



# THE Breaker Buzz

Providing Electrical Solutions Worldwide VOL VI

MAY 2014

## Group CBS Acquires Select Assets of Diversified Electrical Services, Forms Circuit Breaker Sales NE, Inc.

GROUP CBS, INC. (GroupCBS.com), with commercial interests in electrical supply, field service, and engineering throughout North America, is pleased to announce the acquisition of selected assets of Diversified Electric Services, Inc. of Seymour, Connecticut. Diversified (DES) was a full-service electrical equipment supply, repair, and field service company serving utility, industrial and commercial customers in the North East region. Circuit Breaker Sales NE, Inc. (CircuitBreakerSalesNE.com) will merge



these assets with its existing resources to serve customers in the Northeast and Mid-Atlantic regions.

“Diversified has 22 years of market presence, a staff of more than 30, and has been a local leader in the Northeast and mid-Atlantic electrical marketplace,” Continued on page 3



Randy Roumillat

## Former Yahoo Executive Joins Astro Controls, Inc.

GROUP CBS AND Astro Controls, Inc. are pleased to announce that Randall “Randy”

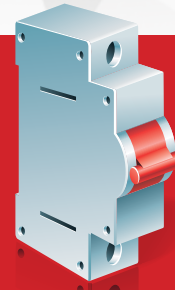
Roumillat has been appointed the new president of Astro Controls, Inc., a supplier of specialized circuit breaker and motor control electrical equipment.

“Randy is the ideal choice to take the reins of Astro Controls and provide technical and operational counsel to Group CBS. He is a big-company, big-systems guy who will drive our evolution, not only as a circuit breaker powerhouse but as an

information powerhouse as well,” said Bill Schofield, president of Circuit Breaker Sales Company, Inc. and vice president of business development for Group CBS, Inc. “We are confident that, by focusing on systems and data, he will take us to the next level.”

With more than three decades of experience leading operational and IT departments for world-class corporations — including Yahoo, Capital One, Fidelity Investments, First Data Corp., and FMC Corp. — Roumillat has demonstrated an unwavering ability to achieve results through both customer focus and

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## THE VIEW FROM FLIGHT LEVEL 410

By *Finley Ledbetter*, CEO, Group CBS

# Reliable People, Reliable Equipment, and a Growing Group CBS



IN THE PAST, the Buzz has carried many of my words about our people at Group CBS and our desire to find, hire, and mentor the best people we can find. This time, I take keyboard in lap at flight level 410 on an American Airlines flight to Chicago for the IEEE Power & Energy Society Transmission & Distribution Conference and Exposition.

Group CBS has many new and exciting things to talk about, but first let's get the message out that I have been harping on lately:

The definition of reliability seems to be the ability of a system or component to perform its required functions under stated conditions for a specified period of time. This is something we need to explore further.

*The ability of a system or component to perform its required function under stated conditions*—this is what we are all about. We take a system or a piece of equipment that has a useful life and either prove it can still function as needed, or upgrade, remanufacture, or develop products or services to extend their life if necessary. Take our core product: the lonely, ugly, oft-maligned, abused, and forgotten-until-it-causes-an-issue, sitting-in-the-dark-all-alone circuit breaker. It is asked to stand vigil

over our most critical assets, to watch over them, carefully—for years and sometimes decades—without any service or attention until that instant when it is asked to “wake up quick like” in 30 milliseconds and save someone's ass.

*The breaker's lubricants are taxed beyond design.* Years of thermal terror and airborne particulates—from iron oxide to HCL gas—have taken their toll. But we say, “Wake up and come to work. Be perfect. And be quick.”

I think we ask too much for this breaker to be reliable without some vitamin pills, good food, and daily exercise. I know that I need all that, plus a trip to see the doctor once a year for a tune-up. I guess this is what makes our market so strong: the fact that engineers, managers, and technicians put this equipment in service and forget about it until it is needed.

New tools, new lubricants, and new maintenance plans are targeted to help resolve this issue, but based on past experience, this 40-year-old equipment is not going to be replaced until it fails. And if it is replaced, the newer equipment is much less rugged and will be of far worse concern in the near future. So, we, the unknown forces of the electrical world—just like so many others in similar fields—are asked to help keep the systems and components up to snuff, performing their required func-

tions under all conditions till the end of time...a task I have revealed in for, oh, nearly 40 years.

## Group CBS Happenings

Now the update: Randy Roumillat has come to us from Yahoo to help build Astro Controls into a powerhouse. With his strong management and internet background, we hope Randy can help develop a team and information services able to support all the Group CBS companies quickly and efficiently. Circuit Breaker Sales' Bill Schofield is deep into a new Circuit Breaker Store system that will be revealed to all soon. Look for big new things here.

Houston and Astro have both started building expansions that will allow for more storage or inventory and additional working space. This will enable both to grow and build on new ideas and products.

I have had my head buried in Connecticut and New York City the last six months, working on a project to bring a new service shop to the Group. This is a very ambitious project because we plan to purchase several businesses and merge them together into one new business. At the end of April, we successfully completed Phase 1 of the plan, purchasing selected assets of Diversified Electric Services (DES, Seymour, Conn.). DES was a full-service electrical equipment

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supply, repair, and field service company serving utility, industrial, and commercial customers in the Northeast region. The new company, Circuit Breaker Sales NE, Inc., will merge DES assets, a 96,000-square-foot-facility, and 27 people with Group CBS's existing resources to serve customers in the Northeast and mid-Atlantic regions. This has been the old "herding cats" scenario, but we seem to be nearing completion and should start operations very soon. Please welcome Matt Brierley to our sales team at CBS NE, which now also includes veteran electrical salesmen Tim Kelly and Lou Lavorgna.

Western Electrical Services is coming off its best year yet and continues to grow and look at new expansions. Craig, Dan, and Tony are shaking and moving, rocking and rolling in the Mountain West.

CBS ArcSafe, again, was the top-selling and -earning affiliate in the Group in 2013 with WES a close second. But this new project in the Northeast will have something to say about that in the years to come.

