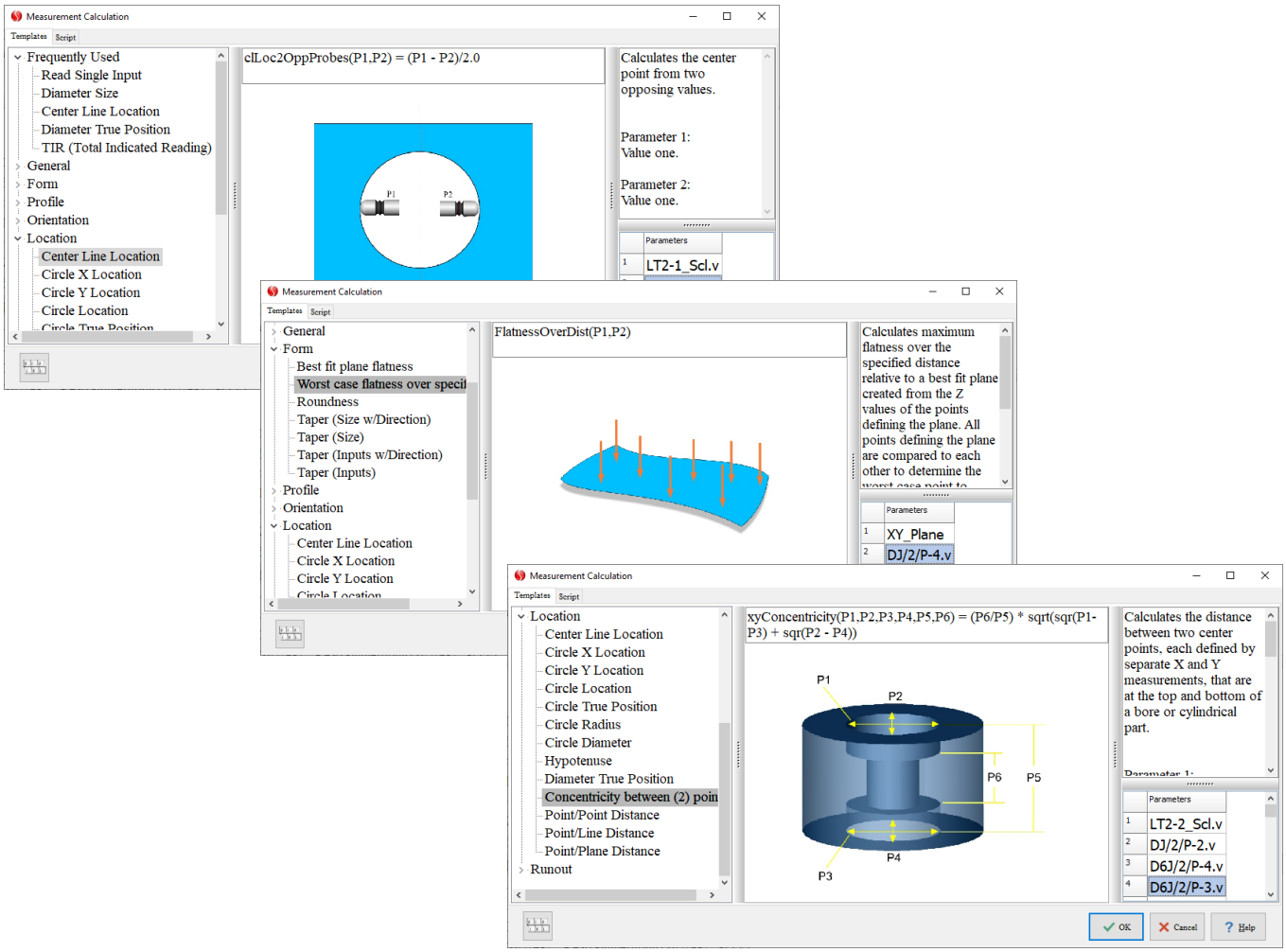
orbit®

Gauge Software 4.0

Solartron Metrology / AMETEK

Measurement Templates in OGS4.0



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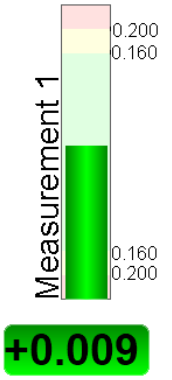
sales.solartronmetrology@ametek.com

MEASUREMENT/SCALED FIELD/INPUT DEFINITION

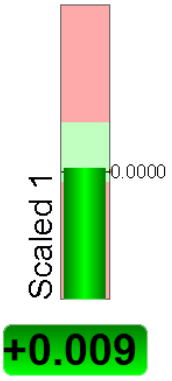
MEASUREMENT

Measurements define all items to be inspected on the part. Each measurement has several properties defining how its measured value should be interpreted including accept/reject limits. Orbit Gauge Software 4.0 DataCollect measurement will be created for each part print measurement that the gauge checks. Additional measurements may also be made that are used for calculation purpose only.



