



## LaserGuard2 Systems Replacement Guide

Magnetek's LaserGuard systems measures the distance between the laser unit's lens and its companion retro-reflective target by means of pulse ranging technology that allows for very accurate measurements and energy efficiency. The laser communicates with the Laser Support Unit (LSU) by means of a 4 mA to 20 mA current loop. While the functionality is similar between LaserGuard and LaserGuard2, the technology has changed in the laser to give a significant increase in accuracy, and the LSU has additional diagnostic and safety features. Parts of an older LaserGuard system and a new LaserGuard2 system can be used together and function properly\*, but it will require slight adjustments to the wiring or range detectors (see the LaserGuard manual for range detector instructions). Below is a table to show a few of the differences between systems. For a complete list of specifications, refer to the instruction manual.

Specification	LaserGuard		LaserGuard2	
	Laser	Laser Support Unit (LSU)	Laser	Laser Support Unit (LSU)
Operating Temp.	-28 to 60°C	-30 to 70°C	-30 to 55°C	-30 to 70°C
Op. Range	10 to 150 ft.	--	8 in. to 150 ft.	--
Input Voltage	12V from LSU	95-130 VAC, 140-260 VAC, 180-300 VDC, 8-30 VDC	12V from LSU	85-264 VAC or 120-370VDC, 9-36VDC
Accuracy	6 in.	--	1 in.	--
Range Settings	--	Potentiometers	--	Push Buttons
Control Outputs	--	Three form C relays rated at 10 Amps, 270 VAC, 27 VDC	--	Three form C relays rated at 10 Amps, 270 VAC, 27 VDC
Fault Output	--	One form C relays rated at 10 Amps, 270 VAC, 27 VDC	--	One form C relays rated at 10 Amps, 270 VAC, 27 VDC
Laser Class	1	--	1	--
Enclosure	Aluminum IP54	NEMA 4	Plastic IP65	NEMA 4
Unit Dimensions	5.5" x 5.5" x 2.5"	approx. 11.8" x 9.8" x 5.9"	4.0" x 2.1" x 1.0"	approx. 11.8" x 9.8" x 5.9"
Weight	3.3 lbs.	12.2 lbs.	0.2 lbs.	12.2 lbs.
Reflector Dimensions	24" x 24"	--	24" x 24"	--

\*Functionality is limited to the original LaserGuard component being used.



## Intermixing System Parts

### LaserGuard LSU with LaserGuard2 Head

If a LaserGuard Laser Support Unit is used with a LaserGuard2 laser head, adjustment from the existing cable to the control board would be required, as the laser pin out has changed. See the table below on how to wire with the old system versus the new system. In addition, the range detector potentiometers will need to be adjusted. The test point voltage levels listed in the original LaserGuard manual will not match, as the LaserGuard2 head has a different minimum distance at 4 mA.

For example, an original LSU and cable is used with a new LaserGuard2 head: Red "TWO" should be wired to +12V, Black "TWO" should be wired to SIG., Red "ONE" should be wired to COMM., Black "ONE" should not be connected to any point on the board, and the drain wire should be wired to COMM. The potentiometers require fine-tuning as well.

### LaserGuard Head with LaserGuard2 LSU

If a LaserGuard laser head is used with a LaserGuard2 Laser Support Unit (LSU), wiring would also have to be wired using the table below. The LASER SELECT switch S4 on the control board of the LSU must be moved from the default position of "OFF" to "ON". This will prevent nuisance Overcurrent faults when moving the crane to distances beyond 150 feet.

LaserGuard				LaserGuard2			
Connector pin number	Head Designation	Wire Color	Board Termination	Connector pin number	Head Designation	Wire Color	Board Termination
1	12V to laser	Twisted Pair "TWO" Red	#3, +12V	1	12V to laser	Brown	#3, +12V
2	0V	Twisted Pair "TWO" Black	#4, OUT	2	4-20mA signal	White	#1, SIGNAL
3	4-20mA signal	Twisted Pair "ONE" Red	#1, SIG.	3	0V	Blue	#2, GND
4	0V	Twisted Pair "ONE" Black	#2, COMM.	4	Not Connected	Black	Not Connected
DRAIN WIRE	0V	No insulation	#2, COMM.	DRAIN WIRE	0V	Not available on all models	#2, GND