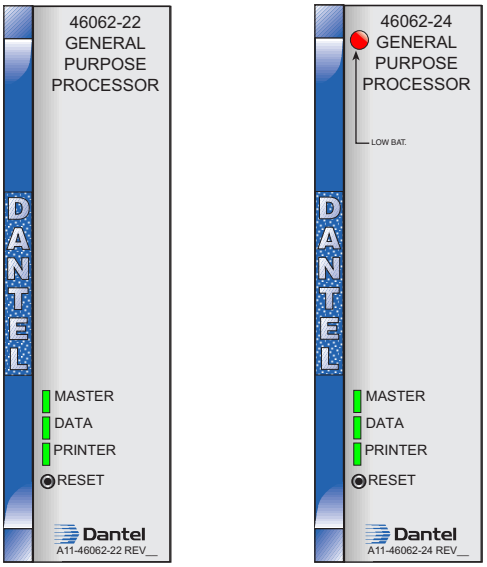
46062-22/24 GENERAL PURPOSE PROCESSOR



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About this Practice:

This practice has been reissued to:

- Document the features of a GPP downloaded with E22-46501-02 Operating Software, version 5.10.
- Add, in many locations, information on Low Backup Battery and Low Backup Battery Messaging features.
- Remove limitations on S1-6 from ***Installation*** section.
- Add Master Port Handshaking options to Table A.
- Remove strap M1 options from Table C.
- Change strap options from M1 to M2 in Fig. 3.
- Remove note from Module Installation subsection of ***Installation*** section.
- Update Table F.
- Update **Report Event** syntax in Sub-Section 4 of ***TL1 Section***.

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

UPDATED

Issue date: May 1999

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.**

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OPTION NUMBER	FEATURES
A11-46062-22	TL1 General Purpose Processor
A11-46062-24	TL1 General Purpose Processor w/ Low Battery Messaging

GENERAL DESCRIPTION

The 46062-22 and 46062-24 General Purpose Processors (GPP) are used with Dantel's 460 Alarm and Control System (460 ACS) to actively collect alarm data and convert that alarm data into autonomous TL1 output messages.

- The 46062-24 GPP is equipped with low battery monitoring. That is, it will alert you before the on-board battery voltage drops to a level that will threaten the integrity of the database should power be removed from the shelf.
- The 46062-24 provides a front panel LED, and a TL1 Message. Throughout this document, any references to low battery messaging refer to the 46062-24 only.

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It can poll E-telemetry (E2 or E2A through a 46037 E-System Interrogator module), DCPF, or DCP systems and reports the alarm information in both TL1 and Dantel Printer Syntax.

The module has 1.28 million bytes of Random Access Memory (RAM) and can support approximately 50,000 fully configured TL1 alarm and control points including their TL1 attribute definitions. The RAM is battery-backed to protect the operating software and configuration database if power is lost to the module.

- When a low battery condition exists, the operating software of the 46062-24 will output a user-defineable TL1 message at the Master Port, a repeating warning message on the Printer Port (when Printer syntax is used), and a visual indicator (a flashing front panel LED).

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The module has three communications ports: the master, data, and printer ports. Each port is capable of asynchronous RS-232 communications. The master and data ports also can accept asynchronous RS-422/485 communications. In addition, the master port can accommodate TTL communications.

The operating software and the configuration database are downloaded to RAM using DCPF protocol on the printer port.

TL1 commands also may be sent directly to the module through the printer port.

NOTE:

The on-board GPP battery is designed to retain the database configuration during momentary power outages only. It is not intended for long-term storage of databases and is not rechargeable. The battery will begin to discharge when two conditions are met: (1) The X1 strap is in, and (2) power has been removed from the module. When the GPP is not in use, place this strap in the X2 position.

CIRCUIT DESCRIPTION

The 46062-22 General Purpose Processor functional schematic is shown in Fig. 1.

Microprocessor and Associated Circuitry

The GPP utilizes a 16-bit parallel processor operating at 8.192 MHz.

Memory consists of the following:

- An EPROM (Erasable Programmable Read Only Memory) that contains the initial operating instructions for the microprocessor,
- RAM that is used to store the operating software and the configuration database. The RAM has battery backup to protect against loss of data if power is removed from the unit.

A watchdog timer is provided to reset the module in the event that the voltage becomes out of tolerance.

Real-Time Clock

A real-time clock is used by the CPU to provide time and date stamping functions as alarm events occur. The real-time clock is set through the host computer's real-time clock during the database download process.

The real-time clock can be replaced with an external timer by placing the appropriate mini-jumper in the proper location. Refer to the Installation chapter for information on the strap locations.

Switches

There are three eight-lever DIP switches to set the default settings for the baud rates, parity parameters, protocol, and RTS/CTS options of the module's three ports.

Input/Output Ports

A DUSART (Dual Universal Synchronous/Asynchronous Receiver/Transmitter) provides communications for the master and the data ports. The ports support asynchronous RS-232 and RS-422/485 physical interfaces. In addition, the master port can support a TTL interface. The interface type is selected by the placement of mini-jumpers.

The printer port utilizes a UART (Universal Asynchronous Receiver/Transmitter) to provide an asynchronous RS-232 interface.

Both the DUSART and the UART operate at 3.6864 MHz.

Front Panel Reset Switch

The front panel of the module has a recessed momentary push-button switch that is used to provide a hardware reset. If the button is pressed momentarily, the module restarts operation and reloads the default operating parameters established by the DIP switches.

Front Panel LEDs

There are three green LEDs located on the front panel of the module that show if the ports are transmitting data.

There is one red LED in the front panel of the 46062-24 to indicate low voltage of the on-board battery.

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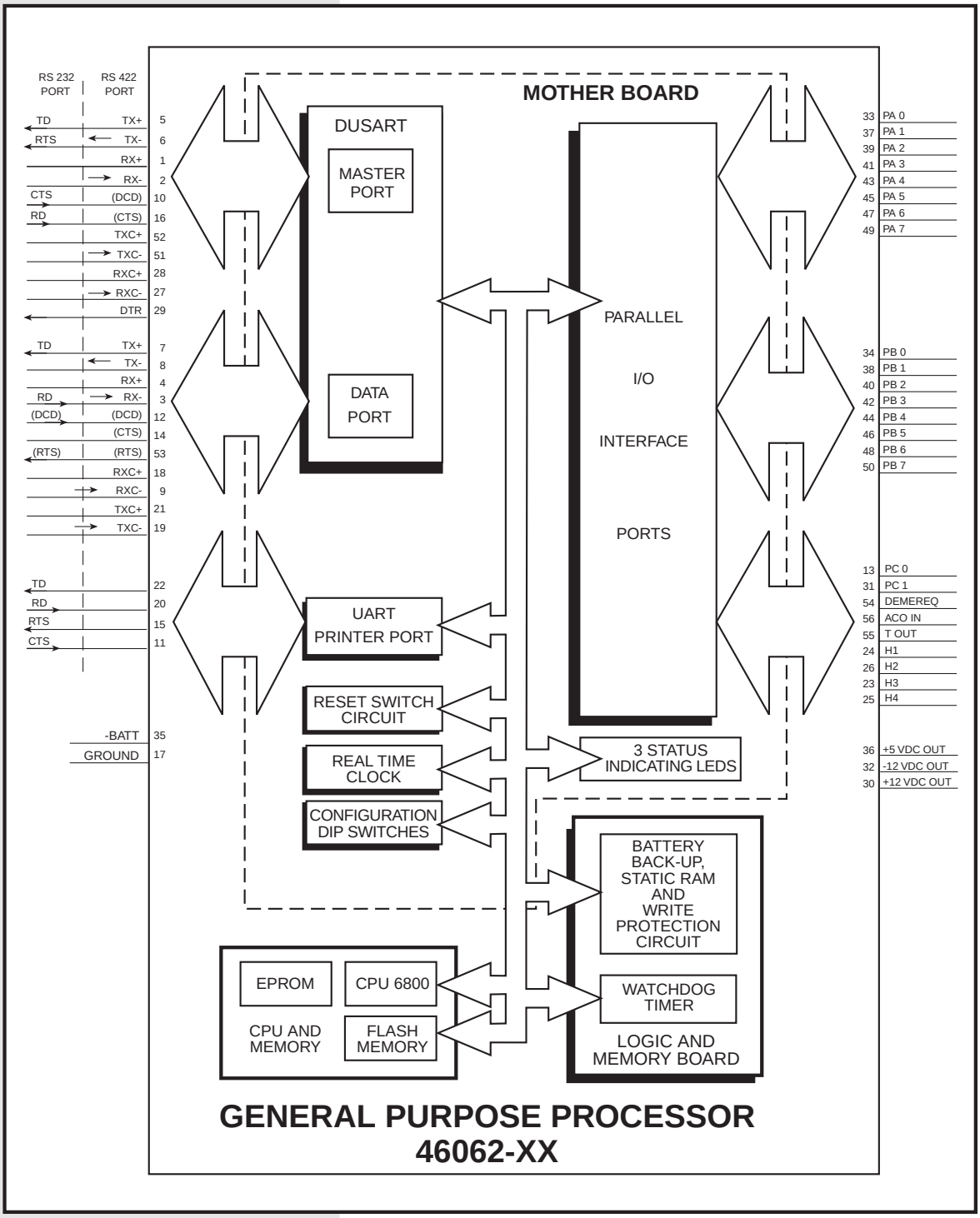
Power Supply

An on-board regulated power supply uses -21 to -56 VDC input power to provide regulated DC voltages to operate the module's circuitry.

NOTE:

The range of valid dates for the TL1 GPP Software is January 1, 1995 to December 31, 2094.

