

SIEMENS

Installation Instructions

Model CSM-4

Controllable Signal Module

OPERATION

The Model CSM-4 Controllable Signal Module from Siemens Industry, Inc. has two fully supervised, programmable circuits. The outputs supply two Class B (Style Y) or Class A (Style Z) output circuits for the supervision and control of audible or visual notification devices such as horns, bells, strobes, etc.

Each notification circuit on a CSM-4 can be configured in one of four ways: (1) as a supervised connection to a Municipal Tie, (2) as a connection to a Leased Line remote monitoring System, (3) for releasing service per NFPA 13 and NFPA 2001, or (4) as a NAC.

Each output can be controlled automatically through the MXL program logic or manually by using the MXL keypad. Automatic control can also be time based. Each output can be manually armed or disarmed through the MXL keypad. When any output is disarmed, the MXL LCD annunciator indicates which circuit or output, and the **PARTIAL SYSTEM DISABLE** LED lights until the circuit or output is armed again. The **TROUBLE** LED also lights.

The CSM-4 notification appliance circuits function in a Degrade mode, when the main MXL processor or the network communication link fails. Each circuit's degrade mode of operation can be separately configured to respond to an alarm in any of the following ways:

OFF

ON CONTINUOUSLY

1 SECOND ON—1 SECOND OFF
(Infinite repeat)

CSM-4 notification appliance circuit outputs can be set by using the CSG-M for any one of the following: (1) coded march time, (2) zone code, or (3) uniform Code 3 output.

The CSM-4 has two diagnostic and two user programmable LEDs (See Figure 1). In addition, each circuit is equipped with transient and noise suppression.

INSTALLATION

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

The CSM-4 module plugs into one slot on the MOM-4 Expansion Module. There are four available slots for the CSM-4 on the MOM-4 (See Figure 2). Selecting which position on the MOM-4 to use for a CSM-4 determines which contacts are available: TB1, TB2, TB3, or TB4.

The CSM-4 is shipped with one card guide to add to the MOM-4 before the CSM-4 can be installed. Choose the position for the card guide according to which terminal block you wish to use.

To install the card guide, loosen the appropriate screw in the center area of the MOM-4 and set the card guide in place, making sure that the locating pin on the bottom of the card guide is in the hole on the MOM-4 (See Figure 4). Tighten the screw on the MOM-4 to secure the card guide in place.

Before Installing the CSM-4 Signal Module

(Refer to Figure 3.) Before installing the CSM-4 in the MOM-4, you must set the Network address, configure each circuit according to the CSG-M program [as audibles (NACs), municipal tie, leased line, or releasing service (NFPA 13 and NFPA 2001)], and set the degrade modes (trouble and alarm) as follows:

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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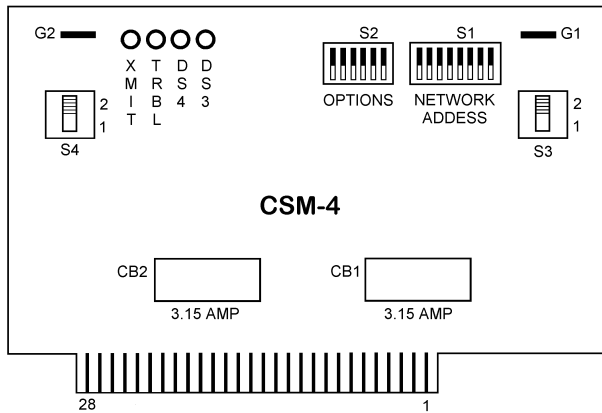


