46029

CONTROL POINT MODULE (CPM)
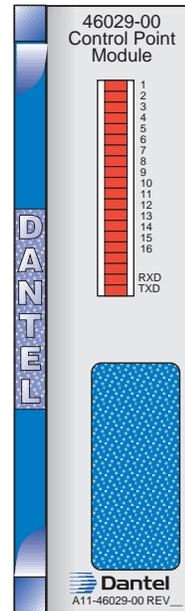
46029-00
Control Point
Module

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16

RXD
TXD

DANTEL

Dantel
A11-46029-00 REV___

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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.

Issue date: March 1998

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
A11-46029-02	Control Point Module

GENERAL DESCRIPTION

The Control Point Module (CPM), part of Dantel's 460 Alarm and Control System, provides 16 relay outputs for operating remote devices. Outputs are form-A relay contacts.

The CPM is a plug-in module that fits into any Dantel 400-type or similiar housing. The front panel includes a communications subassembly cutout and an optional LED display.

Communication Subassemblies

The CPM is equipped to accept communications subassemblies. It comes equipped with a subassembly bypass card to connect the data inputs and outputs directly to the edge connector using TTL.

The bypass card may, however, be replaced with other subassemblies for data communications using different interface standards. These subassemblies include:

SUBASSEMBLY	INTERFACE
49008	RS-422
49009/49029	RS-232
49013	202 Tone

NOTE: *The 46029 CPM differs from the more common 46028 CPM in that one side of all 16 relays is bused together. This bused side can then be strapped to ground with an on-board mini-jumper. Left unstrapped, all 16 relays are still connected to each other, but not to ground.*

CIRCUIT DESCRIPTION

The CPM functional schematic is shown in Fig. 1. The circuit consists of a microprocessor, control point relays, optional LED display, communications port, reset, option switches, regulated power supply, and watchdog circuit.

Here is a brief explanation of what each part does:

Microprocessor

♦ Monitors the incoming data for its exclusive address.

♦ Translates the control point operating instructions and executes them.

♦ Sends a response that the control points were operated.

You can issue operating orders (to either set or release control points) to the microprocessor for a single point or for groups of control points.

Relays

♦ There are 16 relays on the module, one for each control point output.

♦ Both relay contacts are available at the edge connector for wiring according to your application.

♦ One side of the relay contacts is bused together. A mini-jumper on the module can connect the bused side of the relays to ground. If the strap is out, not connecting the relays to ground, the bused side can be connected to a voltage source.

LED Display

♦ Indicates the status of each control point (ON = control point is activated).

♦ In CPM-Echo, indicates the status of alarm points of a 46009 or 46010 Multiple Alarm Transmitter (MAT).

Communications Port

♦ Handles data input/output through a communications subassembly that provides an interface (such as TTL or RS-232) to other parts of the alarm system.

♦ Allows you, with a polarity switch, to reverse the CA (Request to Send) and CF (Carrier Detect) leads.

All communication lines are buffered to prevent interference with other modules in case of power failure to the CPM.

Reset

♦ Allows field personnel to wire one of the outputs of the same or another CPM to the reset input to reset all control points on a card.

CIRCUIT DESCRIPTION

♦ To operate the external reset by means other than CPM output, you can configure an external momentary contact switch to reset the CPM as long as the input does not exceed 56 VDC to the optical coupler.

♦ You can also perform the reset function through a programming command from a standard ASCII (VT-100) terminal keyboard connected to a 46020 Multiple Alarm Processor (MAP).

Option Switches

Allow you to:

♦ Set the data rate.

♦ Configure control points to operate momentarily or become latched.

♦ Set the operating mode and address.

You may also set the time period by programming commands from a standard ASCII terminal keyboard connected to a Multiple Alarm Processor (MAP).

Regulated Power Supply

♦ Uses -21 to -56 VDC input power to provide +5 and ±12 VDC to the module's circuit board and subassemblies.

Watchdog Circuit

♦ Monitors the strobe activity of the microprocessor and the +5VDC.

♦ Resets the microprocessor if the voltage level drops 10 percent or if no strobe is sensed for 600 milliseconds.

