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The Purchasing Guide for Electrical Contractors

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for energy-efficient outdoor lighting



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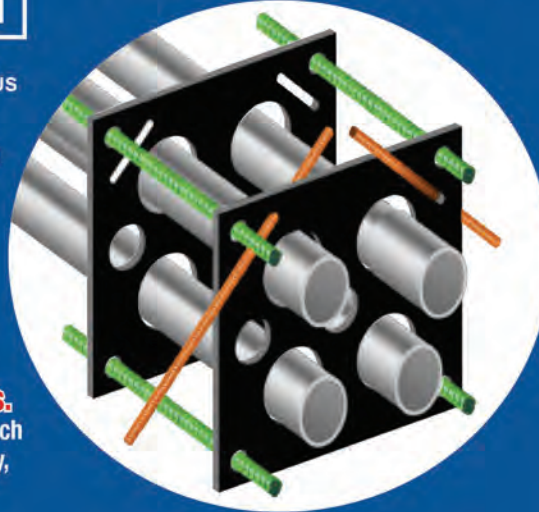
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Generator InterLock Technologies, LLC

Generator InterLock Technologies, LLC, is a small-based company that manufactures and sells its products across the country. The company was founded after Hurricane Isabel hit the east coast in 2003. The product was developed to meet the need for a safe way to use portable generators to power homes in the event of power loss.

The initial inspiration for the product came from a persistent friend of an electrician working for Master Electrical Services. As electrical contractors, they had seen various unsafe and illegal methods that people had used to try to power their houses with their portable generators. The electrician set out to develop a product that would meet National Electrical Code requirements and at the same time be cost effective and convenient for the homeowner. From that original inspiration came a new company: Generator Interlock Technologies or GIT.

The Interlock Kit is a simple safety product that locks out the Main breaker in the existing home panel and allows for the portable generator to power the home through a back feed generator breaker. While many electrical inspectors liked the product; they all agreed that the product would have to be listed to UL standards. After thousands of dollars in fees, rigorous tests, a year of changes and modifications, the Interlock Kit was finally approved for production to be used with panels listed under UL Standard 67.

The company started filling orders in early 2005, using Master Electrical Services as its basis for customer awareness.

Starting with a few kits that fit the most recent Square-D and Cutler Hammer panels, the offerings grew to over 30 different models in less than one year. Generator Interlock Technologies now has kits for panels from 30 years ago to the most current and they continue to add new kits to meet their customer's needs. While contractors in Florida and the North East are the biggest customers, Interlock Kits have been sent throughout the United States and parts of Canada. Whether the power loss is due to coastal hurricanes or from crippling ice storms in the northern , GIT has a kit that will allow customers to keep the power on in their homes.

The Interlock Kits are designed to be installed by licensed electricians and are cost effective for both the customer and the installer. Other products on the market such as generator sub-panels and transfer switches require extensive rewiring of the home panel, often taking the electrical contractor 6 to 8 hours to install. With the Interlock Kit, a qualified electrician can install a complete system in 2 hours or less by simply mounting the correct kit to the face of the panel and wiring a gen-



erator convenience outlet to a breaker installed in the panel.

To use their portable generator, a homeowner plugs an extension cord from their generator to the new generator convenience outlet. He then starts the generator, turns off the main breaker, slides the Interlock Kit, turns on the generator breaker and selects the circuits for use up to the capacity of the generator.

Generator Interlock Technologies' Kit is a defining safety product that has been recognized as a Innovation Award Winner by *Electrical Contracting Products* magazine and one of the Top Products by *Electrical Products and Solutions* magazine.

Generator Interlock Technologies, LLC, has taken a problem of safety and convenience and developed a system to keep danger and expenses to a minimum. Starting with an idea of helping a friend in need, to helping thousands across the country, GIT continues to grow due to its commitment to deliver a quality product. Visit www.interlockkit.com for a complete list of products and details. □

With the Interlock Kit, a qualified electrician can install a complete system in 2 hours or less by simply mounting the correct kit to the face of the panel and wiring a generator convenience outlet to a breaker installed in the panel.

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Protect Yourself

Miller Safety Consultants — *A Leader in Arc Flash Protection*

Vince Miller started Miller Safety Consultants, a veteran owned business in 1999. The goal of the business was to provide cost effective safety consulting, employee training such as: confined space entry, fall protection, electrical safety and provide sales of electrical shock and flash protective equipment and fall protection equipment to businesses in the Washington DC area.

Reliance Industries provided fall protection products and much of the sales and training was on behalf of the supplier. In 2000, the owner decided to retire from his business, and Vince decided to discontinue the fall protection line of his business and concentrate more in the electrical training and products.

Vince had been a distributor for Certified Insulated Products (CIP), a manufacturer of electrical insulated tools and electrical arc flash clothing manufactured by Otex in Rochester, New York. As a distributor, Vince provided sales through his internet website and much through relationships with electrical contractors. His training was a classroom environment and was provided directly to customers but he also taught as a sub-contractor for other safety consulting companies and the

Chesapeake Safety Council in Baltimore, Maryland. In 2005, Vince partnered with Vivid Learning Systems in Cascades, Washington to provide on-line training in safe work practices.

Training in electrical safe work practices is still provided locally in the Washington DC area and as a partner with an electrical engineering firm and online. The training is based on the Occupational Health and Safety Administration (OSHA) standards and the National Fire Protection Association (NFPA) 70E standard.

Miller Safety Consultants is now a distributor for Cementex USA, Burlington, New Jersey, for insulated tools and equipment and clothing from OTEX Protective, Rochester, New York.

The majority of his sales of products are from the web-based store. Cementex is

nationally known for their quality equipment. Otex Protective is becoming more known for their quality clothing. For years, they have manufactured their products under other provider labels. Vince chose to not create his clothing line, but to sell the manufacturer product.

Vince has worked with many electrical company employees to fine-tune the clothing to be more comfortable for the user. Working closely with the manufacturer, they have made slight changes in how the cloth pattern was modified to meet final production. An example is the lightweight 40 Calorie vented hood offered by Otex.

The material is of the latest technology. The vented assembly is constructed for balance on the back of the hardhat and the airflow is 27 CFM to prevent fogging of the face shield and provide cooling to the worker. It took over a year to develop the product with the user prior to having the hood “flash tested”. This product is now standard issue with many electrical contractors.

Being a small business and having quality providers has resulted in satisfied customers for Miller Safety Consultants. Being a direct supplier for OTEX Protective, another small business means customized customer needs can be met. □

*For more information, visit
Miller Safety Consultants at:
www.electricalsafetyupply.com, email
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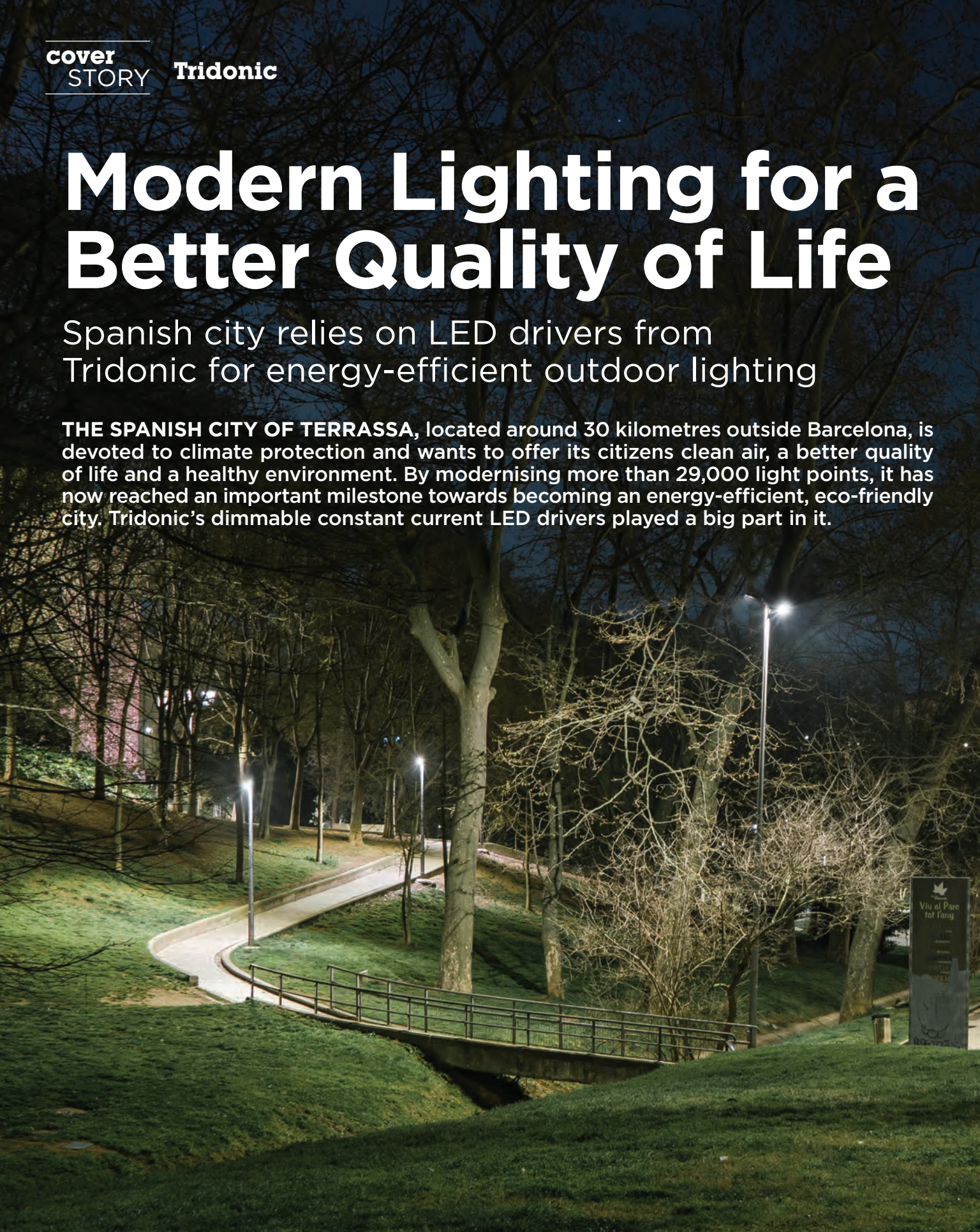
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Modern Lighting for a Better Quality of Life

