



TSL - Trust Your Senses to a Proven Partner



LED LIGHTING



LED Lighting Catalog

PUBLIC TRANSPORT
AND INDUSTRY



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PUBLIC TRANSPORT

Rail Vehicles Exterior . Rail Vehicles Interieur . Lavatories . Special Vehicles

TSL products are used worldwide in the railway market. There are rough application conditions in various climate zones that define challenging requirements for TSL products.

TSL lights operate reliably in extreme heat or freezing temperatures and also in dusty and humid conditions. In addition to high functional dependability, TSL products are developed with passengers' and operating personnels' comfort in mind.

The LED lights have an optimal lateral perceptibility and a brightness which fit perfectly to the individual application conditions. For that reason a comfortable stay in the vehicle and a safe entry and exit are made possible for passengers. Implementation of established standards guarantees a safe long term investment (e.g. DIN EN 14752, DIN EN 45545-2 or standards for persons with reduced mobility or hearing or visual disabilities).

For these challenging application areas TSL-ESCHA provides a wide product range of LED lights with various lighting characteristics.



INDUSTRY

Assembly lines and quality control . Workstations and work desks .
Manufacturing plants and machining centers

Having optimal lighting is more and more important for industrial applications.

TSL-ESCHA has developed top quality products for different industrial applications.

Maximum efficiency, exceptional brightness, a robust housing technology and an intelligent light and thermal management are the top features of TSL lights.

ROUND LIGHTS

HPLS SERIES

The HPLS round light was specially designed for applications with strict requirements. The HPLS reaches protection level IP67. The extremely robust housing technology allows use in critical application areas. Due to the different lighting geometries of this variant, it is possible to illuminate large surfaces or to illuminate targeted areas at considerable distance. In addition to robust housing technology, the integrated temperature management ensures a high level of durability.

Typical application areas

Machine tools:	An outstanding resistance against coolants, lubricants, and flying sparks is guaranteed thanks to the use of special seals.
Rail transport vehicles:	The HPLS is a versatile light used also for dynamometer cars or track building machines due to its spotlight features.
Emergency vehicles:	In fire trucks, the light is used as aerial ladder light or searchlight.
Booth construction:	The 230V _{AC} version (also available for daisy chaining multiple lights) is suitable for the illumination of smaller booths or product display.
Building technology:	Due to the high protection level, the 230V _{AC} version is suitable for outdoor lighting.

HPLS 24V_{DC}

Nominal voltage 24 V_{DC}
Nominal current 1A
Nominal power 24W

Housing material Aluminum die-cast
Operating temperature -40 to 50°C
Protection level IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8606682	Black	Cool white >5,700K	Industrial connector male, female M12	Ø160mm, H=57mm	12° Lense, LED cover of special glass	1.0 m	36,647 lux
						2.0 m	9,162 lux
						3.0 m	4,072 lux
8606873	Black	Cool white >5,700K	Industrial connector male, female M12	Ø160mm, H=57mm	40° Lense, LED cover of special glass	1.0 m	4,923 lux
						2.0 m	1,231 lux
						3.0 m	547 lux
8606707	Silver	Cool white >5,700K	Industrial connector male, female M12	Ø160mm, H=57mm	12° Lense, LED cover of special glass	1.0 m	36,647 lux
						2.0 m	9,162 lux
						3.0 m	4,072 lux

HPLS 230V_{AC}

Nominal voltage 230 V_{AC}
 Nominal current 150mA
 Nominal power 24W

Housing material Aluminum die-cast
 Operating temperature -40 to 50°C
 Protection level IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8606681	Black	Neutral white 3,300K - 5,300K	1,100mm rubber cable, wire-end sleeve	Ø160mm, H=57mm	38° Lense, LED cover of special glass	1.0 m	1,507 lux
						2.0 m	377 lux
						3.0 m	167 lux
8700281	Black	Neutral white 3,300K - 5,300K	1,100mm rubber cable, wire-end sleeve	Ø160mm, H=57mm	8° Lense, LED cover of special glass	1.0 m	16,066 lux
						2.0 m	4,017 lux
						3.0 m	1,785 lux
8606933	Black	Neutral white 3,300K - 5,300K	1,100mm rubber cable with earthing type plug	Ø160mm, H=57mm	38° Lense, LED cover of special glass	1.0 m	1,507 lux
						2.0 m	377 lux
						3.0 m	167 lux
8607134	Black	Neutral white 3,300K - 5,300K	1,100mm rubber cable with earthing type plug, male and female	Ø160mm, H=57mm	38° Lense, LED cover of special glass	1.0 m	1,507 lux
						2.0 m	377 lux
						3.0 m	167 lux
8702213	Black	Neutral white 3,300K - 5,300K	5,000mm rubber cable, wire-end sleeve	Ø160mm, H=57mm	38° Lense, LED cover of special glass	1.0 m	1,507 lux
						2.0 m	377 lux
						3.0 m	167 lux
8606680	Black	Neutral white 3,300K - 5,300K	Three-phase track adapter	Ø160mm, H=57mm	38° Lense, LED cover of special glass	1.0 m	1,507 lux
						2.0 m	377 lux
						3.0 m	167 lux
8606782	Silver	Neutral white 3,300K - 5,300K	Three-phase track adapter	Ø160mm, H=57mm	38° Lense, LED cover of special glass	1.0 m	1,507 lux
						2.0 m	377 lux
						3.0 m	167 lux
8700274	Silver	Neutral white 3,300K - 5,300K	Three-phase track adapter	Ø160mm, H=57mm	8° Lense, LED cover of special glass	1.0 m	16,066 lux
						2.0 m	4,017 lux
						3.0 m	1,785 lux
8606708	Silver	Neutral white 3,300K - 5,300K	1,100mm rubber cable, wire-end sleeve	Ø160mm, H=57mm	38° Lense, LED cover of special glass	1.0 m	1,507 lux
						2.0 m	377 lux
						3.0 m	167 lux
8700221	Black	Warm white <3,300K	1,100mm rubber cable, wire-end sleeve	Ø160mm, H=57mm	8° Lense, LED cover of special glass	1.0 m	16,011 lux
						2.0 m	4,003 lux
						3.0 m	1,779 lux
8700763	Black	Warm white <3,300K	1,100mm rubber cable, wire-end sleeve	Ø160mm, H=57mm	38° Lense, LED cover of special glass	1.0 m	1,507 lux
						2.0 m	377 lux
						3.0 m	167 lux
8700757	Black	Warm white <3,300K	1,100mm rubber cable with earthing type plug, male and female	Ø160mm, H=57mm	8° Lense, LED cover of special glass	1.0 m	16,011 lux
						2.0 m	4,003 lux
						3.0 m	1,779 lux
8702128	Black	Warm white <3,300K	Three-phase track adapter	Ø160mm, H=57mm	38° Lense, LED cover of special glass	1.0 m	1,507 lux
						2.0 m	377 lux
						3.0 m	167 lux
8702129	Black	Warm white <3,300K	Three-phase track adapter	Ø160mm, H=57mm	8° Lense, LED cover of special glass	1.0 m	16,011 lux
						2.0 m	4,003 lux
						3.0 m	1,779 lux
8607468	Silver	Warm white <3,300K	1,100mm rubber cable with earthing type plug, male and female	Ø160mm, H=57mm	8° Lense, LED cover of special glass	1.0 m	16,011 lux
						2.0 m	4,003 lux
						3.0 m	1,779 lux
8607471	Silver	Warm white <3,300K	Three-phase track adapter	Ø160mm, H=57mm	8° Lense, LED cover of special glass	1.0 m	16,011 lux
						2.0 m	4,003 lux
						3.0 m	1,779 lux

