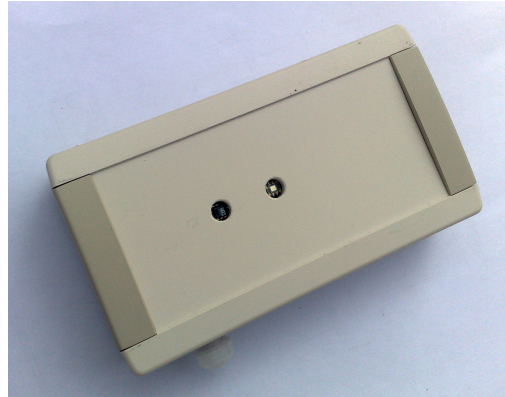


# NF4/NF4B

High-performance, multi-sensor, IEEE 802.15.4 wireless node  
(patent pending)



- High speed, ultra low-power, 32bit RISC CPU
- 128K SRAM, 128K Flash
- Integrated IEEE 802.15.4, high speed, 2.4GHz radio module with onboard antenna
- Infrared motion detector
- Temperature and humidity sensors.
- Fluorescent and solar light sensors
- User-accessible serial interface (NF4)
- Battery powered
- Long operational lifetime: >1 year (3xAA alkaline).
- No installation cables required
- Wall mount with easy-to-detach clip



## Applications

- Remote battery powered sensors
- Ambient/environmental conditions monitoring
- Security systems
- Energy saving

## Contexta-CARE

Contexta-CARE is a very advanced Wireless network system based on IEEE 802.15.4. The network is built using a combination of NF4/NF4B modules, wirelessly interconnected in a multi-layer network tree. The network uses broadcast and zone nodes to collect sensors data and route them to a concentrator node, eventually connected to a PC via serial or IP interfaces.

A Contexta-CARE network uses situation understanding technology in order to proactively monitor various ambient parameter together the presence and position of people.

The board construction is highly modular and very flexible, and can be customized to include customer specific additional or different sensors. Contact us for further information.

## Onboard radio

The NF4/NF4B modules include a high performance IEEE 802.15.4 radio. Even though the maximum distance that a module can cover depends on various ambient parameters, NF4/NF4B can be interconnected in a multi-hop configuration enabling them to span large distances.

## Ambient sensors

The NF4/NF4B incorporate the following sensors:

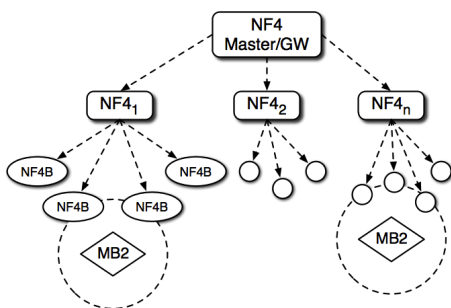
- Ambient light and solar light for optimal domestic light control.
- Temperature and humidity sensor in order to enable full monitoring of room comfort.
- Focused-range infrared-motion detection sensor, which is ideally suited to trigger an event when a person moves across a well-defined transit area.

## Power supply

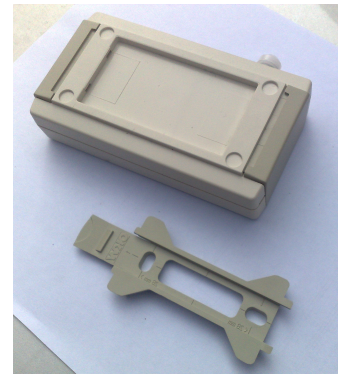
NF4B is purely battery powered using 3xAA alkaline batteries which enable an expected operational lifetime of >1 year.

NF4 includes an external power supply adaptor with 2xAA backup batteries. This module can be used for more time consuming activities, like zone coordinator or concentrator/gateway.

NF4 provides an external connection via RS232TTL interface.



Technical Data	NF4/NF4B			Notes	
Sensors specifications	min	typ	max	units	
<b>Temperature</b>					
Operating range	-40	-	+123.8	°C	Sensor operating range
Resolution	0.04	0.01	0.01	°C	
Accuracy		± 0.04		°C	
Repeatability		± 0.1		°C	
Response time	5		30	s	τ 63%
<b>Relative Humidity</b>					
Operating range	0		100	%RH	Sensor operating range
Resolution	0.4	0.05	0.05	%RH	
Accuracy		± 3.0		%RH	
Repeatability		± 0.1		%RH	
Hysteresis		± 1		%RH	
Response time		8		s	τ 63%
<b>Light intensity</b>					
ADC CH0	639	799	959	counts	$\lambda_p=640\text{nm}$ $E_e=81\mu\text{W}/\text{cm}^2$
ADC CH1		85			
ADC CH0	511	799	1039		
ADC CH1		703			
Illuminance responsivity CH0		2.8		cnts/lux	Fluorescent light source: 300Lux
Illuminance responsivity CH1		0.23			
Illuminance responsivity CH0		19			
Illuminance responsivity CH1		13			
<b>Motion detector</b>					
Rated detection distance		2		m	$\Delta T$ body/background >4°C
Detection range h/v		91		deg	
Detection zone		104		zones	
<b>Processor specifications</b>					
ROM (flash)		128		Kbyte	
RAM		128		Kbyte	
Serial Interface		RS232TTL			NF4B only
Radio frequency range	2.400		2.485	GHz	IEEE 802.15.4 compliant
<b>Power supply requirements</b>					
3 x AA batteries	NF4B				
2 x AA + external 5V power supply	NF4 – internal batteries used for data backup only in case of external power fail				
<b>Mechanical characteristics</b>					
Material	ABS				
Dimensions	128 x 68 x 30			mm	Incl. wall mount clip
	128 x 68 x 34.3			mm	
Operating temperature	0		70	°C	
<b>Expected battery lifetime (NF4B only)</b>					
>1 year, 1s reporting cycletime, 1:100 duty cycle					



Other available products:

**MB2** ultra-compact, portable, wireless Contexta-CARE node with 3 axis gyroscopes, accelerometers, magnetometers and a high-resolution pressure sensor.

**PERS1** (avail. Q4) Contexta-CARE node for position detection and alarm trigger.

**NETW1** (avail. Q4) network installation and signal quality monitoring system. RS232 interface.

**DEM1** Demokit with 5 NF4/NF4B, 1 MB2 with charger.



Sensors characteristics as specified by the sensors' manufacturers. Additional information available on request.

For any additional information, please contact us at [info@contexta.com](mailto:info@contexta.com), or visit our website <http://www.contexta.it>



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