46022-12

MULTIPLE ALARM COMBINER

**46022-12
Multi-Alarm
Combiner**

RX DATA
Dantel
46022-12 REV__

Table of Contents

About this Practice:

The practice has been reissued to:
• Update Fig. 5.

Reissued Practices: Updated and new content can be identified by a banner in the right margin.

Issue date: February 1999

UPDATED

CAUTION

• Install or remove modules from the shelf only when the power is off. If you install a module in the shelf with the power on, the internal circuitry may suffer damage and the product warranty will be void.

• Remove and install circuit boards only in a static-safe environment (use antistatic wrist straps, smocks, footwear, etc.).

• Keep circuit boards in their antistatic bags when they are not in use.

• Do not ship or store circuit boards near strong electrostatic, electromagnetic, magnetic, or radioactive fields.

• For more complete information on electrostatic discharge safety precautions, refer to Bellcore™ Technical Reference # TR-NWT-000870.

ORDERING INFORMATION

NOTE: This section lists the different options available for this product. To order any of the available options, contact Dantel Inside Sales through our toll-free number, **1-800-432-6835.**

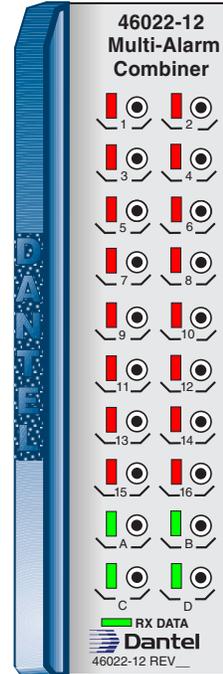| OPTION NUMBER	FEATURES
A11-46022-12	Multiple Alarm Combiner

GENERAL DESCRIPTION

The 46022-12 Multiple Alarm Combiner (MAC) uses RS-422 communications to interface the data port of the 46020 Multiple Alarm Processor (MAP) to remote components of Dantel's 460 Alarm and Control System (ACS). It has eight ports and also provides an alarm status display. The front panel has LEDs and switches for alarm status indication, alarm acknowledgment, and control point operation.

The MAC is a plug-in printed circuit module that fits into any Dantel 400-type or similar equipment housing. It operates on -21 to -56 VDC input power.

CIRCUIT DESCRIPTION

Fig. 1 shows an illustration of the 46022-12 MAC functional schematic. The circuit consists of an address logic selector, display latches and drivers, and a regulated power supply.

Address Logic Selector

The address logic selector makes an address exclusive to the module. To assign an address (1-8), set the mini-DIP switches labeled S1-1, 2, 3, and 4. The 46020 MAP in the Alarm and Control System uses this address to sequence alarm polling data to each MAC in the alarm system.

Display Latches and Drivers

The display drivers supply operating current to the LEDs. Whenever a display signal is received at the MAC, the display is latched ON. The LEDs remain latched ON until:

♦ The alarm's status returns to normal,

♦ The alarm system master (controlling computer terminal) acknowledges the alarm condition and status changes,

- or -

♦ You operate the front panel acknowledgment switches.

