PROFESSIONAL LIGHTING SOLUTIONS : EDITION 2008-2009

LIGHTING

EURO QUALITY

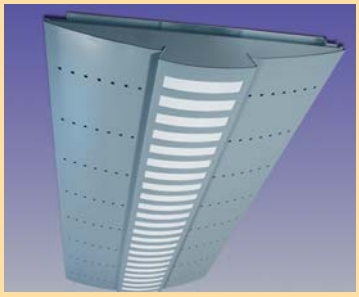
2008/09 EDITION

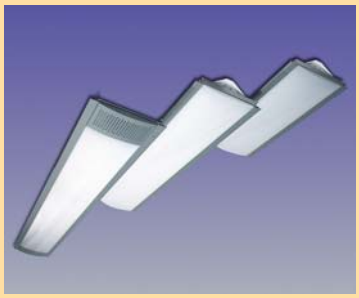
SEC Lighting

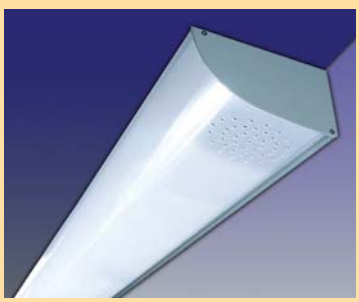
EUROPEAN RAILWAY LIGHTING APPLICATION LEADER

WE SHIFT YOUR EXPECTATIONS

SEC Lighting References...





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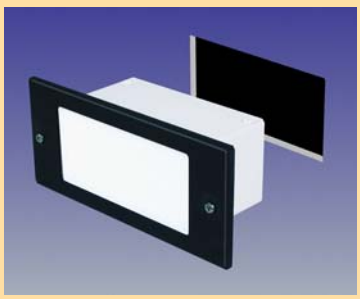
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We bring you only the best quality...
Prinášame Vám tú najvyššiu kvalitu...
ISO 9001:2000

IQNet
THE INTERNATIONAL CERTIFICATION NETWORK
CERTIFICATE

IQNet and
DQS GmbH Deutsche Gesellschaft zur Zertifizierung von Managementsystemen
hereby certifies that the company

SEC Ltd.
Mariánska dolina 1, 949 01 Nitra
Slowakei

Site:
Jakuba Haška 11, 949 01 Nitra
Slovakia

for the scope
Development, manufacture and sales of emergency lighting, indoor lighting, electronic ballasts and lighting fixtures for public transport vehicles

has implemented and maintains a
Quality Management System.

An audit, documented in a report, has verified that this quality management system fulfills the requirements of the following standard:
ISO 9001 : 2000

This certificate is valid until 2008-03-22
Frankfurt am Main 2005-03-23
Registration Number: DE-066713 QM

Dr. Fabio Roversi
President of IQNet
Ass. iur. M. Drechsel
S. Heinloth
Managing Directors of DQS GmbH

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December 2000 edition

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Ass. iur. M. Drechsel
Dipl.-Ing. S. Heinloth
MANAGING DIRECTORS
D-60433 Frankfurt am Main, August-Schanz-Straße 21

...FOR ALL OF US
...NÁM VŠETKÝM

SEC is one of few luminous technique producers that owns certificates for all significant activities in accordance with the standard **ISO 9001:2000** - from designing, development and production up to marketing and services. All these activities are in tune with one another and thanks to this fact they create a harmonious entirety, the company SEC, that brings to you products of the highest quality and parameters. With the luminaries of SEC all the time you are sure you have made the right decision. **Quality of our products proves it.**

Firma **SEC** patrí medzi **popredných výrobcov svetelnej techniky**, ktorí majú certifikované všetky dôležité aktivity podľa normy **ISO9001** - od návrhu, vývoja a výroby až po organizáciu predaja a servisné služby. Všetky činnosti do seba zapadajú a tak vytvárajú pevný celok s presne definovanými vzťahmi. Firma SEC Vám vďaka tomu prináša výrobky tej najlepšej kvality a parametrov. So svietidlami SEC si môžete byť istí, že ste učinili správne rozhodnutie.
Kvalita našich výrobkov je toho dôkazom.

Originality and style. Elegance and feeling of satisfaction. Excellent luminous - technical parameters. Highest standard of quality. All these properties create a unique feeling that the luminaries of the company SEC, traditional producer of high quality luminous technique, radiate with. Direct your senses to the luminaries of design **year 2008/09 range** of the company SEC. Our main aim is to bring you new lighting **collection with progressive design and excellent lighting parameters**. This new SEC catalogue would help you to make you a project of creative lighting which would be compatible with any project design.

Sense For Detail
Zmysel pre detail

All of SEC products, • Electronic ballasts (CVS), • Complete Lighting Modules, have delicately and nevertheless effectively worked out design. The **sense of the last detail** is reflected in utilising **new materials, components and finishing**.
Our permanent aim is to complete the goal set by you successfully: **enhance the appeal, elegance and create conditions for fabulous feeling of the harmony of your project interior and luminaries of SEC**.

Made To Fit
Vyrobené na mieru

Originalita a štýl. Skvelé svetelno-technické parametre. Elegancia a pocit pohody. Všetky tieto vlastnosti vytvárajú unikátny pocit, ktorý „vyžarujú“ svietidlá firmy SEC.
Zamerajte svoje zmysly na **svietidlá SEC- modelový rok 2008/09**. Naším cieľom je ponúknuť Vám kolekciu svietidiel **nadčasového dizajnu s vynikajúcimi svetelno-technickými parametrami.** Tento katalóg SEC Vám pomôže v navrhovaní kreatívneh osvetlenia a vo výbere svietidiel, ktoré budú perfektne ladiť s interiérom Vášho dopravného prostriedku .

Perfect Harmony
Najvyššia kvalita

Všetky SEC produckty, **• elektronické predradníky • kompletné svetelné moduly,** majú jemne a predsa efektívne prepracovaný design. Nové tvary sú zvýraznené použitím nových materiálov, prvkov a spracovaní. Naším neustálym cieľom je napĺňať Vami vytýčený cieľ - vytvárať príťažlivé, elegantné, výkonné a spoľahlivé svietidlá v harmónii s interiérom Vášho projektu.

THERE IS NO SUBSTITUTE FOR EXPERIENCE AND TECHNOLOGY
SKÚSENOSTI A TECHNOLÓGIU NIE JE MOŽNÉ NAHRADIŤ NIČÍM...

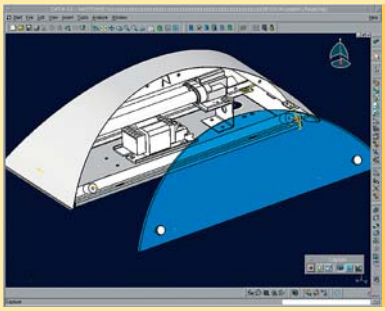
The demand to increase the feed-back speed between market requests and production has led **SEC** to build up a **hi-tech base** in the field of all **development**, **technical preparation and the production process**.

For the needs of both development and the design of mechanical product parts, **SEC uses a 3-D computer technology** and visualization based on **CATIA-CADAM** and IBM. This technology allows us to create the new product design before the product sample is made. The possibility of simulating the lighting fixture character in a surrounding is another advantage of this technology.

Potreba zrýchlenia odozvy medzi požiadavkami trhu a realizácie finálnych produktov viedla firmu SEC k budovaniu modernej technologickej základne v oblasti vývoja, technickej prípravy výroby i samotného výrobného procesu.

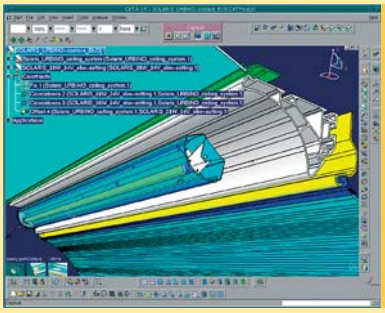
Pre **vývoj a konštrukciu** mechanických častí výrobkov SEC používa progresívnu technológiu 3D objemového modelovania s následnou vizualizáciou na grafických staniciach IBM v softvérovom prostredí **CATIA-CADAM.**
Firme SEC umožňuje táto technológia hneď na prvom stupni vývoja výrobku predložiť tvarové a konštrukčné usporiadanie verne zobrazujúce predpokladané riešenie potenciálnemu odberateľovi. Nemalou prednosťou je možnosť simulovať budúcu aplikáciu vo virtuálnom prostredí so stanovením optimálnych svetelno-technických vlastností.

CATIA®-CADAM® SOLUTIONS



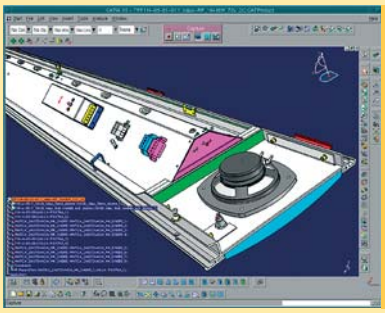
3D DESIGN OF BOTH BODY AND ALL KEY COMPONENTS

DIZAJN 3D MODELU TELESA A KOMPONENTOV



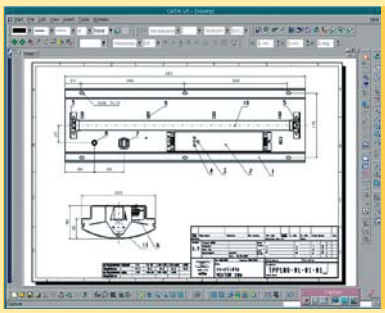
LIGHTING FIXTURE APPLICATION SIMULATION

SIMULÁCIA APLIKÁCIE SVIETIDLA



LIGHTING FIXTURE DETAILED DESIGN

DETAILNÁ KONŠTRUKCIA SVIETIDLA



LIGHTING FIXTURE DETAILED DRAWINGS

PRESNÁ A DETAILNÁ VÝKRESOVÁ DOKUMENTÁCIA

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SKÚSENOSTI A TECHNOLÓGIU NIE JE MOŽNÉ NAHRADIŤ NIČÍM...

With the help of **MICROCHIP** development equipment, SEC is able to design and develop **intelligent electronic units** which are utilized in our products. For customers this means higher reliability, higher control standard and much longer fluorescent tube life time. Microcomputer control software consists of knowledge and experience gained from both the theoretical analysis and experimental measurements of our Research and Development Department.

Vývojové prostredie pre **aplikáciu jednočipových mikropočítačov** vytvára predpoklady pre vývoj a konštrukciu inteligentných elektronických jednotiek používaných **vo výrobkoch firmy SEC**. Tieto technické riešenia prinášajú užívateľovi vyššiu **prevádzkovú spoľahlivosť**, vyšší ovládací **komfort** a niekoľkonásobne vyššiu **životnosť** svetelných zdrojov. Riadiaci softvér obsahuje poznatky a skúsenosti získané teoretickým rozborom a dlhodobými experimentálnymi meraniami.

Lasting reliability of our electronic units is ensured through utilization of the most up to date solder wave technology by **KIRSTEN**.

Dlhodobá **prevádzková spoľahlivosť** vyrábaných elektronických častí je zaručená používaním jednej z najmodernejších technológií spájkovania dutou cínovou vlnou.

RoHS COMPLIANT 2002/95/EC

PRODUCTION BY SMT offers a high level of quality, minimalizes human errors and allows us to manufacture very **sophisticated electronic designs**.

Použitie špičkovej technológie povrchovej montáže dosiek plošných spojov (**SMT**) zabezpečuje **vysokú kvalitu** a opakovateľnosť výrobného procesu, minimalizuje chyby ľudského faktora a umožňuje výrobu vysokonáročných technických riešení.

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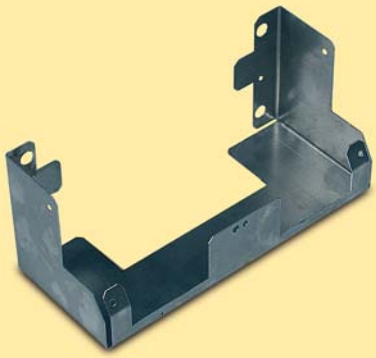
TRUMPF



High level of flexibility in the field of **METAL PLATE PROCESSING** has been reached by using one of the most modern **CNC technologies by TRUMPF**. Thanks to this we are also able to produce metal parts according to customer individual requirements.

Vysoká flexibilita výroby kovových dielov a tým i finálnych výrobkov je zaručená použitím jednej z **najmodernejších CNC technológií na spracovanie plechu** od firmy **TRUMPF**. To dáva predpoklad pre výrobu dielov ale aj kompletných svietidiel aj podľa individuálnych požiadaviek našich zákazníkov.

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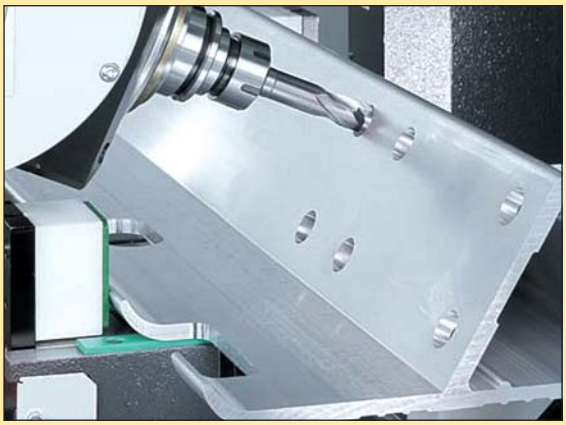
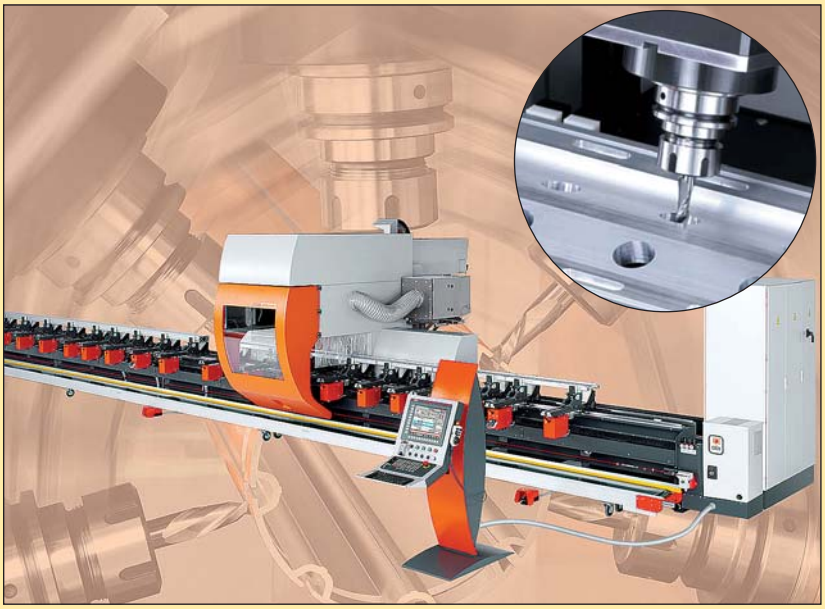
SKÚSENOSTI A TECHNOLÓGIU NIE JE MOŽNÉ NAHRADIŤ NIČÍM...

elumatec®





EXTRUDED ALUMINIUM PROFILES MACHINING
the **drilling, routing, taping, cutting and notching** of aluminium profiles (up to the **lenght 7300mm, 600x600mm in section**) is ensured by CNC profile machining centre. Thanks to this we are able to offer you customised aluminium profiles processing with both **highest accuracy level and highest quality**.

CNC obrábanie AL profilov:
vŕtanie, frézovanie a pílenie hliníkových profilov **do dĺžky max.7300mm a do prierezu max.600x600mm** pomocou CNC obrábanieho centra. Vďaka tomu je firma SEC schopná poskytnúť Vám riešenia svietidiel / hliníkových profilov na mieru **v najvyššej presnosti a kvalite.**

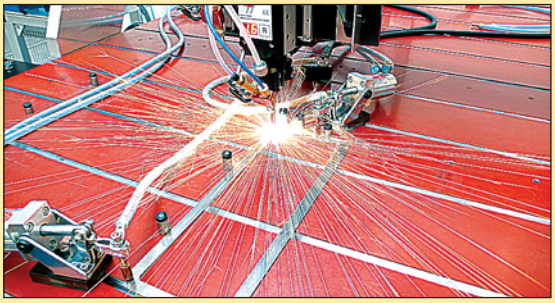
High level of welding is ensured by the **AUTOMATIC WELDING TURNKEY SYSTEM** (turnkey robot system). It is able to **weld metal, aluminium or even stainless-steel even the thickness from 0.8mm**. The welding is based on TIG/MIG technology (automatic welding tool change).

Firma SEC disponuje hi-tech robotizovaným zváracím pracoviskom, ktoré je schopné zvárať:
• oceľ • nerez • hliník, dokonca od hrúbky 0,8mm.
Technológia zvárania je TIG/MIG s automatickou výmenou zváracích hláv.

THERE IS NO SUBSTITUTE FOR EXPERIENCE AND TECHNOLOGY
SKÚSENOSTI A TECHNOLÓGIU NIE JE MOŽNÉ NAHRADIŤ NIČÍM...

SOYER KT-1550 presents the highest quality of CNC capacitor discharge **STUD WELDING.** It ensures us the long term perfect joints.

SOYER KT-1550 predstavuje najvyššiu kvalitu v **CNC bodovaní skrutiek**, čo zaručuje perfektnú dlhodobú kvalitu spojov.



PE POWDER COATING

All, **perfect pre-finishing** of metal parts in the automatic degreasing line together with modern technology with controlled **electrostatic coating of PE colours guarantees the high quality** and colour tones variability of metal parts coatings.

Dokonalá predúprava kovových dielov v automatickej odmasťovacej linke v súčinnosti s **modernou technológiou riadeného elektrostatického nanášania PE farby** dáva záruku vysokej kvality a variability farebných odtieňov povrchovej úpravy dielov svietidiel.

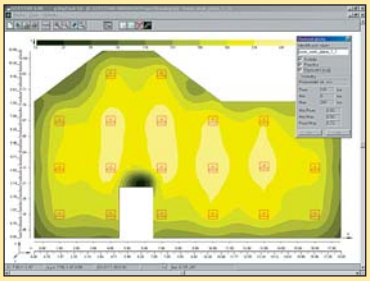
Perfectly built-up **LOGISTICS AND INFORMATION SYSTEMS** ensure that each component is on the right place in the right time and each product is delivered to you on time in the **highest quality standard**. **Each lighting fixture**, before you get it, is being **100% tested** when all technical parameters are measured in accordance with their technical specification.

Dokonale vybudovaný informačný a logistický systém je zárukou, že každý jeden komponent je včas na správnom mieste a každý jeden finálny výrobok je včas a v najvyššej kvalite doručený zákazníkovi. Na konci výrobného procesu sa sami uisťujeme **100% testom** každého svietidla **o vysokej kvalite finálneho produktu** skôr ako odchádza k Vám. Každé svietidlo je zahorované/testované a sú zmerané všetky kľúčové parametre v súlade s technickými podmienkami výrobku.

THERE IS NO SUBSTITUTE FOR EXPERIENCE AND TECHNOLOGY
SKÚSENOSTI A TECHNOLÓGIU NIE JE MOŽNÉ NAHRADIŤ NIČÍM...

Optimal lighting parameters of SEC fixtures are the result of long-time measurements and consequent analysis. These results determine the fixture design. Lighting fixture efficiency is measured by a sphere integrator with 3m diameter.

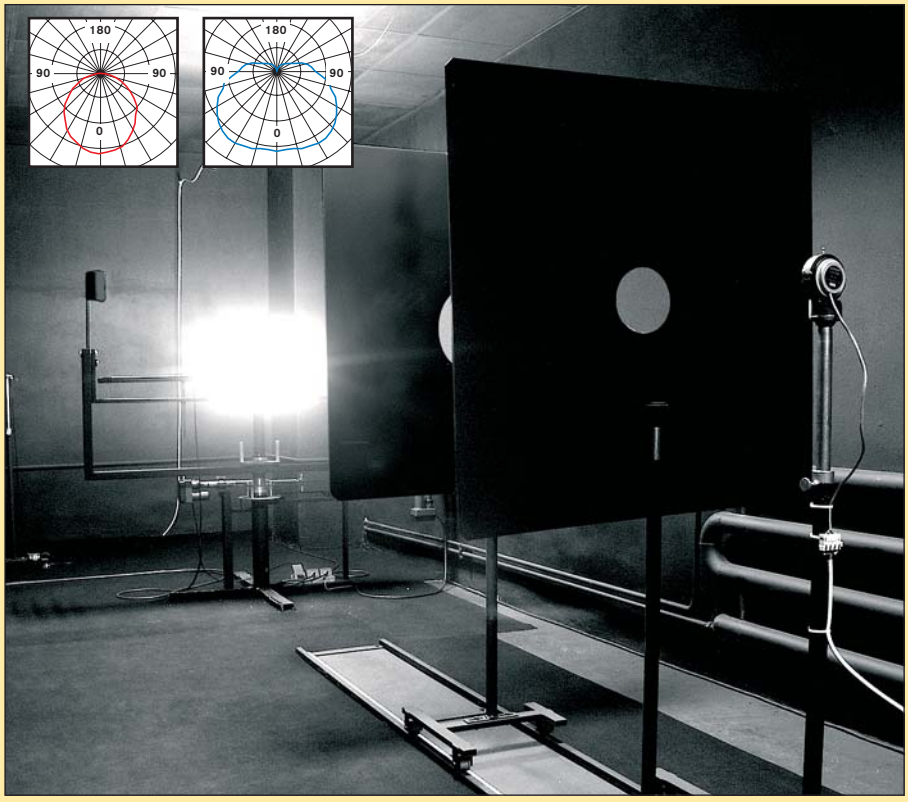
Optimálne svetelno-technické parametre svietidiel SEC sú výsledkom dlhodobých meraní a následných analýz, ktorých výsledky sú premietnuté do konštrukcie svietidiel. Účinnosti svietidiel sú merané v **guľovom integrátore s priemerom 3m**.



LIGHTING CALCULATIONS

We bring you a **COMPLEX SOFTWARE SUPPORT** which enables you to design a lighting project which takes into consideration all necessary factors in order to reach optimal power consumption balance.

Na základe nameraných parametrov Vám prinášame **komplexnú softvérovú podporu**, pomocou ktorej Vám navrhneme optimálnu svetelnú sústavu s ohľadom na všetky potrebné faktory s cieľom dosiahnuť komfort osvetlenia pri optimálnej energetickej bilancii.



SEC is one of the few luminous technique producers that owns a **PHOTOMETRIC LAB** for measuring light parameters of lighting fixtures and lighting sources. Thanks to the **12m long goniophotometer** we are able, even within the development process, to verify the photometric parameters of new lighting. All of this is done with special emphasis on harmony of design and optimal lighting parameters.

Firma **SEC** patrí medzi **popredných výrobcov svetelnej techniky**, ktorí disponujú moderným **fotometrickým laboratóriom** na meranie fotometrických parametrov svietidiel a svetelných zdrojov. Pomocou goniofotometra s dĺžkou 12m je možné už v etape vývoja verifikovať fotometrické vlastnosti vyvíjaného svietidla s dôrazom **na súlad dizajnu s optimálnymi svetelno-technickými parametrami**.

: Electronic Ballast And Lighting Systems

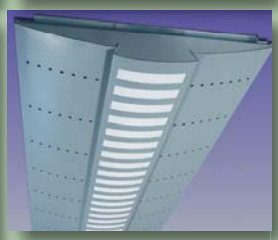
for the interior of both railway + bus/coach applications

SEC® Lighting

: TRADITION
: EXPERIENCE

We think you have a full right to expect more of lighting solutions.
It means **more elegance, more harmony, more style, more quality**.
More for yourselves. More for comfort of all of us.
Choose such a lamp that provides you with **the best feeling of comfort, harmony and power for you, your relatives, for all of us.**

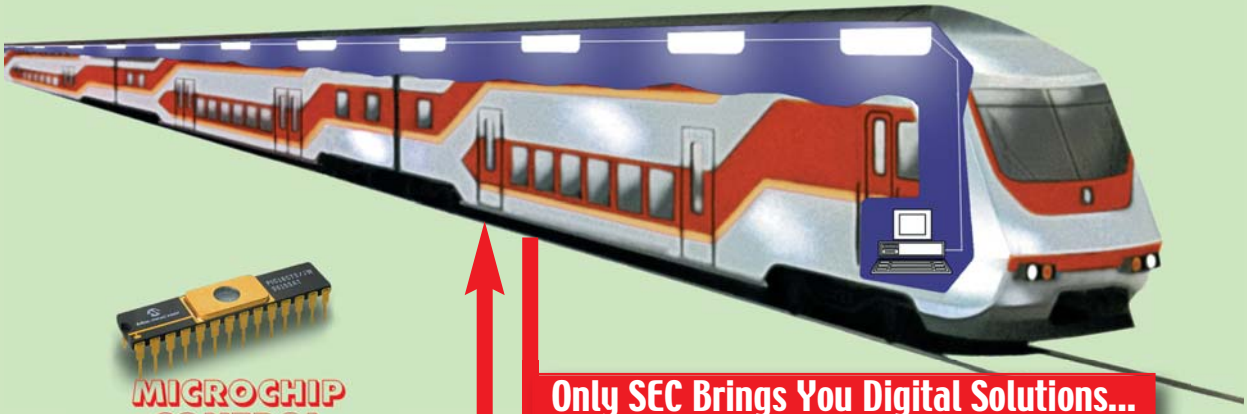
You can rely on SEC.



MICROCHIP CONTROL

Only SEC Brings You Digital Solutions...

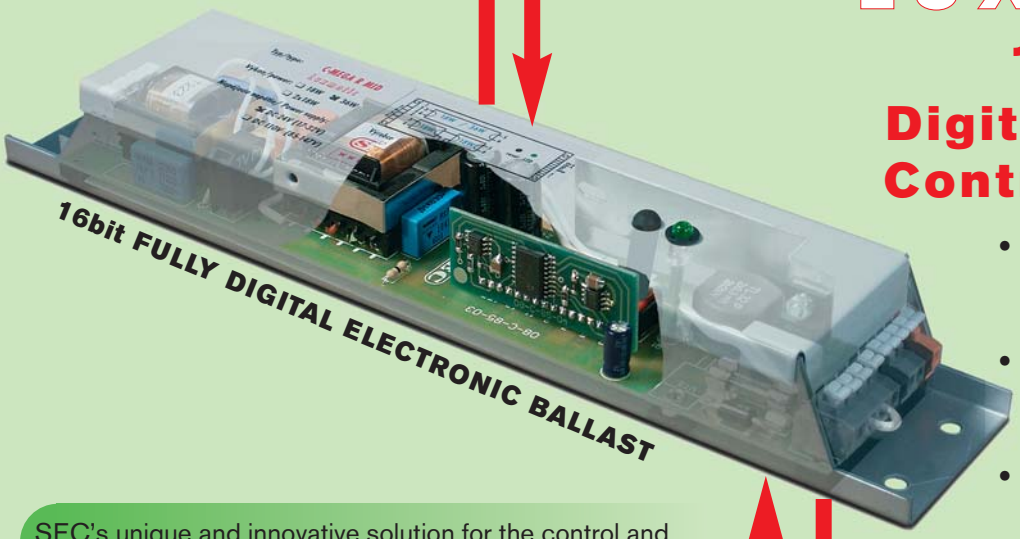
NEW GENERATION OF INTERIOR LIGHTING SYSTEM



Only SEC Brings You Digital Solutions...

LUXMATIC 16bit Digital Lighting Control System

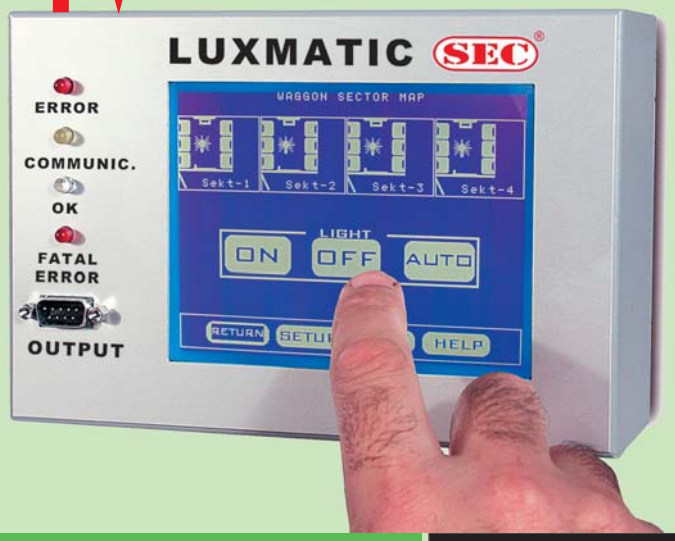
- Adaptive regulation of lighting level (Automatic Dimming)
- Individual regulation by passenger (Manual Dimming)
- Intelligent Emergency Lighting system
- Central Diagnostics = TEST report printing
- Lifetime parameters memory for Maintenance Analysis



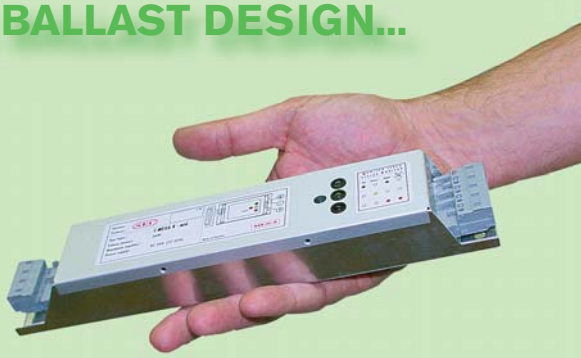
SEC's unique and innovative solution for the control and status monitoring of railway application lighting. The **LUXMATIC™** system **collects all addressed data** on fluorescent tube burn hours, burning cycles and faults and can forward centralised information to the train management system***. **LUXMATIC™** allows for the centralised automatic dimming (external lighting sensor) and/or passenger-specific dimming/ switching on and off of reading lights, **dimming** of main cabin lights (e.g. according to train movement), and **forecasting of lamp service life**. Thanks to the **LUXMATIC™** system, the train operator can plan for interior lighting maintenance in advance, thus **optimising life cycle costs** (LCC).

***The **microcomputer constantly monitors** the operational status of the fluorescent lamp with a **unique digital method (SEC is only one on the market with progressive digital control)** and automatically puts the inverter into standby mode when a fault is detected in the lamp. The electronic ballast also goes automatically into standby mode when any of the lamp wires come loose, are pulled free, or an intact lamp is pulled from the holders. After the lamp has been replaced, the inverter automatically restarts. While the inverter is in standby mode, high voltage in the fluorescent tube sockets is prevented.

16bit CENTRAL CONTROL UNIT



YOUR BENEFITS FROM SEC ELECTRONIC BALLAST DESIGN...



SEC Digital Electronic Ballast

The base of this SEC's innovative solution is a **16bit microcomputer**.
It **continuously monitors the operational status** of all:
- the fluorescent tubes
- the wiring
- the short-circuit on the output
- the right position of the fluorescent tube in the sockets
- the power supply
- the light output level in order to have exactly the same lighting conditions.