FIG. 1 - FUNCTIONAL SCHEMATIC, 46029

Fig. 1 - Functional Schematic, 46029

SUBASS'Y PIN DESIGNATIONS		202 MODEM	
RS-422 RS-485	RS-232		
TX+	GND or CTS*	Balanced Output	DIST. XMT
TX-	TD		
RX+	RTS		
	RD	Balanced Input	DIST. RCV
RX-	DTR*		
	DCD		

*Available for 49029 Only

CONTROL POINT MODULE 46029
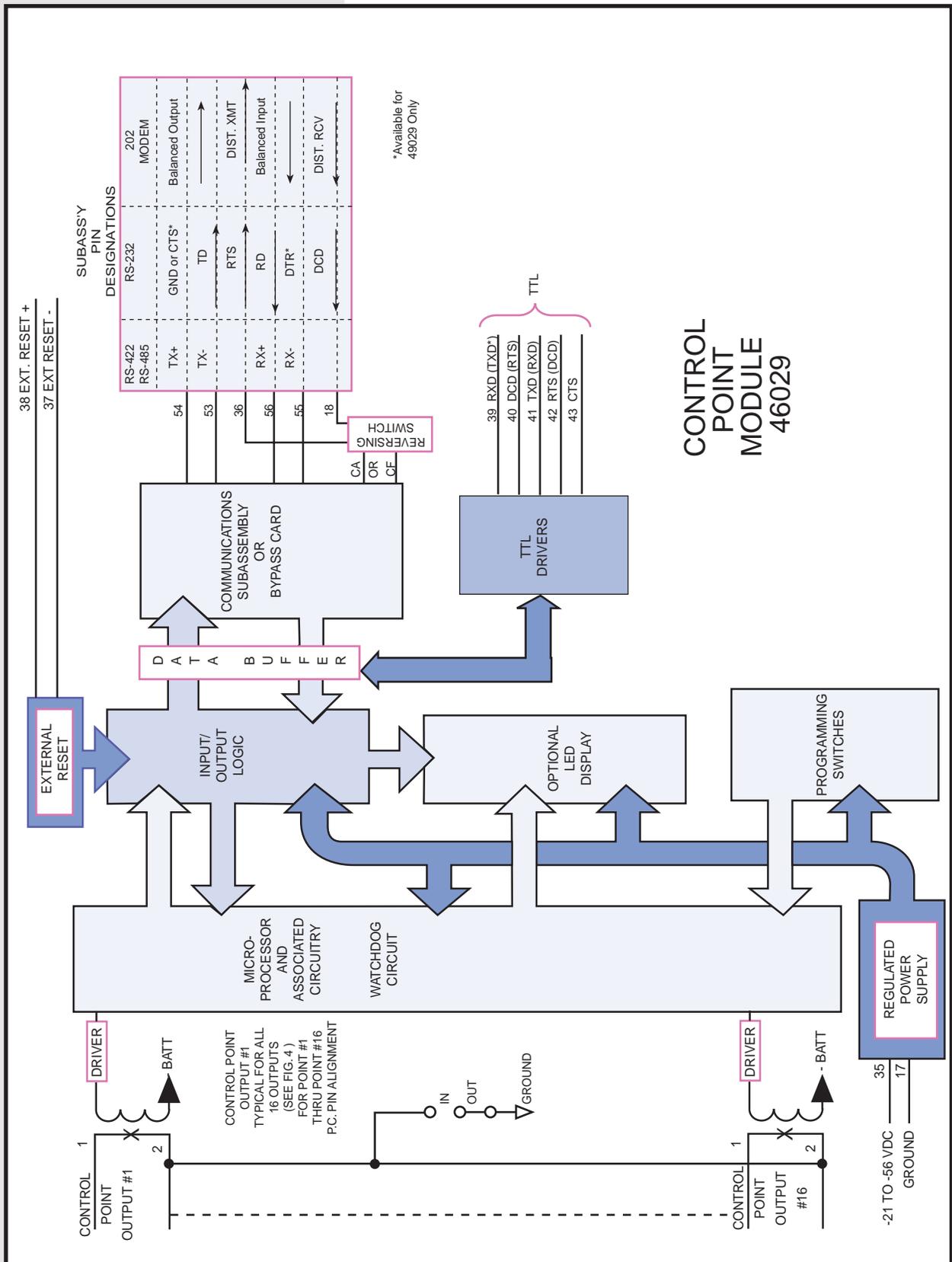
INSTALLATION

Installing the CPM consists of setting the on-board switches, mounting any subassembly required, wiring the module, installing the CPM in the shelf, and checkout.

