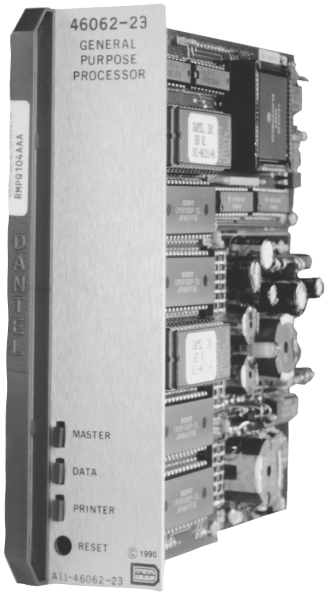
46062-23
GENERAL PURPOSE PROCESSOR
WITH 46610 FIRMWARE



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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.

About this Practice:

This practice has been reissued to:

- Update Fig. 1.

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

UPDATED

Previous issue: April 1996

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
A11-46062-23	3.8 Meg General Purpose Processor with 46610 Firmware

GENERAL DESCRIPTION

The 46062-23 General Purpose Processor (GPP) is used with Dantel's 460 Alarm and Control System (460 ACS) to provide a database of all alarm and control points to be monitored or controlled by the system.

The module polls NEC FD-8000 protocol and reports the alarm information in both TL1 and Dantel Printer Syntax.

The module has 3.5 million bytes of Random Access Memory (RAM) and can support approximately 230,000 fully configured TL1 alarm 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.

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.

CIRCUIT DESCRIPTION

The 46062-23 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.
- A 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 of a Central Processor Unit (CPU) malfunction or 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 CTS/RTS 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

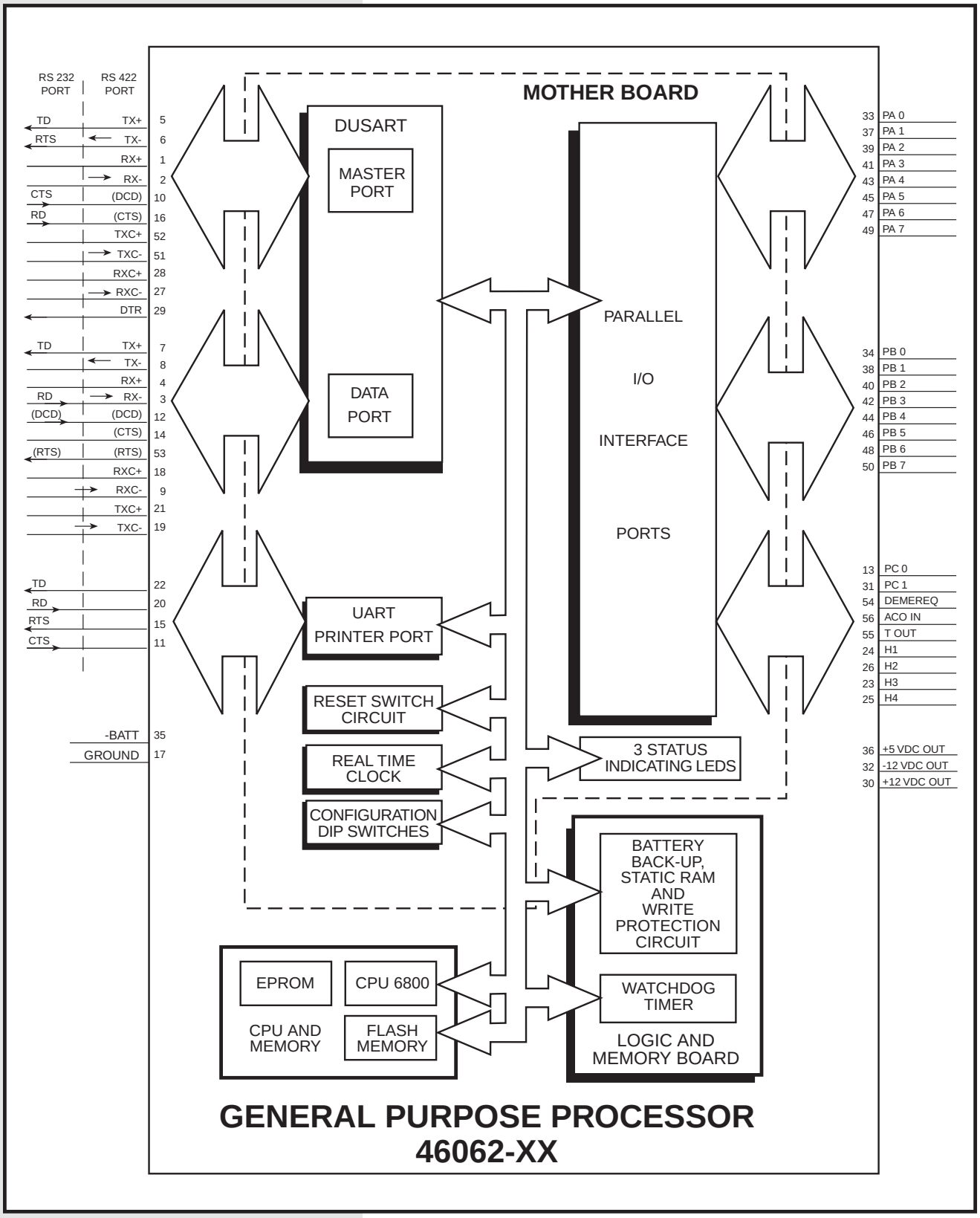
There are three LEDs located on the front panel of the module that show if the ports are transmitting data.

