MAP Software Version 28
Program Enhancements and Modifications

This document describes the important features and enhancements that have been implemented in PressureMAP Version 28 and its various incremental updates. Program improvements implemented in PressureMAP Version 27 are also included in the document for reference.

One of the noteworthy changes pertaining to Version 28 is the discontinuation of program development on the SCO UNIX OS platform. Beginning with PressureMAP Version 28, all current and future development of the PressureMAP and PressureWEB applications will be done using the Linux operating system. This operating system environment change brings greater flexibility and programming options for PressureMAP program development.

MAP Software Release 28

The major additions to the latest version of PressureMAP are summarized below. By no means do they represent all of the engineering work completed on the product, but they do describe many of the important new features.

PressureWEB Improvements

When PressureMAP Version 28 was first introduced, it included PressureWEB Version 03.00.00. The most current incremental update available for the software is PressureMAP Version 28.00.05 and PressureWEB 03.02.05. Numerous enhancements and features have been added to the PressureWEB since the previous 2.0 versions included with PressureMAP Version 27. These include the ability to: 1) define and name multiple My Offices listings, 2) view and print various PressureMAP reports in a familiar text format, 3) add and view comments that pertain to a specific device, and 4) to export PressureWEB report data to an Excel spreadsheet or other application that accepts a . csv file format. Also included is a utility on the *Tools* menu that provides automated graphing of a leak or multiple leaks in a cable pressurization system. You can plot a graph using footage and pressure readings or pneumatic resistance and pressure readings. In addition, PressureWEB's Setup controls have been expanded to include new *Office List Sort*, *Office List Display*, *Alarm Display* and *Office Last Connect* preferences.

Other key PressureWEB features include a *Dashboard* utility, which provides a quick visual glimpse of the office(s) SQI, a history of SQI readings for the current week and weekly averages for the prior four weeks, a device status pie chart showing the number and percentage of devices above standard, below standard and not reading, and an alarm history bar graph. Dashboard information can be generated for multiple offices or for a single office.

Key 03.02.05 Features

The most recent PressureWEB incremental update (Version 03.02.05) includes several important and powerful new features:

- A new *Office Last Connect Preference* setting allows you to display either the last Call or Alert that has occurred between PressureMAP/PressureWEB and the office monitor or the last Call and Alert. This

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information, which includes the number of minutes, hours, days, is displayed in the *Last Connect* column of the All Offices or My Offices displays.

▪ There is also a new *Alarm Priority* option available from the All Offices and My Offices displays. Selecting this option displays all of the four star (****) alarms in the various offices. The alarms are ranked according to severity by the PressureMAP software, with the most critical alarms appearing at the top of the list. For example, an EP Priority Alarm is ranked higher than a MF alarm because an EP device that is below standard indicates that the majority of the cables on the route have inadequate air pressure protection, not just the cable(s) causing the high flowing manifold. You can also choose to specify the Alarm Priority office list as your default All Offices or My Offices display, if desired, by selecting Alarm Priority from the Office List Sort Preference drop-down box in Setup Preferences.

▪ A new *Device Status by Cable* option has been added to the View Options menu in PressureWEB Version 3.02.05. Selecting this option will sort the device report for an office by cable, in ascending order, with a secondary sort on Device #. This display provides another helpful way of viewing associated device information and readings.

▪ Also included in Version 03.02.05 is the ability to view portable document format (PDF) versions of your office stickmaps. Arrangements can be made to have System Studies upload and link PDF versions of the office stickmaps to the PressureMAP/PressureWEB server. This feature helps to keep your key air pressure system documentation where you can most easily access it—from your laptop or tablet using PressureWEB.

▪ A new *Trouble* menu has also been included on the main navigation bar. This link produces a drop-down list with the following displays: 1) a prioritized sorting of air pipe EP readings that are below the Delivery Standard of 7.5 psi, 2) a prioritized sorting of air pipes whose source flow (SF device) reading does not equal the sum of the associated manifold (MF device) readings on the pipe, 3) a list of all air dryer CA or $A devices that are in alarm, and 4) the System Errors display. System Errors were also included in prior PressureWEB releases, but they have been moved to Troubles list due to the important information they provide.

▪ Finally, a new OAU column has been added to the various device status views to provide OAU information for all of the flow devices on the display. This column places the optimum air flow information for a flow device next the *Curr* column (current reading) to provide important comparison information without having the leave the webpage.

