

E710 VSD: Predictive Maintenance for Mining | TECO

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Advance Warning, Full Thermal Performance and Fast Commissioning: The New TECO E710 Raises the Standard for Mining Auxiliary Drives

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The TECO E710 Next Gen Compact Current Vector Control Variable Speed Drive brings predictive maintenance capability to compact auxiliary drives, continuously monitoring internal components from commissioning and providing warnings before failures occur.

Combined with full-rated performance to 50°C, 150% torque at 0.5Hz in Sensorless Vector mode, and a Copy Module that transfers complete parameter sets in seconds, the E710 is engineered to meet the practical demands of remote Australian mining operations.

The TECO E710 Next Gen Compact Current Vector Control covers applications from 0.75kW to 7.5kW on 380-480V three-phase supply, making it suitable for a wide range of mining auxiliary and service equipment, including dewatering pump stations, forced ventilation systems, screw and belt feeders, and dust suppression systems.

What sets the E710 apart in this class is its Predictive Diagnosis function, which continuously monitors the drive's internal condition and provides a warning of component wear while the system remains operational.

The Predictive Diagnosis function tracks the two internal components most susceptible to wear over time: the cooling fan and the DC bus capacitors. As either component approaches the end of its service life, the drive generates a maintenance alert via its output relay or Modbus RTU interface. This enables replacement components to be sourced ahead of time and maintenance to be scheduled during planned shutdowns.

"The unplanned production stoppage becomes a scheduled maintenance task. The emergency call-out becomes a routine component replacement, with parts ordered in advance and installed during a planned shutdown window."

Hamish Robertson, TECO Australia and New Zealand Product Manager for Drives and Automation, said this advance-warning capability is changing maintenance economics on remote mine sites.

"This is not a fault alarm triggered after failure," Robertson said. "It is an advanced warning generated while the system is still running."

The TECO E710 Variable Speed Drive maintains full rated performance across an ambient temperature range from -10 to +50°C without power derating.

Robertson put it directly: “The drive is designed to deliver its specified performance reliably in the field, even in ambient temperatures up to 50°C.”

Mining auxiliary equipment frequently starts under load. In Sensorless Vector mode, the drive delivers 150% rated motor torque at 0.5Hz, maintaining firm control of the acceleration ramp from the moment the shaft begins to turn, without the need for a speed sensor.

Configurable S-curve acceleration and deceleration profiles reduce the mechanical impulse loads on couplings, gearboxes, and belt splices during every start and stop cycle.

The drive includes Modbus RTU as standard, with optional expansion cards for EtherNet/IP, Profibus DP, CANopen, and EtherCAT. The Copy Module (JN5-CU) stores a complete drive parameter set and transfers it to a replacement unit in seconds, eliminating the need for individual programming on sites running multiple identical auxiliary drives and ensuring a consistent parameter set across the fleet.

The drive supports seven motor control modes across three motor technologies: V/F, V/F+PG, SLV, SV (induction motor), PM SV and PM SLV (permanent magnet), and SynRM (synchronous reluctance motors available on request). It is housed in an IP20 enclosure, designed for installation within an IP-rated MCC or switchboard panel.

Free DriveLink PC software enables parameter management and real-time monitoring, while an optional Bluetooth panel allows wireless access from a smartphone or tablet without opening the enclosure.

For technical specifications on the TECO E710 Next Gen Compact Current Vector Control Drive, or to discuss auxiliary drive applications at your site, contact TECO Australia and New Zealand or your nearest state office.

TECO engineers provide direct application support across Australia and New Zealand. For more information, visit <https://electricmotors.teco.com.au/>

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