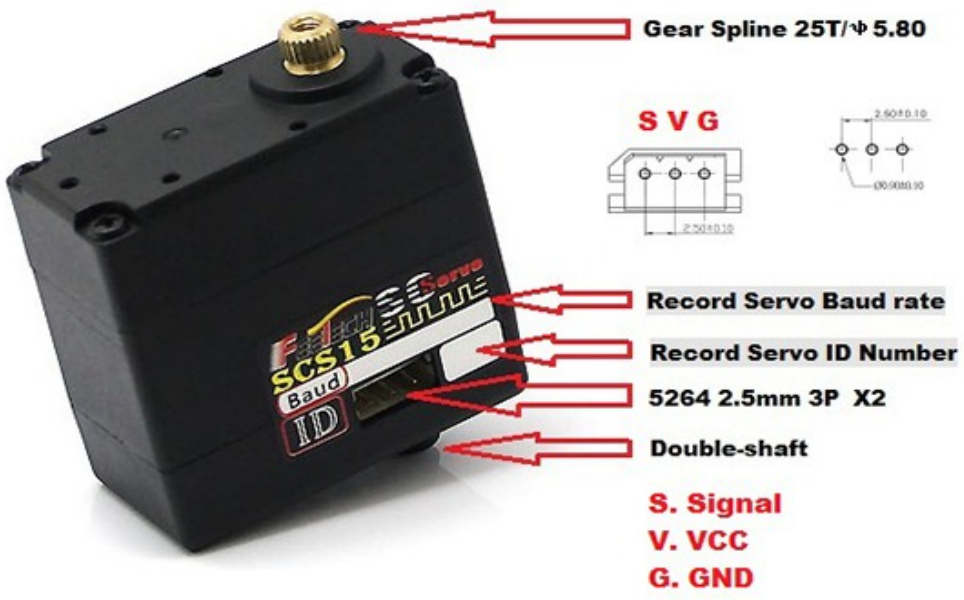
RB-Fit-04
FT-SCServo Smart Servo Motor



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The FT-SCServo Smart Servo Motor is a smart control servo which feedback the value of position, temperature, load, speed and input voltage.

SCServo can work at servo mode and wheel mode.
The servo mode can be used to multi-joints robot since the robots can be controlled with specific angles. (The factory default setting is servo mode)

The wheel mode can be used to wheel-type operation robots since motors of the robots spin infinitely. (If wheel mode is available you need to program the value of position limitation the both are 0.)

SCServo has a unique ID number to identify on BUS network.
The range from 0 to 253 (0xFD) can be used (The factory default setting is ID 1), and, especially, 254(0xFE) is used as the Broadcast ID.

SCServo have kinds of baud rate available.
The baud rate from 38400 bps to 1M bps can be used. They are 38400, 57600,76800,115200,128000,250000,500000,1000000. (The factory default setting is 1000000 bps).

SCServo can feedback the value of Position, Temperature, Load, Speed and Input Voltage. Also one can reprogram the speed of rotation, the max output torque, operating voltage limit, and operating temperature limit etc.

SCServo is easy to be controlled by Arduino. SCServo needs to have a TTLinker connect to between Arduino and SCServo. If not please reference Connection to UART.
TTLinker is a signal conversion board. Arduino needs to convert its UART signals to the half duplex type and through TTLinker connect to SCServo. Also TTLinker have more interface used to kinds of sensor and compatible with Arduino.

If you want to reprogram servo, you need to download the PC software (SCServo_Debug), and to connect SCPC-2(Serial Control Programming Card) between servo and PC.

Half Duplex Asynchronous Communication

Half duplex UART is a serial communication protocol where both TxD and RxD can't be used at the same time. This method is generally used when many devices need to be connected to a single bus. Since more than one device is connected to the same bus, all the other devices need to be in input mode while one device is transmitting. The Main Controller that controllers of the SCServo actuators sets the communication direction to input mode, and only when it is transmitting an Instruction Packet, it changes the direction to output mode.

Connection to UART

To control the SCServo actuators, the main controller needs to convert its UART signals to the half duplex type.

Specifications

- Gear type: Metal
- Operating voltage: 6V~8.4V
- Stall current (A): 1.5A (7.4)
- Bus interface: TTL level multi drop
- Operating angle: 200° (servo mode)
- Communication speed: 38400bps ~ 1 Mbps
- Position sensor (resolution): Potentiometer (215°/1024)
- Control system: Bus Packet Communication
- Protocol type: Half duplex Asynchronous Serial Communication
- ID: 254 ID (0~253)
- Motor type: Carbon
- Bearing type: 2BB
- Stall torque (Kg.cm): 15(6V), 16.5(7.4V), 17(8.4V)
- Operating speed (RPM): 55(6V), 65(7.4V), 73(8.4V)
- Gear reatio: 275:1
- Connector (wire length): 3P&5264 (15cm)
- Size: 40 x 20 x 40.5mm
- Weight: 56g (1.98oz)