

# Warner Photoscanner MCS-500 Series LED Photoelectric Control

P-241-100  
819-0504

Installation & Operating Instructions



 **Warner**<sup>®</sup>  
Electric

An Altra Industrial Motion Company

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**⚠ WARNING** Failure to follow these instructions may result in product damage, equipment damage, and serious or fatal injury to personnel.

## 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.

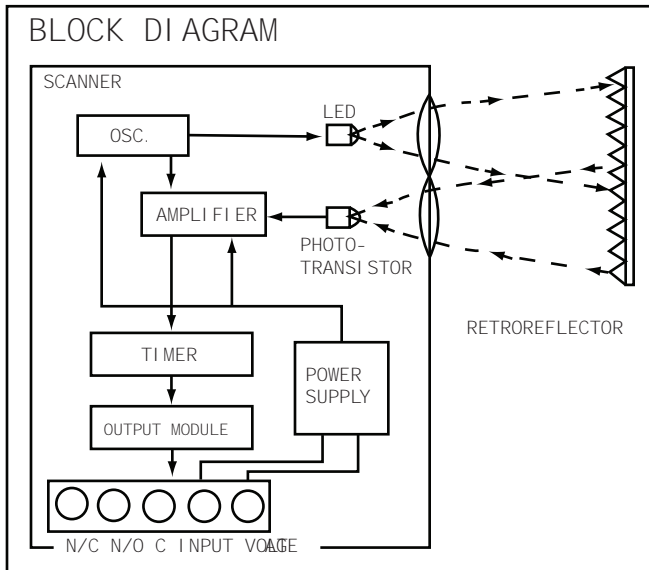


Figure 1

## 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.

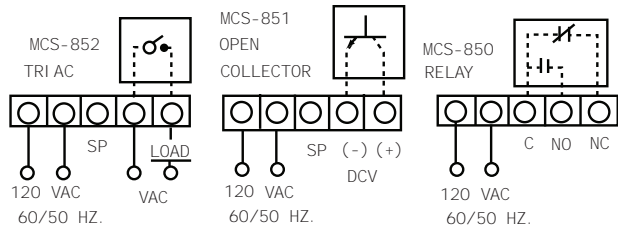


Figure 2

## Timing Adjustment

Refer to the timing label enclosed. See Figure 3.

	Light Oper.	Adj.	Dark Oper.	Adj.
Delay Pull	S1, S4, S6	T1	S4, S6	T1
Delay Drop	S6	T1	S1, S6	T1
Delay Pull/Drop	None	T2, T1	S1	T2, T1
One Shot	S1, S3, S6	T1	S3, S6	T1
Delay One Shot	S1, S3, S4, S5, S6	T1, T2	S3, S4, S5, S6	T1, T2
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.				
<b>If No Timing Function Is Required</b>				
Light Opera. - Switches S2 & S6 On Dark Opera. - Switches S1, S2, & S6 On				

Figure 3

## Maintenance

- 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.

