

# LANDING STAR T1 WW

LED landing WIG-WAG light for UL aircraft, square type



## Description:

The **LANDING STAR T1 WW** reflector is intended for use in UL aircraft as WIG-WAG landing lights and to light the runway surface by taxiing. It is intended for mounting on the wings, behind a transparent cover that prevents water and dirt from entering the electronics. When in use, it illuminates the track using two types of lenses with different beam angles (near and high beam). The nominal power of the light is 12 W. If the battery voltage drops below 9.5 V for 2 sec, the light will automatically switch to half power. Under a voltage of 8.5V and a duration of 1 sec, the light switches to the off state (under 8V immediately). The light can gradually return from these states back to full functionality, provided the battery voltage rises again to a safe limit. If the headlight works at elevated temperatures above 45 °C, it may gradually reduce its maximum output due to overheating protection. The color temperature of the light is cool white, and its total luminous flux is approximately 1500 lm.

Compared to the other version (without wig-wag), the headlight has two extra wires (SET and SYNC), which are used to control the WIG-WAG function. This special function is therefore integrated directly into the light and there is no need to have an external WIG-WAG generator. The only requirement is to have at least 2 properly connected Landing Star T1 WW reflectors. The SET wire is used to set whether it is a left or right light, and the SYNC wire is used to synchronize the timing of the left and right headlight. If we ground the SYNC signal for a time longer than 750ms, the lights will switch to constant light. When the SYNC signal is released, the WIG-WAG function returns. The electrical installation is much simpler than when using an external WIG-WAG. In the case of loss of synchronization, the lights may remain on or flash asynchronously (depending on the type of fault). It is possible to connect 2 lights at once as left or right (connect the second light parallel to the existing one). But then it is necessary to consider sufficient dimensioning of the primary fuse for light. To assemble the product to the aircraft there are 4 circular 4 mm holes for screws or rivets. The metal cover of the product can be conductively connected to the metal aircraft surface.

A ferrite bead is also supplied with the product. This is usually mounted on the reflector when using WIG-WAG and is used to suppress unwanted interference that mainly penetrates the audio. It can always be installed as a precaution, but it is not necessary. It is installed by passing the power wires twice through the bead to 2-10 cm from the body of the reflector. Instructions for using the ferrite bead can be downloaded from [www.lambert-aerodevices.cz](http://www.lambert-aerodevices.cz).

## Usage:

Any non-certified aircraft with 12V (nominal) electrical system.

**THIS PRODUCT IS NOT APPROVED FOR INSTALLATION ON CERTIFIED AIRCRAFT.  
THIS IS NOT A TSO-CERTIFIED LIGHT.**

## Light Specification:

Parameters	min	Type	max	Unit	Note
Technology	-	LED	-	-	
Total light illumination	-	1512	-	lm	(See Figure 4)
High distance illumination	-	1008	-	lm	radiation angle 10° (5 lenses)
Low distance illumination	-	504	-	lm	radiation angle 25° (4 lenses)
CRI	70	-	-	-	
CTT	4700	-	7000	K	Light color cool white
Turn on-ramp	-	ANO	-	-	0,5 sec - from half to max power

## Mechanical specification:

Parameters	Value	Unit	Note
Width	92	mm	See fig. 1: Size of reflector
Deep	17	mm	
High	92	mm	
Weight	130	g	
Cable length	500	mm	AWG20
Assembly holes (diametral)	4	mm	4 x countersunk hole for screw or rivet (see fig. 2)

## Electrical specification:

Parameters	min	type	max	Unit	Note
Supply voltage	9	12	15	V	
Current consumption	0,9	1	1,27	A	
Power	11,5	12*	13,5	W	*25 °C
Efficiency	-	75	-	%	
Half power mode	5.5	6.5	7.5	W	
Switch to half-power mode	-	Vin <9,5	-	V	Response time 2 sec, hysteresis 0,5V
Power-off voltage 1	-	Vin <8,5	-	V	Response time 1 sec, hysteresis 0,5V
Power-off voltage 2	-	Vin <8.0	-	V	Fast turn off
Temperature protection	-	75	-	°C	over this temperature, device is slowly lowering power respect max. temperature
Over-current protection	-	3,5	-	A	The light device can start blinking
Recommended fuse protection	-	5	-	A	for 1 device; for more devices is recommended that separate fused
Polarity reversal protection	-	YES	-	-	
PWM frequency	-	20	-	kHz	
Internal WIG-WAG	-	YES	-		
Timing WIG-WAG		750/750		msec	left/right light
Input SYNC protection		YES			Over-current input protection (to fault connect to VCC)
Output current SYNC and SET			8	mA	
Input current SYNC			30	mA	<b>Do not connect to VCC!</b>
Input current SET			1	mA	Connect to VCC or GND.
Over-voltage protection		18V			

