MACKENZIE.

MACKENZIE LABORATORIES, INC.
1163 Nicole Court
Glendora, CA 91740 USA

DVNET-3000

**Internet Downloadable
Message On Hold System**

OTHER MACKENZIE PRODUCT LINES

Digital Message Repeaters - Mackenzie's line of Digital Message repeaters are the ideal audio announcement solutions for Public Address, Amusement, Entertainment, Museum and Exhibit applications. Self-contained solid state systems offer unparalleled reliability. A variety of channel, connection, bandwidth and memory configurations are available.

Controls and Peripherals - Many applications require additional equipment to optimize the performance of Mackenzie products. This area focuses on items developed or sourced for their compatibility, ease of use and value. Included are: input/output controllers, speakers, amplifiers, motion sensors and pushbuttons among others.

Transit - Mackenzie is making a difference in transit applications with innovative solutions for ADA compliance and Passenger Information Systems. These products address a variety of audio and text messaging requirements and support both in-vehicle and wayside installations.

Overhead Page Management - Mackenzie's OPM series of Digital Page Stacker/Repeater and Feedback Eliminators offer advanced features for the most difficult paging and intercom applications. A unique design makes feedback virtually impossible by recording then repeating pages which opens the loop between the input microphone and speakers. Various models are available to support simple repetition, multiple page stacking and multiple input channels.

User's Manual
Version 1.1 Revised 19, January 2016
Doc 99-20-193

COPYRIGHT POLICY

Recording, downloading or playing of copyrighted material such as sound effects, narration or music is unlawful unless permitted by a legal exception or consented to by the rights owner. Recording and download equipment should only be used with material that you have the legal right to copy and you are responsible for obtaining these rights. Mackenzie Laboratories, Inc. has no right to grant such permission.

General Safety Instructions

Always follow these basic safety precautions when using the system:

1. Read carefully and understand all instructions.
2. Follow all warnings and instructions marked on the product.
3. DO NOT block or cover ventilation slots and openings.
4. DO NOT place the product in a closed enclosure or cabinet unless proper ventilation is provided.
5. Never spill liquid on the product or drop objects into the ventilation slots and openings. Doing so may result in serious damage to the components.
6. Repair or service must be performed by a factory authorized repair facility.
7. DO NOT staple or otherwise attach the power supply cord to building surface.
8. DO NOT use the product near or in wet or damp places, such as wet basements.
9. DO NOT use extension cord. Install within 6 feet of a grounded outlet receptacle.
10. DO NOT install during lightning storm.
11. Never touch un-insulated wires or terminals unless the unit is disconnected from both power and the rest of the phone system.
12. Use Caution when installing or modifying configuration switches or control lines.
13. Install in a protected location where no one can step on, or trip over, power and line cords.
14. The unit must be securely attached to a wall board, rack or table mounted.
15. Use correct power source. Use only the power pack supplied.

⚠ **CAUTION:** If any wiring from the system leaves the premises, you must use proper electrical protectors.

Regulations - FCC (Part 15) Radio Frequency Interference

The DVNET-3000 generates and uses radio frequency energy and if not installed and used in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. Unit complies with the limits for Class A devices in accordance with the specifications in Subpart J of Part 15 of the FCC Rules. This testing is designed to provide reasonable protection against such interference. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the unit off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient the radio or TV receiving antenna.
-Relocate the unit with respect to the radio or TV receiver or vice-versa.
-Plug the unit into a different outlet so that it and the radio or TV receiver are on different branch circuits.
-If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

Licensing

The DVNET is designed to play WAV and MP3 files. Do not attempt to use other audio formats as they will not operate properly in the device.

MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Thomson.

Warranty & Registration Card for the
DVNET-3000 – Message-On-Hold System

Date:_____   Serial No.: _____

Purchaser: _____

Address: _____

City: _____   State: _____   Zip: _____

Phone: _____   Fax: _____   Email: _____

Seller: _____

Address:_____

City: _____   State: _____   Zip: _____

Phone: _____   Fax: _____   Email: _____

Return warranty card via:

FAX: (909) 394-9411
MAIL: Address on reverse side
ONLINE: www.macklabs.com/registration.html

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Table of Contents

Shipping Container Contents

The following items should be found in the container of the DVNET-3000 Message On Hold system.

