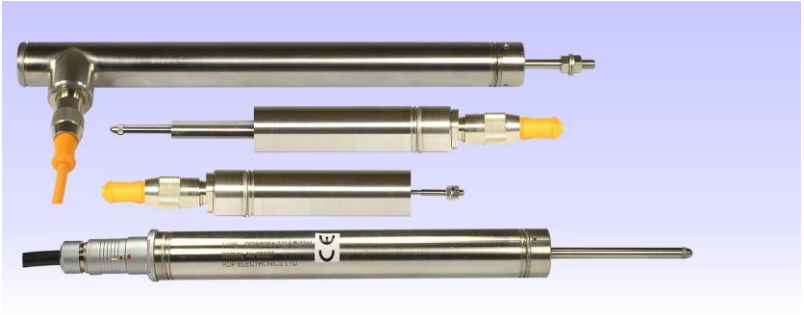
DCW Submersible DC to DC LVDT Displacement Transducer

- High cycle life
- Submersible
- 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.

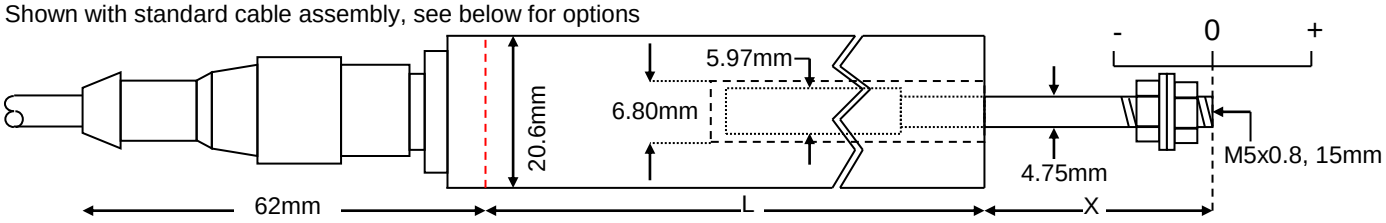
Our submersible displacement transducers are designed to make measurements whilst submerged in suitable liquids. Fluids which are non-magnetic can be allowed to flood the armature tube without affecting the operation of the transducer.

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

Unguided version.

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

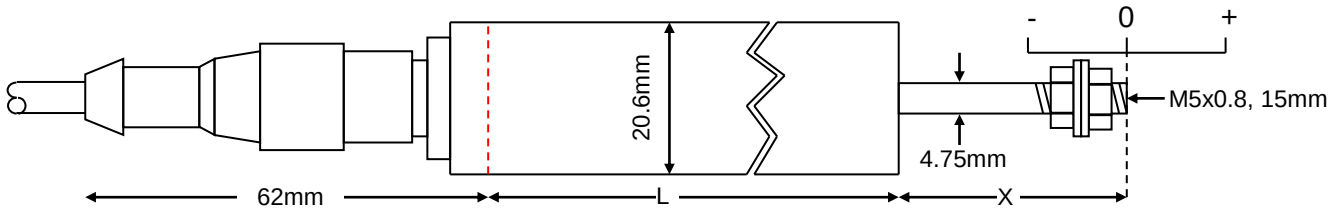
Shown with standard cable assembly, see below for options



Type	Range	Linearity error (% F.S.)	L	X	Total weight	Armature weight	Inward over-travel
DCW100	±2.5mm	<±0.5/±0.25	68mm	33mm	125g	1.4g	10mm
DCW200	±5mm	<±0.5/±0.25	68mm	33mm	125g	1.8g	7mm
DCW300	±7.5mm	<±0.5/±0.25	68mm	33mm	125g	1.8g	5mm
DCW400	±10mm	<±0.5/±0.25	68mm	33mm	125g	1.9g	2mm
DCW500	±12.5mm	<±0.5/±0.25/±0.1	203mm	38mm	243g	19g	10mm
DCW1000	±25mm	<±0.5/±0.25/±0.1	231mm	63mm	300g	26g	23mm
DCW2000	±50mm	<±0.5/±0.25/±0.1	354mm	76mm	399g	40g	10mm
DCW3000	±75mm	<±0.5/±0.25/±0.1	470mm	114mm	527g	57g	23mm
DCW4000	±100mm	<±0.5/±0.25/±0.1	503mm	127mm	655g	71g	10mm
DCW6000	±150mm	<±0.5/±0.25	707mm	178mm	882g	104g	10mm
DCW8000	±200mm	<±0.5/±0.25	909mm	254mm	1.3kg	142g	36mm

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.