Look for three new Group CBS sales offices this year, with the first in California. We've already made a first hire: Mike Kelly from General Electric field service sales. We also will open offices in Houston and Chicago/Detroit. These affiliates will be standalone companies and will sell every product in the Group, funded by the Group, and marketed to everyone.

New fun things to check out are CBS ArcSafe's full-feature catalog and some of the videos CBS/AS and RVI have been producing on YouTube. Read on for more.

One closing thought on reliability: Remember that is where we started and where we should end. I'm not as reliable as I once was, but I try to be more reliable than I need to be! I suspect you old guys get that notion. 

## Group CBS Acquires Selected Assets of Diversified Electrical Services

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Lou Lavorgna



Tim Kelly

said Bill Schofield, vice president of Group CBS, Inc. "With the addition of Group CBS information systems, equipment inventory, management, and modern technology, new and old customers can expect an even higher level of service from CBS Northeast."

Tim Kelly and Lou Lavorgna, who have served Northeast and mid-Atlantic electrical customers for more than 20 years—the last several years as part of group CBS—will help lead the new organization.

Before this acquisition, Group CBS had interests in 16 electrical supply, service, and engineering companies throughout the West and South. With the formation of CBS Northeast, Group CBS now has brick-and-mortar facilities to better serve its Northeast and mid-Atlantic customers.

"We expect more acquisitions will follow as Group CBS continues to implement its aggressive growth strategy," added Mr. Schofield. To discuss joining Group CBS's family of electrical supply, service, and engineering companies, contact Mr. Schofield at 800-232-5809 or visit [GroupCBS.com](http://GroupCBS.com). To access CBS Northeast's electrical equipment and services, call 203-888-7500 or visit [CircuitBreakerSalesNE.com](http://CircuitBreakerSalesNE.com).

### About Group CBS, Inc.

**Headquartered in Addison, Texas, Group CBS has affiliated companies throughout the U.S. and in the U.K. that provide premier products and unparalleled capabilities and services to the industrial, utility, electrical distribution, and repair markets. For more information, visit [GroupCBS.com](http://GroupCBS.com) or call 972-250-2500.**

### About CBS Northeast, Inc.

**Serving the industrial, utility, electrical distribution, and repair markets in the Northeastern U.S., Circuit Breaker Sales Northeast, Inc. (Seymour, Conn.), is the authoritative source for all industrial and commercial electrical equipment, including circuit breaker contacts, trip units, vacuum interrupters, and complete matching switchgear lineups. Our service teams also can provide arc-flash analysis, breaker testing, remote racking and switching systems, and circuit breaker performance and timing test equipment as well as the industry's only field-portable vacuum interrupter test system.**

**For more information, visit [CircuitBreakerSalesNE.com](http://CircuitBreakerSalesNE.com) or call 203-888-7500**



81st International  
Conference of Doble Clients  
Westin Copley Place, Boston



Lou Lavorgna and Tim Kelly of Circuit Breaker Sales NE, Inc.

## Former Yahoo Executive Joins Astro Controls, Inc.

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the delivery of innovative, cost-effective, and reliable technology solutions.

For example, in his most recent position as CIO of Internal Systems with Yahoo, he revamped the company's internal systems, formulating a strategy to upgrade HR systems and customer advocacy. He also improved the overall internal IT infrastructure to include video, mobile, and desktop.

Roumillat is a native of Texas, private pilot, and veteran of the U.S. military's special operations forces. Please welcome Randy Roumillat to the Group CBS family. He can be reached at [RRoumillat@AstroControls.com](mailto:RRoumillat@AstroControls.com).

# Modern Low-Voltage Circuit Breakers Require Adroit Testing and Certification

## Part 1

Myriad features and capabilities dictate nuanced testing regimes

By Dan Hook, Executive Vice President, Western Electrical Services, Inc.

MANUFACTURERS ARE CONSTANTLY changing protection methodologies found in low-voltage power, insulated-case, and molded-case circuit breakers. Some of these changes are in response to new requirements such as NFPA 70, NFPA 70E, UL, and other standards. Other changes are simply improved methods to help a manufacturer garner a larger market share.

Before discussing testing and certification techniques for low-voltage circuit breakers (Part II of this story), here is an overview of some common types—and some misconceptions.

### I<sup>2</sup>t/I<sup>4</sup>t Response Type

By default, digital electronic devices have an on/off nature. For example, in a low-voltage breaker trip unit, when a short-time set point is reached, the trip unit goes into pickup, and the timing circuit starts the countdown to the trip time based on the short-time delay setting. The result is a very discrete and square time-current curve across all protective functions.

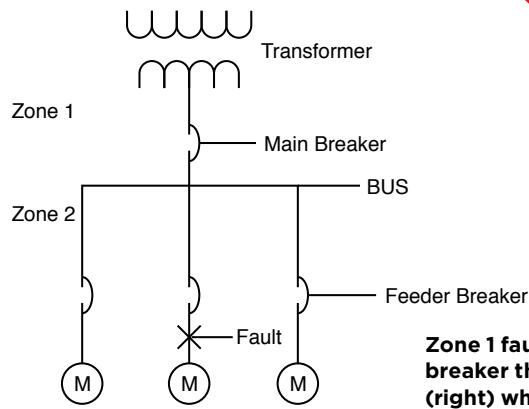
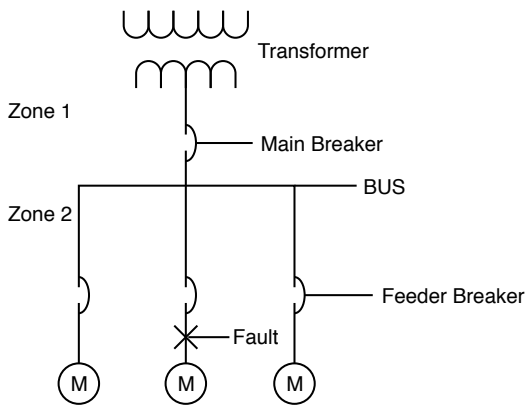
In setting a system with multiples of such digital devices, the task is fairly straightforward because all of the characteristic curves will have

the same discrete shape and relatively narrow tolerance bands.

