SLX-SERIES

ANALOG and DIGITAL
SOURCE SELECT SWITCHERS

OPERATORS MANUAL & SCI PROTOCOL APPENDIX

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SLX SERIES

RECEIVING:

It is recommended that the SLX Series switcher be inspected upon receipt. Report any damage to the shipping company and to SIGMA ELECTRONICS, INC. Shipping cartons should be saved for use in the unlikely event that a return shipment is necessary.

GENERAL:

The Source Select Switchers are ideal for applications utilizing standard bandwidth to high-resolution analog video signals, mono or stereo analog audio, digital audio and serial digital video. The available configurations of the SLX Series include 16 or 32 inputs by 1 or 2 outputs. Selection of input-to-output switching is achieved via the integral front control panel. This control panel allows audio-follow-video, split, or breakaway modes. An additional control panel can be remotely located if an optional Remote Control Panel has been purchased.

The SLX Series master frame provides a serial port, which will accept RS-232 or RS-422 control data. The SLX Series Control Protocol section of this manual provides information on the serial port.

The SLX Series switchers are flexible in configurations of video and audio channels. They can be simply a single video channel, or audio only. Video can be combined with audio in either Mono or Stereo configurations. The system may be configured for multiple channels of video for YC or RGB applications. Sync pulse signals of -4 Vp-p can also be switched via specially modified video boards. Many system configurations are provided by Sigma sales literature but the SLX Series is not limited to those common configurations.

POWER:

Each frame of an SLX Series system contains a power supply to support the modules within that frame. The number of frames required to build a system will depend upon the number of video and audio channels. The line cord is configured for the line voltage requirement of the frame, either 115 VAC or 230 VAC.

The same power supply is used in both 1RU and 2RU frames. The only difference in the two configurations is the metal back panel to accommodate the frame size. The power supply contains a step-down transformer and rectifiers, which produce three unregulated voltages; +9VDC, +17 VDC, and -17 VDC. Each module within the frame has regulators, which produce the regulated DC bus voltages for the required circuitry. The module may contain regulators for +5 VDC, -5 VDC, +12 VDC, and -12 VDC.

FRAMES:

Frames are provided in a 1RU or 2RU size dependent upon the number of modules required to configure the system. The local control panel is attached to the front of the frame. Each frame within a system contains a power supply, video modules, and/or audio modules. Only the master frame contains an SCI (system control interface) module. Control data is looped from the master frame to each of the other slave frames via an external cable that is supplied with the SLX switcher.

CONNECTIONS:

VIDEO:

Digital and analog video signals connect to the SLX Series by a common method. BNC style connectors are used for video inputs as labeled on the rear of the unit. Inputs are labeled 1-16 or 1-32 based on the system configuration. The system, as configured at the factory, provides inputs terminated into a 75Ω load or looping. The looping systems are indicated by the addition of an (L) suffix, i.e. SLX-161 VO(L) supplies 16 inputs with non-terminated BNC loop through.

The output connectors are located in the center of the video switch module. The output BNC connectors are marked on the printed circuit board. Depending upon the function of the module, the video BNCs will be marked as described below.

16x1 CONFIGURATIONS:

The outputs are provided by the “AUX” and “OUT” BNCs. This dual output provides the same video signal on both BNCs. When a video switch is performed both outputs switch simultaneously.

CONNECTIONS: **VIDEO** (CONT.)

16x2 CONFIGURATIONS:

The 16x2 systems also offer dual outputs. Outputs “AUX” and “OUT 1” located in the center of the input BNCs provides video for channel 1. The two BNCs located on the panel without input BNCs provide channel 2 video outputs.

32x1 CONFIGURATIONS:

On a 32x1 configuration the following video connections are required. On the secondary video switch module (17-32) connect Output “B” to the primary video switch module (1-16) “AUX”. This provides the path for inputs 17 to 32 to the secondary switch circuitry of the primary switch module. Use “OUT” of the primary video switch module for video output to the destination equipment. Output “A” of the secondary switch module is not used.

32x2 CONFIGURATIONS:

A 32x2 system has two sets of boards configured similar to the 32x1 system. The secondary switch connections are made by looping the “B” outputs of the secondary switch module (17-32) to the “AUX” connector of the primary switch module (1-16). The “OUT” connectors of the primary switch modules are used to switch video to the destination equipment.