1. SET THE SWITCHES.

Set the switches according to your application. Refer to Fig. 2 and Tables A-C for setting information.

FIG. 2 - SWITCH AND STRAP LOCATIONS, 46029
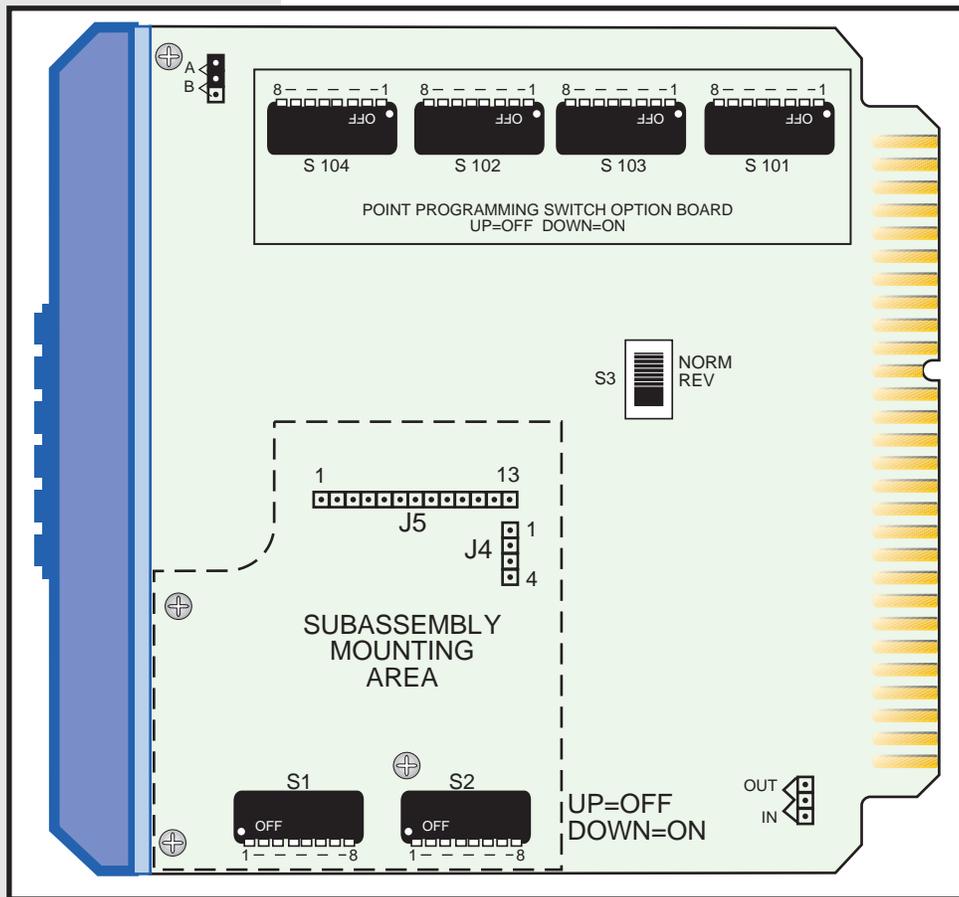
TABLE A - 46029 SWITCH AND STRAP SETTINGS

OPTION				
DATA RATE	**S1-1**	**S1-2**	**S1-3**	**S1-4**
50 baud	ON	OFF	OFF	OFF
75 baud	OFF	ON	OFF	OFF
110 baud	ON	ON	OFF	OFF
135 baud	OFF	OFF	ON	OFF
150 baud	ON	OFF	ON	OFF
300 baud	OFF	ON	ON	OFF
600 baud	ON	ON	ON	OFF
1200 baud	OFF	OFF	OFF	ON
1800 baud	ON	OFF	OFF	ON
2400 baud	OFF	ON	OFF	ON
3600 baud	ON	ON	OFF	ON
4800 baud	OFF	OFF	ON	ON
7200 baud	ON	OFF	ON	ON
9600 baud	OFF	ON	ON	ON

** **NOTE**: CPM time periods selected by S1-5 and S1-6 can be overridden by programming commands from a terminal connected to the MAP.*

