

# **WISMO**

## **Wireless Standard Module**

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### **WM1B-G900 / WM2C-G900/G1800**

### **COMPARATIVE DOCUMENT**

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### **PRELIMINARY**

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## Preliminary

The Purpose of this document is to underline the differences between the Wismo1B and Wismo2C modules.

WM1B-G900	WM2C-G900/G1800
<p><b><u>Dimensions :</u></b></p> <p><b>64 x 46 x 7,2 mm</b> <b>40g</b></p> <p>2 Watts GSM radio section running under 3,6 volts.</p> <p>Digital section under <b>3</b> volts.</p> <p>The module has two external connections, one to the antenna by spring contacts or RF cable soldering, one for Digital, Keyboard, Audio and Supply by <b>80</b> pins connector.</p> <p><b><u>Interface connectors :</u></b></p> <p>The communication interface connector is a <b>80</b> pins connector with <b>0.635mm</b> pitch coming from HIROSE company with the reference :</p> <p style="text-align: center;"><b>HIROSE FX8-80P-SV1</b></p> <p>The one used by the OEM side has the reference :</p> <p style="text-align: center;"><b>HIROSE FX8-80S-SV</b></p> <p>The stacking height is <b>4.0mm</b>.</p>	<p><b><u>Dimensions :</u></b></p> <p><b>58,3 x 32,2 x 6 mm</b> <b>20g</b></p> <p>2 Watts EGSM radio section running under 3,6 Volts.</p> <p>1 watt DCS radio section running under 3,6 Volts.</p> <p>Digital section under <b>2,8</b> Volts.</p> <p>The module has two external connections, one to the antenna by spring contacts or RF cable soldering, one for Digital, Keyboard, Audio and supply by <b>60</b> pins connector.</p> <p><b><u>Interface connectors :</u></b></p> <p>The communication interface connector is a <b>60</b> pins connector with <b>0.5mm</b> pitch coming from KYOCERA company with the reference :</p> <p style="text-align: center;"><b>KYOCERA (ELCO) 14 5087 060 930 861</b></p> <p>The one used by the OEM side has the reference :</p> <p style="text-align: center;"><b>KYOCERA 24 5087 060 x00 861</b></p> <p>The stacking height is <b>3.0mm</b>.</p>

# 1. Base-Band interface

WM1B-G900	WM2C-G900/G1800
<p>A <b>80</b> pins connectors is provided to interface the module to an application board. This connector is a <b>0.635mm</b> pitch connector from HIROSE with a stacking height of <b>4.0mm</b>. The reference of the connector to be mounted on the mother board is :</p> <p style="text-align: center;"><b>HIROSE FX8-80S-SV</b></p> <p><b>Warning</b> : The digital interface provided by the module is an <b>3V</b> interface.</p> <p><b><u>Power supply</u></b> :</p> <p>Two different inputs are provided for the power supply. The first one VBATT is used to supply the RF part and the other input VDD to supply the base-band part.</p> <p>VDD supplies the <b>+3V</b> ballast regulators of the module. The voltage has to be maintained over <b>3.3 volts</b>. Minimum voltage ripple has to be maintained at this connection to avoid phase error.</p> <p><b>Three different grounds are provided at the module interface.</b> GND is used with VBATT and is the RF ground, DGND is the digital ground and AGND is the analog ground. These three grounds have to be connected together on the mother board through a complete layer on PCB.</p>	<p>A <b>60</b> pins connectors is provided to interface the module to an application board. This connector is a <b>0.5mm</b> pitch connector from KYOCERA with a stacking height of <b>3.0mm</b>. The reference of the connector to be mounted on the mother board is :</p> <p style="text-align: center;"><b>KYOCERA 24 5087 060 000 861</b></p> <p><b>Warning</b> : the digital interface provided by the module is an <b>2.8V</b> interface.</p> <p><b><u>Power supply</u></b> :</p> <p>Two different inputs are provided for the power supply. The first one VBATT is used to supply the RF part and the other input VDD to supply the base-band part.</p> <p>VDD supplies the <b>2.8V</b> ballast regulators of the module. The voltage has to be maintained over <b>3.1 volts</b> or connected to VBATT. Minimum voltage ripple has to be maintained at this connection to avoid phase error.</p> <p><b>Ground is provided by the module shielding case.</b> The ground has to be connected on the mother board through a complete layer on the PCB.</p>

