

C102 LVDT Remote Indication Connection & Set up Installation & Maintenance Instructions

LV10 - C102

The linear variable differential transformer (LVDT) transducer which is powered by a separate power pack, converts linear mechanical displacement into industry standard current loop signals in the ranges of:
0-10mA, 2-10mA, 0-20mA and 4-20mA

Installation:

Special equipment required:

Instrument screwdriver (1.2mm thin slotted)
Milli-ammeter, scale 0-20mA

1. Isolate the C102 instrument from all external switching circuits.
2. Install Power Supply Unit in Kiosk on DIN rail(35mm x 1mm thick) or with 2 x M4 screws. Or inside WTI if internal
3. Remove instrument lid.
4. Pass the wire from the LVDT through the electrical entry holes in the case and connect to the power pack (refer to the wiring diagram located on the power pack). Install LVDT using 2x M4 screws as shown but do not tighten yet
5. Connect supply to power pack.
6. Connect a milli-ammeter, scale 0-20mA, to the output terminals on the power pack to monitor the loop current.
7. Switch on supply.
8. Secure LVDT screws when output is indicated at 6mA when pointer is set TDC
9. Rotate switch plate to indicate the maximum reference temperature (e.g. 120°C) required Adjust the 'G' potentiometer to obtain full range output.
10. Rotate switch plate to indicate minimum reference temperature required (e.g. 60°C) Adjust the 'Z' potentiometer to obtain correct output.
11. Repeat steps 9 and 10 until the correct output is obtained for the temperature range.
12. Check temperature instrument mechanism for freedom of movement by rotation of the switch plate.

See Tables over for mA output values against temperature for the most common ranges.



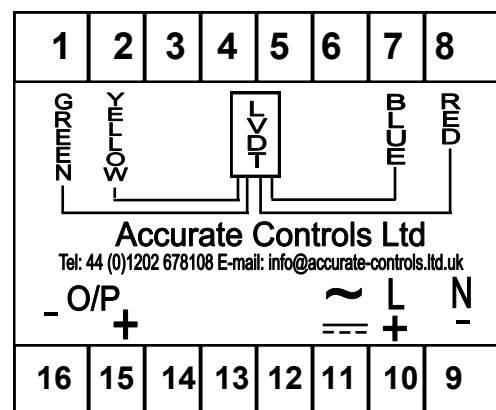
Z and G adjustment pots

DO NOT FORCE THE SWITCH PLATE BACK PAST AMBIENT TEMPERATURE AS THIS WILL PLACE STRAIN ON THE BELLOWS MECHANISM.

NOTE: It is recommended that the LVDT is calibrated over a reduced scale temperature range.

For example:

For a 0-150°C scale range with an LVDT output of 0-20mA calibrate between 60°C (8mA) and 120°C (16mA). This allows for maximum accuracy over the normal transformer operating temperature range.



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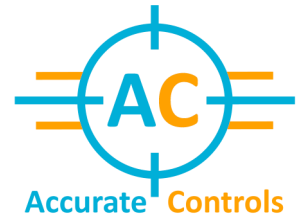
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mA Output Tables for Accurate Controls LVDT



| Scale °C | 0 -10mA | 0 - 20mA | 4 - 20mA |
|----------|---------|----------|----------|
| 0 | 0.00 | 0.00 | 4.00 |
| 10 | 0.83 | 1.67 | 5.33 |
| 20 | 1.67 | 3.33 | 6.67 |
| 30 | 2.50 | 5.00 | 8.00 |
| 40 | 3.33 | 6.67 | 9.33 |
| 50 | 4.17 | 8.33 | 10.67 |
| 60 | 5.00 | 10.00 | 12.00 |
| 70 | 5.83 | 11.67 | 13.33 |
| 80 | 6.67 | 13.33 | 14.67 |
| 90 | 7.50 | 15.00 | 16.00 |
| 100 | 8.33 | 16.67 | 17.33 |
| 110 | 9.17 | 18.33 | 18.67 |
| 120 | 10.00 | 20.00 | 20.00 |

