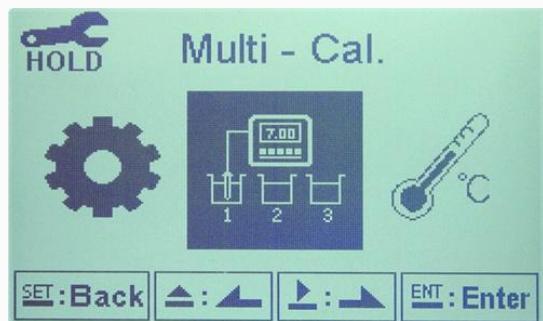


### Auto-Sense Backlight Display

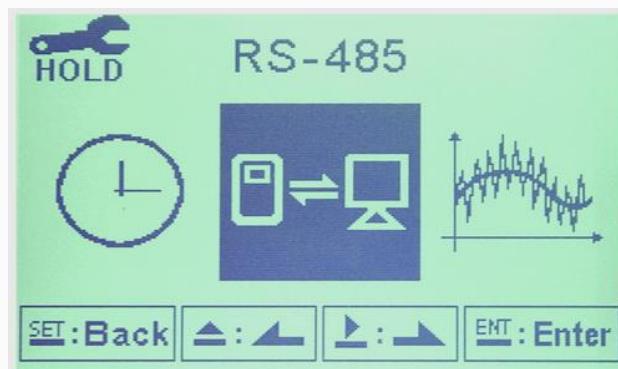
For clear reading and energy saving, it turns on the backlight automatically when the environment becomes dark.

### Graphical Menu

Allows extremely intuitive & quick setting and calibration.

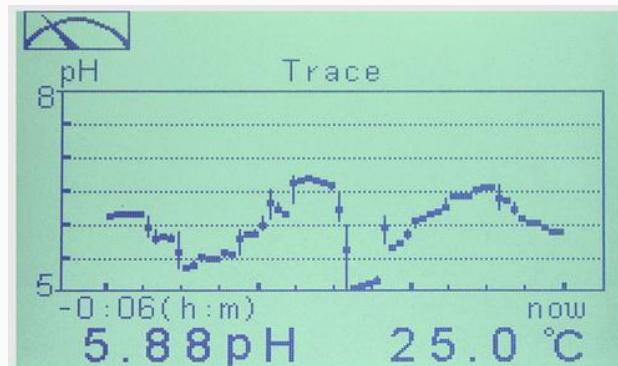
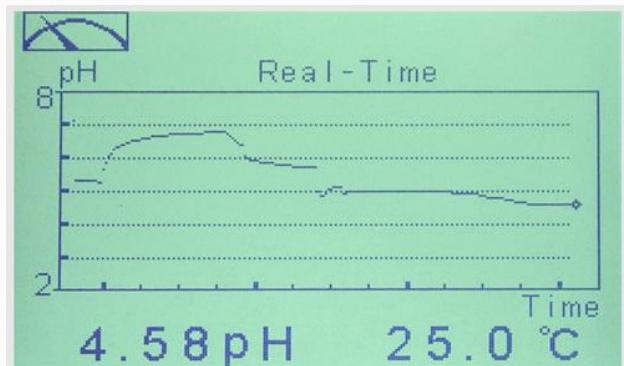


## Special Features of Advanced Version Transmitters



**RS-485 MODBUS protocol**  
Provides long-distance, multiple values and configuration info transmission and anti-electrical signal protection

