Dialogic® 1000 Media Gateway Series

The Dialogic® 1000 Media Gateway Series (DMG1000 Gateways) allows for a well-planned, phased migration to an IP network, making the gateways a smart solution for enterprises looking to enhance their legacy PBX equipment with new VoIP access and applications. Connected between a PBX or a digital handset and a LAN or WAN, the DMG1000 Gateways convert proprietary digital PBX messages into a format suitable for transmission over standard IP networks.

### Features

**Suitable for small to medium enterprises and easy to install, configure, and maintain**

Compatible with a variety of popular PBX manufacturers including Alcatel, Avaya, Ericsson, Fujitsu, Mitel, NEC, Nortel, and Siemens

**Designed, developed, and tested in Dialogic’s state-of-the-art PBX lab and optimized for use in an Enterprise environment**

Support for IP load balancing and IP fault tolerance

Seamless interoperability with Dialogic® HMP Software

Supports configuration via serial, telnet, and a web browser including context-sensitive help

IP security features include TLS, SRTP, and HTTPS

### Benefits

Protects investment in legacy telecommunications equipment and allows a controlled migration to IP technology

Ideally suited for Enterprise Unified Messaging applications (tested and certified with Microsoft® Exchange Server UM)

Allows the ability for inbound (TDM-to-IP) calls to round-robin between available media servers and automatically routes calls away from unresponsive media or proxy servers

Provides the options for customers to build enhanced applications on top of base gateway and PBX functions

Easy to install, configure, debug, and maintain

Enables secure communications for SIP messages via TLS, for media stream via SRTP, and for web interface via HTTPS

### Applications

- Centralized VoIP and FoIP application servers, including IP-based voice mail and unified messaging
- IVR and announcements
- IP PBX
- VoIP extension to branch offices
- Contact centers
Specific PBX digital network interface gateway units are compatible with the PBXs listed in Table 1. Units are specified by product code for convenient ordering. Older product code equivalents are provided in parentheses for reference.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Models</th>
<th>Software Version</th>
<th>Product Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avaya</td>
<td>DEFINITY G3, S8100, S8300, S8700, and S8710</td>
<td>Version 3 or greater Communications Manager SW V2.0 or greater</td>
<td>DMG1008DNIW (PIMG80DNIW)</td>
</tr>
<tr>
<td></td>
<td>Legend</td>
<td>Release 7.0 or greater</td>
<td>DMG1008LSW (PIMG80LSW)</td>
</tr>
<tr>
<td></td>
<td>Magix</td>
<td>Release 2.0 or greater</td>
<td>DMG1008DNIW (PIMG80DNIW)</td>
</tr>
<tr>
<td>Mitel</td>
<td>SX-200D, SX-200 Light, SX-2000 Light, SX-2000 S, and SX-2000 VS</td>
<td>Lightware Release 17 or greater</td>
<td>DMG1008MTLDNIW (PIMG80MTLDNIW)</td>
</tr>
<tr>
<td>NEC</td>
<td>2000 IPS, 2400 IMX, 2400 IPX</td>
<td>Release 8.2 or greater Release 7400 or greater Release 5200 Dec. 92 1b or greater Release V.17 issue 3.46.001 or greater</td>
<td>DMG1008DNIW (PIMG80DNIW)</td>
</tr>
<tr>
<td>Nortel</td>
<td>Meridian 1 – Option 11, 21, 21A, 51, 61, 71, and 81, Meridian SL1 – Generic X11, Nortel Communication Server – 1000E, 1000M, and 1000S</td>
<td>Release 15 or greater and options 19 and 46 are required Release 15 or greater and options 19 and 46 are required Release V3.0 or greater</td>
<td>DMG1008DNIW (PIMG80DNIW)</td>
</tr>
<tr>
<td></td>
<td>Norstar 8X24, Norstar MICS</td>
<td>DR5 Release 1.2 or greater Release 4.5 or greater</td>
<td>DMG1008DNIW (PIMG80DNIW)</td>
</tr>
<tr>
<td>Siemens</td>
<td>Hicom 300E CS</td>
<td>Release 9006.4 or greater (Note: North American software load only)</td>
<td>DMG1008DNIW (PIMG80DNIW)</td>
</tr>
<tr>
<td></td>
<td>Hicom 300E</td>
<td>Release 2.0 or greater (Note: EU software load only)</td>
<td>DMG1008LSW (PIMG80LSW) or DMG1008DNIW (PIMG80DNIW)</td>
</tr>
<tr>
<td></td>
<td>8000, 9000, 9751</td>
<td>Release 80003 or greater Any release Any release of 9005 Release 9006.3 or greater; Release 9006.4 or greater is required for end-to-end signaling</td>
<td>DMG1008RLMDNIW (PIMG80RLMDNIW)</td>
</tr>
<tr>
<td>Various</td>
<td>Including Alcatel, Avaya, Ericsson, Fujitsu, Mitel, Siemens, etc., through analog port and/or serial port integration</td>
<td></td>
<td>DMG1008LSW (PIMG80LSW) or DMG1004LSW</td>
</tr>
</tbody>
</table>

