cable pressure *AirMAIL*

System Studies Incorporated

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We now offer a 0-100 PSI Digital Pressure Gauge (Part No. 9800-3135) to complement our 0-30 PSI model. Check the Tools section of Airtalk.com for more information.

Last year we introduced a new product in our AirMAIL bulletin called CableWATCH™, which was a monitoring application designed to alert telephone companies of a cable theft in progress. We have since renamed the product to make it more descriptive of the type of cables that we monitor, and we have significantly improved its detection capabilities. It's now called CopperWATCH™, and it has proved repeatedly—in real world applications—to be exceptionally fast in detecting and alarming on a telephone cable theft in progress. Check out the article below for more information on CopperWATCH, as well as the new central office hardware component designed for the application.

Changes to PressureWEB™ in Version 3.01 are almost completed, and we think you'll be pleased with the additions and improvements we've made (see below). Among the new features and program enhancements are the ability to choose between English and Spanish for the application's setup and display output, plus the addition of a Device Comments capability for the Specific Device Information screen.

In this bulletin we'll also take a look at the benefits in air pressure protection and monitoring that can be achieved by converting an air pressure system from 6,000 foot manifold spacing to 3,000 foot spacing. This shorter-spaced manifold design is fast becoming the new standard in air pressure systems. If you'd like to find out more about what products and services we have to offer, log onto Airtalk.com or give us a call at (800) 247-8255 or (831) 477-8904.
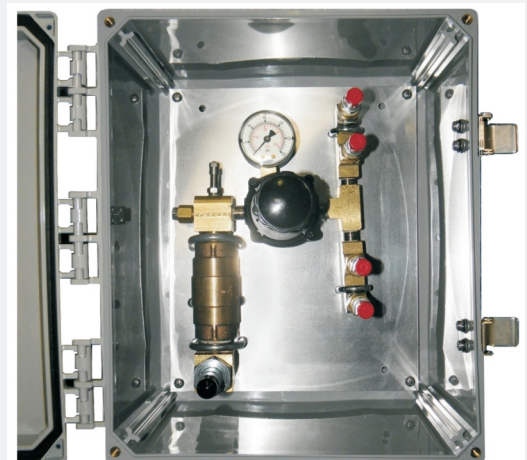
Emergency Air Delivery Access Cabinet

Recently our design engineers developed a new product that provides an outside access point for supplying emergency CO panel air delivery. The Emergency Air Delivery Access Cabinet (Part No. 9800-0905) is a rugged, hinged plastic enclosure designed for installation on an accessible exterior central office wall. If a situation occurs where you are unable to enter a central office to repair an air dryer that has failed, you can supply the required air feed to the system from outside the building until the air dryer can be repaired.

The cabinet contains an Emergency Air Feeder Assembly, which includes fittings to accommodate incoming air feed from a System Studies 911 Emergency Air Dryer (Part No. 9800-0911), a portable nitrogen tank, or a maintenance truck's air tool (four inputs with check valves are provided). The cabinet also includes a 0-30 psi gauge and pressure regulator to adjust delivery pressure from your truck's air tool (see photo).

Air delivery from the cabinet to the central office panels is achieved using one inch Nylobraid poly (PVC) tubing (not included), which is connected to the air feed assembly through the back of the cabinet. The one inch tubing is routed through the exterior and interior walls of the CO to the central office manifold. A 3/8 inch pressure tube pneumatically connects a distribution panel output port to the one inch pipe in the office. A bleeder valve installed on the cabinet's air feed assembly permits a steady flow of air (approximately 3 SCFH) into the cabinet to prevent moisture from accumulating in the one inch tubing and to keep the interior of the cabinet dry. Four pre-drilled 1/4 inch holes are provided on the back of the cabinet for mounting the unit to a vertical wall surface.

If you'd like the added security of having an accessible, exterior emergency air delivery access point for your air pressure system(s), please contact **Sheryll Hiatt** for ordering information (831-477-8942) or **Bill Simpkins** for technical / installation assistance (831-477-8902).