Spanish city relies on LED drivers from Tridonic for energy-efficient outdoor lighting

THE SPANISH CITY OF TERRASSA, located around 30 kilometres outside Barcelona, is devoted to climate protection and wants to offer its citizens clean air, a better quality of life and a healthy environment. By modernising more than 29,000 light points, it has now reached an important milestone towards becoming an energy-efficient, eco-friendly city. Tridonic's dimmable constant current LED drivers played a big part in it.





(CONTINUED ON PAGE 10)

Move to an eco-friendly city: in Terrassa, Spain, the entire street lighting system was modernised. The lighting can be dimmed as required. LED drivers and control technology from Tridonic use the U6Me2 protocol to transfer signals via the power cable so the lights can be conveniently configured at the switching cabinet.



Back in 2013, the Terrassa city council launched the “Terrassa Energia Inteligente” (TEI) project. Its main objective is climate protection. Once the project has been completed, the Catalan city is hoping to save around 17,000 MWh of energy per year. It wants to achieve this by improving energy efficiency and reducing pollutant emissions throughout the city.

To make this ambitious goal a reality, the city administration relies on modern technologies. Expanding renewable energy sources is just as much a part of this as applying modern energy management, upgrading fibre optics and building up a fleet of hybrid buses for public transport.

Another important element of the TEI project is the modernisation of the city’s lighting installations. At the beginning of 2019, the Terrassa city administration and its project partner imesAPI SA began upgrading all the luminaires in the city. In total, 29,000 light points were replaced with LED luminaires from renowned manufacturers such as Novatilu, Schröder, Carandini, Signify, Disano and Lamp.

Uniform control – irrespective of the model or manufacturer

The new luminaires spread around the city vary depending on the requirements and applications. “In to-

tal, we have around 30 models from seven different suppliers in use,” says Albert Marín, smart city project manager at Terrassa. This diverse setup is a challenge for lighting control in particular. Because on top of high energy efficiency, the luminaires had to meet a whole range of other requirements. For example, the city wanted to be able to change the dimming curve of the luminaires either via a programming device or remotely. And for safety reasons, LED luminaires near bus stops and train stations needed to increase their illuminance to 100 percent as soon as a pedestrian approached the light point. This required a simple way of controlling the outdoor lighting across the board, despite its diverse setup.

The project partners opted for Tridonic’s dimmable constant current LED drivers for luminaire installation. The drivers have been designed specifically for street and industrial applications, are robust and come with a nominal service life of 100,000 hours. And apart from their wide dimming range of 1 to 100 percent and high protection, the Tridonic LED solutions offer great energy savings. Depending on the model and design, the devices achieve an efficiency of up to 94 percent. And their power consumption on standby is extremely low.

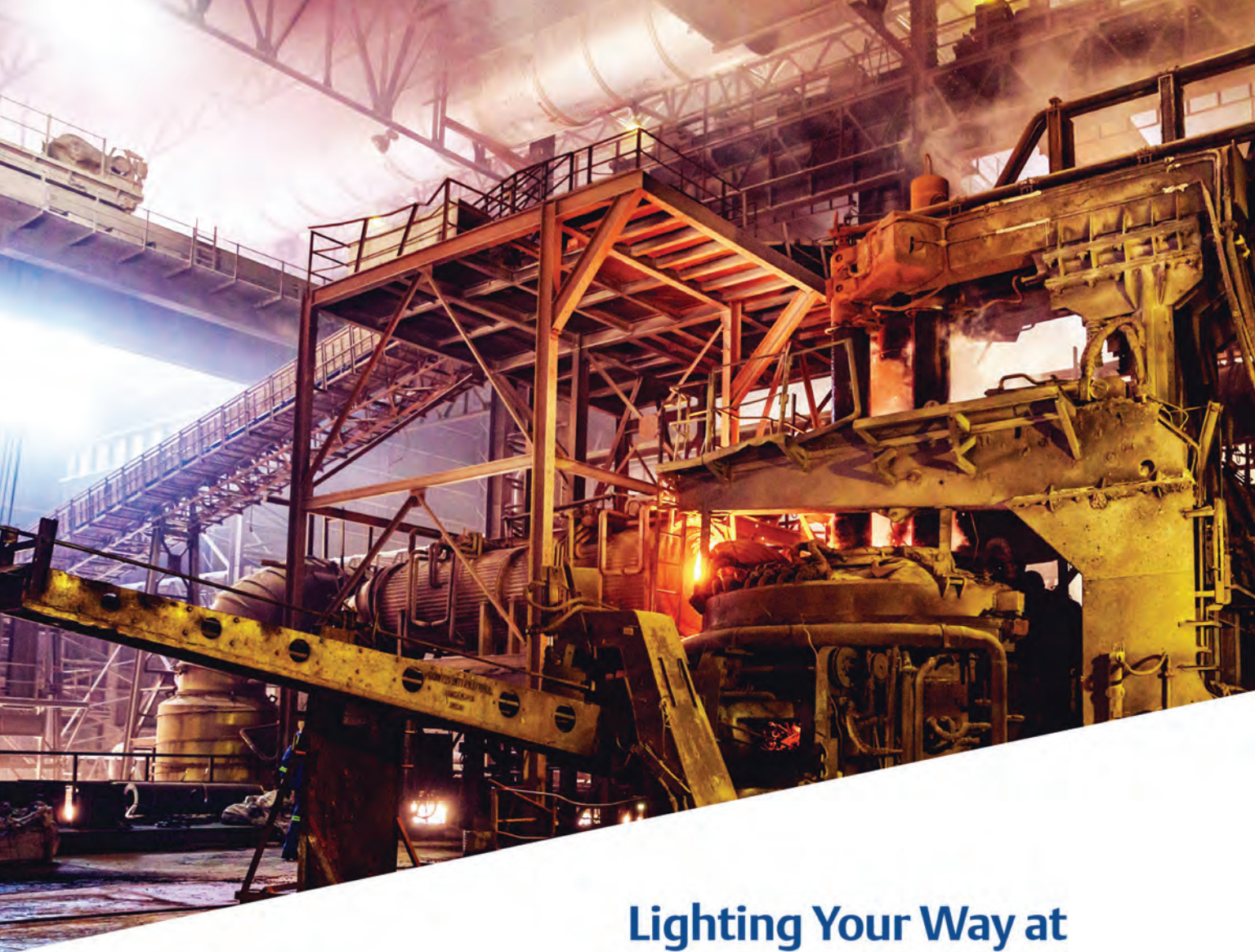
Another deciding factor for the deci-

sion-makers was easy integration and flexible configuration of the luminaires using the U6Me2 programmer or the companion SUITE parameterisation software via NFC or ready2mains. ready2mains and U6Me2 don’t require an additional communication interface. They use the existing network interface. Even after installation, the drivers can be easily (re)programmed with ready2mains or NFC – on site or from a central switching cabinet.