ROUND LIGHTS

HPLS EX SERIES

TSL ESCHA LED Light for EX zones helps monitoring production quality in potentially explosive areas. The LED technology ensures consistent lighting and perfect illumination during the production process. The robust housing design and the integrated LED temperature management guarantee a long lasting product. The LED light is suitable for explosive areas 2 (gas) and 22 (dust).

Typical application areas

Machine construction: The compact housing makes it suitable for tight spaces or assembly in areas with difficult access inside the plant.

Tank trucks: Due to its high luminosity this LED light is suitable for example for aircraft refueling.

HPLS EX 24V_{DC}

Nominal voltage 24 V_{DC}
 Nominal current 1A
 Nominal power 24W
 Housing material Aluminum die-cast

Operating temperature -40 to 50°C
 Protection level IP64
 Explosive areas 2 (gas) and 22 (dust)



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8701124	Black	Cool white >5,300K	3,000mm rubber cable, wire-end sleeve	Ø160mm, H=57mm	8° Lense, LED cover of special glass	1.0 m	16,570 lux
						2.0 m	4,143 lux
						3.0 m	1,841 lux
8607390	Black	Cool white >5,300K	3,000mm rubber cable, wire-end sleeve	Ø160mm, H=57mm	38° Lense, LED cover of special glass	1.0 m	1,615 lux
						2.0 m	404 lux
						3.0 m	179 lux

HPLS ACCESSORIES

The glass cover of the HPLS protects the glass front also against mechanical damage, such as shatters due to burning-hot sparks or abrasive materials. The protective glass is easily replaceable.



8704045



8702367



8702368



Article-No	Product	Material	Type
8704045	Pedestal	Stainless steel 1.4301	RAL 9005, mounting screws
8702367	Glass clamp for HPLS	Stainless steel 1.4301	-
8702368	Protective glass HPLS	Single layer safety glass	Clear, without sealing



LINEAR LIGHTS

■ PL14 SERIES

The product family PL14 ensures, in spite of its slim design, high brightness with homogenous illumination. It is offered in three different lengths with magnets for easy installation. The radiation direction is adjustable thanks to the lateral mounting brackets. Depending on the variant, the PL14 offers extra features.

Typical application areas

Mounting technology:	The slim design allows the use of light in compact manufacturing lines.
Locomotive:	The light is used in the cab (driver's compartment) because of its homogenous illumination.
Railway vehicles:	The product family PL14 is used in lavatories for mirror illumination, due to its slim design and availability in different lengths.
Workplaces:	In addition to the LED Lighting System PL151, the 48V _{DC} variant is used for shelf illumination.
Machine construction:	The PL14M is made for illuminating machine interiors. Due to protection level IP67 and an extremely strong sealing the PL14M has a good resistance against coolants and lubricants, flying metal swarf, shock and vibration.
Wave soldering systems:	The PL14HT is an additional product in the PL14 product family which resists extreme temperatures (up to +80°C) in machine interiors.

PL14 24V_{DC}

Nominal voltage	24 V _{DC}	Housing material	Aluminum continuous casting
Nominal current	See description		
Nominal power	See description	Operating temperature	-40 to 40°C
		Protection level	IP20



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8706042	Silver	Cool white 6,500K	M8 male socket/ plug	172x23x15mm	290mA, 8W, LED cover made of float glass for temperature range up to +80°C	0.5 m	1,400 lux
						1.0 m	360 lux
						1.5 m	165 lux
8704882	Silver	Neutral white 4,700K	M8 male socket/ plug	278x23x17mm	215mA, 7W, LED cover of special polymethylmethacrylate glass	0.5 m	887 lux
						1.0 m	222 lux
						3.0 m	103 lux
8704879	Silver	Neutral white 4,700K	M8 male socket	538x23x17mm	430mA, 14W, LED cover of special polymethylmethacrylate glass	0.5 m	1,474 lux
						1.0 m	422 lux
						3.0 m	199 lux
8704881	Silver	Neutral white 4,700K	M8 male socket	798x23x17mm	650mA, 21W, LED cover of special polymethylmethacrylate glass	0.5 m	1,943 lux
						1.0 m	619 lux
						3.0 m	299 lux

