



OFFSHORE SOLUTIONS

PROFILE
SKILL
DATA SHEET





OFFSHORE SOLUTIONS

SICE

COMPANY

PROFILE

SINCE 1958 SICE TECHNICIANS HAVE DEVELOPED PRODUCTS AND SYSTEMS SUITABLE FOR OFF SHORE PLATFORMS

SICE systems have been initially implemented on the marine installations of Adriatic Sea, then in many other zones of the world (Mediterranean Sea, Atlantic Ocean, Red Sea, Indian Ocean, North Sea and Caspian Sea).

Always our target is to reach the customer satisfaction through the continuous improvement of designing, engineering and manufacturing of our system/product and a pertinent and fast assistance post-sale.

SICE was established in 1958 by its founder, Mr. Luigi Donati and took on its new name of SICE S.R.L. (limited company) in 2002, differentiating its activities and potentialities.

Over the years SICE has specialized in designing and manufacturing acoustic and luminous navigation aids systems for off-shore platforms and has gained extensive experience in off/on shore photovoltaic energy production.

Taking account of inherently difficult environmental and installation site conditions, our low maintenance products are designed and manufactured to guarantee exceptional reliability.

SICE provides all the technical support necessary to define individual customer requirements in accordance with existing regulations and on the basis of installation site limitations. SICE also provides technical assistance for system installation and after-sales service.

One of strengths of our company is that all our products are designed, manufactured and tested internally.

In order to differentiate its activities and satisfy an even greater range of customer requirements, SICE, together with some partner companies, is able to offer a complete package of navigation aid system for off-shore platforms, for ports, buoys etc (SICE S.R.L. Products) for helidecks and obstructions lights.

Recently SICE has applied its specialist knowledge to develop products suitable for use on offshore wind farms. The aim is to create a products range suitable for all offshore applications (safe area - explosion proff).

SICE supplies all the systems focusing on innovation technology of its products. The features of the products are a high robustness and reliability, a high efficiency and quality and are suitable to work in marine environments. The final aim is to reach the customer satisfaction through the possibility to integrate the supplied systems giving our historical and potential clients a turnkey system.

INNOVATION TECHNOLOGY
CERTIFICATIONS
FLEXIBILITY & CUSTOMIZATION
ON SITE SERVICE

**SICE
SKILLS**

**INNOVATION
TECHNOLOGY**
LED TECHNOLOGY
RELIABLE AND ROBUST
PRODUCTS
EFFICIENCY AND HIGH
QUALITY



CERTIFICATIONS
IALA RECOMMENDATIONS
ICAO – CAP437 – FAA –
IMO- MODU
ISO – ATEX – IECEX
EN - IEC



**FLEXIBILITY &
CUSTOMIZATION**
ACCORDANCE TO
CUSTOMER
SPECIFICATION
CUSTOMIZED SYSTEM
TURNKEY SYSTEM



ON SITE SERVICE
SYSTEM START-UP
ASSISTANCE ON SITE
LONG EXPERIENCE
ON OFFSHORE SERVICES



SICE

OFFSHORE SOLUTIONS

9

29

55

CONTROL PANELS

Navaid Centralized Control Panel (Indoor)

Navaid Centralized Control Panel (Ex)

Battery Breaker Panel

Battery Cut Off Panel (For ESD)

Emergency Circuits Panel

Boat Landing Status Light Control Panel

Helideck Lighting Control Panel (Indoor)

Helideck Lighting Control Panel (Ex)

Helideck Status Light Control Panel

NAVIGATION AIDS PRODUCTS

L.E.D. Lantern (10NM - 5NM)

L.E.D. Lantern (15 NM)

Fog Horns

Fog horn New Version

Photocell System

Visibility Meter (Safe Area)

Visibility Meter (Ex)

Battery Box (Ex)

Visual Navigation Aids (Distributed System)

Visual Navigation Aids (Centralized System)

Status Light (Wave off)

Repeater Light

STAND ALONE NAVIGATION AIDS SYSTEM

Solar Powered ATEX Certified System

Solar Powered Aircraft Warning Light System

Solar Powered LED Lantern (Safe Area)

Solar Powered Fog Horn (Safe Area)

Solar Powered LED Lantern & Fog Horn (Safe Area)

Primary Battery System (Safe Area)

Self Contained LED Lantern



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**POLTAIC
S**

Solar Charge
Regulator Panel
Battery Charger
Module

OBSTRUCTION LIGHTS

Liol
Miol

-
- 11 Navaid Centralized Control Panel (Indoor)
 - 13 Navaid Centralized Control Panel (Ex)
 - 15 Battery Breaker Panel
 - 17 Battery Cut Off Panel (For ESD)
 - 19 Emergency Circuits Panel
 - 21 Boat Landing Status Light Control Panel
 - 23 Helideck Lighting Control Panel (Indoor)
 - 25 Helideck Lighting Control Panel (Ex)
 - 27 Helideck Status Light Control Panel
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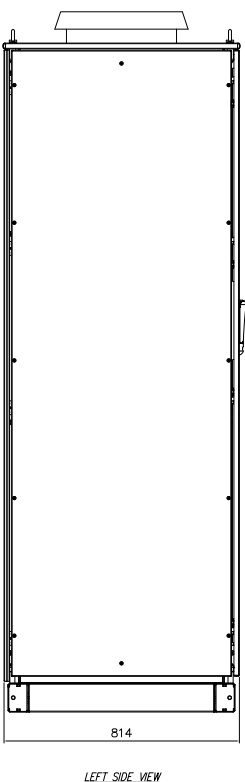
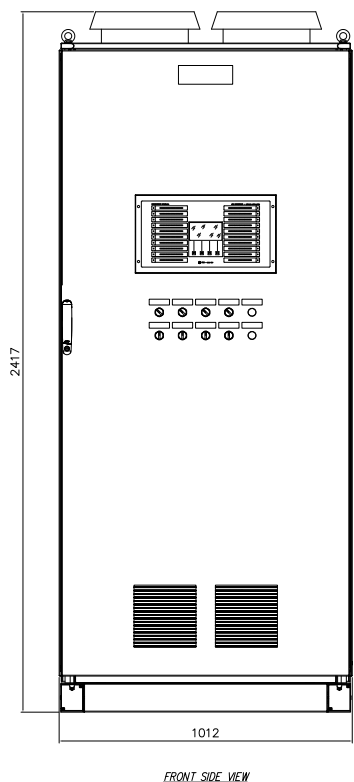


CONTROL PANELS

The Navaid Centralized Control Panel (standard version for indoor installation in safe area) has the aim of managing the working of the whole pieces of equipment which are part of the navigation aid system, included aeronautical obstruction lights & helideck lighting (if installed). Normally it is powered by mains input at 230Vac. The Navaid Centralized Control Panel is complete with control circuits for the driven pieces of equipment (coders & current relays) and SICE intelligent supervisor system. This supervisor system is complete with CPU module, Digital Input modules and Digital Output modules. It receives, as inputs, the statuses and the eventual alarms of the whole equipment that is part of the complete system. The supervisor system elaborates the received data and proceeds automatically with the activation/deactivation of the pieces of equipment and the signalling of eventual alarm or failure situations.



The dimensions can be changed in compliance with the customer requisition and the requested features



Main Electrical Features:

-Main input:	230Vac 50Hz (other voltage can be requested)
-Battery charger power:	4500W (max)
-Battery charger efficiency:	85%
-Input insulating transformer:	8KVA (when required)

Main Mechanical Features:

-Construction type :	Suitable for indoor installation in safe area, made in a industrial cabinet in painted iron sheet.
-Degree of protection:	IP 55 maximum (can be reduced in case of ventilation system)
-Painting type:	Industrial (compliant with Manufacturer Standard or Customer Specification)
-Standard painting color:	RAL 7035 (other color can be requested)
-Dimensions:	1012mm x 814mm x 2147mm (h) (other dimensions can be requested)
-Total weight:	400 Kg approx.

SICE

NAVAID

CENTRALIZED

CONTROL PANEL

INDOOR

Main Available Options:

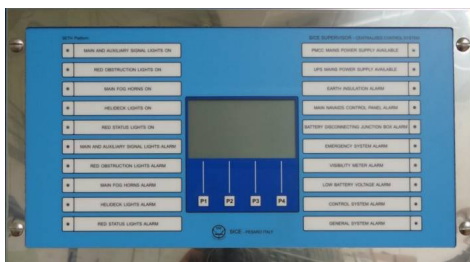
- Programmable on customer specification
- External color in compliance with customer needs
- Cables input/output can be arranged from bottom or top
- Predisposed for remote controls connection via MODBUS (RS485 two wires or TCP/IP) and/or via hard wired.
- Cabinet made in AISI 316L stainless steel not painted

SUITABLE FOR SAFE AREA INSTALLATION (INDOOR)

Maximum Managing Capacity

- | | |
|-----------------------------------|---|
| -Marine Lanterns: | No. 8 total pieces (Main, Secondary & Subsidiary lanterns) |
| -Fog Horns: | No. 4 total pieces (Main and secondary fog horns), |
| -Aeronautical Obstruction Lights: | No. 3 separated lines including independent protection circuit and current control relays |
| -Helideck Perimeter Lights: | No. 2 separated lines including independent protection circuit and current control relays |
| -Helideck Touchdown Floodlights: | No. 2 separated lines including independent protection circuit and current control relays |
| -Illuminated windsock: | No. 1 line including protection circuit and current control relays |

Furthermore the system is equipped with a local display panel, complete with graphic display & push buttons. This display made by SICE, is very useful in all cases where several sub-sysms have to be integrated, providing to the user a complete check for the overall installed system. In particular, through some pages on this graphic display, the user can monitor all the configured statuses and alarms of the several installed equipment, one by one. At the same time, by using the frontal push buttons, the user can give the expected commands.



SUPERVISOR
Graphic detail



DISPLAY
Detail



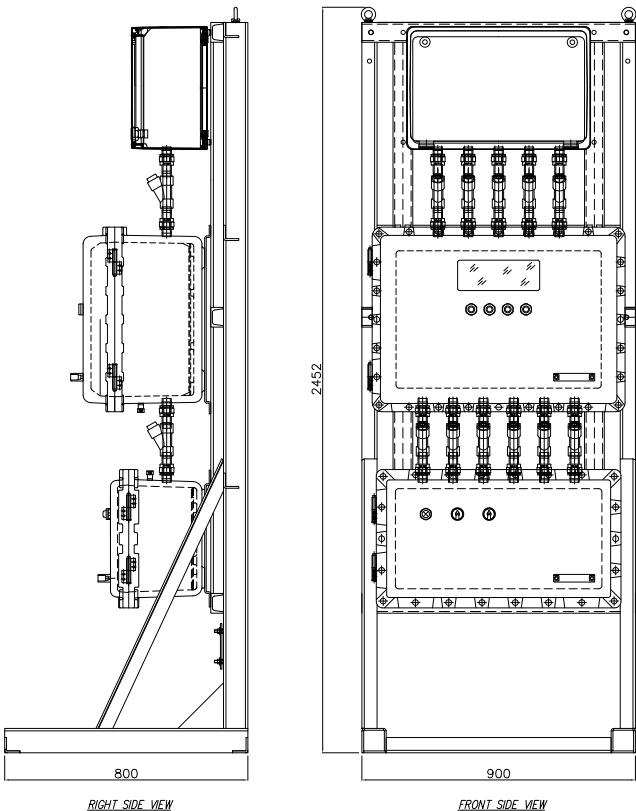
FRONTAL PUSH BUTTON
Detail

The Navaid Centralized Control Panels explosion proof version (installation in classified area) is manufactured by SICE using ATEX and IECEx Certified enclosures and suitable for installation in classified areas of Zone 1 & 2. The Navaid Panel is manufactured according to the Customer specifications and ATEX Directive. It can be manufactured in different dimensions, using different enclosure types and can be supplied suitable for floor installation, complete with suitable mechanical support (pictures example), or for wall installation complete with suitable brackets. The panel can contain the same electronic devices and components that are placed inside standard industrial cabinet type, so the working philosophy of this version is equal to the standard industrial version. Only the battery charger power must be reduced in compliance with maximum power dissipation of the used enclosure, usually the battery charger power is approx 1500W maximum. The standard type of enclosure is made in copper free aluminium, painted internally (anticondensation) and externally, in compliance with Manufacturer procedure or Customer Specification, suitable for off-shore use. The external colour can be changed in compliance with customer needs.

Technical Drawing



EX PANEL
Installation details



Main Electrical Features:

- Main input: 230Vac 50Hz (other voltage can be requested)
- Battery charger power: 1500W (max)
- Battery charger efficiency: 85%

Main Mechanical Features:

- Construction type: Suitable for classified installation areas
- Degree of protection: IP 66
- Painting type: Compliant with Manufacturer Standard or Customer Specification
- Standard painting color: RAL 7035 (other color can be requested)

Managing Capacity:

- Marine Lanterns
- Fog Horns
- Aeronautical Obstruction Lights

SICE

EX CENTRALIZED

CONTROL PANEL

Main Available Options:

- Programmable on customer specification
- External color in compliance with customer needs
- Enclosure material in AISI 316L stainless steel not painted
- Remote controls via MODBUS (RS 485 two wires or or TCP/IP) and/or hard wired
- Can be prepared for cables inlet from the top or the bottom side

SUITABLE FOR ZONE 1 INSTALLATION



FIRST VERSION

Control Panel suitable for floor installation, with mechanical support in AISI 316L stainless steel and prepared for cable inlet from the top.

Typical managing capacity:

- Q.ty 2 Main Fog Horns (as for IALA)
- Q.ty 4 Main White Lanterns (as for IALA)
- Q.ty 2 MIOL (Medium intensity Obstruction Lights) (as for ICAO)
- Q.ty 4 LIOL (Low intensity Obstruction Lights) (as for ICAO)
- Q.ty 1 Visibility Meter (Fog Detector)
- Q.ty 1 General Photocell System
- 50% redundant battery charger (1200W total output)
- Battery breaker
- Dimensions: 832mm (W) x 2452mm (H) x 800mm (D)
- Weight: 374 Kg



SECOND VERSION

Control Panel suitable for floor installation, with mechanical support in AISI 316L stainless steel and prepared for cable inlet from the bottom.

Typical managing capacity:

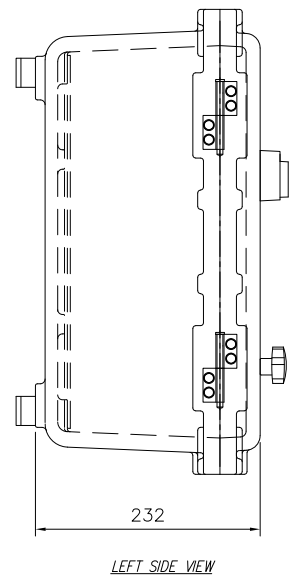
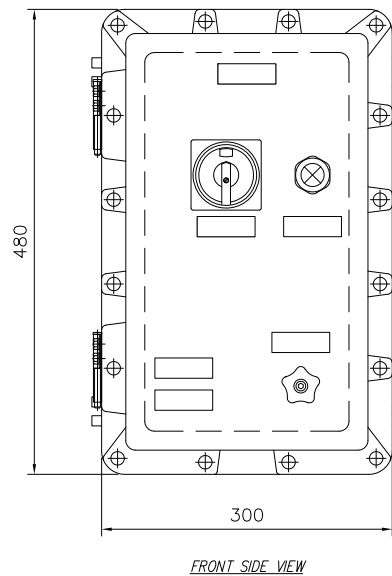
- Q.ty 2 Main Fog Horns (as for IALA)
- Q.ty 4 Main White Lanterns (as for IALA)
- Q.ty 2 LIOL (Low intensity Obstruction Lights) (as for ICAO)
- Q.ty 1 Visibility Meter (Fog Detector)
- Q.ty 1 General Photocell System
- 50% redundant battery charger (1200W total output)
- Battery breaker
- Dimensions: 1000mm (W) x 1847mm (H) x 700mm (D)
- Weight: 330 Kg

The BATTERY BREAKER Panel is suitable to be inserted between the Navigation Aid Control Panel (that includes the Battery Charger System) and the Battery Bank and it is used to manually disconnect, through a suitable isolator (not automatic switch), the two above mentioned sub-systems, when this operation is required, for example during maintenance of the batteries.

The status of the switch is continuously monitored by the control system placed inside the NAVAIDS CONTROL PANEL so that, when the switch is opened manually, the corresponding alarm is raised to warn the operator of this condition (backup battery no longer available). In addition, a red pilot light, installed on the enclosure cover, is lit when the breaker is opened for a VISUAL ALARM.



Technical Drawing



Main Technical Data:

Enclosure material

Copper free aluminium

Protection degree

IP66

Standard Painting

Internal: Anticondensate

Extenal: Ral 5017 (other colours available)

Execution

Ex-d IIB T6 (+H2 when required)

Temperature range

-20°C to +50°C (standard)

Power Breaker

125A (Not Automatic)

Weight

25kg

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BATTERY BREAKER PANEL

Main Available Options:

- Enclosure material AISI 316L SS not painted
- External color in compliance with customer needs

SUITABLE FOR ZONE 1 INSTALLATION



SICE EX BATTERY BREAKER PANEL

This equipment is suitable for wall mounting and, normally, it's installed near the battery system, in the battery room. For this reason it can be executed with +H2 certification, suitable for installation in a zone where hydrogen presence is possible.

The Battery Cut-Off Circuit Panel is suitable to be inserted between the Navigation Aid Control Panel (that include the battery charger system) and the battery bank and it is used to disconnect, through a suitable power contactor, driven by the ESD command, the two mentioned components while an ESD (Emergency Shut-Down) is in progress. At the same time it is able to supply, through automatic protection breakers, some pieces of equipment that are directly connected to the Navaid's Battery Bank, downstream the power contactor and therefore they are still powered also during the ESD phase.

