PREFACE

This is the first of four books that accompany the Management Analysis Program (MAP) System for cable pressurization maintenance. This book, entitled *MAP System Operations Manual*, includes everything the MAP user needs to know about accessing and working with the MAP databases. The three other books in this series are:

> Book 2 - *MAP System Data Entry Manual* - describes how to set up the MAP System to record, analyze, and transmit data.

> Book 3 - *MAP System Administration Manual* - assists the system administrator in maintaining system security, backing up and restoring Cable Pressurization Automatic Monitoring Systems (CPAMS) data, and troubleshooting.

> Book 4 - *MAP System Installation Manual* - explains how to install the MAP Engine Linux or UNIX operating system, the PressureMAP and PressureWEB software, and how to troubleshoot common hardware setup problems. This book also describes the steps for updating the MAP System to the most currently released version.

Please note that updates to the MAP System manuals are available on our website (*www.airtalk.com)*. From the **AirTalk** home page, click the **Documentation** link, then scroll down the right column and click **PressureMAP Manuals**. A list of hyperlinked PDF files representing the individual manual sections is provided for viewing or downloading. Included is the most recent version of PressureMAP, plus the preceding version.

ORGANIZATION OF THE OPERATIONS MANUAL
The following is a brief description of each of the nine sections and five appendices that make up this manual:

1. **Preface** - describes the various MAP programs, explains the structure of the MAP documentation books, describes the individual sections of Book 1, and provides general information on documentation conventions.

2. **PressureMAP** - describes the six options in the MAP Programs Menu.

3. **AlarmMAP** - explains what AlarmMAP does and what a user must do to obtain reports and send alarms.

4. **ReportMAP** - describes how customize the format of reports and how to instruct the program to send reports to the various Report Centers.

5. **CableMAP** - indicates how to access the CableMAP database to obtain Cable Opening and Closing Numbers, examine Opening Logs, produce reports, etc.

6. **Hand Held Terminal Access** - describes the features available to hand-held terminal users: Specific Device Info (with Realtime Readings), and portions of the CableMAP program.

7. **User Initiated Operations** - explains how to manually call an office for new "Current" readings and how to regenerate the office dispatch list and office index. It also explains how to access the error files generated by AlarmMAP, and how to use these files to troubleshoot CPAMS alarm transmission problems and the SMTP mail server. In addition, this section contains descriptions of the Custom Reports available from PressureMAP.

8. **CPAMS Diagnostics** - describes the automated diagnostic and testing procedures for the System Studies 289H monitors as well as those for the E2A Remote. This section also describes how to invoke the gateway from PressureMAP to other types of monitoring systems; this allows manual scans, maintenance operations or even CPAMS data entry to be performed without leaving the PressureMAP program. The diagnostics tests for the System Studies Dial-a-Ducer are covered in Appendix 3 of the MAP Data Entry Manual.

9. **Glossary** - defines technical terms used throughout the MAP documentation.

10. **MAP Engine Maintenance** - Offers suggestions for helping to maximize the life of your MAP Engine computer.

11. **Appendix 1**- CPAMS Reading Messages contains examples of output readings from the various CPAMS units that the MAP programs support.

12. **Appendix 2** - Dispatch Conditions lists a random selection of Dispatch Condition Ratings which can be issued through PressureMAP.

13. **Appendix 3** - System Errors List contains all of the possible error messages that can be issued while using the MAP System.

14. **Appendix 4** - Task Dispatching Procedures explains each of the six possible Task Dispatching Procedures recommended by PressureMAP.

15. **Appendix 5** - Report Fields contains brief definitions of the data fields in various PressureMAP reports.

16. **Appendix 6** - Positive Air Flow System (optional appendix section, not applicable to all users).

GENERAL INFORMATION

This manual is intended to be used as both an orientation guide for first-time users and as a reference manual for those already familiar with the various MAP programs.

Before jumping into PressureMAP, take the time to become familiar with the operation of the program. The following segments outline special operating techniques that are available throughout the program. Please read through these features, as the knowledge of their use will eventually save you time.

Language Selection
The principal language for each User Account is usually assigned by the System Manager in the User Management program, but each individual user may also select Option 4, Language Selection, from the System Options Menu at any time when using the MAP program. The language selections are English, Spanish, Swedish, and French Canadian, with English being the default selection. While not all of the

screens in the MAP programs will be translated from English to the selected language, the ones that are translated should enable you to quickly find device data and histories.

Alternate Consoles

PressureMAP's operating system provides the capability of switching consoles at the computer during normal user operation. A user session begins on one of the eight user-designated consoles. If a user is logged into the program at the MAP Computer, the MAP Program's Status Report is available by pressing the *<Alt> <F12>* keys. A list of incoming alarm activity can be viewed using *<Alt> <F10>*. Consoles may be switched back and forth without disrupting normal user or program operations.

Beginning with PressureMAP Version 25, it is also possible to remotely log on to the system and display the System Status from a View Logs Menu. This procedure is described at the end of Section 4 of the *MAP System Administration Manual*. For more information on the MAP Program's Status Display, please refer to the Appendix 2 of the *MAP System Administration Manual*.

Multiple Printers

The MAP software allows multiple printers, local and remote, to be set up to receive printed reports from the system. A system default printer is designated through System Administration. However, when logging in, a user may designate a "default" printer for that login session, while having the ability to direct individual print jobs to any specified printer. In addition, printers may be configured to receive reports from other MAP systems.

Reports and Screens

In the text of this manual, example reports and screens model the System Studies 289H LSS, uM260 Micro Monitor, Sparton, Chatlos/Hercules, E2A, TMACS, Lancier, Nicotra and TELSEC monitoring systems on a UNIX or Linux-based MAP System or a PressureMAP Server. If your system setup is slightly different from the ones depicted by the text, don't be alarmed. Each MAP System can be configured to support a variety of functions, so if the documentation shows options not in your MAP System, please feel free to contact System Studies Technical Support for more information.

Special Function Keys

In PressureMAP, there are function keys that allow for special input and output. The names of these special function keys may vary among keyboard manufacturers, but the operation of the keys will remain the same. For example, the key labeled *<Return>* on one computer system will perform the same function as the key labeled *<Enter>* on another. Below, the keys which have special meanings are described:

<Backspace>
   The *<Backspace>* key may also be identified as *<BS>*, *<Rub>*, *<Rubout>*, or *<Ctrl H>*, depending on the machine being used. *<Backspace>* is used to correct entry errors on the input line BEFORE <Return> has been pressed. To correct an entry, press the *<Backspace>* key and the cursor will move one space to the left, deleting any existing character in that position. Hit *<Backspace>* repeatedly until the incorrect entry has been removed. After backspacing has been completed, you may then retype the correct entry.

<Esc>
   If you wish to cancel one of PressureMAP's long listings, you may do so by hitting the *<Esc>* key. Used as a data interrupt key, *<Esc>* halts the listing of information and returns you to the last menu displayed.

<Return>

The *<Return>* key (also identified as *<Enter>*, *<CR>*, or *<Send>*) is the entry key. *<Return>* completes an entry made by the user and initiates the program response. Depending on your keyboard setup, *<Enter>* on the keypad may not work the same as *<Return>* on the main keyboard.

