

LASER RADAR MV260

DATA SHEET



METRIS

Reliable and Innovative Metrology Solutions



PRODUCT DESCRIPTION

The Metris Laser Radar is an optical measurement system that provides a fully automated, non-contact measurement and inspection capability for large-volume applications of up to 60 meters with metrology accuracy.

KEY BENEFITS

- High measurement throughput
- Lower resource costs
 - One man operation
 - Reduced fixed tooling requirements
- Portable system enables on-site measurements
- Minimum set-up time
- High accuracy measurements
- Enables difficult or previously impossible metrology jobs

KEY FEATURES

- Non-contact: no photogrammetry dots, reflectors, or probes
- Very large measurement volume: up to 60m range
- Expanded line-of-sight around & behind objects using mirrors
- Laser line scanning and single point CMM measurements
- Stand-alone system or part of an integrated inspection system
- Integration of multiple laser radars in one measurement set-up

- Rapid data collection: up to 1,000 points/sec
- Patented coherent laser radar technology
- Flexible: uses standard CAD-based inspection software
- Automatable: script measurement tasks & report generation

SYSTEM CONTENTS

Laser Radar MV260 system contains:

- MV 260 scanner unit
- Stand assembly
- Cabling (9m)
- Compensation kit
- Accessory kit
- *Workstation / Power cabinet, includes:
 - **Power supply (120V or 230V)
 - Computer
 - Printer

DS-MV260-0307

*WORKSTATION / POWER CABINET

Laser Radar is available with a Workstation or Power Cabinet, selection to be made at point of order:

Workstation:

- Dimensions: (H.W.D) 751 x 914 x 610mm
- Weight: 119kg
- Contains: Power supply, Desktop computer, 19" flat screen, HP Deskjet printer



Power Cabinet:

- Dimensions: (H.W.D) 841 x 557 x 762mm
- Weight: : 120kg
- Contains: Power supply, Laptop computer, two accessory drawers
- (Optional): HP Inkjet printer, 50 ft connection for remote operation



**120V OR 230V

The Laser Radar systems is available in 120V or 230V variants, to be selected at point of order.

TECHNICAL SPECIFICATIONS

SINGLE POINT 3D MEASUREMENT UNCERTAINTY (2 σ)*

| Range | | $\angle Az$ | $\angle EI$ | Range | 3D Uncertainty | |
|-------|-------|----------------|----------------|-----------------------------|----------------|--------|
| m | ft | 6.8 μm /m | 6.8 μm /m | 10 μm + 2.5 μm /m | μm | Inches |
| 1 | 3.3 | 6.8 | 6.8 | 12.5 | 16 | 0.0006 |
| 2 | 6.6 | 13.6 | 13.6 | 15.0 | 24 | 0.0010 |
| 5 | 16.4 | 34.0 | 34.0 | 22.5 | 53 | 0.0021 |
| 10 | 32.8 | 68.0 | 68.0 | 35.0 | 102 | 0.0040 |
| 15 | 49.2 | 102.0 | 102.0 | 47.5 | 152 | 0.0060 |
| 20 | 65.6 | 136.0 | 136.0 | 60.0 | 201 | 0.0079 |
| 24 | 78.7 | 163.2 | 163.2 | 70.0 | 241 | 0.0095 |
| 60 | 196.8 | 408.0 | 408.0 | 160 | 599 | 0.024 |

* Tooling ball target grade 25 or less

* MV2260 must be calibrated and operate in a stable environment

FIELD OF VIEW

- Azimuth 360°
- Elevation $\pm 45^\circ$
- Operating range 1 – 60 m (3.3 – 196.8 ft)

SURFACE SCANS

| Measurement mode | Rate (pts/sec) | |
|-------------------------|----------------|-------|
| | Typical | Max |
| Vision scan | 125 – 500 | 1,000 |
| Metrology scan | 1 | 4 |
| Enhanced metrology scan | 0.5 | 1 |

FEATURE/TARGET MEASUREMENT CAPABILITIES

- Tooling ball (center point)
- Surface patch (surface normal vector at measurement point)
- Surface/Vector intersection (real & nominal surface difference)
- Section cut (points where part & section planes intersect)
- Trihedral (coordinate frame reference)
- Retro reflector (center point)
- Hole (center point, radius, hole orientation)
- Edge (point)

System performance can vary and is affected by user-selected settings, material, range, surface geometry, and environmental conditions.

ENVIRONMENTAL CONDITIONS

| Temperature | |
|---------------------------|---------------------------------------|
| Operational | 5° to 40°C (41° to 104°F) |
| Storage | -10° to 60°C (14° to 140°F) |
| Altitude | |
| Operational | -400 to 3,000 m (-1,312 to 9,843 ft) |
| Storage | -400 to 7,000 m (-1,312 to 22,966 ft) |
| Humidity | |
| 10 - 90% (non-condensing) | |