Cables are not included. Each unit requires one Ethernet cable per unit and one RJ-11 cable per PBX channel.

Table 1. PBX Digital Network Interface PBX Compatibility
Functional Description
The DMG1000 Gateways each contain eight digital PBX emulation interfaces and a 10/100 BaseT Ethernet connection for connecting to a LAN. An analog loop start unit designed for voice mail and unified messaging applications is also available to connect to PBXs that do not have an appropriate digital interface. The analog loop start unit supports integration via in-band signaling (DTMF or FSK) or serial protocols (SMDI, MCI, and MD-110).

The DMG1000 Gateways provide a simple, cost-effective transition to voice and data convergence for enterprises with PBXs. Connected externally, they offer an IP solution that works with current legacy equipment. They support SIP-based applications as well as T.38 for fax transmissions over IP (FoIP).

Gateway unit features include:
- **Voice over Internet Protocol (VoIP)** – Supports SIP per RFC 3261. Uses Real-time Transport Protocol/Real-Time Control Protocol (RTP/RTCP) for delivery of voice over the LAN or WAN
- **IP security** — Supports TLS for SIP messages, SRTP for media stream, and HTTPS for web interface
- **Enhanced voice processing** – Supports a variety of compression algorithms, including G.711 A-law and µ-law, G.723.1, and G.729AB
- **T.38 Fax over Internet Protocol (FoIP)** – Emulation units transcode fax from T.30 fax protocol, supporting V.17, V.21, V.27, and V.29 modulation schemes, to T.38 for transmission over a packet network
- **Hot swap** – Allows gateway units to be added or removed without affecting other gateway units
- **Web server interface** – Each gateway unit is delivered with a web server interface, allowing configuration and software upgrades via a web browser

Configurations
The DMG1000 Gateways can be used to connect IP telephones to a legacy PBX, integrate network-hosted applications with the PBX, extend the PBX to branch offices, and integrate various voice and call processing capabilities in an enterprise LAN or WAN environment. Using exclusive PBX network interfaces (emulating), these media gateway appliances provide exceptional IP to PBX integration capabilities to protect an investment in legacy telecom equipment.

Figures 1 and 2 provide sample configurations.

Figure 1. IP-Enabled PBX in Communication with SIP Devices over a LAN
Call Routing

The DMG1000 Gateways route calls from the switched network to a VoIP destination on the IP network. Conversely, it routes calls from the IP network through a switch port to a destination telephone number on the switched network. The DMG1000 Gateways support the following call routing options:

- User-configurable list of VoIP servers
- IP load balancing
- IP fault tolerance
- TDM-to-TDM

Physical Description

Figure 3 shows the LEDs on the front panel, which reflects the status of the unit, Ethernet, and PBX telephony ports.

- Ready – Shows overall unit status
- Link – Shows the unit’s Ethernet status
- Data – Shows the unit’s Ethernet RTP activity
- Port Status 1–8 – Shows the unit’s PBX link status for each TDM port

Figure 2. IP-Enabled PBX in Communication with SIP Devices at a Branch Office over a WAN

Figure 3. DMG1000 Gateways Front Panel
The back panel (Figure 4) contains both interfaces and indicators.

