

Pro Switching Systems for Network Backup and Redundancy

Industry-leading solutions to prevent downtime and ensure network access.

Keep data moving between your copper or fiber circuits.

Secure, reliable switching for mission-critical applications:

- » Corporate networks
- » Government computing
- » Energy and utilities
- » Healthcare and biotech
- » Aviation and transit systems
- » Industrial engineering
- » Military systems
- » Stock exchange networks



Pro Switching System Plus (4U) Pro Switching System (2U) Pro Switching System NBS (1U)

Pro Switching Systems

Pro Switching System Plus (4U)

Intelligent, secure switching for access control, disaster recovery, and network backup.



- Offers secure switching via latching relays or micro-mirror switching mechanisms.
- Chassis holds up to 16 switch modules. Mix and match data, voice, video, and power switching modules in one chassis.
- Cascade multiple 18-slot chassis to support up to 4080 ports.
- Controller cards for switching locally or remotely.
- Performs Layer 1 switching. Operates independently of data rates, protocols, formats, or signal levels.

The Pro Switching System Plus is an intelligent ganged switching system consisting of a chassis and individual interface cards. Its advanced design gives incredible flexibility and performance.

Switch one card individually or switch the entire rack through a Controller Card. You can even daisychain multiple chassis to control up to 4080 individual ports.

The chassis includes a backplane for plugging in the cards. Just order the cards you need, as well as a power supply (or for redundancy, order two).

Switch securely.

For fail-safe operation, the system uses proprietary micro-mirror or latching relay switching technology. That means data can continue to pass through even if the power has been cut off.

Each chassis also has a keyed switch so you can enable/disable manual switching from the front-panel toggle switches

The Controller Card.

One is required for each 18-slot chassis, and it takes up two card slots. The Controller Card enables you to individually switch any port from the front panel or gang switch the entire system.

For more capabilities, choose models with an RS-232 serial controller or choose an SNMP-based Ethernet controller, which also includes GUI Switchcenter software. These intelligent cards enable you to switch from anywhere in the world via an RS-232 or IP connection.

Pick a card, any card.

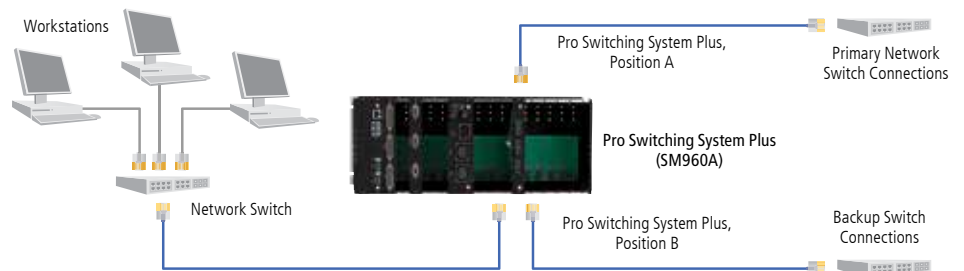
Switching cards are available for RS-232, video, fiber, and CAT5e/CAT6 connections.

Use the system to support both new and legacy technologies. Add cards for fast CAT6 10-GbE networking while keeping ports for older RS-232 and 75-ohm video connections.

Control power, too.

To power a backup network, choose the 1-In/2-Out Power Switch Modules. Or, to set up a redundant backup power supply, choose the 2-In/1-Out models. Both are available with advanced network reporting functions.

Network Disaster Recovery/Continuation of Operations



TECH SPECS

Switches — SM962A–SM964A: (1) momentary toggle switch; (2) 8-position DIP switches, (1) momentary push-button switch

CE Approval — Yes

RoHS — Yes

Connectors — SM962A–SM964A: (1) RJ-45, (2) RJ-11, (2) two-position DC power entry, (2) two-position alarm contact terminal block;

SM970A–SM971A: (1) IEC 320 M, (2) IEC 320 F;

SM965A: (3) DB25 F;

SM966A: (3) DB9 F;

SM967A: (3) DB15 F;

SM976A: (3) F-connectors;

SM977A-ST: (3) duplex ST®;

SM977A-SC: (3) duplex SC;

SM978A–SM979A: (3) RJ-45;

