



SAFETY SIGN SYSTEMS ONBOARD CRUISE SHIPS

T-SS
Safety Suppliers

INTRODUCTION

WHAT IS A SAFETY SIGN SYSTEM?

Safety on board is crucial, for both passengers and crew! This cannot be guaranteed just by mounting some safety signs above the doors and fire extinguishers. This is done by implementing the SOLAS and IMO purposes about escape and embarkation in a thoughtfully developed safety sign system.

A safety sign system does not only contain photoluminescent signs with “EXIT” and low location lighting. No, such a system is a comprehensive system for the overall escape routing to assembly- and embarkation stations.

An effective safety sign system consists of a coherent whole of:

- Electrical ceiling mounted escape Signs
- Low Location Lighting (electrically powered or photoluminescent)
- Safety Signs on eyeheight and mini symbols integrated in the LLL
- Safety Instructions both for cabins and public spaces

Such a system is based on the latest rules and regulations according to SOLAS, IMO, and ISO standards. If required we do an assessment on site, we can fulfill the complete engineering to a signplan and approval drawings for Classification societies. After this point we can proceed to the implementation of the complete system.

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ELECTRICAL LED ESCAPE SIGNS

Our Maritime LED escape signs are designed to clearly identify escape routes, executed in a modern design that fits into today's marine architecture. The signs are IP44 protected, CE and RINA approved and have a lifetime of at least 40,000 hours thanks to the special LED technology. The color of the LED lights can be modified on request, as well as the color of the frame.



ELECTRIC AND PHOTOLUMINESCENT IN ONE: THE BEST OF BOTH WORLDS

As the first and only one in the market, we have combined two technologies in our LED escape signs; the main source of energy is electricity, but if the power fails due to an emergency, the photoluminescent capabilities of the sign take over. An innovation that makes this the LED escape sign of the future. A clear visibility is guaranteed for more than 3 hours without electrical power.



LOW LOCATION LIGHTING

We provide Low Location Lighting systems for all situations. Both the luxury LED LLL in a variety of profiles as well as the more economical photoluminescent system.

We are specialists in the project based implementation of Low Location Lighting systems on passenger ships both technical and according the latest IMO and SOLAS regulations and relevant ISO Standards. And in addition, also in performing LLL measurements and certifications.



REGULATIONS AND STANDARDS

SOLAS regulation II-2/13.3.2.5.1 is clear in that the means of escape, including stairways and exits, shall be marked by lighting or photoluminescent strip indicators placed not more than 300 mm above the deck at all points of the escape route. IMO Resolution A.752(18) gives more specific information.

The main goal is that the LLL system provides marking of escape routes in line with the ship's evacuation analysis as given in SOLAS regulation II-2/13.3.2.7.

ISO 15370 describes how to install these products and how to certify and maintain these products of the complete Low Location Lighting system.

