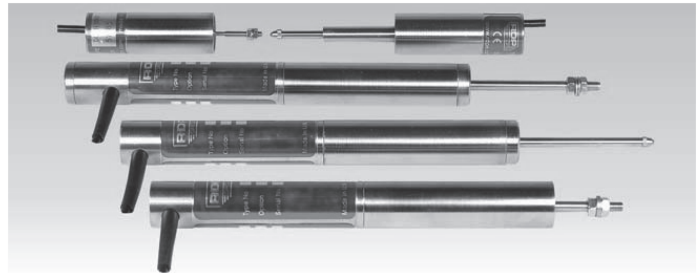


DCTH Series DC to DC LVDT Displacement Transducer

Déplacement

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



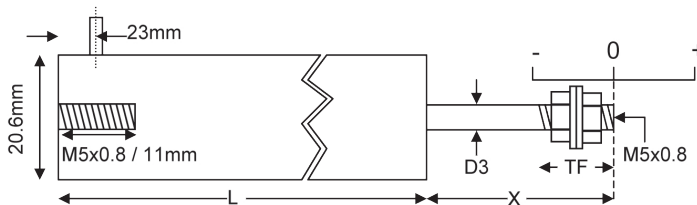
These transducers are for displacement / position measurement. They make an accurate position measurement of the movement of the armature (the sliding part) relative to the body of the displacement transducer.

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.

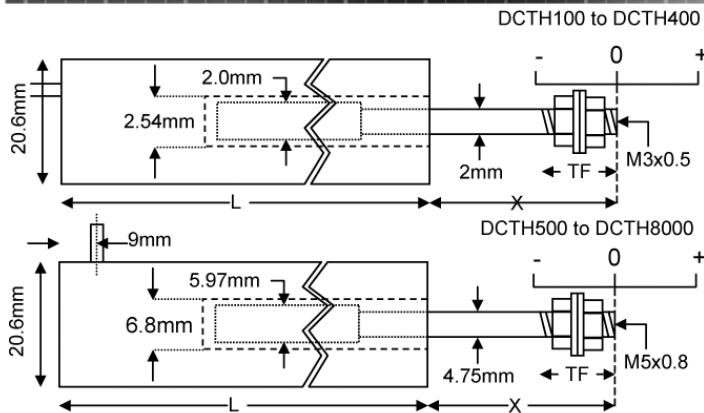
Captive guided version.



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

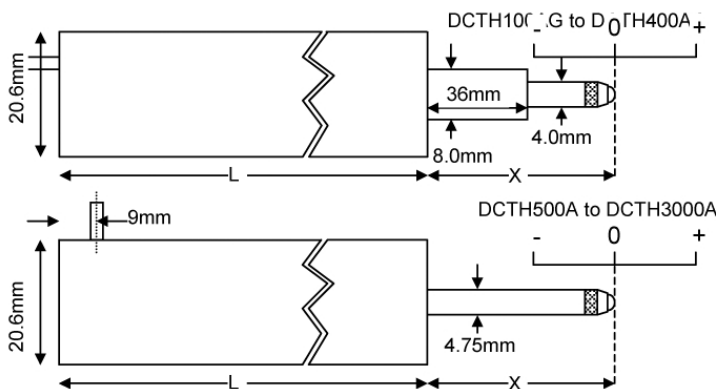
Unguided version.



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 (>=±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)
	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	>=±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.



GT Precision LVDT Gauging Transducer

- High cycle life
- Stainless steel
- Infinite resolution
- Very high accuracy
- Precision linear bearings
- Miniature



Déplacement

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.

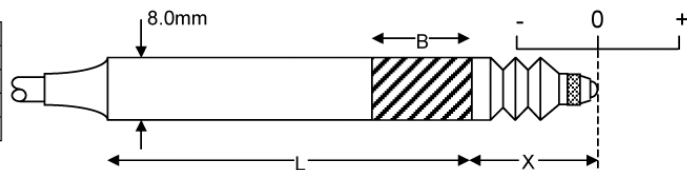
The GT series gauging transducer employs precision linear bearings to optimise the LVDTs measurement precision and repeatability.

