



THIESEN  
E L E C  
TRONICS  
G M B H

# Thiesen Electronics GmbH

## Pioneer of LED-Aircraft Lights

**AERO 2024**  
**at Hall A3, Stand 102**



# Thiesen Electronics GmbH

**... die Pioniere der LED-Flugzeuglicht-Technologie!**



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## **Thiesen = The Pioneer in LED–Aircraft Lighting–Technology**

### ***See and be seen!***

LED-technology in aircraft lighting combines high luminous intensity with low power consumption, compact design and no maintenance.

Our top quality epoxy sealing technique ensures additional weather resistance and a long lifespan.

**This year we present a whole bunch of world firsts at the AERO 2024 from 17. - 20. April 2024 in Friedrichshafen**

### ***Power-Saver "Made in Germany"***

Besides the already established range of products such as the Electronic Position Lights EPL and EPL-Taillight, the Anticollision-Lights ACL, EPTA-NG, the landing lights ELLxx and the Electronic Rotating Beacon ERB, we will again present some world firsts.

As by all Thiesen products, all electronic parts are completely integrated in our lighting systems.



## TL-NG

### Tail ACL with Position Light

This tail light for aircraft (NON-TSO'd) is designed to be mounted at the tail unit or at the rudder, provided a shaped cone is present (as is present for the standard Grimes type incandescent tail light).

The new LED technology allows a very brilliant white light with using approx. only 10% of the input power when compared to conventional navigation lights. The light is cast in a high-optical plastic making the TL-NG absolutely impervious to water, vibrations and other environmental influences. The efficiency of the output is much higher than of conventional electric light bulbs. The heat produced by the TL is very low and thus will not reach a level that will damage the light. However, as with all our light system, to avoid overheating in any case the heat balance is controlled electronically.



The TL-NG is cast as a high-optic, scratch-resistant plastic module. The entire control elements are integrated in the TL-NG. The light's dimensions determine the required space.

The Tail Light emits an extremely brilliant white light and can be switched to the more distinguishable **Anti Collision flash Light** mode. It has a defined angle of light of 140° in compliance with the regulations of general aviation.

The Tail Light is provided with a high-grade Teflon-insulation pre-wiring to allow easy connection to a 4-lead cable of two 0.25 mm<sup>2</sup> (AWG23) and two 0.75 mm<sup>2</sup> (AWG19) cross section. Flanges allow a simple fixture. In addition, it can be affixed to the fuselage or tail fin by means of a silicone adhesive.

## EPTA-NG

### Combination of Position Light, Tail Light and Anti Collision Light with FLARM-Interface

A systematic further developed feature for our well proven EPTA-LSA is the additional **serial FLARM-Interface**. The result is the EPTA-NG (**N**ext**G**eneration).

In the event of an aircraft on a potential colliding course a connected Power-FLARM unit accelerates the flashing sequence of the EPTA-NG according to the FLARM alert level. This makes your aircraft more conspicuous and therefore helps to increase the safety in the airspace.



The Thiesen EPTA-NG is to be mounted on the wing tips and is a combination of Position Light, Taillight and Anti-Collision Light. In the form similar to the Thiesen EPL there are 3 aircraft lights in one position light. Besides the functionality of a EPL (Electronic Positionlight - red/green) it also contains a Taillight (EPL-Taillight) and an Anti-Collision Light (ACL). The weight of an EPTA-NG is <80 grams. In addition it has the „Intelligent Synchronization“ already inside.

### **FLARM-Interface**

As worlds first we integrated a **FLARM-Interface** in an anti collision light for motorized aircrafts in order to increase the visibility and therefore the safety in the airspace. The by the Power-FLARM unit provided signals increase the light pulses and therefore rises the attentiveness.

### **Intelligent Synchronization**

The integration of our well proven **Intelligent Synchronization** allows a chronological sequence of power consumption for the connected anti collision lights and prevents battery and generator from becoming overloaded.

