

General

Today's large scale communication and critical broadcast installations require redundant hardware and equipment. The 10942B provides a redundancy switching function between system blocks. An uncompromising combination of high performance and high reliability redundancy switching are 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 10942B provides cost effective, flexible switching capacity for smaller installations, providing 4 channels of redundancy switching (A/B primary or backup) 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, IF or SECAM redundancy
- Security systems
- Factory automation monitoring

Features

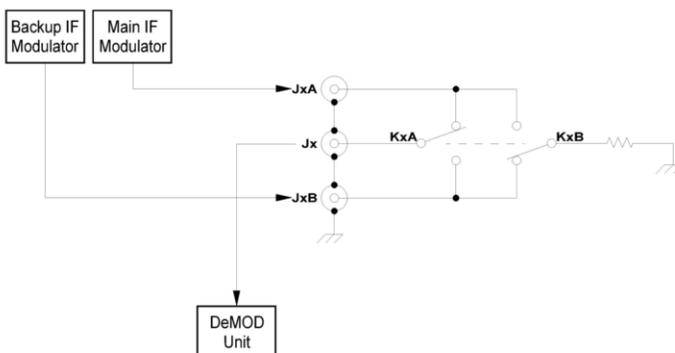
- High reliability relays
- Four channels of A/B switching
- Dual mode, 1:4 or 1:1 redundancy switching
- >800MHz bandpass
- BNC signal connectors
- Redundant hot-swap power supplies
- Dual serial control ports plus TTL alarm inputs
- Field configurable serial ports (RS-232C/422A/485)
- 10/100 Ethernet control port available
- International AC power input, or optional DC
- Certified CE EN61010 (LVD)
- LabVIEW drivers available



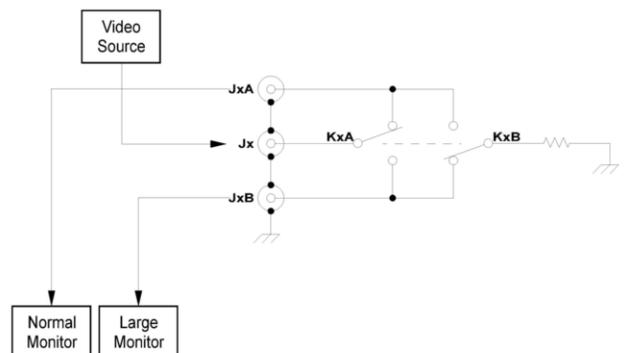
Rear View

Application Example

SELECT FROM ONE OF TWO SOURCES



ROUTE TO ONE OF TWO DESTINATIONS



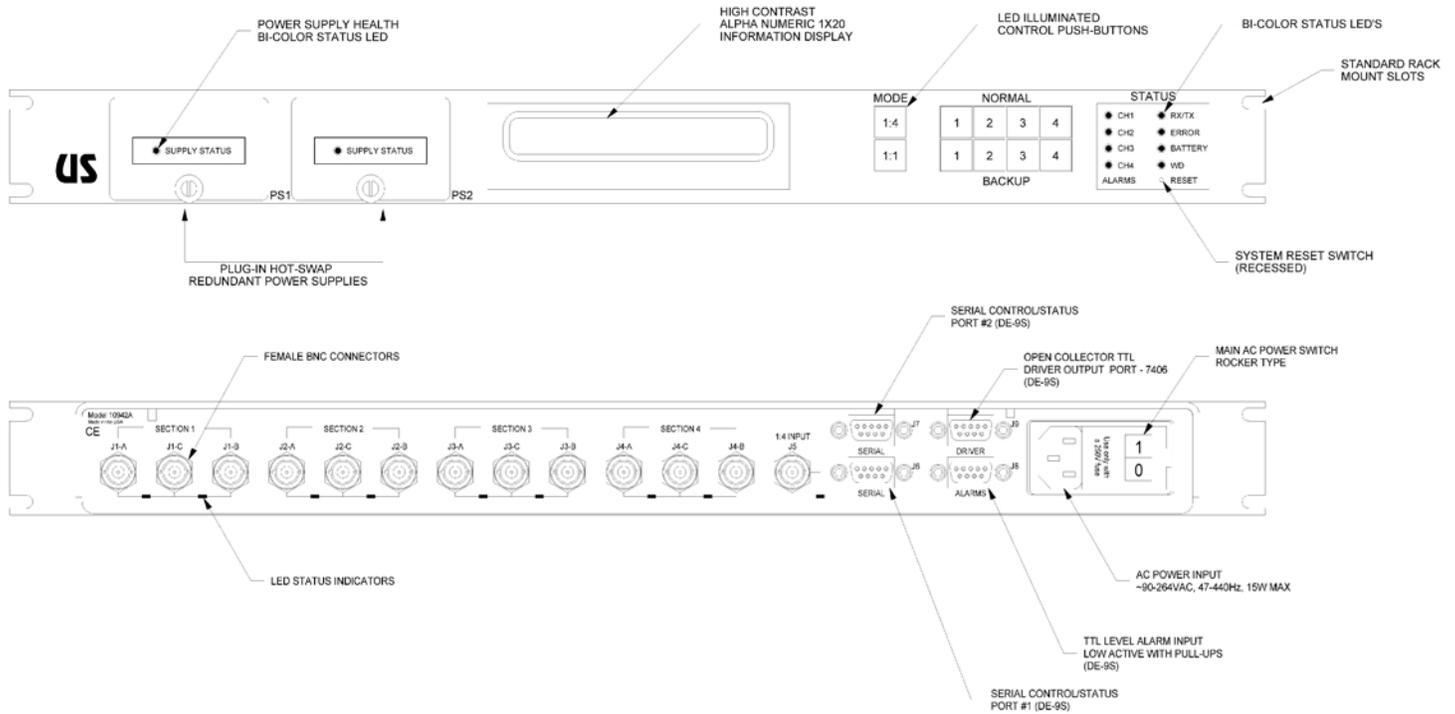
Front Panel Features

The front of the unit provides a host of features in a compact 1RU 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 constantly monitored by the unit for proper operation and installa-

tion. 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.



