APPLIED MEASUREMENTS LTD.
Transducer Specialists...

+44 (0) 118 981 7339
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AML/E Standard LVDT Displacement Transducer

Key Features:

- Stroke Ranges: ±0.5mm to ±550mm
- AC mV/V Output or DC Voltage / Current Output
- Environmental Protection: IP55
- Core-Only, Core + Extension
- Spring Loaded & Rod-End Bearing Versions
- Stainless Steel Construction
- Magnetically Shielded
- Simple Installation
- Versatile Packaging, Giving Many Standard Mounting Options
- Ideally Suited for OEM Applications
- 3 Year Warranty

Click to watch the product video

The AML/E standard LVDT displacement transducers can be AC or DC powered and are widely used in OEM and general purpose applications such as material testing machines, automotive/aerospace test rigs and actuators, etc.

The AML/E displacement transducers are constructed from stainless steel, sealed to IP55 and can be supplied in a variety of mechanical configurations including plain core-only, plain core & extension rod, guided core & extension rod, spring-loaded core & extension rod with ball-end or with guided core & spherical rod-end bearings.

The AML/E is supplied in a variety of packaging formats, enabling engineers to select quickly and precisely, the product required for a particular application.

An AC mV/V output is available as standard, with a range of DC voltage signal output options also offered including 0-5Vdc, 0-10Vdc and ±2.5Vdc, as well as a 3-wire 4-20mA current output.

The AML/E is supported with a versatile range of instrumentation to enable engineers to implement the sensor with the minimum of fuss within a system. Supporting instrumentation includes trip amplifiers, indicators, PC interfaces, rack systems, and more, please contact us to discuss your requirements.

Options:

- Variety of Mechanical Configurations Available
- Longer Cable Lengths
- Higher Temperature Versions (+150°C or +200°C)
- Custom Design Versions Available
- ±0.25% Accuracy
- Wireless Versions (via T24 instrumentation)
- Single or Multi-Channel PC-Based Monitoring & Data Logging System.

Applications:

- OEM and General Purpose Applications
- Material Testing Machines
- Automotive/Aerospace Test Rigs & Actuators
- Industrial Automation
- Research & Development
- Manufacturing and Machine Building

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Specification:

CHARACTERISTICS	AML/E	AML/EJ	AML/EU	AML/EU10	AML/EI	AML/ED	UNITS
Stroke Measurement Range:	±0.5, ±2.5, ±5, ±10, ±12.5, ±15, ±25, ±50, ±75, ±100, ±125, ±150, ±175, ±200, ±250 ±300, ±400, ±500, ±550 (maximum stroke is ±125 for Sprung Loaded Core & Extension - Option S)						millimetres
Signal Output:	See Table Below		0-5volt	0-10volt	4-20mA	±2.5volt	
No. of Wires	6	4	3	3	3	4	
Supply Voltage (unregulated):	2 to 5Vrms @ 1 to 5kHz		10-24Vdc	14-24Vdc	14-24Vdc	12Vdc regulated	
Supply Current:	-		35mA @ 15V	35mA @ 15V	35mA typ.	35mA @ 12V	
Max. Loop Resistance:	-		-	-	300 @ 30V	-	ohms
Max. Output Sink Current:	-		0.5	1	-	0.1	milliamps
Non-Linearity:	<0.50 (<0.25 optional)					<0.50	±% Stroke Range
Repeatability:	<0.10						±% Stroke Range
Output Bandwidth:	100		100	100	100	100	Hz
Output Ripple:	-		30mV max.	30mV max.	0.1% @ 20mA	30mV max.	
Operating Temperature Range:	AML/E & EJ: -30 to +85 Standard / -30 to +150 and -30 to +200 Optional -20 to +85 on DC/DC models / 0 to +70 for in-line conditioner (where fitted)						°C
Zero Temperature Coefficient:	<0.020		<0.010				±%Stroke Range/°C
Span Temperature Coefficient:	<0.020		<0.030				±%Stroke Range/°C
Vibration Resistance:	20g up to 2kHz						
Shock Resistance:	1000g for 10milliseconds						
Construction Materials:	Body & Extension Rod: 303 St/Steel, Core: 416 St/Steel, Cable Gland: Nickel-Plated Brass, Spring: 316 St/Steel, Rod-End Bearings: Mild Steel						
Electrical Connection:	2 metre screened PVC cable* (*High-Temp Version = PTFE). Axial or radial exit available - see ordering codes for full details.						
Environmental Sealing:	IP55						
Note: On DC output version (0Vdc / 4mA) is given with the core in the extended / outwards position. This can be reversed if required, please request **Option Y** on your order.							

