

Chapter 3

INTRODUCTION

This section introduces the Sparton Device Data Form. This form is designed to help compile individual device data and to aid with the organization of data that is to be input into the PressureMAP database. The Sparton Device Data Form needs to be completed for each monitoring device within an office that utilizes a Sparton CPAMS.

When filling out the Device Data Forms, keep in mind that PressureMAP is designed like a pressurized cable system. It is based on air pipes rather than monitoring devices or cable routes. For this reason, the data entry forms should be organized by air pipe routes (rather than by specific cables or monitoring device types).

The Device Data Form simply consists of a series of data fields concerning an individual monitoring device. One set of data fields (or a single Device Data Form) will complete a single *data record* in the PressureMAP database. To complete the PressureMAP database, a data record will need to be filled out for every monitoring device in the pressurized cable system. A device data record is a detailed set of information describing a specific monitoring device.

When compiling device data, it is important to remember that each individual monitoring device is associated with either a single air pipe, remote dryer, or central office sector. It is very important to note that a single device cannot become associated with more than one air source, as this would misrepresent the pressurization system.

The minimum information that needs to be gathered for each monitoring device is:

- The Device Number
- The PressureMAP Device Type (refer to Appendix 1)
- The working range of the device (if the device monitors air flow)
- The total sheath miles associated with the device (if it monitors air flow)
- The physical address of the device
- The PressureMAP Location Code of the device
- The Pipe or Sector associated with the device
- The sheath name (or number) that the device monitors (multiple sheath numbers might be needed for transducers that monitor air pipe manifolds)
- The stickmap number on which the device appears
- The Unit number and Line number (for Realtime readings)

All of the above information must be entered correctly into the PressureMAP Editor for each monitoring device in the pressurized cable system. These key elements of information are fundamental to the proper functioning of the PressureMAP program.

Although there are several additional fields on the data forms, it is not mandatory that they all be filled out. However, it is recommended that all data fields be completed if the information is available. Completing as many fields as possible (and entering the data into the PressureMAP

database) will allow PressureMAP to issue more complete reports, meaning that you will not need to look elsewhere when extra information is required.

THE SPARTON DEVICE DATA FORM

Listed on the next several pages are descriptions of the data fields found on the Sparton Device Data Form (shown in). The fields are presented in the order they appear on the data form, which is also the order that the data is entered into the PressureMAP Data Entry Editor.

General Information

At the top of each form, you will see the general fields for the Office, Pipe, Date, Engineer and Page number of the form that you are filling out. Before entering any data concerning the monitoring devices, be sure to fill out this header information located at the top of each data form.

Also located at the top of the Device Data Form are the three function boxes Add, Delete, and Change. These boxes allow the data forms to be used for several different purposes. Be sure to check the appropriate function box before completing the data form. Also, when filling out the Device Data Forms, be sure to group all like data entry functions together (for instance, place all "Change" data forms into one group). This will aid with the data entry process and minimize the chance for data entry errors.

Sparton Device Data Fields

Once the header information is complete, you may begin to record the actual monitoring device data. Below, a definition is given for each data field found on the Sparton Device Data Form. Each definition includes a description of the data field, the maximum length of each data field, the type of entry expected (numeric or alphanumeric), and any default values that PressureMAP may assign to the field.

If a default value is listed for a data field, the value that is given is simply the value that PressureMAP will assign to the field if nothing else is input into the data field. If the value that you are going to enter into the field is the same as the PressureMAP default value, then all you will need to do is press **<Return>** for that field, and PressureMAP will insert its default value.

The following fields will appear on the *Primary Specific Device Information* screen of the editor.

DEVICE #

This data field records the number of the monitoring device. Locate the device number on the Sparton printout (it should be the first 3 digits of the **Location** field) and check it against Master Transducer Log. If the device is correctly listed on both data sources, then enter this number on the data form.

Note: It is a requirement of PressureMAP that a unique 3-digit transducer identifier within the range of 000 to 999, be placed in the first 3 characters of the **Address** field.

If a device is listed on the printout and not on the log, investigate why. Add the device to the Master Transducer Log if the situation warrants.

Page ____ of ____	Sparton Device Data Form	Add	Delete	Change
		<input type="checkbox"/>		<input type="checkbox"/>
Office:	Pipe:	Engineer:	Date:	

Primary Specific Device Information				
Device #: (10)	Access #: (6)	Type: (2)	Range: (4)	S-M:/Loop: (7)
			PSI: (4)	SAU:/STD: (4)
Address: (30)		Loc: (4)	Pipe:(4)	Norm: (7)
			OAU: (4)	Chng: (4)
Sheath(s): (7-15 times)				
Cable: (7)	Prim Pair: (7)	Sec Pair: (7)	Sort Key: (5)	
Plat #: (8)	Stickmap: (4)			
Remarks: (70)				

Monitor Specific Device Data			
Latitude: (10)	Longitude: (11)		
Office 1 Loc: (4)	Distance 1 (kft): (4)	Field 1 Loc: (4)	
Office 2 Loc: (4)	Distance 2 (kft): (4)	Field 2 Loc: (4)	
Unit #: (2)	Line #: (3)	Module: (3)	Input #: (3)
Threshold: (2)	Scan Option: (1)	Alt: (1)	Alarm Priority: (1)
Trigger: (3)	Binary Source: (1)	Delay: (1)	
		Addr #: (3)	
		Phone #: (8)	
Program Flag: (1)			

The screens that complete the device data entry procedure are the Primary Specific Device Information Screen, the Monitor Specific Device Screen, the Device Comments Screen, and the Cable Readings Screen. These screens are accessed from the Primary Specific Device Information Screen, by using the <PgUp> and <PgDn> keys (if you are at the MAP Computer main console) or by entering the keystrokes <Ctrl><F>, (forward one screen), and <Ctrl><R>.

