50 GHz

Q-Band
33 - 50GHz

Ka-Band
18 - 40GHz

Ku-Band
12 - 18GHz

X-Band
7.0 - 11.2GHz

xC-Band
4.0 - 8.0GHz

C-Band
4.0 - 5.25GHz

5G-Band
2.4 - 4.2GHz (LB)

S-Band
to 3000MHz

xL-Band
850 - 2450MHz

L-Band
950 - 2150MHz

P-Band
225 - 700MHz
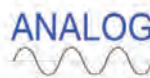
IF
20 - 200MHz

HF / RF
1.5 - 32MHz

Video
DC - 200MHz

ATE
Power
Low Level AC/DC
Low Thermal

DC

Universal Switching Corporation

US

Signal Switching, Conversion & Distribution Specialists
2020A

Reliability
Resiliency

- Telemetry
- Automated Test
- Communications

Made in the USA

RF   DIGITAL   ANALOG   FIBER

Products

Product Page Numbers

	8-9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	26
RF Matrices & Switches																	
- HF & RF (1-32MHz)	X	X	X	X	X		X						X			X	X
– IF Band (40-200MHz)	X	X	X	X	X								X			X	X
– L Band (850-2450MHz)	X	X	X	X	X								X			X	
– Wideband (20-3000GHz)		X	X		X		X						X			X	
– Ultra Wideband (50-6000GHz)		X	X		X								X				
– Microwave (DC-18GHz, 50GHz)	X			X	X		X					X	X			X	
– Redundancy Switching	X				X								X			X	
Telemetry Products																	
– Clock & Data	X			X		X	X	X	X		X			X		X	
– PCM, TTL and 422	X					X	X		X		X			X		X	
– RS530 Routing								X									
– Line & Distribution Amps	X					X	X										
– Protocol Conversion						X	X		X					X			
– Hybrid Configurations	X					X	X		X							X	
– TM to Fiber Transport							X										
Distribution Amps & Multicouplers																	
– Digital (PCM, TTL, ECL, '422, RS530)						X	X							X			
– Analog Video (DC-150MHz)						X	X										
– RF Multicouplers (1.5MHz - 5500MHz)					X	X	X										
– Digital Video (UHD-SDI, 8K, 4K)						X											
– Baseband Analog	X					X	X										
– Hybrid Configurations						X	X										
– DS3, T1, E1						X											
– Protocol Conversion						X	X										
Test & Evaluation (ATE)																	
– Multi-purpose Switches	X				X		X				X		X			X	X
– Coaxial Relay Modules (70000)	X															X	X
– High Isolation (>140dB)																	X
– Precision Instrumentation Matrix										X	X						
– Bench-top Hardware					X	X											X
– Hybrid Configurations	X				X	X	X										X
– Low MTTR Matrix (DC-18GHz)												X					
– Bussing Switch for MIL-1553											X						
– PoE Ethernet Coaxial Relay Module																	X
Command, Control & Timing																	
– Clock & Data Matrices	X			X				X	X						X	X	
– Ternary Data Matrices	X			X												X	
– Data Distribution						X	X		X					X		X	
– RS530 Matrices									X								
– Precision (<75pS Skew) Timing/Dist.														X			
Fiber Transport, ToIP & LNB Control																	
– RF Over Fiber				X			X										
– LNB Power & Control							X										
– Data Distribution							X							X			
Video Matrices & Distribution																	
– Digital Video (8K, 4K, HD, SDI)						X								X			
– Analog Video (NTSC, PAL, CCTV)	X					X	X		X					X		X	

NOTE
The table above uses an "X" to denote that a particular product on this page might be used for the application. Note that some pages have multiple products on the same page.

Universal Switching Corporation

Global Signal Switching and Distribution Specialists

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Contents

Hot-Swap dual CPU, power supplies & modules
Most products feature hot-swap monitored supplies, control CPUs and modules for the ultimate in hardware reliability.

Cover
Our 2020A cover highlights the advanced MAC4 Master Array Controller & Remote Display with our SWM32 modular L-Band Matrix in the background. See page 23 for more information.

Features, features and more features
We strive to provide as many standard product features during the product design period to extend the life cycle and purpose of our hardware.

What is the RR all about?
The graphic is on our front cover, and throughout our catalog, products, website, Twitter, Facebook & elsewhere. Find out more on page 29.
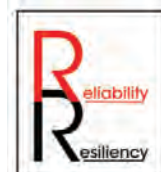
Plug-in C3 and C3-Lite Controllers certified LXI with TCP/IP, HTTPS (SSL/TLS), SNMP v1/v2c/v3, SNTP, IPv4/6
Latest in hot-swap control interface technology with the best in network security layers and protocols, plus fast 10/100/1GB hardware with auto-negotiation.

Universal Switching Corporation

Signal Switching, Conversion & Distribution Specialists

About the Company

Global Leader in Switching Technology
Universal Switching Corporation is an internationally recognized leader in the switching industry that manufactures "state-of-the-art" switching, distribution and conversion equipment. Since 1992 (28 years), the USC commitment to Continuous-Process-Improvement and full spectrum technology has been combined to provide a unique blend of cost effective and high quality products.

With a corporate culture that includes a modern facility in Burbank, talented personnel, comprehensive Quality Management System and **ISO 9001:2015 certification**, USC provides a standard 2-Year warranty for all equipment, and optional 7-Year warranties.

Product Line Offering
We design and build a broad product line of switching systems, switching modules and distribution units that span a frequency range from DC to 50GHz. Signal types include AC/DC power switching, audio, ATE instrumentation, composite video, SD, HD, 4K, HF, RF, IF and L-Band signals, high resolution RGB+HV video, high speed '422, LVDS, PECL or ECL digital data, small & large L-Band, S-Band and C-Band products, plus other >6GHz signals all the way to 50GHz.

Embedded controllers and software are utilized throughout the product line to provide fast, accurate and easy control and monitoring. Adapter panels and remote control panels provide configurability to meet unique interface and control requirements.

Product Line Expansion and Legacy Items
With the acquisition of Matrix Systems Corporation's (MSC) switching product line in 2007, the USC product line includes a number of unique rugged relay modules in support of existing system installations and military programs spanning the globe. A number of USC product quality and ISO enhancements have further improved this legacy product line.

COTS Solutions
Leading the automated switching industry with the largest cross-point capacity, programmable switching systems and modules are available in "off the shelf" configurations to solve time-sensitive switching requirements. Rather than long lead times for special, modified or custom ordered equipment like other manufacturers, USC's "off the shelf" configurations provide turn-key solutions in real time by utilizing the full spectrum of current technology coupled with the latest in design and manufacturing techniques.

In addition to "turn-key" solutions, USC provides custom or EOEM systems and modules with minimal lead time and expedited delivery. USC specializes in switching, distribution and conversion products and equipment that supports or connects to switching equipment, but also has resources and engineering expertise to fulfill any switching related need including requirement evaluation, system design, translation, distribution and system integration.

Switching Experience
With a core competency in the switching arena, USC is focused on switching and distribution needs within a variety of industries and the direction of future requirements. A range of USC products are used in the most sensitive of areas requiring high reliability like aerospace and defense, surveillance stations, satellite communications, as well as "everyday" production testing and evaluation applications.

Call and get our 4G USB stick with all our information and software.

Universal Switching Corporation
Signal Switching, Conversion & Distribution Specialists

G2 Series (G2T)
The G2 Series modular product line continues to evolve and offers a host of features and improvements including high performance configurations, fully shielded modules, hot-swap module technology, field-upgradeable firmware, plus optional redundant CPU and power supply configurations. Ethernet (TCP/IP) control has been a USC standard for more than 18 years while other manufacturers are just now embracing the technology. Our C3 CPU is LXI compliant with TCP/IP, SNMP, SNTP, IPv6, and has a host of capabilities including a USB control port. A new C3-Lite controller has also been introduced where legacy needs don't need to be met.

G2T touchscreen rackmount units
Includes 10/100/1G Ethernet (SNMP, TCP/IP, SNTP, IPv4/6) multi-serial and USB ports

Modular products are typically more cost effective than trying to configure "dedicated purpose" boxes that are the mainstay for many of our competitors. The advantages of our modular systems offered, like our G2 Series, are as follows:

- Flexible system architecture
- Hot swap power supplies via front panel
- Efficient modular design
- Common control and command protocol
- Compact physical format
- Multiple configurations in one box
- Simple logistics for sparing items

Scalable Switching Arrays
The scalable design concept used in the revolutionary System S256xF combines the latest in component technology and advanced control and monitoring features. The scalable design is available in analog or digital, and supports up to 1024x1024 in a compact 5RU rack mounted "building-block" package. This modular concept has been carried through the entire product line including our modular Wideband & RF systems. It is clearly exhibited within the very capable and high-performing SWM32X and other products.

Technological Accomplishments
Globally recognized industry accomplishments include our evolving field proven G2 Series product line introduced in 2001, the revolutionary System S256xF units, C3 Controller, new compact high performance digital and analog product lines, and modular RF systems. Most of our new or upgraded products are in this short form.

Product Development
Ongoing product development is the driving force behind our advanced and innovative designs. USC continues to lead rather than follow the switching industry by investing resources in research and development. New digital products, LXI standards, Tri-Stage hardware, touchscreens, control & security protocols all represent the corporate commitment to Continuous-Process-Improvement and product development.

New product development and designs are regularly introduced on our website, but feel free to contact one of our engineering representatives or the factory directly for consultation. We are confident that a solution to your technical requirement is available.

Satellite RF Chain

Examples of how various products
can be used to complete
an RF configuration
(small configuration shown)

Uplink
(transmit)

Downlink
(receive)

H V   H V

RFoF RFoF
Tx   Tx

RF Over Fiber Conversion
IP67 (outside) & Lab type (inside)
Transmit & Receive
Pages 12 & 15

DC

LNB
Power

Satellite Receiver/Modem
Modem & Encryption

Rx Rx
RFoF RFoF

Encryption (×10)

1:4
Multicoupler
Gain Control

Redundancy

01–16 Fan-OUT (distributive)

01–16 Fan-IN (combiner)

Redundancy

BUC TxAMP (×4)

SLM16
L-Band 16x16 Fan-OUT
(distributive) Matrix Switch
Page 11

SLM16i
L-Band up to 16x16 Fan-IN
(combining) Matrix Switch
Page 11

Redundancy Switching
1x2, 2x1 - details not shown
Page 13 (RSX4)

RF Multicoupler/LNB Power
1:4 distribution w/gain control,
AGC, power monitor, LNB
power/control
Page 15 (LS16A)

SLM32
L-Band up to 32x32 Fan-OUT
(distributive) Matrix Switch
Page 10

SLM32i
L-Band up to 32x32 Fan-IN
(combining) Matrix Switch
Page 10

RF Multicoupler
Dual or Single 1:4, 1:8 or 1:16 distribution
Page 14 (MCU1)

Switching Systems
8x8 to 128x256
Pages 10 to 12

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Reliability Resiliency

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New
MAC4: Master Array Controller
Remote display, desktop or rackmount (4RU)
Page 23
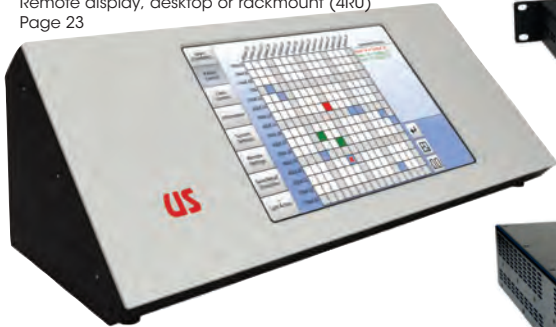
DDU32
Digital distribution unit (dual 1x32), up to 3Gbps
PECL, LVPECL, LVDS, LVTTL distribution (clk/data)
Page 22

Updated
G2T4 Modular System DC - 50GHz
Four-slot G2T Mainframe (2RU)
Page 8 & 9
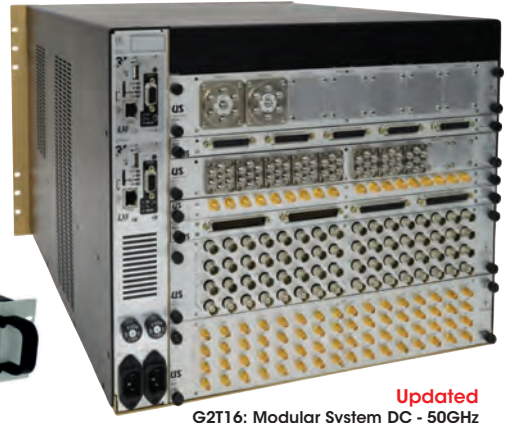
Updated
G2T16: Modular System DC - 50GHz
Sixteen-slot G2 Mainframe (8RU)
Shown with dual CPUs & mixed modules installed
Page 8 & 9

G2R40-71X6-60
G2 plug-in with seven 6x1 relays (40GHz)
Page 8 & 9

G2S47-6432-25
G2 plug-in 32x32 IF matrix with expanders (20-250MHz)
Page 8 & 9

G2D70A
TTL, ECL, LVDS or PECL data matrix
Differential 8x8 to 64x64
Page 8 & 9

Model G2R12
G2 plug-in with five high power 1x6 relays (12GHz)
Page 8 & 9

New
SxM32 Modular Switch: Up to 6GHz
Scalable from 4x4 to 64x64 (6RU)
Page 10

New
TS02A: DC-2MHz
Instrumentation, sensor, audio matrix
Differential in, Single-ended out 64x64
Page 18

G2 - CAS
Critical Application Systems
for IF, RF, L-Band, microwave
and other types of signals
Page 24

New
SWM16X Modular Switch: 3GHz
Scalable from 4x4 to 16x16 (4RU)
Page 11

New
SGM16: Up to 6GHz
8x8, 16x16 Wideband Matrix Units (1RU)
Page 11

Updated
S64530 & S24530B
Digital RS-530/422/232 Switching System
Modular up to 64x64 DCE/DTE (5RU)
Page 12

New
SLX320 & SIX321 L-Band Matrices
Modular configurations up to 64x256 & 128x192
Page 12

Reliability
Resiliency

Series G2 Rack-Mounted Modular Switching

Modules covering DC to 50GHz
Configurations from 1x2, up to 64x64

Series G2 products is our continuously evolving line of modular products tha provides the system engineer with cost effective configuration and performance options in a field proven standard design. Any Series G2 module can be installed by simply sliding the module into the rear module bay of a Series G2 Mainframe.

