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We would all agree that there is a need to work productively and to stay safe at work. And economic growth is essential in order to maintain the standard of living we have become accustomed to in Australia. But, what cost will this have on the environment?

According to the recently released Global Carbon Project (GCP) report, worldwide emissions are projected to decline for the first time since 2009. But the bad news is that Australian emissions are still on the rise, caused mainly by a reported increase in the supply from black and brown coal generators.

Australia is now the 14th largest contributor to global emissions and, according to some reports, one of the worst-performing countries in the world in terms of action on climate change, despite a slight improvement in the renewable sector in 2015.

Also, according to the Bureau of Meteorology, there is a strong El Niño in the Pacific, which is usually associated with below average rainfall in eastern Australia.

And, of course, with the continued evolution of technology, waste continues to grow.

So what can industry do?

Find out what some of our CEOs are saying about the future in this, our special CEO Insights issue to end the year.



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# SMART WATER METERING FOR A DRY CONTINENT

*Glenn Johnson*

Australia is the second driest continent in the world after Antarctica, and it is one of the highest per capita water consumers. Growing urban populations, economic growth and increased agricultural production are all expected to increase water usage further in the coming decades.





**A**ccording to Future Directions International in its 2014 report on Australian water security<sup>1</sup>: “As Australia’s population continues to grow, the demand for urban water will create challenges for water managers. The majority of natural water resources in Australia have already reached allocation limits. In some instances, resources are over-allocated between user groups and economic mechanisms have been adopted to manage usage. Meeting competing water demand into the future will require innovation, the economic valuation of water and co-operation across sectors.”

The Millennium Drought in 2002 raised awareness of water scarcity in Australia and had a significant effect on water management policy as it highlighted the vulnerability of Australia to fluctuations in rainfall patterns. This resulted in falls in household water consumption of 28% between 2004 and 2010; but as Australia’s population continues to grow, the growing demand for urban water will be a challenge.

The Bureau of Meteorology (BOM) is currently reporting both a strong El Niño in the Pacific (expected to continue into the first quarter of 2016) and a positive Indian Ocean Dipole (IOD), with both indices being above +1°C. El Niño is usually associated with below-average rainfall in eastern Australia, while a positive IOD reinforces it. Currently, water catchments are very low and soil moisture levels are significantly below average, with agribusinesses in various parts of Australia being severely impacted. These types of conditions are expected to become more frequent in the future with the growing effects of global warming.

## Usage patterns and forecasts

The two largest areas of water consumption in Australia are agribusiness and domestic urban use.

Agribusiness is the largest single consumer of water in Australia, with the ABS reporting that in 2012–13 the industry consumed 11,900 GL. Since surface water resources have in most cases exceeded allocation limits, further agricultural expansion will require investment in alternative water sources, such as on-farm recycling and the expansion of water capture and storage facilities.

The domestic household use of water was 14% of the total in 2009–10 (ABS) and 63% of urban water consumption. With the population expected to rise to between 36.8 and 48.3 million by 2061, the rise in urban water demand presents a significant challenge, and a long-term management plan is necessary.

“Climate change forecasts suggest that natural water systems will become increasingly unreliable,” said Future Directions International.<sup>2</sup> “Much of southern Australia, where key agricultural areas are located, has been identified as particularly vulnerable to climate change... Australia will require greater volumes of water and more advanced infrastructure to meet user demand into the future. It also needs to become a more efficient water user.”

## Getting more efficient means better measurement

While additional water sources may need to be explored to assist with future demand, better utilisation of current resources is something that needs to





be acted on. But, of course, better utilisation requires a better understanding of actual usage and demand, and, historically, the available water metering technologies have not been adequate to fill this need.

One important area in which better water monitoring would be of assistance is in the area of leak detection. Whether it is leakage within end-user properties or leakage in the distribution network, leaks account for a significant waste of Australia's scarce water resources. In 2014, Western Australia's Auditor-General found that the WA Water Corporation was losing billions of litres of water<sup>3</sup>:

"In his report... Colin Murphy found the government agency was losing about 30 billion litres of water each year — ten billion more than what is considered acceptable," wrote ABC News reporter Stephanie Dalzell.

"They need to be doing more to pursue loss, they do have a leak detection program which is a good thing, that's actually found and saved us 3.4 billion litres over the past three years,' he [Murphy] said."

The interesting thing about this quote is that it implies that 20 billion litres of water loss is acceptable, and that 3.4 billion saved was a good result. The same article explained that

the Water Corporation in 2012–13 supplied over 357 billion litres of drinking water across WA, but that 13 billion litres of consumed water was not billed for. There certainly appears to be a strong case for better water metering in WA.

Similarly in Sydney, a recent ABC report<sup>4</sup> of a burst water main in the inner-west suburb of Dulwich Hill revealed that Sydney Water maintains 21,000 km of water pipes and 25,000 km of wastewater pipes, but that more than 50% of the pipes are more than 70 years old, and that a significant proportion is reaching end-of-life. Severe leaks can occur without warning, and minor leaks go undetected or unrepaired for long periods.

## Smart water meters

Currently, there are three types of water meters in use for residential and many commercial water usage measurements: accumulation meters, pulse meters and interval meters. Accumulation meters simply total the continuous water consumption and therefore only give an accumulation figure when read — typically once every three months. Pulse meters record a timestamp each time a certain volume is consumed, while interval meters record consumption over regular fixed intervals (eg, 15 or 30 min).

To date, while all three types can be found, they are still only generally used to measure quarterly consumption, since the infrastructure necessary to take advantage of interval meters is not generally in place — these meters have, to date, only been used for billing purposes. Once the infrastructure is in place, however, interval meters will make it possible for water authorities to obtain detailed information on when customers are using water, allow analysis of network leak-

age, and make water network analysis and forecasting more possible.

Of course industry makes use of industrial flowmeters that can provide highly accurate flow rate and volume data continuously, and which are fully adaptable to a digital data network — but the cost of implementing them at every end node on a water network would be cost-prohibitive.

The rollout of smart metering capabilities, using network-capable interval meters, can be seen as a similar endeavour to the rollout of smart electricity metering and can take advantage of much of the same technology. Since the rollout of smart electricity metering is already in an advanced stage in many places, there may be the opportunity for water authorities to take advantage of shared infrastructure.

## Benefits of smart metering

Smart water metering will do more than allow for automated meter reading. It is expected to gather more granular water usage data (multiple daily readings), provide two-way communication between the meter and the water authority, and provide usage information for the customer via a low-power wireless network such as ZigBee — allowing the consumer to make more informed water usage choices.

From the perspective of the water authorities, there are a number of benefits to be gained from smart metering, backed up by suitable big data analytics. Significant benefits could be found in:

- **Improved urban water planning.** Having a better understanding of residential, commercial and industrial water consumption patterns will help urban water planners to better understand consumption trends.
- **Improved demand management.** The use of data analytics from smart metering could significantly improve decision-making in relation to water demand



management strategies, particularly during drought conditions or other events, and when planning system upgrades or maintenance.

- **Evidence-based forecasting.** Water consumption data will also allow water authorities to monitor the effect of scarcity pricing or water restrictions in near-real time.
- **Proactive leakage management.** Water utilities would be better able to intervene when infrastructure leakage events occur.
- **Targeted demand efficiency.** Monitoring end-user consumption provides the ability to quantify the effect of targeted water efficiency programs — such as efficiency rebate offers — or of changes to tariff systems and their effect on end-user behaviour.

From the end-consumer perspective, smart metering also offers benefits. According to Associate Professor Rodney Stewart of Griffith University<sup>5</sup>:

“The present customer water information and billing arrangements are vastly inadequate. A smart metering system provides the impetus for a new approach to knowledge transfer of water consumption data, directly to consumers via a range of communication platforms and in-house displays.”

In the same way it is envisaged for smart electricity metering, the use of smart water metering should lead to a more informed consumer, who can then make better choices about their water usage.

## Challenges

While deploying smart meters will provide data to support all these benefits, it is not sufficient in itself. Water utilities often do not have robust data acquisition and informatics algorithms and tools in place. By itself, big data without effective and efficient data mining methods and algorithms to achieve enhanced decision-making is not useful.

“City-wide smart metering implementations have the potential to stream gigabytes of time-stamped water use and other associated information (such as water temperature, pressure, quality) from pipe networks right down to the individual water use appliances (eg, washing machine) and fixtures (eg, tap),” said Professor Stewart. “Such datasets are powerful for a range of water planning, engineering and customer response decisions — but only if processed, refined and reported in a way that is more intuitive and informative than traditional approaches.”<sup>6</sup>

The main challenges therefore are:

- Smart meter rollout.
- Network infrastructure to support smart meters.
- Providing smart meter data to consumers at little or no additional cost (enhanced service).
- Developing the big data analytics that will be needed to take advantage of smart meter data.

While all these are solvable, they come down to two more basic issues: cost and data volume. Firstly, smart meters themselves

are more costly than interval meters, and a smart meter rollout will mean replacing meters well before their end-of-life.

Cost aside, smart meters are of little benefit without the critical cloud or edge-based software systems that make collected data useful — both for water authorities and consumers. Water utilities often do not have the in-house capabilities to build large-scale data acquisition and processing algorithms and tools. Big data alone without effective data mining methods tends to bog down water utility operations as they drown in data.

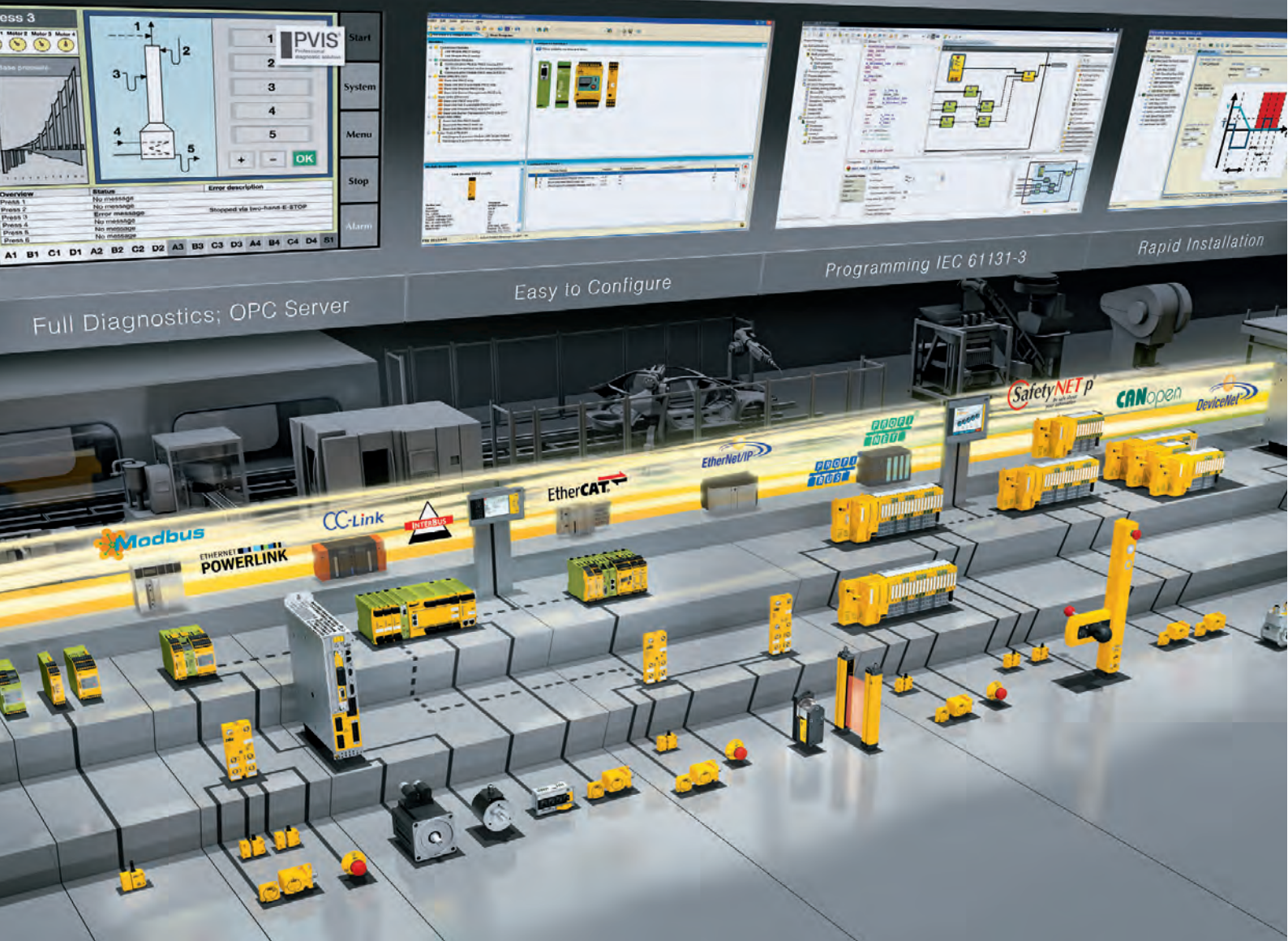
## Conclusion

While Australia is the driest populated continent on Earth, growing urban populations, economic growth and increased agricultural production are all expected to increase water usage further in the coming decades. Additional water sources may be needed, but better utilisation of current resources, and the reduction of water wastage, are goals that can be achieved with the application of modern data acquisition and data mining technologies.

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# SCOTT MOFFAT

MANAGING DIRECTOR, PILZ AUSTRALIA & NEW ZEALAND

## What are your customers demanding of you now more than five years ago?

Our customers are demanding more support, faster service and detailed product knowledge as they continue to operate in an environment that is focused on cost. They expect these answers instantly and availability of information to be 24/7. To satisfy these challenges we need to embrace the digital world, new information technology platforms and social media which allow instant interactivity with our business as well as options for our customers to be able to help themselves with their needs and requirements.

## What do you see as the single biggest challenge facing your customers in the year ahead?

With the amount of uncertainty surrounding a number of industries at the moment, most of them seem heavily focused on managing costs and ensuring existing operations are operating efficiently. Many companies are not predicting huge levels of capital spend and those that are, are really focused on maximising throughput of existing plant and assets.

I would like to think the lower Australian dollar should now help Australian-based manufacturing companies, especially those that export globally, as their exported products are cheaper in the local currencies. However, the lower currency also is a double-edged sword, typically increasing raw material and imported equipment costs.

## What emerging trends of developing technologies may influence or change the way customers operate in 2016?

Without doubt Industry 4.0 represents a fantastic opportunity to reinvigorate Australian manufacturing and allow us to compete on a global scale. Being a high-cost country we will never be competitive in labour-intensive manufacturing. It also gives us the opportunity to develop technologies that we can export across the globe to other Industry 4.0 enabled countries.

Industry 4.0 is best suited to manufacturing industries that manufacture products that are high value, high complexity or have large levels of customisation or bespoke engineering. There are two main areas that companies need to be considering: the most obvious is the capital investment decisions required to bring businesses into the Industry 4.0 world with regards to their manufacturing infrastructure. However, the more important investment is that of the future investment in people to ensure we have the prerequisite skills and knowledge required to implement the new Industry 4.0 technologies.

Germany is certainly at the forefront of Industry 4.0 and the German government is investing heavily in this area. As a result a large number of German-based companies are collaborating in this space and are pegging their futures on the advent and global

uptake of Industry 4.0. Pilz is no different, investing heavily in Industry 4.0 enabled technologies. It certainly sees this as the future of manufacturing and hence positioning itself as such. However, being only a niche provider of industrial automation products our products and services that relate to Industry 4.0 will be very specific.

## What do you see as the two biggest growth opportunities for your customers in 2016?

We are seeing a lot of our customers being very upbeat about the recently signed free trade agreements, especially with China. The new FTAs should open up markets for these companies and make Australian products more competitive not just in China, but in Korea and Japan where we have signed free trade agreements as well. There also seems to be good momentum with the Trans Pacific Partnership (TPP) and the European Free Trade Agreement (as recent talks between Germany and Australia have led to positive agreements between the two countries, facilitating further bilateral trade and collaboration initiatives).

