

## DUO

*Dual camera electro-optical portable coordinate measuring system*

- **Portable 3D measurements**
- **Extremely accurate**
- **Best-in-class price/performance**
- **Easy to use**
- **Light-weight - 17 kg**
- **Ideal for rough environments**



DUO is the top-of-range portable CMM system utilising Metronor's patented principle for electro optical coordinate measurements. DUO combines large volume and increased accuracy with the widest range of applications.

Extremely portable – the complete systems comes in a single, rollaway transport case weighing only 30 kilos (66 lbs) – DUO provides high-end coordinate measuring capability anywhere in the production process.

Using two cameras and a hand-held, wireless probe, DUO provides the capability to study any geometry-related issue in detail – compare tools, parts and assemblies to CAD or blue-print, use the LED application kit option to efficiently study stability, deformation and process repeatability, or take the system to the supplier or customer to investigate problems with interfacing parts. DUO also supports efficient alignment of objects in position and orientation (6DOF) for example in tool building or jig-less assembly.

DUO - like all Metronor systems - is designed for use in rough shop floor environments and exhibits industry-leading reliability and availability.

### APPLICATIONS INCLUDE:

- Jig-less tooling
- Reverse engineering
- Prototyping
- As built documentation
- Tool and die inspection
- In-process inspection
- On-machine inspection
- Fixture inspection
- Deformation analysis
- Large assembly measurement
- Assembly alignment - in position and orientation
- Excess material verification in casting/forging
- On-machine alignment of parts for milling/machining
- Process repeatability verification
- Root cause analysis – check tool, parts, variation and interference in single session
- Tool building
- Tool certification

## Technical Specifications

*DUO*

### RANGE

Distance from sensors 1.5 - 15 m (5 - 50')

### ACCURACY

**U95 distance measurement accuracy** 0.025 + L/60000 mm

### ENVIRONMENT

Operating Temperature 10 to 45°C (32 to 113°F)  
 Storage Temperature -25 to 65°C (-13 to 150°F)  
 Operating Humidity < 95% relative humidity, non-condensing  
 Pressure, Humidity, Temperature No effect on measurement accuracy  
 Vibration Stability Control (option) 0 - 100 Hz, < 3 mm amplitude  
 No warm-up

### ELECTRICAL POWER

Auto switching (Battery operation optional) 100-240 V AC, 50-60 Hz

### PACKAGING

System weight (excl. cases) 17 kg (38 lbs)  
 Shipping weight 30 kg (66 lbs)

### COMPUTING UNIT

Type High performance laptop, Windows XP

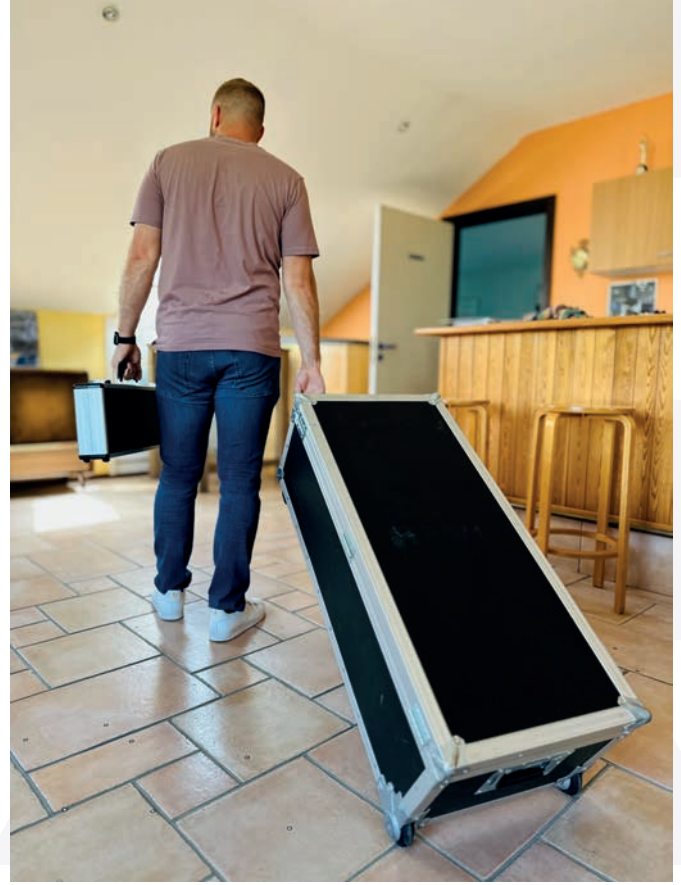
### SENSOR UNIT (2 INCL.)

Type CCD-based digital camera  
 Optical settings Fixed aperture and focus, factory optimized  
 Field of View 38° x 32°  
 Effective Resolution 640,000 x 512,000  
 Unit Net weight 0,80 kg (2 lbs)

### PROBING UNIT

Type Wireless Handheld, with quick-change styli  
 Material Carbon fibre w/embedded active targets  
 Styli User configurable set of 7 w/ titanium extensions/angles  
 Styli type Ruby spheres (incl.), scribe tip (incl.), edge styli (opt.)  
 Hidden point capability 600 mm (24") - longer with optional probes  
 Unit Net weight 0.52 kg (1.2 lbs)

## Rollaway transport case weighing only 30 kilos





Metronor assembly









Light pen 890 mm



Light pen 550 mm









- Styli kit
- Styli box
- Calibration cylinder

## Reference Bar



