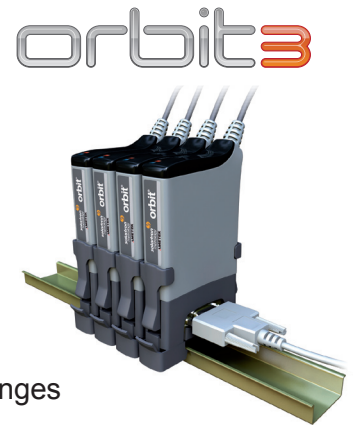
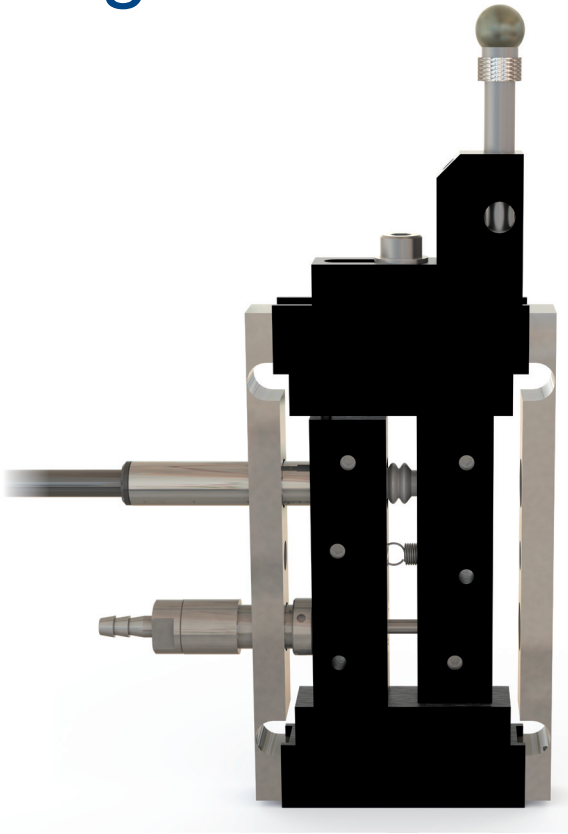


# Digital Flexures



- ▶ 1 & 2 mm measuring ranges
- ▶ Extended operating life:  
> 20 million cycles
- ▶ Excellent repeatability: < 0.1  $\mu$ m
- ▶ Excellent resolution: < 0.1  $\mu$ m
- ▶ Orbit 3 compatible
- ▶ Spring push or pneumatic operation
- ▶ IP65 protection
- ▶ Large selection of contact tips
- ▶ 3D drawings available
- ▶ High degree of serviceable parts

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

Digital 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 option to take readings of < 0.1  $\mu$ m at speeds of up to 3.906 readings per second per flexure into the Orbit® network provides very detailed profiling.

The flexure gauge has forward and reverse spring action with a pneumatically actuated version available for automatic measurements. The digital flexure gauge is fully compatible with Orbit® and is very linear over its full measurement range.

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.

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

Mechanical	DU/1	DU/2
Flexure Material	Aluminium and Steel	
Mass (including tool holder, 20 mm tip holder and ball tip) excluding PIE/cable	<60 g	<70 g
Mass of Tool Holder and screw	6 g	
Gaiter Material	High Grade Polymer	
Cable Type and Length	2 m PUR	
Operating life (dependant on application)	>20 million cycles	
Pneumatic Operating Pressure <sup>3</sup>	1.5 bar to 2.5 bar relative	

Environmental	DU/1	DU/2
IP Rating	IP 65 (flexure only)	
Operating Temperature Flexure only	+5 to +85 °C	
Operating Temperature Flexure and Electronics	+5 to +65 °C	

Digital Probe Interface Electronics	
Supply Voltage	5 V ±0.25 VDC
Current Consumption (sensor + PIE)	55 mA at 5 VDC
Bandwidth	up to 460 Hz <sup>-3db</sup>
Output	Serial RS485 signal level, Orbit Network Protocol
Reading Rate	3906 readings/s
Weight	
Probe Interface Electronics	52 g
T-Con	36 g
T-Con with DIN rail adapter fitted	46 g

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.

