Summary

- Wireless Remote Monitoring Unit
- Excellent Sensitivity / Range
- 12-15 Year Stand-Alone (Internal Battery) Operation or Externally Powered (w/ Battery Backup)
- Supports Digital and Analog I/O, 4-20mA Sensors, Serial Interfaces, including Modbus and Hart (Optional Module)
- Wide Operating Temperature Range (-40 to +75C)
- Time Stamped Data
- Threshold Alarming Functions
- External Diversity Antennae

Description

The SC6320 is a second generation solution based on the widely successful SC6310. The SC6320 is a Remote Monitoring Unit targeted at low rate wireless data applications requiring exceptional sensitivity and long battery life. It provides wireless connectivity for sensors, I/O and other instrumentation.

The embedded battery and wireless interface provides users with a stand-alone device that greatly simplifies installation and helps minimize infrastructure costs. Depending on configuration and reporting interval, installations with a battery life of several (12-15) years can be achieved.

Canary products incorporate an RPMA wireless modem, compatible with Ingenu's RPMA Private and Public Networks. RPMA is a groundbreaking wireless technology built from the ground up, specifically targeting sensors and other low data rate devices. It's an ideal IoT solution that provides an optimal mix of coverage, capacity, low-power consumption, and cost. It fills a significant gap in between currently available short range mesh radios and cellular M2M modems.

RPMA is a half-duplex system that operates in a star configuration. It is deployed using industry standard and time-tested modeling tools, similar to those used in the mobile telephony industry. The system delivers the lowest cost of ownership in the industry and is simple to deploy, operate, and maintain.

For heavy I/O read applications, the SC6320 supports an external power source, in which case the internal battery automatically converts to a backup supply.

Typical Applications

- Oil and Gas Sensors
- Utilities
- Cathodic Protection Monitoring
- Pipeline and Distribution Equipment
- Water Management
- Asset Tracking

Features

Interfaces:
- 1x RS-232/RS-485 Serial Communication Port
- 2x Digital Input (5 to 24VDC) Channels
- 2x Relay Drivers (12 to 24VDC)
- 2x Analog Voltage (±20V) Inputs
- 2x Analog Current (4-20mA) Inputs
- Optional External 5 to 28VDC Supply Input

Suitable for Indoor or Outdoor Deployment
- Polycarbonate Enclosure NEMA 4X Rated (IP66)
- -40C to +75C Operating Temp
- Suitable for mounting on poles or flat surfaces
- 12-15 Year Battery Life

Low Deployment and Maintenance Costs

Wireless Connectivity
- RPMA Network in Star Configuration
- Over 160dB of Link Budget
- GPS Synchronization and Time Stamping

Other Features
- Configurable monitoring / sampling intervals
- Data threshold alarming
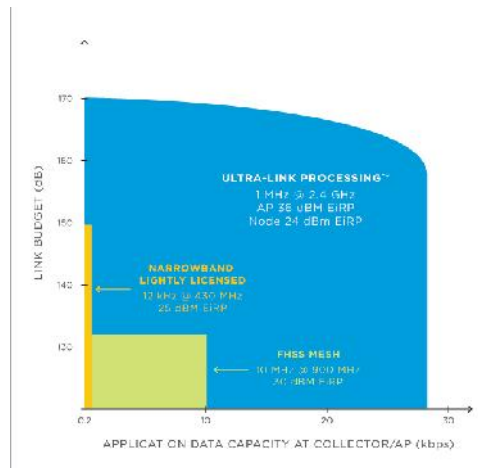- Easy to Install, Configure and Use

The RPMA Advantage

RPMA is a half-duplex system, operating in a star topology. Use of Direct Sequence Spread Spectrum technology with very high processing gains results in excellent sensitivity, interferer rejection and co-existence. All of these properties combine to create a network that covers large geographical areas and high capacity (large number of sensors per access point). Specifically designed for low data rate applications, the technology is extremely efficient and optimizes battery life.
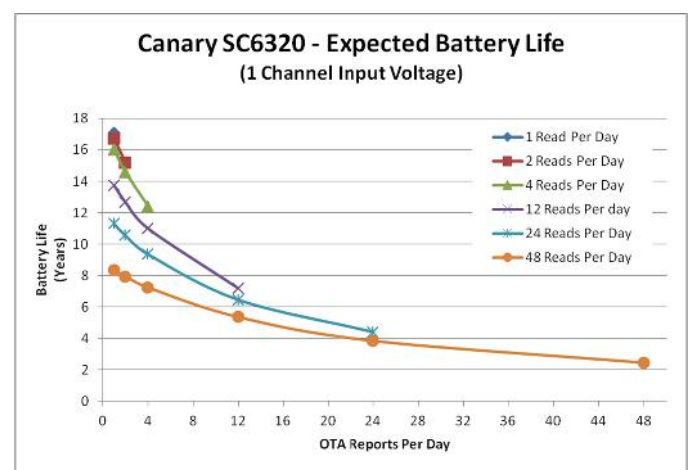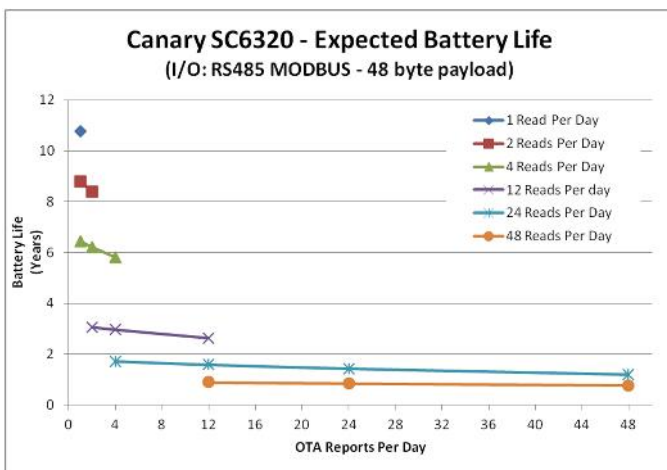
The following charts are courtesy of On-Ramp Wireless:

NETWORK COVERAGE COMPARISON	ON-RAMP ULTRA-LINK PROCESSING™	CELLULAR	802.15.4	FREQUENCY HOPPING SPREAD SPECTRUM
NODE POWER AMPLIFIER	20 dBm	23 dBm	20 dBm	30 dBm
RECEIVE SENSITIVITY	-142 dBm	-117 dBm	-105 dBm	-102 dBm
RANGE/ COVERAGE¹	7.12 km/ 159.25 km²	1.59 km/ 7.94 km²	.83 km/ .25 km²	1.01 km/ 3.20 km²

¹ Based on urban non-line-of-sight propagation models. For base station environments. Cell base/Rx.net.base.station/Gateway = node Rx, 10' node elevation.

Expected Battery Life Example for a RS-485 Modbus installation:

Specifications

Radio Performance
Sensitivity: -143 dBm
Transmit Power: +20 dBm (NA), +10 dBm (EU)
Data Throughput: 60kbps
Access Point Capacity: 64,000 Nodes
Security: 128/256 bit encryption
Protocol: RPMA Network in 2.4 GHz ISM Band
Modulation: 1MHz Bandwidth, Dynamic DSSS
Diversity Support: Yes
Frequency: 2402 to 2476 MHz (NA), 2402 to 2481 MHz (EU)

Digital Inputs (2 Channels)
Maximum Input Voltage (No Damage) +26.0VDC
$V_{IN\_HI} \geq$ +2.42VDC, $V_{IN\_LO} \leq$ +1.74VDC
I_{max}: 25mA

External Relay Control (2 Channels)
Open Drain: 50mA at 24V maximum
Maximum Input Voltage (No Damage): +/- 60VDC

Analog Voltage Inputs (2 Channels)
Input Range: ±20.0 VDC
Resolution: 10mVolts (12bits min)
Typical Input Impedance: 40 MOhm
Minimum Input Impedance: 2 MOhm min
Maximum Input Voltage (No Damage): +/- 60 VDC

Analog Current Inputs (2 Channels)
Input Range: 0 to 20mA
Resolution: 12bits minimum
Input Impedance: 200 +/-25 Ohms
6, 12 and 21.6V (Configurable) Loop Power Available
Maximum Input Voltage (No Damage): 4.66VDC

Serial Interface (2 Channels)
RS-232 or RS-485 (SW Selectable)
Maximum Input Voltage (No Damage): +/- 60 VDC

Interface
Status LED (powered, link, error)
I/O access is provided through two cable glands. The SC6320 is shipped with a plug in each gland to ensure IP67 level protection in the absence of cables.

Environmental
NEMA 4x (IP66 per IEC 529)
Polycarbonate Enclosure is UL94-5VA Flammability Rated
Operating Temperature: -40 to +75°C
Storage Temperature: -40 to +85°C
Humidity: 5% to 85%, non-condensing
Shock: TBD
Vibration: TBD

Compliance (Engineering Samples Not Compliant)
ESD on Analog Channels: IEC 61000-4-5
ESD on Digital Channels: IEC 61000-4-2 (Level 4)
Surge on Digital Channels: IEC 61000-4-5 (Surge)
FCC Part 15

Dimensions and Weight
Size: 7.87" x 3.93" x 2.75" (excluding antennas)
Weight: TBD

Power Requirements
Battery Powered (SignalCraft Part# SCT-BM0652VC)
Optional External Supply : +5 to 28VDC

Customization
Customized variants are possible on large orders. Contact us to discuss your requirements.

Support
Technical support is available through our website, www.signalcraft.com/support or by contacting us at support@signalcraft.com .

Calibration
Calibration is not required on this product.

Warranty
Full one year parts and labor when used under normal installation and operation conditions. Repair services are available for products no longer covered under warranty.

Ordering Information
Send inquiries to info@signalcraft.com .