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.

CIRCUIT DESCRIPTION

FIG. 1 - FUNCTIONAL SCHEMATIC, 46062-23



UPDATED

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 is not used.

Switches S1-5 and S1-6 are for RTS/CTS handshaking on the printer and master ports. They are always active.

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

Master Port:

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.

Printer Port:

Whenever the printer port protocol is set for TL1, S1-7 must be placed in the computer-mode position if you want to issue TL1 input commands.

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 and S3-6 define the printer port protocol. Select DCPF when downloading the operating software or the configuration database to the module or when using the printer port as a DCPF responder port. Select Printer Syntax to use the Printer Syntax or for E-system polling. Select TL1 to see TL1 alarms or to issue TL1 input commands from the printer port.

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

FIG. 2 - SWITCH AND STRAP LOCATIONS

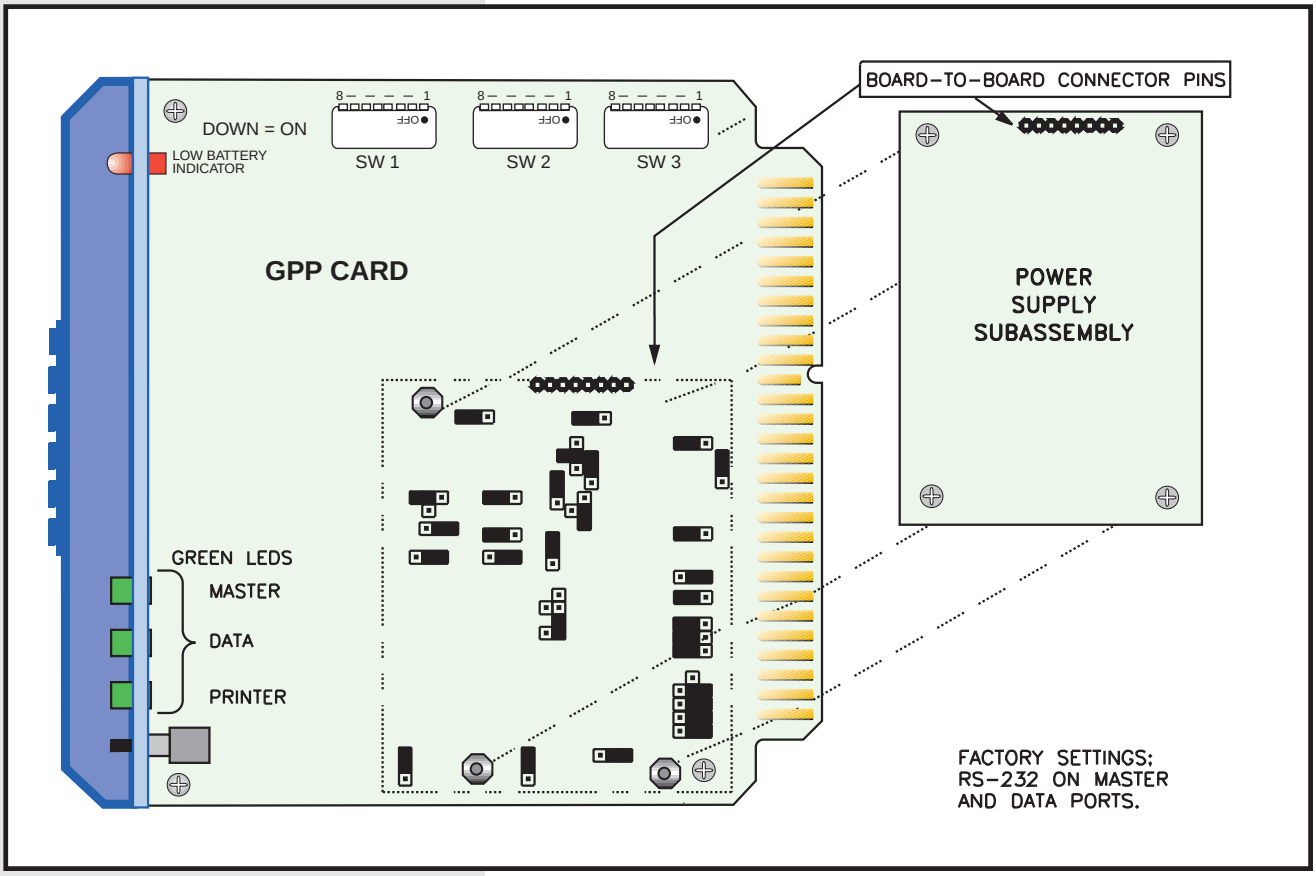


TABLE A - SWITCH SETTINGS

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				UP				
RTS/CTS on Printer Port								
Yes					UP			
No					DOWN			
RTS/CTS on Master Port								
Yes						UP		
No						DOWN		
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 . . .

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		
DCPF					DOWN	UP		
Data Port Protocol								
NEC							UP	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 Fig. 3 and Table B for the specific strap locations for RS-232 and RS-422 asynchronous communications on the master and data ports.

Refer to Table B for RS-485 strapping.

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

Replace the power supply subassembly after setting the straps.