**Power Supply Voltage**

	V <sub>MIN</sub> WM1B	V <sub>MIN</sub> WM2C	V <sub>NOM</sub>	V <sub>MAX</sub> WM1B	V <sub>MAX</sub> WM2C	Ripple max
<b>VBATT</b>	3.3 V	3.3 V	3.6 V	<b>5.25 V</b>	<b>5.0 V</b>	100 mV
<b>VDD</b>	<b>3.3 V</b>	<b>3.1 V</b>		<b>5.25 V</b>	<b>5.0 V</b>	100 mV

**Power consumption in GSM Mode**

	<b>Conditions</b>	<b>I<sub>NOM</sub> WM1B</b>	<b>I<sub>NOM</sub> WM2C</b>	<b>I<sub>MAX</sub> WM1B</b>	<b>I<sub>MAX</sub> WM2C</b>
<b>VBATT</b>	During TX bursts @ 2W	<b>2.0 A peak</b>	<b>1.7 A peak</b>	<b>2.5 A peak</b>	<b>2.0 A peak</b>
<b>VBATT</b>	During RX bursts	<b>110 mA peak</b>	<b>75 mA peak</b>	<b>130 mA peak</b>	<b>80 mA peak</b>
<b>VBATT</b>	Average @ 2W	<b>280 mA</b>	<b>270 mA</b>	<b>390 mA</b>	<b>320 mA</b>
<b>VBATT</b>	Average @ 0.5W	<b>140 mA</b>	<b>180 mA (TBD)</b>	<b>160 mA</b>	<b>200 mA (TBD)</b>
<b>VDD</b>	Average TCH/FS mode	<b>35 mA</b>	<b>42 mA (TBD)</b>	<b>50 mA</b>	<b>120 mA (TBD)</b>
<b>VDD</b>	Average Idle mode	<b>4 mA</b>	<b>3 mA (*)</b>	<b>7 mA (*)</b>	<b>6 mA</b>

(\*) : Informative value

**Power Supply Pinout**

	<b>Pin number</b>	
	<b>Wismo1B</b>	<b>Wismo2C</b>
<b>VBATT</b>	<b>4, 5, 6, 7, 8, 9</b>	<b>55, 57, 58, 59, 60</b>
<b>VDD</b>	<b>77</b>	<b>11</b>
<b>GND</b>	<b>10, 11, 12, 13, 14, 15, 16</b>	<b>Shielding</b>
<b>DGND</b>	<b>75</b>	<b>-</b>
<b>AGND</b>	<b>62, 72</b>	<b>-</b>



## 2. Serial link

WM1B-G900	WM2C-G900/G1800
A flexible 6 wires serial interface is available complying with V24 protocol signalling but not with V28 (electrical interface) since the level interface is <b>3 Volts</b> .	A flexible 6 wires serial interface is available complying with V24 protocol signalling but not V28 (electrical interface) since the level interface is <b>2.8 Volts</b> .

Pin description

Signal	Pin number WM1B	Pin number WM2C	I/O	I/O type WM1B	I/O type WM2C	Description
CT103 / TX	37	39	I	CMOS	CMOS	Transmit serial data
CT104 / RX	38	32	O	1X	1X	Receive serial data
CT105 / RTS	40	30	I	CMOS	CMOS	Ready To Send
CT106 / CTS	39	37	O	1X	1X	Clear To Send
CT107 / DSR	43	36	O	1X	1X	Data Set Ready
CT108-2 / DTR	41	34	I	CMOS	CMOS	Data Terminal Ready
CT109 / DCD	67	51	O	2X	2X	Data Carrier Detect
CT125 / RI	73	54	O	2X	2X	Ring Indicator

