



# HALOGEN READING LIGHTS

## GENERAL

The technological leadership of Goodrich Hella Aerospace was once again confirmed by the introduction of the first Halogen Passenger Reading Light ever into the A310 programme in early 1983.

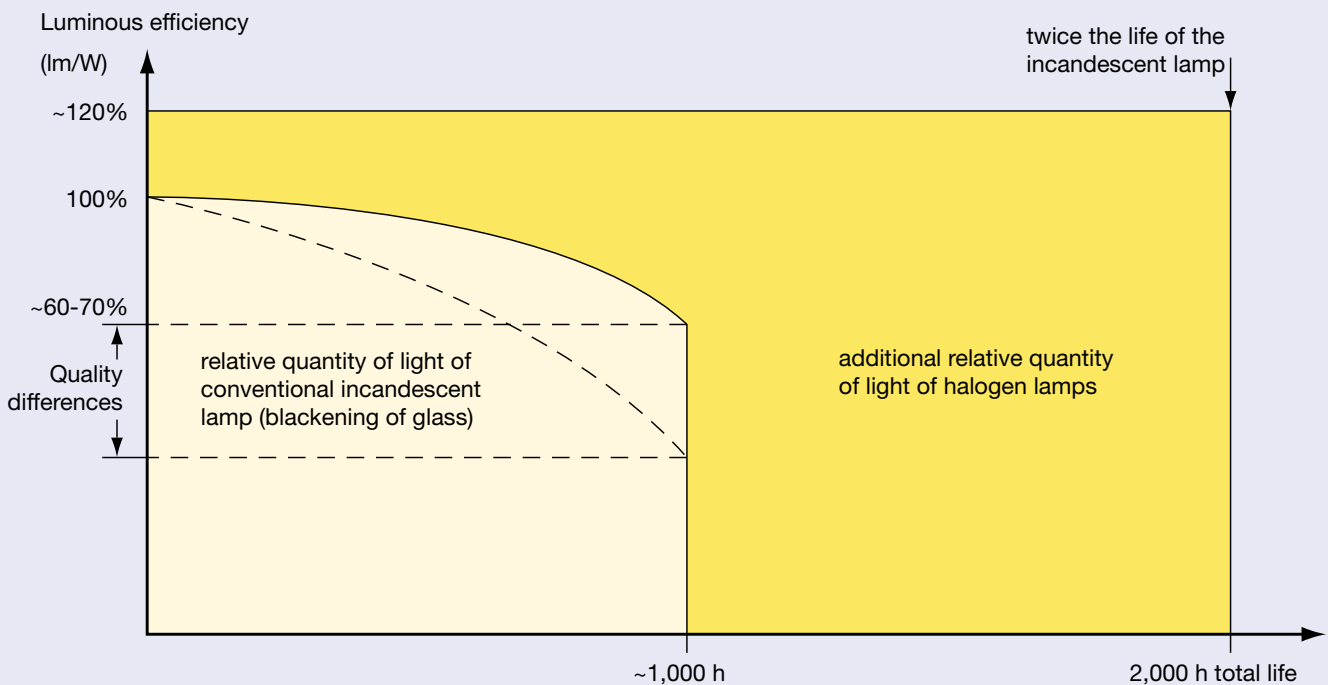
Compared to incandescent lamps the halogen lamps offer great advantages:

- A higher light intensity over the whole life time based on the halogen principle
- A more brilliant and more white light
- A longer lifetime (more than twice)
- An Illumination with a sharp light-dark borderline

Goodrich Hella Aerospace is now also offering LED Passenger Reading Lights. Further information is available on request.



