

Using the Networked Room Controller™ in Educational Installations

Today's classroom is typically loaded with audiovisual devices: data projectors, DVD and video players, computer equipment, interfaces from laboratory equipment and more. Since its inception, SP Controls, Inc. has focused on simplifying the control of multiple AV devices in a classroom. SP Controls products are small, simple to install and intuitive to operate.

The Networked Room Controller (simplified in this paper as "NRC") acts as a central hub within a room for control of projectors, monitors and other equipment, offering web-enabled control of any display device. Measuring only 1.44" H x 5.44" W x 4.5" D, the NRC can be mounted completely out of the way in a classroom without taking up any valuable rack space. The NRC is the only AV controller that is compatible with the wildly successful annotation and teaching app and software Doceri.

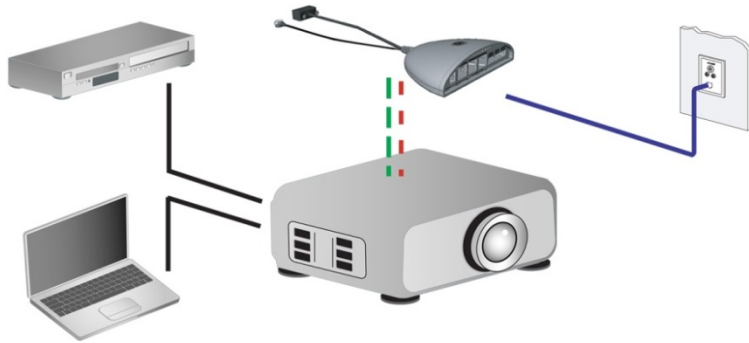
The room's primary display device (such as a projector or monitor) is directly controlled by the NRC; auxiliary equipment is connected via SP Controls Control Pucks, which may be

daisy-chained to one another and to the NRC using CAT5 cable. The control pucks are small enough to be located directly at the equipment being controlled and offer infrared, RS-232 and relay options for control.

The NRC may function as a stand-alone control device, accessed via a Web browser on a computer that is connected to the same network. However, most users want in-room control in addition to Web-based control, and typically use the SP Controls PixiePro Modular Panel (shown at right). This panel gives teachers a simple interface with clearly labeled buttons for activating and operating equipment. Its modular construction allows the installer to set it up exactly as needed; sources are clearly labeled, making it easy for teachers to use. Its back-lit design allows teachers to find it easily even when the room has been darkened for presentations.