ELECTRICAL REQUIREMENTS

System/UPS†

- 85 -130 VAC, 50/60Hz, 10A max
- 165 - 270 VAC, 50/60Hz, 5A max

†Unit specification set at time of order

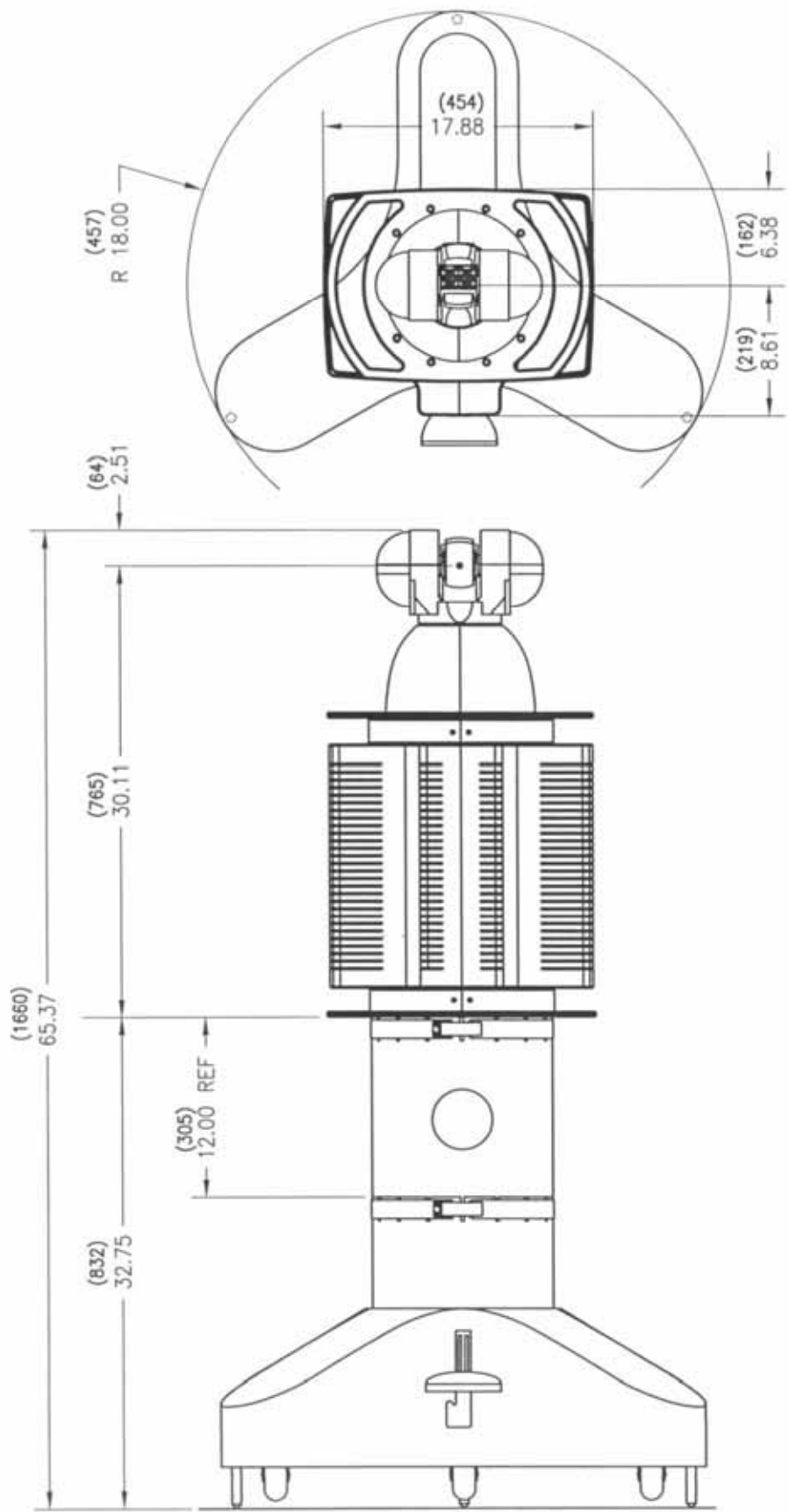
†Requires 3 prong (Hot, Neutral, Ground) power interface

OTHER FEATURES

- Integrated bore-sight video camera
- Red pointing laser (Class II)
- Point and click video interface control of scanner
- Expanded line-of-sight around and behind objects using mirrors
- Environmental compensation (temperature, humidity, pressure)

DIMENSIONS AND WEIGHTS

| | W x D x H mm (in) | Weight kg (lbs) |
|------------------|--------------------------------|--------------------|
| Workstation | 914 (36) x 610 (24) x 751 (30) | 119 (262) |
| Power Cabinet | 557 (22) x 762 (30) x 841 (33) | 120 (265) |
| Scanner | 454 (18) x 381 (15) x 829 (33) | 40 (88) |
| Stand | 914 dia (36) x 510 (20) | 21 (46) |
| Height extension | 305 (12) | 2.1 (4.6) |



SA TO METROLOG COMPARISON

| | Spatial Analyzer | Metrolog |
|---------------------------|---|---|
| Targets | Surface points | Surface points |
| | Area scan metrology (vision/metrology) | Limited line scans |
| | Surface vector intersection | Edge scan |
| | Perimeter scan (vision/metrology) | Tooling ball |
| | Line scan (vision/metrology) | |
| | Hole | |
| | Edge | |
| | Surface patch | |
| | Section cut | |
| | Trihedral | |
| | Photogrammetry targets | |
| | Track tape | |
| Tooling ball | | |
| Speed of operation | Scan up to 1000 points/sec | Tooling ball/Surface point: normal |
| | Realistic scan rate of 50-100 Hz | Edge scan: slow |
| Quality interface | Everything you need and more. | Basic |
| | Engineering tool | Simpler usability |
| | Multiple windows on screen | More operator minded |
| | Measurement plans require some knowledge and are not very intuitive | Very easy scripting |
| | Interface is more complex due to increased capabilities, becoming more intuitive | Only essential information on screen |
| Summary | Best integrated software for Laser Radar. All the possibilities of the device are used and controlled | Smaller subset of integrated Laser Radar functionality/capability, speed of measurement is low and hard to adjust |
| | Engineering tool, more training needed, less intuitive | Operator tool, very intuitive |

DS-1MV260-0703

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