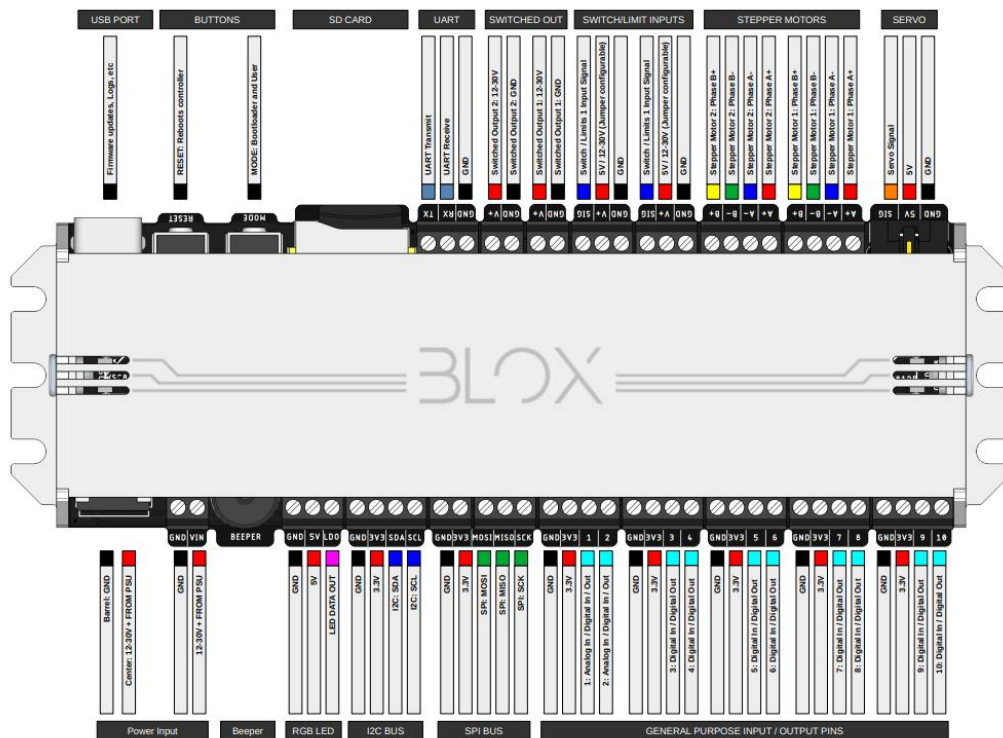


# OpenBuilds® BLOX

## Layout Information



## PRODUCT MANUAL

### SPECIFICATIONS:

Product Name:	BLOX
Processor:	ESP32-S3 : dual-core Xtensa LX7 MCU (240 MHz, 512 KB of internal SRAM) Integrated 2.4 GHz, 802.11 b/g/n Wi-Fi and Bluetooth 5 (LE) connectivity
Programming Options:	OpenBuilds BLOX Developer Tools, esphome (Home Assistant), Arduino, grblHAL
Compatible with:	Tasmota, CircuitPython, MicroPython, ESP-IDF, FreeRTOS, NodeMCU LUA
Stepper Drivers:	2x with software-based current setting and fault monitoring
Limit Switch Inputs:	2x (also usable for inductive sensors, panel mount switches, relay output sensors, foot switches, RF remote module relays, etc.)
MOSFET Outputs:	2x switched (PWM capable at input voltage for DC motors, solenoids, LED strips, etc.)
UART:	3.3V for serial communication with devices, microcontrollers, or older equipment (with TTL-RS232 converter)
SPI/I2C, Analog, Digital:	Provides versatile I2C Bus, SPI Bus and 10x GPIO (with 2x GPIO as ADC Inputs) pins for seamless integration with sensors, modules, and accessories
Power Supply:	12-30V, barrel terminal and screw terminal power input/output
Additional Features:	Onboard WS2812 RGB LEDs, MicroSD socket, Piezo Buzzer, Generic screw 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.
- 
- Increase the separation between the equipment and receiver.
- 
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- 
- 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.