

TIP SHEET

REPLACING 5kV AMPGARD BACKUP FUSES IN THE FIELD WITH MERSEN FUSES

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There is a large installed base of Cutler Hammer/ Westinghouse and Eaton built Ampgard gear in use controlling medium voltage motors today. The Ampgard line of medium voltage starters was introduced back in 1962 and has decades of reliable usage. Eaton also has their newer NextGen Ampgard line being manufactured and installed in the field. Over time, the backup fuses in this installed base of gear will need replacing. There are also opportunities for spares and additional fuses for expansions of existing Ampgard lineups. Mersen has a fuse line which is a competitive option for these applications.

Mersen developed a line of medium voltage fuses specifically for use in 5kV, Ampgard style Motor Control Centers (MCCs), and these are used in new lineups of Ampgard, and exist in lineups installed in the field today. Mersen's fuses are also used in Powell's FlexTrol line of medium voltage MCCs. It is simple enough to purchase replacements of the Mersen fuses in the aftermarket through one of our distributors, but these Mersen fuses can actually replace Bussmann's Ampgard fuses in the field as well.

These Mersen fuses were first tested in legacy Ampgard style gear, including short circuit testing and heat-rise testing across the fuse range. This qualified that the fuses will safely interrupt fault levels up the MCC's short circuit current rating when used properly within the MCC assembly. The heat-rise testing qualified the continuous current levels that can be maintained by the starter with each fuse rating being used.



This same testing has also been more recently done in Eaton's NextGen line of Ampgard gear, qualifying the fuses to be used in the newer MCC lines as well. Both Eaton and Powell still sell and support MCCs that utilize both of these designs.

If you are trying to replace Bussmann's 5ACLS or 5BCLS fuses in existing gear, a Mersen cross can likely be used. The Mersen fuses were designed to match the mechanical footprint and mounting of the Bussmann fuses, so it is an easy physical swap. However, since the fuse curves and their minimum breaking capacities (MBC) differ slightly, this needs to be taken into consideration when replacing.

Coordination crossover points between fuses and overload relays are based off of the fuse's MBC value. The MBC value is important because the overload relay must open all currents less than the fuse's MBC value. When MCCs are engineered and built, coordination between the overload relay and the motor fuses is done by the manufacturer at the factory. So when motor control fuses are replaced in the field, it is always good practice to check the overload relay's settings against the new fuse's MBC value as a safety check. Doing this will ensure that the Mersen replacement coordinates with the overload relay and provides proper protection for the motor.

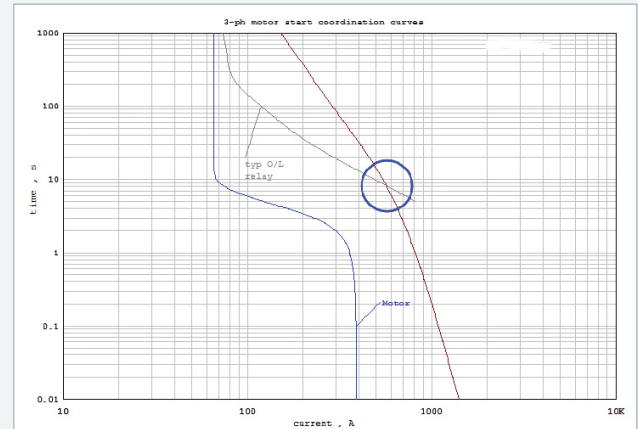


Figure 1: Example of coordination between a typical overload relay and a backup fuse for motor protection

FUSE CROSS REFERENCE

Use the following cross reference to identify the appropriate Mersen Amp-Trap fuse for your Ampgard application.

| FERRULE | | | BOLT-IN | | |
|-----------------------|----------------|---|-----------------------|----------------|---|
| Eaton/Bussmann Part # | Mersen Part # | Mersen Minimum Interrupting Current (MBC) | Eaton/Bussmann Part # | Mersen Part # | Mersen Minimum Interrupting Current (MBC) |
| 5ACLS-2R | A051F1DHR0-2R | 220 | 5BCLS-2R | A051B1DHR0-2R | 220 |
| 5ACLS-3R | A051F1DHR0-3R | 270 | 5BCLS-3R | A051B1DHR0-3R | 270 |
| 5ACLS-4R | A051F1DHR0-4R | 360 | 5BCLS-4R | A051B1DHR0-4R | 360 |
| 5ACLS-5R | A051F1DHR0-5R | 450 | 5BCLS-5R | A051B1DHR0-5R | 450 |
| 5ACLS-6R | A051F1DHR0-6R | 600 | 5BCLS-6R | A051B1DHR0-6R | 600 |
| 5ACLS-9R | A051F1DHR0-9R | 900 | 5BCLS-9R | A051B1DHR0-9R | 900 |
| 5ACLS-12R | A051F1DHR0-12R | 1200 | 5BCLS-12R | A051B1DHR0-12R | 1200 |
| 5ACLS-18R | A051F2DHR0-18R | 1500 | 5BCLS-18R | A051B2DHR0-18R | 1500 |
| 5ACLS-24R | A051F2DHR0-24R | 2200 | 5BCLS-24R | A051B2DHR0-24R | 2200 |

REFERENCE FOR SIZING MEDIUM VOLTAGE FUSES FOR MOTOR PROTECTION

Fuse specifications are available on the Mersen EP website. You can also reach out to our [Technical Services group](#) or your local sales contact for help or more information.

