

CmController 6 Expert



The CmC 6 is a universal measuring system for determining the positioning accuracy of SMT systems. Its use allows the accuracy behaviour of the production process to be analysed and optimised and the causes of errors to be detected early on. The expert level enables the experienced user to handle even more extensive inspection tasks. The system consists of the components listed below.

Base Unit

Dimensions (LxWxH): ca. 620 x 600 x 1420 mm

Operating height: 1200 mm

Weight: approx. 120 kg

Two-axis gantry system

Field of activity: approx. 290 x 210 mm

Max. Size of the measuring plate: approx. 350 x 240 mm

Manual measuring plate mounting by means of magnetic bars

Camera system with telecentric optics and an image field size of 6 x 5 mm

Transmitted-light illumination

Wheel system

Vision Software CmCVis2

Vision software for performing the measurement

- Highly accurate and robust correlation algorithms
- Improved angle measurement on chip components

Measurement Capability

The measuring accuracy is checked with a calibrated measuring plate of type MPL00 based on IPC 9850, which fulfils the requirements mentioned there regarding measuring instrument capability and reproducibility for the following process limits to be verified.

	Suitable Process Limits	
Measuring task	x/y [μm]	theta [$^{\circ}$]
TQFP100	10	0.20
0603 Chip	30	3.00
SOIC16	30	3.00



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Statistical Software CmCStat6.0 Expert

Used for planning, analysis and archiving of measurements.

Suitable for determining the positioning accuracy of the following SMT systems:

- Placement
- Screen printer
- Dispensers
- Laser labeling systems
- Routers

Guaranteed traceability of measurement results through documentation of the lines and machine configuration in a database

Individual test plan design with regular or free arrangement of the test points

Cluster layouts with multiple chip components in one measurement window to increase the measurement speed

Testing of individual machines or simultaneous testing of several machines in the same line with the same range of components and the same specification

Use of real and ideal SMT components¹ or glass dummies

IPC 9850 compatible test plans

Consideration of different head/nozzle/camera configurations for test planning and evaluation

Assistance in finding the causes of deviations

- Grouping of measured values with regard to affiliation e.g. to certain heads
- Extensive graphical representation of measured values
- Trend analyses

Simulation of corrections

Calculation of capability parameters according to the percentile method

Support of different distribution models

Easy creation of test reports in PDF format

Export of measured values as CSV and DFQ

Measuring Speed

The measuring speed depends largely on the underlying test layout. For this reason, the following information refers to the measurement with the MPL00, which is also used to prove the measuring instrument capability. For the test the vision software CmCVis2 is started and the measuring plate zero point is defined.

Test Plan	Procedure	Number of components	Measuring points in FOV ²	Measuring Time [min:sec]
TQFP100	Quadruple measurement	12	1	< 3:00
Chip Cluster	Quadruple measurement (Wide-Field-of-View)	128	16	< 2:00
Theta Chip	Quadruple measurement (Wide-Field-of-View)	56	1	< 3:00
Theta Chip	Quadruple measurement (Narrow-Field-of-View)	56	1	< 4:30

¹ Pin geometry needs to match the glass board

² Field of View



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