In case of some incorrect status, it automatically goes to **standby mode**. The actual state is signalised for the operator by combination of 1 or 3 colour LEDs in each lighting fixture. All electronic ballast functions can be flexible reprogrammed or we can even add the new ones in order to meet your requirements.

MICROCHIP

Only SEC Brings You Digital Solutions...

Pre-heat Control

Special SEC's pre-heating circuit based on the unique fully **digital electronic ballast** design ensures controlled pre-heating of the fluorescent tube electrodes in order to reach at minimum **500.000 fluorescent lamp start-ups** in whole range of both operating voltage and operating temperatures.
This special circuit is standard for all SEC electronic ballasts.

Soft Lighting Start Control

This optional comfort function (available for all non-dimmable or dimmable SEC electronic ballasts) offers **gradually increasing of the lighting output** to the requested final value after starting the fluorescent lamp. This function **eliminates the light shock for passenger eyes** in case of rapid change of the light level (switch on/off). It allows the eyes to adjust to the change of the light level.

Sleep Mode

This optional function allows to operate the electronic ballast permanently connected to the power supply. There is one signal wire for switching on/off the electronic ballasts. The main advantage of this sophisticated solution is that **you do not need to use any high current contactors**. You can „wake up" or „sleep" the electronic ballast only by the signal voltage. While it is in **„Sleep" Mode** it has no current consuption from the power supply.

Restart Function

This standard function for all SEC electronic ballast **automatically restarts the electronic ballast** in case of:
- pre-heating current of the fluorescent tube is out the range (fluorescent tube failure or broken fluorescent tube socket contact). It restarts for 10 times to start up the fluorescent tube. If it is not succesful it automatically turns to stand-by mode.
- pre-heating current is OK but operating fluorescent tube current does not reach the required level within 10ms (end of fluorescent tube lifetime or extremely low temperature). It restarts for 50 times to start up the fluorescent tube. If it is not successful it automatically turns to stand-by mode.

The actual state is signalised for the operator by combination of 3 coloured LEDs in each lighting fixture.

Dimmer Control 15/30-100%

SEC manufactures also dimmable electronic ballasts in version indexed or even **stepless dimming** for the whole T8, T5 or even compact fluorescent tubes. Unique SEC's dimming digital circuit gentle dimms the fluorecent tube in order to reach its maximum lifetime.

Advantages:
- high efficiency of **dimming** (energy saving)
- **passenger comfort**
- **adaptivity** of the whole lighting system based on **surrounding lighting conditions**
- **emergency lighting** (battery power supply). It allows to preset several lighting levels for individual areas inside of the vehicle (corridor, exit areas,...)
- **elimination of the glare effect** in the windscreen - the higher level of traffic safety.

YOUR BENEFITS FROM SEC ELECTRONIC BALLAST DESIGN...

Individual Diagnostic & Control Lighting LUXBASIC

The base of this SEC's unique solution is a **fully digital controlled electronic ballast**. Thanks to the microcomputer it **continuously monitors** the operational status of all:

- the **fluorescent tube** (if it is too close to its end of lifetime, the electronic ballast turns automatically to the stand-by mode in order to avoid unefficient lighting)
- the **wiring** (it automatically turns to the stand-by mode),
- the short-circuit on the output (it automatically turns to the stand-by mode)
- the **right position** of the fluorescent tube in the sockets (it automatically turns to the stand-by mode),
- the **power supply** (very fast electronic protection against both static and dynamic overvoltage, it automatically turns to the stand-by mode with automatic restart after the power supply correction),
- the **light output level** in order to have exactly the same lighting conditions (stabilization of the light output)

In case of some incorrect status, it automatically turns to the **stand-by mode**.

The actual state is **signalised** for the operator by the combination of **3 coloured LEDs** in each lighting fixture.

While the electronic ballast is in the stand-by mode, high voltage in the both terminal blocks and lamp holders is prevented.

Individual Diagnostic and Central Control Lighting System LUXCOM

LUXCOM is SEC's innovative lighting solution based on all LUXBASIC advantages.
In addition it allows the central control of lighting system (**central dimming function**).

Central Diagnostic & Control Lighting System LUXMATIC

Most sophisticated Central Diagnostic & Control Lighting System **LUXMATIC** brings the **highest level of comfort for public transport vehicle illumination.** It controls and collects **addressed data** from each individual lighting fixture in order to allow:

- the **adaptable lighting control** based on surrounding lighting conditions (**external sensor**)
- the **passenger**-specific switching **on/off** or **even dimming**
- the **service diagnostics** (place of failure, type of failure, total operating time,...).
- the **emergency lighting** - it allows to preset several lighting levels for individual areas inside of the vehicle (corridor, seats, exit area, driver seat,...)

Thanks to the LUXMATIC system the operator can plan the interior lighting maintenance in advance, thus **optimising the life cycle costs** (LCC).

Only SEC Brings You Digital Solutions...

YOUR BENEFITS FROM SEC ELECTRONIC BALLAST DESIGN...

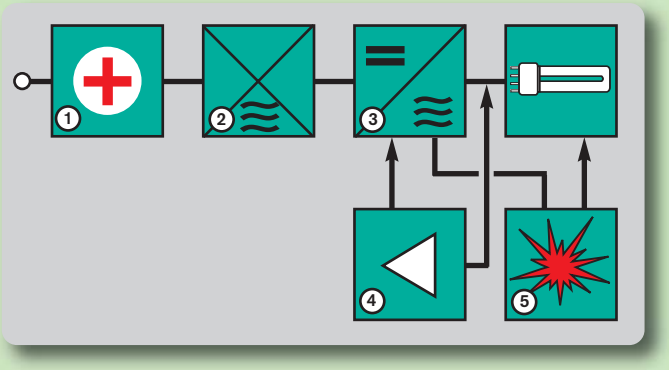
What are SEC basic requirements for lighting fixture and electronic ballast design ?

The most important requirements for electronic ballast design are as follows:

- **reliable function** when the **power supply varies**
- **stabilization** of the **light output** in entire range on power supply
- **reliable start-up** of fluorescent tube instigated by **low temperatures**
- high number of **start-ups per fluorescent tube more than 500.000**
- **resistance to dynamic and static overvoltage**
- **low level of its own interference**
- long time resistance to motion and corrosion

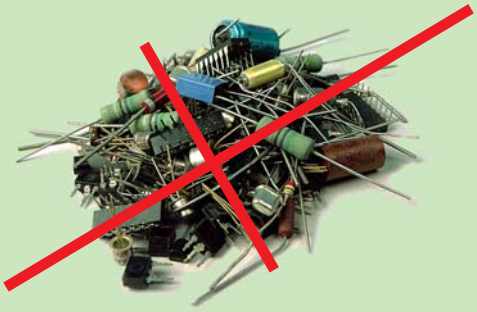
What does the electronic unit contain ?

In general the electronic unit contains protection circuits (1), interference filters (2), electronic ballast (3), regulator (4) and ignition circuits (5).



What are the benefits of SEC design in comparison to common ligting fixture design ?

Common electronic ballasts on the market are designed on the basis of analog techniques. This solution limits the electronic unit adaptivity to outside changes and to change in light source parameters (e.g. life, temperature, producer, ...). **SEC solves this absence in common design by the application of a microcomputer which does not bring only a high enhancement of working parameters but also new functions which are impossible to implement in analog design.** The design encorporates the diagnostic function and also dimming functions dependent on time, lighting fixture location, surrounding lighting conditions and required illumination level. This does not have to ensure only the illumination comfort but also safety and reliability of operation.
This lighting system also solves the emergency situations of power supply (e.g. emergency mode in the carriages - battery power supply) by reducing the illumination according to the in advance pre-set mode (see also SETTING and LUXMATIC options).



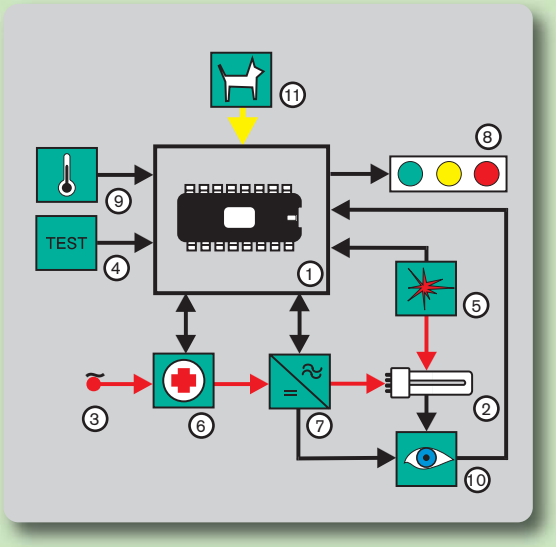
What is the effect of microcomputer control on fixtures design ?

The effect is the complex fulfilment of requirements on electrical fixtures for transportation vehicles.
The measurements of inferior parameters are achieved with computerized precision and the instructions to the power elements of the electronic ballast which feeds the fluorescent tube are through an algorithm which has been written into the microcomputer.

Only SEC Brings You Digital Solutions...

A FEW QUESTIONS AND ANSWERS ABOUT SEC LIGHTING SYSTEMS...

How does the electronic unit of the lighting fixture controlled by the microcomputer work ?

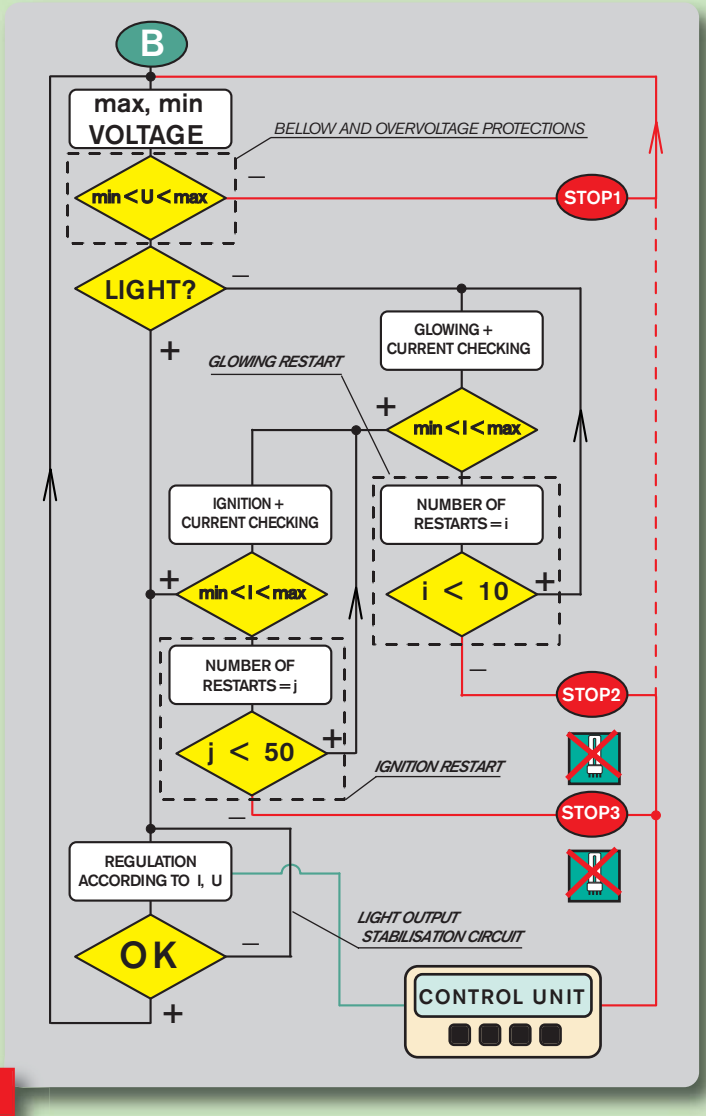


1 - Microcomputer
2 - Fluorescent tube
3 - Feeding voltage
4 - TEST button
5 - Electronic ignition
6 - Overvoltage protection
7 - Electronic ballast
8 - Light information label
9 - Temperature sensor
10 - Sensor of fluorescent tube parameters
11 - "Watch dog"

What does the microcomputer software contain ?

SEC Lighting has made it as priority to incorporate all know-how from theoretical **analysis, experimental measurements, experience** from designing and performance of lighting fixtures in the microchip's memory of the control software. Development department management focuses on tube start-up, light output stabilization, overvoltage and interference protection and reliable performance in extreme temperatures.

How does the control software of the microcomputer work ?



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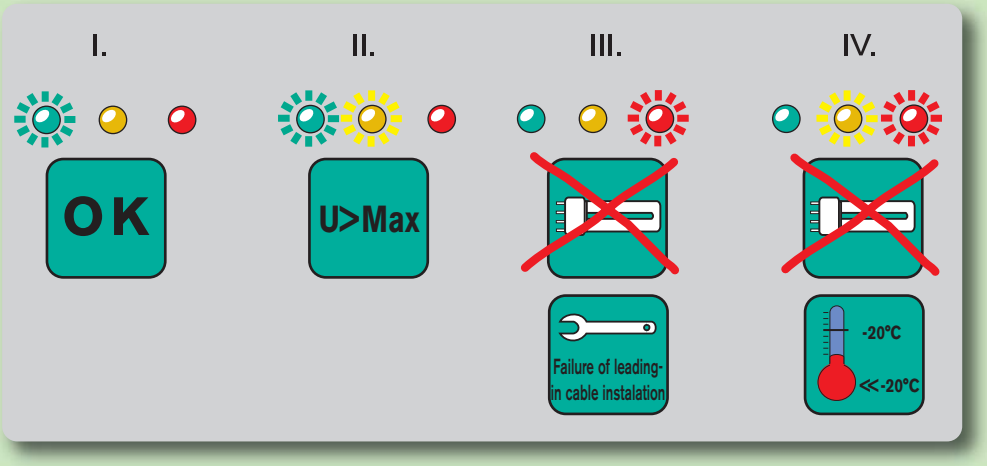
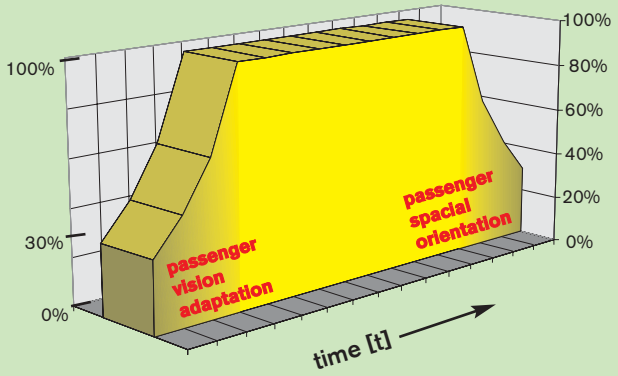
A FEW QUESTIONS AND ANSWERS ABOUT SEC LIGHTING SYSTEMS...

How does the microcomputer inform about the lighting fixture states ?



Why is it advantageous to set the light output - DIMMING Function ?

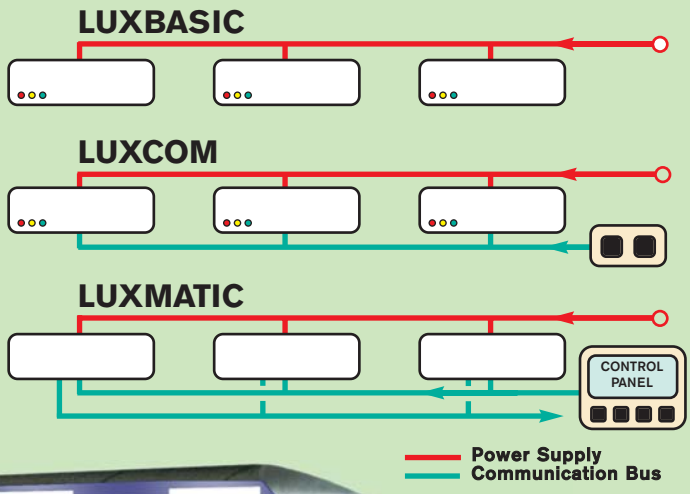
This possibility is advantageous for **optimal setting of the illumination** level in transportation vehicles and for eliminating the glare for the vehicle operator together with a sufficient lighting level for passengers. **Automatic increase or decrease of illumination** improves the passenger comfort as it allows for vision adaptation and special orientation.



What are the technical options of SEC lighting systems ?

The basic option of the lighting fixture **LUXBASIC** contains the autonomous diagnostic system (**AUTOTEST**) without communication channel or dimming function. The next level called **LUXCOM** is characterised by an **autonomous diagnostic system and central dimming** (increase / decrease level of illumination is the same for each lighting fixture in the whole lighting system).
The top lighting system **LUXMATIC** offers by means of a **control panel central communication and individual diagnosis** of each lighting fixture in the system (**addressable system**).

Three levels of lighting system controlling:



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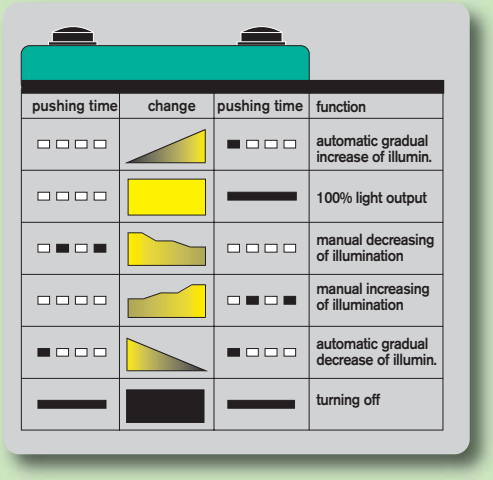
A FEW QUESTIONS AND ANSWERS ABOUT SEC LIGHTING SYSTEMS...

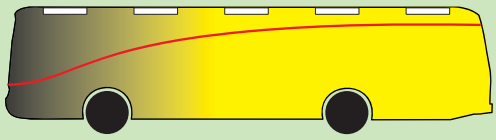
How does the lighting system LUXCOM work ?

In the **LUXCOM** lighting system it is possible to **dim** the whole system (each fixture individually) in the **range of 15%-100%**. The change in level of illumination is the same for each fixture in the system. This change can be done either **in steps or smoothly**. The control can be carried out by a button or potentiometer. It always depends on the customer requirements. For example: according to the pushing time the lighting fixtures automatically start-up or turn-off within the programmed time (e.g. 6s) or simply start-up or turn-off immediately.



What is the possible range in the illumination output of the fluorescent tube ?

The electronic unit allows for a **gradual and automatic increase or decrease in illumination** of the fluorescent tube within the **range of 15% to 100%**. In the manual mode it is possible to set the optional light output within that range.



illumination level curve

Only SEC Brings You Digital Solutions...

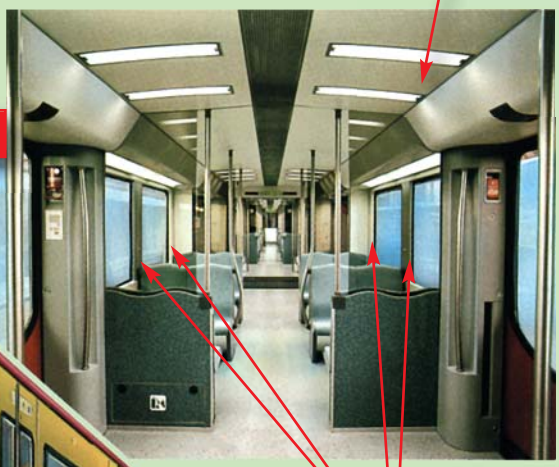
How does the LUXMATIC lighting system work ?

Using the **LUXMATIC lighting system** brings the highest level of **control and diagnostic comfort** for interior illumination of transportation vehicles. It is a variable system always created together with our customer.
The lighting system contains a central control panel (equipped with a touch screen) which is connected to all lighting fixtures in this lighting system by a communication channel. Each lighting fixture in the lighting system has its **own address for identification**. The communicating bus allows to set the light output (0%,15%-100%) individually for each lighting fixture in the lighting system depending on time and surrounding conditions (surrounding lighting level, opening the doors, emergency mode). It also enables the state to be checked and the diagnosis of errors in each lighting fixture. This lighting system solves the glare effect problem for the vehicle operator (by light output setting for each lighting fixture via the communication channel from the central control panel). It means that the right illumination level curve can be adjusted for elimination of glares together with a sufficient lighting level for the passengers.
It is possible to change this curve according to the operator requirements or according to the surrounding lighting conditions. **LUXMATIC enables adaptable lighting** and the possibility to set the illumination level for each section in the carriage by the passengers setting the illumination level.
LUXMATIC can solve the problem of emergency lighting mode. It reduces the light output of the whole lighting system according to the software.
Testing of the whole lighting system is ensured by central diagnostics.

A FEW QUESTIONS AND ANSWERS ABOUT SEC LIGHTING SYSTEMS...

How can we utilise the lighting systems in applications ?

Using the addressable **LUXMATIC** lighting system brings new lighting control possibilities for the interior of public transport vehicles.
Adaptable lighting according to the surrounding lighting conditions (4), the possibillity to set the individual illumination by passenger (3), reducing of illumination level in the case of the feeding from batteries (1), emergency illumination mode in the case of the feeding system failure persists (2), maintenance central diagnosis of the lighting system with the possibility to print the test report (6), controlling the lighting system by the central control panel (5).



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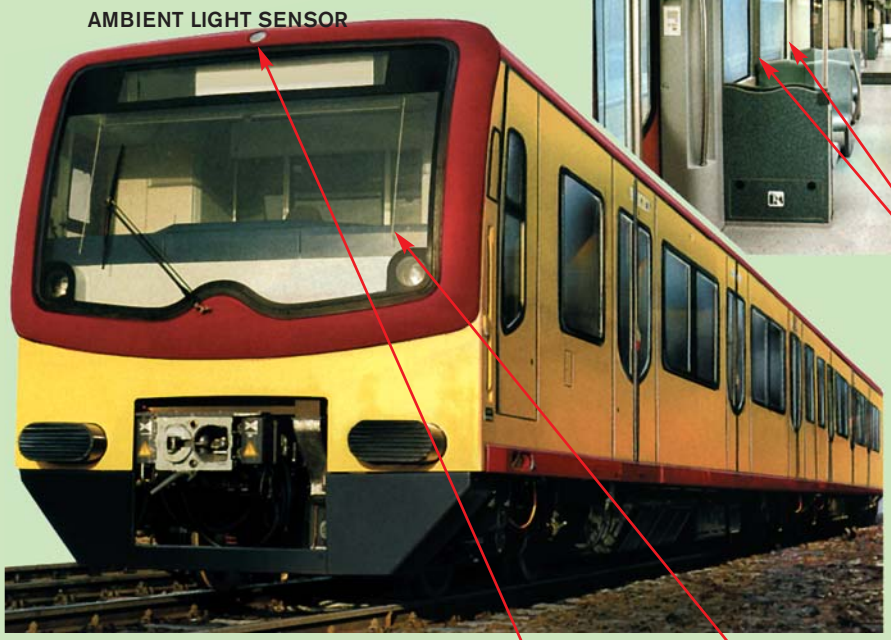
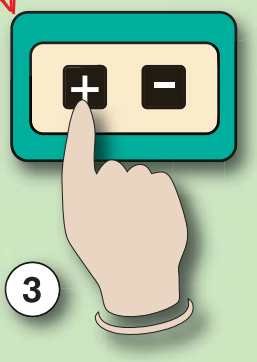
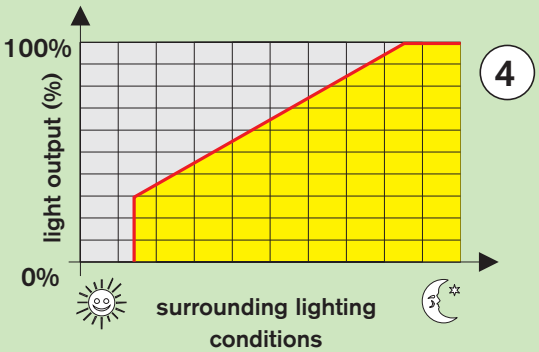
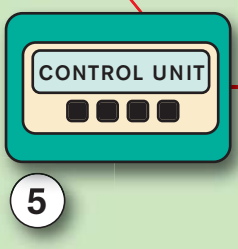


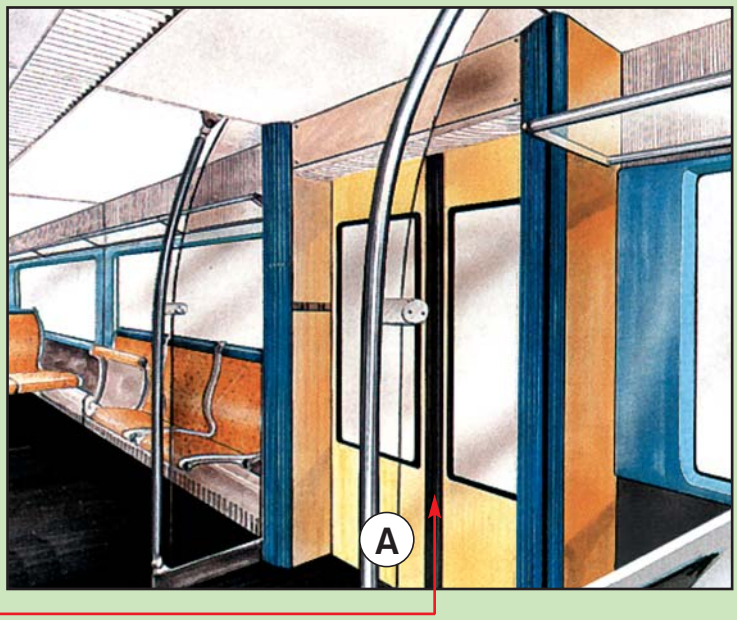


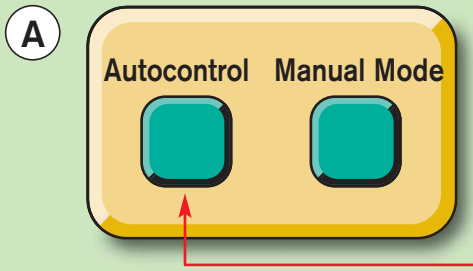


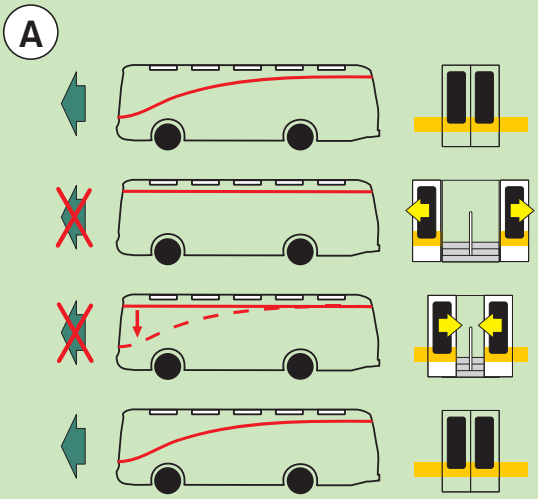


A FEW QUESTIONS AND ANSWERS ABOUT SEC LIGHTING SYSTEMS...

How can we utilise the lighting systems in applications ?







A - An autocontrol system of **LUXCOM (SETTING)** which depends on opening or closing the doors in public transport vehicles. When the doors are opening the light output goes immediately to 100% level . When the doors are closing the light output decreases gradually to the pre-set illumination level curve.

B - LUXMATIC lighting system ensures the adaptable regulation of illumination level which depends on surrounding lighting conditions.

C - The glare effect problem for the vehicle operator is eliminated by the change of illumination level.

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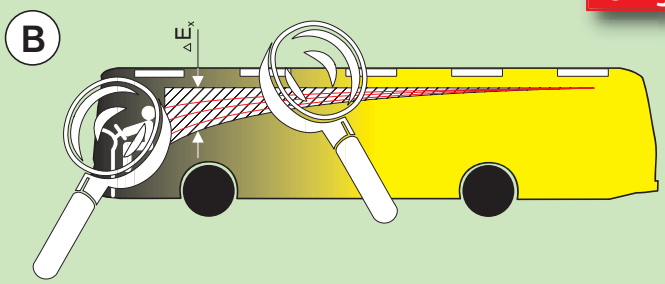
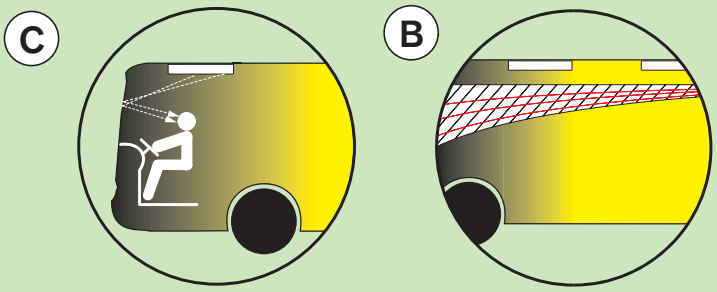
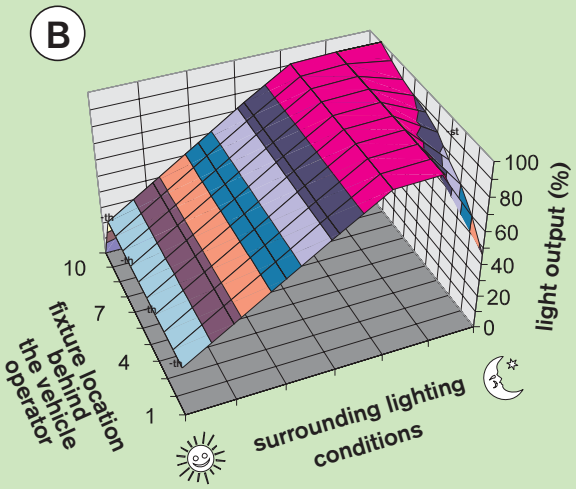


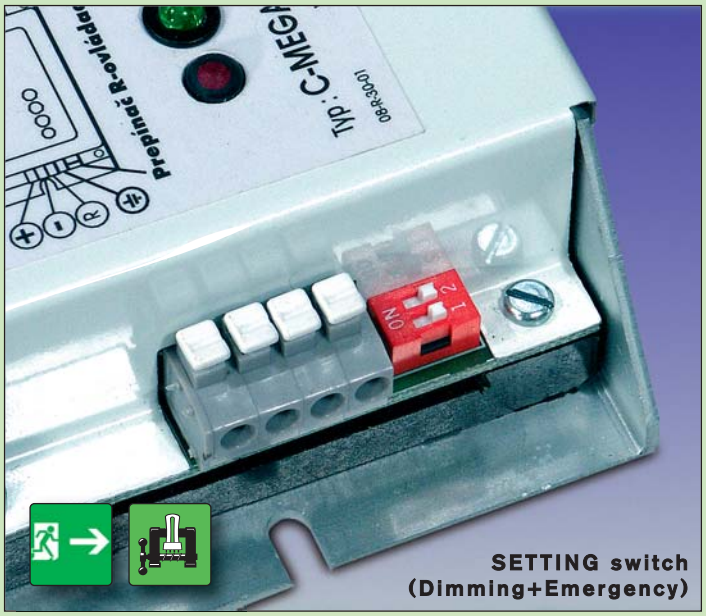


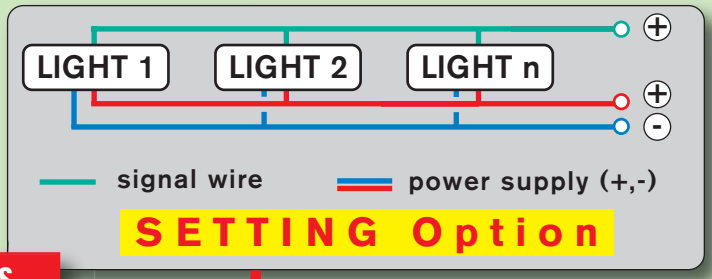


A FEW QUESTIONS AND ANSWERS ABOUT SEC LIGHTING SYSTEMS...