I am also hoping the recently established government growth centres (of which there are five) stimulate opportunities for Australian businesses in an attempt to leverage our home-grown expertise in these areas globally. The centres which are focused on advanced manufacturing, food and agriculture, mining equipment and technology, medical devices, and oil and gas are still in their infancy and yet to get any real traction but should start delivering results in 2016.



*Scott Moffat is the Managing Director of both Pilz's subsidiaries in Australia and New Zealand. A senior executive with over 20 years' experience and extensive knowledge in the automation, safety, energy, mineral processing and petrochemical industries, Scott possesses a unique blend of engineering background and corporate finance coupled with strong business acumen and customer focus.*





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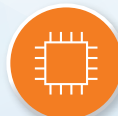
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# PETER DAVIS

REGIONAL DIRECTOR, AUSTRALIA AND NEW ZEALAND, ELEMENT14

## What do you see as the single biggest challenge facing your industry in the year ahead?

Market conditions continue to be uncertain both globally and locally, and customer demands continue to increase. Our local manufacturers compete with production in lower cost markets requiring us to offer even better local technical and customer services as well as locally stocked inventory for fast delivery.

The challenge will be to focus our efforts in the spaces where we can truly win and provide our customers with excellent service. To be the preferred electronics distributor, businesses need to provide a wide range of in-stock, value-for-money products with fast delivery, exemplary local customer support and value-added services that meet customer needs.

Too often in tight market conditions distributors try to be too many things to all customers and may end up diluting their service levels below customers' expectations.

## What do you see as the two or three biggest growth opportunities for your customers in 2016?

Adopting new electronic trends to stay at the forefront of technology innovation will be critical in 2016. Suppliers are now launching new products at a faster rate than I have seen in my 20-year career, and the ability to keep up with product launches gives customers a competitive advantage in the market.

The Internet of Things, industrial automation, robotics, wearable tech, renewable energy and 3D printing are all high-profile trends gaining momentum as we prepare for 2016. The new high growth segments present huge opportunities for expansion in the electronics industry and we plan to support our customers' needs in this space.

## What do you feel are the three most important things your customers are looking for in a supplier?

For me this question is simple and not unique to our industry. Customers look for an all-inclusive supplier who can provide a wide range of in-stock, value-for-money products with fast delivery, exemplary local customer support and value-added services. In today's competitive market it's easy for customers to shop around for the product or service they require.

Engineers in Australia have changed the way they purchase electronics immensely in the past decade. With project design and maintenance and repair time frames shrinking, there's greater pressure on all aspects of the supply chain to perform at their best. Fast delivery is also now a necessity for customers.

Customers want to order the quantity they need from small to higher volumes in a way that is most convenient for them. Whether by phone, web, email or e-procurement methods, engineers want easy and quick access to the broadest product portfolio.

2015 has also shown us that our customers have a need for pre-developed technologies. Any supplier who can help their customers tackle complex trends at lower costs and significantly shorten their time to market will have the competitive edge. Design engineers

are showing an increasing interest in purchasing pre-created design modules to bootstrap their projects, handling the basic technology set-up and allowing them to focus on innovation.

## What emerging trends or developing technologies may influence or change the way your industry sector will do business in 2016?

The migration to conducting more and more business online continues to accelerate. Digitisation of data is a critical requirement — our customers want continual improvements in terms of breadth of products, technical support and local inventory for fast delivery.

Providing a comprehensive database of technical information and a wide spectrum of design resources to support engineers through the entire design cycle is also essential. From design concept to research and specification, on to prototyping and testing and finally manufacturing, our customers are demanding all-round support for each step of the cycle.

## What are your customers demanding of you more today than five years ago, and how will you meet these requirements in 2016?

In an industry that is continually evolving, our customers are looking for distributors who can not only stock the products they need and deliver on time, but also provide top-rate support throughout their design cycle and continually improve their service offering and keep up with advancing technology.

Recently we have started on e-delivery and offer software which effectively spans from the 'free' software tools to the higher-end products, which includes technical support and content. In terms of technology, ECAD/MCAD will continue to grow significantly.

We have also invested in improving our mobile e-commerce, which has received positive initial feedback from our customers, and will be an area we continue to expand over the coming year.



*Pete joined the Premier Farnell group of companies in 1993 and in 1995 was appointed to lead Product Management, Marketing and Inventory teams throughout Europe and Asia. Over the next 10 years Pete held various senior management roles within Premier Farnell and in 2009 arrived in Sydney to lead the Australia and New Zealand business as Regional Director ANZ. Over the last seven years Pete has led the business through the 2010 rebranding to element14, producing new service offerings and partnerships with suppliers.*



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Panasonic has released a range of compact laser distance sensors with built-in amplifier. Available in three sensing distances of 30, 50 and 100 mm, the range is suited to applications that require precise measurements in the order of 1/100 mm, with a precision down to 10  $\mu$ m.

The HG-C series sensors incorporate an optical system with a built-in mirror, which allows for a more compact sensor and higher measurement accuracy compared with equivalent displacement sensors.

The sensor not only indicates measured values in mm, but also produces a 0-5 V analog voltage output so that various calculations and logging can be performed when the output is taken into a PLC or control system.

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### Titration laboratory analysis system

The Hach TitraLab AT1000 is a one-touch, automatic titration system with preset methods that can quickly deliver results. By providing automatic titrations that reduce testing complexity, the system is said to increase confidence in results and eliminate operator interpretation commonly associated with manual titration.

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Other features include easy-to-use product interfaces and compatibility with Hach IntelliCAL probes. The product series is suitable for municipal and industrial markets for testing pH, total acidity, free and total  $\text{SO}_2$ , moisture content (KF) and salt content.

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## \$50 million wind farm to power Canberra homes



*The Coonooer Bridge wind farm site.*

Wind energy company Windlab has begun construction on a \$50 million wind farm at Coonooer Bridge, 80 km north-west of Bendigo. All power generated on-site will supply Canberra as part of the ACT's Climate Change Action Plan, which requires the territory to source 90% of its electricity needs from renewable sources by 2020.

The 20 MW, six-turbine wind farm has been predominantly financed by Eurus Energy and ANZ Bank. Eurus will own 80% of the wind farm, while the balance will continue to be owned by Windlab (16.2%) and the local community (3.8%).

The project will see turbine manufacturer Vestas deploy its 3.3 MW turbine platform for the first time in Australia. The turbines will have a rotor diameter of 117 m and each will generate around 13,000 MWh of electricity per annum — enough to power 12,000 Canberra homes. Manufacturing company Keppel Prince Engineering will meanwhile build the state-of-the-art wind turbine towers.

Windlab CEO Roger Price said the Coonooer Bridge project will be the first of around 35 wind energy projects expected to be built in Australia by 2020 to achieve the revised Renewable Energy Target (RET).

"This major infrastructure investment program of more than \$10 billion will create thousands of jobs, replace aged, dirty coal generation and offset a further 15 million tonnes a year of carbon dioxide," he said.

"This is the first project awarded a 20-year feed-in tariff by the ACT Government for the supply of renewable energy to enter construction.

"It is also the first major-scale, commercially developed project in Australia to include direct community ownership, via an innovative equity consortium assembled by our company."

Eurus Energy President and CEO Hideyuki Inazumi said this is the company's second major Australian wind project and the



*Eurus Energy President and CEO Hideyuki Inazumi; ACT Minister for the Environment Simon Corbell; landowners Peter, David and Leigh Watts; and Windlab CEO Roger Price.*

first time Eurus has been involved in an Australian wind project from the start of construction.

"We are delighted to invest in this world-class wind project," he said. "This site has been selected for its extraordinary wind resource and strong community support. It provides an outstanding opportunity to help us achieve our growth ambitions for the Australian market."

Keppel Prince Engineering General Manager Steve Garner added that the project was a "lifeline" for the company's tower manufacturing division. He said it will enable Keppel Prince to recontract some of the staff members it was forced to make redundant in 2014, following the downturn in renewable energy investment resulting from the RET political standoff.

Construction is expected to be completed, with commercial operations underway, by March 2016.

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# EMISSIONS STANDARDS AND FREE TRADE — THE GOOD, THE BAD AND THE UGLY

The effectiveness of emissions monitoring has been brought into focus by two recent events: the VW emissions scandal and the Trans-Pacific Partnership (TPP).

**V**W is now suffering the consequences of greenwashing and is facing a total loss of reputation along with millions or even billions of dollars of fines and compensation payments.

You would have to have been hiding under a rock not to have heard the reports on how VW intentionally programmed its turbocharged direct injection (TDI) diesel engines to activate certain emissions controls only during laboratory emissions testing. The programming caused the vehicles' nitrogen oxide (NO<sub>x</sub>) output to meet US standards during regulatory testing. However, under real-world driving this 'defeat mechanism' was not activated and the engines produced up to 40 times higher NO<sub>x</sub> output. An estimated eleven million cars worldwide (including 91,000 in Australia) were involved. Compounding this, the engine was not only used in passenger and commercial VWs but also in Skodas, Audis, Porsches and SEATs.

While the scandal is new, VW's practice of greenwashing is not — engines with the defeat mechanism have been on the market since 2009. So for at least seven years, VW has been able to circumvent emissions regulations all over the world. So the question that arises from this is: is VW the only one — who else is flouting national and international emission regulations?

It appears that all software-controlled machinery can be prone to 'cheating'. One way to combat this could be to make the software source code accessible to the public. Dr Kamil Agi, CEO

of SensorComm Technologies, believes that IoT smart emissions monitoring could be part of a solution to deter any other 'VW-type' situations. His company has developed a wireless IoT-based automotive sensor that measures NO<sub>x</sub> emissions at extremely low levels (sub-ppm) with real-time measurement and cost-effective monitoring capabilities. The sensor can be tuned and manufactured for specific ranges enabling accurate NO<sub>x</sub> measurement that facilitates compliance with current and future LEV III, TIER III and EURO 6 regulatory standards.

"The world is rapidly becoming IoT based with smartphones, smart homes and smart cars. A natural extension of this will be IoT smart emissions monitoring. Had this technology already been adopted by industry and regulators, it would have made Volkswagen's effort to circumvent air pollution laws completely unnecessary," said Agi.

Others argue the Internet of Things is not the answer and could be subject to internal and/or external calibration attacks.

However, in Australia, better equipment may still not be the answer due to our inefficient vehicle emissions standards compared to the world standards. For example, Australian new cars are far less efficient than those in South Korea, the European Union, Japan and China. Even the United States outperforms our standards.



© Resulov/Dollar Photo Club

The Turnbull government announced in November that it is implementing a Ministerial Forum that will examine vehicle emissions standards in Australia and vehicle testing arrangements. The forum will be supported by a working group that will be asked to examine issues including the implementation of Euro 6, fuel quality standards, fuel efficiency measures (CO<sub>2</sub>) for light vehicles and emission testing arrangements. However, the group will not have its draft implementation plan report ready until March 2017.

The forum's chair, Minister Paul Fletcher, said: "Presently we do not have the same levels of smog pollution in Australia that other countries face. Nevertheless, we must work hard to keep our air clean and reduce emissions that contribute to climate change by ensuring our new vehicles meet world's best standards."

### Then enters the Trans-Pacific Partnership

The TPP trade accord, after many negotiations in relation to intellectual property rights provisions, reached agreement in October. The TPP is designed to lower trade barriers and set new rules for investment, labour rights and the environment for a total of 12 countries including: Australia, United States, Japan, Brunei, Chile, New Zealand, Singapore, Canada, Malaysia, Mexico, Peru and Vietnam.

The Environment Chapter of the TPP is reported to be weak, with no mention of climate change, and encouraging rather than enforcing any regulation. However, it may have both positive and negative effects. On the negative side, it could slow down the development of unilateral environmental regulations, but on the positive side, it could force countries that are lagging behind in terms of the environment to catch up.

Blair King from the Huffington Post in Canada has argued in one of his recent articles that historically on the negative side for trade agreements it was: "... like the wolf in the story Little Red Riding Hood, the protectionism is dressed up to look like it is intended to enhance environmental performance but under the covers hide regulations intended to harm foreign competitors, often without improving environmental performance in the least." He cites a recent example of the case with the Korean emissions standards which did nothing to improve emission characteristics of cars on Korean roads but did a wonderful job of stopping the export of North American autos to Korea.

Although the TPP won't eliminate all trade barriers, it was reported in October 2015 that Australia's free trade deal with Japan would mean the average price of a Japanese car will be between \$750 and \$1500 cheaper.

But ClimateWorks said: "There is actually an ongoing way for the government to ensure all Australian motorists purchasing new vehicles can save money and that is by introducing best practice vehicle emission standards within the next two years.

Most major economies in the world currently have vehicle emission standards in place but Australia has no standard, putting us in the company of Russia, Turkey, Iran and Brazil. As a result we are spending more on fuel than we should be.

Recent analysis by ClimateWorks, in conjunction with Rare Consulting, found the introduction of best practice standards would provide significant benefits for consumers while also enhancing Australia's fuel security and reducing our greenhouse gas emissions.

"The free trade deal with Japan only delivers a one-off savings that occurs upon the purchase of a Japanese car, whereas the introduction of standards could save Australian motorists \$850 to \$1200 every year on fuel costs," said ClimateWorks Australia Acting Head of Engagement Scott Ferraro.

But will the introduction of standards and regulations be enough? When you consider how easily and for how long a highly reputable German company like VW could dupe the world, are we are going to need more?

We need to be able to ensure that claims are authentic, reproducible and reflect real-world use. Essentially, we may need to measure emissions from raw data rather than interpretations based on the data.





# in the process

## Hoisting a gondola for building maintenance

How do you lift a 2.5-tonne gondola, at various speeds, up a vertical hoist, and stop it at the right position, within  $\pm 2$  mm accuracy?

This was the problem confronting Chris Probst, Omron's product specialist for AC drives. The 2.0 by 4.5 m steel-framed gondola needed to be able to transport two people, with paints and other equipment, to the higher reaches of building walls for maintenance. It was supported at either end by stacking towers, which could be extended by adding prefabricated modules to increase the hoist travel. Both towers incorporated a rack that meshed into its own pinion, driven by separate motors on the gondola. The pinions were selected so that their size, relative to the rack, provided appropriate gearing for both the speed of the movement and the torque required.



Timing was crucial, as both pinions needed to rotate together to ensure the gondola was kept horizontal at all times. This was achieved by powering both motors from the same drive — an Omron 3G3RX vector control unit.

The drive was rated at 18.5 kW and expressly oversized for the two 6 kW motors, to overcome losses and ensure sufficient current could be delivered.

As with any vertical lifting application, a mechanical holding brake was required to ensure the load did not drop when the motor stopped or was de-powered. Like a successful hill start in a manual automobile, the holding brake needed to be released at precisely the right moment. This is just after sufficient torque had been generated by the motor to hold the load and then start the movement.

Maximum torque is required at the start of an ascending movement, which works against gravity. Synchronous motors have great difficulty with this because they rely on rotational motion for mutual induction to generate torque. Higher specification drives can provide extra torque but require feedback through an additional encoder.

While the 3G3RX drive can also handle an external encoder, for closed-loop vector control, mounting one in this application would have been impractical. However, the drive supports two sensorless vector (SLV) control modes, which, as their name suggests, do not utilise external sensors. Standard SLV mode produces 200% of rated torque at 0.3 Hz output, while Zero-Hertz SLV mode produces 150% torque at standstill. This method uses pure flux current in the motor and has been patented. It was used here to enable zero speed load holding.

The lack of a feedback sensor for detecting actual rotation meant the drive needed to calculate optimum output via its built-in auto-tuning function. A series of motor parameters were entered into the drive, and auto-tuning was performed both with and without motor rotation.

Another challenge entirely was the descending movements. Gravity assists in these cases and the motor acts as a dynamo, regenerating energy back onto the drive's DC bus. The drive, however, must maintain the required speed regardless. Whenever movements are fast or load inertia high, as in this application, the drive must dissipate surplus energy as heat in an external resistor.

"I can't believe how smooth both the upward movements were in the 0 Hz domain and downward movements with regeneration," said Probst. "Whereas previous systems resulted in jerky starts and inaccurate stopping, the 3G3RX drives effortlessly handle low-speed applications requiring high torque, such as elevators, hoists and cranes."