Figure 1
CSM-4 Board

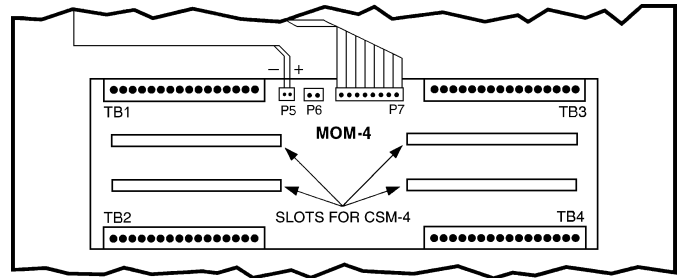


Figure 2
CSM-4 Installation Slots

Before Installing the CSM-4

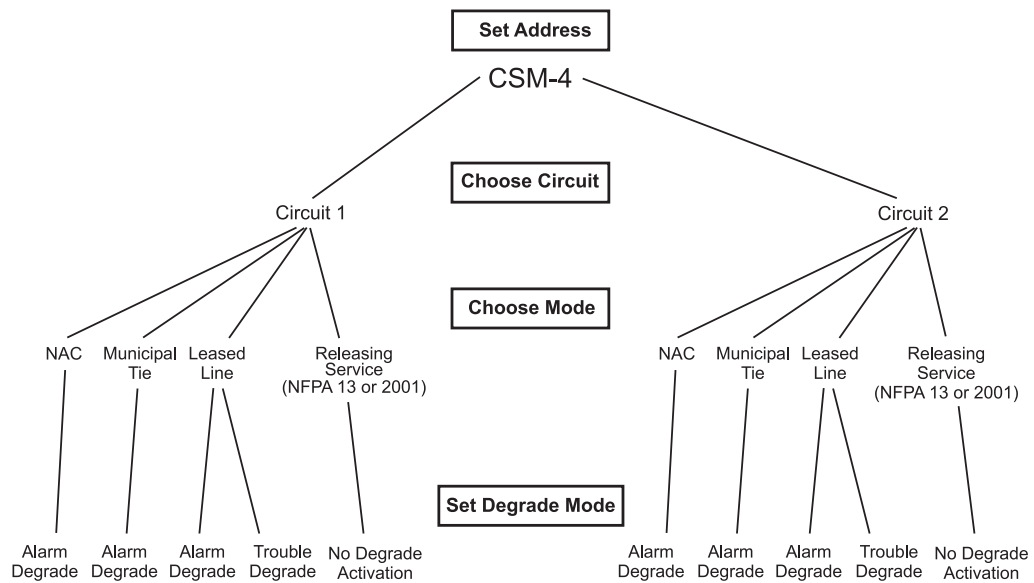


Figure 3
Preparation for Installation

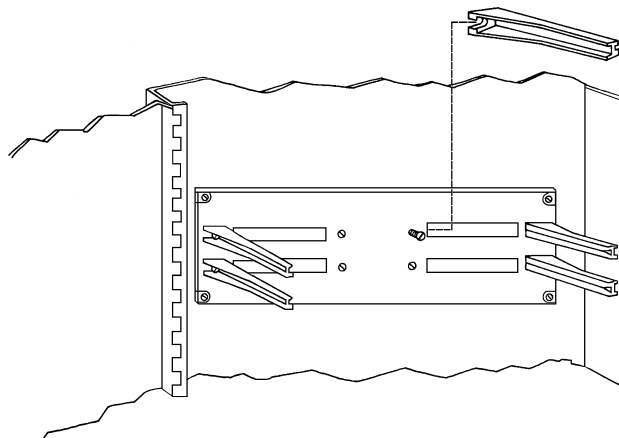


Figure 4
Installing a Module Card Guide

1. Set the Network Address

The Network address is set on switch S1 (See Figure 1). See the CSG-M printout for the proper address. Use Table 1 to set the switches.

2. Set the Mode of Operation for Each Circuit

The CSM-4 has one programming slide switch and one jumper for each of its two circuits. (See slide switches S3 and S4 and jumpers G1 and G2 on the board.) Setting these slide switches and jumpers allows the selection of four possible modes of operation. These modes correspond with NFPA standards 72 Local (notification appliance circuit), Municipal Tie (municipal tie), Remote Station (leased line), and NFPA 13 and NFPA 2001 (releasing service).

Each circuit on the CSM-4 can be set independently for the type of operation desired. Table 2 shows how to set the switches and jumpers for circuits 1 and 2. The CSG-M printout shows the mode for each circuit.

