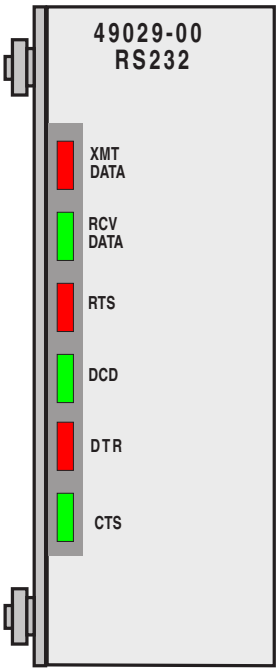
49029

RS-232 CURRENT LOOP INTERFACE SUBASSEMBLY



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About this Practice:

This practice has been reissued to:

- Meet ISO 9001 requirements.

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

UPDATED

Issue: February 1998

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
A12-49029-00	RS-232 Current Loop Interface Subassembly

GENERAL DESCRIPTION

The 49029 RS-232 Current Loop Interface Subassembly (49029 CLI) is an EIA Standard RS-232 data communications interface for the 460 Alarm and Control System (460 ACS).

The 49029 CLI is a plug-in printed circuit subassembly that fits into any Dantel 46000-series module with a subassembly port. The 49029 CLI operates on ±12 VDC and +5 VDC input power from the host module.

The front panel includes:

- Two LEDs indicating RXD and TXD communication activity.
- Four LEDs indicating handshaking signal line activity.
- A switch that selects between two mode options.

CIRCUIT DESCRIPTION

Fig. 1 shows a functional schematic for the 49029 CLI. Here is a brief description of each of the functional parts of the circuit:

HANDSHAKING LINES

The 49029 CLI has the following handshaking lines:

Outputs

- TXD (transmit)
- RTS (request to send)
- DTR (Data Terminal Ready)

Inputs

- RXD (receive)
- CTS (Clear to Send)
- DCD (Data Carrier Detect)

The TTL/CMOS lines connect the 49029 CLI to the host module circuitry.

CONTROL OF HANDSHAKING LINES

Mini-jumpers X1 and X2 control CTS and DCD as handshaking lines.

- When the appropriate mini-jumper is in the THRU position, CTS and DCD are used as handshaking lines.
- When the appropriate mini-jumper is in the ON position, handshaking is not used and each line remains low.

Mini-jumper X3 parallels subassemblies.

- To parallel subassemblies, place mini-jumper X3 in the 2 to 3 position.
- For all other applications, place mini-jumper X3 in the 1 to 2 position.

POWER INPUTS

The subassembly operates on ±12 VDC and +5 VDC supplied by the host module. Power inputs to the subassembly are located at:

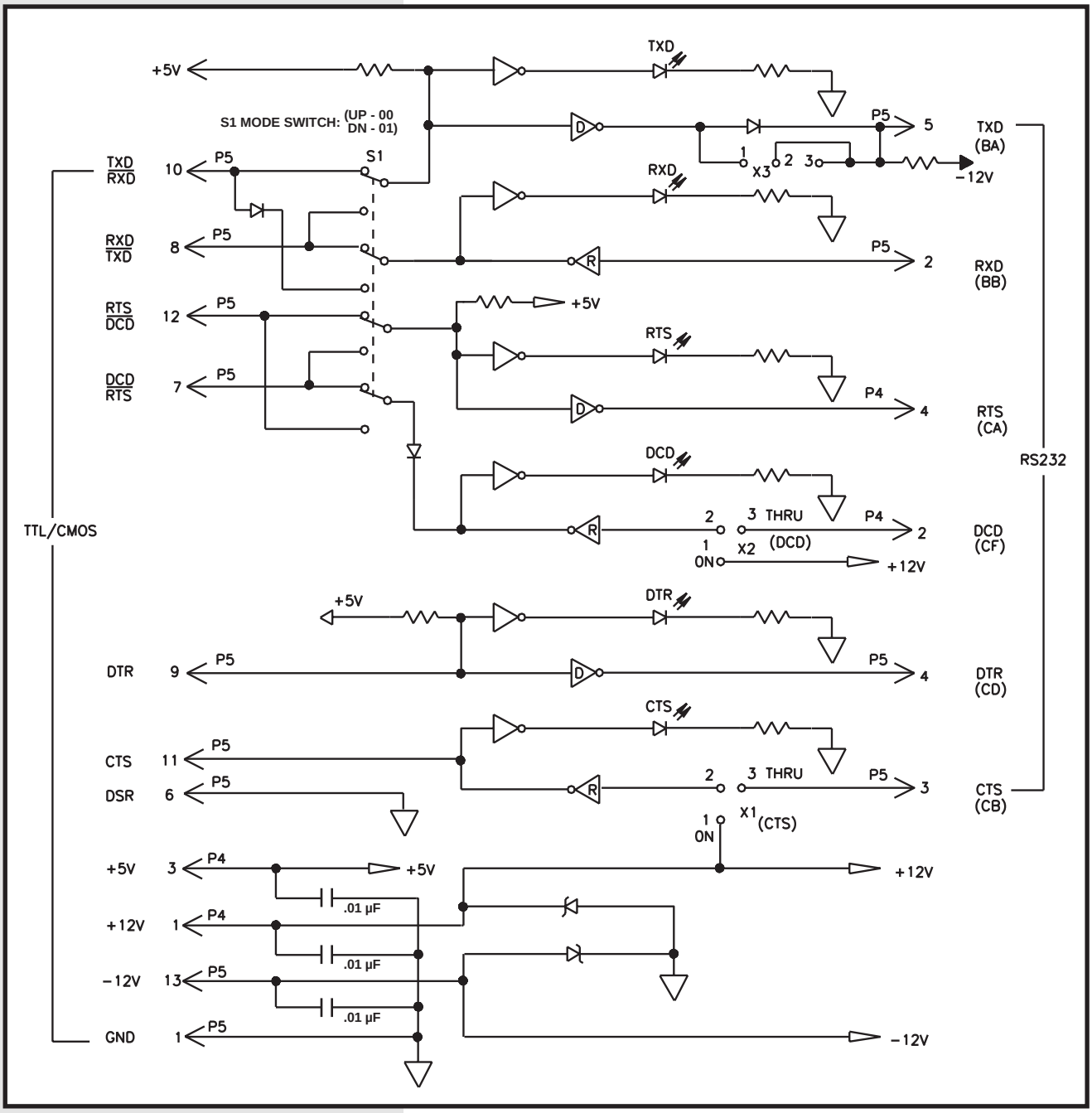
PIN	VOLTAGE
P4-1	+12 VDC
P4-3	+5 VDC
P5-1	GND
P5-13	-12 VDC

CONNECTOR PIN ASSIGNMENTS

Fig. 2 shows the connector pin assignments for -00 and -01 modes.

