DATA SHEET

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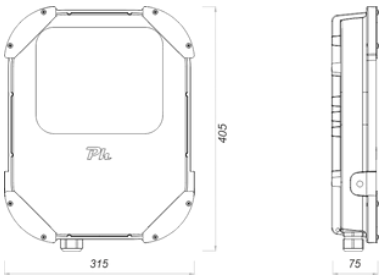

MAIN CHARATERISTICS	
Applications	**Tunnel, Underpasses, Subways**
Material	**High-pressure die cast aluminium UNI EN 46100**
Color	**Anthracite (optional RAL 7037). Epoxy powder coating after phosphating**
Product sizes	**315 x 405 x 75 mm (Single module)** **630 x 405 x 75 mm (Double module)**
Exposed surface	**0,13 m² - 0,03 m² (Singole module)** **0.25 m² - 0,03 m² (Double module)**
Weight	**7.5 Kg**
Mounting	**Suspende | Channel system**
Insulation Class	**CL I | CL II (on request)**
Protection degree	**IP 66 | IK08 | IK09 (on request)**
No. LEDs	**from 8 to 36 LED's (Singole module)** **from 56 to 72 LED's (Double module)**
LED Efficacy (1)	**201 lm/W - CRI ≥ 70 - @ 360 mA, T = 25 °C | CRI≥80 (on request)**
Color temperature	**3000K - 730/669 | 4000K - 740/669 | 5700K - 757/669 |** Other (K) available upon request
LED lifetime (2)	**≥ 100.000hr L90B10 LM 80, TM-21**
Optics	**Optics in high-performance optical grade PMMA** **Optics in high-performance optical grade POLYCARBONATE**
Operating voltages and frequencies	**220-240 V~ 50/60 Hz**
Power factor	**Cosϕ ≥ 0.98 (at full load)**
Surge protection (DM/CM)	**6/10 kV | SPD (optional) 8kV / 10kV |** SPD (optional) with higher capacity
Control system (options)	**0-100%, 0-10V signal, PWM, DALI, AstroDIM, MainsDIM, Wireless, NEMA, ZHAGA**
Programming (options)	**On-site driver reprogramming through NFC and related app.**
Dimming (options)	**Optional module for seasonal, weekly, and daily dimming.**
Test	**Salt spray test environment (according to ASTMB 117-1997);** **Neutral salt spray test(according to UNI ISO 9227);**
Operating temperature	**-40 / +50°C (depending on the driving current)** **-40 / +150°C (Test conducted for 15' at 150°C with less than 10% initial flux loss according to CEI 34-193:2022 standard for backup devices)**

IK 08 | IP 66 | CL II | TEST NEBBIA SALINA ASTM 117 -1997 ISO 9227 | RoHS COMPLIANT | lead-free

DESCRIPTION

The tunnel lighting fixture consists of a powder-coated die-cast aluminum body resistant to corrosion and impact-resistant tempered glass. It features a 2x2 PMMA/PC optical system that is UV and yellowing resistant. The device includes surge protection up to 10kV and is rated for insulation class II, IP66, and IK08 (IK09 on request). Internal wiring and connections are class II, with an anti-condensation valve and AISI 304 stainless steel bolts and brackets. The quick-connect system allows for fast mounting on the channel.
Internal component replacement can be done with common tools. The driver, plate, and optional remote control are interconnected with double-insulated single-core rubber cables. The driver operates at a nominal voltage of 220-240 Vac, with a frequency of 50/60 Hz, and efficiency of ≥90% at full load, with a power factor of cosϕ 0.95. The regulation system uses TC 1-10V or optional DALI.
The LED has a useful life of L90B10 >100,000 hours and TM21-L70 >200,000 hours. The energy efficiency is rated at ≥A++. The color temperature ranges from 2200K to 5700K, with a CRI of 80. The fixture efficiency is up to 153 lm/W. Certified by CE, ENEC, and ENEC+