**Real-time chart mode**  
3 minutes real-time dynamic graph to help you realize recent development in control



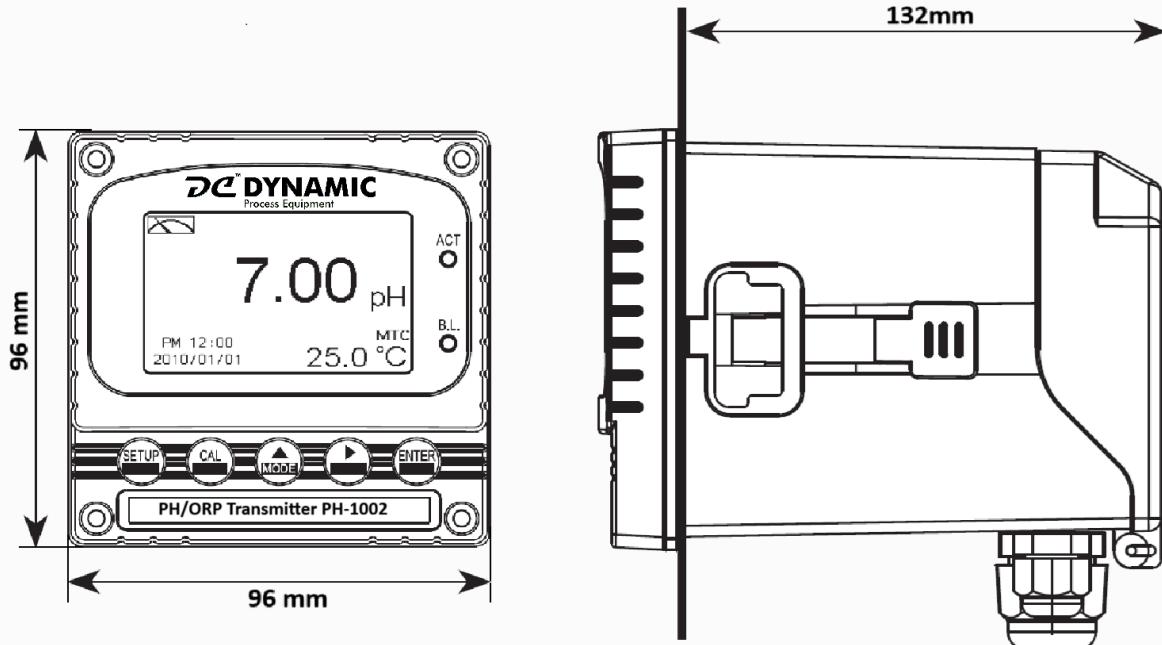
**Trace mode**  
Set up from 3 mins to four weeks duration of the measured value trend graph to help you master the process history

**Events logbook**  
Actions, current output out of range, power outages and error records, no need for standby and record them anymore

Page 1		
11/06/29	15:33:56	Set mode
11/06/29	15:33:49	Mea mode
11/06/29	15:33:47	Set mode
11/06/29	15:31:22	Mea mode
11/06/29	15:30:58	Set mode
11/06/29	15:30:26	Mea mode
11/06/29	15:29:59	Set mode

SET: Back ▲: ▲ ▼: ▼

## Transmitter Dimension DIN 1/4, 96 x 96:



## Flameproof Transmitter Specification:

**Transmitter Type:** DIN1/4 (96 x 96mm)

### Flameproof protection:

EX-d AS PER IS/IEC 60079-1:2014 SUITABLE FOR  
INSTALLATION IN HAZARDOUS LOCATION OF  
GAS GROUP IIA & IIB, ZONE 1 & 2.

### Ingress protection:

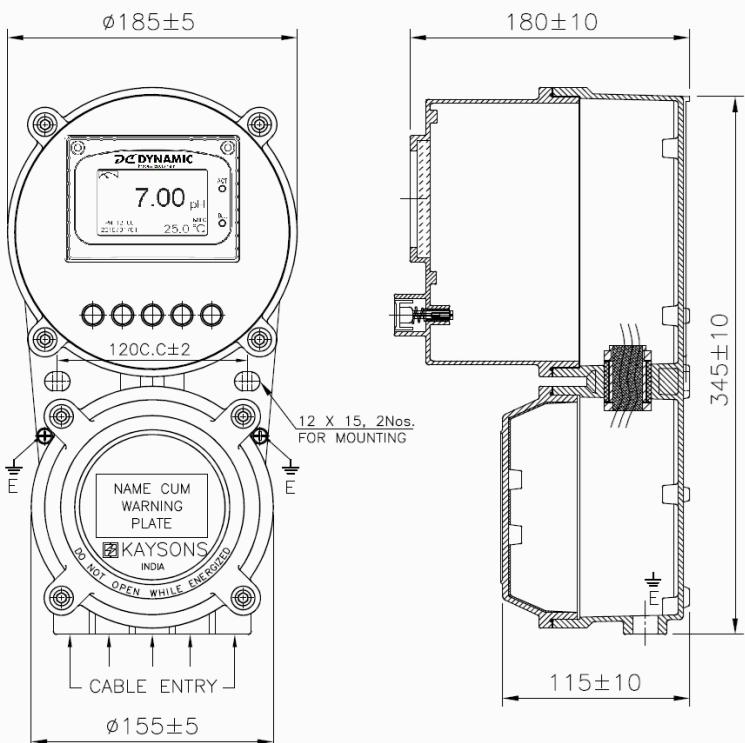
IP-66 AS PER IS/IEC 60529:2001 (REAFFIRMED  
2014)