FIG. 1 - FUNCTIONAL SCHEMATIC, 46062-22 GENERAL PURPOSE PROCESSOR



INSTALLATION

Installation consists of setting the switches and straps, installing the module in the shelf, and downloading the operating software and configuration database.

SWITCH SETTINGS

Set the switches. Refer to Fig. 2 for switch locations and Table A for the DIP switch settings. The following is a brief description of each of the switch settings.

Switch S1

Switches S1-1, S1-2, and S1-3 define the ID (address) for the GPP. The ID is used when uploading/downloading the GPP's operating software and configuration database through the printer port using DCPF protocol.

Switch S1-4 and S1-5 are reserved for future use. Both must be down.

Switch S1-6 defines the RTS/CTS handshaking on the master port.

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Switch S1-7 defines how TL1 on the master port will operate. There are two modes of operation: computer mode and user mode. Computer mode is the default setting.

Whenever the master port of the module is connected to any piece of equipment that communicates using TL1 protocol, switch S1-7 must be in the computer-mode position.

When switch S1-7 is placed in the user-mode position, the module provides its own prompt. You can edit TL1 commands with a dumb terminal or computer emulating a dumb terminal connected to the master port. TL1 commands are received and processed by the GPP and the response is transmitted back.

Switch S1-8 defines whether the module will retain the configuration database and operating software when you apply power or push the reset button.

Switch S2

Switches S2-1 through S2-4 define the baud rate and parity for the printer port. These are the module default settings. You can change the defaults with Printer Syntax commands.

Switches S2-5 through S2-8 define the baud rate and parity for the master port. These are the module default settings. You can change the defaults with Printer Syntax commands.

Switch S3

Switches S3-1 through S3-4 define the baud rate and parity for the data port. These are the module default settings. You can change the defaults with Printer Syntax commands.

Switches S3-5 & S3-6 define the Printer Port protocol.

- Select Printer Syntax to view alarms or use Printer Syntax commands.
- Select TL1 to use the Printer Port as a redundant TL1 alarm reportng port. TL1 commands may also be used when TL1 is selected.
- Select Hubbed Printer Application when multiple device's (TL1 GPPs, NexCons, MAPs) printer ports are connected together using a Hubbing Module. The other devices must also be in Hubbed Printer Application (or DCPF) and running at the same baud rate.

  Software downloads and database downloads and uploads may be performed at the printer port regardless of protocol selected.

Switches S3-7 and S3-8 define the data port protocol.

FIG. 2 - SWITCH AND STRAP LOCATIONS

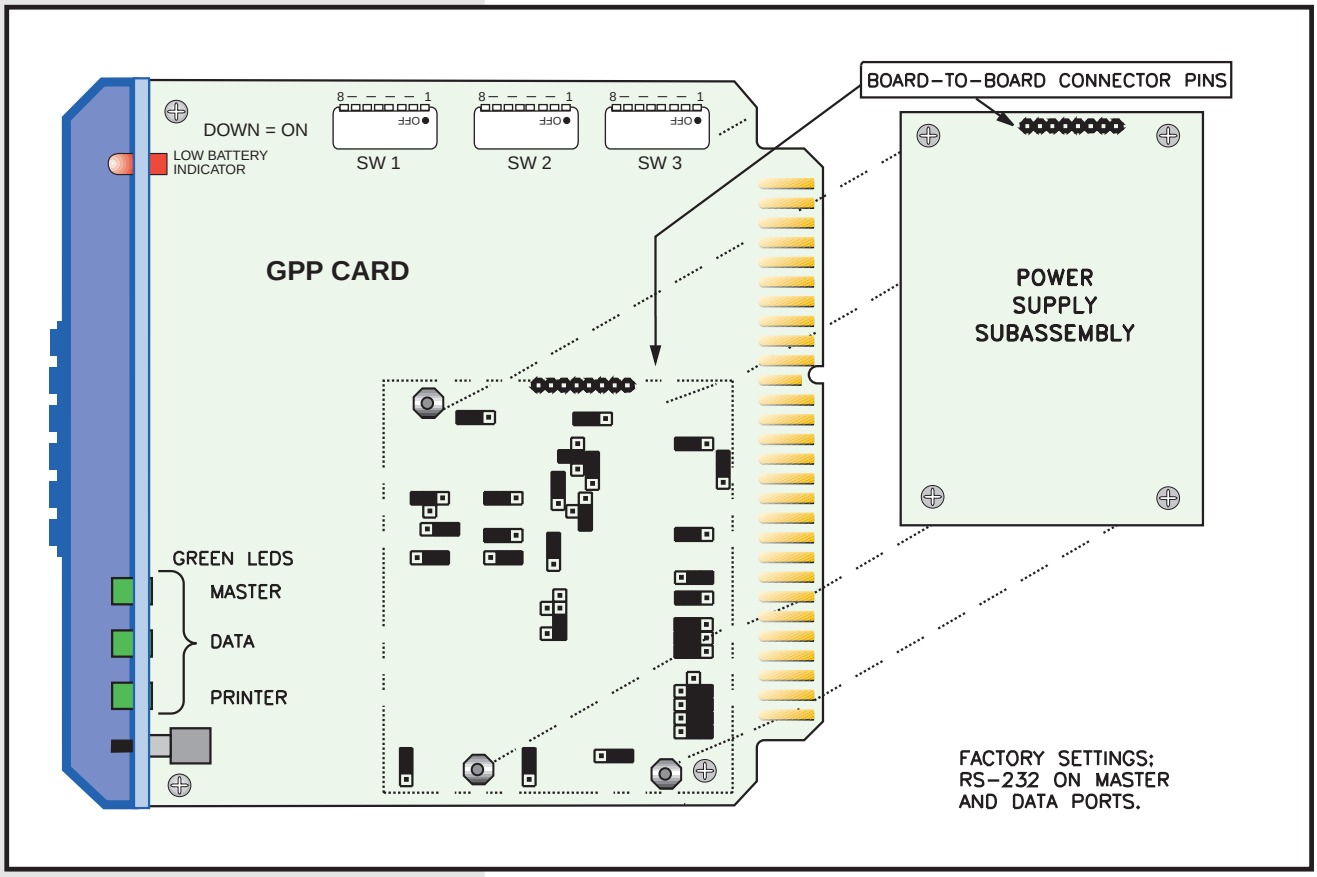

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TABLE A - SWITCH SETTINGS

SWITCH 1	S1-1	S1-2	S1-3	S1-4	S1-5	S1-6	S1-7	S1-8
Address 1	DOWN	DOWN	DOWN					
Address 2	UP	DOWN	DOWN					
Address 3	DOWN	UP	DOWN					
Address 4	UP	UP	DOWN					
Address 5	DOWN	DOWN	UP					
Address 6	UP	DOWN	UP					
Address 7	DOWN	UP	UP					
Address 8	UP	UP	UP					
Reserved				DOWN	DOWN			
Master Port Handshaking								
None						DOWN		
RTS/CTS						UP		
TL1 Mode								
Commands Issued From Computer							DOWN	
Commands Issued By User							UP	
Memory								
Hold Memory on Power-up/Reset								DOWN
Clear Memory on Power-up/Reset								UP
SWITCH 2	**S2-1**	**S2-2**	**S2-3**	**S2-4**	**S2-5**	**S2-6**	**S2-7**	**S2-8**
Printer Port Baud								
1200	DOWN	DOWN						
2400	UP	DOWN						
9600	DOWN	UP						
19200	UP	UP						
Printer Port Parity								
None			DOWN	DOWN				
Odd			UP	DOWN				
Even			DOWN	UP				
Master Port Baud								
1200					DOWN	DOWN		
2400					UP	DOWN		
9600					DOWN	UP		
19200					UP	UP		
Master Port Parity								
None							DOWN	DOWN
Odd							UP	DOWN
Even							DOWN	UP

TABLE A CONTINUED . . .

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TABLE A (CONTINUED) - SWITCH SETTINGS

SWITCH 3	S3-1	S3-2	S3-3	S3-4	S3-5	S3-6	S3-7	S3-8
Data Port Baud								
1200	DOWN	DOWN						
2400	UP	DOWN						
9600	DOWN	UP						
19200	UP	UP						
Data Port Parity								
None			DOWN	DOWN				
Odd			UP	DOWN				
Even			DOWN	UP				
Printer Port Protocol								
Printer Syntax					DOWN	DOWN		
TL1					UP	DOWN		
Hubbed Printer Application (DCPF)					DOWN	UP		
Data Port Protocol								
DCP							DOWN	DOWN
ESYS							UP	DOWN
DCPF							DOWN	UP

STRAP SETTINGS

Set the straps as required for the specific application.

There are no strap settings for the printer port; RS-232 is the only interface available on this port.

The straps for the master and data ports are located beneath the power supply subassembly; refer to Fig. 2 for the location of the power supply. To access the straps:

- Remove the four screws securing the subassembly.
- Pull the subassembly straight up, exercising caution not to bend the subassembly connector pins.

Refer to Tables B, C and Fig. 3 for the specific strap definitions and locations for RS-232 and RS-422 asynchronous communications on the master and data ports.

Replace the power supply subassembly after setting the straps.

