

## It's new, it's brave...but is it for you?

Ergo puts time and energy into assessing motor control innovations to ensure they meet our standards and your requirements.

We are constantly exposed to new industry designs, technology and trends. As independent design consultants, our role is to carefully filter this information, so that you get the best of the best. We don't adopt new for the sake of newness. Our engineers are looking for stability, simplicity, reliability and proven benefits.

### Putting new ideas to the test

Traditional hard-wired systems offer a proven solution and are well understood. Migration towards more intelligent motor control provides some benefits, but must be well considered. For example, some processes are so complex they cannot operate in manual mode. Others are simple but critical, requiring manual control in the event of control system failure.

Once we've looked closely at critical service and simplicity, other key considerations are reliability, information/data requirements, connectivity (open architecture) and future proofing. These lead on to more detailed considerations, such as the capability of the local and remote control system, skill level of maintenance personnel, capability of a site's PLC/SCADA control and telemetry systems, and benefits of smart communication networks to relays and drives.

### Your requirements come first

Excellent outcomes can be achieved when a client's needs are defined up front. Ergo has developed checklists to ensure this crucial stage is an integral part of the standard design procedure.

### An innovation we're watching closely

'Smart communications' have been promoted as the end to hard-wired relays, and a means to save significant costs in construction and installation. This is because downtime is shorter (the maintenance technician knows exactly what has failed), alarm diagnostics are better, and switchboard/MCC construction simpler (less wiring). However they have not been universally embraced by industry because of issues with openness of communication protocols (manufacturers have not adopted common standards), lack of training, and complexities in maintenance and fault-finding.

### Our gold standard

At Ergo we believe motor control solutions need to:

- Be appropriate for the application and cost-effective
- Have the appropriate level of complexity (kept simple wherever possible)
- Be available to a range of equipment suppliers (not specified for one brand only).

## Networking for new knowledge

In April, Ergo's Chris Turney and Carla Smith attended Hanover Messe 2012 (aka 'The Hanover Fair'). This annual event is the world's most important technology show – a shortcut to the latest advances in the electrical engineering sector. Here's Chris's account of the experience, which led to a series of factory tours across Germany:

"The fair was really impressive. Carla and I spent three days visiting stands that were relevant to our work. We then went on a tour of various factories across Germany - Schneider's GMA and GHA factory in Regensburg; ABB's Calor Emag factory in Hanau and MV factory in Ratingen; and Siemens' switchgear, relay and HV factories in Nuremberg and Berlin.

"In Berlin we saw gas-insulated transmission lines (GIL), which are essentially large pipes within pipes that are insulated by gas, with

rated voltage of 245kV to 550kV and currents up to 4500A (at 550kV 1A is 1MW).

We also looked around the Siemens' campus, known as Siemens Town, which included a highly unique continuous lift (Paternoster), houses built for staff during the depression, the Siemens' railway (now disused) and various parks. Obviously the company has a long history of looking after its staff. We noticed the parks often had little hills, and were told these were made from piles of rubble left over from the War.

"We were impressed by the level of engineering expertise in Germany, and the country's commitment to quality and efficiency. German manufacturers have obviously been perfecting their craft over a long period of time."

### Non-engineering highlights:

- Travelling up the Danube to a monastery that had been converted to a brewery, an unsurprising development given that beer drinking has near religious status in Germany.
- Seeing the old city of Nuremberg, 80% of which was levelled in one day in 1945. You would never know because it was rebuilt in the same style, but with better plumbing.
- Visiting Checkpoint Charlie and bringing back a bit of the Berlin Wall (supposedly...)
- As we flew in and out of Paris, we fitted in a whistle-stop tour of the Louvre, Eiffel Tower, Gare d'Orsay and the Arc de Triomphe.



# CurrentAffairs

News and views from Ergo Consulting Ltd

Issue 11 – Winter 2012

## Software upgrade delivers faster, more accurate 3D modelling

**At Ergo we've been using CAD software from the beginning. It has revolutionised the drafting of electrical systems and enables us to provide clients with better outcomes in less time.**

Last year we upgraded to AutoCAD Electrical and AutoCAD Design Suite Premium, which includes Revit MEP and Revit Architectural Design. The Revit software makes 3D modelling easier, faster and more intuitive.

