EXPANSION HUB PRODUCT BRIEF

The REV Robotics Expansion Hub is a low-cost education device that can communicate with any computer (Commonly an Android Phone or the REV Robotics Control Hub) to provide the interfaces required for building robots and other mechatronics. The Expansion Hub was purposed built to stand up to the rigors of the classroom and competition field. It features a mature firmware designed for basic and advanced use cases with the ability to be field upgraded in the future.

The REV Robotics Expansion hub is an approved device for use in the ***FIRST*** Tech Challenge and ***FIRST*** Global.

FEATURES

- **Physical Dimensions**
  - 143mm X 130mm X 29.5 mm
  - Mounting holes on a 16mm spacing
- **Processor**
  - Texas Instruments ARM® Cortex®-M4
- **Input Voltage**
  - Dual XT30 Connectors
  - 12VDC nominal (8V MIN-15V MAX)
- **Integrated Motor Controllers**
  - 4X - 20amps Max H-bridges
  - Integrated PID controls
    - Motor Position
    - Motor Speed
    - Motor Current
- **Integrated Encoders**
  - 4X 3.3V Quadrature Encoder Inputs
    - 2x in hardware
    - 2x in software
- **Servo Drivers**
  - 6 channels – 5 Amps Max
    - 2 Amps per channel (shared)
    - Overcurrent protected (PTC)
- **Aux output**
  - 2x – 5VDC power ports
  - 2 Amps (shared)
- **Inertial measurement unit (IMU)**
  - Bosch 9 axis IMU with Sensor Fusion
  - Internally wired to I2C (port 0)
- **Digital IO**
  - 8X – user programmable in/out
  - 3.3VDC
- **Analog Inputs**
  - 4X – 12 bit Analog inputs
  - 3.3VDC nominal (5V tolerant)
- **USB**
  - 2.0 Speed
  - Supports charging of USB host devices
  - Firmware upgradeable
- **I2C**
  - 4X – 3.3V 100KHz Independent buses
- **RS485**
  - 2 connector 3.3V signaling @400Kbaud
  - Used for linking up to 12 Expansion hubs
- **UART**
  - 2X UART Debugging ports
  - Future additional functionality
- **Safety features**
  - Reverse polarity protection
  - Polarized & latching connectors
  - Failsafe mode at communication loss
- **Mode Button** – User programmable
- **LED** – User programmable status RGB LED