Standard LVDT AC Version

Wiring AC Version:

4-wire AC Version (PVC or PTFE, High Temperature 150˚C and 200°C

Wire		Designation
	Red	Primary +ve
	Yellow	Primary -ve
	Blue	Secondary +ve
	Green	Secondary -ve
	Ground	Screen (not connected to sensor body)

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Wiring AC Version continued:

6-wire AC Version (PVC)

Wire		Designation
	Yellow	Primary +ve
	Black	Primary -ve
	Green	Secondary 1 +ve
	Red	Secondary 1 -ve (centre tap)
	White	Secondary 2 +ve
	Blue	Secondary 2 -ve (centre tap)
	Ground	Screen (not connected to sensor body)

6-wire AC Version (PTFE, High Temperature 150°C and 200°C)

Wire		Designation
	Yellow	Primary +ve
	Black	Primary -ve
	Blue	Secondary 2 -ve (centre tap)
	Brown	Secondary 2 +ve
	Green	Secondary 1 +ve
	Red	Secondary 1 -ve (centre tap)
	Ground	Screen (not connected to sensor body)

Dimensions AC Versions (mm):

Stroke (mm)	Standard (Plain Core)			Option X & G (Core + Extension)	Option R (Rod End Bearings)		Standard, Options X&G, R			
	Body Length (mm)	Core Length (mm)	Null Position (mm)	Body Length (mm)	Body Length (mm)	"L" (mm)	Sensitivity @ 3kHz with 50K load (mV/V FRO)	NULL (mV)	Primary Resistance (ohms)	Secondary Resistance (ohms)
±0.5	40	14	12.3	40	65	133	175	20	40	1800
±2.5	42	14	15.8	42	70	138	140	5	130	740
±5	83	29	30	83	95	163	135	5	48	108
±10	83	35	37	83	110	178	270	5	70	170
±12.5	102	35	44	102	117	185	195	5	120	190
±15	130	50	58	130	140	208	246	5	90	190
±25	170	76	79	170	185	253	225	5	130	210
±50	256	115	121	256	273	341	260	5	200	270
±75	330	138	156	330	345	413	390	20	260	460
±100	387	140	180	387	397	465	240	5	150	150
±125	445	152	208	445	455	523	260	5	180	320
±150	522	165	250	522	532	600	230	5	210	290
±175	573	160	264	573	583	651	260	2	230	360
±200	638	185	306	638	648	716	285	10	250	430
±250	760	170	348	760	770	838	310	10	290	560
±300	860	185	404	860	870	938	270	5	690	770
±400	1110	250	544	1110	1120	1188	440	20	450	1010
±500	1360	314	670	1360	1370	1438	475	10	550	1530
±550	1360	190	670	1360	1370	1438	345	10	550	1530

For sprung-loaded dimensions and outline drawing see page 6.

