



Quick Start Guide

for Brainboxes NeuronEdge Controller

This guide will help you set up your BB-400. Out of the box your BB-400 comes with sensible defaults to help you get started fast.



For more detailed information, the product manual, and a host of resources for programming and software integration visit our website:



www.brainboxes.com



WARNING

Risk of injury from energy stored in capacitors.

Wait at least 5 minutes after shutdown of device before opening case.



Help

This product comes with Brainboxes'
Lifetime Warranty and Support

For full terms and conditions, as well as information on accreditations, and correct disposal of this product can be found on our website:

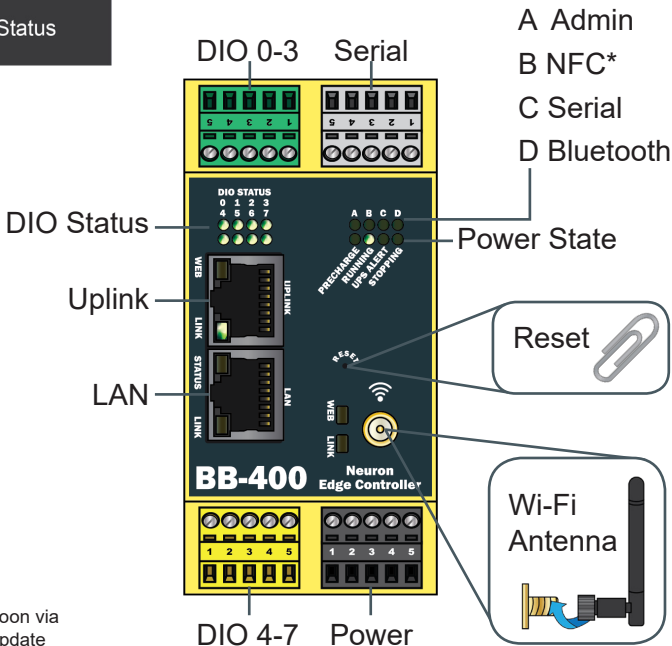
www.brainboxes.com

More resources online
www.brainboxes.com

BB-400

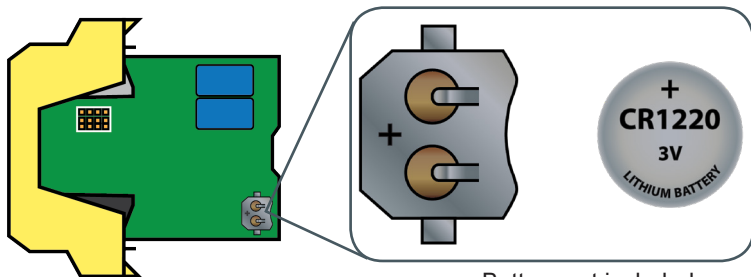
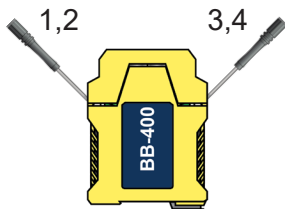
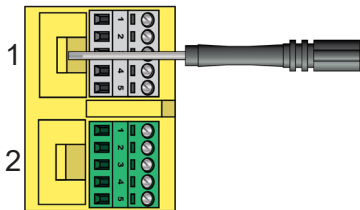


Status



*Coming soon via
software update

Real Time Clock



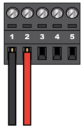
Battery not included

To set the clock:

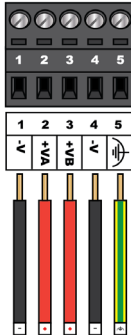
Terminal

```
bb@bb400-XXXX:~ $ sudo bb config.system.rtc true
```

