Universal Switching Corporation

Specification Sheet S6400D-01

High Performance Tri-Stage Expandable
65MHz Video/RF Routing System
System S6400D

June 2003

General

Designed to be one of the most flexible switching system on the market, the System S6400D delivers just that. This version of the S6400 system is a 4th generation design originally developed in early 1992. It is the next generation of high performance medium-scale routing systems to meet today's and tomorrow's needs for high performance and cost effective video or RF routing and distribution. Versions span from DC to 65MHz.

Compact and high performance, the System S6400D provides a cost effective flexible video switching array sizeable from 8 input x 8 output, up to 64 input x 64 output. The S6400D switching array size may be configured by adding or subtracting modules in the field. The embedded intelligence automatically detects the number of the installed module and adjusts the system controls and responses accordingly.

A revolutionary Tri-Stage™ switching architecture delivers both high performance and high reliability. A departure from standard switching system technology, the System S6400D provides up to 819 crosspoints per vertical rack unit (RU), 4096 total crosspoints in a 5RU package.

Different I/O modules are used for various applications. A DC coupled type is offered for routing video or other higher level signals, even TTL. An AC coupled version delivers higher RF performance with lower noise figure.

Applications

- Airborne surveillance systems
- RF switching and routing
- High resolution RGB video routing
- Production studios
- Imaging and animation production facilities
- NTSC, PAL or SECAM routing

Includes

TCP/IP

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Flexible DC to 65MHz Video Switching Array System S6400D

Configurations from 8 x 8, up to 64 x 64

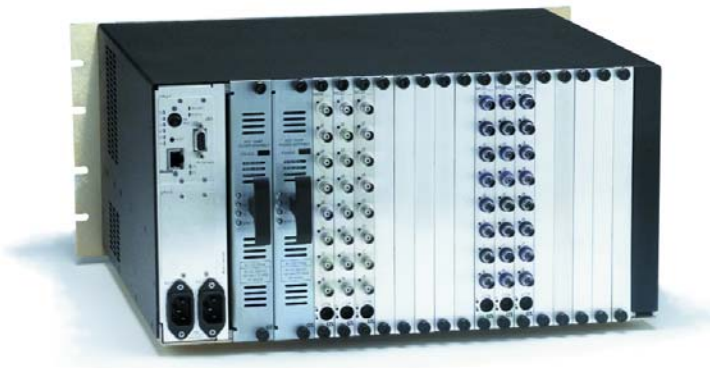
Solid-state technology and high-performance with low cost are offered with the System S6400D video switching system. It has a unity gain non-blocking switch architecture with full fanout, redundant signal paths, plus has a flexible switching array size. The system is sized by installing more or less plug-in modules. The system may be configured from an 8 x 8 to a 64 x 64. Either the input or output axis may be expanded independently in increments of eight channels. Each module contains eight input or output channels.

High Density Construction

It offers very high crosspoint density (for systems with >65MHz bandwidth) with over 4,096 effective crosspoints in a 5RU (8.72" high) rack mount package. Multiple units may be cascaded to construct even larger switching configurations such as a 128 x 128 or larger.

Modular Design

A modular plug-in design allows the user to specify an economical size to meet the requirement without having to purchase a switching system too large, but allows for expansion to the system while in the field. Each input and output module provides 8 signal ports. To expand the system, simply add the number of input or output modules required to meet the application.



Rear View (configured as 24x24)

Embedded controllers provide fast routing of signals through the system. Built-in redundant signal paths allow each I/O connection up to 16 different signal paths for the ultimate in reliability. The solid-state analog switching core offers high bandwidth and isolation.

An embedded intelligent microprocessor on each module supervises both control and status functions for nearly instant response to commands from the controlling unit. The S6400D mainframe supplies both power and control data to the plug-in modules. BNC female connectors are standard. Optional TNC connectors are available. Chassis slides may be ordered separately.

S6400D (with front panel open)

A comprehensive Operating and Programming manual is included. LabVIEW drivers are also available upon request, or you can utilize our RouteWare-PRO software package. Standard redundant power supplies can easily be replaced by simply unplugging to bad supply and intalling the new one.