Version 24 and Above

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FIGURE 3-1: SPARTON DEVICE DATA FORM

CPAMS UNIT	PRESSURE & FLOW TRANSDUCERS	CONTACT ALARMS	VOLUME COUNTERS	TRUNK/TOLL CONTACTORS
5301A	T	K	V	C
5300B	T	B	—	C
5318	T	B	—	—

TABLE 3-1: STANDARD DEVICE CODES

In addition to the device number, a device will also have a Sparton Device Code (which should not be confused with the PressureMAP Device Type). lists the standard device codes used by Sparton monitors. These letter codes are also utilized by PressureMAP to identify the function of the devices within the system. Be sure to list the appropriate Sparton device letter code in front of the device number in column 1 of the Sparton Device Data Form. The Sparton device code must precede the actual device number.

Please note that when a monitor is converted from a 5301A to a 5300B, all "K" device numbers are automatically modified to "B" device numbers. Volume counters are not supported by the 5300B and 5218 monitors, and trunk/toll contactors are not supported by the 5318.

User Defined Device Numbers

PressureMAP gives you the ability to create User Defined Device Numbers when naming your monitoring devices in the PressureMAP program. User Defined Device Numbers are created from any 10 keyboard characters, with the exception of the following:

() , / ^ ' .

If you wish to take advantage of User Defined Device Numbers, you must specifically turn this feature ON from within the Office Information Screen. For more information on this option, please refer to the description of "User Defined Device Numbers" under the Office Data Form segment in Section 2 of this manual or contact System Studies Technical Support.

ACCESS #

The Access # field will be displayed only if User Defined Device Numbers is turned ON. This field holds the actual access number as defined by the monitoring unit. (This is the number that would be placed in the Device # data field if User Defined Device Numbers is not turned on.)

TYPE

This field holds the PressureMAP two-letter Device Type. For more information on assigning the Device Types, please refer to Appendix 1, PressureMAP Device Types. (PressureMAP uses a default Device Type of UP in this field, representing an underground pressure transducer.)

RANGE

This field needs to be filled in only if the device is a flow transducer (FTD). If the device in question is a flow monitoring device, then enter the range of the device in this field. Record flow ranges for the following device types: SF, DF, RF, MF, LF, CF and \$F. The transducer flow

range is generally listed on the Sparton printout. Enter the maximum range of the transducer in this field on the data form (either 10.0 SCFH, 19.0 SCFH, 47.5 SCFH, or 95.0 SCFH).

PressureMAP's flow range entries are calibrated to the nearest tenth. In order to correctly enter a 0-95 SCFH flow range, for example, enter "95.0" or "950". The decimal point is automatically added by the PressureMAP editor. Because of this, the final digit of each entry will represent the number one place to the right of the decimal point. (Please refer to the Program Criteria section of the Preface if you need information on entering "kilo" and "mega" data values.)

PSI

This field needs to be filled in for all contactors (*C PressureMAP device types) and source pressure transducers (SP PressureMAP device types).

Because PressureMAP uses the PSI reading of a pressure contactor when calculating a system quality index, all contactors must be given a **PSI** value so that PressureMAP may calculate an index value for the portion of the system that these devices monitor. For contactors, the value which must be placed in this field is the value at which the contactor goes into alarm. By default, PressureMAP places the underground pressure standard in this field. If the activation value for a specific contactor is different than the underground pressure standard, then enter this value in the **PSI** data field.

In the case of a **source pressure transducer (SP)**, the **PSI** field is supplied to support high pressure devices. These high pressure devices are transducers which measure pressure in the range of 5 to 14.5 PSI (instead of 0 to 9.5 PSI for normal pressure transducers). The value which is entered into the **PSI** field for SP devices depends on the model of the CPAMS unit in the office. If the CPAMS DOES use high pressure devices, then enter a "5.0" into this data field in order to represent the offset that is needed for the device to be correctly read. If the SP device is a 0 to 9.5 PSI pressure transducer, then enter a "0" into this data field to indicate that the pressure device is normal and that it does not need an offset value.

Certain Sparton CPAMS versions will take into account the offset value of the high pressure devices. In these cases, input into the **PSI** data field for an SP device must be "0". If your system makes use of a high pressure device, be sure to check the monitor to see if it needs to make use of the offset value.

S-M

The **S-M** (Sheath Mile) field only needs to be completed for devices that monitor air flow. If the device in question is a flow device, then enter the calculated number of sheath miles into this field. If the records for the flow device only have an OAU value, then that number may be entered in the **OAU** data field, and PressureMAP will automatically calculate the corresponding **S-M** value.

The sheath mileage for a Source FTD is equal to the sum of the manifold sheath mileage figures. (This includes the distribution panel sheath mileage, if it is fed by the pipe panel.)

