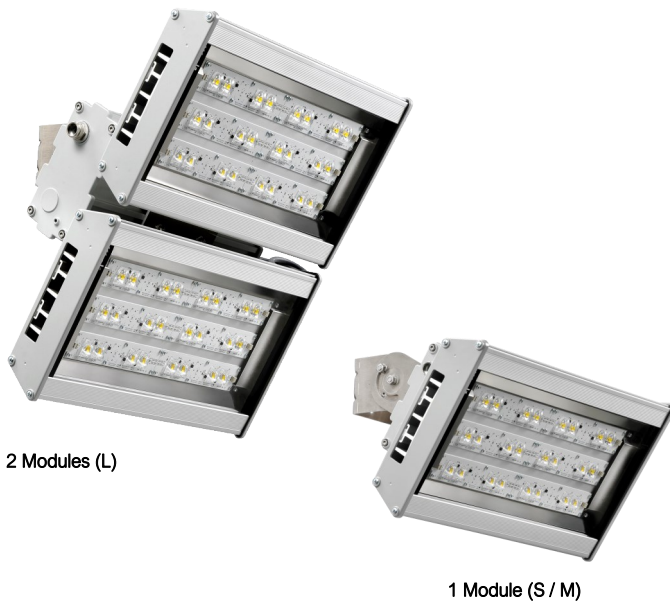


T-MAX

GEN3



2 Modules (L)

1 Module (S / M)

KEY ADVANTAGES

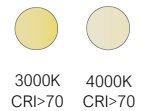
- Modular design and flexible assembly in all kinds of tunnels and underpasses.
- Independent driver compartment.
- Floodlight to last decades in tunnel environments.
- Up to 15 different installation methods depending on the version.
- Robustness IP66 + IP69K + IK09.
- Extruded aluminium with ventilation channels in casing.
- Energy Efficient: 159 lm/W
- Up to 10 optical distributions.
- Smart Ready: Designed to house both indoor and outdoor communications nodes.
- Future Proof: Zhaga-compliant
- Life span L90B10 100,000h (Ta) 25°C
- Night Friendly: ULR Arrêté du 27 décembre 2018
- 5 years warranty



DESCRIPTION

The T-MAX GEN3 Series is a luminaire designed and manufactured by Carandini that offers full flexibility to adapt to all kinds of tunnels or underpasses. T-MAX has been developed using the latest LED technology. All components have been studied to meet the highest quality standards that guarantee a long luminaire lifetime, making them the most reliable and efficient on the market.

The LED solution uses latest generation, high-performance and efficient LEDs developed as a universal modular solution that can be integrated into our luminaires.



	3.622 lm - 56.990 lm		-40°C - 50°C
	159lm /W Luminaria		0,00% - 0,06%
	S: 12 Kg M: 16 Kg		S: 0'104 m ² M: 0'171 m ² L: 0'352 m ²

STANDARDS / CERTIFICATES

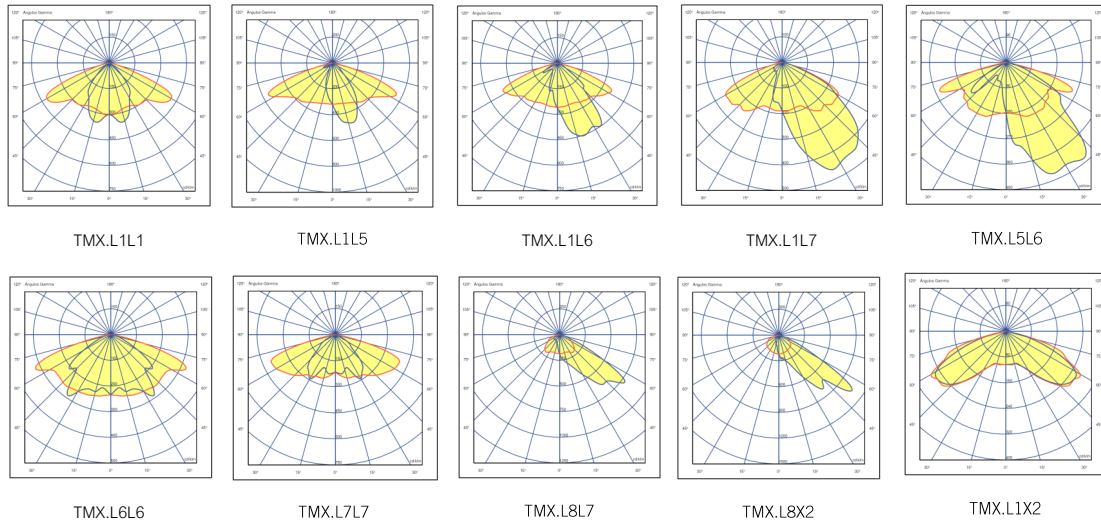
- CE
- RoHS
- UNE-EN 60598-1:2009
- UNE-EN 60598-2-5:2003
- UNE-EN 62471:2009
- UNE-EN 61000-3-2:2006
- UNE-EN 61000-3-3:2013
- UNE-EN 55015:2013
- UNE-EN 61547:2009
- UNE-EN 62031:2009
- UNE-EN 61347-2-13:2009
- UNE-EN 62384:2007
- UNE-EN 13032-4
- UNE EN ISO 9227

