

# CAUTION-ELECTRICALLY OPERATED PRODUCT

NOT RECOMMENDED FOR CHILDREN UNDER 14 YEARS OF AGE. AS WITH ALL ELECTRIC PRODUCTS, PRECAUTIONS SHOULD BE OBSERVED DURING HANDLING AND USE TO PREVENT ELECTRIC SHOCK. INPUT: 120 VAC 60Hz. OUTPUT: AC 16V 1000mA

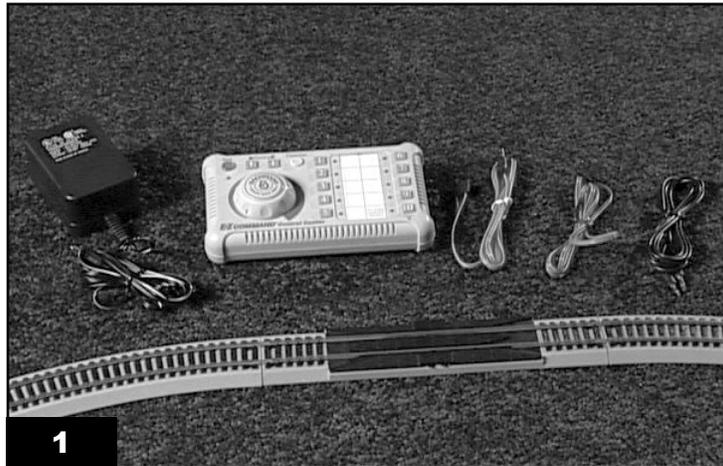
## **E-Z COMMAND<sup>®</sup>**

### SETUP AND PROGRAMMING INSTRUCTIONS

Bachmann Trains is pleased to bring you *E-Z Command*.<sup>®</sup> Developed in partnership with Digital Command Control (DCC) innovator Lenz Elektronik, *E-Z Command* allows you to digitally control the speed, lighting, sound, and direction of several locomotives independently of each other. But unlike other DCC systems, *E-Z Command* simplifies the programming process with one-button main track programming. Other features include 28 speed steps for smooth operation and plug-in wiring for simple set up. *E-Z Command* will operate DCC-equipped locomotives from many manufacturers and offers many of the features previously found only on more expensive digital systems. Best of all, *E-Z Command* has plug-and-play compatibility with all DC and NMRA-compliant DCC systems.

Your *E-Z Command* Digital Command Control System consists of the following components (figure 1):

- *E-Z Command* Control Center
- Wall Pack Power Supply
- 1 Red *E-Z Track*<sup>®</sup> Track Power Wire
- 1 Red Universal Track Power Wire
- 1 Black Interconnecting Power Cable (for use in combination with a DC speed controller)



With its unique plug-and-play capability, *E-Z Command* is easy to set up and use, whether you're operating an existing model railroad or setting up a new layout. To ensure trouble-free operation, however, we recommend that you read this manual completely before operating your system for the first time.

**NOTE: DO NOT CONNECT THE *E-Z COMMAND* CONTROL CENTER TO THE WALL PACK POWER SUPPLY UNTIL YOU HAVE MADE THE CONNECTIONS FROM THE CONTROL CENTER TO YOUR TRACK.**

## TRACK CONNECTION

If standard DC power packs supply your railroad, turn them off and disconnect the feeder wires to your track.

**NOTE: IF YOUR LAYOUT IS SEGMENTED INTO “POWER DISTRICTS,” TURN ALL ELECTRICAL BLOCKS ON, AS LONG AS DOING SO WILL NOT RESULT IN A SHORT CIRCUIT. PARTICULAR CARE MUST BE TAKEN WITH REVERSE-LOOP TRACK CONFIGURATIONS.**