Solid-state, relay-based, digital and fiber-optic products are offered to meet most any requirement. The list of module types keeps growing with new products including both MxN switching arrays and 1xN types. Non-blocking (Fan-OUT), combining (Fan-IN) and blocking (1:1) arrays are available. Popular L-Band and IF switching plus fully digital types as well including TTL, E1/T1, 422, ECL, PECL and LVDS.

What is the Series G2? How does it work?

The Series G2 is a comprehensive modular switching product design comprised of two system components. These two major system components are what's required to complete a high-performance modular switching system.

- Rack mount mainframe with hot-swap supplies and CPU
- Plug-in switching module(s)

G2T Mainframes with Touchscreen

Our rack-mount mainframes are available in four rack-mount sizes with 2RU, 3RU, 6RU and 8RU. Different sizes are offered to meet various sized switching and distribution demands from small to large. They provide control and power to any of our Series G2 plug-in modules. Modules install into the rear-facing module bay providing easy connection access for cable management.

Front installed redundant hot-swap power sections are available to meet the requirements of the various types of Series G2 modules. Supplies are self-monitoring with operational status reported to the C3 Controller. Single or redundant supplies install through hinged front panels for hot-swap replacement, perfect for critical requirements including independent AC power circuits.

Our two larger mainframes (6RU and 8RU) can be specified to include one or two (redundant) hot-swap C3 controllers, while the smaller 3RU (G2T6) and 2RU (G2T4) can only have one. These LXI compliant CPU's provide control for the modules as well as remote control interfacing to the user via the 10/100 Ethernet, USB 2.0 and multi-serial port. Firmware is field upgradeable via the integrated web browser. For legacy applications that require GPIB, we offer our Model GPIB-USB adapter. For secure applications, the C3 accepts a removable uSD memory card to store settings and port alias names.

G2 Plug-in Modules

The modules that plug-in to our Series G2T mainframes are designed to install at the rear of the units. This allows the signal I/O connectors to face the rear (inside of the rack) of the mainframe. This is best suited for most installations to simplify cable routing to and from the switching system. The Series G2 module series spans DC-50GHz to address many different applications including audio or video, high speed digital data, telemetry, IF & RF, L-Band, microwave and other types of installations. Each module occupies a certain number of module "slots" within a mainframe. Some modules occupy only one slot while others occupy up to 16 slots. Power and control for the module is supplied by the mainframe.

NOTE: *Plug-in Model C3 Controller is backwards compatible for most systems, but provides new features such as a USB port, SNMP, SNTP, and IPv6. It does not include an integrated GPIB port, but our Model GPIB-USB adapter is perfect for supporting legacy applications. A C3-Lite is included in some newer systems (non-G2T type) that do include serial or USB ports.*

Custom systems or modules available.
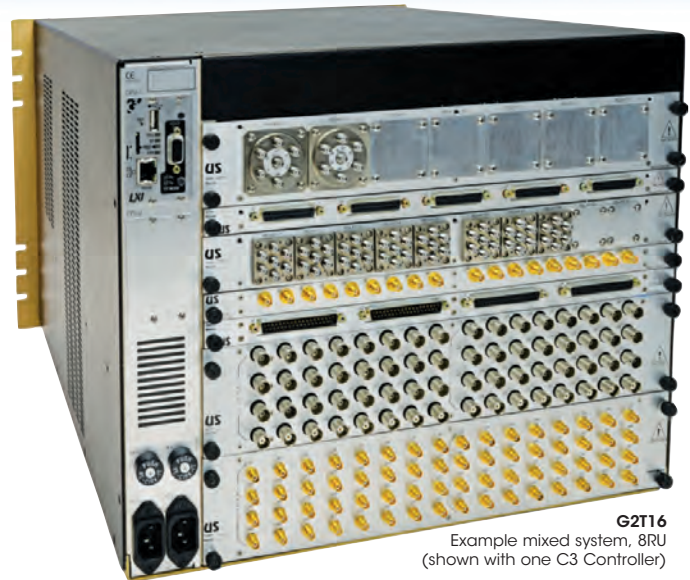
G2T16
Example mixed system, 8RU
(shown with one C3 Controller)

G2T4 Mainframe
Four module slots, 2RU

G2T6 Mainframe
Six module slots, 3RU

G2T12 Mainframe
Twelve module slots, 6RU
(shown with **Option X** display)

G2T16 Mainframe
Sixteen module slots, 8RU
(shown with **Option X** display)

SNMP **LXI** **IPv6**

Updated
C3 Controller
- Plug-in CPU
- 10/100/1GB Ethernet, USB & Serial
- Integrated web browser
- Scheduler & relay life counters
- Realtime clock
- FLASH memory
- Removable microSD card (security)
- SNMP (v1/v2c/v3), SNTP, TCP/IP, IPv4, IPv6
- Look for the C3 logo

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Series G2 Modules: Switching Matrix Arrays - MxN <small>(sorted by frequency range)</small>

	Series	Elements	Frequency Range	Isolation (dB) Typ	Impedance	Minimum Size	Maximum Size	Slots	Conn Type
New	G2S02A	Solid-state	DC-200kHz	>80dB @ 20kHz	100 or 1M	16in, 64out	64in, 64out	4	HD-Dsub
	G2R10	Relay	DC-10MHz (typ)	>45dB @ 10MHz	100 ohm balanced	4in, 4out, 2-wire	16in, 16 out, 2wire	1	D-Sub
	G2S11	Solid-state	T1 & E1 rates	n/a	100 ohm balanced	8in, 8out	16in, 16out	3	RJ45
	G2D62B	Digital	DC-50Mbps	n/a	100 ohm (422)	8in, 8out	64in, 64out	1-8	Triax (BJ77)
	G2D64B	Digital	DC-50Mbps	n/a	100 ohm (422)	32in, 32 out	64in, 64out	1 or 2	D-Sub
	G2D71	Digital	>100Mbps	LVDS in, ECL out	50 ohm (differential)	8in, 8out	64in, 64out	2-8	SMB
	G2D72	Digital	>100Mbps	LVDS in, LVDS out	50 ohm (differential)	8in, 8out	64in, 64out	2-8	SMB
	G2S32H	Solid-state	DC-75MHz	>60dB @ 10MHz	50 or 75 ohm	8in, 8out	64in, 64out	1-8	BNC
	G2S32	Solid-state	DC-125MHz	>40dB @ 125MHz	50 or 75 ohm	8in, 8out	64in, 64out	1-8	BNC
	G2S33	Solid-state	DC-160MHz	>40dB @ 125MHz	50 or 75 ohm	8in, 8out	64in, 64out	1-8	BNC
	G2S44	Solid-state	20-250MHz	>60dB @ 70MHz	50 or 75 ohm	8in, 8out	48in, 48out	4-6	BNC
	G2S47	Solid-state	20-250MHz	>60dB @ 70MHz	50 or 75 ohm	8in+EX, 8out+EX	48in+EX, 48out+EX	4-6	BNC
	G2S48	Solid-state	20-250MHz	>60dB @ 70MHz	50 or 75 ohm	8in, 8out+EX	48in, 48out+EX	4-6	BNC
	G2S54	Solid-state	20-250MHz	>60dB @ 70MHz	50 or 75 ohm (combine)	8in, 8out	48in, 48out	4-6	BNC
	G2S57	Solid-state	20-250MHz	>60dB @ 70MHz	50 or 75 ohm (combine)	8in+EX, 8out+EX	48in+EX, 48out+EX	4-6	BNC
	G2S58	Solid-state	20-250MHz	>60dB @ 70MHz	50 or 75 ohm (combine)	8in, 8out+EX	48in, 48out+EX	4-6	BNC
	G2D70A	Digital ECL	>600Mbps	n/a	50 ohm (differential)	8in, 8out	64in, 64out	2-16	SMA or SMB
	G2S42	Solid-state	20-1000MHz	>50dB @ 1000MHz	50 ohm	8in, 8out	12in, 16out	4	BNC or SMA
	G2S75A	Solid-state	800-2400MHz	>50dB @ 2400MHz	50 ohm	8in, 8out	16in, 16out	4	SMA or N
New	G2S78A	Solid-state	20-3000MHz	>50dB @ 2400MHz	50 ohm	8in, 4out	16in, 16out	2-6	BNC, SMA or N
	G2R19A	Relay	DC-18GHz	>80dB @ 18GHz	50 ohm	4in, 2out	12in, 12out	4	SMA or N

NOTE: See data sheet for full model number, specifications and suffix definitions.

Series G2 Modules: 1xN Type Arrays <small>(sorted by frequency range)</small>

	Series	Elements	Frequency Range	Isolation (dB) Typ	Impedance	Minimum Size	Maximum Size	Slots	Conn Type
	G2S08	Solid-state	DC-400Hz	Power Relay	AC or DC switch	1ea 1x1	1ea 1x8	3	Terminal Screw
	G2R04	Relay	DC-10MHz (typ)	>50dB @ 10MHz	100 ohm balanced	1ea 1x4, 2-wire	1ea 1x4, 8 wire	1	D-Sub
	G2R06	Relay	DC-10MHz	>60dB @ 10MHz	General purpose	8ea 1x1 (DPDT)	4ea 1x16 (DP16T)	1	D-Sub
	G2R16	Relay	DC-1.3GHz	>55dB @ 1GHz	50 or 75 ohm	6ea 1x2	1ea 1x16 w/exp	1	BNC or SMA
	G2R16T	Relay	DC-1.3GHz	>55dB @ 1GHz	50 or 75 ohm (self term)	6ea 1x2	1ea 1x16 w/exp	1	BNC or SMA
	G2R15	Relay	DC-3GHz	>60dB @ 1GHz	50 or 75 ohm	6ea 1x2	1ea 1x16 w/exp	1	SMA
	G2R15T	Relay	DC-3GHz	>60dB @ 1GHz	50 or 75 ohm (self term)	6ea 1x2	1ea 1x16 w/exp	1	SMA
	G2R13	Relay	DC-6GHz	>55dB @ 3GHz	50 ohm	6ea 1x2	2ea 1x8	1	SMA
	G2R20	Relay	DC-12GHz	>80dB @ 4GHz	50 ohm	1ea 1x2	6ea 1x2, 2ea 1x6	4	N-Type
	G2R12	Relay	DC-12GHz	>80dB @ 4 GHz	50 ohm	1 ea 1x3	5ea 1x6	4	N-Type
	G2R14	Relay	DC-18GHz	>60dB @ 18GHz	50 ohm (self terminating)	1ea 1x3	6ea 1x6	3	SMA
	G2R17	Relay	DC-18GHz	>60dB @ 18GHz	50 ohm	1ea transfer	8ea transfer	2	SMA
	G2R18	Relay	DC-18GHz	>60dB @ 18GHz	50 ohm	1ea 1x6	7ea 1x6	3	SMA
	G2R21	Relay	DC-18GHz	>60dB @ 18GHz	50 ohm	1ea 1x2	8ea,1x2 & transfer	2	SMA
	G2R22	Relay	DC-18GHz	>60dB @ 18GHz	50 ohm	1ea 1x6	10ea 1x6	2	SMA
	G2R27	Relay	DC-18GHz	>60dB @ 18GHz	50 ohm (self terminating)	1ea 1x8	4ea 1x10	5	SMA
	G2R28	Relay	DC-18GHz	>60dB @ 18GHz	50 ohm	1ea 1x8	7ea 1x10	3	SMA
	G2R25	Relay	DC-26.5GHz	>55dB @ 26GHz	50 ohm	4ea 1x2	16ea 1x2	2	SMA
	G2R40	Relay	DC-40GHz	>50dB @ 40GHz	50 ohm	1ea 1x3	7ea 1x6	3	K-Type
New	G2R50	Relay	DC-50GHz	>50dB@ 50GHz	50 ohm	1ea 1x4	7ea 1x6	3	2.4mm

NOTE: See data sheet for full model number, specifications and suffix definitions.

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Reliability Resiliency

Modular IF, L-Band, Wideband Switching

SIM32 20-250MHz _{up to} 32x32
SLM32 850-2450MHz _{up to} 32x32
SWM32 20-3150Hz _{up to} 32x32
SGM32 20-6000MHz _{up to} 32x32 **New**
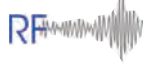
Applications:

- Communications
- Teleport and last mile
- Encryption Tx/Rx modem
- Satellite ground stations
- Security installations
- Uplinks or downlinks

6RU - Flexible configurations from 4x4 to 32x32: 20MHz-6GHz
Eliminating multi-couplers, manual patch bays and patch cords, our SxM32 family of units are a highly modular switch array specifically designed for routing of RF signals with respectable crosstalk isolation, noise figure, IP3, and other critical signal parameters. It can be configured in single-channel increments from 4x4 up to 32x32, and with multiple units up to 128x128.
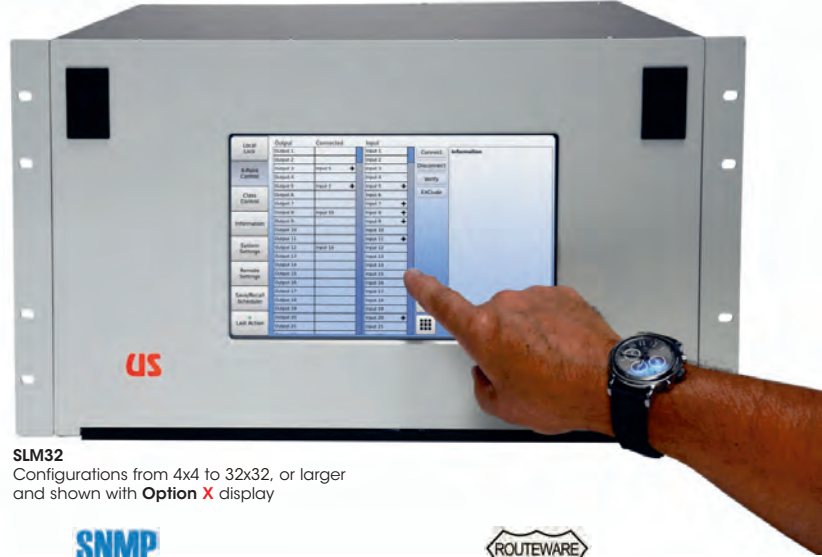
Fully populated, these units provide up to 32 input ports and 32 output ports in a modular 6RU package. The SxM32 is a Fan-OUT unit (a given input can connect to multiple outputs - "distributive"), and the SxM32**i** is a Fan-IN unit (combine multiple inputs to a given output "combiner"). Within the table below are standard frequency ranges available spanning 20MHz to 6GHz. They are available with SMA or BNC connectors. For N-Type connectors, 1RU panels are available.

