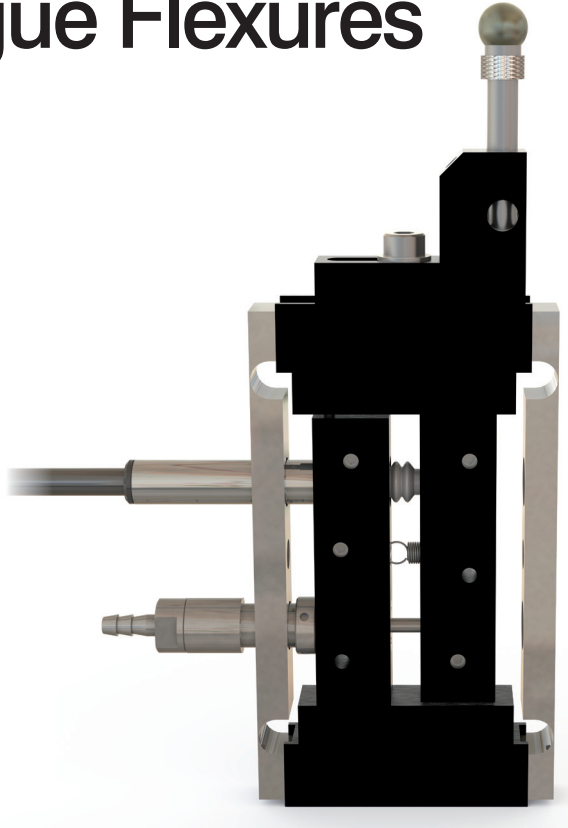


Analogue Flexures



Very high resolution and gauge R&R at $<0.1 \mu\text{m}$ maintained without degradation over millions of measuring cycles is the hallmark of Solartron analogue gauging flexures.

Analogue flexures are the ideal solution for high precision/ high volume post process or in process gauging applications where cycle time is short and high throughput would shorten the life of a conventional pencil probe.

There are no sliding parts to wear out or to cause friction within the frame or sensor which makes Solartron flexures virtually free from hysteresis.

Flexures can be mounted such that there is little or no stress through the gauge centre line and enabling precision profiling of moving material, such as sheet material or rotating shafts, brake discs etc.

The flexure gauge has forward and reverse spring action with a pneumatically actuated version available for automatic measurements. It is supplied in analogue form for plugging into most standard amplifiers. For improved performance Solartron recommends the Digital Flexure use with the Orbit® Digital Measurement System.

The tool mounting assembly can be variously adjusted along the gauge's length and fixed with M3 bolts. A selection of tips is offered to suit each application. The unique design offers a high degree of factory serviceable parts, providing a low cost repair which in turn reduces the cost of ownership to the end customer.

- ▶ ± 0.5 & ± 1.0 mm measuring ranges
- ▶ Extended operating life: > 20 million cycles
- ▶ Excellent repeatability: $< 0.1 \mu\text{m}$
- ▶ Excellent resolution
- ▶ Half Bridge or LVDT output
- ▶ Spring push or pneumatic operation
- ▶ IP65 protection
- ▶ Large selection of contact tips
- ▶ 3D drawings available
- ▶ High degree of serviceable parts

Analogue Flexures: Specification

Measurement Performance	AU/0.5	AU/1
Mechanical Travel	1.7 mm	2.5 mm
Measurement Range	1.0 mm	2.0 mm
Repeatability ²	<0.1 μm	
Resolution (user selectable)	<0.1 μm	
Accuracy % reading ¹	0.1	
Tip Force.Spring Push (horizontal attitude $\pm 20\%$)	1.5 N at mid position	
TipForce Pneumatic (horizontal attitude $\pm 20\%$)	1.0 N at mid position at 2 bar	
Temperature Coefficient	<0.01% FS/°C	