PL14 48V_{DC}

Nominal voltage 48 V_{DC}
 Nominal current See description
 Nominal power See description

Housing material Aluminum continuous casting
 Operating temperature -40 to 40°C
 Protection level IP20



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8701670	Silver	Cool- + Warm white 3,000K - 6,500K	M8 male socket	278x23x17mm	130mA, 7W, LED cover of special polymethylmethacrylate glass	0.5 m	640 lux
						1.0 m	160 lux
						3.0 m	40 lux
8701952	Silver	Cool- + Warm white 3,000K - 6,500K	M8 male socket	538x23x17mm	260mA, 14W, LED cover of special polymethylmethacrylate glass	0.5 m	1,160 lux
						1.0 m	290 lux
						3.0 m	73 lux
8701300	Silver	Cool- + Warm white 3,000K - 6,500K	M8 male socket	798x23x17mm	390mA, 20W, LED cover of special polymethylmethacrylate glass	0.5 m	1,680 lux
						1.0 m	420 lux
						3.0 m	105 lux

PL14 M 24V_{DC}

Nominal voltage 24 V_{DC}
 Nominal current See description
 Nominal power See description

Housing material Aluminum
 Operating temperature -20 to 50°C
 Protection level IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8706689	Silver	Neutral white 5,000K	M8 male socket/ plug	289x28x14mm	215mA, 5W, LED cover made of single-layer safety glass, cascadable (max. 6 PL14M-IP67X3)	0.5 m	818 lux
						1.0 m	215 lux
8706690	Silver	Neutral white 5,000K	M8 male socket/ plug	549x28x14mm	430mA, 11W, LED cover made of single-layer safety glass, cascadable (max. 3 PL14M-IP67X5)	0.5 m	1,470 lux
						1.0 m	427 lux
8706691	Silver	Neutral white 5,000K	M8 male socket	809x28x14mm	655mA, 16W, LED cover made of single-layer safety glass	0.5 m	1,870 lux
						1.0 m	613 lux

LINEAR LIGHTS

■ PL18 SERIES

The PL18 features a remarkably robust housing design with small openings to protect the electronics and lamp glass from damages like stones or larger metal swarf. In addition, the PL18 reaches protection level IP67.

Typical application areas

Special railway vehicles: Due to the robust housing design, the PL18 is optimal for rail construction vehicles. The underlying lenses are covered by an additional shatterproof glass to protect the light from potential rocks and stones from the track bed.

Heavy machine construction: Due to the deep small openings, the light is optimally protected against larger metal swarf.

PL18 24V_{DC}

Nominal voltage	24 V _{DC}	Housing material	Aluminum continuous casting
Nominal current	See description		
Nominal power	See description	Operating temperature	-40 to 50°C
		Protection level	IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8700118	Silver	Cool white 6,500K	Industrial connector male, female M12	L=445mm, Ø60mm	675mA, 16W, 42° Lense, single-layer safety glass	1.0 m	1,381 lux
						2.0 m	345 lux
						3.0 m	153 lux
8700119	Silver	Cool white 6,500K	Industrial connector male, female M12	L=835mm, Ø60mm	1,3A, 32W, 42° Lense, single-layer safety glass	1.0 m	2,763 lux
						2.0 m	691 lux
						3.0 m	307 lux

PL18 230V_{AC}

Nominal voltage	230 V _{AC}	Housing material	Aluminum continuous casting
Nominal current	See description		
Nominal power	See description	Operating temperature	-40 to 50°C
		Protection level	IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8700098	Silver	Cool white 6,500K	1,100mm rubber cable, wire-end sleeve	L=445mm, Ø60mm	80mA, 19W, 42° Lense, single-layer safety glass	1.0 m	1,381 lux
						2.0 m	345 lux
						3.0 m	153 lux
8700112	Silver	Cool white 6,500K	1,100mm rubber cable, wire-end sleeve	L=835mm, Ø60mm	160mA, 38W, 42° Lense, single-layer safety glass	1.0 m	2,763 lux
						2.0 m	691 lux
						3.0 m	307 lux

■ PL30 SERIES

The flat design of this LED light allows mounting in small compartments or corners. Its high protection level IP67, robust housing design, and integrated VITON® sealing assure reliable operation in critical areas. The light is adjustable via two mounting brackets.

The PL30 can illuminate larger areas and generate a homogeneous illumination due to its radiation angle of 120°. For special applications the light can be equipped with lenses to allow a more individual illumination.

Typical application areas

Locomotive:	Due to its strong luminosity and resistance to vibration, the PL30 is used in engine rooms.
Railway vehicles:	Its high protection level and robust housing design make it a perfect sliding step light on train exteriors. The homogeneous illumination enhances passenger safety while boarding and exiting.
Machine construction:	Due to the robust housing design and the resistance against coolants and lubricants, the light can be used in machine tools.

PL30 24/36V_{DC}

Nominal voltage	24/36 V _{DC}	Housing material	Aluminum die-cast
Nominal current	See description	Operating temperature	-40 to 50°C
Nominal power	See description	Protection level	IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8701224	Silver	Cool white 6,500K	Industrial connector male, female M12	420x45,5x 27mm	620mA, 16W, single-layer safety glass, VITON® seal	0.5 m	1,262 lux
						1.0 m	316 lux
						2.0 m	79 lux
8701692	Silver	Cool white 6,500K	Industrial connector male, female M12	820x45,5x 27mm	1240mA, 32W, single-layer safety glass, VITON® seal	0.5 m	2,441 lux
						1.0 m	610 lux
						2.0 m	153 lux

■ PL30 ACCESSORIES

The glass cover of the PL30 protects the optics from mechanical damages like blindness due to burning-in hot sparks or abrasive fluids. The protective glass is easily replaceable.