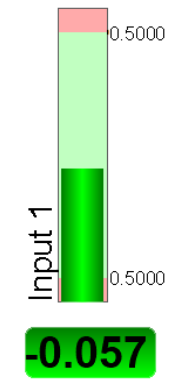
SCALED FIELD

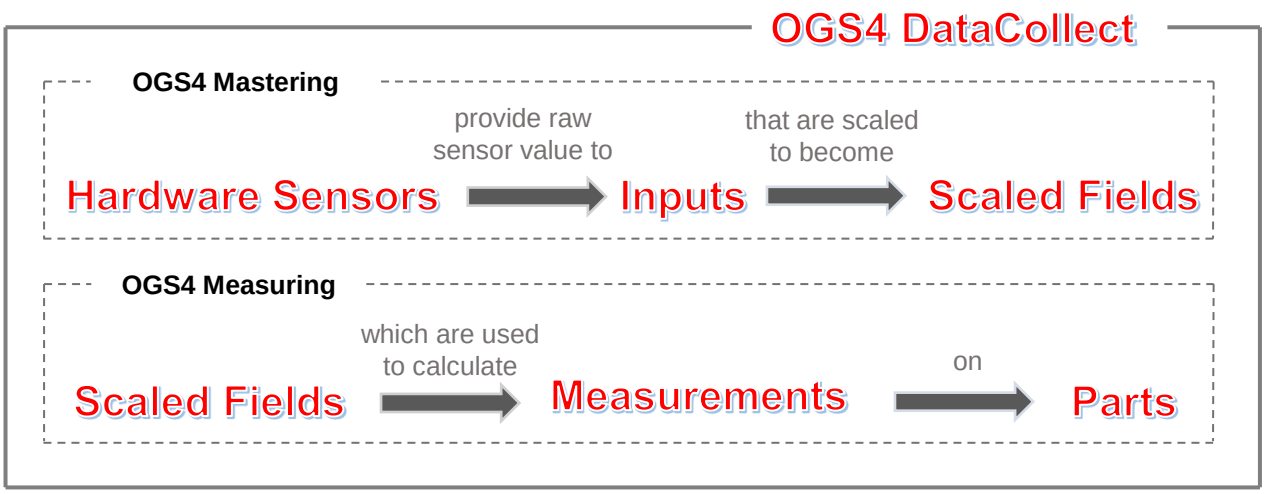
Scaled fields are the result of mastering inputs. They provide scaled results from inputs that are then used to calculate measurement results. Orbit Gauge Software 4 DataCollect creates 32 inputs and 32 scaled fields in a new setup with a one-to-one correlation between them. That is scaled field #1 represents input #1, scaled field #2 represents input #2, and so on. Note that it is not required or guaranteed that a one-to-one correlation will exist between scaled fields and inputs



INPUT

Orbit Gauge Software 4 DataCollect inputs provide the interface between scaled fields and support hardware. Scaled fields use input raw values to generate known scaled values for measurement calculations. Inputs are generic and all have the same properties. They are sourced to incoming hardware input values. Hardware inputs originate outside of Orbit Gauge Software 4 DataCollect in specialized programs that handle the specifics of each hardware manufacturer and then pass the hardware values to Orbit Gauge 4 DataCollect for assignment to inputs.





MEASUREMENT TEMPLATES

OGS4 functionality includes Measurement Calculation Templates which provide an easy way to define inspected part parameters without having to know all the math required for the measurement. All OGS4 packages use general math, form, profile, orientation, location measurement templates. Also, the software is designed to remember the most common frequently used templates to optimize user time spent to develop inspection sequence.