Set Mail Sender Name

In order to control spam, some mail systems require email to originate from a registered user name, and will not deliver or forward email from anonymous or unknown users. Since email from PressureMAP systems always originates from either the map or root users, this security policy can interfere with the ability to deliver alarms and/or reports from PressureMAP. Consequently, a new menu option has been added to the SMPT Mail Configuration Menu to allow Network Administrators to set a sender name alias for mail that originates from PressureMAP's map and root designations. This capability, available in PressureMAP Version 28.00.05, can be implemented from the SMTP Mail Configuration Menu in Network Administration.

Adding BackupEDGE Resources to the Schedule

PressureMAP System Administrators now have the ability to create up to four daily backups to different BackupEDGE device resources. This capability, first introduced in PressureMAP Version 28.00.05, provides backup selection and editing functionality for configured resources. The first backup resource designated will be performed from 23:00 to 24:00, the second backup resource designated will take place between 01:00 and 02:00, the third between 02:00 to 03:00, and the fourth between 03:00 to 04:00. Backup resource designations are made at the BackupEDGE Configured Device Resources Menu, and the ability to edit or remove a backup resource(s) is performed at the Current Backups for BackupEDGE Menu.

Printing PressureMAP Reports to an Email Address

PressureMAP Version 28 offers the ability to "print" reports to an email destination(s) using the PressureMAP Browser interface. (Please note that the browser capability first needs to be enabled by System Studies' Technical Support personnel.) Previously, reports could only be printed to the PressureMAP console's screen, to a dedicated printer, or to one or more of the configured network printers. This new capability makes it possible to easily distribute important report information via email, where it can be viewed, saved and printed by the recipient.

Full Office List Capacity for Alarm/Report Centers

The way the "ALL" keyword works when defining an office list for Report and Alarm Centers has been modified to permit all of the offices on a system to report to a specific Alarm or Report Center. Before, if you entered ALL in the Offices data field, the office list associated with the center would include only the first 72 offices in the system, plus Office O (System). In Version 28 entering ALL will now add all of the offices in the system (up to 250, plus Office 0) to the office list.

Device Reading Source Identification

PressureMAP now displays a four-letter indication of the source of a current device reading in the Dispatch Histories Display. One of five possible originating conditions will be listed in the Level data field after the star designation). The possibilities include: CALL (reading obtained from a scheduled call to the monitor), REAL (realtime reading), ALRT (reading received from an CPAMS alert), EDIT (reading was edited manually), OTHR (other/unknown reading source).

Alarm Center Email List

PressureMAP Version 28 makes it possible to designate a list of email recipients for each Alarm Center. Using this capability significantly reduces the number of Alarm Centers that, otherwise, would be required to route alarms to desired recipients. Also, Version 28 email alarms now contain a hyperlink to PressureWEB in the header section. In the Full Report and Summary Report formats, the link generates a Specific Device Information display that pertains to the device in alarm. If the Alarm Center has been set up to receive alarms in the One

Report format, however, the hyperlink will generate an Alarm View display for the office rather than the Specific Device Information display.

Key/Value (Histview) Alarm Format

PressureMAP can now be set up to distribute raw histview-like key=value alarm data to an IP socket (IP address and port designation). This makes it possible for a user to more easily import PressureMAP alarms into an external database or other alarm management application. Two alarm formats are provided: one for device-

related alarms and one for system alarms. Initial setup requires making three specific data field entries in the Alarm Center Data Entry Editor.

Support for MB Device Type in uM260 Micro Monitor

PressureMAP now supports use of the MB device type (nitrogen bottle capacity by percentage) in uM260 Micro Monitors. MB device type reading capability is also supported for the uM260 in stand-alone mode.

uM260 Monitor Support for Relative Humidity/Temperature Sensor

In addition to the MB Device Type, PressureMAP now supports use of Device Types JD (air temperature sensor) and RH (relative humidity sensor). These sensors are included in the System Studies Relative Humidity/Temperature Sensor (Part No. 9800-4410). Neither of these device types, however, is supported by the uM260 in stand-alone mode.

Four Star System Alarm for Unsuccessful Backup

PressureMAP Version 28 now produces a four star alarm whenever an instance of Error 157 occurs. Error 157 is generated when PressureMAP cannot write to a backup tape, CD or other backup resource. The four star system alarm clears if no additional instances occur within a 26 hour period.

Erasing Unrecognizable, Incomplete Alarms in Non Screen Browser Mode

PressureMAP systems that have the Screen Browser mode enabled (set up by the System Studies Technical Support personnel) have the ability, using the E key, to "erase" unrecognizable or incomplete alarms. This capability is performed from the View MAP Data Files Menu, available from User Initiated Operations Menu. There was no such "erase" editing option available for non-Browser mode systems. PressureMAP Version 28 now makes it possible to use the E "erase" function in the non-Browser viewing/editing mode.

