

Keltron AFO V2.0 Redundant Auto-Failover



Maximum Reliability
Automatic Functionality
Improves Accuracy

Overview

Keltron systems provide a wide range of functionality to fit the unique requirements of multi-building facilities and municipal fire departments. To prevent system failure at mission-critical sites, Keltron developed the Keltron LS-AFSW-2 auto-failover switch with Keltron AFO 2.0 system software. In combination with redundant servers, the system provides auto-failover server capability for the Keltron LS 7000 life safety event management system.

What it does

The Keltron LS-AFSW-2 is an auto-failover switch that connects active and standby Keltron LS 7000 servers. If the active Keltron LS 7000 server fails, the Keltron LS-AFSW-2 automatically switches system operations to the standby server. The Keltron V2.0 auto-failover system software includes an automatic, self-configuring recovery capability to eliminate disruption of operations.

Features and benefits

In addition to its primary function of ensuring overall system reliability, the Keltron AFO 2.0 system facilitates maintenance and limits operator intervention. It enables the system operator to focus on event response and life safety. Benefits include:

- **Facilitating replacing failed servers -**
System automatically assigns active and standby servers
- **Ensuring accuracy by monitoring database synchronization -**
Generates Keltron LS 7000 events to alert for database synchronization delays and/or restorals
- **Improving reliability of database synchronization -**
Does not depend on the status of the standby server to synchronize databases
- **Eliminating system downtime when returning a server to operation -**
Each server operates as active or standby to facilitate recovery from failover and improve reliability
- **Providing enhanced system visibility -**
Displays the active server and indicates power is on and provides a switched condition relay contact transition to enable third-party system monitoring

How it works

All Keltron workstations, transceivers and alarm receivers communicate through the Keltron LS-AFSW-2 auto-failover switch. The switch monitors the health of server 1 and if server 1 responds, the switch remains quiet.

The switch is designed to periodically receive signals from server 1. If it ceases to receive those signals, it will re-try. If there is no response to the re-tries, the Keltron LS-AFSW-2 auto-failover switch emits local annunciation, switches alarm receiver serial automation connections to the standby server, and switches the event network (transceivers and workstations) to the standby server. The active server also monitors the health of the standby server.

Normal operation

During normal operation, the active Keltron LS 7000 server drives the Keltron workstations and monitors the alarm receivers while receiving and managing all events (e.g. alarms, troubles and check-ins). At the same time, the active server publishes system updates to its internal databases which are replicated to the standby server during a periodic synchronization process. Synchronization between servers ensures that the information on the standby server is no more than a few minutes behind that of the active server.

The Keltron LS 7000 server 2 is in standby mode during normal operations. A Keltron software interface monitors the active server to ensure normal operation and synchronizes the standby server database with

the active server. The standby server merges the active server's database publications with its own databases to complete the synchronization process.

Failover operation

Automatic failover occurs within a sequenced set of operations. Upon failure of the active Keltron LS 7000 server, switchover to the standby Keltron LS 7000 server is automatic if:

- The Keltron LS-AFSW-2 switch receives no acknowledgement signal from the active server
- The Keltron interface software receives no acknowledgement from the active server
- Standby server is operational

Once the auto-failover between the two servers has occurred, all system operations including receivers and workstations, are normal. The former standby Keltron LS 7000 server is the only operational server and there is no back-up server or failover protection for that server or the system. To ensure maximum system dependability, immediately assess and repair the failed server.

Requirements

To ensure redundant operation, the Keltron redundant system requires two independent networks:

- Event network to communicate with external workstations and Keltron transceivers
- Server network to communicate with the active and standby Keltron LS 7000 servers, the Keltron LS-AFSW-2 switch, and local server support hardware

Note: each Keltron LS 7000 server requires two interface connections (NICs)

Keltron LS-AFSW-3 Auto-Failover Switch

Also available for the Keltron AFO 2.0 system configuration is the Keltron LS-AFSW-3 auto-failover switch, an enhanced version of the Keltron LS-AFSW-2 switch. There are two major differences in operation:

- The major advantage of the Keltron LS-AFSW-3 is that it switches two network interface cards (NICs) instead of just one. This enhancement enables the network administrator to connect the active Keltron LS 7000 server through the Keltron LS-AFSW-3 switch to two different network switches. With three NICs in each Keltron LS 7000 server and two configured to use NIC teaming, the potential single point of communications failure from the active server to the network is eliminated.
- To compensate for the second NIC switch port, the capacity of the Keltron LS-AFSW-3 switch is reduced to 7 serial ports from the 8-port capacity of the Keltron LS-AFSW-2 switch.

Specifications

- 120 VAC primary input w/12 VDC battery backup, internal 12 VDC power supply, battery charger
- 0.34 Amps at 12VDC for the base unit (0.38 Amps for Keltron LS-AFSW-3 switch)
- 0.034 Amps at 12VDC for each switched RS232 serial port*
- Dimensions: 19" w x 5.25" h (3U) x 13" d
- Weight: 10 lbs.
- One switched copper wire RJ 45 Ethernet port with up to a maximum of 8 switched RS232 serial ports
- Switched condition Form C dry contact relay available on unit rear panel to connect to third party equipment designed to provide server switched indication. Relay contact rating: 1A @ 30VDC, resistive load.

Temperature range

Operating: 0°C to 49°C
Storage: 25°C to 70°C

Relative humidity - non-condensing, 20% to 93%

Note: requires one (1) Keltron LS-AFSW-1x per switched serial port

Keltron develops and manufactures universally-compatible, UL listed life safety event management systems for the municipal and proprietary markets. Solutions include Ethernet signaling, active network radio, distributed multiplex, digital communicator/receivers, and direct wire systems. This document is not intended for installation or maintenance purposes. All specifications are subject to changes without notice. For more information visit www.keltroncorp.com or contact us at 781-894-8710. Made in the USA.