NOTE: *Many straps in Fig. 3 are reserved for future use. For additional information regarding strapping options, refer to Table C.*

TABLE B - STRAPPING OPTIONS AND PINOUTS

MASTER PORT			
INTERFACE	**DESCRIPTION**	**STRAPPING**	**PIN**
RS-232	TD (Transmit Data)	K3	5
	RD (Receive Data)	DD1, CC2	16
	RTS (Request To Send)	L2	6
	CTS (Clear To Send)	N1, EE1	10
RS-422	TX+ (Transmit, positive polarity)	K2, L1, T1	5
	TX- (Transmit, negative polarity)	K2, L1, T1	6
	RX+ (Receive, positive polarity)	J2, CC1	1
	RX- (Receive, negative polarity)	J2, CC1	2
	RX Terminated	I1	
	RX Unterminated	I2	
	DCD (Data Carrier Detect) always ON	N2	
	CTS always ON	M2	
RS-485	TX+	K2, L1, T2	5
	TX-	K2, L1, T2	6
	RX+	J2, CC1	1
	RX-	J2, CC1	2
	RX Terminated	I1	
	RX Unterminated	I2	
	DCD always ON	N2	
	CTS always ON	M2	
DATA PORT			
INTERFACE		**STRAPPING**	**PIN**
RS-232	TD	C1	7
	RD	A1	3
	RTS	NONE	53
	CTS	NONE	14
	DCD	NONE	12
RS-422	TX+	C2, D1, Z1	7
	TX-	C2, D1, Z1	8
	RX+	A2	4
	RX-	A2	3
	RX Terminated	B1	
	RX Unterminated	B2	
RS-485	TX+	C2, D1, Z2	7
	TX-	C2, D1, Z2	8
	RX+ (must be unterminated)	A2, B2	4
	RX- (must be unterminated)	A2, B2	3

ADDITIONAL STRAPPING			
DESCRIPTION	**STRAPPING**	**DESCRIPTION**	**STRAPPING**
Reserved	U1	Reserved	W1
Reserved	U2	Reserved	W2
Reserved	V1	Battery - Operating Condition	X1
Reserved	V2	Battery - Storage Condition	X2

TABLE C - STRAP DEFINITIONS

STRAP	PORT	INTERFACE	DESCRIPTION
A1	Data	RS-232	RD
A2	Data	RS-422	RXD
B1**	Data	RS-422/485	RXD Terminated
B2**	Data	RS-422/485	RXD Unterminated
C1	Data	RS-232	TD
C2	Data	RS-422/485	TXD
D1	Data	RS-422/485	TXD
D2	Data	RS-232	RTS
E1*			Reserved
E2*			Reserved
F1*			Reserved
F2*			Reserved
F3*			Reserved
G1*			Reserved
G2*			Reserved
H1*			Reserved
H2*			Reserved
I1	Master	RS-422/485	RXD Terminated
I2	Master	RS-422/485	RXD Unterminated
J1	Master	TTL	RXD
J2	Master	RS-422/485	RXD
K1	Master	TTL	TXD
K2	Master	RS-422/485	TXD
K3	Master	RS-232	TD
L1	Master	RS-422/485	TXD
L2	Master	RS-232	RTS
L3	Master	RS-232	RTS
L4	Master	TTL	RTS
L5	Master	TTL	DTR

* Reserved for future use.
** When using RS-485, Data Port must be unterminated.

TABLE C CONTINUED . . .

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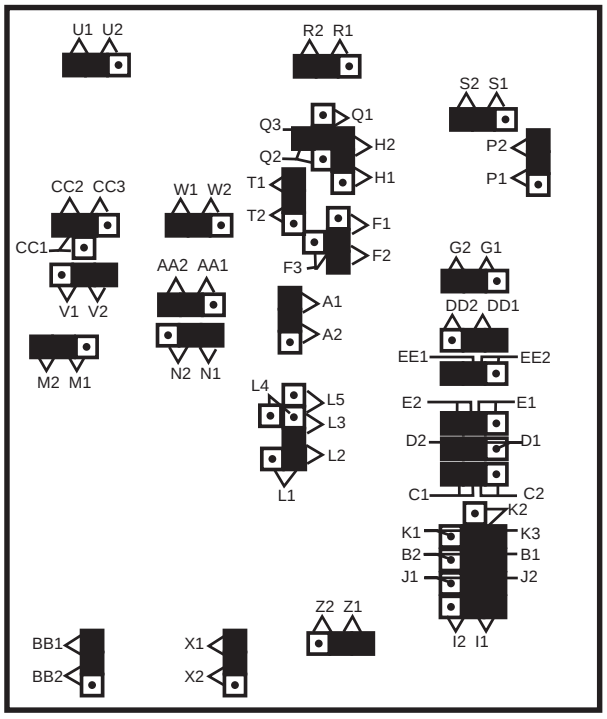
TABLE C - STRAP DEFINITIONS (CONTINUED)

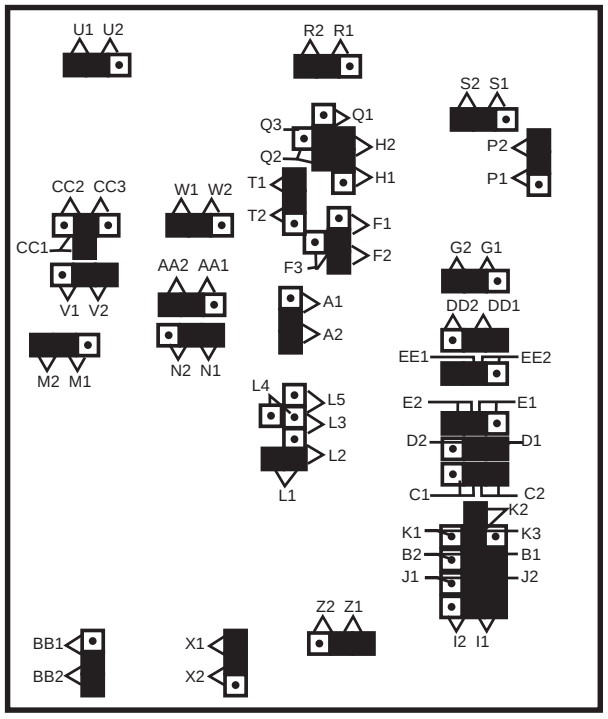
STRAP	PORT	INTERFACE	DESCRIPTION
M1*			Reserved
M2*			Reserved
N1	Master	RS-232	CTS
N2	Master	TTL	DCD
P1*			Reserved
P1*			Reserved
Q1*			Reserved
Q2*			Reserved
Q3*			Reserved
R1*			Reserved
R2*			Reserved
S1*			Reserved
S2*			Reserved
T1	Master	RS-422	TXD
T2	Master	RS-485	TXD
U1			Reserved
U2			Reserved
V1			Reserved
V2			Reserved
W1			Reserved
W2			Reserved
X1			Reserved
X2			Reserved
Z1	Data	RS-422	TXD
		RS-232	RTS
Z2	Data	RS-485	TXD
AA1*			Reserved
AA2*			Reserved
BB1*			Reserved
BB2*			Reserved
CC1	Master	RS-422/485	RXD
CC2	Master	RS-232	RD
CC3	Master	TTL	RXD
DD1	Master	RS-232	RD
DD2	Master/Data	TTL	CTS
EE1	Master	RS-232	CTS
EE2	Master	TTL	DCD

* Reserved for future use.
** When using RS-485, Data Port must be unterminated.

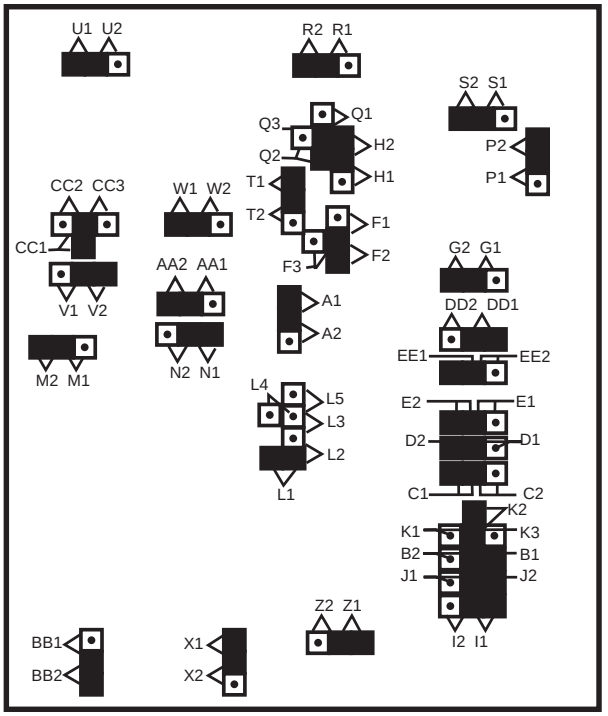
FIG. 3 - STRAPPING DIAGRAM, MASTER AND DATA PORTS



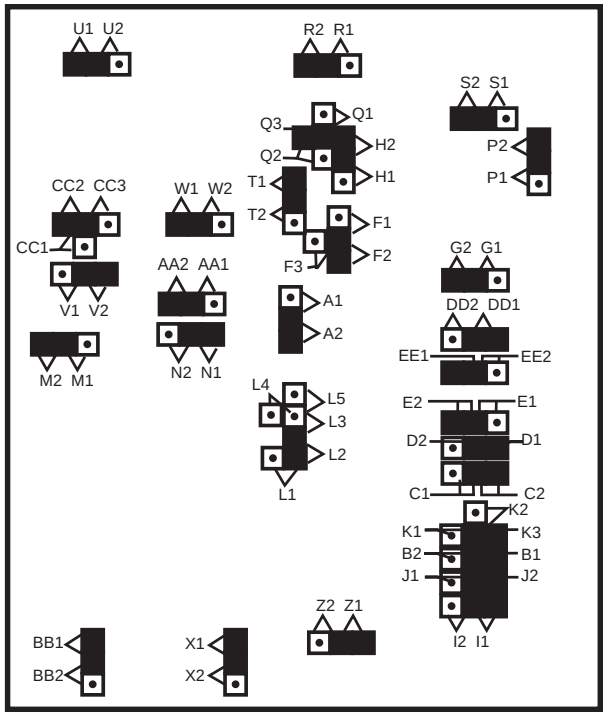
Master Port RS-232 Asynchronous
Data Port RS-232 Asynchronous