If, however, a protective device or power system component is present that has another characteristic curve shape, such as a thermal magnetic trip device with a smoother profile, the challenge is increased and requires “fitting” a discrete digital device to an analog device curve. This hurdle has been met by most, if not all, major manufacturers of low-voltage trip units by providing an option for inserting an algorithm into the long-time, short-time, and ground-fault protective functions to “shape” the time-current characteristic curve to more closely match an analog device or piece of equipment.

### Zone-Selective Interlocking Type

This device class minimizes trip time in order to protect personnel and equipment on circuit breakers that do not have instantaneous trip functionality. Zone interlocking is designed to segregate an electrical system into zones, and through use of hard-wired communication between low-voltage breakers, ensures that the breaker responsible for that zone of protection is the device used to



**Zone 1 fault downstream of feeder breaker that trips (left) and Zone 2 fault (right) where main breaker trips.**

interrupt a fault. With the added information available to the system, circuit breaker tripping times can be reduced without fear of a nuisance trip, which can result in de-energizing more of the system than necessary.

### Thermal Memory Types (a.k.a. Thermal Imaging)

This method protects distribution system components from damage due to repeated intermittent overload events and periodic ground-fault events. Advanced thermal memory functionality requires more accurate input parameters, resulting in a more accurate algorithm to model the thermal condition of conductors. The trip unit goes into pickup and begins timing as soon as the sensed current exceeds the long-time pickup value. When the sensed current drops below the pickup value, the timing circuit stops the timeout. If the current increases again above the pickup value in a short period of time, the trip unit starts its timeout to trip again, but it doesn't "remember" the previous overload and heating.

With thermal memory, the circuit remembers a series of brief overloads that do not reach the timeout setting, so their cumulative effect will not cause

overall damage to circuit components without tripping the circuit breaker.

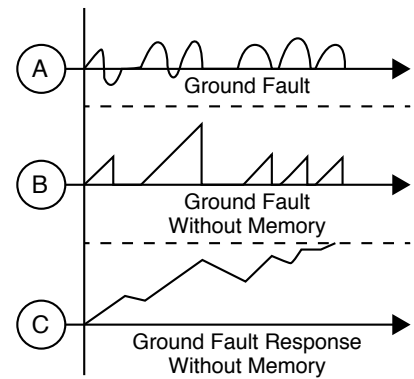
Thermal memory allows a digital electronic trip unit to mimic the performance of a thermal magnetic circuit breaker. Only an electronic trip unit needs to be "taught to remember" what conditions the circuit was recently subjected to. Attempts have been made to improve the algorithm through the use of more accurate input parameters to allow use of the thermal memory function without nuisance trips.

### Reduced Energy Let-Through Type (a.k.a. Quick-Trip, Arc-Flash Reduction Maintenance System, Dynamic Arc-Flash Reduction System, Alternate Maintenance Setting)

These systems reduce arc-flash severity that a worker downstream may be exposed to because of a fault. The four major factors contributing to the severity of an arc flash are:

- Fault current level
- Fault clearing time for the upstream protective device
- Distance from the fault to a subject worker
- Physical characteristics of the equipment subjected to the arc flash

By adjusting the time delay to trip



**Intermittent overloads with (c) and without (b) thermal memory.**

and overcurrent pickup set points, the system limits the time an arc-flash event persists. These setting changes are applied temporarily while personnel are working on an energized system downstream of the circuit breaker.

### Instantaneous Fault Discrimination Type (a.k.a. Making Current Release)

This type increases personnel protection by enabling an instantaneous trip when a breaker is closed on a faulted circuit. Manufacturers can apply an instantaneous trip feature immediately after closing, on the order of 12x to 25x the circuit breaker plug rating, to open with no intended delay. The making current release functionality is active for only a short preset time after the circuit breaker is closed.

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# Circuit Breaker Analyzer Announces Circuit Breaker Analyzer Application for Windows 7 Tablets, PCs

By Natalie Berg, Operations Manager, Circuit Breaker Analyzer, Inc.

CIRCUIT BREAKER ANALYZER, Inc. is proud to introduce its Circuit Breaker Analyzer application (CBAAnalyzer™) for Windows 7-compatible tablets and personal computers. The CBAAnalyzer recently won Best Case Study and Most Interest in a New Product at the 2014 PowerTest conference hosted by the InterNational Electrical Testing Association (NETA).

Used in conjunction with an external calibrated accelerometer that attaches magnetically to the breaker under test, the Circuit Breaker Analyzer app runs on a tablet or PC to identify potential mechanical failures before they happen. The tool helps customers avoid unplanned downtime and confirm arc-flash calculations based on trip times without the need to modify existing equipment or remove them from service.


The CBAAnalyzer also allows the user to operate the breaker in any sequence desired, including trip, charge, or close. The vibration data created by the breaker operation is captured, displayed locally against previous tests, and analyzed via a Web-based application to identify potential problems based on vibration signature and the model of the breaker under test. Data saved to the online accounts can be used for equipment management, trending, and further analysis options, including specialized issue diagnosis.



**“This new application allows you to more easily and quickly identify mechanical failures before they happen.”**

“This new application allows you to more easily and quickly identify mechanical failures before they happen,” explains Finley Ledbetter, CEO and chief scientist of Group CBS. (Circuit Breaker Analyzer, Inc. is an affiliate company of Group CBS.) “Using this new application on Windows 7 devices, technicians can test all types and ratings of breakers, determine breaker opening and closing times, confirm arc-flash calculations and associated personal protective equipment (PPE) requirements, and increase in-service testing frequency to boost uptime.”

With the CBAAnalyzer Windows 7 tablet and PC application, users

can compare two tests side by side to see how breaker performance has changed over time, detect bad vacuum bottles and other potential problems, print and read barcodes for asset management, and automatically record temperature settings. Other advanced features include the ability to view Fourier transforms of vibration signatures and viewing the vector signature of the vibration test. 