Linux Operating System Updates via Installation Media

PressureMAP Version 28 has been modified to include a new option in the System Update Menu for Linux (CentOS) operating system updates. This feature has been added to make it possible for Linux PressureMAP systems to easily apply System Studies-tested and certified Linux updates, such as security patches and/or new performance capability. This new feature enables PressureMAP customers to easily update their operating system(s) via CD/DVD media rather than having to install updates directly from the Internet.

Network Administration Menu Option for Configuring Time Server

A new option under Network Administration makes it possible to use Network Time Protocol (NPT) to help synchronize the Linux system's clock with an accurate time source. With this capability you can designate a server on your network to be the local time server for all of your other devices. This makes it much easier to correlate system-related events on different systems and network components.

Standardized Latitude/Longitude Format

Latitude and longitude coordinates used in data entry are now displayed in PressureMAP and PressureWEB as decimal degrees (e.g. 36.974117), although they may actually be entered the older legacy format (N36+58.447).

Ability to Install Linux Device Drivers Via Supplemental Update

It is now possible to install various Linux device drivers for a PressureMAP system via the Supplemental Update process. Drivers are provided on a CD/DVD and can installed on the operating system using the Supplemental

Updates Menu. The Supplemental Update Disk will work with PressureMAP Version 28 and later, and also Version 27.01.05 Linux systems.

Keyword (SENT) Displayed on Dispatch Priorities Status Line

PressureMAP now includes the keyword SENT, when applicable, on the second line under the *Condition* statement in the Dispatch Priorities report. If SENT appears, this indicates that an alarm was successfully delivered to all Alarm Centers for the call time slot that was in effect when alarm delivery took place. AlarmMAP's Dispatch Histories also includes two new entries, DELIVERED ALL CENTERS and CLR DELIVERED ALL CENTERS in the *Entry Type* field. This information provides a record of the delivery status of the alarm associated with your view selection criteria (Task Number, Device Number, Pipe, Location, etc.).

PressureMAP Support for Metric uM260 Devices

Memory limitations within the uM260 Micro Monitor preclude making firmware modifications to support programming and reading of metric devices in the uM260. Because metric reading capability is required in many telephone operating companies, however, the PressureMAP software has been modified to support pseudo-metric uM260 devices. PressureMAP allows for data entry of metric Transducer Types, programs the uM260 with equivalent non-metric devices, and converts readings, thresholds and alerts into the metric equivalents. As with other offices, metric TD types are used if the international capability is enabled and metric pressure/flow units are specified for the office standards.

New BackupEDGE Daily Resource Selection Options

The System Administration's Backup Resource Menu for the BackupEDGE method now includes options to designate the number of backup slots (backup copies) that will be retained on the target backup resource. This capability applies to all backup resources except tape backup. By default one backup is made, and the succeeding daily backup over-writes the previous one. Users can now specify the number of backups (up to 50) that they would like keep on the target resource before a new one replaces the oldest one. It should noted, however, that the actual number of backup slots that can actually be used depends up the size of the PressureMAP system and the storage capability of the backup resource. A user could specify five slots, for example, but BackupEDGE may only be able to use two, three or four before it has to over-write the oldest one.

MAP Software Release 27

To provide perspective regarding the improvements that have been made to PressureMAP in the last two major software releases, please refer to the summary of PressureMAP Version 27 features below.

Support for Both UNIX and Linux Operating Systems

Version 27 has been certified to run on a MAP Engine VIII platform using either SCO UNIX Version 5.0.7 or Linux (Red Hat Enterprise 4 or CentOS 5.2). Version 27 is the last planned release of PressureMAP that will be available for SCO UNIX. Future program development will utilize the Linux operating system exclusively, due primarily to numerous benefits of the system's open architecture, lower end user licensing fees, and unsurpassed hardware support.

PressureWEB Improvements

PressureMAP Version 27 is accompanied by the latest release (Version 2.0) of the popular PressureWEB application. Several new display features and user-selected controls have been added to the program. The first

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is a new System Errors hyperlink, which is located on the main navigation bar. Depending upon where you are in the application (what display), System Errors information will be provided for the entire PressureMAP system, for your selected offices only, or for the specific office that is being viewed. For example, selecting the link from the All Offices display will produce System 0 dispatches for the entire PressureMAP System. From My Offices the link produces System 0 dispatches for just the offices that you have defined during setup. If you are viewing one of the Device Status displays for a particular office, and you click the System Errors link, only System 0 errors pertaining to that particular office will display.

