

General

Large scale communication installations require State-of-the-Art equipment. The **US** Model 10942B provides the systems professional with an uncompromising combination of high performance and high reliability switching elements coupled together in a dual mode switching system design. Standard redundant power supplies plus redundant system control interfaces deliver the ultimate in system reliability for critical applications

Compact and high performance, the Model 10942B provides cost effective, flexible switching capacity for smaller installations, providing 4 channels of A/B (primary or backup) switching, in either 1:4 or 1:1 modes. Bandpass is excellent for video, IF or RF signals ranging to nearly 1GHz.

Complete control and status of the unit is available at both the front panel controls or the dual remote interface. Also provided with the unit is a direct TTL alarm input connector for backup channel selection with priority assignment (for 1:4 mode), and an 8-bit driver port for controlling external devices. The unit has provisions for the user to self-configure the serial mode of the individual serial ports (RS-232C, RS-422A or RS-485), and for unique installations, the unit is also available in DC powered configurations.

Applications

- Airborne surveillance systems
- Communication installations
- Digital broadcast facilities or production studios
- Imaging and animation production facilities
- NTSC, PAL, DS3, DVB or SECAM routing
- Security systems
- Factory automation monitoring

Features

- High reliability relays
- Four channels of A/B switching
- Dual mode, 1:4 or 1:1 backup switching
- >800MHz bandpass
- BNC or TNC signal connectors
- Redundant hot-swap power supplies
- Dual serial control ports plus TTL alarm inputs
- Field configurable serial ports (RS-232C/422A/485)
- International AC power input, or optional DC
- Certified CE EN61010 (LVD)
- LabVIEW drivers available