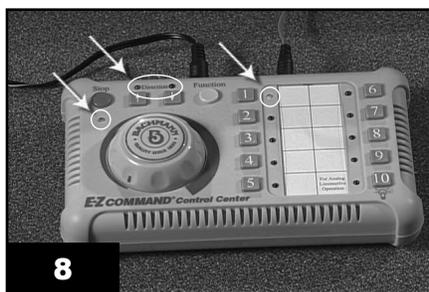
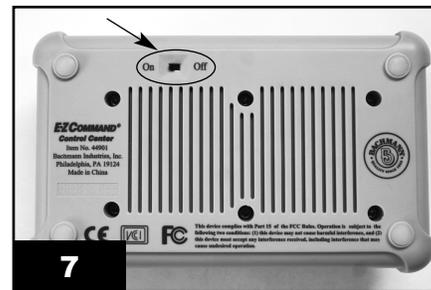
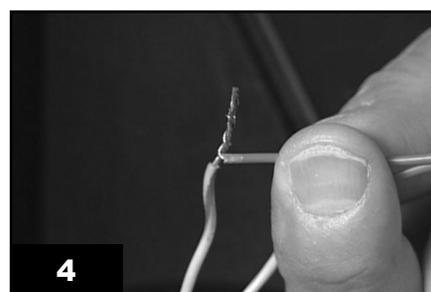
If you are using Bachmann’s *E-Z Track* system, plug the red *E-Z Track* Track Power Wire into the socket on the back of the *E-Z Command* Control Center labeled “TO TRACK” (figure 2) and plug the other end into any standard *E-Z Track* terminal reailer (figure 3).

When using a track system other than *E-Z Track*, choose the Universal Track Power Wire (with the bare ends) and plug it into the *E-Z Command* Control Center as illustrated in figure 2. Next, attach the bare ends of the track power wire to the point where you previously supplied power from your DC controller to your layout (figure 4).

After the track connections are complete, plug the Wall Pack Power Supply into a standard 110 volt wall outlet (figure 5). Plug the wire from the Wall Pack Power Supply into the socket on the *E-Z Command* controller labeled “16V AC IN” (figure 6). Next, move the master “On/Off” switch on the underside of the *E-Z Command* Control to the “On” position (figure 7).

Once the *E-Z Command* Control Center is powered, the power LED indicator (located below the “Stop” button) will be lit. One of the “Direction” LEDs and the LED next to the address “1” button will also be lit (figure 8).

If your Control Center does not power up as shown here, disconnect it from the Wall Pack Power Supply, and let it sit for two minutes. This will allow the system to reset itself. After two minutes, you can reconnect the Wall Pack Power Supply to the Control Center.



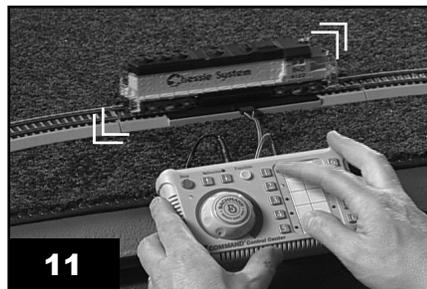
## PROGRAMMING A LOCOMOTIVE TO A SPECIFIC ADDRESS

Your *E-Z Command* Control Center features ten programmable control buttons or “addresses.” By default, most new DCC-equipped locomotives are factory-programmed to respond to commands on address 3.

To program your locomotive to another address, activate the locomotive by running it a short distance. Next, press and hold down button 3, the locomotive’s default address (figure 9) **AND THEN AT THE SAME TIME**, press the “Stop” button (figure 10), then release both buttons together. The power LED will flash quickly to indicate you’re in programming mode.

Choose a new address for your locomotive and press the corresponding button. The locomotive will move slightly (figure 11) and the power LED will flash slowly to indicate that you have successfully programmed your locomotive to its new address. Finally, press the “Stop” button to exit programming mode.

After you’ve programmed all your locomotives, you can individually control each of them by pressing the numbered button you have assigned to that particular locomotive. A removable two-column sheet is located between the numbered buttons so you can identify which locomotive is assigned to each button. For your convenience, extra blank sheets are included with your system (figure 12).



## REPROGRAMMING DECODERS WITH PREVIOUSLY ASSIGNED DIGITAL ADDRESSES

You can use the *E-Z Command* system to control locomotives that have a previously assigned digital address other than number 3. If the previously assigned address is a number less than 10, follow the directions we’ve just described to assign a new address to a locomotive decoder. Just substitute the locomotive’s original digital address number for the number 3 in the standard programming procedure.

However, if the locomotive’s digital address is a number higher than 10, you can reprogram it by following this procedure:

First, remove all locomotives from the layout. Next, follow the standard *E-Z Command* programming procedures as described in the “Programming a Locomotive to a Specific Address” section (but without any locomotive on the track), including pushing and holding down the number 3 button and the “Stop” button. At this point, you’re ready to assign a new digital address to the locomotive. Simply place the subject locomotive on the track and assign a new address by pressing a numbered *E-Z Command* button (1 to 9). The locomotive will move slightly to signal that you have successfully assigned a new, lower address. Finally, push the “Stop” button to exit the programming mode and begin operating your locomotive at its new digital address.

