API-8/232

INSTALLATION / OPERATION MANUAL

MONITOR TECHNOLOGIES INC.

Installation of this product in accordance with this manual, applicable codes, and the instructions of the Authority Having Jurisdiction is mandatory.

Monitor Technologies Inc. shall not under any circumstances be liable for any incidental or consequential damages arising from loss of property or other damages or losses owing to the failure of Monitor Technologies products beyond the cost of repair or replacement of any defective products.

Monitor Technologies Inc. reserves the right to make product improvements and change product specifications at any time.

The contents of this manual and the related software program are proprietary in nature and are intended solely for the distribution to authorized persons, companies, distributors, and/or others for the sole purpose of conducting business associated with Monitor Technologies Inc. The distribution of information contained with this manual to unauthorized persons shall constitute a violation of any distributor agreements and may require the implementation of legal proceedings.

While every precaution was taken during the preparation of this manual to ensure the accuracy of its contents, Monitor Technologies Inc. assumes no responsibility for errors or omissions.

FCC/IC NOTICES

NOTICE:

(1) This equipment complies with Part 68 of the FCC rules. Imprinted on the component side of the printed circuit board (model SAMI-API) is a label that contains, among other information, the FCC registration number and the Ringer Equivalence Number (REN) for this equipment. If requested this information must be provided to the telephone company.

(2) This equipment is supplied with two PCB mounted female RJ11 Jacks and a five foot male to male RJ11 line set cord.

(3) The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive Ren's on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the Ren's should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total Ren's contact the telephone company to determine the maximum REN for the calling area.

(4) If the terminal equipment (model SAMI-API) causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of the service may be required. If advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

(5) The telephone company may make changes in it's facilities, equipment, pertains, or procedures that could affect the operation of this equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.

(6) If trouble is experienced with this equipment (model SAMI-API) please contact Monitor Technologies Inc. at 905-889-6511 for repair and warranty information. If the trouble is causing harm to the telephone network, the telephone company may request you remove the equipment from the network until the problem has been resolved.

(7) For repairs or service which can be performed by the customer please refer to the Trouble Shooting Section in Chapter 5 of this manual.

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The department does not guarantee the equipment will operate to the users satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas. **Caution:** Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

NOTICE: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination of an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all these devices does not exceed 5.

TABLE OF CONTENTS

INTRODUCTION

INTRODUCTION

The API-8/232 Pocket Pager Interface delivers custom message information to a paging terminal for broadcast over standard radio paging architecture. The interface activates through dry contact or wetted voltage openings and closings and/or pages data generated by a host system that provides ASCII data event reporting via an RS-232 port (serial printer port).

PURPOSE OF THE MANUAL

This Manual provides descriptions and instructions for programming, installing and maintaining the API-8/232 Pocket Paging Interface. A brief description of the remaining chapters is as follows.

- Chapter 2 - Description of functions and capabilities including specifications.

- Chapter 3 - Installation, Power Up, and External Connections.

- Chapter 4 - Programming

DESCRIPTION

INTRODUCTION

This Chapter describes the characteristics, capabilities, features and specifications of the API-8/232 Pocket Pager Interface.

DESCRIPTION

The API-8/232 is an eight input automated paging interface which interfaces with alarm and monitoring equipment . The API-8/232 provides notification of alarm conditions to pagers from its' 8 dry contact or wetted voltage inputs. The interface links a facilities key equipment to a local, Customer Owned Paging system via direct RS 232 connection or will connect to either a remotely located Customer Owned Paging system or to a Wide Area paging terminal. When an alarm is triggered the unit sends a full 80 character, pre-programmed alphanumeric message to a pager or group of pagers. Messages and pager ID's are programmed through the Windows 95/NTprogramming software.

API-8/232 is also equipped with an RS232 interface port to monitor an ASCII data string generated by a host system (Fire Panel, Card Access System, Building Management Control System etc..). The interface may be connected to a serial printer port and events that are directed to the port will be paged to a user definable alphanumeric pager or group of pagers.

API-8/232 can be configured to send all data that appears on the host system serial port. Alternately, the user can define, via the use of keywords or phrases that appear in the event strings, the type of events that are to be paged and those to be ignored and discarded. Programming for the RS232 functions is performed via the Windows 95/NT programming software.

Both the 8 opto-isolated inputs and the RS232 input port operate concurrently on the API-8/232 providing a high degree of flexibility in the choice of input sources and the ability of the product to interface with most host systems.

Paging System Compatibility

The Pocket Pager Interface communicates with Paging Terminals via modem to modem Phone Line Connection or via direct RS-232 connection .

> **Note:** Where a Privately Owned Paging System provides telephone access for alphanumeric paging (from a location remote to the terminal, encoder, transmitter, etc..) API-8/232 can be utilized to dial in and deliver messages to the terminal via telephone lines and the TAP protocol. This eliminates the need to place the API-8/232 within 50 feet of the paging terminal for a direct connection.

Direct Connect Paging System Requirements:

1. The paging terminal and transmitters must be capable of receiving, encoding and transmitting binary data (end user would typically have numeric and/or alphanumeric pagers).

2. The paging terminal and transmitters must be alphanumeric message capable.

3. The paging terminal must be P.E.T. (Paging Entry Terminal) protocol capable. P.E.T. is the protocol utilized by message entry devices such as the Motorola Alphamate when directly connected to the paging terminal.

4. There must be a direct connect serial port available on the paging terminal for a direct connection of the unit or an alphanumeric modem port available for dial in access to the terminal.

5. The maximum distance (length of the RS-232 cable) between the paging terminal and the API-8/232 is 50 feet (15.2m) for a direct connection (without the use of short-haul modems etc.)

