world leaders in the art of linear measurement

Block Gauge Family

Digital and Analogue Universal Gauges

Datasheet
502624
Issue 4.1

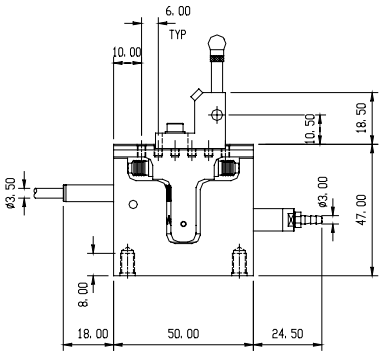
Features

- 2 mm, 5 mm and 10 mm Total Measuring Range
- Repeatability: < 0.25 µm
- Compact size 2 mm unit
- Digital, LVDT and Half Bridge
- Pneumatic or Spring Actuation
- Adjustable Anti-rotation Guide
- All Stainless Steel Construction
- Large Range of Changeable Tips
- IP65 Protection
- Good linearity over the full measuring range
- High Accuracy
- Traceable calibration

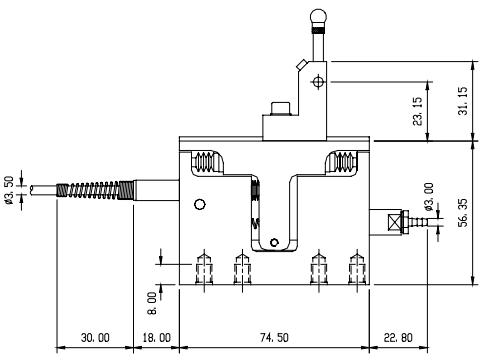
Description

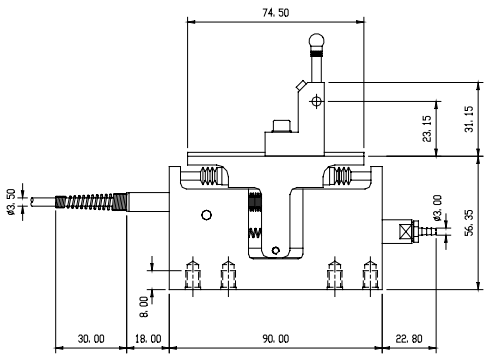
Solartron's new family of Block Gauges makes precision measurements of bores and cavities a simple and reliable process. More generally, the use of these devices is recommended in applications where space is limited and where the use of axial probes is not possible. The family of universal gauges includes 2 mm, 5 mm and 10 mm measurement ranges, the 5 mm unit is used in most gauging applications and the 10 mm unit is designed for applications requiring a longer range. The 2 mm unit is a miniaturised version in length, height and thickness and is recommended for applications where space is very restricted.
The block gauges are available in LVDT, half bridge or digital variants, and offer unrivalled ruggedness, accuracy and repeatability. All three units are extremely versatile and provide datum surfaces and all the adjustments required for precision gauging applications.

Mechanical Outline

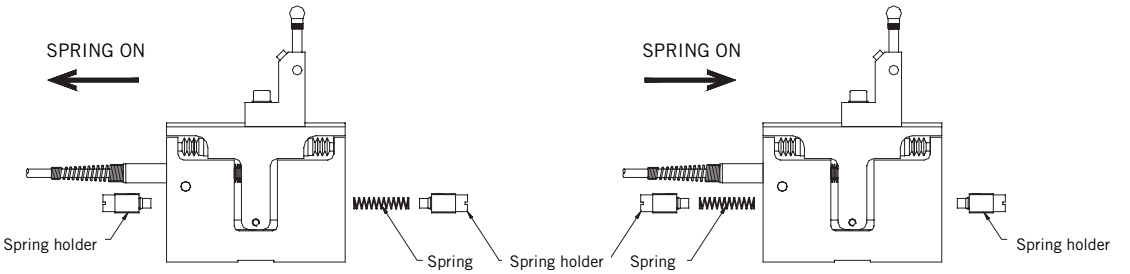


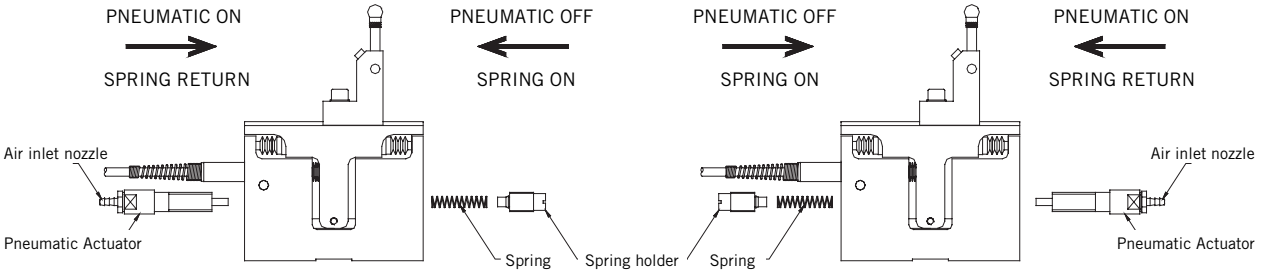
Diagrams showing general dimensions and datum surfaces for
2 mm, 5 mm and 10 mm block gauges
(Please refer to the technical drawing
for the complete set of dimensions)





Configuration Drawing





The Block Gauge pneumatic kit enables automatic loading of components. Pneumatic actuation coupled with a spring to control the tip force ensures repeatable measurement results (fig.1)

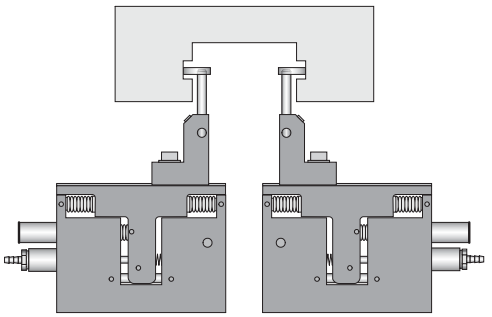


fig.1

The 5 mm and 10 mm block gauges are equipped with an industry standard tool holder. This ensures that the gauge is rigid yet easy to adjust. The tip carriers have an M2.5 fitting that accepts all standard tips. Due to its size, the 2 mm gauge has a modified adjustment system that provides equal rigidity and ease of adjustment (fig.2)

