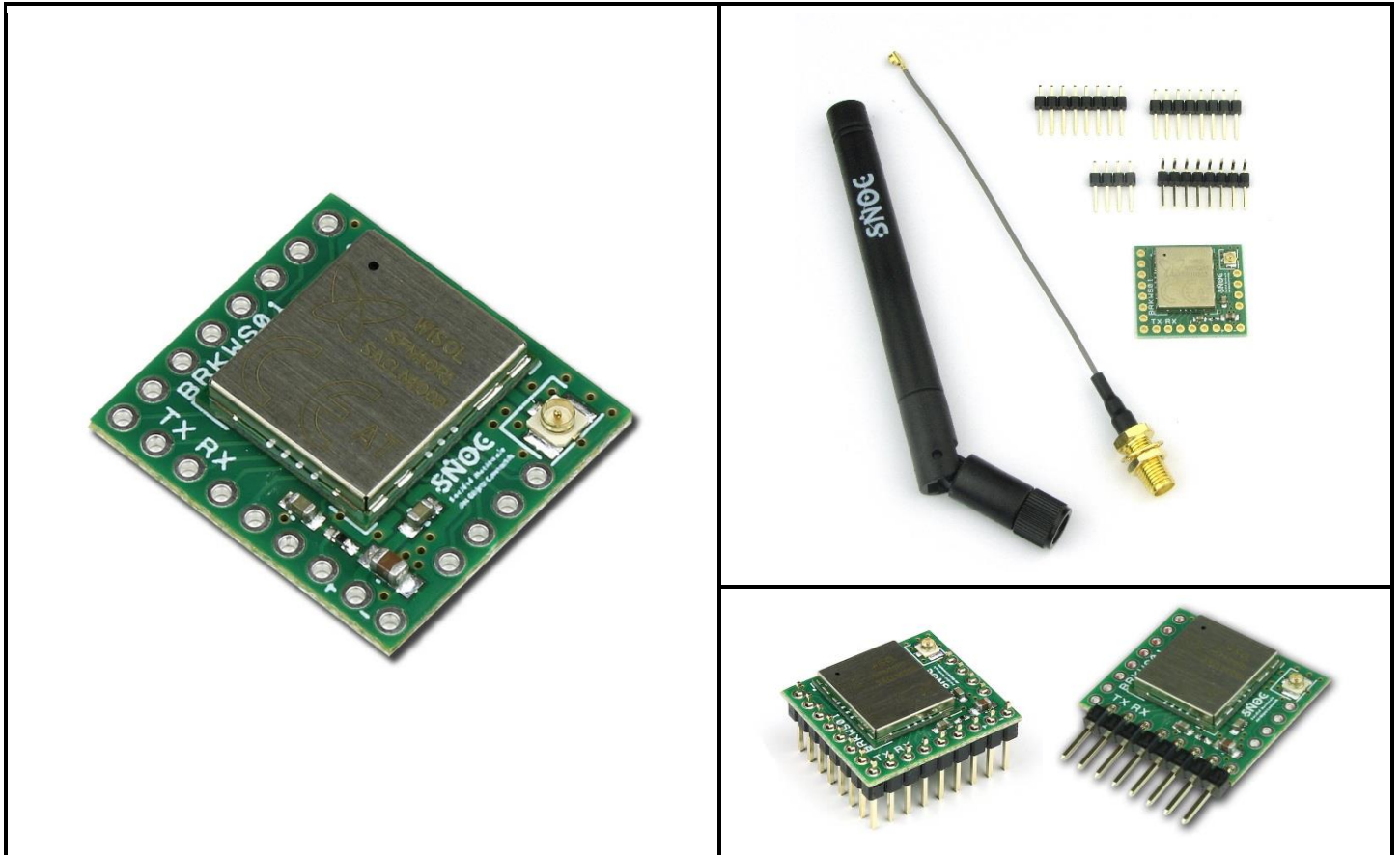


## SigFox Module SFM10R3 Breakout board *BRKWS01-RC3*



The breakout BRKWS01 is a very small footprint SigFox breakout board based on the Wisol SFM10R3 module. This board will enable you to integrate and use the SigFox LPWan network into your IOT project design, providing simple data transmission feature.



- ✓ **Ultra-Small foot-print 23.3mm x 21.3mm (<math><5\text{cm}^2</math>)**
- ✓ **Versatile usages, breadboard, vertical Single Inline Package**
- ✓ **Simple control by AT commands**
- ✓ **Sigfox verified Wisol module**

