



POINTMASTER

46310-1X (ASYNCHRONOUS)
46310-3X (WITH TCP/IP)

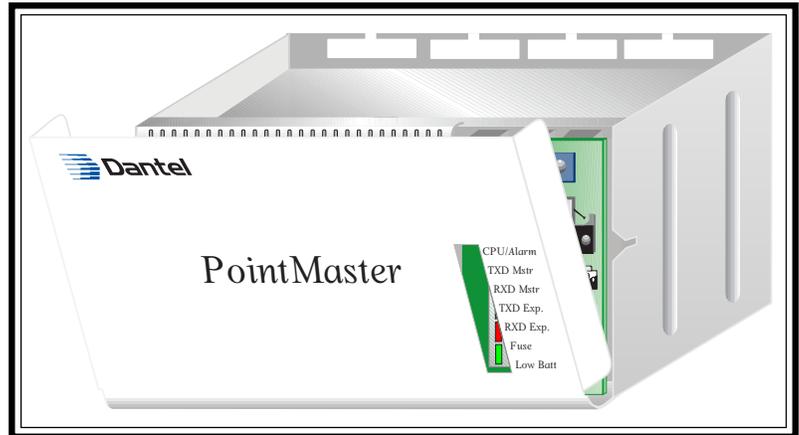


Table of Contents

Ordering Information	2
General Description	3
Circuit Description	5
Installation	9
Configuration	26
Operation	48
Printer Syntax	50
Subassembly Replacement	74
Technical Specifications	76
Warranty	78

About this Practice:

This practice has been reissued to:

- Add five (5) new options:
 46310-30, 46310-31, 46310-32,
 46310-33, and 46310-34 with
 TCP/IP connectivity.

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

Issue date: August 2000

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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.

ORDERING INFORMATION

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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
X15-46310-10 & 46310-30	64 Alarm Inputs; 8 Control Outputs; (-30 option includes TCP/IP connectivity)
X15-46310-11 & 46310-31	128 Alarm Inputs; 4 Control Outputs; (-31 option includes TCP/IP connectivity)
X15-46310-12 & 46310-32	128 Alarm Inputs; 32 Control Outputs; (-32 option includes TCP/IP connectivity)
X15-46310-13 & 46310-33	192 Alarm Inputs; 16 Control Outputs; (-33 option includes TCP/IP connectivity)
X15-46310-14 & 46310-34	256 Alarm Inputs; 4 Control Outputs; (-34 option includes TCP/IP connectivity)
x80-00611-00	Processor Module
x80-00610-00	Power Supply Module
x80-00612-00	Expansion Board; 0 alarms, 28 controls
x80-00612-01	Basic Alarm & Control Board; 64 alarms, 4 controls
x80-00612-02	Expansion Board; 64 alarms, 12 controls
x80-00612-03	Basic Alarm & Control Board; 128 alarms, 0 controls
x80-00612-04	Expansion Board; 128 alarms, 0 controls
x12-49229-01	RS-232 Communications Subassembly (see note, Fig. 6)
x12-49313-00	202 Tone Communications Subassembly
x12-49413-00	Ethernet Subassembly
x25-00508-00	Mounting Bar; 19-inch
x25-00508-01	Mounting Bar; 23-inch
UPGRADE KITS	
A17-46310-00	Standard PointMaster to TL1 PointMaster Conversion Kit (46310-1X to 46310-0X)
A17-46310-01	PointMaster (Any B15-46310, or any C15-46310 Rev D or earlier) to IP PointMaster Conversion Kit (46310-1X or 46310-0X to 46310-2X or 46310-3X)
A17-46310-03	PointMaster (Any B15-46310, or any C15-46310 Rev E or later) to IP PointMaster Conversion Kit (46310-1X or 46310-0X to 46310-2x or 46310-3X)
A17-46310-20	PointMaster Front Panel Upgrade Kit

GENERAL DESCRIPTION

NOTE:

The PointMaster meets Bellcore NEBS requirements.

The PointMaster is a stand-alone unit designed to provide for discrete alarm collection and issuance of controls. The alarm information gathered is then converted to one of several protocols and sent toward an Alarm Center through its Master Port and/or its Craft Port.

The main function of the PointMaster is to detect discrete alarm inputs activated by the appearance of a ground signal on input wirewrap pins. This information is then converted to one of the following protocols for transmission to, or towards, an Alarm Center. Available protocols are:

- ◆ DCM
- ◆ TBOS
- ◆ TABS
- ◆ DCP
- ◆ DCPF
- ◆ Printer Syntax

NOTE: *The above protocols can be transmitted over TCP/IP (46310-3X only).*

Available interfaces are:

- ◆ RS-232
- ◆ RS-422
- ◆ RS-485
- ◆ Ethernet 10BaseT
- ◆ 202 Tone

NOTE:

The 46310-1X is factory-equipped with an RS-232 subassembly.
The 46310-3X is factory-equipped with an Ethernet subassembly.

Expanding Your System

The PointMaster is designed to allow easy expansion from one option to another. However, there may be some wiring changes necessary, depending on the option desired. The unique modular design of the PointMaster allows for creating a custom system based on the population of 2 slots (the Basic Alarm & Control Board and the Expansion Board) in the PointMaster.

NOTE: *All PointMaster units are equipped with the same CPU/Processor module.*

GENERAL DESCRIPTION

The chart below lists the possible configuration available with the PointMaster.

OPTION	PROCESSOR MODULE	BASIC ALARM & CONTROL BOARD	EXPANSION BOARD
	ALARMS/CONTROLS	ALARMS/CONTROLS	ALARMS/CONTROLS
X15-46310-10/-30 (64 alarms, 8 controls)	0/4 (x80-00611-00)	64/4 (x80-00612-01)	-
X15-46310-11/-31 (128 alarms, 4 controls)	0/4 (x80-00611-00)	128/0 (x80-00612-03)	-
X15-46310-12/-32 (128 alarms, 32 controls)	0/4 (x80-00611-00)	128/0 (x80-00612-03)	0/28 (x80-00612-00)
X15-46310-13/-33 (192 alarms, 16 controls)	0/4 (x80-00611-00)	128/0 (x80-00612-03)	64/12 (x80-00612-02)
X15-46310-14/-34 (256 alarms, 4 controls)	0/4 (x80-00611-00)	128/0 (x80-00612-03)	128/0 (x80-00612-04)

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Dantel recommends following these parameters when adapting your system:

1. If you begin with the 64/4 basic Alarm & Control Board as part of the X15-46310-10 or -30 system and expand to any of the other 4 options you will have to keep these things in mind:
 - ◆ You must replace the 64/4 board in the basic slot with the 128/0 board (part number x80-00612-03.)
 - ◆ You will also need to add an Expansion Board, if the option you desire requires it.
 - ◆ The control point wirewrap pins will have to be moved to new locations. (Refer to Figs. 11 through 15 in the **Installation** section of this manual.)
2. If you begin with the 128/0 basic Alarm & Control Board as part of the X15-46310-11 or -31 system and expand to any of the other 3 options, you can do so without rewiring or replacing the basic board. As you can see by the table above, 128/0 is the basic board for all other options. All you need to do is add the expansion board.

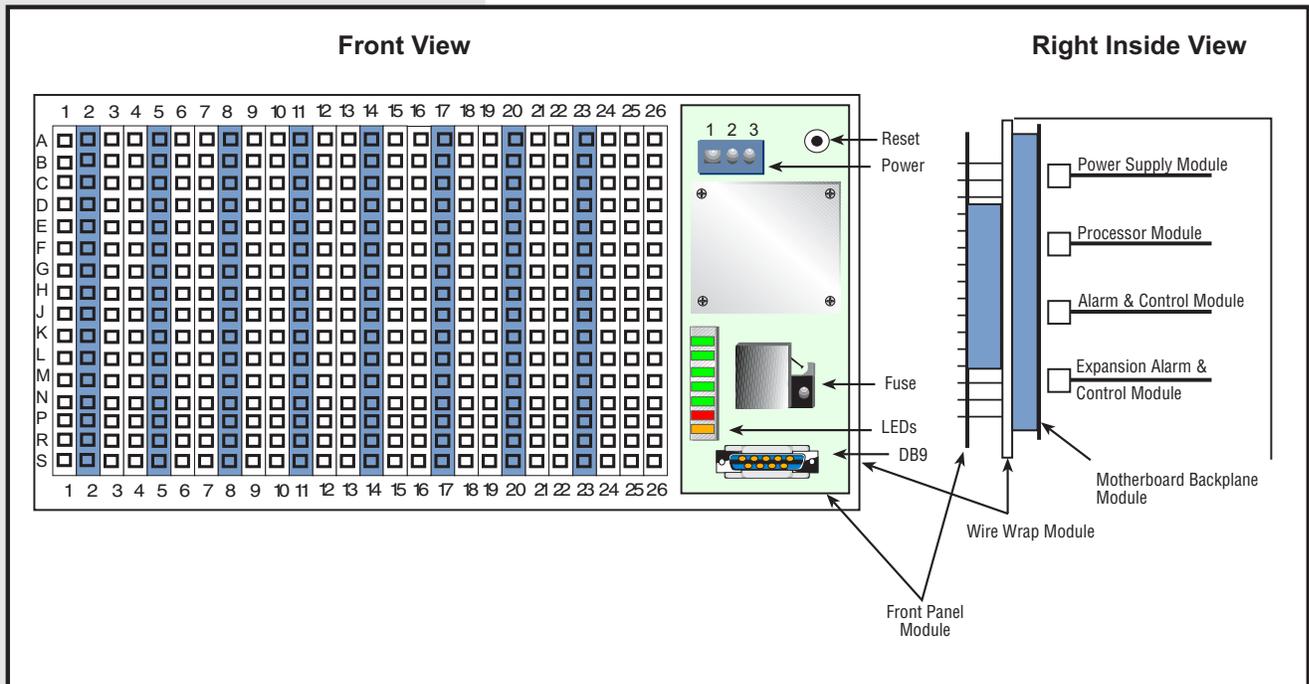
CIRCUIT DESCRIPTION

This section will briefly describe the basic subassemblies of the PointMaster, its communications ports, alarm inputs and control outputs, and LED functions.

POINTMASTER ASSEMBLIES

The PointMaster is designed as one unit that contains seven different circuit boards. Fig. 1 shows the mechanical view of the PointMaster.

Fig. 1 - MECHANICAL VIEW; POINTMASTER



NOTE:

The 46310-1X is factory-equipped with an RS-232 subassembly.
The 46310-3X is factory-equipped with an Ethernet subassembly.

Power Supply Module

This module generates the different voltages required for the whole system. It contains:

- ◆ Mounting location for the RS-232, 202 Tone Modem, Ethernet subassembly, or RS-422/485 Bypass Card.

The 49313 Modem operates as a Bell 202 full-duplex modem with a data rate of 1200 baud and is used exclusively with Dantel's 46310 PointMaster.

The 49413 Ethernet Subassembly provides access to both the Craft and Master Ports for two separate TCP/IP sessions.

- ◆ Master Port drivers
- ◆ Expansion Port drivers
- ◆ Printer Port drivers

CIRCUIT DESCRIPTION

Processor Module

The CPU module contains the microprocessor, the memory, and the control circuits. Other features include:

- ◆ A real-time clock
- ◆ Serial Controller
- ◆ Reset circuit
- ◆ Battery backup circuit
- ◆ Four Form-C relays

NOTE: *A pin on the Wire Wrap Module (see below) is available for acknowledging these alarm relays. Providing a ground to pin 26S resets all alarm relays.*

Alarm and Control Module

Depending on which model PointMaster you have, this module provides one of the following two options:

- ◆ 64 alarm inputs and 4 control outputs
- ◆ 128 alarm inputs

Expansion Alarm and Control Module

This module can provide one of the following three options:

- ◆ 28 controls
- ◆ 64 alarms and 12 controls
- ◆ 128 alarms

Motherboard Backplane Module

The motherboard provides the connectors for the Power Supply Module, Processor Module, Alarm and Control Module, and Expansion Alarm and Control Module. In addition, it connects to the Wire Wrap Module.

Wire Wrap Module

This is the board that contains the wire-wrap pins, where all the alarm and control signals are connected. It has connectors to the Motherboard Module and the Front Panel Module.

CIRCUIT DESCRIPTION

Front Panel Module

Mounted on the Wire Wrap Module, this small board is the interface to the user. This is where you find the:

- ◆ Power connector
- ◆ Fuse
- ◆ DB9 connector (used for configuration)
- ◆ LEDs
- ◆ 202 Modem level adjustment (if equipped)
- ◆ Reset button

COMMUNICATION PORTS

The PointMaster utilizes two Input/Output ports (Master Port and Craft Port) and one passive Expansion port. Refer to Table A for a description of each port and the protocols and interfaces available on each of those ports.

TABLE A - POINTMASTER COMMUNICATIONS PORTS

	MASTER PORT	CRAFT PORT	EXPANSION PORT
Available Protocols	TBOS, TABS, DCPF, DCP, DCM, Printer	DCP, DCPF, Printer	N/A (passive pass-through port; see discussion below)
Available Interfaces	RS-422/485, RS-232*, 202 Tone*, Ethernet* (*requires optional subassembly)	RS-232, Ethernet* (*requires optional subassembly)	RS-422
Available Baud Rates	1200, 2400, 4800, 9600, 19.2K	1200, 2400, 4800, 9600, 19.2K	1200, 2400, 4800, 9600, 19.2K
Usage	The Master Port, offering the most protocol options, is used for reporting alarm information towards the Alarm Center. Connection to this port is made at wire-wrap pins.	The craft port is a local port primarily used to configure the unit using Printer protocol. It can also be used to report alarms using DCP or DCPF protocol. Connection to this port is made on the Front Panel Module or at wire-wrap pins.	This port is a "pass-through" port. Any data received at the Master Port is routed out the Expansion Port to a second device. In the same manner, any data received from that downstream device is routed out the Master Port. The device connected to the Expansion port must use the same protocol and baud rate.

* **NOTE:** Available subassemblies include 49229 for RS-232 (default with -1X PointMasters), 49313 for 202 tone, 49413 for Ethernet connectivity (default with -3X PointMasters), and the A80-00509-00 Bypass Card for RS-422/485.

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CIRCUIT DESCRIPTION

ALARM INPUTS AND CONTROL OUTPUTS

The PointMaster comes in 10 options (refer to Table B). All connections are made on the front of the unit to wire-wrap pins. Detailed information on pin-out configurations are located in the **Installation** section of this manual.

TABLE B - POINTMASTER OPTIONS

OPTION	ALARM POINTS	CONTROL POINTS
X15-46310-10/-30	64	8
X15-46310-11/-31	128	4
X15-46310-12/-32	128	32
X15-46310-13/-33	192	16
X15-46310-14/-34	256	4

NOTE: *It should be noted that the control points are of two types, Form A and Form C. Form A relays are defined as one set of normally-open contacts. A Form C relay is a single relay with two sets of contacts. One set is normally-open and the other, normally-closed. They operate at the same time. Refer to Table C.*

TABLE C - POINTMASTER RELAYS

OPTION	FORM A	FORM C
X15-46310-10/-30	Points 1-4	Points 5-8
X15-46310-11/-31	--	Points 1-4
X15-46310-12/-32	Points 1-28	Points 29-32
X15-46310-13/-33	Points 1-12	Points 13-16
X15-46310-14/-34	--	Points 1-4

LEDs

The PointMaster provides 7 front panel LEDs. Refer to Table D.

TABLE D - POINTMASTER LEDs

LED	FUNCTION
CPU/Alarm	Solid green indicate normal CPU operation. Flashing green indicates CPU failure. Flashing green indicates soft reset. Flashing green turning to solid red indicates hard reset. (Returns to green with normal state.) Solid red indicates active alarm.
TXD Mstr	Flashes green with data on Master Port TX line.
RXD Mstr	Flashes green with data on Master Port RX line.
TXD Exp.	Flashes green with data on Expansion Port TX line.
RXD Exp.	Flashes green with data on Expansion Port RX line.
Fuse	Indicates a blown fuse F1.
Low Batt	Indicates low on-board battery voltage.

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INSTALLATION

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This chapter consists of six sections: equipment mounting, strap options, wiring, configuration, TCP/IP configuration and checkout. Follow the sections in that order.

EQUIPMENT MOUNTING

Install the PointMaster in an equipment rack or distribution frame.

SELECTING A LOCATION

- ◆ Select a location at least two feet above the floor.
- ◆ Provide at least 3.5 inches of clearance above the unit.
- ◆ Provide at least 1.75 inches of clearance below the unit.

TOOLS REQUIRED

Installation of the PointMaster may require one or more of the following tools:

- ◆ Phillips screwdriver
- ◆ Small standard screwdriver
- ◆ 11/32 wrench

EQUIPMENT RACK MOUNTING

The PointMaster attaches to a mounting bar on the equipment rack. Mounting bars can be ordered from Dantel. Refer to the **Ordering Information** section of this manual.

Each bar holds two PointMasters.