### 3. SIM INTERFACE

WM1B-G900	WM2C-G900/G1800
<p>5 signals are present :</p> <ul style="list-style-type: none"> <li>- SIMVCC : SIM power supply</li> <li>- SIMRST : reset</li> <li>- SIMCLK : clock</li> <li>- SIMDATA : I/O port</li> <li>- SIMPRES : SIM card detect</li> </ul> <p>The SIM interface can manage a <b>3V or a 5V SIM</b>. This is made automatically in detecting, during the SIM reset cycle, which type of card is inserted in the SIM socket.</p>	<p>5 signals are present :</p> <ul style="list-style-type: none"> <li>- SIMVCC : SIM power supply</li> <li>- SIMRST : reset</li> <li>- SIMCLK : clock</li> <li>- SIMDATA : I/O port</li> <li>- SIMPRES : SIM card detect</li> </ul> <p>The SIM interface controls a <b>3V SIM only</b>.</p>

Pin description

Signal	Pin number WM1B	Pin number WM2C	I/O	I/O type WM1B	I/O type WM2C	Description
SIMCLK	48	3	O		2X	SIM Clock
SIMRST	47	5	O		2X	SIM Reset
SIMDATA	45	7	I/O		CMOS / 3X	SIM Data
SIMVCC	46	9	O			SIM Power Supply
SIMPRES	79	50	I	CMOS	CMOS	SIM Card Detect



**Electrical Characteristics for Wismo1B**

Parameter	Conditions	Min	Typ	Max	Unit
<b>SIMDATA <math>V_{IH}</math></b>	$I_{IH} = \pm 20\mu A$	$0.7 \times SIMVCC$			V
<b>SIMDATA <math>V_{IL}</math></b>	$I_{IL} = 1mA$			0.4	V
<b>SIMDATA <math>V_{OH}</math></b>	Source current = $20\mu A$	$0.8 \times SIMVCC$			V
<b>SIMDATA <math>V_{OL}</math></b>	Sink current = $-200\mu A$			0.4	V
<b>SIMRST, SIMCLK <math>V_{OH}</math></b>	Source current = $20\mu A$	$0.9 \times SIMVCC$			V
<b>SIMRST, SIMCLK <math>V_{OL}</math></b>	Sink current = $-200\mu A$			0.4	V
<b>SIMVCC (5V) Output Voltage</b>	$I_{SIMVCC} \leq 10mA$	4.75	5.00	5.25	V
<b>SIMVCC (3V) Output Voltage</b>	$I_{SIMVCC} \leq 10mA$	2.80	3.00	3.20	V
<b>SIMCLK Rise/Fall Time</b>	Loaded with 30pF			20	ns
<b>SIMRST, SIMDATA Rise/Fall Time</b>	Loaded with 30pF			1	$\mu s$
<b>SIMCLK Frequency</b>	Loaded with 30pF			5	MHz

**Electrical Characteristics for Wismo2C**

Parameter	Conditions	Min	Typ	Max	Unit
<b>SIMDATA <math>V_{IH}</math></b>	$I_{IH} = \pm 20\mu A$	$0.7 \times SIMVCC$			V
<b>SIMDATA <math>V_{IL}</math></b>	$I_{IL} = 1mA$			$0.3 \times SIMVCC$	V
<b>SIMRST, SIMDATA SIMCLK <math>V_{OH}</math></b>	Source current = $20\mu A$	$SIMVCC - 0.1V$			V
<b>SIMRST, SIMDATA SIMCLK <math>V_{OL}</math></b>	Sink current = $-200\mu A$			0.1	V
<b>SIMVCC Output Voltage</b>	$I_{SIMVCC} \leq 6mA$	2.70	2.80	2.85	V
<b>SIMCLK Rise/Fall Time</b>	Loaded with 30pF			50	ns
<b>SIMRST, SIMDATA Rise/Fall Time</b>	Loaded with 30pF			1	$\mu s$
<b>SIMCLK Frequency</b>	Loaded with 30pF			3.25	MHz

## 4. General Purpose Input / Output

WM1B-G900	WM2C-G900/G1800
Wismo1B provides <b>2 general purpose I/O</b> which can be used to control any external devices such as LCD or Keyboard backlight.	Wismo2C provides <b>5 general purpose I/O, 2 general purpose output and 1 general purpose input</b> which can be used to control any external devices such as LCD or Keyboard backlight.