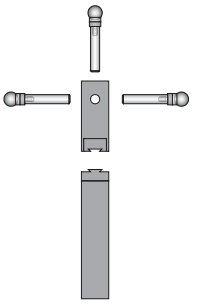


fig.2

As many Block Gauges as required can be banked close together. The compact configuration and the ability to gauge off the centreline is useful when tightly packed points need to be measured (fig.3)

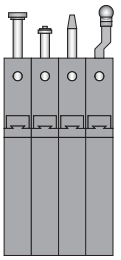


fig.3

Measurements with offset tip are possible with all the units, so to reduce the footprint of the gauge, adjustment along the frame is provided (fig.4)

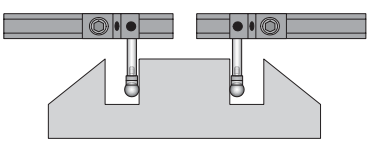


fig.4

A range of springs is available to ensure that the Block Gauge can be used in any attitude. IP65 protection helps to extend the life of the gauge in dirty environments (fig.5)

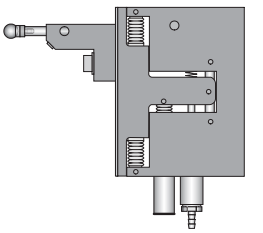


fig.5

Technical Specification

Measurement

	Analogue	Digital
Measurement Range (mm)	±1.0, ±2.5 and ±5.0	2, 5 and 10
Mechanical Travel (mm)	3, 6 and 11	3, 6 and 11
Accuracy[1]	(whichever is greater) at 5 kHz for LVDT at 10 kHz for Half Bridge	
2 mm	±1.0 µm or ±0.5% x D	±0.1 µm ±0.1% x D
5 mm	±2.5 µm or ±0.5% x D	±0.1 µm ±0.15% x D
10 mm	±5.0 µm or ±0.5% x D	±0.1 µm ±0.15% x D
Repeatability (on-axis at 70 g tip force)		
2 mm	< 0.25 µm	
5 mm	< 0.25 µm	
10 mm	< 0.50 µm	
Resolution	Dependant on associated electronics	User selectable to < 0.1µm
Null Position	Adjustable	Not applicable
Tip Force		
2 mm	0.75 N	
5 mm	0.75 N	
10 mm	0.75 N	
Temperature Coefficient		
2 mm	±0.2 µm/°C	
5 mm	±0.5 µm/°C	
10 mm	±1.0 µm/°C	
Life	Better than 5 million measuring cycles (dependant on application)	

Mechanical

	Analogue	Digital
Mass (less tool holder)		
2 mm	160 g (0.232 lbs)	
5 mm	390 g (0.858 lbs)	
10 mm	385 g (0.847 lbs)	
Mass of moving part (less tool holder)		
2 mm	35 g (0.077 lbs)	
5 mm	90 g (0.198 lbs)	
10 mm	95 g (0.209 lbs)	
Material	Stainless Steel (300 series) with Viton® Gaiters	
IP Rating	IP65	IP65 for gauge IP43 for electronics
Operating Pressure	1 bar to 3 bar	

Environmental

	Analogue	Digital
Storage Temperature (°C)	-40 to +85	-20 to +70
Operating Temperature (°C)	+5 to +85	+5 to +65
Shock	To maintain best performance the Block Gauge should be protected from excessive shock loads and dropping	

Electrical Interface

	Analogue		Digital
	LVDT	Half Bridge	
Energising Voltage	1 to 10 V rms		5 V ±0.25 VDC
Energising Frequency	2 to 20 kHz		Not applicable
Energising Current	2 mA/V at 5 kHz	2 mA/V at 10 kHz	55 mA at 5 VDC
Calibration Voltage	3 V		Not applicable
Calibration Frequency	5 kHz	10 kHz	Not applicable
Calibration Load	10 kΩ	2 kΩ	Not applicable
Sensitivity (mV/V/mm)	(at 5 kHz)	(at 10 kHz)	
2 mm	200 ±0.5%	73.5 ±0.5%	
5 mm	80 ±0.5%	29.4 ±0.5%	
10 mm	40 ±0.5%	14.7 ±0.5%	

[1] Accuracy includes both linearity and sensitivity errors (D is the distance from setting master)
[2] Maximum Tip Force is 3.5 N, a selection of springs is supplied for attitude and dead weight compensation.
Care should be taken as the probe performance (accuracy and repeatability) may degrade at high tip forces.

Ordering Guide for Block Gauge Components

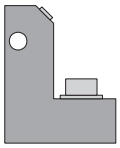
All gauges are supplied configured as spring push. A customer fit pneumatic actuator is required to convert spring push to pneumatic operation. The Block Gauge is inclusive of integral sensor but does not include the pneumatic actuator, additional springs, tool holder (4 mm and 6 mm bore), tip carrier (4 mm and 6 mm diameter) or tips. These must be ordered separately.

Tips

With industry standard M2.5 thread.
See page 98/99 of Solartron Metrology Catalogue 02 or download the PDF file for the tips from www.solartronmetrology.com

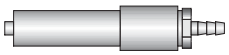
Tip Carrier

	4 mm Ø Tip Carriers (for use with 4 mm bore Tool Holder) Part Number	6 mm Ø Tip Carriers (for use with 6 mm bore Tool Holder) Part Number
Length		
20 mm	208221/20	-
30 mm	208221/30	208453/30
40 mm	208221/40	208453/40
50 mm	-	208453/50



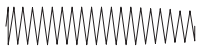
Tool Holder

	4 mm bore Tool Holder Part Number	6 mm bore Tool Holder Part Number
Block Gauge		
2 mm	804797-SX	-
5 & 10 mm	804448-SX	804798-SX



Pneumatic Actuator

	Pneumatic Actuator Part Number
Block Gauge	
2 mm	804878
5 & 10 mm	804574



Replacement Spring Kits

	Replacement Spring Kit Part Number		
	2 mm Kit 208574-SX comprising:	5 mm Kit 208212-SX comprising:	10 mm Kit 208418-SX comprising:
70 g (0.68 N)	208574/070	-	-
75 g (0.74 N)	-	208212/075	-
100 g (0.98 N)	208574/100	208212/100	-
150 g (1.47 N)	208574/150	208212/150	208418/150
250 g (2.45 N)	-	208212/250	208418/250
350 g (3.43 N)	-	208212/350	208418/350

