(vi) Visually announce until the alarm is manually acknowledged and the alarm condition is cleared;
(vii) Audibly announce until manually acknowledged;
(viii) Not prevent announcement of subsequent alarms because of previous alarm acknowledgement; and
(ix) Automatically reset to the normal operating condition only after the alarm has been manually acknowledged and the alarm condition is cleared.

2. Visual alarms must initially indicate the equipment or system malfunction without operator intervention.

3. Power failure alarms must monitor on the load side of the last supply protective device.

(f) Summarized and grouped alarms. Visual alarms at a control location that are summarized or grouped by function, system, or item of equipment must—
(1) Be sufficiently specific to allow any necessary action to be taken; and
(2) Have a display at the equipment or an appropriate control location to identify the specific alarm condition or location.

(g) Central control locations. (1) Central control locations must—
(i) Be arranged to allow the operator to safely and efficiently communicate, control, and monitor the vital systems under normal and emergency conditions, with a minimum of operator confusion and distraction;
(ii) Be on a single deck level; and
(iii) Co-locate control devices and instrumentation to allow visual assessment of system response to control input.

2. Visual alarms and instruments on the navigating bridge must not interfere with the crew’s vision. Dimmers must not eliminate visual indications.

3. Alarms and instrumentation at the main navigating bridge control location must be limited to those that require the attention or action of the officer on watch, are required by this chapter, or that would result in increased safety.

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(5) Hydraulic and pneumatic pressure variations described in Table 9 of part 4–9–7 of the ABS Steel Vessel Rules.

Note: Considerations should include normal dynamic conditions that might exceed these values, such as switching, valve closure, power supply transfer, starting, and shutdown.

(b) Low voltage electronics must be designed with due consideration for static discharge, electromagnetic interference, voltage transients, fungal growth, and contact corrosion.


Subpart 62.30—Reliability and Safety Criteria, All Automated Vital Systems

§ 62.30–1 Failsafe.

(a) The failsafe state must be evaluated for each subsystem, system, or vessel to determine the least critical consequence.

(b) All automatic control, remote control, safety control, and alarm systems must be failsafe.

§ 62.30–5 Independence.

(a) Single non-concurrent failures in control, alarm, or instrumentation systems, and their logical consequences, must not prevent sustained or restored operation of any vital system or systems.

(b)(1) Except as provided in paragraphs (b)(2) and (b)(3) of this section, primary control, alternate control, safety control, and alarm and instrumentation systems for any vital system must be independent of each other.

(2) Independent sensors are not required except that sensors for primary speed, pitch, or direction of rotation control in closed loop propulsion control systems must be independent and physically separate from required safety control, alarm, or instrumentation sensors.

(3) The safety trip control of § 62.35–5(b)(2) must be independent and physically separate from all other systems.

(c) Two independent sources of power must be provided for all primary control, safety control, instrumentation and alarm systems. Failure of the normal source of power must actuate an alarm in the machinery spaces. One source must be from the emergency power source (see part 112 of this chapter, Emergency Lighting and Power Systems) unless one of the sources is—

(1) Derived from the power supply of the system being controlled or monitored;

(2) A power take-off of that system; or

(3) An independent power source equivalent to the emergency power source.

§ 62.30–10 Testing.

(a) Automated vital systems must be tested in accordance with subpart 61.40 of this chapter.

(b) On-line built-in test equipment must not lock out or override safety trip control systems. This equipment must indicate when it is active.

Subpart 62.35—Requirements for Specific Types of Automated Vital Systems

§ 62.35–1 General.

(a) Minimum instrumentation, alarms, and safety controls required for specific types of automated vital systems are listed in Table 62.35–50.

(b) Automatic propulsion systems, automated electric power management systems, and all associated subsystems and equipment must be capable of meeting load demands from standby to full system rated load, under steady state and maneuvering conditions, without need for manual adjustment or manipulation.

§ 62.35–5 Remote propulsion-control systems.

(a) Manual propulsion control. All vessels having remote propulsion control from the navigating bridge, an ECC or maneuvering platform, or elsewhere must have a manual alternate propulsion control located at the equipment.

Note: Separate local control locations may be provided for each independent propeller.

(b) Centralized propulsion control equipment. Navigating bridge, ECC, maneuvering platform, and manual alternate control locations must include—