

Considerations before you buy

- ◆ How much power do you need (Power Budget)
 - It's not size but quantity
 - Allow 1/4 - 1/2 Amps per locomotive
 - About 10 HO Scale locomotives per 5 Amp booster
 - Sub-divide booster districts into separate power districts
 - Use EB1 DCC circuit breaker for each power district
 - a short in one power district will not shut down the whole booster
 - 10 amp boosters are not for HO
 - 220 Watts is enough to melt code 70 rail
 - locomotive wires vaporize if a short travels through the loco wires
- ◆ How many operators will you have?
 - Probably more than you had with DC operation
 - If it's easier to operate, more operators will show
 - Now you can really have multiple trains moving in the yard or in a town
- ◆ What kind of cabs will you need?
 - Intermediate cabs - simpler
 - Full Feature Pro Cab
 - Engine terminal operator - setting up consists
 - “Master” operator stop the fast clock, etc
 - Cordless – Intermediate and Pro Cab

How do I get started?

- ◆ Don't buy anything (yet)
- ◆ Try different systems to see which suits you best - get the one YOU like.
- ◆ Try running locomotives, programming locomotives, etc.
- ◆ Look over our catalog to see the extent of our systems and decoders



The advertisement features a large red 'NCE' logo with a black remote control integrated into the letter 'C'. Below the logo, the text 'The Power of DCC' is written in a stylized, cursive font. A photograph of a yellow and black locomotive pulling a train through a green landscape is shown. The text 'Discover the FUN' is prominently displayed in white. At the bottom right, it says 'Made in the U.S.A.'. Below this, a black locomotive is shown crossing a bridge over a rocky gorge. A hand is holding a black NCE PROCAB remote control in the foreground, with its screen displaying 'DCC COMPATIBLE COMMAND CONTROL', 'LO: 003 03:45AM', and 'FWD: 002 L-3'. The remote has various buttons labeled 'DIRECTION', 'SPEED', 'HORN', 'WHISTLE', 'EMER. STOP', 'OPTION', 'SELECT LOCO', 'MACRO', 'ENTER', 'CONSIST', 'ADD', 'DEL', 'SETUP', 'CLEAR', 'EXPW', '2ND/28', 'SHIFT', 'F10', 'F11', and 'F12'.

NCE
The Power of DCC

Discover the FUN

Made in the U.S.A.

Highest Ranked DCC in the Industry

DCC COMPATIBLE COMMAND CONTROL
LO: 003 03:45AM
FWD: 002 L-3

NCE PROCAB

DIRECTION SPEED HORN WHISTLE EMER. STOP OPTION SELECT LOCO MACRO ENTER CONSIST ADD DEL SETUP CLEAR EXPW 2ND/28 SHIFT F10 F11 F12

9/10/18

NCE Corporation
82 East Main Street
Webster, NY. 14580

9am-4pm M-F

Customer Support: 585-265-0230

Dealer Orders: 585-235-0231

Fax: 585-265-0234

support@ncecorporation.com

orders@ncecorporation.com

The ALL NEW NCE website is now open for business!

<http://www.ncedcc.com/>

NCE Information Station

<https://ncedcc.zendesk.com/hc/en-us>

NCE on Facebook:

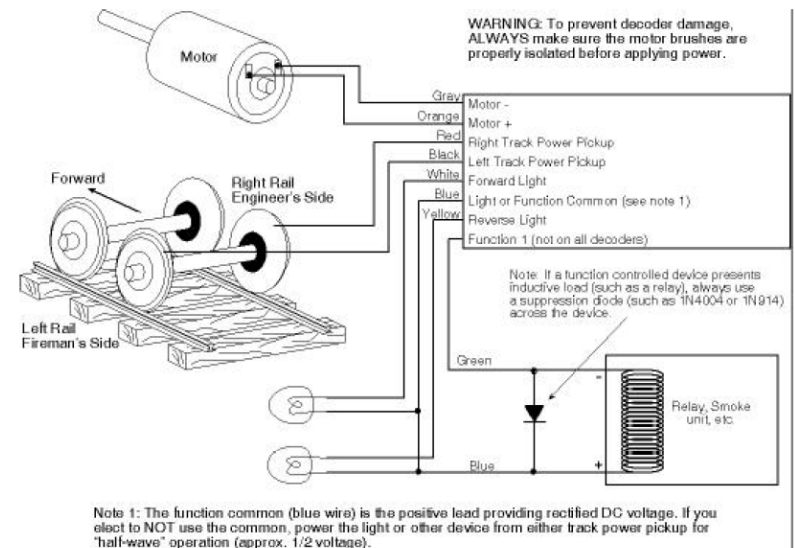
<https://www.facebook.com/groups/NCEcorporation/>



Decoders

- ◆ Gives each locomotive a unique “Address”
 - Address can be 2 digit or (optional) 4 digit. (Set to Loco #)
 - Detects DCC commands and implements it when “Addressed”
 - Motor Speed, Function output, MU, etc.
- ◆ Drives motor
 - Low heat pulse power for good starting torque and running
 - Implements optional Momentum and Speed Tables
 - Modern high frequency quiet drive (Silent Running™)
- ◆ Drives “Function” outputs
 - Headlights, lighting effects, etc.

Typical Decoder Wiring



Typical DCC system setup

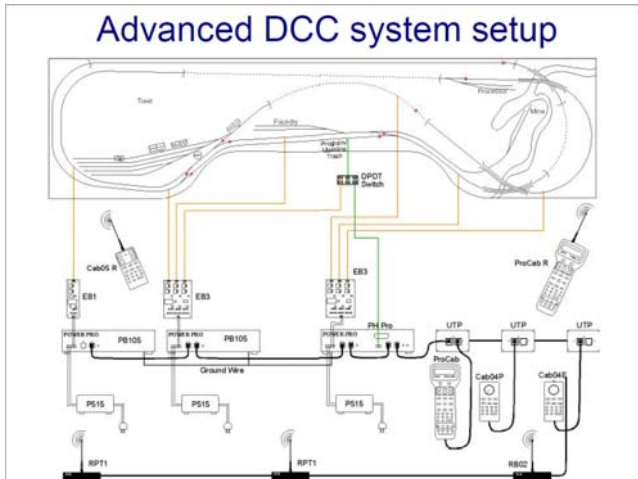
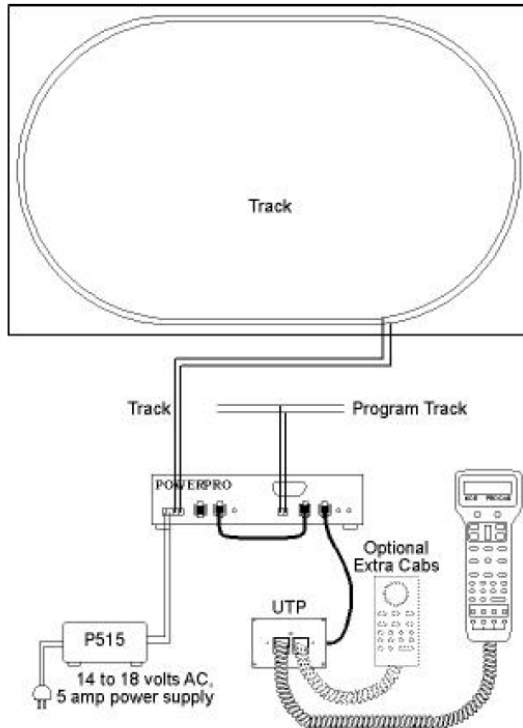