220 - 240V / 120V - 277V
50-60Hz
L90B10 100.000h

Distributor: EPK elektro s.r.o.
info@carandini.cz - www.carandini.cz

PHOTOMETRIC DISTRIBUTIONS

It has the 10 photometric distributions used for the environments in which this type of luminaire is installed, allows it to adapt to all needs:



APPLICATIONS

Tunnels, Underpasses, Roundabouts, Car parks, Sports facilities, Sports centres, Industrial warehouses, Loading docks



Oriente Tunnel
Medellín - Colombia



C-17 Tunnel
Montcada y Reixac, Barcelona - Spain

LOGISTICAL INFORMATION

T-MAX S/M

- Box size: 711 x 516 x 118 mm
- Box weight: S:11.8-11.9 kg and M:15.1-15.3kg.
- Number of boxes: 24 units
- American base: 1200 x 800 x 1950 mm
- Stack height: 12 levels
- Area occupied: 76.4%
- Volume used: 72.2%
- Total gross weight (approx.): 360 kg.

T-MAX L

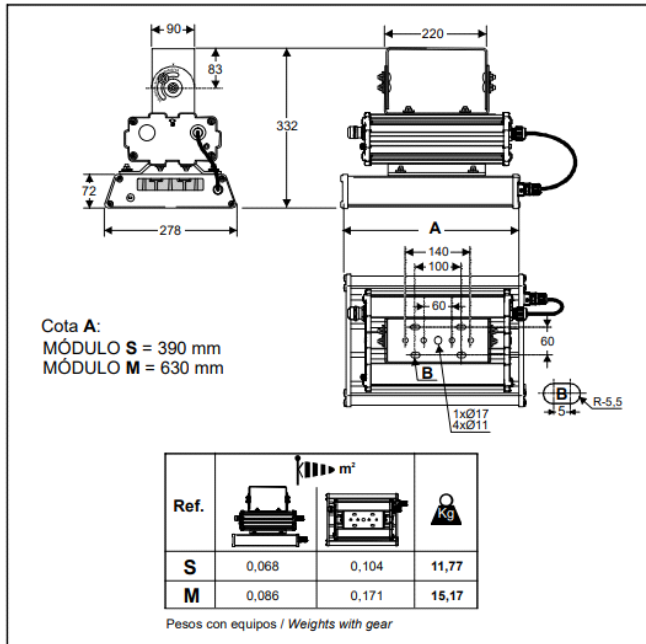
- Box size: 665 x 525 x 243 mm
- Box weight: L: 28.6-29.8 kg.
- Number of boxes: 12 units
- American base: 1200 x 800 x 1950 mm
- Stack height: 6 levels
- Area occupied: 72.7%
- Volume used: 70.7%
- Total gross weight (approx.): 432 kg.