Choice of Control Methods

The S6400D systems are available with any combination of the remote interface types (GPIB, RS-232C, RS-422A, RS-485, **US-Link** and Ethernet). It uses our plug-in CPU Series C710. Also, a front panel LED illuminated control keypad and high contrast 4x20 vacuum fluorescent display are included.

System control options and switching configurations are stored in non-volatile memory (lithium-backed RAM). Up to 199 different switching configurations may be stored in memory and may be recalled with a single command. This greatly simplifies control of commonly used configurations. For power up conditions, the S6400D may be set to recall the last configuration since power down, or to completely clear all crosspoint connections.

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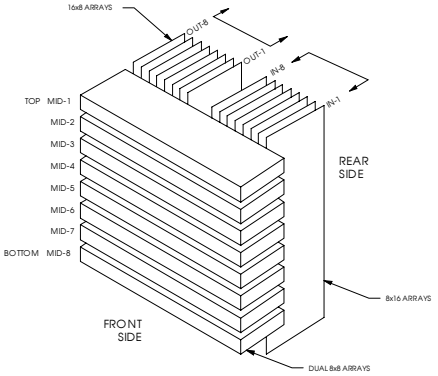
System Ordering

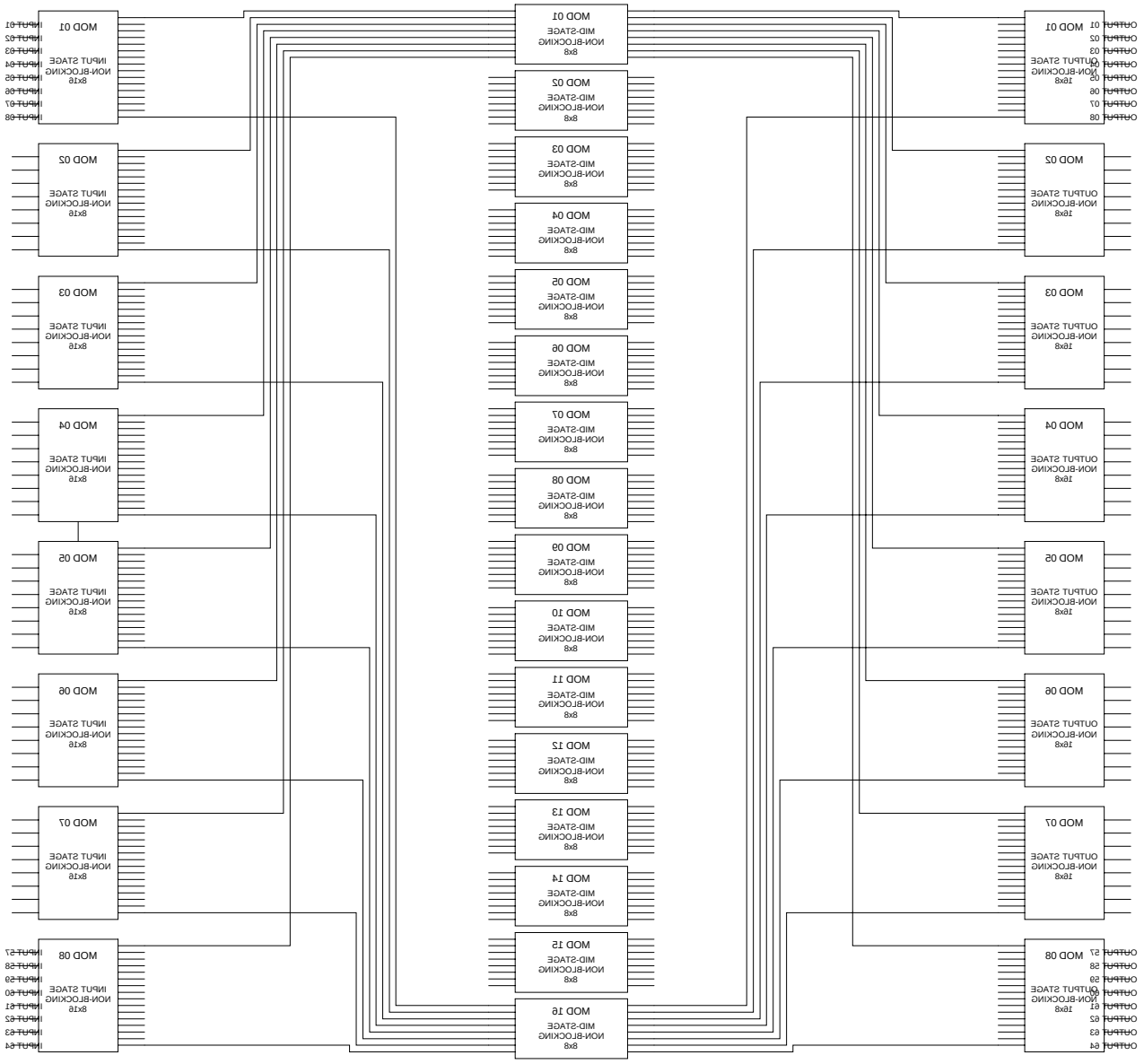
To specify a complete system

S6400D - XX - AXXXX

- SERIES NUMBER
- NUMBER OF INPUT MODULES (1 TO 8)
- NUMBER OF OUTPUT MODULES (1 TO 8)
- A = AC COUPLED I/O MODULES (RF)
  D = DC COUPLED I/O (VIDEO)
- CPU#1: 0=NONE, 5=ETHERNET ONLY, 7=ETHERNET AND GPIB, 6=ETHERNET AND RS-232/422/485
- CPU#2: 0=NONE, 5=ETHERNET ONLY, 7=ETHERNET AND GPIB, 6=ETHERNET AND RS-232/422/485
- I/O IMPEDANCE: 5=50 OHMS, 7=75 OHMS
- H = OPTIONAL HIGH CAPACITY MODULES

