



APPLIED MEASUREMENTS LTD.
Transducer Specialists...

Last updated: 11th August 2025

Due to our policy on ongoing development, dimensions and specifications may change without notice.

Amplified Strain Gauge Displacement Sensor | AML/SGDA

Highly Accurate with Outputs 4-20mA, 0-5Vdc and 0-10Vdc



AT A GLANCE

- Stroke Ranges: 0-5mm to 0-100mm
- 4-20mA, 0-5V and 0-10V Output
- Environmental Protection: IP54
- Spring Loaded
- High Accuracy:
 - $< \pm 0.1\%$ (0-5mm to 0-50mm)
 - $< \pm 0.2\%$ (0-100mm)

- Strain Gauge Design for High Accurate Results
- Compact Size & Rugged Construction
- Low-Noise Signal Conditioner
- Long Life – Reliable and Accurate Even After 10 Million Cycles.
- Wide range of standard analogue and digital equipment available.

DESCRIPTION

Applied Measurements amplified strain gauge displacement sensor AML/SGDA utilises strain gauge technology to provide a linearly proportional industrial output in relation to the movement of a captivated spindle. Outputs available for the amplified displacement sensor are 4-20mA, 0-5V and 0-10V.

Stroke ranges available are from 0-5mm up to 0-100mm, the strain gauge displacement transducer offers excellent accuracy of better than 0.1% on ranges from 0-5 up to 0-50mm and 0.2% on the 0-100mm versions, along with excellent resolution and long-term stability.

The design principle incorporates a low-noise signal conditioner, avoiding the need for external modules and simplifying the installation and configuration process.

Common applications for Applied Measurements AML/SGDA include Geotechnical Testing, R&D, Aerospace, Civil Engineering and Automotive.

Applied Measurements can supply a wide variety of instrumentation (<https://appmeas.co.uk/products/instrumentation/>) to complement your AML/SGDA amplified strain gauge displacement sensor, such as handheld indicators (<https://appmeas.co.uk/products/instrumentation/tr150-digital-handheld-load-cell-indicator/>),

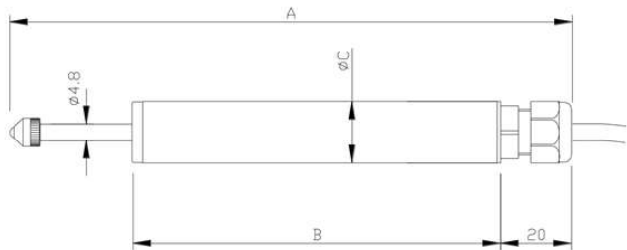


digital displays (<https://appmeas.co.uk/products/instrumentation/load-cell-digital-indicator-int4-l/>) and amplifiers (<https://appmeas.co.uk/products/instrumentation/load-cell-signal-conditioners/>).

TECHNICAL SPECIFICATIONS

CHARACTERISTICS	AML/SGDA					UNITS
Stroke Length:	0-5	0-10	0-25	0-50	0-100	millimetres
Spindle Force:	50-250	50-250	50-250	50-250	90-380	gf
Output Options:	0-5Vdc, 0-10Vdc or 4-20mA					
Non-Linearity:	<0.1	<0.1	<0.1	<0.1	<0.2	±%/Rated Output (BFSL)
Hysteresis:	<0.1	<0.1	<0.1	<0.1	<0.1	±%/Rated Output
Repeatability:	<0.05	<0.05	<0.05	<0.05	<0.05	±%/Rated Output
Operating Temperature Range:	-10 to +70					°C
Temperature Effect On Output:	<0.010					±% of Rated Output/°C
Temperature Effect On Zero:	<0.010					±% of Rated Output/°C
Safe Overload:	See note 4 below					
Excitation:	18-24					Volts DC
Current Consumption:	<40					mA
Insulation Resistance:	>2000					Megohms
Output Bandwidth:	100					Hz (nominal)
Construction:	Stainless Steel/Aluminium					
Environmental Protection:	IP54					
Cable:	2m, 3-core Screened Cable (min bend radius 10mm)					
Weight (excluding cable) Nominal Lower/Upper Range:	125/135	130/140	140/150	180/200	320	grams
<p>Operational Notes:</p> <ol style="list-style-type: none">1. The outer case must not be distorted when clamping the sensor. A full diameter clamp is advised.2. The sensor is not recommended for use in hostile environments without additional protection.3. Special tools are required to remove the plunger tip (anvil) to avoid damage to the spindle.4. With the plunger tip (anvil) attached this forms a positive overload protection stop						

Product Dimensions



Stroke Range (mm)	A	B	ØC
5mm	130	94	17.4



Stroke Range (mm)	A	B	ØC
10mm	140	104	17.4
25mm	181	119	17.4
50mm	259	179	17.4
100mm	392	264	25.4

Wiring Details

Wire	Designation
Red	+ve supply
Blue	0V common
Green	+ve signal
Screen	To ground - not connected to body