**For more features and benefits of the new CBAAnalyzer system, please contact your Circuit Breaker Analyzer representative or visit [CircuitBreakerAnalyzer.com](http://CircuitBreakerAnalyzer.com).**



# Gainesville Prepares for Texas Heat with Cool Roof Coating

By Mike Briley, Safety/ISO Manager, CBS Gainesville, Texas

THE CBS GAINESVILLE Texas facility needed a new roofing solution that would address the damage caused by past hail and windstorms and, more important, protect our company's most valuable assets: our employees, products, and equipment. We needed to stop the deterioration of the roof with a solution that would ensure long-term performance and a low life-cycle cost of our investment. Another key component in our decision was finding the right contractor for the job.

Our structure needed a commercial-grade coating that would address all of our concerns, including help with the extreme heat in the hot Texas summer and the cold during the winter months. After extensive research, we found one product—styrene ethylbutylene styrene (SEBS) reflective roof coating—that not only withstood ponding water but also provided high reflectivity and prevented damage by ultraviolet radiation and building movement.

We selected Architectural Roof Coatings (ARC) of Rowlett, Texas, as the SEBS roof coating manufacturer. Its SEBS coatings feature elongation properties of 600% minimum with a tensile strength of 1,000% psi and a water absorption rate of 0.004%.

Our contractor of choice was CEI Roofing, a Tecta America Co., LLC. Tecta America is the largest commercial roofing contractor in the United States, with more than 50 offices across the country, and is approved by all major manufacturers, which made the choice easy. Additional key influencers in our decision process included a safety record second-to-none and the company's extensive experience in the coating arena.

Since more than 98% of our structure is metal, reduced building movement had

to be addressed, along with coating elasticity and tensile strength. Normally, a metal roof will experience temperature fluctuations of up to 100 degrees. For example, a 180-degree hot metal roof can cool quickly to 90 degrees right after a rain shower. This temperature fluctuation puts tremendous pressure on the metal roof panels as they expand and contract (you can actually hear the roof cracking from inside). A cool white metal roof drastically reduces building movement by 70%, putting much less pressure on the roof at its weakest points: the seams and transitions. Also, the coating can stretch up to 600%, allowing it to easily hold its integrity during metal building movement.

A high-viscosity seam sealer was applied to all transitions and penetrations so that the roof-panel movement could still expand and contract while keeping the monolithic seal in place. This is why we emphasized high-elongation and tensile strength properties when choosing this long-term coating solution.

White coating reflects 90% of the sun, cooling metal roofs from 180 degrees down to 100 degrees. Cool metal

“Our structure needed a commercial-grade coating that would address all of our concerns, including help with the extreme heat in the hot Texas summer and the cold during the winter months.”



A Birdseye view of the CBS Gainesville Texas facility's new roof taken by kite using a GoPro camera.

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# Vacuum Interrupter Field Tests Solve Mystery of Failing Breakers at Wind Farm

By Julia Neves, Vice President and Operations Manager, Vacuum Interrupters, Inc.

IT WAS DRIVING ENGINEERING CRAZY. New medium-voltage vacuum circuit breakers recently installed at a U.S. wind farm were failing, and no one could figure out why. Thanks to redundant overcurrent protective devices (OCPD), the giant turbines and distribution switchgear had not taken any damage as a result of the failure, but it only was a matter of time before that could happen, unless the mystery of the failing breakers could be solved.

Engineers for the project contacted NETA-certified electrical field-testing and repair company Western Electrical Services, (WES; Sumner, Wash.). Part of the Group CBS family of electrical companies, WES turned to Vacuum Interrupters, Inc., specialists in medium-voltage vacuum circuit breakers. Vacuum Interrupters recently released the MAC-TS4 vacuum interrupter test system, and technicians used it to compare leak current rates for each bottle against known values from healthy vacuum interrupters tested at the OEM's manufacturing facility.

Utilizing the Penning discharge principle, the MAC-TS4 vacuum interrupter test set can determine the pressure inside a vacuum interrupter and, along with wear and number of operations, predict the usable life of the vacuum interrupter. Vacuum Interrupters has



**Vacuum Interrupters' third-generation magnetron atmospheric condition test system (MAC-TS4) enabled technicians to identify several new vacuum interrupters as the cause of periodic equipment failures at a major U.S. wind farm, potentially saving hundreds of thousands of dollars in equipment repairs and downtime costs.**



**Finley Ledbetter III of Vacuum Interrupters, Inc. uses magnetron atmospheric testing to identify faulty interrupters in the field without removing the interrupters from their enclosures. Before the portable MAC-TS4 series of test systems with flexible magnetic coils, predictive tests only were conducted at the factory. Field technicians were limited to HiPot pass/fail tests and contact resistance testing, neither of which can predict the remaining life of vacuum interrupters in the field.**






**Evidence of arcing caused by faulty vacuum interrupter bottles.**

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**“Utilizing the Penning discharge principle, the MAC-TS4 vacuum interrupter test set can determine the pressure inside a vacuum interrupter and, along with wear and number of operations, predict the usable life of the vacuum interrupter.”**


tested hundreds of different types of vacuum interrupters to determine the optimal dielectric strength/cm versus pressure curve for hundreds of different makes and models of vacuum interrupters. When combined with other performance data, the MAC-TS4 can predict remaining life for virtually any vacuum interrupter. To ensure accurate results at the wind farm, Vacuum Interrupters developer and Group CBS CEO Finley Ledbetter visited the factory that produced the original vacuum interrupters and tested several new interrupters that had been certified by the OEM.

Armed with the test data from the OEM factory, and using magnetron atmospheric condition (MAC) testing, Vacuum Interrupters, Inc. technicians identified five vacuum interrupters that had unacceptably high pressures inside the bottle, indicating that the new interrupters were defective and would fail prematurely. The vacuum interrupters were replaced, and the wind farm has experienced zero failures since the field tests. 

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## Cool Roof Coating

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roofs save energy by reducing air conditioner usage, which extends the life of equipment and lowers maintenance costs of the units themselves. By reflecting the sun, the air conditioning costs are lowered by 18% (industry average), depending on the total air-space under the roof, the air temperature, and solar exposure. We anticipate that, on average, we will save 10% to 15% on energy and an average of \$50,000 to \$100,000 on product loss due to water damage with this new solution. Additionally, we expect that we can cut 5% to 10% of rework on damaged products. At this rate, the roof coating easily can pay for itself over its 15-plus-year life. A cooler roof also provides cooler working conditions, resulting in a healthier work environment. 

