

SURE GUARD® ETP CURRENT-LIMITING FUSE MODEL 9F59U SERIES

CAUTION: *The equipment covered by these instructions should be installed and serviced only by competent personnel familiar with good safety practices. This instruction is written for such personnel and is not intended as a substitute for adequate training and experience in safe procedures for this type of equipment.*

GENERAL

This is an outdoor back-up type current-limiting fuse having a rated minimum interrupting capability. It must therefore be series-connected with an interrupting device having the ability to clear fault currents at or below the minimum interrupting rating of the ETP fuse. This interrupting device will usually be an expulsion fuse. The ETP fuse limits the fault current to a very low actual let-through current level. In this manner it will minimize the current which can be delivered to a fault within a protected transformer or capacitor.

MOUNTING

1. The ETP fuse may be mounted on the line or load side of a conventional distribution fuse, on an alternate support means or mounted directly on the high voltage bushing of a distribution transformer.
2. Load side terminal mounting: The ETP and the conductor from the ETP to the transformer bushing must be located so they are well away from the exhaust path of the expulsion fuse.
3. Line side terminal mounting:
 - a. The fuseholder cap may be the solid or the expendable type with either the ETP-12, ETP-25 or ETP-40 since the low let-through I^2t of the ETP fuses will prevent rupture of the expendable disc.
 - b. Connection to the distribution arrester should preferably be from the source side of the ETP-12. Connection can be made on either side of the ETP-25 or the ETP-40.
4. When making cable connections to the fuse terminal, be careful to avoid placing excessive cantilever load on the fuse stud. The mounting stud is designed to yield before the loading reaches a level which might damage the ETP fuse. A slight bending of the stud will not impair the operation of the fuse.

THREE-PHASE APPLICATION

When an expulsion fuse capable of operation on a three-phase circuit is applied in series with an ETP type back-up current-limiting fuse, the ETP fuse can be rated for system L-N voltage without regard for transformer connection or type of load. The only restriction is that the expulsion fuse must be chosen as shown in Table 1 and the ETP fuses applied in each phase must have identical ratings.

SERIES-CONNECTED INTERRUPTER

1. If the series-connected low-current interrupting device is an expulsion fuse, it must have a melting I^2t equal to or smaller than the associated ETP fuse.
2. If the melting I^2t of a specific type of expulsion fuse is not known, the melting time-current curve can be used. The minimum melting current of the expulsion fuse at 0.01 should not exceed the minimum melting current at 0.01 second of the ETP fuse.
3. The maximum interrupting capability of the series-connected interrupter must be equal to or greater than the total clearing current of the ETP fuse at 0.01 second.
4. Use Table 1 (on the reverse side of this page) to determine matching.

OPERATION CHECK

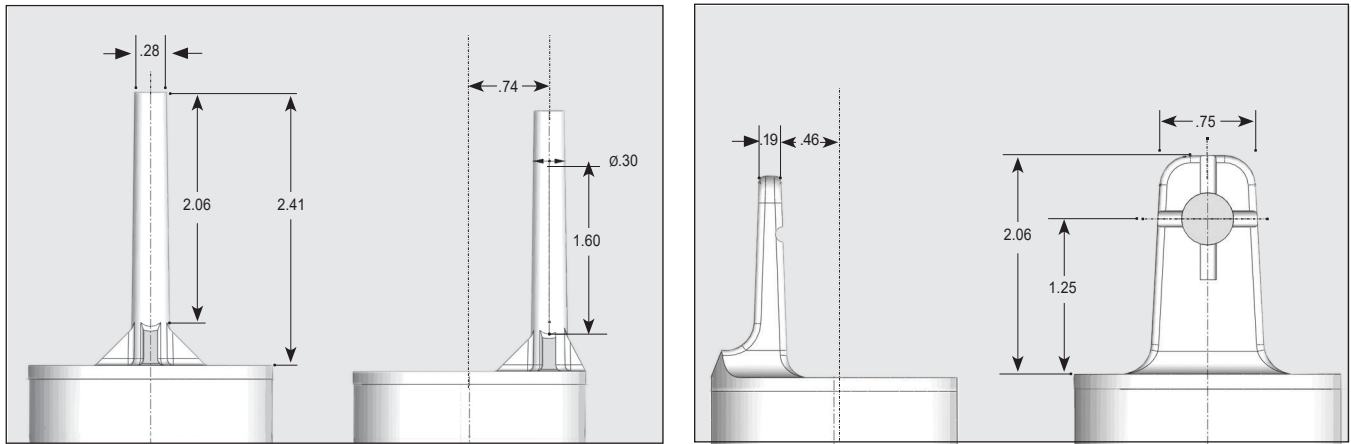
If the series connected expulsion fuse operates, the associated ETP fuse may also have operated. Before replacing the expulsion fuse, check the condition of the ETP fuse. This may be accomplished by either replacing the ETP fuse or disconnecting the source-side lead and checking the ETP fuse for continuity. Use a low voltage continuity tester for this check. If the ETP fuse shows continuity, it may be reused.

**TABLE 1
RECOMMENDED MAXIMUM EXPULSION FUSE SIZES**

| ETP FUSE | RATINGS | | | ETP MODEL 9F59U | NEMA "K" LINK* | NEMA "T" LINK* |
|----------|---------------|-------|------|-----------------|----------------|----------------|
| | SYSTEM KV.MAX | | | | | |
| | 3 PH | PH-PH | PH-N | | | |
| ETP-12 | 15 | 15 | 8.3 | BC . . 1 | 12 | 8 |
| ETP-25 | 15 | 15 | 8.3 | BC . . 2 | 25 | 15 |
| ETP-40 | 15 | 15 | 8.3 | BC . . 4 | 40 | 25 |
| ETP-12 | 27 | 27 | 15.5 | BD . . 1 | 12 | 8 |
| ETP-25 | 27 | 27 | 15.5 | BD . . 2 | 25 | 15 |
| ETP-40 | 27 | 27 | 15.5 | BD . . 4 | 40 | 25 |
| ETP-12 | 38 | 38 | 23 | BE . . 1 | 12 | 8 |
| ETP-25 | 38 | 38 | 23 | BE . . 2 | 25 | 15 |

**In some cases, an expulsion link having a higher melting characteristic than those listed in Table 1 is acceptable. Such cases should be referred to Mersen for approval.*

Fig. 1. End Connection Configuration



Disclaimer: *These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise, which are not covered sufficiently for the purchaser's purposes, the matter should be referred to Mersen.*