Pharos Marine Automatic Power

PRODUCTS & SERVICES

Pharos Marine Automatic Power

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ABOUT PHAROS MARINE AUTOMATIC POWER

More than 100 years in the making, Pharos Marine Automatic Power have set the standard in providing; high quality engineered Marine Navigational Aids, Aviation Lighting Systems, Standby Power Systems, Hazardous Area Equipment and Decommissioning Systems. Coupled with complete support services in the Offshore Oil and Gas Platforms, Ports and Harbours, Petrochemical and Power Stations Industries where personal safety is of primary concern.

Today, Pharos Marine Automatic Power provides the latest innovative designs, most advanced signalling products and customer focused technical services throughout the world; with unrivalled experience and an international reputation for servicing virtually all available AtoN Systems within the marine offshore market. Pharos Marine Automatic Power provide a 360˚ engineering and OEM service from consultancy and design through, prototype, manufacture, installation, servicing, maintenance and refurbishment along with end of life decommissioning and replacement.

Our dedicated team are on hand to deliver effective, reliable, flexible and cost effective solutions to help our customers; understand and adhere to safety regulations to create compliant solutions that enhance safety levels at sea, onshore and in the air.

FA-249EX-SS STAINLESS STEEL MARINE LANTERN

3NM to 10NM - Zone 1

The FA-249EX-SS Stainless Steel Marine Lantern is a rugged, compact and lightweight signal lantern particularly suited for fixed offshore structures, jetty lights and buoys.

The Lantern is suitable for highly corrosive environments due to a complete 316 Stainless Steel body and is compliant with IALA and DECC recommendations.

Features:

- 316L Stainless Steel body.
- Designed to withstand harsh marine environments.
- Low power consumption.
- Ability to easily integrate with wide array of power systems.
- Factory pre-set flash characteristics to customer specifications.
- Optional uniflash – series GPS synchronising system.
- Optional Remote Monitoring.
- Optional 365 day timer (Astronomical timer).

Certification:

ATEX Certificate Number: ITS16ATEX101123X
IECEx Certificate Number: IECEx ITS 16.0054X
Coding: Ex II 2 G Ex db op is IIB T5 Tamb -20˚C - +55˚C Gb
(-40˚ optional)
Ingress Protection: IP-66

Mechanical Specification:

Dimensions (HxD):	441x305mm
Weight:	8kg
Mounting:	4x16mm holes on a 200mm PCD (3-Hole Mounting Pattern also available)
Lens type:	155mm 360° Visibility Acrylic Fresnel Lens
Available Colours:	White, Red, Green and Yellow

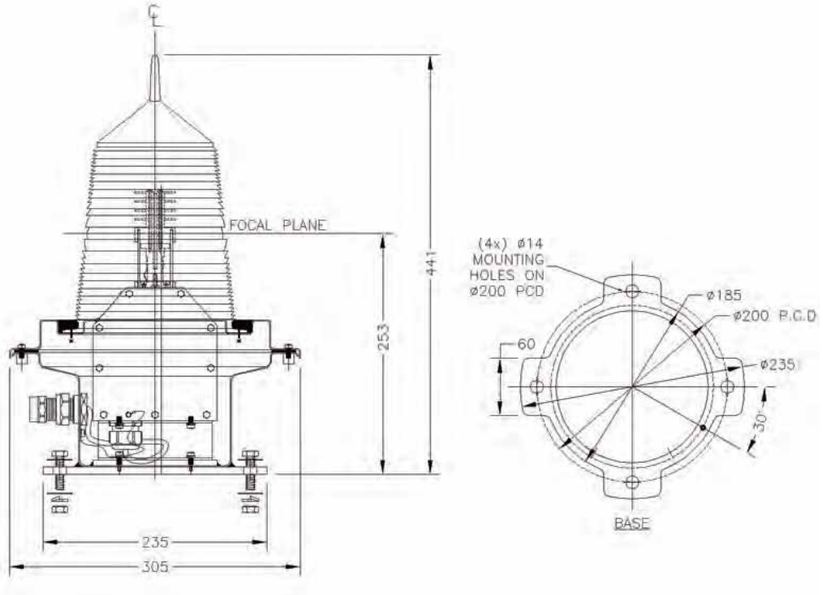
Electrical Specification:

Input Voltage:	Available in 6, 12, 24V DC or 120, 230V AC
Power Consumption:	3 to 24W (Range dependent) (Range dependent)

Performance Characteristics:

- Range: 3 to 10NM at 0.74T.
- 255+1 special programmable position
- Software programmable: Photocell, low voltage disconnect, special flash rhythm, specialised current settings and solar charge control voltage setting
- Visibility: 360°
- Vertical Divergence: 20° at 10% and 7° at 50%

High-efficiency TracSwitcher current controls; 82% of the battery current reaches the LED array on flash; 2mA idle current between flashes.



Features:

- Designed to be placed in remote locations, the lantern incorporates long life LEDs' to minimise scheduled maintenance.
- High impact tempered glass and cast marine alloy construction.
- High efficiency passive cooling system gives the LED array superior operating life. LED's are mounted on metal core PCBs with integrated liquid filled heat pipes to cool the LED arrays without a cooling fan.
- Optional local and/or remote control panels.

FA-250EX LED FLAMEPROOF MARINE LANTERN

15NM – Zone 1

The FA-250EX Flameproof Marine Lantern is a Zone 1 rated, long range marine signalling lantern, featuring the latest in LED technology. Compliant with IALA and DECC recommendations, it consists of an array of high flux LEDs mounted inside a certified flameproof transparent enclosure. The FA-250EX has no plastic parts or active electrical or electronic control devices and is designed for long service life in harsh environments with low maintenance requirements.

Variations:

FA-250EX-15 NM 300W LED Array providing Flashing 15 NM Morse U White Light. Average power 50W.

Certification:

ATEX Certificate Number: Intertek ITS10ATEX17118X
IECEx Certificate Number: IECEx ITS 10.0040X
Coding: Ex II 2 G Ex d IIB T6 Tamb -20°C to +55°C Gb (-40° optional)
Ingress Protection: IP-67

Mechanical Specification:

Dimensions (HxD):	H: 451x359mm
Weight:	20kg
Lens type:	Tempered Toughened Glass
Lantern Housing:	Marine Epoxy Coated Alloy
Cable Entries:	2x M25, 2x M20 entries provided
Mounting:	4x16mm holes on a 200 PCD
Colour:	White

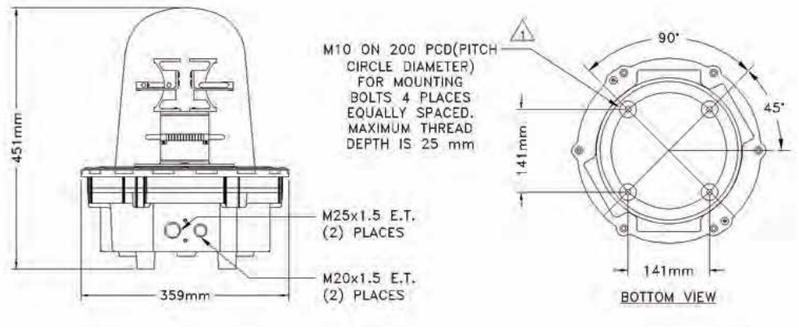
Performance Characteristics:

Visibility:	360˚
Vertical Divergence:	2.5˚ to 50%
Monitoring and Control:	Optional

Electrical Specification:

AM-11 electronic controls, which provide current limiting to the LED, flash control, monitoring output, photocell input and a synchronisation terminal.

Max/Peak Current:	12 amps @ Nominal 24V DC
Power Consumption:	Peak 350W/21W @ 17% Duty
Electrical Connection:	2.5mm² Terminals provided in junction box
Input Voltage:	24 VDC; 120-240 VAC 50-60Hz Available
Quiescent Current:	60mA
Synchronisation:	Hard Wire (Optional)



Features:

- Selectable Power Level Settings
- Multiple Pre-programmed Flash characters plus 1 for User Programming.
- Linear arrays of high flux LED's individually mounted in a parabolic reflectors.
- LED's mounted on specially designed patented heat sinks to keep the temperature of the LED below 50°C to assure the design life of 60,000 hours.
- Controller provides flash control, current limiting to the LED, photocell input and synchronisation terminal.
- Approved by the U. S. Coast Guard for Gulf of Mexico use on Class A structures.

FA-250 CLASS 1 DIV 2 MARINE LANTERN

3NM, 5NM, 10NM & 15NM

The FA-250 LED LR is a highly efficient optic, designed to meet the requirements of offshore Oil platforms for 3, 5, 10 or 15 NM.

Variations:

FA-250 15NM: 300W LED array providing flashing 15NM, Morse U White Light. Average power 50W.

FA-250 10NM: 20W LED array providing flashing 10NM, Morse U White Light. Average power 3.33W.

FA250 5NM: 4.0W LED array providing flashing 5NM, Quick Flash. Average power 1.0W.

FA-250 3NM: 4.0W LED array providing flashing 3NM, Morse U Red Light. Average power 1.0W

Certification:

FM Approved: NI/1/2/BCD/T6 (Rating depends on configuration)
Ingress Protection: IP-56

3 and 5 Mile
NI/I/2/ABCD/T4ATa<+48.5°C/T4Ta<+63.5°C
NI/I/2/IIC/T4Ta<+48.5°C/T4Ta<+63.5°C

10 Mile
NI/I/2/ABCD/T5Ta<+49°C/T4ATa<+68°C
NI/I/2/IIC/T5Ta<+49°C/T4Ta<+68°C

15 Mile
NI/I/2/ABCD/T5Ta<+43°C/T4ATa<+63°C
NI/I/2/IIC/T5Ta<+43°C/T4Ta<+63°C

Mechanical Specification:

Dimensions (HxD):	689x406mm
Weight:	14kg
Lens Type:	Precision-moulded, clear acrylic cover
Lantern Housing:	Cast aluminium base and frame; stainless steel fittings

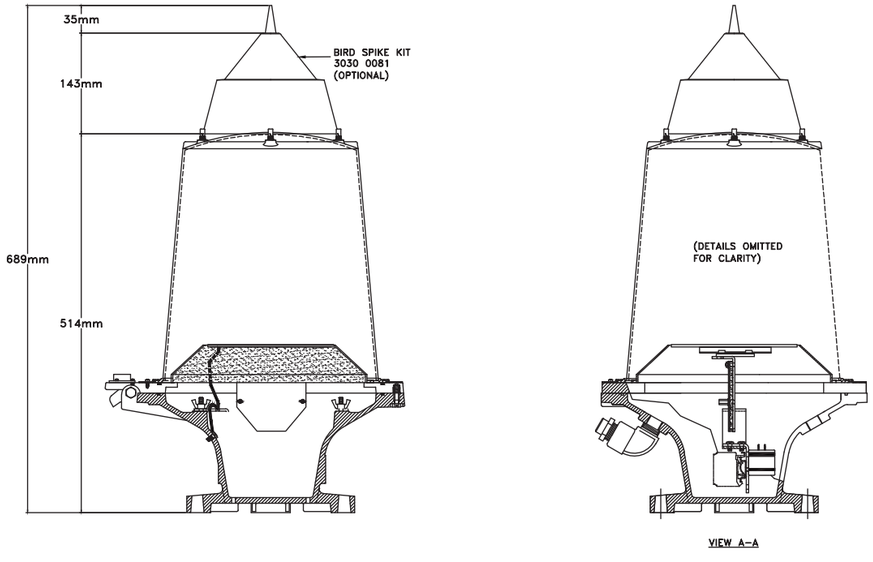
Performance Characteristics:

Visibility:	360° Omnidirectional
Vertical Divergence:	3°
Monitor and Control:	Optional

Electrical Specification:

AM-11 electronic controls, which provide current limiting to the LED, flash control, monitoring output, photocell input and a synchronisation terminal.

