

Chapter 8

INTRODUCTION

There are two approaches to preparing for the System Studies 289H and 289H-M Loop Surveillance System (LSS) installation. When a LSS is installed and does not replace another system monitored by PressureMAP, data must be manually compiled and organized. When the LSS replaces an existing system monitored by PressureMAP, however, data entered for the old system can be automatically converted for use with the LSS. This section of the Data Entry Manual explains the procedures required to set up a new PressureMAP office monitored by an LSS. The Special Data Entry section of this manual (Section) covers procedures for converting existing PressureMAP data for use with the LSS.

This chapter introduces the 289H LSS Device Data Form, which has been designed to help you compile transducer data and organize it for input into the PressureMAP database. A LSS Device Data Form needs to be completed for each monitoring device within an office that utilizes a 289H or 289H-M monitor.

Note: It is important to understand that the 289H or 289H-M LSS monitor DOES NOT require programming. However, careful installation procedures must be followed so that device pairs are connected to the monitor in the manner specified by PressureMAP.

MONITORING SYSTEM STRUCTURE

Each full-size 289H LSS monitor contains one controller card, one utility card and up to sixteen relay cards. A 289H-M monitor is equipped with a controller card, a utility card and one relay card. Currently, there are three types of relay cards that can be purchased for use with the LSS: subscriber, dedicated and Sparton Dedicated Replacement (SPDR). SPDR cards have been configured to accept the Sparton dedicated block's A, B or C cables, thus eliminating the need for rewiring when cutting over from a Sparton monitor to the 289H LSS.

One subscriber card will accommodate a maximum of 25 monitoring points, while the dedicated card serves up to 50 monitoring points. The Sparton Dedicated Replacement card provides monitoring for up to 36 dedicated devices.

Note: In addition to these relay cards, PressureMAP has the ability to read addressable monitoring devices in 289H and 289H-M LSS offices if the monitor is equipped with either an Addressable Monitoring Card or a Universal Addressable Monitoring card. Both of these cards, plus an extensive line of current loop addressable transducers were once manufactured and sold by System Studies. Production of this addressable monitoring equipment has since been discontinued due, primarily, to a lack of demand for addressable devices.

Because there are still some addressable cards in use with 289H LSS equipment, however, PressureMAP continues to support 289H addressable transducer monitoring functionality. The PressureMAP menu structure for addressable device has been retained, and this manual still includes reference material for addressable devices.

Addressable cards accommodate up to 8 addressable pairs (each with the capability for 127 addresses and 10 channels/devices per address). In addition, the addressable card also supports up to 24 resistive or current loop devices on dedicated pairs.

Multiple Offices Within the LSS Monitor

PressureMAP allows a single LSS monitor to be configured into separate offices, with each device having a unique number using the card-pair format. This card-pair number tells PressureMAP where in the LSS monitor the device is located, allowing quick and accurate readings for each office within the LSS monitoring system.

The 289H LSS can be set up in two different configurations. In the first case, each LSS chassis may be configured to monitor a single office with up to 1,000 devices, maximum. This is the recommended setup. The second configuration is a special condition, as it will divide the LSS so that it monitors more than one office. In this configuration, a single LSS monitor may be configured to operate as multiple offices, with a total of 400 subscriber or 800 dedicated devices installed in the chassis.

Suppose you have a Central Office that contains underground, aerial, and trunk and toll devices. All of these devices can be wired to the LSS at the same CO location, and by using the multiple office capability of the LSS, the data for underground and aerial devices can be entered into PressureMAP as one office. The data for the trunk and toll devices can be entered as a separate office, with different assigned report and alarm centers. Another example of when the multiple office capabilities of the LSS can be used is when one Central Office monitors both pressure and slick devices. The pressure monitoring devices can be entered as one office, while the slick device types can be grouped into a separate office. It is important to note, however, that when multiple offices are designated in this manner, calling times for device readings are affected. PressureMAP makes separate calls to the 289H LSS for each designated “office,” extending the calling time.