These pieces of equipment can be the following:

- Emergency Control Panels for navaid system
- Emergency Control Panels for aeronautical obstruction lights
- Boat Landing Status Lights Panel
- Helideck Status Lights Panel

The power contactor and all automatic circuit breakers, that are installed inside this enclosure, are monitored by the control system installed inside the Navigation Aids Control Panel so, when the latter is powered on, if the power contactor or at least one circuit breaker is opened automatically or manually, the corresponding alarm is raised to signal to the users this condition. A green pilot light "CONTACTOR ON" indicates that the contactor is closed (when turned on means that the contactor is open). In addition, a push button "MANUAL RESTART" is installed in the enclosure cover. This push button is used when, after an ESD, the power contactor must be closed again but the Navaid's Battery Bank has not enough energy to power the coil. In this case, when the battery charger output is available in this circuit, by pressing this push-button, the power contactor is closed using the energy incoming from the Navigation Aids Control Panel (Battery Charger).



Main Technical Data:

Enclosure material

Copper free aluminium

Protection degree

IP66

Standard Painting

Internal: Anticondensate

External: Ral 5017 (other colours available)

Execution

Ex-d IIB T6 (+H2 when required)

Temperature range

-20°C to +50°C (standard)

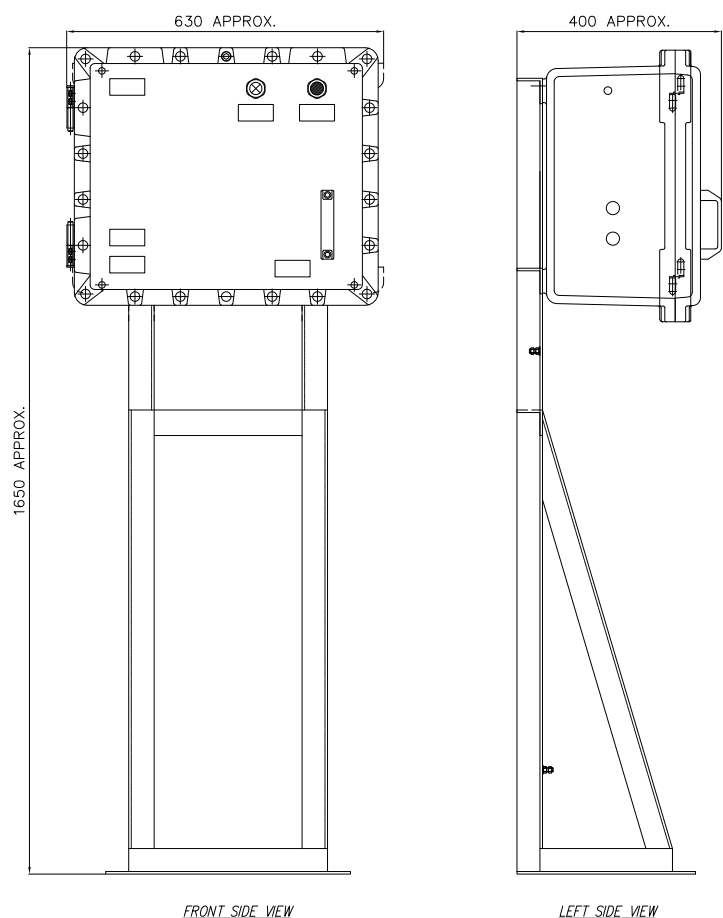
Mechanical support

AISI 316L s. steel not painted

Total Weight

100kg (support included)

Technical Drawing



SICE

BATTERY CUT-OFF CIRCUIT PANEL

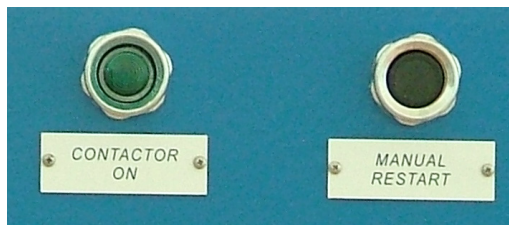
Main Available Options:

- Enclosure material AISI 316L SS not painted
- External color in compliance with customer needs

SUITABLE FOR ZONE 1 INSTALLATION



Pilot Lights and Push Button Details



SICE EX BATTERY CUT-OFF

Sice is able to manufacture this equipment in compliance with the customer specification and requirements. The dimensions can change.



Emergency circuit panels. This equipment is suitable to supply the navigation aid equipment or aeronautical obstruction lights during ESD phases, when the centralized control panel is cutting off for safety reasons. They are fed from the navaid battery through the “Battery Cut-Off Circuit”. Within these panels are installed the “ACO” (Automatic Change Over system) and the control and distribution circuits regarding the relative powered equipment.



FOR NAVAID



FOR OBSTRUCTION LIGHTS

**General Main
Technical Data:**

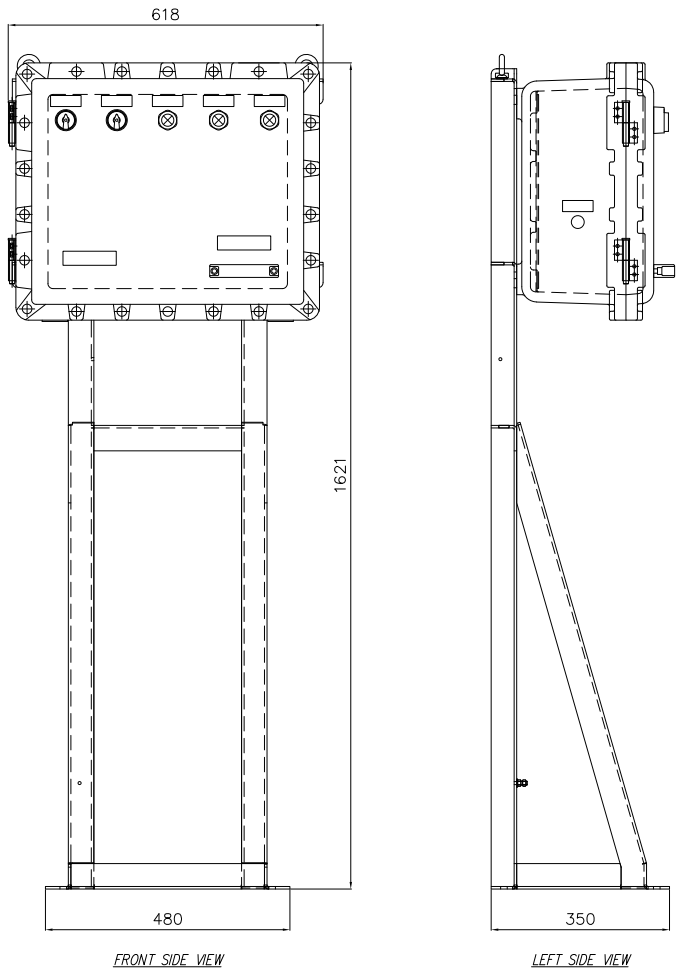
Enclosure Data (standard)

- Material: Copper Free Aluminium (light alloy)
- Painting: External Offshore RAL 5017 (other colors can be required)
Internal Anticondensation
- Execution: EX-d IIB T4-IP66 (suitable for Zone 1 installation)
- Ambient temperature: -20°C / +50°C
- Unitary weight: 75kg

Mechanical Support Structure

- Material: AISI 316L S.S. (not painted)
- Unitary weight: 30kg
- Total weight: 105kg (panel+structure)

Technical Drawing



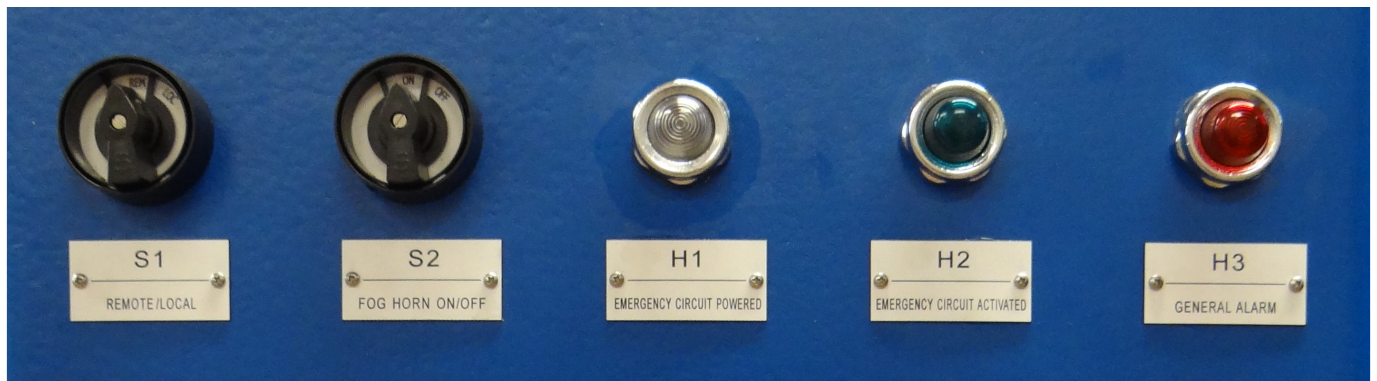
SICE

EMERGENCY CIRCUITS PANEL

Main Available Options:

- External color in compliance with customer needs
- Enclosure material in AISI 316L stainless steel

SUITABLE FOR ZONE 1 INSTALLATION



NAVAID

Pilot Lights and Selector Switches Details



OBSTRUCTION LIGHTS

Boat Landing Status Light Control Panel, manufactured in compliance with CAA, CAP 437 rules. Standard type, suitable to drive q.ty 2 boat landing status lights prepared for remote on/off and dimmer commands and complete with remote controls.

General Main
Technical Data:

Enclosure data

- Material: Copper Free Aluminium (light alloy)
- Painting: External Offshore RAL 5017 (other colors can be required)
Internal Anticondensation
- Execution: EX-d IIB T6-IP66 (suitable for Zone 1 installation)
- Ambient temperature: -20°C / +50°C
- Unitary weight: 120kg

Mechanical support structure

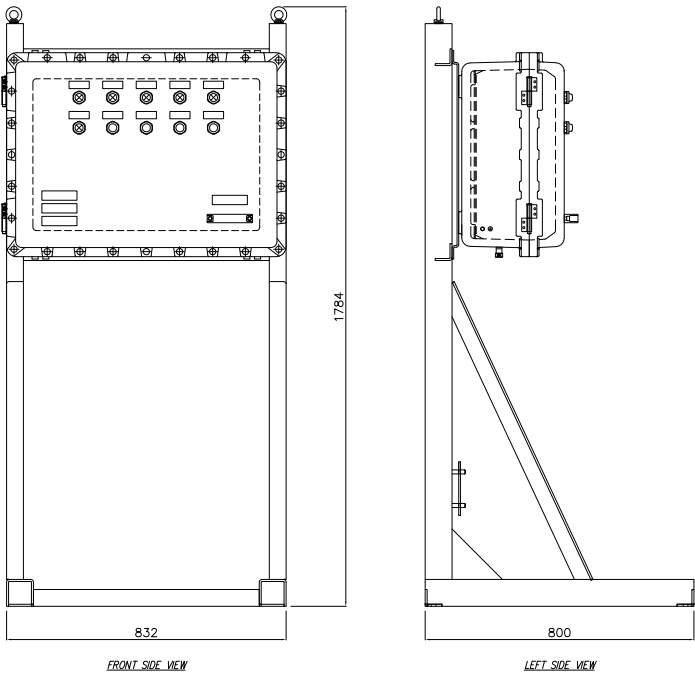
- Material: AISI 316L S.S. (not painted)
- Unitary weight: 60kg
- Total weight: 180kg (panel+structure)

PILOTS LIGHTS & OPERATORS

- Green pilot light for “Power on”
- White pilot light for “Status light A on”
- White pilot light for “Status light B on”
- White pilot light for “Lights ON manually”
- White pilot light for “Lights OFF manually”
- Red pilot light for “Common system alarm”
- Push button for “Lamp test”
- Push button for “Light ON manually”
- Push button for “Lights OFF manually”
- Push button for “RESET/Return AUTO”



Technical Drawing



Main Available Options:

- External color in compliance with customer needs
- Enclosure material in AISI 316L stainless steel
- It can be prepared for a higher number of light in compliance with customer needs

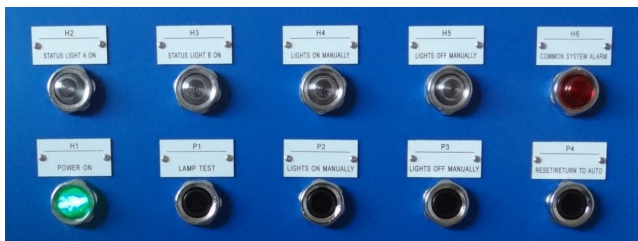
SICE

BOAT LANDING STATUS LIGHTS CONTROL PANEL

SUITABLE FOR ZONE 1 INSTALLATION



Pilot Lights and Push Button Details



SICE BOAT LANDING STATUS LIGHT CONTROL PANEL

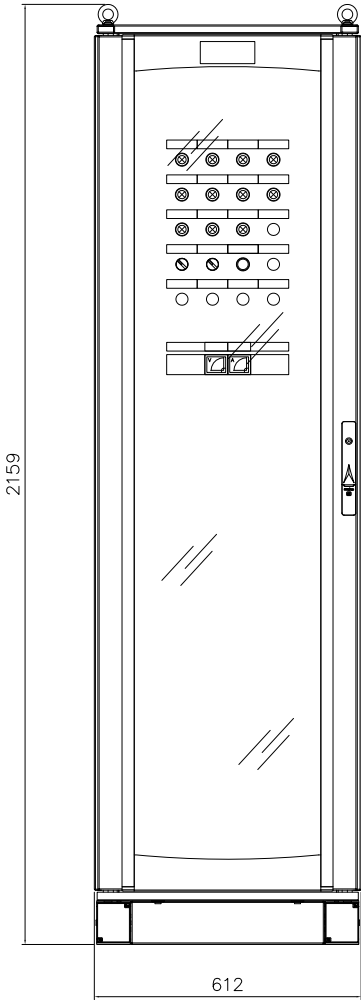
Sice is able to manufacture this equipment in compliance with the customer specification and requirements, the dimensions can change.



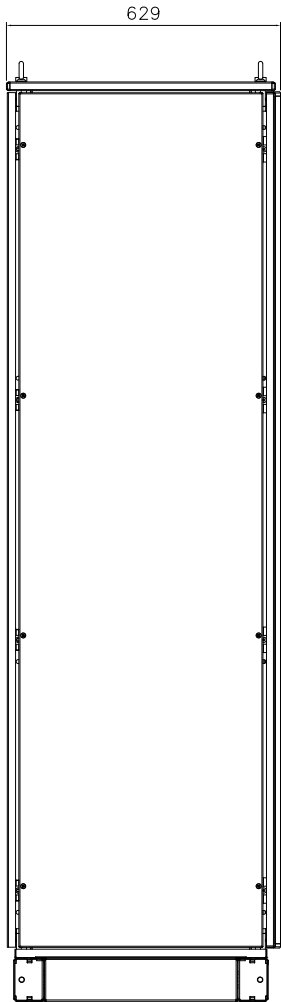
Helideck Lighting Control Panel (HLCP) standard type, is made in an industrial cabinet suitable for indoor installation, in safe area. This cabinet is equipped with an external protective door having a transparent window through which the user can see the mimic panel (or display), selector switches and push buttons, that are installed onto the internal door, without opening the external door. This Helideck Lighting Control Panel has the aim of managing the working of whole equipment that is part of the Helideck Lighting System. Normally it is powered by UPS with mains input at 230Vac. Other voltage values can be required. This panel can be equipped with a mimic panel or, when required, with a digital display that includes signaling LEDs, selectors and push buttons.



The dimensions can be changed in compliance with the customer requisition and the requested features



FRONT VIEW



LEFT SIDE VIEW

Main Electrical Features:

- Main input: 230Vac 50Hz (other voltage can be requested)

Main Mechanical Features:

- Construction type: Industrial, suitable for indoor installation in safe area
- Degree of protection: IP 55 maximum (can be reduced in case of ventilation system)
- Painting type: Industrial (compliant with Manufacturer Standard or Customer Specification)
- Standard painting color: RAL 7035 (other color can be requested)
- Dimensions: 812mm x 629mm x 2159mm (h) (other dimensions can be requested)
- Total weight: 200 Kg approx.

SICE

INDOOR HELIDECK LIGHTING CONTROL PANEL

SUITABLE FOR SAFE AREA INSTALLATION (INDOOR)

Main Available Options:

- Programmable on customer specification
- External color in compliance with customer specification
- Cables input/output can be arranged from bottom or top
- Remote controls via MODBUS (RS485 two wires or TCP/IP) or hard wired

Typical Managing Capacity

- Perimeter lights: No. 2 separated lines including independent protection circuit and current control relays
- Floodlights: No. 2 separated lines including independent protection circuit and current control relays
- Illuminated Windsock: No. 1 line including independent protection circuit and current control relay
- Remote control interface: Included for status, alarms and external commands. Wired or via MODBUS (RS485 or TCP/IP)
- Status lights (option): Included power supply and logic control
- Circle H-system: Included power supply and logic control



MIMIC PANEL
(Typical)

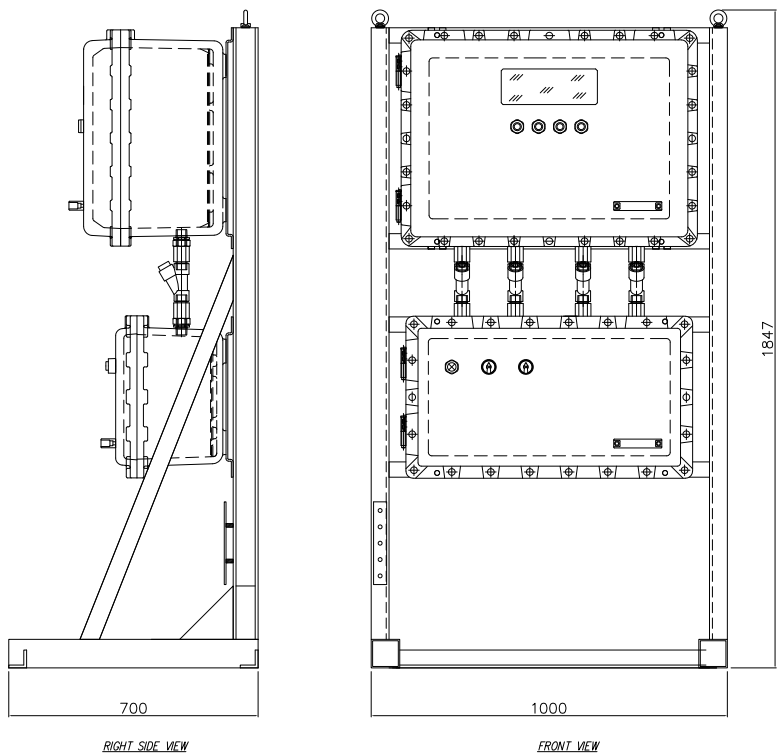


DISPLAY PANEL
(Typical)

Helideck Lighting Control Panel (HLCP) manufactured by SICE using ATEX and IECEx Certified enclosures and suitable for outside installation, in classified areas of Zone 1 & 2. The Helideck Lighting Panel is manufactured according to the Customer specifications and ATEX Directive. It can be manufactured in different dimensions, using different enclosure types and can be supplied suitable for floor installation, complete with suitable mechanical support (same of the pictures example), or for wall installation complete with suitable brackets only. The panel can contain the same electronic devices and components that are placed inside standard industrial cabinet type, so the working philosophy of this version is equal to the standard industrial version. The standard type of enclosure is made in copper free aluminium, painted internally (anticondensation) and externally, in compliance with Manufacturer procedure or Customer Specification, suitable for off-shore use. The external colour can be changed in compliance with Customer needs. The cables input/output can be arranged from bottom or from top, in compliance with customer needs.



