

Sigfox Worldwide Monarch Sub-Giga Transceiver ARM NWW



GFSK

Autonomy



Autonomy: > 5 years



Automatic Power Control (APC)



Ultra-Low Power

Performance



Monarch Smart Scan



Monarch & Fixed Region modes



External RF switch regional antenna control

Network



Sigfox™

ATIM Nano NWW is a line of **ultra-low-power** Combo Radio Module providing Sigfox LPWAN technology and Bluetooth Low Energy (BLE) V4.2.

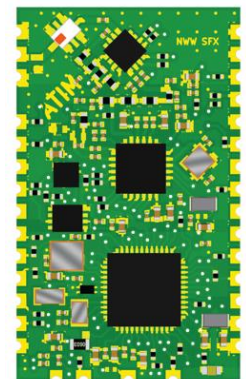
This module embeds ST Microelectronics components **S2-LP** (Sub-GHz RF) and **Blue-NRG 248** (BLE SoC). The complete version includes an accelerometer and a temperature sensor. A version with a secure element is also planned.

The module can be configured on a specific geographic zone or can be used in Monarch mode, detecting Sigfox beacons from base stations and managing the radio frequency changes according to the local regulation. The NWW has several smart functions to increase dramatically the battery's life: optimization of the Monarch scan duration, adaptive RF power, and Adaptive single frame.

The **Bluetooth** connection facilitates the configuration and firmware update which can be done with a smartphone or a PC.

It will also be possible to use the module as a concentrator, allowing the messages received from Bluetooth to be sent to Sigfox.

- Because it is difficult to realize a broadband antenna covering the 6 zones (RCZ1 to RCZ6), the module is configurable and can control an RF switch to automatically select the corresponding antenna of the usage region.



The footprint is the same for all modules of ATIM nano Nx line.



ATIM Radiocommunications

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Technical features

Dimensions	30 x 18 x 2mm (SMD Mounting)
Temperature	-20°C à +70°C (operating mode) -40°C à +105°C (storage mode)
Frequency	Sub-GHz (862-928MHz)
Technology	Sigfox Monarch + BLE4.2 + GFSK M2M + Stand-Alone Mode
Monarch	Adaptative Scan
Output Power	0 – 22dBm (Adaptive Power Control)
Sensitivity	-131 dBm
Link Budget	156 dB
Power supply	2.5 – 3.6Vdc
Consumption (Vdd 3.3V)	
Tx	23 mA (14 dBm) 177 mA (22 dBm)
Rx	17.8 mA
Deep Sleep	1.25 µA
Low Power w/Accelero	3.8 µA
Low Power with Timers	1.6 µA
Interface	Low level UART
Optional Secure Element	H/W & S/W Authentication, data encryption
Certifications	CE EN300-220 RED

References



Sigfox
ARM/Sz*- NWW

*Geographical radio zones

RC1

Europe : Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom

Overseas France: French Guiana, French Polynesia, Guadeloupe, Martinique, Mauritius, Mayotte, New Caledonia, Reunion

Middle East and Africa: Botswana, Kenya, Nigeria, Oman, South Africa, Swaziland, Tunisia, United Arab Emirates

RC2

Brazil, Canada, Mexico, Puerto Rico, USA

RC3

Japan

RC4

Latin America: Argentina, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Peru, Trinidad & Tobago, Uruguay

Asia Pacific: Australia, Hong Kong, Indonesia, Malaysia, New Zealand, Singapore, Taiwan, Thailand

RC5

South Korea

RC6

India

Comparison of module's autonomy depending on Monarch mode use (With/Without)

The simulation does not consider the temperature, the self discharge of the battery and the decrease of the battery capacity

Region	With Monarch Mode					Without Monarch mode				
	Number/day			Autonomy (Battery 3,4 A.h)		Number/day			Autonomy (Battery 3,4 A.h)	
	Monarch Scan	Sigfox transmission	Reception	"Best case"	"Worst case"	Monarch Scan	Sigfox transmission	Reception	"Best case"	"Worst case"
RC1/3/6 (14dBm)	1	2	1	7,7 years	6,6 years	0	3	1	14 years	9 years
	1	5	1	7,3 years	5,3 years	0	14	1	8 years	1,5 years
	1	13	1	6,5 years	3,4 years	0	50	1	6 years	0,8 years
RC2/4 (22dBm)	1	2	1	7,5 years	5,8 years	0	3	1	14 years	5,1 years
	1	5	1	7 years	4,2 years	0	14	1	7 years	3,8 years
	1	13	1	5,9 years	2,4 years	0	50	1	4,4 years	2,2 years
RC5 (12dBm)	1	2	1	7,9 years	7,7 years	0	3	1	15 years	14 years
	1	5	1	7,8 years	7,3 years	0	14	1	13 years	8 years
	1	13	1	7,6 years	6,4 years	0	50	1	11 years	5,5 years



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