SIEMENS CSM-4 Controllable Signal Module Instruction Manual

SIEMENS

CSM-4 Controllable Signal Module
Instruction Manual

Installation Instructions
Model CSM-4
Controllable Signal Module

Contents

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.

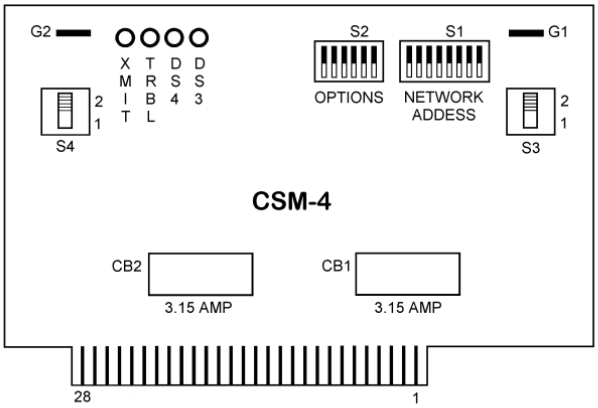


Figure 1
CSM-4 Board

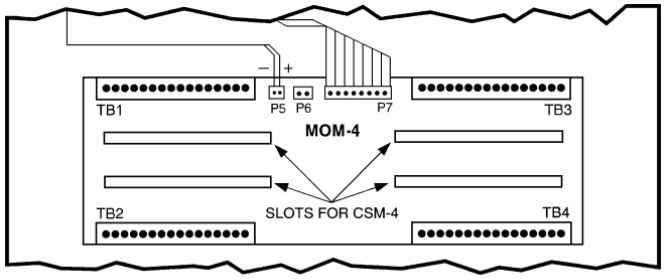


Figure 2
CSM-4 Installation Slots

