

### Installation Instructions

#### Model DMC-1

#### Digital Message Card

### INTRODUCTION

The **SIEMENS** Model DMC-1 Digital Message card is a digital audio message unit for the MXLV System that provides digitized voice messages for EVAC and ALERT in place of tones. The DMC-1 has a library of factory recorded phrases which the user may configure to form messages using the CSG-M (AccuLINK). The user may also record custom phrases into the DMC-1 using a microphone or tape recorder.

**NOTE:** A phrase is the smallest voice unit which can be recorded or played. Multiple phrases can be linked together to create a message. One custom recorded phrase can be used as an entire message.

Up to two primary DMC-1 cards may be used in an MXLV system. Up to three additional DMC-1 mirror modules (DMC-1MRs) may be installed (one DMC-1 mirror module per one ACM-1 mirror module). DMC-1 and DMC-1MR cards are installed in the same way.

The DMC-1 continually supervises itself. In case of a problem, the module sends a trouble message to the MMB-1/2 and a separate backup system tone generator operates in its place.

The DMC-1 occupies a local M-NET network address. Set the address on switch S1. When installing a DMC-1 card, use the CSG-M configuration printout to locate the address of the card. Follow the switch setting instructions in the **INSTALLATION** section below to set the desired address. Configure the system using AccuLINK by choosing ACM-1 tone options DMC1 and/or DMC2.

For additional information on the Voice System, refer to the *MXL/MXLV Operation, Installation, and Maintenance Manual*, P/N 315-092036.

### INSTALLATION

**Remove all system power before installation, first battery and then AC.** (To power up, connect the AC first and then the battery.)

1. Remove the card from its protective bag. Do not touch the gold edge of the board.

#### WARNING

The DMC-1 Digital Message Card has a 3V lithium battery installed for battery backup of static RAM memory (U5). This results in the DMC-1 Card being partially powered all the time. **The DMC-1 must be handled with caution when it is removed from the protective package. Do not place the DMC-1 on conductive surfaces (metal, aluminum foil, etc.).**

2. The DMC-1 has two configuration dipswitches, S1 and S2 (See Figure 1 for the location of S1 and S2). **Set the dipswitches before installing the DMC-1 into the OMM-1.**

#### NOTE:

*To open a dipswitch, press down on the side of the dipswitch marked OPEN.*

*To close a dipswitch, press down on the side of the dipswitch opposite the side marked OPEN.*

*To open a slide switch, push the slide to the side opposite the side marked ON.*

