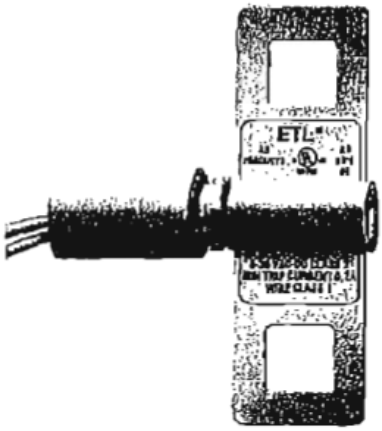
69° C

SR PRODUCTS, LLC



69° C ETL®

ELECTRO THERMAL LINK®

The **Electro Thermal Link [ETL®]** is a multi-purpose, *dual* responsive **fusible link / release device**. The fusible link portion functions identically to an *ordinary* fusible link - *ambient* temperature nearing the *rated* temperature causes the low temperature alloy to melt, allowing the link halves to separate. The ETL® can also be actuated by an *electrical* impulse. A 0.2 ampere *minimum* trip current applied for 50 millisecond *minimum* duration starts an *irreversible* chemical reaction that melts the fusible alloy and causes link separation in 6 to 10 seconds at standard temperature. The ETL® was designed to substantially improve life safety and minimize property damage by providing both *ordinary fusible link response in the event of fire* along with the capability to *instantaneously* respond to *any* type of fire, smoke, infrared, light detector (etc.) capable of supplying a short duration current impulse. The design allows for ETL® substitution or retrofitting of ordinary fusible links and other actuators or release devices installed in: dampers; doors; roof hatches; towers; extinguishing systems, and inert chemical or gas release systems. An inherent major advantage of the ETL® over other products is the *dually redundant* dormancy – it draws no current and stays inertly in place until actuated, then functions and separates in seconds. The ETL® is designed and intended FOR INDOOR (or sheltered) DRY USE ONLY. The ETL® is an Underwriters Laboratories® listed device manufactured to exacting space age standards.

TECHNICAL DESCRIPTION

The 69° C ETL® is a UL® listed **fusible link / release device** with a 69° C (156° F) nominal temperature rating and a **40 pound** (18 KG) ***maximum*** continuous - **5 pound** (2.3 KG) ***minimum*** continuous tensile weight rating at standard temperature. *Additionally*, it contains a bridgewire initiated pyrotechnic heating element *requiring* a fifty (50) millisecond *minimum* duration all fire current of 200 milliamperes (0.2 ampere) within a voltage range of 6-30 VAC/DC (NEC *Class 2*, low voltage). The fusible link portion is a nominal 1" (25.4 mm) X 3 ⅛ (79.4 mm) X ½" (12.7mm) envelope with ½" (12.7 mm) square reinforced openings at the ends to allow attachment of "S" hooks, straps, or other attachments. An 11/16" (17.3mm) diameter x 1 ¼" (31.7mm) protruding cylinder houses the pyrotechnic heating element and attachment wires (UL® 1018 Wire Class 1) and provides a means to attach a standard EMT conduit connector adapter to any combination ½" (12.7 mm) EMT; or ⅜" (9.5 mm) or ½" (12.7mm) flexible conduit, thereby meeting any requirements such as National Electric Code specifications for 'Wiring in Ducts, Plenums, and Other Air Handling Spaces.' The ETL® has a forty (40) pound *maximum continuous* tensile strength at standard temperature which can only be achieved in installations where the link is subject to *equal* linear tension from both ends. If side or "peel" forces are encountered (which is typical in most smoke damper installations) the weight may have to be reduced, or the force vectors re-established. For this reason it is not permissible to bolt *or* fix one end of the ETL® in *most* installations. Even if the Installation is gravity release (i.e. forty pounds hanging straight down from the bottom link half) it is *recommended* to allow the link to "float" using "S" hooks, straps or other attachments.

The ETL® contains a bridge wire initiated pyrotechnic heating element. The 14µ bridge wire has a nominal resistance of **10 to 30 Ohms**. The bridge wire is multi-purpose, serving as the ignition source for the chemical heater core and providing a method for non destructive testing. The design of the bridge wire has been optimized, requiring minimal energy to function while remaining safe to handle, transport and install. Care should be exercised in handling and installing the ETL® with particular attention to the following electrical characteristics: Avoid proximity to electrostatic discharge or heavy induction fields. Keep the yellow lead wires twisted or otherwise shunted unless performing resistance checks or until making final connection. Keep the ETL® inside the foil packaging box when not in use, or wrap it in aluminum foil to protect it from unwanted accidental exposure to stray current such as radio transmission fields; electric motor induction fields; electrical coils, and static discharge. ETL®'s should be wired in parallel to normally open circuit contacts, which keeps both lead wires disconnected from the intended actuation energy source. While it is *possible* to continuously monitor the bridge wire, it is not recommended. Even *minimal* continuous input current through the bridge wire will cause long term "baking" of the internal chemical core, and allow ingress for undesired current at levels sufficient to cause unwanted actuation of the device. Monitoring even at extremely low levels defeats Faraday shield protection and allows the possibility of unwanted input currents in the event of ground loop surges, electrical spikes, or proximate lightning discharges. If it is *absolutely necessary* to monitor the ETL®, input current *must* be limited to **≤1 milliampere continuous** current with *all* possibility of current surge (including ground loops) isolated or eliminated. Some possibilities might include using <1 milliampere test input current on a timed interval check basis or use of optical isolation circuitry. ETL®'s subjected to continuous monitoring or extremely harsh environment may have a decreased shelf life and should be replaced at some predetermined maintenance interval.

