2. When adopting 4 wire approach, connect the white and green leads (DC-SE) or pins A and D (GCD-SE) to a DC readout device. Make certain that green is the positive connection.

3. When adopting 3 wire approach, connect the white and black leads (DC-SE) or pins A and C (GCD-SE) to a DC readout device. Make certain that white lead or pin A is the positive connection.

4. Insert core into LVDT, making certain that the end marked with a red dot is pointed away from the connector or lead end.

5. Turn on power supply.

6. Move the core of the LVDT to the position where the indicated output voltage is 0 VDC (4 wire) or +1 VDC (3 wire). This is the null point of LVDT and the point from which full scale is measured. When the core is moved toward the lead (or pin) end, an increase in positive voltage results.

WARRANTY

Seller warrants MEAS instruments ("Products") to be free from defects in material, workmanship and fabrication under normal and proper use in accordance with instructions of Seller for a period of one (1) year from date of shipment of Product to original Buyer. Seller's liability, and Buyer's sole and exclusive remedy, under such warranty or in connection with any other claim relating to the Product, shall be, to the extend permitted by law, expressly limited to (a) replacing or repairing any Product or component thereof which has not been subjected to misuse, neglect, improper installation, repair, alteration, or accident which is returned by Buyer, at its expense, during such warranty period or (b) at Seller's sole discretion, refunding the purchase price of such defective Product. Seller maintains the sole right to final determination as to the existence and cause of a Product defect. In no event will Seller be liable for incidental, collateral or consequential damages or special, indirect or incidental damages arising out of, or as a result of, delivery, purchase or use of the Product.

RECEIVING INSPECTION

Every MEAS product is carefully inspected and is in perfect working order at the time of shipment. Each instrument should be checked as received. If the unit is physically damaged in any way, a claim should immediately be filed with the transportation company.

RETURNS

All units being returned to the factory for any reason require a Return Material Authorization (RMA) number before they will be accepted. This number may be obtained by calling the Repair Department at (757) 766-1500 with the following information:

- Model Number
- Quantity
- Serial Numbers
- Symptoms of the problem with the unit if being returned for service
- Original P.O. number of MEAS sales number, if under warranty

If a MEAS product requires service, first contact your nearest MEAS representative. They may be able to solve the problem without returning the unit to the factory. If it is determined that factory service is required, call the Repair Department for an RMA number before returning the unit.

INQUIRIES

Address all inquiries on operation or applications to your nearest Sales Representative, Distributor or to MEAS Customer Service.

<table>
<thead>
<tr>
<th>NORTH AMERICA</th>
<th>EUROPE</th>
<th>ASIA</th>
</tr>
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<tbody>
<tr>
<td>Measurement Specialties, Inc.</td>
<td>MEAS Deutschland GmbH</td>
<td>Measurement Specialties China Ltd.</td>
</tr>
<tr>
<td>1000 Lucas Way</td>
<td>Hauert 13</td>
<td>No. 26, Langshan Road</td>
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<td>Hampton, VA 23666</td>
<td>D-44227 Dortmund</td>
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<td>Phone: +86-755-33305088</td>
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<tr>
<td>Web: <a href="http://www.meas-spec.com">www.meas-spec.com</a></td>
<td>Web: <a href="http://www.meas-spec.com">www.meas-spec.com</a></td>
<td>Fax: +86-755-33305099</td>
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electronics, the LVDT, and core in one housing. The unit can operate from a single source such as a battery, while virtually any DC meter can be used for readout.

**DC-EC, HCD and GCD Series**

*NOTE: Above units require a ±15VDC (nom), ±20 mA minimum power supply*

**ELECTRICAL CONNECTIONS (see illustrations below for proper electrical connection points)**

1. With power supply turned off, connect the red, black and green leads (DC-EC) or pins D, E and F (HCD and GCD) to ±15VDC power supply

   +15VDC
   + 15V
   Black - COMMON
   Red - +15V
   White - -15V
   Green - Output
   GRN - Common

   Connector or solder pin:
   Leads (HCD and GCD)
   A - Output, high
   B - (not used)
   C - (not used)
   D - Common
   E - +15V
   F - -15V

   **MS- Type Connector**
   Mates with PT06A-10-6S Connector

2. Connect the white and green leads (DC-EC) or pins A and D (HCD or GCD) to a DC readout device, noting signal polarity.
3. Insert core into LVDT, making certain that the end marked with a red dot is pointed away from the connector or lead tip.
4. Turn on power supply
5. Move the core of the LVDT to position where the indicated output voltage reads zero. This is the null point of the LVDT and the point from which positive or negative full scale is measured. When the core is moved toward the lead (or pin) end, an increase in positive voltage is produced. Movement in the other direction causes a negative output. Full displacement of the core will cause an output of 15VDC ±5 percent.