Master Port RS-422 Asynchronous
Data Port RS-422 Asynchronous



Master Port RS-422 Asynchronous
Data Port RS-232 Asynchronous



Master Port RS-232 Asynchronous
Data Port RS-422 Asynchronous

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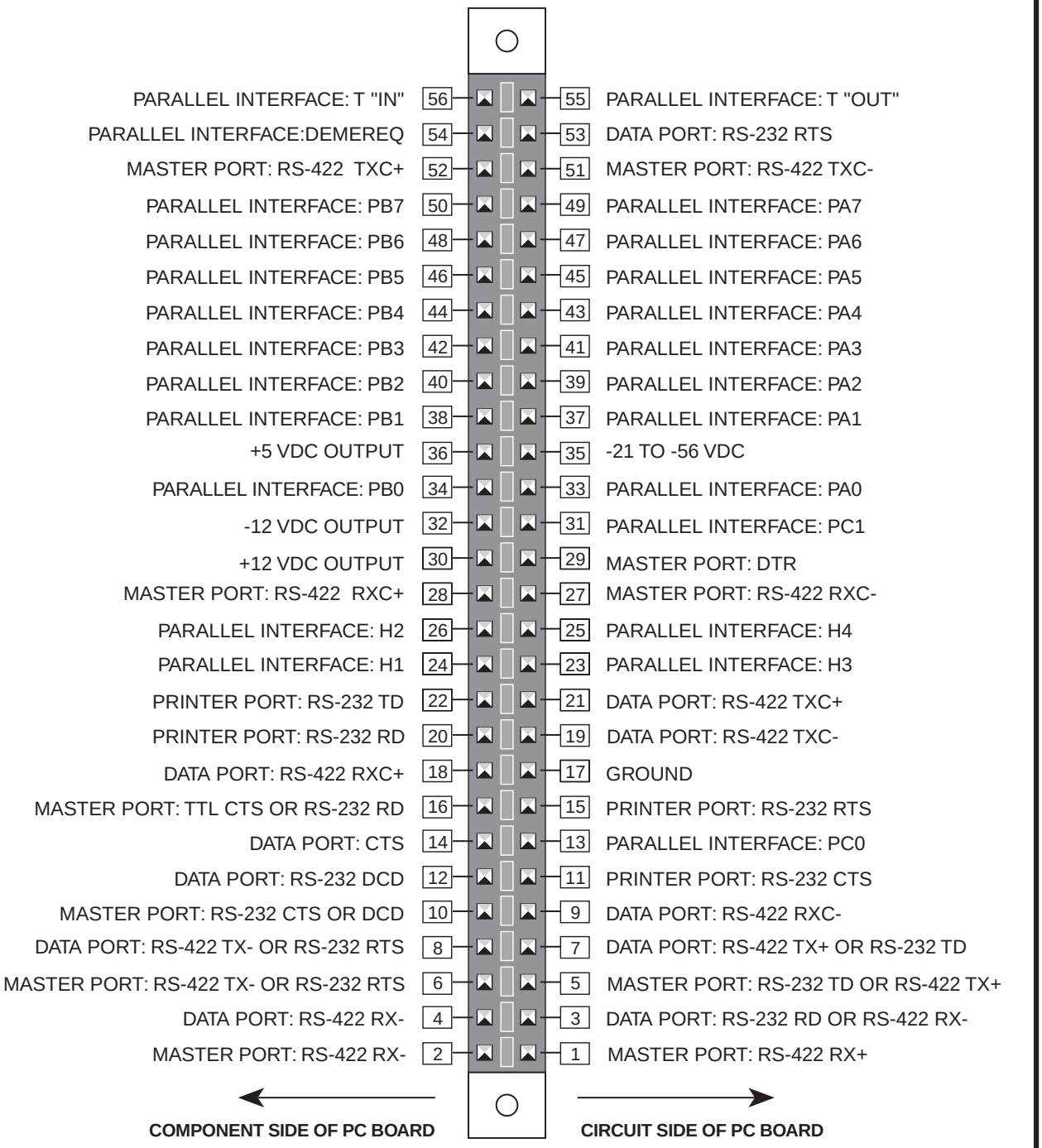
MODULE INSTALLATION

Install the module in the proper slot in the equipment shelf.

FIG. 4 - PIN DESIGNATIONS



DOWNLOADING OPERATING SOFTWARE AND CONFIGURATION DATABASE

NOTE:
This assumes that you have the 46504 TL1 GPP Editor installed on your computer in the TSHELL directory on drive C. If not, the TL1 GPP Editor must be installed before proceeding. Refer to the documentation for the 46504 TL1 GPP Editor.

The GPP begins operation when power is applied. However, before the GPP will operate properly, you must download the operating software through the printer port. Also, you must configure the database and downloaded it through the printer or master port. Refer to the following procedure.

1. The operating software is on a disk titled TL1 GPP Software with a part number of E22-46501. Insert the disk into your computer. Log onto the drive in which you inserted the disk. Type **COPY [space] *.* [space] C:\TSHELL** and press the ENTER key.
2. After the files from the floppy disk have been copied onto your hard drive, remove the floppy disk and store it in a safe place.
3. Log onto the hard drive where the TL1 GPP Editor program is installed (normally C drive).
4. Go to the directory where the T/Shell program is installed (normally TSHELL): type **CD TSHELL** and press ENTER.
5. Type **TSHELL** and press ENTER. The Master Menu appears. If you are using a color monitor, go to step 6. If you are using a monochrome monitor or a laptop computer with an LCD display, make sure System Parameters is selected (use up/down arrow keys) and press ENTER. A second window appears for selecting LCD mode. Use the TAB key to select YES, USE LCD MODE. Press ENTER. Press F8 to save the change. The Master Menu appears. Exit the T/Shell program and restart it to fully activate the LCD mode change.
6. On the Master Menu, highlight the TL1 GPP EDITOR selection and press ENTER.
7. The TL1 GPP MODULE window appears. TL1GPP SYSTEM DEFINITION is highlighted. Press ENTER to select it.
8. The TL1 GPP SYSTEM window appears. SELECT GPP is highlighted. Press ENTER.
9. The TL1 GPP window appears. The cursor is at the SYSTEM NAME. Enter a name to identify the configuration and press ENTER. At the bottom of the screen, a message appears asking **Not there. Wish to add (Y/N)?** Type **Y**.

NOTE: If GPP names already exist, use the TAB key to select one or enter a new name and press ENTER. If you select an existing name, the program will then ask for the configuration's password. If there is a password, enter it and press ENTER. If there is no password, just press ENTER. SELECT GPP is highlighted in the TL1 GPP SYSTEM window in the lower right corner.

In the low battery messaging version of T/Shell, all new databases created defaults to the low battery messaging type. If a non-low battery database is desired (46062-22), go to the TL1

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*GPP SYSTEM MENU and select "Edit Password/Config/ Descriptors". Select "Edit GPP Type" and answer "**N**" in the response to the prompt at the bottom of the screen.*

10. When you enter a new name, the cursor moves to POLLING TYPE and displays a window to select DCP(F) or E2. Highlight the desired type and press ENTER. SELECT GPP is highlighted in the TL1 GPP SYSTEM menu window at the bottom of the screen.

11. Use the arrow keys to highlight POLLING AND POINTS and press ENTER. The TL1 GPP EDITOR window appears.

12. Enter an address (1-255 for the 46062-22; 1-254 for the 46062-24), display, and source identification (SID). Press ENTER after each entry. After entering a new SID, a message appears at the bottom of the screen asking **Entry not found. Add it? (Y/N).** Type **Y**. With the 46062-24, there is a maximum of 767 entries in the polling list. One entry is reserved for the low battery reporting point - Address 255, display 1, point 1.

NOTE:
When using low battery messaging, address 255 behaves like a hidden address. No external poll on the data port will occur for that address.

13. Repeat Step 12 until all the entries have been made.

14. To define alarm and control points, return the cursor to entry 1 (if none have been defined) or to the next entry to be defined. Press the F2 key to define alarms. Press the F4 key to define control points (addresses 1-254). Fill in the fields as needed for the 64 points of the display. After all the points have been defined, press the F8 key to save the entries. The screen returns to the TL1 polling list.

15. Repeat Step 14 until all the points for all the displays have been defined. When finished, press the F8 key to save the polling list.

NOTE:
If you are going to download to the GPP through a 46034 Hubbing Module, the Hubbing Module must be the "B" Issue and the ports must be set for full-duplex operation.

16. In the TL1 GPP SYSTEM MENU window, highlight TRANSFER and press ENTER. The RS-232 (serial) output of your computer should be connected to the printer port of the GPP.

17. In the TRANSFER window, hold down the ALT key and press the F9 key. Change the baud to 19,200. Press ENTER to move the cursor to the BAUD field. Type **19** and press ENTER. Press the F8 key to save the change.

18. In the TRANSFER window, type **S** for the option and press ENTER. The GPP software program appears in a window. Press ENTER to start downloading the software program. After the transfer is completed, the TRANSFER window reappears.

NOTE: T/Shell will compare the database type (non-low battery/low battery messaging) to the target GPP (46062-22/46062-24). The download will be aborted if they do not match.

NOTE:
When downloading or uploading a database on either the master or printer port, all polling and responding stops on all three ports. Polling resumes when the download or upload is complete.

19. In the TRANSFER window, type **D** for the option and press ENTER. If the GPP has a password, enter it and press ENTER. If there is no password, just press ENTER. The database configuration starts to download to the GPP. After the transfer is completed, press F10 to exit. In the TL1 GPP SYSTEM window, highlight

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QUIT and press ENTER. In the TL1 GPP MODULE window, highlight QUIT and press ENTER. In the MASTER MENU window, highlight QUIT and press ENTER. Type **Y** and press ENTER.

