DOBOT

Educational Robot Product Brochure

About Dobot

Dobot

Dobot is a world-leading provider of intelligent robotic arms. Our solutions seamlessly integrate AI-powered lightweight robotic arms and a proprietary software suite, effectively helping industrial clients navigate around rising wages, lack of labor and other obstacles that prevent companies from scaling. By replacing traditional manufacturing methods with advanced human-machine collaborative robots, Dobot meets the demands required for flexible production. We also play a crucial role in elevating China's manufacturing industry. In the future, Dobot aims to become the standard for smart production.

In addition, Dobot is proud to disseminate knowledge of robotic arm in education and research. We have partnered with globally renowned K12 education and other well-qualified higher academic institutions, offering robotic arm solutions to over 1 million educators and researchers.

Dobot prioritizes customers and values independent innovation. In the past seven years since founding, we have been developing our own solutions in key technologies. Our team is always a step ahead when developing new product categories and setting new production standards to support automation transformation across industries.

DOBOT

Dobot's Global Network

3 R&D Centers

in Shanghai, Qingdao and Shenzhen.

12 Offices

in Germany, US, Japan and China.

300 AI Robotics Lab

around the world.

Manufacturing Base

in China capable of producing 100,000 robots annually.

Dobot's Market Influence

68,000

robots sold.

#1

Chinese industrial robot exporter by volume, for 4 consecutive years.

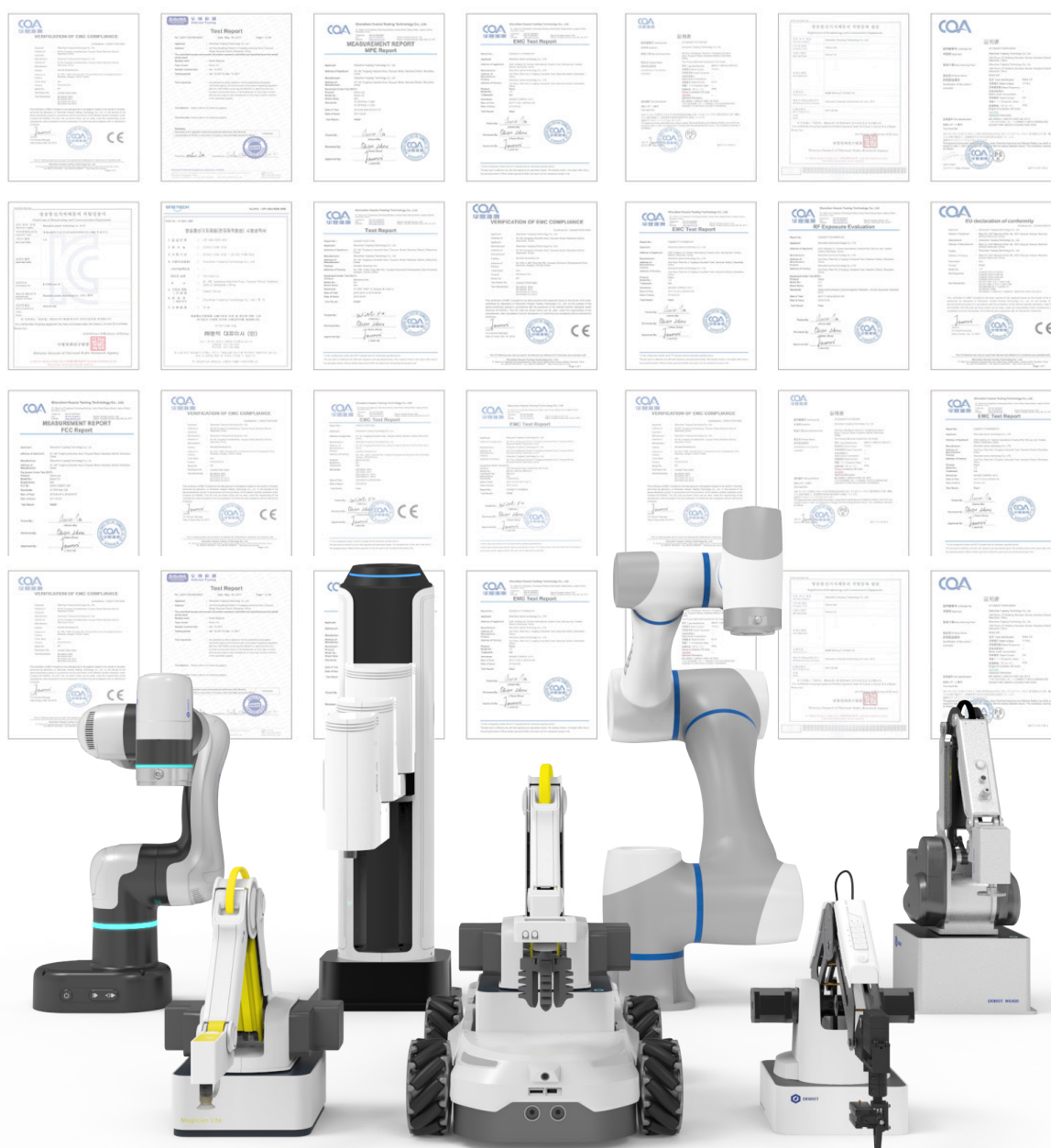## 100+

countries and regions covered.

200,000+

users globally.

6,280

academic institutions in collaboration.

Dobot's R&D Capabilities

887
Patents

1,218
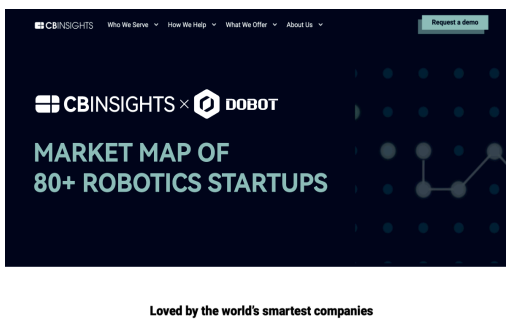Intellectual property rights

37
PCTs

398
Invention patents

Dobot's Social Influence

Dobot's first robotic arm raised 620,000 USD on KickStarter, the highest amount of all Chinese robotics projects on the crowdfunding platform in 3 years.

US venture capital research institute CB Insights named Dobot as one of 80 most investment worthy robot companies.

Dobot was interviewed by the Wall Street Journal for its article titled "Robots Pick Up More Work at Busy Factories".
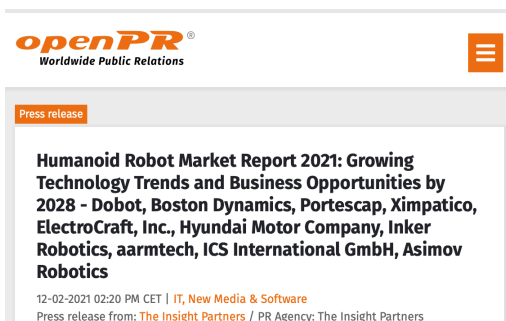
Dobot made top 10 companies in the list of Humanoid Robot Market Report 2021 by openPR.

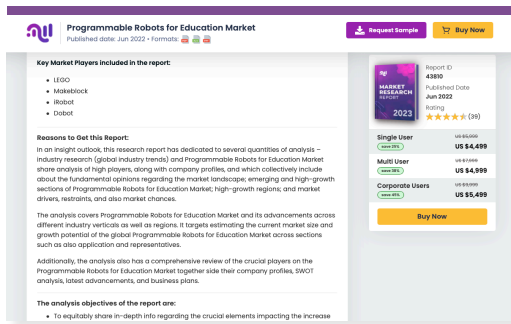Dobot was named one of the top 4 key players in the global education robot industry by market.us.

Dobot provided support for the world robotic competition DOBOSPACE for 6 consecutive years from 2017 to 2022.

Dobot was the technical support partner for the 2022 BRICS Skills Competition. Competing teams came from China, India, Russia and other countries.
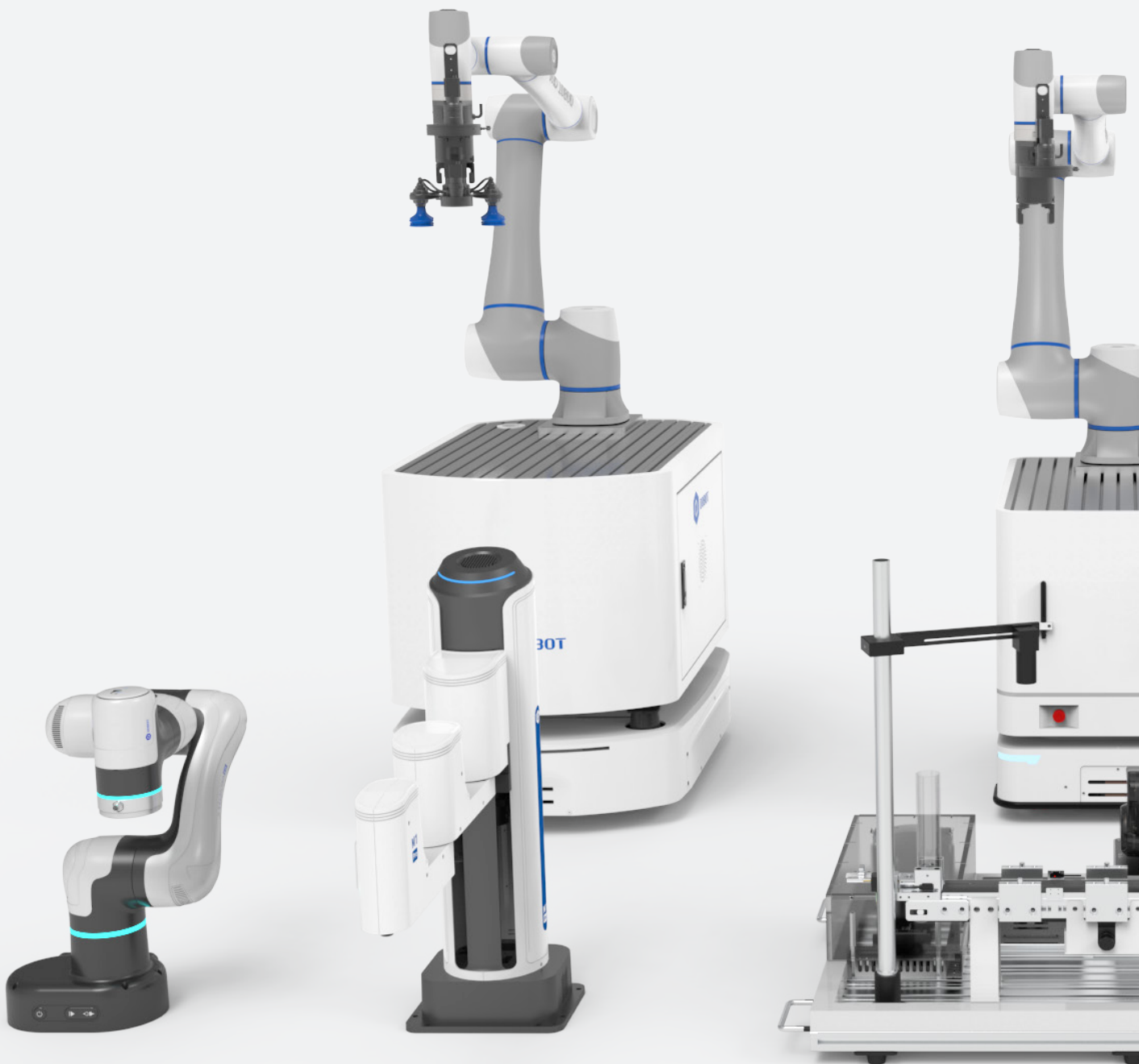
Dobot
Educational Products

Products for High Schools, Vocational & Higher Education
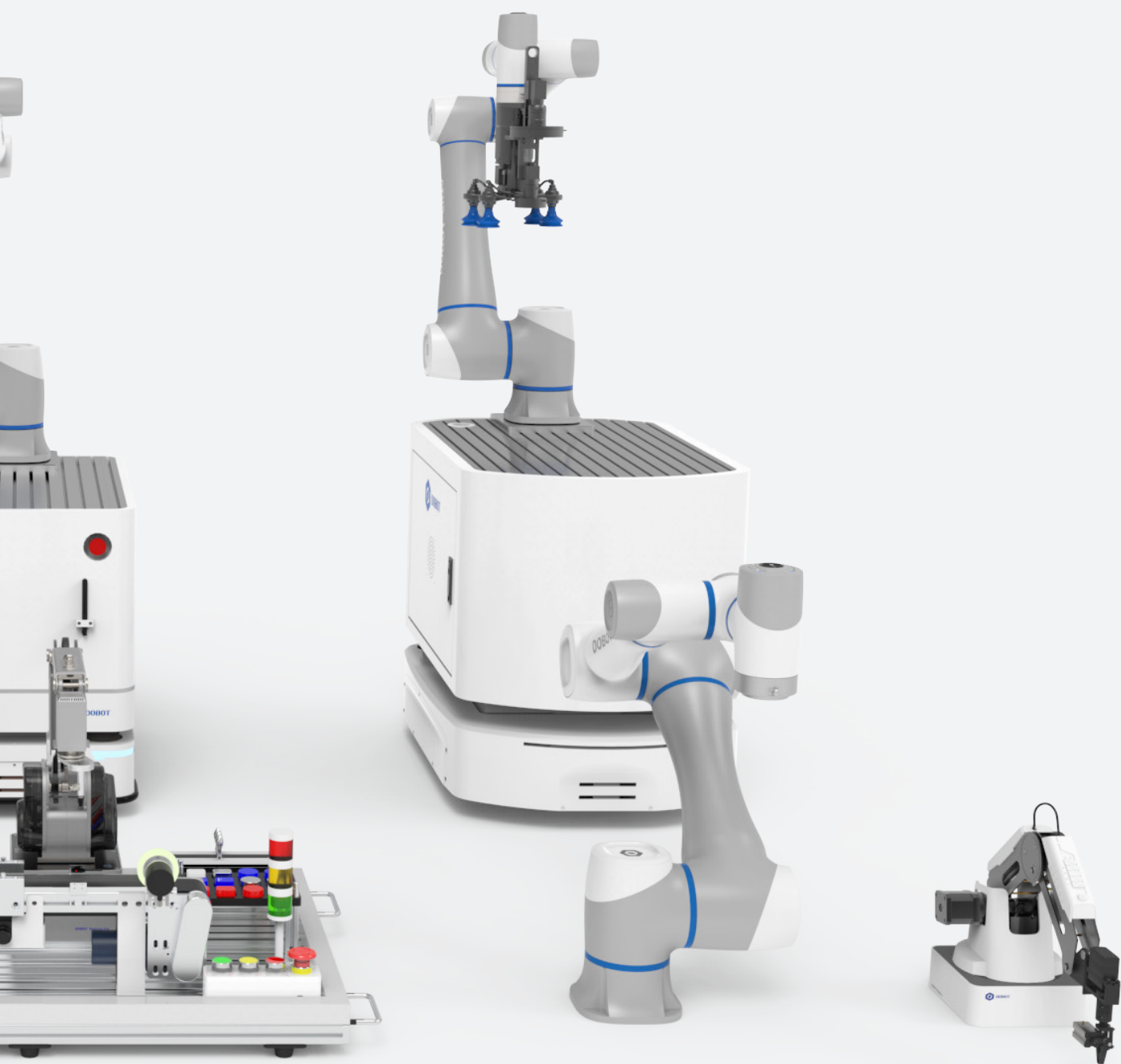
DOBOT Magician E6

The DOBOT Magician E6 is a desktop grade 6-axis cobot designed for education and scientific research. It has an industrial grade performance and is compatible with a wide range of accessories made for industrial use. It can accurately simulate various automation scenarios to provide immersive learning and research experiences. The Magician E6 has a number of interfaces for secondary development and tailored course materials on robotics education, opening doors to a new way of education. It is the ideal platform to explore AI, smart manufacturing and other fields of study.

Product Features

High Level Of Safety

Streamlined body design with collision detection for safer operation. Equipped with a light indicator ring for easy monitoring of Magician E6's operating status.

Simple Deployment

Compact, lightweight and flexible, the Magician E6 can be effortlessly installed on a desk. Built-in control box simplifies external wiring for a plug-and-play experience.

Easy to Use

Proprietary trajectory replay technology allows for no code drag-to-teach programming of Magician E6. Supports graphical programming. Anyone can easily learn and master Magician E6 operation.

