

# Teldat G+ Family

## GPRS/EDGE ROUTERS FOR CORPORATIONS AND MEDIUM SIZED COMPANIES



► The Teldat G+ router family permits the integration of GPRS/EDGE technology in corporate data communication solutions. By using Teldat G+, a GPRS/EDGE link can be shared between multiple users in the LAN or connect traditional serial terminals such as ATMs or POSs through GPRS/EDGE. All of this is enhanced with the advanced functionalities demanded by corporations such as security and encryption, quality of service, compression, availability or remote management. These technical features available in the device and the technology, accompanied by an attractive flat rate scheme, particularly for transactional traffic, make it possible acquire efficient and economical communication solutions together with the required guaranteed quality of service today.

All the Teldat G+ router protocols are implemented in compliance with the standards guaranteeing complete interoperability with the different GPRS/EDGE networks. A powerful management system permits users to minimize operation and maintenance costs for extensive networks of devices.

## CHARACTERISTICS

### MODULARITY

The Teldat G+ routers are compact devices designed and manufactured with the aim of achieving the best quality/price ratio for the range of interfaces and features incorporated. Nevertheless, the GPRS/EDGE interface is modular and is inserted in a removable card within the device. This card can be substituted for other interfaces, currently ADSL, ADSL2+, G.SHDSL, CDMA and Analog Modem. This modularity permits dealing with deployments by having an alternative for areas that are temporally without cover. Additionally, this also permits easy future migration to new types of access such as ADSL, respecting the current network topology and thus protecting client investment.

### QUALITY OF SERVICE AND AVAILABILITY

The professional applications over GPRS/EDGE require, or better said, benefit from the quality of service and availability mechanisms that provide distinct preferences to the different types of traffic and additionally to offer a guarantee or first-rate service level for the system as a whole. To this end, the Teldat G+ routers include advanced quality of service functions, both at the IP layer as well as at the PPP layer. Mechanisms such as Diffserv, prioritization and traffic queuing in diverse types of queues (WFQ, PQ, LLQ, etc.) allow multiple treatments for the different types of traffic in the network.

### ROUTING

The Teldat G+ routers are high performance professional routers, with powerful functionalities that permit them to operate over a wide range of communication architectures. The routers incorporate routing protocols such as RIP I, RIP II, OSPF, BGP, Policy routing, Virtual Routing Protocols (HSRP, VRRP) and multicast routing. They also permit terminal multiplexing over a single IP address through NAT/PAT protocol support as well as dynamic assignation of LAN addresses through DHCP. Additionally SNA traffic routing is permitted through the IP network using DLSw and BAN protocols.

### SECURITY AND VIRTUAL PRIVATE NETWORKS

The Teldat G+ routers permit the creation of Virtual Private Networks (VPN) thanks to the full support of the IPsec protocol stack. IPsec permits Virtual Private Networks to be created with heterogeneous access technologies such as ADSL and EDGE, offering mechanisms of confidentiality, authentication and integrity for the IP communications. The Teldat G+ routers, with IPsec, can by using RC4, DES and 3DES encrypt transmitted data. Through UDP encapsulation of IPsec or "IPsec NAT Traversal" (NAT-T) functionality, the IPsec traffic is transported without corrupting intermediate devices which execute NAT or PAT in the network. Thanks to standard IPsec security policies auto-configuration

mechanisms, installation and start up of VPNs is simple and automatic. Compatibility with PC standard VPN-IPsec clients makes VPN flexibility even greater by permitting remote points, such as telecommuters, to be connected without requiring specific hardware.

In addition to security, compression mechanisms, both at the PPP layer (CCP) and the IP layer (IPComp), permit optimizing the bandwidth thus reducing the communication cost, which in average speed links such as EDGE is particularly useful.

### MANAGEMENT

The Teldat G+ routers can be managed from a powerful "Command Line Interface" (CLI), which is locally accessible from the console port or remotely via Telnet. This permits remote downloading of software and configuration versions through FTP and TFTP.

The routers also have an SNMP agent, where parameters can be added, for full monitoring including both MIB-2 and private MIB from Teldat. For simple management in a reduced scenario, the routers optionally include web management. The routers are integrated in the Teldages graphic management platform thus permitting storing and replication of remote configurations in the database, operations over device groups, remote status monitoring and alarm reception etc.