*To close a slide switch, push the slide to the side marked ON.*

**TABLE 1**  
**NETWORK ADDRESS PROGRAMMING**

ADDR	8 7 6 5 4 3 2 1	ADDR	8 7 6 5 4 3 2 1	ADDR	8 7 6 5 4 3 2 1	ADDR	8 7 6 5 4 3 2 1
000	ILLEGAL	064	OX000000	128	X0000000	192	XX000000
001	ILLEGAL	065	OX00000X	129	X000000X	193	XX00000X
002	ILLEGAL	066	OX00000X	130	X000000X	194	XX00000X
003	000000XX	067	OX00000X	131	X000000X	195	XX00000X
004	00000X00	068	OX00000X	132	X0000X00	196	XX000X00
005	00000X0X	069	OX000X0X	133	X0000X0X	197	XX000X0X
006	00000X0X	070	OX000X0X	134	X0000X0X	198	XX000X0X
007	00000XXX	071	OX000XXX	135	X0000XXX	199	XX000XXX
008	0000X000	072	OX00X000	136	X000X000	200	XX00X000
009	0000X00X	073	OX00X00X	137	X000X00X	201	XX00X00X
010	0000X0X0	074	OX00X0X0	138	X000X0X0	202	XX00X0X0
011	0000X0XX	075	OX00X0XX	139	X000X0XX	203	XX00X0XX
012	0000XX00	076	OX00XX00	140	X000XX00	204	XX00XX00
013	0000XX0X	077	OX00XX0X	141	X000XX0X	205	XX00XX0X
014	0000XX0X	078	OX00XX0X	142	X000XX0X	206	XX00XX0X
015	0000XXXX	079	OX00XXXX	143	X000XXXX	207	XX00XXXX
016	000X0000	080	OX0X0000	144	X00X0000	208	XX0X0000
017	000X000X	081	OX0X000X	145	X00X000X	209	XX0X000X
018	000X00X0	082	OX0X00X0	146	X00X00X0	210	XX0X00X0
019	000X00XX	083	OX0X00XX	147	X00X00XX	211	XX0X00XX
020	000X0X00	084	OX0X0X00	148	X00X0X00	212	XX0X0X00
021	000X0X0X	085	OX0X0X0X	149	X00X0X0X	213	XX0X0X0X
022	000X0X0X	086	OX0X0X0X	150	X00X0X0X	214	XX0X0X0X
023	000X0XXX	087	OX0X0XXX	151	X00X0XXX	215	XX0X0XXX
024	000XX000	088	OX0XX000	152	X00XX000	216	XX0XX000
025	000XX00X	089	OX0XX00X	153	X00XX00X	217	XX0XX00X
026	000XX0X0	090	OX0XX0X0	154	X00XX0X0	218	XX0XX0X0
027	000XX0XX	091	OX0XX0XX	155	X00XX0XX	219	XX0XX0XX
028	000XX0X0	092	OX0XX0X0	156	X00XX0X0	220	XX0XX0X0
029	000XX0XX	093	OX0XX0XX	157	X00XX0XX	221	XX0XX0XX
030	000XXXX0	094	OX0XXXX0	158	X00XXXX0	222	XX0XXXX0
031	000XXXXX	095	OX0XXXXX	159	X00XXXXX	223	XX0XXXXX
032	00X00000	096	OX000000	160	X0X00000	224	XX000000
033	00X0000X	097	OX00000X	161	X0X0000X	225	XX00000X
034	00X000X0	098	OX0000X0	162	X0X000X0	226	XX0000X0
035	00X000XX	099	OX0000XX	163	X0X000XX	227	XX0000XX
036	00X00X00	100	OX000X00	164	X0X00X00	228	XX000X00
037	00X00X0X	101	OX000X0X	165	X0X00X0X	229	XX000X0X
038	00X00X0X	102	OX000X0X	166	X0X00X0X	230	XX000X0X
039	00X00XXX	103	OX000XXX	167	X0X00XXX	231	XX000XXX
040	00X0X000	104	OX00X000	168	X0X0X000	232	XX00X000
041	00X0X00X	105	OX00X00X	169	X0X0X00X	233	XX00X00X
042	00X0X0X0	106	OX00X0X0	170	X0X0X0X0	234	XX00X0X0
043	00X0X0XX	107	OX00X0XX	171	X0X0X0XX	235	XX00X0XX
044	00X0XX00	108	OX00XX00	172	X0X0XX00	236	XX00XX00
045	00X0XX0X	109	OX00XX0X	173	X0X0XX0X	237	XX00XX0X
046	00X0XXX0	110	OX00XXX0	174	X0X0XXX0	238	XX00XXX0
047	00X0XXXX	111	OX00XXXX	175	X0X0XXXX	239	XX00XXXX
048	00XX0000	112	OX0X0000	176	X0XX0000	240	XX0X0000
049	00XX000X	113	OX0X000X	177	X0XX000X	241	XX0X000X
050	00XX00X0	114	OX0X00X0	178	X0XX00X0	242	XX0X00X0
051	00XX00XX	115	OX0X00XX	179	X0XX00XX	243	XX0X00XX
052	00XX0X00	116	OX0X0X00	180	X0XX0X00	244	XX0X0X00
052	00XX0X0X	117	OX0X0X0X	181	X0XX0X0X	245	XX0X0X0X
054	00XX0X0X	118	OX0X0X0X	182	X0XX0X0X	246	XX0X0X0X
055	00XX0XXX	119	OX0X0XXX	183	X0XX0XXX	247	XX0X0XXX
056	00XX0000	120	OX0X0000	184	X0XX0000	248	ILLEGAL
057	00XX000X	121	OX0X000X	185	X0XX000X	249	ILLEGAL
058	00XX0X0X	122	OX0X0X0X	186	X0XX0X0X	250	ILLEGAL
059	00XX0X0X	123	OX0X0X0X	187	X0XX0X0X	251	ILLEGAL
060	00XXXX00	124	OX0XXX00	188	X0XXXX00	252	ILLEGAL
061	00XXXX0X	125	OX0XXX0X	189	X0XXXX0X	253	ILLEGAL
062	00XXXXX0	126	OX0XXX0X	190	X0XXXXX0	254	ILLEGAL
063	00XXXXXX	127	OX0XXXXX	191	X0XXXXXX	255	ILLEGAL

