



DISPLACEMENT

DCTH Series DC to DC LVDT Displacement Transducer

- High cycle life
- Stainless steel
- High accuracy
- High resolution
- Voltage / 4-20mA output



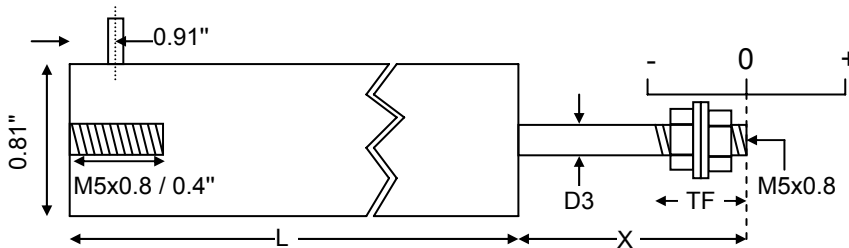
These transducers are for displacement / position measurement. They make an accurate position measurement of the movement of the armature (the sliding part) relative to the body of the displacement transducer.

This transducer uses the Linear Variable Differential Transformer (LVDT) principle which means that it is probably the most robust and reliable position sensor type available. The strength of the LVDT sensor's principle is that there is no electrical contact across the transducer position sensing element which for the user of the sensor means clean data, infinite resolution and a very long life.

Our DC to DC LVDT transducer has all of the benefits of the LVDT sensor principle with the added convenience of built-in LVDT electronics enabling a dc supply and dc output. As an option we can offer a 4-20mA 2 wire connection to the transducer on some models.

This series of displacement transducer is available as either an unguided, captive or spring return version.

Captive guided version.

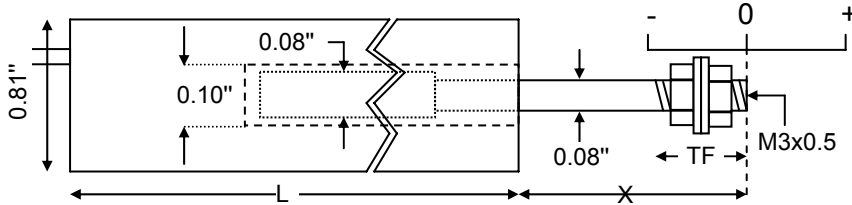


Our captive guided displacement transducer has bearings to guide the armature inside the measurement sensor. Captive LVDTs are for position measurement applications where guidance may be poor and end bearings may be required.

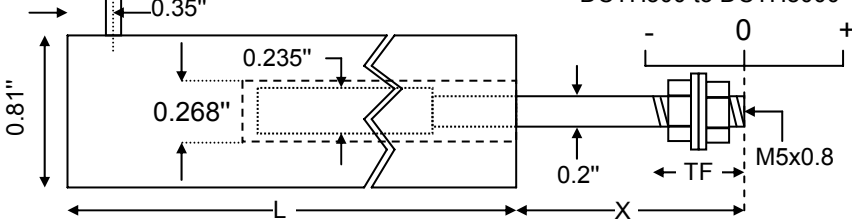
| Type | Range | Linearity error (% F.S.) | L | X | D3 | Total weight | TF | Inward over-travel | Outward over-travel |
|------------|-----------------|--------------------------|-------|-------|--------|--------------|------|--------------------|---------------------|
| DCTH500C | ±12.5mm (±0.5") | <±0.5/±0.25/±0.1 | 7.6" | 1.5" | 0.187" | 12oz | 0.6" | 0.39" | 0.47" |
| DCTH1000C | ±25mm (±1") | <±0.5/±0.25/±0.1 | 8.7" | 2.5" | 0.187" | 14oz | 0.6" | 0.51" | 0.39" |
| DCTH2000C | ±50mm (±2") | <±0.5/±0.25/±0.1 | 13.2" | 3.0" | 0.187" | 1.1lb | 0.6" | 0.39" | 0.55" |
| DCTH3000C | ±75mm (±3") | <±0.5/±0.25/±0.1 | 17.6" | 4.5" | 0.187" | 1.4lb | 0.6" | 0.94" | 0.6" |
| DCTH4000C | ±100mm (±4") | <±0.5/±0.25/±0.1 | 19.4" | 5.0" | 0.187" | 1.7lb | 0.6" | 0.31" | 0.6" |
| DCTH6000C | ±150mm (±6") | <±0.5/±0.25 | 26.9" | 7.0" | 0.187" | 2.3lb | 0.6" | 0.47" | 0.67" |
| DCTH8000C | ±200mm (±8") | <±0.5/±0.25 | 34.4" | 10.0" | 0.187" | 3.2lb | 1.3" | 0.87" | 0.98" |
| DCTH10000C | ±250mm (±10") | <±0.5/±0.25 | 42.0" | 12.0" | 0.187" | 3.7lb | 1.1" | 1.34" | 1.38" |
| DCTH15000C | ±375mm (±15") | <±0.5 | 58.0" | 16.0" | 0.187" | 4.9lb | 0.8" | 0.51" | 0.51" |
| DCTH18500C | ±470mm (±18.5") | <±0.5 | 68.5" | 20.0" | 0.236" | 5.8lb | 1.1" | 0.20" | 1.30" |

