

The Application of Auxiliary Switches with Key Interlocks

A White Paper by Kirk Key Interlock Company

Introduction

Key interlocks are mechanical in nature and a properly applied interlock system will prevent operation of equipment outside of a prearranged sequence. Most key interlocks are available with electrical accessories that will provide additional benefits to an interlock system. Properly applied auxiliary switches can extend the interlocking function to other devices without directly involving key handling.

Switches Attached to Interlocks

Auxiliary switches are a common addition to key interlocks. The auxiliary switches are enclosed in a casting mounted to the interlock housing and attached to the lock bolt of the interlock. Movement of the lock bolt, by turning the key, will open or close the electrical contacts.

Two styles of switches are prevalent as key interlock auxiliary switches. One style (Kirk “K” Switch) makes use of a snap-action, DPDT toggle switch providing quick-make and quick-break contacts. The other style (Kirk “S” Switch) is a slow-make, slow-break switch available with various numbers of N.O. and N.C. contacts.



Figure 1. A type B (base mounted) interlock with a type K switch and a type T (transfer) interlock with a type S switch. The cover plates have been removed to show the switches..

The contacts of the auxiliary switch are utilized for many functions such as:

- (a) Interlock status indication on a remote control panel or other monitoring system.
- (b) Disabling electrical equipment functions such as circuit breaker closing circuits.
- (c) Sound an alarm.
- (d) Motor control.

Note that, because of their construction, auxiliary switches cannot be field installed on existing key interlocks. Key interlocks requiring auxiliary switches must be designated as such at the time of order.

Key Actuated Switches

A key actuated switch (Kirk TPS) is another distinct style of key interlock that makes use of auxiliary contacts. It is designed to be back panel mounted and does not utilize a lock bolt to directly interact with a controlled device. The TPS is often used as the starting point for certain key interlocking schemes. Turning the key in order to withdraw it causes a set of contacts to change state and those contacts can be wired to an associated control circuit extending the interlocking function. The removed key can then proceed to the next step in the interlocking system.



Figure 2. A type TPS interlock.

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