Before Installing the CSM-4

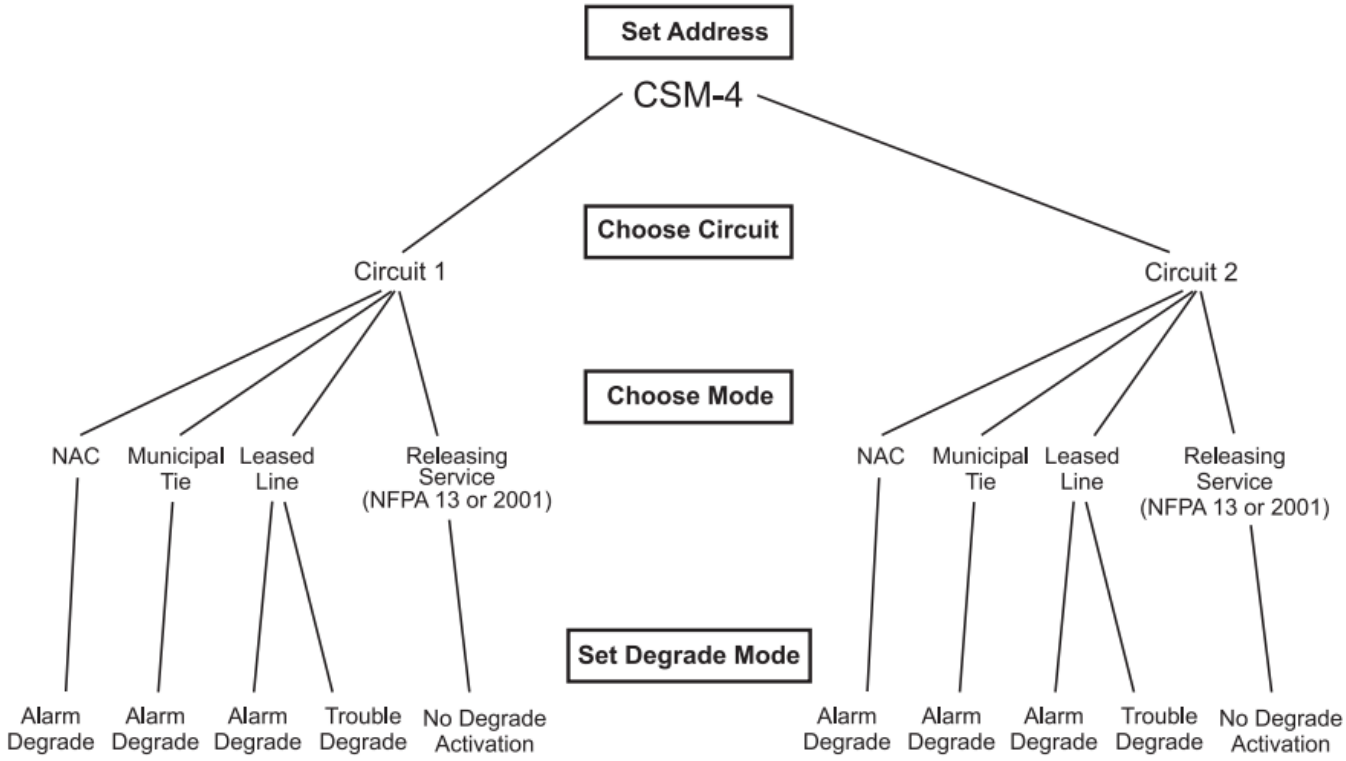


Figure 3
Preparation for Installation

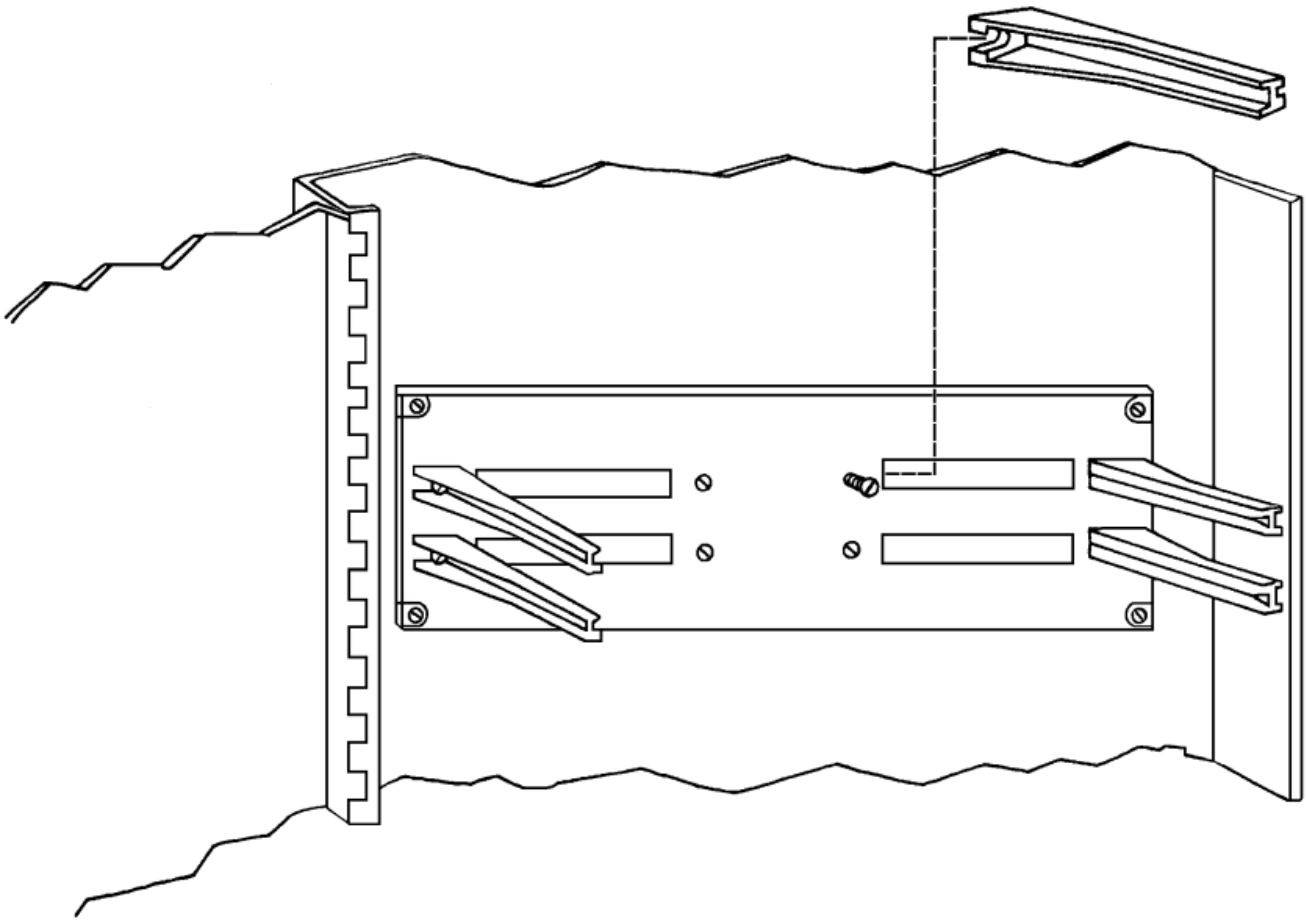


Figure 4
Installing a Module Card Guide

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
Audbles (NAG] OFPA 72 Local)	1	Not Cut
Munapal Tie (NFPA 72)	1	Cut
Leased Line (NFPA 72 Renate 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**
Authbles [NAC) (NFPA 72 Local)	1	Not Cut
Muncoal 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** No Trouble Activation	On (Closed) Off (Open)
For Circuit 2	**SW2**
Leased Line **Trouble** No Trouble Activation	On (Closed) 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	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
053	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

