



ALPHA-PAGE v3.2
Call/Alarm/Fault signal monitoring-paging system

Installation/OwnersManual

Alpha Communications®

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***** NOTICE *****

The Alpha-page digital pager interface system is an extremely reliable system for sending nurse call and other alarm messages to pocket pagers. The system sends messages to your pager(s) using a relatively high power radio signal. This signal has considerable range and has the ability to reject radio "noise" which could corrupt the message being sent.

Although Alpha-page is extremely reliable in communicating messages, it must only be used as supplemental alarm annunciation in life safety applications such as fire annunciation and nurse call. Alpha-page should only be used to enhance the efficiency of life safety systems by providing additional, immediate alarm notification via wireless paging. Micro Logic Systems shall not be held liable for incidental or consequential damages resulting from annunciation failure.

INTRODUCTION

Alpha-page is an call/alarm/fault signal monitoring system designed to instantly send user programmed messages to alpha-numeric pocket pagers in response to an incoming signal. The signal can be an AC or DC voltage or a dry contact closure. The system is stand-alone, it does not require a computer or any other equipment. Alpha-page is designed to interface to systems utilizing "home run" signal wiring. It is not intended for use in "multiplexed" systems which do not use individual signal wires.

Alpha-page uses alphanumeric pocket pagers which can receive messages containing numbers, letters, and punctuation symbols. You program a specific message for each call/alarm/fault signal using a standard computer keyboard. Therefore, the message on a system user's pager indicates the exact nature of the event, for example "Security alert-court room 1", "blower motor 2-overheating", or "John Smith-room 101" (nurse call). The system can be configured to best meet the needs of the facility. For example, the system can contain several pagers that can each receive all pages. Or, several pagers may be used but each only receives selected pages.

User programming is protected from erasure due to power failure with a built-in lithium battery with a life-span of up to ten years. With the rechargeable 12V, 7Amp-hour battery option, the entire system operates with battery back-up for up to 36 hours. When main power is restored, the battery is automatically recharged.

MLS-EC1 ENCLOSURE INSTALLATION

The entire Alpha-page system (except transmitter and pagers) fits in the MLS-EC1 surface-wall mount enclosure. Determine a suitable location for the MLS-EC1. Remember, wiring from each alarm/fault contact needs to be run to the MLS-EC1. Mount the MLS-EC1 in a location that will allow the most convenient means of running the required wiring between the contacts being monitored and Alpha-page. Refer to drawings C022397-1 and C022397-2 for enclosure dimensions and mounting hole locations.

ALARM SIGNAL WIRING

Each signal wire that is to cause a message to be transmitted must be connected to a MLS-32L signal input board. Refer to the drawings in this manual for basic wiring information. Note that there must always be a common voltage reference connected to the "COM" terminal of the MLS-SPU1 board.

Alpha-page can monitor up to 256 alarm/fault signals. Each MLS-32L signal input board can accommodate 32 call/alarm/fault signal wires. Therefore, more than one MLS-32L board is required if more than 32 alarm/fault signals are being monitored, up to eight can be used. The system can be expanded at any time by simply adding additional MLS-32L boards. Each MLS-32L board is programmed with an "address" (1-8) which identifies it from the other MLS-32L boards. Programming is accomplished by placing a programming jumper over stake-pin pair 1-8 on the MLS-32L board (refer to drawing C022397-3). Later, you will program each input with its own message. When programming messages, inputs are identified on the liquid crystal display (LCD) as input 001-input 256. These will correspond to terminals on MLS-32L boards. Terminals 1-32 on the MLS-32L board addressed as #1 will correspond

to input 001-input 032. Terminals 1-32 on the MLS-32L board addressed as #2 will correspond to input 033-input 064, respectively. Refer to the hart Relationship between MLS-32L terminal number, MLS-32L board number and programming input number for a complete reference guide. Installer: make note of what device, call station, etc. is connected to each input on the sheets included at the end of this manual. This information will be useful when messages are programmed for each input.

Signal wiring is connected to pluggable terminal blocks on the MLS-32L boards, refer to drawing C030497-1. MLS-32L boards are plugged into the MLS-32L sockets of the MLS-SPU1 board, refer to drawings C022397-4 and C030297-1. Any MLS-32L board number (address) may be plugged into any of the eight sockets on the MLS-SPU1, the order does not matter. MLS-32L boards are held securely in place by #6-32 mounting screws going through the "L" brackets of the MLS-32L and into the MLS-32L mounting studs located in the MLS-EC1 enclosure.

CONNECTING PT-400 TRANSMITTER

The PT-400 is a relatively high power radio transmitter that receives messages from the MLS-SPU1 board via the RS-232 data port then transmits them to the pagers in the facility. The transmitter uses a special frequency band and, therefore, will not send messages to "regular" pagers not associated with Alpha-page. Because the transmitter has significant power output, it can send messages to pagers from any point in most buildings to any point in most buildings. The transmitter can thus be plugged directly into the RS-232 data port of the MLS-SPU1 board regardless of where the system is installed in the building. The transmitter can then be placed on top of the MLS-EC1 enclosure. Use the data cable access hole provided in the MLS-EC1 enclosure to get the data and power cord into the enclosure to the MLS-SPU1 board. Refer to drawing C051398-1 for connecting the PT-400 to Alpha-page. Be sure to observe power polarity for transmitter. The positive wire of the power cord is identified by a white stripe and must be connected to the "12V" terminal of the MLS-SPU1 board.

If unusual circumstances (for example, very large, multi-story building) require the PT-400 transmitter to be located remotely from the Alpha-page system, MLS-232 serial port extenders must be used. The transmitter can then be located in a more centralized location to provide better coverage. MLS-232's are used in pairs, one as a transmitter of data (at Alpha-page) and one as a receiver of data (at the PT-400). With MLS-232's, the PT-400 transmitter may be placed more than 1000' from the Alpha-page system. Refer to drawing C051398-2 for guidance in connecting the PT-400 remotely. Be sure to observe power polarity for transmitter, and MLS-232's The positive wire of the PT-400 power cord is identified by a white stripe.

Relationship between MLS-32L terminal number, MLS-32L board number
and programming input number

	MLS-32L board number							
	#1	#2	#3	#4	#5	#6	#7	#8
terminal:								
1	001	033	065	097	129	161	193	225
2	002	034	066	098	130	162	194	226
3	003	035	067	099	131	163	195	227
4	004	036	068	100	132	164	196	228
5	005	037	069	101	133	165	197	229
6	006	038	070	102	134	166	198	230
7	007	039	071	103	135	167	199	231
8	008	040	072	104	136	168	200	232
9	009	041	073	105	137	169	201	233
10	010	042	074	106	138	170	202	234
11	011	043	075	107	139	171	203	235
12	012	044	076	108	140	172	204	236
13	013	045	077	109	141	173	205	237
14	014	046	078	110	142	174	206	238
15	015	047	079	111	143	175	207	239
16	016	048	080	112	144	176	208	240
17	017	049	081	113	145	177	209	241
18	018	050	082	114	146	178	210	242
19	019	051	083	115	147	179	211	243
20	020	052	084	116	148	180	212	244
21	021	053	085	117	149	181	213	245
22	022	054	086	118	150	182	214	246
23	023	055	087	119	151	183	215	247
24	024	056	088	120	152	184	216	248
25	025	057	089	121	153	185	217	249
26	026	058	090	122	154	186	218	250
27	027	059	091	123	155	187	219	251
28	028	060	092	124	156	188	220	252
29	029	061	093	125	157	189	221	253
30	030	062	094	126	158	190	222	254
31	031	063	095	127	159	191	223	255
32	032	064	096	128	160	192	224	256

CONNECTING POWER TO ALPHA-PAGE

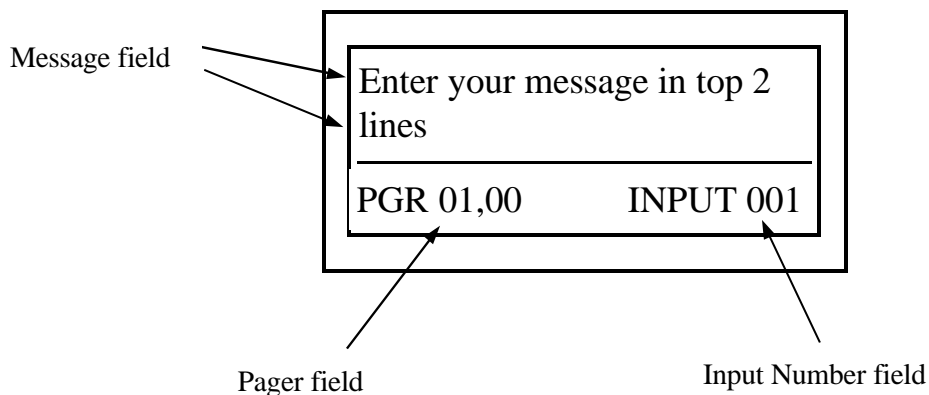
Alpha-page receives primary power from a 12VAC, 20VA power transformer. DO NOT use any power transformer with a secondary voltage rating of anything other than 12VAC. Connect the transformer secondary terminals to the two "AC" terminals on the MLS-SPU1 board, polarity does not matter. Use 18 AWG wire. Refer to drawing C022397-5. If the 12V, 7 amp-hour battery is to be used (for power back-up) it should be connected according to drawing C022397-5. Make sure the red wire of the MLS-H1 battery cord (included with battery) is connected to the positive (+) terminal of the battery via the quick-disconnect connector. The black wire of the MLS-H1 battery cord must be connected to the negative (-) terminal of the battery. The other end of the MLS-H1 cord is connected to the MLS-SPU1 board. Connect the red wire to the "B+" terminal. Connect the black wire to the "B-" terminal. Place the battery in the battery tray located in the bottom, center of the MLS-EC1 enclosure.