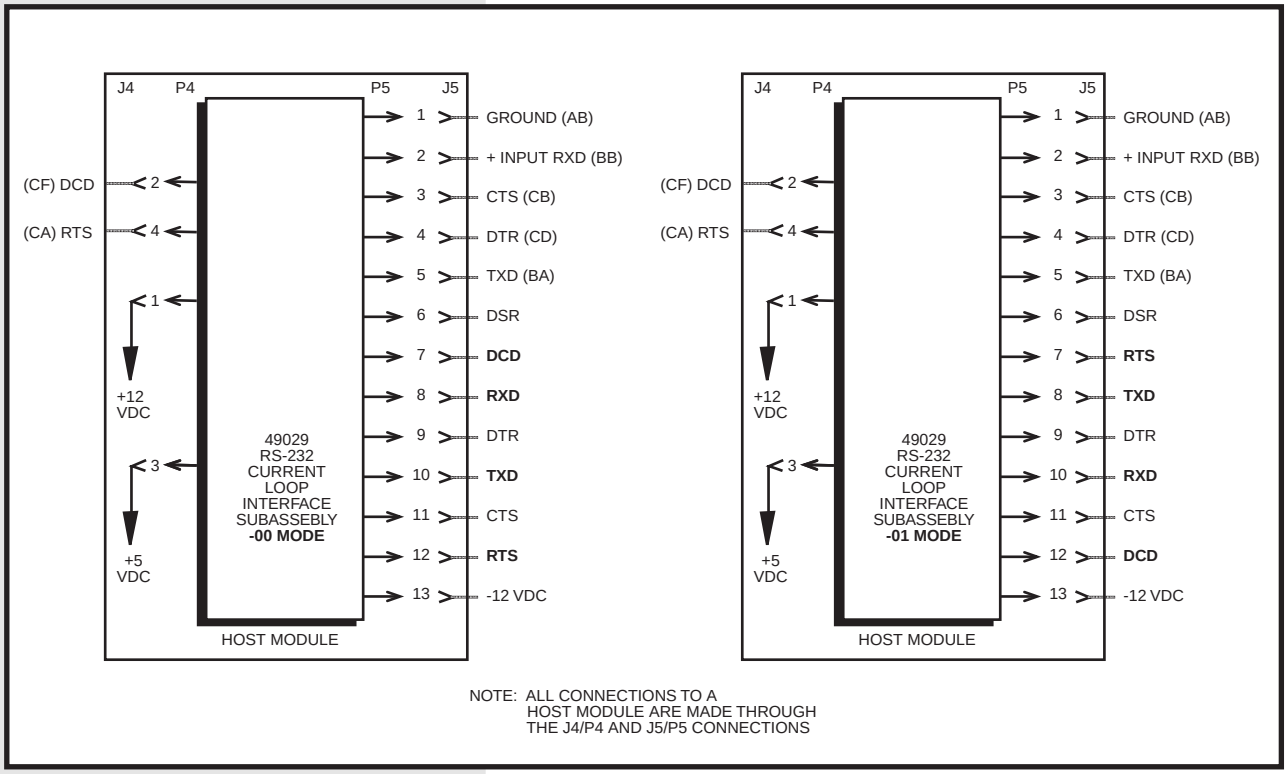
CIRCUIT DESCRIPTION

FIG. 1 - FUNCTIONAL SCHEMATIC, 49029



CIRCUIT DESCRIPTION

FIG. 2 - CONNECTOR PIN ASSIGNMENTS, 49029



NOTE: ALL CONNECTIONS TO A HOST MODULE ARE MADE THROUGH THE J4/P4 AND J5/P5 CONNECTIONS

INSTALLATION

Installation consists of shutting off power, setting switch and strap settings, and installing the subassembly to the host module.

1. Shut off power.

- Install or remove modules from a shelf ***only*** when the power is off.
- If you wire a shelf or install a module in a shelf withthe power on, the internal circuitry may suffer damage and the product warranty will be void.
- Protect your equipment from electrostatic discharge. Refer to the inside front cover of this manual.

2. Set switch and strap settings.

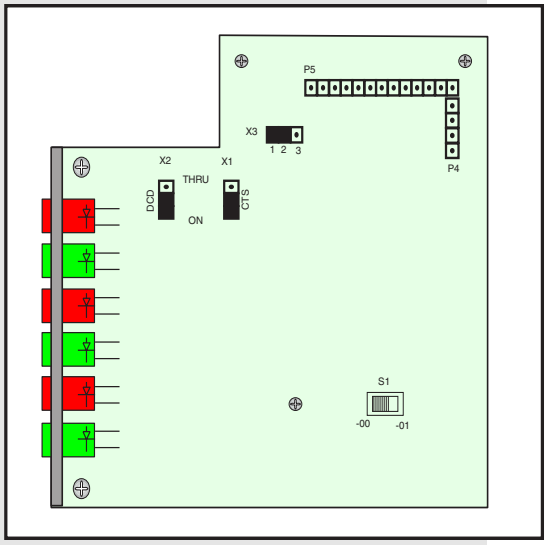
Set the proper switch and strap options to your desired application. Refer to Table A and Fig. 3.