Pin description for WM1B

Signal	Pin number WM1B	I/O	I/O type WM1B	Description
<b>GPIO3</b>	<b>73</b>	I/O	CMOS / 2X	General Purpose I/O
<b>GPIO4</b>	<b>67</b>	I/O	CMOS / 2X	General Purpose I/O

Pin description for WM2C

Signal	Pin number WM2C	I/O	I/O type WM2C	Description
<b>GPIO0</b>	<b>24</b>	I/O	CMOS / 2X	General Purpose I/O
<b>GPIO1</b>	<b>52</b>	I/O	CMOS / 2X	General Purpose I/O
<b>GPIO2</b>	<b>54</b>	I/O	CMOS / 2X	General Purpose I/O
<b>GPIO3</b>	<b>51</b>	I/O	CMOS / 2X	General Purpose I/O
<b>GPIO4</b>	<b>53</b>	I/O	CMOS / 2X	General Purpose I/O
<b>GPO1</b>	<b>22</b>	O	3X	General Purpose O
<b>GPO2</b>	<b>20</b>	O	1X	General Purpose O
<b>GPI</b>	<b>18</b>	I	CMOS	General Purpose I

## 5. ANALOG TO DIGITAL CONVERTER

WM1B-G900	WM2C-G900/G1800
<b>Two</b> analog to digital converters inputs are provided by Wismo1B. These two converters are <b>8 bits</b> converters in a range of 0 to 2.5 V.	Analog to digital converter inputs are provided by Wismo2C. This converter is a <b>10 bits</b> converter in an range 0 to 2.5 V.

Pin description

Signal	Pin number WM1B	Pin number WM2C	I/O	I/O type	Description
AUXV0	22	33	I	Analog	A/D converter
AUXV1	21	-	I	Analog	A/D converter

Electrical Characteristics

Parameter	Min WM1B	Min WM2C	Max WM1B	Max WM2C	Unit
Resolution	8	10	8	10	bits
Sampling rate	90.3	90.3	90.3	90.3	Ksps
Input signal range	0	0	2.5V	2.5V	V
ADC Reference Accuracy	-	0.5			%
Integral Accuracy	+/- 1	+/- 1			LSB
Differential Accuracy	+/- 1	+/- 1			LSB
Input Impedance ( R )	10	10			MΩ
Input Impedance ( C )			10	50	pF



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## 6. Audio

Pin description

Signal	Pin # WM1B	Pin # WM2C	I/O	I/O type	Description
MIC2P	68	46	I	Analog	Microphone 2 positive input
MIC2N	70	48	I	Analog	Microphone 2 negative input
MIC1P	66	42	I	Analog	Microphone 1 positive input
MIC1N	64	44	I	Analog	Microphone 1 negative input
SPK1P	74	41	O	Analog	Speaker 1 positive output
SPK1N	76	43	O	Analog	Speaker 1 negative output
SPK2P	78	45	O	Analog	Speaker 2 positive output
SPK2N	80	47	O	Analog	Speaker 2 negative output

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## 7. ALERTER OUTPUT

WM1B-G900	WM2C-G900/G1800
The buzzer output is a digital output. A buzzer can be directly connected between this output and the ground. The maximum current is 100 mA while the average current is 50 mA assuming 50% duty cycle.	The buzzer output is a digital output. A buzzer can be directly connected between this output and the ground. The maximum current is 80 mA (PEAK).

