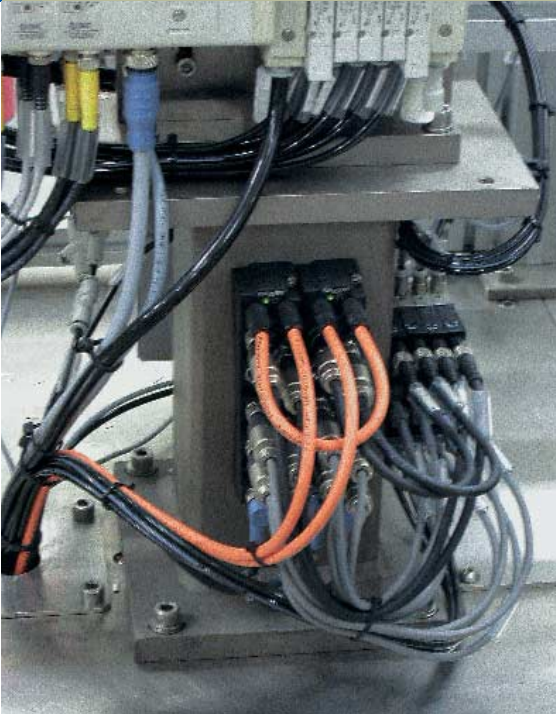


Australian technology leader uses compact I/O system for automation

Fieldbus Box – a very versatile system



→ At first glance, sheep shearing and capacitors may seem like a very odd couple. However, for the development of the cap-XX supercapacitors and the ShearExpress mobile sheep shearing station, Invetech, the development lab of Vision Systems Ltd., decided to use the compact Beckhoff Fieldbus Box.



Vision Systems Ltd., a leading Australian technology manufacturer, uses the Fieldbus Box from Beckhoff for the development of innovative products for agriculture and for the components industry.



Geoff Parker, a consultant in Invetech's Manufacturing Innovation group, explained: "We chose the Fieldbus Box because of its compact water and dust-proof design in protection class IP 67, which enables it to be installed close to field devices without junction boxes. Further advantages are low purchase costs, simple wiring and therefore reduced chance for errors during wiring, noise immunity of the IP-Link system, simple installation and disassembly for shipping, and the level of technical support available locally." The Invetech development activities were supported by Micromax, the exclusive Beckhoff partner in Australia.

Capacitors for mobile electronics

Fieldbus components from Beckhoff played an important role in bringing the cap-XX supercapacitors for mobile electronic applications from the Sydney-based

company to market. Geoff Parker reports: "The project was particularly suitable for Invetech as we were called in early to work closely with the client to assist in everything from product design and development of prototypes through to development, design and manufacture of various machines to provide complete commercial-scale assembly lines to meet future scale-up requirements." Equipment controlled by the system includes two ABB robots, a pallet conveying system, two ultrasonic welders, an inkjet printer, servo motors and various pneumatic actuators. All the inputs, outputs and communications with the robots, servo motors, pallet conveying system and printers are via two DeviceNet networks. The networks have 27 nodes including two Beckhoff Coupler Boxes (1L2301-B520), 12 digital combined In/Out modules (IE 2301), one 4-channel analog input module (IE3112) and one serial interface module (IE6002). The Extension Box modules are connected with each other by the optical fiber IP-Link system.

ShearExpress – gentle sheep shearing station

But Invetech also uses the robust IP 67 system from Beckhoff in completely different application areas. The ShearExpress mobile sheep shearing station is being hailed as one of the most far-reaching innovations in wool harvesting. Originally conceived in Western Australia by Fred Wybrow, ShearExpress is a self-contained mobile production line for the removal of wool from sheep. The system is housed inside a self-powered trailer system which expands on site to provide an air-conditioned workspace.

Results of Australian Wool Innovation (AWI) trials of ShearExpress have shown that shearing quality is superior to conventional shearing. The wool produced with ShearExpress was regarded as having higher quality than that produced by conventional shearing. These impressive results are attributed to the presentation of the sheep in a near perfect position for shearing and the absence of the physical demands required for conventional shearing. Other benefits of the system include improved occupational health and safety issues and better working conditions.

Data acquisition for an electronic “Wool Book”

ShearExpress is controlled by a single Industrial PC which also provides a Data Acquisition and Management System and an electronic ‘Wool Book’, where valuable data on each fleece is captured as the sheep are shorn on the conveyor belt. All the inputs and outputs on the machine, both analog and digital, are connected via a DeviceNet network. The network has 10 nodes and includes 3 Fieldbus Box modules (IL2301-B520), 24 digital combined In/Out modules (IE2401) and 2 digital output modules (IE2021).

“Whilst the core of both projects is in the innovative material handling mechanisms, both control systems presented us with a number of challenges, not the least of which was integrating a variety of complex electronic, software and hardware systems from an equally wide range of distributors. The Beckhoff ‘Fieldbus Box’ gave us the unique capability to deliver leading products for these two very different industries,” Geoff concluded.

→ Invetech www.invetech.com.au

→ Micromax www.micromax.com.au



Invetech

Invetech is Australia's largest technology-based consultancy with more than 200 highly-skilled professionals in science, industrial design, engineering and business. Invetech has provided leading-edge, technology-based innovation services, creating more than \$1 billion of value from the design of new products and manufacturing systems for its clients for over 25 years.

Part of Vision Systems Limited, Invetech has completed almost 5,000 projects on everything from the world's first drip-free golden syrup containers, crash-proof bicycle helmets, cancer detection systems and breakthrough wool processing systems to the most sensitive smoke alarms installed in over 100,000 sites.