FIG. 3 - STRAP LOCATIONS

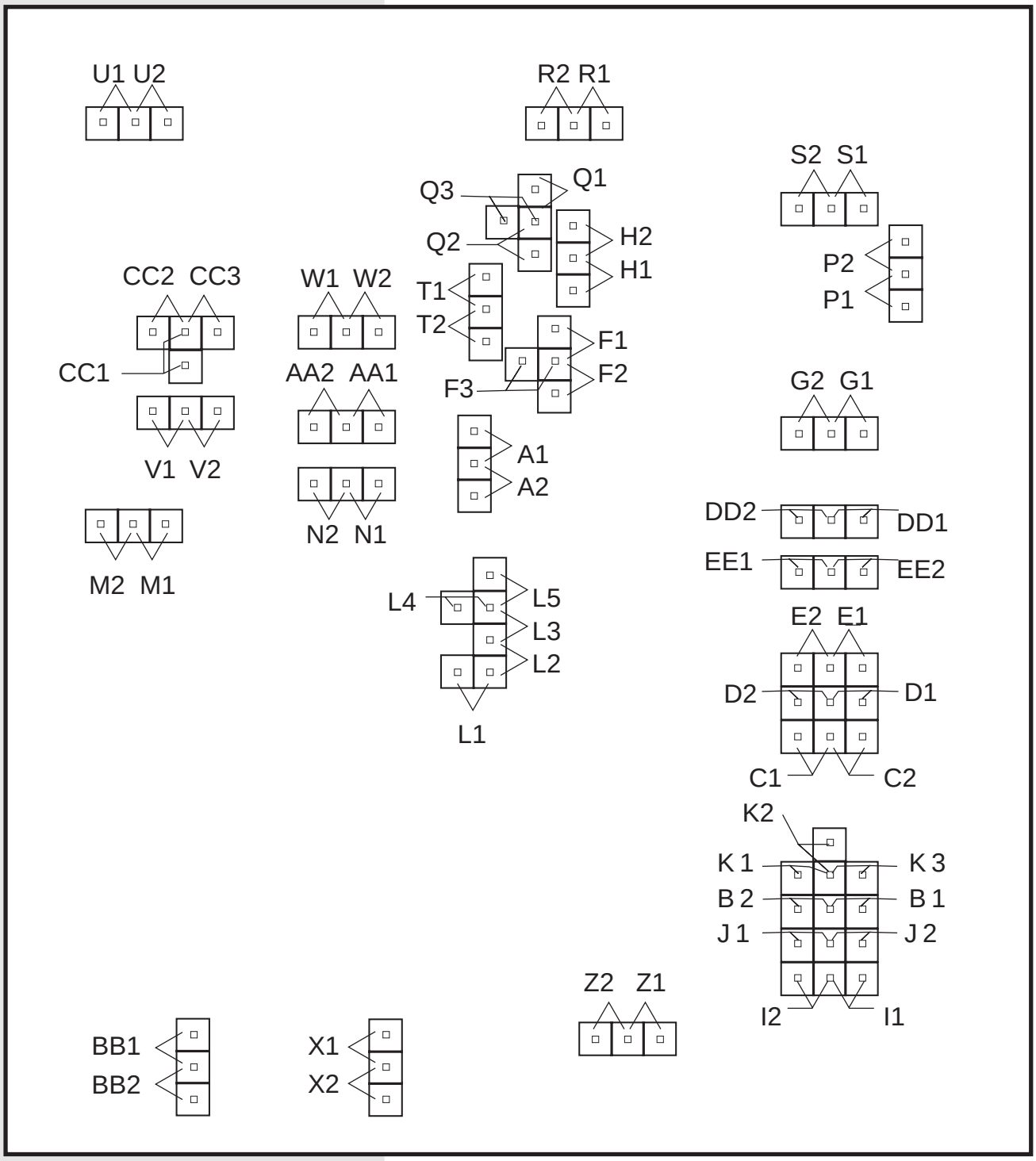