Relative quantity of light as a function of mean life

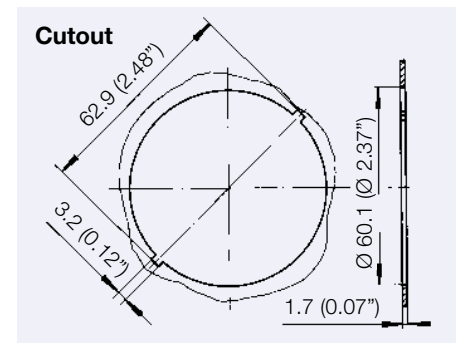
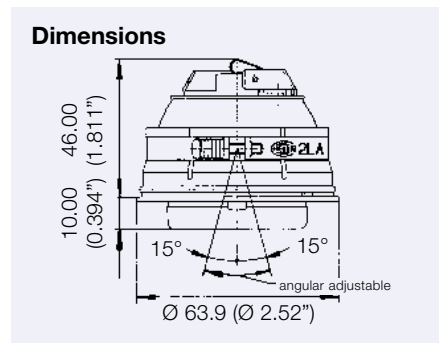


## READING LIGHT 2LA 005 171-..

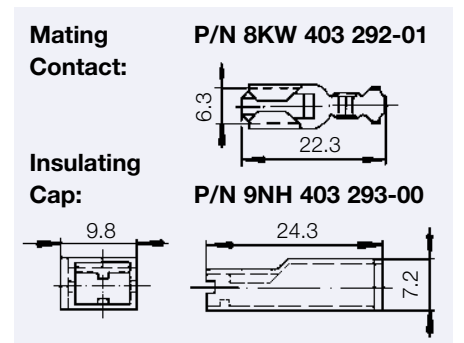
This Reading Light is especially used as a part of Goodrich Passenger Service Units in commuter aircraft like ATR 42/72, CN 235, DO 328, Saab 340, Jetstream 31 and CRJ 200. It is further installed in modern high speed trains (TGV).

### Advantages:

- High light intensity and long lifetime based on the use of halogen lamps
- No decrease of light intensity during the complete life of the halogen lamp
- Easy adjustment of the beam direction by the use of a simple adjustment tool
- Low height of lens assembly



- 1 Lens Assy
- 2 Halogen Lamp
- 3 Light Assy 2LA 403 646-..
- 4 Spring Ring 9NU 402 129-10 (for all Reading Lights)



Mass: 0.075 kg (0.165 lbs) max.

Partnumber	Lens Assy	Halogen Lamp	Typ. Inst. Height	Material	Color
2LA 005 171-00	9EL 408 423-00	8GH 003 912-06, 6 V/12 W/142 lm/2,000 h	850 mm (33.5")	PES	grey
2LA 005 171-05	9EL 408 423-05	8GH 004 554-28, 28 V/11.5 W/133 lm/2,000 h	Frosted lens	PES	grey
2LA 005 171-10	9EL 408 423-10	8GH 005 448-28, 28 V/11.5 W/160 lm/2,000 h	850 mm (33.5")	PES	grey
2LA 005 171-15	9EL 408 423-15	8GH 004 554-28, 28 V/11.5 W/133 lm/2,000 h	850 mm (33.5")	PES	black
2LA 005 171-20	9EL 408 423-20	8GH 004 554-28, 28 V/11.5 W/133 lm/2,000 h	1.400 mm (55.1")	PES	white
2LA 005 171-25	9EL 408 423-25	8GH 005 448-28, 28 V/11.5 W/160 lm/2,000 h	850 mm (33.5")	PES	grey
2LA 005 171-35	9EL 408 423-35	8GA 006 202-28, 28 V/0.17 A/3 cd/1,500 h	950 mm (37.4")	PES	grey
2LA 005 171-40	9EL 408 423-40	8GH 005 448-28, 28 V/11.5 W/160 lm/2,000 h	1.400 mm (55.1")	PES	grey
2LA 005 171-45	9EL 408 423-45	8GH 005 448-28, 28 V/11.5 W/160 lm/2,000 h	1.400 mm (55.1")	PES	grey
2LA 005 171-50	9EL 408 423-50	8GH 004 554-28, 28 V/11.5 W/133 lm/2,000 h	Frosted lens	PES	white
2LA 005 171-55	9EL 408 423-55	8GH 005 448-28, 28 V/11.5 W/160 lm/2,000 h	1.400 mm (55.1")	PES	white
2LA 005 171-60	9EL 408 423-60	8GH 005 678-06, 6 V/10 W/143 lm/2,000 h	1.400 mm (55.1")	PES	white
2LA 005 171-65	9EL 408 423-65	8GH 005 448-28, 28 V/11.5 W/160 lm/2,000 h	1.400 mm (55.1")	PES	black
2LA 005 171-80	9EL 408 423-80	8GH 005 678-06, 6 V/10 W/143 lm/2,000 h	914 mm (35.9")	PEI	white-grey