Pin description

Signal	Pin # WM1B	Pin # WM2C	I/O	I/O type	Description
BUZ	71	49	O		Buzzer output

## 8. MISCELLANEOUS

### 8.1 ON / ~OFF

Pin description

Signal	Pin number WM1B	Pin number WM2C	I/O	I/O type	Description
ON/~OFF	19	6	I		Module Power ON

Electrical Characteristics

Parameter	Min WM1B	Min WM2C	Max WM1B	Max WM2C	Unit
Input Impedance ( R )	10	10			kΩ
Input Impedance ( C )			33	50	pF

Operating conditions

Parameter	I/O type	Min WM1B	Min WM2C	Max WM1B	Max WM2C	Unit
$V_{IL}$		0 V	0 V	1 V	0.6 V	V
$V_{IH}$		2.5 V	2.4 V	VDD+0.5V	VDD+0.5V	V

### 8.2 BOOT

Pin description

Signal	Pin number WM1B	Pin number WM2C	I/O	I/O type	Description
BOOT	18	12	I	CMOS	Flash Loading

### 8.3 Reset

If an external reset is used (emergency reset), it may be driven by an open collector or by open drain.

**Pin description**

Signal	Pin number WM1B	Pin number WM2C	I/O	I/O type	Description
$\sim$ RST	36	14	I/O		Module Reset

**Electrical Characteristics**

Parameter	Min WM1B	Min WM2C	Max WM1B	Max WM2C
Input Impedance ( R )	4.7 k $\Omega$	4.7 k $\Omega$		
Input Impedance ( C )			1nF	10 nF

**Operating conditions for Wismo1B**

Parameter	I/O type	Min	Max	Condition
$V_{IL}$		-0.5 V	0.9 V	
$V_{IH}$		2.1 V	3.0 V	
$V_{OL}$			0.4 V	$I_{OL} = -1$ mA
$V_{OH}$		2.2 V		$I_{OH} = 1$ mA

**Operating conditions for Wismo 2C**

Parameter	I/O type	Min	Max	Condition
$V_{T-}$		1.1V	1.2 V	
$V_{T+}$		1.7V	1.9 V	
$V_{OL}$			0.4 V	$I_{OL} = -50$ $\mu$ A
$V_{OH}$		2.0 V		$I_{OH} = 50$ $\mu$ A



## 9. External Interrupt and VCC Output

WM1B-G900	WM2C-G900/G1800
<p><b>WISMO1B</b> provides an external interrupt input which can be used to detect accessory in a handset for example. This input is edge sensitive and an interrupt is detected when the signal goes from low to high. If this signal is not used it can be left open.</p> <p><b>VCC and AVCC outputs :</b>          These outputs can be used to supply some external functions like LCD, to indicate that the module is ON and to switch ON an external device. VCC has to be used as a digital power supply and AVCC as an analogue power supply.          This output can be used also to determine if the Wismo1B module is powered up or not.</p>	<p><b>WISMO2C</b> provides an external interrupt input which can be used to detect accessory in a handset for example. This input is edge sensitive and an interrupt is detected when the signal goes from high to low (internally pull-up to VCC). If this signal is not used it can be left open. If used this input has to be driven by an open collector or an open drain.</p> <p><b>VCC output :</b>          This output can be used to supply some external functions like LCD, to indicate that the module is ON and to switch ON an external device. VCC has to be used as a digital power.          This output can be used also to determine if the Wismo2C module is powered up or not.</p> <p><b>VCC_RTC output :</b>          This pin is used as a back-up power supply for the internal Real Time Clock. The RTC is supplied by the module when it is powered up but it needs a back-up power supply to save date and hour when the module is switched off. If the RTC is not used, this pin can be left open.</p>



**Pin description**

Signal	Pin number WM1B	Pin number WM2C	I/O	I/O type	Description
~INTR	17	16	I	CMOS	External Interrupt
VCC	65	40	O		Digital External supply
AVCC	59	-	O		Analogue External supply
VCC_RTC	-	56	I/O		RTC Back-up supply

**Operating conditions (VCC)**

Parameter	Condition	Min WM1B	Min WM2C	Max WM1B	Max WM2C	Unit
Output voltage	I = 10mA	2.7	2.74	3.1	2.86	V
Output Current				10	10	mA



