![HighSecLabs — Highest Security Solutions Ltd.]

Secure KM Switch

Models:

SM20N-3 – Secure 2-Port KM Switch, PP 3.0
SM40N-3 / SM40NU-3 – Secure 4-Port KM Switch, PP 3.0 / Secure 4-Port KM Switch w/fUSB, PP 3.0
SM80N-3 / **SM80NU-3**– Secure 8-port KM Switch, PP 3.0 / Secure 8-port KM Switch w/fUSB, PP 3.0

TABLE OF CONTENTS

INTRODUCTION

HSL Secure KM Switch

Work simultaneously with multiple computers connected to multiple displays using one set of USB, keyboard and mouse peripherals.

Keyboard Mouse (KM) switch offered by HSL allows interacting with multiple computers in real-time while maintaining the highest isolation between computers and peripherals. Directly connect separate display(s) to each computer and securely share keyboard, mouse and USB devices through the KM.

Obviate the need for purchasing and installing dedicated, per-computer peripheral sets.

This guide instructs how to install, configure and operate a secure HSL KM switch.

INSTALLATION

Installing the KM

General

- Verify that all peripherals and computers are turned off prior to connecting them to the product.
- The KM's back panel is divided into Console Ports and Computer Ports sections.

Step 1 – Connect peripherals to the KM Console ports

- **Keyboard:** Connect either a USB or PS/2 keyboard to the corresponding KM console keyboard port.
- **Mouse:** Connect either a USB or PS/2 mouse to the corresponding KM console mouse port.
- **USB peripherals:** Connect USB peripherals to the KM console fUSB port.

Note: authentication devices such as smartcard and biometric readers are enabled by default, other devices must be explicitly whitelisted – for further information please refer to the KM Administrator's guide.

Note: 4 channel product illustrations shown throughout this manual are applicable to other KM models.

- Connect peripherals which are due to be shared by the KM to the Console ports.
- Connect computers that require access to the shared peripherals to the Computer ports.
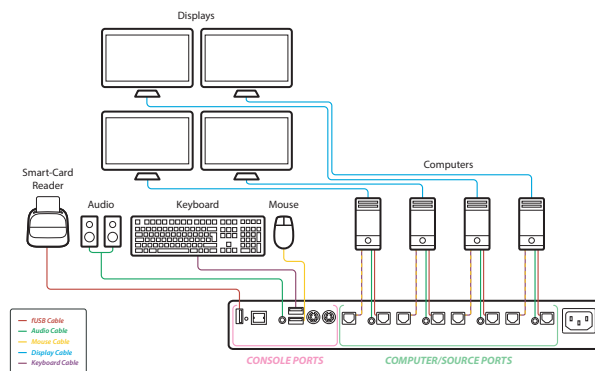
INSTALLATION

Step 2 – Connect computers to the KM Computer ports

- **Computer keyboard & mouse connection:** Connect each computer to the KM keyboard & mouse computer port using a USB A to USB B cable. Connect the USB A end to the computer and the USB B end to KM.

- **Computer USB peripherals:** Connect each computer to the KM fUSB computer port using a USB A to USB B cable. Connect the USB A end to the computer and the USB B end to KM.

- **Computer video connection:** Directly connect a monitor to each computer. Multi-monitor computers require driver installation, currently available only for Windows (http://highseclabs.com/dl.php?fid=446).
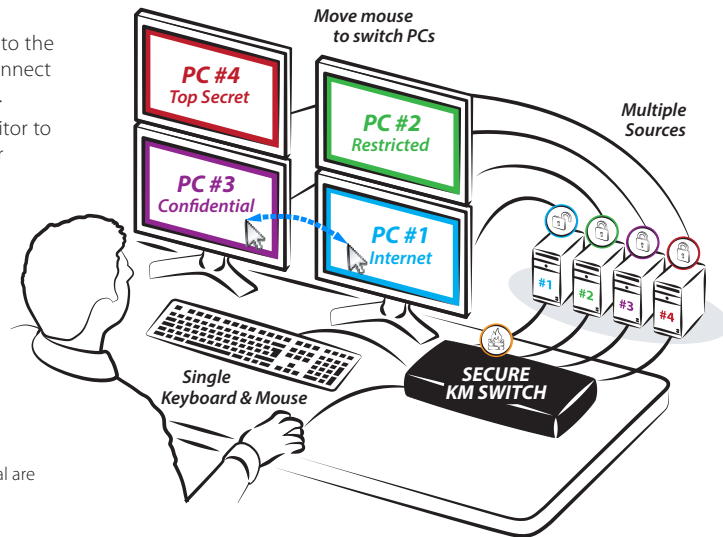
Note: 4 channel product illustrations shown throughout this manual are applicable to other KM models.

