



EEMAXX

city infrastructure

street light – smart city – eMobility - finance

2018

Eemaxx

a bit about us

eemaxx is a Swiss based company with a team of experts in every country where we are active.

We combine our financial and technical background to design and implement energy efficient solutions through combining technologies from different leading specialists.

“Bottom Up” is our principal – not only the famous expression of financial analysts. Bottom up to us means understanding the technical and financial needs of the market in order to create tailor made solutions.

As of today eemaxx works in the areas of

- All areas of street, public and industrial/commercial lighting
- Smart City components as WiFi, Video Surveillance, SOS Systems, Infotainment, ecc.
- E-Mobility from charging to service infrastructure
- Energy Storage and Production

For the coordination of engineering , project development and management, installation and maintenance as well as other services we usually cooperate with local specialists in the interested area.

philosophy

Public Lighting is an indisputable sign of progress that has brought a better living conditions and an overall improvement of safety; these factors of success are excellent reasons to increase the social community , the economy and the tourism.

But it costs, the majority of the world streetlights remains dumb and inefficient.

Today's technology allows to reduce energy and maintenance costs up to 90%, minimum 65%.

Furthermore the existint street light infrastructure can be used to create a fascinating network combining energy efficient lighting and digital network.

Appropriate monitoring allows a better use of local resources, avoiding unnecessary waste, providing damaging events, protecting the environment from the several forms of pollution.

eemaxx goals are **energy saving, environmental protection and added value services** to the citizen.

If needed eemaxx provides the necessary financial resources to speed up the transformation from “dumb & expensive” to “cool & convenient”.

eemaxx LED solutions: substantial energy savings – better performance

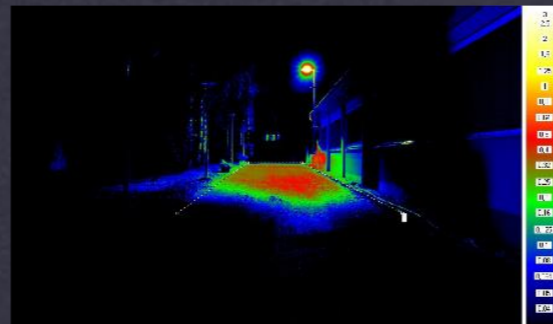
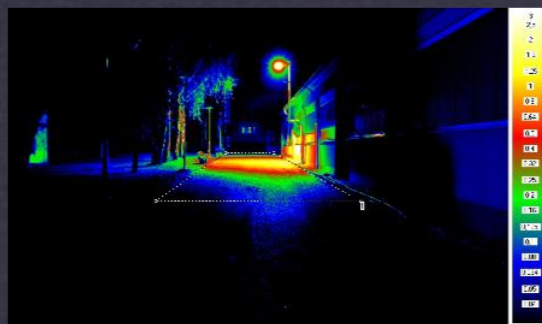
250 W high pressure sodium 24 W LED STREET MODEL



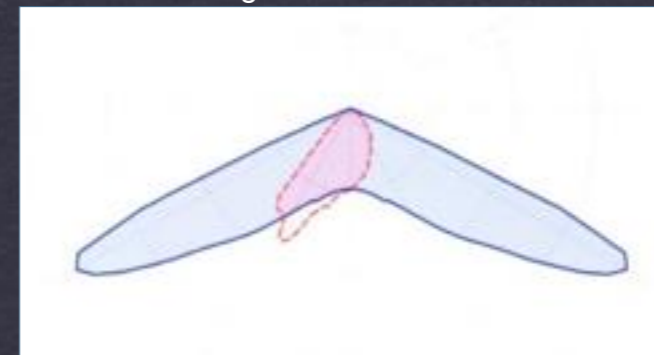
1 x Natriumdampf 250 W (warmweiß)



1 x Street 24 LED W (neutralweiß)



photometric diagram
&
light distribution



- LED
- High Pressure Sodium

> 80% energy savings and better light

eemaxx LED solutions: substantial energy savings – better performance

Before: 3 * 80 W High Pressure Sodium



Example: Crossroad Class ME 4

High Pressure Sodium or Mercury, Halogen
or Incandescent lamps,

- High energy consumption
- Insufficient light
- High CO2 production
- High maintenance costs

