



### MARINE ENTERTAINMENT SYSTEM

Marine entertainment system for living quarters consists of fixed or auto tracking satellite dish antenna, main distribution system including amplifiers, receivers and DVD players. It can be connected to public address system where auto muting is required.

### INFOTAINMENT SYSTEM

Latest technology infotainment system with centralized control is connected to the satellite antenna. A single CAT-7 cable is used throughout the living quarters to perform multiple functions. The complete system is in HD format, uses reduced cabling and provides access to TV and radio channels, Video on Demand, Music on Demand, games, safety videos, e-mail and personal laptop connectivity. Its single monitor serves dual purpose – to watch movies and work as personal computer.



### HOSPITAL AND REFRIGERATOR ALARM SYSTEM

Hospital and Refrigerator Alarm System is designed for use onboard ships for calling from hospital and refrigerating rooms. Special switching devices installed in strategic positions in hospital and refrigerators activates alarms in designated areas.

### WIND SCREEN WASH AND WIPER SYSTEM

Wind screen wash and wiper system is designed based on the wind screen size of each ship bridge. The system consists of heavy duty wiper blades, control panel, pumps and wash nozzles. It can also be connected to heater for supply of hot water spray, when required.



Solas Comprehensive Marine Solutions complies to below classifications, where applicable.



We represent:



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### GASEOUS FIRE EXTINGUISHING SYSTEM

Gases such as CO<sub>2</sub>, Argonite and Inergen are effectively used in fire extinguishing for many years. CO<sub>2</sub> system has proved to be an economical replacement for old Halon installations. These gases mainly reduce the Oxygen concentration to extinguish the fire. These are stored in high pressure steel cylinders and used to extinguish the fire in machinery area, paint storage areas etc.

### CLEAN AGENT FIRE SUPPRESSION SYSTEM

Chemical based FM-200TM, NOVEC-1230TM are low pressure systems, environmental friendly with lowest global warming potential. NOVEC-1230TM manufactured by 3MTM confirms suitability of this agent for the next 20 years without any environmental bans. It is also used for protection against electrical and electronic risks.



### WATER BASED FIRE EXTINGUISHING SYSTEM

Water based conventional sprinkler systems are employed in fire extinguishing for many years. Latest system hardware converts water in the form of fine mist and fog that requires less water with sufficient extinguishing power. Fog systems can also be used for electrical fires. Deluge systems use open nozzles with automatic discharge option, when the water requirement for protected area is in large quantity. All components used are of very high grade, suitable for marine environment conditions.

### EXTERNAL FIRE FIGHTING SYSTEM (FiFi)

External fire fighting system is fully integrated with the vessel's main engine. Dedicated diesel engine, electrical or hydraulic driver also may be used to avoid the impact of ship's operation to the FiFi system. The power is transferred to the pumps via remote operated clutch and necessary transmission. The water jet is created in the monitor outlet by pressing water at optimum speed through specially designed monitor nozzle. The system may also include self-protection deluge (Water Spray) with water taken from the FiFi pumps and / or various types of foam systems.



### BALLAST WATER TREATMENT SYSTEM

Ballast water treatment system is a new IMO requirement to prevent introduction of invasive marine species into new environments by the ship's ballast water. The system is developed with versatile types for effective, reliable and economic solutions to meet IMO guidance and legislative Requirements. The system is available in three types, i.e. Ozone Disinfection Systems, Electrolysis with filter and Ultra Violet with filter.

### BREATHING AIR CASCADE SYSTEM

Breathing Air Cascade packages are designed based on specific requirements such as QP, ARAMCO, ONGC, ADMA etc. High pressure breathing air cylinders are connected in series using SS-316 tubing. Manifolds are supplied with various types of quick couplers matching with self contained breathing apparatus or escape devices for extended breathing time. The system is available with two options, decentralized or centralized types. Electrical and diesel engine driven compressors are supplied with above system.