SM980A: (6) RJ-45

Indicators — SM962A–SM964A: (3) LEDs: (2) power, (1) status, (2) alarm relay contacts;

A/B Switch Cards: (2) LEDs (A and B)

Size — SM960A: 7"H (4U) x 19"W x 6.5"D (17.8 x 48.3 x 16.5 cm)

Item	Code
Pro Switching System Plus	
18-Slot Chassis, 4U	SM960A
Power Supply, 120–240 VAC, External	SM961A-PS
Controller Cards	
SNMP, RS-232, Manual Switching	SM962A
RS-232, Manual Switching	SM963A
Manual Switching	SM964A
AC Power A/B Switch Cards, 240-VAC	
Logic Only, 1 In/2 Out	SM970A
Logic with AC detection, 1 In/2 Out Processor, with Networked Reporting	SM971A

Item	Code
Pro Switching System Plus (Continued)	
A/B Switch Cards	
DB25	SM965A
DB9	SM966A
DB15	SM967A
Video F-Connector, 75-Ohm	SM976A
Fiber Optic, ST, Latching	SM977A-ST
Fiber Optic, SC, Latching	SM977A-SC
RJ-45 CAT5	SM978A
RJ-45 CAT6 10-GbE	SM979A
RJ-45 CAT6 10-GbE, Dual-Port	SM980A
Blank Rear Panel	SM981

For help configuring your switch, contact Tech Support

Pro Switching System (2U)

Get full-performance gang-switching capabilities in an ultra-compact, 2U chassis.

- Save space in your rack with this 2U chassis.
- Mix and match hot-swappable RS-232, RS-530, video, fiber, CAT5e, and CAT6 A/B switching modules in a single chassis.
- Chassis holds up to 18 modules. Cascade multiple chassis and racks for additional switching ports.
- Offers secure switching via latching relays.
- Choose a single-power card or dual-redundant power cards.
- Performs Layer 1 switching. Operates independently of data rates, protocols, formats, or signal levels.
- Control switching locally or remotely.



SM260A: front view



SM260A: rear view

This intelligent ganged switching system consists of an ultra-compact 2U 18-slot chassis, and A/B switching, controller, and power supply cards.

Controller Cards take up only one slot, and Power Cards take up one slot or two slots for redundancy, leaving you with 13–16 slots for A/B Switch Cards. All occupy one slot, except for the DB25 Cards, which require three slots.

Switch one card individually or switch the entire chassis through a Controller Card. You'll need one Controller Card per rack chassis. If you daisychain multiple chassis, the card in the first chassis controls the entire system.

Each chassis also has a keyed switch so you can enable/disable manual switching from the front-panel toggle switches.

Controller and switch card options.

You can choose an RS-232 Only Controller Card, which enables gang switching via the manual toggle switch or with serial commands, or an RS-232/Ethernet (SNMP) Controller Card, for switching the chassis from anywhere via an RS-232 or IP connection.

To extend RS-232/IP control to a second daisychained chassis, order the SNMP Expansion Card.

A/B Switch Cards are available for RS-232, video, fiber, and CAT5e/CAT6 connections. Use the system for both new and legacy applications. You can add cards for newer CAT6 10-GbE networking while keeping connections for older RS-232 and 75-ohm video connections.

Secure and fallback switching.

For fail-safe operation, all the switch cards (except those noted) use proprietary latching or micro-mirror relay switching technology, so data can continue to pass through even if the power has been cut off.

The non-latching fiber cards fall back to a Port C (chassis) to Port A connection when power fails. When power is restored, the non-latching switch card reconnects Port C to the originally selected port. These types of cards provide a fallback or failover connection during power outages.

To power your chassis, order one or two external power supplies and the power adapter card. For backup power, add a Redundant Power Supply Card.