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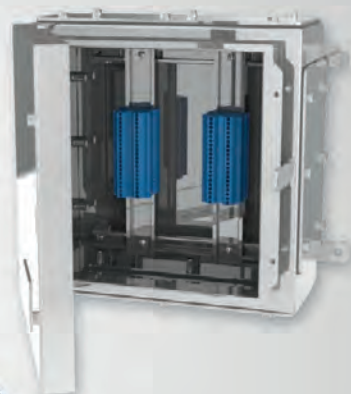


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# MANNY ROMERO

MANAGING DIRECTOR,

WESTERMO DATA COMMUNICATIONS AUSTRALIA PTY LTD

## What do you see as the single biggest challenge facing your industry in the year ahead?

For both end users and manufacturers the challenge is in adjusting to a new landscape. There are fewer greenfield and more brownfield projects, and smaller projects where ROI must be justified.

For individuals in the supply chain, this is a challenge for sure! There is a whole generation of sales and marketing people that has never experienced a downturn. I refer to them as the 'order-taker generation'.

While we all believe and talk about change and the potential opportunities it can bring, the reality is that few organisations are truly ready to embrace change or are in a position to react quickly enough to take advantage of opportunities that arise.

## What do you feel are the three most important things your customers are looking for in a supplier?

Firstly, customers are looking to us to add more value — and this can mean different thing to different people. They will appreciate suppliers that take the initiative to propose innovative options that may have not got a look in during the boom times. Customers now have time to consider alternatives, particularly if they provide significant and measurable returns.

Secondly, automation suppliers need to look at 'solutions' rather than 'products' even if at the end of the day you end up supplying a product. It's about showing your customer you are interested in the big picture. Taking a helicopter view can open up previously unseen opportunities for both parties. This requires salespeople to look outside of their comfort zone and perhaps partner with complementary organisations so as to meet a broader part of a user's needs.

Finally, pricing is also very important. Showing flexibility or elasticity when it comes to price is going to play a larger role as end users deal with tighter budgets and the lower Australian dollar making imported technology more expensive.

## What emerging trends or developing technologies may influence or change the way your industry sector will do business in 2016?

Cybersecurity! There is now a loud and clear demand from the CEO level and down to automation professionals as to what risk mitigation strategies are in place regarding DCS or SCADA systems, and particularly for those in high-risk public utilities.

Cybersecurity is, however, a complex area that impacts on many aspects of an organisation's work practices. It is not just an IT responsibility and there is no silver bullet. What is particularly challenging for automation professionals is that they have to go up another steep learning curve. Vendors need to adapt and ensure they are educated and able to help their customers, not confuse them further or send them down a costly road. As a vendor of communications equipment we certainly find this to be both an opportunity and a challenge.

## What are your customers demanding of you more today than five years ago, and how will you meet these requirements in 2016?

Customers are now pre-armed, much better educated as to your product or service. By the time you are at a meeting there is a very different dynamic than only a few years ago. Often they may have more knowledge of your competitor than you do. Customers want us to be respectful of their most precious asset — their time! if you have something innovative or new — or something that will add real value and you can prove it — that's great. But if it's a 'me too' product or concept that is almost identical to what they are already using (or that they can source equivalently from five other vendors) you will struggle.

## The uptake of emerging technologies such as cloud computing and Industry 4.0 has been slow. What are your thoughts on this?

Industry 4.0 is often lumped together as being synonymous with the other increasingly popular concept: the Industrial Internet of Things. Industrial IoT is itself an offshoot of the much-hyped consumer IoT. Others regard the two as competing concepts — in reality they are complementary.

The Industrial IoT is a wider landscape and the ecosystem is a much broader church, with players ranging from established industry behemoths to start-ups, covering both software and hardware. GE, Intel and Cisco for example are founding members of the Industrial Internet Consortium, one of the main industry bodies formed around this new paradigm.

Why the slow uptake? Primarily the lack of a killer app — for example, the internet didn't take off until the WWW came along. Lack of standardisation is another factor and related to the previous point. Interoperability is being addressed via API development. Concerns about cybersecurity are another major issue to be addressed.



*Manny Romero is Managing Director at Westermo Data Communications Australia Pty Ltd, responsible for the ANZ region. After completing his Diploma in Electronics through a cadetship with OTC, his 30-year career has been in focused on the industrial arena: process automation, oil and gas, and industrial communications. He is Sydney based, with an international perspective gained from time spent in the UK, Italy and the USA. For the last decade he has been building up a successful business, pioneering the area of Industrial Ethernet.*



## Fire protection challenge for Melbourne shopping centre

Chadstone Shopping Centre in Melbourne, one of the largest shopping centres in the Southern Hemisphere, recently underwent a \$600m expansion, including a four-level glass-roofed atrium that, while an architectural delight, posed a fire detection challenge and therefore a public safety risk.

The shopping complex draws over 20 million visitors annually and is a retail home for luxury brands such as Louis Vuitton, Gucci, Burberry and Tiffany & Co. Its expansion also included over 40 new retailers, a 10-storey office building and a hotel.

Part of the extension included a complete redevelopment of the northern part of the complex that houses the atrium. The high ceiling of the northern expansion, as well as the unusual curvature of the atrium ended up presenting a fire detection challenge. Mounting locations for fire detectors were also limited and predetermined to comply with management standards.

To solve this, the centre opted for the VESDA-E VEU early detection fire system from Xtralis.

The system was chosen because of its very early and reliable detection, and its extended pipe lengths to accommodate the height of the ceiling. The fact that the product also blended in with the architecture of the atrium was also a positive factor.

Xtralis said the warning system is flexible enough to accommodate the longer pipe runs and provides detection from the predetermined



Image courtesy of Xtralis

mounting locations. The extended pipe networks also reduced the total number of detectors required — only four were needed to protect the entire northern expansion, an area totalling 2160 m<sup>2</sup>.

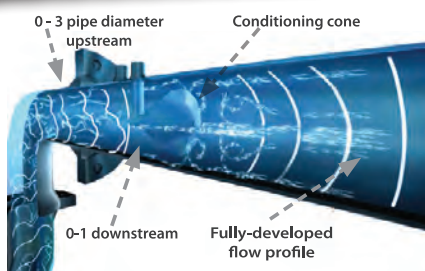
The product's centralised detector architecture allows for efficient service and maintenance, while the detectors can also be monitored and managed remotely with mobile devices and an iVESDA application, giving facilities management constant access to each detector.

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## Rugged fanless PC

Neosys Technology's fanless embedded computer, the Nuvo-5000 series, features the Intel 6th Generation Core i7/i5/i3 processor. It supports LGA1151 socket-type CPUs to offer greater flexibility for CPU selection.

In addition to general I/O interfaces, such as up to six Gigabit Ethernet ports, eight USB ports and VGA/DVI/DP triple display outputs, the product integrates Neosys' expansion cassette for easy accommodation of an off-the-shelf PCI/PCIe card. It also incorporates the company's MezIO interface to deliver incomparable versatility for a range of applications.



The MezIO interface provides computer signals, power rails and control signals via a high-speed connector and is mechanically reliable. By installing either a standard or customised MezIO module, the Nuvo-5000 turns from a general embedded controller into an application platform with specific I/O functions.

Benefited by Neosys' fanless architecture, the PC presents thermal reliability, even with an LGA-type CPU. It supports wide-temperature operating from -25°C (cold boot) to +70°C (100% loading).

The series has been designed for: machine vision platforms with multiple GigE/PoE ports; in-vehicle fanless PCs; surveillance/video analytics computer systems; wide-temperature and rugged applications; and ultracompact fanless controllers.

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## Wireless Wi-Fi data logger

The Series DW-WIFI Wireless Wi-Fi Data Logger, from Dwyer Instruments, measures and records up to 1,000,000 temperature or humidity readings and shares the data with any PC or server on a Wi-Fi network. Software settings allow the user to set the high and low alarms, the sampling rate and the temperature scale.

If the Wi-Fi connection is lost, the sensor will continue to store any records until it can regain communication with the network. Stored data can be viewed at any time after the communications have been restored.

Each data logger includes a wall bracket that allows the data logger to be mounted to any wall or flat surface. Configuration and logging software is available for download from Dwyer's website.

Applications include environment monitoring, weather monitoring and building or site monitoring.

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## A local blueprint fuelling global transport

In a report released by the Air Transport Action Group (ATAG) last year, 37.4 million flights were scheduled in 2014 — translating to more than 100,000 flights per day. Add to that other passenger and cargo transport, including sea, rail and military applications, and the mind staggers to appreciate the amount of fuel required daily to power such activity globally.

A market leader in the refuelling equipment and service industry, Refuel International has over 40 years of experience playing a vital role in ensuring these industries are fuelled to function.

as an opportunity to introduce a new-to-market model. It soon became clear though that a better human interface solution was needed. After months of engineering and innovation the new 'OCTO' model was available, which placed a large focus on easy maintenance and simplified installation for equipment operators.

"One of the leading benefits of the new OCTO system is that it can help operators distinguish between user error and a genuine system fault, which reduces maintenance downtime and improves safety," said Wright.

NHP is renowned in the electrical industry for its local

manufacturing capability, reflecting the market's increasing demand for 'value-add' products. However, understanding what value means to different customers isn't as simple as it sounds. According to Justin Farrell, NHP's specialist sales manager, this is where being local makes all the difference.

"No matter how good a product may be, it is nothing without the expert knowledge and understanding of the environment in which it will operate," said Farrell.

"As a 100% Australian-owned company, our customers recognise that when we say we understand their needs, we really mean it. NHP's philosophy of 'people doing business with people' has always rung true, and by having an extensive local presence we're able to respond to our customers' needs."

Utilising its local manufacturing, engineering and design teams, NHP provided a 'plug-and-play' style

solution offering significant labour savings to Refuel International, as well as the end user. NHP's ability to also custom manufacture, in conjunction with its hazardous area and automation supply partners, gave this project the flexibility to implement system modifications with minimal lead time.

"Combining our shared expertise, innovation and value of high-quality products, NHP helped us successfully develop a solution that not only satisfied this client, but formed a 'blueprint' for its manufacture moving forward," added Wright.

**NHP Electrical Engineering Products Pty Ltd**  
[www.nhp.com.au](http://www.nhp.com.au)



When in late 2014 it was tasked with manufacturing five hydrant dispensers for an international airport in Vietnam, Refuel International said electrical engineering specialist NHP was an obvious choice for handling the stringent safety and hazardous area requirements specified for the project, as well as other customised design elements.

"Having had experience with NHP in the past and being aware of what they can achieve through their Ex solution offering was a big plus as we deal with hazardous areas as a matter of course," said Michael Wright, Refuel International's engineering manager.

With over 1000 refuelling vehicles already in operation globally, Refuel International saw this project

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# DAVID CROSSLEY

DIRECTOR OF THE ENVIRONMENTAL AND INDUSTRIAL PROCESS BUSINESS,  
THERMO FISHER SCIENTIFIC AUSTRALIA AND NEW ZEALAND

## What do you feel are the three most important things your customers are looking for in a supplier?

First and foremost, they are looking for quality products and brands they trust to meet their needs. Australia is flooded with choice of options in almost every product category; however, there are a lot of low-quality unreliable products on the market that are not well supported. Our customers are typically measuring key processes or environmental parameters and must have confidence in the reliability of the equipment they are using. Cost to their business and reputation due to equipment failure can be devastating.

Secondly, our customers are looking for suppliers who can provide solutions to their problems. Most of our customers are starved of resource and are trying to do more with less. They have been through a number of downsizing exercises; however, the people who are left are still required to deliver the results and find ongoing efficiencies and improvements within their business. This means they want to partner with suppliers who can provide a broad range of products, pull together solutions, install and commission those solutions and then take care of them over their full lifecycle. They also want to minimise risk in both supply and ongoing support, by partnering with suppliers who they know will be around for the long term.

Finally, they want value, which does not necessarily mean cheapest. They want to know that the complete package of quality product, solution expertise and ongoing after-sales support represents true value. This is what differentiates Thermo Fisher Scientific from most suppliers in this space. We have a mix of self-manufactured and third-party products that enable us to offer the best solution to meet our customers' unique needs, backed by a global company with national coverage.

## What are your customers demanding of you more today than five years ago, and how will you meet these requirements in 2016?

Our customers are demanding increased speed in response to their needs. Whether that's a quotation, supply of goods, information or on-site service, customers want an almost instant response. This requirement is reflected strongly in our customer surveys across all segments.

Driven by this demand and our mission to enable our customers to make the world healthier, cleaner and safer, we are investing in growing our strong national team located in every capital city in Australia. Further to this we are implementing market-leading customer relationship management and service management tools. This investment will allow us to be proactive in our approach to customer service at all points in the value chain and ensure we can respond to our customers' future demands.

## What external impacts (eg, the weakening Australian dollar, fluctuations in Chinese/overseas trade, etc) do you predict will have the most impact on your business in 2016?

I think 2016 will be a mixed year with some segments experiencing growth, while others will remain in decline.

Our diverse product portfolio provides us with the agility to react to these industry and economics changes and enables us to focus on those growth markets by drawing on existing customer relationships from within our diverse company.

We recognise the rate of change in technology being used by, and applied in, our customer processes. Thermo Fisher Scientific is a company that was founded on innovation, and we invest approximately \$700 million annually in R&D to give our customers advanced tools to meet their goals. By combining our internal capabilities with those of our supplier partners, we are well positioned to understand and position for these changes.

We see that although the weakening dollar will have some impact on increasing prices of imported equipment, as a local manufacturer of dataTaker and OdaLog from our Brendale facility, it will actually make some of our products more competitive against imports, leading to growth.

Our strength in the environmental space will also continue to grow. As companies continue to expand their green initiatives driven by legislation, our product will be in greater demand. We have deep expertise in land remediation and environmental monitoring. With the reduction of mining investment, areas of this business have declined; however, we expect to see continued strong growth in 2016 through infrastructure and building projects.



*David Crossley is the Director of the Environmental and Industrial Process Business for Thermo Fisher Scientific Australia and New Zealand. With a degree in engineering and a Masters of Business Administration from Monash University, David has more than 24 years' experience in serving industrial customers both in Australia and in the UK.*





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Brady Australia

# WILLIAM S. PIKE

MANAGING DIRECTOR, BRADY AUSTRALIA

## What do you see as the single biggest challenge facing your industry in the year ahead?

The single biggest challenge facing our industry over the next year will be the ability of suppliers to adapt to the rapidly changing buying patterns of our customers. As customers move to a more lean methodology, they are increasingly looking to suppliers to respond more rapidly to their demands. For that reason, we have spent considerable resources upgrading our mobile web applications to allow real-time order shopping and placement.

Our mobile-optimised websites allow customers to search for products no matter where they are and to place orders in the knowledge that in most cases they will be picked, packed and shipped same day (for all stocked items). The scale and security of dealing with a large company like Brady gives customers confidence that we can respond in this manner. Companies that haven't invested in technology like we have will fall by the wayside.

## What do you see as the two or three biggest growth opportunities for your customers in 2016?

Many of our customers should be able to participate in the tremendous growth opportunities in the construction and infrastructure markets, particularly in NSW. Obviously there will be an increasing requirement to comply with all OH&S obligations, particularly around people identification and safety. That is where Brady can assist with our market-leading identification solutions designed to put customers at the forefront of industry-leading ideas.

Fortunately a good number of our customers work in the health and aged care sectors, and these sectors continue to grow and prosper. Increasing scrutiny on people identification and security means that many customers will rely on suppliers like Brady to provide them with the competitive edge they need to stay in the game. Our industry-leading certification process enables us to give first-class service and advice. No customer can afford to risk damage to their reputation by using substandard product. At Brady you can rely on us to ensure all statutory requirements are met.

## What do you feel are the three most important things your customers are looking for in a supplier?

Our customers are looking for a totally reliable established supplier; one with the history, knowledge and quality that they need. With Brady, customers know we are the compliance experts; a reputation built over the past 100 years. We have been around longer than most and we will be here for the long term. It is this security that customers are also looking for today; they can confidently expect that we will be here to support them as they grow their business. Security is a key feature of the Brady model, backed up by a quality product developed by a global expert — Brady Corp. Our quality standards set us apart from

our competitors, and customers often tell us this is a key factor in their decision-making process. In short, reliability, quality and security are the three major features that our customers continually look for in a supplier.