Our unique design allows isolated failure capability. Should an element receive a damaging signal level and experience a failure, it will only affect that individual channel and not a group of channels. All elements and modules are secured within the unit for rugged and trouble free operation.

The front panel includes a touchscreen display with menu driven operation. Pick between the standard 4.3" display, or the **Option X** 10.1" display (shown here) which provides enhanced features. The unit can be configured with single or dual power supplies and CPU's (full redundant). Option "L" adds redundant LNB power supply and LNB control/monitor features for antenna applications (0/13/18V, 22kHz tone, current monitoring). Other options include variable gain control, AGC and power monitoring. Compatible with miniature FiberSTIK™ fiberoptic receiver (see below).

SLM32
Configurations from 4x4 to 32x32, or larger and shown with **Option X** display

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System Type	Frequency Range	Features
SIM32	40-250MHz	IF-Band, non-blocking Fan-OUT
SIM32i	40-250MHz	IF-Band, non-blocking Fan-IN
SLM32	850-2450MHz	Extended L-Band, non-blocking Fan-OUT
SLM32i	850-2450MHz	Extended L-Band, non-blocking Fan-IN
SWM32	20-3150MHz	Wideband, non-blocking Fan-OUT
SGM32	20-6000MHz	Extreme WB, non-blocking Fan-OUT

NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.

SxM32
SMA or BNC connectors
Optional dual CPU
Optional LNB power & control, gain, AGC

MAC4
Multi-unit configurations are easily controlled with our Master Array Controller. See page 23

New FiberSTIK™
Wideband fiberoptic receiver, FC 200-3000MHz, LNB powered, 50 ohm See page 12 or website for details.
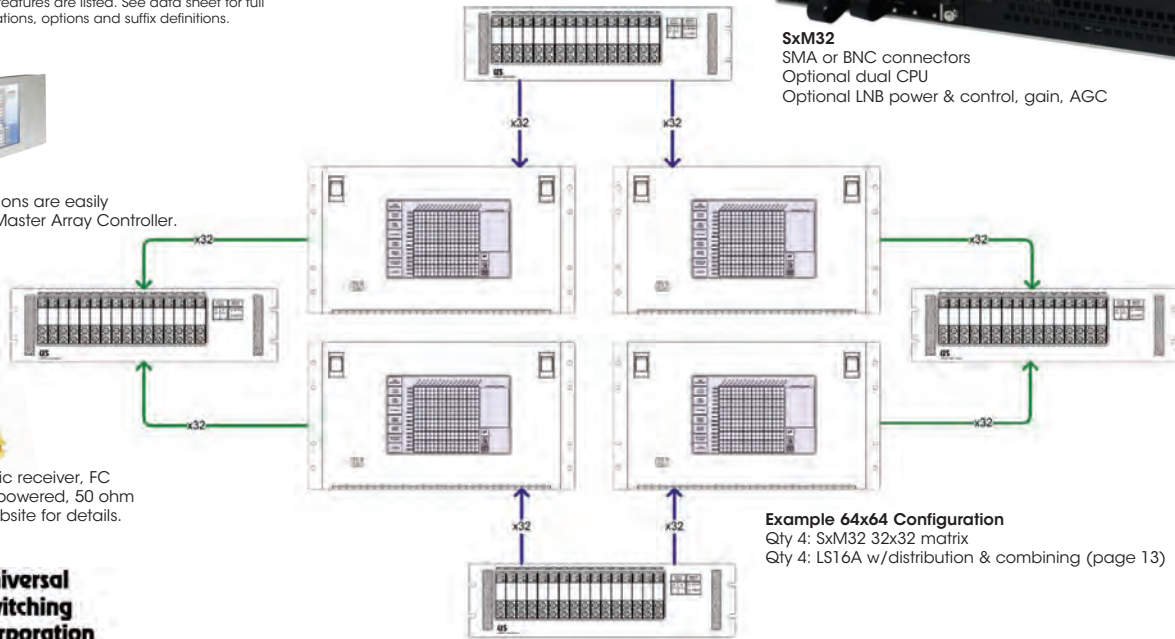
Example 64x64 Configuration
Qty 4: SxM32 32x32 matrix
Qty 4: LS16A w/distribution & combining (page 13)

Universal Switching Corporation
Signal Switching, Conversion & Distribution Specialists

L-Band & Wideband Fixed-Sized Switching

SLM16 850-2450MHz *sizes* 8x8 to 16x16
SWM16 20-3150MHz *sizes* 8x8 to 16x16
New **SGM16** 20-6000MHz *sizes* 8x8 to 16x16
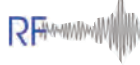
1RU - Fixed configurations loaded with features: 20MHz - 6GHz
For smaller or budget minded yet performance demanding applications like ENG vans or trucks, these 1RU units are purpose built for IF and L-Band switching. Available in 8x8 or 16x16, and with SMA or BNC connectors, they provide great RF specifications for IP3, noise figure and isolation. They come standard with 10/100 Ethernet & multi-serial control ports, web browser (SNMP/IPv4/6/LXI), redundant fans, and redundant power supplies. Signal connectors are located at the rear while the front panel has LCD display and control keys. Other options include variable gain control, AGC, power monitoring, and LNB power/control features.

NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.

Applications:

- Communications
- Teleport and last mile
- Encryption Tx/Rx modem
- Satellite ground stations
- ENG vans or trucks
- Uplinks or downlinks

New **FiberSTIK**™
Wideband fiberoptic receiver, FC 200-3000MHz, LNB powered, 50 ohm
See page 12 or website for details.

FREE RWP5 License With Purchase in 2020

SLM16
16x16 L-Band Matrix
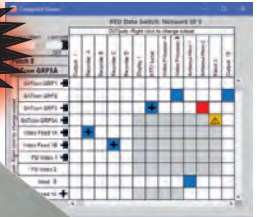
Modular IF, L-Band, Wideband Switching

SWM16X 20-3000MHz *up to* 16x16
8x8, dual 8x8, 8x16 & 16x16
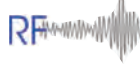
4RU - Modular symmetric or asymmetric configurations
Compact and high performance, the SWM16W provides a cost effective switching capacity for smaller installations. All inputs and outputs are located at the rear of the unit. The SWM16X is a distributive non-blocking (Fan-OUT) product that can be ordered in array sizes from 4x16 to 16x16. The SWM16Xi is a combiner version (Fan-IN) in sizes from 16x4 to 16x16.

Standard redundant hot-swap power supplies with independent AC inputs deliver the ultimate in system reliability for critical applications. The unit can also be configured with dual control CPU capability. An optional Bias-T capability power supply is available (option P). Complete control and status of the unit is available at the single or dual 10/100 ports, built-in web browser, touchscreen display, or via the RouteWarePRO software packaged provided.

Our popular RouteWarePRO software package (included) makes it easy to control multiple units from the same GUI, or you can manage the unit from a web browser window. Our critical new "X-Point Classing" feature is included. Custom configurations are available upon requestm, even 6GHz capability.

Applications:

- Communications
- Teleport and last mile
- Encryption Tx/Rx modem
- Satellite ground stations
- ENG vans or trucks
- Uplinks or downlinks

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System Type	Features
SWM16X-1608-15N	8 input, 8 output, distributive Fan-OUT, single CPU
SWM16X-1608-25N	8 input, 8 output, distributive Fan-OUT, dual CPU
SWM16X-D1608-25N	Dual 8 input, 8 output, distributive Fan-OUT, dual CPU
SWM16X-2416-15N	8 input, 16 output, distributive Fan-OUT, single CPU
SWM16X-2416-25N	8 input, 16 output, distributive Fan-OUT, dual CPU
SWM16X-3216-25N	16 input, 16 output, distributive Fan-OUT, dual CPU

NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.

ROUTEWARE
PRO
5.0

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SWM16X
N-Type connectors
Optional dual CPU
Optional LNB power & control, gain, AGC

Universal Switching Corporation

Signal Switching, Conversion & Distribution Specialists

Large Format Modular L-Band Switching

SLX320 850-2450MHz up to 64x256
SLX321 850-2450MHz up to 128x192

14RU - Modular symmetric or asymmetric configurations
Designed to be the "gold standard" for large format extended L-Band matrices, these new Tri-Stage products are rich with features. Leveraging the absolute latest in component technology and design concepts, these modular switch arrays are specifically designed for routing high performance signals in symmetric or asymmetric matrix configurations. They provide respectable crosstalk isolation, noise figure, IP3 and other critical RF parameters.

The SLX320 provides Fan-OUT (distributive) configuration up to 64in x 256out in 8-channel port increments. The SLX321 has the same structure, but has different "mid-stage" elements to allow a configuration up to 128x192. Both units are available in complementary Fan-IN configurations (combine multiple inputs to a given output) by adding an "i" to the model number which then provides a modular configuration up to 256x64 or 192x128 Fan-IN with 8-channel port expansion increments.

Units come standard with redundant hot-swap power supplies and can feature either one or two hot-swappable plug-in control CPUs. An extension of our CAS product line, all active modules, power supplies and assemblies are installed via the lockable hinged front panel. No rear panel access is needed to maintain the unit.

Applications:

- Communications
- Teleport and last mile
- Encryption Tx/Rx modem
- Satellite ground stations
- ENG vans or trucks
- Uplinks or downlinks

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System Type	Frequency Range	Features
SLX320	850-2450MHz	Up to 64x256, distributive Fan-OUT
SLX320i	850-2450MHz	Up to 256x64, combining Fan-IN
SLX321	850-2450MHz	Up to 128x192, distributive Fan-OUT
SLX321i	850-2450MHz	Up to 192x128, combining Fan-IN
SWX320	20-3000MHz	Wideband, distributive Fan-OUT

NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.

SLX321 L-Band Matrix
Modular configurations up to 128x192
(13RU)

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RF Over Fiber: 200-3000MHz
F-LINK-II Mini and FiberSTIK™

Rugged IP67 Waterproof & Miniature
Our small F-LINK RFoF products are designed provide a fiber optic conversion to/from copper for analog signals from 200-3000MHz (min). They are compatible with both the LS16-FR2 & LS16-FT2 from our LS16A product offering (see page 15), and well as our miniature FiberSTIK™ receiver.

F-LINK is designed for bulkhead installation, has a twist-lock DC power connector, stainless steel FC single-mode optical connector, status LED, and a choice of SMA, BNC or TNC connectors (50 ohm). The transmitter has a Class-1 Fabrey-Perot laser with 1310nm wavelength.

FiberSTIK™ product allows the user to pick and choose what port(s) on their system they want to have fiber optic receiver (input) capability. DC power is provided by LNB power sourced from the host system where it is installed (must have LNB power option). The host system can typically monitor current for proper operation as well.
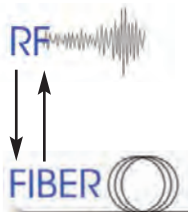
Applications:

- Antenna fiber links
- Teleport and last mile
- Backup antennas
- Satellite ground stations
- Communications
- Uplinks or downlinks

Model	Description
FLINK-II-MTX-x	Mini RFoF Transmitter, 200MHz-3000MHz, FC Optic
FLINK-II-MRX-x	Mini RFoF Receiver, 200MHz-3000MHz, FC Optic
FiberSTIK™	Miniature RFoF Receiver, 200MHz-3000MHz, FC Optic

NOTE: See data sheet for details.

New
FiberSTIK™
Miniature Fiber Optic Receiver
BNC

New
FLINK-II-MTX-A
Mini IP67 Fiber Optic RFoF
SMA, BNC & TNC
Available in Transmitter (T) or Receiver (R)

Universal Switching Corporation

Signal Switching, Conversion & Distribution Specialists

Redundancy Switches & Universal Chassis

RSX4 Modular Redundancy Single, Dual or Quad
UC1 Modular Universal Chassis PUC Technology

1RU Sized Units For Up to Two "PUC" Elements: DC - 50GHz
These two 1RU compact modular units are identical with exception of the front panel button controls. The RSX4 front is tailored for redundancy applications, and the UC1 for any type of module.

Applications:

- Communication centers
- Signal redundancy
- L-Band, IF, RF signals
- Satellite systems
- ENG vans or trucks

About the RSX4
The RSX4 front panel is designed specifically for 1-4 channel redundancy (A/B) switching and is a drop-in replacement for our field proven 1094xB redundancy switchers (control, capability & performance). High value satellite communication assets (and other similar critical applications) require high reliability equipment and redundancy switching.

Model RSX4 & UC1
Universal Redundancy Chassis

About the UC1
The front panel of the UC1 is designed to control any switching element whether it be a full matrix element, or a simple Nx1 configuration. The front panel allows you to navigate an efficient menu system to name channels, make connections or any other common system operation.

Packed with features
Units feature a unique modular design with "PUC" elements that allows the user to remove/install a "PUC" to reconfigure, or field upgrade the unit. PUC's can also be remotely located outside the chassis up to 400 feet away with available extension cables.

Units include 10/100 Ethernet & Multi-Serial control ports (RS232/422/485), front panel control & display, alarm port with status hard contact, dual monitored fans, built-in web browser, real-time clock, cable support bracket, benchtop or flanges for rack mount, redundant power supplies and dual power input. Available in dual AC, DC or AC/DC powered versions.

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PUC Type	Frequency Range	Features
PUC1-0117C	HD/SDI Video	Video Switch & Three-Way Distribution
PUC1-02/03/04/05	DC-18/6/40/26GHz	1 or 2: Transfer Relays (various frequencies)
PUC1-06nic	DC-3GHz	1 to 4: Terminated (1W) 2x1 Relay, BNC/N/SMA
PUC1-07niX	DC-100MHz	1 or 2: Terminated (1/2W) 1553 2x1 Relay, Triaxial
PUC1-08/09n0J	100Mbps/1Gbps	1 or 2: 8-Wire 2x1 Relay, RJ45
PUC1-16/17/18	DC-6/26/18GHz	1 or 2: Non-Terminated 2x1 Relay, SMA
PUC1-20n5A	DC-26GHz/50GHz	1, 2 or 3: Non-Terminated 6x1 Relay, SMA
PUC1-2115N	DC-3GHz	Terminated (1W) 4x1 Relay, N-Type
PUC1-2315N	DC-3GHz	Terminated (5W) 3x1 Relay, N-Type
PUC1-2615A	950-2450GHz	Single 1x4 Multicoupler with +/-10dB Gain Adjust, SMA

PUC Elements can be remoted up to 400 feet away.

NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.

Universal Switching Corporation

Signal Switching, Conversion & Distribution Specialists

Distribution, Conversion & Multicouplers
MDU4 Modular up to 4 Elements

1RU - Mix up to four digital, RF & analog elements

The MDU4 takes cues from our rugged and high performance products of the past, and yields something new in the process. The 1RU sized unit is at home installed as a rack-mount unit, or on the R&D bench-top. Both rack-mount flanges and rubber feet are included.

It also features modularity so it's simple to specify exactly what type of distribution or conversion elements you need. Up to four single-slot elements can be mixed & matched to meet your needs.

Units include redundant supplies, visual/audible alarms, Ethernet supply SNMP monitoring, hard contact alert, and dual AC inputs. Available in dual AC, DC, or AC/DC powered versions. Includes rubber feet for benchtop use and flanges for rack mount. Low cost custom or modified elements can be done by contacting the factory.
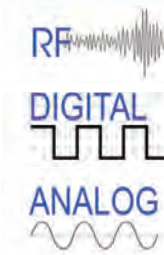
Applications:

- PCM Telemetry
- TTL Clock and Data
- Mixed analog signals
- 422 Clock and Data
- IRIG time code
- Audio or Video routing
- Digital conversion
- T1 Distribution

MDU4
Modular Digital, Analog & RF Distribution (1RU)

Element	Signal	Config	Description
A2	ECL	Single 1x4	Digital differential ECL distribution (400Mbps) SMA connectors (10 total), 50 ohm impedance, four output pairs
C1	TTL	Single 1x8	Digital single-ended TTL (PCM) distribution (50Mbps) BNC connectors (9 total), 50 or 75ohm impedance (jumper selectable)
C2	TTL	Dual 1x4	Digital single-ended TTL (PCM) distribution (50Mbps) BNC connectors (10 total), 50 or 75ohm impedance (jumper selectable)
C3	TTL	Triple 1x2	Digital single-ended TTL (PCM) distribution (50Mbps) BNC connectors (9 total), 50 or 75ohm impedance (jumper selectable)
C4	TTL	Single 1x16	Digital single-ended TTL (PCM) distribution (50Mbps), wire BNC connectors (17 total), 50 or 75ohm impedance (jumper selectable)
D8	422	8-Pair 1x4	Digital differential 422 distribution (50Mbps), eight pairs of 1x4 DB25 connectors (5 total), 100 ohm
DB	422	2-Pair 1x4	Digital differential 422 distribution (50Mbps), two pairs of 1x4, plus expander DB25 connectors (5 total), 100 ohm
F2	TTL/422	Dual 1x4	Digital conversion and distribution, TTL input, differential 422 outputs (50Mbps) BNC input, Triaxial output connectors, 50 or 75 ohm input (selectable)
F5	TTL/422	Five 1x1	Digital conversion, TTL input, differential 422 output (50Mbps) BNC input, Triaxial output connectors, 50 or 75 ohm input (selectable)
G2	422/TTL	Dual 1x4	Digital conversion and distribution, differential 422 input, TTL outputs (50Mbps) Triaxial input, BNC output connectors, 100 ohm input
G5	422/TTL	Five 1x1	Digital conversion, differential 422 input, TTL output (50Mbps) Triaxial input, BNC output connectors, 100 ohm input
M1	20-3000MHz	Single 1x8	RF multi-coupler (RF distribution), unity gain, wideband, -1dB >+5dBm, NF <10dB, <2,0:1 VSWR SMA connectors (9 total), 50 ohm impedance
M2	20-3000MHz	Dual 1x4	RF multi-coupler (RF distribution), unity gain, wideband, -1dB >+5dBm, NF <10dB, <2,0:1 VSWR SMA connectors (9 total), 50 ohm impedance
T1	422	Single 1x8	Digital differential 422 distribution (50Mbps) Triaxial connectors (9 total), 100 ohm
T2	422	Dual 1x4	Digital differential 422 distribution (50Mbps) Triaxial connectors (10 total), 100 ohm
T3	422	Triple 1x2	Digital differential 422 distribution (50Mbps) Triaxial connectors (9 total), 100 ohm
U1	SDI to UHD-SDI	Single 1x8	Digital video distribution: UHD-SDI (4K & 8K), HD-SDI with EQ, reclock, cable-driver (SMPTE ST-2082, ST-2081, ST-424, ST-292 signals), BNC connectors (9 total), 75 ohm
U2	SDI to UHD-SDI	Dual 1x4	Digital video distribution: UHD-SDI (4K & 8K), HD-SDI with EQ, reclock, cable-driver (SMPTE ST-2082, ST-2081, ST-424, ST-292 signals), BNC connectors (10 total), 75 ohm
U3	SDI to UHD-SDI	Triple 1x2	Digital video distribution: UHD-SDI (4K & 8K), HD-SDI with EQ, reclock, cable-driver (SMPTE ST-2082, ST-2081, ST-424, ST-292 signals), BNC connectors (9 total), 75 ohm
V1	Analog DC-200MHz	Single 1x8	Analog video distribution (DC-200MHz): baseband video, PCM, TTL, NTSC, instrumentation BNC connectors (9 total), 75 ohm
V2	Analog DC-200MHz	Dual 1x4	Analog video distribution (DC-200MHz): baseband video, PCM, TTL, NTSC, instrumentation BNC connectors (10 total), 75 ohm
W1	422	Single 1x8	Digital differential 422 distribution (50Mbps) Amphenol 31-2225 type Twinaxial connectors (9 total), 100 ohm
W2	422	Dual 1x4	Digital differential 422 distribution (50Mbps) Amphenol 31-2225 type Twinaxial connectors (10 total), 100 ohm
W3	422	Triple 1x2	Digital differential 422 distribution (50Mbps) Amphenol 31-2225 type Twinaxial connectors (9 total), 100 ohm

Flexible rack mounting flanges
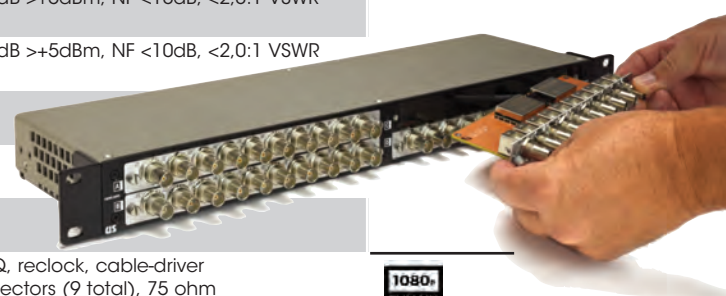
NEW
Seriess MCU1 Multicouplers
1.5MHz to 5.25GHz
See our website for information on our dedicated high performance RF Multicouplers in a 1RU format.

NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.

Universal Switching Corporation

Signal Switching, Conversion & Distribution Specialists

@US_Corp

Distribution, Conversion, Multicouplers & Switching
LS16A Modular up to 16 Elements

3RU - Mix up to sixteen different elements
Many times there is a need to convert various signal types, buffer them or even provide distribution or switching for these signals. Our "Linker System" provides a very cost effective means to provide all these functions. Properly configured with the appropriate modules it can be a "drop-in" replacement for many units from APCOM or Apogee Labs (and other companies), but with additional capability, features, higher quality, and newer technology.

The LS16A provides the system professional with an uncompromising combination of modularity, high performance and high reliability. Our unique design provides slots where any combination of 16 modules can be installed from the rear of the unit and (depending upon the module type) can also provide front panel indicators, adjustments, controls and test points to the user. Modules typically have the signal connectors at the rear.

The unit's modules are hot-swap capable and the frame can be populated with redundant hot-swap power supplies to deliver the ultimate in system reliability for critical applications.

Digital, analog, conversion, switching and RF-Over-Fiber modules are available and can be mixed and matched within the same frame. Each slot is addressable so that the user can monitor or control an individual module independent of another with the optional plug-in controller with 10/100/1GB Ethernet port. The LXI certified controller provides web browser control and TCP/IP access to monitor & control the system including power supplies, fans and unit health. Customized modules are available.

RF
DIGITAL
ANALOG
FIBER

Applications:
- PCM Telemetry
- RF Over Fiber Conversion
- TTL, PCM Clock and Data
- Mixed analog signals
- 422 Clock and Data
- IRIG time code
- SDI Video routing
- Digital conversion
- Redundancy Switching

Updated
LS16A showing the "Open Window"
front panel design w/test points & LEDs

SNMP
LXI
IPv6
Powered

ROUTEWARE
PRO
5.0

Download our Monitor & Control
software **RouteWarePRO** for a
FREE 30-day trial today!
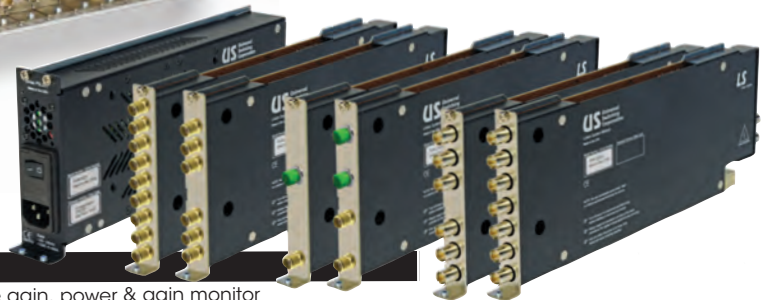
Element	Frequency	C3L	Module Description
LS16-A18	50MHz-3GHz	Y	Wideband Multicoupler (1x4): variable gain, power & gain monitor
LS16-A19	850MHz-2450MHz	Y	L-Band Multicoupler (1x4): variable gain, power & gain monitor, LNB control
LS16-A30	DC-50MHz	Y	Analog Distribution Amplifier (1x6): digital adjust, BNC, 75 ohm
LS16-D05	50Mbps	N	Distribution Module: Digital TTL/422 distribution (1x6), 3x TTL, 3x "422"
LS16-D09	40Mbps	N	Distribution Module: Dual 1x2 TTL digital distribution, 50/75 or High Z input, BNC
LS16-D29	50Mbps	Y	Distribution Module: Flexible 1xX TTL digital distribution, 50/75 or High Z input, BNC
LS16-FR2	50MHz-3GHz	Y	RF Over Fiber (Rx): Dual channel, 1310nm (used with USC **F-LINK-II** Tx unit)
LS16-FT2	50MHz-3GHz	Y	RF Over Fiber (Tx): Dual channel, 1310nm (used with USC **F-LINK-II** Rx unit)
LS16-L02	850MHz-2450MHz	Y	L-Band LNB Power: LNB control
LS16-L03	850MHz-2450MHz	Y	L-Band Multicoupler (1x2): variable gain, power & gain monitor, LNB control
LS16-S04	DC-3GHz	Y	Switch Module: 6x1 relay mux with input termination, BNC
LS16-S10	DC-3GHz	Y	Switch Module: dual 2x1 relay mux with input termination, BNC
LS16-S06-x	DC-18GHz (50GHz)		Switch Module: up to three 2x1 relay elements, SMA

NOTE: Not all models or features are listed. See data sheet for full
model number, specifications, options and suffix definitions.

Universal Switching Corporation

Signal Switching, Conversion & Distribution Specialists

Reliability Resiliency

Multi-Level Digital Routing - RS530/422/232
S24530B 20Mbps up to 24x24
S64530 50Mbps up to 64x64

DIGITAL

5RU - Flexible configurations from 3x3 to 64x64: Up to 50Mbps
The S24530B and S64530 systems are fully digital asynchronous switch arrays specifically designed for routing RS-530, RS-530A & RS-232 bi-directional serial interfaces. This includes all data, clock, and handshaking lines present in the complete bus for each interface. Multi-channel Bi-directional RS-422 busses are also supported with available interface cards.

Activity detection, loopback testing, level conversion (RS-232 to RS-530), and RS232 primary/secondary channel shifting are all available features. Switching is done using an all-digital asynchronous core minimizing timing skew and avoiding limitations associated with systems using a multiplexed common bus architecture.

Fully populated, the S24530B can route as many as 24 DTE and 24 DCE devices. The S64530 can support up to 64 DTE and 64 DCE devices using a single mainframe, and can be arrayed for systems of 128 DTE by 128 DCE and larger.

All user connections are industry standard DB25 connectors using EIA standard pinouts for each interface. The S24530 has all I/O directly at the rear panel and is scalable in 3-channel increments. The S64530 scales in 8-channel increments and utilizes external 1RU adapter panels for user connectivity. Both systems use a 5RU mainframe with minimal MTTR.

All ports are secured with stainless hardware for rugged & trouble free operation. With smaller configurations, filler plates are included to complete the system configuration. Expanded S64530 systems use additional adapter panels for connectivity.

Available with single or dual controllers with each providing 10/100 Ethernet with web browser, USB port, and multi-serial. Self-monitoring redundant hot-swap power supplies can be powered by any international AC power source. Optional "X" types include our **Option X** touchscreen display with X-Point view and other enhanced features, and our MAC4 remote control panel can be added to any system to provide a networked hardware 10" display control panel for rack or desktop mount. Customized configurations are available.

NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.

New
S24530B
RS-530/422/232 Digital Router
24X24

SNMP

LXI Powered

IPv6

ROUTEWARE PRO 5.0

Download our Monitor & Control software **RouteWarePRO** for a FREE 30-day trial today!