API-8/232 Specifications

Enclosure	22 Gauge Steel / Black Powder Coat Finish (If supplied)
Dimensions (L x W x H)	10" x 4.5" x 2" (In Enclosure)
Weight:	2.44 lbs (In Enclosure)
Power Supply:	50 Watts,110 VAC 50/60Hz
	12-18VAC (20VAC Max.)or 18-24VDC @ 400mA Maximum (30 VDC Max.)
Operating Temperature:	0 to 70 Degrees Celsius
Storage Temperature:	-40 to 125 Degrees Celsius
Programming Software:	Pager Interface Programming Software (Vers. 2.0 for WIN 95/NT)
Programming Cable:	RS232 (DB9-Male to DB9-Female)
Direct Connect Paging Protocol:	TAP, PET
Direct Connect Paging Baud Rate:	1200
Direct Connect Paging Settings:	E, 7,1
Direct Connect Paging Port:	DB9 Female
Paging Retries:	Programmable 1-99
Trouble Conditions:	Loss of primary power, telephone line interruption and paging system communication failure. Indication via on board piezo, &flashing LED. Auxiliary trouble output contacts programmable for ON, OFF, or PULSE operation.
Trouble Silence Contacts:	Normally open input contacts, momentary closure will silence trouble
System Reset Contacts:	On board, Normally Open. Momentary Closure resets board

API-8/232 Contact Input Specifications

Contact Inputs:	8 Optically Isolated
	Dry Contact or Wetted Voltage (Select Via On-Board Jumpers)
	Wetted Voltage (0-48V)
Message Size:	Max. 80 Characters /condition/input
Input Type:	Normally Open or Normally Closed
Escalation:	Alarm Condition Re-paged if not reset/acknowledged within time limit (programmable 1- 60 minutes)
Repetition:	Alarm Message can be re-paged two or three times consecutively (Programmable)

API-8/232 RS232 Input Port Specifications

Incoming Data Type:	RS232, ASCII Characters
Incoming Data Protocols:	RS232, TAP, COMP2
Incoming Data String:	Max 256 Characters followed by Carriage Return <CR>
Message Length:	Programmable 1 to 240 Characters
Incoming Data Baud Rate:	600,1200,2400,4800 or 9600 (programmable)
Incoming Data Comm. Settings:	N,7,1 or E,7,1 or 0,7,1 or N,8,1 (programmable)
Incoming Data Port:	DB9 Female
Pin Assignments:	Pin 2: Tx, Pin 3: Rx Pin 5: Gnd
Event Types:	Eight Programmable Event Types
Key Strings:	2 Keystrings per Event Type, 20 Characters programmable
Pager ID Numbers:	Send all Messages to a single Pager ID Number or Send Messages based on Event Type to different pager ID Numbers
Consecutive Spaces:	Messages are packed by removing X consecutive spaces (Programmable)
Character Masks:	Up to 20 Characters may be masked. Masked characters are not paged when they appear in a valid text string. Messages which contain only masked characters, are discarded and not paged.
Header:	20 character programmable text, which is inserted at the beginning of each message string that is paged to identify the origin of the paged messages.

Telephone Interface Specification

Telephone Line Set:	5 foot - RJ11
Telephone Line In Connector:	RJ11
Telephone Line Out Connector:	RJ11
Line Seizure Relay:	Line Seizure effective on all down stream equipment
Paging System Dial Up Number:	Up to 25 Characters (programmable)
Paging System Access Password:	Up to 20 Characters (programmable)
Dialing Method:	DTMF
Paging System Baud Rate:	300, 600, 1200 or 2400 Baud (programmable)
Paging System Comm. Settings:	N,7,1 or E,7,1 or N,8,1 (programmable)
Paging System Protocols:	TAP 1.8

FEATURES

Model API-8/232

Contact Inputs

The API-8/232 has eight contact inputs on board. The contact inputs are user selectable for either dry contact or wetted voltage (0-48 Volts) outputs. Two jumpers on the board are used to select for either dry contact or wetted voltage outputs.   The inputs are programmable for connection to either normally open or normally closed output contacts.

Preprogrammed Alerts/Status Updates

The text messages associated with each input are user programmable and can be customized to communicate the exact nature of the alarm or status change that is being monitored. API-8/232 may be programmed to generate both an alarm message and /or a reset message. The pager users can receive notification of an alarm condition when it occurs and they can also be notified that the condition has been acknowledged or reset when the contact output returns to its normal state.

Full 80 Character Messaging

Each preprogrammed alarm and reset message can be up to 80 characters in length providing a high degree of detail including an exact description/ location of a specific alarm condition.

Message Directing

The pager or group of pagers to be notified with status changes for each input is user programmable. Status changes for each input can be directed to a different pager or group of pagers. For example, a high temperature alarm from a boiler can be sent to maintenance personnel while a panic button alarm can be directed to a security guard.

Alarm Escalation

API-8/232 provides for repetition of messages to the selected pager user(s). If an alarm condition remains unacknowledged or is not reset within a user definable period of time (1 to 60 minutes), the message associated with that alarm condition will be re-paged .

Alarm Repetition

API-8/232 can be programmed to page an alarm condition from one to three times consecutively to ensure that the pager user(s) received the alarm notification.

Note: Alarm escalation and repetition features apply to 'ON' (alarm) condition only.

RS-232 Input Port

API-8/232 is equipped with an RS232 interface port to monitor an ASCII data string generated by a host system (Fire Panel, Card Access System, Building Management Control System etc..). The interface is designed to connect to a serial printer port and events that are directed to the port will be paged to a user definable alphanumeric pager or group of pagers.

API-8/232 can be configured to send all data that appears on the host system serial port. Alternately, the user can define, via the use of keywords or phrases that appear in the event strings, the type of events that are to be paged and those to be ignored and discarded.

Keyword Strings

Keyword Strings are used to identify events generated by the host system that are to be processed and paged. API-8/232 can identify eight separate event types by identifying one or two Key Strings that are present in the text strings created by the host system. Any event string that is generated by the host system is compared to the user defined Keyword Strings. If the Key Strings that are programmed appear in the event string, that event string is paged. Key String searches are case sensitive (case must match). If two Key Strings are used to identify a specific type of event, both preprogrammed Key Strings must be found in order for the event to be paged. If a Key String does not appear anywhere in an event string, that event is discarded and is not paged.

Each event type defined via the use of keyword strings can be directed to a different pager or group of pagers. For example all events that contain the Keyword String "Alarm" can be paged to security and all events that contain the Keyword String "System Trouble" can be paged to maintenance personnel.

Message Packing

API-8/232 can be user configured to ignore more than 2 consecutive spaces in a data string. Where there are large gaps in an ASCII event string due to the existence of consecutive spaces, excess spaces will be removed by the interface, paging only the important event text. This feature will ensure that event strings appear on the pager(s) in an easy to read format.

Character Masks

In addition, up to 20 characters may be "masked" so that they will be discarded from any data string that is received by API-8/232. This allows for the elimination of characters that are intended to serve a purpose on an event printer (ie. divide rows of printed text) but only serve to clutter messages received on the pager(s).

Communication Parameters

RS232 Input communications parameters are user selectable to match the port settings of the host system.