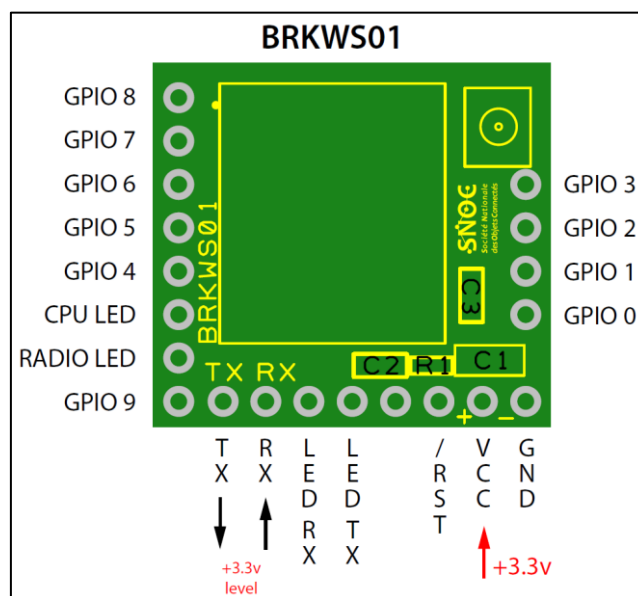
## BRKWS01 breakout board description

Thanks to the small dimension of the SFM10R3 Wisol module, an ultra-small foot-print breakout board design was possible.

The design of the breakout allows versatile usages from the development of your prototype to the mass production of your project. Indeed, the layout of input/output pin is such that you can use the standard module features with the breakout board position vertically as a Single Inline Package module (SIP). Therefore, the integration into your PCB design is facilitated.

The breakout board BRKWS01 is a board using the Sigfox Verified Wisol module, ensuring reliable capabilities to communicate with the network. It is design and produced in France in our office and facilities.

### BRKWS01 Circuit diagram



### BRKWS01 Pin description

| Name       | Type     | Description   |
|------------|----------|---|
| GPIO8      | I/O/PU   | General purpose IO  |
| GPIO7      | I/O/PU   | General purpose IO, selectable SPI functionality (MISO)   |
| GPIO6      | I/O/PU   | General purpose IO, selectable SPI functionality (MOSI)   |
| GPIO5      | I/O/PU   | General purpose IO, selectable SPI functionality (SCK)  |
| GPIO4      | I/O/PU   | General purpose IO, selectable $\Sigma\Delta$ DAC functionality, selectable dock functionality                                |
| CPU_LED    | O        | CPU activity indicator  |
| RADIO_LED  | O        | Radio activity indicator  |
| GPIO9      | I/O/PU   | General purpose IO, wakeup from deep sleep  |
| UARTTX     | O        | UART transmit   |
| UARTRX     | I/PU     | UART receive  |
| LEDRX      | O        | Receive activity indicator  |
| LEDTX      | O        | Transmit activity indicator   |
| NC4/DBG_EN | PD       | Do not connect  |
| /RST       | I/PU     | Optional reset pin  |
| VCC        | P        | Power supply  |
| GND        | P        | Ground  |
| GPIO0      | I/O/A/PU | General purpose IO, selectable ADC functionality, selectable $\Sigma\Delta$ DAC functionality, selectable clock functionality |
| GPIO1      | I/O/A/PU | General purpose IO, selectable ADC functionality  |
| GPIO2      | I/O/A/PU | General purpose IO, selectable ADC functionality  |
| GPIO3      | I/O/A/PU | General purpose IO, selectable ADC functionality  |

## **BRKWS01 Specifications**

| <b>Absolute Maximum Ratings</b> |               |             |                     |             |
|---------------------------------|---------------|-------------|---------------------|-------------|
| <b>Parameter</b>                | <b>Rating</b> |             | <b>Unit</b>         |             |
| Operating temp.                 | -30 to +85    |             | °C                  |             |
| Storage temp.                   | -40 to +125   |             | °C                  |             |
| <b>DC Characteristics</b>       |               |             |                     |             |
| <b>Parameter</b>                | <b>Min</b>    | <b>Typ.</b> | <b>Max</b>          | <b>Unit</b> |
| Input Voltage                   | 1.8*          | 3.3         | 3.6                 | V           |
| Tx Current (@14dB setting)      |               | 54          | 55                  | mA          |
| Rx Current                      |               | 15          | Your measured value | mA          |
| <b>I/O Specifications</b>       |               |             |                     |             |
| <b>Parameter</b>                | <b>Min</b>    | <b>Typ.</b> | <b>Max</b>          | <b>Unit</b> |
| supply voltage                  | 1.8           |             | 3.6                 | V           |
| High level input voltage        | 2.0           |             |                     | V           |
| Low level input voltage         |               |             | 0.8                 | V           |

\*The device is operational from 1.8 V to 3.6 V. However, a supply voltage below 2.0 V is considered an extreme condition and operation can lead to reduced output power and increased spurious emission.

## **BRKWS01 Communication command**

The module is controlled with serial AT commands sent on TX/RX pins.  
Below is the communication specification and AT commands to use.

