

TMG800 VoIP Gateway - 1 to 16 T1/E1



The TelcoBridges **Tmedia TMG800** is our entry-level carrier-grade VoIP gateway. Software upgradeable from 1 to 16 T1/E1, the TMG800 is the most cost-effective VoIP gateway solution for service providers that is currently available on the market.

Product Characteristics:

- ✓ 1U VoIP gateway
- ✓ 32 to 512 VoIP channels with universal codecs
- ✓ 1 to 16 T1/E1
- ✓ SIP, SIGTRAN, SS7 ISUP, ISDN PRI, E1 CAS R2, T1 CAS R1, H.248
- ✓ Software upgradeable by single T1/E1 and 32 VoIP channel increments
- ✓ Hot-swap redundant power supplies (AC or DC)
- ✓ Optional Tmedia 1+1 solution
- ✓ Software upgradable into a session border controller (SBC) with TDM fallback capabilities
- ✓ Hybrid mode with simultaneous SBC and media gateway functions
- ✓ Performance option for higher CPS rate and support for SIP Registration Forwarding functionality

Tmedia™ TMG800 Data Sheet

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Tmedia 1+1 Protection Characteristics:

- ✓ Passive solution (no power required)
- ✓ Enables full facility protection (TDM and IP)
- ✓ Active/Standby architecture with two TMG800 units
- ✓ No single point of failure
- ✓ Five nine's redundancy



Tmedia TMG800 1U VoIP gateway, rear view (dual AC power input shown)

Capacity and Voice Processing

PSTN interfaces

1 to 16 T1/E1 (software upgradeable)
 Configurable per port for T1 or E1
 RJ48C connectors on rear of unit

VoIP interfaces

Up to 6 Ethernet ports 100/1000Base-T
 RJ45 connectors on rear of unit
 Up to 16 different IP addresses
 Ethernet port bonding and 802.1q VLAN support

Vocoding

32 to 512 VoIP channels with universal codecs
 Universal codecs: G.711, G.723.1, G.726, G.729ab,
 T.38 V.17, clear mode (RFC 4040)
 Other codecs: G.722, G.722.2 (AMR-WB), G.728,
 G.729eg, iLBC, AMR, EVRC, GSM, FR/EFR,
 QCELP, T.38 V.34

Fax/modem/data

T.38 fax relay (V.17 and V.34)
 Automatic G.711 fallback
 Modem and data passthrough, NSE, VBD support
 Clear mode (RFC 4040)

DTMF relay

RFC 2833/4733, SIP INFO method, in-band

Echo cancellation

G.168 echo cancellation
 128 ms echo tail on all channels simultaneously

Voice processing

Adaptive and programmable jitter buffer (20 to 200 ms)
 Voice activity detection (VAD)
 Comfort noise generation (CNG)

Voice recording and announcement playback

Up to 512 channels (using optional IVR mezzanine or
 specially licensed VoIP channels)

High Availability & Redundancy

Power supply redundancy
 IP port redundancy
 Self-recovery software
 Fault tolerant software
 MTP2/SS7 links redundancy

Tmedia 1+1 solution (optional)

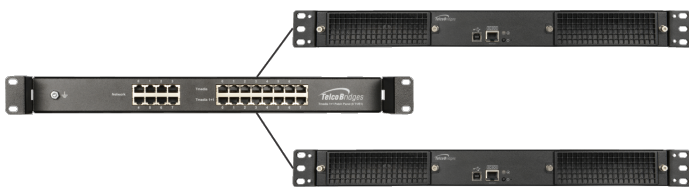
The Tmedia 1+1 solution extends the high-availability
 and redundancy features of the TMG800

VoIP gateway redundancy (active/standby)
 Full capacity protection (TDM and IP)
 Configuration database redundancy
 Seamless software upgrade
 M3UA/MTP3/ISUP redundancy

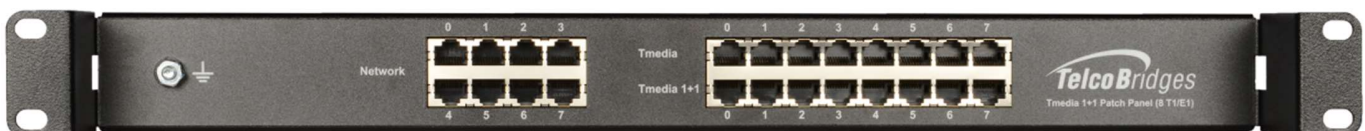
Tmedia 1+1 solution consists of:

- 1 active unit and 1 standby unit
- Up to 2 units 1+1 Patch Panel(s)

1+1 Patch Panels are passive (no power required)



Tmedia 1+1 solution schematic



Tmedia TMG800-RJ 1+1, Patch Panel (front view)

Signaling

Simultaneously supports any combination or all of the following signaling protocols:

SIP

Supported RFCs: 2327, 2833, 2976, 3204, 3261, 3262, 3263, 3264, 3311, 3323, 3325, 3326, 3372, 3389, 3398, 3515, 3551, 3555, 3578, 3581, 3665, 3666, 3764, 3891, 4028, 4694, 4733, 5806