## 10. Technical specifications

Operating conditions

Parameter	I/O type	Min WM1B	Min WM2C	Max WM1B	Max WM2C	Condition WM1B	Condition WM2C
$V_{IL}$	CMOS	-0.5 V	-0.5 V	0.9 V	0.8 V		
$V_{IH}$	CMOS	2.1 V	2.1 V	3.2 V	3.0 V		
$V_{OL}$	1X			0.4 V	0.2 V	$I_{OL} = -2 \text{ mA}$	$I_{OL} = -1 \text{ mA}$
	2X			0.4 V	0.2 V	$I_{OL} = -4 \text{ mA}$	$I_{OL} = -2 \text{ mA}$
	3X			0.4 V	0.2 V	$I_{OL} = -8 \text{ mA}$	$I_{OL} = -3 \text{ mA}$
$V_{OH}$	1X	2.4 V	2.6 V			$I_{OH} = 2 \text{ mA}$	$I_{OH} = 1 \text{ mA}$
	2X	2.4 V	2.6 V			$I_{OH} = 4 \text{ mA}$	$I_{OH} = 2 \text{ mA}$
	3X	2.4 V	2.6 V			$I_{OH} = 8 \text{ mA}$	$I_{OH} = 3 \text{ mA}$

## 11. RF performances

WM1B-G900	WM2C-G900/1800
<p>RF performances are compliant with REC 05.05 and REC 11.10. The main parameters are :</p> <ul style="list-style-type: none"> <li>Receiver : <ul style="list-style-type: none"> <li>Sensitivity : <b>&lt; -102 dBm</b></li> <li>Selectivity @ 200 kHz : &gt; +9 dBc</li> <li>Selectivity @ 400 kHz : &gt; +41 dBc</li> <li>Selectivity @ 600 kHz : &gt; +49 dBc</li> <li>Dynamic range : 62 dB</li> <li>Intermodulation : <b>&gt; -49 dBm</b></li> <li>Co-channel rejection : &gt;= 9 dBc</li> </ul> </li> <li>Transmitter : <ul style="list-style-type: none"> <li>Maximum output power : +33 dBm +/- 2 dB</li> <li>Minimum output power : +5 dBm +/- 5 dB</li> <li>H2 level : &lt; -30 dBm</li> <li>H3 level : &lt; -30 dBm</li> <li>Noise in 925 - 935 MHz : &lt; -67 dBm</li> <li>Noise in 935 - 960 MHz : &lt; -79 dBm</li> <li>Phase error at peak power : &lt; 5 ° RMS</li> </ul> </li> </ul>	<p>RF performances are compliant with REC 05.05 and REC 11.10. The main parameters are :</p> <ul style="list-style-type: none"> <li>Receiver: <ul style="list-style-type: none"> <li>EGSM Sensitivity : <b>&lt;-104dBm</b></li> <li>DCS Sensitivity : <b>&lt; -100 dBm</b></li> <li>Selectivity @ 200 kHz : &gt; +9 dBc</li> <li>Selectivity @ 400 kHz : &gt; +41 dBc</li> <li>Dynamic range : 62 dB</li> <li>Intermodulation : <b>&gt; -43 dBm</b></li> <li>Co-channel rejection : &gt;= 9 dBc</li> </ul> </li> <li>Transmitter : <ul style="list-style-type: none"> <li>Maximum output power (EGSM) : +33 dBm +/- 2 dB</li> <li>Maximum output power (DCS) : +30 dBm +/- 2 dB</li> <li>Minimum output power (EGSM) : +5 dBm +/- 5 dB</li> <li>Minimum output power (DCS) : 0 dBm +/- 5 dB</li> <li>H2 level : &lt; -30 dBm</li> <li>H3 level : &lt; -30 dBm</li> <li>Noise in 925 - 935 MHz : &lt; -67 dBm</li> <li>Noise in 935 - 960 MHz : &lt; -79 dBm</li> <li>Noise in 1805 - 1880 MHz : &lt; -71 dBm</li> <li>Phase error at peak power : &lt; 5 ° RMS</li> <li>Frequency error : +/- 0.1 ppm max</li> </ul> </li> </ul>

## 12. Interfaces

This table underlines the “pin-to-pin” differences between the Wismo1B and Wismo2C modules.