MESSAGE PROGRAMMING

A paging system would be of little use if the messages being sent to pagers could not be user programmed to include information such as the source and exact location of the alarm/fault signal. Alpha-page allows you to program a specific message for each call/ alarm/fault signal that will be sent to your pagers when the alarm/fault occurs.

Before the user does any custom message programming, the system contains generic programming which allows the system to function immediately without needing to be programmed. Input 1 is programmed as "Input 001", input 2 as "Input 002", etc. The system will be much more useful with your custom programming.

To enter the programming mode, simply plug a standard PS/2 type computer keyboard into the keyboard receptacle located on the MLS-SPU1 board (see drawing C022397-4). The programming screen appears on the LCD display automatically. The top two rows comprises the message field. This is where messages (up to 40 characters) will be entered. You may enter any number, any letter (upper and lower case, use shift for upper case), and most punctuation symbols. Some keys on the keyboard will not function. To update a message, simply type over the old message. Use the <backspace> key to move the cursor back one position. Use the <space bar> to erase the character located at the cursor position.



The pager field is located at the lower left of the LCD. Use the <tab> key to move the cursor from the message field to the pager field. Pagers are factory programmed with one or more 7 digit capcodes. The back of each pager is labeled with the capcodes it contains. A capcode is similar to a phone number. Capcodes give pagers a unique identity. This allows you to select which pagers (or pagers) receives a message. **The "pager number" is the last two digits of the capcode.** Alpha-Page allows you to select one or two pager numbers for each message. This determines which pager(s) receives the message. A message with assigned pager number 01 will only go to pagers programmed with pager number 01. A message with assigned pager numbers 01 and 02 will go the pagers programmed with pager numbers 01 *and* 02. In the pager field on the LCD, there is space for two 2-digit pager numbers (separated by a comma). Alpha-Page accepts pager numbers in the range of 00-99. If pager number 00 is specified, no page is sent. To send the message to one pager number, enter that pager number in one of the two pager number spaces and enter 00 in the other space. To erase or change pager numbers, simply type over the incorrect numbers. The default pager numbers of all messages are 01 and 00.

To program the message and/or pager number for another input, use the <tab> key to move the cursor to the input number field located at the lower right of the LCD. Type the number of the input that you wish to program/edit. Only input numbers in the range 001-256 will be accepted. Once a valid input number is entered, the current message and pager numbers for that input immediately appear on the LCD display. Use the <tab> key to move the cursor to the message field. You can then edit the message.

When all programming/editing is complete, unplug the computer keyboard. The system will resume monitoring for alarm/fault signals and sending appropriate messages to pagers. Programming can be edited at any time by again plugging in a keyboard and following to procedure above. Your programming is protected from erasure due to power failure by a built-in lithium battery.

PAGER MEMORY

Messages sent to pagers are stored in the memory of the pager. This memory can become full. When this occurs, older messages are overwritten by new messages. You may wish to erase messages right after they have been viewed or erase all messages occasionally. Follow the directions included with the pager.

MAINTENANCE

Alpha-page is virtually maintenance free. The optional 12V, 7 amp-hour battery used for power back-up may loose some of its capacity after approximately five years of use. It may be required at that time to replace the battery to maintain the full 36 hour power back-up capacity. It is recommended that the 3V lithium battery used for memory back-up (see drawing C022397-4) be replaced every five years to ensure proper system operation. The battery is contained in a battery holder and is easily replaceable. Replace with Panasonic type BR 2020 or equivalent (3V, 100mAh, 20 mm diameter).

TROUBLESHOOTING

Symptom:

System is dead, LCD screen is blank.

Possible causes:

Blown fuse in 12VAC transformer-replace transformer, do not short circuit secondary terminals together.

Thermal fuse on MLS-SPU1 board triggered-check for and remove short circuit between "+12" and "GND" terminals of MLS-SPU1 board.

Symptom:

Call/alarm/fault has occurred, but no message sent to pagers.

Possible causes:

"COM" terminal of MLS-SPU1 board not connected, or not properly connected-refer to the drawings included in this manual for wiring assistance.

The pager number(s) assigned to the message does not match pager capcodes-pager number is last two digits of a capcode. Pager capcodes are labeled on back of pager. See MESSAGE PROGRAMMING.

Both pager numbers assigned to the message are 00. Messages assigned with pager number 00 are not transmitted to any pager.

Make sure power and data cable for PT-400 transmitter are properly connected to MLS-SPU1 board. Refer to drawing in this manual.

Programming keyboard is plugged in, when keyboard is plugged in, system is in programming mode and is not monitoring for calls/alarms/faults-when finished programming, unplug keyboard.

PT-400 transmitter is too far away from pagers-use MLS-232 port extenders and relocate transmitter centrally in building (see drawing C051398-2)

input number	wired to:
1	
2	
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4	
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27	
28	
29	
30	
31	
32	

input number	wired to:
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
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51	
52	
53	
54	
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56	
57	
58	
59	
60	
61	
62	
63	
64	

input number	wired to:
65	
66	
67	
68	
69	
70	
71	
72	
73	
74	
75	
76	
77	
78	
79	
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95	
96	

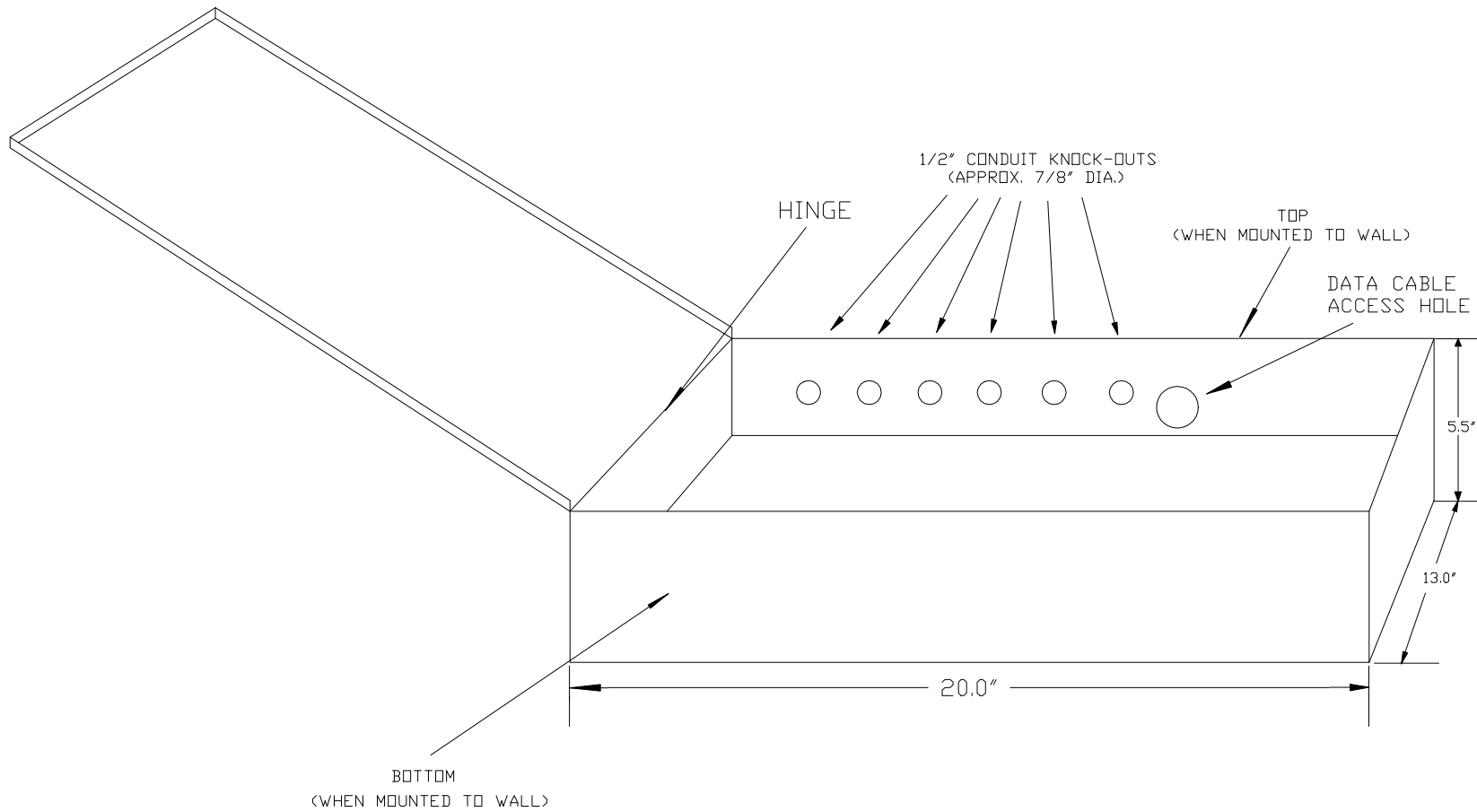
input number	wired to:
97	
98	
99	
100	
101	
102	
103	
104	
105	
106	
107	
108	
109	
110	
111	
112	
113	
114	
115	
116	
117	
118	
119	
120	
121	
122	
123	
124	
125	
126	
127	
128	

input number	wired to:
129	
130	
131	
132	
133	
134	
135	
136	
137	
138	
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140	
141	
142	
143	
144	
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146	
147	
148	
149	
150	
151	
152	
153	
154	
155	
156	
157	
158	
159	
160	

input number	wired to:
161	
162	
163	
164	
165	
166	
167	
168	
169	
170	
171	
172	
173	
174	
175	
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190	
191	
192	