WIRING

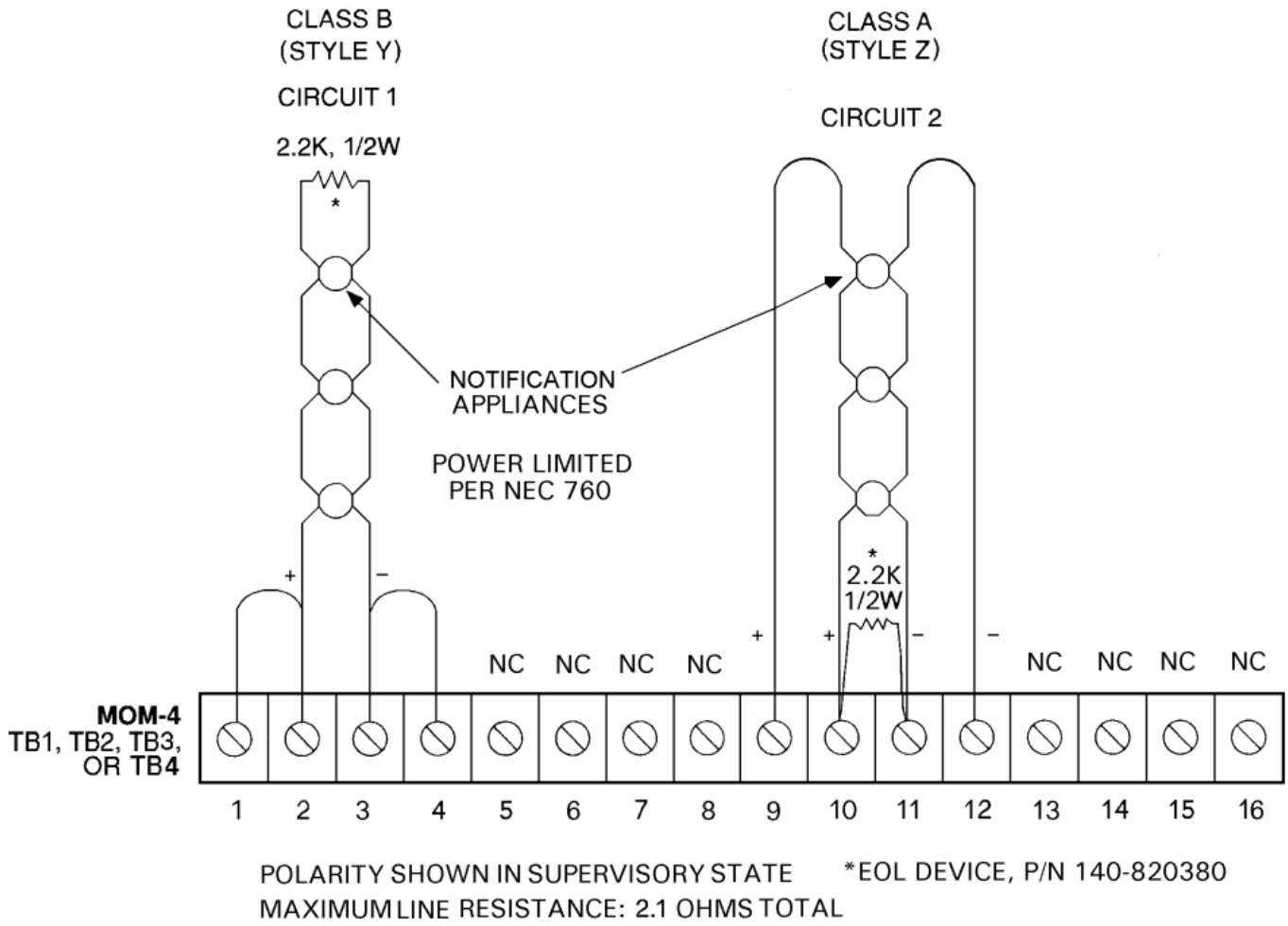
The municipal tie and leased line applications require the LLM-1 interface module. The notification appliances and leased line applications are power limited.Electrical **Connections for Notification Appliances (NFPA 72 Local) (Refer to Figure 5)**

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 sychonized 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.



NOTE:

1. Positive and negative ground faults detected at <30K ohms for terminals 1-4, 9-12.

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.

