MODULAR DRIVES CHOSEN FOR REGEN TEST STANDS

Large modular regenerating AC drives from Control Techniques have been chosen by Canadian automotive test stand manufacturer D & V Electronics, resulting in optimal power consumption for their latest high speed permanent magnet motor test rigs.

This follows D & V Electronics' use of Control Techniques' Unidrive AC drives for several other large, high-power test stands. Based on these successes and their favourable experience of the engineering support provided by Control Techniques' Drive Centre in Ontario, Control Techniques was once again asked to assist with this latest project. D & V Electronics were looking for extremely versatile drives that could accept a wide variety of motors, feedback devices and communications protocols as well as the ability to regenerate power onto a common bus. The modular Unidrive SP range proved to be ideal choice and 200 and 400 volt Unidrive SPM drives were ordered.

The D & V engineered test routine is very complex, requiring access to detailed motor characteristics to provide an accurate and repeatable measure of the tested motor's performance. The Unidrive SPM range facilitates this through a variety of communications protocols including Ethernet (using a plug-in Ethernet module). In addition, the tested motor is required to be connected to a load motor that could be either an induction or a permanent magnet motor, with a selection of feedback devices including resolvers and encoders. The Unidrive SPM range can accommodate all of this with simple parameter settings.

The load motor is coupled to the test motor - usually a high speed, high power permanent magnet motor - in order to provide the tested motor with a variable known load. Generally, the load motor is spun by the test motor, which causes the load motor to regenerate. This regenerated energy is recovered by the Unidrive SPM and fed back onto a

KEY BENEFITS

- **OPTIMAL POWER CONSUMPTION**
- **CONSIDERABLE SAVING ON RUNNING COSTS**
- **EXTREMELY VERSATILE DRIVES**
- **REGENERATIVE MODE**
- **VARIETY OF FEEDBACK & COMMUNICATIONS**

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common DC bus. This energy is then available to the tested motor and to other test rigs being run off the same bus. In cases where the tested motor and load motor are operated from differing bus voltages, D&V Electronics developed a unique bidirectional DC-DC converter to allow energy sharing across this multi-level bus.

So, except for system losses due to friction, windage and power conversion, the test stand only has to supply enough power to cover these losses. The advantage is that the users of this type of test bench can test large motor of 150 kW or more without drawing large amounts of power from the grid, saving considerable running costs.

The modular nature of the Unidrive SPM's power circuits help with fitting into non-standard enclosures, yet provide the full standard and optional features of the well-proven and popular Undrive SP range, and are integrated using the same software tools for commissioning and programming. The Unidrive SPM is extremely versatile, configurable into open and closed loop modes, paralleled and load sharing, with active input and regeneration, in multi-pulse configuration (12, 18, 24 etc.) or fitted on a common bus for circulation of energy between drives. A wide range of modules give additional functionality, communications or connectivity with feedback devices.

D & V Electronics have found the migration to the Unidrive SPM platform straightforward and familiar and have found the drive's versatility and programmability a positive help in their development programme.

The company manufactures and distributes quality automotive computerized testing equipment to both the OEM and aftermarket, covering the whole of North and South America, the West Indies, Asia and Europe.

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For further information please visit
www.controltechniques.com

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