OpenLog Artemis

SPX-15846

The OpenLog Artemis is an open source datalogger that comes preprogrammed to automatically log IMU, GPS, serial data, and various pressure, humidity, and distance sensors. All without writing a single line of code! OpenLog Artemis, or "OLA," automatically detects, configures, and logs Qwiic sensors. OLA is designed for users who just need to capture a bunch of data to a CSV and get back to their larger project.

Why would you need to measure UV, TVOCs, CO_2, lat, long, number of satellites, ground speed, heading, 2 barometrics pressures, 2 humidities, and six temperatures in C, at 10 times a second? We don't ask questions. We just get you the hardware you need to log it.

Included on every OpenLog Artemis is an IMU for built-in logging of triple axis accelerometer, gyro, and magnetometer. Whereas the original 9DOF Razor used the old MPU-9250, the OpenLog Artemis uses the latest ICM-20948 capable of nearly 250Hz logging of all 9 axis. We then took over a decade of experience with the original OpenLog and took it much farther. Simply power up OpenLog Artemis and all incoming serial data is automatically recorded to a log file. Baud rates up to 921600bps are supported! OLA also has four channels on ADC available on the edge of the board. Voltages up to 2V can be logged with 14-bit precision up to 1900Hz for 1 channel and 1000Hz logging all four channels. Additionally, based on feedback from users we've added an onboard RTC so that all data can be time stamped.

OpenLog Artemis is highly configurable over an easy to use serial interface. Simply plug in a USB C cable and open a terminal at 115200bps. The logging output is automatically streamed to both the terminal and the microSD. Pressing any key will open the configuration menu.

The OpenLog Artemis automatically scans, detects, configures, and logs various Qwiic sensors plugged into the board (no soldering required!). Currently, auto-detection is supported on the following Qwiic products:

- uBlox GPS Modules (Lat/Long, Altitude, Velocity, Heading, SIV, Time, Date):
    o ZED-F9P 1cm High Precision GPS
    o NEO-M8P-2 2.5cm High Precision GPS
    o SAM-M8Q 1.5m 72 Channel GPS
    o ZOE-M8Q 1.5m Compact GPS
    o NEO-M9N 1.5m GPS
- MCP9600 Thermocouple Amplifier
- NAU7802 Load Cell Amplifier
- LPS25HB Barometric Pressure Sensor
- BME280 Humidity and Barometric Pressure Sensor
- MS8607 Humidity and Barometric Pressure Sensor
- MS5637 Barometric Pressure Sensor
- TMP117 High Precision Temperature Sensor
- CCS811 Air Quality Sensor
- SGP30 Air Quality Sensor
- SCD30 CO_2 and Air Quality Sensor
- VEML6075 UV Sensor
- VCNL4040 Proximity Sensor
- VL53L1X LIDAR Distance Sensor
- More boards are being added all the time!

OpenLog uses common microSD cards to record clear text, comma separated files. You probably already have a microSD card laying around but if you need any addtional units see the related items below. And for fun, OpenLog Artemis supports exFAT as well as the older FAT16 and FAT32 formats. We've successfully tested a variety of card sizes up to 512GB cards!

Very low power logging is supported. OpenLog Artemis can be configured to take readings at 500 times a second, or as slow as 1 reading every 24 hours. You choose! When there is more than 2 seconds between readings OLA will automatically power down itself and the sensors on the bus resulting in a sleep current of approximately 250uA. This means a normal 2Ah battery will enable logging for more than 300 days! OpenLog Artemis has built-in LiPo charging set at 450mA/hr.

New features are constantly being added so we've released an easy to use firmware upgrade tool. No need to install Arduino or a bunch of libraries, simply open the Artemis Firmware Upload GUI, load the latest OLA firmware, and add features to OpenLog Artemis as the come out!

Experimental Product: SparkX products are rapidly produced to bring you the most cutting edge technology as it becomes available. These products are tested but come with no guarantees. Live technical support is not available for SparkX products. Head on over to our forum for support or to ask a question.