Distributor: EPK elektro s.r.o.
info@carandini.cz - www.carandini.cz

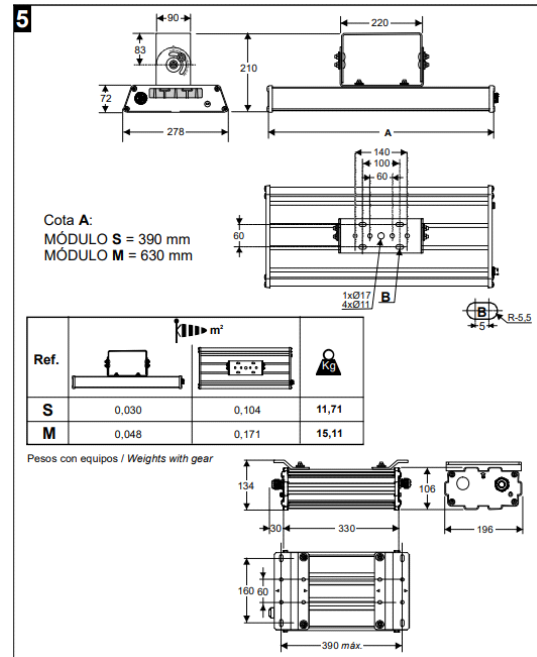
DIMENSIONS (Depending on type of installation)

