SIEMENS

Installation Instructions
Model DMC-1
Digital Message Card

INTRODUCTION

The Model DMC-1 Digital Message Card from Siemens Industry, Inc. 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.

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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	OXOOOOOO	128	XOOOOOOO	192	XXOOOOOO
001	ILLEGAL	065	OXOOOOOX	129	XOOOOOOX	193	XXOOOOOX
002	ILLEGAL	066	OXOOOOXO	130	XOOOOOXO	194	XXOOOOXO
003	OOOOOOXX	067	OXOOOOXX	131	XOOOOOXX	195	XXOOOOXX
004	OOOOOXOO	068	OXOOOXOO	132	XOOOOXOO	196	XXOOOXOO
005	OOOOOXOX	069	OXOOOXOX	133	XOOOOXOX	197	XXOOOXOX
006	OOOOOXXO	070	OXOOOXXO	134	XOOOOXXO	198	XXOOOXXO
007	OOOOOXXX	071	OXOOOXXX	135	XOOOOXXX	199	XXOOOXXX
008	OOOOXOOO	072	OXOOXOOO	136	XOOOXOOO	200	XXOOXOOO
009	OOOOXOOX	073	OXOOXOOX	137	XOOOXOOX	201	XXOOXOOX
010	OOOOXOXO	074	OXOOXOXO	138	XOOOXOXO	202	XXOOXOXO
011	OOOOXOXX	075	OXOOXOXX	139	XOOOXOXX	203	XXOOXOXX
012	OOOOXXOO	076	OXOOXXOO	140	XOOOXXOO	204	XXOOXXOO
013	OOOOXXOX	077	OXOOXXOX	141	XOOOXXOX	205	XXOOXXOX
014	OOOOXXXO	078	OXOOXXXO	142	XOOOXXXO	206	XXOOXXXO
015	OOOOXXXX	079	OXOOXXXX	143	XOOOXXXX	207	XXOOXXXX
016	OOOXOOOO	080	OXOXOOOO	144	XOOXOOOO	208	XXOXOOOO
017	OOOXOOOX	081	OXOXOOOX	145	XOOXOOOX	209	XXOXOOOX
018	OOOXOOXO	082	OXOXOOXO	146	XOOXOOXO	210	XXOXOOXO
019	OOOXOOXX	083	OXOXOOXX	147	XOOXOOXX	211	XXOXOOXX
020	OOOXOXOO	084	OXOXOXOO	148	XOOXOXOO	212	XXOXOXOO
021	OOOXOXOX	085	OXOXOXOX	149	XOOXOXOX	213	XXOXOXOX
022	OOOXOXXO	086	OXOXOXXO	150	XOOXOXXO	214	XXOXOXXO
023	OOOXOXXX	087	OXOXOXXX	151	XOOXOXXX	215	XXOXOXXX
024	OOOXXOOO	088	OXOXXOOO	152	XOOXXOOO	216	XXOXXOOO
025	OOOXXOOX	089	OXOXXOOX	153	XOOXXOOX	217	XXOXXOOX
026	OOOXXOXO	090	OXOXXOXO	154	XOOXXOXO	218	XXOXXOXO
027	OOOXXOXX	091	OXOXXOXX	155	XOOXXOXX	219	XXOXXOXX
028	OOOXXXOO	092	OXOXXXOO	156	XOOXXXOO	220	XXOXXXOO
029	OOOXXXOX	093	OXOXXXOX	157	XOOXXXOX	221	XXOXXXOX