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Complete DCC Systems

Power Pro 5240001

This 5 Amp starter set including the user friendly Pro cab. Everything you need to get DCC equipped trains up and running in less than 20 minutes. Power supply not included: use P515. 3.5lbs \$619.95



Power Pro-R 5240002

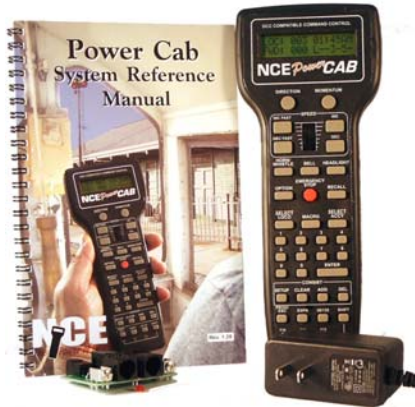
The Power Pro-R starter set is a radio equipped Power Pro system. It is designed to eliminate the need for a tethered throttle. Up to 60 radio and tethered cabs can be used simultaneously. Power supply not included: use P515. 3.9lbs \$799.95 Not approved for UK



Power Cab 5240025

An entire DCC system in the palm of your hand! This two Amp system can operate three or four HO sized trains, or four N scale trains. The Power Cab provides all of the capability and ease of use that you've heard about in our Power Pro system at an entry level price. Installation is a snap. Hook two wires to your track and plug in the cab. You're off and running trains! Even includes its own 110V/240V power supply. 1.9lbs \$229.95

5240042 Power Cab-UK DCC Starter Set with 240VAC power supply/UK power cord 1.9lbs. 239.95



What can DCC do for me?

- ◆ No more “who’s got my train?”
- ◆ Run trains not the control panel
 - Guest operators can run trains easily
 - Simplify or eliminate control panels
- ◆ Walk around control
 - Plug around (with speed/direction memory)
 - Cordless throttles
- ◆ Track can be used to distribute power and control
 - Locomotives
 - Turnouts
 - Signals
 - Other accessories
- ◆ Fine tune locomotive performance
 - Adjustable start voltage/maximum speed
 - Speed matching for good MU operation
 - Smooth steam loco operation with “Torque Control”
- ◆ Prototype Lighting effects
 - Dimming
 - Mars, Strobes, Beacons, firebox flicker
 - Operating ditch lights



What is DCC anyway?

- ◆ Digital Command Control
- ◆ NMRA command control standard
- ◆ Supported by multiple manufacturers
- ◆ Offers a simplified lower cost wiring system.
- ◆ No computer experience needed.
- ◆ Basic and advanced systems available.
 - Low \$ entry level to full club systems.

Is my layout a candidate?

No Yes

- ☐ ✓ If you run a single loco and want independant control of lights or other functions
- ☐ ✓ If you run 2 or more trains at a time
- ☐ ✓ If you (want to) have yard operations
- ☐ ✓ If you (want to) have helper operations

Complete DCC Systems

Power Pro 10 240006

The PH-10 has all the same features as our Power Pro 5 Amp system described previously, but with a massive 10 Amps of power for O-Scale and Large Scale (G) layouts. Requires 18V 10 Amp power supply (see 5240241). Not recommended for HO / N. 5.3lbs \$749.95



Power Pro 10-R 5240007

The Power Pro 10-R is a radio equipped system. It is designed to eliminate the need for a tethered throttle. Up to 60 radio and tethered cabs can be used simultaneously. Requires 18V 10 Amp power supply (see 5240241). Not recommended for HO / N. 5.5lbs \$999.95

DCC Twin 52400046

The DCC Twin is designed for two train operation on small layouts. It can be expanded to several trains with the addition of NCE add-on throttles. Up to six additional add-on throttles can be used with the Twin. Includes a full 3 Amp DC Power Supply. 1.9lbs. 189.95



5240046UK DCC Twin-UK UK Version of DCC Twin, includes (P314) power supply/UK power cord 1.9lbs 199.95

5240046AU DCC Twin-AU Australian version of DCC Twin, includes (P314) power supply/AU power cord 1.9lbs 199.95

Command Stations and Smart Boosters

PH-Box 5240022 Power Pro system box only (command station / booster) Power Supply not included. 1.65lbs \$419.95



CS02 5240008 Command Station only of Power Pro (no cab, or booster) Power Supply not included. 2.2lbs \$279.95

SB5 Smart Booster 5240027

Add this five amp booster to the Power Cab system to operate more trains with up to six walk-around cabs. NCE radio compatible. Allows walk-around operation with any NCE cab. Also converts to booster only mode when you expand your system. Includes a 5 Amp DC Power Supply. 1.7lbs \$259.95



5240037 UK Version of SB5 Smart Booster, includes (P514) power supply and UK power cord 1.7lbs 269.95

Boosters



PB5 Five Amp Booster 5240045

5 Amp Power Booster with Internationally approved 13.8v/12v DC Power Supply. The PB-5 provides true 5 Amps of continuous voltage to your track. 2.2lbs \$239.95
5240033 UK Version of PB5 Booster includes (P514) power supply and UK power cord 2.2lbs \$249.95

PB-110a Ten Amp Booster 5240005

10 Amp Power Booster with Automatic-Reverse-Loop capability. Recommended for large scales. The PB-110a provides true 10 Amps of continuous voltage to your track. Enough to handle lash-ups of the largest locomotives. A 10 amp power supply such as the "Brutus" 5240241 is required. 2.0lbs \$319.95



Programming: Anytime you add a locomotive, cab or accessory to your layout, you will need to program it so the DCC system can talk to it. Programming will at the very least include assigning an address. Depending on the item, you may need to program other things as well. For example, a locomotive can be programmed for different light effects, speed tables, sounds, and more. Some programming is done with the item on the mainline track, some must be done on a special programming track. Since there are differences between decoders and systems for programming, refer to your system's specific manual for programming instructions.

Programming Track: A short section of track, separate from your layout, is needed to access the "Use Program Track" or Service Mode of programming. This track can be part of the layout, as long as it can be electrically isolated. When programming to this track, power will be turned off to the rest of the railroad. Otherwise, every locomotive on the line would receive the same programming commands and address. Since there are differences between decoders and systems for programming, refer to your system's specific manual for programming instructions.

Resistor Wheelsets: These are wheels and axle sets that have a small electrical resistor attached so that they will be seen by track occupancy sensors. They can be used on any non-powered / lighted rail car.