Make a special note that pressing *<Return>* after typing an entry not recognized by the program will cause the program to re-display the last prompt. At this point, you should try to enter a valid response to the prompt issued by the program. Also, once a MAP program menu selection has been made, *<Return>* itself is always a valid response. Pressing *<Return>* will finish the current function and move the cursor back to the previous menu.

Data Interrupt Keys

There is one key sequence that will interrupt a data listing which is scrolling across the screen. Pressing *<Ctrl S>* will allow the listing of information to be paused, or continued, on a toggled basis. By pressing these two keys simultaneously (much like creating an uppercase S, except that you use the *<Ctrl>* key instead of the *<Shift>* key) you are instructing PressureMAP to either pause the information being scrolled or continue the listing of data. Although *<Ctrl S>* works as a toggle on most computers, you may need to use *<Ctrl Q>* to resume scrolling.

Edit Mode Key

When entering information into the software's data fields, such as the address or remarks field, the field editor function enables you to overwrite or insert words or characters into a field, as well as replace all of the information currently in the data field. Pressing the *<Ctrl N>* key allows you to switch from the default replace mode to the overwrite mode. Once you are in this mode, you can toggle between the overwrite or insert modes by using the edit mode key (*<Ctrl N>).*

To confirm which editing mode you have selected, a mode indicator message is displayed on the top dashed line of the edit window, near the right margin. A sample data entry screen with the field editor in the overwrite mode is shown in SCREEN 1-1.

```
Device info for EXAMPLE: <PgUp>, <PgDn> more, <Esc> finish screen
        <Return> next field, <Backsp> delete char, <Ctrl B> previous field

--------------------------------------------------------------------- OVERWRITE --
Device #:  011-A2-021A                          Type: MF   Range:    19.0 S-M:  6.8
Address:   MH102-NORTHWEST AND SOUTH STS   Loc:  20 Pipe:    A     OAU:  8.5
TD Type:   AF/19.0
Sheath(s): 01        03        748


Cable:         32    Prim Pair:   1681    Sec Pair:   TD13    Sort Key:    RASE
Plat #:  RT UG 73    Stickmap:       3

Remarks:*MF ON ROUTE A IS ALSO USED IN NORTHWEST OFFICE
        IT IS DEVICE 025-15 IN THAT OFFICE

Readings       Curr Last  Tdy  -1   -2   -3   -4   -5   -6  Wk-1 Wk-2 Wk-3 Wk-4
--------       ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
               7.5  7.5  7.5  8.0  8.0  7.5  7.5  7.5  8.0  8.0 15.5  7.5  7.5
-----------------------------------------------------------------------------
                                                    PressureMAP XX.XX.XX
```

SCREEN 1-1: DATA ENTRY SCREEN

The ***Replace Mode*** is the default; it's the mode the editor is in when moving to a data entry field. If you enter any character (other than a carriage return) into a field when in the replace mode, that character will replace all of the previous information in the field.

The ***Overwrite Mode*** allows you to overwrite and replace individual characters in the field. Any character entered when you are in overwrite mode will replace the character at the current cursor position, and the cursor will advance to the next position in the field. Any characters entered at the end of the current text will be added to the data field.

The ***Insert Mode*** enables you to insert characters into an existing data field. The characters are inserted into the data field before the cursor position, and the cursor moves to the next position in the field. Any characters entered at the end of the current text will be added to the data field.

Invoking the Field Editor
As stated above, the field editor feature is invoked by pressing the edit mode key (***<Ctrl N>***). Once you are in this editing mode, the special edit key functions (shown in TABLE 1-1) can be used to advance through the data fields.

Key Name	Key Used	Action
Edit Mode key	<Ctrl N>	Enter Edit Mode
Left key	<Left Arrow> or <Ctrl G>	Left, Back
Right key	<Right Arrow> or <Ctrl V>	Right, Forward
Home key	<Home> or <Ctrl W>	Start of Field
End key	<End> or <Ctrl E>	End of Field
Backspace key	<Backspace> or <Ctrl H>	Delete, then Back
Delete key	<Del> or <Ctrl O>	Delete
Enter key	<Return> or <Ctrl J>	Complete Field
Terminate key	<Esc>	Complete Screen

TABLE 1-1: EDIT MODE KEY DEFINITIONS

The overwrite and insert edit modes share the following cursor movement and deletion keys. In either edit mode, you can move the cursor backward and forward in the text using the left and right keys. The cursor can be positioned anywhere from the first character in the data field to the position just beyond the last character of the data field. The home key moves the cursor to the first character in the field, and the end key to just beyond the last character of field, including any "hard" spaces in the text. The backspace key deletes the character in front of the cursor, and moves the cursor back one position. The delete key removes the character at the current cursor position and leaves the cursor at the same position in the text.

Note: In replace mode the left and right keys move back a field or advance a field. Only in overwrite and insert modes do they operate on the position within the field.

You can hit the edit mode key at any time while in replace mode to change to the overwrite or insert modes. If you select the overwrite mode after entering one or more characters in the replace mode, all text entered so far **overwrites** text in the field from the beginning, and the cursor is positioned after the new text. The net effect is as if you had selected overwrite mode before any text was entered.

When you have finished entering or modifying the data, you can switch back to the replace mode by exiting the editor screen using the *<Esc>* key.

Screen Browser Function Keys

When using an editor login such as CPAMS, PDATA, CDATA or ADATA, a feature called Screen Browser enables you to use the special Browser Keys. The screen and input key format allows you to browse through the data presented on the screen. You can scroll up or down a single line or a page at a time, or to the top or bottom of the report. If you have selected a list or range of task numbers, a specific task or device may be found by using the *F*, *N*, or *B* keys. The Browser Key format also allows you to group lines within the report, allowing you to customize each report's output.

Knowing how to properly use the Screen Browser Function Keys will save time when you would like to quickly view or print a report. This section offers a detailed definition for each of these keys.

Note: Not all keyboards or remote access programs will support the special function keys such as *<PgDn>* or *<PgUp>*. If this proves to be the case, only the single character keys such as *J* or *K* can be used.

<Esc>

Entering the *<Esc>* key will exit the current screen, returning you to the previous menu, regardless of where you are in the report at the time.

J

The *J* key will move the cursor one line down in the spreadsheet. The *<Tab>*, *<Ctrl J>* and *<Down Arrow>* keys will also move the cursor down one line.

K

The *K* key will move the cursor one line up in the spreadsheet. The *<Up Arrow>* key will also move the cursor up one line.

H

A special editor key help screen will be displayed by entering either the *H* key, a question mark *?*, or the *<Ctrl Z>* keystroke. The following special keys and their functions are displayed and can be used when moving through the spreadsheet. To exit the help screen, enter *<Return>*.

Type *U* or *<Page Up>* to scroll up one screen.
    The *U* and *<Page Up>* keys will scroll up one screen of data.

Type *,* (comma), *<* (less than) or *<Home>* to scroll to the top.
    The *,* (comma), *<* (less than) and *<Home>* keys will move the cursor to the first task field on the screen.

Type *D* or *<Page Down>* to scroll down one screen.
    The *D* and *<Page Down>* keys will scroll down one screen of data.