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**The sealed, finished roof.**

For more information, please contact:

**Mike Briley, CBS Safety/ISO Manager** [mbriley@cbsales.com](mailto:mbriley@cbsales.com) Or

**Collin Qualls, CSI Sales Manager, CEI Roofing-Texas, LLC**

[cqualls@tectaamerica.com](mailto:cqualls@tectaamerica.com)

# Circuit Breaker Sales & Service Joins ISNetworld Global Contractor Program

By Cristy Crews, Operations Manager, Circuit Breaker Sales & Service, Inc.

EVEN IF YOU'VE been out of school for a long time, you never grow tired of earning "A's." And our team at Circuit Breaker Sales & Service, Inc. (CBS&S, Lakeland, Fla.) is no different.

CBS&S recently joined the global ISNetworld network (ISNetworld.com), which connects capital-intensive and public-sector companies with contractors possessing a proven record of safety, regulatory compliance, and quality service. From the client's point of view, it makes it easier for administrative personnel to verify that a prospective contractor or regular supplier is maintaining business compliance and how their service levels are today—not last month or last year. Transparency is a powerful tool when it comes to running a company in the energy, manufacturing, agricultural, and other private and public sectors.

Client companies that use the network to qualify their contractors "grade" them after each job. I'm proud to say CBS&S has landed several international conglomerates through ISNetworld, providing both industrial and commercial equipment as well as electrical field services. We've received "A" grades straight across the board. That is a solid 4.0, and we are shooting for valedictorian status, a full-ride scholarship, and, of course, team captain of the contractor football team.

Call us the teacher's pet if you want, but our clients are happy, and that's what matters most.

Why should you care about contractors that qualify for ISNetworld status? Because it means you are working with a trustworthy company, and in today's marketplace, trust is something you spend a lifetime building.

To become an ISNetworld member, you have to do more than just pay a

## ISNetworld: Why You Should Care


- 1 **Company Information:** CBS&S submitted general company data, including awards, certifications, service descriptions, contact information, etc.
- 2 **Compliance Documents:** Through ISNetworld, our customers can view important documents such as insurance certificates, COR/SECOR/SMA certifications, OSHA forms, EMR letters, and a Workers' Compensation premium rate statement, among others.
- 3 **Management System Questionnaire (MSQ):** Want to know how a company works and treats its customers? It's all there in the questionnaire.
- 4 **Safety Review & Verification (RAVS):** Clients can learn about CBS&S' safety programs, training programs, and continuing education activities for our shop personnel and field technicians.



Since joining ISNetworld, CBS&S has received "A" grades across the board from its clients.

fee. Generally speaking, there are four key pieces of information a company must supply to participate (see above).

And for companies out there in the Southeast that don't participate in ISNetworld, don't worry: We can provide all of this information to your engineers, maintenance departments, or purchasing agents.

Say what you want, but it still pays to sit at the head of the class. 

# Astro Controls Saves Chicken Processing Plant

Why did the chicken cross the road? He didn't. He hopped on a private jet and flew to Texas for a 4,000-amp high pressure contact switch

ON APRIL 1, a Southeast chicken processing plant wasn't fooling around when they called their go-to electrical contractor, Caldwell Electrical Contractors (Gainesville, Ga.), to say their processing plant was down due to a faulty electrical switch manufactured from the late 1960s to the mid-1980s. This vertically integrated poultry producer operates multiple facilities throughout the Southeast, producing a billion pounds of poultry products each year, and employing thousands of individuals. Until a replacement switch could be found, more than 1,100 employees would have to stand down.

Caldwell's owner, Daniel Caldwell, called long-time supplier Roland Munguia, sales manager at Astro Controls, Inc. (Irving, Texas), who said that Astro had the equipment and technicians to get the job done ASAP. The switch in need of replacement was a Square D Bolt-Loc Switch cat # BLO3440 3-pole, 480V 4,000 amps with a 120V AC shunt trip. "We got the call midday and immediately assigned several technicians to start reconditioning the switch, a process that typically would take two to four days," Munguia recalls. "We completely reconditioned the switch, tested it, prepared full testing documentation, and were ready to go within three to four hours."



A team of Astro Controls' emergency-response technicians was able to fully recondition the Square D Bolt-Loc Switch within just a few hours, allowing Caldwell Electrical Contractors to get their customer up and running in less than 24 hours on a part that would normally require up to seven days to be located, reconditioned, and shipped to the customer.



A team of Astro Controls technicians, including Lonnie Jobe, Andy Baker, Jaime Gonzalez, Hermilo Panlagua, and Noel Contreras, loaded the Square D Bolt-Loc Switch on to a private jet for transport to a Georgia chicken processing plant.

Meanwhile, Caldwell Electrical Contractors chartered a private jet to fly to Dallas/Fort Worth International Airport to pick up the replacement. On finishing reconditioning around 6 p.m., the technicians drove the switch to the airport and personally loaded the part onto the jet. After some counterbalancing by the pilot to accommodate the more than 380-pound part, it was time for lift-off.