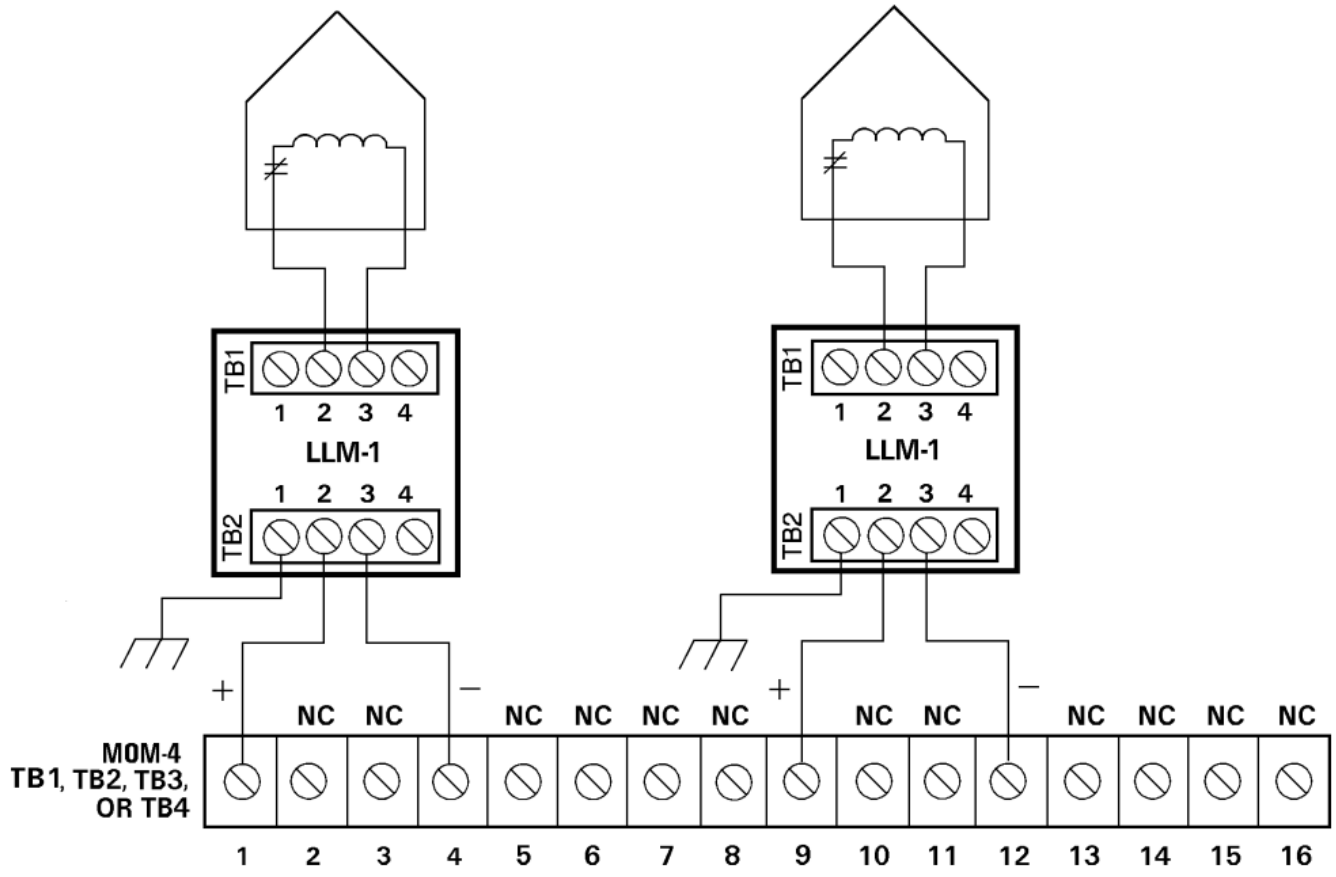


Figure 6
CSM-4 Loop Wiring of Supervised Municipal Tie
NOTES:

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.

