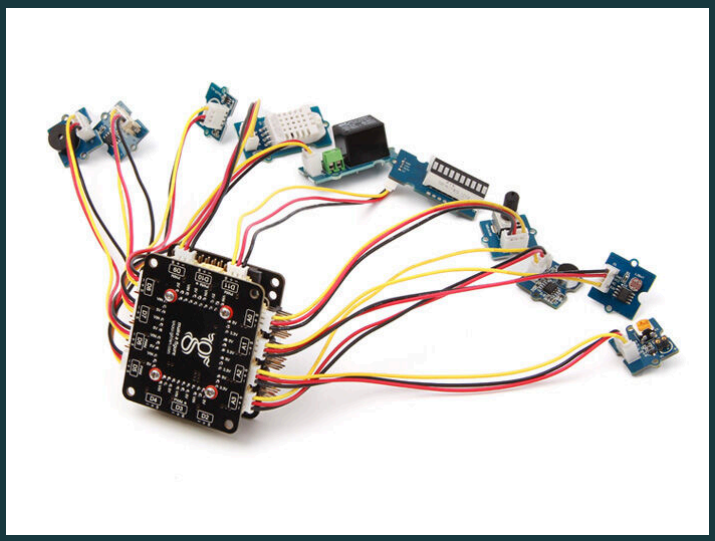
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INDUSTRIAL PRODUCT DATASHEET

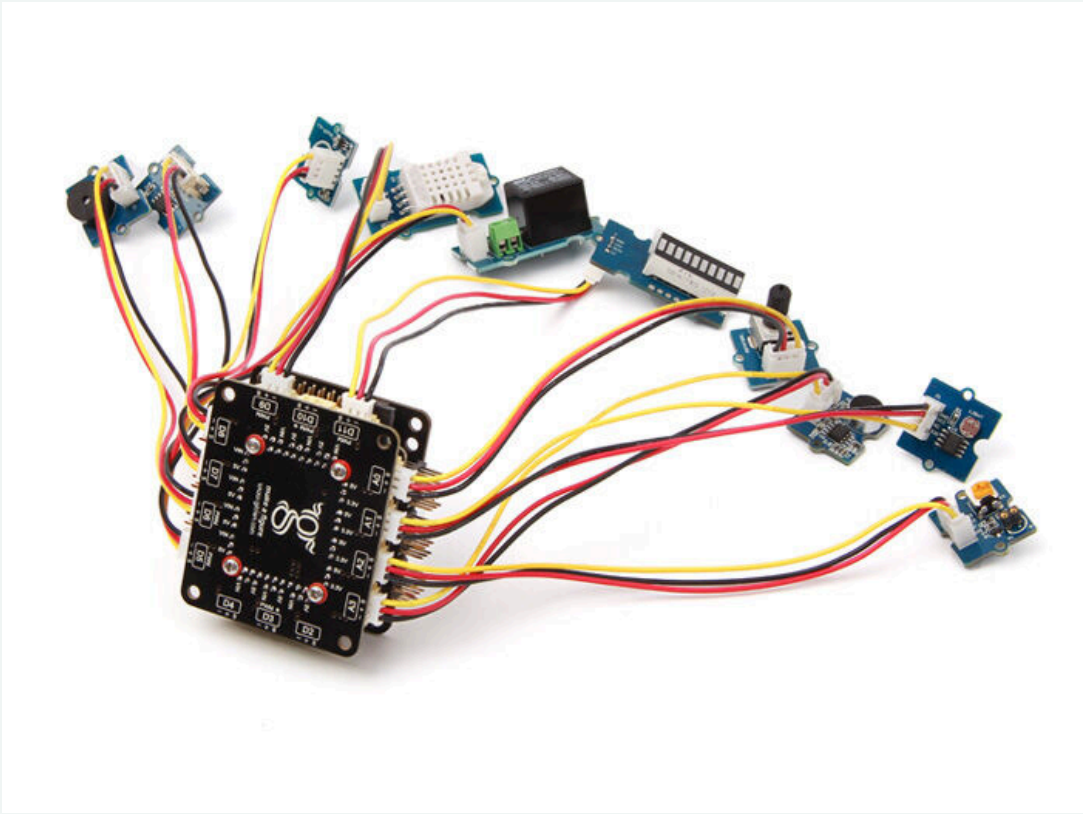
ManShow-RC1 (Robot Controller)

ManShow-RC1: an integrated Arduino UNO R3 and 24-channel SoftServo controller for humanoid and bionic robots, offering precise servo control and easy sensor connectivity.