Designed & Made in ITALY

PH GUARANTEE LED PRODUCT WARRANTY * T&Cs apply

STANDARD COMPLIANCE

- *EN 60598-1: Luminaires. Part 1: General requirements and tests.*
- *EN CEI 34-193: Guidelines for the design of lighting fixtures for tunnels with additional thermal performance.*
- *EN 64-20: Electrical installations in road tunnels.*
- *EN ISO 9227: Corrosion tests in artificial atmospheres - Salt spray tests.*
- *EN ISO 22479: Corrosion of metals and their alloys - Sulfur dioxide test in humid atmospheres (fixed gas volume method).*
- *EN 60598-2-3: Particular requirements - Luminaires for road and street lighting.*
- *IEC/TR 62778: Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires.*
- *EN 55015: Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment.*
- *EN 61000-3-2: Electromagnetic compatibility (EMC) Part 3-2: Limits - Limits for harmonic current emissions.*
- *EN 61000-3-3: Electromagnetic compatibility (EMC) Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations, and flicker.*
- *EN 61547: Equipment for general lighting purposes - EMC immunity requirements.*
- *EN 13032-1: Light and lighting - Measurement and presentation of photometric data of lamps and luminaires - Part 1: Measurement and file format.*
- *Datasheet according to IEC/PAS 62717 and IEC/PAS 62722.*

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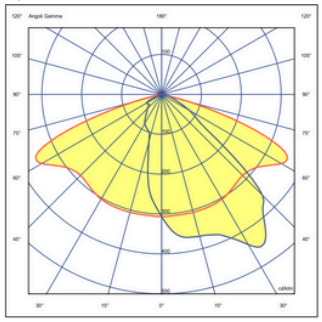
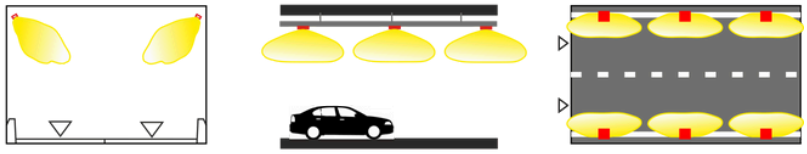
ASYMMETRIC OPTICS

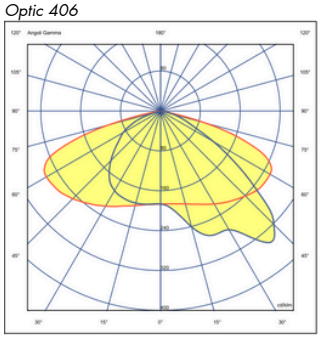
Optic ME

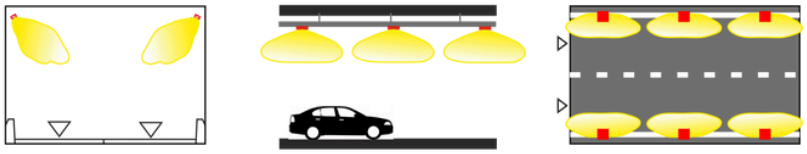




Usable Optics for Installation type symmetric for reinforcement and permanent fixtures

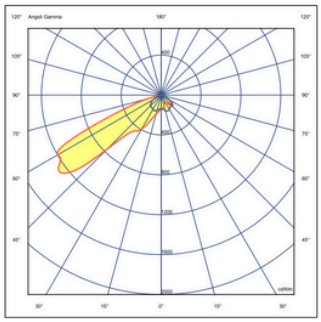
Optic 406

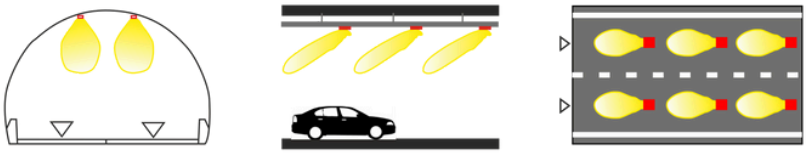




Usable Optics for Installation type symmetric for reinforcement and permanent fixtures

Optic FS3

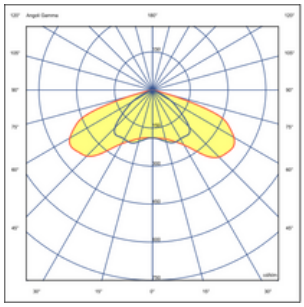


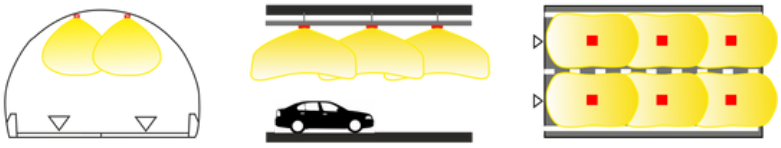


Usable Optics for Installation type symmetric for reinforcement and permanent fixtures

SYMMETRIC OPTICS

Optic CAT





Usable optics for Installation type counterflow Symmetric and Proflow for reinforcement and permanent fixtures

Curve fotometriche eseguite nel laboratorio fotometrico PHAENOMENA.
NOTA: Su richiesta sono disponibili altre tipologie di fotometrie.

