

IF YOU THINK SAFETY  
IS EXPENSIVE  
TRY AN ACCIDENT

# LOW LOCATION LIGHTING SYSTEMS





**“Take a step towards  
a safer environment  
with our  
Visible Solutions”**

## INTRODUCTION

Low Location Lighting Systems plays an crucial part onboard ships and offshore platforms in case of a sudden electrical failure when facing a black-out, or heavily darkened situation due to other factors such as smoke development. The Photoluminescent Low Location Lighting Systems as well as the Electrical Powered Low Location Lighting Systems are therefore necessary for guiding people towards safety. As stipulated according to IMO, SOLAS and ISO regulations, ships carrying more than 36 passengers shall be equipped with such systems to efficiently mark obstacles, stairs, routes to the exits, and emergency exits. Our photoluminescent and Electrical powered (LED) systems are used to create the optimal way to safety for passengers and personnel.

Signwell realizes new-/and refurbishment projects of implementing Low Location Lighting Systems, **3L-PL™** / **3L-EP™** and conducts the **3L-SI™**, Low Location Lighting System Inspections /certifications of your system.

## RULES & REGULATIONS

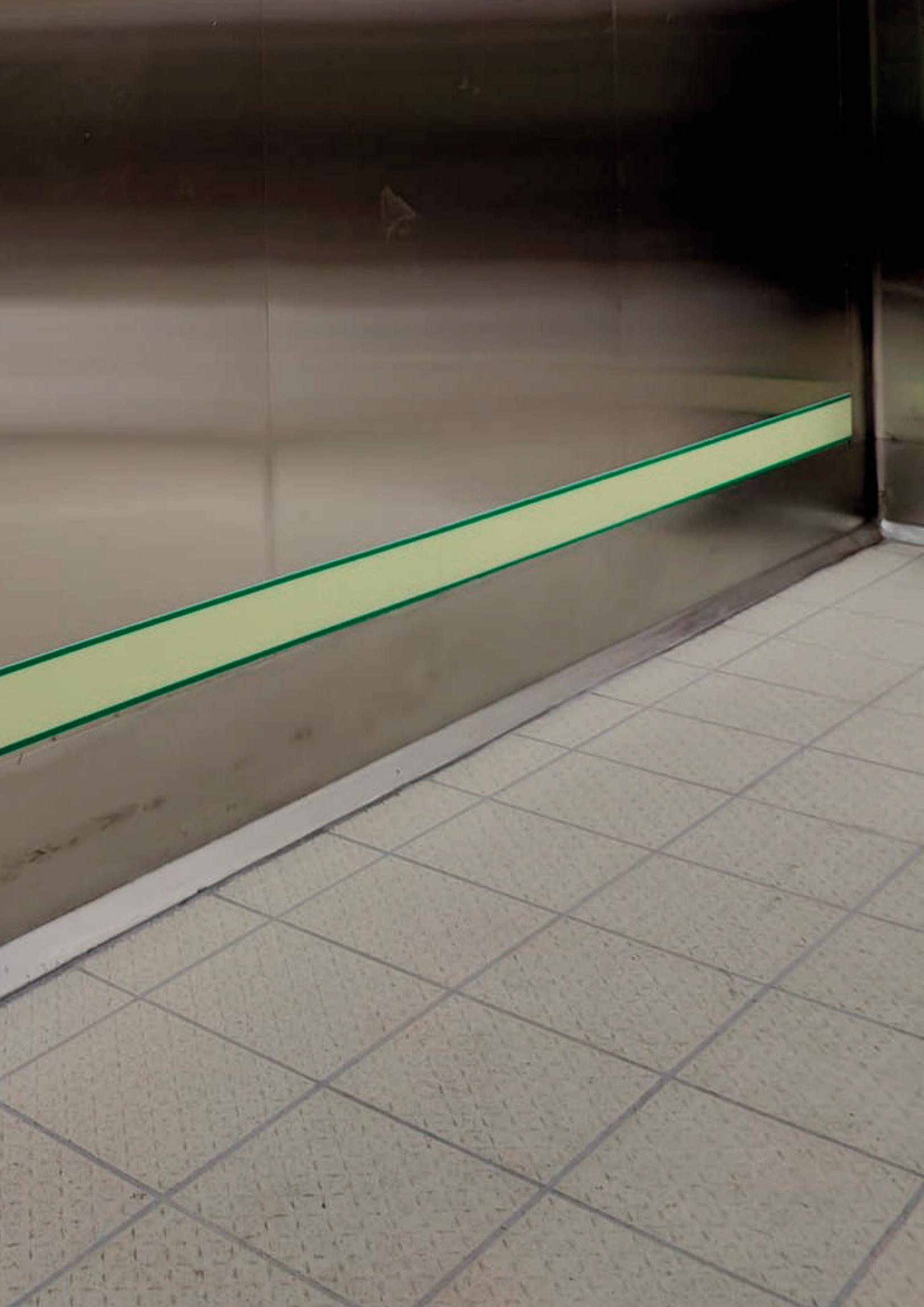
The below rules, regulations and standards describe the technical performance and properties of the products used, how to install these products/systems and how to certify and maintain these products and systems.

Standard	Description
IMO Resolution A.752 (18)	Guidelines for the evaluation, testing and application of LLL on passenger ships
SOLAS Chapter II-2 regulation 13	Means of escape - Marking of escape routes
European Directive 2002/25/EC	Safety rules and standards for passenger ships
ISO 15370:2021	Low Location Lighting (LLL) on passenger ships
ISO 16069	SWGS - Safety Way Guidance Systems
ISO 24409-2:2014	Ships and marine technology -- Design, location and use of shipboard safety signs, fire control plan signs, safety notices and safety markings
ISO 17398:2004	Safety colours and safety signs - Classification, performance & durability of safety signs

## REQUIREMENTS

Signwell is a DNV approved specialist for Low Location Lighting systems on passenger and RoPax vessels. IMO & SOLAS regulations require that ships carrying more than 36 passengers shall be fitted with a Low Location Light system. Resolutions A.752(18) & ISO15370:2021 details system requirements and testing procedures:

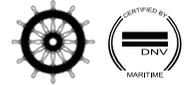
- The installed material must be class/Wheelmark approved
- All escape routes, including stairs, must be marked with a Low Location Lighting System
- Where stairs or corridors are wider than 200cm, the Low Location Lighting System shall be installed on both sides of the corridor.
- Escape signs shall be located at each EXIT on the same side as the door handle (as in the picture).
- Fire- and water tight doors shall be marked to show how the door is opened.
- The Low Location Lighting System must be placed no higher than 30cm above the deck at all points of the escape route.
- Photoluminescent Low Location Lighting Systems must have their luminescence tested every 5 year by an authorized body.