To Install:

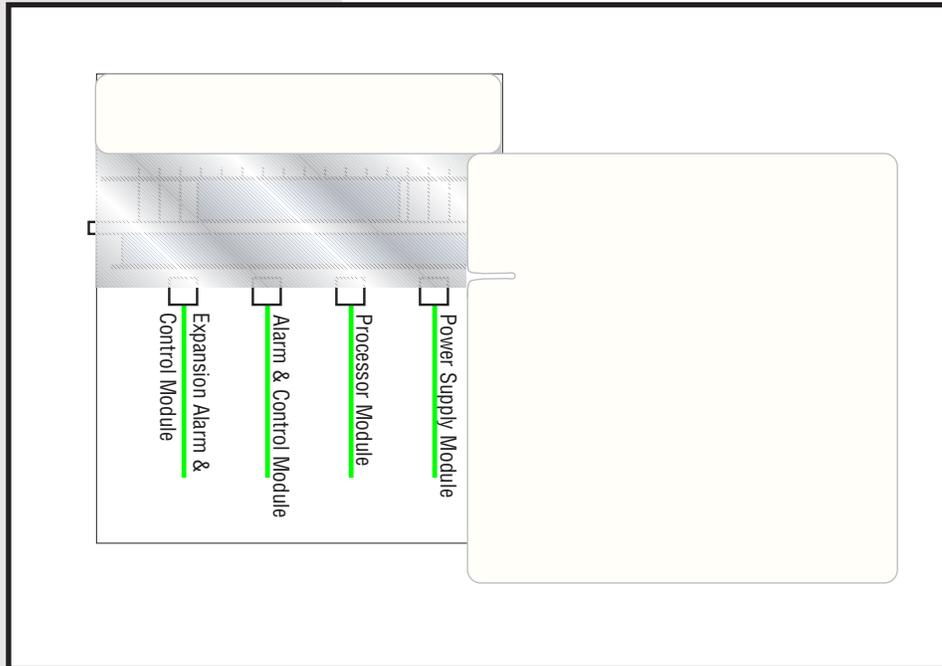
1. Open the unit by unscrewing the thumbscrew in the top, right corner of the front panel and swinging the front panel forward and down. This will expose a second thumbscrew in the top right corner which must be fully unscrewed until the spring action pushes the screw back toward you. The unit may then be opened by swinging the front half out and up. Secure it open by engaging the sliding locking bar. Refer to Fig. 2.

NOTE: *The PointMaster is held open by a sliding locking bar located inside the unit on the left side. This bar slides out (to the left) and then back into the notch in the left side panel (toward the equipment rack or distribution frame) to prop the PointMaster open.*

CONTINUED . . .

INSTALLATION

FIG. 2 - SUBASSEMBLY LOCATIONS



2. Attach the carriage bolts to the PointMaster with the retaining clips. Refer to Fig. 3.

NOTE: *Some PointMaster units may have these bolts already installed. If distribution frame mounting is desired, remove these bolts.*

3. Attach the PointMaster to the mounting bar with the locking hex nuts. Use mounting holes A, B, C, and D. Refer to Figs. 3 and 4.
4. Attach the mounting bar to the equipment rack (hardware not supplied).
5. This completes the equipment rack mounting instructions.

INSTALLATION

FIG. 3 - INSTALLING CARRIAGE BOLTS

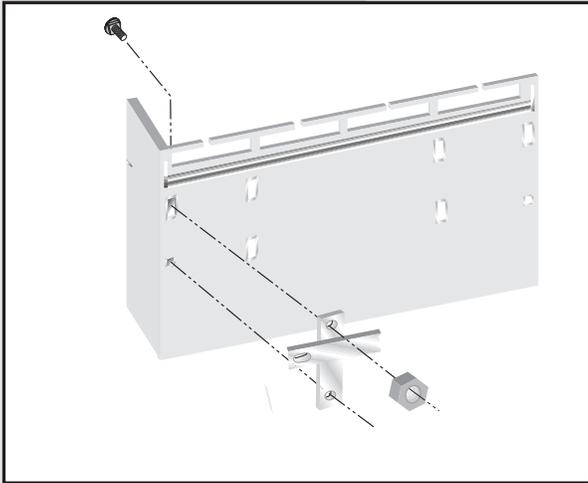
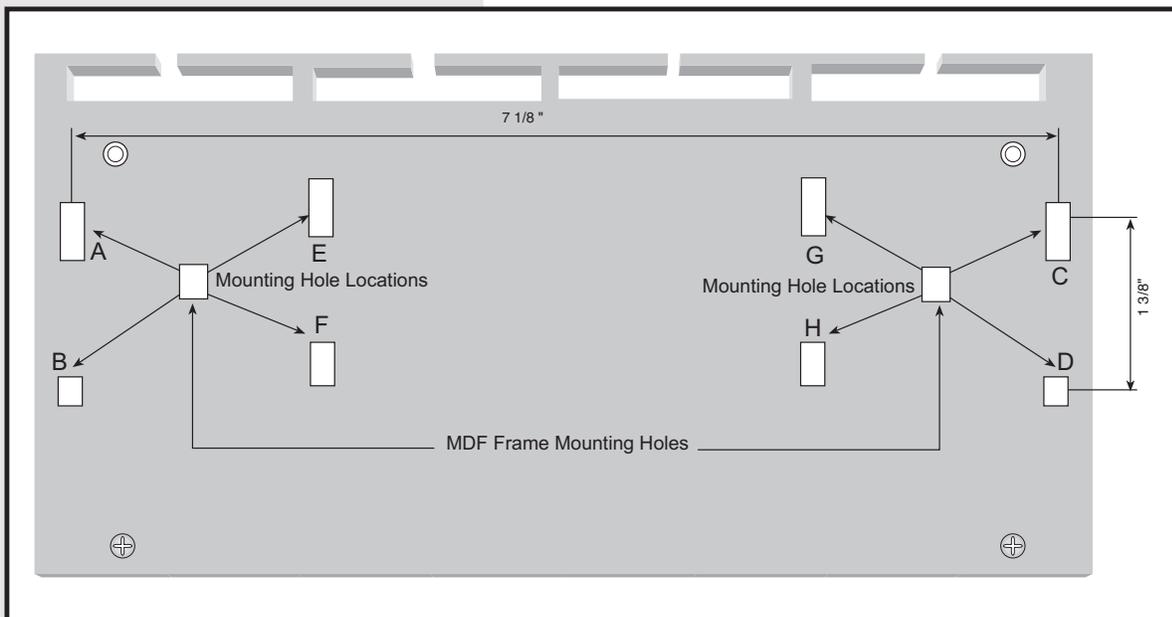


FIG. 4 - MOUNTING HOLE LOCATIONS



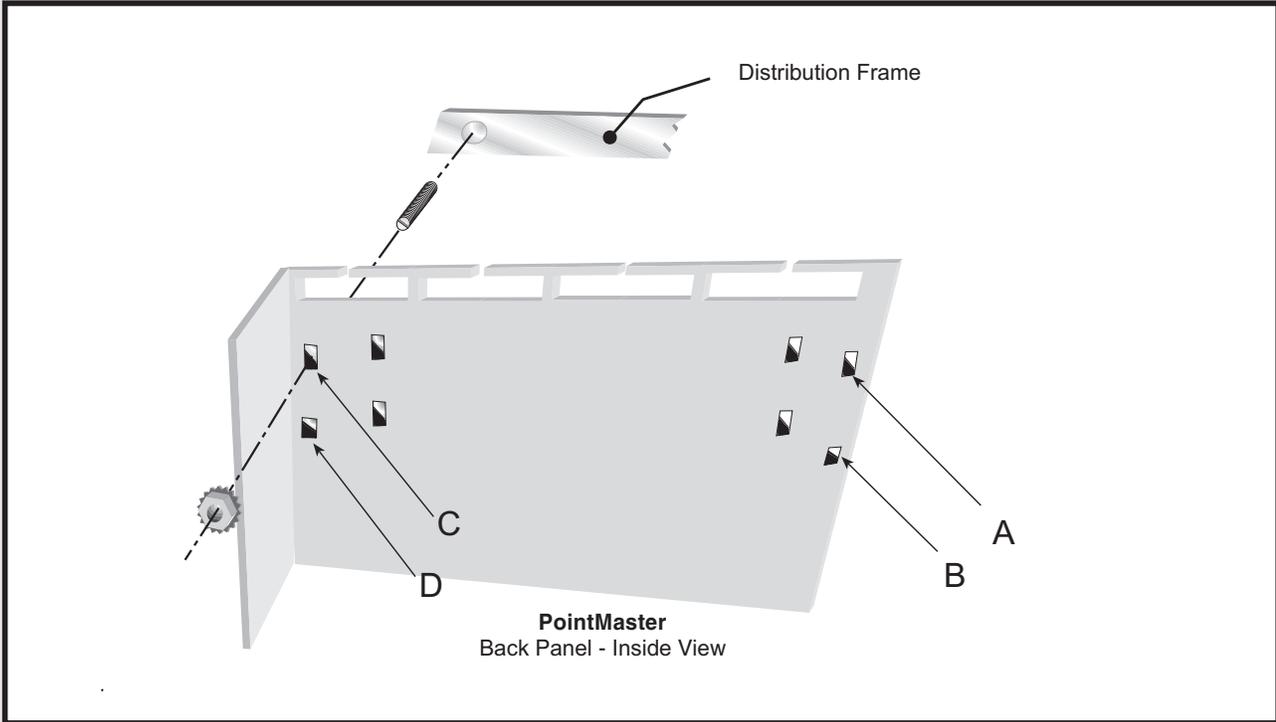
DISTRIBUTION FRAME MOUNTING

Install the PointMaster using any combination of mounting holes A, B, C, D, E, F, G, and H. Refer to Fig. 4.

1. Screw the threaded studs into the distribution frame. Refer to Fig. 5.
2. Open the PointMaster module and engage the maintenance support bar.
3. Place the unit on the studs.
4. Secure the PointMaster with the locking hex nuts.

INSTALLATION

FIG. 5 - INSTALLING STUDS



INSTALLATION

SWITCHES AND STRAPS

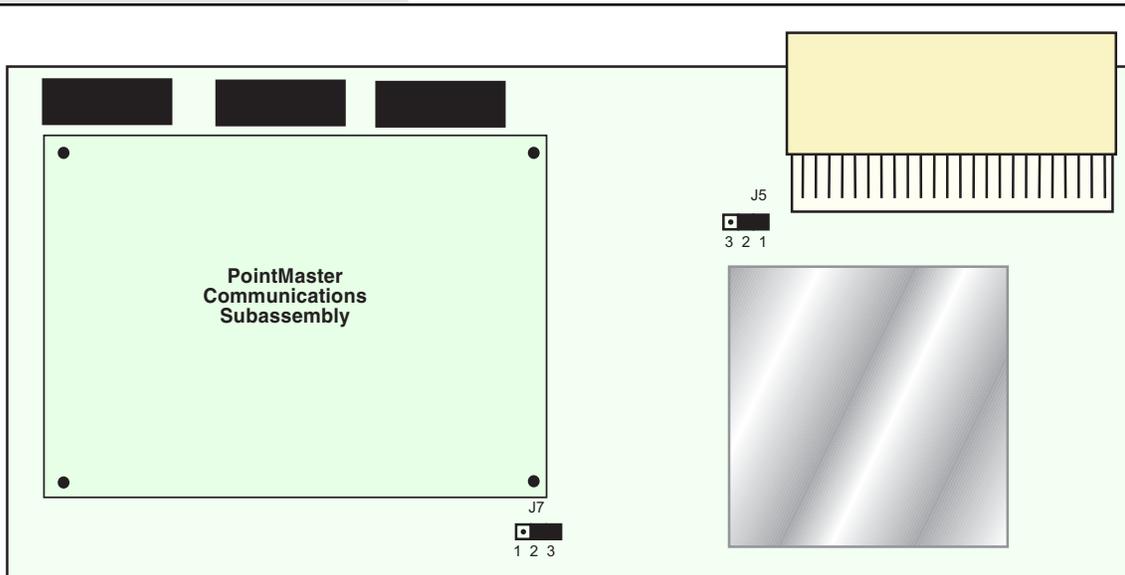
POWER SUPPLY MODULE

There are two straps on the Power Supply Module. Refer to Figs. 2 and 6.

- ◆ Place strap J7 in position 1-2 for RS-422 on the Master port. Place in position 2-3 for RS-422/485 on the Master port.
- ◆ J5 is factory-strapped. Do not remove or change this strap.

NOTE: Set these straps even when the Master Port is equipped with a communications subassembly.

FIG. 6 - POWER SUPPLY MODULE STRAP LOCATIONS



NOTE: Older Power Supply modules (B80-00610 or older) are compatible with both A12-49229-00 and -01 RS-232 Subassemblies. Newer Power Supply Modules (C80-00610 or newer) are only compatible with the newer A12-49229-01 Subassemblies. Refer to the table below.

POWER SUPPLY MODULE	RS-232 SUBASSEMBLY COMPATIBILITY	
	A12-49229-00	A12-49229-01
B80-00610-00	Yes	Yes
C80-00610-00	No	Yes

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INSTALLATION

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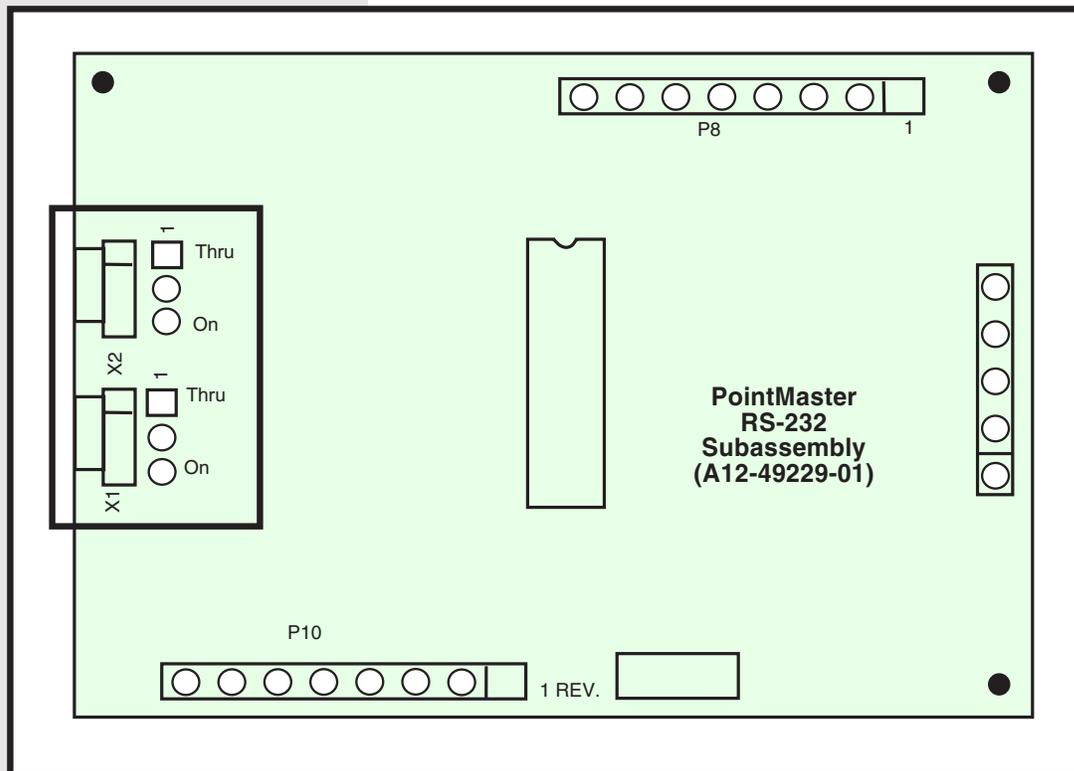
NOTE:

If the Master Port uses RS-422 (optional Bypass Card), pins 26A-26E are the Expansion Port connections and 26F-26K are the Master Port connections.

When a 202, RS-232, or Ethernet subassembly is used on the Master Port, pins 26F-26K are the Expansion Port connections and 26L-26R are the Master Port connections.

- RS-232 Subassembly (x12-49229-00)**
- If the unit is equipped with an RS-232 subassembly on the Power Supply Module (refer to Fig. 2), set strap X1 (refer to Figs. 7).
1. Place the strap across pins 1 and 2 to use Data Carrier Detect (DCD) as a handshaking line.
 -or-
 Place the strap across pins 2 and 3 to keep DCD always active.
 If the unit is equipped with an RS-232 subassembly, set strap X2 (refer to Fig. 7).
 2. Place the strap across pins 1 and 2 to use Clear to Send (CTS) as a handshaking line.
 -or-
 Place the strap across pins 2 and 3 to keep CTS always active.
 3. End of procedure.

FIG. 7 - RS-232 SUBASSEMBLY COMPONENT LOCATION

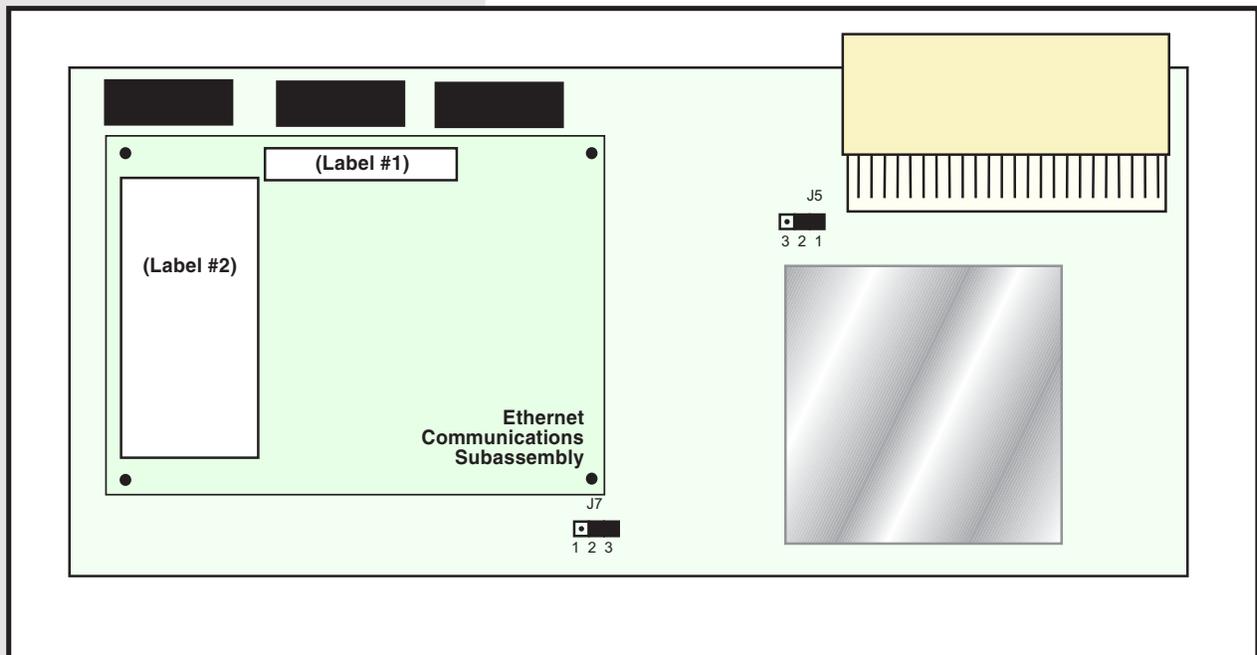


INSTALLATION

Ethernet Subassembly (x12-49413-00)

If the unit is equipped with an Ethernet subassembly on the Power Supply Module (refer to Fig. 2), there are no straps or switches to set. There are two labels on the subassembly (refer to Fig. 8). Label 1 indicates the assembly and revision number of the subassembly. Label 2 indicates the ethernet (MAC) address and serial number. This information is required for TCP/IP configuration later.

