Technical Article

Emergency Automatic Transfer Switches and Relays

Product: Emergency Lighting Transfer Switch and Power Control

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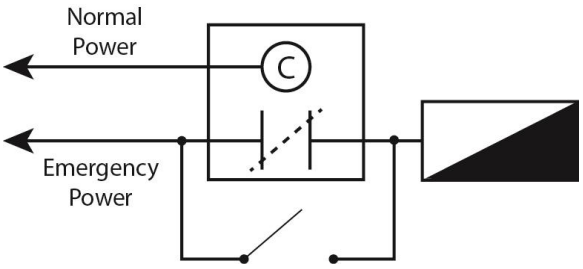
Summary:
This document describes the requirements in the National Electric Code (NEC) for emergency lighting and necessary controls, and how Leviton emergency automatic transfer switches and relays can be used to meet these requirements.

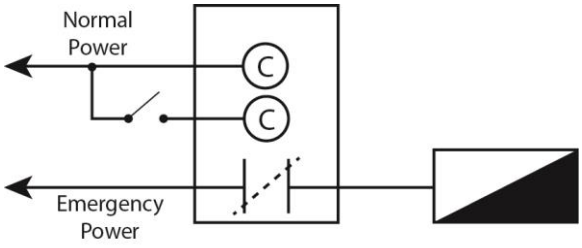
Background
Several years ago, the National Electric Code (NEC), Article 700 requirements surrounding emergency lighting controls were updated to define two classes of devices which allowed emergency lighting to be switched or dimmed during normal operation, but overrode the emergency lighting to full brightness during emergency operation.

UL924 Automatic Load Control Relays (ALCRs): Emergency lighting controlled by ALCRs must always be fed by the emergency power source. The ALCR cannot transfer between power sources. The switching device may be on the normal or emergency circuit, provided that no transfer of power takes place.

UL1008 Automatic Transfer Switches (ATSs): Emergency lighting controlled by ATSs may be fed by the normal power source during normal operation, and the emergency power source during emergency operation. The ATS may transfer between power sources.

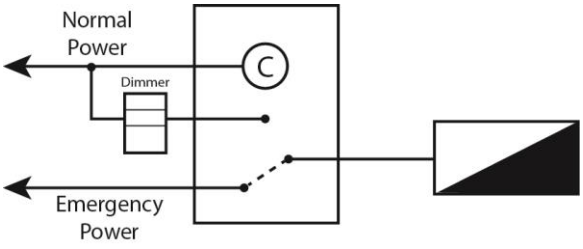


"Shunt" ACLR Example



"Bypass" ACLR Example

Although the majority of ACLRs do not transfer between power sources, a subclass of ALCR known as "transfer-capable ACLRs" was identified by UL as having this capability. In order to continue performing this function, these devices now require a UL1008 listing. Alternatively, this device could retain only a UL924 listing, provided that it not be used to perform a transfer function (illustrated below).



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Which ALCRs are "transfer capable" and are affected by these changes?
The only Leviton devices affected by these changes are the ECD00-100 and ECD00-200. Other manufacturer's devices which have the word "transfer" in their model or acronym are also likely affected (for example "GTD" or "ETS"). Although subtle, the changes to the standard significantly limit permitted applications for transfer-capable ALCRs. Essentially transfer capable ALCRs can only function as shunt relays and require a dedicated control/dimmer for the emergency lights. For 99% of applications, where the same switch or dimmer is desired for use in both normal and emergency lighting, UL1008 provide the best solution.

In order to offer flexibility to design control systems where a transfer of power sources takes place, we have developed a new Automatic Transfer Switch (ECD00-D0W) which is UL1008 listed. This device can fill the role of the ECD00-100 and ECD00-200 for all applications under the new NEC/UL standards. Be advised to avoid "Optional Standby" UL1008 transfer switches on the market, as these are not approved for life safety use.

It can be difficult to get a clear answer from some suppliers as to whether a device is an ATS or an ALCR. Even more difficult is determining acceptable and prohibited wiring diagrams for transfer-capable ALCRs. Leviton is available to answer any questions on the topic, and you can also visit www.ul.com/database to determine whether a device is listed under UL1008 or UL924.

Should I use an ALCR or an ATS for my application?
Although specific project requirements vary, a good rule of thumb is that switched loads and 0-10V loads can and should be bypassed using ALCRs. Line voltage dimmed loads usually require an ATS. Other specialized applications requiring an ATS (like the ECD00-D0W) can include hospitals, disaster areas, and multi-tenant spaces with submetering.

How does this affect the market?
It is important to be aware that UL1008 listed devices are typically more complex and expensive than UL924 listed devices. Therefore, understanding whether your application requires a UL924 listed or a UL1008 listed device is of critical importance.

For more information visit www.leviton.com.

End of Document

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