## READING LIGHT

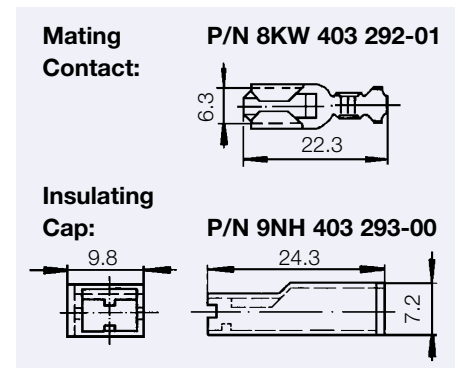
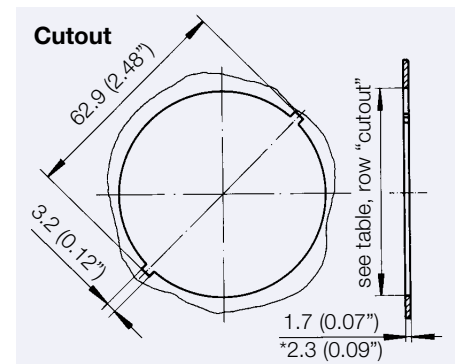
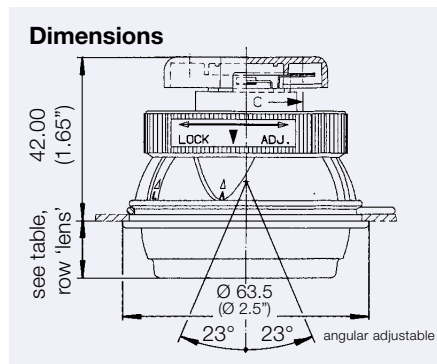
### 2LA 007 278-..

When fitting this reading light, the interior companies can decide whether the passenger shall be allowed or not to adjust the reading light manually. For this purpose an adjusting nut is provided which can be set accordingly during the installation of the light. The lens is secured by a bayonet lock and may be removed by a clockwise rotation for relamping.



#### Advantages:

- A facet reflector in combination with a clear lens provides a brilliant appearance
- High light intensity and long lifetime based on the use of halogen lamps
- No decrease of light intensity during the complete life of the halogen lamp
- Even after installation the maintenance staff can decide whether the light is fixed or adjustable by the passenger
- Individual design using different lens assemblies



- 1 Lens Assy 9EL 408 685-..
- 2 Halogen Lamp
- 3 Housing Assy 9BG 408 684-..
- 4 Spring Ring 9NU 408 985-10 (for all Reading Lights)