O = OPEN (or OFF) X = CLOSED ( or ON)

The DMC-1 takes up one of the 244 possible network addresses. Use switch S1 to set the MXL network address. Set this switch according to the address where the DMC-1 is installed in the MXL's network map. Refer to the CSG-M configuration printout for the address of the module and Table 1 for the switch settings of the DMC-1 network address.

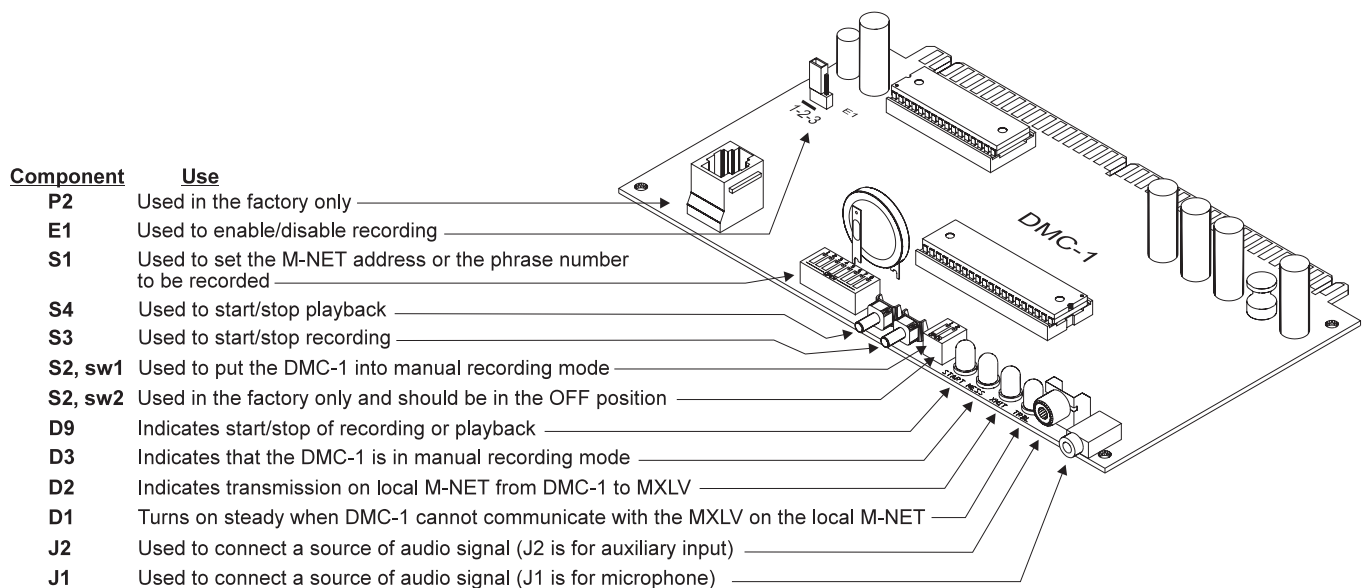
3. Set the switches of dipswitch S2 to the OFF position.
4. Place jumper E1 in position 1 - 2.
5. Do **NOT** install the card in its edge connector until ALL OMM-1/2 field wiring is completed and checked for shorts, opens, and other faults.
6. Find the card slot key provided in the installation kit with the DMC-1 board. Place the card slot key in the OMM-1/2 edge connector for the DMC-1 as shown in Figure 2. See

Figure 3 for the exact location of the key for this module. This prevents installation of any other card type in the DMC-1 slot. Two other keys already installed in the OMM-1/2 prevent reverse installation of the card in the OMM-1/2 edge connectors. (See Figure 3.)