ADDRESSABLE TRANSDUCER NUMBERING STRUCTURE

289H LSS monitors may be equipped with one or more addressable boards—the Addressable Monitoring Card (AMC) or the newer Universal Addressable Monitoring Card (UAMC). The 289H-M LSS is also available with either of these addressable cards. (Please refer to the second note on page 8-1.)

The original AMC provides access to readings from System Studies High Resolution Addressable Transducers and Chatlos addressable transducers. The UAMC supports the following additional devices: Lancier, Nicotra, Inelcom, and Microsol addressable pressure transducers, and Sparton addressable pressure and flow transducers.

Since the device numbering requirements for these transducers differ slightly from standard resistive and current loop devices, an explanation is provided here to assist with office preparation and data entry.

General Description

The addressable transducers supported for 289H LSS offices by PressureMAP enable a large number of devices to be associated with a single conductor pair. Rather than measure individual transducer output electrically on an assigned device pair (either as a resistance or current loop value), addressable device readings are made by a transceiver, which is connected to the actual transducer

and to the pair. Each of the transceivers associated with a specific pair is configured with a unique address and accessed via a serial protocol. One 289H LSS addressable monitoring card accommodates up to 8 addressable pairs, each with the capability for 127 unique addresses and 10 channels (sensors) per address. To add monitoring versatility, particularly for 289H-M offices with their one relay card maximum, the addressable relay card also supports up to 24 devices on dedicated pairs. These devices can be either resistive or current loop transducers.

Device/Access Number Format

PressureMAP has expanded its Device/Access Number format to a maximum of 11 characters in order to accommodate the additional information required for addressable monitoring devices. The numbering convention is similar to the existing Device/Access Number format, but it includes the necessary address and channel information as described below:

Format: SSS-PP-AAAC

Explanation: SSS = 289H slot or card position (001 through 016 for a single chassis).

PP = pair designation (1 through 8). Because the 289H's addressable monitoring card also contains 24 relays for devices installed on dedicated pairs, the first character of an addressable device's pair designation must include the letter "A" to distinguish it from one of the dedicated pairs on the card.

AAAC = address number and channel designator (001-127 address range; 1-10 channels/devices per address). Channels are designated by a letter, with "A" representing the first channel and "J" the last or tenth channel. Channel A is assigned to the first sensor at an address, channel B to the second, and so on. Therefore, a lone single transducer is designated as channel A.

Examples: 001-A1-001A, 005-A6-094B

The Device/Access Number in the first example above indicates that the addressable transducer pair is connected to an addressable monitoring card located in the first relay card slot (001) in the 289H monitor. The pair is designated as addressable pair #1 (A1). The transceiver inside the addressable transducer is programmed as address #1 (001). The device itself is the first sensor (channel A) at that address.

In the second example, relay card slot 5 contains the addressable monitoring card. The actual device, which is wired to addressable pair #6 (A6), is the second sensor (channel B) at address 094.

Note: A typical application for a multiple channel address would pertain to the System Studies Addressable Dual Transducer. Both the flow and pressure sensors would share the same address, but the flow device would be assigned to channel A and the pressure device to channel B. For a dual TD, it is important to code "A" for the flow sensor and "B" for the pressure sensor to ensure that reading counts are associated with the correct device/access number and converted to the appropriate measurements (SCFH or PSI).

A multiple addressable transducer module (i.e., a Chatlos 5/10-bank module) would be another application for the address channel indicator. To ensure that the channel-to-cable assignments are correct in PressureMAP, the field technician needs to label the tubing that connects the transducer to the splice case (cable) and document for data entry which channel is monitoring each cable.

CONVERTING CHATLOS ADDRESSABLE TRANSDUCER NUMBERING

As stated above, the 289H's addressable monitoring cards will accommodate both Chatlos and System Studies addressable transducers. In order for PressureMAP to read these devices, they both must be assigned valid access numbers using the format described above.

Chatlos addressable transducers use a nine character device numbering format that is similar to the access number required by PressureMAP. For example, a typical Chatlos addressable transducer device number could be T01-004-02. The "T" in the first group of characters indicates that the device is an addressable transducer; the "01" identifies the addressable pair number (like the 289H, the Chatlos TT card accommodates up to eight addressable pairs). The next three numbers represent the address number (1 to 127), and the final two identify the channel (from 1 to 10).

