# Fail-Safe Fuse Panels Provide Built-in Redundancy and Protection

Ideal for Applications Where Equipment Lacks Redundant Power Supplies/Inputs

## The Application: Ensuring Ongoing Performance When Equipment Utilizes a Single Power Feed and Lacks Built-in Redundancy

Commonly deployed equipment in utilities networks often features a single power input rather than dual inputs. These items can include multiplexers, modems, SCADA and telemetry or other network gear.

Because of this lack of redundancy, problems with input power can quickly lead to equipment trouble. Utilizing power distribution panels that provide a level of redundancy through built-in features is a simple way to address this issue.

## The Solution: Telect Fuse Panels with Fail-Safe Capabilities

### Fail-Safe Fuse Panels — The Basics

Many critical applications require a basic level of redundancy to ensure that key pieces of network equipment maintain ongoing performance even when the network experiences power problems. Telect fail-safe GMT and KTK/KLM fuse panels help address this requirement.

Built-in fail-safe circuitry provides redundant power to bus A or B in case one side of the dual-feed panel experiences an interruption in power. The panel simply transfers power through the functioning side to maintain the distribution and protection of power to the network equipment — without interruption.
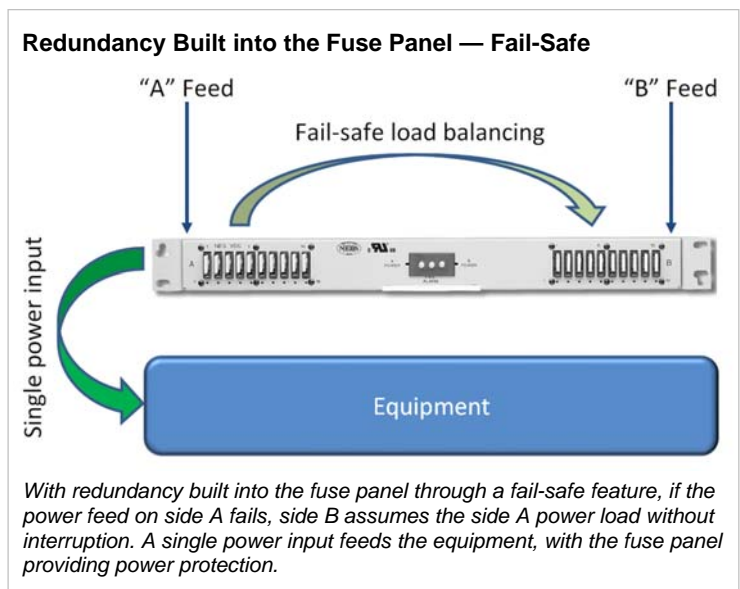
Inside the panel, returns are connected together to source both returns in the event one of the sources fails. Battery inputs are connected through a 2-to-4 diode coupling circuit using large amperage schottky diodes. The diodes provide isolation and allow the load to essentially balance between the two input sources depending on the exact voltage drops of the supply to the panel. If one of the input sources fails, the remaining source picks up the entire load.

Terminology can vary with this functionality. Load-sharing is another description for essentially the same capabilities. C-Source panels incorporate similar functionality, although in most cases C-source panels do not include fuses for distribution.

It's worth noting that Telect fail-safe panels are specified to allow maximum load on a single feed during fail-safe operation, helping to ensure ongoing performance in nearly all situations. Also, with fail-safe panels, diodes develop an approximate 0.7 VDC drop (varies with load current), which adds to the total voltage drop between the load and the power source.

### How a Fail-Safe Panel Helps the Application

In simple terms, a fail-safe fuse panel allows users to create a layer of redundancy at the fuse panel in cases where fused equipment



**Redundancy Built into the Fuse Panel — Fail-Safe**

*With redundancy built into the fuse panel through a fail-safe feature, if the power feed on side A fails, side B assumes the side A power load without interruption. A single power input feeds the equipment, with the fuse panel providing power protection.*

Application Note

lacks such redundancy. The single point of failure (that is, equipment with a single power input) is protected by the fuse panel, helping to ensure ongoing performance of the equipment.

**Key Telect Panels**

Two key Telect fail-safe fuse panel configurations are detailed below:

*Dual-Feed 75A 10/10-Position GMT Panel*
The basic fuse panel used in a comprehensive range of applications, GMT fuse panels provide reliable distribution and protection of low-current equipment. In this configuration, an input rating of 75A and outputs of up to 15A per GMT fuse provide ample capacity for LEDs, traditional equipment, and many other components.

*Dual-Feed 50A 4/4-Position KLM/GMT Panel*
If 15A isn't sufficient as an output protection device, this KLM/GMT fuse panel is the answer. KLM Fuses are available up to 30A each. In a compact 1 RU panel, users gain four KLM outputs per side, along with four GMT outputs (up to 15A each) for integrated low-current distribution. To fit your specifications, KTK fuses can also be used in place of KLMs. The result is a versatile panel that maximizes space.

**Conclusion**

Choosing the right panel configuration for the application is a matter of addressing input amperage requirements, fused output requirements, and any standards that may apply to your specific network application. From there, a fail-safe panel is a simple way to add an extra layer of protection for critical equipment by creating a basic level of redundancy at the fuse panel.

## Key Telect Fail-Safe Fuse Panels — Details and Part Numbers

| Description | Total Max. Load (Input Rating) | Maximum Fuse Rating (Output) | Telect Part Number |
|---|---|---|---|
| Dual-feed 10/10-position GMT fuse panel | 150A | 20A GMT | 20HPGMT05FR |
| Dual-feed 4/4-position KLM/GMT fuse panel | 100A | 30A KLM/15A GMT | 009-8004-0124 |
| Dual-feed 10/10-position GMT fuse panel | 50A | 15A GMT | 009-2005-0000 |
| Dual-feed 20/20-position GMT fuse panel | 20A | 10A GMT | 06004-11 |

*See Telect.com for fuses, accessories and additional panel configurations.*



*Telect KLM/GMT fail-safe fuse panel, part number 009-8004-0124.*



*Telect fail-safe dual-feed 10/10-position GMT fuse panel, part number 20HPGMT05FR.*

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