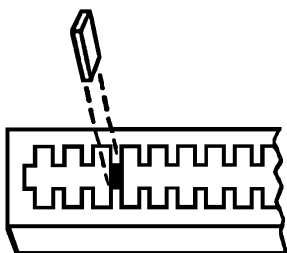
7. Place the card in its card edge connector correctly. The components on the board must face the 22-position terminal block where the wiring is terminated. Press the card firmly in place to be sure it is seated properly in the edge connector.

### CAUTION

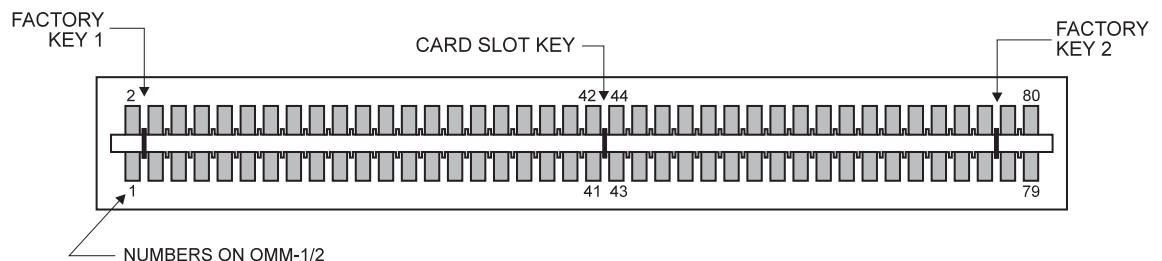
At all times handle all plug-in cards with extreme care. When inserting or removing a card, be sure the position of the card is kept at right angles to the OMM-1/2 board. Otherwise, the plug-in card can damage or displace other components.



**Figure 1**  
**DMC-1 Module Board**



**Figure 2**  
**Placing the Card Slot Key in the OMM-1/2**



**Figure 3**  
**Location of the User Key for the DMC-1**

## WIRING

When the DMC-1 Card is installed in an MXLV System, all required wiring is internal within the MXLV System enclosure.

Maximum wire size: 14 AWG

Minimum wire size: 18 AWG

When one or two DMC-1 Cards are installed in the MXLV System, use shielded twisted pair for the audio output connections.

Connect up to two DMC-1 cards according to the following chart. Refer also to Figures 4 and 5.

DMC-1 Card	Connect with the following:	Connect to the following:
1	2-conductor shielded, twisted pair cable	TBM-2, TB2, (DMC1) terminals 1 and 2
2	2-conductor shielded, twisted pair cable	TBM-2, TB2, (DMC2) terminals 3 and 4

**Do not wire power connections in the system installation** because the DMC-1 is powered from the MXL System internal +5V through the OMM-1/2 module.

## RECORDING OF CUSTOM PHRASES BY THE USER

***For manual recording while the DMC-1 Card is installed in the MXLV System and the system is powered up and running:***

- Before starting to record, verify that Switch S1 is set for the local M-NET network address (See Table 1). Also, refer to Figure 1 to familiarize yourself with the following components used for the manual recording of custom messages.