Technical Drawing



Features:

- Execution: Ex-d IIB T5
- Degree of protection: IP 66
- Support and brackets: AISI 316L s. steel not painted

Typical Managing Capacity

- Perimeter lights: No. 2 separated lines including independent protection circuit and current control relays
- Floodlights: No. 2 separated lines including independent protection circuit and current control relays
- Illuminated Windsock: No. 1 line including independent protection circuit and current control relay
- Remote control interface: Included for status, alarms and external commands. Wired or via MODBUS (RS485 or TCP/IP)
- Status lights (option): Included power supply and logic control
- Circle H-system: Included power supply and logic control

Main Available Options:

- Programmable on customer specification
- External color in compliance with customer specification
- Cables input/output can be arranged from bottom or top
- Remote controls via MODBUS RS485 two wires or hard wired

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EX HELIDECK LIGHTING CONTROL PANEL

SUITABLE FOR ZONE 1 INSTALLATION



ENCLOSURE DISPLAY & PUSH BUTTON
Details



Helideck Status Light Control Panel manufactured in compliance with CAA, CAP 437 rules. Standard type, suitable to drive q.ty 2 helideck main status lights (wave-off lights) prepared for remote ON/OFF and reset dimmer commands and complete with remote controls.

General Main
Technical Data:

Enclosure data

- Material: Copper Free Aluminium (light alloy)
- Painting: External Offshore RAL 5017 (other colors can be required)
Internal Anticondensation
- Execution: EX-d IIB T4-IP66 (suitable for Zone 1 installation)
- Ambient temperature: -50°C / +55°C
- Unitary weight: 122kg

Mechanical support structure

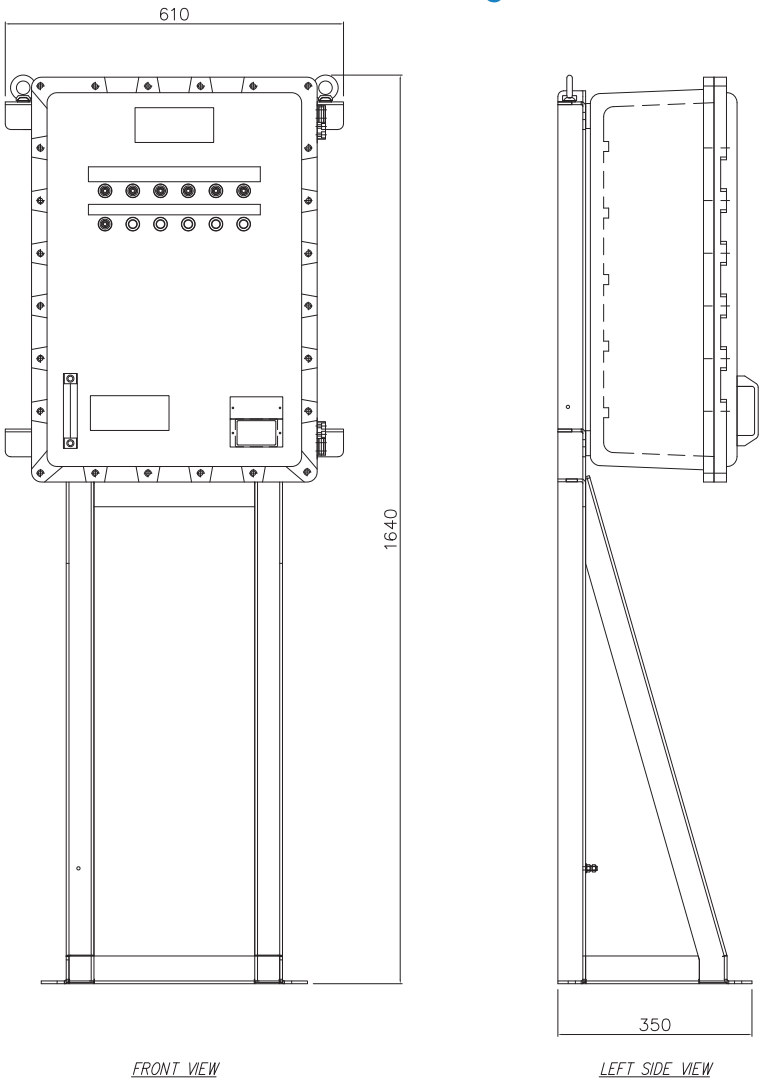
- Material: AISI 316L S.S. (not painted)
- Unitary weight: 35kg
- Total weight: 157kg (panel+structure)

PILOTS LIGHTS & OPERATORS

- Green pilot light for “Power on”
- White pilot light for “Main status light A on”
- White pilot light for “Main status light B on”
- White pilot light for “Lights ON manually”
- White pilot light for “Lights OFF manually”
- White pilot light for “Dimmer mode”
- Red pilot light for “System general alarm”
- Push button for “Lamp test”
- Push button for “Light ON manually”
- Push button for “Lights OFF manually”
- Push Button for “Dimmer ON”
- Push button for “lights RESET manually”



Technical Drawing



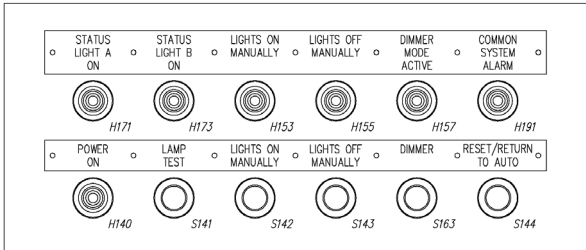
Main Available Options:

- External color in compliance with customer needs
- Enclosure material in AISI 316L stainless steel
- It can be prepared for a different number of Main (or repeater) status lights in compliance with customer needs

SICE

HELIDECK STATUS LIGHT CONTROL PANEL

SUITABLE FOR ZONE 1 INSTALLATION



DETAIL 1 — PILOT LIGHTS AND PUSH-BUTTONS ON ENCLOSURE COVER

ITEM NAME	TYPE	DESCRIPTION	COLOUR
H140	PILOT LIGHT	POWER ON	GREEN
H171	PILOT LIGHT	STATUS LIGHT A ON	WHITE
H173	PILOT LIGHT	STATUS LIGHT B ON	WHITE
H153	PILOT LIGHT	LIGHTS ON MANUALLY	WHITE
H155	PILOT LIGHT	LIGHT OFF MANUALLY	WHITE
H157	PILOT LIGHT	DIMMER MODE ACTIVE	WHITE
H191	PILOT LIGHT	COMMON SYSTEM ALARM	RED
141	PUSH-BUTTON	LAMP TEST	BLACK
142	PUSH-BUTTON	LIGHTS ON MANUALLY	BLACK
143	PUSH-BUTTON	LIGHTS OFF MANUALLY	BLACK
163	PUSH-BUTTON	DIMMER	BLACK
144	PUSH-BUTTON	RESET/RETURN TO AUTO	BLACK

PILOT LIGHTS AND PUSH-BUTTONS COLOURS

STATUS LIGHT PANEL
Detail



31	L.E.D. Lantern (10NM - 5NM)
33	L.E.D. Lantern (15NM)
35	Fog Horn (2NM)
37	Fog Horn (New version 2NM)
39	Photocell System (Ex)
41	Visibility Meter (Safe Area)
43	Visibility Meter (Ex)
45	Battery Box (Ex)
47	Visual Nav aids Distributed System
49	Visual Nav aids Centralized System
51	Status light
53	Repeater light



NAVIGATION AIDS PRODUCTS

Main White Lantern, led type, with very high efficiency & long life. It is suitable for marking the fixed obstacles on the sea, in compliance with IALA recommendations, where a range of 10 nautical miles is required. Made with two tiers equipped with 24 leds each (in series) that are driven with a “U” coder & power circuit. This lantern assures an excellent vertical and horizontal light distribution, with a “white optimum colour”, for all power conditions. The construction is very rugged and is sealed for life. No maintenance is required during total life time. Inside this lantern only the LED tiers are installed, no other devices and no moving components are present. The photocell and “U” coder driver circuit are placed externally, so the reliability of this equipment is very high. The photometric data have been tested by Italian Institute in compliance with IALA chromaticity and 90th percentile intensity standards. It can be used also as Subsidiary Red Signal Light and Boat Landing Status Light. In this case the leds mounted are of same type but with red colour.

General Main Technical Data:



- Control circuit driver & coder supply voltage: Standard 24Vdc (range from 21 to 33Vdc)
(available other voltage on request)
- Single LED line supply voltage (standard system): White 150Vdc; Red 100Vdc
- Double LED lines supply voltage (option for main & reserve): White 75+75V; Red 50Vdc
- 10 n. mile (white) expected power: 25W peak approx. (average 3,5W approx. during night) (*)
- >3 n. mile (red) expected power: 10W peak approx. (average 1,4W approx. during night) (*)
- 10 n. mile effective intensity: >1500cd (during dot) (*)
- >3 n. mile (red) effective intensity: >150cd (during dot) (*)
- Vertical divergence: +/- 3,6 degrees to 50%; +/- 9 degrees to 10%
- Horizontal divergence: 360 degrees (Uniformity within +/-6%)
- Expected life time minimum: >50.000 working hours (79 years approx. with “U” code) (*)
- Lumen maintenance: 90% at 30.000 hours (47 years approx. with “U” code) (*)
- Construction mode: Sealed for life, maintenance free
- Working temperature range: From -20° to +50°C
- Photocell: External
- Synchronization: Possible
- (*) Expected IALA “U” CODE: 0,4“ on; 0,5” off; 0,4“ on; 0,5” off; 1,2” on; 12” off
- Marking: Ex II 2G Ex d IIB T6 Gb IP66
- ATEX Certificate Number: SEV 13 ATEX 0101
- IECEx Certificate Number: INE 14.0048X

General Main Mechanical Data:



- Body & pedestal material : AISI 316L Stainless Steel polished, not painted
- Cover cylinder type: Methyl Methacrylate (Acrylic), clear, non flammable
- Cover cylinder external diameter: 300mm
- Cover cylinder thickness: 10mm
- Cover cylinder weather resistance: Exceptional at each climatic condition
- LED quantity: 48
- LED Fresnel lenses material: PMMA
- Connection junction box (if installed): Glass reinforced polyester, (marine grade aluminium on request), IP66 minimum, ATEX Certified
- Signal light dimensions: 330mm (base diameter) x 388mm (height), including anti-winged
- Signal light weight: 25kg
- Signal light mechanical protection degree: IP66

SICE

10NM - 5NM

LED LANTERN

Main Advantages:

Very long life

Expected minimum 40 years of working time, with "U" coder and with lumen output in compliance with IALA Recommendations.

Main & Reserve system

Two separated led lines system (optional).

Maintenance free

The lantern is sealed for life and body is in AISI 316L stainless steel.

Low consumption

Very low energy consumption and excellent horizontal & vertical light distribution.

Innovative technical solutions

Reduced connection cable size, reduced dimensions, no moving parts placed inside the lanterns and no electronic control circuits placed inside the lantern.

SUITABLE FOR ZONE 1 INSTALLATION

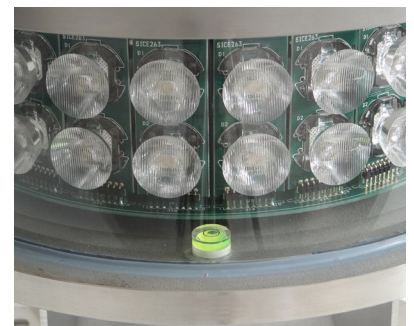
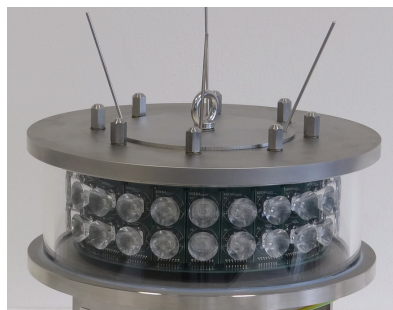


POSSIBLE VARIATIONS OF LANTERNS:

-LS-10NM-L-1: MAIN WHITE SIGNAL LIGHT>10NM RANGE "U" CODE

-LS-5NM-L-1: SUBSIDIARY RED SIGNAL LIGHT>3NM RANGE "U" CODE

-LS-5NM-L-1(BL): BOAT LANDING STATUS LIGHT>700cd RED FLASHING (0.25" ON / 0.25" OFF)



SICE LANTERN MAIN & RESERVE LINES CONFIGURATION

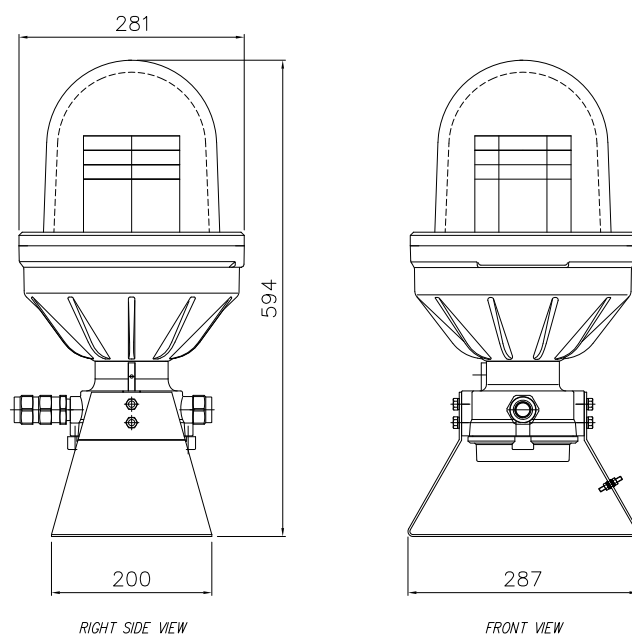
This equipment can be supplied with the LED tiers connected to two overlapped and separated lines that are powered through two separated driver circuits, one for each line. During normal working both lines are normally powered, so the consumption and photometric data are in compliance with the above described and showed. Instead, when a failure occurs, at one led line or at one driver circuit, the remaining driver circuit increases automatically the working current of the led line that is still working and restores the lumen output in compliance with the IALA Recommendations. So, in this configuration, the failure of one line is not serious because the working mode of lantern remains still compliant. During this phase, when one line is failed, the lantern consumption increases by 40% approx and a remote control of failure is available from control circuit.

SICE LANTERN

LED detail

Main White Lantern Station, led type, with very high efficiency & long life. It is suitable for marking the fixed obstacles over the sea, in compliance with IALA recommendations, where a range of 15 nautical miles is required. This lantern contains 3 tiers of white LEDs, each tier equipped with 48 LEDs. Each tier is driven by one dedicated and independent “driver & coder circuit”, at constant controlled current. When the mains power supply is available, the lantern work as “MAIN” (with light range of 15 n.m.). Instead, when the mains power supply is not available and the navais lanterns are powered by back-up battery bank, the lantern work as “SECONDARY” (with light range of 10 Nautical Miles). Inside this lantern only the LED tiers are installed, no other devices and no moving components are present. The photocell and “U” coder & driver circuits are placed externally, so the reliability of this equipment is very high.

Technical Drawing



General Main Technical Data:

- Control circuit driver & coder supply voltage: Standard 24Vdc (range from 21 to 33Vdc)
- LED Tier supply voltage : 150Vdc (+/-5% approx., provided by coder-driver circuit)
- 15 n. mile expected power from mains supply: 450W peak approx.
- 15 n. mile effective intensity: >15000cd (during dot) (*)
- 10 n. mile expected power from battery: 54W peak approx. (100Wh/day for 14 hours activation/day) (*) (**)
- Horizontal divergence: 360 degrees
- Expected life time minimum: >25.000 working hours (>35 years approx. with “U” code) (*)
- Lumen maintenance: 90% at 25.000 hours (35 years approx. with “U” code) (*)
- Working temperature range: From -52°C to +60°C
- Coder & driver circuits: External
- Photocell: External
- Synchronization: Possible through coders circuits
- Marking: Ex II 2GD - Ex de IIC T4 - Ex tD A21 IP65 T 135°C
- ATEX Certificate Number: INERIS 01ATEX 0019X

(*) Expected IALA “U” code: 0.4” ON; 0.5” OFF; 0.4” ON; 0.5” OFF; 1.2” ON; 1.2” OFF (15” TOTAL PERIOD)

(**) Driver coder efficiency included

General Main Mechanical Data:

- Body material : Marine grade aluminium painted for off-shore use
- Painting color: RAL 7035 (other colors on request)
- Pedestal: AISI 316L Stainless Steel not painted
- Cover: Borosilicate fused tempered glass, self-cleaning
- LED quantity: 48 for each tiers (144 LEDs in total)
- Connection junction box: Included in the equipment
- Connection terminals : Suitable for wires from 0.5 to 2.5 mm²
- Signal light weight: 15kg
- Optional accessory: Support pole

SICE

15NM

LED LANTERN

Main Advantages:

Very long life

>10+ Years life expectancy

Main & Secondary system

Main & secondary lights in the same enclosure

Maintenance free

Very low maintenance required and easy installation

Low consumption

High efficiency for low energy consumption

Innovative technical solutions

Reduced connection cable size, reduced dimensions, no moving parts placed inside the lanterns and no electronic control circuits placed inside the lantern.