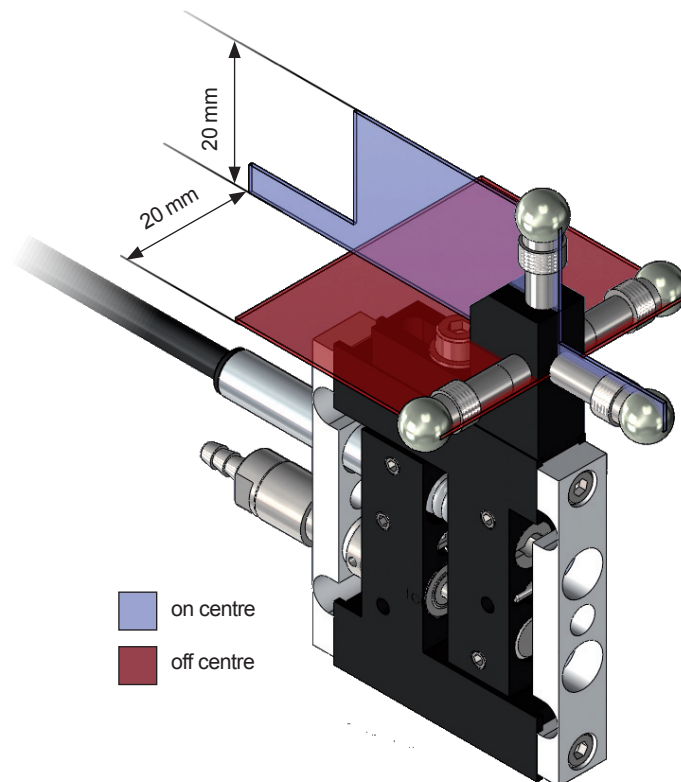
2 See Zonal Repeatability Specification for off center repeatability

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*)

