TMCC
Block Power
Controller (BPC)

Congratulations

Congratulations on your purchase of the TMCC Block Power Controller (BPC)! Each BPC unit is capable of switching control of up to four blocks of track between different Track Power Controllers (TPC), allowing you and your friends to control your trains with more than one CAB-1 Remote Controller. No need for a separate PowerMaster or TPC unit on each block of track—the BPC routes the power from the TPC unit to the active section of track! Each block of track can be operated in Command or conventional mode with a simple command from your CAB-1 Remote Controller. Experience the superiority of the Lionel TrainMaster Command Control system!

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Powering the Block Power Controller

Use a separate accessory power supply to power your BPC and be sure to set your transformer to 12-18 volts (AC). Figure 1 illustrates the location of the POWER terminals. Follow these steps and refer to Figure 1 as you connect your power supply to your BPC unit.

Note! An isolated power supply (not connected to the track) will be needed if noise from the TMCC signal interferes with communications. This is indicated be a steady green COMM light on the BPC. Because the BPC uses very little power, you can wire the BPC to a separate power supply with other TMCC products.

Hint! Color code the A and U power wires throughout your layout.

1. **Attach one wire to the Common/Ground/U terminal of your transformer and connect it to the POWER/U terminal on the BPC unit.**

Note! Do not connect this terminal to the outside rail

2. **Attach another wire to the Power/A terminal of your transformer and connect it to the POWER/A terminal on the BPC unit.**
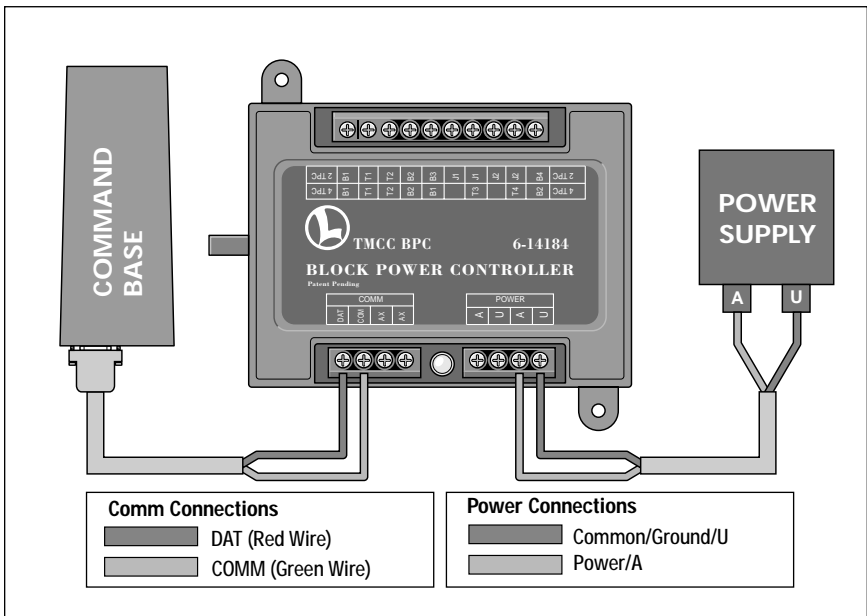

Figure 1. Power and COMM connections

Wiring Your Block Power Controller

Connecting the COMM wires

To receive your commands, the BPC will need to communicate with the Command Base. Messages from the Command Base are sent through the Command Base Cable (available separately, 6-14191 for a 6' cable or 6-14195 for a 20' cable). Follow these steps and refer to Figure 1 on page 4 to connect your BPC unit to the Command Base with the cable.

Note! Your BPC is equipped with two additional COM terminals, AX + and AX-. At this time, leave these terminals empty. These are intended for future capabilities. Do not wire DAT and COMM wiring to the AX+ and AX- terminals.

1. **Connect the DB9 Connector at the end of the Command Base Cable (the end that looks like a computer cable) to the COMPUTER terminal on the Command Base.**

2. **Connect the red wire at the other end of the Command Base Cable to the DAT terminal on the BPC.**

3. **Connect the green wire to the COM terminal on the BPC.**

Wiring Your Block Power Controller

Connecting additional TMCC products in a "daisy chain"

You may choose to power additional TMCC products using the same power supply and Command Base by creating a "daisy chain," or a series of TMCC units wired in succession. Refer to Figure 2 and follow these steps as you connect the BPC to the next TMCC product.

LED When in a daisy chain, the L.E.D. on the BPC will flash for a tenth of a second to indicate that the BPC is receiving commands for another TMCC product. The L.E.D. will stay on for half of a second to indicate that the BPC has received a command with an address it controls.