"We knew we had to have this switch as soon as possible as this stopped the night shift's production and canceled

Continued on page 14



## Circuit Breaker Analyzer Inc. Video Tutorial Series



<http://cbanalyzer.com/circuit-breaker-analyzer-videos.htm>

Circuit Breaker Analyzer, Inc.'s series of tutorial videos is now available on YouTube. This series guides viewers through a variety of helpful steps, tasks, and features of the CBAAnalyzer system. Watch these educational spots on topics that include:

- How to take a test with the CBAAnalyzer system
- Overview of the calibration check tool in CBAAnalyzer
- Different response messages the CBA system produces and steps to follow when each message is received
- Overview of the Test For Anything mode in the CBAAnalyzer system
- How to perform equipment management tasks with the CBAAnalyzer system
- An overview of the CBAAnalyzer for the iPhone and iPod Touch platforms
- What a known good profile is in the CBAAnalyzer system
- Initial setup required to get the CBAAnalyzer system up and running



# Is Your Electrical Equipment Properly Installed and Maintained?

Group CBS companies can help you prepare for the changes to the 2015 NFPA 70E with a new electrical safety benchmarking survey

By Scott Peterson, Operations Manager, CBS Nuclear, and Don A. Genutis, President, Halco Testing Services

THE 2015 DRAFT of the NFPA 70E has several proposals that make it essential to grade the condition of your equipment, including a new table regarding personal protection equipment (PPE) requirements as they relate to arc-flash calculations. It is part of what is replacing the Hazard/Risk table and is used to determine if PPE is necessary. There are only three columns in the table. The first column lists the task, the second column lists equipment condition, and the third column is a simple yes/no as to whether arc-flash PPE is required.

Here is an example from the table:

| Task   | Equipment Condition                         | Arc-Flash PPE Required   |
|--|---|--|
| Normal operation of a circuit breaker switch or contactor or starter | Is the equipment properly installed?        | If answers to all three questions are yes, then PPE is not required. |
|  | Is the equipment properly maintained?       |  |
|  | Are the equipment doors closed and secured? |  |

There are footnotes that offer explanations of terms used in the Equipment Condition column, such as:

- *Properly installed* – Equipment is installed in accordance with applicable industry codes and standards and the manufacturer’s recommendations.
- *Properly maintained* – Equipment has been maintained in accordance with the manufacturer’s recommendations and applicable industry codes and standards.

However, the NFPA 70E standard provides minimal guidance on how to determine the equipment condition. This is where a tool like e-survey can be useful to facility managers and safety departments when deciding how to properly use the revised PPE Hazard/Risk table.


Group CBS’s New e-survey Tool is a new low-cost service offered by Group CBS that consists of a series of questions, or a “survey,” related to your electrical system. Once the survey is complete, upload the electronic data to our laboratory and we run the analysis. The answers are then

used to identify your facility’s condition and risk. Condition is based upon factors such as equipment age, equipment type, environmental conditions, maintenance practices, and maintenance frequencies. Collectively, all of the survey data is used to produce your report and issue a final “score” in the form of a color-coded health index.

Calculation of the health indexes is based upon your industry’s “best practices,” allowing you to see how your scores anonymously stack up against other facilities. The report also pro-

vides recommendations for improving your facility’s scores. This allows you to focus your resources on corrective actions that will give you the most bang for your buck while generally improving your asset management programs.

By doing your best to improve your electrical equipment condition, the likelihood of equipment failure will be reduced, resulting in improved reliability and reduced risk. E-survey provides the basic first step in this process by providing true quantitative values for all possible actions that influence both condition and risk.

Whether you have a relatively simple low-voltage commercial facility, large campus, or an industrial facility, e-survey provides valuable data for making wise asset management decisions. E-survey has approximately 100 questions, most of which are multiple choice. During beta tests, clients completed the survey in 20 minutes or less. And don’t worry—your data is fully protected. Beyond the personal report we send to you, your information only will be used anonymously to improve our industry benchmarking scores and help all of us stay safe! 

**To learn more about Group CBS’s e-survey, visit [www.groupcbs.com/gcbsdownloads/CBS-E-Survey-Bulletin.pdf](http://www.groupcbs.com/gcbsdownloads/CBS-E-Survey-Bulletin.pdf), or contact Scott Peterson, operations manager for CBS Nuclear, at (704) 882-1875 or [SPeterson@CBSNuclear.com](mailto:SPeterson@CBSNuclear.com).**



## MAC-TS4 Begins World Tour

Jerod Day visited LS Electric, a very large Korean manufacturer of VCB and all types of equipment known here in the U.S. as LG, to train on the newly purchased MAC TS4.



## Vacuum Interrupters Introduces Third-Generation Test Set for Predicting Usable Life of Interrupters in the Field, Shop at PowerTest 2014

By Julia Neves, Vice President and Operations Manager, Vacuum Interrupters, Inc.

“Until now, this type of testing only could be done at the assembly plant.”

Finley Ledbetter, CEO and Chief Scientist of Group CBS



## CBS MagVac at NorthWest Public Power 2014

Tom Brawner of CBS MagVac demonstrates product at Northwest Public Power’s 2014 E&O Tradeshow in Reno, Nev., on April 7.



VACUUM INTERRUPTERS, INC. is proud to introduce its new MAC-TS4 vacuum interrupter tester, the only test set capable of conducting predictive testing on vacuum interrupters in the field, during the 2014 PowerTest Conference, the premier electrical maintenance and safety event.

“Utilizing the Penning discharge principle our MAC-TS4 vacuum interrupter test set can easily determine the pressure inside a vacuum interrupter and, along with wear and number of operations, predict the usable life of the vacuum interrupters used in your circuit breakers and contactors,” says Finley Ledbetter, CEO and chief scientist of Group CBS; Vacuum Interrupters is an affiliate company of Group CBS. “Until now, this type of testing only could be done at the assembly plant.”

The MAC-TS4 is the third generation of the MAC product line. The MAC-TS4 uses magnetron atmospheric condition (MAC) testing to measure actual ion current against known values to determine vacuum interrupter internal pressure. The MAC-TS4 test set can help

avoid unnecessary damage to circuit breakers and contactors by identifying interrupters approaching an unsafe pressure.

Vacuum Interrupters’ patented flexible magnetic field coil enables technicians to test most vacuum interrupters installed in the circuit breaker without having to remove the interrupter.

Until now, the only accepted field service test for vacuum interrupters has been a simple pass/fail test performed with an AC high potential (HiPot) test. The MAC-TS4 is provided with everything required to determine the pressure of your vacuum interrupter in the field, shop, or lab. Newest features include backlit LCD display, detachable high-voltage cable, built-in thermal printer, and PC compatibility. This PC-friendly version can store hundreds of test results and allows the operator to download and generate reports.


