Elephant Robotics 大象机器人

深圳市大象机器人科技有限公司
地址：深圳市福田区华强北街道深南中路2070号电子科技大厦D座F505
邮箱：support@elephantrobotics.com
电话：+86(0755)-8696-8565 (工作日9:30-18:30)
网址：www.elephantrobotics.com

Shenzhen Elephant Robotics Technology Co., Ltd
Address: Room 505, Black Ark Center, Electronics&Technology Building,
　　　　 Futian Dist, Shenzhen, China 518000
Email: support@elephantrobotics.com
Phone: +86(0755)-8696-8565 (working day 9:30-18:30)
Website: www.elephantrobotics.com

小象协作机械臂-树莓派版

myCobot 280 Pi 2023

教育六轴协作机器人

Educatoional 6-Axis Collaborative Robot

⚠ Warning

BEFORE USING MYCOBOT READ ALL INSTRUCTIONS AND CAUTIONARY MARKINGS IN THIS MANUAL

1. Do not expose the product to rain or moisture to reduce fire or shock hazard.
2. Do not place the product in or near fire.
3. Do not leave the product in a car in hot or humid weather.
4. Do not disassemble, crush or pierce the product.
5. Do not expose the product to excessive shock such as dropping from a high place.
6. Do not expose the product to high temperatures above 60 °C (140 °F).

⚠ Attention

Regarding the operation and secondary development of myCobot Pi, please read and download **Gitbook** before using it.

Official Website： https://www.elephantrobotics.com/en/mycobot-pi/

myCobot 280 Pi

The World's Smallest Collaborative Robot

Raspberry Pi

World's Smallest 6-Axis Collaborative Robot

myCobot-Pi six-axis collaborative robot is a multi-functional and lightweight intelligent robotic arm designed & developed by Elephant Robotics. It belongs to the "myCobot series" products and adopts a Raspberry Pi microprocessor. It is one of Elephant Robotics' core robot for the robot and artificial intelligence education ecosystem.

myCobot-Pi has a net weight of 850g, a payload of 250g, and a working range of 280mm. It is compact but powerful. It has rich software and hardware interaction methods and diversified compatible expansion interfaces. It supports multi-platform secondary development and effectively helps users to achieve multi-scene application development (Japanese users are recommended to use KSY's UNI345-1238).
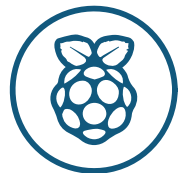
Unlimited potential with Raspberry Pi ecology

• Raspberry Pi 4B, 1.5GHz 4-core microprocessor, running on Ubuntu platform
• Support USB *4, micro HDMI *2, standardized GPIO interface

Built-in ROS & Blocky programming

• Built-in ROS simulation manipulator operating state, super scalability
• blockly visual programming, while supporting general Python software interface

Image recognition with multiple end-effectors

- Comes with image recognition algorithm can work with variety of cameras.
- Independently match different accessories such as display, gripper, suction pump, etc.,
- Realize more application scenarios.

Unique industrial design, extremely compact

- Integrated design, the body structure is compact, and the net weight is only 850g, super convenient to carry
- Modular design, few spare parts, low maintenance cost, quick disassembly and replacement, realizing plug and play

High configuration, with Lego ports

- Contains 6 high-performance servo motors, fast response, small inertia, smooth rotation
- The base and the end are equipped with Lego ports, easier for the development of various micro-embedded equipment

myCobot Series - Design Prototype - Elephant Robot®C Series Robot

The design prototype of myCobot is from All-in-one Robot launched by Elephant Robottics in China in 2018. As the first integrated collaborative robot in China, it has won the 2019 CAIMRS Industrial Robot Innovation Award and 2019 High-tech Robot Annual "Innovation Technology Award", and has been also sold to more than 30 countries at home and abroad, receiving unanimous praise and recognition from the factories of the world's top 500 enterprises.