MODE	S1-5	S1-6	S1-7	S1-8
NORMAL OPERATION (INCLUDES CPM-ECHO)				
Short Momentary Period (300 ms) *	OFF	ON	ON	ON
Long Momentary Period (3 sec) *	ON	ON	ON	ON
Latching Control Points *	OFF	OFF	ON	ON
MAT/CPM MODE				
Point 16 of CPM...			OFF	OFF
...reports an alarm from point 16 of the MAT.	OFF	—	OFF	OFF
...shows MAT failure. (Do not use MAT point 16			OFF	OFF
as an alarm point.)	ON	—	OFF	OFF
LED 16 of the CPM...			OFF	OFF
...is OFF when there is no alarm or MAT failure			OFF	OFF
and ON when there is an alarm or MAT failure.	—	OFF	OFF	OFF
......is ON when there is no alarm or MAT failure			OFF	OFF
and OFF when there is an alarm or MAT failure.	—	ON	OFF	OFF

SWITCH S2	
Address	S2-1 through S2-7 (Refer to Table C.)
Latch Release	
Normal Operation	S2-8 OFF
Manual Release (do not use)	S2-8 ON
SWITCH 3	
CA/CF Reversal	Reverses edge connector pins 18 and 36. Refer to Table D.
A/B MINI-JUMPER	
Watchdog Circuit	Leave strap in position A.
RELAY CONTROL STRAP	
Bused side of relays to ground.	Strap IN.
Bused side of relays not to ground.	Strap OUT.

NOTE: OFF means to place the switch in the UP position
ON means to place the switch in the DOWN position.

CONTINUED . . .

To set the Point Programming Switches:

1. Find the desired point.

2. Find the desired time.

3. Set the switches according to Table B.

TABLE B - POINT PROGRAMMING SWITCHES

	300 ms	3 seconds	Latching
Point 1	S101-8 OFF, S103-8 ON	S101-8 ON, S103-8 ON	S101-8 OFF, S103-8 OFF
Point 2	S101-7 OFF, S103-7 ON	S101-7 ON, S103-7 ON	S101-7 OFF, S103-7 OFF
Point 3	S101-6 OFF, S103-6 ON	S101-6 ON, S103-6 ON	S101-6 OFF, S103-6 OFF
Point 4	S101-5 OFF, S103-5 ON	S101-5 ON, S103-5 ON	S101-5 OFF, S103-5 OFF
Point 5	S101-4 OFF, S103-4 ON	S101-4 ON, S103-4 ON	S101-4 OFF, S103-4 OFF
Point 6	S101-3 OFF, S103-3 ON	S101-3 ON, S103-3 ON	S101-3 OFF, S103-3 OFF
Point 7	S101-2 OFF, S103-2 ON	S101-2 ON, S103-2 ON	S101-2 OFF, S103-2 OFF
Point 8	S101-1 OFF, S103-1 ON	S101-1 ON, S103-1 ON	S101-1 OFF, S103-1 OFF
Point 9	S102-8 OFF, S104-8 ON	S102-8 ON, S104-8 ON	S102-8 OFF, S104-8 OFF
Point 10	S102-7 OFF, S104-7 ON	S102-7 ON, S104-7 ON	S102-7 OFF, S104-7 OFF
Point 11	S102-6 OFF, S104-6 ON	S102-6 ON, S104-6 ON	S102-6 OFF, S104-6 OFF
Point 12	S102-5 OFF, S104-5 ON	S102-5 ON, S104-5 ON	S102-5 OFF, S104-5 OFF
Point 13	S102-4 OFF, S104-4 ON	S102-4 ON, S104-4 ON	S102-4 OFF, S104-4 OFF
Point 14	S102-3 OFF, S104-3 ON	S102-3 ON, S104-3 ON	S102-3 OFF, S104-3 OFF
Point 15	S102-2 OFF, S104-2 ON	S102-2 ON, S104-2 ON	S102-2 OFF, S104-2 OFF
Point 16	S102-1 OFF, S104-1 ON	S102-1 ON, S104-1 ON	S102-1 OFF, S104-1 OFF

Point Programming Tips.

♦ Use the point programming switches only when S1-5 is ON and S1-6 is OFF.

♦ Time periods set by switches S101, S102, S103, and S104 can be overridden by programming commands from the keyboard of a standard ASCII terminal connected to the MAP.

