

## SECTION 1

## GENERAL REQUIREMENTS

### 1 General

#### 1.1 Field of application

**1.1.1** The following requirements apply to automation systems intended for control, monitoring and safety of main propulsion machinery and essential auxiliary machinery of yachts having power exceeding 220 kW per shaft line.

For other yachts, an adequate control of propulsion machinery and steering is to be provided at the discretion of the Society.

Where the word yachts is used in the subsequent chapter, it means yachts and charter yachts.

**1.1.2** The Flag Administration may request application of National Rules and/or International Regulations. In such a case, it is the Owner, or the Shipyard or the Designer responsibility to comply with the therein Rules and Regulations.

#### 1.2 Regulations and standards

**1.2.1** The regulations and standards applicable are those defined in Ch 2, Sec 1.

#### 1.3 Definitions

**1.3.1** Unless otherwise stated, the terms used in this chapter have the definitions laid down in Ch 2, Sec 1 or in the IEC standards. The following definitions also apply:

- Alarm indicator is an indicator which gives a visible and/or audible warning upon the appearance of one or more faults to advise the operator that his attention is required
- Alarm system is a system intended to give a signal in the event of abnormal running condition
- Automatic control is the control of an operation without direct or indirect human intervention, in response to the occurrence of predetermined conditions
- Automation systems are systems including control systems and monitoring systems
- Computer based system is a system of one or more computers, associated software, peripherals and interfaces, and the computer network with its protocol
- Control station is a group of control and monitoring devices by means of which an operator can control and verify the performance of equipment
- Control system is a system by which an intentional action is exerted on an apparatus to attain given purposes
- Fail safe is a design property of an item in which the specified failure mode is predominantly in a safe direction with regard to the safety of the yacht, as a primary concern

- Local control is control of an operation at a point on or adjacent to the controlled switching device
- Instrumentation is a sensor or monitoring element
- Manual control is control of an operation acting on final control devices either directly or indirectly with the aid of electrical, hydraulic or mechanical power
- Monitoring system is a system designed to observe the correct operation of the equipment by detecting incorrect functioning (measure of variables compared with specified value)
- Redundancy is the existence of more than one means for performing a required function
- Remote control is the control from a distance of apparatus by means of an electrical or other link.

#### 1.4 General

**1.4.1** Computer based systems are to be chosen among the list of type approved products.

They are to be approved on the basis of the applicable requirements of Pt C, Ch 3, Sec 6 of the Rules for Steel Ships.

Case by case approval may also be granted at the discretion of the Society, based on submission of adequate documentation and subject to the satisfactory outcome of any required tests.

**1.4.2** Main and auxiliary machinery essential for the propulsion, control and safety of the yacht are to be provided with effective means for its operation and control.

**1.4.3** Detailed indication, alarm and safety requirements regarding automation systems for individual machinery and installations are to be found in Part C, Chapter 1.

## 2 Documentation

### 2.1 General

**2.1.1** Documents listed in Tab 1 are to be submitted.

The list of documents requested is to be intended as guidance for the complete set of information to be submitted, rather than an actual list of titles.

The Society reserves the right to request the submission of additional documents in the case of non-conventional design or if it is deemed necessary for the evaluation of the system, equipment or components.

Plans are to include all the data necessary for their interpretation, verification and approval.

Unless otherwise agreed with the Society, documents for approval are to be sent in triplicate if submitted by the Shipyard and in four copies if submitted by the equipment supplier.

Documents requested for information are to be sent in duplicate.

In any case, the Society reserves the rights to require additional copies, when deemed necessary.

### 3 Environmental and supply conditions

#### 3.1

##### 3.1.1 Electrical power supply

The automation system is to operate correctly when the power supply is within the range specified in Ch 3, Sec 2.

##### 3.1.2 Environmental conditions

The automation system is to be designed to operate satisfactorily in the environment in which it is located. The environmental conditions are described in Ch 2, Sec 1.

##### 3.1.3 Failure behaviour

The automation system is to have non-critical behaviour in the event of power supply failure, faults or restoration of operating condition following a fault. If a redundant power supply is used, it must be taken from an independent source.

### 4 Materials and construction

#### 4.1 General

**4.1.1** The choice of materials and components construction is to be made according to the environmental, shock and operating conditions in order to maintain the required function of the equipment.

**4.1.2** The design location and installation of the automation system is to take into account the environmental, shock and operating conditions in order to maintain the required function of the equipment.

**Table 1 : Documentation to be submitted**

N°	I/A (1)	Documentation
1	A	Diagram of the supply, monitoring and control systems of propulsion engines
2	A	A general diagram showing the monitoring and/or control positions for the propulsion installations, with an indication of the means of communication between the positions where applicable
3	I	The list of components used in the automation circuits, and references (Manufacturer, type, etc.)
4	I	The diagrams of the supply circuits of automation systems, identifying the power source
5	I	The list of monitored parameters for alarm/monitoring and safety systems
<b>(1)</b> A = to be submitted for approval I = to be submitted for information.		