



English



15171097

Installation Guide

Light Screen WEG

Free Way

Light Screen for Road Automation

1 SAFETY INSTRUCTIONS



DANGER!
The procedures recommended in this warning aim at protecting the user against death, serious injuries and considerable material damages.



ATTENTION!
The procedures recommended in this warning aim at preventing material damages.



NOTE!
The text aims at providing important information for the correct understanding and proper operation of the product.



DANGER!
Only qualified personnel, familiar with the light screen for road automation and related equipment, must plan or perform the installation, operation and maintenance of this device. Such personnel must follow the safety instructions contained in this guide and/or defined by local regulations. Failure to comply with the safety instructions may result in death risks and/or damages to the equipment.



ATTENTION!
A general inspection of the equipment and installation is recommended at least every six months. Check that there are no damages to the housing and to the cables, corrosion at the terminals and the conditions of the grounding.

2 GENERAL INFORMATION

The LS (Light Screen) is an optoelectronic device that produces a beam curtain composed of an infrared light emitter module and receiver module. The LS light screen monitors a useful area determined by the distance between the emitting and receiving units, where the state of each light beam is informed through the RS485 output and digital outputs. If something enters this area interrupting one or more light beams, its outputs will switch informing such fact to the connected system.

The LS light screen is suitable for detecting vehicles in toll stations and parking lots or in applications where you want to monitor a particular area.

It has monitoring heights of 550 mm, 1350 mm, 1500 mm, 1650 mm and 1800 mm with 25 mm resolution.

General check of the equipment and its installation is recommended every six months; cable conditions, grounding and cleanliness of the front display should be inspected.

3 START-UP

The emitting unit consists of a set of infrared light emitting diodes (LEDs). Those LEDs are sequentially triggered to scan the emitting module. The light that hits the receiving elements is converted into electrical impulses that are digitized and analyzed by the control circuit.

The serial output reports the status of each light screen beam and the digital output reports obstruction of the light screen.

4 INDICATIONS

Emitter	In State: when on, it indicates that the unit is energized
Receiver	On State: when on, it indicates that the equipment is energized Activate: when on, it indicates that the unit is optically aligned

5 VEHICLE COUNT

The LS has a PNP output for vehicle count with blanking of 10 beams.

Activation condition: 10 or more beams obstructed.

Condition for deactivation: all beams aligned.

See table Technical Characteristics to consult the response time for each Light Curtain size.

6 FAILURE SIGNALIZATION

The LS has a PNP output to signalization of failures.

Detectable failures:

- Failure in communication between transmitter and receiver units;
- Beam(s) obstructed for a period higher than 1 minute.

7 SELF CORRECTION OF FAILURE BY BEAM OBSTRUCTION

In case of obstruction of a beam on the receptor unit for a time longer than 1 minute, the LS will attempt to recover that beam through the above one, and if this attempt were successful, the LS will signalize the problem occurred on the Failure Output, and will operate through that beam above the one affected. The Serial and Vehicle Count outputs will not be affected.

If the failure persists, its respective output will remain activated and the respective beam will be shown on the serial output as a continuously obstructed beam, but the Vehicle Count output will operate normally, ignoring this failure.

While the obstruction were present on the detection zone of LS, the Failure Output will remain activated.

If the obstruction of the beams were equal or higher than two consecutive beams and/or there are more than 3 beams in failure, these procedures will not be executed and the Vehicle Count and Failure outputs will remain activated.

When the obstruction is removed, the LS will return to normal automatically to its standard operation mode.

8 TECHNICAL CHARACTERISTICS

Table 1: Technical characteristics

Characteristics	Specifications				
Product	Light Screen				
Code	LS WEG FREE WAY				
Power supply	24 Vcc +/- 10 %				
Capacity of the PNP outputs	100 mA				
Serial output	RS485				
Vehicle detection digital output	PNP - NO				
Fault digital output	PNP - NO				
Maximum working distance	10 m				
Resolution	39 mm				
Distance between light beams	25 mm				
Blanking	10 light beams				
Emitting element	Infrared led 890 nm				
Operating temperature	-10 to 50 °C (14 to 122 °F)				
Transportation temperature	-20 to 70 °C (-4 to 158 °F)				
Enclosure	Epoxy coated aluminum				
Protection rating	IP65				
Connections	Connector with cable				
Defined area height	550 mm	1350 mm	1500 mm	1650 mm	1800 mm
Maximum consumption	7.8	15	16	17	19
Response Time (ms)					
RS485 output	1.1	2.3	2.6	2.8	3.1
Vehicle detection (activation and deactivation)	2.8	5.8	6.5	7.2	7.7