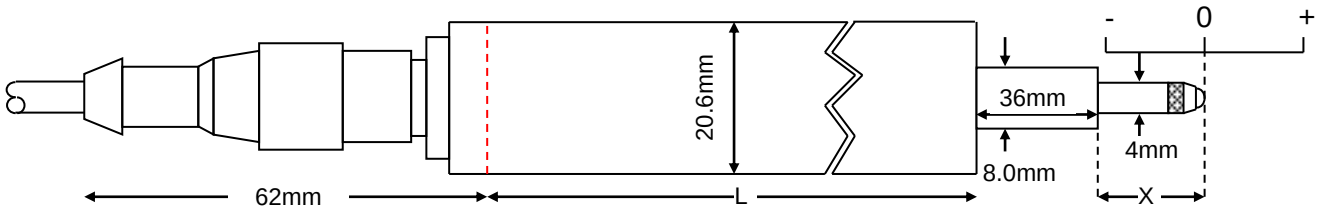
Shown with standard cable assembly, see below for options

Type	Range	Linearity error (% F.S.)	L	X	Total weight	Inward over-travel	Outward over-travel
DCWH500B	±12.5mm	<±0.5/±0.25/±0.1	203mm	38mm	370g	10mm	28mm
DCWH1000B	±25mm	<±0.5/±0.25/±0.1	231mm	63mm	428g	17mm	25mm
DCWH2000B	±50mm	<±0.5/±0.25/±0.1	354mm	76mm	541g	10mm	28mm
DCWH3000B	±75mm	<±0.5/±0.25/±0.1	470mm	114mm	655g	23mm	28mm
DCWH4000B	±100mm	<±0.5/±0.25/±0.1	503mm	127mm	797g	10mm	28mm
DCWH6000B	±150mm	<±0.5/±0.25	707mm	178mm	1.1kg	10mm	35mm
DCWH8000B	±200mm	<±0.5/±0.25	909mm	254mm	1.5kg	36mm	41mm
DCWH10000B	±250mm	<±0.5/±0.25	1094mm	305mm	1.7kg	36mm	47mm
DCWH15000B	±380mm	<±0.5	1493mm	406mm	2.2kg	10mm	28mm
DCWH18500B	±470mm	<±0.5	1766mm	508mm	2.6kg	23mm	35mm

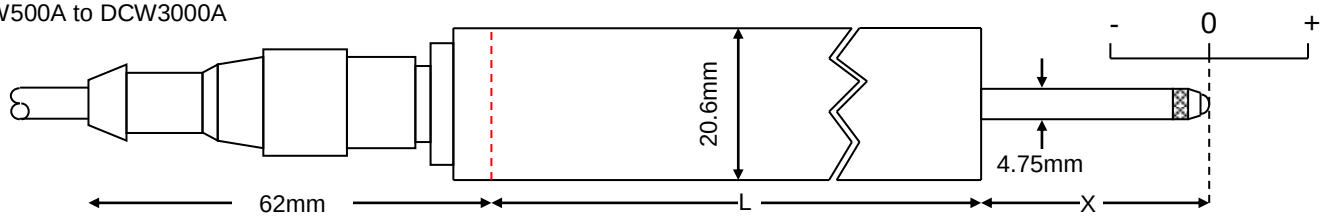
Spring return version.

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.