Serial communication: 9600 bauds, 8bits, 1 stop bit, no parity

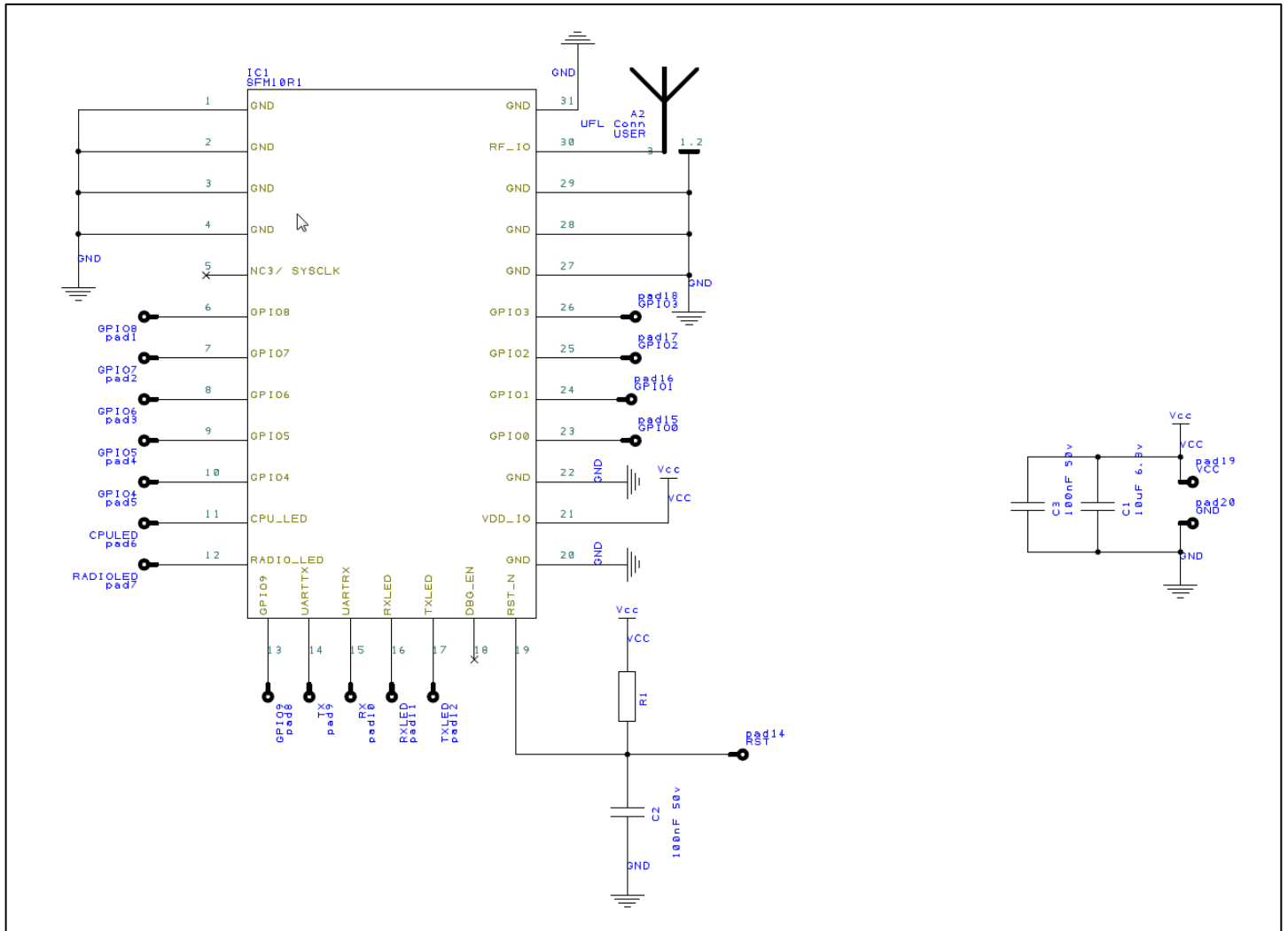
AT commands:

|  |   |
|--|---|
| Communication test:                        | AT  |
| Get Module ID:                             | AT\$I=10                                  |
| Get PAC code:                              | AT\$I=11                                  |
| Send a SIGFOX message:                     | AT\$SF=XXXXXXXXXXXX (Hexadecimal value)   |
| Send a SIGFOX message with downlink frame: | AT\$SF=XXXXXXXXXXXX,1 (Hexadecimal value) |

## **BRKWS01 Kit include:**

- 1x Breakout Board BRKWS01
- 1x 8 pins header 1 row, straight, gold plating
- 1x 8 pins header 1 row, 90° Angled, gold plating
- 1x 4 pins header 1 row, straight, gold plating

### BRKWS01 Circuit diagram



### BRKWS01 Circuit Description

| Name    | Description                               |
|---------|---|
| IC1     | Wisol SigFox Module RCZ3 (SFM10R3)        |
| +3.3V   | Module Power Supply (Typically 3.3V)      |
| A2 Conn | RF Input/Output UFL conn. (Impedance=50Ω) |
| C1      | 10uF                                      |
| C2/C3   | 100nF                                     |
| R1      | 100KΩ                                     |
| NRST    | Reset (Active Low)                        |

Product available for purchase on [yadom.eu](http://yadom.eu)