M29 Alarm systems for vessels with periodically unattended machinery spaces

(1978) (Rev. 1 1979) (Rev.2 1995) (Rev.3 1997)

M29.1 Definition

The alarm system is intended to give warning of a condition in which deviation occurs outside the preset limits on selected variables. The arrangement of the alarm display should assist in identifying the particular fault condition and its location within the machinery space. Alarm systems, including those incorporating programmable electronic systems, are to satisfy the environmental requirements of IACS UR E10.

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M29.2 General requirements

Where an alarm system is required by the Rules, the system is to comply with the conditions given in M29.2.1 - M29.2.10.

M29.2.1 The system is to be designed to function independently of control and safety systems so that a failure or malfunction in these systems will not prevent the alarm system from operating. Common sensors for alarms and automatic slowdown functions are acceptable as specified in M35 Table 1 and 2 as Gr 1.

M29.2.2 Machinery faults are to be indicated at the control locations for machinery.

M29.2.3 The system is to be so designed that the engineering personnel on duty are made aware that a machinery fault has occurred.

M29.2.4 If the bridge navigating officer of the watch is the sole watchkeeper then, in the event of a machinery fault being monitored at the control location for machinery, the alarm system is to be such that this watchkeeper is made aware when:

(i) a machinery fault has occurred,
(ii) the machinery fault is being attended to,
(iii) the machinery fault has been rectified. Alternative means of communication between the bridge area, the accommodation for engineering personnel and the machinery spaces may be used for this function.

M29.2.5 Group alarms may be arranged on the bridge to indicate machinery faults. Alarms associated with faults requiring speed reduction or the automatic shut down of propulsion machinery are to be separately identified.

M29.2.6 The alarm system should be designed with self monitoring properties. In so far as practicable, any fault in the alarm system should cause it to fail to the alarm condition.

M29.2.7 The alarm system should be capable of being tested during normal machinery operation. Where practicable means are to be provided at convenient and accessible positions, to permit the sensors to be tested without affecting the operation of the machinery.

M29.2.8 Upon failure of normal power supply, the alarm system is to be powered by an independent standby power supply, e.g. a battery. Failure of either power supply to the alarm system is to be indicated as a separate alarm fault. Where an alarm system could be adversely affected by an interruption in power supply, change-over to the stand by power supply is to be achieved without a break.

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M29 cont'd

M29.2.9

(a) Alarms are to be both audible and visual. If arrangements are fitted to silence audible alarms they are not to extinguish visible alarms.
(b) The local silencing of bridge or accommodation alarms is not to stop the audible machinery space alarm.
(c) Machinery alarms should be distinguishable from other audible alarms, i.e. fire, CO_2 flooding.
(d) The alarm system is to be so arranged that acknowledgement of visual alarms is clearly noticeable.

M29.2.10 If an alarm has been acknowledged and a second fault occurs before the first is rectified, then audible and visual alarms are to operate again.

Alarms due to temporary failures are to remain activated until acknowledged.

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M30 Safety systems for vessels with periodically unattended machinery spaces

(1978) (Rev. 1 1997)

M30.1 Definition

The safety system is intended to operate automatically in case of faults endangering the plant so that:
(i) normal operating conditions are restored (by starting of standby units), or
(ii) the operation of the machinery is temporarily adjusted to the prevailing conditions (by reducing the output of machinery), or
(iii) machinery and boilers are protected from critical conditions by stopping the machinery and shutting off the fuel to the boilers respectively (shutdown).

M30.2 General requirements

M30.2.1 Where a safety system is required by the Rules, the system is to comply with M30.2.2 - M30.2.8.

M30.2.2 Operation of the safety system shall cause an alarm.

M30.2.3 The safety system intended for the functions listed under M30.1 (iii) is to be independent of all other control and alarm systems so that failure or malfunction in these systems will not prevent the safety system from operating. For the safety systems intended for functions listed under M30.1(i) and (ii), complete independence of other control and alarm systems is not required.

M30.2.4 In order to avoid undesirable interruption in the operation of machinery, the system is to intervene sequentially after the operation of alarm system by:

Starting of standby units,
load reduction or shutdown, such that the least drastic action is taken first.

M30.2.5 The system should be designed to 'fail safe'. The characteristics of 'fail safe' of a system is to be evaluated on the basis not only of the safety system itself and its associated machinery, but also on the inclusion of the whole machinery installation as well as the ship.

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