During the configuration download, the computer's date and time are sent to the GPP. This establishes the date and time of the GPP. The range of valid dates for the GPP Software is January 1, 1995, to December 31, 2094.

NOTE:

Each display polled is made up of 64 individual alarm points, numbered 1 through 64. These 64 points are further organized into 4 "groups" with 16 points in each group.

Pts = Points
Pts 1-16 make up Group 1,
Pts 17-32 make up Group 2,
Pts 33-48 make up Group 3,
Pts 49-64 make up Group 4.

Device Failures - TL1 GPPs and MAPs

A MAP can report up to 64 displays of alarm and control information per MAP address. In Failure Report Mode, displays 61-64 are used for a different purpose.

When the polling type is set for DCP(F), displays 61 through 64 may be used to report display failures. These displays correspond to lines 129 through 136 as defined by DCP protocol (two lines equal one display).

When the GPP's data port is configured for DCP or DCPF polling, the GPP, for each MAP ID, will generate displays 61-64. These displays are used to report the status of devices, rather than alarm points. For each MAP ID, each point in GPP displays 61 through 64 represents the status of 16 alarm points (1 group). Refer to Table D.

There are two devices to consider when using the device failure functions of a TL1 GPP.

The first is the 46020-40 or 46020-41 Multi Alarm Processor (MAP) that the GPP is polling. When configuring the MAP, point 64 of every display can be used as an alarm point or as a device failure point. This is an option selected in the Responder Port Menu of the T/Shell program used to configure the MAP: "Disable Point 64 Device Failure". Valid options are yes, ("Y"), or no, ("N"). If "N" was selected when the MAP was configured, then any device failure will give a point 64 alarm indication in the display associated with that device. If "Y" was selected, the MAP will use point 64 as a normal alarm point and device failures will not be reported.

The second factor to be considered is the 46062-22 General Purpose Processor (GPP). During the creation of the GPP's database, the user will select the Utility menu, and then, from that menu, "Choose the Failure Display and Issue". In response to the choice "Failure report: 'Y or N'", select "Y" to configure the GPP to use displays 61 through 64 to report device failures. Select "N" to use displays 61 through 64 for reporting normal alarm points.

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Between the MAP and the GPP, there are four combinations possible:

NOTE:

With options 1 or 2, do not assign any routine alarm points to displays 61, 62, 63, or 64. Doing so will prevent any of these displays from being created for device failures.

In DCP(F) devices which return 32 displays of alarms and 32 displays of controls, do not assign any controls to displays 29-32. Control points assigned to these displays ultimately report to displays 61-64 in the GPP and interfere with the Display Failure Mode.

1. GPP set for "Failure Reports: Y"; MAP set for "Disable point 64: N"

In this option, which is the recommended option, any MAP display reporting a device failure will set point 64 of that display. The GPP will report that bit 64 in that display. Additionally, the GPP displays 61 through 64 are used to report which device has failed. Refer to Table D.

For example: A remote MAP is polling four Dantel Multi-Alarm Transmitters (MATs). The first MAT reports its alarms to display 1, points 1-16 of the MAP. The second reports to points 17-32, the third to 33-48, and the fourth to 49-64. When the first MAT fails, the MAP will set point 64 of display 1. This will then be sent to the GPP. The GPP will report that same bit 64 in display 1. This, however, will only indicate that one of the four MATs in that display has failed. Looking at display 61, however, will show bit 1 set. This indicates that the device which reports to the first 16 bits of display 1, has failed. That indicates the first of those four MATs. Refer to Table D.

Bit 63 of display 64 is used to indicate a communications failure between the GPP and the MAP.

2. GPP set for "Failure Reports: Y"; MAP set for "Disable point 64: Y"

This option works much the same as the one described above, but because the MAP is not reporting bit 64 device failures, the GPP will not show bit 64 in the failed display. GPP displays 61 through 64 work as described above. Refer to Table D.

NOTE:

Unconfigured Point Numbers: If an alarm point has not been defined in the GPP database, its failure results in a message from the GPP. This message contains a number which identifies the device failure. Refer to Table D, under the column labeled "Unconfigured Point Number".

3. GPP set for "Failure Reports: N"; MAP set for "Disable point 64: N"

In this option, any display that fails to respond to the MAP has point 64 in that display of the MAP and the GPP set. GPP displays 61 through 64 are used for normal alarm point reporting. Because GPP displays 61 through 64 are not used to report device failures, a communications failure between the MAP and the GPP will not be reported.

4. GPP set for "Failure Reports: N"; MAP set for "Disable point 64: Y"

In this mode, every point of every display of both the MAP and the GPP is available for alarm points. No device failures will be reported by the MAP or the GPP.

When the polling type is set for E2 (same as E2A), define point 64 of each display to indicate a display failure, as defined by the E2A protocol.

TABLE D - DISPLAY FAILURE POINT ASSIGNMENT (POINTS 1-32)

	FAILURE DISPLAYS											
	TL1 GPP DISPLAY 61			TL1 GPP DISPLAY 62			TL1 GPP DISPLAY 63			TL1 GPP DISPLAY 64		
POINT	Unconfigured Point Number	MAP Display	Group Number	Unconfigured Point Number	MAP Display	Group Number	Unconfigured Point Number	MAP Display	Group Number	Unconfigured Point Number	MAP Display	Group Number
1	3841	1	1	3905	17	1	3969	33	1	4033	49	1
2	3842	1	2	3906	17	2	3970	33	2	4034	49	2
3	3843	1	3	3907	17	3	3971	33	3	4035	49	3
4	3844	1	4	3908	17	4	3972	33	4	4036	49	4
5	3845	2	1	3909	18	1	3973	34	1	4037	50	1
6	3846	2	2	3910	18	2	3974	34	2	4038	50	2
7	3847	2	3	3911	18	3	3975	34	3	4039	50	3
8	3848	2	4	3912	18	4	3976	34	4	4040	50	4
9	3849	3	1	3913	19	1	3977	35	1	4041	51	1
10	3850	3	2	3914	19	2	3978	35	2	4042	51	2
11	3851	3	3	3915	19	3	3979	35	3	4043	51	3
12	3852	3	4	3916	19	4	3980	35	4	4044	51	4
13	3853	4	1	3917	20	1	3981	36	1	4045	52	1
14	3854	4	2	3918	20	2	3982	36	2	4046	52	2
15	3855	4	3	3919	20	3	3983	36	3	4047	52	3
16	3856	4	4	3920	20	4	3984	36	4	4048	52	4
17	3857	5	1	3921	21	1	3985	37	1	4049	53	1
18	3858	5	2	3922	21	2	3986	37	2	4050	53	2
19	3859	5	3	3923	21	3	3987	37	3	4051	53	3
20	3860	5	4	3924	21	4	3988	37	4	4052	53	4
21	3861	6	1	3925	22	1	3989	38	1	4053	54	1
22	3862	6	2	3926	22	2	3990	38	2	4054	54	2
23	3863	6	3	3927	22	3	3991	38	3	4055	54	3
24	3864	6	4	3928	22	4	3992	38	4	4056	54	4
25	3865	7	1	3929	23	1	3993	39	1	4057	55	1
26	3866	7	2	3930	23	2	3994	39	2	4058	55	2
27	3867	7	3	3931	23	3	3995	39	3	4059	55	3
28	3868	7	4	3932	23	4	3996	39	4	4060	55	4
29	3869	8	1	3933	24	1	3997	40	1	4061	56	1
30	3870	8	2	3934	24	2	3998	40	2	4062	56	2
31	3871	8	3	3935	24	3	3999	40	3	4063	56	3
32	3872	8	4	3936	24	4	4000	40	4	4064	56	4

TABLE D CONTINUED . . .

TABLE D (CONTINUED) - DISPLAY FAILURE POINT ASSIGNMENT (POINTS 33-64)

	FAILURE DISPLAYS											
	TL1 GPP DISPLAY 61			TL1 GPP DISPLAY 62			TL1 GPP DISPLAY 63			TL1 GPP DISPLAY 64		
POINT	Unconfigured Point Number	MAP Display	Group Number	Unconfigured Point Number	MAP Display	Group Number	Unconfigured Point Number	MAP Display	Group Number	Unconfigured Point Number	MAP Display	Group Number
33	3873	9	1	3937	25	1	4001	41	1	4065	57	1
34	3874	9	2	3938	25	2	4002	41	2	4066	57	2
35	3875	9	3	3939	25	3	4003	41	3	4067	57	3
36	3876	9	4	3940	25	4	4004	41	4	4068	57	4
37	3877	10	1	3941	26	1	4005	42	1	4069	58	1
38	3878	10	2	3942	26	2	4006	42	2	4070	58	2
39	3879	10	3	3943	26	3	4007	42	3	4071	58	3
40	3880	10	4	3944	26	4	4008	42	4	4072	58	4
41	3881	11	1	3945	27	1	4009	43	1	4073	59	1
42	3882	11	2	3946	27	2	4010	43	2	4074	59	2
43	3883	11	3	3947	27	3	4011	43	3	4075	59	3
44	3884	11	4	3948	27	4	4012	43	4	4076	59	4
45	3885	12	1	3949	28	1	4013	44	1	4077	60	1
46	3886	12	2	3950	28	2	4014	44	2	4078	60	2
47	3887	12	3	3951	28	3	4015	44	3	4079	60	3
48	3888	12	4	3952	28	4	4016	44	4	4080	60	4
49	3889	13	1	3953	29	1	4017	45	1	4081	not used	
50	3890	13	2	3954	29	2	4018	45	2	4082	not used	
51	3891	13	3	3955	29	3	4019	45	3	4083	not used	
52	3892	13	4	3956	29	4	4020	45	4	4084	not used	
53	3893	14	1	3957	30	1	4021	46	1	4085	not used	
54	3894	14	2	3958	30	2	4022	46	2	4086	not used	
55	3895	14	3	3959	30	3	4023	46	3	4087	not used	
56	3896	14	4	3960	30	4	4024	46	4	4088	not used	
57	3897	15	1	3961	31	1	4025	47	1	4089	not used	
58	3898	15	2	3962	31	2	4026	47	2	4090	not used	
59	3899	15	3	3963	31	3	4027	47	3	4091	not used	
60	3900	15	4	3964	31	4	4028	47	4	4092	not used	
61	3901	16	1	3965	32	1	4029	48	1	4093	not used	
62	3902	16	2	3966	32	2	4030	48	2	4094	not used	
63	3903	16	3	3967	32	3	4031	48	3	4095	Remote MAP failure	
64	3904	16	4	3968	32	4	4032	48	4	4096	not used	

OPERATION

There are no specific operating instructions for the 46062-22 GPP. Operation begins when power is applied to the unit and is initially based on the switch settings. Once the operating software and database configuration have been downloaded to the module, the operating software uses the database configuration to control the module's operation.