Type *.* (period), *>* (greater than) or *<End>* to scroll to the bottom.
    The cursor will move to the last task field on the screen by pressing either the *.* (period), *>* (greater than) or *<End>* keys.

Type *<Ctrl L>* to clear and redraw the screen.
>The *<Ctrl L>* keystroke will redraw the screen, displaying the entered data for all data fields. This keystroke is useful when viewing the MAP programs remotely since it clears any characters created by line noise.

Type *P* to print the report.
>Selecting *P* allows the user to print to a system printer or the screen. Printing to the screen is useful when logged in remotely because it allows the user to capture the report and print to a printer attached to a Windows computer.

>After entering *<P>* you will be prompted to select a printing option: use the default printer, select a system printer for the current print job, or print to screen. If more than one printer is configured for the MAP system, the default printer is the one selected at login, and the option to select a printer displays the available printers in spreadsheet selection mode (described later in this section). Entering *<Esc>* from the spreadsheet takes you out of the selection process and gives you the default printer.

>When you select the Print to Screen option, the screen will prompt you to turn on the printer before the process begins, and to turn the printer off when the report is done.

Type *X* to export the report to a DOS floppy disk.
>This option allows a user at the MAP computer to export the selected information to a DOS formatted floppy disk that is in either drive A or B of the MAP System. When *X* is selected, you will be asked to identify the drive the floppy is in and the name of the file you wish to create.

Pattern Search Keys
>The next four keys all search for a pattern of characters that the user types in. Because the report you have selected may contain information for many devices, searching for a character pattern can greatly aid in finding the information you need. A pattern can be as simple as a single number or letter, or as complex as a utility hole number or pipe name. For example, if you want to view device information for a device that you know is located in MH 592, then the following pattern entry will display all devices in that utility hole:

>>`{MAP Prompt}:  MH592`

Type *G* to group lines.
>The Group Option will modify the screen display to show only the lines that include the user specified pattern. You enter a pattern when the following prompt is displayed:

>>`Group Which Lines?`

>If you wish to redisplay the entire spreadsheet after viewing the grouped lines, simply select *G*, (for group) again and press the *<Return>* key when the prompt is displayed.

Type *B* to search back.
>This pattern search function will scroll back through the spreadsheet, stopping each time the user supplied pattern is found. This pattern is entered when the following prompt is displayed:

>>`Search Back For?`

Type *F* to search ahead.
>
> This pattern search function will scroll forward through the spreadsheet, stopping each time the user supplied pattern is found. This pattern is entered when the following prompt is displayed:

>> **Search Forward For?**

Type *N* to search again.
>
> The *N* key will search for the next occurrence of a previously entered pattern. It will move the cursor either forward or backward through the spreadsheet, depending on which search function has been selected.

Program Criteria

The following information is listed to help clarify the special features found in the MAP software. Understanding the use of these features will help to make the time you spend inside the MAP System environment more efficient.

Alternate Consoles

The multi-user operating system provides the capability of switching consoles both at the computer during normal user operation and remotely via a View Logs Menu. A user session begins on one of the eight user designated consoles. If a user is logged into the program at the MAP Computer, s/he may view the MAP Program's Status Report by pressing the *<Alt> <F12>* keys. A list of incoming alarm activity can be viewed by pressing the *<Alt> <F10>* keys. Consoles may be switched back and forth without disrupting normal user or program operations. Performing this function remotely requires a login and password for the designated system. You can obtain this information by contacting the System Studies Technical Support Department.

Multiple Printers

The MAP software allows multiple printers, local and remote, to be set up to receive printed reports from the system. A system default printer is designated through System Administration. However, when logging in, a user may designate a printer for screen capture or Browser printing during that login session, while having the ability to direct individual print jobs to any specified printer. In addition, printers may be configured to receive reports from other MAP systems. Please note that the user can print to one printer at a time.

Capitalization

You may enter either uppercase and/or lowercase letters for input at any MAP System prompt. The program will automatically capitalize all alphabetic characters before it uses them.

Office Name Abbreviations

Within the MAP System, you may enter an office name abbreviation (instead of a full office name) any place that an office name is expected. In addition to office names, the MAP System will also accept an abbreviation of the two keywords SYSTEM and OTHER. Office name abbreviations have a minimum length of two characters. For example, if a system has an office: "1. WARSAW," legitimate office name abbreviations would be WA, WAR, WARS, and WARSA. Also, if the system has the additional two offices: "2. WALLINGFORD" and "3. WASHINGTON," then the abbreviation WAR would uniquely specify office 1, WAL would specify office 2, and WAS would specify office 3. Although the abbreviation WA is ambiguous, the MAP software will accept such an office name by choosing the first office that matches the abbreviation; in this case, it would be office "1. WARSAW."

Dash Placement

Monitoring device identifiers, such as P-023, AF-011 and T-004, do not require that the dash (-) or the zeros be entered when requesting information. PressureMAP will recognize a Device Number such as P23. Note that this is in effect only if you are not using user-defined device numbers. For additional information refer to "Selecting Devices by Access Number" in this section.

Non-Essential Alphabetical Characters

When requesting information on pressure and flow transducers, you are not required to enter identifying letters to receive valid output. This is because PressureMAP will use pressure and flow transducers (not contactors, volume counters, etc.) as the default device types whenever a device number is entered. For example, P-007 (Chatlos) and T-007 (Sparton) may be input into each respective system by typing only the number 7. (Note that this feature is in effect only when user-defined device numbers is not turned on.) Also, notice that if you are requesting information concerning a device other than a pressure or flow transducer, you WILL need to enter the CPAMS device code to fully reference the device desired. (Refer to TABLE 1-11 at the end of this section for a complete list of the valid CPAMS device codes.)

List/Range Syntax

Often, when a MAP program requests an office name, task number or device number, it is possible to make a multiple selection. Using the List/Range entry method, you can specify just about any combination of offices, tasks or devices that you may want to inspect.

Office Name Syntax

In order to specify a list of offices at a program prompt, enter all the desired offices and separate each one with a comma. For example, the following prompt indicates that you want to include office 1, 5, and 7 in the program function:

        {MAP Prompt}: 1,5,7

Furthermore, a range of offices may be specified at a PressureMAP prompt by entering the lowest and highest office numbers in the range, separated by a slash (/). For example, if you want to specify that offices 5, 6, 7, and 8 be included in a PressureMAP function, then the following entry will carry out this command:

        {MAP Prompt}: 5/8

To provide even more user control, both the list and the range method of requesting offices may be used in conjunction. To make use of both the list and the range methods of specifying offices, simply place the range of offices within the list being specified. The following example should help to clarify this point:

        {MAP Prompt}: 6,8,13/15

This entry will successfully indicate offices 6, 8, 13, 14, and 15 for the function being carried out. (This is assuming, again, that there are at least 15 offices in your system.) If you are unsure of the available office names, type a question mark (*?*), followed by *<Return>*, for a complete list of the offices supported by your PressureMAP system.

Task Number Syntax
You may generate a report for several Task Numbers at once by entering the Task Numbers, separated by commas. This will generate a Detailed Task Report for the specified Task Numbers.