LOOPING CONFIGURATIONS:

The “looping” modules have slightly different markings to designate the outputs and secondary switch interconnection BNCs. In a 16x1 or 16x2 looping video configuration the BNC labeled “Output” is connected to the destination equipment. The BNC connector labeled “AUX” provides a bridged output in these systems.

Video signal interconnections for the looping 32 input configurations are made in the following manner. The secondary video switch module (17-32) has two BNC output connectors. Connect the BNC labeled “Output” on the secondary video switch module (17-32) to the BNC labeled “AUX” on the primary video switch module (1-16). The BNC labeled “Output” on the primary video switch module is the output to the destination equipment.

Typically the video inputs are Sync Tip Clamped (STC) on composite video systems. Jumper W2 provides this. To AC couple the inputs, move the jumper from W2 to W3 (Multi-Channel Systems).

AUDIO:

Audio signal connections are made via the detachable three position screw terminals. Each of the inputs and output(s) has their own detachable connector. This provides a convenient means of wiring a given input or output without disturbing the other audio interfaces. Each of the balanced audio connections; (+), (C) and (-); are marked on the detachable connectors.

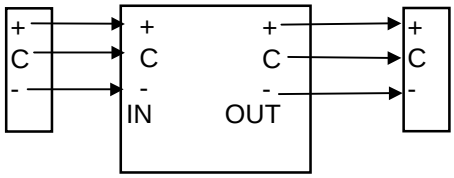
The primary audio switch module used for inputs 1-16 has a single input connector labeled “Inputs 17-32.” This input comes from the output of the secondary audio switch module for inputs 17-32, if present. The system output connector will always be on the primary audio switch module.

The Analog audio connections are a high impedance bridging input. This allows the inputs to be bridged from one switch module to the input of a second switch module in a two (2) output system, i.e. SLX-162 and SLX-322 systems. If it is desired to have the incoming signal terminated into a 600Ω load, it is necessary to add a 600Ω, 1/2 Watt resistor across the (+), (-) terminals of the input connector. When bridging the inputs, the 600Ω load should only be attached to the last connector in any given audio bridge.

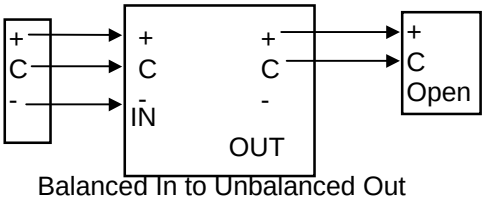
The Digital audio connections are transformer coupled 110Ω impedance in and out per AES-3 1992 standard.

ANALOG AUDIO CONFIGURATIONS:

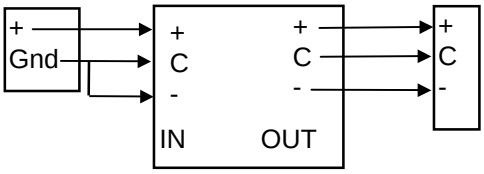
The source and destination audio devices must be evaluated to determine if they utilize balanced or unbalanced outputs and inputs. After determination is made, refer to the drawings provided to select the proper audio wiring. All inputs should be the same configuration. If both balanced and unbalanced inputs are used, gain variations will occur as noted below. In those applications, the audio signal levels should be adjusted before connection to the switcher.



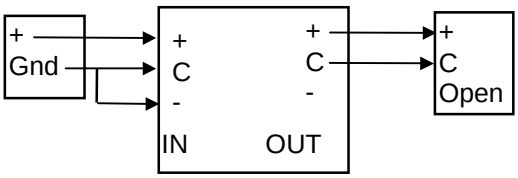
Balanced In to Balanced Out
V out = V in



Balanced In to Unbalanced Out
V out = 0.5 V in



Unbalanced In to Balanced Out
(-) Input Grounded; V out = V in
(-) Input Floating: V out = 0.75 V in



Unbalanced In to Unbalanced Out
V out = 0.5 V in

The input to output level comparison provided in the figures above, assumes the outputs are terminated into a 600Ω load.

CONTROL:

External control of the SLX Series may be performed by a Remote Control Panel or another serial control system. This is accomplished via the 9 Pin D connector on the rear of the SCI-161 module, located in the left rear position of the master frame. The SCI accepts either RS-232 or RS-422 format control signals from external devices. Details on the interface parameters and format selection are covered in the SLX Series Control Protocol section of this manual.

