![integra logo]

SENSITIVE SPACES
SECURING SYSTEM

iS4® SYSTEM

SENSITIVE SPACES SECURING SYSTEM

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1. What is @S4® (II)

▶ **@S4®** stands for *@integra* **S**ensitive **S**paces **S**ecurity **S**ystem.

▶ Basically it is a Security System.

▶ It is an advanced access control system specially designed for ships, based on person's identification.

▶ It allows for personnel placement within the ship.

▶ Wide range of identification means

+ Contact and contactless card readers.

+ Encrypted smart card readers, contact or contactless.

+ Fingerprints, hand geometry and other biometric readers.

+ Long distance (>3 m) tag readers.

+ Keypads (alone or combined with any other identification means).
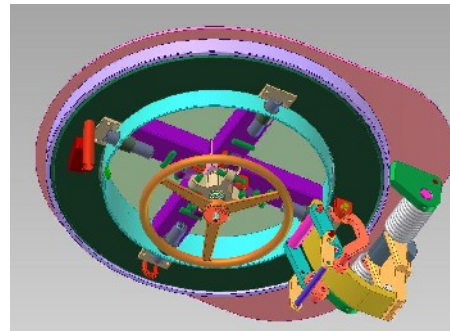
@S4® SYSTEM

1. What is @S4® (III)

@S4® SYSTEM

▶ Rugged, marine-grade cabinet to house the equipment.

▶ Rugged, marine-grade, high security electromechanical lock designed for a wide variety of doors.

  ➕ Standard metal doors.

  ➕ Sectioning gates.

  ➕ Hatches.

▶ Reliable power supply.

  ➕ Battery protecting circuit for each one.

  ➕ Twin autonomous/redundant UPS's for the each unit.

▶ Shock resistance (shock test MIL-STD-S-901D).

1. What is @S4® (IV)

▶ Highly customisable access control.

- ✦ Wide variety of criteria (time, date, location, person, system status....).

- ✦ Optional software modules are available for remote access using LAN/WAN connections (even old modems!).

▶ The system monitors the status of all the components, position of the doors and position of the door lock's bolt.

▶ Report generation on the system's status and history records can optionally be generated on request or automatically.

▶ Security in the communications:

- ✦ Triple DES encrypted communication

@S4® SYSTEM

1. What is @S4® (V)

@S4® SYSTEM

▶ It can be installed on any part of the ship.

▶ It is specifically designed for warships.

▶ It has direct connection with the IPMS.

▶ The operator has prompt information on every door status.

▶ It is very user-friendly.

▶ It is basically automatic but accepts manual control.

▶ It can be integrated with other subsystems (CCTV, fire protection, lighting, HVAC, public address, evacuation....).

▶ It centralises all the information. It provides all kinds of reports and listings.

1. What is @S4® (and VI)

@S4® SYSTEM

Summary

S4 — Sensitive Spaces Securing System

Specifically designed for warships

Many identification means

Automatic or manual control

Reliable redundant power supply

Rugged

Shock resistance test MIL-STD-S-901D

Fully integrable with other subsystems

Autonomous system

Direct connection with the IPMS

High security electromechanical lock with sensors

Marine-grade components

Report generation

Customisable access control

2. Why is ⓘS4® necessary (II)

▶ Modern warships = Wide range of missions, not all purely military.

▶ The ships may have on board a growing variety of people (medical staff, engineers, firefighters....).

▶ It is important to guarantee that spaces strictly used for military purposes are safe from unauthorized access.

▶ Ships do not have large crews nowadays, therefore, it is important to have security systems that can operate automatically, without close supervision.

2. Why is @S4® necessary (III)

▶ High technology warships contain many Sensitive Areas which must have restricted access.

▶ It suits requirements and quality control of marine use.

▶ Easy to use and flexibility as high priority in the design.

▶ There must be a log on all the operations performed on the ship including their author's names (traceability).

▶ It has already been installed on other Navy's ships.

▶ It is a basic tool for the Security Director of any Organisation.

