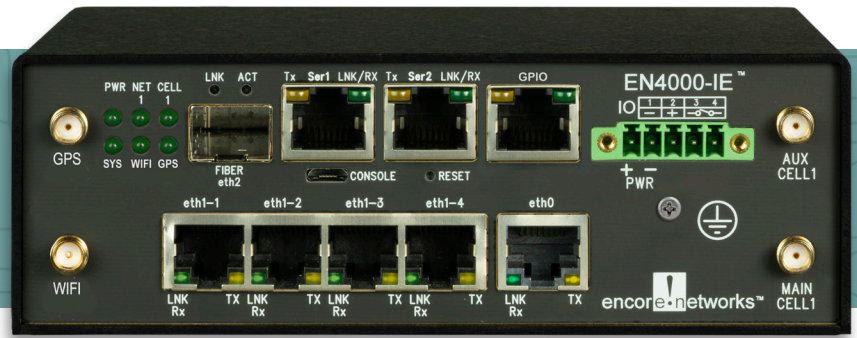


EN4000-IE™ Industrial Edge Router



EN4000-IE™ Prime Applications

- SCADA
- Power Grid Monitoring
- Substation - PLC, RTU, Line Reclosure, Capacitor Bank
- Smart City
- Protocol Conversion
- Switch Gear
- Video Surveillance
- Legacy Data to IP conversion
- Multiple I/O Port Monitoring

EN4000-IE™ Features

- Load Sharing
- Commercial or Private 4G LTE
- Optional 8 GB memory
- Edge Computing Capable
- Wi-Fi Access point, Client or Hotspot
- Automatic Traffic Load sharing between wireline and wireless links
- GigE and Fibre Port
- License free VRRP, and GRE routing protocols
- IPsec VPN (Tunnel, NAT-T, Dead Peer Detection)
- SSL/TLS and SSH, Open VPN
- Prioritization, QoS
- Flexible mounting. DIN Rail, Wall, Shelf
- Multiple isolated I/O Ports
- Stand Alone GPS/GNSS
- 7 GPIO - 4 input, 3 output
- Isolated Power input with integrated I/O port

EN4000-IE™ INDUSTRIAL EDGE ROUTER

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, Smart City, 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, isolated serial ports (RS-232, RS-422, RS-485), one 100/1000 fibre port, and programmable I/O contacts in a metal enclosure with DC 12/24 (9-36), 24/48 (16-60), 110 (40-160) powering option and flexible mounting options using either DIN Rail, wall or shelf. The EN4000-IE™ utilizes Linux OS with optional 8 GB/s of memory allocated for running of third-party APIs in docker containers and large onboard data storage and data analytics. Dedicated GPS/GNSS, and optional 802.11 embedded Wi-Fi module are available.

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 used by Utilities, Power, Oil & Gas and Water companies while simultaneously upgrading them to IP connectivity and improved security. This provides valuable flexibility and continued ROI for existing CAPEX by avoiding rip and replace of older working legacy hardware and versatile Ethernet and IP connectivity.

Manage the EN4000-IE™ with enSite™

EN™ routers can be monitored and managed with Encore's enSite™ customer premises server based solution. Encore's enSite™ manages your entire network of EN™ routers easier, including: Cellular data limit enforcement, individual and group plans, firmware updates, Zero and One touch provisioning for updates, customizable OAM tiers for managed network services, and analytics of the network devices and services. Restful API supported.

Secure Utility Hosted On-Premises Management with enSite™ Enterprise Management System

Member

450 alliance.org

TECHNICAL SPECIFICATIONS

GENERAL FEATURES

Protocol management and translation of legacy industry serial protocols
 SNMPv3
 Access for control via SSH and web access interface
 Up to four antennas - one 802.11 Wi-Fi, and one GPS and two LTE
 Disaster Recovery and Traffic Load Sharing over WAN connections
 QoS enforcement to prioritize critical traffic
 Isolated DC: 12/24 (9-36), 24/48 (16-60), 110(40-160)
 Five Ethernet ports can be configured as LAN/WAN
 Python support
 Two selectable isolated serial ports: RS-232, RS-422, and RS-485
 GPIO ports