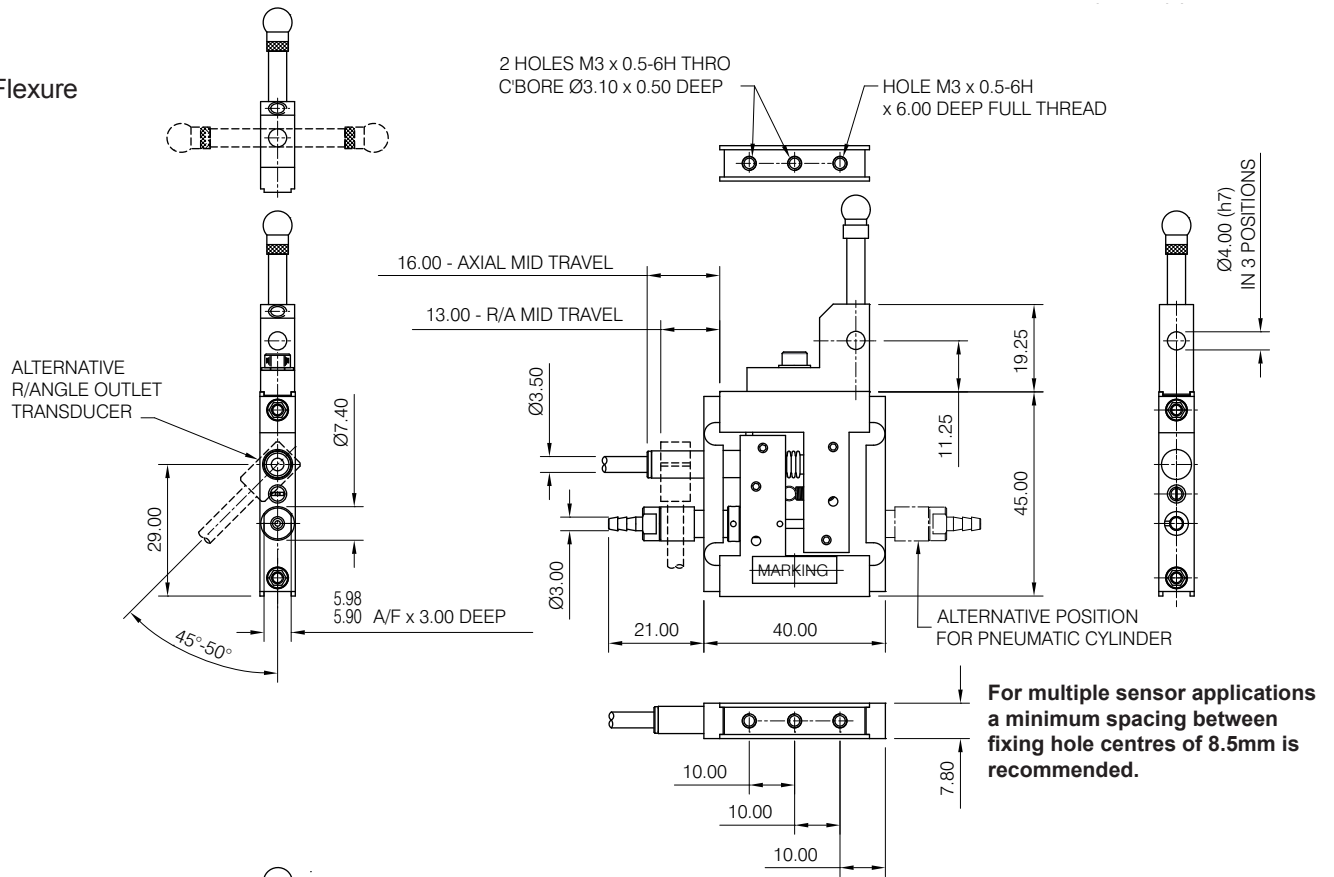
Repeatability	DU/1 and DU/2
on centre	< 0.1 µm
off centre	< 0.5 µm