TECH SPECS

Switches — Controller Cards: (1) momentary toggle switch, (1) 8-position DIP switch, (1) momentary push-button switch, (1) key-lock switch

CE Approval — Yes

RoHS — Yes

Connectors — SM261A-CARD: (2) two-position DC power headers, (2) two-position alarm contact terminal block;

SM261A-VAC: (1) IEC input, (1) three-position alarm contact terminal block

SM261A-VDC: (1) three-position DC power, (1) three-position alarm contact terminal block;

SM262A–SM264A: (1) RJ-45, (2) RJ-11;

SM265A–SM266A: (3) DB25 F;

SM268A–SM269A: (3) RJ-45;

SM277A–SM278A: (3) duplex ST or SC;

SM267A, SM276A: (3) F-connectors

Indicators — SM261A-CARD: (2) LEDs: Power;

SM261A-VAC, 261A-VDC: (1) LED: Power;

SM262A–SM264A: (2) LEDs: (1) power, (1) status;

A/B Switch Cards: (2) LEDs (A and B)

Size — SM260A (including handles and connectors): 3.5"H (2U) x 19"W x 12.5"D (8.9 x 48.3 x 31.8 cm)

Weight — SM260A: Empty: 2.5 lb. (1.1 kg)

Item	Code
Pro Switching System, 2U	
18-Card Chassis	SM260A
Power Supply, 120–240 VAC, External	SM961A-PS
Power Supply Card, AC External Adapter	SM261A-CARD
Redundant Power Supply Cards (NOTE: Each card requires two chassis slots.)	
100–240-VAC Input	SM261A-VAC
-48-VDC Input	SM261A-VDC
Controller Cards	
RS-232/Ethernet (SNMP)	SM262A
RS-232 Only	SM263A
SNMP Expansion	SM264A
A/B Switch Cards	
DB25/RS-232	SM265A
DB25/RS-530	SM266A
RJ-45 CAT5	SM268A
RJ-45 CAT6	SM269A

Item	Code
Pro Switching System, 2U (Continued)	
A/B Switch Cards (Continued)	
Multimode Fiber Optic	
ST®, Latching	SM277A-MM-ST-LCH
SC, Latching	SM277A-MM-SC-LCH
ST, Non-Latching	SM277A-ST
SC, Non-Latching	SM277A-SC
Single-Mode Fiber Optic	
ST, Latching	SM278A-SS-ST-LCH
SC, Latching	SM278A-SS-SC-LCH
ST, Non-Latching	SM278A-ST
SC, Non-Latching	SM278A-SC
Video F-Connector	
Latching	SM276A-LCH
Non-Latching	SM267A
Blank Panel, Front/Rear	SM279A-BLNK

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Pro Switching Systems

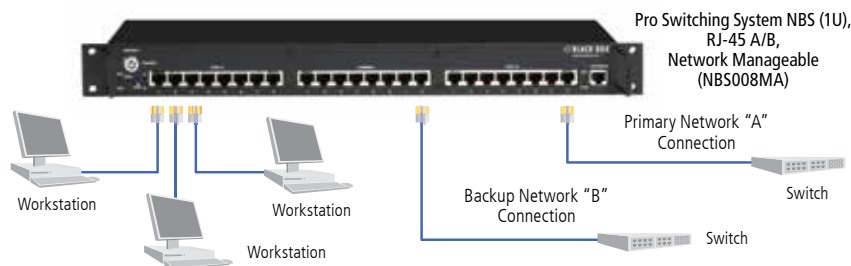
Pro Switching System NBS (1U), RJ-45 A/B

Add access control, network backup, and failover switching to your data networks.

- Use to shut off access to your private network based on time of day, virus detection, or hacker alerts.
- For A/B switching between 10/100/1000 copper networks.
- Latches the A/B position to keep signals moving even if power is lost.
- Enables individual or simultaneous (ganged) circuit control.
- Features highly reliable internal telecommunications relays.
- All switches include a removable key for securing the gang switching function.
- Transparent to data rates, protocols, formats, and signal levels.
- Compact, 1U-high rackmountable chassis.
- Includes dual power inputs for redundancy.
- Daisychain multiple units for additional ports.



NBS016MA: top: rear view; bottom: front view.



Use this Layer 1 switching system to add network backup and failover switching to your data networks. It's ideal for mission-critical applications, including classified information and military systems, broadcast networks, and stock exchanges. backup network at the chassis itself using a momentary toggle switch on the front or via a serial RS-232 workstation.

But you can also order network manageable (MA) models, which in addition to manual toggle-switch and RS-232 control, support control from a remote workstation via its 10BASE-T Ethernet port. Through this TCP/IP connection, you can switch and monitor the system's circuits using Telnet, SNMP, or a Web browser link.