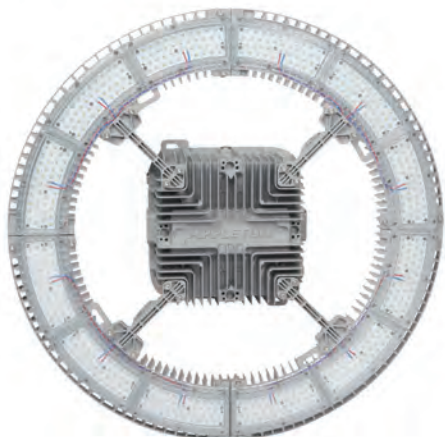
Light management functions open up potential savings

Terrassa now uses Tridonic constant current LED drivers from the advanced (ADV) product family such as LCO 14/100-500/38 NF C ADV3, LCO 24/200-1050/39 NF C ADV3, LCO 40/200-1050/64 NF C ADV3, LCO 60/200-1050/100 NF C ADV3 and LCO 90/200-1050/165 NF C ADV3. At bus stops and train stations, devices from the Tridonic excite driver range are used. The corridorFUNCTION, in combination with a motion detector, always provides the right lighting and therefore ensures the safety of pedestrians. High luminous fluxes are only produced when they are actually needed. If the sensor no longer detects any movement, the luminous flux is automatically reduced. This makes outdoor

(CONTINUED ON PAGE 12)



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operation even more energy-efficient and cost-effective.

The midnight function (chronoSTEP) integrated in the drivers also takes into account reduced road use at certain times during the night. It enables the lighting to be programmed in eight individual dimming stages and times. The different illuminance levels can be programmed on site or at a central switching cabinet and the timing for these different levels can also be configured.

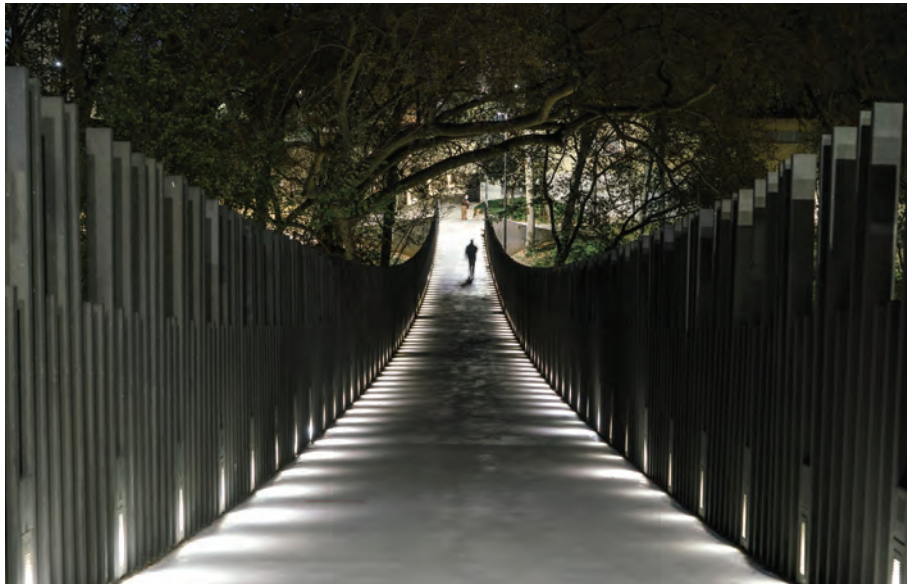
An 80 percent reduction in energy

By switching over to LED luminaires across the entire city and adapting the dimming stages to local conditions, the municipal administration of Terrassa and its project partner imesAPI have man-

aged to reduce installed output by around 3,500 kW. This will save around 12,200 MWh each year. All in all, Terrassa was able to lower the outdoor lighting's energy consumption by 80 percent.

"Thanks to new drivers, we have managed to unify and simplify control of our outdoor lighting – irrespective of the manufacturer and luminaire models used," says project manager Albert Marín. "This means that our outdoor lighting is now extremely reliable and more efficient than ever before – an important milestone in the fight against climate change." The Terrassa city administration also benefits from drastically reduced maintenance costs because the equipment is straightforward and the number of spare parts small.

Since completing the project, the interior lighting in the city's public buildings is now also being modernised as part of "Terrassa Energia Inteligente". □



ABOUT TRIDONIC

Tridonic is a world-leading supplier of lighting technology, supporting its customers with intelligent hardware and software and offering the highest level of quality, reliability and energy savings. As a global driver of innovation in the field of lighting-based network technology, Tridonic develops scalable, future-oriented solutions that enable new business models for lighting manufacturers, building managers, systems integrators, planners and many other types of customer.

To promote the vision of the "Internet of Light", Tridonic relies on partnerships with other specialists. The goal is the joint development of innovative technological solutions that convert lighting systems into intelligent networks and thereby enable associated services. Its profound, technical industry expertise makes Tridonic an ideal partner for established brands and for newcomers to the market.

Tridonic is the technology company of the Zumtobel Group and is headquartered in Dornbirn, Austria. In the 2019/20 fiscal year, Tridonic achieved sales of 341.4 million euros. 1,932 highly skilled employees and a worldwide sales presence in over 50 countries provide the basis for developing and launching new, smart and connected lighting systems.

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Quality Matters

Awareness of the Basic Issues of Power Quality and How To Tackle Them **[PART 2 OF 2]**

BY JOHN OLOBRI

ELECTRICAL INTERFERENCE

Electrical interference is more formally known as either electromagnetic interference (EMI) or radio frequency interference (RFI). EMI is the more general term, RFI applies only to interference over the band of frequencies used for radio transmissions. However, for this article, the two terms are interchangeable and will be referred to as EMI.

EMI is generally much less harmful than transients. Its effect will typically make equipment malfunction temporarily rather than to cause permanent damage. Even so, equipment malfunctions

are often costly and disruptive, so EMI is not a trivial matter.

EMI can come from a variety of sources including radar, TV, radio, mobile phone and microwave transmitters, and

from less obvious external sources such as radio signals produced by distant thunderstorms.

External EMI can enter an electrical installation by electro-magnetic induction, electrostatic coupling or conduction. EMI can also be generated by equipment within a facility, although modern appliances and equipment should be manufactured in compliance with electromagnetic compatibility (EMC) standards that minimize the risk of EMI generation.

EMI is most often experienced as noise or hiss on audio equipment.

Other common effects that are less immediately apparent include degradation of the performance of data networks and even completely stoppage of these networks from functioning. This can lead to increased error rates and potentially total loss of data. It's important to note that EMI can be transmitted by crosstalk between cables that run close together. For this reason, care should always be taken to segregate power and data cables and, where appropriate, to use screened cables.

(CONTINUED ON PAGE 16)

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A wide variety of products are available to block EMI and prevent it from entering equipment. These include EMI suppression filters and AC line filters, as well as ferrite cores and microwave absorbers. Such devices are only effective against conducted EMI. Efficient shielding – enclosing sensitive equipment in grounded housings is the best precaution against radiated and induced EMI, so for a complete solution a combination of shielding and filtering is necessary.

If you suspect you've got problems with EMI, it's time to get a power quality analyzer and set it up to monitor the site. EMI will be visibly superimposed on the incoming voltage waveform. It may be intermittent in nature and therefore only revealed by logging the power line for a period of days or weeks.



Voltage imbalance is a power quality issue that most of the time receives little or no attention. This is unfortunate because an unbalanced supply can have serious consequences. If your business only has single-phase loads, imbalance isn't an issue for you. If you have any three-phase loads however, you would be well advised to read the rest of this article.

In a balanced three-phase AC power system, the voltages in all three of the phases are equal in magnitude and the phases are 120 degrees apart. In an unbalanced system, the phase voltages are not equal, and/or the phases are not 120 degrees apart. Voltage imbalance is more common than a phase shift and is typically caused by big single-phase loads, such as induction furnaces.

These single-phase loads may be connected between one of the phases and the supply neutral, where they draw power from just one of the three phases, or they

may be connected between two phases, where they draw power from two of the three phases. As a result, the three phases are loaded unequally and the voltage on the phase or phases that are heavily loaded will drop. This voltage reduction will be seen as voltage imbalance by all other equipment that are connected to the same supply system.

