The EN-4000-IE™ is an industrial edge LTE router designed for utilities. Its ruggedized design and multiple interfaces can be used for a wide range of SCADA applications and utility services. It adds speed, capacity, and flexibility to the EN™ series of LTE enabled routers. The EN4000-IE™ base configuration includes, 5 10/100 Ethernet ports, two configurable serial ports (RS-232, RS-485), one GigE Fiber, programmable I/O contacts in a metal enclosure with 9-160 VDC input powering option and flexible mounting options using either DIN Rail, wall or shelf. The EN4000-IE™ utilizes Linux OS with optional 8 GB/s or more of memory allocated for running of third-party APIs in docker containers and large onboard data storage. Future software enhancements will accommodate data analytics. Multiple configuration options include 2 cellular modules with dual SIMs for active/active 4G LTE, CBRS, and Band 8 support, with an optional 802.11 Wi-Fi module, and an optional multi-port GPIO card.

The EN4000-IE™ has several advanced IP routing protocols and security features including IPsec VPN (AES 256/3DES), stateful firewall, Ethernet switching, and legacy industrial protocol and IP interworking to support MODBUS, DNP3 and other industrial protocols. This allows the EN4000-IE™ to support legacy SCADA and M2M equipment and applications commonly used by Utilities, Power, Oil & Gas and Water companies while simultaneously upgrading them to IP connectivity. This provides valuable flexibility and continued ROI for existing CAPEX by avoiding rip and replace of older working legacy hardware while upgrading to more secure and versatile Ethernet and IP connectivity.

The EN4000-IE™ provides exceptional features, with an intuitive Graphical User Interface (GUI) all at a low-cost with no user fees, and a five year hardware warranty.

Manage the EN4000-IE™ with enSite™

In addition, EN™ routers can be monitored and managed with Encore’s customer premises server based enSite™. Encore’s enSite™ offers features that will make managing your entire network of EN™ routers easier, including Cellular data limit enforcement for individual and group plans, firmware updates, Zero and One touch deployment for new hardware, customizable QAM tiers for managed network services, and critical data analytics of the network devices and services.
### TECHNICAL SPECIFICATIONS

#### GENERAL FEATURES
- Protocol management and translation of legacy industry serial protocols
- SNMPv3
- Access for control via SSH, Telnet, and web access interface
- Up to five antennas - LTE cellular, 802.11 Wi-Fi, 4G LTE, CBRS, and GPS services.
- enSite™ Enterprise Management System
- Disaster Recovery and Traffic Load Sharing over WAN connections
- QoS enforcement to prioritize critical traffic
- VDC 9-160 VDC power source

#### SECURITY APPLIANCE FEATURES
- Stateful inspection firewall
- IEEE 802.11i (WPA2, RSN)
- DMZ LAN port
- NAT (Network Address Translation)
- SSL/TLS1
- IP Sec (RFC 2401) with AES 256 and 3DES
- Generic Router Encapsulation GRE (RFC 1701)
- Internet Key Exchange—IKE (RFC-2409)
- RADIUS authentication
- TACACS+
- Open VPN

#### TRANSPORT PROTOCOLS

##### WAN
- IP over Ethernet (compatible with MPLS services)
- Asynchronous PPP
- Synchronous PPP
- X.25
- MLPPP
- PPPoE

##### IP
- IP Versions 4 and 6
- IP Routing (RIP v1/v2), OSPF, BGP, or static routing
- DHCP client/server/BootP/Relay
- IP QoS and traffic prioritization
- IP fragmentation/reassembly
- IP routing over VPN; TCP and UDP
- 802.1q VLAN tagging
- Virtual Redundant Routing Protocol (VRRP)
- DMVPN
- IDMVPN Intelligent DMVPN - Encore Enhanced - Proprietary
- Dead Peer Detection

##### CELLULAR
- AT&T; LTE 6 300/50 Mb/s – Bands 2, 4, 5, 30 – UMTS 850/1900
- Verizon; LTE 6 300/50 Mb/s – Bands 2 (25), 4, 5, 13, 66
- Sprint; LTE 4 150/50 Mb/s – Bands 25, 26 and 41 (1900/800/2500) MHz
- US Cellular; LTE 4 150/50 Mb/s - Bands 5, 12
- Private LTE 900 MHz Band 8
- CBRS 3.5 MHz Band 48

##### MANAGEMENT
- enSite™ Device Management System - Customer Premises Server Based
- enCloud™ Device Management System - Cloud Based
- SNMP v3
- Craft Interface
- GUI Web Management
- Telnet
- SSH (secure shell)
- DMNR, PNTM
- Syslog
## TECHNICAL SPECIFICATIONS

### PHYSICAL FEATURES
- Six LEDs for network, system, cell, and power indication
- Five antenna connectors per internal factory-installed internal radios: Cellular: 4G LTE, CBRS, Band 8, GPS and 802.11ac
- Dual SIM Slots (2FF)
- Reset switch
- Micro USB port
- Five 10/100 Ethernet ports configurable for any port combination for LAN switching/LAN/WAN/DMZ
- Dual high-speed serial ports RS-232 and RS-485
- Single Optical Ethernet (SFP) interface for fiber, 1 Gb/s 10/100/1000 Mbit/s
- 9-160 VDC input

### OPTIONAL MODULES
- One to Two Cellular 4G LTE, CBRS and Band 8
- GNSS GPS
- Wi-Fi Access/Client
- 7 GPIO - 4 input, 3 output card

### SERIAL DATA SUPPORT
- Legacy Protocol support for IEC 60870-5-101/103/104 MODBUS, DNP3
- Other Protocols Available

### POWER SUPPLY OPTIONS
- Isolated Power:
  - 24 VDC, nominal range 9-36 VDC
  - 48VDC, nominal range 18-59 VDC
  - 110 VDC, nominal range 40-160 VDC
- 13 Watts maximum

### ENVIRONMENTAL
- Operating Temperature: -40 C to +85 C (without cellular modules)
- -40 C to +75 C (with cellular modules)
- Storage: -40 C to +85 C
- Humidity: 5% to 95%, non-condensing

### MECHANICAL
- Height: 6.015 inches/153 mm
- Width: 2.019 inches/52 mm
- Depth: 4.234 inches/108 mm
- Weight: 2 lb. (0.90 kg)

### STANDARDS COMPLIANCE
- RoHS Compliant
- Class 1/Div 2
- EMC: FCC Part 15, EN 55011/CISPR II, IEC 61850-3, IEEE 1613
- Product Safety: UL/CSA 60950-1, CAN/CSA-C22.2 No. 60950-1-03, EN 60950-1

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### GPIO Expansion Port Details*

<table>
<thead>
<tr>
<th>Ground</th>
<th>Channel 3 IN</th>
<th>Channel 2 IN</th>
<th>Channel 1 IN</th>
<th>Channel 2 OUT</th>
<th>Channel 1 OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Solid State Relay 2</td>
<td>Solid State Relay 1</td>
</tr>
</tbody>
</table>

During power loss Solid State Relay 1 and Solid State Relay 2 are open.

- Max. Current 1.5 A per contact
- Isolation 2500 V rms
- Typical on time 1.2 ms
- Max. Switching voltage 60 V
- Typical off time 0.1 ms
- Min. 2500 V isolation

Specifications subject to change without notice
Microgrid

Private LTE Band 8, CBRS

Video Surveillance

Private LTE Band 8, CBRS

Industrial SCADA - M2M