## What systems or technologies have been implemented, or are you planning to implement, to improve the energy efficiency of your business?

Brady Australia has invested a considerable amount into the development of mobile-friendly web-based catalogue solutions designed to make sourcing decisions fast, easy and stress-free. Browsing through our various websites will assure even the most fastidious buyer that we have one of the most user-friendly platforms available to the market here in Australia. Every day we are reviewing our offering and looking for ways to tweak and improve our offerings. The latest techniques in site design and operation are employed by tech-savvy Brady staff — both here and through our Global network. One of the benefits here at Brady is that we operate across the globe and we have the ability to learn from a wide variety of our businesses in the USA, Europe and across Asia.

## What are your customers demanding of you more today than five years ago, and how will you meet these requirements in 2016?

Customers today are demanding to know that their suppliers are experts in their field. Brady Corp is recognised across the globe as being the expert in personal identification and safety compliance. As such we are increasingly relied upon to provide the best in advice and supply of totally compliant product to the market. Very few companies offer anywhere near the range of quality of product supplied by us to the Australian market.



*Bill began his career as a graduate trainee with International Harvester, a large US multinational serving the truck and agricultural sectors of the Australian market. Bill took on general management roles in parts, procurement, sales planning and distribution and export sales with Toyota, which gave him a learning platform to transition to executive vice president sales and marketing*

*at Mitsubishi Motors Australia. After resurrecting Mitsubishi's market share position, Bill was headhunted to the position of president and CEO of Komatsu Australia. A successful business transformation followed, turning a struggling equipment manufacturer/distributor into the leading Komatsu Distributor in the world. Now at Brady Australia, Bill has similar ambitions for this business.*



## Underground water mining

Could California happen here? Yes, acute water shortages are not the reserve of historically arid regions alone.

Long dependent on the snow melt from its mountains, California's heavily populated coastal belt, along with its thirsty yet productive farms and orchards in the hinterland, is now desiccated. However cruelly the forces of nature have combined, both snowfall and rain have not fallen in typical quantities for years. California stands on the brink.

Both at an individual level and a societal level, water is essential to life. Inextricably entwined in our own basic need for water lies society's no less important quest for growth and opportunity. Development, job creation, access to amenities, shops, health care, education — the list is endless — all require infrastructure. Reduced to its most basic input, infrastructure cannot occur without water. Simply put, a lack of water just cannot support any new development.

Even in the wet parts of Australia, water is very unevenly spread throughout the year. The desert sections — amongst the most arid in the world — speak for themselves. The vagaries that struck California could, with equal consequence, blight our own country. All this dictates prudent water management. Yet, especially in remote parts, we often find a tendency to place far more importance on building new, large, shiny and often expensive water treatment plants instead of ensuring that little or no water is lost in transport and distribution.

Imagine the reaction of the head of a large corporation if told that 20% — maybe even 30 or 40% — of the company's finished goods were regularly disappearing between the production line and the point of sale? Would the company build an even larger plant to meet demand? Especially when the board has to base its decision on data that is so unreliable that it cannot even pinpoint how much was lost, let alone precisely where it was lost.

Sadly, and all too frequently, this is the situation with regard to water. In the mining-intensive areas of Northern Australia, significant savings can be achieved, and more precious water can be made available, if leak detection and repairs to the water supply reticulation network are undertaken. This is usually the most cost-effective, simplest and quickest way to provide sufficient water — not just in dry regions, but wherever investment has been made in water reticulation systems.

There are modern water management tools available — including online network monitoring systems — capable of identifying and detecting insidious leakage. WaterGroup believes that this type of "underground water mining" has to become an integral part of any council's mindset.

Although Australia is the driest inhabited continent, the majority of our population lives within the coastal belt — an area of abundant rainfall. Despite this, water remains a precious commodity: WaterGroup is committed to helping harness this valuable resource.

Aimed at encouraging and supporting policy for greater water efficiency in the built environment, WaterGroup works closely with both standards and regulatory authorities, as well as government.



*\*Guenter Hauber-Davidson is Managing Director of WaterGroup Pty Ltd. Together with Enware Australia and Tankworks, WaterGroup evolved in response to the ever-increasing need to save water. With almost 30 years' experience in environmental consulting, construction, delivery, operation and monitoring, Guenter is passionate about using water more efficiently. For the past 10 years he has worked on designing, managing and delivering some of Australia's largest water-savings programs.*

*More recently, his research revealed a huge opportunity for cost-effective water savings within water supply networks. As a result, he has now immersed himself in water loss and non-revenue water management, a topic for which he is extremely passionate. Just because it is out of sight, it should not be out of mind.*



## Smart camera sensor

The Wenglor weQube smart camera is based on Wenglor's MultiCore technology and combines image processing with 1D/2D code scanning.

The compact, high-performance smart camera offers all the features of an advanced image processing sensor that is suitable for counting objects, reading barcodes and 2D codes, presence checking and dimensional accuracy checking.

The weQube combines all the features and components required for smooth image processing in its compact housing, including illumination and communication interfaces that are often external components on other cameras.

Wenglor MultiCore technology combines software with five high-performance processors for rapid image processing without any loss of time. It offers two different image chip versions of colour and monochrome, plus a teach function for easy remote maintenance and checking of the system, while the 3D tracking and autofocus provide optimal object detection. The camera has a graphic display and 12 red, white or infrared LEDs in the housing to provide illumination and prevent loss of brightness.

The smart camera allows for versatile and flexible networking with numerous communication interfaces. These include ethernet, Profinet, RS-232 and an FTP server. It offers a replaceable screening grid and integrated polarisation filter, making it suitable for special applications in rough environments. It offers six inputs and outputs, an encoder output, a removable micro SD card, an intuitive set-up wizard and a compact IP67 housing.

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Multiple units can also be used together to provide energy savings, reduce mechanical redundancy and provide continuity of operation when compared with one large LSM aerator.

Recent sales include larger 5.5kW models and custom-built 11kW versions, utilising existing infrastructure.

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## ANDZAC WATER TREATMENT



# ANDREW NICOL

MANAGING DIRECTOR, ANDZAC WATER TREATMENT

## What do you see as the single biggest challenge facing your industry in the year ahead?

We are still coming across tremendous industrial inertia, with utilities and private sector companies shying away from new emerging technologies and innovative products. Our ongoing challenge is getting customers to embrace change and actually adopt new technologies. There appears to be an entrenched belief in the 'it's always worked this way forever, so why change the way we do things?' attitude.

We believe there is great scope in achieving huge financial savings for our customers once they adopt change as the new way of doing business.

## What do you feel are the three most important things your customers are looking for in a supplier?

Through talking to our customers and slowly building our working relationships, we have found, not surprisingly, that their requirements from us as suppliers are no different to what we all need in our 'real lives'.

I think most important is having an honest reputation as a company. There is a real need to be able to work together to achieve the outcomes which work for both the customer and us as suppliers. Having the ability to be flexible and adaptable to customer needs is vital. We are very much the mouse as opposed to the elephant as a company, so we can be pretty much whatever our customers need us to be.

Another point is, when delivering proposals, it is vital to be clear and transparent.

Finally, I believe our customers want an answer to their problem, whatever that might be.

## What emerging trends or developing technologies may influence or change the way your industry sector will do business in 2016?

With the ongoing requirement to reduce OPEX and CAPEX, I think that with the development of much improved battery storage and solar efficiencies, we will see an increase in the adoption of solar technology.

Our company has developed our low power consuming aerators to be able to run off-grid. This will be a boon for customers in remote areas and will be a great aid in reducing carbon emissions.

## What external impacts do you predict will have the most impact on your business in 2016?

We believe a low Australian dollar will be a huge advantage in allowing us to become an exporter in the coming years. We

have previously had interest from overseas markets but have been unable to take advantage of such opportunities due to our strong dollar. Having some stability in foreign exchange rates should be great for all Australian businesses looking to export.

Also, the signing of new free trade agreements with an ever-increasing range of countries looking to do business with Australian companies will hopefully give a leg up to our struggling manufacturing industries.

## What are your customers demanding of you more today than five years ago, and how will you meet these requirements in 2016?

Customers are searching not only for improved efficiencies in all operational areas but are also looking for greater levels of service and accountability.

It's no longer a case of just having sales targets as the main goal alone. Offering increased service levels is a little like a quasi-partnering arrangement.

It is vital for our customers to know we will be around for the whole journey and are keen to develop a long-term business relationship. Trust, commitment and confidence in the abilities of all parties is ultimately what we are all striving for.



*The idea behind the Andzac Aerator was first born after visiting a water treatment plant in 2009 and noticing a broken-down, low-speed mechanical aerator lying out of action by the side of the pond. Upon learning how power-hungry and maintenance-dependent these machines were, and drawing on his experience as a plumber for over 30 years, Andrew Nicol immediately set about designing an aerator that was far more economical, far more environmentally friendly and just as effective as other aerators on the market.*





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# GARETH O'REILLY

ZONE PRESIDENT, SCHNEIDER ELECTRIC, AUSTRALIA, NEW ZEALAND

## What do you see as the two or three biggest growth opportunities for your customers in 2016?

Addressing productivity through innovation.

Australia is entering a new era where productivity will be a challenge — the government's new reform summit highlights that now more than ever it is imperative that we bring innovation to the forefront of industry. Increasing economic productivity is a key element of government policy to offset some of the challenges faced by the Australian economy going forward — energy can and should form a key element of productivity improvement.

We are optimistic that we can help our customers increase their productivity through innovation. By applying smart technologies like operational intelligence, we are confident we can deliver genuine benefits to industries, cities and homes.

## What do you feel are the three most important things your customers are looking for in a supplier?

Innovation, customer centricity and digitisation.

Our customers are constantly looking for competitive advantage, efficiency gains and productivity advantages through innovation. Our ability to work with our customers to solve their business challenges with new and innovative thinking is at the heart of what we strive to achieve.

Being a customer-centric organisation is now something all customers expect. We are now in the age of the customer. It's a culture and it needs to expand to every facet of an organisation; no longer do your customers only interact with your sales team and call centres.

Thinking digital across our service and product offers and our total customer experience journey is increasingly important. Customers are looking for real solutions that are simple and intuitive to use.

## What emerging trends or developing technologies may influence or change the way your industry sector will do business in 2016?

Urbanisation, industrialisation and digitisation.

The growth of our cities and technology is driving huge changes in the way energy is being created, distributed and consumed. However, this change is accelerating rapidly, the impact of which will manifest in areas such as:

- cybersecurity threats and infrastructure stability;
- renewable energy and the development of safe battery storage technology, as well as energy distribution;
- changes to the built environment and safe and reliable localised energy solutions; and
- smart technology solutions to managing infrastructure to improve energy productivity.

The opportunity for Australia is to get ahead of these megatrends.

## What are your customers demanding of you more today than five years ago, and how will you meet these requirements in 2016?

Our customers are looking to work with organisations that can offer a value-added, collaborative business partnership. It's no longer just about how great your offer or service is; it's about how can we work together to tackle challenges that are external to both of us. That may mean collaborating in areas such as logistics and supply chain or marketing and social media. It's all the areas outside of a transaction where a true business partnership is built.

## There are now a number of new and emerging technologies in the market to assist with overall business efficiencies, such as cloud computing and Industry 4.0; however, the uptake is slow. What are your thoughts as to the reasons behind this?

There's a huge opportunity for Australia with regards to the take-up and development of new technologies, and where there's a competitive gain with an end-user outcome, the market will move, and fast!

Productivity challenges for organisations in Australia will certainly drive the need to shift the speed of emerging technology uptake in Australia. In many of our key sectors we are already helping our customers achieve the benefits of opportunities, such as asset utilisation, increased employee productivity, reduced waste and improved process efficiency. The market conditions will drive the demand.



*Gareth O'Reilly is the Zone President for Schneider Electric, Australia & New Zealand. Prior to joining Schneider Electric, Gareth enjoyed roles with Alcatel, Invensys and Power-One in the telecommunications, renewable energy and energy efficiency sectors. He has lived in Singapore, Hong Kong and Switzerland with roles in operations, marketing, sales and general management. Gareth studied electrical engineering at University College Dublin and latterly business administration at Macquarie Graduate School of Management.*



# THE WORLD'S FIRST ANTI-PERSPIRANT GLOVES



## KEEPING HOT HANDS COOL MAKING SWEATY HANDS DRY

**ATG®'s technology is being continuously developed by a core team that matches market research and marketing analysis with the latest technological developments. This forms the foundation upon which we continually improve the customer experience through constant innovation.**

One recurring demand arises in each and every conversation we have, comfort. Today 97 per cent of glove wearers claim that comfort is their number one priority when choosing gloves with the key challenge being **sweaty hands**. Why?

The skin, the largest organ of our body, is used to regulate its temperature through perspiration (thermoregulation). On average, our skin contains 155 sweat glands per square centimeter; however, **our hands have 83% more sweat glands per cm<sup>2</sup> than the rest of our body**. The back of our hands contains 200 sweat glands per cm<sup>2</sup> whilst on the palms of our hands there are 370 per cm<sup>2</sup>. Combine this with a gloved hand and it explains why sweaty hands remains an age-old problem.

**Time for change? We at ATG® think so.**

# INSPIRED TECHNOLOGY

Inspired to find a solution, led us to develop **AD-APT®**, the world's first **All Day Anti-Perspirant Technology** that we've **integrated into the iconic MaxiFlex®**. The patented AIRtech® technology platform that provides 360° breathability works in partnership with the **AD-APT®** technology platform to keep your hand cool, dry and productive even in tough conditions.

## 3 INTELLIGENT STEPS



1

### REGULATE FOR A COOLER GLOVE EXPERIENCE

Microcapsules integrated into the glove liner are activated when the skin temperature rises, releasing a natural anti-perspirant that regulates perspiration to keep hands dry and make them cooler.



2

### VENTILATE FOR A FRESHER GLOVE EXPERIENCE

The AIRtech® technology used in the construction of the MaxiFlex® coating has a network of structured tunnels guaranteeing optimal air quality and temperature within the glove.



3

### CIRCULATE FOR A PRODUCTIVE GLOVE EXPERIENCE

As your hands work they move forcing air out of the close fitting MaxiFlex® glove through the patented structured tunnels within the AIRtech® coating. This enables what we call 360° breathability to evacuate moisture to guarantee optimal air quality and temperature within which is now further enhanced through the inclusion of our new **All Day Anti-Perspirant Technology, AD-APT®**.

## HOW IT WORKS?

Microencapsulation is the process of surrounding or enveloping one substance within another substance on a very small scale, yielding capsules ranging from less than one micron to several hundred microns in size. Magnified many times the microcapsule used to transport the **AD-APT®** technology looks like a golf ball with every dimple on the ball being a heat-sensitive membrane. As the hand warms up, these membranes within the dimples are triggered allowing active cooling agents (essential oils) used within the **AD-APT®** technology to be released on your hands.

The active ingredients within our **AD-APT®** technology dissolve in the sweat or moisture on the hand surface. The dissolved substance forms a gel, which creates a small temporary 'plug' near the top of the sweat gland, significantly reducing the amount of sweat secreted to the skin surface of the hand. Whilst the **AD-APT®** technology cools the hand and reduces sweating it does not impact on the natural ability of the body to control its temperature i.e. thermoregulation.

For further information, please contact Safety Mate at 1300 267 336 or [info@safetymate.com.au](mailto:info@safetymate.com.au) or visit [www.safetymate.com.au](http://www.safetymate.com.au)



## Fly on friend: repelling birds maintains safety on offshore installations

Offshore installations provide birds with a perfect landing spot — but their presence is a globally recognised problem because, if left undisturbed, guano build-up can reduce the safety of helidecks.

According to a report by the UK Civil Aviation Authority, 'Bird guano accumulations and their effect on offshore helicopter operations', all UK operators experience problems with birds on offshore sites with cases reporting as much as 90% coverage of an installation by guano. The annual cost of cleaning a helideck of guano can amount to 100,000 euros per platform.

Bird Control Group, CHC Helicopter and Total E&P, however, have worked together to develop and install an automated laser and sound system to repel birds on offshore installations in an animal-friendly manner. The Aerolaser Helipad is an automated device that combines laser and sound to keep birds at distance from helidecks and can be configured to the specific conditions of an installation.

