

## MTH Electric Trains

# Z4K Remote Control System Instruction Manual

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## PHYSICAL AND ELECTRICAL CHARACTERISTICS

### Z4K Remote Transmitter

#### Batteries-

- Requires 4 “AAA” alkaline

#### Buttons-

- Horn/Whistle – Activates horn or whistle
- Bell/Select – Activates the bell and also selects a program (if in program mode)
- Direction – Controls direction of movement for each locomotive
- Program – Allows user to program certain functions on equipped locomotives
- Boost – Momentarily increases train speed by increasing track voltage. Train returns to previous speed when released
- Brake – Momentarily decreases train speed by decreasing track voltage. Train returns to previous speed when released
- Emergency Stop – Drops voltage to zero on both tracks of selected Z4K when pressed
- Throttle Thumb Wheel – Allows user to increase or decrease voltage supplied to the track(s) to speed up or slow down trains

#### Switches-

- Track Select switch – Allows user to select between which track to control, Track 1 or Track 2
- Transformer Select switch – Allows user to select between which Z4K to control Z4K 1, 2, or 3. **You will need to purchase additional receivers if you wish to run more than one Z4K transformer.**

#### LCD-

- One-line, two-digit display (Decimal point flashes when in Program mode)

#### Transmitter-

- 900Mhz technology

### Z4K Remote Receiver

#### Connection-

- RJ-11 connection to Z4K transformer

#### Receiver-

- 900Mhz technology

## FEATURES

### Transmitter-

- Able to select between three different transformers and two tracks on each transformer for a total of 6 controllable tracks
- 900Mhz technology allows the user to run trains from up to 30 feet away
- LCD indicates commanded voltage on remotely controlled transformers
- Emergency Stop button gives user the ability to instantly reduce track voltages to 0, thereby stopping the trains from a potentially harmful situation
- Program button gives user the ability to remotely program the train (on Proto-Sound equipped locomotives). Also, to simplify programming the user can select which feature they want by scrolling with the throttle.

### Receiver-

- User is able to place receiver out of sight because it operates in the 900Mhz range
- Quick and easy connection to ANY Z4K transformer

### Expandability-

- With the Z4K remote you can control up to three Z4K transformers (You will need a receiver for every transformer you wish to control)

## SETUP AND OPERATION OF Z4K REMOTE

**SETUP** - This section describes how to setup your remote control unit so you can operate trains remotely. It also describes how to run multiple transformers with one remote

To setup your remote control unit follow these steps:

1. Make sure the Z4K transformer's power is OFF
2. Open the battery door on the transmitter and install 4 "AAA" alkaline batteries
3. Connect the RJ-11 jack on the receiver to the back of the Z4K transformer. There is no external power for the receiver, it receives its power from the transformer
4. Flip the Track select switch to 1 and flip the Z4K select switch to Z4K 1. This will allow you to take control of Track 1 on Z4K 1
5. Turn ON the power to the transformer
6. When the transformer powers up, watch the LED display. When the transformer resets it will display 40 00 in the volts window and 01 23 or 01 24 (depending upon the firmware version you have) in the amps window. Approximately 3 seconds later the volts window will go blank and the amps window will display PG PG. When this

is displayed, press the Emergency Stop button and you should see -- -- in the volts window. Immediately following this, the transformer will display 0.0 0.0 in the volts window and RC RC in the amps window. You now have remote control of Track 1 on Z4K 1

7. Roll the throttle up and press the Direction button and you're off and running
8. If you want to run track 2 on the same Z4K, flip the Track select switch to Track 2 and roll the throttle up and you're now running on track 2.
9. If you have multiple Z4K transformers you can take control of them the same way as described above. The only thing you have to do is flip the Z4K select switch to Z4K 2 or 3 and repeat steps 4 and 5. **Note-** if you run more than one Z4K transformer it is possible that the receivers can be on the same channel. This will cause undesired operation on one of the Z4K transformers. Please see the Troubleshooting section on page 7 for more information regarding this.

**OPERATION** – This section describes how to operate your remote control to perform such functions as sounding the bell, sounding the horn/whistle, changing direction, and programming your Proto-Sounds equipped engine.

To operate your Z4K remote control, follow these steps:

1. To sound the horn or whistle, press and release the Horn/Whistle button. The longer you hold the button down the longer the horn or whistle will sound. The horn/whistle will stop when you release the button
2. To sound the bell, press and release the Bell/Select button. To turn the bell off, press and release the Bell/Select button again
3. To change the direction of the train, or to put it in neutral, press and release the Direction button
4. If you wish to slow the train or stop it momentarily, press and hold the Brake button. The train will slow to a stop. At the same time you will see the Z4K transformer indicated voltage drop to 5.0 volts. When you release the Brake button the train will speed up to the commanded voltage as displayed on the remote. At the same time you will see the Z4K transformer indicated voltage increase to the same voltage
5. On the other hand, if you wish to increase the speed momentarily, press and hold the Boost button. You will see the Z4K transformer indicated voltage increase to 22.  
**CAUTION!!! If you hold the Boost button too long it is possible to derail the train, especially around corners.**
6. Release the Boost button and the train will slow to its commanded voltage as displayed on the remote. At the same time you will see the Z4K transformer indicated voltage decrease to the same voltage

**Before you begin programming your Proto-Sounds equipped engine, please refer to the owner's manual that accompanied your engine for instruction.**

7. To program your Proto-Sounds equipped engine, press the Program button. You will see a flashing decimal point on the remote's LCD. Scroll the throttle up to the desired function number and press the Bell/Select button. You may also use the Direction and Horn/Whistle buttons to scroll to the function number. However, it is much easier to use the throttle.