## **ERB2-H – Electronic Rotating Beacon – Heli**

### *with FLARM-Interface and Intelligent Synchronization*

The technology carries on - so we developed the new ERB2-H. With LEDs of the newest generation we were able to boost the brightness of about 25%. Simultaneously we reduced the power consumption remarkably. This makes an efficiency enhancement of about 50%!

As a matter of course all our LED position lights / ACLs are water and seawater resistant. Since the electronic parts are completely integrated in the ERB2-H, no black box or other items are needed.

Our ERB2-H complies with FAR23 regulations. Therefore experimental constructors have a genuine alternative to Xenon-Flash lights.

The extremely bright, red rotating sequencing light flash has a beacon angle of 360° and is visible at 30° below and above the horizontal plane.

Like all our other ACLs, the ERB2-H is completely sealed in high grade optic plastic. As all electronic components are in the ERB, there is no additional place needed.



### **FLARM-Interface**

As worlds first we integrated a **FLARM-Interface** in an anti collision light for motorized aircrafts in order to increase the visibility and therefore the safety in the airspace. The by the Power-FLARM unit provided signals increase the light pulses and therefore rises the attentiveness.

### **Intelligent Synchronization**

The integration of our well proven **Intelligent Synchronization** allows a chronological sequence of power consumption for the connected anti collision lights and prevents battery and generator from becoming overloaded.

## ERB-UL - Electronic Rotating Beacon

With LEDs of the newest generation we developed a low build Electronic Rotating Beacon with a very bright brilliant red light and rotating characteristic. And this by a low power consumption, too.

Like all our LED lights the ERB-UL is totally water and seawater resistant. Since the electronic parts are completely integrated in the light, no black box or other electronic items are needed.

In addition to our Intelligent Synchronization we integrated a FLARM-Interface in this ACL in order to increase the awareness and therefore the safety in the airspace.

The by the Power-FLARM unit provided signals increase the light pulses of the ERB-UL and therefore rises the attentiveness. Detects the FLARM-device a collision course with another aircraft, the FLARM-interface rises the flashing of the connected ERB-UL from 40 light flashes / minute to 80 flashes. Decreases the distance between the aircrafts further the lighting increases to 160 flashes and up to a jitter in the highest FLARM alert level.

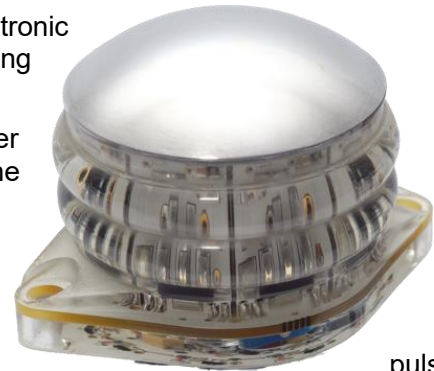
The ERB-UL is completely sealed in high grade optic plastic. Since all electronic components are integrated, there is no additional place required.

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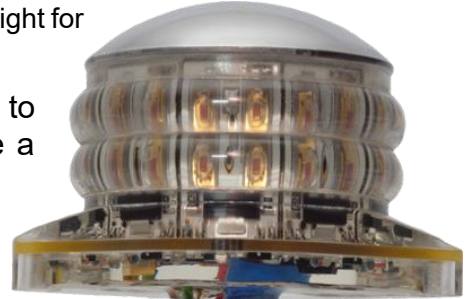
## ACL-UAV-12V

### *Development for Unmanned-Aerial-Vehicle*

As **world first** we integrated a **FLARM-Interface** in a anticollision light for unmanned aerial vehicles in order to make the airspace more safe.

By the use of LEDs of the newest generation, we were able to achieve a brightness that would have been inconceivable a few years ago.

Especially for unmanned aerial vehicles, we developed the **ACL-UAV-12V**. It has a elaborate power management to comply with the UAVs requirements.