030	OOOXXXXO	094	OXOXXXXO	158	XOOXXXXO	222	XXOXXXXO
031	OOOXXXXX	095	OXOXXXXX	159	XOOXXXXX	223	XXOXXXXX
032	OOXOOOOO	096	OXXOOOOO	160	XOXOOOOO	224	XXXOOOOO
033	OOXOOOOX	097	OXXOOOOX	161	XOXOOOOX	225	XXXOOOOX
034	OOXOOOXO	098	OXXOOOXO	162	XOXOOOXO	226	XXXOOOXO
035	OOXOOOXX	099	OXXOOOXX	163	XOXOOOXX	227	XXXOOOXX
036	OOXOOXOO	100	OXXOOXOO	164	XOXOOXOO	228	XXXOOXOO
037	OOXOOXOX	101	OXXOOXOX	165	XOXOOXOX	229	XXXOOXOX
038	OOXOOXXO	102	OXXOOXXO	166	XOXOOXXO	230	XXXOOXXO
039	OOXOOXXX	103	OXXOOXXX	167	XOXOOXXX	231	XXXOOXXX
040	OOXOXOOO	104	OXXOXOOO	168	XOXOXOOO	232	XXXOXOOO
041	OOXOXOOX	105	OXXOXOOX	169	XOXOXOOX	233	XXXOXOOX
042	OOXOXOXO	106	OXXOXOXO	170	XOXOXOXO	234	XXXOXOXO
043	OOXOXOXX	107	OXXOXOXX	171	XOXOXOXX	235	XXXOXOXX
044	OOXOXXOO	108	OXXOXXOO	172	XOXOXXOO	236	XXXOXXOO
045	OOXOXXOX	109	OXXOXXOX	173	XOXOXXOX	237	XXXOXXOX
046	OOXOXXXO	110	OXXOXXXO	174	XOXOXXXO	238	XXXOXXXO
047	OOXOXXXX	111	OXXOXXXX	175	XOXOXXXX	239	XXXOXXXX
048	OOXXOOOO	112	OXXXOOOO	176	XOXXOOOO	240	XXXXOOOO
049	OOXXOOOX	113	OXXXOOOX	177	XOXXOOOX	241	XXXXOOOX
050	OOXXOOXO	114	OXXXOOXO	178	XOXXOOXO	242	XXXXOOXO
051	OOXXOOXX	115	OXXXOOXX	179	XOXXOOXX	243	XXXXOOXX
052	OOXXOXOO	116	OXXXOXOO	180	XOXXOXOO	244	XXXXOXOO
052	OOXXOXOX	117	OXXXOXOX	181	XOXXOXOX	245	XXXXOXOX
054	OOXXOXXO	118	OXXXOXXO	182	XOXXOXXO	246	XXXXOXXO
055	OOXXOXXX	119	OXXXOXXX	183	XOXXOXXX	247	XXXXOXXX
056	OOXXXOOO	120	OXXXXOOO	184	XOXXXOOO	248	ILLEGAL
057	OOXXXOOX	121	OXXXXOOX	185	XOXXXOOX	249	ILLEGAL
058	OOXXXOXO	122	OXXXXOXO	186	XOXXXOXO	250	ILLEGAL
059	OOXXXOXX	123	OXXXXOXX	187	XOXXXOXX	251	ILLEGAL
060	OOXXXXOO	124	OXXXXXOO	188	XOXXXXOO	252	ILLEGAL
061	OOXXXXOX	125	OXXXXXOX	189	XOXXXXOX	253	ILLEGAL
062	OOXXXXXO	126	OXXXXXXO	190	XOXXXXXO	254	ILLEGAL
063	OOXXXXXX	127	OXXXXXXX	191	XOXXXXXX	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.

