10 Alert and Indicator Locations

10.1. Required alert and indicator type and location should be in accordance with tables 10.1.1 to 10.1.9.

10.2. Applicable regulations in the IMO instruments referred to should be consulted for additional requirements.

Notes to be applied to tables 10.1.1 to 10.1.9:
(1) Abbreviation for priorities and indicators:
EM - emergency alarm
A - alarm
W - warning
C - caution
I - indication/indicator
Abbreviation for presentation:
AU - audible alert display (visual may be necessary in high-noise areas)
V - visual alert display
AU, V - both audible and visual alert display
VI - visual indicator
MI - measuring indicator
(2) Cargo control station means a position from which the cargo pumps and valves can be controlled. If a central cargo control station is not provided, then the alert or indicator should be located in a suitable position for the operator (such as at the equipment monitored).
(3) If a cargo control station is not provided, the alert or indication should be given at the gas detector device readout location.
(4) Where the types of alerts are not specifically identified in the IMO instruments referred to, the recommendations of the IMO Sub-Committee on Bulk Liquids and Gases are enclosed in parentheses, e.g. (A,V).

Table 10.1.1 Location: navigation bridge

IMO Instruction	Function	Priority	Display	Notes
SOLAS II-1				
29.11	Rudder angle indicator	I	MI	Column 1, table 9.1
29.5.2	Steering gear power unit power failure	A	AU,V	Ditto
29.8.4	Steering control system power failure	A	AU,V	Ditto
29.12.2	Low steering gear hydraulic fluid level	A	AU,V	Ditto
30.1	Steering gear running	I	VI	Ditto
30.3	Steering system electric phase failure/ overload	A	AU,V	Column 1, table 9.3
31.2.7, 49.5	Propulsion machinery remote control failure	A	AU,V	Column 1, table 9.2, 9.3
31.2.9, 49.7	Low propulsion starting air pressure	A	AU,V	Ditto
31.2.10	Imminent slowdown or shutdown of propulsion system	A	AU,V	Column 1, table 9.2
52	Automatic propulsion shutdown override	I	VI	Column 1, table 9.3
52	Automatic shutdown of propulsion machinery	A	AU,V	Ditto
51.1.3	Fault requiring action by or attention of the officer on watch	A	AU,V	Column 1, table 9.3 (machinery alarm including 53.4.2 and 53.4.3).
31.2.8	Propeller speed/direction/pitch	I	MI	Column 1, table 9.2
49.6	Propeller speed/direction/pitch	I	MI	Column 1, table 9.3
37	Engine-room telegraph	I	VI	Ditto

13.6. 13.8.2, 16.2 13-1.2, 13-1.3, 14.2,15-1.2	Watertight door position	I	VI	Column 2, table 9.1
13.7.3.1	Watertight door low hydraulic fluid level	A	AU,V	Ditto
13.7.3.1 13.7.3.2	Watertight door low gas pressure, loss of stored energy	A	AU,V	Ditto
13.7.8	Watertight door electrical power loss	A	AU,V	Ditto
35 - 1.2.6.2	High water level alarm	A	AU	!, where required
17 - 1.1.2, 17 - 1.1.3	Opening indicator	A	AU,V,VI	Column 2, table 9.1
17 - 1.2	Shell door position indicator	I	VI	Column 2, table 9.1. Passenger ships with ro-ro cargo spaces or special category spaces. Recommended colours; red - door is not fully closed or not secured, green - door is fully closed and secured.
17 - 1.3	Water leakage detection indicator	I	VI	Column 2, table 9.1. Passenger ships with ro-ro cargo spaces or special category spaces. For details see regulation 17-1.3.
25.4	Water level pre-alarm	A	AU,V	Column 2, table 9.1. Bulk carriers and single hold cargo ships other than bulk carriers. For details see resolution MSC.188(79).
25.4	Water level main-alarm	EM	AU,V	Ditto
31.2.5, 49.3	Propulsion control station in control	I	VI	Column 1, table 9.2
51.2.2	Alarm system normal power supply failure	A	AU,V	Column 2, table 9.3
SOLAS II-2				
4.5.10.1.3	Hydrocarbon gas detection in tanker cargo pump rooms	A	AU,V	Column 2, table 9.1
7.4.1, 7.4.2	Fire detection in periodically unattended, automated or remotely controlled machinery space	A	AU,V	Column 2, table 9.2
20.3.1.3	Loss of required ventilation	A	AU,V	Column 2, table 9.1
9.6.4	Fire door position	I	VI	Ditto
10.5.6.4	Fixed local application fire-extinguishing system activation	A	AU,V; VI	Column 2, table 9.1. Indication of the activated zone
SOLAS XII				
12.2	Water level pre-alarm	A	AU,V	Column 2, table 9.1. Bulk carriers and single hold cargo ships other than bulk carriers. For details see resolution MSC.188(79).
12.2	Water level main-alarm	EM	AU,V	Ditto
Resolution A.481(XII)				
Annex 2, paragraph 7.3	Personnel alarm	A	AU,V	Column 2, table 9.1
Resolution MSC.128(75), Annex				
4.1.2.2, 5.2.2	End of BNWAS dormant period	I	VI	Visible from all operational positions on the bridge where the Officer of the Watch may reasonably be expected to be stationed.