The **ACL-UAV-12V** has a **Flarm interface**, whereby the pulse sequence of the light is driven by the provided alert-level of the FLARM system.

In addition it has a remote control input and can be switched on and off by a radio control unit.

It is designed for fuselage or tail installation.

### *FLARM-Interface*

As worlds first we integrated a **FLARM-Interface** in an anti collision light for motorized aircrafts in order to increase the visibility and therefore the safety in the airspace. The by the Power-FLARM unit provided signals increase the light pulses and therefore rises the attentiveness.



## ACL-UAV-LiPo

### *Development for Unmanned-Aerial Vehicle*

Especially for smaller unmanned aerial vehicles such as Multicopters Drones, we developed the **ACL-UAV-LiPo**.

By the use of LED's of the newest generation, we were able to achieve a brightness that would have been inconceivable a few years ago.

The anti collision light is designed for a power supply by a 7.4 Volts LiPo Accu (2S). With a 2S-600mAh accu it can be operated for more than one hour.

In addition it has a remote control input and can be switched on and off by a radio control unit.

It is designed for fuselage installation.



## ACL-Modul for DG 1000/500

In close cooperation with **DG-Flugzeugbau**, the Thiesen GmbH developed a **anticollision light for gliders** of the DG1000/500 series.

The **ACL** could be used as „Stand-Alone“ and also in connection with a FLARM collision alarm unit. In connection with FLARM, the pulse repetition of the light flashes is regulated in dependency of a possible critical situation. Therefor the informations will be read from the FLARM-Interface and depending on these information the pulse repetition will be adapted.

Is FLARM activated, that means GPS-Receiving is on, the pulse sequence of the light flashes will be extended up to approximate 5 seconds to minimize the power input. Due to this the average wattage consumption is only approximate 3.3 watts.

A glider shows its smallest silhouette from the front and therefore is extreme hard to see and accordingly endangered.

Is the FLARM-Device adjustet to alarm level 1, the iteration time is reduced to approximate 1.5 seconds, at alarm level 2 to approximate 0.8 seconds and at alarm level 3 to approximate 0.4 seconds. Due to this the visibility of the glider will be much better for other air traffic participants.

Because of the special optical shape, the ACL has a directional characteristic of the light flashes that will bundle the light especially in heading direction. Thereby it will be ensured that gliders will be recognized excellent.

The **ACL** can be ordered direct as a option for new gliders of DG-Flugzeugbau.

A installation kit for retrofitting of existing gliders of the DG1000/500 series is also available at DG-Flugzeugbau.



## Sync-Master

In cooperation with the **Fresh-Breeze** company, we developed the synchronization modul **Sync-Master**.

With the Sync-Master module it is possible to synchronize two of our ACLs (e.g. **ACL3is**, the new **ACL4**, **ERBis** or the new **ERB2**), so that the lighting pulses do not overlap, respectively the lighting pulses will be generated alternately.

Because of the coordinated current pulses, the generator and the battery will be prevented from damage. In practice, the **ERB** will be mounted on top of the protective cage and the **ACL** can be mounted at the bottom of the Trike.

With the aid of this modul it is additionally possible to synchronize further ACLs, like our **landing light** (ACL-Mode), so that the pulses of these ACLs are coordinated with the others.



## Intelligent Synchronization = Intelligent Powermanagement

The "**Intelligent Synchronization**" developed by **Thiesen Electronics GmbH** for light sport aircrafts schedules the light pulses of the avionic lights in the way that only one light flashes at a given time.

The light pulses and thereby the power consumption of the lights is coordinated and staggered - synchronized. This avoids high current peaks, which means reduced battery and alternator current requirements and prevents a break down of the electrical system due to high current peaks.

This way the Intelligent Synchronization also helps to avoid problems with other avionics induced by voltage fluctuation.

