INELTEH

INEL-MAR

JEZERKO CRNIĆ, Managing director

INELTEH

- Founded 1990. as a private company
- **Inel-mar founded 2008. as sister company**
- Located in Rijeka, Croatia
- 27 employees (9 engineers)
- Development, design and production of marine electronic equipment and systems
- Products certified by **BV, DNV-GL, LR, RMRS, RINA, CRS, ABS, RRR, NK, CCS**
- Management system as per **ISO 9001:2015**
- Production certified in accordance with BV, RMRS and MED

References

Emerson Process Management, Kongsberg Maritime (Norway), **Glamox** (Norway), **VARD Electro AS** (Norway), **Jotron** (Norway), **Siemens** (Norway, USA), **Transas** (Russia), **Zenitel** (Norway), **ABB** (Finland), **Navicom** (India), **Hareid** (Norway), **Fincantieri** (Italy), shipyards and shipowners all around world ...

INELTEH

SIGNALIZATION

- LIGHT COLUMNS
- EX-SEMAPHORES
- FLASHING LIGHTS
- EX-PROOF FLASHING LIGHTS
- SIGNALLING UNITS
- PROGRAMABLE ELECTRONIC SIRENS
- GENERAL PURPOSE ELECTRONIC SIRENS
- BELLS
- AIR SIRENS

NAVIGATION

- NAVIGATION AND SIGNAL LIGHTS CONTROLLER
- NAVIGATION AND SIGNAL LIGHTS PANELS
- LIGHT DIMMERS
- SIGNAL CONTROLLER
- BRIDGE NAVIGATIONAL WATCH ALARM SYSTEM (BNWAS)
- CALLING SYSTEMS
- TALK-BACK SYSTEM
- PUBLIC ADDRESS SYSTEM

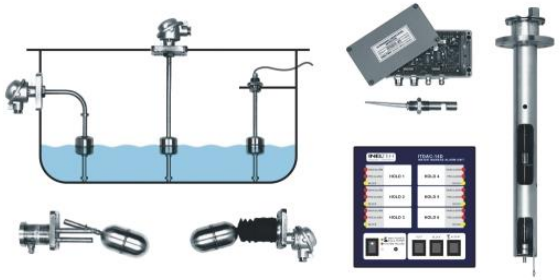
* MEETS **MSC** 128.(75) AND **IEC** 62616

AUTOMATION

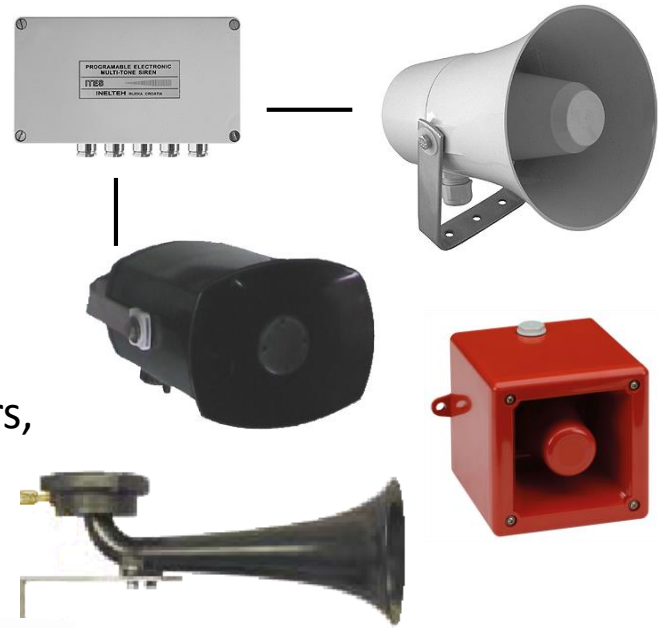
- ALARM AND CONTROL UNITS
- FIRE DETECTION
- EMERGENCY ENGINE TELEGRAPH

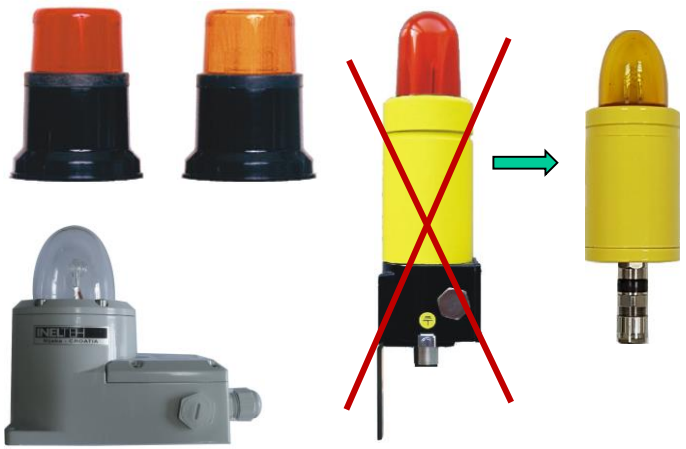
LEVEL DETECTING AND MEASUREMENT

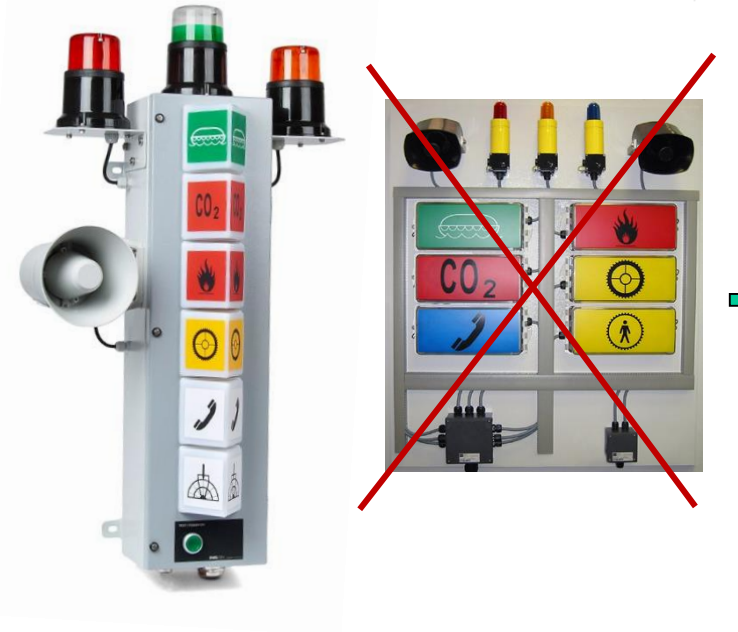
- MAGNETIC LEVEL SWITCHES
- LEVEL MEASUREMENT
- HIGH LEVEL AND OVERFILL ALARM SYSTEM
- WATER INGRESS DETECTION SYSTEM
- ULTRASONIC LIQUID LEVEL DETECTORS



- Light columns
- **Ex-proof light columns (NEW!)**
- Signalling units
- Flashing lights
- **Ex-proof flashing lights (NEW!)**
- Programmable electronic sirens (up to 7 inputs, tones according to IMO Code on Alerts and Indicators, available also in Ex-proof version)
- General purpose sirens, bells
- MED approved sirens for fire alarm
- Air horns
- Ship's siren for vessels up to 75m





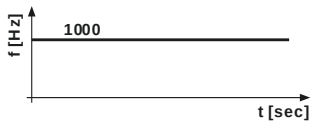
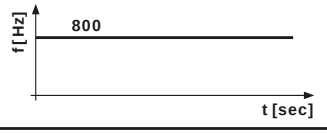
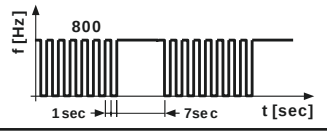
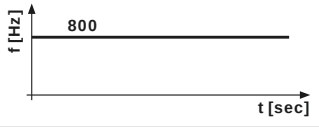
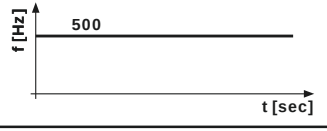
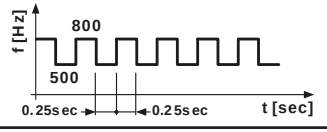
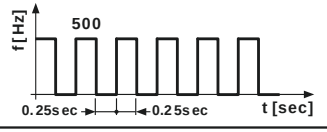


Signal light columns

- OEM production of light columns for more than 25 years
- More than 8000 light columns installed on vessels and rigs all around the World
- 3rd generation of light columns
- Design according to IMO Code on Alerts and Indicators
- High quality LED lights as standard
- All type approval tests
- Flexibile configuration
- Loop or star connection
- Simple installation (no need for service engineer)
- Short delivery time
- Can be serviced by ship's crew
- Reliable and maintenance free
- Spare parts available within few days
- STRP, MED solution
- Available in Ex-proof version – **as new on market 2019**

