Grid Solutions
a GE and Alstom joint venture

e-terra*gridcom* **T390**
Universal power line carrier

New generation PLC solution perfectly adapted to power utilities' environment and constraints.
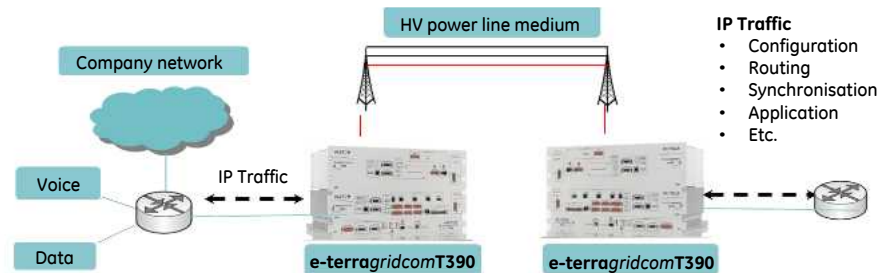

A fully integrated system

Built on years of expertise, **e-terra***gridcom* **T390** PLC provides a completely integrated system combined with high performance and flexibility for your operations' needs.
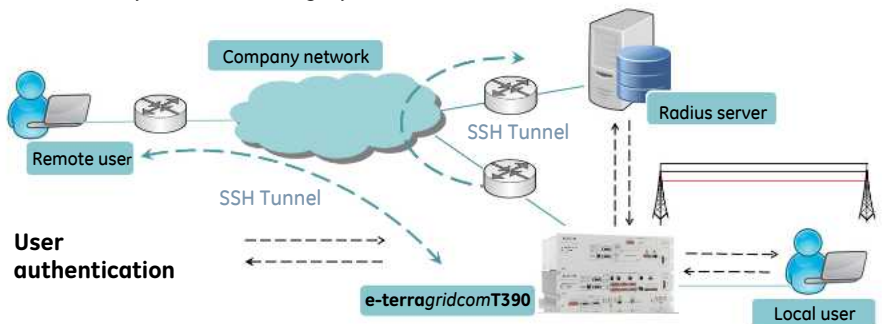
OUTSTANDING TRANSMISSION CAPACITY & EFFICIENCY

Offering up to 320 kbit/s data rate, this is an ideal solution for power utilities' IP based network applications (VOIP, data), etc.

ENHANCED SECURITY MANAGEMENT

Including RADIUS remote user authentication and SSH encryption, the product adapts perfectly to centralised user management topology for communication confidentiality and data integrity between PLC and the user.

FEATURES

- Analogue, digital or mixed communication modes with one hardware platform
- Integration within digital communication networks (IP networkding, RS232 /RS422(V11), RS485 interfaces)
- Optimised bandwidth allocation with superimposed mode: Up to 320 kbit/s @ 48 kHz total bandwidth
- Eight independent teleprotection commands over analogue @ 2, 2.5 or 4 kHz thanks to narrow band intertripping application
- Fast recovery time
- Radius authentication and SSH encryption

COMPREHENSIVE & VERSATILE

Offering operational simplicity with common hardware supporting various services:
- Operates like a conventional SSB power line carrier working on 2.5 kHz or 4 kHz basic BW or via a combination of analogue and digital modes
- In digital mode, can manage separated or superimposed bandwidth

CONFIGURABLE & CUSTOMISED

Offering HMI embedded powerful configuration, commissioning and test tools:
- Line measurements: SNR, AGC, etc.
- G821 statistics (BER, QAM, etc.)
- Constellation and Spectrum views
- System diagnostics: event recorder history logging & loopback
- Alarms status monitoring

TECHNICAL SPECIFICATIONS

Transmission capacity	
Frequency range	24 to 700 kHz
Bandwidth allocation	Superimposed, Separated
Transmitter power	1 W to 80 W PEP (AMP+AMPX) - software adjustable
Line output	Balanced or unbalanced, 50, 75, 125, 150 Ohm
Max digital bit rate	320 kbit/s
Receiver sensitivity	-56 dBm (absolute)/ -30 dBm (typical)
Minimum SNR for Synchronization	20 dB (QAM16/TCM32) /24 dB (QAM64/TCM128)
Data & voice services	
V11	220 Kbit/s
V24/28 (RS232)	300 bps - 38400 bps
Speech	Full band/ 1200 bit/s
Ethernet (LAN to LAN)	IEEE802.3/IEEE802.1q
Cyber security	
User Authentication	RADIUS and PLC
Encryption	SSH (AES128, 3DES)
Internal teleprotection	Performance according to 60834-1
I/O Continuous max voltage	160 VDC -250 VAC
I/O Continuous max current	200 A
I/O Peak current	100 A during 30 ms
	8 inputs with logical combination
	14 heavy duty outputs
Dimension & weight	
Dimension (L x W x H)	480 mm x 260 mm x (3 to 6 U)
Weight	13 kg to 24 kg
Power supply	
Voltage	48 V= typical
Power	72 W typical (AMP) / 15 W typical (PRCS) / 19 W max (TPI)
Environmental	
Normal operational	-5 °C / +50°C according to IEC 721-3-3 class 3K5
Temperature	
Extended temperature range	-30°C / + 55 °C
Storage temperature range	-40 °C < T < +70°C
Certification	
Insulation	IEC 60495 (IEC 62488) / IEC 60950
EMC (emissions)	Radiated and conducted IEC 61000-6-4 /EN55011
EMC (immunity)	IEC 61000-6-2 /IEC 61000-6-5
Safety	IEC 60950/ IEC 60255
Climatic/Mechanical	IEC 60068-2-4

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