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.

End (axial) exit cable.

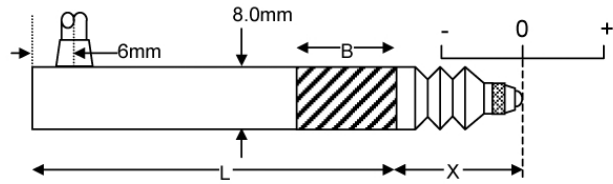
Type	L	X	B- (No clamp zone)
GT500Z	26mm	7.25mm	6mm
GT1000	53mm	14.2mm	14mm
GT2500	58mm	20.3mm	18mm
GT5000	87mm	22.0mm	30mm



Type	Range	Linearity error (% F.S.)	Total weight	Spring force at X	Spring rate	Inward over-travel	Outward over-travel	Sensitivity (nom)
GT500Z	±0.5mm	<±0.25	7g	1.0N	1.7N/cm	0.3mm	0.3mm	110mV/V
GT1000	±1mm	<±0.25/±0.1	11g	0.8N	2.6N/cm	1.4mm	0.3mm	150mV/V
GT2500	±2.5mm	<±0.25/±0.1	13g	1.1N	2.6N/cm	0.8mm	0.3mm	375mV/V
GT5000	±5mm	<±0.25/±0.1	16g	1.5N	1.5N/cm	1.3mm	0.3mm	700mV/V

Side (radial) exit cable.

Type	L	X	B- (No clamp zone)
GT500XRA	33mm	7.3mm	6mm
GT1000RA	57mm	14.2mm	14mm
GT2500RA	61mm	20.3mm	18mm
GT5000RA	91mm	22.0mm	30mm



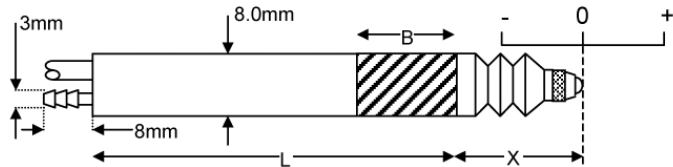
Type	Range	Linearity error (% F.S.)	Total weight	Spring force at X	Spring rate	Inward over-travel	Outward over-travel	Sensitivity (nom)
GT500XRA	±0.5mm	<±0.25	7g	1.0N	1.7N/cm	0.3mm	0.3mm	110mV/V
GT1000RA	±1mm	<±0.25/±0.1	12g	0.8N	2.6N/cm	1.4mm	0.3mm	150mV/V
GT2500RA	±2.5mm	<±0.25/±0.1	16g	1.1N	2.6N/cm	0.8mm	0.3mm	375mV/V
GT5000RA	±5mm	<±0.25/±0.1	21g	1.5N	1.5N/cm	1.3mm	0.3mm	700mV/V

Air push version.

The air-push version of the GT displacement transducer is extended by the application of air to the displacement transducer and is retracted by an internal spring. This is useful where the LVDTs position measurement tip must be retracted to allow components to move on a conveyor for example.

End (axial) exit cable.

Type	L	X	B- (No clamp zone)
GT1000P	72mm	26.0mm	14mm
GT2500P	77mm	20.0mm	18mm
GT5000P	112mm	22.0mm	30mm



Air filter	<0.0005mm
Relative humidity	<60%

Type	Range	Linearity error (% F.S.)	Total weight	Air pressure		Inward over-travel	Outward over-travel	Sensitivity (nom)
				Maximum	Minimum			
GT1000P	±1mm	<±0.25/±0.1	11g	40kPa	65kPa	1.4mm	0.3mm	150mV/V
GT2500P	±2.5mm	<±0.25/±0.1	13g	45kPa	65kPa	0.8mm	0.3mm	375mV/V
GT5000P	±5mm	<±0.25/±0.1	16g	45kPa	55kPa	1.3mm	0.3mm	700mV/V

Specification	
Excitation/supply (acceptable)	0.5V to 7V rms, 2kHz to 10kHz (sinusoidal)
Excitation/supply (calibrated)	5V rms, 5kHz (sinusoidal)
Output load	100k Ohms
Repeatability	0.00015mm
Temperature coefficient (zero)	±0.01% F.S. /°C (typical)
Temperature coefficient (span)	±0.01% F.S. /°C (typical)
Operating temperature range	-40°C to 100°C
Electrical termination	2m (integral cable) Longer available to order.