How can we simply arrange both emergency lighting and dimming function ?

There is an option **SETTING** available in our assortment.
It means an extra dip-switch placed on the electronic ballast body. During the first installation you **can preset a lighting level** chosen from 4 different levels (30%, 45%, 60% or 75%) **for both emergency and dimming functions** (for example for coupe 30%, for corridor 50%, for exit areas 75%). Then you only need to bring one more signal wire (the same voltage as the power supply voltage, for example DC 24V) to the terminal block. If there is some voltage on the wire, the lighting fixture works for 100%. If there is no voltage (0V) the lighting fixture dimms itself to the preset level (30%, 45%, 60% or 75%).
Thanks to this you can create a very simple, cost effective both dimming and emergency lighting solution.





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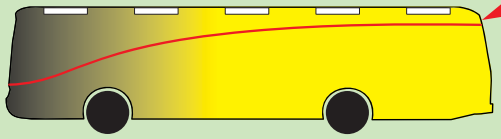
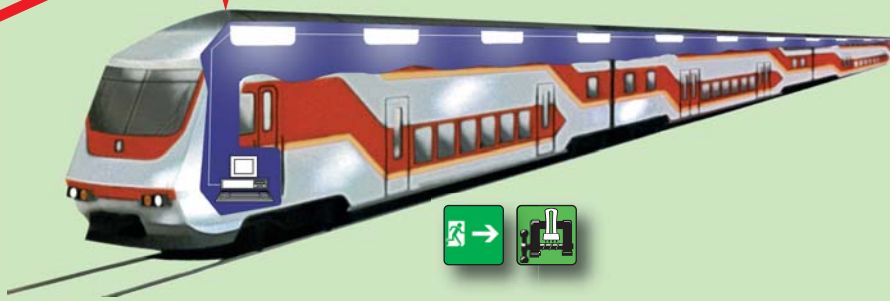
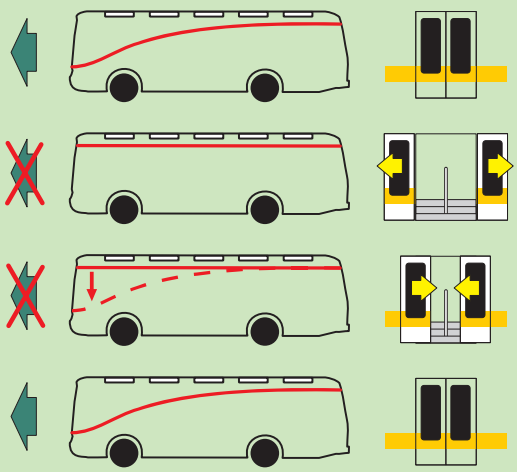
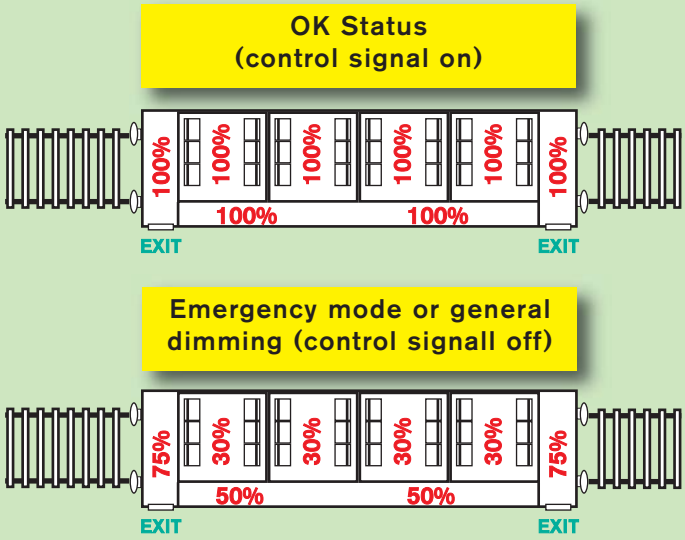




A Example of SETTING usage in a bus



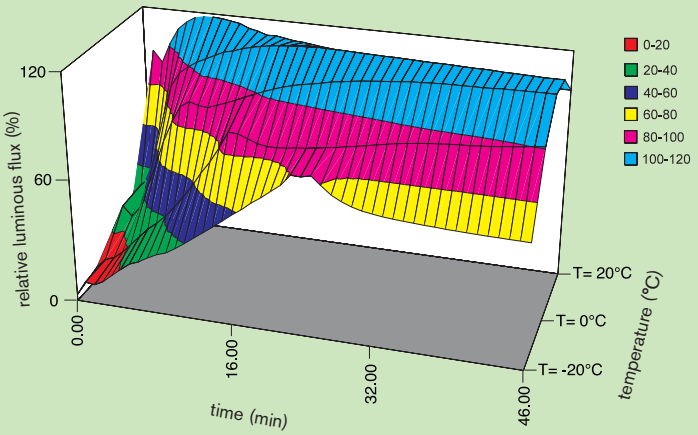
B Example of SETTING usage in a train car (Top View)



A FEW QUESTIONS AND ANSWERS ABOUT SEC LIGHTING SYSTEMS...

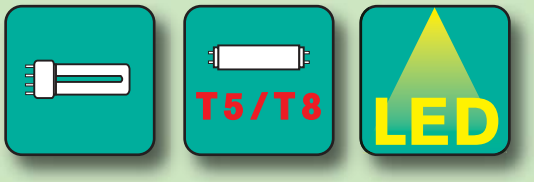
How is the luminous flux changed in response to surrounding temperatures ?

It is a physical feature of the fluorescent tube, that its luminous flux is strongly dependent upon both the surrounding temperature and the time between the measurement of luminous flux and the start-up of the tube. The speed of the luminous flux increase depends upon the temperature insulating properties of the lighting fixtures. The graph indicates that then the luminous flux increase depends on both the time and surrounding temperature. That is why it is necessary to be aware of decreases in the fluorescent tube's light efficiency according to falling temperatures and also the time for stabilization of the luminous flux is prolonged.



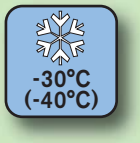
Only SEC Brings You Digital Solutions...

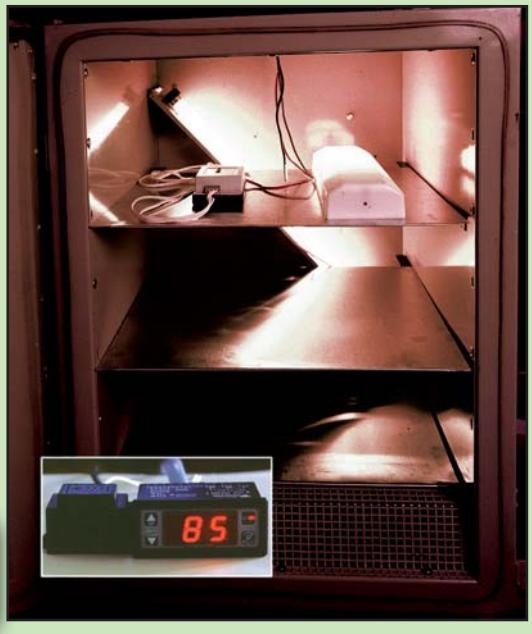
What kinds of light source is possible to power by SEC electronic units ?



Do the lighting fixtures and electronic ballasts also work reliably at extreme temperatures ?

The technical design by SEC ensures both reliable activity and igniting of the fluorescent tube from the temperature **-30°C up to +70°C (+85°C).**
At the temperatures lower than -30°C no failure of electronic units occurs. The electronic unit state is indicated by three LEDs.



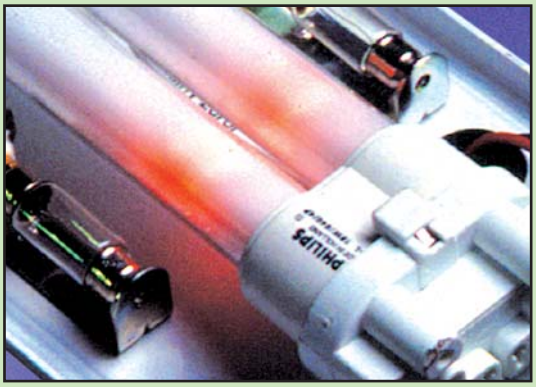


A FEW QUESTIONS AND ANSWERS ABOUT SEC LIGHTING SYSTEMS...

How is the resistance of the electronic unit against static and dynamic overvoltage ensured ?

The feeding circuits are designed to **absorb the pulse overvoltage**. In the case of a long-lasting overvoltage, the feedingcircuits' input contains an electronic isolator for power supply voltage.

How long is the life of the fluorescent tube with an increased number of ignitions accomplished ?



To **achieve a long life** of the fluorescent tube it is necessary to separate the initial glowing process of the electrodes from the start-up of the fluorescent tube. By utilization of **the microcomputer** it has been ensured that both the time and intensity of electrode glowing are optimal in the entire range of the feeding voltage. The number of ignition cycles in accordance to the type of fluorescent tube in the range of **min. 500.000 - 1 000.000** is accomplished through this design feature. The number of cycles does not depend strongly on the surrounding temperatures.

Only SEC Brings You Digital Solutions...

How is the resistance of the electronic unit against the interference ensured ?

According to the fact that lighting fixtures and electronic units work in transportation vehicles in conditions of high levels of interference, the design and control software against the interference has been emphasized. The **control software** includes logically oriented filters for **elimination of interference** when the input is read.
In cases where a discontinuity exits either in the level of voltage or if the electronic unit is in a state of ultra strong electromagnetic interference, then the electronic unit is protected against the loss of control software by a **watch-dog** which ensures its initialisation up to 300ms.

CUSTOMIZED PROJECT...

...based on customer requirements

CATIA-CADAM SOLUTIONS

MICROCHIP

What is a customer orientated lighting system?

Customer orientated lighting systems comply with both optimal illumination parameters and design requirements of our customers: public transport vehicles manufacturers.

The design of individual lighting systems is being created by **SEC** in connection with customer requirements and ideas. **SEC has its own research, development and production equipment** which offers the possibility to create lighting systems from an idea to delivery.

This our strength is supported by all:

- **3D CATIA-CADAM Software**
- **Our Own Lighting Laboratory**
- **Microcomputer Application Development Equipment**
- **High-Tech CNC Technolgy**
- **PE Powder Coating technology**
- **Highest Quality ISO 9001:2000**

In a word it is the versatile system for our customers.

We Understand The Light

SEC® Lighting

DIGITAL ELECTRONIC BALLASTS...

Both Railway + Bus/Caoach Interior Lighting Application

... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC Lighting

MEGA

12V DC | 24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 8-58 W | T8 T5

CENTRAL TEST | EN STANDARDS COMPLIANCE | AUTOTEST

DESCRIPTION — POPIS

- The MEGA electronic ballast „family“ is designed for fluorescent tube feeding (T5, T8 or even compact ones with the power up to 58W) in the range of voltage DC 12V, 24V, 48V, 72V or 110V (or customized). C-MEGA is designed for railway application, A-MEGA is designed for Bus+Coach application.
  At the design stage we paid a great deal of attention to extending the service life of fluorescent tubes. Thanks to the microcomputer controlling (only for C-MEGA versions), the fluorescent tube lifetime is at least 500.000 starts = savings of both service and maintenance costs.

Main characteristics:

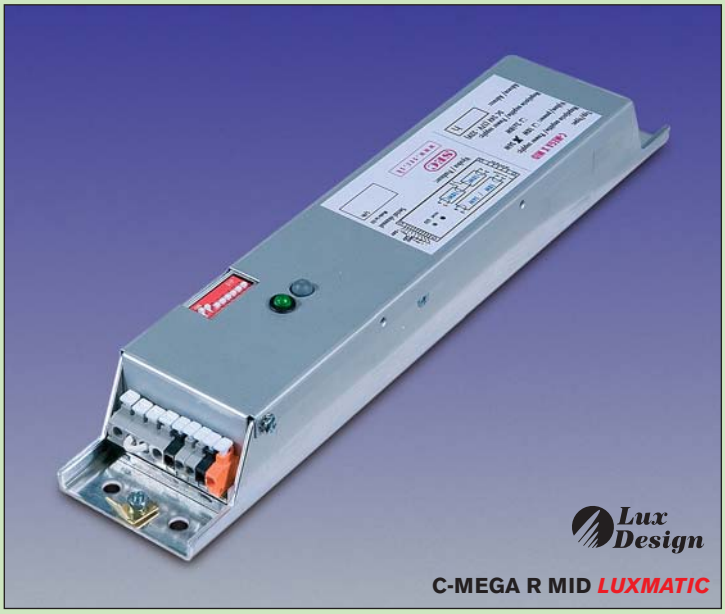
- controlled preheated start-up of fluorescent tube
- RESTART function in case of fluorescent tube start-up failure (50 times)
- light output stabilization in whole feeding voltage range
- Dimming function 15/30-100% (option)
- AUTOTEST continually tests main parameters of all the fluorescent tube, power circuits, input feeding voltage parameters. The result is displayed by three LEDs (monitor of status). If the measuring parameters are out of limits the electronic ballast stops in order to avoid its damage.
- fast electronic protection against both pulse and permanent overvoltage

DESIGN — DESIGN

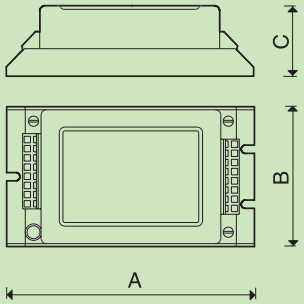
- metal/aluminum body

OPTIONS — PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)



C-MEGA R MID *LUXMATIC*



The MEGA can power all fluorescent tube types

Status Monitor (AUTOTEST version)

4 levels dimming control switch (SETTING option-page XXX)

RAILWAY APPLICATION — C-MEGA

W	Type	Standard	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions:
18	C-MEGA R 18W *	EN 50311	**DC 12V, 24V, 48V, 110V**	18-20W	OPTION	YES	-	135x75x37 mm
36	C-MEGA R 36W *	EN 50311	**DC 24V, 48V, 110V**	36-40W	OPTION	YES	-	135x75x37 mm
2x18	C-MEGA R 2x18W *	EN 50311	**DC 24V, 48V, 110V**	2x18W	OPTION	YES	-	135x75x37 mm
18	C-MEGA R MID 18W	EN 50311	**DC 24V, 36V, 48V, 72, 110V**	18-20W	OPTION	YES	OPTION	260x50x35 mm
36	C-MEGA R MID 36W	EN 50311	**DC 24V, 36V, 48V, 72, 110V**	36W	OPTION	YES	OPTION	260x50x35 mm
2x18	C-MEGA R MID 2x18W	EN 50311	**DC 24V, 36V, 48V, 72, 110V**	2x18W	OPTION	YES	OPTION	260x50x35 mm
14	C-MEGA R MID 14W T5	EN 50311	**DC 24V, 36V, 48V, 72, 110V**	14W T5	OPTION	YES	OPTION	260x50x35 mm
28	C-MEGA R MID 28W T5	EN 50311	**DC 24V, 36V, 48V, 72, 110V**	28W T5	OPTION	YES	OPTION	260x50x35 mm
35	C-MEGA R MID 35W T5	EN 50311	**DC 24V, 36V, 48V, 72, 110V**	35W T5	OPTION	YES	OPTION	260x50x35 mm
18	C-MEGA R GLOBAL 18W	UIC 555	**DC 24V, 48V, 110V**	18W	OPTION	YES	-	284x54x55 mm
2x18	C-MEGA R Global 2x18W	UIC 555	**DC 24V, 48V, 110V**	2x18W	OPTION	YES	-	284x54x55 mm
36	C-MEGA R GLOBAL 36W	UIC 555	**DC 24V, 48V, 110V**	36W	OPTION	YES	-	284x54x55 mm
18	C-MEGA SLIM 18W *	EN 50311	**DC 24V, 48V, 110V**	18W	OPTION	YES	-	201x43x30 mm
36	C-MEGA SLIM 36W *	EN 50311	**DC 24V, 48V, 110V**	36W	OPTION	YES	-	201x43x30 mm

* It complies with EN 50311 except from customized size/shape

BUS+COACH APPLICATION — A-MEGA

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions:
8-11	A-MEGA MINI 8-11W	**AC/DC 24V**	8-11W	-	-	-	150x41x26 mm
18-24	A-MEGA MINI 18-24W	**DC 24V**	18-24W	-	-	-	150x41x26 mm
36	A-MEGA BASE 36W	**DC 24V**	36W	2 Levels	-	-	192x36x24 mm

C-MEGA R MID / C-MEGA R GLOBAL

AVAILABLE MODELS	POWER SUPPLY
C-MEGA R MID 18W	24V, 48V, 72V, 110V
C-MEGA R MID 2x18W	24V, 48V, 72V, 110V
C-MEGA R MID 36W	24V, 48V, 72V, 110V
C-MEGA R MID 15W	24V, 48V, 72V, 110V
C-MEGA R MID 2x15W	24V, 48V, 72V, 110V
C-MEGA R MID 14W T5	24V, 48V, 72V, 110V
C-MEGA R MID 28W T5	24V, 48V, 72V, 110V
C-MEGA R MID 35W T5	24V, 48V, 72V, 110V
C-MEGA R GLOBAL 18W	24V, 48V, 72V, 110V
C-MEGA R GLOBAL 2x18W	24V, 48V, 72V, 110V
C-MEGA R GLOBAL 36W	24V, 48V, 72V, 110V

SIZE: 260 x 50 x 35 mm (C-MEGA R MID version)
SIZE: 284 x 54 x 55 mm (C-MEGA R Global version)

OPTIONS:
- Dimming option (see pages No.17-18)
- Central diagnostic bus connection (see pages No.11+18+19)
- Another power supply / power version through the arrangement

C-MEGA LONG

AVAILABLE MODELS	POWER SUPPLY
C-MEGA R LONG 18W	24V, 48V, 72V, 110V
C-MEGA R LONG 36W	24V, 48V, 72V, 110V

SIZE: 281 x 54 x 55 mm

OPTIONS:
- Another power supply / power version through the arrangement

C-MEGA SLIM

MODELS (RAILWAY APPLICATIONS)	POWER SUPPLY
C-MEGA SLIM 7-11W	24V, 110V
C-MEGA SLIM 14W T5	24V, 110V
C-MEGA SLIM 18W	24V, 110V
C-MEGA SLIM 30W	24V, 110V
C-MEGA SLIM 36W	24V, 110V

MODELS (BUS+COACH APPLICATIONS)	POWER SUPPLY
A-MEGA SLIM 18W	24V, 110V

SIZE: 201 x 43 x 30 mm

OPTIONS:
- Dimming option (see pages No.17-18)
- Another power supply / power version through the arrangement

AVAILABLE MODELS	POWER SUPPLY
C-MEGA R 18W	12, 24V, 48, 110V
C-MEGA R 2x18W/24 V DC	24V, 48, 110V
C-MEGA R 36W/24 V DC	24V, 48, 110V

SIZE: 135 x 75 x 37 mm

OPTIONS:
- Dimming option
- Customized both power supply and power

C-MEGA R

MODELS (BUS+COACH APPLICATIONS)	POWER SUPPLY
A-MEGA BASE 8W	24V
A-MEGA BASE 15W	24V
A-MEGA BASE 36W	24V

SIZE: 192 x 35 x 25 mm

OPTIONS:
- Dimming option 30/100%
- Customized both power supply and power

A-MEGA BASE

MODELS (BUS+COACH APPLICATIONS)	POWER SUPPLY
A-MEGA MINI 7-11W/12V DC	12V, 24V, 110V
A-MEGA MINI 18-24W/24V DC	24V
A-MEGA MINI 13W/24V DC	12V, 24V

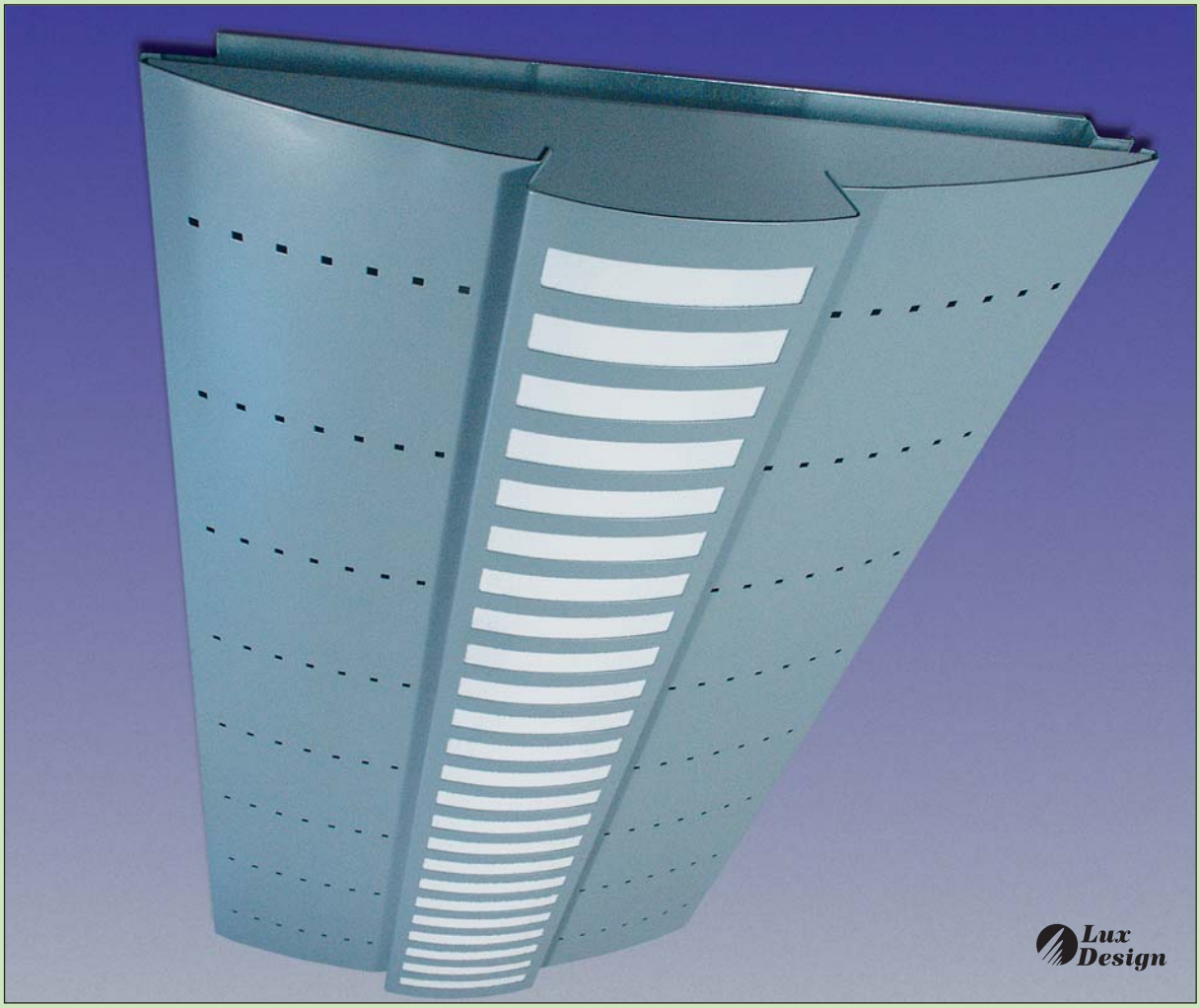
SIZE: 151 x 41 x 27 mm

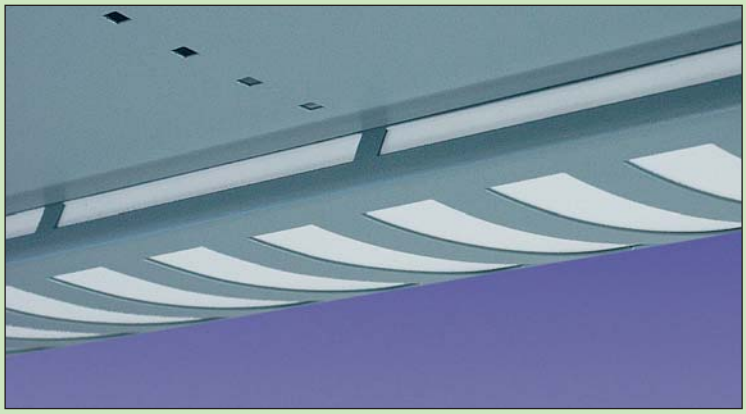
OPTIONS:
- Dimming option
- Customized both power supply and power

A-MEGA MINI

CONTINUOUS LIGHTING SYSTEM...

Railway Interior Lighting Application





... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

X-138Z

CONTINUOUS LIGHTING SYSTEM...

Railway Interior Lighting Application

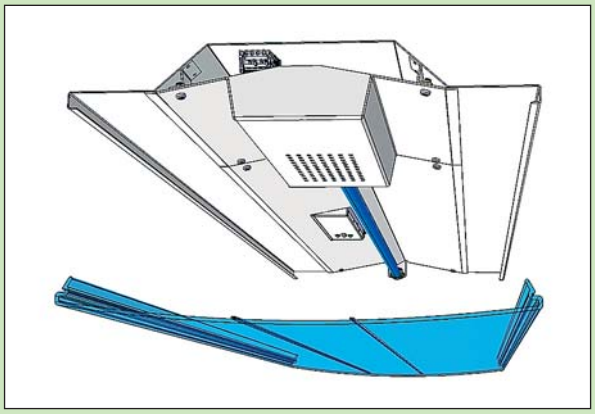
... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

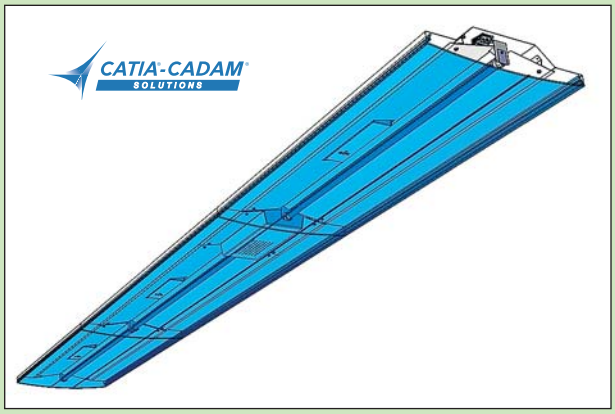
SEC® Lighting

X-129Z

CONTINUOUS LIGHTING SYSTEM...

Railway Interior Lighting Application





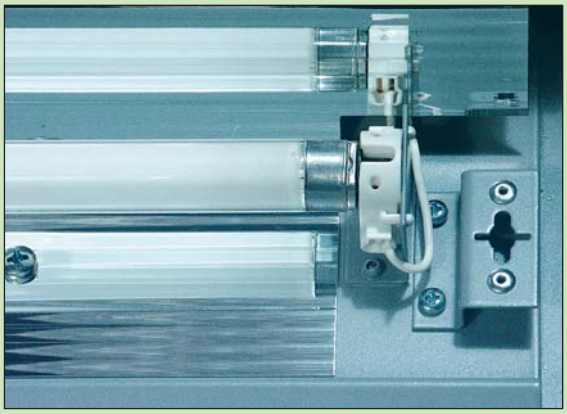
... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

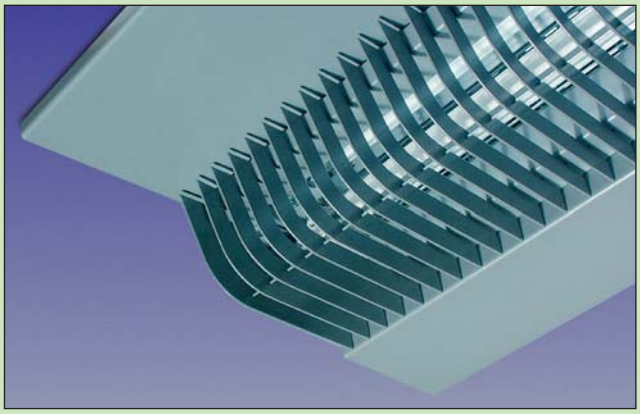
SEC® Lighting

COMBILUX+

CONTINUOUS CORNER LIGHTING SYSTEM...

Railway Interior Lighting Application





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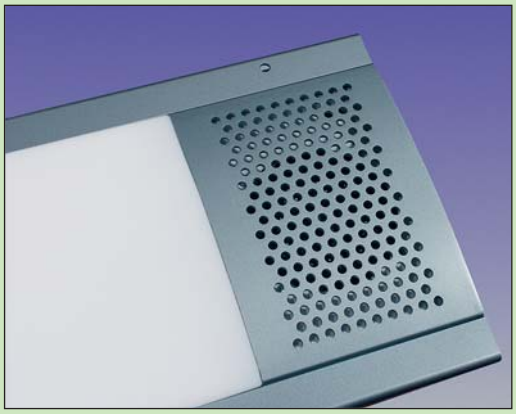
SEC® Lighting

X-116Z

CONTINUOUS LIGHTING SYSTEM...

Railway Interior Lighting Application

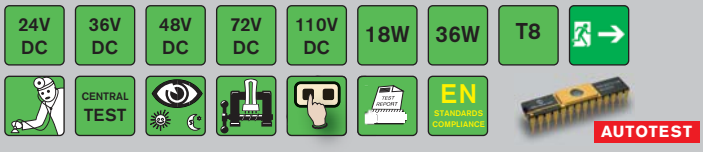


... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

VALUX (VAL208)

VALUX (VAL208)

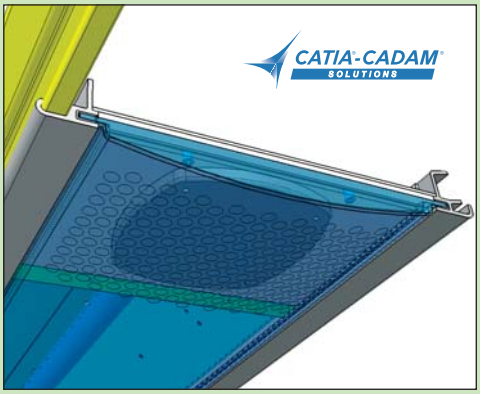


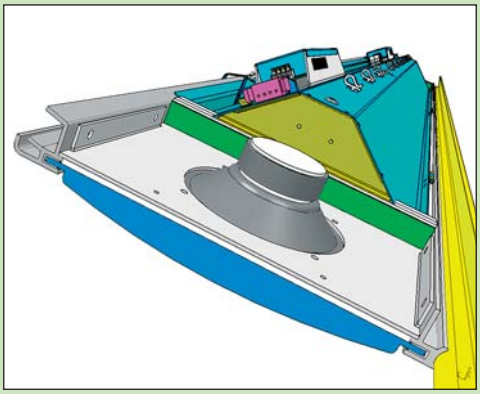
DESCRIPTION / POPIS

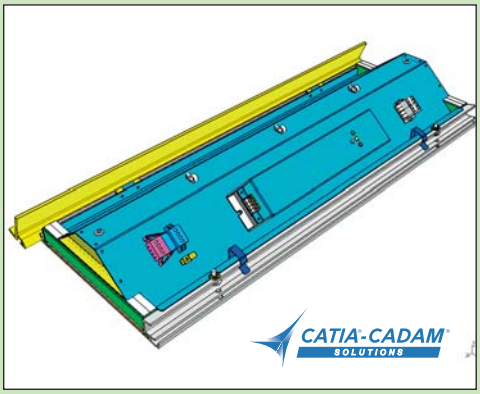
- VALUX is a customized lighting system designed for **SIEMENS (VAL208)**.
  It is a modular lighting system designed for direct illumination of the interior of public transport vehicles. It provides soft and comfortable light. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle. The system contains also speakers and blind pieces.
- Electronic ballast meets the latest requirements of UIC 555.1-VE (EN 50311) and EMC.
- For more details see page „electronic ballasts - MEGA“.

