

HSY-16S

CONTROL PANEL
16x16 with Status

OPERATOR'S MANUAL



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HSY-16S PANEL OPERATION

GENERAL:

The HSY-16S is a control panel capable of switching a 16x16 matrix. There are individual selection buttons for each of the 16 inputs and 16 outputs. This panel provides source status for each output via the two digit 7-segment LED status window above each output selection button. This allows for simultaneous status display for all outputs. Switching of up to four levels is provided by configuration of a DIP switch. Source and destination equipment may be identified in the label areas provided on the front panel above each input button and below each output button.

SYSTEM SETUP

Located through the rear of the unit is an eight position DIP switch (S33). The DIP switch performs two functions, one; setting of the panel's COMM address and two; activation of control LEVEL(s). The DIP switch is only tested once at power up. If any switch settings are changed, the power to the panel must be reset to read the new switch settings.

COMM ADDRESS

The HSY-16S needs to have its own unique COMM address to distinguish it from other control panels that may be in the system. There are sixteen possible addresses, and therefore the system can have up to sixteen panels. If there is more than one panel controlling the router, or additional panels are being added to an existing system, make sure they each have a unique address. See the table located later in this document for address setup.

CONTROL LEVELS

The panel may be configured to switch one or more control LEVEL(S). The active levels are determined by DIP switch S33,5-8 located on the rear of the control panel. When the appropriate switch is set, that LEVEL will follow whatever is selected by the INPUT keys. However, if inadvertently no LEVELS are made active the panel will default to LEVEL 1 only.

The displayed source status is always in reference to the lowest active LEVEL. For example, if several HSY-16S panels are employed in a system the following displays may be present. If the first control panel has LEVEL 1 activated, the status displayed is for control level 1 (typically assigned to video). As well, if the second control panel has only LEVEL 2 activated, the status displayed is for control level 2 (typically assigned to audio). This scenario provides continuous status display for multiple levels of all outputs simultaneously. This also provides break-away operation via the use of a separate panel for each control level. See the table located later in this document for control LEVEL setup.

Typical default levels of Sigma routing switch modules are Level 1 for video and Level 2 for audio. Please refer to the router manual information pertaining to "LEVEL SETTING".

INPUTS

When the control panel is not in a preset mode none of the input button LEDs are flashing. To select an input for switching, press an input key. The LED incorporated into the input key will begin flashing, indicating a preset mode. If a wrong input is selected you can correct it anytime before pressing an OUTPUT key by pressing the desired input key. The preset mode can be canceled at any time by pressing the same INPUT key again.

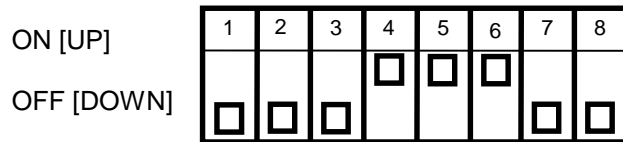
OUTPUTS

Once an input is selected (preset mode active), pressing the desired OUTPUT key will cause the panel to generate a TAKE. The TAKE will cause only the active control LEVELS on the panel to switch. When the TAKE is accepted by the SCI, the preset mode will be cleared on the panel and the panel will reflect the current status of the system for that OUTPUT (relative to the lowest active LEVEL set on the panel). If the INPUT LED and STATUS WINDOW remain flashing after a TAKE operation, the panel is unable to communicate with the system SCI. This is most often caused by an open COMM line typically at one of the BNC connectors.

STATUS

A two digit 7-segment LED display is provided above each output key. The input selected for each output is displayed in this source status window. This allows the operator to have all output's status information visible simultaneously. The status for each output is relative to the lowest active LEVEL selected on the panel.

HSY-16S COMM ADDRESS SELECTOR SWITCH [S33,1-4]



S33 CONFIGURATION

ADDRESS	S33,1	S33,2	S33,3	S33,4
1	OFF	OFF	OFF	ON
2	OFF	OFF	ON	OFF
3	OFF	OFF	ON	ON
4	OFF	ON	OFF	OFF
5	OFF	ON	OFF	ON
6	OFF	ON	ON	OFF
7	OFF	ON	ON	ON
8	ON	OFF	OFF	OFF
9	ON	OFF	OFF	ON
10	ON	OFF	ON	OFF
11	ON	OFF	ON	ON
12	ON	ON	OFF	OFF
13	ON	ON	OFF	ON
14	ON	ON	ON	OFF
15	ON	ON	ON	ON
16	OFF	OFF	OFF	OFF

HSY-16S CONTROL LEVEL SWITCH SELECTOR [S33,5-8]

When the appropriate switch is on, the Level will follow the input as selected on the panel. If all switches are OFF the panel will default to LEVEL 1 only. Any combination of switches is acceptable. A typical audio follow video would have both levels 1 and 2 activated. Video only switch would have level 1 activated. An audio only switch can be performed by activating level 2 only. These examples assume the default factory level configurations of the switch modules.

S33,5 OFF	LEVEL 1 OFF
S33,5 ON	LEVEL 1 ON
S33,6 OFF	LEVEL 2 OFF
S33,6 ON	LEVEL 2 ON
S33,7 OFF	LEVEL 3 OFF
S33,7 ON	LEVEL 3 ON
S33,8 OFF	LEVEL 4 OFF
S33,8 ON	LEVEL 4 ON

HSY-16S THEORY OF OPERATION

POWER SUPPLY

Power to the system control panel is supplied by a 9-12 VDC wall pack power supply through J1 on the rear panel. Polyswitch RT1, inside the control panel, provides fault current protection to the wall pack supply and the remote panel. Diode D3 (in combination with RT1) also provides reverse voltage protection should a wrong polarity power supply accidentally be connected to the remote panel. The 9-12 VDC input is regulated to 5 VDC by U3.

MICROPROCESSOR, I/O

All functions of the remote panel are controlled by U1, an 8051 type microprocessor. The microprocessor is complete with a serial port, RAM, counters, I/O lines and program storage EEPROM. Y1, C8 and C9 make up the 14.7 MHz oscillator clock for U1.

U2 combines the individual microprocessor TXD and RXD lines into a single COMM line. It also provides the necessary drive and level conversion between the microprocessor serial I/O lines and the COMM line interface. Resistors R2 and R3 provide a bias for the COMM input signal comparator. The direction of the COMM line is controlled by P3.7, and is normally in the receive mode except when a panel transaction is made.

DISPLAY AND KEYBOARD

The display and keyboard are controlled by the microprocessor through the display drivers U4, U5, U6, and U7. U4 and U5 receive the column data and U6 and U7 the row data. Data is serially transmitted from the microprocessor to the display driver ICs via the P1.0 (clock) and P1.1 (sdata) lines. Data in U4 and U5 is latched by a strobe signal on P1.2 (colstrobe). Data in U6 and U7 is latched by a strobe signal on P1.3 (rowstrobe). To turn on an input switch LED the Q8 output of U6 is set high, and the corresponding column line goes low. To turn on any segment of the 7-segment displays, the Q1 through Q7 outputs of U6 (for DS1-DS8) and the Q1 through Q7 outputs of U7 (for DS9-DS16) are set high, and the corresponding column line goes low. The display mux rate is about 2mS per column digit.

The keys are scanned by turning off all row drivers and testing the KROW1 and KROW2 lines while the column transistors are turned on one at a time.