Systems comprised of multiple frames require the control information to be looped from the master frame to each slave frame. The 9 Pin D connector located on the power supply module is used for the purpose of looping the control information.

NOTE
Due to a change in system processor, the communication parameters Bits/Character, and Parity, are no longer available. Default settings are now 8 Bits/Character and No Parity. To determine whether a system has this change, enter the command “V”, for version, when the system is in a working communications mode. Systems with the new processor will respond with “Sigma Electronics Copyright 2002, SCI-162 firmware version X.XX {Month Day Year}”. Earlier systems that have the Bits/Character, and Parity parameters set by the user will respond to the “V” command with “?”.

CONTROL PANELS:

Standard control panels are an integral component of the master frame in most SLX Series switchers. The control panel is located on the front of the master frame. The number of control buttons is dependent upon the switcher matrix size. All panels provide the same basic switching control functions. These functions include Level control, Follow mode, Video or Audio only, and Split mode.

Level control allows video and audio inputs to be separated for switching to different outputs or sourced from different inputs. To understand this function one must know that the video is assigned to Level 1 and audio to Level 2 by default at the factory. There are two LEDs located at the top of each input button. When both LEDs are illuminated at the top of the input button, it is indicating the Follow mode. Similarly the Level button on the left side of the control panel has two LEDs. When no LEDs are illuminated at the top of the Level button the indication is that the switching is performed in the Follow mode. When the Level button is pressed once the red LED will light indicating only Level 1 (video) will switch. A second press of the Level button causes the green LED to light indicating that only Level 2 (audio) will switch. A third press restores the Follow mode.

Selecting the desired Input button will cause the LEDs on that button to flash. This indicates a preset condition. When the Take button is pressed the preset input is switched to the assigned output. Single output configurations have only one Take button. However, dual output configurations may have two Take buttons. The top Take button is for output 1 and the lower Take button, if provided, is for output 2.

To breakaway the video, the Level button must indicate a Level 1 (red only LED) mode. Press the desired Input button causing the red LED to flash on that input. When the Take button is pressed, the output will switch to the selected video input. Note that the previously selected audio source will remain unchanged.

To breakaway the audio on the output, the Level button must indicate a Level 2 (green only LED) mode. Select the desired input button causing the green LED to flash on the input. Press the Take button to switch the audio channel to the output. Note that the previously selected video signal will remain connected to the output throughout this process.

A split switch of the video and audio signals can be performed as follows. First, select the Level 1 mode and press the desired video input button. This causes that input's red LED to flash. Then, select the Level 2 mode and press the desired audio input button. This causes the green LED to flash for that input. A split switch is performed when the Take button is pressed. The input buttons show the status of the split via the red and green LEDs in two different buttons.

This same control scheme is applicable to the remote control panels available for the SLX Series. The serial port is the interface for the Remote Control Panel. Therefore, a choice must be made between which device is implemented for remote control, either a Sigma control panel or another device. Both the integral and remote panels are active simultaneously. Via the SLX Series protocol, control of the system is functionally the same as the control panels.

MULTI-CHANNEL VIDEO CONTROL:

Video configurations may include 2C (SVHS) or 3C (RGB, CAV) applications. This is accomplished with multiple video boards all set to the same level. They are controlled in parallel due to the level control being the same. When a switch is made from the control device, all output 1 or output 2 boards switch together. If the output boards reside in different frames they are interconnected for control with the provided ribbon cable.

NOTE: It is necessary to connect the video channel, which contains the sync signal to the master video board in a multi-channel video application. This is required for detection of vertical interval. If the video channel with sync information is not connected to the master video switch module the video will switch non-synchronously. This will cause tearing or vertical roll at the time of the switch. A sticker on the rear of the unit marked "SYNC REF. CHANNEL" designates the master video switch module. The master video switch module would typically be the top module in the master frame, which contains the SCI.

In the 2C and 3C systems the video modules are AC coupled to handle signals with or without sync information. This is required in applications of "sync-on-green" and "Y" signal channels mixed with video or chroma only signals.

Mono or Stereo audio can be present with a 2C or 3C system. Control of the audio modules is set to Level 2.