DB5 Five Amp Booster 5240005

5 Amp generic booster, includes (P514) power supply 1.7lbs \$209.95
5240038 UK Version of DB5 Booster includes (P514) power supply and UK power cord 1.7lbs \$219.95

Decoder: Decoders receive commands from the command station and convert that code into an action. These must be installed in everything that you want to operate with your DCC system. Stationary accessory decoders such as the Switch 8-Mark 2 are used for things like switch machines that require only a few commands. Mobile decoders are used in locomotives and have many more options, depending on the decoder.

Detection: Detection modules are used to gather information for the command station or other devices. Block detection units like the BD20 can tell the system if a section of track is occupied.

NMRA Standard: This means that the DCC system corresponds to all of the DCC standards established by the National Model Railroad Association. Some manufacturers have developed proprietary technologies that are not built to this common standard. Some of their products however may still be able to be used with standard DCC.

Power Supply: A DCC System will require a robust power supply for best operation. This transformer is usually connected to the booster and then from there to the layout. You can maximize the power from your DCC power supply by putting things like lights, switch machines, animated accessories, etc. which do not require a DCC signal on their own, separate supplies.

Power Supplies and Transformers

P114 Power Supply 5240221 A replacement DC power supply for the Power Cab system and other model railroad uses. 120 to 240VAC input / 13.8VDC 24 watt output .35lbs \$35.95 5240044 is the UK version



P314 Power Supply 5240239 Power supply for the DCC Twin. 120 to 240VAC Input / 13.8VDC 3amp output .35lbs \$46.95

P515 5 amp 15VAC Transformer

5240215 For the Power Pro, Ph-Pro Box, and PB105 Booster. 4.2lbs \$69.95 US / 120VAC input Only.



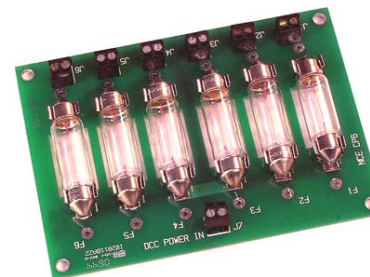
BRUTUS 10 Amp 18 VAC Transformer 5240241

Designed to be used with the PH10, PH10r, and PB110a. Brutus comes pre-wired to power the 10 Amp PB110a Booster. 12lbs \$219.95 US / 120 VAC Input Only

Short Circuit Protection

EB1 Electronic Circuit Breaker

5240225 Provides short circuit protection for a single power district. Can be used with any DCC command system rated at 3 to 10 Amps. .09lbs \$35.95



CP6 Circuit Protector

5240227 Circuit protection for up to 6 sections of your railroad. Operates with ANY DCC system. Factory set to 1 Amp per section. Sections can be connected together for more power per section. .12lbs \$40.95

1 Amp Replacement Lamps

5240229 Pack of 6 replacement lamps for the CP6 circuit protector. .07lbs \$14.95

How to choose the right cab for the job.

The P version is a potentiometer, it has a stop and start points like a DC power pack. Definitive start and stop points. The standard version, also known as the encoder or "E" version, has no start or stop point. The knob spins continuously with small micro indents. A potentiometer or "P" type cab is an ABSOLUTE speed control. Its position indicator gives you absolute feedback on the speed position relative to the stop and start points. It is the same type of control as a volume control on an older stereo system. If you set the knob half way between stop and full, you will have half speed. In terms of running a single train, the P throttle is easy to understand and use since it is like a DC throttle. Where it falls apart is when you want to change trains without stopping the current train you are running. If you running train A at half speed, and then select train B which is stopped, train B will suddenly take off at half speed! Likewise if you stopped a train you have selected, set the throttle down and unplug it but accidentally knock the throttle knob to a non stop position while it was unplugged, then plugging in the throttle will result in the train suddenly moving at the speed set by the knob without you doing a thing. Controlling two moving trains at the same time becomes very difficult with a "p" throttle and you must be careful using the throttle or you will falsely think you have a runaway train. Encoder or "E" cab is a RELATIVE speed control. There is NO position indicator nor feedback on the speed position since there are no stop and start points. Turning the knob up or down simply increase the current speed or decreases the current speed respectively. So if a given train speed is currently zero (Stopped), then turning up the knob will increase the speed above zero. Keep turning the knob and more increase in speed. Likewise if a given train speed is NOT zero, turning the knob up or down simply increases the current speed or decreases the current speed respectively. Keep turning the knob up and more increase in speed. If instead you choose to turn down the knob, then the speed of the train will decrease. The advantage of the "E" cab become very apparent when you switch trains. Example: If you are running train A at half speed, and then select train B which is stopped, train B remain stopped while train A keeps running at is half speed. You can flip back and forth between two or more trains of different speeds and never have to worry about sudden speed changes. If you stopped a train you have selected, set the throttle down and unplug it but accidentally knock the throttle knob while it was unplugged, then plugging in the throttle will NOT result in the train suddenly moving.

Command Station: This is the brain of the DCC System. The Command Station receives data from your cab and other sources on the layout including decoders, occupancy detectors, etc. These data and inputs are converted into digital commands to be sent back to decoders in the trains, switches, etc.

Consist: When you want to run more than one locomotive at the same time, in the same train, they can be put together in a consist. This will assign all of the locomotives one temporary consist address. While different systems perform this function in different ways, the end result is generally the same. When programming a consist you'll need to tell the command station which locomotives are included and which direction they are facing.

CV's (Configuration Variables): CV's are Configuration Variables. These allow each decoder to be set to multiple functions. Different CV's control different things and can be set to numbers that can range from 0 to 255. Since there are differences between decoders and systems for programming, refer to your system's specific manual for programming instructions.

"DCC Ready": DCC Ready, or sometimes called "Friendly" by different manufacturers indicates that a product is either ready to use with a DCC system, or easily adapted to it. For model locomotives this usually means that there is a DCC socket pre-wired into the locomotive so a decoder can be plugged in without any additional wiring. DCC Friendly switches will have properly insulated frogs, points and throwbars to prevent momentary shorts when in operation.

NCE Digital Command Control (DCC) is user friendly and very easy to install. But sometimes the language used is enough to discourage some newcomers from giving it a try. While some manufacturers have proprietary systems and names for some of the components of their systems, this list of words is common across them all and covers the core words you'll need to know as you build your own DCC System.

Decoder Address: A unique number that you assign to every Mobile Decoder on the layout so that it can receive information from the command station. Short addresses are numbers 2-127. Long addresses are 0001-9999. Some systems and decoders can only support a short address. Many mobile decoders will give you the option of which you want to use.

Booster: The booster takes the command signals from the command station and combines them with the power for distribution around your layout to the decoders. Boosters come in several power sizes and you can use multiple boosters with a single command station for larger layouts.

Cab or Throttle: This is the controller you use to operate your trains and, depending on the throttle and system, other DCC-controlled accessories on your layout. Cabs/Throttles can be hand held or stationary. Some systems offer radio or infrared cabs that do not need to be directly tethered to the layout at all.

