

## 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

### Tmedia 1+1 Protection Characteristics:

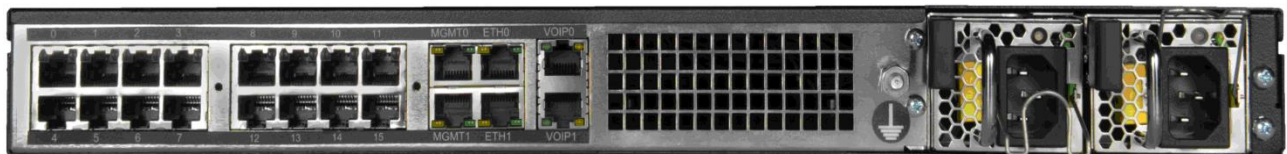
- ✓ Passive solution (no power required)
- ✓ Enables full facility protection (TDM and IP)
- ✓ Active/Standby architecture with two TMG800 units
- ✓ No single point of failure
- ✓ Five nine's redundancy

## Tmedia™ TMG800 Data Sheet

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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)

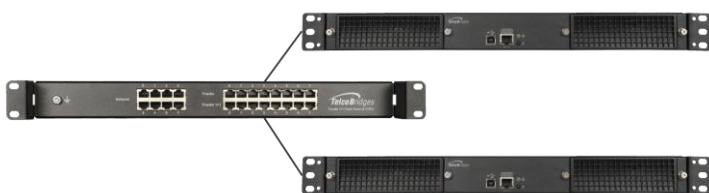
The Tmedia 1+1 solution extends the high-availability  
 and redundancy features of the TMG800

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

### 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: 2300

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

## 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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