You can also specify a range of Task Numbers by typing the first (lowest) Task Number, a forward slash (/) and then the last Task Number. In this case, the whole range of Task Numbers will be listed in the Detailed Task Report. For example, the following entry indicates that you want to include Task Numbers 0020002 through 0020012 in the report:

```
Task Dispatching for which Task #?  20002/20012
```

Also, when requesting a Detailed Task Report, you may combine multiple requests with range requests. This feature offers a flexible means of listing Task Numbers for a Detailed Task Report. Notice that you are not required to type the leading zeros when entering Task Numbers for the Detailed Task Report.

Selecting Devices by Device Number
To generate a Specific Device Report for a single device, enter the device number, followed by *<Return>*. If you wish to generate a report for more than one device, enter multiple device numbers separated by commas. Hit *<Return>* after the last device number entered. Enter a range of devices by typing the lowest device number, a forward slash (/) and the highest number. Ranges for device numbers that begin with a letter must be entered in alphabetical order, such as DRYER/K001, for example. Complete the entry by pressing *<Return>*.

In addition to the methods outlined above, you may combine multiple selections with range selections. This feature allows you to easily create a Specific Device Report for as many devices as you wish. For example, entering 001-01, 001-03, 001-04/001-15 will give you a report for devices 1, 3 and 4 through 15 on the first relay card in an office monitored by a 289 LSS. ALL is also a valid selection, and will list all devices in the office.

Note: For both **Sparton** and **Chatlos** monitoring systems, it is not necessary to enter the letter *T* or *P* when accessing information on pressure or flow transducers (unless you are using user-defined device types). However, CPAMS letter coding is required when requesting information on contact alarms or contactors. (More information on CPAMS letter coding can be found in Table 1-12 in this section.)

Selecting Devices by Access Number
If you are viewing an office that has User Defined Devices turned on, you may also select a monitoring device by entering the corresponding access number. Access numbers are entered with a leading sharp character (eg. #001A) to distinguish them from device numbers and may be abbreviated (except for addressable transducers). For example, #1 is interpreted as #P -001 for a Chatlos L2, #T-001 for Sparton, and #001A for E2A. For 289H LSS devices, the device/access number is a card/pair combination. The Access Number "#2-1", for example, is interpreted as "002-01". However, to look at a device with access number 001-02, you could enter either "#1-2" or "#2" since if you only specify the pair, the program assumes card 1.

You may use the following three methods of entering device access numbers for the Specific Device Report:

•   Enter a single device access number, followed by *<Return>*.

- If you wish to generate a Specific Device Report for more than one device, enter multiple access numbers separated by commas (eg. #1, #55). Hit *<Return>* after the last number entered.

Note: Unlike device numbers, you cannot separate access numbers with a forward slash (/).

- Access numbers may also be combined with device numbers in the same entry (eg. #1, #2, A1P1/B1F3). Complete the entry by pressing the *<Return>* key.

It is important to note that the sharp (#) is already allowed as a valid character in user defined device numbers and continues to be allowed in these numbers. All user input entered with a leading sharp that **exactly** matches an existing device number (leading sharp included) are NOT treated as access numbers, but reference the matching device number. For example, if an E2A office has a user defined device number #11, then entering #11 selects the device, NOT access number 011A.

Selecting Devices When Access Number Translation Is Enabled
In addition to the methods outlined above, when viewing an office that has the Access Number Translation feature enabled, you may also select a monitoring device by entering the translated access number with two leading sharp characters (e.g., ##001-03). For more information on the Access Number Translation Capability, please refer to User Support in the PressureMAP section of this manual.

You may use the following three methods of entering translated device access numbers for the Specific Device Report:

- Enter a single device access number, followed by *<Return>*.

- If you wish to generate a Specific Device Report for more than one device, enter multiple access numbers separated by commas (e.g., ##001-03, ##002-03). You cannot separate access numbers with a forward slash (/). Hit *<Return>* after the last number entered.

- Access numbers may also be combined with device numbers in the same entry (e.g., ##001-03, A1P1/B1F3). Complete the entry by pressing the *<Return>* key.

Special Wildcard Entry
PressureMAP enables you to use a wildcard character (*) to initiate unique search strings from several Device History Menu selections. The wildcard can be used with the following menu options:

- History of all devices on a route/sector
- History of all devices at a location code
- History of all devices at a manhole/address
- History of all devices by type
- History of all devices by sort key

Entering a wildcard with the above options makes it possible to further classify your device history selection and combine information into one report which, otherwise, would take several report option selections to achieve. The special wildcard character can also be used with the extended information character (x) to produce an extra line of information for each device below the history readings.

Spreadsheet Selection

When PressureMAP displays a prompt for an office name (e.g., **Which office?**), the user can enter a question mark (*?*) to call up a listing of all offices in spreadsheet format. The selection line for each office contains the office number, the office name, the monitor type, the phone number (or IP address), and the modem site name (if applicable). If the office is disabled, the last field will be "DISABLED". Use the up and down keys to move to the desired office, and press *<Return>* to select it. Please note that you can only select one office at a time by this method.

The spreadsheet may be searched or sorted for viewing using the commands described previously in "Pattern Search Keys." For example, enter *G* at the **Select Office** prompt, then enter *289H LSS* for all offices of monitor type 289H LSS.

If a system has more than one printer configured, the user may select a printer for screen capture or Browser printing during the current session at login, via spreadsheet selection mode. The selection line for each printer contains the printer name, type (local or remote), and comment. Thereafter, whenever the user elects screen capture printing (*<Ctrl P>*) or Browser printing (*<P>*), a prompt will offer the option of selecting a printer. Please note that you can only select one printer at a time from the spreadsheet listing.

Kilo and Mega Data Values

PressureMAP's data fields for information such as **Range**, **S-M/K**, **OAU**, and readings can take entries up to four characters. Because the decimal point is automatically added by the PressureMAP editor, the final digit of each entry will represent the number one place to the right of the decimal point. For data values that are in the hundreds, thousands or millions, you need to enter the numbers using a K (kilo) or M (mega) format, as shown in TABLE 1-2. If the value can be displayed in four digits, it will be, as shown in the first two examples in the table. If the value is too large to be displayed in four digits, the fractional portion of the value is rounded or truncated, as shown in the last two examples.

Value	Input	Display
500	5K or .5K	500.
1,000	10K or 1.0K	1000
10,000	100K	10K
100,000	1M or .1M	100K
1,000,000	10M or 1.0M	1M
2,700,000	27M or 2.7M	3M
99,900,000	999M	100M

TABLE 1-2: KILO/MEGA DATA VALUE ENTRY

Quit/Logoff

The Quit/Logoff option is mentioned here to emphasize its importance. Always use the Quit/Logoff option to exit PressureMAP. Alternate exit routes (such as hanging up your modem connection) may temporarily retard system response to the next caller.

Help Screens

Entering a **?** *<Return>* at most of the prompts will bring up a help screen which will explain the current procedure. Note that not all menus have help screens. However, at prompts where a question mark is entered to retrieve a list of available offices, type **HELP** to request the help screen.

Choosing an Option That Is Not Displayed

Choosing an option that is not displayed will have one of two results. It will either cause the prompt to be repeated on the screen, or the entire menu will disappear and be re-displayed.

Question Mark

At many of the system prompts, you may enter a *?* followed by *<Return>* to call up a help screen. If no help screen is available, the prompt will be re-displayed. However, at a prompt for an office name (e.g., `Which office?`), the user can enter *?* to call up a listing of all offices in spreadsheet format.

