

Rugged, Rechargeable Li-Ion Battery Pack

Overview

Doodle Labs' battery pack is designed to be used with our Wearable Mesh Rider products. The battery pack attaches securely to the Wearable Smart Radio using a custom developed simple Lock/Release mechanism for vibration resiliency. It uses an IP67 rugged aluminum casing which is verified to MIL-STD-810H standards.

The battery pack is fully USB-PD compliant and also supports a standard 5-V to 15-V power supply, so it can be charged by a wide variety of chargers for cell phones, laptops and even the USB port of a vehicle. The battery pack uses a smart battery management system (BMS) which supports fast charging and is large enough to support several hours of continuous operation.



Technical Specifications

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Model Number	BAT-W01-A
Nominal capacity	5000 mAh, 36000 mWh
Cell Configuration	2x 21700 Li-Ion cells in 2S1P configuration
Output voltage	Nominal: 7.2 V Fully Charged: 8.4 V Discharge cutoff: 6.0 V
Charging voltage/current	USB-PD Charger: 5V/3A (lowest priority), 12V/2A5, 15V/3A (highest priority) DC Power Supply: DC 5V ~ DC 15V
Charging time to full capacity	5-V Charging Voltage: 220 mins 12-V Charging Voltage: 125 mins 15-V Charging Voltage: 115 mins
Temperature and relative humidity	Charging: 10 to 40°C, 60±25% R.H Discharging: -10 to 55°C, 60±25% R.H Storage: -5 to 35°C, 60±25% R.H
Interfaces	Power ON/OFF Button 1x USB-C port (input only) 1x bi-color Green/Red LED indicator
Estimate Operating time	normal usage: 3.5 - 5 hours typical standby: 6.5 hours (dependent on usage and radio model)
Storage leakage current	1.5 mA (approximately 138 days)
Dimensions	99.75mm x 63.0mm x 30.4mm
Weight	291 grams

Ingress and resiliency

IP67 rated ingress protection

MIL-STD-810H for vibration and shock

 **Note**

- If the battery box has to be stored for a long time (over 3 months), the environmental condition should be: Temperature: $23\pm 5^{\circ}\text{C}$, Humidity: $60\pm 25\% \text{RH}$
- The voltage for a long time storage should be 7.4V~7.8V range.
- Recharging the battery every 1 month is recommended.

LED and Power Behavior

Not plugged in	OFF
Battery charging	LED blinking GREEN
Battery charging complete while connected to charger	LED solid GREEN
Power button pressed and held for 5 seconds -> turning ON	LED solid YELLOW for 10 seconds, then OFF
Power button pressed and held for 5 seconds -> turning OFF	LED solid RED for 5 seconds, then OFF
Power button pressed and held for 3 seconds to check battery status	If battery is ON, LED solid RED If battery is OFF, LED solid YELLOW
Auto power OFF	If radio is OFF, battery will automatically power OFF after 30 seconds
battery exceeds warm threshold or below cool threshold	LED blinks RED and GREEN consecutively
battery exceeds hot threshold or below cold threshold	LED blinks twice RED and twice GREEN consecutively