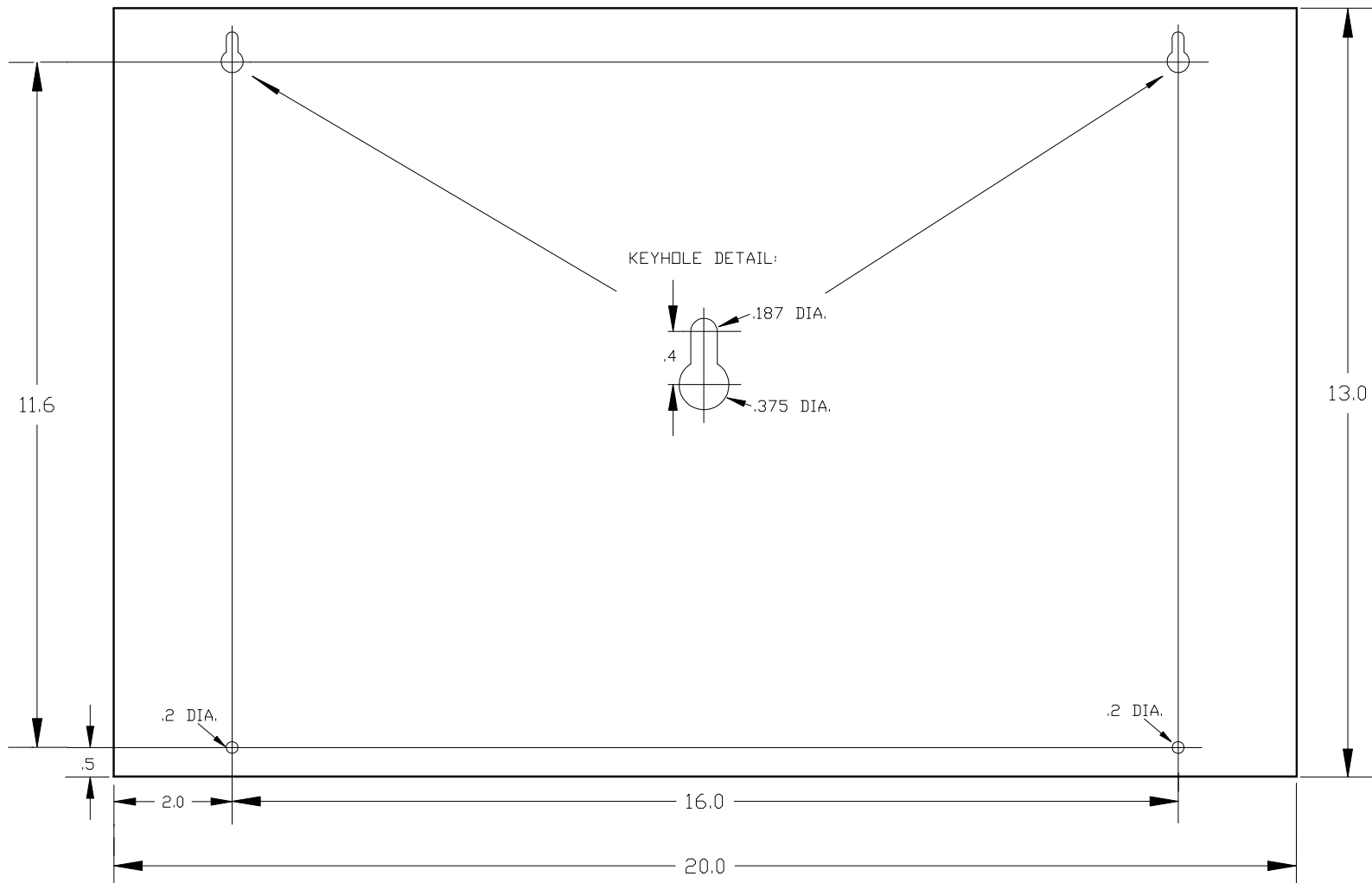
input number	wired to:
193	
194	
195	
196	
197	
198	
199	
200	
201	
202	
203	
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205	
206	
207	
208	
209	
210	
211	
212	
213	
214	
215	
216	
217	
218	
219	
220	
221	
222	
223	
224	

input number	wired to:
225	
226	
227	
228	
229	
230	
231	
232	
233	
234	
235	
236	
237	
238	
239	
240	
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251	
252	
253	
254	
255	
256	



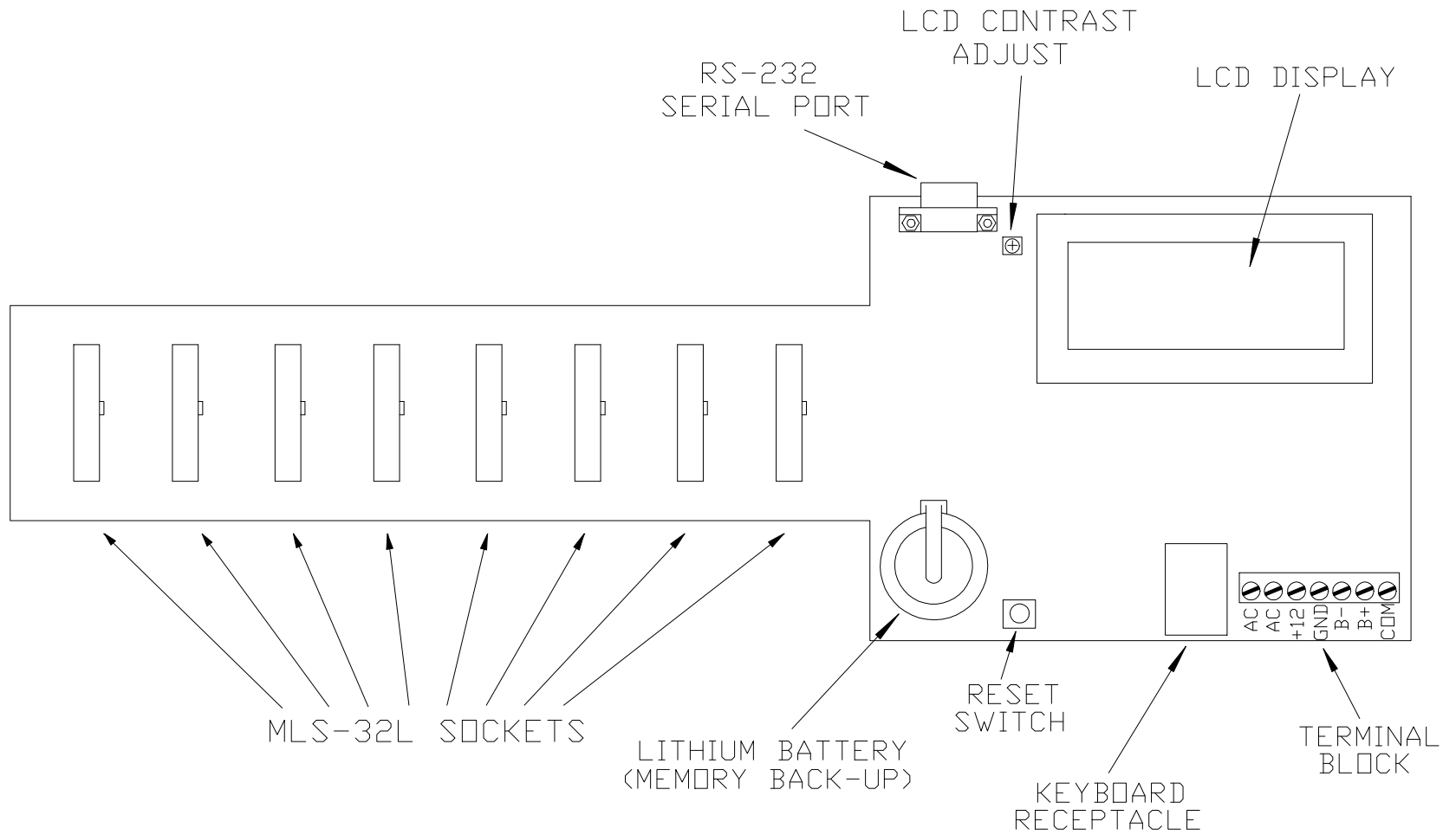
NOTE:
ENCLOSURE CONTAINS MAGNETIC COVER LATCH
AND COVER OPENING KNOB.