SIP-I/SIP-T

Extensive SIP header manipulation

SIP registration Forwarding¹

SS7

Up to 64 MTP2 links (56, 64, n x 56/64 kbps) or 2 x HSL

Multiple redundant MTP2 links

Up to 64 originating point codes and 256 linksets

Up to 256 destination point codes

ISUP variants: ITU 92, ITU 97, ANSI 88, ANSI 92, ANSI 95, Q.767, Telcordia 97, ETSI v3, China, Singapore, UK, SPIROU, Japan NTT, Russia

SCCP routing and global title translation (GTT) based on called/calling party, SSN and Opcode

SIGTRAN

M2PA, M2UA, M3UA (IPSP, ASP, SG), IUA

SCTP (raw IP and UDP)

SS7 termination and/or relay supported

Up to 64 M2UA / M2PA links

Up to 64 M3UA peer server processes

ISDN PRI

Q.931 ISDN PRI (user and network side)

ISDN variants: NI-2, 4ESS, 5ESS, DMS-100, DMS-250, Euro ISDN ETSI NET5 (France, Germany, UK, China, Hong Kong, Korea), Euro Numeris (VN6), NTT (Japan), Australia

ISDN NFAS with D-channel backup

CAS

MF R1 (including E&M, loop start, ground start)

MF R2 (including standard ITU, Brazil, Mexico, Venezuela)

Customizable script files to implement any CAS variant

Tctrl (Call Control)

Embedded call control

Call routing based on: trunk group, calling/called numbers (with digit manipulation) and/or various other protocol information/headers.

Customizable routing including priority-based, load-balancing, black listing, call limiting, route retries, etc.

Customizable call cause code mapping

Programmable call routing: Access and manipulation of call parameters (SIP, SS7 and ISDN), including Nature of Address (NOA)

RADIUS authentication and authorization (supports multiple RADIUS servers)

NPA-NXX routing (over 5 million records)

SIP-based local number portability and CNAM lookup

H.248 (MEGACO) call control

ITU-T H.248 versions 1 and 2

UDP, SCTP, IPsec transport

DTMF and fax detection

Call progress, DTMF and COT tone generation

Call quality and inactivity alerts

H.248 control port redundancy (supports virtual IP)

Session management and billing

SIP peer availability polling

RTP inactivity monitoring, RTCP

CDR generation (RADIUS and/or csv files)

Integrated lawful intercept (ETSI ES 201 671 v.2.1.1)

Software upgradable to SBC

Back-to-back user agent (B2BUA)

Maximum signaling/media sessions: 3000

Maximum transcoding sessions: 686

Topology hiding

Line-rate DOS/DDOS protection (64 bytes packets)

Rogue RTP detection

Dynamic blacklisting

Access control list

Session admission control

Session bandwidth control

TDM fallback capabilities

¹ Requires Performance option

OAMP+T

Operations & Administration

Provisioning, management and status GUI
CLI and configuration file machine-to-machine interface (RESTful)
Configuration change audit logging
Access, user and privilege management
SNMP V2, V3 GET, TRAPs (alarms)
Extensive SNMP call statistics MIBs

Management

2 Ethernet ports 100/1000Base-T
1 USB Type B serial port
1 RJ45 RS232 serial port
GUI-based and CLI system upgrade
GUI-based configuration copy, backup and restore
Storage for multiple software versions
Storage for multiple configuration files
Extensive system status display

Provisioning

Non-service affecting configuration changes
Offline configuration validation
Multiple configuration files archive
Northbound API (RESTful) for automated provisioning

Network Analytics (TB Analytics)

Live call trace with protocol information and ladder diagrams
Live test call with media playback and recording
TB Sigtrace – Protocol signaling capture into pcap files
Media call recording (scriptable for calling and called numbers)

Maintenance

Replaceable fan filters

Electrical Characteristics

90 to 260 VAC, 47 to 63 Hz or -36 to -72 VDC
Hot-swap redundant power supply (AC or DC)
Maximum 70W power consumption

Regulatory Compliance

Safety

CAN.CSA C22.2
EN 60950-1:2005
EN 60950-1:2006

EMC

FCC Part 15:2013, Subpart B,
CE Mark (EN55022:2010, Class A, EN61000, ETSI
EN 300 386)

Dimensions & Weight

TMG800

1U, 19" rackmount
1.75" (44.5 mm)H x 16.9" (429 mm)W x 16" (406 mm)D
14 lbs (6.4 kg)

1+1 patch panel

1U, 19" rack mount
1.75" (44.5 mm) H x 16.9" (429 mm) W x
5.25" (133 mm) D
3.4 lbs (1.6 kg)

Environmental

Operating temperature:
0 to +70 °C, 95% rel. hum. non-condensing
Storage temperature:
-10 to +85 °C, 95% rel. hum. non-condensing
Designed to meet NEBS Level 3
RoHS compliant

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