S64530X
(shown with **Option X** display)

4.3" Screen

S64530
RS-530/422 Digital Router
64X64 with Adapter Panels

Universal Switching Corporation
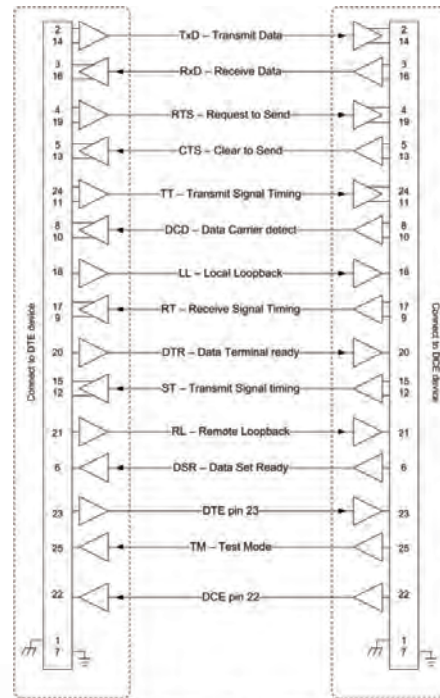
Signal Switching, Conversion & Distribution Specialis

Modular Digital & Analog Systems

S2560F Digital 50Mbps
S2561F Analog 125MHz
S2562F Analog 200kHz
New **S2565F** Hybrid (64x64) BNC's on unit - No Adapters Needed
New **S2566F** Hybrid S2560F & S2561F combined
New **S5120A** Digital 50Mbps (512x512)

DIGITAL

ANALOG

Applications:

- PCM Telemetry
- TTL Clock and Data
- Mixed analog signals
- 422 Clock and Data
- IRIG time code

5RU - Flexible configurations from 32x32 to 1024x1024
With a global installation base, these field proven units can be configured up to a 256 input x 256 output system within a single chassis (S256xF units), or 512x512 for the new double density digital S5120A. Up to eight input and eight output modules can be installed adding to the system capacity with each additional module. Each module adds 32-channels for the S256xF units, or 64 channels for the S5120A.

Redundant signal paths allow each I/O connection up to 30 different signal paths for ultimate reliability. Our digital & analog cores offer high bandwidth and performance with the digital version including realtime crosspoint verification. I/O modules are available with different specifications including digital '422, analog, and instrumentation. These can be mated to compatible Series AP type adapter panels to allow for different type of signal connectivity (422, TTL, or analog) for a truely comprehensive solution including a variety of signal connectors.

Our updated "FX" types include our **Option X** touchscreen display with X-Point view and other enhanced features. The "F" version is the same but has a 4.3" touchscreen without X-Point view. They also include single or dual controllers with web browser interface, 10/100/1GB Ethernet, USB, multi-serial ports, and includes an important new feature called "X-Point Classing".

The example shown below illustrates the S2561F used as an analog building block to configure a full 512x512 configuration with >125MHz bandpass capability using the external 1RU adapter panel assemblies (Series AP32x).

Updated
S256xFX
(shown with **Option X** display)

NEW
S2565FX
BNC's at rear of unit and LED status indicators.

SNMP

ROUTEWARE PRO 5.0

LXI

IPv6

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System Type	Frequency Range	Features
S2560F(X)	>50Mbps	Differential 256x256 (422) I/O, SCSI-II/50
S2561F(X)	DC-125MHz	Single-ended analog, 50 Position D-Sub
S2562F(X)	DC-200kHz	Single-ended instrumentation analog
New S2565F(X)	Hybrid - Direct	Digital & analog type with BNC's (64x64)
New S2566F(X)	Hybrid	Digital & analog type, adapters required
New S5120A(X)	>50Mbps	Differential 512x512 (422) I/O, SCSI-II/100

NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.

AP32 Adapter Panels
Units available for various configurations with interconnect cables included
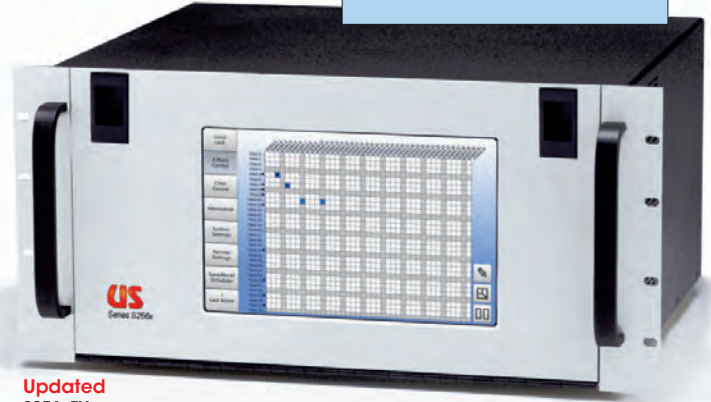
512 x 512 Example
4x S2561F 256x256 matrices
16x AP32BI 32-channel input panels
16x AP32BO 32-channel output panels
1x MAC4 Master Array Controller

S2560F & S2561F
Multipin connectors at the rear of the unit

New
S5120A
Single box 512x512 digital matrix to configure 1024x1024 with four units

Universal Switching Corporation
Signal Switching, Conversion & Distribution Specialists

Reliability Resiliency

Precision Instrumentation & Sensor Routing
TS02A 16x64 up to 64x64

2RU - Precision Automated Patch: DC-200kHz, 64x64

Designed from scratch to improve on the legacy Precision Filters Model 4164, the TS02A uses the absolute latest in component technology. Many still use manual patch cords & patch panels to interconnect sensors, recorders, scopes and other instrumentation in test & evaluation labs.
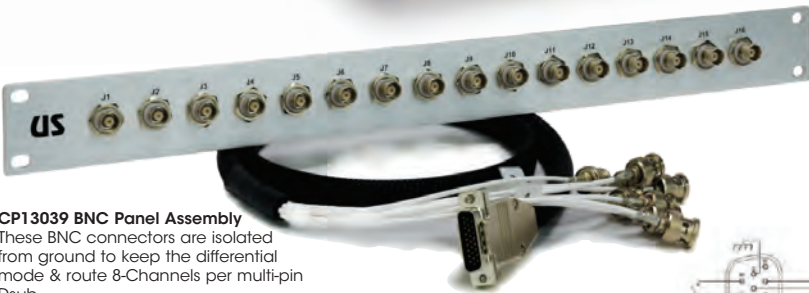
Our TS02A can automate much of your lab's sensor connectivity eliminating errors from human patching as well as mechanical connectivity problems from continuous patch cord activity. The TS02A provides up to 64 inputs, and 64 outputs in a non-blocking full Fan-OUT array. It includes built-in self-tests that non-invasively verifies validity of closed crosspoints (Go/No-Go), and can also perform testing on the complete array (FAT).

Each input is a differential pair to help eliminate low frequency sensor noise, and each output is single-ended. Each negative input (of the input pair) can individually be switched to signal ground for applications dependent needs. The RED dip switch you see in the picture provides this function for each input (see block diagram).

The TS02A includes front panel touchscreen and single controller providing 10/100 Ethernet with web browser, USB port, and multi-serial. Self-monitoring redundant hot-swap power supplies can be powered by any international AC power source. Optional 1RU rackmount isolated BNC panels are available (see below). Customized configurations are available by contacting the factory.
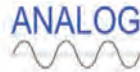
NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.

ANALOG

New
TS02A
Instrumentation 64x64
with touchscreen control

Applications:
- Survivability lab
- Environmental chamber
- Vibration testing
- Satellite ground stations
- Laboratories
- Telemetry data

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TS02A
Fully populated 64x64

CP13039 BNC Panel Assembly
These BNC connectors are isolated from ground to keep the differential mode & route 8-Channels per multi-pin Dsub.

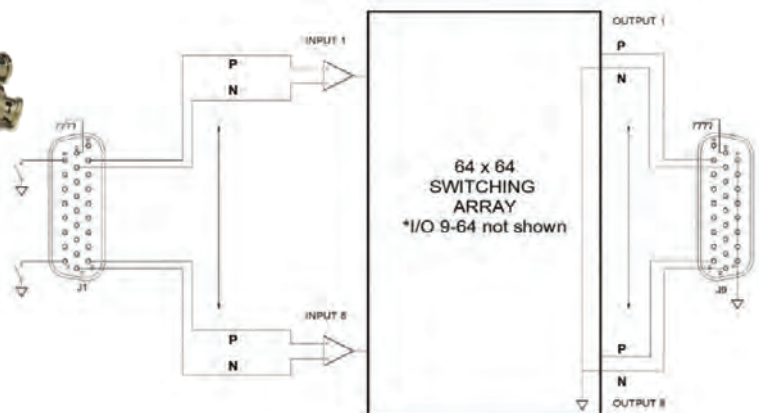Other custom panel assemblies are available upon request.

INPUT 1

64 x 64 SWITCHING ARRAY
*I/O 9-64 not shown

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Modular 1553 Patching System (Triax)
New **BS1553F** 8x8 up to 64x64, DC-15MHz

DIGITAL

ANALOG

5RU - Flexible configurations from 8x8 to 64x64
Automating "patch panels" is a proven & effective method to reduce facility operating costs by increasing efficiency, productivity, repeatability, and reliability. Our BS1553F(X) unit is a modular high density 5RU automated patch unit that can be configured in symmetric or asymmetric configurations from 8x8 to 64x64 within the same chassis.

Designed specifically for a passive differential signal path, high reliability mechanical relay technology is used with DC coupling (no transformers). Each input and output is terminated with 78 ohms (center pin to inner shield) when not selected to be patched. The internal stub-breaking design provides a nearly "transparent" 1553B environment to allow for accurate bus simulations.

Since the signal path is passive, it can also be used in ATE applications for patching signals to make differential or single-ended measurements. The unit can also patch high-speed '422 differential data signals.

Fully populated, this 5RU unit contains a total of 64 inputs and 64 outputs where each input can be connected to any one of the 64 outputs. The BS1553FX is the same but has a 10.1" display (**Option X**), plus enhanced front panel features and capabilities.

The BS1553F comes standard with redundant hot-swap power supplies and is available with either single or dual (redundant) hot-swap C3 controllers installed. The C3 controller features 10/100/1GB Ethernet (LXI certified), USB 2.0 and multi-serial (RS-232C/422A/485) control ports. It also includes an important new feature called "X-Point Classing".

NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.
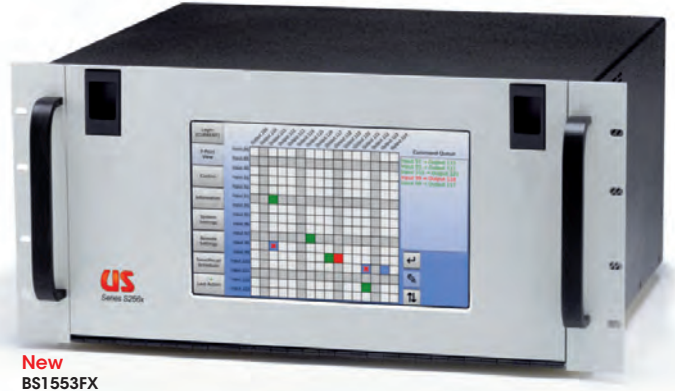
New
BS1553FX
(shown with **Option X** display)

1553B Bus Simulation
Automated patch for including cables and hardware into the configuration.
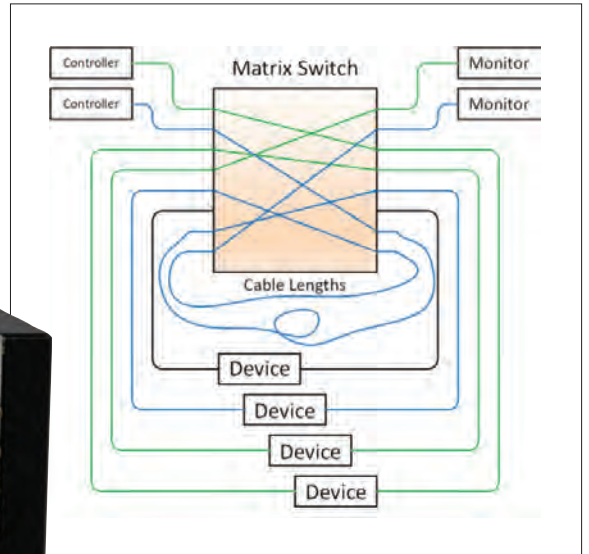
BS1553F(X)
Up to 8 input and 8 output modules with BJ77 (Triax) connectors, and LED status indicators

SNMP

ROUTEWARE PRO 5.0

LXI

IPV6

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Reliability Resiliency

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Modular DC-18GHz Matrix
MS2010A 4x4 up to 12x12 Matrix - Low MTTR
Cascade multiple for 33x33 Matrix, or larger

2RU - Relay-based, high performance, simple to maintain
Unique in the industry, this 18GHz product delivers a full matrix configuration in a small 2RU package. It features our proprietary relay element and design construction providing up to a 12x12 in just 2RU plus the added feature of quick and easy relay replacement with simple hand tools in <30 seconds for low MTTR.

Providing complete 1:1 connectivity of any input to any output (no fanout), the MS2010A has very high performance, passive, fully shielded, and bidirectional signal paths. Intended to automate manual patch cords or physical cable swapping (or replace similar bulky and dated competitive products), this unit is designed for switching any coaxial signal within the DC-18GHz frequency while being as transparent as possible. The SMA connectors at the rear panel are standard with N-Type and others optional.

The unit can also be specified with external input and/or output terminations if required (up to 11x12, 12x11 or 11x11). The unit can also include "looping ports" to cascade multiple units into larger arrays that are either symmetrical or asymmetrical (such as 22x22, or 12x44 respectively). Multi-unit arrays are easy to control & monitor with our MAC4 array controller (see below).

The MS2010A comes standard with redundant hot-swap power supplies and includes our C3 controller, both with convenient access behind the hinged front panel. The C3 controller features 10/100 Ethernet (LXI certified), USB 2.0 and multi-serial (RS-232C/422A/485) control port. It also includes an important new feature called "X-Point Classing".

NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.