TITLE Alpha Communications	
MLS-EC1 ENCLOSURE DIMENSIONS	
NUMBER	REVISION C
C022397-1	ORIG. SIZE A
DATE: 2/23/97 REV. 9/21/98	SHEET 1 OF 1
FILE: EC1-DIMS	DRAWN BY: MG

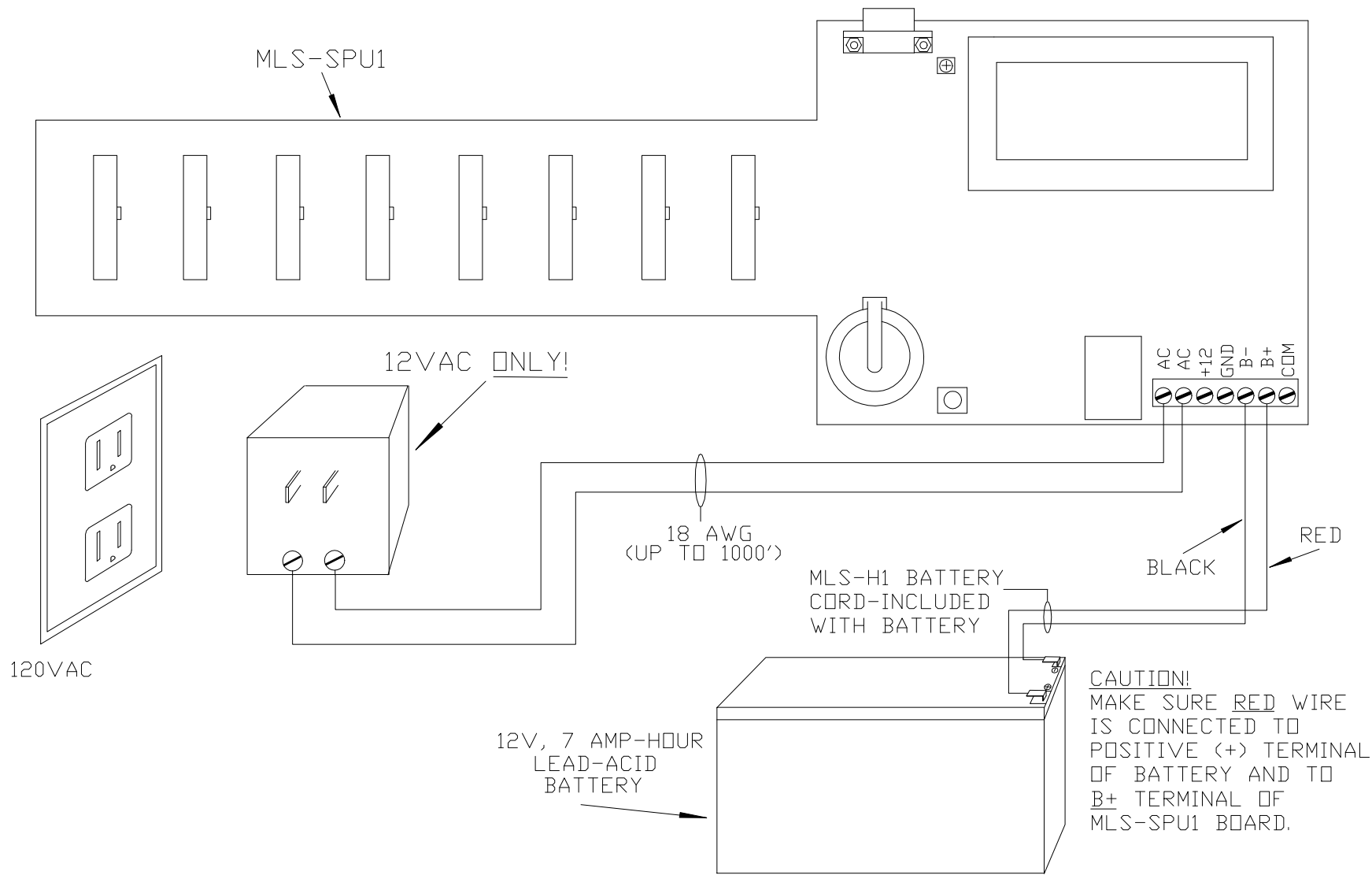


NOTE:
ALL DIMENSIONS IN INCHES

TITLE Alpha Communications	
MLS-EC1 ENCLOSURE MOUNTING HOLE DIMENSIONS	
NUMBER	C022397-2
DATE: 2/23/97	SHEET 1 OF 1
FILE: EC1-MNT	DRAWN BY: MG
REVISION	ORIG. SIZE A

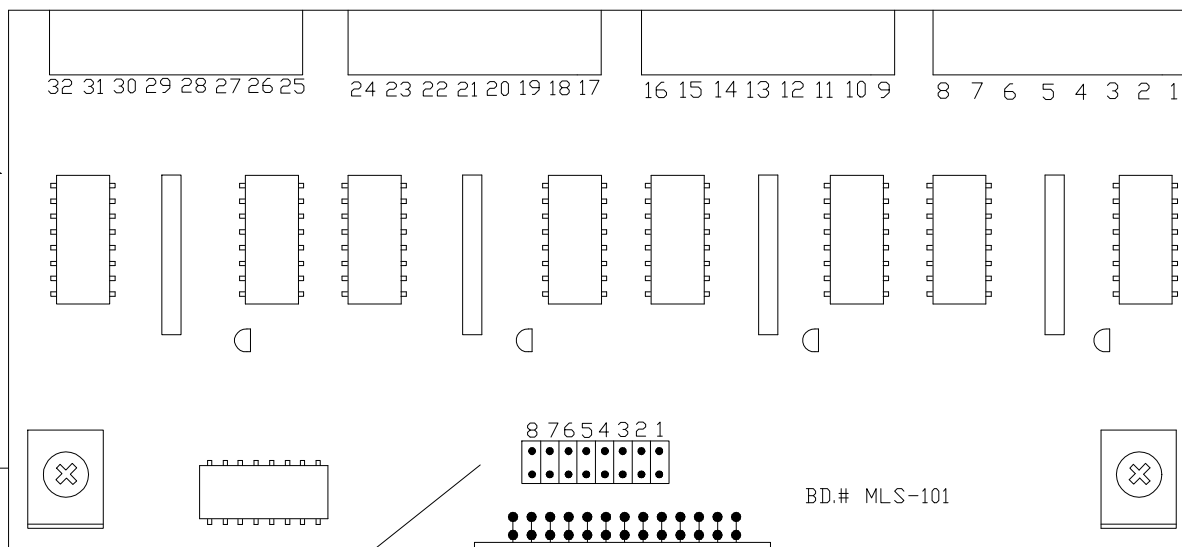


TITLE Alpha Communications	
MLS-SPU1 SIGNAL PROCESSING UNIT-OVERVIEW	
NUMBER	C022397-4
REVISION	ORIG. SIZE A
DATE: 2/23/97	SHEET 1 OF 1
FILE: SPU-OVER	DRAWN BY: MG

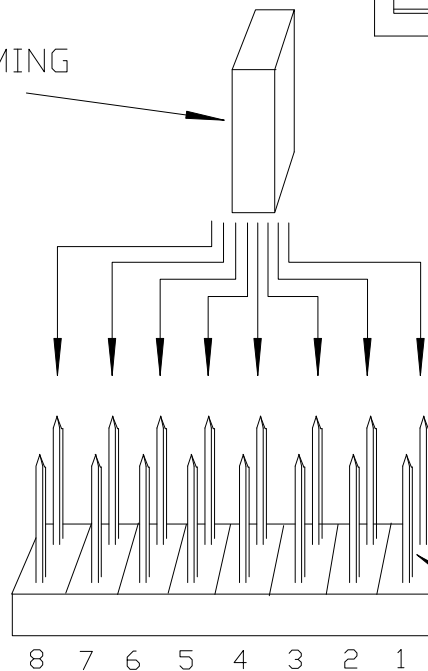


TITLE Alpha Communications POWER WIRING AND POWER BACK-UP BATTERY CONNECTIONS TO MLS-SPU1	
NUMBER C022397-5	REVISION ORIG. SIZE A
DATE: 2/23/97	SHEET 1 OF 1
FILE: PWR-BATT	DRAWN BY: MG