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

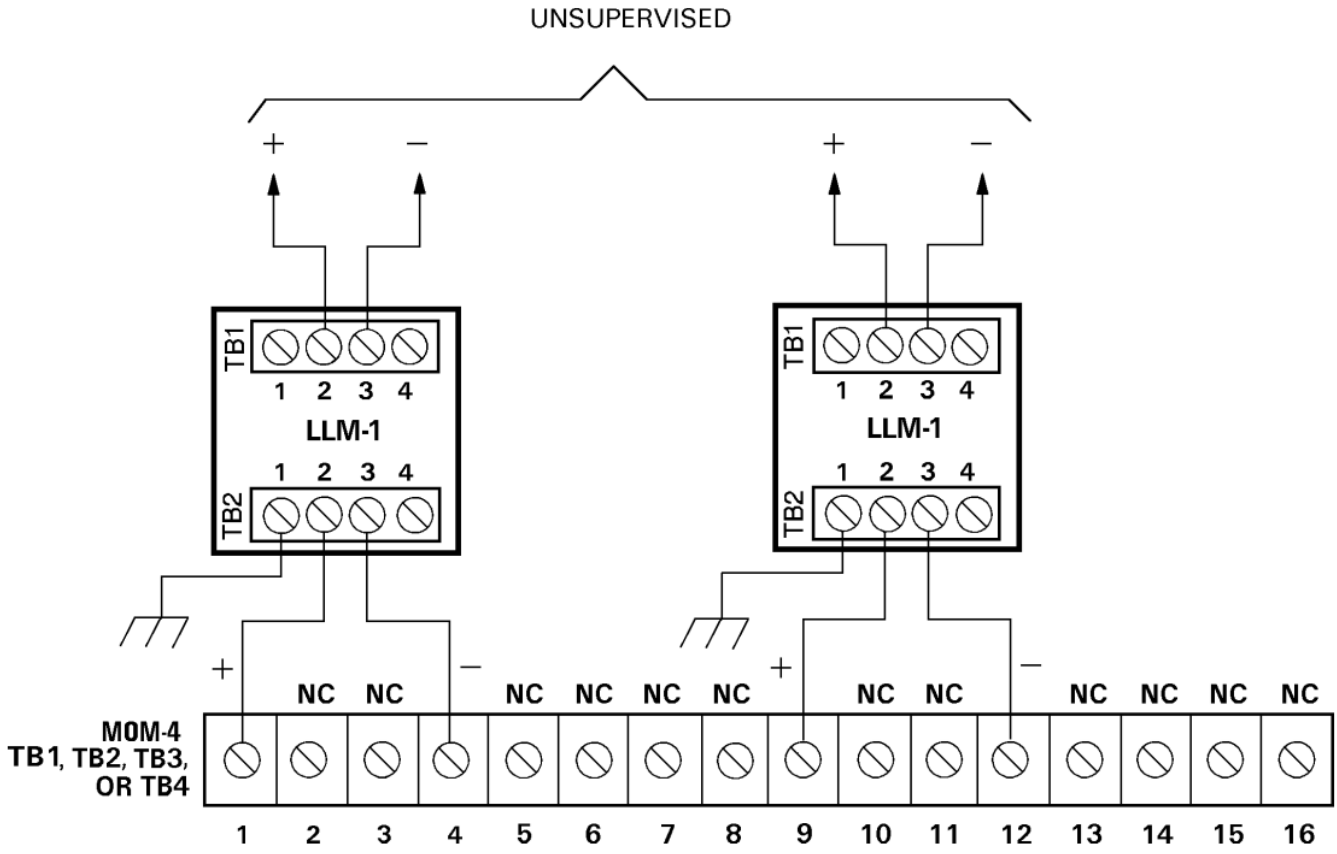
1. Set switches S3 and S4 and jumpers G1 and G2 as indicated in Table 2.
2. When a CSM-4 circuit is used as a Leased Line trouble output, SW1 and SW2 on switch S2 must be set. These positions permit the degrade trouble bus to activate the trouble line. Refer to Table 3 to set them.
3. All wiring must 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.

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.

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 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.