Arrow Keys

On some terminals, pressing an arrow key will end the current data entry procedure, regardless of which data field you are working on at the time. This happens because the terminal is slower at sending characters than PressureMAP expects. While pressing most keys sends a single character to the computer, the arrow key, as well as several others, sends a series of characters. If the terminal takes too much time between one character and the next, PressureMAP will read the first character of the series as if it were a single character. The first character in the arrow key series happens to be a break character. If pressing an arrow key on your terminal ends the procedure that you are working on, we recommend that you avoid using the arrow keys. Other keys that may cause problems are: *<Home>*, *<Page Up>*, *<Page Down>*, *<End>*, *<Insert>*, *<Delete>*, *<Num Lock>*, *<Scroll Lock>* and *<Print Screen>*.

Number Keys

Most keyboards have a *<Num Lock>* key which acts as a toggle switch for the numeric keyboard. Within the MAP System, the number keys will work only if the *<Num Lock>* key is toggled for numbers. If the *<Num Lock>* key is toggled against numbers, the keys of the numeric keyboard may send erratic messages that interfere with either the MAP software or the communications software.

Default Option

At many of the prompts, a default option will appear in parentheses. A default option is a value or entry that is preprogrammed into the system. The default option may be selected by pressing *<Return>*.

Time Default

After a specified amount of time, the program will back out of some menus and display the previous screen. This process will continue until the program backs up to the user's entry menu level. The timeout prevents users from inadvertently tying up the program. The menu timeout period is five minutes of user inactivity. This default cannot be changed by a system administrator.

Documentation Conventions

The following segments list the standards that are used throughout the MAP System manuals. Please make sure you understand the following conventions so that you can benefit fully from the reference materials.

Case Sensitivity
MAP programs are not sensitive to the case that is used for input; you may enter information in either uppercase or lowercase letters. However, in the documentation all user input is displayed in uppercase (CAPITAL) letters.

The use of uppercase letters in the documentation should clarify what is actually input by you, the user. Remember that when you need to enter something into the program (such as an office name), you may choose either uppercase or lowercase letters for your entry.

If an exception to this rule exists, the documentation will clearly state when you will need to use uppercase or lowercase letters specifically.

Typographic Conventions

The following typefaces have special meanings as they appear in the text of the documentation. Their uses are as follows:

`Monospace`
This typeface represents text as it will appear onscreen or in a PressureMAP report. Monospace is used to display what is actually output by the program.

<>
Angle brackets in the text indicate a key on your computer keyboard. For example, the following represents the Return Key: ***<Return>***

Bold
Within the MAP Manuals, **Procedures** are used to outline the steps that you need to follow in order to accomplish different tasks. The actual keystrokes used in the procedures are printed in bold italics and simply show the most basic steps that are required to operate the program.

In addition to the Procedures, other important items may appear in bold characters.

PressureMAP Tables

The tables on the following pages are referred to throughout the PressureMAP documentation. Due to the frequency of their use, they have been placed in this section for easy reference. TABLE 1-3 lists PressureMAP's two-character Device Types. These designations indicate the general monitoring function performed by a device. TABLES 1-4 through 1-11 describe the Transducer Types that provide PressureMAP with additional information for devices used in offices monitored by a Dial-a-Ducer and 289H/H-M monitor. TABLE 1-12 gives detailed information on the CPAMS letter-coding method used on Chatlos/Hercules and Sparton systems.

PressureMAP Device Types

Pressure Transducers
AP Aerial Cable PTD
BP Buried Cable PTD
CP Compressor/Dryer PTD
DP Distribution Panel PTD
EP Pipe Endpoint PTD
FP Flow Bank PTD
GP Aerial Single Feed PTD
HP Buried Single Feed PTD
JP Underground Single Feed PTD
MP Manifold PTD (associated w/ a pipe)
PP Pipe Midpoint PTD
QP Priority Aerial Cable PTD
RP Remote Dryer PTD
SP Source (Pipe Panel) PTD
TP Trunk/Toll Cable PTD
UP Underground Cable PTD
WP Deep Underground Cable PTD
$P High Priority PTD

Flow Transducers
DF Distribution Panel FTD (not associated w/ a pipe)
IF Cable FTD
LF Lateral FTD
MF Manifold or other FTD (associated w/ a pipe)
QF Single Feed Cable FTD
RF Remote Dryer FTD (not associated w/ a pipe)
SF Source (Pipe Panel) FTD
$F High Priority FTD

Contactors
AC Aerial Cable Pressure Contactor
BC Buried Cable Pressure Contactor
CC Compressor/Dryer Pressure Contactor
DC Distribution Panel Pressure Contactor
EC Pipe Endpoint Pressure Contactor
PC Pipe Midpoint Pressure Contactor
RC Remote Compressor/Dryer Pressure Contactor
SC Source Pressure Contactor
TC Trunk/Toll Pressure Contactor
UC Underground Cable Pressure Contactor
WC Deep Underground Cable Pressure Contactor
XC Cable Theft Monitoring Contactor
$C High Priority Pressure Contactor

Contact Alarms
CA Compressor/Dryer Contact Alarm
DA Distribution Panel Contact Alarm

KA Alternating Compressor Contact Alarm
PA Sparton 270/540K ohm Converter Contact Alarm
RA Remote Dryer/Compressor Contact Alarm
SA Source Pipe Panel Contact Alarm
$A High Priority Contact Alarm
YA Configurable "Minor" Contact Alarm
ZA Configurable "Major" Contact Alarm

Volume Counters (not 289H-compatible)
DV Distribution Panel Volume Counter (not associated w/ a pipe)
MV Manifold or Distribution Panel Vol. Counter (assoc. w/ a pipe)
RV Remote Compressor/Dryer Volume Contactor
SV Source Volume Counter
$V High Priority Volume Counter

Special Use Device Types
AB Barometric Pressure Transducer
AT Aerial Cable Temperature Transducer (289H)
AV AC Voltage Transducer, 115VAC (289H)
BI Bi-Directional Flow Transducer
BV AC Voltage Transducer, 230VAC (289H)
CV 3-Phase AC Voltage Transducer (289H)
CW Chilled Water Temperature Transducer (289H)
FT Fahrenheit Temperature Transducer (Dial-a-Ducer)
JD Air Temperature Sensor in Relative Humidity/Temperature Transducer (289H)
LB Air Tank Pressure Transducer - Metric (289H)
MB Air Tank Volume TD, % Remaining (289H)
NB Air Tank Volume Transducer (289H)
RG Wire Pair Monitor - Ring/Gnd (289H)
RH Relative Humidity Sensor (289H)
RS Wire Pair Monitor - Tip/Ring (289H)
RT Wire Pair Monitor - Tip/Gnd (289H)
TE Air Temperature Sensor (289H)
VD DC Voltage Output Measurement (289H)
VE Variable Location Electric Transducer (TMACS)
VO AC Voltage Output Measurement (289H)
VT Variable Location Temperature Transducer (TMACS)
WA Water Level TD - Addressable (289H)
WL Water Level TD (289H)
WW Warm Water Temperature TD (289H)
XL Utility Hole Water Level TD (289H)
$T High Priority Temperature Transducer