4.1.2.3, 5.2.3	BNWAS first stage audible alarm	A	AU	Tone/modulation characteristics and volume level should be adjustable during the commissioning.
4.4.1	Malfunction of, or power supply failure to, the BNWAS	W	AU,V	
SOLAS III				
16.9	Position of stabilizer wings	I	VI	Column 2, table 9.1
SOLAS V				
19.2.5.4	Rudder angle, propeller revolutions, the force and direction of thrust and, if applicable, the force and direction of lateral thrust and the pitch and operational mode.	1	MI	Column 1, table 9.1
Gas or chemical codes				Column 2, table 9.1 for the following:
IBC 15.2.4 BCH 4.19.4	High and low temperature of cargo and high temperature of heat-exchanging medium	A	AU,V	Ammonium nitrate solution
IBC 15.5.1.6 BCH 4.20.6	High temperature in tanks	A	AU,V,MI	Hydrogen peroxide solution over 60% but not over 70%
IBC 15.5.1.7 BCH 4.20.7	Oxygen concentration in void spaces	A	AU,V,MI	Hydrogen peroxide solution over 60% but not over 70%
IBC 15.8.23.1 BCH 4.7.15(a)	Malfunctioning of temperature controls of cooling systems	A	(AU,V)	!, Propylene oxide
IGC 13.4.1 GC 13.4.1	High and low pressure in cargo tank	A	AU,V	High and low pressure alarms
IGC 13.6.4, 17.9 GC 13.6.4, 17.11	Gas detection equipment	A	AU,V	
IGC 13.5.2 GC 13.5.2	Hull or insulation temperature	A	AU, (V), MI	!
IGC 17.18.4.4 GC 17.12.2(d)(iv)	Cargo high pressure, or high temperature at discharge of compressors	A	AU,V	Methylacetylene-propadiene mixtures
IGC 17.14.4.3 GC 17.12.5(d)(iii)	Gas detecting system monitoring chlorine concentration	A	AU,V	!
IGC 17.14.4.4 GC 17.12.5(d)(iv)	High pressure in chlorine cargo tank	A	AU, (V)	!
IBC 15.5.2.5 BCH 4.20.19	High temperature in tanks	A	AU,V,MI	Hydrogen peroxide solution over 8% but not over 60%
IBC 15.5.2.6 BCH 4.20.20	Oxygen concentration in void spaces	A	AU,V,MI	Ditto
IBC 15.10.2 BCH 4.3.1(b)	Failure of mechanical ventilation of cargo tanks	A	(AU,V)	!, Sulphur (molten)
IGC 5.2.1.7, GC 5.2.5(b)	Liquid cargo in the ventilation system	A	(AU,V)	
IGC 8.4.2.1, GC 8.4.2(a)	Vacuum protection of cargo tanks	A	(AU,V)	!
IGC 9.5.2, GC 9.5.2	Inert gas pressure monitoring	A	(AU,V)	!
IGC 13.6.11 GC 13.6.11	Gas detection equipment	A	(AU,V)	!
IGC 17.14.1.4 GC 17.12.5(a)	Gas detection after bursting disk for chlorine	A	(AU,V)	!

(iv)				
SFV Protocol 1993 *Chapter IV*				
4(5), 8(1)(e)(iii)	Machinery failure advance alarm	A	AU,V	Column 1, table 9.3 Column 2, table 9.2
6(2)	Oil-fired steam boiler low water level, air supply failure or flame failure	A	AU,V	!, Column 2, table 9.3 II-1/32.2 (see table 8.1.2)*
8(1)(d)	Propulsion control station in control	I		Column 1, table 9.2 II-1/31.2.5; 49.3*
8(1)(e)(i), 8(1)(e)(ii)	Propeller speed/direction/pitch	I	MI	Column 1, table 9.2 II-1/31.2.8*
8(1)(g)	Propulsion machinery remote control failure	A	AU,V	Column 1, table 9.2 II-1/31.2.7*
8(1)(h)	Low propulsion starting air pressure	A	A, UV	!, Column 1, table 9.2 II-1/31.2.9*
13(3)	Rudder angle indicator	I	MI	Column 1, table 9.1 II-1/29.11*
13(4)	Steering gear power unit power failure	A	AU,V	Column 1, table 9.1 II-1/29.5.2*
13(5)	Steering gear running	I	VI	Column 1, table 9.1 II-1/30.1*
13(5)	Steering gear overload/no volts	A	AU,V	Column 1, table 9.1 II-1/30.3*
15(5)	Refrigerating machinery spaces alarm	A	AU,V	Column 2, table 9.1
19(1)	HP fuel oil pipe leakage	A	AU,V	!, Column 2, table 9.3
19(3)	Fuel heating high temperature alarm	A	AU,V	!, Column 2, table 9.3
19(5)	Fuel detection alarm	A	AU,V	!, Column 2, table 9.3
20(1)	Bilge high water level alarm	A	AU,V	Column 2, table 9.3 II-1/21.1.6.2*
22(2)(a)	Essential and important machinery parameters	A	AU,V	Column 2, table 9.3 II-1/51.1.1 (see table 8.1.2)*
22(2)(d)	Fault requiring action by or attention of the officer on watch	A	AU,V	Column 1, table 9.3 (machinery alarm including 22(2)(c), 23(2), 23(3)(c) and 23(3)(d)) II-1/51.1.3*
22(3)(b)	Alarm system normal power supply failure	A	AU,V	Column 1, table 9.3 II-1/51.2.2*
24	Automatic propulsion shutdown override	I	VI	Column 1, table 9.3 II-1/52*
24	Automatic shutdown of propulsion machinery	A	AU,V	Column 1, table 9.3 II-1/52*
Chapter V				
14(2)(b)	Fire detection or automatic sprinkler operation	A	AU,V	Column 2, table 9.1 II-2/12.1.2.2*
15(2)(b)	Fire detection alarm	A	AU,V	Column 2, table 9.1 II-2/40.3;13.1.6*
IGS				
3.14.11	Low water level alarm	A	AU,V	
2000 HSC Code				
7.7.1	Automatic smoke detection system in areas of major and moderate fire hazard and other enclosed spaces in accommodation not regularly occupied	I	VI	!, Column 2, table 9.2
7.7.1	Automatic smoke detection and fire detection (with detectors sensing other than smoke) in main propulsion machinery room(s) additionally supervised by TV cameras monitored from the operating compartment	I	VI	Column 2, table 9.2
+7.7.1.2	Fixed fire detection and fire alarm systems ‘ power loss or fault condition	A	AU,V	Column 2, table 9.2
+7.7.1.4	Fire detection signal	A	AU	Column 2, table 9.2 at alarm location easily accessible to crew at all time
7.7.1.6	Fire detection manually operated call point section unit indicator	A	AU,V	Column 2, table 9.3

