Power Xpert™ C445 series global motor management relay upgrades and protects Star/Delta motors for less money

The C445 motor management relay offers 10 logical starter operation modes that can take the place of specialty logic and control devices. The Star/Delta operation mode in C445 is a low-cost retrofit option for Star/Delta starters that prevents the faults associated with unmaintained timers, relays and resistors.

Star/Delta upgrades

Star/Delta motors provide an affordable means of reduced-voltage starting by physically reconfiguring motor windings. The Star configuration reduces line current to 58% and after a period of time, the windings are reconfigured to Delta and the motor runs normally. The basic Star/Delta system is only capable of overload protection and uses relays and timers that require continued upkeep. Lack of protection on these older systems can dramatically increase maintenance costs. C445 can provide state-of-the-art protections to existing systems at a fraction of the cost of replacing the entire system.

Star/Delta maintenance

The Main Contactor and Star Contactor are closed initially, and after a period of time, the Star opens and the Delta closes. Timers control the contactor changeover. In an open transition design, power is disconnected from the motor while the windings are reconfigured. Accurate timing is required so that the motor is not reconnected with a phase difference, which can create a current/voltage spike and resulting motor damage. Unfortunately, timers are often left unchecked. A common failure for Star/Delta motors is a burned resistor, causing imperfect timing and resulting motor damage.

C445 does the timing and protection for you

The Star/Delta operation mode in C445 provides the logic and timing required to control a Star/Delta motor. This eliminates the need for continued inspection and tuning of Star/Delta systems to ensure accurate timing and to prevent failures. The control mode switches to Delta when it detects that the motor is up to speed or when the maximum star winding period expires. By having a single control (C445), the transition time can be very short, minimizing the intensity of any spikes. Further, electronic-based timing control does not require the same upkeep and replacement as an electromechanical system.

Not only does this operation mode remove the need for dedicated timers and resistors, but it also provides advanced motor protections and monitoring with fieldbus connectivity for the motor in both states, essentially acting like two overload relays in one device. The control sets separate active motor parameters when in Star and Delta states. Conversely, an overload without this operation mode would require two devices to achieve this same level of protection. Finally, C445 is an upgrade option that is far more affordable than migrating to a drive or a soft starter to prevent motor failures on existing Star/Delta systems.

For more information, consult the user manual **MN042003EN** at **www.eaton.com/c445**.

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