TABLE 1-3: PRESSUREMAP DEVICE TYPES

289 and 289H Resistive Transducer Types

Pressure—PSI
RP	Standard Resistive Pressure Transducer: 0–9.5 PSI
RP/HP-PSI	High Pressure Resistive Transducer: 5–14.5 PSI
RP/RG-PSI	Resistive Pressure Transducer using ring with sheath as ground
RP/RG/HP-PSI	High Pressure Resistive Transducer using ring with sheath as ground
RP/TG-PSI	Resistive Pressure Transducer using tip with sheath as ground
RP/TG/HP-PSI	High Pressure Resistive Transducer using tip with sheath as ground

Pressure—KPA
RP-KPA	Standard Resistive KPA Pressure Transducer: 0–65.5 KPA
RP/HP-KPA	High Pressure Resistive KPA Transducer: 34.48–99.98 KPA
RP/RG-KPA	Resistive KPA Pressure Transducer using ring with sheath as ground
RP/RG/HP-KPA	High Pressure Resistive KPA Transducer using ring with sheath as ground
RP/TG-KPA	Resistive KPA Pressure Transducer using tip with sheath as ground
RP/TG/HP-KPA	High Pressure Resistive KPA Transducer using tip with sheath as ground

Flow—SCFH
RF/(range)	Standard Resistive Flow Transducer–9 ranges of SCFH: 0–9.5, 0–19.0, 0–20.0, 0–47.5, 0–50.0, 0–95.0, 0–100.0, 0–190.0, 0–200.0
RF/RG/(range)	Resistive Flow Transducer using ring with sheath as ground–9 ranges of SCFH: 0–9.5, 0–19.0, 0–20.0, 0–47.5, 0–50.0, 0–95.0, 0–100.0, 0–190.0, 0–200.0
RF/TG/(range)	Resistive Flow Transducer using tip with sheath as ground–9 ranges of SCFH: 0–9.5, 0–19.0, 0–20.0, 0–47.5, 0–50.0, 0–95.0, 0–100.0, 0–190.0, 0–200.0

Flow—LPH
RF/(range)	Resistive Flow Transducer–9 ranges of LPH: 0–270, 0–540, 0–570, 0–1350, 0–1420, 0–2700, 0–2830, 0–5380, 0–5670,
RF/RG/(range)	Resistive Flow Transducer using ring with sheath as ground–9 ranges of LPH: 0–270, 0–540, 0–570, 0–1350, 0–1420, 0–2700, 0–2830, 0–5380, 0–5670
RF/TG/(range)	Resistive Flow Transducer using tip with sheath as ground–9 ranges of LPH: 0–270, 0–540, 0–570, 0–1350, 0–1420, 0–2700, 0–2830, 0–5380, 0–5670

Contact Alarm
CPAMS_TD	Standard Resistive Contact Alarm
CPAMS_TD/RG	Resistive Contact Alarm using ring with sheath as ground
CPAMS_TD/TG	Resistive Contact Alarm using tip with sheath as ground
AC/115	Contact Alarm for 115V: 540K resistance OK, 270K resistance is ALRM
DRYER	Contact Alarm for 115V: 540K resistance OK, 270K resistance is ALRM (same as AC/115 Transducer Type)
AC/230	Contact Alarm for 230V; 540K resistance OK, 270K resistance is ALRM
RR/540K	Contact Alarm; 540K resistance OK, SHRT is ALRM

Other Device Applications
RG/100M	Resistive open pair, monitors the resistance of a pair (Ring/Gnd)
RR/100M	Resistive open pair, monitors the resistance of a pair (Tip/Ring)
RT/100M	Resistive open pair, monitors the resistance of a pair (Tip/Gnd)
TEMP/212	Thermistor Water Temperature Transducer; range -40 to +212° F
TEMP/212/H	Thermistor Air Temperature Transducer; range 32 to 212° F

TABLE 1-4: 289H RESISTIVE TRANSDUCER TYPES

289 and 289H Current Loop Transducer Types

Pressure—PSI
CPA/15.0   Current Loop Pressure Transducer, 0–15.0 PSI (absolute)
CPA/30.0   Current Loop Pressure Transducer, 0–30.0 PSI (absolute)
CPA/RG/(range)   Current Loop Pressure Transducer using ring with sheath as ground,
                    2 ranges: 0–15.0 PSI and 0–30.0 PSI

Pressure—KPA
CPA/100.0   Current Loop Pressure Transducer, 0–100.0 KPA (absolute)
CPA/200.0   Current Loop Pressure Transducer, 0–200.0 KPA (absolute)
CPA/RG/(range)   Current Loop Pressure Transducer using ring with sheath as ground,
                    2 ranges: 0–100.0 KPA and 0–200.0 KPA

Flow—SCFH
CF/9.5   Current Loop Flow Transducer, 0–9.5 SCFH
CF/19.0   Current Loop Flow Transducer, 0–19.0 SCFH
CF/47.5   Current Loop Flow Transducer, 0–47.5 SCFH
CF/95.0   Current Loop Flow Transducer, 0–95.0 SCFH
CF/190   Current Loop Flow Transducer, 0–190 SCFH
CF/475.0   Current Loop Flow Transducer, 0–475.0 SCFH
CF/950.0   Current Loop Flow Transducer, 0–950.0 SCFH
CF/RG/(range)   Current Loop Flow Transducer using ring with sheath as ground,
                    7 ranges: 0–9.5 SCFH, 0–19.0 SCFH, 0–47.5 SCFH, 0–95.0 SCFH,
                    0–190.0 SCFH, 0–475.0 SCFH, 0–950.0 SCFH

Flow—LPH
CF/270   Current Loop Flow Transducer, 0–270 LPH
CF/540   Current Loop Flow Transducer, 0–540 LPH
CF/1350   Current Loop Flow Transducer, 0–1350 LPH
CF/2700   Current Loop Flow Transducer, 0–2700 LPH
CF/5345   Current Loop Flow Transducer, 0–5345 LPH
CF/13500   Current Loop Flow Transducer, 0–13500 LPH
CF/27000   Current Loop Flow Transducer, 0–27000 LPH
CF/RG/(range)   Current Loop Flow Transducer using ring with sheath as ground,
                    7 ranges: 0–270 KPA, 0–540 KPA, 0–1350 KPA, 0–2700 KPA,
                    0–5345 KPA, 0–13500 KPA, 0–27000 KPA

Other Device Applications
BARO/35   Barometric Pressure Transducer, range 20.6–91.1 inches of Hg
BARO/RG/35   Barometric Pressure Transducer using ring with sheath as ground,
                    range: 20.6–91.1 inches of Hg
BARO/1200   Barometric Pressure Transducer, range: 750–1200 millibar
BARO/RG/1200   Barometric Pressure Transducer using ring with sheath as ground,
                    range: 750–1200 millibar
CL/THEFT   Current Loop Contact Alarm, used for cable theft detection (multiple
                    devices on a pair)
RH/100   Relative Humidity Transducer, range: 0%–100% RH
TANK   Tank Volume Transducer, 0–200 cubic ft
EURO_TANK   Tank Pressure Transducer (metric), 0–204 bars
TEMP/167   Temperature Transducer, range: 0–167° F
TEMP/RG/167   Temperature Transducer using ring with sheath as ground, range:
                    0–167° F
TEMP/75   Temperature Transducer, range: 0–75° C
TEMP/RG/75   Temperature Transducer using ring with sheath as ground, range:
                    0–75° C
WATER/20   Water Level Transducer, range: 0–20.8 inches