Applications:
- Telemetry routing
- Antenna Selection
- Mixed analog signals
- High speed data
- ATE selector or router

MS2010A
Modular 18GHz Matrix
Up to 12x12 with Low MTTR

12x12 Matrix
(MS2010A-OCCO or similar)

11x11 Matrix w/Looping or Termination Ports
(MS2010A-TBBT or -LBBL)
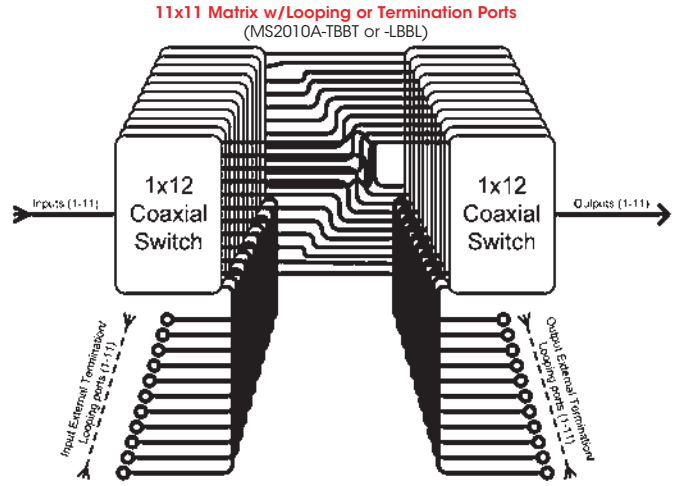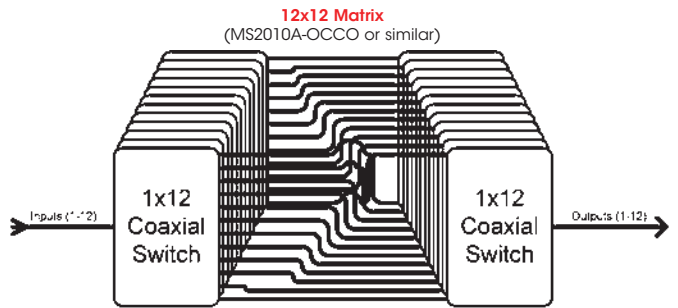
33x33 Matrix
Multiple units forming
a 33x33 matrix array

MAC4
Multi-unit configurations are easily controlled with our Master Array Controller
See page 23

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User replaceable relay elements
(10x10 shown with access panel removed)

Universal Switching Corporation

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Other DC-18GHz Configurations (50GHz)
MSD0601 Dual 6x1 with A/B Select
MS06X02 6x2 Matrix

2RU - Relay-based, high performance
This selection of units provide relay-based solutions in a few different configurations in a compact cost effective 2RU package. Standard units have DC-18GHz relays, though additional performance is available with optional 26GHz, 40GHz or even 50GHz relays. Units include 10/100 Ethernet & Multi-Serial control ports (RS232/422/485), front panel control & display, built-in web browser, and real-time clock.
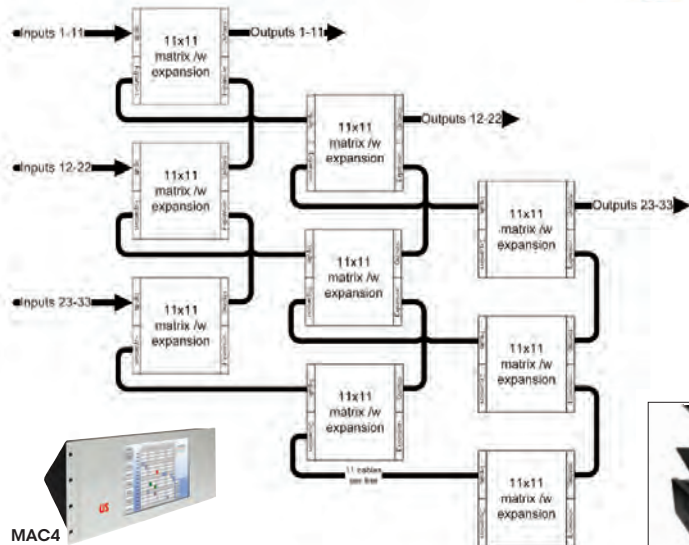
Applications:

- Telemetry routing
- Antenna Selection
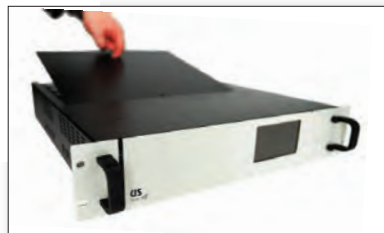- Mixed analog signals
- High speed data
- ATE selector or router

About the MSD0601
This unit has two individual 6x1 self-terminating DC-18GHz switch paths, plus an A/B output selector. For control, it has illuminated LED buttons adjacent to each port as well as 10/100 Ethernet and multi-serial ports. This unit is also available with 26GHz, 40GHz or 50GHz relays as well for additional performance. It can be ordered with connectors on front or rear.

About the MS06X02
Delivering a blocking (1:1 connection) bidirectional 6x2 matrix array, this unit has SMA connectors that can be ordered with connectors on front or rear. For control, it has illuminated LED buttons in a matrix array as well as 10/100 Ethernet and multi-serial ports.

Coaxial Relay Modules: DC-3GHz/6GHz
RM1X2, RCP1, RCP1R

Cascadeable module, optional control panels: DC-6GHz
The RM1X2 is a high performance low cost coaxial relay module with N-Type connectors that can be just a component, or mounted to one of two 1RU rack mount relay control panels. The module has a DE-9P connector with a DE-9S on the opposite side of the module so that one module can plug into another. Relay control lines are passed through the module and kept independent so up to four relays can be either gang controlled, or individually as requirements demand.

The 1RU sized RCP1 and RCP1R rack mount control panels include an integrated serial control port and relay drivers. The RCP1R unit is designed so the signal connectors to face inside the rack, and the RCP1 is designed so everything faces the front of the rack (see below). They can DC powered, or include an optional wall mount power supply.

Applications:

- Redundancy
- Teleport and last mile
- Backup antennas
- Satellite ground stations
- Communications
- Uplinks or downlinks

Model	Description
RM1X2	Relay module DC-3GHz, N-Type normally open (add -6 suffix for 6GHz version)
RM1X2T	Relay module DC-3GHz, N-Type self terminating (50 ohms)
RCP1	1RU Relay control panel, everything faces front of rack
RCP1R	1RU Relay control panel, everything faces rear of rack

NOTE: See data sheet for model number suffix definitions for DC voltages and AC wall mount power options.

RCP1 Panel Type
Up to four relay elements
(1RU)

RCP1R Panel Type
Up to four relay elements
(1RU)

Universal Switching Corporation
Signal Switching, Conversion & Distribution Specialists

Video Routers

1RU & 2RU - 4KSDI, HD-SDI, SDI and Analog Video Routers

Specifically designed for analog and digital video switching or distribution, this array of units provide an effective solution for smaller installations. Compact and feature loaded, they are only 1RU or 2RU high and turn-key out of the box. These "fixed" configurations systems are not modular to reduce their cost. Suffix dash numbers can define other options. Units include 10/100 Ethernet control ports and web browser.

Signal Types:

- SDI, HD-SDI, 4K-SDI Video
- NTSC and RGB Video
- DVI-D and HDMI
- TTL or IRIG Timecode
- LVDS, PECL, LVTTL

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HDVSU1-3216
16 input, 16 output
HDsdi, SDI & NTSC (1RU)

New
HDVMU1
Low cost SDI video muxes
4Ksdi HDsdi, SDI & NTSC (1RU)

HDVSU2
32 input, 32 output
HDsdi, SDI & NTSC (2RU)

Model	Digital/Analog	Function	Frequency Range	Typ Signal	Features	
VSU1-3208	Analog	24in, 8out	DC-300MHz	+/-1.5V	BNC, 75 ohm	
VSU1-3208H	Analog	24in, 8out	DC-75MHz	+/-5.0V	High Level, BNC, 75 ohm	
VSU1-3208	Analog	16in, 16out	DC-300MHz	+/-1.5V	BNC, 75 ohm	
VSU1-3208H	Analog	16in, 16out	DC-75MHz	+/-5.0V	High Level, BNC, 75 ohm	
VSU1-3208	Analog	8in, 24out	DC-300MHz	+/-1.5V	BNC, 75 ohm	
VSU1-3208H	Analog	8in, 24out	DC-75MHz	+/-5.0V	High Level, BNC, 75 ohm	
VSU1-4P6T	Analog	Quad 6x1	DC-135MHz	+/-5.0V	High Level, BNC, 75 ohm	
VSU1-4P6T-AB	Analog	Quad 6x1 A/B	DC-135MHz	Analog	Quad 6x1analog, high level with A/B	
VSU2-6432	Analog	32in, 32out	DC-500MHz	Analog	BNC, 75 ohm	
HDVSU1-3216	Digital	16in, 16out	270M/1.485G/2.97G	Digital	SMPTE 292M, 424M, BNC, 75 ohm	
HDVSU2-6432	Digital	32in, 32out	270M/1.485G/2.97G	Digital	SMPTE 292M, 424M, BNC, 75 ohm	
HDVMU1-08	Digital	8x1	270M to 5.98Gbps	Digital	NTSC to UHDSDI video mux, BNC, DC supply	New
HDVMU1-16	Digital	16x1	270M to 5.98Gbps	Digital	NTSC to UHDSDI video mux, BNC, DC supply	New

NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.

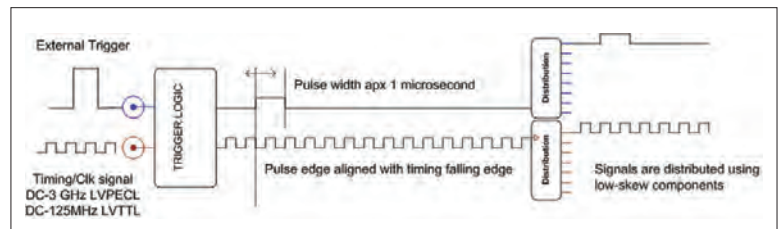# Precision Dual 1x32 Digital Distribution

1RU - PECL, LVPECL, LVTTL & LVDS Types

The DDU32 is a cost effective and purpose built unit for the precision distribution of digital signals. It comes in a standard dual 1x32 configuration, and is available for many digital signal applications.

Sized in a 1RU package, the unit is designed with rear facing high performance SMB connectors. The unit is rack mountable with an illuminated power switch on the front panel, and all I/O and power connectors on the rear. To assist with providing the slightest amount of skew between all ports, the dual inputs are positioned at the center rear of the unit.

For clock and data distribution applications, many times the skew and alignment of data and clock signals is critical. This unit has a very precise skew design. An optional purpose built trigger and clock alignment feature is available with timing skew of <75ps through all ports.

NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.

External Trigger

TRIGGER LOGIC

Timing/Clk signal
DC-3 GHz LVPECL
DC-125MHz LVTTL

Pulse width apx 1 microsecond

Pulse edge aligned with timing falling edge

Signals are distributed using low-skew components

DDU32
Dual 1x32 Digital Distribution
PECL, LVPECL, LVTTL, LVDS

Universal Switching Corporation

Signal Switching, Conversion & Distribution Specialists

Master Array Controller - Remote Panel
Model MAC4 Rackmount or Desktop

Applications:

- Communications
- Teleport and last mile
- Encryption Tx/Rx modem
- Satellite ground stations
- ENG vans or trucks
- Uplinks or downlinks

4RU - Modular symmetric or asymmetric configurations
To support signal switching, distribution, and monitoring applications requiring large channel counts, the recommended system may be comprised of several units working in concert. Operation of such an array typically requires application specific control software.

The MAC4 (Master Array Controller) is specifically designed to streamline control of a multi-system array. It can operate a group of switching hardware while providing the user with a single cross point configuration to control. It supports the 488.2 protocol common to Universal Switching products and can create arrays with most in-service units manufactured in the last decade.

Although intended for use with large system arrays, the MAC4 can also be used as a remote access panel or expanded function display for smaller single-system applications. Since the MAC4 communicates over Ethernet, it can be physically located anywhere that it can communicate to the other systems in the array. The MAC4 is designed for standard 19-inch rack mounting or desktop use.

An additional feature is the capacity to control two locally connected "PUC" modules. The MAC4 functions as a 10″ display controller option for our RSX4/UC1 product lines. For reliability, the unit includes redundant replaceable power supplies. The integrated C3 controller features 10/100 Ethernet supporting LXI certified TLS secured WEB access, SNMP v1/v2/v3, and TCP/IP remote control access.

MAC4
Multi-unit configurations are easily controlled with our Master Array Controller (use as 4RU rackmount or desktop)

Example Multi-Chassis System
Shown here are four of our S2561F units. Each unit is a full 256x256 and connected together with supporting signal adapters configure a 512x512. By adding the MAC4, the hardware controls as a 512x512.

User Control PC's
Windows PC's running RouteWarePRO 5.0 or user custom application software.

Ethernet Switcher (not included)
Any high quality 100M/1Gbps should suffice for providing the control data hub function.

PUC1 Modules
Up to two "PUC" modules can be controlled directly from the AC4 controller at the same time for other miscellaneous switching tasks. Modules can be located over 100 meters away. Consult factory.

Universal Switching Corporation
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Reliability Resiliency

Pre-Configured TS2 Systems

2RU - Complete systems from our G2 Series of products

This convenient system package called "TS2" which takes common configurations from our Series G2 switching line (see pages 6 & 7) and makes it simple to order a complete "turn-key" unit. All units are based on the 2RU rack mounted G2T4 unit, include redundant power supplies and contain all three remote interface types (10/00 Ethernet, Serial and USB).

The "TS2" supplants the "SS2" units. It incorporates our advanced C3 Controller and touchscreen display. See our website for additional details and individual data sheets.

Model	Frequency Range	Configuration
TS202A	DC-200kHz	Differential input, single-ended output analog matrix, audio/sensors 16x16 to 64x64
TS214	DC-18GHz	Up to six 6x1 self-terminating microwave relays
TS215	DC-3GHz	Coaxial Nx1 switching, 2x1, 4x1, 8x1, 16x1 sizes, SMA connectors
TS216	DC-1.3GHz	Coaxial Nx1 switching, 2x1, 4x1, 8x1, 16x1 sizes, BNC or SMA
TS216T	DC-1.3GHz	Coaxial Nx1 switching with self-termination, 2x1, 4x1, 8x1, 16x1 sizes, BNC or SMA
TS218	DC-18GHz	Up to seven 6x1 normally open microwave relays, SMA connectors
TS232	DC-125MHz	DC coupled system for high frequency video signals (+/- 1.5V)
TS232H	DC-75MHz	DC coupled system for high-level PCM, video, TTL or similar signals (+/-5V)
TS240	DC-40GHz	Up to seven 6x1 normally open microwave relays, SMA connectors
TS244	20-250MHz	High performance non-blocking "fan out" IF matrix, 8x8 to 32x32, 50 or 75 ohm
TS254	20-250MHz	High performance combining "fan in" IF matrix, 8x8 to 32x32, 50 or 75 ohm
TS262A	DC-50Mbps	Differential 422 digital matrix for clock/data, 8x8 to 16x16, single or dual, Triax
TS264B	DC-50Mbps	Differential 422 digital matrix for clock/data, 16x16 to 64x64, single or dual, Dsub

NOTE: Not all models or features are listed. See data sheet for full model number, specifications, options and suffix definitions.