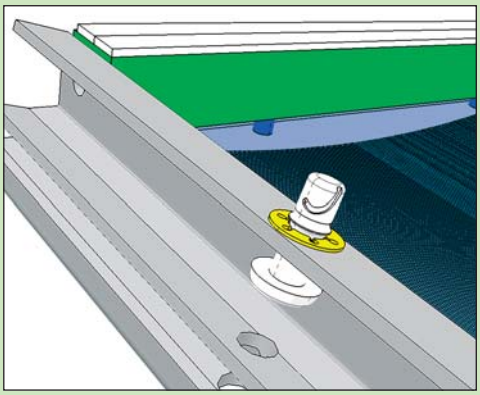
DESIGN / DESIGN

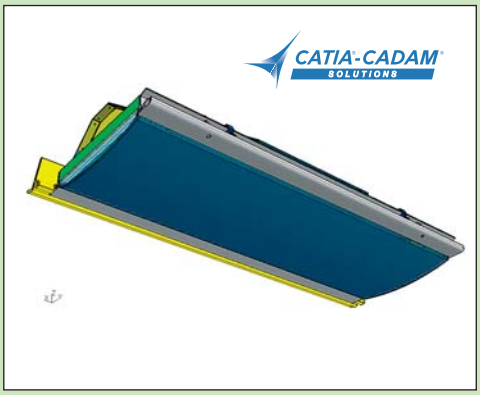
- extruded aluminium profiles
- metal body finished in white polyester powder coat
- diffuser is made of PC (complying NF-F 16-101 or DIN5510)











RAILWAY APPLICATION — VALUX

Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
VALUX-RP 18W	**DC 24V, 48V, 72V, 110V**	18-W	OPTION	YES	OPTION	650 x 267 x 90 mm
VALUX-RP 36W	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1265 x 267 x 90 mm
VALUX-RP 18+36W	**DC 24V, 48V, 72V, 110V**	18+36W	OPTION	YES	OPTION	2219 x 267 x 90 mm
BLIND PIECE VALUX 92mm	-	-	OPTION	YES	OPTION	92 x 267 x 90 mm
BLIND PIECE VALUX 105mm	-	-	OPTION	YES	OPTION	105 x 267 x 90 mm

CONTINUOUS LIGHTING SYSTEM...

Railway Interior Lighting Application

... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

ASTRALUX

12V DC | 24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 8-58 W | T8 T5

CENTRAL TEST | EN STANDARDS COMPLIANCE | AUTOTEST

DESCRIPTION / POPIS

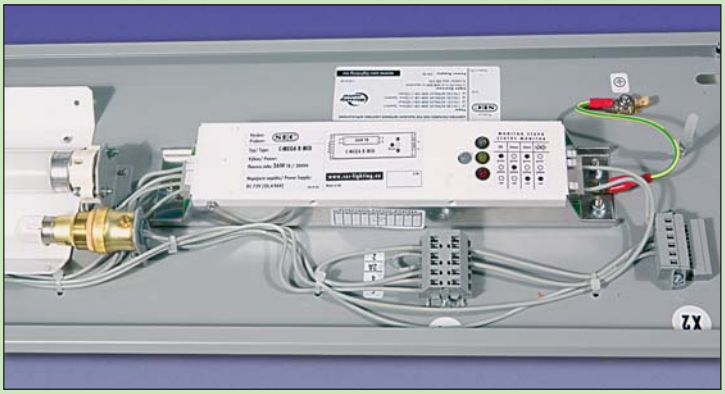
- ASTRALUX is a modular lighting system designed for direct illumination of the interior of public transport vehicles. It provides soft and comfortable light. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle. The system contains also speakers and blind pieces.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

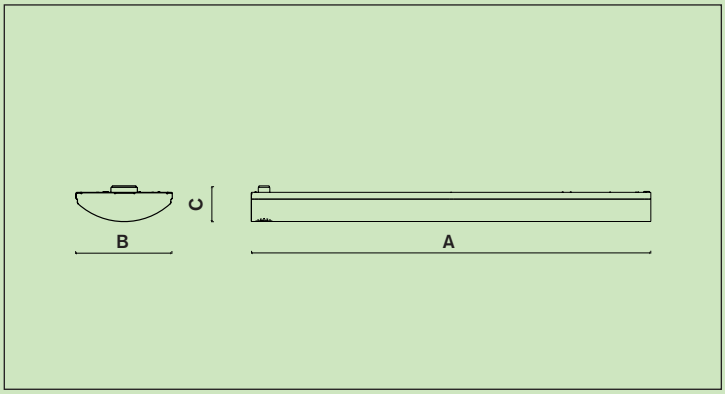
DESIGN / DESIGN

- metal body finished in grey RAL9006 polyester powder coat
- diffuser is made of PC (complying DIN5510)

OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)





RAILWAY APPLICATION — ASTRALUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
36	ASTRALUX 36+5W	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1903x200x61mm
36	ASTRALUX 36+5W	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1735x200x61mm
36	ASTRALUX 36+5W + SPEAKER	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1903x200x61mm
36	ASTRALUX 36+5W + SPEAKER	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1735x200x61mm

CONTINUOUS LIGHTING SYSTEM...

Railway Interior Lighting Application

... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

VEKTOR/GLOBAL

MICROCHIP CONTROL

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 18W | 36W | T8

CENTRAL TEST | EN STANDARDS COMPLIANCE | AUTOTEST

DESCRIPTION / POPIS

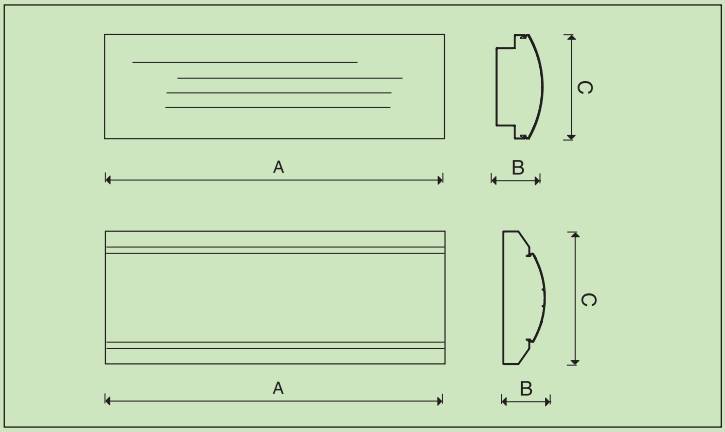
- The semi-recessed GLOBAL and VEKTOR modular lighting systems are designed for direct illumination of the interior of public transport vehicles. It provides a soft and comfortable light. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle. The system contains also speakers and main wire bundle channel inlcuding the holders.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

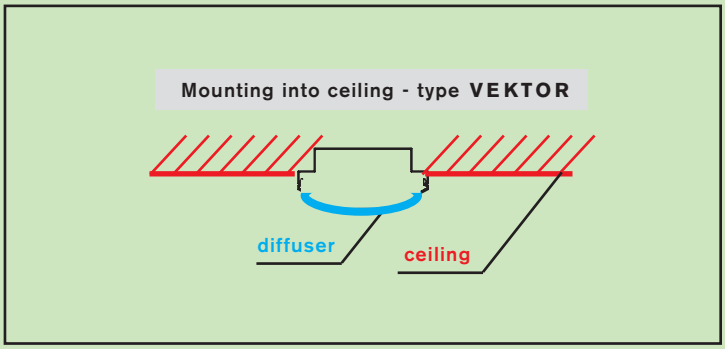
DESIGN / DESIGN

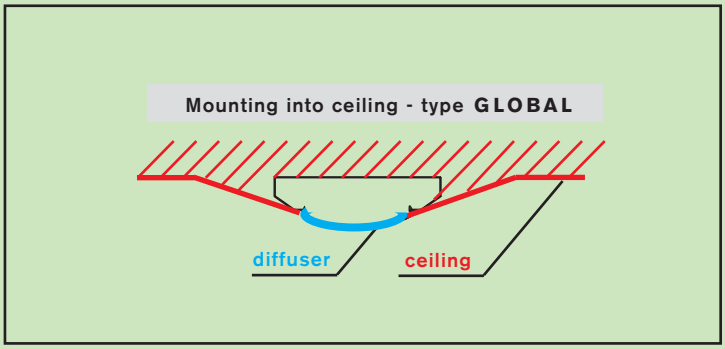
- metal body finished in white polyester powder coat
- diffuser is made of PC (complying DIN5510)

OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available





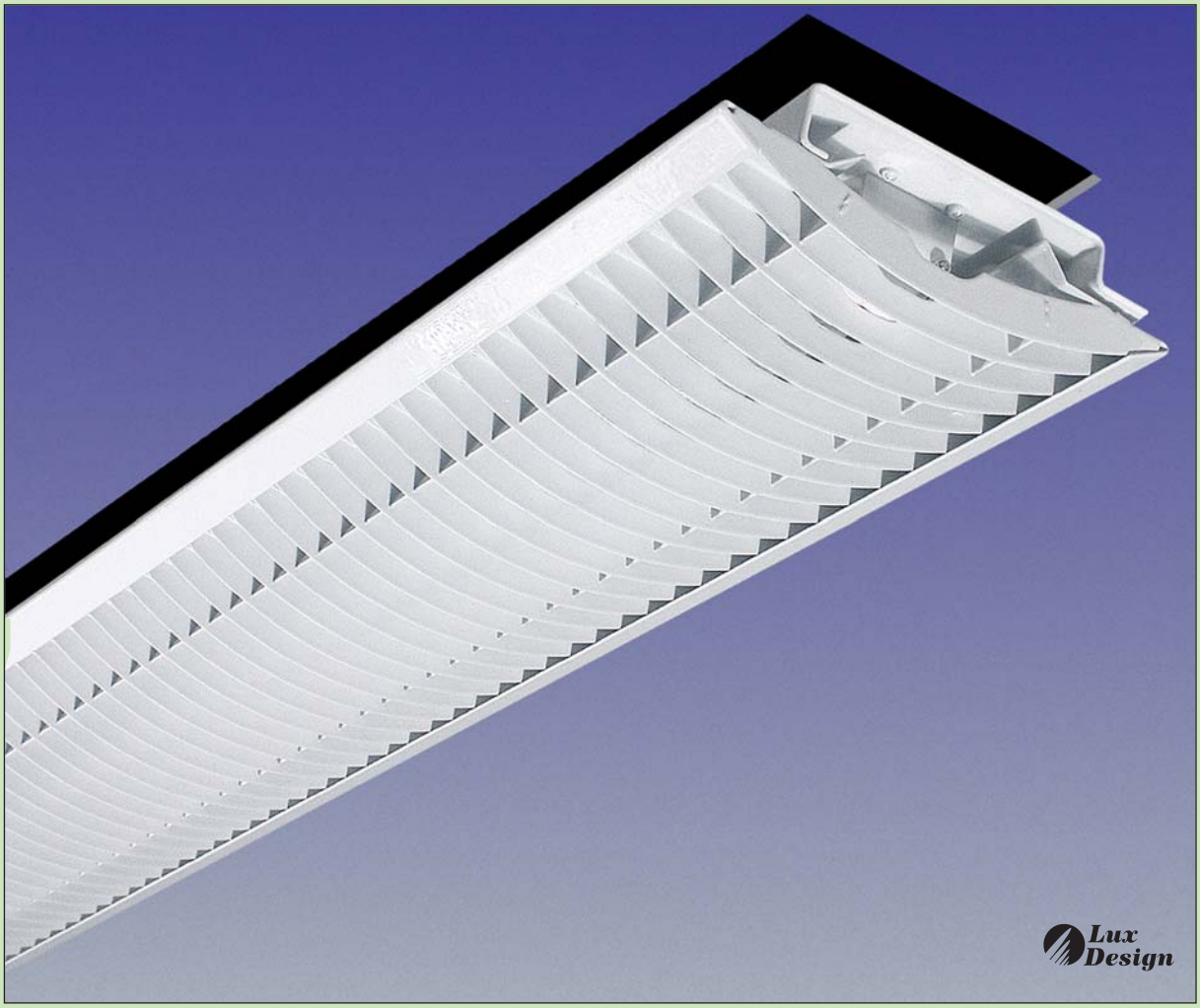


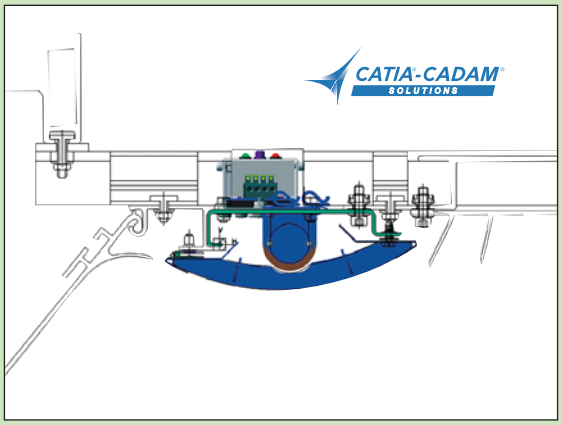
RAILWAY APPLICATION — GLOBAL / VEKTOR

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
18	VEKTOR 18W	**DC 24V, 48V, 72V, 110V**	18W	OPTION	YES	OPTION	651x90x200 mm
36	VEKTOR 36W	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1243x90x200 mm
-	VEKTOR SPEAKER MODULE	**DC 24V, 48V, 72V, 110V**	10W	-	-	-	188/400x90x200 mm
2x36	GLOBAL 2x36W + SPEAKER	**DC 24V, 48V, 72V, 110V**	2x36W	OPTION	YES	OPTION	1777x95x300 mm
4x36	GLOBAL 4x36W + SPEAKER	**DC 24V, 48V, 72V, 110V**	4x36W	OPTION	YES	OPTION	2943x95x300 mm
4x36	GLOBAL 4x36W + SPEAKER	**DC 24V, 48V, 72V, 110V**	4x36W	OPTION	YES	OPTION	3150x95x300 mm

CONTINUOUS LIGHTING SYSTEM...

Railway Interior Lighting Application

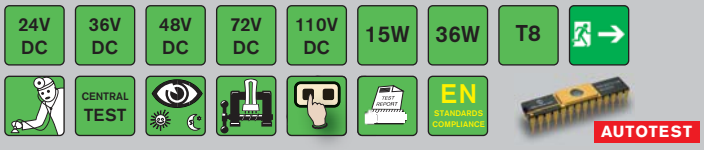




... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

BARCELUX

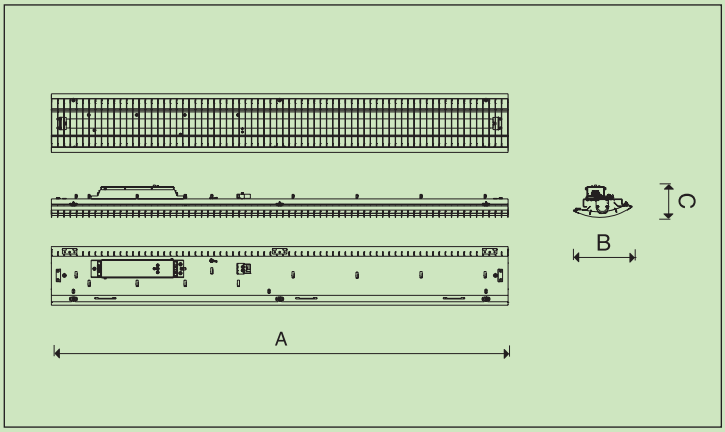


DESCRIPTION / POPIS

- The semi-recessed BARCELUX modular lighting system is designed for direct illumination of the interior of public transport vehicles (originally for metro application for ALSTOM train cars).
  It provides a soft and comfortable light. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle.
  The system can contain also speakers.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA“.

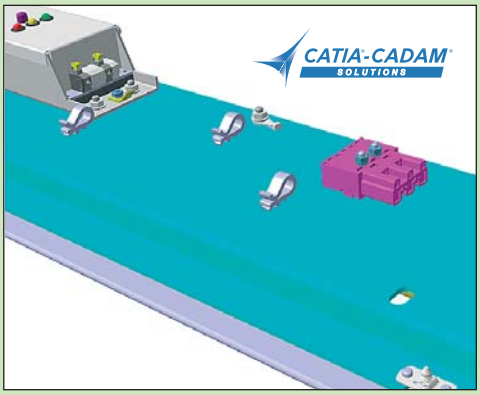
DESIGN / DESIGN

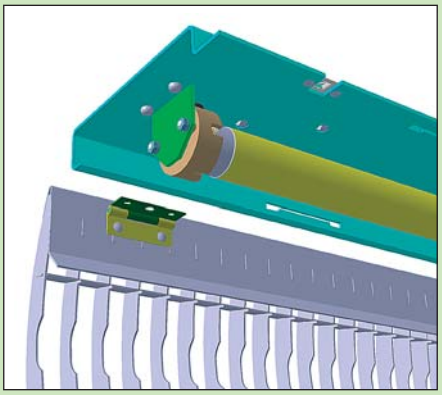
- aluminium body finished in white anti-grafity polyester powder coat



OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available



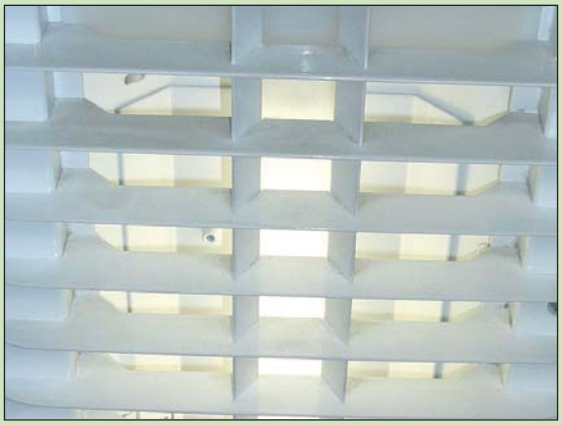


RAILWAY APPLICATION — BARCELUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
36	BARCELUX 36W	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1284x165x110 mm
15	BARCELUX 15W	**DC 24V, 48V, 72V, 110V**	15W	OPTION	YES	OPTION	620x165x110 mm
2x15	BARCELUX 2x15W	**DC 24V, 48V, 72V, 110V**	2x15W	OPTION	YES	OPTION	1015x165x110 mm

CONTINUOUS LIGHTING SYSTEM...

Railway Interior Lighting Application



... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

WIELUX

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 36W | T8

CENTRAL TEST | EN STANDARDS COMPLIANCE | AUTOTEST

DESCRIPTION / POPIS

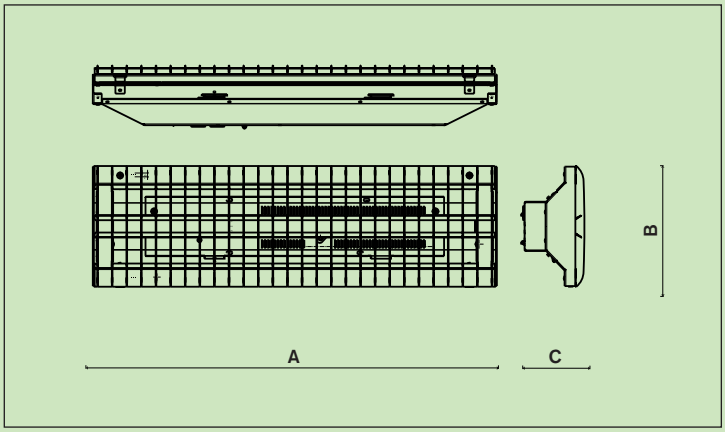
- The semi-recessed WIELUX modular lighting system is designed for direct illumination of the interior of public transport vehicles (originally for metro application for BOMBARDIER train cars).
  It provides a soft and comfortable light. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle.
  The system can contain also speakers.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

DESIGN / DESIGN

- aluminium body finished in white polyester powder coat RAL9003

OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available

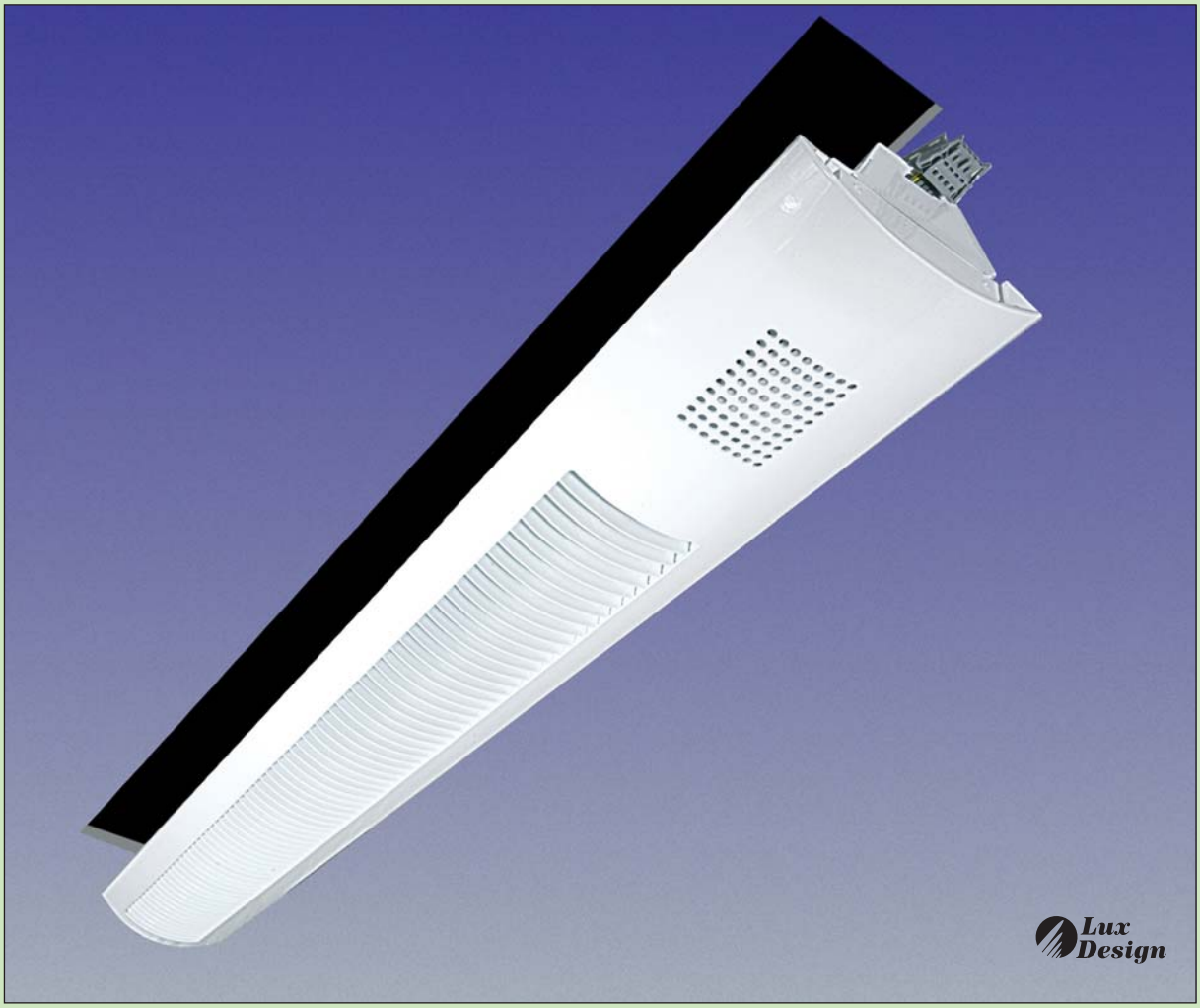


RAILWAY APPLICATION — WIELUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
36	WIELUX 36W	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1226x190x94 mm
18	WIELUX 18W	**DC 24V, 48V, 72V, 110V**	18W	OPTION	YES	OPTION	363x190x94 mm
-	BLIND PIECE 287mm	-	-	-	-	-	287x190x94 mm
	BLIND PIECE 417mm	-	-	-	-	-	417x190x94 mm

CONTINUOUS LIGHTING SYSTEM...

Railway Interior Lighting Application



... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

FRANKLUX

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 36W | T8

CENTRAL TEST | EN STANDARDS COMPLIANCE | AUTOTEST

DESCRIPTION / POPIS

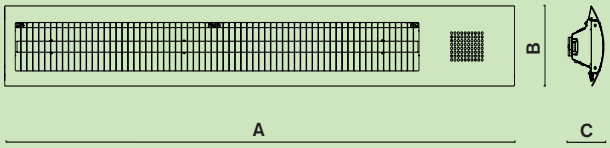
- The semi-recessed FRANKLUX modular lighting system is designed for direct illumination of the interior of public transport vehicles (originally for metro application for BOMBARDIER train cars).
  It provides a soft and comfortable light. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle.
  The system can contain also speakers.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

DESIGN / DESIGN

- extruded aluminium profile body finished in white polyester powder coat

OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available



RAILWAY APPLICATION — FRANKLUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
36	FRANKLUX 36W	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1250x189x94 mm
36	FRANKLUX 36W	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1500x189x94 mm
36	FRANKLUX 36W + SPEAKER	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1500x189x94 mm

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 36W | T8

CENTRAL TEST | EN STANDARDS COMPLIANCE

DESCRIPTION / POPIS

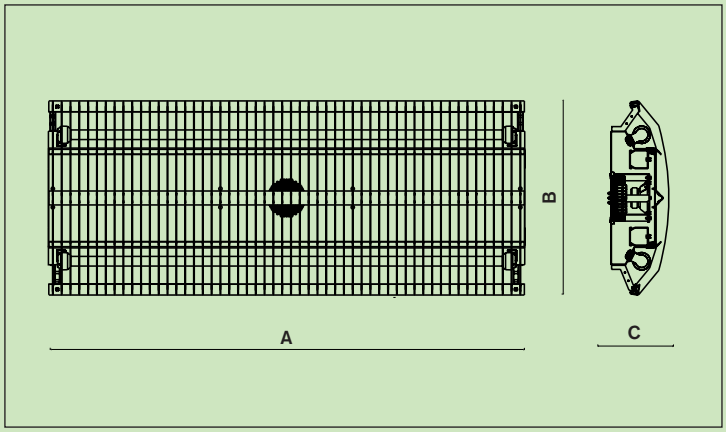
- The semi-recessed BT IC3 modular lighting system is designed for direct illumination of the interior of public transport vehicles (originally for BOMBARDIER 1-st class train cars).
  It provides a soft and comfortable light. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle.
  The system can contain also speakers.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

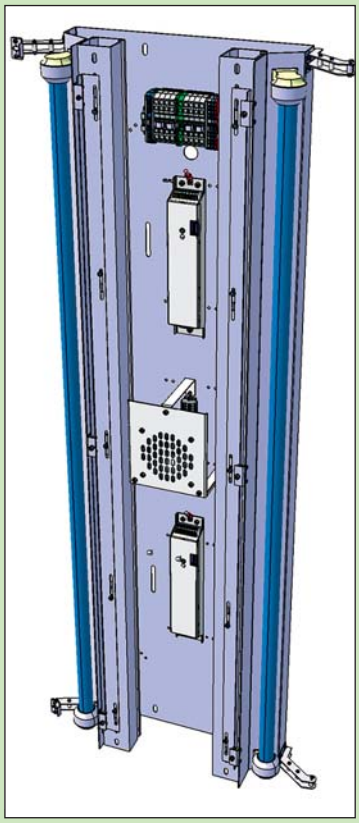
DESIGN / DESIGN

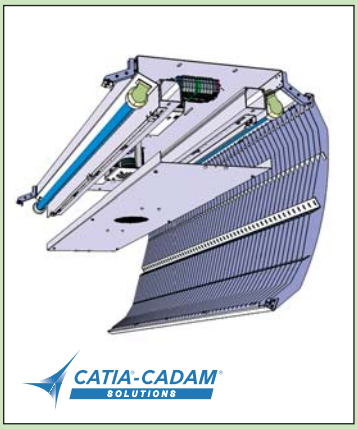
- aluminium body finished in white polyester powder coat

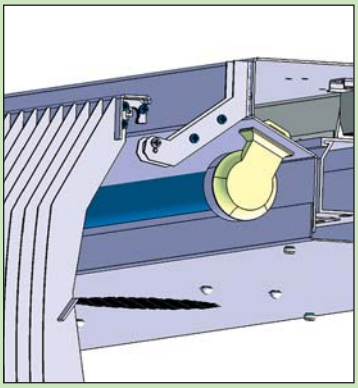
OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available









RAILWAY APPLICATION — BT IC3

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
2x36	BT IC3 2x36W + SPEAKER	**DC 24V, 48V, 72V, 110V**	2x36W	OPTION	YES	YES	1282x523x155 mm
2x36	BT IC3 2x36W + THERMO SENSOR	**DC 24V, 48V, 72V, 110V**	2x36W	OPTION	YES	YES	1282x523x155 mm
2x36	BT IC3 2x36W	**DC 24V, 48V, 72V, 110V**	2x36W	OPTION	YES	YES	1282x523x155 mm

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 36W | T8

CENTRAL TEST | EN STANDARDS COMPLIANCE | AUTOTEST

DESCRIPTION / POPIS

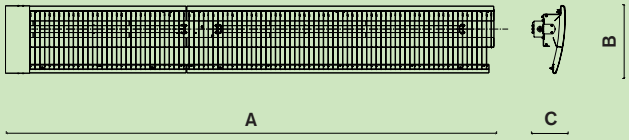
- The semi-recessed FINLUX modular lighting system is designed for direct illumination of the interior of public transport vehicles (originally for metro application for ŠKODA-TRANSPORTATION train cars).
  It provides a soft and comfortable light. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle.
  The system can contain also speakers.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