Cab Bus: Like the power bus wiring is used to carry power to your trains, a cab bus is used to connect multiple cabs or throttles on your railroad so more than one operator can work at a time. In many systems, this bus is similar to phone cable, with the option of installing multiple plug-in ports around your railroad for "walk-around" control. The cab bus is connected to the command station. To avoid interference, it is best to keep the cab bus at least a few inches away from any of your track power wiring.

Cabs and Throttles

* Note: NCE wireless cabs are not approved for use in the UK.

Pro Cab 5240010

Our Deluxe Pro Cab provides the most user-friendly access to all NCE system features. Uncomplicated menus on the easy to read, back-lit LCD display guide you through the most advanced operations with a minimum of fuss. 1.2lbs \$189.95

Pro Cab-R 5240011 Wireless version of the Pro Cab*

1.2lbs \$279.95



The **Cab06** series have a four digit locomotive display and three levels of additional operations. All Cab06 feature recall of up to six locomotives.

Cab06	5240039	Engineer Cab with Digital Speed Encoder	1.9lbs	\$119.95
Cab06r	5240040	Cab06 with Wireless	2.0lbs	\$219.95
Cab06p	5240043	Engineer Cab with Analog Potentiometer	1.9lbs	\$109.95
Cab06pr	5240044	Cab06p with Wireless	2.0lbs	\$209.95

Did you know?

A Pro Cab and a Power Cab look almost identical but they are two completely different products!

A Pro Cab is only a Cab / Throttle. It **requires** a DCC system to function. It is a dumb terminal with a keypad and a display.

The Power Cab is a **self-contained DCC system** in one package. It is a Cab / Throttle, a DCC Command Station, and a Booster. All three in one package.

Each Cab must have its own unique cab address. Available cab addresses are based on the command station being used. Example: For a Power Cab system the available cab addresses are 3,4,and 5. Addresses 8,9, and 10 can be used for devices like the USB interface, AIU and Mini Panel.

Mobile Decoders

HO/S Size Wire-in and Plug-in Decoders

D14SRP 5240103 Designed for the HO Kato RS2/RSC2 and C44-9, Stewart VO-1000, Intermountain F7, Atlas U23B and U30B locomotives in HO Scale. 1 Amp rating (1.3 Amp peak). Six function outputs. 0.80" x 0.65" x 0.110" .05lbs \$35.95



D16MTC 5240156 Direct plug in to locos equipped with NMRA 21 pin MTC (NEM651) plug. Eight Function outputs. Motor rating .75 Amp continuous, 1.2 Amp stall. Support for both EU (logic) and US (full power) functions on outputs 5-8. 0.900 x 0.615 x .180 inches – 23 x 16 x 4.7 mm \$29.95



D13W 5240171 Motor rating 3/4 Amp continuous, 1.2 Amp stall. Four function Outputs. Dimensions: 1.03 x 0.630 x .185 inches – 26 x 16.5 x 4.7 mm \$23.95



D13W-4 5240172 Four Pk. \$89.95 **D13W-10 5240173** Ten Pk. \$209.95

D13J 52401174 Direct plug in to Athearn and other locos equipped with NMRA 9 pin DCC "Quick Plug" Motor rating 3/4 Amp continuous, 1.2 Amp stall. Four function Outputs. Dimensions: 1.03 x 0.630 x .185 inches – 26 x 16.5 x 4.7 mm \$23.95



D13J-4 5240175 Four Pk. \$89.95 **D13J-10 5240176** Ten Pk. \$209.95

D13WP 524011777 Direct plug in to locos with NMRA 8 pin DCC Plug on a 3 inch harness. Motor rating 3/4 Amp continuous, 1.2 Amp stall. Four function Outputs. Dimensions: 1.03 x 0.630 x .185 inches – 26 x 16.5 x 4.7 mm \$29.95



NCE Specific Links:

Decoder Selector Tool - <http://www.ncedcc.com/#!/decoder-selector-tool/c1c03>

Decoder Spec Sheet - <http://www.ncedcc.com/#!/decoder-spec-sheet/cgli>

How to Video List - https://www.youtube.com/results?search_query=NCE+dcc

US Layout Registry - <http://www.ncedcc.com/#!/layout-registry/crqu>

International Layout registry - <http://www.ncedcc.com/#!/international-layout-registry/c1ksb>

US Dealer list - <http://www.ncedcc.com/#!/us-dealers/cfkx>

AU Dealer List - <http://www.ncedcc.com/#!/us-dealers/copb>

International Dealer List - <http://www.ncedcc.com/#!/international-dealer-listings/c1moz>

Distributors List - <http://www.ncedcc.com/#!/distributors/cud3>

NCE - <http://www.ncedcc.com/>

NCE Information Station - <https://ncedcc.zendesk.com/hc/en-us>

NCE on Facebook - <https://www.facebook.com/pages/NCE-Corporation/236593026381092>

General Model Railroading Online Resources:

Model Railroad Hobbyist Magazine - <http://model-railroad-hobbyist.com/>

Internet Radio - <http://www.modelrailradio.com/>

National Model Railroad Association - <http://www.nmra.org/>

Modular N-scale - <http://www.ntrak.org/>

Home page for JMRI - Java Model Railroad Interface - <http://www.jmri.org/>

DCC Related Websites:

Alan Gartner's wiring for DCC - <http://wiringfordcc.com/>

Mr. DCC's University <http://www.mrdccu.com/>

Mark Schutzers website - <http://markschutzer.com/>

Arthur Houston's NCE Youtube Channel - NCE DCC How to make it work.

What is DCC - http://en.wikipedia.org/wiki/Digital_Command_Control

Mark Gurries' DCC/NCE oriented page <https://sites.google.com/site/markgurries/>

Marcus Ammann's DCC for Beginners: <http://www.members.optusnet.com.au/nswmn2/DCC.htm>

Email forum groups

NCE DCC Group: <https://groups.io/g/NCE-DCC/>

Wiring for DCC Group: <https://groups.io/g/w4dccqa/>

JMRI user group - <https://groups.io/g/jmriusers/>

5240305 Snubber 2 pack of DCC Track Bus Noise Suppressor \$14.95

Reduces or eliminates voltage spikes on long runs of DCC bus wire
Protects decoders from damaging inductive voltage spikes
Solve temporary loss of control or runaway problems
Preserves DCC waveform accuracy

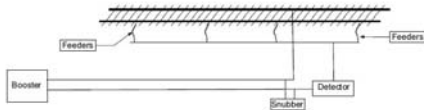
Installing snubbers:

Connect the snubber across the farthest end of the DCC bus run (from the booster) to the two screw terminals of the snubber. Do this for every booster/track bus you have. If the DCC bus has multiple branches in a "Y" configuration put a snubber at the end of each branch.

If you have high power boosters (8-10 Amps) or very long bus runs greater than 60 feet it is advisable to use two snubbers at the end of each bus.