8703081



8703083



8703492

Article-No	Product	Material	Type
8703081	Glass clamp for PL30	Stainless steel 1.4301	-
8703083	Protective glass PL30	Single-layer safety glass	Clear, without sealing
8703492	Protective glass PL30 diffuse	Single-layer safety glass	Diffuse, ceramic printed

■ TL12 SERIES

The LED miniature light TL12 was designed to illuminate small areas in machines. Thanks to its compact design, robust housing, and low weight, the light can be installed close to objects difficult to illuminate.

Typical areas of use

Machine construction: Due to the focused illumination and the compact design the light can be used for assembly lines and robots (e.g. for camera applications). The protection level IP67 allows the use in machining centers.

TL12 24V_{DC}

Nominal voltage	24/36 V _{DC}	Housing material	CuZn
Nominal current	50mA	Operating temperature	-25 to 50°C
Nominal power	1W	Protection level	IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8702079	Silver	Cool white >5,300K	Industrial connector male, female M12x1	L=71mm, Ø11,9mm	23° Lense (glass), M12 Sensor housing	0.2 m	4,100 lux
						0.25 m	3,000 lux
						0.5 m	840 lux

MINIATURE LIGHTS

■ TL83 SERIES

The TL83 is designed to offer a space-saving lighting solution for tight spaces. It reaches protection level IP67. The housing material consists of aluminum die-cast. Thus, the TL83 is suitable for installation in critical areas like machine tools.

Typical application areas

Machine construction:	The small and robust housing design allows the use in compact machine tools.
Locomotive:	The light is used for orientation on steps and in works spaces.
Railway vehicles:	As built-in variant, this light is used in door opening areas or as step light. In sleeping cars the TL83 is often used as orientation light.
Emergency vehicles:	The compact housing design and the protection level IP67 makes it suitable for environment lighting e.g. for construction trucks or as pole lighting for fire trucks.

TL83 24V_{DC} - SINGLE-LAYER SAFETY GLASS, CLEAR

Nominal voltage	24 V _{DC}	Housing material	Aluminum die-cast
Nominal current	140mA	Operating temperature	-40 to 50°C
Nominal power	4W	Protection level	IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8701621	Green Grey	Cool white 6,500K	500mm PUR cable with connector M12	120x25.5x 13mm	80° Lense, single-layer safety glass	0.5 m	577 lux
						1.0 m	144 lux
						2.0 m	36 lux
8701623	Green Grey	Cool white 6,500K	8mm Connector adapter	120x25.5x 13mm	80° Lense, single-layer safety glass	0.5 m	577 lux
						1.0 m	144 lux
						2.0 m	36 lux
8701619	Green Grey	Cool white 6,500K	2,000mm PUR cable, wire-end sleeve	120x25.5x 13mm	80° Lense, single-layer safety glass	0.5 m	577 lux
						1.0 m	144 lux
						2.0 m	36 lux
8701966	Green Grey	Cool white 6,500K	2,000mm Tenuis cable, wire-end sleeve	120x25.5x 13mm	80° Lense, single-layer safety glass	0.5 m	577 lux
						1.0 m	144 lux
						2.0 m	36 lux

TL83 24V_{DC} - DOUBLE-LAYER SAFETY GLASS, FROSTED

Nominal voltage	24 V _{DC}	Housing material	Aluminum die-cast
Nominal current	140mA	Operating temperature	-40 to 50°C
Nominal power	4W	Protection level	IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8701622	Green Grey	Cool white 6,500K	500mm PUR cable with connector M12	120x25.5x 13mm	120° Lense, double-layer safety glass with light diffuser	0.5 m	300 lux
						1.0 m	75 lux
						2.0 m	19 lux
8701624	Green Grey	Cool white 6,500K	8mm Connector adapter	120x25.5x 13mm	120° Lense, double-layer safety glass with light diffuser	0.5 m	300 lux
						1.0 m	75 lux
						2.0 m	19 lux
8701620	Green Grey	Cool white 6,500K	2,000mm PUR cable, wire-end sleeve	120x25.5x 13mm	120° Lense, double-layer safety glass with light diffuser	0.5 m	300 lux
						1.0 m	75 lux
						2.0 m	19 lux
8702029	Green Grey	Cool white 6,500K	3,000mm PUR cable, wire-end sleeve	120x25.5x 13mm	120° Lense, double-layer safety glass with light diffuser	0.5 m	300 lux
						1.0 m	75 lux
						2.0 m	19 lux

TL80 SERIES

The TL80 is mainly used in rail vehicles with on-board power supply of 110V_{AC}. The housing material is synthetic. Due to the lower power consumption compared to the TL83, the light is predominantly used as orientation light.

TL80 110V_{DC}

Nominal voltage	110 V _{DC}	Housing material	PA6GF15
Nominal current	35mA	Operating temperature	-40 to 50°C
Nominal power	2.5W	Protection level	IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8703418	Black	Cool white >5,300K	2,000mm Tenuis cable, wire-end sleeve	120x25x 24.3mm	3 LED's, double-layer safety glass matte	0.5 m	160 lux
						1.0 m	40 lux
						2.0 m	10 lux
8702347	Black	Cool white >5,300K	270mm Tenuis cable, M12-connector	120x25x 24.3mm	2 LED's, double-layer safety glass matte	0.25 m	150 lux
						0.5 m	43 lux
						1.0 m	10 lux
8607032	Black	Cool white >5,300K	180mm Tenuis cable, Wago connector	120x25x 24.3mm	2 LED's, single-layer safety glass clear	0.25 m	205 lux
						0.5 m	60 lux
						1.0 m	15 lux

MINIATURE LIGHTS

CUBE SERIES

The cube is a compact, robust LED light for simpler applications. The light orientation is adjustable. The cube is available with a synthetic LED-cover (e.g. for food applications).