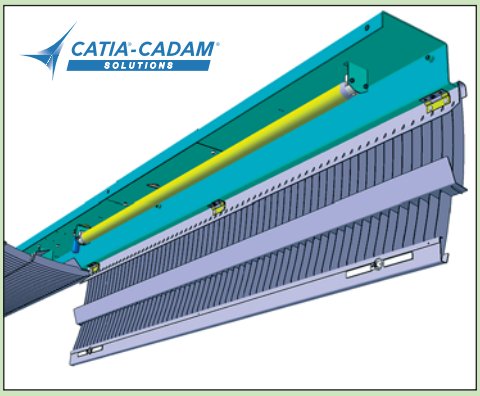
DESIGN / DESIGN

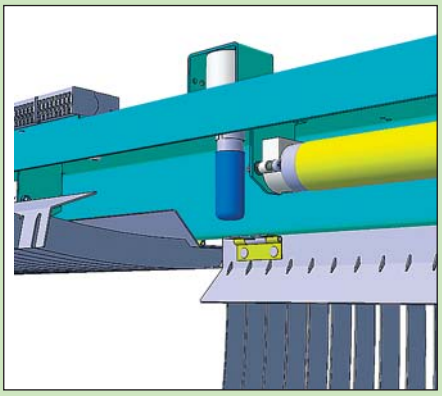
- aluminium body finished in white polyester powder coat

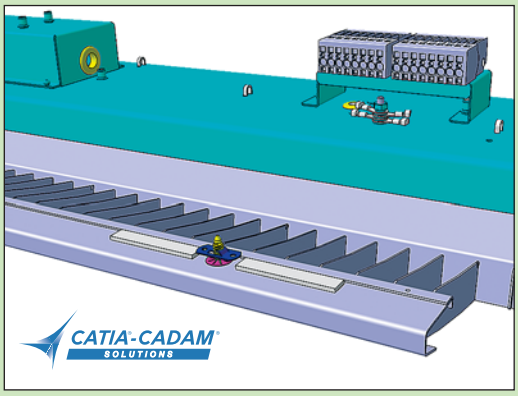
OPTIONS / PRÍPLATKY

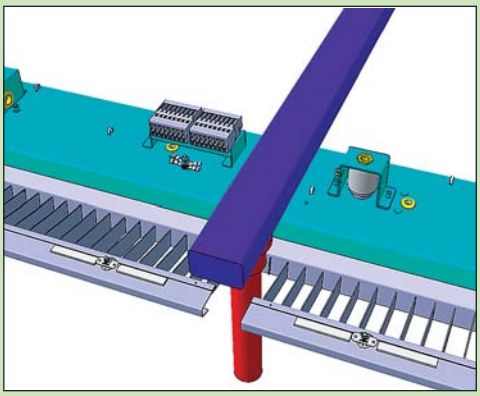
- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available

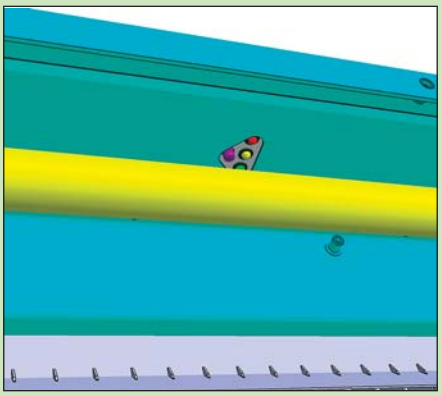






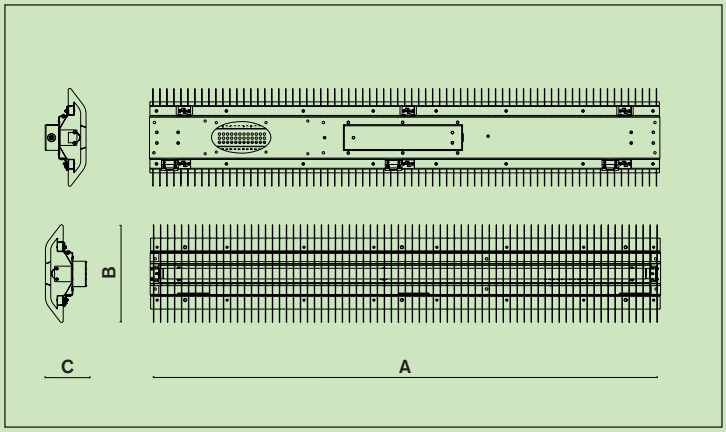






RAILWAY APPLICATION FINLUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC:
2x30	FINLUX 2x30W + 15W	**DC 24V, 48V, 72V, 110V**	2x30+15W	OPTION	YES	OPTION	2304x250x123 mm
30,18	FINLUX 30W + 18W	**DC 24V, 48V, 72V, 110V**	30+18W	OPTION	YES	OPTION	1830x250x123 mm
18	FINLUX 18W	**DC 24V, 48V, 72V, 110V**	18W	OPTION	YES	OPTION	803x250x123 mm



DESCRIPTION / POPIS

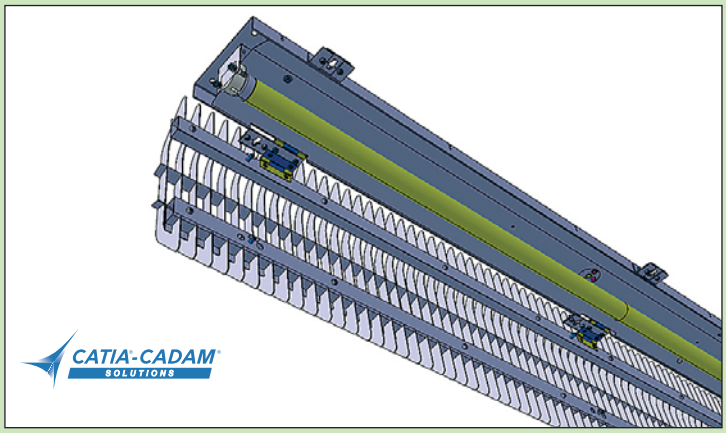
- The semi-recessed DORTMUNDT modular lighting system is designed for direct illumination of the interior of public transport vehicles
  It provides a soft and comfortable light. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle.
  The system can contain also speakers.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA“.

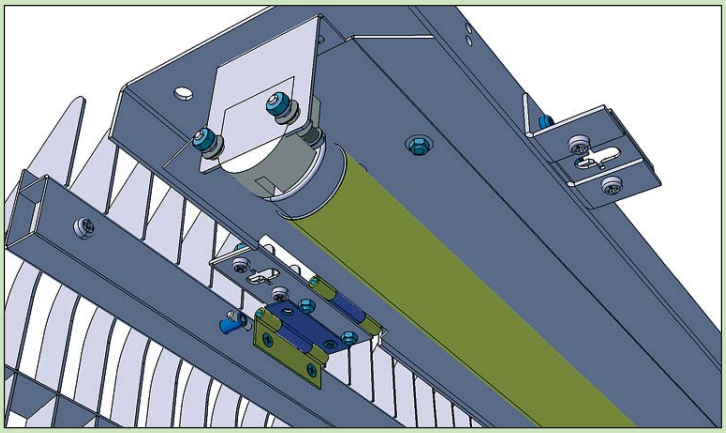
DESIGN / DESIGN

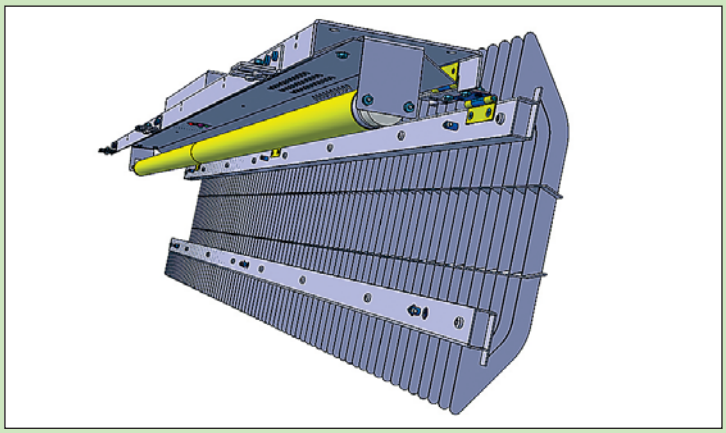
- aluminium body finished in white polyester powder coat

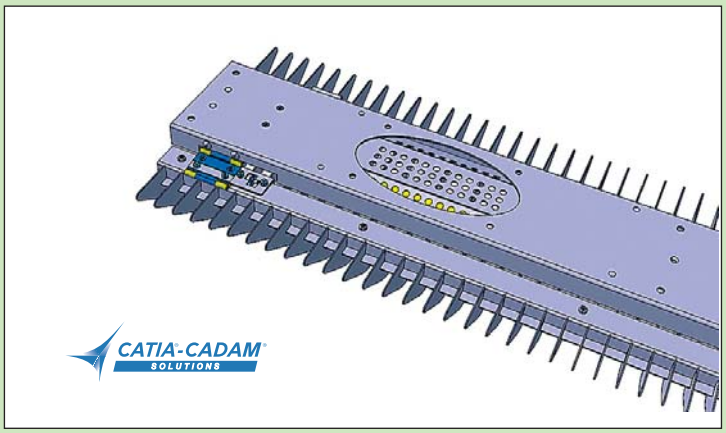
OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available









RAILWAY APPLICATION — DORTMUNDT

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
36	DORTMUNDT 36W	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1240x236x95 mm

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 36W | T8

CENTRAL TEST | EN STANDARDS COMPLIANCE | AUTOTEST

DESCRIPTION / POPIS

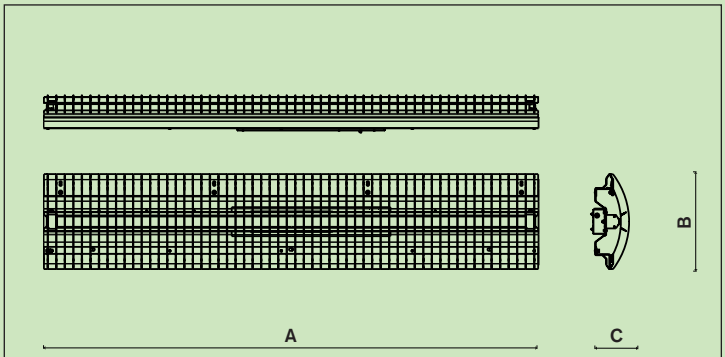
- The COMBILUX modular lighting system is designed for direct illumination of the interior of railway applications.
  It provides a soft and comfortable light. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle.
  The system can contain also speakers.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

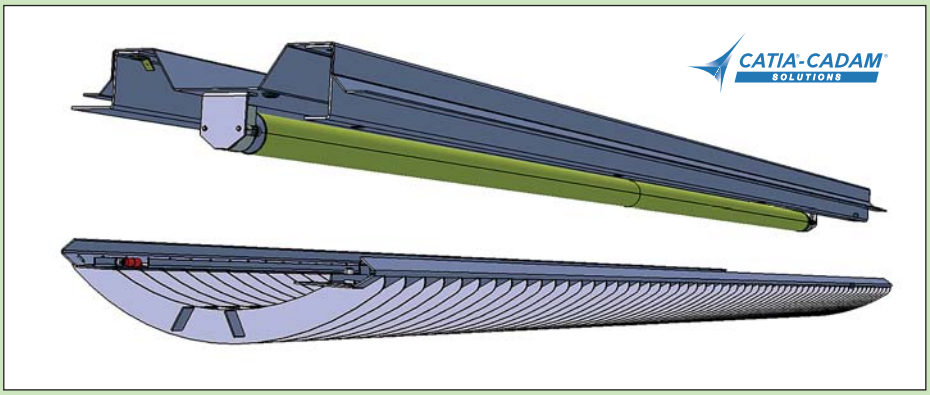
DESIGN / DESIGN

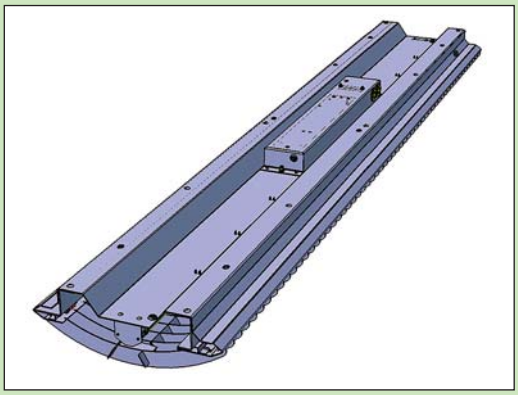
- aluminium body finished in white PE powder coat RAL9003

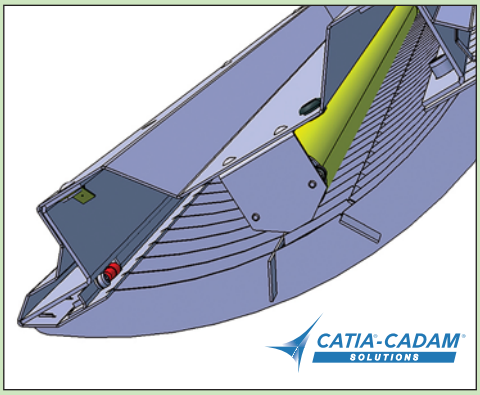
OPTIONS / PRÍPLATKY

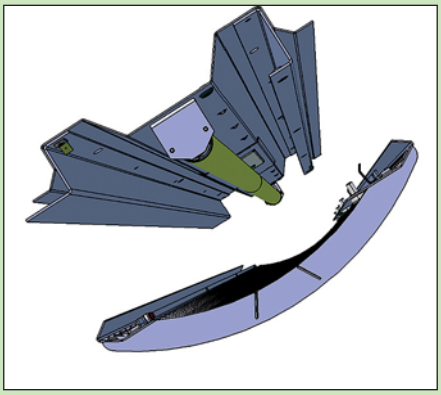
- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available

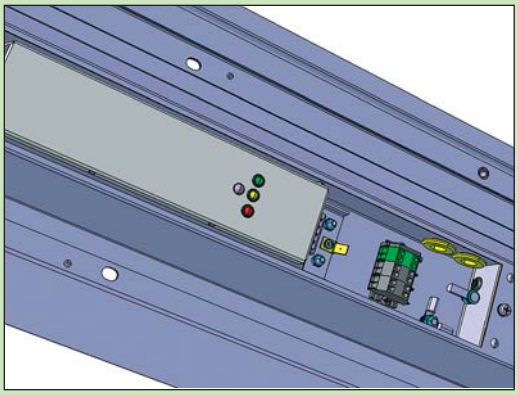












RAILWAY APPLICATION — COMBILUX *Classic*

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
36	COMBILUX *Classic* 36W	**DC 24V, 110V**	36W	OPTION	YES	OPTION	1247x240x90 mm

CONTINUOUS LIGHTING SYSTEM...

Railway Interior Lighting Application

... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

SEC Lighting

PARALUX

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 36W | T8

CENTRAL TEST | EN STANDARDS COMPLIANCE | AUTOTEST

DESCRIPTION / POPIS

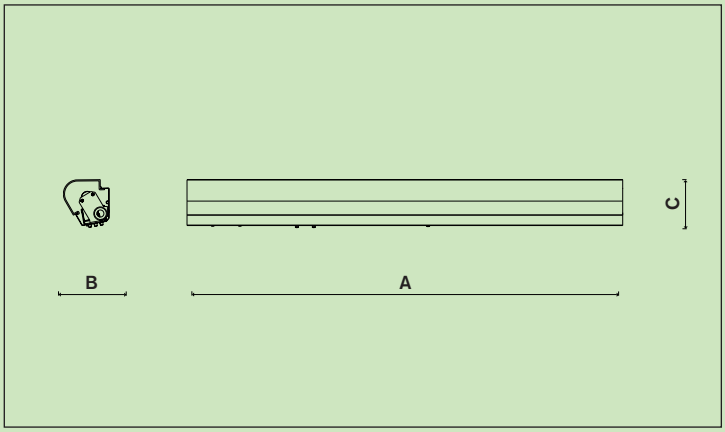
- The PARALUX modular lighting system is designed for direct illumination of the interior of public transport vehicles.
  Originally it has been designed for trams interior lighting.
  It provides a soft and comfortable light. Thanks to variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle.
  The system can contain also speakers.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA“.

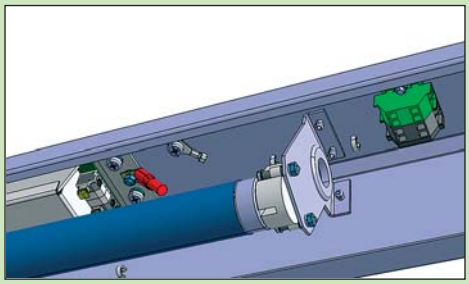
DESIGN / DESIGN

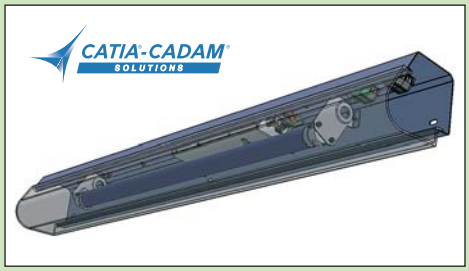
- metal base with RAL9003 powder coating
- diffuser made of PC (polycarbonate)

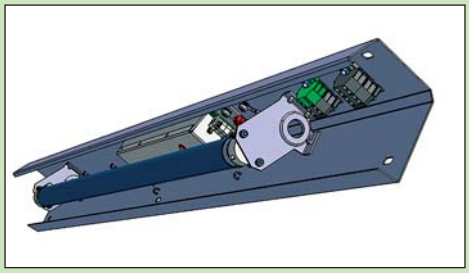
OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available









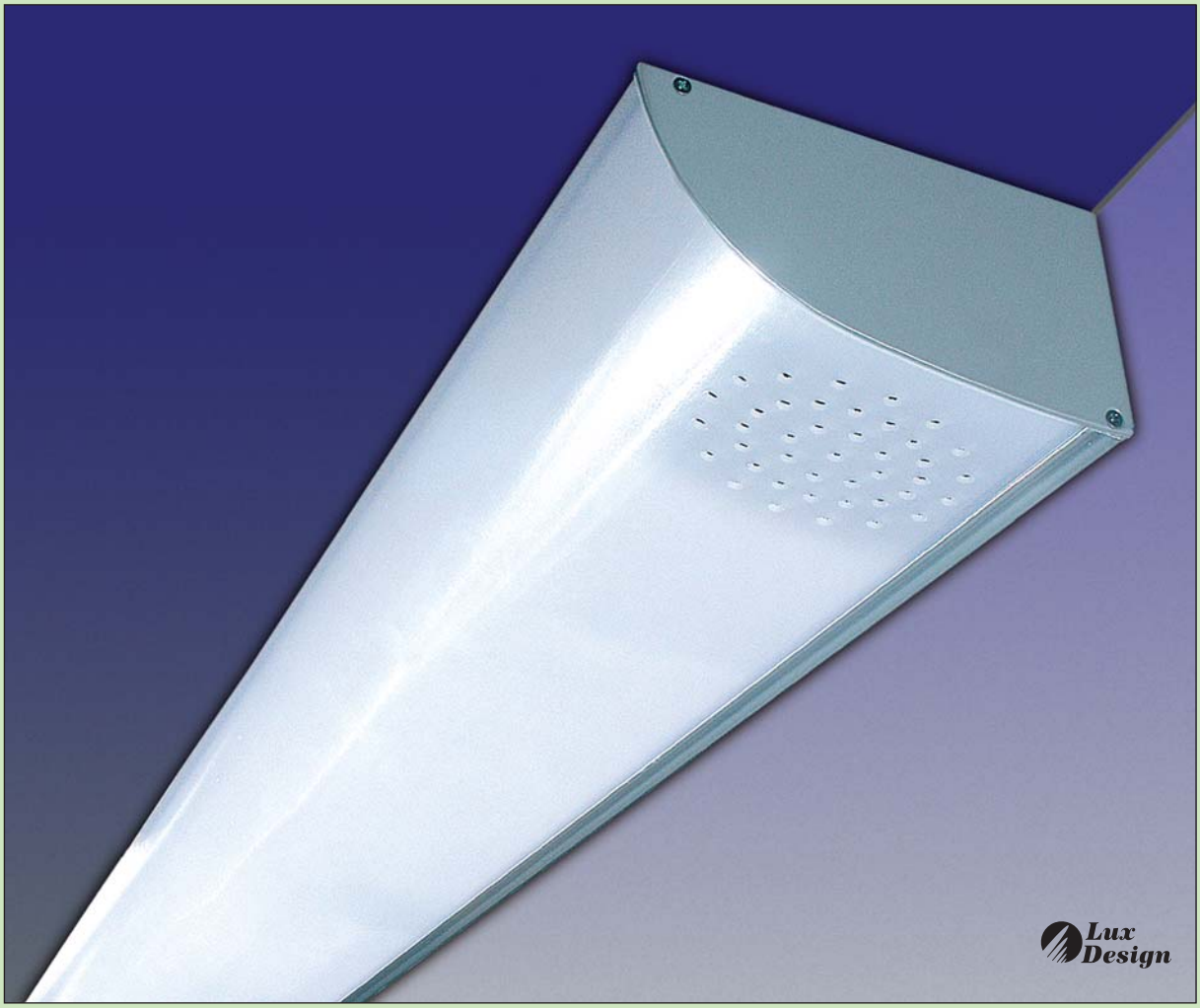
TRAM APPLICATION

PARALUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
18	PARALUX 18W	**DC 24V, 72V, 110V**	18W	OPTION	YES	OPTION	1589x95x95 mm
58	PARALUX 58W	**DC 24V, 72V, 110V**	58W	OPTION	YES	OPTION	923x95x95 mm

CONTINUOUS LIGHTING SYSTEM...

Railway Interior Lighting Application



... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

TRACKLUX

MICROCHIP CONTROL

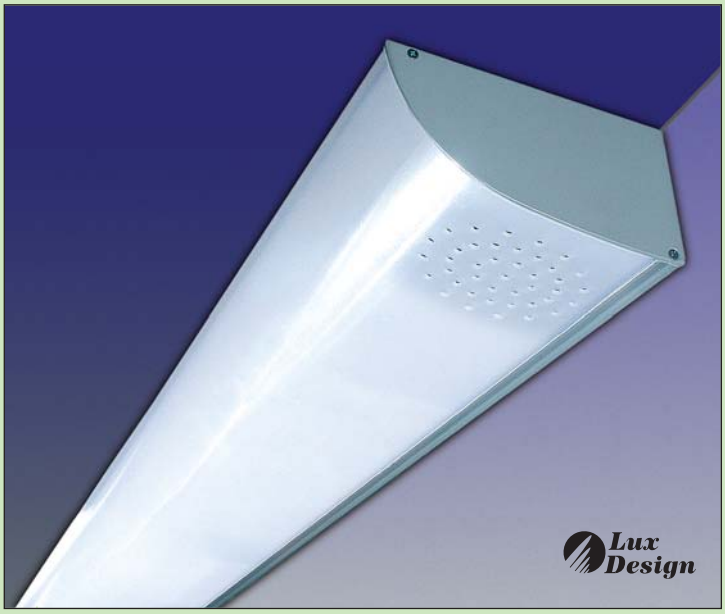
24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 36W | T8

CENTRAL TEST | EN STANDARDS COMPLIANCE

DESCRIPTION

POPIS

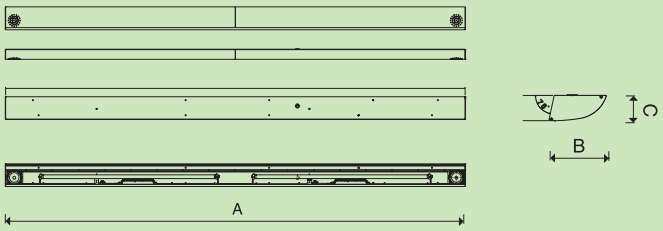
- The TRACKLUX modular lighting system is designed for direct illumination of the interior of public transport vehicles.
  Originally it has been designed for trams interior lighting.
  It provides a soft and comfortable light. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle.
  The system contains also speakers (1 or 2 pcs).
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA“.



DESIGN

DESIGN

- aluminium base
- diffuser made of PC (polycarbonate)



OPTIONS

PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available

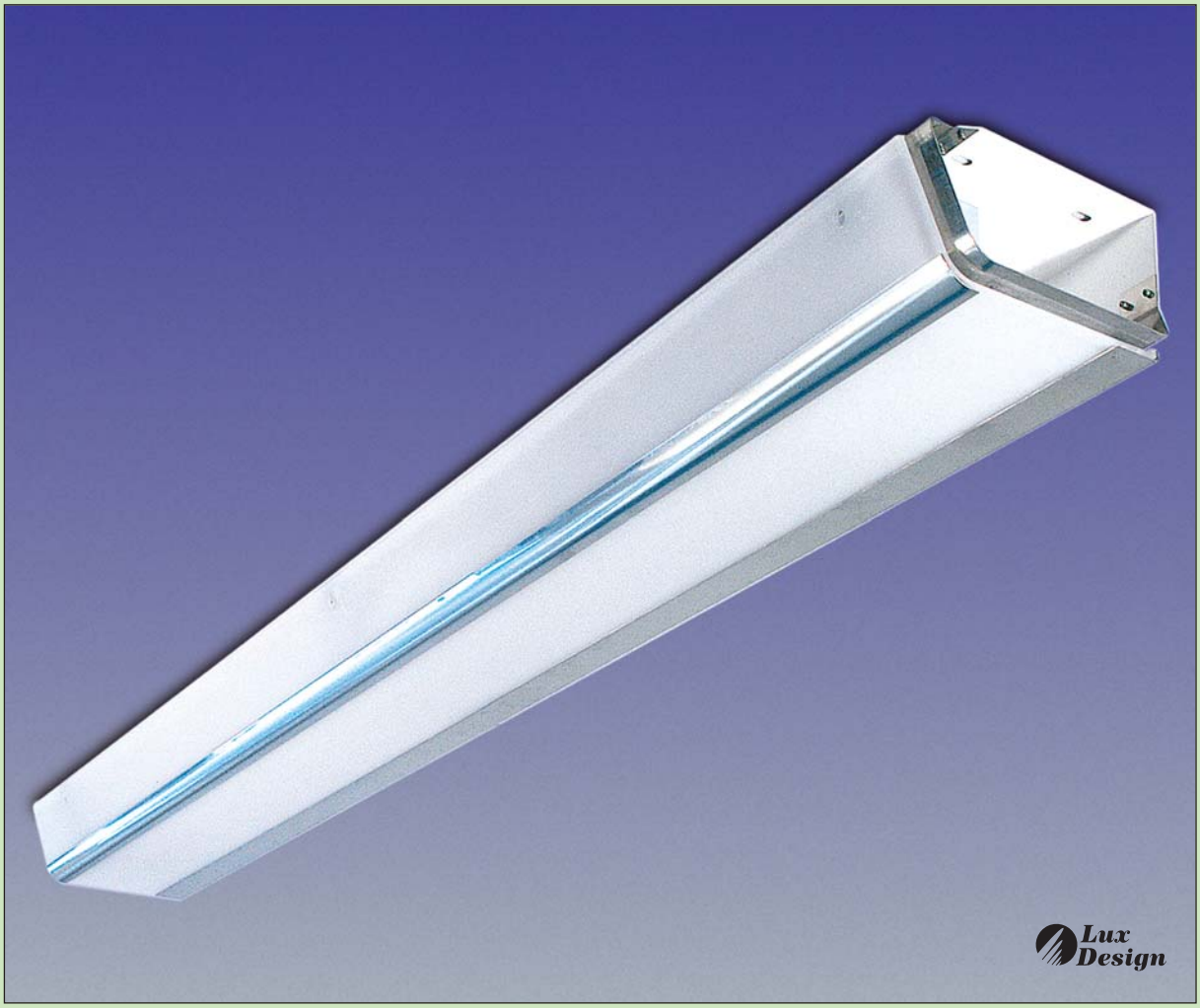
TRAM APPLICATION

TRACKLUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
2x36	TRACKLUX 2x36W	**DC 24V, 48V, 72V, 110V**	2x36W	OPTION	YES	OPTION	3170x158x70 mm
3x36	TRACKLUX 3x36W	**DC 24V, 48V, 72V, 110V**	3x36W	OPTION	YES	OPTION	4208x158x70 mm
4x36	TRACKLUX 4x36W	**DC 24V, 48V, 72V, 110V**	4x36W	OPTION	YES	OPTION	5270x158x70 mm

CONTINUOUS LIGHTING SYSTEM...

Railway Interior Lighting Application

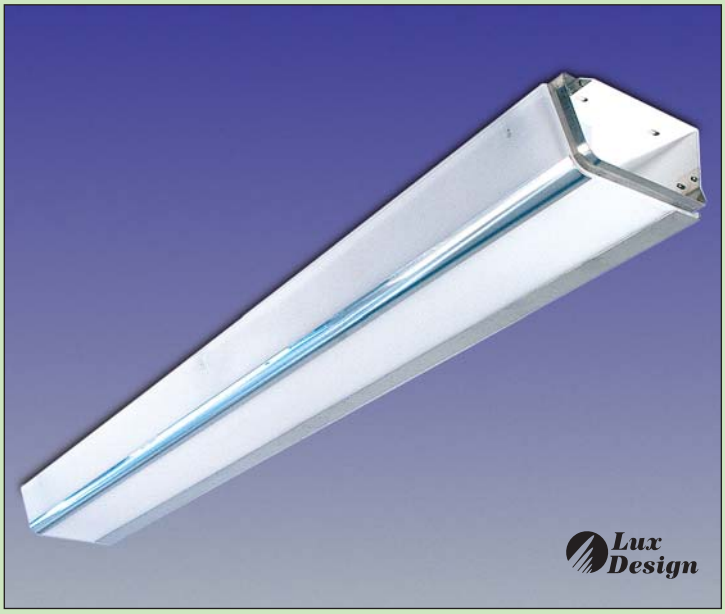


... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

ELUX

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 36W | T8 | CENTRAL TEST | EN STANDARDS COMPLIANCE | AUTOTEST



DESCRIPTION / POPIS

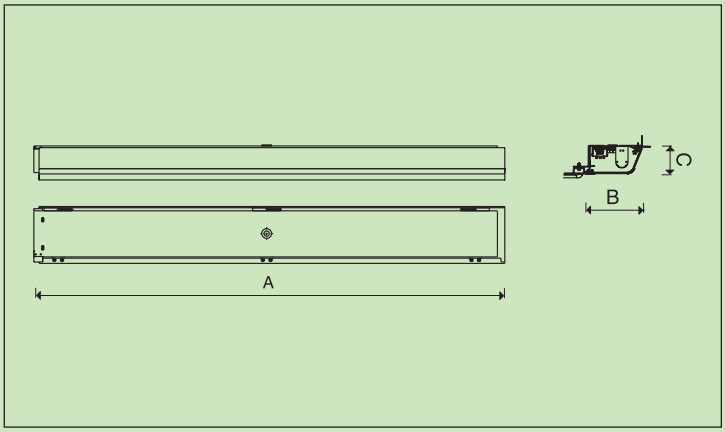
- The ELUX modular lighting system is designed for direct illumination of the interior of public transport vehicles.
  Originally it has been designed for trams interior lighting.
  It provides a soft and comfortable light. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle.
  The system contains also speakers .
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA“.

