Advanced Smart Grid Regesta-PRO ER MR Router

Industrial-range router for remote smart-grid communications

Introduction

The Regesta-PRO ER MR router family brings today's most advanced corporate IP network protocols to the world of smart grids. These routers have benn specially designed to provide a range of connectivity solutions in remote and unattended locations where the characteristics of the site demand a high level of industrial-grade ruggedness.

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 make it deal for large-scale deployments.

Product Highlights

- Multiple WAN (xDSL, 2G/3G/LTE, Ethernet)
- SCADA (Modbus, IEC-101/102, IEC-104 gateway)
- Multi-range power supply (100-240VAC and 40-75VDC)
- Extended temperature range (-10 to 60º C)
- Complies with electrical security & EMC regulation
- DMVPNs, VLANs and QoS for critical services
- Dual-SIM redundancy (optional double module)

Interfaces	Regesta-PRO ER MR
Up to 2 x 2G/3G/LTE	Yes (depending on the model)
Up to 6 x 10/100 Mbps Fast-Ethernet	Per license (2, 4 or 6 ports)
Up to 3 x asynchronous serial ports	Yes (RS-232 + RS-485 depending on model)
Mechanical reset button	Yes (return to factory default)
Up to 1 ADSL2+, RJ11 H port	Yes (according to model)
ON/OFF button	Yes
2 x SMA antenna connectors	Yes
2 x SIM Trays	Yes

Competitive Advantage

Reliable communications and hardware	Multiple access technologies employed (2 simultaneous WWAN, ADSL + LTE, ADSL +Ethernet) with real-time backup mechanisms, SNMP trap notifications and alerts.
Rugged hardware design	Adaptable hardware design for unattended installations, with extended temperature range (-10 to 60º C) and electrical/electromagnetic immunity.
Multi-range power supply	A single device for networks with diverse power supplies.
Corporate networking software	The latest IP network technologies for smart grid communications bringing security, quality and ease of use to large-scale multi-service deployments.

Scenarios

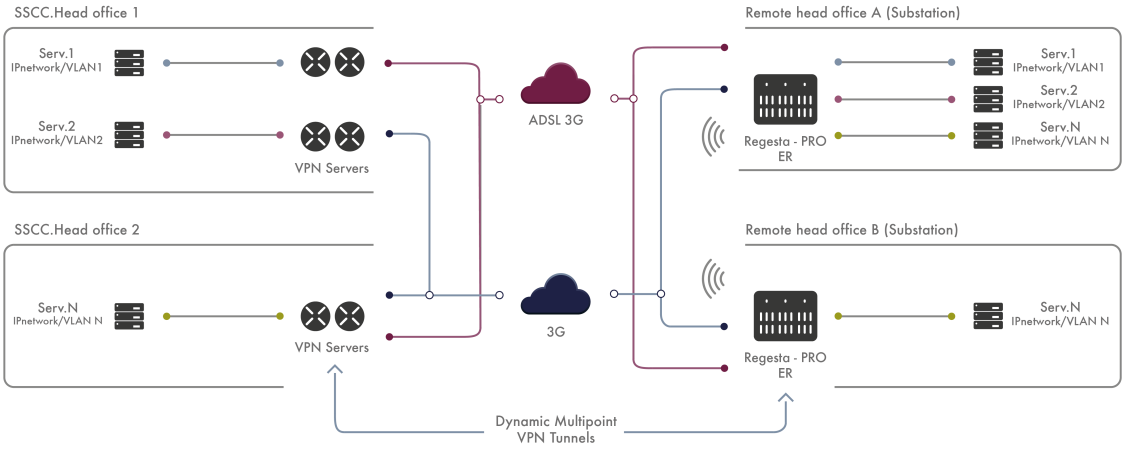

Figure: Multi-network/multiservice backup scenario

Key Features

Up to 6 10/100 FE ports with VLAN, 802.1X, duplex Automatically detectable 10/100 Mbps speed. It allows for configurations of 2, 4 or 6 active ports. 2 or 4 port models can be increased to the maximum 6 ports at a later date with a software license.

Multi-range power supply (100-240 VAC and 40-75 VDC) 40V-75 VDC and 110V-220 VAC power supply, both ranges supported in a single model for easy deployment and maintenance.

2G/3G/4G (dual-SIM and/or dual-module backup) Up to two embedded 2G/3G/4G interfaces with a dual SIM card tray for automatic backups. Advanced Teldat system for proactive monitoring and automatic recovery from WWAN incidents.