Partnumber	Lens Assy	Halogen Lamp	Typ. Inst. Height	Mass	Mat.	Color	Cutout
2LA 007 278-00	a, 14.8 mm (0.58")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	1,000 mm (39.4")	0.075 kg max.	PEI	Dark grey	ø 60.1 (2.37")
2LA 007 278-05	a, 14.8 mm (0.58")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	1,000 mm (39.4")	0.075 kg max.	PEI	Light grey	ø 60.1 (2.37")
2LA 007 278-15	a, 14.8 mm (0.58")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	1,000 mm (39.4")	0.075 kg max.	PEI	Dark grey	ø 60.1 (2.37")
2LA 007 278-16	a, 14.8 mm (0.58")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	Frosted lens	0.075 kg max.	PEI	Dark grey	ø 60.1 (2.37")
2LA 007 278-20	a, 14.8 mm (0.58")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	Frosted lens	0.075 kg max.	PEI	Dark grey	ø 60.1 (2.37")
2LA 007 278-22	a, 23.5 mm (0.92")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	1,000 mm (39.4")	0.090 kg max.	PEI	Dark grey	ø 59.69 (2.35")
2LA 007 278-23	a, 23.5 mm (0.92")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	1,000 mm (39.4")	0.090 kg max.	PEI	Dark grey	ø 59.69 (2.35")
2LA 007 278-30	a, 23.5 mm (0.92")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	1,000 mm (39.4")	0.082 kg max.	PEI	Dark grey	ø 59.69 (2.35")
2LA 007 278-35	a, 14.8 mm (0.58")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	1,000 mm (39.4")	0.075 kg max.	PEI	Dark grey	ø 60.1 (2.37")
2LA 007 278-40	a, 23.5 mm (0.92")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	1,000 mm (39.4")	0.077 kg max.	PEI	Dark grey	ø 60.1 (2.37")
2LA 007 278-41	a, 30.5 mm (1.20")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	1,000 mm (39.4")	0.090 kg max.	PEI	Dark grey	ø 60.1 (2.37")
2LA 007 278-50	a, 23.5 mm (0.92")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	1,000 mm (39.4")	0.077 kg max.	PEI	Dark grey	ø 59.69 (2.35")
2LA 007 278-70	c, 16.0 mm (0.63")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	914 mm (36")	0.075 kg max.	PEI	Light grey	ø 59.69 (2.35")
2LA 007 278-75	c, 16.0 mm (0.63")	8GH 005 448-28, 28 V, 11.5 W, 2,000 h	Frosted lens	0.075 kg max.	PEI	Light grey	ø 59.69 (2.35")
2LA 007 278-80	a, 15.0 mm (0.59")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	1,000 mm (39.4")	0.075 kg max.	PEI	Dark grey	ø 59.69 (2.35")
2LA 007 278-85	a, 23.5 mm (0.92")	8GH 007 429-28, 28 V, 11.5 W, 4,000 h	1,000 mm (39.4")	0.077 kg max.	PEI	Dark grey	ø 59.69 (2.35")

## READING LIGHTS

### 2LA 006 482/483-.. & 2LA 455 226-..

These Reading Lights are mainly used in the Airbus supply channels. They are completely closed to prevent ingress of contaminants into the housing. An adjustment is only possible during maintenance with special tools.

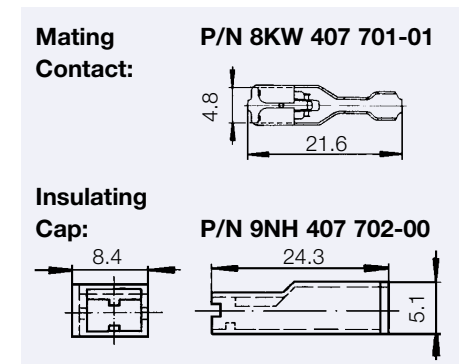
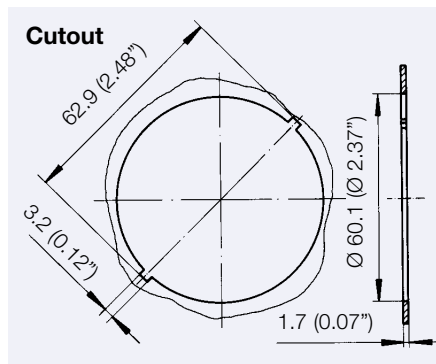
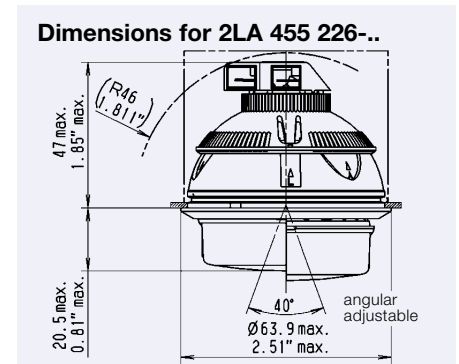
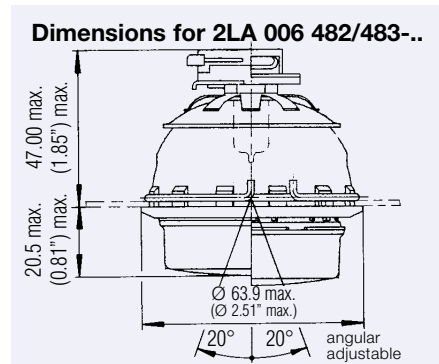
#### Advantages:

- High light intensity and long lifetime based on the use of halogen lamps
- No decrease of light intensity during the complete life of the halogen lamp



- 1 Lens Assy
- 2 Halogen Lamp
- 3 Light Assy
- 4 Spring Ring 9NU 402 129-00 (for all Reading Lights)

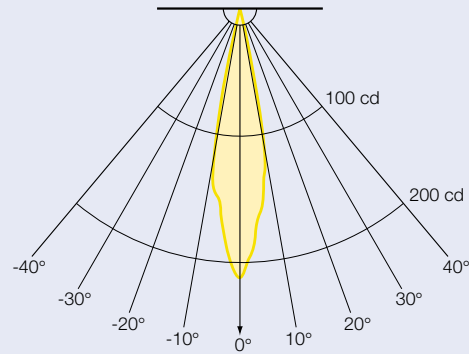
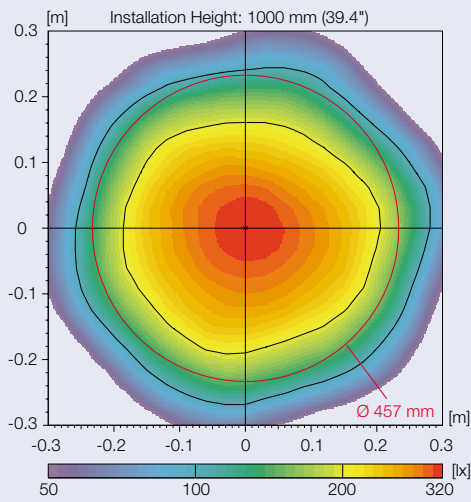
Mass: 0.077 kg (0.169 lbs) max.



Partnumber	Lens Assy	Halogen Lamp	Typ. Inst. Height	Material	Color
2LA 006 482-00	9EL 408 202-06	8GH 005 678-06, 6 V/10 W/143 lm/2,000 h	914 mm (36")	PES	beige
2LA 006 482-05	9EL 408 200-06	8GH 005 678-06, 6 V/10 W/143 lm/2,000 h	914 mm (36")	PES	grey
2LA 006 482-12	9EL 408 202-21	8GH 002 473-17, 12 V/10 W/11 MSCP/2,500 h	914 mm (36")	PES	chrome, glossy
2LA 006 482-60	9EL 409 147-60	8GH 004 554-28, 28 V/11,5 W/133 lm/2,000 h	914 mm (36")	PES	chrome, lustreless
2LA 006 482-65	9EL 408 202-65	8GH 005 549-28, 28 V/11.5 W/155 lm/2,000 h	914 mm (36")	PES	chrome, glossy
2LA 006 482-75	9EL 408 202-20	8GH 005 678-06, 6 V/10 W/143 lm/2,000 h	914 mm (36")	PES	chrome, glossy
2LA 006 483-00	9EL 408 203-06	8GH 005 678-06, 6 V/10 W/143 lm/2,000 h	1524 mm (60")	PES	beige
2LA 006 483-05	9EL 408 201-06	8GH 005 678-06, 6 V/10 W/143 lm/2,000 h	1524 mm (60")	PES	grey
2LA 455 226-05	9EL 411 135-05	8GH 005 678-06, 6 V/10 W/143 lm/2,000 h	914 mm (36")	PES	grey
2LA 455 226-35	9EL 411 135-35	8GH 005 678-06, 6 V/10 W/143 lm/2,000 h	1524 mm (60")	PES	grey