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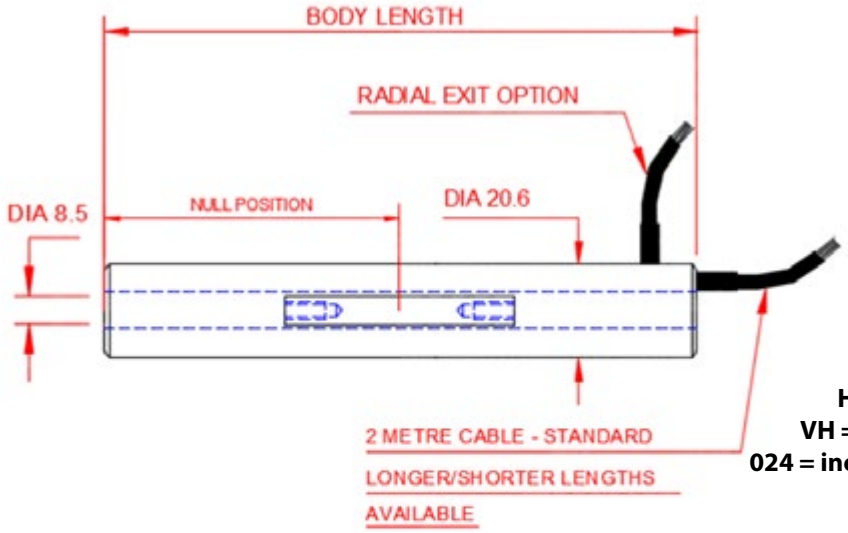
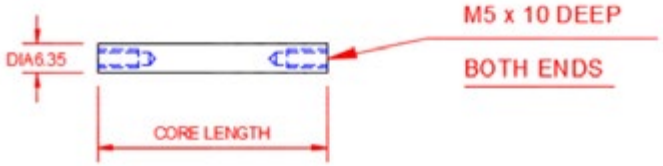
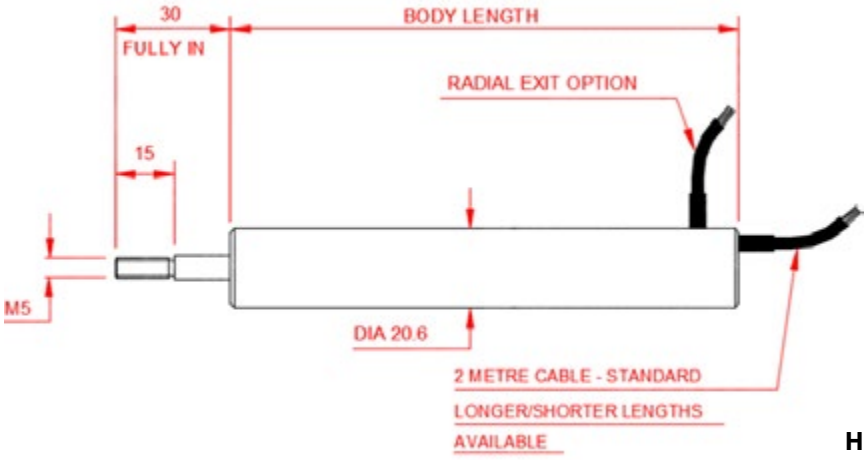
Dimensions (mm) continued:





Plain Core
AML-E Standard
AC Version
(mm)

Options:
A = axial cable exit
R = radial cable exit
J = 4-wire device
H = high temperature 150°C, with PTFE cable
VH = very high temperature 200°C, with PTFE cable
024 = increased linearity, ±0.25% (not with ±2.5Vdc output)



Option X & G
AML-E
AC Version with
Core & Extension
(mm)

Options:
A = axial cable exit
R = radial cable exit
J = 4-wire device
X = extension with plain core
G = guided core & extension
H = high temperature 150°C, with PTFE cable
VH = very high temperature 200°C, with PTFE cable
024 = increased linearity, ±0.25% (not with ±2.5Vdc output)

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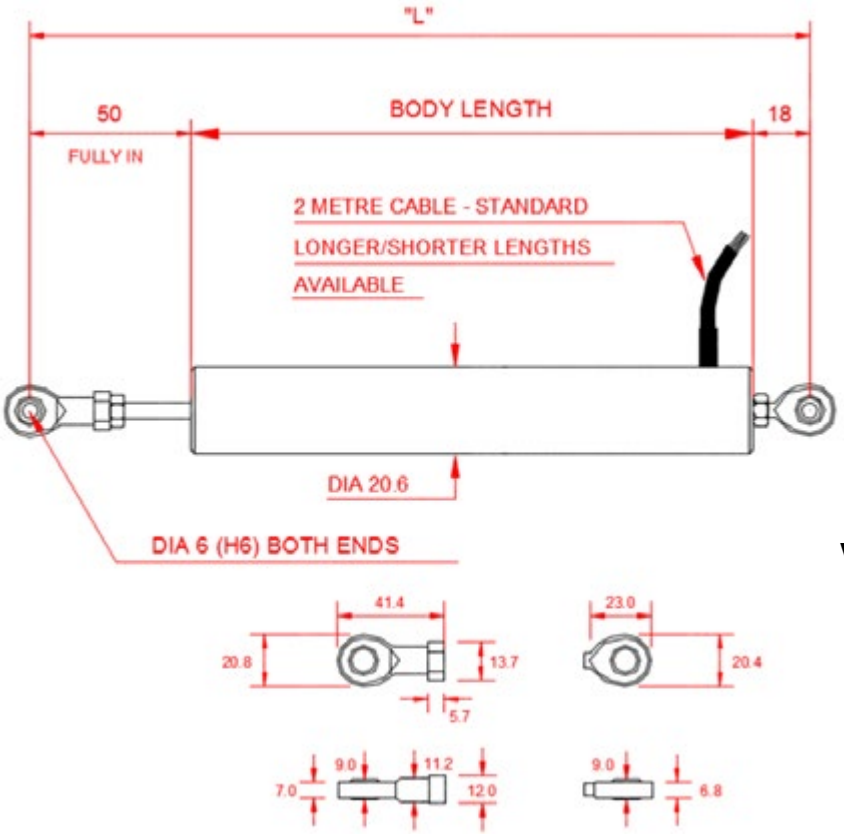
Dimensions AC (mm) continued:



Option R
AML-E
AC Version with
M6 Rod End Bearings
(mm)

Options:

R = radial cable only
J = 4-wire device
H = high temperature 150°C, with PTFE cable
VH = very high temperature 200°C, with PTFE cable
HR = high temperature 150˚C, with PTFE cable & stainless steel rod end bearings
024 = increased linearity, ±0.25% (not with ±2.5Vdc output)

Axial cable exit is NOT available with rod ends unless rod end is on the extension ONLY

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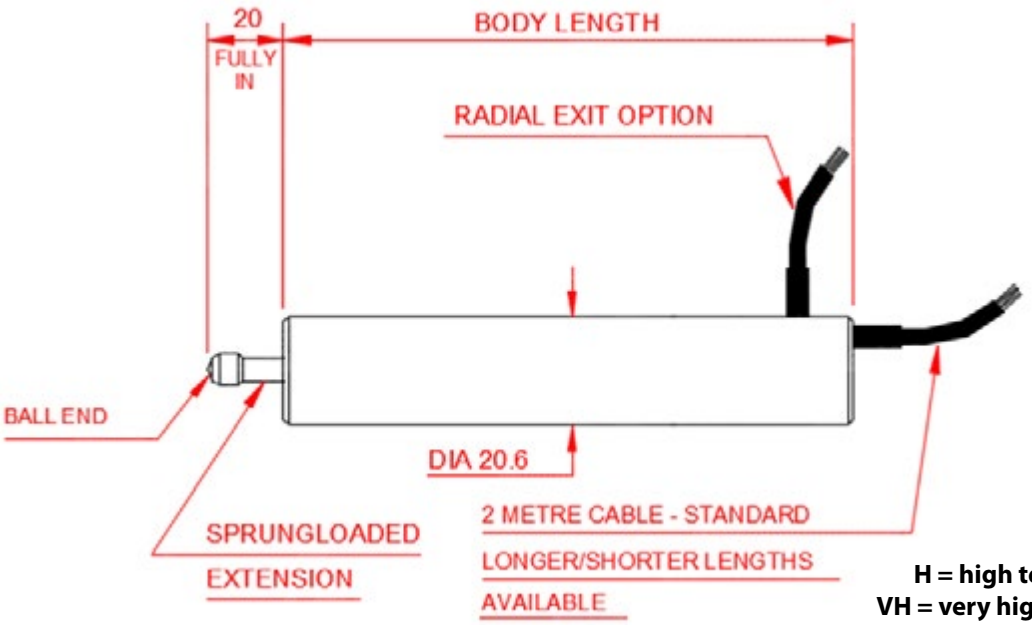
Dimensions AC (mm) continued:

Dimensions AC Sprung-Loaded Option S

Stroke (mm)	Body Length (mm)	Sensitivity @ 3kHz with 50K load (mV/V FRO)	NULL (mV)	Primary Resistance (ohms)	Secondary Resistance (ohms)	Spring Rate (N/mm)
±0.5	60	160	20	40	1800	0.3886
±2.5	67	165	5	130	740	0.2914
±5	108	130	5	48	108	0.1166
±10	108	146	5	70	170	0.1166
±12.5	127	185	5	120	190	0.0897
±15	155	220	5	90	190	0.0729
±25	195	206	5	130	210	0.0555
±50	281	182	5	200	270	0.0389
±75	355	260	20	260	460	0.0291
±100	355	350	20	260	460	0.0291
±125	412	178	5	145	230	0.0253