Message Handling

RS232 Strings that are in excess of the number of characters that are allowed by the paging system are truncated into messages, which are no longer than the maximum number of characters allowed per message. The number of characters per message is user programmable to match the allowable character limitation imposed by the paging carrier or paging system manager. When the text string generated by the host system is longer than the paging system character limitation, the entire string is paged in consecutive transmissions.   Messages are processed and delivered to the paging system on a first in first out basis.   API-8/232 will buffer up to 100 separate 80 character messages to be paged in sequence.

Event Header

A user defined header of up to 20 characters can be assigned at the beginning of each message string that is to be paged. This will identify the source of any incoming message. This feature can be employed where multiple units are installed at a site to capture events from more than one system and/or facility.

Programming

Programming is accomplished via a PC running Windows 95/NT compatible Paging Interface Programming Software. A programming kit consisting of Paging Interface Programming Software (PIP) and a programming cable is included with all API-8/232 units.

Paging System Compatibility

API-8/232 is compatible with private (in-house) paging systems that utilize industry standard TAP (PET) protocols. API-8/232 delivers messages via direct RS232 connection to an in-house paging system, or will deliver messages to a remotely located in-house paging system or to a wide area (RCC) paging system via remote telephone dial in (through a private or public telephone switch). API-8/232 is compatible with in-house or wide area paging systems and Short Messaging Services available through Digital PCS Network providers that utilize TAP protocols.

Host System Compatibility

API-8/232 will interface with most alarm systems, monitoring devices and enunciator panels to provide enhanced functionality without replacing or upgrading existing systems or as a valuable addition to any new system sale. Any system, which can provide contact outputs or standard RS232 ASCII event strings, can be monitored using the interface.

Phone Line Requirements

Api-8/232 requires a single line telephone line/extension in order to dial a paging terminal. API-8/232 can share a telephone line with another piece of equipment or one that is used for another purpose (i.e. fax line). To ensure the unit will seize a shared line that is in use, it must be the first device on the phone line. If the API-8/232 is down stream of another device (security panel or fire alarm panel) it will sense when the up-stream equipment is utilizing the shared phone line and will not attempt to use the line until 'ON HOOK' voltage is restored.

CHAPTER **3**
INSTALLATION

API-8/232 Connections
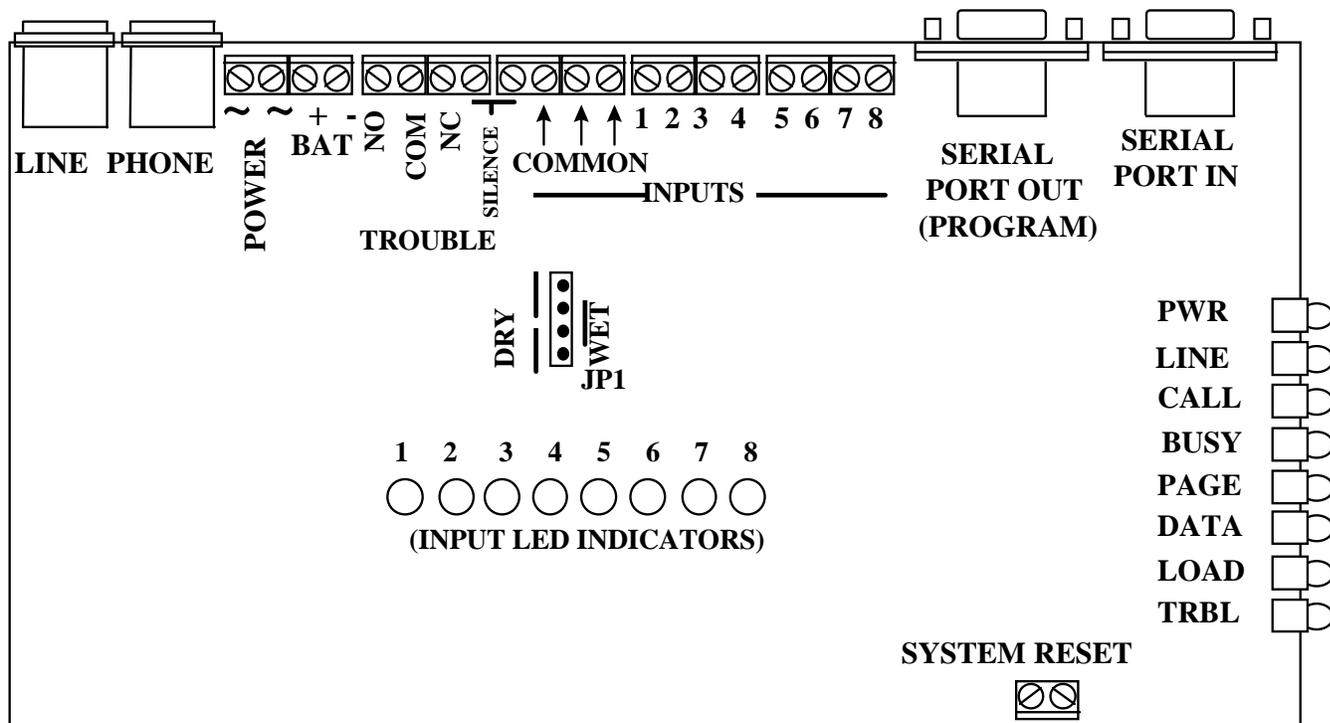
LED INCDICATOR CONDITIONS

Power:	illuminated when power supplied
Line:	illuminated when telephone line voltage is present (on hook), LED is off when unit dials
Call:	illuminates when unit initiates outgoing call (either direct connect or dial-up)
Busy:	illuminates when telephone line is busy
Page:	flashes once for each page successfully sent to the terminal
Data:	not presently used
Load:	illuminated when downloading/uploading from programming software
Trbl:	illuminated when unit is in trouble condition i.e loss of line, loss of power, retries reached

INPUT LED INDICATORS

Dry Contact:	input LED illuminated when contact is in 'closed' condition
Wetted Voltage:	input LED illuminated when voltage is supplied to contact

INSTALLATION

1. Mount the API-8/232 in the desired location and connect the plug in transformer (if supplied) to a source of power (120 Volts 60Hz). The LED marked "Power" will illuminate indicating that the board is powered up.

NOTE: Remove power while making external connections.

<u>Opto Input Connections</u>

2. In order to make connections to API-8/232 it is necessary to remove the enclosure cover (if supplied). Remove the four Philips machine screws which secure the cover to the base of the enclosure.