myCobot Pi - Size and Working Range Diagram
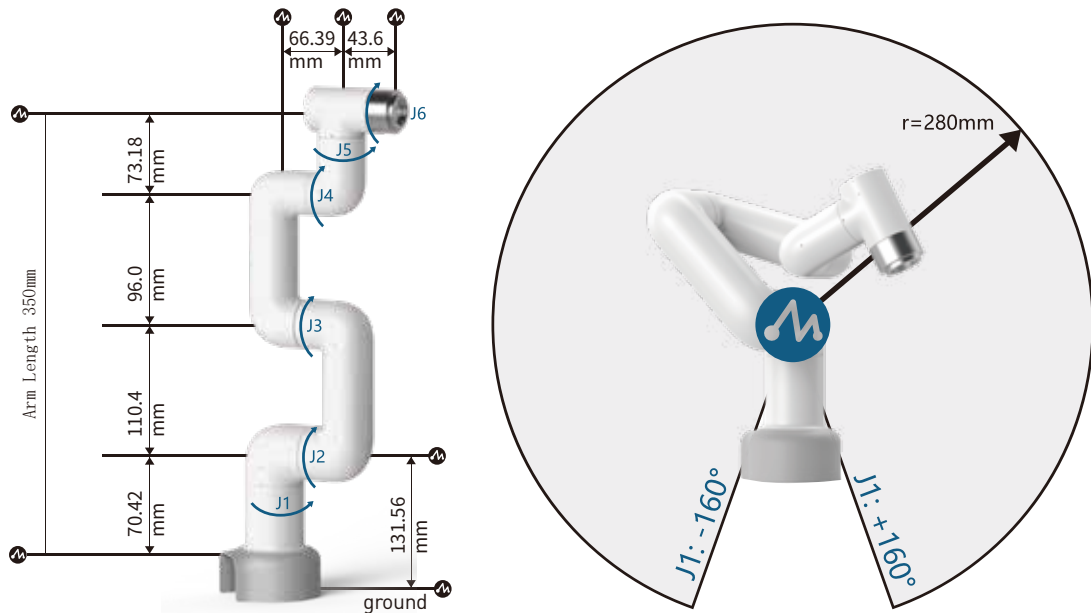
Parameter

| Degree of Freedom	6
Payload	250g
Arm Span	350mm
Working Radius	280mm
Repeatability	±0.5mm
Weight	850g
Power Input	DC 12V,5A 60W
Working Temp.	-5 ~ 45°
Communication	USB/Type-C

myCobot - M5STACK Atom	
Model	M5STACK Atom
ESP32	240MHz dual core, 600 DMIPS, 520KB SRAM, Wi-Fi, dual mode Bluetooth
Flash	4MB
Input voltage	5V @ 500mA
Host interface	TypeC x 1, GROVE(I2C+I/0+UART) x 1
PIN	G19, G21, G22, G23, G25, G33
RGB LED	WS2812C 2020 x 25
MEMS	MPU6886
IR	Infrared transmission
Key	Custom key x 1
Antenna	2.4G 3D Antenna
Temperature	-5-45°C

Base interface

A. Figure 1-1 shows the front ports and buttons of the pedestal

B. Figure 1-2 shows the ports on the left of the pedestal
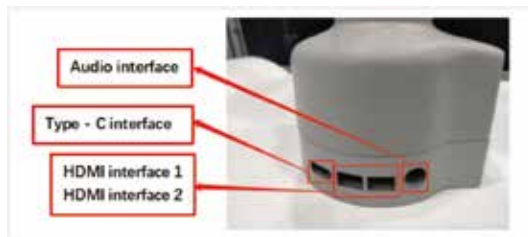
C. Figure 1-3 shows ports on the right of the pedestal

myCobot Pi VS myCobot M5

		myCobot Pi	myCobot - M5
Robot Parameter	Working range	280mm	280mm
	DOF	6	6
	Payload	250g	250g
Hardware Parameter	SOC	Broadcom BCM2711	Esp32
	CPU	1.5GHz Quad-core	240MHz Dual-core
	Bluetooth/wireles	Yes	Yes
	USB	USB3.0 x2 USB2.0 x2"	Type-C x1
	Display	No	2 inches IPS screen
	HDMI port	HDMI-mini x2	No
	Custom keys	No	3
	IO port	40	20
Software Platform	-	Work Independently	Connect with PC
	ROS/Python	Built-in	PC
	Blocky Programming	Built-in	PC

myCobot Accessory

1 Adaptive Gripper   2 Flat Base   3 Camera Flange   4 Suction Pump   5 G Base
6 Pen Gripper

Elephant Robotics are targeted at robotic collaboration applications, making "my-series" product line.
For new information about the accessories, Follow us on Shopify and Twitter.
Shopify: https://shop.elephantrobotics.com/
Twitter: @cobotMy