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Series G2 - CAS (Critical Application System)

Modules covering DC to 30GHz - Digital or Analog Rack Mounted Modular Switching Configurations

The **CAS** version of our field proven Series G2 products brings switching system technology to a new level. Derived from our Series G2, the **CAS** version is specifically designed for ease of maintenance and high reliability coupled with a streamlined rugged design.

The typical **CAS** configuration consists of a 2RU power and control head, plus one or more switch frames depending upon the overall system configuration. The 2RU head unit can be configured with front loading dual hot-swap power supplies and dual hot-swap control CPU's. Standard features include touchscreen controls. The switch frames are available in standard sizes to meet common system needs. The frames are easily configured to user needs providing all interconnect cabling required between the front loading **CAS** modules and the rear connector panels. Rear panel signal connectors can be specified to meet any user requirement.

All modules, CPU's and power supplies can be hot-swapped via the hinged front panels without disturbing any cabling whatsoever. Simply open the front panel, slide an item out and replace with a spare.
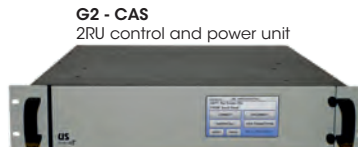
Applications:

- Ground stations
- Communication centers
- Defense or FAA needs
- Critical missions
- Shipboard installations

G2 - CAS Example switch frame 17RU (rear)

G2 - CAS Example switch frame, 7RU

G2 - CAS 2RU control and power unit

G2 - CAS Example switch frame, 17RU

Universal Switching Corporation

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Custom, OEM & Special Build Services

Complete switching, distribution and purpose built

Since 1992, Universal Switching Corporation has being engineering & developing products for industry, Government agencies and subcontractors. With nearly 30 years of experience, we are looked to for delivering quality products fitted with the latest in technology and excellent reliability.

We can design something to suit most any application and most any specification. We've developed OEM products for numerous companies, produced "build-to-print" items, custom RF boxes, and have delivered entire multi-rack systems complete with custom software. All products are built in our ISO 9001:2015 certified facilities. Contact our local representative or the factory directly.

Since 1992
Quality
Innovation
Commitment
ISO 9001:2015
Certified

Complete Systems
Building entire turnkey
systems with software

Custom Products
Develop and build
what you need

Build-To-Print
Manufacturing

Custom RF Boxes
Design unique purpose
built RF boxes with documentation & software

OEM Products
Private label our products for you

Custom Finishes
We can provide any
paint or finishes you
need for your application

Legacy Updatess
Update older legacy
MSC products

**Universal
Switching
Corporation**

Signal Switching, Conversion & Distribution Specialists

Reliability
Resiliency

U70000 , URS70000 & E70000 Coaxial Relays

Rugged Coaxial Relays: DC-800MHz (frequency is size dependent)
Sizes from 2x1 to 24x1

USC acquired the product line of Matrix Systems Corporation in April of 2007. One of the product lines that USC continues to build is the unique coaxial relay line. The U70000, URS70000 and E70000 relays are unique in the relay industry due to the rugged design and excellent shielding characteristics.

The Series U70000 is an Nx1 relay with various coaxial contact types controlled by simply applying the appropriate DC voltages, or install it into a Model U11600 rack mount chassis complete with relay drivers, remote control ports and power supplies as shown below. It has an LCD display and can be populated with up to 24 relay modules. LED illuminated driver cards must be installed for each relay installed. Status of the relays can be viewed through the top of the chassis.

The Series URS70000 is an Nx1 relay (like the Series U70000), but has a built-in serial control port as well. The RS70000 can be used in a standalone installation since the control port and wall mount style power supply is included. Our latest version is the E70000. It is the same relay but with a new 10/100 PoE (power over Ethernet) capability and built-in web browser control. The controller is upgradeable from serial to Ethernet. Contact the factory.

USC has slightly changed the model numbering of the original series for compatibility with our inventory system. If you are unsure what your new model number might be, feel free to contact our application staff for assistance. Note that not all combinations or sizes are being built. For exact reorder of an old MSC unit, there will be a minimum order quantity of five. Contact your local salesperson or the factory for details.
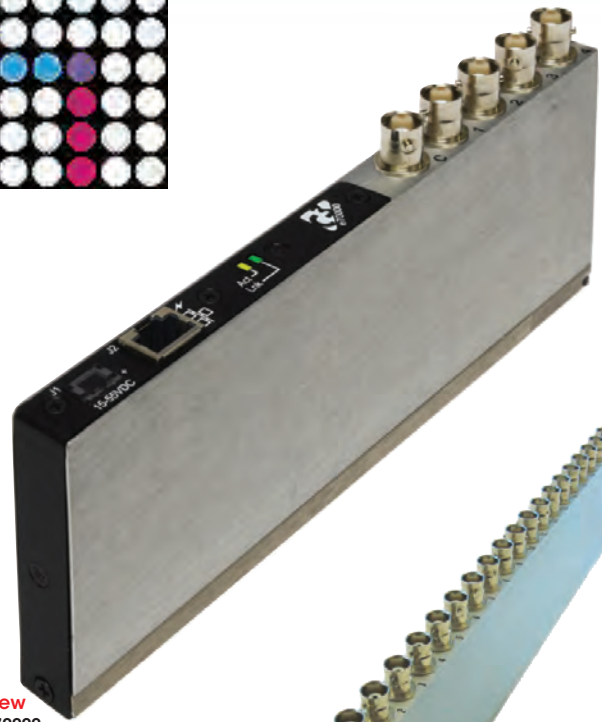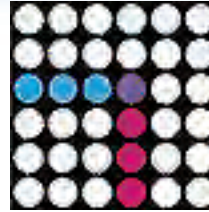
New
E70000
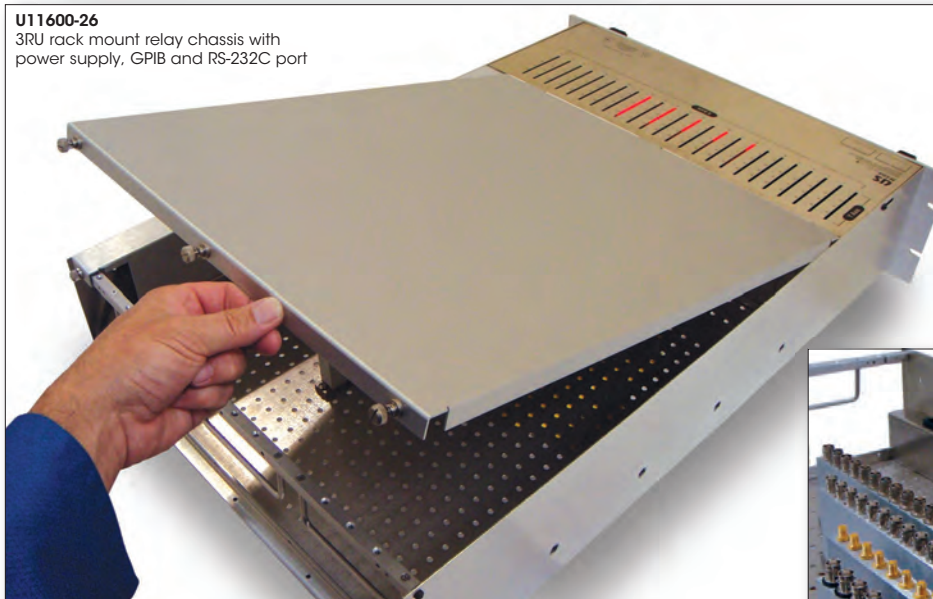Coaxial relay with 10/100 PoE
(see Table 2)

U70000
Coaxial relay
(see Table 1)
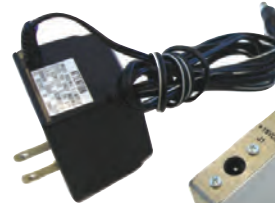
URS70000
Coaxial relay with RS232 port and
wall mount power supply
(see Table 2)

U11600-26
3RU rack mount relay chassis with
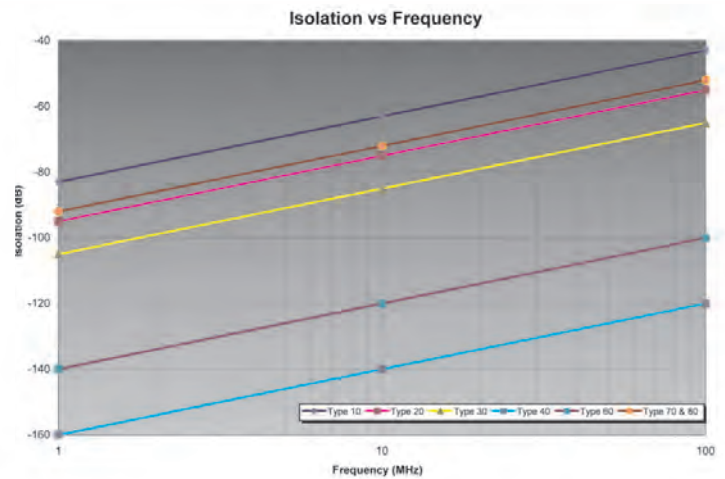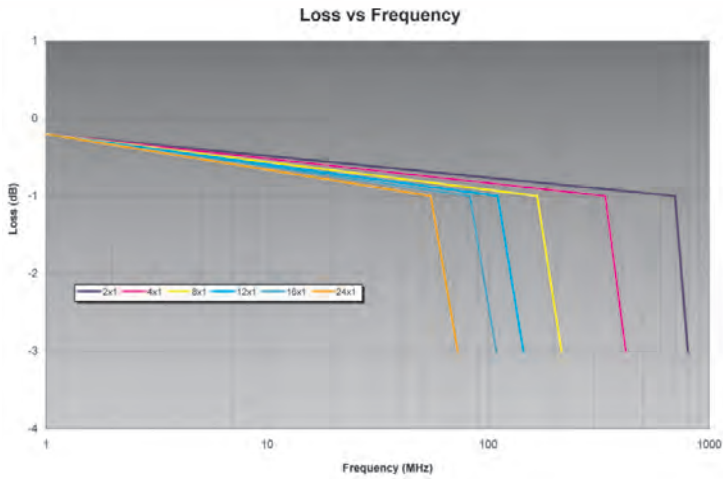power supply, GPIB and RS-232C port

Universal Switching Corporation

Signal Switching, Conversion & Distribution Specialists

Loss vs Frequency

Isolation vs Frequency

TABLE 1

U70000 Model Number Definition

U7[CC][NT]-[V][D][X)

Example: U72512-1PA (contact 25, 12x1, 24vdc, diodes with common positive and SMA's)

[CC] - Contact Configuration Type
- 10 - Standard (normally open) 100vdc, 250ma, 10W
- 25 - Standard (self-terminating type, 50 ohm) 4vdc, 250ma, 1/3W
- 27 - Standard (self-terminating type, 75 ohm) 4vdc, 250ma, 1/3W
- 30 - Medium isolation (normally open) 100vdc, 250ma, 10W
- 40 - High isolation (normally open) 28vdc, 250ma, 3W
- 65 - High isolation (self-terminating, 50 ohm) 4vdc, 250ma, 1/3W
- 67 - High isolation (self-terminating, 75 ohm) 4vdc, 250ma, 1/3W
- 70 - Mercury wetted (normally open) 500vdc, 1A, 35W (Note 5)
- 90 - Standard with Triaxial connector (BJ77) 100vdc, 250ma, 10W

[NT] - Number of throws
- 02 - 2x1
- 04 - 4x1
- 08 - 8x1
- 12 - 12x1
- 16 - 16x1
- 24 - 24x1

[V] - Coil voltage (nominal)
- 1 - 24vdc to 28vdc (1000 ohm coils)
- 2 - 15vdc (500 ohm coils)
- 5 - 5vdc (135 ohm coils with NO series polarity diode included: P or N option)

[D] - Coil suppression diodes
- 0 - Not included
- P - Suppression diodes included with coil common positive
- N - Suppression diodes included with coil common negative

[X] - Extra options
- A - SMA signal connectors (only on contact types 10, 25, 27 & 65)
- F - F-Type signal connectors (only on contact types 10, 27)
- T - TNC signal connectors (only on contact types 10, 25, & 65)
- I - Insulated coaxial shield (only on contact types 10, 25, 27 & 70)
- S - Insulated & switched coaxial shield (only contact types 10, 25, 27, 70)
- L - Lockscrews on control connector so mate can be secured

U70000 NOTES:

1. The I or S options are not available on the optional signal connectors or the contact type 90 (triaxial).
2. The "expander" port is not available any longer.
3. No mating connectors or hardware are included.
4. Contact type 70 must be mounted with signal connectors facing up.
5. Due to new environmental laws, USC may or may not be able to sell relays with mercury wetted contacts. Spec was 2A, 50W. Connectors must be within 20 deg of up.
6. For installing into the U11600 chassis, the "-1" coil voltage is needed.
7. Type 27 and 67 use the standard 50 ohm MSC connector.

TABLE 2

URS70000 & E70000 Model Number Definition

URS7[CC][NT]-[X)
E7[CC][NT]-[X)

Example: URS71008-A (contact 10, 8x1, and SMA connectors)

[CC] - Contact Configuration
- 10 - Standard (normally open) 100vdc, 250ma, 10W
- 25 - Standard (self-terminating type, 50 ohm) 4vdc, 250ma, 1/3W
- 27 - Standard (self-terminating type, 75 ohm) 4vdc, 250ma, 1/3W
- 30 - Medium isolation (normally open) 100vdc, 250ma, 10W
- 40 - High isolation (normally open) 28vdc, 250ma, 3W
- 65 - High isolation (self-terminating, 50 ohm) 4vdc, 250ma, 1/3W
- 67 - High isolation (self-terminating, 75 ohm) 4vdc, 250ma, 1/3W
- 70 - Mercury wetted (normally open) 500vdc, 1A, 35W (Note 5)
- 90 - Standard with Triaxial connector (BJ77) 100vdc, 250ma, 10W

[NT] - Number of throws
- 02 - 2x1
- 04 - 4x1
- 08 - 8x1
- 12 - 12x1
- 16 - 16x1
- 24 - 24x1

[X] - Extra options
- A - SMA signal connectors (only on contact types 10, 25, 27 & 65)
- F - F-Type signal connectors (only on contact types 10, 27)
- T - TNC signal connectors (only on contact types 10, 25, & 65)
- I - Insulated coaxial shield (only on contact types 10, 25, 27 & 70)
- S - Insulated & switched coaxial shield (only contact types 10, 25, 27, 70)

URS70000 & E70000 NOTES:

1. The I or S options are not available on the optional signal connectors or the contact type 90 (triaxial).
2. The "expander" port is not available any longer.
3. No mating connectors or hardware are included.
4. Contact type 70 must be mounted with signal connectors facing up.
5. Due to new environmental laws, USC may or may not be able to sell relays with mercury wetted contacts. Spec used to be 2A, 50W.
7. Type 27 and 67 use the standard 50 ohm MSC connector.

