SK-Control-6
Six Circuit Supervised Control Module

SPECIFICATIONS
Normal Operating Voltage: 15-32 VDC
Stand-By Current: 2.25 mA
Alarm Current: 35 mA (assumes all six relays have been switched and all six LEDs solid on)
Temperature Range: 32°F to 120°F (0°C to 49°C)–10°C to 55°C
Humidity: 10 to 85% Non-condensing
Dimensions: 6.8˝ H x 5.8˝ W x 1.25˝ D
Accessories: IDP-ACB Cabinet and chassis
Wire Gauge: 12-18 AWG
Max. NAC Circuit Line Loss: 4 VDC
Power Rating Per Circuit: 63 W @ 70.7 V AC; 50 W @ 25 V AC
Max. NAC Current Ratings: For class B wiring systems, 3A
For class A wiring systems, 2A

BEFORE INSTALLING
If the modules will be installed in an existing operational system, inform the operator and local authority that the system will be temporarily out of service. Disconnect the power to the control panel before installing the modules. This system contains static sensitive components. Always ground yourself with a proper wrist strap before handling any circuits so that static charges are removed from the body. The housing cabinet should be metallic and suitably grounded.

NOTICE: This manual should be left with the owner/user of this equipment.

GENERAL DESCRIPTION
The SK-Control-6 Six Circuit Supervised Control Module is intended for use in an intelligent alarm system. Each module is intended for switching applications involving AC, or DC which require wiring supervision. A common SLC input is used for all modules. Each module has its own address. A pair of rotary code switches is used to set the address of the first module from 01 to 154. The remaining modules are automatically assigned to the next five higher addresses. Provisions are included for disabling unused modules to release the addresses to be used elsewhere. Each module also has panel controlled green LED indicators. The panel can cause the LEDs to blink, latch on, or latch off. In order to synchronize strobes, horn/strobes, and speaker/strobes, a SYNC-1 accessory card (sold separately) must be used with the SK-Control-6. See the SYNC-1 installation manual for details on how to install.

Each module has terminals for connection to an external supply circuit for powering devices on its NAC. Each supply must be power limited and its voltage/current limits must be at or below those specified. There is a short circuit protection monitor for each module. This is provided to protect the external power supply against short circuit conditions on the NAC.

SHIPPED ON BOARD:
(1) Small shunt in A/B select position (Shipped in Class B position, remove shunt for Class A)
(6) Large shunts on Enable Power Supply Monitors
(6) Large shunts on Disable Short Circuit Protection
(3) Large shunts on Sync Generator

INCLUDED:
(7) 1 x 4 Terminal Blocks (2) 1/4˝ (32mm) Stand offs
(4) Machine Screws (5) Short Power Supply Jumpers (2) Small Shunts
(2) Nuts (6) 47k Ohm End of Line Resistors
(1) Long Power Supply Jumper (2) EOL Relay Connector Assemblies
TABLE 1: SHORT CIRCUIT PROTECTION - UL 864 9TH EDITION REQUIREMENTS

<table>
<thead>
<tr>
<th>Program Feature or Option</th>
<th>Permitted in UL 864 (Y/N)</th>
<th>Possible Settings</th>
<th>Settings Permitted in UL 864</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabling short circuit protection when a single power supply is shared by multiple NACs</td>
<td>No</td>
<td>Enable or Disable short circuit protection</td>
<td>Enable short circuit protection when a single power supply is shared by multiple NACs. Short circuit protection can be disabled only when a power supply is not shared by multiple NACs.</td>
</tr>
</tbody>
</table>

COMPATIBILITY REQUIREMENTS

To ensure proper operation, this module shall be connected to a compatible Silent Knight system control panel.

COMPONENTS

The following is a description of the SK-Control-6 mounting framework:

- One or two SK-Control-6 modules can be installed in an IDP-ACB cabinet. The IDP-ACB cabinet has a built-in chassis that will accommodate one or two SK-Control-6 modules.