For more information, visit [www.vacuuminterruptertesting.com](http://www.vacuuminterruptertesting.com), [info@vacuuminterruptersinc.com](mailto:info@vacuuminterruptersinc.com), or call 214-442-5877

## Modern Low-Voltage Circuit Breakers Require Adroit Testing and Certification

### Part 1

Continued from page 5

The microprocessor-based trip units described earlier allow protection options for undervoltage, overvoltage, current and voltage imbalances, underfrequency, overfrequency, and reverse power. Additionally, there are alarms, indications, and diagnostics available to aid troubleshooting.

Part II of this story, which will appear in the next issue of BreakerBuzz, will look at testing, certification, and commissioning approaches for the different types of low-voltage circuit breakers covered in this article. Western Electrical Services, a utility-class service provider to the Northwest T&D market, is the region's one-stop shop for all your electrical equipment sales, service, testing, and engineering requirements. 

[www.westernelectricalservices.com](http://www.westernelectricalservices.com), Vancouver, Wash.  
Ph: 888-395-2021

## A place for everything, and everything in its place

JEA's Northside Generating Station takes their tool shed seriously, as shown here by their careful storage of CBS ArcSafe remote switching and racking solutions.




## Astro Controls Saves Chicken Processing Plant

Continued from page 11

the next day's production for the entire plant," said Daniel Caldwell. "After calling local distributors with no success in locating this Bolt Loc switch, we turned to Astro Controls based off our previous experience and their quick response time. What others didn't have or couldn't find, Astro had in stock, and they were able to rebuild a switch four states away. With a chartered jet, the switch was in our hands and in less than 12 hours. This type of customer service is what brings us back to them time and time again. Their inventory and customer service is second to none in the remanufactured electrical industry."

Caldwell Electrical Contractors provides electrical services for large and small customers in a variety of industries, including manufacturers, packaging plants, schools, airports, retail shops, physician offices, hospitals, poultry industry feed mills, and more.

"Our technicians were all over this project, and we were glad to have helped a customer in need," says Randy Roumillat, president of Astro Controls. "The plane left about 7 p.m. Central Time, and we got a text message from Caldwell around 3 a.m. that the plant was up and running." 

**Astro Controls, [AstroControls.com](http://AstroControls.com), (972) 253-7783**

**Caldwell Electrical Contractors, [caldwell-electric.com](http://caldwell-electric.com), (770) 531-7890**



# Promotions at Circuit Breaker Sales & Service

By Cristy Crews, Operations Manager, CBS&S

CBS&S IS PLEASED to announce some personnel and organizational changes to support our growing operations.

Kevin Carter, who previously held the position of field service manager, has accepted the new position of director of



**Kevin Carter**

business development and will take the lead in promoting CBS&S products and services. Kevin joined our team in 2008, bringing more than 20 years of electrical experience acquired while working at ABB T&D on electrical transmission and distribution equipment, maintenance, and field service. Prior to ABB, Kevin served in the armed forces as a U.S. Marine.

Kevin's move into business development left a void in our field service crew. Luckily, CBS&S has a strong team of electrical professionals to fill the gap.



**Fred Bentkowski**

I hope the Group CBS family also joins me in welcoming Fred Bentkowski to the position of field service manager. Fred joined our team in 2008, dedicating himself to learning CBS&S operations as well as the technical knowledge necessary to grow into a field service managerial role. Fred started in the CBS&S breaker shop, where he spent three years learning

to rebuild and test air and vacuum circuit breakers and contactors. He spent the last four years in the CBS&S field service department, where he has proven to be an invaluable asset. Based on the number of customers that specifically request his presence, along with his quick learning abilities and great attitude, we are excited to have Fred take on this new role. And if you think Fred doesn't sound like your usual "Floridian," you're right. Fred grew up in Sweden, where he lived until age 12, before moving to Minnesota and then eventually relocating to Florida.

**Please join me and the Group CBS family as we say congratulations to Kevin and Fred on their well-deserved promotions.**

## Group CBS Product Demonstration at PowerTest 2014

Natalle Berg, operations manager at Circuit Breaker Analyzer (top photo), and Bill Schofield, vice president of Group CBS (bottom photo on left), gave product demonstrations for the new Windows 7 tablet version of the Circuit Breaker Analyzer application and "Breaker Boards," a visual reference for all components of any circuit breaker, at PowerTest 2014 NETA conference.



## GROUP CBS AFFILIATES:

### TRADE SHOW CALENDAR

Visit with **GroupCBS** companies at the following trade shows and exhibits:

#### Oklahoma City Industrial Expo

OKLAHOMA CITY, OK  
May 7-8, 2014

#### Gr. Philadelphia Buildings & Facility Maint. Show

OAKS, PA  
May 8, 2014

#### NAES O&M Conference

SAN DIEGO, CA  
May 12-16, 2014

#### Spring Capital Buildings & Facility Maintenance Show

CHANTILLY, VA  
May 21, 2014

#### SoCal Facilities Expo

LOS ANGELES  
May 21-23, 2014

#### American Public Power Expo

DENVER  
June 15-18, 2014

#### IEEE Pulp & Paper

ATLANTA, GA  
June 22-27, 2014

#### EASA Convention

BOSTON, MA  
June 29-July 1, 2014

#### Hydro Vision 2014

NASHVILLE, TN  
July 22-25, 2014

#### Energy 2014

ORLANDO, FL  
July 22-23, 2014

#### Advanced Motor Controls

[www.advancedmotorcontrols.com](http://www.advancedmotorcontrols.com)  
Irving, TX - Ph: 972-579-1460

Advanced Motor Controls is a certified UL508A industrial control panel builder, designing and manufacturing custom control panels. Also provides new and professionally remanufactured MCC buckets, motor control centers and component parts.

#### Astro Controls, Inc.

[www.astrocontrols.com](http://www.astrocontrols.com)  
Irving, TX - Ph: 800-289-2757

Sales and service for all types of industrial molded case circuit breakers, insulated case circuit breakers and motor controls.

#### CBSArcSafe, Inc.

[www.CBSArcSafe.com](http://www.CBSArcSafe.com)  
Denton, TX - Ph: 877-4-SAFETY

Remote racking systems, remote switch actuators, and handheld motorized racking tools for low and medium voltage switchgear.