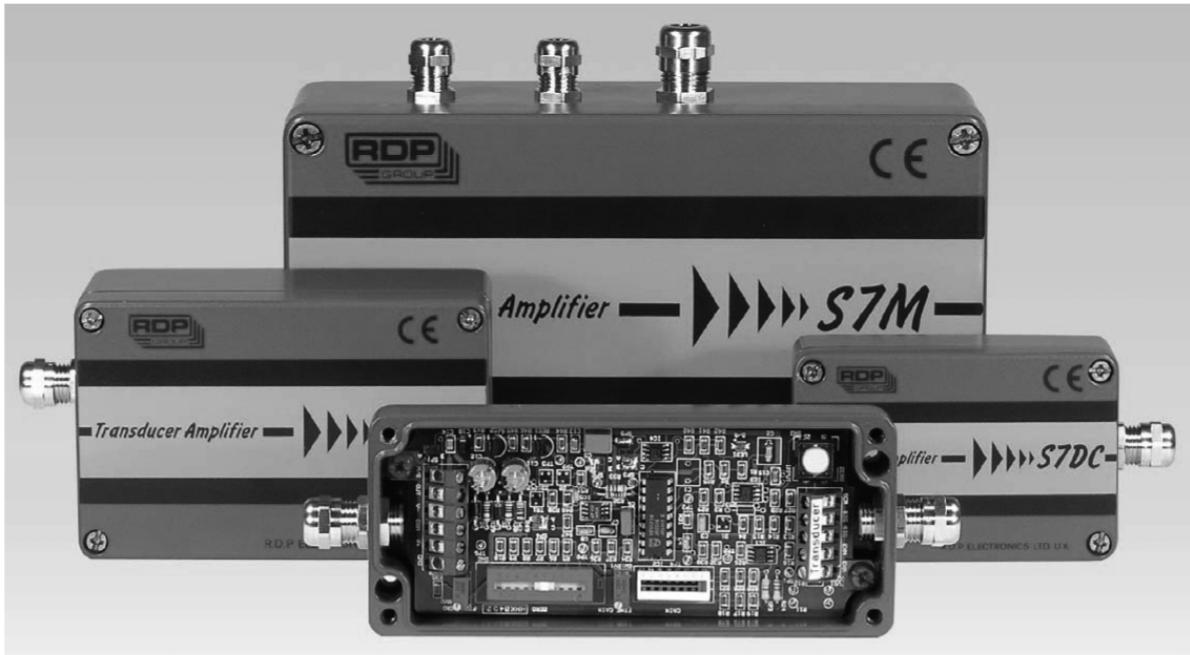
All dimensions and specifications are nominal.

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.

S7 In-Line Signal Conditioning Amplifiers

- LVDT amplifier
- Strain gauge transducer amplifier
- High environmental protection
- Limit trips
- Voltage / 4-20mA output
- Simple trimpot controls

Déplacement



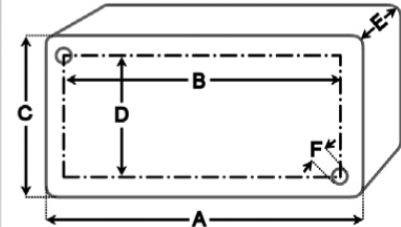
Signal conditioning is required where the output of a transducer needs to be boosted or changed into a form suitable for the monitor or logging device which will be used. These amplifiers are suitable for LVDT transducers, strain gauge sensors and some internally amplified transducers.

Our S7 amplifiers are specifically designed to be installed close to the transducer so that the signal can be boosted as soon as possible. The S7 signal conditioning units are mounted in a die-cast aluminium housing and have a good level of environmental protection and screening from electrical noise.