7.7.2.1	Fire detection for periodically unattended machinery spaces	A	AU,V	Column 2, table 9.3 II-2/7.4.2*
7.8.1.2	Fire door position	I	VI	Column 2, table 9.2 II-2/9.6.4*
7.8.5.3	Loss of required ventilation	A	AU,V	Column 2, table 9.2 II-2/20.3.1.3*
7.9.3.3.3	Fire door closing	I	VI	!, Column 2, table 9.2 II-2/9.6.4*
7.13.1	Manually operated sprinkler system alarms	I	M,I	!, Column 2, table 9.2
7.15	Smoke detection system for cargo spaces	I	VI	!, Column 2, table 9.2
9.1.14	Liquid cooling system failure	A	AU,V	!
9.2.1	Automatic fire detection system	A	AU,V	Column 2, table 9.3 II-2/7.4.1.2; 7.4.2*
9.2.1	Bilge alarm	A	AU,V	Column 2, table 9.3 II-1/48.1; 48.2*
9.2.1	Remote machinery alarm system	A	AU,V	Column 2, table 9.3
9.4.2	Fuel line failure	A	AU,V	Column 2, table 9.2
9.4.5	Lubricating oil pressure or level falling below a safe level	A	AU,V	Column 2, table 9.2
9.5.6	Lubricating fluid supply failure or lubrication fluid pressure loss	A	AU,V	Column 2, table 9.2
10.3.12	Unattended space bilge alarm	A	AU,V	!, Column 2, table 9.2 II-1/48.1*
11.2.1	Failure of any remote or automatic control system	A	AU,V	Column 2, table 9.3
11.4.1	Malfunction or unsafe condition	A	AU,V	!, Column 2, table 9.2
11.4.1.1	Indication of conditions requiring immediate action	EM	AU,V	Column 2, table 9.2; distinctive alarms in full view of crew members
11.4.1.2	Indication of conditions requiring action to prevent degradation to an unsafe condition	C	V	Column 2, table 9.2; visual display to be distinct from that of alarms referred to in 10.4.1.1
12.3.9	Emergency battery discharge	I	VI	Column 2, table 9.2 II-1/42.5.3; 43.5.3*
12.5.1	Steering system electric overload	A	AU,V	!, Column 2, table 9.2 II-1/30.3*
12.5.2	Steering system electric phase failure	A	AU,V	Column 2, table 9.2 II-1/30.3*
12.6.3	Electrical distribution system low insulation level	A or I	AU or VI	!, Column 2, table 9.2 II-1/45.4.2*
13.7	Rudder angle indicator and rate-of-turn indicator	I	VI	Column 2, table 9.2 5.4.3 II-1/29.11*, V/19.2.5.4*
13.11.2	Propulsion indicator	I	VI	Column 2, table 9.2
13.11.3	Emergency steering position compass reading indicator	I	VI	Column 2, table 9.2
2009 MODU Code				
7.4.1	Propeller pitch indicator	I	VI	Column 2, table 9.1
7.4.2.5, 8.5.5	Propulsion station in control indication	I	VI	Columns 1 & 3, table 9.2 II-1/31.2.5; 49.3*
7.4.2.7, 8.5.7	Propulsion machinery remote control failure	A	AU,V	Column 1, table 9.2 II-1/31.2.7; 49.5*
7.4.2.8	Propeller speed/direction/pitch	I	MI	Column 1, table 9.2 II-1/31.2.8*
7.4.2.9, 8.5.9	Low starting air pressure	A	AU,V	Columns 1 & 3, table 9.2 II-1/31.2.9; 49.7*
7.4.2.10	Imminent slowdown or shutdown of the propulsion	A	AU,V	Column 1, table 9.2
7.5.17	Rudder angle indicator	I	MI	Column 1, table 9.1 II-1/29.11*
7.6.1	Steering gear running	I	VI	Columns 1 and !3, table 9.1 II-1/30.1*
7.6.3	Steering gear phase failure/overload alarm	A	AU,V	Column 1, table 9.3 II-1/30.3*
8.5.8	Propeller speed/direction/pitch	I	MI	Column 1, table 9.3 II-1/49.6*

8.7.1	Fault requiring attention	A	AU,V	Column 1, table 9.3, including 8.3.5.1, 8.4.1, 8.8.6 and 8.9 II-1/51.1.3*
8.7.3	Alarm system normal supply failure	A	AU,V	Column 2, table 9.3 II-1/51.2.2*
9.10.1	Fire detection system alarm	A	AU,V	Column 2, table 9.1
9.11.1, 9.12.1	Gas detection and alarm system	A	AU,V	!, Column 2, table 9.1
FSS Code				
+8.2.5.2.1, +9.2.5.1.2, 9.2.5.1.3	Fire detection or automatic sprinkler operation	A	AU,V	Column 2, table 9.1
+8.2.5.2.1, +9.2.5.1.5, +9.2.5.1.2	Fire detection system fault	A	AU,V	Ditto
10.2.4.1.4	Smoke detection system power loss	A	AU,V	Ditto
+10.2.4.1.3, +10.2.2.3	Smoke detection	A I	A,V, VI	Ditto
15.2.4.2.3.1	Inert gas supply main pressure	I	MI	Ditto; forward of non-return devices.
15.2.4.2.3.1	Inert gas pressure	I	MI	Column 2, table 9.1. In slop tanks of combination carriers

* Cross-reference to SOLAS regulation.

+ These alarms may be omitted if they are provided at the central fire control station.

** Watertight door alarms may be grouped in one common failure alarm for each door provided that individual alarms are available at the watertight door emergency control positions above the bulkhead deck.

! No location specified in other IMO instruments. Location is recommended.

Table 10.1.2 Location: machinery space/machinery control room

IMO Instrument	Function	Priority	Display	Notes
SOLAS II-1				
29.12.2	Low steering gear fluid level	A	AU,V	Column 3, table 9.1
30.1	Steering gear running	I	VI	Ditto
30.3	Steering system electric phase failure or overload	A	AU,V	Ditto
31.2.7,49.5	Propulsion machinery remote control failure	A	AU,V	Column 3, tables 9.2 and 9.3
31.2.9,49.7	Low propulsion starting air pressure	A	AU,V	Ditto
32.2	Oil-fired boiler low water level, air supply failure, or flame failure	A	AU,V	Column 3, table 9.1
32.3	Propulsion boiler high water level	A	AU,V	Ditto
31.2.5, 49.3	Propulsion control station in control	I	VI	Column 3, table 9.2
37	Engine-room telegraph	I	VI	Column 3, table 9.1
31.2.4, 49.2	Propulsion machinery orders from bridge	I	VI	Column 3, table 9.2
47.1.1, 47.1.2	Boiler and propulsion machinery internal fire	A	AU,V	Column 3, table 9.3
47.2	Internal-combustion engine monitors	I	MI	Ditto
48.1, 48.2	Bilge monitors	A	AU,V	Ditto
51.2.2	Alarm system normal power supply failure	I	AU,V	Ditto
53.4.3, 51.1.1	Essential and important machinery parameters	A	AU,V	Column 3, table 9.3 (machinery alarm)
42.5.3, 43.5.3	Emergency battery discharge	I	VI	Column 3, table 9.1
52	Automatic shutdown of propulsion machinery	A	AU,V	Column 3, table 9.3