在使用本产品之前，请阅读本手册中所有说明及警告提示。

• 为避免火灾或电击危险，请勿将产品暴露在雨中或潮湿的地方。

• 请勿将产品放在火中或靠近火处。

• 请勿将本产品放置或使用在炎热潮湿的地方。

• 请勿暴力拆卸本产品。

• 请勿将产品暴露在过度的冲击下，如从高处跌落。

• 不要将产品暴露在超过60℃(140℃F)的高温下。

⚠ 开机必读

本册为myCobot小象机械臂-树莓派版产品画册

关于本产品的操作使用及二次开发，请先在大象机器人官网阅读并下载Gitbook相关指导说明.

下载链接：https://www.elephantrobotics.com/en/mycobot-pi/
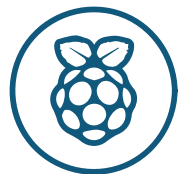
myCobot 280 Pi

世界最小最轻的六轴协作机器人 - 树莓派版

Raspberry Pi
树莓派版

世界最小最轻的六轴协作机器人

myCobot-Pi六轴协作机器人是大象机器人精心研发的多功能轻量型智能机械臂,隶属"myCobot-系列"产品,采用树莓派微处理器,是大象机器人面向机器人及人工智能教育生态的核心产品之一。

myCobot-Pi六轴协作机器人自重850g,有效载荷250g,臂展280mm,体积小巧但功能强大,具备丰富的软硬件交互方式及多样化兼容拓展接口,支持多平台的二次开发,有效帮助用户实现多场景的应用开发(日本用户推荐使用KSY的UNI345-1238)。

内嵌树莓派生态,开发无限可能

- 树莓派4B,1.5GHz 4核微处理器,运行Ubuntu平台
- 支持4路USB,2路HDMI,标准化GPIO接口

自带ROS,图形化编程Blockly

- 内置ROS仿真机械臂运行状态,超强扩展性
- blockly可视化编程,同时支持通用Python软件接口

图像识别,丰富配件,应用广泛

- 自带图像识别算法,可选配任意摄像头
- 自主搭配显示器、夹爪吸泵等不同配件,实现更多应用化场景

独特工业设计,极致小巧

- 一体化设计,整体机身结构紧凑,净重仅850g,十分便于携带
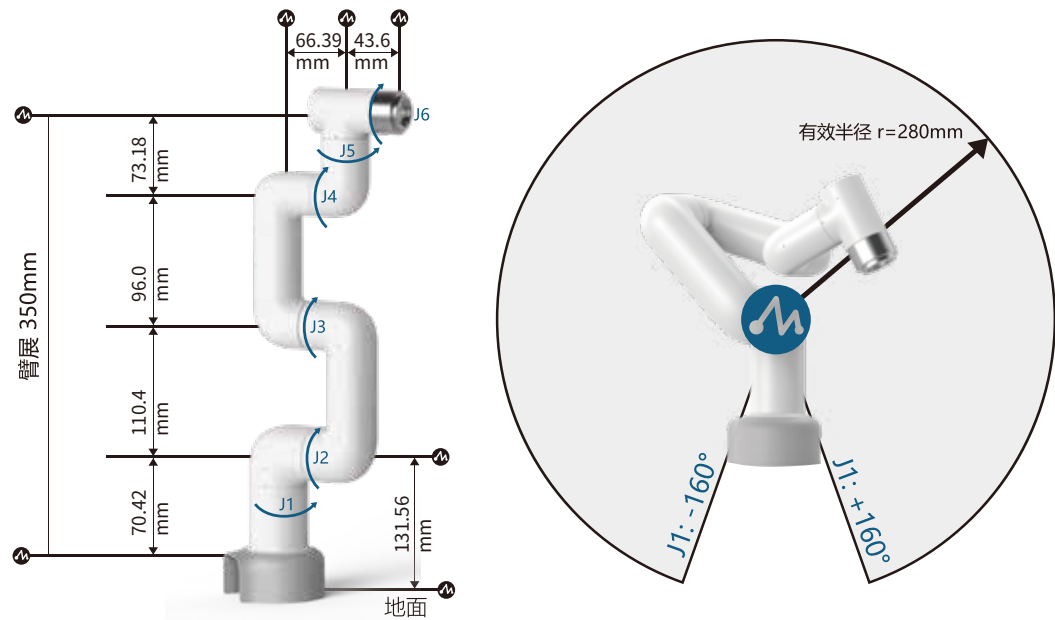- 模块化设计,备件少、维护成本低,可快速拆卸更换,实现即插即用