**Interfaces**

- DC power
- Serial port for diagnostics or serial protocol support
- 4 or 8 telephony ports
- Ethernet port
- Reset switch

**Status Indicators**

- 10/100BaseT
- Full/half duplex
- RX/TX traffic
- Ethernet link state
- Ethernet collision
# Technical Specifications

## PBX Interface
- **Number of ports**: 4 and 8 port analog units, and 8 port Digital PBX emulation units
- **Use multiple gateway units for higher port counts**
- **Connectors**: 8 shielded female RJ-45 jacks

## Network Interface
- **Connector**: 10/100 Base-T Ethernet LAN port
- **Connector**: 1 shielded female RJ-45 jack for LAN

## VoIP Protocols
- **SIP** per RFC 3261
- **RTP/RTCP** for delivery of voice

## FoIP Protocol
- **T.38 FoIP** Emulation units transcode fax from T.30 fax protocol, supporting V.17, V.21, V.27, and V.29 modulation schemes, to T.38 for transmission over a packet network

## Voice Support
- **G.711 μ-Law and A-Law, G.723.1, G.729AB**
- **Silence suppression with comfort noise**
- **G.168 automatic echo cancellation**
- **Call Progress Analysis (CPA), including Positive Voice Detection, Positive Answering Machine Detection (PAMD), DTMF detection, and fax tone detection**

## Quality of Service
- **Type of Service (ToS)**
- **IP precedence**

## Configuration and Management
- **SNMP v1** Read-only for alarm reporting
- **Web GUI** With context-sensitive Help facility
- **Telnet**
- **BOOTP client and TFTP client** Built-in

## Call Routing
- **User configuration list of VoIP endpoints**
- **IP load balancing**
- **IP fault tolerance**
- **Supports configuration of a backup SIP proxy server**

## IP Security
- **TLS** for SIP messages
- **SRTP** for media stream
- **HTTPS** for web interface

## Power Requirements
- **Line voltage**: 90 VAC to 264 VAC
- **Frequency**: 47 Hz to 63 Hz
Technical Specifications (cont.)

Physical Dimensions
Length 10 in. (25.4 cm)
Width 9.5 in. (24.1 cm)
Height 2.1 in. (5.3 cm)
Weight Approximately 2.5 lbs. (1.13 kg)

Environmental Requirements
Operating temperature 32°F to 122°F (0°C to 40°C)
Non-operating temperature –4°F to 158°F (–20°C to 70°C)

Approvals
Safety
Canada CAN/CSA 60950, third edition
European Union EN 60950
United States ANSI/UL 60950, third edition

EMC
European Union EN 55022-1998 Class B
Canada IC ES-003 Class B
United States FCC Part 15 Class B

Telecommunications
European Union EN 55024:1998
Canada IC CS03, Issue 7
United States FCC Part 68

Country-specific Approvals
Global product approvals database at http://www.dialogic.com/declarations

Hazardous Substances
RoHS compliance information at http://www.dialogic.com/rohs

Reliability/Warranty
Estimated MTBF Five years
Warranty Warranty information at http://www.dialogic.com/warranties

Ordering Information

<table>
<thead>
<tr>
<th>Dialogic® Product</th>
<th>Order Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMG1004LSW</td>
<td>310-877</td>
<td>Analog FXO, 4 ports</td>
</tr>
<tr>
<td>DMG1008LSW</td>
<td>884-214</td>
<td>Analog FXO, 8 ports</td>
</tr>
<tr>
<td>DMG1008DNIW</td>
<td>884-211</td>
<td>Digital PBX Emulation, 8 ports (Avaya, Nortel, NEC, Siemens)</td>
</tr>
<tr>
<td>DMG1008MTLDNIW</td>
<td>884-212</td>
<td>Digital PBX Emulation, 8 ports (Mitel)</td>
</tr>
<tr>
<td>DMG1008RLMDNIW</td>
<td>884-213</td>
<td>Digital PBX Emulation, 8 ports (Rolm)</td>
</tr>
</tbody>
</table>