## Mechanical specification – drawing:

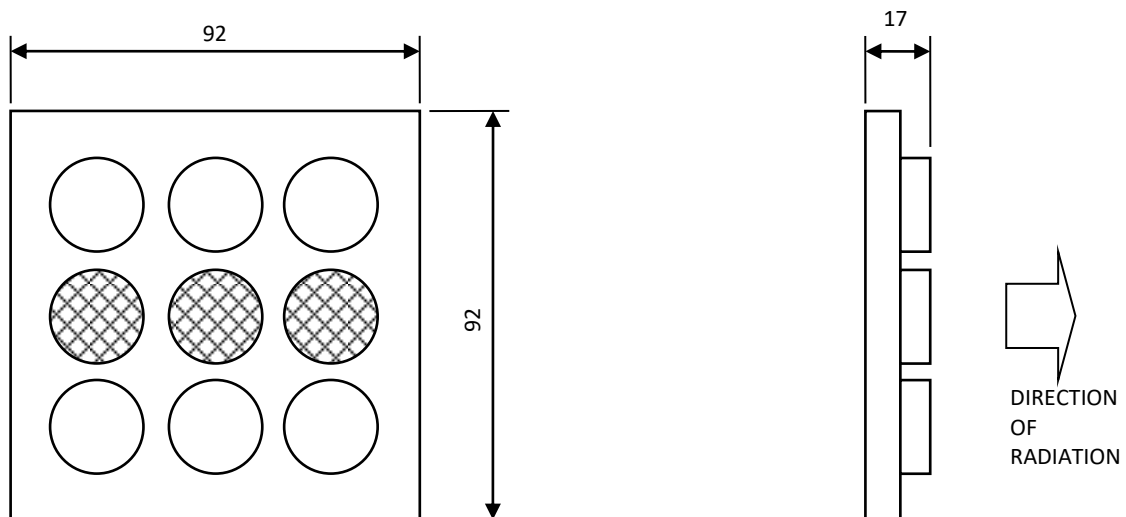


Fig. 1: Size of reflector [mm]

### Assembly holes – drawing:

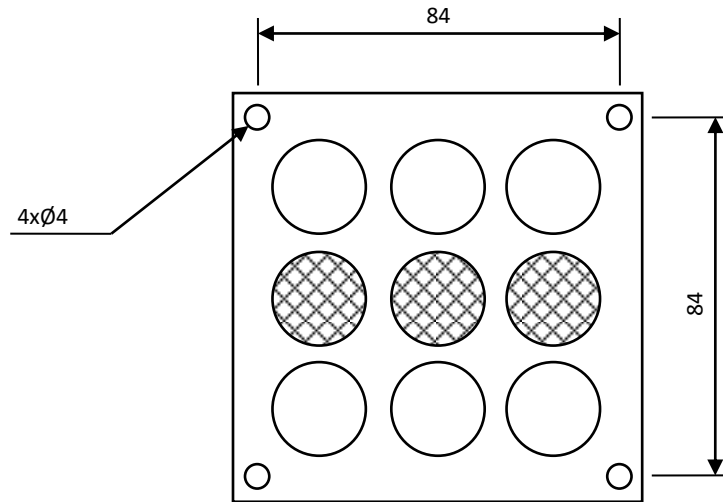


Fig. 2: Assembly holes [mm]

### Conductors labeling and wiring:

Signal	Connect to	Note
+12 V	Positive supply	+ battery
GND	Negative supply	- battery
SET	GND or +12V	Choice side of plane (left/right)
SYNC	Connect to other lights or GND	WIG-WAG sync signal. Switching to GND is continues light
SHIELD	Aircraft shield or unconnected	Aluminum cover