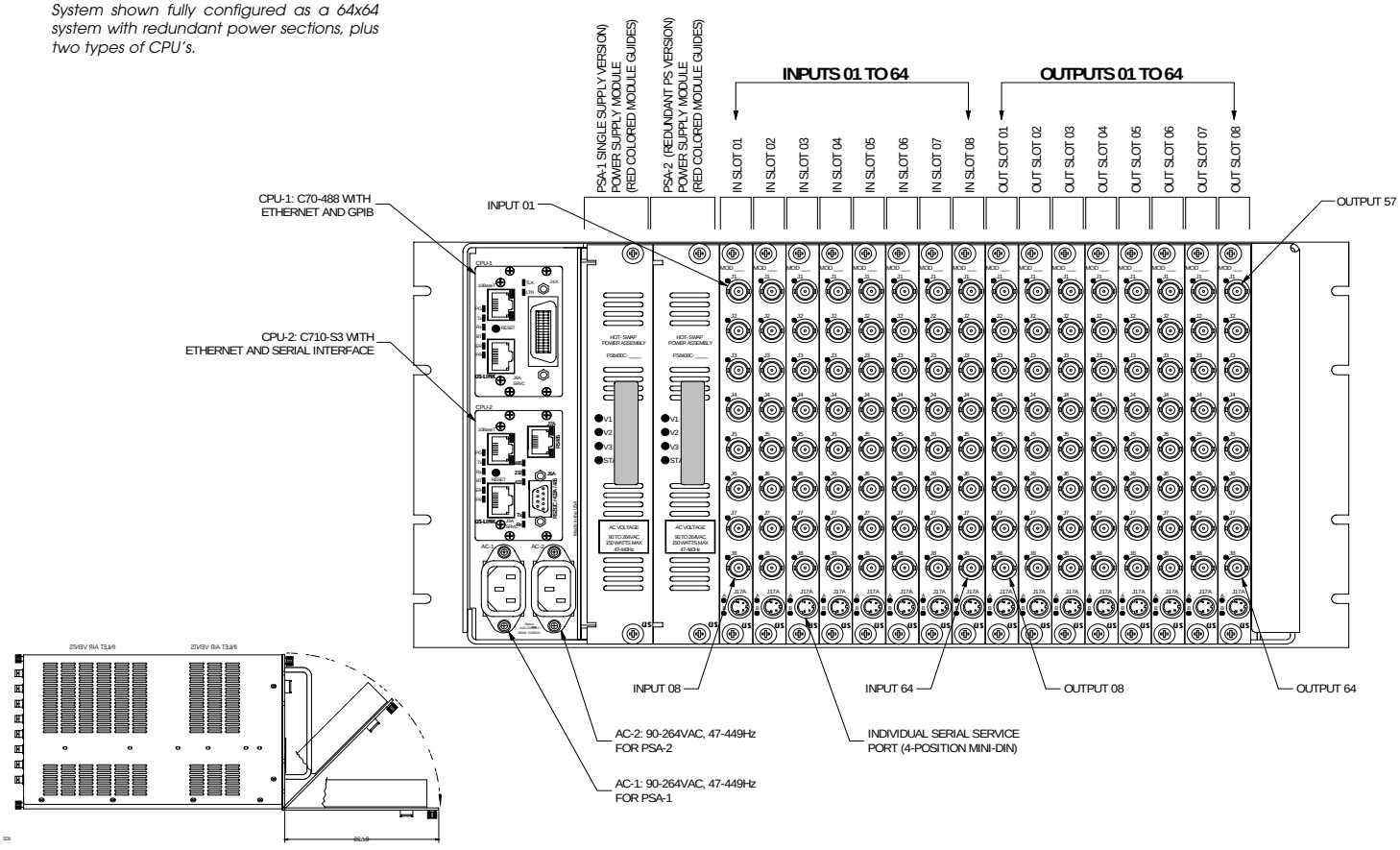
SYSTEM MODULE MAP





The internal switching architecture of the S6400D is an efficient Tri-Stage design allowing redundant signal paths, modular growth and smaller physical system size.

System shown fully configured as a 64x64 system with redundant power sections, plus two types of CPU's.



System S6400D Specifications

Minimum array size . . . . . .8 input, 8 output
Maximum array size . . . . . .64 input, 64 output
Expansion increment . . . . . .8 channels
(input or output independent)
Switching elements . . . . . .Solid-state
Type of system . . . . . .Non-blocking, full fanout
Architecture . . . . . .Tri-Stage™
Signal connectors . . . . . .Rear panel
Status LED's . . . . . .Located next to each BNC

Input Characteristics

Impedance . . . . . .75 ohm, 50 ohm optional
Signal connector . . . . . .BNC female
Coupling . . . . . .DC (AC coupling optional)
Maximum input level . . . . . .±5VDC (no damage)
Return loss . . . . . .>30dB @ 5MHz

Output Characteristics

Impedance . . . . . .75 ohm, 50 ohm optional
Signal connector . . . . . .BNC female
Coupling . . . . . .DC (AC coupling optional)
DC offset . . . . . .<50mV
Max output swing . . . . . .±1.5V into 75 ohm load
Output short circuit . . . . . .Protected

Signal Characteristics