### DUST IGNITION PROTECTION:

(Ex 'db' IIB Gb) (Ex tb IIIC Db) AS PER IS/IEC  
60079-31:2013

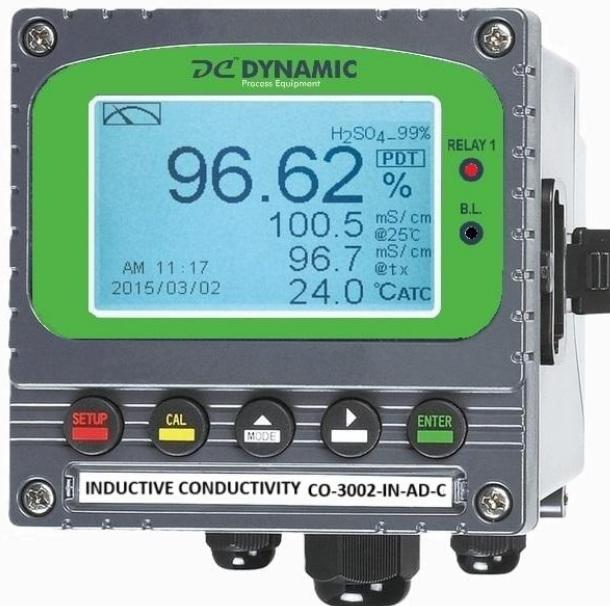
**Temperature class:** T6

**Material of construction:** DIE CAST AL. ALLOY  
LM-6.



## SmartSense Inductive Conductivity Transmitter for Concentration Measurement

### CO-3002-IN-AD-C



The SmartSense CO-3002-IN-AD-C transmitter provides precise inductive conductivity measurements even in the harshest chemical conditions. It comes with chemical concentration curves, or a self-defined conversion table. Built-in product adjustment function allows fine-tuning for concentration values to minimize process contamination caused deviations.

#### Applications

- Chemical Concentration
- Food and Beverages
- Industrial Process
- Scrubber
- Reagent dilution

#### Features

- Compatible with anti-fouling electrodeless conductivity sensor
- Conductivity ranges up to 2000 mS/cm
- Chemical concentration measurement with built-in concentration curve for most common chemicals
- User-friendly operation with text and graphic illustration, clear signs and easy to understand
- Chart mode, Trace Mode for graphical data interpretation
- RS-485 MODBUS RTU Digital Output
- Hi/Lo, Hi/Hi, Lo/Lo selectable two limited contact outputs with programmable set-points and hysteresis
- With conductivity, Salinity and TDS measurement available.
- In built temperature compensation
- LED indicated alarm or washing status signal
- Waterproof and dustproof design IP 65 (NEMA 4X)

