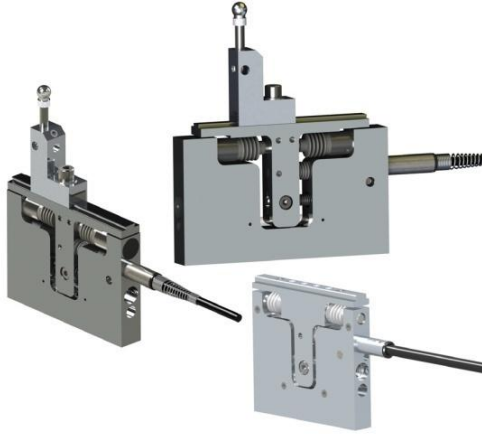


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Special Digital Linear Measuring Transducers (Overview)



DK Block Gauges

- 2, 5, and 10 mm measuring ranges
- Multiple tool and tip options
- Pneumatic available
- Measure bores and cavities



DU Parallel Flexure

- Frictionless travel
- Multiple tool and tip options
- Pneumatic available
- 1 and 2 mm measuring ranges
- 8mm wide body



Mini DU Parallel Flexure

- Frictionless travel
- Just 4mm wide
- 0.5 mm measuring range



Single Leaf Flexure

- Frictionless travel
- 0.5 mm measuring range



DM Mini Probe

- Compact transducer for bore
- 0.5 and 1mm measuring ranges



DL Lever Probe

- As low as 0.05N tip force
- 0.5 to 1mm measuring range

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Digital Block Gauges

Features

- Accuracy to $<1 \mu\text{m}$ (0.00004 in)
- Excellent repeatability $0.25 \mu\text{m}$ (0.000010 in)
- Measurement ranges 2 to 10 mm.
- Uses Orbit[®] 3 Digital Measurement System for
 - Fast data rates
 - Simple connectivity
 - Multiple sensors on one network
- Fully traceable calibration.

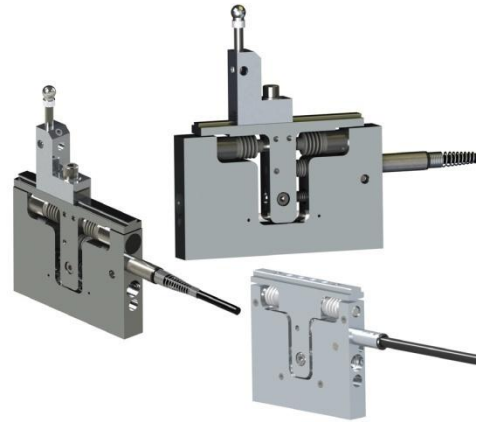
Description

Solartron's 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 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 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.

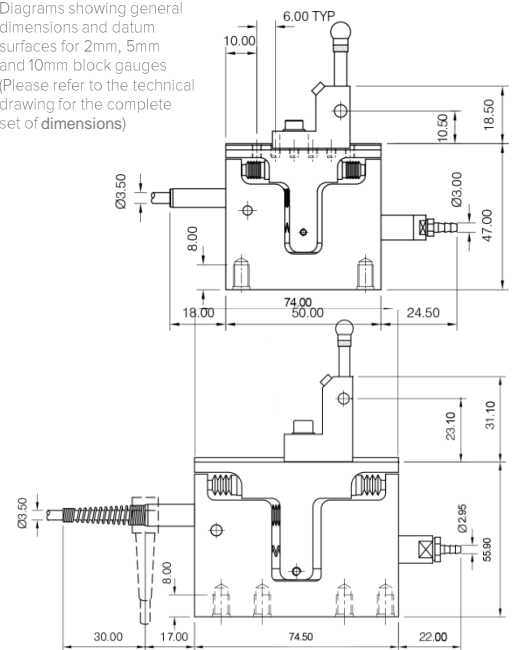
Other features include:

- Compact size
- Pneumatic or spring actuation
- All stainless steel construction
- Large range of changeable tips
- IP65 Protection

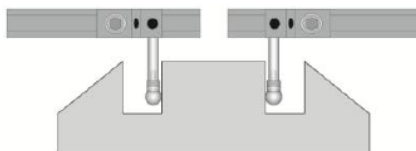


Mechanical Outline

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



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)



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Digital Block Gauges: Technical Specification

Product (Body Width)

	8 mm wide	12 mm wide	
Axial Cable Outlet	DK/2	DK/5	DK/10
Radial Cable Outlet	DKR/2	DKR/5	DKR/10