A very wide range of gain adjustment ensures that our amplifiers are compatible with the vast majority of LVDT and strain gauge sensors available from any manufacturer.

There are several versions with different input, output and transducer compatibility.

S7AC dc powered LVDT transducer amplifier.



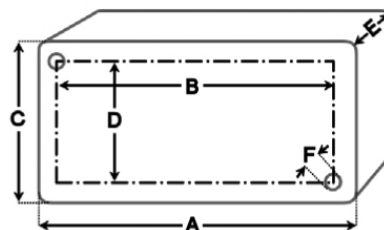
A	=	98mm
B	=	86mm
C	=	64mm
D	=	36mm
E	=	36mm
F	=	4mm

Drawing shows base of box

Compatible with	Any standard RDP LVDT LIN & PY When fitted with two 1k Ohm bridge completion resistors (Does not provide analogue voltage linearisation for PY) Most LVDTs from any manufacturer
Supply voltage (single, must be floating)	12V to 36V dc, 50mA
Supply voltage (dual)	±6V to ±18V dc, 50mA
Transducer excitation	1V, 5kHz (1kHz to 10kHz with component change), 25mA
Output details	±4V to ±10V (may be affected by supply voltage) / 4-20mA (loop resistance 100 Ohms to 550 Ohms)
Amplifier gain range	0.07 to 500
Signal input range	30mV to 4V
Linearity error	±0.1% F.S.
Electrical output bandwidth	0 to 500Hz
Output ripple	0 to 500Hz
Input impedance	±130k Ohms
Temperature coefficient (zero)	±0.005% F.S. /°C minimum
Temperature coefficient (span)	±0.01% F.S. /°C minimum
Approximate zero adjustment range	±5V
Operating temperature range	-10°C to 60°C
Total weight	260g
Cable gland cable size	3.0mm to 6.5mm

S7TW 4-20mA loop powered LVDT transducer amplifier.

Déplacement

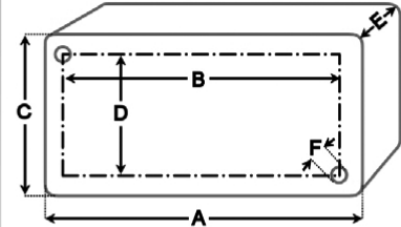


- A = 125mm
- B = 113mm
- C = 80mm
- D = 52mm
- E = 57mm
- F = 4mm

Drawing shows base of box

Compatible with	All standard RDP LVDT transducers except the following which require a free of charge modification called TM0202 D5/25, ACT2000, ACT2000A, ACT2000C, ACT4000, ACT4000C, ACT15000C, ACT18500C Most LVDTs from any manufacturer
Supply voltage	12V to 36V dc
LVDT minimum input impedance	130 Ohms
Transducer excitation	0.5V (4mA), 5kHz
Output details	4-20mA (loop resistance 50 Ohms to 1.2k Ohms maximum)
Amplifier gain range	2.5 to 333
Signal input range	30mV to 4V
Linearity error	±0.05% F.S.
Electrical output bandwidth	0 to 250Hz (25Hz with filter turned on)
Output ripple	50uApeak-to-peak (15uApeak-to-peak with filter turned on)
Input impedance	100k Ohms
Temperature coefficient (zero)	±0.005% F.S. /°C (typical)
Temperature coefficient (span)	±0.015% F.S. /°C (typical)
Approximate zero adjustment range	±8mA
Operating temperature range	-20°C to 85°C maximum
Total weight	550g
Cable gland cable size	3.0mm to 6.5mm

S7M 115/230V ac powered LVDT transducer amplifier.