3. Set the Degrade Modes of Operation

There are two sources of degrade activation, the degrade alarm bus and the degrade trouble bus. These two buses *become active ONLY* when the MXL communication network fails. Switch S2 on the CSM-4 sets the degrade mode of operation for each circuit.

Each circuit operates independently in the degrade mode. Switch S2, positions SW1 and SW2, determine the degrade mode of operation when the trouble bus activates. S2, positions SW3-SW6, determines the degrade mode of operation when the alarm bus activates.

Degrade Trouble Activation

The degrade trouble bus may **ONLY** be used when the circuit is used as a leased line **trouble** notification circuit (NFPA 72 Remote Station). (See Figure 3.) When enabled, this trouble degrade mode ensures that a trouble is transmitted to the receiving station even when the MXL communication network fails.

Using the CSG-M printout, determine if either of the circuits is configured as a leased line **trouble**. Table 3 shows how to set S2 (SW1 and SW2) to enable the degrade trouble activation for the desired circuit.

Degrade Alarm Activation

Each circuit on the CSM-4 can be set with switch S2, positions SW3-SW6, to determine when the degrade alarm bus activates. (See Figure 3). There are three

alarm degrade modes (Table 4). Each circuit can be set independently from the other. Determine which type of degrade mode you want for each circuit and set switch S2 (SW3-SW6) as shown in Table 4.

Releasing Service per NFPA 13 and NFPA 2001

No degrade activation is allowed. Set all switch positions on switch S2 to OFF (open).

TABLE 2 SETTING THE MODE OF OPERATION (USING S3, S4 AND G1,G2)*		
For Circuit 1	S3 Position	G1
Audibles [NAC] (NFPA 72 Local)	1	Not Cut
Municipal Tie (NFPA 72)	1	Cut
Leased Line (NFPA 72 Remote Station)	2	Not Cut
Releasing Service (NFPA 13)	1	Not Cut
Releasing Service (NFPA 2001)	1	Not Cut
Illegal (Results in a trouble on the CSM-4)	2	Cut
For Circuit 2	S4 Position	G2
Audibles [NAC] (NFPA 72 Local)	1	Not Cut
Municipal Tie (NFPA 72)	1	Cut
Leased Line (NFPA 72 Remote Station)	2	Not Cut
Releasing Service (NFPA 13)	1	Not Cut
Releasing Service (NFPA 2001)	1	Not Cut
Illegal (Results in a trouble on the CSM-4)	2	Cut

* See Figure 1.

TABLE 3 SETTING THE DEGRADE TROUBLE MODES ON S2	
For Circuit 1	SW1
Leased Line Trouble	On (Closed)
No Trouble Activation	Off (Open)
For Circuit 2	SW2
Leased Line Trouble	On (Closed)
No Trouble Activation	Off (Open)
Note: If circuit 1 or circuit 2 is not used for leased line trouble, dipswitches SW1 or SW2 must be off (open).	

TABLE 4 SETTING THE DEGRADE ALARM MODES ON S2		
For Circuit 1	SW4	SW3
OFF (no degrade activation)	Off (Open)	Off (Open)
CONTINUOUS (active on degrade alarm)	Off (Open)	On (Closed)
1 SEC ON, 1 SEC OFF (infinite repeat)	On (Closed)	Off (Open)
DO NOT USE	On (Closed)	On (Closed)
For Circuit 2	SW6	SW5
OFF (no degrade activation)	Off (Open)	Off (Open)
CONTINUOUS (active on degrade alarm)	Off (Open)	On (Closed)
1 SEC ON, 1 SEC OFF (infinite repeat)	On (Closed)	Off (Open)
DO NOT USE	On (Closed)	On (Closed)

Note: When circuits are used for leased line **supervisory**, the alarm degrade modes must be set to OFF (Open).