The specific operation of the front panel switches and LEDs is dependent on the firmware version. Check the appropriate firmware manual for more information.
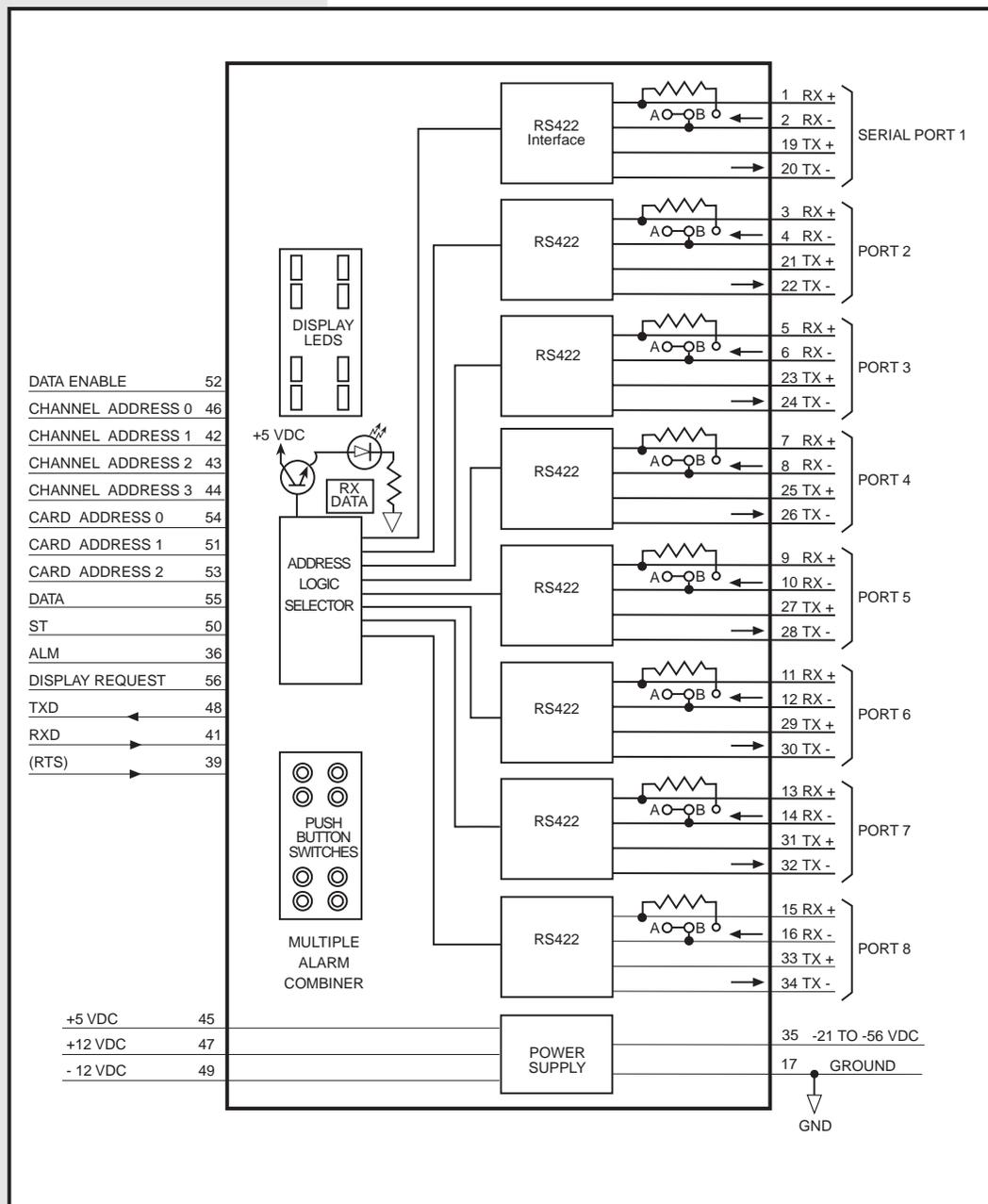
CIRCUIT DESCRIPTION

Regulated Power Supply

The regulated power supply uses -21 to -56 VDC input power to supply ±12 VDC and +5 VDC to the module's circuit board.

It also supplies the following to the edge connector for off-board use:

- ♦ +12 VDC (pin 47)
- ♦ -12 VDC (pin 49)
- ♦ +5 VDC (pin 45)

FIG. 1 - FUNCTIONAL SCHEMATIC, 46022-12 MULTIPLE ALARM COMBINER

INSTALLATION

Installation consists of setting the straps and switches, wiring the connector, and installing the module.

Each of the eight ports of the 46022-12 MAC has an RS-422 data communications interface. If you require a different interface, connect the serial alarm device through a 46035 Converter Module or a 46022-20 MAC equipped with the appropriate interface subassembly.