Mechanical	AU/0.5	AU/1
Flexure Material	Aluminium and Steel	
Mass (including tool holder, 20 mm tip holder and ball tip) excluding PIE/cable	<60 g	<70 g
Mass Tool Holder	12 g	
Gaiter Material	High Grade Polymer	
Cable Type and Length	2 m PUR	
Operating life (dependant on application)	>20 million cycles	
Pneumatic Operating Pressure ³	1.5 bar to 2.5 bar relative	

Electrical	LVDT	Halfbridge
Energising Voltage	1 to 10 V rms	
Energising Frequency	2 to 20 kHz	
Energising Current	3 mA/V at 5 kHz	1.5 mA/V at 10 kHz
Calibration Load	10 k Ω	2 k Ω
Standard Calibration Parameter	200 mV/V/mm $\pm 0.5\%$ at 5 kHz, 3 V rms	73.5 mV/V/mm $\pm 0.5\%$ at 10 kHz, 3 V rms

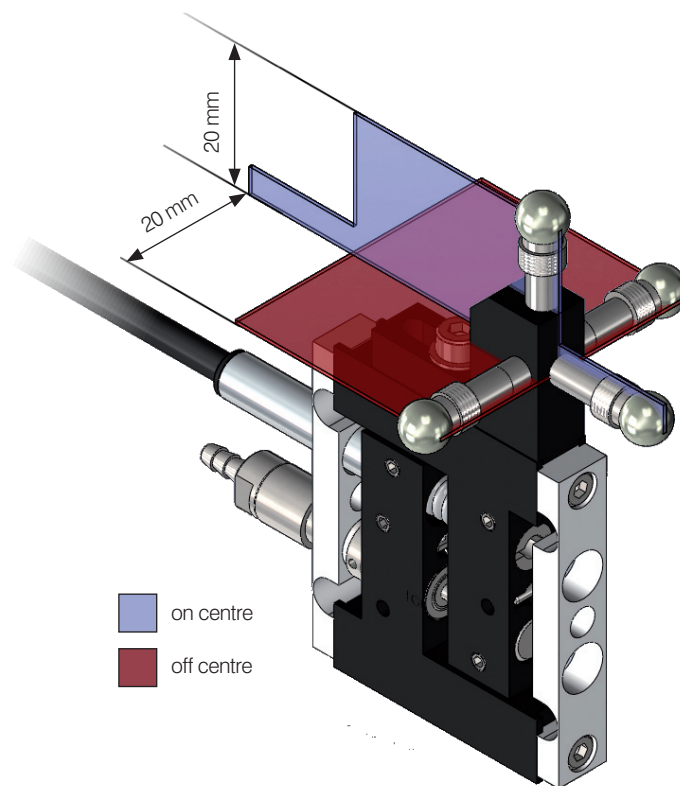
Environmental	AU/0.5	AU/1
IP Rating	IP 65 (flexure only)	
Operating Temperature Flexure only	+5 to +85 °C	
Operating Temperature Flexure and Electronics	+5 to +65 °C	
Storage Temperature	-20 to +70 °C	

- 1 Accuracy 0.1 μm or % reading, whichever greater, accuracy assumes tip holder < 20 mm and mounted on centre, spring operation with 1.5 N tip force.
- 2 See Zonal Repeatability Specification for off center repeatability
- 3 For best gauging results it is recommended that the flexure is operated so that the spring provides the gauging force and the pneumatic cylinder is used to retract the flexure.