Wismo1B						Wismo2C					
Pin #	Name	I/O	I/O type	Description	Comment	Pin #	Name	I/O	I/O type	Description	Comment
1	Reserved					1	Reserved				
2	Reserved					2	Reserved				
3	Reserved					3	SIMCLK	O	2 X	Clock for SIM interface	
4	+VBATT		Supply	Battery Input	High current	4	Reserved				
5	+VBATT		Supply	Battery Input	High current	5	SIMRST	O	2 X	Reset for SIM interface	
6	+VBATT		Supply	Battery Input	High current	6	ON/~OFF	I		Power ON/OFF control	
7	+VBATT		Supply	Battery Input	High current	7	SIMDATA	I/O	CMOS / 3X	I/O for SIM interface	
8	+VBATT		Supply	Battery Input	High current	8	Reserved				
9	+VBATT		Supply	Battery Input	High current	9	SIMVCC	O		SIM card supply	6mA max (3V)
10	GND			Ground	High current	10	Reserved				
11	GND			Ground	High current	11	VDD	I	Supply	Low power supply	3.1V minimum or connected to VBATT
12	GND			Ground	High current	12	BOOT	I	CMOS	BOOT	Pull down through 1K for Flash downloading
13	GND			Ground	High current	13	Reserved				
14	GND			Ground	High current	14	~RST	I/O	SCHMITT	Module Reset	Active low
15	GND			Ground	High current	15	Reserved				

16	GND			Ground	High current		16	~INTR	I	CMOS	External interrupt	Active low. 100K Pull-up inside
17	INTR	I	CMOS	External interrupt	Active High		17	Reserved				
18	BOOT	I	CMOS	BOOT	Open when not used or connected to low level for Flash loading operation		18	GPI	I	CMOS	General Purpose Input	100K Pull-down inside
19	ON/~OFF	I		Power ON/OFF control			19	Reserved				
20	Reserved						20	GPO2	O	1X	General Purpose Output	
21	ADC4/ ~CSUSR3	I O	Analog 1X	User A/D Converter or User Chip Select			21	Reserved				
22	ADC3/ ~CSUSR3	I O	Analog 1X	User A/D Converter or User Chip Select			22	GPO1	I/O	CMOS/3X	General Purpose Output	
23	Reserved						23	Reserved				
24	Reserved						24	GPIO0	I/O	CMOS/2X	General Purpose I/O	
25	Reserved						25	Reserved				
26	Reserved						26	Reserved				
27	Reserved						27	Reserved				
28	Reserved						28	Reserved				
29	Reserved						29	Reserved				
30	Reserved						30	CT105/RTS	I	CMOS	RS232 interface Request To Send	Pull up to VCC with 100K $\Omega$ when not used
31	Reserved						31	Reserved				
32	Reserved						32	CT104/RX	O	1X	RS232 interface – Receive	
33	Reserved						33	AUXV0	I	Analog	Auxiliar ADC input 0	
34	BAT_TEMP	I	Analog	ADC input for battery temperature measurement			34	CT108-2/DTR	I	CMOS	RS232 interface Data Terminal Ready	Pull up to VCC with 100K $\Omega$ when not used