Input Voltage:	24V DC; 120-240V AC 50-60Hz available
Power Consumption:	Variable up to 300W Quiescent
Current:	60mA
Synchronisation:	Hard wire (Optional)



LIEX-SS Features:

- Output is omnidirectional or directional with sound absorbing baffle (Optional).
- Synchronising may also be accomplished by a centralised master coder with self-test feature or remote GPS.
- Terminals are also provided for a 2-hour temporary silence control.
- Power supply includes remote code selector terminals for changing the sounding rhythm and terminals for synchronisation with other horns or lights.
- Sounding Morse code ‘U’, operating from optional local and/or remote control panels.
- Microprocessor-based control electronics; oscillator, coding timer and control electronics are located in a separate Ex ‘d’ housing..
- Designed at an optimum frequency to maximise range of 2NM fog signal emitter to IALA and U.S. coastguard guidelines.

LIEX STAINLESS STEEL FOG SIGNAL

The LIEX-SS is a compact and reliable explosion proof fog signal emitter designed for deployment as a 2NM sound signal as designated by IALA for audible warning for offshore structures.

Designed for long service life in harsh environments with low maintenance. It’s rugged construction makes it ideal for; offshore oil platforms, drilling rigs, offshore wind farms, calm buoys and FPSO’s.

The Fog Signal is also available in light weight marine grade aluminium.

The LIEX-710/22 is a compact, lightweight, and reliable sound emitter designed for use in marine applications. Proven in over 40 years of service in the marine environment, the LIEX-710 horn’s rugged construction and water proof design make it ideal for mounting on offshore oil platforms and drilling rigs, offshore wind farms, calm buoys and floating production systems (FPSOs).

Certification:

LIEX-SS

ATEX Certificate: ITS17ATEX101696X
IECEx Certificate: IECEx ITS 17.0007X
Coding: Ex II 2 G Ex db IIB T6 -40˚C to +55˚C Gb*
Ingress Rating:IP-66

Certification:

LIEX-Aluminium

ATEX Certificate: ITS09ATEX16408X
IECEx Certificate: IECEx ITS 10.0039X
Coding: Ex d e IIB T3 Tamb -40˚C to +50˚C Gb*
Ingress Rating:IP-66

Certification:

LIEX-710/2

FM APPROVED
NI/I/2/BCD/T4; -25 °C ≤Ta ≤+55°C
NI/I/2/IIB+H2/T4; -25 °C ≤Ta ≤+55°C
ATEX or IECEx Zone 1 & 2 Versions Also Available

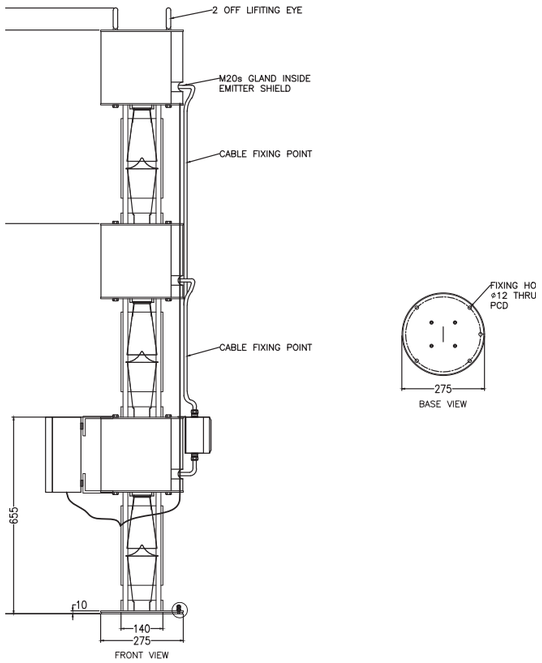
Mechanical Specification:

LIEX-SS

Dimensions (HxD):	1965x275mm
Weight:	140kg
Mounting:	4x12mm holes on a 250mm PCD
Housing:	316L Stainless Steel Painted
Cable entries:	3x M20/M25mm

LIEX-Aluminium

Dimensions (HxD):	2000x305mm
Weight:	95kg
Mounting:	4x11mm holes on a 280mm PCD
Housing:	Marine Grade Cast Aluminium Painted
Cable entries:	3x M20/M25mm



Electrical Specification:

LIEX-SS

Input voltage:	10.5-30V DC, 120 or 230V AC (Different Supply Voltages available)
Input Power to Signal:	100W
Output Power to Drivers:	56W
Electrical Connection:	Pre fitted cables ready to be terminated to junction box
Frequency:	670Hz/660Hz

Low power consumption @ 13W @ 13% duty (Morse U).

LIEX-Aluminium

Input voltage:	10.5-30V DC, 120 or 230V AC (Different Supply Voltages available)
Input Power to Signal:	100W
Output Power to Drivers:	56W
Electrical Connection:	Pre fitted cables ready to be terminated to junction box
Frequency:	670Hz/660Hz

Low power consumption @ 13W @ 13% duty (Morse U).

Features:

- Pulsed infrared, backscatter, single-station type.
- Microprocessor-based design ensures maximum reliability and minimum maintenance.
- LED light source provides extremely long service life.
- Automatic self-checking; electronic pilot light system automatically compensates for fouling/fogging of the lens.
- Automatic self-test feature.
- Remote on/off control terminals.
- Extremely low power consumption; ideal for solar power applications.
- Remote monitoring of fault and visibility levels.

FD-410EX MINI

The FD-410EX MINI fog detector is the new standard in visibility sensor technology and is the smallest, most compatible and cost-effective unit on the market.

The sensor is sensitive for fog particles in a zone approximately 25cm ahead of the sensor placement to detect limited visibility in the area. These particles are typically the microscopic water particles constituting fog, but may also include snowflakes, raindrops, dust or air pollutants.

The fog detector is programmed to transmit a beam of modulated infrared light every 30 seconds, measuring the amount of light reflected by the atmosphere to the receiver in the instrument and is capable of detecting fog in the range of 20m to 4km.

Certification:

Coding: Ex db IIB T6 Gb Ta -40°C to +55°C
IECEX ITS 18.0032X

*All values are subject to change without notice.

Mechanical Specification:

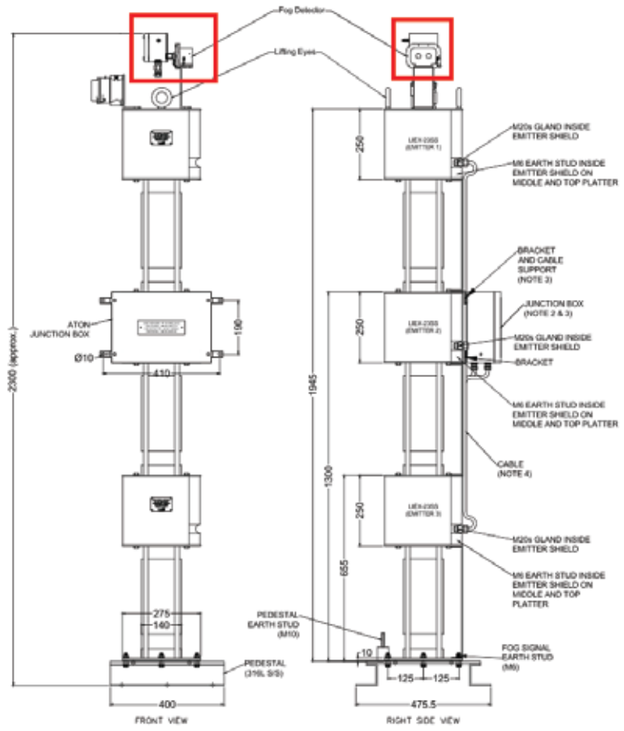
Dimensions (HxLxW):	265x164x120mm
Weight:	4.0kg
Mounting:	Top/Bottom Plate
Housing:	Stainless steel, openings sealed with O-rings
Cable entries:	2 x M20 mm

Electrical Specification:

Supply voltage:	24 VDC
Power consumption:	1.5 Watts (Average)
Current consumption:	25mA @ 24 VDC

Performance Specifications:

Warmup time:	Approximately 1 minute
Update time:	30 seconds
Output:s	2x Volt free contacts (fog detection, fault condition) and digital RS232
Optical output power:	Roughly 3 mW from and IR LED; Eye safe, laser safetly class 1 M
Wavelength:	850nm
Visibility range:	From 4km - down to 20 meters
Operating temperature:	-40°C to +55°C
Anti-condensation heater:	Optional (for negative °C)
Ingress rating:	IP-66



Features:

- No pressurisation needed.
- Extremely effective and reliable.
- Frequency agile.
- Side-lobe suppression (SLS).
- Automatic self-test feature.
- Stainless Steel 316L base.
- IALA and IMO compliant.
- Proportional scaling.
- Blanking.
- 26 Morse code character settings.
- External RS232 or RS485 port for programming.
- X and S band.

PHALCON EX STAINLESS STEEL RACON

The Phalcon-EX-SS Zone 1 Racon is an important all-weather aids to navigation; which provides radar range and bearing information to ships for safe and efficient navigation, 24 hours a day. The Racon is energy efficient, compact and lightweight, designed for superior performance on; Offshore Structures, FPSO's and Navigation, CALM and SPM Buoys.

Certification:

ATEX Certificate : ITS16ATEX101048X
IECEx Certificate : IECEx ITS16.0046X
Coding: Ex II 2 G Ex db eb mb [ibGb] IIB T5 Tamb -40˚C to +55˚C Gb
Ingress Protection: IP-66

Standards:

Directive 2014/34/EU, Annex II
ITU-R M824-4
EMC Directive 2014/30/EU;

- EN6100-6-4:2007+A1 :2011
- EN61000-6-2:2005

Mechanical Specification:

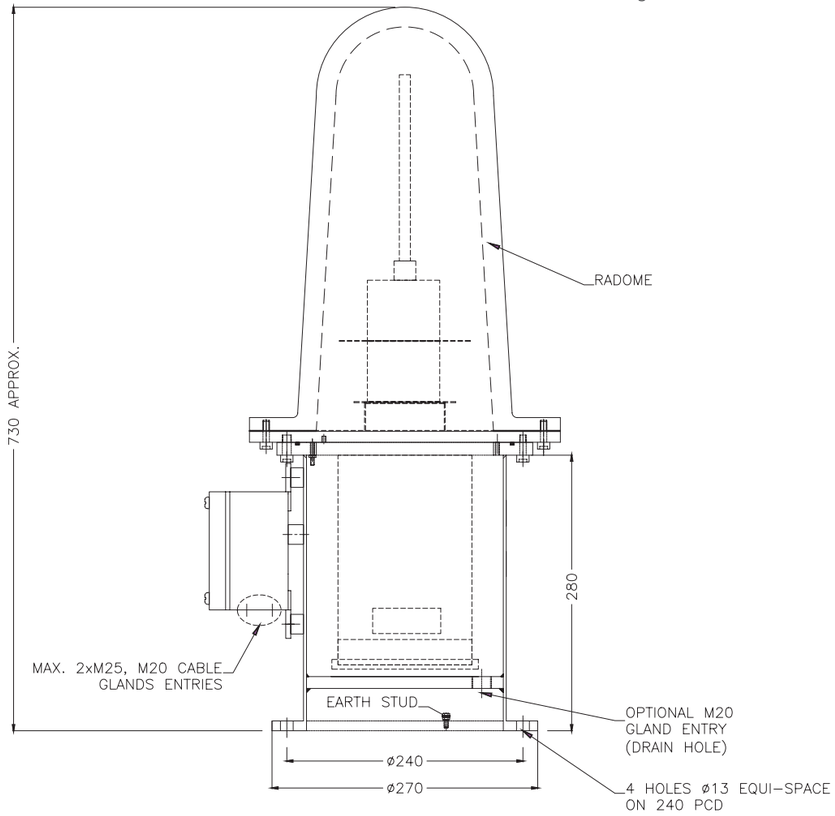
Dimensions (HxD):	730x270mm
Weight:	20kg
Mounting:	4x M13 Bosses on 240mm PCD
Standard Accessories:	2m power & communications cable