♦ In addition to the time periods set by the point programming switches, time periods from 100 milliseconds to 25.5 seconds can be set by the MAP.

2. MOUNT A SUBASSEMBLY, IF NECESSARY.

The module comes equipped with a TTL communications subassembly. To install a different subassembly, follow these steps:

1. If there is a hole plug in the front panel of the CPM, remove the plug.

2. Remove the three screws from the subassembly standoffs (see Fig. 2).

3. Take the subassembly off the board.

TABLE C - ADDRESS SELECTION (S2-1 THROUGH S2-7)

1	14	27	40	53	66	79	92	105	118
OFF ↓ ON									
12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
2	15	28	41	54	67	80	93	106	119
12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
3	16	29	42	55	68	81	94	107	120
12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
4	17	30	43	56	69	82	95	108	121
12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
5	18	31	44	57	70	83	96	109	122
12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
6	19	32	45	58	71	84	97	110	123
12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
7	20	33	46	59	72	85	98	111	124
12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
8	21	34	47	60	73	86	99	112	125
12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
9	22	35	48	61	74	87	100	113	126
12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
10	23	36	49	62	75	88	101	114	127
12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
11	24	37	50	63	76	89	102	115	128
12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
12	25	38	51	64	77	90	103	116	
12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	
13	26	39	52	65	78	91	104	117	
12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	

NOTE: *S2-8 is OFF*

4.   Place the new subassembly on the board.

- ♦ Insert P4 into J4 and P5 into J5.
- ♦ Make sure each connector pin goes straight into its socket.
- ♦ Make sure the subassembly fits closely on the standoffs.
- ♦ The panel should be straight in the opening.

5.   Replace the three screws in the standoffs.

6.   Refer to the subassembly practice for strapping information.
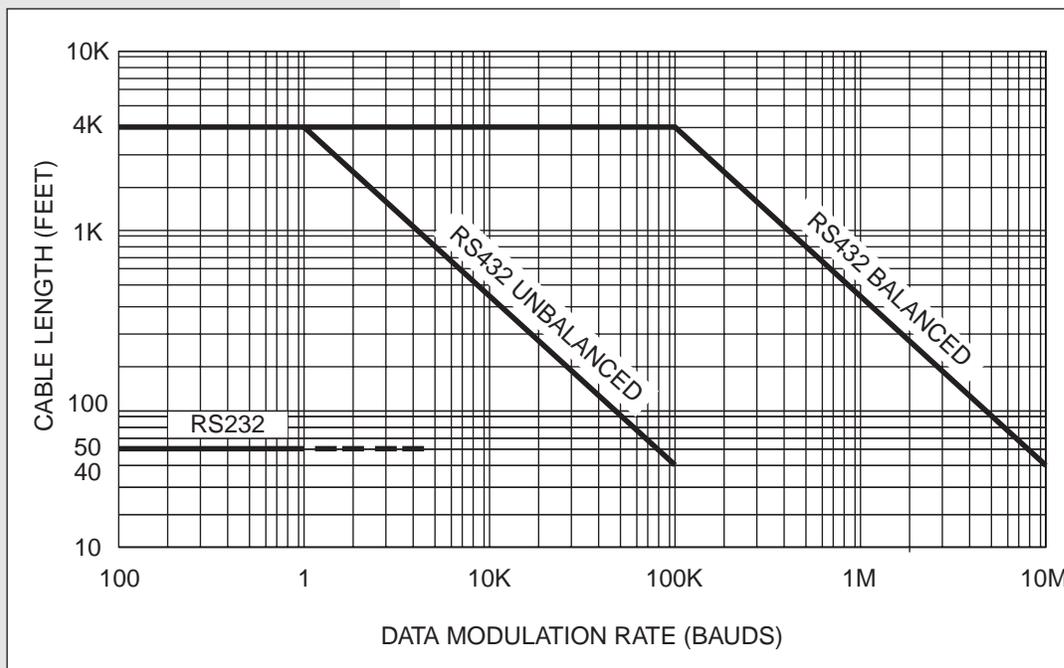
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TABLE D - SUBASSEMBLY PIN CONNECTIONS