## PROGRAMMING FORWARD AND REVERSE OPERATION

With *E-Z Command* and other DCC systems, forward and reverse travel is relative to the locomotive and not the track. To assign a direction that the train will recognize as being “forward,” first activate the locomotive by running it forward a short distance. Next, press and hold the locomotive’s current address button AND the “Stop” button, then release both buttons simultaneously. The LED power indicator will flash quickly to signal that your Control Center is in programming mode. Press the direction button you wish to assign as “forward” (figure 13). Finally, press the locomotive’s address button, then press the “Stop” button to exit programming mode.

Once direction programming is complete, you can change the relative direction of travel of your locomotive at any time by bringing your locomotive to a complete stop and pressing the appropriate direction button.



## RUNNING MULTIPLE LOCOMOTIVES

To run multiple locomotives simultaneously, follow the instructions described in the “Programming a Locomotive to a Specific Address” section. For illustration purposes, let’s assume you’ve assigned one locomotive to address 1 and a second locomotive to address 2.

To begin, press the address 1 button and turn the control knob clockwise to power up the corresponding locomotive. The red LED next to button 1 will be lit, indicating that control of the locomotive assigned to that address is active.

To activate the locomotive on address 2, simply press the address 2 button. At this point, the red LED next to address 2 will be lit, and the locomotive on address 1 will carry on running at its last speed and direction setting (we call this “running in background”). To activate locomotive number 2, simply turn the controller knob slightly. Now, locomotive 2 is active and you can determine its speed and direction settings independently of locomotive 1. Turn the controller knob to set the desired speed. With up to 10 addresses at your disposal, you can switch among multiple locomotives in this fashion.

**NOTE: THE 1 AMP TRANSFORMER SUPPLIED WILL RUN TWO LOCOMOTIVES AT ANY ONE TIME. OPERATION OF MORE THAN TWO LOCOMOTIVES WITH THE E-Z COMMAND CONTROLLER CAN AFFECT THEIR PERFORMANCE AND MAY REQUIRE ADDITIONAL POWER INPUT. E-Z COMMAND 5 AMP POWER BOOSTER (ITEM NO. 44910) MAY BE REQUIRED.**

## ELECTRIC MOMENTUM

When using the speed control knob to start and stop your locomotive, your *E-Z Command* system allows your trains to operate with a realistic acceleration and coasting effect called “Electric Momentum.” Rather than starting or stopping abruptly, the engine will accelerate and slow more gradually, replicating the characteristics of a prototype locomotive and cars. Remember to plan carefully when slowing or stopping your train.

## EMERGENCY STOP

The system relies on you to prevent crashes. To avoid a collision, press the “Stop” button to stop all train motion. Trains will resume their existing speeds and direction when the “Stop” button is pressed for a second time, so it is important that you take the appropriate steps to prevent a crash while in “Emergency Stop” mode. Though some potential collisions may require you to physically reorient your trains in order to be averted, *you can also send preventive digital commands (e.g. changing speed or direction) to your locomotives while they are in “Emergency Stop” mode.* Once the appropriate commands have been entered, press the “Stop” button again and resume operation.

Should a collision occur, simply press the “Stop” button. Clear locomotives and rolling stock as needed and place them back on the track. Press the “Stop” button a second time to resume operation.

With *E-Z Command*, you can also simulate a real railroading practice called “consisting.” Place two or more DCC-equipped locomotives on your layout (as shown in figure 14, for example). Next, simply assign the locomotives to the same address according to the instructions described in the “Programming a Locomotive to a Specific Address” section.

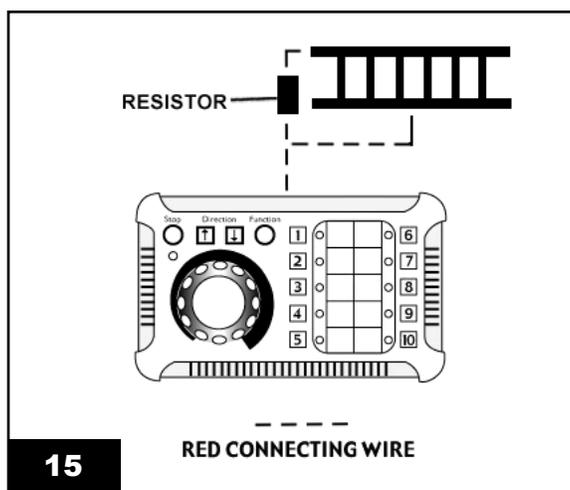


**NOTE: IF YOU CHOOSE TO ARRANGE YOUR CONSIST SO THAT ONE ENGINE IS RUNNING FORWARDS AND THE OTHER IN REVERSE, ONE ENGINE MUST BE PROGRAMMED TO OPERATE IN REVERSE AS SHOWN IN THE “PROGRAMMING FORWARD AND REVERSE OPERATION” SECTION.**