8. If a problem should occur or if you wish to immediately stop all trains running on a Z4K transformer, press the emergency Stop button. This will instantly send both track voltages to zero. Note- this will only affect the selected Z4K transformer.

### **Gaining control with the Z4K Transformer-**

To gain control with the Z4K transformer, press any button on the transformer and control will be given back to both tracks on that transformer.

If you would like to preset a voltage on the tracks so that when you gain control with the transformer your trains continue to run follow these instructions:

1. Gain control with the remote control (see steps 4 and 5 in the SETUP section)
2. Gain control back with the transformer by pushing any button on the Z4K transformer (this will cause the voltage to drop to zero initially)
3. Use the throttles on the Z4K transformer to set the track voltage(s) to whatever you desire and then press any button the remote or scroll the throttle on the remote. You should now see RC RC in the amps window. The voltage that is now displayed is the commanded voltage from the remote. The next time you take control with the Z4K transformer it will run the train(s) at the voltage you set with the Z4K transformer throttles

What this allows you to do is switch between remote control and local control and still have the train(s) running at a commanded voltage.

If you have multiple transformers, it will work the same on all of them.

**CARE AND MAINTENANCE** – This section describes how to maintain and care for your remote control system.

Your MTH Z4K Remote Control System should offer years of trouble-free service. There are a few things you can do to ensure trouble-free operation:

1. Ensure old, worn batteries are promptly removed and replaced with fresh batteries. Alkaline batteries can leak and cause damage to the remote and can cause injury to the operator
2. Do not drop the remote. It can damage the delicate electronics inside
3. Do not place your receiver next to a 900Mhz cordless base unit. Because the MTH Z4K Remote Control System operates in the 900Mhz band your 900Mhz cordless phone can interfere with the unit. For more information regarding 900Mhz see the section, A FEW WORDS ON 900Mhz

**A FEW WORDS ON 900Mhz** – This section describes the transmitting and receiving characteristics of your MTH Remote Control System and how interference can affect the performance of your remote.

Because your MTH Remote Control System operates in the 900Mhz-frequency range it allows for excellent reception from several feet away. There is, however, the potential for interference. If you follow these guidelines you can reduce the likelihood of interference:

1. If you have a 900Mhz cordless phone base in the same room you operate your MTH remote you may want to move the phones base unit to another room.
2. If you operate the handset within a few feet of the receiver or transmitter it may cause unwanted interference. You may want to consider a more traditional corded phone or a non-900Mhz cordless phone
3. You may be able to operate a 900Mhz DSS (Digital Spread Spectrum) phone within the same room as your MTH remote as these phones tend to offer less interference than analog 900Mhz phones
4. One of the things you may see is one of the functions, say the horn, may stick on. Or the throttle may seem temporarily ineffective. This is a tell-tale sign there is interference from some source
5. The last thing that can be done is to simply move around the room. You may find that one spot gives you interference problems but 2 feet away you may be fine

**TROUBLESHOOTING** – This section provides solutions to the most common problems you may find with your MTH Remote Control System. If you find that your problem can't be resolved with this manual, contact MTH Tech Support at 1-410-381-2580

<b>Symptom</b>	<b>Problem</b>	<b>Remedy</b>
When I hit Emergency Stop the train(s) don't stop.	You may have the Z4K select switch pointing to the wrong transformer.	Flip the Z4K select switch to the Z4K you want to control and hit the button again. Whatever trains are running on that transformer should stop and voltage on the transformer should read 0.0
Two Z4K's are doing the exact same thing, just like their on the same channel	In fact, both are on the same channel. This can happen if you swap receivers or remotes	What you need to do is power off all your Z4K's and then remove one of the batteries. Now re-install the battery and ONE ATA TIME, power on and take control of your Z4K's. Now power the Z4K's off again and then ONE ATA TIME power on and take control of your Z4K's. Repeat this three more times.
I can't control my Z4K at all	You may have the Z4K select switch pointing to the wrong Z4K	Flip the Z4K select switch to the correct transformer and try again
The horn sticks on	There is a problem with interference	See the section entitled A FEW WORDS ON 900Mhz

<b>Symptom</b>	<b>Problem</b>	<b>Remedy</b>
I can't control one of the tracks	The Track select switch may not be pointing to the correct track	Try flipping the track select switch to the other track
My remote seems to be unresponsive.	This is most likely because the remote is in Program mode. It could also be interference	Look at the remote's LCD. If there is a flashing decimal point that means you are in Program mode. Press the Program button and you should now see the commanded voltage on the LCD. If it is still unresponsive, you be experiencing interference
The LCD on the remote seem to be faded or keeps going blank	Your batteries may be running low	Try replacing the batteries with fresh, new ones