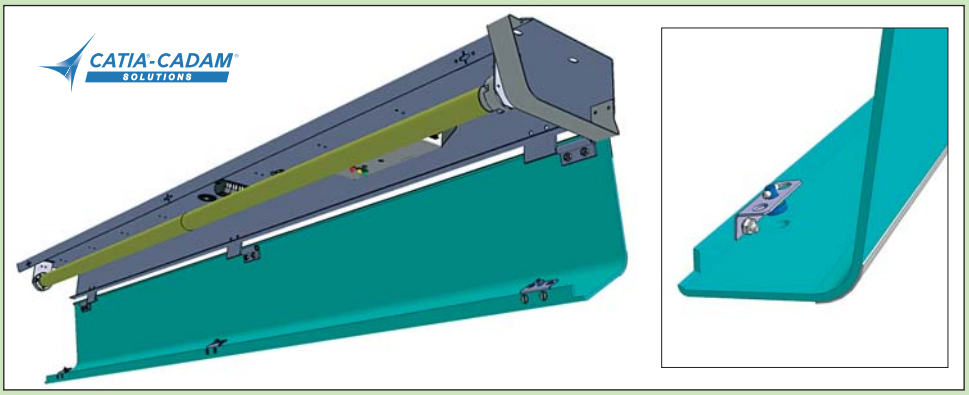
DESIGN / DESIGN

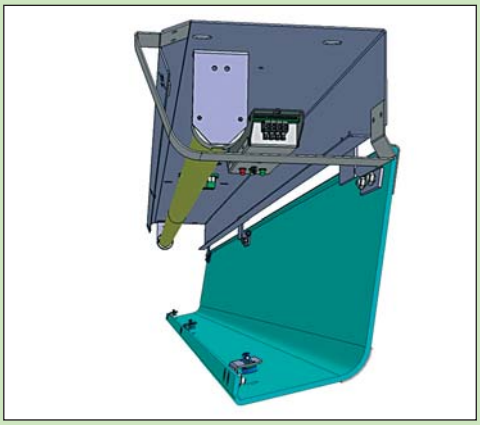
- metal base finished in white polyester powder coat
- stainless-steel strip
- diffuser made of PC (polycarbonate)

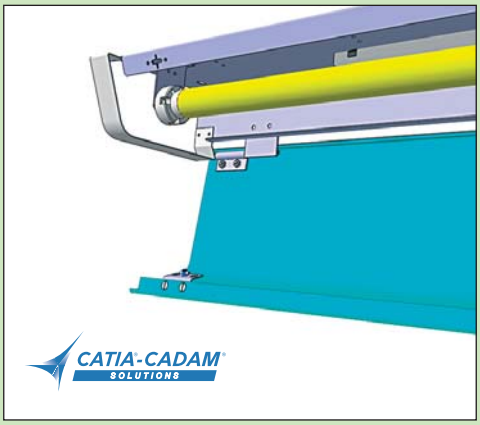
OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available









TRAM APPLICATION ELUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
36	ELUX 36W	DC 24V, 48V, 72V, 110V	36W	OPTION	YES	OPTION	1345x160x140 mm

CONTINUOUS LIGHTING SYSTEM...

Railway + Bus/Coach Interior Lighting Application

... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

SOLARLUX

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | T5 | T8

CENTRAL TEST | EN STANDARDS COMPLIANCE | AUTOTEST

DESCRIPTION / POPIS

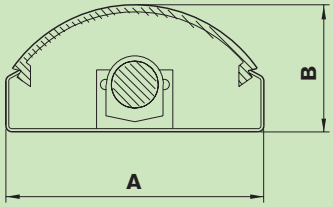
- SOLARLUX is a flexible modular lighting system designed for direct illumination of the interior of public transport vehicles. It provides a soft and comfortable light.
  It can be manufactured in recessed, semi-recessed or even surface mounted version.
  Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle.
- For more details see page „electronic ballasts - MEGA".

DESIGN / DESIGN

- metal / AL body finished in white polyester powder coat
- diffuser made of PC (polycarbonate)

OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available



All dimension can be modfied to customer requirements.

RAILWAY + BUS/COACH APPLICATION

SOLARLUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimesions AxBxC:
28	SOLARLUX 28W / T5	DC 24V	28W	OPTION	OPTION	OPTION	95 x 60 x 1203 mm
54	SOLARLUX 54W / T5	DC 24V	54W	OPTION	OPTION	OPTION	95 x 60 x 1203 mm
30	SOLARLUX 30W / T8	DC 24V	30W	OPTION	OPTION	OPTION	95 x 60 x 1300 mm
2x28	SOLARLUX 2x28W + 1 Speaker	DC 24V	2x28W	OPTION	OPTION	OPTION	3225 x 95 x 60 x mm
2x35	SOLARLUX 2x35W + 2 Speakers	DC 24V	2x35W	OPTION	OPTION	OPTION	3805 x 95 x 60 x mm

INDIVIDUAL LIGHTING FIXTURES...

Railway Interior Lighting Application

... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

METROLUX

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 36W | T8

CENTRAL TEST | EN STANDARDS COMPLIANCE

AUTOTEST

DESCRIPTION / POPIS

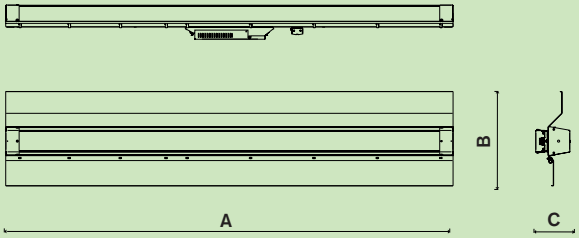
- METROLUX lighting fixture has been developed for main continuous lighting system in a carriage. In addition whole system is covered by grid ceiling pannels.
  It is manufactured in power versions 36W
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

DESIGN / DESIGN

- aluminium body finished in white polyester powder coat
- diffuser made of PC (GE F2000 polycarbonate)

OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available

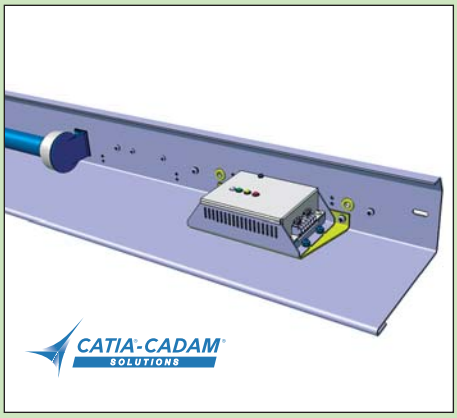


RAILWAY APPLICATION METROLUX

W	Type	Power Supply:	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm
36	METROLUX 36W	110V DC	36W	OPTION	YES	OPTION	1270x368x96 mm

INDIVIDUAL LIGHTING FIXTURES...

Railway Interior Lighting Application



... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

OPTILUX

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 36W | T8

CENTRAL TEST | EN STANDARDS COMPLIANCE

AUTOTEST

DESCRIPTION / POPIS

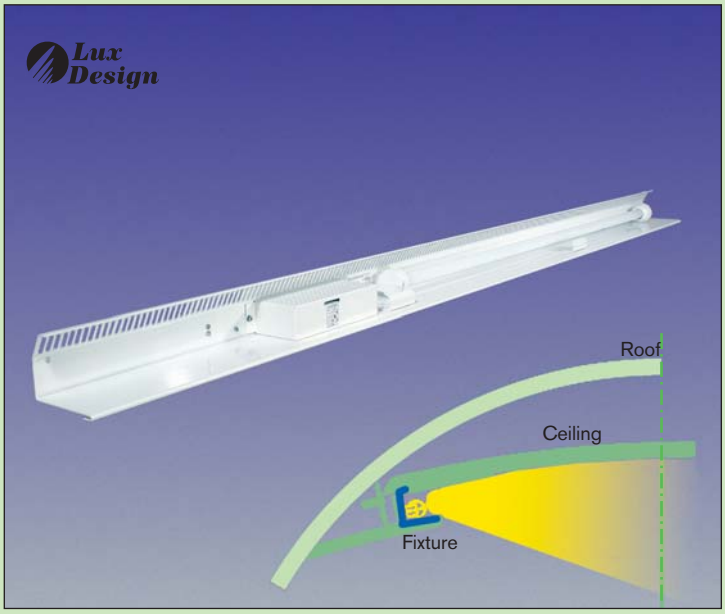
- OPTILUX lighting fixture has been developed for indirect lighting system in a carriage (luggage rack installation) It is manufactured in power version 36W
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

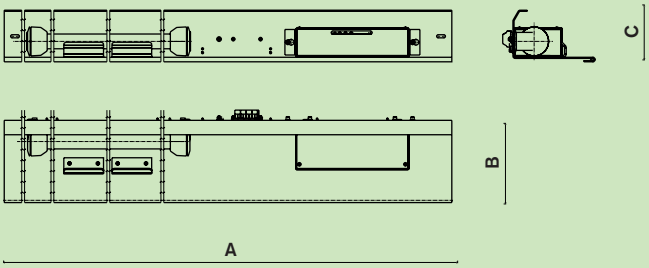
DESIGN / DESIGN

- aluminium body finished in white polyester powder coat

OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available



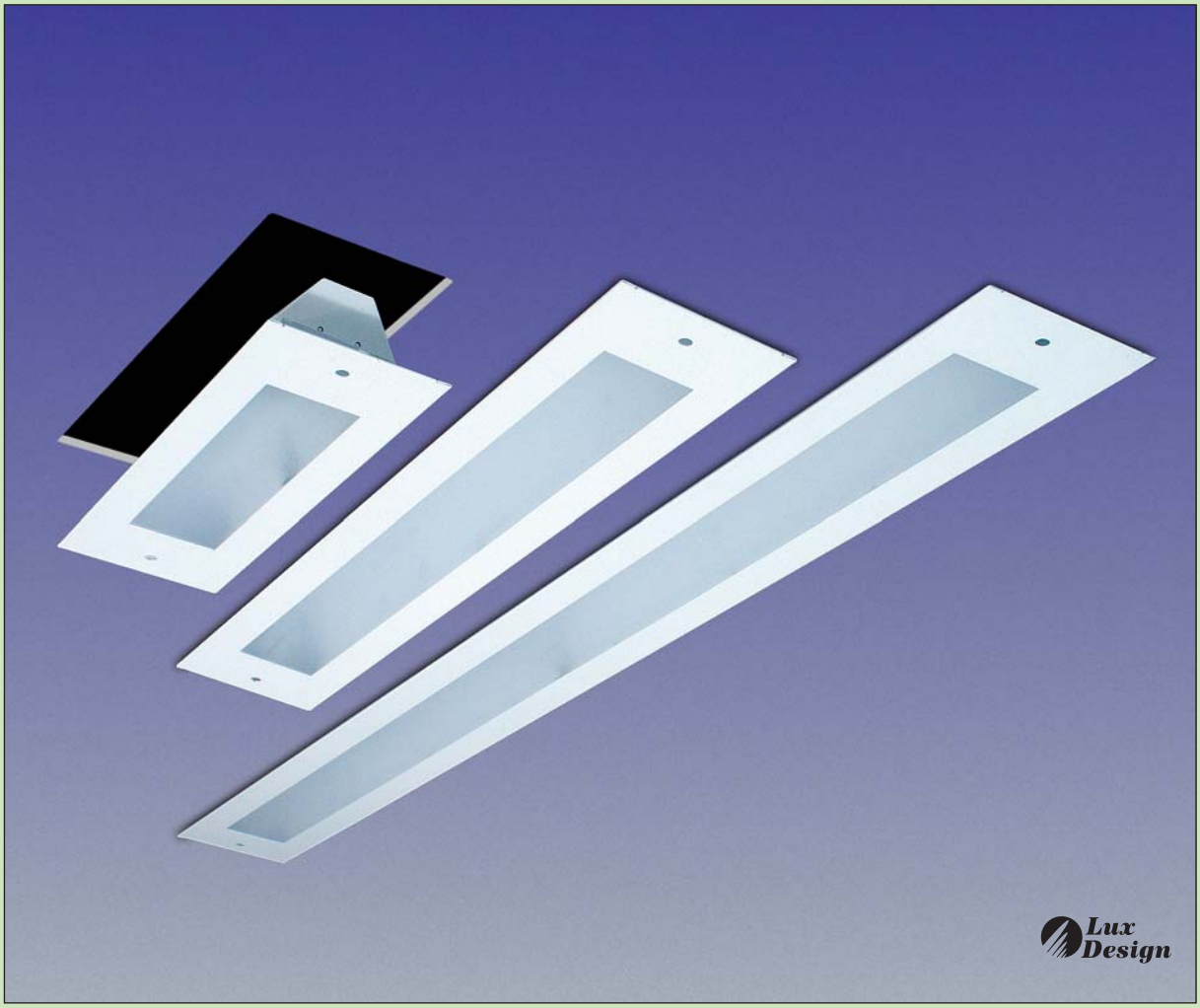


RAILWAY APPLICATION — OPTILUX

W	Type	Power Supply:	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
36	OPTILUX 36W	24V, 48V, 110V	36W	OPTION	YES	OPTION	2148x145x85 mm

RECESSED LIGHTING FIXTURES...

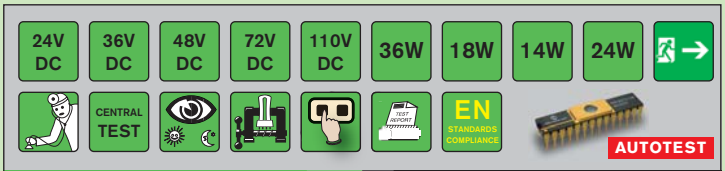
Railway Interior Lighting Application



... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

ERGOLUX

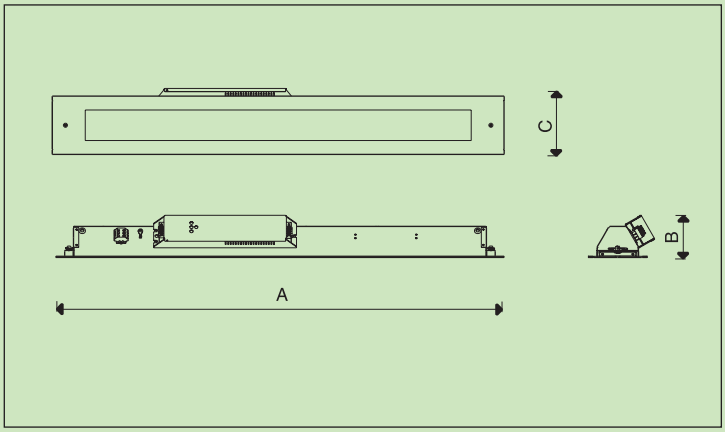


DESCRIPTION / POPIS

- ERGOLUX is designed as individual recessed lighting fixture for illumination of interior of public transport vehicles.
  ERGOLUX is a sophisticated lighting with intelligence (microcomputer application). Thanks to the microcompute both dimming function (Setting versions) and AUTO-TEST function are available.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA“.

DESIGN / DESIGN

- metal base contains lamp holders, electronic unit and fluorescent tube
- diffuser made of PC (polycarbonate)



OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available

RAILWAY APPLICATION — ERGOLUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
18	ERGOLUX-K 18W	**DC 24V, 48V, 72V, 110V**	18W	OPTION	YES	OPTION	360x83x115 mm
18	ERGOLUX-K-RASTER 18W	**DC 24V, 48V, 72V, 110V**	18W	OPTION	YES	OPTION	360x83x115 mm
18	ERGOLUX-L 18W	**DC 24V, 48V, 72V, 110V**	18W	OPTION	YES	OPTION	690x83x115 mm
18	ERGOLUX-L-RASTER 18W	**DC 24V, 48V, 72V, 110V**	18W	OPTION	YES	OPTION	690x83x115 mm
36	ERGOLUX-L 36W	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1300x83x115 mm
36	ERGOLUX-L-RASTER 36W	**DC 24V, 48V, 72V, 110V**	36W	OPTION	YES	OPTION	1300x83x115 mm
14	ERGOLUX-L 14W	**DC 24V, 48V, 72V, 110V**	14W T5	OPTION	YES	OPTION	620x45x105 mm
24	ERGOLUX-L 24W	**DC 24V, 48V, 72V, 110V**	24W T5	OPTION	YES	OPTION	620x45x105 mm

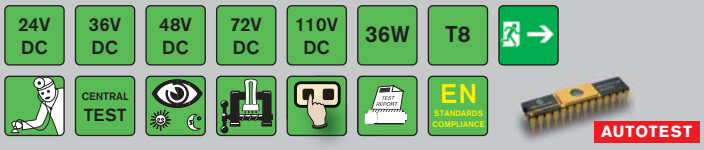
RECESSED LIGHTING FIXTURES...

Railway Interior Lighting Application

... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

SINKLUX



DESCRIPTION — POPIS

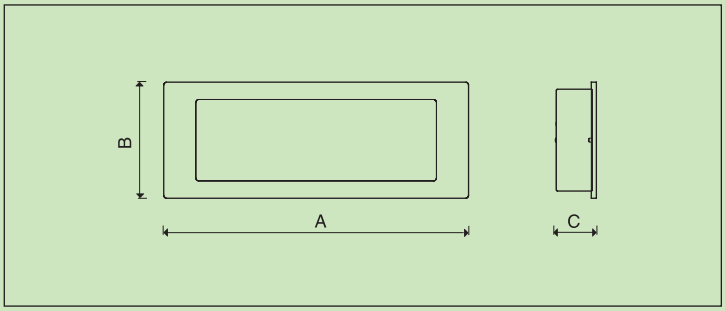
- The SINKLUX recessed lighting fixtures family is designed for modular (same design, variable sizes are possible) direct illumination of the railway interior applications,
  It provides a highly efficient soft and comfortable illumination.
  The lighting fixtures can be equipped by standard fluorescent tubes or by the progressive ones T5.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

DESIGN — DESIGN

- metal body finished in white polyester powder coat
- diffuser made of PC

OPTIONS — PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available

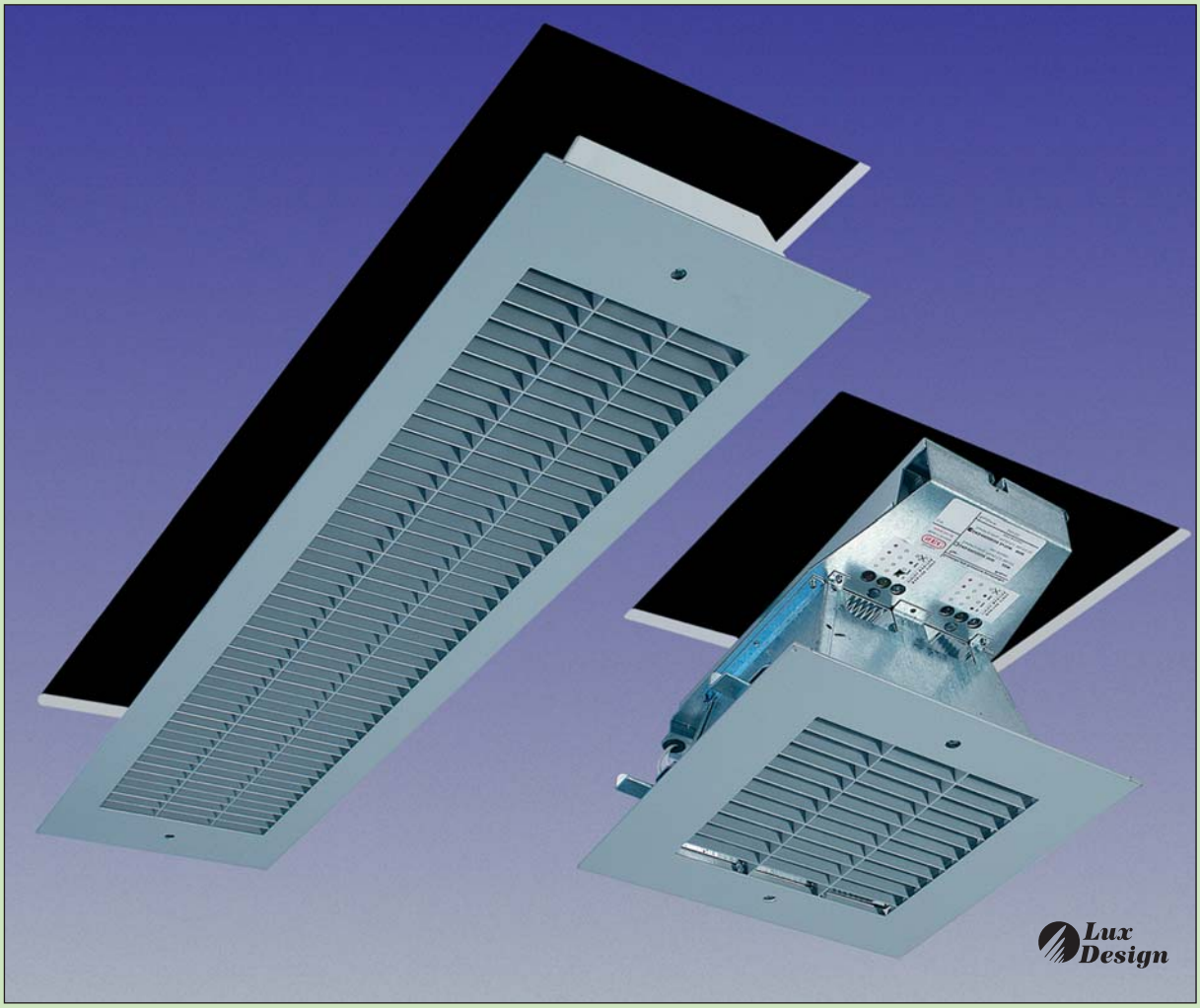


RAILWAY APPLICATION — SINKLUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
18	SINKLUX 18W + 1x5W	**DC 24V**	18W	OPTION	YES	OPTION	788 x 176 x 55 mm
18	SINKLUX 18W + 5x5W	**DC 10V**	18W	OPTION	YES	OPTION	788 x 176 x 55 mm

RECESSED LIGHTING FIXTURES...

Railway Interior Lighting Application



... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

CKD-ERGOLUX

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 18W | 14W

CENTRAL TEST | EN STANDARDS COMPLIANCE

DESCRIPTION

- CKD-ERGOLUX is designed as individual recessed lighting fixture for illumination of interior of public vehicles. CKD-ERGOLUX is a sophisticated lighting with intelligence (microcomputer application). Thanks to the microcomputer both dimming function (Setting versions) and AUTO-TEST funcion are available. The lighting fixtures can be equipped by standard fluorescent tubes or by the progressive ones T5.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA“.

DESIGN

- metal base contains lamp holders, electronic unit and fluorescent tube

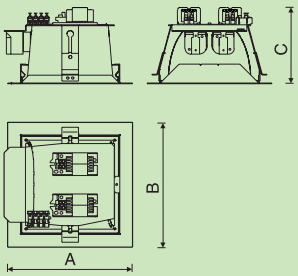
OPTIONS

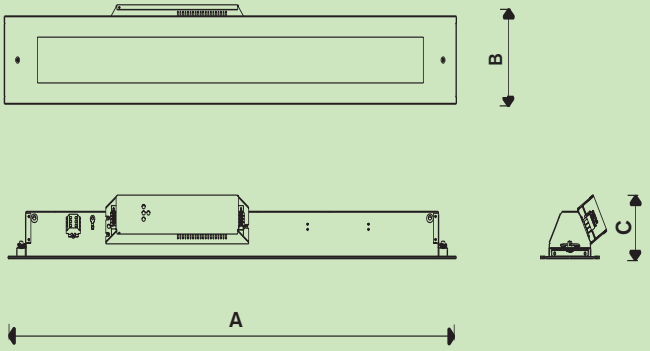
- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available

POPIS

DESIGN

PRÍPLATKY





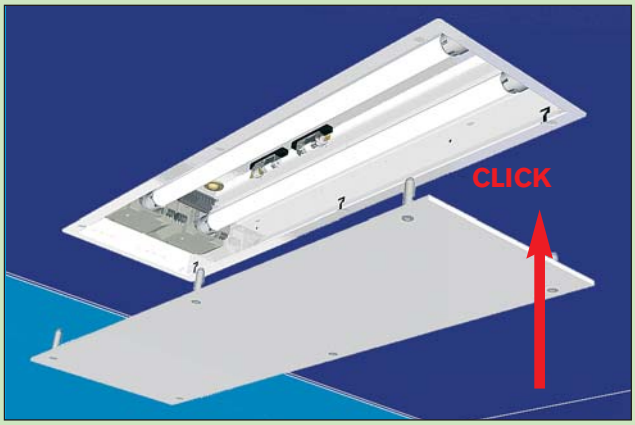
RAILWAY APPLICATION

CKD-ERGOLUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
18	CKD-ERGOLUX 18W	**DC 24V, 48V, 72V, 110V**	18W	OPTION	YES	OPTION	675x176x95 mm
2x18	CKD-ERGOLUX 2x18W	**DC 24V, 48V, 72V, 110V**	2x18W	OPTION	YES	OPTION	675x176x95 mm
2x14	CKD-ERGOLUX 2x14W T5	**DC 24V, 48V, 72V, 110V**	2x18W	OPTION	YES	OPTION	685x180x75 mm
2x18	CKD-ERGOLUX-Q 2x18W	**DC 24V, 48V, 72V, 110V**	2x18W	OPTION	YES	OPTION	225x225x170 mm

RECESSED LIGHTING FIXTURES...

Railway Interior Lighting Application



... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

TRANSLUX

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 18W | T8 | CENTRAL TEST | EN STANDARDS COMPLIANCE

DESCRIPTION / POPIS

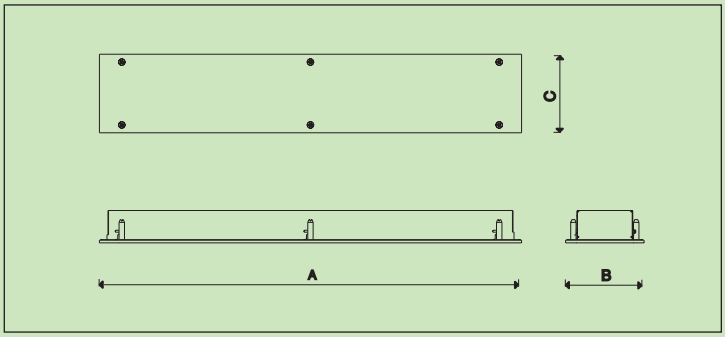
- TRANSLUX is designed as an individual recessed lighting fixture for illumination of interior of public transport vehicles. It provides a soft and comfortable light. TRANSLUX is a sophisticated lighting with intelligence (microcomputer application). Thanks to the microcomputer both dimming function (Setting versions) and AUTO-TEST funcion are available. The lighting fixtures can be equipped by standard fluorescent tubes or by the progressive ones T5.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

DESIGN / DESIGN

- metal body finished in white polyester powder coat
- diffuser made of PC (polycarbonate)

OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources are available



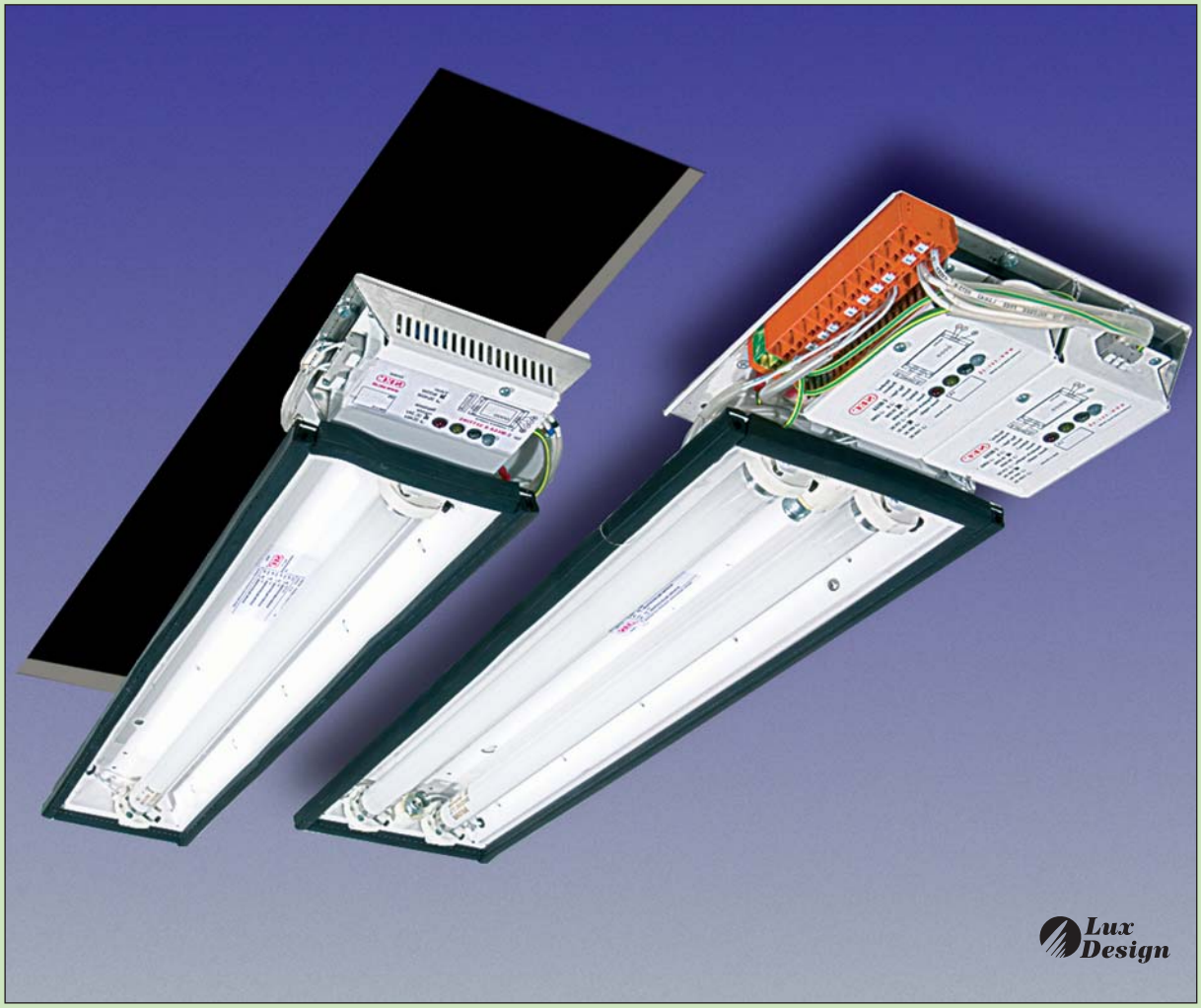
RAILWAY APPLICATION

TRANSLUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
18	TRANSLUX 18W	**DC 24V, 48V, 72V, 110V**	18W	OPTION	YES	OPTION	780x146x60 mm
2x18	TRANSLUX 2x18W	**DC 24V, 48V, 72V, 110V**	2x18W	OPTION	YES	OPTION	780x240x60 mm
3x18	TRANSLUX 3x18W	**DC 24V, 48V, 72V, 110V**	3x18W	OPTION	YES	OPTION	780x370x60 mm

INDIVIDUAL LIGHTING FIXTURES...