The network manageable models also feature auto bypass and auto recovery. If the "normal" network paths between the chassis and the device being monitored go down for any reason, the chassis will automatically switch from the normal connection state to the bypass, or failover, connection state.

On every Pro Switching System NBS (1U), RJ-45 A/B version, each switching circuit has a common (C) port that's latched to its associated A or B port, which means it passes signals even if the chassis is without AC power. Because its relays are physically latched into position, once a position is set, it stays set. The switch circuit is as reliable as the CATx cables connected to it.

A key-lockable switch secures gang switching. With the key-lock switch enabled, all ports in the system can be simultaneously switched by pressing the momentary toggle switch on the chassis' front.

Port settings are also software controllable, so you can toggle a connected device from the A to the B position from a workstation. You not only have reliable network paths, but you can automate switching to control individual settings.

Need to add ports later? Simply daisychain multiple Pro Switching System NBS (1U), RJ-45 A/B chassis together and control them as a single system. You can control up to 4080 ports or 255 chassis as part of a single system.

Versions for switching four RJ-45 leads or all RJ-45 leads.

Four Pro Switching System NBS (1U), RJ-45 A/B models switch four leads (Pins 1/2 and 3/6) on their RJ-45 ports. They're designed for use in 10BASE-T/100BASE-TX Ethernet, T1 circuit switching, and similar applications where no more than two pairs of leads are used.

But we also offer two versions that switch all eight leads of the RJ-45 connectors. They're for use in 10BASE-T/100BASE-TX/1000BASE-TX Ethernet networks, for switching RS-232 circuits that use both data and hardware handshake leads, or any application that requires use of more than four leads.

TECH SPECS

- Switches** — A/B gang switch:
 - (1) momentary toggle switch;
 - Gang switch enable: (1) key-lock switch;
 - System select switch: (1) momentary push-button switch;
 - Rack address switch: (1) 8-position DIP switch;
 - Configuration switch: (1) 8-position DIP switch
- CE Approval** — Yes
- RoHS** — Yes
- Connectors** — Switch circuits: (8) or (16) containing (3) RJ-45 (A/B/C) for a total of (24) or (48) RJ-45;
- Daisychain: (2) RJ-11 (gang in/gang out);
- Control: All: (1) DB9 F (RS-232);
- NBS008MA, NBS016MA,

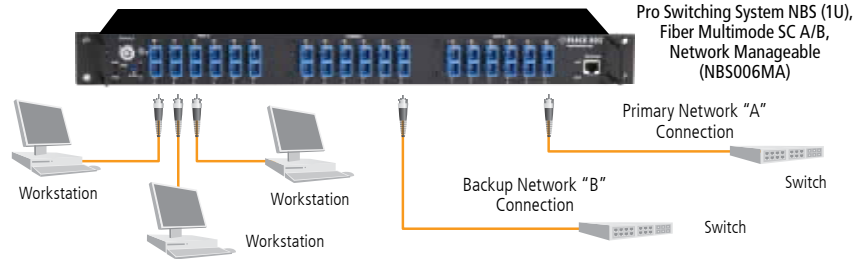
- NBSALL8MGR also have:
 - (1) RJ-45 (10BASE-T)
- Indicators** — Power supply LEDs:
 - (1) status 1, (1) status 2;
 - Switch LEDs: (1) all ports position A, (2) all ports position B
- Operating Environment** —
 - Temperature: 32 to 104° F (0 to 40° C);
 - Humidity: Up to 95%, non-condensing
- Power** — Input: (2) 110-VAC, 60-Hz adapters for redundancy;
- Output: 12 VDC
- Size** — 1.75"H (1U) x 17.25"W x 10.5"D (4.4 x 43.8 x 26.7 cm)
- Weight** — 5 lb. (2.3 kg) excluding external power supplies

Item		Code
Pro Switching System NBS (1U), RJ-45 A/B		
Pins 1/2 & 3/6	8-Port	NBS008A
	8-Port Network Manageable	NBS008MA
	16-Port	NBS016A
	16-Port Network Manageable	NBS016MA
All Pins	8-Port	NBSALL8
	8-Port Network Manageable	NBSALL8MGR

Pro Switching System NBS (1U), Fiber Multimode SC A/B

Prevent costly network downtime with this reliable gang switching system for fiber networks.