MLS-32L



PROGRAMMING JUMPER

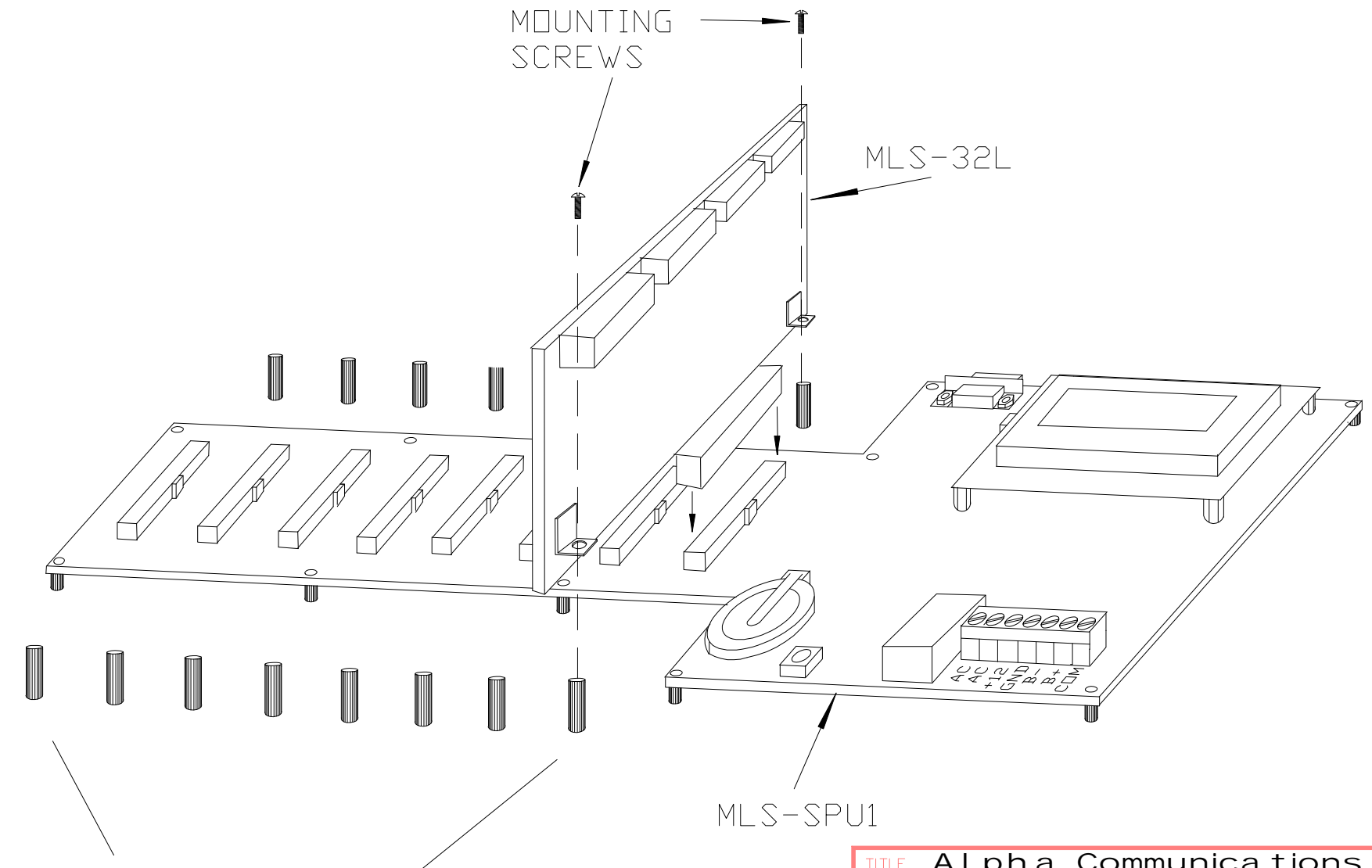


PLACE PROGRAMMING JUMPER OVER STAKE-PIN PAIR 1-8 TO PROGRAM A MLS-32L INPUT BOARD.

FOR EXAMPLE, PLACING THE PROGRAMMING JUMPER OVER THE STAKE-PINS ON THE FAR RIGHT WILL PROGRAM THIS MLS-32L BOARD AS INPUT BOARD #1 (INPUTS 1-32).

STAKE-PINS (PAIR #1)

TITLE		Alpha Communications	
		PROGRAMMING THE MLS-32L	
NUMBER		C022397-3	REVISION
			ORIG. SIZE A
DATE: 2/23/97	SHEET	1 OF 1	
FILE: 32L-PRDG	DRAWN BY:	MG	



MOUNTING
SCREWS

MLS-32L

MLS-SPU1

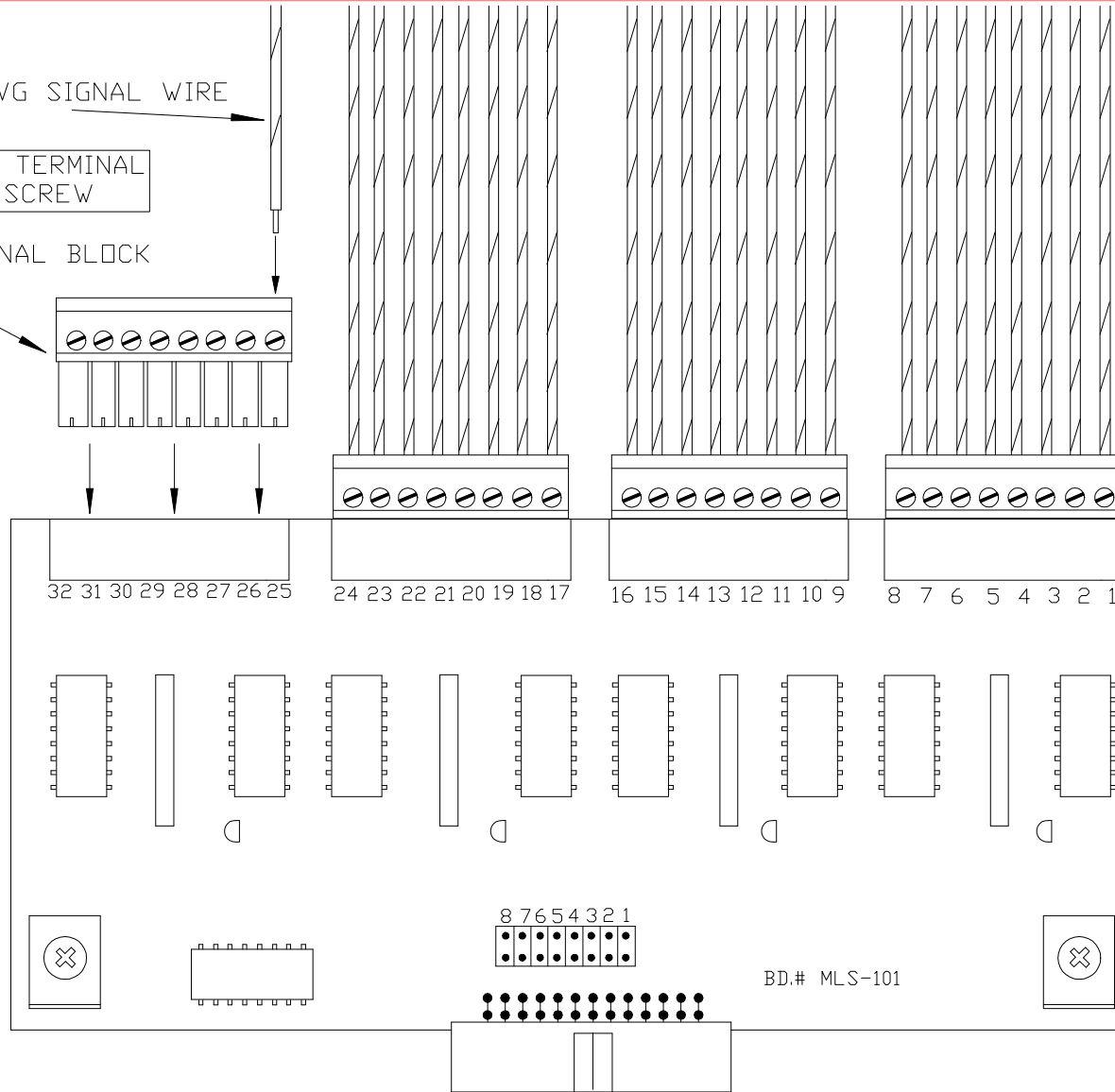
MLS-32L MOUNTING SPACER/NUTS

TITLE Alpha Communications		REVISION
INSTALLING MLS-32L BOARD		ORIG. SIZE A
NUMBER	C030297-1	
DATE: 3/2/97	SHEET	1 OF 1
FILE: INST-IBD	DRAWN BY: MG	