# Teldat *G+ Family* TECHNICAL SPECIFICATIONS

## GENERAL

### MAIN BOARD INTERFACES

1 x Ethernet 10M, RJ-45 F STP/UTP or  
4 x 10/100 Fast Ethernet, RJ-45 f STP/UTP (depending on the model)  
1 x GSM/GPRS/EDGE, FME M  
1 x ISDN BRI (2B+D), RJ-45 F (depending on the model)  
Serial: 1 x DB25 F or 4xRJ-45 F (depending on the model)

### HARDWARE ARCHITECTURE

Motorola MPC860 family microprocessor  
SDRAM memory: 32 Mbytes  
FLASH memory: 4 Mbytes  
9 status LEDs on the front panel

### GSM/GPRS/EDGE INTERFACE

FME connector for external antenna (50 Ohm)  
Antennas: external magnetic or right angle with the device  
Quad-band: EGSM 850(2W), EGSM 900(2W), GSM 1800(1W) and GSM 1900(1W)  
Compatible with GSM phase 2/2+  
**GPRS:**  
GPRS multi-slot class 12  
GPRS mobile station class B  
GPRS data downlink transfer: max. 85.6 kbps  
GPRS data uplink transfer: max. 85.6 kbps  
Codification schemes: CS 1, 2, 3 and 4

### EDGE:

EDGE multi-slot class 10  
EDGE mobile station class B  
EDGE data downlink transfer: max. 236 kbps  
EDGE data uplink transfer: max. 118 kbps  
Modulation and codification schemes: MCS 1-9  
CSD: (GSM Data)  
Speeds: 2,4, 4,8, 9,6, 14,4 kbps, non transparent, V.110  
Unstructured Supplementary Services Data (USSD) supported  
SMS Messages

### SWITCH 4 x FAST-ETHERNET

10/100-BaseT automatic detection  
Half/full duplex automatic negotiation  
MDI / MDI-X crossover detection  
Ethernet V2 / IEEE 802.3  
LLC (802.2), ARP  
IEEE 802.1Q (VLAN)  
Managed Switch:  
- Etherlike-MIB (RFC 2665)  
- SNMP-REPEATER-MIB (RFC 2108)  
- MAU-MIB (RFC 2668)  
2 status LEDs per port

### LAN INTERFACE

Ethernet IEEE 802.3  
LLC (802.2), ARP  
IEEE 802.1Q (VLAN)

### DB25 SERIAL INTERFACE (OPTION)

V.24, V.35, X.21 (DTE/DCE)  
Speed: 300 bps to 2 Mbps

### RJ-45 SERIAL INTERFACES (OPTION)

V.24, asynchronous RS-232  
Speed: 300 bps to 115200 bps

### ISDN BASIC RATE INTERFACE (OPTION)

I.430 TE; Q.931  
B Channel: PPP and Frame Relay (PVCs and SVCs)  
Switched and permanent connections  
128 kbps serial line emulation  
Call-back  
Filtering based on the called and/or calling number

### CONSOLE

RS-232 at 9600 bps (configurable)  
8 bits without parity with 1 stop bit (8N1)

### POWER

External power supply  
AC 110v - 220v; 50/60Hz or  
DC -48V

### ENVIRONMENTAL SPECIFICATIONS

Temperature: 5°C to 55°C  
Relative humidity: 5% to 85%  
Barometric pressure: 860 mbar to 1060 mbar

### DIMENSIONS AND WEIGHT

Length x Width x Height: 220 x 220 x 30 mm  
Approximate weight: 0.8 Kg

## EXTENSION MODULES

### xDSL AND 3G INTERFACES

The GSM/GPRS/EDGE interface is modular i.e. it can be updated to another type of interface by simply plugging in the new interface board. Currently ADSL, ADSL2+, G.SHDSL, CDMA and Analog Modem interfaces are available.

### EXTERNAL TELECONTROL-1 MODULE

Connects to the router through the console or a serial port  
Controls the power supply for an external device  
Controlled from the router via MIB SNMP and CLI

## CIT (TEL DAT INTERNETWORKING CODE)

### IP PROTOCOL

IP, ARP, Proxy ARP  
Static IP Routing  
RIP I, RIP II, OSPFv2 and BGP-4  
Hot Standby Routing Protocol (HSRP) compatible  
RFC 2281 VRRP - Virtual Router Protocol  
Policy Routing  
VRF-Lite  
Quality of backup: Routing based on network quality measurements  
Multi-path per IP packet (with static and dynamic routing)  
Balance per TCP/IP session  
Multicast: IGMP, IGMP-proxy, MOSPF and PIM-SM\*  
DHCP client, server and relay  
DNS client and proxy, with DNS cache.  
NAT/PAT/Port Mapping/NAT Exceptions  
PAT fire-walling  
Multiple addresses per interface  
Loopback interfaces