Although the number of sheath miles for each flow device should be recorded on the respective stickmaps, this information is sometimes not present. Be sure to enter all calculated sheath mileage on stickmaps which lack this information.

OAU

This field only needs to be completed for devices that monitor air flow. If the device in question is a flow monitoring device, and you have not entered the device's sheath mile value in the **S-M** data field, then enter the OAU value into this field.

The minimum **OAU** value that PressureMAP will accept is one tenth (or 0.1). As a result, the PressureMAP editor will accommodate only one space to the right of the decimal point. If you were to enter .17 for an OAU value, PressureMAP would record this entry as 1.7 (because it automatically places the last numeric digit one space to the right of the decimal point).

The OAU value for a Source FTD is equal to the sum of the manifold OAUs. This includes the distribution panel OAU if it is fed by the pipe panel.

SAU

This field stands for the Standard Air Usage of high priority flow devices (**\$F** and **\$V** devices). The value placed in this field should be the normal, stable flow of the device. This air usage value should be obtained from reviewing how much air each device has typically used in the past.

STD

For high priority pressure transducers (**\$P** devices), this field contains the standard, normal PSI value of the transducer. For high priority temperature transducers (**\$T**), the field contains the standard temperature reading of the transducer. The default value is 75.0 degrees F. The value that is placed in this field should be obtained from past history reports for the transducer.

LOOP

This field must be filled in for all contactors, to specify the loop resistance value for an alarm reading. The value entered into this field, which can be up to seven characters in length, is the total loop resistance in kilohms from the central office to the operated contactor (the contactor in an alarm state) and back to the office. Note that this field needs to be completed only for contactor devices (see PressureMAP Device Types table in Appendix 1).

ADDRESS

This field holds the device address location. Find the address on the Master Transducer Log and abbreviate it with 30 characters or less, as shown in the examples below:

- For pipe panels: (PIPE PANEL-A, NORTH)
- For distribution panels: (DIST. PANEL-C, SOUTH)
- For underground device locations: (MH-54, WILLIS & 5TH AVE.)

For all aerial and buried device locations, use the pole numbers and cross streets, terminal numbers, building names, footage, or whatever else is necessary to thoroughly identify a device location.

Note: Be sure to use the same spelling in the abbreviation every time. The "Histories by Address" function matches spelling to call up the history.

LOCATION

Enter the device Location Code into this field. The Location Code is an alphanumeric abbreviation assigned to all devices stationed at one particular location. Each Location Code must be unique (not duplicated) within an office. Location Codes may consist of up to four alphanumeric characters. However, Location Codes are normally designated as numbers between 0 and 9,999.

Note: All devices in the CO must be given a Location Code of 0 unless the distribution panel is attached to the pipe (MF).

PIPE

This field contains the pipe designation with which the device is associated. Pipe names are arbitrary designations consisting of a maximum of four characters. Assigned or existing pipe names should be used in this field (refer to the stickmaps for this information).

Devices in the central office that are not associated directly with an air pipe are part of the central office sector. These devices are designated as: CO. (For additional information on the CO sector, refer to the System Studies document entitled "The Engineer's Review.")

Remote dryers and pole mounted compressors are separate air sources that require their own pipe designations. It is recommended that remote dryer pipe designations include the letter "R" (for remote) and a single or multiple numeric identification (for example: R1, R12, RD-1, etc.). When recording the pipe designations of devices associated with a remote dryer, include only those devices on the FIELD side of the dryer. For more information on field locations, please refer to the data field titled "Field 1" later in this segment.

Devices on the office side of a remote dryer are associated with the pipe originating in the central office (see Figure 3-2). An exception to this rule applies when the remote dryer is located at the end of the cable run. In this situation the first pressure transducer on the office side of the remote dryer is associated with the remote dryer and not the air pipe (see Figure 3-3). This exception makes it possible for a remote dryer to fulfill the minimum requirements for establishing a System Quality Index (SQI).

Supplementary air pipes, such as maintenance pipes and splicer pipes are commonly designated as: SP, BP (Buffer Pipe), SP1, etc. Separate toll/trunk pipe panels often begin with: TP followed by a number or geographical designation relating to one of the points on a compass. Select the designation that works best in your system.