18-24 AWG SIGNAL WIRE

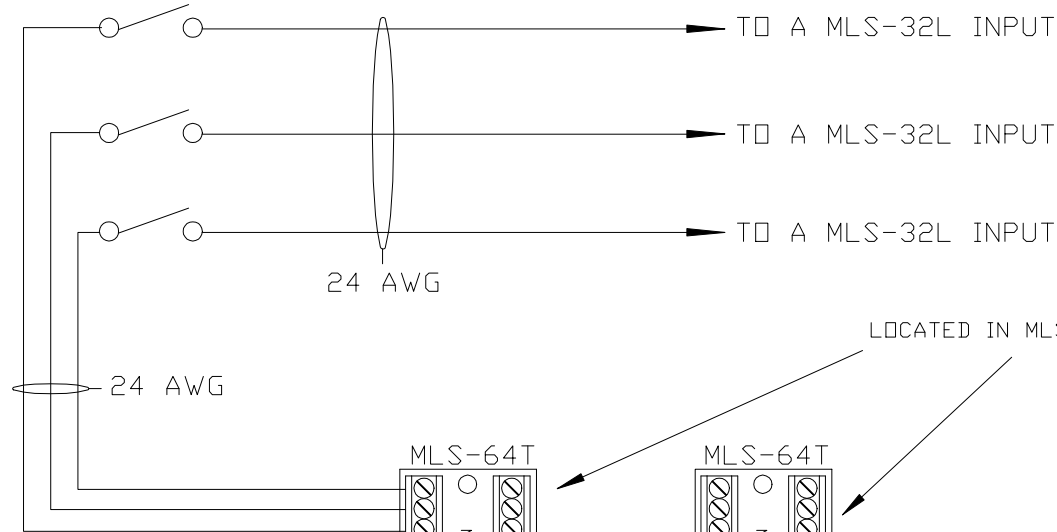
INSERT WIRE IN TERMINAL
BLOCK-TIGHTEN SCREW

PLUGGABLE TERMINAL BLOCK

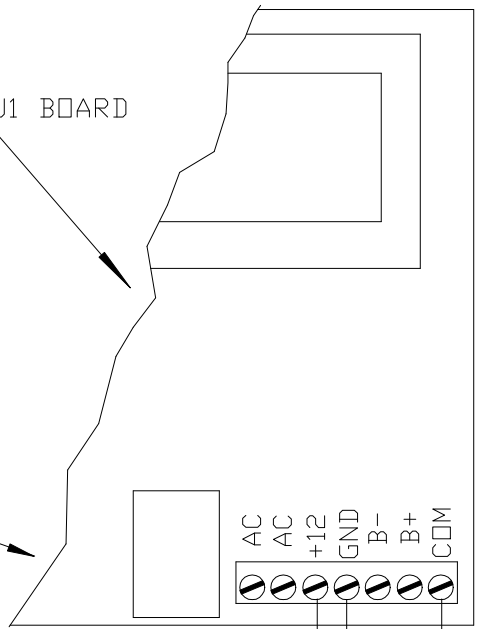


TITLE Alpha Communications	
CONNECTING CALL/ALARM SIGNAL WIRE TO MLS-32L	
NUMBER C030497-1	REVISION ORIG. SIZE A
DATE: 3/4/97	SHEET 1 OF 1
FILE: 32L-WIRE	DRAWN BY: MG

NORMALLY OPEN CONTACTS
BEING MONITORED

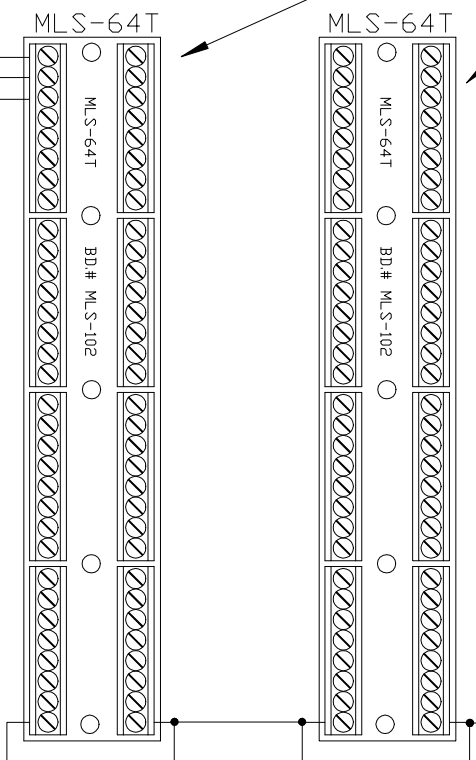


MLS-SPU1 BOARD



LOCATED IN MLS-EC1 ENCLOSURE

THESE WIRES MAY BE
CONNECTED TO ANY
TERMINAL (ON ANY
MLS-64T BOARD, IF
THERE ARE MORE THAN 1
MLS-64T BOARDS), IN
ANY ORDER.



NOTE:
MLS-64T BOARDS ARE OPTIONAL. THEY
PROVIDE CONVENIENT TERMINATION
OF ONE WIRE FROM EACH PAIR AND
ELECTRICALLY CONNECT THEM TO A
COMMON VOLTAGE.

JUMPER
WIRE

24 AWG

TITLE Alpha Communications	
N.O. ALARM/FAULT CONTACT WIRING TO ALPHA-PAGE	
NUMBER C030797-1	REVISION ORIG. SIZE A
DATE: 3/7/97	SHEET 1 OF 1
FILE: DRY-ND	DRAWN BY: MG

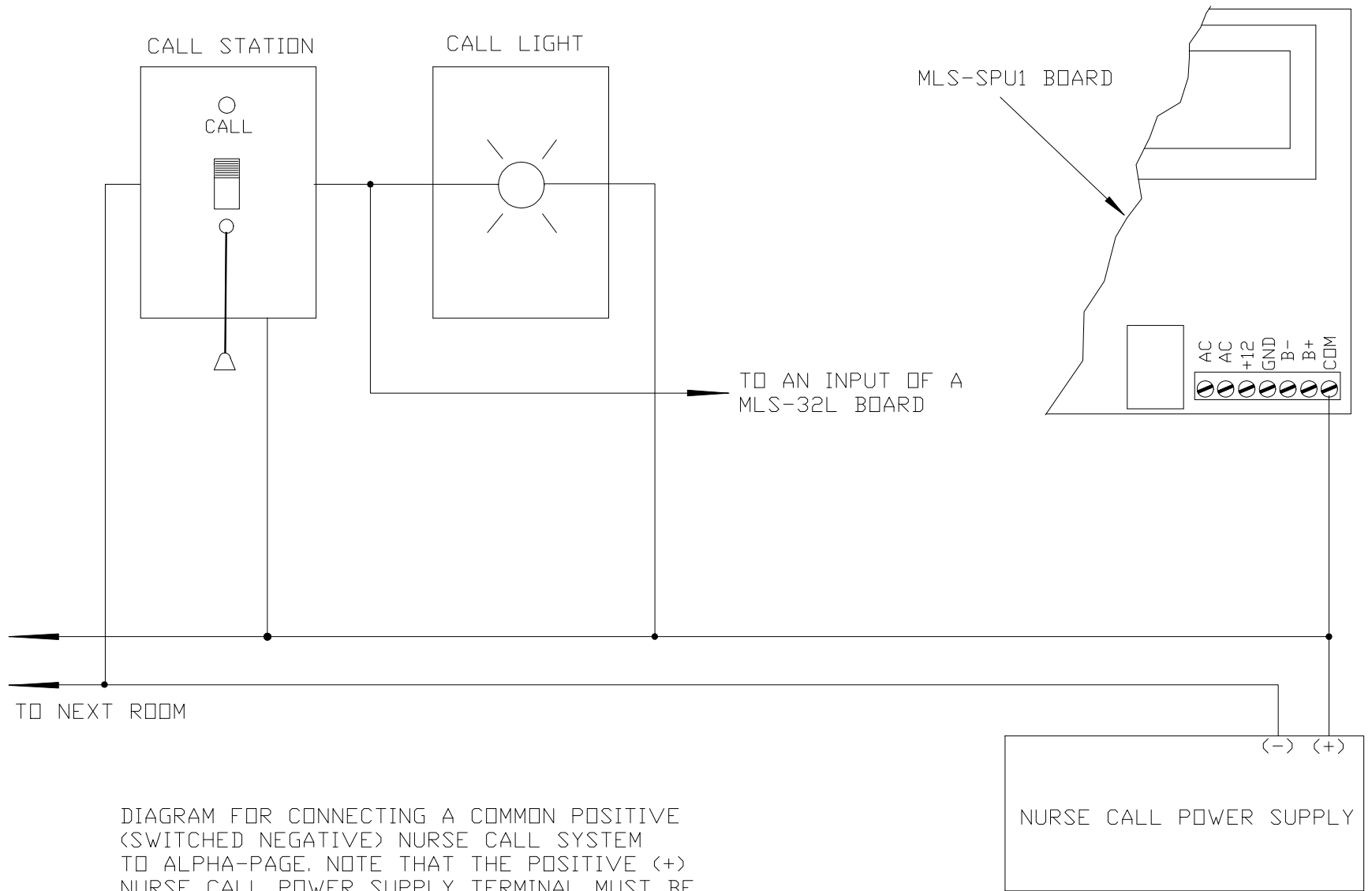


DIAGRAM FOR CONNECTING A COMMON POSITIVE (SWITCHED NEGATIVE) NURSE CALL SYSTEM TO ALPHA-PAGE. NOTE THAT THE POSITIVE (+) NURSE CALL POWER SUPPLY TERMINAL MUST BE CONNECTED TO THE "COM" TERMINAL OF THE MLS-SPU1 BOARD.