The front panel of the module has three green LEDs labeled MASTER, DATA, and PRINTER. Each LED flashes when the corresponding port is transmitting data.

The recessed momentary push-button RESET switch on the front panel restarts module operation and returns the module to its default switch settings. If switch S1-8 is in the UP position, pressing the reset button will erase both the operating software and the database configuration.

TL1 SECTION

The 46062-22 General Purpose Processor provides 19 TL1 commands and 6 automatic reports in accordance with Dantel GPP specifications and the following Bellcore publications:

- TR-NWT-000833, Issues 3 and 5
- TA-NWT-000200, Issue 5
- TSPM-0301, Issue 4

This section is divided into six sub-sections:

1. User Mode and Computer Mode
2. TL1 Input Commands
   a. Table E - TL1 Input Commands
   b. Table F - TL1 Input Command Format
3. TL1 Parameters
4. TL1 Autonomous Output Formats
5. TL1 Error Codes and Error Messages
6. Unconfigured Alarm Points
   a. Table G

SUB-SECTION 1 - USER MODE AND COMPUTER MODE

There are two modes available on the GPP master port: USER mode and COMPUTER mode.

In USER mode, a dumb terminal can be connected to the master port of GPP and issue TL1 commands. To get into the USER mode, set switch 1-7 UP. The USER mode prompt (:->) should appear.

In COMPUTER mode, switch 1-7 is DOWN and the master port is connected to either a port on the X.25 module or directly to the NMA, depending on the application.

NOTE:
When Computer mode is selected, there is no prompt and no echoing of characters.

User Mode Edit Menu

The GPP provides editing commands that can be used for database configuration. The following is a list of the commands.

- Key - **FORWARD SLASH**

  Purpose: Advance cursor.

- Key - **BACK SLASH**

  Purpose: Move cursor back.

- Key - **BACK SPACE**

  Purpose: Delete character before the cursor.

- Key - **DELETE**

  Purpose: Delete character at the cursor.

- Key - **TAB**

  Purpose: Delete one parameter.

- Key - **RETURN**

  Purpose: Submit TL1 input command to GPP for processing.

For the following commands hold down the CONTROL key and press the appropriate letter.

- Key - **O (CTRL O)**
  Purpose : Displays all the editing keys.
- Key - **C (CTRL C)**
  Purpose : Displays all available TL1 commands.
- Key - **V (CTRL V)**
  Purpose : Edit a particular TL1 command template.
- Key - **R (CTRL R)**
  Purpose : Retrieve the last TL1 command.
- Key - **(CTRL E)**
  Purpose : Erase current TL1 input command.

SUB-SECTION 2 - TL1 INPUT COMMANDS

TABLE E - TL1 INPUT COMMANDS

TL1 COMMAND	EDITING COMMAND NUMBER	PUBLICATION REFERENCE
Set Attribute Environment (SET-ATTR-ENV)	TL1_VEC = 3	TR-NWT-833
Set Attribute Control (SET-ATTR-CONT)	TL1_VEC = 4	TR-NWT-833
Set Attribute (SET-ATTR)	TL1_VEC = 5	TR-NWT-833
Retrieve Attribute Environment (RTRV-ATTR-ENV)	TL1_VEC = 6	TR-NWT-833
Retrieve Attribute Control (RTRV-ATTR-CONT)	TL1_VEC = 7	TR-NWT-833
Retrieve Attribute (RTRV-ATTR)	TL1_VEC = 8	TR-NWT-833
Retrieve Alarm Environment (RTRV-ALM-ENV)	TL1_VEC = 9	TR-NWT-833
Retrieve External Control (RTRV-EXT-CONT)	TL1_VEC = 10	TR-NWT-833
Retrieve Alarm (RTRV-ALM)	TL1_VEC = 11	TR-NWT-833
Retrieve Condition (RTRV-COND)	TL1_VEC = 12	TR-NWT-833
Operate External Control (OPR-EXT-CONT)	TL1_VEC = 16	TR-NWT-833
Release External Control (RLS-EXT-CONT)	TL1_VEC = 17	TR-NWT-833
Set Date (SET-DAT) *	TL1_VEC = 19	TSPM-301
Retrieve Log (RTRV-LOG)	TL1_VEC = 20	TA-NWT-200
Change Protocol (CHG-PROTCL)	TL1_VEC = 21	Dantel GPP
Retrieve Header (RTRV-HDR)	TL1_VEC = 22	TA-NWT-200
Allow Message (ALW-MSG)	TL1_VEC = 23	TR-NWT-833
Inhibit Message (INH-MSG)	TL1_VEC = 24	TR-NWT-833
Initialize System (INIT-SYS)	TL1_VEC = 25	TR-NWT-833

***NOTE**: Command number 21 is for the use of Dantel personnel only. Command number 20 is for Telco Systems only. The Editing Command Number is used in the User Mode. Refer to User Mode description for more information.*

**** NOTE:*** *The **SET DATE** command, (refer to Table F for proper syntax), is used to set the date and time of the TL1 GPP. Valid dates are January 1, 1995 to December 31, 2094.*

TABLE F - TL1 INPUT COMMAND FORMAT

TL1 COMMAND	
EDITING COMMAND NUMBER	TL1 COMMAND FORMAT
3 (Issue 3)	SET-ATTR-ENV:SID:AID:CTAG:CR,COND;
3 (Issue 5)	SET-ATTR-ENV:SID:AID:CTAG::CR,COND;
4 (Issue 3)	SET-ATTR-CONT:SID:AID:CTAG:COND;
4 (Issue 5)	SET-ATTR-CONT:SID:AID:CTAG::COND;
5 (Issue 3)	SET-ATTR-EQPT:SID:AID:CTAG:CR,COND,NEND,AZ;
5 (Issue 5)	SET-ATTR-EQPT:SID:AID:CTAG::CR,COND,NEND,AZ;
6 (Issue 3)	RTRV-ATTR-ENV:SID:AID:CTAG:CR,COND;
6 (Issue 5)	RTRV-ATTR-ENV:SID:AID:CTAG::CR,COND;
7 (Issue 3)	RTRV-ATTR-CONT:SID:AID:CTAG:COND;
7 (Issue 5)	RTRV-ATTR-CONT:SID:AID:CTAG::COND;
8 (Issue 3)	RTRV-ATTR-EQPT:SID:AID:CTAG:CR,COND,NEND,AZ;
8 (Issue 5)	RTRV-ATTR-EQPT:SID:AID:CTAG::CR,COND,NEND,AZ;
9 (Issue 3)	RTRV-ALM-ENV:SID:AID:CTAG:CR,COND;
9 (Issue 5)	RTRV-ALM-ENV:SID:AID:CTAG::CR,COND;
10 (Issue 3)	RTRV-EXT-CONT:SID:AID:CTAG:COND;
10 (Issue 5)	RTRV-EXT-CONT:SID:AID:CTAG::COND;
11 (Issue 3 & 5)	RTRV-ALM-EQPT:SID:AID:CTAG::CR,COND,SA,NEND,AZ;
12 (Issue 3)	RTRV-COND-EQPT:SID:AID:CTAG:COND,NEND,AZ;
12 (Issue 5)	RTRV-COND-EQPT:SID:AID:CTAG::COND,NEND,AZ;
16 (Issue 3)	OPR-EXT-CONT:SID:AID:CTAG:CONT,CONTS;
16 (Issue 5)	OPR-EXT-CONT:SID:AID:CTAG::CONT,CONTS;
17 (Issue 3)	RLS-EXT-CONT:SID:AID:CTAG:CONT,CONTS;
17 (Issue 5)	RLS-EXT-CONT:SID:AID:CTAG::CONT,CONTS;
19	SET-DAT:SID::CTAG::YYMMDD,HHMMSS;
20	RTRV-LOG:SID::CTAG::LOGNM;
21	CHG-PROTCL:::;
22 (Issue 3)	RTRV-HDR:SID::CTAG;
22 (Issue 5)	RTRV-HDR:SID:AID:CTAG;
23 (Issue 3)	ALW-MSG-EQPT:SID:AID:CTAG:CR,EVTTYPE;
23 (Issue 5)	ALW-MSG-EQPT:SID:AID:CTAG::CR,CONDTYPE;
24 (Issue 3)	INH-MSG-EQPT:SID:AID:CTAG:CR,EVTTYPE;
24 (Issue 5)	INH-MSG-EQPT:SID:AID:CTAG::CR,CONDTYPE;
25 (Issue 3)	INIT-SYS:SID:AID:CTAG:PH;
25 (Issue 5)	INIT-SYS:SID:AID:CTAG::PH;
***NOTE**: Command number 21 is for the use of Dantel personnel only. Command number 20 is for Telco Systems only. The Editing Command Number is used in the User Mode. Refer to User Mode description for more information.*	

UPDATED

SUB-SECTION 3 - TL1 PARAMETERS

The following is a list of the TL1 parameter definitions. The dynamic tables are built at the time of configuration of the alarm points. The fixed tables have preassigned values.