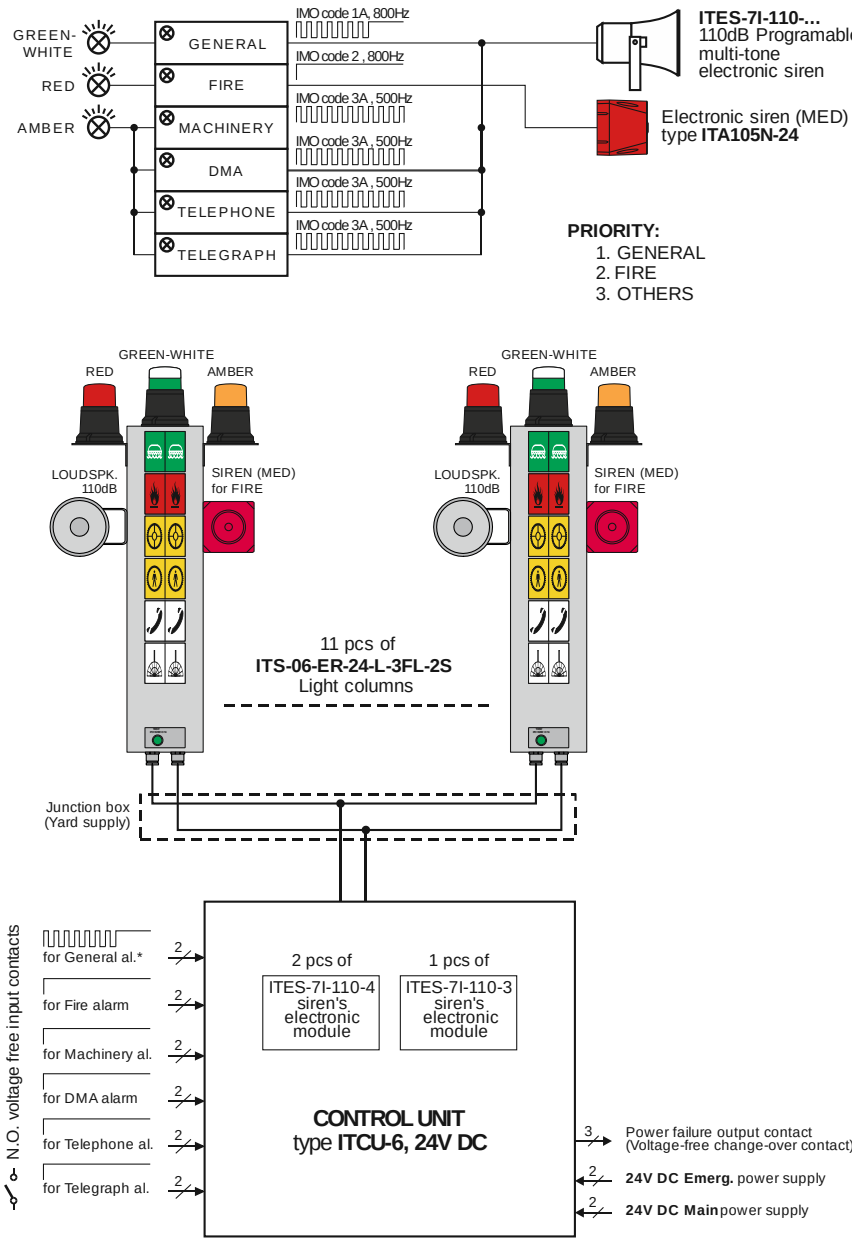
Electronic sirens type ITES-7I

- Specially designed for using as a part of ER signalling system
- 7 different alarm tones with priorities
- Tone characteristics according SOLAS and IMO Code on Alerts and Indicators
- Sound pressure level 105dB, 110dB, 115dB or 120dB
- Each siren consists of siren's electronic unit and one or more loudspeakers
- Available also as Ex-proof version (Ex-proof loudspeakers)

PRIORITY	IMO CODE	TONE CHARACTERISTICS	ALARM
1st	IMO Code 2		**CO2** Fire-extinguishing pre-discharge alarm
2nd	IMO Code 2		**GENERAL** General emergency alarm (if input signal is intermittent 7 short + 1 long contact)
3rd	IMO Code 1a		**GENERAL** General emergency alarm (if input signal is continious contact)
4th	IMO Code 2		**FIRE FIRE IN ER** Fire a larm and/or fire detection alarm
5th	IMO Code 2		**WATER MIST** Activation o f fixed local application Fire-extinguishing system
6th	IMO Code 3c		**MACHINERY, STEERING GEAR BILGE, DMA, GAS DETECTION**
7th	IMO Code 3a		**MACHINERY, STEERING GEAR BILGE, DMA, GAS DETECTION, TELEPHONE, TELEGRAPH**

ER Signalling system

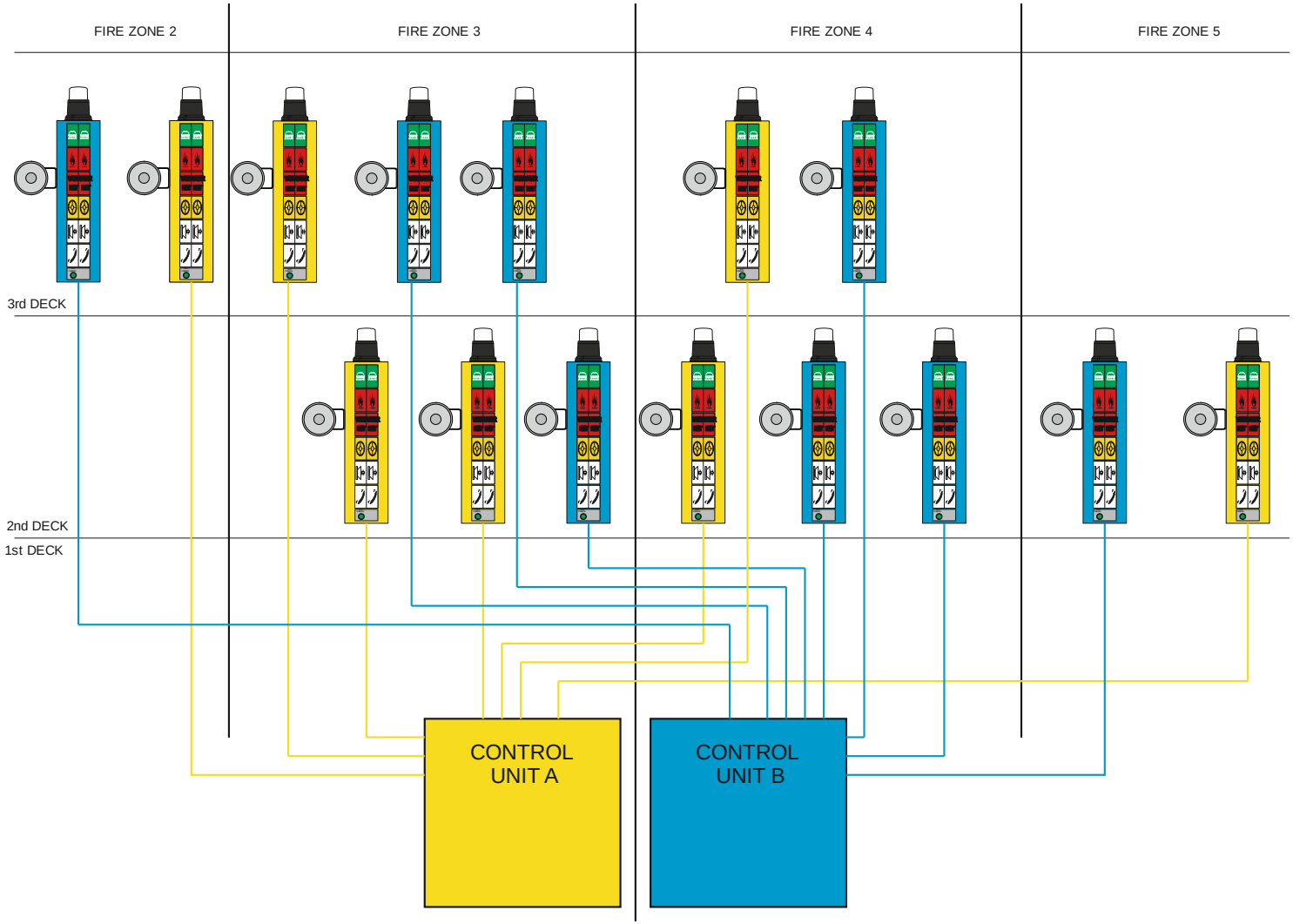
- Up to 12 symbols (more on request)
- Symbols, colours, tones in accordance with IMO Code on Alerts and Indicators
- With or without flashing lights
- With or without sirens
- MED approved siren for fire alarm, as option
- DMA reset button available
- Local inputs available
- Logic integrated in control unit



SRTP – Star connection

- Control unit – 2 pcs, installed in different fire zones – system A and system B
- In each space / fire zone - min. one light column from system A and one light column from system B
- Light columns are designed in such a way that, in the case of fire, only damaged light column will be out of order, other parts of the system will remain operable
- In the case of fire, which causes damage of the control unit, other control unit and the light columns connected to it remain operable

