NCE Smart BOOSTER

The SB3 Smart Booster adds expanded and updated features to a Power Cab DCC system. The first and most noticeable feature is additional power (3 Amps) to run trains and accessories.

When using a Power Cab with the SB3, the Power Cab can now be unplugged and used in true walk around fashion. It no longer needs to remain connected for the system to work.

Up to 4 cabs can be used with the SB3 (Cab address range 2 through 5)

The SB3 does NOT have a programming track output. The basic Power Cab provides this capability.

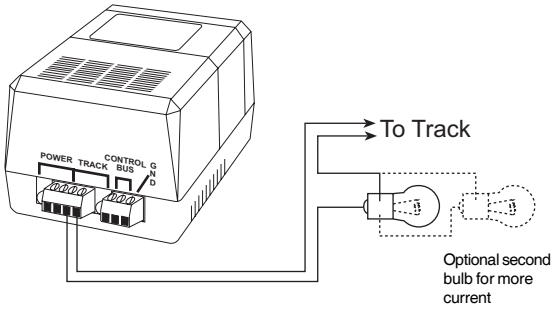
Additional 3 Amp boosters (DB3) may be added to the SB3 for more power handling on larger layouts.

Power Supply:

The SB3 requires a 15-16 Volt AC transformer (or 18 Volt DC power supply) capable of supplying 3 or more Amps. Higher (up to 22 volts AC) voltage can be used but fan cooling of the SB3 will be necessary to dissipate the extra heat of the internal power supply. Under no circumstances should the voltage be greater than 24 VAC or 36VDC or certain damage will occur.
Always use separate transformers or each booster.
Suitable transformers are: NCE P315 or P515 or Digitrax PS315 or PS515.
DO NOT CONNECT the power wires to 120 Volts wall (mains) power.
DO NOT CONNECT the transformer power to the TRACK terminals or damage will likely result (we can tell).

Short Circuit protection:

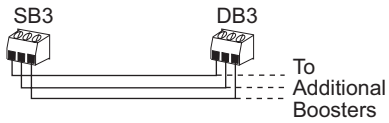
The SB3 incorporates internal short circuit protection that will shut down the track power in the event of a short circuit. The unit will attempt to re-energize the track every 2-3 seconds until the short is cleared. The track power LED conveys status of the track power. The LED will 'blip' as the SB3 attempts to restore track power, steady 'on' of the LED indicates track power is restored. The internal circuit protection of the SB3 is not intended to protect the booster from long term short circuits. Therefore we strongly recommend an external short circuit protection device.



This can be as simple as one or more automotive tail light bulbs such as a #1156 or similar wired in series with the track power output of the booster (see diagram to the left). NCE makes the CP6, a 6 zone circuit protector, especially for the Power Cab, SB3 and DB3 boosters. The CP6 allows you to divide your layout in up to 6 power districts. A short or derailment in one district will only affect that section of track without shutting down other sections of the layout. See CP6 Hook Up diagram at the end of this manual. Other, more expensive, DCC circuit breakers are also available from several manufacturers.

Connecting extra boosters:

The left two terminals of the SB3 control Bus output connector are a low current copy of the track power output. The right hand terminal is circuit common (ground). All three connections should run from the SB3 to other boosters.



Layout Wiring:

For runs up to about 30 feet (10 meters), we recommend #16 gauge wire as a layout "track power bus". If you need more than 30 feet #14 gauge is a better

choice. For power drops from the track to the bus #20 or #22 gauge wire is sufficient if you keep the length to 18 inches or less. With code 83 or larger rail keep your drops 6 feet (2 meters) or less apart. Code 70 and smaller rail should be about every 3 feet (1 meter).

While it is not absolutely required, we suggest twisting the track power bus wires together (2 to 4 turns per foot). Don't bother twisting the short power drops.

Specifications:

Input power requirement: 15 Volts AC (50/60Hz), 3 or more Amps Maximum continuous current (with cooling) 3.25 Amps.