Option S
AML-E
AC Version
Sprung-Loaded
(mm)

Options:
A = axial cable exit
R = radial cable exit
J = 4-wire device
K = extension rod wiper
H = high temperature 150°C, with PTFE cable
VH = very high temperature 200°C, with PTFE cable
024 = increased linearity, ±0.25% (not with ±2.5Vdc output)

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Standard LVDT DC Version

Wiring DC Version:

3-wire DC Versions (4-20mA, 0-5Vdc, 0-10Vdc, ±2.5Vdc)

Wire	Designation
Red	Supply
Blue	0V common
Green	Signal
Ground	Screen (not connected to sensor body)

Dimensions DC Versions (mm):

Stroke (mm)	Standard (Plain Core)			Option X & G (Core + Extension)	Option R (Rod End Bearings)		Option S (Sprung-Loaded)	
	Body Length (mm)	Core Length (mm)	Null Position (mm)	Body Length (mm)	Body Length (mm)	"L" (mm)	Body Length (mm)	Spring Rate (N/mm)
±0.5	82	14	12.3	82	92	160	100	0.4318
±2.5	85	14	15.8	85	100	168	107	0.2914
±5	123	29	30	123	133	201	148	0.1295
±10	130	35	37	130	143	211	148	0.1295
±12.5	142	35	44	142	152	220	167	0.0933
±15	170	50	58	170	180	248	195	0.0833
±25	210	76	79	210	220	288	235	0.0583
±50	296	115	121	296	306	374	321	0.0376
±75	370	138	156	370	380	448	395	0.0291
±100	427	140	180	427	437	505	395	0.0291
±125	485	152	208	485	495	563	470	0.0253
±150	562	165	250	562	572	640	n/a	n/a
±175	613	160	264	613	623	691	n/a	n/a
±200	678	185	306	678	688	756	n/a	n/a
±250	800	170	348	800	810	878	n/a	n/a
±300	900	185	404	900	910	978	n/a	n/a
±400	1150	250	544	1150	1160	1228	n/a	n/a
±500	1400	314	670	1400	1410	1478	n/a	n/a
±550	1400	190	670	1400	1410	1478	n/a	n/a

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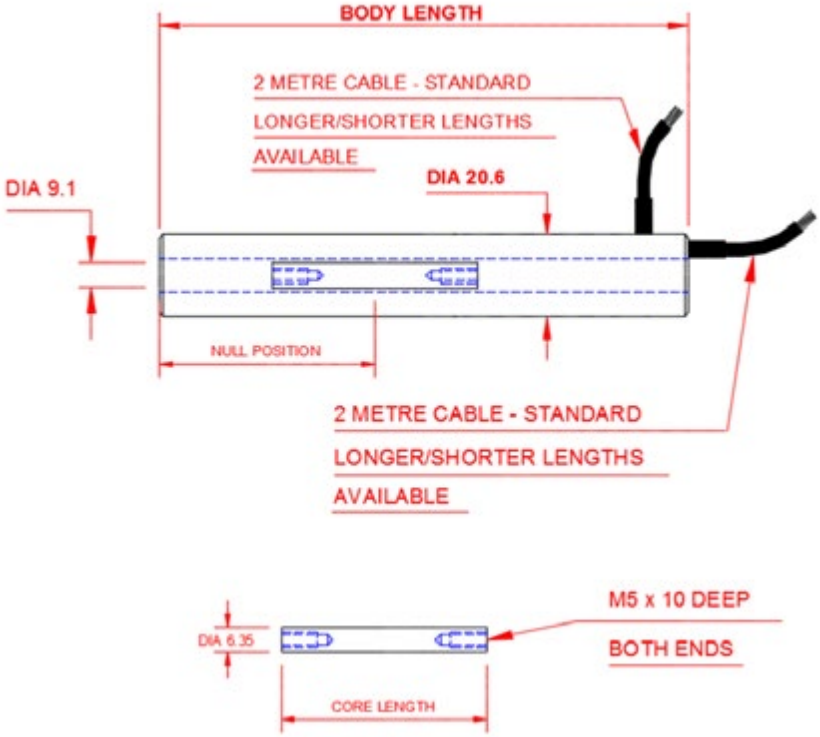
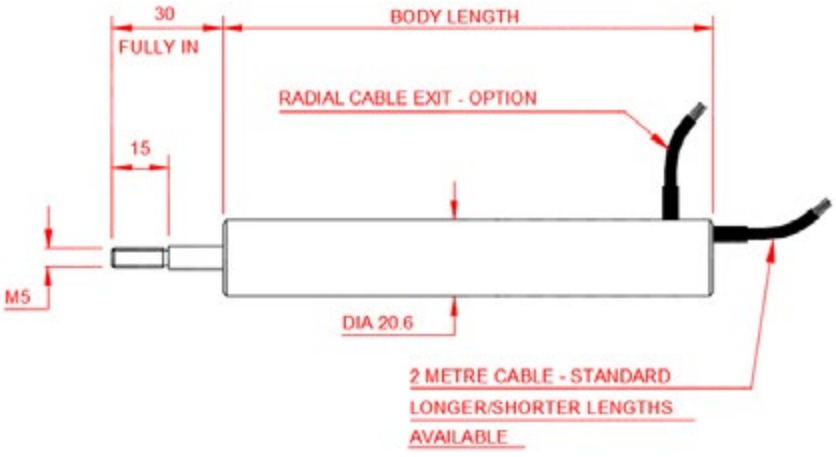


