Description

The MCS-500 is a series of completely self-contained photoelectric controls with LED light source, receiver, amplifier and output device in one unit. This series of Photoscanners has a permanently wired base with a line of plug-in electronics that can be easily interchanged.

The MCS-500’s light source is solid state and has nearly unlimited life. The LED (Light Emitting Diode) is modulated at a high frequency to operate effectively over long distances. The light receiver circuitry is strobed in synchronism with the LED, resulting in the device being virtually immune to all light other than its own. The light source operates in the infrared spectrum and is invisible. For initial setup purposes, a bright, highly visible LED indicator is located under the clear dome. When the beam from the source is reflected back to the sensor, the indicator illuminates.

Specifications

- **Operational Range:** 15’ with a 3” diameter retroreflector
- **Power Input:** 120 VAC, ± 10%, 50/60 HZ, 14 VA
- **Light Source Life:** Approximately 100,000 hours
- **Ambient Light:** Virtually no effect
- **Input Sensitivity:** Adjustable
- **Ambient Temperature:** 0° to 125°F (-18° to +52°C)
- **Case:** High Impact ABS
- **Wiring Access:** 1/2” standard conduit entrance
- **Operational Mode:** Switch selectable for light or dark operation
- **Response Time:** 10 ms on and 10 ms off
Specifications (Continued)

Optional Outputs:  
- MCS-850 Relay, SPDT 5 A.
- MCS-851 Open collector, 30 VDC @ 20 ma.

Cycle rate: 3000 cycles per minute, max.

Installation

Mounting

1. Mount the base securely on a firm support using the two screws provided with the threaded #8-32 holes in the unit’s base. See mounting dimensions. Figure 4.

For ease of mounting and aligning use the optional mounting bracket, part number 7150-101-020.

2. For best results, mount the scanner vertically to decrease the possibility of dirt and other foreign matter from blocking the beam.

Alignment

1. The unit is shipped set for light operation. The output device will activate when light from the source is reflected back to the receiver. For dark operation, refer to the light/dark switch label enclosed with the unit, or see Figure 3.

2. Loosen the screw on the top cover so that the clear dome will swivel freely, exposing the adjustments. Set the sensitivity adjustment to maximum by turning the potentiometer fully clockwise as shown in Figure 4 and connect the 120 VAC leads to the proper terminals. (Caution: Use wire with insulation suitable for 120 VAC.) Plug one of the output modules listed under the module options into the base. The visible LED indicator on top of the scanner will light when the infrared beam is completed from the source to the sensor.

3. Place the target in the position detection is desired. With the scanner aimed at the target and mounted loosely on its mounting bracket, swivel the scanner up and down and left and right, noting the position in which the visible alignment indicator is lit. Position the scanner in the center of this area and secure the scanner mounting. Note that the area surrounding the target must be nonreflective or satisfactory operation will not be obtained. Also, any reflective objects in the scanner’s optical path and operational range will be sensed. Care should be taken to ensure that only the desired target is capable of being sensed by the scanner.

The sensitivity adjustment may be used to decrease the sensitivity of the scanner for optimum operation.

Note: In order to achieve optimum performance when replacing the electronic head, some realignment may be necessary.

Modules And output Wiring

1. Connect the output wires to the proper terminals. See Typical Terminal Wiring, Figure 2.

2. Insert output module in the base.
Timing Adjustment

Refer to the timing label enclosed. See Figure 3.

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Delay Pull</td>
<td>S1, S4, S6</td>
<td>T1</td>
<td>S4, S6</td>
</tr>
<tr>
<td>Delay Drop</td>
<td>S6</td>
<td>T1</td>
<td>S1, S6</td>
</tr>
<tr>
<td>Delay Pull/Drop</td>
<td>None</td>
<td>T2, T1</td>
<td>S1</td>
</tr>
<tr>
<td>One Shot</td>
<td>S1, S3, S6</td>
<td>T1</td>
<td>S3, S6</td>
</tr>
<tr>
<td>Delay One Shot</td>
<td>S1, S3, S4, S5, S6</td>
<td>T1, T2</td>
<td>S3, S4, S5, S6</td>
</tr>
</tbody>
</table>

Switched On Positions

Low Timing Range-Switches S7 & S8 Off .5 To 5.0 Sec.
High Timing Range-Switches S7 & S8 On 3.0 To 30 Sec.

If No Timing Function Is Required

Light Opera. - Switches S2 & S6 On
Dark Opera. - Switches S1, S2, & S6 On

Maintenance

1. For reliable operation, the lens should be cleaned periodically. Cleaning intervals may vary, depending on installation environment, from several times a year to several times a day. If sensitivity adjustment is not at maximum (or scanner is used at or near its maximum range), more care must be taken to keep the lenses clean.

Note: Enclosure is gasketed. Keep the cover secured firmly during operation to prevent dirt and smudge from building up on the inside of the lens and photoelectric components.

2. To assure reliable operation, periodically check tightness of the scanner mounting.

3. On high cycle rate applications using relay output, the relay may require periodic replacement.

Part Numbers

The part number lists below include complete units, as well as individual components. If a complete unit with head, base and output device is required, please refer to the “Complete Retroreflective Units” list. If only part of the unit is to be replaced, refer to the “Modules and Options” list.

Complete Retroreflective Units

<table>
<thead>
<tr>
<th>Input Voltage</th>
<th>Output Device</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 Vac</td>
<td>Relay</td>
<td>7150-448-004</td>
</tr>
<tr>
<td>120 Vac</td>
<td>Open Collector</td>
<td>7150-448-020</td>
</tr>
<tr>
<td>120 Vac</td>
<td>Triac</td>
<td>7150-448-024</td>
</tr>
</tbody>
</table>

Modules and Options

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7150-101-004</td>
<td>120 VAC Control w/ Timing</td>
</tr>
<tr>
<td>7150-101-013</td>
<td>120 VAC Base</td>
</tr>
<tr>
<td>7150-101-016</td>
<td>Relay Output Module</td>
</tr>
<tr>
<td>7150-101-017</td>
<td>Open Collector Output Module</td>
</tr>
<tr>
<td>7150-101-018</td>
<td>Triac Output Module</td>
</tr>
<tr>
<td>7150-101-019</td>
<td>Dome</td>
</tr>
<tr>
<td>7150-101-020</td>
<td>Mounting Bracket</td>
</tr>
<tr>
<td>7420-448-029</td>
<td>Cable Adapter</td>
</tr>
<tr>
<td>610-8002-001</td>
<td>3” Diameter Retroreflector</td>
</tr>
<tr>
<td>610-8002-002</td>
<td>1 1/4” Diameter Retroreflector</td>
</tr>
</tbody>
</table>
Dimensions

Bracket

Figure 4
Warranty

Warner Electric LLC warrants that it will repair or replace (whichever it deems advisable) any product manufactured and sold by it which proves to be defective in material or workmanship within a period of one (1) year from the date of original purchase for consumer, commercial or industrial use.

This warranty extends only to the original purchaser and is not transferable or assignable without Warner Electric LLC’s prior consent.

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