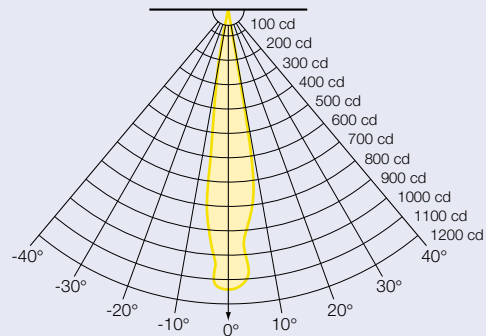
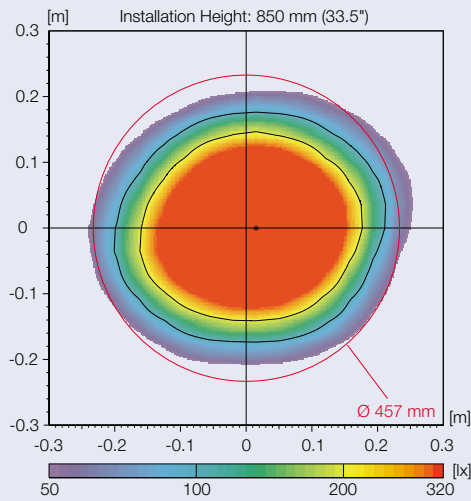
# LIGHT DISTRIBUTION CURVES

Typical Light Distribution Curve e.g. 2LA 005 171-00 (6 V/12 W)



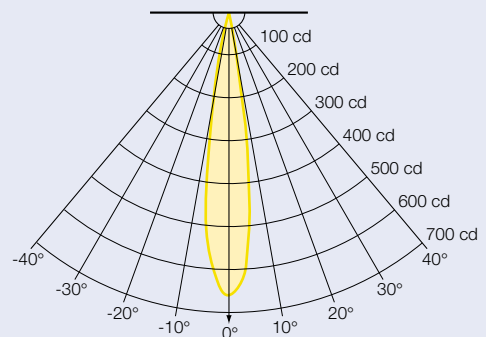
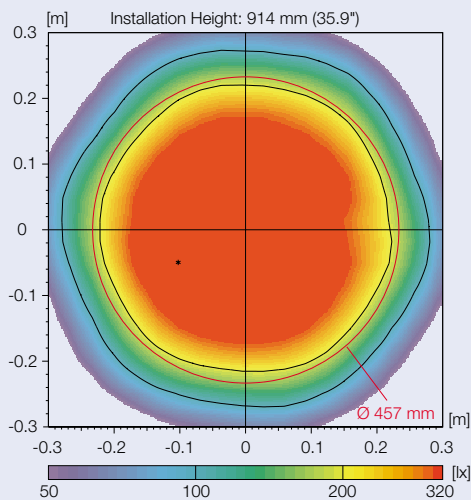
Illumination Area Ø 457 mm (18")	
Installation Height	Lux
610 mm (2 ft)	50 - 560 (5.0 - 50.0 ft-c)
914 mm (3 ft)	110 - 250 (10.2 - 23.2 ft-c)

Typical Light Distribution Curve e.g. 2LA 007 278-00 (28 V/11.5 W)



Illumination Area Ø 457 mm (18")	
Installation Height	Lux
914 mm (3 ft)	45 - 1360 (4.2 - 126.4 ft-c)
1219 mm (4 ft)	65 - 765 (6.0 - 71.0 ft-c)
1524 mm (5 ft)	90 - 490 (8.4 - 45.5 ft-c)