FIG. 8 - 49413 ETHERNET SUBASSEMBLY COMPONENT LOCATIONS



NOTE:

If the Master Port uses RS-422 (optional Bypass Card), pins 26A-26E are the Expansion Port connections and 26F-26K are the Master Port connections.

When a 202, RS-232, or Ethernet subassembly is used on the Master Port, pins 26F-26K are the Expansion Port connections and 26L-26R are the Master Port connections.

INSTALLATION

NOTE:

Set the tone modem output level using the adjustment pot R8 on the front panel module.

Optional 202 Tone Modem (x12-49313-00)

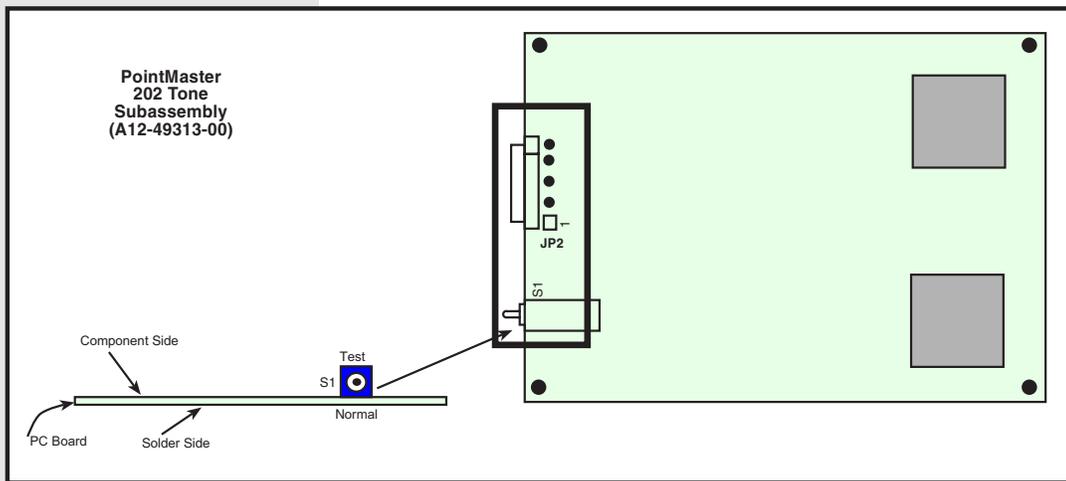
If the PointMaster is equipped with a 202 Modem subassembly on the Power Supply Module (refer to Fig. 2), set the straps on JP2 (refer to Fig. 9).

Place the straps across pins 2-3 and 4-5 to adjust the transmit output between -1 and -20 dBm.

-or-

Place the straps across pins 1-2 and 3-4 to adjust the transmit output between -20 and -40 dBm.

FIG. 9 - 202 MODEM SUBASSEMBLY COMPONENT LOCATION



Optional RS-422/485 Bypass Card (A80-00509-00)

The Bypass Card is shipped as loose equipment with each PointMaster. If RS-422/485 is desired on the Master Port, remove any communications subassembly currently mounted on the Power Supply Card and install the A80-00509-00 Bypass Card in the same location.

The Bypass Card has no straps or switches.

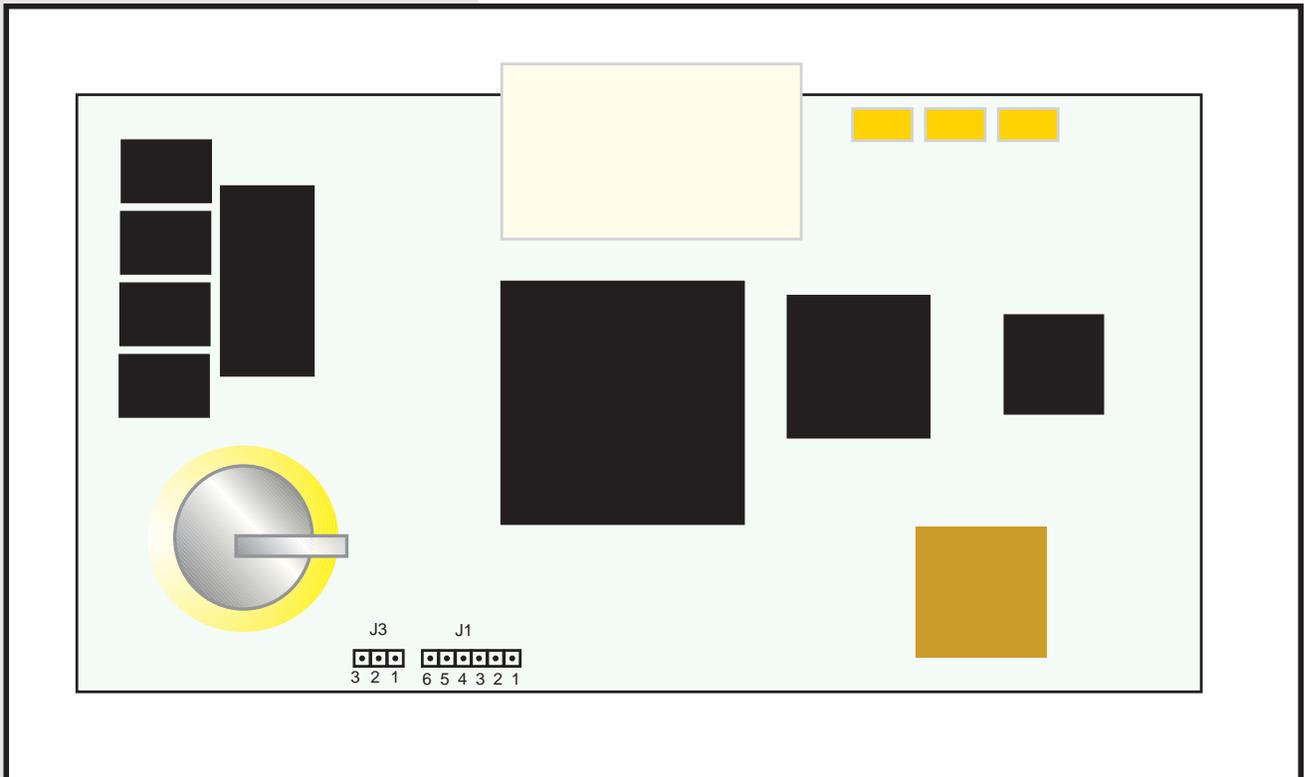
INSTALLATION

CPU MODULE

Refer to Figs. 2 and 10. Strap J3 is the battery strap. Place in position 2-3 to enable the battery back-up. This retains the configuration in memory. Position 1-2 is for long-term battery storage and will not retain the memory.

NOTE: *J1 is factory-strapped. Do not remove or change this strap.*

FIG. 10 - CPU MODULE STRAP LOCATIONS



WIRING

Wire the power, alarm inputs and control outputs, and the communications ports as described below.

BONDING AND GROUNDING CONDUCTOR AND CONNECTION REQUIREMENTS

To ensure positive connections, the following guidelines **shall be** adhered to:

1. All bonding and grounding conductors (wire, bus bars, or braided straps for example) **shall be** made of copper and of sufficiently low impedance to safely conduct any fault current.

Aluminum **shall not** be used.

CONTINUED . . .

INSTALLATION

2. Conductors of dissimilar metals **shall not** be used in terminals or splicing connectors. Any flux, inhibitors, or compounds (where used) **shall be** suitable and **shall not** adversely affect the conductor, the installation, or the equipment.
3. All unplated connectors, braided straps, and bus bars **shall be** brought to a bright finish and coated with an antioxidant before crimp connections are made.

Tinned, solder-plated, or silver-plated and other plated connection surfaces do not have to be prepared this way, but they **shall be** clean and free of contaminants. Raceway fittings **shall be** tightened to provide a low-impedance path.
4. Multiple connectors **shall not** be secured by the same bolt assembly.
5. Any unplated connection surfaces used (if any) that are part of a grounding or bonding path **shall be** brought to a bright finish and coated with an antioxidant before being electrically connected.
6. All grounding and bonding conductors **shall be** connected by exothermic welding or compression type fittings to the greatest extent possible.

Connector devices depending solely on solder **shall not** be used.
7. The following connector types **shall not** be used to terminate grounding or bonding connections:
 - ◆ Soldering lugs
 - ◆ Screwless (push-in)
 - ◆ Friction-fit

POWER CONNECTIONS

NOTE:

Connect chassis ground to the ground lug or smaller screw hole located on the top on the PointMaster. Do not connect chassis ground to the power connector J1.

Chassis and signal grounds are isolated from each other.

Power connections are made in the Front Panel Module at J1. Refer to Fig. 1.

- ◆ Connect J1-1 to negative battery (-21 to -56VDC).
- ◆ J1-2 is used to indicate a blown fuse. -Battery will appear on this pin in the event that the PointMaster fuse blows. Wire this pin to an indicating device, such as a light or bell. Do not connect signal ground or chassis ground to this point.
- ◆ Connect J1-3 to signal ground.

ALARM INPUTS AND CONTROL OUTPUTS

The pins used for alarm inputs and control outputs are dictated by the option of PointMaster. Refer to Figs. 11 through 15.

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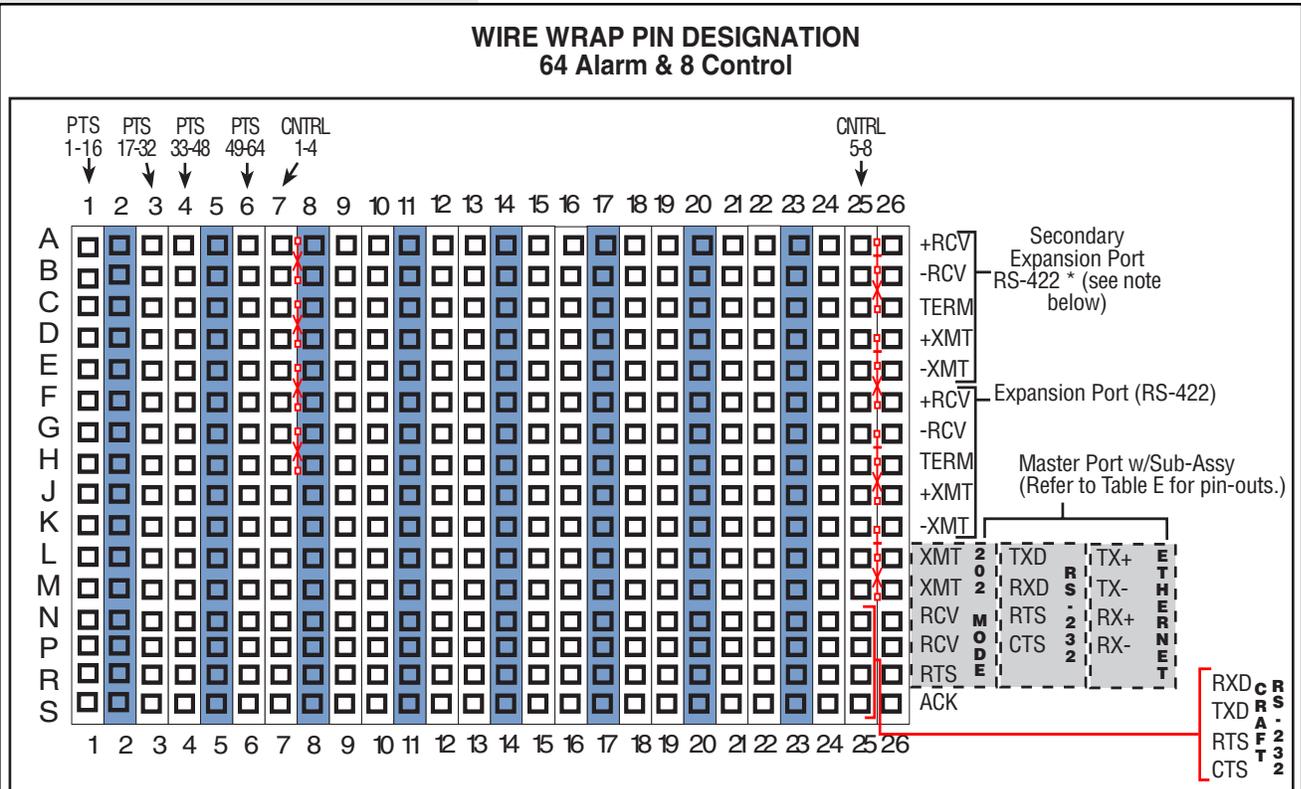
INSTALLATION

46310-10/-30

The -10/-30 options are equipped with 64 discrete alarm inputs and 8 control outputs. Refer to Fig. 11.

NOTE: Controls 1-4 are Form-A type. Controls 5-8 are Form-C type.

Fig. 11 - 46310-10/-31 POINTMASTER PIN LOCATIONS



ALARM INPUTS	PINS
1-16	1A-S
17-32	3A-S
33-48	4A-S
49-64	6A-S
CONTROL OUTPUTS	PINS
1-4	7A-H
5-8	25A-M
ACKNOWLEDGE	
All alarm relays	26S

NOTES:

- * Rows 2, 5, 8, 11, 14, 17, 20, & 23 are all GND (ground).
- * If RCV port termination is desired, connect -RCV pin(s) to adjacent TERM pin(s).

NOTE:

If the Master Port uses RS-422 (optional Bypass Card), pins 26A-26E are the Expansion Port connections and 26F-26K are the Master Port connections.

When a 202, RS-232, or Ethernet subassembly is used on the Master Port, pins 26F-26K are the Expansion Port connections and 26L-26R are the Master Port connections.

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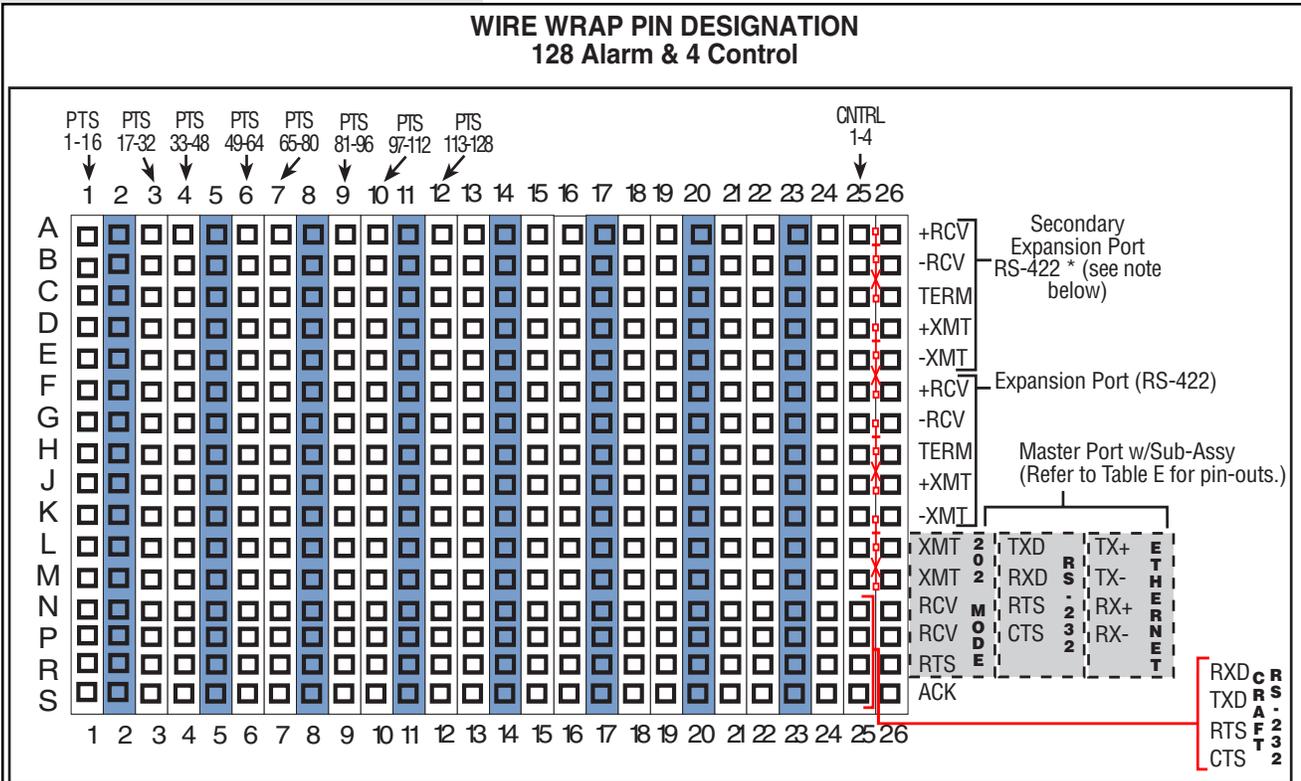
INSTALLATION

46310-11/-31

The -11/-31 options are equipped with 128 discrete alarm inputs and 4 control outputs. Refer to Fig. 12.