CUBE 24V_{DC}

Nominal voltage 24 V_{DC}
Nominal current 120mA
Nominal power 3W

Housing material Aluminum die-cast
Operating temperature -40 to 50°C
Protection level IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8606004	Black	Cool white >5,300K	Industrial connector M12	41x41x66mm	120° Lense, single-layer safety glass	0.5 m	450 lux
						1.0 m	108 lux
						2.0 m	29 lux
8606678	Black	Cool white >5,300K	Industrial connector M12	41x41x66mm	120° Lense, polycarbonate LED cover	0.5 m	450 lux
						1.0 m	108 lux
						2.0 m	29 lux
8701728	Black	Warm white <3,300K	Industrial connector M12	41x41x66mm	120° Lense, single-layer safety glass	0.25 m	765 lux
						0.5 m	230 lux
						2.0 m	60 lux

CUBE ACCESSORIES

The mounting bracket allows an easy positioning of the light.



8700406



Article-No	Product	Material	Type
8700406	Mounting bracket for cube	Stainless steel 1.4301 shot blasted	1 mounting screw

■ RL10 SERIES

Due to its robust housing design the ring light RL10 perfectly fits to applications in the field of metal working. It has a good resistance against coolants and lubricants, flying metal swarf, shock and vibration. High Power LEDs illuminate workpieces brightly, evenly and without glare or shadows

Typical application areas

Machine construction: The ring light RL10 can be installed at the spindle of milling machines and in machining centers. For the illumination of such workspaces the RL10 can be perfectly combined with the PL14M.

RING LIGHT RL10

Nominal voltage	24 V _{DC}	Housing material	Aluminum die-cast
Nominal current	530mA	Operating temperature	-20 to 50°C
Nominal power	13W	Protection level	IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8706648	Silver	Neutral white 5,000K	M8 male socket	Internal Ø: 205mm External Ø: 251mm 16mm tall	4x single-layer safety glass, angle of radiation 80°	0.5 m	2,000 lux
						0.75 m	1,000 lux
						1.0 m	620 lux

PANEL LIGHTS

■ PL151 SERIES

The series PL151 is mainly used for the illumination of workstations. It can be mounted on ceilings or walls. Alternatively, there are versions for desk mounting available.

The PL151 lighting system has been developed for workstations with requirements for high-quality lighting. Depending on the variant, the light is continuously adjustable in brightness and color (3,000K - 6,500K).

Optics

The PL151 system is offered in three optic selections.

Prismatic:	For workstations with high brightness requirements and larger distance (for example precision assembly stations and soldering)
Microstructure:	For tasks with higher reflection on the considering object (for example coating or surface inspection)
Diffusor:	For exercises where maximum light emission without visible structure is needed (for example watch industry)

■ PL151 SERIES - CEILING OR WALL MOUNTING OPTION

Ceiling or wall mounting for workstations in production halls: The PL151 can be mounted on ceilings or walls. It illuminates workstations from a large distance.

PL151 48V_{DC} - CEILING LIGHT

Nominal voltage	48 V _{DC} +/- 2%	Housing material	Aluminum
Nominal current	See description	Operating temperature	-40 to 40°C
Nominal power	See description	Protection level	IP20



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8705393	Silver	Cool- + Warm white 3,000K - 6,500K	M8 male socket	303x197x15mm	24W, 500mA, polymethyl- methacrylate LED cover, prismatic	0.5 m	2,510 lux
						1.0 m	664 lux
						2.0 m	320 lux
8705394	Silver	Cool- + Warm white 3,000K - 6,500K	M8 male socket	564x197x15mm	48W, 995mA, polymethyl- methacrylate LED cover, prismatic	0.5 m	4,650 lux
						1.0 m	1,322 lux
						2.0 m	617 lux
8705395	Silver	Cool- + Warm white 3,000K - 6,500K	M8 male socket	824x197x15mm	72W, 1450mA, polymethyl- methacrylate LED cover, prismatic	0.5 m	6,300 lux
						1.0 m	2,000 lux
						2.0 m	1,000 lux
8705396	Silver	Cool- + Warm white 3,000K - 6,500K	M8 male socket	303x197x15mm	24W, 500mA, polymethyl- methacrylate LED cover, prismatic, built-in light control	0.5 m	2,510 lux
						1.0 m	664 lux
						2.0 m	320 lux
8705397	Silver	Cool- + Warm white 3,000K - 6,500K	M8 male socket	564x197x15mm	48W, 995mA, polymethyl- methacrylate LED cover, prismatic, built-in light control	0.5 m	4,650 lux
						1.0 m	1,322 lux
						2.0 m	617 lux
8705398	Silver	Cool- + Warm white 3,000K - 6,500K	M8 male socket	824x197x15mm	72W, 1450mA, polymethyl- methacrylate LED cover, prismatic, built-in light control	0.5 m	6,300 lux
						1.0 m	2,000 lux
						2.0 m	1,000 lux

■ PL151 SERIES – SWING-ARM OPTION

Swing-arm for vertical profiles in testing or inspection stations: Thanks to the swing-arm the light can be mounted on a vertical profile with just two screws. It also features length adjustment to the desired position.