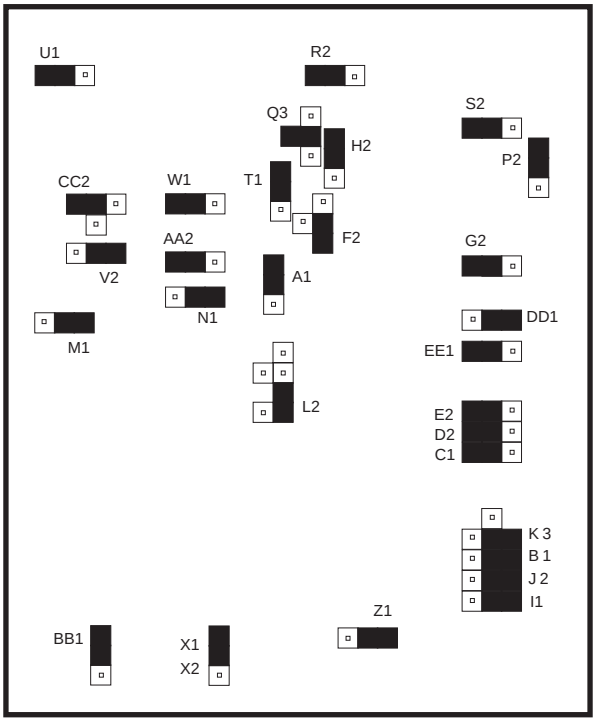
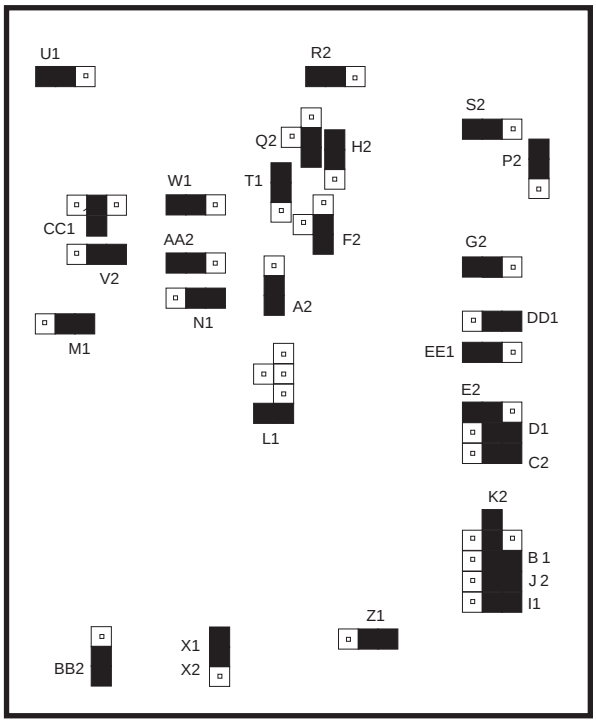