MOUNTING:

The SLX Series switcher is intended to be rack mounted in a standard EIA 19" rack. Four (4) mounting screws are required to secure each frame. Each frame will occupy either 1 RU or 2 RU depending on system configuration. Multiple frames may be used in a system multiplying the rack space required. Adequate ventilation is required within the rack to prevent temperatures exceeding the recommended operational temperature specification. This may require 1 RU spacing between frames in unventilated racks.

ADJUSTMENTS:

All modules are factory adjusted for proper operation. If necessary, the following adjustments are available.

ANALOG VIDEO:

R60: ..... DC Offset - sets the DC reference point for STC (Sync Tip Clamp) or AC coupled mode.
R42 ..... Gain - adjusts video amplitude to 1 Vp-p.
C6 ..... Frequency Response - adjusts for maximum bandwidth / optimized flat response.
C3 ..... Frequency Response - adjusts for secondary feed-through of input signals 17 to 32.

DIGITAL VIDEO: No Adjustments.

AUDIO:

R4: ..... Common Mode Rejection, 1 each for Audio Inputs.
R18: ..... Gain, Primary inputs 1-16, Set for unity gain at +18 dBm input.
R32: ..... Gain, Secondary inputs 17-32, Set for unity gain.

DIGITAL AUDIO: No Adjustments.

JUMPERS:

W2: ..... STC, (Analog Video Module Only) Sync Tip Clamp enable, typical for Composite video systems.
W3: ..... AC, (Analog Video Module Only) AC couple enable, typical for Multi-Channel Video systems.
NOTE: Use either W2 or W3 to determine signal-coupling method. Do NOT use both simultaneously.
Following jumpers are used on all modules.
W4: ..... Input Group, Position of jumper selects Input Group 1-16 or 17-32.
W5: ..... Output, Position of jumper selects modules Output assignment of 1 or 2.
W6: ..... Level, Jumper selects module's control level assignment, typical 1 = video, 2 = audio.

SYNC - Internal and External:

The SCI-161 module (located rear left side of frame) has sync jumper JP8 on the circuit board. Jumper position 1 to 2 is for Internal Sync, this sync is taken from the input signal connected to Output 1. Jumper position 2 to 3 is for the External Sync connected to the rear mounted COMP REF BNC connector.

Default connection is for External Sync on units shipped from Sigma Electronics Inc., JP8 position 2 to 3 External Sync.

To remove the SCI-161 module to change JP8 jumper position it is necessary to remove 5 screws - 2 on top rear, 2 on bottom rear, and 1 on bottom towards the front.

SPECIFICATIONS:

ANALOG VIDEO:

INPUTS:	161, 162	16, 75Ω terminated
	321, 322	32, 75Ω terminated
	161(L), 162(L).....	16, high impedance looping
	321(L), 322(L).....	32, high impedance looping
INPUT RETURN LOSS		35 dB minimum at 10 MHz
INPUT LEVEL		1.4 V p-p maximum
OUTPUTS:	161, ...	1, Dual, Source term., 75Ω
	162	2, Dual, Source term., 75Ω
	321	1, Source terminated, 75Ω
	322	2, Source terminated, 75Ω
OUTPUT LEVEL:		1.4 V p-p maximum
FREQUENCY RESPONSE:	161, 321	±0.1 dB, 100 kHz to 25 MHz
		±0.5 dB, 100 kHz to 100 MHz
	162, 322	±0.1 dB, 100 kHz to 10 MHz
		±0.75 dB, 100 kHz to 100 MHz
BANDWIDTH:	161	150 MHz minimum @ -3 dB
	162, 321, 322 …...	125 MHz minimum @ -3 dB
GAIN:		Set for Unity, ±1 dB
HUM and NOISE:		70 dB RMS min. below 1 V p-p
DIFFERENTIAL PHASE:.....		0.1° max., 10% to 90% APL
DIFFERENTIAL GAIN:		0.1% max., 10% to 90% APL
CROSSTALK:		60 dB minimum to 10 MHz
CONNECTORS:		BNC

DIGITAL VIDEO:

INPUT:	SMPTE 259M-A,B,C,D, 800mV p-p maximum, 75Ω terminated
DATA RATE:	143, 177, 270, 360 Mbps
OUTPUT SIGNAL:	800 mV p-p maximum, ±10%
OUTPUT-to-OUTPUT ISOLATION…...	20 dB minimum, 5 MHz to 270 MHz
OVERSHOOT:	10% of total amplitude, maximum
INPUT CABLE LENGTH:	up to 1000 feet (300M) Belden 8281 or equivalent
CONNECTORS:	BNC

