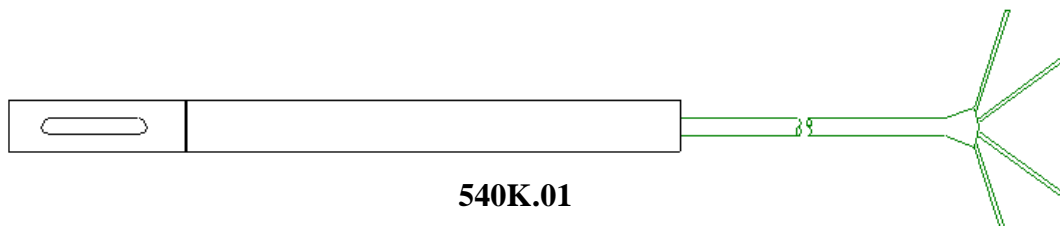
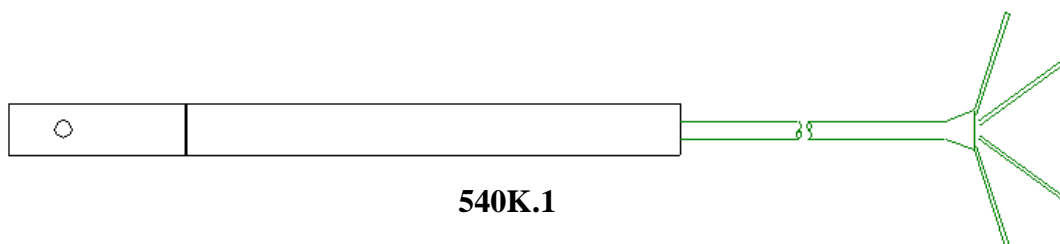


**LAKEWOOD INSTRUMENTS
MODEL 540**

**2-ELECTRODE CONDUCTIVITY
SENSORS**

INSTALLATION & OPERATION MANUAL



Lakewood Instruments

7838 North Faulkner Road, Milwaukee, WI 53224 USA

Phone (800) 228-0839 • Fax (414) 355-3508

<http://www.lakewoodinstruments.com>

Lakewood Instruments

Congratulations on your purchase of a Lakewood Instruments product. We would like to take this opportunity to welcome you to the Lakewood Instruments product family.

With proper care and maintenance, your product should give you trouble-free service. Please take the time to read and understand the operation manual, paying special attention to the sections on **INSTALLATION** and **MAINTENANCE**.

If, in the future, any parts or repairs are required, we strongly recommend that only original replacement parts be used. Our Customer Service Department would be happy to assist you with your parts or service requests.

We thank you for your selection and purchase of an Lakewood Instruments product.

MODEL 540

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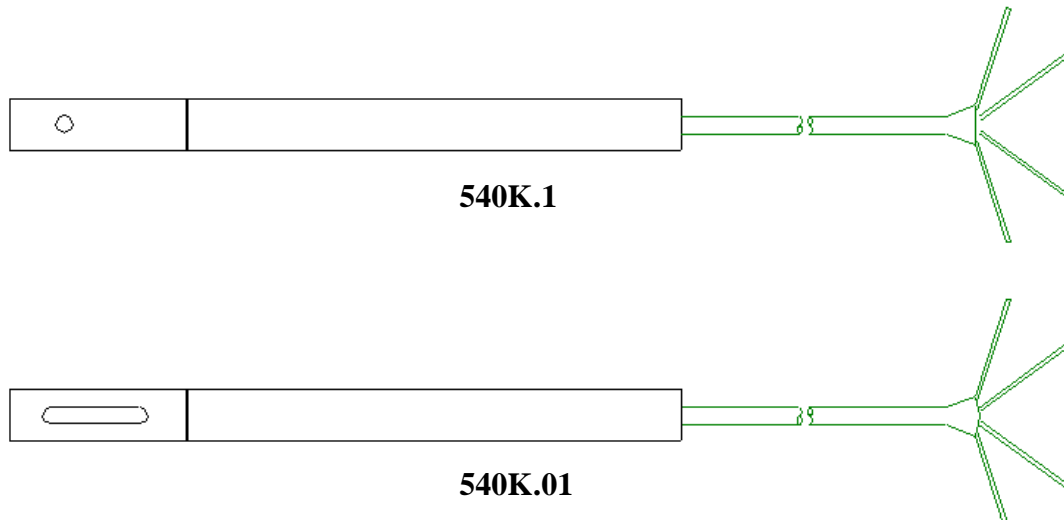
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**MODEL 540 SERIES
2-ELECTRODE CONDUCTIVITY SENSORS**



The Model 540 Conductivity Sensor offers a reliable and easy-to-use tool for measuring high-purity water or condensate return. Available configured as in-line, retractable or submersible, the Model 540 provides accurate input for monitoring or control of total dissolved solids in the 1 - 10 μ S or 10 - 100 μ S conductivity ranges. These sturdy sensors can withstand temperatures up to 200°C (392°F) and will serve for a long period of time.