1. Set the straps.

You can strap the 46022-12 MAC to have its alarm inputs (receive lines) either terminated or unterminated. The terminating load is 100 ohms. Each alarm port must have a current path at some point of termination, which is normally set at the MAC.

♦ If a channel is connected to communications lines, the resistor is normally strapped IN (position B).

♦ If termination for a channel is provided at the source, strap the resistor OUT.

Refer to Table A and Fig. 2.

2. Set the switches.

A mini-DIP switch (S1) selects the card address, used by the 46020 MAP to sequence all MACs in an alarm system. Refer to Table B and Fig. 2 to set the switches.

NOTE: *In order for the system to function properly, two MACs cannot share the same address.*

To make any port of the 46022-12 MAC addressable for interfacing remote discrete alarm points to the shelf without rewiring, you may use the 46022-12 MAC in conjunction with a 46022-30 MAC.

3. Wire the connector.

Normally the 56-pin edge connector in the shelf is prewired at the factory. If you are going to wire the connector, refer to Fig. 3 for module connector pin wiring assignments. Wire the connector in the shelf or housing as required.

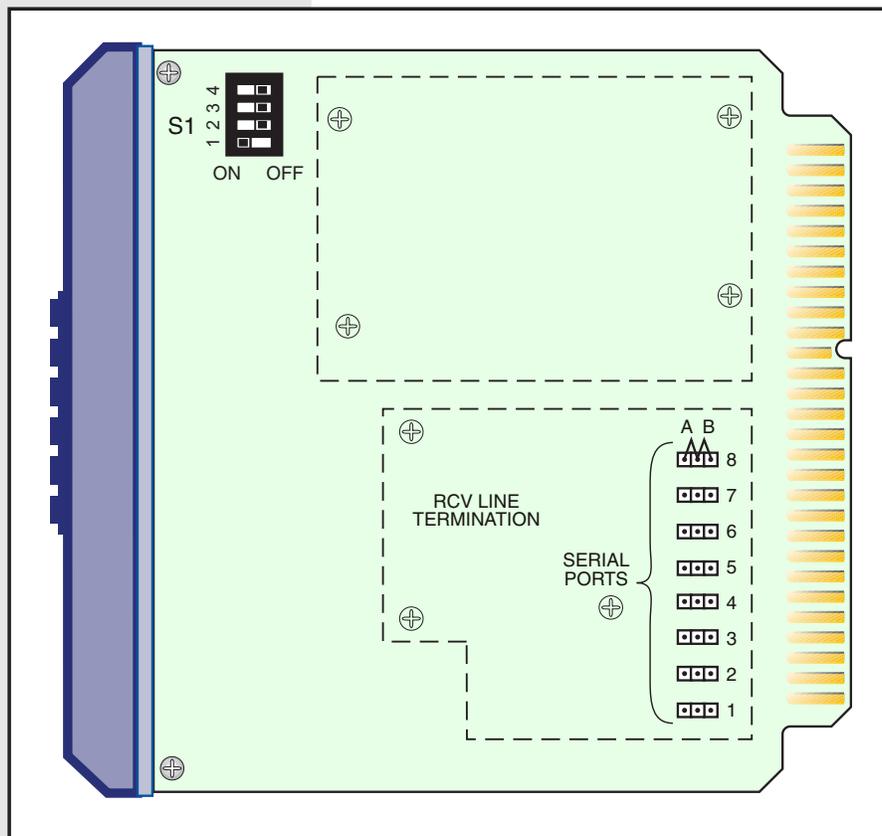## 4. Install the module in the equipment housing.

