Atomic Motion Base v1.2

SKU:A090-V12

Description

Atomic Motion Base v1.2 is a high-performance servo and DC motor drive base specifically designed for the Atom main control series. It deeply integrates power control, intelligent expansion, and safety protection functions to provide a one-stop solution for multi-domain development. The product is equipped with 4-channel servo interfaces and 2-channel DC motor interfaces, which can precisely drive various actuators; two HY2.0-4P interfaces support the rapid connection of various sensors such as temperature, humidity, and light, easily realizing device function expansion. In terms of communication, it uses a stable I2C communication protocol, combined with STM32+RZ7899 control chips, ensuring stable driving, efficient data transmission, and low latency.

In terms of the power supply system, it has a built-in rechargeable 900mAh 18350-specification lithium battery, equipped with a DW01-A high-precision single-cell lithium battery protection chip and an INA226 current/voltage detection chip to form a dual safety protection system. The DW01-A chip has overcharge, overdischarge, and short-circuit protection functions to comprehensively protect the battery safety; the INA226 chip monitors the battery voltage, current, and power in real-time to provide data support for the stable operation of the system. In addition, the product integrates overload protection and convenient charging functions, combined with an independent power switch and a removable battery design, making it flexible and safe to use.

Atomic Motion Base v1.2 features a highly integrated and dual-protection design, making it particularly suitable for application fields that require a balance of safety, scalability, and portability.

Features

- Suitable for Atom series master control
- STM32+RZ7899 control chip
- DW01-A high-precision single-cell lithium battery protection chip
- INA226 current/voltage detection chip
- Integrated overload protection function
- 4-channel servo control
- 2-channel DC motor control
- 2-way HY2.0-4P interface
- Rechargeable lithium battery
- Independent power switch
- Back magnetic suction design
- Independent power switch
- Development platforms
  - UiFlow1
  - UiFlow2

- Arduino IDE

Includes

- 1 x Atomic Motion Base v1.2
- 1 x 18350 specification 900mAh battery

Applications

- DC motor car control
- Servo robotic arm control

Specifications

Specification	Parameter
MCU	STM32F030F4P6
DC Motor Driver	RZ7899
Power Detection Chip	INA226
Charging/Discharging Chip	ETA9740
Battery Protection Chip	DW01-A
Charging/Discharging Cut-off Voltage	Charge Cut-off Voltage 4.14V / Discharge Cut-off Voltage 2.5V
Overload Protection	5V@5A
Removable Lithium Battery	18350@900mAh
Motor Interface PIN Spacing	2.54mm
Full Load Steering Current	3A
Single Channel Motor Peak Operating Current	1A
Single Channel Servo Peak Operating Current	0.4A
Standby Current (Switch On)	DC4.04V@40.97uA
Charging Current	DC 5V@1.18A
Operating Temperature	0 ~ 40°C
Product Size	75.4 x 24.0 x 20.7mm
Product Weight	41.0g (Including Battery)
Package Size	79.0 x 31.0 x 26.0mm
Gross Weight	45.3g