35	Reserved					35	Reserved				
36	~RST	I/O	CMOS	Module Reset	Active low	36	CT107/DSR	O	1X	RS232 interface Data Set Ready	
37	CT103/TX	I	CMOS	RS232 interface – Transmit	Pull up to VCC with 100K $\Omega$ when not used	37	CT106/CTS	O	1X	RS232 interface Clear To Send	
38	CT104/RX	O	1X	RS232 interface – Receive		38	BAT_TEMP	I	Analog	ADC input for battery temperature measurement	
39	CT106/CTS	O	1X	RS232 interface Clear To Send		39	CT103/TX	I	CMOS	RS232 interface - Transmit	Pull up to VCC with 100 K $\Omega$ when not used
40	CT105/RTS	I	CMOS	RS232 interface Request To Send	Pull up to VCC with 100K $\Omega$ when not used	40	VCC	O	Supply	2.8V digital supply output	10mA max.
41	CT108- 2/DTR	I	CMOS	RS232 interface Data Terminal Ready	Pull up to VCC with 100K $\Omega$ when not used	41	SPK1P	O	Analog	Speaker 1 positive output	
42	Reserved					42	MIC1P	I	Analog	Microphone 1 positive input	
43	CT107/DSR	O	1X	RS232 interface Data Set Ready		43	SPK1N	O	Analog	Speaker 1 negative output	
44	Reserved					44	MIC1N	I	Analog	Microphone 1negative input	
45	SIMDATA	I/O		I/O for SIM interface		45	SPK2P	O	Analog	Speaker 2 positive output	
46	SIMVCC	O		SIM card supply	10 mA max	46	MIC2P	I	Analog	Microphone 2 positive input	
47	SIMRST	O		Reset for SIM interface		47	SPK2N	O	Analog	Speaker 2 negative output	
48				Clock for SIM interface		48	MIC2N	I	Analog	Microphone 2 negative input	
49	Reserved					49	BUZ	O		Buzzer output	80mA max
50	Reserved					50	SIMPRES	I	CMOS	SIM Card Detect	

51	Reserved					51	GPIO3 or CT109 / DCD	I/O O	CMOS/2X	General Purpose I/O  RS232 - Data Carrier Detect	
52	Reserved					52	GPIO1  FLASHLED	I/O	CMOS/2X	General Purpose I/O Module State	Handset application AT command application
53	Reserved					53	GPIO4	I/O	CMOS/2X	General Purpose I/O	
54	Reserved					54	GPIO2 or CT125 / RI	I/O O	CMOS/2X	General Purpose I/O  RS232 - Ring Indicator	
55	Reserved					55	+VBATT		Supply	Battery Input	High current
56	Reserved					56	VCC_RTC	I/O	Supply	RTC back-up supply	
57	Reserved					57	+VBATT		Supply	Battery Input	High current
58	Reserved					58	+VBATT		Supply	Battery Input	High current
59	AVCC	O	Supply	3V Analog supply ouput	10 mA max	59	+VBATT		Supply	Battery Input	High current
60	Reserved					60	+VBATT		Supply	Battery Input	High current
61	Reserved										
62	AGND			Analog ground							
63	Reserved										
64	MIC1N	I	Analog	Microphone 1 negative input							
65	VCC	O	Supply	3V Digital supply output	10 mA						
66	MIC 1P	I	Analog	Microphone 1 positive input							
67	GPIO4 CT109/DCD	I/O O	CMOS/2X 2X	General Purpose I/O RS232 Interface Data Carrier Detect							

68	MIC2P	I	Analog	Microphone 2 positive input							
69	Reserved										
70	MIC2N	I	Analog	Microphone 2 negative input							
71	BUZ	O		Buzzer output	80 mA max						
72	AGND			Analog ground							
73	GPIO3 CT125/RI	I/O O	CMOS/2X 2X	General Purpose I/O RS232 Interface Ring Indicator							
74	SPK1P	O	Analog	Speaker 1 positive output							
75	DGND			Digital ground							
76	SPK1N	O	Analog	Speaker 1 negative output							
77	VDD	I	Supply	Low power supply	3.3 V minimum						
78	SPK2P	O	Analog	Speaker 2 positive output							
79	SIMPRES	I	CMOS	SIM Card Detect	Tied to VCC when not used						
80	SPK2N	O	Analog	Speaker 2 negative output							



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## 13. Software downloading

The way to download the software changes between Wismo1B and Wismo2C.

Concerning the Wismo1B, you need a specific program and the BOOT and RESET signals. The download was done by running the command DWL.

Concerning the Wismo2C, the BOOT and RESET signals are not required any more and you don't need to have a specific program, but a software like hyperterminal for example. The download is done by X MODEM protocol.

Ex :

AT+WDWL

Then you select File Transfert by X MODEM protocol

AT+CFUN=1 (to reset the module)

Note : The download is done at the speed of the serial cable. We recommend to select the maximum speed before starting the operation.