@S4® SYSTEM

2. Why is @S4® necessary (and IV)
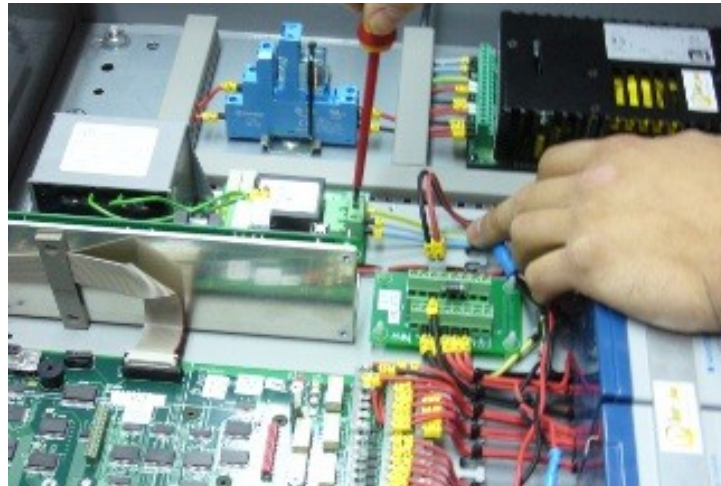
@S4® SYSTEM

Wide range of missions for ships

Variety of people on board

Meets Navy requirements and quality control

Easy to use and flexibility

Already working on other Navy's warships

Log on operations

Safe from unauthorized access

It can work without close supervision

3. Basic configuration (I)

@S4® SYSTEM

1. What is @S4®
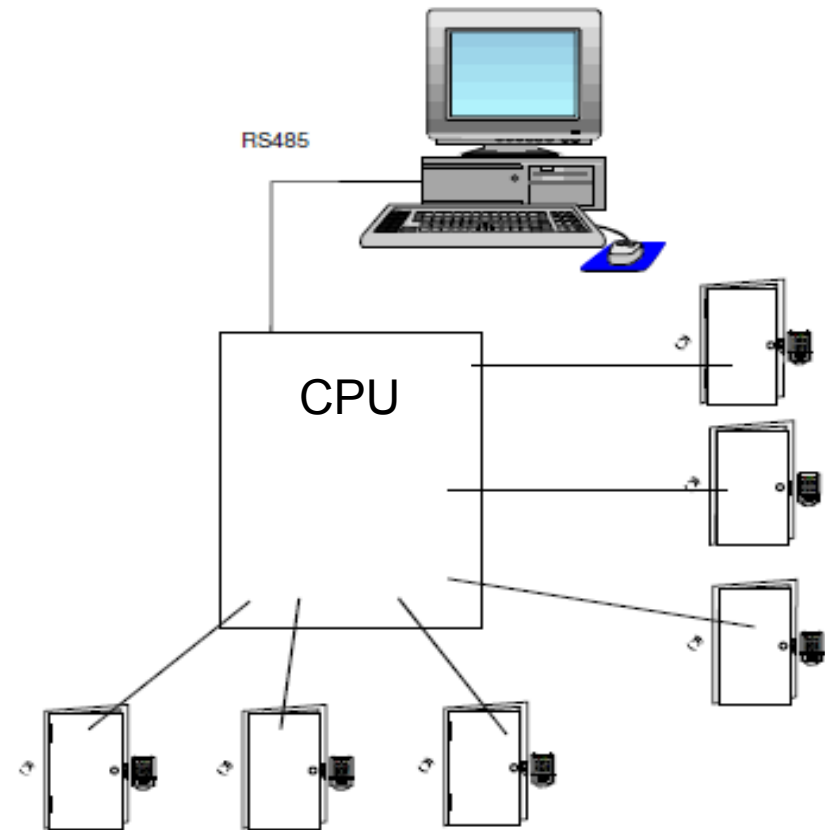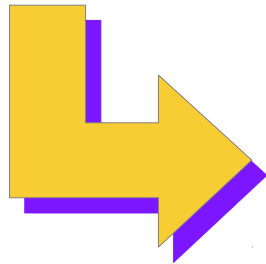
2. Why is @S4® necessary?