# ELECTRICAL POWERED LOW LOCATION LIGHTING SYSTEM

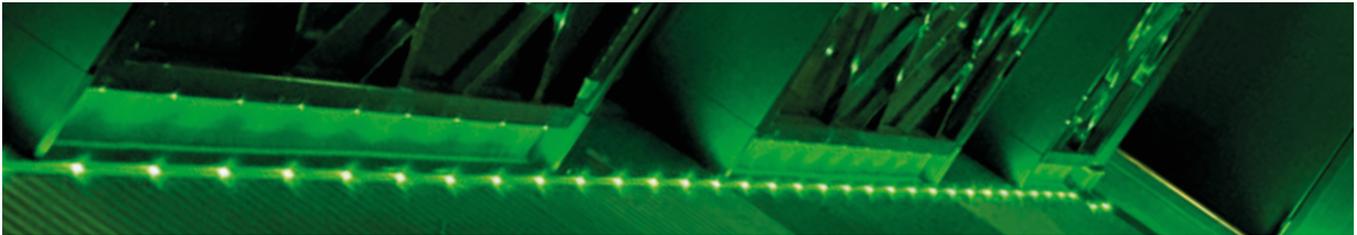


## LOW LOCATION LIGHTING ELECTRICAL POWERED SYSTEM



The LED Low Location Lighting system (Electrical Powered Low Location Lighting System) is designed for Escape Route Guidance. Its principle is the same as the Photoluminescent LLL systems, but this product does not need a light source to glow, its glow does not fade over time and the system does not require an audit every 5 year by an authorised body. Due to its great flexibility, the installation can be done, for example, on curved walls.

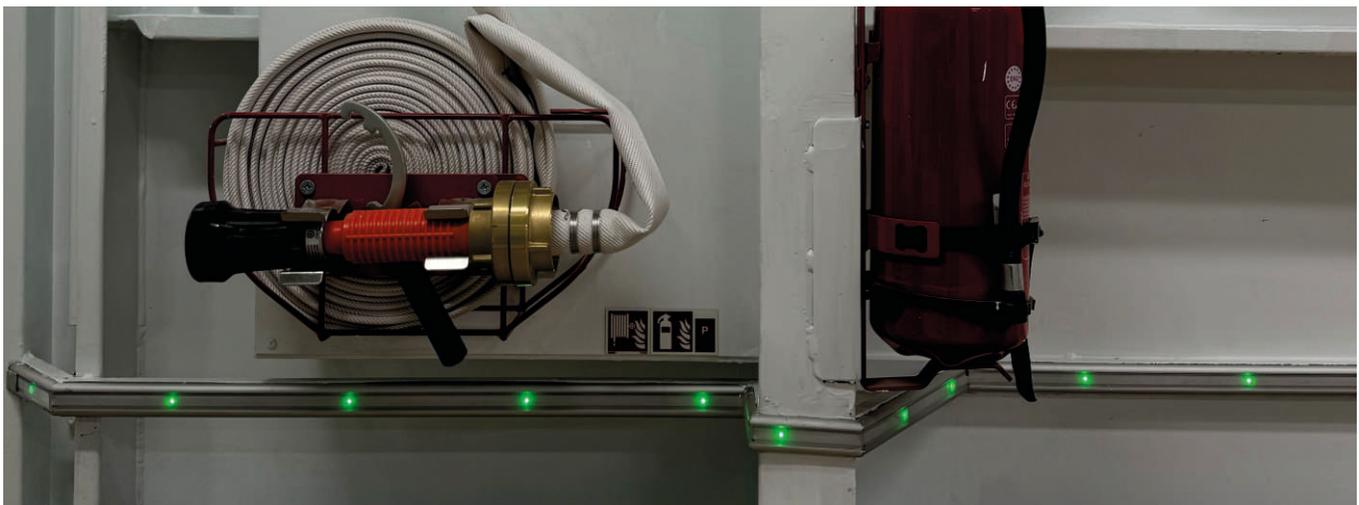
We produce, sell and install Low Location Lighting systems in accordance to IMO RESOLUTION A.752(18) and ISO 15370:2021. The turnkey service includes: mapping, planning and professional installation services.



### CERTIFICATION AND APPROVALS

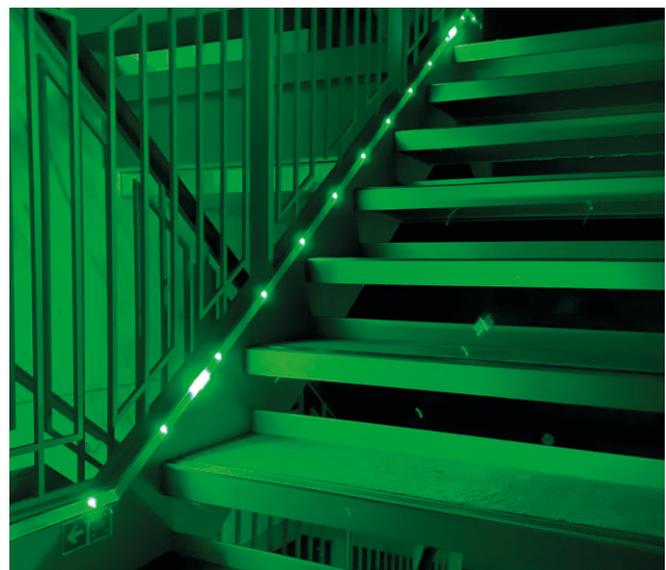
Low Location Lighting Systems comply with the environmental conditions and test procedures as defined in the requirements of the current editions of:

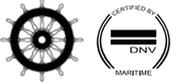
- IEC Pub. 598-2-22
- Regulation for the Performance of Type tests for Electric Appliances Components
- Type approval of instrumentation and automation equipment, DNV MED



### TECHNICAL DATA LED-STRIP

- Standard LED Distance: **200mm**
- High brightness LEDs colour "true green" **720 mcd**
- IP Grade: **IP67**
- Operating temp.: **-15°C to + 55°C**
- Life time: **> 150 000 hours**
- Due to high flexibility, LED-Strip can follow **even 90° corners** or tight curves without any electrical interruption