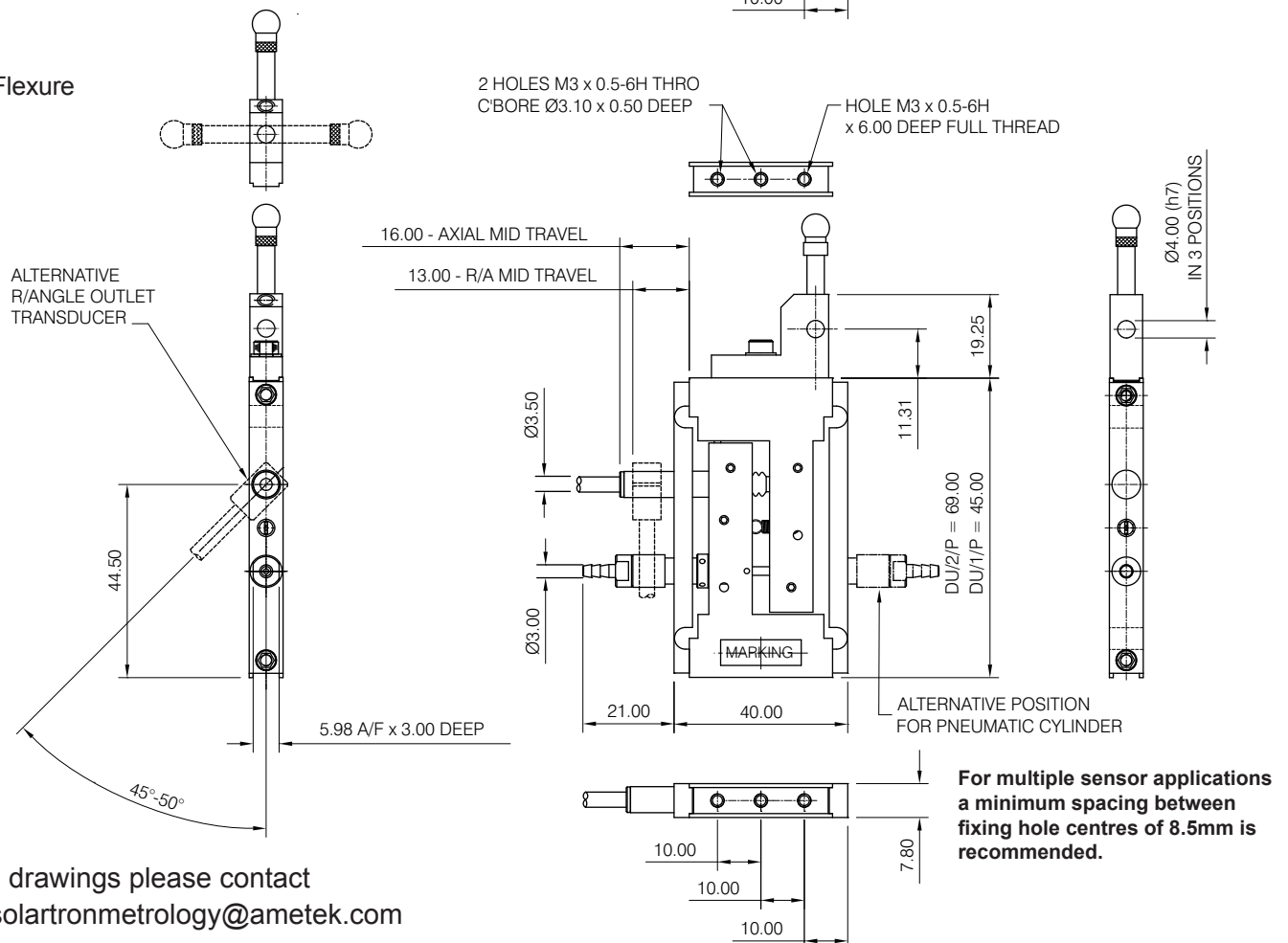
# Digital Flexures: Dimensions (mm)



Digital Flexure  
DU/1



Digital Flexure  
DU/2



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

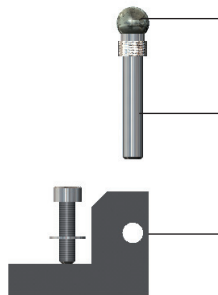
[www.solartronmetrology.com](http://www.solartronmetrology.com)



The gauge is supplied inclusive of sensor and Orbit 3 PIE 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.

Accessories are common to both DU/1 and DU/2 versions



Tips

With industry standard M2.5 thread. See Orbit 3 catalogue or [www.solartronmetrology.com](http://www.solartronmetrology.com) for a list of available tips

Tip holders

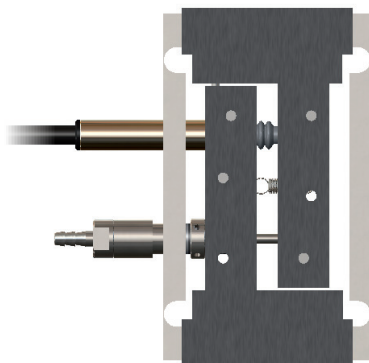
20mm length Part number 208221/20

30mm length Part number 228221/30

40mm length Part number 228221/40

Tool holder

Part number 806274



Product Type	DU/1	DU/2
Axial Cable Outlet	1 mm	2 mm
Forward Spring	DU/1/S	DU/2/S
Reverse Spring	DU/1/R	DU/2/R
Reverse Spring Pneumatic	DU/1/P	DU/2/P
Radial Cable Outlet		
Forward Spring	DUR/1/S	DUR/2/S
Reverse Spring	DUR/1/R	DUR/2/R
Reverse Spring Pneumatic	DUR/1/P	DUR/2/P

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