

DEPTH AND AI SENSOR MODULES

M4.5 SERIES OF SENSOR MODULES



KEY FEATURES

Built around the NU4000 and NU4100 Vision-on-Chip processors, Inuitive's M4.5 series of sensor modules easily integrate into robotic and other edge-AI vision systems, providing them with a human-like visual perception. The M4.5 series combines depth sensing and AI-enabled image processing to address challenges of Autonomous Mobile Robots (AMR), robotic arms and face recognition applications.

The M4.5, engineered for easy adoption, superior power efficiency, and best-in-class performance, offers a robust depth sensor platform that accelerates time-to-market for commercial and industrial robotic systems, as well as access control applications.

Registered
Depth and RGB

Sensing range
(16 cm - 3 m)

Small size and easy to adopt
(90,25,25 mm)

High ambient temperature
up to 50C°

On-chip AI
processing core

VISUAL PERCEPTION REDEFINED

M4.5-SCAN/M4.51-SCAN

High Accuracy (0.7%)

Designed for

- Bin picking
- Robotic Arm
- COBOT (collaborative robot)

M4.5S/M4.51S

Wide field of view

Designed for

- AMR
- AGV
- Service robots

M4.5-DIF

Interleaved depth and monochrome streams

Designed for

- AMR/ Service robots
- April TAG reading from a global shutter camera
- Face recognition

KEY PARAMETERS

GENERAL PARAMETERS

Parameter	Value
Module size – XYZ	90,25,25 mm
Operating temperature range (tested on case; with airflow)	0-50°C

DEPTH IMAGE GENERATION

Parameter	M4.5S/ M4.5IS/ M4.5-DIF	M4.5-SCAN/ M4.5I-SCAN
Sensor	ams Mira 130	
Baseline	48 mm	
Full Resolution	1080x720	1080x1280
Binning Resolution	540x360	N/A
Hybrid Resolution	848x480	N/A
IR Filter	850nm	940nm
FOV (Calibrated) [HxV]	91°x68°	59°x68°
Min Sensing Range, Full Mod 16cm	30 cm; can be modified	
Max Sensing Range	3 m	
Depth Accuracy	1% at 1m	0.7% at 1m

AI PERFORMANCE

Performance	M4.5S/ M4.5-DIF/ M4.5-SCAN	M4.5IS/ M4.5I-SCAN
Processing power	1.8 TOPs	3.5 TOPs
Yolo V3	12 fps	40 fps
Yolo V7x	N/A	9 fps
Mobilenet SSD	60 fps	150 fps

RGB

Parameter	M4.5S/M4.5-SCAN	M4.5IS/M4.5I-SCAN
Sensor	GC2145	OV9782
Max Resolution (Full)	1600x1200 Pixles	1280x800 Pixles
FOV	75°x63°	91°x68°

* The M4.5-DIF does not support RGB

IMU

BMI055

InuView SDK

Supported operating systems	✓ Linux	✓ Win	✓ Android
Supported platforms	✓ RoS	✓ Ras-Pi	✓ ARM



SIMULTANEOUS DEPTH SENSING AND AI PROCESSING



M4.5 SENSOR MODULES HIGH LEVEL BLOCK DIAGRAM