Measurement Performance

	2	5	10
Measurement Range (mm)	2	5	10
Accuracy (% of Reading) (Note 1)	0.05	0.05	0.08
Repeatability (µm) (Note 2)	<0.25	<0.25	<0.5
Resolution (µm)	0.01	0.05	0.05
Pre Travel (mm)	0.15	0.15	0.15
Post Travel (mm)	0.85	0.85	0.85
Tip Force (N) at Middle of Range ±20%	1.5	1.5	1.5
Temperature Coefficient (µm/°C)	0.2	0.5	1

Environmental

Sealing	IP65
Storage Temperature (°C)	-20 to +80
Block Gauge Operating Temperature (°C)	+5 to +80
Electronics Operating Temperature (°C)	0 to 60
EMC Emissions	EN61000-6-3
EMC Immunity	EN61000-6-2
Shock	Do not subject Block Gauge to excessive shocks

Material

Block Gauge Body	Stainless Steel
Probe Tip (options)	Nylon, Ruby, Silicon Nitride, Tungsten Carbide
Gaiter	Fluoroelastomer or Silicon
Cable	PUR
Electronics Module	ABS

Electronics Interface (Orbit®3)

Orbit®3 Interface Options	USB, Ethernet, RS232
Reading Rate	3906 readings per second
Bandwidth of Electronics (Hz) user selectable	460, 230, 115, 58, 29, 14, 7,4
Power	5±0.25 VDC @ 0.06A typical

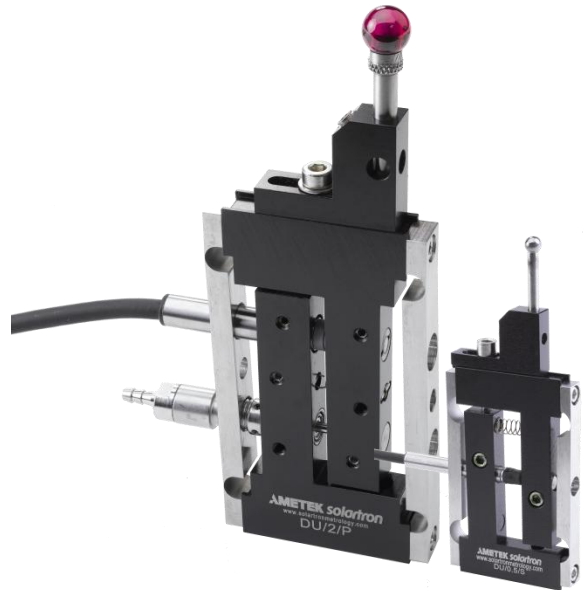
Note 1: Accuracy 0.1 µm or % reading (whichever greater) assumes 20 mm tip holder mounted on center, spring operation with standard springs. Offset tips, long arms etc may reduce performance.
Note 2: Repeatability is under the same conditions as accuracy

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Digital Flexures

Features

- Accuracy to $<1 \mu\text{m}$ (0.00004 in)
- Excellent repeatability $0.05 \mu\text{m}$ (0.000010 in)
- Measurement ranges 0.5 to 2 mm.
- Uses Orbit[®] 3 Digital Measurement System for
 - Fast data rates
 - Simple connectivity
 - Multiple sensors on one network
- Fully traceable calibration.



Description

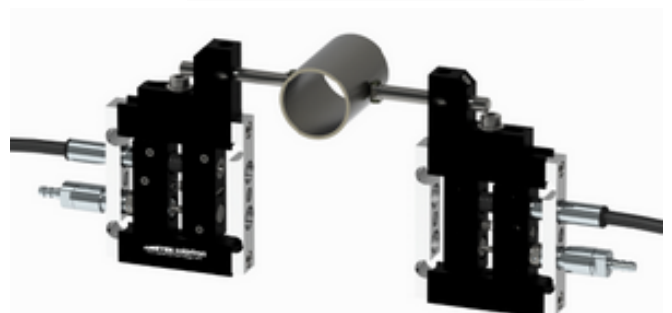
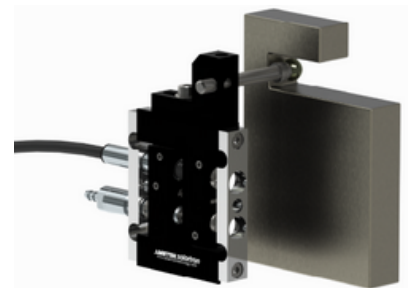
Ultra high resolution and excellent repeatability make Solartron's flexure transducers the first choice for high speed precision gauging.

With no sliding moving parts, the flexure will maintain performance for millions of cycles and are virtually free from hysteresis.