INSTALLATION

Step 3 – Power ON your system

• Connect all peripherals and computers to the KM prior to powering it up. Power ON the KM by plugging it to the AC wall outlet. By default, after product power-up, the active channel will be computer #1, indicated by the applicable front panel push button LED lit.

Note: Power ON self-test: As the product powers-up it performs a self-test procedure. In case of self-test failure for any reason, including jammed buttons, the product will be Inoperable. Self-test failure will be indicated by abnormal LED behavior – for further information please refer to the KM setup guide.

INSTALLATION

Step 4 – Presets Configuration

• Presets reflect the layout and boarders of computer displays to the KM.

Presets allow:

• Support of various display layouts. Align displays vertically (on top) and Horizontally (along side).

• Associate the mouse cursor with each computer based on its respective display position.

• Consider all displays as one absolute screen area to allow VDT.

• Virtual Display Technology (VDT) - Switch control between PCs by moving the mouse cursor across display boarders (all over the absolute screen area).
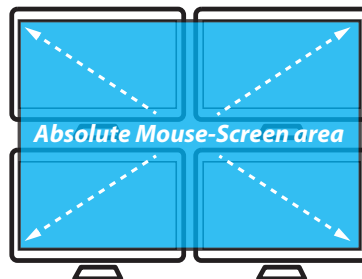

Preset #1 (Default)
F11 | F1

Preset #2
F11 | F2

Absolute Mouse-Screen area

INSTALLATION

Step 5 – Select a predefined display layout (Preset)

- Load a preset to adjust the KM settings with the physical layout of your computer displays.

- Setting presets is accomplished by typing the keyboard key sequence **L Ctrl | L Ctrl | F11 | Fx1 / x2 | x3** where x1,x2,x3 values may vary according to the selected preset of your choice.

Note:

- Custom presets can be created using the HSL KM Configuration tool (described in detail in the KM Administrator guide).

- Multi-monitor computers require driver installation, currently available only for Windows (http://highseclabs.com/support/downloads/?rid=19).

Setting presets:

1. Find the preset that corresponds to your display alignment.

2. Type the keyboard key sequence to activate the preset (a rapid click-sound is played once a new preset is selected).

3. Restart the KM by disconnecting and reconnecting the power.

4. For example, in case all displays are aligned horizontally, type:
   L Ctrl | L Ctrl | F11 | F2
   this will load preset **1 | 2 | 3 | 4**

Preset #2

INSTALLATION

4/8 Port KM Presets list

F11 | F1   [1] [2] (Factory Default)
           [3] [4]

F11 | F2   [1] [2] [3] [4]

F11 | F3   [1P] [1S]
           [3P] [3S]

F11 | F4   [1P] [3P]
           [1S] [3S]

F11 | F5   [1] [2] [3P] [3S]

F11 | F6   [1] [2P] [2S] [4]

F11 | F7   [1P] [1S] [3] [4]

F11 | F8   [1P] [1S] [3P] [3S]

F11 | F9   [1] [2] [3]

F11 | F10 [1]
           [2] [3] [4]

F11 | 1 | 1   [1]
              [2]
              [3]

F11 | 1 | 2   [1]
              [2] [3]

F11 | 1 | 3   [1]
              [2] [3]

F11 | 1 | 4   [1] [2]
              [3]

F11 | 1 | 5   [1] [2]
              [3]

F11 | 1 | 6   [1]
              [2] [3] [4]

F11 | 1 | 7   [1]
              [2] [3] [4]

F11 | 1 | 8   [1] [2] [3]
              [4]

F11 | 1 | 9   [1] [2]
              [3P] [3S]

F11 | 1 | 0   [3P] [3S]
              [1] [2]

F11 | 2 | 1   [1] [3P]
              [2] [3S]

F11 | 2 | 2   [3P] [1]
              [3S] [2]

F11 | 2 | 3   [2] [3] [4]
              [1P] [1S]

F11 | 2 | 4   [3P]
              [3S] [1P] [1S] [3]