SECURITY APPLIANCE FEATURES

Stateful inspection firewall
 IEEE 802.11i (WPA2, RSN)
 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
 Tamper detection built into case

TRANSPORT PROTOCOLS

WAN
 IP over Ethernet (compatible with MPLS services)
 Asynchronous PPP
 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)
 IDMPVN Intelligent DMVPN Encore
 Dead Peer Detection

CELLULAR

Public LTE Bands
 CAT 4/6: B1/ B3/ B5/ B7/ B8/ B20/ B28/ B32/ B38/ B40/ B41
 CAT M1/ CAT NB1/ 2G: B1/ B2/ B3/ B4/ B5/ B8/ B12/ B13/ B18/ B19/ B20/ B25/ B26/ B28
 UMTS: B1/ B3/ B5/ B8
PRIVATE LTE Bands
 450 MHZ: B31
 410-420 MHZ: B87

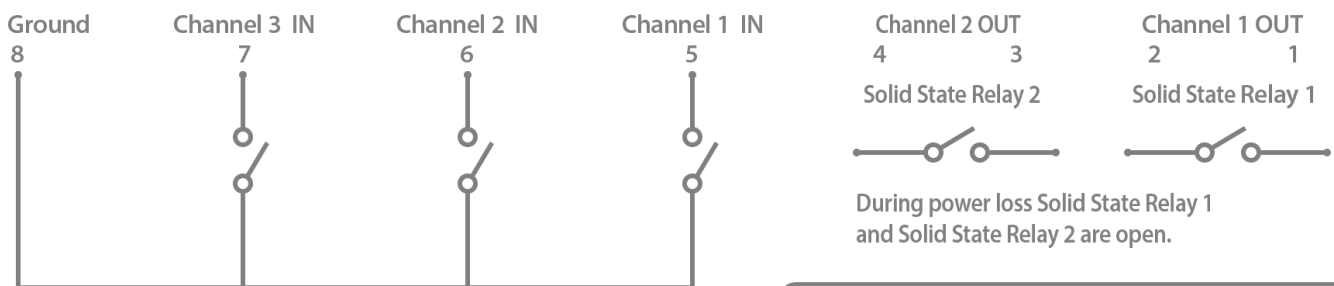
MANAGEMENT

enSite™ Device Management System - Customer Premises Server Based
 SNMP v3
 Craft Interface/ Console Port
 GUI Web Management
 SSH (secure shell)
 Syslog

TECHNICAL SPECIFICATIONS

PHYSICAL FEATURES	<p>Six LEDs for network, system, cell, power indication, GPS, and Wi-Fi</p> <p>Four antenna connectors per factory-installed internal radios: Two cellular 4G LTE, one stand alone GPS, and one optional Wi-Fi 802.11ac</p> <p>Reset switch</p> <p>Micro USB Console port</p> <p>Five configurable 10/100 Mb/s switched Ethernet RJ-45 (LAN/WAN)</p> <p>Integrated configurable dual high-speed serial ports RS-232, RS-422, and RS-485</p> <p>Single 100 FX Optical Ethernet (SFP) interface for fibre, 100/1000 Mbit/s</p> <p>GPIO supports power connector 1 in x 1 out at 4.0 A. Expansion GPIO port 3 in x 2 out.* (See detail below)</p> <p>GPS/GNSS</p>
OPTIONAL MODULES	<p>8 GB Memory card</p> <p>Wi-Fi Access/Client</p>
SERIAL DATA SUPPORT	<p>Legacy Protocol support for IEC 60870-5-101/103/104 MODBUS, DNP3</p> <p>Other Protocols Available</p>
POWER SUPPLY OPTIONS	<p>Isolated DC: 12/24 (9-36), 24/48 (16-60), 110(40-160)</p>
ENVIRONMENTAL	<p>Operating Temperature: -40 C to +75 C (with cellular module)</p> <p>Storage: -40 C to +85 C</p> <p>Humidity: 5% to 95%, non-condensing</p>
MECHANICAL	<p>Height: 6.015 inches/153 mm</p> <p>Width: 2.019 inches/52 mm</p> <p>Depth: 4.234 inches/108 mm</p> <p>Weight: 2 lb. (0.90 kg)</p>
STANDARDS COMPLIANCE	<p>RoHS Compliant</p> <p>Class 1/Div 2</p> <p>EMC: FCC Part 15, EN 55011/CISPR II, IEC 61850-3, IEEE 1613</p> <p>Product Safety: UL/CSA 60950-1, CAN/CSA-C22.2 No. 60950-1-03, EN 60950-1</p>