### **PROGRAMMING USER-INSTALLED DCC DECODERS**

A separate low-current programming track is needed only for first-time programming of locomotives with user-installed decoders. *The low current to the programming track protects the decoder if the installation was performed incorrectly.*

To create a programming track, connect a resistor in series with one track wire to an isolated section of track (figure 15). A 100 ohm 10W 5% Wirewound Resistor (Radio Shack Catalog # 271-135) is recommended.



Once you’ve constructed your isolated programming track, you’re ready to program a locomotive equipped with an NMRA-compliant, user-installed DCC decoder.

First, turn the throttle knob counterclockwise fully until it stops. Next, press and hold the key for the address you wish to assign to the new locomotive. In this example, we will use address button 7. Now, press and release the “Stop” button, then release the address button 7. The power LED will blink fast, indicating that you are in programming mode.

Place the locomotive with the new user-installed decoder on the programming track. Next, press and release button 7. The power LED will now blink slowly and the programmed locomotive will emit a series of small clicks indicating that the programming was successful. If you do not hear the clicking sounds, please check to ensure that your decoder is installed properly.

Now, press and release the “Stop” button again. The power LED will stop blinking altogether and will be lit constantly. You can check the operation of the decoder on the programming track by turning the speed knob. If the locomotive responds properly, the installation and the programming was done successfully and you can move the locomotive to the main layout.

## FUNCTION MODE

Like most DCC systems, *E-Z Command* features a function mode that enables you to control feature options that some manufacturers include with their DCC locomotive or decoder products.

To activate sound and lighting features, begin by pressing the “Function” button (figure 16). The LED next to the locomotive address button that is currently active (number “2,” for example) will blink, indicating that you are now in the function mode. You will still be able to control the speed and direction of the active locomotive, but in function mode, address buttons 1 through 8 (identified here as F1 through F8 to indicate operation in function mode) will allow you to control the optional sound and lighting features that may be included with your decoder. F10 controls the lights on your locomotive. It’s important to remember that while you have the *E-Z Command* controller in function mode, you will NOT be able to program any new locomotive addresses. To exit the function mode, simply press the “Function” button again.



**NOTE: DUE TO THE ARRAY OF DCC DECODERS AND VARYING LEVELS OF SOPHISTICATION, CONTROL OF SOME FUNCTIONS MAY BE LIMITED. CONSULT THE MANUFACTURER’S INSTRUCTIONS THAT CAME WITH YOUR DECODER TO DETERMINE WHICH FUNCTIONS ARE CONTROLLED BY WHICH NUMBER BUTTONS.**

## STANDARD DC LOCOMOTIVE OPERATION

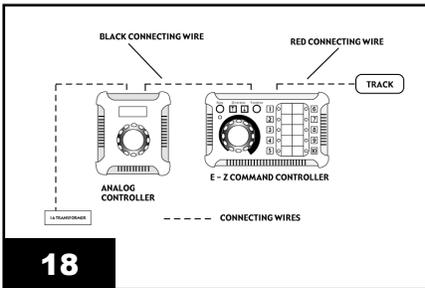
*E-Z Command* allows you to control up to nine digital locomotives and will also accommodate your favorite non-digital DC locomotives (without DCC decoders). However, only ONE DC locomotive can be run at any one time on address button 10.

To operate a DC locomotive through your *E-Z Command* system, place a standard non-digital locomotive on the track. Next, press address button number 10 button (figure 17) to activate the DC locomotive and begin operation.

**NOTE: WHEN OPERATING A DC LOCOMOTIVE ON ADDRESS "10," BE SURE TO MONITOR IT CLOSELY. SOME DC MOTORS ARE SUBJECT TO OVERHEATING AND DAMAGE WHEN OPERATING FOR LONG PERIODS OF TIME ON DCC SYSTEMS.**

Using the black interconnecting power cable provided, you can also connect a Bachmann DC controller to your *E-Z Command* Control Center as shown in figure 18. When connected, address 10 automatically converts from its original DC (analog) assignment to DCC (digital). Thus, a tenth digital address becomes available, and the connected DC controller will allow you or a friend to control a DC locomotive in conjunction with your *E-Z Command* system. The Bachmann #44212 power pack, available from hobby retailers, is ideally suited to this application (figure 19).

