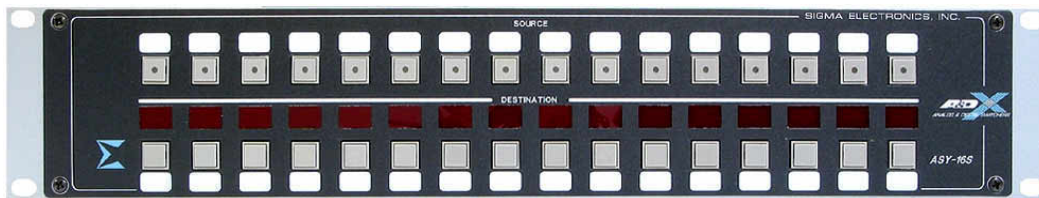


ASY-16S

CONTROL PANEL
Cascading 16x16 with Full Status

OPERATOR'S MANUAL



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ASY-16S PANEL OPERATION

GENERAL:

The ASY-16S is a master control panel capable of switching a group of 16 Sources and Destinations. The ASY-16S is configurable for control groups of 1-16, 17-32, 33-48 ...112-128. Each of the 16 source and destination buttons on an ASY-16S function within the selected control group. For example, panel one controls group 1-16 while panel two controls group 17-32. The ASY-16S provides source status for each destination via a two digit 7-segment LED status window above each destination button. This provides simultaneous status display for all destinations. Router control levels 1-4 are switched by the ASY-16S. This control panel is designed to operate in an ADX or MRX router system.

SYSTEM SETUP

An eight position DIP switch (S33) performs two functions, one; setting of the panel's COMM address and two; the group selection. The DIP switch setting is checked at power up. If any switch settings are changed, power must be reset to read the new settings.

COMM ADDRESS

Each ASY-16S must have it's own unique COMM address to distinguish it from any other control panel in the system. There are thirty-two possible addresses, and therefore the system can have up to thirty-two panels. If there is more than one panel controlling the router, or additional panels are being added to an existing system, make sure each panel has a unique address. See the table located in this document for address setup.

GROUPS

A single ASY-16S functions as a 16x16 control panel. Multiple panels may be cascaded to configure a 32x32 or 48x48 control scheme. Each panel in a multi-panel system would be set to a different control group. The switching of sources to destinations will be performed within one panel if the source and destination are found within the same control group. If the source is found in one control group and the destination is found within another control group the switch would be made across two control panels. i.e. Source 16 to Destination 48 requires the source to be selected on the first panel and the destination to be selected on the third panel.

SOURCES

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

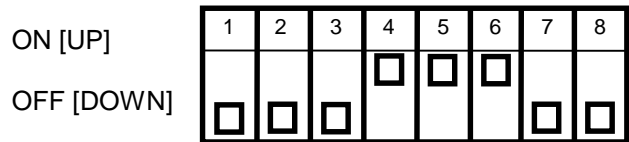
DESTINATIONS

After a source is selected (preset mode), press the desired destination button to generate a TAKE. The TAKE will cause control levels 1 through 4 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 destination. Status display is relative to LEVEL 1. If the source button LED and STATUS WINDOW remain flashing after a TAKE operation, the panel is unable to communicate with the system SCI. An open COMM line at one of the BNC connectors is usually the cause of communication errors.

STATUS

A two digit 7-segment LED display is provided above each destination button. The source assigned to each destination is displayed in this status window. This allows the operator to simultaneously view status information for all destinations. Again, the status for each destination is relative to level 1.