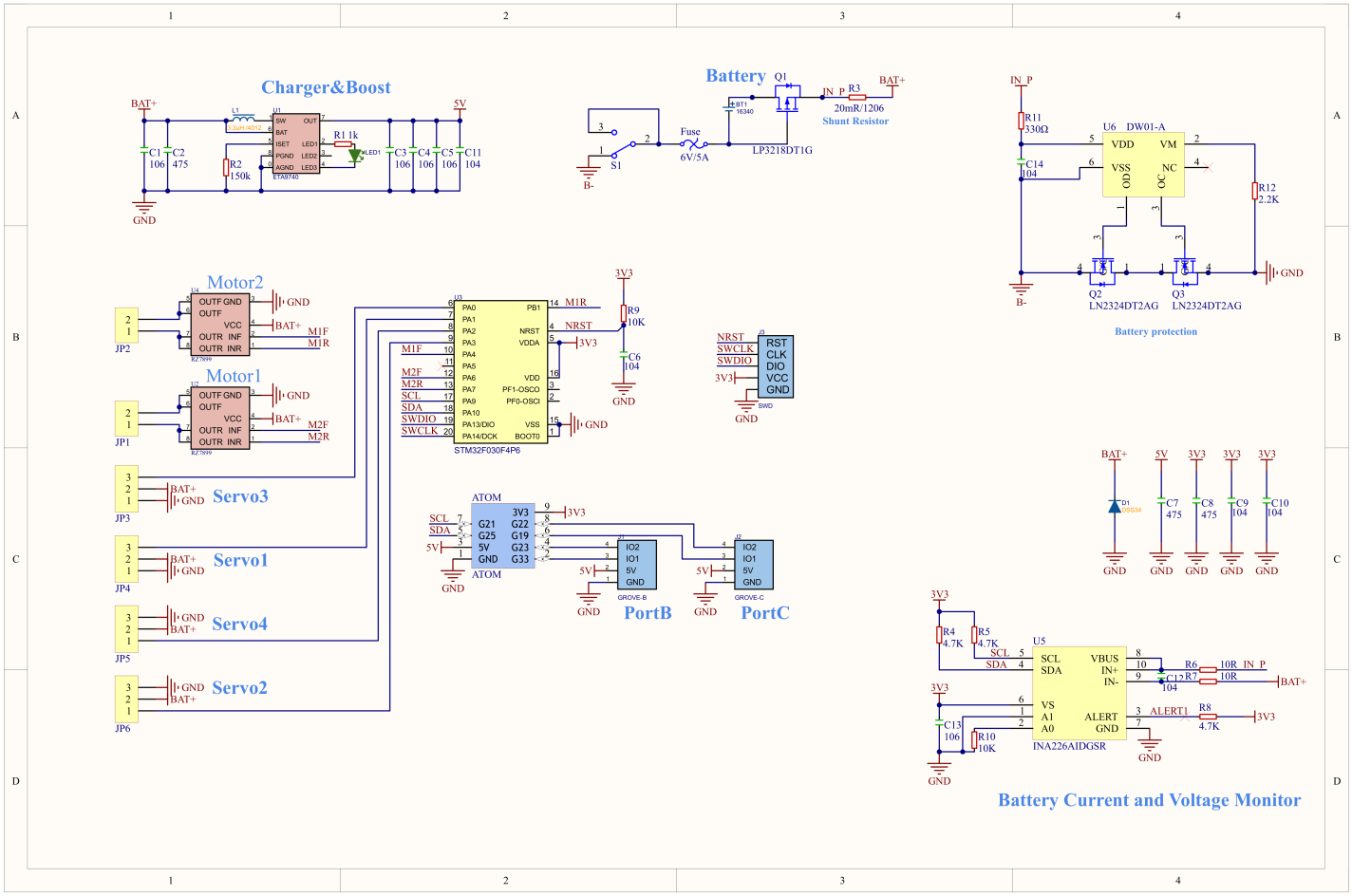
Learn

Battery Charging

Before charging the Atomic Motion Base v1.2, ensure the switch is in the ON position, then charge by connecting a data cable to the ATOM series host or by inputting 5V voltage through the Grove interface.