3. Select either dry contact or wetted voltage inputs via jumper placement on JP1. To select for dry contact inputs leave the two jumpers in place as factory installed. To select for wetted voltage inputs. place single jumper over pins two and three (as indicated on board).

NOTE: Wetted voltage inputs must not exceed 48 Volts. Excessive Voltage will cause damage to the unit. Never connect wetted voltage inputs to the input terminals if the on board jumpers are in the "DRY" position.

4. Connect a single wire from the normally open or normally closed contact outputs that are to be monitored to the terminals marked INPUTS 1 through 8. Connect a common lead from each of the outputs that are to be monitored to one of the terminals that are marked "Common".

NOTE: Wires for external connections can be routed through the pre-punched hole located on the end of the enclosure base.

<u>RS-232 Input Connection</u>

5. Connect an RS-232 cable from the serial port on the host system to be monitored to the DB9 female "SERIAL PORT IN" located on the API-8/232. After replacement of the cover and screws, the unit may be Powered up.

NOTE: Pin outs for the API-8/232 "SERIAL PORT IN" must match the pin assignments for the host system that is being monitored.

<div align="center">

<u>API-8/232 "SERIAL PORT IN" Pin Outs</u>

</div>

     Pin 2 Tx
     Pin 3 Rx
     Pin 5 Gnd

Paging System Connections

<u>Direct Connection</u>

1. Connect the "SERIAL PORT OUT" to an available direct connect port on the Paging Terminal. The "Paging System Direct Connect Cable" (if supplied) is configured for direct connection to the Motorola People Finder Encoder/Transceiver "EIA RS232C Port". For other paging terminals see manuals to determine required cable configurations.

NOTE: Pin outs for the API-8/232 "SERIAL PORT OUT" must match the pin assignments for the paging system.

API-8/232 "SERIAL PORT OUT" Pin Outs

Pin 2   Tx
Pin 3   Rx
Pin 5   Gnd

NOTE: The Paging Terminal Input Port <u>must</u> be programmed at the following communication parameters:

Baud Rate	**1200**
Parity	**Even**
Data Bits	**7**
Stop Bits	**1**

<u>OR</u>

<u>Remote Paging Terminal Connection</u>

1. Locate and connect a normal analogue telephone line to the RJ11 connection marked "LINE".

2. Check the LED marked "LINE". If dial tone voltage is present the LED will be illuminated.

NOTE: The unit must be connected to a single analogue telephone line or extension that is DTMF capable (POTS).

CHAPTER **4**
PROGRAMMING

Pager Interface Programming (PIP) Module Software Installation

1. Start Microsoft Windows 95or NT

2. Insert the Pager Interface Programming (PIP) Software Disk 1 into drive a: (or b:)

3. In Program Manager, choose RUN from the File menu

4. Type a:\setup32

5. The installation program will guide you through the set up procedure.

6. The Pager Interface Programming Module Icon will appear on the screen

7. Double click on the icon to activate the programming software.

API-8/232 Programming Connections

1. Connect the API-8/232 Paging Interface Programming Cable (supplied) from a comm port on the PC where the PIP Software is loaded to the DB9 "SERIAL PORT OUT (PROGRAM)" on the API-8/232.

API-8/232 Programming Instructions

1. Open the PIP software by double clicking on the PIP Icon. The following window is displayed.
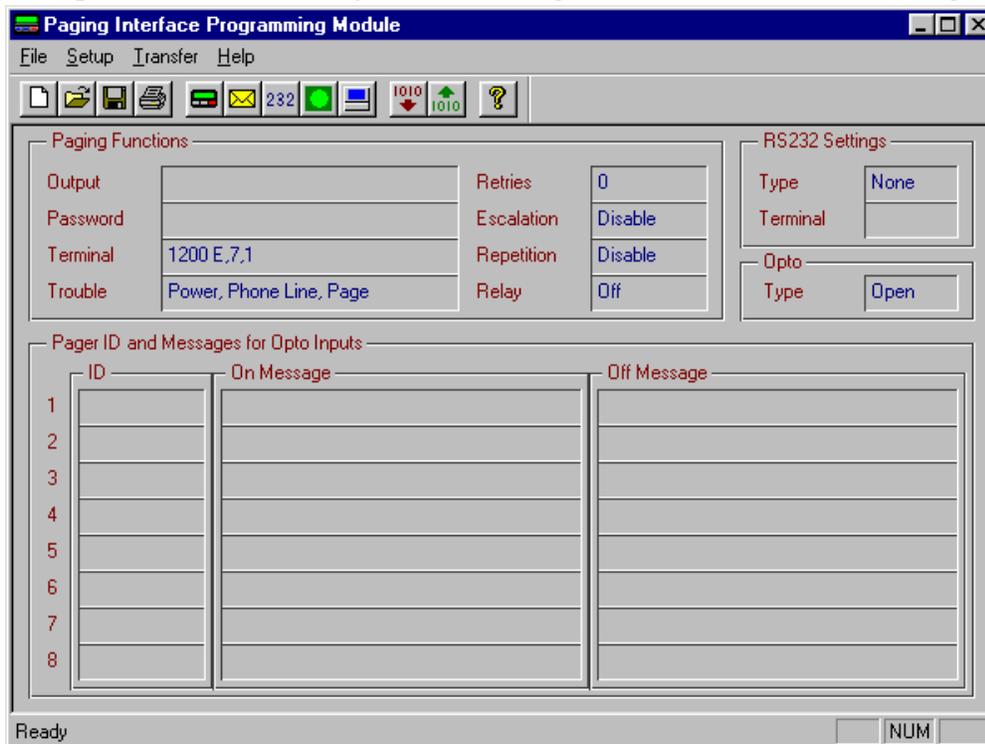
2. From the Setup menu select Computer and from the sub-menu that appears select Port. The following Window is displayed.
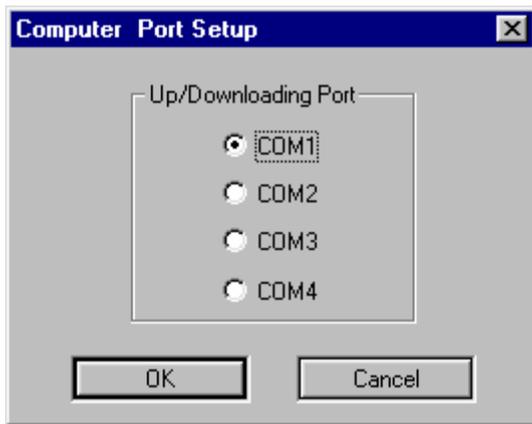
3. Select the communications port on the computer which is connected to the API-8/232 via the programming cable. Click OK.