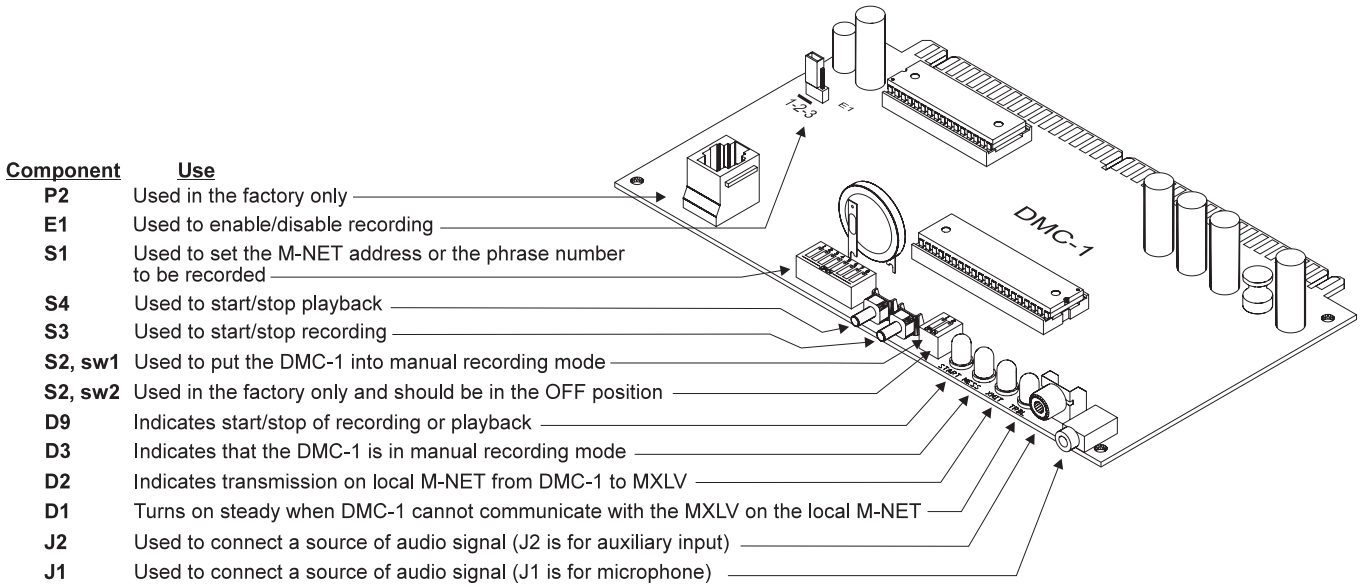


Figure 1
DMC-1 Module Board

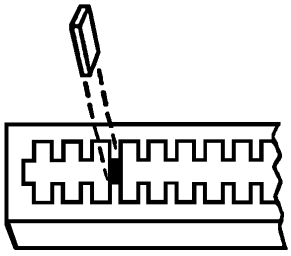


Figure 2
Placing the Card Slot Key in the OMM-1/2

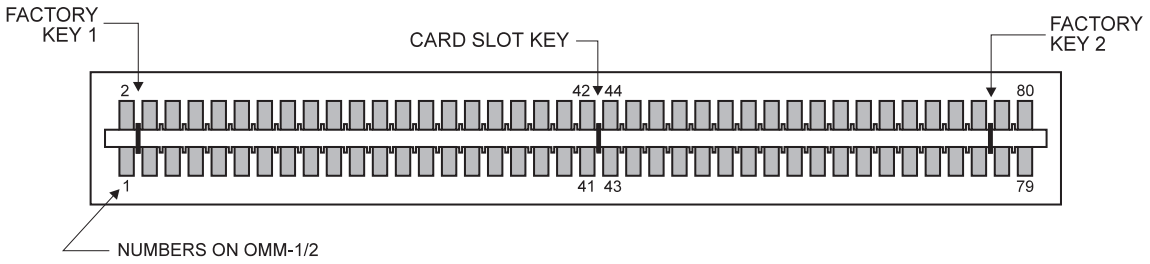


Figure 3
Location of the User Key for the DMC-1

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:

1. 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
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:***
   a. 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.

   b. 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.

   c. 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	••OOOXXO
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	••OXOXXO
023	••OXOXXX
024	••OXXOOO
025	••OXXOOX
026	••OXXOXO
027	••OXXOXX
028	••OXXXOO
029	••OXXXOX
030	••OXXXXO
031	••OXXXXX
032	••XOOOOO
033	••XOOOOX
034	••XOOOXO
035	••XOOOXX
036	••XOOXOO
037	••XOOXOX
038	••XOOXXO
039	••XOOXXX
040	••XOXOOO
041	••XOXOOX
042	••XOXOXO
043	••XOXOXX
044	••XOXXOO
045	••XOXXOX
046	••XOXXXO
047	••XOXXXX
048	••XXOOOO
049	••XXOOOX
050	••XXOOXO
051	••XXOOXX
052	••XXOXOO
053	••XXOXOX
054	••XXOXXO
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:***
   a. Move jumper E1 from position 1-2 to position 2-3.
   b. 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).

      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).
   c. 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.
   d. 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:

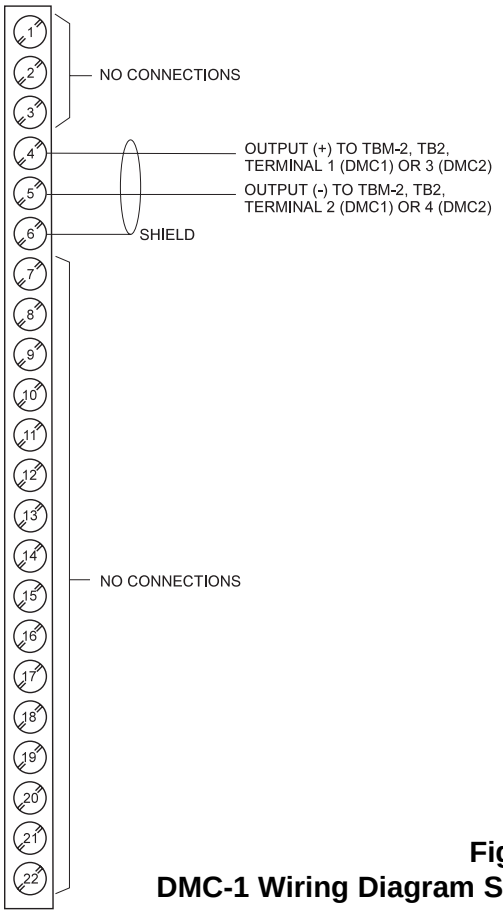
Active 5VDC Module Current	20mA
Active 24VDC Module Current	0mA
Standby 24VDC Module Current	5mA

1. Auxiliary power supply input for manual recording on bench only (Use any UL listed 12 VDC regulated power supply) ..... 12 VDC
2. Maximum current supplied to DMC-1 auxiliary power supply input 50mA
3. Nominal level of audio input signal at J1 ..... 10mV RMS
4. Maximum level of audio input signal at J1 ..... 25mV RMS
5. Nominal level of audio input signal at J2 ..... 500mV RMS
6. Maximum level of audio input signal at J2 ..... 1.5V RMS

} With terminating plug* inserted into jack J1

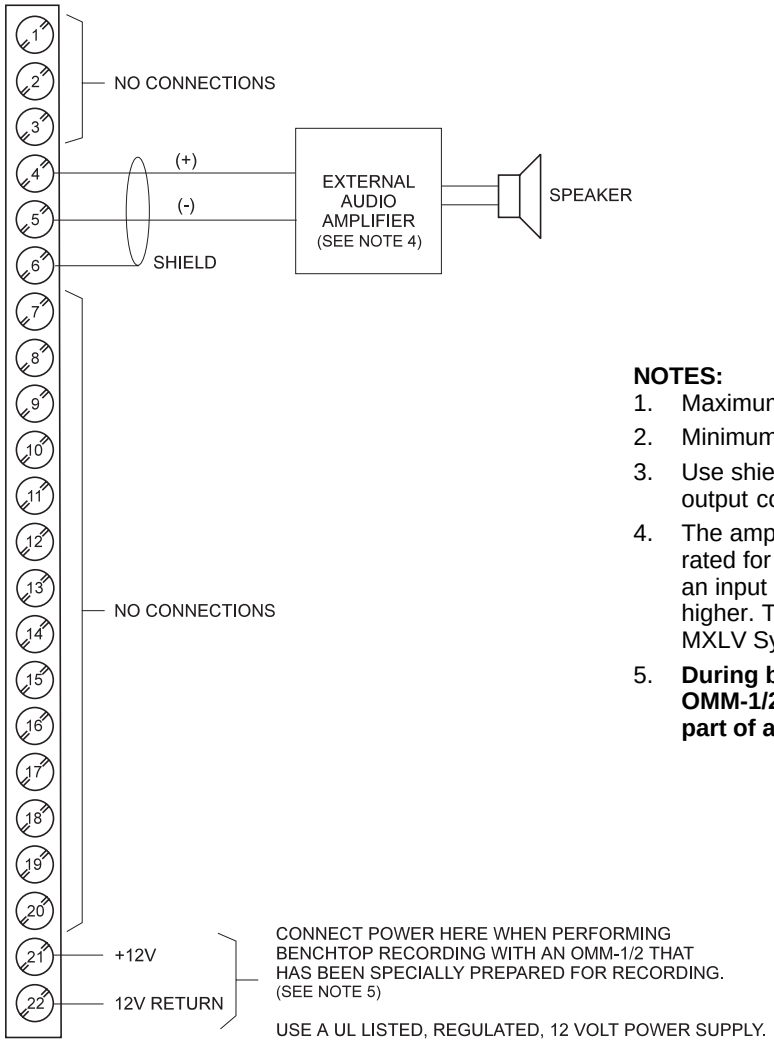
7. Total time for all custom recorded phrases ..... 30 seconds

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



NOTES:
1. Maximum wire size: 14 AWG
2. Minimum wire size: 18 AWG
3. Use shielded twisted pair cable for output connections.

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