Note

The eventual failure of one led tier reduces the range but does not affect the working of the other tiers. In this case the range is reduced from 15 Nautical Miles to >14 Nautical Miles (in MAIN mode) and from 10 Nautical Miles to >9 Nautical miles (in SECONDARY mode)

SUITABLE FOR ZONE 1 INSTALLATION



-LXS-WHT-15-3 MAIN&SECONDARY MARINE LANTERN 15NM RANGE



15NM LANTERN
Including pedestal



TERMINAL STRIP JUNCTION BOX
In the bottom side



INTERNAL LAYOUT
With LED arrays, LED lenses, heatinks and bubble highlighted

Durable and very low maintenance Fog Horn, composed of omnidirectional acoustic emitters stacked in order to form a vertical column. This type of construction allows a perfect sonorous irradiation of 360 degrees and an excellent sonorous performance (column effect). One fog horn column is sufficient, as long as it can emit a 360-degree beam of sound in the horizontal plane.



TOP LED LANTERN
installation detail



**SICE NV-V3 MAIN
FOG HORN**
2 Nautical mile range
Including local control
circuit enclosed
in a Ex-d junction box
and top led lantern

General Main Technical Data:

- Complies with IALA Recommendations.
- Acoustic emitters made in marine grade aluminum, subjected to a special protective treatment suitable for sea climate (treatment performed and tested by SICE).
- Cylindrical Emitter Covers made in AISI 316L Stainless Steel.
- Acoustic drivers type SICE DR780, equipped with special stainless steel resonant diaphragm and placed inside the emitter boxes. Each emitter box has two bolted covers, one for each side, for an easy replacement of the driver in case of failure.
- Support base and other mechanical frame made in AISI 316L Stainless Steel.
- The fog horn is suitable for installation in classified area of Zone 1, in large buoys or platforms. This construction allows an easy installation on the floor of the platform.
- The coder and control circuit can be installed in a centralized control panel or locally, inside an enclosure installed on the support base of the fog-horn. The coder can be programmed for each required sounding code and can be synchronized with other coders.
- Prepared for local/remote/automatic (by visibility meter) control.
- The emitters work by square waves broadcasting a complex sound that reduces the interferences due to reflexions.
- The acoustic driver used for this fog-horn is a special equipment with high reliability, with a failure rate lower than 1%, and a MTBF higher than 10 years: maintenance is not required.
- Sound pressure level tests performed in large anechoic chamber, in compliance with E-109 IALA Recommendation "On The Calculation Of The Range Of A Sound Signal", Edition 1 - May 1998.
- Minimum vertical divergence 5 degrees at maximum power output (2NM fog horn).
- Working (resonance) frequency ranging between 800Hz and 840Hz.

- Mechanical protection IP66 (available also IP67 for safe area use only, tested by Nemko).
- Marking**
II 2G Ex d IIB T5 Gb IP66
- ATEX Certificate Number**
INERIS 02ATEX0073X
- IECEx Certificate Number**
INE 14.0043X
- Operating temperature range**
from -40°C to +55°C
- Emitter painting colour**
standard RAL 7000
(other colours can be required)

Available Models

- Model NV-V1**
Range 1NM Fog Horn,
complete with 1 emitter only.
- Model NV-V3**
Range 2NM Main Fog Horn,
complete with 3 stacked emitters.
- Model NV-V4**
Range 2/½NM, Main & Secondary Fog
Horn Station, as for IALA Recommendations, complete with 4 stacked emitters. The 4th emitter, and a dedicated amplifier set, provide the required secondary fog signal with range >½ Nautical Miles. For a better reliability, this horn is completely independently operated and controlled, but integrated into one single station for an easy installation.

Electrical Data

- Supply voltage**
24Vdc or 230Vac (other voltage on request)
- Power consumption NV-V1**
30W peak (including control circuit
4W average with U code standard IALA)
- Power consumption NV-V3**
90W peak (including control circuit
12W average with U code standard IALA)

Sound Pressure Level Data

- NV-V1 sound pressure level**
125dB minimum (calculated at 1 meter)
- NV-V3 sound pressure level**
134dB minimum (calculated at 1 meter)

Weight and Dimension Details:

The following weight details include also the fog horn base and local control panel, explosion proof type.

Type NV-V1: 134kg; 660mm, 510mm, 1150mm(H)

Type NV-V3: 260kg; 660mm, 510mm, 2350mm(H)

Type NV-V4: 324kg; 660mm, 510mm, 2950mm(H)

Type NV-V3 + Lantern: 290kg; 660mm, 510mm, 2760mm(H)

SICE

2NM

FOG HORN

SUITABLE FOR ZONE 1 INSTALLATION



NV-V1 (1NM RANGE)

NV-V3 (2NM RANGE)

NV-V4 (MAIN & SECONDARY FOG HORN STATION)



SICE NV-V3 FOG HORN

Range 2 Nautical Miles including local control circuit enclosed in a ex-d junction box



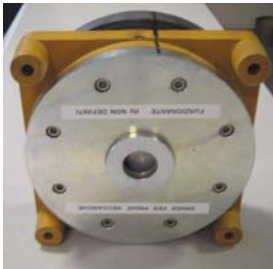
SICE NV-V4 MAIN & SECONDARY FOG HORN STATION

2½ Nautical miles range Including local control circuit enclosed in a Ex-d junction box



SICE NV-V1 FOG HORN

Range 1 nautical mile Including local control circuit enclosed in a Ex-d junction box



SICE DR780 ACOUSTIC DRIVER

Durable and very low maintenance fog horn, with reduced size & weight, composed of two omnidirectional acoustic emitters stacked in order to form a vertical column. This type of construction allows a perfect sonorous irradiation of 360 degrees and an excellent sonorous performance (column effect). One fog horn of this model is sufficient, as long as it can emit a 360-degree beam of sound in the horizontal plane.



TOP LED LANTERN
installation detail



**SICE NV-V2
FOG HORN**
2 Nautical mile range
Including local control
circuit enclosed
in a Ex-d junction box
and top led lantern

**General main
technical data:**

- Complies with IALA Recommendations.
- Acoustic emitters made in marine grade aluminum, subjected to a special protective treatment suitable for sea climate (treatment performed and tested by SICE).
- Cylindrical Emitter Covers made in AISI 316L Stainless Steel.
- Acoustic drivers type SICE DR780, equipped with special stainless steel resonant diaphragm and placed inside the emitter boxes. Each emitter box has two bolted covers, one for each side, for an easy replacement of the driver in case of failure.
- Support base and other mechanical frame made in AISI 316L Stainless Steel.
- The fog horn is suitable for installation in classified area of Zone 1, in large buoys or platforms. This construction allows an easy installation on the floor of the platform.
- The coder and control circuit can be installed in a centralized control panel or locally, inside an enclosure installed on the support base of the fog-horn. The coder can be programmed for each required sounding code and can be synchronized with other coders.
- Prepared for local/remote/automatic (by visibility meter) control.
- The emitters work by square waves broadcasting a complex sound that reduces the interferences due to reflexions.
- The acoustic driver used for this fog-horn is a special equipment with high reliability, with a failure rate lower than 1%, and a MTBF higher than 10 years: maintenance is not required.
- Sound pressure level tests performed in large anechoic chamber, in compliance with E-109 IALA Recommendation "On The Calculation Of The Range Of A Sound Signal", Edition 1 - May 1998.
- Minimum vertical divergence 5 degrees at maximum power output (2NM fog horn).
- Working (resonance) frequency ranging between 826Hz and 832Hz.
- Mechanical protection IP56 (available also IP67 for safe area use only, tested by Nemko).

Marking
II 2G Ex d IIB T5 Gb IP56
ATEX Certificate Number
INERIS 02ATEX0073X
IECEX Certificate Number
INE 14.0043X

Operating temperature range
from -40°C to +55°C

Emitter painting colour
standard RAL 7000
(other colours can be required)

Electrical data

Supply voltage
24Vdc or 230Vac (other voltage on request)
Power consumption NV-V2
160W peak (including control circuit
22W average with U code standard IALA)

Sound pressure level data

NV-V1 sound pressure level
128dB minimum (calculated at 1 meter)
NV-V2 sound pressure level
134dB minimum (calculated at 1 meter)

So, in case that one emitter is failed, the range of this fog horn is reduced from 2 nautical miles to 1,5 nautical miles.

(in compliance with IALA Guideline 1090 - The Use of Audible Signals - December 2012 - Table 2 "Usual Range")

Main Advantages:

- High reliability
- Sizes reduced
- Weight reduced
- Low cost
- Easier installation

SICE

2NM

FOG HORN

NEW VERSION

ATEX & IECEx CERTIFIED

**SUITABLE FOR ZONE 1, ZONE 2 OR SAFE AREA
INSTALLATION**

NV-V2(2NM RANGE)

SICE NV-V3 FOG HORN
Range 2 Nautical Miles
including local control
circuit enclosed
in a ex-d junction box



**SICE DR780
ACOUSTIC DRIVER**

Photoconductive cell (photoresistor), rugged type, installed, connected and encapsulated by SICE inside a special enclosure, M25 threaded, that includes the glass window. The complete device (photoresistor + enclosure + encapsulation + connecting cable) is ATEX and IECEx certified and is suitable for Zone 1 installation. This device can be installed on a dedicated Junction Box (Photocell Junction Box) or inside the same navigation aids control panel, depending on the navigation aids requirements.



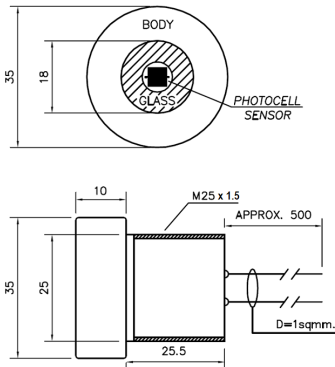
FTC COMPLETE DEVICE

including photoconductive cell, sensor, enclosure, encapsulation and connecting cable



PHOTOCONDUCTIVE CELL SENSOR

installed inside enclosure



SICE FTC M25 DEVICE

Dimensional drawing

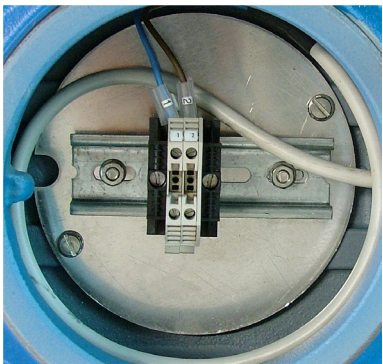
General Main Technical Data:

Photoconductive cell details:

- Type: VT50N1 (or equivalent)
- Resistance range at 10 lux: from 4.0kΩ to 12kΩ
- Resistance at dark: 200kΩ minimum
- Working voltage: 200Vpk maximum
- Power dissipation: 0.5W maximum
- Operating (and storage) temp. : from -45°C to +75°C

Complete device details:

- Type: SICE FTC M25
- Enclosure body material: AISI 316L Stainless Steel
- Window glass type: Tempered
- Glass thickness: 10mm
- Rating voltage: 80Vdc/ac maximum
- Rating current: 0.1A maximum
- Mechanical protection: IP66
- Rated service temperature range: from -40°C to +55°C
- Protection mode (marking): II 2 G Ex d IIB Gb IP 66
- ATEX certificate number: 02ATEX9006U
- IECEx certificate number: INE 14.0022U



PHOTOCELL SYSTEM GUB-02+1XFTC STANDARD TYPE

Inside the enclosure are installed the photocell sensor device and the terminal strip only. The photocell sensor device must be managed by SICE nav aids panel, where the light dependent relay control is installed.

- Working voltage: <=24Vdc (From SICE panel)
- Power Consumption: <=0.5W

SICE PHOTOCELL SYSTEM

Other Characteristics:

Enclosure

EJB-2 or GUB-02

Enclosure mechanical protection

Both IP66

Enclosure material

marine grade aluminium

Execution

EJB: Ex-d IIB T6 | GUB: Ex-d IIC T6

Extreme temperature range

Both -40°C to +55°C

Dimensions

EJB-2 = 280mm, 174mm, 302mm (H)

GUB-02 = 191mm, 163mm, 191mm (H)

Weight

EJB-2 = 12kg

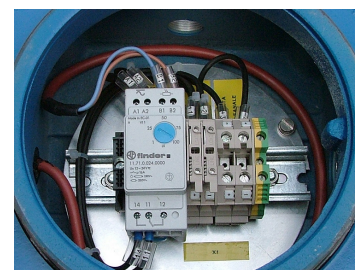
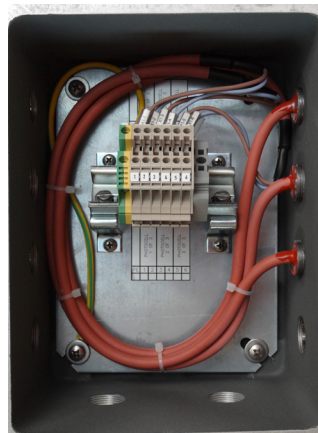
GUB-02 = 6kg

SUITABLE FOR ZONE 1 INSTALLATION



PHOTOCELL SYSTEM TYPE EJB-2+3xFTC

PHOTOCELL SYSTEM TYPE GUB-02+1xFTC



REDUNDANT PHOTOCELL SYSTEM

EJB-2+3XFTC

This redundant photocell system includes Q.ty 3 photocell sensors, ATEX and IECEx certified, type SICE FTC M25, placed in the side of one explosion proof enclosure type EJB-02 (or equivalent enclosure). These sensors are managed by SICE supervisor system placed in the SICE nav aids control panel and work as follow:

- 1) When at least 2 photocell sensors detect "day", the nav aids control panel switches-off the signal lights.
- 2) When at least 2 photocell sensors detect "night", the nav aids control panel switches-on the signal lights.

In this way, the failure of the one photocell sensor does not affect the correct activation/deactivation of the lights system.

PHOTOCELL SYSTEM

GUB-02+1XFTC COMPLETE TYPE

This system is complete also with local light dependent relay and, in this case, it's able to switch on/off the load directly. So, in this case, the photocell system must be powered by dedicated voltage.

- Working voltage: 24Vdc/230Vac
- Power Consumption: 0.8W/1.3VA
- Relay contact current: 16A at 250VAC (AC1)

The Visibility Sensor is an optical sensor that measures visibility (meteorological optical range, MOR). The sensor measures visibility using the principle of forward scatter measurement.

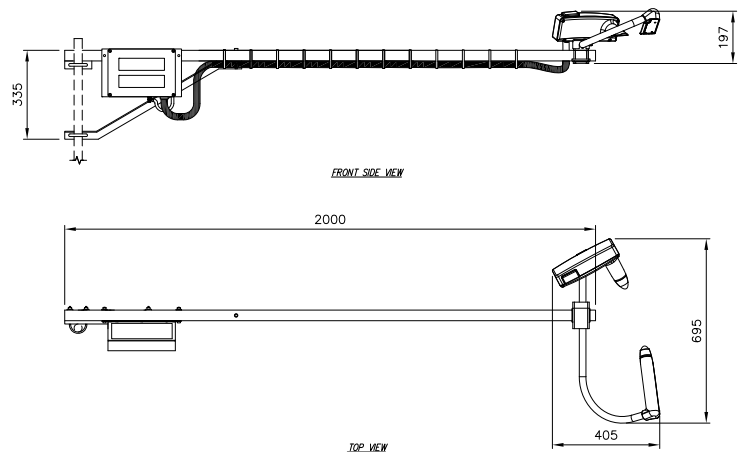
With a measurement range of 10...20,000 meters, this Visibility Sensor, type PWD20, offers long-range visibility measurement for several applications covering harbors, coastal areas, heliports, windmill parks-indeed, any locations or areas where visibility measurement is necessary.

The PDW20 Visibility sensor is compact, low weight and less than one meter long. It is equipped with a cable and connector for easy installation, and can be mounted in many ways on any existing mast.

SICE includes, in the Visibility meter kit, a mechanical fixing bracket, complete with connecting junction box that is suitable to mount this equipment on an existing pipe of 1-1/2" as for following drawing.



Technical Drawing



General Main Technical Data:

- Range: 10m to 20km
- Accuracy: +/-10% for range from 10m to 10km; +/-15% for range from 10m to 20km
- Relative humidity: 0-100%
- Working voltage: from 12 V DC to 50 V DC (electronics)
- Power consumption: 3W approx.
- Operating temperature: -40°C + 60°C (with optional heater for extended range -40°C)
- Output (standard): control relay (fog/no fog) and diagnostic relay (ok/alarm)
- Output (available): 4-20mA (for visibility range measurement)
- Mechanical protection: IP66
- Weight: 3kg (excluded fixing bracket)
- Hardware: Included (AISI 316 stainless steel)
- Calibration KIT: optional
- Fixing bracket: included, type SICE SVM-PWD20, made in AISI 316L stainless steel
- Connecting junction box: included, type Glass Reinforced Polyester, IP66
- Total Weight: 10Kg (Visibility meter, fixing bracket and junction box)

Main Advantages:

- Visibility threshold and delay fully programmable
- Completed with fault alarm delay
- Accurate measurement of prevailing visibility
- Easy to install
- Compact and light weight

SICE

SAFE AREA

VISIBILITY

METER

SUITABLE FOR SAFE AREA INSTALLATION
VISIBILITY METER (FOG DETECTOR)



FOG DETECTOR

PWD20 has been calibrated at the factory. Thus, no initial calibration is required. Periodic maintenance includes the following:

- Cleaning the transmitter and receiver lenses and hoods.
- Checking the visibility calibration and calibrating it, if necessary.

PWD20 is designed to operate continuously for several years without other maintenance than cleaning of the lenses.



