

AL-501N

INSTALLATION AND OPERATION MANUAL

**Please leave this manual with the unit
after installation**

Important warranty information enclosed - see page 2.

Nel-Tech Labs, Inc.
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FCC Notice

WARNING: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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1. Introduction

The **AutoLoader 501N** (AL-501N) Digital Audio Announcement System is a multi-function announcer providing both Message On-Hold and Telephone Answering capability. The **AL-501N** can record and play two independent audio messages. The NIGHT Answer message can be either 30 or 60 seconds, while the Message On-Hold (MOH) message consumes the remaining time. For example, an 8 minute **AL-501N** can be configured for a 1 minute NIGHT Answer message and 7 minutes of MOH. User selectable options include; audio bandwidth (3.5 or 7.0 Khz), NIGHT Answer message size (30 or 60 seconds), Number of Rings (1, 2, 4 or 8) and password selection.

The **AL-501N** can independently load the MOH and NIGHT Answer messages from either the built-in tape deck or via the telephone. Tape download of the audio messages can be from the same or separate tape cassettes. Downloading from the same tape cassette requires preparing the tape cassette so that the first message on the tape is the MOH audio and the second message on the tape the NIGHT Answer audio. Using separate tape cassettes, the MOH tape is prepared in standard fashion, while the NIGHT tape requires additional silence time at the beginning of the tape.

Once loaded, the **AL-501N** normally plays the MOH message. With NIGHT Answer enabled, the **AL-501N** watches the telephone line for ring signal. When ring is detected, the unit counts the appropriate number of rings then answers the telephone, halts MOH message play, plays the NIGHT Answer message to the caller and then hangs up, restoring MOH message play.

Access to the **AL-501N**'s remote programming features requires the entry of a 4-digit password from a standard DTMF (TouchTone) telephone. One password provides access to the MOH message, while another password provides access to the NIGHT Answer message. Use of separate passwords helps prevent accidentally loading the NIGHT message in the MOH memory, and vice versa. Additionally, separate passwords provide better account control. The NIGHT Answer password can be provided to the client, while the production company can maintain control of the MOH password and MOH message.

The **AL-501N** is available with 4, 8, or 16 minutes total memory capacity at 3.5kHz bandwidth (which will yield 2, 4, or 8 minutes total memory capacity at 7.0kHz bandwidth). The **AL-501N** combines advanced digital storage, audio processing and microprocessor technology to get truly natural sound reproduction and user friendly features.

2. AutoLoader 501N Physical Description

Front Panel Controls and Indicators

AUTOLOADER - The integrated high quality tape transport is behind the door. Insert the tape cassette by sliding the door open, placing the tape cassette into the transport top edge first, then closing the door. Remove the tape cassette by opening the door and lifting the lower right side of the tape cassette.

MONITOR SPEAKER - A built-in monitor speaker allows for previewing the tape while downloading or listening to the MOH message while it is playing.

LOAD LAMP / PLAY LAMP - These lamps show the status of the **AL-501N** as indicated by the following table;

LOAD LAMP	PLAY LAMP	STATUS
Slow Flash	Off	Unit empty - No program, no messages
Fast Flash	Off	Load search - Search tape for audio
On	Off	Load Active - Message download in progress
Off	On	Play Active - Actively playing message
(Note 1)	(Note 1)	Tape load error
(Note 2)	(Note 2)	Diagnostic error

Note 1: Alternating Flash - Error in tape loading or external power failure during tape loading.

Note 2: Both Flashing Together - Memory error.

POWER Lamp - Shows that the unit is "on" and operational.

NIGHT Answer Lamp - Shows whether the NIGHT Answer mode is enabled. With NIGHT Answer enabled, the **NIGHT Answer Lamp** indicates the status of the NIGHT Answer Message. **ON** means that the NIGHT Answer Message is present, **Flashing** indicates that the NIGHT Answer Message is not present, Off indicates the NIGHT Answer feature is disabled.

SPEAKER Switch - This control enables the internal speaker for previewing the message on the tape or listening to the audio message when playing.