| Scale °C | 0 -10mA | 0 - 20mA | 4 - 20mA |
|----------|---------|----------|----------|
| 30 | 0.00 | 0.00 | 4.00 |
| 40 | 0.83 | 1.67 | 5.33 |
| 50 | 1.67 | 3.33 | 6.67 |
| 60 | 2.50 | 5.00 | 8.00 |
| 70 | 3.33 | 6.67 | 9.33 |
| 80 | 4.17 | 8.33 | 10.67 |
| 90 | 5.00 | 10.00 | 12.00 |
| 100 | 5.83 | 11.67 | 13.33 |
| 120 | 7.50 | 15.00 | 16.00 |
| 130 | 8.33 | 16.67 | 17.33 |
| 140 | 9.17 | 18.33 | 18.67 |
| 150 | 10.00 | 20.00 | 20.00 |

| Scale °C | 0 -10mA | 2-10mA | 0 - 20mA | 4 - 20mA |
|----------|---------|--------|----------|----------|
| 0 | 0.00 | 2.00 | 0.00 | 4.00 |
| 20 | 1.33 | 3.07 | 2.67 | 6.13 |
| 30 | 2.00 | 3.60 | 4.00 | 7.20 |
| 40 | 2.67 | 4.14 | 5.33 | 8.27 |
| 50 | 3.33 | 4.67 | 6.67 | 9.33 |
| 60 | 4.00 | 5.20 | 8.00 | 10.40 |
| 70 | 4.67 | 5.74 | 9.33 | 11.47 |
| 80 | 5.33 | 6.27 | 10.67 | 12.53 |
| 90 | 6.00 | 6.80 | 12.00 | 13.60 |
| 100 | 6.67 | 7.34 | 13.33 | 14.67 |
| 120 | 8.00 | 8.40 | 16.00 | 16.80 |
| 130 | 8.67 | 8.94 | 17.33 | 17.87 |
| 140 | 9.33 | 9.47 | 18.67 | 18.93 |
| 150 | 10.00 | 10.00 | 20.00 | 20.00 |

| mA output | Scale Range °C | | |
|--------------|----------------|---------|----------|
| | 0-120 | 0 - 150 | 30 - 150 |
| 4 | 0 | 0 | 30 |
| 6 | 15 | 19 | 45 |
| 8 | 30 | 38 | 60 |
| 10 | 45 | 56 | 75 |
| 12 | 60 | 75 | 90 |
| 14 | 75 | 94 | 105 |
| 16 | 90 | 113 | 120 |
| 18 | 105 | 131 | 135 |
| 20 | 120 | 150 | 150 |

| mA output | Scale Range °C | | |
|--------------|----------------|---------|----------|
| | 0-120 | 0 - 150 | 30 - 150 |
| 0 | 0 | 0 | 30 |
| 1 | 12 | 15 | 42 |
| 2 | 24 | 30 | 54 |
| 3 | 36 | 45 | 66 |
| 4 | 48 | 60 | 78 |
| 5 | 60 | 75 | 90 |
| 6 | 72 | 90 | 102 |
| 7 | 84 | 105 | 114 |
| 8 | 96 | 120 | 126 |
| 9 | 108 | 135 | 138 |
| 10 | 120 | 150 | 150 |

| mA output | Scale Range °C | | |
|--------------|----------------|---------|----------|
| | 0-120 | 0 - 150 | 30 - 150 |
| 0 | 0 | 0 | 30 |
| 2 | 12 | 15 | 42 |
| 4 | 24 | 30 | 54 |
| 6 | 36 | 45 | 66 |
| 8 | 48 | 60 | 78 |
| 10 | 60 | 75 | 90 |
| 12 | 72 | 90 | 102 |
| 14 | 84 | 105 | 114 |
| 16 | 96 | 120 | 126 |
| 18 | 108 | 135 | 138 |
| 20 | 120 | 150 | 150 |