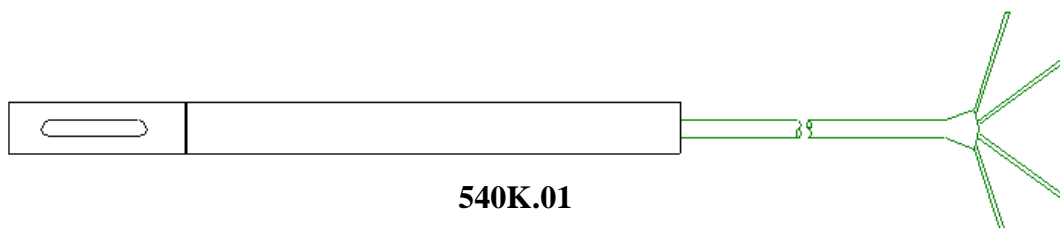
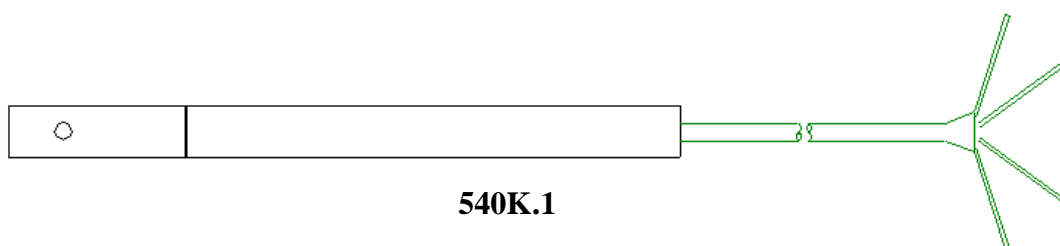


**LAKEWOOD INSTRUMENTS  
MODEL 540**

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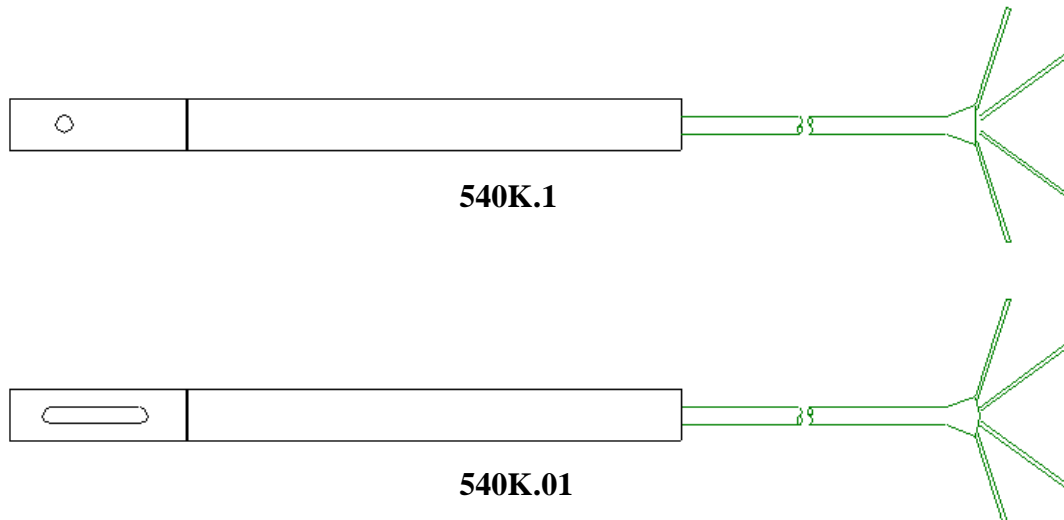
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**MODEL 540 SERIES  
2-ELECTRODE CONDUCTIVITY SENSORS**



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  $\mu$ S or 10 - 100  $\mu$ 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
<b>Range K.1</b>	<b>10-100 <math>\mu</math>S</b>
<b>Range K.01</b>	<b>0-10 <math>\mu</math>S</b>

## **Ordering Information**

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540K.1            Conductivity 2-electrode sensor, 10-100  $\mu$ 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  $\mu$ 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.