**DC-SE and GCD-SE Series**

*NOTE: Above units require a +8.5 to ±28VDC, 10 mA maximum power supply*

**ELECTRICAL CONNECTIONS (see illustrations below for proper electrical connection points)**

1. With power supply turned off, connect the red and black leads (DC-SE) or pins E and C (GCD-SE) to a positive +8.5 to ±28VDC power supply.

   INPUT 8.5 to ±28VDC
   + 28V
   - ±28V
   RED - +5V
   WHITE - OUTPUT 0 to ±5VDC
   BLK - 0 to +5V
   GRN - SIGNAL COMMON

   **DC-SE SERIES (4 WIRE)**
   DC-SE SERIES (3 WIRE)
   Red - EXCITATION +8.5 TO +28V
   Black - EXCITATION COMMON
   White - OUTPUT 0 TO +5VDC
   Green - SIGNAL COMMON
   +1 to +6V OUTPUT
   +1 to +6V OUTPUT
   Red - EXCITATION +8.5 TO +28V
   Black - EXCITATION AND SIGNAL COMMON
   White - OUTPUT 1 TO +6VDC
   Green - NO CONNECTION
EXCITATION ±15VDC OUTPUT ±10VDC

DC-EC SERIES

HCD AND GCD SERIES

CAUTION: WIRE COLOR CODING IS APPLICABLE TO DC-EC LVDTs ONLY. ACCESSORY CABLE ASSEMBLIES SUPPLIED BY MEASUREMENT DO NOT NECESSARILY FOLLOW THE SAME COLOR CODE AS LEADED LVDTs. WIRE ALL CONNECTOR TYPE LVDTs BY PIN ASSIGNMENT ONLY. ALTHOUGH DC-LVDTs ARE PROTECTED AGAINST POLARITY REVERSAL, SOME MISCONNECTIONS WILL CAUSE A NON-REPAIRABLE FAILURE OF THE INTERNAL SIGNAL CONDITIONING MODU Li F

EMC COMPLIANCE NOTES

EARTHING AND SHIELDING
DC-EC CONNECT CABLE SHIELD WIRE AND LVDT CASE BY SHORT LINKS (<20mm) TO GOOD RADIO FREQUENCY EARTH POINT.

HCD USE BRAIDED SHIELD CABLE AND SUITABLE MATING CONNECTOR, ATTACH SHIELD TO CONNECTOR BODY OVER 360°. CONNECT OTHER END OF CABLE SHIELD AND LVDT CASE BY SHORT LINKS (<20mm) TO GOOD RADIO FREQUENCY EARTH POINT.

GCD

EMC ENVIRONMENT
THE DC-EC, HCD AND GCD SERIES OF LVDT’S COMPLY WITH EMC DIRECTIVE 2004/108/EC. BY APPLICATION OF EN61326-1:2006. ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL AND LABORATORY USE. FOR OUTSIDE USE OR CABLE LENGTHS>30M EXTERNAL SURGE SUPPRESSION SHOULD BE PROVIDED BY THE END USER TO ENSURE CONTINUED COMPLIANCE WITH EMC DIRECTIVES.

FM-576 RevE CE.doc 10/14/2009

DC Operated Linear Variable Differential Transducers

PLEASE READ BEFORE USING THIS TRANSDUCER
The information contained in this leaflet applies to any MEAS DC-operated LVDT (Linear Variable Differential Transformer) of the series list above; specific data for this model has been incorporated on the last page.

The DC-LVDT maintains all the desired characteristics of the AC LVDT, but with this simplicity of DC operation. It consists of two integral parts: AC-operated LVDT and a signal-conditioning module. Use of application specific integrated circuits permits high-density packaging of all necessary