



# SMART SOLUTIONS FOR THE EXPANSION OF THE PANAMA CANAL

MAKING THE COUNTRY'S KEY INFRASTRUCTURES SMARTER



## Context

### More efficient and sustainable infrastructures

The Panama Canal is considered one of the greatest civil engineering works in history.

Through its technology Indra participates in the Panama Canal expansion project.

The scope of the project includes the implementation of an integrated access control and security system, a ship detection system, all the communications technology, fire detection and extinguishing systems, PA, evacuation and an

environmental sensor system for the third set of locks of the Panama Canal.

The first part of the project started in Spain, where the entire engineering stage was executed in three stages, resulting in the creation of over 33,000 documents that have given rise to the manufacturing and assembly of all instrumentation planned.

The manufacturing performed in accordance with the American UL, FM and NFPA regulations and standards has ended with the execution of a mock up or test simulation that has passed the tests agreed to with the Panama Canal Authority.

**Technological partner in the largest civil work, the world benchmark in infrastructure currently underway**

## Leading smart solutions for large infrastructures

The project incorporates an integrated control and security system with the latest technologies that includes building access control, vehicle control, perimeter alarms, intruder detection in buildings and video and recording control systems for the locks on the Pacific and Atlantic sides of the Canal, as well as for the associated buildings.

- Over 10,000 credentials and 400 readers for access control, 350 cameras and 4,500 detectors.
- A vehicle control system to prevent entry to the premises by unauthorized vehicles, control internal traffic within the installations and at the Canal gates, indicate authorized or unauthorized access by individuals to the gates, and prevent acts of sabotage in the most sensitive areas of the Canal.
- Ship detection system, which can identify any floating object within the operational area of the gate chambers to avoid accidental closing of the gates if a ship or any other object is in its course, thus increasing the security of the closing operation.
- Environmental sensor network that offers the information needed to ensure proper operation of the future installations.
- Design and supply of a fire detection and protection system, integrated into the extinguishing system and with a mass notification system, made up of the alarm, digital signaling, telephony, PA and evacuation systems.
- Buoy system that shows the alignment of the gates and facilitates pilot maneuvering in the canal.
- Supply of systems for providing voice, data, video and wireless communications to the different buildings and the communication posts deployed throughout the entire infrastructure, including the complex and its interconnection with the solutions that are already operating at the current Canal installation, guaranteeing the continuity of all types of communication.

## Benefits

### A milestone in global transportation

- Efficient use of the infrastructure by providing it with a superstructure layer that manages the installation to maximize its use.
- These smart technologies provide real-time information for decision-making and offer added value to the service, increasing security levels.
- Improved business capacity by contributing to increase vessel traffic.
- Infrastructure protection and security against misuse, external attacks or environmental pollution.
- Influence on transoceanic routes to address international trade demand and allow shipping companies to increase the size of the vessels, with the aim of handling a larger volume of cargo.
- Effectiveness and respect for the environment, to provide the infrastructures with greater control and improve people and merchandise mobility.

## Indra in the sector

### A complete offering for our clients

Our experience in the national and international market allows us to offer highly specialized solutions and services in constant innovation.

We help improve the business processes of all of the agents served by port, logistical and hydraulic infrastructures, optimizing the investment in these infrastructures in terms of efficiency, sustainability and quality of the services offered.

The combination of our knowledge of business processes and the technologies that support them, as well as the robustness and breadth of our solution base and service capabilities, enables us to be not just suppliers, but also partners of our clients.

These capabilities and our clear international commitment have allowed us to successfully complete projects on the 5 continents, with over 70 ports operating our systems.



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