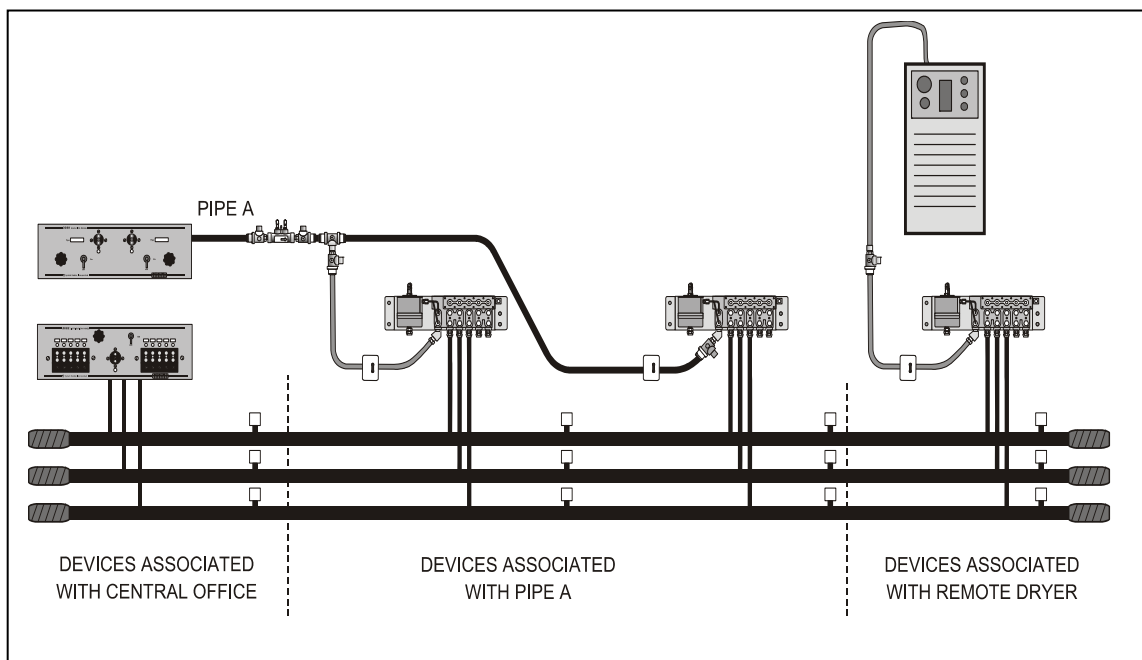


FIGURE 3-1: DEVICES ON OFFICE SIDE OF A REMOTE DRYER

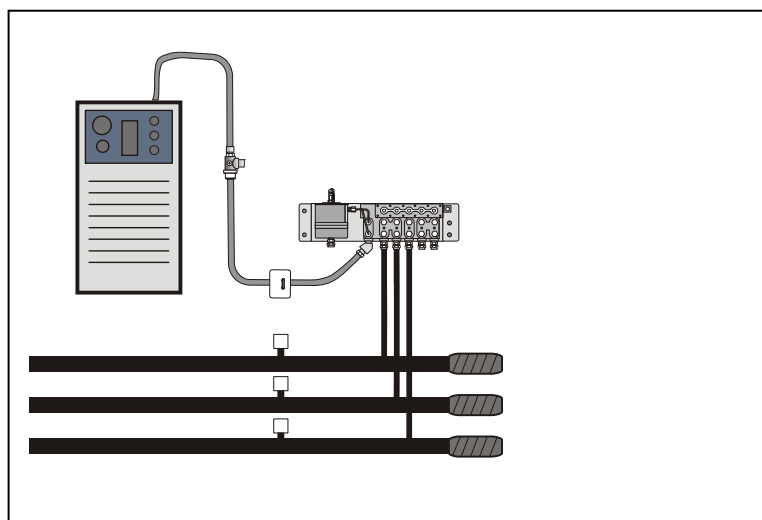


FIGURE 4-2: REMOTE DRYER AT THE END OF A CABLE RUN

NORM

This data field needs to be completed for all contactors and contact alarms. The input for this field should reflect what the device reads in its normal, non-alarm state and can be up to seven characters in length.

For Sparton system contactors, this field is initialized to a blank value. However, the normal circuit loop resistance value, when no contactors are operated, should be entered into this field. For Sparton contact alarms, this field should read CLR.

CHNG

This field is used in conjunction with the \$F, \$V,\$P and \$T devices, as well as the **STD** and **SAU** fields. The **CHNG**, or change, field is the amount of change (in pressure, flow or temperature, depending on the type of high priority device) that can be tolerated before the device goes into alarm. For pressure devices, the CHNG value is how many PSI can drop from the value indicated in the **STD** field before an alarm condition is acknowledged. For flow devices, the CHNG value indicates how many SCFH the device increases before an alarm is given. For temperature devices, the CHNG value is how many degrees the temperature can increase or decrease before an alarm is produced.

For a pressure monitoring device, this field will default to a value of 1.5 PSI, while a flow monitoring device will give a default value of 2.0 SCFH. The default value for a \$T device is one third of the **STD** value (25.0).

SHEATH(S)

This field holds the sheath number or identification of the cable being monitored. It may also be used to identify the cables being fed by an air pipe manifold or distribution panel.

The sheath assignment for a device is listed on the Master Transducer Log and stickmap. Sheath entries are limited to seven alphanumeric characters in length. As many as 15 individual sheath entries may be input into this data field.

CABLE

This field holds the primary cable number. This will be the "read" cable that contains the transducer conductor pairs. Entries are limited to seven alphanumeric characters.

PRIM PAIR

This field contains the wire number of the primary conductor pair to which the device is connected. Primary pair entries are limited to seven characters.

SEC PAIR

This field holds the number to the backup conductors to the primary pair, if they exist. Like the primary pair entries, the secondary pair entry is limited to seven alphanumeric characters.

SORT KEY

This field is for user defined device sorting. Sort Key designations may hold a maximum of five alphanumeric characters. Option 10 of the Device Histories Menu uses this field to generate reports for all devices with the same Sort Key designation.

PLAT #

Fill in the underground, buried, or aerial record number in this data field. Plat numbers may be up to eight alphanumeric characters in length.

STICKMAP

This field holds the sheet number of the office stickmap on which the device appears. Stickmap entries may consist of a maximum of four alphanumeric characters.

REMARKS

This data field allows for a 70-character remark to be entered concerning the device.