ELECTRICAL LOW LOCATION LIGHTING

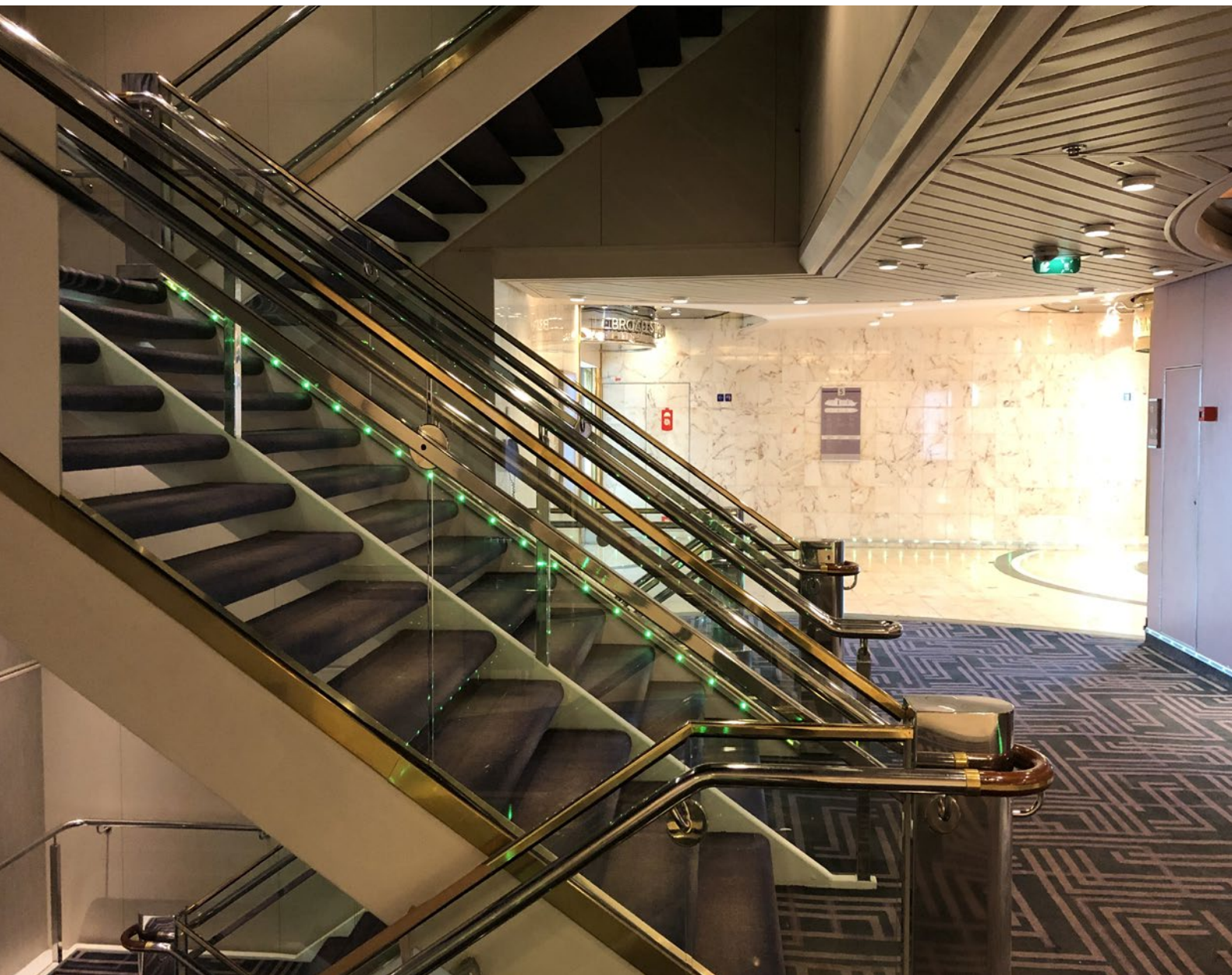


The LS Low Location Lighting System is a totally self-contained system consisting of LED guiding lines in a so called endless configuration, LED signs which can be integrated in the system.

The used LEDs have a high brightness level in the color “True Green”, have a lifetime over 150.000 hours and are IP67 classified! The Electric Low Location Lighting system comply with the environmental conditions and test procedures according to DNV and Lloyds Register.

We offer a wide range of profiles to integrate the LED-strip in. Profiles for wall mounting, floor mounting (low and high carpet profiles), from metal skirting boards till system integration into existing wooden wall panels or skirting boards on board.

Power supply Units with or without battery backup , able to feed more than 1.000 m of the latest LLL systems. The system is compatible to the most common used LLL systems installed.



PHOTOLUMINESCENT LOW LOCATION LIGHTING



Our LightLine Low Location Lighting System is the easiest and most cost effective Low Location Lighting system to install, requiring only the application of the LLL strips where needed. The system shall be finalized by positioning the escape- and fire equipment signs at the right places. When you choose to install our LightLine LLL system, time savings up to 200% compared to an electrical system.



Our LightLine LLL can be provided in PET-X with or without green borders, or in aluminum profiles with PVC insert strips. Of course the products are fully certified.

LightLine Pet-X photoluminescent strips are Non PVC, Halogen-free, flame retardant, UV-resistant and 100% recyclable, and therefore exceeding all current requirements. Our strips have a high luminescence Class XXL backlighting material, which will light up well above the minimum set standards and hereby fully complies with IMO Resolution A. 752 (18) and ISO standard 15370. The material also has a 'glossy' finish which is easy to clean and gives it a high quality appearance.



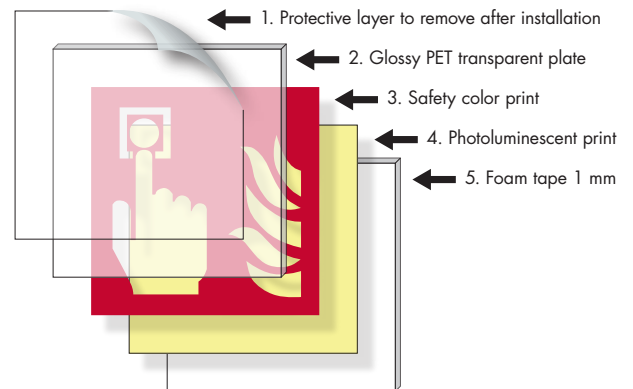
ESCAPE SIGNS



For the escape signs, we use 100% environmentally friendly photoluminescent material. Our modified PET-X can be safely used anywhere and exceeds all required afterglow requirements. In addition, our safety sign products are UV resistant so we can offer a 5-year warranty even when used outdoors, unlike PVC which quickly turns yellow.

