Regesta Smart PLC

Regesta Smart PLC Communications Gateway

Introduction

The Regesta Smart PLC router family brings today's most advanced corporate IP network protocols to the world of smart grids and telemetry. Specially designed to interconnect IP-based networks with PLC technology. It is ideal for the deployment of centralized smart meter communications. It takes full advantage of Teldat's advanced internetworking software (CIT) to provide the latest in communications security with encryption, authentication management and access control. The combination of advanced networking protocols and management tools makes it ideal for large-scale deployments.

Destacar

- **Multiple WAN (2G/3G/LTE, Ethernet, SFP)**

- **PLC interface (Base node up to 2000 smart meters)**

- **Extended temperature range (-20 to 70 °C)**

- **Complies with electrical safety regulations & EMC**

- **DMVPNs, VLANs and QoS for critical services**

- **Dual-SIM redundancy**

- **Compatible with Teldat SDWAN solution**

Interfaces

One 2G/3G/LTE module	Yes
Up to 2 x 10/100/1000 Gigabit Ethernet	Yes
Up to 3 x asynchronous serial ports	Yes (RS-232 & RS-485 depending on model)
1 x PLC interface (PRIME 1.3.6 or 1.4)	Yes(associated with the power connector)
LEDs	Power, PLC, LAN, WAN, SIM, etc.
1 SFP interface	Yes (multiple options)
2 x SMA antenna connectors	Yes
Dual SIM card tray	Yes

Competitive Advantage

Reliable communications and hardware	Multiple access technologies (1 LTE, Ethernet, SFP) employed with real-time backup mechanisms, SNMP trap notifications and alerts.
Rugged hardware design	Adaptable hardware design for unattended installations, with extended temperature range (-25 to 70 °C) and electrical and electromagnetic immunity.
PLC communications support	Enables direct communication with PLC-based smart meters. Delivers PLC base node and advanced networking communications in a single device.
Corporate networking software	The latest IP network technology for smart grid communications bringing security, quality and ease of use to large-scale multiservice deployments.

Key Features

- **Up to 2 10/100/1000 GE ports with VLAN, 802.1X, duplex** Up to 6 10/100/1000 BaseT auto detect ports (full/half-duplex automatic negotiation). MDI / MDI-X crossover detection, Ethernet V2 / IEEE 802.3 LLC (802.2), ARP, IEEE 802.1Q (VLAN), IEEE 802.1X

- **2G/3G/4G (dual-SIM backup)** Embedded 2G/3G/4G interface with dual SIM card tray for automatic backups. Advanced Teldat system for proactive monitoring and automatic recovery from WWAN incidents.

- **Extended temperature range (-20 to 70 °C)** The Regesta Smart PLC includes a housing design for optimal heat dissipation and, wall mount and DIN rail mount options, guaranteeing operation between -20 and 70 °C with up to 93 % humidity.

- **Serial port for SCADA protocols (RS-232 and RS-485)** It is also able to incorporate serial interfaces with SCADA protocols, thus providing the versatility to connect to industrial meters, RTUs and other control devices.

- **IEC-101 to IEC-104 Serial-IP and Gateway encapsulation** Data from the serial port can be transparently encapsulated with IP. The "IEC-101 to IEC-104 gateway" function also allows IEC-101 RTUs to be maintained and central management software to migrate to IEC-104.

- **PRIME PLC interface (up to 2000 smart meters)** PRIME PLC interface with base and service node operation. It supports up to 2000 PLC smart meters, with topology discovery and firmware updates. Compatible with both 1.3 and 1.4 versions of the protocol.

- **Electrical environment safety certificates** Safety certificates for equipment in electrical environments: EMC, isolation, immunity, electrical, climatic and mechanical.

- **Security 802.1X, ACLs, firewall and DMVPNs (IPSec)** The Regesta Smart PLC includes state-of-the-art security: ACLs, firewall, 802.1X, IPSEC with hardware encryption, DMVPNs, etc. This allows for safe and scalable deployment in easy to manage smart grid networks.

- **Advanced services (routing, management, QoS)** The Regesta Smart PLC includes a software stack with the advanced functions required by advanced IP networks, such as QoS, policy routing, DMVPNs, VLANs, and VRF, providing maximum versatility for shared services.

- **Console port for out-of-band management** The console port facilitates troubleshooting and installation at remote points.

CARACTERíSTICA TéCNICA DEL HARDWARE

PLC communications
Base node (up to 2000 service nodes)
Phase selection in power supply terminals
Power supply: 110-240 VAC. Consumption: TBD

Ethernet interface
Up to 2 ports (RJ45 connector)
802.3i (10BaseT), 802.3u (100BaseT), 802.3ab (1000BaseT)
Supports duplex, IEEE 802.3u link speed auto-negotiation, VLAN and 802.1X

Up to three serial interfaces (DB9 connector)
Asynchronous communications up to 115200 bps
RS-232 and RS-485 options
RTS/CTS and SCADA flow control (Modbus, IEC-101/102, IEC-104 gateway)

WWAN interface
Built in hardware module with EDGE/UMTS/HSPA+ or LTE technology
2 x external antennas with SMA connector
Dual-SIM trays (internal)