F11 | 2 | 5   [1]
              [2]

F11 | 2 | 6   [1] [2]

F11 | 2 | 7   [1] [2]
              [3]

F11 | 2 | 8   [3]
              [1] [2]

F11 | 2 | 9   [1]
              [2] [3]

F11 | 2 | 0   [3] [1]
              [2]

F11 | 3 | 1   [2P]
              [2S] [1P] [1S] [3]

F11 | 3 | 2   [1] [2] [3] [4] [5] [6] [7] [8]

F11 | 3 | 3   [5] [6] [7] [8]
(8-Port Only) [1] [2] [3] [4]

F11 | 3 | 4   [1] [2] [3] [4] [5]
(8-Port Only)

F11 | 3 | 5   [5] [6]
(8-Port Only) [1] [2] [3] [4]

F11 | 3 | 6   [4] [5] [6]
(8-Port Only) [1] [2] [3]

F11 | 3 | 7   [1P]
(8-Port Only) [1S] [2] [3] [4] [5]

F11 | 3 | 8   [1] [2] [3] [4]
(8-Port Only) [5] [6]

F11 | 3 | 9   [1] [2] [3] [4] [5] [6] [7]
(8-Port Only)

F11 | 3 | 0   [6] [7] [8]
(8-Port Only) [1] [2] [3] [4] [5]

Note: In the preset configurations, **Gray** indicates a single-display computer and **Blue** indicates a multi-display computer. **P** indicates primary display and **S** indicates secondary display in multi-display configurations.

INSTALLATION

2 Port KM Presets list

> **Note:** Only Windows computers support multiple displays with the KM.

F11, F1	`1` `2`
F11, F2	`1` / `2`
F11, F3	`1P` `1S` / `2P` `2S`
F11, F4	`1P` `2P` / `1S` `2S`
F11, F5	`1` `2P` `2S`

F11, F6	`1P` `1S` `2`
F11, F7	`1P` `1S` `1S` `2`
F11, F8	`1` `2P` `2S` `2S`
F11, F9	`1P` `1S` `2P` `2S`
F11, F10	`1` / `2P` `2S`

F11, 1, 1	`1P` `1S` / `2`
F11, 1, 2	`1` `2P` / `2S`
F11, 1, 3	`1P` `1S` / `2`
F11, 1, 4	`2P` / `1P` `1S` `2S`
F11, 1, 5	`1` / `2P` / `2S`
F11, 1, 6	`1P` / `1S` / `2`
F11, 1, 7	`2P` / `1` `2S`

F11, 1, 8	`1` `2S` `2S` / `2P` `2S`
F11, 1, 9	`2P` `2S` / `1` `2S` `2S`
F11, 1, 0	`1P` `1S` / `2P` `2S` `2S` `2S`
F11, 2, 1	`1P` `1S` `1S` `1S` / `2P` `2S`
F11, 2, 2	`1P` `1S` / `1S` `1S` `2`
F11, 2, 3	`1P` `1S` `2` / `1S` `1S`
F11, 2, 4	`1P` `1S` `1S` / `2P` `2S` `1S`
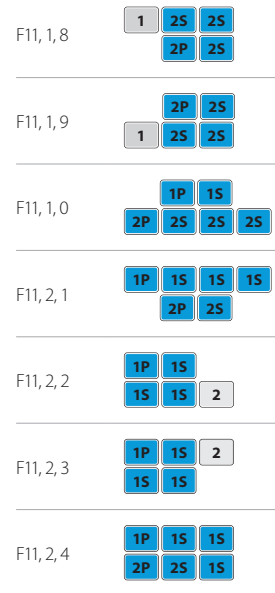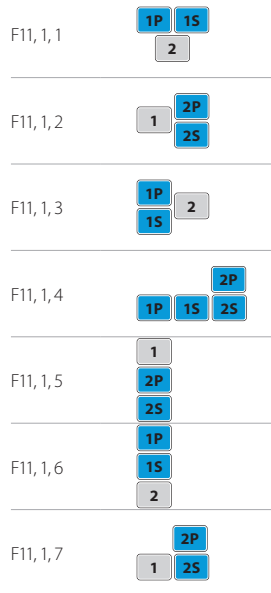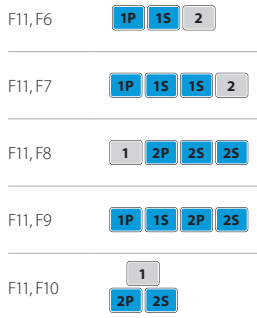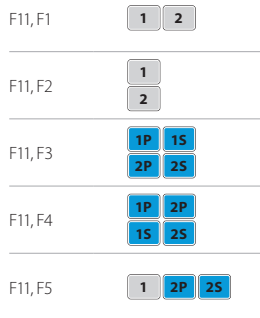
INSTALLATION

Step 6 – Reset to Factory Defaults

Reset to factory defaults clears the device settings and restores the device to its original configuration.