3. Basic configuration

4. Why is @S4® different to other systems?
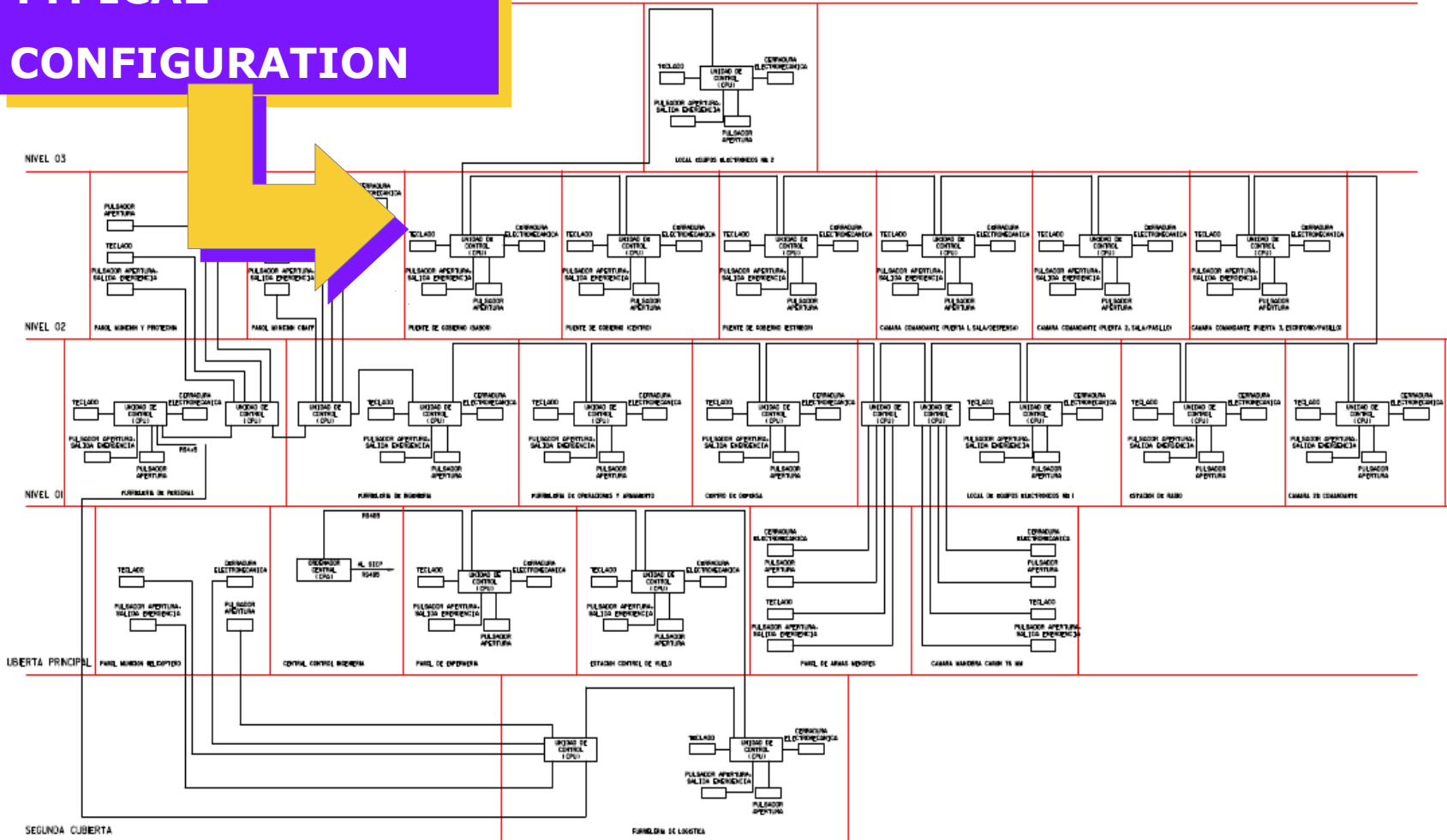
5. References

3. Basic configuration (II)

