

DCTH Series DC to DC LVDT Displacement Transducer

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



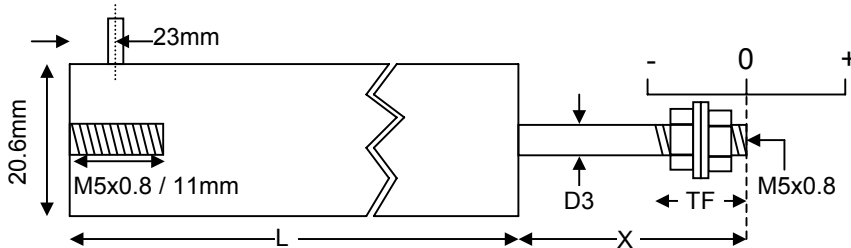
These transducers are for displacement / position measurement. They make an accurate position measurement of the movement of the armature (the sliding part) relative to the body of the displacement transducer.

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.

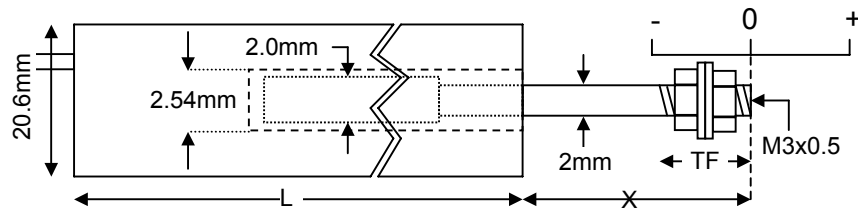


Our captive guided displacement transducer has bearings to guide the armature inside the measurement sensor. Captive LVDTs are for position measurement applications where guidance may be poor and end bearings may be required.

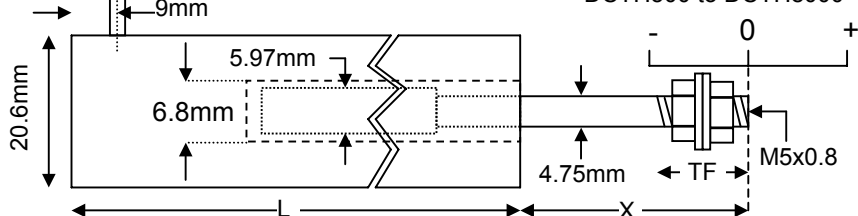
Type	Range	Linearity error (% F.S.)	L	X	D3	Total weight	TF	Inward over-travel	Outward over-travel
DCTH500C	±12.5mm	<±0.5/±0.25/±0.1	194mm	38mm	4.75mm	340g	15mm	10mm	12mm
DCTH1000C	±25mm	<±0.5/±0.25/±0.1	222mm	63mm	4.75mm	398g	15mm	13mm	10mm
DCTH2000C	±50mm	<±0.5/±0.25/±0.1	336mm	76mm	4.75mm	511g	15mm	10mm	14mm
DCTH3000C	±75mm	<±0.5/±0.25/±0.1	448mm	114mm	4.75mm	625g	15mm	24mm	15mm
DCTH4000C	±100mm	<±0.5/±0.25/±0.1	494mm	127mm	4.75mm	767g	15mm	8mm	14mm
DCTH6000C	±150mm	<±0.5/±0.25	684mm	178mm	4.75mm	1.0kg	15mm	12mm	17mm
DCTH8000C	±200mm	<±0.5/±0.25	875mm	254mm	4.75mm	1.4kg	32mm	22mm	25mm
DCTH10000C	±250mm	<±0.5/±0.25	1067mm	305mm	4.75mm	1.7kg	27mm	34mm	35mm
DCTH15000C	±375mm	<±0.5	1473mm	406mm	4.75mm	2.2kg	19mm	13mm	13mm
DCTH18500C	±470mm	<±0.5	1740mm	508mm	6.00mm	2.6kg	27mm	5mm	33mm

Unguided version.