If you have current based block detectors:

Place the snubbers between the booster and the detector as close to the detector as feasible. See the diagram below:



Technical Stuff:

The Snubber is an RC filter consisting of a 0.1uF 50Volt capacitor in series with a 94 Ohm 1.25 Watt resistor (five 470 Ohm 1/4 W resistors in parallel). For those technical types that wish to fine tune the filter the Extra C and Extra R holes provide a place to connect additional capacitors or resistors in parallel with the existing ones already on the filter.



Parts and Pieces Prices - Shipping not included

System Upgrade Chips:

PH-Pro March 2007C with Manual	\$39.95
PH-Pro March 2007C Chip Only	\$17.95
Power Cab 1.65B with Manual	\$39.95
Power Cab 1.65B Chip Only	\$29.95

Wireless upgrade of any cab is \$106.

Send to: NCE Corporation

Attn: Upgrades

82 East Main Street

Webster, NY. 14580

Custom cables: 50 cents per foot + \$3 for both ends. Specify
Cab Bus RJ12 or Control bus RJH

Cab06 to Cab06p change: Swap knobs, Change encoder to
pot. Install CFG resistor, Update v1.0 to v1.1 software. \$20

Swap out 1 EB3 for 3 EB1..... - \$20

SB3a to SB5 chip upgrade to work with Power Cab 1.65 is no
charge. Booster board upgrades: SB3a for SB5- \$70.00 SB3 for
SB5 \$120.00 DB3a for DB5 \$70.00 DB3 for DB5 \$100.00

HO-Size Plug and Play Decoders

DA-SR 5240106

Easy installation in many locomotives with
Kato drive mechanisms such as Atlas/Stewart/
Kato and Proto 1000. This decoder has five
function outputs. Size: 2.85" x 0.65" x
0.125" .05 lbs \$29.95



DAPack 5240107 four pack of DA-SR .08 lbs \$105.95

P2k-SR 5240108

Fits Life-Like HO Scale 0-8-0, GP7, GP9, GP30, GP38-2 and
SD60 locomotives. .05 lbs \$29.95



SW9-SR 5240110

Fits Life-Like HO Scale SW9/SW1200 switcher. Drop in, no
need to remove the weight. The decoder provides a means
to install a white LED or 12 Volt bulb as the headlight. Three
function outputs. fits P2K SW8/SW9/SW1200. .05 lbs
\$35.95



BACH-DSL 5240139

Replace the noisy, poor running decoder in Bach-
mann's "DCC Equipped" diesels with our new four
function decoder designed for smooth, quiet opera-
tion. .06 lbs \$23.95



D13DRJ 5240155 Direct Radio Wireless "Dead Rail" DCC
decoder. Built-in radio compatible with S-Cab operating
at 916.50 MHZ. Equipped with NMRA 9 pin DCC 'Quick
Plug'. Torque Compensation for ultra smooth low speed
performance. Motor rating 1.3 Amp continuous. Four
function outputs with full support for LED lighting. 1.30 x
0.640 x .285 inches - 33 x 17 x 7.5mm .15 lbs \$59.95



No HALT Insurance Modules

Simple two wire hookup to any DCC decoder. Eliminates stalling due to dirty track or dead spots. Available in different Policies or pre-installed on our most popular decoders. Maximum Track voltage cannot exceed 15v.

NHI-SM 5240148 Can run an HO loco 8 feet without power. Dimensions: 1.25" x 0.64" x .29". .06lbs \$32.95

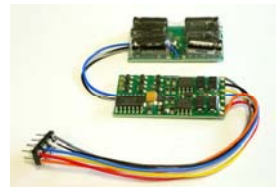


NHI-Med 5240149 Can run an HO loco for 24 feet without power. Dimensions: 2.14" x 0.64" x 0.4". .06lbs \$35.95



NCE DCC Decoders with No Halt Insurance

D13NHP 5240147 D13SRP with Small "No Halt" Module Installed. 8 pin plug. .06lbs \$59.95



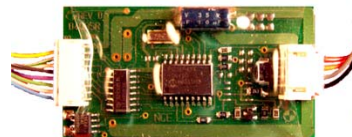
D13NHJ 5240146 D13SRJ with Small "No Halt" Module Installed. 9 pin jack. .06lbs \$59.95



Large Scale Decoders

D408SR - 5240111

4 Amp (8 Amp peak) decoder for S, O and large scale with pluggable wire harnesses. Eight function outputs. Size: 2.35" x 1.2" x 0.35". .09lbs \$65.95



D808SR - 5240112

8 Amp (30 Amp peak) decoder for S, O and large scale with pluggable wire harnesses. Eight function outputs. Size: 1.45" x 3.75" x 0.625". .09lbs \$129.95



5240298 KAP10 100ft of 10mm (.393) Kapton Tape 14.95

5240299 KAP20 100ft of 20mm (.787) Kapton Tape 20.95



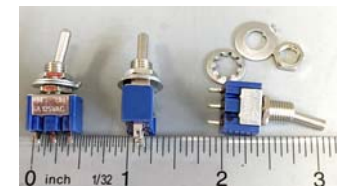
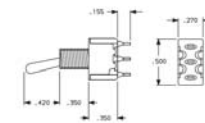
5240300 BTN8-Black 8 pack N.O. Momentary SPST Pushbutton Black 11.95

5240301 BTN8-Red 8 pack N.O. Momentary SPST Pushbutton Red 11.95

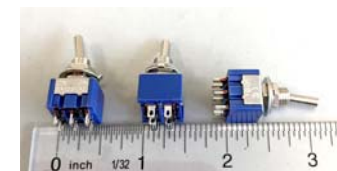
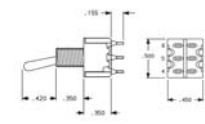
5240302 BTN8-Green 8 pack N.O. Momentary SPST Pushbutton Green 11.95



5240303 TS6S 6 pack On/On SPST Toggle Switch 125V/5A 11.95

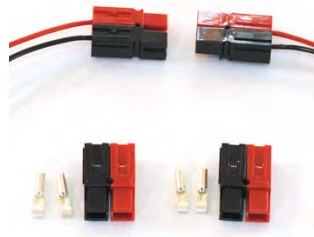


5240304 TS5D 5 pack On/On DPDT Toggle Switch 125V/5A 11.95



5240290 AND-8 8 Anderson power poles 4 red, 4 black, 12-16AWG 13.95

5240291 AND-24 24 Anderson power poles, 12 red, 12 black, 12-16AWG 35.95



5240292 Euro2-5 Two circuit Eurostyle Term Strip, Package of 5, 14-24 AWG 9.95

5240293 Euro3-5 Three circuit Eurostyle Term Strip, Package of 5, 14-24 AWG 11.95

5240294 Euro4-4 Four circuit Eurostyle Term Strip, Package of 4, 14-24 AWG. 11.95

5240295 Euro6-3 Six circuit Eurostyle Term Strip, Package of 3, 14-24 AWG. 11.95

5240296 Euro8-2 Eight circuit Eurostyle Term Strip, Package of 2, 14-24 AWG. 11.95

5240297 Euro12-2 Twelve circuit Eurostyle Term Strip, Package of 2, 14-24 AWG. 17.95



Decoder Test Kit (DTK) 5240219 The perfect companion for DCC installation and operation. The decoder tester works with ANY DCC decoder. Test for motor forward, reverse, functions F0F, F0R, F1, and F2. .06lbs \$29.95



NMRA Decoder Color Code and Pin Standards

#1 - Orange	●	●	#8 - Red	#1 - Orange - Motor +
#2 - Yellow	●	●	#7 - Blue	#2 - Yellow - Back Up Light
#3 - Green (if used)	●	●	#6 - White	#3 - Green - Function #1
#4 - Black	●	●	#5 - Gray	#4 - Black - Left Rail Pick Up
				#5 - Gray - Motor -
				#6 - White - Headlight
				#7 - Blue - Function Common +
				#8 - Red - Right Rail Pick Up

View is looking down on the wires.
The 'pins' are on the other side.

