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← A | B ↑

Setting the standard for Circularity & Life-span

Ready-to-use Performance Specifications for
Sustainable Airfield Guidance Signs

TGS Series 4 and the Certified Life Programme set the new standard for sustainable Airfield Guidance Signs. In all stages of the product life, we aspire to contribute to the decarbonisation objectives.



Manufacturing

- ▶ **Material Efficiency:** The Sign shall be manufactured using materials that prioritize sustainability and environmental impact. Ensure that 99% of the final product is recyclable at the end of its life cycle.
- ▶ **Modular Design:** Using a modular “light-box” concept to enhance sourcing efficiency and reduce inventory stocks. This design enhances efficiency in maintenance and reusability of components, thereby extending the life-span of the product.

Operations

- ▶ **Energy Efficiency:** Energy consumption shall not exceed 30 watts across the standard dimensional range of Airfield Signs. Achieve this through efficient design and components that optimize power usage without compromising light output or performance.
- ▶ **Energy Efficiency:** Power Supply Unit shall have a power factor of 0.95. The Sign can operate at 100% light output while consuming only 4.8A. Thus, achieving a 30% reduction in power consumption.
- ▶ **Energy Efficiency:** Individual Signs should be easily convertible to alternative energy sources like PV and CEDD® using 24Vdc only.
- ▶ **Reliability:** Signs shall have an IP67 rating ensuring dust- and watertightness.
- ▶ **Redundancy:** the Sign shall have double LED circuit.
- ▶ **Continuity:** Modular light-box shall be interchangeable to ensure high speed on-site replacement.
- ▶ **Durability:** Ensure durability and longevity of the sign to reduce replacement frequency and use of materials. The sign should have a minimum operational lifespan of 15 years with minimal maintenance requirements.

Circularity

- ▶ **Recyclability and Reusability:** Design for easy disassembly and recycling of components at the end of its operational life. Promote the use of remanufactured or refurbished parts to extend product lifespan.
- ▶ **Reverse Logistics:** Establish a trade-in and take-back programme for end-of-life products to facilitate proper recycling and disposal.
- ▶ **Closed-loop Systems:** Develop partnerships with suppliers to create closed-loop systems for key materials used in manufacturing, promoting a circular economy approach.

By adhering to these updated performance specifications, the Series 4 Airfield Sign not only enhances its operational efficiency but also meets stringent energy consumption standards, contributing to sustainable practices and environmental stewardship in the aviation industry.

Ready-to-use Performance Specifications for Sustainable Airfield Guidance Signs



General specifications airfield signs

Signs shall comply with EASA CS-ADR-DSN CHAPTER N — VISUAL AIDS FOR NAVIGATION (SIGNS) as well as applicable paragraphs of ICAO Annex 14 Volume I Aerodrome Design and Operations, ICAO Doc 9157 Aerodrome Design Manual-part 6.

The Signs must have a full 5 year warranty and a life-span of at least 15 years.

Light-box Choice of materials shall prioritize sustainability and environmental impact.

Modular light-box concept facilitating easy installation and maintenance, repair and replacement of components, thereby extending the life span of the product.

- ▶ Anodized aluminium profiles and parts.
Stainless steel mounting materials.
- ▶ Polycarbonate legend panel (4 mm) with legend on the inside.
- ▶ Light-box should be easy to replace, using small standard hand tools only.

Construction Light-box mounted to aluminium anodized poles with frangible coupler.

- ▶ Frangibility certified for 322 or 483 km/h wind load.
- ▶ Easy accessible IP67 Terminal box, mounted to one of the poles for secondary cable and LED controller. LED cable with IP67 connector.
- ▶ Poles prepared for secondary cable transit to the base plate and / or between poles. Fixation option of the cable plug in the base plate for electrical disconnect feature in case of breakage.

Electrical The sign must be able to be connected to different power sources, even after initial installation.

- ▶ Power sources: 2.8A - 6.6A, TKH CEDD®, 230Vac. All sources 50 or 60Hz.
- ▶ Interchangeability of different power sources.
- ▶ Energy consumption of maximum 30 Watt at 6.6A.
- ▶ Energy efficiency: power factor > 0.95 at 6.6A.
- ▶ 30% energy saving with 100% brightness at 4.8A.
- ▶ LED life span > 90.000 hour.
- ▶ Redundancy by means of a double LED circuit.

Shipping and Installation Signs shall be shipped in an easily accessible way and ready for installation.

- ▶ pre-assembled.
- ▶ secondary cable included.
- ▶ upright position.

Packaging All packaging materials shall be re-usable and / or recyclable.

Circularity Signs shall be designed for easy disassembly and recycling of components at the end of its operational life. The use of remanufactured or refurbished parts should be part of a product life-span extension plan.

- ▶ Optional trade-in and take-back for end-of-life products.