

# OpenBuilds® BLOX

## Layout Information



## PRODUCT MANUAL

SPECIFICATIONS:	
Product Name:	BLOX
Processor:	ESP12-E3 (dual-core Xtensa LVTMC3240 384 pins, 512 KB of internal SRAM) integrated 2.4 GHz, 802.11 b/g/n Wi-Fi and Bluetooth BLE connectivity
Programming Options:	OpenBuilds BLOX Developer Tools, esphome (esp8266), Arduino, gnuMC
Compatible with:	Teensies, CircuitPython, MicroPython, ESP-ATC, Firefly02, NodeRED, etc.
Driver Drivers:	3x with software-based current setting and fault monitoring
Limit Switch Inputs:	2x (also usable for inductive sensors, push moment switches, relay output sensors, float switches, RF remote module relays, etc.)
MOSFET Outputs:	2x switching (PWM capable as input voltage for DC motors, solenoids, LED strips, etc.)
UART:	3.3V for serial communication with devices, microcontrollers or other equipment (with TTL-to-RS485 converter)
SPI/I2C Analog-Digital:	Provides access to I2C bus, SPI bus and the I2S (with 3x I2S as I2S) (Analog pins for seamless integration with sensors, modules, and accessories)
Power Supply:	5V-30V barrel terminal and screw terminal power input (noted)
Additional Features:	Onboard WS2812B RGB LED, MicroSD socket, Power Switch, General purpose terminals for flexible wiring

- PRECAUTIONS:**
- Ensure all connections are secure and free from shorts.
  - Check that no exposed wires touch each other or any conductive surfaces.
  - Wire power supply units (PSUs) with correct polarity.
  - Adhere strictly to voltage and current ratings on BLOX and in the documentation.
  - Never perform wiring tasks while the system is powered on.
  - Use antistatic measures like wrist straps or mats.
  - Avoid exposing BLOX to water, moisture, excessive heat, or harsh environments.
  - Do not use BLOX for critical safety or security applications.



## FCC Information

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
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- Increase the separation between the equipment and receiver.
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- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
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- Consult the dealer or an experienced radio/TV technician for help.
- To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body:  
Use only the supplied antenna.