The ETL® may be safely **resistance checked** using any commercial Ohmmeter, VOM, or bridge tester using an input current of **≤10 milliamperes total input current** into the sample within the resistance range of **10 to 30 Ohms**. Resistance should be checked between the individual ETL® yellow lead wires (or at the normally open contacts after *assuring* that the ETL® is disconnected from all circuits). There should be an open circuit between either lead wire and ground. Insulation resistance is **>2 Megohms @ 600 VAC**.

It is possible for the chemical heat core to leave a conductive path after functioning. Some residual resistance could cause the core to continue to draw a minimal current from a supply transformer or battery. If this is an installation consideration or problem it will be necessary to fuse the system upstream to accommodate it. Assure that any such fusing will not prevent any ETL® in the system from having less than the minimum trip current (0.2 ampere *minimum*) available.

Manufactured By:

SR Products
3916 Traxler Court
Bay City, MI 48706

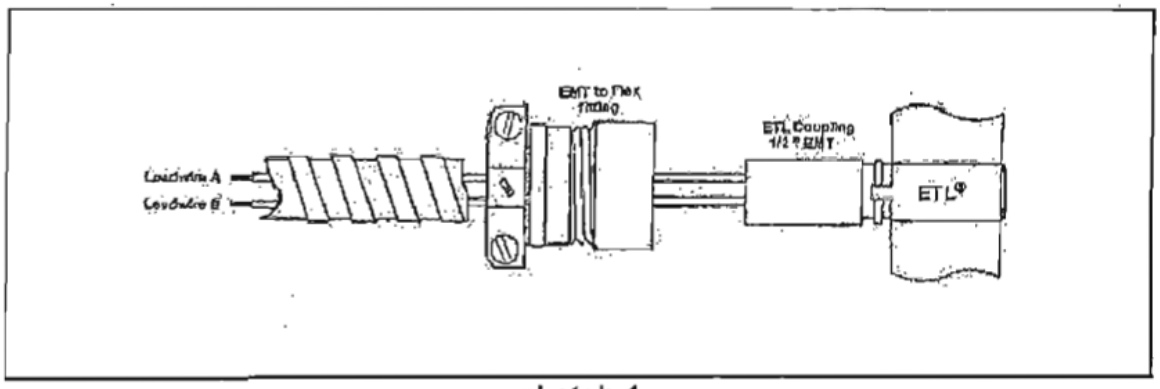
Phone: 888-667-0850 Fax: 989-686-8152

Web: www.srproducts.com
Email: mail@srproducts.com

The ETL® is typically mounted on dampers in ductwork; roof hatches; fire doors, and for other uses where retrofit or replacement of standard fusible links of forty pound rating (or less) is desired. It is typically attached mechanically by placing metal straps or "S" hooks through the square link halve openings to provide a "floating" linear force tension of 5# minimum, 40# maximum continuous load. The ETL® has a forty (40) pound *maximum continuous* tensile strength at standard temperature (which can only be achieved in installations where the link is subject to *equal* linear tension). If side or "peel" forces are encountered (which is typical in most smoke damper installations) the weight may have to be reduced, or the tension vectors re-established. For this reason it is not permissible to bolt *or* fix one end of the ETL in most installations. Even if the installation is gravity release (i.e. forty (40) pounds hanging straight down from the bottom of the link) it is recommended to allow the link to "float" using "S" hooks, straps or other attachments.

As the ETL® is designed to be mounted on dampers in ductwork, the wiring is subject to the National Electrical Code Para. 300-22 "Wiring in Ducts, Plenums, and Other Air Handling Spaces," which requires the use of metallic protection of all such wiring. Accordingly, the ETL attachment end is the same diameter as ½" EMT tubing permitting standard UL listed ⅜' or ½" flex to ½" EMT connectors to be used together with the appropriate flexible conduit to completely encase the wires within the duct as illustrated in sketch 1. Note that the conduit should run in a substantially level, straight line with a minimum length and slack, to either side of the duct, assuring it can not be trapped under the damper blades upon closure. Always mount the junction box outside the duct on the top or either side at a point at or above the level of the ETL when mounted on the damper.

The ETL® is typically wired by running the yellow lead wires (Leadwire A and Leadwire B sketch 1) from the ETL® to a pair of Normally Open **[NO]** terminal contacts (Lead wire A to [NO] contact 1 and Lead Wire B to **[NO]** contact 2). Polarity is irrelevant. Actuating supply current is typically provided by an NEC class 2 low voltage 6-30 VAC/DC (or other) source capable of delivering 0.2 ampere (200 milliamperes) *minimum* for 50 milliseconds *minimum* duration to each unit wired in parallel to the **[NO]** contacts.



sketch 1

SR Products, 3916 Traxler Court, Bay City, MI 48706

Web: www.srproducts.com
Email: mail@srproducts.com
Phone: 888-667-0850
Fax: 989-686-8152