INSTALLATION

TABLE A - STRAP OPTION DESIGNATIONS

Alarm Port Number	Position
1 Unterminated 1 Terminated *	1A 1B
2 Unterminated 2 Terminated *	2A 2B
3 Unterminated 3 Terminated *	3A 3B
4 Unterminated 4 Terminated *	4A 4B
5 Unterminated 5 Terminated *	5A 5B
6 Unterminated 6 Terminated *	6A 6B
7 Unterminated 7 Terminated *	7A 7B
8 Unterminated 8 Terminated *	8A 8B
* Factory Default Setting	

TABLE B - 46022-12 ADDRESS SWITCH SETTINGS

Address Number	Switch Setting			
	S1-1	S1-2	S1-3	S1-4
1 *	ON	OFF	OFF	OFF
2	ON	ON	OFF	OFF
3	ON	OFF	ON	OFF
4	ON	ON	ON	OFF
5	ON	OFF	OFF	ON
6	ON	ON	OFF	ON
7	ON	OFF	ON	ON
8	ON	ON	ON	ON

* Default setting for applications using only one MAC.

FIG. 2 - STRAP AND SWITCH LOCATIONS, 46022-12 MAC

INSTALLATION

FIG. 3 - PIN DESIGNATIONS, 46022-12 MAC

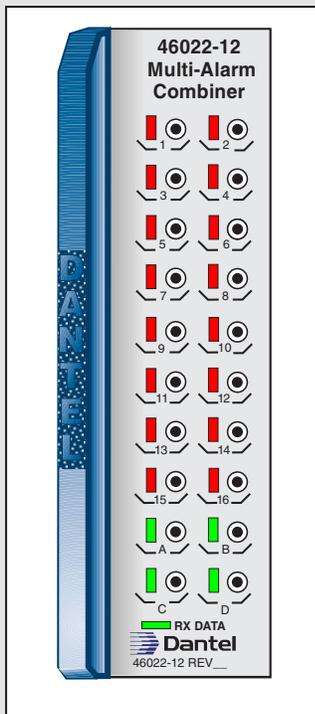|			
DISPLAY REQUEST	56	55	DATA
CARD ADDRESS 0	54	53	CARD ADDRESS 2
ENABLE	52	51	CARD ADDRESS 1
WRT	50	49	-12 VDC (OUTPUT)
SERIAL OUTPUT DATA	48	47	+12 VDC (OUTPUT)
MAP CHANNEL ADDRESS 0	46	45	+5 VDC (OUTPUT)
MAP CHANNEL ADDRESS 3	44	43	MAP CHANNEL ADDRESS 2
MAP CHANNEL ADDRESS 1	42	41	TXD MODEM DATA CONNECTION
	40	39	
	38	37	
ALM	36	35	-21 TO -56 VDC
PORT 8	34	33	PORT 8
" 7	32	31	" 7
" 6	30	29	" 6
" 5	28	27	" 5
" 4	26	25	" 4
" 3	24	23	" 3
" 2	22	21	" 2
PORT 1	20	19	PORT 1
	18	17	GROUND
PORT 8	16	15	PORT 8
" 7	14	13	" 7
" 6	12	11	" 6
" 5	10	9	" 5
" 4	8	7	" 4
" 3	6	5	" 3
" 2	4	3	" 2
PORT 1	2	1	PORT 1

TRANSMIT - (PORT 8 through PORT 1, pins 34–20)
TRANSMIT + (PORT 8 through PORT 1, pins 33–19)
RECEIVE - (PORT 8 through PORT 1, pins 16–2)
RECEIVE + (PORT 8 through PORT 1, pins 15–1)

← COMPONENT SIDE OF PC   CIRCUIT SIDE OF PC →

OPERATION

The 46022-12 Multiple Alarm Combiner has the following indicators on the front panel:

- ◆ Sixteen red LEDs indicate alarm site and individual alarm point status. A momentary contact switch next to each LED is for alarm acknowledgment and other functions.

- ◆ Four green LEDs indicate the individual alarm level (A, B, C, or D).

- ◆ One green LED labeled RX DATA indicates that the unit is receiving data.

