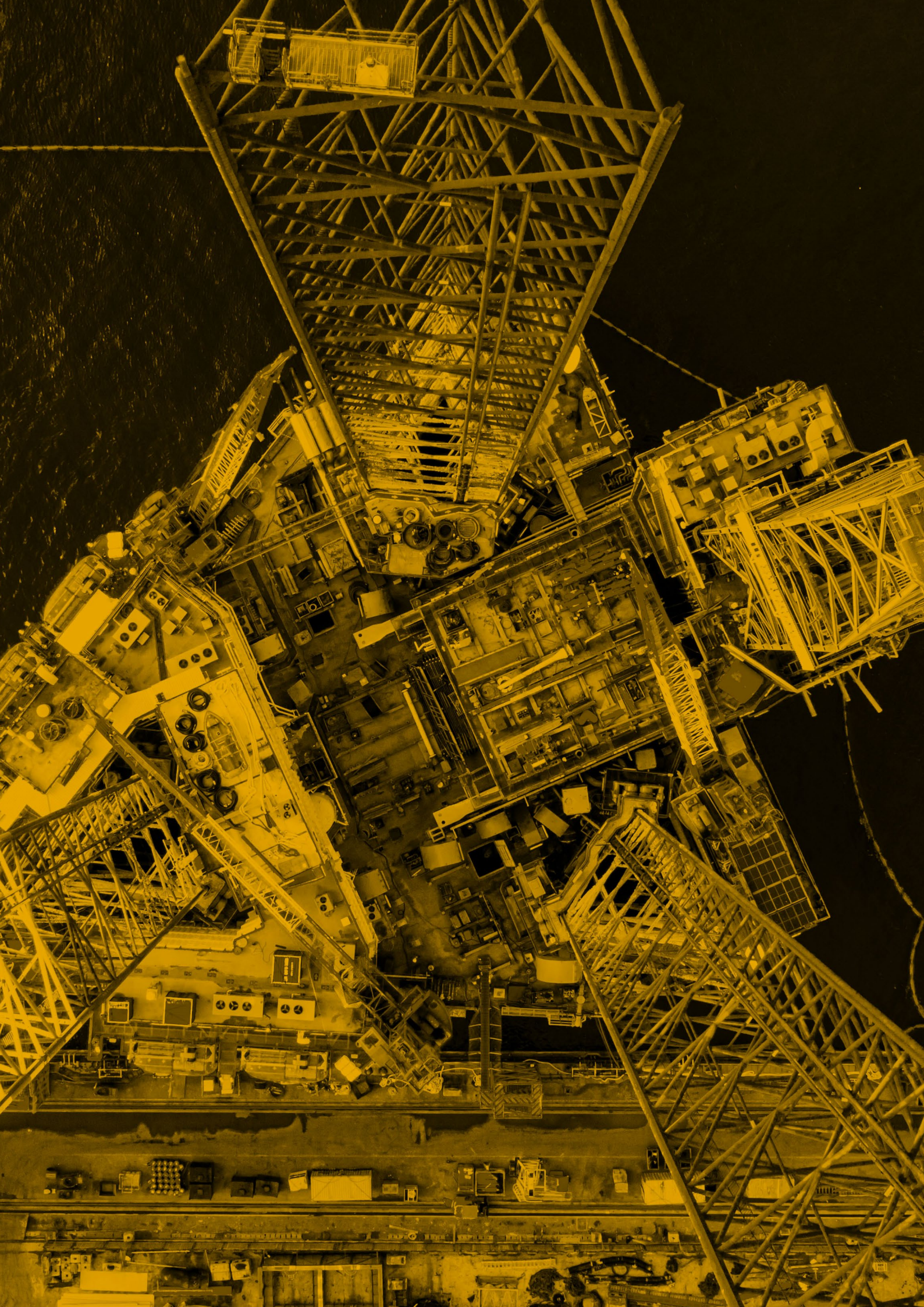
MSM OFFSHORE

Ex-Equipment

FOR EXPLOSIVE ATMOSPHERES



MSM Offshore is pleased to introduce its wide range of solutions especially developed for **explosive atmospheres**, classified for Zone 1 and Zone 2 hazardous areas.

Offshore oil and gas platforms demand strict safety and reliability standards in explosion-proof equipment. Hence MSM Offshore is committed to protect lives in those extremely hazardous environments by producing, integrating and certifying Ex-products according to international ATEX and/or IECEx standards and regulations.

Certifications are provided by accredited laboratories and organizations notified in accordance with UE directives, by following severe protocols of trials and testing.

Besides those certifications, MSM Offshore is audited periodically by an accredited authority to maintain the Product Quality Assurance Notification under Directive 94/9/UE in our production processes of equipment, protective systems or components intended for use in Potentially Explosive Atmospheres.