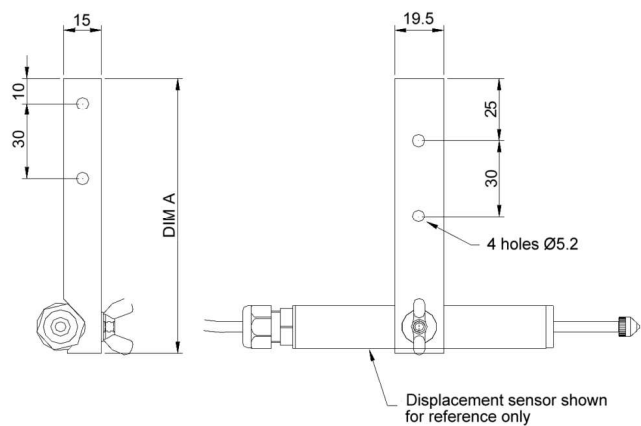
AML/SGDA Displacement Sensor Mounting Clamps

Single End Clamp Types:

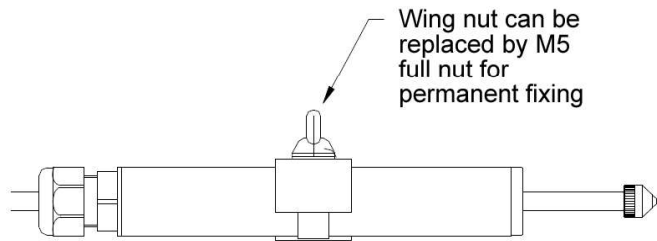
SMC 17
SMC 20
SMC 25

Materials Clamp Bar Anodised Aluminium
Ring & Fixings Stainless Steel

Note: Clamp bar can be machined to suit applications.



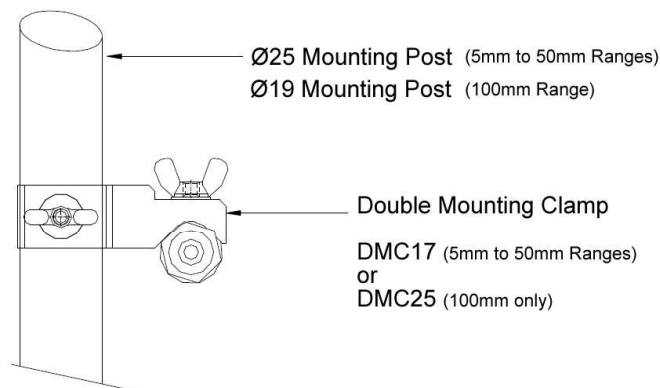
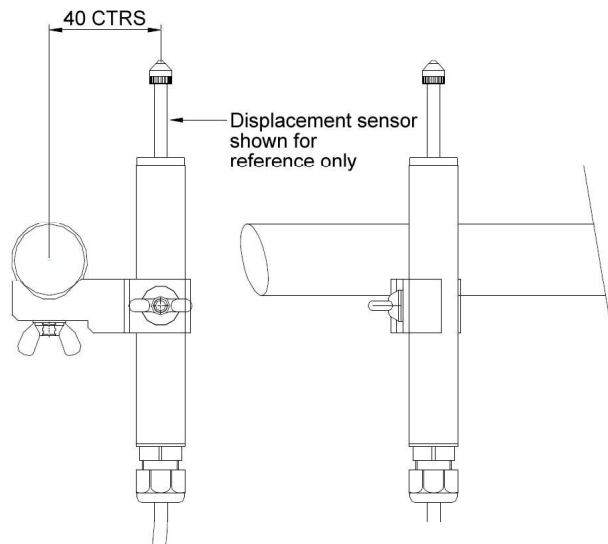
Type	DIM A	Sensor Diameter
SMC-17	110	Ø17.4
SMC-25	115	Ø25.4



Double End Clamp Types:

DMC 17-25
DMC 19-25

Materials Clamp Bar Anodised Aluminium
Ring and Fixings Stainless Steel



ORDERING CODES & OPTIONS

AML/SGDAU10-25mm-002-000 (example code)	AML/SGDA	U10	-	25mm	-	2	-	000
Product Family								



AML/SGDAU10-25mm-002-000 (example code)	AML/SGDA	U10	-	25mm	-	2	-	000
AML/SGDA	AML/SGDA							
Electrical Output								
U = 0-5Vdc		U						
U10 = 0-10Vdc		U10						
I = 4-20mA		I						
Stroke Range								
0-5mm			-	5mm				
0-10mm			-	10mm				
0-25mm			-	25mm				
0-50mm			-	50mm				
0-100mm			-	100mm				
Cable Length (in metres)								
0,2 = 0.2 metres					-	0.2		
002 = 2 metres					-	2		
Specials Code								
000 = Standard Product (as per datasheet)							-	000

Code	Details
AML/SGD-DMC17	Double mounting clamp for AML/SGD 0-5mm to 0-50mm ranges
AML/SGD-DMC25	Double mounting clamp for AML/SGD-100mm
AML/SGD-SMC17	Mounting clamp for AML/SGD 0-5mm to 0-50mm ranges
AML/SGD-SMC25	Mounting clamp for AML/SGD-100mm