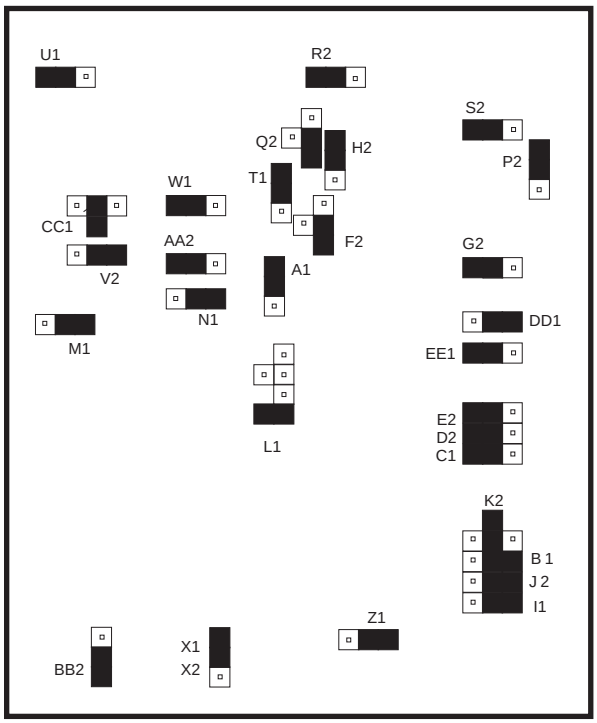
FIG. 4 - STRAPPING DIAGRAM, MASTER AND DATA PORTS



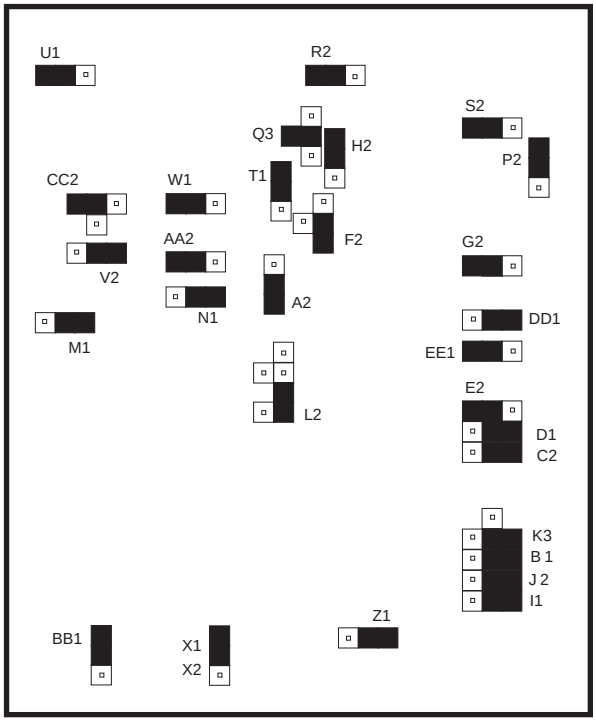
Master Port - RS-232 Asynchronous
Data Port - RS-232 Asynchronous



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



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



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

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	
TTL	TXD	K1	5
	RXD	J1,CC3	2
	RTS	L4	29
	DTR	L5	29
	DCD	N2,EE2	10
	CTS	M2,DD2	16
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

TABLE B CONTINUED . . .

TABLE B (CONTINUED) - STRAPPING OPTIONS AND PINOUTS

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 . . .