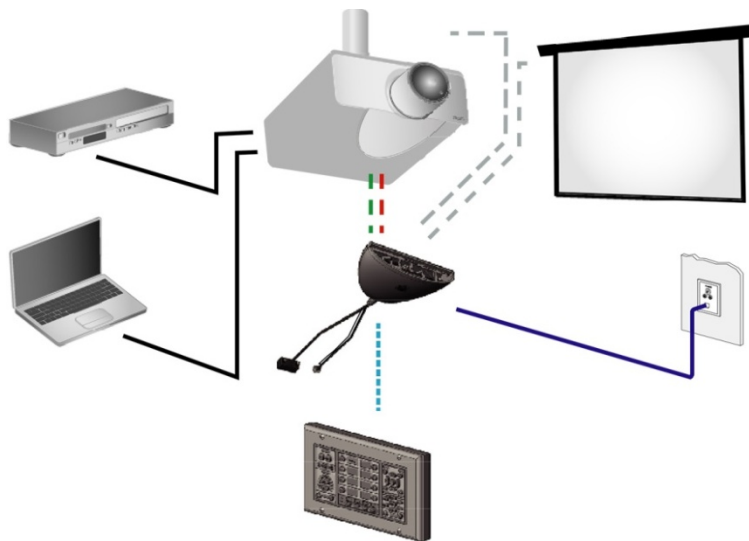


Sample Installations



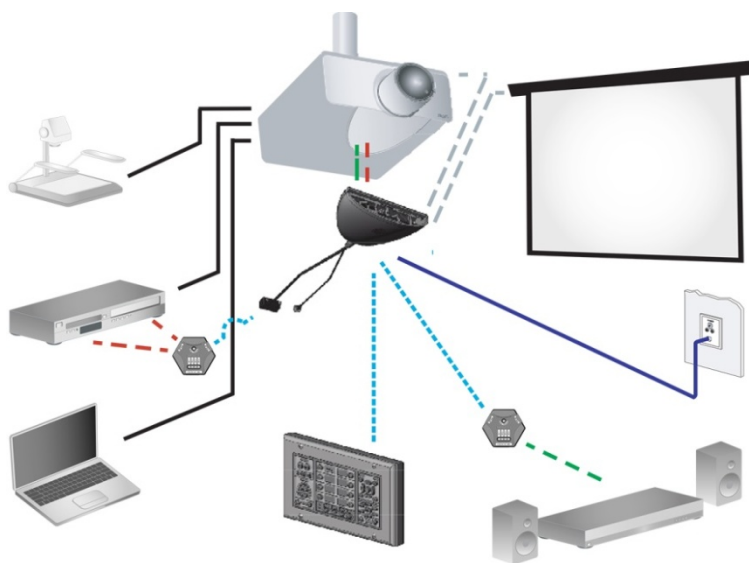
Classroom

In this simple installation, the NRC acts as a stand-alone device to control a projector. It uses RS-232 and IR commands to communicate with the projector.



Large Classroom or Lecture Hall

As with the first example, the NRC controls the projector with RS-232 and IR; it is on the network and can be controlled via a Web interface as well as a Modular Panel. On board low-voltage relays can raise and lower a screen and projector lift.



Lecture Hall with Additional Equipment

In this example, the NRC is the control center for several devices connected as a single system. The NRC is mounted at the projector, controlling it via RS-232 and IR. It controls a screen and lift with on board low-voltage relays, and is connected to a Modular Panel for in-room control of the system. It is also connected to a network for Web-based control, and uses Control Pucks for auxiliary equipment.

Setting up the NRC

If you are unfamiliar with network equipment such as switches or routers, you should have your school's IT department set up the NRC for you. The NRC appears as a network device and can use either a static IP address or a dynamic (DHCP) address. Your network administrator will be able to tell you if the network address can be dynamically assigned or if it should be a static IP address. A few simple steps will establish the NRC as a device on the network. It, along with all other devices on your network, should be password-protected to prevent unauthorized access. For specific instructions on setting up the NRC on your network and giving it a network address, please refer to the NRC User's Manual, available via download from the SP Controls website.

You will need to connect the NRC to a computer to set it up. Once it has been set up and is operating on the school's network, you will not need to have a computer directly connected; any web-enabled computer will be able to access it (another reason why password protection is important).

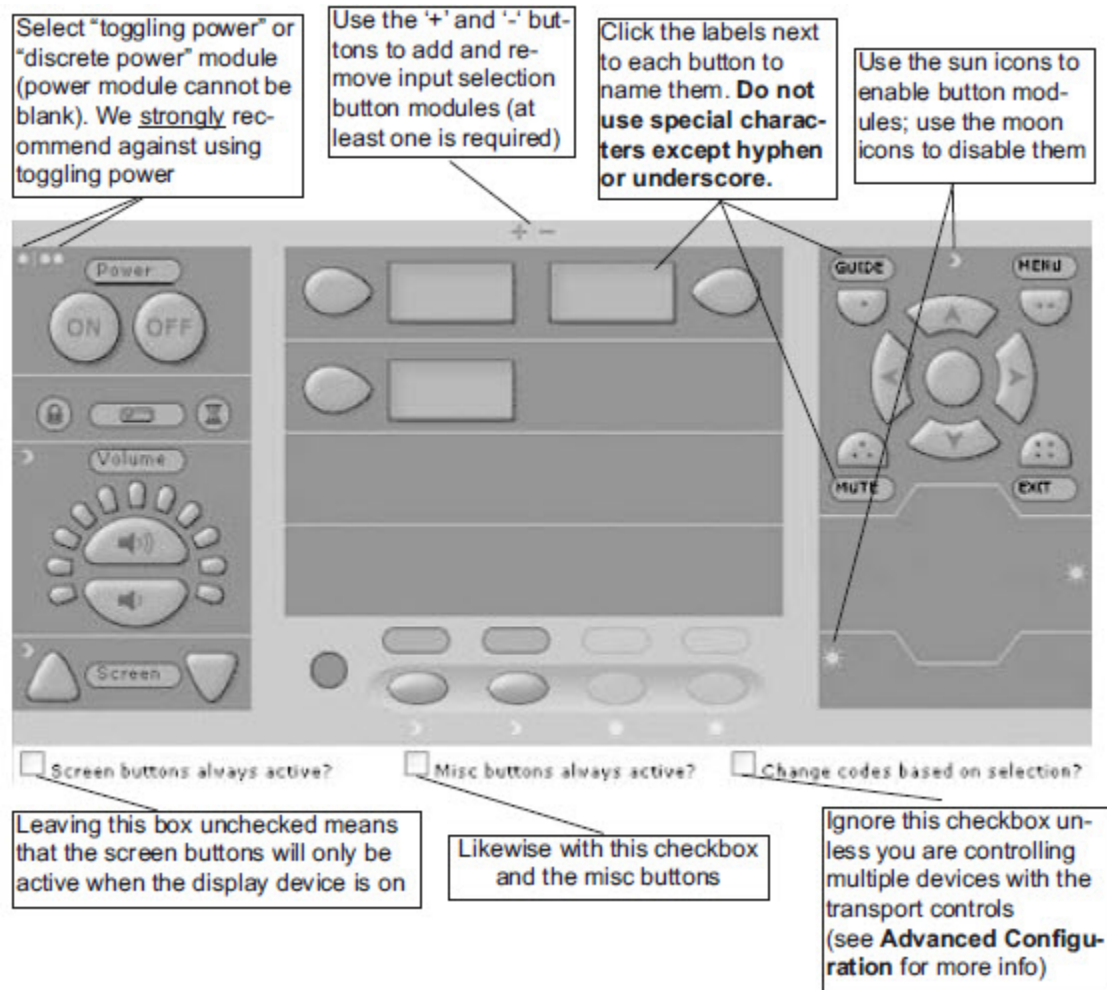
Although the NRC is a small device, it offers some powerful functionality for popular AV devices such as auto-sensing the power state of a projector so the NRC's controls are in sync with the current state; tracking lamp-hours on projectors; scheduling automatic events; IR code learning (in conjunction with the PixiePro control panel) so remotes are no longer needed (they get lost quickly anyway!); a virtual representation of a PixiePro (used if a physical control panel is not in the room) and more. Because the NRC can do so much, its setup may seem complex at first. However, it is not as difficult as it looks! SP Controls has automated the process as much as possible and offers step-by-step instructions in the User manual.