AIDS-TO-NAVIGATION EQUIPMENT (ZONE 1 and ZONE 2)

MBL160-Ex Main LED Lantern

- 10 nm nominal range, certified for Zone 1 and 2.
- ATEX Classification **II 2G Ex eb mb ib IIC T4 GB**.
- Heavy-duty lantern.
- IP 68 Watertightness degree.
- 256 flash characters, selectable by minidips.

MBL160-Ex Subsidiary LED Lantern

- 3-5 nm nominal range, certified for Zone 1 and 2.
- ATEX Classification **II 2G Ex db eb IIB T6 Gb**.
- Heavy-duty lantern.
- IP 68 Watertightness degree.
- 256 flash characters, selectable by minidips.

MSM30 Foghorn

- Ex- Foghorn certified for Zone 1 and 2.
- Audible range over 2 nm.
- ATEX Classification **II 2G Ex d IIB T5 Gb IP56**.
- Emission of 134 dB at 1 metre.
- Available 2 nm Main + 0.5 nm Secondary Foghorn.

MSV10-Ex Visibility Sensor

- Ex- Visibility Sensor for use in Zone 1 and 2.
- ATEX Classification **II 2G Ex d IIB T5 Gb**.
- Visibility range up to 8 Km.
- Performance in all weather conditions.

AIDS-TO-NAVIGATION EQUIPMENT (ZONE 2)

MCL200-Ex Marine Compact LED Lantern

- Unique Self-contained Lantern certified for Zone 2.
- 7 nm Nominal range.
- Vertical divergence up to 12°, especially for use on buoys.
- ATEX Classification **II 3G Ex nA mc II T5**.
- IP 68 Watertightness degree.

MCL250-Ex LED Marine Self-contained Lantern

- 8 nm Nominal range.
- Self-contained Lantern for locations with higher solar power supply requirements.
- Autonomy of up to 700 hours without solar charging.

POWER SUPPLY & CONTROL EQUIPMENT

MSP* Ex-Solar Modules for Zone 1 & Zone 2

- **Zone 1**: ATEX Classification **II 2 G Ex mb e II T4/T5**.
- **Zone 2**: ATEX Classification **II 3 G Ex nA nC T5**.
- Range power 20-135 Wp.
- Nominal voltage 12 V.

PCU-Ex Solar Charge Controller Unit

- Certified for Zone 1 and 2.
- ATEX Classification **II 2G D Ex d IIB T6**.
- Battery charging by shunt PWM.
- Cable input through anti-vibration ATEX glands.
- Stainless-steel housing.

MBE-Ex Battery Enclosures

- Battery enclosures certified for Zone 1 and Zone 2.
- Each enclosure is supplied including VRLA battery.
- Anti-vandalism security lock as an option.

POWER SUPPLY & CONTROL EQUIPMENT

ISO Battery Isolator for Zone 1

- Battery isolator of advanced design incorporating the latest loading technology.
- Used as main connection switch for distribution units and battery banks installed in safe areas.
- ATEX Classification **II 2G Ex d IIB+H2 T6 Gb**.
- IP 66 protection degree.

DC-AC Ex Power Supply Unit for Zone 1

- ATEX Classification **II 2 G D Ex IIB+H2 T5 Gb**.
- 230V AC - 12V DC.
- Input - Output overvoltage protection.
- LED indicator output voltage DC OK.
- Copper-free aluminium box.
- Double seal. IP 66 protection degree.

DC-DC Ex Converter for Zone 1

- ATEX Classification **II 2 G D Ex IIB+H2 T5 Gb**.
- 24V DC – 12V DC.
- Earthing bolt.
- Copper-free aluminium box.
- Double seal. IP 66 protection degree.

NCCP-Ex AtoN Control Panel for Zone 1

- ATEX Classification **II 2 G Ex db IIB+H2 T6...T4.**
- Manufactured from marine-grade copper-free aluminium alloy.
- IP66 Watertightness degree.
- Customized according to the customer's function requirements.
- Manual and Auto ON/OFF of lanterns, fog horn and/or racon.
- Power supply distribution, terminals and protections.
- Front panel LED indicators for status and alarms.

OTHER DEVICES & ACCESSORIES

MOL-Ex** Aviation Obstruction Light

- Low-Intensity Explosion-Proof Obstruction Light.
- Medium-Intensity Explosion-Proof Obstruction Light.
- ATEX Certification: **II 2 GD Ex de IIC T6 Gb**.
- Type A.
- Type B.
- Type C.
- Type AC.
- Type AB.

PHOTOCELL-Ex

- ATEX Classification **II 2GD Ex d IIC T6/T5 Gb**.
- Box made from aluminium alloy with low cupper content.
- IP 66 ingress protection. Frontal tempered glass.
- Sensor by LDR photoresistance, encapsulated in resin for maximum protection.