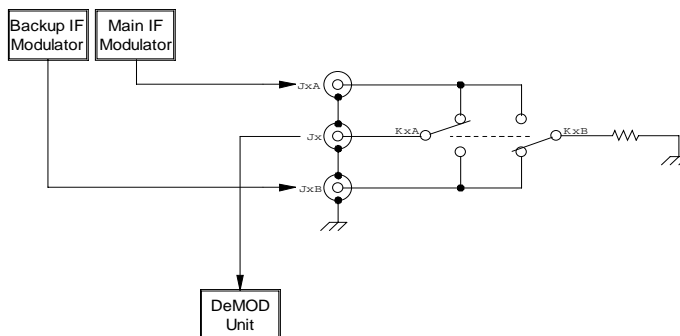
Front View



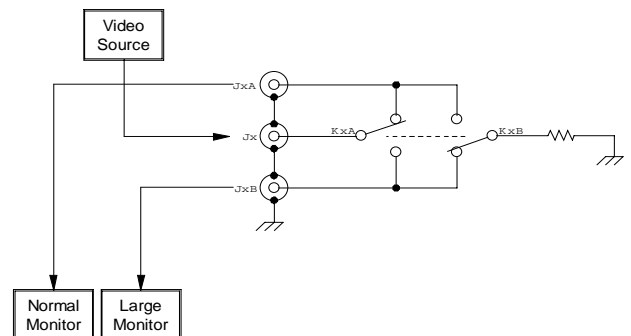
Rear View

Application Example

SELECT FROM ONE OF TWO SOURCES



ROUTE TO ONE OF TWO DESTINATIONS



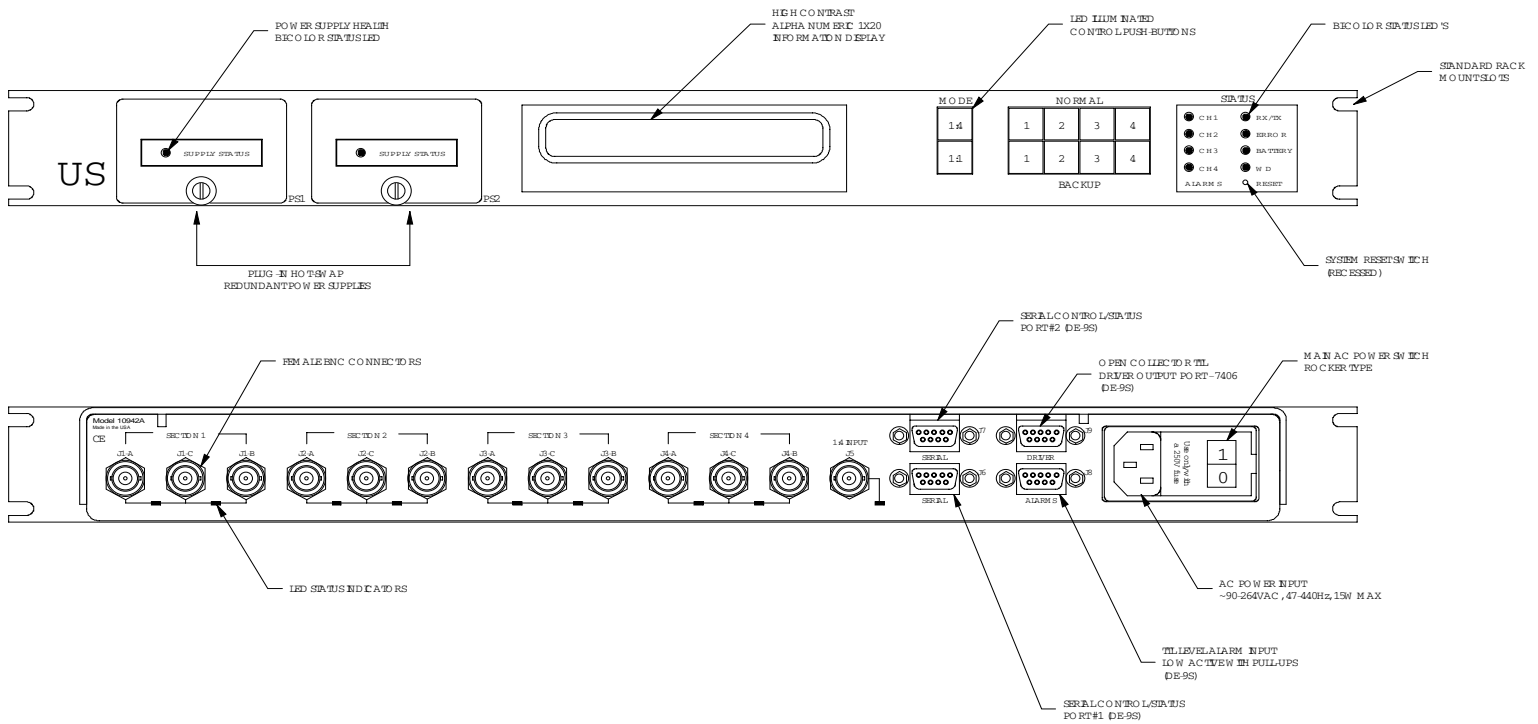
Front Panel Features

The front of the unit provides a host of features in a compact panel height. Channel selection and back-up method (1:1 or 1:4) can be controlled by front panel color-coded LED illuminated control keys. A high contrast vacuum fluorescent display also displays status messages.

Located on the front panel for easy access are the redundant hot-swap power supplies. These supplies are constant-

ly monitored by the unit for proper operation and installation. Bi-color LED's on each supply easily identify defective units.

Also included on the front panel are bi-color status LED's for the J8 alarm input port, serial receive and transmit activity, lithium battery monitor, and general error conditions. Errors are displayed on the front panel display, and an error code is also sent via the serial ports.