高配置,搭配Lego接口

- 内含6个高性能伺服电机,响应快,惯量小,转动平滑
- 底座及末端带有乐高科技接口,适用于各项微型嵌入式设备开发

myCobot小象机械臂系列设计原型-大象机器人C系列all-in-one机器人

myCobot小象机械臂系列的设计原型为大象机器人2018年推出的国内首款 all-in-one 一体式协作机器人。作为国内首款一体式协作机器人，它曾获得2019CAIMRS工业机器人创新奖，2019高工机器人年度"创新技术奖"，远销海内外30多个国家并备受数家来自世界500强名企的一致认可与好评。

尺寸与工作范围图

66.39 mm   43.6 mm

J6

J5

73.18 mm

J4

96.0 mm

J3

臂展 350mm

110.4 mm

J2

70.42 mm

J1

131.56 mm

地面

有效半径 r=280mm

J1: -160°

J1: +160°

产品参数

myCobot 280 Pi	
型号	myCobot-Pi
自由度	6
有效负载	250g
工作半径	280mm
重复定位精度	±0.5mm
重量	850g
电源输入	DC12V5A 6OW
工作温度	-5 ~ 45°
通信	Type-C

myCobot - M5STACK Atom	
型号	M5STACK Atom
ESP32	240MHz dual core, 600 DMIPS, 520KB SRAM, Wi-Fi, dual mode Bluetooth
Flash	4MB
输入电压	5V @ 500mA
主机接口	TypeC x 1, GROVE(I2C+I/0+UART) x 1
PIN接口	G19, G21，G22，G23, G25, G33
RGB LED	WS2812C 2020 x 25
MEMS	MPU6886
IR	Infrared transmission
按键	自定义按键 x 1
天线	2.4G 3D天线
工作温度	-5-45℃

底座接口

①：开关按键：红色为开关，I为开机，O为关机。

②：机械臂充电口：使用DC电源插座，外径6.5mm，内径2.0mm；可使用厂家配备的8.4V 5A DC电源适配器给mycobot280进行供电。

③：底部引脚口：见下一段表格

④：USB2.0和USB3.0接口：以串口总线标准2.0和3.0进行数据连接的接口；用户可以使用USB接口拷贝程序文件，也可以使用USB接口连接鼠标、键盘等外设。

⑤：网口：网络数据连接的端口，用户使用Ethernet接口可以用于PC端与机器人系统的通信交互，也可以用于与其他设备进行以太网通信。

⑥：树莓派4B自带USB插口

⑦：显示屏接口：HDMI接口，该接口为HDMI D型接口（如图1-8,1-9所示），连接显示器.HDMI接口2存在优先级，推荐使用HDMI接口1。

⑧：音箱、耳机插口

a. Type C接口：可用于和PC端连接通讯，更新固件使用。

b. Grove接口4：Grove接口4定义如图2-4所示

myCobot VS myCobot Pi

		myCobot - 树莓派	myCobot
机械臂参数	臂展	280mm	280mm
	自由度	6	6
	负载	250g	250g
电子参数	SOC	Broadcom BCM2711	Esp32
	CPU	64位 1.5GHz四核	240MHz 双核
	蓝牙/无线	有	有
	USB	USB3.0 x2 USB2.0 x2"	Type-C x1
	显示屏幕	无	IPS屏 2英寸
	HDMI接口	HDMI-mini x2	无
	自定义按键	无	3个
	IO接口	40个	20个
软件平台	适用于	独立工作	PC
	ROS/Python	内嵌	PC
	Blockly图形化编程	内嵌	PC