Assuming that the 289H monitor has only one addressable monitoring card, and it is placed in the first relay card slot, the appropriate PressureMAP access number for Chatlos device number T01-004-02 would be 001-A1-004B. (Notice that all of the information in the Chatlos device number is contained in the last six characters of the access number.) In another example, Chatlos device number T05-066-01 would be assigned access number 001-A5-066A.

Please note that, in most Chatlos to 289H cutovers, the 289H LSS Conversion Utility will automatically assign access numbers for the Chatlos addressable transducers.

CONVERTING SPARTON ADDRESSABLE TRANSDUCER NUMBERING

A 289H monitor equipped with the Universal Addressable Monitoring Card (UAMC) has the capability for reading Sparton addressable pressure and flow transducers. These devices must be assigned valid access numbers using the format described previously in order for PressureMAP to read them.

When converting Sparton addressable transducers to 289H monitoring, the Input Number is used as the pair number and the device's programmed address is used for the address indicator in the access number. As with other types of devices, the card/slot indicator is determined by the position of the card (UAMC) in the 289H chassis. For example, a device whose INP# was 2 with a programmed address of 003, that is connected to a UAMC in the first relay slot, would be assigned access number 001-A2-003A. It is important to remember that devices with a programmed address of 000 will need to be reprogrammed with a new address since PressureMAP does not accept zero (000) as a valid address.

Please note that, in most Sparton-to-289H cutovers, the 289H LSS Conversion Utility will automatically assign access numbers for Sparton addressable transducers.

Device and TD Type Designations

Addressable transducers use the same Device Type designations as resistive and current loop devices. In order to more accurately define their functions in an air pressure system, however, separate sets of TD Types have been implemented in PressureMAP for addressable transducers.

TABLES A1-5 through A1-8 of Appendix 1 list these new designations. Please refer to them as needed when completing the Device Data Forms.

Note: For the System Studies Addressable Dual Transducer be sure that both the flow and pressure sides are entered in PressureMAP with the correct TD Type in order to obtain accurate readings. The pressure side must be entered using the Dual—Pressure Side value and the flow side with the appropriate Dual—Flow Side value from the 289H Addressable Transducer Types table (see Table A1-5 in Appendix 1).

Similarly, for Chatlos addressables it is important to use the correct Chatlos TD type for the type of module installed in the field (see Table A1-6) in order to obtain accurate readings.

DATA ENTRY

The first step required for data entry is to complete a LSS Device Data Form for each monitoring device in the office. 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 consists of numerous data fields that pertain to an individual monitoring device. These data fields comprise a single *data record* in the PressureMAP database. To fulfill the data entry requirements for an office, a data record will need to be entered for every monitoring device in the pressurized cable system.

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

In order for PressureMAP to function properly, specific information must be correctly entered into the PressureMAP Data Entry Editor for each monitoring device in the air pressure system. The following list indicates the minimum information that must be gathered for each monitoring device:

- Device Number
- Access Number
- PressureMAP Device Type (from Table A1-1 in Appendix 1)
- 289H TD Type (from Tables A1-2 through A1-8 in Appendix 1)
- Working range and sheath mileage (if the device monitors air flow)
- Physical address
- PressureMAP Location Code
- Pipe or Sector
- Sheath name (or number) of the cable being monitored (multiple sheath numbers can be used for devices that monitor air pipe manifolds)
- Stickmap number (referencing the map on which the device appears)

Although there are several additional fields on the data forms, it is not mandatory that they be filled out. However, it is recommended that they be completed if the information is available. Completing as many fields as possible, and entering the data into the PressureMAP database, will enable PressureMAP to provide more complete reports.

THE LSS DEVICE DATA FORM

Listed on the next several pages are descriptions of the data fields found on the LSS Device Data Form (shown in FIGURE 8-1). The fields are presented in the order that they appear on the data form, which is also the entry order of the data 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. 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 simplify the data entry process and minimize the possibility for data entry errors. Finally, be sure to keep your completed forms for reference. If a data entry error were to occur, you can cross reference the appropriate Device Data Form with existing pressure records and the PressureMAP device record.