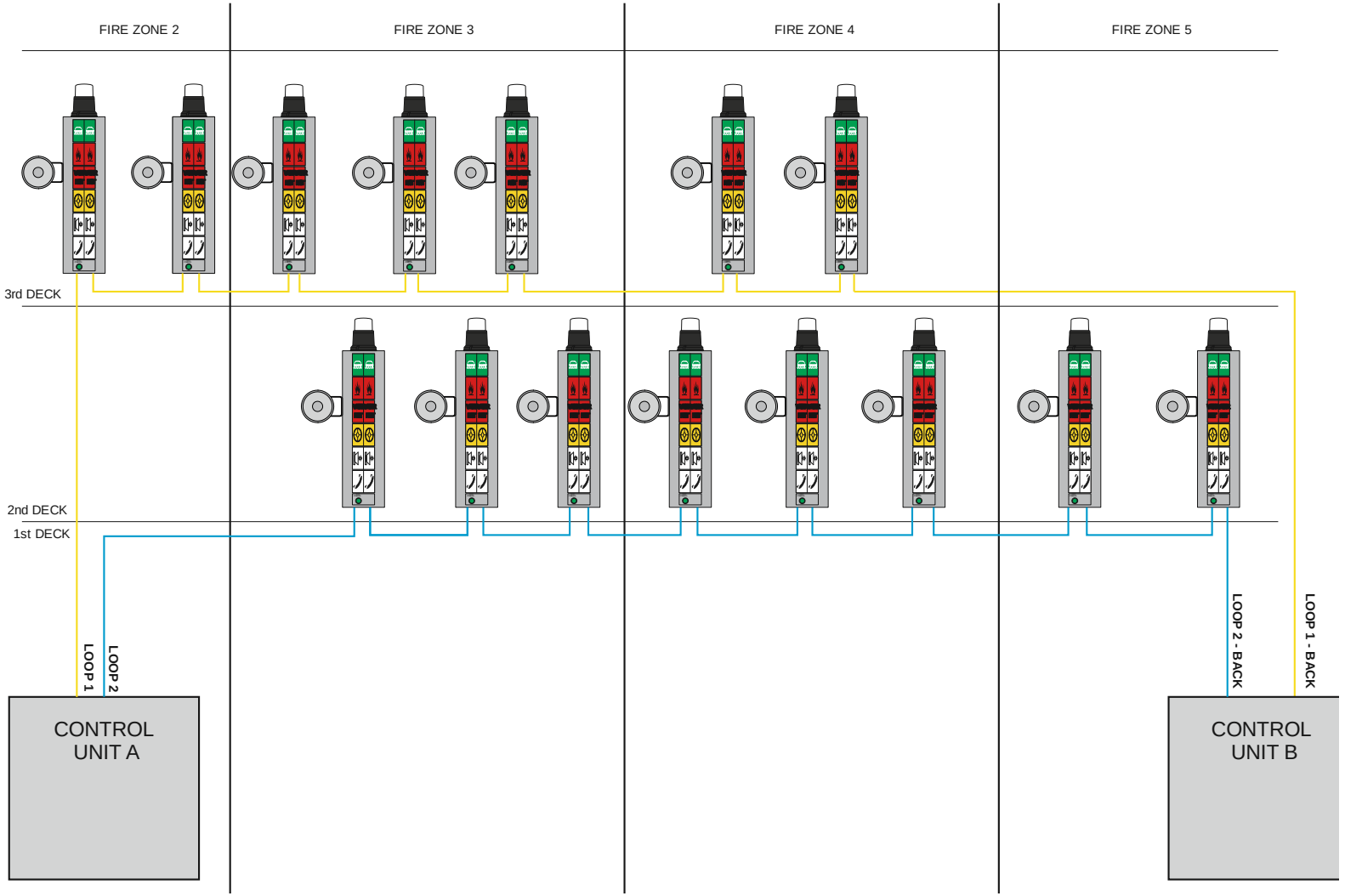
SRTP – Star connection



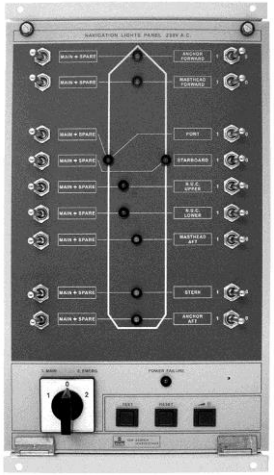
SRTP – Loop connection

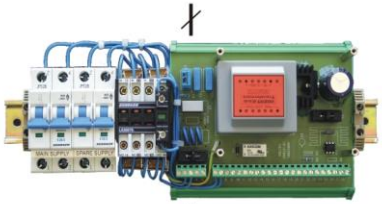
- Control unit – 2 pcs, installed in different fire zones – both control units are the same and they both control the same light columns
- Light columns connected to one or more loops
- In the case of fire, damaged light column will be out of order, other light columns in the loop will remain operable, but they will be controlled by the different control units
- In the case of fire, which causes damage of the control unit, light columns are controlled by the other control unit

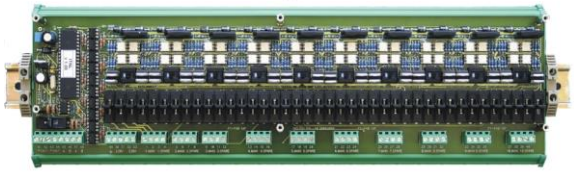
SRTP – Loop connection

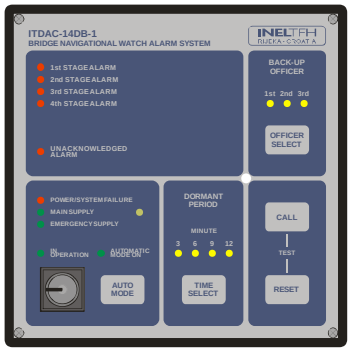


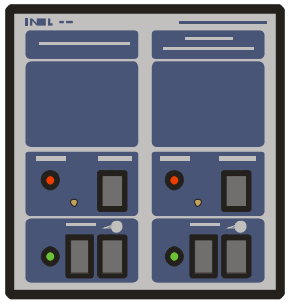
- Navigation and signal lights panels
- Navigation and signal lights controller
- Bridge navigational watch alam system (BNWAS)
- Signal controller
- General alarm unit
- Calling systems for call from hospital and refrigerator

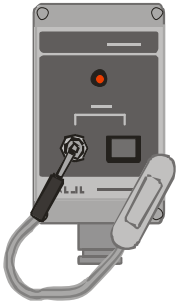






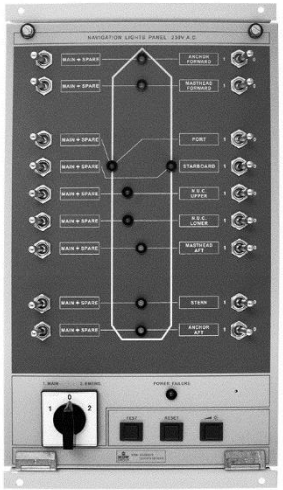


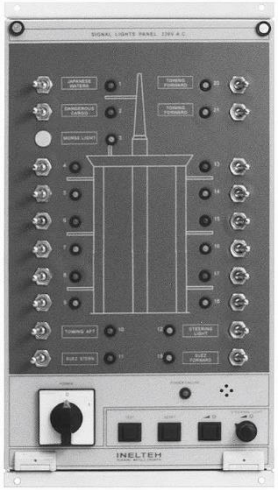




Navigation and signal lights panels

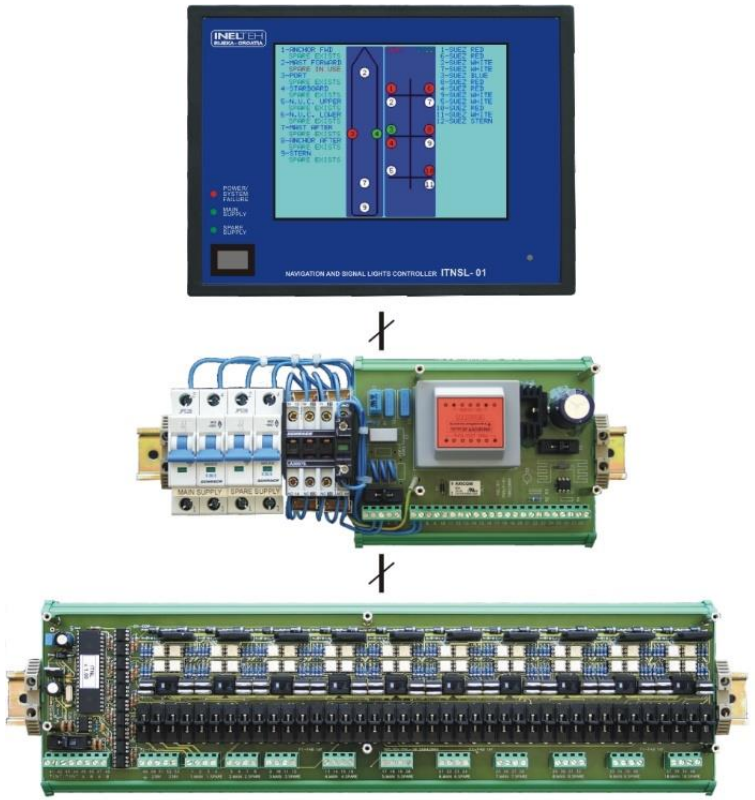
- Conventional type
- Up to 12 double navig. lights
- Up to 23 single signal lights
- With toggle switches
- Custom made for each project
- Smaller version for 7 lights available





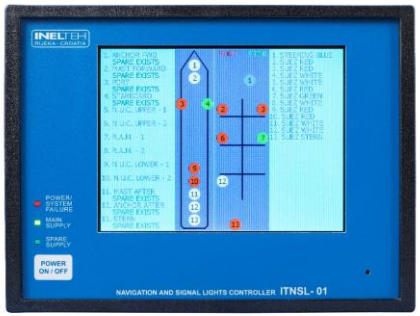
Navigation and signal lights controller

- Configurable (even on sea trials)
- Compact size
- Modern design with touch screen
- Modular
- Quick installation
- Type approved by BV, CCS, CRS, DNV-GL, RINA, RMRS
- Up to 13 double navig. lights
- Up to 26 single signal lights
- Mimic diagram – easy configuration (by fingers, no specific software required)