Frequency response . . . . . .±1dB DC-50MHz
External cable comp . . . . . .None
Signal gain . . . . . .Unity (nominal)
Crosstalk isolation . . . . . .>60db @ 10MHz
Differential gain error . . . . . .<.1%
Differential phase error . . . . . .<.05 degrees

General Specifications

Module technology . . . . . .Hot-Swappable
Power supply section . . . . . .Redundant supplies standard
(Hot-Swappable Plug-in Smart Supplies)
Control options . . . . . .Serial (RS-232, RS-422, RS-485)
GPIB (IEEE-488)
US-LINK
Ethernet (10baseT)
Configuration routing . . . . . .Automatic or manual
Configuration memory . . . . . .200 lithium-back RAM locations
Memory retention . . . . . .>10 years
Cooling . . . . . .Variable triple fan assisted
AC power requirements 90-264VAC, 47-440Hz, 200Watts
Weight 48lbs
Size . . . . . .8.72H x 14.50D x 19.00W (5RU)
Operating temp . . . . . .0 to +60C
Non-operating temp . . . . . .-20 to +85C
Humidity . . . . . .0 to 95% (NC @ +25C)
MTBF . . . . . .>85,000 hours
(per MIL-HDBK-217F, N1
ground benign @ +25C)

Universal Switching's policy is one of continuous development, and consequently the company reserves the right to vary from the descriptions and specifications shown in this publication.

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