## Specification:

Inductive Conductivity Transmitter SmartSense CO-3002-IN-AD-C											
Model	CO-3002-IN-AD-C										
Measuring Modes	Conductivity / TDS / Salinity / Temp / Concentration										
Measurement Range	<table border="0"> <tr> <td>Conductivity</td><td>0.0 <math>\mu</math>S/cm to 2000 mS/cm (depends on selected range); Auto or Fixed <math>\geq 1</math> mS/cm: <math>\pm 1\%</math> (<math>\pm 1</math> Digit), &lt; 1 mS/cm: <math>\pm 10 \mu</math>S/cm</td></tr> <tr> <td>Salinity</td><td>0.0 to 70.0 ppt, <math>\pm 1\%</math> (<math>\pm 1</math> Digit)</td></tr> <tr> <td>TDS</td><td>0 to 19999 ppm ; 0.00 to 199.99 ppt</td></tr> <tr> <td>Temperature</td><td>Pt-1000: -30.0 to 200.0°C, NTC - 30K: -30.0 to 130.0°C <math>\pm 0.2^\circ</math>C (<math>\pm 1</math> Digit)</td></tr> <tr> <td>Concentration</td><td>           NaCl_28%: 0 to 28%            HCl_18%: 0 to 18%, HCl_39%: 22 to 39%            HNO3_30%: 0 to 30%, HNO3_30%: 35 to 96%            NaOH_24%: 0 to 24%, NaOH_50%: 15 to 50%            H2SO4_37%: 0 to 37%, H2SO4_88%: 28 to 88%,            H2SO4_99%: 89 to 99%, H3PO4_35%: 0 to 35%            (Range incl. different temp. condition; Resolution 0.01%)         </td></tr> </table>	Conductivity	0.0 $\mu$ S/cm to 2000 mS/cm (depends on selected range); Auto or Fixed $\geq 1$ mS/cm: $\pm 1\%$ ( $\pm 1$ Digit), < 1 mS/cm: $\pm 10 \mu$ S/cm	Salinity	0.0 to 70.0 ppt, $\pm 1\%$ ( $\pm 1$ Digit)	TDS	0 to 19999 ppm ; 0.00 to 199.99 ppt	Temperature	Pt-1000: -30.0 to 200.0°C, NTC - 30K: -30.0 to 130.0°C $\pm 0.2^\circ$ C ( $\pm 1$ Digit)	Concentration	NaCl_28%: 0 to 28% HCl_18%: 0 to 18%, HCl_39%: 22 to 39% HNO3_30%: 0 to 30%, HNO3_30%: 35 to 96% NaOH_24%: 0 to 24%, NaOH_50%: 15 to 50% H2SO4_37%: 0 to 37%, H2SO4_88%: 28 to 88%, H2SO4_99%: 89 to 99%, H3PO4_35%: 0 to 35% (Range incl. different temp. condition; Resolution 0.01%)
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Temperature Compensation	Automatic with Pt-1000 or NTC 30K Or Manual Input										
Temperature Coefficient	Linear temperature compensation at 0.00% to 40.00%, Non-linear compensation and Off-compensation										
Cell Constant	Freely adjustable 0.008 to 9.9999 $\text{cm}^{-1}$										
Production Adjustment	Factor: 0.7000 to 1.3000										
Display	LCD with auto/manual illumination function, Text, Chart, Trace mode										
Analog Output	Isolated DC 0/4 to 20 mA corresponding to measurement, max load 500 $\Omega$										
Serial Communication	RS-485 (MODBUS RTU or ASCII)										
Calibration	Manual cell-constant adjustment / Conductivity standard solution calibration / Zero-point calibration										
Event Log	Last 50 Events										
Output Relay	Rating 240 VAC, 0.5A max. (recommended)										
	Set Point Hi/Lo, Hi/Hi, Lo/Lo selectable two limited programmable, ON/OFF										
Wash Relay	Rating 240 VAC, 0.5A max. (recommended)										
	Time On: 0-99min. 59sec, Off: 0-999hr 59min.										
Ambient Temperature	0 to 50°C										
Storage Temperature	-20 to 70°C										
Power Supply	100V to 240V AC $\pm 10\%$ , 50/60Hz, 8W Max.										
Installation	Wall mounting, Pipe mounting, Panel mounting										
Dimensions	Enclosure H: 96 mm W: 96mm D:132 mm (1/4 DIN)										
	Panel Cut out 93 mm x 93 mm										
Weight	~ 500 Grams										
Protection	IP 65 (NEMA 4X), Flameproof (Optional)										

Also check out our range of **Retractable Housings** for Liquid Analytics...



#### SmartDip 405M

SmartDip 405M is a retractable electrode housing with pneumatically operated drive Unit. This metal body model can be implemented in harsh chemical applications through flan...



#### SmartDip 220M

SmartDip 220M is a compact retractable electrode housing with manual drive Unit. This metal body model can be implemented in different chemical applications including ferment...



#### SmartDip 405P

SmartDip 405P is a retractable electrode housing with pneumatically operated drive Unit. This plastic body model can be implemented in harsh chemical applications through flan...



#### SmartDip 250M

SmartDip 250M is a manually operated Retractable electrode housing with long immersion lengths and ball valve for isolation. It can fit 120mm long Sensor.



#### SmartDip 420M

SmartDip 420M is a compact retractable electrode housing with pneumatically operated drive Unit. This metal body model can be implemented in different chemical applicatio...



#### SmartDip 240M

SmartDip 240M is a compact retractable electrode housing. This version can fit 120mm long sensor. It comes with 1" NPT, Triclover connection.



#### SmartDip 450M

SmartDip 450M is a pneumatically operated retractable electrode housing with long immersion length and isolation ball valve. This unique model can fit 120mm long sensor.