SKU	UPDATED	PRICE
102990169	2024-08-09 02:02:38	$37.00(Excl. VAT)



Overview



The ManShow-RC1 is a highly integrated robot controller that combines an Arduino UNO R3 with a 24-channel SoftServo system, delivering synchronized PWM signals and flexible servo parameter settings. It provides standard JST-PH2.0-3P sensor connectors with selectable power supplies and supports UART and I2C communication, streamlining the development of humanoid, bionic, and other robotic systems.

Key Features

ManShow-RC1 is mainly designed for humanoid robots, bionic robots and arms with a highly integrated structure(of course, it can also be used for other robotic systems), which integrates Arduino UNO R3 and SoftServo system(for 24 PWM-Style servos). The rich Arduino resources, standard connectors(for sensors) and servo control system(flexible, high-efficiency and stable), which make it easier and quicker to creat your robots.

Features：

For SoftServo

- All the PWM signals output at the same time(in other words, they almost have the same rising edge), and the actual resolution is up to 1μs.
- The signal coupling is so low that it is difficult to detect visually, just like all the PWM signals are generated by separate hardware.
- It integrates the Soft-Start function. As we all know, the initial position of the PWM-Style servo is typically unknown. Conventional-Start mode makes servo rotate to the goal position with full speed, which is unsatisfactory in most robotic applications. Soft-Start mode can make servo rotate slowly when the current position is unknown, but need more current in a short time. It is suggested that all the servos should be started in time-sharing mode to reduce the electric current when you need to control several servos.
- The cycle, the minimum PWM-Effective-Width and the maximum PWM-Effective-Width can be set flexibly, which makes all the PWM-Style servos compatible.
- It is based on a subdivision algorithm, the maximum subdivision value is up to 250. The position and the speed of each channel can be controlled separately, which is conductive to robot dynamic control. The speed depends on the subdivision(see below).
- All the PWM signals can be terminated by setting the equivalent position value to 251 at any time, which is extremely useful for protecting the servo.
- It integrates a stable and high-efficiency UART, and the baud rate can be detected automatically. There is no instruction packet loss when the baud rate is not higher than 28800bps, otherwise the first instruction packet will be discarded. Furthermore, it is recommended to send the sync bytes(0xff 0xff 0xff 0xff) first when the baud rate is higher than 28800bps.
- It integrates a stable and high-efficiency I2C.

For Arduino UNO R3

- Most of the digital and analog ports are extended in JST-PH2.0-3P(Digital Port: 10 channels / Analog Port: 4 channels), which make it easier to connect sensors(pins are defined as 1-SIGNAL, 2-VCC and 3-GND, and marked on the silkscreen).
- The power supply of JST-PH2.0-3P can be selected flexiblely(Digital Ports: 5V or Vin / Analog Ports: 3.3V or 5V)。
- The remaining pins of Arduino UNO R3 for extended-applications are led out on header(2*14 pins, 2.54mm pitch, simplified as “Expansion-Port” below), which can extend three communication interfaces(UART, I2C and SPI), establish three types of connections (USB<->UART<->UNO, USB<->UART<->SoftServo or UNO<->UART<->SoftServo), set the reference voltage for the ADC of Arduino UNO R3 to 3.3V and so on. For details about Arduino UNO R3, please visit: www.arduino.cc.

Specification：

Supply Voltage : DC 6 ~ 12V (Mini-T Plug or JST-PH2.0-2P)

Size: 58.2mm * 62.2mm * 23.5mm (L*W*H)

(Note: The size and mounting holes of circuit board are designed in strict compliance with the rule of Gicren Robotics ai

ManShow-RC1 is not a standard device of Gicren's product line, soit does not fully comply with the rule.)

Internal Communications

There are two communication interfaces between Arduino UNO R3 and SoftServo system(for 24 PWM-Style servos): I2C(fixed, 100KHz)and UART(selectable, 1200 ~ 115200bps). These two communication interfaces share the same user registers, and the baud rate of the UART can be detected automatically. Please refer to the corresponding communication protocols for details(GI2C_Vxx / G485_Vxx).

For more information,please click **here** to download.

Visit **here** for updated documents of Gicren's products

Technical support：**gicren(at)outlook.com**

Compliance & Logistics

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Resource Links

- **https://www.seeedstudio.com/ManShow-RC1-Robot-Controlle-p-2243.html**

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