Flexible and Expandable

The Magician E6 can be programmed and controlled using ROS, Matlab, Labview and C++, and has interface ports making secondary development possible and efficient. Compatible with industrial grade suction cups, grippers, slide rails and other accessories to enable more possibilities.
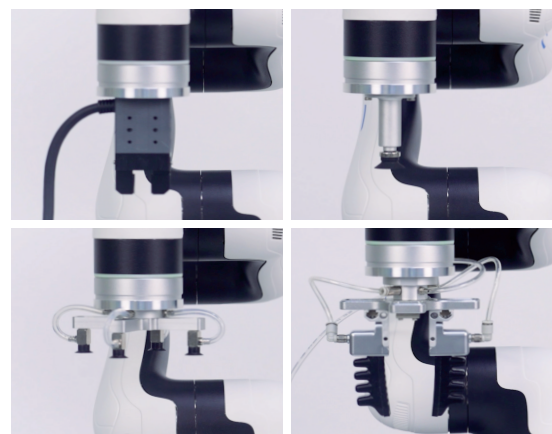
Academic Resources

Dobot has created innovative educational materials including instruction booklets and lesson tutorials. Industrial applications are also translated into educati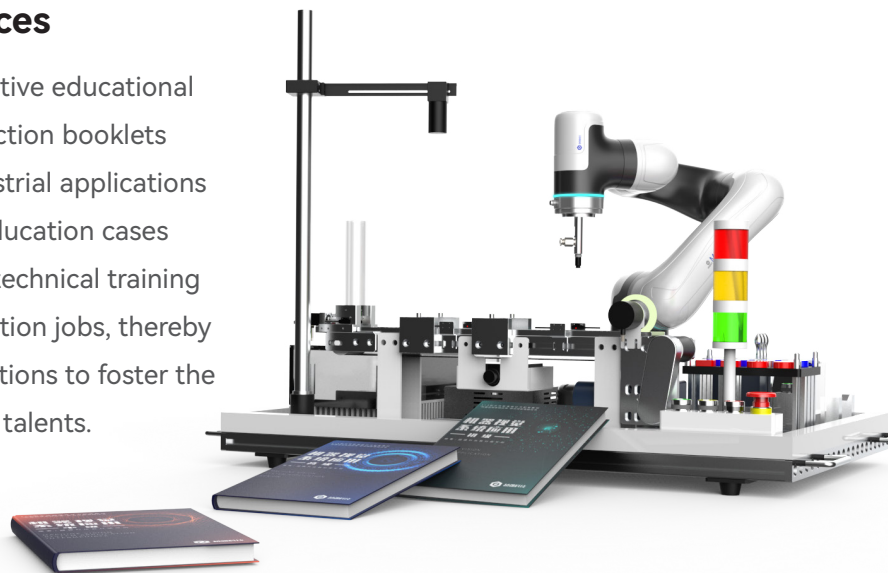on cases to seamlessly bridge the technical training required by many automation jobs, thereby enabling academic institutions to foster the next generation technical talents.

Academic Resources

Intro to Robotics and Programming

This basic course is suitable for beginners to learn about the design and operations of industrial robots and how they can be programmed for automation.

Industrial Application Simulations

This intermediate course contains simulations of Industry 4.0 application scenarios to allow for practical training and teaching in related fields such as robotics, engineering, automation and mechatronics.
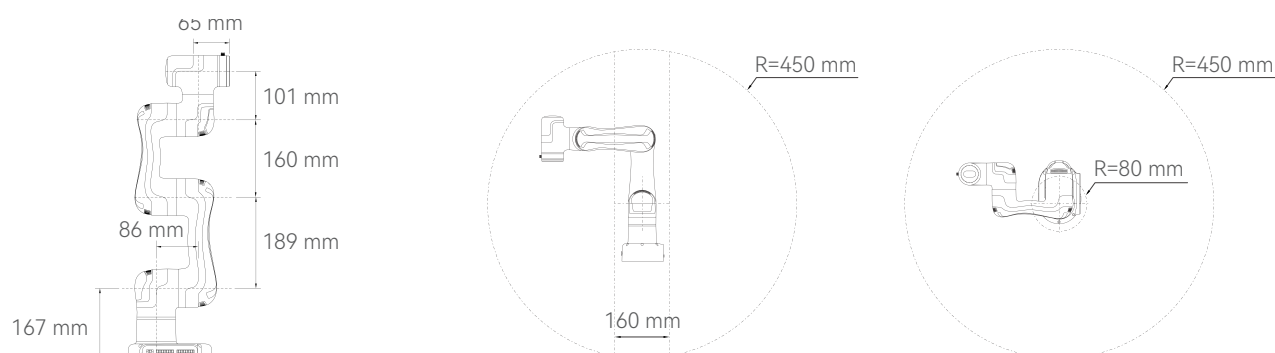

Advanced Robotic Theory and Research

This advanced course teaches students to develop motion control algorithms, simulations and control logic for research purposes using ROS, Matlab, Python and C++.

Specifications

Model	Magician E6	
Weight	7.2 kg	
Number of Axes	6	
Payload	750 g	
Working Radius	450 mm	
Repeatability	± 0.1 mm	
Maximum Speed of TCP	0.5 m/s	
Range of Motion	J1	± 360°
	J2	± 135°
	J3	± 154°
	J4	± 160°
	J5	± 173°
	J6	± 360°
Maximum Joint Speed	120° /s	
Power	100V ~ 240V AC, 50/60 Hz	
Rated Voltage	48V DC, 5A	
Power Consumption	130W	
Communication Interface	Ethernet	2, for TCP/IP and Modbus TCP
I/O Interface	Arm Tip	DI x 2, DO x 2, 24V x 1, GND x 1
	Base	DI x 16, DO x 16, 24V x 4, GND x 4
I/O Power	24V, Max 2A, Max 0.5A for each channel	
External Interface	EMO x 1, ABZ encoder x 1, Power connector x 1	
Control Software	DobotStudio Pro	
IP Rating	IP20	
Base Unit Dimensions	162 mm x 120 mm x 103mm	
Working Environment	Temperature: 0° to 40° C. Humidity: 25 to 85% noncondensing	
Noise	60dB (A)	
Installation Orientation	Desktop	
Materials	Aluminum alloy, ABS plastic	

DOBOT Magician

The DOBOT Magician is the world's first desktop-grade 4-axis robot. It can perform a wide range of tasks such as 3D printing, laser engraving, calligraphy and drawing. It has 13 interface ports to support secondary development, lab projects and robotics curricula.

A variety of application scenarios can be developed through the use of programming software and hardware accessories. The following studies can be taught to different levels of students:

Robotic Systems	The DH Convention
Control of Robot Movement	Robotic Programming

Product Items

Robot Arm

Power Adapter
USB Cable

Masking Tape
(3D Printing)
Feed Pipe
(3D Printing)

Accessories

Shipping List
Quick Start Guide
Glass Plate (3D Printing)
Sensor Calibration Board
Kraft Linner Paper (Laser Engraving)

Joystick Control Kit

USB Connector Host
Joystick

Laser Kit

Laser Module
Laser Protective
Glasses

Calligraphy & Drawing Kit

Pen Holder
Pen

Pneumatic Kit

Pneumatic Gripper
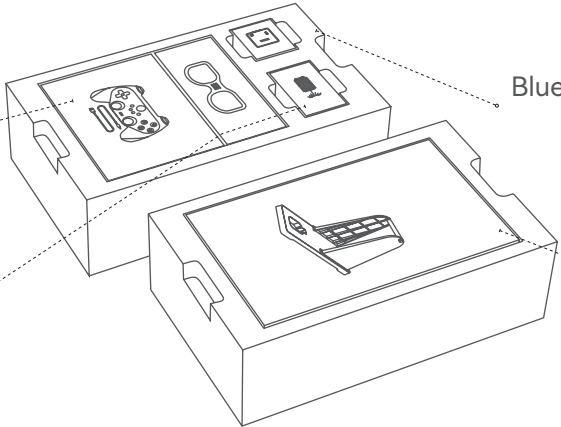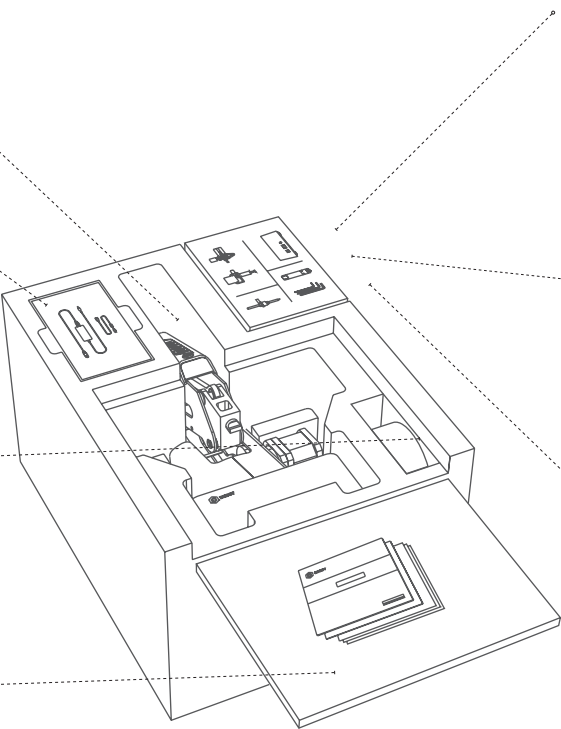Suction Cup & Joint
4
Air Pump Controller

Tool Package

Hexagon
Screwdriver
M1.5 M2 M2.5
Quick Fix Screw
Calibration Tool
Jackscrew x 2

Bluetooth Module (Wireless – 1)
Wi–Fi Module

3D Printing Kit

Extruder
Hot End
3D Printing Filament
Holder
Filament 200 g

Product Specifications

Magician

Weight	3.4 kg	
Base Dimensions	158 mm x 158 mm	
Materials	Aluminum alloy, ABS plastic	
Controller	Dobot integrated controller	
Installation	Desktop	
Number Of Axes	4	
Maximum Payload	500 g	
Maximum Reach	320 mm	
Repeatability	± 0.2 mm	
Communication Interface	USB/Wi-Fi/Bluetooth	
Power Supply	100 to 240V, 50/60Hz	
Power Consumption	78W Max	
Working Environment	−10° to 60° C	
Axis	Range of Motion	Max Speed (250 g Payload)
J1-Base	−120° to 120°	320° /s
J2-Rear Arm	−5° to 90°	320° /s
J3-Forearm	−15° to 90°	320° /s
J4-Rotation Servo	−140° to 140°	480° /s
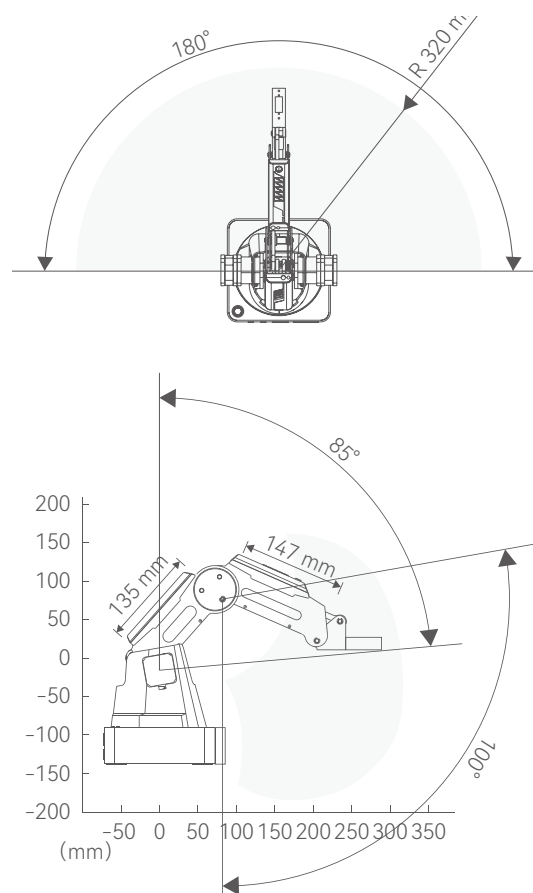
Applications

Software	DobotLab
SDK (Software develop kit)	Communication protocol Dobot program library
Extension Interface	I/O x 10, configurable as analog input or PWM output
	Controllable 12V power output x 4
	Communication Interface UART, Reset, STOP, 12V, 5V and two I/O included
	Stepper x 2

End Effectors

Perform a wide range of tasks such as calligraphy and drawing, laser engraving, 3D printing with the gripper kit, pneumatic kit, 3D printing kit and writing kit.

3D Printing Kit	Dimensions	150 mm x 150 mm x 150 mm
	Materials	PLA
	Resolution	0.1 mm
Laser	Power Consumption	500 mW
	Type	405 nm (Blue laser)
	Power	12V , TTL trigger (with PWM driver)
Pen Holder	Pen Diameter	10 mm
Vacuum Suction Cup	Cup Diameter	20 mm
	Pressure	–35 Kpa
Gripper	Range	27.5 mm
	Drive Type	Pneumatic
	Force	8 N

Product Packages

Basic AI Kit

The Basic AI Kit uses the Arduino development board which integrates the commonly used open-source hardware including voice recognition, visual components, joystick control and LED lights. Voice commands are broken down into a language that the robot 'understands' which controls its movements and actions.

Students can master the most commonly used methods of implementing human-machine interaction, including hardware selection, electrical connection, communication methods, and software implementation. Kits are suitable for embedded systems, electronics, and C language courses.

|	
CPU	Working Voltage: 5V
	No. of Digital I/O Ports: 54
	No. of Analog I/O Ports: 16
	Frequency: 16MHz
Pixy Camera	Processor: NXP LPC4330, 204MHz, Dual core
	Image Sensor: Omnivision OV9715, 1/4", 1,280 x 800
	Field Of View: 75° horizontal, 47° vertical
Joystick	Battery Requirement: 3.3 to 5V
	Dimensions: 37 mm x 25 mm x 32 mm
Buttons	Colors: Red, green, blue
	Working Voltage: 3.3 to 5V
	Dimensions: 22 mm x 30 mm
LED Light Module	Colors: Red, green, blue
	Working Voltage: 3.3 to 5V
	Dimensions: 30 mm x 20 mm

Course Materials

Linear Rail Kit

With a Linear Rail Kit, the DOBOT Magician can expand its working range to one meter (3.28 feet). This means the robot can carry out more Industry 4.0 scenario-based tasks such as long-distance pick and place, calligraphy, drawing and laser engraving in a larger area.