FIGURE 1: IDP-ACB CABINET

The front SK-Control-6 module positions of each chassis are offset below the rear SK-Control-6 module positions so that all of the status indicators are visible. For cabinet dimensions refer to the IDP-ACB instruction manual.

INSTALLATION STEPS

1. Cabinet Mounting
   In a clean, dry area, mount the backbox using the four holes provided in the back surface of the cabinet (Figure 3).

FIGURE 2: TYPICAL MOUNTING HOLE LOCATIONS

2. Module Installation
   There are two methods for installing a module in the rear position of a chassis. Method one is for installation of a rear module only, when no module will be installed in front of it. Refer to Figure 3 for instructions. Method two is for installation of a rear module when another module will be installed in the chassis position in front of it. Refer to Figures 4a and 4b for method two. All necessary screws and standoffs are supplied with the modules.

FIGURE 3: INSTALLATION OF REAR MODULE ONLY, METHOD ONE

Step 1: Insert the bottom of the SK-Control-6 module down into a rear slot on the chassis.
Step 2: Carefully swing the upper edge of the board back towards the back of the chassis until it touches the two standoffs.
Step 3: Align two 4-40 screws with the two standoffs and tighten.
Step 4: Address and wire the modules according to the instructions in this manual.

The steps in Figures 4a and 4b describe and illustrate module installation when the rear chassis position and the position in front of it will be filled. Front position installation is possible only if the rear position is filled with a module.

FIGURE 4A: INSTALLATION OF SK-CONTROL-6 MODULE IN A REAR CHASSIS POSITION, METHOD TWO
Step 1: Insert the bottom edge of the SK-Control-6 module down into a rear slot of the chassis.

Step 2: Carefully swing the upper edge of the board towards the back of the chassis until it touches the short standoff attached to the chassis.

Step 3: Align the long standoff with the short standoff and tighten.

**FIGURE 4B: INSTALLATION OF SK-CONTROL-6 MODULE IN FRONT CHASSIS POSITION**

Step 1: Insert the bottom edge of the SK-Control-6 module down into a front slot of the chassis.

Step 2: Carefully swing the upper edge of the board towards the back of the chassis until it touches the 11/4˝ (31.75mm) standoffs installed on the rear module.

Step 3: Align two 4-40 screws with the two standoffs and tighten.

Step 4: Address and wire the modules according to the instructions in this manual.

**WIRING**

**NOTE:** All wiring must conform to applicable local codes, ordinances, and regulations.

1. Install module wiring in accordance with the job drawings and appropriate wiring diagrams.

2. All wiring to the SK-Control-6 is done via terminal blocks. In order to properly make electrical connections strip approximately 1/4˝ of insulation from the end of wire, sliding the bare end of the wire under the clamping plate screw.

3. Set the address on the modules per the job drawing. Use the rotary address switches to set the address of the first module between 01 and 154.

To select Class B operation, install the J1 Shunt. The remaining modules are automatically assigned to the next five higher addresses. For example, if the base address switch is set to 28, the next five modules will be addressed to 29, 30, 31, 32, and 33.

To select Class A operation, remove the J1 Shunt. A maximum of three Class A circuits are available. For example, if the base address switch is set to 28, 30 and 32 will be automatically assigned to the modules while 29, 31 and 33 are available to be used for other modules on the SLC. For Class A and B operation, DO NOT set the lowest address above 154.

4. A shunt is provided to disable a maximum of three unused modules (see Figure 5). Modules are disabled from the highest address and work downward. If two modules are disabled, the lowest four addresses will be functional, while the highest two will be disabled. For example, if the shunt for Address Disable is placed on “two” and the base address switch is set to 28, the modules will be assigned to 28, 29, 30 and 31, disabling the highest two positions.

