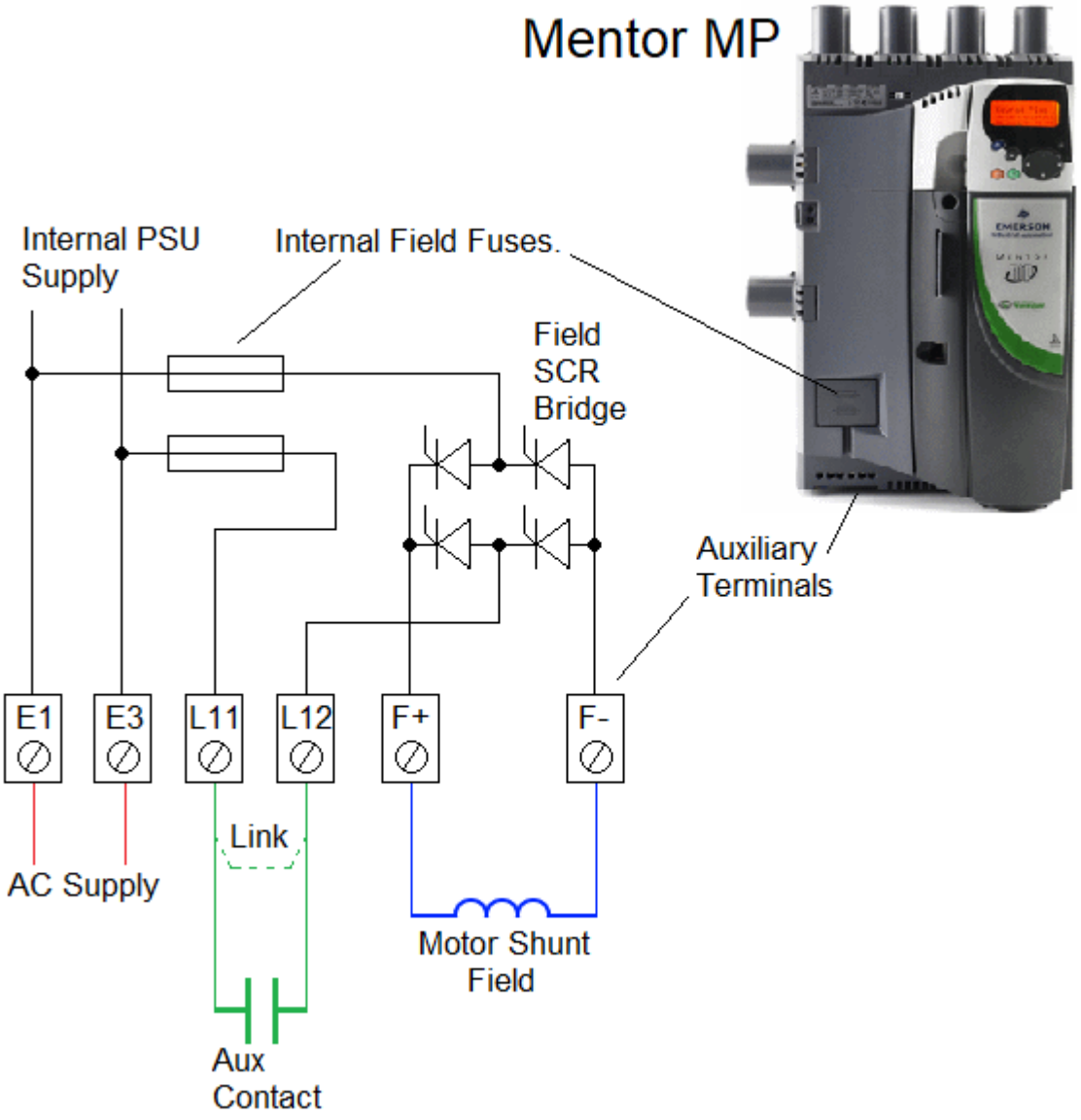
App Note
Mentor MP/Quantum MP
AN511
Rev1.0, 3/23/22

MP Internal Field Controller connections.



Some notes when connecting the Control Techniques MP DC Controller to the field on a shunt wound motor.

1. The user must make sure that the auxiliary supply (E1, E3) is fed from a minimum voltage source of 230V-AC (up to 480V max).

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2. Connect the shunt field to the MP's terminals F+ and F-. The shunt field connections in the motor will probably be marked up as F1 (+) and F2 (-) but many motors have two sets of shunt field winding which can be connected in series and parallel. So here you would connect F+ (drive) to F1, then connect F2 to F3 in the motor and finally F4 to F-(drive). This will give a lower field current at a higher voltage and is the preferred method of connecting up the field windings.
3. The user must now set the motor field current [#05.70] and field control mode of control [#05.75] which can be voltage or current regulated. Under the vast majority of circumstances the shunt field would be regulated in current mode and so #05.75 should be set to OFF. NOTE: The motor shunt field current will be found on the motor name plate.
4. The Mentor MP provides the user with some extra motor protection which comprises two terminals, which we must look at next. For the field controller to operate Terminals L11 and L12 need to ether be linked or used in an external control circuit. So if the motor is force vented (has a cooling fan), then we would use an auxiliary contact of the motor cooling fan contactor (see the drawing on the previous page) in series with the MP fielding controller. So in the event of the motor cooling contactor opening while the drive is active, the shunt field is shut off and the drive will trip on a "Field Loss" thereby protecting the motor from overheating damage.
5. Finally enable the field controller by setting [#05.77] to ON. I might also suggest setting the "field economy mode" [#05.79] to ON. This function will reduce the field controller output to 25% of the motor rated shunt field current when the motor is not running. Once the drive is set to run, the field will go back to the fully rated current. This saves both energy and reduces heating in the motor.