SIZE S / M

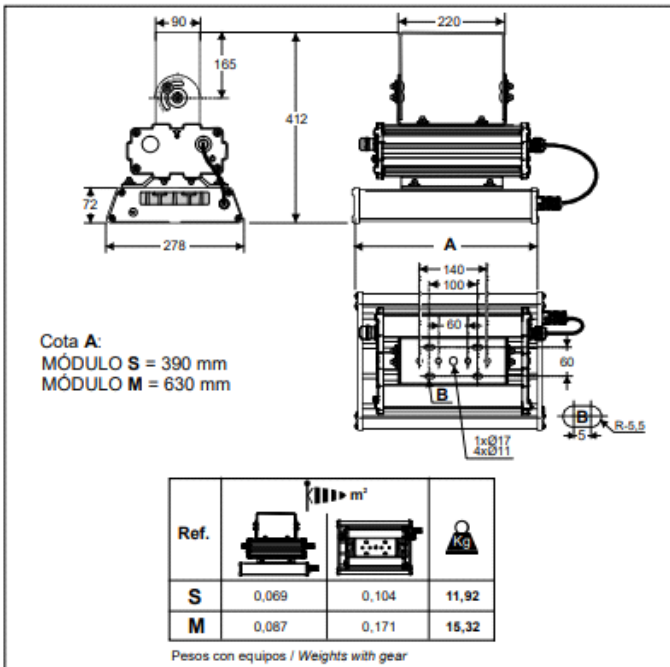
1L4 - SHORT ADJUSTABLE BRACKET WITH BUILT-IN GBOX-310



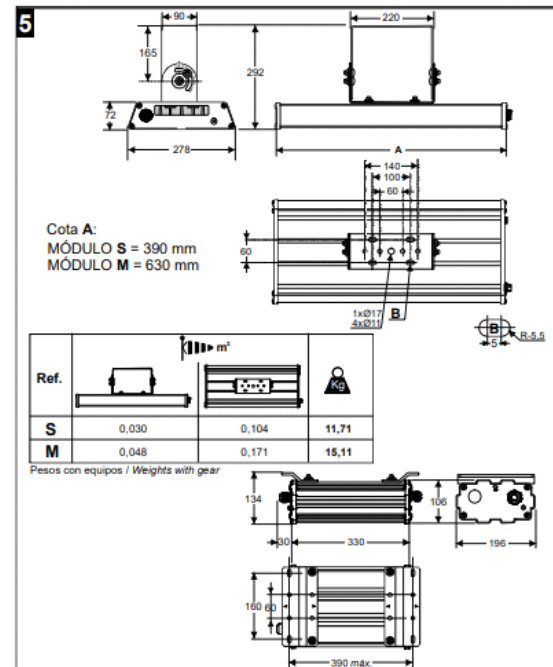
1L9 - SHORT ADJUSTABLE BRACKET WITH SEPARATE GBOX-310



1S4 (1N9) - LONG ADJUSTABLE BRACKET WITH BUILT-IN GBOX-310

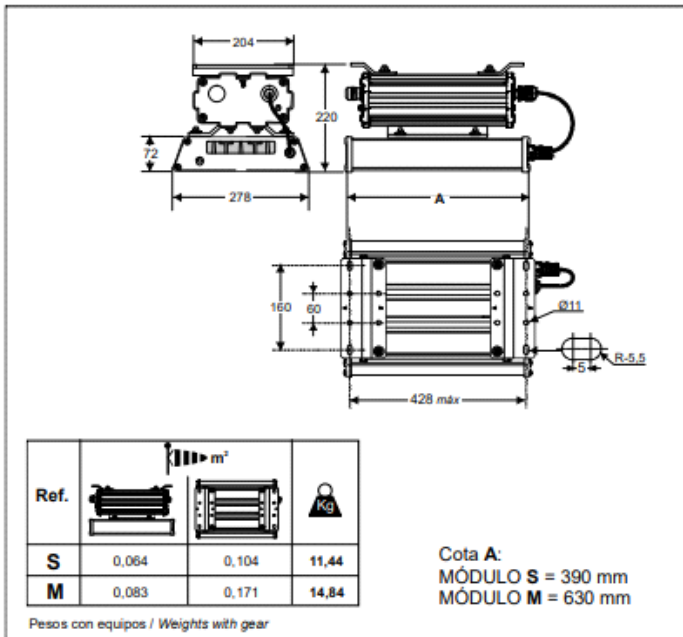


1S9 (1T9) - LONG ADJUSTABLE BRACKET WITH SEPARATE GBOX-310

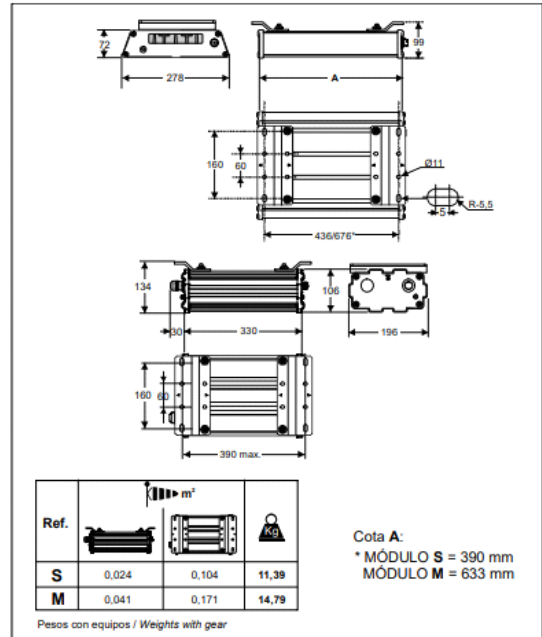


DIMENSIONS (Depending on type of installation)