NOTE: Controls 1-4 are Form-C type.

Fig. 12 - 46310-11/-31 POINTMASTER PIN LOCATIONS



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NOTE:

If the Master Port uses RS-422 (optional Bypass Card), pins 26A-26E are the Expansion Port connections and 26F-26K are the Master Port connections.

When a 202, RS-232, or Ethernet subassembly is used on the Master Port, pins 26F-26K are the Expansion Port connections and 26L-26R are the Master Port connections.

ALARM INPUTS		PINS	
1-16		1A-S	
17-32		3A-S	
33-48		4A-S	
49-64		6A-S	
65-80		7A-S	
81-96		9A-S	
97-112		10A-S	
113-128		12A-S	
CONTROL OUTPUTS		PINS	
1-4		25A-M	
ACKNOWLEDGE			
All alarm relays		26S	

NOTES:

* Rows 2, 5, 8, 11, 14, 17, 20, & 23 are all GND (ground).

* If RCV port termination is desired, connect -RCV pin(s) to adjacent TERM pin(s).

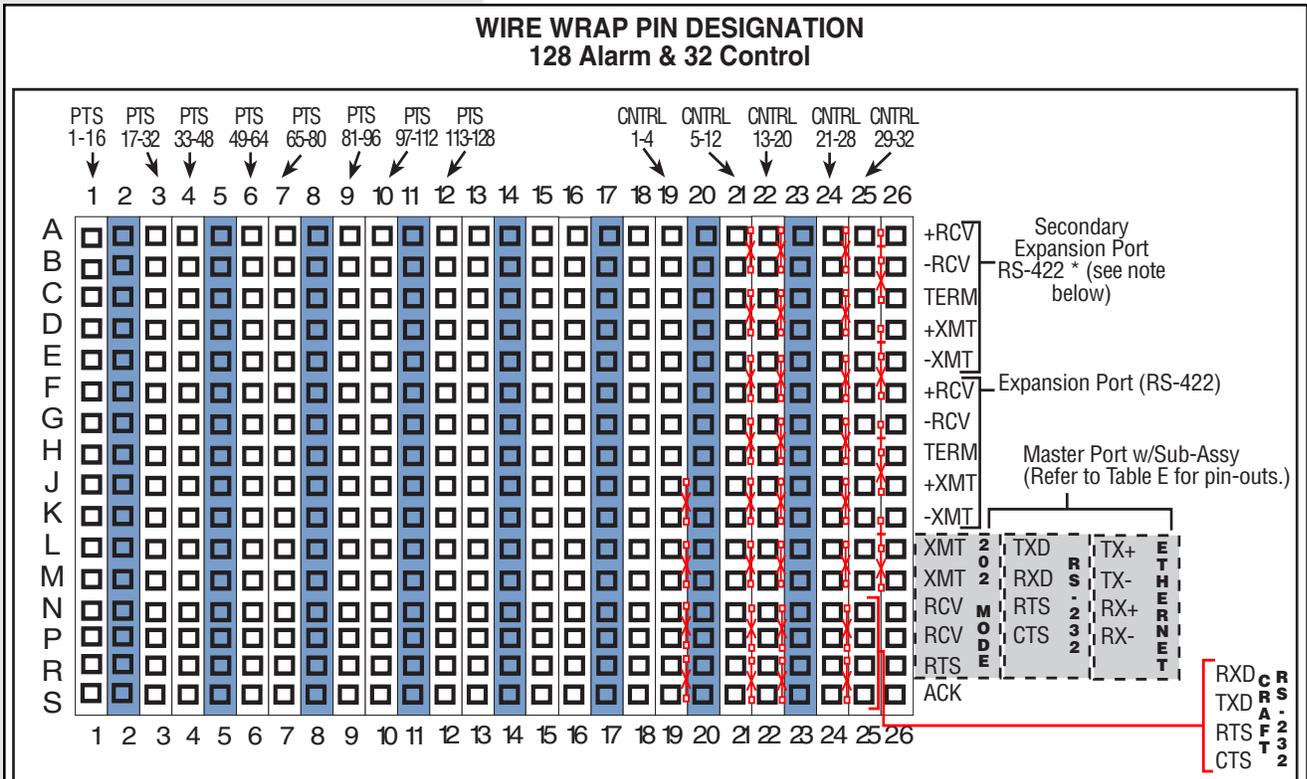
INSTALLATION

46310-12/-32

The -12/-32 options are equipped with 128 discrete alarm inputs and 32 control outputs. Refer to Fig. 13.

NOTE: Controls 1-28 are Form-A type. Controls 29-32 are Form-C type.

Fig. 13 - 46310-12/-32 POINTMASTER PIN LOCATIONS



ALARM INPUTS	PINS
1-16	1A-S
17-32	3A-S
33-48	4A-S
49-64	6A-S
65-80	7A-S
81-96	9A-S
97-112	10A-S
113-128	12A-S

CONTROL OUTPUTS	PINS
1-4	19J-S
5-12	21A-S
13-20	22A-S
21-28	24A-S
29-32	25A-M
ACKNOWLEDGE	
All alarm relays	26S

NOTES:

- * Rows 2, 5, 8, 11, 14, 17, 20, & 23 are all GND (ground).
- * If RCV port termination is desired, connect -RCV pin(s) to adjacent TERM pin(s).

NOTE: If the Master Port uses RS-422 (optional Bypass Card), pins 26A-26E are the Expansion Port connections and 26F-26K are the Master Port connections. When a 202, RS-232, or Ethernet subassembly is used on the Master Port, pins 26F-26K are the Expansion Port connections and 26L-26R are the Master Port connections.

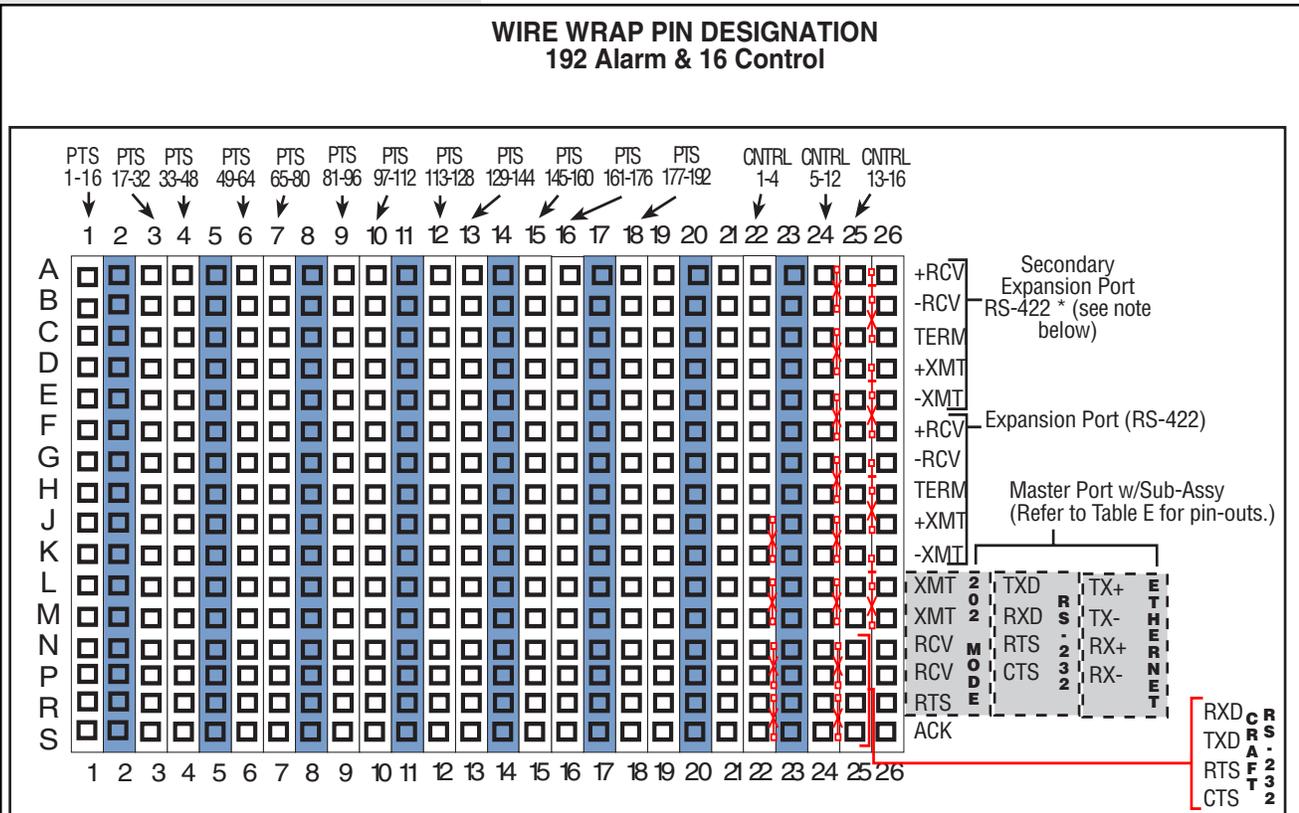
INSTALLATION

46310-13/-33

The -13/-33 options are equipped with 192 discrete alarm inputs and 16 control outputs. Refer to Fig. 14.

NOTE: Controls 1-12 are Form-A type. Controls 13-16 are Form-C type.

Fig. 14 - 46310-13/-33 POINTMASTER PIN LOCATIONS



ALARM INPUTS	PINS	ALARM INPUTS	PINS
1-16	1A-S	145-160	15A-S
17-32	3A-S	161-176	16A-S
33-48	4A-S	177-192	18A-S
49-64	6A-S	CONTROL OUTPUTS	
65-80	7A-S	1-4	22J-S
81-96	9A-S	5-12	24A-S
97-112	10A-S	13-16	25A-M
113-128	12A-S	ACKNOWLEDGE	
129-144	13A-S	All alarm relays	26S

NOTES:

- * Rows 2, 5, 8, 11, 14, 17, 20, & 23 are all GND (ground).
- * If RCV port termination is desired, connect -RCV pin(s) to adjacent TERM pin(s).

NOTE:
If the Master Port uses RS-422 (optional Bypass Card), pins 26A-26E are the Expansion Port connections and 26F-26K are the Master Port connections. When a 202, RS-232, or Ethernet subassembly is used on the Master Port, pins 26F-26K are the Expansion Port connections and 26L-26R are the Master Port connections.

UPDATED

INSTALLATION

COMMUNICATIONS PORTS

MASTER PORT

The pins used by the Master Port depend on the electrical interface being used on that port. Only one interface may be used at a time.

NOTE:

If the Master Port uses RS-422 (optional Bypass Card), pins 26A-26E are the Expansion Port connections and 26F-26K are the Master Port connections.

When a 202, RS-232, or Ethernet subassembly is used on the Master Port, pins 26F-26K are the Expansion Port connections and 26L-26R are the Master Port connections.

RS-422/485 (requires optional Bypass Card)

The pin designations are as follows:

RCV+	RCV-	TERM	XMT+	XMT-
26-F	26-G	26-H	26-J	26-K

RS-232 (default with 46310-1X options)

This interface requires a communications subassembly. The pin designations are shown in Table E.

Ethernet (default with 46310-3X options)

This interface requires a communications subassembly. The pin designations are shown in Table E.

202 Tone (requires optional 49313 Tone Modem)

This interface requires a communications subassembly. The pin designations are shown in Table E.

TABLE E - MASTER PORT PIN DESIGNATIONS

INTERFACE	PIN 26L	PIN 26M	PIN 26N	PIN 26P	PIN 23S
RS-232	TD	RD	RTS	CTS	GND
Ethernet	TX+	TX-	RX+	RX-	-
202 Tone	XMT T	XMT R	RCV T	RCV R	-

NOTE: Refer also to Fig. 21.

EXPANSION PORT

The expansion port is dedicated RS-422 and when the Master Port is equipped with an RS-232, 202, or Ethernet subassembly, its pins are as follows. Refer to the note in the left column of this page.

RCV+	RCV-	TERM	XMT+	XMT-
26-F	26-G	26-H	26-J	26-K

UPDATED

INSTALLATION

CRAFT PORT

The Craft port is a DTE port and access can be made at one of two locations (three on the 46310-3X; see the discussion below):

	RD (INPUT)	TD (OUTPUT)	RTS	CTS	GND
Wire-Wrap Pins	25-N	25-P	25-R	25-S	23-S
DB-9 on Front Panel	Pin 3	Pin 2	Pin 8	Pin 7	Pin 5

Master Ports, Craft Ports, and Ethernet Connectivity

The 46310-30 through -34 PointMasters are equipped with a 49413 Ethernet Subassembly. In these units, the Master and Craft Ports are both available at wire-wrap pins 26L-P (refer to Table E.) This is possible because the Ethernet Subassembly has two serial ports; one connected to the Master Port and the other to the Craft Port. It then presents a single TCP/IP port and provides dual sessions, one to each port.

It is critical that, when using the 49413 Ethernet Subassembly, these two serial ports (10001 for the PointMaster Master Port; 10002 for the PointMaster Craft Port) are configured for the same communications parameters as the Master and Craft Ports. Where the PointMaster is configured for DCPF, these parameters are typically 9600 baud, no parity, one stop bit, and eight bit word.

UPDATED

CONTINUED . . .

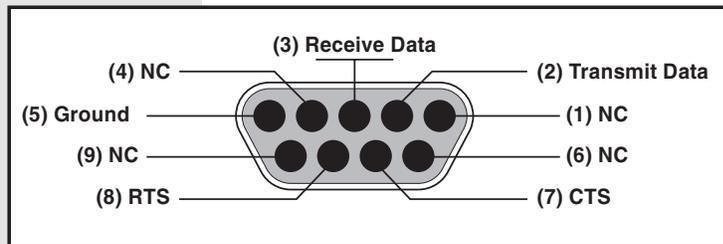
CONFIGURATION

The PointMaster must be configured with an ASCII terminal before it will operate properly. (The default state is TBOS at 2400 baud on the Master port, and Printer Syntax at 9600 baud on the Craft port.)

TO CONNECT A DUMB TERMINAL

Connect an ASCII terminal or computer operating as a terminal emulator to the wire-wrap pins 25-N (RD), 25-P (TD) and 25-S (GND) or connect it to C1 on the Front Panel Module. Refer to Fig. 16.

FIG. 16 - CRAFT PORT CONNECTOR WIRING



TO CONFIGURE THE POINTMASTER

The Craft port of the PointMaster defaults on power-up to:

- ◆ Printer Syntax
- ◆ 9600 baud
- ◆ 8-bit word length
- ◆ No parity
- ◆ 1 stop bit

The terminal must be set for the same data rate, word length, parity, and stop bits as shown above. Make these settings before connecting the terminal to the PointMaster.

1. Reset the unit or apply power.
2. If the terminal is connected to C1, a prompt ">" will appear on the screen after a soft reset. This indicates that the PointMaster is ready to accept command inputs. Within 30 seconds, press "!!!" on the terminal and press ENTER. Be aware that the "!!!" must be entered within 30 seconds of power-up or reset and must be entered fast - less than 1/2 second for all three.

CONTINUED . . .

CONFIGURATION

This procedure will connect the terminal to C1 and ensure the Craft Port protocol is Printer Syntax. The default timeout for this connection is 10 minutes, after which the unit will switch to the wire-wrap pins. Refer to the **Timeout** command in the **Printer Syntax** section of this manual to change that time period.

To return the Craft Port to its default protocol and return communications to pins 25N through S, press the reset button or wait for the timeout.

3. If the terminal is connected to the wire-wrap pins, the unit will first connect to C1 then, 30 seconds later, will automatically switch to the wire-wrap pins.

If the terminal and the PointMaster do not communicate, remove power from the unit and verify the terminal settings.

NOTE: *Both the Craft and Master ports of the PointMaster can be configured for a variety of protocols, only one of which will communicate with your terminal. If communication cannot be established between the terminal and the PointMaster, and you have already verified the communications parameters on the terminal, it may be that the Craft port has already been configured for a protocol other than Printer Syntax.*

To force the Craft port to Printer Syntax, enter “!!!” on the keyboard.

If an external device such as a modem or a Dantel Status Monitor is connected hard-wired to pins 25N through S, you must follow this procedure to access the Craft Port connector C1.

1. Connect the terminal to C1.
2. Perform a soft reset or remove and reapply power to the unit.
3. Within 30 seconds, press “!!!” on the terminal and press ENTER. Be aware that the “!!!” must be entered within 30 seconds of power-up or reset and must be entered fast - less than 1/2 second for all three.

This procedure will connect the terminal to C1 and switch the Craft Port protocol to Printer Syntax. The default timeout for this protocol is 10 minutes. Refer to the **Timeout** command in the **Printer Syntax** section of this manual to change that time period.

To return the Craft Port to its default protocol and return communications to pins 25N through S, press the reset button or wait for the timeout.

After access is gained to the Craft port, type UNLOCK and press Enter. This command unlocks the PointMaster so commands can be entered. If there is a password in the PointMaster, you will have to type the password in order to unlock the PointMaster. Refer to the Password command in the **Printer Syntax** section for instructions on setting up a password.

CONFIGURATION

ENTERING COMMANDS

After each command typed on the keyboard, press Enter to execute the command.