DCTH100 to DCTH400



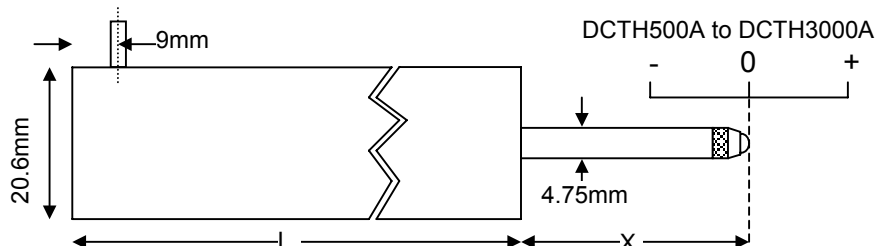
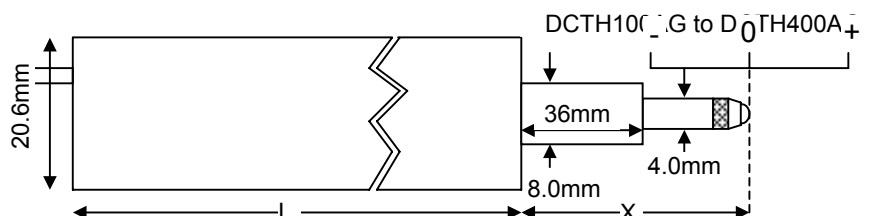
DCTH500 to DCTH8000



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	<±0.5/±0.25/±0.1	64mm	33mm	74g	1.4g	18mm	11.6mm
DCTH200	±5mm	<±0.5/±0.25/±0.1	64mm	33mm	74g	1.8g	18mm	9.0mm
DCTH300	±7.5mm	<±0.5/±0.25/±0.1	64mm	33mm	74g	1.8g	18mm	6.5mm
DCTH400	±10mm	<±0.5/±0.25	64mm	33mm	74g	1.9g	18mm	3.9mm
DCTH500	±12.5mm	<±0.5/±0.25/±0.1	175mm	43mm	213g	17g	15mm	16mm
DCTH1000	±25mm	<±0.5/±0.25/±0.1	203mm	69mm	270g	23g	15mm	22mm
DCTH2000	±50mm	<±0.5/±0.25/±0.1	317mm	81mm	369g	37g	15mm	16mm
DCTH3000	±75mm	<±0.5/±0.25/±0.1	430mm	119mm	497g	55g	15mm	29mm
DCTH4000	±100mm	<±0.5/±0.25/±0.1	475mm	132mm	625g	71g	15mm	16mm
DCTH6000	±150mm	<±0.5/±0.25	666mm	183mm	852g	100g	15mm	16mm
DCTH8000	±200mm	<±0.5/±0.25	856mm	259mm	1.3kg	140g	29mm	27mm

Spring return version.



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	<±0.5/±0.25/±0.1	64mm	12mm	83g	1.0N	0.9N/cm	2.2mm	1.3mm
DCTH200AG	±5mm	<±0.5/±0.25/±0.1	64mm	13mm	83g	1.0N	0.8N/cm	0.3mm	1.3mm
DCTH300AG	±7.5mm	<±0.5/±0.25/±0.1	64mm	18mm	83g	1.5N	0.6N/cm	1.4mm	1.3mm
DCTH400AG	±10mm	<±0.5/±0.25	64mm	22mm	83g	1.8N	0.8N/cm	1.3mm	1.3mm
DCTH500A	±12.5mm	<±0.5/±0.25/±0.1	182mm	38mm	227g	1.3N	0.2N/cm	1.0mm	13mm
DCTH1000A	±25mm	<±0.5/±0.25/±0.1	210mm	63mm	284g	2.0N	0.3N/cm	3.0mm	10mm
DCTH2000A	±50mm	<±0.5/±0.25/±0.1	324mm	75mm	398g	1.8N	0.2N/cm	8mm	14mm
DCTH3000A	±75mm	<±0.5/±0.25/±0.1	436mm	114mm	511g	6.0N	0.4N/cm	15mm	15mm

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	-50°C to 80°C
4-20mA output ($\geq \pm 12.5\text{mm}$)	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
	Operating temperature range	-10°C to 70°C
Both outputs	Temperature coefficient (zero)	±0.01% F.S. /°C (typical)
	Temperature coefficient (span)	±0.03% F.S. /°C (typical)
	Electrical termination	2m (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	$\geq \pm 12.5\text{mm}$	4mA	12mA	20mA
TM0321B	$\geq \pm 12.5\text{mm}$	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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