Total E&P said it is the first oil company in the world to implement the bird-repelling system. The technology used for the device also has the support of the World Wildlife Fund.

Total E&P Nederland chose to partner with Bird Control Group due to the group's broad experience in bird control across the aviation sector and at industrial sites. The company is also looking at installing the bird-scaring system at three other locations.

"We are always looking to improve safety across our operations. We are proud to be the first company to install the device and we are confident it will help to improve health and safety on our platforms," said Yvonne Hoddenbach, manager of PR and communications at Total E&P Nederland.

According to CHC Helicopter, the UK CAP437 and ICAO regulations mandate a clear visibility of navigation marks and lights.

"Guano can obscure these markings," said Jack van Sligter, helideck inspector at CHC Helicopter. "We want to provide our crew and passengers with safe working conditions, and this includes a safe landing offshore," said Sligter.

"Pilots are glad to see actions are being taken to improve the situation."

Bird Control Group  
birdcontrolgroup.com



Images courtesy of Bird Control Group.



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### Modular wireless push-buttons

Steute has released a range of push-button devices that are completely modular in design and provide more possibilities in interfacing through no need for wires or batteries.

A range of switching inserts and differently coloured types of push-button caps with inscriptions can all be combined with various push-buttons, key switches and rocker switches. Users can select housing versions for one, two or three switches and, if more than three control elements are required, larger housings are also available.

Switching signals are transmitted at 915 MHz via Steute's sWave technology. This technology guarantees high-transmission reliability and ranges of up to 40 m indoors and 450 m outdoors. Power is supplied by an energy generator — which has been improved and reduced in size compared to previous models — that transforms the kinetic energy released on actuating the plunger into electrical energy. This means that the user is able to enjoy all the advantages of wireless technology without having to worry about battery charge or operational status.

**NHP Electrical Engineering Products Pty Ltd**

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### Remote area lighting system

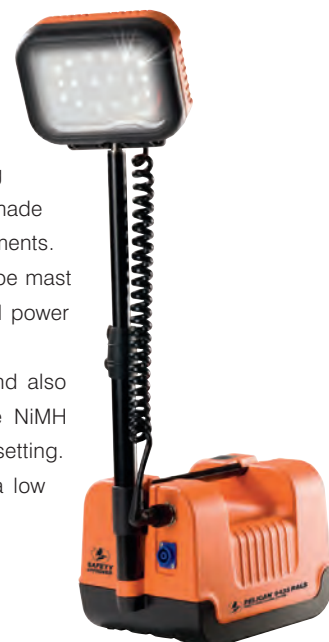
The Pelican 9435 RALS from Pelican Products Australia is a compact and portable remote area lighting system that is compliant to safety approvals from IECEx, ETL (Class I, Division 2) and ATEX. It is made from a durable, water-resistant, polymer construction suitable for use in volatile hazardous environments.

The product, designed in a safety orange colour, weighs 7.98 kg and features a swivelling telescope mast that extends to nearly 82 cm and a 360° articulated light array. It also contains 18 LEDs and a dual power mode that radiates 1500 lm in high and 750 lm in low.

The lighting system has a wide area handle for easy grip and transport with a gloved hand, and also comes equipped with a silicone rubber waterproof switch. It is powered by a maintenance-free NiMH rechargeable battery, offering up to 5 h of peak brightness and 10 h of even light in the low setting. The lighting system takes 8 h to be completely charged when fully expended and also includes a low battery warning indicator.

**Pelican Products Australia Pty Ltd**

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## Bandsaw cuts down injury risks in abattoirs

Bandsaw units incorporating safety technology are providing peace of mind for employees at Southern Meats, based in Goulburn in New South Wales, while also reducing the risk of lost production time and compensation claims as a result of worker injuries.

The meat processing business invested in several BladeStop bandsaws, developed by Scott Automation & Robotics, which use new technology designed to mechanically stop the bandsaw blade within 15 milliseconds when the unit senses a person has come in contact with the blade.

Southern Meats OH&S Manager Claire Graham said four incidents in five years involving traditional bandsaws resulted in 827 hours of lost time and more than \$100,000 in worker compensation claims.

"In one incident, the employee lost partial movement in his thumb, while another required a skin graft," said Graham.

"The only incident on a BladeStop bandsaw resulted in a small cut on the operator's thumb, which was dealt with at our on-site medical centre and the employee was back at work straight away."

Southern Meats processes around 3000–5000 lambs per day and employs about 320 workers. Their meat is exported to North America and the European Union as well as sold domestically to Costco Australia.

Southern Meats employee Fred McGregor severed a tendon in his thumb on a conventional saw when the blade went through the top



Image credits: © Industrieblick/Dollar Photo Club

part of his knuckle while cutting a sheep spine. He said he now uses both types of machines, but says the new technology is "amazing".

"It gives all of us a greater sense of confidence," McGregor said. "You put on a belt which is attached to the bandsaw — it's like a wire circuit and you become the relay. As soon as you come into contact with the blade, the machine reacts, pushes the ram out, grabs the blade and stops it instantly."

"You feel a lot safer. You feel confident that you're not going to have a more severe injury," he added.

The BladeStop bandsaw was funded from Meat & Livestock Australia and the Australian Meat Processor Corporation.

*Scott Automation & Robotics Pty Limited*  
[www.machineryautomation.com.au](http://www.machineryautomation.com.au)

## NEW PRODUCTS

### Cartridge valves

The Type 6164 cartridge valve is designed to simplify pneumatic piloting control through optimal integration of a pilot valve in block solutions and plastic injection-moulded components.

Bürkert has developed a 3/2-way valve with a long life cycle, due to the use of high-quality materials. The compact size of the cartridge valves makes them suitable for use within block solutions, where they can be easily integrated via plug-and-play. This saves costs on materials and reduces the overall weight and size of the system or device.

The standard cartridge valve scores points due to high flow and pressure rates, as well as boasting an excellent seat seal and a diversity of versions. The long life cycle and reliability of the valve are confirmed by more than 100 million switching cycles. The switching times for opening and closing of the valve are around 10 ms at a pressure of 1 bar and a temperature of 20°C. The valve is available in orifice sizes from 0.5 to 1.2 mm and with operating voltage of 12 and 24 VDC. The standard version covers the pressure range from -0.8 to 10 bar with a power consumption of less than 0.7 W. The valve body is made of PEEK and the seal of FKM.

**Bürkert Fluid Control Systems**  
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## SMARTER PRODUCT USABILITY

Regarding our product developments, we place emphasis on the usability of all devices. Leuze offers optimum handling, simple mounting and alignment, uncomplicated integration of sensors in existing fieldbus systems and configuration.

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We customise our solutions for selected focus industries and their applications and offer an extensive product portfolio for these areas. Leuze has a comprehensive product range that makes it possible for our customers to obtain the absolute best solutions from a single source.

## SMARTER CUSTOMER SERVICE

Offering technical advice, skilled straightforward handling of queries and problems, are among our strengths at Leuze. We will continue to expand our service and forge ahead in new directions to redefine the utmost in customer service. Whether by phone, the internet or on-site with our customers.



### **power**reserve.

Stable processes as a result of the largest possible performance reserves



### **availability**control.

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### **think**modular.

Freely selectable function range comprising various equipment features



### **easy**handling.

Intelligent ideas for installation, alignment and easy operation of the devices



### **integrated**connectivity.

Integrated interface diversity for simple integration in your fieldbus



SMART  
**SENSOR**  
BUSINESS

# HAFIZ RAHMAN

MANAGING DIRECTOR, LEUZE ELECTRONIC PTY LTD

## What do you see is the single biggest challenge facing your industry in the years ahead?

The significant challenge for all business today — or anytime — is sales and more sales!! NO sales, NO business — especially in tough times like this with a shrinking of manufacturing in Australia. It is very important to create a point of difference from others. Leuze electronic offer specific and measurable value to the areas of our core promises, product usability, application know-how and service/technical support, to help make our customer more successful. As a specialist for sensor solutions, we specialise in packaging technology. We also optimise our solutions for other areas in intralogistics, automation and robotics, food and beverages etc. We offer our customers an extensive product range from a single source. This offer is encompassed with service that is closely aligned with our customers' needs, with focus on attention to detail and technical competence.

## What do you see as the two or three biggest growth opportunities for your customers in 2016?

I believe the biggest opportunities will come from our traditional sources: food, education, health care, tourism and diversification in the manufacturing sector. It will create further opportunities in the packaging, food, beverage, intralogistics, industrial automation and robotics industries. At Leuze we are fully committed and are a step ahead of others: to help make our customer more successful by providing the latest in technology, and intelligent products packed with features and unparalleled service.

The new-generation Leuze sensors, smart cameras, safety laser scanners and software-based products come with network connectivity that enables these devices to collect and exchange data if required. This allows devices to be sensed and controlled across an existing network infrastructure, creating opportunities for more direct integration between the sensor and PLC/IPC.

## What do you feel are the three most important things your customers are looking for in a supplier?

In this competitive environment, manufacturers and suppliers are under immense pressure to supply at a competitive price point, to deliver goods promptly and to provide comprehensive support on all technical products.

I believe the key to success from a supplier's point of view is to win customers over with a product offering unique selling points — differentiating the products' advantages over others — and to have a good diversity of local stock holding. The product must be competitively priced, which means to a customer it must reflect value for money, coupled with local technical support.

There are a few other factors which are equally important, such as reduced maintenance and repair time as well as just-in-time delivery — which means additional pressure on all facets of our business to perform at their best.

## What are your customers demanding of you more today than five years ago, and how will you meet these requirements in 2016?

Most customers want manufacturers to be their solution partner for all their business. Customers' expectations have increased dramatically and they demand most sensors to be intelligent and that all smart devices be equipped with fully integrated connectivity for simple integration into a fieldbus. Leuze places emphasis on unique product features with high performance on all devices. Leuze's product range offers optimum handling, simple mounting, smarter product usability, easy alignment, uncomplicated integration of sensors in an existing fieldbus system and configuration, which is in line with Leuze's Smart Sensor Business motto. Leuze offers a comprehensive product range that makes it possible for our customers to obtain the absolute best solution from a single source.

## What emerging trends or developing technologies may influence or change the way your industry sector will do business in 2016?

Before we look into emerging technology, we must fix existing communication issues. All parties must pledge to improve current technology by eliminating barriers between existing industrial bus systems and improve communication between devices and PLCs or IPCs. Customers are constantly faced with challenges on how to integrate between devices and controllers. Often it becomes a costly exercise with reduced margin for customers.

The major players in the industrial automation field must find a way to overcome such issues and develop a universal bus so that any devices can talk to any controller without having to go through any gateway devices. I know major players would not like to hear this argument, as they have a vested interest, but this type of deregulation will generate higher productivity, better efficiency, less frustration and increased revenue.



*Hafiz Rahman is the Managing Director of Leuze electronic Pty Ltd (Australia/NZ), a wholly owned subsidiary of Leuze electronic GmbH+Co.KG. He has been involved in the industrial switchgear and automation field for over 30 years and has gained many years of experience in the safety, sensing and automation industry. Over the last six years he has held various positions at Balluff-Leuze Pty Ltd, until his recent appointment as Managing Director of Leuze electronic Pty Ltd. Hafiz has an educational background in electrical engineering from Swinburne.*



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\*as voted by Inside Waste readers in 2013, 2014 and 2015



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# MIKE RITCHIE

DIRECTOR, MRA CONSULTING GROUP

## What do you see as the single biggest challenge facing your industry in the year ahead?

The biggest challenge for recyclers is the mixed government market price signals around recycling, waste management and carbon. Some states are pushing ahead with strategic approaches to waste management by setting targets, establishing market price signals to capture externalities and long-term landfill liabilities, etc, and putting in place grants and strategies to drive reform. Others have much to catch up on.

The rise in state landfill levies and grants for recycling will see further growth in recycling industries and a lesser dependence on landfill. This offers new employment and economic growth opportunities to the more progressive states. Recycling offers massive green job and economic wealth creation opportunities for Australia. MRA works with business and government to improve recycling rates, improve waste practices and reduce business costs.

## What do you see as the two or three biggest growth opportunities for your customers in 2016?

Waste generation is rising at 7% per annum. That creates a lot of opportunities for recycling, so long as the economics permit recycling to be financially viable. Business waste costs are rising at around twice the rate of inflation. That means waste costs are starting to bite the bottom line. More businesses are seeking strategic waste and recycling advice to reduce costs and ensure efficient business practices to reduce waste generation in the first place.

## What emerging trends or developing technologies may influence or change the way your industry sector will do business in 2016?

Energy from waste will progressively replace landfill as the final disposal option for residual waste.

Recycling rates will continue to rise in the progressive states approaching 80% recovery over the next five years.

Conversion of commercial waste charges from volume-based (bin volume) to weight-based will provide businesses with a clear price signal on their costs of waste. It will encourage segregation of waste and, if they recycle, reduce business waste costs. Our hope is that waste starts to mirror the effects that smart meters have achieved in electricity consumption.

A clear climate change policy and targets will strengthen environmental controls and resource recovery in the waste sector.

## What external impacts do you predict will have the most effect on your business in 2016?

Many of our clients are international companies (including Chinese firms) seeking to invest in Australia. The stability of the Australian currency and politics encourage such investment. MRA advises on such investment.

The Australian recycling industry is a significant commodity exporter (particularly paper and plastic). Strength of demand in China, and other parts of Asia, is critical to the supply chain. Fluctuations in the dollar also impact demand, as has the recent fall in commodity prices eroded the commercial viability of some recycling streams. While the industry has always experienced export price fluctuations, the growth in the domestic reprocessing and secondary use sector will serve to dampen the effects of international fluctuations.

MRA aspires to expand its service offering into Asia on a selective project basis, so the growth of Asia offers new and exciting consulting, project management and advisory opportunities.

## What are your customers demanding of you more today than five years ago, and how will you meet these requirements in 2016?

MRA's customers are demanding economic evaluation of the costs of waste, carbon and recycling with a view to reducing costs and optimising environmental benefits. MRA has an expert team of scientists, engineers, lawyers and accountants able to develop realistic plans for businesses to reduce costs and achieve environmental goals.



*Mike Ritchie is the Director of MRA Consulting Group (MRA), an environmental consultancy specialising in all areas of recycling and waste management for the public and private sectors. He has a Masters of Business Administration (MBA), Master of Science (MSc) and Bachelor of Science with First Class Honours, along with over 24 years' experience working on a broad range of environmental projects. He is a member of the Institute of Company Directors. Mike's knowledge encompasses*

*a sound understanding of waste management, resource recovery, recycling, technology and economic analysis.*



## RFID pressure testing


The Stauff PT-RF series of pressure transmitters is an alternative solution for universal pressure measurements in fluid technology application. It provides benefits for system operators, maintenance personnel, repair technicians and original equipment manufacturers as it requires neither an internal nor an external power supply, is completely maintenance-free and the recording process is automated — minimising the possibility of human error.


The PT-RF wireless pressure tester has been developed to be integrated into fluid technology plants (permanently or temporarily) to measure and record pressure and temperature data using appropriate tube connection adaptors. The energy required for a measurement is transferred to the pressure transmitter via the antenna of the PT-RF reading device using wireless RFID technology. A maximum distance of only 1.5 cm is required from the antenna to the tip of the PT-RF transmitter for the duration of the measurement. The PT-RF transmitter is activated by the press of a button (the measured value is determined within 0.5 s) and the data is transmitted immediately to the PT-RF reader (together with additional relevant information), displayed on the screen and recorded. The software included with the unit allows subsequent evaluation and further processing of the measurement results previously transmitted to the PC or notebook via the USB interface. This substantially facilitates and speeds up the process of determining pressure values without any risk of introducing contamination into the system.

