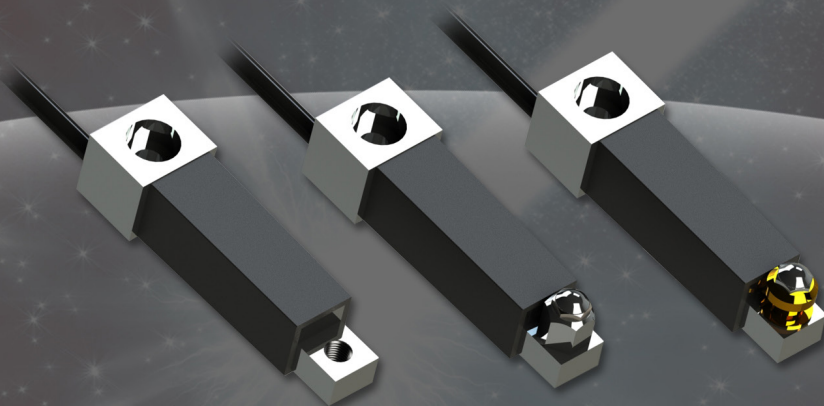




Solartron  
Metrology

## DUSM/05/S Miniature Single Leaf Flexure



user leaflet

**AMETEK**<sup>®</sup>  
ULTRA PRECISION TECHNOLOGIES

# 1.0: Safety Summary

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## Terms in this Manual

**WARNING** statements identify conditions or practices that could result in personal injury or loss of life.

**CAUTION** statements identify conditions or practices that could result in damage to the equipment or other property.

## Symbols in this manual



This symbol indicates where applicable cautionary or other information is to be found.

## WARNINGS:

### Do not operate in explosive atmosphere

To avoid explosion, do not operate this equipment in an explosive atmosphere.

### Air Pressure

Under no circumstances should the recommended maximum overpressure of 7 bar be exceeded when using pneumatics with the Flexure.

## NOTES:

### This equipment contains no user serviceable parts

This equipment must be returned to your Solartron dealer for all servicing and repair (see Return of Goods).

### Low Voltage

This equipment operates at below the SELV and is therefore outside the scope of the Low Voltage Directive.

## 2.0: Flexure Description

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**FOR DIMENSIONS SEE LATEST DRAWINGS ON WEBSITE**

### **Flexure Mounting**

Mounting of the gauge is facilitated by means of a single M2.5 screw.

Mounting of the contact tip is by either by an M3 self locking insert in the arm as detailed above or with Solartron's dedicated tip and tip adaptor.

The flexures may be mounted in close proximity - a minimum of 10 mm between centres – the width of the moving radius arm is manufactured to be smaller than the body to reduce the risk of contact with adjacent gauges.

To enable unhindered movement of the measurement arm, a recess not less than 0.5 mm deep should be included in the tool probe mounting fixture, directly below the arm.

Care must be observed whilst mounting the gauges not to stress the flexure hinge – handle only by the fixed body.

OEM tips may be fitted but it is advised that the height be limited to a maximum of 6 mm above gauge top surface.

## 2.0: Flexure Description

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### Contact Arm Attachment

The attachment of the contact arms (not supplied) must be undertaken carefully - so as not to stress the flexure hinge. Where possible it is better to attach the arms before mounting the gauge.

Arm length and mass is best kept to the absolute minimum to maintain the optimum results for accuracy and repeatability. A maximum length of 12 mm is advised.

On-axis stylus contact lift will prolong the life of the gauge and produce the best results, if this is not possible then lift must be kept to the absolute minimum.

The reference calibration distance from the centre of the flexure hinge to the outer arm attachment hole is 18 mm, the gauge is calibrated over 500 microns.

To enable direct reading of the gauge using extensions the use of a software multiplier will be necessary. By using a 12 mm extension, a range of 833 microns is achieved but a reading of only 500 microns is observed.

Tip contact force will also reduce in proportion.

## 3.0: Handling Instructions & Tip Installation

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The DUSM is a delicate Measuring Device handle with care.

To prevent damage to the flexure - Before Fitting of the tip.

1. Firmly hold the DUSM so that it is not stressed. Preferably mounting the sensor onto a rigid surface via the M2.5 attachment hole.
2. Screw the tip into the M3 insert which is self locking so a tightening torque is not applicable. Avoid twisting the sensor along its axis and avoid sharp objects which may puncture the rubber cover.

### Cable

To minimise sensor failure due to cable damage, cable runs should be positioned well clear of moving components and vulnerable working areas.

If the PUR cable is in a flex situation, then a minimum bend radius of 150 mm should be maintained. For Static situations a minimum bend radius of 5 mm is recommended.

If the cable is damaged it is not possible to repair without affecting the sensor calibration. The complete assembly (DUSM & PIE) must be replaced.

## 4.0: Introduction to Orbit®3

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The Digital Single Leaf Flexure is available as two product types: Orbit®3 Module and the Orbit® ACS Module.

The Digital Single Leaf Flexure is factory calibrated using a laser interferometer, the calibration data is then stored in the Orbit Module.

The Orbit®3 Digital Single Leaf Flexure can be combined with other Orbit® Products to form a fully comprehensive Orbit® Measurement System. - see Orbit®3 System Manual.

Orbit® ACS Modules feature a local display which shows probe readings and allow the configuration of the ACS module's I/O. Its Modbus interface can be used to connect easily to PLC systems.

Orbit®ACS SI200 Modules can be connected to a second Orbit®3 probe to form a dual channel system.

Specifications of Orbit products including performance and dimensional data, software, drivers and program examples can be found on the Solartron website at:

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

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

For Orbit® ACS products please visit:

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