VantEdgePoint™

Remote Telemetry Gateway

User Guide

CRANE Wireless Monitoring Solutions

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Specifications

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VANTEDGEPOINT

Remote Telemetry Gateway

RTG2400

Introduction

As an integral part of the VantedgePoint Wireless Sensor Network (WSN), the Remote Telemetry Gateway (RTG) unit is extremely versatile and easy to install for a variety of sensor network applications. The ability to "self-form" into a wireless mesh network enables fast and easy network integration. Integrated into the RTG is a GPRS Class 12, Quad-Band cellular modem that enables GSM/GPRS communications, allowing the RTG to be deployed in any GSM network around the world. When coupled with the VantedgePoint Remote Telemetry & Control Unit, the result is a highly scalable and deployable sensor network.

The VantedgePoint RTG unit is designed for low power consumption with the ability to support an internal rechargeable battery, providing reliable communications in the event of a primary power loss.

The Serial RS-232, 10-Bit A/D and application specific I/O supports a wide range of metering/monitoring devices and transducers. Remote data acquisition meters or other devices with an RS-232 interface can be wirelessly enabled with the VantedgePoint RTG unit and incorporated into a WSN.

Remote device management and diagnostics minimize field visits, further reducing operational costs. Remote software upgrades, self-diagnostics, and a low battery warning are just a few attributes of the VantedgePoint RTG Unit.

Features

- ZigBee / 802.15.4 standard for wireless mesh networking
- GPRS Class 12, Quad-Band cellular modem
- Serial RS-232, 10-Bit A/D, and an application specific I/O
- Memory for data storage
- Low power consumption
- Internal rechargeable battery, primary battery, or external power options
- Front panel LED status indicators and reset switch
- Operational Range: up to 300 ft indoor / up to 3,000 ft LOS
- Over-the-air software upgrade capability
- Detachable antenna
- Compact and light weight design

Benefits

- Self-forming / Self-healing wireless mesh networking
- Support for GSM/GPRS cellular network connectivity
- Link redundancy for increased system reliability
- Supports external power operation without batteries or with internal rechargeable batteries
- Remote device management and diagnostic capabilities
- Compatible with a wide range of metering devices and transducers
- Fast, flexible and easy installation
- Detachable antenna allows placement and/or selection flexibility to maximize radio reception

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Some digital devices may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer or physician to discuss alternatives.

Contact Information

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Fax our office:	(972) 964-5968
Email us:	sales@cranewms.com support@cranewms.com

Wireless Remote Telemetry Gateway Software
The seller makes no warranty or representation that its software products will meet Customer's requirements or work in combination with any hardware or software applications products provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected

Safety Information

Warning!
To reduce the risk of fire or electrical shock, do not expose this apparatus to rain or moisture.

1. Do not use this apparatus near water.
2. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
3. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
4. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
5. Only use attachments/accessories specified by the manufacturer.
6. Refer all servicing to qualified service personnel. Servicing is required when the unit has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the unit, the unit has been exposed to rain or moisture, does not operate normally, or has been dropped.
7. No open flame sources, such as lighted candles, should be placed on the apparatus.
8. The unit shall not be exposed to dripping or splashing. No objects filled with liquids, shall be placed on the unit.
9. The unit is for indoor use only. Operation outside requires the use of an appropriate sealed enclosure.

Warnings
Follow Instructions to Avoid Interference Problems
Turn off your device in any location where posted notices instruct you to do so. These locations include any facility that may be using equipment that is sensitive to external RF energy.

Pacemakers
If you have a pacemaker, consult your physician before using this device.
Persons with pacemakers should observe the following precautions:

- ALWAYS keep the device more than 20 centimeters (8 inches) from your pacemaker when the device is turned ON.
- Turn OFF the device immediately if you have any reason to suspect that interference is taking place.