Choice Serial Port Type

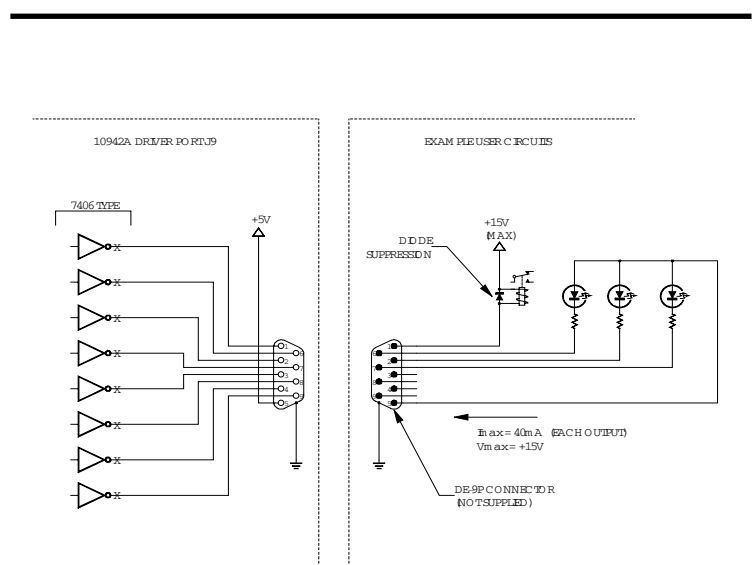
The unit is delivered with dual RS-232C, RS-422A or RS-485 serial interfaces installed (J6 and J7). The factory delivered serial interface is defined by the model number assignment. The user can change the shipped serial configuration by simply removing the cover and changing the configuration jumpers. Either or both supplied serial ports can be used to control and monitor the unit. Data to the ports is serviced on a first-come, first-served basis. Many operating parameters of the unit, such as baud rate, can be modified via the serial ports. See back page on Command Protocol for more detail.

8-Bit Driver Port

The 10942B includes an 8-bit open-collector driver output port (J9) that the user can write to via either of the serial interface ports. The output can be used to drive user indicators or equipment.

Alarm Input Port

A direct alarm input port (J8) is provided for TTL compatible control of the unit's four channels. Four active-low inputs allow the user to select the back-up mode for the associated input port.



High Performance A/B Selector Model 10942B

Four Channel System

The Model 10942B backup A/B selector system offers a high performance, low cost solution to your back-up switching needs. The unit provides a total of four channels of backup switching and may be configured for either 1:1 switching (one backup for each of the four channels), or 1:4 switching (one backup for all four channels). The switching mode is selectable from either the front panel controls or the remote interface.

The embedded CPU automatically selects the correct relays to control the desired switching action. All un-used ports are terminated at either 75 or 50 ohms (model dependent).

Control options and switching configurations are stored in non-volatile memory (lithium-backed RAM). Under power up procedures, the unit may be set to recall the last configuration since power down, or to completely clear all crosspoint connections. If main power is lost to the unit, all sections fall back to the "A" connection position until main power is again restored. See signal schematic diagram to the right for more detail.

Model Number Assignment

The 10942B is available in twelve standard configurations. The model number specifies the delivered remote interface version, characteristic impedance, and signal connector type. The remote interface type, however, can be easily changed via configuration jumpers under the cover if control needs change.

AC Powered Versions

Model Number	Serial Interface	Imped	Conn
■ 10942B-D232	Dual RS-232C	75 ohm	BNC
■ 10942B-D422	Dual RS-422A	75 ohm	BNC
■ 10942B-D485	Dual RS-485	75 ohm	BNC
■ 10942B-D232-T	Dual RS-232C	75 ohm	TNC
■ 10942B-D422-T	Dual RS-422A	75 ohm	TNC
■ 10942B-D485-T	Dual RS-485	75 ohm	TNC
■ 10942B-D232-5	Dual RS-232C	50 ohm	BNC
■ 10942B-D422-5	Dual RS-422A	50 ohm	BNC
■ 10942B-D485-5	Dual RS-485	50 ohm	BNC
■ 10942B-D232-5T	Dual RS-232C	50 ohm	TNC
■ 10942B-D422-5T	Dual RS-422A	50 ohm	TNC
■ 10942B-D485-5T	Dual RS-485	50 ohm	TNC

