More ZoneMaster Boosters From CVP

Single-Zone ZoneMaster with Autoreverse SZB7-R

This version of the Single-zone ZoneMaster booster has the additional feature of autoreversing. This makes it perfect for large yards, industrial areas or staging tracks that are built into or are incorporated into a reversing loop or reversing section.

All of the same connections and capabilities are included and it has the same powerful output drivers and built in protection. And no programming is needed.

Dual-Zone ZoneMaster DZB7

This ZoneMaster booster features two independent and short circuit protected outputs. One output can be configured as an autoreversing booster and has a front panel control for the reverse loop sensitivity.

Other selectable features include the selection of long or short time delays as well as the ability to shut off the short circuit alarm sound.

A full 7 Amps of output power is available.

Has both optoisolated and EasyDCC control bus inputs.

Absolutely no programming is necessary to set up and use all of the Dual-Zone ZoneMaster booster.

ZoneShare complete with housing and pluggable terminal blocks . ZS4
ZoneShare Board without housing, uses screw terminals ZS4x

The ZoneShare booster features four independent and short circuit protected outputs and are a low cost, yet powerful alternative to additional ZoneMaster Boosters.

No external power supply is necessary. ZoneShare derives its power from the source booster. It is a perfect mate to the Single-Zone ZoneMaster allowing four independent and circuit breaker protected track drivers.

Other selectable features include the selection of long or short time delays as well as the ability to shut off the short circuit alarm sound and set the trip current level.

Absolutely no programming is necessary to set up and use the ZoneShare and it may be used with boosters from a variety of different manufacturers.

Your choice of with or without a plastic housing with the ZS4x version being the lowest cost since it does not include the housing.

Warning

The SZB7 is not a toy and is not designed to be operated by children. It is a high current device, capable of supplying up to 30 Amps of surge current and 7 Amps continuously at voltages as high as 24 Volts. Read and follow all directions and installation instructions. Do not expose to moisture; do not use outdoors. Never block the rear vent holes. CVP Products shall not be responsible for any claim or loss of any nature arising directly or consequentially from the use of this unit.

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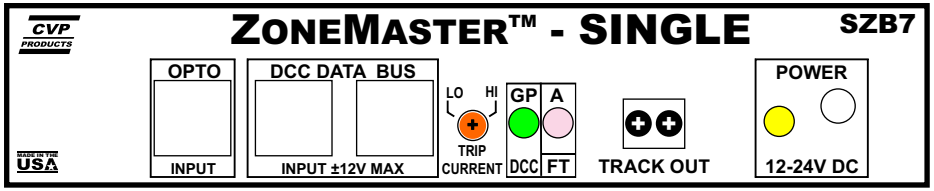
Single Zone Booster - 7 Amp - Without Autoreverse Instruction and Installation Booklet



Connections, Adjustment and Indicators - Quick Start Guide

Opto Input: For use with any high level input signal or if opto-isolated control bus is required.

DCC Data Bus: For use with EASYDCC system and boosters.

Track Output: This is where the track connects. Short circuit or overload current trip current is variable between about 1 Amp and 7 Amps using the Trip Current adjustment control.

Trip Current: Full counter-clockwise equals lowest trip current (about 1 Amp). Full clockwise equals highest trip current (about 7A).

GP : On when DCC data present
FT: On when there is a short circuit or overload on the track output. Once tripped, the unit will automatically reset in about 3 seconds.

Caution - DO NOT USE UNREGULATED POWER SUPPLIES

The SZB7 is designed for use **ONLY** with external, regulated, **DC power supplies**. It is the external power supply voltage value that sets the track voltage. The recommended setting is 15 Volts. Higher voltages can damage decoders. If you intend to operate at a higher voltage, you must first contact your decoder vendor and ask them for the maximum voltage the decoder can withstand and use that as the absolute maximum voltage setting for the external power supply.

WARNING

Never apply AC voltage to the SZB7 power input jack. Doing so will damage the SZB7 which will not be covered by the warranty.