Maximum Payload	5 kg
Distance Transportable	1,000 mm
Maximum Speed	150 mm/s
Maximum Acceleration Speed	150 mm/s²
Repeatability	± 0.01 mm
Absolute Accuracy	0.25 mm
Net Weight	4.7 kg
Weight (With Package)	7.23 kg
Dimensions	1,320 mm x 120 mm x 55 mm
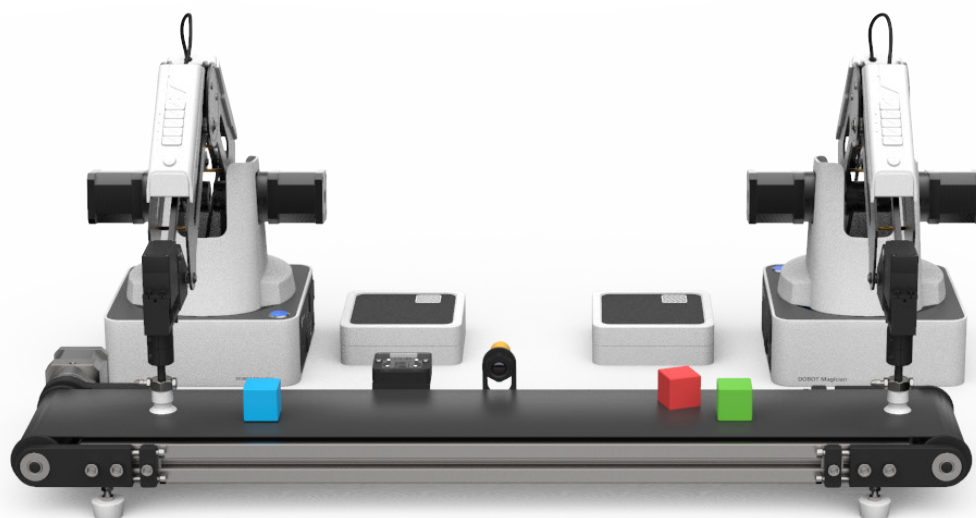
Conveyor Belt Kit

The Conveyor Belt Kit features adjustable speed, distance and color sensors, and is perfect for creating mini automated assembly line to teach students on how automation system works.
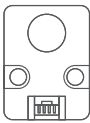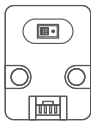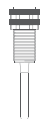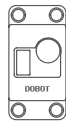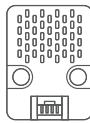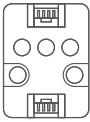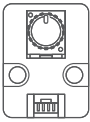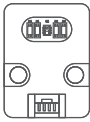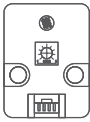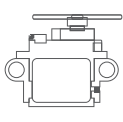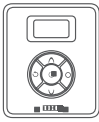
Maximum Payload	500 g
Distance Transportable	600 mm
Maximum Acceleration	120 mm/s
Maximum Acceleration Speed	1,100 mm/s²
Net Weight	4.2 kg
Weight (With Package)	5.34 kg
Dimensions	700 mm × 215 mm × 60 mm
Distance Sensor	
Distance From Area Tested	20 to 150 mm
Signal	Analogue
Voltage	4.5 to 5.5V
Color Sensor	
Voltage	3 to 5V
Non-luminous object detectable	
White LED, On/off controllable	
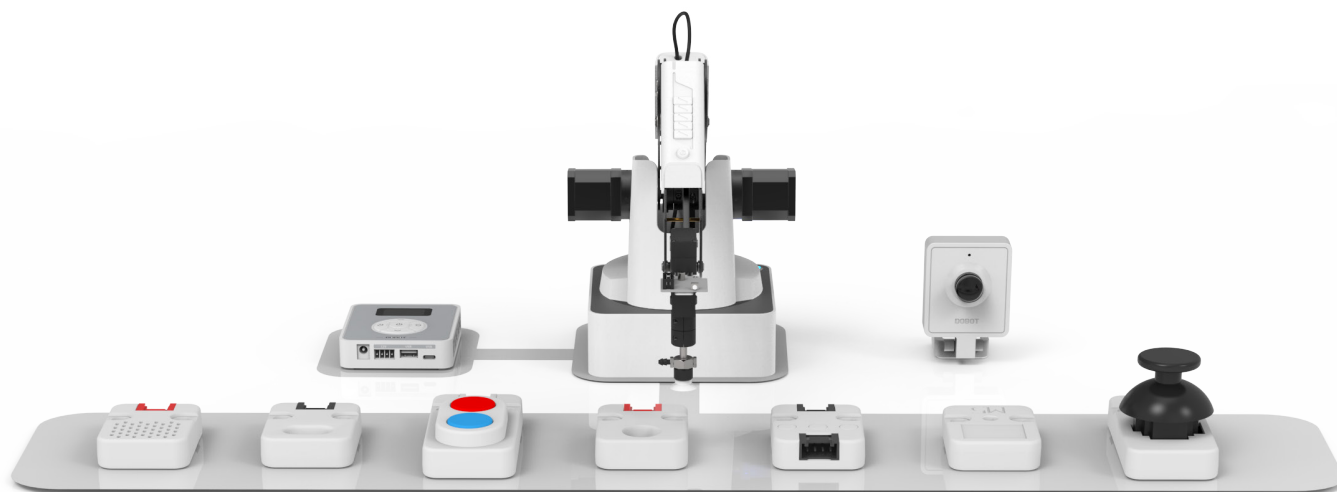
DOBOT Sensor Kit for Magician

The DOBOT Sensor Kit for the Magician can be programmed using Python and graphic programming. It is easy to get started with and is suitable for beginners. The kit includes the Magic Box and the AI Camera Kit to enable more automation scenarios.

Product Items

Joystick	Dual Button	PIR Sensor	Gesture Sensor	Photoelectric Sensor	Sound Sensor	Humiture Sensor

LED Module	Knob Potentiometer	Color Sensor	Light Sensor	Micro Servo	Magic Box	AI Camera

Joystick

The working principle of the joystick is similar to a standard joystick gamepad. The X and Y axes correspond to two 10K potentiometers respectively. When the joystick is moved, it generates corresponding analog signal and outputs the offset value. The Z-axis is a button application.

Connection Mode: Connect to any green port of Magic Box (Port 1 to Port 6)
Communication Mode: I2C
Wiring Cable: Universal Sensor Cable
X/Y Output Value: 10 to 250
Z Output Value: 0: release; 1: press
Voltage: 5V
Current: 50mA

Dual Button

The dual-button module has two physical buttons in different colors for operation. The module determines the status of buttons by detecting the high/low level of input pins of different buttons.

Connection Mode: Connect to any green port of Magic Box (Port 1 to Port 6)
Communication Mode: I/O
Wiring Cable: Universal Sensor Cable
Voltage: 5V
Current: 50mA

PIR Sensor

The PIR sensor is a infrared sensor. It is a passive pyroelectric infrared detector. It works by detecting the infrared radiation emitted or reflected by the human body or objects. When detecting a signal, it outputs a high level and carries out a time delay (during which the high level is maintained and repeated triggering is allowed) until the triggering signal disappears (restoring low level).

Connection Mode: Connect to any green port of Magic Box (Port 1 to Port 6)
Communication Mode: I/O
Wiring Cable: Universal Sensor Cable
Detection Distance: 150 cm
Delay Period: 2 s
Induction Range: < 100°   **Static Current:** < 60uA
Operating Temperature: –20° to 80° C
Voltage: 5V   **Current:** 50mA

Gesture Sensor

The gesture sensor is a 3D gesture recognition sensor using I2C communication interface. It supports eight types of gesture recognition by default, and the maximum gesture detection frequency can reach 240Hz. It has certain anti–ambient light interference ability. With strong stability, fast recognition speed, high accuracy and low power consumption (working current: 2.2mA), it is suitable for a variety of applications, including non–contact remote control, robot interaction, human–machine interaction games, and gesture lighting control.

Connection Mode: Connect to any green port of Magic Box (Port 1 to Port 6)
Communication Mode: I2C
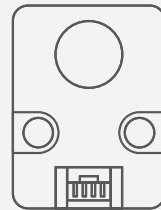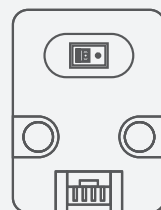**Wiring Cable:** Universal Sensor Cable
Support Gestures: Up, down, left, right, forward, backward, clockwise, counterclockwise
Effective Recognition Distance: 5 to 15 cm
Voltage: 5V   **Current:** 50mA

Photoelectric Sensor

The photoelectric sensor is also called the photoelectric proximity switch. It detects the presence of the object through the connected circuit if there is an object shielding or reflecting light. The photoelectric sensor converts the input current into an optical signal on the transmitter, and the receiver detects the target object according to the intensity or presence of the received light. The L–shaped bracket made of aluminum alloy is used for fixing the photoelectric sensor so that the probe of the photoelectric sensor can be placed parallel to the tabletop.

Connection Mode: Connect to any green port of Magic Box (Port1 to Port6)

Communication Mode: I/O

Wiring Cable: Already attached

Value Range: 0 (no shield), 1 (with shield)

Standard Detection Environment: Sunlight less than 10,000 lx, incandescent lamp less than 3,000 lx

Detectable Object: Transparent or opaque object

Operating Temperature: –25° to 55° C

Response Time: < 2 ms

Sound Sensor

The sound sensor is used to detect the sound intensity of the surroundings. The greater the sound intensity it receives, the stronger the output signal and the greater the return value.

Connection Mode: Connect to any green port of the Magic Box (Port 3 or Port 4)

Communication Mode: ADC

Wiring Cable: Universal Sensor Cable

Value Range: 0 to 1023

Sensitivity: (48dB to 52dB) @ 1kHz

Microphone Impedance: 2.2 Ohm

Microphone Frequency: 16 to 20kHz

SNR S/N: 54dB

Humiture Sensor

The humiture sensor is used to detect temperature and humidity of the surrounding environment.

Connection Mode: Connect to any green port of Magic Box (Port 1 to Port 6)
Communication Mode: I2C
Wiring Cable: Universal Sensor Cable
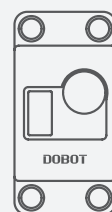**Temperature Range:** 0° to 60° C/± 1° C
Humidity Range: 10 to 90% RH ± 5% RH
Voltage: 5V   **Current:** 50mA

LED Module

The LED module contains three RGB LED lights, which can be controlled independently.

Connection Mode: Connect to any green port of Magic Box (Port 1 to Port 6)
Communication Mode: Monobus
Wiring Cable: Universal Sensor Cable
RGB Range: 0 to 255
Brightness Range: 0 to 100%
Voltage: 5V

Knob Potentiometer

The knob potentiometer is a resistance element with a maximum resistance of 10K and this value can be adjusted by the knob rotation.

Output Voltage: 0 to 2,500 mV
Connection Mode: Connect to Magic Box green port (Port 3 or Port 4)
Communication Mode: ADC
Wiring Cable: Universal Sensor Cable
Brightness Return Value: 0 to 407 (Extreme fluctuation is normal)
Voltage: 5V
Current: 50mA

Color Sensor

The color sensor module is used to identify the color of the object and return a set of RGB values or color detection results.

Connection Mode: Connect to any green port of Magic Box (Port 1 to Port 6)
Communication Mode: I2C
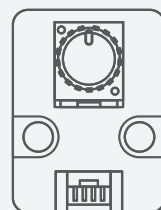**Wiring Cable:** Universal Sensor Cable
Color Detection Result: 0: no color; 1: red; 2: green; 3: blue; 4: yellow; 5: black; 6: white
Color Value RGB: 0 to 200 (A higher value indicates a darker color)
Voltage: 5V
Current: 50mA

Light Sensor

The light sensor contains photosensitive resistance. The resistance value decreases with the increase of the incident light intensity. Based on this, the change of its voltage is detected and the light intensity data is obtained through AD conversion.

Connection Mode: connect to Magic Box green port (Port 3 or Port 4)
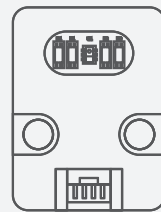**Communication Mode:** I2C
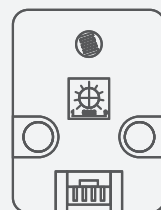**Wiring Cable:** Universal Sensor Cable
Color Detection Result: 0: no color; 1: red; 2: green; 3: blue; 4: yellow; 5: black; 6: white
Color Value RGB: 0 to 200 (A higher value indicates a darker color)
Voltage: 5V
Current: 50mA

Micro Servo

For the micro servo, yellow refers to signal cable, brown refers to ground cable, and red refers to 5V. The servo can be rotated 180° . When using the micro servo, pay attention to the supply current and voltage to prevent the servo from overheating.

Connection Mode: Connect to Magic Box green port (Port 3 to Port 6)

Communication Mode: PWM

Wiring Cable: Universal Sensor Cable

Servo Speed: 0.1 s/60° /4.8V; 0.09 s/60° /6.0V

Torque: 1.6 kg • cm/4.8V; 1.8 kg • cm/6.0V

PWM Frequency: 50Hz/0.5 to 2.5 ms

Voltage: 4.8 to 6.0V

Non-load Current: 60mA

Magic Box

The Magic Box separates motion control algorithm and user tasks to provide more flexbilities for programming. The DOBOT Magician Lite supports offline mode, making it easier to program and plan for the function area when setting up teaching environment.

MCU: ARM 32-bit Cortex-M4

Main Frequency: 168MHz

Programming Language: MicroPython

Voltage: 100 to 240V AC, 50/60Hz

Power Consumption: 60W Max

Working Environment: -5° to 45° C
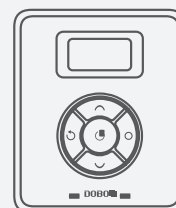
AI Camera

Distortion-free AI camera and microphone can be installed.

Distortion-Free Lens | 1 Megapixels | 135° Rotation | Microphone

Sensor Format: 1/4 inch CMOS

Sensor Resolution: 1 M

Voice Input: Integrated microphone

Maximum Transfer Rate: 1,280 x 720 @ 30fps

Voltage: 5V DC

Working Environment: 0° to 50° C

Sensor Modules

Module	Communication Mode	Interface	Note
Light Sensor, Knob Potentiometer, Sound Sensor	ADC	Port 3 or Port 4	Analog Input
Joystick, Humiture Sensor, Gesture Sensor, Color Sensor	I2C	Port 1 to Port 6	Digital Input
Micro Servo	PWM	Port 3 to Port 6	PWM Input
LED Module	Single-bus	Port 1 to Port 6	-
PIR Sensor, Dual Button, Photoelectric Sensor	IO	Port 1 to Port 6	General IO

DOBOT M1 Pro

The DOBOT M1 Pro is a collaborative SCARA made for the light industry. Its capabilities are built on top of the advantages of M1, and integrates Dobot's smart software and hardware platforms, making it ideal for the manufacturing needs of the light industry as it can perform even more complicated tasks.

The M1 Pro features sensor-free collision detection, drag-to-teach programming, and high precision and interference resistant encoders for more accurate controls. Secondary development is possible to enable more application scenarios.

A variety of application scenarios can be developed through the use of programming software and hardware accessories. The following studies can be taught in academics:

Cobot Systems	Cobot Controls
Cobot Operating Systems	Industrial Robot Applications
Cobot Applications With Integrated Technologies	

Development Software and Ports

DobotLink Development Software

1. API

2. Demo Code

3. Support WebSocket compliant programming languages such as C(++), Python, PHP, JavaScript, HTML, etc.

Communication Interface

1. Ethernet

2. RS-232C

I/O

6 ADC Inputs | 22 Digital Outputs

RS-485 Port | 24 Digital Inputs

Product Specifications
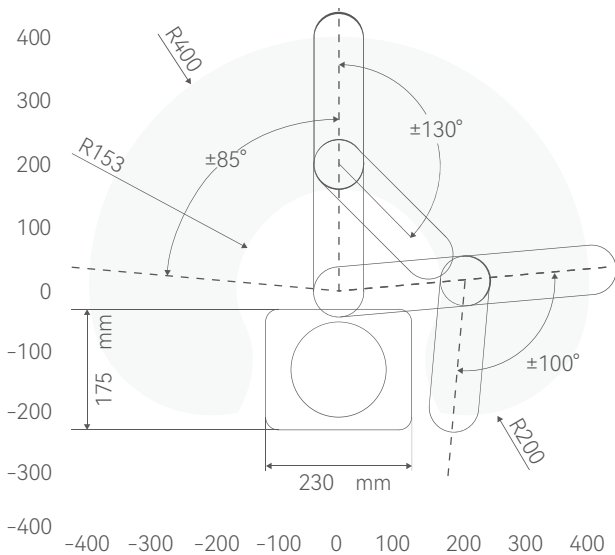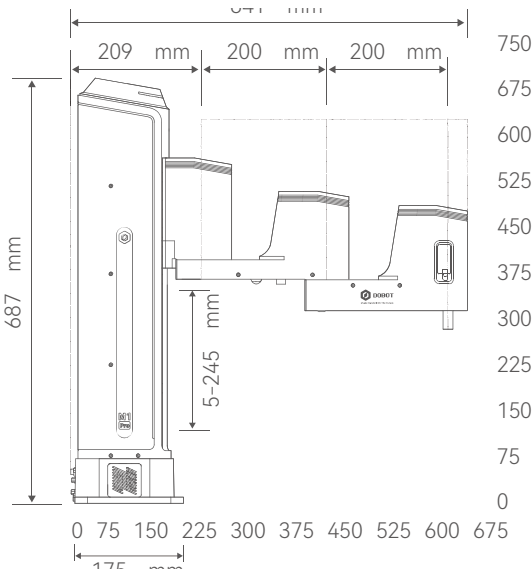
DOBOT M1 Pro

Model	M1 Pro		
Number Of Axes	4		
Payload	1.5 kg		
Working Radius	400 mm		
Repeatability	± 0.02 mm		
Motion Parameters	Joint	Range of Motion	Max. Speed
	J1	± 85°	180° /s
	J2	± 135°	180° /s
	J3	5 to 245 mm	1,000 mm/s
	J4	± 360°	1,000° /s
Power Supply	100 to 240V AC, 50/60Hz		
Rated Voltage	48V DC		
Power Consumption	192W		
Communication	TCP/IP, Modbus TCP		
Installation Orientation	Desktop		
Weight	15.7 kg		
Base Dimensions	230 mm × 175 mm		
Working Environment	0° to 40° C		
Software	DobotStudio 2020, SCStudio		