Ordering Guide for Block Gauges

Digital or Analogue Block Gauge

Digital	2.0 mm		5.0 mm		10.0 mm	
	Product	Part Nº	Product	Part Nº	Product	Part Nº
Standard	DK/2/S	973025	DK/5/S	973000	DK/10/S	973008
Standard Radial	-	-	DKR/5/S	973005	DKR/10/S	973009

LVDT	±1.0 mm		±2.5 mm		±5.0 mm	
	Product	Part Nº	Product	Part Nº	Product	Part Nº
Standard (Plugged)	BG/1/S	925165	BG/2.5/S	924750	BG/5/S	924992
Standard Radial (Plugged)	-	-	BGR/2.5/S	924886	BGR/5/S	924996
Standard (Unplugged)	BG/1/S	925099	BG/2.5/S	924713	BG/5/S	924990
Standard Radial (Unplugged)	-	-	BGR/2.5/S	924884	BGR/5/S	924994

Half Bridge	±1.0 mm		±2.5 mm		±5.0 mm	
	Product	Part Nº	Product	Part Nº	Product	Part Nº
Standard (Plugged)	BG/1/SH	925166	BG/2.5/SH	924751	BG/5/SH	924993
Standard Radial (Plugged)	-	-	BGR/2.5/SH	924887	BGR/5/SH	924997
Standard (Unplugged)	BG/1/SH	925100	BG/2.5/SH	924714	BG/5/SH	924991
Standard Radial Unplugged)	-	-	BGR/2.5/SH	924885	BGR/5/SH	924995

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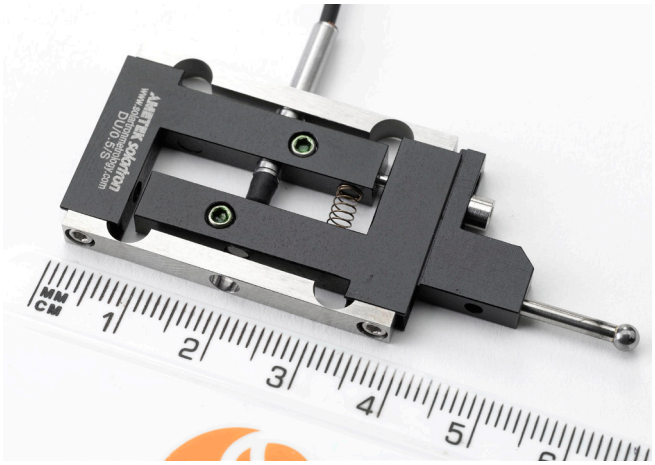
Digital Miniature Flexure



- 0.5 mm measuring range
- Extended Operating Life:> 20 Million Cycles
- Excellent Repeatability:< 0.1 µm
- Excellent Resolution:< 0.1 µm
- Orbit 3 Compatible
- Spring Push Operation
- IP65 Protection
- Alternative Selection of Contact Tips
- 3D Drawings available
- High degree of serviceable parts*

The new DU/0.5/S miniature flexure is Solartrons latest extension to the family of flexures. The ultra compact design allows for applications in confined space with a high number of measurement points on small objects. The very high resolution and Gauge R&R at <0.1µm achieved in the larger DU/1.0/S and DU/2/S flexures is kept without degradation over millions of measuring cycles in this new product.

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 µm at speeds of up to 3906 readings per second per Flexure into the Orbit Network provides very detailed profiling.

The digital miniature flexure is fully compatible with Orbit ® and is very linear over its full measurement range. The tool mounting assembly can be variously adjusted along the gauges length and fixed with M2.5 screws. A choice of holder and tips are available for maximum flexibility. 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.

* No customer serviceable parts, product must be returned to factory

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Technical Specification

Measurement Performance	DU/0.5/S
Mechanical Travel	0.9 mm
Measurement Range	0.5 mm
Repeatability	<0.1 µm
Resolution (user selectable)	<0.1 µm
Accuracy % reading [1]	± 0.1
Tip Force.Spring Push (horizontal attitude ± 20%)	0.5 N at mid position
Temperature Coefficient	<0.01% FS / ºC

Mechanical Specification	DU/0.5/S
Flexure Materials	Aluminium and Steel
Mass (including tool holder, 20 mm tip holder and ball tip) excluding PIE/cable	14 g
Mass Tool Holder + Screw	2 g
Gaiter Material	High Grade Polymer
Cable Type and Length	2 m PUR
Operating life (dependant on application)	>20 million cycles

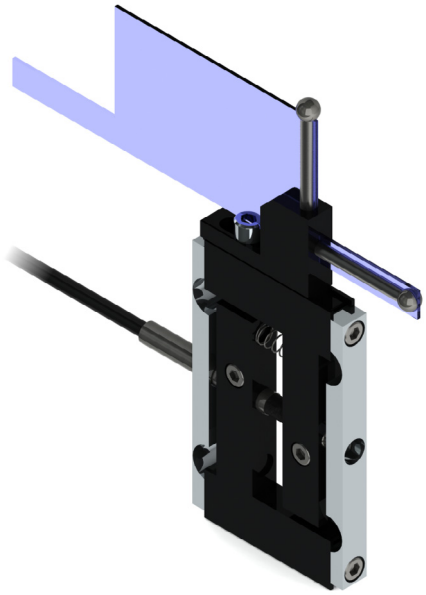
Enviromental	DU/0.5/S
IP Rating	IP 65 (flexure only)
Operating Temperature Flexure only	+5 to +85 °C
Operating Temperature Flexure and Electronics	+5 to +65 °C
Storage Temperature	-20 to +70 °C
Digital Probe Interface Electronics	
Supply Voltage	5 V ±0.25 VDC
Current Consumption (sensor + PIE)	55 mA at 5 VDC
Bandwidth	up to 460 Hz -3db
Output	Serial RS485 signal level, Orbit Network Protocol
Reading Rate	3906 readings/s
Weight g	
Probe Interface Electronics	52g
T-Con	36g
T-Con with DIN rail adapter fitted	46g

[1] Accuracy 0.2 µm or % reading, whichever greater, accuracy assumes tip holder < 20 mm and mounted on center, spring operation with 0.4 N tip force.

Zonal Repeatability

Results for both accuracy & non-repeat may be degraded when using the angularly variable holder and tip. Degree will depend on the final geometry.