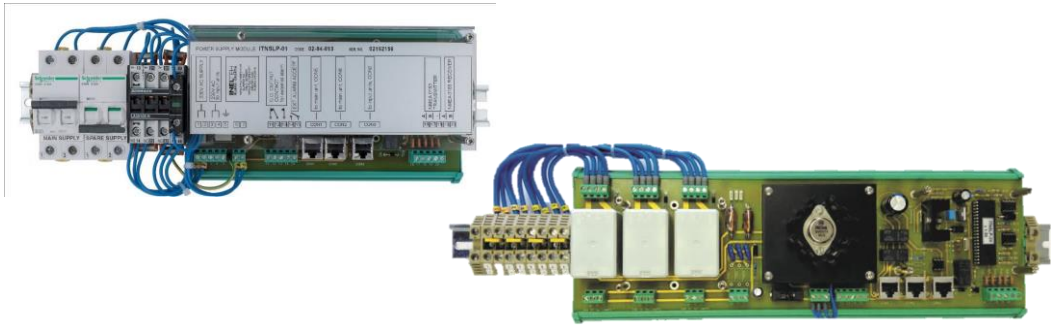


Navigation and signal lights controller

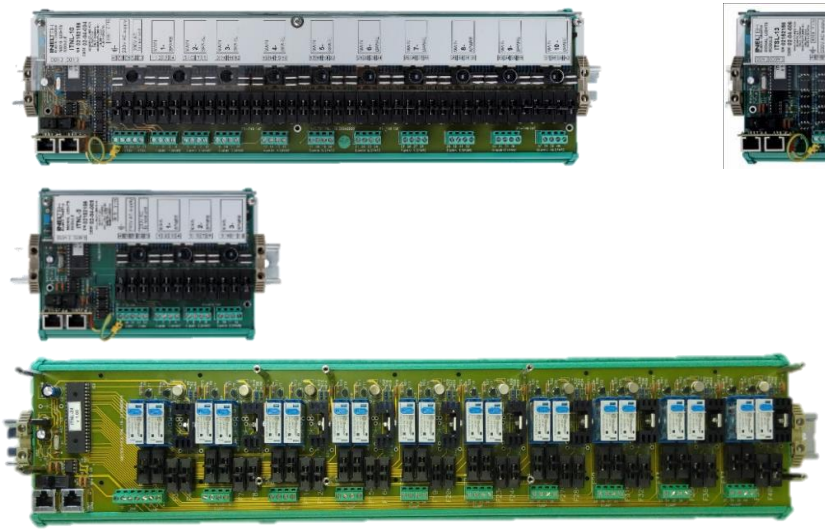
- Main unit type ITNSL-01



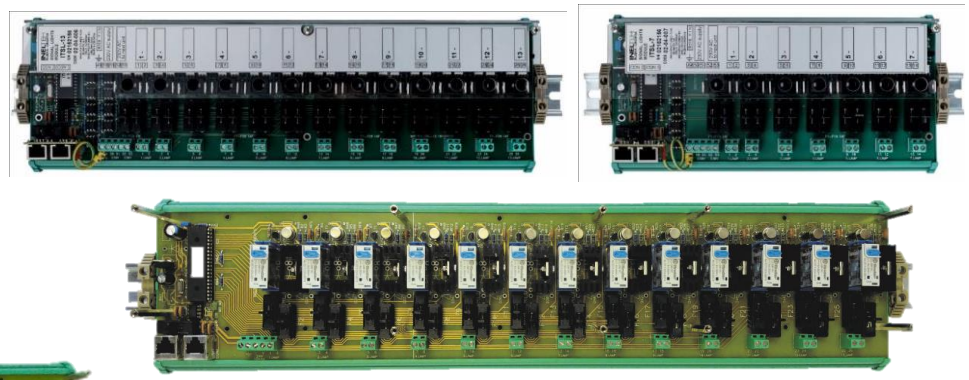
- Power supply modules type ITNSLP-01



- Input modules type ITNL



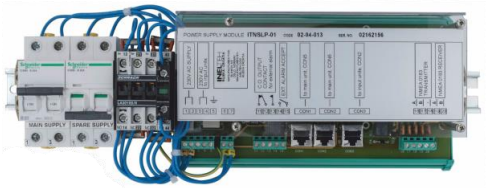
- Input modules type ITSL



Navigation and signal lights controller

ITNSL-01T
MAIN UNIT

1



ITNSLP-01 / ITNSLP-01-24
POWER SUPPLY MODULE

2

1 - Original cable 2.5 m long
2 - Original cables 1.5 m long

ITNL-10 / ITNL-10-24 / ITNL-10-24S*
INPUT MODULE FOR 10 MAIN and 10 SPARE NAVIGATION LIGHTS
* only for single navigation lights

2

ITNL-3 / ITNL-3-24
INPUT MODULE FOR 3 MAIN and 3 SPARE NAVIGATION LIGHTS

2

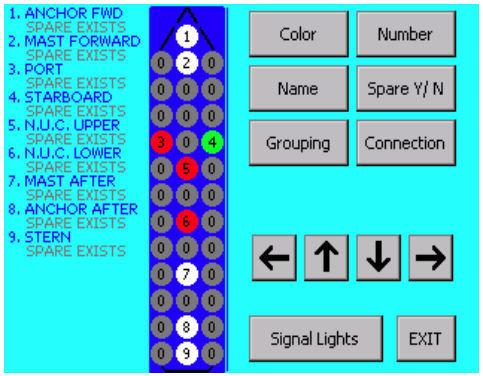
ITSL-13 / ITSL-13-24
INPUT MODULE FOR 13 SIGNAL LIGHTS

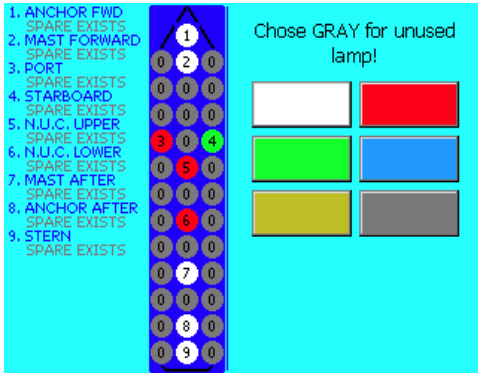
2

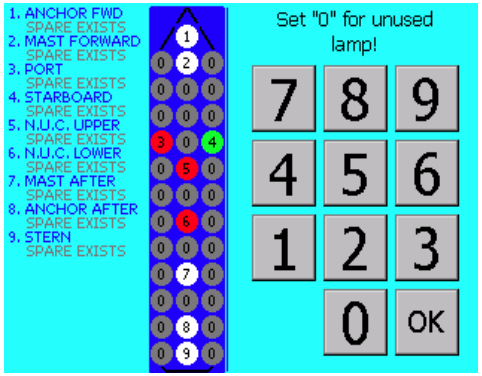
ITSL-13 or **ITSL-7 / ITSL-13-24** or **ITSL-7-24**
INPUT MODULE FOR 13 or for 7 SIGNAL LIGHTS