Base Mounting Holes
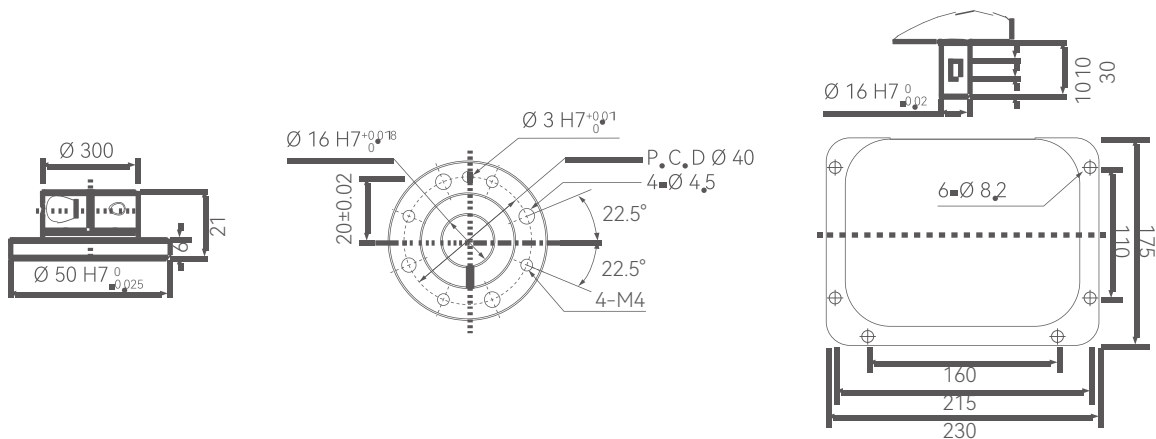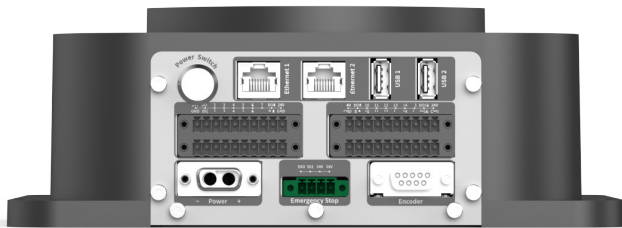
Base Interface	
Digital Input	16
Digital Output	16
Ethernet	2
USB 2.0	2
Encoder Input	1
Emergency Stop Interface	1
Arm Tip interface	
Digital Input	4
Digital Output	4

Product Packages

M1 Pro Basic Kit

Suction Cup	
Maximum Payload	0.5 kg
Vacuum Pressure	– 70 kPa
Weight	40 g
Diameter	20 mm
Dimensions	30 mm x 60 mm

Gripper	
Maximum Payload	0.2 kg
Working Pressure	200 kPa
Weight	280 g
Adjustable Stroke	16.3 mm to 26.3 mm
Dimensions	115 mm x 50 mm x 27.6 mm
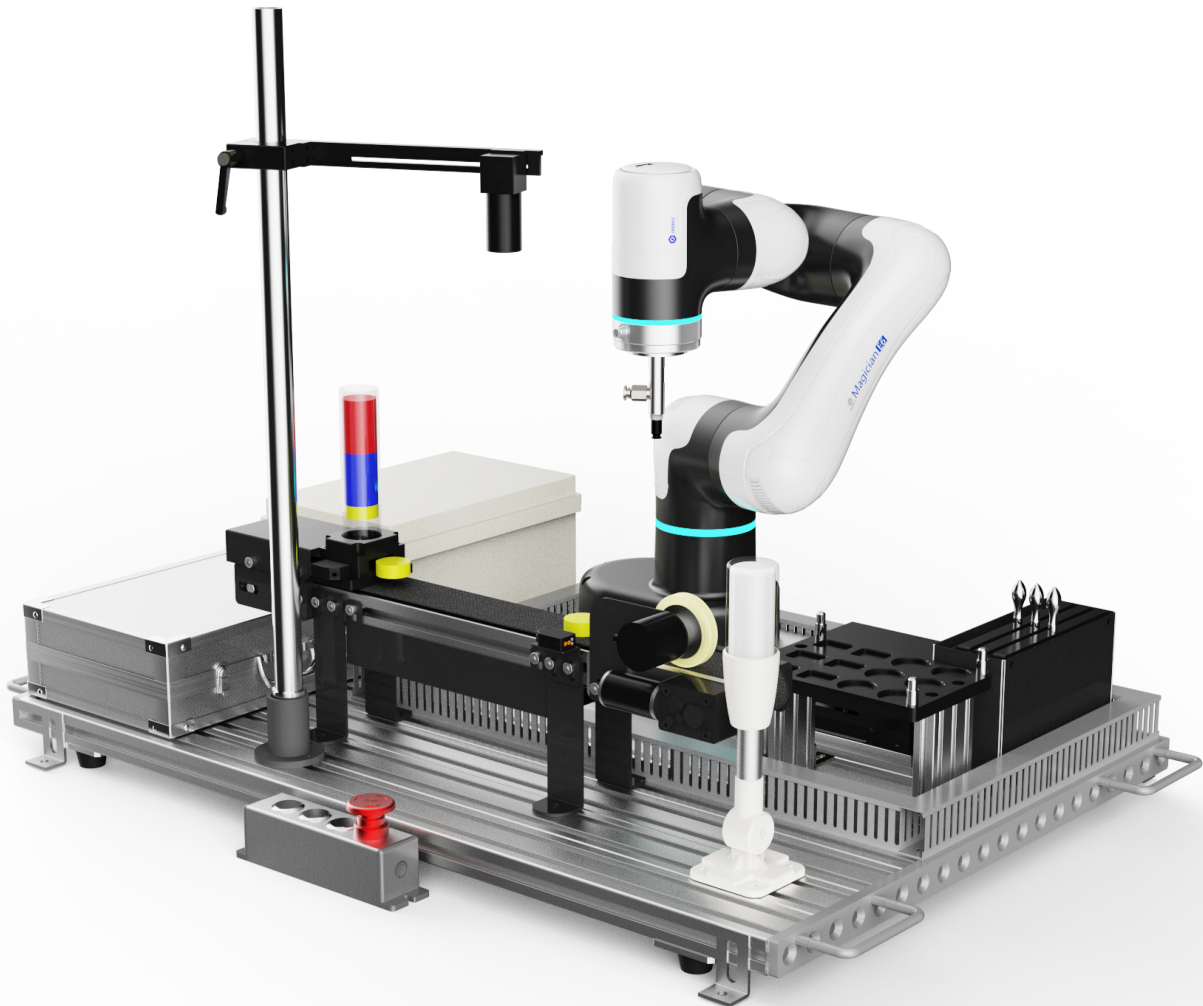
Collaborative Robot Universal Training Platform

Collaborative Robot Universal Training Platform is a teaching platform for education and research, enterprise training which integrates a robot, control system, vision system, conveyor belt and other components. It adopts a modular design and can be combined flexibly and easily for automation simulation, such as object detection, grabbing, handling, palletizing, and assembly, as well as teaching projects such as robot system calibration, trajectory tracking, and communication control, helping students acquire skills related to smart robot systems, and improve practical and innovative capabilities effectively.

Platform Modules

Function Plate
Storage Box

Guide assembly plate

(includes fixed
base)

Mini Vacuum Source

LED status indicator

(includes fixed
base)

Dobot Robot

(works with CR3/
E6/MG400)

Vision Kit

Button Control Box

Electrical Control Box

Conveyor Belt

(Encoder, feeding module,
conveyor belt module etc.)

PLC System Module(Optional)

Tool Box
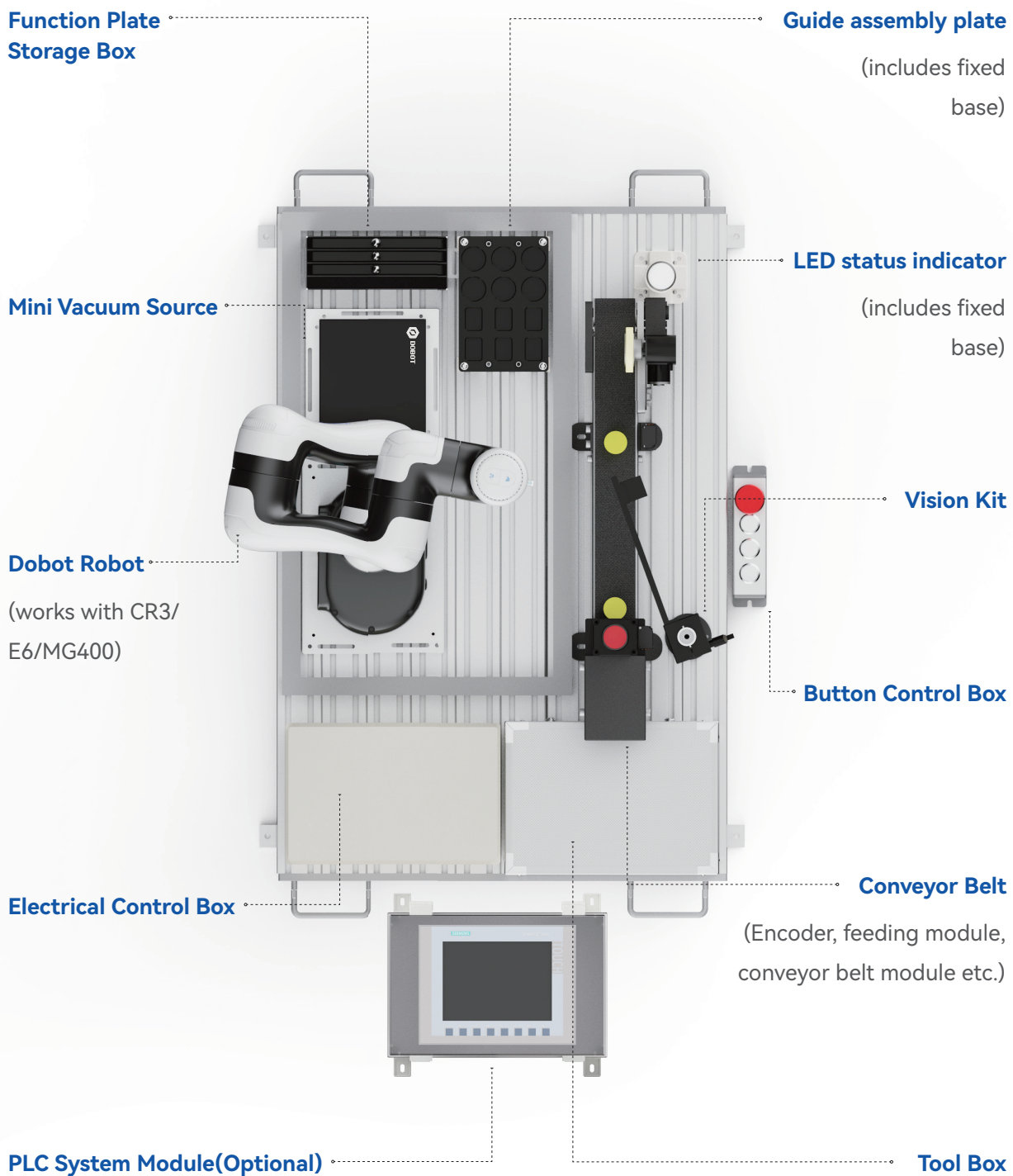
*Aluminum base also included, details available on component list.

Key Features

Rich Functions

Use the system to teach robotic system calibration, trajectory tracking, communication and more. By combining with the workpiece models, tasks like object tracking, grabbing, inspection, transportation, palletizing and assembly can be carried out.

High Usability

The system covers topics such as robotic system, robotic vision system and optional PLC modular system. Users can deal with the majority of automation tasks after learning. The Conveyor Belt Kit can be used independently with the robotic arm itself.
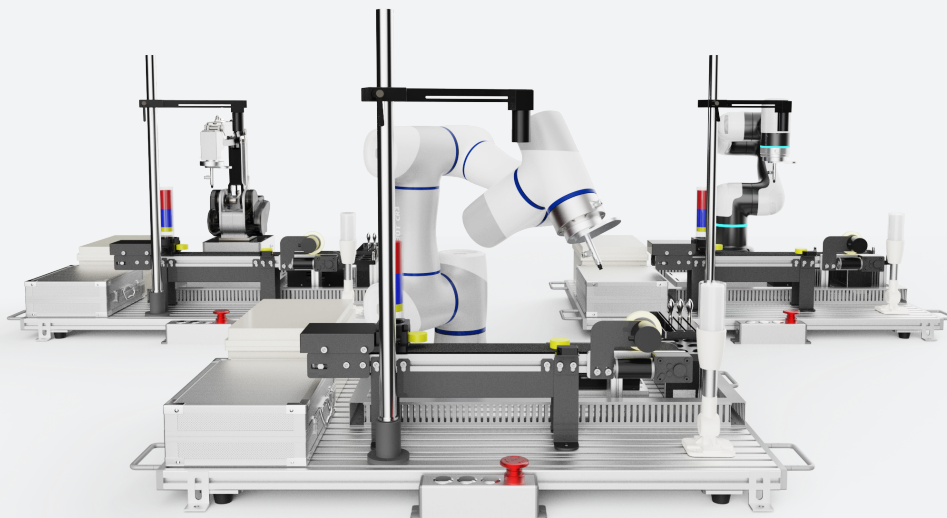
Easy Operation

By combining lightweight collaborative robot (works with CR3/E6/MG400) and flexible modular units, users can create automation tasks easily.

Core Unit

Dobot Robot

Compatible with various DOBOT robots. Users can choose from the CR3, Magician E6 and MG400 for various needs in different application scenarios.

Vision Kit

Based on Dobot's software and hardware vision platform, the system provides over thousands of image processing operators with a powerful visual analysis tool which can quickly create vision-based applications such as visual positioning, measurement, inspection and recognition and more for different project needs.

PLC System Module

This module consists of a Siemens S7-1200 PLC, expandable I/O module and HMI touch screen. PLC system quick calibration and control can be carried out through the HMI which increases the device's application efficiency and accuracy.
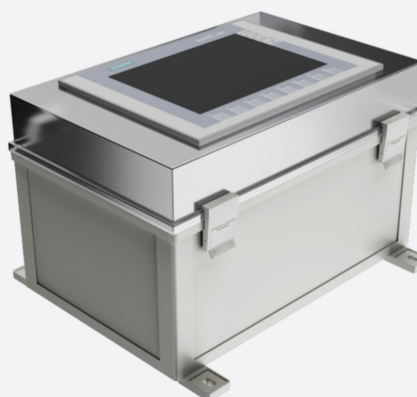
Mini Vacuum Source

The Mini Vacuum Source is connectable to the robot with a I/O port to provide 70 to 110 kPa air supply. Tasks such as soft grabbing, transportation and more can be realized with the combination of suction cups.

Conveyor Belt Kit

The Conveyor Belt Kit is equipped with an electric actuator, object sensor and linear encoder to simulate automation in assembly line processes. By combining with the robotic arm, loading and unloading of materials, navigation and grabbing can be realized.
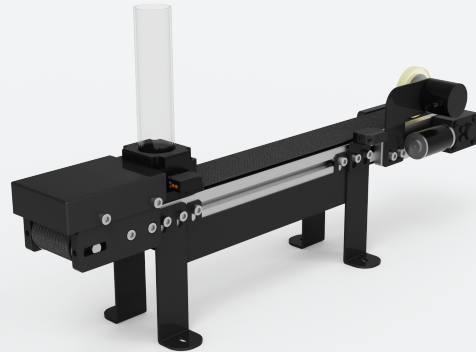

Function Plates

There are several quick change plates in the function plate storage box. These include the track plate, standard inspection plate, guide assembly plate, mobile phone model location plate. They work alongside with robotic system and vision system for vision positioning, measurement, inspection and identification for various tasks such as tracking, grabbing, palletizing and assembly.
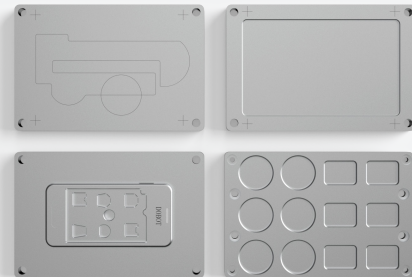
Tool Box

The tool box serves the purpose of storing loose components. With buffering and cushioning inside the box, items can be placed safely. There are workpieces, tools, robot adapter board, calibration needle, suction cup, screws, pipe and connectors inside the box.

