



BuWizz

Moves your bricks. **Fast.**

USER GUIDE

BuWizz brick 2016 version

iOS & Android app version 1.0

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1. Introduction

Dear BuWizz user, thank you for being an early supporter of BuWizz project.

As you can quickly figure out, BuWizz can control four LEGO® PF motors (or lights) with smooth precision and raw power at the same time. The PF servo motor can achieve all 15 positions (7 positions clockwise, 7 positions counter clockwise plus center position), at least two motors (regardless if M, L or XL) can be powered from each output. Power source - an embedded battery - can be fully charged when depleted from any USB output (even a laptop or PowerBank-type battery) in about 2.5 hours

Version 1.0 of iOS and Android app is a bit limited. Future versions will have

- Horizontal slider
- New profiles:
 - VCar2 with V (left) + H slider (right)
 - 3x V slider + 1x H slider
- Lights on/off buttons + sequential controls
- Mirror button (for mirroring of control layout)
- List of all profiles + list of favorite profiles
- Profile properties (name, picture, settings,...)
- Train speed controller
- Profile customization
- Proper controls for 2 or more BuWizz bricks
- Tracked vehicle steering
- ... and many other features

Have at least as much fun playing with BuWizz as we have developing it.
Thank you for your support.

Sincerely,
The BuWizz Team
support@buwizz.com



2. Compatibility

BuWizz is compatible with all current LEGO® PF peripherals: PF-L, PF-M, PF-XL, PF servo motor, PF-LED lights.

BuWizz software iOS 1.0 version is compatible with following Apple products, running iOS 9.3 or higher:

- iPhone 4S and newer (including Plus models)
- iPad 3 and newer (including iPad, iPad Pro and all iPad Air versions)
- iPad Mini – all versions
- iPod touch 5th generation and newer

BuWizz Android version 1.0 is compatible with devices with BLE (Bluetooth 4.0 or higher), running Android 4.4 or higher.

3. Do this first

After receiving BuWizz brick(s), please first charge them. Connect a micro USB cable to BuWizz (USB charger, computer, PowerBank battery,...). The LED will glow orange when charging, will turn green when fully charged (when USB is connected and BuWizz is powered on). When BuWizz is not connected to USB power, the LED will glow green regardless of battery state.

After pressing the power button, if BuWizz battery is depleted beyond a charge level, suitable for normal operation, the LED will alternate quickly between red and green for a few seconds, then BuWizz will turn off

If BuWizz cannot be turned on by pressing the power button, then battery is completely depleted or battery protection kicked in.

In all cases above, please connect the charger – only briefly to reset the protection circuit or for 2-3 hours to completely charge the depleted battery.

BuWizz can operate with charger connected. In fact, connecting a PowerBank type battery can greatly extend the playtime and you can leave the battery connected to BuWizz while operating your model.



4. BuWizz app installation

iOS (iPhone, iPad, iPod Touch):

1. Go to App Store
2. Do a search for BuWizz (on iPad: select “iPhone Only” in the drop down menu on the left side)
3. Install the app
- 4.

Android (version 4.4 and up):

1. Go to Play Store
2. Do a search for BuWizz Install the app
3. Install the app

5. Connecting BuWizz

1. Connect the PF components (LED lights or motors) to output ports
2. Press power button – LED will glow green
3. Start BuWizz app on iOS or android device

These steps assume BuWizz is already fully charged. If not, please connect charger as described in section 2.



6. BuWizz LED status

BuWizz turned on

GREEN: battery more than 2/3 full

ORANGE: battery 1/3 – 2/3 full

RED: battery less than 1/3 full

BLINKING QUICKLY RED/GREEN, then turns OFF: battery depleted, connect charger

BuWizz charging & turned on

ORANGE: charging

GREEN: fully charged

Firmware update

BLINKING RED: last firmware update failed, retry update (go to step 7.4.)

RED with fast & short OFF blinks: firmware update in progress

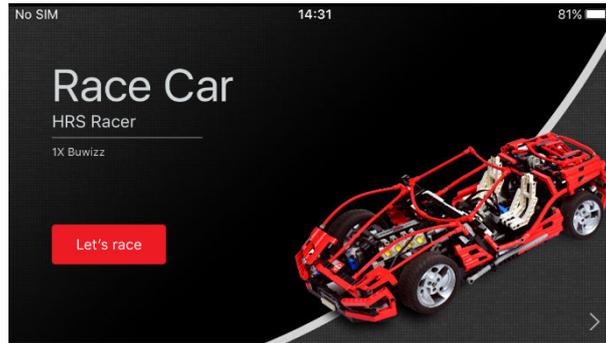
7. Running BuWizz software

IMPORTANT: internet access is needed for BuWizz firmware update

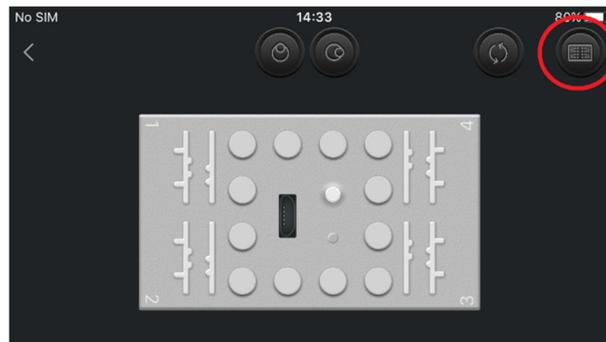
1. Press BuWizz icon to start the BuWizz app:



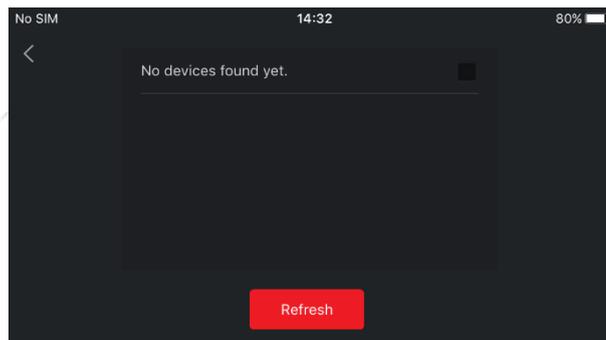
2. Select one of the profiles (Race Car, Tracked loader, Crane in version 1.0),
press the Red button



3. Press "Setup", then press "Select BuWizz" button (circled red).



4. Press "Refresh" button.

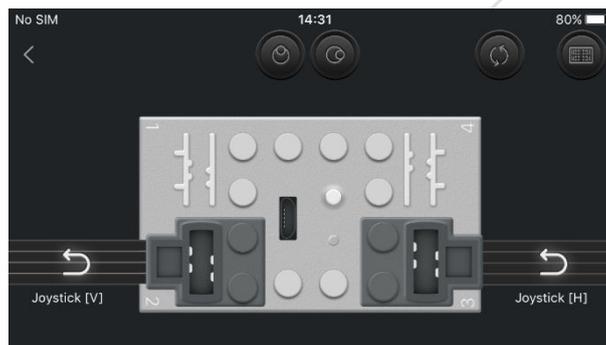


5. Select the BuWizz you want to associate with profile (green dot will indicate selected BuWizz)

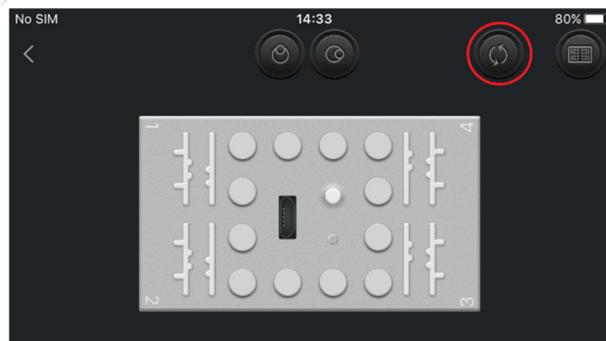


6. Go back to setup screen, where you can

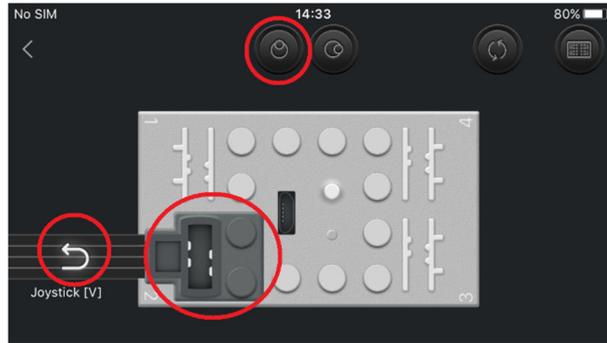
- Associate controls with output channels
- Invert the motor rotation direction (the U-turn shaped arrow)
- Delete the set output channels



7. Delete pre-set channel settings



8. **EXAMPLE:** Set the V-joystick control on output channel 2, set inverse mode



9. Go back, press "Start Engine", have fun!

Press "Stop I/O" button to stop playing or go to setup



10. "SLOW-NORMAL-FAST" mode switch

Selects 3 speed modes:

SLOW mode for slow, precise movements of all motors, including servo

NORMAL mode mode for performance comparable to LEGO battery solutions

FAST mode for greater power & speed

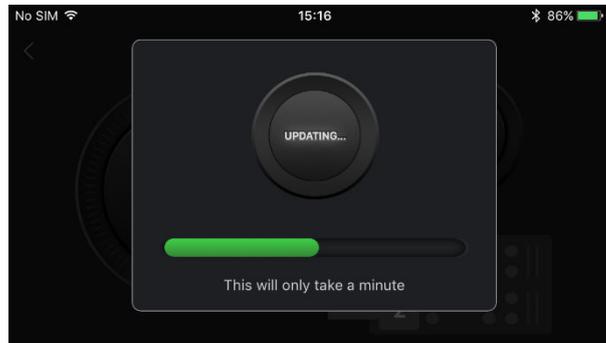


11. On a new BuWizz, firmware update might be needed

IMPORTANT: internet access is needed for BuWizz firmware update

Firmware update will start automatically after pressing “Start Engine”

Update takes 1-2 minutes on iOS and most Android devices, but can take much longer on some Android devices



8. Troubleshooting guide

Issue	Probable cause	Action
RED LED flashing, BuWizz does not turn off	Firmware update failed	BuWizz is in firmware update mode. Restart the app, make sure your device has internet connection, got to step 7.11
BuWizz stops working during "stress test" (fast speed changes of a large model with several motors in HIGH speed mode)	Battery protection circuit activated	This is a normal condition, not a fault. Connect micro USB charger briefly; this will reset protection circuit, BuWizz will turn on and operate normally
LED flashes green / red, BuWizz turns off after a few seconds	Battery depleted	Battery too depleted for normal operation; charge for 2-3 hours
BuWizz does not turn on after pressing power button	Battery depleted	Please connect micro USB charger it might take several minutes for BuWizz to turn on if battery was completely depleted; charge for 2-3 hours
BuWizz does not turn on even with charger connected	Charger or cable defective	Please check if charger is working OK (by charging another device) Use a different micro USB cable and charger (lesser quality cables can have a poor connection) Please wait 30 minutes
BuWizz does not turn on after pressing the Power button		Please contact BuWizz support (support@buwizz.com) if performing all of the above steps does not help

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