Available connections:

1- Four position AC POWER input/TRACK output power connector
1- Three position CONTROL BUS output/ground (GND) connector
3- Cab bus "RJ" connectors

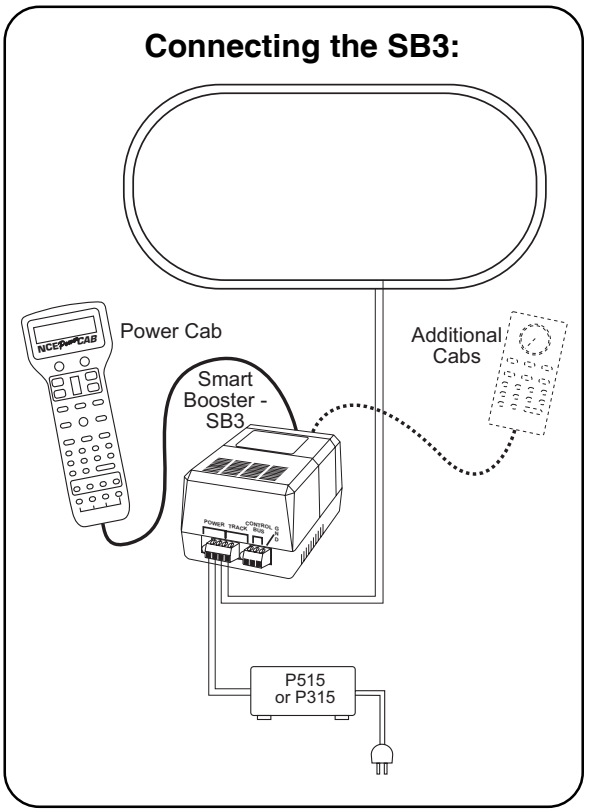
Indicator lights:

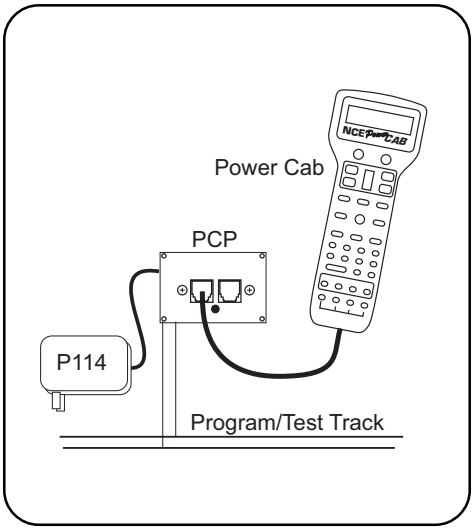
1- DC power on (red LED)
1- Track Power (red/green/ yellow LED)

System Limits of SB3 with Power Cab:

Maximum number of cabs: 4 - Cab Addresses MUST be in the range of 2 through 5.
Maximum number of simultaneous trains: 12
Functions controlled: 29
Locomotive address range: 1-127 (short), 0-9999 (long)
Accessory address range: 1-2044
Signal address range: 1-2044
Maximum number of advanced consists: 16 (addresses 112-127)

Connecting the SB3:





Maximum number of old consists: 8

Resetting (rebooting) the System:

The SB3 has a large power storage capability. This stored up power will continue to operate the microprocessor in the SB3 for up to 15 seconds after power is removed. To reset the system, turn the power off for at least 20 seconds (wait until the red DC power LED goes completely out). If you see the “NCE SB3 BOOSTER” message on your cab when you re-apply power, the system has properly reset to normal power up condition. If the above message does not appear during the power up process remove power and wait a bit longer before restoring it.

Returning the system to original factory settings:

At the “normal display” press <PROG/ESC> followed by <5>. Press <ENTER> about ten times until the “RESET SYSTEM?” Prompt appears. Press <6> followed by <1> to reset the system to factory default condition. This takes about 10 seconds.

Changes from Power Cab V1.10:

F13-F28: Control of functions F13-F28 has been added. To access these function numbers program the OPTION key or your Power Cab or Pro Cab to a value of 122. Pressing OPTION will display “F10-F19” on the bottom line of the ProCab LCD. Pressing a digit will then toggle that function number plus ten. For example pressing 6 will issue an F16 command.

Pressing OPTION a second time will display “F21-F28” on the LCD. Pressing a digit with this display will toggle that function number plus twenty.