Some standard ASCII terminals (or computers emulating terminals) have function keys that can be programmed to perform frequently used keystroke sequences in a single keystroke. Refer to your user's manual for instructions on how to program the function keys.

ERROR MESSAGES

Two error messages may appear on the terminal screen:

MESSAGE	MEANING	ACTION
COMMAND ERROR	Command not understood	Enter the command correctly
SYNTAX ERROR	Entry does not follow the rules of syntax	Enter the command correctly

EDITING

The following table shows how to do some common editing tasks. The term **Ctrl** refers to the Control key on the terminal keyboard.

TASK	KEYSTROKES
Stop Output (Stop data flow from the PointMaster.)	Hold down the CTRL key and press D. (CTRL-D)
Backspace	Backspace or CTRL-H
Recall Previous Line (Use to edit command line after receiving an error message.)	CTRL-K
Recall Current Line (Use when interrupted by a system status message.)	CTRL-R
Pause Output (Interrupt data flow from PointMaster.)	CTRL-S (CTRL-Q to restart)
Re-execute Last Command	CTRL-X

CONTINUED . . .

CONFIGURATION

POINTMASTER MENU SYSTEM

The PointMaster uses a series of menus for configuration. This system is accessed with the MENU command. (Refer to the ***Printer Syntax*** section.) These menus are “nested”, meaning that accessing one menu will often lead to another menu and another and another.

The section that follows provides a roadmap of these menus. Entering MENU on the keyboard takes you to **Line 0**. To gain a better understanding of this menu system, let's take a sample journey through part of system. For this example it is not necessary to be connected to the PointMaster. Refer to the pages that follow as we go.

1. Type MENU and press Enter.

This takes us to **Line 0** and brings up 8 options, 1-7 and 0. For this example, we are going to configure the Master port protocol. The Master port is option 6, so...

2. Press 6

This takes us to **Line 6**. Here, we find only 4 options. For our example, let's set the Master port to be TBOS. From Line 6,

3. Press 1

This takes us to **Line 6.1**. Many protocols are listed here, but we want TBOS so...

4. Press 5

Now we are at **Line 6.1.5**. Now, there are only 3 choices. To set the starting TBOS display,

5. Press 1

We are now at **Line 6.1.5.1**. All that is required here is the response to the prompt, “Enter address (1-8)”. Simply type the number of the display you wish to begin responding with.

The example we just went through was typical of the steps required to configure the PointMaster. From this menu system, the PointMaster can be fully configured using nothing more than a dumb terminal.

Using this menu system, configure:

- ◆ Alarm points and alarm level relays
- ◆ Control points
- ◆ System time and date
- ◆ Password
- ◆ Master and Craft port parameters
- ◆ Session settings

CONFIGURATION

POINTMASTER MENUS

Line 0

- 1 Alarm Point Configuration (go to line 1)
 - Configure various facets of the individual alarm points.
- 2 On-board Relay Usage (go to line 2)
 - How are the on-board relays going to be used?
- 3 Control Point Configuration (go to line 3)
 - Configure various facets of the individual control points.
- 4 System Configuration (go to line 4)
 - Set system time, date, and password.
- 5 Craft Port Configuration (go to line 5)
 - Configure protocol, baud rate, etc for the Master port.
- 6 Master Port Configuration (go to line 6)
 - Configure protocol, baud rate, etc for the Craft port.
- 7 Sessions Settings (go to line 7)
- 0 Exit (go to line 0)

ALARM POINT CONFIGURATION

Line 1

Alarms

- 1 Reversed-Input Alarms (go to line 1.1)
 - Which alarms will be ground-activated or ground-released?
- 2 Alarm Levels (go to line 1.2)
 - Assign one of four levels to each alarm point.
- 3 Alarm Histories (go to line 1.3)
 - Start, stop, and reset history file.
- 4 Rate-Filtered Alarms (go to line 1.4)
 - Add/change/remove or modify rate-filtering.
- 5 Period-Filtered Alarms (go to line 1.5)
 - Add/change/remove or modify period (time)-filtering.
- 6 Set delay to 0.5 or 0.2 seconds (toggles)
- 7 Enable or Disable device status points (toggles)
- 0 Exit (go to line 0)

Line 1.1

Reversed Input Alarms

- 1 Reverse input for all alarms

CONFIGURATION

- 2 Reverse input for selected alarms (go to Line 1.1.2)
- 3 Normal input for all alarms
- 4 Normal input for selected alarms (go to Line 1.1.4)
- 0 Return to Alarm Menu (go to Line 1)
- Line 1.1.2 Reversed Input for Selected Alarms**
Enter selected alarms (1-64)
- Line 1.1.4 Normal Input for Selected Alarms**
Enter selected alarms (1-64)
- Line 1.2 Alarm Levels**
 - 1 Set selected alarms to level A (go to Line 1.2.1)
 - 2 Set selected alarms to level B (go to Line 1.2.2)
 - 3 Set selected alarms to level C (go to Line 1.2.3)
 - 4 Set selected alarms to level D (go to Line 1.2.4)
 - 5 Set selected alarms to no level
 - 0 Return to Alarm Menu (go to line 1)
- Line 1.2.1 Alarm Levels for Selected Alarms**
Enter selected alarms (1-64)
- Line 1.2.2 Alarm Levels for Selected Alarms**
Enter selected alarms (1-64)
- Line 1.2.3 Alarm Levels for Selected Alarms**
Enter selected alarms (1-64)
- Line 1.2.4 Alarm Levels for Selected Alarms**
Enter selected alarms (1-64)
- Line 1.3 Alarm Histories**
 - 1 Reset all histories
 - 2 Reset history on selected alarm (go to Line 1.3.2)
 - 3 Stop tracking history on all alarms
 - 4 Stop tracking history on selected alarm (go to Line 1.3.4)
 - 5 Begin tracking history on selected alarm (go to Line 1.3.5)
 - 0 Return to Alarm Menu (go to Line 1)
- Line 1.3.2 Reset Alarm History on Selected Alarm**
Enter selected alarm (1-64)
- Line 1.3.4 Stop Tracking on Selected Alarm**
Enter selected alarm (1-64)
- Line 1.3.5 Begin Tracking on Selected Alarm**
Enter selected alarm (1-64)

CONTINUED . . .

CONFIGURATION

Line 1.4 Rate-Filtered Alarms

- 1 Remove filter from all alarms
- 2 Remove filter from selected alarm (go to Line 1.4.2)
- 3 Add/Change filter on selected alarm (go to Line 1.4.3)
- 0 Return to Alarm Menu (go to Line 1)

Line 1.4.2 Remove Rate-Filtered from Selected Alarms

Enter selected alarm (1-8)

Line 1.4.2 Change Filter on Selected Alarms

Enter selected alarm (1-8)

1 Set period (go to Line 1.4.3.1)

2 Set time (go to Line 1.4.3.2)

0 Return to Rate Filter Menu (go to Line 1.4)

Line 1.4.3.1 Add/Change Alarm Filter

Enter period (1-16)

Line 1.4.3.2 Set Time

Enter time in seconds (1-60)

Line 1.5 Period-Filtered Alarms

- 1 Remove filter from all alarms
- 2 Remove filter from selected alarm (go to Line 1.5.2)
- 3 Add/Change filter on selected alarm (go to Line 1.5.3)
- 0 Return to Alarm Menu (go to line 1)

Line 1.5.2 Remove Filter from Selected Alarms

Enter Selected Alarm (9-16)

Line 1.5.3 Change Filter on Selected Alarms

Enter Selected Alarm (9-16)

Enter Period (1-16)

CONFIGURATION

ON-BOARD RELAY USAGE

Line 2 Alarm Level Relays

- 1 Select number of relays used for alarm levels (go to Line 2.1)
 - And how many will be used as control points.
- 2 Set timeout duration (go to Line 2.2)
 - How long will they remain active?
- 3 Enable or Disable timeout (toggles)
- 4 Enable or Disable new alarm interruption (toggles)
- 5 Enable or Disable hardware acknowledgement (toggles)
- 0 Return to Main Menu (go to Line 0)

Line 2.1 Number of Relays used for Alarm Levels

Enter number of relays (0-4)

Line 2.2 Relay Timeout

Enter timeout duration in seconds (1-900)

CONTROL POINT CONFIGURATION

Line 3 Control Point Time Periods

- 1 Toggles from momentary period of 0.3 seconds to momentary period of 3.0 seconds
- 0 Return to Main Menu (go to Line 0)

SYSTEM CONFIGURATION

Line 4 Adjust PointMaster Time and Date Settings

- 1 Enable or Disable expansion port LEDs (toggles)
- 2 Set time (go to Line 4.2)
 - System time.
- 3 Set date (go to Line 4.3)
 - System date.
- 4 Set password (go to Line 4.4)
- 0 Return to Main Menu (go to line 0)

Line 4.2 Set Time

Enter time (HH:MM:SS)

Line 4.3 Set Date

Enter date (MM-DD-YYYY)

CONTINUED . . .

CONFIGURATION

- Line 4.4 Set Password**
- Enter new password
 - Re-enter new password

CRAFT PORT CONFIGURATION

- Line 5 Craft Port Options**
- 1 Select protocol (go to Line 5.1)
 - 2 Change communication settings (go to Line 5.2)
 - Baud rate, parity, stop bits, RTS handshaking.
 - 3 Confirm changes
 - 0 Return to Main Menu (go to Line 0)
- Line 5.1 Craft Port Protocol**
- 1 DCP (go to Line 5.1.1)
 - 2 DCPF (go to Line 5.1.2)
 - 3 Printer Syntax
 - 0 Return to Port Menu (go to Line 5)
- Line 5.1.1 Use DCP Protocol on Craft Port**
- 1 Set starting address (go to Line 5.1.1.1)
 - 2 Enable alarm history reporting (toggles)
 - 0 Return to Port Menu (go to Line 5)
- Line 5.1.1.1 Craft Port DCP Address**
- Enter starting address (1-255)
- Line 5.1.2 Use DCPF Protocol on Craft Port**
- 1 Set address
 - 2 Enable or Disable alarm history reporting (toggles)
 - 0 Return to Port Menu (go to Line 5)
- Line 5.2 Craft Port Communication Parameters**
- 1 Set baud rate (go to Line 5.2.1)
 - 2 Set parity (go to Line 5.2.2)
 - 3 Set stop bits (go to Line 5.2.3)
 - 4 Edit handshaking (go to Line 5.2.4)
 - 0 Return to Port Menu (go to Line 5)

CONTINUED . . .

CONFIGURATION

IMPORTANT:

In those PointMasters equipped with 49413 Ethernet subassemblies, ensure that the communication parameters of the Craft Port and those of the 49413 port 10002 match.

Line 5.2.2

Line 5.2.1 Craft Port Baud Rate

- 1 Set baud rate to 19200
- 2 Set baud rate to 9600
- 3 Set baud rate to 4800
- 4 Set baud rate to 2400
- 5 Set baud rate to 1200
- 0 Return to Communication Settings Menu (go to Line 5.2)

Craft Port Parity

- 1 Set parity to Even
- 2 Set parity to Odd
- 3 Set parity to None
- 0 Return to Communication Settings Menu (go to Line 5.2)

Line 5.2.3

Craft Port Stop Bits

Enter number of stop bits (0-1)

Line 5.2.4

Craft Port Handshaking

- 1 Ignore or Require CTS (toggles)
- 2 Set RTS on continuously
- 3 Set RTS on before transmit
- 4 Disable RTS
- 0 Return to Communication Settings Menu (go to Line 5.2)

MASTER PORT CONFIGURATION

Line 6

Master Port Options

- 1 Select protocol (go to Line 6.1)
- 2 Change communication settings (go to Line 6.2)
 - Baud rate, parity, stop bits, RTS handshaking.
- 3 Confirm changes
- 0 Return to Main Menu (go to Line 0)

Line 6.1

Master Port Protocol

- 1 DCM (go to Line 6.1.1)
- 2 DCP (go to Line 6.1.2)
- 3 DCPF (go to Line 6.1.3)
- 4 TABS (go to Line 6.1.4)
- 5 TBOS (go to Line 6.1.5)
- 6 Printer Syntax (go to Line 6.1.8)
- 0 Return to Port Menu (go to Line 6)

CONTINUED . . .

CONFIGURATION

Line 6.1.1 Use DCM Protocol on Master Port

- 1 Set starting address (go to Line 6.1.1.1)
- 0 Return to Port Menu (go to Line 6)

Line 6.1.1.1 Master Port DCM Address

Enter starting address (1-125)

Line 6.1.2 Use DCP Protocol on Master Port

- 1 Set address (go to Line 6.1.2.1)
- 2 Enable or Disable alarm history reporting (toggles)
- 0 Return to Port Menu (go to Line 6)

Line 6.1.2.1 Master Port DCP Address

Enter starting address (1-255)

Line 6.1.3 Use DCPF on Master Port

- 1 Set address (go to Line 6.1.3.1)
- 2 Enable or Disable alarm history reporting (toggles)
- 0 Return to Port Menu (go to Line 0)

Line 6.1.3.1 Master Port DCPF Address

Enter starting address (1-255)

Line 6.1.4 Use TABS on Master Port

- 1 Set address
- 0 Return to Port Menu (go to Line 0)

Line 6.1.5 Use TBOS on Master Port

- 1 Set starting display (go to Line 6.1.5.1)
- 2 Set dummy displays (go to Line 6.1.5.2)
- 0 Return to Port Menu (go to Line 0)

Line 6.1.5.1 Starting TBOS Display

Enter starting display (1-8)

Line 6.1.5.2 Dummy TBOS Displays

Enter dummy displays (1-8)

Line 6.2 Master Port Communication Parameters

- 1 Set baud rate (go to Line 6.2.1)
- 2 Set parity (go to Line 6.2.2)
- 3 Set stop bits (go to Line 6.2.3)
- 4 Edit handshaking (go to 6.2.4)
- 0 Return to Port Menu (go to Line 6)

IMPORTANT:

In those PointMasters equipped with 49413 Ethernet subassemblies, ensure that the communication parameters of the Master Port and those of the 49413 port 10001 match.

NEW NOTE

CONTINUED . . .

CONFIGURATION

Line 6.2.1

Master Port Baud Rate

- 1 Set baud rate to 19200
- 2 Set baud rate to 9600
- 3 Set baud rate to 4800
- 4 Set baud rate to 2400
- 5 Set baud rate to 1200

0 Return to Communication Settings Menu (go to Line 6.2)

NOTE:

If the Master Port is equipped with a 49313 Tone Modem Subassembly, the baud rate must be set for 1200 baud.

Line 6.2.2

Master Port Parity

- 1 Set parity to Even
- 2 Set parity to Odd
- 3 Set parity to None

0 Return to Communication Settings Menu (go to Line 6.2)

Line 6.2.3

Master Port Stop Bits

Enter number of stop bits (1-2)

Line 6.2.4

Master Port Handshaking

- 1 Ignore or Require CTS (toggles)
- 2 Set RTS on continuously
- 3 Set RTS on before transmit
- 4 Disable RTS

0 Return to Communication Settings Menu (go to Line 6.2)

Line 7

Session Settings

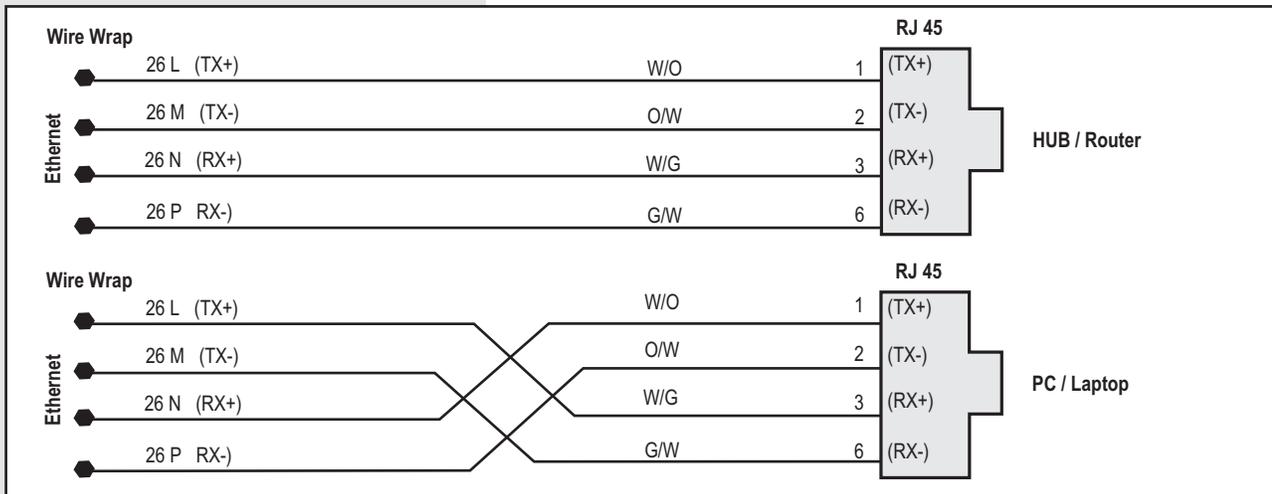
- 1 Enable log (toggles)
- 2 Enable bell (toggles)
- 3 Disable linefeed (toggles)
- 4 Use MAT terminology (toggles)
- 0 Return to Main Menu (toggles)

CONFIGURATION

CONFIGURATION OF ETHERNET SUBASSEMBLY

The Ethernet port of the subassembly is accessed for configuration either from a 4-wire connection directly from an ethernet port of a PC or through the ethernet port of a hub or router. Refer to Fig. 17.

FIG. 17 - TCP/IP CABLE CONNECTIONS



PART #1 - NETWORK CONFIGURATION

If the unit to be configured is new and has no assigned IP address, skip to step B. If the unit has an existing IP address, continue below.