Page ____ of ____	289 Device Data Form	Add <input type="checkbox"/>	Delete <input type="checkbox"/>	Change <input type="checkbox"/>
Office:	Pipe:	Engineer:	Date:	

Primary Specific Device Information				
Device #: (11)	Access #: (11)	Type: (2)	Range: (4)	S-M:/Loop: (7)
			PSI: (4)	SAU:/STD: (4)
Address: (30)		Loc: (4)	Pipe: (4)	Norm: (7)
TD Type: (8)		OAU: (4)		Chng: (4)
Sheath(s): (7-15 times)				
Prim 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)
Phone #: (8)		

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>**, (back a screen).

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FIGURE 8-1: LSS DEVICE DATA FORM

LSS Device Data Fields

Once the header information is complete, you may begin to record the actual monitoring device data. The following pages contain definitions for the various data fields found on the LSS Device Data Form. Each definition includes a description of the 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. The first group of data fields described in this segment pertains to information found on the *Primary Specific Device Information* screen of the data entry editor.

DEVICE #

This data field accommodates a maximum of 11 characters for recording the number of the monitoring device. Locate the device number on the Master Transducer Log. Then enter this number on the data form. The device number must be in a card-pair format (for standard devices) and card-pair-address/channel format for addressable devices). When the user-defined devices option is turned off, valid device numbers are 001-01 to 064-51 for standard resistive or loop current devices and 001-A1-001A to 064-A8-127J for addressables. If the Access Number Translation feature is enabled, the Device # could be similar to an entry that would be used by a corresponding device type in an E2A monitor.

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 11 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.

ACCESS #

The **Access #** field, which is 11 characters in length, is only required when User Defined Device Numbers is turned ON. The **Access #** field holds the actual number used to access the LSS. (This number is normally placed in the **Device #** data field when User Defined Device Numbers is not activated.) User-defined devices are typically used in LSS systems.

An access number identifies a device pair's position (or address) relative to other devices wired to the LSS monitor. The first three digits of the access number designate the slot in the LSS chassis which contains the relay card to which the device pair is connected (slots 001 to 016 in chassis #1; slots 017 to 032 in chassis #2, etc). The last two digits of the hyphenated number represent the pins on the connector block where the device circuit is connected and the corresponding LSS pair select relay used to provide the device reading. Addressable transducers require another four characters in the access number: three numeric characters to define the device's address, and one alphabetical character to indicate which of ten possible channels at the designated address is assigned for the specific device.

Access Number Translation

When the Access Number Translation feature is enabled for the MAP System, and E2A LARP is entered as the Access Number Type in the Office Information Screen, the LSS monitor will accept access numbers normally used only when entering data for an E2A Remote (LARP) office.

The Access Number Translation feature allows the MAP Software to translate the user input access numbers to numbers used by the LSS monitor. The 1000 possible LSS access numbers are mapped as subscriber numbers (001-01 to 040-25) to the first 1000 LARP access numbers. LARP calibration devices 000A and 000B are skipped, so the mapping covers the LARP number range 001A-520B. The subscriber card mapping is chosen because LARP devices are technically subscriber devices (although they may be attached to vacant/non-subscriber pairs), and only subscriber cards are to be installed in the LSS monitors using this feature.

TYPE

This field holds the two-character PressureMAP Device Type designation, which indicates the general monitoring function performed by the device. PressureMAP uses a default Device Type of UP in this field, representing an underground pressure transducer. For more information on assigning PressureMAP Device Types, please refer to Appendix 1, PressureMAP Device and Transducer Types.

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. Enter the maximum range of the transducer in this field on the data form (9.5 SCFH, 20.0 SCFH, 50.0 SCFH, 100.0 SCFH, 475.0 or 950.0 SCFH).

PressureMAP's flow range entries are calibrated to the nearest tenth. For example, in order to correctly enter a 0-95 SCFH flow range, 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). 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.

