



VersaNode 220

2.4 GHz Wireless Radio Datasheet

The Nivis VersaNode 220 is a versatile WirelessHART radio in a small footprint. The VN220 allows customers to minimize the cost of design, field deployment, and testing. The VN220, in conjunction with a standards based router such as the VersaRouter 910, enables users to wirelessly monitor industrial devices.

Designed for ATEX Zone 2 and C1D2 nonincendive environments, the VN220 offers a full API for easy integration into your organization's devices. From temperature sensors to gas monitors, the VN220 helps organizations unlock vital information about their operating environment. Leveraging AES-128 bit security, the VN220 is a low power, 10dBm, 2.4 GHz radio frequency transceiver with a 32-bit ARM7 core based MCU. The VN220 is also FCC, IC, R&TTE and VCCI approved.



Maximum Ratings

Parameter	Min	Typ	Max	Units	Comment
Supply Voltage	-0.3	3.0	3.3	V	
Voltage on any digital I/O	-0.3	Vcc	Vcc + 0.2 V	V	
Input RF Level			10	dBm	Input power at antenna connector
Storage Temp Range	-40		+85	°C	
Operating Temp Range	-40		+85	°C	

Normal Operating Conditions

Parameter	Min	Typ	Max	Units	Comments
Supply voltage	2.7		3.3	V	
Voltage on analog pins	0		Vcc	V	
Voltage supply noise			200	mVpp	50Hz – 15MHz
Peak current			60	mA	TX mode, maximum output power
Storage and operating temperature	-40		+85	°C	
Operating relative humidity	10		90	%RH	Non condensing
Transmit current			60	mA	
Receive current ¹⁾		21	27	mA	
Hibernate current ²⁾		15		µA	

Notes:

- All RAM active, Reference oscillator on (24MHz) at 1.2 VDC, Radio RX on (receiving data), Reference clock available to all peripherals, ADC1 available but inactive, CPU on at 2 MHz (DCD).
- External 32 kHz crystal oscillator on, CPU off (stop mode), wake-up from RTI timer or external request, Radio off, ADCs not available.

Electrical Specifications

Parameter	Min	Max	Units
Output High-level Voltage (IOH = 5 mA) (All digital outputs)	80% Vcc	Vcc	V
Output Low Voltage (IOL = -5 mA) (All digital outputs)	0	20% Vcc	V
Input Low Voltage (All digital inputs)	0	30% Vcc	
Input High-level Voltage (all digital inputs)	70% Vcc	Vcc	
Input hysteresis (all digital inputs)	0.06 x Vcc		

Radio Characteristics

Parameter	Min	Typ	Max	Units	Comments
Operating frequency	2.4000		2.475	GHz	
Number of channels		15			
Channel separation		5		MHz	
Occupied channel BW		2.65		MHz	
Frequency accuracy	-40		+40	ppm	Determined by the 24MHz crystal
Modulation		0-QPSK			
Raw data rate		250		kbps	
Receiver sensitivity		-98		dBm	Using Non-coherent Differential Chip Detection (DCD), 50% PER
Output power		9	12	dBm	Conducted, at antenna port

Antenna Specifications

Parameter	Min	Typ	Max	Units	Comments
Operating frequency	2.4000		2.4835	GHz	
Impedance		50		Ω	
Gain		+2		dBi	
Pattern					Omni-directional
Maximum VSWR			2:1		
Connector					*MMCX or RF pads on the module edge

* The VN220 can accommodate both MMCX straight connectors and MMCX right angle connectors.

Certification

Type	*Detail
EMC	FCC-US, IC-Canada, R&TTE/ETSI EN- EU, VCCI/MPHPT- Japan
Hazloc	ETL/cETL, IEC, ATEX, CENLEC
Non-Hazloc	IEC (US & Canada), CENLEC EN (EU)

*For more information please contact your sales representative