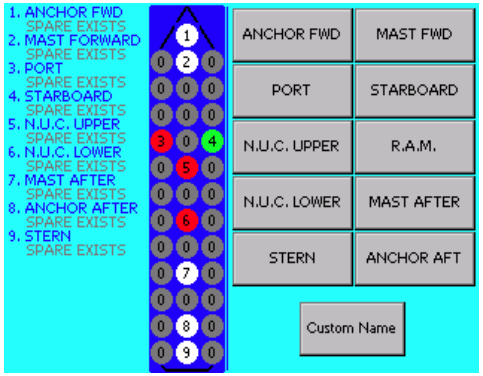
Navigation and signal lights controller

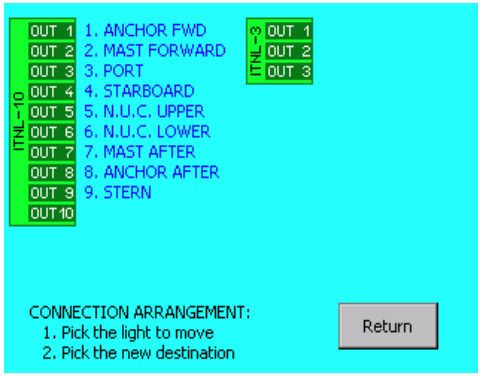
- Configuration

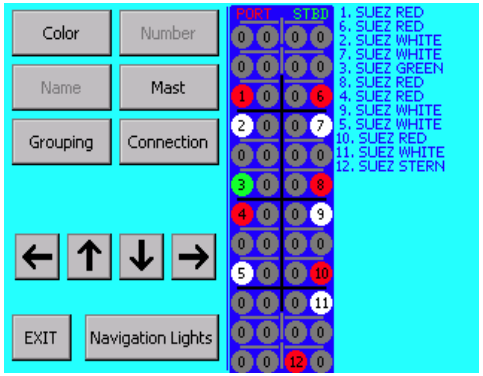






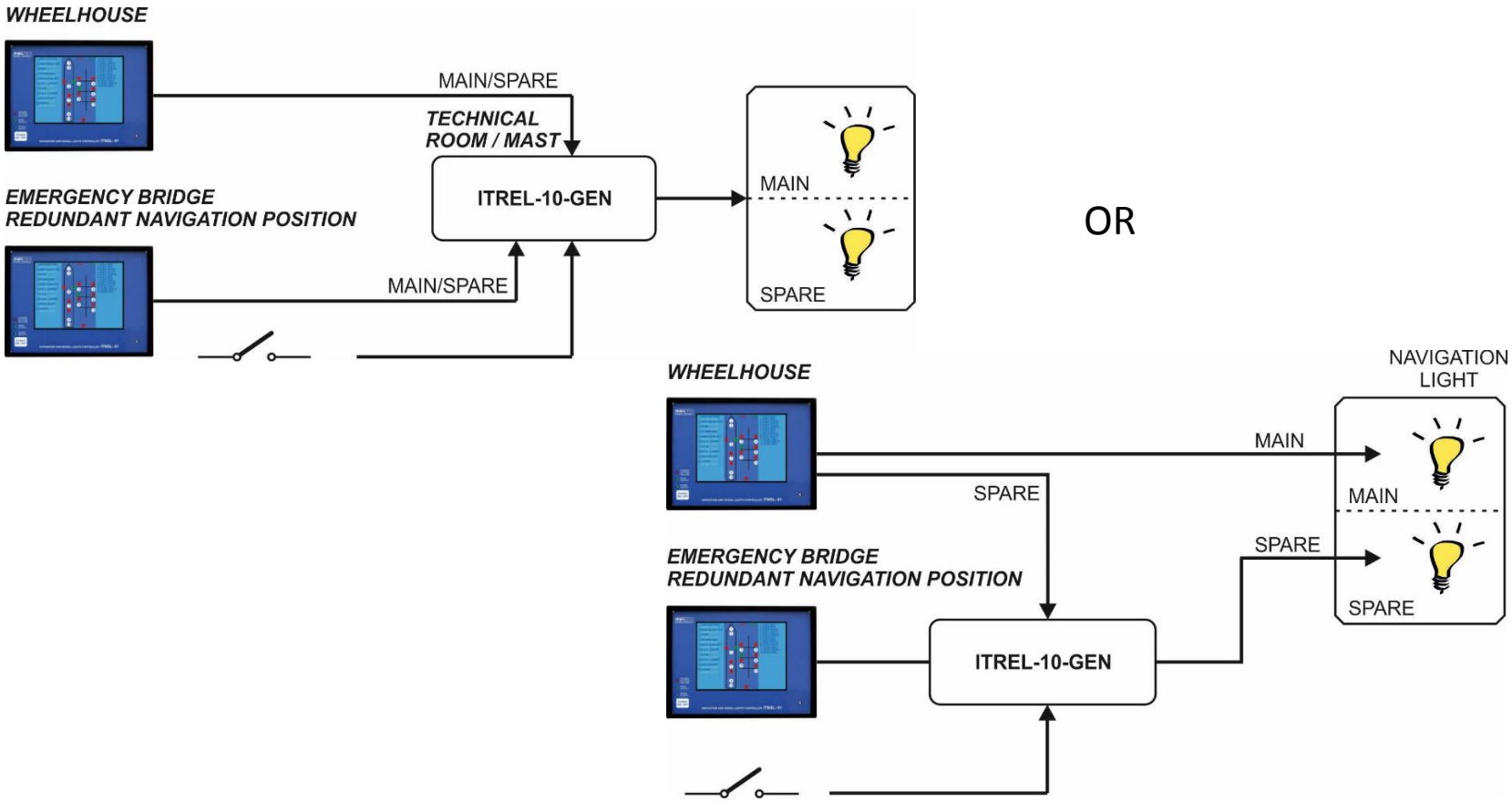




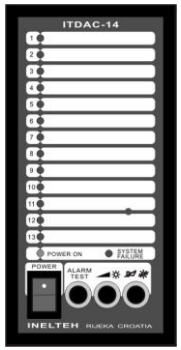


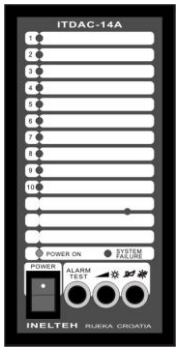
Navigation and signal lights controller

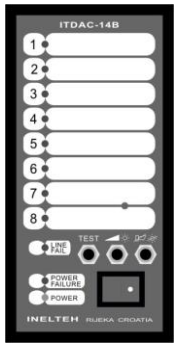
- SRTP solution

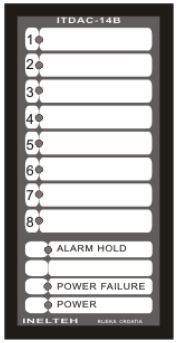


- Alarm and control units
  (with binary or analogue inputs, alarm grouping possibility)
- Fire detection
- Emergency engine telegraph system

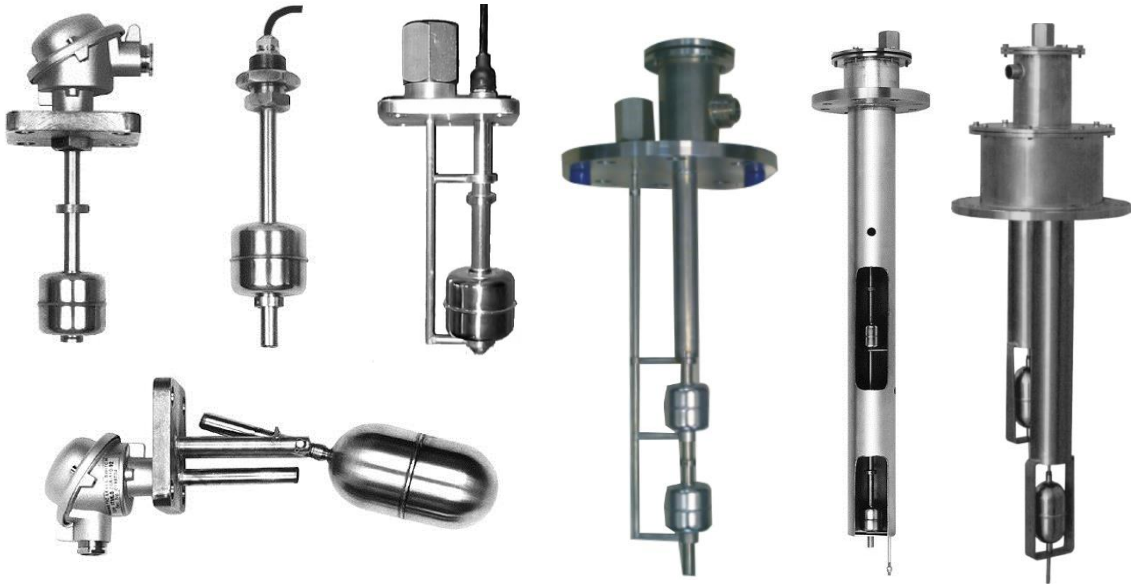


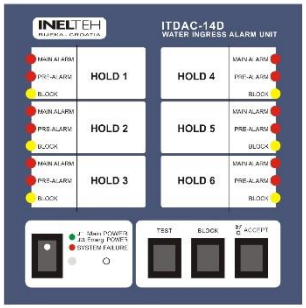


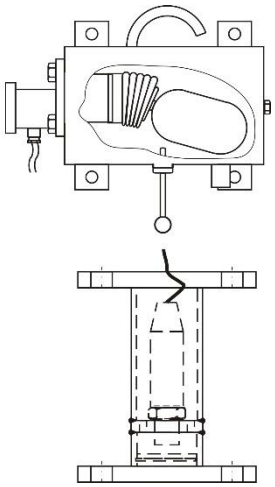




- Magnetic level switches
- Magnetic level measurement
- High level and overfill alarm system
- Water ingress detection system

