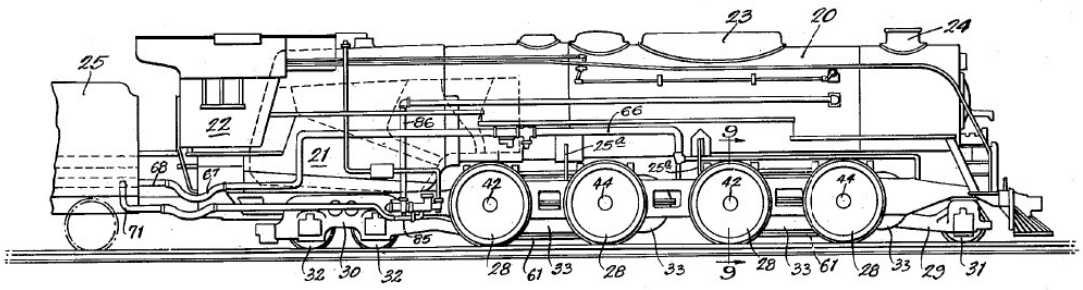
# Mountain View Rail Road




## Digital Servo Controller



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# Table of Contents



## Package contents:

1) Digital Servo board
2) User's manual (this document)
3) Registration card

# General

## Features:

Drives an electromechanical servo from fully clockwise to fully counterclockwise ( 90 degrees of rotation) at a controlled rate

Compatible with  MtViewRR Discrete Crossing Light Controller (CLC).

Compatible with MtViewRR Digital Crossing Controller (DCSC)

Powered from an external 5 Volt power supply or MVNet Power and Communication board

Contact closure or digital signal control

Selectable input signal polarity

## Description

The Mountain View Rail Road Digital Servo board is designed to drive a number of standard RC servos from near the fully clockwise to near the counterclockwise position by means of a digital signal.  The rate of movement is designed to correspond to approximate scale movement of a rail switch or a crossing control arm.

## Inputs:

- + 5VDC +/- .35V
- Reed switch or 5 Volt TTL or CMOS compatible signal

## Outputs:

- +5 Volt DC – this passed on from the input connector
- Servo control signal

## Configuration

The requires a 5 Volt power source and a digital signal.  The digital signal might be a switch or relay wired between the input and ground or it might be the output of a MtViewRR Discrete Crossing Light Controller.

The output is a three pin 0.1” spacing right angle header as is standard with RC model servos.

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## Power Supply

The quiescent power is approximately 50milliAmps. When the servo is operating it can be expected to use as much as 400 milliAmps per servo for burst of about three milliseconds. The average power is approximately 100 milliAmps when the servo is operating. The Digital Servo board can then be powered by either the PnC board or through the 3 pin header.

## Operation

The original design for the Digital Servo Controller is to be connected into a model train system for the purpose of controlling a scale crossing bar. When wired to a Discrete Crossing Light Controller the system provides control of the crossing lights and the traffic control bar of the model train system.

## PnC Operation

The Mountain View Power and Communications controller is designed to provide power and Communications between various MtViewRR boards. Power and communications are provided by a 4 conductor (min) modular cable as used by telephones and Ethernet. If an Ethernet cable is used the board is wired to place the outer wires in parallel for increased current handling.

When used with a Mountain View Net Controller (MVNC)the power is provided by the PnC board which is piggybacked onto (plugged into) the Digital Servo board.

When the DSC is controlled through a Mountain View Digital Command Controller (DCC) digital control is possible allowing the servo(s) to be set to move to a programmed position at programmed rate.

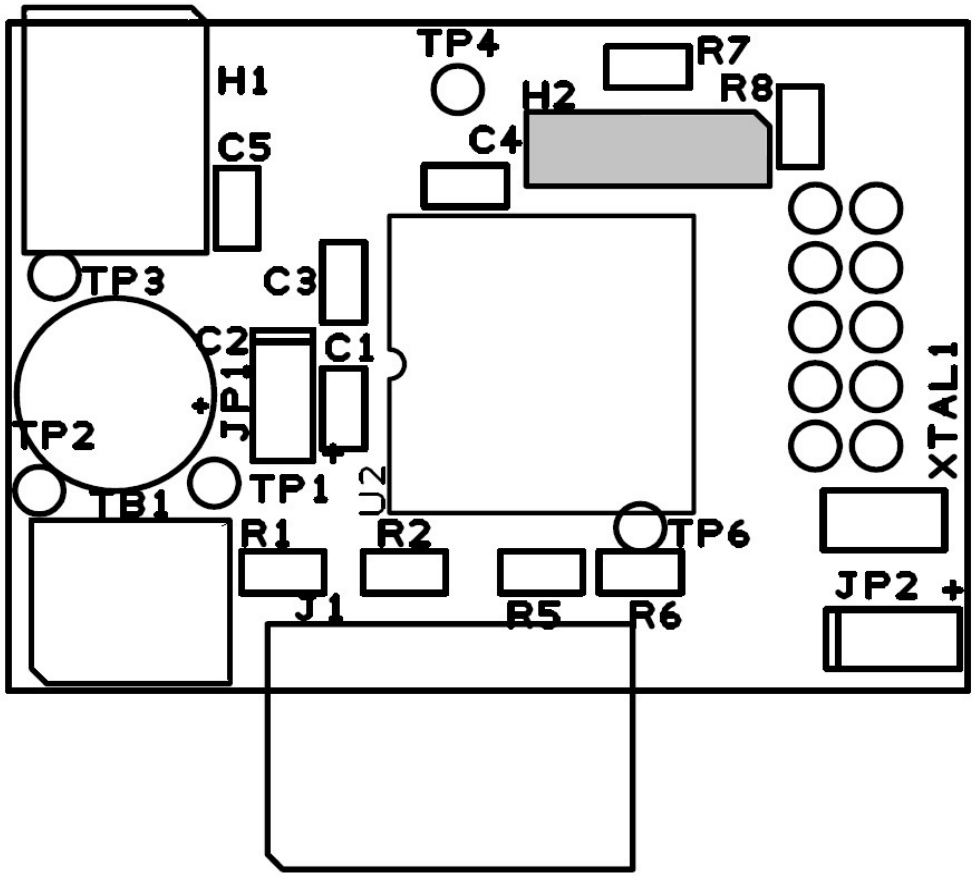
The Digital Servo board may also be controlled by either the 3 pin header or by the PnC board.