PL151 48V_{DC} – SWING-ARM

Nominal voltage	48 V _{DC} +/- 2%	Housing material	Aluminum
Nominal current	See description	Operating temperature	-40 to 40°C
Nominal power	See description	Protection level	IP20



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8705399	Silver	Cool- + Warm white 3,000K - 6,500K	M8 male socket	303x197x15mm	24W, 500mA, polymethylmethacrylate LED cover, microstructure, built-in light control	0.5 m	2,070 lux
						1.0 m	529 lux
						2.0 m	240 lux
8705400	Silver	Cool- + Warm white 3,000K - 6,500K	M8 male socket	564x197x15mm	48W, 995mA, polymethylmethacrylate LED cover, microstructure, built-in light control	0.5 m	3,500 lux
						1.0 m	981 lux
						2.0 m	480 lux

■ PL151 SERIES – ARTICULATED ARM OPTION

Articulated arm for the illumination of desks in test engineering, construction or on precision assembly stations: The base clamp can be directly fastened to the desk. The articulated arm allows the light to be moved freely in any direction.

PL151 48V_{DC} – ARTICULATED ARM

Nominal voltage	48 V _{DC} +/- 2%	Housing material	Aluminum
Nominal current	See description	Operating temperature	-20 to 40°C
Nominal power	See description	Protection level	IP20



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8704819	Silver	Cool- + Warm white 3,000K - 6,500K	DC Power supply plug	303x197x15mm	24W, 500mA, polymethylmethacrylate LED cover, microstructure, built-in light control	0.5 m	2,070 lux
						1.0 m	529 lux
						2.0 m	240 lux
8704825	Silver	Cool- + Warm white 3,000K - 6,500K	DC Power supply plug	564x197x15mm	48W, 995mA, polymethylmethacrylate LED cover, microstructure, built-in light control	0.5 m	3,500 lux
						1.0 m	981 lux
						2.0 m	480 lux
8705234	Silver	Cool- + Warm white 3,000K - 6,500K	DC Power supply plug	303x197x15mm	24W, 500mA, polymethylmethacrylate LED cover, microstructure + diffuser, built-in light control	0.5 m	2,210 lux
						1.0 m	603 lux
						2.0 m	284 lux
8705235	Silver	Cool- + Warm white 3,000K - 6,500K	DC Power supply plug	564x197x15mm	48W, 995mA, polymethylmethacrylate LED cover, microstructure + diffuser, built-in light control	0.5 m	4,000 lux
						1.0 m	1,200 lux
						2.0 m	590 lux

PANEL LIGHTS

■ PL151 SERIES – SURFACE MOUNTING OPTION

Made for workstations in production areas. The PL151 can be mounted vertically in workstations' ceilings. This space-saving mounting option makes testing and mounting activities more easier with its glare-free and shadowless illumination.

PL151 48V_{DC} – SURFACE MOUNTING









Nominal voltage	48 V _{DC} +/- 2%	Housing material	Aluminum
Nominal current	48W	Operating temperature	-20 to 40°C
Nominal power	995mA	Protection level	IP20







Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8705731	Silver	Cool- + Warm white 3,000K - 6,500K	M8 male socket	564x197x15mm	polymethylmethacrylate LED cover, prismatic	0.5 m	4,650 lux
						1.0 m	1,322 lux
						2.0 m	617 lux

PL151 ACCESSORIES






POWER SUPPLY

Article-No	8705401	8705360	8705402	8705410	8705363	8705412	8705411	8701525
Type	NT25 Wall plug power supply (Europlug)	NT60 Power supply (Power plug D) switchable	NT60 Power supply (Power plug D)	NT100 Power supply (Power plug D), switchable	NT60 Power supply (Power plug CH)	NT60 Power supply (Power plug CH)	NT100 Power supply (Power plug CH), switchable	100W Power supply for free wiring
Explanation	25W Wall plug power supply fully wired for the PL151 (Europlug)	60W switchable power supply fully wired for the PL151 with power plug D	60W Table power supply fully wired for the PL151 with power plug D	100W Power supply fully wired for the PL151 with power plug D	60W switchable power supply fully wired for the PL151 with power plug CH	60W Table power supply fully wired for the PL151 with power plug CH	100W Power supply fully wired for the PL151 with power plug CH	NT100 Power supply for free wiring 100W
Product								

MOUNTING DEVICE

Article-No	8705705	8705706	8705707	8704572
Type	Universal clamp	Drilling screw fitting	Metal screw-on plate	LifiTEC table clamp
Explanation	Clamp for for table fittings of PL151 systems (Clamp length 18-74mm)	Drilling screw for for table fittings of PL151 systems (Drilling diameter 14mm)	Robust metal screw-on plate for for table fittings of PL151 systems (Fitting area: 51mm) Delivery incl. metal screw sleeve	Clamp for for table fittings of PL151 systems (Clamp length 83mm)
Product				

OTHER

Article-No	8705413	8702801	8702672	8702673	8705770
Type	PL151 Connection cable	PL151 Connection cable	LCU	MTP	Built-in connector
Explanation	PL151 Connection cable M8 - DC, 2m	PL151 Connection cable M8 - Plug / Coupling 2m	Light control	Handheld control	Flange coupling M8 with cable
Product					

SWAN NECK LIGHTS

CUBE FS SERIES

The cube with swan neck illuminates work benches or small machine tools typically. Mounting is possible by magnet foot.

CUBE FS 24V_{DC}

Nominal voltage	24 V _{DC}	Housing material	Aluminum die-cast
Nominal current	120mA	Operating temperature	-40 to 50°C
Nominal power	3W	Protection level	IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8606861	Black	Cool white >5,300K	Industrial connector M12	41x41x66mm	120° beam angle, LED cover of single-layer safety glass, swan neck length approx. 400mm	0.5 m	450 lux
						1.0 m	108 lux
						2.0 m	29 lux

HPLS FS SERIES

The HPLS with swan neck is suitable for larger applications thanks to its high luminosity. The swan neck enables the light to be changed to the desired position for example for installation work. Mounting is possible via three screws on the foot.