TABLE 1-5: 289H CURRENT LOOP TRANSDUCER TYPES

289H Voltage Measurement Transducer Types

VAC/TG	AC Voltage, Tip to Ground
VAC/RG	AC Voltage, Ring to Ground
VDC/TG	DC Voltage, Tip to Ground
VDC/RG	DC Voltage, Ring to Ground
VAC/300	AC Voltage, Tip to Ring

TABLE 1-6: VOLTAGE MEASUREMENT TRANSDUCER TYPES

289H LSS Addressable Transducer Types

Flow—SCFH

AF/9.5	289H Addressable Flow Transducer, 0–9.5 SCFH
AF/19.0	289H Addressable Flow Transducer, 0–19.0 SCFH
AF/47.5	289H Addressable Flow Transducer, 0–47.5 SCFH
AF/95.0	289H Addressable Flow Transducer, 0–95.0 SCFH
AF/475.0	289H Addressable Flow Transducer, 0–475.0 SCFH
AF/950.0	289H Addressable Flow Transducer, 0–950.0 SCFH

Flow—LPH

AF/270	289H Addressable Flow Transducer, 0–270 LPH
AF/540	289H Addressable Flow Transducer, 0–540 LPH
AF/1350	289H Addressable Flow Transducer, 0–1350 LPH
AF/2700	289H Addressable Flow Transducer, 0–2700 LPH

Pressure—PSI

APA	289H Addressable PSI Pressure Transducer, 0–15 PSI (absolute)

Pressure—KPA

APA/KPA	289H Addressable PSI Pressure Transducer, 0–100.0 KPA (absolute)

Dual—Pressure Side

APA/X2	289H Addressable Pressure/Flow Transducer, 0–15.0 PSI (absolute)
APA/KPAX2	289H Addressable Pressure/Flow Transducer, 0–100.0 KPA (absolute)

Dual—Flow Side

AF/9.5X2	289H Addressable Pressure/Flow Transducer, 0–9.5 SCFH
AF/19.0X2	289H Addressable Pressure/Flow Transducer, 0–19.0 SCFH
AF/47.5X2	289H Addressable Pressure/Flow Transducer, 0–47.5 SCFH
AF/95.0X2	289H Addressable Pressure/Flow Transducer, 0–95.0 SCFH
AF/475.0X2	289H Addressable Pressure/Flow Transducer, 0–475.0 SCFH
AF/950.0X2	289H Addressable Pressure/Flow Transducer, 0–950.0 SCFH
AF/270X2	289H Addressable Pressure/Flow Transducer, 0–270 LPH
AF/540X2	289H Addressable Pressure/Flow Transducer, 0–540 LPH
AF/1350X2	289H Addressable Pressure/Flow Transducer, 0–1350 LPH
AF/2700X2	289H Addressable Pressure/Flow Transducer, 0–2700 LPH

Special Addressable Transducers

ABARO/1200	289H Addressable Barometric Pressure Transducer, 750–1200 millibars
ABARO/35	289H Addressable Barometric Pressure Transducer, 20.6–35.0 inches of Hg
AWATER/30	289H Addressable Water Level Transducer, 0–30 feet

TABLE 1-7: 289H ADDRESSABLE TRANSDUCER TYPES

Chatlos Addressable Transducer Types

Flow—SCFH
AF/C9.5	Chatlos Addressable Flow Transducer, 0–9.5 SCFH
AF/C5/9.5	Chatlos 5-Bank Addressable FTD, 0–9.5 SCFH
AF/C10/9.5	Chatlos 10-Bank Addressable FTD, 0–9.5 SCFH
AF/C19.0	Chatlos Addressable Flow Transducer, 0–19.0 SCFH
AF/C5/19.0	Chatlos 5-Bank Addressable FTD, 0–19.0 SCFH
AF/C10/19.0	Chatlos 10-Bank Addressable FTD, 0–19.0 SCFH
AF/C47.5	Chatlos Addressable Flow Transducer, 0–47.5 SCFH
AF/C5/47.5	Chatlos 5-Bank Addressable FTD, 0–47.5 SCFH
AF/C10/47.5	Chatlos 10-Bank Addressable FTD, 0–47.5 SCFH
AF/C50.0	Chatlos Addressable Flow Transducer, 0–50.0 SCFH
AF/C5/50.0	Chatlos 5-Bank Addressable FTD, 0–50.0 SCFH
AF/C10/50.0	Chatlos 10-Bank Addressable FTD, 0–50.0 SCFH
AF/C95.0	Chatlos Addressable Flow Transducer, 0–95.0 SCFH
AF/C5/95.0	Chatlos 5-Bank Addressable FTD, 0–95.0 SCFH
AF/C10/95.0	Chatlos 10-Bank Addressable FTD, 0–95.0 SCFH
AF/C100.0	Chatlos Addressable Flow Transducer, 0–100.0 SCFH
AF/C5/100.0	Chatlos 5-Bank Addressable FTD, 0–100.0 SCFH
AF/C10/100.0	Chatlos 10-Bank Addressable FTD, 0–100.0 SCFH

Flow—LPH
AF/C270	Chatlos Addressable Flow Transducer, 0–270 LPH
AF/C5/270	Chatlos 5-Bank Addressable FTD, 0–270 LPH
AF/C10/270	Chatlos 10-Bank Addressable FTD, 0–270 LPH
AF/C540	Chatlos Addressable Flow Transducer, 0–540 LPH
AF/C5/540	Chatlos 5-Bank Addressable FTD, 0–540 LPH
AF/C10/540	Chatlos 10-Bank Addressable FTD, 0–540 LPH
AF/C1350	Chatlos Addressable Flow Transducer, 0–1350 LPH
AF/C5/1350	Chatlos 5-Bank Addressable FTD, 0–1350 LPH
AF/C10/1350	Chatlos 10-Bank Addressable FTD, 0–1350 LPH
AF/C1420	Chatlos Addressable Flow Transducer 0–1420 LPH
AF/C5/1420	Chatlos 5-Bank Addressable FTD, 0–1420 LPH
AF/C10/1420	Chatlos 10-Bank Addressable FTD, 0–1420 LPH
AF/C2700	Chatlos Addressable Flow Transducer, 0–2700 LPH
AF/C5/2700	Chatlos 5-Bank Addressable FTD, 0–2700 LPH
AF/C10/2700	Chatlos 10-Bank Addressable FTD, 0–2700 LPH
AF/C2830	Chatlos Addressable Flow Transducer, 0–2830 LPH
AF/C5/2830	Chatlos 5-Bank Addressable FTD, 0–2830 LPH
AF/C10/2830	Chatlos 10-Bank Addressable FTD, 0–2830 LPH

Pressure—PSI
AP/C	Chatlos Addressable PSI Pressure Transducer
AP/C5	Chatlos 5-Bank Addressable PSI Pressure Transducer
AP/C10	Chatlos 10-Bank Addressable PSI Pressure Transducer
AP/CH-PSI	Chatlos Addressable PSI High Pressure Transducer
AP/C5/H-PSI	Chatlos 5/10-Bank Addressable PSI High Pressure Transducer