Uneven distribution of even small single-phase loads across a three-phase system can, if there is enough of them, cause a voltage imbalance. This situation often develops over time when extra equipment or branch circuits are added to a system that was originally balanced during its construction.

Unequal degradation of power factor correction capacitors in a bank or even complete failure of one or more of the capacitors is another source of imbalance, and temporary imbalances can be produced by a fault on one of the phases either within the facility or further back up the supply network.

Having balanced phase voltages is arguably one of the most important requirements for an industrial installation, particularly if it uses three-phase motors, and crucially if they are operating at or near their full load capacity. With a fully loaded motor, unbalanced voltages at the motor terminals can cause a phase current imbalance up to 10 times the percentage voltage imbalance. This means that motors operating on unbalanced supplies must be significantly de-rated, even if the voltage imbalance appears to be relatively minor. Imbalance can also make it necessary to de-rate power cables because of increased $I^2 R$ losses.

According to the "IEEE-1409, Guide for Application of Power" voltage unbalance is defined as the ratio of negative sequence voltage to the positive sequence voltage. Briefly explained, the three phase voltages can be mathematically expressed as a sum of positive, negative and zero sequence components. Positive sequence voltages create a magnetic flux within the motor that rotates in the direction that the motor is intended to rotate, while negative sequence voltages create a flux that rotates in the opposite direction. Since the positive sequence voltages are always much greater than the negative sequence voltages (provided that the motor has been connected

correctly) the direction of rotation of the motor will not be affected.

The counter rotating flux caused by negative sequence voltages creates additional heating in the motor windings that may eventually lead to insulation breakdown and premature motor failure. Continuous operation at 10°C (18°F) above the recommended operating temperature can reduce the life of a rotating machine by a factor of two, and reduced motor operating life is almost always disruptive and expensive.

Additionally, solid-state motor controllers and inverters include components that are sensitive to voltage imbalance. Depending on the product, some of these will protect themselves and the motor by shutting down if they detect a significant voltage imbalance but, while this safeguards the equipment, the resulting disruption can still be costly. In less sophisticated products that don't automatically shut down, voltage imbalances are a common cause of reduced life.

Uninterruptible power supplies (UPSs) and inverter supplies also operate with reduced efficiency when presented with unbalanced supply voltages, often producing increased ripple on the DC output and, in many cases, increased harmonic currents in the supply system.

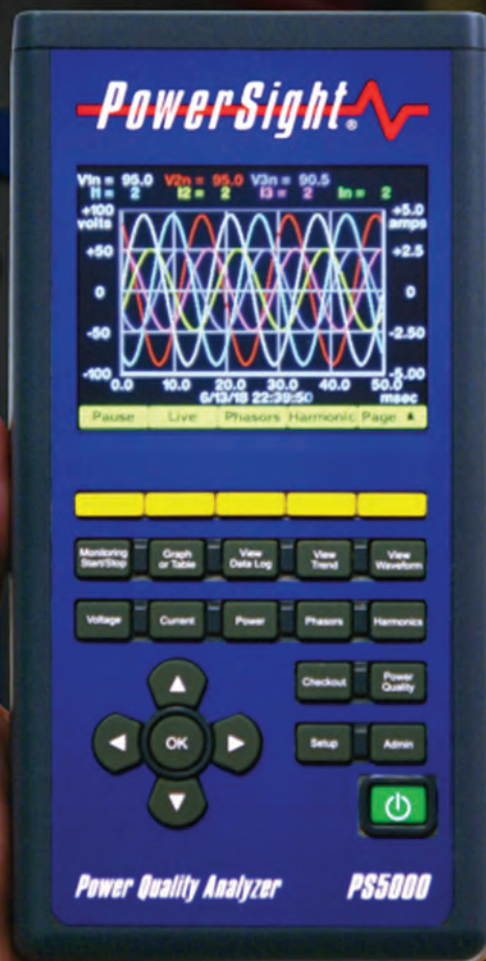
Voltage imbalance can have so many harmful effects, that it is covered by national and international standards. IEEE 112 and IEC 60034-1, for example, imposes a 1% negative phase sequence voltage limit on the supply feeding machines.

Fortunately, the measurement of voltage and load (current) balance, and therefore the identification of imbalance, is easily achieved using a power and energy logger (Such as AEMC's PEL103). With a PEL connected at the incoming supply, the loading across the phases for the whole installation can be monitored over time to see how it varies during the normal operating day or week or longer. The PELs Power and Energy logger can be quickly moved around the installation, non-intrusively connected, and used to measure individual equipment or circuit loads and voltages to evaluate the balance condition throughout the installation. They can then be reconnected to the incoming supply for ongoing monitoring not only of voltage balance but also of other (CONTINUED ON PAGE 18)

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important supply parameters such as harmonics and power factor.

To reduce voltage imbalances and their effects, there are two key steps you should take. The first is to use separate circuits for large single-phase loads and connect them as close as possible to the source of the supply. This will ensure that the single-phase load does not cause a voltage drop on any wiring used by other equipment. The second step is to ensure that all single-phase loads, large and small are distributed evenly across all three phases. These two steps can save a lot of headaches and expense.

Power Factor

Like voltage imbalance, power factor is rarely considered to be a power quality issue, but it should be because poor power factor is very common, it means that businesses pay large sums of money for energy they don't and can't use, and it's relatively easy and inexpensive to correct.

Poor power factor is not a new issue; for decades, experienced engineers looking after industrial and commercial installations have put measures in place to ensure that their facilities had a good power factor. But today, fewer and few-

er sites have such engineers to take care of them and, as a result, power factor gets forgotten and the inevitable result is needlessly increased energy bills.

What actually is power factor, and why is it so important?

The key to the explanation is that some types of electrical equipment used in industrial and commercial applications consume a certain amount of reactive power in addition to the real (or active) power they need to do the job for which they are intended. These are often inductive devices – that is, devices that incorporate coils of wire as part of their construction. Examples are motors, induction heaters, arc welders, compressors and most types of fluorescent lighting. It's important to understand that the reactive power doesn't do anything useful as far as the user of the equipment is concerned.

Technically speaking, reactive power is the vector difference between the real or active power used by a device, and the total power it consumes, which is known as the apparent power. Simply stated, power factor is the ratio of the real power to the apparent power.

A device with a low power factor increases energy losses in the electrical distribution system, so energy suppliers penalize industrial customers that have a poor power factor. A device with a poor power factor draws more current than a device that's doing an equal amount of useful work but has a high (or good) power factor. Higher currents increase energy losses in the electrical distribution system, resulting in energy suppliers penalizing customers that have a poor power factor by charging them more for their electricity due to the fact that they need to be able to supply additional energy that would not show on the revenue meter.

Speaking less technically, this scenario can be made easier to understand by likening it to a typical glass of beer. If you order a glass of draught beer, the whole glass you pay for is equivalent to the apparent power. But take a closer look – that beer has got a frothy head on it! The beer is the part you really want, and that's equivalent to the active power, while the head, which makes no contribution to your refreshment, is equivalent to reactive (CONTINUED ON PAGE 20)