4. From the Setup menu select Board and from the sub-menu that appears select Paging Functions. The following Window is displayed.
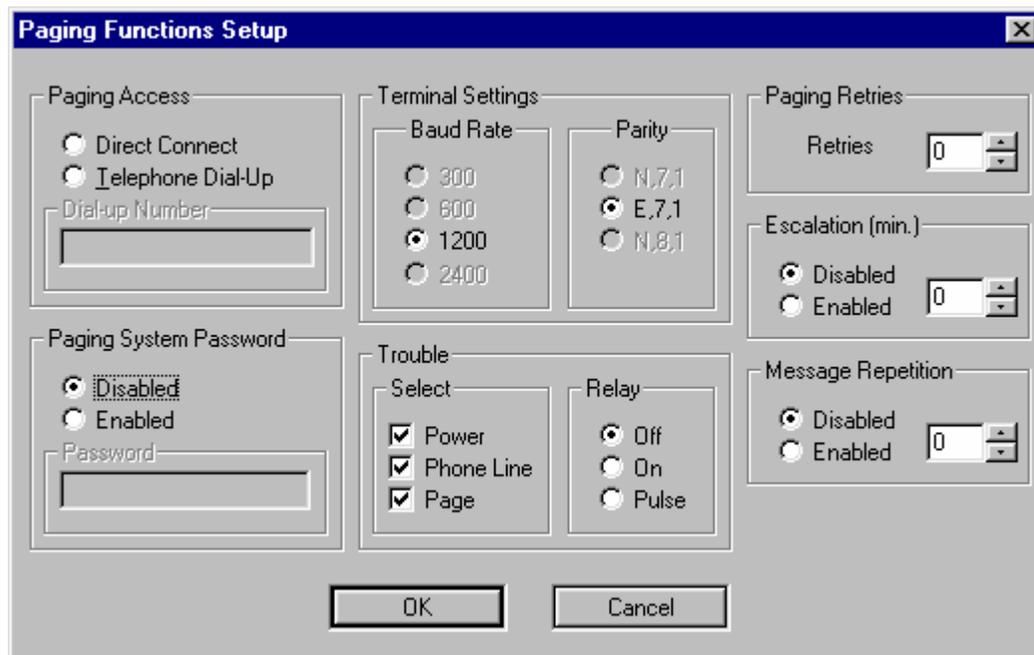
Paging Terminal Direct Connection Setup

1. In the paging Access Box select Direct Connect.

2. In the Paging System Password box select Disabled if the paging system does not require a password. If the paging system requires a password select Enabled. Enter the password in the Password field.

3. In the Terminal Settings Box select Baud Rate 1200 and Parity E,7,1. Please note that this is the default setting. These settings will always revert to the default when Direct Connect has been selected.

PAGE 4-2

4. In the Trouble, Select box the trouble conditions that are to be monitored by clicking the check boxes.

5. In the Trouble, Relay box select Off, On or Pulse for the auxiliary trouble output relay.

6. In the Paging Retries box set the number of times the API-8/232 will attempt to connect with the paging terminal before a trouble condition is generated (Value 1-99).

7. In the Escalation box select disabled if escalation of unacknowledged alarm messages is not required. Select Enabled and enter a value between 1 and 60 minutes if escalation of alarm messages is required.

8. In the Message Repetition box select Disabled if message repetition is not required. Select Enabled and enter a value of 1 or 2 if message repetition is required.

9. Click OK.

Remote Paging Terminal Access Setup

1. In the Paging Access Box select Telephone Dial Up. Enter the telephone number required to access the paging terminal (up to 20 characters). If a pause is required in the dial string use a comma (,). Each comma that is entered in the dial string provides a one second pause.

2. In the Paging System Password box select Disabled if the paging system does not require a password. If the paging system requires a password select Enabled. Enter the password in the Password field (up to 20 characters).

3. In the Terminal Settings Box select the terminal Baud Rate and Parity of the paging terminal. Please note that the default setting of Baud 1200, Parity E,7,1 is compatible with most paging terminal modem access ports.

4. In the Trouble, Select box select the trouble conditions that are to be monitored by clicking the check boxes.

5. In the Trouble, Relay box select Off, On or Pulse for the auxiliary trouble output relay.

6. In the Paging Retries box set the number of times the API-8/232 will attempt to connect with the paging terminal before a trouble condition is generated (Value 1-99).

7. In the Escalation box select disabled if escalation of unacknowledged alarm messages is not required. Select Enabled and enter a value between 1 and 60 minutes if escalation of alarm messages is required.

8. In the Message Repetition box select Disabled if message repetition is not required. Select Enabled and enter a value of 1 or 2 if message repetition is required. Click OK.

Note: If repetition is enabled a value of 1 will indicate that the On messages will be paged out twice (ie. repeated once). A value of 2 will indicate that the 'ON' messages will be paged out three times (ie. repeated twice).

Opto Input Type Setup

1. From the Setup menu select Board and from the sub-menu that appears select Opto Input Type. The following Window is displayed.
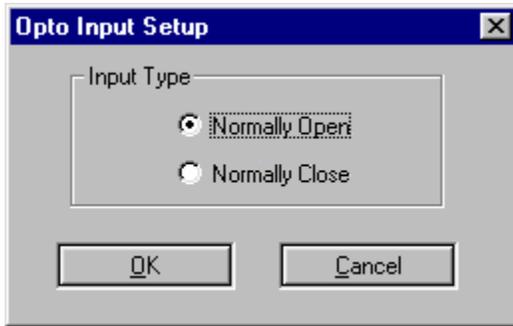
2. Select either Normally Open or Normally Closed. This selection should match the output type of the normal contact condition on the host system. A change from the selected normal input condition initiates the "ON" message to the pager. Click OK.

