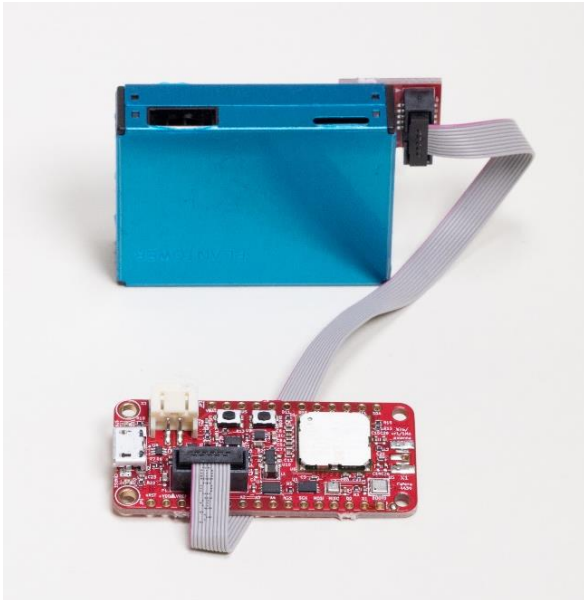


Catena 4630 Integrated Air-Quality Board



The MCCI Catena® 4630 is a complete single-board IoT device for measuring air quality LoRaWAN® technology projects.

Based on the Murata [CMWX1ZZABZ-078](#), and designed to be compatible with the [Adafruit Feather](#) family of development boards and accessories, the Catena 4630 is a great platform for LoRaWAN investigation and deployment.

Rugged, lightweight and small, the 4630 needs no external components to measure and send temperature, humidity, and light, powered from USB or a rechargeable LiPo battery.

When combined with a Plantower PM7003 air-quality sensor, the 4630 measures and transmits temperature, humidity, total VOC, PM 1.0, PM 2.5, PM 1.0, and dust concentration measurements.

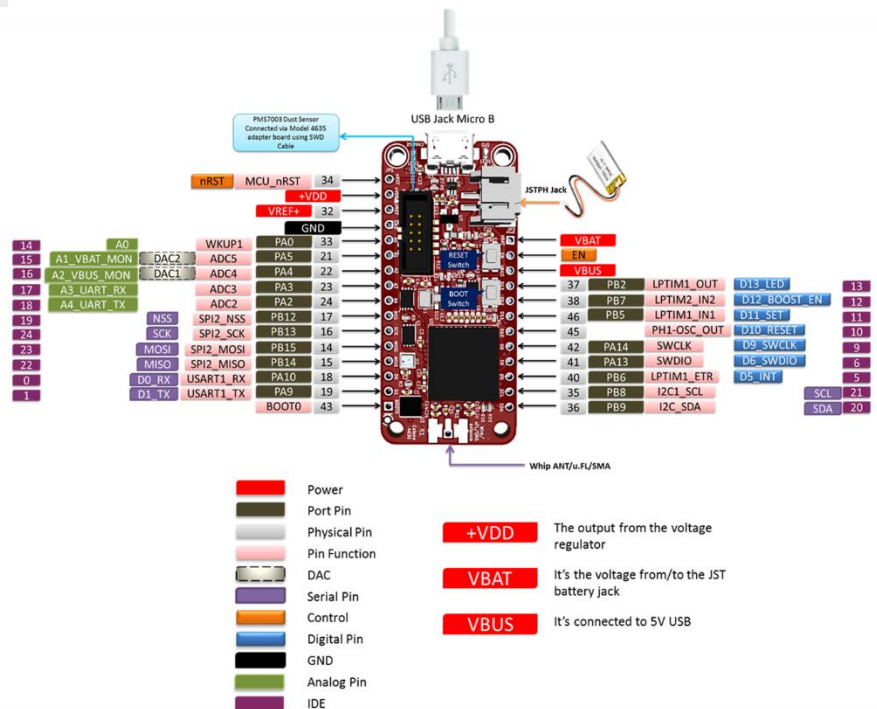
The Catena 4630 is the basis for MCCI's Model 4841 indoor air quality sensor, and Model 4852 outdoor air quality sensor.

The Murata LoRaWAN module has the following features:

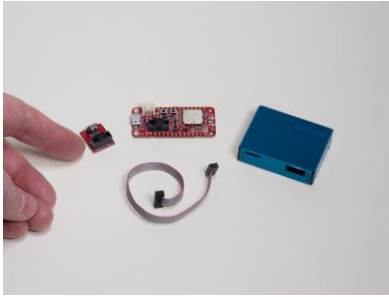
- STM32L082 CPU (Cortex M0+, 24 MHz, 192K flash, 20K RAM)
- Semtech SX1276 LoRa radio
- High quality RF engineering
- Certified for US and EU
- Compatible with IN866, AS923, AU915

The Catena 4630 design adds:

- Integrated sensors: Sensirion SHT31-DIS-F (IP66-rated rugged Temperature and Humidity); Sensirion SGPC3 multi-pixel total VOC sensor.
- 8K bytes FRAM for LoRaWAN provisioning info and frame counters
- 1M byte SPI Flash for bulk data storage, future FUOTA firmware storage, etc.
- Battery charger/regulator for powering from Lithium-Polymer batteries (compatible with Adafruit Feather system) or from USB
- USB or SWD for download and debug
- Direct interface to Plantower PM7003 and compatible PM 2.5 particulate matter sensors, including a software controlled 5V boost regulator and direct serial port connection.
- Sensirion SHT35-DIS-F high-accuracy temperature/humidity sensor
 - Temperature accuracy: $\pm 0.3^{\circ}\text{C}$ (max) (-40 to 90°C)
 - Relative humidity accuracy: $\pm 1.5\%$ typ, $\pm 3\%$ max, 0 to 100% RH @ 25°C



- Sensirion SGPC3 TVOC (total volatile organic compound) sensor
 - TVOC range 0 to 60000 ppb
 - Ethanol accuracy: typ $\pm 15\%$
- Support for U.FL, whip, or SMA antennas; shipped with U.FL connector.



The Catena 4630 is pin-compatible with the Catena 4610 family of boards. It's also compatible with the Adafruit Feather M0 family of boards (with some limitations because of functional differences between the STM32L082 CPU and the Atmel SAMD21 CPU used in the Feather M0).

MCCI provides a full Arduino board-support package and libraries to allow rapid prototyping and experimenting, including an open-source LoRaWAN stack. ST tools may also be used.

The Catena 4630 works well with and is tested with [The Things Network](#) (an open-source, user-owned IoT network based on LoRaWAN); but can be used with any LoRaWAN-compatible network.

Both [hardware](#) and [software](#) are open source and available on [GitHub](#).

Price and Availability

The Catena 4630 starts at \$79 qty 1, and varies based on options and quantity ordered. Compatible PM7003 sensors are also available. A fully assembled sensor, the Model 4841, is also available based on the Catena 4630. For more information, please contact MCCI at sales@mcci.com, Twitter [@MCCI](#), <http://www.mcci.com>.