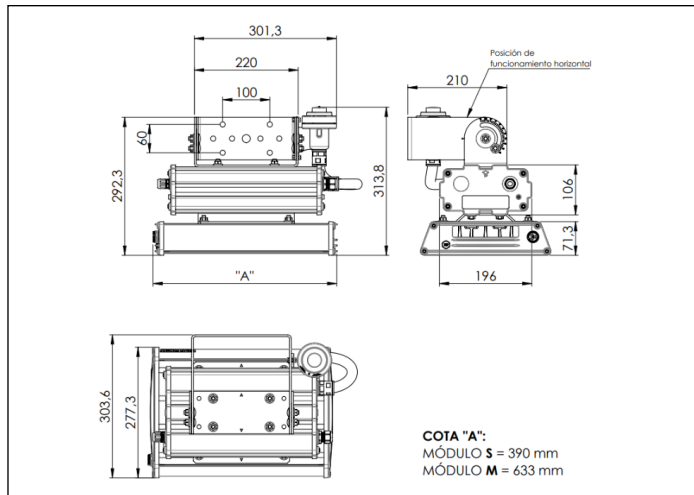
1Z4 - CENTRAL FIXED BRACKET WITH BUILT-IN GBOX-310



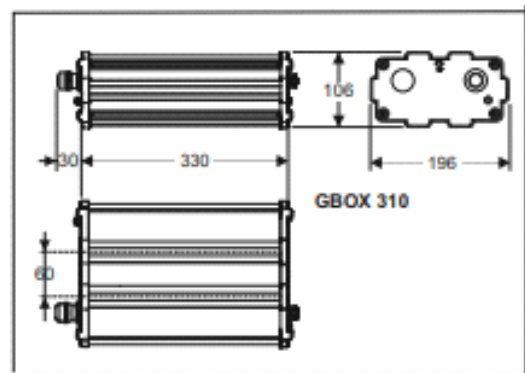
1Z9 - CENTRAL FIXED BRACKET WITH SEPARATE GBOX-310



1N4 - SHORT ADJUSTABLE BRACKET WITH ATTACHED GBOX -310 NEMA SOCKET BRACKET



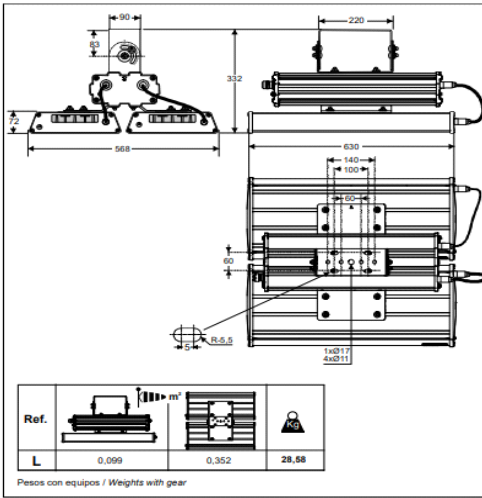
GBOX-310 FOR SIZE S / M



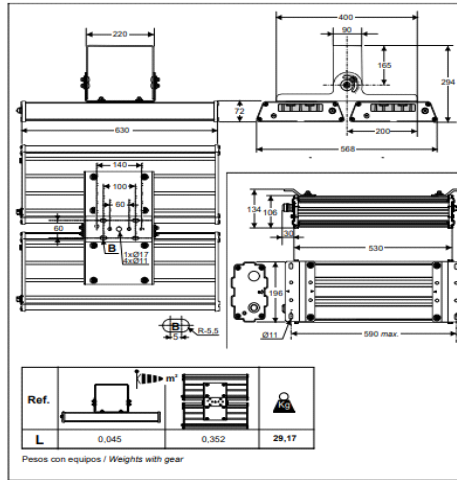
DIMENSIONS (Depending on type of installation)