SICE TYPICAL INSTALLATION ON OFFSHORE PLATFORM

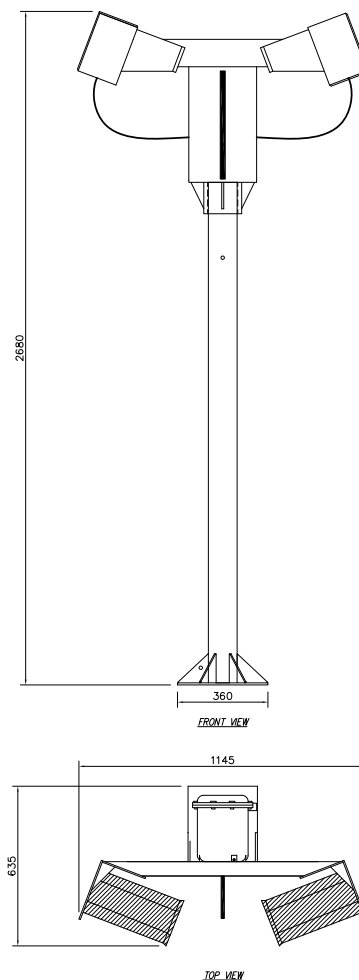
The receiver and transmitter optics should not point towards powerful light sources. It is recommended that the receiver will point north in the northern hemisphere, and south in the southern hemisphere. The receiver circuit may become saturated in bright light, in which case the built-in diagnostics will indicate a warning. Bright daylight will also increase the noise level in the receiver.

ATEX certified Visibility Sensor, suitable for ZONE 1 installation. Measures atmospheric visibility (meteorological optical range) by determining the amount of light scattered by particles (smoke, dust, haze, fog, rain, & snow) in the air that passes through the sample volume. A 42-degree forward scatter angle is used to ensure performance over a wide range of particle sizes. MOR is calculated by the user by converting the received signal strength (extinction coefficient, σ) using Koschmeider's formula, $MOR (Km) = 3 / \sigma$.

Performance in all weather conditions was a design prerequisite for this Visibility Meter. The sensor uses ATEX rated Ex housings and offshore marine grade sheathed cables to ensure all-weather, Zone I, IP66 certified performance. A sturdy aluminum frame painted with durable powder-coat paint is used to mount the housings and provide mounting to a customer supplied mounting pipe. Power and signal lines are protected with surge and EMI filtering to help guarantee uninterrupted service for the life of the sensor.

Installation of the Visibility Meter is easy. A mounting flange located on the bottom of the sensor housing mates with a supplied support pole. Power and signal connections are made through M25 threaded holes using user supplied, ATEX approved cable glands and wiring. User wiring is made to DIN rail mounted terminal boards in the Signal Processing Box.

Technical Drawing



General Main Technical Data:

- Range: 15m to 8km
- Accuracy: +/-10% RMSE
- Scatter angle: 42 deg. Nominal
- Source: 880 nm LED
- Output (standard): control relay (fog/no fog) and diagnostic
- Output (optional): 4-20mA
- Working voltage: 12Vdc or 24Vdc
- Power consumption: 8W approx.

- Operating temperature: -20°C + 60°C
- Mechanical protection: IP66 (NEMA-4X)
- Protection mode: II 2GD Ex d IIB T5/T6
- ATEX certificates: CESI 01 ATEX036 and CESI 01 ATEX027
- Weight: 40kg (excluded support pole)
- Frame: sturdy aluminium (painted)
- Hardware: AISI 316 stainless steel
- Mounting: Nominal 102mm pipe, 122mm OD max
- Calibration Kit: Included
- Support pole: Included, type SICE PF/FD-Ex (AISI 316L SS)
- Total weight: 70kg (included 30kg support pole)

SICE EX VISIBILITY METER

Main Advantages:

- Visibility threshold and delay fully programmable
- Completed with fault alarm delay
- Accurate measurement of prevailing visibility
- Easy to install
- Compact and light weight

SUITABLE FOR ZONE 1 INSTALLATION



VISIBILITY METER INSTALLATION CAUTIONS 1° PART

The best location to site the Visibility Sensor is at the edge of the platform deck with the optics looking over the rail and the TX head towards the south so the RX optics window looks towards the north. If the Visibility sensor is mounted so it looks over the rail, the mounting pole supplied by the customer should be at equal to or greater than the height of the rail. The area along the rail should be straight for at least 5m on either side of the Visibility Sensor and not have any obstructions, bright lights or navigation beacons within that area. Lights installed on the inside of the rail to illuminate the walkway for safety reasons are acceptable. The area above the sensor must be clear to the sky and not subject to dripping water from hoses or other objects. High powered sources of RF energy such as HF antennas or microwave communication dishes must not be within 10m of the Visibility Sensor to avoid interference or damage to the sensitive RX electronics.

VISIBILITY METER INSTALLATION CAUTIONS 2° PART

If the Visibility Sensor cannot be installed along the rail, the 2nd best location is in an open area like a deck. The height of the customer supplied mounting pole should be ~2.5m, so the sensor optics are 3 m above the deck. The area to be clear of obstructions and walkways is a hemisphere of radius 5m on the sensing side of the Sentry (where the TX and RX Heads are). If the sensing side must overlook a walkway, locate the Visibility Sensor 2-3 m from the walkway and 3 m above the deck. The hemisphere area on the other side of the sensor (with Main Electronics Enclosure) is considered free of restrictions as shown in the above figure. If the full restrictions on the sensing side of the Sentry cannot be met, it is suggested that the area be cordoned off and placards used to caution personnel not to linger or to leave equipment or containers in that area.

The Battery System is composed of a battery box that includes some battery cells that are already assembled and connected. The whole complex, that includes the box, the cells and the interconnections, is manufactured in compliance with ATEX (European) Directive and is certified for use in classified area of Zone 1. Different types of batteries, from more manufacturers, which are selected among the most important and qualified of the market, can be used for the realization of this battery system.



BATTERY BOX
installation detail



BATTERY CELLS
installation detail



BATTERY BOX
Closed

General Main Technical Data:

SICE has performed a mainly selection and, usually, uses the following battery types:

VRLA BATTERIES

- SMG
- SMG/S (Solar) for photovoltaic system

VRLA BATTERIES

- A400
- A500
- A600
- A600 (Solar) for photovoltaic system

NiCd BATTERIES

- SBLE
- SUNICA+(Solar) for photovoltaic system
- Uptimax UP1L & UP1M

Other Batteries

Other types of batteries from same and other manufacturers, that are already approved and included in the ATEX certificate.
SICE is open to evaluate all customer requirements.

Technical Data

- Execution: ATEX II 2G Ex-eb IIC T6 Gb IP56
- Certificate: ATEX SEV 15ATEX00163X & iECEx SEV 15.0022X
- Box manufacturer: EXCEN for SICE
- Box material: Iron sheet with anti-acid painting
- Maximum capacity for each box: 1960Ah (C5)
- Box mechanical protection: IP23 (minimum)
- Complex mechanical protection: IP56 (protection battery+battery box)
- Standard temperature range: -20°C to 40°C

SICE

EX

BATTERY BOX

Main Available Options:

Box material

AISI 316L stainless steel not painted

Box mechanical protection

IP43

Connection mechanical protection

IP66 (Complex protection battery + battery box)

Terminal strip junction box material

AISI 316L stainless steel

Extreme temperature range

-60°C to +65°C (according to the cell)

SUITABLE FOR ZONE 1 INSTALLATION



EX BATTERY BOX WITHOUT EXTERNAL JUNCTION BOX

This type of battery is supplied by SICE complete with short connection cables (positive & negative) that are already connected to the internal battery poles. Usually it is used for installation on skid, where the connection cables are very short and the charging current is not very high.



EX BATTERY BOX WITH EXTERNAL JUNCTION BOX

in this type of battery the cables (positive & negative) are connected from the internal battery poles to the external junction box. The sizes of terminals are calculated in compliance with cable length and charging current.

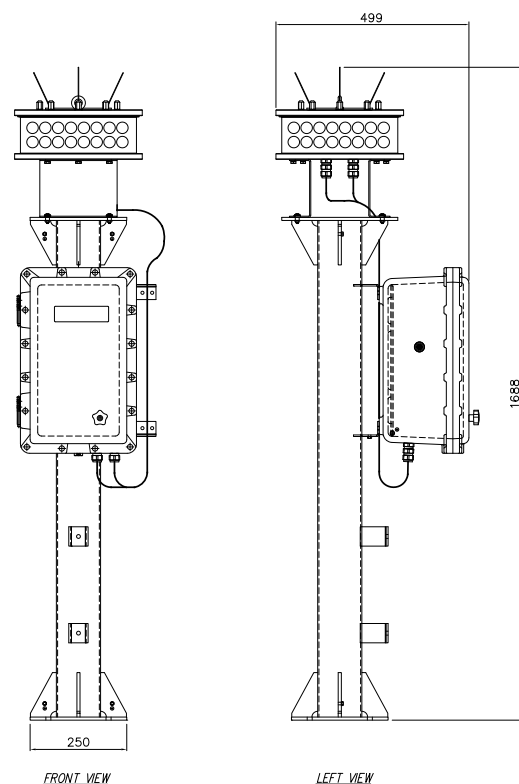
Rugged, simple, long life and very reliable, Visual Navigation Aids System (Lantern Station). Compliant with IALA Recommendations, where a range of 10 nautical miles is required. The system includes a mechanical support pole type SICE PF/1300-LED, a Marine LED Lantern type SICE LS-10NM-L-1 and the Lantern Junction Box. Inside the Junction Box are installed the U-coder/driver circuit(s) type SICE 266, the Photocell device(s) type SICE FTC M25, the reverse polarity protection diode and the protection circuit breaker(s), inside lantern only LED devices are installed. The Station is manufactured by SICE in compliance with ATEX and IECEx Directives and is certified for use in classified area of Zone 1. This Station can be synchronized with other Stations, with same features, and is also complete with a remote signal of alarm. Through the transparent window, present on the cover of the Junction Box, it's possible to monitor the statuses of the Lantern Station, that are:

- Status of the circuit breaker(s)
- Status of the red pilot light named "REVERSE POLARITY ALARM"
- Status of the coder/driver circuit(s)

In the front of the Junction Box is installed a label that briefly describes the meanings of the various pilot lights placed inside, allowing the operator to perform a fast and complete audit regarding the working status of the Lantern Station, without opening the junction box

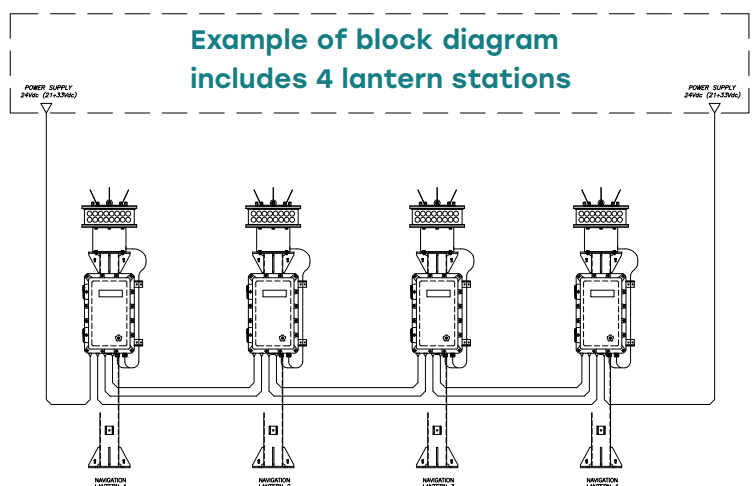


Technical Drawing



General Main Technical Data:

- Working voltage: 24Vdc, range from 21 to 33V (other voltages on request)
- Station peak power during ON periods: 32W
- Station daily power consumption: 75Wh/day (3.125Ah/day)
- Low voltage disconnecting system included (reconnecting is automatic when the voltage returns above the programmed value)
- Synchronization mode : wired
- Remote control : voltage-free contact (closed = System OK)
- Support pole: AISI 316L Stainless Steel or galvanized steel painted in compliance with standard or Customer procedure with required colour
- Junction Box type: EJB-5 Technor (or equivalent), made in copper free aluminium, painted in compliance with standard or Customer procedure with required colour



Main Available Options:

- Support pole material
AISI 316L stainless steel not painted
- Enclosure & lantern mechanical protection
IP66
- Redudant system
For MAIN & RESERVE lines



SICE LANTERN STATION
Pre-assembled and wired

SICE

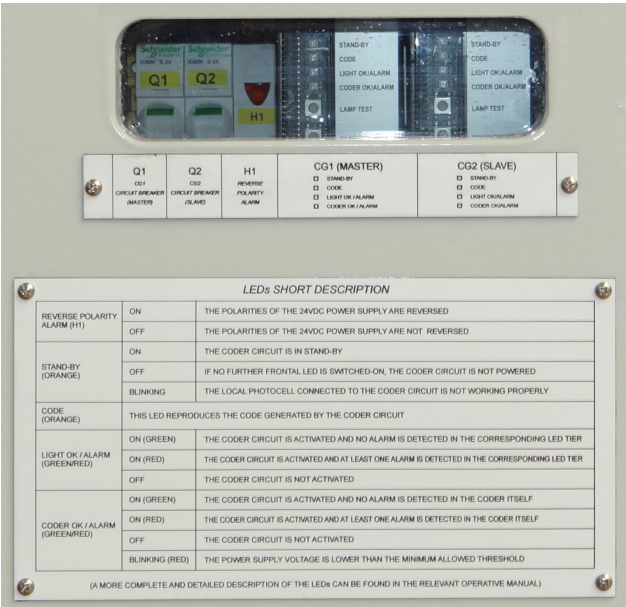
VISUAL NAVAIDS DISTRIBUTED SYSTEM

SUITABLE FOR ZONE 1 INSTALLATION



LANTERN STATION FOR DISTRIBUTED SYSTEM
COMPOSED OF:

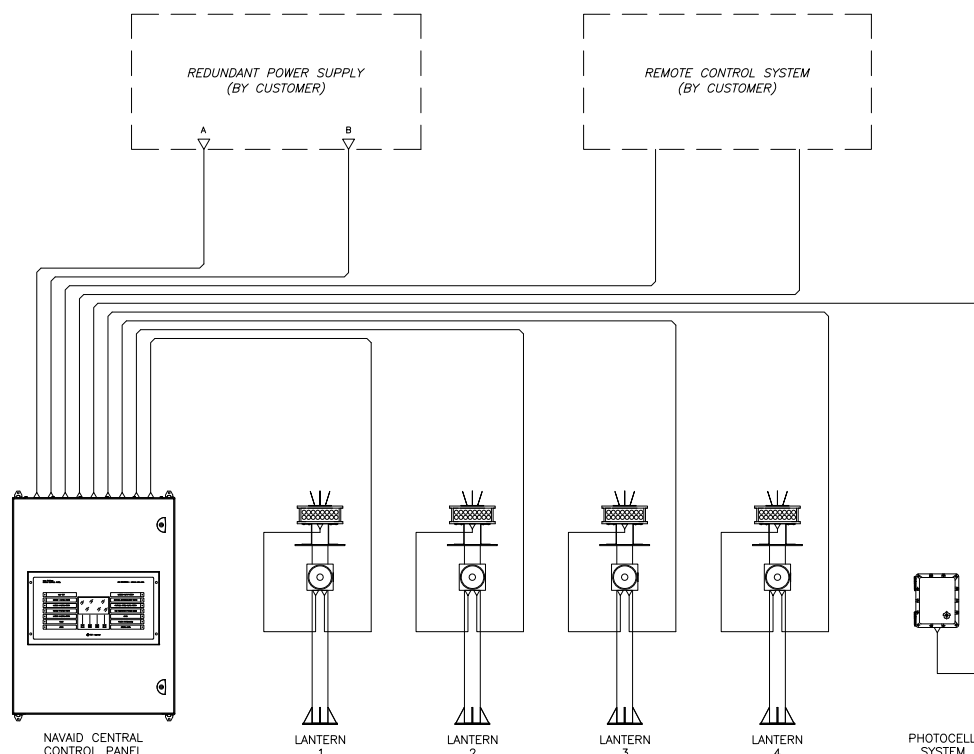
- LED LANTERN
- JUNCTION BOX
- PHOTOCELL
- SUPPORT POLE



ENCLOSURE FRONT COVER
Transparent window and description
labels

Simple and very reliable Visual Navigation Aids System (lantern system), compliant with IALA Recommendations, composed by NCCP (Navaid Centralized Control Panel), General Photocell System and Main White Signal Lights (LED lanterns), as for following system block diagram.

Example of block diagram includes 4 lantern stations



The NAVAID CENTRALIZED CONTROL PANEL is built in a wall mounting box suitable for indoor installation in safe area. This equipment is manufactured by SICE in compliance with Customer requirements and specifications. The components installed inside the cabinet can be divided in the following sub-sections:

- **CIRCUIT FOR MARINE SIGNAL LIGHTS:** it includes the automatic circuit breakers and the U-coders (drivers) used to drive the MARINE LANTERNS.
- **PHOTOCELL INTERFACE CIRCUIT:** it includes the automatic circuit breakers and the light detector relays used to read the data incoming from the three photocell sensors installed (outside) on one dedicated PHOTOCELL SYSTEM enclosure, redundant type SICE EJB-2+3XFTC.
- **CONTROL SYSTEM:** the above listed sub-systems are monitored by the control system. This system is designed/ manufactured by SICE and it is very useful in all cases where several sub-systems have to be integrated together, providing to the user a complete local and remote control for the whole system. The local interface panel is composed of a graphic display and signaling led, by which the user can monitor all the configured status, alarms, analogue values. In particular, through some pages on this graphic display, the user can monitor all the configured statuses and alarms of the several installed equipment, one by one.