### HELIDECKS FOR SHIPS

Helideck is usually handed over either in two deck-halves or in one piece; or as a material package to the shipyard with special tools and supervision. The deck is designed to fulfill any requirements stated by rules and regulations or requirements put forward by customer.

### INTEGRATED MARINE MONITORING SYSTEM

IMMCS is a PLC based system with latest technology sensors and transmitters to suit marine applications. This system is used to measure ballast, fuel and other tank capacity including controlling fill and dump valves connected to the particular tank. The system can be designed to monitor weather, fire and gas, navigation lighting and machinery alarm. The system can be viewed using laptop or PC when connected to onboard LAN. The required data can also be transmitted to onshore stations using external data communication devices on board.



### ELECTRONIC CHART DISPLAY AND INFORMATION SYSTEM (ECDIS)

Electronic Chart Display and Information System is MED approved by Det Norske Veritas providing "Intelligent iChart Innovation". System hardware, software, charts, training, updates to guarantee compliance with IMO SOLAS regulation. The iECDIS™ is pre-loaded with Jeppesen charts for global ENC coverage with multiple licensing options to suit your budget and operational requirements so you can start navigating immediately.



### CCTV SYSTEM

Closed circuit television system consists of display units, cameras, control and record system. PTZ and fixed cameras with wash and wipe facility are available. The system consists of rack mounted matrix, keyboards with joystick and recorder. Special composite cables are supplied from control rack to camera stations, thus reducing multiple cabling.

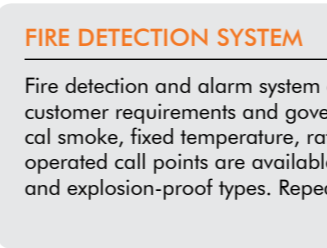
### BRIDGE NAVIGATIONAL WATCH ALARM SYSTEM (BNWAS)

Bridge Navigational Watch Alarm System specifically designed to comply with SOLAS Regulation V/19 as amended by MSC.282 (86) requiring a BNWAS to be installed on all new and existing ships. The System comprises of either a bulkhead-mounted or console mounted control panel with an onboard PIR (Passive Infra-Red) movement detector.



### BATTERYLESS TELEPHONE SYSTEM

Batteryless telephone system is the modern version of the traditional sound powered telephone. Independent of the vessel's power supply, it fulfills the demands for emergency communication between vital positions on board. The system has a versatile range of light, robust and corrosion resistant stations for all on-board environment. Different stations can be delivered for panel, desktop or bulkhead mounting.



### FIRE DETECTION SYSTEM

Fire detection and alarm system can be of conventional or analogue addressable type, depending on the customer requirements and governing authority rules and regulations. Various detectors are available like optical smoke, fixed temperature, rate of rise heat detectors, UV-IR Flame, IIR-Flame and CO detectors. Manual operated call points are available to initiate fire alarm manually. Field devices are available as weather-proof and explosion-proof types. Repeater panels are supplied for larger installation.



### GAS DETECTION SYSTEM

Gas detection system depends on the customer specification, classification rules and regulations, and specific requirements such as QP, ARAMCO, ONGC, etc. The system is conventional type and can detect various hazardous and flammable gases. Most commonly used gases are H<sub>2</sub>S and HC. Visual and audible devices are provided with optional public address and general alarm interface. Repeater panels are available to view the detection and to check gas concentration at each sensor during any alarm state. The sensors control and repeater panels are available for hazardous area application and also with wireless solutions.

### PUBLIC ADDRESS & GENERAL ALARM SYSTEM

The equipment is designed to meet the marine standards and suitable for use in hazardous area, where applicable. The system is supplied with amplifiers fitted on single or double racks depending on the capacity and provided with PABX. It can also be used as intercom system and many features are built-in.



### TALK BACK SYSTEM

Talk-Back system is a command communication system based on one operator unit/panel, and a wide range of substations. The system is typically used to coordinate activities in a work group – when it is important that the members in the group can hear all conversations. The stations are designed and made for marine usage and environment.