NIGHT ANSWER Switch - This control enables the NIGHT Answer feature.

*NOTE: The **NIGHT ANSWER Switch** and the **EXTERNAL TRIGGER** jack are wired together. If either the **NIGHT ANSWER Switch** is ON or the **EXTERNAL TRIGGER** is shorted, NIGHT ANSWER mode is enabled. For remote enable/disable, be certain that the **NIGHT ANSWER Switch** is OFF, for local enable/disable, be certain that the **EXTERNAL TRIGGER** cable is OPEN.*

Rear Panel Controls

POWER Switch - This switch enables external power to the system.

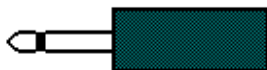
*Note: The **AL-501N** battery backup system is optional. Without the Battery Backup Option, loss of external system power results in the loss of the stored messages.*

12 VDC - To connect the external DC power pack.

TELEPHONE - Connects to the telephone line which the unit answers and plays the NIGHT Answer message. The **TELEPHONE** connector is designed to interface to a standard RJ-11 type modular telephone connector. The telephone line must be a standard loop line which works properly when a standard analog telephone set is connected.

EXTERNAL TRIGGER - The **External Trigger** jack (3.5mm mono Tape Jack) is used to enable and disable NIGHT Answering from a remote location by shorting the wires to enable NIGHT Answer mode. (See **NIGHT ANSWER Switch**).

Tape Plug (3.5mm)



OUTPUT VOLUME - This control adjusts the audio level of the MOH message.

LEVEL HI/LO - This switch selects the audio output impedance. Most applications require the switch to be set in the "LO" position. In the "LO" position the unit can directly drive an 8 ohm speaker. The "HI" setting is for those cases where a line level output drive is needed.

AUDIO OUT - This connector (RCA Phono Jack) provides MOH audio to the Sound System or Telephone Music On-Hold input.

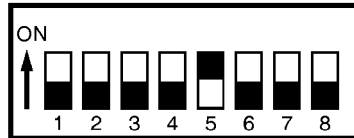


RCA PHONO JACK

OPTION SELECT SWITCHES - The **Option Select** switches provides the user the capability to configure the **AL-501N** to meet their individual needs. These switches are used to select message bandwidth, NIGHT Message size, Passwords and Number of Rings.

Note: Switch settings are read only at the moment power is turned on. Therefore, any changes made to the switch settings while power is on do not take effect until the power is recycled.

OPTION SELECT SWITCHES



Switch	Option	On	Off
1	NIGHT Message Size	60 seconds	30 seconds
2	Message Bandwidth	7000 Hz	3500 Hz
3	NOT USED		
4			
5	Password Select	See table next page	See table next page
6			
7	Ring Select	See table next page	See table next page
8			

Switch 1 - NIGHT Message Size. Sets the length of the NIGHT Answer message.

Switch 2 - Message Bandwidth. Sets the message bandwidth to either 3500Hz or 7000Hz. Message Bandwidth determines the quality of the audio message.

IMPORTANT: The 7000Hz setting will provide better audio quality than the 3500Hz setting, but will also reduce the available message time by one-half.

The size of the MOH Message is determined by three factors: memory capacity, Message Bandwidth, and NIGHT Message Size.

1. Determine the unit's memory capacity (in minutes). This number (4, 8, or 16) is either printed, hand-written, or stamped on the serial number label on the bottom of the unit.
2. Adjust this memory capacity for the Message Bandwidth selected. If you selected 3500Hz, no adjustment is necessary. If you selected 7000Hz, the available memory capacity is reduced by one-half. For example, a 16-minute machine set to 7000Hz Message Bandwidth will yield 8 minutes of memory capacity.
3. Subtract the NIGHT Message size (30 seconds or 60 seconds).

