

Application of RVSS soft starter for reversing applications

How to configure the reduced voltage soft starter for motor reversing applications

Application

The soft starter may be used to accomplish motor starting using the reduced voltage method for reversing motor applications. Soft starter capacity (sizing) is according to the normal load selection criteria, and no additional current considerations are necessary specifically for the reversing contactors. In reversing applications, the mass of the load must also be considered to determine the appropriate soft stop or coast to stop time necessary prior to re-energizing the motor in the opposing direction, as applicable.

Overview

Soft starter sizing is determined by the horsepower or kW rating of the motor, coupled with the mains operating voltage. Please note that all references to sizing the reduced voltage soft starter (RVSS) are based on motor full load amps (FLA) rather than horsepower. This is to preclude improper sizing due to variations of motor FLA among various motor manufacturers. Using this information, the normal table or graph is consulted to determine the minimum size of the soft starter for the application. Under normal circumstances, the soft starter sizing does not require an increase solely due to the fact that reversing contactors are being used.

Soft starter circuitry

Reversing contactors are placed between the RVSS and the motor. This method will preclude soft starter tripping due to changes in phase rotation of the installation. If reversing contactors are placed between the upstream circuit protection and the soft starter, tripping may occur due to mains voltage loss and/or other events.

Note: As with any reversing application, it is highly recommended that both electrical and mechanical interlocks be incorporated into the circuit design to ensure proper contactor staging.

Control and parameter settings

Parameter values may be entered in a manner similar to an application without reversing capability. If the application is to be switched from one direction to the next, the START/STOP control circuitry must incorporate a STOP command and timing mechanism that will inhibit a restart (START command) until a predetermined time has elapsed. The inhibit time is based on the amount of time necessary for the load to attain a complete stop. While the Eaton line of RVSSs have the ability to pick up a spinning motor (in the same direction), issuing a START command with motor rotation still in the opposite direction may result in system damage, as the initial voltage applied at the START command will be in accordance with the RVSS initial torque parameter value. Due to the many RVSS command control schemes available, RVSS control schemes are not described in this document.

The motor reversing circuit may also be combined with an RVSS external bypass contactor configuration if so desired.



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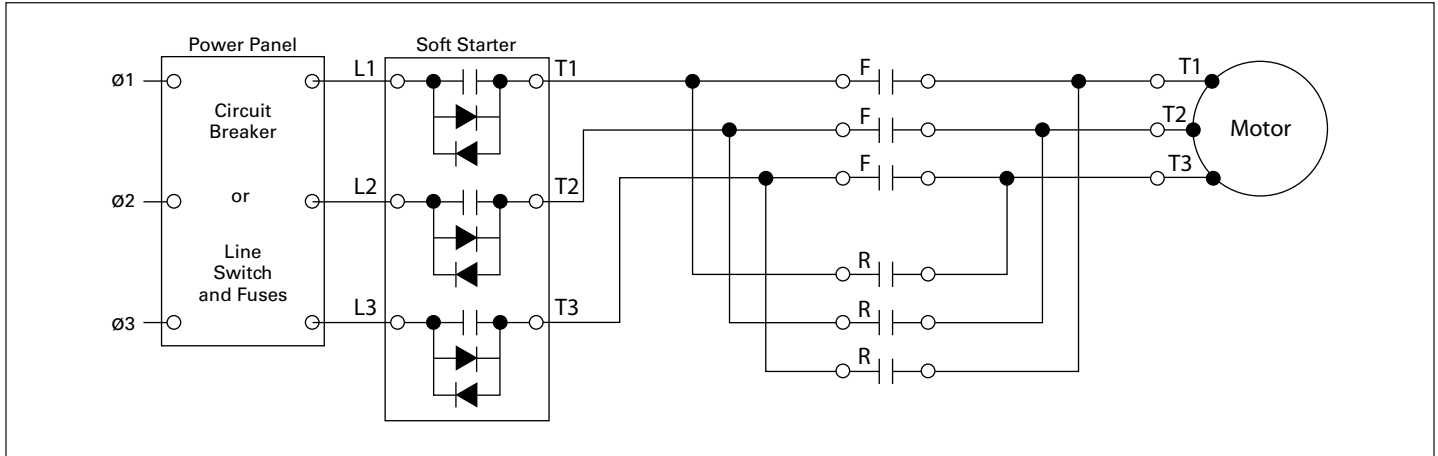


Figure 1. Schematic

Supporting documentation

Manuals	Reference Number
S811+ User Manual	MN03900001E
S801+ User Manual	MN03900002E

Additional help

In the event that additional help is needed, please contact the Technical Resource Center at 1-877-ETN-CARE, Option 2, Sub Option 2.

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