Plain Core
AML-E Standard DC Version with (mm)

Options:

A = axial cable exit
R = radial cable exit
I = 4-20mA output
U = 0-5V output
U-10 = 0-10V output
D = DC bipolar output
Y = reverse output (e.g. 4mA fully in instead of default 20mA)
024 = increased linearity, ±0.25% (not with ±2.5Vdc output)

H & VH = high temperature options not available



Option X & G
AML-E Standard DC Version with Core & Extension (mm)

Options:

A = axial cable exit
R = radial cable exit
G = guided core & extension
I = 4-20mA output
U = 0-5V output
U-10 = 0-10V output
D = DC bipolar output
Y = reverse output (e.g. 4mA fully in instead of default 20mA)
024 = increased linearity, ±0.25% (not with ±2.5Vdc output)

H & VH = high temperature options not available

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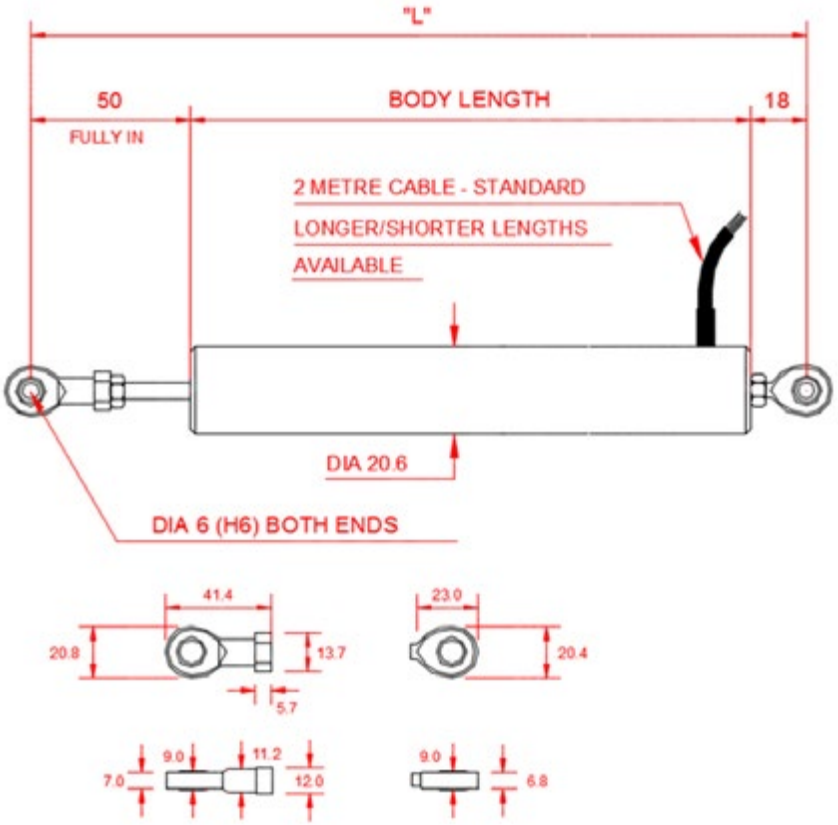
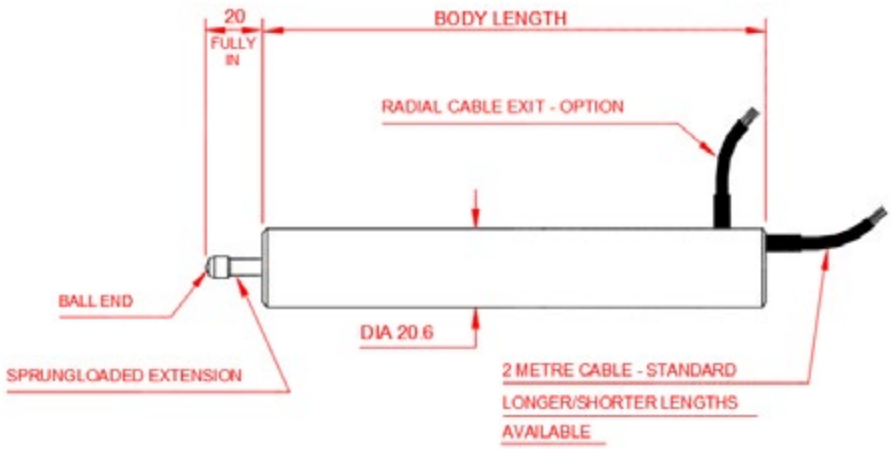