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Remote display, desktop or rackmount (4RU)

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RouteWarePRO 5.0

Individual license, 5-pack. USB-KEY type available too.
Our product called RouteWarePRO is a self-contained GUI software package designed specifically to control and monitor Universal Switching Corporation's products. Engineered for ease of use, most users are up and running within minutes where you can control 1, 10 or 100+ units from anywhere. Download our Monitor & Control software **RouteWarePRO** for a FREE 30-day trial today!
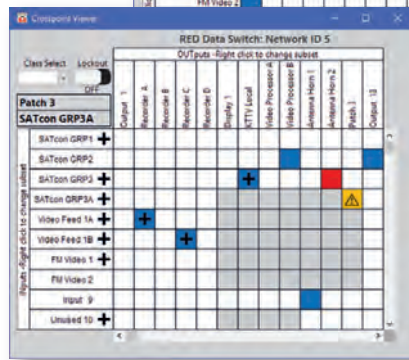
GUI colors, channel labeling and configuration uploads are all user definable.

Version 5.0 new features:
- Updated Metro visual style and improved functionality
- Improved X-Point grid features
     * Touchscreen friendly grid size
     * Subset assignments and view to simplify navigating large matrices
     * Lockout/Summary view for status-only display
- Fully updated for Windows 10/8.1/8/7 compatibility
- Class assignment/editor for creating connection restrictions
- Direct support for C3 generation CPU functions
     * Class assignment and management
     * Names/Labels (Port, Memory Location, and Class)
     * Event Scheduler & Device Log
     * Time stamped memory locations & Device Log
     * Upload/download channel labels
- Signal activity status indicators (on supported hardware)
- Tri-Stage diagnostics (exemption table and active scan support)

ROUTEWARE PRO 5.0

Download our Monitor & Control software **RouteWarePRO** for a FREE 30-day trial today!

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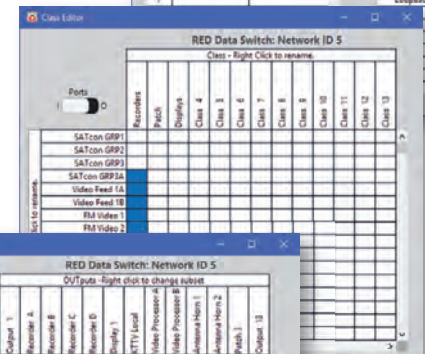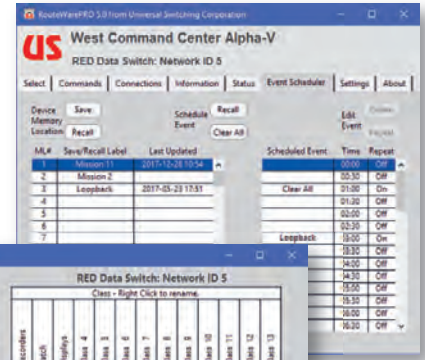
Quality Management System

Since 2007, Universal Switching Corporation has implemented and maintains a Quality Management System (QMS) which serves as the backbone for the products, services and innovative designs offered. Continuing our commitment to being the leader in the programmable switching industry, the company is certified to the ISO 9001:2015 quality standard.

Universal Switching Corporation's management fully supports the ISO process and its function within the company. The tremendous teamwork and dedication shown by all "Team USC" members to our Quality Management System has resulted in continuous re-certification by National Quality Assurance since our QMS was effected. Of all QMS regimes, the ISO 9000 family of standards is the most widely implemented across the globe.

Quality Policy

Universal Switching Corporation is committed to being the leader in the programmable switching industry by providing innovative products and services that continually exceed our customer expectations.

Quality Statement

Universal Switching Corporation has a Quality Policy that serves as the backbone for the products, services and innovative designs it offers. As a global supplier of cutting-edge switching equipment and associated support products, Universal Switching Corporation's management fully supports the ISO process and its function within the company. In achieving ISO 9001:2015 certification, Universal Switching Corporation has demonstrated to ANAB accredited third party auditors (National Quality Assurance) that we have an effective Quality Management System in place. These include the following types of processes:

- *Management responsibility*
- *Management review*
- *Resources and work environment*
- *Product realization*
- *Design and development*
- *Customer relations*
- *Measurement, analysis and improvement*
- *Purchasing*

- *Outsourcing*
- *Production and service provisions*
- *Control of monitoring and measuring devices*
- *Control of nonconforming product*
- *Analysis of data*
- *Continual improvement*
- *Corrective action*
- *Preventative action*

What Is That R**R** All About?

A new graphic is on our front cover, throughout our catalog, products, website, Twitter, Facebook & elsewhere. Some switching manufacturers focus only on resiliency. While this common, it is only half of our product development mission. What sets Universal Switching Corporation apart from our competition is the first part of our mission; **engineering absolute reliability into our products.** We are displaying this graphic as a reminder that our mission is to engineer BOTH reliability and resiliency into each and every product we build.

reliability [ri-lahy-uh-**bil**-i-tee] noun

      1: the ability to be relied on or depended on, as for accuracy, or achievement.

resiliency [ri-**zil**-yuh n-see] noun

      1: the power or ability to return to the original form.
      2: ability to recover readily from adversity, or the like.

The company was established with three objectives in mind:

    1. Provide the best switching, distribution and conversion equipment on the market.

    2. Provide superior service and serviceability utilizing modular, expandable, leading edge designs by blending the full spectrum of available technology.

    3. Provide our customers with timely and cost-effective solutions for all their signal applications.

A little known fact is that the property that Universal Switching Corporation sits on was formerly Lockheed's secret division called "Skunk Works". This division was operated by Clarence L. "Kelly" Johnson where very famous aircraft were secretly conceived such as the XB80, U-2, F-117 Stealth Fighter, and the beautiful SR-71 Blackbird (which still hold the worlds flight speed record).

Universal Switching Corporation

Signal Switching, Conversion & Distribution Specialists

Standard Warranty Agreement

Universal Switching products are warranted against manufacturing and workmanship defects for a period of two years from the date of shipment. During this period, Universal Switching Corporation will, at its option, either repair or replace products which prove to be defective or out of specification per the original purchase order or contract. Damage by misuse or abnormal conditions of operation, or evidence of partial or complete disassembly beyond normal maintenance or expansion procedures void this warranty in its entirety. Since Universal Switching Corporation has no control over conditions of use or applications for the products it manufactures, no warranty is made or implied as to the suitability for the customer's intended use, beyond such performance specifications set forth in the purchase order or contract at the time of order.

Equipment shipped FOB factory (Universal Switching Corporation) shall become the property of the Buyer upon delivery to the carrier. Equipment shipped FOB destination shall become the property of the buyer upon delivery acceptance of the carrier. All damages during shipment should be handled by immediately requesting the carrier's inspection upon evidence of damage or tampering of the packing material or equipment. This warranty excludes all other warranties expressed or implied. Universal Switching shall not be liable for any special, indirect or consequential damages.

For warranty service or repair, the buyer shall prepay all shipping charges to Universal Switching Corporation, and Universal Switching Corporation shall pay shipping charges to return the repaired or replaced item to the buyer. However, the buyer shall pay all shipping charges, duties and taxes for products returned to Universal Switching Corporation from a country other than that of the United States of America.
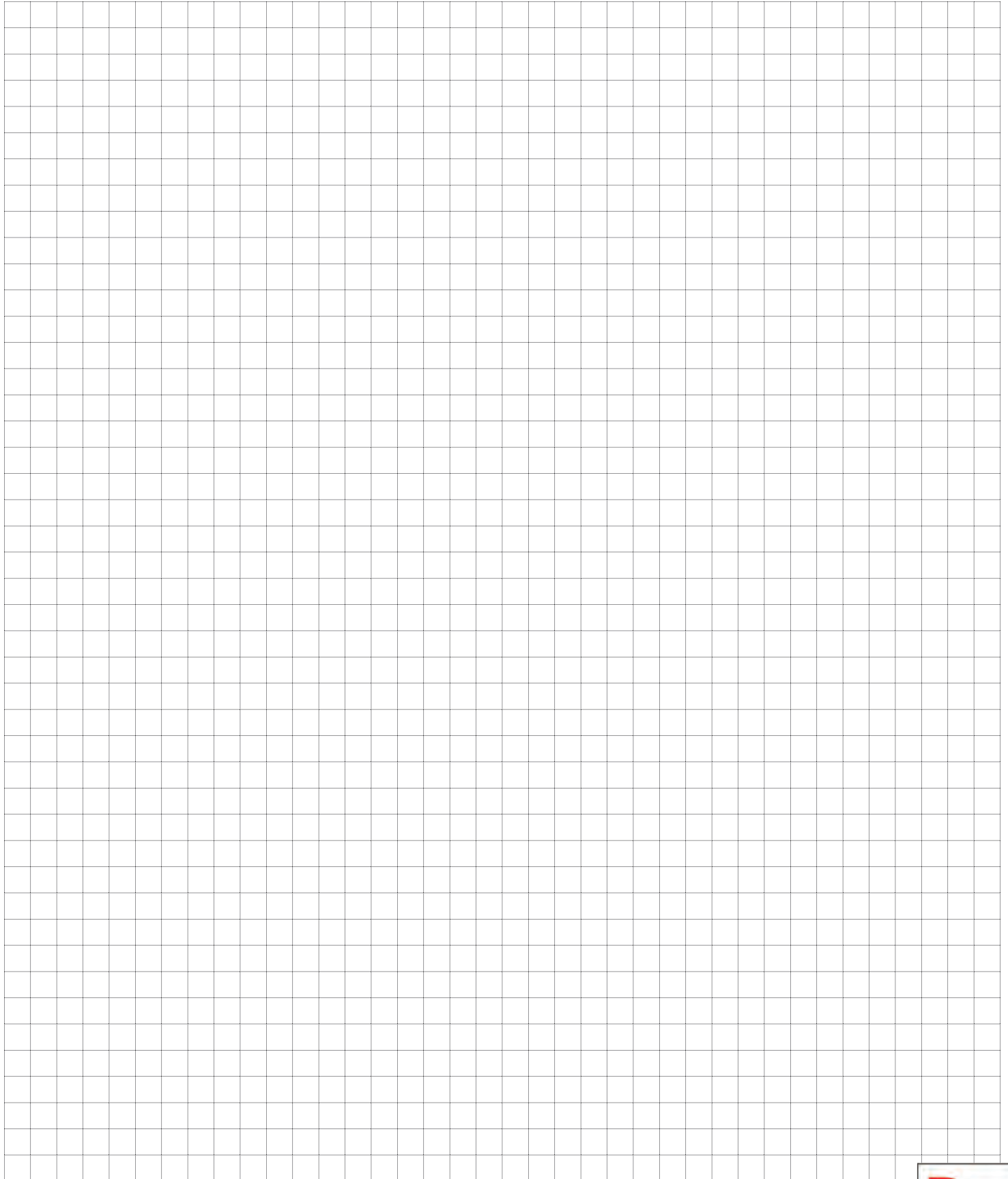
Universal Switching Corporation warrants that its software and firmware designated by Universal Switching Corporation for use with an instrument will execute its programming instructions when properly installed on that instrument. Universal Switching Corporation does not warrant that the operation of the instrument, or software, or firmware will be uninterrupted or error-free.

Extended warranties are available from the factory up to 7 years. For other support options, we also provide customized service contracts as needed. Contact the factory for more information.

Return Loss to VSWR Conversion Table

Return Loss (dB)	VSWR (ratio)	Reflection Coefficient	Mismatch Loss (dB)	Reflected Power (%)	Through Power (%)
1	17.39	0.891	6.868	79.43	20.57
2	8.72	0.794	4.329	63.10	36.90
3	5.85	0.708	3.021	50.12	49.88
4	4.42	0.631	2.205	39.81	60.19
5	3.57	0.562	1.651	31.62	68.38
6	3.01	0.501	1.256	25.12	74.88
7	2.61	0.447	0.967	19.95	80.05
8	2.32	0.398	0.749	15.85	84.15
9	2.10	0.355	0.584	12.59	87.41
10	1.92	0.316	0.458	10.00	90.00
11	1.78	0.282	0.359	7.94	92.06
12	1.67	0.251	0.283	6.31	93.69
13	1.58	0.224	0.223	5.01	94.99
14	1.50	0.200	0.176	3.98	96.02
15	1.43	0.178	0.140	3.16	96.84
16	1.38	0.158	0.110	2.51	97.49
17	1.33	0.141	0.088	2.00	98.00
18	1.29	0.126	0.069	1.58	98.42
19	1.25	0.112	0.055	1.26	98.74
20	1.22	0.100	0.044	1.00	99.00
21	1.20	0.089	0.035	0.79	99.21
22	1.17	0.079	0.027	0.63	99.37
23	1.15	0.071	0.022	0.50	99.50
24	1.13	0.063	0.017	0.40	99.60
25	1.12	0.056	0.014	0.32	99.68
26	1.11	0.050	0.011	0.25	99.75
27	1.09	0.045	0.009	0.20	99.80
28	1.08	0.040	0.007	0.16	99.84
29	1.07	0.035	0.005	0.13	99.87
30	1.07	0.032	0.004	0.10	99.90
31	1.06	0.028	0.003	0.08	99.92
32	1.05	0.025	0.003	0.06	99.94
33	1.05	0.022	0.002	0.05	99.95
34	1.04	0.020	0.002	0.04	99.69
35	1.04	0.018	0.001	0.03	99.97
36	1.03	0.016	0.001	0.03	99.97
37	1.03	0.014	0.001	0.02	99.98
38	1.03	0.013	0.001	0.02	99.98
39	1.02	0.011	0.001	0.01	99.99
40	1.02	0.010	0.000	0.01	99.99

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@US_Corp

Sketch your secret design concept here......

Grid = 0.200 x 0.200

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NOTE: For areas not mentioned on this list, please contact the factory directly.