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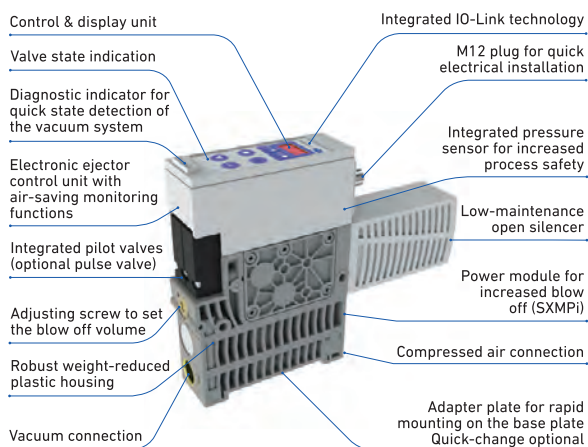






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## Redundant ring ethernet switch

Red Lion's Sixnet series of Real-Time Ring unmanaged switch is designed for managing a backup or secondary network path and remote network Modbus monitoring, thus creating a robust redundant ring network with zero downtime should the primary path fail.

Vibration, dust, moisture and vermin are the most likely causes for Ethernet connectivity to fail — adding a secondary Ethernet path will ensure saving unforeseen cost in potential loss of production time and mission-critical data. The real-time Modbus monitored redundant feature no longer requires managed switches with complex configuration steps and IT know-how: instead the SLX-6RS Red Lion industrial unmanaged Ring Switch is specifically designed to be connected in a ring with minimal configuration, providing a minimum heal time of 40 ms should one of the network paths fail.

Designed to perform in the most extreme environments, the SLX series is housed in a hardened slim metal DIN rail enclosure, is rated at 1 million hours MTBF and operates in temperatures of -40 to +85°C with dual transient protected 10-30 VDC supply inputs.

Available in a small footprint, the 6-port Ethernet and fibre-optic options including both multimode and single mode for up to 60 km distance.

**Control Logic Pty Ltd**

[www.control-logic.com.au](http://www.control-logic.com.au)





## Gas monitors

The Ultima X Gas Monitor Series, featuring the latest mechanical, electrical and infrared technologies, is designed for good performance. The monitors are suitable for indoor and outdoor applications in virtually any industry including offshore, refineries, chemical and petrochemical facilities, steel mills, water and wastewater plants, mining and general industry.

The monitor's sensor disconnect under power allows for sensor change-out without declassifying a hazardous area. Interchangeable, precalibrated smart sensors are ready for installation out of the box and can be field-replaced without tools.

A liquid crystal display alternates between sensor reading and gas type, indicating ongoing diagnostic checks such as sensor end-of-life condition. Stainless steel and NEMA 4X polycarbonate enclosures allow the sensor to be mounted separately from transmitter electronics and provide easy display access for calibration from a safe location.

Infrared point gas detection enables continuous monitoring of combustible gases and vapours. Operation using dual wavelength-heated optics technology provides definitive compensation for temperature, humidity and ageing effects.

The product is IP67 rated to withstand the rugged demands of water and wastewater industries. Optional quick-check LEDs and four relay outputs allow for increased indication of alarm and fault conditions.

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## Manufacturing intelligence software

Schneider Electric Software has released its Wonderware Intelligence 2014 R2 enterprise manufacturing intelligence software. The latest version collects, calculates and contextualises data and metrics from multiple sources across the manufacturing operation, puts it into centralised storage and updates it all in near-real time. Because it is optimised for retrieval, the information can then be used to monitor KPIs via customisable dashboards, as well as for drill-down analysis and insights into operating and overall business performance.

The software calculates, contextualises and stores KPIs and other metrics data from the multiple systems and data sources that are used to run today's industrial operations, including Schneider Electric's software offerings, data historians and MES, HMI/SCADA and other industrial applications, as well as many other third-party plant sources. It is designed to help users gain near-real-time visibility and access to valuable operating and performance

data that often sit in silos, such as within energy, alarm or manufacturing execution systems.

Improvements to Wonderware Intelligence 2014 R2 software include the ability to use stored procedures to increase the speed of queries; the ability to dynamically use start and end times for more precision queries; and streamlined administrator rights for the Intelligence service.

Additionally, Wonderware Intelligence Client (powered by Tableau Software) provides an easy-to-use self-service approach to information gathering, which empowers stakeholders to create and publish personalised charts, interactive reports and dashboards for collaboration and operational KPI monitoring and analysis.

**Schneider Electric Industry Business**

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## Encoders for DC motors

A large range of DC motors

are already available with AVAGO

encoders — both brushed DC motors and brushless designed DC motors. This is known as the 'maxon modular system', which allows an engineer or product designer to build up motor, gearhead and encoder combinations specifically to suit the application requirements.

The modular system has now been expanded with nine more encoder resolutions ranging from 1000 counts per turn through to 5000 counts per turn. The encoder has an optical design and can be fitted with any motor that was previously available with the 500 count-per-turn unit. It also uses the same DIN 41651 connections.

With a 5 V supply, the output signal meets EIA Standard RS 422 using an AM26C31QD driver and has a typical signal rise and fall of 10 ns. The high resolution makes it suitable for motor-positioning tasks and is particularly useful for higher power motors that will not work with magnetic-based encoder technologies.

**maxon motor Australia Pty Ltd**

[www.maxonmotor.com.au](http://www.maxonmotor.com.au)



## Predictive asset protection system

Emerson Process Management has introduced the CSI 6500 ATG protection system, a stand-alone machinery protection solution that allows users to introduce predictive monitoring of critical assets from the same system. Predictive intelligence is a key component to increasing availability and improving the reliability of plant assets.

CSI 6500 ATG multifunctional cards can be easily reconfigured for a wide range of measurements, including the impacting or peak-to-peak data used in Emerson's PeakVue technology. In addition to monitoring the start-up and coastdown of critical turbo machinery for safe operation, users will be able to utilise

PeakVue technology to identify the earliest indications of developing faults in gearboxes and bearings.

With the CSI 6500 ATG, it is no longer necessary to return to the control room or open cabinets in the field to view or analyse data. The product can be networked over wired or wireless ethernet to deliver asset health information to authorised users through a PC or smartphone application.

To facilitate easy system integration with third-party systems, the product is said to be the first protection system to include a secure embedded OPC UA server.

The system complies with the traditional API 670 certification and is certified for installation in demanding environments where Class 1 Div2/ATEX Zone 2 approvals are required.

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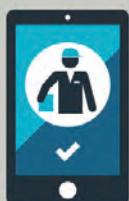
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# MATTHEW BROWNE

CEO, DONESAFE

## What do you feel are the three most important things your customers are looking for in a supplier?

As a health and safety software company, our customers are looking for a supplier that is listening and willing to adapt product strategy to meet requirements, not bending business process to meet the supplier requirements. The legacy path of steering customers down a rigid defined path and then pushing customisation at high cost has been lucrative for incumbent vendors; customers are becoming more savvy and looking for configurability out of the gate, not customisation.

Customers are becoming more price sensitive and want value for money; no longer can software vendors charge million-dollar implementations and licensing fees as customers are looking for ongoing service-based pricing with everything built in — the software as a service (SaaS) subscription model has been gaining popularity across all industry sectors as customers can vote with their feet if a vendor is not performing.

Finally, customers are looking for someone to partner with to grow innovation. The health and safety software space has been stagnant for some years and there has been growing resentment in the legacy players; customers are looking for organisations they can trust, who are building products with the user experience in mind and who will innovate with them.

## What emerging trends or developing technologies may influence or change the way your industry sector will do business in 2016?

The move to the Internet of Things (IoT) and a greater adoptance of mobile first for business is changing the way organisations can and will manage health and safety within the extended workplace. Organisations can now empower their employees to interact with safety while on the move and employees are expecting that they can use their own devices (BYOD) to access company data.

The push to BYOD is influencing the direction of development, meaning that software companies need to be building for all modern device types as standard and looking for creative ways of managing data security without impacting privacy of end users.

Geolocational tagging of records is opening up new ways to report and notify personnel of issues in their vicinity; a move into virtual reality is allowing whole new ways of training employees without exposing them to hazards prematurely.

IoT devices are also shaking up the way we do business, near frequency communication is allowing devices to interact with each other, facilitating a number of safety improvements including proximity awareness, fall alarms and in-car monitors of driver behaviour.

This perfect storm of technology change means listening carefully to what the customer is after and keeping both eyes on the horizon as the sheer volume of options for technology vendors to explore means that it can be easy to lose focus or

miss out on critical opportunities to get involved early with a new breakthrough and deliver something great.

## There are now a number of new and emerging technologies in the market to assist with overall business efficiencies, such as cloud computing and Industry 4.0; however, the uptake is slow. What are your thoughts as to the reasons behind this?

As with any change there is an element of fear of the unknown, coupled with an 'if it ain't broke don't fix it' mentality. The usual suspects of 'that's the way we have always done it' or 'we need to focus on business as usual' need to be terms that are deleted from the collective conscious. Smart, agile businesses are embracing change as usual and looking for solutions that are as agile as they are.

The cloud is one of those agile solutions and is here to stay; it is an affordable and secure way of doing business. Organisations moving from safety software on premise to cloud providers will notice a number of immediate benefits including reduction in cost, mobile first with the ability to roll out changes globally in real time, better engagement and culture by putting safety in everyone's hands, real-time reporting and analytics, and the ability to scale up or down without hefty consulting fees.

Industry 4.0 where product, machinery and software all cohabit in one cohesive ecosystem is still in its infancy and realistically, it will be a number of years before it is adopted into the mainstream. Where software companies like DoneSafe can help is to create open, standardised and transparent APIs allowing customers and other vendors to integrate easily and affordably so as to remove barriers for companies wishing to adopt this ecosystem approach.



*Matthew Browne is the CEO of DoneSafe, "The people's safety software". DoneSafe is a multi-award winning application and offers an easy-to-use, easy-to-implement, easy-to-integrate and affordable platform that is truly safety, your way. Better yet, you can access a 30-day free trial, just visit [www.donesafe.com](http://www.donesafe.com).*





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# BRAD LOWSON

DIRECTOR, GLOBAL SPILL CONTROL

## What do you see as the single biggest challenge facing your industry in the year ahead?

Our biggest challenge isn't unique to our industry, but is something that's affecting most industries in Australia. Sustained lower commodity prices, together with tighter trading conditions, are impacting the way we're all doing business. Add the falling Aussie dollar to this and we have an environment where customers are tightening their spend and being a lot more conscious of how they are procuring goods and services.

Because of this, price increases applied to imported products are impacting how procurement teams work and adding pressure to their bottom line. Fortunately, our predominantly Australian manufacturing base is immune to exchange rates and we continue to invest in our manufacturing and R&D facilities to leverage competitiveness as an Australian supplier.

## What do you feel are the three most important things your customers are looking for in a supplier?

In addition to the essential traits of trust and integrity, I think our customers want someone who's easy to transact with. A supplier who gets the fundamentals right — things like accurate invoicing, quick turnaround, consistent pricing — someone who practises good business in a reliable manner.

Then it's having a supplier who listens to what the customer actually needs, versus what they think they need. We take a specialist approach and add value to our customer conversations through the depth of our product knowledge. There are plenty of generalist suppliers in our industry and we often have customers seeking our assistance simply for that fresh approach, which can often save them money.

Finally, we see that customers want someone who is nearby. They don't necessarily want to hold equipment or large volumes of consumables at their own facilities. By having a number of regional warehouses across Australia, we are able to get our products to our customers relatively quickly.

## What are your customers demanding of you more today than five years ago, and how will you meet these requirements in 2016?

The biggest change here is pricing. Our customers are demanding lower prices and we're also finding the focus is on immediate cost savings, as opposed to the total cost of ownership across the lifespan of the product. Customers also seem to be more concerned about Australian industry as a whole — they like to hear we're an Australian manufacturer and our products are Australian made. They are also pleased to see that in buying Australian made you can get high quality at the same price as many imported products.

We're also seeing customers demanding more transparency across the supply chain. They want to know their equipment has been manufactured in a workplace with fair work conditions and the raw materials have been sourced diligently and ethically. They want to know that products have been independently tested and will do exactly what they say they will do. Fortunately, being an Australian manufacturer means we manage our entire supply chain and can meet these demands.

## What external impacts do you predict will have the most impact on your business in 2016?

Again, these are factors which are having an impact across most industries, but I have to come back to the drop in commodity prices, coupled with the falling Aussie dollar. Iron ore and coal, together with oil and gas, heavily drive industry in WA and Queensland, and as we see these projects slow down, there is a knock-on effect through the supply chain. We're seeing the tighter cash flow and increased focus on efficiency throughout our customers' operations. This drives the demands I spoke of earlier in relation to pricing and transparency. On the upside, the weakening Australian dollar works in our favour as it allows us to maintain fair and consistent pricing, and increases the competitiveness (and attractiveness) of Australian-made products.



*Brad Lowson is the Sales Director for Global Spill Control and has worked in the mining, oil and gas, and associated industries for over 25 years.*





## Plug-and-play energy storage system

Conergy has introduced the Conergy Hybrid Energy Storage System (CHESS) to Australasia and Oceania. The system is designed to deliver a stable power supply for any remote or grid-connected location, reducing reliance on diesel generators by up to 70%.

CHESS is housed in easily transportable standard shipping containers with scalable power output in 100 kW increments continuing upward depending on site requirements. The expandable plug-and-play system is designed to seamlessly integrate solar energy into existing power supplies of facilities operating in remote off- or on-grid locations, such as mine sites, production and accommodation facilities, and hospitality, recreational, processing and community developments.

The system is purpose-designed to function efficiently either independently or working in tandem with an existing power infrastructure, providing power even when the sun isn't shining. It thus provides an uninterrupted power supply to help facilitate companies' transitions from diesel to renewable solar energy.

The robust, low-maintenance and modular system features control hardware specifically designed for off-grid applications. Remote control and system monitoring functions can be integrated into an existing SCADA system, providing benefits to remote communities that may not have easy access to specialist operating technicians.

Capacity can be extended by connecting containers in parallel on the AC side to the required power output size, and additional battery containers are available to extend the storage to any required capacity. The system can be operated as a stand-alone islanding application or as part of a diesel grid solution.

**Conergy Australia**

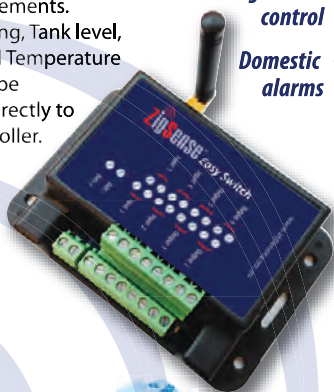
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## ATEX-certified inclinometers

Posital has extended its TILTIX family of inclinometers (tilt sensors) to include explosion-proof models designed to operate safely in environments that contain potentially dangerous levels of explosive dust or gases.

The devices have been certified in compliance with IECEx and ATEX directives and are suitable for use in mines, oil and gas facilities, agricultural applications, chemical plants, woodworking factories and milling operations.

The inclinometers are available in single (0–360°) or dual-axis (±80°) versions and feature resolution as high as 0.044° and 0.1° accuracy. Available communications interfaces include DeviceNet, CANopen, Modbus RTU, SSI and analog output. Analog models can be programmed so that a predetermined range of mechanical motion is set to span the full electrical output range. Rugged aluminium and 316 stainless steel housings are offered, with other materials available by special order.

The products have been certified to the following ATEX ratings: Group I (mining) Ex I M2 Ex e mb I Mb; Group II (above ground operations) EX II 2G Ex e mb IIc TX Gb (explosive gases); and EX II 1D Ex ta IIIC TX Da IP65 (flammable dust).

**Plant Control & Automation**

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## Moisture analyser

Michell Instruments' QMA601 process moisture analyser is designed for retrofitting into existing systems, enabling older plants to access developments in quartz crystal microbalance technology for trace moisture measurements.

The product can be installed as a self-contained analyser or sampling system package within hazardous areas (IEC Zone 1 or 2, NEC Class I, Division 1 or 2) and is equipped with two analog outputs that are configurable for either current or voltage scaling. It is available powered with either AC or DC, while Modbus RTU protocol over RS485 is also provided to connect to a SCADA or similar data acquisition device.

The product also features an intuitive, colour, touch-screen interface that enables users to monitor, log and configure the analyser in the hazardous zone without the need for a hot-works permit, or any disruption to the process. Operation from a control room is also possible with remote application software.