Examples of basic configurations: a simple, typical and complex ones are shown below
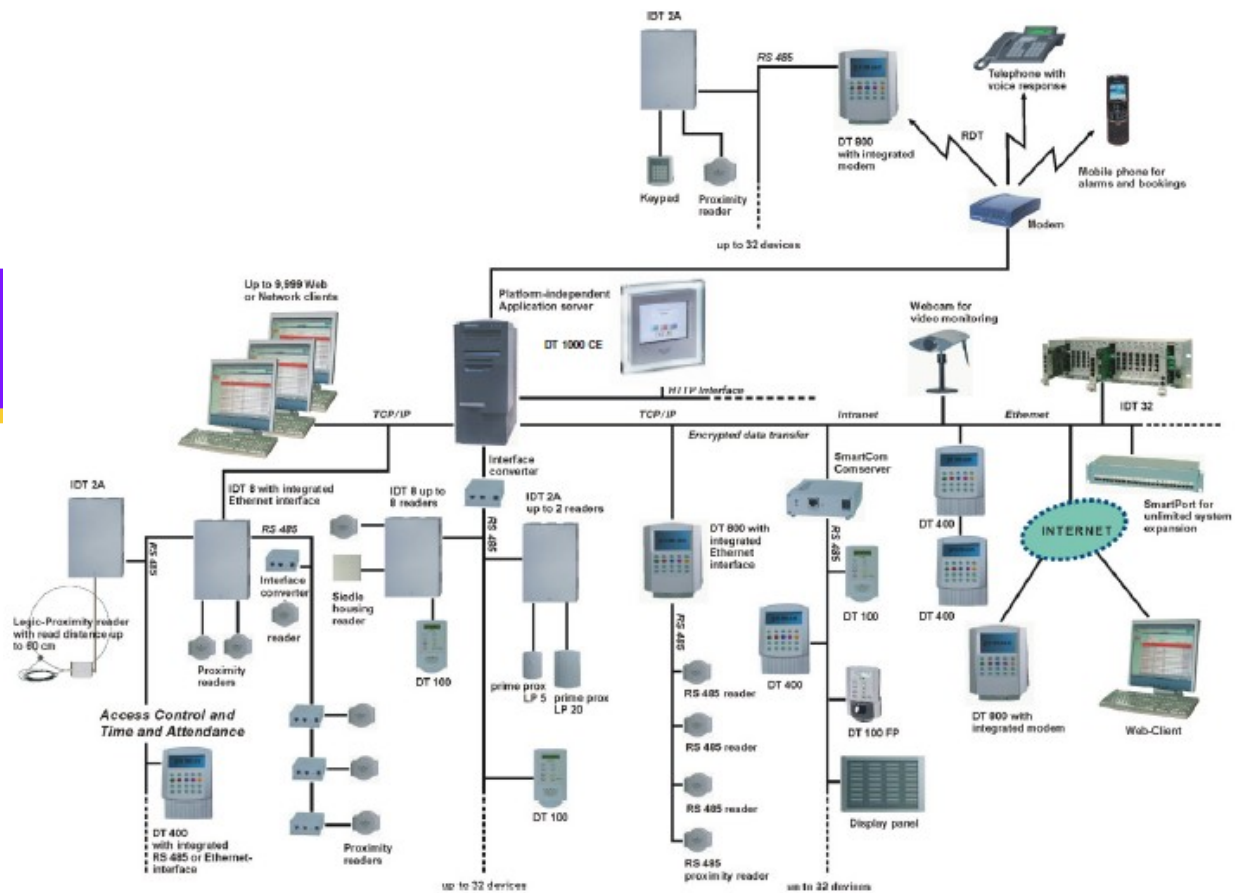
SIMPLEST