TITLE Alpha Communications			
CONNECTING COMMON PLUS NURSE CALL SYSTEM TO ALPHA-PAGE			
NUMBER	C030397-1	REVISION	A
DATE: 3/3/97	REV. 4/9/98	ORIG. SIZE	A
FILE: NC-COM-P	SHEET	1	OF 1
	DRAWN BY:	MG	

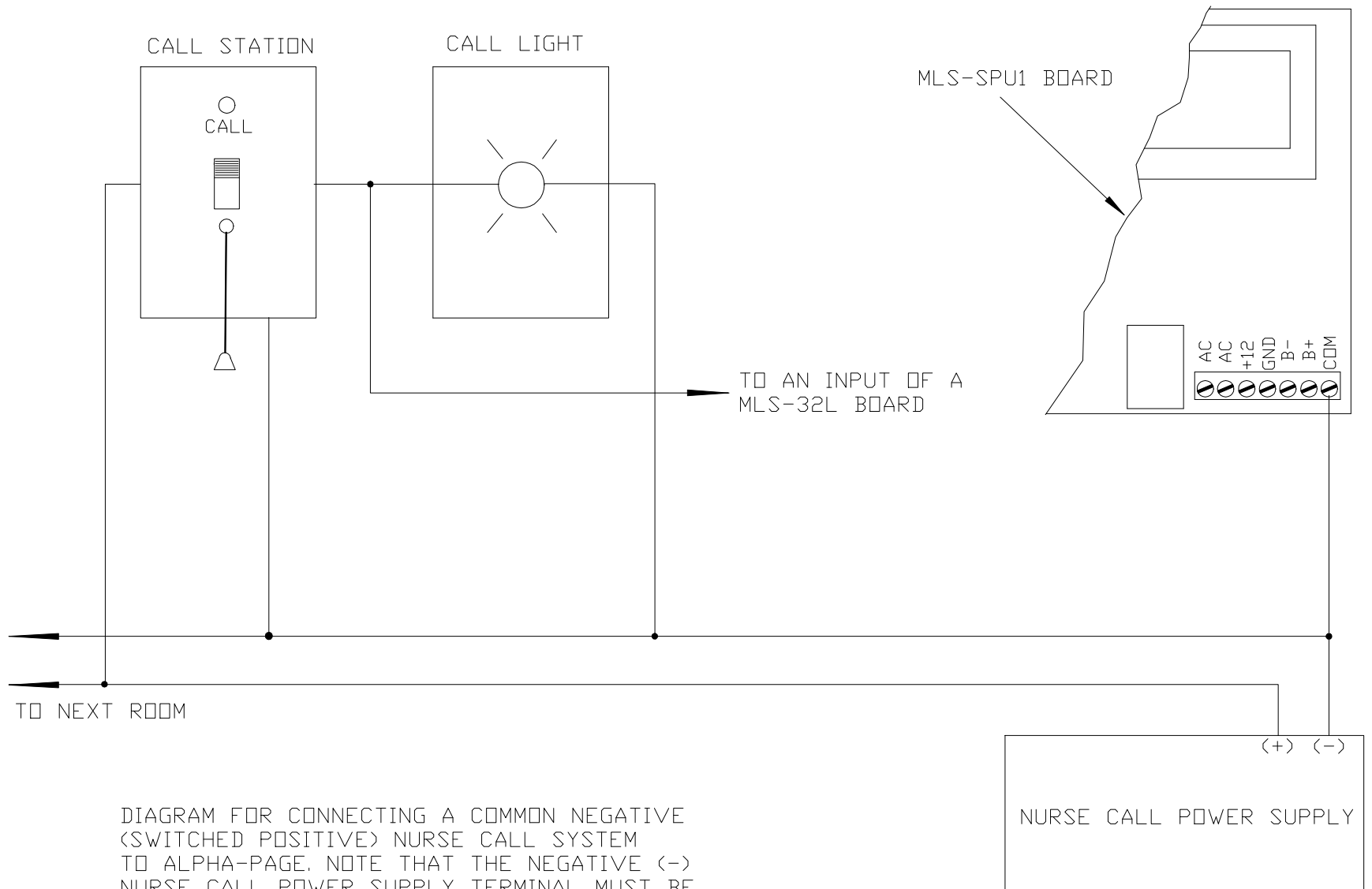
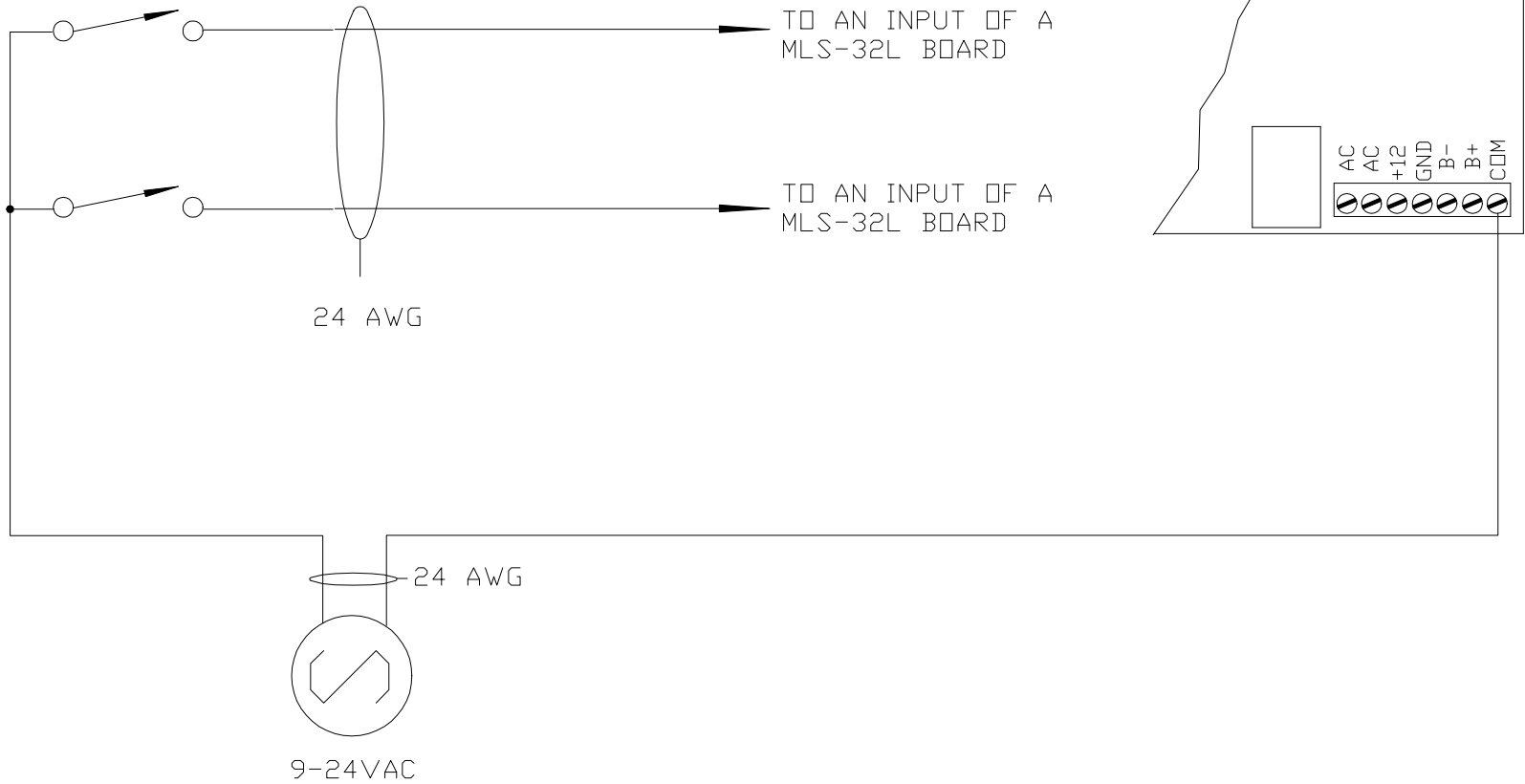


DIAGRAM FOR CONNECTING A COMMON NEGATIVE (SWITCHED POSITIVE) NURSE CALL SYSTEM TO ALPHA-PAGE. NOTE THAT THE NEGATIVE (-) NURSE CALL POWER SUPPLY TERMINAL MUST BE CONNECTED TO THE "COM" TERMINAL OF THE MLS-SPU1 BOARD.