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# INSTALLATION

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## Installation

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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**

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

## **Sensor Life**

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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**

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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.

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## REPLACEMENT PARTS

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### Replacement Tips

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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

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### Accessories

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#### REPLACEMENT SENSOR FITTINGS

1167374	316 SS compression fitting, 3/4 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

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## MAINTENANCE AND TECHNICAL SERVICE

### Technical Service/Return Material Procedure

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 **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.***

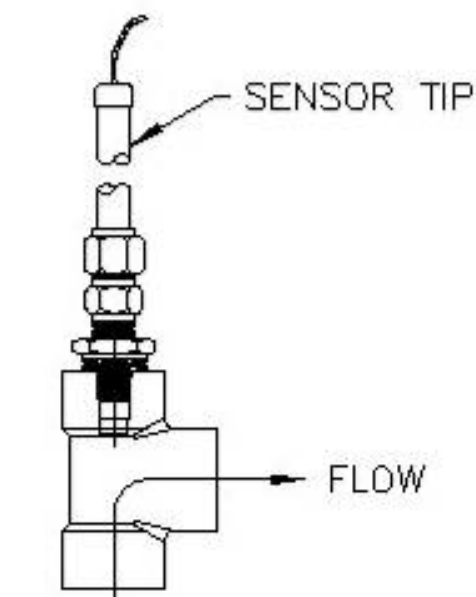
**ANY ITEMS SENT BACK TO THE FACTORY  
WITHOUT AN RGA NUMBER WILL BE REFUSED  
AND RETURNED TO SENDER**

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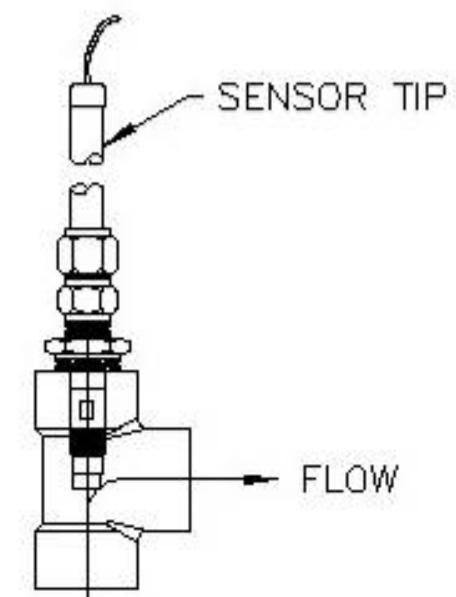
## DRAWINGS



REVISION HISTORY						
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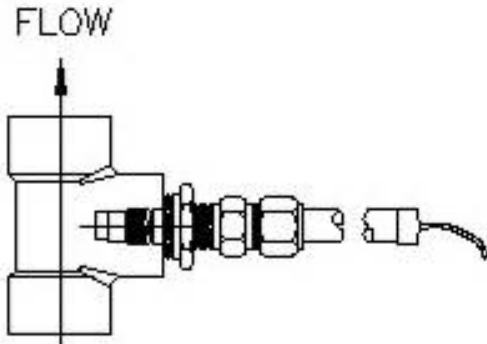


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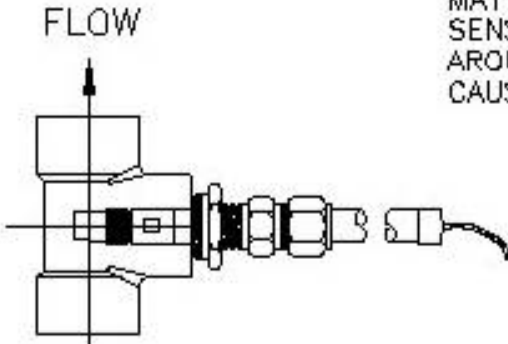


CORRECT

NOTE: TO ENSURE PROPER FUNCTION, SENSOR TIP MUST BE FULLY IMMERSIED 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

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

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**Manufactured in the USA**

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