- DVNET-3000 System w/ 1GB of internal memory or greater
- Power pack
- 6' RJ45 to RJ45 cable
- Audio cable
- Mounting hardware
- User's manual

Models:

Model #	Capacity	Bandwidth
DVNET-3000	1GB or greater	15kHz

Optional Components:

Model #	Description
MUSB-1GB	1GB USB Memory Key

1. OVERVIEW

The DVNET-3000 is a versatile Message-On-Hold System. The DVNET-3000 combines high quality audio playback for use in even the most demanding applications.

1.1   Features and Benefits:

The DVNET-3000 is a highly reliable audio playback system specifically designed for Message-On-Hold applications. The system provides music and marketing messages while clients are waiting on-hold or in your retail location. This heightens awareness and minimizes frustration, thus increasing sales.

The DVNET-3000 supports a single, or multiple audio messages which are played sequentially through the audio outputs. Messages are loaded into the system by CMAC/CQueue over an internet connection. The unit supports MP3 encoded audio files compiled by the provider. The files on these memory media are not susceptible to loss during power outage.

Multiple audio outputs (600ohm, 8ohm) with level control, tone adjustment, and high quality sampling allow the sound of the DVNET-3000 to be optimized for almost any phone or PA system, insuring that your message gets heard.

1.2   General Specifications:

Power:
    12VDC @ 1 Amp
Audio Fidelity
    15kHz, dependant on MP3 bit-rate
    80dB Signal to Noise ratio
Audio Outputs:
    Line: RCA, mono, +3db into 600 ohm
    Speaker: RCA, mono, 2.5W into 8ohm
Manual Controls:
    Tone control, Output volume,
    Speaker enable, Connect
LED Indicators:
    Memory OK, Copying, Playing
Package:
    6.4" H x 4.6" W x 1.1" D
    3 position wall mount
    Painted steel chassis

2. INSTALLATION:

This section provides complete instructions for mounting the DVNET-3000. Before you install the DVNET-3000 system, make sure you have:

-A message or music on hold input on your phone system or line level input to your
  public address system.
-A non-switchable 120VAC electrical outlet near the location where the unit is to be
  installed.

7. WARRANTY, SERVICE & RETURNS

The industrial grade housing and quality construction of the Mackenzie DVNET-3000 virtually eliminates the need for service or maintenance. There are no user-serviceable components within the Mackenzie DVNET-3000. Refer all servicing to the factory.

7.1 Warranty Coverage:

The Mackenzie DVNET-3000 is tested and checked before shipment and are guaranteed against defective material or workmanship for a period of three (3) year from the date of purchase. Should trouble ever develop, contact the Factory directly by telephone or in writing. If it is determined that the equipment requires Factory service, return it to the Factory. If our inspection shows that the trouble was caused by defective material or workmanship, we will repair or replace the equipment without charge and return prepaid. Repairs made necessary by abuse, improper use, unauthorized service or maintenance, and/or improper installation, as well as out of warranty repairs, will be charged at our regular repair prices in effect at the time. The obligation under this warranty shall be limited to the replacement, repair or refund of any such defective device within the warranty period.

This warranty is in lieu of and excludes all other warranties, expressed or implied, and in no event shall MACKENZIE be responsible for damage to other equipment or property, for any anticipated profits, consequential damages, loss of item, or other operation or use of this product, and MACKENZIE'S maximum liability shall not ever be greater than the price paid for the equipment. This warranty gives you specific legal right. Your rights may vary from state to state. Inquiries regarding use, repair and service should be made to:

MACKENZIE LABORATORIES, INC.
1163 Nicole Court, Glendora, CA 91740 USA
Telephone: (909) 394-9007
FAX No: (909) 394-9411
Email: info@macklabs.com
Web: www.macklabs.com

7.2 What we ask you to do:

To get warranty service for your DVNET-3000 system, you must provide proof of the date of original purchase. In the event you need to ship your DVNET-3000 system to the factory for service, call us for a return authorization number. When you ship your DVNET-3000 system, you must prepay all shipping cost. We suggest that you retain your original packing material in the event that you need to ship your DVNET-3000 system. When sending your DVNET-3000 system to the factory, include your name, address, phone number, proof of date of purchase, and a description of the operating problem. After repairing or replacing your DVNET-3000 system, we will ship it to your return address at no cost to you within the USA. Repair or replacement of your DVNET-3000 system at our factory is your exclusive remedy.