**As a side effect the life spans of battery and generator will be increased.**

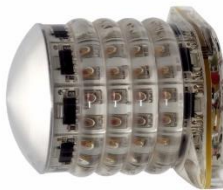
### Further Informations:

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# LED Lightset – leaflet

**THIESEN  
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G M B H**


**... to enhance safety in the air space**  
**LED Lightset**  
 Electronic Positioning Light, Electronic Anticollision Light and  
 Electronic Landing Light - in low power technology

**ERB2**  
 Electronic Rotating Beacon

**554,- €**

Operating Voltage : 10 -17 volts DC (on board power supply)  
 Wattage : approx. 16 watts  
 Dimensions : 61 x 44 x 56 mm (L x B x H)  
 Weight : approx. 105 g incl. cables  
 Light Colour : red

Intelligent Synchronization  
 FLARM-Interface

**ACL4**  
 Electronic Anticollision Light

**459,- €**

Operating Voltage : 10 -17 volts DC (on board power supply)  
 Wattage : approx. 10 watts  
 Dimensions : 61 x 44 x 39 mm (L x B x H)  
 Weight : approx. 85 g incl. cables  
 Light Colour : red

Intelligent Synchronization  
 FLARM-Interface

**ERB2-H**  
 Electronic Rotating Beacon - Heli

**565,- €**

Operating Voltage : 10 -17 volts DC (on board power supply)  
 Wattage : approx. 16 watts  
 Dimensions : 47 (63.5) x 77 mm (D x H)  
 Weight : approx. 125 g incl. cables  
 Light Colour : red

Intelligent Synchronization  
 FLARM-Interface

**ACL-UAV-12V**  
 Electronic Anticollision Light-UAV-12V

**439,- €**

Operating Voltage : 10 -17 volts DC (on board power supply)  
 Wattage : approx. 8 watts  
 Dimensions : 61 x 44 x 39 mm (L x B x H)  
 Weight : approx. 85 g incl. cables  
 Light Colour : red

Radio-Control-Interface  
 FLARM-Interface

**ERB-UL**  
 Electronic Rotating Beacon

**516,- €**

Operating Voltage : 10 -17 volts DC (on board power supply)  
 Wattage : approx. 12.8 watts  
 Dimensions : 61 x 44 x 39 mm (L x B x H)  
 Weight : approx. 85 g incl. cables  
 Light Colour : red

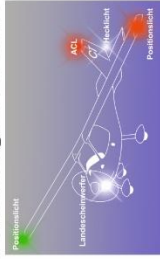
Intelligent Synchronization  
 FLARM-Interface

**ACL-UAV-LiPo**  
 Electronic Anticollision Light-UAV-LiPo

**428,- €**

Operating Voltage : 7.4 volts DC (LiPo 2S)  
 Wattage : approx. 5 watts  
 Dimensions : 61 x 44 x 39 mm (L x B x H)  
 Weight : approx. 85 g incl. cables  
 Light Colour : red

Radio-Control-Interface  
 LiPo Voltage Control

**Advantages of our LED Lights**


- Intelligent Synchronization
- Insensitive against vibration and humidity
- Only 10% of input power compared to conventional lights
- brilliant brightness and color intensity
- low self-heating
- no avionic interference at all
- marginal weight
- integrated overload protection
- long lifetime - 5.000 hours or max. 3 years assured
- luminous duration
- corresponds to all specifications of aviation

**ACL-Modul**  
 Electronic Anticollision Light - Modul

**417,- €**

Operating Voltage : 10 - 17 volts DC (on board power supply)  
 Wattage : approx. 20 watts  
 Dimensions : 165 x 15 x 20 mm (L x B x H)  
 Weight : approx. 58g incl. cables  
 Light Colour : red

Intelligent Synchronization

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**More information: [www.thiesen-electronics.com](http://www.thiesen-electronics.com) • [www.position-lights.com](http://www.position-lights.com)**