(1) SID Table (dynamic table)

SID_WID = 20 characters
SID_LEN = 255
255: NULL = don't care

(2) EQPT: Equipment Type (fixed and dynamic table)

EQPT_WID = 5 characters
EQPT_LEN = 127

The first 92 options are fixed equipment types. The last 35 options are dynamic (user defined) entries.

The following EQPT types may be selected from the fixed table:

EQPT LINE TRK PLK SLK TST COM ALL DATA
MEM PT0 PT0X PT1 T0 T0X TOXA TOXAS TOXB
TOXBS TOXC TOXCS T0XD T1 T1C T1X T1Z T2
T2X T3 T3X T3X1 T3X2 T3X3 T3X4 T3X5 T4
T4X T4X1 T4X2 T4X3 T4X4 T4X5 T4X6 T4X7 T4X8
T4X9 T5X T5X1 T5X2 T5X3 T5X4 T5X5 T5X6 T5X7
T5X8 T5X9 T6X T6X1 T6X2 T6X3 T6X4 T6X5 T6X6
T6X7 T6X8 T6X9 T7X T7X1 T7X2 T7X3 T7X4 T7X5
T7X6 T7X7 T7X8 T7X9 T0T T0TS VT1 VT2 VT3
VT6 OC1 OC3 OC9 OC12 OC18 OC24 OC36 OC48
STS1 STS3C
NULL: defaults to ALL or COM, AID can only be null

(3) LEVEL or NTFCNDE Table (fixed table)

LEVEL_WID = 2 characters
LEVEL_LEN = 5: (0 - 4)
0: CR CRitical alarm
1: MJ MaJor alarm
2: MN MiNor alarm
3: NA Not Alarmed
4: NR Not Reported
NULL: defaults to NA for SET-ATTR
NULL: defaults to unchanged on LEVEL = level_null
0, 1, 2: will be reported through REPT ALM
3: will be reported through REPT EVT
4: will not be reported
7: don't care

CONTINUED . . .

(4) AID Table (dynamic table)

AID_WID = 44 characters
AID_LEN = 4095: (0 - 4094)
4095: NULL = don't care

(5) Cond or Condtype Table (dynamic table)

COND_WID = 20 characters
COND_LEN = 4095: (0 - 4094)
4095: NULL = don't care

(6) DIRN Table (fixed table)

DIRN_WID = 2 characters
DIRN_LEN = 3: (0 - 2)
0: AZ from A office to Z office
1: ZA from Z office to A office
2: NA Not Applicable
3: NULL = don't care

(7) LOCN Table (fixed table)

LOCN_WID = 4 characters
LOCN_LEN = 2: (0 - 1)
0: NEND Near END of the system
1: FEND Far END of the system
2: LINE LINE of the system
3: don't care

(8) DUR Table (fixed table)

DUR_WID = 5 characters
DUR_LEN = 3: (0 - 2)
0: CONTS continuous
1: MNTRY momentary
2: CNTMN continuous or momentary
NULL: defaults to MNTRY
3: don't care

(9) EFF or SRVEFF Table (fixed table)

EFF_WID = 3 characters
EFF_LEN = 2: (0 - 1)
0: SA Service Affecting condition, immediate action required
1: NSA NonService Affecting condition, action required
3: NULL = don't care

SUB-SECTION 4 - TL1 AUTONOMOUS OUTPUT FORMAT, TL1SRB OFF (DEFAULT)

NOTE:
The following six messages follow this format only when the GPP module has "TL1SRB OFF". This is the default setting.

The following is a list of the TL1 Automatic Reports generated by the GPP and their output format.

^ = space
cr = carriage return
lf = line feed
[ ] = optional
... = zero or more occurrences

1. Report Alarm (REPT^ALM)

cr lf lf
^^^SID^YY-MM-DD^HH:MM:SS cr lf
ALMCDE^^ATAG^REPT^ALM^EQPT cr lf
[^^^"[AID]:[LEVEL],COND,EFF,,,[LOCN],[DIRN]" cr lf]...
^^^"[AID]:[LEVEL],COND,EFF,,,[LOCN],[DIRN]" cr lf;

2. Report Alarm Environment (REPT^ALM^ENV)

NOTE:
When more than one message is delivered at a time, the final semi-colon (";") of the message is replaced by a greater-than symbol (">") between the messages. The final message in the string will end with a semi-colon.

cr lf lf
^^^SID^YY-MM-DD^HH:MM:SS cr lf
ALMCDE^^ATAG^REPT^ALM^ENV cr lf
[^^^"AID:LEVEL,COND,," cr lf]...
^^^"AID:LEVEL,COND,," cr lf;

3. Report Event (REPT^EVT)

UPDATED

cr lf lf
^^^SID^YY-MM-DD^HH:MM:SS cr lf
A^^ATAG^REPT^EVT^EQPT cr lf
[^^^"AID:COND,,,,[LOCN],[DIRN][,,]:[,,][CONDDLSCR[,]" cr lf]...
^^^"AID:COND,,,,[LOCN],[DIRN][,,]:[,,][CONDDLSCR[,]" cr lf;

CONDDLSCR: condition detailed text description
ON_OFF = 0: \" EVENT CLEARED \"
ON_OFF = 1: \" EVENT TRUE \"

4. Report Condition (REPT^COND)

cr lf lf
^^^SID^YY-MM-DD^HH:MM:SS cr lf
A^^ATAG^REPT^COND^EQPT cr lf
[^^^"[AID]:[LEVEL],COND,EFF,,,[LOCN],[DIRN]" cr lf]...
^^^"[AID]:[LEVEL],COND,EFF,,,[LOCN],[DIRN]" cr lf;

This report is generated only if a 46020 Multiple Alarm Processor (MAP) stops communicating and the reporting protocol is DCP or DCPF. The frequency of the report is every 30 minutes. The initial report is with REPORT EVENT (number 3 above).

CONTINUED . . .

For points that are not configured, the output looks like this:

cr lf lf
^^^ ID ^YY-MM-DD^HH:MM:SS cr lf
A^^ATAG^REPT^EVT
[^^^"ALRM:[COND],,,,,[,,]:[,,]CONDDLSCR[,]" cr lf]...
^^^"ALRM:[COND],,,,,[,,]:[,,]CONDDLSCR[,]" cr lf;

where ID is the Remote ID and ALRM = (Display Number-1) multiplied by 64 + point number. For example, ALRM is 2017 for Display number 32 and point number 33. Refer to Table G.

5. Report Restoration (REPT^RST)

cr lf lf
^^^SID^YY-MM-DD^HH:MM:SS cr lf
A^^ATAG^REPT^RST^EQPT cr lf
^^^"ALL:IS-NR-SX" cr lf;

6. Report Removal (REPT^RMV)

cr lf lf
^^^SID^YY-MM-DD^HH:MM:SS cr lf
A^^ATAG^REPT^RMV^EQPT cr lf
^^^"ALL:OOS-MT" cr lf;

TL1 Autonomous Output Format, TL1SRB ON

NOTE:
The following six messages follow this format only when the GPP module has "TL1SRB ON". This is not the default setting.

The following is a list of the TL1 Automatic Reports generated by the GPP and their output format. This format (TL1SRB ON) limits the number of response blocks in a TL1 message to one.

^ space
cr carriage return
lf line feed
[ ] optional
... = zero or more occurrences

1. Report Alarm (REPT^ALM)

cr lf lf
^^^SID^YY-MM-DD^HH:MM:SS cr lf
ALMCDE^^ATAG^REPT^ALM^EQPT cr lf
^^^"[AID]:[LEVEL],COND,EFF,,,[LOCN],[DIRN]" cr lf;

2. Report Alarm Environment (REPT^ALM^ENV)

cr lf lf
^^^SID^YY-MM-DD^HH:MM:SS cr lf
ALMCDE^^ATAG^REPT^ALM^ENV cr lf
^^^"AID:LEVEL,COND,," cr lf;

CONTINUED . . .

UPDATED

3. Report Event (REPT^EVT)

cr lf lf
^^^SID^YY-MM-DD^HH:MM:SS cr lf
A^^ATAG^REPT^EVT^EQPT cr lf
^^^"AID:COND,,,,[LOCN],[DIRN][,,]:[,,][CONDDLSCR[,]" cr lf;

CONDDLSCR: condition detailed text description
ON_OFF = 0: \" EVENT CLEARED \"
ON_OFF = 1: \" EVENT TRUE \"

4. Report Condition (REPT^COND)

cr lf lf
^^^SID^YY-MM-DD^HH:MM:SS cr lf
A^^ATAG^REPT^COND^EQPT cr lf
^^^"[AID]:[LEVEL],COND,EFF,,,[LOCN],[DIRN]" cr lf;

This report is generated only if a 46020 Multiple Alarm Processor (MAP) stops communicating and the reporting protocol is DCP or DCPF. The frequency of the report is every 30 minutes. The initial report is with REPORT EVENT (number 3 above).

For points that are not configured, the output looks like this:

cr lf lf
^^^ ID ^YY-MM-DD^HH:MM:SS cr lf
A^^ATAG^REPT^EVT
^^^"ALRM:[COND],,,,,[,,]:[,,]CONDDLSCR[,]" cr lf;

where ID is the Remote ID and ALRM = (Display Number-1) multiplied by 64 + point number. For example, ALRM is 2017 for Display number 32 and point number 33. Refer to Table G.