Small N-Scale Size Locomotive Decoders

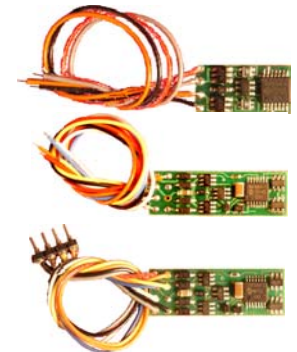
N12SR 5240119 Wired in by user. 1 Amp rating and four function outputs. 0.34" x 0.6" x 0.11". with wire harness. .05 lbs \$41.95

N14SR 5240131 Wired in by user. Four function 1 amp N sized decoder. 1.15" x 0.34" x 0.12" with wire harness. .05lbs \$35.95

N14SRP 5240132 8 pin plug in Four function 1 amp N sized decoder 1.15" x 0.34" x 0.12" with 8 pin NMRA connector at the end of a wire harness. .05 lbs. \$41.95

N14IP 5240128 Direct plugin four function decoder for Con-Cor N Scale PA1, 4-8-4 and other locos with 8 pin sockets. Also fits BlueLine HO locomotives. 1.15" x 0.34" x 0.12" .05 lbs. \$35.95

N12-NEM 5240160 Plug in four function decoder with 6 pin NEM 651 connector. .05lbs \$35.95



Plug and Play N-Scale Locomotive Decoders

N14A0 5240120 Four function Plug and Play decoder for the N scale Atlas GP40-2, U25B, B23-7, 30-7, 36-7, GP38, SD25, Trainmaster, etc. .05lbs \$35.95



N12A1 5240122 Four function Plug and Play decoder for N scale Atlas SD50, SD60M, SD60. .05lbs \$35.95



N12A2 5240142 Two function Plug and Play decoder for N scale Atlas GP7,9,35,38,40,40-2 .05lbs \$35.95



N12K0a 5240126 Two function Plug and Play decoder N scale Kato P-42 PA-1 E-8 and more .05 lbs \$35.95



N12K0b 5240143 Two function Plug and Play decoder N scale Kato F3A&B, F7A&B and more. .05lbs \$35.95



N12A0e 5240127 Two function Plug and Play decoder N scale Inter-Mountain Tunnel Motor. .05lbs \$35.95



NAV0 5240137 Two function Plug and Play decoder for the N scale Atlas VO1000 loco. .05lbs \$35.95



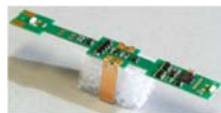
NMP15 5240138 Two function Plug and Play decoder for N scale Atlas MP15DC. .05lbs \$35.95



H15/16-44 5240159 Four function Plug and Play decoder for N scale Atlas H15-44 and H16-44. .05lbs \$35.95



N14K1 5240167 Four function Plug and Play decoder for the N scale Kato GG1,ES44AC,AC4400,C30-7,C44-9W,NES44,U30-C,SD40,SD40-2,SD45, SD70. Athearn F45,FP45, SD70,SD75. .05lbs \$35.95



N14K2 5240169 Four Function Plug and Play decoder for the N scale Kato RS2,RSC2,SD80,SD90/43MAC. Walther's Life-Like RS2,GP18 .05lbs \$35.95



24 AWG Stranded Twisted Pair Hook-Up Wire 100 foot Spool. \$40.95 .6lbs

5240247 Black / White

5240248 Red / White

5240249 Green / White

22AWG Power Drop Feeder Wires

5240270 Black, package of 16 \$5.95 .1lbs

5240271 Red, package of 16 \$5.95 .1lbs

5240272 Black, package of 32 \$10.95 .2lbs

5240273 Red, package of 32 \$10.95 .2lbs

5240288 Black, package of 10 \$4.19 .05lbs

5240289 Red, package of 10 \$4.19 .05lbs



Track Bus Wire Taps

5240274 Package of 32 Blue 14-16AWG \$13.95 .1lbs

5240275 Package of 64 Blue 14-16AWG \$25.95 .2lbs

5240276 Package of 32 Yellow 10-12AWG \$14.95 .1lbs

5240286 Package of 20 Blue 14-16AWG \$7.95 .05lbs

Male Quick Connects for Feeder Wires 18-22AWG

5240277 Package of 32 \$13.95 .07lbs

5240278 Package of 64 \$23.95 .12lbs

5240287 Package of 20 \$7.95 .06lbs



14AWG DCC Main Bus Wire

5240280 Black, 50 Feet 13.96 .8lbs

5240281 Red, 50 Feet 13.96 .8lbs

5240282 Black, 100 Feet 26.96 1.5lbs

5240283 Red, 100 Feet 26.96 1.5lbs

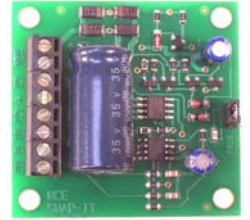
5240284 Black, 25 Feet 8.95 .4lbs

5240285 Red, 25 Feet 8.95 .4lbs

Accessory and Switch Decoders

Snap-It 5240115

Control **one** twin coil switch machine. Has capacitive discharge for low current draw of track power. Provides connections for two “local control” pushbuttons. You can control switches from your cabs *and* your control panels. .08lbs \$23.95



Switch-Kat 5240116

Control **one** Kato Unitrack, Lemaco, or LGB switch machine. The Switch-Kat provides connections for switch position indicator lights and “local” pushbuttons. Simple installation, two wires to the track, two wires to the switch. .10 lbs \$29.95



Switch-8 MK2 5240151

All new design with onboard display and jumperless programming. Control up to eight Tortoise or similar stall motor switch machines. Each output of the decoder can have a completely different accessory address. Onboard programming display. Optional external power and control connections. .14lbs \$82.95



Button Board 5240152

Add-on for Switch8-Mk2 to add local momentary pushbutton control. .14lbs \$35.95



Q-Snap 5240153

Control up to **four** twin coil switch machine. Has capacitive discharge for low current draw of track power. Provides connections for two “local control” pushbuttons. You can control switches from your cabs *and* your control panels. Connector for optional external power. .15lbs \$82.95



