

VoltBot

Graphical DC charger & Power Supply

User Manual

V0.3

SillyComm Inc.

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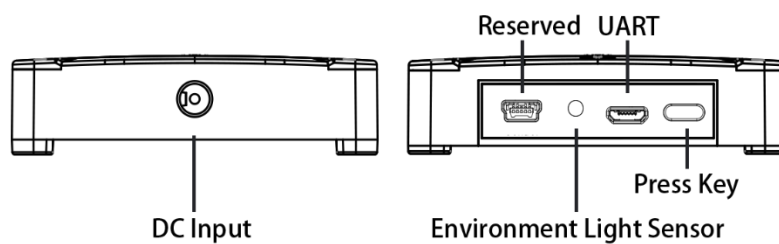
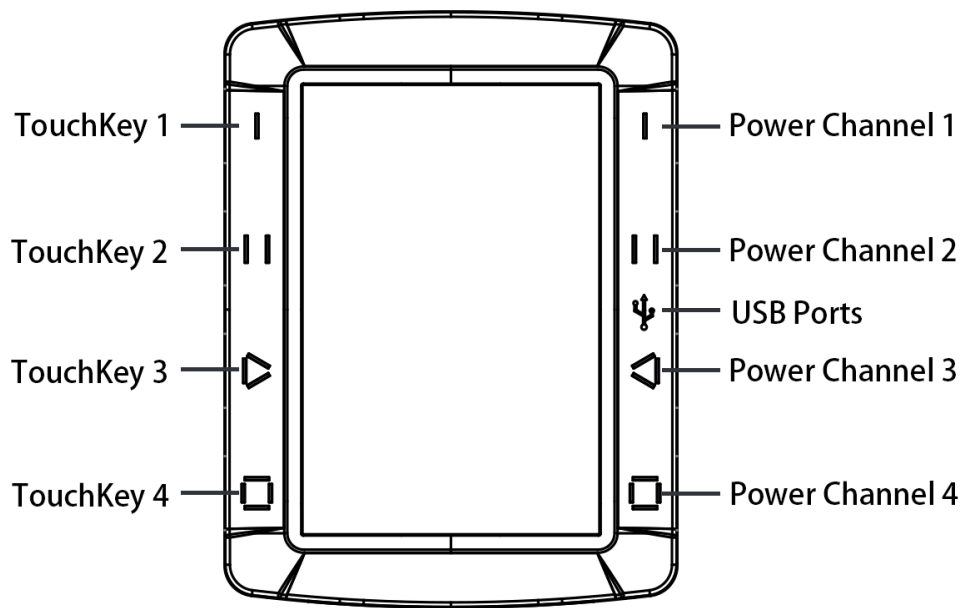
1. Summary

Volt-Bot is a multi-channel charger and power supply.

- Support quick charge technology
- Real-time feedback of current change
- Monitor power consumption and power curves
- Digital interfaces: Wi-Fi and UART

2. Introduction

1) Ports and Symbols



TERMINOLOGY	DETAILS
CHANNEL	A circuit module that implement independent functions. Channels are working parallel, with no interference between each.
USB PORT	USB 2.0 has four leads. VBUS and GND are power leads. D+ and D- are data leads. Standard USB 2.0 ports has a current limit of 0.5A (such as PC, notebook). Normal USB Battery Charger has a current limit of 1.5A or 2A. USB port on VoltBot is specially fabricated and can stand 3A and higher current (Depend on the lead material, lead thickness, contact resistor and contact force).
TOUCH KEY	Capacitor sensor, when a finger or an object comes near and changes the electric field, it will generate a touch signal. Calibrated every power-up to fit the environment.
DC INPUT	Normal 5.5*2.5 socket, but it only fits for 5.5*2.5*12mm plug. 5.5*2.5*9mm plug is too short to reach the leads.
LIGHT SENSOR	Sense the environment light to auto-adjust the LCD back-light.
UART	3.3V TTL UART, 115200 Baud, 8N1, no parity, no flow-control. Meant to be used to connect with external MCU, PLC or PC.
RESERVED PORT	A reserved port, do not use it.
PRESS KEY	Short press: switch on/off screen Long press: switch on/off sound

2) Functions and Parameters

A. Working Conditions

Recommended Input	14V and 12V
Input Range	7~16V
Maximum Rated Input	18V
Weight	120g
Dimension	97*74*18mm
Wireless	Wi-Fi: 802.11 b/g/n
LCD	3.5' 72*49mm
Resolution	480*320
Input Plug	5.5*2.5mm DC-005 12mm length
Recommended Power of Adapter	60W

Output Socket	USB2.0 (Strengthened for 3A)
Recommended Environment Condition	Temperature 0~55°C, Humidity 0%~60%
Maximum Rated Environment Condition	Temperature -20~75°C, Humidity 0%~99%