**NOTE: MAKE ALL THE CONNECTIONS BETWEEN YOUR DC CONTROLLER, THE *E-Z COMMAND* CONTROL CENTER AND THE TRACK BEFORE CONNECTING THE WALL PACK POWER SUPPLY. AS THERE IS CONSTANT AC POWER TO THE TRACK, WE RECOMMEND THAT YOU DO NOT LEAVE A DC LOCOMOTIVE STATIONARY ON THE LAYOUT FOR EXTENDED PERIODS.**



## TROUBLESHOOTING AND OPERATING TIPS

If your train doesn't respond to commands, make sure:

- all wiring is correctly installed as shown in figure 2 (see page 2)
- the transformer is plugged into the wall socket and the master "On/Off" switch is in the "On" position
- red LED power indicator is lit and NOT blinking (i.e. not in "Function" or "Programming" mode)
- the correct address button for the train you wish to operate is active (check address LEDs)
- the "Stop" button is not pressed

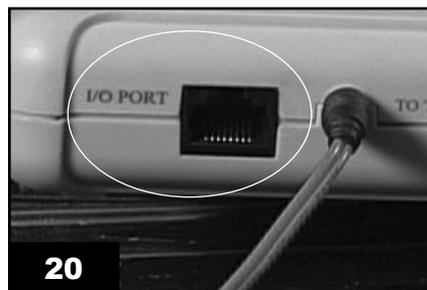
Never connect another controller to a track section controlled by an *E-Z Command* unit. Separate "power districts" can be created using separate units, but they must be double-isolated so that no train can bridge the joints between sections.

Never use an electronic track cleaner near your *E-Z Command* system.

Only plug a Bachmann *E-Z Command* device, or other device specifically approved by Bachmann, into the I/O port shown in figure 20. Other devices may have the same connector but are not necessarily compatible.

DCC-equipped locomotives will run on a DC-controlled layout, but don't use a feedback-type DC controller. Check your DC controller manufacturer's instructions to determine what type of DC controller you're operating.

When using a Bachmann 44212 DC controller with the *E-Z Command* Control Center, the power is always connected through the DC controller as shown in figure 18 (see page 6).



**NOTE:** THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS B DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE IN A RESIDENTIAL INSTALLATION. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTIONS, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. HOWEVER, THERE IS NO GUARANTEE THAT INTERFERENCE WILL NOT OCCUR IN A PARTICULAR INSTALLATION. IF THIS EQUIPMENT DOES CAUSE HARMFUL INTERFERENCE TO RADIO OR TELEVISION RECEPTION, WHICH CAN BE DETERMINED BY TURNING THE EQUIPMENT OFF AND ON, THE USER IS ENCOURAGED TO TRY TO CORRECT THE INTERFERENCE BY ONE OR MORE OF THE FOLLOWING MEASURES:

- REORIENT OR RELOCATE THE RECEIVING ANTENNA.
- INCREASE THE SEPARATION BETWEEN THE EQUIPMENT AND RECEIVER.
- CONNECT THE EQUIPMENT INTO AN OUTLET ON A CIRCUIT DIFFERENT FROM THAT TO WHICH THE RECEIVER IS CONNECTED.
- CONSULT THE DEALER OR AN EXPERIENCED RADIO/TV TECHNICIAN FOR HELP.

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## TOLL FREE NUMBER FOR SERVICE ASSISTANCE

IN THE EVENT YOU HAVE ANY DEFECTIVE OR DAMAGED PARTS, PLEASE DO NOT RETURN THIS PRODUCT TO THE STORE WHERE IT WAS PURCHASED. AFTER CHECKING ALL ASSEMBLY AND OPERATING PROCEDURES LISTED ON THIS SHEET, CALL US TOLL FREE AT 1-800-356-3910 (non-US residents should call 1-215-533-1600) Monday-Friday 8 A.M. - 4 P.M., Eastern Time, THEN RETURN ONLY THOSE PARTS REQUIRING SERVICE TO: BACHMANN SERVICE DEPARTMENT; 1400 EAST ERIE AVENUE; PHILADELPHIA, PA 19124-5698; USA.

# E-Z COMMAND<sup>®</sup>



For more technical information about DCC and other areas of model railroading, visit the National Model Railroad Association web site at [www.nmra.org](http://www.nmra.org).

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*Bachmann Trains... now that's the way to run a railroad!<sup>®</sup>*