Component List

Name		Quantity	Remark	Standard /Optional
Dobot Robot		1	Works with DOBOT CR3/E6/MG400	Optional
Vision Kit		1	Includes Industrial Camera / Prime Lens / Light Source / Camera Stand	Standard
Conveyor Belt Kit		1	Includes Conveyor Belt Module/ Feeding Module/ Encoder (can be purchased exclusively)	Standard
PLC System Module		1	Includes Siemens 1200 Series/ HMI Touch Screen	Optional
Conveyor	Mini Vacuum Source	1	Air Pressure Range	Standard
	Function Plate Storage Box	1	For storing track plate, standard inspection plate and mobile phone model location plate and more	Standard
	Guide Assembly Plate	1	Includes fixed base	
	Button Control Box	1	Includes the start, stop, reset and emergency stop button	
	LED Status Indicator	1	Includes buzzer, color changes between red, green and yellow	
	Electrical Control Box	1	Includes electrical parts (for distribution wiring)	
	Tool Box	1	Includes spare parts, workpieces, suction cup, calibration needle and other tools	
	Aluminum Base	1	600mm*900mm	

Note: Conveyor Belt Kit can be purchased exclusively, and used together with DOBOT MG400, Magician E6 and the CR Series robotic arms.

Training Projects

Basic	Installation of Robot Training Platform
	Robot Basic Operations
Robot Application	Trajectory Simulation Application
	LED status indicator Application
	Static Palletizing Application
	Conveyor Belt Application
Robotic Vision System Application	Vision Sorting System Application
	Smart Phone Chip Assembly Application

Product Specifications

Collaborative Robot Universal Training Platform

Model		DT-BE-R-17
Voltage		100 ~ 240V AC,50/60Hz
Full Load Current		5A (MG400, E6), 10A (CR3)
Rated Short Circuit Current		18A
Total Power		Max 500W (MG400, E6), 800W (CR3)
Frame Rate/Resolution		31 @ 2,592 x 1,922
Weight		30 kg
Size		900 mm × 600 mm × 211 mm
Box Dimensions		1118 mm × 718 mm × 275 mm
Mini Vacuum Source	Power Consumption	20W
	Noise	65dB
	Dimensions	163 mm × 143 mm × 53 mm

Conveyor Belt Kit

Model	DT-BE-R-16
Dimensions	583 ± 8mm x 115mm x 180 ± 5mm
Voltage	100 ~ 240V AC / 24V DC
Weight	5KG
Total Power	Max 75W
Full Load Current	3A
Operating Load	3 kg
Effective Carrying Length	400 mm
Rated Speed	2.25 m/min
Control Mode	I/O Control
Encoder	Incremental Encoder,Resolution Ratio:1000 P/R, Diameter:Φ40 mm

PLC System Module

Model		DT-BE-R-15
Weight		3.5kg
Voltage		24V DC
Total Power		Max 75W
Full Load Current		3A
Size		335 mm × 270 mm × 235 mm
HMI		Screen Size: 7.0 inches
		Resolution: 800 × 480
PLC		CPU: 1212C DC/DC/DC
		Working Storage: 75 KB
		Loading Storage: 2 MB
		High Speed Counter: 4
		Integrated I/O: DI × 8, DQ × 6, AI × 2
		Extensibility: Signal Board (SB) ×1,Signal Module (SM) ×2,Communication Module (CM) ×3

DOBOT Vision Kit

The DOBOT Vision Kit provides a basic software and hardware platform based on vision development, which meets the needs of vision applications such as vision positioning, measurement, detection and identification. It works with the Magician, MG400, M1 Pro, CR series collaborative robots and other products.

The Vision Kit has an outstanding performance and a powerful visual analysis tool library to build machine vision application systems. With intuitive software, users can build a vision-based application in minutes, making it ideal for courses such as machine vision technology, digital image processing, robot and vision system.

Supporting Software

The DobotVisionStudio integrates numerous algorithm components of machine vision, applicable to various automation scenarios. For example, search, measure and detect defects of workpieces or objects. With the accumulation in the field of algorithm technology, the platform has a powerful visual analysis tool library, which allows users to build solutions without the need of coding.

Product Specifications

HD Color Camera

|	
Camera Model	MV–CE050–30UC
Sensor Size	1/2.5 inch CMOS
Sensor Model	AR0521
Effective Pixels	5,000,000 pixels
Pixel Size	2.2 um x 2.2 um
Frame Rate/Resolution	31 @ 2,592 x 1,922
SNR	> 40dB
Dynamic Range	> 60dB
Shutter Type	Rolling shutter
Exposure Time	Bayer format: 16 μs–1 s
	Other format: 28 μs–1 s
Exposure Control	Automatic/Manual
Dimensions	29 mm x 29 mm x 30 mm
Data Interface	USB 3.0
Operating Temperature	0 to 50° C
Lens Mount	Mount C

White Auxiliary Light Source

Light Source Model	JHZM–A40–W
Emitting Color	White
LED Quantity	48 light–emitting diode
Illumination	40,000 lx
Brightness	Continuously adjustment, adjustable range: 0 to 100% The color temperature remains unchanged
Wavelength	455 nm to 457.5 nm
Output Voltage	12V

Output Power	3.5W to 5W
Working Distance	35 mm to 110 mm
Specifications	Internal diameter: 40 mm
	External diameter: 70 mm
	Height: 25 mm
Ring Diameter Inside	Max φ39 mm
Weight	0.48 kg
Working Environment	Temperature: 0° to 40° C
	Humidity: 20 to 85% RH
Storage Environment	Temperature: –20° to 40° C
	Humidity: 20 to 85% RH

Six Megapixel 12mm Fixed Focus Lens

Lens Model			MVL–HF1228M–6MP
Focal Distance			12 mm
Maximum Imaging Size			1/1.8" (φ9 mm)
Aperture Range			F2.8 to F16
Control Mode	Aperture		Manual
	Focus		Manual
Field Angle	D	1/1.8 "	41.2 °
	H		34.4 °
	V		23.4 °
Operating Temperature			–10 to 50° C
Optical Distortion			–0.38 %
Back Focal Length			17.526 mm
Shortest Photography Distance			0.06 m
Mount			Mount C
Filter			M27 x 0.5
Size			φ29 mm x 35.36 mm
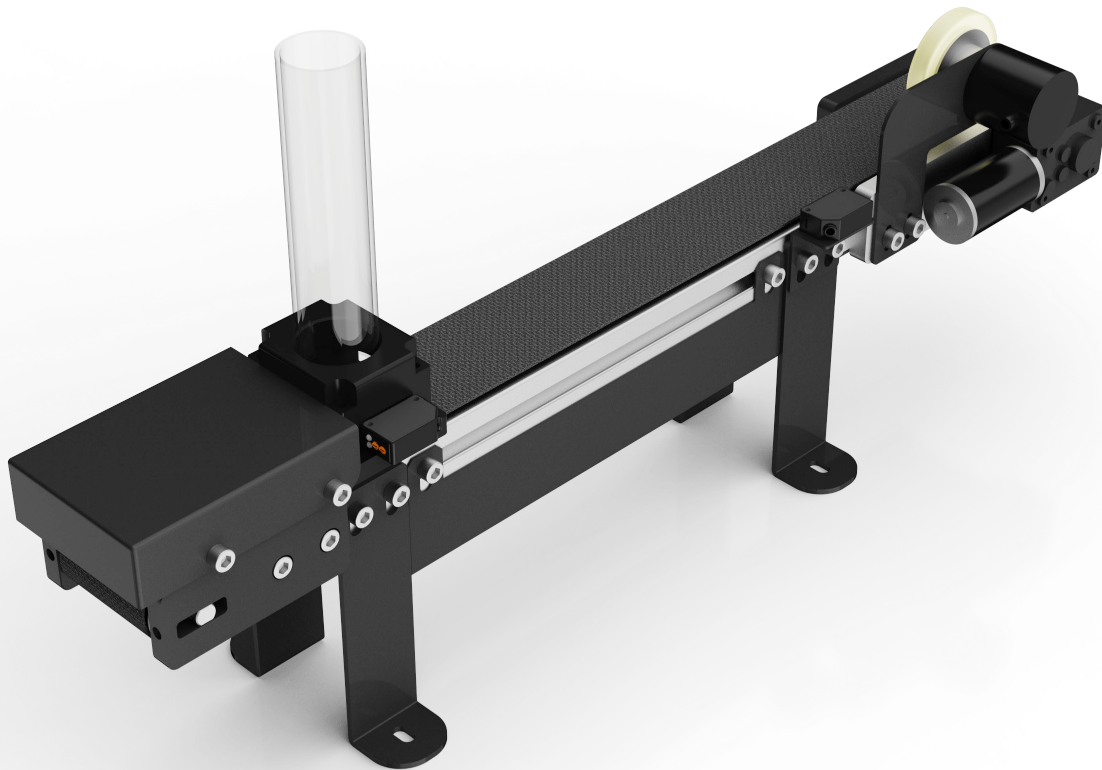
Conveyor Belt Kit

The Conveyor Belt Kit is a highly integrated modular component developed by Dobot for practical training. It supports various features including automatic material feeding, transportation, inspection and more. Its high compatibility allows combined usage with a number of robots including the DOBOT MG400, CR series and Magician E6. By combining the use with Collaborative Robot Universal Training Platform and other components, users can benefit from enhanced training results as automation scenes can be easily simulated.

Key Features

Lightweight and Highly-integrated

With a lightweight and highly-integrated design, it can be set up on tables, floors and training systems by just tightening screws for quick deployment.

Various Combinations for Better Simulations

Works with the Collaborative Robot Universal Training Platform, CR series and Magician E6 and PLC modular components to simulate various scenarios, satisfying training needs.

Compact and Multifunctional

Supports various functions such as automatic material feeding, checks for item and conveyor belt travel distance with real-time feedback on the accurate item position on the conveyor belt. It can collaborate with robots for precise picking. It also has a wide range of ports to support plug-and-play for easy operation.

Application Scenarios

Applicable in practical training and lab courses in vocational schools and higher education, occupation skills training and certification, automation competitions, on-the-job training, project development in research institutions and more.

Sensor Modules

|		
Main Body Dimensions	583 ± 8 mm x 115 mm x 180 ± 5mm	
Belt Dimensions	583 ± 8 mm x 55 mm x 140 ± 5mm	
Power Input	DC 24V	
Current	About 1A	
Speed	About 40mm/s	
Automatic Loading	Operates using linear actuator for 50 mm	
Material Inspection	Photoelectric sensor, inspection on the presence of material in 0 to 100 mm	
Incremental Encoder	Resolution	1000P/R
	Output Signal	ABZA/B/Z/ signal phasing
	Diameter	40mm
	Voltage	DC 5V
CE, RoHS		

Autonomous Mobile Manipulation Robot

The AMMR combines cutting edge SLAM, laser navigation, and human machine interaction technologies to realize transportation and pick-and-place capabilities, featuring precise navigation, proactive safety measures, easy to use software, and is safe for collaborations with humans. Combined with accessories from our ecosystem partners, the AMMR can perform tasks such as wafer transportation, loading & unloading to multiple machines, power inspection and more, to improve logistics efficiency in industrial scenarios.

Application Scenarios

| Wafer Handling | Loading & Unloading | Machinery Processing | Power Inspection | Consumer Electronics | Healthcare | Personal Care Products |

Product Specifications

691 mm

820 mm

831 mm

290 mm

560 mm

582 mm

DOBOT
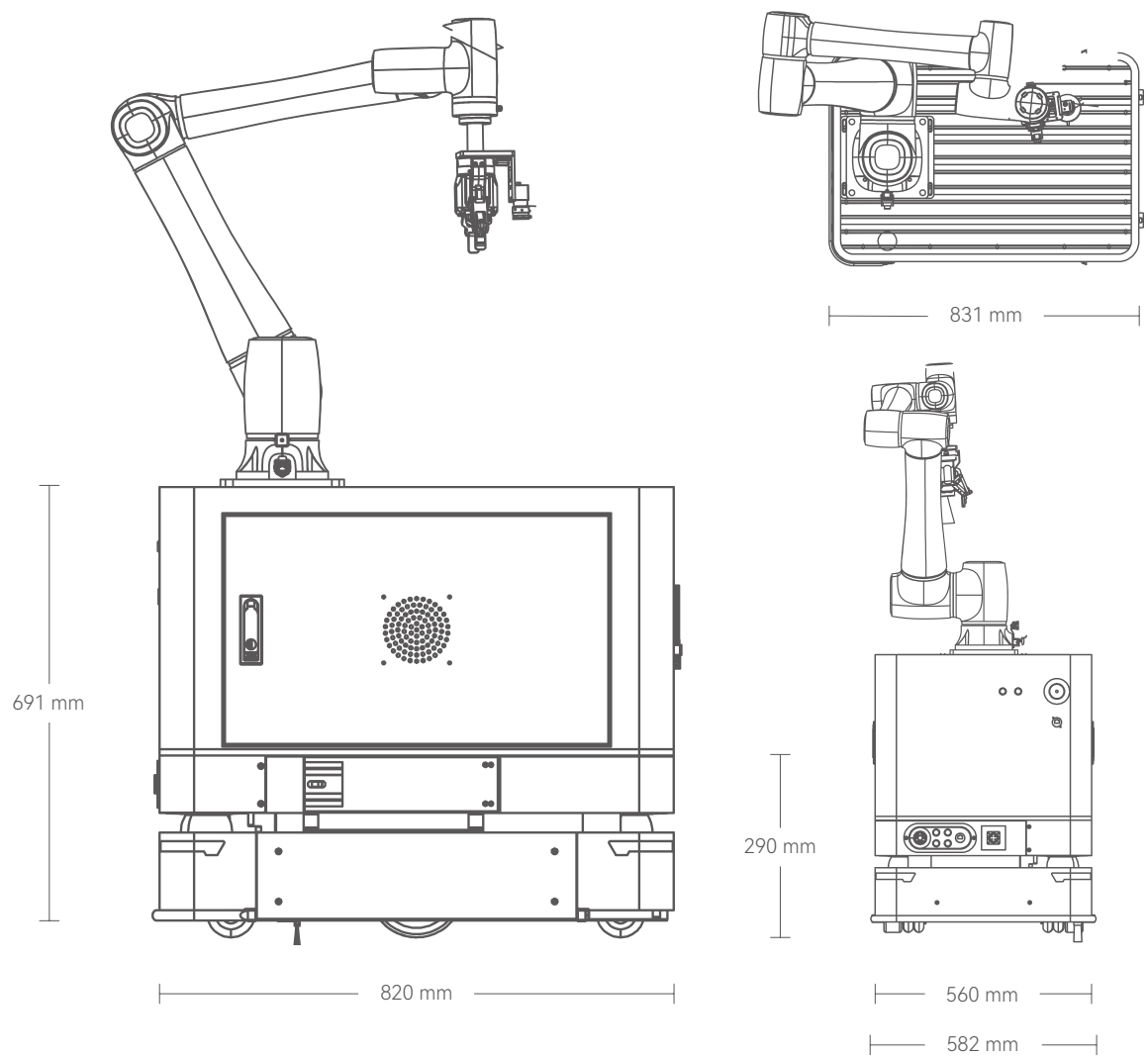
AMMR

	Model	AMB-300XS	AMB-300/300D
Parameter	Navigation Method	Laser SLAM	
	Drive Mode	Two-wheel differential	
	Shell Color	Pearl white	
	Dimensions (without Robotic Arm)	845 mm x 585 mm x 700 mm	1,000 mm x 700 mm x 793 mm
	Rotation Diameter	980 mm	1,040 mm
	Weight (with Battery)	120 kg	144 kg
	Load Capacity	300 kg	
	Minimum Aisle Width	725 mm	840 mm
	Navigation Accuracy	± 5 mm, ± 0.5°	
	Navigation Speed	≤ 1.5 m/s	≤ 1.4 m/s
	Map Area (Single Frame)	200,000 m²	
Battery	Spec	48V, 40 Ah (lithium battery)	48V, 52 Ah (lithium battery)
	Endurance	8 h	12 h
	Charging Time (10 to 80%)	≤ 2.5 h	
	Charging Method	Manual/automatic/quick charge	
Extended Interface	Power DO	Three-way (Total load capacity of 24V/2A)	Seven-way (Total load capacity of 24V/2A)
	DI	Eleven-way (PNP/NPN)	Ten-way (PNP/NPN)
	Emergency Stop Interface	Two-way output	
Network Interface	Wired Network	Two-way M12 X-CodeGigabit Network	Three-way RJ45 Gigabit Network
	Wireless Network	Wi-Fi 802.11 a/b/g/n/ac	
Operation Panel	Number Of Lidar	2 (SICK nanoScan3)	1 or 2 (P+F R2000-HD)
	E-stop Button, Buzzer, Ambient Light, Safety Rim	✓	
	HMI Display	×	✓
Working Environment	Ambient Temperature and Humidity	0° to 50° C, 10% to 90% noncondensing	
	IP Rating	IP20	IP20
Certifications	ISO 3691-4	✓	×
	EMC/ESD, UN38.3, RoHS, REACH	✓	
	Cleanroom	ISO Class 5	×

Wafer Inspection
Application Scenario
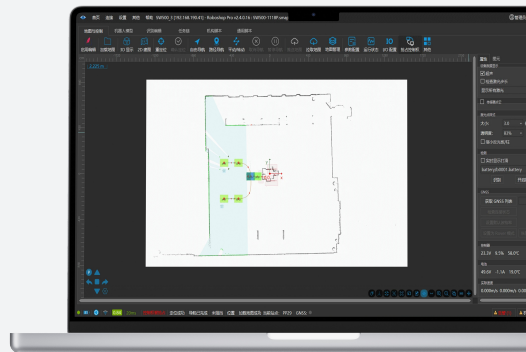
Key Features

Easy to Use. Precise and Efficient.