52	Automatic propulsion shutdown override	I	VI	Ditto
53.4.2	Automatic change-over of propulsion auxiliaries	A	AU,V	Ditto
45.4.2	Electrical distribution system low insulation level	A or I	AU or I	!, Column 3, table 9.1
SOLAS II-2				
7.4.1, 7.4.2	Fire detection in periodically unattended, automated or remotely controlled machinery space	A	AU,V	Column 3, table 9.2
4.2.2.5.2	High-pressure fuel oil leakage	A	AU,V	Column 3, table 9.3
4.2.5.2	Service fuel oil tank high temperature	A	AU,V	Ditto
4.5.10.1.3	Hydrocarbon gas detection in tankers cargo pump rooms	A	AU,V	Column 3, table 9.1
10.5.6.4	Fixed local application fire-extinguishing system activation	A I	AU,V I	Column 3, table 9.1 Indication of the activated zone
Gas or chemical codes				
IGC 16.3.1.1 GC 16.2(a)	Loss of inert gas pressure between pipes	A	AU,V	!, Column 3, table 9.1
IGC 16.3.10 GC 16.10	Cargo gas/fuel system gas detection	A	AU,V	!, Ditto
IGC 16.3.1.2 GC 16.2(b)	Flammable gas in ventilation duct	A	(AU,V)	!, Ditto
IGC 16.3.4 GC 16.5	Flammable gas in ventilation casing	A	(AU,V)	!, Ditto
Resolution A.481(XII)				
Annex 2, paragraph 7.3	Personnel alarm	A	AU,V	Column 3, table 9.1
SFV Protocol 1993 *Chapter IV*				
6(2)	Oil-fired steam boiler low water level, air supply failure or flame failure	A	AU,V	! II-1/32.2*
8(1)(e)(iii)	Machinery failure advance alarm	A	AU,V	!
8(1)(d)	Propulsion control station in control	I	VI	Column 3, table 9.2 II-1/31.2.5; 49.3*
8(1)(g)	Propulsion machinery remote control failure	A	AU,V	!, Column 3, table 9.2 II-1/31.2.7*
8(1)(h)	Low propulsion starting air pressure	A	AU,V	!, Column 3, table 9.2 II-1/31.2.9*
15(4)(b)	Refrigerant leak alarm	A	AU,V	
17(6)	Emergency battery discharge	I	VI	!, Column 3, table 9.1 II-1/42.5.3*
18(4)(b)	Electrical distribution system low insulation level	A	AU or VI	!, Column 3, table 9.1 II-1/45.4.2*
19(7)	Internal-combustion engine monitors	I	MI	Column 3, table 9.3 II-1.47.2*
22(2)(a)	Essential and important machinery parameters	A	AU,V	Column 3, table 9.3 II-1/51.1.1*
22(3)(b)	Alarm system normal power supply failure	A	AU,V	Column 3, table 9.3 II-1/51.1.1*
23(2)	Automatic change-over of propulsion auxiliaries	A	AU,V	Column 3, table 9.3 II-1/53.4.2*
24	Automatic shutdown of propulsion machinery	A	AU,V	Column 3, table 9.3 II-1/52*
24	Automatic propulsion shutdown override	I	VI	Column 3, table 9.3 II-1/52*

IGS				
3.14.11	Low water level alarm	A	AU,V	Column 3, table 9.1
MARPOL 73/78 Annex I				
16(5)	Alarm for excessive oil content in oily mixture discharge into the sea	A	(AU,V)	!
2000 HSC Code				
7.7.2.1.4	Fire detection signal	A	AU,V	Column 3, table 9.2
7.7.3.1	Fire detection for periodically unattended machinery spaces	A	AU,V	Column 3, table 9.3 II-2/7.4.2*
9.2.1	Automatic fire detection system	A	AU,V	Column 3, table 9.3 II-2/7.4.1.2; 7.4.2*
9.2.1	Bilge alarm	A	AU,V	Column 3, table 9.3 II-1/48.1; 48.2*
9.2.1	Remote machinery alarm system	A	AU,V	Column 3, table 9.3
9.4.2	Fuel line failure	A	AU,V	Column 3, table 9.2
9.4.5	Lubricating oil pressure or level falling below a safe level	A	AU,V	Column 3, table 9.2
9.5.6	Lubricating fluid supply failure or lubrication fluid pressure loss	A	AU,V	Column 3, table 9.2
10.2.7.3	High temperature alarm (oil fuel or settling tank)	A	V	!
10.3.12	Unattended space bilge alarm	A	V	!, Column 3, table 9.2, II-1/48.1*
11.2.1	Failure of any remote or automatic control system	A	AU,V	Column 3, table 9.3
11.4.1	Malfunction or unsafe condition	A	AU,V	Column 3, table 9.2
11.4.1.3	Indication of conditions in 11.4.1.1 requiring immediate action	A	AU,V	
11.4.1.3	Indication of conditions in 11.4.1.2 requiring action to prevent degradation to an unsafe condition	A	AU,V	Column 3, table 9.2; visual display to be distinct from that of alarms referred to in 10.4.1.1
11.5	Shutdown system activation	A	AU,V	!, Column 3, table 9.2
12.5.1	Steering system electric overload	A	AU,V	!, Column 3, table 9.2 II-1/30.3*
12.5.2	Steering system electric phase failure	A	AU,V	Column 3, table 9.2, II-1/30.3*
12.6.3	Electrical distribution system low insulation level	A or I	AU or VI	!, Column 3, table 9.2 II-1/45.4.2*
2009 MODU Code				
4.3.7	Machinery failure pre-alarm	A	AU,V	!, Column 3, table 9.1
4.6.2	Manual overriding of the automatic control indicator	I	VI	Column 3, table 9.1
5.4.12	Emergency battery discharge	I	VI	Column 3, table 9.1 II-1/42.5.3*
5.6.7	Electrical distribution system low insulation level	A or I	AU or VI	!, Column 3, table 9.1 II-1/45.4.2*
7.3.1	Water tube boiler high water level alarm	A	AU,V	Column 3, table 9.1
7.4.2.4, 8.5.4	Propulsion machinery orders from bridge	I	VI	Column 3, table 9.2 II-1/31.2.4; 49.2*
7.4.2.5, 8.5.5	Propulsion station in control indication	I	VI	Columns 1 and 3, table 9.2 II-1/31.2.5; 49.3*
7.4.2.9	Low starting air pressure	A	AU,V	Columns 1 and 3, table 9.2 II-1/31.2.9*
7.4.2.10	Imminent slowdown or shutdown of the propulsion system	A	AU,V	Column 1, table 9.2
7.6.1	Steering gear running	I	VI	Columns 1 & !3, table 9.1 II-1/30.1*
8.3.1 4.8.7	HP fuel oil pipe leakage	A	AU,V	!, Column 3, table 9.3 II-2/4.2.2.5.2*