The way the unit operates is dependent on the 46020 MAP firmware. Refer to the appropriate firmware manual for complete operating information.
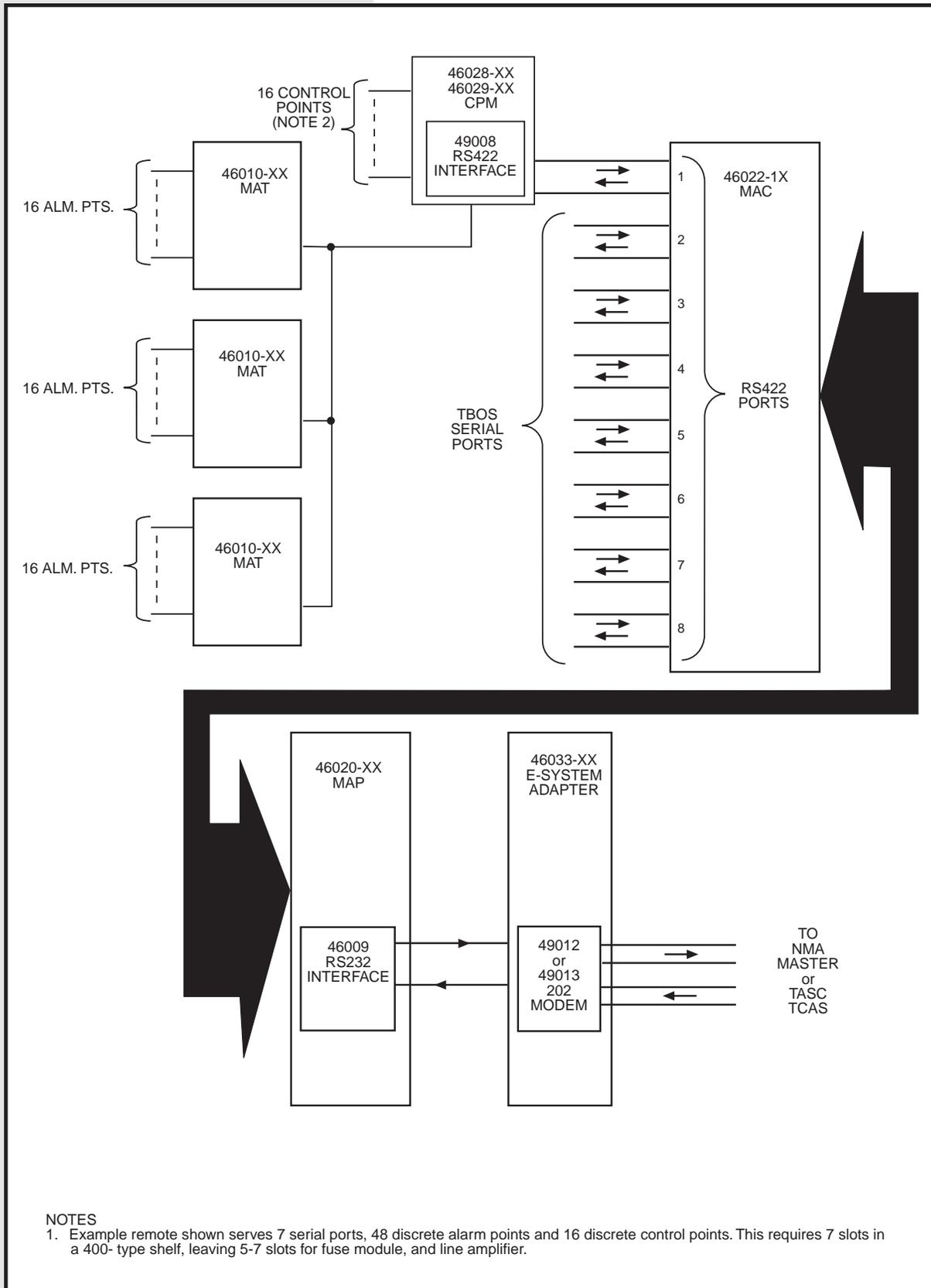
APPLICATION INFORMATION

Fig. 4 shows a 46022-1x MAC downline from the 46020 Multiple Alarm Processor (MAP) data port. The first alarm port on the MAC sends discrete point alarm data to and from a 46030 Control Point Module (CPM) and its associated 46010 Multiple Alarm Transmitters (MATs). The other seven MAC alarm ports go directly to TBOS serial ports.