Technical Data (standard system)

- Working voltage: 24Vdc (range from 21 to 33V) (note 1)
- Input peak power to NCCP: 126W
- Daily power required: 450Wh/day
- Daily current required: 18.75Ah/day (at 24Vdc)
- Lantern activation (expected): 14h/day
- Lantern "U" code (expected): standard IALA 15"
- Lantern power consumption during ON times: <27W (note 2)
- Control & supervisor system consumption: 4W
- Lantern working voltage: 153Vdc (generated by coder)
- Lantern current average during ON times: 0.175A
- NCCP dimensions: 800mm (H) x 600mm (W) x 250mm (D) (note 3)

Notes:

1. Other voltages can be required (the electrical data can change)
2. See the SICE data sheet of system components (lantern and photocell) for further and detailed information.
3. For maximum 6 lanterns (the dimension can increase if the lantern quantity is more than six).

SICE

VISUAL NAVAIDS CENTRALIZED SYSTEM

Main Available Options:

Support pole material

AISI 316L stainless steel not painted

Enclosure & lantern mechanical protection

IP66

Redundant system

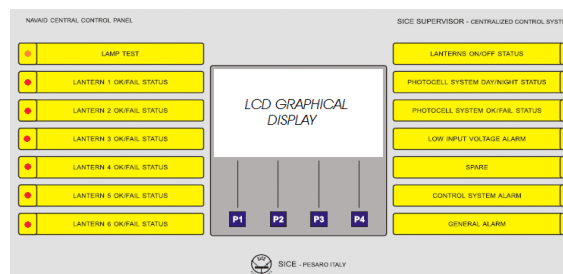
For MAIN & RESERVE lines

LANTERN SUITABLE FOR ZONE 1 INSTALLATION



CENTRALIZED SYSTEM COMPOSED OF:

- LED LANTERN
- JUNCTION BOX
- PHOTOCELL
- SUPPORT POLE
- CENTRALIZED CONTROL PANEL (for safe area)



SICE NAVAID CENTRALIZED CONTROL PANEL

Suitable for wall installation-safe area including supervisor and display panel.

REMOTE CONTROL (standard hard wired):

1) General alarm:

- Close contact = system OK
- Open contact = system FAILED (at least an alarm is been detected)

2) ON/AUTO command:

- Closed contact = ON (lantern forced ON)
- Open contact = AUTO (lantern actived by photocell system)

Notes: Remote control configuration can be changed in compliance with customer request

SICE DISPLAY PANEL CONFIGURATION (STANDARD)

- Lamp test
- Lanterns ON/OFF status
- Lantern 1 OK/FAIL status
- Lantern 2 OK/FAIL status
- Lantern 3 OK/FAIL status
- Lantern 4 OK/FAIL status
- Photocell system DAY/NIGHT status
- Photocell system OK/FAIL status
- Input voltage measurement
- Low input voltage alarm
- Supervisor system alarm
- General alarm

Notes: Display configuration can be changed in compliance with customer request

SICE INSTALLATION SYSTEM (TYPICAL)

including LED lantern, support pole and junction box

SICE Status light is equipped with two separated (overlapped) LED strings that are powered by two separated and independent flasher-driver circuits type SICE 266. This feature is able to reduce the driving current in the LED string and to increase the reliability and durability. Total power consumption 140W peak including driver losses (70W average at 2Hz). This Status light is suitable for the installation on offshore helideck platform for hazardous area conditions. It shall be located on or adjacent to the helideck, in a such way that can be visible to the pilot from any direction of approach and on any landing heading.

The main characteristic of the status (Wave-Off) light is that it have a minimum effective intensity of 700cd 2°-10° and at least 176cd at all other angles of elevation. The intensity of these lights can be reduced to 60cd when the helicopter is landed. Beacons must be visible at 360° and must flash at 120fpm that can reduce to 60fpm when helicopter is landed.

APPLICATION:

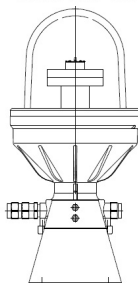
Helideck Status (Wave-Off) lights are used as visual warning system to indicate to pilots that the helideck is safe or not safe.

Technical Drawing

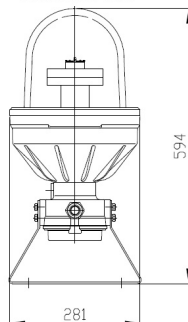


WAVE-OFF BEACON LAYOUT

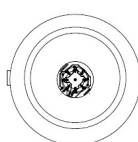
BEACON FRONT VIEW



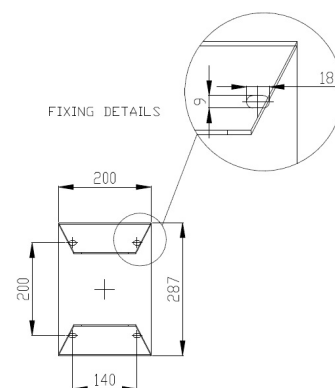
BEACON SIDE VIEW



BEACON TOP VIEW

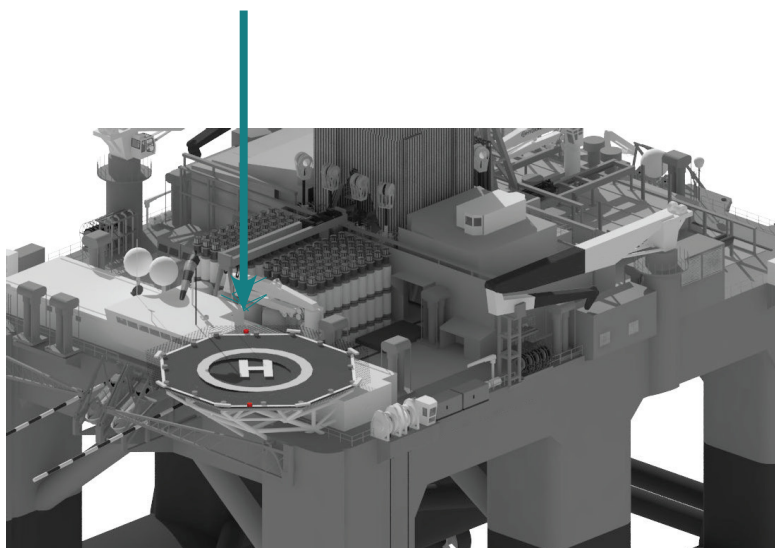


FIXING DETAILS



General Main Technical Data:

- Working voltage: 24 Vdc (range 21V to 33V)
- Power consumption: 70 average
- Colour Avitation: Red
- Based on LED technology
- 700cd flashing @ 120fpm with 1400mt visual met. cond.
- 60cd flashing @ 60fpm during landing (if required)
- Painted aluminium body RAL 7035
- Borosilicate glass cover protection
- Degree protection: IP66
- Operating temperature: -52°C to +40°/+60°
- Cable glands type: M20x1,5



SICE

STATUS LIGHT (WAVE OFF)

Certificates:

Atex Execution

Ex II 2GD Ex de IIC T...Gb

Ex tb IIIC T1 35°C Db IP 66

IECEX Execution

Ex db e IIC T4 Gb

Ex tb IIIC T1 35°C Db IP66

According to:

Icao (annex 14), CAA, CAP 437 & ENAC

Options:

-Other voltage can be required

SUITABLE FOR ZONE 1 INSTALLATION

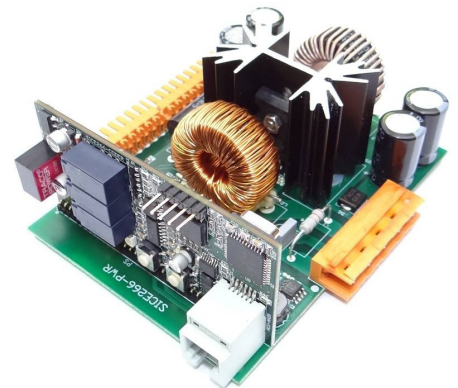


LOW MAINTENANCE

SEALED UNIT

NO MOVING PART

EASY TO INSTALL

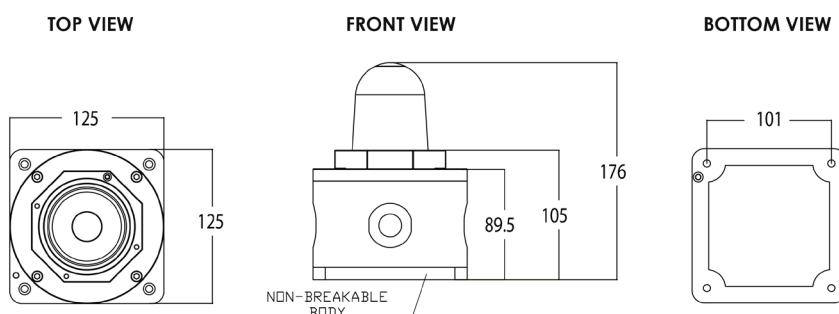


**SICE 266 PROGRAMMABLE
FLASHER/DRIVER CIRCUIT**
installed in the status light control
panel

APPLICATION:

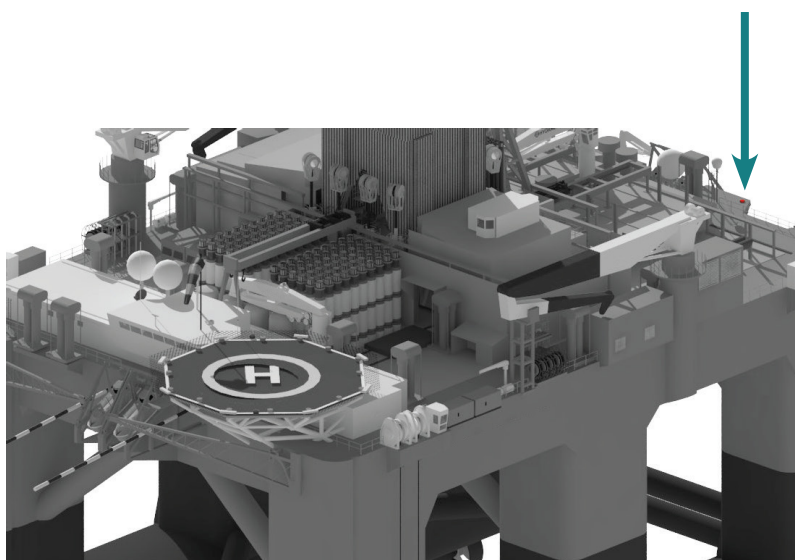
Helideck Reapeter (Wave-Off) lights are used to guarantee the “on deck” 360° coverage in azimuth where only status light are not sufficient.

Technical Drawing



General Main Technical Data:

- Working voltage: 24Vdc (range 21 to 33)
- Power consumption: 7W peak (on time) - 1W (off time)
- Colour Aviation: Red
- Based on LED technology
- Adjustable 16-60cd
- Adjustable 120-60fpm
- Natural finish SS316L body
- Borosilicate glass dome
- Degree protection: IP66
- Operating temperature: -40°C to +55°/+60°/+70°



Certificates:

Atex Execution
Ex II 2GD Ex de IIC T...Gb

IECEX Execution
Ex db e IIC T... Gb

According to:
CAP 437

Options:

-Other voltage can be required

SICE

REPEATER LIGHT (WAVE OFF)

SUITABLE FOR ZONE 1 INSTALLATION

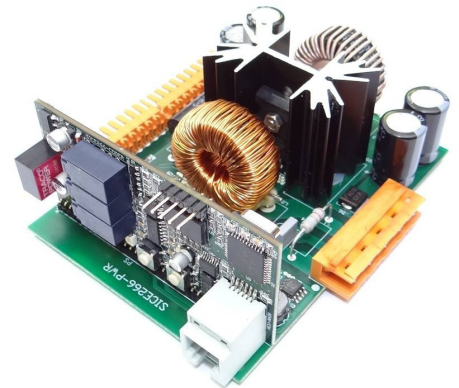


LOW MAINTENANCE

SEALED UNIT

NO MOVING PART

EASY TO INSTALL



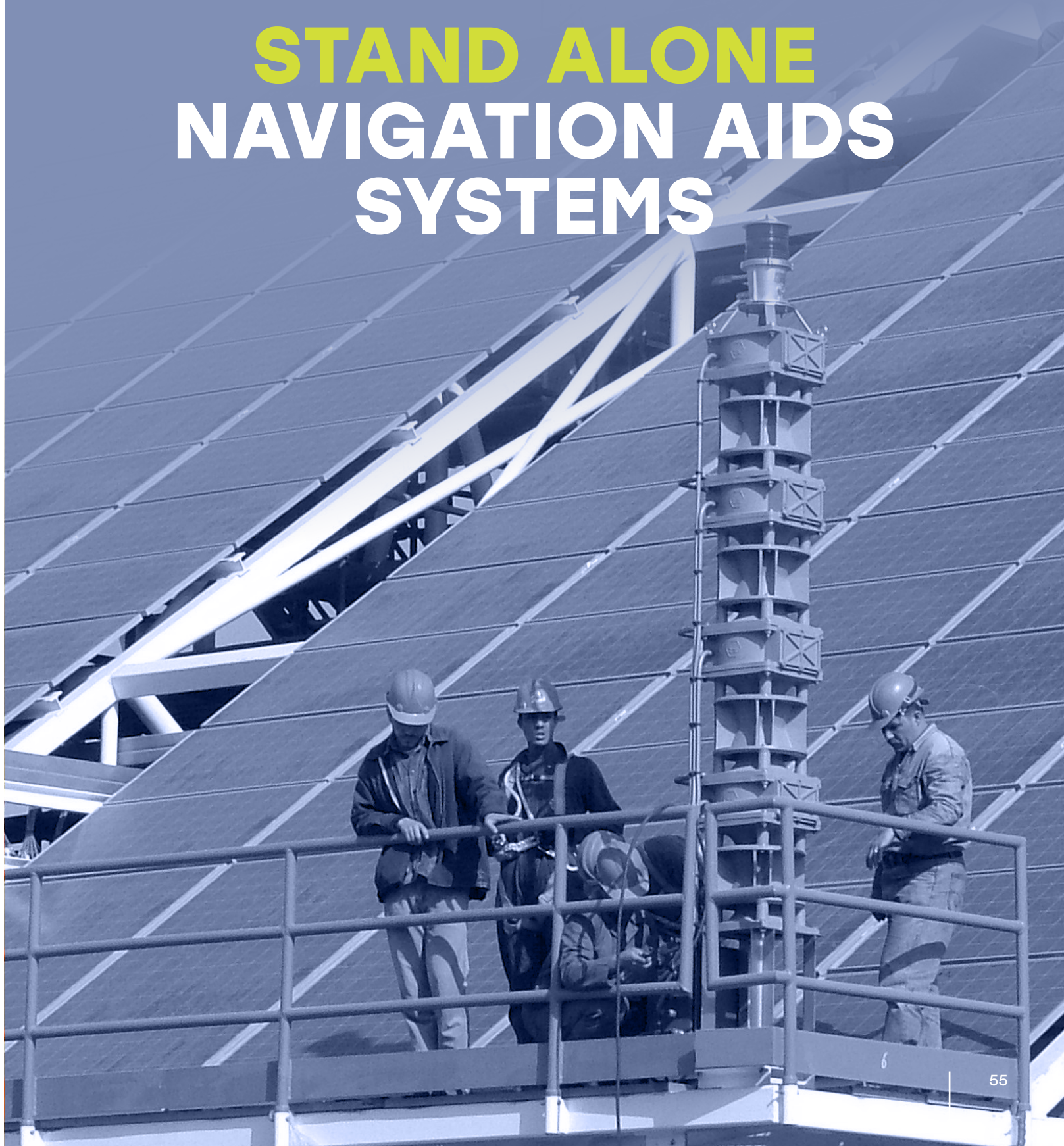
**SICE 266 PROGRAMMABLE
FLASHER/DRIVER CIRCUIT**

Installed in the status light control panel.

-
- 57 Solar Powered ATEX Certified System (5NM OR 10NM)
 - 59 Solar Powered Warning Light System (Zone 2)
 - 61 Solar Powered LED Lantern (Safe Area)
 - 63 Solar Powered Fog Horn (Safe Area)
 - 65 Solar Powered LED Lantern & Fog Horn (Safe Area)
 - 67 Primary Battery System (Safe Area)
 - 66 Self-Contained LED Lantern (Safe Area)
-



STAND ALONE NAVIGATION AIDS SYSTEMS



Type EX/SL/LED very rugged system with high reliability and long life, 40 years and more life expectancy for the lantern, without maintenance requirements. The system is completely manufactured in compliance with ATEX Directive and all components are ATEX certified by external Authorized European Institutes, auto-certifications are not expected. Composed by LED technology lantern, solar charge regulator, photocell, high quality battery (suitable for solar system) and protection switches. The signal light body, the support structure and battery box are made in AISI 316L Stainless Steel, not painted. The explosion proof enclosures are made in copper free aluminium, painted internally and externally. Painting and tropicalization are made in compliance with manufacturer procedure suitable for off-shore use. Enclosures external colour can be selected by Customer. The lantern range calculation is performed considering also the IALA Guideline no. 1048 "on led technologies and their use in signal lights".



Available Option for Main & Reserve Lines Configuration

The LED lantern tiers are connected to two overlapped and separated lines that are powered through two separated driver circuits and photocells, one for each line. When a failure occurs, at one led line or at one driver circuit (or photocell), the remaining driver circuit increases automatically the working current of the led line that is still working and restores the lumen output in compliance with the IALA Recommendations. During this phase, when one line is failed, a remote control of failure is available from control circuit. In the worst case, when the failure has occurred, this option requires a minimum solar radiation of 2kWh/m² because the system daily consumption increase by 40%, the battery autonomy is reduced from 20 days to 12 days.

