

NEURA

Datasheet

**MAiRA<sup>®</sup>**

Ai Powered Robotics





# MAiRA<sup>®</sup> Multi-Sensing Intelligent Robotic Assistant

## Ai Powered Robotics

MAiRA is the world's first commercially available cognitive robot. With its integrated AI and novel touchless safe human detection sensor technology, MAiRA can perceive its surroundings and is able to easily adapt to all kinds of industrial environments. MAiRA opens a new era of robots and offers endless possibilities for interaction, for beginners and experts alike. Enabling true collaboration of human and machine.

Specification	MAiRA S	MAiRA M	MAiRA L
<b>Payload</b>	15-18 kg <sup>1</sup>	12-14 kg <sup>1</sup>	9-11 kg <sup>1</sup>
<b>Reach</b>	1100 mm	1400 mm	1600 mm
<b>Degrees of Freedom</b>	7 rotary joints	7 rotary joints	7 rotary joints
<b>Weight</b>	51 kg	53 kg	56 kg
<b>Robot Mounting</b>	Any orientation	Any orientation	Any orientation
<b>IP Classification</b>	IP65	IP65	IP65
<b>Ambient Working Temperature</b>	0 °C – 40 °C	0 °C – 40 °C	0 °C – 40 °C
<b>Data, Power, and Media</b>	Full inner harness	Full inner harness	Full inner harness
<b>Footprint Base</b>	Ø 252 mm	Ø 252 mm	Ø 252 mm
<b>Tool Flange</b>	ISO 9409-1-50-7-M6	ISO 9409-1-50-7-M6	ISO 9409-1-50-7-M6
<b>Status Illumination</b>	RGB LED on each axis	RGB LED on each axis	RGB LED on each axis
<b>Performance Level</b>	PLd Cat.3 / SIL3 <sup>2</sup>	PLd Cat.3 / SIL3 <sup>2</sup>	PLd Cat.3 / SIL3 <sup>2</sup>
<b>Accuracy</b>	≥0.01 mm <sup>3</sup>	≥ 0.01 mm <sup>3</sup>	≥ 0.01 mm <sup>3</sup>

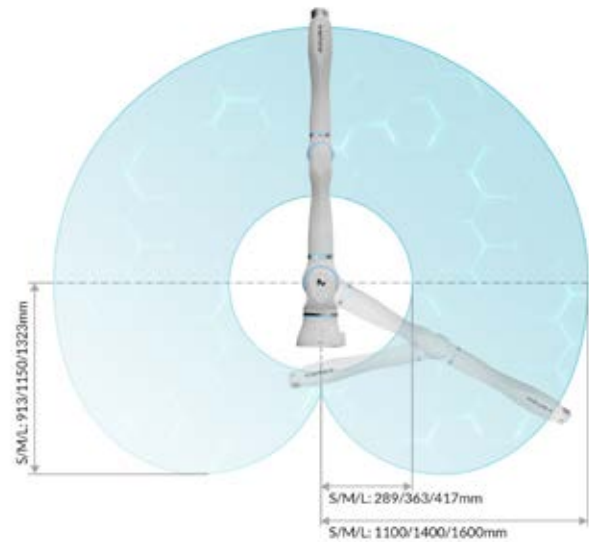
<sup>1</sup> Lower number indicates payload for full workspace, higher number indicates payload for application specific smaller workspace and reduced speed.

<sup>2</sup> PLd Cat.3 / SIL3 released in 2024.

<sup>3</sup> In reference to ISO9283. Robot specific values might differ depending on application environment.

### Movement MAiRA S/M/L

Axis	Working angle	Maximum Speed
A1	± 180°	120 °/s
A2	± 120°	120 °/s
A3	± 180°	150 °/s
A4	± 150°	150 °/s
A5	± 180°	200°/s
A6	± 145°	200°/s
A7	± 180° <sup>4</sup>	360°/s <sup>5</sup>



### Tool Flange

Hole Pattern	MAiRA S/M/L: DIN ISO 9409-1-50-7-M6
Compressed Air (optional)	3 x push-pull-plug S/M/L: 3 mm OD
I/O Power Supply	24V 1.5A
Interfaces	Analog Input, GPIO, Modbus RTU via M8 8-pin-A-M, IEC 61076-2-104

### Control Box

Dimensions	592 mm x 567 mm x 253 mm
Weight	35 kg
Power Supply	90-250 VAC, 50/60 Hz max. 16A
Interfaces	GPIO, Modbus TCP

### Software & Controller

Motion Controller	Real-Time NR-Motion Master
Machine Learning Kernel	Smart applications, performance enhancement
Open Architecture	3 <sup>rd</sup> party apps, access to low level controllers and sensor data (optional)
Software Interfaces	Robot and sensor data via Python NeuraPy API (SDK)
Safety Architecture	Safety master & FSoE communication

### Teach Pendant

Dimensions	285 mm x 228 mm x 95 mm
Cable Length	5 m
User Interface	Intuitive, drag-and-drop

<sup>4</sup> Effectively available working range depending on link7 configuration.  
Restriction due to pneumatic air and vision sensor might apply.

<sup>5</sup> To be released 2025.

Programming Features	
Smart GUI	NR easy programming interface
Fast Programming	Shortcut buttons, voice control, gesture control (optional), dynamic path and force recording
Human-Robot-Interaction	Vision, audio, force-feedback, face recognition (optional), motion tracking (optional)
Environment Visualization	3D CAD data, vision sensor data

Sensors	
Vision	3D Vision Sensor
Force/Torque Sensing	6-DoF F/T-sensor in flange (optional)
Guidance	Zero gravity mode

## Feature Compatibility Matrix MAiRA S/M/L

		Artificial Intelligence	Compressed air at connector flange	Features		Vision		Interaction
				6-DoF Sensor in Flange	Custom Color	3D Vision Sensor (Head)	3D Vision Sensor (Flange)	
Feature Options	Artificial Intelligence							
	Compressed air at connector flange							
	6-DoF Sensor in Flange							
	Custom Color							
Vision	3D Vision Sensor (Head)							
	3D Vision Sensor (Flange)							
Interaction	3D Speaker Recognition & On-Board Loudspeaker							

- Possible
- In Development
- Not possible
- n/a

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