Performance Characteristics:

Programmable:	All 26 Morse Code letters
Frequency:	X-Band (9300-9500 MHz) / S-Band (2900-3100MHz)
Frequency Accuracy:	±2MHz (<200ns radar pulse X-band and S-band) / ±1 MHz (>200ns radar pulse X band and S-band)
Response Delay:	0.5μs (X and S-band)
Receiver Sensitivity:	-40dBm (X and S Bands)
Polarization:	Horizontal (X) and Vertical/ Horizontal (S)
Antenna Gain:	X-band 5dBi, S-band 3dBi
Azimuth Response:	360˚ (± 1 dB) X and S-band
Vertical response:	±10˚ (-3dB) X-band and S-band
Sidelobe Suppression:	dual token SLS (X and S-band)
Communications:	RS-485-USB interface for programming, external diagnostics and alarm outputs

Electrical Specification:

Input Voltage:	9-36V DC
Average Power	3W, based on traffic



Features:

- Fully engineered Zone 1 solutions.
- Completely customisable.
- Compliant to IALA offshore marking recommendations.
- Robust and reliable assembly.
- Minimal maintenance requirements.
- Solutions for other hazardous areas are also available.

ZONE 1 NAV AID SKID SYSTEM

The featured Zone 1 Marine Navigational Aid Skid System is an example of PMAP's bespoke solutions engineered for our clients' needs. The shown Skid includes a 10NM lantern, 2NM/0.5NM fog signal, fog detector and battery backup system.

The shown Skid is AC powered from platform supply and has calculated autonomy of 96 hours via battery backup.

The local facilities include control and alarm monitoring via the Skid control panel and optional remote control panel for complete system monitoring and control.

The systems include; full documentation packages, manuals, test data sheets, FAT reports, engineering calculations and electrical drawings that are supported by our field engineers. Our engineers are available for; pre-installation surveys, installation, commissioning & maintenance work scopes.

Typical equipment:

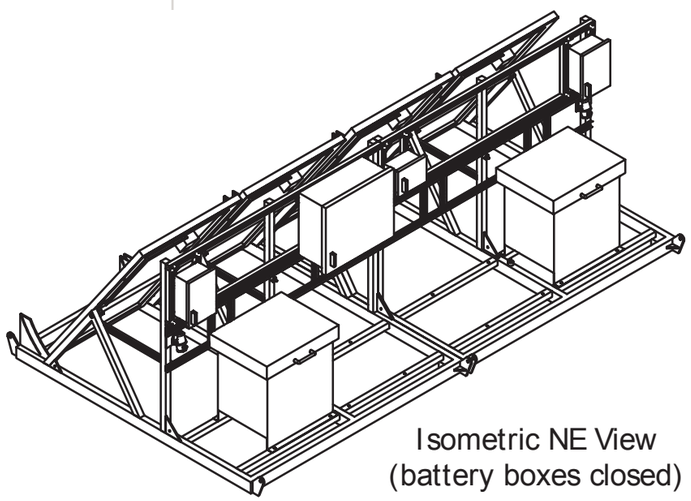
- 15NM or 10NM Main / Secondary Lanterns
- 3NM Subsidiary Lantern
- 2NM Main / 0.5NM Secondary Fog Signal with Fog Detector
- Automatic Identification System (AIS)
- Racon
- Aviation Obstruction Lighting
- Helideck Aviation Lighting
- Emergency Lighting
- Fire and Gas Detection

DECOMMISSIONING AND MONITORING SYSTEMS

In support of the requirement for navigational and marine obstruction marking, PMAP has developed and supplied a wide range of non-hazardous and hazardous area renewable power systems which are customised solutions to suit temporary, or long term abandonment strategies whilst ensuring full compliance with current legislation and recommendations as a standard.

Solarised and/or hybrid wind powered skid systems are adaptable to customer equipment or load requirements designed for ease of use and reliability. With advanced remote monitoring capability, unmanned assets can be safely and confidently monitored for continued compliance and operational security from any location.

Systems include full documentation packages, manuals, test data sheets, FAT reports, engineering calculations and electrical drawings that are supported by our field engineers. Our engineers are available for; pre-installation surveys, installation, commissioning and maintenance work scopes.



Pharos Marine Automatic Power

Skid Frame Work and Fixing Method:

Our standard solar panel skid design has been installed in various locations in the North Sea, calculated against the 50 year wind loading data.

Skid systems can either be bolted directly or welded to the deck base plinths can be supplied for faster installation via a single crane lift. Options are also available for no fixings which are supported by structural calculation for overturning and sliding resistances.

System Deployment:

Deployment by support vessel with sufficient crane outreach, the system weight would be confirmed following solar calculations.

Deployment by helicopter using over slung load by means of vertical capture.

Installation Time:

Our standard solar skid design should take no more than 1 shift to complete installation and commissioning.

Maintenance:

Systems are designed to be maintenance free for a specified period of operation to a maximum of 5 years.

HELIDECK AVIATION LIGHTING

PHARODECK TD/PM Circle and “H” Lighting System

The Pharos Marine Automatic Power PharoDeckTM Touch Down and Perimeter Marking (TD/PM) Circle and "H" Lighting System provides a complete Zone 1 and Zone 2 system solution to CAA-UK CAP 437 and ICAO Annex 14 requirements.

The lighting system is suitable for installation and operation within hazardous area zones 1 & 2 (ATEX certified II 2 G Ex eb ib mb op is IIB T4 Gb -40°C < Tamb <+55°C).

The PharoDeckTM lighting system comprises of segments ("Circle" mark) and subsections ("H" mark) consisting of groups of LED elements which are yellow and green in colour. The segments have been developed to accommodate varying helideck sizes.

The LED elements are mounted on laminated aluminium deck plates, which along with the segments and subsections are friction coated. The segments and subsections are fully encapsulated Ex "m" LED driver boards, which supply an intrinsically Ex "I" safe LED circuit. These are pre-mounted to the laminated aluminium base plates in pairs and internally connected to a junction box, which is mounted on the deck plate. This construction method provides an increased mechanical protection to the internal connections.

The segments and subsections are electrically connected through the laminated aluminium base plates using an integrated Ex "e" terminal housing. The junction boxes are connected using halogen free, low smoke and flame retardant light system cable and protected by low profile aluminium cable covers.

An extensive range of loading tests consistent with CAP 437 requirements has been conducted on the Pharos Marine Automatic Power PharoDeckTM lighting system. They are described in a detailed test report from Imperial College, where the tests were performed. No evidence of damage to the strip was recorded despite the fact that the pressure on the glass lens appeared to be somewhat higher than required, balanced by lower pressure remote from the lens.

Features:

- Suitable for Zone 1 and 2 installations.
- Available in marine alloy with flexible fixing options - offshore environment resistant.
- Stainless steel fixing hardware.
- Non-slip coating.
- Modular system for ease of installation.
- State of the art LEDs with a long operating life.
- Standard system with failure monitoring and indication Custom solutions to meet clients requirements available.
- Standard system comprised of:
  - System controller.
  - The Touch Down / Position Marking circle.
  - The Heliport Identification Marking "H".

Certification:

Coding: Ex db IIB T6 Gb Ta -40°C to +55°C
IECEX ITS 18.0032X

*All values are subject to change without notice.

In house design and install

The system is designed to provide our customers with a cost effective offering that can be easily maintained as a long term solution to Helideck lighting.

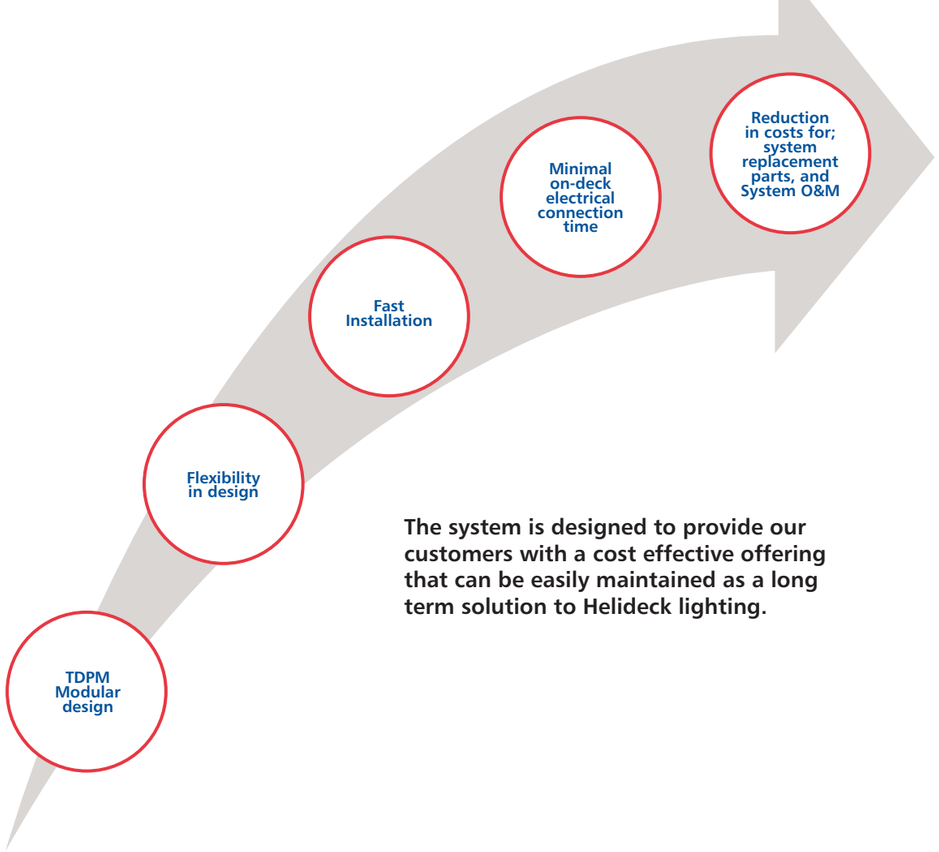
The modular design allows for accelerated installation time due to the interconnection of the cables being incorporated into preassembled deck plates.

- Minimal on-deck connection time
- Accelerated Installation

Servicebility and maintenance

The segment design is engineered such that in the unlikely event that a failure of element segment/sub-section is encountered, a replacement segment can be readily fitted by means of accessing the internal junction box to remove the connections, then removing the segment from the mounting plate and replacing the segment.

- Reduction in costs for system replacement parts, and System O&M
- Simplistic change outs, with recommended spares as part of system package



The system is designed to provide our customers with a cost effective offering that can be easily maintained as a long term solution to Helideck lighting.