Flexures can be mounted such that there is little or no stress through the gauge line enabling precision profiling of moving materials such as rotating shafts, brake discs etc. With resolution better than $0.05 \mu\text{m}$ at speeds up to 3906 readings per second the flexure with Orbit[®] 3 provides a great solution.

Other features include:

- Compact size
- Pneumatic or spring actuation for automatic gauges
- Large range of changeable tips
- IP65 Protection





Digital Flexure Gauges: Technical Specification

Product	Parallel Flexures			Single Flexure
	4 mm wide	8 mm wide		
Axial Cable Outlet Radial Cable Outlet	DU/0.5	DU/1 DUR/1	DU/2 DUR/2	DUS/0.5
Measurement Range (mm)				
Measurement Range (±mm)	0.5	1	2	0.5 (Note3)
Accuracy (% of Reading) (Note 1)	0.1	0.1		0.1
Repeatability (µm) (Note 2)	<0.1	<0.1		<0.1
Resolution (µm)	0.01	0.01		0.01
Pre Travel (mm)	0.03/0.06	0.05/0.1		0.02/0.03
Post Travel (mm)	0.29	0.4		0.05/0.1
Tip Force (N) at Middle of Range ±20%				
Spring Push	0.5	1.5		1.25
Pneumatic at 2 bar	N/A	1		N/A
Temperature Coefficient (µm/°C)	0.5	0.5		0.5
Environmental				
Sealing for Probe Sealing for Probe Interface Electronics Probe Operating Temperature with Gaiter (°C) Storage Temperature (°C) EMC Emissions EMC Immunity	IP65 IP43 for module and TCON +5 to +80 -20 to +80 EN61000-6-3 EN61000-6-2			
Material				
Flexure Body Gaiter Cable Electronics Module	Stainless Steel and Aluminium Fluoroelastomer PUR ABS			
Orbit®3 Interface Options				
Reading Rate Bandwidth of Electronics (Hz) user selectable Power	3906 readings per second 460, 230, 115, 58, 29, 14, 7,4 5±0.25 VDC @ 0.06A typical			

Note 1: Accuracy 0.1 µm or % reading (whichever greater) assumes 20 mm tip holder mounted on center, spring operation with standard springs. Offset tips, long arms etc may reduce performance.

Note 2: Repeatability is dependent on the configuration of the tip and holder (see diagram in datasheet)

Note 3 : For Single Flexure range 50 mm from the flex point, extension arms will change this parameter

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Digital Mini Probe

Features

- Accuracy to **<1 μm (0.00004 in)**
- Excellent repeatability **0.05 μm (0.000010 in)**
- Measurement ranges **0.5 to 1 mm**
- Uses **Orbit[®] 3** Digital Measurement System for
 - Fast data rates
 - Simple connectivity
 - Multiple sensors on one network
- Fully traceable calibration.

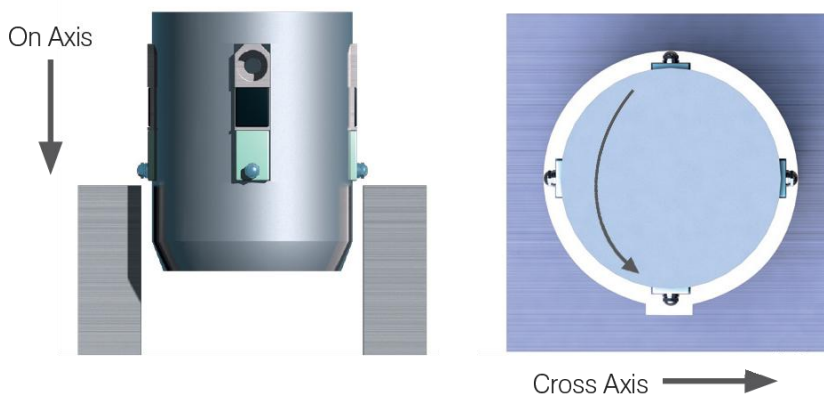


Description

The Mini Probe is a compact, low profile transducer that is ideal for measurement in confined spaces, such as bores. The transducer is based on a parallel spring structure that ensures that it provides excellent repeatability over a long working life, even when rotated in bores that have key slots of lubrication ports.

A Tungsten Carbide contact tip is fitted as standard but a selection of customer replaceable tips with an M2 thread is available for special applications.

Repeatability depends on the alignment of the mini probe whether on axis or cross axis as shown below.