8.3.3	Fuel heating temperature alarm	A	AU,V	!, Column 3, table 9.3 II-2/4.2.5.2*
8.3.6	Fire detection alarm for boiler/propulsion machinery	A	AU,V	!, Column 3, table 9.3 II-1/47.1*
8.3.7	Internal-combustion engine monitors	I	MI	Column 3, table 9.3 II-1/47.2*
8.5.7	Propulsion machinery remote control failure	A	AU,V	Column 3, table 9.3 II-1/49.5*
8.7.1	Fault requiring attention	A	AU,V	At a normally manned control station in addition to main machinery control station including 8.3.5.1, 8.4.1, 8.8.6 and 8.9 II-1/51.1*
8.8.2	Automatic change-over of propulsion auxiliaries	A	AU,V	Column 3, table 9.3 II-1/53.4.2*
FSS Code				
15.2.4.3.3	Inert gas system:			Column 3, table 9.1
15.2.4.3.1.1	- low water pressure/flow	A	AU,V	
15.2.4.3.1.2	- high water level	A	AU,V	
15.2.4.3.1.3	- high gas temperature	A	AU,V	
15.2.4.3.1.4	- blower failure	A	AU,V	
15.2.4.3.1.5	- oxygen content	A	AU,V	
15.2.4.3.1.6	- power supply failure	A	AU,V	
15.2.4.3.1.7, 15.2.2.4.6	- water seal low level	A	AU,V	
15.2.4.3.1.8, 15.2.4.3.4	- low gas pressure	A	AU,V	
15.2.4.3.1.9	- high gas pressure	A	AU,V	
15.2.4.3.2	gas generator failure:			
15.2.4.3.2.1	- low fuel supply	A	AU,V	
15.2.4.3.2.2	- power supply failure	A	AU,V	
15.2.4.3.2.3	- control power failure	A	AU,V	
15.2.4.2.3.2	Inert gas O2 content	I	MI	Ditto

* Cross-reference to SOLAS regulation.

! No location specified in other IMO instruments. Location is recommended.

Table 10.1.3 Location: central fire control station where provided

IMO Instrument	Function	Priority	Display	Notes
SOLAS II-2				
+7.4.1, 7.4.2	Fire detection in periodically unattended, automated or remotely controlled machinery space	A	AU,V	
SFV Protocol 1993 *Chapter V*				
14(3)(c)	Automatic sprinkler system pressure	I	MI	
2000 HSC Code				
+7.7.2.1.2	Fixed fire detection and alarm systems ‘ power loss or fault condition	A	AU,V	
+7.7.2.1.4	Fire detection signal	A	AU,V	
2009 MODU Code				
9.10.1	Fire detection system	A I	AU,V VI	
9.11.1, 9.12.1	Gas detection and alarm systems	A	A,V	!
FSS Code				
8.2.4.2.5	Automatic sprinkler system pressure	I	MI	

+8.2.5.2.1, +9.2.5.1.2, +9.2.5.1.3	Fire detection or automatic sprinkler operation	A	AU,V	
+8.2.5.2.1, +9.2.5.1.5, +9.2.5.1.2	Fire detection system fault	A	AU,V	
+10.2.4.1.4	Smoke detection system power loss	A	AU,V	
+10.2.4.1.3, +10.2.2.3	Smoke detection	A I	AU,V VI	

* Cross-reference to SOLAS regulation.

\+ These alarms may be omitted if the central fire control station is on the navigation bridge.

Table 10.1.4 Location: at the equipment or at the location being monitored

IMO Instrument	Function	Priority	Display	Notes
SOLAS II-1				
29.11	Rudder angle indicator	I	MI	At the steering gear compartment
15.8.2.1. 15.8.3	Shell valve closure	I	I	
32.6	Water level of essential boiler	I	MI	
13.7.1.6	Watertight door closing	EM	AU	Distinct from other alarms in area; in passenger areas and high-noise areas, add intermittent visual alarm
13.7.3.2	Watertight door loss of stored energy	A	AU,V	At each local operating position
33.3	Steam pressure	I	MI	
SOLAS II-2				
10.9.1.1.1 IBC 11.2.1	Release of fire-extinguishing medium	EM	AU	Cargo pump-room
4.2.2.3.5	Fuel oil tank level	I	MI	If provided
4.2.2.3.5.1.1 4.2.2.3.5.2	Fuel oil tank level	I	MI	
Gas or Chemical codes				
IGC 9.5.1 GC 9.5.1	Content of oxygen in inert gas/trace of oxygen in nitrogen	A	(AU,V) MI	
IGC 3.6.3 GC 3.6.3	Warning on both sides of the airlock	A	AU,V	
IGC 8.2.8.2 GC 8.2.8(b)	Indicates which one of the pressure-relief valves is out of service	I	VI	
IGC 11.5.2 GC 11.5.2	Inerting/extinguishing medium release	EM	AU	Gas-dangerous enclosed spaces
GC 13.4	Cargo pressure	I	MI	Local gauges required by 13.4.1, 13.4.2, 13.4.3 and 13.4.4
IGC 13.6, 17.9 GC 13.6, 17.11	Gas detection equipment	A	AU,V	
SFV Protocol 1993 *Chapter II*				
13(1)	Shell valve closure	A	AU,V	II-1/17.9.2.1*
13(2)	Shell valve closure	A	AU,V	II-1/17.9.3*
Chapter IV				
11(7)	Collision bulkhead valve closure	I	VI	II-1/21.2.12*
13(3)	Rudder angle indicator	I	MI	
15(4)(a)	Refrigerant leak indicator	I	VI	
15(5)	Refrigerating machinery spaces alarm	A	AU,V	At escape exits
Chapter V				