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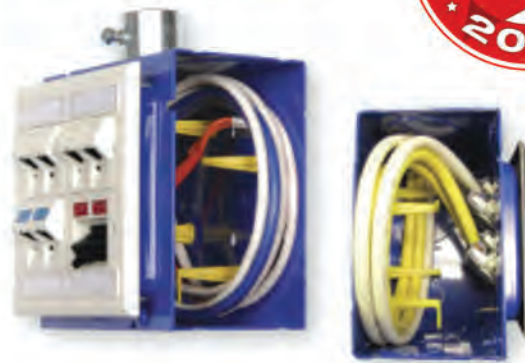
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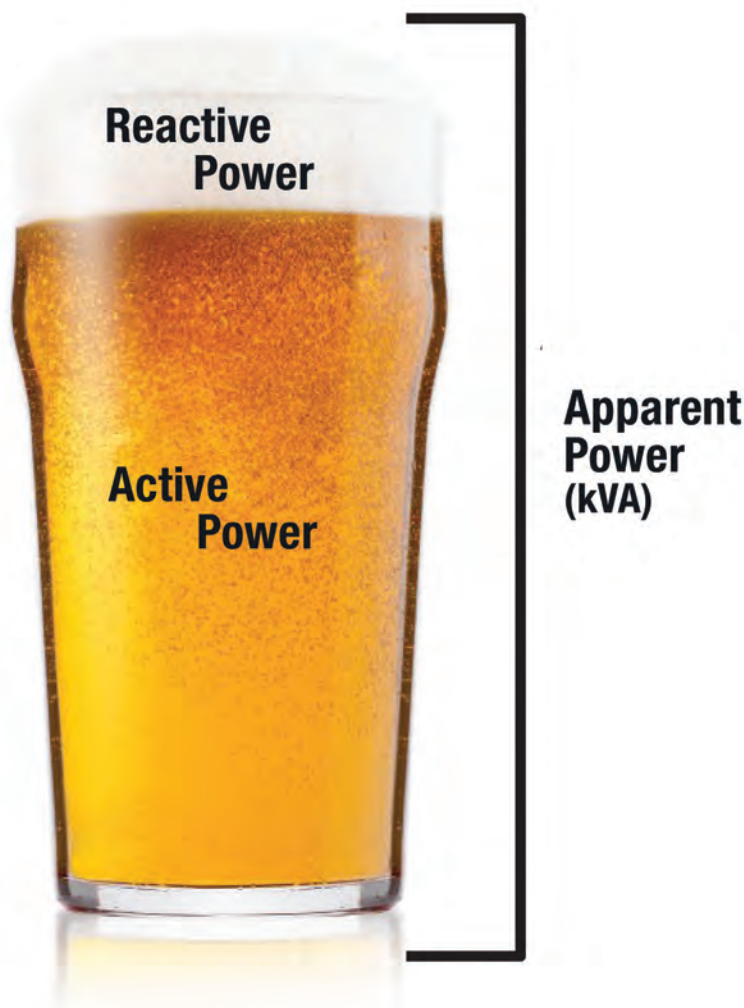
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power. A glass full of beer, with no head, would represent a power factor of 1 with no reactive power at all. In reality, that's usually impossible to achieve and a power factor of 0.95 (corresponding to less than 5% froth) or better is usually considered acceptable.

So far, so good, but if electrical equipment inherently consumes active power, what can be done about it? Fortunately, it is possible to correct for power factor by adding a power factor correction (PFC) system. This usually takes the form of capacitors connected at the main distribution panel, or sometimes at other locations.

Many sites will already have some form of power factor correction (PFC) but as mentioned earlier, it is always a install and forget solution. If more equipment is installed on a site, or the type of equipment used on the site is signifi-

cantly changed, the PFC system may no longer be adequate. Also, capacitors used for PFC can degrade over time and would eventually need to be replaced.

In fact, it is not uncommon for industrial installations to be operating with high levels of reactive power giving power factors of between 0.7 and 0.8. This is unnecessary and costly since measuring power factor is not at all difficult. It can be readily measured using portable test instruments, or alternatively, can be permanently monitored in real-time with constantly displayed values, along with a multitude of other useful parameters including voltage, current and energy consumption.

While specification of a PFC system to reduce reactive power requires knowledge of several factors including the voltage level and typical usage of the

reactive loads on-site, the usage profile across the site, and the power quality required by the on-site loads, all of these are easily measured and/or calculated. And a properly designed PFC system will be a fraction of the cost of the savings it delivers.

The simplest form of PFC involves installing capacitors, but it is worth shopping around and taking expert advice to find a system that will accurately suit your particular requirements. If a single machine has a poor power factor, capacitors can be connected in parallel with it, so that they compensate for the poor power factor whenever the machine is switched on. Alternatively, if the power factor of a site is permanently poor and no single item of equipment is solely responsible, fixed PFC can be connected across the main power supply to the premises.

In more complex applications, where many machines are switched on and off at various times, the power factor may be subject to frequent change. In this case it is advisable to employ expert advice for the best solution.

Conclusion

We hope that this article has succeeded in explaining the sometimes-complex subject of power quality and clarified why it is considered it to be important. If you're a typical business owner or manager, there's absolutely no doubt that you pay great attention to the quality of products and services you buy for your business, and it should be the same for the power and energy you consume. After all, energy bills are probably a significant part of your outgoings.

We've shown that power quality can be degraded in many ways, and such degradation often has inconvenient and costly consequences. Just as important, however, we've shown that power quality problems are easy to detect with the right monitoring and data logging equipment. In most cases once the problems have been identified; convenient and affordable solutions are available.

Test instrumentation designed to monitor and identify power quality issues will easily pay for themselves in no time both with savings on your energy bill and prolonged operating life of your equipment. □

Affordable test equipment for 2021



Spitfire - Buried Low Voltage Cable Fault Locator

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- ◆ Easy to use
- ◆ High energy output
- ◆ Proven reliability
- ◆ Compact design
- ◆ Lightweight

Wayfind'r - Impulse cable tracer

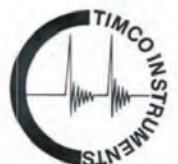
- ◆ Accurate
- ◆ Easy to use
- ◆ Connects directly to energized cables
- ◆ Distinct signal for easy tracing
- ◆ Traces direct buried and cables in conduit
- ◆ Rugged, compact design

Impulse Phaser - Cable / phase system

- ◆ Accurately identifies cables in trenches, vaults, conduits and enclosures
- ◆ Accurately identifies phases in multi-conductor cables
- ◆ Identifies jacketed, shielded, cables, even in pipe
- ◆ Easy to understand and use

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Bruce Yohr joins AEMC® Instruments as new President and CEO

Chauvin Arnoux®, Inc. Board of Directors announces the appointment of Mr. Bruce Yohr as President and CEO of AEMC® Instruments located in Dover, New Hampshire. Mr. Yohr will also serve as Director on the company board. He replaces retiring Mr. Winthrop D. Smith who served as President and CEO for 38 years. Mr. Smith's dedication, knowledge and expertise in the industry was a key component of CA/AEMC's successful growth through the years.

Mr. Yohr is known for his excellent managerial skills, leadership approach, decision making qualities and directive

nature. He has many years of experience within the sensor and instrumentation industry. Mr. Yohr has more than 25 years of experience, working at various management positions. He has spent the last two years as President of JSI Inc located in Tyrone, Georgia. Prior to JSI Inc he served five years as the President of tecsis LP located in Columbus, Ohio, and as General Manager of Wika Mobile Controls located in Chambersburg, Pennsylvania. Prior to tecsis LP and WIKA Mr. Yohr was the Managing Director for Vishay's BLH division located in Boston, Massachusetts. Mr. Yohr has a degree



Bruce Yohr

in Paper Chemistry, a Bachelor of Science degree in Quality and Productivity Management, an MBA in Global Business, and is a Lean Six Sigma Black Belt. AEMC® Instruments is excited to have Mr. Yohr join our growing company. □

ABOUT AEMC® INSTRUMENTS

AEMC® Instruments manufactures professional electrical test and measurement instruments for the industrial, commercial and utility marketplace. Our products are backed by over 125 years of experience in test and measurement instruments and encompass the latest international standards for quality and safety. AEMC® products can be purchased through a worldwide network of distributors. www.aemc.com



MaxLite joins the Lighting Controls Association



MaxLite, a leading manufacturer of energy-efficient lighting solutions, has joined the Lighting Controls Association, the industry organization dedicated to promoting adoption of lighting controls in commercial buildings.

MaxLite recently launched c-Max Lighting Controls (www.maxlite.com/cmax), a patent pending design that makes it easy to add luminaire-level lighting controls to indoor and outdoor

applications. By purchasing c-Max low voltage sensors along with MaxLite controls-ready luminaires, customers can achieve energy savings beyond LED conversion in the most simple and affordable way. Commissioning is done via remote control or an app to add basic or networking controls functionality. Controls can be added during installation or upgraded in the future without removing the fixture.

"As an innovator in LED technology, we are pleased to join the Lighting Controls Association in its work to educate the public about the benefits of lighting control," said Umesh Ba-

heti, MaxLite senior vice president of product management, engineering and supplier relations. "We look forward to contributing to a deeper understanding of how ESCOs, contractors and facility managers can leverage LED lighting upgrades to maximize energy savings and tap into the extraordinary value and flexibility that lighting control can add to buildings."

The Lighting Controls Association, a council of the National Electrical Manufacturers Association (NEMA), has been committed to educating the professional building design, construction, and management communities about lighting control technology and application for more than 20 years.