Component:	Use:
Jack J1	Connects a source of audio signal (microphone)
Jack J2	Connects a source of audio signal (auxiliary input)
Switch 1 of Dipswitch S2	Used to put the DMC-1 into manual recording mode

Component:	Use:
Switch 2 of Dipswitch S2	Used in the factory only and should be set to the OFF position
Switches 1-6 of Dipswitch S1	Used to set the phrase number to be recorded (62 phrases maximum) Refer to Table 2 to set the phrase number
LED D3 (MESS)	Indicates that the DMC-1 is in manual recording mode
LED D9 (START)	Indicates start/stop of recording or playback
Dipswitch S3	Used to start/stop recording
Dipswitch S4	Used to start/stop playback
Jumper E1	Used to enable/disable recording
Connector P2	Used in the factory only

### 2. **To start manual recording/playback:**

- Change switch 1 of dipswitch S2 to the CLOSED (or ON) position; switch 2 of S2 should be in the OPEN (or OFF) position.

#### **IMPORTANT NOTE**

To insure proper communication between the DMC-1 card and the MXLV System, dipswitch S1 must be set for the local M-NET network address (See Table 1) each time switch 1 of dipswitch S2 is changed from the OPEN to CLOSED or from the CLOSED to OPEN position.

- The DMC-1 is now in the manual recording/playback state and communication with the MXLV System will stop. The MXLV will annunciate **DMC-1 RECORD MODE** and connect the DMC-1 output to the local speaker on the MMM-1.
- LED D3 lights to indicate the unit is in recording mode. The number of user-recorded phrases is indicated by blinking LED D3 (for example, the LED blinks twice and then pauses repeatedly to indicate phrase 2). When no phrase is recorded, LED D3 is ON steady.

TABLE 2  
PHRASE NUMBER  
PROGRAMMING

PHRASE	87654321
000	ILLEGAL
001	..OOOOOX
002	..OOOOXO
003	..OOOOXX
004	..OOOXOO
005	..OOOXOX
006	..OOOXO
007	..OOOXXX
008	..OOXOOO
009	..OOXOOX
010	..OOXOXO
011	..OOXOXX
012	..OOXXOO
013	..OOXXOX
014	..OOXXXO
015	..OOXXXX
016	..OXOOOO
017	..OXOOOX
018	..OXOOXO
019	..OXOOXX
020	..OXOXOO
021	..OXOXOX
022	..OXOXO
023	..OXOXXX
024	..OXXOOO
025	..OXXOOX
026	..OXXOXO
027	..OXXOXX
028	..OXXXOO
029	..OXXXOX
030	..OXXXO
031	..OXXXXX
032	..XOOOOO
033	..XOOOOX
034	..XOOOXO
035	..XOOOXX
036	..XOOXOO
037	..XOOXOX
038	..XOOXO
039	..XOOXXX
040	..XOXOOO
041	..XOXOOX
042	..XOXOXO
043	..XOXOXX
044	..XOXXOO
045	..XOXXOX
046	..XOXXO
047	..XOXXXX
048	..XXOOOO
049	..XXOOOX
050	..XXOOXO
051	..XXOOXX
052	..XXOXOO
053	..XXOXOX
054	..XXOXO
055	..XXOXXX
056	..XXXOOO
057	..XXXOOX
058	..XXXOXO
059	..XXXOXX
060	..XXXXOO
061	..XXXXOX
062	..XXXXXO
063	ILLEGAL

O = OPEN (or OFF)  
X = CLOSED (or ON)  
• = SWITCH NOT USED

### 3. **To enable recording:**

- Move jumper E1 from position 1-2 to position 2-3.
- Insert the recorded audio signal supply into jack J1 or J2 (insert the microphone plug into jack J1). Use low impedance microphone P/N 500-095928 (DMC-REC Microphone Kit).

**NOTE:** The battery is not included in the DMC-REC Microphone kit.

When a tape recorder is used as the source of audio signal, use shielded cable with an RCA plug inserted into jack J2. Insert terminating plug into jack J1 (terminating plug is included in the DMC-REC Microphone Kit, P/N 500-095928).

- The tape recorder should have a low output impedance (500 ohms or less) with a nominal audio output signal level of 500mV RMS.
- Due to power supply noise, a battery powered tape recorder is recommended.
- The tape recorder must have a noise reduction feature (for example, *Dolby B* or other) to reduce noise created by magnetic tape or by the tape recorder itself.