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

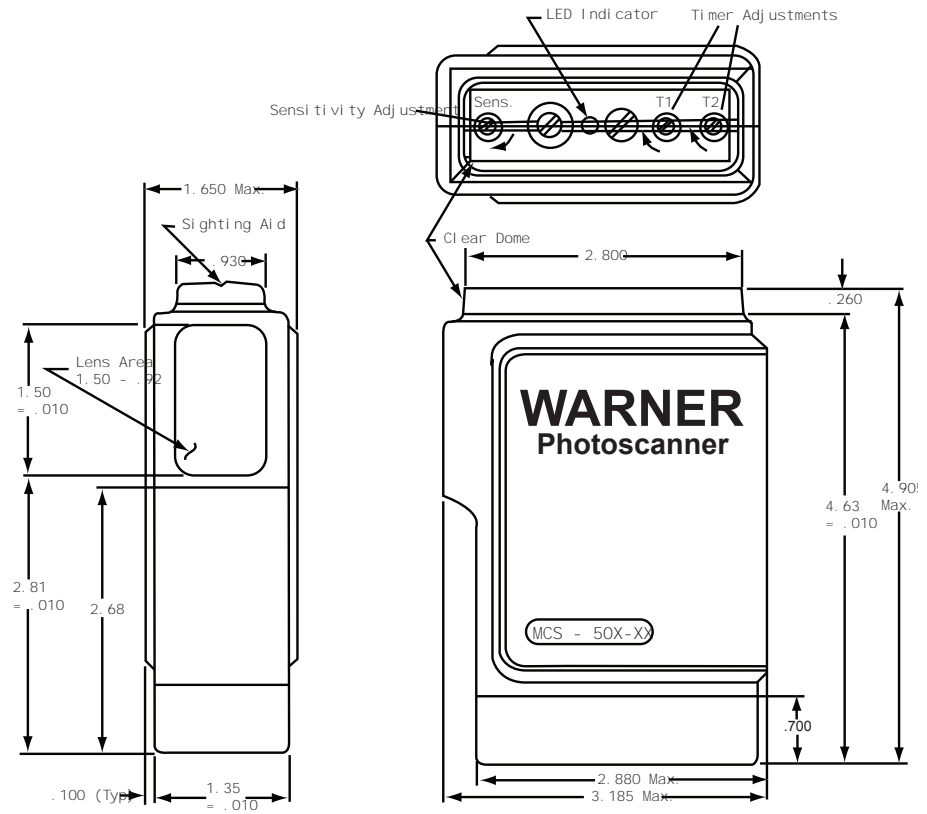
### Complete Retroreflective Units

Input Voltage	Output Device	Part Number
120 Vac	Relay	7150-448-004
120 Vac	Open Collector	7150-448-020
120 Vac	Triac	7150-448-024

### Modules and Options

	120 VAC Control w/Timing	7150-101-004
MCS-850 MCS-851 MCS-852	120 VAC Base	7150-101-013
	Relay Output Module	7150-101-016
	Open Collector Output Module	7150-101-017
	Triac Output Module	7150-101-018
	Dome	7150-101-019
	Mounting Bracket	7150-101-020
	Cable Adapter	7420-448-029
	3" Diameter Retroreflector	610-8002-001
	1 1/4" Diameter Retroreflector	610-8002-002

# Dimensions



# Bracket

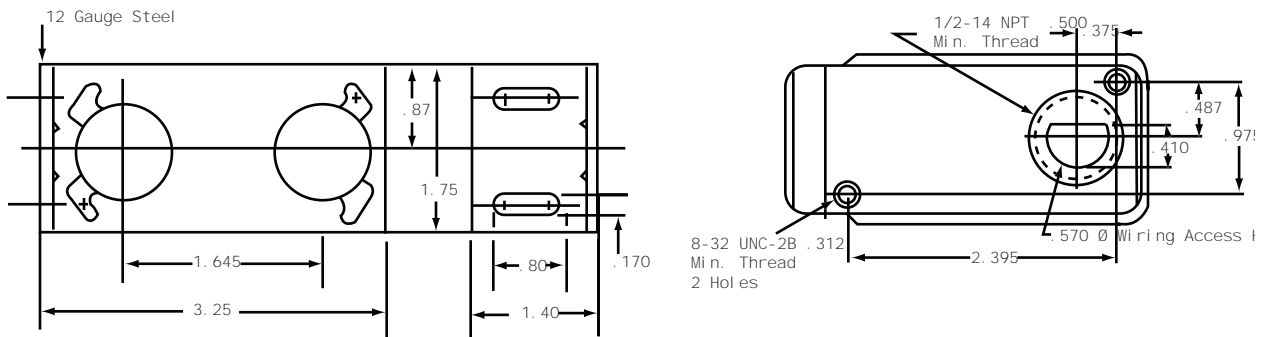


Figure 4

# 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.

Warranty service can be obtained in the U.S.A. by returning any defective product, transportation charges prepaid, to the appropriate Warner Electric LLC factory. Additional warranty information may be obtained by writing the Customer Satisfaction Department, Warner Electric LLC, 449 Gardner Street, South Beloit, Illinois 61080, or by calling 815-389-3771.

A purchase receipt or other proof of original purchase will be required before warranty service is rendered. If found defective under the terms of this warranty, repair or replacement will be made, without charge, together with a refund for transportation costs. If found not to be defective, you will be notified and, with your consent, the item will be repaired or replaced and returned to you at your expense.

This warranty covers normal use and does not cover damage or defect which results from alteration, accident, neglect, or improper installation, operation, or maintenance.

Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

Warner Electric LLC's obligation under this warranty is limited to the repair or replacement of the defective product and in no event shall Warner Electric LLC be liable for consequential, indirect, or incidental damages of any kind incurred by reason of the manufacture, sale or use of any defective product. Warner Electric LLC neither assumes nor authorizes any other person to give any other warranty or to assume any other obligation or liability on its behalf.

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## **Changes in Dimensions and Specifications**

All dimensions and specifications shown in Warner Electric catalogs are subject to change without notice. Weights do not include weight of boxing for shipment. Certified prints will be furnished without charge on request to Warner Electric.



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