- System reset, clears behavioral characteristics such as mouse settings and display presets. Type { **L CTRL | L CTRL | F11| r** } key combination.

- Complete reset: clears all device settings and resets to factory defaults. From the Terminal menu select the "Reset to Factory Defaults" option (refer to terminal mode guide).

Important Notes:

1. Always use the **left control key (CTRL)** unless otherwise specified.

2. Keyboard shortcut keys are to be pressed sequentially

3. Do not use the numeric keypad for toggling shortcuts unless otherwise specified.

4. ALL KEYBOARD SHORTCUTS REFER TO QWERTY KEYBOARDS. In case a non-qwerty keyboard is in use, keep using the QWERTY layout.

OPERATION

Operating the KM

Front Panel Push-Buttons

- Following power up, the default channel is #1.

- Select any other channel by pressing the appropriate front panel push button.

- The mouse cursor will be positioned at the center of the selected computer display.

- The currently selected channel is indicated by the illumination of the appropriate push-button.

Filtered USB Port (fUSB) Operation

- This product is equipped with a fUSB port which by default accepts only USB authentication devices (smart card / biometric readers).

- When a legitimate USB device is connected to the fUSB console port the fUSB status LED on the front panel is illuminated with steady GREEN.

- When a non-legitimate USB device is connected to the fUSB console port the fUSB status LED on the front panel is illuminated with steady RED.

- Once switching between channels, for example from channel #1 to channel #3, the USB device which is connected to the fUSB port is automatically switched accordingly. This is indicated by channel #3 fUSB LED turning steady GREEN.

- When switching to a channel that has no USB fUSB connection, the fUSB Port remains mapped to the last channel that had a fUSB connection.

- Press the freeze USB button on the front panel to assign the fUSB port to a specific computer. Freeze USB prevents switching the fUSB port while the keyboard, video, mouse and audio peripherals are switched between computers. Freeze USB is useful for various scenarios, for instance, when a USB smart card reader must remain mapped to a certain computer.

OPERATION

Smoothly switch between computers (Virtual Display Technology)

- Automatically switch control from one computer to another by dragging the mouse cursor over the computer's display border.
- Shared peripherals (Keyboard, audio, USB) switch to the next computer without having to press any buttons once the mouse is passing the display border.

Switch between computers:

- Press the front panel buttons to manually switch control from one computer to another.
- Use cursor navigation switching (VDT) to automatically switch between computers by dragging the mouse cursor over the computer's display border. Once the mouse is passing the display border, shared peripherals (Keyboard, audio, USB) switch to the next computer without having to press any buttons.

To deactivate VDT mode: Change the mouse mode to Relative by typing L CTRL | L CTRL | F11 | b

To re-activate VDT mode: Change the mouse mode to Absolute by typing L CTRL | L CTRL | F11 | c

Note: VDT is enabled by default.

— Screen border
---- Mouse cursor movement path
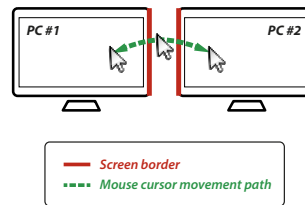
OPERATION

Keyboard shortcut options

#	Action Description	Keyboard
1	Toggle between mouse modes	(Absolute) - **L CTRL | L CTRL | F11 | c** (Relative) - **L CTRL | L CTRL | F11 | b**
2	Increase / Decrease mouse speed	(Increase) - **L CTRL | L CTRL | F11 | +** (Decrease) - **L CTRL | L CTRL | F11 | -**
3	Change presets (Example)	**L CTRL | L CTRL | F11 | F1 – F6**
4	System Reset to factory defaults	**L CTRL | L CTRL | F11 | r**
5	Enter Terminal-Mode	**L CTRL | R CTRL | t**

Highseclabs.com