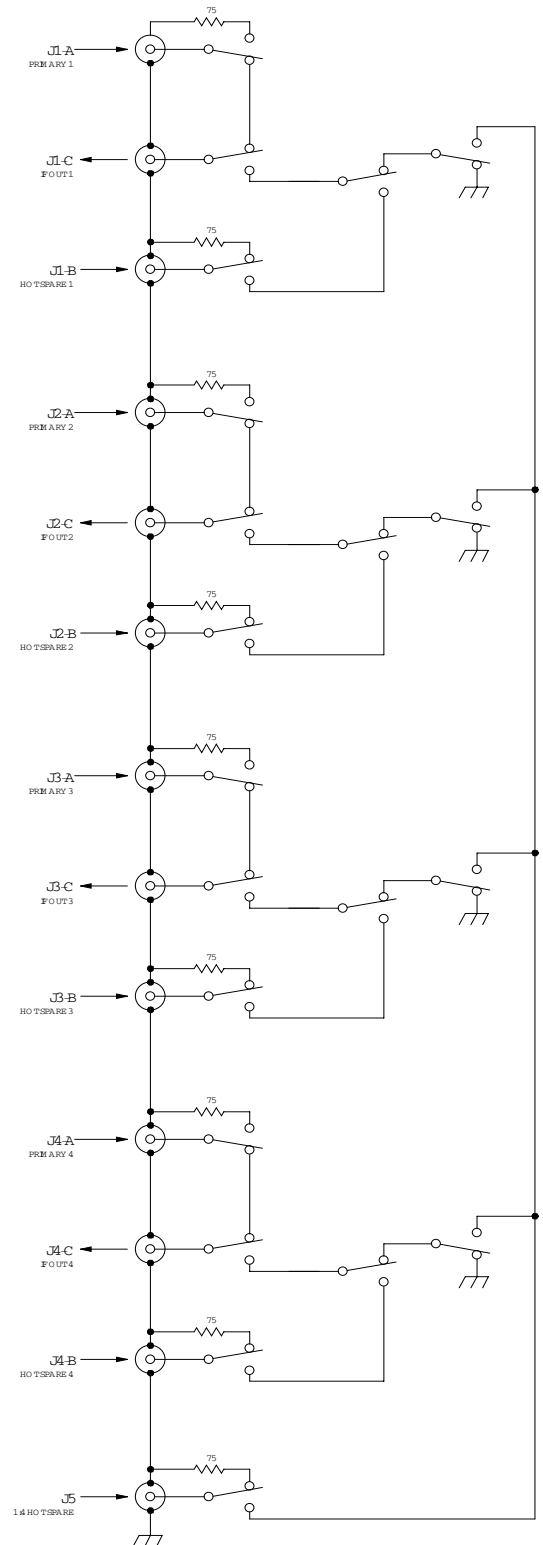
DC Powered Versions

The 10942B may also be ordered so it can be powered by DC voltage instead of the normal 90-264VAC power input. The rear panel power connection includes a two position screw terminal and a chassis ground stud. Three non-polarity sensitive DC input voltage options are available. To specify one of these options, just add one of the model number suffixes shown below to the model number.

Suffix	DC Input Range	Max Current
-48V	36-75VDC	.750A
-24V	18-36VDC	1.40A
-12V	9-18VDC	2.75A

SIGNAL SCHEMATIC DIAGRAM

(DEFAULT POWER OFF POSITION SHOWN)



Command Protocol

The control command protocol for the 10942B is simple and streamlined yet powerful and comprehensive for a switch of its size. All commands are standard ASCII strings, and must be terminated with a <CR>. The "x"s below represent digits specific to the command. The following commands are available:

Bx	Connect a backup port to an output port (backup)
Nx	Disconnect a backup port from an output port (normal)
Vx	Verify the status of a backup connection
Sxx	Store switching configuration
Rxx	Recall switching configuration
CLR	Clear all backup connections
Pxxxx	Set backup priorities for the 1:4 mode
Hx	Set backup mode (1:1 or 1:4)
DL	Download switch configuration
RST	Reset the system to default
ER?	Error status request
VER	Request for firmware version
SON	Enables unsolicited error attention message "ER!"
SOF	Disables unsolicited error attention message "ER!"
Ixx	Sets the baud rate of the serial communication port
LCK	Locks the front panel controls
UNL	Unlocks the front panel controls
BPx	Controls conditions for internal beeper usage
RON	Enables the system AutoRestore mode
ROF	Disables the system AutoRestore mode
Axx	Changes the factory default RS-485 address
Oxxx	Outputs to the TTL driver port binary equivalent of "xxx"

Version 2.0 Firmware

Units with firmware version 2.01 (or higher), also has a third command mode added; 2:2 mode or "H2". In this mode, commands to ports 1 and 2 will actuate ports 1 and 3, or 2 and 4, respectively in a ganged fashion.

Serial Pin Assignment

RS-232C Version

Pin	Function	Designation
1	Not Used	
2	Transmit Data	TXD
3	Receive Data	RXD
4	Not Used	
5	Signal Ground	GND
6	Not Used	
7	Clear To Send	CTS
8	Ready To Send	RTS
9	Not Used	

RS-422A Version

Pin	Function	Designation
1	Transmit Data (-)	TXD -
2	Transmit Data (+)	TXD +
3	Receive Data (+)	RXD +
4	Receive Data (-)	RXD -
5	Signal Ground	GND
6	Clear To Send (-)	CTS -
7	Clear To Send (+)	CTS +
8	Ready To Send (+)	RTS +
9	Ready To Send (-)	RTS -

RS-485 Multidrop Version

Pin	Function	Designation
1	TR Data (-)	485 -
2	TR Data (+)	485 +
3	Not Used	
4	Not Used	
5	Signal Ground	GND
6	Not Used	
7	Not Used	
8	Not Used	
9	Not Used	

Model 10942B Specifications

Array size	Four A/B channels
Switching mode	1:1 or 1:4 backup capacity
Switching elements	High reliability relays
Type of system	A/B backup selector
Architecture	Fixed size
Termination (unused ports)	Included
Signal connector location	Rear panel

I/O Characteristics

Impedance	75 ohm (50 ohm optional)
VSWR loss (1:1 mode)	<1.5:1 @ 250MHz
Signal connector	BNC female (TNC optional)
Coupling	DC
Termination	1/8W, 1%

Signal Characteristics

Transmission loss	1/4dB @ 200MHz
(1:1 mode, 75 ohm)	1/2dB @ 500MHz
	1dB @ 800MHz
Crosstalk isolation	>65dB @ 500MHz
	>60dB @ 800MHz
External cable comp	None
Signal path	Passive bidirectional

General Specifications

Switching speed	<5ms
Power supply section	Hot-Swap redundant supplies
Power supply monitoring	Included
Remote control interfaces	Serial (RS-232C, RS-422A or RS-485 multi-drop)
Serial port connectors	DE-9S (D-Type female)
Alarm connector (J8)	DE-9S (D-Type female)
Driver output connector (J9)	DE-9S (D-Type female)
Status LED's	Both front and rear included
Front panel display	1x20 VF display (high contrast)
Configuration memory	Lithium-back RAM
Memory retention	>10 years
Cooling	Convection
AC power requirements	90-264VAC, 47-440Hz, 15Watts (max)
Fuse protection	2A, 5mm (dual), AC models only
Weight	.9 lbs
Size	1.75H x 6.50D x 19.00W (1RU)
Operating temp	0 to +60C
Non-operating temp	-20 to +85C
Humidity	0 to 95% (NC @ +25C)
MTBF	>135,000 hours
Warranty	.2 years
Certifications	CE EN61010

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