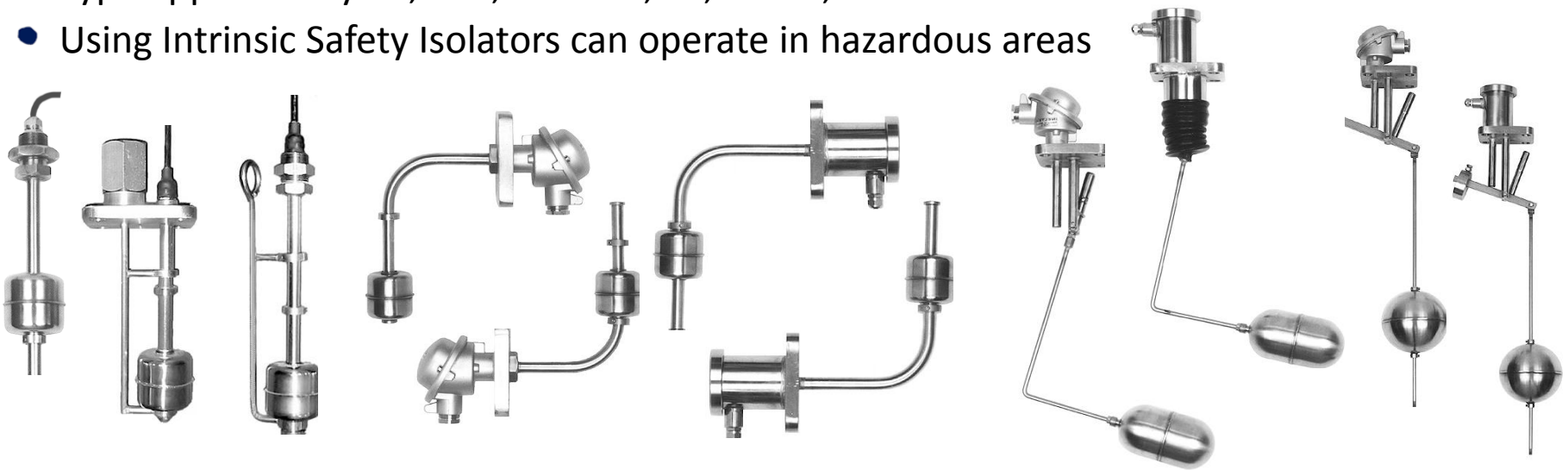






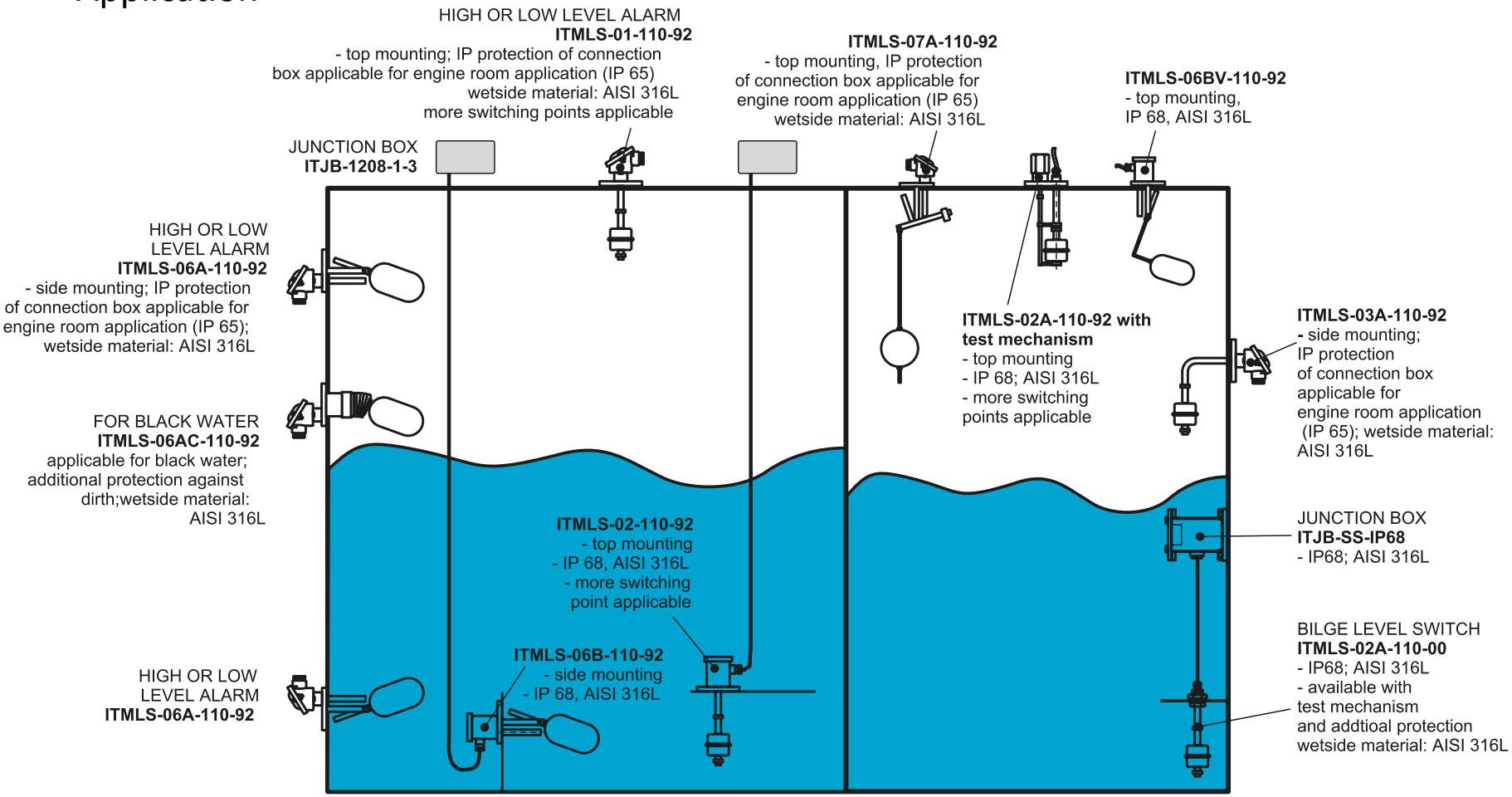
Magnetic level switches

- Designed for using on board ships, in petrol industries etc.
- IP65 or IP68 submersible version with teflon or PUR cable
- Top or side mounting
- Stainless steel material (AISI 316L)
- Various vessel connections
- Test mechanism available
- Up to 3 floating elements can be installed
- Type approved by BV, CRS, DNV-GL, LR, RMRS, RRR
- Using Intrinsic Safety Isolators can operate in hazardous areas



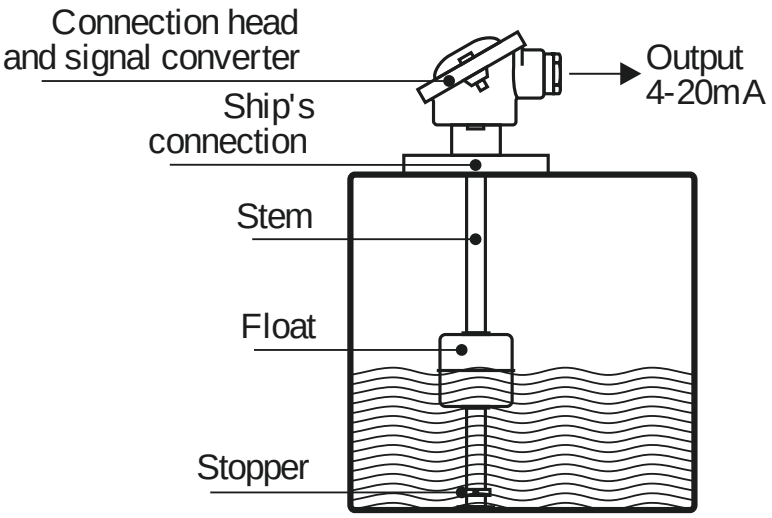
Magnetic level switches

- Application



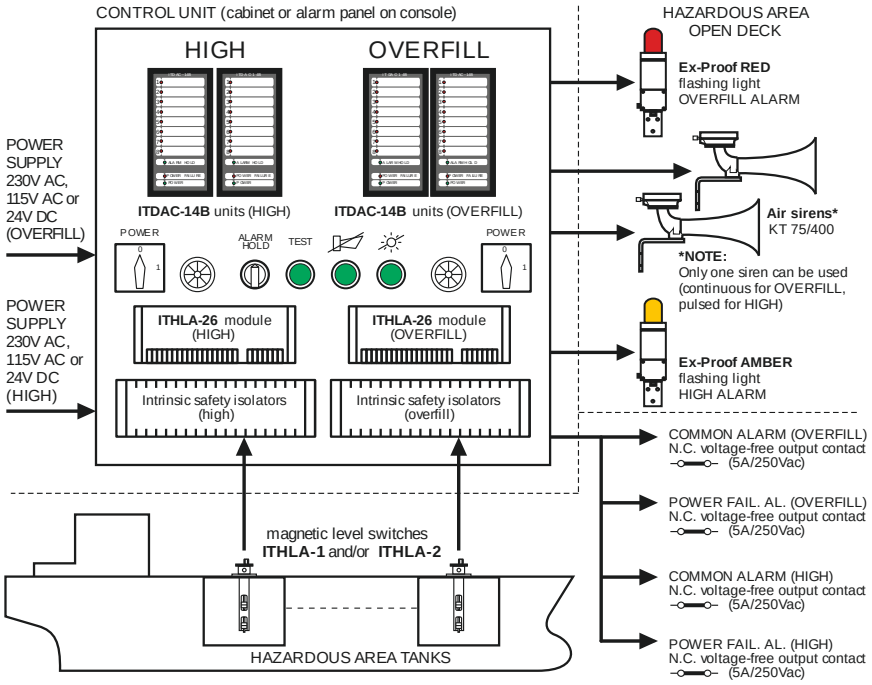
Magnetic level measurement

- Continuous level measurement
- Accuracy within 15mm
- Measuring range up to 2,5m
- Stainless steel material (AISI 316L)
- Top or side mounting
- IP65 or IP68 submersible version

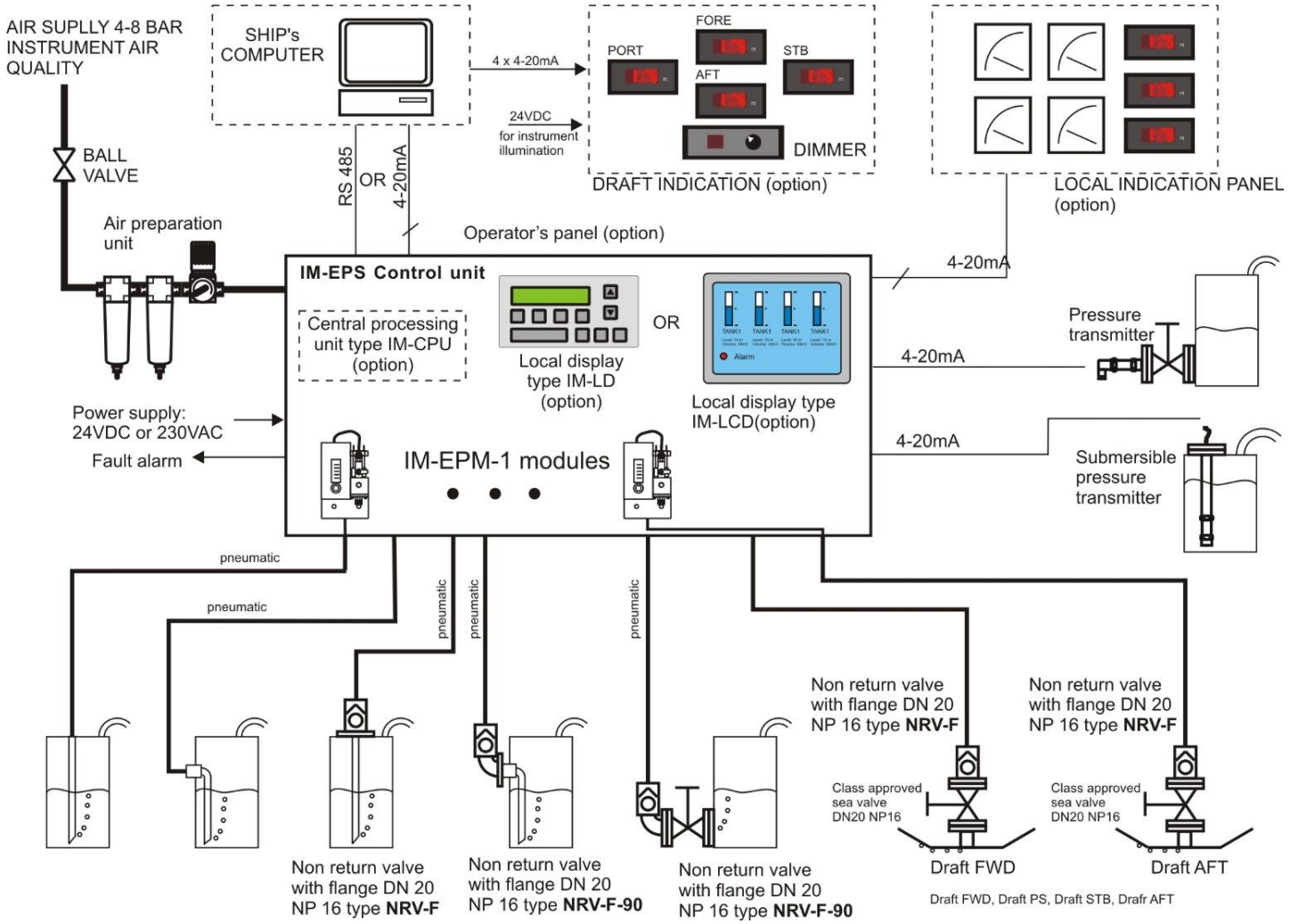


High level and overfill alarm system

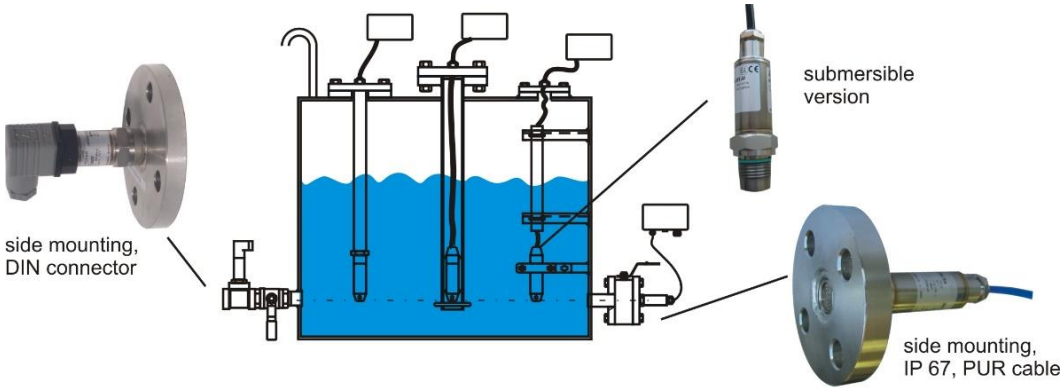
- Magnetic level switches type ITHLA
- Stainless steel material (AISI 316L)
- Can be installed in dangerous area and connected only over intrinsic safety isolator situated in non-hazardous area