Fig. 5 shows two MACs connected in parallel to a MAP. This MAP connects in parallel with a second MAP and its hardware. The two MAPs connect to a 46033 E-System Adapter Module and then to an E-System master. All remote alarm sources in this example are TBOS serial ports.
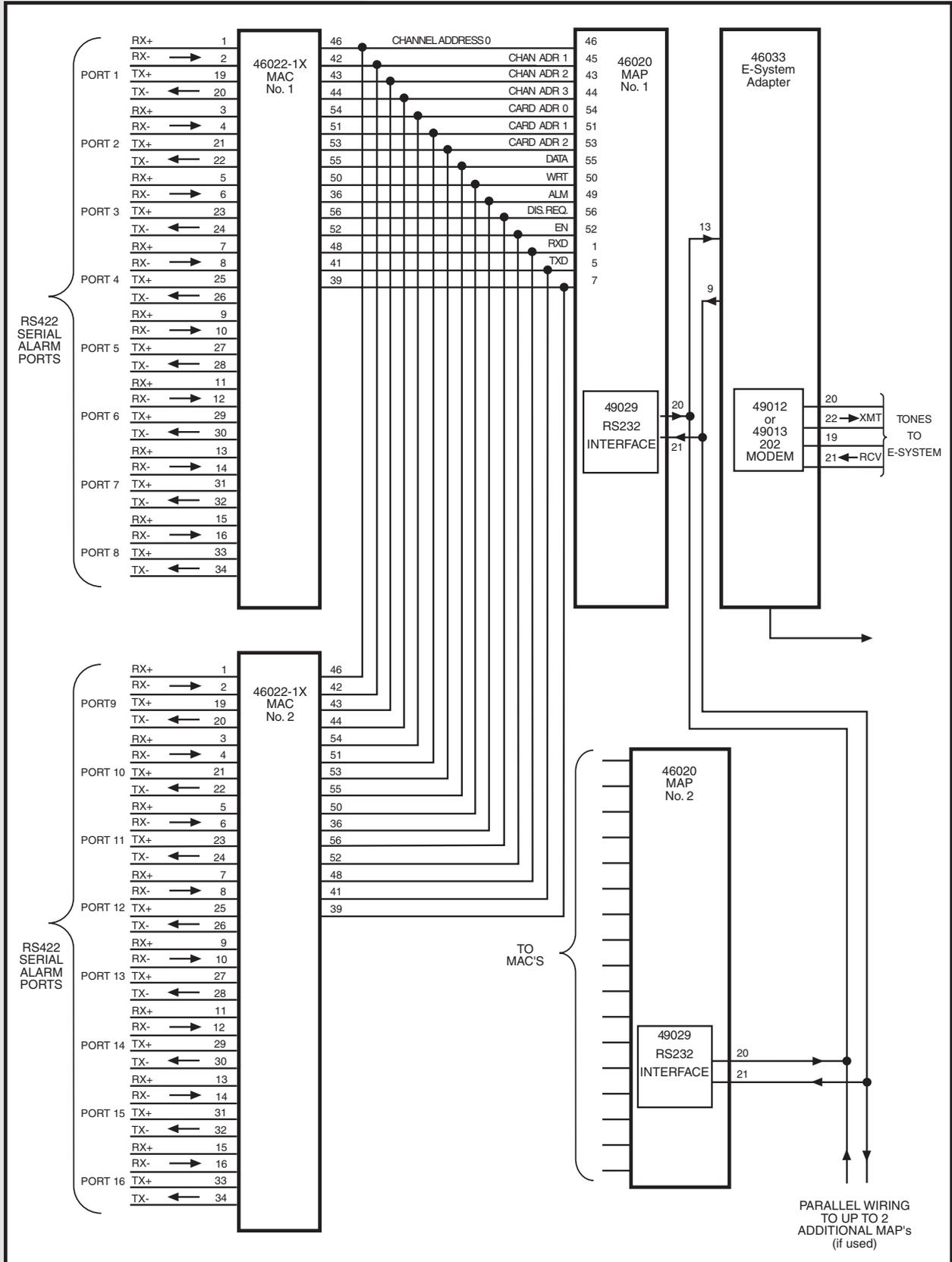
FIG. 4 - EXAMPLE APPLICATION, SINGLE MAC

NOTES
1. Example remote shown serves 7 serial ports, 48 discrete alarm points and 16 discrete control points. This requires 7 slots in a 400- type shelf, leaving 5-7 slots for fuse module, and line amplifier.