Opto Input Message Setup

1. From the Setup menu select Board and from the sub-menu that appears select Paging Messages. The following Window will appear.
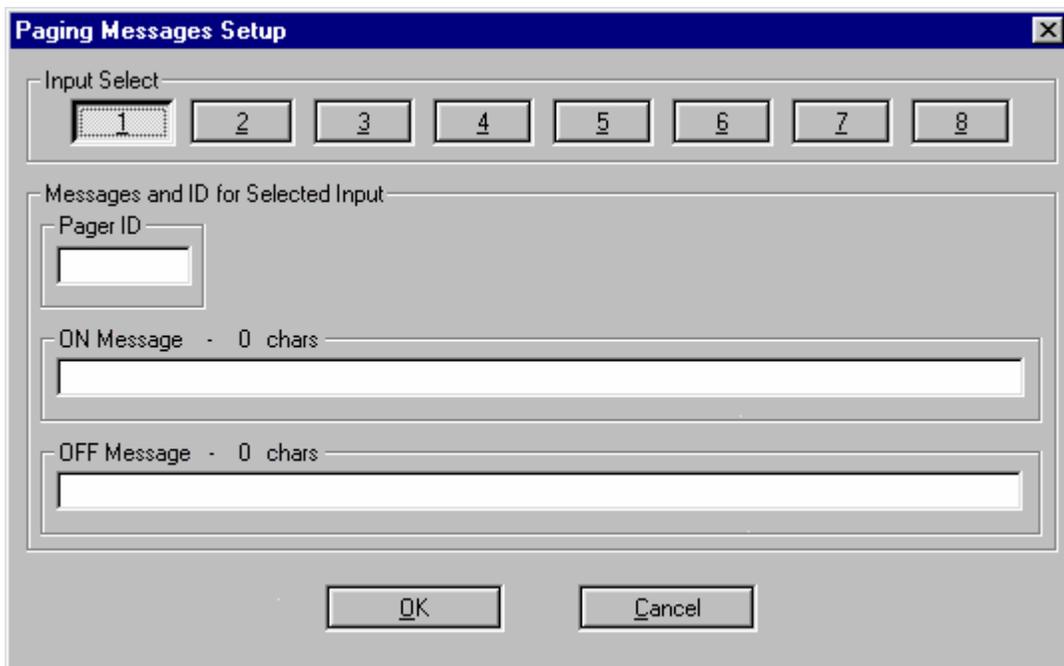
2. Select the Input Point number to be programmed by clicking on the corresponding Input Select Button.

3. Click the cursor in the Pager ID box and enter the pager number that messages for this input are to be sent to.

PAGE 4-4

2. Click the cursor (or use Tab Key) into to the ON Message box. Type the ON Message (maximum of 80 characters) for this input. The ON message is sent when the input status changes from the normal condition to the alarm condition.

3. Click the cursor (or use Tab key) into the OFF Message Box. Type the OFF Message (maximum of 80 characters) for this input. The OFF message is sent when the input status changes back to the normal condition.

4. Repeat above process for each input that is to be used. When moving between inputs in the Paging Messages Setup Window, changes are automatically saved. When finished programming all of the required inputs Click OK.

RS232 Serial Data Input Setup

1. From the Setup menu select Board and from the sub-menu that appears select RS232 Data Type. The following Window will appear.

2. In the Selection box select Serial Data.

3. In the Terminal Settings box select the Baud Rate and Parity Settings to match the host system serial port settings.

4. In the Paging Characters box enter the maximum number of characters that the paging carrier or system manager will allow in a single alphanumeric message.

Setup API-8/232 to Page All Events Generated Via Host System Serial Port

1. Within the Serial Data Configuration box , Key Strings section, select Disable.

2. Enter the pager ID number in the Default ID box. All events that are delivered to the "Serial In Port" on the API-8/232 will be sent to the pager or group of pagers that the Default ID number is assigned to.

Setup API-8/232 to Page Selected Events Generated Via Host System Serial Port

1. Within the Serial Data Configuration box , Key Strings section, select Enable.

2. Enter the Key Word(s) from the first type of event that is to be paged in the Key String 1 (and/or Key String 2) box. Enter the Pager ID in the ID field for Event Type 1. All events that are delivered to the "Serial In Port" on the API-8/232 that contain the ASCII character string(s) specified in the Key String 1 and Key String 2 , fields will be sent to the pager or group of pagers assigned in the Event Type 1, ID field.

3. Repeat for Key String Fields 2 through 8 if required.

IMPORTANT NOTES ON THE USE OF KEY STRINGS:

(1)   API-8/232 is case sensitive. Incoming data from the host system that is to be paged must contain Key Strings that are an identical match for the words programmed in the Key String fields.

(2)   When the Key String box is Enabled any events that are delivered to the "Serial In Port" on the API-8/232 that do not contain any of the ASCII character strings specified in any of the Key String fields, will be discarded and not paged.

(3)   When two Keywords are used as search criteria to identify a valid Event String, both the First Key String <u>and</u> the Second Key String must be found in the incoming data string for API-8/232 to identify the string as valid (to be paged).

Setup API-8/232 to Identify the End of Each Incoming ASCII String from the Host System

1. Within the Ending ASCII Configuration box , select the first ASCII character that identifies the end of an incoming ASCII string generated by the host system from the menu in box 1.

2. Repeat for Ending ASCII boxes 2,3 and 4 to define the ASCII characters which define the end of an event that is generated by the host system.

IMPORTANT NOTES ON THE USE OF ENDING ASCII CHARACERTS

1. Ending ASCII characters must be selected in the order that they appear at the end of the ASCII strings generated by the host system.

When Key Strings are not Enabled:
API-8/232 will page everything that is found in the incoming ASCII string field. The Incoming ASCII string field is defined as all ASCII characters that come after the end of the last ASCII string and everything that comes before the ending ASCII characters (as programmed in the Ending ASCII section of the RS232 Setup Menu).

When Key Strings are Enabled:
API-8/232 will search each event, defined by the ending ASCII , for the Event Types that are defined in the Key Strings Section of the programming. The ending ASCII defines the field in which API-8/232 should search for the Key Strings that have been programmed. API-8/232 will page all of the characters which are found in the ASCII string field, defined by the ending ASCII, subject to the Key String Matches being found in the field.

Setup API-8/232 to Modify Messages Generated Via Host System Serial Port

1. Within the Message Modifiers box , Click the cursor (or use Tab key) into Generic Header Field. Type in a header up to 20 characters in length. The header will appear at the start of every message received by the pager(s).

2. Click the cursor (or use Tab Key) into the Character Masks field. Type in up to 20 characters which are to be eliminated from the paged messages. Characters that are entered in this field will be removed from any valid message string. Any message which contains only characters which appear in the Character Masks field will be discarded and not paged.

3. Click the cursor (or use Tab Key) into the Consecutive Spaces Field. Enter an integer between 1 and 9. Consecutive spaces in any valid message string in excess of the integer entered in this field will be removed from the page and will be replaced with a single space.

    When all of the parameters in the RS-232 Window are complete Click OK.