CONTINUED . . .

TABLE A - SWITCH AND STRAP SETTINGS

OPTION	SWITCH OR STRAP SETTING
Normal Position	S1 set to -00 Mode
TXD, RXD, RTS, & DCD reversed	S1 set to -01 Mode
CTS used for handshaking	X1 - THRU
CTS not used for handshaking	X1 - ON
DCD used for handshaking	X2 - THRU
DCD not used for handshaking	X2 - ON
Parallel Option	
YES	X3 - Jumper pins 2 & 3
NO	X3 - Jumper pins 1 & 2

FIG. 3 - SWITCH AND STRAP LOCATIONS



3. Install the subassembly to the host module.

Find the location of the subassembly port (refer to the host module documentation). A 49009 Current Loop Subassembly connected to the equipment shelf may require shelf wiring modifications for proper 49029 CLI operation.

Install the subassembly as follows:

1. Remove the hole plug, if present, from the host module's front panel.
2. Remove the three screws from the standoffs for the subassembly. If a subassembly is already installed, remove it.
3. Insert P4 and P5, shown in Fig. 3, into the host module subassembly port connector.
4. Examine the connector pins. Ensure that each one goes straight into the sockets.
5. Ensure that the subassembly sits on the standoffs.
6. Reinstall the screws in the standoffs.

CHECKOUT

- The subassembly front panel appears in the host module front panel opening.
- Subassembly front panel LEDs indicate data transfer and operational handshaking lines.
- Test the host module. Ensure that the module functions properly after subassembly installation.

OPERATION

There are no specific operating instructions for the 49029 Current Loop Interface Subassembly. Front panel LEDs indicate activity on the data lines.

Red LEDs

XMT DATA - Data is being transmitted by the unit.

RTS and DTR - Corresponding handshaking line is active.

Green LEDs

RCV DATA - Data is being received by the unit.

DCD and CTS - Corresponding handshaking line is active.

APPLICATION INFORMATION

Fig. 4 shows the 49029 CLI in a multiple shelf application with the 460 ACS. Dantel 46028 and 46029 Control Point Modules (CPMs) provide five pins at the PC connector, which parallel the data side connection of the subassembly. Other modules in the same shelf can share the same 49029 CLI.

Fig. 5 shows multiple CPMs, each with its own 49029 CLI, in an expansion shelf application:

- Two 46028 CPMs in shelf 1, each with its own 49029 CLI. One CLI is in -00 mode and the other is in -01 mode.
- The 49029 CLI in -01 mode connects to another 46028 CPM on shelf 2.
- The 46028 CPM on shelf 2 has a 49029 CLI in -00 mode which connects to 46010 Multiple Alarm Transmitters.
- 46022-2X MACs can be used instead of CPMs.

Fig. 5 shows an application that uses all available handshaking lines. Your application may require that only some lines be used.

Fig. 6 shows a 46020 MAP connected to a DB25 connector. Refer to Table B for a list of commonly used module and DB25 connector designations.