DCW100A to DCW400A



DCW500A to DCW3000A



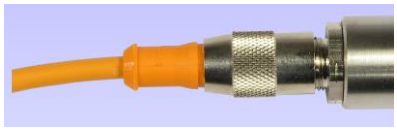
Shown with standard cable assembly, see below for options

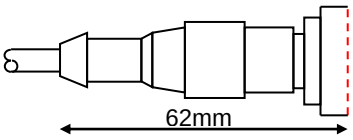
Type	Range	Linearity error (% F.S.)	L	X	Total weight	Spring force at X	Spring rate	Inward over-travel	Outward over-travel
DCW100A	±2.5mm	<±0.5/±0.25	68mm	11mm	135g	0.9N	0.9N/cm	2mm	1mm
DCW200A	±5mm	<±0.5/±0.25	68mm	13mm	136g	0.9N	0.8N/cm	0mm	1mm
DCW300A	±7.5mm	<±0.5/±0.25	68mm	18mm	137g	1.3N	0.6N/cm	2mm	1mm
DCW400A	±10mm	<±0.5/±0.25	68mm	22mm	138g	1.7N	0.8N/cm	2mm	1mm
DCW500A	±12.5mm	<±0.5/±0.25/±0.1	203mm	38mm	257g	1.2N	0.2N/cm	6mm	28mm
DCW1000A	±25mm	<±0.5/±0.25/±0.1	231mm	63mm	314g	1.9N	0.3N/cm	4mm	25mm
DCW2000A	±50mm	<±0.5/±0.25/±0.1	354mm	76mm	428g	4.1N	0.4N/cm	6mm	28mm
DCW3000A	±75mm	<±0.5/±0.25/±0.1	470mm	114mm	541g	5.4N	0.4N/cm	15mm	28mm

Electrical termination options

*Transducer and cable option specifications should be compared and the worst figures used

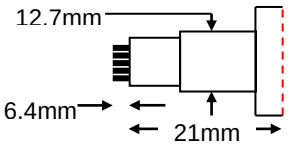
Standard cable - End exit connector with cable fitted





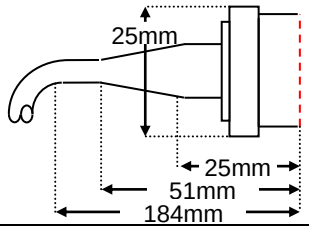
Cable length = 5m
Operating temperature range* = -25°C to 90°C
Maximum static pressure* = 10bar

Option code 1 - End exit solder pins for customer to fit their own cable



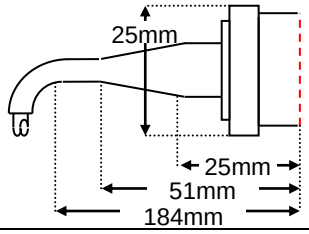
Operating temperature range* = -40°C to 125°C

Option code 2 - End exit fully sleeved integral cable



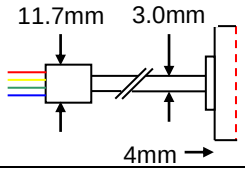
Cable length = 600mm to 7m
Operating temperature range* = -40°C to 100°C
Maximum static pressure* = 34bar

Option code 3 - End exit part-sleeved integral cable



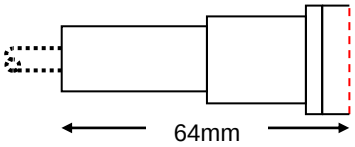
Cable length = 1000mm to 100m
Cable sleeve length = 600mm
Operating temperature range* = -40°C to 90°C
Maximum static pressure* = 17bar

Option code 5 - End exit integral MI (mineral insulated) stainless steel cable



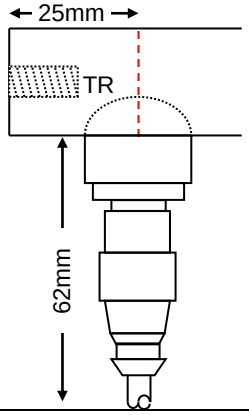
Operating temperature range* = -40°C to 200°C
Cable length = 100mm to 70m
Maximum static pressure* = 207bar