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	OX0000X0	130	X00000X0	194	XX0000X0
003	000000XX	067	OX0000XX	131	X00000XX	195	XX0000XX
004	00000X00	068	OX000X00	132	X0000X00	196	XX000X00
005	00000X0X	069	OX000X0X	133	X0000X0X	197	XX000X0X
006	00000XX0	070	OX000XX0	134	X0000XX0	198	XX000XX0
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	0000XX00	078	OX00XX00	142	X000XX00	206	XX00XX00
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	000X0XX0	086	OX0X0XX0	150	X00X0XX0	214	XX0X0XX0
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	000XXX00	092	OX0XXX00	156	X00XXX00	220	XX0XXX00
029	000XXX0X	093	OX0XXX0X	157	X00XXX0X	221	XX0XXX0X
030	000XXX00	094	OX0XXX00	158	X00XXX00	222	XX0XXX00
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	00X00XX0	102	OX000XX0	166	X0X00XX0	230	XX000XX0
039	00X00XXX	103	OX000XXX	167	X0X00XXX	231	XX000XXX
040	00X0X000	104	OX0X0000	168	X0X0X000	232	XX0X0000
041	00X0X00X	105	OX0X000X	169	X0X0X00X	233	XX0X000X
042	00X0X0X0	106	OX0X00X0	170	X0X0X0X0	234	XX0X00X0
043	00X0X0XX	107	OX0X00XX	171	X0X0X0XX	235	XX0X00XX
044	00X0XX00	108	OX0XX000	172	X0X0XX00	236	XX0XX000
045	00X0XX0X	109	OX0XX00X	173	X0X0XX0X	237	XX0XX00X
046	00X0XX00	110	OX0XX000	174	X0X0XX00	238	XX0XX000
047	00X0XXXX	111	OX0XXXXX	175	X0X0XXXX	239	XX0XXXXX
048	00X00000	112	OX0X0000	176	X0XX0000	240	XX0X0000
049	00X0000X	113	OX0X000X	177	X0XX000X	241	XX0X000X
050	00X000X0	114	OX0X00X0	178	X0XX00X0	242	XX0X00X0
051	00X000XX	115	OX0X00XX	179	X0XX00XX	243	XX0X00XX
052	00X0X000	116	OX0X0X00	180	X0XX0X00	244	XX0X0X00
053	00X0X00X	117	OX0X0X0X	181	X0XX0X0X	245	XX0X0X0X
054	00X0XX00	118	OX0XX000	182	X0XX0X00	246	XX0XX000
055	00X0XX0X	119	OX0XX00X	183	X0XX0X0X	247	XX0XX00X
056	00XX0000	120	OX0XX000	184	X0XX0000	248	ILLEGAL
057	00XX000X	121	OX0XX00X	185	X0XX000X	249	ILLEGAL
058	00XX00X0	122	OX0XX0X0	186	X0XX00X0	250	ILLEGAL
059	00XX00XX	123	OX0XX0XX	187	X0XX00XX	251	ILLEGAL
060	00XX0X00	124	OX0XX0X0	188	X0XX0X00	252	ILLEGAL
061	00XX0X0X	125	OX0XX0X0	189	X0XX0X0X	253	ILLEGAL
062	00XX0XX0	126	OX0XX0X0	190	X0XX0XX0	254	ILLEGAL
063	00XXXXXX	127	OX0XXXXX	191	X0XXXXXX	255	ILLEGAL

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

WIRING

The municipal tie and leased line applications require the LLM-1 interface module. The notification appliances and leased line applications are power limited.

Electrical Connections for Notification Appliances (NFPA 72 Local) (Refer to Figure 5)

1. Set switches S3 and S4 and jumpers G1 and G2 as indicated in Table 2.
2. All wiring must be in accordance with Article 760 of NEC or local building codes.
3. Both circuits are power limited to NFPA 70 per NEC 760.
4. Electrical Ratings: Special Application
16-32V unfiltered full wave rectified
12mA max @ Supervisory
1.5A max @ Alarm
5. End of line device:
Use EOL device, 2.2K, 1/2 watt,
P/N 140-820380.
6. Line Resistance: 2.1 ohms max
7. For a list of **Compatible Notification Appliances**, refer to P/N 315-096363.
8. For synchronized notification appliances, use of either a DSC, DSC-W, or PAD-3 is required.