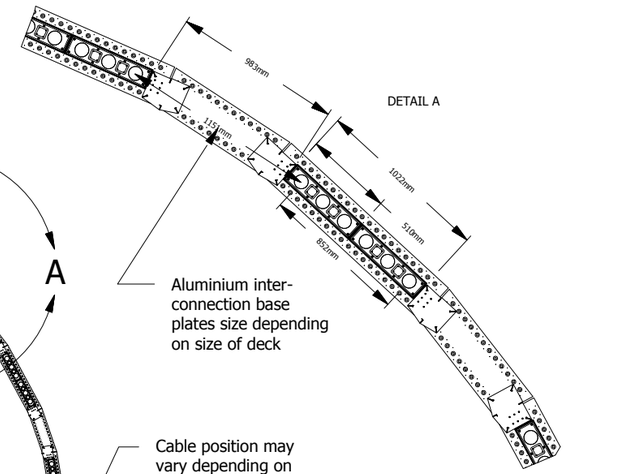
Mechanical Specification:

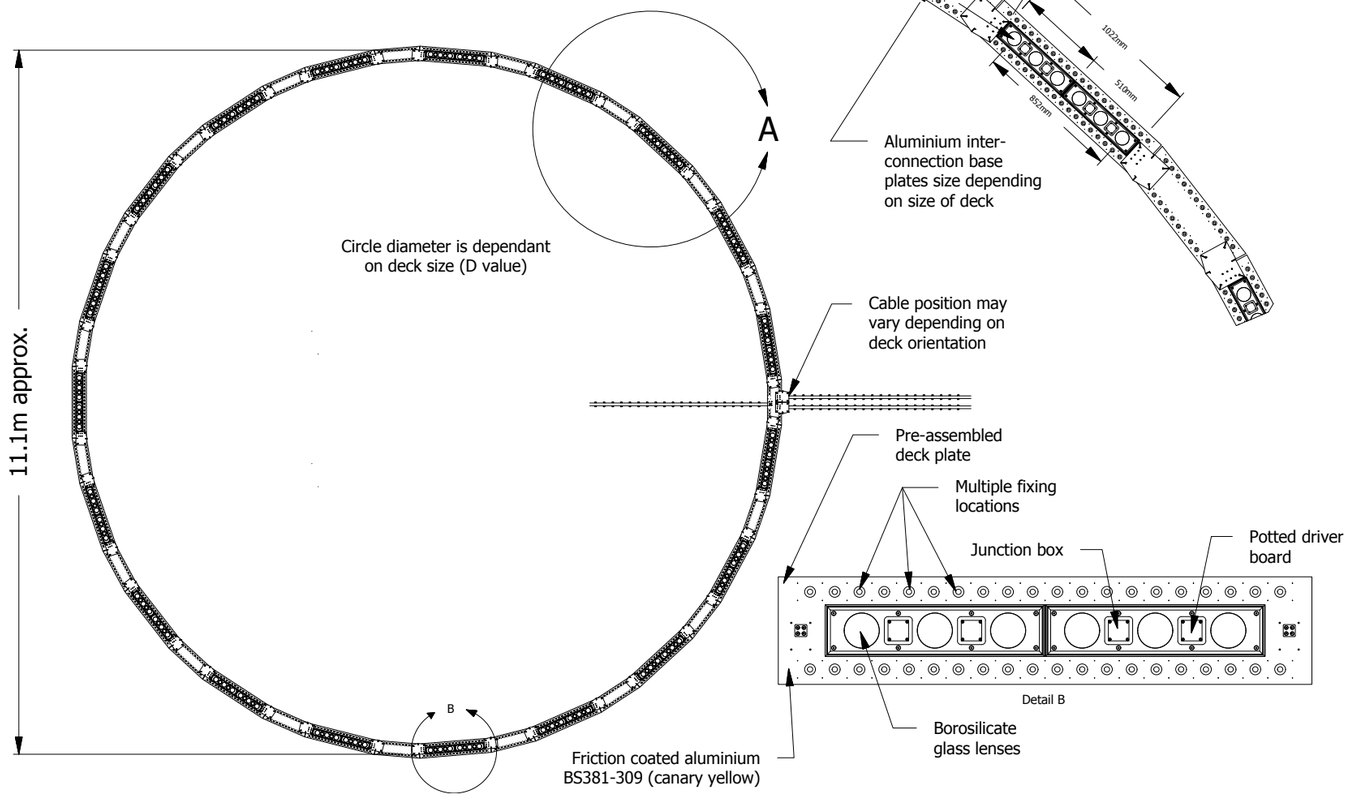
Dimensions (HxLxW):	510 x 120 x 25mm per segment
Weight:	2KG per segment

Electrical Specification:

Input voltage:	90V-250V AC; 12/24V DC
Average power consumption:	63W (Typical system including control panel)
Avaliable Colours:	yellow & green in accordance with CAP437 requirements
Monitor and Control:	failure monitoring and indication (standard); customisable

GROUP	D" VALUE	CIRCLE 'DOUBLE' SEGMENTS
GROUP 1	13.6 > 18.8	16
GROUP 2	18.9 > 20.1	17
GROUP 3	20.2 > 21.4	18
GROUP 4	21.5 > 22.7	19
GROUP 5	22.8 > 24.0	20
GROUP 6	24.1 > 25.3	21





FA-80EX

The FA80-EX is a low intensity LED helideck perimeter light designed for installation in extreme saline marine environments and is resistant to UV exposure, corrosive gas and marine conditions encountered on offshore oil and gas production facilities, drilling rigs, support vessels and refineries.

Designed to be placed in remote locations, the lantern incorporates very long life LED's to minimise scheduled maintenance. The FA80-EX is full complaint to CAP437, and meets the latest regulatory requirements.

Features:

- 316L Stainless Steel body
- Designed to withstand harsh marine environments Low power consumption
- Ability to integrate with a wide array of power systems Low power consumption (Less than 2W)

Optional features:

- Available in stainless steel or aluminium
- Below and above deck mounting
- Available LED colours: White, Green, Yellow, Red, Blue

Performance features:

- Standard Adherence: CAP 437
- Steady Burning
- 360° Visibility
- Suitable to Loop-in-Loop-out connections
- High efficiency

Certification:

Certificate Number:	ATEX	ITS19ATEX101876X
	IECEX	IECEX ITS 19.0011X
Coding:	Standalone Ex db op is IIB T6 Gb Tamb -40°C to +55°C	
	Fitted w/ Exe Enclosure Ex db eb op is IIB T5 Gb Tamb -40°C to +55°C	

*All values are subject to change without notice.

Mechanical Specification:

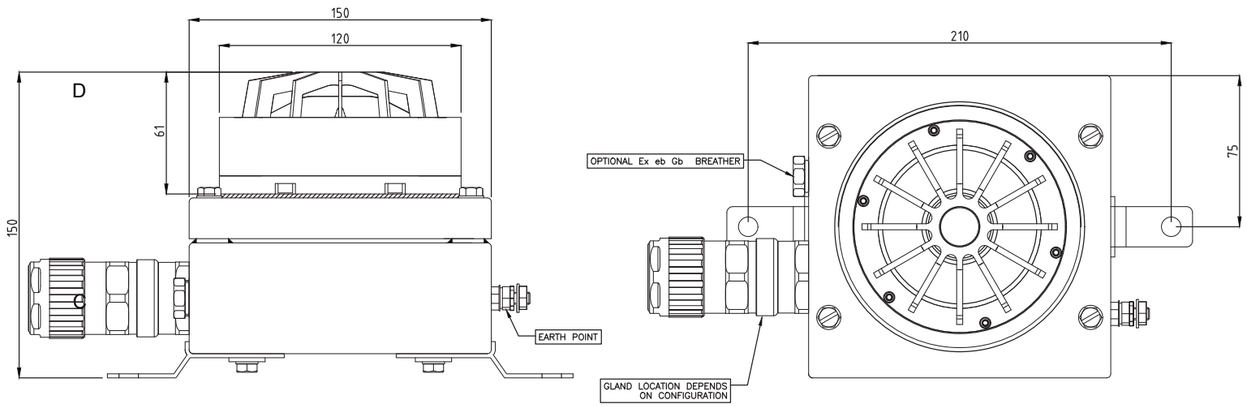
Dimensions (HxD):	150x150mm
Weight:	8kg
Mounting:	2 x 10mm holes 210mm apart
Lens Type:	Guarded 360° Visibility Tempered Glass
Available Colours:	IALA White, Green, Yellow, Red, Blue
Ingress Protection:	IP66

Electrical Specification:

Input Voltage:	10-32 VDC 85-260 VAC
Power Consumption:	Less that 2W

Performance Specifications:

Warmup time:	Approximately 1 minute
Update time:	30 seconds
Output:s	2x Volt free contacts (fog detection, fault condition) and digital RS232
Optical output power:	Roughly 3 mW from and IR LED; Eye safe, laser safetly class 1 M
Wavelength:	850nm
Visibility range:	From 4km - down to 20 meters
Operating temperature:	-40°C to +55°C
Anti-condensation heater:	Optional (for negative °C)
Ingress rating:	IP-66



Features:

- Transparent enclosure is comprised of a cast base of marine grade aluminium, an upper section with a tempered glass globe cemented into a support ring.
- LED's are mounted on metal core PCB's and heatsinks to cool the LED arrays without a cooling fan.
- Closed-coupled Ex 'e' terminal box for ease of field wiring.
- The external control panel comes in both Safe and Hazardous Area Enclosures with voltage regulation, monitoring and LED drive circuits for multiple Helideck Status Lights or Repeater lights depending on customer requirement.
- Typical controls include ON/OFF/ Remote operation control switch, timed dimming and remote activation contact inputs from F&G Panel, Crane Switch and others as needed.

FA-165EX HIGH INTENSITY STATUS LIGHT

The FA-165EX HSL is a Zone 1 rated, omnidirectional, helideck status light designed for Oil and Gas drilling and production platforms and FPSO applications. The status light consists of an array of high flux LEDs mounted inside and ATEX, IECEx certified flameproof enclosure.

Less than 250mm in height, the light can be mounted directly on the helideck platform, complying to CAP 437 height guidelines. Furnished with an external junction box; the kit offers a user friendly, compliant option for all offshore helideck applications.

Certification:

ATEX Certificate No:. ITS10ATEX17055X
IECEx Certificate No:. IECEx ITS 10.0041X
Coding: Ex II 2 G Ex d IIB T5 Tamb -20ºC to +50ºC Gb (-40ºC optional)
Ingress Protection: IP-66

Mechanical Specification:

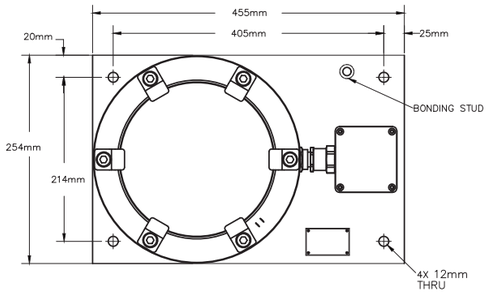
Dimensions (HxLxW):	158x455x254mm
Weight:	13.6kg
Flash Head Material:	Tempered toughened glass
Lantern Housing:	marine grade cast aluminium
Optics:	precision refractive optics
Cable Entries:	2x M25, 2x M20 entries provided
Mounting:	See drawing details

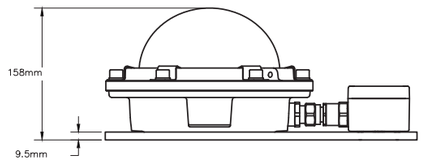
Performance Characteristics:

Light Source:	high flux light emitting Diodes (LEDs)
Effective Flashed Intensity (EFI):	750cd red peak 200cd all around per CAP 437
Horizontal Coverage:	360°
Vertical Beam:	per CAP 437
Number of flashes per minute:	120

Electrical Specification:

Input Voltage:	24V DC or 120/240V AC
Power:	40W (average)





Features:

- Two options for electronic controllers:

  100-240 ± 10%V AC 50-60Hz internal controller.