Main Technical Characteristics:

- Installation: self-standing, suitable for Zone 1 (& 2)
- Temperature range: from -20°C to +50°C
- Solar panel: 130Wp 12V nominal (polycrystalline type)
- Solar panel total derating expected: >30% (considered 90W)
- Minimum solar radiation required: 1.5kWh/m²
- Battery capacity (nominal): 24V 85Ah
- Battery type: VRLA for solar system
- Battery life: 800 cycles at 60% DoD (at 20°C)
- Temperature compensation: Expected in the charge relulator
- Lantern type SICE LS-10NM-L1 with white led
- Lantern contr. circuit: SICE 266 driver & coder
- Available flashing code: everyone, programmable
- System daily consumption: 80Wh/day (U code std IALA)
- Expected activation time for day: 14 hours/day
- Battery autonomy: >20 days at 20°C (with U code std IALA)
- Lantern luminous peak power output: >1400cd effective
- Lantern luminous range: 10 Nautical Miles
- Lumen output degrades is considered, as for IALA
- Lantern synchronization system included (wired)
- Remote controls (status and alarm) included
- Load disconnection system for low battery voltage included
- Battery breaker included (manoeuvrable from outside)
- Solar panel breaker included (manoeuvrable from outside)
- Lantern breaker included (manoeuvrable from outside)
- Local visual signalizations available from transparent window of the enclosure, as following:
 - LED's indicate battery status and faults
 - DISPLAY indicates the battery voltage
 - DISPLAY indicates the solar panel charging current
 - DISPLAY indicates the load consumption current
 - DISPLAY indicates the load disconnection circuit status
 - LED indicate the lantern ON/STAND-BY status
 - LED indicate the lantern OK/FAILURE status
 - LED indicate the driver / coder circuit OK/FAILURE
 - LED that repeat the code flashing

Dimensions &Weights (standard type):

- Base dimensions: 741mm X 800mm
- Height: 2377mm (all included)
- Weight: 274Kg

SICE

SOLAR POWERED & ATEX CERTIFIED SYSTEM

Main Available Options:

- Manufactured according to customer specification
- Main & reserve lines configuration
- Powered by external mains power, without solar panel type EX/L/LED
- Battery type NiCd
- Other color of lantern lights
- Reduced range of lantern
- Other flashing characteristics

SUITABLE FOR ZONE 1 INSTALLATION



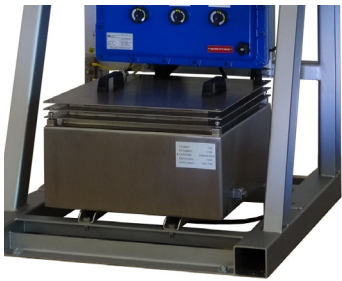
RANGE OF 10NM



**EX/SL/LED TEMPORARY
LANTERN & SOLAR PANEL**
LANTERN: Ex-d IIB T6 IP66
SOLAR PANEL: Ex-mb e II T5 IP66



**EX/SL/LED TEMPORARY
ENCLOSURE & PHOTOCCELL**
Enclosure: Ex de IIB T6 IP65
Photocell: Ex d IIB IP66



**EX/SL/LED TEMPORARY
BATTERY BOX**
Battery: Ex eb IIC T6 Gb IP56

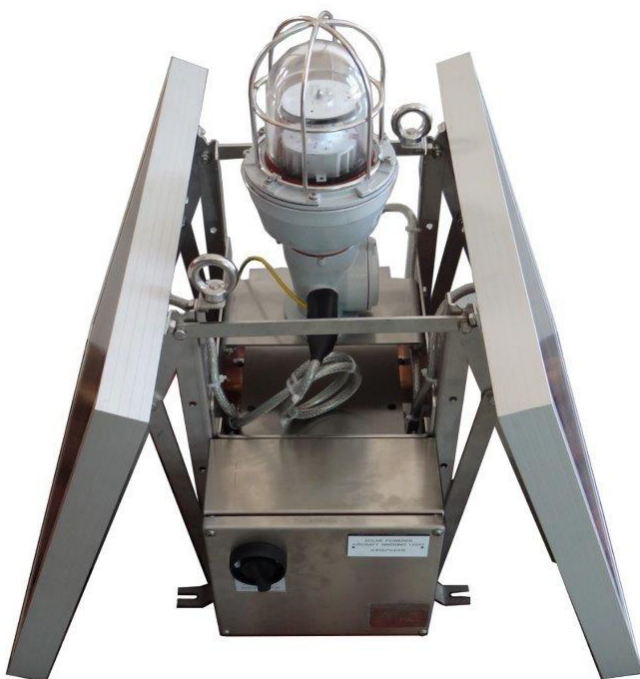
Low Intensity Obstruction Light (Aircraft Warning Light), complete autonomous system, solar powered, having high efficiency and low power consumption. Suitable for installation in classified area of Zone 2. It can be used to warn the presence of obstacles up to 45m height, such as offshore platforms, refinery, chimney, flares and other structures. Very compact and stand-alone skid that is supplied fully assembled, with all components installed connected and tested. This system is supplied ready for use, assure an easy installation and do not require maintenance. This system is composed as follows:

- Aircraft Warning Light, LED technology, low power consumption very long life expectancy
- Solar panel(s). One or two polycrystalline solar panel(s) can be installed in the system
- Battery block, VRLA type suitable for solar system. Sized for minimum 4 days of autonomy (4 no sun days)
- Battery box, made in AISI 316L stainless steel not painted
- Junction box containing Power Isolator & Solar Charge Regulator. Made in AISI 316L stainless steel not painted
- Mechanical standalone structure made in AISI 316L stainless steel not painted



General main technical data:

- Red steady burning light
- Working voltage: 12Vdc (or 24Vdc)
- Automatic activation/deactivation by photocell (or by solar panel night/daily detection)
- Low Battery Voltage Protection included in the control system
- Suitable for Zone 2 installation
- Mechanical protection for Light: IP66
- Mechanical protection for Solar Panel j. box: IP66
- Mechanical protection for Power Isolator and Charge Regulator j.box: IP66
- Mechanical protection for Battery & Battery Box: IP56 (total protection for enclosure + battery poles connection)
- Operating temperature: from -20°C to +50°C (valid for all components)
- Very long life expectancy
- Suitable for floor mounting
- Including fixing accessories (bolt and nuts) made in A4 material



SICE

SOLAR POWERED AIRCRAFT WARNING LIGHT SYSTEM

Main Available Options:

- Manufactured according to customer specification
- Complete with one solar panel, suitable for marking a fixed obstacle
- Complete with two solar panel, mounted at 180 degrees, suitable for marking also a moving obstacles (as rig legs)
- Compliant with ICAO LIOL A ($\geq 10\text{cd}$)
- Compliant with ICAO LIOL B ($\geq 32\text{cd}$)
- Compliant with CAP 168 Group A ($\geq 10\text{cd}$)
- Compliant with CAP 168 Group B ($\geq 200\text{cd}$)

ATEX & IECEx CERTIFIED

**SUITABLE FOR ZONE 2 HAZARDOUS AREA
INSTALLATION**



TYPE L810-PV-EX2

Composed of:

- Obstruction light
- Solar modules
- Battery and battery rack
- Power isolator & solar regulation junction box
- Structure in AISI 316L



TYPE L810-PV-EX2

lateral view

Type TS/LED very rugged system with high reliability and long life, 40 years and more life expectancy for the lantern, without maintenance requirements. Equipped with LED technology lantern, solar panel, MPPT solar charge regulator, photocell, high quality battery (suitable for solar system) and protection switches. The lantern body, the support structure (that includes the anti-winged systems) and the control/battery box, are made in AISI 316L stainless, not painted.



TOP LED LANTERN
Anti-winged details



CONTROL & BATTERY BOX
Detail



SOLAR PANEL
Detail



SUPPORT POLE
Fixing base detail

General Main Technical Data:

Main technical characteristics

- Installation: bolted/welded to the floor, in Safe Area
- Temperature range: from -20°C to +50°C
- Solar panel: 125Wp
- Battery capacity: 24V 60Ah (C100)
- Battery type: VRLA (suitable for solar system)
- Battery life: 1200 cycles at 60% DoD (at 20°C)
- Autonomy: >10 days at 20°C (with std U code IALA, 13.333% duty cycle)
- Charge temperature compensation: included
- Low voltage disconnection system: included
- Lantern type: SICE LS-10NM-L1 with white led
- Lantern driver/coder circuit: SICE 266 (constant current)
- Available flashing code: anyone, programmable (by SICE)
- Daily consumption: 86Wh/day (with std "U" code IALA, 13.333% duty cycle)
- Expected activation time for day: 14 hours/day
- Lantern luminous peak power output: >1500cd
- Lantern luminous range: 10 Nautical Miles
- Lantern synchronization system: included
- Battery breaker included (inside)
- Solar panel breaker included (Inside)

Remote controls included:

- Lantern failure (voltage free contact)
- Lantern status (voltage free contact)

Local visual signalizations available inside the control/battery enclosure, as following:

- DISPLAY indicates the solar panel voltage
- DISPLAY indicates the battery voltage
- DISPLAY indicates the solar panel charging current
- DISPLAY indicates the battery charging current

- LED indicates the lantern ON/STAND-BY status
- LED indicates the lantern OK/FAILURE status
- LED indicates the driver/coder circuit OK/FAILURE
- LED that repeats the code flashing
- LED indicates the load disconnection circuit status

Dimensions and weight

Dimensions

L: 1585mm x W: 1130mm x H: 2388mm (1)

Floor fixing base

250mm x 250 mm (square)

Weight

170kg (1)

Notes

1. The dimensions and weight are referred to the system showed in this data sheet that is complete with solar panel of 125Wp and with support pole of 2000mm height. SICE can manufacture the system with reduced dimensions and weight, in compliance with customer needs and installation zone.
2. This system (as showed in this data sheet) is suitable for installation on latitude with minimum (tilted) solar radiation of 1.2kWh/m²/ day.

SICE

SOLAR POWERED LED LANTERN

Main Available Options:

- Manufactured according to customer specification
- Other dimensions of support pole
- Powered by external mains power, without solar panel
- Other color of lantern lights
- Reduced range of lantern
- Other flashing characteristics

SAFE AREA VERSION
RANGE 10 NAUTICAL MILES



TYPE TS/LED (STANDARD)
Range 10 nautical miles
Safe area version

SYSTEM DIFFERENT VIEWS

Type TS-NV/PV complies with IALA Recommendations as “Main Fog Horn”, powered by solar system that assure a correct working for an indeterminate time. Equipped with main fog horn, fog horn control circuit, solar panels, anti-bird system, solar charge regulator, battery and protection switches. The standard solar panels structure is made in galvanized steel, instead the battery box is made in AISI 316L stainless steel.



General Main Technical Data:

- Suitable for safe area
- Power supply voltage at 24VDC nominal
- Battery bank of 24V 480Ah (approx.)
- Solar system of 490Wp (approx.)
- Fog horn type SICE NV-V3
- Consumption: 400Wh day (approx.) with U code IALA standard (period 30 seconds).
- Battery autonomy >15 days (of no sun days)
- Suitable for installation zone with minimum 2kWhm²/day of solar radiations.
- Fog horn sounding range of 2 Nautical Miles
- Equipped with connection cable (type FG70R) and suitable plug for easy connection.
- Fog horn mechanical protection IP67
- Fog horn J. Box mechanical protection IP66
- Battery box mechanical protection IP43
- Preliminary dimensions & weights:
 - 1) Fog horn 586x385x2380mm (h), 240kg
 - 2) Power skid 1580x1310x1710mm (h), 480kg, included battery

SICE

SOLAR POWERED FOG HORN

Main Available Options:

- **Visibility Meter type PWD20 for automatic activation/deactivation of fog horn**
Including fixing bracket, connection cable and plug.
- **Solar panel structure**
Made in AISI 316L s. steel
- **Synchronization facility**
With another same equipment
- **Remote controls**
for status and alarm

SAFE AREA VERSION
RANGE 2 NAUTICAL MILES



SYSTEM TYPE TS-NV/PV
Fog horn including connection cable and plug.
Power skid including solar system and battery

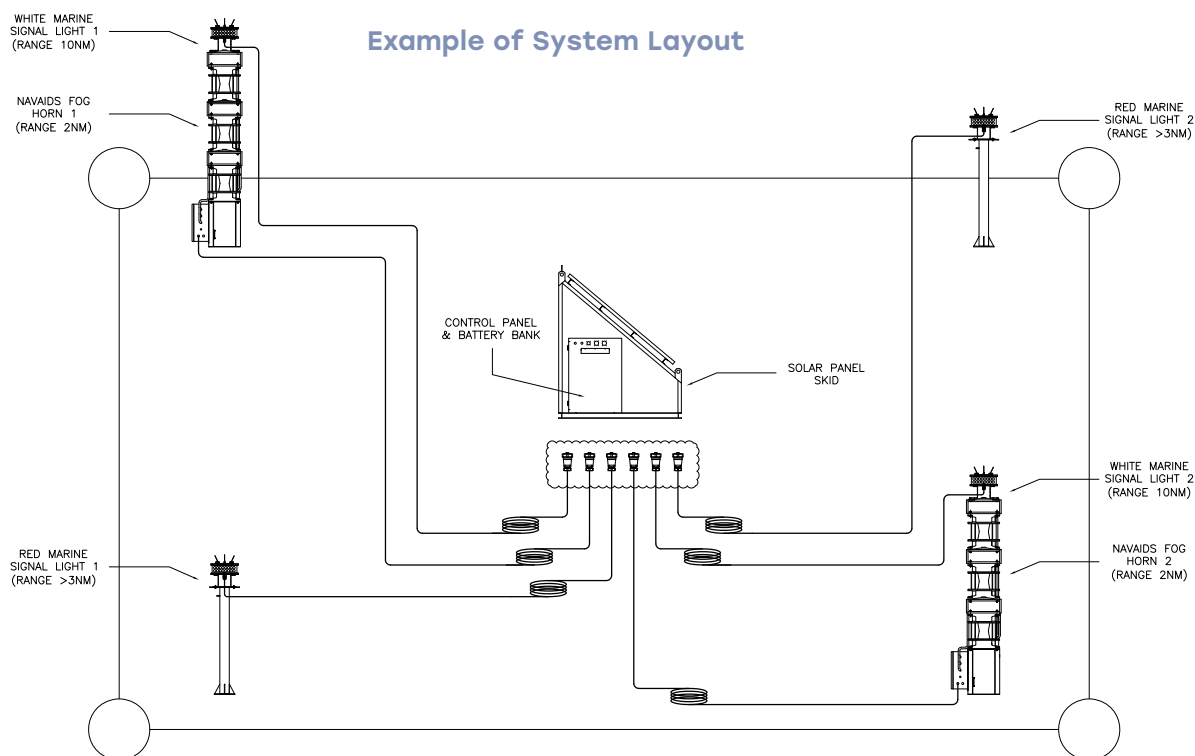


SYSTEM TYPE TS-NV/PV
Solar panels



SYSTEM TYPE TS-NV/PV
Solar panels Visibility meter PWD20 including fixing bracket connection cable and plug

Type TS-NV/LED/PV used to mark the offshore structures temporarily, for example during the jacket installation, before installing the definitive deck. Equipped and powered by solar system that assures a correct working without maintenance, for an indeterminate (long) time. This system is manufactured in compliance with customer requisition and IALA recommendations and can be equipped with one or more main white signal light(s), one or more subsidiary red signal light(s) and one or more main fog horn(s). The type and quantities of equipment depend on the dimensions and layout of the offshore structure that must be marked. Sice is able to help the customer in order to supply a system that is compliance with IALA recommendations. The electric/electronic equipment (solar charge regulator, fog horns and lanterns control circuits, photocell and automatic breakers) are placed inside control & battery box in dedicated waterproof enclosures.



General Main Technical Data:

- Material of solar panels self-standing structure and lantern support pole: galvanized steel, not painted
- Material of control & battery box: AISI 316L stainless steel, not painted
- Solar panel power: calculated by SICE in compliance with the solar radiation expected in the installation site
- Battery type: VRLA maintenance free, suitable for solar system
- Battery capacity: calculated by SICE in compliance with "no sun days" expected in the installation site
- Main White Lantern type and range: type SICE LS-10NM-L-1; range 10 Nautical Miles
- Subsidiary Red Lantern type and range: type SICE LS-5NM-L-1; range >3 Nautical Miles
- Main Fog Horn type and range: type SICE NV-V3; range 2 Nautical Miles
- Connection cables: included, type FG7(O)R
- Easy interconnection plugs: IP66/67 heavy duty type, already prepared by SICE and included in the connection cables
- Synchronization facilities: included, for fog horn and lantern systems
- Solar charge regulator: type MPPT (or PWM) complete with digital display and temperature probe
- Electrical protections: by MCB, fuse are not used
- Load disconnection system for battery low voltage: included

Main Available Options:

- **Visibility Meter type PWD20 for automatic activation/ deactivation of fog horn**
Including fixing bracket, connection cable and plug.
- **Remote controls**
for status and alarm
- **Manufactured according to customer specification**

SICE

SOLAR POWERED LED LANTERN & FOG HORN

SAFE AREA VERSION

- RANGE 10 NAUTICAL MILES MAIN WHITE LANTERN(S)**
- RANGE >3 NAUTICAL MILES SUBSIDIARY RED LANTERN(S)**
- RANGE 2 NAUTICAL MILES FOG HORN(S)**



TYPE TS-NV/LED/PV
Completed system Dimensions & Weight:

- Solar panel skid according to the system sizing
- Fog Horn including lantern: 586X385X2760(h)
- Lantern including support pole 330X1688(h)

Fog Horn + Lantern = 265Kg
Lantern + Support Pole = 45 Kg



TYPE TS-NV/LED/PV
Interconnections plugs detail



TYPE TS-NV/LED/PV
Photocell sensor detail

Equipped with main signal light, main fog horn, navaid control circuit, photocell, primary (not rechargeable) battery and protection switches. The support structure is made in galvanized steel, instead the control and battery boxes are made in AISI 316L Stainless steel. This equipment permits a very easy installation and is suggested when the off-shore structure must be marked for a determinate time and/or is placed in very low solar radiation zone and other power supply systems are not available.



General Main Technical Data:

- Installation: suitable for safe area
- Power supply voltage: 24VDC
- Primary Battery of 24V 3600Ah (nominal)
- Signal light type LS-10NM-L, with clear lens
- Fog horn type NV-V3
- Power consumption: 465Wh/day (U code standard IALA for fog horn & signal light)
- Battery autonomy >180 days
- Luminous range of 10 nautical miles
- Sounding range of 2 nautical miles
- Approx dimensions & weights:
 - 1400x720x3230 (h)mm
 - Total weight (with battery) 800kg approx.

Notes:

- 1) Without visibility meter option
- 2) Fog Horn always active, lantern activation 14hours/day
- 3) The expected autonomy of 200 days starts from activation of the system with a new battery box changing the battery pack, another working period of 200 days is expected.