CONFIGURATION

RS485
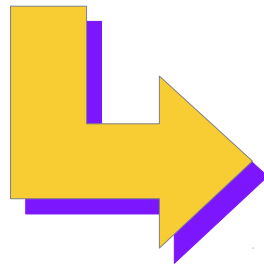
CPU

3. Basic configuration (III)

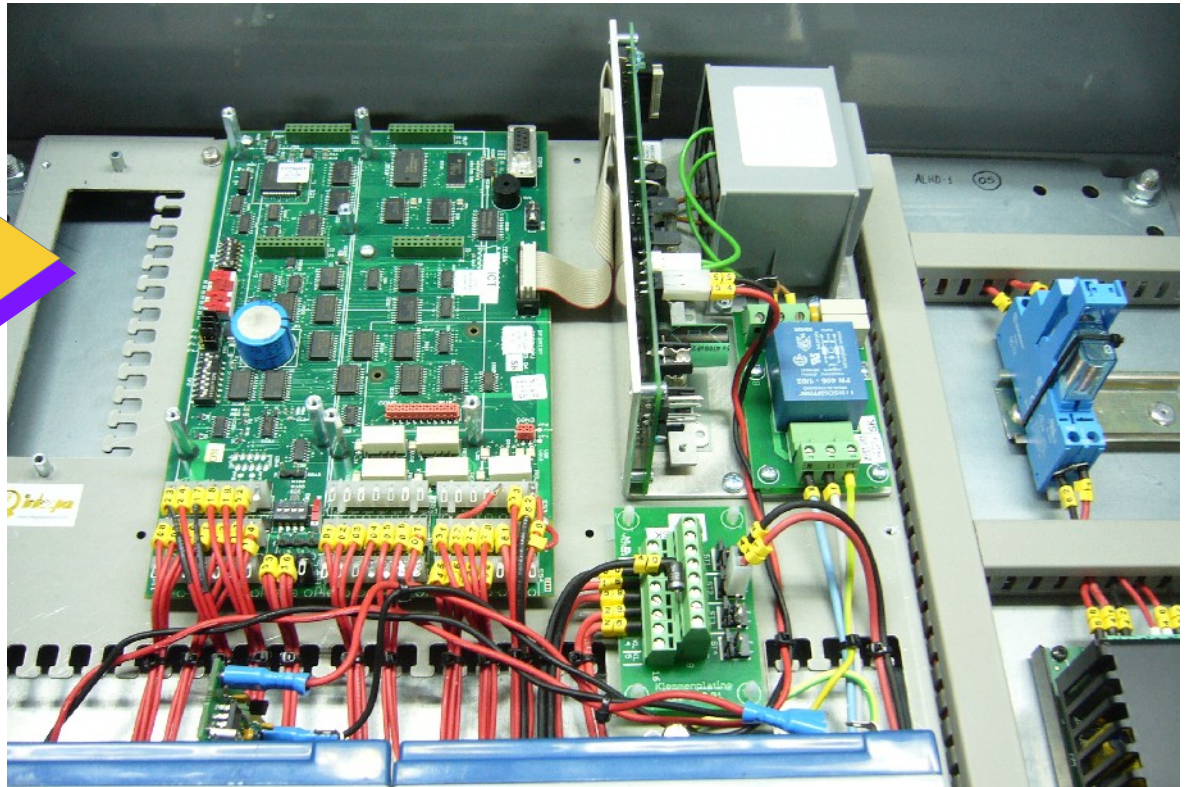**TYPICAL CONFIGURATION**

3. Basic configuration (IV)

COMPLEX CONFIGURATION

3. Basic configuration (and V)

@S4® SYSTEM

@S4® CAN BE DESIGNED ACCORDING TO OUR CLIENT'S NEEDS AND REQUIREMENTS

@S4® SYSTEM

4. Why is @S4® different to other systems (I)

1. What is @S4®

2. Why is @S4® necessary?

3. Basic configuration

4. Why is @S4® different to other systems?

5. References

4. Why is ¿S4® different to other systems (II)

▶ ¿S4® was designed starting from *terrestrial* systems.

▶ Back in 2006, ¿integra supplied its first ship with a security system that was an evolution of a *terrestrial* system, but it was not yet ¿S4®.

▶ After several years of continuous improvement and design, it became the ¿S4® as it is today.

▶ It is a patented system (P201100645).

¿S4® SYSTEM

4. Why is ⒤S4® different to other systems (III)

▶ ⒤**S4**® borrows some technology from a very good *deutsche* company (Primion Technology AG).

▶ *@integra*'s staff have been installing such systems for more than 15 years.

▶ Involvement of Shipyards Engineering Departments has been fundamental to consolidate ⒤**S4**® as the best security systems for warships.

▶ The first prototype was presented to the Navy on 2005, and duly approved.
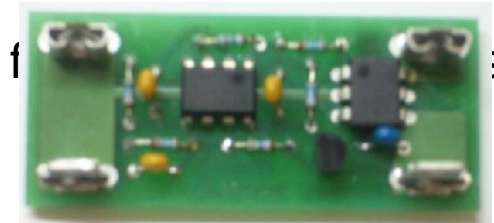
4. Why is ⓘS4® different to other systems (IV)

ELECTRICAL ENGINEERING

▶ Power supply is the single most problematic issue on warships, according to our experience.

▶ Transients, ripples, harmonics, voltage peaks... are frequent aboard.

▶ CPU's microprocessors tend to be very affected by irregular power supply. Hangout control units are not infrequent.

▶ A specific circuit has been designed to solve the problem of irregular mains power.

▶ <u>Redundant power supply</u>.

4. Why is @S4® different to other systems (V)

@S4® SYSTEM

ELECTRICAL ENGINEERING

▶ Battery back-up of the power supplies. Each power supply has an independent battery.

▶ The batteries provide more than five hours of operation with no input power and can be hot-swapped.

▶ A specific circuit (R2PS) has been designed to distribute power, charge batteries, diagnose failures and send alarm signals to IPMS.

▶ @S4® is failure proof regarding power: whatever the power failure, it continues working. In case of a prolonged f   s are protected against deep discharge.

4. Why is @S4® different to other systems (VI)

POWER MESSAGES TO IPMS:

▶ @**S4**® warns IPMS about the following possible power failures (per door):

- ▶ Mains power is absent.

- ▶ One of the two redundant power supplies is faulty.

- ▶ Batteries are low.

- ▶ Battery is turning defective (takes too much current to charge).

- ▶ System is about to switch off because of low battery charge.

▶ IPMS must acknowledge the reception of these messages.

▶ Maintenance personnel should act according to those messages (low preventive maintenance).

@S4® SYSTEM

4. Why is @S4® different to other systems (VII)

@S4® SYSTEM

ELECTRICAL ENGINEERING

▶ Electrical protection of the whole system against transients (EMI, power spikes), overload and non-sinusoidal power supplies. Inductive circuits all carry recirculating diodes for increased lifetime.

▶ Full remote control of the locking of each door on an individual basis.

▶ Optional integration with CCTV systems for control of images, video, lighting etc. at the protected areas.

▶ Available with MIL-STD-S-901D shock-proofing.

4. Why is ℓS4® different to other systems (VIII)

@S4®SYSTEM

ELECTRICAL ENGINEERING

Environmental problems (marine environment):

▶ ℓ**S4**® is well prepared to work on marine environment: humidity, temperature, salinity, corrosion, vibration...