The following device information fields will appear on the Monitor Specific Device Screen of the data entry editor. This screen is accessed from the Primary Specific Device Information Screen by using the <PgUp> and <PgDn> keys (if you are at the MAP Computer main console), or by entering the keystrokes <Ctrl><F> (forward one screen) and <Ctrl><R> (back a screen).

LATITUDE

Beginning with PressureMAP Version 28, the format used for latitude and longitude information is *decimal degrees*, although the legacy *degrees and decimal minutes* format can be entered, if desired, during data entry. Once latitude and longitude data in the legacy format have been entered and saved, PressureMAP will convert the coordinates to decimal degrees.

An example of the old format used and the corresponding decimal degrees format is shown below:

<u>Degrees and Decimal Minutes</u>	<u>Decimal Degrees</u>
N36+58.447	36.974117

This text field accepts either of these formats:

- Degrees and Decimal Minutes: lff+mm.mmm, with l designating which hemisphere the latitude applies to (one of the following single letters: N or S); ff is an integer between 00 and 90 that indicates the degrees of latitude; and mm.mmm is an integer between 0.0 and 59.999 that designates the minutes of latitude.
- Decimal Degrees: lff.mmmmm, with l being used only to designate a minus value (-) for a position south of the equator. (Note: latitude positions north of the equator do not require an l designation.) The letters mmmmm represent an integer between 000000 and 999999.

When adding new devices, the latitude field is carried over to the new device, so the default value for this field will be derived from the last device added.

LONGITUDE

This text field accepts either of these formats:

- Degrees and Decimal Minutes: hfff+mm.mmm, with h designating which hemisphere the longitude applies to (one of the following single letters: E or W); fff is an integer between 000 and 180 that indicates the degrees of longitude; and mm.mmm is an integer between 0.0 and 59.999 that designates the minutes of longitude.
- Decimal Degrees: hfff.mmmmm, with h being used only to designate a minus value (-) for a position west of the Prime Meridian, which is the longitude that runs through Greenwich, England. (Note: longitude positions east of the Prime Meridian do not require an h designation.) The letters mmmmm represent an integer between 000000 and 999999.

When adding new devices, the longitude field is carried over to the new device, so the default value for this field will be derived from the last device added.

Office and Field Locations do not necessarily apply to each device. If not, these fields should be left blank. When a device's Office Location entry is blank, the corresponding Distance field is also left blank. A device in the central office is NEVER assigned an Office 1 or Office 2 location. Devices monitoring the air pipe (such as SF, SP, PP and EP) do not require Office and Field entries, as PressureMAP reviews the entire route when these device types come into alarm.

OFC 1 LOC

This field holds the Office 1 Location Code. The Office 1 location is the code of the first device location toward the central office from the designated device location where the cable in question is either fed or monitored. This data field does not apply to devices in the central office itself or pressure devices on a pipe.

DISTANCE 1 (kft)

This column is used to record the distance, in kilofeet, from the specified device location to the OFC 1 location. A numeric entry must be made into this position. This data field does not apply to devices located in the central office or pipe pressure TDs.

OFC 2 LOC

This field holds the Office 2 Location Code. If two monitored sheaths on the office side of a device location converge into one sheath at the device location, office Location Codes are assigned to the closest device locations on each of the two sheaths. Either device location may be designated as "Office 1;" the remaining one is "Office 2." (Refer to Appendix 2 for examples of Office 2 and Field 2 assignments.) Reference the stickmap to determine if a sheath splits.

This data field does not apply to devices located in the central office or pipe pressure TDs.

DISTANCE 2 (kft)

The distance from the specified device location to the Office 2 location. Enter the distance, in kilofeet, to the Office 2 location. Entries must be numeric.

FIELD 1 LOC

This column designates the Field 1 Location Code. This column lists the Location Code of the first device location on the field side of the specified device where the cable is either fed or monitored.

Notice that a Distribution panel flow device with an assigned Location Code of "0" should have an entry in this field. Only the following types of devices are not assigned any Field Location codes: pipe pressure transducers, pipe panel flow transducers, and contact alarms.

FIELD 2 LOC

Enter the Field 2 Location Code into this field. If a sheath splits on the field side of the device location, the closest monitoring device on each of the two sheaths is assigned a field Location Code. Either device location may be designated as "Field 1"; the remaining one is "Field 2". (See Appendix 2 for a detailed look at Office and Field situations.)

UNIT #

Enter the Sparton Unit Number into this data field. For more information on the Sparton Unit Numbers, please refer to the segment at the end of this section entitled "Programming the Sparton." Unit numbers are between 1 and 255. Please note that the 5318 MMU, which

supports only 25 devices, has no unit structure. This field is automatically updated with the actual unit number during each normal call cycle. If this field is left blank, realtime readings cannot be accessed until the field is automatically populated in the next regular call cycle.

LINE #

Record the device's actual numeric line position on the Sparton printout in this data field. This field is automatically updated with the actual line number during each normal call cycle. If left blank, realtime readings cannot be accessed until the line number is automatically populated in the next regular call cycle.

MODULE

This field is used to list one of five module types: Dedicated (DED), Subscriber (SUB), Binary (BIN), Long-haul (D), and Addressable (ADD). These modules are the part of the Sparton hardware that interprets a device's electrical signals. Every device has a module type.