DU/0.5/S Repeatability
< 0.1 µm



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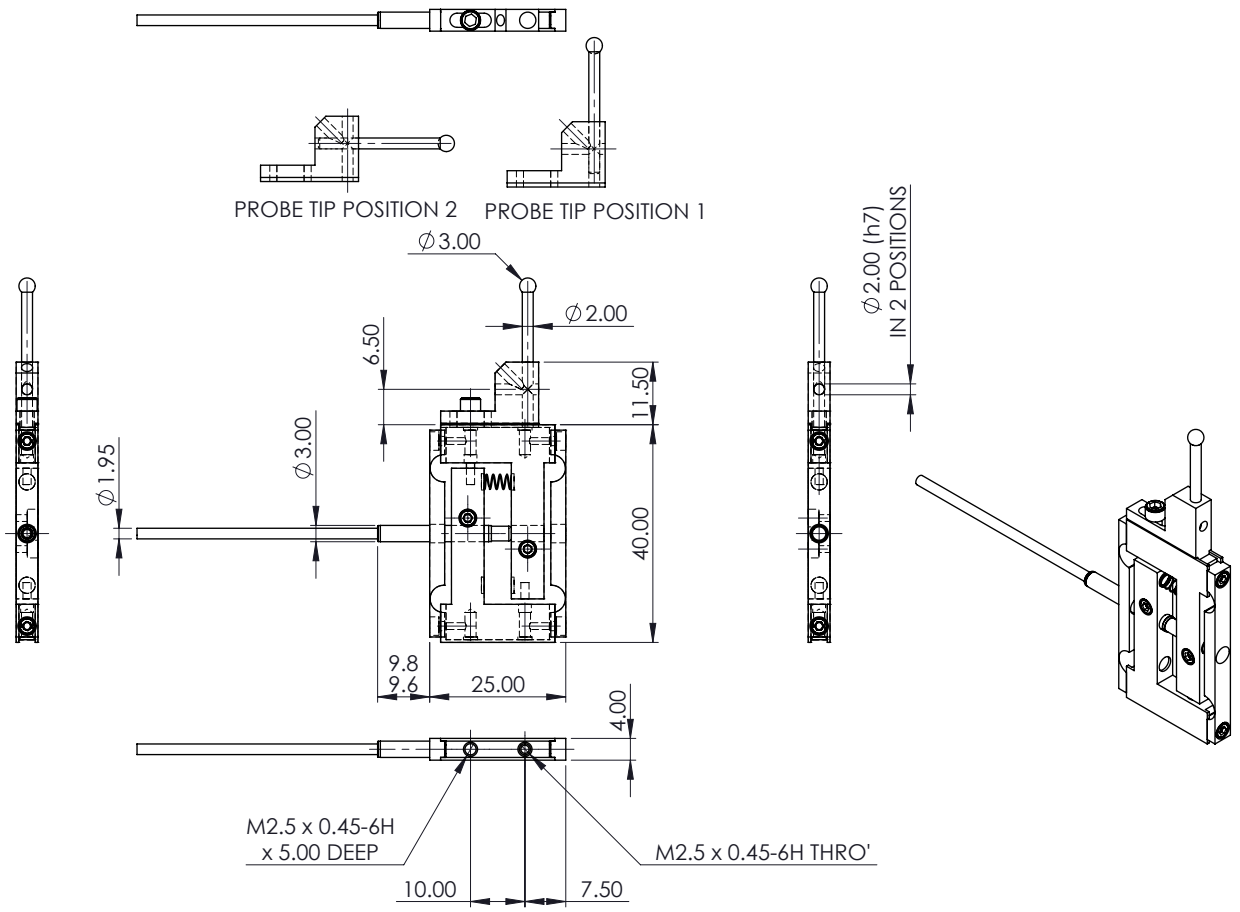


FLEXURE - DU/0.5/S (STD TOOL HOLDER)

DIMENSIONS ARE NOMINAL AND SPECIFIED IN MILLIMETRES

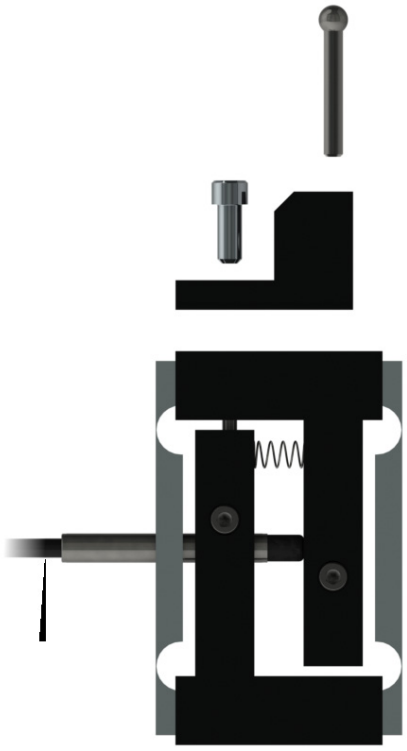
SOLARTRON PURSUES A POLICY OF CONTINUOUS DEVELOPMENT.
SPECIFICATIONS IN THIS DOCUMENT MAY THEREFORE BE CHANGED WITHOUT NOTICE.

540002-115 ISS 1 EDCR19460

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

Ordering Guide For Digital Flexure Gauge Components

The Gauge is supplied inclusive of sensor and Orbit 3 PIE but does not include the tool holder, tip carrier or tips.



Ø3 Tip + Ø2 holder - Part Number 209568

Tool holder Part Number 806398-SX

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Issue 4
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Digital Flexures

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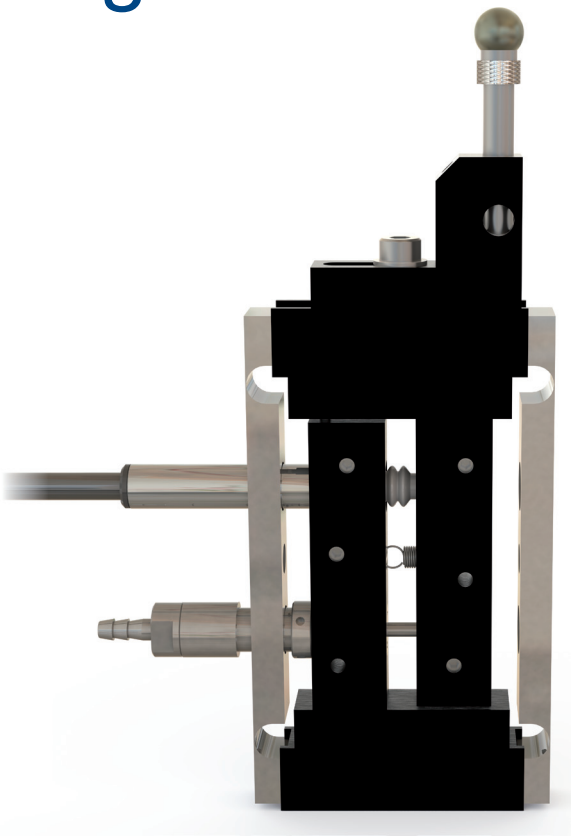
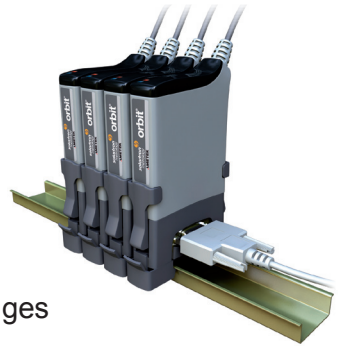




