

Application Story

Aerospace

Profile analysis of complex curves, such as airfoils, using Digital Probes



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The Product

The standard range of Digital Pneumatic Probes comes with an IP65 rating to ensure a long working life in wet or oily environments. In order to ensure the probe is totally sealed to IP65, actuation is achieved by pressurising the gaiter.

Range: 2 to 2 mm – Accuracy: Up to 0.05% of reading – Resolution: Up to 0.01 μ m – Repeatability: Up to 0.15 μ m.



The Challenge

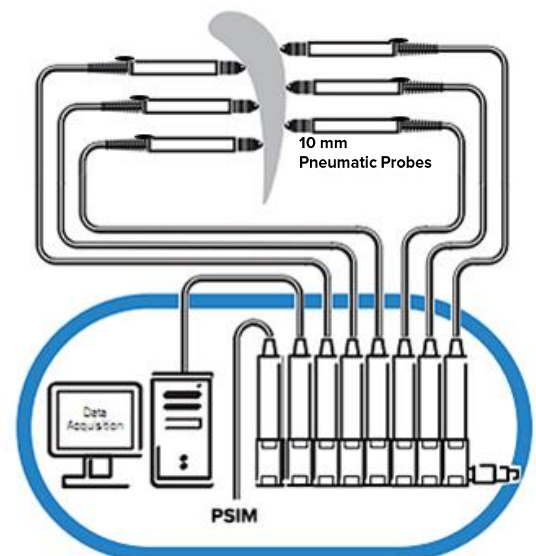
Although tolerance within the blades used on aircrafts are tight, the position of the blade can vary greatly in free space, leading to inaccurate readings at high volumes.

The Solution

Solartron's 10 mm Digital Pneumatic Probes are ideal for this application because they are linear along the full travel and can resolve up to <0.01 μ m. Pneumatic actuation of the probes enable the blades to be loaded into a fixture with a minimum number of moving parts. By reducing the complexity of the fixture, errors caused by moving parts can be reduced, leading to cost-efficiencies.

To determine the profile of a complex curve, the relationship of various measuring points need to be maintained. It is therefore important that all the readings are taken in the shortest possible time to minimise the possibility of calculation errors caused by movement during measurement taking. Using the Orbit[®] 3 Network to take up to 4,000 reading per second, per probe, ensures that this is no longer an issue.

An alternative solution would be to take 'snap shots' of the readings from all the probes and store them in buffered probes that are capable of storing 3,000 readings per probe.



Orbit[®] 3 Network example

United Kingdom - Head Office

Solartron Metrology
Steyning Way
Bognor Regis
West Sussex
PO22 9ST
Tel: +44 (0) 1243 833333
Fax: +44 (0) 1243 833322
Sales.solartronmetrology@ametek.com

France

Solartron Metrology
Rond-point de l'Espine des Champs
Buroplus - Bat. D
Elancourt 78990
Tel: +33 (0)1 30 68 89 50
Fax: +33 (0)1 30 68 89 59
france.solartronmetrology@ametek.com

Germany

Ametek GmbH
Solartron Metrology Division
Rudolf-Diesel-Strasse 16
40670 Meerbusch
Tel: +49 (0) 2159 9136 500
Fax: +49 (0) 2159 9136 505
vertrieb.solartron@ametek.de

Brazil

Ametek do Brasil, Ltda
Rod. Eng Ermenio de Oliveira Penteado, Km 57, SP75
Bairro Tombadouro
13337-300, Indaiatuba, SP, Brazil
Tel: +55 19 2107 4126

India

Ametek Instruments India Private Limited
1st Floor, Left Wing
Prestige Featherlite Tech Park
Plot #148, EPIP II Phase
Whitefield, Bengaluru 560 066
Karnataka, India
Tel: +91 80 6782 3200
Fax: +91 80 6782 3232

USA

Solartron Metrology
USA Central Sales Office
915 N.New Hope Road, Suite C
Gastonia, NC 28054
Tel: +1 800 873 5838
Fax: +1 704 868 8466
usasales.solartronmetrology@ametek.com

China

AMETEK Commercial Enterprise (Shanghai) Co. Ltd
No. 155 Puhui Road
Ju Ting Economic Development Zone
Shanghai 200131, China
Tel: +86 21 5763 2509
Fax: +86 21 5866 0969 Ext. 261/262
china.solartronmetrology@ametek.com



Solartron Metrology

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Offices worldwide
Agent and distributor details
available at
www.solartronmetrology.com



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