SIZE L

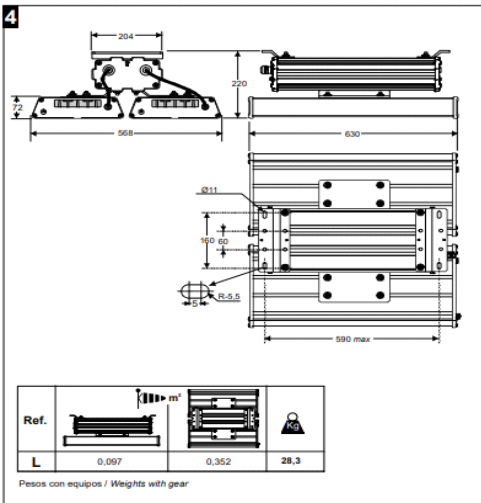
2L4 - SHORT ADJUSTABLE BRACKET WITH BUILT-IN GBOX-510



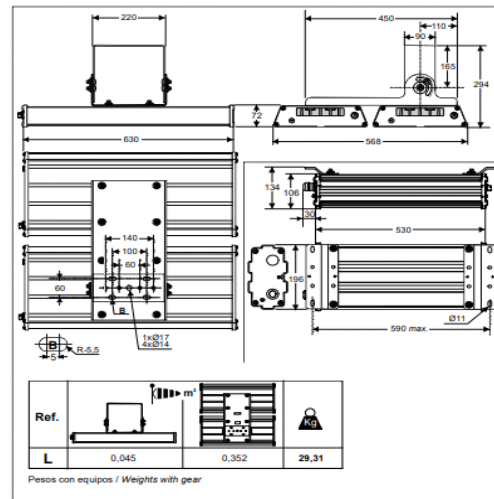
2L9 - LONG TOP ADJUSTABLE BRACKET WITH SEPARATE GBOX-510



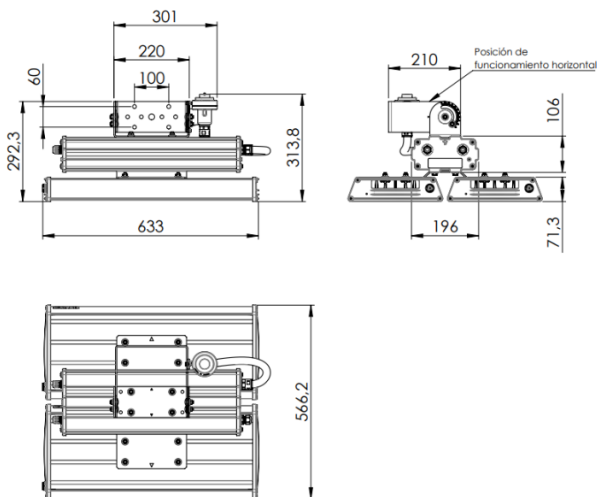
2Z4 - TOP FIXED BRACKET WITH BUILT-IN GBOX-510



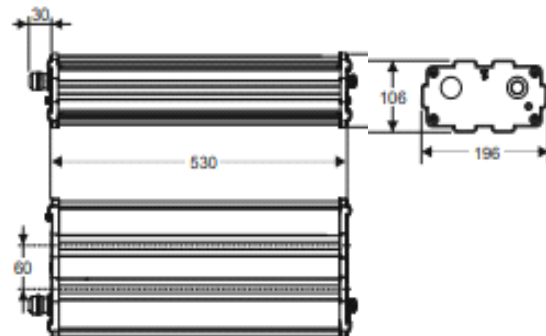
2S9 - LONG SIDE ADJUSTABLE BRACKET WITH SEPARATE GBOX-510



2N4 - SHORT ADJUSTABLE BRACKET WITH ATTACHED GBOX -310 NEMA SOCKET BRACKET



GBOX-510 FOR SIZE L



T-MAX GEN3 CHARACTERISTICS

GENERAL INFORMATION

Sustainability	Valorisation: 97.73%. Maximum carbon footprint per use: 0,015281kg kW/h of CO2
CE mark	Yes
RoHS-compliant	Yes
Testing standards	LM 79-80 (all measurements at ISO17025 certified laboratory)

GENERAL CHARACTERISTICS

Side covers	Pressure die-cast aluminium 44100 AISI12 with low copper content <0.1%.
Body and box	Extruded aluminium 6060 T6, anodised.
Closure	Tempered glass 4mm
Type of finishes	Standard polyester powder coating (C2-C3 according to ISO 9223-2012 standard). Optional: Optional anodised polyester powder coating (C5-CX according to ISO 9223-2012 standard).
Nuts outer and bolts	A4 stainless steel (AISI 316)
Watertightness	According to EN 60598-1 and EN 60529:Level of luminaire ingress protection IP66. Level of GBOX ingress protection IP66. Level of protection against high-pressure water jet IP69K (Luminaire and GBOX). Connector and cable gland IP68/IP69K.
Impact protection grade	IK09 (EN 62262).
Operating temperature	Ta -40°C to +50°C. According to luminaire configuration.
Lifetime	L90B10 100,000 h at Ta 25°C. Light maintenance values at 25°C. Calculated by TM-21 based on LM-80 data.

ELECTRICAL CHARACTERISTICS


Electrical class	Class I (For AC220-240V and AC120-277V driver) Class II (For AC220-240V driver)
Voltage / Frequency	220 V - 240 V / 50 Hz - 60 Hz Optional 100 V- 277 V
Power factor	> 0.9
Harmonic distortion	< 10%
Surge protector	Surge protection (1.2 / 50) 10 kV. Maximum current (8/20) 10kA. Maximum voltage (L-N) 320 V. Maximum voltage (L / N-GND) 400 V. Optional overvoltage protection: 20kA, 20kV