14(3)(c)	Automatic sprinkler system pressure	I	MI	At each section stop valve
14(5)(a)	Automatic sprinkler tank level	I	MI	
15(2)(b)	Fire detection alarm	A	AU	To ensure fire alarm sounding on the deck where the fire is detected
IGS				
3.15.3.2.1	Effluent drain valve position indicator	I	VI	!
6.2	Tank pressure sensors	I	MI	!
VEC systems				
2.3.1	Isolation valve position indicator	I	VI	
2.4.1.3	Liquid level indicator	I	MI	At the location where cargo transfer is controlled
2.4.1.4	Liquid level indicator	I	MI	Portable gauging device on the tank
3.2.1.3	Cargo vapour shutoff valve position indicator	I	VI	Near terminal vapour connection
3.3.3	Terminal vapour pressure sensing device	I	MI	!, (3)
3.3.3.2	Terminal vapour pressure alarm	A	AU,V	!, (3)
3.3.3.3	Signal for sequential shutdown of onshore pumps and remotely operated cargo vapour shutoff valve	A	(AU,V)	!, (3)
IMDG Code (Vol 1)				
7.7.3.4	Cargo control temperature less than +25° C	A	AU,V	!, Alarms independent of power supply of the refrigeration system
2000 HSC Code				
7.7.3.2.7	Release of fire-extinguishing medium	EM	AU,V	Spaces in which personnel normally work or to which they have access
7.9.3.3.2	Fire door closing	EM	AU	Sounding alarm before the door begins to move and until completely closed
7.13.1	Manually operated sprinkler system alarms	I	M,I	!, Column 2, table 9.2
10.9.5	Bilge cocks and valve position indication	I	VI	To indicate open or closed position
1995 Driving Code				
2.5.3	Diving bell internal pressure	I	MI	!, At the location of the attendant monitoring diving operations
2.5.5	Diving bell, etc., overpressure alarm	A	AU,V	!, At the location of the attendant monitoring diving operations
2.9.3	Diving equipment fire detection alarm	A	AU,V	!, At the location of the attendant monitoring diving operations
2009 MODU Code				
3.6.5.2	Watertight doors and hatch cover positions alarm	A	AU,V	
4.4.5	Water level of essential boiler	I	MI	II-1/32.6*
4.5.3	Steam pressure	I	MI	II-1/33.3*
4.9.6	Bilge valve indicator	I	VI	II-1/21.2.12*
4.10.8	Ballast valve position indicator	I	VI	
4.12.11	Cable tension, windlass power load and amount of cable paid out	I	VI	
FSS Code				
5.2.1.3.2	Release of fire-extinguishing medium	EM	AU	
6.2.4.2.5	Automatic sprinkler system pressure	I	MI	At each section stop valve
8.2.3.2.1	Automatic sprinkler system tank level	I	MI	

15.2.3.1.1	Flue gas isolating valve open/closed	I	VI	
15.2.4.1	Inert gas discharge temperature/pressure	I	MI	Measured at discharge of gas blower

* Cross-reference to SOLAS regulation.

! No location specified in other IMO instruments. Location is recommended.

Table 10.1.5 Location: engineers' accommodation

IMO Instrument	Function	Priority	Display	Notes
SOLAS II-1				
38	Engineers ' alarm	A	AU	Column 4, table 9.1
51.1.2, 51.1.5	Fault requiring attention of the engineer on duty	A	AU,V	Ditto (machinery alarm)
SOLAS II-2				
7.4.1, 7.4.2	Fire detection in periodically unattended, automated or remotely controlled machinery space	A	AU,V	Ditto
Resolution A.481 (XII)				
Annex 2, paragraph 7.3	Personnel alarm	A	AU,V	Column 4, table 9.3 (when the navigation bridge is unmanned)
SFV Protocol 1993 *Chapter IV*				
14	Engineers ' alarm	A	AU	Column 4, table 9.3 II-1/38*
22(2)(b) 22(2)(c)	Fault requiring attention of engineer on duty	A	AU,V	Column 4, table 9.3 II-1/51.1.2; 51.1.5*
2000 HSC Code				
7.7.2.1	Fire detection for periodically unattended machinery spaces	A	AU,V	Column 4, table 9.3 II-2/7.4.1.1; 7.4.2*
2009 MODU Code				
7.8	Engineers ' alarm	A	AU	Column 4, table 9.3 II-1/38*
8.7.1	Fault requiring attention	A	AU	Activate engineers ' alarm required by 7.8 including 8.3.5.1, 8.4.1, 8.8.6 and 8.9 II-1/51.1.5*

* Cross-reference to SOLAS regulation.

Table 10.1.6 Location: miscellaneous

IMO Instrument	Function	Priority	Display	Notes
SOLAS II-1				
13.6.13 - 1.2.13 - 1.3	Watertight door position	I	VI	At operating stations from which the door is not visible. At all remote operating positions
35.1.3.12	Bilge cocks and valves position	I	VI	At their place of operation
SOLAS II-2				
7.4.1, 7.4.2	Fire detection in periodically unattended, automated or remotely-controlled machinery space	A	AU,V	Alarm at attended location when navigation bridge is unmanned
7.9.1	Fire detection alarm	A	AU,V	Alarm at location to ensure that any initial fire detection alarm is immediately received by a responsible member of crew
7.9.4	Fire (special alarm to summon crew)	EM	AU	May be part of general emergency alarm
4.5.10.1.3	Hydrocarbon gas detection in	A	AU,V	At the pump-room