5. Report Restoration (REPT^RST)

cr lf lf
^^^SID^YY-MM-DD^HH:MM:SS cr lf
A^^ATAG^REPT^RST^EQPT cr lf
^^^"ALL:IS-NR-SX" cr lf;

6. Report Removal (REPT^RMV)

cr lf lf
^^^SID^YY-MM-DD^HH:MM:SS cr lf
A^^ATAG^REPT^RMV^EQPT cr lf
^^^"ALL:OOS-MT" cr lf;

SUB-SECTION 5 - TL1 ERROR CODES AND IMPLEMENTED ERROR OUTPUTS

TL1 ERROR CODES		
ISSUE 3	ISSUE 5	
ENMD	ENMD	Equipage, Not equipped with Memory Device
IIAC	IIAC	Input, Invalid ACcess identifier
IICM		Input, Invalid CoMmand
	ICNV	Input, Command Not Valid
IIDT		Input, Invalid DaTa parameter
	IDNV	Input, Data Not Valid
IIFM	IIFM	Input, Invalid data ForMat
IISP	IISP	Input, Invalid Syntax or Punctuation
IITA	IITA	Input, Invalid TArget identifier
IORD	IDRG	Input, Out of Range Data
SROF	SROF	Status, Requested Operation Failed
IICT	IICT	Input, Invalid Correlation Tag
INUP	INUP	Input, Non-null, Unimplemented Parameter

The GPP provides TL1 Error Codes that may appear in responses. Thetable to the left is a list of the codes and their definitions.

SUB-SECTION 6 - UNCONFIGURED ALARM POINTS AND TABLE G.

When an alarm point is reported to the GPP and that alarm point has not been configured in the database, it will be reported as a number. Follow these steps to identify the display and point being reported:

1. Using Table G, find the number closest to, but still lower than, the number being reported by the GPP.
2. Subtract the smaller number from the larger. Write down the result.
3. The smaller number that you subtracted represents point 1 in a display. (Refer to the table)
4. The result number + 1 is the point in that display being reported.

Example 1:

The GPP reports ID 1 and the number 2017. The nearest number on Table G to 2017 is 1985 (display 32, point 1). 2017 minus 1985 equals 32. Adding that 32 to display 32, point 1 equals display 32, point 33.

Example 2:

The GPP reports the number 1242. The nearest number on Table G is 1217 (display 20, point 1). 1242 minus 1217 equals 25. Adding that 25 to display 20, point 1 equals display 20, point 26.

TABLE G - UNCONFIGURED ALARM POINTS

NUMBER	DISPLAY	POINT	NUMBER	DISPLAY	POINT
1	1	1	2049	33	1
65	2	1	2113	34	1
129	3	1	2177	35	1
193	4	1	2241	36	1
257	5	1	2305	37	1
321	6	1	2369	38	1
385	7	1	2433	39	1
449	8	1	2497	40	1
513	9	1	2561	41	1
577	10	1	2625	42	1
641	11	1	2689	43	1
705	12	1	2753	44	1
769	13	1	2817	45	1
833	14	1	2881	46	1
897	15	1	2945	47	1
961	16	1	3009	48	1
1025	17	1	3073	49	1
1089	18	1	3137	50	1
1153	19	1	3201	51	1
1217	20	1	3265	52	1
1281	21	1	3329	53	1
1345	22	1	3393	54	1
1409	23	1	3457	55	1
1473	24	1	3521	56	1
1537	25	1	3585	57	1
1601	26	1	3649	58	1
1665	27	1	3713	59	1
1729	28	1	3777	60	1
1793	29	1	3841	61	1
1857	30	1	3905	62	1
1921	31	1	3969	63	1
1985	32	1	4003	64	1

PRINTER SYNTAX

Printer Syntax commands are available by connecting your computer to the printer port of the GPP and using the Terminal Emulator program of the TL1 GPP Editor Module. Make sure the computer setup matches the switch settings given in Table A for the printer port.

NOTE:
The printer port protocol must be set for printer syntax. Switch S3-5 and S3-6 must be down.

Printer Syntax commands are divided into five major categories: configuration, system, data, control, and utility.

Configuration commands define which remotes and which displays of the remotes the system will monitor. Configuration commands also determine how often the system will status poll an alarm polled remote.

System commands allow you to enable or disable commands that alter the system configuration or control points. In addition, time and date can be set and the logging function can be enabled or disabled.

Data commands allow you to display status or control point data and acknowledge changes in status.

Control commands allow you to operate or release control points. You can specify a momentary or continuous time period.

Utility commands are generally used by a technician to look more closely at the inner workings of the system.

PRINTER SYNTAX COMMANDS

To display a list of the Printer Syntax commands, type HELP and press ENTER. Refer to Table H. The list shows most of the Printer Syntax commands and an example of the syntax required to enter the commands. Some commands are shown with parts of the command contained in brackets. When typing the commands, you do not have to enter the part inside the brackets. After typing the command, press ENTER.

Most of the commands that refer to the remote IDs, display IDs and points can be entered with multiple items or with a range of items. Individual items are entered in the format ID.DIS.PT, where ID is the remote identifier of the unit to be addressed (range 1-255), DIS is the display address (range 1-64), and PT is the point number within the display (range 1-64).

When using compound addressing, individual items are separated by a comma. Example: P 8.8.5,8.8.7,8.8.9,8.9.15 DLON.

When using range addressing, individual points are entered in the normal way, with the first and last points separated by a hyphen (-). Example: P 15.30.63-15.31.5 DMON.

There are three commands that are not shown on the screen. They are MASTER, PRINTER, and DATA. They show the baud, parity, stop bits and protocol settings of the ports.

PRINTER SYNTAX

You can redefine the parameters of the master, data, and printer ports:

1. Type the name of the port, followed by a comma. Acceptable values are DATA, PRINTER, and MASTER.
2. Type the baud rate, followed by a comma. Acceptable values are 1200, 2400, 9600, and 19200.
3. Type the word length, followed by a comma. Acceptable values are 6, 7, and 8.
4. Type the parity, followed by a comma. Acceptable values are None, Odd, or Even.
5. Type the number of stop bits and press ENTER. Acceptable values are 1 or 2.

TABLE H - PRINTER SYNTAX COMMANDS

CONFIGURATION COMMANDS	
P[OLL] 1 ON/OFF	Add/Remove remote To/From polling list
P[OLL] 1.5-1.11 ON/OFF	Toggle display 5-11 In/Out of polling
P[OLL] 1 DIS/GROUP/ALARM	Poll Remote 1 in mode indicated
P[OLL] 1 CONTROL	Allow control point OPR on Remote 1
SYSTEM COMMANDS	
L[OCK]/U[LOCK]	Allow/Disallow control point commands
T[IME] 11:22:00	Set time; T[ime] alone displays time
D[ATE] 22-NOV-1995	Set date; D[ate] alone displays date. Valid range of dates is from 01-JAN-1995 to 31-DEC-2094.
S[YS]	Display list of system configuration
LOG ON/OFF	Turn log of received alarms ON/OFF
SPOLL 255 *	Sets the number of status polls performed by the GPP dataport before a full update poll is performed. Range: 255 to 10,000.
DATA COMMANDS	
P[OLL] 1.5 ACK	Ack alarms for Remote 1, Display 5
P[OLL] 1 ST	Show alarm status for configured displayed
P[OLL] 1 PST	Show control points status
CONTROL COMMANDS	
P[OLL] 1.1.1,1.4.7 DLON	Turn latched point 1.1.1 and 1.4.7 ON
P[OLL] 1.4.1,1.5.3 DLOF	Turn latched point 1.4.1. and 1.5.3 OFF
P[OLL] 1.4.1,1.5.3 DMON	Turn momentary point 1.4.1 and 1.5.3 ON
P[OLL] 1.4.1,1.5.3 DMON	Turn momentary point 1.4.1 and 1.5.3 OFF
PASSWORD COMMANDS	
PA[SSWORD]	System will ask question to answer

TABLE H CONTINUED . . .

PRINTER SYNTAX

TABLE H (CONTINUED) - PRINTER SYNTAX COMMANDS

UTILITY COMMANDS	
HELP	This help message will be shown
W[ATCH] ON/OFF	Watch the binary (HEX) poll data. Spacebar turns OFF.
B[ELL] ON/OFF	Turn ON/OFF alarm bell
V[ERSION]	Give current version of GPP
HSHAKE	Give handshaking info for ports
TL1	Indicate the mode of TL1 on Master Port
SWITCH	Display the switch settings
TL1SRB ON/OFF	Enables/Disables Single Response Block per TL1Autonomous Message feature. TL1SRB alone displays current state
QUERY	Gives characteristics of ports (baud rate, parity, stop bits, etc.)

**** NOTE**: A status, or full update, poll is periodically performed to confirm the state of all alarms in the remote device. A full update of numerous remotes can take up to several minutes to complete. During this time, change of state is not performed. Therefore, the reporting of new events may be delayed. It is possible to reduce the frequency of full update polls by increasing the number of SPOLLS. This would only be advisable if the connection between the GPP and remote devices was known to be highly reliable and if DCPF protocol is used for polling.*

TECHNICAL SPECIFICATIONS

DESCRIPTION	VALUE
Input Voltage	-21 to -56 VDC
Input Current Idle Maximum	@ -48 VDC 70 mA 108 mA
Heat Dissipation Idle Maximum	@ -48 VDC 11.6 Btu/hr 17.9 Btu/hr
Weight	1 lb. 1.25 oz.
Physical Dimensions	1.4"W x 6.0"D x 5.6"H
Operating Temperature Range	0 to 55 Degrees Centigrade
Electromagnetic Interface	FCC Part 15; Class A

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:

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