Reliability: Embedded laser SLAM algorithm achieves repeatability up to ±5 mm and ≤ ±2 mm relative positioning for seamless workflow among labor, machines, and cargo to improve logistics efficiency.

Expandability: Highly modularized design with cobots, AMR, cameras and grippers, the AMMR works with every cobot in the DOBOT CR Series, popular 2D/3D vision systems and grippers from third parties. Choose from a variety of accessories to work with your transportation and other scenarios.

Deployability: Use just one software to perform all the setup tasks, including map construction, points of interest, path planning, robot calibration, task creation. A resource management system is also included to manage operations with ease. MES can be seamlessly connected.

Better Protection with Safety Features.

Speed Monitoring: Dual encoders monitor the movement and spinning speed of AMMR, and stop motors when threshold is exceeded.

Safety Limit: Proximity sensors check for arrival to destination and halt robots to avoid collision.

Safety Zone: Dual lidar sensors perform 360-degree scan to recognize safety zones set by users.

|	
ISO 3691-4:2020, CE-MD, CE-EMC, CE-RED.	ISO Class 5 Cleanroom certified.
IEC 61508, IEC 62061, ISO 13849 certified.	All parts meet the CE requirement.

Faster Calibration with Vision Sensors.

Works with compatible cameras to enable 2.5D spatial compensation technology to compliment 6DOF posture positioning, realizing self-calibration and automatic orientation recognition. Supports QR code and symbol recognition, measuring and other vision applications via code free graphical user interface programming.
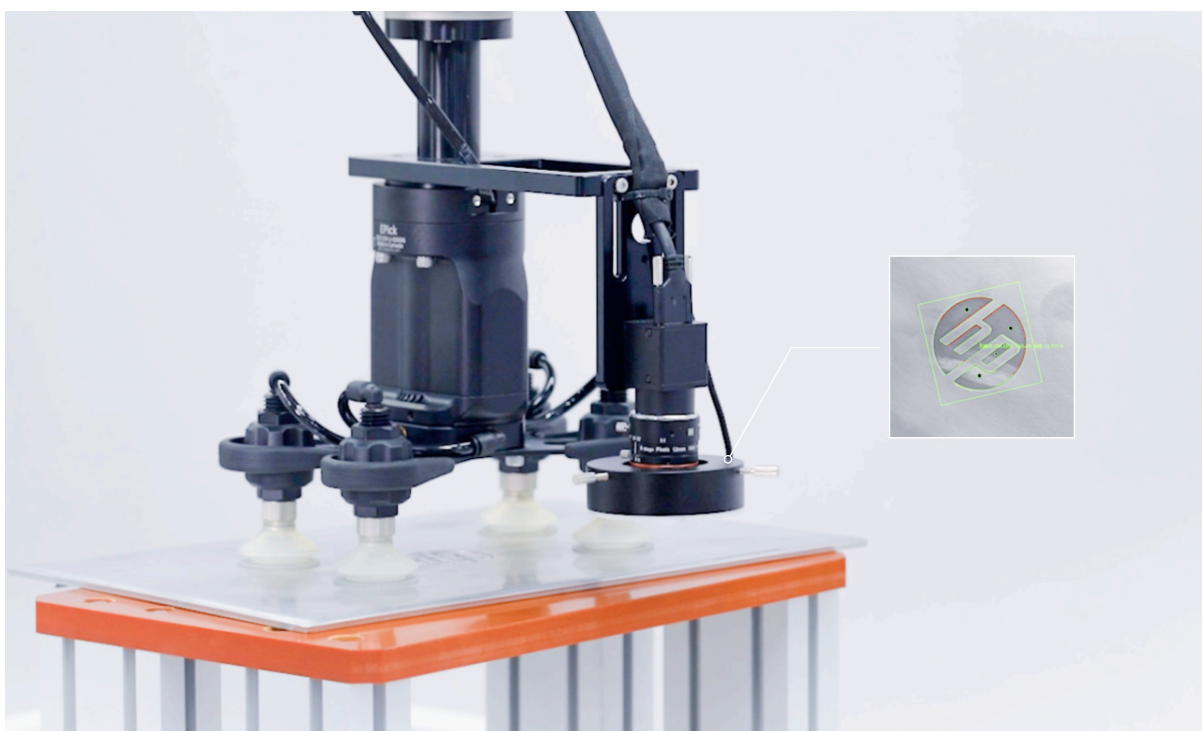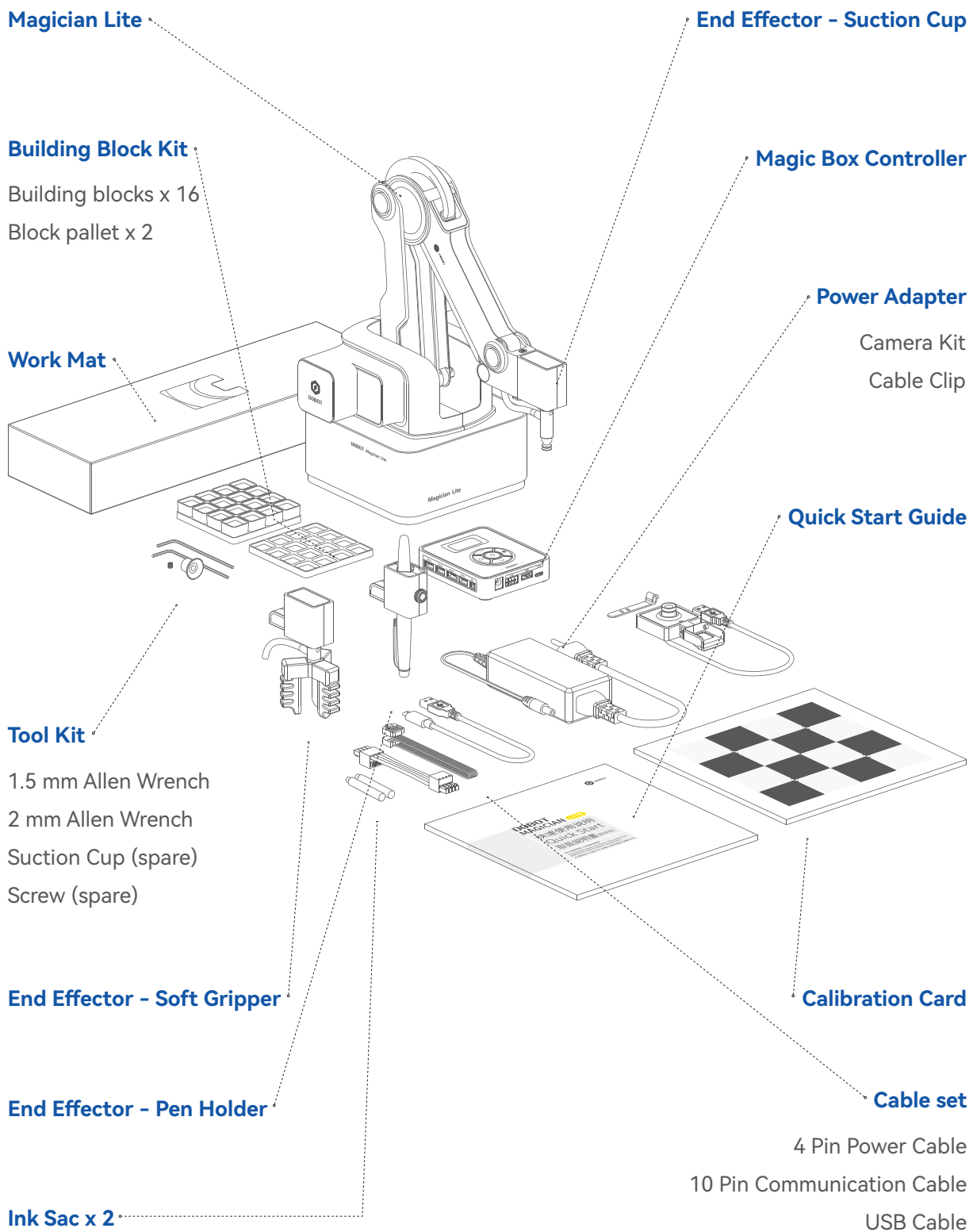
Products for
Elementary & Middle Schools

DOBOT Magician Lite

The DOBOT Magician Lite is a multi-functional lightweight intelligent robotic arm. It is one of the core products in Dobot's education line up. Students can interact with the Magician Lite using software, hardware and expansion interfaces to maximize their creative freedom.

Through the process of building and playing, students can learn how AI and robots work. They will be also introduced to the world of robotics and how robots can be applied in the real world.

Product Items

Magician Lite

Building Block Kit

Building blocks x 16

Block pallet x 2

Work Mat

Tool Kit

1.5 mm Allen Wrench

2 mm Allen Wrench

Suction Cup (spare)

Screw (spare)

End Effector – Soft Gripper

End Effector – Pen Holder

Ink Sac x 2

End Effector – Suction Cup

Magic Box Controller

Power Adapter

Camera Kit

Cable Clip

Quick Start Guide

Calibration Card

Cable set

4 Pin Power Cable

10 Pin Communication Cable

USB Cable

Product Specifications

Magician Lite

Number of Axes	4
Maximum Payload	250 g
Maximum Reach	340 mm
Repeatability	± 0.2 mm
Voltage	100 to 240V AC, 50/60Hz
Power Input	12V, 5A DC
Working Environment	−5° to 45° C
Power Consumption	60W Max
Communication Interface	USB Virtual Serial Port Serial Port
Software	DobotLab
Weight	2.4 kg
Rear Arm and Forearm Length	150 mm
Base Dimensions	146 mm x 146 mm
Range of Motion J1	−135 ° to 135 °
Range of Motion J2	−5 ° to 80 °
Range of Motion J3	−10 ° to 85 °
Range of Motion J4	−135 ° to 135 °
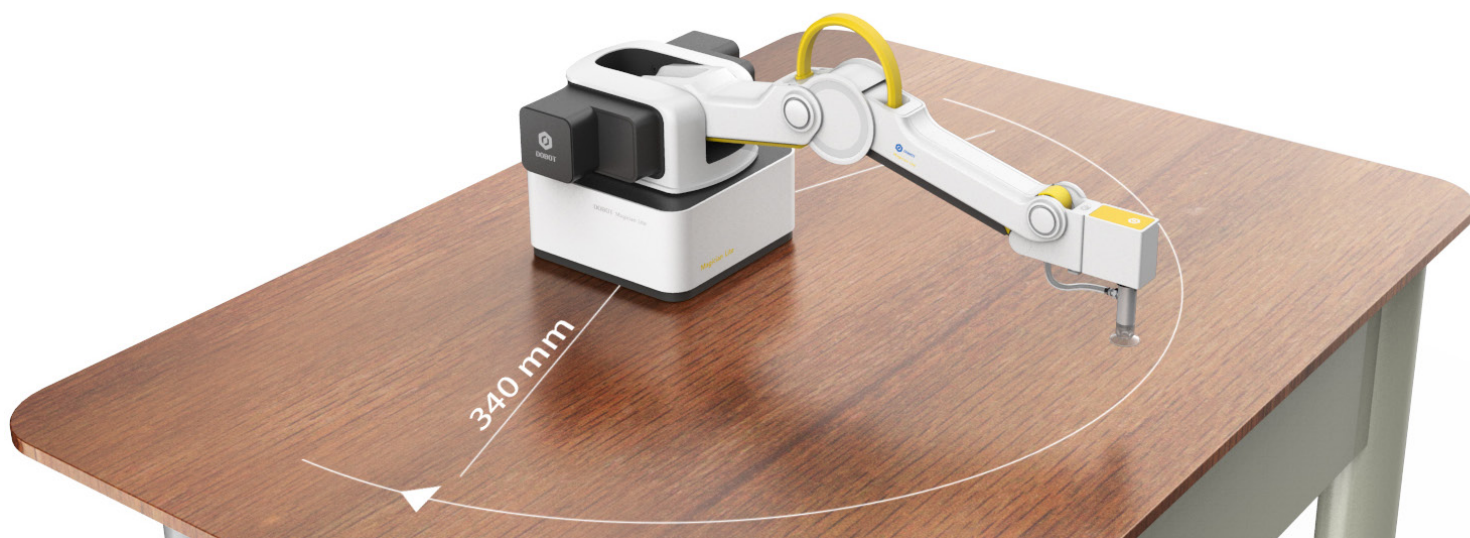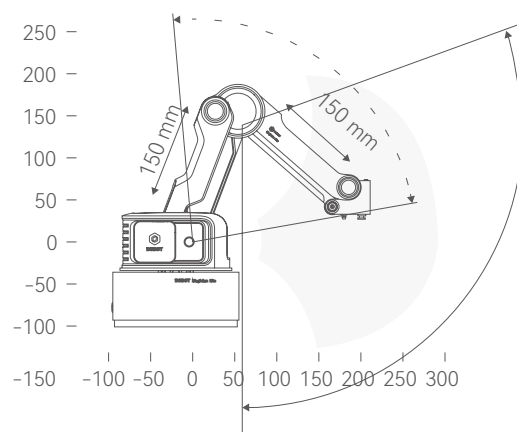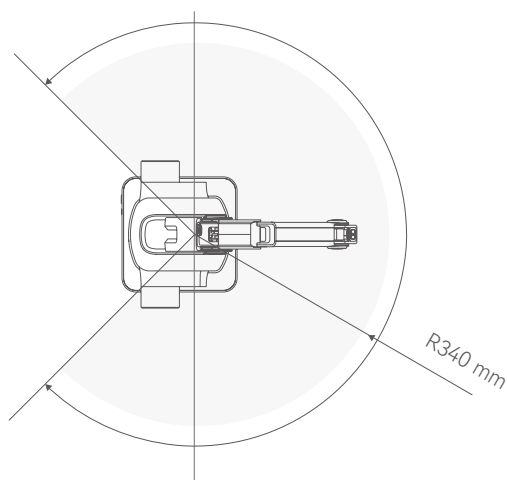
Magic Box

The DOBOT Magician Lite features an external controller called the Magic Box. It separates motion control algorithm and tasks to provide more flexibilities for programming. The Magician Lite supports offline mode, making it easier to plan and program when setting up teaching environment.

MCU	ARM 32-bit Cortex-M4
Main Frequency	168MHz
Voltage	100 to 240V AC, 50/60Hz
Power Input	12V, 5A DC
Working Environment	-5° to 45° C
Power Consumption	60W Max
Communication Interface	USB Virtual Serial Port/ Serial Port/Bluetooth
Programming Language	MicroPython
Software	DobotLab
Weight	98 g
Dimensions	95 mm x 80 mm x 21.5 mm

End Effectors

Different types of interchangeable end effectors such as soft gripper, suction cup and pen holder allow students to express their creativity.

	Pen Holder	8 to 12 mm pen diameter
	Suction Cup	Built-in air pump drive works under negative pressure, with suction cup diameter of 20 mm
	Soft Gripper	Built-in air pump drive works under positive and negative pressure, with maximum opening and closing distance of 50 mm

AI Camera Kit

Distortion-Free AI camera and microphone can be installed.