The next display improvement pertains to the data included in the In column of the Device Status View displays. The previous version of PressureWEB displayed either the number of days that a particular device had been in alarm (if applicable), the word "Today" (indicating that the alarm was generated at some time after the 3:00 a.m. stabilized last midnight shift in readings), or a blank (indicating that there was no alarm associated with the device). In PressureWEB 2.0 all alarms that have not aged (reached the -1, -2, etc. status) now include the word "Today," plus the number of hours and minutes that have passed since the alarm first occurred. This additional information is particularly useful when analyzing alarm data.

A new Setup preference had been added to PressureWEB 2.0 which allows you to designate the category of alarms that will be displayed in the "# of Alarms" column of the All Offices and My Offices display. When you trigger the Setup Preferences popup window by clicking on the Setup link on the main navigation bar, you'll now see drop down menu preferences for Device Reports, Office List Display, and Alarm Display. This last menu enables you to chose from five alarm display options: 4 star, 3 star or >, 2 star or >, 1 star or >, or All Alarms.

Added Support for Digi PortServer II

PressureMAP Version 27 now includes 4-star alarm generation capability when loss of network connectivity is detected between PressureMAP and PortServers. In addition, PressureMAP Version 27 for Linux operating systems also includes a Network Administration option which enables you to initiate a connectivity test manually.

DNS Lookup Capability

PressureMAP Version 27 for Linux operating systems also includes the ability to resolve a mail server name via either an IP address or DNS lookup.

System Uptime Display

Both the SCO UNIX and the Linux versions of PressureMAP Version 27 now include a new System Administration menu option, which allows you to view the System Uptime in a new System Statistics Menu. The output includes the current time of day, an indication of how many days and minutes the system has been operating uninterrupted, the number of users currently logged on, plus load average data.

Reading Histories Added to Dispatch Histories Report

In past PressureMAP releases when a user selected View Dispatch Histories (option #4) from the Dispatch Histories Menu and included the extra option, which was "ssi" instead of just "4", the output included the reading time and value for the device that caused the dispatch. In PressureMAP Version 27, additional reading history information similar to the Specific Device Information data is now provided without having to enter the "SSI" extension. Values are now provided for Last, Tdy, -1, -2, -3 and -4.

System Dispatches Added to Dispatch Priorities and Dispatch Report

PressureMAP Version 27 now includes "system" dispatches that are related to an office with the corresponding Dispatch Priorities listing and the Dispatch Report. These appear following the usual "high five" display, under the new heading "System Alarms for OFFICE_NAME." Additionally, alarm delivery is modified to also send office-related system alarms when alarms for a given office are evaluated for delivery.

Migrate PressureMAP Data

Due to the differences in file formats and structure alignment between operating systems, a method was devised to make the transition from SCO UNIX to Linux as straightforward as possible. A special PressureMAP 26.02 release was created to provide a "Create PressureMAP Linux Migration Backup" option. This option converts data to a portable text format and archives it to backup media. A new System Administration Restore option, "Restore from Linux Migration Tape," was then added to PressureMAP Version 27. This new Restore option extracts the data from the backup media and uses it to create the corresponding data files in the native binary format.

New Ring/Ground Variants for Current Loop Transducers

Several new Transducer Types have been added to Version 27 for 289H Current Loop Transducers. The new Transducer Types are required when wiring transducers using ring with a sheath ground. The new TD Types are as follows: Pressure Transducers (CPA/RG/15.0 and CPA/RG/30.0); Flow Transducers (CF/RG/9.5, CF/RG/19.0, CF/RG/47.5, CF/RG/95.0, CF/RG/190.0, CF/RG/475.0, and CF/RG/950.0). Please note that the KPA and LPH equivalents for these devices are also supported, plus the following special application designations: BARO/RG/35, BARO/RG/1200, TEMP/RG/167 and TEMP/RG/75.

Support for Puregas C-Board (PVD 800)

In Version 27 PressureMAP has been modified to support the Puregas PVD 800 monitor. If PressureMAP detects a C-board, it then requires that the office designation be a PVD 800 office, rather than a Sparton 5300B, for example.

Expanded Circuit Number Field

The number of characters that PressureMAP allows in the Circuit # data field in a Chatlos-monitored office has been expanded to support six characters instead of four. This change pertains to the Device Log and Device Lop by Location reports.

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