CopperWATCH Telephone Cable Theft Monitor

Several years ago System Studies developed a monitoring and alarming application to address the increasing problem of telephone cable theft. In late 2011 we modified field components of the application to reduce the possibility of pair reading problems and to add correlating, verifiable evidence of a cable cut in progress. The product has since proven, in several field installations, to be very successful in identifying cable thefts and providing timely alarm notification.

This cable theft monitoring solution is comprised of the CopperWATCH™ software, a uM260 Micro Monitor™, and multiple Cable Section Locators (CSLs) installed in parallel on dedicated monitoring pairs. For each monitored cable both a Detection Pair and a Verification Pair are required. Multiple CSLs are installed on the Detection Pair (up to seven) and a single CSL is installed at the end of the Verification Pair (see illustration below).

Each of the CSL devices provides a fixed 3.0 mA output. When the uM260 reads the designated monitoring pairs, which it does several times a minute, it looks for changes in the normal, expected loop current output. If it detects a change, it generates an alert and sends it to CopperWATCH. The software then determines, by looking at the associated Detection or Verification Pair, if the alert simply identifies trouble on the monitoring pair or if an actual cut cable is indicated. In the case of a cable cut, CopperWATCH identifies the section of cable (between two CSL locations) where the pairs have been cut and issues an immediate alarm. The alarm can be sent to any designated individual, device and/or center so that law enforcement personnel can be dispatched quickly to apprehend the individuals involved in the criminal act.

What makes this copper cable theft monitoring application so valuable are its rapid reading and alarming capabilities, the fact that it does not generate false alarms, and its ability to provide useful alarm information. For example, when latitude and longitude coordinates are designated for the individual CSL locations on a Detection Pair, the CopperWATCH-generated alarm will include a link to a Google map. Click the map link and your web browser displays the highlighted section of cable where the criminal activity is underway.
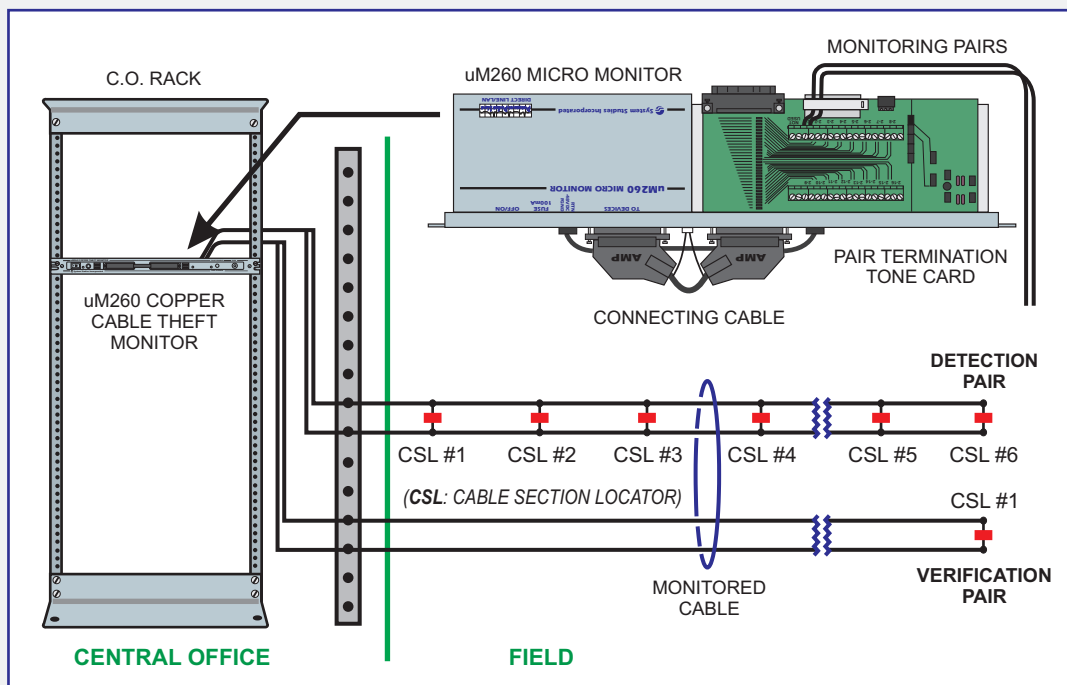
The Latest Hardware Upgrade