For more information about the Lighting Controls Association, please visit www.lightingcontrolsassociation.org. □

ABOUT MAXLITE

MaxLite has been committed to providing energy-efficient lighting products since 1993. One of the first movers into LED technology in the industry, MaxLite offers an extensive line of quality, certified indoor and outdoor LED lamps and luminaires. A five-time recipient of the ENERGY STAR Partner of the Year Award for its industry leadership, MaxLite continues to be at the forefront of energy-efficient technologies through the innovative research and development capabilities of its teams and facilities in New Jersey, Indiana, California, and globally. MaxLite is a nationally certified Minority Business Enterprise (MBE) by the National Minority Supplier Diversity Council. For more information, call 800-555-5629 or email info@maxlite.com.



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Megger Donates \$10,000 to Phoenix Children's Hospital Foundation

Donation helps hospital support patients through cutting-edge technology and top-notch medical care

Megger recently donated \$10,000 to Phoenix Children's Hospital Foundation. This foundation is dedicated to providing the philanthropic funding for vital, life-saving care to children in Arizona and across the country.

Each year, since 2001, Megger holds its Annual Distributor Golf Outing in support of Phoenix Children's Hospital Foundation. This year, due to the covid-19 pandemic, the outing was cancelled; however, Megger still made a donation to the Foundation.

"Our customers and distributors were upset that this year's event was cancelled due to COVID, but of course we all understood why. Nothing could stop Megger from moving forward with a donation to PCH for the 11th year in a row, and I couldn't be prouder," said David Danner, director, Americas distribution, Megger.

Phoenix Children's has provided hope, healing and the best healthcare for children since it opened its doors in 1983. With nearly 1,000 medical specialists on staff, Phoenix Children's Hospital is one of the largest pediatric healthcare systems in the country. The hospital provides inpatient, outpatient, trauma and emergency care across more than 75 subspecialties.

Francisco Aguilar, CFO, Megger Amer-



icas, said, "Having to miss this year's event was disappointing. Nevertheless, Megger is committed to keep supporting

good social causes in our communities. It is a great honor to donate to such an inspirational foundation." □

ABOUT MEGGER

Megger has been a leader in electrical test and measurement globally for 130 years. From power generation to the power outlets in your home, Megger products cover almost every application within the Electrical Supply Industry.

Our products are categorised into seven core application segments: cable test and diagnostics, protection relays and systems, circuit breakers, transformer test and diagnostics, low voltage installations, general electrical testing, and motor and generator testing.

We have manufacturing sites in various locations within Germany, USA, UK, and Sweden, with our headquarters based in Dover, UK, and sales offices across the globe. Megger has grown substantially through acquisitions, including Biddle Instruments (1936, Pennsylvania), Multi-Amp (1951, New Jersey), Programma (2007, Sweden), SebaKMT (2012, Germany) and more recently, Baker Instruments (2018, Fort Collins), to name but a few.

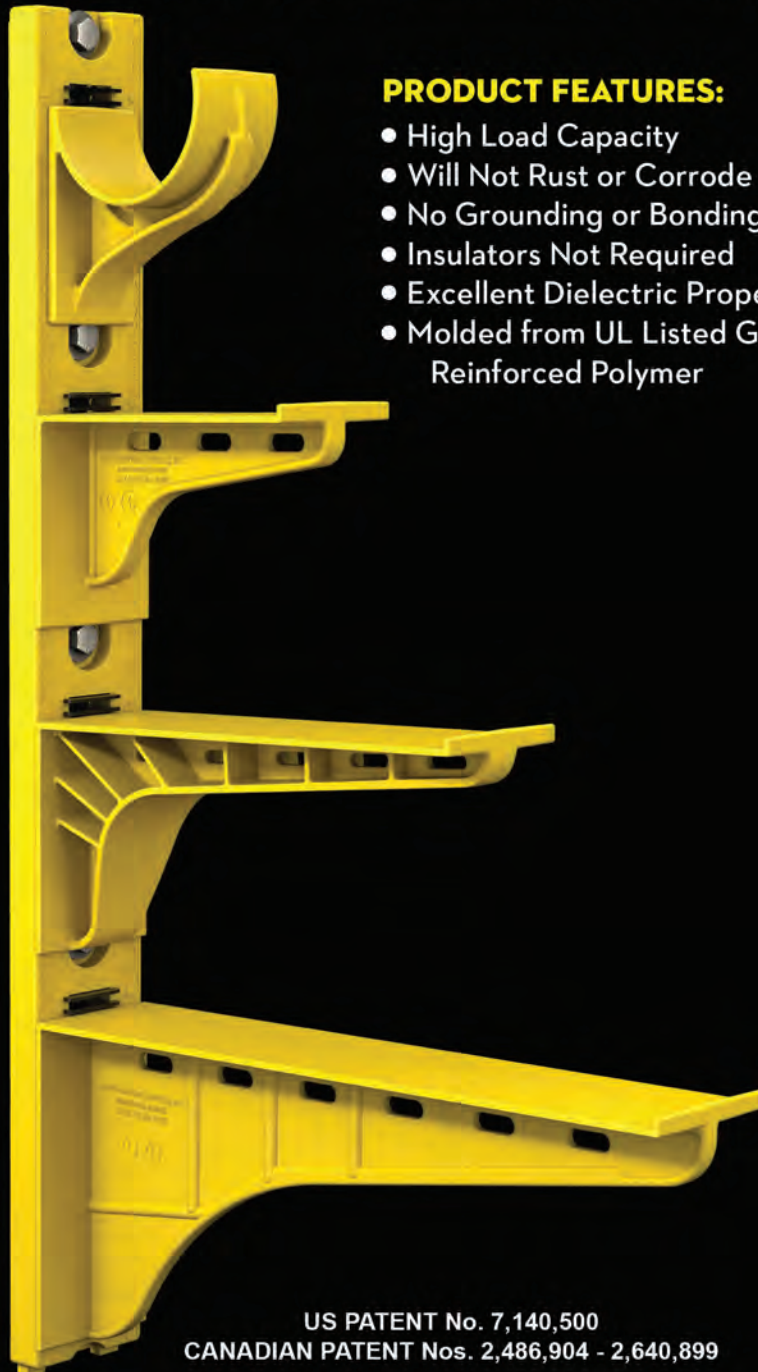
We are emotionally connected to our values, and our attitude and behaviours being fostered across the Megger group are directly attributable to our values-led approach. Our culture makes not only a successful company but crucially, a compelling business partner. Get to know who we are.

Megger 

The Heavy Duty Nonmetallic CABLE RACK



For Power and Communications Manholes And Vaults



PRODUCT FEATURES:

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HDL Arm Lock shown with
RA04 Arm and CR36-B Stanchion



3HDS - 3" throat saddle shown with
a cable secured by cable ties.



RA08 - 8" arm shown with three
cables secured by cable ties.

US PATENT No. 7,140,500
CANADIAN PATENT Nos. 2,486,904 - 2,640,899

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Universal Douglas Lighting Americas Appoints New Vice President of Sales Projects

Industrial lighting industry veteran Todd Smith, formerly of WESCO and Sylvania, joins the team to strengthen sales support for intelligent lighting control systems

Universal Douglas Lighting Americas (UDLA), a leading manufacturer of end-to-end lighting fixtures and intelligent lighting control systems, has appointed Todd Smith as its new Vice President of Sales Projects for North America. Todd will oversee Universal's sales team with a focus on delivering value and services to customers across the U.S. and Canada.

With more than two decades of experience in the intelligent lighting industry, Todd is committed to bringing greater awareness to Universal's next-generation lighting and control solutions, including Bluetooth controls and IoT-enabled LED drivers, luminaires, and retrofit kits. He will also be part of the leadership team that is steering the ongoing integration between Universal Lighting Technologies and Douglas Lighting Control as they continue to form their new entity, Universal Douglas Lighting Americas (UDLA).

"We're pleased to welcome Todd Smith to the UDLA family," said Ty Anderson, President of UDLA. "As we enter our next phase as a fully integrated company, Todd's expertise in the intelligent lighting industry will be invaluable. We look forward to his leadership and guidance as we expand our North Ameri-

can sales and support teams to better service our customers."

Prior to joining the team at UDLA, Todd was the Director of Advanced Engineering at WESCO Energy Solutions, a publicly-traded FORTUNE 500® company headquartered in Pittsburgh, Pennsylvania. In this role, he focused on the development and go-to-market strategy for products and services within WESCO's portfolio of Electrical and Electronic Solutions, Communications and Security Solutions, and Utility and Broadband Solutions. Before that, he served as the Business Development Manager for Lighting Controls and then as Director of Energy Service Company (ESCO) Sales for Sylvania Lighting Solutions. Todd is a former U.S. Army Captain who served in Operation Desert Shield and Desert Storm and holds an Engineering degree from the United States Military Academy at West Point. He is also a Six Sigma Master Blackbelt and Lean Leader Instructor.