MOH Message Size (center columns)

NIGHT Message Size	Memory Capacity			Message Bandwidth
	4 Min.	8 Min.	16 Min.	
30 sec.	3:30	7:30	15:30	3000Hz
60 sec.	3:00	7:00	15:00	
30 sec.	1:30	3:30	7:30	7000Hz
60 sec.	1:00	3:00	7:00	

Switches 5 & 6 - Password Select. Sets the MOH Password and NIGHT Password to one of four available pre-set groups:

Password Select

SW5	SW6	MOH Password	NIGHT Password
Off	Off	2468	1234
On	Off	6453	5384
Off	On	4655	7262
On	On	2463	5673

Switches 7 & 8 - Number of Rings. Sets the ring to answer on (1, 2, 4, or 8):

Number of Rings

SW7	SW8	Number of Rings
Off	Off	1
Off	On	2
On	Off	4
On	On	8

3. Installation

Locate the **AL-501N** within close proximity to your telephone system control unit and within 6 feet of a 110 VAC outlet. The **AL-501N** is designed for either desktop or wall mount. When locating, be sure to leave clearance room for connection and adjustments.

Connect the DC power pack supplied with the system to the **12 VDC** power connection on the side of the unit and plug the power pack into a 110 VAC outlet.

Set the **LEVEL** switch, located on the back of the unit, to the proper position for the sound or telephone system (**LO** = 8 Ohm or **HI** = 1K Ohm). Connect a cable from the **AUDIO OUTPUT** jack on the rear of the unit to the sound or telephone system input.

The **AL-501N** must be connected to a standard loop start telephone line coming directly from the telephone company. Installation on a KSU or PBX extension will fail or cause undesired results. Select the incoming line to be answered by the **AL-501N** and split the line at a point near the installation. Connect one side of the split to the line's original destination. Connect the other side of the split to the TELCO connection on the rear panel of the **AL-501N**.

To test the installation, attach a standard analog telephone to the line you connected to the **AL-501N**. If installation was successful, you will be able to place outgoing calls and receive incoming calls using that phone. After verifying installation, reconnect the line to the **AL-501N**.

For remote activation of the NIGHT Answer mode, connect a cable with a 3.5 mm tape-type jack into the **EXTERNAL TRIGGER** connector. The other end of the cable may connect to a switch, relay, timer or other device which will provide a dry contact closure. The length of the cable between the **AL-501N** and the closure must be 10 feet or less.

4. Tape Message Loading Operation

Loading the **AL-501N** is as simple as inserting a "Normal Bias" tape cassette into the tape transport and closing the door. The **AL-501N** detects the presence of the tape and automatically begins the load process. Since the **AL-501N** contains two distinct messages, it must determine which message is contained on the tape cassette. Tape cassettes are prepared in one of three methods; MOH Only, NIGHT Only and MOH/NIGHT. Determination of which message(s) are present on the tape cassette requires that the **AL-501N** first scans the tape for audio information prior to performing the actual message download.

While waiting for the load to begin, the **Load lamp** flashes slowly. Insert the tape into the transport, top edge first. After scanning the tape, the tape rewinds, and begins the recording of the audio information from the tape. Once audio information is detected, the **Load lamp** turns on, indicating that the message is loading. The **AL-501N** monitors the audio information on the tape for a 6 second period of silence. This 6 seconds of silence indicates the end of the audio message, recording is stopped and the last 6 seconds of silence is removed. If the tape is a MOH/NIGHT tape, downloading continues for the NIGHT message. At the end of message loading, the tape rewinds and MOH message play begins.

Once loaded and playing, the tape is not required unless a power failure occurs. Removal of the tape cassette does not affect playing of the recorded message. Insertion of a cassette, however, causes the **AL-501N** to stop messages playing and initiate message loading.

5. Telephone Message Loading Operation

5.1 MOH and NIGHT Message Access

The **AL-501N** must be in the **NIGHT ANSWER** mode, with the **NIGHT ANSWER Lamp** On or Flashing to enable answering of incoming telephone calls. Under NIGHT Answer operation, the incoming calls are answered after a predetermined number of rings. Upon answering, the **AL-501N** immediately stops playing the MOH message and begins playing the NIGHT Answer message, if present. At the end of the NIGHT Answer message the unit hangs-up and begins to play the MOH message again. To gain access to the remote recording and playing functions, the user must during the first 20 seconds of the NIGHT Answer message enter a "*" key on their DTMF telephone. Pressing the "*" key causes the **AL-501N** to immediately stop playing the NIGHT Answer message and respond to the caller with a beep tone. Upon hearing the beep tone, the user must enter a 4 digit password.