Electrical Connections for Municipal Tie (NFPA 72) (Refer to Figure 6)

1. Set switches S3 and S4 and jumpers G1 and G2 as indicated in Table 2.
2. All wiring must be in accordance with Article 760 of NEC or local building codes.
3. Both circuits are not power limited.
4. Electrical Ratings:
Trip Coil: 14.5 ohms
Trip Current: 220 to 320mA DC (momentary)
Supervisory Current: 12mA DC
Voltage: 18 to 31 VDC

The total loop resistance from the LLM-1 to the Municipal Tie, including the 14.5 ohms in the Municipal Tie, should not exceed 22.5 ohms.

5. Minimum emergency power:
60 hour standby
5 minute alarm

Refer to Wiring Specification for MXL, MXL-IQ and MXLV Systems, P/N 315-092772 revision 6 or higher, for additional wiring information.

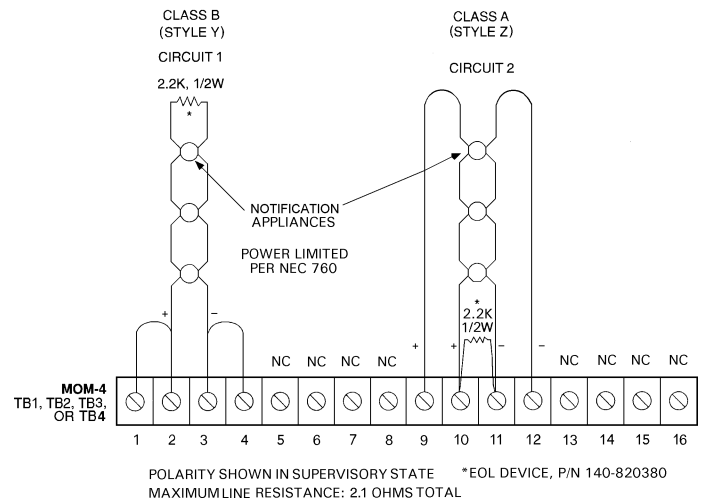
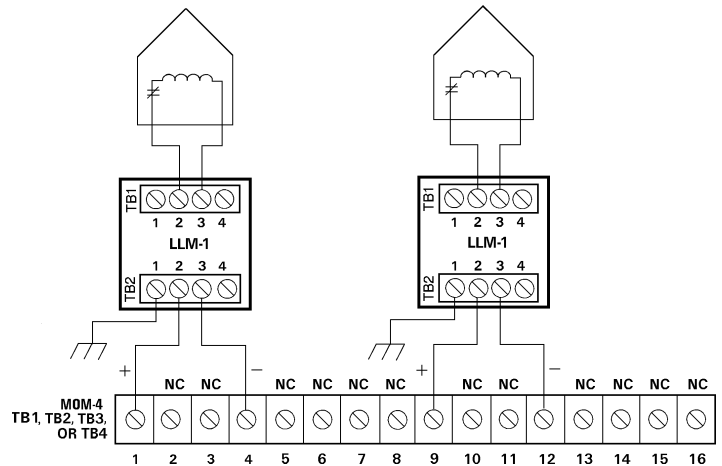


Figure 5
CSM-4 Loop Wiring for Supervised Notification Appliance Circuit

Refer to Wiring Specification for MXL, MXL-IQ and MXLV Systems, P/N 315-092772 revision 6 or higher, for additional wiring information.



- NOTES:**
1. Polarity shown in supervisory state.
 2. The total loop resistance from the LLM-1 to the Municipal Tie, including the 14.5 ohms in the Municipal Tie, should not exceed 22.5 ohms.
 3. Either circuit may be used.
 4. Municipal Tie circuits are not power limited.
 5. Positive and negative ground faults detected at <30K ohms for terminals 1-4, 9-12.