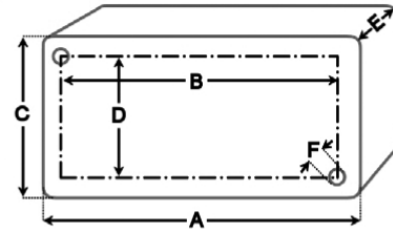


- A = 220mm
 - B = 204mm
 - C = 120mm
 - D = 82mm
 - E = 81mm
 - F = 6mm
- Drawing shows base of box

Compatible with	Any standard RDP LVDT LIN & PY When fitted with two 1k Ohm bridge completion resistors (Does not provide analogue voltage linearisation for PY) Most LVDTs from any manufacturer
Supply voltage	230V or 115V ac, 2.5VA, 50/60Hz
Transducer excitation	5V, 5kHz (1kHz to 10kHz with component change), 100mA
Output details	±10V / 4-20mA (loop resistance 0 Ohms to 600 Ohms)
Amplifier gain range	0.15 to 200
Signal input range	20mV (minimum) to 20V
Linearity error	±0.1% F.S. maximum
Electrical output bandwidth	0 to 500Hz
Output ripple	5mV peak-to-peak typical
Input impedance	±100k Ohms
Temperature coefficient (zero)	±0.002% F.S. /°C typical
Temperature coefficient (span)	±0.004% F.S. /°C (typical)
Approximate zero adjustment range	±10V
Operating temperature range	-10°C to 50°C
Total weight	1.8kg
Cable gland cable size (x2)	3.0mm to 6.0mm
Cable gland cable size (x1)	5mm to 10mm

S7DC dc powered strain gauge transducer amplifier.

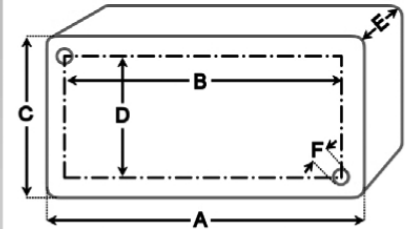
Déplacement



- A = 98mm
 - B = 86mm
 - C = 64mm
 - D = 36mm
 - E = 36mm
 - F = 4mm
- Drawing shows base of box

Compatible with	Most full bridge strain gauge transducers
Supply voltage (single, must be floating)	10V to 36V dc, 30mA (plus transducer and output load)
Supply voltage (dual)	±5V to ±18V dc, 30mA (plus transducer and output load)
Transducer excitation	3V to 10V , 100mA
Output details	±3V to ±10V / 4-20mA (loop resistance 0 Ohms to 800 Ohms) (may be affected by supply voltage)
Amplifier gain range	1 to 1250
Signal input range	4mV to 10V
Linearity error	±0.02% F.S.
Electrical output bandwidth	0 to 5kHz (20Hz with filter turned on)
Output ripple	10mV / 30uA
Input impedance	>10M Ohms
Temperature coefficient (zero)	±0.002% F.S. /°C (typical)
Temperature coefficient (span)	±0.003% F.S. /°C (typical)
Approximate zero adjustment range	±2V
Operating temperature range	-40°C to 85°C maximum
Total weight	260g
Cable gland cable size	3.0mm to 6.5mm

S7MZ 115/230V ac powered strain gauge transducer amplifier.



- A = 220mm
 - B = 204mm
 - C = 120mm
 - D = 82mm
 - E = 81mm
 - F = 6mm
- Drawing shows base of box

Compatible with	Most full bridge strain gauge transducers
Supply voltage	230V or 115V ac, 2.5VA, 50/60Hz
Transducer excitation	5V, 5kHz (1kHz to 10kHz with component change), 100mA
Output details	$\pm 10V$ / 4-20mA (loop resistance 0 Ohms to 600 Ohms)
Amplifier gain range	5 to 7000
Signal input range	1.5mV to 600mv
Linearity error	$\pm 0.1\%$ F.S.
Electrical output bandwidth	0 to 500Hz
Output ripple	5mV
Input impedance	$\pm 1G$ Ohms
Temperature coefficient (zero)	$\pm 0.00\%$ F.S. /°C typical
Temperature coefficient (span)	$\pm 0.00\%$ F.S. /°C (typical)
Approximate zero adjustment range	$\pm 10V$
Operating temperature range	-10°C to 50°C
Total weight	1.8kg
Cable gland cable size (x2)	3.0mm to 6.0mm
Cable gland cable size (x1)	5mm to 10mm