Recently, we added tone generation capability to the uM260 monitor to make it easier to identify assigned pairs during installation of the CSL devices. To provide this tone generating function for the uM260 and facilitate the process of terminating device pairs, we designed a Pair Termination Tone Card. The card is mounted in a separate enclosure and attached, along with the uM260, to a 23" wide equipment rack panel. The assembled product is called the uM260 Copper Cable Theft Monitor™ (photo below), and it can monitor up to eight individual cables.

Part No. 9800-6260CTM (Modem Version)
Part No. 9800-6260CTL (LAN Version)

The monitor provides two tone frequencies, one for the Detection Pairs (higher frequency) and one for the Verification Pairs (lower frequency). There's a gain control and a tone enable/disable switch located on the front of the panel to provide control over the tone function. The Pair Termination Tone Card contains two rows of termination lugs for a total of 16 monitoring pairs. To discourage unauthorized telco use of these pairs, the Pair Termination Tone Card also places DC voltage on the pairs when tone is being generated.

To find out more about CopperWATCH and our associated monitoring products, log onto www.airtalk.com or give us a call at (800) 247-8255. If you've got a copper cable theft problem in your area, we know we can help with the solution.

C.O. RACK

uM260 MICRO MONITOR

MONITORING PAIRS

uM260 COPPER CABLE THEFT MONITOR

PAIR TERMINATION TONE CARD

CONNECTING CABLE

DETECTION PAIR

CSL #1   CSL #2   CSL #3   CSL #4   CSL #5   CSL #6

(**CSL**: CABLE SECTION LOCATOR)

CSL #1

MONITORED CABLE

VERIFICATION PAIR

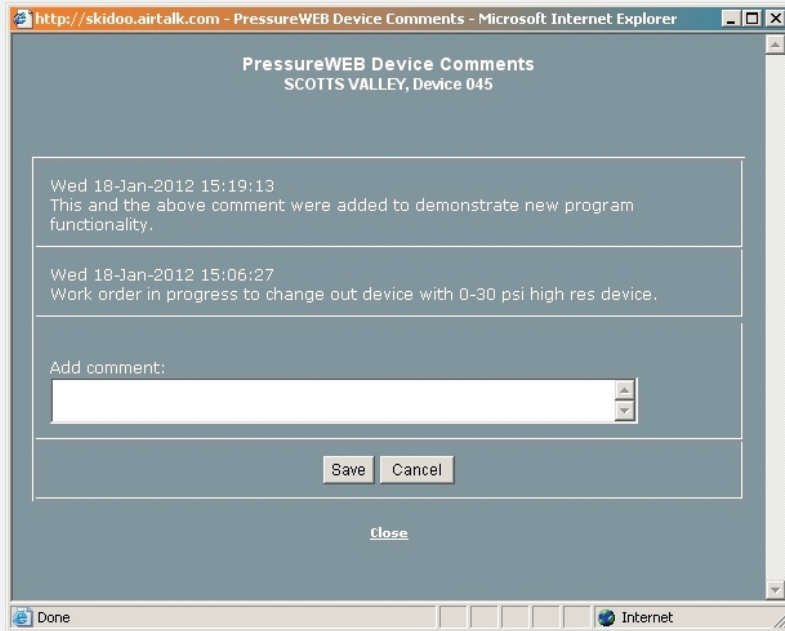**CENTRAL OFFICE**   **FIELD**

What's New in PressureWEB™ 3.01

In PressureWEB™ 3.0 we introduced a number of important setup and report display improvements. Among those new features and capabilities were a leak locating graphing tool, the ability to create and name multiple My Offices listings, and a variety of additional report viewing preferences.