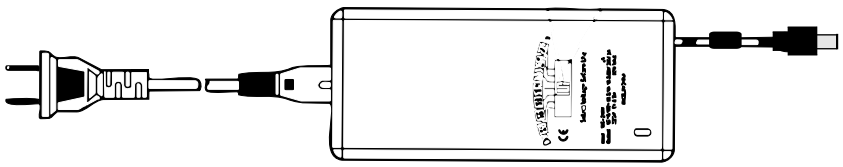
Caution

Short circuit and overload protection of the SZB7 requires proper wiring techniques and suitable wire. Be sure and use the recommended wire size.

A Smart Person Reads The Entire Manual

A Genius Follows The Manual's Instructions

Using The DC Power Supply - DCPS120
AC Input 100 to 240 VAC 50/60Hz



Input AC Voltage: This is a universal supply suitable for all primary voltages found throughout the world. The supplied plug fits all USA and most European wall outlets. However, feel free to remove the plug and attach one that fits your wall sockets.

Output Voltage Select: Before using the power supply, select the desired output voltage using the slide switch. Once selected, remove the appropriate voltage selector cap and snap it in place. This is not mandatory but prevents accidental changing of the output voltage.

Recommended Output Voltage: Use the 15 Volt setting for HO and O railroads. For LGB, use 18V. Always use the lowest possible setting since the higher the voltage, the lower the available current.

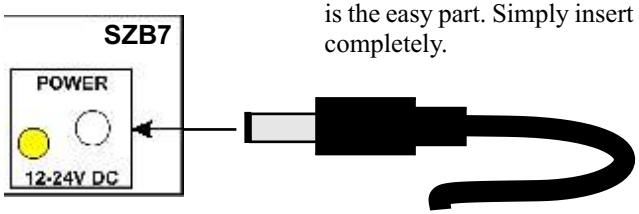
Available Power and Current: The maximum power output is 120 Watts. To determine the maximum available current, divide the power rating (120W) by the selected output voltage. For example, with the 15V setting, up to 8 Amps can be supplied. However, your specific booster will have its own maximum rating which may be less than the maximum available from the power supply.

Operating Temperature: Under maximum continuous load, the power supply will become hot. Keep the unit free of anything that will obstruct air flow around the unit. Do not embed the power supply inside a sealed container. It must have airflow to achieve maximum power.

Protection: The power supply is protected against overloading, short circuits and overheating. The output will shut down should any of these faults occur and automatically reset when the fault is cleared.

Power Indicator: There is a small green LED on the front of the unit. When AC power is applied, it will turn on.

DC Power Cord and Plug: The heavy duty plug fits directly into the ZoneMaster's DC input jack. Since the cord and plug can exert a large amount of up/down and sideways force on the jack, support the cord to keep to a minimum and forces on the jack.



Connecting Power Supply To ZoneMaster: This is the easy part. Simply insert the plug and push it in completely.

Support the cord to minimize the forces placed on the power jack.

Maximum Output Power Limitations

The track output can supply up to 7 Amps of output current.

For best operation, design your layout such that any one zone requires no more than about 4Amps maximum at any one time. This can be accomplished by considering how many trains can be operating at one time within the zone. If the total current required by all the trains exceeds about 4 or 5 amps, consider adding another booster. Using this strategy insures that there is plenty of extra power to start trains, even if the zone is loaded down with 4 Amps.

Do not share a power supply among multiple boosters. This is not allowed and can cause problems between ZoneMaster Boosters.

Application Tips and Techniques

Do not attach any external devices to the output of the ZoneMaster Booster other than approved CVP devices. For best performance and maximum safety, don't use any external devices such as shields or circuit breakers between the Booster and the layout. They can cause unpredictable results and could damage the Booster. If you think you need such devices, consider selecting a different type of ZoneMaster Booster that provides the same capability at a much lower price. Conventional block detectors, used for signaling, are OK for the ZoneMaster Boosters. Use of the OPTO input is required.

Do not connect any cables with power applied. Always make connections to the Booster with power turned off. Under unusual conditions, connecting the modular cable with the power turned on could result in unexpected locomotive operation.