Serial Port

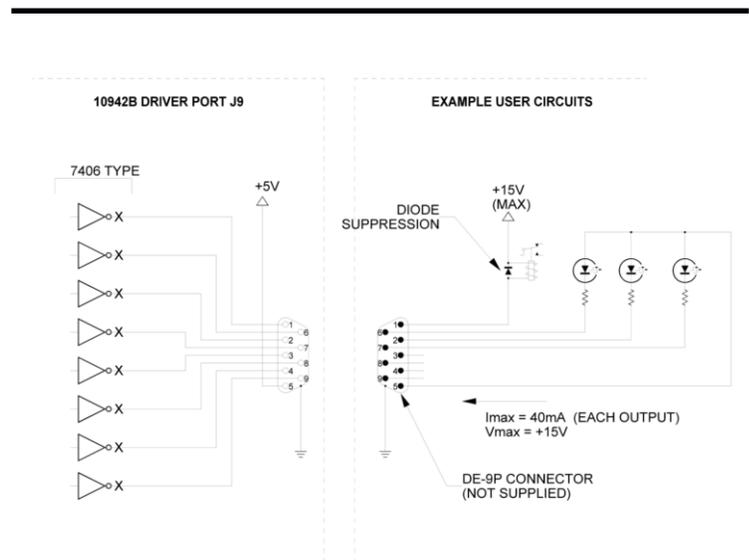
The unit is delivered with dual RS-232C, RS-422A or RS-485 serial interfaces installed. The unit is factory configured for RS-485. The user can change the serial configuration by simply removing the cover and changing the configuration jumpers. Either or both supplied serial ports can be used to control 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 units 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 1:4 mode is a tremendous cost saver by letting a single piece of equipment serve as a hot-spare redundant for four online units. Priority can be set in any order for the single backup.

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 two standard configurations.

Model Number	Interface	Capability	Conn
■ 10942B-D485	Dual Serial	1:1 & 1:4	BNC-75
■ 10942B-S3E10	Ethernet & Serial	1:1 & 1:4	BNC-75

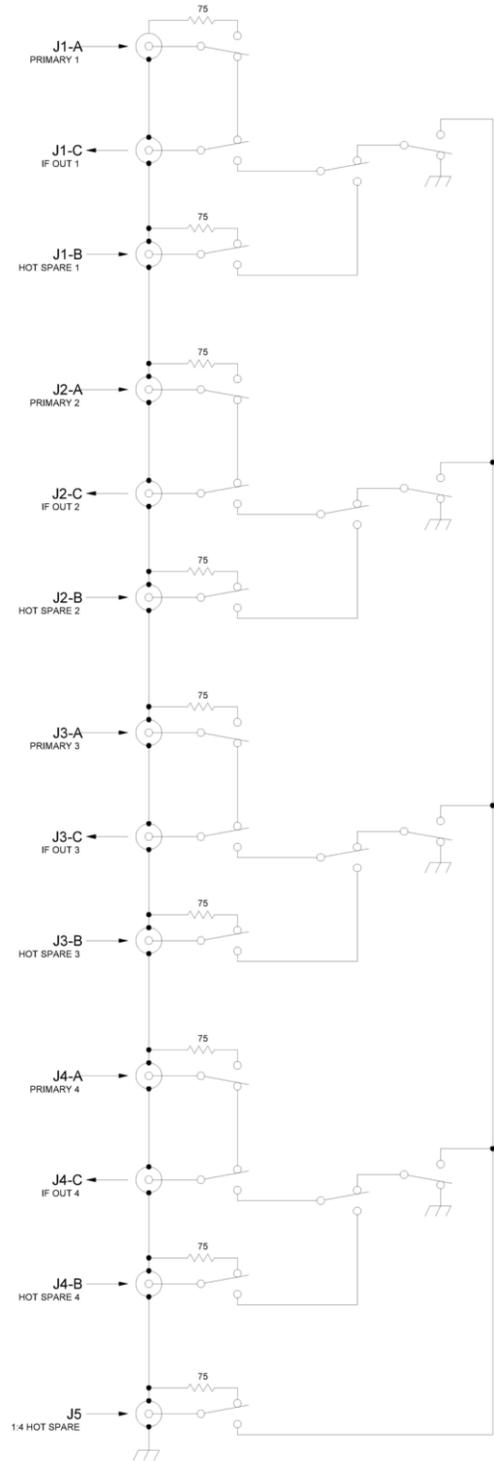
NOTE: The unit is shipped configured for RS-485 and can be easily changed via configuration jumpers under the top cover if control needs change.

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

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

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

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 multidrop)
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.