GENERAL TEMPLATES

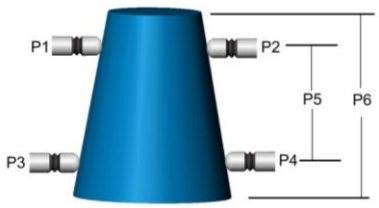
OGS4 General Measurement Templates created for basic math operations like addition, subtraction, multiplication, division, exponents, average, extreme and absolute values.

$$Avg([a_1,\ldots,a_n]) = \frac{1}{n}\sum_{i=1}^{n} a_i = \frac{a_1+a_2+\ldots+a_n}{n}$$

Rigorous attention focused on trigonometric and inverse trigonometric functions sine, cosine, tangent, cotangent, arcsine, arccosine, arctangent etc. Return values of operand can be in radians or in degrees.

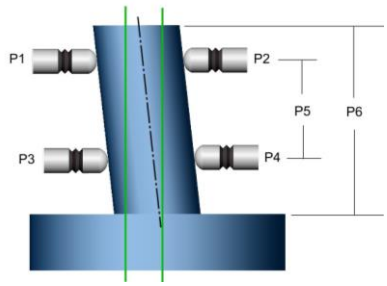
FORM AND PROFILE TEMPLATES

OGS4 Forms and Profile Templates are widely used in the most common applications. These templates are designed using the best practices in metrology. Each template has a full description of the selected template, it helps process engineers to fully define inspection part form or profile. The most common templates are best fit line or plane, roundness, taper etc. These templates are designed to simplify an applications required geometric form tolerance evaluation, straightness, flatness, circularity and cylindricity.



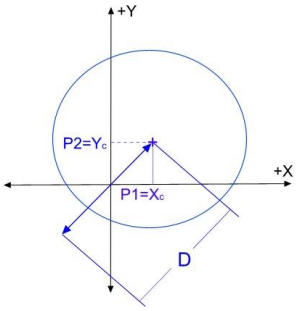
ORIENTATION TEMPLATES

OGS4 Orientation Templates are used to define axis perpendicularity, squareness, parallelism and angularity. For example, perpendicularity of a face to an axis established using inputs that are positioned along a bore or cylinder. These templates allow to calculate acute angle between two lines, line and a plane, between two planes of the inspected part. There is a Geometric Objects functionality built in the OGS4 which allows common geometric inspection objects to be created. This includes planes, lines and circles. Each object is created from a set of points which must be defined before the object can be defined. All points are cartesian (x,y,z) points in space.



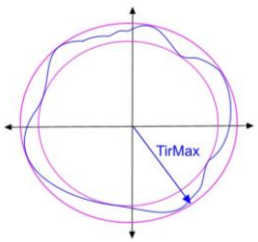
LOCATION TEMPLATES

OGS4 Location Templates designed to simplify the most common metrology challenges defining concentricity, true position and symmetry of the inspection part features. Templates in this section allow the user to define centre line location, circle true position, radius and diameter of the Best Fit Circuit (BFC). Also, allows the user to evaluate part concentricity between two centre points, calculate point to point distance, point to line distance, point to plane distance etc.



RUNOUT TEMPLATES

OGS4 Runout Templates designed to calculate Total Indication Reading (TIR) which returns extreme values seen during TIR measurement. Centre Line Runout calculates TIR of selected measurement to a dynamically established reference line.



Worldwide Sales Offices

UK Head Office and Factory

Solartron Metrology
Steyning Way
Bognor Regis
West Sussex
UK, PO22 9ST
Tel: +44 (0) 1243 833333
Email: sales.solartronmetrology@ametek.com

France

Ametek SAS
Solartron Metrology Division
Rond point de l'epine des champs
Buroplus Bat D
Elancourt
78990
France
Tel: +33 (0) 1 30 68 89 50
Email: Info.solartronmetrology@ametek.fr

Germany

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

China

Ametek Commercial Enterprise (Shanghai) Co., Ltd
Part A1, A4 2nd Floor
Building No 1, No 526 Fute
3rd Road East
Shanghai
Pilot Free Trade Zone
200131
China
Tel: +86 21 5763 2509
Email: china.solartronmetrology@ametek.com

USA

Solartron Metrology
915 N. New Hope Road, Suite C
Gastonia, NC 28054
Tel: +1 800 873 5838
Email: usasales.solartronmetrology@ametek.com

Japan

Ametek -Japan
Solartron Metrology Division
Tokyo Office
Shiba NBF Tower (1F, 3F)
1-1-30, Shiba Diamon Minato-Ku, Tokyo, Japan
(P.C.105-0012)
Tel: +81 03-4520-6654
Email: Mamoru.hasegawa@ametek.com

Solartron Metrology also carries an extensive network of sales agents in all major countries. For a local contact, go to www.solartronmetrology.com/contact or email at sales.solartronmetrology@ametek.com