Do not use the ZoneMaster with the Analog Channel 0 feature. Some systems allow a locomotive without a decoder to operate. This feature is not supported by the ZoneMaster.

Disable the analog conversion feature of your decoders. Consult your decoder manual and set CV29 to "digital only."

Use heavy duty wiring. Because the ZoneMaster has a huge power capacity, your layout needs to be wired properly. Using wire that is too small, or depending only on rail joiners to connect lengths of track will result in the automatic short circuit protection not working.

Test your wiring and trackwork. Go to the end of your bus wiring and place a metal object or coin across the rails. If your wiring is OK, the short circuit beeper will sound immediately. If it doesn't sound, you will need to beef up your wiring.

The variable trip current control can be changed at any time with power applied.

Using ZoneShare

The ZoneShare device connects between your layout and the ZoneMaster Booster and provides four independent and circuit breaker protected outputs. Each output acts like a mini booster providing both power and isolation from other zones. A derailment, short circuit or overload will result in the shutdown of just that specific zone. The use of ZoneShare offers a significant cost savings when compared to simply adding another booster.

ZoneShare comes as either a finished unit, complete with attractive case, or as a assembled circuit board, without the case. Either style features the same capabilities. See the ZoneShare manual for important usage information.

Trip Current Setting On ZoneMaster - For best results, set the trip current control fully clockwise for maximum output current.

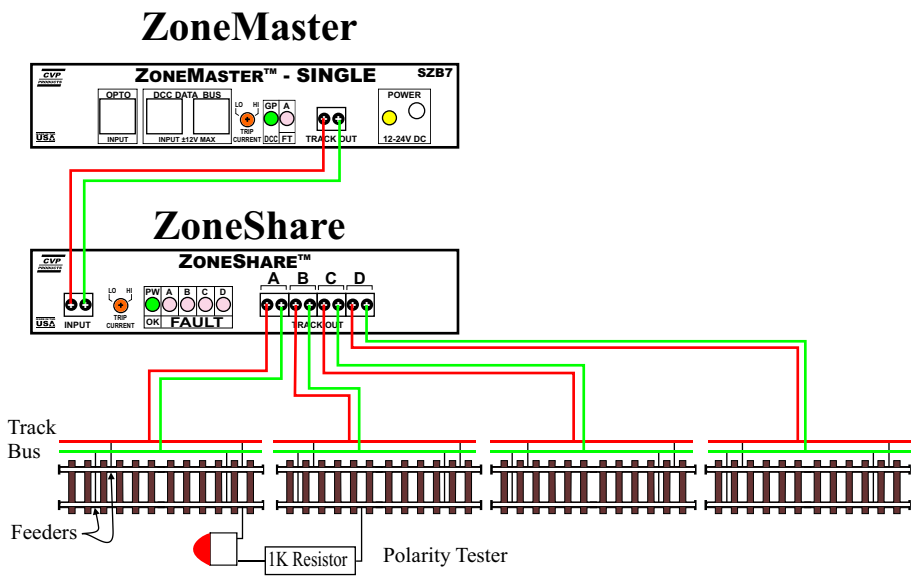
Wiring Between ZoneMaster and ZoneShare - For best results, use heavy duty #12 or #14 gauge wire. All of the power for all of the zones must flow through these two wires so larger is better.

One ZoneShare per ZoneMaster - is recommended to insure maximum power and stability of the ZoneMaster.

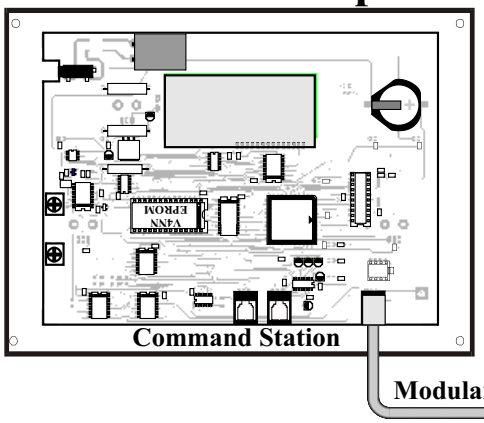
Don't use ZoneMaster to power track, while it is powering a ZoneShare. Any derailment or short circuit on the ZoneMaster powered track will instantly shut down ZoneShare.