In order to manage the NRC and its associated devices over a network, they must first appear on the network. This is done by "announcing" them via the NRC's setup software. Devices can be configured in the NRC before they are physically connected, or you may connect them and configure them at that time.

Relay operation, RS232 commands and other functions must be set up for the devices that will be attached to the NRC either directly or via the control pucks. Don't worry about running out of connection space on the NRC; the control pucks may be daisy-chained to one another and will appear as individual devices. You also don't need to worry about repeating the tedious process of establishing RS232 strings or relay commands in each classroom; if you have a number of identical classroom AV systems, the setup for an NRC can be copied to another unit. The only adjustment that will need to be made to units in other rooms is the network information for the NRC and the NRC room name. This will allow for each NRC to be individually addressed and identified easily from a list.

Setting up the Control Panel

Users will need a control interface whether they are using a Modular Panel or not. The NRC's software will mimic the SP Controls PixiePro control panel and can be used as a controller by "pressing" the buttons with mouse clicks. Even if you are using a modular panel, you will need to set up the virtual panel in software, as it is used to program the PixiePro and provides a backup controller if needed. A sample panel is available in the NRC software with power, volume, navigation and device buttons.



SP Controls strongly recommends against using "toggling" power, but it is available if necessary.

Important: if you are using a physical PixiePro panel, make sure it is set up **EXACTLY** like your virtual unit!

You will need to tell the NRC which commands to send to various devices for switching inputs and controlling volume. This is accomplished with pull-down menus and selection commands. You will then map those commands to the virtual control panel. SP Controls helps with this process by showing pre-assigned actions as you mouse over a button. If you need to edit the commands, just click on the button. For more information, refer to the NRC User's manual (page 14).

Using the NRC

Once the NRC has been programmed and all attached devices have been announced to the system, operation is straightforward. Users do not see the NRC at all. It can be mounted on a wall, adjacent to the projector, under a table or desk, or inside a cabinet. Control Pucks are usually mounted adjacent to the equipment they are managing, but can also be located near the NRC.

The user interface is simple: teachers will either see the physical wall-mounted control panel upon entering the room or will bring up the virtual control panel via software on a Web-enabled browser. For instructors who do not have much time between classes, the physical control panel will provide a faster, more intuitive interface to the AV system.

A single press (or click, if virtual) of the ON button will activate the AV system. The OFF button requires “press and hold” to prevent accidental shut-down. “Power users” can activate special features, such as keystone correction or focus controls, by pressing and HOLDING the ON button; this functionality is hidden from normal users. Selecting devices becomes as simple as identifying the device needed, such as a DVD player, and pressing the button to activate it. Projector screens are lowered and raised by pressing the Screen buttons. DVD/video navigation and loudspeaker volume control is also available on the same panel. All controls are in one simple, easy-to-find spot, and it is no longer necessary to search through desks or cabinets for remotes.

For more information on the versatility and use of the NRC, visit the SP Controls website at www.spcontrols.com.

SP Controls, Inc.
930 Linden Ave.
South San Francisco, CA 94080
(877) 367-8444
sales@spcontrols.com

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