- 1 & 2 mm measuring ranges
- Extended operating life: > 20 million cycles
- Excellent repeatability: < 0.1 µm
- Excellent resolution: < 0.1 µm
- Orbit 3 compatible
- Spring push or pneumatic operation
- IP65 protection
- Large selection of contact tips
- 3D drawings available
- High degree of servicable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

Very high resolution and gauge R&R at <0.1 µm 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 µm 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.

Digital Flexures: Specification

Measurement Performance	DU/1	DU/2
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 ± 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 / ºC	

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[3]	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	

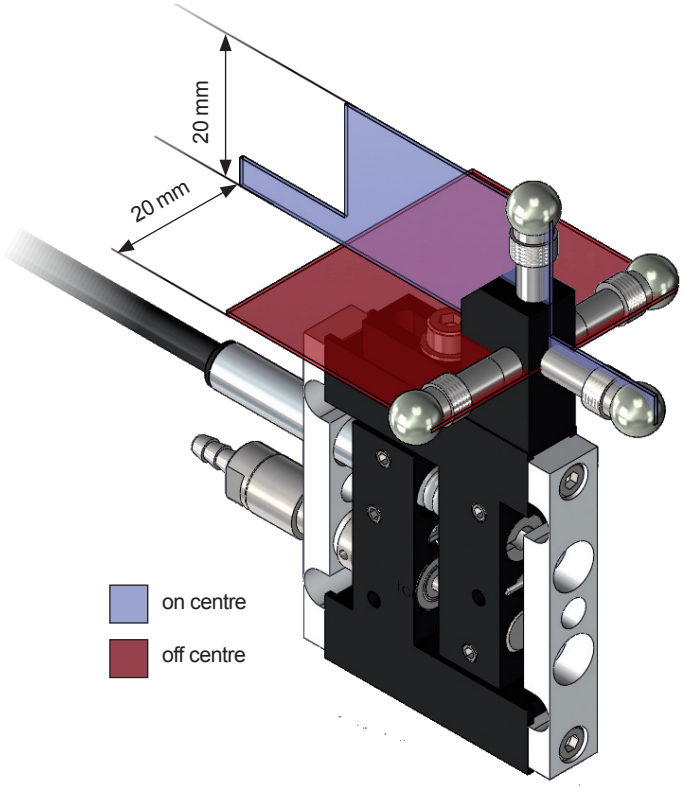
Digital Probe Interface Electronics	
Supply Voltage	5 V ±0.25 VDC
Current Consumption (sensor + PIE)	55 mA at 5 VDC
Bandwidth	up to 460 Hz -3db
Output	Serial RS485 signal level, Orbit Network Protocol
Reading Rate	3906 readings/s
Weight Probe Interface Electronics T-Con T-Con with DIN rail adapter fitted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

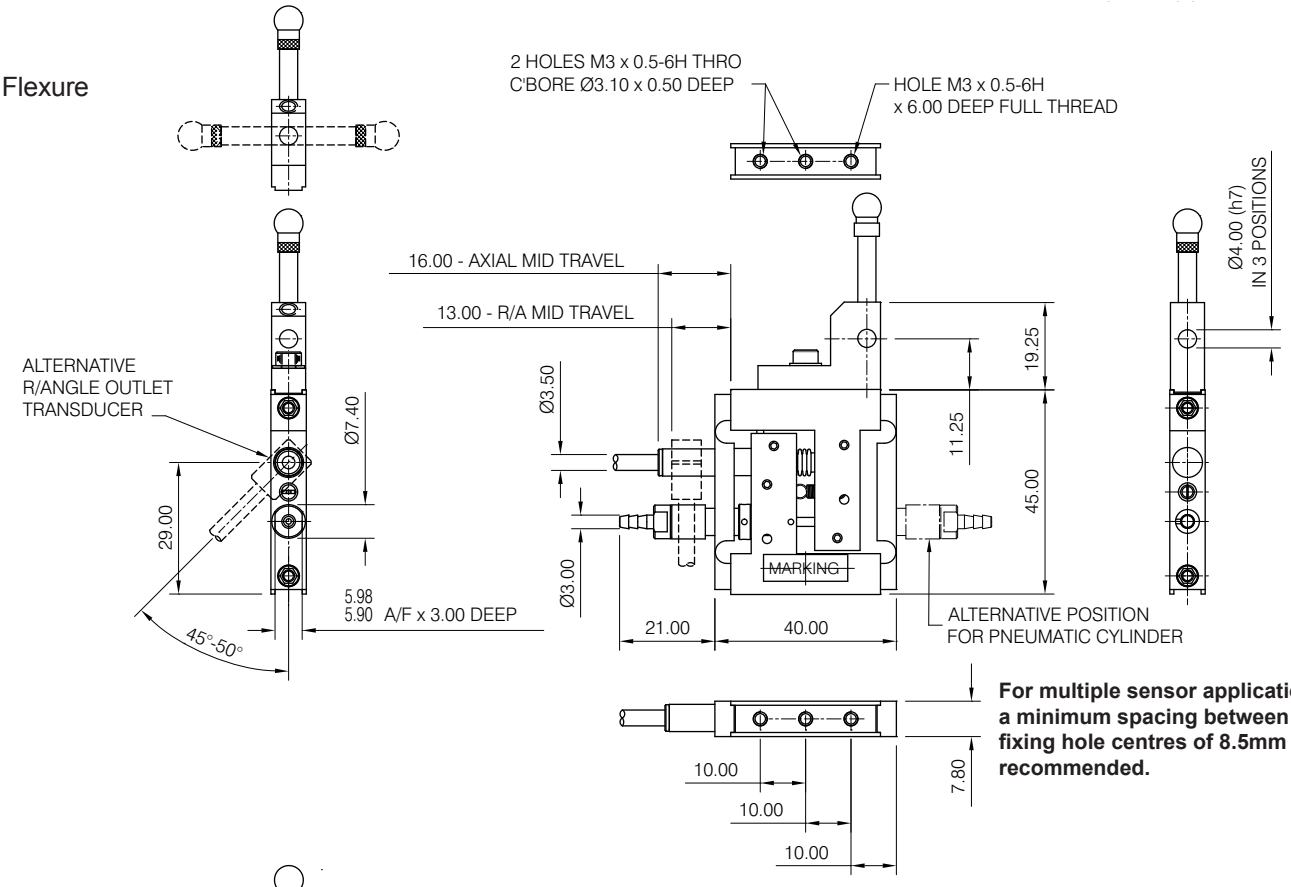
For optimal gauging performance the recommended operation is on centre. The specification is valid when using Solartron standard tool holder, tip holder and tip. *(Tip used is 6.35 mm TC Ball Tip)*