\*viz. Fig. 3: Wiring diagram

### Wiring diagram:

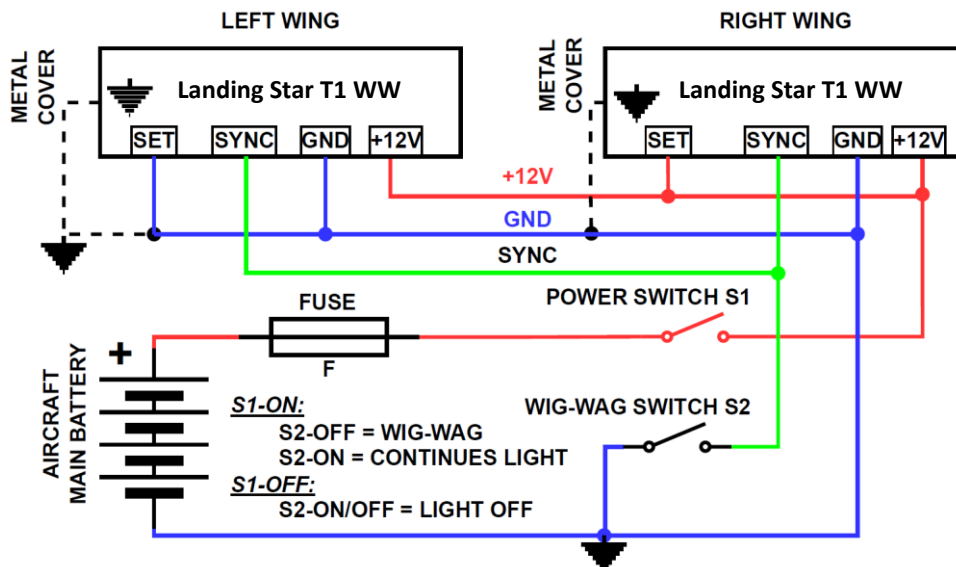


Fig. 3: WIG-WAG reflector connection

## Radiation characteristic:

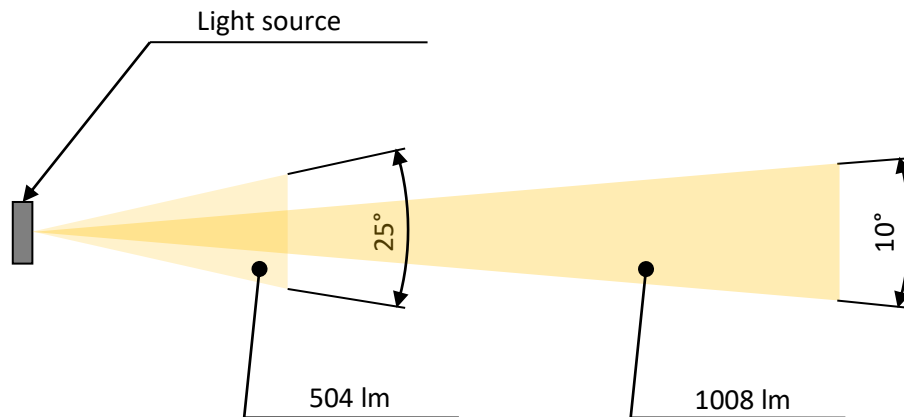


Fig. 4: Reflector radiation characteristic

## Maintenance plan:

Maintenance step [h]	Check	Note
After 50 hours of operation	Cleanliness check of optical components of product	Clean if needed
After 100 hours of operation	The mechanical integrity of the product check	Replace in case the product is damaged
After 500 hours of operation	The mechanical integrity of the product and wiring check	Repair bad wiring or replace the product when damaged

## Operating conditions:

Parameter	Value	Unit	Note
Working temperature	-30...+60	°C	
Humidity	10...90	%	
Atmospheric pressure	900...1120	hPa	
IP	IP20	-	Need to be protected again weather conditions
Mounting type	To surface	-	behind a transparent cover
Working positions	any	-	

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## Important notice and warnings:

Thank you for purchasing **LANDING STAR T1 WW** LED lighting source. For a comfortable and safe use of this product, please pay attention to THE ENTIRE MANUAL, especially the notes and warnings below.

- Although the **LANDING STAR T1 WW** light device has been thoroughly tested to ensure maximum safety in all conceivable situations, THE RIGHT FUNCTIONALITY DEPENDS ON THE RIGHT INSTALLATION AND SETTINGS.
- Therefore, it is **NECESSARY to READ CAREFULLY and UNDERSTAND THIS MANUAL COMPLETELY.**
- Keep this manual printed in an airplane for cases of emergency or change of ownership.
- THIS PRODUCT IS NOT APPROVED FOR INSTALLATION IN CERTIFIED AIRPLANES.
- The pilot **MUST UNDERSTAND** the control of this product before the first flight. **DO NOT** use the product unless you are sure how it works!
- Do not allow unauthorized persons to handle the installed product.
- After installing the product, before the first flight, turn on ALL possible sources of electromagnetic interference on board the aircraft and ensure that the instrument is functioning properly.
- Use of the device in conflict with this manual, with bad wiring, outside the allowed operating conditions, etc., may cause the device to malfunction or damage and endanger flight safety.
- If the product repeatedly indicates an error, do not use it and turn off the power!
- AVOID contact with liquids and chemicals
- Before installation, check the mechanical integrity of the device and its accessories
- DO NOT disassemble the device!
- After installation, carefully check the functionality of the device and its installation
- The responsibility for the installation is entire with the installer.
- Responsibility for performing control actions based on information indicated by the product is full of the operator (pilot). The operator must be able to evaluate an incorrect indication even if the product does not indicate an error.
- Ensure regular maintenance of the aircraft's main battery
- If you do not agree to the notes and warnings above, do not use this product.

Company LAMBERT AERODEVICES s.r.o reserves the right to change or improve the product or manual without prior or subsequent notice.

**Document history:**

<i>Date (DMY)</i>	<i># Rel</i>	<i>Description</i>	<i>Author</i>
20.02.2023	0	Initial version	NEPOR
20.09.2023	1	Ferite bead installation	NEPOR



[www.lambert-aerodevices.cz](http://www.lambert-aerodevices.cz)