▶ Some ℓ**S4**® units have been installed outdoors, in the deck.

▶ Some ℓ**S4**® units have been installed on high temperature motor areas (false ceilings).

▶ *Terrestrial* system do not withstand these harsh conditions.

▶ Available with MIL-STD-S-901D shock test.

4. Why is ⓘS4® different to other systems (IX)

ELECTRICAL ENGINEERING – EMERGENCY ACCESS/EGRESS

▶ ⓘ**S4**® incorporates a system to guarantee the emergency opening of any door.

▶ The system is fault-proof, as it cannot fail to function.

▶ The system does not depend on the CPU or any other electronics.

▶ The doors can be emergency-released from inside and/or outside.

▶ In case of catastrophe, it there exists a direct galvanic (copper) link between the batteries and the lock.

▶ In case of catastrophe, the lock's bolt can be manually actuated to grant safe egress.

▶ It fulfils basic Lloyd's requirements.

@integra

4. Why is @S4® different to other systems (X)

@S4® SYSTEM

@*integra* has designed an electronic circuit to avoid lateral impact. This circuit detects door-leaf absence, and prevents the bolt to protrude.

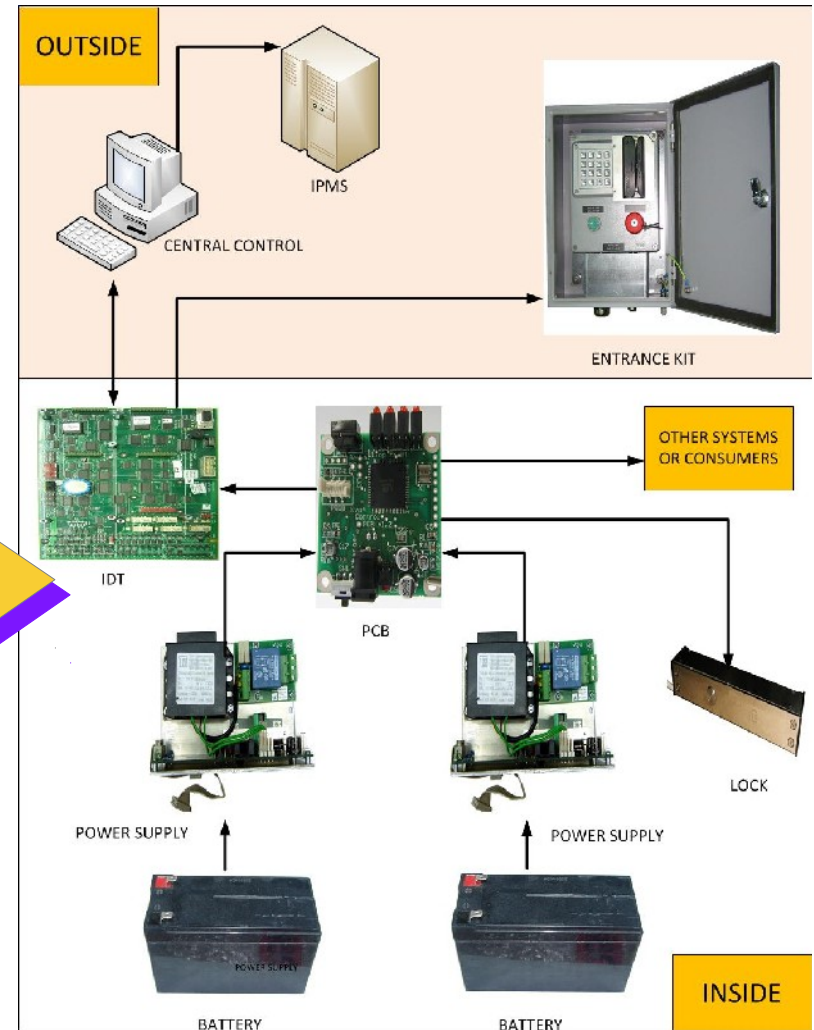Detailed of the functioning of the lock specially designed to avoid lateral collision.