A *DED* module receives electrical signals from a pair of conductors dedicated to a device's output. There is no working phone number assigned to the pair, and there NEVER can be one. In the central office, dedicated modules are used for volume counters, contact alarms, and contactors. In the field they are designated for pressure and flow transducers, as well as T contactors on DED pairs. DED is the default value used by PressureMAP.

A *SUB* module receives electrical signals from a pair of device conductors that MAY also be used for an active subscriber line. If a transducer (TD) is on a conductor pair that has an active phone number or could have an active phone number, it must terminate on a SUB module.

A *BIN* module reads a device as "on" or "off." With a volume counter, a binary module reads the number of clicks as "on." For a contact alarm, the device is either "on" or "off."

A *D* module is used to read long-haul transducers. These types of transducers are used for both distance and altitude purposes.

An *ADD* module receives and sends electrical signals on a single pair of conductors shared by several devices. Special addressable transducers report on this pair, each with its own unique address number. Every addressable TD must have an address number. This number is found under the ADD column of the Sparton printout.

Effective with Version 24, when PressureMAP calls a Sparton 5300B or 5318 monitor, the *Module* information in PressureMAP device data is automatically updated to match the Sparton device record.

INPUT #

The input number pertains to the actual pin number on the Frame Interconnect Block (FIB) where the device pair terminates. PressureMAP accepts numbers ranging from 1 to 999.

Effective with Version 24, when PressureMAP calls a Sparton 5300B, 5318 or 5301A monitor, the **Input #** information in PressureMAP device data is automatically updated to match the Sparton device record.

THRESHOLD

One of the programmed alarm thresholds that pertains to the specific device. Valid threshold values range from 1 to 32. PressureMAP uses the entry in this data field when a user selects to program a Sparton CPAMS (Sparton 5300B and 5318 only).

TRIGGER +/-

This field needs to be completed for Contact Alarm device types only. TRIGGER describes the operational condition selected when the device is in an alarm state. The following codes should be used to describe the device:

- + A FAULT alarm is reported when normally open contacts close.
- A FAULT alarm is reported when normally closed contacts open.
- +/- A FAULT alarm is reported when a normally open contacts close and a CLEAR alarm is reported when they open after being closed.
- /+ A FAULT alarm is reported when normally closed contacts open and a CLEAR alarm is reported when they close after being open.

SCAN OPTION

One of five possible values that identifies the number of retries, the scan interval and the average number or readings expected by the Sparton when polling for device readings.

BINARY SOURCE

One of two settings used with the Sparton 5300B contact alarm devices. If the module type associated with a device is BIN, the **Binary Source** field accepts either an "M" for module or a "N" for non module.

ALT

This data field appears when "D" is entered as a module type for a long-haul pressure transducer. **Alt** represents an altitude setting (between 1 and 9999) that is used by the monitor to offset pressure variations that occur at different elevations. Depending upon how the units of measure were set up in Office Information data entry, the field entry could pertain either to feet or kilofeet.

DELAY

The **DELAY** field works in conjunction with the **TRIGGER** field, and needs to be completed only if the device in question is a Contact Alarm. DELAY represents the delay time, in seconds, after which the Sparton CPAMS repeats its scan to confirm or deny the alarm condition reported by the device. The following key should be used to enter the delay time:

- 0** No Delay
- 1** 3 Second Delay
- 2** 6 Second Delay
- 3** 9 Second Delay

ADDR #

The **ADDR #** field will be displayed only for addressable transducers. The represented value indicates the device's physical address on the addressable pair.

ALRM PRIORITY

The Alarm Priority field is used to identify one of three possible Sparton alarm classifications: "N" for none, "M" for minor, and "J" for major.

PROGRAM FLAG

This field is used with PressureMAP's Programming utility. A "Y" designation indicates that you wish to have certain monitor-specific fields programmed into the Sparton CPAMS when Option 8 of the CPAMS Information Menu is selected. The default or "N" entry indicates that you do not want the device record programmed into the Sparton.

When the flag is set to "Y," some or all of the following device fields will be programmed, depending upon the device type and module:

- Unit #
- Input #
- Threshold (the Sparton threshold value assigned to the device)
- Module
- Line #
- Scan Option
- Alarm Priority
- Addr # (if device is an addressable transducer)
- Trigger (if module is a binary)
- Delay (if module is a binary)
- Binary Source (if module is binary and Input # is from 1 to 14)

THINGS TO KEEP IN MIND

Keep in mind the special nature of devices in the CO when filling in the Device Data Form. Important points to remember are:

- Devices in the CO differ from field devices in that they rarely have cable and pair assignments.
- Contactors in the CO do not have sheath numbers.
- A CO device always has "0" for its location code.
- Flow devices on Pipe Alarm Panels get no field locations.
- Do not assume that a pipe located in the CO Sector is a CO route.
- Multiple pipes can travel the same route.
- Pipe pressure TDs get no Office or Field Locations.

Also, keep in mind the special nature of remote compressors. The remote compressor is an air source, and the air flow must be monitored by a flow device. In order to produce a non-zero System Quality Index for a remote compressor, both a pressure monitoring device and a flow monitoring device must be associated with the air source.

PROGRAMMING A SPARTON CPAMS

Programming a Sparton monitor is a different process than entering data into a PressureMAP database. It is important that the procedures outlined in this segment are followed when entering device data into a Sparton CPAMS. PressureMAP will work properly with Sparton monitoring equipment as long as these procedures for entering device information into the Sparton system are followed. For example, the Office Name in the unit header must match the name in PressureMAP.