Certified for use in electrical environments The routers are certified for use in electrical environments with EMC, isolation, immunity, electrical, climatic and mechanical certificates.

Extended temperature range (-10 to 60ºC) The Regesta-PRO ER housing is designed for optimal heat dissipation, can be mounted on a DIN rail or wall, and guarantees operation between -10 and 60º C with up to 95% humidity.

Security: 802.1X, ACLs, firewall and DMVPNs (IPSec) The Regesta-PRO ER includes state-of-art security, including ACLs, firewall, 802.1X, IPSec with hardware encryption, DMVPNs, etc., thus allowing for safe and scalable deployments in easy-to-manage smart grid networks.

Serial ports with SCADA protocol support It is able to incorporate serial interfaces (up to a total of 3 serial ports) with SCADA protocols, thus providing the versatility to connect to industrial meters, RTUs and other control devices.

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

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 TRUs to be maintained and central management software to migrate to IEC-104.

Out-of-band management console port The console port facilitates troubleshooting and installation at remote points.

HARDWARE TECHNICAL FEATURES

ADSL/VDSL interface (optional, licensable)

ADSL/ADSL2+/VDSL2 compatible on analog lines (RJ11 connector)
ADSL: Ansi, g.dmt, g.dmt.bis, g.dmt.bis-plus, g-lite. Annex A, M and L
VDSL: G.993.2. Profiles: 8a, 8b, 8c, 8d, 12a, 12b, 17a

Ethernet interfaces

6-port Ethernet switch (RJ45 connector)
802.3i (10 BaseT), 802.3u (100 BaseT)
Supports duplex, IEEE 802.3u link speed auto-negotiation, VLAN and 802.1X

Up to 3 Serial Interfaces (DB9 connector)

Asynchronous 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 (optional)

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: 186 x 203 x 47 mm (without protection)
Approximate weight: 680 gr.
Format: DIN track and wall mounting

Environmental specifications

Temperature: -10 to 60º C
Relative humidity: 5 to 95%
Atmospheric pressure: 700 to 1060 mbars

SOFTWARE TECHNICAL FEATURES

ADSL/VDSL compatibility and functions

Multiplexed VC and LLC with IP, PPPoE, PPPoA, Bridge, MLPPP support
UBR, UBR+, VBR-nrt, VBR-rt, CBR with traffic shaping
Up to 31 PVCs and OAM support

IP protocol

ARP, ARP Proxy, 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, package loss, jitter)
High availability: VRRP, TVRP (HSRP compatible)

Security

IPSec support in transport and tunnel mode
Pre-shared authentication, RSA, Certificates, MDS, 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 Stateful Firewall
DoS and DDoS attack detection

IP services

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

Service quality

Classification, marking, bandwidth
Up to 32 types 16 queues per interface
Strict policies (PQ), Low latency (LLQ), according weight/types (WFQ, CBWFQ

Specific WWAN functions

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

Management

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

Management (2)

Netflow, RMON V5 and V9, SNMPv1, v2c and v3, Syslog support
Manageable via SMS
Wireshark-compatible remote traffic capture

ADDITIONAL TECHNICAL FEATURES

LEDs

Type RS232
Default speed 9600 bps, maximum speed 115200 bps
2 status/speed LEDs per Ethernet port

Certifications (I)

2 wireless status/coverage LEDs
1 system LED (configurable)
Isolation (EN 60255-5) for electrical resistance and impulses

Certifications (II)

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

DB-9 connector with proprietary pinouts (including adapter)

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

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COMMUNICATIONS SOLUTIONS
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Teldat is a leading provider in Enterprise Communications equipment and Services for the top corporate to mid-sized and SME markets.

About TELDAT

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Teldat Group is a leading technology holding that desings, manufactures and distributes advanced Internetworking platforms for corporate environments, providing new and cutting-edge communication solutions without ever losing sight of its customers real requirements. Teldat's solutions development is based on proprietary technology, which is in the Group's DNA. This allows Teldat to be a leading provider in Enterprise Communications equipment and Services for the top corporate to midsized markets, as well as the SME and SoHo markets.

From a geographical viewpoint, Teldat Group has a presence in all continents, with its corporate headquarters located in Spain, and operational affiliates in Europe (Germany, Austria, Portugal, Italy and France) and in LATAM (Mexico and Brazil), as well as two business development offices in USA and China.

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