# TMG800 VoIP Gateway - 1 to 16 T1/E1

The TelcoBridges ***T*media TMG800** is our low density 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
- ✓ Dual feed redundant power supplies (AC or DC)
- ✓ *T*media 1+1 solution option

***T*media™**

**TMG800 Data Sheet**

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*T*media TMG800, 1U VoIP gateway, front view

*T*media TMG800 1U VoIP gateway, rear view (dual AC power input shown)

## Capacity and Voice Processing

32 to 512 VoIP channels with universal codecs

### PSTN interfaces

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

### 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

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 (optional)

Up to 512 optional channels

## High Availability & Redundancy

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

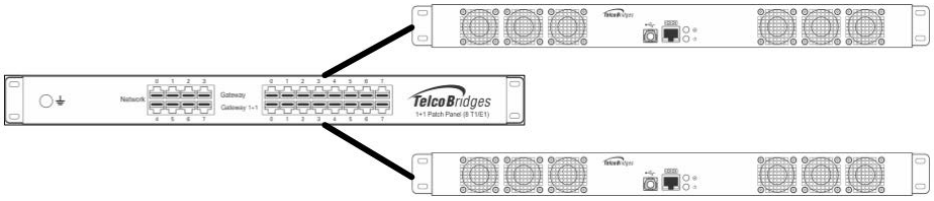
### *T*media 1+1 solution (optional)

The *T*media 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
Fault tolerant software
M3UA/MTP3/ISUP redundancy

### *T*media 1+1 solution consists of:

1 active *T*media unit and 1 standby *T*media unit
1 or 2 *T*media 1+1 Patch Panel(s)
1+1 Patch Panels are passive (no power required)



*T*media 1+1 solution schematic

## 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
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, ETSIv2, ETSIv3, China, Singapore, UK, SPIROU, Japan NTT, Russia

### 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 20 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

### 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

## TMG-CONTROL (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)

## OAMP+T (Web-Based Interface)

### Operations & Administration

Configuration, management and status GUI
CLI and configuration file machine-to-machine interface
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
GUI-based 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
Machine-to-machine configuration interface

### Troubleshooting (*TB* Analytics)

Live call trace with protocol information and ladder diagram
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

## Dimensions & Weight

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 (8 T1/E1)

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)

## Electrical Characteristics

90 to 260 VAC, 47 to 63 Hz or -36 to -72 VDC
Dual feed redundant power supplies (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)

## 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

## Mean Time Between Failure (MTBF)

MTBF of 400,000+ hours for the entire system


*T*media TMG800 1+1 Patch Panel, (front view)