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



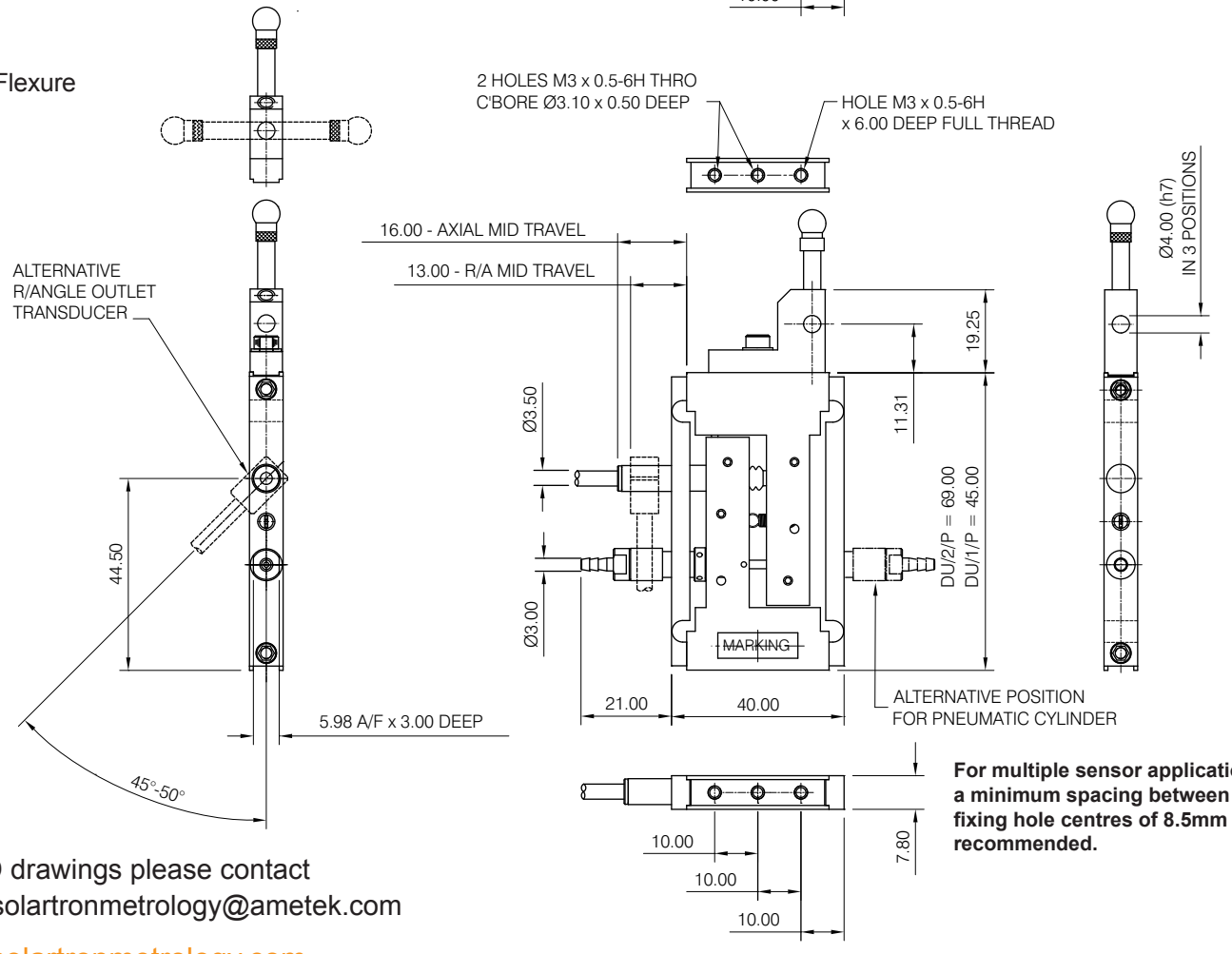
Digital Flexures: Dimensions (mm)

Digital Flexure
DU/1



For multiple sensor applications a minimum spacing between fixing hole centres of 8.5mm is recommended.

Digital Flexure
DU/2



For multiple sensor applications a minimum spacing between fixing hole centres of 8.5mm is recommended.

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

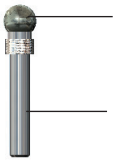
www.solartronmetrology.com

Digital Flexures: Components

The gauge is supplied inclusive of sensor and Orbit 3 PIE but does not include the tool holder, tip carrier or tips.

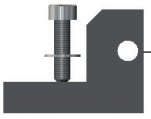
There are versions for spring push and pneumatic push with axial and radial cable exit.