  20-30V DC Helideck Status Light Controller, which can be remotely located up to 500 meters away.
- Cover is tempered toughed glass, able to withstand high temperature and impact.
- Base is impregnated, anodised and painted cast marine grade aluminium stainless steel hardware.

FA-165EX HELIDECK STATUS LIGHT REPEATER

The FA-165EX is an LED based Low Intensity Red Helideck Status Light Repeater designed for extreme environments such as high UV and marine conditions encountered on offshore Oil and Gas production facilities, drilling rigs and refineries.

Designed to be placed in remote locations, the light incorporates very long life (60,000 hours) LED's to minimise scheduled maintenance.

Certification:

ATEX Certificate: ITS10ATEX17055X
IECEx Certificate: IECEx ITS 10.0041X
Coding: Ex d IIB T5 Tamb -20°C to +55°C Gb (-40°C optional)
Ingress Protection: IP-66

Mechanical Specification:

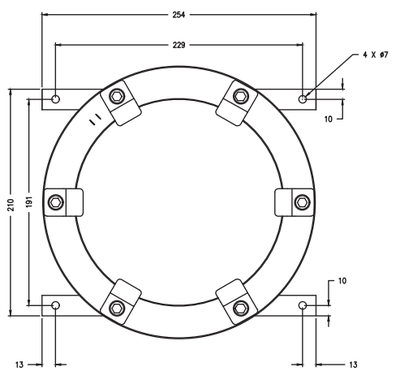
Height:	153mm
Weight:	5kg
Available Colours:	red
Lens Type:	tempered glass
Lantern Housing:	epoxy coated cast marine grade aluminium base
Mounting:	4x7mm diameter mounting holes. (230x192mm)
Cable Entries:	2x M25

Performance Characteristics:

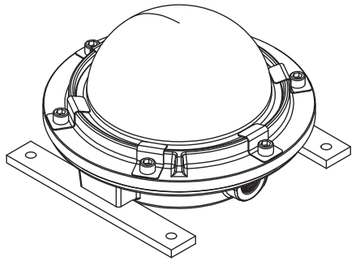
Visibility:	conforms to CAP 437

Electrical Specification:

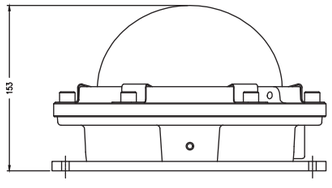
Input Voltage:	100-240V AC or 20-30V DC
Power Consumption:	5W
Quiescent Current:	14mA
Synchronisation:	cabling
Monitor and Control:	located in Status Light Controller



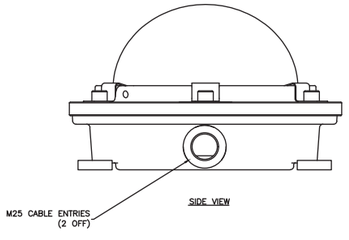
TOP VIEW



ISOMETRIC VIEW



FRONT VIEW



SIDE VIEW

Features:

- Suitable for Zone 1 and 2 installations
- Made from 316L stainless steel
- State of the art LED array with long operational life

FL-220-EX FLOOD LIGHT

The FL220-EX flood light is a compact, lightweight, and LED flood light designed for use in harsh marine applications. Its rugged construction and waterproof design make it ideal for:

- Offshore oil platforms
- Offshore drilling rigs
- CALM, SALM and SPM buoys

Certification:

Certificate Number:	ITS20ATEX105602X
Coding:	Ex db IIB T6 Gb Tamb -40°C to +55°C Gb IECEX
Certificate Number:	IECEX ITS20 0031x

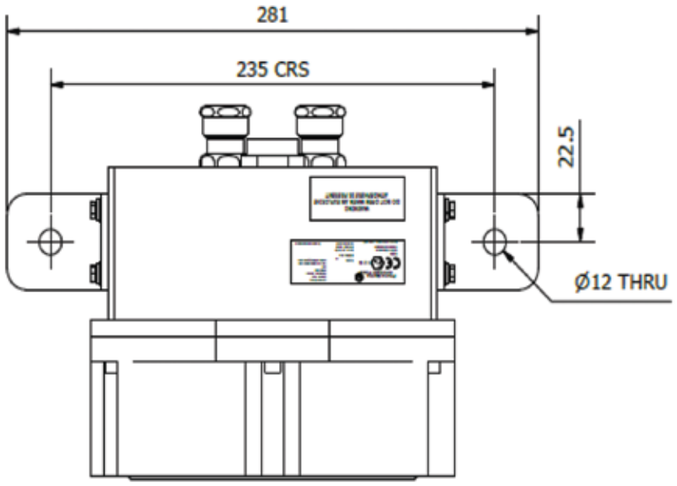
*All values are subject to change without notice.

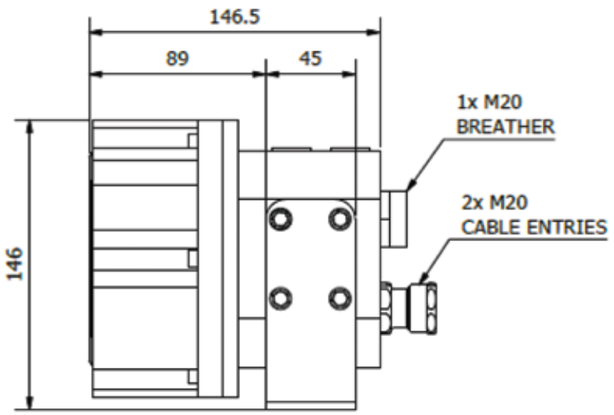
Mechanical Specification:

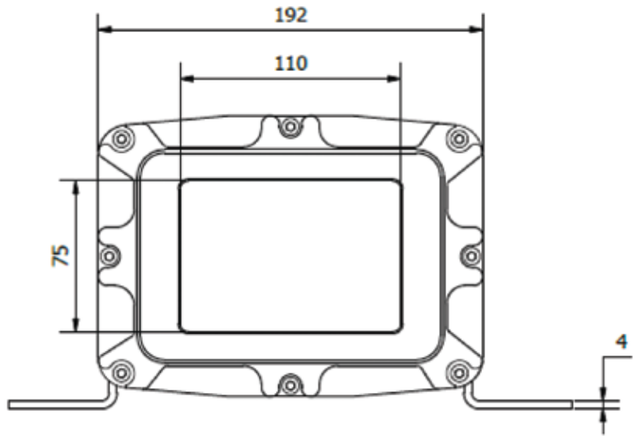
Dimensions (HxLxW):	281x146.5x146
Weight:	10kg
Material:	316 Stainless Steel
Mounting:	2 x 12mm, 235 Centers
Lamp Type:	LED
Available Colours:	White
Ingress Protection:	IP66

Electrical Specification:

Input Voltage:	10-30VDC
Power:	80W (4000 Lumens)
Cable Entries:	3 x M20 (1 x M20 Drain/Breather)







EX WIND DIRECTION INDICATOR – INTERNALLY LIGHTED

Lighting assembly:

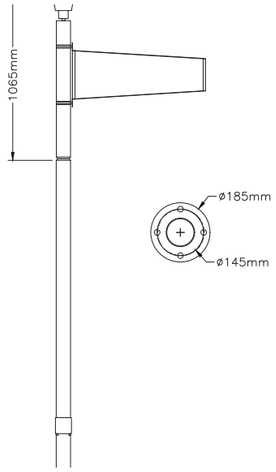
The SS316 Wind Direction Indicator is the offshore solution for the perfect wind direction indication. All PMAP's wind direction indicators come factory standard with a full LED solution.

Operation:

The operation of the wind cone is entirely dependent on the direction and relative velocity of the surface wind. Movement of the wind through the open throat of the cage and into the sock causes the tail to inflate. The tail of the inflated sock indicates true wind direction for velocities as low as three knots through a 360° circle about the vertical shaft.

Technical specifications:

Application:	Helideck, Zone 1&2
Light	Source:Internally lighted, LED
Light Color:	White
Obstruction:	Included L-810 EX
IP-index:	IP66
Mounting:	Bolt on
Input Voltage:	100-240 V ac
Ambient Temp:	-20° to +55°C
System Power:	30 - 45W (without L-810)



Mast specifications:

Mast Diameter:	Ø76,1 x 2mm
Mast Length:	4000-6000mm
Mt Material:	Stainless Steel Type 316
Swivel Frame Length:	800mm

Junction Box Specifications:

Cable Glands:	ATEX 2x M20
Coding:	II 2G EX E II T6

Internal light specifications:

Light Color:	white 6000k
Light:	steady burning
Ingress Protection:	IP-66
Light Output:	50cd
Horizontal beam:	360°
Life Expectancy:	50.000 hours
Ex Certificate:	BVS 14 ATEX E 106 X ATEX execution: II 2G EX d IIC T5 Tamb -20°C - +55°C Gb

L-810 EX Top light specifications:

Light Color:	red
Light:	steady burning
Ingress Protection:	IP66
Light Output:	32cd
Horizontal Beam:	360° vertical beam spread: >10°
Life Expectancy:	50,000 hours
Ex Certificate:	CESI 13ATEX037 ATEX execution: II 2GD Ex de IIC T6 -25°C - +55°C

Features:

- Cover is tempered toughed glass, able to withstand high temperature and impact.
- Base is impregnated, anodised and painted cast marine grade aluminium.
- Stainless steel hardware.

FA-165 AVIATION OBSTRUCTION LIGHT

The FA-165EX is an LED based Low Intensity Red Aviation Obstruction Light designed for extreme environments such as high UV and marine conditions encountered on; offshore Oil and Gas production facilities, drilling rigs and refineries.

Designed to be placed in remote locations, the light incorporates very long life LED's to minimise scheduled maintenance. The FA-165EX LED's are mounted on metal core PCBs with patented integrated heat pipes to cool the LED array without a cooling fan.