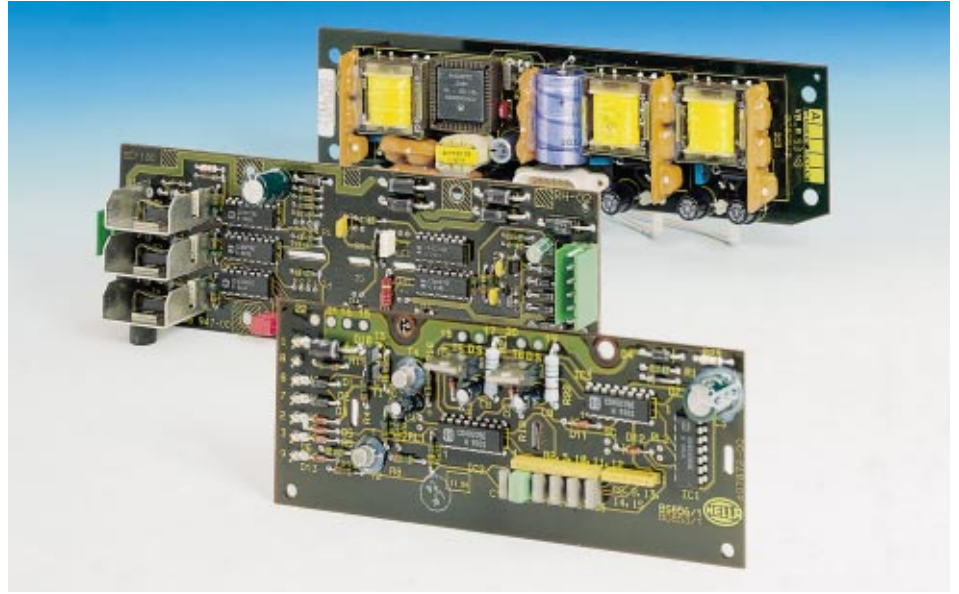
Typical Light Distribution Curve e.g. 2LA 006 482-00 (6 V/10 W)



Illumination Area Ø 457 mm (18")	
Installation Height	Lux
914 mm (3 ft)	50 - 800 (4.6 - 74.3 ft-c)
1219 mm (4 ft)	85 - 450 (7.9 - 41.8 ft-c)
1524 mm (5 ft)	120 - 290 (11.2 - 27.0 ft-c)

## POWER UNITS

In general, passenger reading lights can be operated directly from the aircraft's 28 V DC power system via push button switches or via membrane switches with appropriate electronics. In case the 115 V AC power system is used power units are needed which transform the voltage to 28 V or 6 V. These are normally installed adjacent to the reading lights on a circuit board. In addition to this transforming function the power units may include electronics for test functions, memory function, reset function and a discrete or bus interface.



Partnumber	Operating Voltage	Operating Current	Output Voltage per Read. Light	Mass kg (lbs)	Aircraft Type	Interface Type
8ES 005 236-13	115 V/400 Hz	175 mA	6 V/400 Hz, 1 X 10 W	0.17 (0.37)	A 320	discrete
8ES 005 237-13	115 V/400 Hz	350 mA	6 V/400 Hz, 2 X 10 W	0.22 (0.49)	A 320	discrete
8ES 005 238-13	115 V/400 Hz	525 mA	6 V/400 Hz, 3 X 10 W	0.27 (0.60)	A 320	discrete
8ES 006 501-10	115 V/400 Hz	150 mA	6 V/400 Hz, 1 X 10 W	0.16 (0.36)	A 330/A 340	RS232
8ES 006 502-10	115 V/400 Hz	280 mA	6 V/400 Hz, 2 X 10 W	0.22 (0.48)	A 330/A 340	RS232
8ES 006 503-10	115 V/400 Hz	400 mA	6 V/400 Hz, 3 X 10 W	0.27 (0.61)	A 330/A 340	RS232
8ES 005 588-00	115 V/400 Hz	330 mA	6 V/400 Hz, 2 X 12 W	0.17 (0.37)	ATR 42	



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