Power



+5VDC to +30VDC
15W Max Typical



Optional Accessory Item
Power Supply



PW-400 (UK/EU/US/AUS)
- Suitable for use with BB-400

PRECHARGE
RUNNING
UPS ALERT
STOPPING

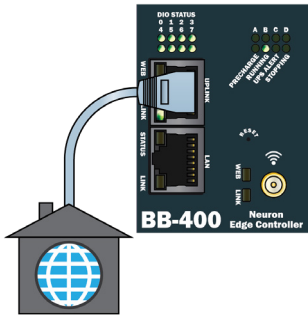


PRECHARGE
RUNNING
UPS ALERT
STOPPING

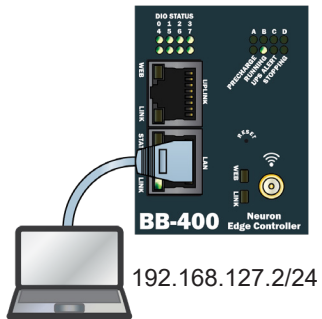


Network Discovery

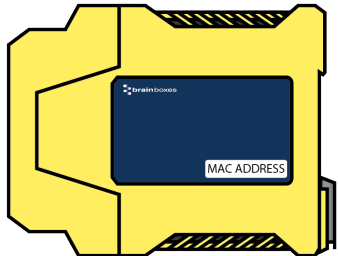
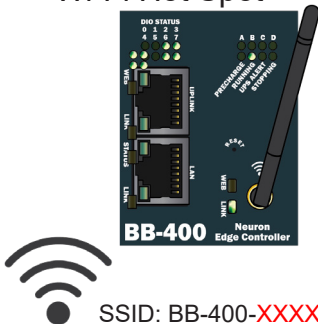
UPLINK



LAN



Wi-Fi Hot Spot



Login

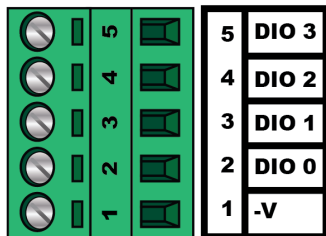
MAC: 00:0A:4F:05:XX:XX



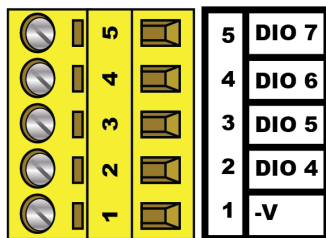
User name	<input type="text" value="bb"/>
Password	<input type="password" value="XXXX"/>
<input type="button" value="Log in"/>	

DIO Lines

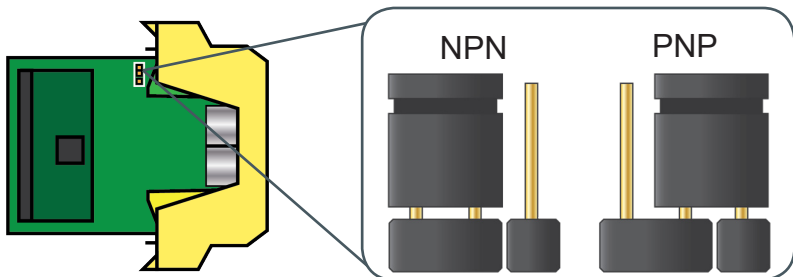
DIO 0-3



DIO 4-7



Jumpers for NPN/PNP



DIO Values

Digital Inputs	NPN/PNP	Jumper selectable pull up for NPN, active low, type sensors and pull down for PNP, active high, type sensors
	Logic Level 0:	0V to +1V maximum
	Logic Level 1:	+2.0V to +30V maximum
	Latched Inputs:	Triggered by user programmable positive or negative edges, stays true until acknowledged
Digital Outputs	Counter Inputs:	User programmable – counts positive or negative transitions, up to 250Hz count rate. 16-bit (65335 count) or 32-bit (4.2 billion count) counters. Counter values persist over power-off periods
	Max output current	Sinks up to 0.85 Amp per pin, 30V max load Max combined load 4 Amps per BB device
	Max output load Voltage	30V
	ESD Protection	Protection to 16kV



