

TMG3200 Datasheet (Korean Version)

The TelcoBridges Tmedia TMG3200 is our medium density carrier-grade VoIP gateway. Recognized for its high performance, the TMG3200 can be ordered to support up to 64 T1/E1, or up to 3 DS3, or 1 OC3/STM1 in a single box (1U) solution for service providers.



TMG3200 front view, 1U VoIP gateway

Additional Components

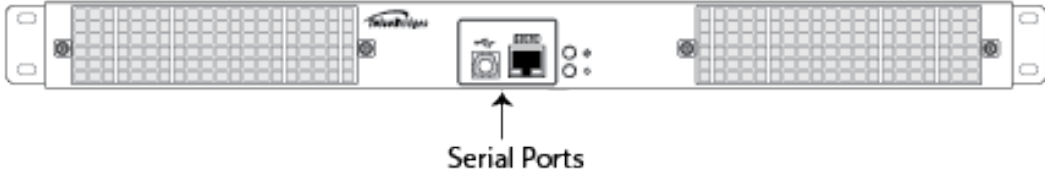
- E1 patch panels
- Surge isolator

Radio Wave Interference

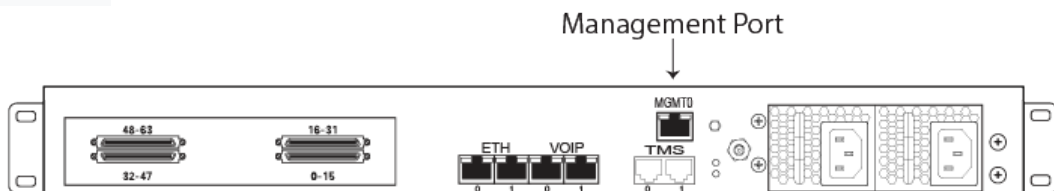
NOTE!	사 용 자 안 내 문 이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다. This device has received a conformity assessment for use in a business environment. If used in a home environment, it may cause radio wave interference.
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Telecom Services

Front of Unit

NOTE!	The serial USB and RJ45 ports, located at the front of the unit, are not used for telecom services. 
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Rear of Unit

NOTE!	The management (mgmt) port, located at the rear of the unit, is not used for telecom services. 
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Product Characteristics

- 1U VoIP gateway
- 512 to 2048 VoIP channels with universal codecs
- TDM interface (ordering option)
 - 16 to 64 T1/E1 or
 - 1 to 3 DS3 or
 - 1 OC3/STM1 with APS
- IP, SIGTRAN, SS7 ISUP, ISDN PRI, E1 CAS R2, T1 CAS R1, H.248
- Hot-swap redundant power supplies (AC or DC)
- Optional Tmedia 1+1 solution

Tmedia 1+1 Protection Characteristics

- Supports all TDM interface types: T1/E1, DS3 or OC3/STM1
- Passive solution (no power required)
- Enables full facility protection (TDM and IP)
- Active/Standby architecture with two TMG3200 units
- No single point of failure
- Five nine's redundancy

Capacity and Voice Processing

PSTN Interfaces

- 16 to 64 T1/E1, or
- 1 to 3 DS3 or
- 1 OC3/STM1 with APS
- Framing independently configurable per port
- 2 BITS interfaces on DS3/OC3/STM-1 units

Data Speeds	
T1	E1
1,536 Mbps	2,048 Mbps

VoIP Interfaces

- Up to 4 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

- 512 to 2048 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 and 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 2048 channels (using optional IVR mezzanine or specially licensed VoIP channels)

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

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.

High Availability and Redundancy

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

1+1 Solution (Optional)

The 1+1 solution extends the high-availability and redundancy features of the TMG3200

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

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)

Call Control

H.248 (MEGACO) Call Control

- ITU-T H.248 versions 1 and 2
- UDP 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)
- Conferencing
- CLIP (H.248.23)
- Redundancy – no loss of calls

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 v2.1.1)

Other Features

- HTTPS request for external applications (call routing, fraud protection, and robocall mitigation)
- MOS scores for every VOIP call

OAMP+T

Operation & 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

- 1 Ethernet control 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 Diagnostics (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

Dimensions and Weight

TMG3200

- 1U, 19" rackmount
- 1.75" (44.5mm) H x 17.4" (442mm) W x 16" (406mm) D
- 14.5 lbs. (6.6 kg)

TMG3200 1+1 patch panels

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

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)

Others

- RoHS compliant
- NEBS level 3 compliant

Electrical Characteristics

- 90 to 260 VAC, 47 to 63 Hz, or -36 to -72 VDC
- Hot-swap redundant power supply (AC or DC)
- Maximum 138W power consumption

Environmental

- Operating temperature: 0 to +70 °C, 95% rel. humidity non-condensing
- Storage temperature: -10 to +85 °C, 95% rel. humidity non-condensing