Format Requirements for Incoming Sparton B-Board Alarms

Sparton B-Board alarm information must be received in a form that allows PressureMAP to process the incoming alarms. The Sparton must be configured to send the alarms from the Units Alarms Function, **not** from the System Alarms Function. In addition, it is inadvisable to use the B-Board's "Custom Labeling" to change the header names of the fields that PressureMAP looks for. To prevent errors caused by invalid formats, the alarms must conform to certain requirements:

1. The alarm must contain an office name that matches the office name in PressureMAP. The office name must appear after the **UNIT:** label.
2. The report is in sections, and each section must have one of the following labels (not case sensitive, and may contain other words):
 - TRANSDUCER
 - BINARY
 - TOLL
3. The report must use the following column headings (not case sensitive, and parenthesized portion is optional):
 - NO. – **required** for all devices
 - LOC(ATION) – **required** for all devices
 - READ – first choice for current reading; if missing, look for:
LOOP – second choice; if missing, look for:
(S)TATUS – third choice; if missing, then processed as error.
 - ALARM – recommended, but not required
4. The report is expected to end with "EOT", but it is not required. Note that if it is missing, PressureMAP must wait for loss of carrier, so processing the alarm takes longer.

If the column headings in the Alarms report do not match the requirements listed above, it is necessary to change the headings.

Sparton Device Numbers

In order for PressureMAP to be compatible with Sparton Cable Pressurization Automatic Monitoring Systems, the Sparton monitor must be programmed in accordance with certain PressureMAP guidelines. In all, there are four requirements that must be met when programming Sparton Device Numbers:

- Each device number must be unique and permanent.
- A device number must be three digits in length.
- A device number must occupy the first three spaces in the LOCATION column of the Sparton report.
- The location column must appear within the first 80 characters of the Sparton data line.

Programming Sparton Device Numbers

If you are setting up a Sparton office for the first time, then it will be an easy task to follow the procedures for entering device data into the Sparton system. However, if the Sparton is already on-line, then you may need to change some of the information that is programmed into the monitor. Below are the "rules" that must be followed for Sparton data to be compatible with PressureMAP.

UNIQUE DEVICE NUMBERS

The first rule that must be followed when programming Device Numbers into the Sparton CPAMS is that no two devices may have the same device number. Regardless of whether Device Numbers are assigned sequentially by route or randomly throughout an office, a single device number must not be duplicated.

The main reason for this rule is that PressureMAP compiles device data for each device number that appears on the Sparton printout. If a single device number appears twice on the same printout, PressureMAP will replace the data received from the first device listed with the data that is listed for the second device. Also, as long as a device is active in the system, the number assigned to that device cannot be changed or reassigned to another device. PressureMAP establishes a data file for each monitoring device within the system and uses unique Device Numbers for file identification. (A suggestion is to use the input # as device numbering).

Please note that when a monitor is converted from a 5301A to a 5300B, all "K" device numbers are automatically modified to "B" device numbers.

DEVICE NUMBER RANGE

The second rule to follow when assigning Sparton Device Numbers is that the device number must be three numeric digits. Alphabetic characters are not allowed in Device Numbers (for example, T12 and MH1 would not be valid Device Numbers).

Numbers less than three digits in length must be preceded by a zero or zeros, so that the total device number is three digits in length. For example, device #1 must be programmed as 001.

DEVICE NUMBER POSITION

The third stipulation for assigning Sparton Device Numbers is that the device number must be located in an exact position on the Sparton printout. PressureMAP looks at a specific location when searching for a Sparton device number, which is the first three spaces in the LOCATION column of the Sparton report. Each remote monitoring device in the office must be identified by a three digit number, located in the first three spaces of the LOCATION data field on the Sparton printout.

Do not mistake the Sparton device number with the line number of the Sparton printout. The line number on the Sparton printout (normally placed in the first column of the printout) is not a device identification number but, instead, refers to the physical line number of the Sparton printout.

Lastly, the Sparton device number (which is the first 3 digits of the location column of the Sparton printout) must be located within the first 80 characters of the Sparton printout. This is important because Sparton systems provide considerable flexibility when being programmed for device information. Because of this, it is possible to enter device data which exceeds a normal 80 character line.

It is important to follow this last stipulation because PressureMAP is structured to search only the first 80 characters of each Sparton data line. When looking for information, PressureMAP will search for the LOCATION column (containing the device number), the READ column (for the current device reading), and the ALARM column (for the device's alarm status). If this information cannot be found within the first 80 characters of the Sparton report, then PressureMAP will be unable to produce readings for these devices.

MULTIPLE OFFICES WITHIN A SPARTON

A Sparton 5301A or 5300B can be set up in one of two configurations. It can monitor a single office (the typical case), or it can monitor several offices in conjunction with Sparton 5310 or 5318 Satellite monitors for each individual office. PressureMAP will accommodate Sparton monitors in either configuration.

The guidelines outlined in this segment pertain specifically to the systems that make use of the multiple office application—that is, systems consisting of a Sparton 5301A and one or more Sparton 5310As, or a Sparton 5300B and one or more Sparton 5318s.