Railway Interior Lighting Application



... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

FONTALUX

24V DC | 36V DC | 48V DC | 72V DC | 110V DC | 18W | 15W

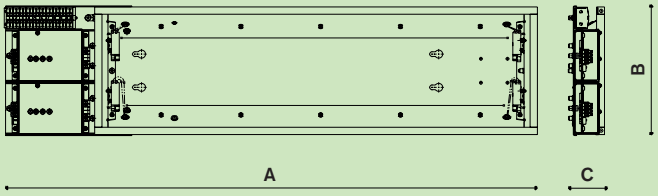
CENTRAL TEST | EN STANDARDS COMPLIANCE | AUTOTEST

DESCRIPTION / POPIS

- FONTALUX is designed as an individual recessed lighting fixture for illumination of railway interior applications
  Thanks to the microcomputer both dimming function (Setting versions) and AUTO-TEST funcion are available. The lighting fixtures can be equipped by standard fluorescent tubes or by the progressive ones T5.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

DESIGN / DESIGN

- metal base contains:
  - lamp holders
  - electronic ballast
  - fluorescent tube
  - WAGO

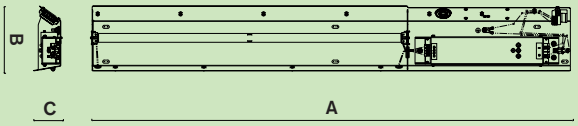


OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available

RAILWAY APPLICATION FONTALUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
18	FONTALUX 18W	**DC 24V, 48V**	18W	OPTIONAL	YES	-	730x140x70 mm
2x 18	FONTALUX 2x18W	**DC 24V, 48V**	2x18W	OPTIONAL	YES	-	800x192x54 mm
	FONTALUX 2x18W + 2x15W	**DC 24V, 48V**	2x18W	OPTIONAL	YES	-	800x192x54 mm



DESCRIPTION / POPIS

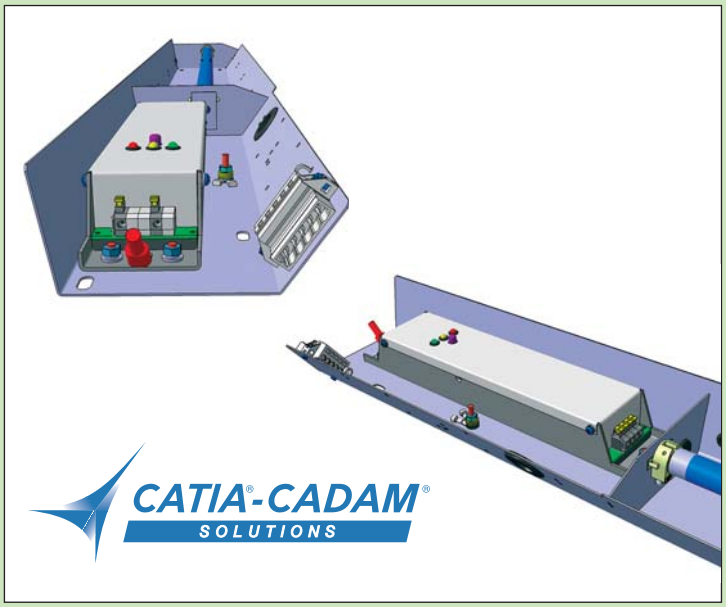
- The BUDALUX lighting modules are designed for direct illumination of the interior of public transport vehicles (originally for metro application for ALSTOM train cars). It provides a soft and comfortable light. Its design is based on pregressive T5 fluorescent tube technology. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA“.

DESIGN / DESIGN

- metal body finished in white anti-grafity polyester anti-graffity powder coat.
- T5 digital electronic ballasts complying EN50311

OPTIONS / PRÍPLATKY

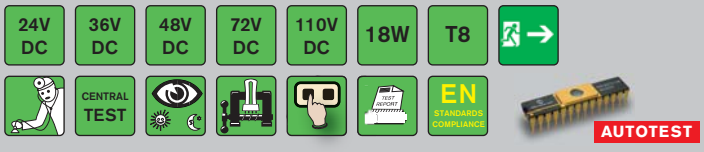
- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available



RAILWAY APPLICATION — BUDALUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
14	BUDALUX 14W T5	**DC 24V, 72V, 110V**	14W	OPTION	YES	OPTION	868x118x52 mm
28	BUDALUX 28W T5	**DC 24V, 72V, 110V**	28W	OPTION	YES	OPTION	1465x118x52 mm
35	BUDALUX 35W T5	**DC 24V, 72V, 110V**	35W	OPTION	YES	OPTION	1765x118x52 mm

SIEMENS TSLM



DESCRIPTION | POPIS

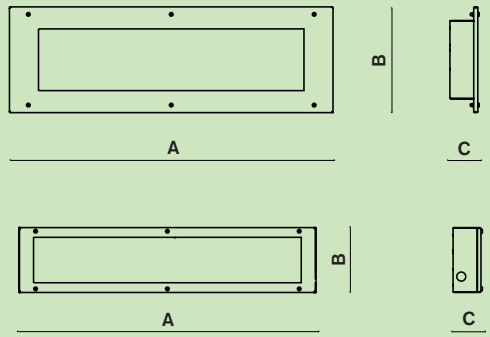
- SIEMENS TSLM lighting fixtures are designed as individual roboust both recessed or surface mounted lighting fixtures for illumination of locomotive driver cockpit interior or engine area.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA“.

DESIGN | DESIGN

- metal base contains:
  - lamp holders
  - electronic ballast
  - fluorescent tube
  - WAGO terminal block
  - switch
- The diffuser is made of PC (complying NF-F 16-101 or DIN5510)

OPTIONS | PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available



RAILWAY APPLICATION

SIEMENS TSLM

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
18	SIEMENS TSLM 18W (Recessed Mounted)	**DC 24V, 110V**	18W	OPTIONAL	YES	OPTIONAL	713x233x62 mm
	SIEMENS TSLM 18W (Surface mounted)	**DC 24V, 110V**	18W	OPTIONAL	YES	OPTIONAL	655x143x62 mm
	SIEMENS TSLM 18W (Recessed + Switch)	**DC 24V, 110V**	2x18W	OPTIONAL	YES	OPTIONAL	713x233x62 mm

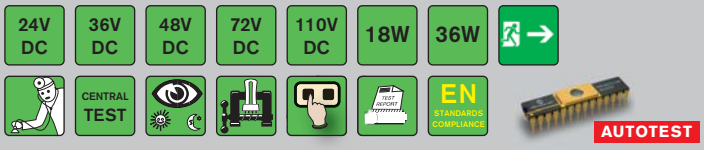
INDIVIDUAL LIGHTING FIXTURES...

Railway Interior Lighting Application

... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

IMILUX



DESCRIPTION / POPIS

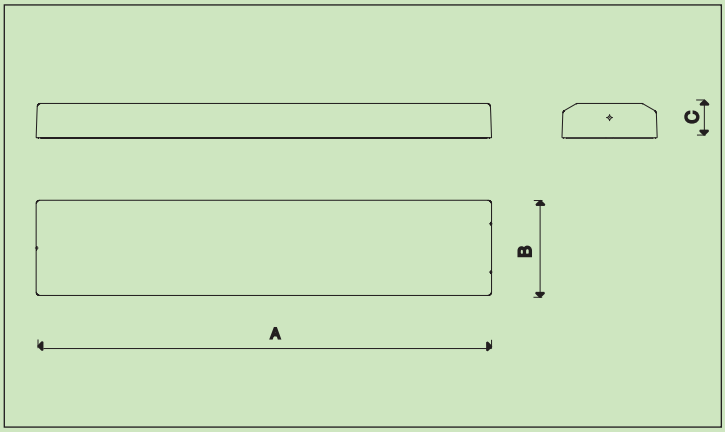
- IMILUX is designed as an individual lighting fixture for direct illumination of interior of public transport vehicles.
  Thanks to the microcomputer both dimming function (Setting versions) and AUTO-TEST funcion are available.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

DESIGN / DESIGN

- metal body finished in white polyester powder coat
- diffuser made of PC (polycarbonate)

OPTIONS / PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available



RAILWAY APPLICATION IMILUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
18	IMILUX 18W	DC 24V, 48V, 72V, 110V	18W	OPTION	YES	-	756x158x58 mm
2x18	IMILUX 2x18W	DC 24V, 48V, 72V, 110V	2x18W	OPTION	YES	-	756x206x58 mm
36	IMILUX 36W	DC 24V, 48V, 72V, 110V, 300V	36W	OPTION	YES	-	13998x40x56 mm

CONTINUOUS LIGHTING SYSTEM...

Bus/Coach Interior Lighting Application

... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

SOFTLUX

12V DC | 24V DC | 18W | 24W | 36W

CENTRAL TEST | EN STANDARDS COMPLIANCE | AUTOTEST

DESCRIPTION — POPIS

- The SOFTLUX modular lighting system is designed for indirect or indirect/direct (VISOR version) illumination of the interior of public transport vehicles.
  It provides a soft and comfortable light. Thanks to the variable lenghts it is possible to create a strip lighting system to match your interior along the entire lenght of the vehicle or even to use it as individual lighting fixtures.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

DESIGN — DESIGN

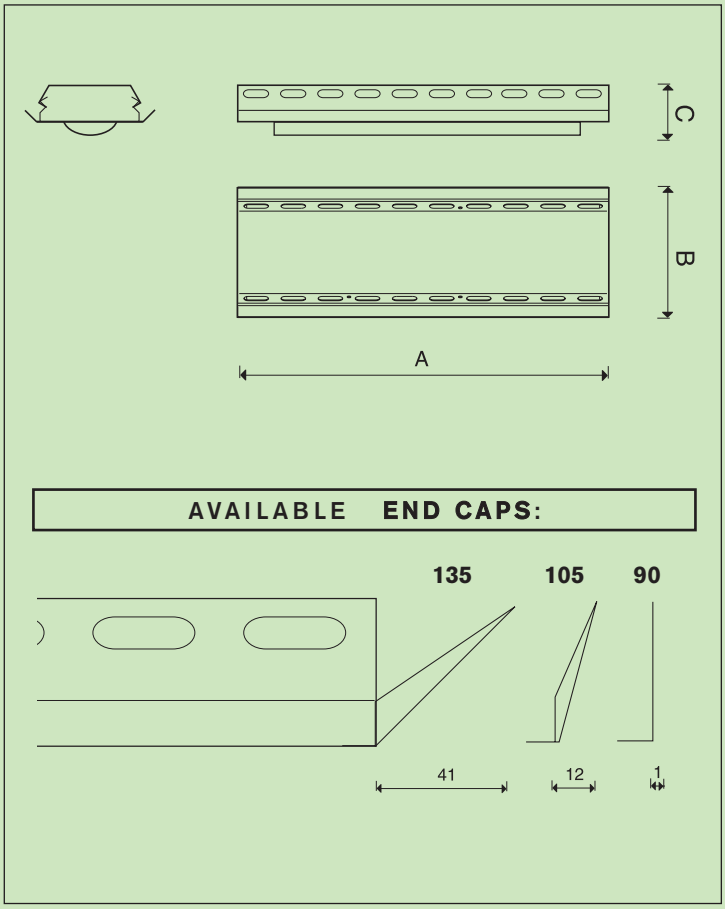
- metal body finished in white polyester powder coat
- diffuser made of PC (only VISOR version)

OPTIONS — PRÍPLATKY

- DIMMING in steps (SETTING - see pages No. 18+19)
- Stepless DIMMING + CENTRAL Diagnostics (LUXMATIC Control System - see pages No. 11+17+19)
- alternative dimension and light sources according to customer specification are available

SOFTLUX VISOR

SOFTLUX

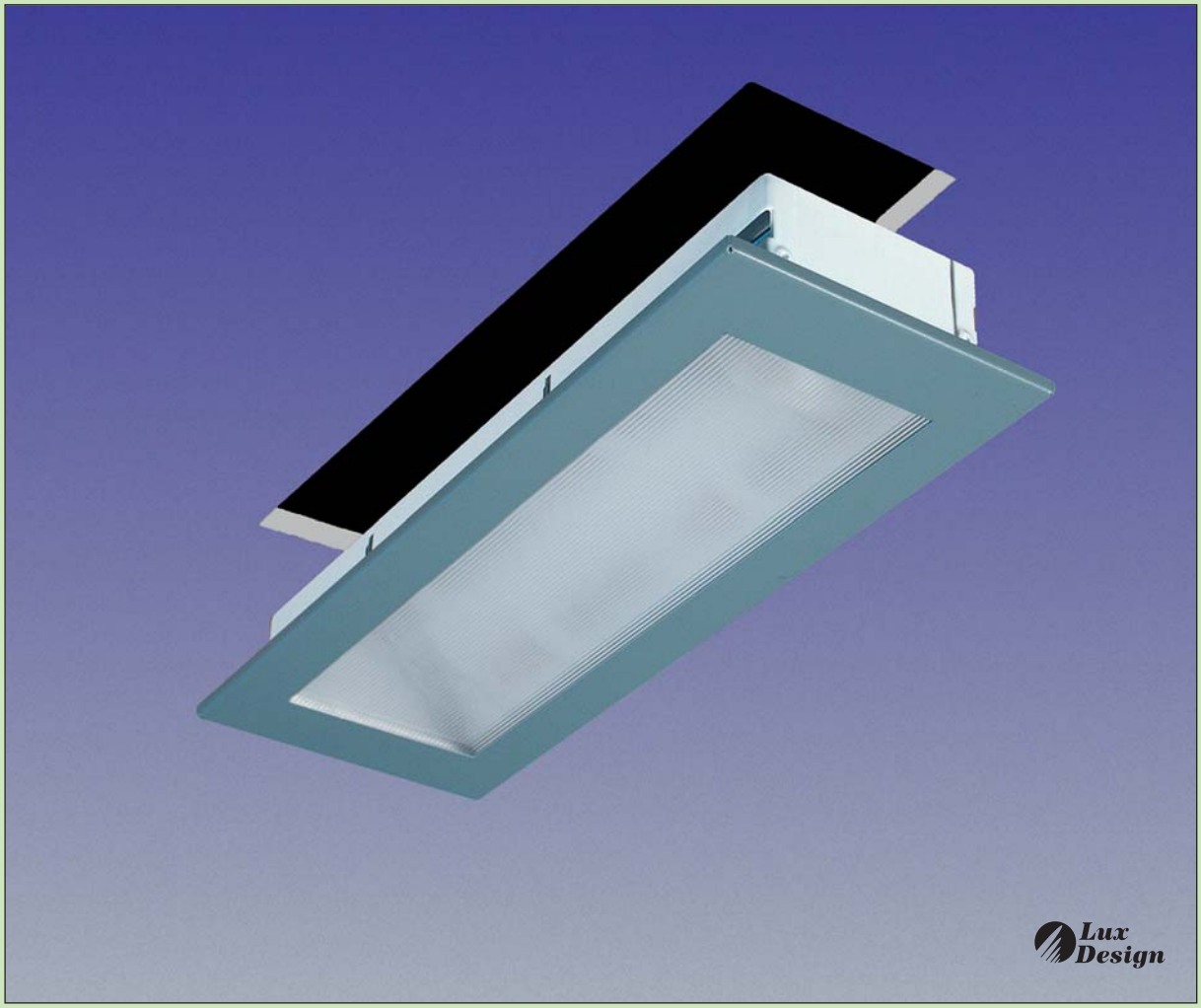


BUS/COACH APPLICATION — SOFTLUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
18	SOFTLUX-K 18W	DC 24V, 48V, 72V, 110V	18W	OPTION	OPTION	-	350x160x45 mm
24	SOFTLUX-K 24W	DC 24V, 48V, 72V, 110V	24W	OPTION	OPTION	-	450x160x45 mm
18	SOFTLUX-L 18W	DC 24V, 48V, 72V, 110V	18W	OPTION	OPTION	-	1010x160x45 mm
36	SOFTLUX-L 36W	DC 24V, 48V, 72V, 110V	24W	OPTION	OPTION	-	1505x160x45 mm
18	SOFTLUX-L-VISOR 18W	DC 24V, 48V, 72V, 110V	18W	OPTION	OPTION	-	1010x160x45 mm
36	SOFTLUX-L-VISOR 36W	DC 24V, 48V, 72V, 110V	24W	OPTION	OPTION	-	1505x160x45 mm

RECESSED LIGHTING FIXTURES...

Railway+ Bus/Coach Interior Lighting Application



... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC Lighting

MINILUX

12V DC | 24V DC | 110V DC | 18W | 36W

CENTRAL TEST | EN STANDARDS COMPLIANCE

AUTOTEST

DESCRIPTION / POPIS

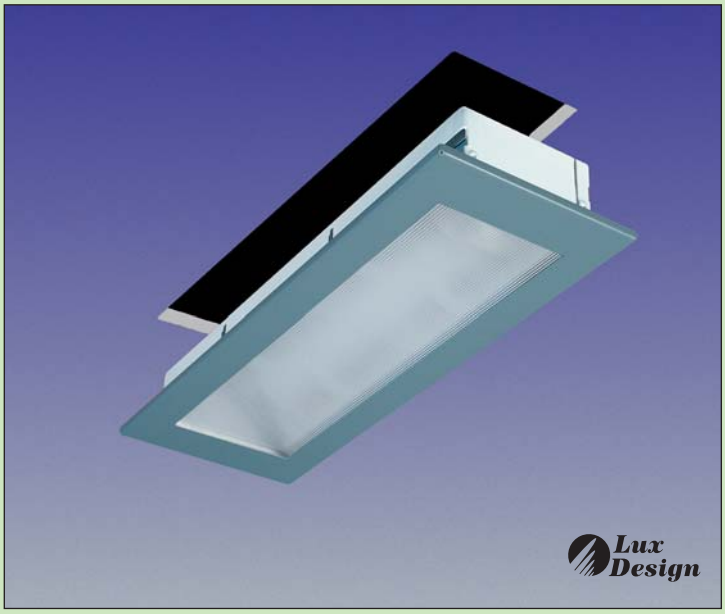
- MINILUX is designed as an individual recessed lighting fixture for illumination of interior of public transport vehicles or ambulances.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA“.

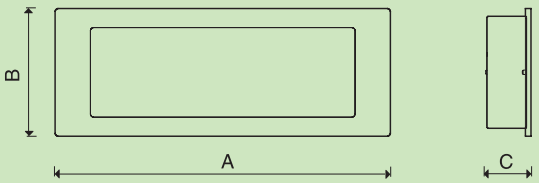
DESIGN / DESIGN

- metal base contains:
  - lamp holders
  - electronic ballast
  - fluorescent tube

OPTIONS / PRÍPLATKY

- alternative dimension and light sources according to customer specification are available
- available in grey RAL9006 (standard) or in white RAL9003 (optional)





RAILWAY / BUS+COACH APPLICATIONS — MINILUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions AxBxC mm:
18	MINILUX 18W	DC 12V, 24V	18W	-	-	-	314 x 113 x 46/67mm
	MINILUX-INV 18W	DC 12V, 24V	18W	-	-	-	335 x 154 x 45/65mm
2x18	MINILUX 2x18W	DC 24V, 110V	2x18W	OPTIONAL	YES	OPTIONAL	335 x 154 x 65 mm
36	MINILUX 36W	DC 24V, 110V	36W	OPTIONAL	YES	OPTIONAL	532 x 155 x 65mm

INDIVIDUAL LIGHTING FIXTURES...

Railway + Bus/Coach Interior Lighting Application

... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

MEGALUX

12V DC | 24V DC | 110V DC | 18W | 24W

CENTRAL TEST | EN STANDARDS COMPLIANCE

AUTOTEST

DESCRIPTION — POPIS

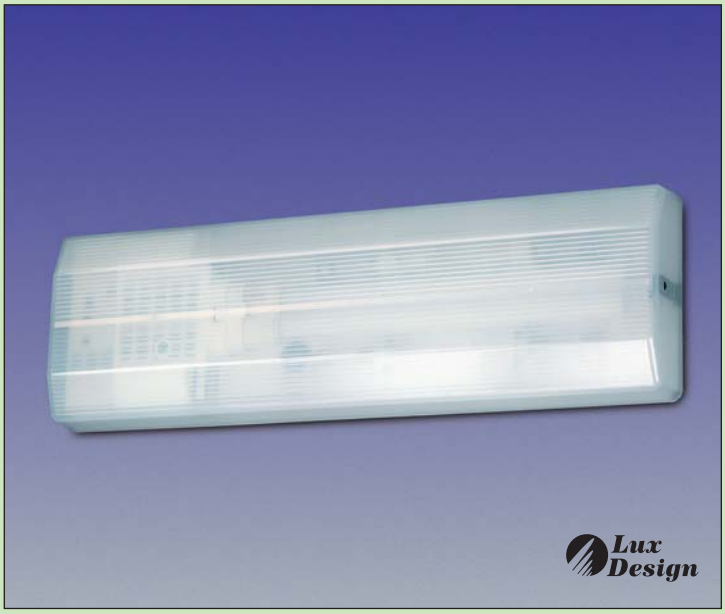
- MEGALUX is designed as an individual lighting fixture for illumination of interior of public transport vehicles.
  A-MEGALUX is basic version with analog control.
  This version is designed for bus/coach application.
  The C-MEGALUX versions are sophisticated lightings with intelligence (microcomputer application). Thanks to the microcomputer both dimming function (Setting versions) and SELF-TEST funcion are available.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA“.

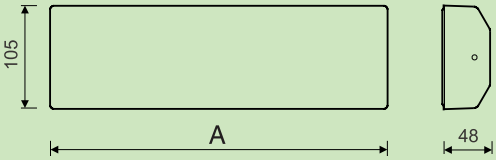
DESIGN — DESIGN

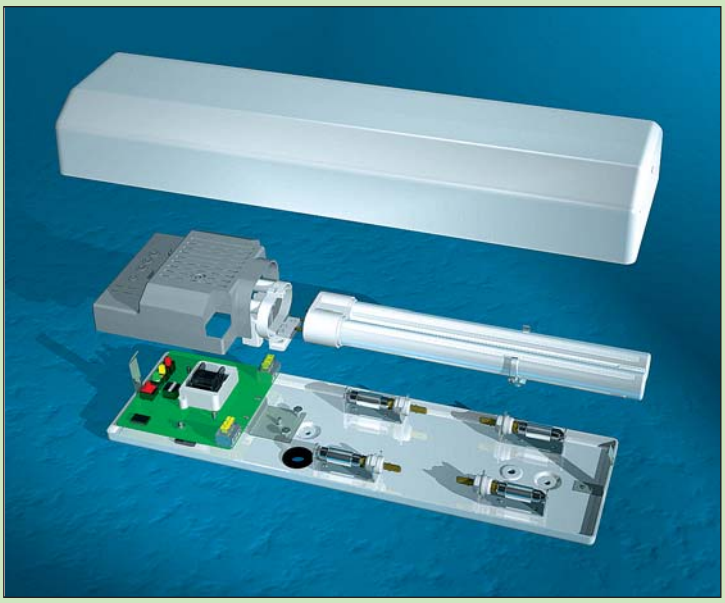
- metal base contains lamp holders, electronic unit and fluorescent tube
- diffuser made of PMMA

OPTIONS — PRÍPLATKY

- diffuser made made of PC (polycarbonate) available
- acessories for recessed mounting (semirecessed version) (not available for version C-MEGALUX 18W Linear)
- INSULATED MINUS POLE







Semi-Recessed Version (OPTIONAL)

RAILWAY + BUS/COACH APPLICATIONS — MEGALUX

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimension A:
18	A-MEGALUX 18W	DC 12V, 24V, 48V, 110V	18W	-	-	-	351 mm
18	C-MEGALUX 18W	DC 12V, 24V, 48V, 110V	18W	OPTION	YES	-	351 mm
18	C-MEGALUX 18W (insulat. minus pole)	DC 12V, 24V, 48V, 110V	18W	OPTION	YES	-	351 mm
24	C-MEGALUX 24W	DC 24V, 48V, 110V	24W	OPTION	YES	-	449 mm
24	C-MEGALUX 24W (insulat. minus pole)	DC 24V, 48V, 110V	24W	OPTION	YES	-	449 mm
18	C-MEGALUX -LINEAR18W	DC 12V, 24V, 48V, 110V	24W	OPTION	YES	-	759 mm

INDIVIDUAL LIGHTING FIXTURES...

Railway + Bus/Coach Interior Lighting Application

... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

FINELUX, CKDLUX, READLUX

12V DC | 24V DC | 110V DC | 8W

AUTOTEST

DESCRIPTION / **POPIS**

- FINELUX is a recessed lighting fixture designed for illumination of vehicle corridors or engine driver cockpit. It ensures a high smooth illumination level, thanks to the special diffuser and aluminium reflector. For the best level of comfort for passengers or the engine-driver FINELUX can be equipped by dimming function.
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

DESIGN / **DESIGN 355x175x35mm**

- metal body finished in white polyester powder coat
- diffuser made of PC (polycarbonate)

OPTIONS / **PRÍPLATKY**

- SETTING version is available - dimming 30-100%

12V DC | 24V DC | 110V DC | 18W | 14W

CENTRAL TEST

AUTOTEST

DESCRIPTION / **POPIS**

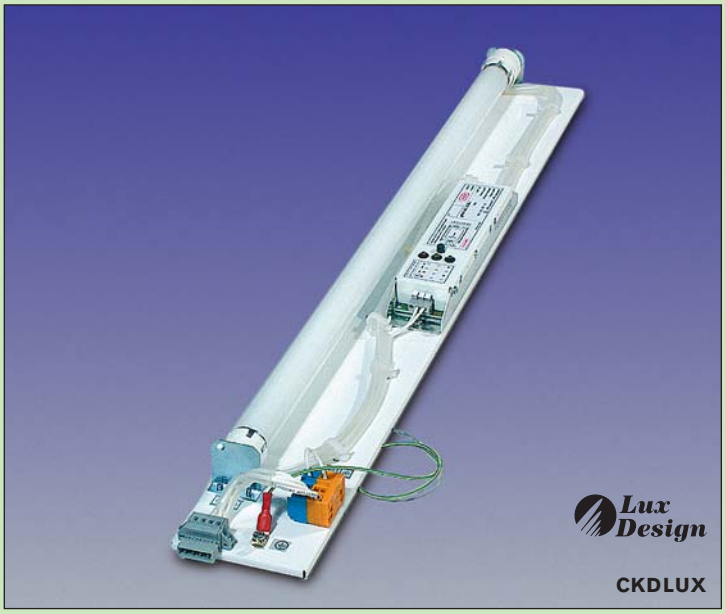
- CKDLUX lighting assembly has been developed for general use. The diffuser design is made by the vehicle manufacturer. It is manufactured in power versions: 14W/T5, 18W/T8 up to 36W (T5, T8 or even compact fluorescent tubes).
- Electronic ballast meets the latest EN requirements
- For more details see page „electronic ballasts - MEGA".

DESIGN / **DESIGN 700x90x42mm**

- metal base finished in white polyester powder coat

OPTIONS / **PRÍPLATKY**

- SETTING version is available - dimming 30-100%



12V DC | 24V DC | 110V DC | 10W

DESCRIPTION / **POPIS**

- READLUX 10W lighting fixture is designed for spot illumination. It is manufactured only in 12V DC version. In case of any other feeding voltage the electronic transformer (option) has to be used.

DESIGN / **DESIGN**

- metal/aluminum body finished in polyester powder coat

OPTIONS / **PRÍPLATKY**

- electronic transformer from ....V DC to 12V DC

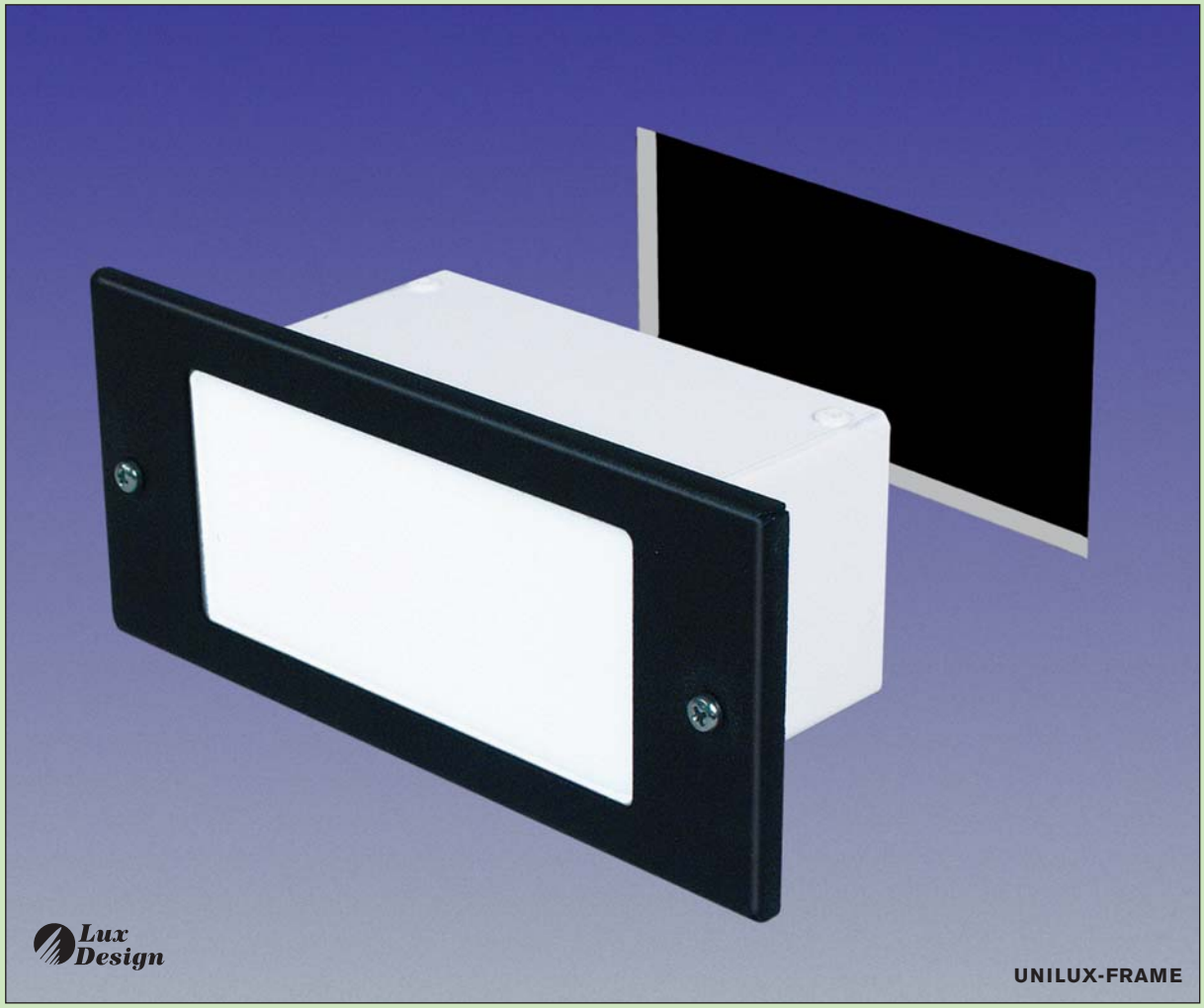
RAILWAY + BUS/COACH APPLICATIONS

FINELUX, CKDLUX, READLUX

W	Type	Power Supply:	Power	Dimming	Auto-Test	Central-Test	
8	FINELUX 8W	24V, 48V, 110V DC	LED	OPTION	YES	-	
18	CKDLUX 18W	24V, 48V, 110V DC	14W/18W	YES	YES	-	
10	READLUX	24V DC	5W	OPTION	-	-	
3x10	READLUX POWER SUPPLY BALLAST	24V DC	3x10W	-	-	-	

RECESSED LIGHTING FIXTURES...