Prices include German tax  
 Subject to changes without notice - 03-2023



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Telefon 0 66 41 / 979-0 | Fax 0 66 41 / 979-299



# ... to enhance safety in the air space

## LED Lightset

Electronic Positioning Light, Electronic Anticollision Light and Electronic Landing Light - in low power technology

### EPTA-NG

Electronic Position and Tailight with Anticollision Light



Operating voltage : 10 -17 volts DC (on board power supply)  
Wattage : approx. 20 watts  
Dimensions : 80 x 40 x 30 mm (L x W x H)  
Weight : approx 76 g incl. cables  
Light Colour : red and white, green and white

Intelligent Synchronization  
FLARM-Interface

### ELL80/s

Electronic Landing Light 80/s



Operating voltage : 10 -17 volts DC (on board power supply)  
Wattage : approx. 45 watts  
Dimensions : 80 x 35 mm  
Weight : approx 230 g incl. cables  
Light Colour : white

Intelligent Synchronization

### TL-NG

Tail ACL with position light



Operating voltage : 10 -17 volts DC (on board power supply)  
Wattage : approx. 5 watts  
Dimensions : 52.6 x 42 x 21.5 mm (L x W x H)  
Weight : approx 28 g incl. cables  
Light Colour : white

Complies with FAR23 regulations  
Intelligent Synchronization

### Fitting system for cowling mounting ELL



Operating voltage : 10 -17 volts DC (on board power supply)  
Wattage : approx. 5 watts  
Dimensions : 52.6 x 42 x 21.5 mm (L x W x H)  
Weight : approx 28 g incl. cables  
Light Colour : white

Intelligent Synchronization

### FLARM-Interface

In order to make your aircraft more conspicuous, and attract extra attention from other aircraft on a potential collision course, Thiesen Electronics has developed Anti Collision Lights that can be linked to your on board ADSB/FLARM system. FLARM is a traffic awareness and collision avoidance technology used in General Aviation, Light Sport, Ultra Light, Sailplane and even Unmanned Aircraft equipped with ADSB/FLARM systems. When an alert is given by the FLARM system, the aircraft's navigation lights flash according to the FLARM alert level. This increases the awareness of the pilot on the collision course.

#### Alert Level 1



#### Alert Level 2



#### Alert Level 3



The automatic ventilation duct of the cooling air is guaranteed by using this fitting system for cowling mounting. Fitting system for ELL80, ELL60 and ELL50.  
Material: fiber epoxy

### Tubus ELL80



Operating voltage : 10 -17 volts DC (on board power supply)  
Wattage : approx. 5 watts  
Dimensions : 52.6 x 42 x 21.5 mm (L x W x H)  
Weight : approx 28 g incl. cables  
Light Colour : white

Intelligent Synchronization

### Tubus ELL50



Operating voltage : 10 -17 volts DC (on board power supply)  
Wattage : approx. 5 watts  
Dimensions : 52.6 x 42 x 21.5 mm (L x W x H)  
Weight : approx 28 g incl. cables  
Light Colour : white

Intelligent Synchronization

### EPL

Electronic position light for Ultralight Aircraft



Operating voltage : 10 -17 volts DC (on board power supply)  
Wattage : each EPL approx. 4.5 watts  
Dimensions : 95 x 42 x 32 mm (L x W x H)  
Weight : each approx 66 g incl. cables  
Light Colour : red and green

Intelligent Synchronization

### EPLTiS

Electronic position - Tailight



Operating voltage : 10 -17 volts DC (on board power supply)  
Wattage : approx. 3 watts  
Dimensions : 60 x 44 x 28 mm (L x W x H)  
Weight : approx 30 g incl. cables  
Light Colour : white

Intelligent Synchronization

### EPLTiS

Electronic position - Tailight



Operating voltage : 10 -17 volts DC (on board power supply)  
Wattage : approx. 3 watts  
Dimensions : 60 x 44 x 28 mm (L x W x H)  
Weight : approx 30 g incl. cables  
Light Colour : white