TABLE C (CONTINUED) - STRAP DEFINITIONS

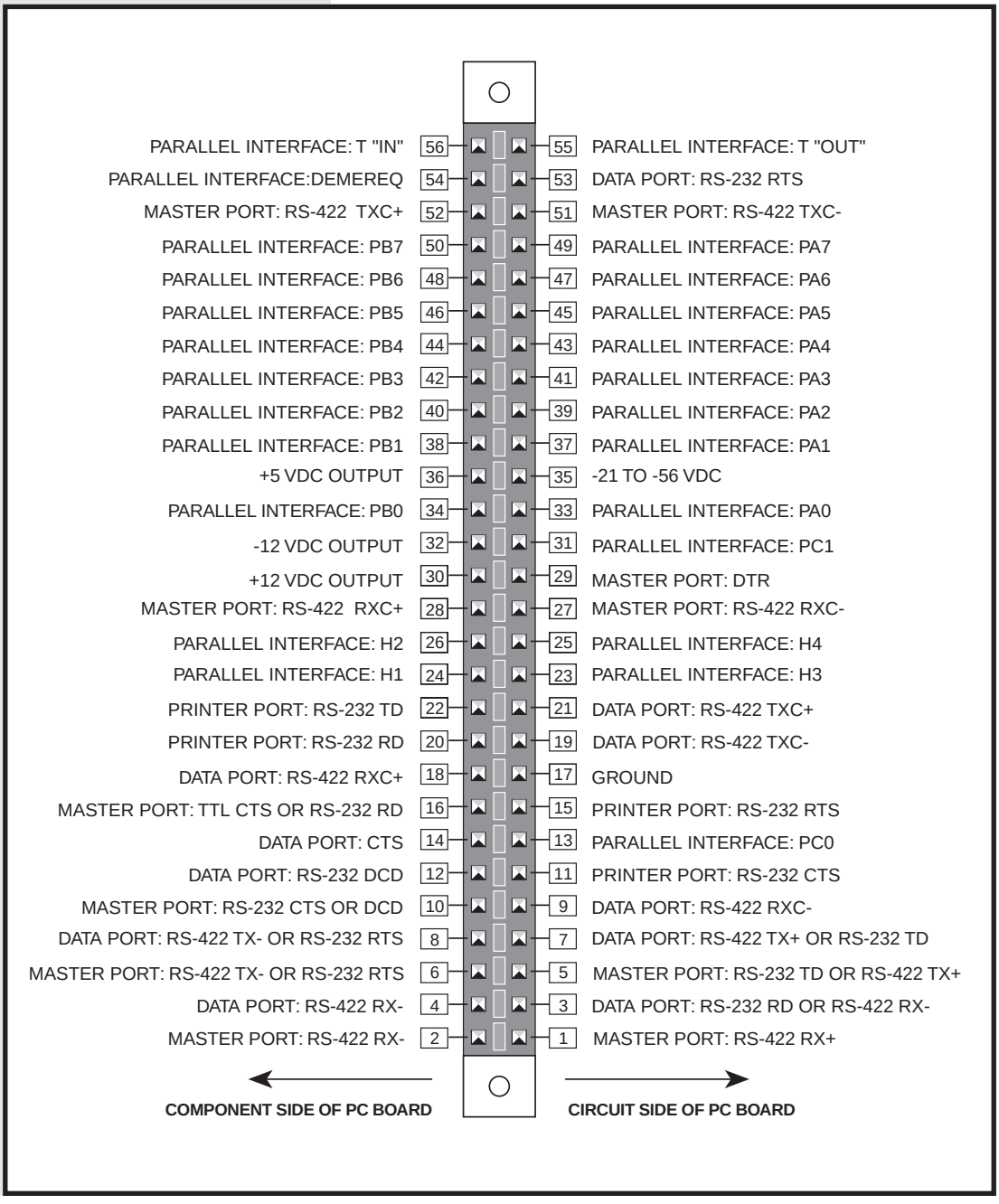
STRAP	PORT	INTERFACE	DESCRIPTION
M1	Master	RS-232	CTS
M2	Master/Data	TTL	CTS
N1	Master	RS-232	CTS
N2	Master	TTL	DCD
P1*			Reserved
P1*			Reserved
Q1*			Reserved
Q2*			Reserved
Q3*			Reserved
R1*			Reserved
R2*			Reserved
S1*			Reserved
S2*			Reserved
T1	Master	RS-422	TXD
T2	Master	RS-485	TXD
U1			Reserved
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

MODULE INSTALLATION

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

NOTE: *When using the RS-232 interface on the master port, the GPP requires RTS (pin **6**) and CTS (pin **10**) handshaking. If pins **6** and **10** are not going to be wired to your equipment, then pin **6** must be wired to pin **10** on the GPP edge connector (refer to Fig. 4) to enable the master port to operate.*

FIG. 5 - PIN DESIGNATIONS



DOWNLOADING OPERATING SOFTWARE AND CONFIGURATION DATABASE

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 NEC GPP Software with a part number of C22-46501 or A22-46614. 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.