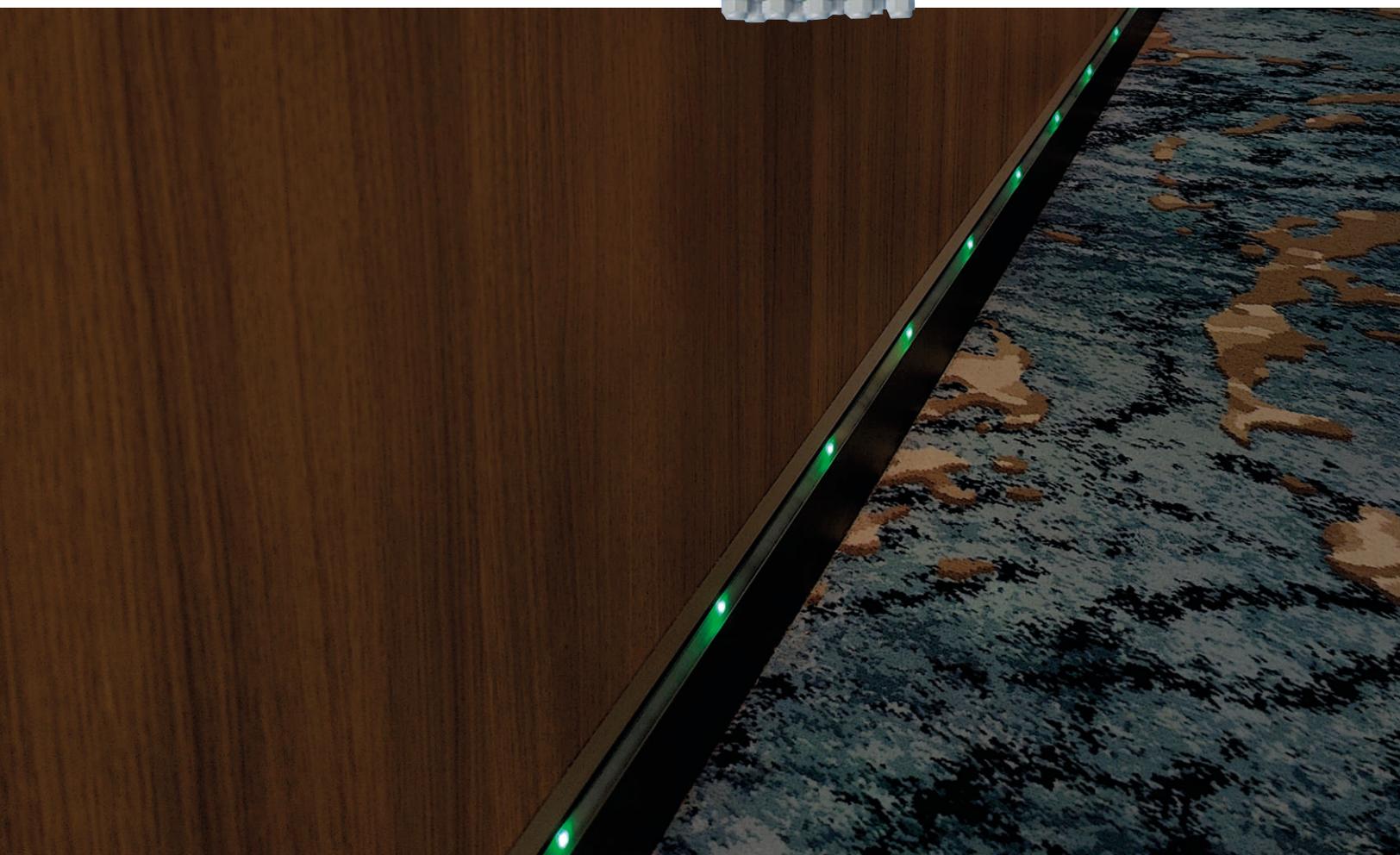


**POWER BOX UNIT (PSU)**

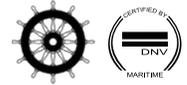
The Power Box Unit (PSU) feeds the system with power (each LED-strip is fed from both side and two different PSUs for safety reasons). System activation can be done from the bridge either by an input signal (from SMS- or emergency shut down-system) on board or manually from the bridge by switching the system simply ON/OFF.

**TECHNICAL DATA**

- Nominal Voltage: 115-230 V AC/DC
- Average Power Consumption: 77 VA (under fully load)
- Output Voltage: 22 V DC
- Output Power: 100 W
- Capable to feed up to 1.000 m LED-strip
- IP Grade: IP 55
- Batteries: 3 Sealed Lead Acid (7.26 kg)
- Housing: Metal, in colour RAL 7035 (grey)
- Battery charging also under systemactivation mode!
- Dimension: a) incl. Batt.: 445x340x127 mm  
b) excl. Batt.: 280x340x127 mm
- Weight: a) incl. Batt.: ~ 16.85 kg  
b) excl. Batt.: ~ 9.60 kg
- NO extra housing for batteries required (!)
- Cable Glands: 9 x grommets in different sizes
- Terminal configuration plan inside



## LOW LOCATION LIGHTING ELECTRICAL POWERED SYSTEM

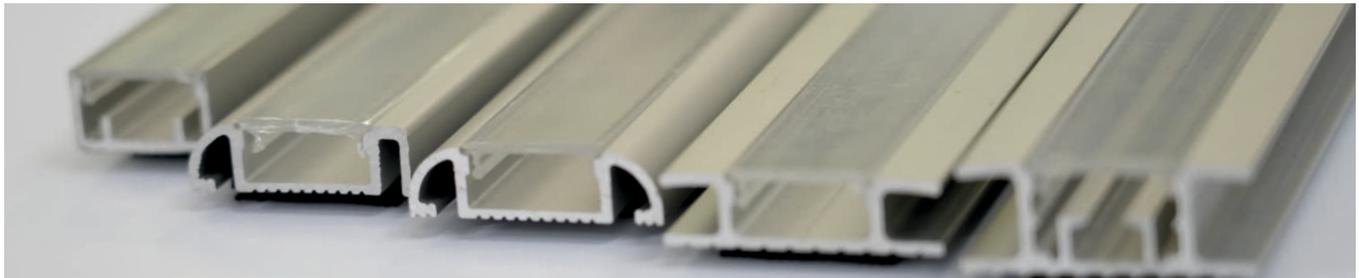


### PROFILE TYPES

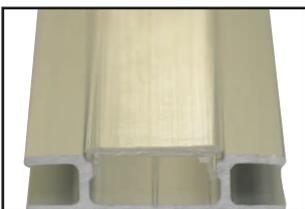
Our Electrical powered Low Location Lighting System can be installed in two different ways, floor mounted or wall mounted. Electrical Low Location Lighting systems goes under the category "Active systems" whereas Photoluminescent Low Location Lighting Systems goes under "Passive Systems".

SIGNWELL offers turnkey services for both systems, mostly for new building projects but also for refurbishment projects on all scales. Our range of profiles and methods varies from integrated profile systems to wall mounted and floor mounted profiles.

### STANDARD ALUMINIUM PROFILES



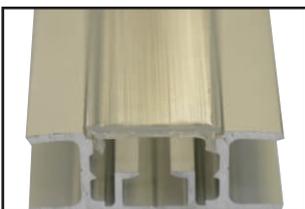
- **Standard colour:** Anodised silver
- Further colours on request e.g. Black anodized.
- Protection covers and end-caps



Integrated floor profile  
CC38/10  
**B00 803 111 00**



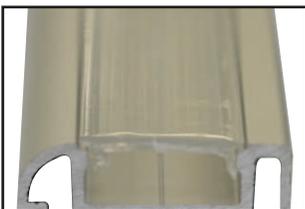
Double rounded edge profile  
RR37/10  
**B00 803 091 00**



Integrated floor profile  
CC38/15.5  
**B00 803 011 00**

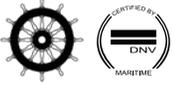


Integrated profile  
U22/12  
**B00 803 021 00**



Single rounded edge profile  
RS34/10  
**B00 803 071 00**

**LOW LOCATION LIGHTING  
ELECTRICAL POWERED SYSTEM**



Single rounded edge End-cap  
(Right)  
RS34/10  
**B00 806 079 00**



Double rounded edge profile  
RS37/10  
**B00 806 091 00**



Single rounded edge End-cap  
(Left)  
RS34/10  
**B00 806 089 00**



35mm long PC-End Cover  
**B00 803 629 01**



Integrated profile End-Cap  
U22/12 PC-End Cap  
**B00 806 021 00**



Decor foil with holes  
**B00 802 519 11**



Integrated floor profile End-Cap  
**CC38/15.5**  
**B00 806 209 00**



Decor foil without holes  
**B00 803 519 11**



Double rounded edge End-cap  
RR37/10 PC-End Cap  
**B00 806 091 00**



Clear polycarbonate (PC-)  
Protection cover  
**B00 803 610 00**

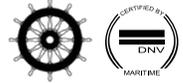


Integrated floor profile End-Cap  
**CC38/10**  
**B00 806 109 00**



2-wire LED-Strip 200mm distance  
Green colour  
**B00 807 320 00**

## LOW LOCATION LIGHTING ELECTRICAL POWERED SYSTEM

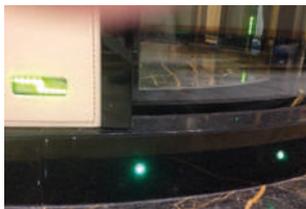


### CUSTOM SPECIAL PROFILE TYPES



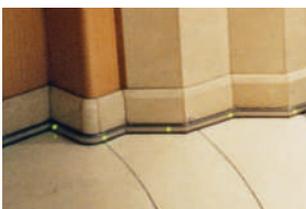
#### Skirting Board Profile

- Original RIVINOX-/ BEZAULT-/ SCHWEPPER Skirting board profiles
- Available colours: GOLD and SILVER
- Other skirting board profiles available on request