In some installations of MXLV Systems, the level of electro-magnetic field generated by power supply lines, digital communication lines, or other systems installed in close proximity can cause the recording of background noise. To avoid background noise during recording, it is recommended that the DMC-1 card is not part of the MXLV System (See Figure 5, DMC-1 Wiring Diagram Showing Benchtop Manual Recording Connections).

- Set the phrase number on dipswitch S1 according to Table 2. Phrase numbers should start with phrase number 1 and sequentially increase as subsequent phrases are recorded. The next phrase number for recording can be any number between number 1 and one number higher than the last previously recorded phrase number. The last recorded phrase is indicated by the blink count of LED D3.

IT IS NOT POSSIBLE TO RERECORD A PHRASE ONCE ANOTHER PHRASE HAS BEEN RECORDED AFTER IT. For example, if the DMC-1 contains 10 phrases, it is not possible to rerecord only phrase 5. If you do rerecord phrase 5, then phrases 6, 7, 8, 9, and 10 will be erased and you will have to rerecord these phrases as well.

- To start recording, press switch S3 once. LED D9 turns on to indicate recording. Pressing switch S3 again will stop recording and turn off LED D9.

#### IMPORTANT NOTE

After the recording is finished, move jumper E1 from position 2-3 to position 1-2. Jumper E1 must be set to position 1-2 because the power supply transition from ON to OFF can cause a loss of custom recorded phrases.

4. ***To play back a previously recorded phrase***, set the phrase number on dipswitch S1 according to Table 2 and press switch S4 once. The phrase is played back and LED D9 is on. Pressing switch S3 again will stop the phrase playback and turn off LED D9.
5. ***To recover the MXLV System from DMC-1 RECORD MODE and to recover the DMC-1 from the manual recording/playback state***, follow the steps listed below:
  - a. Set the local M-NET network address for the DMC-1 on dipswitch S1 (See Table 1).
  - b. Change switch 1 of dipswitch S2 to the OPEN (or OFF) position; switch 2 of dipswitch S2 should be in the OPEN (or OFF) position.
  - c. Reset the MXLV Voice System. For information on resetting the MXLV Voice System, refer to the *MXL/MXLV Operation, Installation, and Maintenance Manual*, P/N 315-092036.

#### ***For manual recording on the bench:***

##### ***Setup:***

Place the OMM-1/2 on the bench and plug the DMC-1 on the OMM-1/2 card slot. Connect the wiring as shown in Figure 5.

**Note:** A 12V DC supply is needed for recording on the bench.

##### ***Recording/Playback:***

The manual recording/playback procedure on the bench is the same as manual recording with the DMC-1 Card installed in the MXLV System. See ***To play back a previously recorded phrase*** in the preceding section for a description.

#### **ERASING OF CUSTOM PHRASES BY THE USER:**

***For manual erasing of custom phrases while the DMC-1 Card is installed in the MXLV System (or in benchtop connection) and the system is powered up and running***, follow the steps listed below:

1. Change switch 1 of dipswitch S2 to the CLOSED (or ON) position; switch 2 of dipswitch S2 should be in the OPEN (or OFF) position.
2. The DMC-1 is now in the manual recording/playback state and communication with the MXLV System will stop. The MXLV will annunciate **DMC-1 RECORD MODE** and connect the DMC-1 output to the local speaker.
3. LED D3 lights to indicate the unit is in the recording mode. The number of user-recorded phrases is indicated by blinking LED D3 (for example, the LED blinks twice and then pauses repeatedly to indicate phrase 2).
4. Move jumper E1 from position 1-2 to position 2-3.
5. Set all switches of dipswitch S1 to the CLOSED (or ON) position.
6. Press switch S3 once.
7. Set all switches of dipswitch S1 to the OPEN (or OFF) position.
8. Press switch S3 once. All user-recorded phrases are now erased and LED D3 is on steady to indicate that no phrase is recorded.
9. Move jumper E1 from position 2-3 to position 1-2.

