Laser Radar

Super-fast measurements of features and surfaces without compromising on accuracy, offering automatable measurements where you need them

AUTOMATED, NON-CONTACT MEASUREMENT

APDIS MV5X

Small, fast, accurate

Designed for portability, automation, speed and accuracy, the MV5X utilizes state of the art solid state electronics coupled with Nikon's extensive experience with optics and Laser Radar technology to create a groundbreaking metrology system.

NON-CONTACT, LASER MEASUREMENT

Direct surface measurements without probes, targets or surface preparation

FAST, PRECISE MEASUREMENT

Precision control of laser beam for fast feature measurement; high data rate for fast scanning

LIGHTWEIGHT AND PORTABLE

<12kg, <370mm tall, easy to move and install where needed

AUTOMATION ANYWHERE

Whether portable or integrated, measurements can be fully automated, removing operator variation and simplifying measurement routines

REDUCE MEASUREMENT TIME

Automate measurement routines, scan surfaces or measure features quickly and efficiently

REDUCE PRODUCTION DOWNTIME

Better data, faster for better decisions

MAXIMIZE ROI

Reduce scrap and rework and optimize your process earlier saving time and money

QUALITY CONTROL WHERE YOU NEED IT

Decentralize your metrology, putting measurements into production

TAKE THE MEASUREMENT TO THE PART

Measure parts in situ without needing a dedicated area, optimizing floorspace

TRACEABLE ACCURACY

Absolute accuracy measurement

REAL TIME PROCESS CONTROL

In-line integration for feedback and feedforward

FLEXIBLE DEPLOYMENT

Portable, robot mounted, fixed, shop floor or metrology room

CONSISTENT RESULTS, THROUGHOUT THE FACTORY

Same device, same measurements, multiple deployments

Inspect, analyze, improve

Weighing less than 12kg, the MV5X can be easily utilized as a portable measurement device or integrated into measurement cells providing accurate, non-contact, automated measurements wherever you need them.

The same system can be used in different environments, from the metrology room to the production line, ensuring consistent measurements throughout your entire manufacturing process.

Simplify operation through the use of standard software interfaces such as Metrolog, Polyworks and Spatial Analyzer.

A RANGE OF INDUSTRIES AND APPLICATIONS

Measure detail at distance, without the need for handheld probes, targets or surface preparation allowing for the automation of repetitive inspection tasks covering a huge range of manufacturing, industrial and research applications, including those that involve hard to reach features and are complex, delicate or labor intensive.

AUTOMOTIVE

AEROSPACE

SPACE

ENERGY

MANUFACTURING

Portable operation

SAFE, SIMPLE, SMALL

The MV5X is compact and lightweight, providing the flexibility to perform site-specific measurements where you need them.

Minimal Setup

- Reduce production downtime by investigating problems quickly
- Setup fixturing and products faster
- Utilize semi-automated inspection routines with minimal setup and minimal expertise
- Deskill complex measurement processes with just a few button clicks.

Remote and Safe

- No probes, targets, adapters or coatings required
- Measure remotely and safely without the need for an operator to go near the part
- Slash inspection times compared to other manual devices such as laser trackers.

Fast and Accurate

- Measure features, or scan surfaces with a high data rate and precision beam control
- Fast inspections or more detailed investigations as required
- A truly flexible portable quality control solution.

Advantages

- Single person setup and operation
- Manual or semi-automated measurements
- De-skill with pre-defined guided routines
- No probes, measure remotely and safely
- Faster measurements, reduced downtime

Integrated operation

AUTOMATED, FLEXIBLE, PRECISE

The MV5X achieves high-precision, absolute, high speed, in-line measurement, enhancing the quality of the manufacturing process.

Automation, anywhere

- Lightweight, compact design
- Standard mounting options
- Easy integration into measurement cell
- IP54, 5-50°C temperature range
- Industrialized cabling and power supply
- Metrology room, shop floor or directly in-line
- Fast, accurate, traceable measurements

Process Optimization

- Measure fully automatically
- Measure features quickly and efficiently within cycle time
- Large measurement volume and field of view
- More data in less time
- Faster process optimization
- Improved quality control
- Reduced scrap and rework