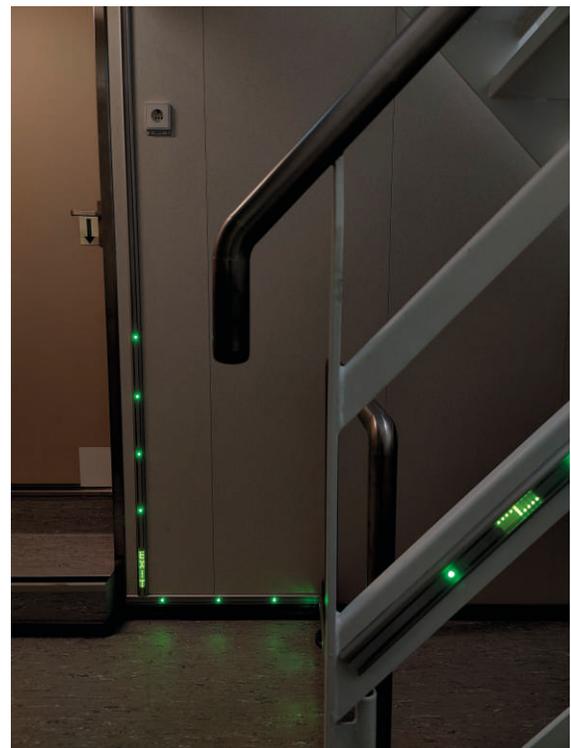
#### Wall recessed option (w/o profile)

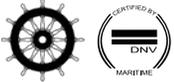
- Clipped- in from behind into the wall panels
- Installed into the pre-manufactured wooden skirting board profiles (pre- manufactured cutouts)



#### Polycarbonate Profile

- Available in all RAL colours (Standard colours is RAL7026)
- Non toxic, halogen free and fire retardant
- Protection covers and end-caps in same quality



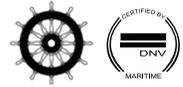


**INTRODUCTION**

Low Location Lighting Systems plays an crucial part onboard ships and offshore platforms in case of a sudden electrical failure when facing a black-out, or heavily darkened situation due to other factors such as smoke development. The Photoluminescent Low Location Lighting Systems as well as the Electrical Powered Low Location Lighting Systems are therefore necessary for guiding people towards safety. As stipulated according to IMO, SOLAS and ISO regulations, ships carrying more than 36 passengers shall be equipped with such systems to efficiently mark obstacles, stairs, routes to the exits, and emergency exits. Our photoluminescent and Electrical powered (LED) systems are used to create the optimal way to safety for passengers and personnel. Signwell realizes new-/or refurbishment projects of implementing Low Location Lighting Systems, **3L-PL**<sup>™</sup> / **3L-EP**<sup>™</sup> and conducts the **3L-SI**<sup>™</sup>, Low Location Lighting System Inspections /certifications of your system.

**The New Generation of Low Location Lighting Systems, 3L-PL**<sup>™</sup> (non PVC/ halogen free) is a pioneer and a game changer on the market. With its high quality and environmental footprint it is by far the best choice of PL LLL today on the Maritime Industry market. Today most sign makers use PVC, despite the fact that it is the single most environmentally damaging of all plastics. PVC contains halogens and their toxicity of smoke is of highest concern within enclosed spaces, which you will find onboard any ship or offshore platform.





## LOW LOCATION LIGHTING PHOTOLUMINESCENT LUMINANCE PROPERTIES

### The New Generation instead of ~~PVC~~

Our **3L-PL™** Low Location Lighting Systems are a remarkable step towards the future. With its standard exceeding performance, up to 4 times better than other Photoluminescent LLL systems on the market. The results are not only achieved with its performance, but also installation vice and by taking energy savings into consideration with The New Generation System onboard. Expected lifetime of **3L-PL™** is 10+ years and it comes with a 10 year warranty.

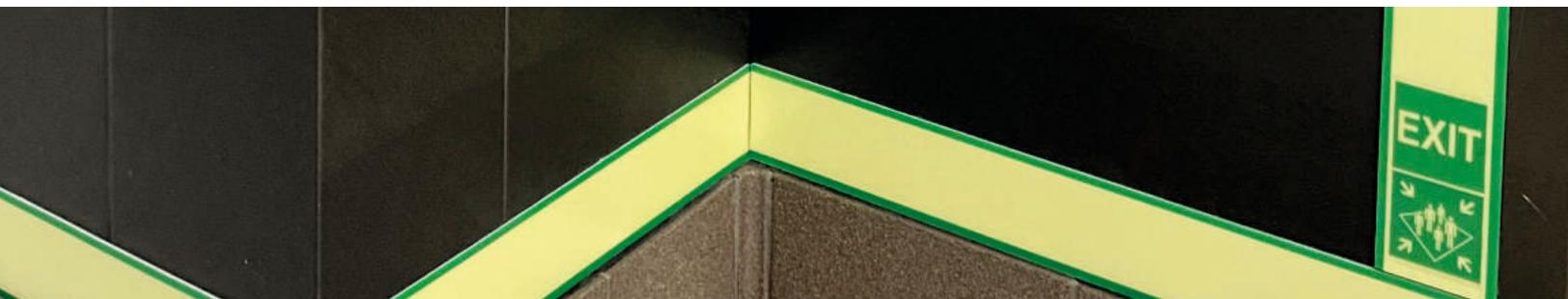
#### LUMINANCE PROPERTIES:

Applicable Standards and Resolutions vs. SafeSigns	Luminescent intensity (mcd/m <sup>2</sup> ) (After removing the existing light)	
	10 minutes	60 minutes
IMO Res. A. 752(18)	15 mcd/m <sup>2</sup>	2 mcd/m <sup>2</sup>
ISO 15370	15 mcd/m <sup>2</sup>	2 mcd/m <sup>2</sup>
DIN 67 510-4	23 mcd/m <sup>2</sup>	3 mcd/m <sup>2</sup>
ISO 17398 Class A	25 mcd/m <sup>2</sup>	3 mcd/m <sup>2</sup>
ISO 17398 Class B	50 mcd/m <sup>2</sup>	7 mcd/m <sup>2</sup>
ISO 17398 Class C	140 mcd/m <sup>2</sup>	20 mcd/m <sup>2</sup>
ISO 17398 Class D	260 mcd/m <sup>2</sup>	35 mcd/m <sup>2</sup>
ISO 17398 Class E	400 mcd/m <sup>2</sup>	55 mcd/m <sup>2</sup>
ISO 17398 Class F	520 mcd/m <sup>2</sup>	70 mcd/m <sup>2</sup>
SafeSign XL	Class B+	Class B+
SafeSign XXL	Class C+	Class C+
SafeSign XXXL	Class E+	Class E+

Mentioned values are calculated for 75mm LLL systems.