RS232 SETUP MENU - Programming Example

RS-232 Setup

Selection
- ○ None
- ○ TAP
- ○ COMP2
- ● Serial Data
- ○ Custom

Terminal Settings

Baud Rate
- ○ 600
- ● 1200
- ○ 2400
- ○ 4800
- ○ 9600

Format
- ○ N,7,1
- ○ E,7,1
- ○ O,7,1
- ● N,8,1

Paging Characters

Max. Chars [80]

Serial Data Configuration
- ○ Disable Key Strings   Default ID [   ]
- ● Enable Key Strings

Key Strings

	Key Strings 1	Key Strings 2	ID
Event Type 1	CRITICAL ALARM	FIRE	1234567
Event Type 2	ALARM	INTRUSION	2345678
Event Type 3	SYSTEM TROUBLE	FAILURE	3456
Event Type 4			
Event Type 5			
Event Type 6			
Event Type 7			
Event Type 8			

Ending Ascii
1 [13 0x0d <CR> ▼]
2 [None ▼]
3 [None ▼]
4 [None ▼]

Message Modifiers
Generic Header [BUILDING C]
Character Masks [*!#&]
Consecutive Spaces [2]

[OK]   [Cancel]

Down Loading Data to API-8/232

1. From the Transfer menu select GO. The following Window will appear.

Transfer GO

Transfer Direction
- ● Upload Data From Board
- ○ Download Data To Board

Transfer Execution
[GO]   [Abort]

2. In the Transfer Direction box select Download Data to Board.

3. In the Transfer Execution Box Click GO. The Data Transfer Window will appear.
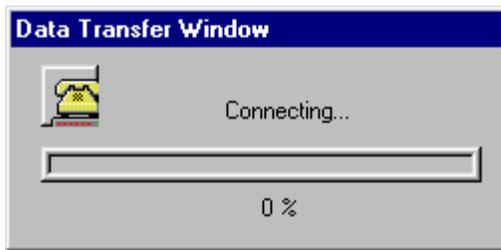
Data Transfer Window

Connecting...

0 %

4. During data transfer the LOAD LED will be illuminated.

5. When data transfer is complete (progress bar in Data Transfer Window is at 100%) a message box appears indicating Upload Successful. Click on OK.

Up Loading Data from API-8/232

1. From the Transfer menu select GO.

2. In the Transfer Direction box select Upload Data from Board.

3. In the Transfer Execution Box Click GO. The Data Transfer Window will appear.

4. During data transfer the LOAD LED will be illuminated.

5. When data transfer is complete (progress bar in Data Transfer Window is at 100%) a message box appears indicating Upload Successful. Click on OK.

Saving and Opening Programming Data Files

1. Upon completion of programming, the API-8/232 data may be saved as a file for retrieval or Re-programming of the unit.

2. To save a file, from the File menu select Save As.

3. In the 'Save In' box, select the directory/drive to which the file is to be saved.

4. In the 'File Name' dialogue box, type in the name of the file to be saved. Click on Save.

5. To open a previously saved file, from the File menu select Open.

6. In the 'Look In' box, select the directory/drive to which the file has been saved.

7. In the 'File Name' dialogue box, type in the name of the file to be opened. Click on Open.

Note: The paging interface programming data files will be saved in the following format*: filename*.pip

TROUBLE SHOOTING

If API-8/232 is not performing properly , use the following troubleshooting chart for solutions to common problems. If the problem persists, call the dealer where you purchased the product. If further support is needed call the Monitor Technologies customer support line. Customer Service Support is available at 1-800-452-4565   (for Canada or U.S. only).

Problem	Possible Cause	Remedy
NO POWER: Power LED Does not Illuminate	No power source connected	Connect Plug in Power Transformer (If Supplied) or Connect alternate appropriate power source (refer to Power Supply Specifications on Page 2-2)
	Power Source Connected at Incorrect Location	Connect Power Source to correct terminals (refer to Connection Diagram on Page 3-1) NOTE: Connecting a power source to the input terminals when the on-board jumpers are in the "DRY" position will cause damage to the unit.
	Power Source above/below specified ratings	Connect appropriate power source (refer to Power Supply Specifications on Page 2-2)
PHONE LINE TROUBLE: Line and Trouble LEDs Flash simultaneously and trouble piezo sounds (Only when Remote Paging Terminal Access has been programmed see page 4-3 for Setup instructions)	No telephone line connected	Connect a telephone line to RJ11 connector marked "LINE"
	Incorrect type of telephone line connected	Connect an analogue telephone line or extension
	The telephone line does not provide on-hook dial tone voltage	Ensure that the telephone line is equipped to provide on-hook dial tone voltage
	The telephone line is equipped with automated voice answer service provided by the telephone company. True dial tone is replaced by a pulsing audible signal when there is a voice message waiting to be picked up	Disable the audible signal feature of the automated voice answer service or remove this service from the line
	Other equipment is busy utilizing the telephone line	Disconnect other devices from the line

Problem	Possible Cause	Remedy
BUSY TROUBLE:	Paging Terminal modem(s) consistently	Increase "Paging Retries" in "Paging

Telephone Line or Paging Terminal Modem Busy . "BUSY" LED continues to Flash on every page attempt	busy	Functions Setup" Menu
	Outgoing telephone line is consistently busy	Increase "Paging Retries" in the "Paging Functions" Setup Menu Or Connect another available analogue telephone line that has less/no alternate uses
	Dial string requires an area code to access the paging terminal	Include the area code in the "Dial-up Number" field in the "Paging Functions Setup" Menu
	Dial string requires a prefix to access an outside line	Include the required prefix in the "Dial-up Number" field in the "Paging Functions Setup" Menu
	Dial String requires a pause between prefix required to access an outside line and the phone number required to access the paging terminal	Use Comma's in the "Dial-up Number" field in the "Paging Functions Setup" Menu to create a one second pause in the dial string. This is most often required between the prefix required to access an outside line and the phone number required to access the paging terminal.
PAGING FAILURE TROUBLE: Paging Failure after Retry Attempts are exhausted ("BUSY", "PAGE" and "TRBL" LEDs flash if the API-8/232 is setup for "DIRECT CONNECT" Paging Access in the "PAGING FUNCTIONS SETUP MENU") ("LINE" ,"BUSY", "PAGE" and "TRBL" LEDs flash if the API-8/232 is setup for "TELEPHONE DIAL-UP" Paging Access in the "PAGING FUNCTIONS SETUP MENU")	Paging Access has been incorrectly programmed in the Paging Functions Setup Menu	Enter all required digits in the "Dial-Up Number" field in the "Paging Functions Setup" Menu. Include any prefix digits required to access an outside line, any pauses required in the dial string and the area code if required. An example Dial-Up String may look like this 9,1115551234 Where: **9** is required to access an outside line **The Comma(,)** provides a one second pause **111** is the area code required to dial the paging terminal and **555-1234** is the paging system dial up-number
	Dial Up Number for Accessing The Paging Terminal is incorrect THE MOST COMMON ERROR IS THAT A PAGER ID NUMBER HAS BEEN ENTERED IN THE "DIAL-UP NUMBER" FIELD IN THE "PAGING SYSTEM SETUP" MENU.	Check that the access number provided by the paging supplier or system manager is the correct one. The Dial-Up Number is the telephone number that accesses a modem pool at the paging terminal. This is the number that can be used to send alphanumeric messages from a PC or other alphanumeric message entry device. It is not the pager ID number. Check that the number you have obtained is the right one by dialing the number from any telephone handset. Once connected you should hear modem tones. If you dial the Paging Access Dial-Up Number and you receive a voice prompt, you have the wrong number.