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3000K | 4000K | 5700K

SINGLE MODULE					
Model	**Power supply (mA)**	**Nominal Power Consumption (W)**	**Nominal LED Luminous Flux (lm) (5)**	**Nominal Luminous Flux (Fixture) (lm) (4)**	**Efficiency [lm/W]**
phEvoARGO8	350	17,0	3118	2650	153
phEvoARGOI12		26,0	4682	3980	
phEvoARGO16		35,0	6235	5300	
phEvoARGO24		53,0	9412	8000	
phEvoARGO36		79,0	14047	11940	
phEvoARGO20	500	64,0	10812	9190	144
phEvoARGO32		103,0	17294	14700	
phEvoARGO36	700	161,0	25059	21300	132
DOUBLE MODULE					
Model	**Power supply (mA)**	**Nominal Power Consumption (W)**	**Nominal LED Luminous Flux (lm) (5)**	**Nominal Luminous Flux (Fixture) (lm) (4)**	**Efficiency [lm/W]**
phEvoARGO56	500	173,0	29529	25100	143
phEvoARGO64		206,0	34588	29400	
phEvoARGO72		227,0	37965	32270	
phEvoARGO64	700	285,0	44353	37700	132
phEvoARGO72		322,0	50118	42600	

Structure Code		
Position 1th	Manufacturer	P - Phaenomena
Position 2nd	Product Family	A - EvoARGO
Position 3th	Number of Modules	1 - Single Module 2 - Double Module
Position 4th	Type of Mounting	C - Channel System S - Suspended
Position 5,6,7th	Number of LEDs	8 ÷ 72
Position 8,9th	Light Color	30 - 3000K 40 - 4000K 57 - 5700K
Position10,11,12 th	LED Power Supply	350 - Corrent 350mA 500 - Corrent 500mA 700 - Corrent 700mA
Position 13,14th	Type of Optics	A1 - Asymmetric optic (406) A3 - Asymmetric optic (FS3) A5 - Asymmetric optic (ME) A7 - Asymmetric optic (T4B) S2 - Symmetric optic (CAT)
Positions 15th	Driver Type	B - Basic U - 1/10V D - DALI A - Astrodim

Example Code Composition														
POS.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
COD.	P	A	1	C	0	0	8	4	0	3	5	0	A	1	B

Extended Code: ***PA1C00840350A1B***

NOTE: The values indicated in this data sheet are nominal and should be considered with a tolerance of +/- 10%.
For the nominal luminous flux, the minimum value emitted by the LED GW P9LR35.PM(G5) IN M5 - A was considered.
(1) Efficiency is extrapolated from the LED manufacturer's datasheet.
(2) The life time is according to report LM-80_DURIS S 8 - GW P9LR35.PM_4000K_600mA_6000h_180260W1.
(3) 20200917_Lumileds_L150-4070500600050_700mA_85C_12LED(s)_B10_L80.
(4) Values measured in the laboratory with ME and CAT optics. Values extrapolated from the LED manufacturer's datasheet.
(5) To ensure constant product updates, Phaenomena reserves the right to make changes without prior notice. Errors or omissions excepted.
Always ensure you are using the most recent version. Product characteristics are subject to change and will be confirmed at the time of order.

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TECHNICAL SPECIFICATION

LED Lighting Fixture for Internal Tunnel Use (Emergency and Standard)
The lighting fixture is designed for both symmetrical and asymmetrical counter-flow applications. It is certified ENEC and ENEC+, featuring a structural frame made from die-cast aluminum EN 44300 with very low copper content. The fixture is finished with a polyester powder coating, polymerized at high temperature without solvents, following proper pickling treatment. It includes an IP66 lamp holder compartment with easy access and an interface for powerline or radio transmission with point-to-point light flow control, and an internal driver.
The heat dissipation system is designed to ensure that the optical group maintains at least 80% of the initial light output at a standard ambient temperature of 25°C for at least 130,000 hours (L90B10), and an average lifetime of at least 200,000 hours under normal operating conditions (TM21 – L70).
The surface finish is guaranteed for at least 10 years on lenses and all metallic parts, with multiple stages of material pre-treatment. The mounting support includes a plate and quick-release lever closures for cable tray attachment, with fall prevention features, all made from at least AISI 304 stainless steel.
The lamp comprises an LED bar compliant with EN62471 with a "risk group 1" (low) rating, with a color temperature of 4000K and a color rendering index (CRI) of at least 75.
Key Performance Features:

- Flat glass or similar material lenses ensuring over 90% light efficiency outside the fixture.
- Adjustable driver with 1-10V or DALI input for remote management.
- IK09 rating.
- Includes a module for powerline or radio management wired inside the fixture.
- 5-year warranty on the entire product.
- Electrical insulation class II.
- Power factor Cos φ >0.9.
- Protection rating no less than IP66, compliant with EN60598-1.
- Operating temperature from -40°C to +50°C (depending on driving current).
- Power supply: 230V ±15% 50/60Hz.
- Optics: Symmetrical/asymmetrical, street lighting.
- Driving current up to 700mA.
- Luminous efficiency no less than 132 lm/W.
- Surge protection 10kV common – 8kV differential (according to EN61000-4-5) - (Optional).

The lighting unit is supplied with a minimum 2x1.5mm² FTG18OM16 cable for permanent lighting and FG18OM16 for reinforcement lighting, and a CEE 2P 16A 230V IP65 plug, complete with stainless steel screws, at least AISI 304.
In accordance with CEI 64-20 guidelines, all lighting fixtures must comply with CEI EN 60598-2-3 or CEI EN 60598-2-5 and CEI EN 60598-2-22, and CEI 34-193 guidelines.
All external parts of the fixture, including fastening, mounting, or anchoring elements, must withstand predictable environmental stresses in tunnels according to CEI EN IEC 60068-2-11, with a severity rating of 1000 hours.
All external parts of the fixture, including fastening, mounting, or anchoring elements, must resist environmental stresses in tunnels according to UNI ISO 22479:2022 Kedternich SO2 test.
The price includes accessories, brackets for cable tray attachment, wiring materials, and anything else required to complete the installation to a high standard.

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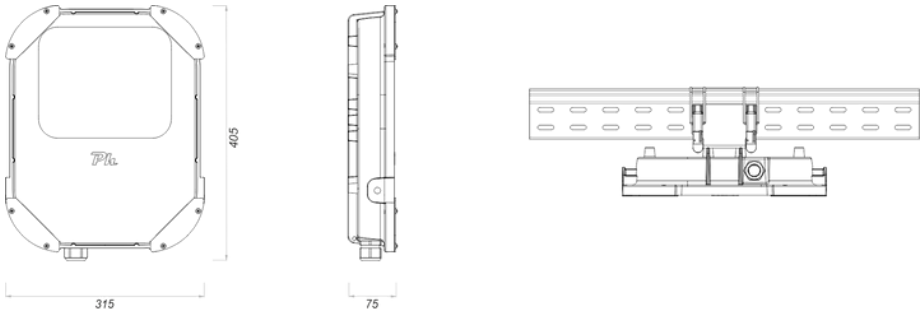
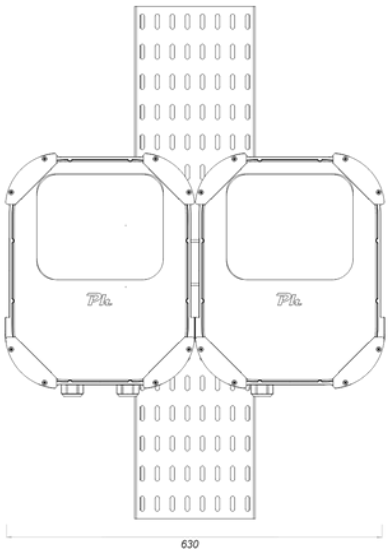
QUICK-CONNECT SINGLE-MODULE CHANNEL MOUNTING



QUICK-CONNECT DOUBLE-MODULE CHANNEL MOUNTING



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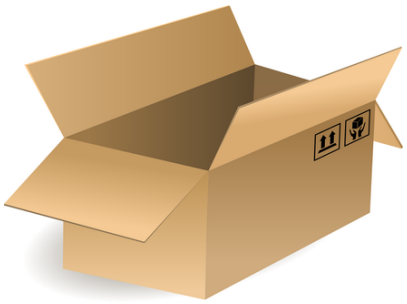
PACKAGING



SINGLE MODULE
Dimensions: *370x550x140 mm*
Weight: *including packaging max 8.5 Kg*

DOUBLE MODULE
Dimensions: *660x550x160 mm*
Weight: *including packaging max 17 Kg*

DESIGN