#### CBS Nuclear Services, Inc.

[www.CBSNuclear.com](http://www.CBSNuclear.com)  
Matthews, NC - Ph: 704-882-1875

Specializes in shop and on-site field servicing of Class 1E safety-related low and medium voltage switchgear and circuit breakers. Also services industrial and non-nuclear related circuit breakers and related switchgear and substations.

#### CBS Power Products, Inc.

[www.CBSPowerProducts.com](http://www.CBSPowerProducts.com)  
Dallas, TX - Ph: 940-665-4444

New alternative utility and industrial power products: transformers, switchgear and other power apparatus.

#### Circuit Breaker Analyzer, Inc.

[www.cbanalyzer.com](http://www.cbanalyzer.com)  
Addison, TX - Ph: 972-290-0074

Providing new circuit breaker testing methods that utilize vibration analysis combined with internet data transfer and sophisticated, condition-based analysis to determine the condition of all types of circuit breakers.

#### Circuit Breaker Sales Co., Inc.

[www.CircuitBreakerSales.com](http://www.CircuitBreakerSales.com)  
Gainesville, TX - Ph: 800-232-5809

World's largest inventory of low and medium voltage circuit breakers. Millions of parts in stock. Complete service, remanufacture, upgrade and life extension services. Match existing switchgear lineup.

#### Circuit Breaker Sales & Repair, Inc.

[www.CBSalesAndRepair.com](http://www.CBSalesAndRepair.com)  
Houston, TX - Ph: 281-479-4555

Servicing the Gulf Coast with shop or field service, repair, upgrade or replacement of power system apparatus.

#### Circuit Breaker Sales & Service, Inc.

[www.cbs-florida.com](http://www.cbs-florida.com)  
Lakeland, FL - Ph: 863-646-5099

One-stop service for circuit breakers, switchgear, transformers, protective relays, loadbreak switches, motor controls, unit substations, renewal parts, and repair, upgrade, life extension and maintenance services.

#### Circuit Breaker Sales NE Inc.

[www.circuitbreakersalesne.com](http://www.circuitbreakersalesne.com)  
Seymour, CT - Ph: 203-888-7500

Serving the industrial, utility, electrical distribution, and repair markets in the Northeast and mid-Atlantic regions. Circuit Breaker Sales Northeast, Inc. (Seymour, Conn.), is the authoritative source for all industrial and commercial electrical equipment, including circuit breaker contacts, trip units, vacuum interrupters, and complete matching switchgear lineups.

#### Circuit Breaker Store, Inc.

[www.CircuitBreakerStore.com](http://www.CircuitBreakerStore.com)  
Denton, TX - Ph: 855-227-8673

Your online source for all Group CBS products, a powerful solutions provider with a specialty vendor network that can supply factory new, surplus new, and reconditioned circuit breakers, electrical distribution, control equipment, parts, and remote racking equipment.

#### Group CBS, Inc.

[www.groupcbs.com](http://www.groupcbs.com)  
Addison, TX - 972-250-2500

#### Reliable Electrical Testing Services, LLC

[www.ReliableElectricalTestingServices.com](http://www.ReliableElectricalTestingServices.com)  
La Porte, TX - Ph: 713-254-0006

Onsite commissioning and acceptance testing of new installations and apparatus; or maintenance, troubleshooting, repair, and electrical testing of existing systems. Also professional electrical power engineering services to ensure the reliable, safe operation of electrical systems.

#### Sentinel Power Services, Inc.

[www.SentinelPowerServices.com](http://www.SentinelPowerServices.com)  
Tulsa, OK - Ph: 800-831-9550

Sentinel Power Services is an electrical power service company servicing the Central U.S with electrical engineering studies; on-site electrical testing, preventive maintenance and repair services; and repairing, building, and installing electrical power systems.

#### Solid State Exchange & Repair, Inc.

[www.SolidStateRepair.com](http://www.SolidStateRepair.com)  
Denton, TX - Ph: 877-874-7349

Quality, reliable, on-time service and support for all brands and types of solid state power electronics including circuit breaker trip devices, protective relays, motor overload relays, and rating plugs.

#### Transformer Sales Co.

[www.TransformerSales.com](http://www.TransformerSales.com)  
Gainesville, TX - Ph: 940-665-4484

Offers a complete line of new, surplus, and reconditioned dry type, cast coil, and liquid filled power transformers from 1000 to 5000 kVA with primary voltages from 2400 volts to 34.5kV.

#### Vacuum Interrupters, Inc.

[www.VacuumInterruptersInc.com](http://www.VacuumInterruptersInc.com)  
Carrollton, TX - Ph: 214-442-5877

Provides replacement vacuum interrupters (vacuum bottle interrupters) for virtually any manufacturers' medium voltage circuit breaker or contactor.

#### Western Electrical Services, Inc.

[www.WesternElectricalServices.com](http://www.WesternElectricalServices.com)  
Phoenix, AZ - Ph: 888-395-2021

Serving the Southwest with superior quality on-site electrical testing, maintenance and repair services as well as rebuild, upgrade and life extension services for switchgear, circuit breakers, and motor control.

#### Western Electrical Services, Inc.

[www.WesternElectricalServices.com](http://www.WesternElectricalServices.com)  
Salt Lake City, UT - Ph: 888-395-2021

The only full service electrical testing and maintenance company in the Intermountain region.

#### Western Electrical Services, Inc.

[www.WesternElectricalServices.com](http://www.WesternElectricalServices.com)  
Sumner, WA - Ph: 888-395-2021

The Northwest leader in electrical testing, maintenance and power switchgear services providing on-site electrical testing and maintenance, electrical engineering studies, and sales, repair, upgrade and life extension services of circuit breakers, switchgear, motor control, and transformers. Also custom manufacturing: engineered and reverse engineered parts.

#### Western Electrical Services, Inc.

[www.WesternElectricalServices.com](http://www.WesternElectricalServices.com)  
Vancouver, WA - Ph: 888-395-2021

Utility class service provider to the Northwest T&D market.