The analyser is fully certified for use in hazardous areas (ATEX, IECEx and CCSAUS). Typical applications for the product are those that require precise measurements of trace moisture in hazardous areas, such as glycol dehydration of natural gas, natural gas transmission and storage and dehydration of alkenes feeding polymer production.

**AMS Instrumentation & Calibration Pty Ltd**

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## Safety-certified valve actuators

TÜV certification achieved by AUMA confirms that the company's SQ .2 part-turn actuators, SA .2 multi-turn actuators and AC .2 actuator controls in SIL version comply with the highest safety requirements. The actuators have fully achieved the latest IEC 61508 edition 2 certification and are approved for safety-related systems up to SIL 3 (for redundant system architecture). The TÜV certification also applies to low-temperature versions for temperatures ranging from -60 to +60°C.

The safety function of AUMA's SIL actuators can be configured with different seating criteria, including forced limit or torque seating to protect the mechanical integrity of the valve. If required by the application, different seating criteria for the safety function and standard actuator functionality can be set.

In addition to the company's SIL devices designed to meet the highest safety requirements, AUMA offers a Safety Figure Calculated (SFC) range of actuators that is adaptable with a high degree of configuration capability and cost flexibility. These actuators — with safety parameters assessed by exida — are suitable for applications with modest SIL1 or SIL 2 safety requirements. The SFC product range comprises SA and SQ actuators with AM and AC (standard version) actuator controls plus GK, GST and GS gear boxes.

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## Design utility for depressurisation systems

The UniSim Design Blowdown Utility, designed specifically for oil and gas, petrochemical, and chemical industry applications, assists in designing systems to allow for safe depressurisation of process equipment. It also helps companies manage capital costs by more accurately selecting the right construction materials and blowdown system sizes needed for the site.

Understanding depressurising behaviour in a blowdown system is critical to the function of the system and, ultimately, the safety of the facility and employees. Rapid depressurising and gas expansion can result in very low temperatures, potentially putting equipment at risk of brittle fracture if the construction material goes below its ductile-brittle transition temperature. In addition, the entire pressure relief system, including safety valves, relief orifices, flare piping and knockout drums, must be sufficiently sized to handle the flow rates that occur during blowdown, in addition to the piping and capacity of the flare system.

For new constructions, an accurate prediction of the minimum vessel wall temperature during blowdown is important for the selection of the appropriate construction material, for the elimination of overdesign and with the additional benefit of lowering project costs. Similarly, having an accurate prediction of the maximum flow rate during blowdown is important for the reduction of overdesign associated with the relief valve/network sizing, without compromising on safety.

For existing facilities, blowdown studies can prompt changes in operating procedures, process equipment material or capacity in order to avoid brittle fracture during blowdown.

**Honeywell Process Solutions**

[www.honeywellprocess.com](http://www.honeywellprocess.com)



## Weather station

Onset has announced the HOB0 RX3000 Station, a data-logging weather station that offers instant access to site-specific environmental data via the internet. Suitable for agricultural research, ecology studies, climate research and other applications, the station combines flexibility and good sensor quality with the convenience of plug-and-play operation.

The unit can be configured with up to 15 channels of plug-and-play smart sensors for measuring weather parameters including temperature, relative humidity, rainfall, soil moisture, wind speed and direction, leaf wetness, barometric pressure, photosynthetically active radiation (PAR) and solar radiation. Swap-in sensor modules enable an additional eight channels of analog sensors to be added and the station is able to power external sensors requiring 12 V excitation power, extending the range of measurements that are possible.

The station's easy-to-view LCD display helps the user visually confirm logger operation, sensor connections, cellular signal strength and other system parameters before leaving the deployment site. The LCD also displays fault codes that enable users to diagnose any system issues in the

field and know right away if something isn't working properly.

The station features a solar panel- or AC-powered rechargeable battery and a rugged, double-weatherproof enclosure that provides long-term monitoring, even in harsh outdoor environments. Alarm capabilities notify users of sensor or system failures remotely so they can be fixed before critical data is lost, eliminating the need to travel out to the field site to check on system operation.

The product is equipped with cellular communications and transmits data to Onset's HOB0link web-enabled software platform. It can also be equipped with Wi-Fi and ethernet communication options.

**OneTemp Pty Ltd**

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[www.weidmuller.com.au](http://www.weidmuller.com.au)



### Oil-proof industrial glove

The MAPA Professionnel Ultrane 500 industrial glove is an oil-proof glove suitable for automotive, mechanical and glass industries. The glove repels oil penetration and helps reduce dermatitis skin complaints for users. Designed for handling and cut protection, the product also features 'Grip and Proof' technology that provides user safety and dexterity, as well as providing a good grip to reduce muscle strain. High abrasion resistance is possible due to a nitrile coating as well as tactile sensitivity for performing exacting tasks such as automotive assembly, handling glass sheets or oily mechanical parts, and maintenance and handling in wet environments.

The long-lasting glove is available in a dark navy colour suitable for industrial environments.

**RS Components Pty Ltd**

[www.rsaustralia.com](http://www.rsaustralia.com)

### Variable-speed electric actuator

The SIPOS SEVEN electric actuator enables designers, valve manufacturers and plant operators to work efficiently. Its colour display, supported by animations, allows simple commissioning and operation for the user.

The product comes with five inputs and eight programmable outputs for versatile control capability. It is compatible with current Fieldbus protocols Profibus DP, Modbus and Hart.

Using a frequency converter allows complete control of the actuator motor, including rotary direction, speed and torque. When combining the electrical actuators with the specially designed actuator controls, this feature offers a variety of benefits.

An absolute position encoder is used to record the drive shaft position, even during power failure. As a result, position changes occurring during power failure can be detected.

The USB interface allows simple data collection and documentation, simplifying plant management activity. Uploading and downloading parameters using the USB interface allows for quick and easy cloning of actuator settings.

**Barron GJM**

[www.barron.com.au](http://www.barron.com.au)

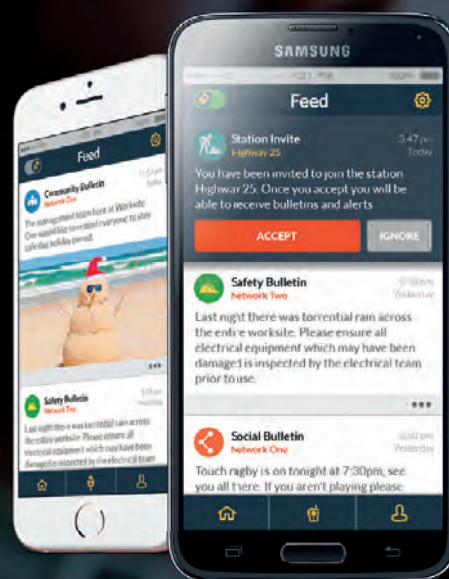


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## Biogas power for pork producer

Gold Coast bioenergy company Quantum Power has secured a biogas project which will offset 100% of grid-supplied electricity for its client — a Western Australian pork producer. The project is set to generate up to 1 MW of renewable energy by converting manure from the pig-housing facility into biogas.

The project will involve the construction of an anaerobic digestion facility and power plant on-site, which will take between six and nine months to complete. As explained by Quantum Power Business Development Manager Kunal Kumar, "Once built, the digestion system will convert the organic load within the manure to biogas, comprising approximately 60% methane.

"The biogas, which would otherwise escape to the atmosphere, is being harvested and treated before being used as fuel for on-site electricity generation," Kumar continued. "The covered anaerobic digester will also reduce odour coming from the treatment of manure compared to the current system in place."

The renewable energy produced will be equivalent to the power consumption of over 600 homes.

Quantum Power has proposed the development of the project under a build-own-operate-maintain (BOOM) model, offering the pork producer the opportunity to access green power generated on-site using its organic by-products at cheap rates and with no upfront costs. This will be the first of its kind for a biogas project within the Australian pork industry.

"The engineered anaerobic digestion system will not only save the facility a significant amount on their electricity bills over many years by replacing expensive power drawn from the grid, it



is also remarkably better for the environment as methane has 21 times the global warming effect of carbon dioxide," Kumar said.

Quantum Power's biogas solutions are suited to abattoirs, dairy producers, pig producers, layer and meat chicken producers, and other food processing industries.

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# JONATHAN McKEOWN

CHIEF EXECUTIVE, AUSTRALIAN WATER ASSOCIATION

## What do you see as the single biggest challenge facing the water industry in the year ahead?

If Australia enters into another period of drought, making sure we provide water security and quality for all Australians will be the biggest challenge faced by the water sector. We need to get water security right in drought conditions, and to do this, a number of things have to happen. We need a new investment model to drive investment in infrastructure, renew ageing assets and expand networks — we have roughly \$150bn worth of urban water assets alone that need between \$3.5–\$4.5bn of capital expenditure every year\*; we need to investigate what roles alternative water sources such as desalination and recycled water have to play; and we need to make sure we have community support and buy-in to adapt to the changing water demands of a drought. We also need to secure the water needs for the next 50 years by ensuring we invest the right funds in the right infrastructure.

In our annual *State of the Water Sector* survey (a national survey which canvasses the views of the water sector), 72% of respondents considered there was potential for more private sector involvement in the sector, and in particular, the areas identified for growth were desalination plants, wastewater treatment plants and water treatment plants (interestingly, more than half of the sector believes that prices wouldn't go up with more private sector involvement).

## What emerging trends or developing technologies may influence or change the way your industry sector will do business in 2016?

There are two major trends that spring to mind immediately. The first is an increase in partnerships with the private sector, which actually feeds into the need for a new investment model that I mentioned above. If we just look at our urban assets, they will need to accommodate up to another 8m people by 2061. We also need to replace old network infrastructure with smarter, innovative infrastructure capable of the vertical expansion of our cities, and the private sector is going to play a key role in this.

The second is the growing dependence on big data. Increasingly, it is analysis of big data that is used to determine policy and investment decisions, and we need continuing investment in big data analysis — including in organisations such as the Bureau of Meteorology — to inform policy and investment decisions, and to drive improved performance through comparison. This will mean better engagement with customers and improved services through real-time data, with the potential to drive public health, environmental and broader liveability projects.

## What external impacts do you predict will have most impact on your business in 2016?

Climate change and the impending drought caused by an intense El Niño will have a major impact on the water sector. This is driving the need for improved and diversified supply resilience strategies, and we need to optimise the supply and demand balance of stormwater

capture, desalination and managed aquifer recharge now, not when the next drought is upon us.

The second biggest external factor impacting the sector is how the government is going to manage the competing priorities in water infrastructure investments to balance the opportunity to develop North Australia and the opportunity to augment water in Australia's urban and developed agricultural regions. More than ever, Australia needs a national water plan which is underpinned by nationally consistent regulation to address water security and water supply into the future. *Want to hear more about Australia's water sector, its challenges and the opportunities for innovation and business? Join us at Ozwater'16, the country's premier water conference and exhibition.*

*\*Doing the important, as well as the urgent: Reforming the urban water sector, WSAA, November 2015.*



*Jonathan McKeown commenced work as Chief Executive of the Australian Water Association at the end of May 2013. Jonathan graduated from the Australian National University with combined Arts/Law degrees in 1983. Jonathan commenced his career as a commercial lawyer with Mallesons solicitors in Melbourne. In this capacity he worked in a variety of areas including mergers and acquisitions, mining and resources, and finance and banking. He then transferred to business gaining*

*25 years of commercial experience in establishing and consolidating businesses across Asia and the Middle East.*

*Jonathan has advised more than 200 companies in developing business in Asia while managing offices in Bangkok, Jakarta, Tokyo, and Amsterdam. His international project management skills have been acquired through significant development projects (including water projects) across Asia and The Middle East — all requiring regular interaction with senior levels of governments, the World Bank and the Asian Development Bank.*

*Management experience in industry associations has been acquired in roles that include Director of Trade Business Services at the Chamber of Manufactures (now known as Australian Business Chamber) and Chief Executive of the NSW Farmers Association. As a management consultant, Jonathan has been based in Bangkok for the last seven years, specialising in productivity improvement, strategic planning, corporate restructures, and acquisitions and joint ventures across Asia and Australia. He brings detailed practical experience of the challenges of conducting business across borders and cultures with a direct exposure to the fast-changing demands of the Asian markets.*



# data to knowledge



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## Honeywell

For more information about Honeywell Process Solutions visit [www.honeywellprocess.com](http://www.honeywellprocess.com)

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# NEIL WOLD

SALES DIRECTOR, PACIFIC, HONEYWELL PROCESS SOLUTIONS

## What do you see as the single biggest challenge facing your industry in the year ahead?

While there are a number of challenges facing the process industry currently, for many the biggest challenge lies in maintaining a productive and profitable facility. Volatile commodity prices and rising capital and labour costs can impact upon a plant's profitability, while external issues like data protection and security also threaten day-to-day operations. There is immense pressure on the process industries to achieve consistent, high-margin profits. But with the state of the market being what it is, this is an increasingly tall order. At Honeywell, we believe it can best be achieved when operators commit to identifying new ways to maximise their return on investment and optimise output.

## What do you see as the two or three biggest growth opportunities for your customers in 2016?

While there will be growth opportunities for our customers in 2016, the most important step is first optimising existing operations. There are countless software tools available to organisations today that support everything from asset management and batch automation to operator training. Operators that use a combination of these offerings in their plant environments can see substantial improvements in their production and profitability.

## What emerging trends or developing technologies may influence or change the way your industry sector will do business in 2016?

The digital revolution is changing the world, and we've seen innovation and technology making huge improvements across the process industry. The digitisation of sectors like mining and manufacturing have provided organisations with new ways of operating, while big data analytics have had a major impact on the way facilities do business.

The ability to operate in this digital world is dependent on the capability we have to maintain an environment that is secure and trusted. Because of this, cyber security is increasingly an area of concern among operators, who are being challenged to understand the risks to their sites. There is a clear need for further technical assistance, as well as more in-depth education and training, which is why Honeywell is investing heavily in providing cyber security solutions for our customers.

## There are now a number of new and emerging technologies in the market to assist with overall business efficiencies, such as cloud computing and Industry 4.0; however, the uptake is slow. What are your thoughts as to the reasons behind this?

Traditionally, organisations in the process industries have not been as quick to adopt IT developments as some other enterprise industries. This is mainly due to a widely held belief that control

systems and IT infrastructures need to be kept separate in case of failures or interference. However, this traditional thought pattern is changing, with more and more facilities embracing the digital revolution.

No plant or organisation can afford to stand still if they are to remain profitable. While new technologies and offerings can provide exponential growth and future-proof organisations, they also require the expertise to implement them appropriately and correctly.

## What are your customers demanding of you more today than five years ago, and how will you meet these requirements in 2016?

Process industries today are focusing on driving down costs, maximising production and improving availability; in other words, improving efficiency and optimising performance. Honeywell's suite of advanced solutions helps to increase the throughput of a plant, increase yields of the most valuable products and lower the cost of production with existing capital resources. Additionally, many organisations work with vendors like Honeywell under a service contract with fixed deliverables. However, with technology advancements have come increasingly sophisticated control rooms, with open system complexities and greater compliance requirements — demanding new and different skills within the plant environment. Honeywell will continue to expand on the delivery of its Assurance 360 program, which allows plant personnel to focus on operations while Honeywell performance experts take responsibility for maintaining, supporting and optimising system performance to help a plant achieve its goals.



*Neil Wold is Pacific Sales Director for Honeywell Process Solutions (HPS). In this role, he oversees HPS's sales teams in Australia and New Zealand. He was previously Regional Manager for HPS in Western Australia and the Northern Territory. Neil has over 35 years' experience in the process industry, with specific expertise in power and minerals processing.*



## Safe materials handling solution on steep site



To excavate and remove 70 t of soil, a South Australian foundation works and ground preparation business, Goolwa Tippers, utilised an innovative solution from Kennards Hire Lift & Shift.

The excavation site was located at the top of a hill, which overlooks the city of Victor Harbor on the South Australian coast 85 km south of Adelaide.

"The soil needed to be removed to enable the construction of an elevator," said Colin Brook from Goolwa Tippers.

"Adding to the complexity of the project was how to transfer the excavated soil up the very steep 25 m incline into the tip truck.

"The answer came in the form of 5 x 6 m and 2 x 3.3 m conveyors from Kennards Hire Lift & Shift."