Variations:

CAP 168 GROUP "A": 3W DC, 3.5W AC, 10cd Red LED array Aviation Obstruction Light complying to CAP 168, Group "A" standards

CAP 168 GROUP "B": 20W DC, 21W AC, 200cd, Red LED array Aviation Obstruction Light complying to CAP 168, Group "B" standards

ICAO TYPE "A": 3W DC, 3.5W AC, 10cd, Red LED array Aviation Obstruction Light complying to ICAO "A" standards

ICAO TYPE "B": 5W DC, 5.5W AC 32cd, Red LED array Aviation Obstruction Light complying to ICAO "B" standards

Certification:

ATEX Certificate No:. ITS10ATEX17055X
IECEx Certificate No:. IECEx ITS 10.0041X
Coding: Ex II 2 G Ex d IIB T5 Tamb -20ºC to +50ºC Gb (-40ºC optional)
Ingress Protection: IP-66

Mechanical Specification:

Height:	153mm
Weight:	5kg
Available Colours:	red
Lens Type:	tempered glass
Lantern Housing:	epoxy coated cast marine grade aluminium base
Mounting:	4x7mm diameter mounting holes (230x192mm)
Cable Entries:	2x M25mm

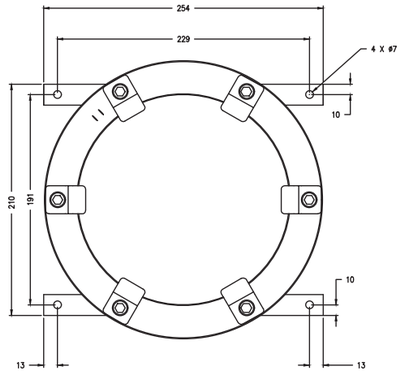
Performance Characteristics:

Visibility:	CAP 168 Groups A and B; ICAO types A and B
Colour:	red

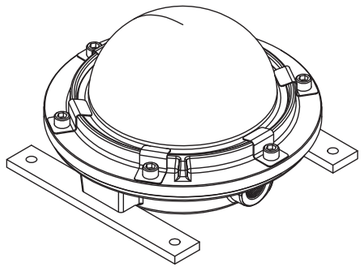
Electrical Characteristics:

Several options for electronic controllers:

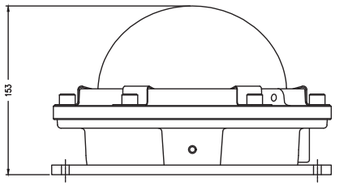
- 100-240 ± 10% V AC 50-60Hz internal controller
- 10-30V DC internal controller
- External AC or DC controller, which can be remotely located up to 500 meters away
- Synchronisation: cable
- Monitor and Control: customisable



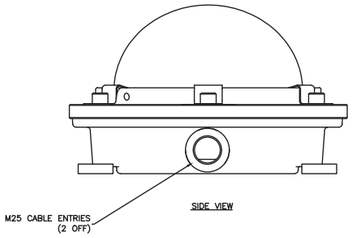
TOP VIEW



ISOMETRIC VIEW



FRONT VIEW



SIDE VIEW

Features:

- Off-grid solution with solar power supply system.
- Self-contained compact system.
- Suitable for installation in hazardous area Zone 1, Zone 2 and Class 1 Division 2.
- Custom built to suit customer requirements.
- Solar system designed based on location.
- 20-240W Solar Array range.

FA-165EX SELF-CONTAINED OBSTRUCTION LIGHT

The FA-165EX Self-Contained Obstruction Light is designed for off-grid locations where power supply is not available (i.e. jack up legs). The Pharos Marine Automatic Power solar system is designed to match customer requirements.

Designed to be placed in remote locations, the light incorporates very long life LED's to minimise scheduled maintenance. The FA-165EX LED's are mounted on metal core PCB's with patented integrated heat pipes to cool the LED array without a cooling fan.

Variations of the Product:

CAP 168 GROUP "A": 3 Watt DC, 3.5 Watt AC, 10 candela, Red LED array Aviation Obstruction Light complying to CAP 168, Group "A" standards

CAP 168 GROUP "B": 20 Watt DC, 21 Watt AC, 200 candela, Red LED array Aviation Obstruction Light complying to CAP 168, Group "B" standards

ICAO TYPE "A": 3 Watt DC, 3.5 Watt AC, 10 candela, Red LED array Aviation Obstruction Light complying to ICAO "A" standards

ICAO TYPE "B": 5 Watt DC, 5.5 Watt AC 32 candela, Red LED array Aviation Obstruction Light complying to ICAO "B" standards

Ingress Protection: IP-66 (Battery Box is IP-56)

EX UPS EQUIPMENT

Mechanical Specification:

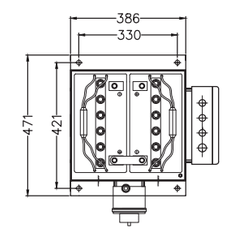
Height:	varies by configuration
Weight:	varies by configuration
Available Colours:	red
Lens Type:	tempered glass
Lantern Housing:	epoxy coated cast marine grade aluminium base
Mounting:	4 x 13mm mounting holes
Battery Box Material:	stainless steel 316L

Performance Characteristics:

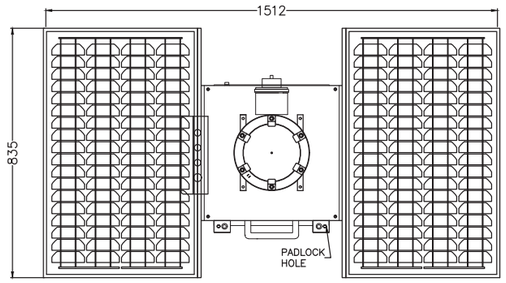
Visibility:	CAP 168 Groups A and B; ICAO Types A and B
Colour of Lantern:	red (other colours available)

Electrical Characteristics:

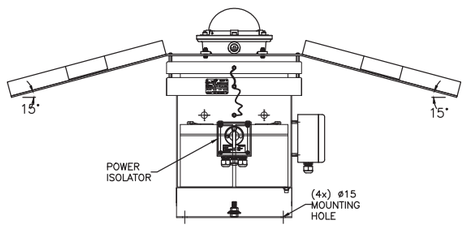
System Voltage:	12 or 24VDC
Quiescent Current:	varies by configuration
Synchronisation:	cable
Monitor and Control:	customisable
Solar Panels:	(2x) 20-140W
Batteries:	VRLA 12V 115Ah blocks (typical system houses 2 blocks)



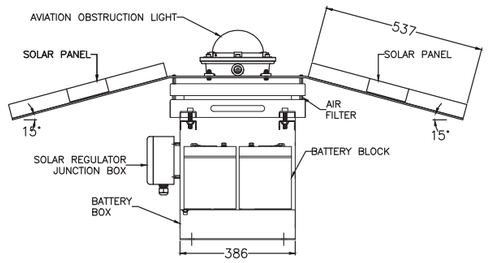
BATTERY BANK PLAN VIEW



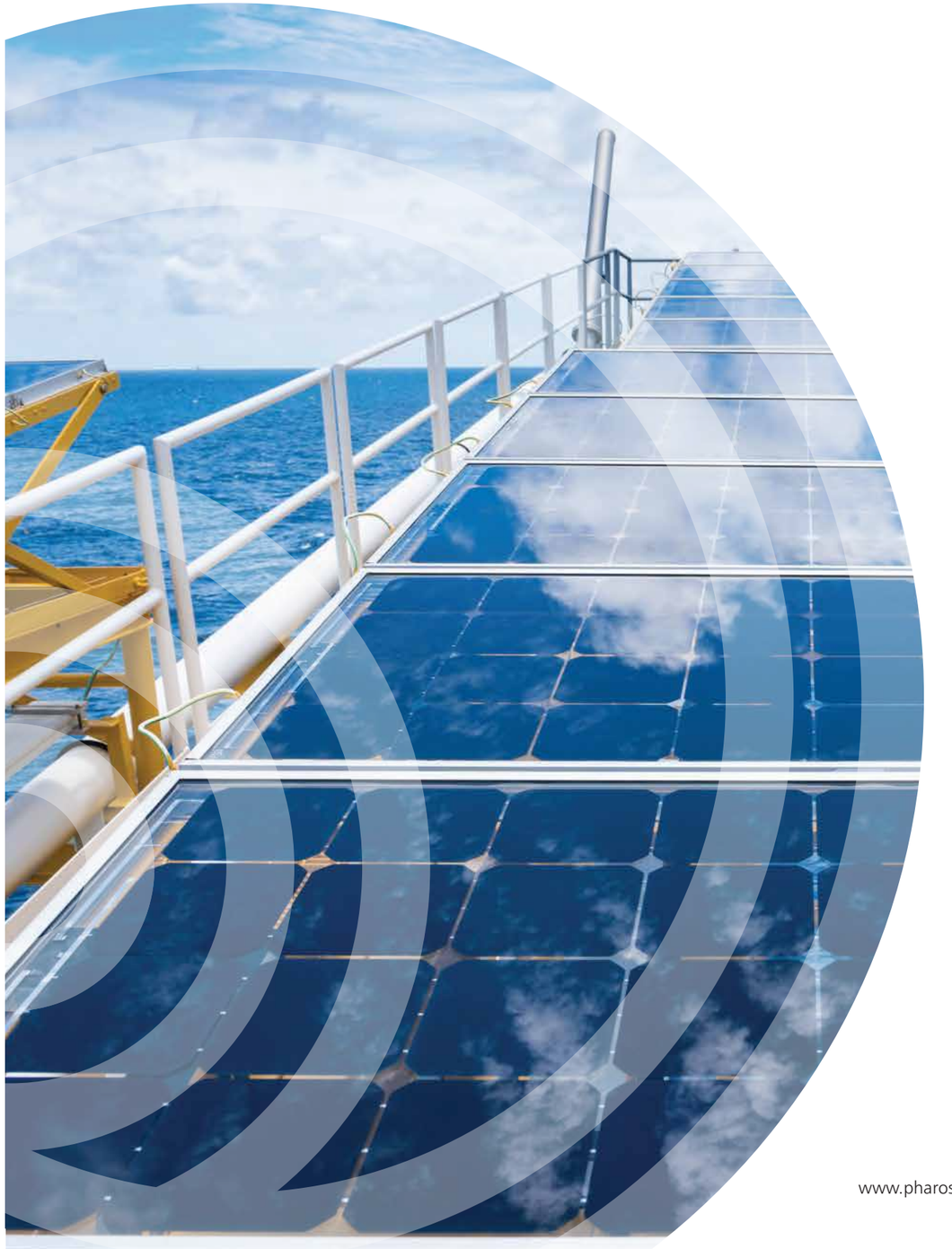
PLAN VIEW



BACK VIEW



FRONT VIEW



BATTERY BOX

Pharos Marine Automatic Power's explosion proof Zone 1 and 2 Battery Boxes have the versatility to house any type of sealed Nickel Cadmium or Lead Acid battery from all recognised battery manufacturers. Available in 316L stainless steel and galvanised or painted steel; the battery box is suitable for all environmental locations. The most flexible and user-friendly unit on the market due to each box being built to customers bespoke sizing and specifications.

Features:

- Fully customisable.
- ATEX & IECEx certified for use in Zone 1 locations.
- Hinged lids available.
- Removable front panel available.
- Padlockable for security.
- Optional trace heating available for low temperature environments.
- Optional temperature sensor for compensating battery charging.
- Complementary range of Exd battery chargers available.