FIG. 5 - EXAMPLE APPLICATION, TWO MACS

TECHNICAL SPECIFICATIONS

Description	Value			
Input Voltage	-21 to -56 VDC			
Input Current	@-21 VDC 120mA	@-24 VDC 110mA	@-48 VDC 80 mA	@-56 VDC 70 mA
Heat Dissipation	@-21 VDC 8.6 Btu/Hr	@-24 VDC 9.0 Btu/Hr	@-48 VDC 13.1 Btu/Hr	@-56 VDC 13.4 Btu/Hr
Output Voltage Output Current (maximum)	+5 VDC 200 mA Max	+12 VDC 20 mA Max	-12 VDC 20 mA Max	
Weight	8.75 ounces			
Physical Dimensions	1.4" x 6.0" x 5.6"			
Operating Temperature Range	0 to 55 degrees C			
NOTE: Input current and heat dissipation may vary with output voltage load.				

NOTES

WARRANTY

LIMITED WARRANTY

The Seller warrants that the standard hardware products sold will be free from defects in material and workmanship and perform to the Seller's applicable published specifications for a period of 18 months for hardware, and 3 months for software, from the date of the original invoice. The liability of the Seller hereunder shall be limited to replacing or repairing, at its option, any defective products which are returned F.O.B. to the Seller's plant, (or, at the Seller's option, refunding the purchase price of such products). In no case are products to be returned without first obtaining permission and a customer return authorization number from the Seller. In no event shall the Seller be liable for any consequential or incidental damages.

Equipment or parts which have been subject to abuse, misuse, accident, alteration, neglect, unauthorized repair or installation are not covered by warranty. The Seller shall make the final determination as to the existence and cause of any alleged defect. No warranty is made with respect to custom equipment or products produced to the Buyer's specifications except as specifically stated in writing by the Seller in the contract for such custom equipment.

This warranty is the only warranty made by the Seller with respect to the goods delivered hereunder, and may be modified or amended only by a written instrument signed by a duly authorized officer of the Seller and accepted by the Buyer.

Warranty and remedies on products not manufactured by the Seller are in accordance with warranty of the respective manufacturer. THE SELLER MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED; AND ALL IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEEDS THE AFORESAID OBLIGATIONS IS HEREBY DISCLAIMED BY THE SELLER.

IN CASE OF DIFFICULTY

If you experience difficulty with this equipment, check the following, as appropriate:

1. Switch settings
2. Signal levels
3. Software configuration
4. Connections between Dantel's equipment and your equipment.

If there is still a problem, substitute equipment that is known to be good. For additional assistance, call Dantel's Technical Field Service Department weekdays, 6 A.M. to 5 P.M. pacific time:

1-800-4DANTEL (1-800-432-6835).

If a thorough checkout shows a piece of equipment has malfunctioned, you may return it to the factory. For repairs and emergency replacements, obtain a Return Material Authorization (RMA) number from the Customer Service Representative at **1-800-4DANTEL** (1-800-432-6835).

To ensure expedient processing of your order, provide a purchase order number and shipping and billing information when requesting an RMA number. Also, when the units are returned to Dantel, include a description of the failure symptoms for each unit returned. Send defective equipment to:

Dantel, Inc. • 2991 North Argyle Avenue • Fresno, California 93727-1388

Dantel

P.O. Box 55013 • Fresno, CA 93747-5013   Phone (559) 292-1111   Fax (559) 292-9355   http://www.dantel.com