

← [Return to Industry Projects Index](#)



## PETROLEOS DE VENEZUELA ISLA REFINERY AUTOMATION SYSTEMS UPGRADE, CURACAO, VENEZUELA

During the first quarter of 2001, Petroleos de Venezuela S.A. (PDVSA) announced a \$1.7 million automation systems upgrade at its Isla refinery on the Island of Curacao, Caribbean. The island is part of the Dutch Antilles and is located near the coast of Venezuela.

The refinery on the island belongs to PDVSA, the state owned Venezuelan oil and gas company. It is part of the company's ambitious expansion programme, which is seeing massive investment in hydrocarbon-related activities.

### PLANTWEB FIELD-BASED ARCHITECTURE

PDVSA selected PlantWeb field-based architecture with FOUNDATION fieldbus from Emerson Process Management (formerly Fisher-Rosemount), the process management division of Emerson, for the upgrade. The company decided to use Foundation Fieldbus as its studies showed that FOUNDATION Fieldbus' integration with Ethernet technology makes plant automation more affordable and much faster.

The choice of PlantWeb was recommended by Technip-Italy, the engineering and construction firm implementing the project. The decision was encouraged by the operational and capital expenditure savings the system provides. The open, integrated solution will automate the plant's four sulphur recovery units, hydrogen units and an asphalt-burning system as part of an overall modernisation programme at the refinery.

The refinery selected the field-based PlantWeb

[Click To Expand](#) 



**The Catalytic Cracking unit in Curacao.**

[Click To Expand](#) 



**The refinery uses distilled sea water, processed on site.**

architecture because it is innovative and has a track record. The company reported itself to be very impressed with its use of intelligent FOUNDATION fieldbus devices to reduce configuration and maintenance costs. This made it far superior to any conventional Distributed Control System solution. The networking of powerful field devices as part of the PlantWeb automation approach is central to the Emerson automation strategy and will influence the future of the plant automation industry.

The choice of PlantWeb field-based architecture also opens up an entire range of improved performance opportunities, including increased plant availability, decreased process variability, reduced operations and maintenance costs, and streamlined regulatory compliance.

## PROJECT CHARACTERISTICS

The project's implementation of PlantWeb architecture includes over 900 Foundation fieldbus devices and over 280 loops with control-in-the field, making it the largest refinery to install this technology. Included are a large 3,500 channel DeltaV automation system networked with Rosemount pressure and temperature transmitters and vortex flowmeters, Fisher control valves with Fieldvue Digital Valve Controllers, and Rosemount Analytical pH and oxygen transmitters. These intelligent, fieldbus-enabled instruments collect, distribute, diagnose and use information for process control, management execution, and asset management.

Fisher-Rosemount guaranteed Petroleos de Venezuela that in installing its PlantWeb architecture and FF (rather than traditional DCS architectures using 4-20 mA analogue technology) it would cut automation-related capital costs significantly. According to the supplier, the project for PDVSA created capital cost savings of 20% to 40%.

## THE ISLA REFINERY

Click To Expand 



**The thermal cracking unit in Curacao.**

Click To Expand 



**The refinery has port access.**

Click To Expand 



**The architecture of the control system is thoroughly distributed.**

The Isla refinery has a maximum capacity of 335,000 barrels per day. PDVSA operates the refinery and storage terminal under a long-term leasing agreement with the Curacao government. Its finished petroleum products are shipped to the Caribbean market, Central and South America, the United States, and various European markets.

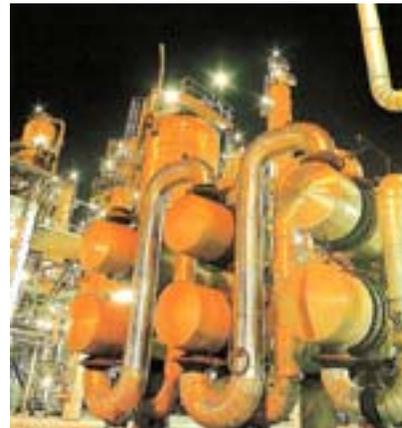
## LEAD CONTRACTORS

Petroleos de Venezuela selected PlantWeb field-based architecture from Fisher-Rosemount for the project. This project represented the first fieldbus installation for Technip of Italy. In collaboration with Fisher-Rosemount, Technip helped the Isla Refinery develop the process strategy, field segment calculation, and philosophy for graphic displays. Emerson Performance Solutions and Vertix Instrumentos in Venezuela provide on-site support services.



[Click here for printable version](#)

Click To Expand 



**Heat exchangers at the Curacao refinery.**

**SPECIFICATION**

## FEATURED SUPPLIERS

- [NEL Frequency Controls Inc - Hercules Encoders and Potentiometers \(Handling Systems and Components\)](#)
- [Rotork Controls - Electric and Fluid Valve Actuators \(Valves, Actuators and Positioners\)](#)

<a href="#">Home</a>	<a href="#">Industry Projects</a>	<a href="#">Products &amp; Services</a>	<a href="#">Company A-Z</a>	<a href="#">Events</a>	<a href="#">Organisations</a>
AN SPG MEDIA WEBSITE			INTERNATIONAL CAREERS		
Bringing Buyers and Sellers Together, On Paper, Online, In Person					

[Terms and Conditions](#)