7.3 What this warranty does not cover:

This warranty does not cover defects resulting from accidents, damage while in transit to factory, alterations, unauthorized repairs, failure to follow instructions, misuse, fire, flood, and acts of God.

2.1 Wall or Table Installation:

1. Locate a proper space on the telephone equipment board or wall. You can mount the DVNET-3000 unit in one of three positions: flat, side, or horizontal.
2. Position the unit on the board; mark the mounting hole locations.
3. Using the mounting screws provided, secure the DVNET-3000 system to the board or wall.
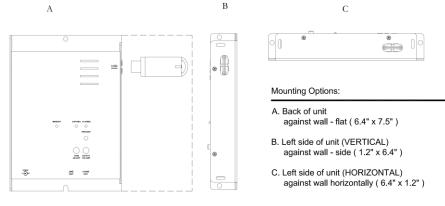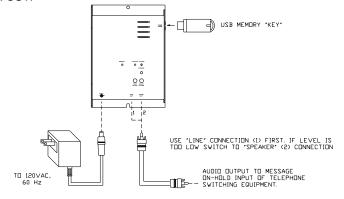4. If table top mounting the DVNET-3000, stick the enclosed rubber feet on the bottom of the unit.

Mounting Options:

A. Back of unit
   against wall - flat (6.4" x 7.5")

B. Left side of unit (VERTICAL)
   against wall - side (1.2" x 6.4")

C. Left side of unit (HORIZONTAL)
   against wall horizontally (6.4" x 1.2")

Figure 1 - Mounting

2.2 Connecting the power pack

1. Plug the power pack into a 120VAC power outlet which is not connected to a switch.
2. Plug the power plug into the DVNET-3000 system's power jack marked 12VDC.
3. There is no power switch on the DVNET-3000 system, so as soon as power is connected, the system will be active.

2.3 Connection to the Telephone equipment

Connect one side of the supplied RCA – RCA cable to the telephone system's line level input. Connect the other side of this cable to the DVNET-3000's LINE OUT. There are two Audio outputs on the DVNET-3000, LINE OUT, and SPKR OUT. Use the LINE OUT first adjusting the audio output volume potentiometer to obtain the correct audio level. If this does not provide enough audio level, then switch to the SPKR OUT.

USB MEMORY "KEY"

USE "LINE" CONNECTION (1) FIRST. IF LEVEL IS TOO LOW SWITCH TO "SPEAKER" (2) CONNECTION

AUDIO OUTPUT TO MESSAGE ON-HOLD INPUT OF TELEPHONE SWITCHING EQUIPMENT.

TO 120VAC, 60 Hz

2.3 Connection to the Local Area Network

The DVNET needs access to an internet connection for the downloading of new messages. Using the supplied RJ45 to RJ45 cable, connect the Ethernet port on the DVNET into a hub or switch on the premises LAN that will allow the DVNET to communicate to the Internet. Once connected, the RED Transfer LED will blink until a connection is made with the Server, and then the Green Connect LED will light solid.

Verify that the Yellow Status LED is OFF. If the Yellow Status LED is lighted, press the Configure button to turn it off.

2.3 Configuring the DVNET for the Local Area Network

The DVNET ships by default with DHCP enabled. If the users network has a DHCP server, the unit can be simply connected to the LAN and the unit will automatically connect with the providers server system.

If the customer's network is not configured for DHCP, or has advanced settings, such as a Proxy Server, or special gateway addresses, then the unit will need to be configured using the Mackenzie NSU software. This software allows a technician to configure the required advanced settings and create a configuration file that can be downloaded into the device through the USB port via a USB memory key.