"I am thrilled to join the Universal Lighting team and take a role in the integration of two successful companies and product lines," said Todd Smith, Vice President of Sales Projects, North America for Universal Lighting Technologies.



Todd Smith

"The value our sales team can provide to customers to help them achieve their lighting, energy, and building functionality goals is a phenomenal opportunity. I am grateful for the chance to be part of this dynamic and entrepreneurial organization."

To explore Universal's intelligent lighting solutions, products, and resources, visit UNVLT.com. □

ABOUT UNIVERSAL DOUGLAS LIGHTING AMERICAS, INC.

Universal Douglas Lighting Americas, Inc. (UDLA) manufactures and commercializes scalable lighting solutions. A combined entity of Universal Lighting Technologies and Douglas Lighting Controls, UDLA enables customers with LED products for upgrades, retrofits, connected lighting, centralized/decentralized digital lighting control systems, and IoT digital services integration with easy-to-install and use components. With 125 years of combined experience, the company is recognized for its North American manufacturing and an award-winning commitment to quality. An innovator in digital lighting design for the future, UDLA helps customers create an end-to-end vertical lighting ecosystem with efficiency, flexibility, and control. Learn more about UDLA at www.unvlt.com and www.douglaslightingcontrols.com.



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Suitable for both retro-fit and new construction, Runtal Electric products provide a very efficient and comfortable radiant heat. They are an excellent source of primary or supplemental heat and a problem-solver for areas needing additional heat.

They are attractive (available in over 100 colors), durable and easy to install.

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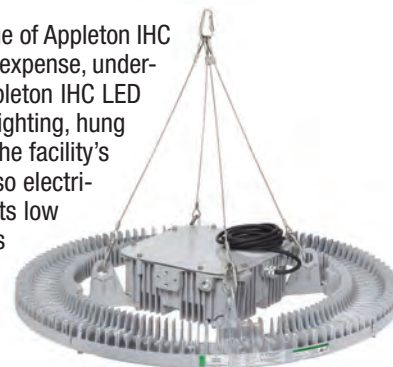
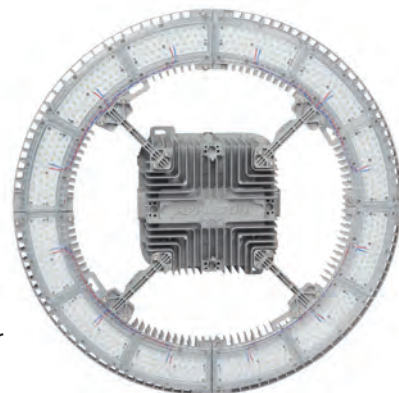
Emerson LED Industrial Luminaire Delivers 250% More Output to Safely Light Facilities with High Ceilings

Engineered for High Ambient Temperature Areas, Appleton IHC Luminaires are Ideal for Steel Mills, Pulp & Paper Plants and Heavy Industry

Emerson recently launched its Appleton® IHC Series of high-lumen output LED luminaires designed to support heavy industrial facilities requiring lighting fixtures capable of withstanding maximum ambient temperatures of 167° F (75° C) to help drive continued productivity and safety. Featuring industry-leading lumen outputs of 50,000, 60,000, 75,000 and 90,000, the Appleton IHC LED Series supplies up to 250% more output than standard LED fixtures on the market, unlocking operational cost-savings for manufacturing facilities by requiring fewer luminaires and consuming 60 percent less energy than traditional HID lighting.

MOUNTING VERSATILITY

Minimizing installation cost with multiple mounting options is another transformative advantage of Appleton IHC LED Series. Installation of a fixture in an industrial plant represents 8-10% of its overall life-cycle expense, underscoring the need to reduce labor costs. Versatile, fully adjustable mounting brackets enable Appleton IHC LED luminaires to be quickly installed flush on a ceiling as a high-bay fixture, wall mounted for flood lighting, hung on a threaded hook and cord, pipe mounted, or mounted via stainless steel cable depending on the facility's needs. Emerson also offers a pre-wired option for the luminaire, complete with 10 feet of cord, so electricians do not have to open the luminaire to access its internal wiring compartment. In addition, its low profile means more fixtures can fit into aerial lifts so that electricians can install several fixtures before returning to the ground to load more units into the lift. In fact, Appleton IHC LED luminaires can be safely tilted on their side so that 4 to 6 units can fit into an aerial lift basket at one time.



RETROFITTING HID

Appleton IHC LED luminaires are ideal for the retrofitting of outdated, inefficient HID fixtures in high temperature applications. Potential energy consumption savings up to 60 percent can be realized by retrofitting, plus it will eliminate the need for the frequent relamping, maintenance or replacement that HID fixtures require. Mounting brackets come with several different hole patterns to allow for cost-effective retrofitting to existing customer mounting configurations.

**For more information, visit
www.masteringled.com**

Triplett 3-in-1 Circuit Breaker Finder

Circuit Breaker Finder, GFCI Receptacle Tester and Non-Contact Voltage (NCV) Detector

Triplett Test Equipment, a leading maker of test equipment tools, highlights the CBF200 Circuit Breaker Finder, which features a comparison mode that helps to identify the correct breaker when signal strengths are close.

The CBF200 is a useful, one person operation tool for residential and commercial electricians, home inspectors, kitchen and bath installers, apartment/condo property managers, DIY'ers and handymen. The tool features an exclusive comparison mode that identifies the correct breaker, even when signal strengths are very close. The receiver also functions as a Non-Contact Voltage Detector and the transmitter also enables users to detect faulty wiring in 3-wire receptacles and tests GFCI for proper operation.

The tool's bright LEDs indicate 6 wiring faults, including Open Ground, Open Neutral, Hot/Ground Reverse, Open Hot, Hot/Neutral Reverse, Hot on Neutral with Hot Open. The CBF200 enables the safe identification of breaker locations within any electrical panel without removing power. The CBF200 also enables users to detect faulty wiring in 3-wire receptacles, test GFCI for proper operation, and detect voltage with no contact.

The CBF200 Circuit Breaker Finder weighs only 9.8oz, is cETLus listed, and comes with transmitter, receiver, and 9V battery.



**For more information, visit
www.triplett.com**



Megger Donates 30 Digital Multimeters to Johnson County High School Seniors Upon Graduation

Students in the school's Construction Department benefit from the donation

Megger recently donated 30 digital multimeters to graduating high school seniors in the Construction Department at Johnson County High School (JCHS), located in Mountain City, Tennessee. The AVO830 digital Trms multimeter offers a voltage range up to 1000V Trms and is designed to reduce the need for additional auxiliary instrumentation, like phase rotation

detectors and non-contact voltage wands.

Many of the students who received the tester will continue their education either at local vocational schools or universities to pursue careers in electrical engineering. According to Lee Cole, construction instructor at JCHS, "Having the AVO830 in their toolbox to start on their post high school graduation journey is a big help. Not only will it get plenty of use both inside and outside of the classroom, but also having one less expense when starting out is always a welcomed surprise."

Before graduation, Lee introduced the AVO830 to his students during class. He demonstrated the unit's various test functions, important safety features, as well as compared it to competitor models. "I showed them what I like most about the unit compared to other multimeters, including its no contact voltage, its phase rotation checker and its temperature reading feature. I like that the AVO830 is three different meters all rolled into one," he said.

The AVO830 digital multimeter is the next generation of meters designed for use by professional electricians, technicians, service personnel and engineers. This compact tester is well-built and offers high reliability. It is suitable for a wide range of applications, including maintenance of electrical applications and equipment, white goods service and electrical utilities.

"I can't emphasize enough how much we appreciate what Megger is doing for these kids," said Cole. "Many of them are going to school for electrical next, and this gives them a huge step-up."

**For more information, visit
Megger.com**

**New Mogul Conduit Body,
Showing Everyone Who's Boss**

NO PAIN, NO GAIN

Topaz's Friendly Tip #5

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Platinum Tools® & Softing IT Networks Enter Into Supply Agreement

Initially, Platinum Tools Will Sell and Distribute Softing's New NetXpert XG2 Throughout North America; NetXpert XG2 Provides 10G Speed Certification Over Copper and Fiber, and Complete Network Testing Over Copper, Fiber, and Wi-Fi Systems

Platinum Tools®, the leader in solutions for the preparation, installation, hand termination, and testing of wire and cable, is proud to announce it has entered into a supply agreement with Haar, Germany-based Softing IT Networks, GmbH.

