



The VersaNode 400 is the world's first standards-based IEEE 802.15.4g compliant radio module to receive certification in the US, Canada, Europe and Japan. The module utilizes the Freescale Kinetis platform in conjunction with a Freescale MC12311 transceiver to provide a solution that can be incorporated into a wide range of sensing and control devices that are part of the emerging Internet of Things.

VersaNode users can have their devices sending commands and receiving data over the Internet in a matter of days, using 6LoWPan/IPv6 connectivity and CoAP based web services to integrate quickly to existing functionality.

### MAXIMUM RATINGS

|                            |                                |
|----------------------------|--------------------------------|
| Supply Voltage             | -0.3 to 3.8 Vdc                |
| RF Output Level (Max)      | +15 dBm maximum @ antenna port |
| Input RF Level (Max)       | +6 dBm                         |
| Voltage on any digital I/O | -0.3 to (VDDINT + 0.3)         |
| Operating Temp Range       | -40 to 85 °C                   |
| Storage Temp Range         | -55 to 115 °C                  |

### NORMAL OPERATING CONDITIONS

|                                   |                             |
|-----------------------------------|-----------------------------|
| Supply Voltage                    | 3.3 V nominal               |
| Voltage on analog pins            | 0 to Vcc V                  |
| Voltage supply noise              | max 200 mVpp 50Hz – 15MHz   |
| Storage and operating temperature | -40 to 85 °C                |
| Operating relative humidity       | 10 to 90 %RH non condensing |
| Transmit current                  | 140 mA @ 17 dBm typical     |
| Receive current                   | 50 mA typical               |
| Hibernate current                 | less than 10 µA typical     |

### ELECTRICAL / MECHANICAL

|   |                           |
|---|---------------------------|
| Input High-level Voltage (all digital inputs)                 | 70% Vcc to Vcc            |
| Input Low Voltage (all digital inputs)                        | 0 to 20% Vcc Vdc          |
| Output High-level Voltage (Imax = 1 mA) (All digital outputs) | Vcc - 0.5 Vdc             |
| Output Low Voltage (Imax = -1 mA) (All digital outputs)       | 0 to 10% Vcc Vdc          |
| Input hysteresis (all digital inputs)                         | 0.06 Vcc Vdc              |
| Dimensions  | 1.5" x 1" x 7/16" (LxWxH) |

## Key Benefits

- » IEEE 802.15.4g compliant
- » Hardware cryptographic acceleration engine supports state of the art AES128 bit encryption
- » CoRe/REST compliant web services
- » Leverages proven standards: IPv6, RoLL/RPL, 6LoWPAN, 802.15.4e, 802.15.4g, CoAP, EXI
- » Battery or line powered

### RADIO

|                      |                            |
|----------------------|----------------------------|
| Radio module         | IEEE802.15.4g radio module |
| Frequency band       | 922.3-928.1 MHz            |
| Number of channels   | 28                         |
| Channel spacing      | 400-600 kHz                |
| Frequency accuracy   | ± 15 PPM                   |
| Modulation           | FSK                        |
| Data rate            | 50/100/200 kbps            |
| Receiver sensitivity | -100 dBm @ 50 kbps         |
|                      | -98 dBm @ 100 kbps         |
|                      | -92 dBm @ 200 kbps         |
| Range                | 1.6Km line of sight        |
| Output power range   | -20 to +11 dBm             |

### ANTENNA

|              |                                      |
|--------------|--------------------------------------|
| Impedance    | 50 Ω                                 |
| Gain         | +2.2 dBi                             |
| Pattern      | Omni-directional                     |
| Maximum VSWR | 2:1                                  |
| Connector    | MMCX connector, right angle on cable |

### CERTIFICATIONS

|           |                      |
|-----------|----------------------|
| EMC JAPAN | GITEKI, ARIB STD 108 |
|-----------|----------------------|

VN400-JP model is compliant with the EMC for the following countries/geographical regions:

- Japan (JP)