FIG. 4 - EXAMPLE APPLICATION, MULTIPLE MAT

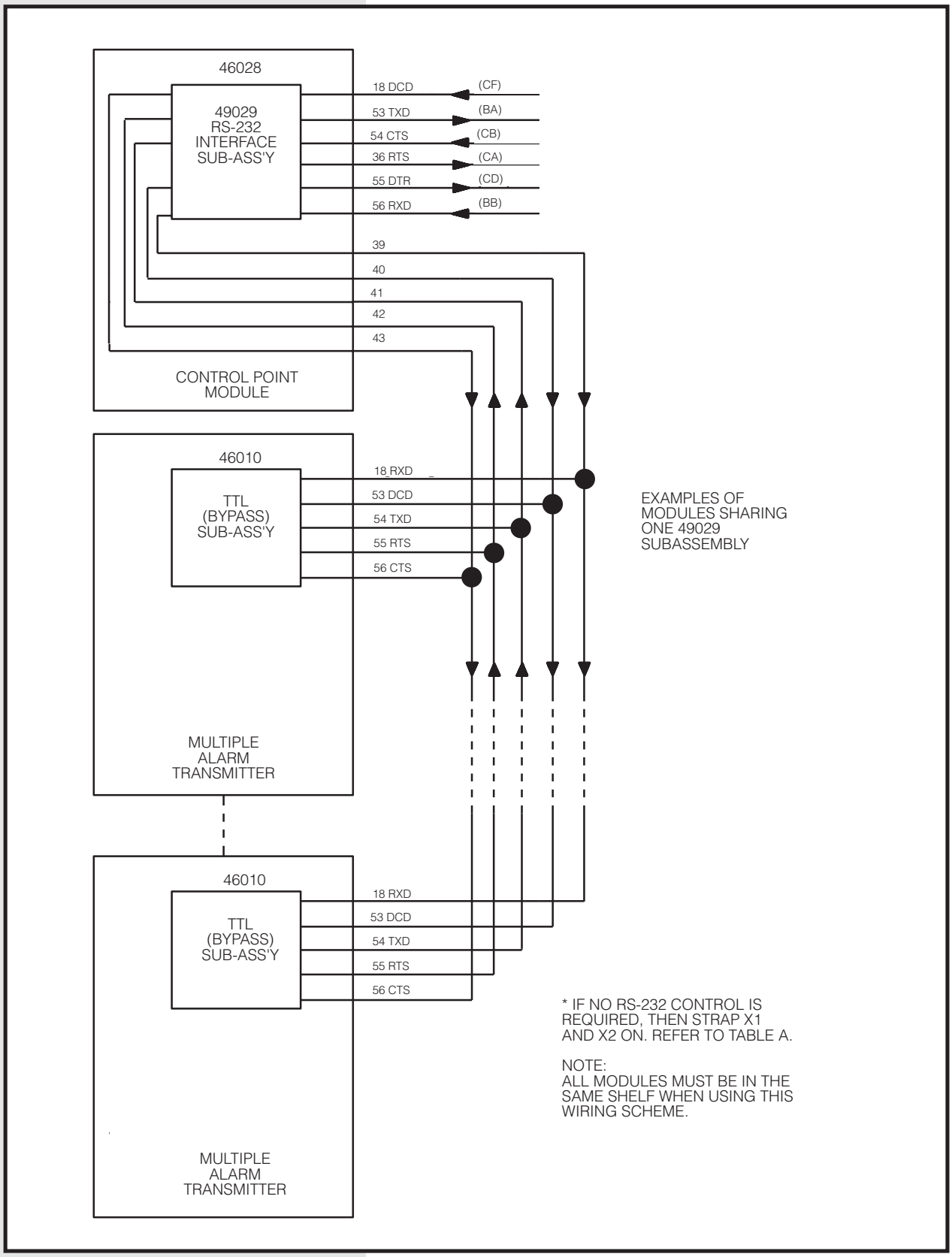


FIG. 5 - EXAMPLE APPLICATION, EXPANSION SHELF

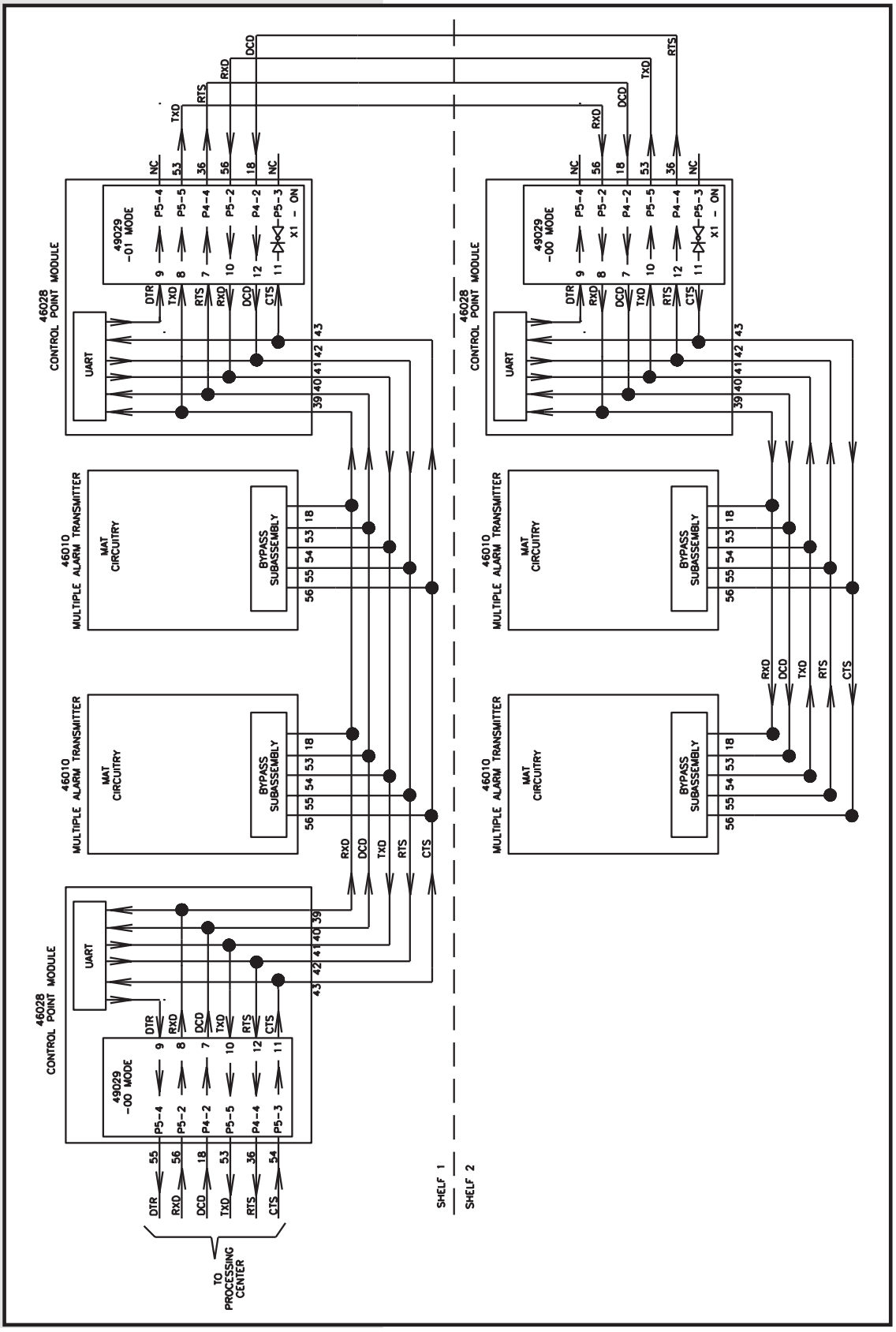


FIG. 6 - RS-232 INTERFACE APPLICATION DIAGRAM

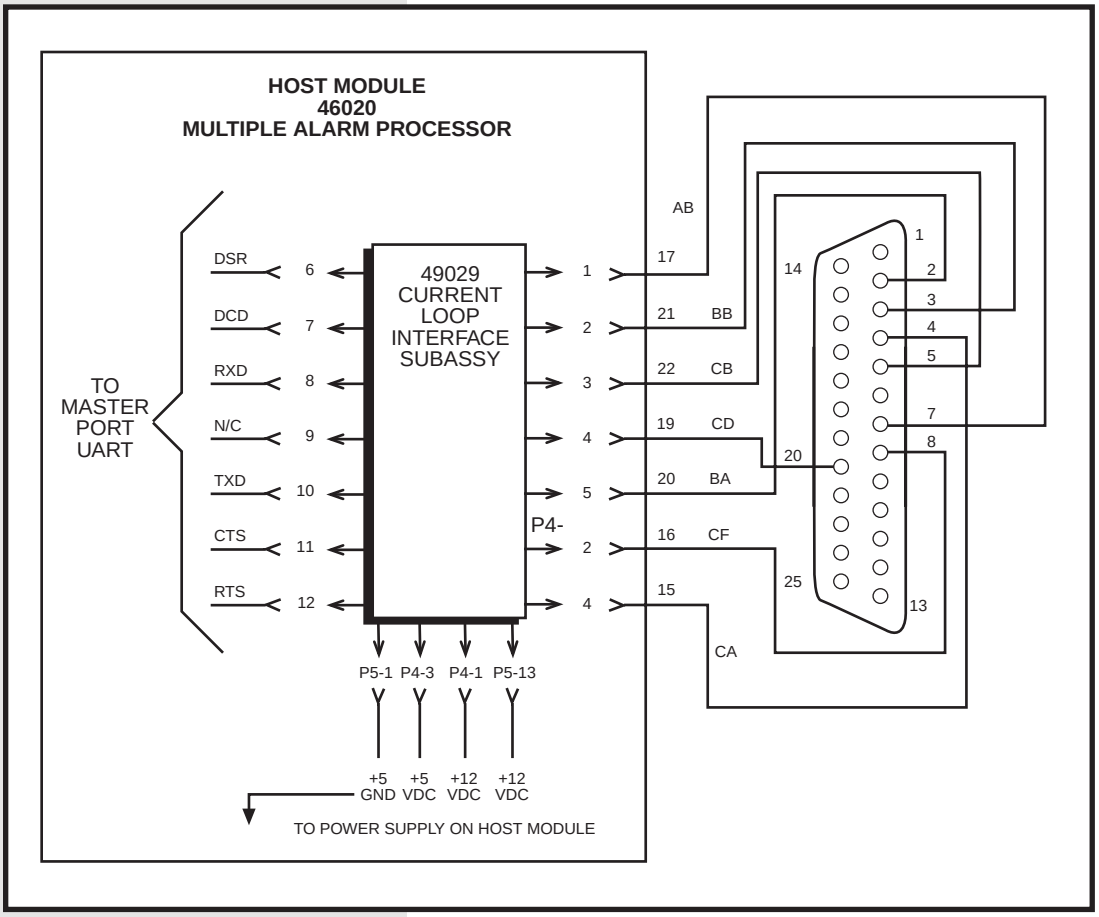


TABLE B - MODULE EDGE CONNECTOR PIN ASSIGNMENTS

EIA STANDARD RS-232 PIN DESIGNATION	49029 PIN FRONT PANEL LED DESIGNATION	MODULE EDGE CONNECTOR PIN NUMBERS				DB 25 CONNECTOR PIN NUMBER
		46009 46010 46022-2X	46028 46029 46030 46034	46020 46033	46022-30	
BA	TXD	53	53	20	20	Pin 2
BB	RXD	56	56	21	1	Pin 3
CA	RTS	18	36*	15	21	Pin 4
CF	DCD	36	18*	16	3	Pin 8
CD	DTR	55	55	19	2	Pin 20
CB	CTS	54	54	22	19	Pin 5
* Pin designations may be reversed by an option switch on the 46028 and 46029 modules.						

TECHNICAL SPECIFICATIONS

DESCRIPTION	VALUE
Input Voltage	+5 and ±12 VDC (from host module)
Input Current	
Idle (TTL inputs @ logic high)	
@ +12 VDC	0.14 mA
@ -12 VDC	5.5 mA
@ +5 VDC	7 mA
Active (TTL inputs @ logic low)	
@ +12 VDC	8 mA
@ -12 VDC	1.5 mA
@ +5 VDC	48 mA
Operating Temperature Range	0° to 55° C.
Physical Dimensions	2.6" x 2.8" x 0.8"
Weight	1 ounce

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