In our latest PressureWEB release, Version 3.01, we've included several additional features, such as a Device Comments editor, Spanish Language Support, and an additional row at the bottom of the All Offices and My Offices displays that shows the column totals for # of Devices, # of Alarms (vs. All Alarms), # of Disabled Devices, and # of TDs not Reading.

Device Comments

For quite a long while PressureMAP™ has offered users the ability to add comments pertaining to a monitoring device in the Specific Device Information Screen. Now you can do the same using PressureWEB. A new link located on the Specific Device Information display's navigation bar (Device Links, View/Add Comment) produces a popup window with a text box where you can add a comment or view previously added ones. A total of eight comments will be retained on the Device Comments Screen.

Spanish Language Support

PressureWEB's installation process has be modified slightly in Version 3.01 to allow you to select either English or Spanish as your default PressureWEB viewing language. You can also change from one language to the other when using PressureWEB by clicking the Setup link and selecting English or Espanol from the new Language Preference drop-down menu. For Spanish speaking PressureWEB users, you'll notice that all of the column headings, popup window content, and even the Setup window PressureWEB Preference information will be displayed in Spanish.

We think you'll like these new PressureWEB features and the fact that we've compressed the overall display of information so you can see more content on your screen. We've even improved the menu links to make it easier and faster to select the available options. All in all, PressureWEB 3.01 brings important improvements to this already powerful and easy-to-use monitoring application. Call for availability information!

Benefits of 3,000 Foot Air Pipe Manifold Spacing

Fifteen to twenty years ago, most cable pressurization air pipe system designs called for 6,000 foot air pipe manifold spacing and the installation of pressure transducers on the individual cables between manifolds. This design was relevant when the primary cable pressurization alarming and dispatching strategy was to monitor pressure drops in the cables.

Over the years an updated design standard emerged: 3,000 foot manifold spacing. This design is similar to 6,000 foot manifold spacing except that the midpoint pressure transducers are replaced with an additional air pipe manifold. Cable leaks are measured by air flow increase rather than pressure drop. Not only does this new design complement the emphasis on air flow measurement for leak locating, it brings important protection and cost savings advantages as well:

■ **Better Cable Protection.** The shorter manifold spacing make it possible to supply more air flow to the cables, which results in better overall cable protection.

■ **Improved Monitoring.** With a flow-based air pressure system, dispatching accuracy is greatly improved. Rather than respond to a drop in cable pressure at a pressure transducer location (which may not be anywhere near the actual leak location), a technician will be dispatched to a manifold to begin systematic leak locating on the highest flowing cable. Leaks that cause high flow rates are generally near the air source.

■ **Improved Leak Locating.** With closer manifold spacing, it is possible to not only prioritize leaks more efficiently (identify the highest flowing ones), but the area of search when leak locating is also reduced by 50%. This results in much more efficient leak locating.

■ **Built-in Buffering.** With the shorter distance between manifolds, cables will be automatically protected during splicing activity. This built-in buffering capability not only helps to protect the system, but it also helps to reduce the labor hours required for splicing (eliminating the need to place supplemental air sources on both sides of a leak location.

■ **Eliminates Excessive Open Circuits.** In some 6,000 foot manifold systems, a large percentage of the midpoint pressure transducers regularly read open circuit. Rather than take the time to correct these opens, it may be more cost effective to convert to a 3,000 foot system.

These are some of the important benefits of a 3,000 foot manifold spacing design. Consider also the fact that in areas where working conductor pairs are in demand, freeing up multiple pressure transducer pairs at midpoint locations can pay huge benefits. In some areas the value of an individual F1 underground pair could be as high as $700 or more.

If you'd like to find out more about the advantages of 3,000 foot air pipe manifold spacing, check out the Reference section of www.airtalk.com.