- Multiport switching to prevent lost productivity and business downtime on optical fiber networks.
- Provides A/B switching between fiber SC multimode terminated circuits.
- Features highly reliable micro-mirror optical switching.
- Latches the A/B position to keep signals moving even if power is lost.
- Enables individual or simultaneous (ganged) circuit control.
- Lockable switch with removable key for securing gang switching control.
- Transparent to data rates, protocols, formats, and signal levels.
- Supports Gigabit fiber network connections.
- Compact, 1U-high rackmountable chassis.
- Includes dual power inputs for redundancy.
- Daisychain multiple units for additional ports.



Use this optical Layer 1 switching system to add network backup and failover switching to fiber connections on your data networks. It's ideal for mission-critical classified government and military networks, broadcast networks, private medical/healthcare systems, and factory/industrial applications.

With the Pro Switching System NBS (1U), Fiber Multimode SC A/B, it's very simple to switch all users from a main network to a backup network at the chassis itself using a momentary toggle switch on the front or via a serial RS-232 workstation.

But you can also order network manageable (MA) models, which in addition to manual toggle-switch and RS-232 control, support control from a remote workstation via its 10BASE-T Ethernet port. Through this TCP/IP connection, you can switch and monitor the system's circuits using Telnet, SNMP, or a Web browser link.

The network-manageable models also feature auto bypass and auto recovery. If the "normal" network paths between the chassis and the device being monitored go down for any reason, the chassis will automatically switch from the normal connection state to the bypass, or failover, connection state.

On all switch versions, unique latching optical switch mechanisms and micro-mirrors optically route signals between ports. And because the system is fiber based, there's no need to worry about EMI/RFI interfering with signaling in electronically noisy applications.

The system uses duplex SC connections for each channel (port) to form bidirectional data paths to your 50 or 62.5/125-m multimode network segments.

Simply connect fiber cables between the system's circuits and the network connections you want to control. As soon as the fiber cables are plugged into the chassis, the selected data paths become active.

Each switching circuit has a common (C) port that's latched to its associated A or B port, which means it transmits signals even if the chassis is without AC power. Because its relays are physically latched into position, once a position is set, it stays set.

A key-lockable switch secures the gang switching function. With the key-lock switch in the enabled position, all ports in the Pro Switching System NBS (1U), Fiber Multimode SC A/B can be simultaneously switched by pressing the momentary toggle switch on the chassis' front.

Port settings are also software controllable, so you can toggle a connected device from the A to the B position from a workstation. You not only have reliable network paths, but you can automate switching to control individual settings.

Need to add ports later? Simply daisychain multiple chassis together — up to 255 in all — and control them as a single system.

TECH SPECS

Switches — A/B gang switch:
 (1) momentary toggle switch;
 Gang switch enable: (1) key-lock switch;
 System select switch: (1) momentary push-button switch;
 Rack address switch: (1) 8-position DIP switch;
 Configuration switch: (1) 8-position DIP switch

CE Approval — Yes
RoHS — Yes

Connectors — Switch circuits: (4) or (6) containing (3) or (5) SC duplex (A/B/C) for a total of (12) or (15) SC duplex;
 Daisychain: (2) RJ-11 (gang in/gang out);
 Control: All: (1) DB9 F (RS-232);

NBS004MA and NBS006MA also have:
 (1) RJ-45 (10BASE-T)

Indicators — Power supply LEDs:
 (1) status 1, (1) status 2;
 Switch LEDs: (1) all ports position A,
 (2) all ports position B

Operating Environment —
 Temperature:
 32 to 104° F (0 to 40° C);
 Humidity: Up to 95%, non-condensing

Power — Input: (2) 110-VAC, 60-Hz adapters for redundancy;
 Output: 12 VDC

Size — 1.75"H (1U) x 17.25"W x 10.5"D
 (4.4 x 43.8 x 26.7 cm)

Weight — 5 lb. (2.3 kg) excluding external power supplies

Item	Code
Pro Switching System NBS (1U), Fiber Multimode SC A/B	
4-Port	NBS004A
4-Port Network Manageable	NBS004MA
6-Port	NBS006A
6-Port Network Manageable	NBS006MA

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- Print Servers
- Routers
- Extenders