The PSI field will also appear for source pressure and distribution panel pressure transducers (SP and DP PressureMAP device types). Refer to Appendix 1 of this manual to be sure that the TD Type in device data is correct for the pressure TD installed, and enter a "0" into the PSI data field.

The 289H monitor does not need an offset value in this field to obtain accurate readings from high pressure TDs. These high pressure devices are transducers which measure pressure in the range of 0-15 PSI or 0-30 PSI (in the case of System Studies High Resolution Pressure Transducers) or 5-14.5 PSI (resistive devices).

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 monitoring device, then enter the calculated 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 miles for a source FTD is equal to the sum of the manifold sheath miles. (This includes the distribution panel sheath mileage if it is fed by the pipe panel.)

Although 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 miles 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. Please note that 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.)

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, automatically placing the last numeric digit one space to the right of the decimal point.

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 researching past device history reports.

STD

This field will be displayed only for high priority pressure transducers (\$P devices) and temperature devices (\$T). The STD value is the standard, normal PSI value of the transducer. For \$T devices, the default is 75.0 degrees F. The value that is placed in these fields 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

TD TYPE

The 289H LSS is capable of reading both resistive and loop current devices, as well as many addressable transducers. In order for PressureMAP to process data for these transducers, the appropriate TD Type must be entered in this data field. Information regarding TD Type designations, as well as a brief explanation of their usage, is provided in Appendix 1 of this manual.

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. While Location Codes may consist of up to four alphanumeric characters, they are normally 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 8-2). 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 8-

3). This exception makes it possible for a remote dryer to fulfill the minimum requirements for establishing a System Quality Index (SQI).

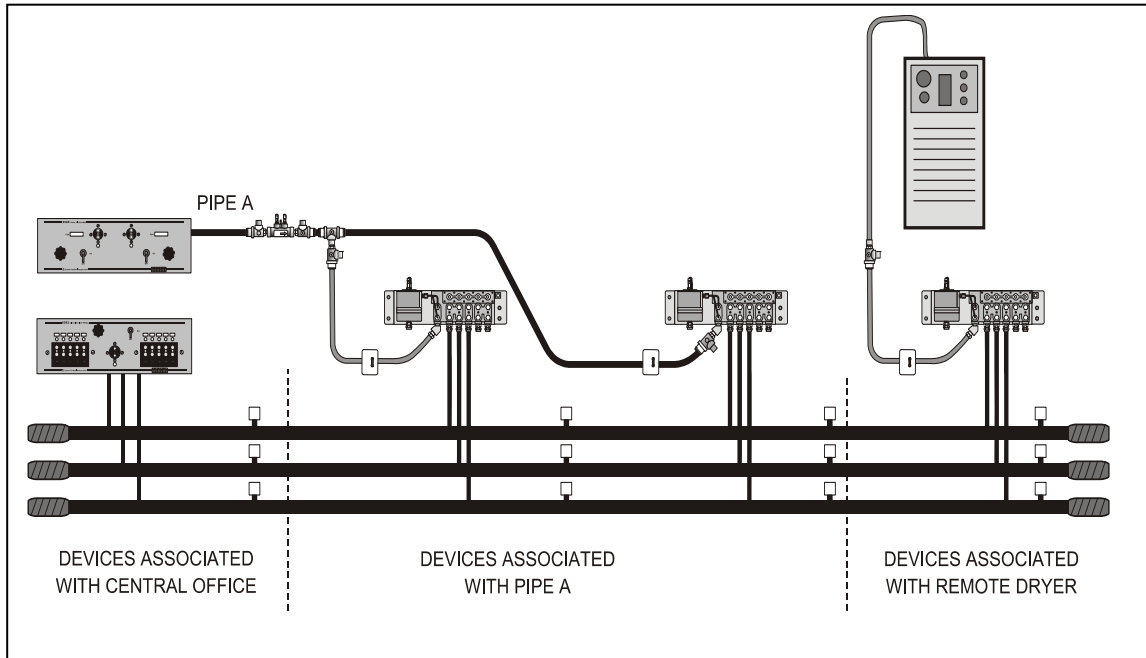


FIGURE 8-1: DEVICES ON OFFICE SIDE OF A REMOTE DRYER

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.