ASY-16S COMM ADDRESS SELECTOR SWITCH [S33,1-5]



S33 CONFIGURATION

ADDRESS	S33,1	S33,2	S33,3	S33,4	S33,5
1	OFF	OFF	OFF	OFF	OFF
2	OFF	OFF	OFF	OFF	ON
3	OFF	OFF	OFF	ON	OFF
4	OFF	OFF	OFF	ON	ON
5	OFF	OFF	ON	OFF	OFF
6	OFF	OFF	ON	OFF	ON
7	OFF	OFF	ON	ON	OFF
8	OFF	OFF	ON	ON	ON
9	OFF	ON	OFF	OFF	OFF
10	OFF	ON	OFF	OFF	ON
11	OFF	ON	OFF	ON	OFF
12	OFF	ON	OFF	ON	ON
13	OFF	ON	ON	OFF	OFF
14	OFF	ON	ON	OFF	ON
15	OFF	ON	ON	ON	OFF
16	OFF	ON	ON	ON	ON
17	ON	OFF	OFF	OFF	OFF
18	ON	OFF	OFF	OFF	ON
19	ON	OFF	OFF	ON	OFF
20	ON	OFF	OFF	ON	ON
21	ON	OFF	ON	OFF	OFF
22	ON	OFF	ON	OFF	ON
23	ON	OFF	ON	ON	OFF
24	ON	OFF	ON	ON	ON
25	ON	ON	OFF	OFF	OFF
26	ON	ON	OFF	OFF	ON
27	ON	ON	OFF	ON	OFF
28	ON	ON	OFF	ON	ON
29	ON	ON	ON	OFF	OFF
30	ON	ON	ON	OFF	ON
31	ON	ON	ON	ON	OFF
32	ON	ON	ON	ON	ON

ASY-16S CONTROL GROUP SELECTOR [S33,6-8]

Each control panel may be set to control a different group of Sources and Destinations. There are 8 different groups available for operation of the ASY-16S. Use this chart to select the control group.

Group #	Assignments	S33,6	S33,7	S33,8
1	1-16	OFF	OFF	OFF
2	17-32	OFF	OFF	ON
3	33-48	OFF	ON	OFF
4	49-64	OFF	ON	ON
5	65-80	ON	OFF	OFF
6	81-96	ON	OFF	ON
7	97-112	ON	ON	OFF
8	113-128	ON	ON	ON

ASY-16S PANEL OPERATION

Display operations and Errors

- Symptom:** Upon panel power up, Zeros are displayed in all the output display windows. All switches are non-functional.
- Condition:** Error. There is no Comm Line communications with the panel. Check the Coaxial Cable connections.
- Symptom:** Bottom segments of all display LEDs are lit, and the input switch LEDs are strobing from left to right. All switches are non-functional.
- Condition:** Error. The input/output address range of the panel is greater than the matrix size setting of the system. Make sure the System SCI is set for the proper Matrix Size. Also ensure the Control Panel group setting is within the assigned Matrix Size.
- Symptom:** Bottom segments of all display LEDs are lit. Output switches are non-functional. Input switches are active and can be used with outputs from another panel to make a switch.
- Condition:** The matrix size of the system is configured for fewer outputs than inputs. The panel can only be set to matching groups of inputs and outputs. However, the system SCI can be configured to any multiple of input and outputs. This is not an error, it is how the panel displays invalid outputs while still allowing valid inputs to be selected.
- Symptom:** Normal status display in all display windows. Input switches are non-functional. Output switches are active and can be used with inputs from another panel to make a switch.
- Condition:** The matrix size of the system is configured for fewer inputs than outputs. The panel can only be set to matching groups of inputs and outputs. However, the system SCI can be configured to any multiple of input and outputs. This is not an error, it is how the panel displays valid outputs while preventing invalid inputs from being selected.
- Symptom:** Middle segments (dashes) of one or more display LEDs are lit.
- Condition:** The maximum input that can be displayed on the panel is 99. System inputs which exceed this (100-128) are displayed as "-". It is not an error, but just a limitation of the information the panel can display.

Notes: The panels can be used in systems up to the maximum matrix size of 128X128, the only limitation being displayed status as mentioned above.

All switches made with these panels are currently four level follow mode. The displayed status is always Level 1 information.

ASY-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.