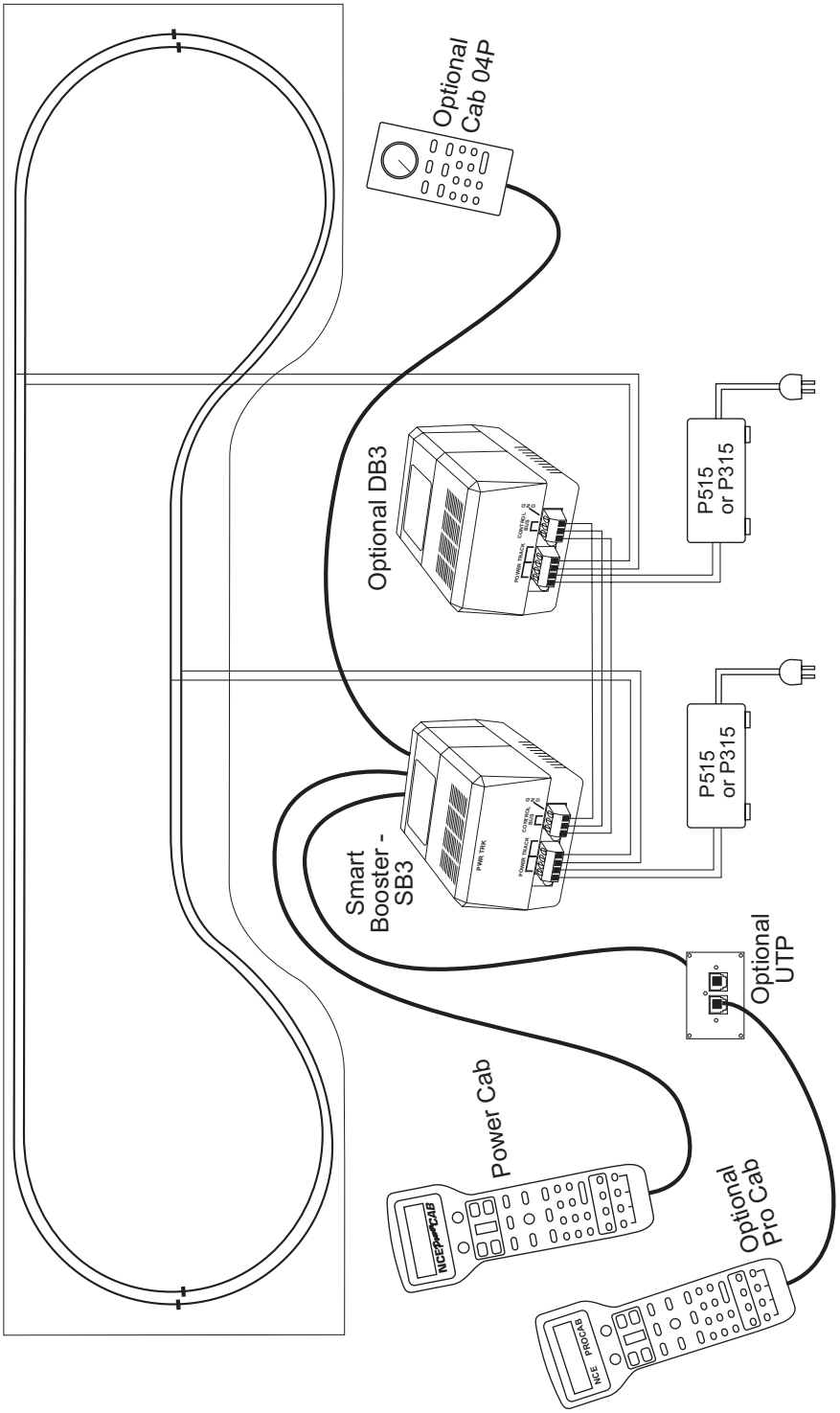
Pressing OPTION a third time will return to the F10-F19 display.

Press PROG/ESC at any time to abort the operation.

Display of F1-F28 status: Pressing the EXPN key will now show the status of functions 1-28. The top line of the LCD has functions 1-14, ‘-’ indicates the function is off, a digit (1=F1, 2=F2, etc.) means the function is on. The 2nd LCD line shows functions F15-F28 in the same manner. Pressing EXPN a second time returns the cab to the normal display.

Function Refresh: Function refresh has been added to help keep the lights and sound functions working on locomotives that don’t remember the state of their functions on dirty track.

Function refresh is enabled through the SET_CMD_STA menu. When function refresh is enabled functions F0-F12 are refreshed about once per second. Functions 13-28 do not need to be refreshed because decoders remember the function states for F13 or higher. No refresh packets are issued for function “groups” where all functions are off.



Advanced Layout Wiring

Accessory equipment available:

USB-Accy: USB computer interface (works with PowerCab and SB3)
P.N. 524-223

CP6: Six zone circuit protector
P.N. 524-227

UTP: Cab Bus plug in panel for extra cab plug in locations
P.N. 524-207

CP6 Hook Up with an SB3 system