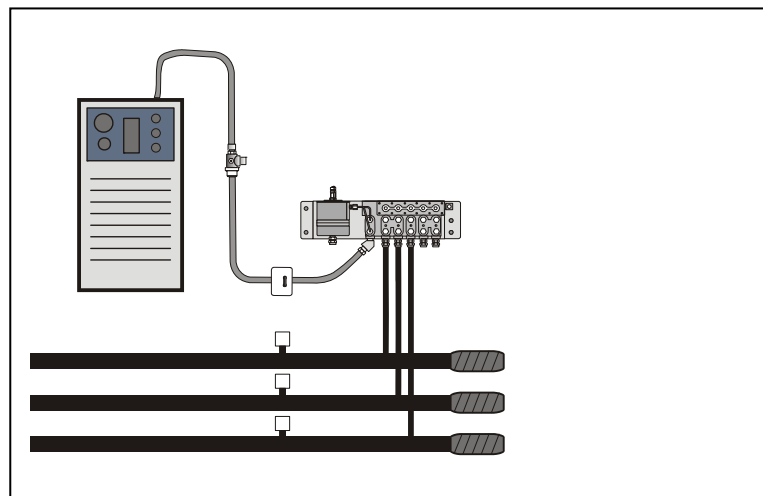


FIGURE 8-2: REMOTE DRYER AT THE END OF A CABLE RUN

NORM

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

PressureMAP allows several TD Types for CA (Contact Alarm) devices that are connected to 289H LSS monitors. These designations are CPAMS_TD, AC/115, AC/230, DRYER, and RR/540. When inputting or editing Specific Device Information for these devices, it is possible to specify the **Norm** values listed below. Each of these values implies both a threshold and the direction that a resistive output reading must cross through the threshold in order for a 289H to generate an alert. For Normally Open values, the resistance must decrease to below the threshold, while for Normally Closed the resistance must increase above it.

- OPEN - Normally Open, 405K threshold
- CLSD - Normally Closed, 405K threshold
- AOPN - Normally Open, 30K threshold
- ACLS - Normally Closed, 40K threshold
- BOPN - Normally Open, 80K threshold
- BCLS - Normally Closed, 100K threshold

For most of the TD Types listed above (all of them except for CPAMS_TD), the "Normally Closed" state does not function as implied with a 289H LSS monitor. For the AC/115, AC/230, DRYER, and RR/540 types, the open state (high resistance) is always interpreted as an OK reading, and the closed state (low resistance or short for RR/540) is always interpreted as ALRM.

Therefore, with 289H monitors, if any of the three Normally Closed states are specified for TD Types: AC/115, AC/230, DRYER, and RR/540, alerting will not occur correctly due to the threshold direction being incorrectly set to the opposite of how these readings are interpreted. In other words, the 289H will alert when the device reading changes from ALRM to OK.

Please make sure that you enter the correct value in the **Norm** field when entering data for contactors and contact alarms in your 289H LSS office.

CHNG

This field is used in conjunction with the **SAU/STD** fields for \$F, \$V and \$P and \$T devices. The **CHNG** field is the amount of change that can be tolerated before the device goes into alarm. For pressure devices, the **CHNG** value represents the amount of pressure drop (in PSI) 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 indicates how many degrees the temperature can increase or decrease from the **STD** value before the device goes into alarm.

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. For a temperature monitoring device, the default value is one third of the standard (**STD**).

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.

PRIM 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 information concerning the designation of the primary conductor pair to which the device is connected. Primary pair entries are limited to seven characters.

SEC PAIR

Record the secondary pair number in this field. This number refers 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. No spaces are allowed. 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 monitoring 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:

Degrees and Decimal Minutes

N36+58.447

Decimal Degrees

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 device types) do not require Office and Field entries, as PressureMAP reviews the entire route when these devices come into alarm.

OFFICE 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 to 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 OFFICE 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.

OFFICE 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.

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.)

PHONE

If the device is wired to a subscriber line, enter the eight-digit subscriber phone number in this field. This information is critical in providing a useful and accurate device record database.

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.