Unguided version.

DCTH100 to DCTH400



DCTH500 to DCTH8000

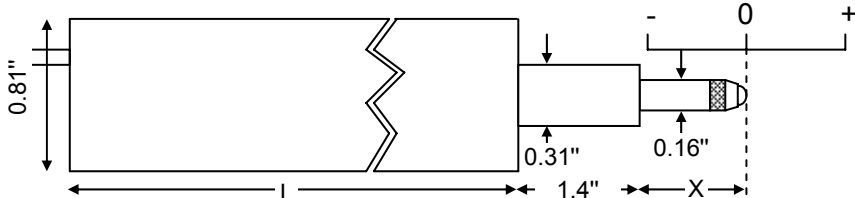


On our unguided LVDTs the armature assembly is a separate component, to make a measurement the user must guide the armature inside the body without touching the sides. Unguided position measurement transducers are appropriate where external guidance is available and give truly non-contact operation

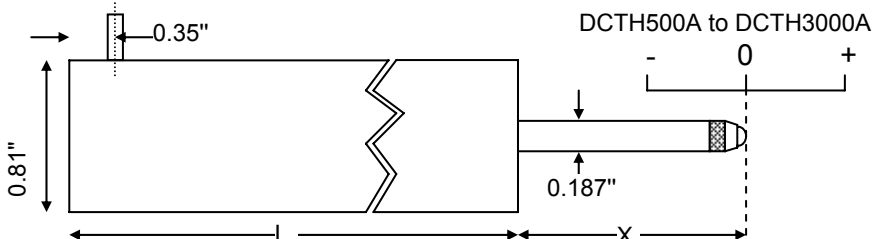
| Type | Range | Linearity error (% F.S.) | L | X | Total weight | Armature weight | TF | Inward over-travel |
|----------|-----------------|--------------------------|-------|-------|--------------|-----------------|------|--------------------|
| DCTH100 | ±2.5mm (±0.1") | <±0.5/±0.25/±0.1 | 2.5" | 1.3" | 2.6oz | 0.05oz | 0.7" | 0.46" |
| DCTH200 | ±5mm (±0.2") | <±0.5/±0.25/±0.1 | 2.5" | 1.3" | 2.6oz | 0.06oz | 0.7" | 0.35" |
| DCTH300 | ±7.5mm (±0.3") | <±0.5/±0.25/±0.1 | 2.5" | 1.3" | 2.6oz | 0.06oz | 0.7" | 0.26" |
| DCTH400 | ±10mm (±0.4") | <±0.5/±0.25 | 2.5" | 1.3" | 2.6oz | 0.07oz | 0.7" | 0.15" |
| DCTH500 | ±12.5mm (±0.5") | <±0.5/±0.25/±0.1 | 6.9" | 1.7" | 8oz | 0.6oz | 0.6" | 0.63" |
| DCTH1000 | ±25mm (±1") | <±0.5/±0.25/±0.1 | 8.0" | 2.7" | 10oz | 0.8oz | 0.6" | 0.87" |
| DCTH2000 | ±50mm (±2") | <±0.5/±0.25/±0.1 | 12.5" | 3.2" | 13oz | 1.3oz | 0.6" | 0.63" |
| DCTH3000 | ±75mm (±3") | <±0.5/±0.25/±0.1 | 16.9" | 4.7" | 1.1lb | 1.9oz | 0.6" | 1.14" |
| DCTH4000 | ±100mm (±4") | <±0.5/±0.25/±0.1 | 18.7" | 5.2" | 1.4lb | 2.5oz | 0.6" | 0.63" |
| DCTH6000 | ±150mm (±6") | <±0.5/±0.25 | 26.2" | 7.2" | 1.9lb | 3.5oz | 0.6" | 0.63" |
| DCTH8000 | ±200mm (±8") | <±0.5/±0.25 | 33.7" | 10.2" | 2.8lb | 4.9oz | 1.2" | 1.06" |

Spring return version.

