

Line Regenerative ac Inverter Drives & ac Flux Vector Drives

Baldor Series 'ID21H' ac Inverter Drives and Series 'ZD22H' ac Flux Vector Drives comply with IEEE Standard 519-1992 for reduced Total Harmonic Voltage and Current Distortion at Rated Load

What is a Line Regenerative Drive?

Whenever a motor is slowed more rapidly than if it were coasting to a stop, it becomes a generator.

The energy or power generated by the motor may be dissipated as heat through a dynamic braking resistor, or alternatively with the correct technology, it can be returned into the incoming power line.

Baldor controls which deliver the regenerated power to a dynamic braking resistor include the Series '15H' Inverter and the Series '18H' Vector Controls.

Now Baldor has introduced two new series of controls which return the power generated during motor braking back into the incoming line.

The Series '21H' Line Regenerative Inverter Control and the Series '22H' Line Regenerative Vector Control.

Which control is best for your application?

In applications where the motor can be allowed to coast to a stop, Series '15H' Inverter and '18H' Vector Controls with no braking options are generally used. When limited braking is required, external dynamic braking options may be added to these standard controls.

There are many applications however where a Series '21H' Line Regenerative Inverter or Series '22H' Line Regenerative Vector Control would be the better choice.

These include:

- Applications where reduced energy consumption or reduction of demand charge penalties is important.
- Applications which have a large percentage of the total cycle time devoted to braking the motor/load.
- Applications having an overhauling load
- Applications which must comply with IEEE-519 which specifies a limit on harmonic voltage and current waveform distortion, including those where the motor can coast to a stop.
- Typical applications include Winding/Unwinding Stands, Downhill Conveyors, High Volume Air Conditioning, Test Stands, Press/Cyclic Loads, Hoists and Cranes.

What is IEEE-519?

IEEE Standard 519-1992 is titled 'IEEE Recommended Practices and Requirements for Harmonic Control in Electric Power Systems'. This is a recommendation on limits of harmonic current drawn from and fed into utility power lines by customers. It is being adopted by more and more power utilities in response to line harmonic problems they and their customers have experienced.

How will IEEE-519 affect you?

Utility customers who use equipment that produces harmonic currents and

subsequent harmonic voltage waveforms will eventually be required to reduce the level of waveform distortion to recommended levels. This can be done by using compliant equipment or by installing additional devices that decrease the harmonics contribution of existing or new equipment which currently exceeds the recommended levels.

Baldor Series '21H' Line Regenerative Inverters and Series '22H' Vector Controls are IEEE 519 compliant for total harmonic voltage and current distortion at rated load. They eliminate any need for expensive harmonic filtering to meet IEEE-519 recommendations.

Comparison of Line Current Waveforms and Harmonic Spectra of Diode Bridge ac Control and PWM Transistor Bridge ac Control