NOTE: *This assumes that you have the A22-46517 NEC GPP Editor installed on your computer in the TSHELL directory on drive C. If not, the NEC GPP Editor must be installed before proceeding. Refer to the documentation for the NEC GPP Editor.*

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 NEC 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 NEC GPP EDITOR selection and press ENTER.
7. The NEC GPP MODULE window appears. TL1GPP SYSTEM DEFINITION is highlighted. Press ENTER to select it.
8. The NEC GPP SYSTEM window appears. SELECT GPP is highlighted. Press ENTER.
9. The NEC 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**.

CONTINUED . . .

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 NEC GPP SYSTEM window in the lower right corner.*

10. If you entered a new name, the cursor moves over POLLING TYPE and displays NEC Level 2A. SELECT GPP is highlighted in the NEC GPP SYSTEM window at the bottom of the screen.
11. Use the arrow keys to highlight POLLING AND POINTS and press ENTER. The NEC GPP EDITOR window appears.
12. Enter an address, 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**.
13. Repeat Step 12 until all the entries have been made.
14. To define alarm 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. 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.
16. In the NEC 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.

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.*

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.

CONTINUED . . .

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

NOTE: *If you download the configuration database through the master port, the printer port stops responding to polls during the download if the printer port protocol is DCPF.*

OPERATION

There are no specific operating instructions for the 46062-23 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 INPUT COMMANDS

The 46062-23 General Purpose Processor provides 12 TL1 commands and 2 automatic reports in accordance with Dantel GPP specifications and the following Bellcore publications:

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

Refer to Table D for a complete list of the TL1 commands available.

Refer to Table E for the correct format for each of the TL1 Input Commands.

TABLE D - TL1 INPUT COMMANDS

TL1 COMMAND	EDITING COMMAND NUMBER	PUBLICATION REFERENCE
Set Attribute Long (SET-ATTL)	TL1_VEC = 2	GPP
Set Attribute (SET-ATTR)	TL1_VEC = 5	833
Retrieve Attribute (RTRV-ATTR)	TL1_VEC = 8	833
Retrieve Alarm (RTRV-AKM)	TL1_VEC = 11	833
Retrieve Condition (RTRV-COND)	TL1_VEC = 12	833
Delete Attribute (DEL-ATTR)	TL1_VEC = 15	GPP
Set Date Time (SET-DAT)	TL1_VEC = 19	301
Retrieve Header (RTRV-HDR)	TL1_VEC = 22	200
Allow Message (ALM-MSG)	TL1_VEC = 23	833
Inhibit Message (INH-MSG)	TL1_VEC = 24	833
Initialize System (INIT-SYS)	TL1_VEC = 25	833
Copy Equipment (CP-EQPT)	TL1_VEC = 26	GPP

NOTE: *Command numbers **0, 1, 2, 13, 14, 15, 18** and **21** are 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*

TABLE E - TL1 INPUT COMMAND FORMAT

TL1 COMMAND	
EDITING COMMAND NUMBER	**TL1 COMMAND FORMAT**
2	SET-ATTRL-EQPT:SID,bSID:AID,bAID:CTAG::CR,COND,SA,NEND,AZ;
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;
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;
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
15	DEL-ATTR:SID:AID:CTAG;
19	SET-DAT:SID::CTAG::YYMMDD,HHMMSS
22 (Issue 3)	RTRV-HDR:SID::CTAG;
22 (Issue 5)	RTRV-HDR:SID:AID:CTAG;
23	ALW-MSG-EQPT:SID:AID:CTAG:CR,EVTTYPE,TMPER;
24	INH-MSG-EQPT:SID:AID:CTAG:CR,EVTTYPE,TMPER;
25	INT-SYS:SID:AID:CTAG:PH;
26	CP-EQPT-GPP:SID::CTAG:TREa,DISPa:PNTS,PNTe:TREb,DISPb;
NOTE: *Command numbers 2, 15, 18 and 26 are for the use of Dantel personnel only. The Editing Command Number is used in the USER Mode. Refer to USER Mode description for more information.*	

TL1 PARAMETER DEFINITION

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

1. SID table (dynamic table)
   SID_WID = 20 characters
   SID_LEN = 4
   255: NULL = don't care

2. EQPT: equipment type (fixed and dynamic table)
   EQPT_WID = 8 characters
   EQPT_LEN = 16

3. LEVEL 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-ATTRL
   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

4. AID table (dynamic table)
   AID_WID = 16 characters
   AID_LEN = 4095: (0 - 4094)
   4095: NULL = don't care

5. COND table (dynamic table)
   COND_WID = 15 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

CONTINUED . . .