Power connections for additional units

1. **Attach one wire to the additional Power U terminal on the BPC unit and connect it to the Power U terminal on another product.**
2. **Attach another wire to the additional Power A terminal on the BPC unit and connect it to the Power A unit on another product.**
3. **Add additional products in the same manner, connecting the Power U terminals and the Power A terminals.**

COMM connections for additional units

1. **Attach the red wire to the DAT terminal of the BPC unit and connect it to the DAT terminal of the next TMCC product. (Red wire)**
2. **Attach the green wire to the COM terminal of your BPC unit and connect it to the COM terminal of the next product. (Green wire)**
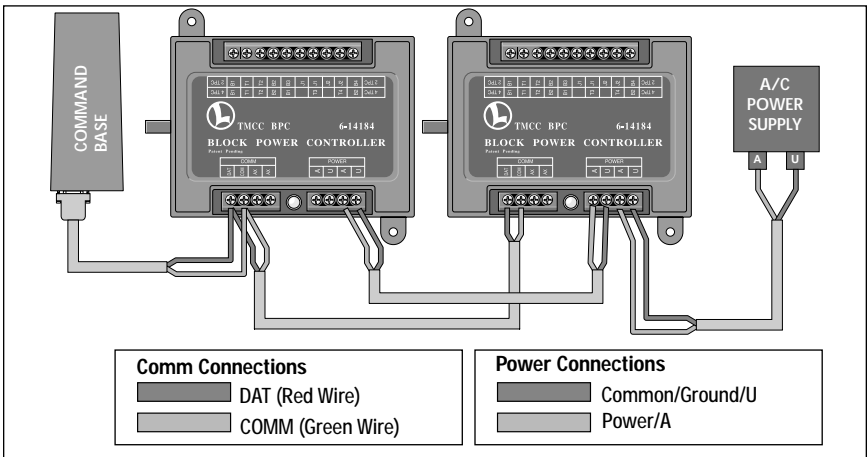3. **Add additional products in the same manner, connecting the DAT terminals and the COM terminals.**

Figure 2. TMCC daisy chain connections

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Wiring Your Block Power Controller

Setting the BPC to control either four or two blocks of track

Each BPC is capable of controlling either two or four blocks of track. Before you assign the individual ID#s to the blocks of track (the outputs of the BPC), you must tell each BPC whether two or four blocks will be connected.

- **To control two blocks of track per BPC, set the BPC to ID 99.**
- **To control four blocks of track per BPC, set the BPC to ID 98.**

Note! ID 98 is the factory default setting.

1. **Remove the jumper from the side of the BPC unit. Refer to Figure 3 on page 8 for the location of the jumper.**

2. **Press the ACC button on your CAB-1 Remote Controller.**

3. **Using the numeric keys on the CAB-1 Remote Controller, enter 98 to control four blocks of track OR enter 99 to control two blocks of track.**

4. **Press the SET button on your CAB-1 Remote Controller.**

LED The L.E.D. illuminates for one second.

5. **Replace the jumper on the BPC unit.**

At this point, the BPC unit is set to control the proper number of blocks through your TPC(s).

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Wiring Your Block Power Controller

Assigning the accessory ID's to the blocks of track

Note! In the previous section, you set the BPC to control either two or four blocks of track. To do so, you entered either 98 or 99. Those numbers are reserved for setting the number of outputs, so do not attempt to assign accessory (ACC) ID's 98 or 99. Choose a number from 1 to 97.

Each block of track that is controlled by the BPC has a unique accessory (ACC) ID# that you may assign. Keep in mind that you only need to assign the first ID# to each BPC, and the remaining blocks will automatically be assigned the next consecutive ID#'s.

If you are using multiple BPCs, be sure to assign ID#'s that are different from the numbers assigned to the other BPC.

Note! It is not necessary to have the outputs connected when assigning the accessory (ACC) numbers.

1. Remove the RUN/PROGRAM jumper on the side of the BPC unit.

Note! You should assign ID#'s to only one BPC at a time. Remove the jumper only from the BPC that you are setting.

Pull the small black connector out from the terminal at the side of the BPC unit. Refer to Figure 3 for the location of the jumper.

2. Press the ACC button on your CAB-1 Remote Controller.

3. Enter the ID# into the CAB-1 Remote Controller with the numeric keypad.
Keep in mind that you are assigning all of the ID#'s when you enter the first. For example, if you enter ID# 5 and you have <u>four</u> blocks, the ID#'s will be 5, 6, 7, and 8.

Note! When assigning ID#'s to the BPC, you only need to assign the first ID#. The remaining ID#'s are automatically assigned.