***To recover the MXLV System from the DMC-1 RECORD MODE and to recover the DMC-1 from the state set for erasing all user-recorded phrases***, follow the steps listed below:

1. Set the local M-NET network address for the DMC-1 on dipswitch S1 (See Table 1).
2. Change switch 1 of dipswitch S2 to the OPEN (or OFF) position; switch 2 of dipswitch S2 should be in the OPEN (or OFF) position.
3. Reset the MXLV Voice System. For information on resetting the MXLV Voice System, refer to the *MXL/MXLV Operation, Installation, and Maintenance Manual*, P/N 315-092036.

ELECTRICAL PARAMETERS:

- 1. Power supply input  
(Common MXLV System internal +5 VDC taken from interface bus through OMM-1/2 module) ..... +5 VDC
- 2. Maximum current supplied to DMC-1 from MXLV internal +5 VDC ..... 50mA
- 3. Auxiliary power supply input for manual recording on bench only  
(Use any UL listed 12 VDC regulated power supply) ..... 12 VDC
- 4. Maximum current supplied to DMC-1 auxiliary power supply input ..... 50mA
- 5. Nominal level of audio input signal at J1 ..... 10mV RMS
- 6. Maximum level of audio input signal at J1 ..... 25mV RMS
- 7. Nominal level of audio input signal at J2 ..... 500mV RMS
- 8. Maximum level of audio input signal at J2 ..... 1.5V RMS
- 9. Total time for all custom recorded phrases ..... 30 seconds

\*Terminating plug is included in DMC-REC Microphone Kit, P/N 500-095928.