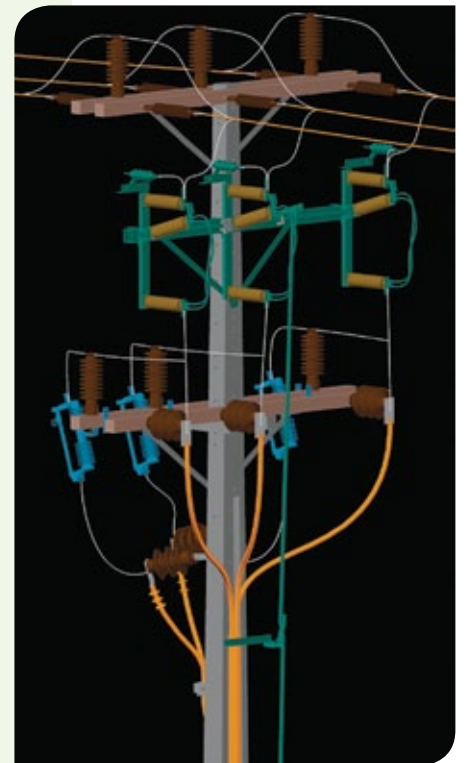
Brett Queenin, head of CAD at Ergo, explains the importance of 3D CAD to our operation: "3D modelling of plant and equipment installations is now an essential part of Ergo's design process. We use it for HV switchyards (HV circuit breakers, switches, isolators and transformers), substation cable basements (cable reticulation and supporting methods), transformer bays (mounting, cable reticulation and clearances), power poles, HV and LV switchboards, and control panels. In the future all panel and equipment layouts will be modelled in 3D with component information intelligently linked to the schematic diagrams and BOM database."

Brett has been working with CAD since 1995 and has witnessed the massive advances in memory, processing speed, graphics and automation that led to the development of 3D CAD.

"3D CAD allows for clear communication and easy evaluation of design intent by representing components with exact accuracy, and by generating pictorial views not just traditional projections. It greatly improves the commissioning phase of a project by clearly identifying clashes, interferences and clearance problems prior to construction. It also plays a significant role in keeping Ergo competitive - we can produce a quality product in a quicker time frame."

As CAD continues its evolutionary journey, Brett is expecting the technology to further enhance the design abilities of Ergo's engineering team.

"I anticipate 3D CAD software will continue to improve engineering productivity by speeding up the design process, suggesting smart options along the way and identifying problems earlier. The software will 'think' for designers and anticipate what they are creating. It will increasingly offer smart layouts, give materials options and assess the structural integrity of a design as it is created. This will expedite construction times and reduce the risk of product failure."



Power pole modelled using 3D software.

### 3D at a glance:

- Ergo uses AutoCAD Electrical and AutoCAD Design Suite Premium.
- 3D modelling is an essential part of Ergo's design process.
- Design quality, design intent and the construction phase of a project are all improved.



Cool fundraiser helps kids with heart conditions

In May a team from Ergo took part in the Heart Stopper Challenge, a fundraiser for @Heart, a charity for children with heart conditions. Our challenge was to sit in a spa of chilled water (about 8°C) for five minutes. This chilling experience mimics the icy slush used to slow children’s hearts during open heart surgery. Thanks to their spa sit and a fundraising morning tea held at Ergo, our team of cool engineers raised more than \$830.

Did you know? Every year around 450 children have open heart surgery in New Zealand.

Ergo engineers ‘man up’ at Britomart. Left to right: Anthea Anton, Lisa Pilot, Jen Southan, Aisling Cavanagh, Liam Doar (the only actual man)



New faces at Ergo

Anthea Anton, Jen Southan and Tom Buzink swap notes over afternoon tea.



**Anthea Anton** has joined the Control Systems team as a graduate engineer. She is currently ensuring drawing accuracy and assisting with water and wastewater projects.

**Tom Buzink** is the latest addition to our Power Systems team. He’s an experienced engineer and has worked in the United Kingdom and New Zealand. Specifically, he’s an expert in SCADA and controls. In addition to his engineering degree, Tom holds an MBA.

**Jen Southan** is Ergo’s new office manager. Her role incorporates support services management, recruitment and administration. Jen has a degree in Communication Studies, majoring in Creative Advertising, as well as extensive experience in production, promotions management and journalism.

Ergo teams become the good guys of Newmarket

Team building is a task we take very seriously at Ergo. This year our annual team building day involved five groups of Ergo ‘special agents’ doing their best to be the good guys of Newmarket. The teams branded themselves Secrecy, Espionage, Intelligence, Covert and Undercover

The teams were told that ‘bad guys’ were threatening to take over Newmarket, however they could prevent the catastrophe by completing certain challenges. These included helping a stranger, being ‘one’ with nature and having a photo with a celebrity. Photos were required as proof of task completion. The final challenge was to locate the Claddagh, where Ergo held a celebratory lunch and prize-giving.



Team Intelligence caught in the act of a good deed



Team Espionage lends a hand to a stranger



Team Undercover captures a celebrity



Team Covert ‘helps’ a bystander



Team Secrecy keeps a low profile