	tankers cargo pump-rooms			
+4.5.10.1.1	Temperature sensing devices for pumps installed in tankers cargo pump-rooms	A	AU,V	At the pump control station
10.5.6.4	Fixed local application fire-extinguishing system activation	A	AU,V	In each protected space. Protected space is a machinery space where a FWBLAFFS is installed.
7.5.2, 7.5.3.1	Fire alarm	EM	AU	Audible alarm within the space where detectors are located.
SOLAS III				
6.4.2	General emergency alarm	EM	AU	Throughout all the accommodation and normal crew working spaces
SFV Protocol 1993 *Chapter II*				
2(6)	Watertight door position	I	VI	At remote operating position II-1/15.6.4*
4(1)	Freezer room weathertight door position	A	AU,V	!, At the attended location
Chapter IV				
15(5)	Refrigerating machinery spaces alarm	A	AU,V	At an attended location (control station)
19(5)	Fire detection alarm	A	AU,V	At appropriate spaces when the ship is in harbour
20(1)	Bilge high-water level alarm	A	AU,V	At places where continuous watch is maintained when navigation bridge is not manned II-1/21.1.6.2*
Chapter V				
14(2(b)	Fire detection or automatic sprinkler operation	A	AU,V	Alarm at location easily accessible to crew at all times
15(2)(b)	Fire detection alarm	A	AU,V	Alarm at location easily accessible to crew at all times II-2/7.9.1*
Resolution MSC.128(75), Annex				
4.1.2.4, 5.2.4	BNWAS second stage audible alarm	A	AU	Locations of the master, officers and further crew members capable of taking corrective action
4.1.2.5, 5.2.4	BNWAS third stage audible alarm	A	AU	Locations of the master, officers and further crew members capable of taking corrective action. If provided (ref. 4.1.2.6)
SFV Protocol 1993 *Chapter VIII*				
2(1)	General emergency alarm	EM	AU	Throughout all the accommodation and normal crew working spaces III/6.4.2*
Nuclear Merchant Ship Code				
3.9.3	Spaces containing NSSS safety equipment fire detection alarm	A	AU,V	!, Alarm at main control position and emergency control position
6.4.3	Controlled areas indication of radiation levels and airborne contamination	I	VI	At main control position
6.10.2	Containment structure purge system radioactivity alarm	A	AU,V	At main control position
6.10.4	Controlled and supervised areas exhaust for radioactivity alarm	A	AU,V	At main control position

2000 HSC Code				
4.2.1	General emergency alarm	EM	AU	Clearly audible throughout all the accommodation and normal spaces and open decks 8.2.2.2 III/6.4.2*
7.7.1.1.4	Fire detection signal	A	AU	Clearly audible throughout the crew accommodation and service spaces
7.7.1.1.6	Fire detection manually operated call point section unit indicator	A	AU,V	Alarm at location easily accessible to crew at all times
2009 MODU Code				
3.6.2	Watertight boundary valve position indicator	I	VI	At the remote control station
4.4.2	Oil-fired boiler low water level, air supply failure or flame failure	A	AU,V	Alarm at an attended location II-1/32.2*
4.9.1	Presence of water indicator	I	VI	
4.12.12	Cable tension and speed and direction of wind	I	VI	At a manned station
4.14.3.1	Jacking system overload alarm, out of level alarm, rack phase differential alarm (when provided)	A	AU,V	At the jacking system control station
4.14.3.2.1	Inclination of the unit on two horizontal perpendicular axes	I	MI	At the jacking system control station
4.14.3.2.2	Power consumption or other indicators or lifting or lowering the legs, as applicable	I	MI	At the jacking system control station
4.14.3.2.3	Brake release status	I	VI	At the jacking system control station
6.3.1.1.3	Loss of ventilation	A	AU,V	At a manned station
6.3.1.2.3	Loss of ventilation	A	AU,V	At a manned station
6.3.1.3.3	Loss of ventilation overpressure	A	AU,V	At a manned station
8.7.1	Fault requiring attention	A	AU,V	Including 8.3.5.1, 8.4.1, 8.8.6 and 8.9 II-1/51.1*
9.10.1	Fire detection system alarm	A	AU,V	At alarm location easily accessible to crew at all times
9.11.1, 9.12.1	Gas detection and alarm system	A	AU,V	!, Alarm at a location easily accessible to crew at all times
5.7.2	General emergency alarm	EM	AU	Clearly perceptible in all parts of the unit III/6.4.2*
13.5.1	Wind direction indicator	I	MI	It should be free from the effects of airflow disturbances caused by nearby objects or rotor downwash and be visible from a helicopter in flight or in a hover over the helideck
13.5.26	Status light	A	V	To be visible to the helicopter pilot from any direction of approach
13.6	Motion sensing system	I	MI	Display should be located at the aeromobile VHF radiotelephone station
1995 Driving Code				
2.5.2	Compression chamber internal pressure	I	MI	At central control position
2.5.3	Diving bell external pressure	I	MI	Within the bell
2.9.3	Diving equipment fire detection alarm	A	AU,V	!, At an attended location other than the above

2.11.2	Compression chamber/diving bell parameters	I	MI	At central control position
2.11.3	Diving bell oxygen and CO_2 levels	I	MI	Within the bell
FSS Code				
8.2.5.2.1	Fire detection or automatic sprinkler operation	A	AU,V	Alarm at attended location other than navigation bridge and central fire control station
9.2.5.1.3	Fire detection alarm	A	AU,V	Alarm at location easily accessible to crew at all times
9.2.5.1.1	Fire detection alarm not receiving attention	EM	AU	Alarmed to crew; may be part of general emergency alarm
LSA Code				
7.2.1	General emergency alarm	EM	AU	Throughout the accommodation and normal crew working spaces

* Cross-reference to SOLAS regulation.

+ These alarms may be omitted if they are provided at the cargo control station.

Table 10.1.7 Location: cargo control station

IMO Instrument	Function	Priority	Display	Notes
SOLAS II-2				
+11.6.3.1	Cargo tank high level alarm and gauging	A	AU,V MI	!, If required
+4.5.10.1.1	Temperature sensing devices for pumps installed in tankers cargo pump rooms	A	AU,V	
4.5.10.1.3	Hydrocarbon gas detection in tankers cargo pump rooms	A	AU,V	
Gas or Chemical codes				
IBC 8.2.3 BCH 2.13.1	High level of the liquid in any tank	A	AU,V	!, (2)
IBC 15.10.2 BCH 4.3.1(b)	Failure of mechanical ventilation system for maintaining low gas concentration in cargo tanks	A	AU,V	!, Sulphur liquid
IBC 15.19.2 BCH 4.14.3	Power failure on any system essential for safe loading	A	AU,V	!, (2)
IBC 15.19.6 BCH 4.14.1	High level alarm, cargo tank	A	AU,V	!, (2)
IGC 13.2.1 GC 13.2.1	Cargo level	I	MI	(2)
IGC 13.4.1 GC 13.4.1	High and low pressure in cargo tank	A	MI AU,(V)	(2)
IGC 13.6.4, 17.9 GC 13.6.4, 17.11	Gas detection equipment	A	AU, (V)	
IGC 17.18.4.4 GC 17.12.2(d)(iv)	Cargo high pressure, or high temperature at discharge of compressors	A	AU, V	(2), Methylacetylenepropadiene mixtures
GC 10.2.2	Shutdown of submerged cargo pumps	A	(AU,V)	
IGC 17.14.4.3 GC 17.12.5(d)(iii)	Gas detecting system monitoring chlorine concentration	A	AU,V	!, (3)
IGC 17.14.4.4 GC 17.12.5(d)(iv)	High pressure in cargo tanks(chlorine)	A	AU,(V)	!, (2)
IGC 13.3.1	High liquid level in cargo tank	A	AU, V	!, (2)