ANALOG AUDIO:

INPUTS:	161, 162	16, Balanced, Bridging
	321, 322	32, Balanced, Bridging
INPUT LEVEL:		+24 dBm max., 600Ω
INPUT IMPEDANCE:		50 KΩ, Balanced, 1-16
		600Ω, Balanced, secondary
OUTPUTS:	161, 321	1, Balanced
	162, 322	2, Balanced
OUTPUT LEVEL:		+21 dBm max., 600Ω
OUTPUT IMPEDANCE:		200Ω, Balanced
OUTPUT PROTECTION:.....		Indefinite short-circuit
FREQUENCY RESPONSE: All systems.		±0.1 dB, 20 Hz to 20 kHz
		@ +10 dBm, 1 kHz ref.
BANDWIDTH:		150 kHz min. @ -3 dB
DISTORTION:		0.1% max. @ +10 dBm
		0.15% max. @ +21 dBm
GAIN:		Set for Unity, ±3 dB
HUM and NOISE:		-80 dBm max., 20 kHz BW
GAIN VARIATION:		±0.1 dB, any input to output
COMMON MODE REJECTION:		70 dB min., 20 Hz to 2 kHz
		60 dB min., 2 kHz to 20 kHz
CROSSTALK:		85 dB min., worst case,
		20 Hz to 20 kHz

SPECIFICATIONS: (cont.)

DIGITAL AUDIO:

INPUTS:	Differential, terminated, 7Vp-p max. Transformer coupled, AES-3 1992
INPUT IMPEDANCE:	110Ω(±20%) from 0.1MHz to 6MHz
OUTPUTS:	7V p-p man. (3.7Vp-p typical)
OUTPUT IMPEDANCE:	110Ω(±20%) from 0.1MHz to 6MHz
SERIAL DATA JITTER:	±20 ns max.
OUTPUT COMMNON MODE NOISE:	30 dB min. below signal from DC to 6 MHz
OUTPUT-to-OUTPUT ISOLATION	50 dB min.
OVERSHOOT:	10% of total amplitude, maximum
INPUT CABLE LENGTH:	up to 500 feet Belden 1800A or equivalent
CONNECTORS:	3-pin detachable plug

SYSTEM:

TEMPERATURE:		0^{o} to $+50^{o}$ C Operational
POWER:		115 VAC or 230 VAC, 50/60 Hz
SIZE:	1 RU FRAME	19” W x 1.7” H x 8.3” D (483 x 44 X 210 mm)
	2 RU FRAME	19” W x 3.5” H x 8.3” D (483 x 87 X 210 mm)
WEIGHT:	1 RU FRAME	10 lb. (4.5 kg) Typical, Configuration Dependent
	2 RU FRAME	14 lb. (6.4 kg) Typical, Configuration Dependent

TECHNICAL MANUAL:

A manual including schematics and parts list, intended for the service of the system, is available upon request. Qualified personnel should service systems ONLY! Sigma Electronics, Inc. recommends service to be performed by our Factory Service Center.

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REV 8 APRIL 07 Supersedes REV7 May 03 SLX SERIES

SLX SERIES

SCI-162 PROTOCOL INSTRUCTIONS

INTRODUCTION

The SCI-162 control interface card is the heart of the Sigma Series SLX source selection switchers. The SCI functions as the controller between the user and the switch crosspoints. The SCI will make a switch during the vertical interval, and this switch can be generated one of two ways: by the control panel or by the serial port.

The SCI can support either RS-232 or RS-422 communications. Unless specified otherwise at time of order, the switcher will be set for RS-232 communications. Changing from RS-232 to RS-422 will require removal of the SCI-162 module from the frame. The communication cable will need to be moved from the RS-232 connector to the RS-422 connector.

Communications through the serial port is achieved with a straightforward ASCII instruction set. Upon receipt of a command, The SCI will interpret and execute the instruction unless responses are suppressed, the SCI will issue a response of “OK” to the sending device upon completion of each transaction. If the SCI receives an invalid command a response of “?” will be transmitted.