Outputs



Inputs



DIO 0

Input



On



ASCII & REST Examples

Terminal

ASCII		
Command	Response	Description
\$AAM1	!AA(Data)	Read device location
@AA6	>(Data)	Read Digital I/O Status
~AAO(Name)	!AA	Set Device Name

```
@01
>00FF
```

REST		
Request	REST Verb	Response
http://bb400-xxxx:9000/io	GET	{ "inputs": [1, 1, 1, 1, 1, 1, 1, 1], "outputs": [0, 0, 0, 0, 0, 0, 0, 0] }
http://bb400-xxxx:9000/io/inputs	GET	[1, 1, 1, 1, 1, 1, 1, 1]
http://bb400-xxxx:9000/io/inputs/0	GET	1
http://bb400-xxxx:9000/io/outputs	GET	[0, 0, 0, 0, 0, 0, 0, 0]
http://bb400-xxxx:9000/io/outputs body: [1, 1, 1, 1, 0, 0, 0, 0]	POST	header: 200 OK
http://bb400-xxxx:9000/io/outputs	GET	[1, 1, 1, 1, 0, 0, 0, 0]

Other Connections and Updates



Bluetooth

Make Discoverable

Refresh



Software Updates

Install All Updates

It is recommended to install all updates when you first use the device. This will ensure you are running the latest version of the operating system and software.

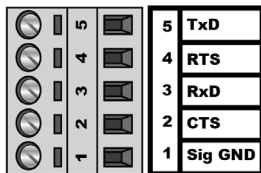
Coming soon via software update:

NFC - Tap your smartphone or NFC enabled device to get device status information and IP address.

Modbus - Coming soon support for Modbus TCP

Serial Port

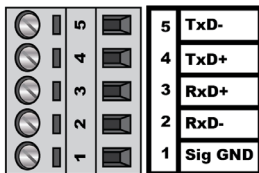
RS232



A B C D



RS422-485 FD

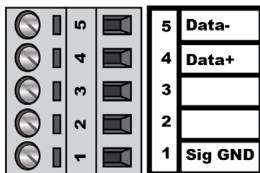


C



Open

RS485 HD

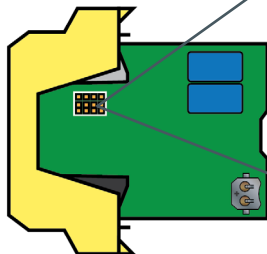


C

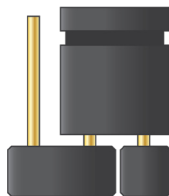


Closed

Jumpers for RS422/485

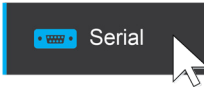


Default



PARK

Serial settings



Port Type:

- ✓ RS422/485
 - RS422 Full Duplex Mode
 - RS485 Half Duplex Mode



Baud Rate	Any custom Baud rate between 60 - 920,000Baud
Data Bits	5,6,7 or 8
Parity	Odd, Even, None
Stop Bits	1, 1.5 or 2
Flow Control	RTS/CTS

Software & APIs



Raspbian Lite
- based on Debian Linux

www.brainboxes.com/bb-400 provides a range of resources and example code to get you started with some common machine monitoring scenarios.

Sample code is available in the following languages;

- .NET C# & VB
- Python
- Node.js
- Node-RED (visual coding interface)

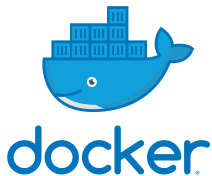
{ REST }



REST <http://bb400-xxxx:9000/io>

WebSocket <ws://bb400-xxx:8989>

ASCII TCP bb400-xxxx:9500



Docker is an online repository for secure/isolated apps that can run on your BB-400.

To get started search for Brainboxes and find prebuilt containers.

 Get new image



brainboxes/

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