- **FEATURES**

- Dimensions: 31x35mm, 9mm max height
- Weight: <6g
- Run current: ~20mA
- Sleep current: ~240uA
- ICM-20948 SPI interface
- USB C with CH340E
- microSD socket supporting FAT32 and exFAT up to 512GB with power control
- RTC 1mAhr battery backup
- 2-pin JST with LiPo Charging
- Qwiic connector with power control
- Optional external power switch
- SWD Port
- Analog voltage logging: 4 ports, 14-bit, up to 1900Hz, 2V max (3.3V compatible)
- 9-axis IMU logging up to 250Hz
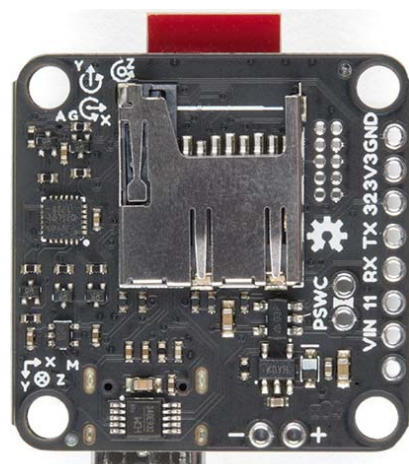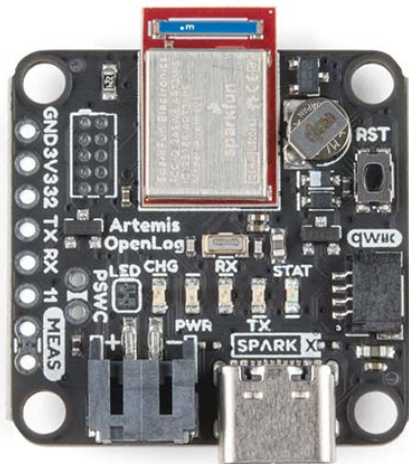- Serial logging up to 921600bps
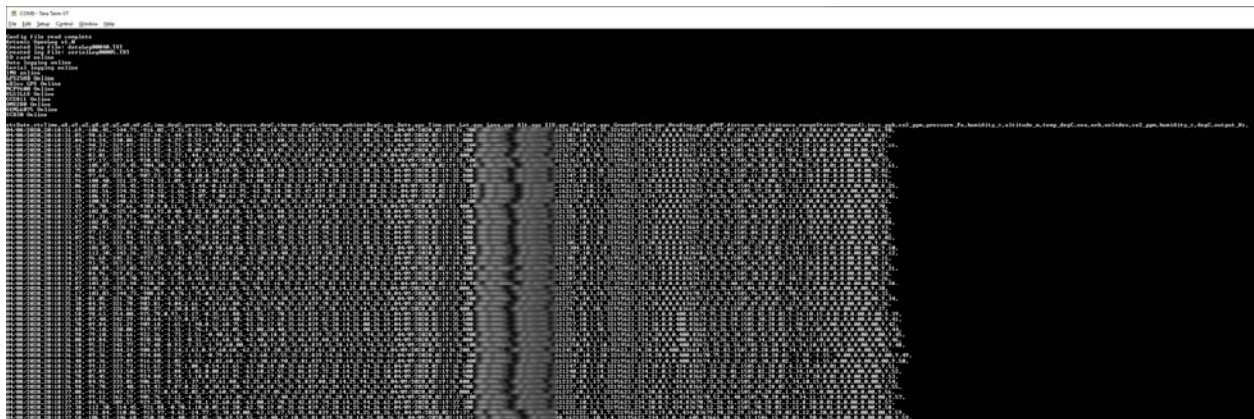
```
COM8 - Tera Term VT
File  Edit  Setup  Control  Window  Help

Config file read complete
Artemis OpenLog v1.0
Created log file: dataLog00018.TXT
Created log file: serialLog00005.TXT
SD card online
Data logging online
Serial logging online
IMU online
No sensors detected
rtcDate,rtcTime,aX,aY,aZ,gX,gY,gZ,mX,mY,mZ,imu_degC,output_Hz,
04/08/2020,20:09:46.81,-509.28,-499.02,-718.75,1.37,12.69,-3.80,98.70,-68.10,29.10,33.51,250.00,
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https://www.sparkfun.com/products/15846/4-13-20