Zonal Repeatability

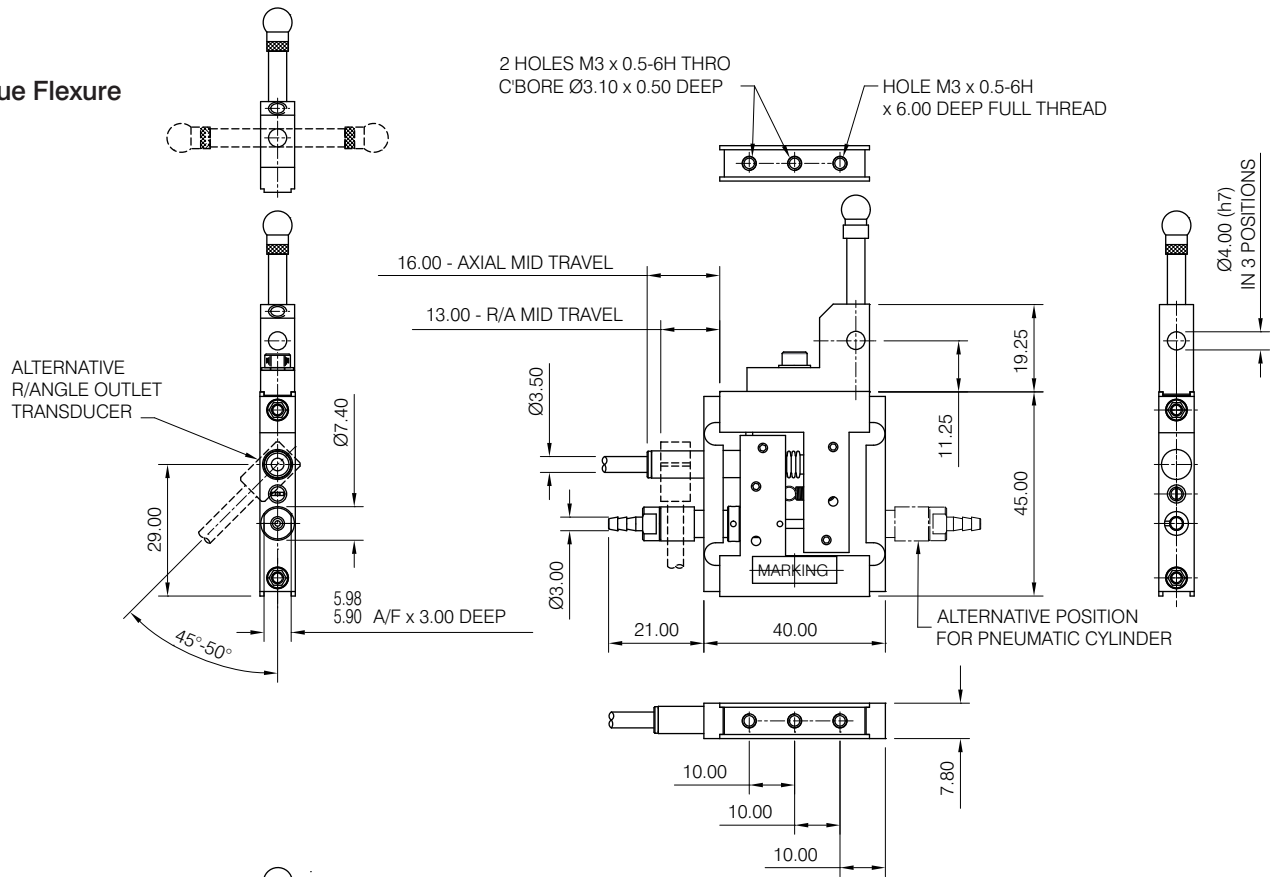
For optimal gauging performance the recommended operation is on centre. The specification is valid when using Solartron standard tool holder, tip holder and tip. (Tip used is 6.35 mm TC Ball Tip)