LIGHTING CHARACTERISTICS


Package real light	3.622 lm - 56.990 lm (26W - 429W).
LED colour temperature	4,000 K (Neutral White, nw). 3,000 K (Warm White, ww). Other colour temperatures, upon request.
LEDs	Includes 28 to 336 high-performance and efficiency LEDs. The LEDs have been welded to the PCB in a zero oxygen atmosphere to considerably increase the sturdiness.
ULR / ULR	Between 0.00% and 0.06%
Optics	PMMA polymethylmethacrylate.
Photometric distributions	L1L1=> Throw 60° and narrow symmetric spread 15°. L1L5=> Throw 60° and narrow spread 15°. L1L6=> Throw 60° and narrow spread 15/35°. L1L7=> Throw 60° and wide spread 45°/15°. L1X2=> Throw 60° and wide spread 60°. L5L6=> Throw 70° and narrow spread 20°. L6L6=> Throw 70° and wide symmetric spread 35/50°. L7L7=> Throw 70° and narrow symmetric spread 30°. L8L7=> Throw 45° and narrow symmetric spread 55°. L8X2=> Throw 65° and narrow symmetric spread 40/55°.
LED thermal control	Temperature dissipation by the 3 principles of heat transfer (conduction, convection and radiation), through design modularity, body ventilation channels and leveraging the Venturi effect of the tunnel.

FINISHES

Predefined luminaire colour

	Grey (White aluminium) glossy smooth RAL9006
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Corrosion protection

	Marine Finish (1.000h)
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T-MAX GEN3 CHARACTERISTICS

MAINTENANCE AND ASSEMBLY

Maintenance	Four screws to access the control gear from the side.
Installation / Depending on type of Cable	<p>We have various types of anchoring systems:</p> <p>1L4: 1 S-M_Short Adjustable BRACKET - with attached GBOX - 40cm. 1L9: 1 S-M_Short Adjustable BRACKET - with separate GBOX - 90cm. 1S4: 1 S-M_Long Adjustable BRACKET - with attached GBOX - 40cm. 1S9: 1 S-M_Long Adjustable BRACKET - with separate GBOX - 90cm. 1Z4: 1 S-M_Fixed Top BRACKET - with attached GBOX - 40cm. 1Z9: 1 S-M_Fixed Top BRACKET - with separate GBOX - 90cm. 1N4: 1 S-M_Short Adjustable BRACKET - with attached GBOX + Nema Socket BRACKET - 40cm. 1N9: 1 S-M_Short Adjustable BRACKET - with separate GBOX + Nema Socket BRACKET - 90cm. 1T9: 1 S-M_Fixed Top BRACKET - with separate GBOX + Nema Socket BRACKET - 90cm. 2L4: 2 L_Short Adjustable BRACKET - with attached GBOX - 40cm. 2L9: 2 L_Long Adjustable BRACKET - with separate GBOX - 90cm. 2Z4: 2 L_Fixed Top BRACKET - with attached GBOX - 40cm. 2S9: 2 L_Long Adjustable Side BRACKET - with separate GBOX - 90cm. 2N4: 2 L_Short Adjustable BRACKET - with attached GBOX + Nema Socket BRACKET - 40cm. 2N9: 2 L_Long Adjustable Side BRACKET - with separate GBOX + Nema Socket BRACKET - 90cm.</p>
Weight	S: 12.3 Kg M: 15.7 Kg L: 29.8 Kg
GBOX control gear box	<p>The driver comes in a box that is especially designed to house the control gear. The luminaire and control gear are connected with an insulated, flexible EPR air cable made of halide-free polyurethane, equipped with an IP68 connector for fast connection. Cable length depends on the luminaire version type. They can be: PL304 => 40-cm cable PL309 => 90-cm cable Optional: PL318 => 180-cm cable PL390 => 900-cm cable</p>

MANAGEMENT AND CONTROL

Equipment	1N: 1 level RC: Controller dimmed RD: DALI RL: Pulse adjustable LED SC: Adjustable as requested by client (LRTSC) SR: Smart Ready D4i
Autonomous regulation	Regulations programmed from the factory: SC: Programming according to client.
CLO regulation	Flow rate during the life of the product: 7: 70% luminous flux throughout the life of the luminaire. 8: 80% luminous flux throughout the life of the luminaire.
Socket connection	U: Nema 3 pin socket with IP66 cover. V: Nema 5 pin socket with IP66 cover. W: Nema 7 pin socket with IP66 cover. (With accessory)
Node	BS: Controlux Basic IMCU NH: Controlux Tunnel LPC NL: Controlux Tunnel LPC Lite