myCobot产品配件

❶ ❷ ❸

❹ ❺ ❻

1 自适应夹爪   2 平面底座   3 摄像头法兰   4 吸泵   5 G型底座

6 笔夹

大象机器人面向机械臂扩展应用，打造"my-系列"产品线。相关配件的上新，请关注官方淘宝店铺。

店铺名称：大象机器人

产 品 保 修 卡

用户信息(必填)：

购买人 _____ 订单号_____ 联系电话_____

地址 _____ 物流签收日期 _____

产品问题描述(必填)： _____

如需退换货，请事先联系客服确认退回相关信息。待客服确认后，填写此卡并将这一页随同产品一起寄回。

注：我司在法律允许范围内保留对本产品保修卡解释和修改的权利。

- 产品自签收起7日内未拆封可无理由退换，因产品退换所产生的费用及其他风险需由客户承担。
- 用户如需产品保修服务需提供相应的购买单据及产品保修卡作为保修凭证。
- 凡属于正常使用下由于产品本身质量问题引起的硬件故障，保修期内大象机器人给予免费维修。
- 保修起始日期为产品购买日或物流签收日。
- 维修更换的配件归大象机器人所有，必要时会收取适当的成本费用。

以下为详细的配件保修服务说明(如需以下产品售后服务，请事先联系客服沟通并确认相关信息)

舵机	
保修期限	保修服务
≤1个月	我司免费提供一个新舵机并承担寄送运费(仅一次)
1-3个月	我司免费提供一个新舵机，由客户自行承担运费(仅一次)
≥3个月	客户需自己重新购买

电子件

保修期限	保修服务
≤3个月	由用户拆卸后寄回，我司免费更换并承担往返运费(仅一次)
3-6个月	由用户拆卸后寄回并承担往返运费，我司免费更换(仅一次)
≥6个月	客户需自己重新购买

结构件，含外壳部分

保修期限	保修服务
≤1年	我司免费提供新的零件，由客户自行承担运费(仅一次)
≥1年	客户需自己重新购买

特别说明: 在交付产品的保修期内，本公司仅对正常使用机器人时发生的故障进行免费修理。

但在以下情况下，将对客户收取修理费用(即使在保修期内):

(1) 因不同于手册内容的错误使用以及使用不当而导致的损坏或故障

(2) 客户未经授权进行拆卸导致的故障

(3) 属于外壳等部件自然的消耗，磨损及老化

(4) 因调整不当或未经授权进行修理而导致的损坏

(5) 因地震、洪水等自然灾害导致的损坏

因此，请严格遵照本手册及相关手册的指示对机器人进行操作。

WARRANTY CARD

Customer Information (Required):

Purchaser _____ Order No. _____ Phone _____

Address _____ Logistics Receipt Date _____

Product problem description(Required):

_____

If you need to apply for warranty service, please contact our customer service to confirm the detailed informa-tion. After confirmation, please fill in the card and send it back together with the product and the attached invoice. **Note: Our company reserves the right to explain and modify the warranty card of this product within the scope of the law.**

- Return service is limited to goods not opened within 7 days after the receipt date of logistics of the products. The freight or other risks incurred in return shall be borne by the customer.
- Customers should provide the purchasing invoice and warranty card as the warranty certification when a warranty is being asked.
- Elephant Robotics will be responsible for the hardware faults of products caused by the normal using during the warranty period.
- The warranty period starts from the date of purchase or the receipt date of the logistics.
- The faulty parts from the products will be owned by Elephant Robotics, and the appropriate cost will be charged if necessary.

If you need to apply for warranty service, please contact our customer service first to confirm the detailed information.

servo motor	
Warranty Period	**Warranty Services**
≤1 months	Elephant Robotics offers a free new servo motor and bear the freigh.
1-3 months	Elephant Robotics offers a free new servo motor, customs shall bear the freight.
≥3 months	Customers need to buy it themselves.
Electrical Parts	
≤3 months	Customers need to send it back after disassembly, Elephant Robotics shall send a new one for free and bear the freight out and home.
3-6 months	Customers need to send it back after disassembly and bear the freight out and home, Elephant Robotics shall send a new one for free.
≥6 months	Customers need to buy it themselves.
Structure Parts, including Shell Parts	
≤1 year	Elephant Robotics offers free new components once, customs shall bear the freight.
≥1 year	Customers need to buy it themselves.

During the warranty period of the delivered product, the company only repairs the malfunctions that occur during normal use of the robot for free. However, in the following cases, the customer will be charged for repairs (even during the warranty period):
• Damage or malfunction caused by incorrect use and improper use different from the contents of the manual.
• Failure caused by unauthorized disassembly by the customer.
• Damage caused by improper adjustment or unauthorized repairs.
• Damage caused by natural disasters such as earthquakes and floods.

Therefore, please strictly follow the instructions in this manual and related manual to operate the robot.