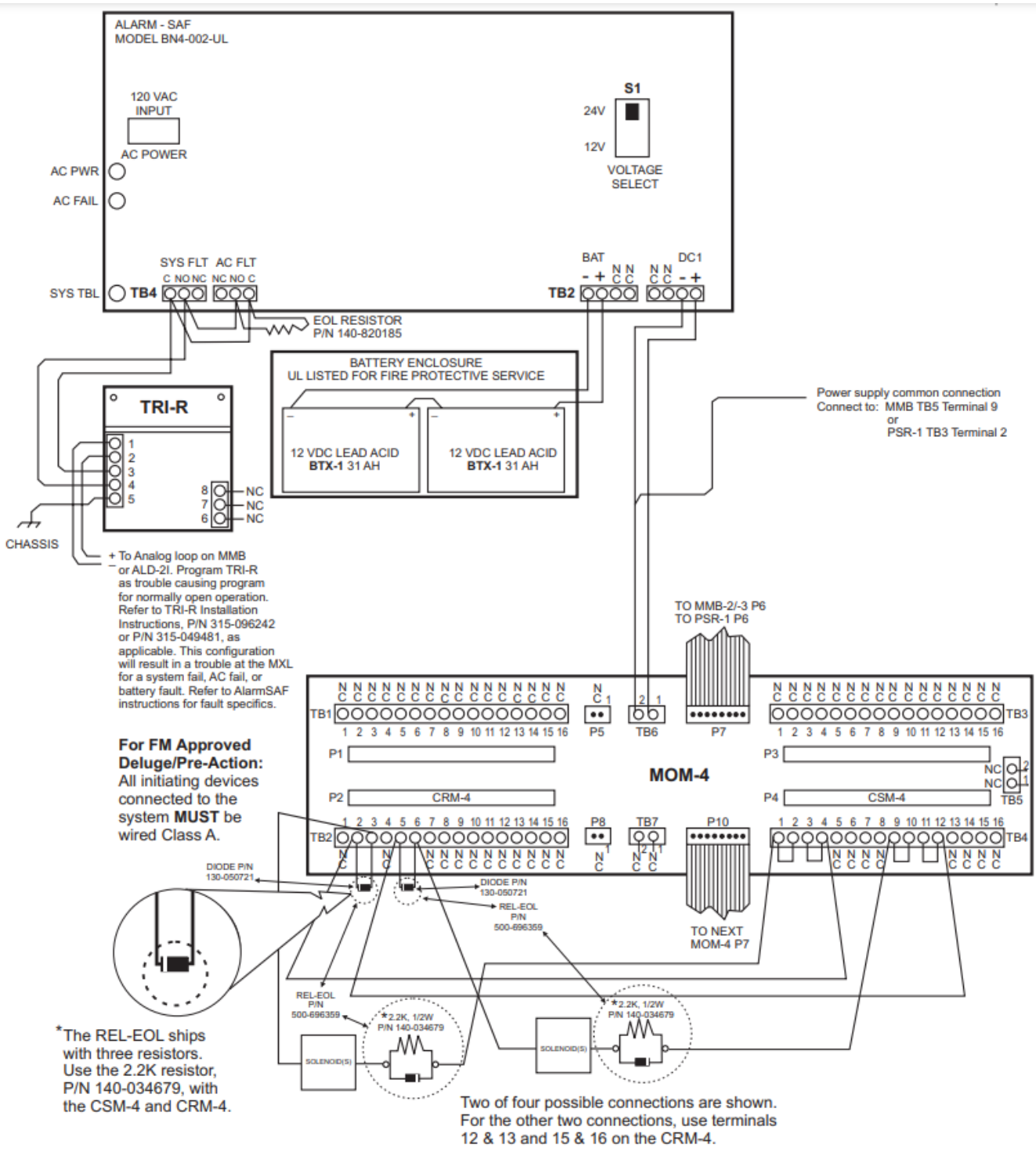


Figure 8
MXL Releasing Service Wiring Diagram with AlarmSAF Power Supply (per NFPA 13 and NFPA 2001)

Application	Make	Solenoid Model or Part Number	Number of Solenoids in Series	Maximum #of Circuits per MOM-4
NFPA 13 *(Pre-Action Deluge)*	Skinner	LV2LBX25	One 24 VDC	4
	ASCO	T8210A107	One 24 VDC	4
	ASCO	R8210A107	One 24 VDC	4
	Skinner	7321GBN99N00N0C111C2	One 24 VDC	4
NFPA 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 deserted in the table is not permitted.
Four series comected 6V solenoids must be used.
“Its not permitted to ma 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. Alarm SAF 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 nippled to the last solenoid in the loop.