SCI 162 - RS232 PROTOCOL

Commands are issued from a computer/terminal keyboard using standard ASCII letters and numbers. The SCI is not case sensitive, and therefore does not care whether you use capital letters or lower case letters.

The ASCII protocol for making an audio-follow-video switch is:

IxxOxx {RETURN/ENTER}

The 'I' represents INPUT and the 'O' OUTPUT. The 'xx' represents the one or two digit number of the respective INPUT and OUTPUT. The leading zero is optional. Valid INPUT numbers for the SCI are 01-32. Valid OUTPUT numbers are 01-02. To generate the TAKE, press the RETURN/ENTER key on the keyboard. When the SCI receives the request and executes the change, it will respond with an ASCII message 'OK' (unless disabled - see "N/Y" command explanation).

The ASCII protocol for making a BREAKAWAY is:

AxxOxx {RETURN/ENTER}

The 'A' could actually be A or B. These two letters represent the two input levels respectively. An "A" corresponds to Level 1 (video) and a "B" represents Level 2 (audio). Again, the 'O' is the OUTPUT. In this case, only the requested input Level will change.

The ASCII protocol for making a SPLIT is:

AxxBxxOxx OR **BxxAxxOxx**

In this example, the inputs for both levels are assigned different numbers, but both will go to the same OUTPUT. Again, it is not necessary to supply the leading zero in assigning numbers. A07B03O01 or A8B5O2 will both work.

The STATUS of either OUTPUT can be obtained by entering the following:

Sxx {RETURN/ENTER}

The 'S' represents STATUS and the 'xx' represents the one or two digit ASCII number of the OUTPUT. As before, the leading zero is optional. Press the RETURN/ENTER key to generate execution. The SCI will respond with the following ASCII message:

OUTPUT xx LEVEL 1 xx LEVEL 2 xx

In a STATUS request, the SCI will generate a leading zero for all numbers that require one.

A GLOBAL STATUS can also be generated. This will give the STATUS for all the active OUTPUTS (up to 2). By default, those OUTPUTS not yet addressed will be indicated as having INPUT 01 selected. The protocol sequence for a GLOBAL STATUS is:

SA {RETURN/ENTER}

The 'S' represents STATUS and the 'A' represents all. As always, press the RETURN/ENTER key to execute the command. The SCI will respond with the following:

L1 L2 OUT
xx xx xx
xx xx xx

Anytime an invalid or incomplete message is sent to the SCI, it will respond with an ASCII '?' (unless disabled, see "N/Y" command). This will occur for each group of invalid characters it receives. The RETURN / ENTER key is the delimiter between commands. Therefore, invalid characters will not cause a '?' response until the RETURN/ENTER key has been sent.

SCI generated responses can be disabled by pressing a single key. The command is:

N

This will prevent all SCI responses. No carriage return is required. At any time, the responses can be resumed. The command is:

Y

Again, no carriage return is needed. Please note this process differs from the XON/XOFF routine. In that case, the responses are held in a buffer and then all pending messages are sent upon receiving the XON command. In this case, the messages are totally discarded. In this way, it is possible to tailor a program to allow only a status response but inhibit all other SCI messages.

Any time a wrong key is accidentally pressed or a command needs to be changed, the current command can be cancelled by pressing the SPACEBAR. This is always true as long as the RETURN/ENTER key has not yet been pressed. All keys pressed since the last entry of the RETURN/ENTER key will be erased. The CANCEL command is automatic and does not require the RETURN/ENTER key to be pressed. The format is:

{SPACEBAR}

The SCI will respond by sending a carriage return and linefeed to move the cursor on the screen to the beginning of the next line.

The SCI always gives priority to commands over responses. All commands are executed first before beginning any responses. This process assures the fastest handling of a change request.

Version information of the SCI162's firmware can be displayed. The command is:

V

The SCI will respond with the following text:

Sigma Electronics Copyright 20XX
SCI-162 firmware version X.XX {Month Day Year}

RS422 CONTROL

Unlike RS232, RS422 allows for multiple devices to be connected to a computer/terminal at the same time. In order for the computer/terminal to communicate with a device in RS422, it must first tell the device to listen. This is the purpose of the logic address. The SCI has four DIP switches reserved for setting the device's logic address. Valid addresses for the SCI are 01-15 (an address of 00 indicates that RS-232 is being used).