Verify correct polarity for feeders and bus wires - use the simple LED tester to confirm that the polarity is correct at each gap. Place checker across the gaps. If the LED is dark, polarity is the same. However, if the LED lights up, the polarity is reversed. Correct the polarity at the location where it becomes reversed.

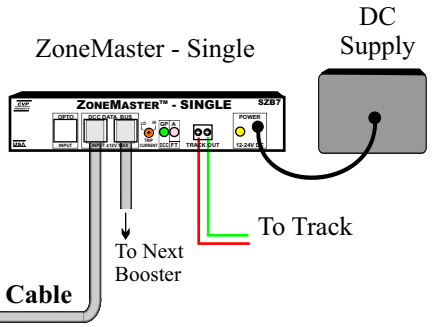
Use heavy wires between ZoneShare and trackwork - proper operation of the short circuit and overload protection of ZoneShare requires robust wiring. Use #14 bus wires and #16 or #18 feeder wires. Keep feeders short.



Basic Hookup - EASYDCC System



The CS2B Command Station is shown but any version can be used.

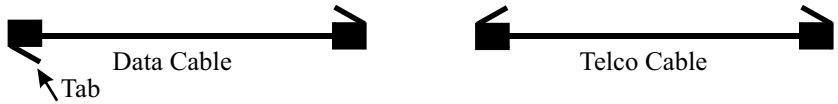


Modular "data" cable should be used for the connection although modular TELCO cable is OK. Always plug the cable into the jack labeled Booster on the Command Station and into either one of the DCC Data Bus jacks. Do not use the Opto input jack. There are no cable length restrictions on the modular cable when used with boosters.

CVP Products can supply any length of data cable terminated with suitable plugs on each end. Contact us for a quotation.

Since either a data or telco cable can be used, you may wonder about the difference. The drawing below shows an easy way to determine the type of cable: check the position of the tabs, relative to the molding ridge running down the center of the cable.

You can use both types at the same time although you might have to reverse the track connections at the output. If you can not cross the block gaps that separate two boosters (that are not part of a reversing section), just reverse the track wires at one of the boosters.

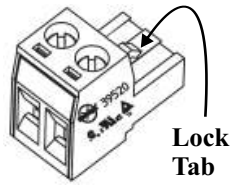


Using The Pluggable Terminal Strips

The pluggable header accepts wire sizes ranging from 12AWG to 26AWG. If using stranded wire, it must be twisted and tinned. Cut the stripped and tinned wire so that it is completely inside the clamp area and keep the insulated portion outside the clamp for a good connection.

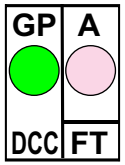
To remove the plug from the socket, gently rock the plug back and forth horizontally to release the locking tabs.

Replacement plugs are available from CVP Products.



ZoneMaster Indicators

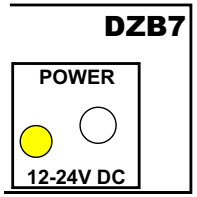
The GP LED turns on bright green when a proper DCC signal is applied to either the DCC Data Bus inputs or the Opto Input. Use it as verification of a good connection between the ZoneMaster and your Command Station, or another ZoneMaster.



The FT LED flashes on and off in time with the fault buzzer whenever an overload has been detected and the built-in circuit breaker has been tripped. The moment the circuit breaker has been tripped, the track output is disabled and remains disabled for about 3 seconds. After the short circuit is cleared, the ZoneMaster automatically resets the circuit breaker and resumes normal operation.