HPLS FS 24V_{DC} AND 230V_{AC}

Nominal voltage	See description	Housing material	Aluminum die-cast
Nominal current	See description	Operating temperature	-40 to 50°C
Nominal power	24W	Protection level	IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8700550	Black	Cool white 5,700K	Industrial connector M12	Ø160mm, H=57mm	24V, 1A, 8° Lense, LED cover of special glass, swan neck length approx. 360mm	1.0 m	16,570 lux
						2.0 m	4,143 lux
						3.0 m	1,841 lux
8701716	Black	Cool white 5,700K	Industrial connector M12	Ø160mm, H=57mm	24V, 1A, 38° Lense, LED cover of special glass, swan neck length approx. 360mm	1.0 m	1,615 lux
						2.0 m	404 lux
						3.0 m	179 lux
8607339	Black	Neutral white 4,500K	5,000mm rubber cable, wire-end sleeves	Ø160mm, H=57mm	230V, 150mA, 38° Lense, LED cover of special glass, swan neck length approx. 360mm	1.0 m	1,615 lux
						2.0 m	404 lux
						3.0 m	179 lux



BUILT-IN LIGHTS

BUILT-IN LIGHTS SERIES

TSL built-in lights guarantee constant brightness even at high voltage fluctuations. Different installation options and lighting properties offer an optimal solution for different applications. Due to active thermal management and optimized thermal transitions, a high level of durability (50,000 hours) is guaranteed.

ELK SERIES

The ELK is made of stainless steel and pressed glass, two robust materials that shield the lamp from external impact. The high glass dome provides a very good spatial radiation and lateral visibility.

ELK63 24-110V_{DC}

Nominal voltage	See description	Housing material	Polycarbonate
Nominal current	See description	Operating temperature	-40 to 50°C
Nominal power	2.5W	Protection level	IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8606000	Silver	Cool white >5,300K	200mm Tenuis cable with 8mm connector	Ø100mm, H=41mm	24V _{DC} , 100mA, Special frosted glass, stainless steel housing 1.4301, matte shot blasted, back mounting	0.5 m	120 lux
						1.0 m	30 lux
						2.0 m	5 lux
8607033	Silver	Cool white >5,300K	200mm Tenuis cable with Wago connector	Ø100mm, H=41mm	24-110V _{DC} , 100mA, Special frosted glass, stainless steel housing 1.4301, matte shot blasted, back mounting	0.5 m	120 lux
						1.0 m	30 lux
						2.0 m	5 lux
8606115	Silver	Cool white >5,300K	500mm PUR cable with industrial connector M12	Ø100mm, H=41mm	24-110V _{DC} , 100mA, Special frosted glass, stainless steel housing 1.4301, matte shot blasted, mounting clips	0.5 m	120 lux
						1.0 m	30 lux
						2.0 m	5 lux
8606144	Silver	Cool white >5,300K	500mm PUR cable with industrial connector M12	Ø100mm, H=41mm	24-110V _{DC} , 100mA, Special frosted glass, stainless steel housing 1.4301, matte shot blasted, back mounting	0.5 m	120 lux
						1.0 m	30 lux
						2.0 m	5 lux

ELK50 24V_{DC}

Nominal voltage 24 V_{DC}
 Nominal current 200mA
 Nominal power 5W
 Housing material Aluminum die-cast

Operating temperature -40 to 50°C
 Protection level IP67
 Light-emitting surface 50mm



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8703496	matte shot-blasted	Cool white >5,300K	420mm Tenuis cable with wire-end sleeve	Ø90mm, H=37mm	Backside mounting	0.5 m	120 lux
						1.0 m	30 lux
						2.0 m	8 lux
8703498	matte shot-blasted	Cool white >5,300K	420mm Tenuis cable with wire-end sleeve	Ø90mm, H=37mm	Assembly with mounting claw	0.5 m	120 lux
						1.0 m	30 lux
						2.0 m	8 lux

ELK50 110V_{DC}

Nominal voltage 110 V_{DC}
 Nominal current 35mA
 Nominal power 4W
 Housing material Aluminum die-cast

Operating temperature -40 to 50°C
 Protection level IP67
 Light-emitting surface 50mm



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8702402	matte shot-blasted	Cool white >5,300K	180mm Tenuis cable with M8 connector	Ø90mm, H=37mm	Ball joints	0.5 m	120 lux
						1.0 m	30 lux
						2.0 m	8 lux

BUILT-IN LIGHTS

■ EL50 SPOT SERIES

The EL50 series is a built-in spot light with a flat pane. The light-emitting surface is 50mm. Due to the additional lenses on the LEDs, different lighting characteristics can be realized depending on the variant. With an operating voltage of 110V_{DC} and components conformable to standards like DIN EN 45545 and NFF16-101 these spotlights are intended for assembly in trains.

Typical application areas

Rail transport: There are numerous variants of the TSL built-in lights for the application in diverse train areas, such as lavatories, access areas, bistro cabins and much more.