IALA RECOMENDATION 0-139

The Marking of Man-Made Offshore Structures

The marking of offshore structures as defined in this Recommendation may be considered as a minimum requirement to ensure the safety of navigation in the vicinity of the structures, however, National Authorities may require more stringent marking.

The general rules for the marking of Offshore Structures are as follows:

It is recommended that the lights:

- Are located not less than 6 metres and not more than 30 metres above Highest Astronomical Tide (HAT);
- Have a minimum nominal range of 10 Nautical Miles, taking background lighting into account;
- Are synchronized with flash character according to Mo (U)W ≤ 15s;
- Have a vertical divergence of the projected beam such that the light will be visible from the immediate vicinity of the structure to the maximum luminous range of the light.

If implemented, it is recommended that fog signals:

- Are located not less than 6 metres and not more than 30 metres above HAT;
- Have a minimum range of 2 Nautical miles;
- Have the character Mo (U) 30s with a minimum duration for the short blast of 0.75 seconds;
- Are operated when the meteorological visibility is 2 Nautical miles or less – a Visibility Detector will typically be used.

Where there is a requirement to identify a particular structure, a radar beacon (Racon) may be fitted. The character and code length shall be determined by the National Authority.

IALA RECOMENDATION 0-139

The Marking of Man-Made Offshore Structures

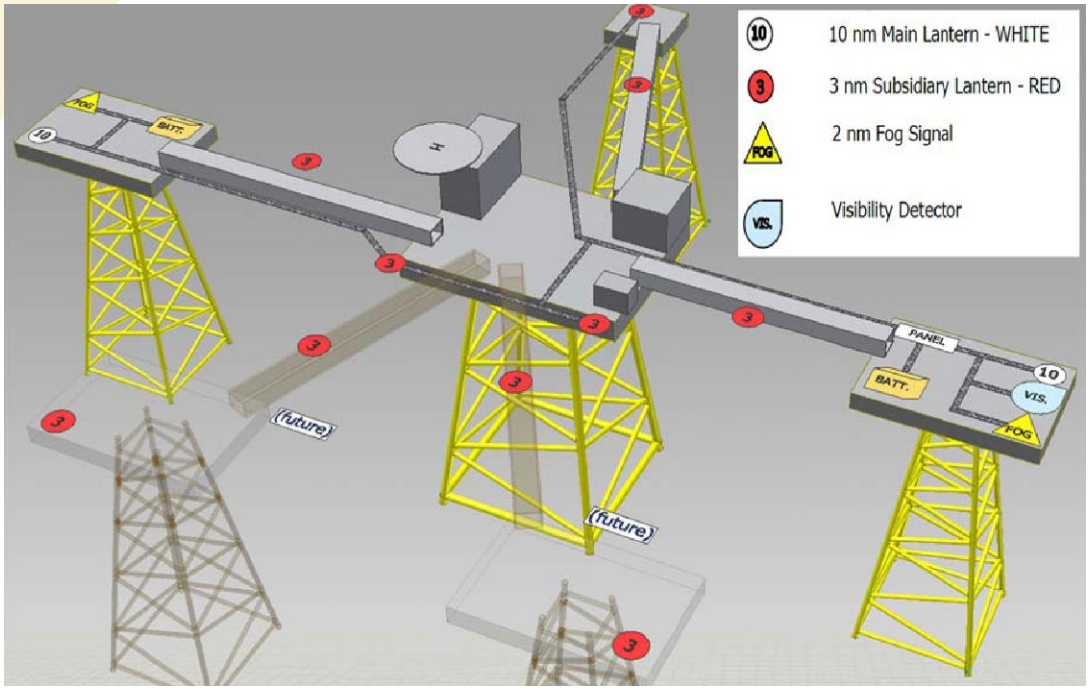
The Offshore Structures for **Oil and Gas** are recommended to be marked as a single unit, a block or field, as appropriate, as follows:

- Any structure shall be marked at night by one or more white lights so constructed and fixed as to ensure that at least one light is visible upon approaching the structure from any direction. Minimum nominal range is to be 10 Nautical miles.
- Subsidiary red flashing lights shall also be provided and show the same characteristics as the main white lights, i.e. synchronized Mo (U) R ≤ 15s. These are to be located to mark the horizontal extremities of the structure, excepting those marked with white lights, as well as interconnecting bridges. Minimum nominal range is to be 3 Nautical miles.
- Each structure, where practicable, displays identification panels with black letters or numbers 1 metre high on a yellow background visible in all directions. These panels shall be easily visible in daylight as well as at night, either by using appropriate illumination or retro-reflecting material.

Notices to Mariners must be issued to publicise the establishment of an offshore structure(s) / field. The Notice to Mariners has to include the marking, location and extent of such structure(s) / fields.

The National Authority should be satisfied that the selected lighting has a suitable Nominal range and sufficient autonomy with the ability to over-winter – especially in higher latitudes.

The air navigation authorities may require additional marking of the structure(s).



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