SMART is the response to increasing demand for both low energy consumption and high efficiency. It is based on many years' experience in road lighting, offering exceptional performance.
An indisputably pure design and impeccable construction: the perfect combination to ensure the best on the market.

Technical features

• The housing (body and top cover) is manufactured from die-cast aluminium alloy and finish with a thermo polyester grey colour powder paint. On request: twin colours.
• Reflector is made of high purity (99,8%) one piece pressed electro-polished anodised aluminium.
• Post top entry installation, Ø 46 ÷ 60mm.
• Post top entry installation with accessory ,Ø 72 ÷ 76 mm.
• Post top tilt angles can be : 0° +5° +10°
• Side entry installation, Ø 46 ÷ 60mm.,the luminaire gets inclination of the arm.
• In case of side entry installation with tilt of 10° and 15°, an inclination luminaire accessory limiting the tilt at 0°, is supplied
• Gaskets are made of anti-age weather resistant silicon rubber Σ
• For Class II electrical safety switch disconnects the main power supply on opening the luminaire in maintenance.

• Porcelain lampholder with horizontal and vertical mechanical focusing device.
• Adjustable reflector in order to optimise the optical perfomance and light distribution.
• Connection to power supply via a cable gland PG 13,5 - IP 68
• Anti vacuum device.
• Zinc coated gear tray for insulation Class I; glass reinforced nylon gear tray for insulation Class II.
• Both gear trays are completed with lamp holder and/or electrical connectors for fast replacement and easy maintenance.
• As optional the luminaire can be provided with a fuse.
• The gear and lamp compartment can be easily accessed by opening the fore stainless steel hook.

SMART VP
Output ratio: cut-off.
Optic group with thermal toughened flat glass.
Wind exposed surface = 0,0870 m2

SMART VB
Output ratio: semi cut-off.
Optic group with thermal toughened curved glass.
Wind exposed surface = 0,0980 m2

For quick and safety inspection the luminaire is supplied with anti-tipping cover device.

Electrical components are certified with ENEC Mark. Power supply: 230V; 50Hz.
European Standards: EN 60598/1
Maximum mounting height: 15 mt.

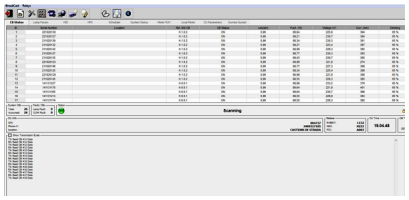
The “Dark Sky®” lighting telemanagement system

The lighting control, according to CEN/TR13201-1 and EN 13201 - 2/3/4 or UNI 10439 or DIN 5044 and ISO 50001 EMS standards is only possible if there are the best safety conditions for road users.
The Dark Sky ®, networked control, can continuously vary the light output from 0 to 100%, monitoring and controlling the amount of efficient light at the right place, at the right time, providing energy reporting. Maximum savings can be accomplished by using specific schedule or custom cycles of adjustments for :

- Roads;
- Urban lighting;
- Residential areas;
- Architectural lighting;
- Area lighting;
- Tunnels;
- Industrial plant;
- Parking lot.

The true cost of the light you buy, is the sum of three elements: **initial capital cost, energy consumed and maintenance, usually energy is the largest item**
.
Dark system will save significant amounts of energy, compared to older alternative technologies. In other words this means:
- 48 % saving in energy costs;
- Up to 40% extra energy savings;

- High system efficiency to save energy;
- High system efficiency to save energy;
- Increasing, to the level of a single each luminaire, the power factor up to 0,99;
- Lowering of lamp high inrush current;
- An extended lamp life due to soft ignition and control of electrical and thermal stresses;
- Every day the correct operating time calculated on the basis of sunrise, sunset timings and the season, to determine when it has to be switched on or turned off;
- Lights are dimmed during low traffic hours to save energy or enhanced in problematic neighborhoods to improve safety;
- A smart meter accurately calculates the energy consumption, taking into account the varying rates and automatically bills all entities with a full web based report.