After: 3 * 24 W LED STREET MODEL



Example: Crossroad Class ME 4

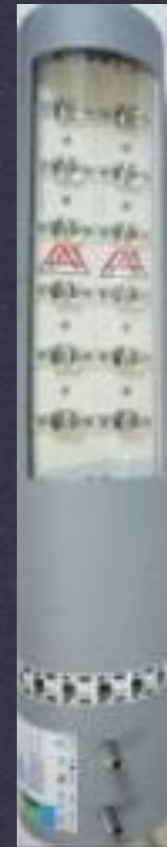
.....will be replaced by top performing LED lamps

- Energy saving 70%
- 3 times better light distribution
- 300 Kg less CO2/year
- 10 times less maintenance costs/year

high class LED street lighting



- The model street is an elegant & timeless product
- Equipped with highest quality diodes (CREE®)
- Outstanding quality / unique robustness / full metal body
- Guaranteed lifetime of at least 50.000 hours or 7 years of full warranty
- Highest certified protection class for the lamp housing (IP 66)
- Additional driver housing (IP 66 - 2 layers for total protection)
- Heat control – temperature/heat is exhausted by the metal housing
- Equipped with 2 LED drivers (redundancy)
- Extended lifetime thanks to temperature management
- Simple exchange of illuminates & drivers / extremely simply to maintain
- Ideal lighting / in line with legal requirements for street lighting
- Color temperatures from 2.700 (very warm light) to 5.600 Kelvin (daylight)
- Reflection free illumination (light emitting diodes)
- Outstanding illumination of sidewalks & streets
- Increased security on the streets
- Customized illumination ankles - depending on the clients needs and local requirements
- Masts are available in all sizes - free definition by the client
- Possible and installation on existing infrastructure
- Availability of an articulated joint - ability to customize ankles and positions
- Ready to install upon delivery (including a 10m cable)
- Energy consumption at least 65 % less, up to 90% (depending on the current lighting)

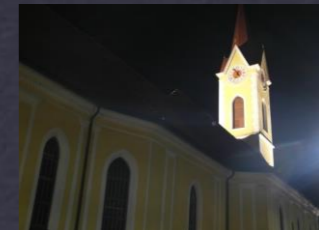


upgrades for historic lamps and special situations (examples)



eemaxx offers external lighting for all kind of purposes:

- Highways
- City streets
- Public places and gardens
- Churches
- Historic buildings
- Museums
- Parking places
- Logistic centres
- Storage rooms
- Production facilities
- Ecc.



LED BALL: architectural and desing lighting

LED INSERT: use of the exising housing exchanging the technology inside – also taylor made for very unique lamps

economic and emission impact: Example in Puglia/Italy

The beautiful small town in the South of Italy has around 2.200 inhabitants – and 586 streetlights.



The Conventional streetlight-system were equipped mostly with mercury and sodium vapor lamps. Due to the loss in light emission, such lamps need to be replaced approximately every 4.000 hrs., therefore , the appliances do not only produce significant energy costs, but also extremely high maintenance costs.

eemaxx exchanged the light system, adding telecontrolling allowing WiFi services as well a higher level of security due to videosurveillance. To be prepared for the future some charging points for electric vehicles were installed in the centre.

Besides the decrease of the energy usage the CO2 emissions dropped by the same percentage.

BEFORE		AFTER	
Lamps	586	Lamps	586
Watt installed	112.950	Watt installed	18.576
kWh/year	494.721	kWh/year	81.363
Maintenance/year	19.353 €	Maintenance/year	<1.000 €
Total costs/year	108.445 €	Total costs/year	17.645 €

financial solution (own fund): Example in Veneto/Italy

Between Venice and Verona this town wanted to replace the around 1.500 street lights.

The calculation basis for the investment scenario were the municipalitie's costs for

Energy usage + Maintenance = 100%.

eemaxx left 10% immediate saving to the municipality and calculated the investment period on the remaining 90%.

During this investment period eemaxx is paying the energy costs out of these 90%. Furthermore we finance a period of 10 years for free internet service for the citizens due to a new WiFi system we added – every pole was transformed into an antenna.