**TABLE 2:**

<table>
<thead>
<tr>
<th>NAC#</th>
<th>(+) CONNECTIONS</th>
<th>(−) CONNECTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>+0</td>
<td>+0 NAC+, +1 NAC+, Notification Appliance+</td>
<td>+0 NAC−, +1 NAC−, Notification Appliance−</td>
</tr>
<tr>
<td>+2</td>
<td>+2 NAC+, +3 NAC+, Notification Appliance+</td>
<td>+2 NAC−, +3 NAC−, Notification Appliance−</td>
</tr>
<tr>
<td>+4</td>
<td>+4 NAC+, +5 NAC+, Notification Appliance+</td>
<td>+4 NAC−, +5 NAC−, Notification Appliance−</td>
</tr>
</tbody>
</table>
POWER SUPPLY WIRING AND SUPERVISION

Table 3 gives an overview of how the power connectors, T0–T5 and T10–T15, are interconnected by the circuit board (PCB). The external supply connection points, at T0–T5, are marked by PS- and PS+ on the PCB legend. Pin 1 is indicated by a dot next to T10–T16. The odd pins, on T10–T16, always connect to PS- pins (e.g. PS-, of the +0 NAC, is connected to T10–1 and T11–1). The even pins always connect to PS+ pins (e.g. PS+, of the +5 NAC, is connected to T15–4 and T16–2).

<table>
<thead>
<tr>
<th>TABLE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS OR NAC NUMBER (TERMINAL / PINS)</td>
</tr>
<tr>
<td>+0 (T0 – BOTTOM / PS- &amp; PS+)</td>
</tr>
<tr>
<td>+1 (T1 / PS- &amp; PS+)</td>
</tr>
<tr>
<td>+2 (T2 / PS- &amp; PS+)</td>
</tr>
<tr>
<td>+3 (T3 / PS- &amp; PS+)</td>
</tr>
<tr>
<td>+4 (T4 / PS- &amp; PS+)</td>
</tr>
<tr>
<td>+5 (T5 / PS- &amp; PS+)</td>
</tr>
</tbody>
</table>

*Note: T0–TOP is reserved for SLC connections only (see Figure 5).

All power supplies, external to the cabinet (in which the SK-Control-6 is housed), should be connected to T0–T5 which are suitable connectors for field wiring. The 1 x 4 terminal blocks, shown on page 1, should be used to make these connections.

All NACs can be wired to be powered by separate external supplies (figures 6 and 8 are typical), or a single supply (figures 7 and 9 are typical) can be shared among multiple NACs. If a supply is to be shared, between NACs wired to a common PCB, use the short power supply jumpers shown on page 1. The jumpers can be used on T11–T15. Refer to Table 4 for jumper functions.

When multiple (2 or more) NAC circuits share a power supply, the wiring for the power supply must be in conduit and 20 feet or less from the SK-Control-6 board.

All wiring must be in accordance with the NEC, NFPA 72 and all other applicable codes and standards. All external power supplies must be voltage regulated with battery back-up. All external power supplies, audio amplifiers, EOL relays, and notification appliances must be UL listed for fire protection signaling applications.

**NOTE 1:** EOL Relay Coil Connections must be made using EOL Relay Connector Assemblies on T10–T16 in event that all NACs on the PCB have dedicated supplies.
FIGURE 7: EXAMPLE OF CLASS B, STYLE Y NAC CONFIGURATION WITH A SINGLE SUPPLY SHARED BY 2 NACS.

FIGURE 8: EXAMPLE OF CLASS A, STYLE Z NAC CONFIGURATION WITH A SINGLE SUPPLY DEDICATED TO A SINGLE NAC.
FIGURE 9: EXAMPLE OF CLASS A, STYLE Z NAC CONFIGURATION WITH A SINGLE SUPPLY SHARED BY 2 NACS.

FIGURE 10: EXAMPLE OF MULTIPLE BOARDS SHARING SAME EXTERNAL SUPPLY.

Supply is shared by NACs +0 and +1 (on PCB 1) as well as +3, +4, and +5 (on PCB 2). Refer to figures 9–12 for typical NAC wiring. Make certain lip on long power supply jumper engages retaining tab on T10 or T16 as shown in View A-A.

FCC STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.