EL50 24V_{DC}

Nominal voltage	24/36 V _{DC}	Housing material	Aluminum die-cast
Nominal current	200mA	Operating temperature	-40 to 50°C
Nominal power	5W	Protection level	IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8700204	Silver	Cool white >5,300K	M8 connector	Ø90mm, H=24.2mm	32° beam angle, back mounting, single-layer safety glass	0.5 m 1.0 m 2.0 m	1,431 lux 358 lux 89 lux
8700213	Silver	Cool white >5,300K	M8 connector	Ø90mm, H=24.2mm	32° beam angle, surface mounting with clips, single-layer safety glass	0.5 m 1.0 m 2.0 m	1,431 lux 358 lux 89 lux
8700214	Silver	Cool white >5,300K	M8 connector	Ø90mm, H=24.2mm	32° beam angle, back mounting, polycarbonate glass	0.5 m 1.0 m 2.0 m	1,431 lux 358 lux 89 lux
8700216	Silver	Cool white >5,300K	M8 connector	Ø90mm, H=24.2mm	32° beam angle, surface mounting with clips, polycarbonate glass	0.5 m 1.0 m 2.0 m	1,431 lux 358 lux 89 lux
8702473	Silver	Warm white <3,300K	M8 connector	Ø90mm, H=24.2mm	32° beam angle, surface mounting with clips, single-layer safety glass	0.5 m 1.0 m 2.0 m	1,015 lux 254 lux 63 lux
8700211	Silver	Cool white >5,300K	420mm Tenuis cable with wire-end sleeve	Ø90mm, H=24.2mm	32° beam angle, back mounting, single-layer safety glass	0.5 m 1.0 m 2.0 m	1,431 lux 358 lux 89 lux
8700212	Silver	Cool white >5,300K	420mm Tenuis cable with wire-end sleeve	Ø90mm, H=24.2mm	32° beam angle, surface mounting with clips, single-layer safety glass	0.5 m 1.0 m 2.0 m	1,431 lux 358 lux 89 lux
8700215	Silver	Cool white >5,300K	420mm Tenuis cable with wire-end sleeve	Ø90mm, H=24.2mm	32° beam angle, back mounting, polycarbonate glass	0.5 m 1.0 m 2.0 m	1,431 lux 358 lux 89 lux
8700217	Silver	Cool white >5,300K	420mm Tenuis cable with wire-end sleeve	Ø90mm, H=24.2mm	32° beam angle, surface mounting with clips, polycarbonate glass	0.5 m 1.0 m 2.0 m	1,431 lux 358 lux 89 lux
8701494	Silver	Cool white >5,300K	180mm Tenuis cable with M8 connector	Ø90mm, H=24.2mm	32° beam angle, back mounting, ball joints, single-layer safety glass	0.5 m 1.0 m 2.0 m	1,431 lux 358 lux 89 lux
8701495	Silver	Cool white >5,300K	180mm Tenuis cable with M8 connector	Ø90mm, H=24.2mm	14°x49° beam angle, back mounting, ball joints, single-layer safety glass	0.5 m 1.0 m 2.0 m	2,603 lux 651 lux 163 lux
8701584	Silver	Cool white >5,300K	180mm Tenuis cable with M8 connector	Ø90mm, H=24.2mm	32° beam angle, surface mounting with clips, single-layer safety glass	0.5 m 1.0 m 2.0 m	1,431 lux 358 lux 89 lux
8701585	Silver	Cool white >5,300K	180mm Tenuis cable with M8 connector	Ø90mm, H=24.2mm	14x49° beam angle, surface mounting with clips, single-layer safety glass	0.5 m 1.0 m 2.0 m	2,603 lux 651 lux 163 lux
8701254	Silver	Warm white <3,300K	200mm Tenuis cable with M12 connector	Ø90mm, H=24.2mm	32° beam angle, surface mounting with clips, single-layer safety glass	0.5 m 1.0 m 2.0 m	1,015 lux 254 lux 63 lux

EL50 110V_{DC}

Nominal voltage 110 V_{DC}
 Nominal current 35mA
 Nominal power 4W

Housing material Aluminum die-cast
 Operating temperature -40 to 50°C
 Protection level IP67



Article-No	Housing Color	LED Color	Connection	Dimensions	Description	Photometric Data	
						Distance	Lighting Intensity
8700222	Silver	Cool white >5,300K	420mm Tenuis cable with wire-end sleeve	Ø90mm, H=24.2mm	32° beam angle, back mounting, single-layer safety glass	0.5 m	1,431 lux
						1.0 m	358 lux
						2.0 m	89 lux
8700225	Silver	Cool white >5,300K	420mm Tenuis cable with wire-end sleeve	Ø90mm, H=24.2mm	32° beam angle, surface mounting with clips, single layer-safety glass	0.5 m	1,431 lux
						1.0 m	358 lux
						2.0 m	89 lux
8700226	Silver	Cool white >5,300K	420mm Tenuis cable with wire-end sleeve	Ø90mm, H=24.2mm	32° beam angle, back mounting, PC glass	0.5 m	1,431 lux
						1.0 m	358 lux
						2.0 m	89 lux
8700227	Silver	Cool white >5,300K	420mm Tenuis cable with wire-end sleeve	Ø90mm, H=24.2mm	32° beam angle, surface mounting with clips, PC glass	0.5 m	1,431 lux
						1.0 m	358 lux
						2.0 m	89 lux
8701432	Silver	Cool white >5,300K	180mm Tenuis cable with Wago connector 733-203	Ø90mm, H=24.2mm	32° beam angle, back mounting, ball joints, single-layer safety glass	0.5 m	1,431 lux
						1.0 m	358 lux
						2.0 m	89 lux
8701462	Silver	Cool white >5,300K	180mm Tenuis cable with Wago connector 733-203	Ø90mm, H=24.2mm	14°x49° beam angle, back mounting, ball joints, single-layer safety glass	0.5 m	2,603 lux
						1.0 m	651 lux
						2.0 m	163 lux
8701582	Silver	Cool white >5,300K	180mm Tenuis cable with Wago connector 733-203	Ø90mm, H=24.2mm	14x49° beam angle, surface mounting with clips, single-layer safety glass	0.5 m	2,603 lux
						1.0 m	651 lux
						2.0 m	163 lux
8701583	Silver	Cool white >5,300K	180mm Tenuis cable with Wago connector 733-203	Ø90mm, H=24.2mm	32° beam angle, surface mounting with clips, single-layer safety glass	0.5 m	1,431 lux
						1.0 m	358 lux
						2.0 m	89 lux



Back mounting



Mounting with snap on ball
joints and mounting bracket

■ EL50 ACCESSORIES



8701498



Article-No	Product	Material	Type
8701498	Mounting brackets for EL50, ceiling thickness 20mm	Stainless steel 1.4301	with 2 springs (for ceiling thickness up to 20mm)



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