Railway + Bus/Coach Interior Lighting Application



... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

UNILUX

12V DC | 24V DC | 110V DC | 5W | 9W | LED

EN STANDARDS COMPLIANCE

DESCRIPTION / POPIS

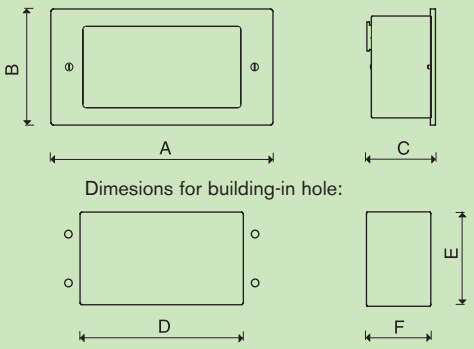
- The UNILUX recessed lighting fixtures are designed for illumination of the interior of public transport vehicles. It provides a soft and comfortable light. Thanks to the variable size it is possible to create a lighting fixture exactly according to customer requirements (size, colour, power).
- Electronic ballast meets the latest requirements (EMC).

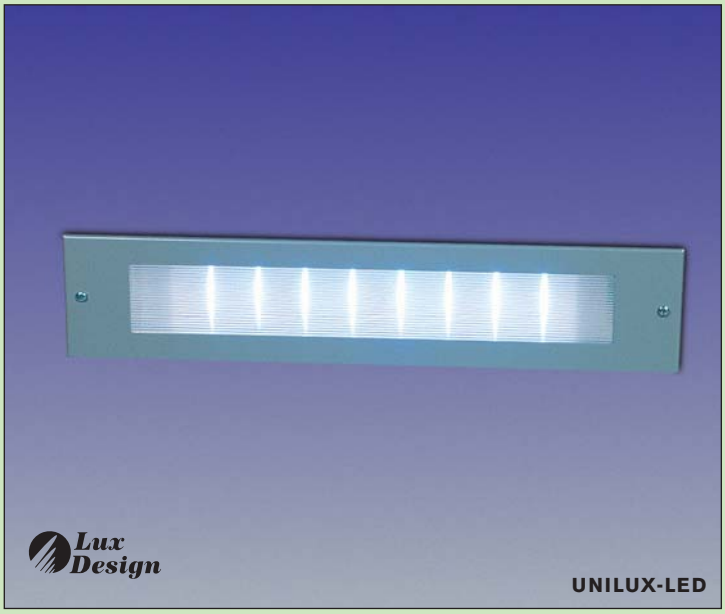
DESIGN / DESIGN

- metal body finished in polyester powder coat
- diffuser made of PMMA/PC (polycarbonate)

OPTIONS / PRÍPLATKY

- alternative dimmension and light sources according to customer specification are available

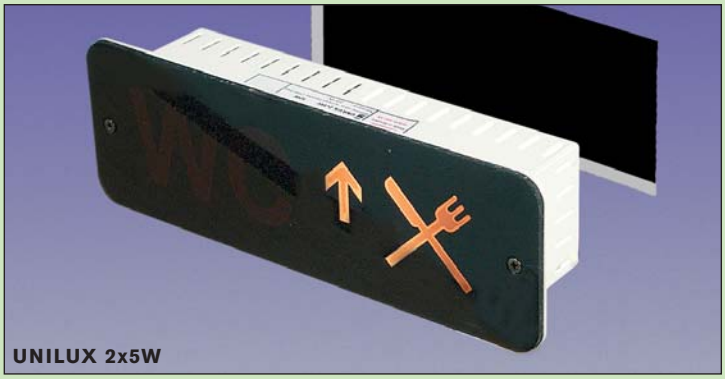




UNILUX-LED

UNILUX 5W

UNILUX 2x5W


UNILUX 2x5W

RAILWAY + BUS/COACH APPLICATIONS — UNILUX

W	Type	Dimensions A,B,C,D,E,F	Power	Dimming	Auto-Test	Central-Test	Power Supply:
LED	UNILUX-LED	382, 72, 125, 350, 60, 120 mm	LED	-	-	-	24V, 48V, 110V
9	UNILUX-FRAME 9W	320, 125, 90, 280, 105, 85 mm	9W	OPTION	OPTION	-	12V, 24V, 48V, 110V
5	UNILUX-FRAME 5W/SV8,5	150, 65, 60, 100, 50, 55 mm	5W	OPTION	-	-	12V, 24V, 48V, 110V
15	UNILUX-FRAME 15W/E14	150, 65, 60, 100, 50, 55 mm	15W	OPTION	-	-	12V, 24V, 48V, 110V
5	UNILUX 5W/SV8,5	120, 70, 70, 92, 53, 65 mm	5W	OPTION	-	-	12V, 24V, 48V, 110V
2x5	UNILUX 2x5W/SV8,5	210, 70, 70, 185, 53, 65 mm	2x5W	OPTION	-	-	12V, 24V, 48V, 110V

INDIVIDUAL LIGHTING FIXTURES...

Bus/Coach Interior Lighting Application

... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

INFOLUX

12V DC | 24V DC | 110V DC | 5W | BUZZER

DESCRIPTION / POPIS

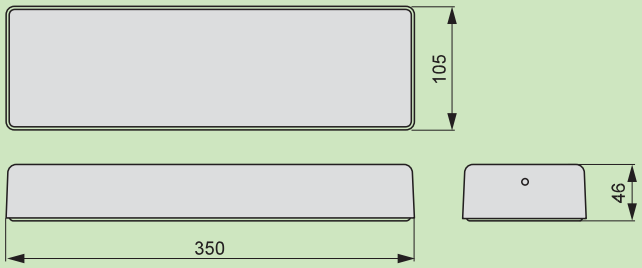
• The INFOLUX lighting fixtures are designed as informational illuminated panels for the interior of public transport vehicles. It can be equipped also with buzzer.

DESIGN / DESIGN

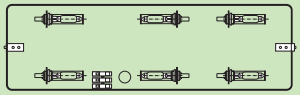
• metal body finished in polyester powder coat
• diffuser made of PMMA

OPTIONS / PRÍPLATKY

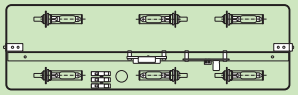
• customised legend



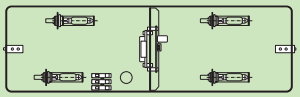
INFOLUX 1



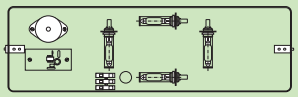
INFOLUX 2



INFOLUX 2 Special



INFOLUX 3



Acoustic Buzzer

Lamp Holder

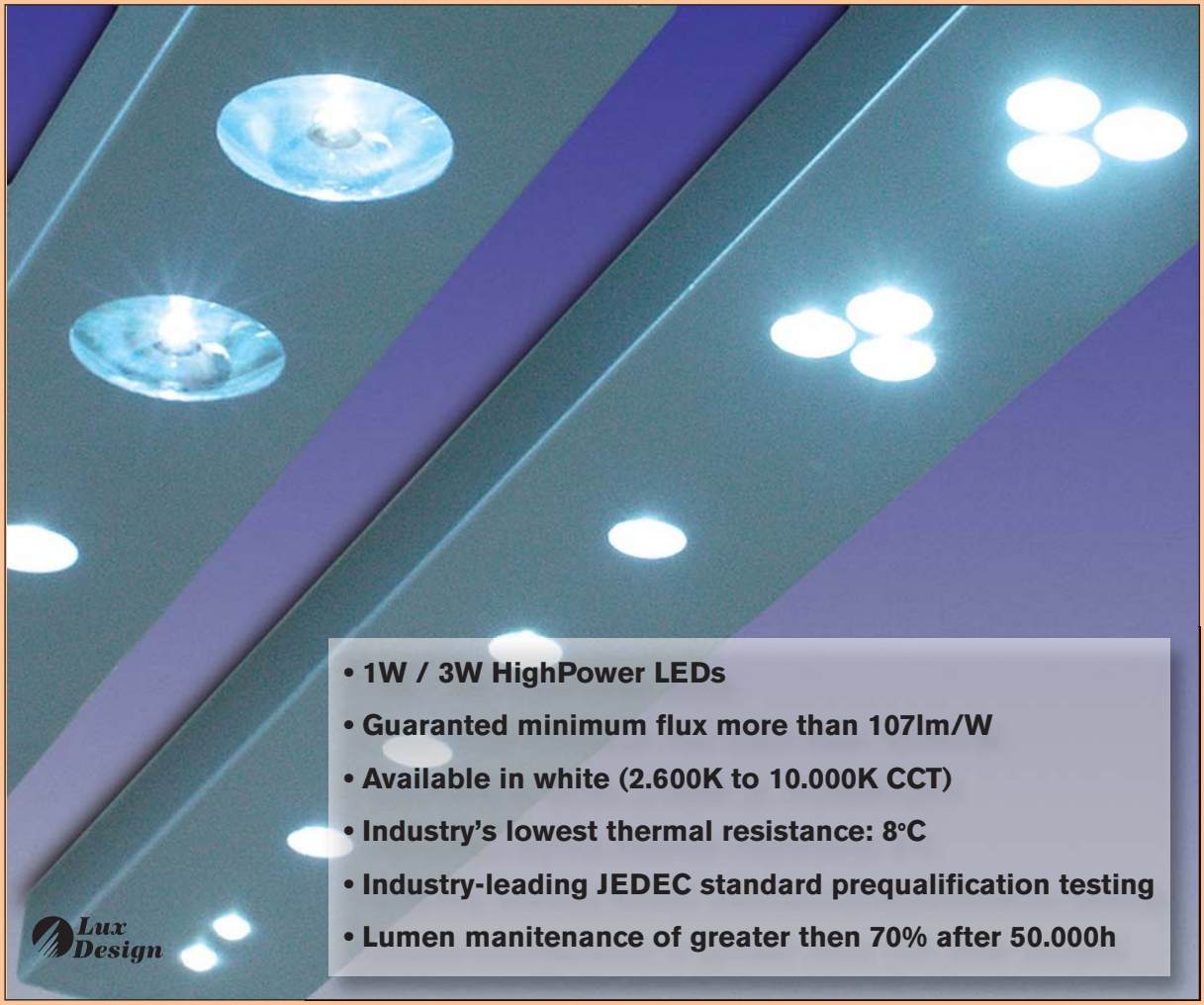
WAGO Terminal block

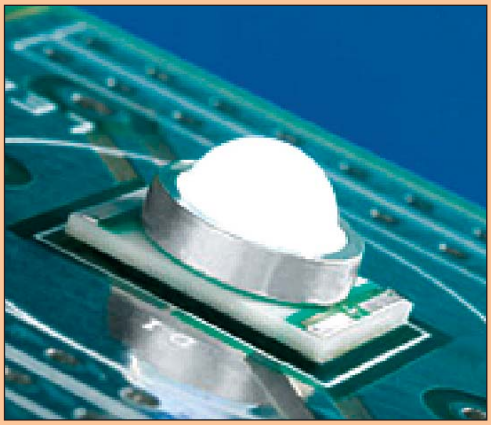
BUS/COACH APPLICATION — INFOLUX

Type	Power Supply:	Power	Dimming	Auto-Test	Central-Test	Accoustic Signal:
INFOLUX 1	12V, 24V, 48V DC	6x5W	-	-	-	-
INFOLUX 2	12V, 24V, 48V DC	2x3x5W	-	-	-	YES
INFOLUX 2 SPECIAL	12V, 24V, 48V DC	2x3x5W	-	-	-	YES
INFOLUX 3	12V, 24V, 48V DC	4x5W	-	-	-	YES
UNILUX 5W/SV8,5	12V, 24V, 48V DC	5W	OPTION	-	-	12V, 24V, 48V, 110V
UNILUX 2x5W/SV8,5	12V, 24V, 48V DC	2x5W	OPTION	-	-	12V, 24V, 48V, 110V

LED APPLICATIONS...

Railway + Bus/Coach Interior Lighting Application





... BRING THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

CREE LED Light

LUMILEDS Light From Silicon Valley

LED PROJECTS

12V DC | 24V DC | 36V DC | 72V DC | 110V DC | LED

EN STANDARDS COMPLIANCE

DESCRIPTION / POPIS

- UNILED (SINGLE MODULE) is designed as LED spot lighting fixture for direct illumination of the interior of public transport vehicles (for example as emergency moduleor toilete lighting module). It provides a soft and comfortable light.

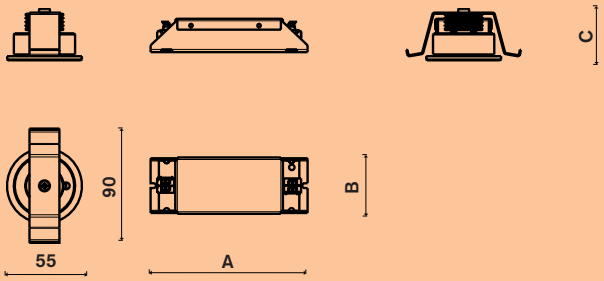
  The powerful illumination is ensured by 3W high power LED made by one of the famous led manufacturer Cree.
- Electronic ballast meets the latest requirements for EMC

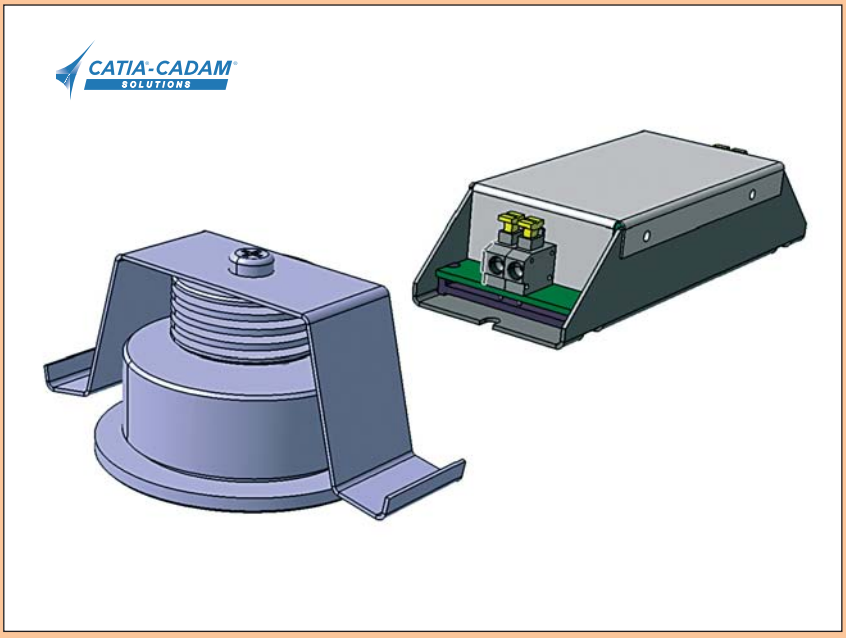
DESIGN / DESIGN

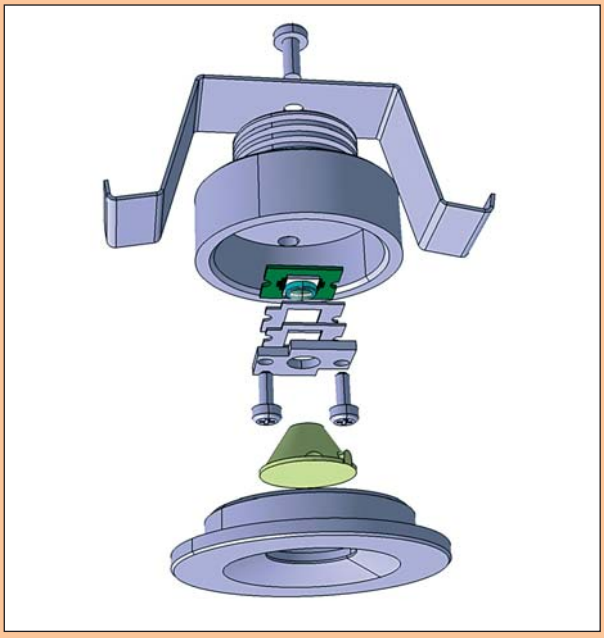
- Electronic ballasts + LED + wiring + recessed mounting clip

OPTIONS / PRÍPLATKY

- alternative dimmension and light sources according to customer specification are available







RAILWAY + BUS/COACH APPLICATIONS — UNILED

W	Type	Power Supply:	Power	Dimming	Auto-Test	Central-Test	Dimmensions A x B x C mm
3	UNILED 3W (single modul)	24V, 36V, 110V DC	LED 3W	OPTION	OPTION	OPTION	115 x 40 x 35 mm

12V DC | 24V DC | 36V DC | 72V DC | 110V DC | LED

EN STANDARDS COMPLIANCE

DESCRIPTION / POPIS

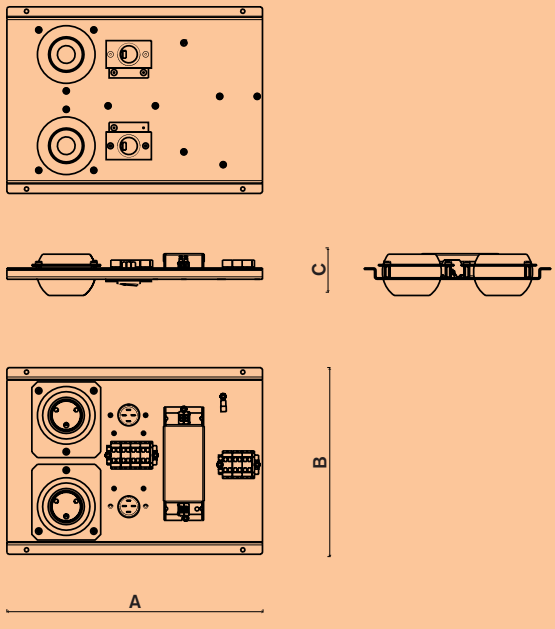
- UNILED type serie is designed as LED spot reading lighting fixtures for direct illumination of the interior of public transport vehicles. It provides a soft and comfortable light. Thanks to the variable fixation of the body (sphere) the light can be directed to the required area. The fixation is locked during the first instalation. The powerful illumination is ensured by 2x3W high power LED made by one of the famous led manufacturer Cree.
- Each LED can be individualy on/off by illuminated switch
- Electronic ballast meets the latest requirements for EMC

DESIGN / DESIGN

- All electronic ballasts, LED, wiring, WAGO terminal block are designed as onne modul which has been designed for customised AL extruded profile (part of the celing structure)

OPTIONS / PRÍPLATKY

- alternative dimmension and light sources according to customer specification are available



RAILWAY + BUS/COACH APPLICATIONS — UNILED

W	Type	Power Supply	Power	Dimming	Auto-Test	Central-Test	Dimensions A x B x C mm:
3	UNILED 1x3W	24V, 36V, 110V DC	36W	OPTION	OPTION	OPTION	260 x 190 x 40 mm
2x3	UNILED 3x3W	24V, 36V, 110V DC	15W	OPTION	OPTION	OPTION	260 x 190 x 40 mm

12V DC | 24V DC | 36V DC | 72V DC | 110V DC | LED

EN STANDARDS COMPLIANCE

DESCRIPTION / POPIS

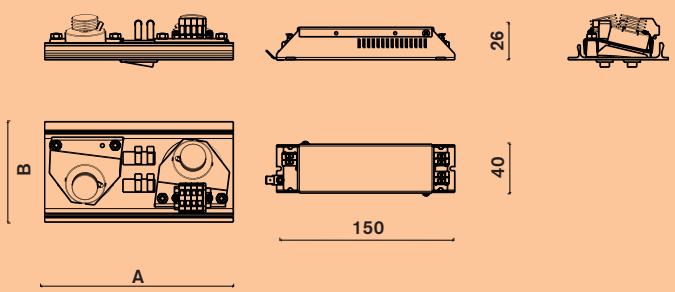
- BONOLUX type serie is designed as LED spot reading lighting fixture for direct illumination of the interior of public transport vehicles. It provides a soft and comfortable light. Originaly it has ben designed for BOMBARDIER train. The goemetry and position of LEDs meets the customer requirements for required area illumination. The powerful illumination is ensured by 2x3W high power LED made by one of the famous led manufacturer Cree.
- Each LED can be individualy on/off by illuminated switch

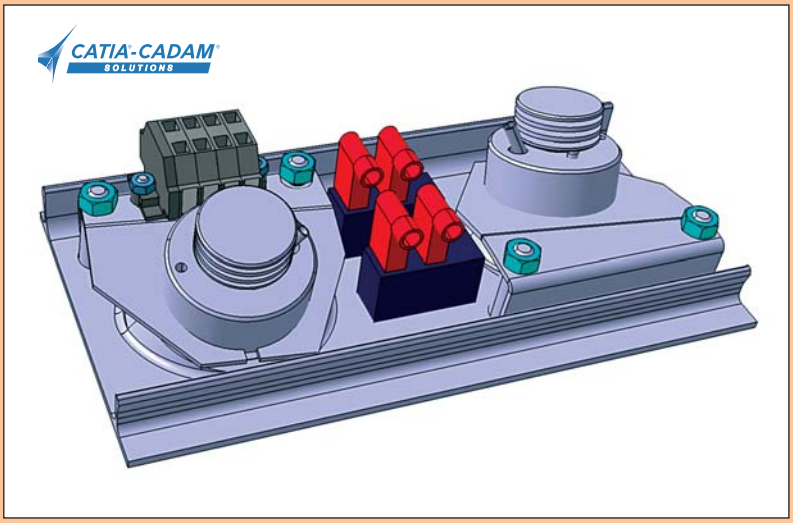
DESIGN / DESIGN

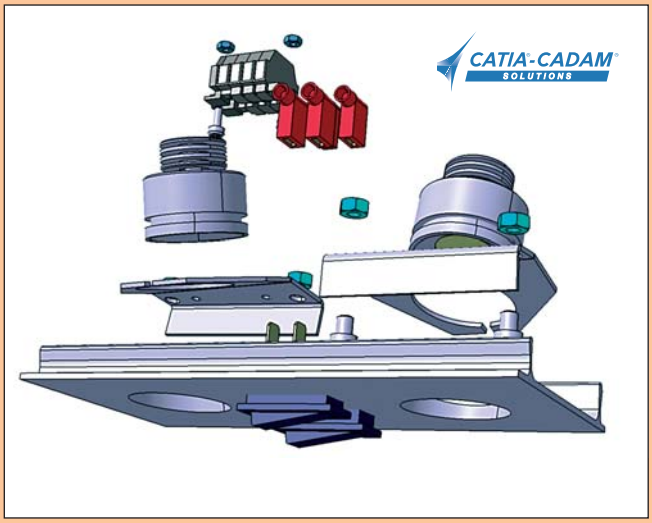
- All electronic ballast, LED, wiring, WAGO terminal block are designed as one modul which has been customised designed

OPTIONS / PRÍPLATKY

- alternative dimmension and light sources according to customer specification are available





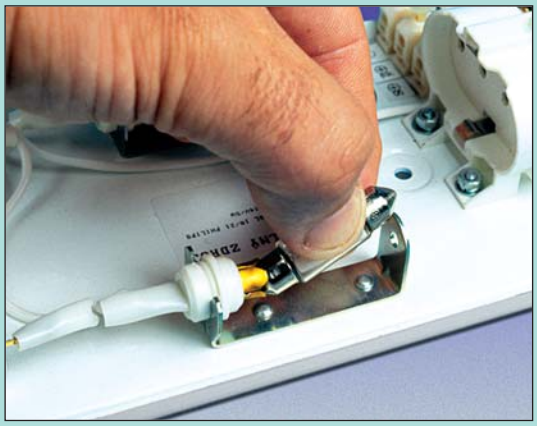


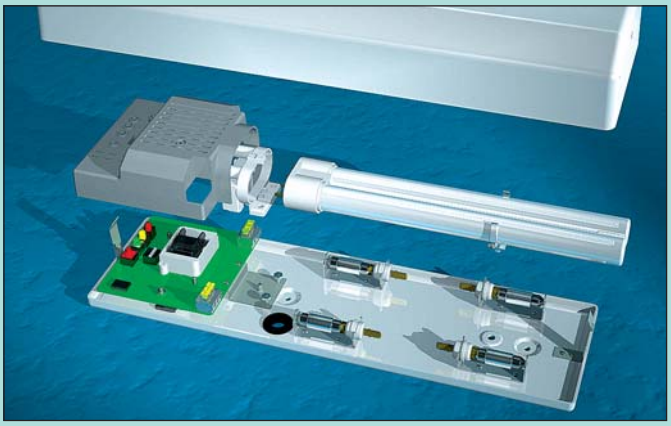
RAILWAY + BUS/COACH APPLICATIONS BONLUX

W	Type	Power Supply:	Power	Dimming	Auto-Test	Central-Test	Dimmensions A x B mm
2x3	BONOLUX 2x3W	24V, 36V, 110V DC	LED 2X3W	OPTION	OPTION	OPTION	160 x 85 mm

TUBULAR LAMP HOLDER...

for the long lasting reliable fixing...





... BRINGS THE SOFT LIGHT FOR ANY APPLICATION

SEC® Lighting

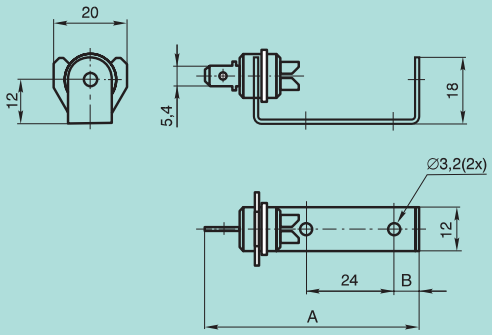
LAMP HOLDER

LAMP HOLDER

12V DC | 24V DC | 48V DC | 110V DC | 5W | 10W

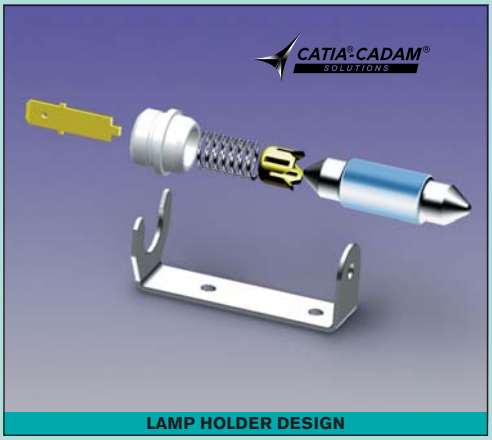
Description:
- The tubular lamp holder is designed to hold lamps especially in the automotive industry where a high resistance against motion and vibration is needed.
  Permanent contact is ensured by spring pressure.

Design:
- base made of steel
- socket consists of a plastic body in which flexible attachment conctact is mounted

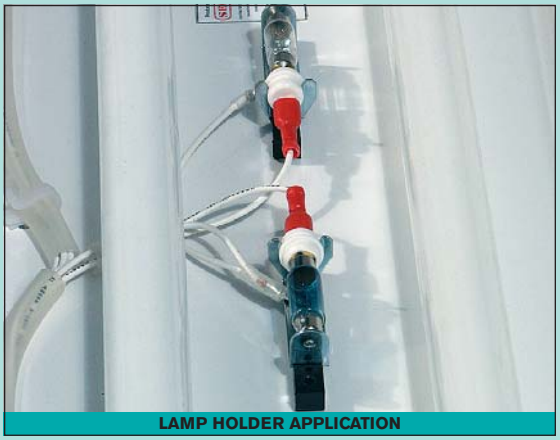


Options:
- alternative dimensions based on customer specification are available


LAMP HOLDER APPLICATION



LAMP HOLDER DESIGN

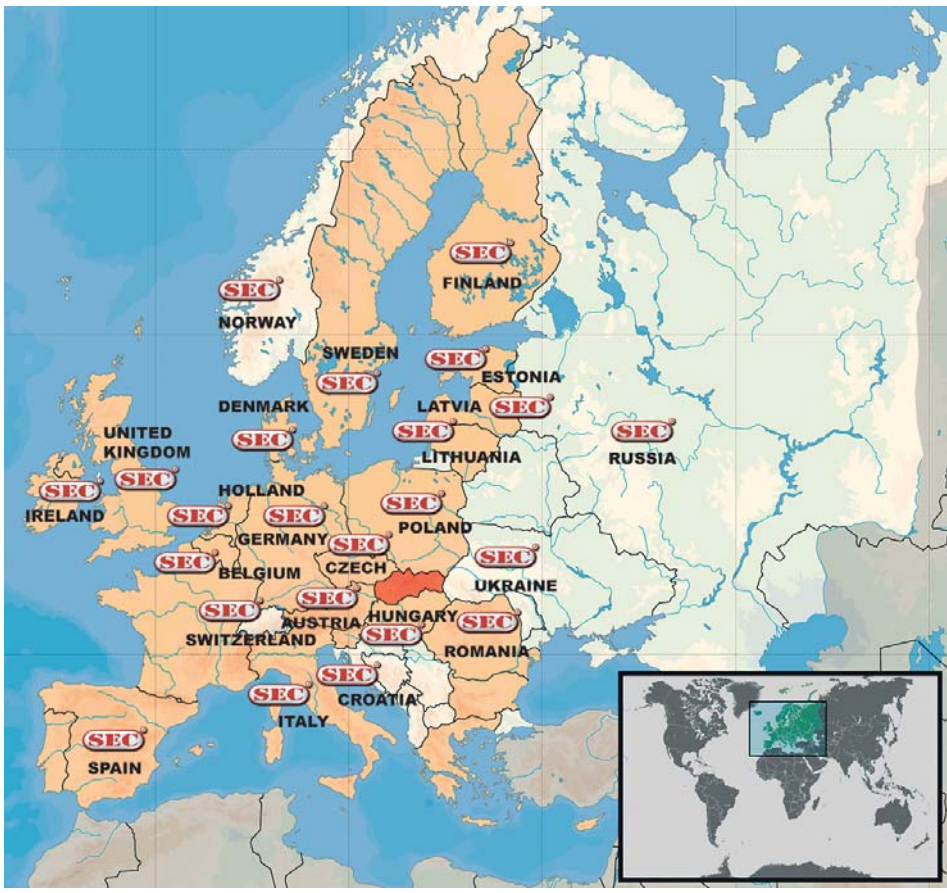

LAMP HOLDER APPLICATION

RAILWAY + BUS/COACH APPLICATIONS — LAMP HOLDER

W	Type	Power Supply	Power	SpringPressure:			Dimension A/B:
5	5W LAMP HOLDER	**DC 12V, 24V, 48V, 110V**	5W	YES			60 / 7 mm
10	10W LAMP HOLDER	**DC 12V, 24V, 48V, 110V**	10W	YES			60 / 10 mm

SEC Lighting

EURO QUALITY



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