Flexible and safe

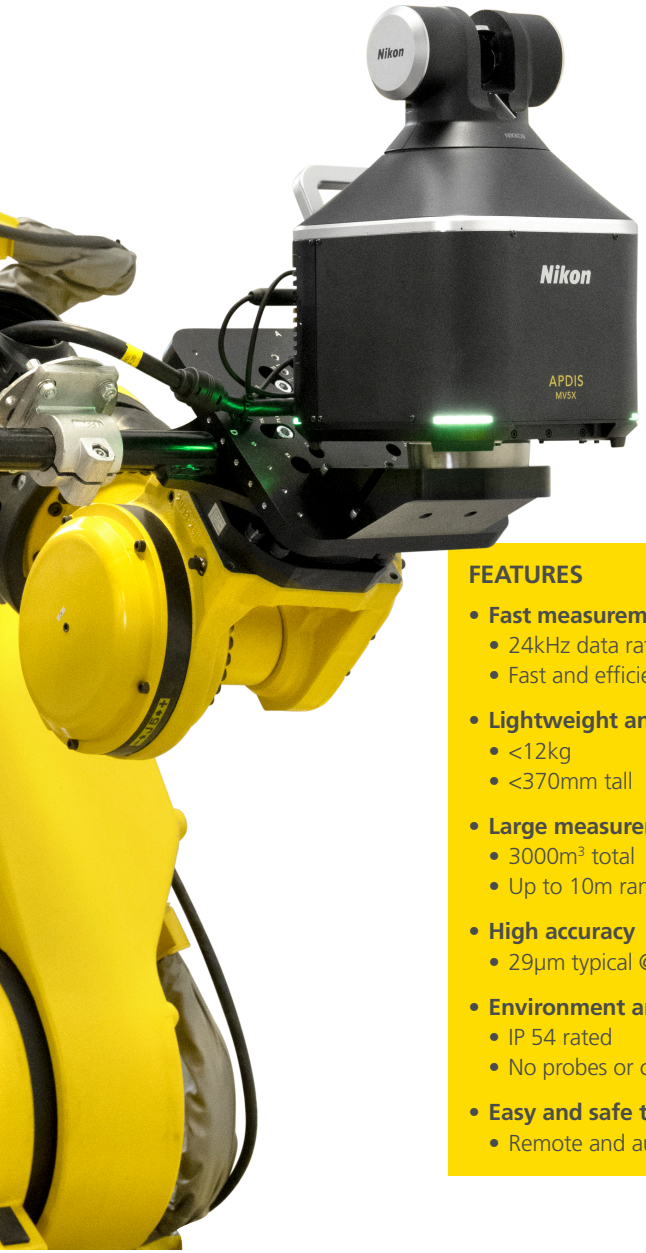
- Easily mount to robot, rail or manipulator
- Measure from multiple positions in any orientation for enhanced feature coverage
- Maintain highly accurate and repeatable measurements
- Non-contact, no adapters and long range for safe measurements and no part damage

Whether measuring features, or scanning surfaces, the MV5X Laser Radar's high data rate allows for 100% inspection or more detailed investigations as required for a truly flexible process and quality control solution.

Advantages

- Super-fast, fully automated measurements
- Absolute accuracy, direct feature and surface measurement - no probes, no adapters
- Large measurement volume allows minimal positions and simple robot programs
- Use a variety of robots with standard mounting options
- Better data, improved quality, less waste

MV5X - Small but powerful



FEATURES

- **Fast measurement**
  - 24kHz data rate
  - Fast and efficient feature measurement
- **Lightweight and compact**
  - <12kg
  - <370mm tall
- **Large measurement volume**
  - 3000m³ total
  - Up to 10m range
- **High accuracy**
  - 29µm typical @ 2m
- **Environment and surface neutral**
  - IP 54 rated
  - No probes or coatings
- **Easy and safe to use**
  - Remote and automated operation

LASERS AND MIRRORS

The APDIS Laser Radar takes direct surface measurements of an object by using a mirror to move a focused infrared laser beam.

Range to the object is determined through heterodyne interferometry of the Laser meaning high accuracy even with extremely small surface reflection allowing for precision measurements on almost any surface.

PRECISION CONTROL, FOCUSED PERFORMANCE

Unlike other scanning systems, the MV5X can move the laser beam in a wide range of patterns and directions allowing for optimized scan paths over features or surfaces reducing the size of data sets and reducing measurement time.

By employing Nikon optics to focus the beam down to a small spot size, edges and features can be measured accurately.

THE ORIGINAL LASER RADAR, ONLY FROM NIKON

- The MV5X is the newest member of the APDIS Laser Radar family, building on over 25 years of metrology, electronics and optics experience
- This latest generation of Laser Radar follows on from Nikon's commitment to continually improve the technology based on customers' needs, delivering a smaller and faster system without compromising on accuracy

Proven Technology, Proven Performance. Accept No Imitations

Specifications

GENERAL

	MV5X
Data Rate	24000 Hz
Measurement Speed*	6000 pts/s scanning
Measurement Volume	~3,000m³
Laser Safety	IEC Class I (IR)
Optics	NIKKOR
Weight	<12kg
Dimensions (W, D, H)	228mm x 228mm x 365mm

*Exact speed depends on settings.

ENVIRONMENTAL

	MV5X
Operating Temperature	5°C to 50°C
Ambient Light	Insensitive to Ambient Light
Ingress Protection	IP54

ACCURACY

	MV5X
Range[1]	20µm + 5µm/m
Length Accuracy[1]	~20µm + 19µm/m
Scanning[2]	<30µm

1 Accuracy given as Maximum Permissible Error (MPE) in accordance with ASME B89.4.19 – 2006 verified in vertical orientation at 20°C. Typical accuracy shown is half MPE. Approximation shown

2 Scanning accuracy standard deviation (1σ) of best fit plane from 1 to 10m on flat reference plate

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