Note: If no NIGHT Answer message is present the caller will hear a beep. The caller has 20 seconds to enter the "" followed by the password to access system programming before the unit will disconnect.*

Access to the MOH message is via one password, while access to the NIGHT Answer message is via another password. After entering the appropriate password, the caller is at the USER MENU. The USER MENU interacts with the caller via a series of beeps. The caller presses keys on their DTMF telephone to instruct the **AL-501N** to perform different functions. The structure of the USER MENU is shown in Figure 1.

Note: Entering any invalid codes will result in immediate disconnection.

5.2 Playing a Message

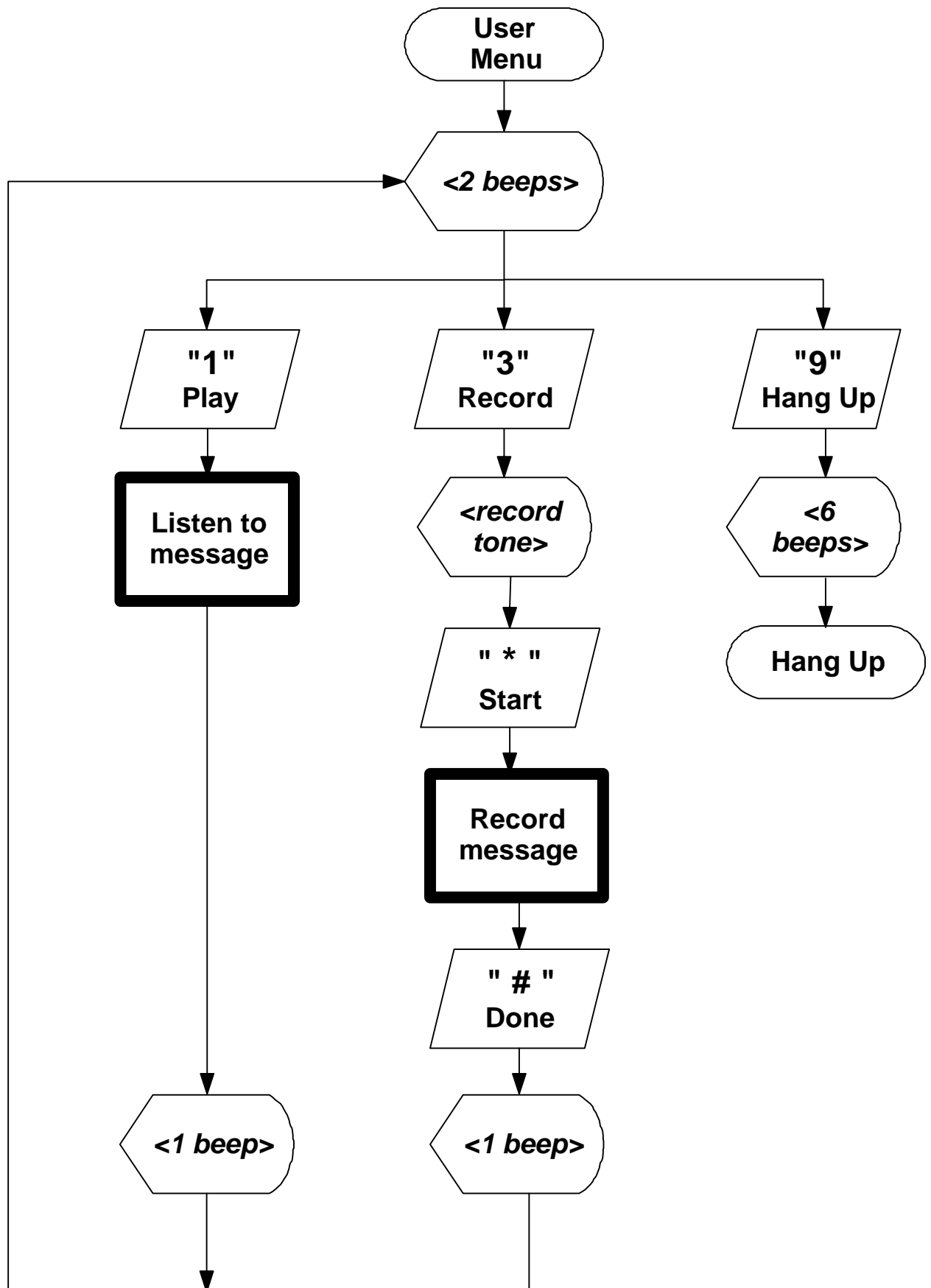
The user may play the recorded message over the telephone by pressing "1" at the main menu. The **AL-501N** immediately begins playing the recorded message and lights the **Play Lamp**. The user may pause, stop or resume playing the message by using the "*" and "#" keys on the telephone. Once the message is playing, pressing "#" causes the message to pause. Once paused, the unit beeps once at the user informing him that the unit is in pause mode. Pressing "*" results in the unit resuming the play of the message from the point at which it was paused. Pressing "#" again once the unit has paused results in canceling the message play and returning the user to the main menu as signified by one beep followed by two more beeps. If unit is paused for more than twenty seconds it will return to main menu.

