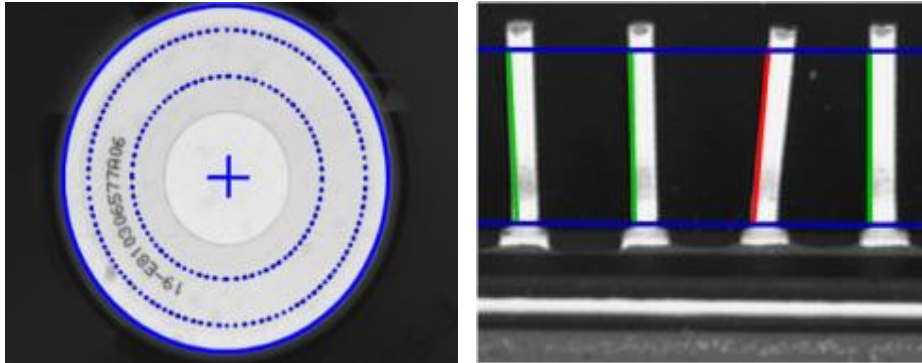


mvIMPACT Measure

To locate manufactured parts or to check their dimensions, such as thickness, radius or angle, gauging tools are used as virtual calipers. The mvIMPACT Measure module supports high accuracy gauging by performing sub-pixel measurements. Maximum precision is achieved by combining gray-level profile analysis and geometric model fitting techniques.



Part tracking for mark inspection and pin orientation control

Using mvIMPACT Measure is straightforward: place a search window around the desired object edge. Lines or circles are immediately located and measured. Goodness of the fit can be determined to assess straightness or circularity.

Efficient edge selection mechanisms are provided to handle complex environments where features are close to each other. Edges can also be detected in pairs of opposite polarities.

Main features

Control parameters

The search window can be horizontal, oblique or vertical for lines, rectangular for circles.

Edge discrimination parameters include polarity, steepness and contrast.

Results

The position of a line is returned as a passing point and a slope. The position of a circle is given by the center and radius.

In addition to these geometric parameters, the following indicators are provided: average polarity, steepness and contrast, as well as a fitting score. The latter allows to assess straightness or circularity.

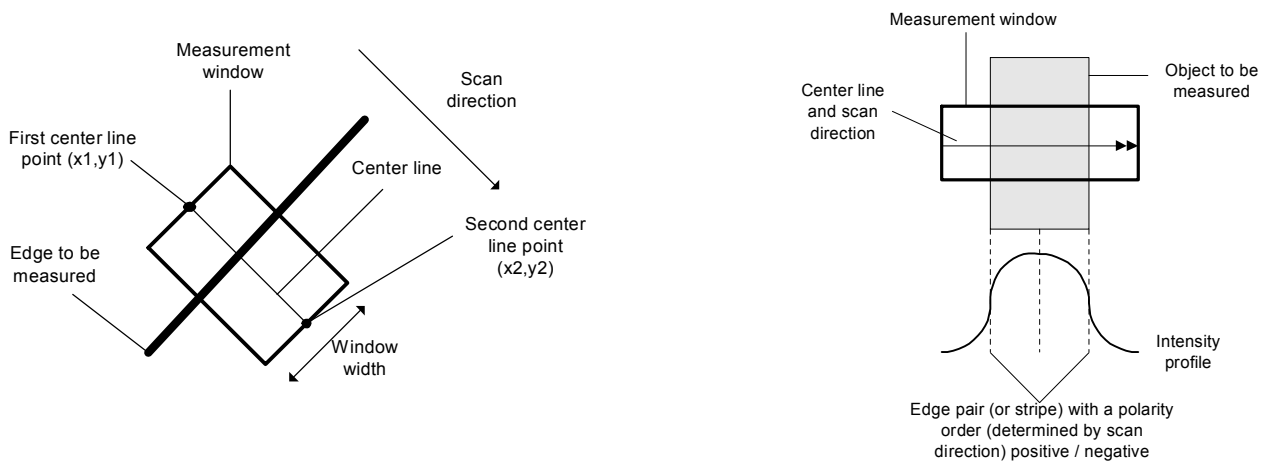
Calibrated coordinates

In addition to standard pixel-based parameter computation, calibrated coordinates can be used. This means that reference axis can be placed anywhere in the image, scale factors and rotation angle specified, to yield real-world measurements.

Working principles

Line measurement

A grey level profile is computed within the range of the measuring window. Sub-pixel peak analysis is then used for edge location.



Circle measurement

Edge pixels are located in the search window. After a filtering pass to remove outliers, the remaining points are fit to a circle by means of a least-squares approach. This guarantees efficient use of the available information, resulting in sub-pixel accuracy.