Certifications:

ATEX Certificate No.: ExVeritas 16ATEX0193X
IECEx Certificate No.: IECEx EXV 16.0015X
Coding: II 2 G Ex e II Gb T6 Tamb –40°C to +55°C Gb
Ingress Protection: IP-56

Typical Applications:

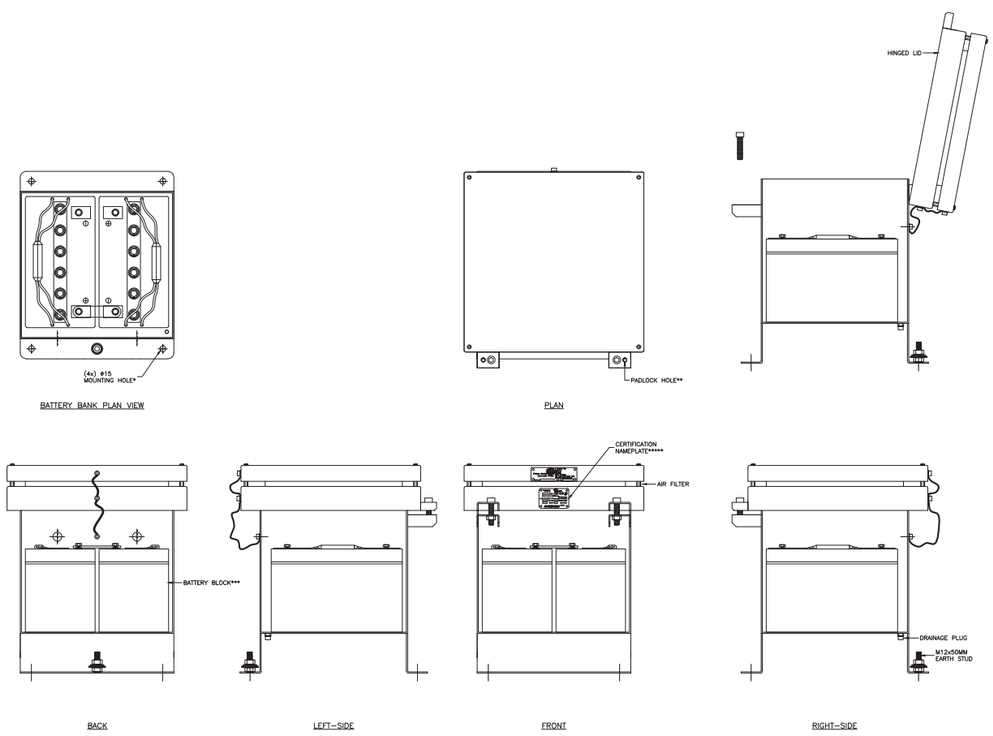
- Remote Solar PV Powered Systems
- Zone 1 UPS Systems
- Navigation Systems
- Remote Fire & Gas Systems
- Communication Systems
- Remote Site Security Systems

Mechanical Specification:

Dimensions:	Bespoke or standard sizes available
Weight:	Dependent on size
Material:	stainless steel or galvanised steel
Cable Entries:	As per customer's requirements

Electrical Specification:

Battery Capacities:	Customisable to client/ project requirement
Battery Voltages:	2-48V DC available



Pharos Marine Automatic Power

Features:

- SPID resistant
- 1000V (UL) / 1000V (IEC) Certified
- Micro-crack free
- Triple stage 100% in-line EL passed
- Higher energy yield on field performance
- Certified solar panels range from 20W-400W for use in Zone 1 & Zone 2 hazardous environments
- Anodised aluminium extruded frame for torsional rigidity and ease of installation
- High integrity IP66 universal junction box c/w 4mm2 terminals with blocking diode included
- Two ISO M25 cable entries
- Designed for modular integration and expansion in series for 24V and higher voltages
- Designed for modular integration and expansion in parallel for increased output currents

SPEX ZONE 1 SOLAR PANEL

Pharos Marine Automatic Power offers a versatile and rugged range of solar electrical power generators for individual or multiple installations, suitable for a wide range of client projects in demanding gas & dust hazard environments.

The Photovoltaic Module is highly resistant to water, abrasion, hail impact and other severe weather conditions, making it suitable for use in any climate. Our dedicated team can custom design and manufacture a portable or permanent certified Zone 1 solar powered system, with battery back-up to provide required autonomy for a multitude of applications in hazardous areas.

Current applications for this reliable and economical energy source include remote marine navigation and aviation warning systems, communications & wifi, site traffic management, pipeline / valve leak detection and fluid / vapour flow monitoring, security applications and offshore HPU UPS systems.

Certification:

Certificate Number:	ATEX	ExVeritas 15ATEX0051X
	IECEX	IECEx EXV 15.0001X
Coding:	Ex II 2 G Ex e mb II C T6 Gb -40°C ≤ Tamb ≤ +55°C	
Ingress Protection:	IP-66	

Mechanical Specification:

Connector:	MC4 Compatible
Diode:	Shottky bypass diodes; 3nos
Frame:	Anodised aluminium alloy; twin wall profile
Locking:	Corner Key Type
Glass:	ARC; low iron; tempered; high light tramsmission; 3.2mm

Furnished with universal GRP Junction Box

PART NO	LENGTH	DEPTH	HEIGHT	APPROX. WEIGHT KG
SPEX37-12	515	470	35	4
SPEX60-12	558	667	35	7
SPEX130-12	1157	677	35	10
SPEX175-12	1487	667	35	11
SPEX235-24	1353	987	40	20
SPEX350-24	1968	987	40	23

Electrical Specification:

PART NO	NOMINAL VOLT	RATED POWER (W)	OPEN CITCUT VOLTAGE (Voc)	MAX POWER VOLTAGE (Vmp)	MAX CURRENT (Imp)	SHORT CIRCUT CURRENT (Isc)	EFFICIENCY (%)
SPEX37-12	12	37	24.12	20.63	1.83	1.92	15.3
SPEX60-12	12	60	23.98	20.45	2.97	3.13	16.3
SPEX130-12	12	130	23.98	20.45	6.59	6.96	17.2
SPEX175-12	12	175	23.98	20.45	8.63	9.11	17.5
SPEX235-24	24	235	31.97	27.26	8.63	9.11	17.5
SPEX350-24	24	350	47.95	40.90	8.63	9.11	18.2

General Details:

Output Tolerance (%): +-5

General Details:

0-10 Years for 90% rated power, 10-25 years for 80% rated power

Features:

- ATEX & IECEx certified for use in Zone 1 and 2 gas hazard environments.
- Visual alarm.
- Modbus alarm & control software for extensive programmable parameters via PC.
- Padlockable for security.
- Optional temperature sensor for compensating battery charging.

UPS INTEGRATED POWER SOLUTION

iPS1200EX Zone 1

Explosion proof Zone 1 & 2 Uninterruptible Power Supply; iPS1200EX supplies a reliable and stable supply voltage to critical control & instrumentation systems in Zone 1 & 2 hazardous areas and supporting equipment from short or medium power outage. Parallel architecture allows for expansion of systems to suit customer requirements, in a convenient modular design. Intelligent load sharing via user controlled transfer.

Certification:

Inverter/Charger: ATEX II G Ex d IIB T3 Minimum, IP66
Battery Enclosure: II 2 G Ex e II Gb T6 Tamb –40°C to +55°C Gb

Typical Applications:

- Remote Solar PV Powered Systems
- Navigation Systems
- Remote Fire & Gas Systems
- Communication Systems
- Remote Site Security Systems

HAZARDOUS AREA EQUIPMENT

Mechanical Specification:

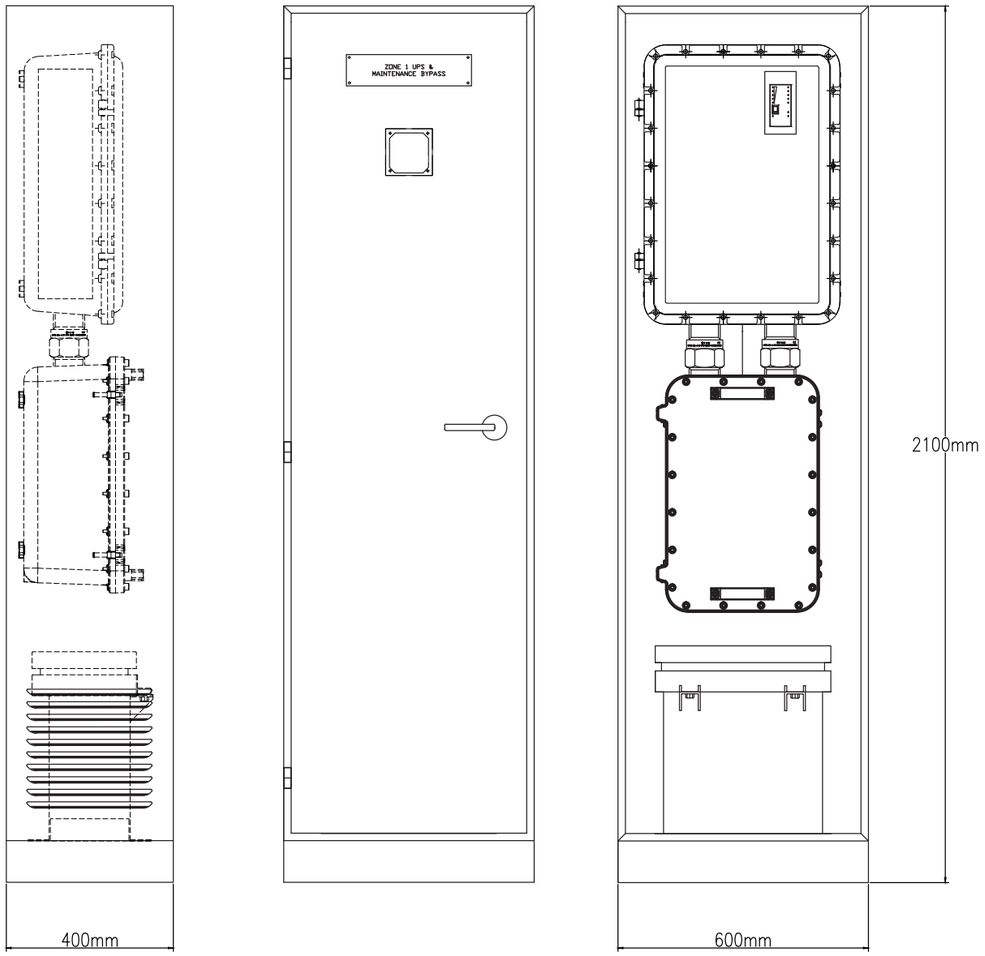
Dimensions:	Dependant on customer requirements
Cabinet:	Optional

Performance Characteristics:

System Autonomy:	Bespoke to customer requirements

Electrical Specification:

System Capacities:	600W, 1200W, 2.4Kw & 6Kw
Input Voltages:	110V, 230V, 415V and 24,48V DC
Output Voltage:	110V, 230V, 415V and 24,48V DC
Battery Voltages:	12V, 24V, 48V, 110V DC and higher available



Pharos Marine Automatic Power

CONTROL PANELS

A comprehensive range of enclosures to suit varied power, control and instrumentation applications. Suitable for a wide range of client projects in gas & dust hazard environments. Available from a comprehensive UK stock holding ready to be engineered to specification for cable entry, through door operators and indication. Certified viewing windows in a full range of sizes are available for through door visual monitoring of instruments & displays. Custom paint specifications available.

Certification:

ATEX Certificate No.: BKI 08 ATEX 0019
IECEx Certificate No.: IECEx BKI 09.0005
Coding: Ex II 2 G Ex d IIB + H2 T6…3 Tamb –60˚C to +60˚C Gb
Ingress Protection: IP-66

Features:

- ATEX, IECEX / EAC GOST-R & INMETRO certified for use in Zone 1 & Zone 2 gas hazard.
- environments worldwide.
- Complete electrical stations drilled, populated, certified and tested to customer specification.
- Optional alternative colours available on request.
- Enclosures also available for IIC applications.
- Available in marine grade copper free alloy or stainless steel 316L.
- A wide range of accessories available including isolators, LED indicators, key switch, inter enclosure switchboard/ control suites.
- Suitable for integration into multi enclosure switchboard/control suites.
- The supply of empty enclosures that can be internally populated by client on an installers declaration.

316L stainless steel solutions are also available for FULL 316L STAINLESS STEEL NAVAIDS PACKAGE

EJB - EXPLOSION PROOF HAZARDOUS AREA ENCLOSURES
Ex d Enclosures for Power, Control & Signalling Applications

PART NO	HEIGHT [mm]	WIDTH [mm]	DEPTH [mm]	APPROX. WEIGHT KG
EJB-11	175	175	126	4.00
EJB-21	284	245	169	11.20
EJB-22	300	200	222	11.30
EJB-23	310	260	197	13.30
EJB-30	415	315	246	24.20
EJB-51	566	366	256	36.10
EJB-61	670	470	361	68.10
EJB-63	670	470	236	50.50
EJB-71	742	542	311	95.60
EJB-91	960	660	462	188.50
EJB-93	960	660	302	166.50

Pharos Marine Automatic Power

CONTROL STATIONS AND JUNCTION BOXES

A comprehensive range of component approved increased safety Zone 1 and 2 Ex ‘e’ enclosures to suit; varied power, control and instrumentation applications. Suitable for a wide range of client projects in gas & dust hazard environments. Available from our extensive UK stock ready to be engineered to specification for cable entry, through door operators and indication. Variants are available with hinged doors, removable gland plates and security door furniture.