• When using two blocks of track (ID 99), ID#'s are automatically assigned in pairs. For example, if you assign accessory ID# 3, the remaining ID# is 4.

• When using four block of track (ID 98) the three remaining ID#'s are automatically assigned. For example, if you assign ID# 5 to the first block, the remaining blocks will be ID#'s 6, 7, and 8.

4. Press SET on your CAB-1 Remote Controller.

LED The L.E.D. illuminates for one second.

5. Replace the RUN/PROGRAM jumper at the side of the BPC unit.

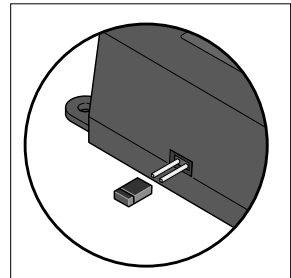Figure 3. Jumper location

Using A Single BPC To Control Four Blocks With Two TPC's

Wiring a single BPC to two TPC's

Refer to Figure 4 to connect your BPC to two TPC's. In this configuration, your BPC will control four blocks of track. The L.E.D. illuminates for one half of a second to indicate that the BPC has received a command.
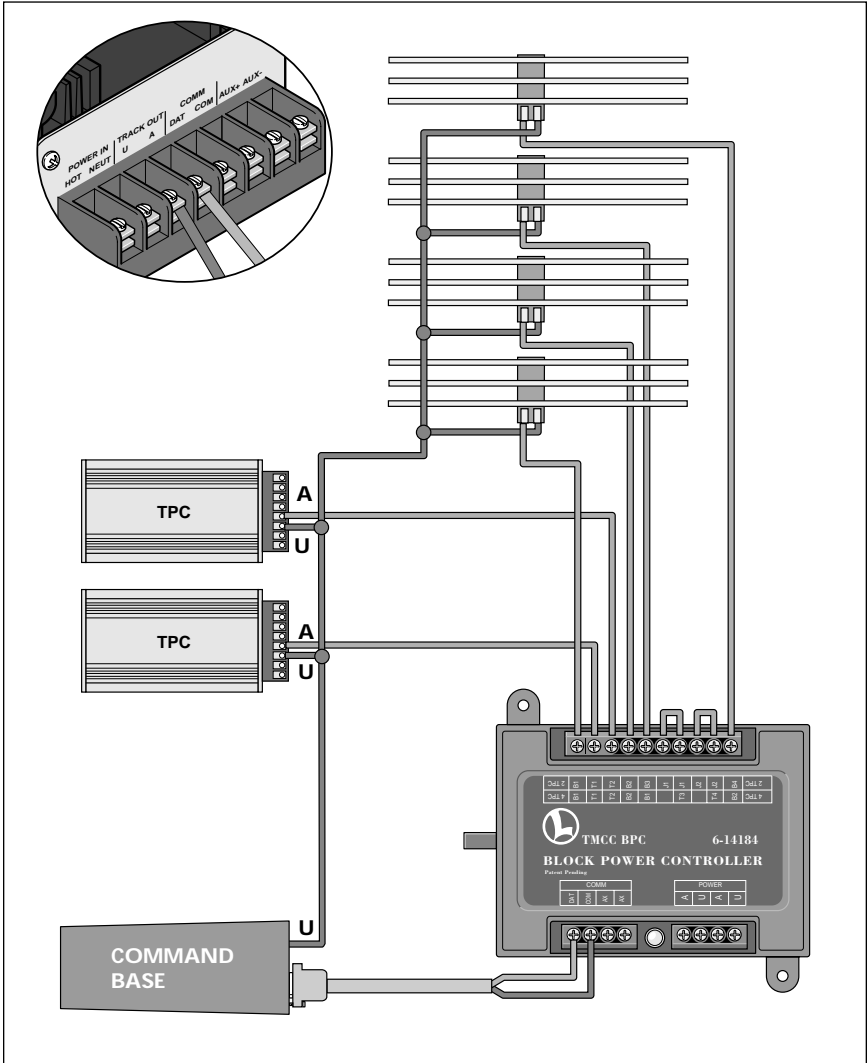

Figure 4. Wiring a single BPC to two TPC's (four blocks)

Using A Single BPC To Control Four Blocks With Two TPC's

Controlling four blocks of track with a single BPC

The BPC allows you to choose which TPC controls a particular block of track. With a single BPC, you are able to alternate the control of four blocks of track between two TPC's. Follow these steps to control each block of track.

1. **Press ACC on the CAB-1 Remote Controller.**

2. **Enter the ID# for the block of track you wish to control.**

3. **Press AUX1 to activate the numeric keypad.**

4. **Press 1 to power the block with the first TPC.**
   Press 2 to power the block with the second TPC.