The format for protocols is identical to that of RS232 with one exception. Any instruction (including XON/XOFF) must be preceded by the following:

/xx

The slash is the precursor, and the 'xx' is the logic address of the device. This is ALWAYS a TWO DIGIT NUMBER.

By way of example, to generate a switch, the sequence would be as follows:

/xxIxxOxx {RETURN/ENTER}

Where the first 'xx' is the SCI's logic address (two digits), the second 'xx' is the one or two digit INPUT number and the third 'xx' is the one or two digit OUTPUT number.

The SCI supports the XON/XOFF protocol. This is a method, through software, of halting and resuming transmission of data. The XOFF is activated by holding the Control key and pressing 'S' (CTRL-S). This will halt data transmission. XON is activated by holding the Control key and pressing 'Q' (CTRL-Q). This will resume transmission. Incoming commands are still executed during an XOFF. It is the responses generated by the SCI that are not sent. They are held in a message buffer until an XON is received. At that time, all pending responses are sent out the serial port in the same sequence in which they were received.

Like the CANCEL command, XON and XOFF are automatic and do not require the RETURN/ENTER key to be pressed.

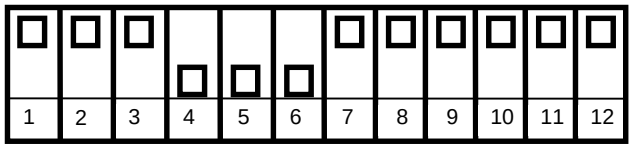
SCI INTERFACE SELECTOR SWITCH [S1]

BAUD RATE SELECTION [S1, 1-S1, 3]

S1, 1	*S1, 2*	*S1, 3*	*Baud Rate*
ON	ON	ON	300
OFF	ON	ON	600
ON	OFF	ON	1200
OFF	OFF	ON	2400
ON	ON	OFF	4800
OFF	ON	OFF	9600
ON	OFF	OFF	19200
OFF	OFF	OFF	38400

OFF [UP]

ON [DOWN]



S1 CONFIGURATION

Note: -S1, 4 S1, 5 S1, 6 are reserved for factory use.

VIDEO FORMAT/LINE SELECTION [S1, 7-S1, 8]

S1, 7	*Video Format*
ON	NTSC
OFF	PAL

S1, 8	*Sync Line Switch*
ON	NTSC 9 / PAL 6
OFF	NTSC 10 / PAL 7

Note: -Sync Line Switch selects the horizontal line where the switch occurs during the vertical interval.

AUTO-TAKE [S1, 9]

S1, 9	*Take Mode*
ON	PRESET
OFF	AUTO-TAKE

232/422 LOGIC ADDRESS SELECT [S1,10-S1,12]

S1, 10	*S1, 11*	*S1, 12*	*Comm Format*	*Logical Address*
ON	ON	ON	RS-232	RS-232*
OFF	ON	ON	RS-422	01
ON	OFF	ON	RS-422	02
OFF	OFF	ON	RS-422	03
ON	ON	OFF	RS-422	04
OFF	ON	OFF	RS-422	05
ON	OFF	OFF	RS-422	06
OFF	OFF	OFF	RS-422	07

Note: -Use address 00 for RS-232. All other settings are for RS-422 operation.

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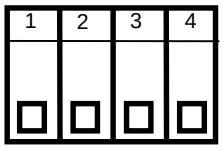
SCI PERSONALITY SELECTOR SWITCH [S2]

ON [UP]

OFF [DOWN]



S2 CONFIGURATION

Note: -Switch S2 is internal.
-Switch settings shown provide 16x1 configuration for 3200 protocol.

MATRIX SIZE SELECTION [S2,1-S2,3]

S2, 1	S2, 2	S2, 3	Matrix Size	Control Configuration
ON	ON	ON	32 Inputs X 2 Outputs	32 Input Buttons No Breakaway
OFF	ON	ON	32 Inputs X 1 Output	32 Input Buttons with Breakaway
ON	OFF	ON	16 Inputs X 2 Outputs	2 Sets of 16 Input Buttons
OFF	OFF	ON	*** Reserved ***	
ON	ON	OFF	*** Reserved ***	
OFF	ON	OFF	32 Inputs X 1 Output	16 Buttons Select 1-16/17-32
ON	OFF	OFF	16 Inputs X 2 Outputs	16 Buttons No-Breakaway
OFF	OFF	OFF	16 Inputs X 1 Output	16 Buttons with Breakaway

PROTOCOL SELECT

S2, 4	Protocol
ON	2188
OFF	3200

*Note: ***The S2 settings above are set in the factory, based on your system configuration. Do not change them. This matrix is provided for information only*.

