CASE STUDY: ECRESO SWITCH CONTROLLER
Securing & Simplifying Antenna Switches or Panel Patches for Radio/TV Operators

HIGHLIGHTS

Product: ECRESO Switch Controller

Developed by: WorldCast Systems

Main benefits:

- Single, centralized unit to automatically move RF switches as commanded by user
- Continuous system control and view, locally and remotely
- Secures operations in high RF fields
- Highly robust and reliable
- Provides constant monitoring and testing for fault and lock conditions
- Configurable presets

HALT — Highly Accelerated Life Testing   CE   FC   FMEA — Failure Mode and Effect Analysis

CONTEXT

This case study describes the advantages of the Ecreso Switch Controller as an essential element of the transmission chain.

Technical maintenance of antenna systems is critical for all TV and Radio operators who value high uptime and security as their priority. In a complex, at high-risk or even dangerous environment for technical staff, there is a need for a system to **facilitate and secure maintenance and antenna switching operations**.

CHALLENGE

When designating the management of an antenna system to a dedicated switch controller, network operators are looking for a reliable, secure, cost-effective, and simple-to-use solution. In addition, it is important to have a clear view of the system status along with manual control for emergency operations or in the case of any potential failure of the solution.

Finally, for small antenna systems as well as for sites with many possible configurations, customers prefer using the same product that can be either standard or personalized depending on the number of transmitters, antennas, patches or switches that are installed in their site(s).

A NEW SOLUTION

It is to provide network operators with a modern, safe, easy-to-use solution for controlling and switching their antenna system that WorldCast Systems developed the Ecreso Switch Controller (ESC). It is designed to support a **high level of customization** and **can be installed in any transmitter site for analogue or digital Radio or TV**.
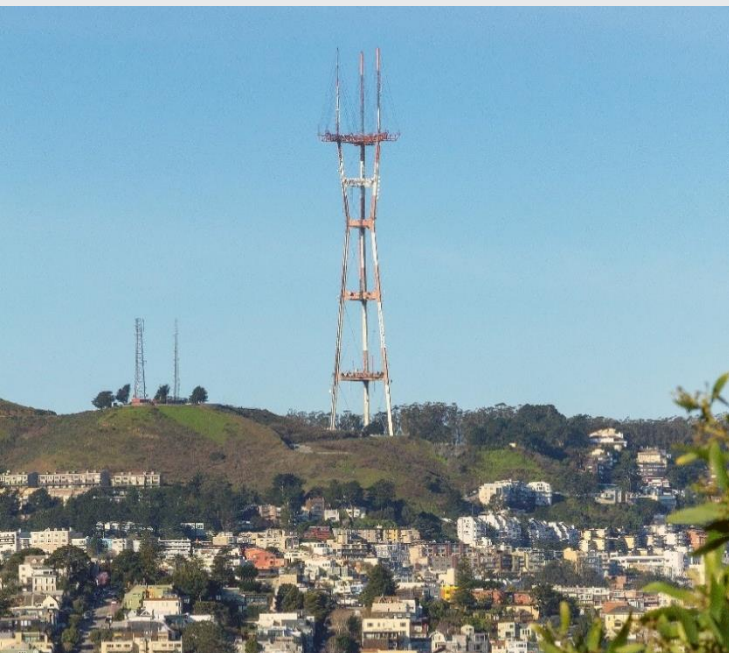
ESC Technical Functions

- Allows control and monitoring of up to 5 antenna switches
- Secured Local and Remote control available based on user access-level through web pages, SNMP, GPIO, or the front panel of the unit.
- Flexible and easy configuration protected by PIN code for installation or maintenance uses
- Highly reliable FPGA logic for switch changes, including failsafe tests and conditions
- Clear indications of manual and pre-configured configurations
- Dynamic synoptic on web pages and front panel to give a quick status of the RF
- Secured OVER RIDE function to force a local operation bypassing the CPU system
- Huge number of GPIOs allowing to integrate field parameters in the operation chain:
  - Transmitter and Antenna: VSWR, Interlock, lockout, full or reduced power
  - Probes: monitoring of up to 3 forward and 3 reflected power measurements
  - Relays: 24VDC switch control with adjustable delays and configured conditions
  - And much more…
- Redundant power supplies
- Compliant with Spinner, Dielectric and other switches
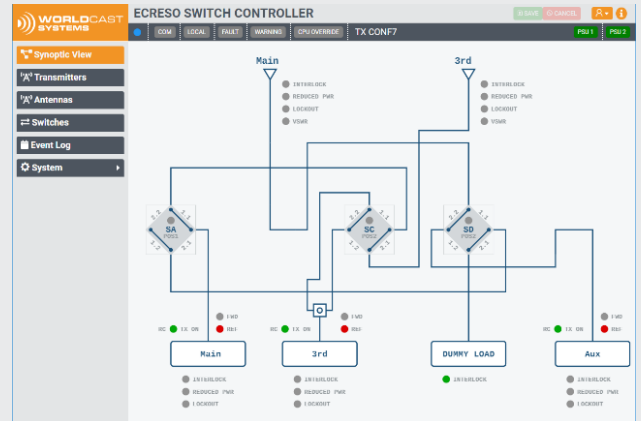
Web pages – Remote view

Front panel – Local view

REAL USE CASE: SUTRO TOWER

Context

In the context of the TV repack operation in the United States, WorldCast Systems was selected by Sutro Tower (San Francisco) in 2019 to develop and supply an Antenna Switch Controller System for their RF switches (DTV and FM) and combiner rooms. Sutro Tower has undergone a large renovation process involving replacing several antennas, adding additional RF feeds on the tower and replacing its existing antenna control system. They wanted a solution to move the RF switches as commanded by their operators.

Sutro Tower configuration:
- 3 different combiner rooms
- 13 TV stations*
- 3 radio stations*
  *Subject to change

Challenge

Need for a modern, centralized solution offering a unified view of the entire infrastructure to monitor and facilitate the RF switching operations.

Solution

The Ecreso Switch Controller brings flexibility, full control, and in addition to maintaining safety in all operations, it provides monitoring/recording data for real time display and detailed analysis.