5. **Press 0 when you want to turn off power to that block of track.**

Note! In this configuration, four accessory (ACC) addresses are used for each BPC.

Using A Single BPC To Control Two Blocks With Four TPC's

Wiring a single BPC to four TPC's

Refer to Figure 5 to connect your single BPC to four TPC's. In this configuration, your BPC will control two blocks of track.
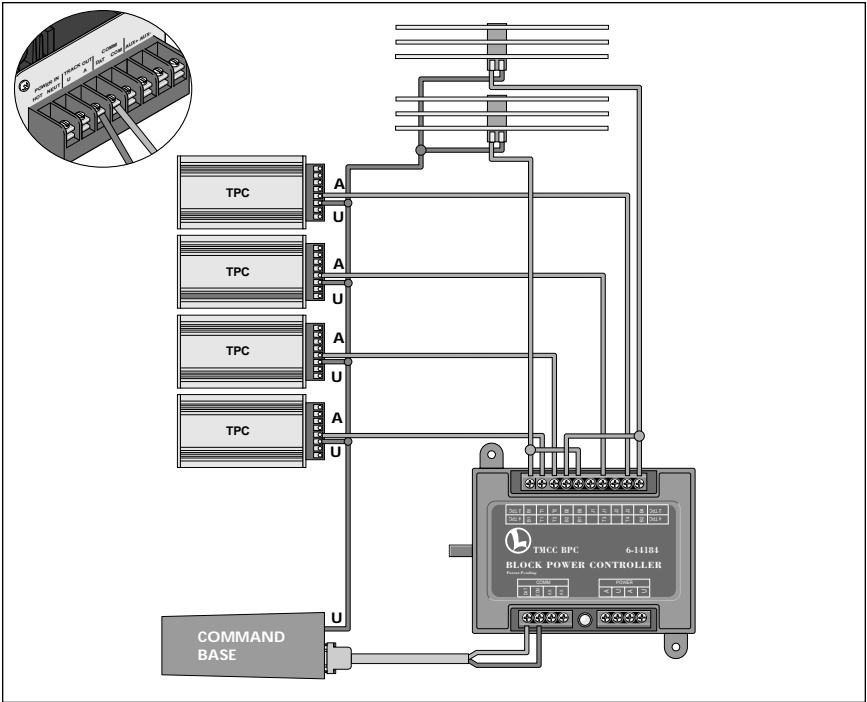

Figure 5. Wiring a single BPC to four TPC's (two blocks)

Using A Single BPC To Control Two Blocks With Four TPC's

Controlling two blocks of track with a single BPC

The BPC allows you to choose which TPC controls a particular block of track. You are able to switch control between four TPC's. Follow these steps to control each block of track.

1. **Press ACC on the CAB-1 Remote Controller.**

2. **Enter the ID# for the block of track you wish to control.**

3. **Press AUX1 to activate the numeric keypad.**

4. **Press 1 to power the block of track with the first TPC.**
   Press 2 to power the block of track with the second TPC.
   Press 3 to power the block of track with the third TPC.
   Press 4 to power the block of track with the fourth TPC.

5. **Press 0 when you want to turn off power to that block of track.**

Note! In this configuration, two accessory (ACC) addresses are used for each BPC.

Using Two BPC's To Control Eight Blocks With Two TPC's

Wiring two BPC's to two TPC's

Refer to Figure 6 to connect two BPC's to two TPC's. In this configuration, your BPC's will control eight blocks of track.

Figure 6. Wiring two BPC's to two TPC's (eight blocks)

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Using Two BPC's To Control Eight Blocks With Two TPC's

Controlling eight blocks of track with two BPC's and two TPC's

The BPC allows you to choose which TPC controls a particular block of track. With two BPC's, you are able to switch control of four blocks of track between two TPC's. Follow these steps to control each block of track.

1. **Press ACC on the CAB-1 Remote Controller.**

2. **Enter the ID# for the block of track you wish to control.**

3. **Press AUX1 to activate the numeric keypad.**

4. **Press 1 to power the block of track with the first TPC.**
   Press 2 to power the block of track with the second TPC.

5. **Press 0 when you want to turn off power to that block of track.**

Note! In this configuration, four accessory (ACC) addresses are used for each BPC.