A: UNIT WITH EXISTING ETHERNET ADDRESS

To configure the Ethernet Subassembly that already has an assigned IP address over the network, a Telnet connection to port 9999 (configuration port number) must be established. Under Windows 95/98/NT, open an MS-DOS command window and type the command "**telnet X.X.X.X 9999**", where X.X.X.X is the IP address already configured in the Ethernet Subassembly and 9999 is the desired TCP/IP port and hit **Enter**. (Make sure there is a space between X.X.X.X and 9999.)

Verify the following message (texts) from the Ethernet Subassembly:

```
*** Serial Number  
XXXXXX-XX Software Version VXX-XX (XXXXXX).
```

CONTINUED . . .

CONFIGURATION

Press Enter to go to Setup Mode. Verify the configuration menu below appears on screen.

When the setup mode is entered the following parameter screen will appear based upon the entries that have been previously entered.

```
*** basic parameters
Hardware: Ethernet Autodetect
IP addr 126.001.073.003, no gateway set, netmask 255.255.000.000

***** Channel 1 *****
Baudrate 09600, I/F Mode 4C, Flow 00
Port 10001
Remote IP Adr: - none -, Port 00000
Connect Mode: C0  Disconn Mode: 00
Flush  Mode: 00

***** Channel 2 *****
Baudrate 09600, I/F Mode 4C, Flow 00
Port 10002
Remote IP Adr: 126.001.073.001, Port 04033
Connect Mode: C0  Disconn Mode: 00
Flush  Mode: 00

Change Setup  : 0 Server configuration
                1 Channel 1 configuration
                2 Channel 2 configuration
                7 Factory defaults
                8 Exit without save
                9 Save and exit                      Your choice ?
```

Proceed to the Configuration Parameters setting in Part 2.

B: NEW UNIT (UNIT WITH NO IP ADDRESS ASSIGNED)

Before proceeding with the following commands, identify an available or unused IP address (X.X.X.X) of the network and the hardware ethernet (MAC) address (12 digits or xx-xx-xx-xx-xx-xx) of the Ethernet Subassembly (usually labeled on the unit itself or on the inside cover of the PointMaster). Do not use a IP address that is already been assigned to another device or PC.

1. To configure a new Ethernet Subassembly that has no assigned IP address, under Windows 95/98/NT, open an MS-DOS command window and type the followings commands:
2. Type "ARP -S X.X.X.X xx-xx-xx-xx-xx-xx" (ARP -S IP address and hardware address) and hit Enter. Make sure there are spaces between ARP, the -S, the X.X.X.X and the xx-xx-xx-xx-xx-xx. For example: ARP -S 126.1.73.3 00-20-54-4A-03-D7

CONTINUED . . .

CONFIGURATION

IMPORTANT: *In order for the ARP command to work in Windows, the ARP table on the PC must have at least one IP address defined other than its own. Type "ARP -A" at the DOS command prompt to verify that there is at least one entry in the ARP table. If there is no other entry beside the local machine, PING another TCP/IP machine on your network to build the ARP table.*

3. Type "Telnet X.X.X.X 1" (for example: Telnet 126.1.73.3 1) and hit enter. This command will open a Telnet connection to port number 1, but the connection will show as failed.
4. Type "Telnet X.X.X.X 9999" (for example: Telnet 126.1.73.3 9999) and hit Enter. This command will open a Telnet connection to the configuration port 9999.
5. Verify the following message (texts) from the Ethernet Subassembly:

```
*** Serial Number
XXXXX-XX Software Version VXX-XX (XXXXXX).
```

6. Press Enter to go to Setup Mode. Verify the configuration menu below appears on screen.

When the setup mode is entered the following parameter screen will appear based upon the entries that have been previously entered.

```
*** basic parameters
Hardware: Ethernet Autodetect
IP addr 126.001.073.003, no gateway set, netmask 255.255.000.000

***** Channel 1 *****
Baudrate 09600, I/F Mode 4C, Flow 00
Port 10001
Remote IP Adr: - none -, Port 00000
Connect Mode: C0  Disconn Mode: 00
Flush  Mode: 00

***** Channel 2 *****
Baudrate 09600, I/F Mode 4C, Flow 00
Port 10002
Remote IP Adr: 126.001.073.001, Port 04033
Connect Mode: C0  Disconn Mode: 00
Flush  Mode: 00
```

SCREEN CONTINUED ON NEXT PAGE. . .

CONFIGURATION

```
Change Setup : 0 Server configuration
               1 Channel 1 configuration
               2 Channel 2 configuration
               7 Factory defaults
               8 Exit without save
               9 Save and exit                Your choice ?
```

Proceed to the Configuration Parameters setting in Part 2.

PART #2 - CONFIGURATION PARAMETERS

After the configuration mode is entered (confirmed with <ENTER>), verify that the parameters menu appears on the terminal as above. The parameters must be stored or saved before exiting, otherwise they will be lost (no IP address), and you may have to repeat Part 1 above.

Ethernet Port Configuration

To configure the Ethernet port, select "0" and press Enter.

For this example, assume an address of 126.1.73.1 has been entered previously with no gateway address and a netmask of 255.0.0.0 and these are to be changed to an address of 126.1.73.3 with no gateway address and a netmask of 255.255.0.0.

Enter the IP address for the device. The configuration line will read:

IP Address : (126)

Press Enter as there is no change for the 126-address portion. The configuration line will now say:

IP Address :(126) .(001)

Hit Enter as there is no change for the .001 part of the address. The configuration line will now say:

IP Address :(126) .(001) .(073)

Hit Enter as there is no change for the .073 portion of the address. The configuration line will now say:

IP Address :(126) (001) .(073) .(001)

You would now enter 003. The configuration line would now say:

IP Address :(126) (001) .(073) .(001) 003

Hit Enter key and the configuration line will now say:

Set Gateway IP address (N)

Hit Enter. The configuration line will now say:

Set Gateway IP address (N) N

Hit Enter. The configuration line will now say:

CONTINUED . . .

CONFIGURATION

Netmask: Number of Bits for Host Part (0=default) (24)

Enter the number 16 and the configuration line will say:

Netmask: Number of Bits for Host Part (0=default) (24)
16

Hit Enter. The new configuration line will say:

Change Telnet config password (N)

Hit enter and the configuration screen will show the basic parameter screen as shown above.

NOTE: *If Channel 1 and 2 have been defined differently they will display differently on the basic parameter screen for the above example configuration example screen.*

The Gateway IP address is optional (normally set to N). The standard Netmask bits are set as followings:

24 = 255.0.0.0

16 = 255.255.0.0

8 = 255.255.255.0

And Telnet Configuration Password is normally set to "N".

Serial Port Configuration

To configure Serial port 1, select "1" and press Enter. The configuration screen will say:

Baudrate (09600)

The unit defaults to 9600 baud. If this is correct, press Enter. If a different baudrate is desired, enter the baudrate and hit Enter. The configuration line will now say:

I/F Mode (4C) ?

The default is set for 1 stop bit, no parity, 8 bit word, RS-232.

In this case there are no RS-232 server ports. They are TTL but they function in the same way as an RS-232 port as far as flow control.

Set the I/F Mode per the Table F (default is 4C) and hit Enter. The configuration line now says:

Flow (00) ?

Flow Control per Table G (default is 00), or no flow control. Hit Enter. The configuration line now says:

Port No (10001) ?

The Port Number defaults to 10001. Press Enter to accept this or change the port number and hit Enter. This setting is the source port number in TCP connections and is the number used to identify the channel for remote initiating connections.

CONFIGURATION

Port numbers range from 1 to 65535 (0 to 1023 are reserved for UNIX). It is advisable to use port numbers in range 2000 to 30000 to avoid potential conflicts. Do not use port numbers 0 or 9999.

The configuration line will now say:

ConnectMode (C0) ?

This is the default connect mode and it is set for Connection Acceptance accept unconditional (if not busy) and Active Connection Startup no active connection startup. Connection Mode per Table H (default is C0). Hit Enter and the configuration line will say:

Remote IP Address : (000)

Enter Remote IP address (default to 0.0.0.0) and Remote Port (default to 0000) where the PointMaster is responded to. Hit Enter four times. The configuration line will now say:

Remote Port (00000) ?

If the device that the port is talking to is a server port you would put in the remote port number, in this case it is not defined. Hit Enter, the configuration line will say:

DisConnMode (00) ?

Disconnect Mode (default to 00) as:

80 : Disconnect with DTR drop

00 : Ignore DTR

Hit Enter, the configuration line will now say:

FlushMode (00) ?

FlushMode per Table I (default is 00). Hit Enter. The configuration line will now say:

DisConnTime (00:00) ?

Disconnect Time per table J (default to 00). Hit Enter, configuration line will now say:

SendChar 1 (00) ?

Hit Enter, configuration line will now say:

SendChar 2 (00) ?

00 is the default of no trailing second characters. Hit Enter. The basic parameter screen will now be displayed. Verify that the configurations are correct. If the second channel is used, select 2 under the change setup and define it the same way as channel 1.

When the parameters are correct, press "9" and hit Enter to save and exit.

Proceed to Part 3 for PointMaster and Ethernet Subassembly communication checks.

CONFIGURATION

TABLE F - I/F MODE

FUNCTION	7	6	5	4	3	2	1	0
RS-232							0	0
RS-422/485							1	1
RS-485 2-Wire							1	1
7-Bit					1	0		
8-Bit					1	1		
No Parity			0	0				
Odd Parity			1	0				
Even Parity			1	1				
1 Stop Bit	0	1						
2 Stop Bits	1	1						
Default Setting=4C	0	1	0	0	1	1	0	0

TABLE G - FLOW CONTROL

BITS	DESCRIPTION
00 *	No Flow Control
01	XON/XOFF Flow Control in Both Directions
02	Hardware Handshaking with RTS/CTS Lines
05	XON/XOFF, Pass Characters to Host
* Default	

TABLE H - CONNECTION MODE

FUNCTION	7	6	5	4	3	2	1	0
Connection Acceptance								
Never accept incoming	0	0	0					
Accept incoming with active DTE only	0	1	0					
Accept unconditional if not busy	1	1	0					
Response on Serial to Connect								
Nothing (quiet)				0				
Character response C=Connect,D=Disconnect,N=Not available/unreachable				1				
Active Connection Startup								
No active connection startup					0	0	0	0
Start connection with any character on serial line					0	0	0	1
Start connection with active-going DTR line					0	0	1	0
Start connection with CR only					0	0	1	1
Manual connection start-up					0	1	0	0
Datagram Mode					1	1	0	0
Modem Emulation Mode					0	1	1	0
Default Setting=C0	1	1	0	0	0	0	0	0

CONFIGURATION

TABLE I - BUFFER FLUSHING MODE

FUNCTION	7	6	5	4	3	2	1	0
Clear Input Buffer (line to network) with active connection with passive connection at time of disconnect			1	1				
Clear Output Buffer (network to line) with active connection with passive connection at time of disconnect						1	1	1
Alternate Packaging Algorithm	1							
Default Setting=00	0	0	0	0	0	0	0	0

TABLE J - DISCONNECT TIME

FUNCTION	7	6	5	4	3	2	1	0
Idle time to force transmit: 12ms							0	0
Idle time to force transmit: 52ms							0	1
Idle time to force transmit: 250ms							1	0
Idle time to force transmit: 5ms							1	1
No trailing characters after send characters					0	0		
One trailing character after send characters					0	1		
Two trailing characters after send characters					1	0		
Send characters define 2-byte sequence				1				
Send immediate after send character			1					
Default Setting								

PART #3 - POINTMASTER & ETHERNET SUBASSEMBLY COMMUNICATION CHECK

To verify the communication between the master port of the PointMaster and serial port of the Ethernet Subassembly, a Telnet connection to the serial port number must be established. For example, if the IP address of the Ethernet Subassembly is 126.1.73.3 and the serial port number is 10001, type the command **"TELNET 126.1.73.3 10001"**. This will open a Telnet window.

To connect to the master port of the PointMaster if the protocol is set to either DCP or DCPF you need to hold down the **"SHIFT"** key and hit the **exclamation** key 3 times or **"!!!"**. Verify that a greater prompt (>) appears on screen. To exit or switch to the original mode or protocol, type the command **"TIMEOUT 0"**.

CONTINUED . . .

CONFIGURATION

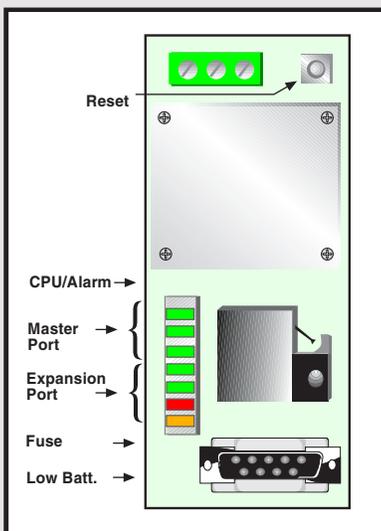
NOTE: *If problems are experienced connecting to the PointMaster, make sure to check the parameters setting on the Master Port first. The parameters setting on the PointMaster's Master Port must be the same as the Ethernet Subassembly.*

Where the Craft Port is used as TCP/IP, this applies also. The parameters setting on the PointMaster's Craft Port must be the same as the Ethernet Subassembly.

CHECKOUT

1. Apply power to the PointMaster.
The CPU/Alarm LED lights. The MSTR and EXP LEDs indicate if the master or expansion ports are transmitting or receiving data. Refer to Fig. 18.

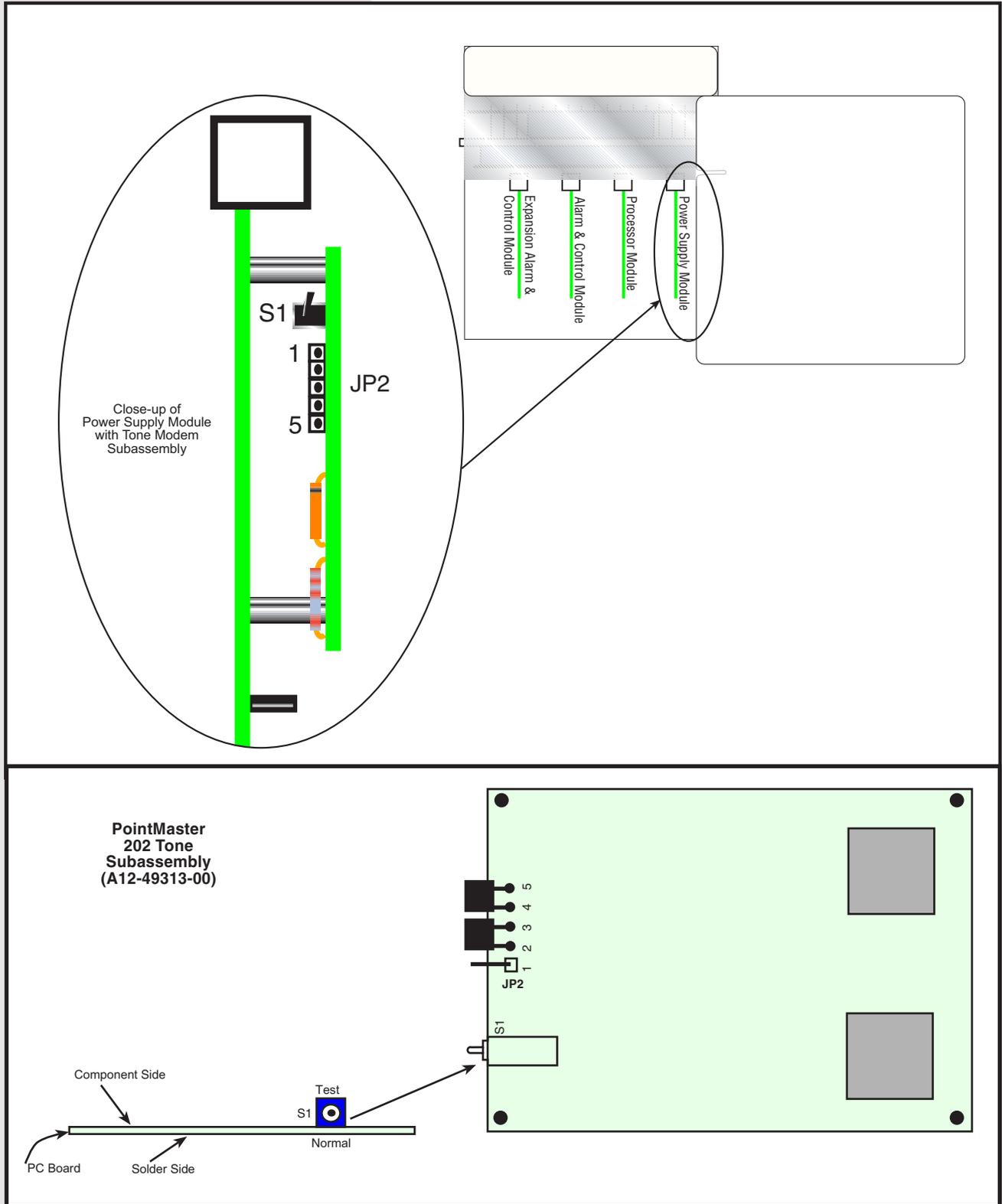
FIG. 18 - FRONT PANEL LEDs



2. If the PointMaster has a 202 Modem subassembly, adjust the transmit level. The modem must be connected to another modem at the other end of the communications Line.
Open the PointMaster and locate the subassembly on the power supply board.
Place S1 in the TEST position (refer to Fig. 19). When the switch is placed in the TEST position, it activates the carrier detect of the opposing (distant end) modem and allows adjustment of the transmit level without the presence of data.
Connect a 600-ohm dB meter (bridging) to pins L and M (XMT) of column 26 of the wire-wrap module.
On the front panel, adjust the transmit level using R8. The amount of adjustment depends on the strapping of X1.
Place S1 in the NORM position (refer to Fig. 19).
Remove the dB meter.
3. Generate one or more alarms and verify that they are reported correctly to the alarm reporting equipment.
4. Clear the alarms and verify that they are reported correctly to the alarm reporting equipment.
5. If the unit has controls, operate the controls and verify that they work properly.
6. Checkout complete.