Schematics

Atomic Motion Base v1.2 Schematics PDF



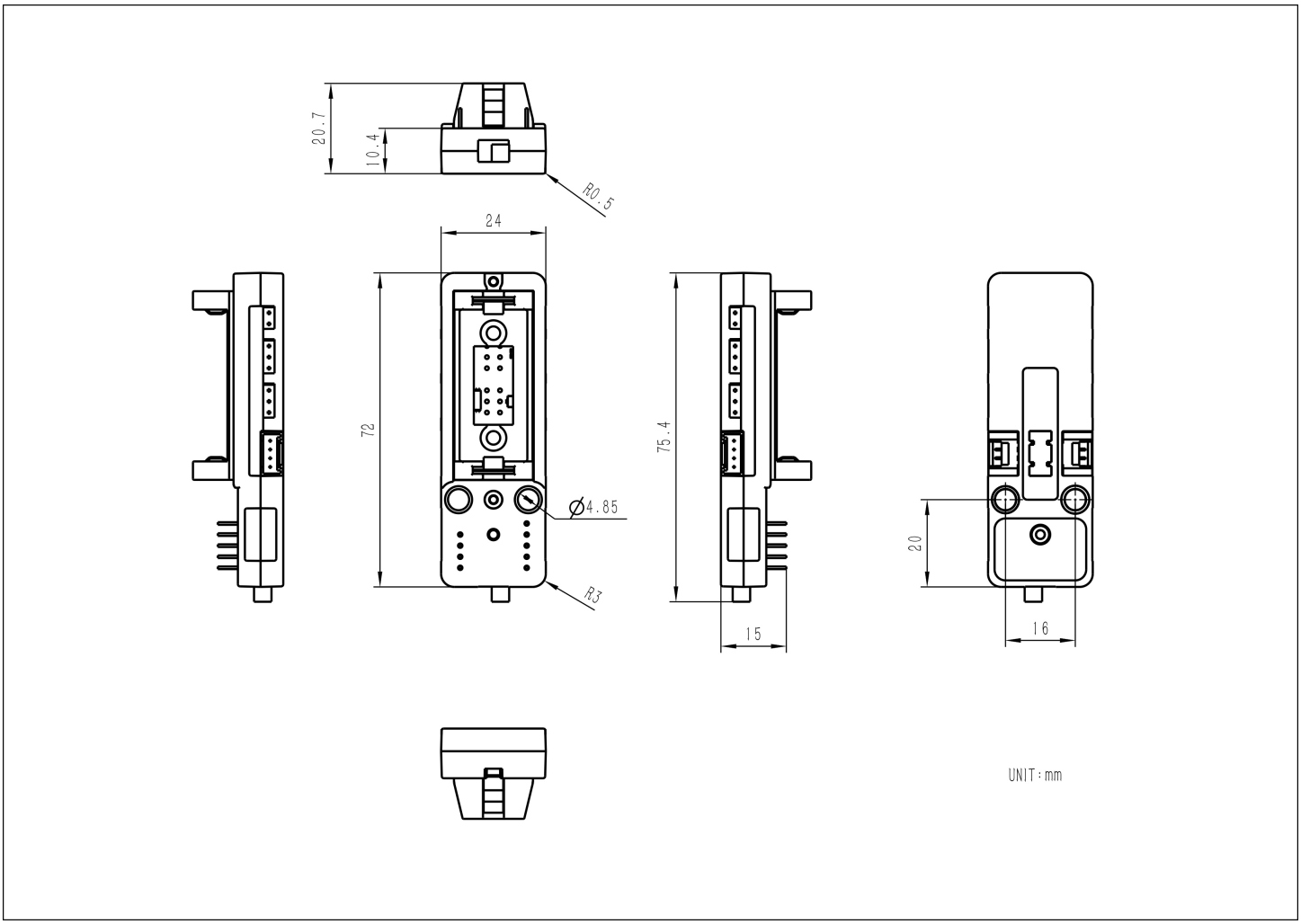
PinMap

PIN	LEFT	RIGHT	PIN
		1	3V3
I2C_SCL	2	3	
I2C_SDA	4	5	
5V	6	7	
GND	8	9	

STM32

STM32F030F4P6	PA10	PA9	PA4	PB1	PA6	PA7	PA0	PA1	PA2
I2C	SDA	SCL							
DC Motor			M1F	M1R	M2F	M2R			
Servo							Servo3	Servo1	Servo4

Model Size



Datasheets

- RZ7899
- INA226
- ETA9740
- DW01-A

Softwares

Quick Start

- Atomic Motion Base v1.2 Arduino Guide

Arduino

- Atomic Motion Base v1.2 Arduino Library
- Atomic Motion Base v1.2 Example

UiFlow1

- Atomic Motion Base v1.2 UiFlow1 Docs
- Atomic Motion Base v1.2 UiFlow1 Example

UiFlow2

- Atomic Motion Base v1.2 UiFlow2 Docs

Protocol

- Protocol Type: I2C
- I2C Address: **0x38**

Function Description	Register Address	Data Format	Data Range	R/W
Servo Angle Control Channels (ch:1 ~ 4)	0x00 ~ 0x03	1Byte MSB	angle: 0 ~ 180	R/W
Servo PWM Pulse Width Control (ch:1 ~ 4)	0x10, 0x12, 0x14, 0x16	2Byte MSB	pulse: 500 ~ 2500	R/W
Motor Speed Control (ch:1 ~ 2)	0x20 ~ 0x21	1Byte MSB	speed: -127 ~ 127	R/W

Video

Atomic Motion Base v1.2 Product Introduction and Example Demonstration

A090-V12_Atomic_Motion_Base_v1.2_video.mp4

Product Comparison

Product Comparison Table			
	Atomic Motion Base v1.2	**Atomic Motion Base v1.1**	**Atomic Motion Base**
Battery Protection IC	DW01-A	Not Available	Not Available
DC motor drive	RZ7899	RZ7899	RZ7899
Driven motor type	4 servos + 2 DC motors	4 servos + 2 DC motors	4 servos + 2 DC motors
Overload Protection	Yes	Yes	Yes
Power monitoring	INA226 (battery current/voltage detection)	INA226 (battery current/voltage detection)	Not Included
Battery	18350@900mAh	18350@900mAh	18350@900mAh
Charging/Discharging Chip	ETA9740	ETA9740	ETA9740