GC 13.3.1				
IGC 13.5.1 GC 13.5.1	Cargo temperature	I	MI	!, (2)
IGC 13.5.2 GC 13.5.2	Hull or insulation temperature	I A	MI AU,(V)	!
IGC 13.5.3 GC 13.5.3	Cargo tank temperature	I	MI	!, (2)
IGC 13.6.11 GC 13.6.11	Gas detection equipment	A	AU,V MI	!, (3)
IGC 17.14.1.4 GC 17.12.5(a)(iv)	Gas detection after bursting disk for chlorine	A	(A,V) MI	!, (2)
IBC 15.7.10 BCH 4.5.10	High level of phosphorus	A	(AU,V)	!, (2)
IBC 15.19.7.2 BCH 4.14.2(b)	Overflow alarm	A	AU,V	!
IGC 5.2.1.7 GC 5.2.5(b)	Liquid cargo in the vent system	A	(AU,V)	!, (2)
IGC 8.4.2.1 GC 8.4.2(a)	Vacuum protection of cargo tanks	A	(AU,V)	!, (2)
IGC 9.5.2, GC 9.5.2	Inert gas pressure monitoring	A	(AU,V)	!
IGS				
3.15.3.2.1	Effluent drain valve position indicator	I	VI	!
6.2	Tank pressure sensors	I	MI	!, If required
VEC Systems				
2.5.2.3	Tank overflow alarm	A	AU,V	!, (2)
2.5.2.4	Signal for sequential shutdown of onshore pumps or valves or both and of the ships ‘ valves	A	(AU,V)	!, (2)
2.5.2.5	Overflow alarm and shutdown signal	A	(AU,V)	At an attended location !, (2)
2.5.2.6	Loss of power to the alarm system	A	(AU,V)	!, (2)
2.5.2.6	Tank level sensor electrical circuitry failure	A	(AU,V)	!, (2)
2.6.4	Main vapour collection line pressure	I	MI	!, (2) VEC is equipped, common to two or more tanks
2.6.4.1	High vapour pressure alarm	A	(AU,V)	!, (2) VEC is equipped, common to two or more tanks
2.6.4.2	Low vapour pressure alarm	A	(AU,V)	!, (2) VEC is equipped, common to two or more tanks
FSS Code				
15.2.4.2.1.1, 15.2.4.2.2	Inert gas pressure	I	MI	
15.2.4.2.1,2, 15.2.4.2.2	Inert gas O2 content	I	MI	
15.2.4.3.3	Inert gas system:	A	AU,V	
15.2.4.3.1.1	- low water pressure/flow	A	AU,V	
15.2.4.3.1.2	- high water level	A	AU,V	
15.2.4.3.1.3	- high gas temperature	A	AU,V	
15.2.4.3.1.4	- blower failure	A	AU,V	
15.2.4.3.1.5	- oxygen content	A	AU,V	
15.2.4.3.1.6	- power supply failure	A	AU,V	
15.2.4.3.1.7, 15.2.2.4.6	- water seal low level	A	AU,V	
15.2.4.3.1.8,	- low gas pressure	A	AU,V	

15.2.4.3.4				
15.2.4.3.1.9	- high gas pressure	A	AU,V	
15.2.4.3.2	gas generator failure	A	AU,V	
15.2.4.3.2.1	- low fuel supply	A	AU,V	
15.2.4.3.2.2	- power supply failure	A	AU,V	
15.2.4.3.2.3	- control power failure	A	AU,V	

* Cross-reference to SOLAS regulation.

! No location specified in other IMO instruments. Location is recommended. (2) and (3) See notes following paragraph 10.2.

+ These alarms may be omitted if they are provided at the pump control.

Table 10.1.8 Location: not indicated by IMO instruments

IMO Instrument	Function	Priority	Display	Notes
SOLAS II-1				
8.7.3	Draught indicator	I	MI	Passenger ships only (if required). For details see regulation 8.7.3 Recommended Location: w/h
SOLAS II-2				
4.5.10.1.4	Pump-room bilge high level alarm	A	AU,V	Recommended Location: w/h or ecr
4.5.4.2	Flammable vapour monitoring	I	MI	
Gas or chemical codes				
IBC 7.1.5 BCH 2.15.5(a)	Alarm & Monitoring of cargo temperature	A	A,V,MI	Alert system only required if overheating or overcooling could result in a dangerous condition Recommended Location: w/h or cargo control station
IBC 13.1.1 BCH 3.9	Cargo tank levels	I	MI	Recommended Location: cargo control station
IBC 15.7.7 BCH 4.5.7	High temperature of phosphorus	A	AU,V	Recommended Location: w/h or cargo control station
2009 MODU Code				
4.10.15	Draught indicator	I	MI	At an attended location II-1/8.7.3*

* Cross-reference to SOLAS regulation.

Table 10.1.9 Location: central ballast control station of column-stabilized MODUs

IMO Instrument	Function	Priority	Display	Notes
2009 MODU Code				
3.6.5.1	Watertight doors and hatch cover position indicator	I,A	VI,V	
3.6.5.2	Watertight doors and hatch cover position alarm	A	AU,V	
4.9.8.1	Flooding detector	I	VI	
4.9.8.3	Propulsion room and pump-room bilge high water level alarm	A	AU,V	
4.10.10.2	Ballast pump status-indicating system	I	VI	For details see also 4.9.12
4.10.10.4	Ballast valve position-indicating system	I	VI	For details see also 4.9.17
4.10.10.5	Tank level indicating system	I	VI	For details see also 4.9.14

4.10.10.6	Draught indicating system	I	VI	For details see also 4.9.15
4.10.10.7	Heel and trim indicators	I	VI	
4.10.10.8	Main and emergency power available indication	I	VI	
4.10.10.9	Ballast system hydraulic/pneumatic pressure indicating system	I	VI	
4.10.14.1	Ballast tanks liquid level	I	MI	
4.10.14.2	Other tanks liquid level	I	MI	
4.10.17	Ballast valve position	I	VI	!