SCI-SLX JUMPER SELECTION

SERIAL PORT COMMUNICATION FORMAT

RS-232 SELECTION JP3, 5 position jumpers with header attached, factory default.

RS-422 SELECTION JP4, 5 position jumper, move header to this position for RS-422.

SCI-SLX 9 PIN 'D' RS-422 WIRING

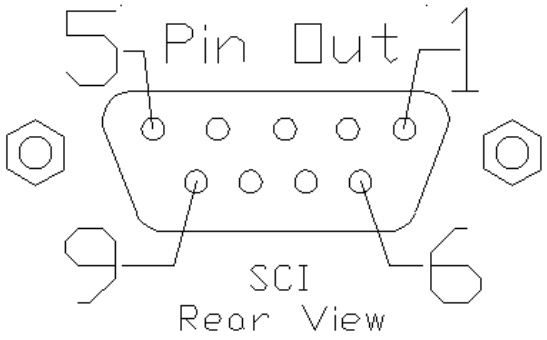
PIN #	FUNCTION*	DIRECTION
1	Ground	----
2	Transmit A	Output (Tx Data -)
3	Receive B	Input (Rx Data +)
4	Receive Common	----
5	N/C	----
6	Transmit Common	----
7	Transmit B	Output (Tx Data +)
8	Receive A	Input (Rx Data -)
9	Frame Ground	----

*(Same as standard: ANSI/SMPTE 207M/1984)

SCI-SLX 9 PIN 'D' RS-232 PIN ASSIGNMENT

PIN #	FUNCTION*	DIRECTION
1	N/C	----
2	RECEIVE DATA	INPUT
3	TRANSMIT DATA	OUTPUT
4	DATA TERMINAL READY	OUTPUT----
5	SIGNAL GROUND	N/A
6	DATA SET READY	INPUT
7	READY TO SEND	OUTPUT
8	CLEAR TO SEND	INPUT
9	N/C	----

The Pin assignments noted are per the RS-232 standard. Although the standard defines the use of twenty-five (25) Pins, only nine (9) are required for basic PC serial communications. Of those nine pins, only seven are required for communication to the SCI when hand shaking is active. Consult the control device manufacturer's data sheet to determine proper wiring.



SCI-SLX 9 PIN 'D'

PIN	SIGNAL DESIGNATION	SERIAL PORT CONNECTIONS (COMM 1-DCE)		SERIAL PORT CONNECTIONS (COMM 2-DTE)
1-	N/C	N/C		N/C
2-	RECEIVE DATA (RXD) [INPUT]	RXD	OR	TXD
3-	TRANSMIT DATA (TXD) [OUTPUT]	TXD	OR	RXD
4-	DATA TERMINAL READY (DTR) [OUTPUT]	CTS		CTS
5-	SIGNAL GROUND	GROUND		GROUND
6-	DATA SET READY (DSR) [INPUT]	RTS		RTS
7-	READY TO SEND (RTS) [OUTPUT]	DSR		DSR
8-	CLEAR TO SEND (CTS) [INPUT]	DTR		DTR
9-	N/C	N/C		N/C

Although the RS-232C standard defines the use of 25 pins, only nine of those are needed for basic PC serial communications. Of those nine, only seven are required for serial communications with the SCI-SLX. The above wiring chart is typical for most IBM and compatible type PC's. However, it is always best to check with the manufacturer's wiring specifications to determine exact pin assignments before beginning. This is especially true if using COMM 1, since some manufacturers use a 9 pin 'D' connector instead of a 25 pin 'D'. Regardless of the connector, the signal connections are the same. RXD and TXD are reversed depending upon whether the serial port is configured as a DTE (data terminal equipment) or a DCE (data communications equipment).

If the control equipment does not require handshaking, there is no need to jumper the pins on the SCI-SLX. When handshaking is not required only 3 pins will be used: TXD, RXD and Signal Ground. All other pins will have no connection.

Rev04 Sept 02