#### BENEFITS COMPARED TO OLDER GENERATION ALUMINIUM PROFILE SYSTEMS:

- No lost or loose end caps
- No gaps due to shrinking
- No more dirt collections on profile
- No mechanical damages
- No more dirt on insert which cannot be removed
- Not as time consuming to replace
- No unnecessary weight due to profiles
- No shivering from loose profiles after a few years of service
- Glossy finish
- PVC-/ Halogen Free
- UV-resistant
- Recyclable
- Profileless configuration
- No end-caps needed
- 10 + years service life
- 10 year warranty
- Weight saving-> Energy saving
- Easy to install



## THE NEW GENERATION OF PL LOW LOCATION LIGHTING SYSTEMS 3L-PL™

The **3L-PL™** System is the easiest and most cost effective Low Location Lighting system to install, requiring only the application of the LLL strips where needed. Cutting on required lengths can be done easily with a knife. The system is finalized by positioning the LLL signs/stickers at the right places.

**3L-PL™** Pet-X photoluminescent strips are Non PVC/ Halogen-free plastic strips with backlighting material and a strong self-adhesive foam tape on the back. The material has a 'glossy' finish which is easy to clean and gives it a high quality appearance. The LightLine strips are available with or without 5mm safety green edges at the top and bottom of the strips.



**3L-PL™** strips have a standard length of 1 m, 50 mm height and are produced with the high luminescence class XXL. All strips have a self-adhesive backing for easy fixing during new builds or refurbishment projects. **3L-PL™** strips are besides Non PVC/halogen-free, flame retardant and therefore exceeding all current requirements. Upon request we can manufacture **3L-PL™** strips in other widths and/or with other coloured marking stripes.

Article number	Description	Dimensions	Quality	Thickness
PL060CGN	<b>3L-PL™</b> LLL Strip, Pet-X green edges	1 m x 60 mm (50 mm)	C+ (XXL)	1,5 mm
PL070CGN	<b>3L-PL™</b> LLL Strip, Pet-X green edges	1 m x 70 mm (60 mm)	C+ (XXL)	1,5 mm
PL100CGN	<b>3L-PL™</b> LLL Strip, Pet-X green edges	1 m x 100 mm (90 mm)	C+ (XXL)	1,5 mm
PL040CN	<b>3L-PL™</b> LLL Strip, Pet-X neutral	1 m x 40 mm	C+ (XXL)	1,5 mm
PL050CN	<b>3L-PL™</b> LLL Strip, Pet-X neutral	1 m x 50 mm	C+ (XXL)	1,5 mm
PL070CN	<b>3L-PL™</b> LLL Strip, Pet-X neutral	1 m x 70 mm	C+ (XXL)	1,5 mm
PL060CGY	<b>3L-PL™</b> LLL Strip, Pet-X grey edges	1 m x 60 mm (50 mm)	C+ (XXL)	1,5 mm
PL070CGY	<b>3L-PL™</b> LLL Strip, Pet-X grey edges	1 m x 70 mm (60 mm)	C+ (XXL)	1,5 mm
PL100CGY	<b>3L-PL™</b> LLL Strip, Pet-X grey edges	1 m x 100 mm (90 mm)	C+ (XXL)	1,5 mm

**3L-PL™** LLL Strip, Pet-X green edges



**3L-PL™** LLL Strip, Pet-X grey edges



**3L-PL™** LLL Strip, Pet-X neutral



### Approvals

- DNV MED
- Wheelmark
- Korean Register



### Standards

- Complies with IMO Resolution A. 752 (18) and ISO standard 15370



Note; The width of the photoluminescent material in the strips with the green edges is shown in parentheses, the width of the green edges is 2 x 5 mm.



## LOW LOCATION LIGHTING PHOTOLUMINESCENT

### 3L-PL™ Low Location Light System



Integration into the architecture (Installation on curved pillar)

### THE NEW GENERATION OF LOW LOCATION LIGHTING SYSTEMS

The benefits of implementing The New Generation of Low Location Lighting are many. Our innovative product offers you the following:

- Glossy finish
- PVC Free
- Halogen Free
- Easy to wipe clean
- UV resistant
- Recyclable
- No end caps needed
- 10 year warranty
- >10 years life durability
- No shrinking
- 50% timesaving on installation
- Self-adhesive backing
- Salt Water resistant
- Easy to replace if needed
- Weight saving → energy saving
- No shivering
- Excellent photoluminescent capability
- Flexible material, great for installation



Flexible installation



Flexible installation

Green edge standard to indicate safety



Grey edge option

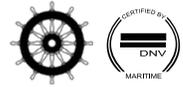




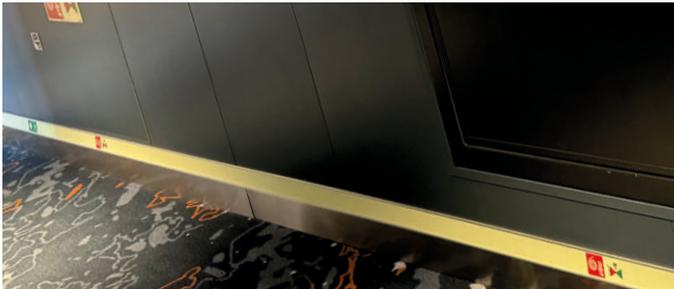
**SIGNWELL**  
VISIBLE SOLUTIONS

URTH

## LOW LOCATION LIGHTING ALUMINIUM PROFILES AND INSERTS



Our range of the old generation LLL profile system is consisting of extruded aluminum profiles and rigid photoluminescent strips. We offer two different models, flat profiles and angled. All insert strips are DNV certified. This system is from the time when photoluminescent materials did not have as good performance as the materials we have today. Therefore the insert strip system was created, in order to be able to change the strips when they did not charge enough anymore, also for charging better light from the light source. This system requires end-caps, and is overall more complex to install and adds a lot of extra unnecessary weight. We do not recommend to install it on new building vessels.



### Approvals

- DNV
- Wheelmark



### Standards

- ISO standard 15370

Article number	Description	Dimensions	Quality
IPA055CN	LightLine Insert PVC for angled profile	1 m x 55,4 mm	C+ (XXL)
PAA60-100	Insertprofile ALU angled (insert 55,4 mm)	1 m x 60 mm	Alu. anodised
PAA60-300	Insertprofile ALU angled (insert 55,4 mm)	3 m x 60 mm	Alu. anodised
ENDCAP-AL	LLL endcap angled profile left	15 mm x 60 mm	Plastic
ENDCAP-AR	LLL endcap angled profile right	15 mm x 60 mm	Plastic
IPF056CN	LightLine Insert PVC for flat profile	1 m x 56 mm	C+ (XXL)
PAF60-100	Insertprofile ALU flat (insert 56 mm)	1 m x 60 mm	Alu. anodised
PAF60-300	Insertprofile ALU flat (insert 56 mm)	3 m x 60 mm	Alu. anodised
ENDCAP-F	LLL endcap flat profile	4 mm x 53 mm	Alu. anodised



**Profile + insert Low Location Light System**



Dust and dirt collector

**The OLDER GENERATION ALUMINIUM PROFILE SYSTEMS:**

The previous generation of Low Location Lighting Systems, Profile + insert:

- PVC containing
- Not halogen Free
- Not as easy to clean
- Needs end caps ( that will get lost after heavy use)
- Shrinks
- Time consuming to install
- Harder to replace, due to profile.
- Adds a lot of extra unnecessary weight to the ship  
→ energy consuming
- Can start to shiver after some years in use
- Damages more visible due to both damaged profiles and inserts
- Gaps when end caps falls off



A result of loose endcaps

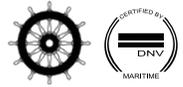


Damaged profile and insert



A result of loose endcaps

**LOW LOCATION LIGHTING  
MINI SYMBOLS**



Low Location Lighting Systems shall include all necessary symbols for the escape route and fire-fighting equipment in addition to the IMO signs at eye level, according to ISO 15370 and SOLAS regulations. Our LLL mini symbols can be self-adhesive transparent stickers, SafeSign Pet-X halogen and PVC free signs or acrylic signs. The LLL mini symbols shall be the minimum height of 50mm according to the ISO 15370 standard.