Option code 6 - End exit connector with customer defined cable length fitted



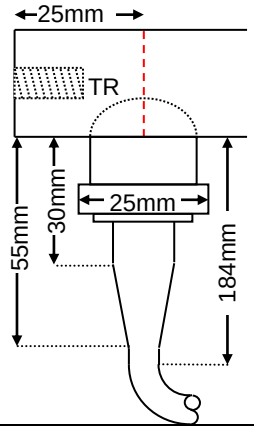
Cable length = 0mm to 1000m
Operating temperature range* = -25°C to 125°C
Maximum static pressure* = 8bar

Standard cable 7 - Side exit connector with cable fitted



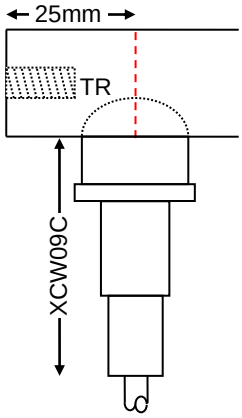
Cable length = 5m
Operating temperature range* = -25°C to 90°C
Maximum static pressure* = 10bar
TR = M5x0.8, 11mm

Standard cable 8 - Side exit fully sleeved integral cable



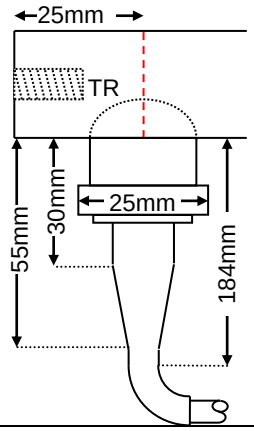
Cable length	=	600mm to 7m
Operating temperature range*	=	-40°C to 100°C
Maximum static pressure*	=	34bar
TR	=	M5x0.8, 11mm

Standard cable 9 - Side exit connector with customer defined cable length fitted



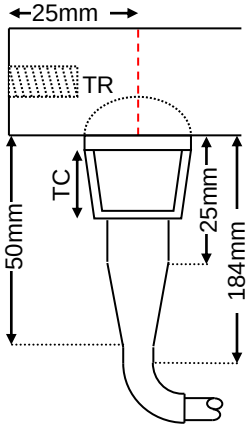
Cable length	=	0mm to 1000m
Operating temperature range*	=	-25°C to 125°C
Maximum static pressure*	=	8bar
TR	=	M5x0.8, 11mm

Standard cable 10 - Side exit part-sleeved integral cable



Cable length	=	600mm to 1000m
Cable sleeve length	=	150mm
Operating temperature range*	=	-40°C to 90°C
Maximum static pressure*	=	17bar
TR	=	M5x0.8, 11mm

Standard cable 11 - Side exit part-sleeved integral cable and conduit fitting



Cable length	=	1000mm to 1000m
Cable sleeve length	=	150mm
Operating temperature range*	=	-40°C to 90°C
Maximum static pressure*	=	17bar
TR	=	M5x0.8, 11mm
TC	=	1/2"-14 NPT, 20mm

Specification		
V output	Supply voltage (dual)	±12V to ±20V dc, 30mA (typical)
	Supply voltage (single, must be floating)	24V to 40V dc, 30mA (typical)
	Change in output for change in supply	5mV/V
	Output load	10kOhms
	Output ripple	30mV (peak-to-peak typical)
	Electrical output bandwidth	200Hz
	Output impedance	2 Ohms
	Operating temperature range	-50°C to 80°C
4-20mA output (>=±12.5mm)	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)
	Maximum static pressure	207bar

Output details				
Option code	Note	- position	0	+ position
Standard		-5V (+0% - 5%)	0V	+5V (+0% - 5%)
TM0627		+5V (+0% - 5%)	0V	-5V (+0% - 5%)
TM85A		0V	5V	10V (+0% - 5%)
TM85B		10V (+0% - 5%)	5V	0V
TM0321A	>=±12.5mm	4mA	12mA	20mA
TM0321B	>=±12.5mm	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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