Certification:

ATEX : INERIS 02 ATEX0067X
IECEx : INE II.0016X
Coding: II 2 G Ex e IIB or IIC T6 ÷ T3 Tamb: -60°C - +60°C Gb,
Ingress Protection: IP-66

Features:

- ATEX, IECEx, GOST-K / GOST-R EAC & INMETRO certified for use in Zone 1 & Zone 2 gas hazard environments worldwide.
- Robust construction in stainless steel AISI-316L impact resistant to 7Nm.
- Stainless steel AISI-316L fixings.
- Electro-polished for increased corrosion resistance.
- Optional external epoxy coating in RAL colours - on request.
- High quality one piece silicone rubber gasket.
- Internal anti-condensation coating - RAL2004 - available on request.
- Drain and breather valves – available on request.
- A wide range of complimentary operators available including pilot lights, push buttons, latching push buttons and switches.
- Potted couplings available for integration into multi enclosure switchboard / control suites..

Mechanical Specification:

- Robust construction in stainless steel AISI-316L impact resistant to 7Nm
- Stainless steel AISI-316L fixings
- High quality one piece silicone rubber gasket
- Electro-polished for increased corrosion resistance

EX e Enclosures for Power, Control & Signalling Applications

PART NO	LENGTH	DEPTH	HEIGHT	APPROX. WEIGHT KG
ESX#1313	130	130	87	1.00
ESX#1717	170	170	87	2.00
ESX#2212	220	120	87	2.5
ESX#2216	220	165	87	2.50
ESX#2216	220	165	148	3.00
ESX#2222	220	220	87	3.00
ESX#2222	220	220	148	4.00
ESX#3322	330	220	115	5.00
ESX#3322	330	220	148	5.00
ESX#3333	330	330	115	5.00
ESX#3333	330	330	148	6.80
ESX#4433	440	220	148	7.00
ESX#4433	440	330	148	7.00
ESX#4936	490	360	148	9.50
ESX#5242	520	420	148	12.00
ESX#5242	520	420	242	12.00
ESX#6348	630	480	148	16.00
ESX#7440	745	400	148	18.00
ESX#7440	745	400	227	18.00

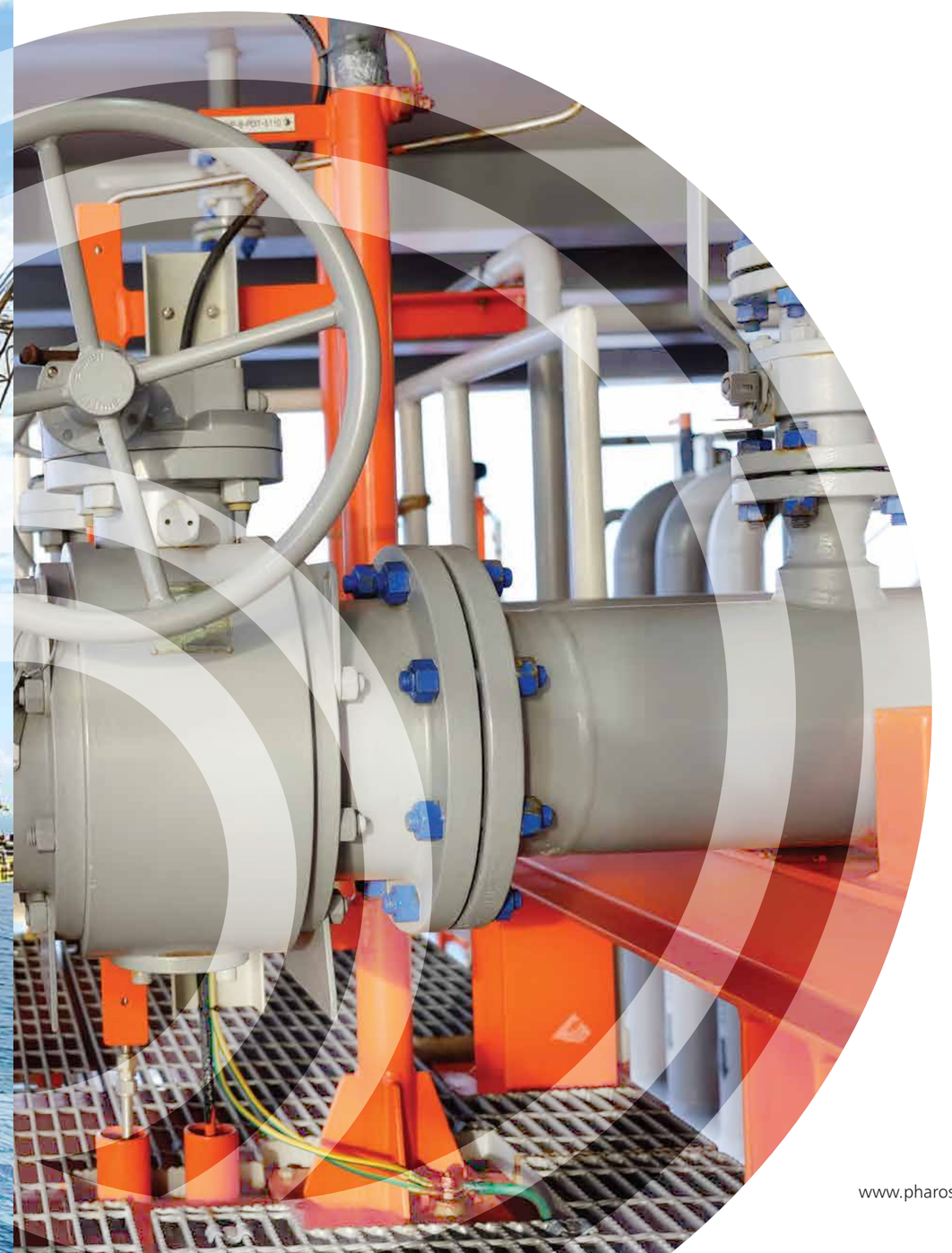
CHECK CATALOG FOR EXACT DIMENSIONS AND MOUNTING DETAILS

STANDBY POWER SERVICES

Pharos Marine Automatic Power are able to provide a range of Standby Power Services for mission critical systems worldwide. All services are available on both onshore and offshore locations including; Offshore Platforms, Power Stations, Gas Terminals, Data Centres, Factories, Hospitals and many more.

- Full "Product Life-Cycle" service for both AC & DC UPS systems and standby battery systems including; surveys, design, specification, supply, pre-site acceptance testing, installation & commissioning, servicing and maintenance, removal and recycling.
- The supply of Nickel-Cadmium, Sealed Lead Acid and Flooded Lead Acid Cellblocks from all recognised manufacturers.
- Pre-site acceptance testing in our battery workshop prior to installation on site to ensure batteries are at full serviceability and to highlight and replace any defective cells prior to delivery.
- On-site discharge capacity testing to prove definitive serviceability of individual cellblocks and the complete battery bank.
- Impedance testing to identify early indication of premature failure of the components within the cellblocks.
- Planned and unplanned maintenance packages (including escalated call-out facility). Our engineers' knowledge and experience enables us to carry out servicing and maintenance on many other original equipment manufacturers systems.
- Approved for the collection and disposal of redundant cellblocks in accordance with the Hazardous Waste Regulations 2005.
- Detailed service reports and recommendations.

SPARES AND REPAIRS

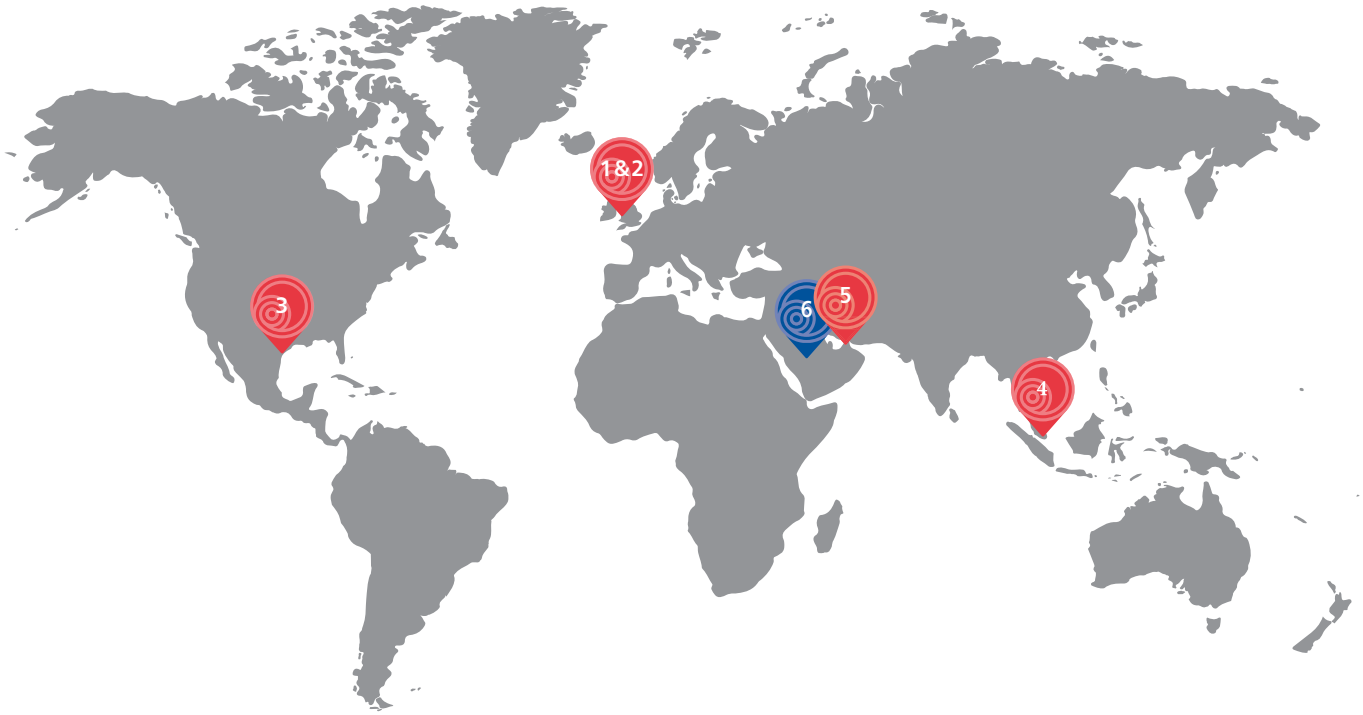


SPARES AND REPAIRS

Pharos Marine Automatic Power has a dedicated spares, repairs and maintenance team offering rapid response for all spares and repairs requirements for Aids to Navigation, Gas Detection, Instrumentation, Control Systems and Standby Power Systems.

Our unrivalled expertise and knowledge of offshore assets and other manufactures equipment is extensive, therefore we can service and maintain products irrespective of original equipment manufacturer.

- Stock-holding of safety critical parts for Aids to Navigation OE manufacturers.
- Reconditioning service within our in-house repair workshops.
- Reverse engineering service from within our repair workshops to maintain obsolete equipment/components system integrity.
- Service exchange stock available for obsolete Aids to Navigation equipment.
- A comprehensive single source supplier also capable of servicing spares and carrying out repairs & maintenance on all AtoN systems, irrespective of OEM.
- Offshore AtoN servicing, maintenance & ATEX inspections service.



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