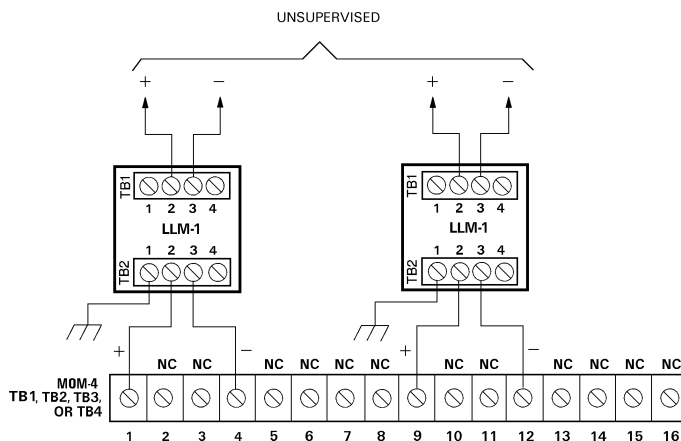
Figure 6
CSM-4 Loop Wiring of Supervised Municipal Tie

Electrical Connections for Leased Line (NFPA 72 Remote Station) (Refer to Figure 7)

1. Set switches S3 and S4 and jumpers G1 and G2 as indicated in Table 2.
2. When a CSM-4 circuit is used as a Leased Line trouble output, SW1 and SW2 on switch S2 must be set. These positions permit the degrade trouble bus to activate the trouble line. Refer to Table 3 to set them.
3. All wiring must be in accordance with Article 760 of NEC or local building codes.
4. Both leased line circuits are power limited to NFPA 70 per NEC Article 760.
5. Leased Line circuit rating: 24 VDC open circuit
Load must be a compatible polarity reversal labeled *remote station receiver unit*
Rated current: 3mA to 9mA, alarm/supervisory
External circuit resistance: 2K to 5K ohms
6. Minimum emergency power:
60 hour standby
5 minute alarm

Note: Intended for connection to a polarity reversal circuit of a control unit at the protected premises having compatible ratings.

Refer to Wiring Specification for MXL, MXL-IQ and MXLV Systems, P/N 315-092772 revision 6 or higher, for additional wiring information.



NOTES:

1. Polarity shown in normal state.
2. Leased line circuits are power limited per NEC 760
3. External resistance 2K-5K Ohms.
4. Positive and negative ground faults detected at <30K ohms for terminals 1-4, 9-12.

Figure 7
CSM-4 Leased Line Circuit

Electrical Connections for Releasing Service (per NFPA 13 and NFPA 2001) (Refer to Figure 8)

1. Set switches S3 and S4 and jumpers G1 and G2 as indicated in Table 2.
2. Set all positions of switch S2 to OFF (OPEN).
3. All wiring must be in accordance with Article 760 of NEC or local building codes.
4. Releasing circuits are not power limited.
5. Solenoids are supervised for opens and shorts.
6. Electrical Ratings:
Supervisory Current: 12mA max
Alarm Current: 1.5A max
Wire Resistance: 3 ohms max
7. Compatible Solenoids:
When using a UL approved power supply, refer to Table 5 in Figure 8 for a list of compatible solenoids.

Electrical Ratings

Active 5VDC Module Current	10mA
24VDC Module Current*	30mA + 20mA per active output
Standby 24VDC Module Current	35mA (includes end of line devices)

*Does not include any current drawn by notification appliances.

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

[illegible]

Application	Make	Solenoid Model or Part Number	Number of Solenoids in Series	Maximum # of Circuits per MOM-4
NFFA 13 (Pre-Action Deluge)	Skimmer	LV2L BX25	One 24 VDC	4
	ASCO	T8210A107	One 24 VDC	4
	ASCO	R8210A107	One 24 VDC	4
	Skimmer	7321GBN99N00NOC111C2	One 24 VDC	4
NFFA 2001 (HFC-227ea)	ASCO	CPYEC-6 HV218532-6*	Four 6 VDC	2
	SNAPTITE	CPYEC-6 P/N 2823A-2NB-A4F4*	Four 6 VDC	2
	SNAPTITE	CPYEC-12 P/N 2823A-2NB-A4F5**	Two 12 VDC	4
	SNAPTITE	CPYEC1200-24 P/N 932594B	One 24 VDC	4
	SNAPTITE	CPYEC-24 P/N 2823A-2NB-A4F6	One 24 VDC	4

Any solenoid not described in the table is not permitted.