3. OPERATION:

3.1 Message loading – Remote – Via Ethernet / Internet:

When you receive the new DVNET-3000 Message on Hold system there will be a sample message programmed into the memory of the system. To load new material, connect the system to an Ethernet connection which has access to the Internet. The DVNET-3000 will then connect to the Provider's server system. Once the two are connected, the Provider can download new material into the DVNET-3000 unit.

When new messages are downloaded to the unit, they will automatically start playing. The first message to play will be message #1, and will continue through the last message on the memory, then loop back to play message #1 again. Whenever a message is playing, the green "**PLAYING**" LED will light.

3.2 Automatic message playback

After power up, the DVNET-3000 will automatically begin playing the audio files from the installed memory through the audio outputs. There is no control, or user input, required to initiate the playback. The green, "**PLAYING**" LED will light whenever the system is playing messages.

The system plays any valid audio messages from the internal memory.

3.3 Pushbutton descriptions

Speaker pushbutton – Black, momentary
Allows the user to turn ON or turn OFF the internal monitor speaker.

The DVNET-3000 speaker defaults in the OFF state. Pressing this button will toggle the state of the speaker.

The volume of the monitor speaker is fixed at the factory. There is no adjustment for the level of playback through the monitor speaker.

Too much bass in the audio over the message on hold.
- Turn the tone adjust clockwise to decrease the bass and increase treble.
- Ask provider to equalize the downloaded messages to reduce the bass

Too much treble in the audio over the message on hold.
- Turn the tone adjust counter-clockwise to decrease the treble and increase bass.
- Ask provider to equalize the downloaded messages to reduce the treble

System not downloading new messages.
- Verify that the network cable is connected into the ETHERNET port on the DVNET-3000.
- Verify that the CONNECT LED is lighted green
- Verify that that the STATUS LED is OFF
- If the CONNECT LED is lighted, and the STATUS LED is off, contact the provider and request a real time download.
- During the download, the TRANSFER LED will blink. If during the real time download, the TRANSFER LED is not flashing, have the provider verify the Serial Number on the unit matches the serial number in their records.

CONNECT LED never lights.
- Verify that the network cable is connected into the ETHERNET port on the DVNET-3000.
- Verify that the DVNET is connected to a port on the LAN that has internet access.
- Verify Internet access is active by running an internet browser on a computer connected to the same LAN as the DVNET is connected.
- If network settings have changed, contact the provider and inform them of these changes. A new configuration file may need to be loaded onto the unit.

3.6 Connections

12VDC, 2.5mm Barrel connector

The system is powered by a 12VDC @ 1 Amp power adapter. Use only the AC-DC power adapter supplied by the manufacturer to guarantee proper operation.

ETHERNET, RJ45 jack

This is a standard interface used to connect the DVNET to the LAN with an internet connection. Using the RJ45 to RJ45 cable provided, attach the DVNET to an open port on the LANs hub or switch,

LINE OUT, RCA connector

A 600 ohm, audio output. When installing the DVNET-3000 system, connect this output to the phone system, or PA system, first.

SPKR OUT, RCA connector

An amplified, 2.5 watt into 8 ohm, audio output. Use this Audio output if the Audio from the Line output can't drive the on-hold circuit, or PA amplifier, to a high enough level.

4. POWER FAILURE RECOVERY

The memory medium used by the DVNET-3000 is not dependent upon power or battery backup to retain its memory. This eliminates problems associated with brown outs or unexpected power losses. When power is returned, the system will immediately start the operation it was in prior to power being removed.

5. TROUBLESHOOTING GUIDE

Before contacting the factory, please review the following answers to some common problems.

No LEDs are active on the DVNET-3000.
- Verify that the AC-DC power adapter is plugged into <u>non-switched</u> AC power outlet.
- Verify that the power connector is plugged completely into the jack on the DVNET-3000.

The PLAYING LED doesn't light after a memory is inserted.
- Verify with the provider that there are messages downloaded onto the machine.

