

	Z SCALE – 7.6VDC		N SCALE – 9VDC		HO SCALE – 12VDC
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VARIPULSE 852B OPERATOR INSTRUCTIONS

The model 852B hand held throttle has been designed to operate Z, N, and HO scale model railroad locomotives using a sophisticated pulse voltage control similar to designs used for the control of industrial DC motors. Operating controls include speed, momentum adjust, internal zero adjust, and a directional switch with a center off emergency stop position.

As the speed control is advanced clockwise from its OFF position a 60Hz pulse at 1% pulse duration is produced. As the control is further advanced the pulse duration increases from 1% at the lowest setting to 99% at its highest point of clockwise rotation and then to 100%, or pure DC. Operating small DC motors with square wave pulse of varying duration makes possible very realistic operation at very low speeds. With slight adjustment of the MOMENTUM control a locomotive will proceed at low speed and “coast” to a stop when the speed control is reduced to it’s OFF position, adding realism to locomotive movements.

The MOMENTUM adjustment is accessible through a 5/32” hole in the bottom cover plate. Use a 3/32” (no larger, no smaller!) slot screwdriver to adjust this control to your liking. This control has been set at manufacture to provide a slight momentum effect.

The ZERO adjust allows “fine tuning” of the throttle zero speed threshold. The minimum effective zero speed point will vary according to the AC power applied to the 852B. Remove the bottom cover and find the control access hole designated by the letter “Z” etched in the printed circuit board. Apply power to the throttle and set the throttle speed adjusting knob to the lowest point on the marked scale. Adjust the ZERO control with a 3/32” slot screwdriver until locomotive “creep” is defeated.

The throttle’s output is internally protected against over current and over temperature conditions and will shut down automatically and safely if either condition exists. The internal protection circuitry will reset to normal operation once the cause of the shutdown condition has been removed.

For proper operation this throttle must be supplied with AC voltage of at least 12 volts to a maximum of 18 volts. Do not use DC supply sources as the throttle will not work. The AC ACCESSORY terminals of most model railroad power packs are recommended as an AC voltage source. Alternately, a dedicated power transformer can be used. The voltage source should be capable of supplying sufficient current in order to satisfy the specified 1.5 amp current output of the model 852B.

CONNECTIONS

<u>WIRE COLOR</u>	<u>CONNECTION</u>
WHITE	12 to 18 VOLT AC SUPPLY
GREEN	12 to 18 VOLT AC SUPPLY
RED	TRACK +
BLACK	TRACK –

In most cases, accidentally connecting the wires in the wrong order will not harm the throttle, however, it will not function properly. Always double check connections before applying power.

OPERATING HINTS – DO'S AND DON'T'S

The hand control will heat during operation and this is perfectly normal. If it heats to the point where comfortable operation is not possible check for overload conditions possibly caused by defective motors, too many locomotives etc. and rectify the problem. The 852B has been designed to heat and a common sense approach is required to determine what amount of heat is acceptable to the user. **DO NOT LEAVE A RUNNING LAYOUT UNATTENDED!**

The model 852B's casing is made of high impact ABS styrene. It should be cleaned only with a cloth dampened with a mild soap and water solution. **DO NOT CLEAN WITH SOLVENT BASED CLEANERS!** Doing so will irreparably damage the casing.

WARRANTY

Your model 852B handheld PWM throttle is warranted to be free of electrical/electronic defects for a period of 1 year from the date of purchase. If it should fail to operate within this period return the item to the point of purchase for no charge repair or replacement. The following conditions will void the warranty and units submitted for service will not be covered under this warranty;

- 1 – Units that have been modified without factory recommendation.
- 2 – Units which have been determined to have been damaged due to mishandling, physical abuse or electrical abuse including, but not limited to, incorrect power or load connections.
- 3 – Units subjected to damage by Acts of God including, but not limited to, transient voltages, electrical spikes and/or lightning damage, fire, flood and/or natural disaster.
- 4 – Units returned for repair without dated proof of purchase.

Returns for repair or replacement found to meet any of the above conditions will be repaired at a charge to the customer pending prior customer approval for such repair. All freight charges incurred to transport the item are the sole responsibility of the end user.

The end user agrees Ken Stapleton or any representative of Ken Stapleton will not be held liable for any damage or injury or loss incurred as a result of the usage of this product and shall save harmless Ken Stapleton or any representative of Ken Stapleton from any such claim of liability. This warranty is expressed in lieu of any other warranties expressed or implied.

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