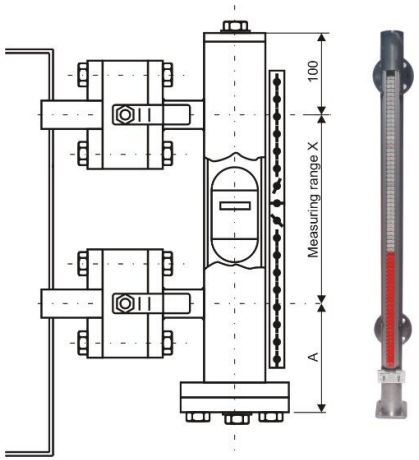
Electro-pneumatic level measurement system



Pressure / level transmitters



Magnetic level indicators



Water level detectors

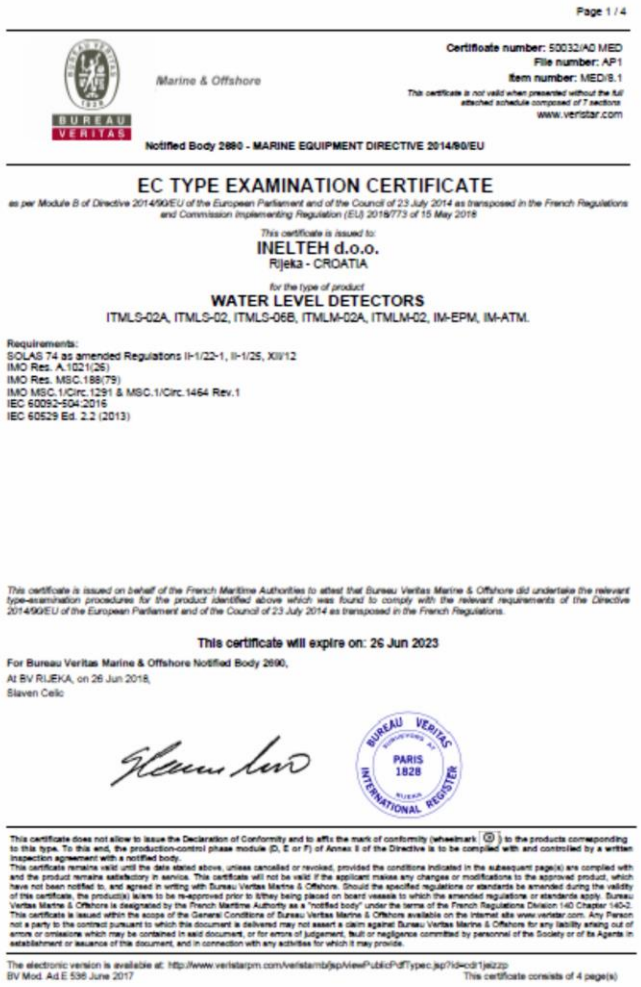
RULES AND REGULATIONS

- According to SOLAS 74 regulation II-1/22-1, passenger ships carrying 36 or more persons have to be provided with flooding detection systems
- According to Marine Equipment Directive (MED) 2014/90/EU and the last version of its Commission Implementing Regulation (EU) 2018/773, flooding detection systems on passenger ships are the part of Water Level Detectors – MED/8.1, therefore they have to be MED approved
- According to IMO MSC.1/Circ 1369 flooding detection systems on passenger ships have to be designed in accordance with Safe Return To Port (SRTP) rules MSC.216(82) i.e. on such a way that remain operational after a fire or flooding casualty

INELTEH flooding detection system is designed for detection and continuous flood monitoring in dry compartments, bilges and void spaces. It fully complies with the rules and it is MED approved.

Water level detectors

- MED Certificate



Page 1 / 4

Marine & Offshore

Certificate number: 50032/A0 MED
File number: AP1
Item number: MED/8.1

This certificate is not valid when presented without the full attached schedule composed of 7 sections

www.veristar.com

Notified Body 2680 - MARINE EQUIPMENT DIRECTIVE 2014/90/EU

EC TYPE EXAMINATION CERTIFICATE

as per Module B of Directive 2014/90/EU of the European Parliament and of the Council of 23 July 2014 as transposed in the French Regulations and Commission Implementing Regulation (EU) 2018/773 of 15 May 2018

This certificate is issued to:

INELTEH d.o.o.
Rijeka - CROATIA

for the type of product

WATER LEVEL DETECTORS
ITMLS-02A, ITMLS-02, ITMLS-06B, ITMLM-02A, ITMLM-02, IM-EPM, IM-ATM.

Requirements:
SOLAS 74 as amended Regulations II-1/22-1, II-1/25, XII/12
IMO Res. A.1021(26)
IMO Res. MSC.188(79)
IMO MSC.1/Circ.1291 & MSC.1/Circ.1464 Rev.1
IEC 60092-504:2016
IEC 60529 Ed. 2.2 (2013)

This certificate is issued on behalf of the French Maritime Authorities to attest that Bureau Veritas Marine & Offshore did undertake the relevant type-examination procedures for the product identified above which was found to comply with the relevant requirements of the Directive 2014/90/EU of the European Parliament and of the Council of 23 July 2014 as transposed in the French Regulations.

This certificate will expire on: 26 Jun 2023

For Bureau Veritas Marine & Offshore Notified Body 2690,
At BV RIJEKA, on 26 Jun 2018,
Slaven Celic

This certificate does not allow to issue the Declaration of Conformity and to affix the mark of conformity (wheelmark) to the products corresponding to this type. To this end, the production-control phase module (D, E or F) of Annex II of the Directive is to be complied with and controlled by a written inspection agreement with a notified body.
This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. Bureau Veritas Marine & Offshore is designated by the French Maritime Authority as a "notified body" under the terms of the French Regulations Division 140 Chapter 140-2. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: http://www.veristarpm.com/veristarnb/jspViewPublicPdfTypec.jsp?id=cdr1jeizzp
BV Mod. Ad.E 536 June 2017

This certificate consists of 4 page(s)

Page 1 / 2

Marine & Offshore

Certificate number: SMS.MED2.D/3359/A.0

Notified Body N° 2690

www.veristar.com

MED 2014/90/EU QUALITY SYSTEM MODULE D CERTIFICATE

This certificate is issued under the French Maritime Authority, in compliance with the Directive 2014/90/EU of the European Parliament and of the Council of 23 July 2014 as transposed in the French Regulations and Commission Implementing Regulation (EU) 2018/773 of 15 May 2018, to:

INELTEH d.o.o.
Rijeka - CROATIA

Summary of the range of the recognition which is detailed in the subsequent page(s):
WATER LEVEL DETECTORS

This certificate is issued to attest that Bureau Veritas Marine & Offshore, notified body number 2690, did undertake, at the above company's request, an assessment of the quality system for production quality assurance related to the equipment of the type described in EC type-examination (Module B) certificate(s) listed in the subsequent page(s). Bureau Veritas Marine & Offshore, notified body number 2690, has considered that the quality system operated was satisfying the applicable requirements of the Marine Equipment Directive 2014/90/EU as amended.

This certificate will expire on: 13 Jul 2021

For Bureau Veritas Marine & Offshore,
At BV RIJEKA, on 20 Jul 2018,
Slaven Celic

This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: http://www.veristarpm.com/veristarnb/jspViewPublicPdfRecognition.jsp?id=Bnj42dM2w
BV Mod. Ad.E 618-D June 2017

This certificate consists of 2 page(s)

Water level detectors

INELTEH FLOODING DETECTION SYSTEM INCLUDES:

- Magnetic level switches type ITMLS-02A, ITMLS-02, ITMLS-06B
- Magnetic level measurement type ITMLM-02A, ITMLM-02
- Electro-pnumatic modules type IM-EPM
- Pressure transmitters type IM-ATM
- Connection boxes type ITJB-SS

Water level detectors

ADVANTAGES:

- Simple and reliable solution
- One sensor with up to 2 electrically independent contacts
- No need for double sensors
- Applicable for SRTP design
- Easy installation
- Maintenance free
- IP 68, 3 bars (tested for 36 hours)
- Detection or continuous level measurement
- Available for Hazardous (Ex) area
- Various type of sensors (magnetic, pressure, electro-pneumatic)
- Can be combined with tank gauging system
- Approved junction boxes

Water level detectors

MAGNETIC LEVEL SWITCHES type ITMLS-02A, ITMLS-02, ITMLS-06B

- Single point level detection
- IP68, 3 bars
- Top or side mounting
- Stainless steel material (AISI 316L)
- PUR or teflon cable
- Output: voltage-free contacts and/or resistors network
- Test mechanism on request

Water level detectors

MAGNETIC LEVEL MEASUREMENT type ITMLM-02A, ITMLM-02

- Continuous level measurement
- IP68, 3 bars
- Top mounting
- Stainless steel material (AISI 316L)
- Output: resistors network or 4-20mA
- Measuring range up to 2,5m