Hearing Aids

VANTEDGEPOINT Remote Telemetry Gateway

Specifications

ZigBee/802.15.4 Radio Specifications

Operating Frequency:	2405 – 2475 MHz (2.4 GHz ISM band)
RF Channels:	15
Radio Standard:	IEEE 802.15.4 / Zigbee
Spreading Method:	Direct sequence spread spectrum
Modulation:	O-QPSK
RF Data Rate:	250 Kbps
Transmit Power:	+20 dBM (100 mW) at antenna port

Operating Conditions

Input Voltage:	8 VDC to 45 VDC 115 VAC or 230 VAC /w external power adapter
Temperature Range:	-30°C to +70°C (exculding external power adapter)

External Interfaces

Inputs/Outputs	Interface
Application Specific IO	3-pin screw terminal
10-bit A/D	4-pin screw terminal
RS-232 Serial	3-pin screw terminal
Antenna Port	Reverse polarity SMA
Input Power	6-pin spring terminal
Reset	Recessed Button

Application I/O Specifications

A/D Converter

Resolution:	10 Bit
Converter Type:	SAR
Configuration:	Single-Ended
Sampling Time:	> 2.44 MS
Input Voltage Range:	0-2 Vdc, 0-5 Vdc or 0-10 Vdc

Application Specific I/O

Available Channels:	1
Voltage Range:	3V CMOS
Current Sink:	4 mA
Current Source:	4 mA

Available Excitation Voltage

Output Voltage: 3.3-10 Vdc / 15mA

Physical Characteristics

Dimensions:	4.1" x 2.8" x 1.2" (excluding connectors and antenna)
Weight:	9.7 oz

Specifications are subject to change without notice

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Specifications

Cellular Modem Specifications

Quad-Band GSM:	850/900/1800/1900 MHz
Output Power:	Class 4 (2 W) for EGSM850
	Class 4 (2 W) for EGSM900
	Class 1 (1 W) for GSM1800
	Class 1 (1 W) for GSM1900

GPRS Data Transmissions Specifications

GPRS Class 12
Mobile station Class B
PBCCH support
Coding schemes CS1-4

Cellular Modem Approvals

R&TTE, FCC, UL, IC, GCF, PTCRB, CE
Local approvals and network operator certifications

Specifications are subject to change without notice

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Regulatory Information

This device complies with Part 15 of the FCC Rules subject to the following two conditions; (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The antennas should be installed and operated with minimum distance 25cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

Caution: FCC approved RF operation of this equipment is permitted only with the approved antennas, cable and connectors provided with this product. Use of unauthorized antennas, modifications or attachments could damage the device and/or may result in your device not complying with local regulatory requirements in your country.

Wireless LAN antenna installation:
FCC regulates that this product may be used with a 5.5 dBi (or less) Omni directional antennae. User should only use antennas supplied by Crane WMS.
Cellular antenna installation:
This device contains a certified cellular radio module (FCC ID QIPTC63) with GSM and GPRS Class 12 functions in the 900 and 1800MHz Band which are not operational in U.S. Territories. This device is to be used only for mobile and fixed applications. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 25cm from all persons. Antennas used for the cellular radio module must not exceed 2.98dBi (GSM850) and 8.4dBi gain (GSM 1900) for mobile and fixed operating configurations.

FCC Notice: Changes or modifications to this device not expressly approved by the manufacturer could void the user's authority to operate the equipment.
For more details on legal combinations of power levels and antennas, contact Crane WMS.

Limited Warranty

Wireless Remote Telemetry Controller
The seller warrants to the end user (Customer) that this hardware product will be free from defects in workmanship and materials, under normal use and service, for 1 year from the date of purchase from the seller or its authorized reseller. The seller's sole obligation under this express warranty shall be, at the seller's option and expense, to repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or if neither of the two foregoing options is reasonably available, The seller may, in its sole discretion, refund to the Customer the purchase price paid for the defective product. All products that are replaced will become the property of the seller. Replacement products may be new or reconditioned.