

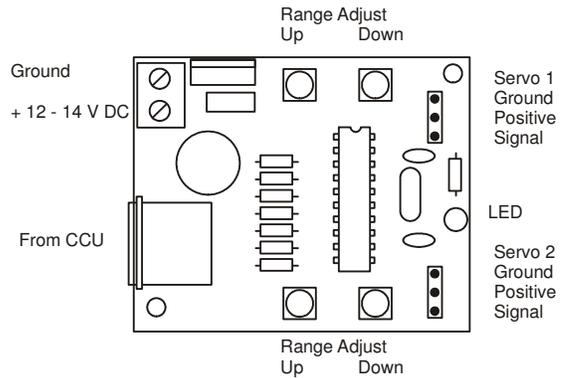
# DATA SHEET

## Servo Motor Drive Module SD-009

The SD-009 servo motor drive control module provides connection to two servo motors from the SD-001 central control unit. It is designed to work with points or semaphore signals that are operated by servo motor actuators. It requires separate power supply for operation. This gives a choice of operating voltage, independent of other components, to give reliable operation of the servo motors.

### Specifications:

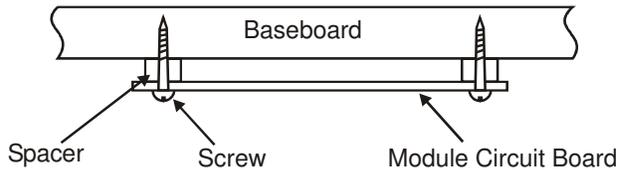
- Controls two servo motors
- Input Voltage – 12-16 V DC from separate source
- Input Signal – two position for each servo motor from decoder module
- Adjustable operating stroke



**Figure 1 Servo Motor Drive Control Module**

### INSTALLATION

Mount the Module in a position central to the points to be controlled. Use the screw holes provided in the board to mount it but do not fix the screws too tightly or the board may be damaged.



**Figure 2 Module Mounting**

The use of spacers as shown in Figure 2 is recommended.

Connect the points control module J1 to the required output of central control unit, using telephone style connectors and cable. The type of connector and cable is described later in this data sheet.

Connect power (12-14 V DC) to the positive (+) and ground terminals, as shown in Figure 1. Connect the plugs on the cables that are attached to the servo motors to the 3-pin headers, as shown in Figure 1, for each of the two servo motors. Take care to orientate the plugs the correct way around.

The servo motors will switch to a default position when power is applied to the control system. This provides a known starting position each time the layout is powered up.

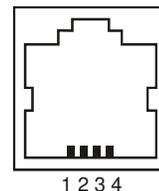
### CONNECTING TO CENTRAL CONTROL

Connecting from the central control unit to the servo motor drive module is done by using four core telephone cable fitted with RJ11 connectors. Cables of the correct length and orientation are required.

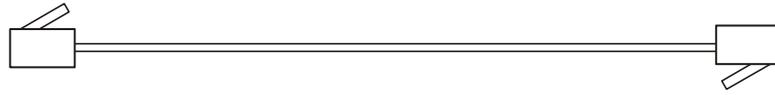
The signals assigned to the pins of the RJ11 connector are detailed in Figure 3. As the connector pins have the same orientation on both the decoder and the control modules, it is necessary to reverse the connectors on the cable, as shown in Figure 4.

Cables can be made with the use of a crimping tool or purchased, in either case ensure that they are the cross over type.

To make the connection, simply plug one end of the cable into the decoder and the other into the signal module.



**Figure 3 RJ11 Pins**



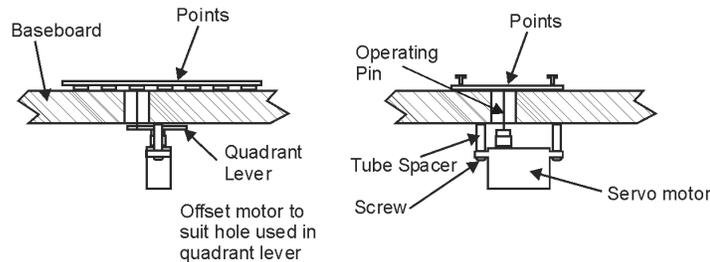
The plugs are reversed

**Figure 4 Cable Orientation**

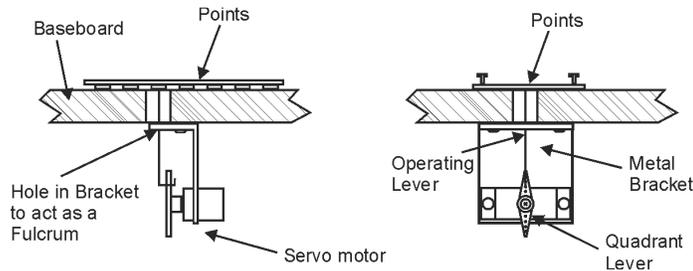
## MOUNTING THE SERVO MOTOR

The method of mounting the servo motor for operating points will depend on the size and configuration unit chosen. Generally, there will be two methods – servo motor horizontal or servo motor vertical.

If the servo motor is to be mounted in the horizontal position then Figure 5 shows a suggested arrangement while if the vertical mounting is to be used then Figure 6 can be used as a guide.



**Figure 5 Horizontal Mounting**



**Figure 6 Vertical Mounting**

## ADJUSTING THE STROKE OF THE SERVO MOTOR

It is important to adjust the stroke of the servo motor to exactly match the stroke of the points, to prevent overloading the servo motor. To adjust the stroke of the servo, the range adjust switches on the servo motor drive module are used, refer to Figure 1. Carry out the following procedure for each servo motor connected to the servo motor drive module.

1. Press and hold both range adjust switches until the servo motor is in the centre of its travel range.
2. Activate the servo motor via the DCC control system – note: the motor will not move as it is in its centre or neutral position. The purpose of this step is to set the direction of travel.
3. Press the Up range adjust switch to move the servo motor in an anti-clockwise direction one step. Pressing the Down range adjust switch will move the servo motor one step clockwise.
4. Continue to press the Up or Down switches until the servo motor has moved the points fully to one position.
5. Activate the DCC control system to set the servo motor to the other direction and repeat steps 3 and 4 until the points are fully in the other position.
6. Test the operation of the points in each direction to ensure that the servo motor does not stall on either direction. Make minor adjustments with the range adjust switches if required.

Mounting and adjusting the servo motors to operate semaphore signals is done similarly to points.