8. EFF 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

TL1 Automatic Report Output Format

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

^ space

cr carriage return

lf line feed

[ ] optional

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

2. 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]...
^^^"[AID]:COND,,,,[LOCN],[DIRN]:,[,CONDDLSCR]" cr lf;

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

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:,,,,,:,,CONDDLSSCR 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.

TL1 Error Codes and Implemented Error Outputs

The GPP provides TL1 Error Codes that may appear during the configuration process. The following is a list of the codes and their definitions.

ENMD	Equipage, Not equipped with Memory Device
IIAC	Input, Invalid ACcess identifier
IICM	Input, Invalid CoMmand Input, Command Not Valid
IIDT	Input, Invalid DaTa parameter Input, Data Not Valid
IIFM	Input, Invalid data ForMat
IISP	Input, Invalid Syntax or Punctuation
IITA	Input, Invalid TArget identifier
IORD	Input, Out of Range Data
SROF	Status, Requested Operation Failed

User Mode and Computer Mode

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

In USER mode, a user can hook up a dumb terminal 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 should be DOWN and the master port connected to either a port on the X.25 module or directly to the NMA, depending on the application.

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: TAB
PURPOSE: Delete one parameter.

KEY: RETURN
PURPOSE: Enter TL1 command.

CONTINUED . . .

TL1 INPUT COMMANDS

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 for overview.

KEY: V (CTRL V)
PURPOSE: Edit a particular TL1 command.

KEY: R (CTRL R)
PURPOSE: Retrieve the last TL1 command.

KEY: E (CTRL E)
PURPOSE: Erase current TL1 input command.

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 NEC GPP Editor Module. Make sure the computer setup matches the switch settings given in Table A for the printer port.

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.

To display a list of the Printer Syntax commands, type HELP and press ENTER. Refer to Table F. 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.

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 110, 300, 600, 1200, 2400, 4800, 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 F - HELP SCREEN

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/DISALLW CONTROL POINT COMMANDS
T[IME] 11:22:00	SET TIME, T[IME] ALONE DISPLAYS TIME
D[ATE] 14-OCT-1992	SET DATE, D[ATE] ALONE DISPLAYS DATE
S[YS]	DISPLAY LIST OF SYSTEM CONFIGURATION
LOG ON/OFF	TURN LOG OF RECEIVED ALARMS ON/OFF
SPOLL 100	SET NO. OF POLLS BEFORE STATUS POLL
DATA COMMANDS:	
P[OLL] 1.5 ACK	ACK ALARMS FOR REMOTE 1, DISP. 5
P[OLL] 1 ST	SHOW ALARM STATUS FOR CONFIGURED DISPLAYS
P[OLL] 1 PST	SHOW CONTROL POINTS STATUS
CONTROL COMMANDS:	
P[OLL] 1.1.1,1.4.7 DLON	TURN LATCHED PT 1.1.1 AND 1.4.7 ON
P[OLL] 1.4.1,1.5.3 DLOF	TURN LATCHED PT 1.4.1. AND 1.5.3 OFF
P[OLL] 1.4.1,1.5.3 DMON	TURN MOMENTARY PT 1.4.1. AND 1.5.3 ON
P[OLL] 1.4.1,1.5.3 DMOF	TURN MOMENTARY PT 1.4.1. AND 1.5.3 OFF
PASSWORD COMMANDS:	
PA[SSWORD]	SYSTEM WILL ASK QUESTIONS TO ENTER
UTILITY COMMANDS:	
HELP	THIS HELP MESSAGE SHOWN
W[ATCH] ON/OFF	WATCH THE BINARY (HEX) POLL DATA SPACEBAR WILL TURN OFF AS WELL
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

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:

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