BENEFITS

- Reliable control
- Labor-saving
- Economical
- Long life
- Accurate

SPECIFICATIONS

Length, body	10 in or 18 in
Material	316 SS
Temp. ranges	0-395°F (200°C)
Temp. comp.	500 NTC
Cell constants	K.01, K.1
Cable lengths	20 ft max.
Cable material	TFE
Pressure Trend Swagelock	70 psi (4.8 bar)
Insulator material	PVDF
O-ring nut	EPDM
Range K.1	10-100 μS
Range K.01	0-10 μS

Ordering Information

540K.1 Conductivity 2-electrode sensor, 10-100 μ S, cell constant .1. Used mainly in condensate lines and for pure water. 316 SS body. 392°F (200°C), 70 psi (4.8 bar).

540K.01 Conductivity 2-electrode sensor, 1-10 μ S, cell constant .01. Used mainly for pure water. 316 SS body. 392°F (200°C), 70 psi (4.8 bar).

SENSOR TO CONTROLLER CONNECTION (required, select one only)

- 0 Direct mount to 2-wire transmitter.
- 1 NEMA-4X PVC enclosure with amplifier (-RP, 800 and 1000 Series only).
- 2 Class I, Div. I, aluminum enclosure with amplifier (-RP, 800 and 1000 Series only).
- 3 Class I, Div. I, aluminum enclosure. No amp or driver.
- 4 20 ft cable without preamplifier enclosure.
- 5 NEMA-4X enclosure without preamplifier.

MOUNTING OPTIONS (required, must select one)

- 10I In-line, 316 SS compression fitting, $\frac{3}{4}$ in connection with sensor body.
- 10R Retractable w/ball valve, 316 SS, 1 in process connection with sensor body.
- 10S 316 SS sensor body.

BODY LENGTH (required, select one only)

- 10 10 in body (not available with 10R).
- 18 18 in body.

TEMPERATURE COMPENSATOR (required, must select one)

- TC500 500 NTC.

INSTALLATION

Installation

The Conductivity sensor may be mounted in any position as long as water always contacts the sensor when process water measurements are made. Avoid connections in “dead leg” sections of pipe. An air pocket around the electrode tips will cause erroneous readings. The sensor electrodes should be in direct contact with the process flow (see DWG #04259 in the back of this manual).

The 540 series sensors have 4 wires. They are as follows:

- Black wire Outer Electrode
- Red wire Center Electrode
- White wire Temp compensation 500 NTC
- Green wire Temp compensation

Cable length of Conductivity sensors is measured from the electrode tips to the end of the wire. Twenty (20) feet is the maximum cable length. Lakewood Instruments guarantees operation up to 20 feet. If a cable extension is used Lakewood Instruments will not guarantee operation of the sensor.

Storage

Conductivity sensors may be stored for years. No special handling procedures are required for storage.

Sensor Life

Conductivity sensor life varies with the following:

- Type of process water and chemicals used.
- Temperature of water.
- Pressure of water.

Ambient temperatures, low pressures, and water with no chemicals are ideal for longest life.

Cleaning

Conductivity sensors may be cleaned with distilled or tap water. A bottle with a spout may be used to rinse the probe free of debris. If the debris cannot be removed with water you may use a cotton swab with isopropyl alcohol. Cleaning frequency will vary with the type of process water. Cleaning should be done at least once a month or if conductivity readings become unstable.

REPLACEMENT PARTS

Replacement Tips

The 540 series sensors may be replaced by simply unscrewing the tip of the sensor. The body, fittings, and other options may be reused with the new sensor tip. Replacement numbers are as follows:

1169054	540K.1-TC500 replacement tip
1169055	540K.01-TC500 replacement tip

Accessories

REPLACEMENT SENSOR FITTINGS


1167374	316 SS compression fitting, ¾ in NPT connection
1167375	316 SS Ball valve 1 in NPT connection

PREAMP & CABLE

1167230	Remote Conductivity Preamp
1168900	Conductivity Preamp manual
1166317	Preamp cable. 4 conductor shielded. per ft

MAINTENANCE AND TECHNICAL SERVICE

Technical Service/Return Material Procedure

 **Technical Support for Lakewood Instruments can be reached by calling (800) 228-0839 or faxing (414) 355-3508, Monday through Friday, 7:30 a.m. - 5:00 p.m. CST.**

