TKH AIRPORT SOLUTIONS

Datasheet

LED Retrofit Kit for Guidance Signs

LED AGL
Airfield Ground Lighting

03-71054
V2.2

General

Taxiway Guidance Signs (TGS) equipped with halogen lamps or fluorescent tubes are inefficient and consume a lot of power. With the LED Retrofit Kit, existing TGS can be upgraded to LED technology, reducing power consumption by up to 70% while creating a uniform light distribution. The signs could be upgraded to meet ICAO light distribution requirements. The retrofitted signs will have low power consumption with more than 50,000 hours lifetime of the LED modules when in full operation.

The LED Retrofit Kit consists of four main components: the LED Module, an internal connection cable, an external connection cable, and an electronic driver with 6.6A or 230V supply.

One LED Module array will illuminate a sign surface area of 400mm wide and 600mm high. The amount of LED Modules required per sign will depend upon its overall size (length, height and depth). A configuration table is available in this data sheet, to calculate requirements for each size of sign.

Key features

- Simple retrofit method requiring no more than 1 hour for each sign
- Each LED module array fitted with 5 high-performance LEDs with an expected lifetime of 50,000 hours
- All components resistant to corrosion
- Optional fail-open functionality

Standards

The LED module and Power supplies have been developed according to the following standards:

- IEC 62031:2020
- IEC 60598-1:2020
- ICAO Annex 14, 9th edition

Be aware that the above standards only apply to the items delivered by TKH Airport Solutions (LED module and power supply) and not to the complete sign.

Description

The LED Retrofit Kit includes:

- A number of LED sign modules (IP68), each for 24 VDC – 400 mA
- The same number of aluminum plates with socket for the LED module
- 1x internal cable for every LED module
- 1 or more electronic drivers with 6.6 A or 230 V supply
    - Maximum 6 LED modules can be connected on one 6.6 A electronic driver
    - Maximum 10 LED modules can be connected on one 230 V electronic driver
- 1x external cable from the external power supply to the electronic driver

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Configuration table

To choose the optimal orientation and quantity of LED modules in the sign, please refer to the tables below. Follow the configuration table to get as close as possible to ICAO standards. Be aware that the ICAO/EASA compliance is dependent on the complete sign.

To calculate the amount of LED modules per sign, please follow these steps:

1. Determine the distance between the LED modules after installation and the front plate of the sign. Look at the below table to determine which calculation table to follow. The optimal distance between the LED module and the front plate would be 140 mm.

Configuration table

Distance to the front plate	Optimal distance between modules (width)	Optimal distance between modules (height)	Relative illuminaton intensity	Follow configuration table:
100 mm	300 mm	500 mm	196 %	1
120 mm	350 mm	550 mm	136 %	2
140 mm	400 mm	600 mm	100 %	3
160 mm	450 mm	650 mm	77 %	4
180 mm	500 mm	700 mm	60 %	5

2. Measure the width and height of the sign surface (fascia).
3. Look at the appropriate configuration table below (as concluded in step 1) to determine the amount of LED modules per sign

Table 1

Illuminated width x 100 mm		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Height of sign surface (mm)	Module configuration	Number of modules per sign																								
400 – 500	single row vertical	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10
>500 – 600	two rows horizontal	4	4	4	4	4	6	6	6	6	6	8	8	8	8	8	10	10	10	10	10	12	12	12	12	12
>600 – 1000	two rows vertical	4	6	6	6	8	8	8	10	10	10	12	12	12	14	14	14	16	16	16	18	18	18	20	20	20
>1000 – 1200	four rows horizontal	-	8	8	8	8	12	12	12	12	12	16	16	16	16	16	20	20	20	20	20	24	24	24	24	24
>1000 – 1500	three rows vertical	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	–

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Table 2

Illuminated width x 100 mm		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Height of sign surface (mm)	Module configuration	Number of modules per sign																								
400 – 550	single row vertical	2	2	3	3	3	4	4	4	4	5	5	5	6	6	6	6	7	7	7	8	8	8	8	9	9
>550 – 700	two rows horizontal	4	4	4	4	4	4	6	6	6	6	6	8	8	8	8	8	8	10	10	10	10	10	12	12	12
>700 – 1100	two rows vertical	4	4	6	6	6	8	8	8	8	10	10	10	12	12	12	12	14	14	14	16	16	16	16	18	18
>1100 - 1400	four rows horizontal	-	-	8	8	8	8	12	12	12	12	12	16	16	16	16	16	16	20	20	20	20	20	24	24	24
>1100 - 1650	three rows vertical	6	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3

Illuminated width x 100 mm		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Height of sign surface (mm)	Module configuration	Number of modules per sign																								
400	single row horizontal	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	5	5	5	5	5	5
>400 – 600	single row vertical	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8
>600 – 800	two rows horizontal	2	4	4	4	4	4	4	6	6	6	6	6	6	8	8	8	8	8	8	10	10	10	10	10	10
>800 – 1200	two rows vertical	4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16

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Table 4

Illuminated width x 100 mm		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Height of sign surface (mm)	Module configuration	Number of modules per sign																								
400 – 450	single row horizontal	1	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4	5	5	5	5
>450 – 650	single row vertical	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	6	6	7	7	7
>650 – 900	two rows horizontal	2	4	4	4	4	4	4	4	6	6	6	6	6	6	8	8	8	8	8	8	8	10	10	10	10
>900 – 1300	two rows vertical	4	4	4	4	6	6	6	6	8	8	8	8	8	10	10	10	10	12	12	12	12	12	14	14	14

Table 5

Illuminated width x 100 mm		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Height of sign surface (mm)	Module configuration	Number of modules per sign																								
400 – 500	single row horizontal	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4	4	4	4	4	5	5
>500 – 700	single row vertical	2	2	2	2	2	3	3	3	3	3	4	4	4	4	4	5	5	5	5	5	6	6	6	6	6
>700 – 1000	two rows horizontal	2	2	4	4	4	4	4	4	4	6	6	6	6	6	6	6	8	8	8	8	8	8	8	10	10
>1000 – 1400	two rows vertical	4	4	4	4	4	6	6	6	6	6	8	8	8	8	8	10	10	10	10	10	12	12	12	12	12

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Ordering code

Item	Article number
LED module	203.361-008
Aluminum plate with socket for LED module	40-6352
Internal cable (1 per LED module)	203.362-008
Power Supply (electronic driver) 6.6 A	203.364-007
Power Supply (electronic driver) 6.6 A with fail-open monitoring	203.365-007
Power Supply (electronic driver) 230 V	845250
External cable group	203.363-008
Fail-Open Reset Adapter	214.528-007/1
M4 x 10 mm screws, per piece	P-904055

These articles can be ordered separately. Please contact our Sales department for further information.

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For the latest version of this document see *https://www.tkh-airportsolutions.com/airfield-products/* or scan

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TKH AIRPORT SOLUTIONS

Company profile:

TKH Airport Solutions offers a complete range of LED-based airfield ground lighting products that are designed to be easy to install, operate, and maintain, and are compliant with international aviation standards.Our products meet the needs of our customers and contribute to a better future for the aviation industry. Being part of the TKH Group, our company can build on a history of more than 90 years in smart connectivity, energy distribution and AGL.

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