Repeatability	AU/0.5 and AU/1
on centre	< 0.1 μm
off centre	< 0.5 μm

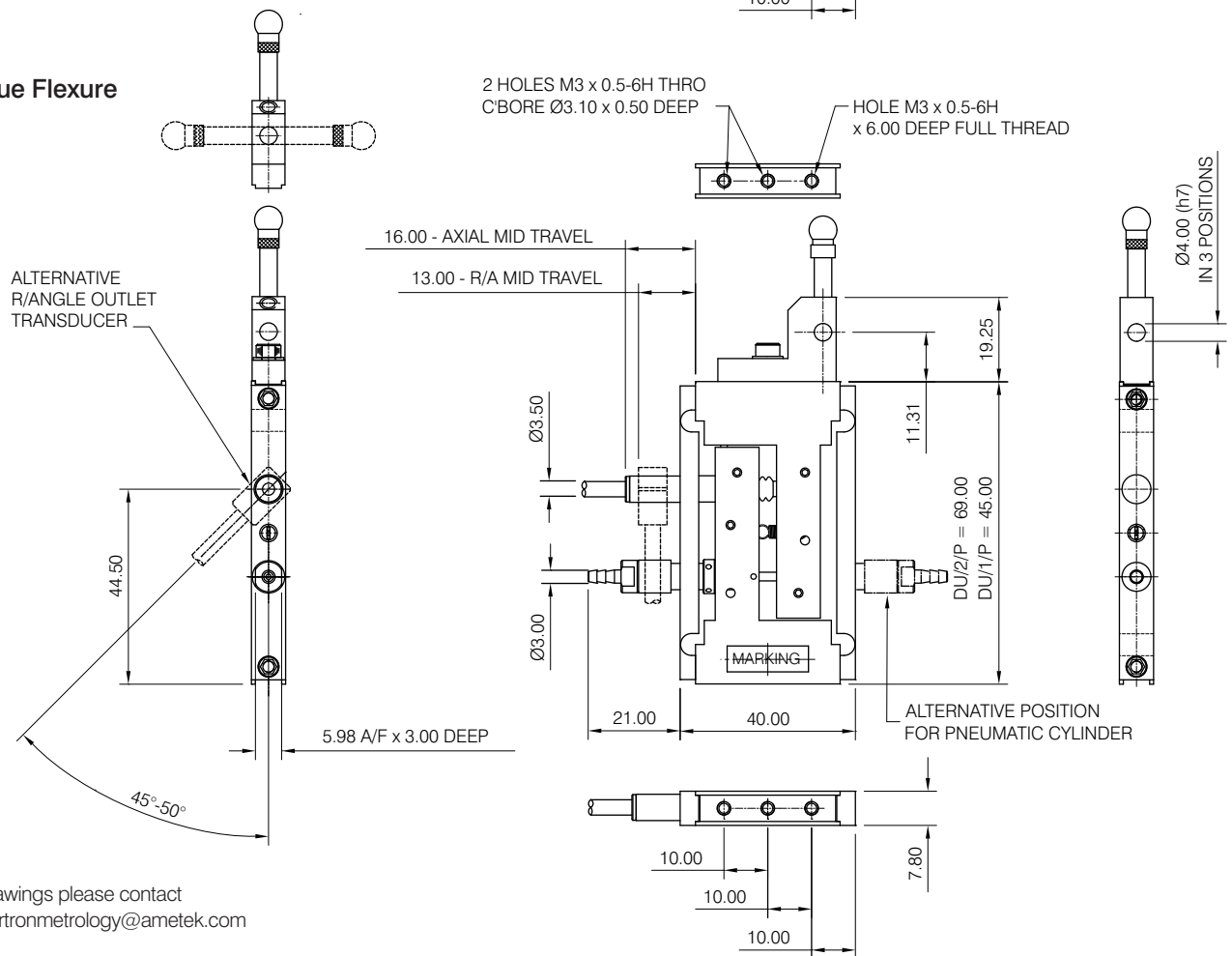


Analogue Flexures: Dimensions (mm)