FUNCTIONING OF THE LOCK TO AVOID COLLISION
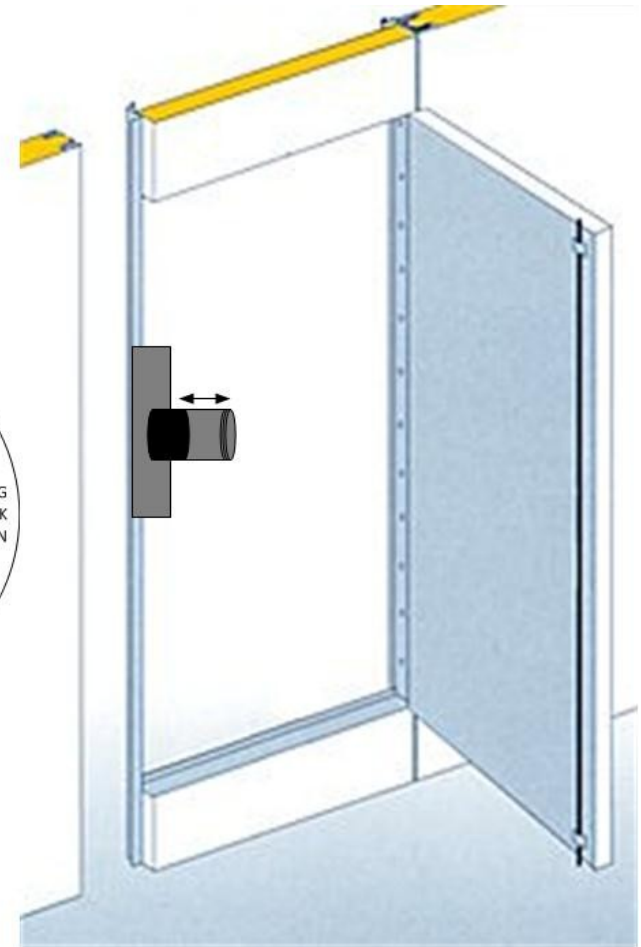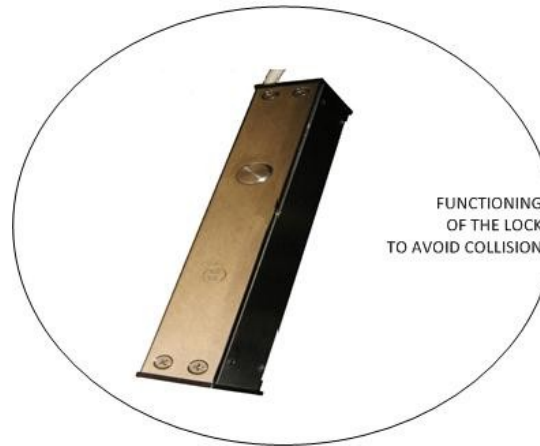
4. Why is ⓘS4® different to other systems (XI)

DOCUMENTATION

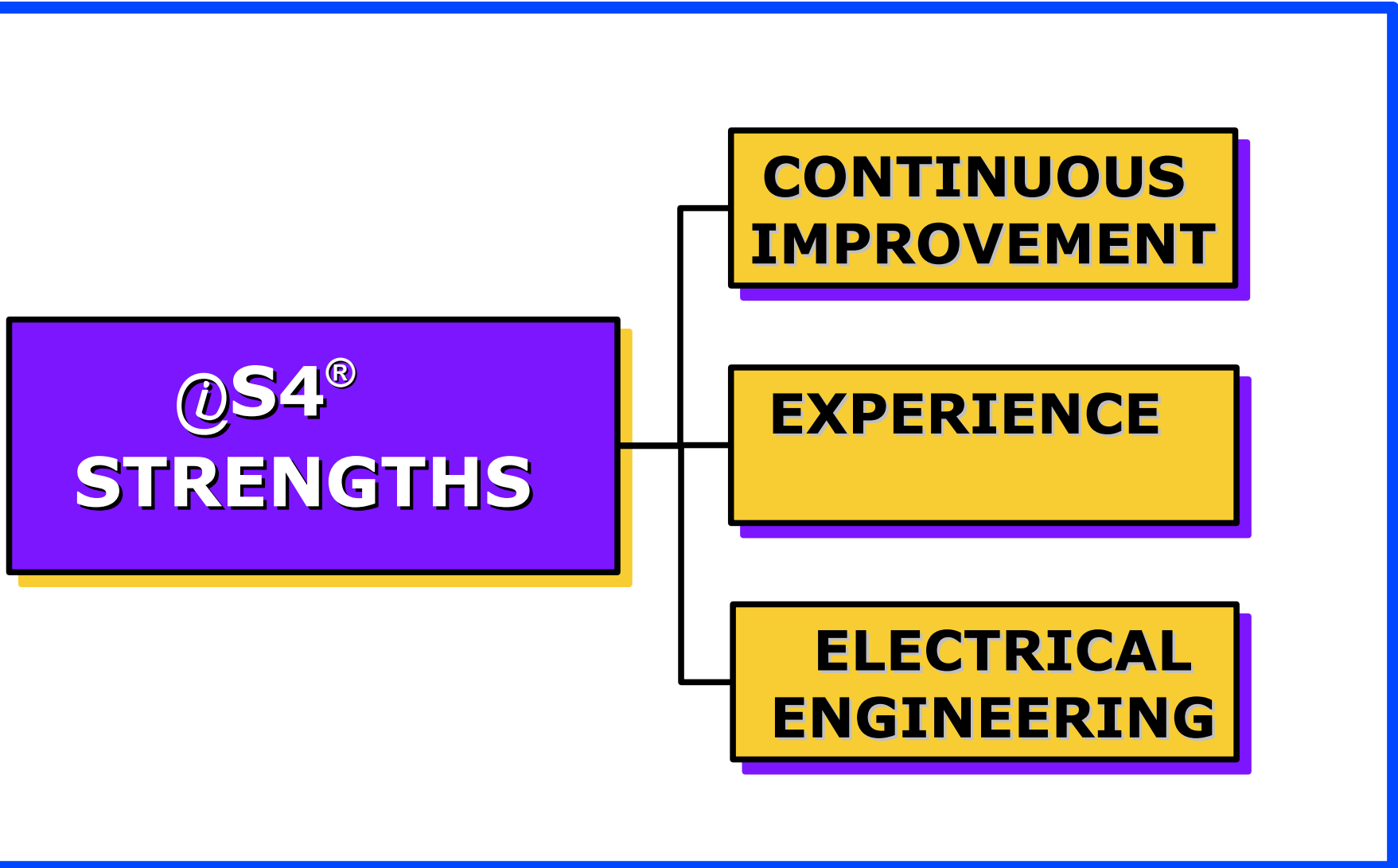▶ ⓘ**S4**® possesses a set of documentation according to NATO standards.

