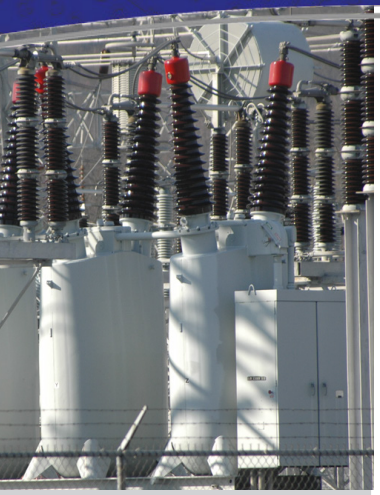


Legacy 2- and 4-Wire Copper Circuit - Seamless 4G and 3G Cellular Conversion of Older Meters and RTUs

- Embedded Cellular Modem
- M2M
- Modem Copper POTS Replacement
- Protect Capital Expenditures (CAPEX) with Minimal Operations Impact

The Problem

From generation plants, to substations, to metering points along the electrical grid, older utility meters, and RTUs that use 2- and 4-wire copper line analog modems connected to Plain Old Telephone Service (POTS) are experiencing service delays, dependability issues, and increasing operational costs.

Due to the forthcoming phase out of copper wire line based phone circuits and limited data usage throughput, coupled with longer outage times for repair of down circuits, utilities must move to newer TCP/IP enabled transport. Placement of these meters and RTUs can be found in the harshest environment settings from several floors below ground, in older industrial plants and residential neighborhoods where the copper plant is inaccessible, and deteriorating.

Faced with new hurdles, from gaining reliable access to their older utility meters, Capital Expenditure (CAPEX) shortages, and non-TCP/IP solutions, utilities must move these existing meters to a cost effective, secure, and dependable digital IP backhaul without disrupting the existing embedded equipment and operations or requiring an expensive forklift upgrade.

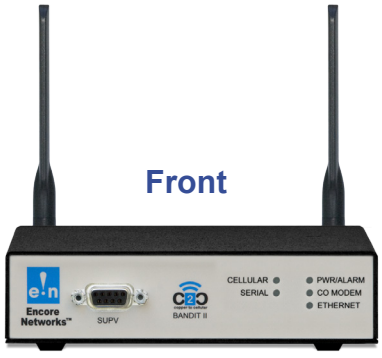
The Solution

The solution is the Encore Networks industrially hardened BANDIT-2 C2C™ copper to cellular router. The BANDIT-2 C2C™ provides IP, VPN, Encryption, Firewall, Ethernet connectivity, legacy serial protocol support of DNP3, Modbus, and an end point facing Central Office analog modem transported via an embedded 4G/3G cell modem on either a private or public IP network.

The Encore Networks solution is easy to implement, and eliminates the OPEX high costs of the existing 2- and 4-wire copper lines while preserving existing CAPEX. The switch from a 2-wire copper paired POTS line to a cellular data connection is simply done by unplugging the existing analog modem connected equipment from the copper line jack (RJ-11)/demarc and terminating it on the BANDIT-2 C2C™ for traditional analog dial out/in modem connections. Bypassing older 4-wire Data Service Units (DSU) is simply done by unplugging the serial data cable from the PLC/CPE and plugging directly into the serial port of the BANDIT-2 C2C™. In both cases the BANDIT-2 C2C™ handles the analog modem/serial data communications and conversion of the data for transmission over a private or public 4G or 3G cellular network using a secure VPN with IPSec encryption to ensure end-to-end security.

The BANDIT-2 C2C™, using its dual antennas for signal diversification and the ability to be installed over 1500' from the existing analog modem with twisted copper pair, makes an easy installation in the most difficult areas. The BANDIT-2 C2C™ is capable of delivering IP/Ethernet based services at anytime at a fraction of the cost with its configurable Ethernet port addressing future TCP/IP based services and needs at the site. Increased bandwidth allows for additional equipment such as video and newer Smart Grid Meters.

BANDIT-2 C2C™



(Specifications subject to change)

save·nergy
copper to cellular
Buy America Compliant
UTC Member
VPNC CERTIFIED
RoHS

encore·networks™

TECHNICAL SPECIFICATIONS

ENCORE NETWORKS

Security Appliance Features	**Integrated router/firewall/VPN**		
	NAT, PrAT, eNAT-T		
	VPN (up to 30 simultaneous tunnels)	IP Sec (RFC 2401) with DES (56 bit), 3DES (168 bit) and AES (256 bit)	
		G- RE (RFC 1701)	
		SLE (Selective Layer Encryption)	
Protocols	**WAN Serial**	Frame Relay	
		Asynchronous and Synchronous PPP	
		MLPPP	
		X.25	
	IP Ethernet	IP Routing (RIP v1/v2) or Static Routing	
		IPSec and SLE VPN	
		VPN Split Tunneling	
		DHCP Client/Server/Relay/BootP	
		IP QoS and traffic prioritization	
		VRRP (RFC3768)	
		VLAN	
		802.1q VLAN tagging	
Data Modem Port	Bell103, Bell212, V.21, V.22, V.22 bis, V.23, V.32, V.32 bis, V.34		
	LS/GS		
	Polarity Reversal		
	V.42 with Error Correction - MNP 2-4		
	V.42 bis w/ Data Compression & MNPS		
	Rotary/DTMF		
Serial Legacy Support	One DB25 port		
	Supports multiple asynchronous and synchronous legacy protocols		
	One DB9 serial console port supporting EIA/TIA RS232		
	Protocol support for BiSync, X.42, DNP3, MODBUS, CDC, S/NET, CONITEL, ABB, and most electrical industry proprietary protocols; inquire for additional protocols		
Physical Ports	**Serial**	1 DB25 port (RS232) User port	
		1 DB9 port (RS232) console or User port	
	CO Modem	1 RJ11	
	Ethernet	1 10/100 BASE T	
	Wireless - Embedded	4G LTE	
		EVDO	
		HSDPA	
		2 Antennas for Diversity	
Electrical	**Power Supply Options**	7.5 watts maximum	
		DC: 12VDC, 24VDC, 48VDC	
		AC: 100-240VAC, 50-60Hz (with external adapter)	
Environmental	**Temperature:**	**Industrially hardened:**	-40° C to +85° C - DC
			-30° C to +70° C - AC
		Commercial-grade: 0° C to +50° C	
		Cellular Wireless: -40° C to +70° C	
		Non-Operating: -40°C to +85°C	
	Humidity: 5% to 95% non-condensing		
	Altitude: Up to 10,000 ft. (Up to 3048 m)		
Mechanical	**Height:** 1.5 in. (3.81 cm)		
	Width: 6.0 in (15.24 cm)		
	Depth: 4.4 in. (11.18 cm)		
	Weight: Less than 1 lb. (Less than 0.45 kg)		
	Installation Type: Desktop		
Standards Compliance	**RoHS Compliant**		
	PCI Compliant		
	EMC	FCC Part 15	
		EN 55022: 1998	
		EN 55024: 1998	
	Product Safety	UL/CSA 60950-1	
		CAN/CSA-C22.2 No. 60950-1-03	
		EN 60950-1	
	NERC CIP (003, 005, 007, 009) Compliant		
	Part Number: B2000-C2C-0000-0		

Consult your area sales representative for available features and optional modules.

encore-networks™

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