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

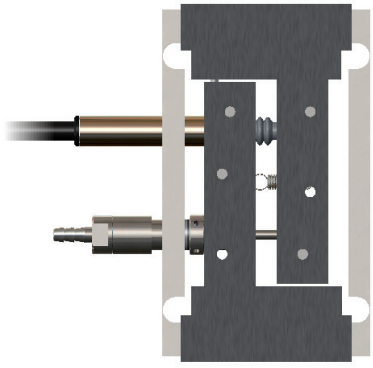


Tips
With industry standard M2.5 thread. See Orbit 3 catalogue or www.solartronmetrology.com for a list of available tips

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

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EDCR 20461

solartron metrology

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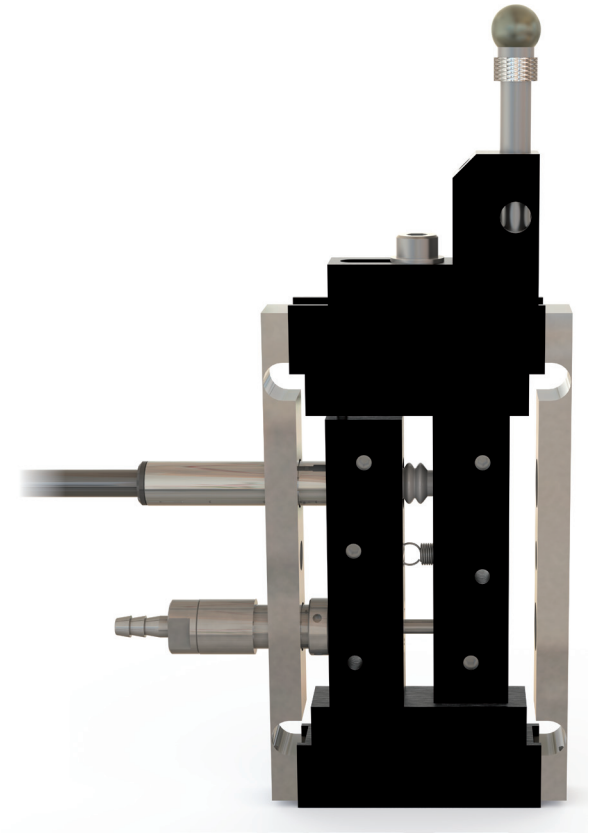
Analogue Flexures



- ± 0.5 & ± 1.0 mm measuring ranges
- Extended operating life: > 20 million cycles
- Excellent repeatability: < 0.1 µm
- 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 servicable parts

Very high resolution and gauge R&R at <0.1 µm 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.

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	
Linearity % reading[1]	0.5	
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 / ºC	

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 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[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 kΩ	2 kΩ
Standard Calibration Parameter	200 mV/V/mm ±0.5% at 5 kHz, 3 V rms	73.5 mV/V/mm ±0.5% at 10 kHz, 3 V rms

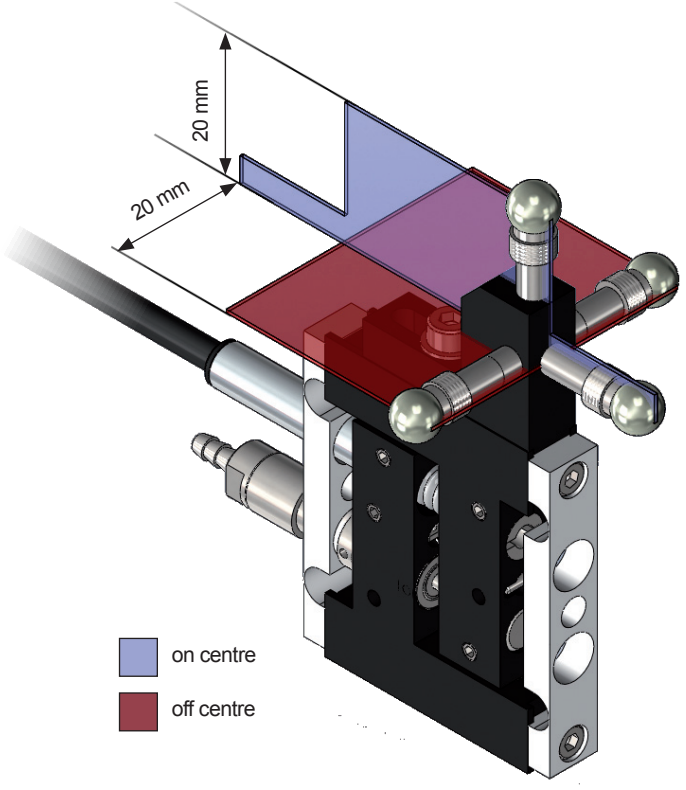
Environmental	AU/0.5	AU/1
IP Rating	IP 65 (flexure only)	
Operating Temperature Flexure only	+5 to +85 °C	
Operating Temperature Flexure and Electronics	+5 to +65 °C	
Storage Temperature	-20 to +70 °C	

1 Linearity 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

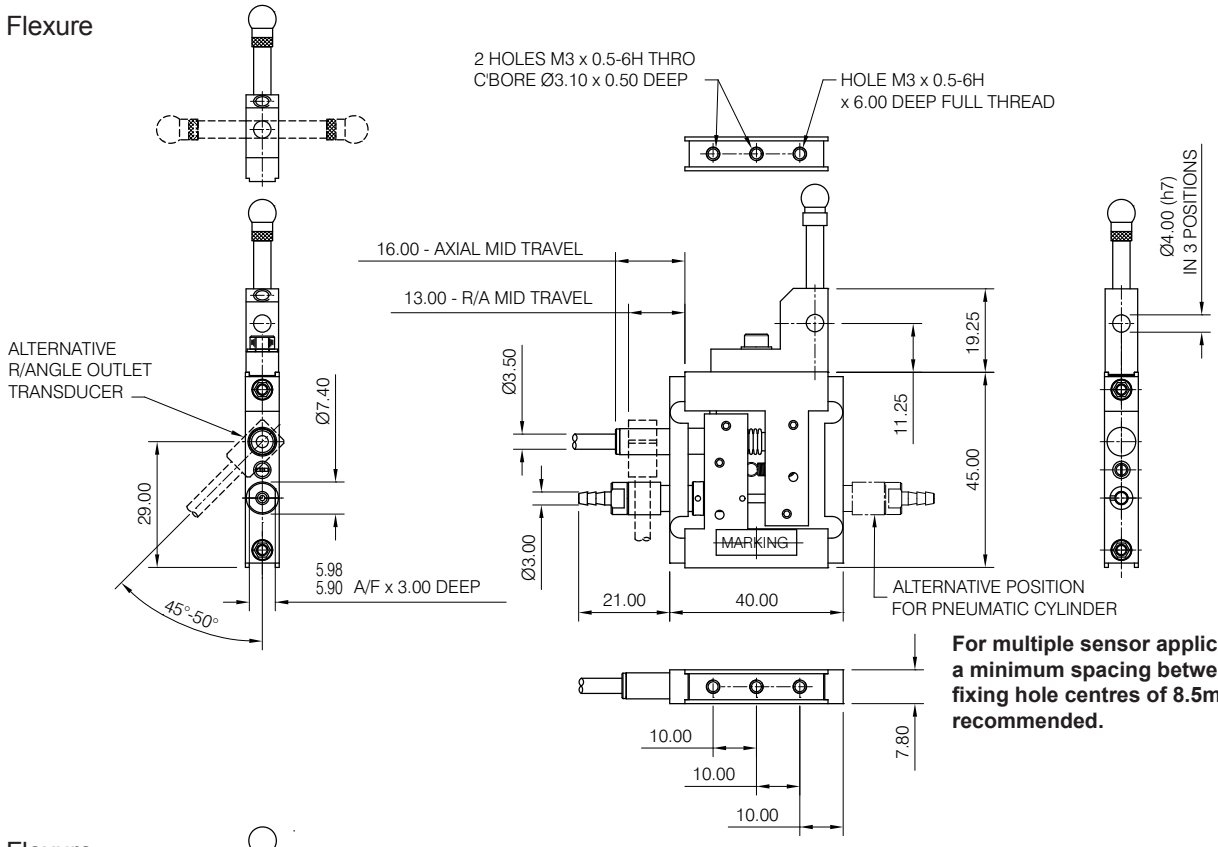
For optimal gauging performance the recommended operation is on centre. The specification is valid when using Solartron standard tool holder, tip holder and tip. *(Tip used is 6.35 mm TC Ball Tip)*