▶ Documents are written in English.

▶ A large portion of documents is available in German and/or Spanish.

▶ The documentation is being kept updated with the help of a document repository software (*Subversion*).

4. Why is @S4® different to other systems (XII)

@S4® SYSTEM

Diagram design of @S4® with battery backup for the redundant power supplies and different connections with the R2PS, CPU, Central Control PC, IPMS and the Entrance kit.

4. Why is ⒤S4® different to other systems (XIII)

⒤S4® SYSTEM

**⒤S4®
STRENGTHS**

- **CONTINUOUS IMPROVEMENT**
- **EXPERIENCE**
- **ELECTRICAL ENGINEERING**

4. Why is @S4® different to other systems (XIV)

@S4® SYSTEM

CONTINUOUS IMPROVEMENT

EXPERIENCE

ELECTRICAL POWER

It is an evolution of the *terrestrial* systems

Since 2006 supplying security systems for warships

It is a patented system

4. Why is ⓘS4® different to other systems (XV)

@S4® SYSTEM

CONTINUOUS IMPROVEMENT

EXPERIENCE

ELECTRICAL POWER

It uses technology from a German company (Primion Technology AG)

@**integra**'s staff has more than 15 years of experience

Involvement of Shipyards Engineering Departments as a key factor

Providing security systems specially designed for ships since 2006

4. Why is @S4® different to other systems (and XVI)

@S4® SYSTEM

CONTINUOUS IMPROVEMENT

EXPERIENCE

ELECTRICAL POWER

- Redundant power supply
- Battery back up of the power supply
- More than 5 hours autonomy working with batteries
- Failure proof regarding power
- Shock test MIL-S-901D
- Recording of operations and their author's names
- Direct connection with IPMS
- Marine-grade

5. References (I)

@S4® SYSTEM

1. What is @S4®

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5. References (II)

The ⓘS4® is the reference security system in the following warships:

SPANISH NAVY

▶ LHD Juan Carlos I

▶ Frigate F105-Cristóbal Colón

▶ AOR A-15 Cantabria

▶ BAM Meteoro P-41

▶ BAM Rayo P-42

▶ BAM Relámpago P-43

▶ BAM Tornado P-44

5. References (III)

@S4® SYSTEM

AUSTRALIAN NAVY

▶ AWD Hobart

▶ AWD Brisbane

▶ AWD Sydney

▶ ALHD Canberra

▶ ALHD Adelaide

5. References (and IV)

VENEZUELAN NAVY

▶ BVL Guaicamacuto GC-21

▶ BVL Yavire GC-22

▶ BVL Naiguata GC-23

▶ BVL Tamanaco GC-24

▶ POV Guaiqueri PC-21

▶ POV Warao PC-22

▶ POV Yekuana PC-23

▶ POV Kariña PC_24

@S4® SYSTEM

THANK YOU VERY MUCH FOR YOUR ATTENTION