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Digital Mini Probe: Technical Specification

Products

Spring Push	DM/0.5/S	DM/1/S
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Measurement Performance

Measurement Range (mm)	0.5		1	
Accuracy (% of Reading) (Note 1)	0.05		0.05	
Repeatability (µm)	On axis	Cross axis	On axis	Cross axis
Range: 0-100 µm nominal	0.1	0.1	0.1	0.1
Range: 100-250 µm nominal	0.25	0.15	0.1	0.1
Range: 250-500 µm nominal	0.5	0.25	0.15	0.15
Range 500 - 1000 µm nominal	N/A	N/A	0.3	0.2
Resolution (µm)	<0.1		<0.1	
Pre Travel (mm)	0.01/0.02		0.015/0.025	
Post Travel (mm) (Min)	0.07		0.07	
Tip Force (N) at Middle of Range ±20% Spring Push	0.7		0.7	
Temperature Coefficient %FS/°C	0.08		0.08	

Environmental

Sealing for Probe	IP50
Sealing for Probe Interface Electronics	IP43 for module and TCON
Storage Temperature (°C)	-20 to +80
Probe Operating Temperature with Gaiter (°C)	+5 to +80
Electronics Operating Temperature (°C)	0 to 60
EMC Emissions	EN61000-6-3
EMC Immunity	EN61000-6-2
Shock	Do not subject to excessive shock - follow instructions when installing and adjusting

Material

Probe Body	Steel
Probe Tip (options)	Ruby, Silicon Nitride, Tungsten Carbide
Gaiter	Fluoroelastomer
Cable	PUR
Electronics Module	ABS

Electronics Interface (Orbit@3)

Orbit@3 Interface Options	USB, Ethernet, RS232
Reading Rate	3906 readings per second
Bandwidth of Electronics (Hz) user selectable	460, 230, 115, 58, 29, 14, 7,4
Power	5±0.25 VDC @ 0.06A typical

Note 1: Accuracy 0.1 µm or % reading whichever greater

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Digital Lever Probe

Features

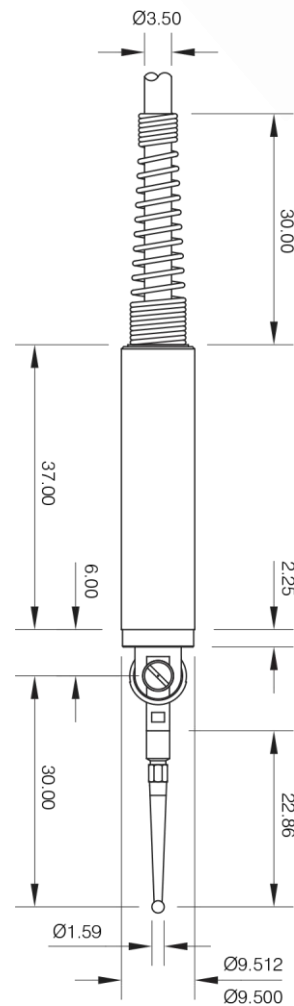
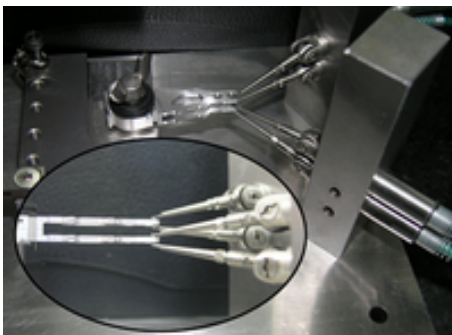
- Accuracy to **<2 μm (0.00004 in)**
- Excellent repeatability **0.05 μm (0.00010 in)**
- Measurement ranges **0.5 to 1 mm.**
- Uses **Orbit® 3** Digital Measurement System for
 - Fast data rates
 - Simple connectivity
 - Multiple sensors on one network
- Fully traceable calibration.

Description

Solartron's Digital Lever Probe has been conceived for the precision measurement market. The probe is ideally suited to applications where the use of axial measuring probes is not possible, and where a low tip force and a high number of probing points are required. Its simple design and exceptional reliability result in a reduced cost of ownership without any reduction in performance.

Due to its cylindrical housing geometry, the Lever Probe can be mounted in any attitude relative to the intended target. It can be mounted via the use of 8 mm peg or industry standard dovetail mounting blocks, or clamped directly into a 9.52 mm mounting hole.

With a measurement range of 500 microns and repeatability below 0.15 micron, the Digital Lever Probe can be easily integrated into measurement systems using Solartron's Orbit® 3 Network.



All dimensions are nominal only for accurate drawings download the correct Sales Application Drawing from the Solartron Metrology Website

www.solartronmetrology.com • sales.solartronmetrology@ametec.com