CONFIGURATION

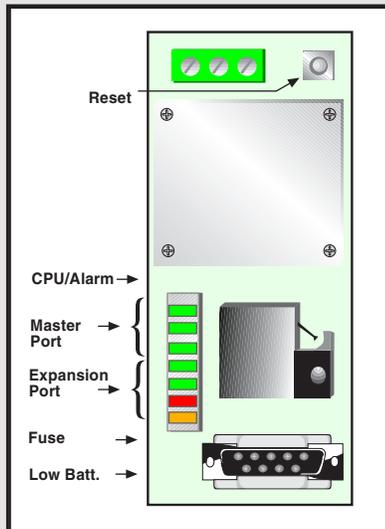
FIG. 19 - 202 MODEM SUBASSEMBLY COMPONENT LOCATION



OPERATION

The PointMaster, once configured and operating correctly, requires little to no attention. Operating status is obtained by observing the front panel LEDs. Refer to Fig. 20.

FIG. 20 - POINTMASTER FRONT PANEL



NOTE:

On power-up, the PointMaster executes an internal diagnostic check of its system. This self-diagnostic takes approximately 1 minute.

CPU/Alarm

This is a bi-color LED that can exhibit four states.

- ◆ **Solid Green:** Indicates normal CPU operation.
- ◆ **Flashing Green:** Indicates a soft reset is taking place. A soft reset restarts the CPU but does not erase the configuration.
- ◆ **Flashing Green (turning to red):** Indicates a hard reset. A hard reset restarts the CPU and erases and configurations, returning the PointMaster module to its default state (and a solid green LED.)
- ◆ **Flashing Green:** Indicates a CPU failure.
- ◆ **Solid Red:** Indicates a valid alarm point.

TXD Mstr

Flashes green with data present on transmit side of Master port.

RXD Mstr

Flashes green with data present on receive side of Master port.

TXD Exp

Flashes green with data present on transmit side of Expansion port.

RXD Exp

Flashes green with data present on receive side of Expansion port.

Fuse

Lights to indicate a blown fuse.

Low Batt

Indicates a low on-board battery voltage.

RESET SWITCH

- ◆ Press for 1 second for a “soft” reset. Unit will retain database configuration and will not read switches or look for new sub-assemblies.
- ◆ Press for 8 seconds for a “hard” reset. Any database configuration will be cleared, switches re-read, and new boards identified.

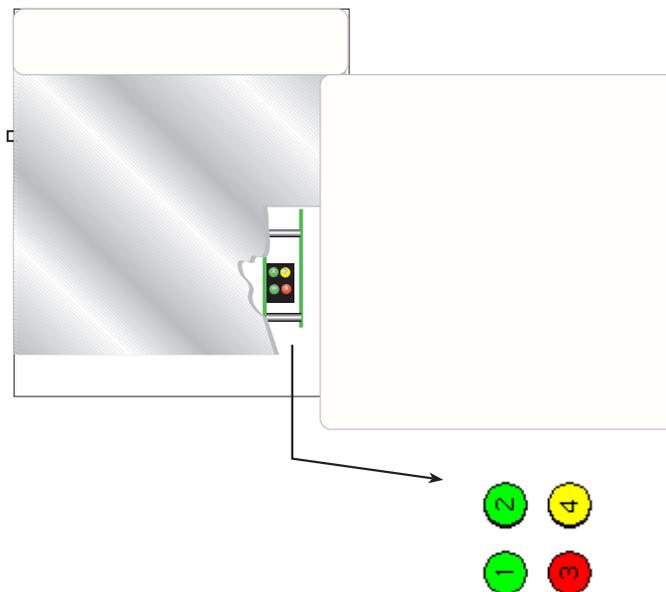
OPERATION

ETHERNET SUBASSEMBLY MICRO LED'S

There are four LED's on the Ethernet subassembly. Note that they are only visible when the PointMaster is powered up and open. Refer to Fig. 21.

FIG. 21 - ETHERNET SUBASSEMBLY MICRO LED'S

LED #1 (GREEN)
Serial port #1 Solid = Channel idle; no connection Blinking = 1 second cycle; connected over network
LED #4 (YELLOW)
Serial port #2 Solid = Channel idle; no connection Blinking = 1 second cycle; connected over network
LED #2 (GREEN)
"Link"; On when valid network connection in present.
LED #3 (RED)
Error & Diagnostics. If on or blinking, green will give a diagnostic code as follows: Red and green LED's both blinking 4X: Faulty network connection 5X: No DHCP response received Red LED on solid, green LED blinking 1X: EPROM checksum error 2X: RAM error 3X: Network controller error 4X: EEPROM checksum error 5X: Duplicate IP address on the network



PRINTER SYNTAX

ENTERING COMMANDS

After each command, press Enter to execute the command.

Some standard ASCII terminals (or computers operating as terminals) have function keys that can be programmed to do frequently used keystroke sequences in a single stroke. Refer to the terminal's user manual for instructions on how to program the function keys.

ERROR MESSAGES

Two error messages may appear on the terminal screen:

MESSAGE	MEANING	ACTION
COMMAND ERROR	Command not understood	Enter the command correctly
SYNTAX ERROR	Entry doesn't follow the rules of syntax	Enter the command correctly

EDITING

The following table shows how to do some common editing tasks. The term **Ctrl** refers to the Control key on the terminal keyboard.

TASK	KEYSTROKES
Stop output (Stop data flow from the processor)	Hold down Ctrl and press D
Backspace	Press backspace key - or - Hold down Ctrl and press H
Recall previous line (Use to edit command after receiving an error message)	Hold down Ctrl and press K (Recalls contents of last line typed)
Recall current line (Use when interrupted by a system status message)	Hold down Ctrl and press R (Recalls contents of current line)
Pause output (Interrupt data flow from the processor)	Hold down Ctrl and press S (Hold down Ctrl and press Q to restart)
Re-execute last command	Hold down Ctrl and press X

PRINTER SYNTAX

OUTPUT MESSAGES

Whenever there is a change of status of an alarm point or a change in the status of a device, and the logging feature is on, a report will be issued.

Example:

```
>01-JAN-2000 18:30:08, Alarm Failed, Disp 3, Point 7, Level A
```

When the point returns to normal operation, another report will be issued and the FAIL will change to NORM.

Example:

```
>01-JAN-2000 18:31:22, Alarm Cleared, Disp 3, Point 7, Level A
```

A report also will be issued if one of the alarm status input modules inside the PointMaster is removed or disconnected.

Example:

```
>Device Offline, SG 8
```

The example above shows a failure of alarms 113 through 128 (subgroup 8). When the subgroup returns to operation, another report will be issued showing the subgroup on line.

Example:

```
>Device Online, SG 2
```

INPUT COMMANDS

Alarm inputs are divided into subgroups of 16 alarm points each. When referring to alarms, the term "MAT" or the term "SG" (for SubGroup) may be used. They both refer to the same thing: a group of alarm inputs (refer to Table E). The MAT is a Multiple Alarm Transmitter module, which is not part of the PointMaster. The commands that are used for the MAT, however, also work with the PointMaster.

PRINTER SYNTAX

Control points also are divided into subgroups of 16 points each (the same as alarm subgroups 1-2 in Table J). The dumb terminal uses the term "CPM" when referring to control points. The CPM is a Control Point Module, which is not part of the PointMaster. But the commands for the CPM also work with the PointMaster. The PointMaster has two control subgroups maximum.

TABLE J - ALARM POINTS WITHIN SUBGROUPS

ALARM POINT NUMBERS	SUBGROUP NUMBER	ALARM POINT NUMBERS	SUBGROUP NUMBER
1 through 16	1	129 through 144	9
17 through 32	2	145 through 160	10
33 through 48	3	161 through 176	11
49 through 64	4	177 through 192	12
65 through 80	5	193 through 208	13
81 through 96	6	209 through 224	14
97 through 112	7	225 through 240	15
113 through 128	8	241 through 256	16

NOTE: *Some input commands require multiple points be entered (for example, ACK SG#.) These points must be in the form of a set of points, seperated only by commas, with the order being unimportant.*

3 means point 3
5-8,3 means points 3,5-8
7-,2,4 means points 2,4,7,....
11-,-6,8-9 means points 1-6,8,9,11,...

PRINTER SYNTAX

ACKNOWLEDGE

Purpose:

Acknowledges alarms, alarm level relays, and control points.

Format:

ACK ALL
ACK SG#
ACK LEVELS
ACK CPM #

Remarks:

The command ACK ALL acknowledges all alarms and control points at the PointMaster.

The command ACK SG # applies only to the alarm subgroup(s) specified.

The command ACK CPM # applies only to the control point subgroup (s) specified.

can be a range of subgroups from 1 through 16 or the word ALL. Here are examples:

CPM 2 Control subgroup 2 (control points 17-32)
SG -10 Alarm subgroups 1-10 (alarm points 1-160)
SG 10- Alarm subgroups 10-16
SG 5-10 Alarm subgroups 5-10
SG ALL All alarms

Input Examples:

```
>ACK ALL
```

```
>ACK SG 10
```

The first example would acknowledge all alarms. The second example would acknowledge all alarms in subgroup 10 (alarms 145 through 160).

CONTINUED . . .

PRINTER SYNTAX

Output Responses:

The response will indicate the item acknowledged. If the command entered was ACK ALL, the response will show the following:

```
>Alarms acknowledged.  
Controls acknowledged.  
Alarm level relays acknowledged.
```

BELL

Purpose:

Reports if the terminal bell is on or off. Turns bell on or off. When bell is on, it sounds with all three types of output messages: alarms, controls, and devices.

Format:

```
BELL  
BELL ON  
BELL OFF
```

Remarks:

The command BELL shows if the bell is on or off. The other commands turn the bell on or off and report their state.

Output Response:

```
>BELL ON
```

CHANGE PROTOCOL

Purpose:

Changes the protocol of the port being used to enter the command to DCPF.

Format:

```
CHG-PROTCL;;;;
```

CONTINUED . . .

PRINTER SYNTAX

Remarks

In those cases where the Craft port has been configured for DCPF, placing it in Printer syntax (by entering "!!!") is only temporary. The port will return to DCPF at the end of the timer period specified by the TIMEOUT command.

Entering CHG-PROTCL:::; will return the port to DCPF immediately.

Output Response

Because the protocol has been changed to DCPF, there is no output.

CONFIGURATION

Purpose:

Reports the communication parameters of the Master and Craft Ports.

Format:

CON
CONFIG
CONFIGURATION

Remarks

This command simply reports, for the Master and Craft Ports, the protocol selected, address (if applicable), baud rate, parity, stop bits, and handshaking.

Example Output Response

```
>Master Port:
DCM, Starting Address 13
Level (option) report is disabled.
9600 baud, 8 data bits, even parity, one stop bit
CTS-Ignored, RTS-Always on

Craft Port:
Printer Syntax, Starting Address 1
9600 baud, 8 data bits, no parity, one stop bit
CTS-Ignored, RTS-Always on
```

PRINTER SYNTAX

CPM POINT CLEAR

NOTE:

CPM POINT CLEAR is the same as CPM POINT DLOF.

Purpose:

Resets a control point.

Format:

CPM # CLEAR point number

Remarks:

can be a range of subgroups from 1 through 2 or the word ALL. Here are examples:

CPM 1 Control subgroup 1 (control points 1-16)

CPM 2 Control subgroup 2 (control points 17-32)

Point number can be a single number from 1 through 16.

Input Example:

```
>CPM 2 CLR 5
```

Output Response:

```
>CPM 2 POINT 5 RELEASE
```

This example would reset control point 21 (point 5 in subgroup 2).

CPM POINT DIRECT OPERATE

Purpose:

Momentarily turns control points on or off. Also latches control points on and resets latched points.

Format:

CPM # DLON point number(s)

CPM # DLOF point number(s)

CPM # DMON point number(s)

CPM # DMOF point number(s)

CONTINUED . . .

PRINTER SYNTAX

NOTE:

The duration of the momentary commands is either 0.3 seconds or 3.0 seconds, as set by the PERIOD command.

Remarks:

This group of commands overrides momentary/latching settings of switch S3.

can be subgroup 1 or 2, or the word ALL. Here are examples:

CPM 1 Control subgroup 1 (control points 1-16)

CPM 2 Control subgroup 2 (control points 17-32)

CPM ALL All control subgroups

List point numbers individually with a comma between them, or as a group with a hyphen between them, or use the word ALL; range can be from 1 through 16.

The DLON command latches control points on. The DLOF command resets the latched points.

The DMON command operates control points for three seconds.

The DMOF command turns latched control points off for three seconds, then back on.

Input Example:

```
>CPM 2 DLON 1,3,5
```

Output Response:

```
>CPM 2 POINT 1 OPERATE
CPM 2 POINT 3 OPERATE
CPM 2 POINT 5 OPERATE
```

This example would latch on control points 17, 19 and 21 (points 1, 3, and 5 of subgroup 2).

CPM POINT PROVISIONING

See PROVISIONING command

CPM POINT RELEASE**Purpose:**

Resets control points.

CONTINUED . . .

PRINTER SYNTAX

NOTE:

CPM POINT RELEASE is the same as CPM POINT DLOF.

Format:

CPM # RLS point number(s)

Remarks:

can be subgroup 1 or 2, or the word ALL. Here are examples:

CPM 1 Control subgroup 1 (control points 1-16)

CPM 2 Control subgroup 2 (control points 17-32)

CPM ALL All control subgroups

List point numbers individually with a comma between them, or as a group with a hyphen between them, or use the word ALL; range can be from 1 through 16.

Input Example:

```
>CPM 2 RLS 3,5
```

Output Response:

```
>CPM 2 POINT 3 RELEASE  
CPM 2 POINT 5 RELEASE
```

This example would release control points 19 and 21 (points 3 and 5 of subgroup 2).

CPM POINT RESET

Purpose:

Resets operated control points.

Format:

CPM # RESET

CPM # RST

Remarks:

can be a range of subgroups from 1 through 2 or the word ALL. Here are examples:

CPM 1 Control subgroup 1 (control points 1-16)

CPM 2 Control subgroup 2 (control points 17-32)

CPM ALL All control subgroups

NOTE:

CPM POINT RESET is the same as CPM POINT DLOF.

CONTINUED . . .

PRINTER SYNTAX

Input Example:

```
>CPM 1 RST
```

Output Response:

```
>CPM 1 POINT 1 RELEASE  
CPM 1 POINT 2 RELEASE
```

CPM POINT SELECT OPERATE

Purpose:

Momentarily turns control points on or off. Also latches control points on and resets latched points.

Format:

The following commands prepare the control points for operation:

CPM # SLON point number(s)

CPM # SLOF point number(s)

CPM # SMON point number(s)

CPM # SMOF point number(s)

The following command executes the above commands:

CPM # EXE (or EXCC)

Remarks:

can be subgroup 1 or 2, or the word ALL. Here are examples:

CPM 1 Control subgroup 1 (control points 1-16)

CPM 2 Control subgroup 2 (control points 17-32)

CPM ALL All control subgroups

List point numbers individually with a comma between them, or as a group with a hyphen between them, or use the word ALL; range can be from 1 through 16.

The SLON command prepares control points for latching. The SLOF command prepares the latched points for resetting.

The SMON command prepares control points for operating for three seconds.

CONTINUED . . .

PRINTER SYNTAX

The SMOF command prepares to turn latched control points off for three seconds, then back on.

Input Example:

```
>CPM 2 SLON 1,3,5
>CPM 2 EXE
```

Output Response:

```
>CPM 2 POINT 1 OPERATE
CPM 2 POINT 3 OPERATE
CPM 2 POINT 5 OPERATE
```

This example would latch on control points 17, 19 and 21 (points 1, 3, and 5 of subgroup 2).

CPM POINT SYSTEM

See SYSTEM command.

DELAY

Purpose:

When an alarm occurs, there is a delay before the PointMaster will recognize the alarm to filter out spurious alarms. The delay can be set for either 200 or 500 milliseconds.

Format:

```
DELAY
DELAY 200
DELAY 500
```

Remarks:

The command DELAY shows whether the delay is set for 200 or 500 milliseconds. The other commands set the delay time period.

Input Example:

```
>DELAY 500
```

CONTINUED . . .

PRINTER SYNTAX

This example would set a 500-millisecond delay before recognizing alarms.

Output Response:

DELAY reports the current setting. DELAY 200 or 500 changes the setting and reports that change.

DIAGNOSTIC

Purpose:

Causes the PointMaster to enter a diagnostic state for troubleshooting.

Format:

DIAGNOSTIC

Remarks:

This command causes the system to reboot, reconfigures the Craft port to its default communications parameters, and presents a menu of diagnostic tests.

WARNING: *Entering the diagnostic state will result in a loss of configuration data. Due to the severity of this action, it requires you to type it in twice in succession.*

Input Example:

```
>Diagnostic
```

Output Response:

```
The diagnostic test may destroy all configuration data on the module.  
To confirm, enter the DIAGNOSTIC command again.
```

Entering DIAGNOSTIC again results in a menu of diagnostic tests on the Craft port.

PRINTER SYNTAX

DISPLAY

Purpose:

Displays the status of alarms as stored in the PointMaster's memory.