Dimensions	50 mm x 44 mm x 25 mm
Sensor Size	1/4" CMOS
Image Pixels	1 m
Image Format	YUV/MJPG
Data Format	240 x 320, 640 x 480, 1,280 x 720
Maximum Image Transfer Rate	1,280 x 720 @ 30fps
Camera Control	Saturation, Contrast, Acutance
White Balance	Auto
Exposure	Auto
Working Temperature	0° to 50° C
Operating Voltage	DC 5V
Interface	USB 2.0
Voice Input	Integrated microphone
Feature	All-in-one design, integrated microphone, distortion-free lens
Camera Working Angle	0° to 135°
Function	Face recognition, image recognition, OCR text recognition, speech recognition, etc.
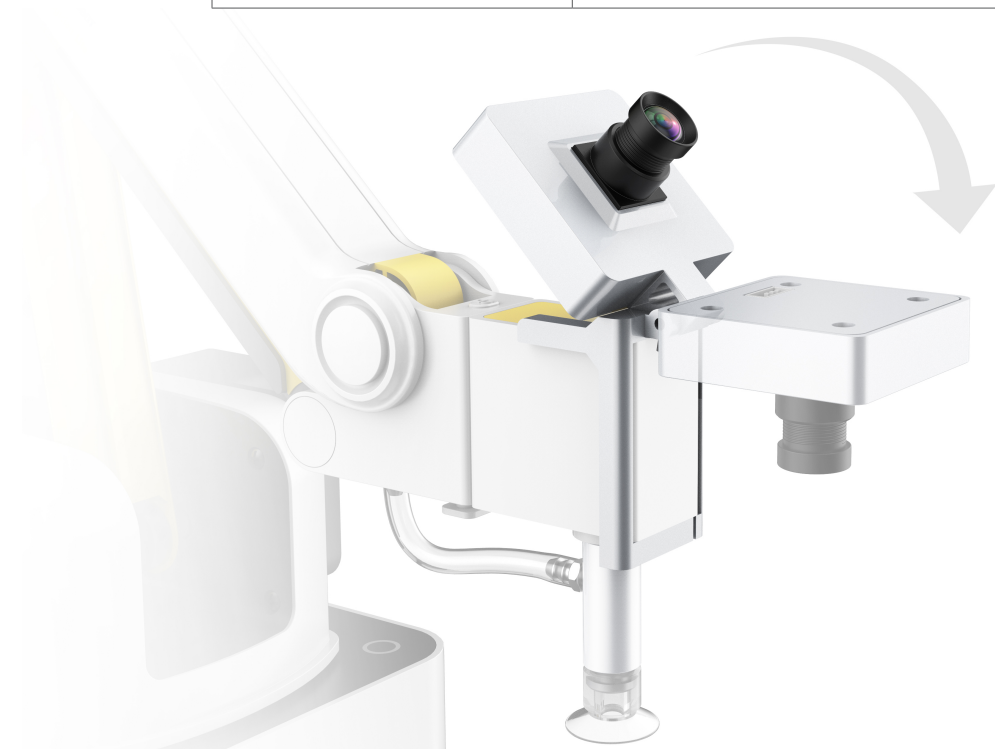
Product Packages

AI Teaching Kit

The AI Teaching Kit includes 4 packages of accessories for 4 AI application scenarios including commodity storage (OCR), smart grocery store (image recognition, image segmentation), smart shop assistant (voice, facial recognition) and smart garbage classification (image, voice recognition).

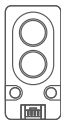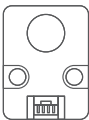| Materials	PVC, PC, Silicone, Paper
Package Dimensions	560 mm x 175 mm x 105 mm

Course Materials
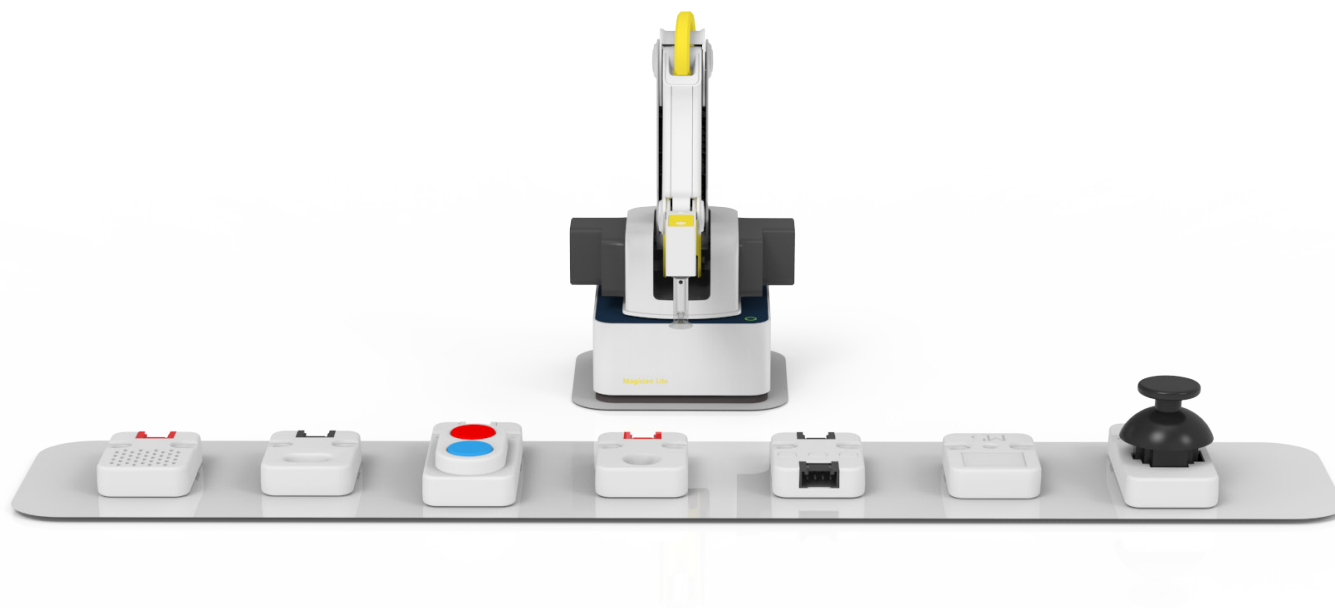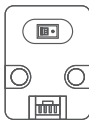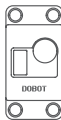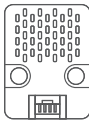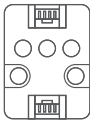
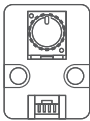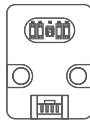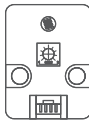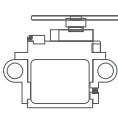# DOBOT Sensor Kit for Magician Lite

The DOBOT Sensor Kit for Magician Lite can be programmed using Python and graphic programming. It is easy to get started with and is suitable for beginners. The kit works with the Magic Box and the AI Camera Kit to enable more automation scenarios.

Product Components

Joystick	Dual Button	PIR Sensor	Gesture Sensor	Photoelectric Sensor	Sound Sensor
Humiture Sensor	LED Module	Knob Potentiometer	Color Sensor	Light Sensor	Micro Servo

Joystick

The working principle of the joystick is similar to a standard joystick gamepad. The X and Y axes correspond to two 10K potentiometers respectively. When the joystick is moved, it generates corresponding analog signal and outputs the offset value. The Z-axis is a button application.

Connection Mode: Connect to any green port of Magic Box (Port 1 to Port 6)
Communication Mode: I2C
Wiring Cable: Universal Sensor Cable
X/Y Output Value: 10 to 250
Z Output Value: 0: release; 1: press
Voltage: 5V
Current: 50mA

Dual Button

The dual-button module has two physical buttons in different colors for operation. The module determines the status of buttons by detecting the high/low level of input pins of different buttons.

Connection Mode: Connect to any green port of Magic Box (Port 1 to Port 6)
Communication Mode: I/O
Wiring Cable: Universal Sensor Cable
Voltage: 5V
Current: 50mA

PIR Sensor

The PIR sensor is a infrared sensor. It is a passive pyroelectric infrared detector. It works by detecting the infrared radiation emitted or reflected by the human body or objects. When detecting a signal, it outputs a high level and carries out a time delay (during which the high level is maintained and repeated triggering is allowed) until the triggering signal disappears (restoring low level).

Connection Mode: Connect to any green port of Magic Box (Port 1 to Port 6)

Communication Mode: I/O

Wiring Cable: Universal Sensor Cable

Detection Distance: 150 cm

Delay Period: 2 s

Induction Range: < 100°   **Static Current:** < 60uA

Operating Temperature: –20° to 80° C

Voltage: 5V   **Current:** 50mA

Gesture Sensor

The gesture sensor is a 3D gesture recognition sensor using I2C communication interface. It supports eight types of gesture recognition by default, and the maximum gesture detection frequency can reach 240Hz. It has certain anti–ambient light interference ability. With strong stability, fast recognition speed, high accuracy and low power consumption (working current: 2.2mA), it is suitable for a variety of applications, including non–contact remote control, robot interaction, human–machine interaction games, and gesture lighting control.

Connection Mode: Connect to any green port of Magic Box (Port 1 to Port 6)

Communication Mode: I2C
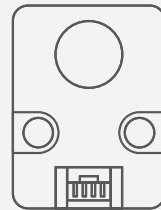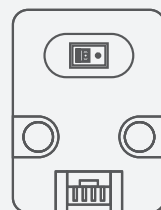
Wiring Cable: Universal Sensor Cable

Support Gestures: Up, down, left, right, forward, backward, clockwise, counterclockwise

Effective Recognition Distance: 5 to 15 cm

Voltage: 5V   **Current:** 50mA

Photoelectric Sensor

The photoelectric sensor is also called the photoelectric proximity switch. It detects the presence of the object through the connected circuit if there is an object shielding or reflecting light. The photoelectric sensor converts the input current into an optical signal on the transmitter, and the receiver detects the target object according to the intensity or presence of the received light. The L-shaped bracket made of aluminum alloy is used for fixing the photoelectric sensor so that the probe of the photoelectric sensor can be placed parallel to the tabletop.

Connection Mode: Connect to any green port of Magic Box (Port1 to Port6)

Communication Mode: I/O

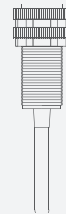**Wiring Cable:** Already attached

Value Range: 0 (no shield), 1 (with shield)

Standard Detection Environment: Sunlight less than 10,000 lx, incandescent lamp less than 3,000 lx

Detectable Object: Transparent or opaque object

Operating Temperature: –25° to 55° C

Response Time: < 2 ms

Sound Sensor

The sound sensor is used to detect the sound intensity of the surroundings. The greater the sound intensity it receives, the stronger the output signal and the greater the return value.

Connection Mode: Connect to any green port of the Magic Box (Port 3 or Port 4)

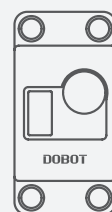**Communication Mode:** ADC

Wiring Cable: Universal Sensor Cable

Value Range: 0 to 1023

Sensitivity: (48dB to 52dB) @ 1kHz

Microphone Impedance: 2.2 Ohm

Microphone Frequency: 16 to 20kHz

SNR S/N: 54dB

Humiture Sensor

The humiture sensor is used to detect temperature and humidity of the surrounding environment.

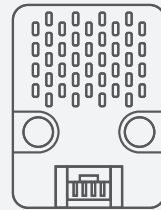**Connection Mode:** Connect to any green port of Magic Box (Port 1 to Port 6)

Communication Mode: I2C

Wiring Cable: Universal Sensor Cable

Temperature Range: 0° to 60° C/± 1° C

Humidity Range: 10 to 90% RH ± 5% RH

Voltage: 5V   **Current:** 50mA

LED Module

The LED module contains three RGB LED lights, which can be controlled independently.

Connection Mode: Connect to any green port of Magic Box (Port 1 to Port 6)
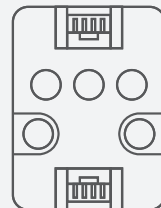
Communication Mode: Monobus

Wiring Cable: Universal Sensor Cable

RGB Range: 0 to 255

Brightness Range: 0 to 100%

Voltage: 5V

Knob Potentiometer

The knob potentiometer is a resistance element with a maximum resistance of 10K and this value can be adjusted by the knob rotation.

Output Voltage: 0 to 2,500 mV

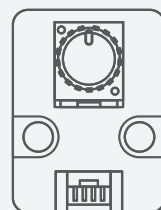**Connection Mode:** Connect to Magic Box green port (Port 3 or Port 4)

Communication Mode: ADC

Wiring Cable: Universal Sensor Cable

Brightness Return Value: 0 to 407 (Extreme fluctuation is normal)

Voltage: 5V

Current: 50mA

Color Sensor

The color sensor module is used to identify the color of the object and return a set of RGB values or color detection results.

Connection Mode: Connect to any green port of Magic Box (Port 1 to Port 6)
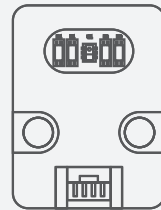**Communication Mode:** I2C
Wiring Cable: Universal Sensor Cable
Color Detection Result: 0: no color; 1: red; 2: green; 3: blue; 4: yellow; 5: black; 6: white
Color Value RGB: 0 to 200 (A higher value indicates a darker color)
Voltage: 5V
Current: 50mA

Light Sensor

The light sensor contains photosensitive resistance. The resistance value decreases with the increase of the incident light intensity. Based on this, the change of its voltage is detected and the light intensity data is obtained through AD conversion.

Connection Mode: connect to Magic Box green port (Port 3 or Port 4)
Communication Mode: I2C
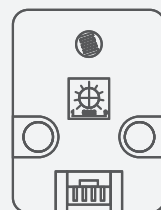**Wiring Cable:** Universal Sensor Cable
Color Detection Result: 0: no color; 1: red; 2: green; 3: blue; 4: yellow; 5: black; 6: white
Color Value RGB: 0 to 200 (A higher value indicates a darker color)
Voltage: 5V
Current: 50mA

Micro Servo

For the micro servo, yellow refers to signal cable, brown refers to ground cable, and red refers to 5V. The servo can be rotated 180°. When using the micro servo, pay attention to the supply current and voltage to prevent the servo from overheating.