Dimensions and weight
L x W x H: 140 x 80 x 190 mm
Approximate weight: TBD
Format: DIN rail, wall mounting and in meter rooms

Environmental specifications
Temperature: -20 to 70 ºC
Relative humidity on: 5 to 93%
Atmospheric pressure: TBD

CARACTERíSTICA TéCNICA DEL SOFTWARE

IP protocol
ARP, Proxy ARP, MTU discovery, NAT, ECMP, BFD
RIP, OSPF, BGP, policy-based static and dynamic routing
Virtual Router Forwarding (Multi-VRF)

IP protocol (2)
Multicast: IGMP (v1,v2, v3), PIM-SM, MSDP, MLD, MLDv2
IPSLA service probes (delay, packet loss, jitter)
High availability: VRRP, TVRP (HSRP (compatible)

Security
IPSec support in transport and tunnel mode (including DMVPNs)
Pre-shared authentication, RSA, Certificates, MD5, SHA-1
DES (56 bits), 3DES (168 bits), AES (128, 192 and 256 bits), IKEv1, IKEv2

Security (2)
Certificates: CSR, SCEP, X.509v3, PKIX, LDAP revocation
Static and dynamic access lists and session-based firewall
DoS and DDoS attack detection

IP services
Telnet, DHCP, DNS, FTP, SFTP and SSH server and client
NTP, LDAP, Syslog and SCP client. TFTP server
DynDNS, DHCP relay

Service quality
Classification, marking, bandwidth management and limiting/prioritizing
Up to 32 classes and 16 queues per interface
Strict policies (PQ), low latency (LLQ), by weight/class (WFQ, CBWFQ)

Specific WWAN functions
Automatic hand-over (passive and active probe-based detection)
Advanced link monitoring (packet error, latency, jitter)
Dual SIM associated with the hand-over mechanism

Management
CLI configuration and storage in plain text file
Assignment of user/group profile licenses
RADIUS and TACACS+ compatible AAA support

Management (2)
Netflow, RMON V5 and V9, SNMPv1, v2c and v3, Syslog support
Manageable through SMS and Zero Touch Provisioning with Cloud Net Manager
Wireshark-compatible remote traffic capture

PLC communications
PRIME version 1.3.6 or 1.4
PRIME wrapping protocol support (Multiplexing 4-32 connections)
Network topology discovery and MIBs

CARACTERíSTICA TéCNICAS ADICIONALES

Console interface
RJ-45 connector with proprietary pinouts (including adaptor)
Type RS232
Default speed 9600 bps, maximum speed 115200 bps

LEDs
1 Power, 2 LAN/WAN status
1 Switch, 1 PLC, 2 serial status
1 SIM, 2 wireless status/coverage

Certificates (I)
Isolation (EN 60255-5) for electrical resistance and impulses
Immunity (I): EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5
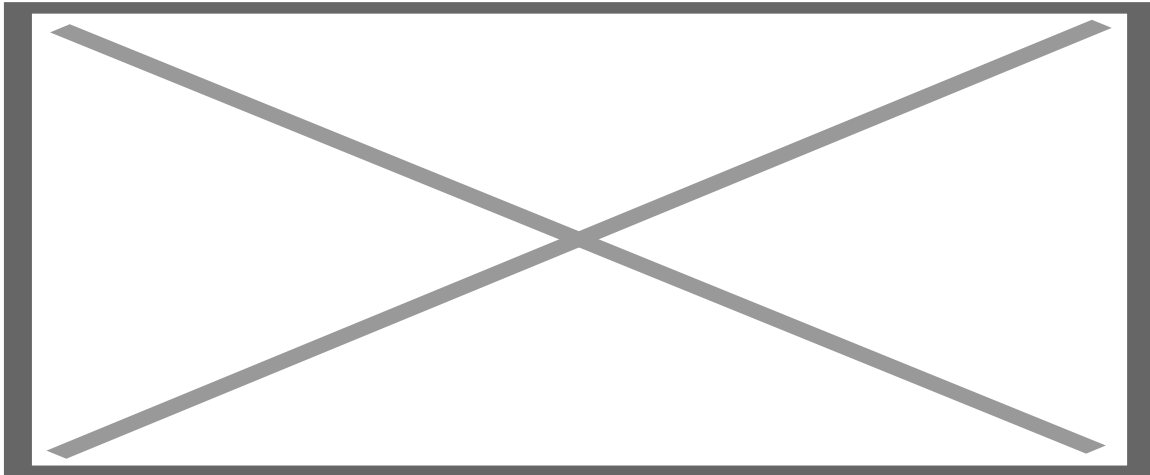EN 61000-4-6, EN 61000-4-8, EN 61000-4-10, EN 61000-4-12, EN 61000-4-13

Certificates (II)
Immunity (II): EN 61000-4-18 Eléctricas: EN 61000-4-11 and EN 61000-4-29

Climatic: EN 60068-2-78, EN 60068-2-2, EN 60068-2-1, EN 60068-2-14
Mechanical: EN 60870-2-2, EN 60068-2-6 EN 60068-2-27

Scenarios