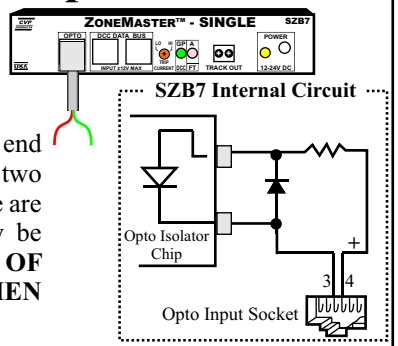
Upon first application of power, the FT indicator turns on while the ZoneMaster goes through its own set of internal diagnostics. If the DCC signal is plugged in, the GP light will turn on and the FT indicator will turn off. If there is no DCC signal, the GP indicator stays off and the FT indicator stays on. Check your cables if this occurs.

The POWER LED turns on anytime DC voltage is applied to the ZoneMaster. When the current load supplied by the ZoneMaster is near the limit of 7 Amps from either output, this light may become dim. If some kind of fault causes the external power supply to shut down, the LED will be dark. Determine the cause of the fault and fix it. In rare cases, the external DC supply may need to be unplugged and allowed to cool before it will resume normal operation. If this condition happens on a regular basis, it is a sign that you need to add additional ZoneMasters to your layout.



Using the Opto Input

Almost any foreign DCC system can use a ZoneMaster. You must use the Opto input jack for all foreign DCC systems as well as any system which is using block detectors.

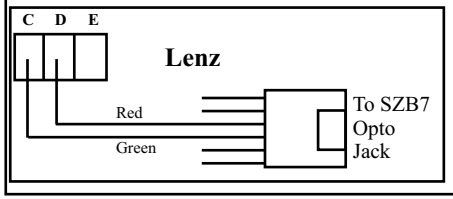


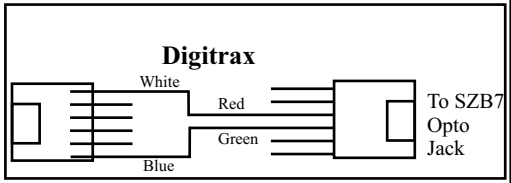
Use any 6 conductor modular cable. Strip the end opposite of the plug, exposing the wires. Only the two middle wires, red and green, of the 6 conductor cable are used. The remaining wires are not used and may be trimmed and discarded. **DO NOT USE EITHER OF THE ZoneMaster DCC DATA BUS JACKS WHEN USING THE OPTO INPUT.**

The minimum input voltage is about 7 volts. The maximum is about 25 volts. Do not exceed these limits or the ZoneMaster will not operate properly.

If the foreign system has only track outputs, then connect the ZoneMaster-Single OPTO input jack to the track output connections. Polarity doesn't matter.

The two diagrams below show how to connect the red and green wires to either the Lenz terminal block or to the Digitrax modular connector.





Trip Current Control

The ZoneMaster-Single offers a user selectable trip current. Use a small screwdriver to reach through the front panel to the small orange wheel. The small plastic wheel rotates from about the 7:00 position (LO) to about the 4:00 position (HI).

Setting the control full clockwise to the 4:00 position sets the current trip value to its highest setting which is about 7 Amps.

Setting the control full counter-clockwise to the 7:00 position sets the current trip value to its lowest setting which is about 1.5 Amps.

The default setting is mid way which sets the trip current level at about 3 Amps.

Select a trip current that allows your longest multi-unit consist or your old and favorite high-current locomotive to start and run normally without tripping the overload protection circuit.

Compatibility with CVP's Booster3

The Booster3 requires the addition of a small capacitor to allow trains to cross between it and a ZoneMaster Booster. With the addition of the capacitor, a Booster3 will work with the ZoneMaster. Contact CVP Products to obtain the capacitor and instructions for adding the capacitor.

Compatibility with Booster5 and Booster10

The ZoneMaster is compatible with the Booster5 and the Booster 10 without any changes.

Heavy Duty Track Wiring Is A Must

Use #16 AWG wire or larger. Stranded or solid does not matter although stranded bus wire is a little easier to use. Feeders between bus and track should be #18 or #20 AWG and attached every few feet. Each zone, or power district must have both the bus wires and the rail gapped. Inadequate wiring will not allow the short circuit sensor to work correctly and can pose a safety hazard.