* Four series connected 6V solenoids must be used.

****It is not permitted to mix one 12 VDC solenoid with any combination of the 6 VDC solenoids.**

Refer to Wiring Specification for MXL, MXL-IQ and MXLV Systems, P/N 315-092772 revision 6 or higher, for additional wiring information.

Battery capacity determined by CSM-4 circuits in supervisory circuits:

	1-3	7Ah
4-5	10Ah	
6-8	15Ah	

NOTES:

1. Use only Pre-Action/Deluge solenoids from Table 5.
2. Solenoids supervised for opens and shorts.
3. Polarity shown in supervisory condition.
4. Releasing circuits are not power limited.
5. Configure CSM-4 circuits as Steady NAC in CSG-M.
6. Each MOM-4 must be powered from a separate ALARM-SAF power supply.
7. Set all positions of S2 on the CSM-4 to OFF (OPEN).
8. When programming releasing applications in the CSG-M, the abort function must override the manual circuit abort.
9. On power up, MXL first then AlarmSAF; on power down, AlarmSAF first then MXL.
10. AlarmSAF is rated for 4A.
11. Maximum of 4 Releasing Circuits per MOM-4.
12. MOM-4 is limited to releasing circuits only.
13. REL-EOL module (P/N 500-696359) is required for supervision of open and short circuits on the releasing circuit. REL-EOL must be close tripped to the last solenoid in the loop.

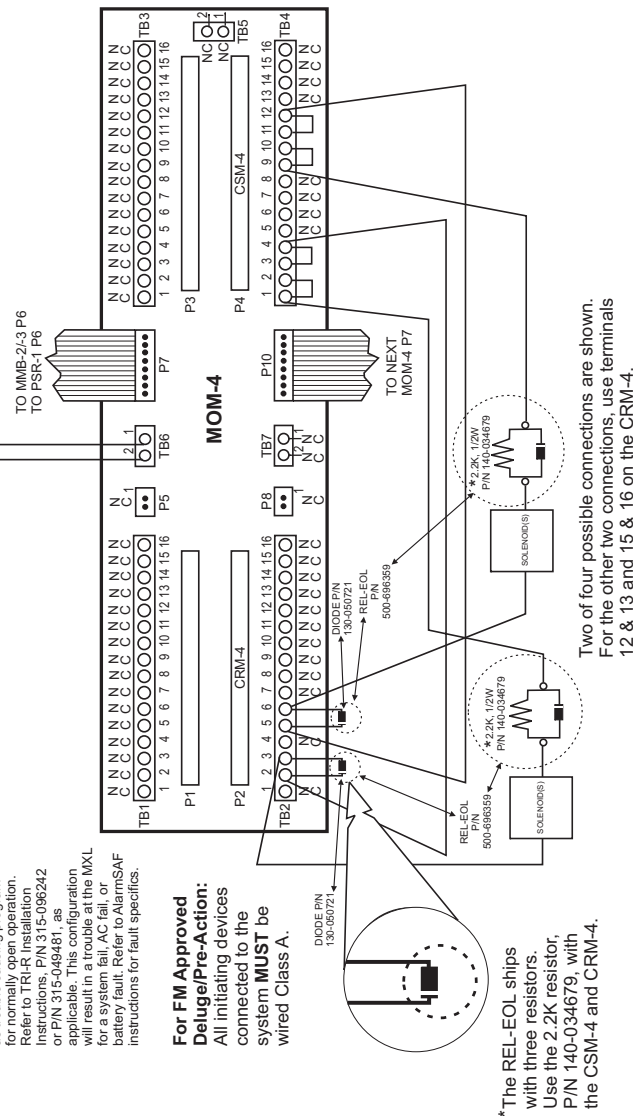


Figure 8

MXL Releasing Service Wiring Diagram with AlarmSAF Power Supply (per NFPA 13 and NFPA 2001)

