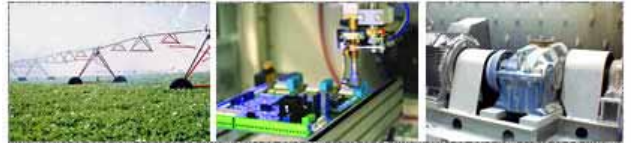


# Drive Link



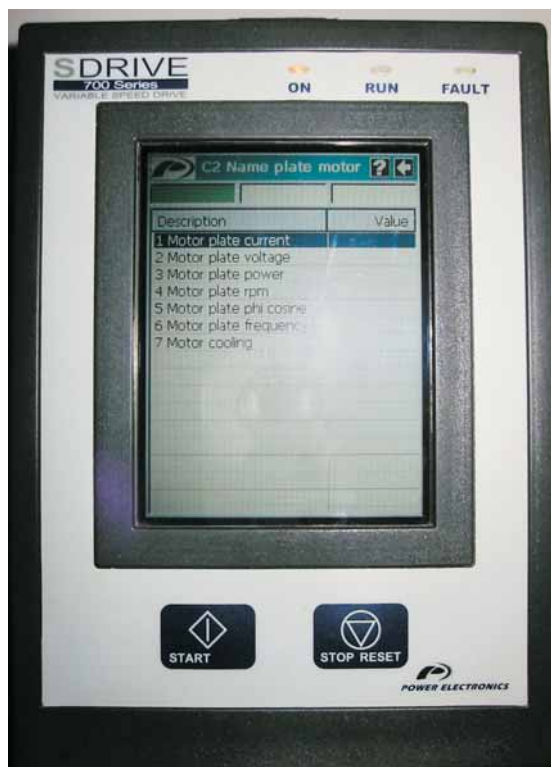
Serial communication from **Drive Dynamics**  
Experts in Motor Control

Edition 5 • July 2007

## Welcome to the latest edition of Drive Link for 2007

The last quarter has been an exciting time for Drive Dynamics as we rapidly expand to become NZ's premier supplier of AC motor control equipment.

Thursday the 26th of July will see Drive Dynamics exhibiting at the ECANZ 2007 Trade Show at Addington Raceway, Christchurch. We will be using this event as the premier launch for several new products, including a world first VSD touch screen interface and the Frame 3 SD700, and would love to see you there.



We trust you find this newsletter informative and if we can be of any assistance then please do not hesitate to contact us.

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## Overstock Special!!

**Do you need a drive for your test bench or trials??**

**We have a number of SD200 (predecessor to the SD250 series) still in stock which we can offer at special rates.**

**Give us a call for details.**

## International Newsflash – Drive Dynamics Open Australian Office

In response to growing demand from Australian VSD users Drive Dynamics have opened an Australian operation, starting with offices in Brisbane and Adelaide. The operation is a joint venture with our Spanish supplier, Power Electronics, and will trade as Power Electronics Australia Pty Ltd.

Many sites in Australia have been looking for a suitable VSD to replace their aging PDL Electronics equipment. With many of these sites being remote and operating in the most rugged of industrial

environments integral IP54, reliable operation in high ambient temperatures, and ease of use and serviceability are paramount. The Power Electronics range of VSDs and Soft Starters has proven to be the perfect solution.

Several of Australia's largest mining companies have now standardised on the Power Electronics range of AC motor control equipment with one site already having installed in excess of 1MW of SD700 VSDs.



## Engineering Article – Lyttleton Road Tunnel receives a breath of fresh air

The Lyttleton Road tunnel has been the major road link between the city of Christchurch and its port, Lyttleton, since 1964. Commuter and freight traffic make up the 15000 vehicle movements passing through the tunnel every day.

Few people are aware that above the main road tunnel a second tunnel of similar dimensions exists. This second tunnel is designed to remove the vehicle exhaust fumes from, and to introduce fresh air into, the road tunnel below.

Air flow through the tunnel is controlled via a series of partitions and automatic gates. At the heart of the system are four 75kW multi-speed motors driving fans approx. 6M in diameter. A pair of these fans is mounted at each end of the tunnel where one is used as the exhaust fan, the other as a fresh air fan. The speed of these fans is varied to adjust the airflow to the amount of exhaust fumes which are required to be removed from the tunnel.

Originally speed control was achieved by electro-mechanical switching between the three different speed windings within the motor but control was coarse and the system was mechanically very harsh. During the 1990's four PDL Micro-Flo MFI-140 VSDs were connected to the original motors in order to improve speed control and life of the mechanical components. More recently it was decided that the MFI-140s were coming to the end of their usable life and a suitable replacement must be found. The Drive Dynamics SD700 range of VSDs provided a perfect alternative.

"The SD701155 model was selected for this application. The small footprint and control flexibility ensured an easy retro-fit whilst the integral IP54 design was perfect in this carbon contaminated environment" says Mark Duncan, Sales and Marketing Director for Drive Dynamics. "This is another great example of Drive Dynamics working to offer an engineered solution for our customers."



One of the fresh air intake fans installed at the Lyttleton Road Tunnel

## “Drive Tips” –

### Frequently Asked Questions

- Do I have to install semi-conductor fuses to protect my VSD?

*There is no doubt that semi-conductor fuses offer better protection of VSD power semi-conductors than standard HRC fuses or MCCBs. However it is often decided that the cost and difficulty of installation outweigh the closer protection benefits. For high power VSD applications Drive Dynamics would always recommend that the VSD be protected by semi-conductor fuses. To this extent all SD700s 110kW and greater are fitted with integral semi-conductor fuses as standard.*

- Can I connect multiple motors to my VSD?

*It is a very common application for VSDs to be connected to multiple motors. Many customers use this configuration to drive a wide variety of loads such as banks of fans, rotary dairy platforms and materials handling systems. There are several key areas which must be considered when undertaking this type of control:*

- *Drive Sizing – The VSD must be suitably rated to cope with the combined FLC of all the motors connected to it.*
  - *Motor Protection - Each motor connected to the output of the VSD must be protected by an individual motor overload.*
  - *Interlocking - If contactors are used to control individual motors on the output side of the VSD then the contactors must be interlocked so that they can only close when the VSD output is off.*
  - *Cable Capacitance – VSDs have a maximum length of cable that can be connected to their outputs. This maximum length varies from model to model. Drive Dynamics can assist with advice on whether your intended output cable length is within specification, or make recommendations on alternate solutions to overcome the cable capacitance.*
- If I install my drive or soft starter in an enclosure how big does the enclosure need to be?

*Sizing of a suitable enclosure for your VSD or soft starter is critical as both of these devices produce heat when operating. This heat must be dissipated from the enclosure for long term reliable operation of the VSD or soft starter. When you fully enclose a VSD or soft starter the heat is dissipated from the surface area of the enclosure to the ambient environment. Factors affecting the size of enclosure are: 1) Enclosure material (steel cabinets dissipate heat better than plastic cabinets). 2) The outside ambient air temperature. 3) The maximum temperature allowable within the cabinet. 4) Whether ventilation is introduced.*

*To make enclosure sizing easy a cabinet sizing guide is available on ([www.drivedynamics.co.nz](http://www.drivedynamics.co.nz)) on the application notes page.*

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