Main Available Options:

- **Visibility Meter type PWD20 for automatic activation/ deactivation of fog horn**
Including fixing bracket, connection cable and plug.
- **Synchronization facility**
With another same equipment (wired)

SICE

PRIMARY BATTERY SYSTEM

SAFE AREA VERSION

RANGE 10 NAUTICAL MILES LANTERN

RANGE 2 NAUTICAL MILES FOG HORN



SICE TEMPORARY
Lantern detail
Fog Horn detail



SICE TEMPORARY
Primary Battery Box detail
Control Panel detail

Type CL 299 temporary self-contained LED lantern with integrated:
Lantern, solar panel, solar charge regulator, photocell and battery.



**General Main
Technical Data:**

- Nominal range:	Up to 6 nautical miles (max. 12.5% duty cycle)
- Number of LEDs:	9 high intensity LEDs
- LEDs life expectancy:	100.000 hours
- Horizontal output:	360 degrees
- Available light colors:	Clear, red, green, amber, blue
- Lens:	155 mm. acrylic clear (optional: colored lens)
- Lantern body:	Enamelled stainless steel
- Daylight control on/off:	70/100 lux
- Flashing characteristics:	All IALA flash patterns (others on demand)
- Minimum solar radiation:	3 hours (3kWh/m ² /day)
- Solar charge regulator:	Included
- Photocell:	Included, at the bottom of the lantern base
- On/off switch:	Included, at the bottom of the lantern base
- Solar panels type:	Crystalline 14% efficiency
- Battery type:	Sealed lead battery 12V - 12Ah
- Battery design life:	5 years
- Lens and battery:	Replaceable
- Temperature range:	- 40° / + 60° C
- Mechanical protection:	IP 67
- Battery protective vent:	Included, at the bottom of the lantern base
- Assembly flange:	4 holes 16 mm. diameter on 200 mm PCD
- Weight:	Kg. 13
- Dimensions:	mm 250 x 250 x 650 (h).

Certification:

UE approved according to 2004/108/UE

SICE

SELF- CONTAINED LED LANTERN

SAFE AREA VERSION
RANGE UP TO 6 NAUTICAL MILES LANTERN



TYPE CL 299
light detail



TYPE CL 299
Solar panel integrated detail

73	Solar Charge Regulator Panel
75	Battery Charger Module



PHOTOVOLTAIC PRODUCTS

This REGULATION PANEL is mainly equipped with several independent solar charge regulators that are able to manage all power supplied by photovoltaic field, some solar panels for each charge regulator, in order to increase the reliability. In fact, if one charge regulator is damaged, only the power managed by it is lost, the other solar charge regulators are still working. SICE is able to perform the sizing of the system in order to define the photovoltaic field power and quantity and type of charge regulators that are needed for the system required by customer.

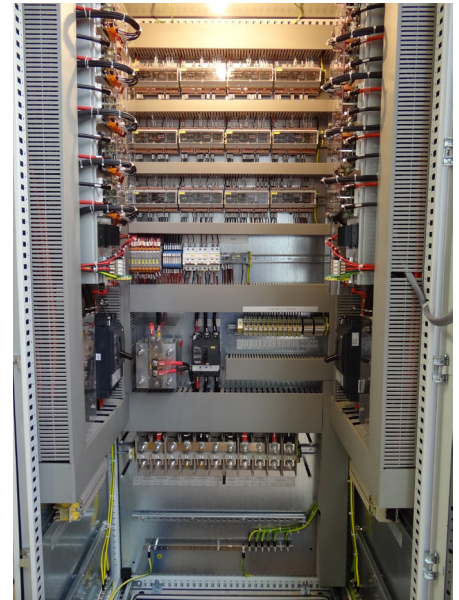
In this REGULATION PANEL is installed a control “supervisor” system, manufactured by SICE. This supervisor system is equipped with a local display panel, placed in the door of the cabinet and suitable for the checks of all the solar charge regulators (and other devices) installed inside. This display panel is equipped with 4 push buttons, one graphic display and some pilot lights (LEDs type). The supervisor system receives, as inputs, the status and the eventual alarms of the whole solar charge regulators and other devices and equipment that are part of the complete system. The supervisor system elaborates the received data and proceeds automatically with the required charging phases and the signalling of eventual alarm or failure situations. In particular, through some pages on this graphic display, the user can monitor all the voltage and current values expected for this system and all the configured statuses and alarms of the several installed charge regulators, one by one. At the same time, by using the frontal push buttons, the user can check the different pages of the display and can give the setting values (if expected). Instead, through the pilot lights (that can be of different colors), the operator has a quick overview of the state of the whole system. This REGULATION PANEL can be predisposed for remote controls connections via MODBUS (RS485 two wires or TCP/IP) and/or via hard wired.

General Main Technical Data:

- Battery system voltage: 12V - 24V - 48V (1)
- Solar panel input voltage: 150V max Voc (Open Circuit Voltage)
- Max. power managing capacity: 7kWp approx. (12V system) (2)
14kWp approx. (24V system) (2)
28kWp approx. (48V system) (2)
- Typical efficiency: >95%
- Temperature compensation: Possible
- Cabinet type: Industrial, suitable for indoor safe area
- Mechanical protection: IP32 minimum (with external display) (3)
- Painting type: Industrial, manufacturer standard with required colours
- Dimensions: 1012mm x 817mm x 2354mm (h), included socket (4)
- Weight: 350kg approx. (4)

Notes:

- 1) Must be specified by the customer
- 2) Max power capacity (approximate) managed in this cabinet (with standard dimensions)
- 3) Including an external door with transparent window, can be increased from IP 32 to IP55
- 4) Dimensions and weight can be changed according to the managed power capacity



Working Philosophy:

When the battery and the solar power sources are available, this equipment is able to charge the battery in full charge or float charge (depend from battery type and from customer specification). The battery recharging is performed in automatic mode and the charge voltage values, if required, can be modified by the user. Each solar charge regulator checks continuously the voltage values of the battery and dedicated solar panels and, considering these values, performs the charge of the battery. In case of failure of the “supervisor” system, is sent a dedicated alarm and the solar charge regulators are able to charge the battery in default mode. So, the REGULATION PANEL remain still working also during this phase.

SICE

CHARGE REGULATOR PANEL

Main Available Option:

SICE is able to manufacture this REGULATION PANEL Ex type, suitable to be installed in classified area of Zone 1, using ATEX and IECEx certified enclosures. The main working philosophy and characteristics are respected. Instead the dimensions of this REGULATION PANEL Ex type must be calculated job by job, according to customer requirements and specification.

SUITABLE FOR SAFE AREA INSTALLATION



REGULATION PANEL EQUIPPED WITH:

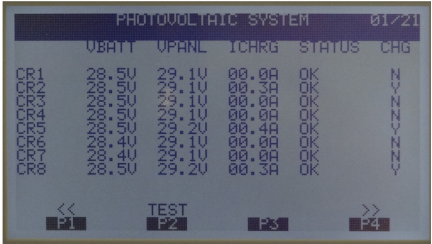
- Intelligent supervisor system
- General Display

SICE is able and available to build the system in accordance with Client specifications and in compliance with International Standards. The regulation panel dimension can be changed according to the required power management and solar charge regulators quantities.



DISPLAY PANEL

Detail, including graphic display and No 20 pilot lights, the configuration of graphic pages and pilot lights (color & meaning) is performed according to the customer (if required)



GRAPHIC PAGE (EXAMPLE)

Detail

Available in two models, 5S and 3S. Programmable module switching mode technology, with microprocessor control. Rectifier equipped with DISPLAY and KEYBOARD which allows the visualization and the modification of the charge parameters. The charge control and internal check are carried out by a microprocessor which allows both an easy choice of the programmes and a complete battery check, to guarantee an excellent conservation of the battery itself. All the set parameters are stored and kept also without network.



Remote controls:

For the remote controls, 4 programmable independent relays are available, controlled by the MCU, each one with NO or NC contact selectable through a jumper. Furthermore a new digital remote input is available for remote control (ex. remote ON/OFF).

General Main Technical Data:

- Power supply: 1 x 230V +/- 10% 50 / 60 Hz
- Battery Nominal voltage: 12V / 24V
- Charge current max.: 80A with electronic limit (type 5S)
- Charge current max.: 30A with electronic limit (type 3S)
- Charge feature: Programmable
- Conversion module: Switching
- Ventilation: Forced
- Use temperature: From -10° to + 40°C
- Instrumentation: Digital display
- Minimum voltage alarm: Expected
- Dimensions (LxHxW): 330 x 235 x 103 mm (type 5S)
- Dimensions (LxHxW): 275 x 210 x 95 mm (type 3S)
- Maximum input current: 16A (type 5S)
- Maximum input current: 6A (type 3S)
- Cos ϕ : 0,98 (at full load)
- Efficiency: 85%
- Overload and overheat protected

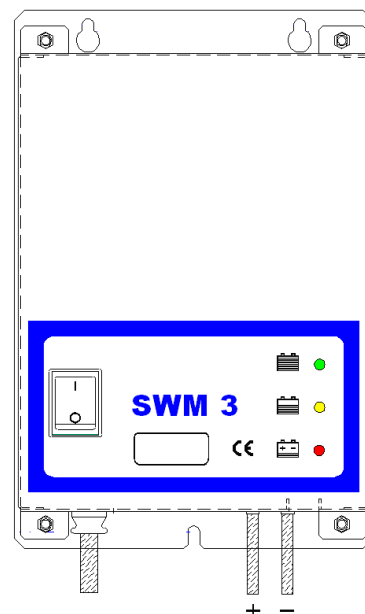
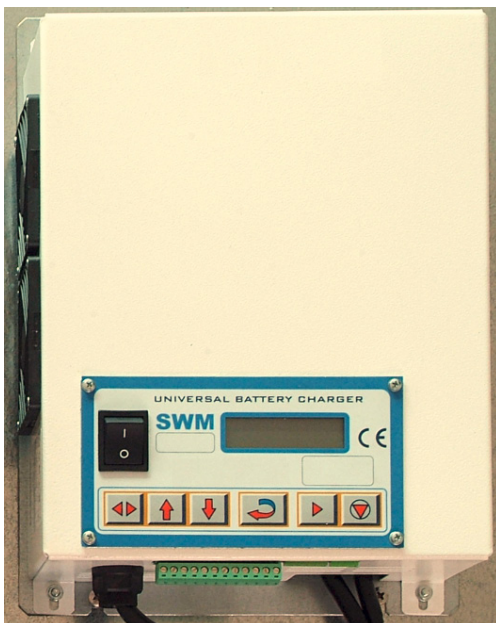
SICE

BATTERY CHARGER MODULE

Main Available Programming Options:

- Output voltage programming
- Output current programming
- Charge curve selection
- Charge end type selection
- Battery type selection (Open Pb-gel-VRLA-NiCd)
- Low voltage threshold alarm programming
- Low voltage threshold pre-alarm or charging phase programming
- Ventilation fan deactivation time programming

**SUITABLE FOR SICE REGULATION PANEL
PROGRAMMABLE MODULE**



BATTERY CHARGER MODULE

Through the display a clear visualization of the main charge parameters are possible:

- BATTERY VOLTAGE
- BATTERY CURRENT



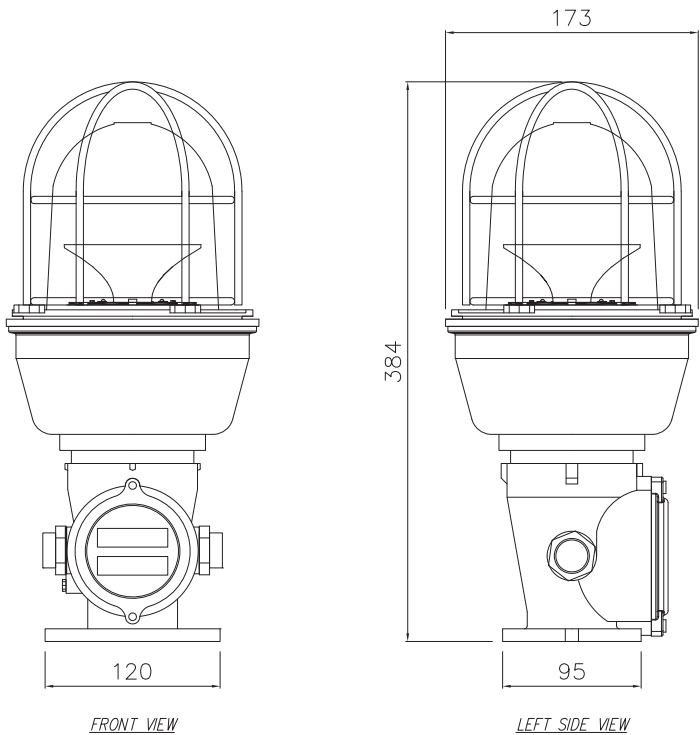
OBSTRUCTION LIGHTS

Type L810-LXS-Ex aircraft warning lights Low intensity LIOL A and LIOL B in compliance with ICAO regulation, annex 14 type A, type B and FAA-L810. Based on LED technology with long life time, expetancy >10 years and low consumption.

This LIOL represents the ideal solution for any problems concerning signalling aeronautical obstruction in difficult environments where these conditions normally reach critical levels. (zone1-2 ATEX & IECEx certifications).



Technical Drawing



General Main Technical Data:

- Light source: LED
- Voltage: 24 Vdc or 230 Vac
- Luminous intensity: >10cd LIOL A >32cd LIOL B
- Average power: 4W Liol B
- Light colour: Red
- Ambient temperature: -50°C up to +55°C
- Degree protection: IP66
- Lens: Borosilicate glass dome
- Housing: Marine grade aluminium, Painted RAL 7035
- Weight: 6kg

Main Available Options:

Twin version
Two galvanically separated circuits in the same fixture with automatic changeover from normal to backup light

Apply To:

- Stack-Chimney-Tower-Crane-Flare
- Offshore platform
- Chemical and petrolchemical plant

Certificates:

Atex execution

II 2 GD Ex de IIC T6 Gb

Ex tb IIIC T 67°C Db IP66

Atex certificate

CESI 13ATEX037

IECEX certificate

IECEX CES 12.00020

UE

Yes

SICE

LOW INTENSITY OBSTRUCTION LIGHT (LIOL)

SUITABLE FOR ZONE 1 INSTALLATION



IN COMPLIANCE WITH:

-ICAO (Annex 14)

-FAA AC 150/5345-43F

-CAP 168



LIOL

- Cd emission +6° and +10°
- Horizontal beam radiation 360°
- Vertical beam spread 10°
- Optical reflector
- No RF radiations
- LED feed at constant current



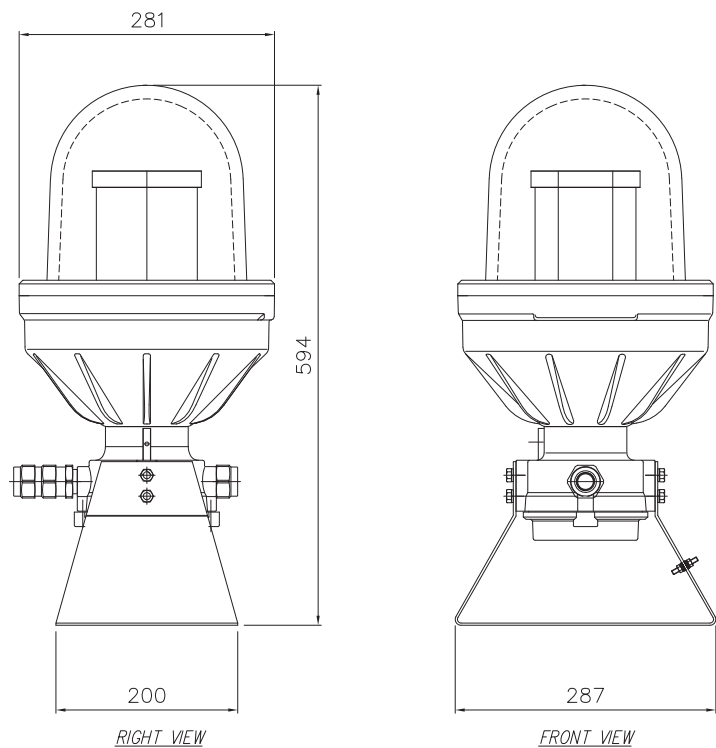
JUNCTION BOX

Detail

Type L846-LXS-Ex aircraft warning lights medium intensity (MIOL B – MIOL C) in compliance with ICAO regulation, annex 14 and FAA L-864. Based on LED technology with long life time expectancy (>10 years) and low consumption. This MIOL B-C represents the ideal solution for any problems concerning signalling aeronautical obstruction in difficult environments where these conditions normally reach critical levels (zone1-2 ATEX).



Technical Drawing



General Main
Technical Data:

- Light source: LED
- Voltage: 24 Vdc or 230 Vac
- Luminous intensity: 2000cd night mode, type MIOL B flashing
type MIOL C steady
- Average power: from 9 to 15W Miol B/ 54W Miol C
- Light colour: Red
- Ambient temperature: -52°C up to +60°C
- Degree protection: IP65
- Lens: Borosilicate glass cover protection
- Housing: Marine grade aluminium, painted RAL 7035
- Weight: 14kg

Main Available Options:

Twin version
Two galvanically separated circuits in the same fixture with automatic changeover from normal to backup light

Apply To :

- Stack-Chimney-Tower-Crane-Flare
- Offshore platform
- Chemical and petrolchemical plant

Certificates:

Atex execution
II 2 GD Ex de IIC T4 Gb

Atex certificate
Ineris 01ATEX0019X

IECEX certificate
IECEX INE 15.0031X

UE
Yes

SICE MEDIUM INTENSITY OBSTRUCTION LIGHT (MIOL)

SUITABLE FOR ZONE 1 INSTALLATION



IN COMPLIANCE WITH:

-ICAO (Annex 14)

-FAA AC 150/5345-43F



MIOL

- Cd emission @ -0,5° and +4°
- Horizontal beam radiation 360°
- Vertical beam spread 4°
- PMMA lens
- LED feed at constant current



JUNCTION BOX

Detail

NAVIGATION AID SYSTEM SOLUTIONS

50 YEARS EXPERIENCE

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