Pressure—KPA
AP/C-KPA	Chatlos Addressable KPA Pressure Transducer
AP/C5/KPA	Chatlos 5/10-Bank Addressable KPA Pressure Transducer
AP/CH-KPA	Chatlos Addressable KPA High Pressure Transducer
AP/C5/H-KPA	Chatlos 5/10-Bank Addressable KPA High Pressure Transducer

TABLE 1-8: CHATLOS ADDRESSABLE TRANSDUCER TYPES

Sparton Addressable Transducer Types

Pressure
AP/S730	Sparton Addressable mbar Pressure Transducer, 0-10 PSI
AP/S734	Sparton Addressable mbar Pressure Transducer, 0-14.5 PSI

Flow—SCFH
AF/S9.5	Sparton Addressable SCFH Flow Transducer, 0-9.5 SCFH
AF/S10	Sparton Addressable SCFH Flow Transducer, 0-10 SCFH
AF/S19	Sparton Addressable SCFH Flow Transducer, 0-19 SCFH
AF/S20	Sparton Addressable SCFH Flow Transducer, 0-20 SCFH
AF/S47.5	Sparton Addressable SCFH Flow Transducer, 0-47.5 SCFH
AF/S50	Sparton Addressable SCFH Flow Transducer, 0-50 SCFH
AF/S95	Sparton Addressable SCFH Flow Transducer, 0-95 SCFH
AF/S100	Sparton Addressable SCFH Flow Transducer, 0-100 SCFH
AF/S500	Sparton Addressable SCFH Flow Transducer, 0-500 SCFH

Flow—LPH
AF/S270	Sparton Addressable LPH Flow Transducer, 0-270 LPH
AF/S280	Sparton Addressable LPH Flow Transducer, 0-280 LPH
AF/S540	Sparton Addressable LPH Flow Transducer, 0-540 LPH
AF/S570	Sparton Addressable LPH Flow Transducer, 0-570 LPH
AF/S1350	Sparton Addressable LPH Flow Transducer, 0-1350 LPH
AF/S1420	Sparton Addressable LPH Flow Transducer, 0-1420 LPH
AF/S2700	Sparton Addressable LPH Flow Transducer, 0-2700 LPH
AF/S2830	Sparton Addressable LPH Flow Transducer, 0-2830 LPH
AF/S14200	Sparton Addressable LPH Flow Transducer, 0-14200 LPH

TABLE 1-9: SPARTON ADDRESSABLE TRANSDUCER TYPES (UAMC-equipped 289H)

UAMC Addressable Transducer Types (Other Vendors)

Pressure
AP/I	Inelcom Addressable mbar Pressure Transducer
AP/L	Lancier Addressable mbar Pressure Transducer
AP/M	Microsol Addressable mbar Pressure Transducer
AP/N	Nicotra Addressable mbar Pressure Transducer

TABLE 1-10: ADDRESSABLE TRANSDUCER TYPES (UAMC-equipped 289H)

Dial-a-Ducer Transducer Types

Flow—SCFH
DF/9.5   Flow Transducer, 0-9.5 SCFH
DF/19.0   Flow Transducer, 0-19. SCFH
DF/47.5   Flow Transducer, 0-47.5 SCFH
DF/95.0   Flow Transducer, 0-95.0 SCFH
DF/475.0   Flow Transducer, 0-475.0 SCFH
DF/950.0   Flow Transducer, 0-950.0 SCFH

Flow—LPH
DF/270   Flow Transducer, 0–270 LPH
DF/540   Flow Transducer, 0–540 LPH
DF/1350   Flow Transducer, 0–1350 LPH
DF/2700   Flow Transducer, 0–2700 LPH
DF/13500   Flow Transducer, 0–13500 LPH
DF/27000   Flow Transducer, 0–27000 LPH

Pressure—PSI
DP/15.0   Pressure Transducer, gauge type

Pressure—KPA
DP/100.0   Pressure Transducer, gauge type

Other Device Applications
DT/167   Fahrenheit Temperature Transducer, (FT device type)
DI   Digital Input (CA device type); support the following values:
                  0x0 -> Logical 0
                  0xF -> Logical 1

TABLE 1-11: DIAL-A-DUCER TRANSDUCER TYPES

CPAMS UNIT	PRESSURE & FLOW TRANSDUCERS	CONTACT ALARMS	VOLUME COUNTERS	TRUNK/TOLL CONTACTORS
Chatlos L1	P	SS	VF	RC
Chatlos L2	P/TT	MA	MF	MC
Chatlos MPUZ	P	MA	MF	MC
Chatlos 600	DT/ST/TT	MA/SA	MF	MC
Chatlos L3	DT/ST/TT	MA	MF	MC
Teleducer 50	DT/ST/TT	MA	–	MC
Hercules 740	DT/ST	MA/SA	MF	MC
Hercules 940	DT/ST	MA/SA	MF	MC
Sparton 5301A	T	K	V	C
Sparton 5300B	T	B	–	C
Sparton 5318	T	B	–	–

TABLE 1-12: CPAMS LETTER CODING

uM260 Micro Monitor Transducer Types

Pressure—PSI
CPA/30.0	Current Loop Pressure Transducer, 0–30.0 PSI (absolute)
RP(9.5)	Resistive Pressure (0-9.5 PSI)
RP/HP-PSI	Resistive Pressure, High Range (5-14.5 PSI)

Flow—SCFH
CF/9.5	Current Loop Flow Transducer, 0–9.5 SCFH
CF/19	Current Loop Flow Transducer, 0–19.0 SCFH
CF/47.5	Current Loop Flow Transducer, 0–47.5 SCFH
CF/95	Current Loop Flow Transducer, 0–95.0 SCFH
CF/190	Current Loop Flow Transducer, 0–190 SCFH
CF/475	Current Loop Flow Transducer, 0–475.0 SCFH
CF/950	Current Loop Flow Transducer, 0–950.0 SCFH
RF/9.5	Resistive Flow Transducer, 0–9.5 SCFH
RF/19	Resistive Flow Transducer, 0–19.0 SCFH
RF/47.5	Resistive Flow Transducer, 0–47.5 SCFH
RF/95	Resistive Flow Transducer, 0–95.0 SCFH
RF/20	Resistive Flow Transducer, 0–20.0 SCFH
RF/50	Resistive Flow Transducer, 0–50.0 SCFH
RF/100	Resistive Flow Transducer, 0–100.0 SCFH
RF/200	Resistive Flow Transducer, 0–200.0 SCFH

Other Device Applications
CPAMS_TD	Standard Resistive Contact Alarm
AC/115	Contact Alarm for 115V: 540K resistance OK, 270K resistance is ALRM
CL/THEFT	Current Loop Contact Alarm, used for cable theft detection (multiple devices on a pair)
DRYER	Contact Alarm for 115V: 540K resistance OK, 270K resistance is ALRM
RR/540K	Contact Alarm; 540K resistance OK, SHRT is ALRM

TABLE 1-13: UM260 MICRO MONITOR TRANSDUCER TYPES