B. Charger Parameters

Output	5.0~9V 3A
Maximum Ports	4
Short Protect	4A
Charge Mode	Quick charge and Normal charge
Quickcharge protocols	QC 1/2/3、MTK Pump-express, Compatible with QC4 and higher、MTK Pump-express 2 and higher. Apple 2.4A, Samsung 2.1A
Battery Protect	Auto Shutdown with current thread Auto Shutdown with timer
Charge Curve	Graphical: Power, Voltage, Current Raw Data Sheet (CSV): Power, Voltage, Current
Curve Type	1 second: precision 0.1s 1 minute: precision 1s 1 hour: precision 1min 1 day: precision 10min

C. DC Supply Parameters

Output	Min: 2.50V Max: the lower of (Vin-2)V and 12.5V Note: if input with 9V, the maximum output is 7V If input with 15V, the maximum output is 12.5V
Precision	0.01V
Voltage Accuracy	1%
Current Accuracy	1% plus 0.02A
Line regulation	<0.5%
Load regulation	<0.5%
Ripple Vrms(no-load)	<0.1mV

Ripple Vpp(no-load)	<1mV
Ripple Vpp(full-load)	<5mV
Efficiency (full-load)	94%
Transient Characteristics	
Short Protect One-time	11A
Short Protect Recoverable	4A
Current limits (>250ms)	3~4A
Current limits (<250ms)	8A
<p>Note: 1. For pulsed current (below 250ms) larger than 11A would cause the channel being totally shut-down. It needs a re-power-up to recover.</p> <p>2: The contact resistor of USB connector limits the continuous current. Considerable temperature rise would occur if current is larger than 3A. Due to contact resistor is not predictable, you can touch the plug to make sure the temperature is OK. If the temperature</p>	
Charge Curve	Graphical: Power, Voltage, Current Raw Data Sheet (CSV): Power, Voltage, Current
Curve Type	1 second: precision 0.1s 1 minute: precision 1s 1 hour: precision 1min 1 day: precision 10min

D. Other Functions









Backlight Adjustment	Auto adjusting backlight intensity with reference of environment light.
Channel Smart Switch	Equipped
LCD Flipping	Equipped
Unique ID	To identify several VoltBots in the same room, two numbers can be post-fixed to wireless name. These two numbers are also shown on screen.
Sound Switch	Equipped
Touch-key Switch	Equipped
UART Port	3.3V TTL-Level Baud 115200 8N1 Leads: Vbus&ID:Floating D -:RX D+:TX GND There are a level convertor board shipped with VoltBot

3. Graphical UI

A. Overview











B. Channel Icons

	Channel Number, Show's information of USB Port " _ "		Charger Mode
	DC source Mode		Apple supported
	Android supported		Quickcharge enabled
	Quickcharge detected		Device detected




	Unused		Reserved, factory use
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C. System Icons

	Backlight: Auto-mode: bright Manual-mode: dim		WiFi: Wi-Fi on: bright Wi-Fi off: dim Communication: blink
	Joined to hotspot: bright Un-joined: dim Communication: blink		Reserved, it indicate some internal process has unexpect response
	UART Link: blink		Sound on: bright Sound off: dim
	Over heat or over current: bright Otherwise: dim		Touch-key off: bright Touch-key on: dim

4. Quick Start Guide

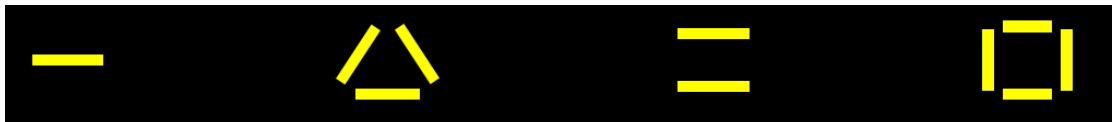
1) Charge a Phone

1. Connect Power Input
2. Check channel 4  is charger mode on 
3. Check channel 4 is quick charge on 
4. Connect data-cable in channel 4 and start charging.



2) Power an Arduino Board

1. Make sure the input voltage of the board (possible: 5V, 3.3V, 9V)
2. Touch any touch-key to remember the code. You will see 1324 is the right code.
3. Touch any key 3~4 times to see "Fail" (new code are ready now)
4. Touch 1324 in a row



5. Select a channel, touch 1 for example
6. Choose mode for channel 1, touch 2
7. Choose the voltage, touch 3 for 5V
8. Use the USB-to-DC cable to connect Port 1 and the Arduino board.

5. Connect VoltBot with web-browser

1. Connect WiFi hotspot: VoltBot
2. Open Browser, type-in 1.1.1.1 into address field.
3. Hit goto to surf the page.

6. Connect VoltBot with Arduino

7. Connect VoltBot with App

A. APP Installation:

Android Version	4.0 and higher
Screen Resolution	1280*720 and higher
Download	Coming soon

8. Share VoltBot into Internet

9. Trouble Shooting

10. Tips

11. Customer Service

Full Name	Beijing SillyComm Limited Liability Company
中文 Name	北京易信通达科技有限责任公司
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