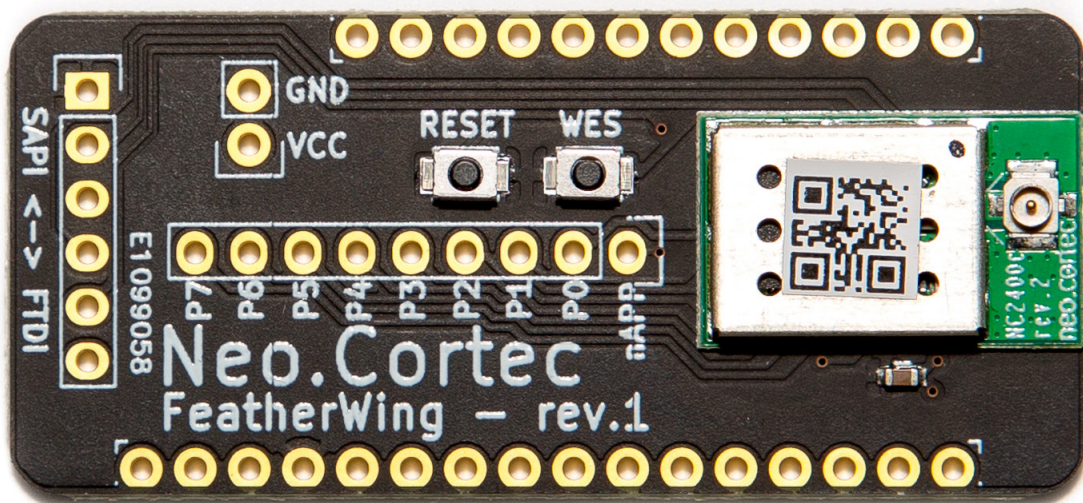# NeoCortec FWNCxxxx
Breakout board - NCxxxx module series
Datasheet version 1.0

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FEATURES:

- Breakout board incorporating the NeoMesh wireless mesh network modules:
  - NC1000-8
  - NC1000-9
  - NC2400
- Supports 2 modes of usage:
  - Stand alone breakout board
  - Feather Wing compatible with the Adafruit Feather development boards

APPLICATIONS:

- Wireless Sensor Networks
- Automatic Meter Reading
- Advanced Metering Infrastructure
- Mobile Ad-Hoc Networks
- Home Control & Building Automation
- Industrial Automation
- Alarm and Security Systems
- Agricultural and Forest Monitoring

1. Electrical specifications

The breakout board is incorporating the NeoMesh NCxxxx series of modules. All electrical and performance related specifications are identical to those specified in the respective datasheets of the modules.

2. User guide

The breakout board can be used stand alone to interface with sensors and microcontrollers, or as a Feather Wing for the Adafruit Feather range of development boards.

2.1 Stand alone breakout board configuration

When using the break out boad as a stand alone board, the application interface of the NeoMesh module can be easily accessed through the pin header located in the center of the board:
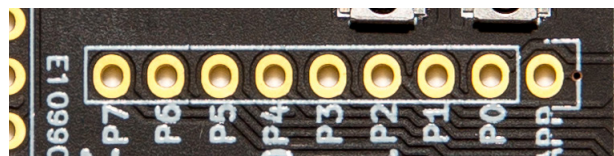

The pins P0 through P7 can be used both as analog inputs or digital inputs/outputs. Similarly specific pins of this interface can be used to interface with an external microcontroller through UART. Finally a range of I2C or SPI based sensors can be connected directly to the module through this interface. For more details on how to use the application interface of the NeoMesh module, refer to the documentation available on the Neocortec website.

2.2 Feather Wing configuration

When using the module as a Wing board for the Adafruit Feather development boards, in most cases the breakout board can be connected directly to the Feather board directly. To ensure compatibility it should be checked that the specific Feather board used is using the same pins for serial UART as the NeoMesh Feather Wing.
On the rear side of the Feather Wing, the signals routing is visible:
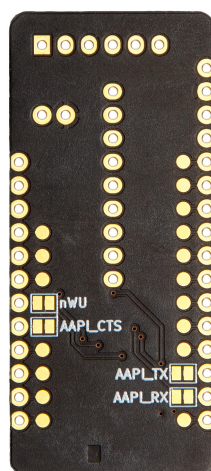
The interface signals are all routed through a solder jumped which is connected by default. If it is desired to route the interface signals to other pins, the solder jumper can be cut and a jumper wire can be soldered to the signal side pad and further to the desired pin of the Feather Wing interface connector.

For further information on how to use the NeoMesh module together with an external microcontroller such as the Feather development boards, please refer to the general documentation available on the NeoCortec website.

2.3 Configuring the NCxxxx module

When configuring the NCxxxx module installed on the NeoMesh, in most cases it will be done through the System API available on the module. This System API is a UART based interface with hard ware flow control. This interface is brought out to a pin header which is configured to ensure direct compatibility with the FTDI Serial to USB cable "TTL-232R-3V3":
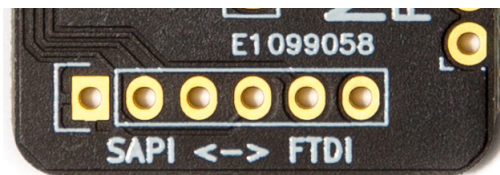
The cable shall be connected with the black wire of the FTDI cable connected to the square shaped pad of the System API header.

For more information on how to configure the NeoMesh module, please refer to the general documentation available on the Neocortec website.

2.4 Buttons

The breakout board contain two push buttons:

The RESET button is connected directly to the NeoMesh module and will only reset the NeoMesh module.

The WES (Wireless Encrypted Setup) button is used to bring the NeoMesh module in the a state where the module can be configured wirelessly. Please notice that depending on the configuration of the module, the WES button can put the module in a state where it can only be used if the module is configured though the Wireless Encrypted Setup procedure. For more details on WES, please refer to the general documentation available on the Neocortec website.

2.5 Powering the breakout board

When using the breakout board as a Feather Wing connected to a Feather development board, the-board is supplied from the Feather development board.
If the breakout board is used stand alone, the board can be supplied through the VCC and GND pins located on board:
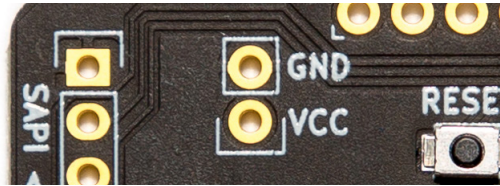
Please refer to the NeoMesh module datasheet for more details on the power supply requirements.

3. Dimensions

Item	Dimension	Tolerance	Remark
Width	23mm	±0.2mm	
Length	51mm	±0.2mm	
Height	4.3mm	±0.25mm	Without U.FL plug

4. Ordering information

Model	Temp range	Part number	Remark
FWNC2400	-40°C -85°C	FWNC2400C	Breakout board with NC2400 module targeting the 2.4GHz frequency band
FWNC1000-8	-40°C -85°C	FWNC1000C-8	Breakout board with NC1000-8 module targeting the 868MHz frequency band
FWNC1000-9	-40°C -85°C	FWNC1000C-9	Breakout board with NC1000-9 module targeting the 915MHz frequency band

5. Package information

Available in single piece bags. Please contact NeoCortec for further details.

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SLWRB4308C SLWRB4308D SLWSTK6102A