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Specifications of the Block Power Controller

Physical Ratings

- Size: 3.7" x 2.7" x 1.2"
- Mounting: Two #4 pan head sheet metal screws

Electrical Ratings

- Input voltage: 9 volts to 20 volts (AC)
- Input supply current: 50 mA
- COMM input signal: +/- 12 volts
- Maximum output voltage: 24 volts (AC or DC)
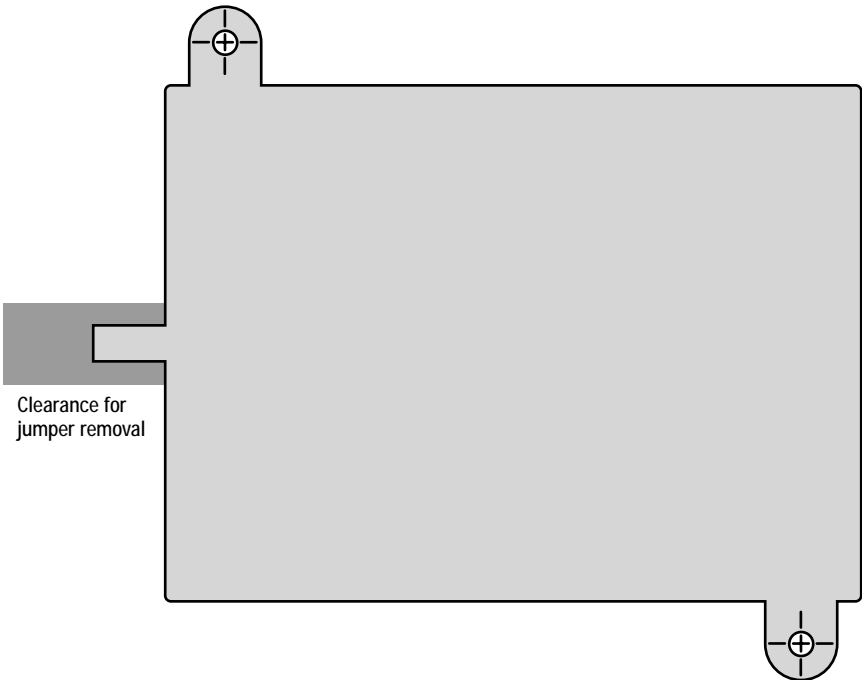- Maximum output current: 20 amps

Template

Clearance for
jumper removal

Figure 7. Controller mount template

Caution! Your service and warranty information is on the other side. Be sure to photocopy this page or the warranty.

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Limited Warranty/Lionel Service

This Lionel product, including all mechanical and electrical components, moving parts, motors and structural components, except for light bulbs, is warranted to the original consumer-purchaser, for **one year** against original defects in materials or workmanship when purchased through an authorized Lionel merchant.

This warranty does NOT cover normal wear and tear, light bulbs, defects appearing in the course of commercial use, or damage resulting from abuse or misuse of the product by the purchaser. Transfer of this product by the original consumer-purchaser to another person voids this warranty. Modification of this product voids this warranty.

Any warranted product which is defective in original materials or workmanship and is delivered by the original consumer-purchaser to Lionel L.L.C. or an authorized Lionel L.L.C. Service Center, together with proof of original purchase will, at the option of Lionel L.L.C., be repaired or replaced, without charge for parts or labor. In the event the defective product cannot be repaired, and a replacement is not available, a refund of the original purchase price will be granted. Any products on which warranty service is sought must be sent freight or postage prepaid, as transportation and shipping charges are not covered by the warranty.

In no event shall Lionel L.L.C. be liable for incidental or consequential damages.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

This limited warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Instructions for Obtaining Service

If service for this Lionel L.L.C. product is required, bring the item, along with your dated sales receipt and completed warranty information to the nearest Authorized Lionel Service Center. Your nearest Lionel Service Center can be found by calling 1-800-4-Lionel, or by accessing our Website at www.lionel.com.

If you prefer to send your product back to Lionel L.L.C. for repair in Michigan, you must first call 586-949-4100 or FAX 586-949-5429, or write to Customer Service, P.O. Box 748, New Baltimore, MI 48047-0748, stating what the item is, when it was purchased and what seems to be the problem. You will be sent a return authorization letter and label to ensure your merchandise will be properly handled upon receipt.

Once you have received your return authorization and label, make sure that the item is packed to prevent damage during shipping and handling. We suggest that you use the product's original packaging. This shipment must be prepaid and we recommend that it be insured.

Please make sure you have followed all of the above instructions carefully before returning any merchandise for service. You may choose to have your product repaired by one of our Authorized Lionel Service Centers after its warranty has expired. A reasonable service fee will be charged.

Warranty Information

Please complete the information below and keep it, along with your dated sales receipt. You must present this and your dated sales receipt when requesting warranty service.

Name _____

Address _____

Place of Purchase _____

Date of Purchase _____

Product Number_____

Product Description_____

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