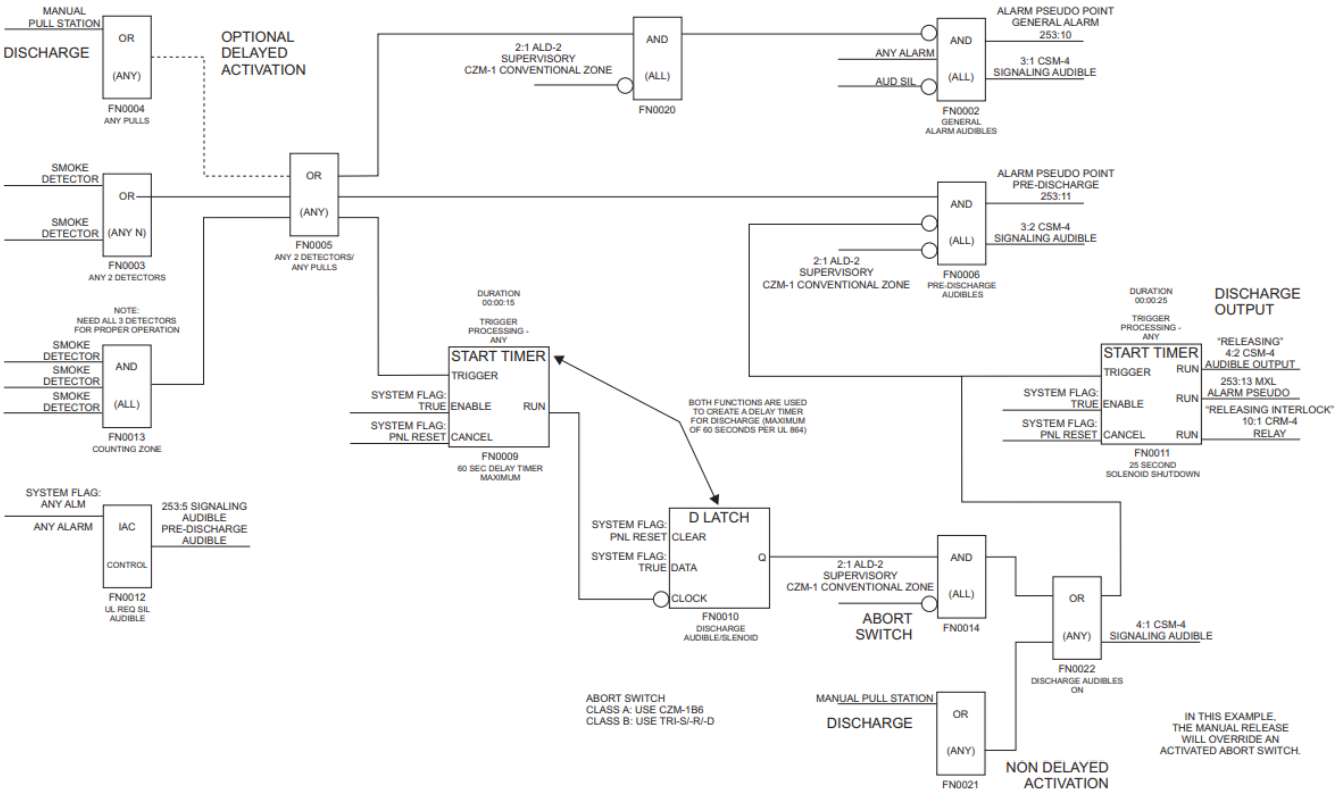


Figure 9
Sample MXL Releasing Service Flow Diagram
NOTE PER UL 864, MANUAL RELEASE CAN OVERRIDE PRE-DISCHARGE DELAYS; HOWEVER, THE MAXIMUM DELAY FROM ACTIVATION OF THE SWITCH TO ACTIVATION OF THE RELEASING DEVICES IS 30 SECONDS.

SIEMENS
P/N 315-090854-17
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L6T 5E4 Canada
firealarmresources.com

Documents / Resources

	**SIEMENS CSM-4 Controllable Signal Module** [pdf] Instruction Manual CSM-4 Controllable Signal Module, CSM-4, Controllable Signal Module, Controllable Module, Signal Module, CSM-4 Module, Module

References

- **Fire Alarm Resources | Download fire alarm documents**