46028 EDGE CONNECTOR PIN NUMBER	SUBASSEMBLY NUMBER			
	49008	49029	49012/49013	49009
18	N/C	DCD	DIST RCV*	DCD
36	N/C	RTS	DIST XMT*	RTS
53	TX-	TD	XMT	TD
54	TX+	GND or CTS	XMT	N/C
55	RX-	DTR	RCV	DTR
56	RX+	RD	RCV	RD

__ NOTE__: This table shows the pin designations when S3 is in the NORM position. When S3 is in the REV position, the designations reverse. Check the wiring of your application to determine the desired switch position.*

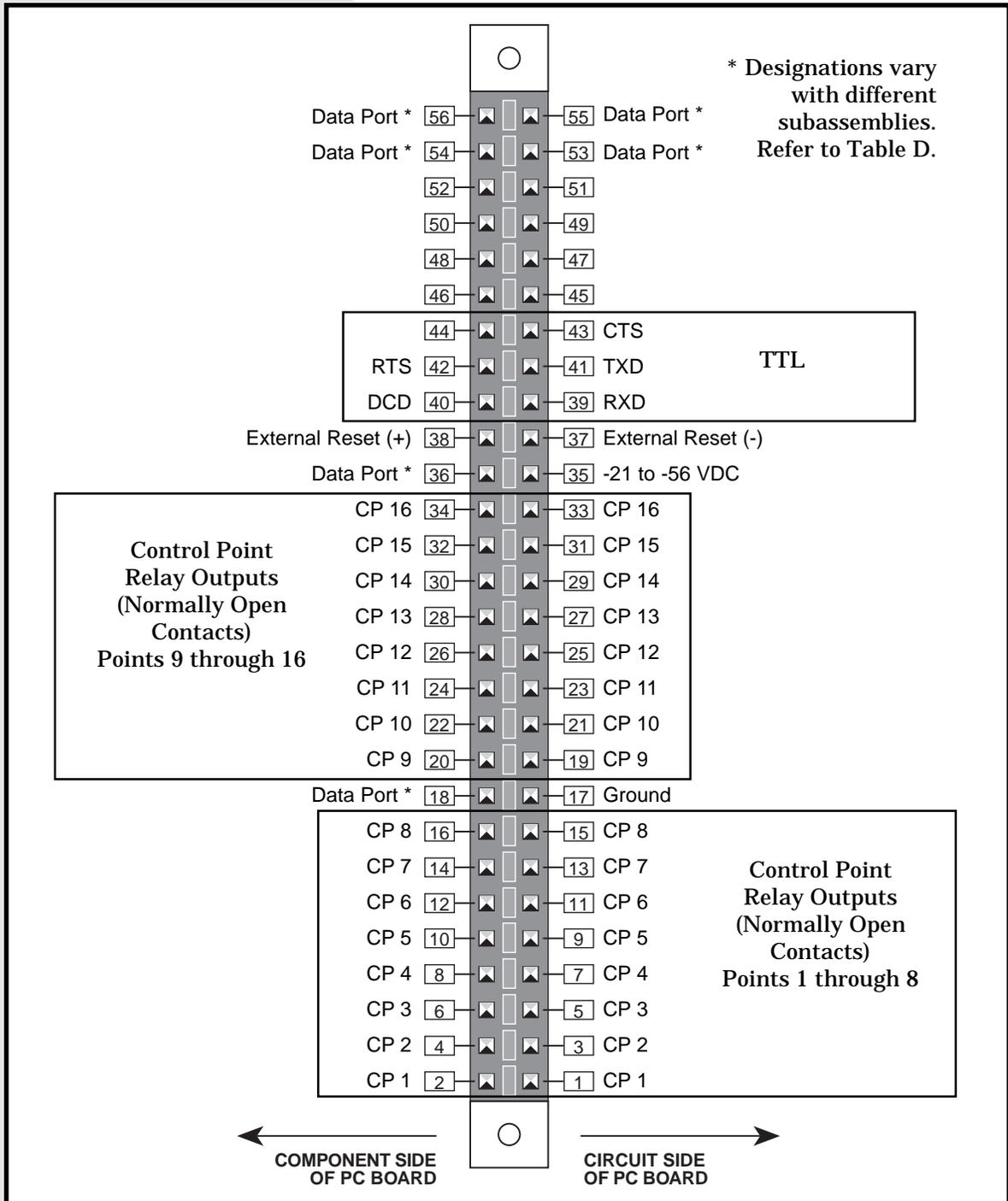**FIG. 3 - MAXIMUM CABLE LENGTHS FOR DATA TRANSMISSION**

3. WIRE THE SHELF SLOT, IF NECESSARY.

Normally the 56-pin edge connector for the slot is prewired at the factory. To wire the connector, refer to Figs. 3 and 4 and Table D.

