

# FlexNet™ Regional Network Interface

System Management

## Description

The Regional Network Interface (RNI) receives data that is forwarded from Sensus Base Station collectors. Data is received and stored in the RNI utilizing four main systems: the Information Management System; the Network Management System; System Health Diagnostics; and the Business Management System. The RNI data systems are available to the utility customer and to Sensus for monitoring.



## Features

The RNI provides enough dial-up modem capacity for all of the Base Stations in one local RF Network. The Data Concentrator (DC), located within the RNI, is responsible for elimination of duplicate EMD messages received simultaneously by multiple Base Stations. Sensus employs primary and back-up communications from the Base Stations to the RNI. Filtered data from the DC is sent to the Information Systems Platform, which formats the data for the Database Management System. The RNI provides billing and account management, network management functions, data warehousing and hand-off functions to the utility customer.

The Information Management System (IMS) software accepts filtered data from the local RNI. The main purpose of this software layer is to provide a logical endpoint for the data streams coming in from the Base Stations. IMS software performs the following functions:

- Data translation and conversion to customer format
- Data hand-off to Customer
- Manual data entry

Proprietary system health software is utilized by Sensus Systems Engineers to pro-actively identify and cure potential system problems. Certain failure modes are reported directly to the 24x7 maintenance monitoring Central Station. The diagnostics software allows Sensus personnel to verify proper operation of a network deployment and to quickly identify potential

problems with Base Stations or meter SmartPoint™ devices. Rapid identification of problems is critical for rapid resolutions. This is a part of the ongoing service that Sensus provides to a utility. The Sensus FlexNet™ system uses exclusively licensed radio frequencies that are strongly protected. Detection of interfering sources and other interferers is part of the daily system check and can be reported to authorities together with the jamming signal's approximate location as determined by tower signal levels. The very strict FCC rules that govern type acceptance of devices using licensed frequencies adjacent to the ones used by Sensus FlexNet ensure clean narrow band sources that do not affect the noise floor of the Sensus FlexNet channels.

The Business Management System consists of Billing, Reporting and SmartPoint Management (i.e., meter additions/deletions). There is also an important functional relationship between the Business Management System and the other two management systems, since the significance of each EMD message is ultimately defined within the Business Management System. The Information Management System makes message routing and storage decisions based on individual customer requirements.

The meter data stream is terminated at the RNI, where it is received via a secure, encrypted tunnel from the Base Station. The actual meter readings are decrypted at this point using the WEP keys, and inserted into the utility customer-controlled meter-read database.

## Specifications

Server	Data Concentrator	Utility Information Platform
Model	Dell PowerEdge	Dell PowerEdge
Dimensions	1U: Rack Mount**	2U: Rack Mount***
Weight	31 Lbs.**	51 Lbs.***
Storage	Dual 80GB Hard Drive**	Six 73GB Hard Drive***
Operating System	Red Hat Enterprise Linux5	Microsoft SQL Server
Maintenance Hardware	Dell	Dell
Software	Sensus*	Sensus*
Power Requirements	90-240 VAC	90-240 VAC
Operating Temperature	+50° to +90° F	+50° to +90° F

\* RNI Requires two servers

\*\* Water- and Gas-Only applications (up to 50,000 accounts)

\*\*\* Combination utility applications (up to 50,000 accounts)

## Operations

Data Concentrator System Health, Diagnostics and Administration	Utility Information Platform
<b>Base Station Exception Reporting</b> <ul style="list-style-type: none"> <li>• Power Fail</li> <li>• Phone Fail</li> <li>• Loss of RF Communication</li> <li>• Self Diagnostics Report</li> <li>• Pager Alerts</li> </ul>	<b>Data Formatting</b> <ul style="list-style-type: none"> <li>• Match Existing Formats</li> </ul>
<b>SmartPoint Reporting</b> <ul style="list-style-type: none"> <li>• SNR Throughput</li> <li>• ANR Time Plots</li> <li>• Map Positions</li> <li>• Maintenance Log</li> </ul>	<b>Alarm Reporting</b>
<b>SmartPoint Discovery</b> <ul style="list-style-type: none"> <li>• New SmartPoint Notification</li> </ul>	<b>Sorted Exception Log</b> <ul style="list-style-type: none"> <li>• Commands to SmartPoints</li> </ul>
<b>Billing to Utility</b> <ul style="list-style-type: none"> <li>• On Qualifying SmartPoints</li> </ul>	<b>Commands to SmartPoints</b> <ul style="list-style-type: none"> <li>• Remote Disconnect/Reconnect</li> <li>• Load Shed Restore</li> <li>• C&amp;I Table Sessions</li> <li>• Programmable Features</li> </ul>

For more information, visit us at [sensus.com](http://sensus.com)

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