DCTH100AG to DCTH400AG



DCTH500A to DCTH3000A



Our spring displacement transducer has bearings to guide the armature inside the measurement sensor and a spring which pushes the armature to the fully out position. Spring return LVDTs are appropriate where it is not possible to connect the transducer armature to the moving component being measured.

| Type | Range | Linearity error (% F.S.) | L | X | Total weight | Spring force at X | Spring rate | Inward over-travel | Outward over-travel |
|-----------|-----------------|--------------------------|-------|------|--------------|-------------------|-------------|--------------------|---------------------|
| DCTH100AG | ±2.5mm (±0.1") | <±0.5/±0.25/±0.1 | 2.5" | 0.5" | 2.9oz | 4oz. | 8.5oz/inch | 0.09" | 0.05" |
| DCTH200AG | ±5mm (±0.2") | <±0.5/±0.25/±0.1 | 2.5" | 0.5" | 2.9oz | 4oz. | 7.1oz/inch | 0.01" | 0.05" |
| DCTH300AG | ±7.5mm (±0.3") | <±0.5/±0.25/±0.1 | 2.5" | 0.7" | 2.9oz | 5oz. | 5.8oz/inch | 0.06" | 0.05" |
| DCTH400AG | ±10mm (±0.4") | <±0.5/±0.25 | 2.5" | 0.9" | 2.9oz | 6oz. | 7.2oz/inch | 0.05" | 0.05" |
| DCTH500A | ±12.5mm (±0.5") | <±0.5/±0.25/±0.1 | 7.2" | 1.5" | 8oz | 4.6oz | 2.0oz/inch | 0.04" | 0.51" |
| DCTH1000A | ±25mm (±1") | <±0.5/±0.25/±0.1 | 8.3" | 2.5" | 10oz | 7.2oz | 3.0oz/inch | 0.12" | 0.39" |
| DCTH2000A | ±50mm (±2") | <±0.5/±0.25/±0.1 | 12.8" | 3.0" | 14oz | 6oz | 1.8oz/inch | 0.31" | 0.55" |
| DCTH3000A | ±75mm (±3") | <±0.5/±0.25/±0.1 | 17.2" | 4.5" | 1.1lb | 1lbs | 3.2oz/inch | 0.59" | 0.59" |

| Specification | | |
|-----------------------------------|---|---|
| V output | Supply voltage (dual) | ±12V to ±20V dc, 30mA |
| | Supply voltage (single, must be floating) | 24V to 40V dc, 30mA |
| | Change in output for change in supply | 5mV/V |
| | Output load | 10kOhms |
| | Output ripple | 30mV (peak-to-peak) |
| | Electrical output bandwidth | 200Hz |
| | Output impedance | 2 Ohms |
| | Operating temperature range | -58°F to 176°F |
| 4-20mA output (>=±12.5mm (±0.5")) | Supply voltage | 12V to 36V dc |
| | Max loop resistance | (Supply voltage-11) x 50 Ohms |
| | Output ripple | 50uA (peak-to-peak) |
| | Electrical output bandwidth | 200Hz |
| Both outputs | Operating temperature range | 14°F to 158°F |
| | Temperature coefficient (zero) | ±0.006% F.S. /°F (typical) |
| | Temperature coefficient (span) | ±0.017% F.S. /°F (typical) |
| | Electrical termination | 6.6ft (integral cable) Longer available to order. |

| Output details (outputs 1 and 2 selected using different connections) | | | | |
|---|-------------------|----------------|------|----------------|
| Option code | Note | - position | 0 | + position |
| Standard | Output 1 | 0V | 5V | 10V (+0% - 5%) |
| Standard | Output 2 | -5V (+0% - 5%) | 0V | +5V (+0% - 5%) |
| TM0627 | Output 1 | 10V (+0% - 5%) | 5V | 0V |
| TM0627 | Output 2 | +5V (+0% - 5%) | 0V | -5V (+0% - 5%) |
| TM0321A | >=±12.5mm (±0.5") | 4mA | 12mA | 20mA |
| TM0321B | >=±12.5mm (±0.5") | 20mA | 12mA | 4mA |

All dimensions and specifications are nominal.

Due to our policy of on-going development, specifications may change without notice. Any modification may affect some or all of the specifications for our equipment.

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