MCA II Articulated arms
Portable productivity

NIKON METROLOGY | VISION BEYOND PRECISION

Accuracy, usability, and portability

The MCA II, Manual Coordinate measuring Arm, is a precise, reliable and comfortable portable measuring system available in a 6- or 7-axis version. Its wireless operation and battery power make it feel perfectly at home in the metrology lab, on the shopfloor and in the field.

The MCA II can be equipped with a wide range of probing systems for laser scanning, touch trigger measurements and continuous scanning. Its flexibility makes this measurement arm the perfect partner for a wide range of measurement tasks.

Accuracy first

- Accuracy certified according to ASME B89 standard
- MCA II+ series (6-axis) for unsurpassed top accuracy

Measure anywere

- True portable system thanks to lightweight carbon fiber and aluminum alloy components
- Wireless operation using internal battery and WiFi data communication

Ergonomic design

- Patented infinite rotation for effortless measurements
- Quick and repatable change of probes thanks to the TESA kinematic joint adaptor
- Ergonomic wrist, incorporating tactile selection buttons

Maximum up-time

- "In the field" system verification with a NIST-traceable calibrated length standard with every arm
- Automatic probe recognition to easily change probes

6-axis MCA II

Advanced carbon fiber arm tubes are strong, lightweight, thermally stable and feature a lifetime warranty

An improved, low-profile zero-G counterbalance reduces operator fatigue and delivers effortless control in all positions

The universal mounting system attaches to a variety of bases, including a magnetic mount

An 802.11g WIFI connection allows the operator to position the computer where it is most convenient. A Li-Ion battery allows on-site inspection without AC power or cables.

… with flexible probing options

Patented infinite rotation of principle axes allows inspection in difficult-to-reach areas.

Heidenhain encoders, offer "wide-track" bearing support that enhances performance.

Rotating grips at elbow and forearm provide low friction grip positions for better ergonomics.

7-axis MCA II

Automatic probe recognition make it easy to switch between different probes on 6 and 7-axis MCA II

MMDx /MMC Laser scanner

The ModelMaker MMDx digital laser scanner featuring ESP3 scans any material and provides a detailed digital representation of the test object in minimum time. It is ideally suited for part-to-CAD comparison, inspection of soft or fragile components and reverse engineering.

- Choice between 50mm 100mm and 200mm (MMDx) or 40, 80,160mm (MMC) stripe widths
- Seamless integration with Focus point cloud software and other 3rd party software packages

A variety of touch trigger probes

MCA II supports a wide varity of touch trigger probes. Featuring "Automatic probe recognition" an operator can change a probe during a work session and the inspection software identifies the "plug and measure" probes automatically and without recalibration.
The MCA II comes with precalibrated tips, so even new tips can be used immediately.

Specifications

Model	Measuring range	Point repeatablility[1]		Volume Length Accuracy[2]		Arm weight	
MCA II 7-axis	1.8m (6ft)	0.024mm	0.0009in	0.035mm	0.0014in	9.6kg	17.8lbs
	2.4m (8ft)	0.028mm	0.0011in	0.040mm	0.0016in	8.3kg	18.4lbs
	2.8m (9ft)	0.045mm	0.0018in	0.064mm	0.0025in	8.3kg	18.8lbs
	3.0m (10ft)	0.050mm	0.0020in	0.071mm	0.0028in	8.9kg	19.5lbs
	3.6m (12ft)	0.070mm	0.0028in	0.100mm	0.0040in	9.1kg	20.1lbs
MCA II 6-axis	1.8m (6ft)	0.016mm	0.0006in	0.023mm	0.0009in	7.6kg	16.7lbs
	2.4m (8ft)	0.020mm	0.0008in	0.029mm	0.0011in	7.8kg	17.2lbs
	2.8m (9ft)	0.029mm	0.0011in	0.041mm	0.0016in	8.0kg	17.6lbs
	3.0m (10ft)	0.034mm	0.0013in	0.050mm	0.0020in	8.2kg	18.1lbs
	3.6m (12ft)	0.050mm	0.0020in	0.068mm	0.0027in	8.7kg	19.0lbs
MCA II+ 6-axis	2.4m (8ft)	0.017mm	0.0007in	0.025mm	0.0010in	7.8kg	17.2lbs
	3.6m (12ft)	0.043mm	0.0017in	0.058mm	0.0023in	8.7kg	19.0lbs

[1] *Point Repeatability Test (also known as Single Point Articulation Test, or S.P.A.T.): Results analyzed via Range/2 method. The probe is placed within a trihedral seat or conical socket, and individual points are measured from multiple approach angles with maximum articulation of all of the principal joints. Each individual point measurement is analyzed as a range of deviations about the average value for the point locations. Thistest is to assess the arm's ability to provide similar values of a point coordinate, when the arm is articulated through the maximum possible range of motion for that single point. Accuracies are certified according to ASME B89.4.22 standard.*

[2] *Volumetric Length Accuracy Test (Volumetric Performance Test): Results analyzed via Range/2 method.Volumetric Length Accuracy is determined by using certified length standards (included with all arms) that are measured at various locations and orientations throughout the measuring volume. This test most accurately represents the reasonable expectations for machine performance in practical measuring applications. The Volumetric Length Accuracy Test is the most appropriate test for determining machine accuracy andrepeatability since it involves measuring a certified length standard many times in several locations and orientations and compares the resultant measurements to the actual length. Accuracies are certified according to B89.4.22 standard.*

General conditions

Operating temperature range: 0°C to 46°C (32°F to 115°F)
Humidity: 5% - 95% noncondensing
Vibration: (55 to 2000Hz): < 100 ms/s^2
Shock & Impact: 6ms, <1000 ms/s^2
Power requirement: Universal worldwide voltage 110-240V
Certification: CE compliant

MCA II_EN_0510 – Copyright Nikon Metrology NV 2010. All rights reserved. The materials presented here are summary in nature, subject to change and intended for general information only.

NIKON METROLOGY NV
Geldenaaksebaan 329
B-3001 Leuven, Belgium
phone: +32 16 74 01 00 fax: +32 16 74 01 03
info@nikonmetrology.com

NIKON CORPORATION
Shin-Yurakucho Bldg., 12-1, Yurakucho 1-chome
Chiyoda-ku, Tokyo 100-8331 Japan
phone: +81 3 3773 9026 fax: +81 3 3773 9062
www.nikon-instruments.jp/eng/

NIKON METROLOGY EUROPE NV
tel. +32 16 74 01 01
sales_europe@nikonmetrology.com

NIKON METROLOGY GMBH
tel. +49 6023 91733-0
sales_germany@nikonmetrology.com

NIKON METROLOGY SARL
tel. +33 1 60 86 09 76
sales_france@nikonmetrology.com

NIKON METROLOGY, INC.
tel. +1 810 2204360
sales_us@nikonmetrology.com
us.nikonmetrology.com
www.nikoninstruments.com

NIKON METROLOGY UK LTD.
tel. +44 1332 811349
sales_uk@nikonmetrology.com

NIKON INSTRUMENTS (SHANGHAI) CO. LTD.
tel. +86 21 5836 0050
tel. +86 10 5869 2255 (Beijing office)
tel. +86 20 3882 0550 (Guangzhou office)

NIKON SINGAPORE PTE. LTD.
tel. +65 6559 3618

NIKON MALAYSIA SDN. BHD.
tel. +60 3 7809 3609

NIKON INSTRUMENTS KOREA CO. LTD.
tel. +82 2 2186 8400

More offices and resellers at **www.nikonmetrology.com**