EEBD (em. breathing device)  
50 x 50 mm  
**RS0009**



Emergency exit (left hand)  
50 x 50 mm  
**ES0001**



Emergency exit (right hand)  
50 x 50 mm  
**ES0002**



Shipboard assembly station  
50 x 50 mm  
**ES0004**



Escape direction, arrow (90°)  
50 x 50 mm  
**ES0006**



Escape direction, arrow (45°)  
50 x 50 mm  
**ES0007**



Escape route forward/Esc. door  
100 x 50 mm  
**ES1001**



Escape door opens left  
100 x 50 mm  
**ES1002**



Escape route to the left  
100 x 50 mm  
**ES1004**



Escape route to the right  
100 x 50 mm  
**ES1005**



Escape route downstairs left  
100 x 50 mm  
**ES1006**



Escape downstairs right  
100 x 50 mm  
**ES1007**



Escape upstairs left  
100 x 50 mm  
**ES1008**



Escape upstairs right  
100 x 50 mm  
**ES1009**



Assembly station forward (through door)  
100 x 50 mm  
**ES1030**

**LOW LOCATION LIGHTING  
MINI SYMBOLS**



Assembly station left  
100 x 50 mm  
**ES1032**



Assembly station right  
100 x 50 mm  
**ES1033**



Assembly station downstairs left  
100 x 50 mm  
**ES1034**



Assembly station downstairs right  
100 x 50 mm  
**ES1035**



Assembly station upstairs left  
100 x 50 mm  
**ES1036**



Assembly station upstairs right  
100 x 50 mm  
**ES1037**



Assembly station forward/up  
100 x 50 mm  
**ES1038**



Lifeboat left  
100 x 50 mm  
**ES1052**



Lifeboat right  
100 x 50 mm  
**ES1053**



Escape route forward left vertical  
50 x 100 mm  
**ES1101**



Escape route forward right vertical  
50 x 100 mm  
**ES1102**



Escape route left vertical  
50 x 100 mm  
**ES1103**



Escape route right vertical  
50 x 100 mm  
**ES1104**



Assembly station forward vertical  
50 x 100 mm  
**ES1105**



Assembly station left vertical  
50 x 100 mm  
**ES1106**



Assembly station right vertical  
50 x 100 mm  
**ES1107**

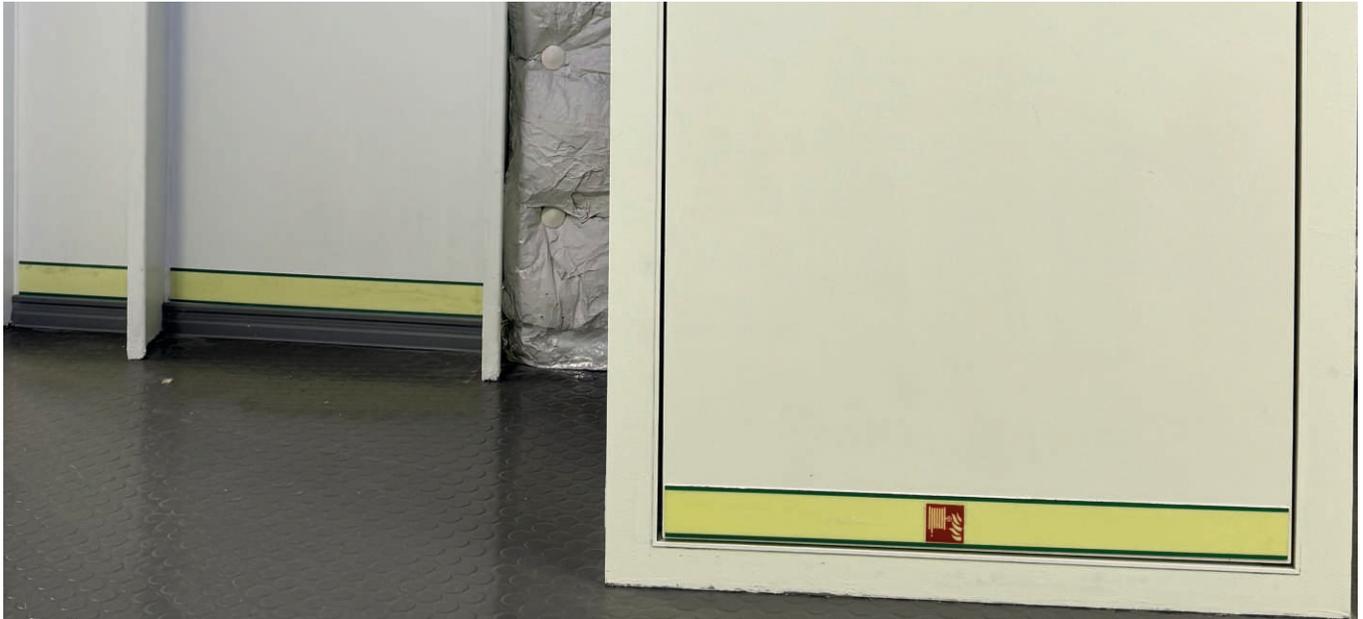


LLL Stairs up to left  
50 x 50 mm  
**ES1120**



LLL Stairs up to right  
50 x 50 mm  
**ES1121**

**LOW LOCATION LIGHTING  
MINI SYMBOLS**



Escape route forward left vertical  
50 x 200 mm  
**ES2501**



Escape route forward right vertical  
50 x 200 mm  
**ES2502**



Assembly station forward vertical  
50 x 200 mm  
**ES2503**



Fire extinguisher  
50 x 50 mm  
**FS0001**



Fire alarm call point  
50 x 50 mm  
**FS0002**



Fire hose reel  
50 x 50 mm  
**FS0003**



Unconnected fire hose  
50 x 50 mm  
**FS0004**



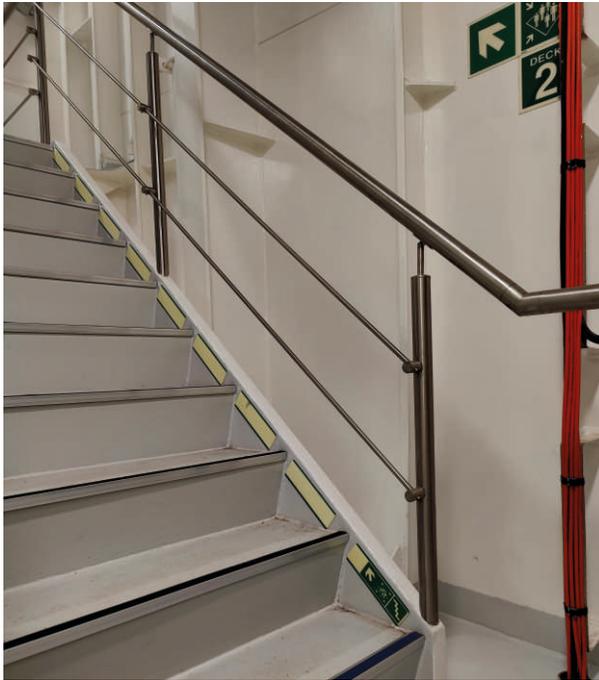
Fire hydrant  
50 x 50 mm  
**FC0048**

**Material options:**

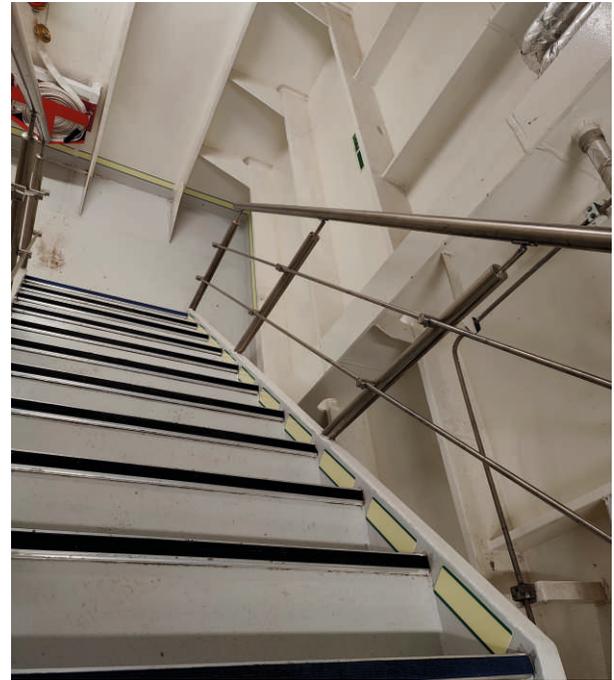
- Transparent laminated vinyl
- New Generation PVC Free PET-X