BEFORE		AFTER	
Lamps	1.461	Lamps	1.461
Watt installed	205.000	Watt installed	46.700
kWh/year	785.185	kWh/year	178.717
Maintenance/year	55.000 €	Maintenance/year	< 1.000 €
Total costs/year	221.000 €	Total costs/year 1	200.000 €
		Total costs/year 2	34.000 €

1 = funding period of 9,75 years, total investment 1.300.000 €, energy costs paid by eemaxx

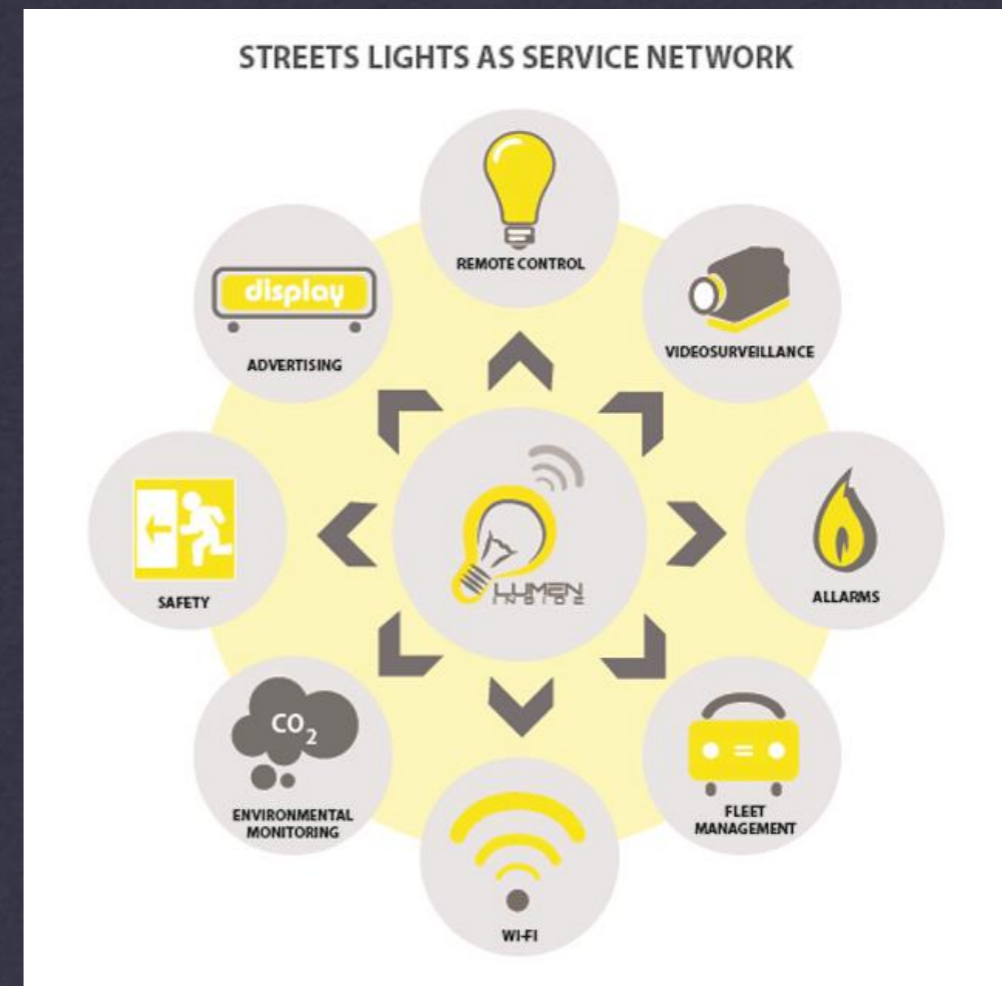
2 = after funding period

smart city – existing infrastructure becomes clever network

The street light system can provide value added services such as

- WiFi
- Videosurveillance
- Charging points for electric vehicles
- Safety
- Tailormade advertising
- Fleet Management
- Ecc.

managed through a smart back end system.



contacts

KREN Operations Ltd
Project Financing

84 Georgiou A Avenue
Flamingo Court, 4th Floor, Flat 43
Germasogeia, 4048, Limassol,
Cyprus

Leon Vankan
Director

Eemaxx Engineering srl
Operations and Management

Via Lucania – Centro Direzionale Il Granaio
84098 Pontecagnano (Salerno)
Italy

Giuseppe D'Alessandro
Director
g.dalessandro@eemaxx.it