Sparton System Structure

Each Sparton CPAMS consists of both the system setup and the unit information. The system refers to the reporting and functional operations of the CPAMS, which in turn affects each of the various data units. The system also refers to the combination of the Sparton monitors in use (e.g., the 5301A and all of its associated 5310As).

The term unit pertains to the designation and organization of data within the system. The unit is a user-determined data grouping and may be comprised entirely of one type of monitoring device within an office or it may consist of a combination of sensor types. If there are a number of offices within a 5301A or 5300B system, each office that is monitored by a satellite monitor must be designated as a separate unit.

PressureMAP Multiple Office Applications

Sparton systems that consist of a 5301A or 5300B and one or more satellite monitors can offer additional flexibility when used in conjunction with the PressureMAP program. Using such a system, a separate PressureMAP office may be associated with each unit (satellite monitor) in the same 5301A or 5300B. Or multiple small central offices (satellites reporting to a single 5301A or 5300B monitor) may be combined into a single PressureMAP “pseudo-office.”

As an example of the first scenario: APTOS is unit 1, SOQUEL unit 2, and WATSONVILLE unit 3—all in the same 5301A at 555-1212. Each unit is designated as a separate PressureMAP office. The Office Information for each PressureMAP office (APTOS, SOQUEL, WATSONVILLE) contains the same phone number, but a different unit number. Device numbers may be repeated in different units (as long as they are unique within the unit), since they are associated with different PressureMAP offices.

In the second scenario two or more smaller central offices can be combined into one PressureMAP office by using satellites reporting to a single 5301A or 5300B. A single PressureMAP “pseudo-office” is created for the 5301A or 5300B, and ALL units (associated with different actual COs) are listed in the Office Information for this pseudo-office. In this case, the device numbers must **not** be repeated in different units (they all must be unique), since they are all associated with the same PressureMAP pseudo-office.

In order for PressureMAP to organize and sort the office and device data, the criteria required for “single” PressureMAP offices also apply to pseudo-offices comprised of multiple central offices (units). Those requirements are as follows:

- Device Numbers cannot be duplicated within a PressureMAP pseudo-office.
- Pipe designations must be unique within the pseudo-office.
- Locations Codes must not be duplicated in the pseudo-office.
- Stickmap numbers should not be the same for combined central offices.

When several smaller central offices are to be combined into one PressureMAP pseudo-office, it is important that the Device Numbers remain unique. This means that if each central office begins numbering devices with the number “1” (and continues up sequentially from there), a plan will have to be introduced to renumber the devices so that no two devices in the pseudo-office have the same number.

The easiest way to designate unique Device Numbers is to renumber all but one central office. In the offices that are to be renumbered, change the first digit of each device number so that the number will then be unique. For example, if three offices all have device number “001,” you may modify the Device Numbers so that they read “201” and “401” in the second and third offices.

By changing only the first digit of the device number, it is possible to eliminate duplicate device numbering and more easily reference existing Master Transducer Logs and stickmaps.

When central offices are consolidated into one PressureMAP pseudo-office, it is also important that pipe routes are distinct and identifiable. For example, there cannot be two pipes designated as Pipe

1A. Air pipes may be renumbered sequentially or randomly, using alphabetical, numerical or alphanumeric designations.

Since CO sectors are a type of pipe designation, they must not be duplicated within the PressureMAP pseudo-office. If more than one central office has a CO pipe designation, then the additional CO sector(s) should be renamed, for example C1, C2, etc.

In addition, there must not be any duplicated device Location Codes. When two or more central offices are combined into one PressureMAP pseudo-office, it is necessary to assign (or reassign) unique Location Codes to each device location in every central office. The order in which the Location Codes are assigned is not important, as long as no Location Code with a PressureMAP pseudo-office is duplicated.

The rule for assigning the number "0" for all devices within the Central Office Sector requires interpretation when central offices are combined into one PressureMAP pseudo-office. Only one of the offices may be assigned the location code "0". The other central office device locations must be assigned any unused codes consisting of any four alphanumeric characters.

Lastly, it is especially important to update existing stickmaps with the new Location Codes, as these new codes will be used in the PressureMAP Device Log By Location report.

PROGRAMMING A SPARTON CPAMS VIA PRESSUREMAP

One of the most convenient and time-saving features of PressureMAP is its ability to update an existing Sparton 5300B or 5318 monitor with new or modified PressureMAP device data. For example, if you are adding devices to an office that is being monitored by one of these CPAMS types, you can add the device information directly into PressureMAP and instruct the software to program the Sparton. This capability eliminates the double data entry requirement and makes it much easier to keep the monitoring system updated.

Two new menu options have been added to the CPAMS Information Menu (Refer to Section 2 of the MAP System Operations Manual). One of the options enables you to program selected devices, while the other option will program all of the PressureMAP devices within the office into the Sparton. Please note, however, that not all of the data fields in the PressureMAP device data record will be programmed. Regardless of which option you choose to implement, only the following key data fields will be programmed into the Sparton:

- Unit #
- Input #
- Threshold
- Module
- Line #
- Scan Option
- Alarm Priority
- Addr #
- Trigger
- Delay
- Binary Source

Keep in mind also that it is necessary to set the **Program Flag** to Y (for yes) during the data entry process if you plan to selectively program individual devices only (by default, the flag is set to N). Once PressureMAP has completed the programming of the Sparton monitor, all Program Flag data fields will be reset to the default N (No) status.