Option R
AML-E Standard DC Version with M6 Rod End Bearings (mm)

Options:

R = radial cable exit only
I = 4-20mA output
U = 0-5V output
U-10 = 0-10V output
D = DC bipolar output
Y = reverse output (e.g. 4mA fully in instead of default 20mA)
024 = increased linearity, ±0.25% (not with ±2.5Vdc output)

H & VH = high temperature options not available



Option S
AML-E Standard DC Version Sprung Loaded (mm)

Options:

A = axial cable exit
R = radial cable exit
K = extension rod wiper
I = 4-20mA output
U = 0-5V output
U-10 = 0-10V output
D = DC bipolar output
Y = reverse output (e.g. 4mA fully in instead of default 20mA)
024 = increased linearity, ±0.25% (not with ±2.5Vdc output)

H & VH = high temperature options not available

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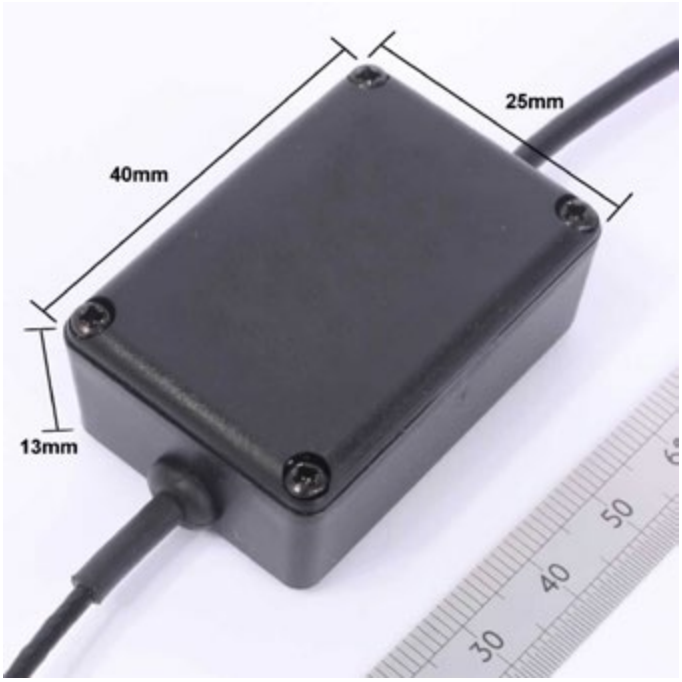
Optional In-Line Amplifier Housing Dimensions:

Required for high temperature versions with conditioned output.
Can also be used with any AC version to give a DC output when minimum LVDT body length is required.