T-MAX GEN4 CONFIGURATION ELEMENTS

LUMINAIRE WITH GBOX

SIZE	LUMINAIRE IMAGE	TMAX	WEIGHT KG	COMPLETE GBOX IMAGE	GBOX WITH DRIVER	WEIGHT KG
S		.006	5,14		.310 GBOX	3,52
		.008	5,14			
		.010	5,14			
		.014	5,14			
M		.022	8,54			
		.026	8,54			
L		.044	17,20		.510 GBOX	6,12
		.052	17,20			

T-MAX GEN4 CONNECTORS

CONNECTORS	STANDARD		OPTIONAL	
Length	PL304 - 40-cm cable Used when the GBOX is built into the luminaire	PL309 - 90-cm cable Used when the GBOX is separate in the luminaire	PL318 - 180-cm cable Used when the GBOX is separate in the luminaire	PL390 - 900-cm cable Used when the GBOX is separate in the luminaire
S, M and L Connector Image				

T-MAX GEN4 BRACKETS

S/M BRACKETS

Name	1L4	1S4	1L9	1S9	1Z4	1Z9
Image BRACKET Size S / M						

1N4	1N9	1T9

L BRACKETS

Name	2L4	2Z4	2L9	2S9	2N4	2N9
Image BRACKET Size L						

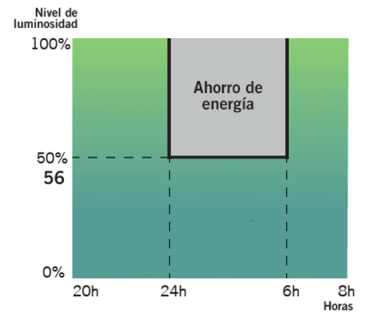
LUMINAIRE DIMMING

By programming the driver

Smart luminaires drivers can be programmed in the factory without needing a control system, additional wiring or maintenance costs. A schedule is pre-programmed for light flow to be automatically reduced at quieter times of the night while respecting light levels and uniformity.

Programming profile 56

From 00:00 to 06:00 the luminaire reduces its initial intensity by 50%.



Hasta un

26%
de ahorro

NOTE: Programming the Dynadimmer using the multitone scheduling tool is done for wintertime. In summer everything is delayed by an hour.

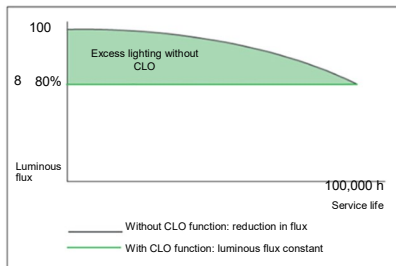
Using the CLO function

While taking lumen depreciation over the years into account, the driver is programmed so that it starts at a reduced level and gradually increases power over the lifetime of the luminaire. This saves energy and increases the lifetime of the system. Furthermore, the light level in the area where the luminaire is installed remains constant over time.

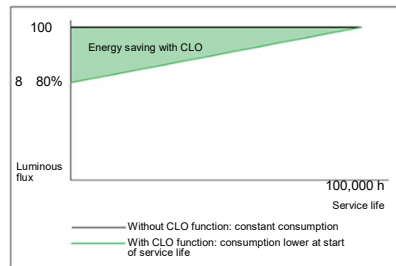
Constant luminous flux 8

Luminous flux from the luminaire at 80% to maintain light levels throughout its lifetime.

Graph: Luminous flux



Graph: Consumption



Hasta un

10%
de ahorro

y se incrementa la vida de la luminaria

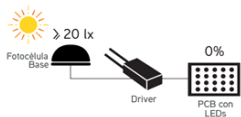
By incorporating an additional device

Photocell

The photocell allows the luminaire to be switched on or off depending on the intensity of the sunlight it captures. This is very useful, to avoid having luminaires on at times when there is still enough natural light.

Ejemplo con fotocélula de 20 lx:

Si la fotocélula detecta más de 20 lx no activará el encendido de la luminaria.



Es cuando los niveles luminicos empiezan a bajar que la fotocélula detecta 20 lx y activa el encendido de la luminaria.

