MODEL 3900 PROGRAMMABLE SWITCHING UNIT

The Model 3900 Programmable Switching Unit provides the user with the ability to connect differential signals, single ended signals or time code inputs to one or more like signal type outputs. Programming of connections is made via an RS232 interface or an optional front panel keypad. Via the same RS232 interface or an optional LCD display feedback of the connections made is available to the user.

The Model 3900 accepts up to 100 differential signals, up to 100 single ended signals and up to 25 time code inputs. Any one of these input types can be connected to the same output type consisting of 100 differential outputs, 100 single ended outputs and 25 time code outputs. Differential, single ended and time code signals are switched together with one RS232 command. In addition, the user can selectively invert data output signals.

All cards in the Model 3900 PSU are front loading, accessible behind hinged front panel doors. The unit's power supply is also front loading.

Options:

- Local control using front panel LCD display and keypad
- Smaller matrix size
- Data or time code switching only
- Top loading chassis for reduced size
- Redundant power supplies

SPECIFICATIONS

Switching Matrix

The unit houses two switching matrix types; one for switching data signals and one for switching time codes. Differential signals are converted to single ended before the switching matrix and back to differential after the switch. Input and output buffers are provided for both switch types.

The matrix used to switch differential signals can be up to 100 x 100 in size. Specifications for this matrix and input/output buffers are:

Frequency Range:	DC to 2MPPS
Amplitude:	Binary 1: +2 to +5.5 volts
	Binary 0: 0 to +0.8 volts
Input Impedance:	120 ohms
Drive Capability:	100 ohms
Switching Crosstalk:	-80 db at 100KHz
	-60 db at 1MHz
Switching Speed:	<10 microseconds
Connectors:	Triax

The single ended switching matrix accommodates 100 inputs and 100 outputs. Specifications for the single ended matrix and its input/output buffers are:

Frequency Range:	DC to 2MPPS
Amplitude:	Binary 1: +2 to +5.5 volts
	Binary 0: 0 to +0.7 volts
Input Impedance:	93 ohms
Drive Capability:	50 ohms
Switching Crosstalk:	-80 db at 100KHz
	-60 db at 1KHz
Switching Speed:	<10 microseconds
Connectors:	BNC

The time code matrix is 25 inputs by 25 outputs in size. Its specifications are:

Frequency Range:	DC to 10MHz
Amplitude:	10 volts peak to peak
Input Impedance:	5000 ohms
Drive Capability:	50 ohms
Switching Crosstalk:	-80 db at 100KHz
	-60 db at 1MHz
Switching Speed:	<10 microseconds
Connectors:	BNC

RS232 Interface

The unit's RS232 interface permits the user to connect inputs to outputs and receive feedback of the programmed configuration. Specifications for this interface are:

Baud Rate:	Programmable from 110 to 19200
Data Configuration:	8 data bits, 1 start bit, 1 stop bit and 1 parity bit

Three types of transmissions are made over the RS232 interface; select input, select output and request feedback of the outputs to which an input is connected.

The words identifying an input connection are transmitted first followed by words identifying each output to which that input will be connected. Input identification consists of two words configured as follows:

Word 1	Bit	Data	
	1	1	
	2	2	
	3	4	LSB's of input connector
	4	8	identification
	5	16	
	6	32	
	7	0	Identifies this word as applying to an
	8	1	input

Word 2	Bit	Data	
	1	64	MSB's of input connector
	2	128	identification
	3	0	
	4	0	
	5	0	
	6	0	
	7	0	Identifies this word as pertaining
	8	1	to an input

Two words are used to identify each output connection.

Word 1	Bit	Data	
	1	1	
	2	2	
	3	4	LSB's of output connector
	4	8	identification
	5	16	
	6	32	
	7	0	Identifies this word as applying
	8	0	to an output

Word 2	Bit	Data	
	1	64	MSB's of output connector
	2	128	identification
	3	Inverts signal	
	4	0	
	5	0	
	6	0	
	7	0	Identifies this word as applying
	8	0	to an output

The transmission which requests the outputs connected to an input is configured as follows:

Word 1	Bit	Data	
	1	1	
	2	2	
	3	4	LSB's of input connector
	4	8	identification
	5	16	
	6	32	
	7	1	Identifies this word as a configuration
	8	1	request

Word 2	Bit	Data	
	1	64	MSB's of input connector
	2	128	identification
	3	0	
	4	0	
	5	0	
	6	0	
	7	1	Identifies this word as a configuration
	8	1	request

The status words returned are in the same format as the words used to program output connectors.

If a parity error is detected by the PSU the transmission is not accepted and a word configured as FFH is returned.

Power Requirements

The Model 3900 operates from a primary power source of 115 volts AC ±10%, 50 to 70 Hz and consumes less than 100 watts of power. Dual power supplies are optional. When so equipped, the Model 3900 can operate from either supply if one should fail.

Physical Characteristics

The Model 3900 is designed for rack mounting. All cards and the power supplies are accessible behind hinged front panel doors.

Height:	Up to 42 inches (106.7 cm), depending on matrix size.
Width:	19 inches (48.3 cm)
Depth:	19.5 inches (49.5 cm)
Weight:	Up to 75 pounds (depending on matrix size)

Environmental Specifications

Operating Temperature:	0°C to +50°C
Storage Temperature:	-40°C to +100°C
Humidity:	0 to 95%, relative, non-condensing

Manual

One copy of an operation and maintenance manual is furnished with the PSU.