Format:

DISP #

DISPLAY #

Remarks:

can be a range of memory displays from 1 through 128 or the word ALL. The number can be a single number or a range of numbers. A display consists of eight characters of eight points each for a total of 64 points. Two characters, or 16 points, equals one subgroup of alarms.

Input Example:

```
>DISPLAY 1
```

Output Response:

```
> DISP 1
DISP 1.1 . . FB. . . . .
DISP 1.2 NA. . F . . . .
DISP 1.3 . . . . . . . .
DISP 1.4 . . . . . . . .
DISP 1.5 . . . . . . . .
DISP 1.6 . . . . . . . .
DISP 1.7 . . . . . . . .
DISP 1.8 . . . . . . . .
```

In the example above, display 1.1 has an unacknowledged B-level alarm failure (F). Display 1.2 has an unacknowledged A-level alarm that has returned to normal (N) operation; it also has an acknowledged alarm failure (F) that still exists.

NOTE: *The same reporting is used for both alarms and control points. To determine if displays are for alarms or control points, see the PROVISIONING command, which lists the memory displays where alarm and control point information is stored.*

PRINTER SYNTAX

HISTORY

Purpose:

Reports the count and timestamp for all history points.

Format:

HISTORY

Remarks:

Output Response:

```
> Alarm 37 -      4302  fails since 01-JAN-2000 18:34:00
  Alarm 38 -         22  fails since 01-JAN-2000 18:34:00
  Alarm 39 -     11012  fails since 01-JAN-2000 18:34:00
  Alarm 40 -         0   fails since 01-JAN-2000 18:34:00
  Alarm  4 -         33  fails since 22-MAR-2000 03:18:27
  Alarm  5 -         571  fails since 22-MAR-2000 03:18:27
```

or

```
> No alarm histories.
```

LINEFEED

Purpose:

Reports if the linefeed is on or off. Turns the linefeed on or off.

Format:

LINEFEED
LINEFEED ON
LINEFEED OFF

Remarks:

The command LINEFEED shows if the linefeed is on or off. The other commands turn the linefeed on or off.

Output Response:

LINEFEED reports if the linefeed is on or off. LINEFEED ON or OFF changes the state and reports that change.

PRINTER SYNTAX

LOCK

Purpose:

Prevents the use of commands that are password protected. See PASSWORD for a list of commands.

Format:

LOCK

Remarks

The system cannot be locked when there is no password. When the system is locked and you attempt a command that requires an unlocked system (refer to PASSWORD command) you are prompted for a password. Entering the correct password will unlock the system and allow the command to be completed.

Output Response:

> System Locked

LOG

Purpose:

Reports if the logging feature is on or off. Turns on or off the logging feature that reports changes of status or device failures.

Format:

LOG
LOG ON
LOG OFF

Remarks:

The LOG command shows if the logging feature is on or off.

The LOG ON command turns logging on. Whenever there is a change of status of an alarm point, a report will be issued. A report also will be issued when there is a device failure.

The LOG OFF command turns logging off and changes of status and device failures will not be reported. The most recent changes, however, will be stored in memory and displayed when the logging feature is turned ON.

CONTINUED . . .

PRINTER SYNTAX

Output Responses:

LOG shows if logging is on or off. LOG ON or OFF changes the state and reports that change.

NOTE: *When logging is on, alarms and device failures will be reported automatically. See OUTPUT MESSAGES for examples of reports.*

MODE

Purpose:

Shows if the system is locked or unlocked.

Format:

MODE

Output Response:

The MODE command shows if the system is locked, unlocked, or unlocked with no password.

MENU

Purpose:

Places the PointMaster in a menu program where configuration changes can be made.

Remarks:

Refer to the **Installation** section of this manual for a detailed description of how to utilize this command.

PASSWORD

Purpose:

Sets password for system security.

Format:

PASSWORD

CONTINUED . . .

PRINTER SYNTAX

Remarks:

Entry is followed by a query for a new password. If an old password exists, it must be entered before setting a new one. As the password is entered, asterisks appear on the screen to safeguard the identity of the password. Maximum length is seven characters.

The following commands are password protected:

All ACKNOWLEDGE commands

All control point commands except CPM # OPT and CPM # PROV

DIAGNOSTIC

LOG ON

LOG OFF

MENU

PERIOD SHORT (and LONG)

RTUSG

SG # DELAY 200

SG # DELAY 500

SG # OPT _____

SG # REVERSE #

TERMINOLOGY SG

TIME OUT #

Input Example:

>PASSWORD

Output Response:

New Password: *******

PERIOD

Purpose:

Reports the period of time momentary control points will be operated or sets the period.

CONTINUED . . .

PRINTER SYNTAX

Format:

PERIOD
PERIOD SHORT
PERIOD LONG

Remarks:

The command PERIOD reports the current settings. The command PERIOD SHORT sets the time period to 300 ms. The command PERIOD LONG sets the time period to 3 seconds.

Input Example:

>PERIOD SHORT

Output Response:

PERIOD shows the current setting. PERIOD SHORT or LONG changes the setting and reports that change.

PROVISIONING

Purpose:

Displays the option settings and memory locations where alarm and control point information is stored.

Format:

PROV
SG # PROV
CPM # PROV

Remarks:

The command PROV gives a report on all the alarm and control point subgroups. The commands SG # PROV and CPM # PROV give a report on the subgroups specified.

can be a range of subgroups from 1 through 16 or the word ALL. Here are examples:

CPM 1 Control subgroup 1 (control points 1-16)
SG -10 Alarm subgroups 1-10 (alarm points 1-160)
SG 10- Alarm subgroups 10-16
SG 5-10- Alarm subgroups 5-10
SG ALL All alarms

CONTINUED . . .

PRINTER SYNTAX

Input Example

```
>PROV
```

Output Example

SG	1	BBBBBBBBBBBBBBBB	1.1	1.2
CPM	1	DDDDDDDDDDDDDDDD	33.1	33.2

Each line shows the subgroup number, alarm level, and the location in memory where the data is stored (display 1.1, 1.2, etc.). For control points the level is always D. For more information on the displays, see the DISPLAY command.

QUERY

Purpose:

Gives an output as if the following commands had been entered in succession:

BELL
LOG
LINEFEED
TERMINOLOGY
PERIOD
DELAY
TIMEOUT
LOCK

Format:

QUERY

Input Example:

```
>QUERY
```

CONTINUED . . .

PRINTER SYNTAX

Output Response:

```
Bell On  
Log On  
Linefeed On  
Terminolgy SG  
Period Long  
Delay 500  
Timeout 10  
System Locked
```

REVISION

Purpose:

Gives the revision level of the PointMaster's firmware.

Format:

REVLIST

Input Example:

```
>REVLIST
```

Example Output Response:

```
DANTEL POINTMASTER  
COPYRIGHT 1998  
C15-46310-11 REV. A  
THE DATE IS NOW 09/22/98 10:58:06
```

RTUSG MODE

Purpose:

Shows or changes the current terminology being used to display alarms, either SG (intead of MAT) or MAT (instead of SG). SG stands for subgroup. Refer to the beginning of *Input Commands* for more information.

CONTINUED . . .

PRINTER SYNTAX

Format:

RTUSG
RTUSG ON
RTUSG OFF

Remarks:

The command RTUSG displays whether the mode is on or off. When it is ON, alarms will be displayed using SG; when it is OFF, alarms will be displayed using MAT.

The command RTUSG ON causes alarms to be displayed using SG and reports that state.

The command RTUSG OFF causes alarms to be displayed using MAT and reports that state.

SG OPTION

Purpose:

To display or set alarm levels.

Format:

SG # OPT
SG # OPT _____
CPM # OPT
CPM # OPT _____

Remarks:

The OPT command displays the alarm level option settings for the alarm subgroups and the time setting options for the control points. Options are displayed as A, B, C, and D for the alarms; the letters refer to the priority levels of alarms. Options are displayed as L, S, E, and M for the control points; L stands for latched points, E means extended momentary time period (three seconds), S is for short momentary time period (300 milliseconds), and M is for a unique time period.

The command OPT followed by a line sets the option settings for the alarm and control point subgroups. In setting the options, use the letters A, B, C, and D for alarms, and the letters L, S, and E for control points. Enter all 16 points; put spaces between the letters. To set a unique time period for the control points, see the CPM POINT TIME PERIOD command.

CONTINUED . . .

PRINTER SYNTAX

can be a range of subgroups from 1 through 16 or the word ALL. Here are examples:

CPM 1 Control subgroup 1 (control points 1-16)
SG -10 Alarm subgroups 1-10 (alarm points 1-160)
SG 10- Alarm subgroups 10-16
SG 5-10 Alarm subgroups 5-10
SG ALL All alarms

Input Example:

```
>SG 1 OPT
```

Output Response:

Only the commands SG # OPT and CPM # OPT give a response.

```
SG 1 OPTIONS A B C D A B C D A B C D A B C D
```

SYSTEM

Purpose:

Shows the status of alarm subgroups and controls.

Format:

```
SYSTEM
```

Remarks:

The SYS command shows the status of all subgroups in the system.

Input Example:

```
>SYSTEM
```

CONTINUED . . .

PRINTER SYNTAX

Format:

TIMEOUT
TIMEOUT #

Remarks:

The command TIMEOUT will display the number of minutes for which the time-out is set.

The command TIMEOUT followed by a number will set the time-out period. the # can be a number from 0-30; the number represents minutes.

Output Response:

Both commands show the number of minutes for which the time-out is set.

UNLOCK

Purpose:

Unlocks the PointMaster so it will accept password-protected commands (see PASSWORD command).

Format:

UNLOCK

Remarks:

If a password has been set, it will be requested before the system can be unlocked.

Input Example:

```
>UNLOCK
```

Output Response:

```
Password : ****  
System Unlocked
```

SUBASSEMBLY REPLACEMENT

The PointMaster is designed to allow quick and simple replacement of the internal circuit board subassemblies in the event that:

- ◆ More alarm points are needed
- ◆ More control points are needed
- ◆ A subassembly fails

These changes can be made without removing the unit from the equipment rack or distribution frame without removing any of the wiring to the unit.

NOTE: While it is true that, to replace a failed module, no wiring needs to be removed, it should be noted that this is not the case if you are upgrading your PointMaster from one version to another by adding or changing modules.

Different options of the PointMaster unit require different wiring. These pinouts are documented in the **Installation** section of this manual (Figs. 11-15). It is recommended that, if future expansion of the PointMaster is anticipated, you start with the 46310-11 or -31. This will allow the flexibility of future growth with minimal wiring changes.

Table K presents the ten options of PointMaster and the cards within each option.

TABLE K - POINTMASTER SUBASSEMBLIES

SUBASSEMBLY	PART NUMBER	46310-10	46310-11	46310-12	46310-13	46310-14
		46310-30	46310-31	46310-32	46310-33	46310-34
Power Supply	x80-00610-00	X	X	X	X	X
CPU	x80-00611-00	X	X	X	X	X
Alarm & Control (64 Alarm, 4 Control)	x80-00612-01	X				
Alarm & Control (128 Alarm, 0 Control)	x80-00612-03		X	X	X	X
Alarm & Control (0 Alarm, 28 Control)	x80-00612-00			X		
Alarm & Control (64 Alarm, 12 Control)	x80-00612-02				X	
Expansion Alarm & Control (128 Alarm, 0 Control)	x80-00612-04					X
RS-232 Subassembly	x12-49229-01	w/-10	w/-11	w/-12	w/-13	w/-14
Ethernet Subassembly	x12-49413-00	w/-30	w/-31	w/-32	w/-33	w/-34

UPDATED

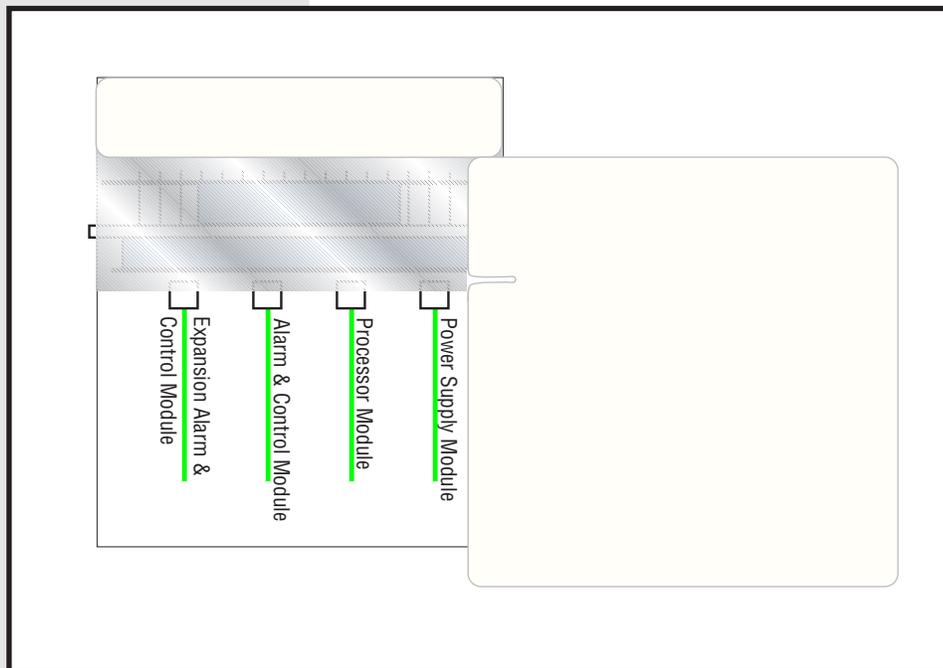
CONTINUED . . .

SUBASSEMBLY REPLACEMENT

To Replace a Subassembly

1. Remove power from the PointMaster.
2. Open the unit by unscrewing the thumbscrew in the top, right corner of the front panel and swinging the front panel forward and down. This will expose a second thumbscrew in the top right corner which must be fully unscrewed until the spring action pushes the screw back toward you. The unit may then be opened by swinging the front half out and up. Secure it open by engaging the sliding locking bar.
3. Identify the subassembly desired. Refer to Fig. 22.

FIG. 22 - SUBASSEMBLY LOCATIONS



4. Remove the desired module by removing the appropriate card securing screw and pulling the module gently down and out of its socket.
5. Insert the replacement module into the connector the defective module came out of and tighten the card securing screw.
6. Disengage the locking bar and close the unit.
7. Reapply power.

TECHNICAL SPECIFICATIONS

DESCRIPTION		VALUE		
Input Voltage Range		-21 to -56 VDC		
Input Fuse		1 Amp., GMT Type		
Data Rates (selectable)		1200, 2400, 4800, 9600, 19.200 baud		
Physical Dimensions		7.9"W x 5"D x 4.5"H		
Weight				
46310-00		3.72 lbs.		
46310-01		3.69 lbs.		
46310-02		3.89 lbs.		
46310-03		3.88 lbs.		
46310-04		3.87 lbs.		
Operating Temperature Range		0° to 55° C.		
INPUT CURRENT				
MODEL	@ -21 VDC	@ -24 VDC	@ -48 VDC	@ -56 VDC
46310-00	130 mA	115 mA	69 mA	65 mA
46310-01	136 mA	122 mA	74 mA	70 mA
46310-02	160 mA	143 mA	91 mA	82 mA
46310-03	159 mA	139 mA	88 mA	81 mA
46310-04	159 mA	140 mA	90 mA	84 mA
HEAT DISSIPATION				
MODEL	@ -21 VDC	@ -24 VDC	@ -48 VDC	@ -56 VDC
46310-00	10.2 Btu/Hr	10.3 Btu/Hr	12.4 Btu/Hr	13.6 Btu/Hr
46310-01	10.7 Btu/Hr	10.9 Btu/Hr	13.3 Btu/Hr	14.7 Btu/Hr
46310-02	12.6 Btu/Hr	12.8 Btu/Hr	16.3 Btu/Hr	17.2 Btu/Hr
46310-03	12.5 Btu/Hr	12.5 Btu/Hr	15.8 Btu/Hr	17.0 Btu/Hr
46310-04	12.5 Btu/Hr	12.6 Btu/Hr	16.2 Btu/Hr	17.6 Btu/Hr
CONTROL RELAYS				
Form-C Contact Type Maximum Contact Rating		Single Form-C, Dry Contact 1 Amp @ 24 VDC 0.5 Amp @ 120 VAC		
Form-A Contact Type Maximum Contact Rating		Single Form-A, Solid State 0.4 Amp @ 60 VDC 0.4 Amp @ 120 VAC		

CONTINUED . . .

TECHNICAL SPECIFICATIONS

49313 TONE MODEM SPECIFICATIONS	
Maximum Heat Dissipation	0.327 Btu/hr
Data Rate	1200 baud
Transmit Output Level Range	-1 to -20 dBm; -20 to -40 dBm
Receiver Sensitivity with Frequency Deviation ± 16 Hz	+1 dBm to -47 dBm
Operating Frequencies	
Mark	1200 Hz
Space	2200 Hz
Operating Temperature Range	0° to 55° C.
Physical Dimensions	3.3" x 2.0" x 0.45"
Weight	1.5 ounces
49413 ETHERNET SUBASSEMBLY SPECIFICATIONS	
Protocols	ARP, UDP, TCP, Telnet, ICMP, DHCP, TFTP, HTTP
Networking Interface	10Base-T
Data Rates	300bps to 115.2kbps
Flow Control	XON/XOFF; CTS/RTS
Management	Telnet Login
Diagnostic LED's	Transmit Data, Receive Data, Good Link
Compatibility	Ethernet:Version 2.0/IEEE 802.3
Memory	NVRAM: 512 Bytes
Environmental	
Standard Temperature	0 to 70°C
Storage Temperature	-40 to 85°C
Physical Dimensions	3.3" x 2.0" x 0.45"

NEW

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