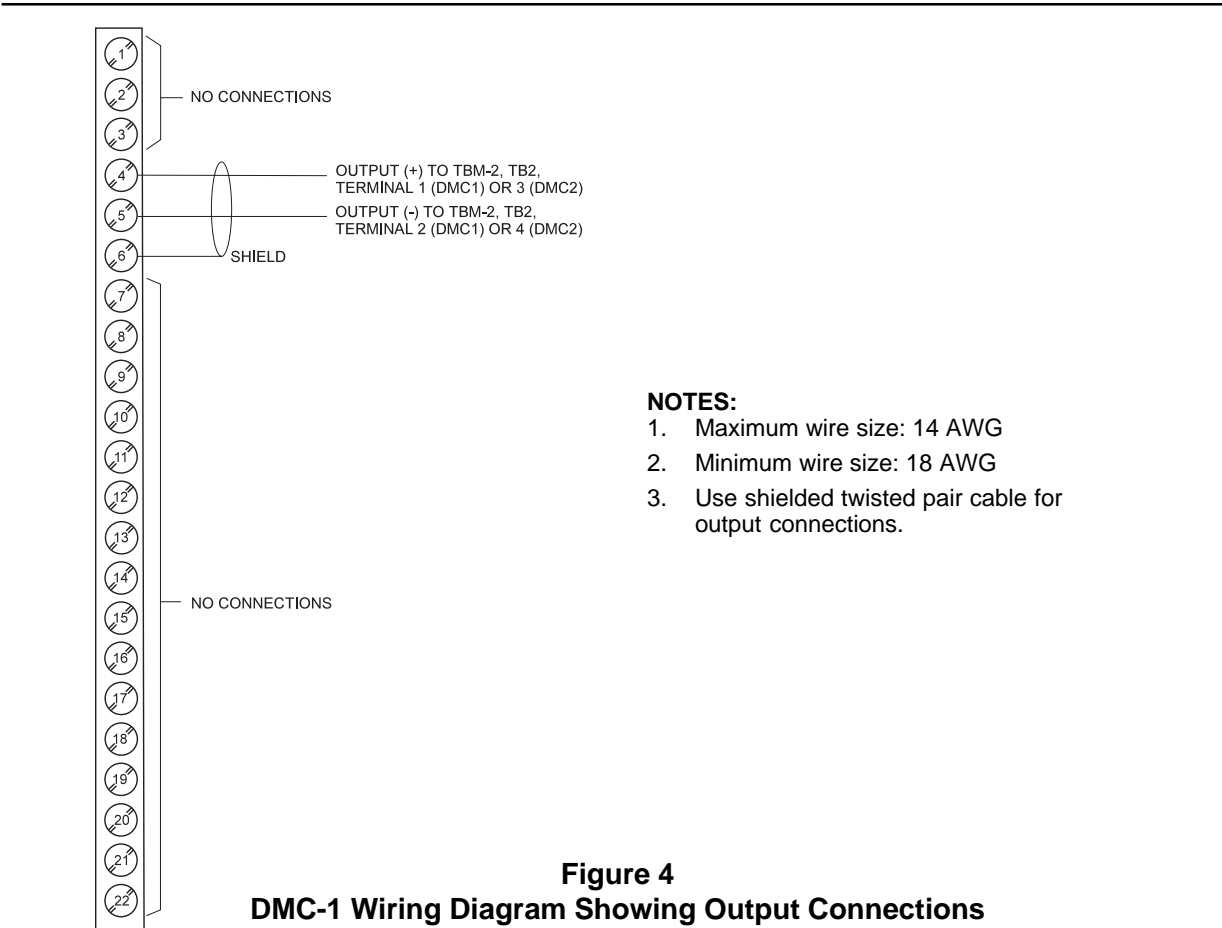
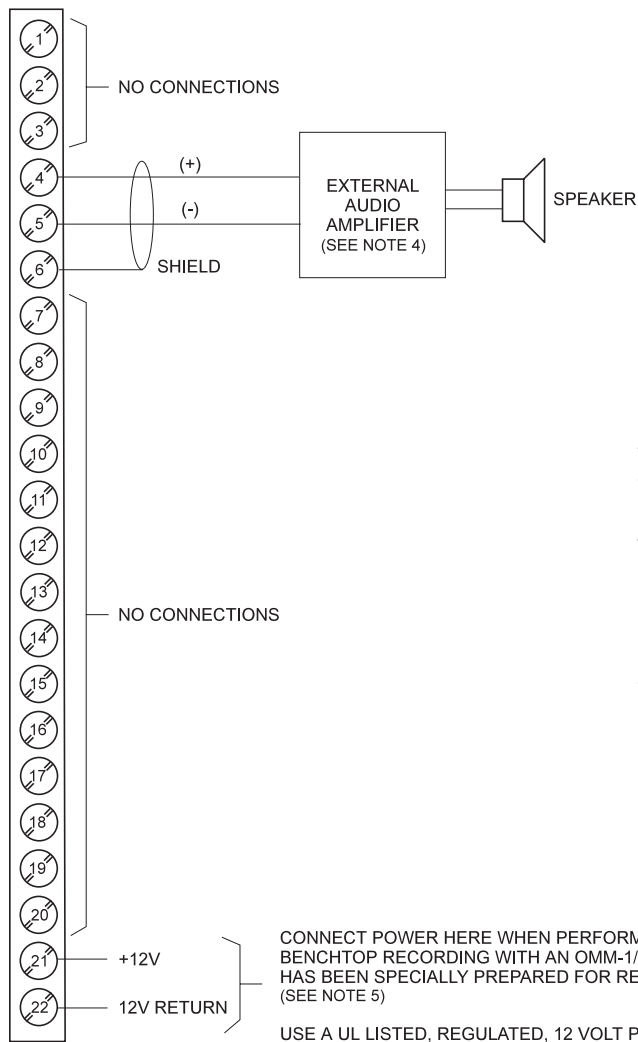


Figure 4  
DMC-1 Wiring Diagram Showing Output Connections



**NOTES:**

1. Maximum wire size: 14 AWG
2. Minimum wire size: 18 AWG
3. Use shielded twisted pair cable for output connections.
4. The amplifier can be any UL listed unit rated for the connected speaker with an input impedance of 10K ohms or higher. The amplifier is not part of the MXLV System.
5. **During benchtop recording, the OMM-1/2 module used must not be part of an MXLV System.**

**Figure 5**  
**DMC-1 Wiring Diagram Showing Benchtop Manual Recording Connections**