We print our signs from the back, this way the print is protected from environmental influences and the result is signage with a glossy front. The signs are easy to mount thanks to the self-adhesive backing. All signs are supplied with a protective front foil, which must be removed after mounting.

We have all the standardized signage products from our IMO catalogue and all ISO standards in PET-X on stock.



ENVIRONMENTAL FRIENDLY PVC FREE SIGNAGE

Today most sign makers use PVC, despite the fact that PVC 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 on-board any ship.

PET-X INSTEAD OF PVC

We use a modified 100% recyclable polymer called PET-X, which is free of halogens. We managed to innovate our printing process in such a way that the expected lifetime is up to 5 times longer than the market average. The last upside is the visual appearance, SafeSign signs and Low Location Lighting strips have a high quality glossy finish, which is easy to clean. The use of these new materials and techniques helped us to achieve innovative product which is also more economical and looks much better.



SAFETY INSTRUCTIONS



SOLAS Part 1, regulation II-2/13.7.2.2, regulation III-part B. 8.4 and MSC/Circ. 699 requires emergency instructions in cabins, assembly stations and other passenger spaces. Of course from safety perspective they must be in line with the ship's evacuation analyses and help the persons on board as a preventive measure. The new developed ISO DIS 24409-4 describes the details for these instruction plans, the T-ISS Safety Instructions are already fully in line with that new ISO standard and all other regulations.

The Safety Instruction sign in a cabin displays the primary and alternative route to the designated assembly station, displayed in both plan view and sideview, emergency instructions and donning instructions for the lifejackets.

The Safety Instructions for the public areas show the 'you are here' position in relation to the assembly stations, embarkation stations, emergency information and near the lifejacket storage areas, the instructions for putting on the lifejackets. This plan also shows in a plan view the positions of the lifeboats, embarkation stations and life jacket stowage areas on the respective decks.

T-ISS can provide the development and drawing work for the Safety Instructions fully in line with the complete escape route system.

They can also be designed in the company's corporate branding guide lines with their logos or in a neutral ISO recommended style.



SAFETY SIGNS, SAFETY POSTERS & PIPE MARKING



Regulations and laws require more signage than just escape signs in the interior.

Safety signs outside, in galleys, stores and technical spaces require lots of safety signage. As signage specialists, we will make sure that this signage is installed with the right symbols and as a coherent whole, in line with the ship's evacuation analysis and escape and embarkation plan.

We produce all signs in-house, whereby custom signs in every language are possible. From our involvement in ISO safety sign standardization projects, we can develop all signs according to all standards.



Clear pipe marking according ISO 14726 or ISO 20560-1 prevents accidents in operating the vessel.

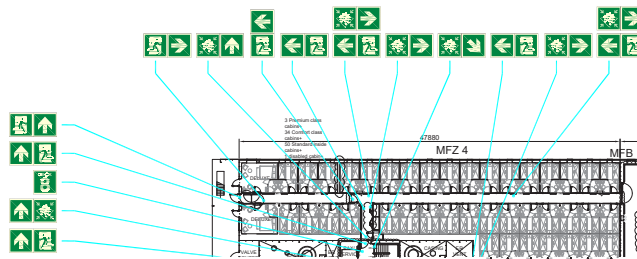




PROJECT MANAGEMENT & TURN-KEY SERVICES

Development and installation of an effective and compliant safety sign system in line with your embarkation- and safety plan and safety procedures as well as all regulations and standards has been our core business for many years. The safety of the crew and passengers is our top priority when implementing such a system. In order to implement an effective and compliant safety sign system, we approach each project systematically, based on our main pillar under success: good project management and knowledge of the relevant regulations and standards.

Our skilled workers can provide all types of safety signage, directional signage and other markings, based on an inventory and consultancy process. As an active member of ISO committees for safety signage T-ISS helps to ensure unambiguous use of safety signage.



LLL Measurement & Certification



We are accredited by DNV to execute Low Location Lighting measurement services. As a cruise owner, you need to test all Low Location Lighting systems at least once every five years. Our engineers will test the state and luminance of your systems on-board with fully certified testing equipment. The photoluminescence measurement process as well as equipment are all certified by DNV.

We can provide you with several services, including:

- Photoluminescent Low Location Lighting measurements and tests (DNV certified)
- Electrical Low Location Lighting measurements and tests (DNV certified)
- Low Location Lighting refurbishment or replacement

After the measurements, the engineer will report all readings in a clear overview for Class approval. This includes all the upgrades and / or modifications that, when needed, you need to do to meet the required regulations.



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