Water level detectors

ELECTRO-PNEUMATIC LEVEL MEASUREMENT type IM-EPS, with ELECTRO-PNEUMATIC MODULE type IM-EPM

- Continuous level measurement
- Different pressure ranges
- Used specially in case when the tanks are used as ballast tanks
- Long lifetime
- Sensor is not in contact with seawater or any other liquid
- Output: 4-20mA or RS 485
- Dry and clean instrumental air supply 4-8 bar has to be used

Water level detectors

PRESSURE TRANSMITTERS type IM-ATM

- Continuous level measurement
- Different pressure ranges
- IP68, 3 bars
- Stainless steel material (AISI 316L)
- PUR or teflon cable
- Output: 4-20mA

CONNECTION BOXES type ITJB-SS

- IP68, 3 bars
- Stainless steel material (AISI 316L)
- Cable glands according to project requirements

Application - EXAMPLE 1

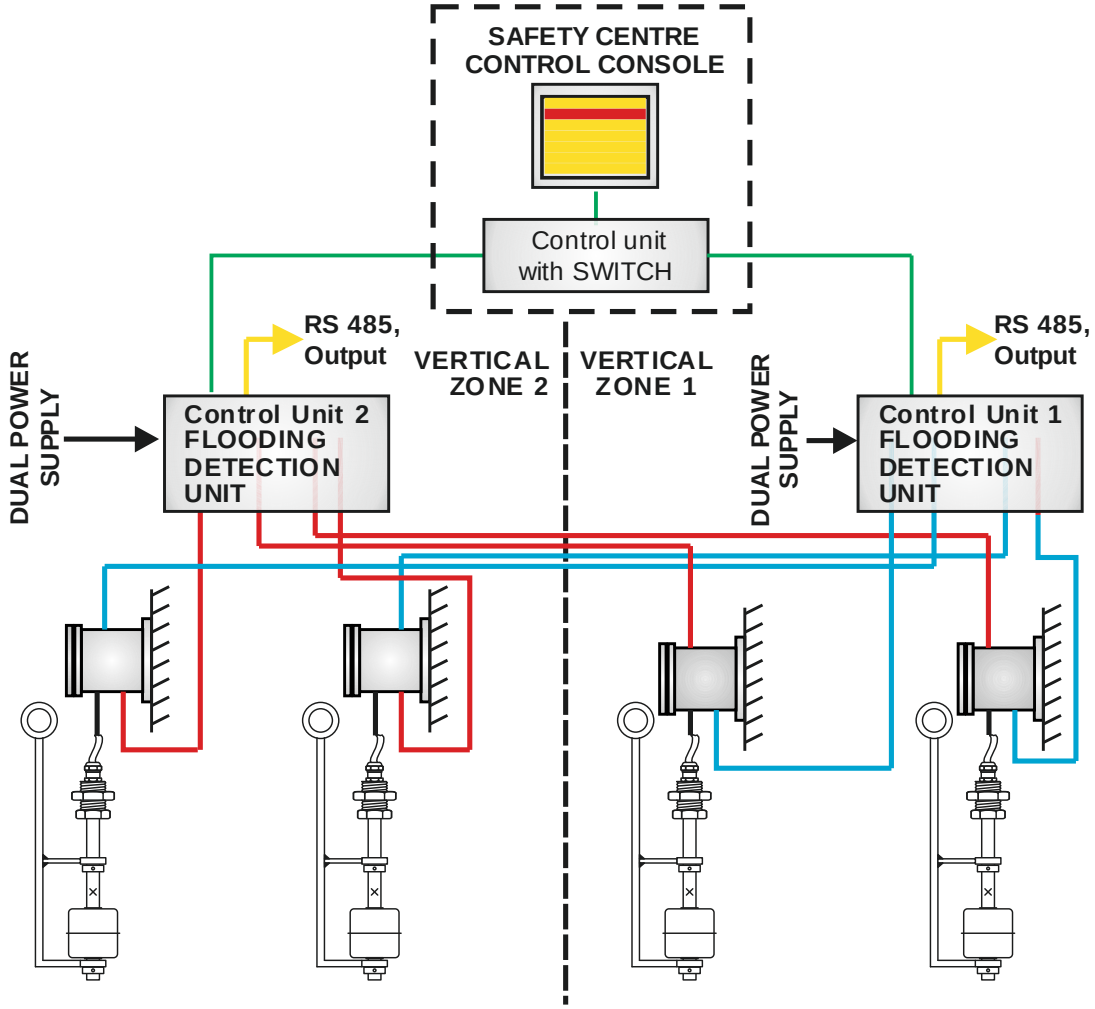
TECHNICAL REQUIREMENTS:

- 2 vertical fire zones
- Corresponding number of MED flooding detection sensors in each vertical fire zone (single point detection or continuous level measurement)
- SRTP rules applicable

SOLUTION:

- Each vertical fire zone equipped with corresponding number of magn. level switches with two independent outputs and junction box with two outputs
- Each vertical fire zone equipped with one flooding detection control unit
- 1st output from magn. level switch goes to the control unit it that vertical fire zone
- 2nd output from magn. level switch goes to the control unit in other vertical fire zone
- Each control unit have RS485 output for 3rd party communication
- Control units connected with proprietary network, switch located in Safety Center
- Flooding detection display as option
- Can be combined with tank gauging system to reduce cabling

Application - EXAMPLE 1



Application - EXAMPLE 2

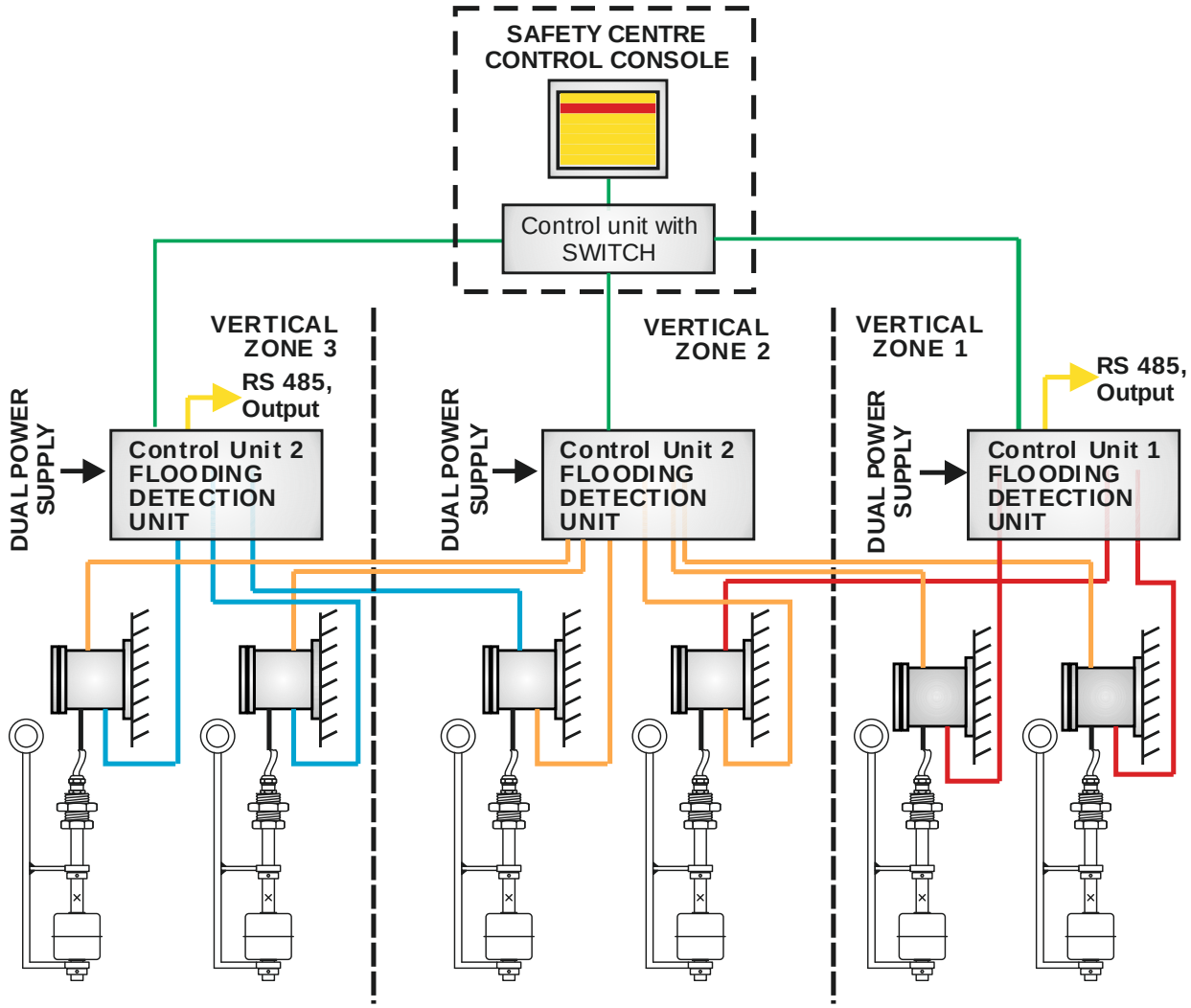
TECHNICAL REQUIREMENTS:

- 3 vertical fire zones
- Corresponding number of MED flooding detection sensors in each vertical fire zone (single point detection or continuous level measurement)
- SRTP rules applicable

SOLUTION:

- Each vertical fire zone equipped with corresponding number of magn. level switches with two independent outputs and junction box with two outputs
- Each vertical fire zone equipped with one flooding detection control unit
- 1st output from magn. level switch goes to the control unit it that vertical fire zone
- 2nd output from magn. level switch goes to the control unit in the next vertical fire zone
- One part of magn. level switches in the middle fire zone is connected to the previous vertical fire zone, other to the next fire zone
- Control units located in boundary zones have RS485 output for 3rd party communication
- Control units connected with proprietary network, switch located in Safety Center
- Flooding detection display as option
- Can be combined with tank gauging system to reduce cabling

Application - EXAMPLE 2



INELTEH

INEL-MAR

Thank you for your attention!