Analogue Flexure AU/0.5



Analogue Flexure AU/1



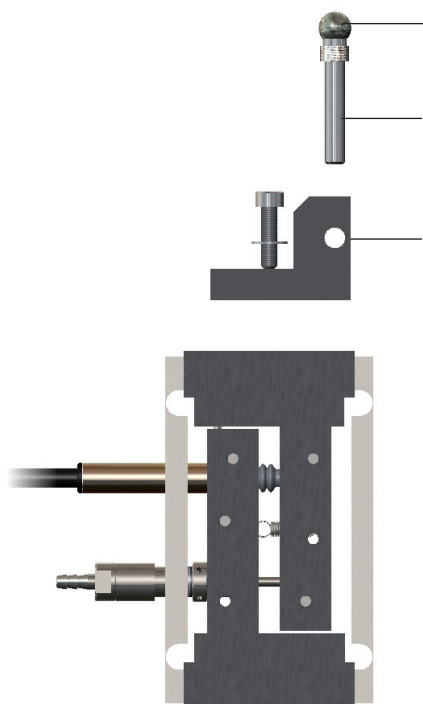
For 3D drawings please contact
sales.solartronmetrology@ametech.com

Analogue Flexures: Components

The gauge is supplied inclusive of sensor but does not include the tool holder, tip carrier or tips. There are versions for spring push and pneumatic push with axial and radial cable exit.

Solartron supplies flexures calibrated to suit your non-solartron electronics. Please contact your nearest Solartron representative for details.

Accessories are common to both AU/0.5 and AU/1 versions.



Tips

With industry standard M2.5 thread. See Orbit 3 catalogue or www.solartronmetrology.com for a list of available tips

Tip holders

20mm length Part number 208221/20

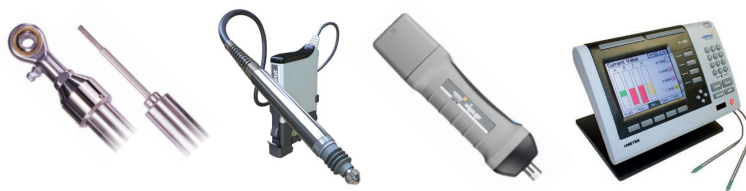
30mm length Part number 228221/30

40mm length Part number 228221/40

Tool holder

Part number 806274

Product Type	AU/0.5		AU/1	
	LVDT	Halfbridge	LVDT	Halfbridge
Axial Cable Outlet	± 0.5 mm		± 1.0 mm	
Forward Spring	AU/0.5/S	AU/0.5/SH	AU/1.0/S	AU/1.0/SH
Reverse Spring	AU/0.5/R	AU/0.5/RH	AU/1.0/R	AU/1.0/RH
Reverse Spring Pneumatic	AU/0.5/P	AU/0.5/PH	AU/1.0/P	AU/1.0/PH
Radial Cable Outlet				
Forward Spring	AUR/0.5/S	AUR/0.5/SH	AUR/1.0/S	AUR/1.0/SH
Reverse Spring	AUR/0.5/R	AUR/0.5/RH	AUR/1.0/R	AUR/1.0/RH
Reverse Spring Pneumatic	AUR/0.5/P	AUR/0.5/PH	AUR/1.0/P	AUR/1.0/PH



In the laboratory, on the shop floor or in the field, Solartron Metrology's products provide precise linear measurements for quality control, test and measurement and machine control. Wherever you are based in the world and whatever your application, Solartron Metrology has the technology, the commitment and the resources to help you measure it better.



Q 09540

www.solartronmetrology.com

UK

T: +44 (0)1243 833300

E: sales.solartronmetrology@ametek.com

France

T: +33 (0)1 30 68 89 50

E: france.solartronmetrology@ametek.com

Germany

T: +49 (0) 2159 9136 500

E: vertrieb.solartron@ametek.de

India

T: +91 80 6782 3200

China

T: +86 21 5763 2509

E: china.solartronmetrology@ametek.com

USA (Central Sales Office)

T: +1 800 873 5838

E: usasales.solartronmetrology@ametek.com

Solartron Metrology's agent and distributor details can be found at www.solartronmetrology.com

Solartron pursues a policy of continuous development. Specifications in this document may therefore be changed without notice.