Low Location Lighting Systems shall include all necessary symbols for the escape route and fire-fighting equipment in addition to the IMO signs at eye level, according to ISO 15370 and SOLAS regulations. Our LLL mini symbols can be placed in staircases onto our Stair-Line LLL. The LLL mini symbols shall be the minimum height of 50mm according to the ISO 15370 standard.



After installation of symbols.

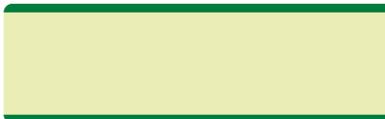


Before installation of symbols.

**Example of how to create a clear message and not:**



**3L-PL™** LLL Strip, Pet-X green edges



**3L-PL™** LLL Strip, Pet-X grey edges



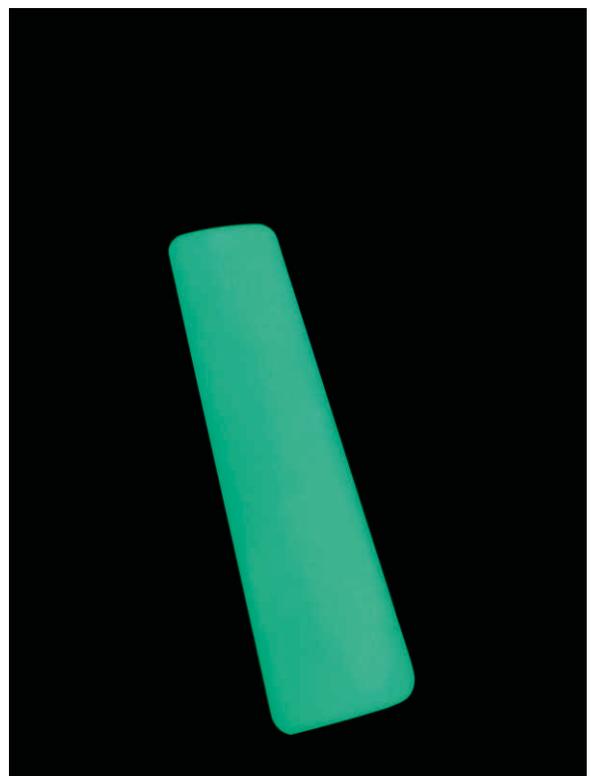
**3L-PL™** LLL Strip, Pet-X neutral



Article number	Description	Dimensions	Quality	Thickness
STL060200GN	<b>3L-PL™</b> LLL Strip, Pet-X green edges	200x60mm (50mm)	C+ (XXL)	1,5 mm
STL060150GN	<b>3L-PL™</b> LLL Strip, Pet-X green edges	150x60mm (50mm)	C+ (XXL)	1,5 mm
STL060200GY	<b>3L-PL™</b> LLL Strip, Pet-X grey edges	200x60mm (50mm)	C+ (XXL)	1,5 mm
STL060150GN	<b>3L-PL™</b> LLL Strip, Pet-X grey edges	150x60mm (50mm)	C+ (XXL)	1,5 mm
STL060200N	<b>3L-PL™</b> LLL Strip, Pet-X neutral	200x60mm (50mm)	C+ (XXL)	1,5 mm
STL060150N	<b>3L-PL™</b> LLL Strip, Pet-X neutral	150x60mm (50mm)	C+ (XXL)	1,5 mm

## LOW LOCATION LIGHTING ADDITIONAL LLL PRODUCTS

The Trail-Line is a better solution instead of dots, where they are forming a visual line that is clearer to follow than a row of dots. Typically used in spaces where larger errors have been made in the building phase, e.g. walls or a type of fence should have been built.



Article number	Description	Dimensions	Quality
DOT090N-A	3L-PL™ LLL Traildot anti-slip neutral	Ø 90 mm	C+ (XXL)
DOT090A-A	3L-PL™ LLL Traildot anti-slip arrow	Ø 90 mm	C+ (XXL)
TRL050200N-A	3L-PL™ LLL Trail-Line, anti-slip neutral	200x50mm	C+ (XXL)
TRL050200A-A	3L-PL™ LLL Trail-Line, anti-slip arrow	200x50mm	C+ (XXL)



**IMPLEMENTATION OF THE LOW LOCATION LIGHTING SYSTEMS**



Signwell is your partner for newbuilding- and refurbishment projects world wide. We take care of the entire process. Everything from planning to realisation of Electrical powered or Photoluminescent Low Location Lighting Systems.

Our team will do the engineering and layout and produce the LLL in our production facilities, in order for us to adequately realise your deliveries and projects. We produce the LLL system by appropriate quality requirements, to endure the environment and desired life span. Our professional installation team specialized in Electrical (LED) Powered and Photoluminescent (PL) Low Location Lighting Systems, will take care of the implementation, and make sure that the 3L System is correctly installed.

Are you in need of a new system or in need for replacement of your old one? Contact our team today and get started.