Another challenge for the machinery operators was limited site access. The steepness of the slope and working in close proximity to the house prevented using a large excavator. To overcome this, a one-tonne excavator on a wooden deck reinforced with forming ply was used.

"The conveyors were placed on the two flights of stairs and offered the safest and most efficient way to remove the soil. They also negated the need for double handling and are narrow enough that stair access wasn't impeded," added Brook.

This is the first project where Goolwa Tippers has used conveyor belts, which can operate on a maximum inclination of 30° and are well suited for areas with narrow access.

"The conveyors from Kennards Hire Lift & Shift worked perfectly. They're simple to operate and light enough for two men to easily reposition as needed," said Brook.

Brook said the conveyors saved the business about two weeks in labour.

"Knowing these conveyors are available, it's something we'll keep in mind for future projects," he said.

Kennards Lift & Shift has a range of portable conveyors, suitable for removing sand, brick and building rubble, and can be assembled in around 15 minutes without specialised equipment or tools. Featuring an in-built circuit breaker for added safety, each miniveyor can be handled well by two men. A multipurpose hopper is also available.

*Kennards Lift & Shift*

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## Human-machine interface

Schneider Electric has released Magelis GTU, the latest in the Magelis range of HMI solutions. The product allows users to create a suitable HMI for their application by simply snapping together the panel box and display of their choice.

Optimised for the HMI configuration software Vijeo XD, the device is as easy and comfortable to use as a smartphone or tablet, with intuitive navigation and many connectivity options, including remote access. It is easy to integrate with system architecture due to a variety of embedded interfaces: a dual Ethernet Gigabit port for network connectivity; dual serial and optional fieldbus interfaces for easy communication with industrial devices; and up to four USB ports for connecting peripherals while minimising wiring.

The product offers ease and comfort of use for both the application developer and operator. Due to industrial multitouch, users can zoom in/out and swipe and scroll through intuitive menus while wearing protective gloves or through the protective screen cover. The high-resolution, 16 million colour screen delivers a clear view of the same key functions and tools as a PC, including Office viewer, Adobe viewer, Internet Explorer, multimedia player, etc. Applications can also be accessed through a second display via the DVI interface and managed remotely through the Vijeo Design'Air app for mobile devices.

The modular design enables full optimisation of parts inventory. Maintenance is reduced to the minimum due to the robust aluminium housing and wide power supply (12-24 VDC) and temperature (0-60°C) ranges. Display size and type can be changed or replaced without any special tools while protecting all system and user data with removable memory units. The application is automatically resized to fit the display. Due to a front USB port with IP66/67 protection, HMI data can be accessed and copied conveniently at any moment without opening the cabinet door.

**Schneider Electric**

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## Rooftop solar system at Adelaide Airport

Adelaide Airport has claimed that it will build the largest airport rooftop solar power system in Australia, reducing the airport's energy consumption and carbon emissions by close to 10%.

With international and domestic passengers expected to increase by over 4% per annum over the next 20 years, signalling an increase in operating costs, Adelaide Airport developed a five-year sustainability strategy and carbon management plan that has identified a number of future carbon-friendly initiatives — solar power being one of them.

The new 1.17 MW solar system, to be built on the roof of the short-term car park by Solgen Energy, will be more than 10 times larger than the airport's existing system, bringing the total rooftop solar capacity to 1.28 MW. The system is expected to offset 100% (and possibly more) of the car park's electricity consumption, with excess power generated to be consumed within the airport site itself.

The solar array will consist of 4500 Trinasmart solar panels with the ability to operate independently through built-in Tigo Energy power optimisers. As a result, each panel will be able



to operate at its maximum output irrespective of partial shading that may occur on the array. In addition, each panel is independently monitored; for added safety, the entire array can be shut down at panel level from a single switch.

"This project further demonstrates the growing uptake of solar power as an integral part of any business's energy mix, irrespective of industry," said Solgen Energy Director David Naismith.

"Working within Adelaide Airport's site constraints, we engineered a bespoke solution to solve the delicate balance of optimising power output while delivering a robust business case."

The solar array has a footprint of 8000 m<sup>2</sup> — about the same size as a football field. According to Adelaide Airport Managing Director Mark Young, it will be big enough to power the equivalent of more than 300 homes.

Construction on the new solar system is expected to start in December and be completed by April 2016.

**Solgen Energy Pty Ltd**  
[www.solgen.com.au](http://www.solgen.com.au)

## NEW PRODUCTS

### Energy-efficient powder mixing

Mixing and pumping both wet and dry ingredients into a homogenous blend can — depending on viscosity — require up to four separate electric motors, consuming a lot of energy. The Alfa Laval Hybrid Powder Mixer can accomplish the same result using only a single motor drive, including efficient mixing in the associated production vessel, when used in combination with the Alfa Laval Rotary Jet Mixer.

The powder mixer combines pump and powder dissolving technologies in a single versatile unit, thus reducing installation costs. It is capable of drawing powder into the unit while simultaneously pumping the resulting process liquid at pressures up to 4 bar, making the need for a separate discharge pump obsolete. It effectively pre-blends the powder and liquid before the mixture enters the high-shear stage, which contributes to fast and effective dissolution.

While other inline powder mixers create mechanical shear in a small area, the device creates high dynamic shear in several different steps, requiring less energy to ensure complete dissolution of the powder. The product can also be used as part of an efficient cleaning-in-place (CIP) system. It is said to feature low power consumption, providing up to 50% energy savings; simplified service due to fewer components; and fast and homogenous powder mixing at high dry matter concentration.

**Alfa Laval Pty Ltd**  
[www.alfalaval.com.au](http://www.alfalaval.com.au)





## Unmanaged switches

The Belden SPIDER III Standard Line features unmanaged, entry-level, industrial ethernet rail switches capable of bridging long distances without disruptions. The switch has up to eight Fast Ethernet or Gigabit Ethernet ports, and two of the ports can be fibre optic. The switches are designed for use in harsh environments and have the necessary certifications, making them suitable for the manufacturing, machine building, solar power and traffic control industries.

The switches employ a plug-and-play principle that allows for easy installation without compromising quality or reliability. Users can connect multiple devices without the need for a complex configuration process. The switches also use less electricity, which makes them a cost-effective way to transmit data.

**Belden Australia Pty Ltd**

[www.belden.com](http://www.belden.com)

## Overhead crane control system software

Konecranes has added control system and software updates to its SMARTON overhead crane for improved safety and efficiency.

The overhead crane, designed for demanding applications, assembly and maintenance, now includes TRUCONNECT Remote Services to improve the safety and productivity of lifting processes. The operator can receive crane and process related information directly to a tablet on a simplified user interface and is able to make adjustments as needed. The tablet is connected wirelessly to the crane control system providing crane condition data in real time for maintenance personnel.

Optional camera views for safer and more effective load handling are also available.

**Konecranes Australia**

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# RUSSELL PALMER

MANAGING DIRECTOR, YOKOGAWA AUSTRALIA & NEW ZEALAND

## What is the single biggest challenge facing your industry in the year ahead?

Low business confidence and the corresponding falling capital expenditure are the biggest challenges. There are many major oil, gas and mining projects that have been put on the shelf waiting for 'better times'.

The challenge is that in times of uncertainty and budget restrictions companies need to invest to improve their operations, increase efficiencies and solve complex business and process problems. Some companies have also not had the results promised by so-called consultants and experts, and are jaded by these early forays into business/production improvement projects; the challenge is selecting a technology partner that has demonstrable capability and domain knowledge.

Yokogawa believes in co-innovation with our customers, to bring our significant process and technology expertise and our customers' unique business and production know-how together to provide solutions that will be relevant and sustainable and ultimately help our customers be more competitive.

## What do you see as the two or three biggest growth opportunities for your customers in 2016?

The once-in-a-generation resources boom that we have recently experienced has delivered an enormous number of operational assets. For many of our customers, the emphasis is firmly on gaining efficiencies and sweating their assets while increasing throughput and productivity.

In this regard, Yokogawa has core expertise in production, safety, asset, operator and lifecycle excellence, designed to minimise process inefficiencies, operator error and unplanned downtime, while ensuring zero harm. Our Advanced Solutions teams are collaborating with key customers to find continuous improvement for complex processes, as well as presenting comprehensive business solutions across their entire value chain.

## What are the three most important things your customers are looking for in a supplier?

Yokogawa has forged a reputation for excellence in mission-critical and highly complex industries, where ultra-reliable and innovative products are coupled with excellent engineering delivery and lifecycle services capability. Our customers rightly expect us to protect their investment and to continue to deliver innovative products and solutions through close collaboration and a deep understanding of their businesses and processes.

This vision — where through co-innovation with our partners and customers we aim to create new value for our clients — is central to our culture.

## What systems or technologies have been implemented or are you planning to implement

## to improve the energy efficiency of your business?

Yokogawa is a world leader in the supply of precision power analysers and energy management solutions, and provides solutions for companies that wish to be efficient in their energy utilisation — including a holistic solution in accordance with ISO50001:2011E to measure and sustain continuous energy-efficiency improvements.

Yokogawa also has extensive capability in the field of virtualisation, which allows for the reduction of the IT infrastructure footprint.

## What are your customers demanding of you more today than five years ago, and how will you meet these requirements in 2016?

Our customers are seeking to streamline and optimise entire value chains, both inside and outside their organisations. They are demanding better products and solutions to improve the links between management and operations at an ever increasing rate.

Yokogawa — as a provider of measurement, analytics, complex control solutions as well as process optimisation and business connectivity suites — is well placed to assist our customers to connect things and information seamlessly.

## What are your thoughts on the slow uptake of new and emerging technologies?

There are many 'new' technologies presented but few come with a compelling case on why they should be adopted. When you are in a cautious market as we are in now, the adoption hurdle gets higher. If you have a new idea, then you need to make sure that you create a compelling communication on why people should notice it, trial it and adopt it. Of course there is no better way to foster adoption of a new idea than if the new idea is the result of cooperative innovation with your customer.

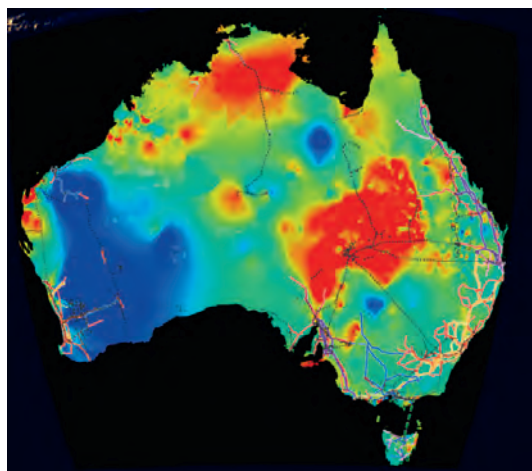


*Russell Palmer is the Managing Director of Yokogawa Australia & New Zealand and has been with Yokogawa Australia for 18 years. Russell has held roles from front-line engineering sales to sales and marketing director — a position he has held for 10 years. Russell's focus is on collaborating with customers to make possible new solutions to the problems faced in industry.*



## Renewable energy mapping infrastructure

AREMI — the Australian Renewable Energy Mapping Infrastructure — is a NICTA-led project providing free, open access to spatial data for the renewable energy industry. The infrastructure makes it easy for renewable energy projects to get off the ground in Australia, providing a one-stop shop for all open geospatial data relevant to the energy sector from government, industry and research.



Energy project developers can freely access spatial information such as existing electricity infrastructure to assist with site identification. State and local governments can use the open data to assist with environmental and regulatory planning approvals, and tracking and promoting projects in their region. The platform enables financiers and investors to explore the potential success of proposed ventures. It also acts as a repository for ARENA-funded mapping projects to enable their access in one consolidated location.

The project leverages the National Map initiative, an open-source, three-dimensional mapping platform which converts and visually displays information in a web browser without the need for external software or plug-ins. It facilitates access to multiple geospatially tagged data sets of various formats in one location. Users can overlay multiple

data sets such as population, infrastructure, power utilities and protected habitats or even their own internal data services.

**National ICT Australia Ltd**

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## Touch panel PC series

IEI Integration's latest IoT solution, the 12", 15" and 17" IOVU all-in-one terminal series, has been released to satisfy the increasing demand for Android panel PCs. Supporting a wide range of operating temperatures from -20 to 60°C and providing safety and flexibility in power management, the IOVU series is a powerful solution for maximising efficiencies in smart retail, industrial automation and warehousing.

The series is equipped with Power over Ethernet (PoE) technology. This technology features a system that safely transfers electrical power through data transmission in an Ethernet network and simplifies deployment by using the common Ethernet cabling infrastructure. PoE is said to reduce downtime and cost, and is easy to maintain and upgrade. Furthermore, the front panel is fitted with a projected capacitive touchscreen in 12", 15" or 17" sizes to provide responsive and easy-to-use interaction.

The IP65-compliant aluminium front panel makes the panel PC suitable for applications in harsh environments. Powered by the Freescale i.MX6 Cortex-A9 quad-core 1 GHz processor with the free-licensed Android 4.2.2 operating system, the series enables high-performance computing. Through Wi-Fi and Bluetooth connectivity, the series can provide real-time data access.

The series is designed with multiple I/O interfaces, such as one CAN 2.0, two USB 2.0 and four GPIO, to meet a variety of demands. All these features are aimed at creating user-friendly experiences.



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### Manufacturing a better workplace

Barry Thomas, Director Asia Pacific, MD Cook Australia, Cook Medical



According to research from Carnegie Mellon University, about 36% of electrical energy is used in the workplace. Academics from Macquarie University have found that the environment impacts employment practices and relations. And research coming out of Harvard Business School has shown that sustainability programs improve

employee engagement and motivation, as well as customer satisfaction.

Cook Medical Australia considers each of the areas where we have an impact on the environment. We've also spent some time finding ways we can get employees involved in reducing our footprint in the day-to-day operation of the company. And we've found it has actually had a positive impact on staff morale too.

Our sustainability initiatives are developed and fine-tuned with some inspiration gained by looking to the wider market for best practice.

Westpac was named the World's Most Sustainable Company in 2014. In 2015, Westpac was hedged out for the same award by Biogen — a company that has some similarities to the kind of work we do at Cook Medical Australia.

As a manufacturer specialising in new therapies for patients with serious disorders, sustainability might not be an easy task. However, Biogen reduced carbon emissions by investing in sustainable technologies and programs that fund sustainable energy. 99% of its waste is recycled, composted or burned to create energy.

Overall, Biogen has reduced its greenhouse gas emissions intensity by 70%. About 70% of its carbon emissions come from suppliers, so Biogen suppliers are encouraged to report on energy use and carbon emissions. Employees also volunteer at not-for-profit organisations like Clean Up Australia to continue their efforts outside the office.

When implementing our own sustainability initiatives at Cook, I wanted us to follow the example of companies like these that are leading best practice. I also saw getting employees at Cook involved as a priority.

I've always believed in making a workplace where employees feel valued and consulted. We created the Green Committee so this same philosophy could apply to our sustainability initiatives, which operate alongside regular work tasks.

Volunteers in our Green Committee are not only ambassadors for environmental issues, but also the eyes and ears on the ground for the organisation. They help inform solutions that will work for employees and take charge of initiatives that can be employee-led.

The Green Committee has achieved several sustainability goals, including: introducing a carpooling program; auditing the amount of plastic used in order to reduce it and improve efficiency; re-introducing recycling options; offering Green awards to increase environmental awareness across the organisation; and encouraging other Cook offices in the Asia-Pacific region to get involved in Earth Hour.

But we appreciate the need to lead by example at management levels. Our environmental strengths reached a new peak last year when we installed 99 solar panels, covering a total of 706 m<sup>2</sup> of roof space.

We chose a type of advanced solar panel technology called PERC (passivated emitter rear contact) because it best suited the weather conditions in Brisbane. For us, these panels have been a long-term investment in reducing our carbon footprint.

The 706 m<sup>2</sup> installation saves around 280 tonnes of carbon every month — equivalent to taking 59 cars off the road. The panels have meant we are now using 30% less power.

Managing meaningful environmental measures is not something that happens overnight. It has taken us a great deal of time and effort to ensure we address environmental concerns. It's an ongoing job and something that operates alongside our other day-to-day processes.



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