Problem	Possible Cause	Remedy
PAGING FAILURE TROUBLE: Paging Failure after Retry Attempts are	Paging System Password (programmed in the Paging Functions Setup Menu)	Program the correct Password as provided by the paging supplier or

Problem	Possible Cause	Remedy
exhausted (CONTINUED FROM LAST PAGE).	does not match Password required by Paging terminal for successful communication	system manager. Enable the Paging System Password in the "Paging System Setup" Menu and Enter. Enter the correct password in the "PAGING SYSTEM PASSWORD" Field.
	Paging Communication Settings do not match settings required by Paging terminal for successful communication	Program the correct communication settings as provided by the paging supplier or system manager. Select the correct "Terminal Settings" in the "Paging System Setup" Menu. The Default Terminal Settings are 1200 Baud, Parity E,7,1.
	Pager ID number(s) is not valid	Confirm that the Pager ID# provided by the paging supplier or system manager is active and valid. Send a test page from another Message Entry Device (Touch Tone Phone, Alphanumeric Messaging Software or Dedicated Message Entry Device).
	Pager is not correct type or is not programmed to receive type of data being sent by API-8/232	When sending Alphanumeric Messages using the API-8/232 ensure that the pager is capable of receiving full text messages.
CAN'T UPLOAD/DOWNLOAD "LOAD" LED does not illuminate and Communication Error Dialogue Box Appears while Uploading/Downloading programming data	Incorrect Computer Port Setup Selection	From the "Computer Port Setup" Menu select the COM Port on the PC that is to be utilized for programming.
	Programming Cable connected to incorrect port on PC used for programming	Connect the API-8/232 Programming Cable to the Correct Port on the PC that is to be used for programming.
	Programming Cable connected to incorrect port on API-8/232	Connect the API-8/232 Programming Cable to the "Serial Out (Program)" Port on the unit (see Connection Diagram on Page 3-1).
	Incorrect Cable used for Uploading/Downloading	Use the API-8/232 Programming Cable that is supplied with the unit.
	API-8/232 is processing /sending Messages	Wait for API-8/232 to send all messages which are pending in memory. Or Momentarily short the "RESET" terminals to clear all messages from memory.

Problem	Possible Cause	Remedy
RS232 DATA NOT BEING RECEIVED BY API-8/232 "DATA" LED does not illuminate and Paging sequence is not initiated when	RS232 Cable connected to incorrect port or terminals	Connect RS232 at Correct Location on host system.
	Incorrect Comm Port Setup or Selection	Set Up the communications port on the

RS232 data transferred - API-8/232 is not receiving data from host system	on host system	host system using manufacturers instructions. Note: Program API-8/232 "Terminal Settings" in the "RS232 Setup" Menu to match those of the host system.
	API-8/232 Not programmed to Accept RS232 Data	Program API-8/232 to accept RS232 ASCII Data. In the "RS-232 Setup" Menu select "Serial Data. Program "Terminal Settings" in the "RS232 Setup" Menu to match those of the host system.
	RS232 Cable connected to incorrect port on API-8/232	Connect RS-232 cable from the host system to the "Serial Port In" connector on the API-8/232 (see connection Diagram, page 3-1).
	Incorrect Cable configuration	From the host System Connect the Tx to the Rx on API-8/232 (Pin 3) From the host System Connect the Rx to the Tx on API-8/232 (Pin 2). From the host System Connect the Gnd to the Gnd on API-8/232 (Pin 5).
RS232 DATA NOT BEING PAGED "DATA" LED illuminates and Paging sequence is not initiated when RS232 data transferred - API-8/232 is receiving data from host system but is not paging information	Incorrect Data Type Selection in RS232 Setup Menu	To Program API-8/232 to accept RS232 ASCII Data: In the "RS-232 Setup" Menu select "Serial Data".
	Incorrect Terminal Settings in API-8/232 "RS232 Setup" Menu	Program "Terminal Settings" in the "RS232 Setup" menu to match those of the host system.
	If Keystrrings are enabled, Incoming Data does not contain a match for any of the Keystrings programmed in the RS232 Setup Menu. Important Note: Keystrings are case sensitive (API-8/232 will only identify Keystrings which are an exact match for strings contained in incoming Data).	Program "Keystring" Fields in the "RS-232" menu to identify text that is found within the events generated by the host system that are to be paged.
	Data is not RS-232/ASCII or is of some unknown format or utilizes unknown protocol.	Connect API-8/232 to an RS-232 port that provides ASCII data strings for event reporting purposes.

API-8/232 LED INDICATORS

1.   Uploading or Downloading Programming Information:
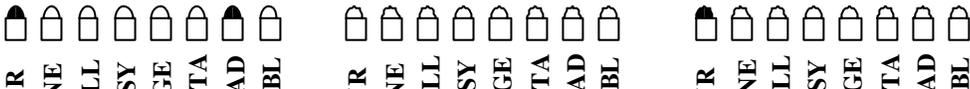
SUPPORT AND INFORMATION

FOR INFORMATION REGARDING API-8/232, PLEASE CALL OR WRITE TO MONITOR TECHNOLOGIES AT:

Monitor Technologies Inc.
9011 Leslie Street, Suite 102
Richmond Hill, Ontario
L4B 3B6

Telephone: (905) 889-6511
Fax: (905) 889-6235
E-mail: rob@mtca.com
Web Site: www.mtca.com