TITLE Alpha Communications	
CONNECTING COMMON NEGATIVE NURSE CALL SYSTEM TO ALPHA-PAGE	
NUMBER C030397-2	REVISION A ORIG. SIZE A
DATE: 3/3/97 REV. 4/9/98	SHEET 1 OF 1
FILE: NC-COM-N	DRAWN BY: MG

NORMALLY OPEN CONTACTS
BEING MONITORED



TITLE **Alpha Communications**

CONNECTING SWITCHED AC SIGNAL TO ALPHA-PAGE

NUMBER

C032097-3

REVISION

ORIG. SIZE A

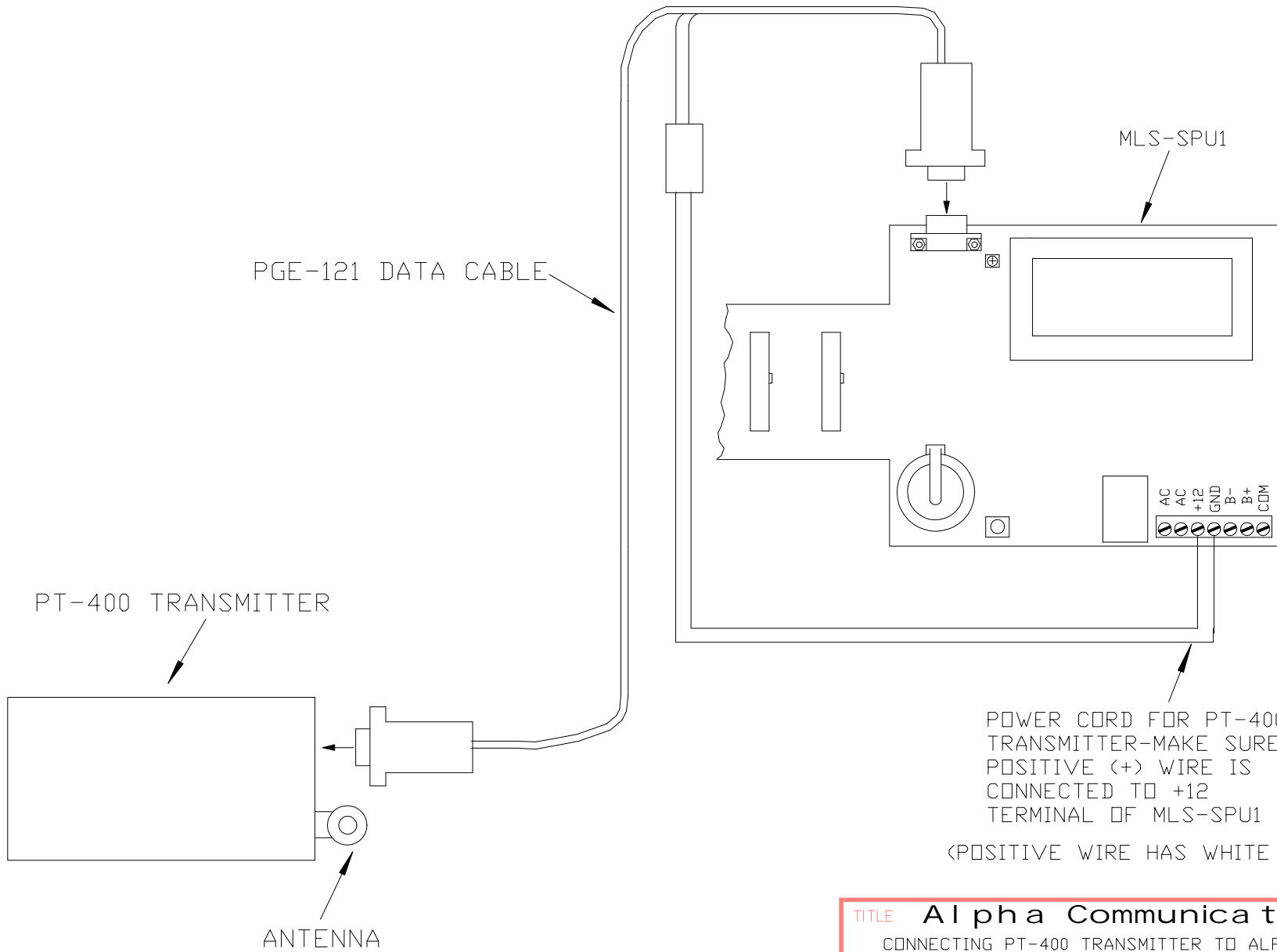
DATE: 3/20/97

SHEET

1 OF 1

FILE: SW-AC

DRAWN BY: MG



PGE-121 DATA CABLE

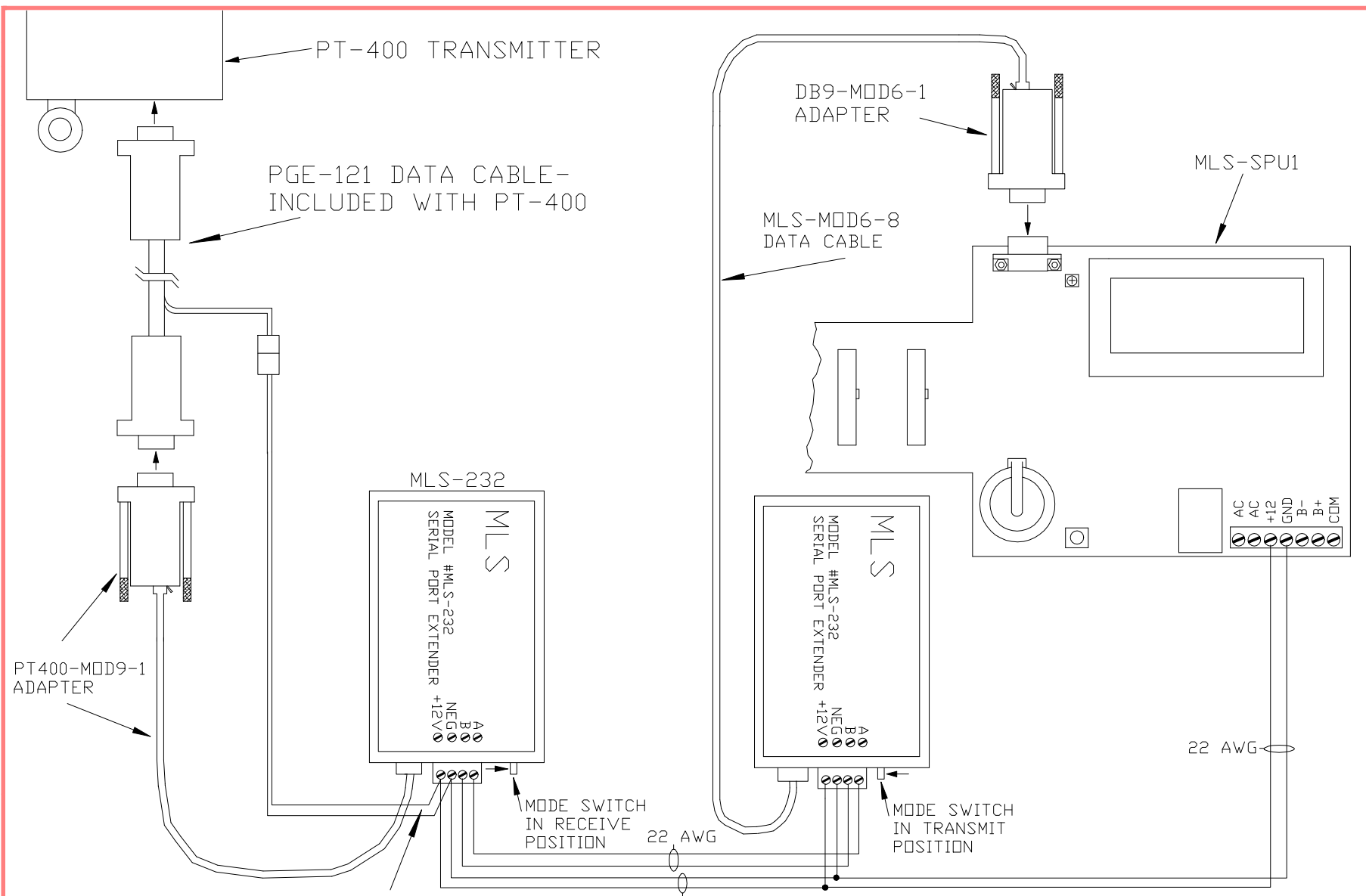
MLS-SPU1

PT-400 TRANSMITTER

ANTENNA

POWER CORD FOR PT-400
 TRANSMITTER-MAKE SURE
 POSITIVE (+) WIRE IS
 CONNECTED TO +12
 TERMINAL OF MLS-SPU1
 (POSITIVE WIRE HAS WHITE STRIPE)

TITLE Alpha Communications CONNECTING PT-400 TRANSMITTER TO ALPHA-PAGE	
NUMBER C051398-1	REVISION ORIG. SIZE A
DATE: 5/13/98	SHEET 1 OF 1
FILE: PT400WIR	DRAWN BY: MG



POWER CORD FOR PT-400 TRANSMITTER-MAKE SURE POSITIVE (+) WIRE IS CONNECTED TO +12V TERMINAL (POSITIVE WIRE HAS WHITE STRIPE)

TITLE Alpha Communications WIRING MLS-232 PORT EXTENDER TO ALPHA-PAGE	
NUMBER C051398-2	REVISION A ORIG. SIZE A
DATE: 5/13/98	SHEET 1 OF 1
FILE: PT400232	DRAWN BY: MG