Layout Wiring Kits and Parts

Layout Wiring Kits				
Item		25 ft.	50 ft.	100 ft.
Part Number		5240267	5240268	5240269
Main bus Wire Length 14AWG Black and Red Stranded (ft)		25	50	100
22AWG Black and Red Feeder Wire Sets included		10	16	32
Wire Taps for 14AWG included		20	32	64
Quick connects for 22AWG Feeder Wires Included		20	32	64
Weight (LBS)		1.5	3	6
Price		\$41.95	\$69.95	\$119.95



Accessory and Switch Decoders

Switch-It MK2 5240154 All new design with onboard display and jumperless programming. Control **two** Tortoise or similar stall motor switch machines. Remembers the position of your switches during power outages. Each output of the decoder can have a completely different accessory address. Provides connections for "local control" pushbuttons. You can control switches from your cabs *and* your control panels. .12lbs \$35.95



Dual Relay 5240236 Connects to a Switch-It or Switch8 decoder to provide two SPDT or one DPDT relay output for switching up to 2 Amps of power. .10lbs \$23.95



Detection and Automation

BD20 - Block Detector Module 5240205

Detects DCC current being drawn in a block. Connects to AIU01, Mini Panel and most commercial signal systems. .05lbs \$17.95



AIU01 Auxiliary Input Unit 5240200

The Auxiliary Input Unit provides connection of block occupancy detectors, switch position relays, etc. for purposes of signaling and/or computer control of your layout. Simply plugs in to the Cab Bus. .23lbs \$59.95

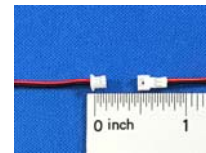


Mini Panel Routing and Automation Controller 5240230

Build control panels with greatly simplified wiring. Just connect pushbuttons, track trips, or block detectors to the Mini Panel Issue turnout routing macros, individual turnout commands or CTC signal commands by pushing one button. Set up is easy: plug in a Pro Cab and answer menu questions. .30 lbs \$59.95

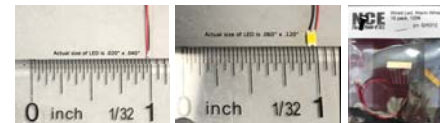


Mini Wiring Harnesses



- 5240307** 12 pack of 2 pin wiring harness sets \$11.95
- 5240308** 8 pack of 3 pin wiring harness sets \$11.95
- 5240309** 6 pack of 4 pin wiring harness sets \$11.95
- 5240310** 5 pack of 5 pin wiring harness sets \$11.95
- 5240311** 4 pack of 6 pin wiring harness sets \$11.95

Mini LEDs



Color	Wavelength	Forward Voltage(V)	Product Size (mm)	Forward Current (mA)
Warm White	3000-3500k	3.0-3.2v	1.0x0.5	20mA
Red	620-630nm	2.0-2.2v	1.0x0.5	20mA
Yellow	585-595nm	2.0-2.2v	1.0x0.5	20mA
Green	520-530nm	3.0-3.2v	1.0x0.5	20mA

- 5240312** 10 pack of WW 1206 size LEDs pre wired with resistors \$18.95
- 5240313** 10 pack of WW 402 size LEDs pre wired with resistors \$18.95
- 5240314** 10 pack of Red 402 size LEDs pre wired with resistors \$18.95
- 5240315** 10 pack of Green 402 size LEDs pre wired with resistors \$18.95
- 5240316** 10 pack of Yellow 402 size LEDs pre wired with resistors \$18.95

Accessory Lighting, Signaling, and Signaling Controls

The **Light-It** is a multi-purpose programmable DCC lighting decoder. One Light-It contains three programmable lighting outputs with a complete array of lighting effects. Suitable for signal heads, passenger cars, locomotive lighting, cabooses, structure lighting, and many other uses. Each output channel is 10mA.

LightIt-3 5240161 3 pack of the Light-It Universal Lighting and Signal Decoder. \$23.95

LightIt-6 5240162 6 pack of the Light-It Universal Lighting and Signal Decoder. \$46.95

LightIt-15 5240163 15 pack of the Light-It Universal Lighting and Signal Decoder. \$119.95



The **Illuminator** is a Plug and Play multi-purpose programmable DCC lighting decoder. One Illuminator contains three programmable lighting outputs with a complete array of lighting effects. Suitable for signal heads, passenger cars, locomotive lighting, cabooses, structure lighting, and many other uses. Designed to be used with Woodland Scenics Just Plug system! Each output channel is 30mA

Illuminator 5240164 Scenic Lighting Decoder compatible with Woodland Scenics Just Plug. \$19.95

Illuminator-5 5240165 5 pack Scenic Lighting Decoder compatible with Woodland Scenics Just Plug. \$94.95



5240306 6 pack of 300 microfarad 2.7v Supercaps for Anti Flicker Lighting \$11.95

Loco Wiring Kits and Other Parts

Plug Pack 5240211 Ten pack of the NMRA eight-pin connectors used in many "DCC Ready" locomotives and accessories. .05lbs \$18.95



Loco Wiring Kit 5240242 For HO and N locos includes: Total of 80 feet in 8 different colors of ultra-flexible wire. 10 feet each 32AWG wire 0.023 inch (0.58mm) diameter: blue, white, yellow, green, orange and gray. 10 feet each 30AWG wire 0.030 inch (0.76mm) diameter: black and red. Total 9 feet of 3 sizes heat shrink tubing 3/64 (1.2mm) 1/16 (1.5mm) 3/32 (2.4mm) .15lbs \$59.95



LED Wiring Kit 5240243 20 3mm Warm White LEDs, LED Tester, 50 feet ultra flex #32 wire, 20 3.3k resistors, 20 2.7k resistors, Total 9 feet. 3 sizes heat shrink tubing 3/64 (1.2mm) 1/16 (1.5mm) 3/32 (2.4mm) .25lbs \$69.95



Ultraflex Wire, 30AWG, 10 feet. \$9.95 .013lbs

5240250 Black 5240252 Red

Ultraflex Wire, 32AWG, 10 feet. \$7.95 .013lbs

5240251 Brown 5240253 Orange 5240254 Yellow

5240255 Green 5240256 Blue 5240257 Violet

5240258 Gray 5240259 White

5240266 Blue 20 feet. \$15.95 .026lbs



5240260 20 pack of 2700 Ohm Resistors 1/8 Watt .013lbs \$4.59

5240261 20 pack of 3300 Ohm Resistors 1/8 Watt .013lbs \$4.49

5240262 20 pack of 3mm Warm White LED .013lbs \$23.95

5240263 Assorted Heatshrink tubing 9 feet .013lbs \$4.95

20

Wireless Cab Receivers

Note* NCE Wireless products use 916.50 MHz and are not approved for UK use.