## LOW LOCATION LIGHTING INSTALLATION, MEASUREMENT AND CERTIFICATION



### INSPECTION OF THE SYSTEM LOW LOCATION LIGHTING SYSTEM

We are accredited by DNV to execute Low Location Lighting measurement services, our certification can be found on our website. As a vessel owner, you need to test all Low Location Lighting systems at least once every five years. Our engineers will test the luminance of your LLL systems on-board with fully certified test equipment. The photoluminescence measurement process as well as equipment are all certified by DNV.

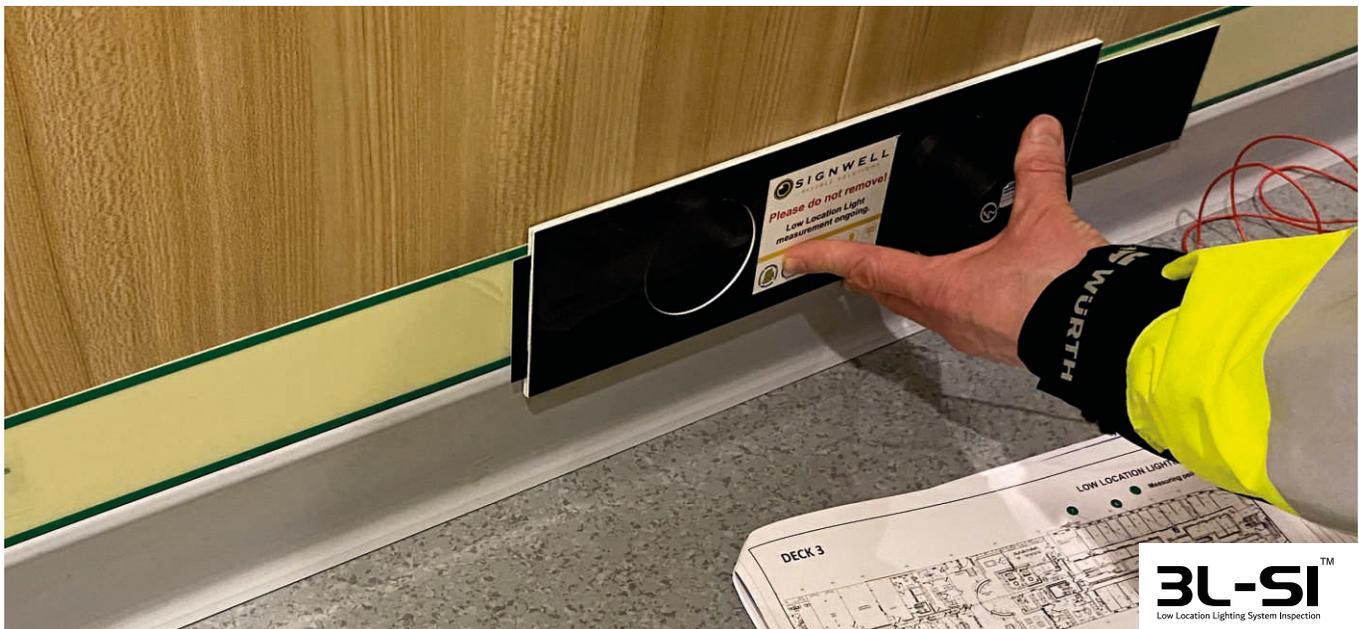
#### Examples of our low location lighting measuring services:

- Photo luminescent Low Location Lighting measurements and tests (DNV certified)
- Electric Low Location Lighting measurements and tests (DNV certified)
- Low Location Lighting refurbishment or replacement



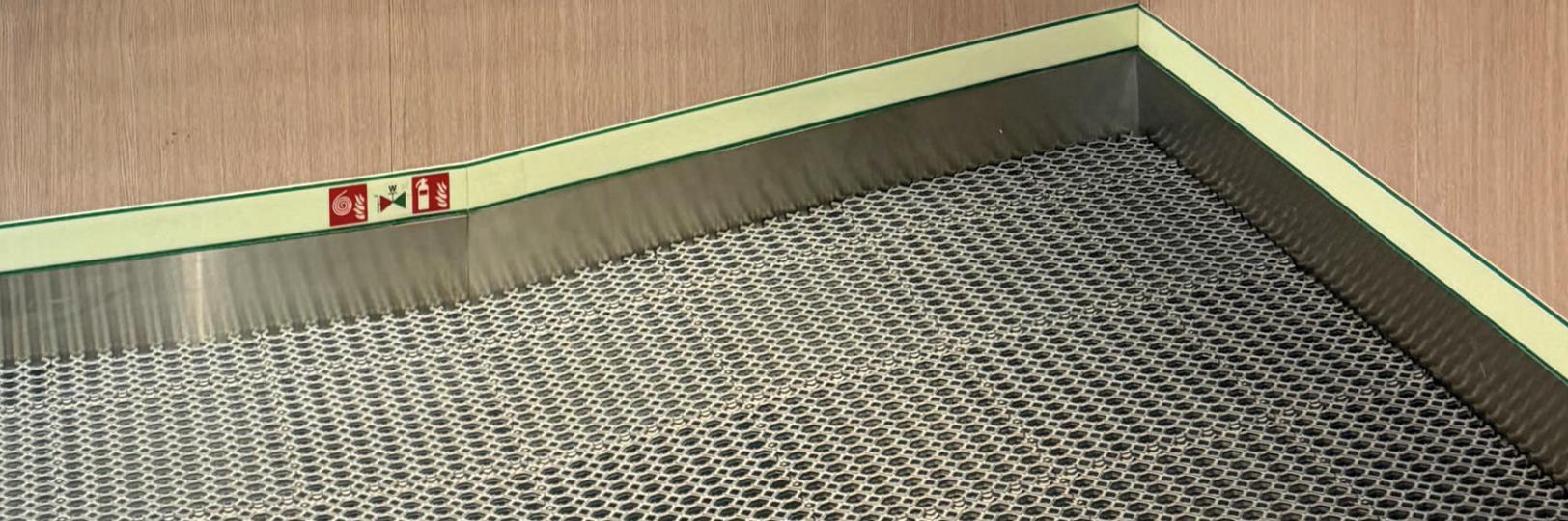
#### Why are low location lighting measurements necessary?

According to several regulations, vessels that carry passengers are obligated to have a Low Location Lighting system installed. This could be a photo luminescent system as well as an electric system. A photo luminescent system is charged by the lighting on the vessel and will use the energy it collects to light up in the dark. The big advantage of this system is that there are no electric installations that need to be installed.



After Signwells **3L-SI**<sup>TM</sup>, the Low Location Lighting System Inspection is done it will be finalized and the full report book will be handed over to the owner. SIGNWELLS **3L-SI**<sup>TM</sup> Report book includes the full measurement map containing all information needed and comes with instruction of how to maintain the system. If our engineers find anything worth to point out it will be written in the conclusion section.

3



A series of horizontal dotted lines for writing notes.

## Curious?

Interested in our systems for your Newbuilding /  
or Refurbishment projects?  
Contact our team today and get started.

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+358 (0) 19 265 6600

sales@signwell.fi

Ajuripuisto 2 - 10600 TAMMISAARI - FINLAND

## Mapping

## Planning

## Assembling

## Updating

Member of:



Certificates:



**3L-SI**<sup>TM</sup>  
Low Location Lighting System Inspection

Visit our website:

**SIGNWELL.FI**

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SUPPLIER**