 **Mail and returns should be sent to:**

**Lakewood Instruments
7838 North Faulkner Road
Milwaukee, WI 53224 USA**

When any merchandise is returned to the factory, please call and obtain a return goods authorization (RGA) number and have the following information available:

- Customer's name, address, phone and fax numbers (shipping and billing).
- A hard copy purchase order number (no exceptions) for cases where repairs or parts are required that are not under warranty.
- A contact person's name and phone number to call if the equipment is beyond repair or to discuss any other warranty matter.
- Equipment model and serial numbers.
- Reason for return (i.e., repair, warranty, incorrect part, etc.).

We will then fax to your attention an RGA form that must accompany the returned item.

NOTE: THE RGA NUMBER MUST BE CLEARLY WRITTEN ON THE OUTSIDE OF THE PACKAGE(S) BEING RETURNED.

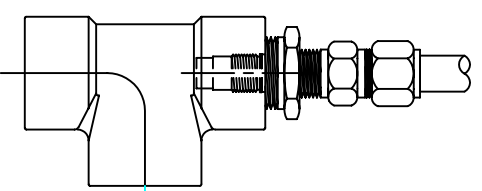
**ANY ITEMS SENT BACK TO THE FACTORY
WITHOUT AN RGA NUMBER WILL BE REFUSED
AND RETURNED TO SENDER**

DRAWINGS

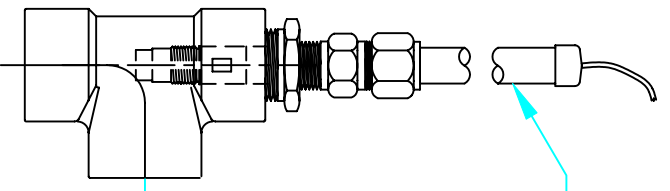
REVISION HISTORY						
REV	ZONE	DESCRIPTION	ECO	DWN	DATE	APPD
A	RELEASE	RELEASE	1034	EV	5/16/97	



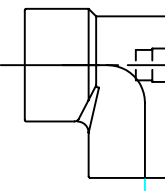
SENSOR TIP



FLOW



SENSOR TIP



FLOW

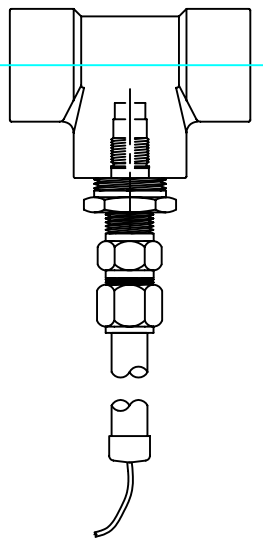
INCORRECT

CORRECT

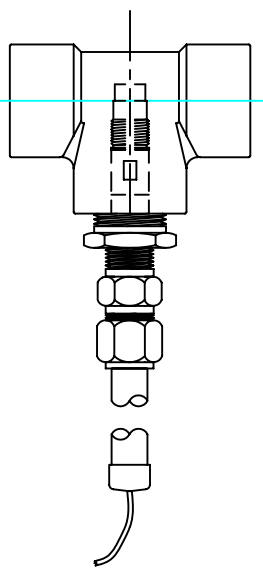
FLOW

FLOW

NOTE: TO ENSURE PROPER FUNCTION, SENSOR TIP MUST BE FULLY IMMersed WITHIN THE ACTIVE PROCESS STREAM. IF INSTALLED INCORRECTLY, AIR MAY ACCUMULATE AROUND THE SENSOR TIP, OR, LIMITED FLOW AROUND THE SENSOR MAY CAUSE INACCURATE READINGS.



INCORRECT



CORRECT

A

B

C

D

4

3

2

1



OSMONICS
PROBING OPERATIONS

INSTALLATION LAYOUT
540 & 543 COND. SENSORS

NOTICE ON REPRODUCTIONS:	
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FRAC	DECIMALS (THREE WORDS)
THIRDS	XX ± .05
	XXX ± .010
	±.5"
ORDER NO.	DWN EV DATE: 2/16/97
CUSTOMER NO.	CNO DATE
CUSTOMER LOC.	APPD DATE
DO NOT SCALE	APPD DATE
TITLE	SIZE
INSTALLATION LAYOUT	C
540 & 543 COND. SENSORS	THIRD ANGLE
DWG NO./REV	SCALE NONE
04259	FILE TYPE: DWG
REV A	SHEET 1 OF 1

For more information call toll free in the USA (800) 228-0839

Manufactured in the USA

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