### QUALITY OF SERVICE (QoS)

Packet marking (DiffServ) depending on interface, subinterface, protocol, port, MAC and size  
Congestion control: FIFO, queuing priority, BRS proprietary system, WFQ and QoS ATM  
Traffic Shaping: proprietary (over BRS), ATM traffic shaping, Frame Relay traffic shaping  
Fragmentation in FR (FRF.12), PPP and MPPP

### SECURITY AND VPNs

IPSec encrypted: ESP and AH  
IPSec in tunnel mode and in transport mode  
Encryption algorithms: RC4, DES, 3DES and AES  
Authentication algorithms: SHA-1 and MD5  
IKE Protocol  
Digital certificates X.509v3, LDAP and PKIX  
SCEP Protocol  
Tunnel End-point Discovery Protocol (TED)  
ISAKMP Configuration Method  
IPSec PMTU Discovery  
Radius Access Control (RFC 2138)  
GRE + encryption RC4  
L2TP client and L2TP client initiation  
Password in the console, telnet y ftp  
User and permission levels  
Advanced IP filters  
Timetable control

### DATA COMPRESSION

Compression in IPComp (RFC 2393)  
Compression in X.25, Frame Relay (FRF.9) and PPP  
IPHC Compression  
Van Jacobson and STA LZS compression algorithms

### PROTOCOLS OVER SERIAL PORT

Frame Relay: 300 DLCI's, CIR monitoring, permanent and switched circuits  
Frame Relay Switching  
X.25: 300 CVC's X.28: 200 CVP's  
SDLC: multistation, XID treatment  
PPP, MPPP, PPP-AT (external modem)  
ASDP (Asynchronous interface proxy over IP)  
SCADA: Modbus, IEC101, IEC102

### IBM-SNA SUPPORT

SDLC-QLLC-LLC2 Converters  
SNA over IP:  
- DLSw (RFC 1795) and Remote IP Bridge (tunnel)  
SNA over Frame Relay (RFC 1490):  
- BAN and Remote Frame Relay Bridge  
SNA over X.25 (X.25-QLLCB)

### X.25 SWITCH

Programmable routing  
X.25 call parameter modification  
X.25 over TCP/IP: XOT (RFC 1613)

### BRIDGE

Bridge: Transparent (Spanning Tree IEEE 802.1D)  
Source Routing, IP Tunneling, MAC Filter, MAC Cache and NetBIOS

### MANAGEMENT

Commands line interface on console and telnet  
SNMP: MIB-2, Private MIB  
Events Logging System  
Syslog Client  
Network Time Protocol (NTP)  
FTP teleloading for Software, BIOS and configuration  
Compatible internal Protocol Analyzer Ethereal  
Default configuration switch  
Radius Accounting\* (RFC 2139)  
Integrated in Teldatges (Teldat professional management platform)



MODEL	LAN	SERIAL	ISDN	GPRS/ EDGE	IPSec	SNA
Teldat G1+	4 x 10/100	NO		YES	Option	Option
Teldat G1i+	4 x 10/100	NO	YES	YES	Option	Option
Teldat G3+	1 x 10Base-T	4 x RJ-45		YES	Option	Option
Teldat G3i+	1 x 10Base-T	4 x RJ-45	YES	YES	Option	Option
Teldat G4+	1 x 10Base-T	1 x DB25		YES	Option	Option
Teldat G4i+	1 x 10Base-T	1 x DB25	YES	YES	Option	Option



ISO 9001:2000 Certificate

\* Functionality currently under development. Please consult availability through [comercial@teldat.es](mailto:comercial@teldat.es)

The specifications can be subject to change without prior notice. Code updating will be available as new functionalities are developed. All commercial makes are the property of their respective proprietors



TEL DAT MADRID • Parque Tecnológico de Madrid • 28760 Tres Cantos  
MADRID (España) Tl. +34 91 807 65 65 Fax +34 91 807 65 66  
TEL DAT BARCELONA c/ Anna Piferrer 1-3 • 08023 BARCELONA  
(España) Tl. + 34 93 253 02 22 Fax +34 93 211 37 66  
TEL DAT CORP 1111 Brickell Ave., Suite 1100 • Miami, Florida 33131  
Tl. +1 305 372 3480 Fax +1 305 513 5209

[www.teldat.com](http://www.teldat.com)