# Connector Configurations

## Header Connections

When used with a  MtViewRR Discrete Crossing Light Controller the connections are three wires (power ground and control) from the  MtViewRR Discrete Crossing Light Controller that connect to TB1 (highlighted below.)  A standard three connector servo cable is connected to H1 (highlighted below.)

Note:  A “Y” cable is required to split the signals if control of two servo motors is desired.




## PnC Connections

If a PnC adapter is used power is provided by the PnC board.  The servo controller board may then be controlled by an external source.  A secondary use of the Digital Servo

Controller board is to control track switches.  In this case the PnC controller is attached to the Digital Servo by plugging the two boards together using H2.  Standoffs are provided with the PnC board to provide a consistent mechanical connection.

# Other MtViewRR.com Electronic Products

## Crossing Light Controller (CLC)

The discreet Crossing Light Controller (CLC) is an economy entry level product that may be purchased as a completed board or a Do It Yourself kit. The arrival of a train is sensed by means of sensors placed by the customer. The alternating lights and a signal for a crossing bar is generated. The lights are turned disabled and the crossing bar is raised after the train has passed. The actuation point is determined by sensor placement. The flashing rate is adjustable by a potentiometer on the board.

## Digital Servo Controller (DSC)

The Digital Servo Control converts a digital signal into servo control signals to control scale devices such as crossing arms and rail switches. The rate of servo actuation can be set by means of an optional Digital Command Controller Interface (DCCI.) When used with a CLC the DSC may be powered by the CLC. When used in a standalone application the board may be powered by a 5 Volt power supply or a Mountain View Net Controller.

## Mountain View Net Controller (MVNC)

The MVNC provides efficient power distribution and digital communication to electronic boards. Distributed power of 10 to 24 Volts is connected between boards by means of convenient modular connectors. The high voltage low current distributed voltage is converted to low voltage high current power required by various boards. When connected to a digital controller such as the MtViewRR DCC the Mountain View Net controller provides single point control and reporting of train activity to and from a central location.

## Digital Crossing Signal Controller (DCSC)

The Digital Crossing Signal Controller provides alternating crossing lights, servo control signals, bell actuation and MtViewNet and traffic red light control that can be operated stand alone, in conjunction with MtView Net or DCC power.

## Digital Command Controller (DCC)

The MtViewRR Digital Command Controller DCC provides full DCC operation to existing rolling stock and peripherals, but additionally provides power and a wired interface for items such as crossing controllers and track switches and other peripherals. MtViewRR digital components are designed to work with other manufacturers equipment, or in the enhanced MVNet modes.

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## Digital Command Controller Pendant (DCCP)

The MtViewRR Digital Command Controller Pendant (DCCP) is a DCC accessory that provides operator interface for the MtView DCC.

## Digital Command Controller Interface (DCCI)

The MtViewRR Digital Command Controller Interface (DCCI) is a DCC accessory that provides an operator interface by means of a USB computer such as a local tablet or laptop. This product may also be used to program MtViewRR products such as the DCSC or DCC including setting operational parameters or downloading firmware updates.

## Digital Command Controller (WiFi)

The MtViewRR Digital Command Controller Interface (DCCI) is a DCC accessory that provides an operator interface by means of a WiFi connection. This provides connection between the DCC and a network device such as a handheld tablet or laptop.

## Digital Command Controller Interface (DCCI)

The MtViewRR Digital Command Controller Interface (DCCI) is a DCC accessory that provides an operator interface by means of a USB computer such as a handheld tablet or laptop.

## MtViewNet

Communication between on-track train components is being handled efficiently by the present DCC components. In our opinion, off-track components can be handled in a more efficient manner. Mountain View Railroad products is pursuing a philosophy of dual communication channels. Our answer for off-track components is the MtViewNet communications system.

MtViewNet components communicate at up to 400 Khz rates and can support up to 1,000 devices. Connection between components is by means of two wire, bi directional communication. Our MtViewNet boards utilize a four or six conductor and modular connectors similar to telephone or Ethernet connectors to provide communications between a controller such as our DCC controller and peripherals such as our Digital Crossing Signal Controller.