Connection Mode: Connect to Magic Box green port (Port 3 to Port 6)
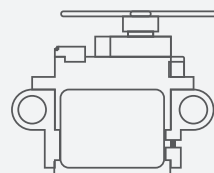**Communication Mode:** PWM
Wiring Cable: Universal Sensor Cable
Servo Speed: 0.1 s/60° /4.8V; 0.09 s/60° /6.0V
Torque: 1.6 kg • cm/4.8V; 1.8 kg • cm/6.0V
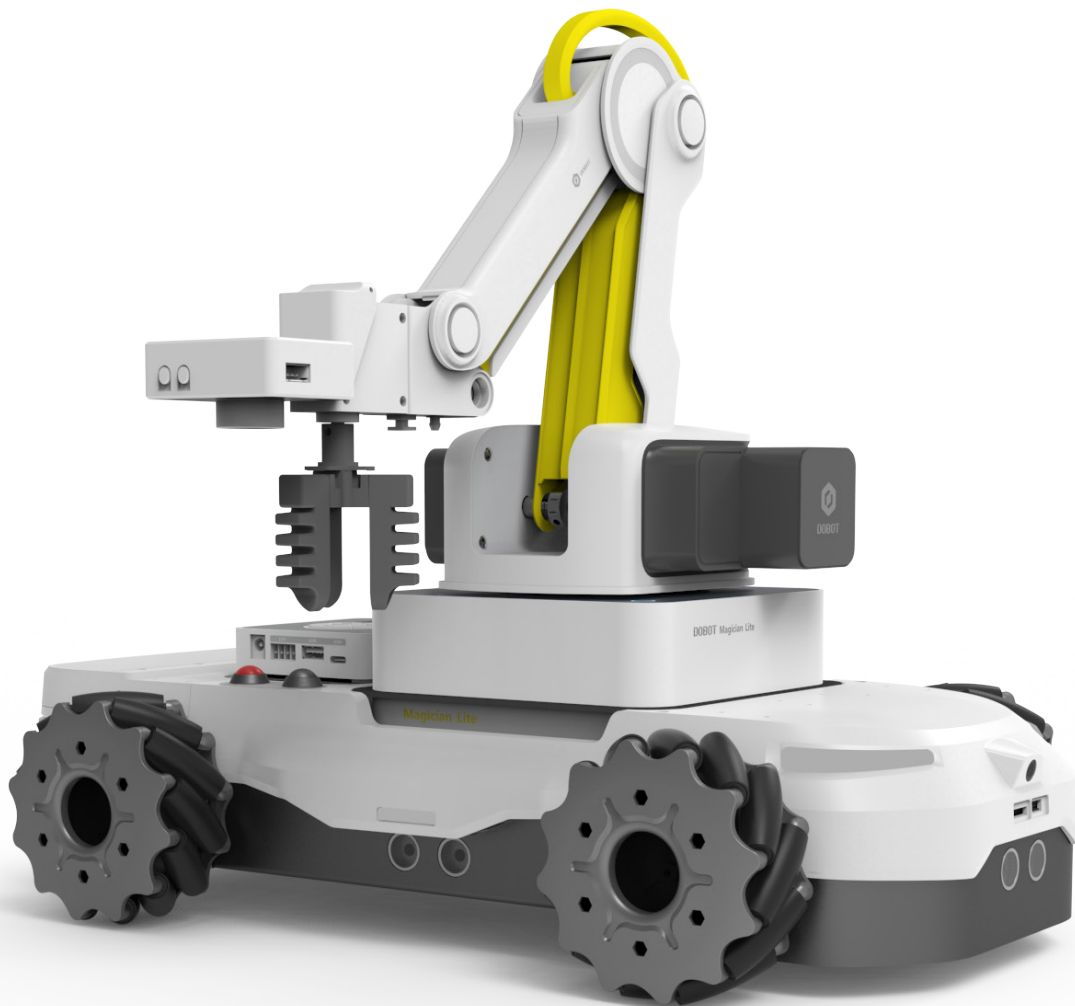**PWM Frequency:** 50Hz/0.5 to 2.5 ms
Voltage: 4.8 to 6.0V
Non-load Current: 60mA

Sensor Modules

Module	Communication Mode	Interface	Note
Light Sensor, Knob Potentiometer, Sound Sensor	ADC	Port 3 or Port 4	Analog Input
Joystick, Humiture Sensor, Gesture Sensor, Color Sensor	I2C	Port 1 to Port 6	Digital Input
Micro Servo	PWM	Port 3 to Port 6	PWM Input
LED Module	Single-bus	Port 1 to Port 6	–
PIR Sensor, Dual Button, Photoelectric Sensor	IO	Port 1 to Port 6	General IO

DOBOT Magician Go

The DOBOT Magician Go is a mobile platform that can be combined with a Magician Lite to enable mobility to the robotic arm. It has two AI-powered cameras, located at the front of the chassis and attached to the tip of the robotic arm, to allow for more application scenarios. The Magician Go is mainly controlled via the DOBOT Magic Box, which can receive commands from wired inputs, Bluetooth, game controllers, and offline scripts. Through DobotLab education platform, users can program the Magician Lite using Python and graphical programming. A full range of course contents and mapping modules are available to enhance the learning experience.

Product Items

Quick Start x 1

Camera Calibration Card x 1

Bluetooth Dongle x 1

Power Adapter x 1

AI Camera Kit x 1

Joystick Kit x 1

Joystick x 1

USB Connector x 1

Charging cable of joystick x 1

Power Box x 2

Built into Magician Go

Accessory Kit x 1

1.5mm Allen wrench x 1

2.0mm Allen wrench x 1

2.5mm Allen wrench x 1

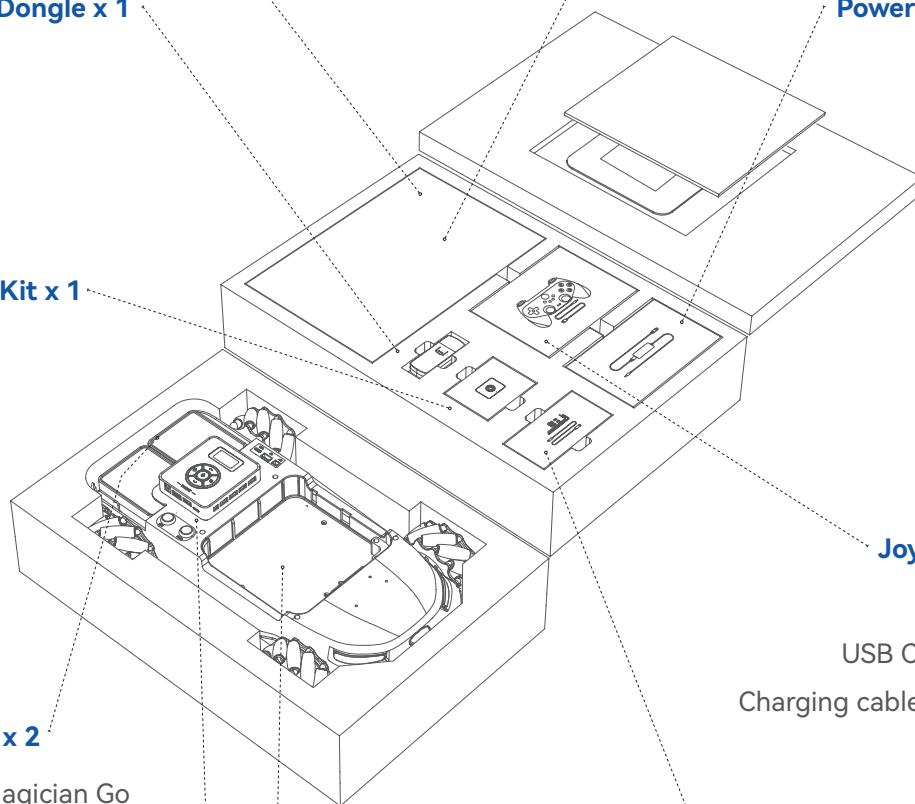M2 x 25 Hexagon socket head screws x 2

M3 x 6 Hexagon socket head screws x 2

M3 x 8 Hexagon socket countersunk head screws x 2

M2 Hexagon nuts x 2

USB Cable x 1

Magic Box x 1

Magician Go x 1

Product Specifications

Magician Go

Basic Parameters	Weight		5 kg
	Materials		Engineering plastic, aluminum alloys, stainless steel
	Communication Interface		2.4GHz Remote Control, USB Serial, Bluetooth
	Control Mode		2.4G remote controller, Bluetooth, wired control, script control
	Dimensions		463 mm x 293 mm x 125 mm
	Maximum Load		5 kg
	Rated Power		60W
	Time of Endurance		150 min
	Maximum Speed		1 m/s
	Rated Voltage		12V
	Working Temperature		0° to 45° C
	Software		DobotLab (Blockly/Python Programming)
Magic Box Controller	CPU		ARM 32-bitCortex-M4
	Rated Voltage		10 to 12V
	Interface	Power Interface	4 Pin (2 occupied) Supply power for Magician Go and robot arm
		Communication Port	10 Pin communicaiton interface (2 occupied) for communication with Magician Go and robot arm
			1 USB Type-C for PC serial communication
			1 USB interface for USB extended device, including joystick receiver
		I/O Interface	2 interfaces are occupied for controlling chassis and arm AI camera
		I/O Interface	4 interfaces are available for customizing I/O, AD, PWM output, I2C, etc.
		Motor Extended Interface	2 motor extended interface for controlling the stepper motor
		12V Power Interface	2 12V power interface for power input and output
	Virtual USB Drive Space		188 KB
	Programming Language		MicroPython

![DOBOT logo]

Magic Box

The DOBOT Magician Lite features an external controller called the Magic Box that separates motion control algorithm and user tasks to provide more flexibilities for programming and creating. The Magician Lite supports offline mode, making it easier to program and plan the function area for the teachers when setting the teaching environment.

|	
MCU	ARM 32-bit Cortex-M4
Main Frequency	168MHz
Voltage	100 to 240V AC, 50/60Hz
Power Input	12V, 5A DC
Working Environment	–5° to 45° C
Power Consumption	60W Max
Programming Language	MicroPython
Software	DobotLab
Weight	98 g
Dimensions	95 mm x 80 mm x 21.5 mm
Communication Interface	USB Virtual Serial Port/Serial Port/Bluetooth

AI Camera

The DOBOT Magician Go has two AI powered cameras, located at the front of the chassis and attached to the tip of the robotic arm for more application scenarios. Locally deployed AI algorithm performs image, text and facial recognition without network connection to enable road recognition, street sign detection, pedestrian detection, and robotic arm operation while driving, which allow autonomous driving with AI.

Arm AI Camera	AI Processor	Main Control Chip	K210
		Chip core	Dual core RISC–V 64–bit @ 400MHz
		Memory	8 MB
		Flash	16 MB
	Interface	USB Type–C	
		4 pin communication interface	
		Micro–SD slot	
	Camera Parameters	Sensor Format	1/4 inch
		Focal Length	1.7 mm
		Aperture	F/2.4
		Image Sensor	OV2640
		Array Size	1,600 mm x 1,200 mm
		Field Of View	150°
	Materials	Plastic	
	Dimensions	54 mm x 61 mm x 28 mm	
	LCD Screen Resolution	320 x 240	

2.4G Wireless Joystick

Dimensions	156 mm x 102 mm x 60 mm
Weight	190 g
Battery Capcity	500 MAh
Charging Port	Micro USB
Connection Type	2.4GHz wireless connection
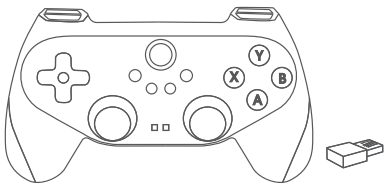
Bluetooth Dongle

|	
Connection Type Communication Protocol	USB 2.0, BLE4 2
Transmission Range	15 m (open field)
Dimensions	72 mm x 27.8 mm x 12.3 mm
Weight	20 g
Voltage	5V
Working Frequency	2.4GHz to 2.48GHz
Function	Automatic matching/One button response

DOBOT

DOBOT AI Education Platform

DobotLab

The DobotLab is a comprehensive education software platform designed specifically for AI education. It works with the DOBOT Magician and the DOBOT Magician Lite.

The DobotLab supports block and Python programming to code robots for a wide range of application scenarios. It comes with multiple advanced AI capabilities such as image recognition, speech recognition, machine translation, text reading, OCR text recognition and face recognition.

Seven Functional Modules

DobotBlock Lab

Code robots with intuitive block programming.
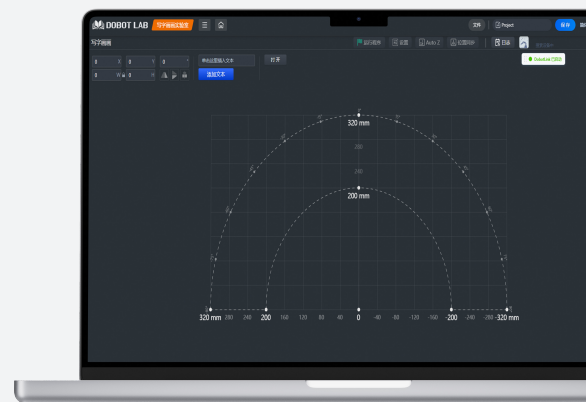Ideal for beginners to explore a wealth of robot functionalities.
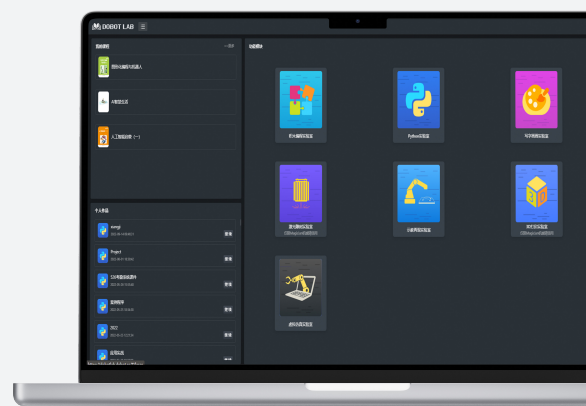
Python Lab

Control robots more precisely
with python programming.
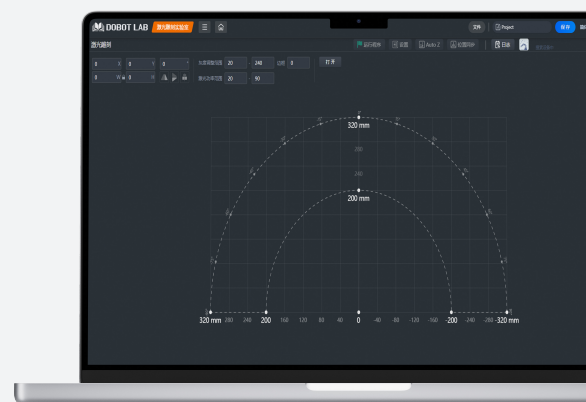Great for advanced users looking
for more control options.
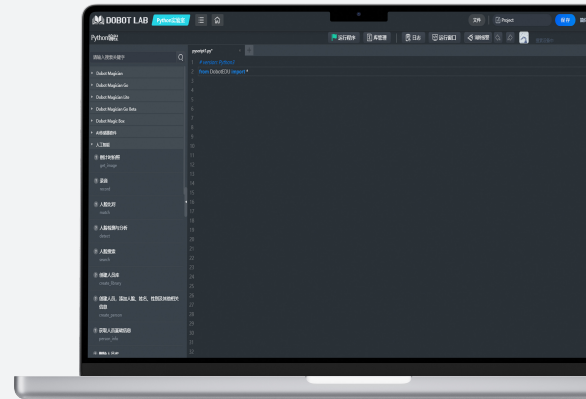
Writing and Drawing Lab

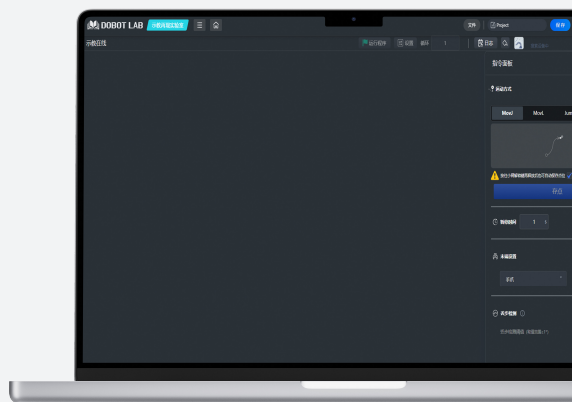Import texts and pictures and have
the robot draw them out.

Laser Engraving Lab

Enable laser engraving capability
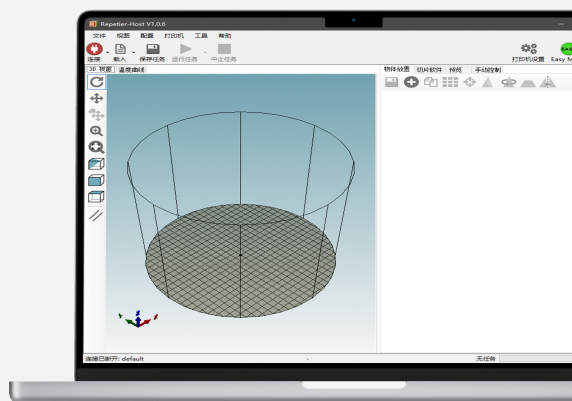on the Magician with this software.
(Only for Magician)

Teaching and Playback Lab

The most simple way to code a robot is by simply dragging the robot's arm and have it replay it. This software does just that.

3D Printing Lab

Import 3D models and have the Magician 3D print it out. This is a third party software. DobotLab provides the download link.

(Only for Magician)

Virtual Simulation Lab

Run robot simulations with this software. Various assets are available to allow for quick scenario building. The virtual robot can be controlled with block and Python programming.

AI Interface Introduction

These blocks contain AI interfaces such as face recognition, text recognition, speech synthesis, speech and image recognition and natural language understanding to name a few.

Users can experience AI technology by simply dragging and dropping the blocks, which makes AI more comprehensible and accessible.

| Facial Recognition |
| OCR Text ID Card Recognition |
| Image Recognition |
| Voice Recognition |
| Analysis Of Emotional Tendency |

System Requirements for DobotLab

Minimum	OS	Windows 7 32-bit
	Processor	Intel CPU Core i3
	RAM	4 GB RAM
	Graphics	Support OpenGL 2.0
	Storage	2 GB available space

Recommended	OS	Windows 10 64-bit
	Processor	Intel CPU Core i5 8400 2.80GHz
	Memory	8 GB RAM
	Graphics	Nvidia GPU GeForce GTX 960 or better (support OpenGL 2.0)
	Storage	2 GB available space

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