

VX500 Smart Camera



Specification Document



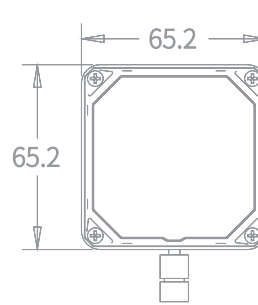
Model

Model	DT-SL-SC-5M12
Name	Dobot VX500

Vision tool

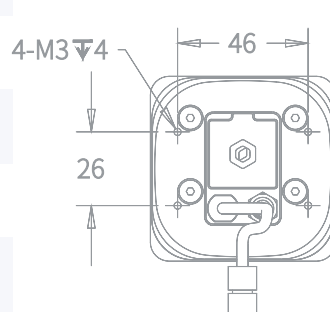
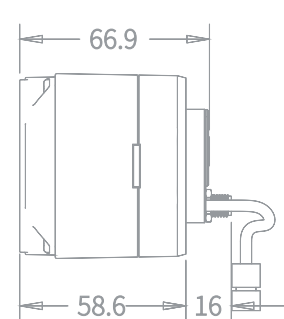
Calibration	2.5D calibration, 2D calibration
Positioning	2.5D Positioning (see details in the table below), 2D Positioning ($\pm 0.5\text{mm}$)
Existence	Pattern existence
Measurement	Diameter measurement, Width measurement, Greyscale size
Recognition	OCR, Code recognition

VX500 Smart Camera 3D Image



Smart Camera

Sensor type	CMOS, global shutter
Pixel size	$3.2\ \mu\text{m} \times 3.2\ \mu\text{m}$
Sensor size	1/1.7"
Resolution	2368×1760
Max. frame rate	30 fps
Dynamic range	71.4 dB
Signal-to-noise ratio	41 dB
Gain	0 dB ~ 15 dB
Exposure time	$60\ \mu\text{s} \sim 1\ \text{sec}$
Pixel format	Mono 8
Mono/color	Mono (Black and white)



VX500 Smart Camera 2D Image

Electrical Characteristics

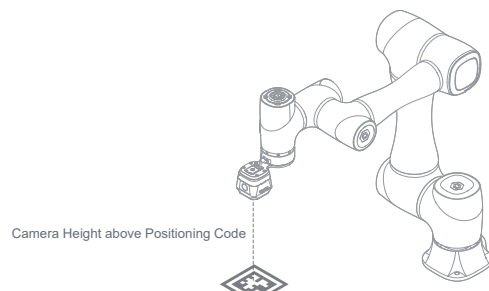
Aviation connector/cable	8-pin M8 *Connect the camera to CRA robot's tool IO,DI*2- DO*2(PNP)- AI*2(Multiplex with 485) *Output voltage 24VDC
Max power consumption	48 W@24 VDC
Aviation connector	8-pin M8 *Replace the original CRA robot's tool IO for other ecosystem tools,DI*2- DO*2(PNP)- AI*2(Multiplex with 485) *Output voltage 24VDC
LAN	1xEthernet (For camera debugging)

Structure

Lens mount	M12-mount , mechanical focus
Focal length	12.4 mm (0.5")
Lens cap	Transparent lens cap
Light source	14 LEDs: White 2 positioning lights: Red
Indicators	Power indicator (PWR), Network indicator (LNK), Status indicator (STS), Result indicator (OK/NG)
Dimension/Weight	65.2 mm × 65.2 mm × 47 mm About520g *Camera body, excluding flange part
IP rating	IP54 *When lens and cable are properly installed
Temperature	Working temperature: 0 °C to 50 °C (32 °F to 122 °F) Storage temperature: -30 °C to 70 °C (-22 °F to 158 °F)
Humidity	20% to 95% RH, non-condensing

General

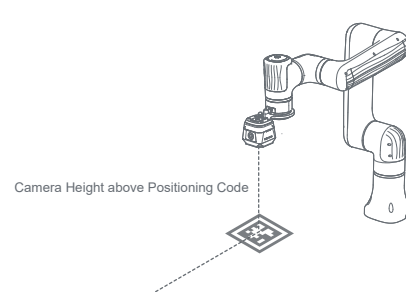
Client software	DobotStudioPro, VX500 Camera plug-in *Download from Dobot website
Operation terminal	PC
Certification	CE,FCC,RoHS



2.5D positioning final accuracy of the CRA Robot and VX500

	Distance from Work Point to Positioning Code	Camera Height above Positioning Code	
		150	250
Simulated AMR Movement Test (With Angle Changes)	100	± 0.26	± 0.37
	300	± 0.64	± 0.91
Stationary Test (No Angle Changes)	100	± 0.058	± 0.178
	300	± 0.097	± 0.237

*Simulated AMR Movement Test: The actual test involves rotating and moving the 2.5D positioning code, with a maximum rotation angle of $\pm 20^\circ$.
*The data in this table are sourced from testing by Dobot. In real-world applications, factors such as lighting conditions, physical characteristics, and programming methods can affect accuracy. Actual values may vary, please refer to on-site measurements.



2.5D positioning final accuracy of the Nova Robot and VX500

	Distance from Work Point to Positioning Code	Reference accuracy value (Camera-to-positioning code height: 150mm)
Simulated AMR Movement Test (With Angle Changes)	100	± 1.108
	300	± 0.98
Stationary Test (No Angle Changes)	100	± 0.035
	300	± 0.1

*Simulated AMR Movement Test: The actual test involves rotating and moving the 2.5D positioning code, with a maximum rotation angle of $\pm 20^\circ$.
*The data in this table are sourced from testing by Dobot. In real-world applications, factors such as lighting conditions, physical characteristics, and programming methods can affect accuracy. Actual values may vary, please refer to on-site measurements.

VX500 Field of View

Distance from camera lens to working surface	Field of View
60mm	37.89 mm × 28.16 mm
3000mm	1894.4 mm × 1408 mm