RB02 Radio Base Station 5240023

Second generation two way wireless for DCC. Will handle up to 48 wireless cabs. All features of your cabs are available without plugging in. Radio equipped cabs automatically switch from radio mode to tethered mode when plugged in. A seven foot hook up cable is included. 1.0lbs \$189.95



RPT1 Radio Repeater 5240024

Increase the saturation of the radio signal in hard to reach areas. Up to 4 Repeaters can be used. A forty foot hook up cable is included. Requires the use of one RB02 Radio Base Station. 1.4lbs \$159.95



Replacement Short Antenna 1/4 wave 2" 5240232 \$11.95

Replacement Long Antenna 1/2 wave 4.75" 5240212 \$19.95

Wireless Information and FAQ

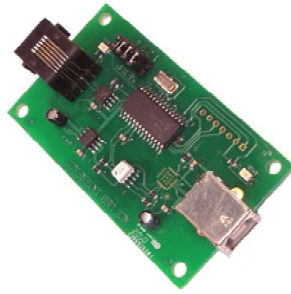
Installation of the RB02: Just plug it in to the NCE cab bus. Connect RPT1 to RB02 as needed. Operation is automatic when connected to the NCE cab bus. There are no adjustments or other installation required.

Specifications: Supply voltage 12 volts DC nominal, 8 volts minimum, 16 volts DC maximum. Supply current: RB02 70mA maximum, RPT1: 35mA maximum. Cab Bus protocol is NCE Cab Bus, same as RB02. RF Radio Modulation -10kbps Manchester encoded, OOK, 16 bit preamble. Same as RB02 RF Output Power - 450 uW maximum, 350uW typical Maximum length cable to RPT1 - 40 feet, #26 AWG. **Wireless communications:** The transmitter power of the RB02 and RPT1 is .00035 Watts. We are continuously asked about the operating distance of the wireless cab. There are many factors governing the useful range of wireless products. The RB02/RPT1 operates in the ISM (Industrial, Scientific and Medical) radio band at 916.50 Megahertz (MHz). Many cordless phones, wireless computer networks, home automation systems, and wireless security devices also operate in this portion of the radio band and all contribute to radio interference. Radio waves are like one big telephone 'party line' where everyone is talking at once. A device using these radio waves must attempt to sort out what 'voices' are relevant to its operation and which ones are noise. If there is too much noise it can't do this successfully and will operate poorly or not at all. Indoor radio propagation is an issue for special consideration. The human body readily absorbs radio energy in the frequency band used by the cab radios. Placement of the base station and repeaters can mitigate blocking of the radio signal due to human body absorption. In most indoor situations 'dead spots' can be found where reception is very difficult. These can occur even if there appears to be a direct line of sight between the transmitter and receiver. These dead spots, or 'nulls', are the result of multiple radio transmission paths between two points caused by reflections off metal objects such as steel beams, screen wire, concrete rebar, metal door and window frames, ceiling tile frames, model railroad track, etc. Nulls occur where the path lengths differ by an odd $\lambda/4$ wavelength (about 6 inches at 900 MHz). Deep nulls are usually very localized and can be avoided by moving slightly, usually only a few inches. We suggest adding one or more RPT1 repeaters if you experience severe null areas on your layout. **Radio power planning:** If you are planning to add repeaters make sure the Cab Bus jack you are using can provide ample DC power for the RB02 and any repeaters. The RB02 needs 60mA (about 1/2 the power of a standard Pro Cab) and each RPT1 requires 35mA (about 1/3 the power of a Pro Cab) of DC power. Example: An RB02 plus 5 RPT1 repeaters will draw the DC power equivalent of 2 Pro Cabs. In this case if the current cab bus can handle two Pro Cabs plugged in at the point where you want to connect the RB02 then you should be OK. For installations involving more than 10 repeaters a UTP panel can be used to add power for the repeaters. Contact the factory for specific directions on using the UTP to add cab bus power. **RB02 Location:** We've found good operation can be achieved by placing the unit at about shoulder level. We've also had success with placing the RB02 (or RPT1) upside down on the ceiling of the layout room (7 -10 feet high). This gets the antenna above the main body mass of operators in the layout room so less of the radio signal will be blocked by humans.

USB Interface for Power Cab 5240223

Add this USB computer interface for computer programming and/or operation of your Power Cab equipped layout. Requires USB cable, computer, and program such as JMRI .15lbs \$59.95

Note: The USB Interface is designed for the Power Cab only. The 5 amp Ph-Pro system has an integrated PC interface.



Cables and Panels

DINCable 5240210 5 Pin DIN coiled cable .20lbs \$22.95



CoiledcordRJ 5240209 7 foot coiled cable .14 lbs \$11.95



RJ12-7 5240213 7 foot RJ12 Cab Bus Cable .14 lbs \$7.95

RJ12-12 5240214 12 foot RJ12 Cab Bus Cable.20 lbs \$9.95

RJ12-40 5240220 40 foot RJ12 Cab Bus Cable .35 lbs \$26.95



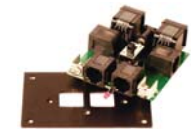
CAT5 5240237 10 foot Standard CAT5 cable .15 lbs \$11.95

8Wireadapter 5240235 Adapts 8 wire CAT5 wire to 6 wire RJ cable. .04lbs \$11.95



UTP-CAT5 Bus Panel 5240234 (recommended)

Same 6 wire connectors in front as our UTP but allows use of off-the-shelf CAT5 cables to connect panel-to-panel at rear. Can mix and match with our standard UTP below. .15lbs \$29.95



UTP Cab Bus Panel 5240207

This is our low cost, easy to use cab bus panel. All four RJ-12 jacks are wired in parallel for easy plug and play use. .14 lbs. \$26.95



PCP Power Cab Panel 5240222

Replacement panel for the 2 amp Power Cab Starter Set. .20 lbs. \$26.95



A few words about Train Detection, Switch Position Feedback, Signaling, and Automation

The Light-It is a multi-purpose programmable DCC lighting decoder. One Light-It contains three programmable lighting outputs with a complete array of lighting effects. Suitable for signal heads, passenger cars, locomotive lighting, cabooses, structure lighting, and many other uses.

The Illuminator is a Plug and Play multi-purpose programmable DCC lighting decoder. One Illuminator contains three programmable lighting outputs with a complete array of lighting effects. Suitable for signal heads, passenger cars, locomotive lighting, cabooses, structure lighting, and many other uses. Designed to be used with Woodland Scenics Just Plug system!

Block detection is handled by the BD20 current sensor. The two wires from the BD20 go to an AIU. No additional power is required for basic detection.

Turnout position feedback of a tortoise switch machine is accomplished by routing the aux contacts of the tortoise to an AIU. An AIU is Auxiliary Input Unit. This is a generic unit that monitors inputs. It watches for inputs to get shorted to ground.

The AIU reports the status of the inputs using the NCE cab bus. This sends the data to the NCE command station.

The NCE Mini Panel is a routing, automation, and logic controller. It can control switches, signals, locomotives, all types of DCC accessories and more.

Computer interface for the Power Cab and SB5 is done via the NCE USB Interface. The Ph-Pro and CS02 feature a built-in computer interface via a standard RS232 serial port. A simple serial to USB cable is all that is required.

NCE equipment has been tested and used with many popular computer programs including the free to use JMRI and the full featured Train Controller by Freiwald just to name two.