Intelligent Synchronization

### ELL50 + ELL50L

Electronic Landing Light 50 + 50L



Operating voltage : 10 -17 volts DC (on board power supply)  
Wattage : approx. 30 watts  
Dimensions : 50 x 40 (70) mm  
Weight : approx 78 (105) g incl. cables  
Light Colour : white

Intelligent Synchronization  
L = Longer Heatsink-Spikes

### I/C

Intelligent Lighting Circuit



Operating voltage : 10 -17 volts DC (on board power supply)  
Fuse : 10 ampere  
Dimensions : 80 x 45 x 10 mm (L x W x H)  
Weight : approx 65 g

Intelligent Synchronization

### Sync-Master

Sync-Master



Operating voltage : 10 -17 volts DC (on board power supply)  
Fuse : 5 ampere  
Dimensions : 47 x 32 x 10 mm (L x W x H)  
Weight : approx 24 g

Intelligent Synchronization

### Experience

Since 2002 a competent partner in aviation.



Operating voltage : 10 -17 volts DC (on board power supply)  
Wattage : approx. 30 watts  
Dimensions : 50 x 40 (70) mm  
Weight : approx 78 (105) g incl. cables  
Light Colour : white

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### Reliability

Since 2002 a competent partner in aviation.



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### Flexibility

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Dimensions : 50 x 40 (70) mm  
Weight : approx 78 (105) g incl. cables  
Light Colour : white

Intelligent Synchronization  
L = Longer Heatsink-Spikes

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Since 2002 a competent partner in aviation.



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## List of images

All images can be accessed via the link or QR code below.

Name	Short description	File name
Electronic Rotating Beacon 	ERB2 ERB	ERB2.png ERB – an.jpg ERB – aus.jpg
Electronic Anticollision Light 	ACL4 ACL-UAV-12V ACL-UAV-LiPo ACL3	ACL4.png ACL-UAV-12V.png ACL-UAV-LiPo.png ACL3 – an.jpg ACL3 – aus.jpg
Electronic Anticollision Light IS 	ACL3is	ACL3is – an.jpg ACL3is – aus.jpg
Electronic Rotating Beacon IS 	ERBis	ERBis – an.jpg ERBis – aus.jpg
Electronic Rotating Beacon – UL 	ERB-UL	ERB-UL.png
ACL-Modul DG1000/500 	ACL-Modul DG	ACL-DG1000-a.jpg ACL-DG1000-b.jpg
ACL-Modul 	ACL-Modul	ACL-Modul.png
Electronic Position Light and Taillight with Anticollision Light 	EPTA-LSA EPTA-NG	EPTA-LSA.jpg EPTA-NG.png
Electronic Position Light 	EPL	EPL.jpg

Name	Short description	File name
Electronic Position Light - Taillight 	EPLTis	Taillight – an.jpg Taillight – aus.jpg
Tail ACL with Position Light 	TL-NG	TL-NG-01.png TL-NG-02.png TL-NG-03.png
Electronic Landing Light 50 mm diameter 	ELL50  ELL50L	ELL50-01.jpg ELL50-02.jpg ELL50-03.jpg  ELL50L.png
Electronic Landing Light 	ELL80is	ELL80is.png
 Electronic Landing Light 60 mm diameter	ELL60	ELL60.jpg
Sync-Master 	Sync-Master	Sync-Master.png
Intelligent Lighting Circuit 	ILC	ILC.jpg

You can find our Thiesen Electronics GmbH logo stored in directory *Bilder\Logo* and our exhibition posters in directory *Bilder\Plakate*.



## All pictures can be accessed here:

<https://thiesen-electronics.com/de/content/18-aero-2024>

Or simply via the following QR code:



**Für einen sicheren Luftraum**  
**For a safe airspace**  
**sehen und gesehen werden**  
**see and be seen**



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