Can't hear anything from the audio output
- If the PLAYING LED is off, there is no audio being output by the system.
- Verify that the RCA to RCA connector is securely attached to the DVNET-3000 and the phone system.
- Turn the output level adjustment clockwise to increase the Audio output level.
- Use the 8 ohm output instead of the line level output.

Can't hear anything through the monitor speaker
- If the Audio LED is off, there are no recorded messages on the system.
- Press the Speaker button to toggle the speaker enable setting.
- Verify with the provider that the audio level of the message is adequate.

Configure pushbutton – Black, momentary

This button allows the user to manually select connecting to the primary or secondary server. This button is not normally used and should only be used for troubleshooting purposes.

3.4 LED (Light Emitting Diodes) descriptions

"MEMORY" LED, Green

Upon power up, this LED will light solid if the memory has at least one valid audio message on it.

If the internal memory has no audio messages on it, this LED will blink quickly 2 times every half second.

"TRANSFER" LED, Red

This LED will light whenever the DVNET is communicating to the Internet. When the provider is downloading files to the unit this LED will stay lighted for extended periods.

By default, this LED the unit will connect to the Primary server, so this LED will be OFF.

When the DVNET is first powered up, the TRANSFER LED will blink until the DVNET successfully connects to the Provider, at which time it will extinguish.

"STATUS" LED, Yellow

This LED's main purpose is for troubleshooting purposes. It is normally off, but will light anytime the unit cannot connect to the primary provider server, and has connected to the secondary server.

"CONNECTED" LED, Green

When the DVNET connects to the provider servers, whether primary or secondary, this LED will be lighted. Typically, when this LED is OFF, the Transfer LED will blink as the system attempts to connect to the providers server system.

3.5 Audio Adjustments

Output Level

This controls the level of both audio outputs on the DVNET-3000. When turned clockwise, the system will increase the audio output level. When turned counter-clockwise the system will decrease the audio output level.

Tone Adjustment

Adjust the tone of the output audio. When turned clockwise, the system will lower the bass, while adding treble to the audio output. When turned counter-clockwise the system will lower the treble, and add bass to the audio output. When in the center position, no Treble, or Bass is added to the system.

Model DVNET-3000
MESSAGE-ON-HOLD SYSTEM

1 MEMORY OK LED (GREEN):
LED is ON if internal memory contains valid audio messages.
Blinks if no files are detected.

2 CONFIGURE PUSHBUTTON:
Used to instruct the unit to change from primary to secondary server and vice versa.

3 TONE ADJUST KNOB:
Adjusts the Bass & Treble amount to deliver the best overall system performance.

4 POWER JACK:
Insert supplied power adapter.

5 ETHERNET CONNECTOR
Attach to local area network with internet access.

6 LINE OUTPUT:
Audio output level of up to +3dB into 600 Ω, this is a standard level for most applications.

7 SPEAKER OUTPUT:
Audio output level of up to 2.5W into 8 Ohm. Use this output if more drive is needed to reach a more comfortable listening level.
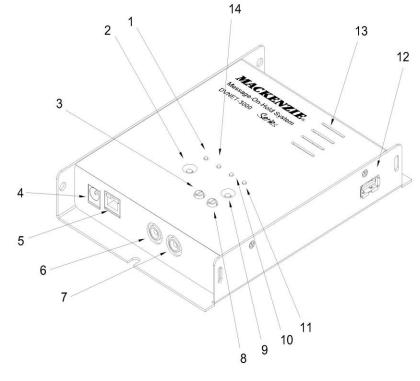
8 AUDIO OUTPUT LEVEL KNOB:
Adjusts the volume to the both line level and speaker audio outputs.

9 SPEAKER PUSHBUTTON:
Turns local Monitor speaker ON/OFF.

10 CONNECTED LED YELLOW:
Indicates that unit is connected to the server.

11 PLAYING LED (GREEN):
This green LED is ON when the system is playing Pre-Recorded messages.

12 USB CONNECTOR:
Allows installer to download networking configuration file to the unit

13 MONITOR SPEAKER:
Allows user to preview message play back.

14 STATUS LED:
Shows the user which server the unit is connected to.

THE MACKENZIE DYNAVOX
DVNET-3000 Quikey