50 % saving in maintenance costs:

- The lighting failures are automatically reported by the system, saving time and costs;
- The digital system smartly plans and routes the maintenance works to minimize operating & maintenance costs;
- Burning hours reports, for proactive lamp change;
- High up-time and immediate fault rectification;
- Control cabinet fault monitoring;
- No power factor correction needed so no capacitor to fail;
- Only one component to simplify servicing;
- Peak voltage protection to safeguard lamp, and surge protected to safeguard gear;
- Fully protected components against dust, moisture and vibrations;
- The universal small size of the product ensures an easy fit into any new or existing luminaire or pole;
- Compact size and low weight provide design flexibility and easy installation.

In other words: + 100 % of system availability.
How the system works

A decrease of the 40% of the luminous flux results in a power reduction of 50% so the challenges are:

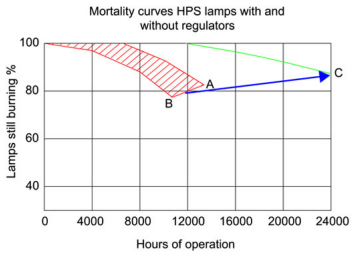
- Energy use: the lowest possible;
- Light quality: the highest possible;
- Maintenance costs: the lowest possible;

A lighting upgrade is a systematic method for planning upgrades that maximize energy savings. When the staged approach is performed sequentially, each stage includes changes that will affect the upgrades performed in subsequent stages, thus setting the overall process up for the greatest energy and cost savings possible.

For maximum effectiveness, energy and lighting efficiency should be addressed right from the start of the design process in the following ways:

- Design lighting systems with components that minimize light loss over time;
- The process begins with the choice of lamp. To account for lighting-system degradation, designers typically oversize initial light output by 20 percent or more to "maintain" minimum target illumination levels when lamps are changed and fixtures cleaned;
- Proper design and maintenance-using high-quality lighting components that suffer less degradation or degrade more slowly-can cut that excess nearly in half, saving almost 15 percent in connected load;
- Minimizing that 20 percent safety factor involves choosing lamps with minimum lumen depreciation;
- Maintenance costs can be further minimized by limiting the number of different types of lamps that must be stocked and by choosing lamps with maximum rated life to reduce burnout rate.

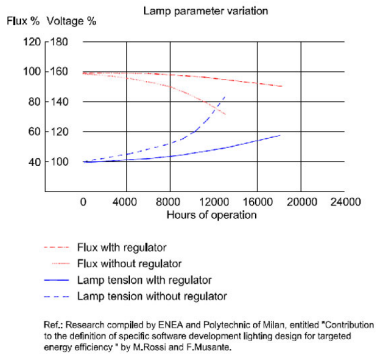
Lighting management system



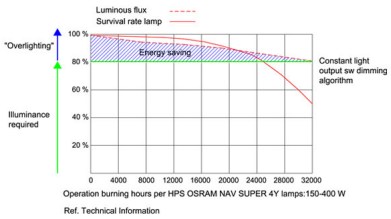
A: Upper limit without regulator
B: Lower limit without regulator
C: With regulator

Ref.: Research compiled by ENEA and Polytechnic of Milan, entitled "Contribution to the definition of specific software development lighting design for targeted energy efficiency " by M.Rossi and F.Musante.

Regulating and controlling, the light output of each luminaire, to get the appropriate amount of light for the tasks to be performed, according to CEN/TR13201-1 and EN 13201 - 2/3/4 or UNI 10439 or DIN 5044 and ISO 50001, whilst controlling the power and supply voltage quality, or reducing the voltage drops, or lowering the lamp high inrush current, for the whole life of the lamp, ensures a longer lamp and driver lifetime, with an extended lamp life, from point A or B to C.
In other words the soft ignition, the control of electrical and thermal stresses and the usage of the really needed quantity of light, doubles the lamp lifetime.



Constant Light Output



To account for lighting-system degradation, designers typically oversize initial light output by 20 percent or more, to "maintain" minimum target illumination levels when lamps are changed and fixtures cleaned. To ensure the required illuminance the Constant Light Output (CPO) function compensates the deprecation of light output of the installation and eliminates the initial over-lighting. Depending on the installation, energy savings between 8% and 10% are very likely to achieve.

“Digital Lamp” Power Output