

E710 Compact Variable Speed Drive for Conveyors | TECO

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Technical Articles

Controlled Starts, Protected Belts, and Fast Commissioning: The TECO E710 is Built for Bulk Handling Operations

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The TECO E710 Next Gen Compact Current Vector Control Variable Speed Drive delivers 150% rated torque at 0.5Hz in Sensorless Vector mode, combined with configurable S-curve acceleration profiles, two capabilities that are critical for loaded conveyor starts and protecting mechanical components in bulk handling operations.

In cement, quarrying, grain handling, and mining bulk materials operations, conveyor and feeder drives start under load. Belt feeders, screw conveyors, and bucket elevators require consistent torque from the first revolution, along with controlled acceleration regardless of the material load in the system.

The TECO E710 covers these applications from 0.75kW to 7.5kW on 380-480V three-phase supply, making it suitable for belt feeders, screw conveyors, bucket elevator drives, transfer belts, and vibrating feeder drives.

Controlled Starts, Protected Belts

In Sensorless Vector mode, the TECO E710 delivers firm torque from the moment the belt begins to move, providing smooth, controlled acceleration to operating speed, whether the conveyor is starting under load or running empty.

Configurable S-curve profiles soften the transition at the beginning and end of each acceleration and deceleration ramp, reducing the peak mechanical stress applied to belt splices, couplings, gearboxes, and other drive components during every start and stop cycle.

Hamish Robertson, TECO Australia and New Zealand Product Manager for Drives and Automation, explained the long-term benefit:

“On a conveyor running three shifts a day, seven days a week, reducing the mechanical impulse load at each transition is not a marginal gain; it compounds over the life of the belt.”

Performance in Harsh Environments and Fast Commissioning

The TECO E710 maintains full-rated performance across an ambient temperature range of -10 to +50°C without power derating, making it well-suited to outdoor and poorly ventilated panel installations in Australian bulk handling facilities exposed to cement dust, quarry particulates, and extreme summer temperatures.

Modbus RTU is built in as standard, with optional cards available for Profibus DP, EtherNet/IP, CANopen, and EtherCAT. The drive is housed in an IP20 enclosure, designed for installation within an IP-rated switchboard panel, standard practice in bulk handling electrical distribution systems.

The Copy Module (JN5-CU) stores a complete drive parameter set and transfers it to a replacement unit in seconds, reducing commissioning time for multiple identical drives and eliminating the need for keypad reprogramming when a unit is replaced in service.

The Predictive Diagnosis function continuously monitors the drive's internal cooling fan and DC bus capacitors from commissioning, providing a warning of component wear before failure occurs. At facilities operating around the clock, this transforms an unexpected production stoppage into a planned component replacement during a scheduled maintenance window.

The drive supports seven motor control modes: V/F, V/F+PG, SLV, SV (induction motor), PM SV and PM SLV (permanent magnet), and SynRM (available on request), providing compatibility across induction, permanent magnet, and synchronous reluctance motor applications.

For technical specifications on the TECO E710 Next Gen Compact Current Vector Control Drive, or to discuss bulk handling 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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