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



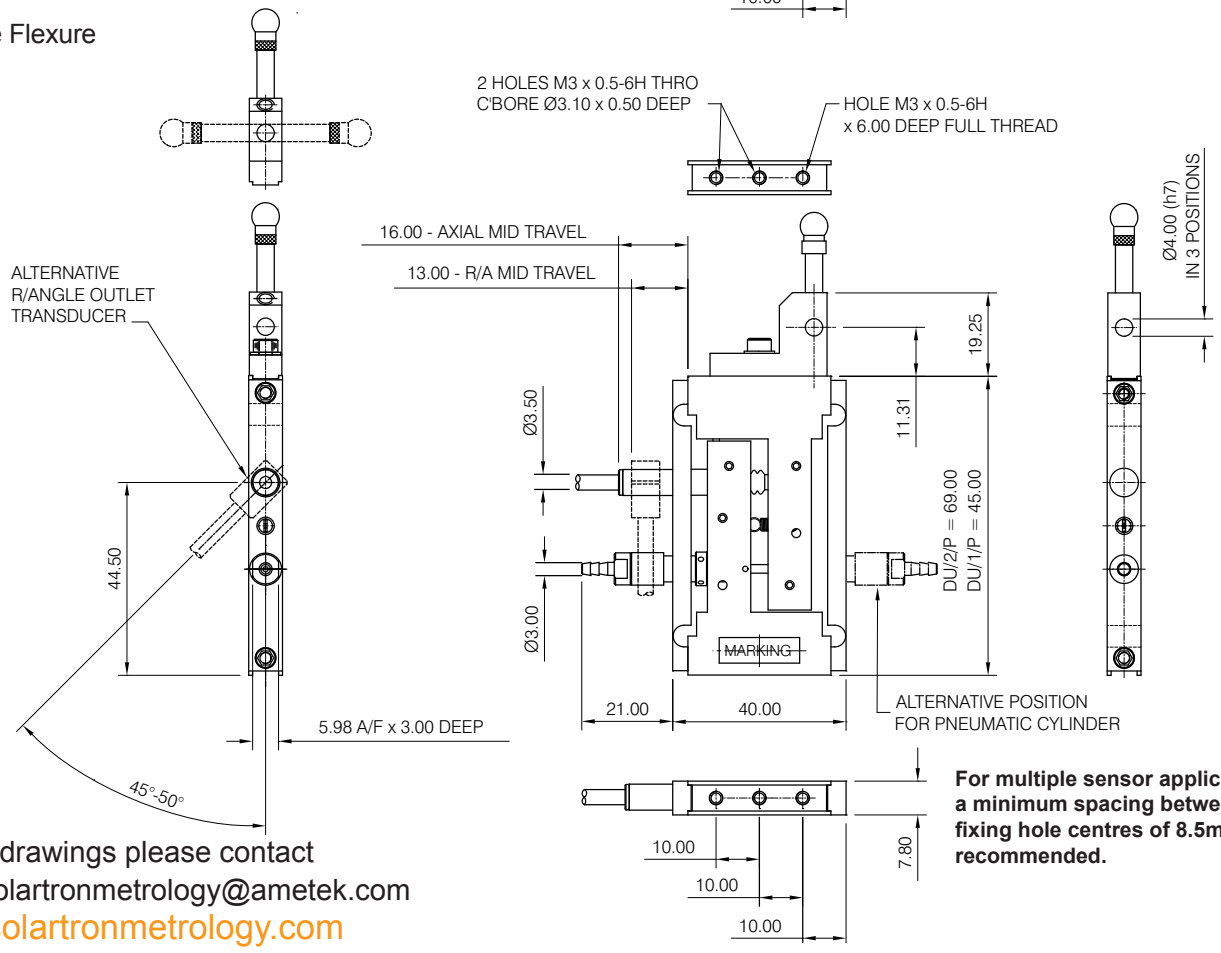
Analogue Flexures: Dimensions (mm)

Analogue Flexure
AU/0.5



For multiple sensor applications a minimum spacing between fixing hole centres of 8.5mm is recommended.

Analogue Flexure
AU/1



For multiple sensor applications a minimum spacing between fixing hole centres of 8.5mm is recommended.

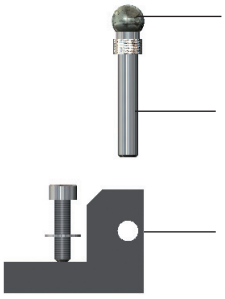
For 3D drawings please contact
sales.solartronmetrology@ametek.com
www.solartronmetrology.com

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.

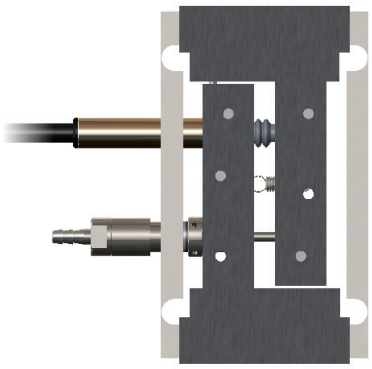
Accessories are common to both AU/0.5 and AU/1 versions.



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

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