9 SPARE PARTS AND ACCESSORIES

Description	Code
Blue case for light screen 550 mm	15171525
Blue case for light screen 1350 mm	15171527
Blue case for light screen 1500 mm	15171558
Blue case for light screen 1650 mm	15171558
Blue case for light screen 1800 mm	15171562
Yellow case for light screen 550 mm	15171096
Yellow case for light screen 1350 mm	15171518
Yellow case for light screen 1500 mm	15171519
Yellow case for light screen 1650 mm	15171521
Yellow case for light screen 1800 mm	15171522
Fixation base shoe	12421812
Connector set	15430292
Male contact	Manufacturer: LAPP Code: 13162000
Crimp tool for single contacts	Manufacturer: LAPP Code: 11147000
Removal tool	Manufacturer: LAPP Code: 11161000
Crimp die	Manufacturer: LAPP Code: 11147100
Locator tool	Manufacturer: LAPP Code: 11147200

10 SERIAL INTERFACE - SERIAL LIGHT SCREEN

The RS485 interface uses 2 ways to communicate: TxD- (A), TxD+ (B). Through the serial interface, the data corresponding to the status of each light screen beam are transmitted by scan. The system only sends data, not receiving data from any other device. Each light screen beam is equivalent to one bit of the data packet. A blocked beam is interpreted as bit "zero" and an aligned beam is interpreted as bit "one". The packet containing the beam status is continuously sent through the serial output at a baud rate of 57600 bps. Every seven beams collected, the message is updated with the respective status. The last bit of each character (bit 7) is reserved for the light screen scan synchronism with the system connected to it. Bit 7 of the last scan character is fixed at logic level "1" and the others at logic level "0", thus allowing the identification of end of scan.

Serial Settings:

- Default - RS485.
- RS485 baud rate - 57600bps.
- 1 Stop bit.
- 1 Start bit.
- No parity bit.



NOTE!
To collect data sent by the light screen via PC, an RS485 (1) to RS232 or USB converter.
(1) WEG Converter (11511558).



Español

Guía de Instalación

Light Screen WEG

Free Way

Cortina de Luz para Automatización Vial

1 INSTRUCCIONES DE SEGURIDAD



PELIGRO!
Los procedimientos recomendados en este aviso tienen como objetivo proteger al usuario contra muerte, heridas graves y daños materiales considerables.



ATENCIÓN!
Los procedimientos recomendados en este aviso tienen como objetivo evitar daños materiales.



NOTA!
Las informaciones mencionadas en este aviso son importantes para el correcto entendimiento y el buen funcionamiento del producto.



PELIGRO!
Solamente personas con calificación adecuada y familiaridad con la cortina de luz para automatización vial y los equipos asociados deben planear o implementar la instalación, operación y mantenimiento de este equipo.

Estas personas deben seguir todas las instrucciones de seguridad contenidas en esta guía y/o definidas por normas locales. No seguir las instrucciones de seguridad puede resultar en riesgo de muerte y/o daños en el equipo.



ATENCIÓN!
Se recomienda la verificación general del equipo y la instalación, como mínimo, cada seis meses. Verifique si no hay daños en los envoltecidos, corte en los cables, corrosión en los terminales y cuál es la situación de las puestas a tierra.

2 INFORMACIONES GENERALES

El LS (Light Screen) es un equipo optoelectrónico que produce una cortina de haces compuesta por un módulo emisor y un módulo receptor de luz infrarroja. La cortina de luz LS supervisa un área útil comprendida por la distancia entre las unidades emisora y receptora, donde el estado de cada haz de luz es informado a través de la salida de la ls485 y salidas digitales. Si esta área es invadida interrumpiendo uno o más haces de luz, sus salidas comutarán informando al sistema a éste conectado.

La cortina de luz LS es indicada para detección de vehículos en plazas de peaje y estacionamientos, o en aplicaciones donde se desea supervisar una determinada área.

Todos los componentes de la cortina de luz LS están diseñados para cumplir con las normas de seguridad y certificación correspondientes.

Este manual de instalación proporciona información sobre la instalación, configuración y funcionamiento de la cortina de luz LS.

Si tiene alguna pregunta o necesita asistencia adicional, no dude en ponerse en contacto con el servicio de atención al cliente de WEG.

Le deseamos una instalación exitosa y segura para su aplicación.

Tiene alturas de monitoreo de 550 mm, 1350 mm, 1500 mm, 1650 mm y 1800 mm con resolución de 25 mm.

Se recomienda la verificación general del equipo y de su instalación cada seis meses, verificar la situación de los cables, la puesta a tierra y la limpieza del visor frontal.

3 PUESTA EN FUNCIONAMIENTO

La unidad transmisora está compuesta por un conjunto de diodos emisores de luz infrarroja (LEDs). Estos LEDs son accionados de forma secuencial, lo que define la barredura del módulo emisor. La luz que incide en los elementos receptores es convertida en impulsos eléctricos, que son digitalizados y analizados por el circuito de control.

La salida serial informa la situación de cada uno de los haces de la cortina de luz y la salida digital informa obstrucción.

4 SINALIZACIONES

Transmisor	On State: cuando está encendido indica que la unidad está energizada
Receptor	On State: cuando está encendido indica que el equipo está energizado
Activate	cuando está encendido indica que la unidad está alineada ópticamente

5 CONTEO DE VEHÍCULOS

El LS tiene una salida PNP para conteo de vehículos con blanking de 10 beams.