CONTINUED . . .

FIG. 4 - EDGE CONNECTOR PIN DESIGNATIONS, 46028

Component Side		Circuit Side
Data Port *	56	55 Data Port *
Data Port *	54	53 Data Port *
	52	51
	50	49
	48	47
	46	45
	44	43 CTS
RTS	42	41 TXD
DCD	40	39 RXD
External Reset (+)	38	37 External Reset (-)
Data Port *	36	35 -21 to -56 VDC
CP 16	34	33 CP 16
CP 15	32	31 CP 15
CP 14	30	29 CP 14
CP 13	28	27 CP 13
CP 12	26	25 CP 12
CP 11	24	23 CP 11
CP 10	22	21 CP 10
CP 9	20	19 CP 9
Data Port *	18	17 Ground
CP 8	16	15 CP 8
CP 7	14	13 CP 7
CP 6	12	11 CP 6
CP 5	10	9 CP 5
CP 4	8	7 CP 4
CP 3	6	5 CP 3
CP 2	4	3 CP 2
CP 1	2	1 CP 1

* Designations vary with different subassemblies. Refer to Table D.

TTL

Control Point Relay Outputs (Normally Open Contacts) Points 9 through 16

Control Point Relay Outputs (Normally Open Contacts) Points 1 through 8

← COMPONENT SIDE OF PC BOARD

CIRCUIT SIDE OF PC BOARD →

4. INSTALL THE CPM MODULE IN THE PROPER SLOT OF THE EQUIPMENT SHELF.

CONTINUED . . .

INSTALLATION

5. CHECKOUT

To verify the operation of the CPM, monitor the unit while it is functioning in a system:

1. Operate each control point from a standard ASCII terminal connected to the system's MAP.

2. Observe the results. On units with front panel display, the LEDs should function properly for each control point.

3. If all functions operate properly, the unit is ready to place into service.

    If your application sets the options by downloading information from a standard ASCII terminal:

    ♦ You can still set the switches locally and perform a proper checkout.

    ♦ When you download from the terminal, that action will override the switch settings.

    ♦ Perform another checkout after downloading, both at the local site and at the terminal.

OPERATION

The 46029 has 20 red LEDs set vertically on the top half of the front panel. They are as follows:

LED NUMBER	FUNCTION
1-16	Indicates whether each control point is set.
17-18	These LEDs have no function.
19 RXD	Indicates data is being received at the TTL bus (not the subassembly)
20 TXD	Indicates the CPM is transmitting data to the MAP (out the subassembly)

TECHNICAL SPECIFICATIONS

DESCRIPTION	VALUES			
Input Voltage	-21 to -56 VDC			
INPUT CURRENT (±20%)	**IDLE**		**OPERATE**	
	-24 VDC	-48 VDC	-24 VDC	-48 VDC
-02 Option	80 mA	65 mA	330 mA	260 mA
Heat Dissipation				
-01 Option	44.2 Btu/Hr			
-02 Option	44.2 Btu/Hr			
-03 Option	42.6 Btu/Hr			
External Reset Input Ratings				
Voltage	-21 to -56 VDC			
Current	600 uA to 2.0 mA			
Resistance	33K ohms + 1 diode (0.6 volt)			
TTL Levels				
Logic 0	0 to 1.0 VDC			
Logic 1	2.6 to 5.25 VDC			
Control Outputs				
Contact Type	Single Form-A Dry Contact			
Contact Ratings	1 Amp max. @ 24 VDC; 0.5 Amp max. @ 125 VAC			
Data Rates	50 through 9600 baud (switch selectable)			
Weight				
-02 Option	11.5 ounces			
Physical Dimensions	1.4" x 6.0" x 5.6"			
Operating Temperature Range	0° to 55° C.			

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 (209) 292-1111   Fax (209) 292-9355   http://www.dantel.com