Associated Products:

LVDT Amplifier / Signal Conditioner

Intuitive4-P Process Digital Indicator

In-Line LVDT Amplifier

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Ordering Codes:

AML/EU10+/-500mm-X0A-02-000	AML/E	U10	+/-500mm	-	X	O	A	-	02	-	000
Example Code											
Product Family											
AML/E	AML/E										
Electrical Output											
Blank = 6-wire AC mV/V		Blank									
J = 4-wire AC mV/V		J									
U = 0-5Vdc		U									
U10 = 0-10Vdc		U10									
I = 4-20mA		I									
D = ±2.5Vdc (12Vdc regulated supply required)		D									
Stroke Range											
+/-0.5mm (0-1mm)			+/-0.5mm								
+/-2.5mm (0-5mm)			+/-2.5mm								
+/-5mm (0-10mm)			+/-5mm								
+/-10mm (0-20mm)			+/-10mm								
+/-12.5mm (0-25mm)			+/-12.5mm								
+/-15mm (0-30mm)			+/-15mm								
+/-25mm (0-50mm)			+/-25mm								
+/-50mm (0-100mm)			+/-50mm								
+/-75mm (0-150mm)			+/-75mm								
+/-100mm (0-200mm)			+/-100mm								
+/-125mm (0-250mm)			+/-125mm								
+/-150mm (0-300mm)			+/-150mm								
+/-175mm (0-350mm)			+/-175mm								
+/-200mm (0-400mm)			+/-200mm								
+/-250mm (0-500mm)			+/-250mm								
+/-300mm (0-600mm)			+/-300mm								
+/-400mm (0-800mm)			+/-400mm								
+/-500mm (0-1000mm)			+/-500mm								
+/-550mm (0-1100mm)			+/-550mm								
Mechanical Configuration											
C = Core Only					C						
X = Un-Guided Core & Extension Rod					X						
G = Guided Core & Extension Rod					G						
S = Spring Loaded Core & Extension Rod with Ball-Tip (±125mm max range)					S						
R = Rod-End Bearings - Mild Steel (with Guided Core)					R						
H = 150ºC High Temperature Version AC only Core Only *(DC output requires in-line amplifier @ 70°C max)*					H						
HR = 150ºC High Temperature Version with Stainless Steel Rod-End Bearings					HR						
VH = 200ºC Very High Temperature, Core Only (AC output only)					VH						
VHR = 200ºC Very High Temperature + Stainless Steel Rod End Bearings with Guided Core (AC output only)					VHR						

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AML/EU10+/-500mm-X0A-02-000	AML/E	U10	+/-500mm	-	X	O	A	-	02	-	000
Example Code											
For the below configurations please speak to our technical team.											
HG = 150ºC High Temperature Version Guided Core & Extension Rod *(DC output requires in-line amplifier @ 70°C max)*					HG						
HS = 150ºC High Temperature Version Spring Loaded Core & Extension Rod with Ball-Tip (±125mm max range) *(DC output requires in-line amplifier @ 70°C max)*					HS						
HX = 150ºC High Temperature Version Un-Guided Core & Extension Rod *(DC output requires in-line amplifier @ 70°C max)*					HX						
VHX = 200ºC Very High Temperature, with PTFE cable, Unguided Core + Extension Rod (AC output only)					VHX						
VHG = 200ºC Very High Temperature, with PTFE cable, Guided Core + Extension Rod (AC output only)					VHG						
VHS = 200ºC Very High Temperature, with PTFE cable, Spring Loaded Core + Extension Rod with Ball Tip (±125mm max range) (AC output only)					VHS						
Output Direction (only affects DC output versions)											
0 = Zero with core extended, Full Scale with core retracted						0					
Y = Full Scale with core extended, Zero with core retracted						Y					
Cable Exit Direction											
A = Axial (not available on rod end bearing version)							A				
R = Radial							R				
Cable Length (in metres)											
02 = 2 metres (standard)									02		
0,2 = 0.2 metres									0,2		
10 = 10 metres									10		
Specials Code											
000 = No Special Requirements											000
024 = Improved ±0.25% Accuracy (not with ±2.5Vdc output)											024
Sales To Provide Specials Codes As Required											
Example code											
AML/EU10+/-500mm-X0A-02-000	**AML/E**	**U10**	**+/-500mm**	**-**	**X**	**O**	**A**	**-**	**02**	**-**	**000**

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