Initially, Platinum Tools will sell and distribute Softing's NetXpert XG2 throughout North America. The NetXpert XG2 provides 10G speed certification over copper and fiber, and complete network testing over copper, fiber, and Wi-Fi systems.

"We are excited to enter into this agreement with Softing IT Networks and to launch such an impressive 10G speed certification tester as the NetXpert XG2," said Jason Chesla, Platinum Tools Director of Sales. "Softing IT Networks is synonymous with cutting edge technology and first class customer service, and we can't wait to begin this mutually beneficial relationship in North America."

Softing IT Networks specializes in measurement equipment for certifying, qualifying, testing, and documenting the performance of copper and fiber-optic IT cabling based on global standards.

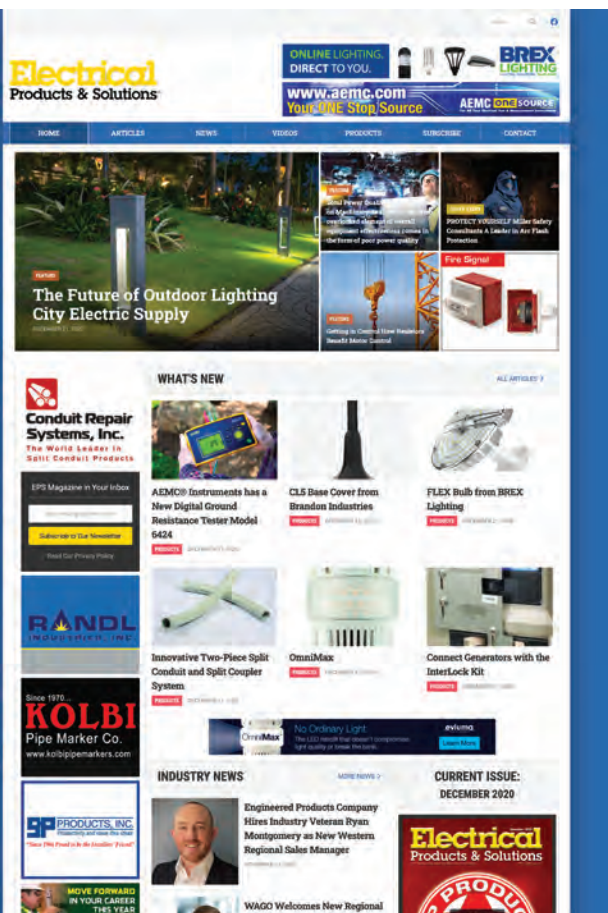


**For more information, visit
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products from each
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**Strong
ALMAG 535
Material**

4-Conduit Block Support From Only One Rod



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Bolt Hex
Head Slides
into Slot

**Threaded Block OR Threadless Block
for Vertical Rod**

For Vertical Rod 1/4" or 3/8"

Specify bolt size 1/4" or 3/8" for the conduit clamp

ST=(side thread) 1/4" or 3/8"

**Standard
Slots 1/4"**
3/8" Available
Upon Request



Bolt Hex
Head Slides
into Slot

THREADED BLOCK

1/4 inch rod = Cat# TBT25-ST25

1/4 inch rod = Cat# TBT25-ST38

3/8 inch rod = Cat# TBT38-ST25

3/8 inch rod = Cat# TBT38-ST38

**Support
Up Thru 4
Conduits With
1 Support**

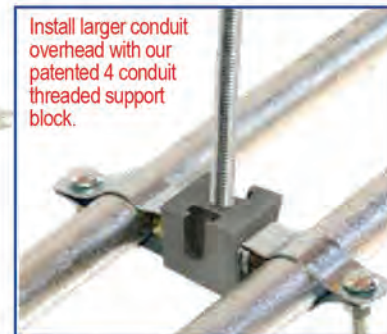
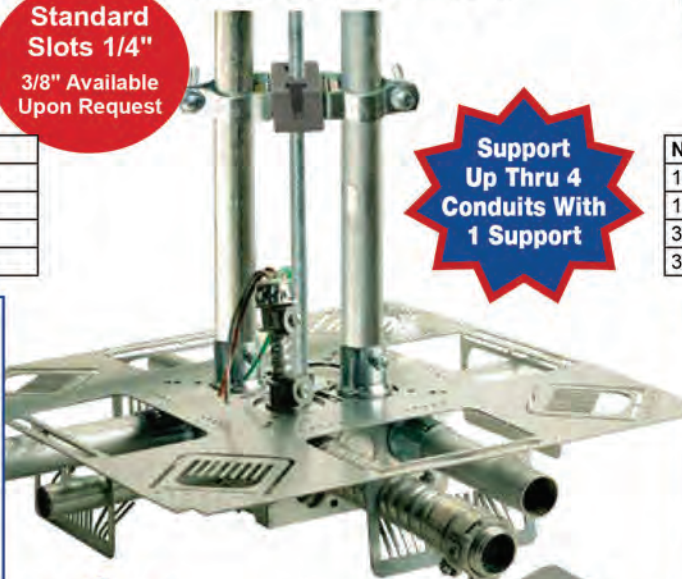
NON-THREADED BLOCKS

1/4 inch rod = Cat# TBT25-NT-ST25

1/4 inch rod = Cat# TBT25-NT-ST38

3/8 inch rod = Cat# TBT38-NT-ST25

3/8 inch rod = Cat# TBT38-NT-ST38



Install larger conduit
overhead with our
patented 4 conduit
threaded support
block.

**New
Block**

**AVAILABLE
SOON**

**For Vertical Rod
1/4" or 3/8"**

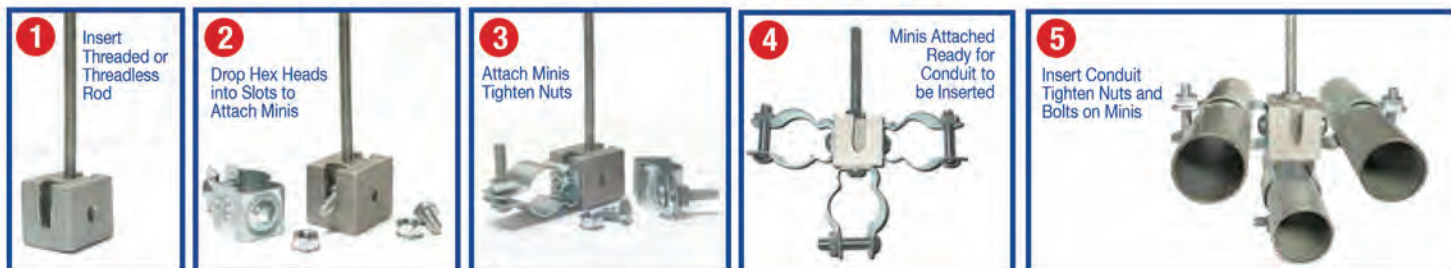


**4 threaded holes on
4 sides (no slots)**

*Specify bolt size 1/4" or 3/8"
required for the conduit clamp*

PATENTED

FAST & EASY TO INSTALL



Customer must satisfy all codes and owners' specifications.

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Productivity and value thru ideas



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STEP 1
Remove damaged
conduit



STEP 2
Cut split duct
conduit to fit



STEP 3
Snap in
place

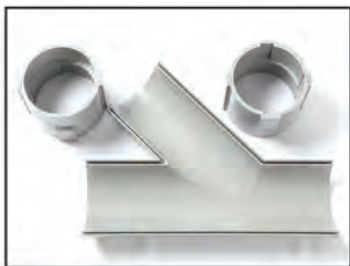
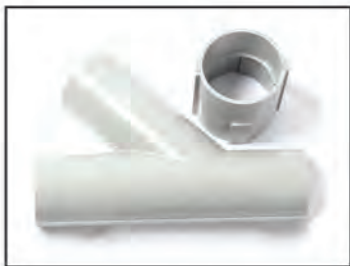


STEP 4
Attach
adapters



STEP 5
Finish job in
record time

"The World Leader In Split Conduit Products"



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- **The Surge Protective Devices improve machine availability**, as first line of defense they are typically installed on larger distribution panels or service entrances but can be installed on critical panels.
- **The Tracking Filter Products increase reliability** for microprocessor-based products, including industrial PLCs, OEM applications and motion control systems. Protect your equipment by continuously tracking AC power input and responding to power surges that can cause failure or permanent degradation.

Learn more at: [Emerson.com/SolaHD](https://emerson.com/solaHD)

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