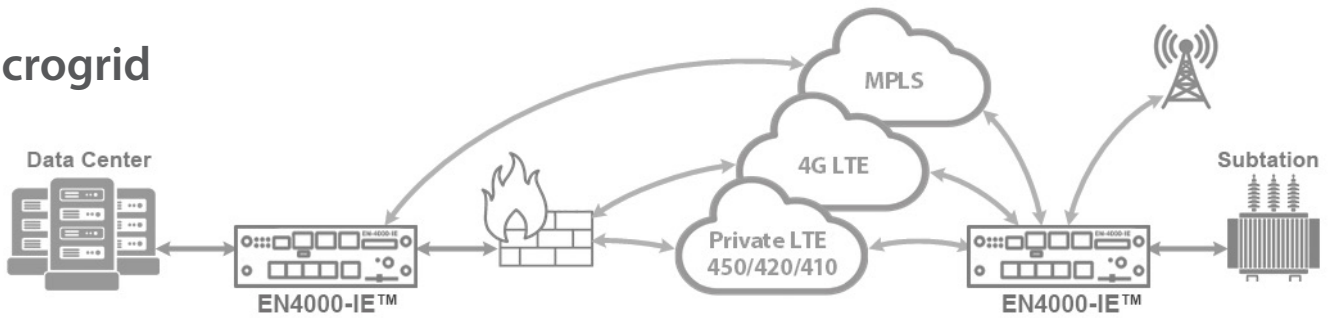
GPIO Expansion Port Details*



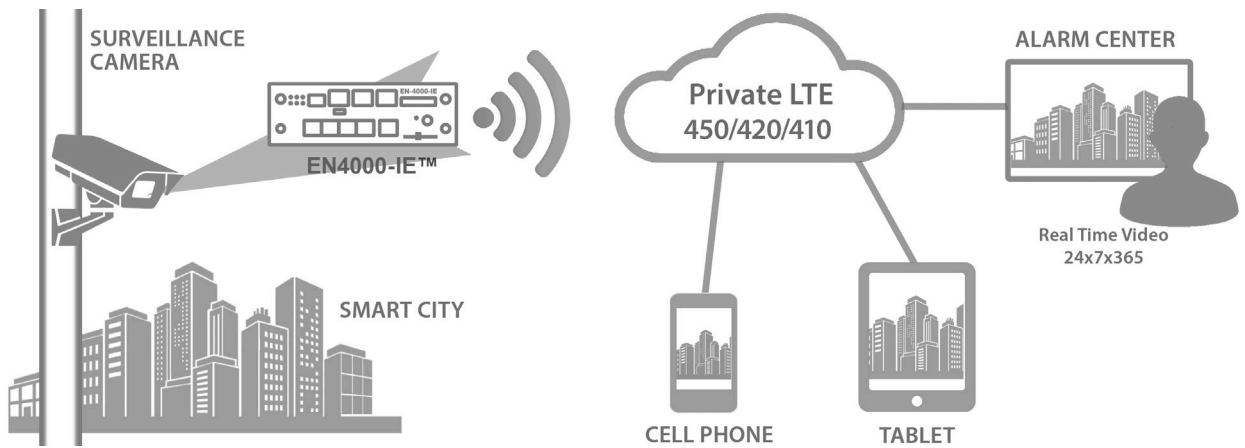
Three (3) input detectors with 5000V RMS isolation. The card detects a charge at its input. When the input is grounded, a 4K resistor pulls each input up to 12V.

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

Microgrid



Video Surveillance



Industrial SCADA - M2M - Smart City