5.3 Recording a Message

From the main menu, the user may record a message using the telephone. The record mode is entered by pressing "3". Upon entering the record mode the **AL-501N** presents the user with a record tone. The record tone is a brief beep once per second. To break the record tone and begin actual recording the user must press the "*" key. The unit immediately begins to record all audio information received from the telephone line and lights the **Load Lamp**. To terminate the recording, the user must press the "#" key. Upon pressing the "#" key the unit returns to the main menu as signified by one beep followed by two more beeps.

5.4 Hang-up

The user terminates the session by pressing "9". Upon receiving the "9" the **AL-501N** presents the user with six beeps and disconnects.



6. MOH Message Play Operation

The **AL-501N** plays the MOH audio message continuously. With NIGHT Answer enabled, the **AL-501N** answers the call after the selected number of rings, stops the MOH message and plays the NIGHT Message to the caller. Upon hangup, the MOH message begins to play again on a continuous basis.

7. Tape Preparation

Use only "Normal Bias" (Type I) tape cassettes not exceeding 90 minutes. The **AL-501N** is designed for best performance with this type tape and may detect and refuse to play other types. Do not use DOLBY or any other type of noise reduction systems.

Record your productions in **2 channel mono** with the audio level averaging -6 db while peaking at no hotter than -3 db. Recordings made in this format will optimize the digitizing process and provide consistent output levels on all Nel-Tech Labs equipment.

7.1 MOH Only Tape Preparation

MOH only tape contains a single audio message which will be loaded as the MOH message into the **AL-501N**. A MOH only tape is indicated by less than 20 seconds of silence from the beginning of the tape to the audio information. There must be at least 30 seconds of silence following the MOH audio information on the tape.

/ - - silence < 20 sec - - / - - MOH Message - - / - - silence > 30 sec - - /

7.2 NIGHT Only Tape Preparation

NIGHT only tape contains a single audio message which will be loaded as the NIGHT message into the **AL-501N**. A NIGHT only tape is indicated by at least 30 seconds of silence from the beginning of the tape to the audio information. There must be at least 30 seconds of silence following the NIGHT audio information on the tape.

/ - - silence > 30 sec - - / - - NIGHT Message - - / - - silence > 30 sec - - /

7.3 MOH & NIGHT Tape Preparation

MOH & NIGHT tape contains both messages. The MOH message is placed on the tape first followed by the NIGHT message. The MOH message is placed on the tape within 20 seconds from the beginning of the tape. At the end of the MOH message, provide 10 seconds of silence before placing the NIGHT message on the tape. There must be at least 30 seconds of silence following the NIGHT audio information on the tape.

/ - - silence < 20 sec - - / - - MOH Message - - / - - silence 10 sec - - / - - NIGHT Message - - / - - silence > 30 sec - - /