

POES Box System

POES Satellite Ground Station

Automated Sciences LLC
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POES Tracking Dish

Introduction

POES (Polar Orbiting Environmental Satellite) data and imagery is a powerful tool for meteorology and resource management. The imagery is 1km resolution data at five spectral wavelengths sent in a co-registered format. The satellites orbit the Earth at a nominal altitude of 820km crossing the poles in an approximately 100 minute orbital cycle. There are two to four functional POES satellites operating at any one time providing 8-20 datasets per day.

POES Box System

The POES Box is a rackmount computer system (shown below, bottom unit) with an integrated digital Receiver Card. This box interfaces with a tracking controller (shown below, top unit) that controls the azimuth and elevation of a tracking dish (shown upper right corner of this page).

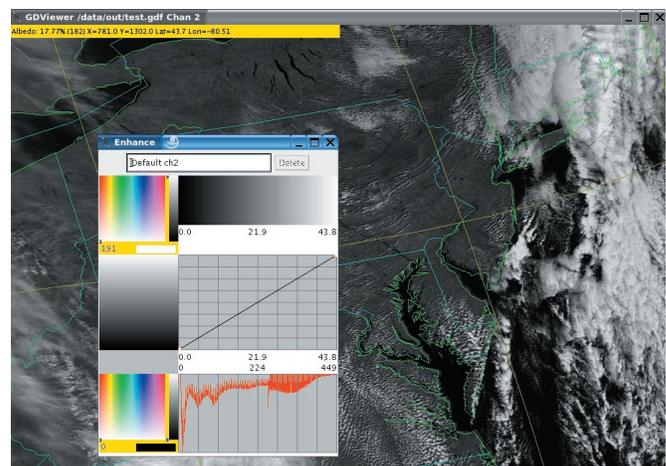


POES Station and Tracking Controller

Automated Sciences LLC
74 River Rd
Preston, CT 06365 USA

The system automatically predicts when the satellite pass will occur, tracks the satellite across the sky, ingests the data, and stores it to disk allowing meteorologists or scientists to make use of the data using the included Gridded Data Viewer software or other software designed to process real-time POES HRPT data.

The POES Box includes the Gridded Data Viewer image display and processing tool (shown below). This tool is a basic easy to use tool capable of displaying the POES imagery with navigation and calibration information.



Gridded Data Viewer

The POES Box System includes a heavy duty tracking controller and a 1.8 meter dish. The larger than nominal dish allows clean near horizon reception.

The POES Box provides a powerful, reliable, and affordable solution to POES data reception.

Web: www.automatedsciences.com
Email: info@automatedsciences.com
Phone: (860) 886-8368

The POES Box and the accompanying tracking controller are supplied in rackmount chassis. A standard equipment rack is required to properly mount them.

The POES Box includes a strong basic feature set that will meet a wide variety of needs. If a desired feature is not listed in the feature list below contact us. We also offer customizing development services that provide a way to get desired functionality added to the product.

Key Features of the POES Box System	
Integrated Receiver	An integrated digital receiver capable of receiving data from the NOAA POES and Chinese FY-1 satellites. Receiver is field configurable and upgradeable.
Intelligent Tracking Controller	The intelligent tracking controller is capable of controlling an azimuth and elevation motor and accurately monitoring their movement to ensure proper satellite tracking. It is a modern all solid state design (no relays) using the latest Power control and surface mount technologies. A powerful agile microcontroller controls the process and receives command and provides status to the POES Box during the satellite pass.
Tracking Dish	The POES Box system includes a 1.8 meter tracking dish, an integrated feed with an LNA/Filter/Downconverter, a heavy duty azimuth rotor, and a linear actuator for accurate sturdy elevation control. This is all mounted in a 1.5-6 meter tower getting the dish off the ground creating a significantly lower effective horizon for proper tracking and ingest of low elevation passes.
Powerful Computing Platform	The POES Box is based on a computer with the specifications listed below to provide ample power to quickly and efficiently work with the data.
Reliable Computing Platform	The POES Box runs Linux as its operating system, the powerful ultra-reliable variant of UNIX that is used throughout the world for the most critical computing applications.
Includes an image processing software package	Includes the Gridded Data Viewer image processing tool.
Network Ready	The POES Box includes an integrated gigabit Ethernet adapter and is fully network ready.

POES Box Basic Specifications	
Processor	Intel Pentium IV at 3.0Ghz with hyperthreading
Memory	512MB of RAM (up to 2GB of RAM)
Hard Disk	Dual 120GB hard drive (Other configurations available)
Video	Intel Integrated graphics accelerator
Case	Mid Tower/4U Rack mount Case
Power Requirements	Voltage: 110V/220V, 50-60Hz AC, Power 200 Watts
RF Input	Center frequency 65-75Mhz, input level -40dbm to 0dbm, 50 ohm impedance
Tracking Dish	1.8 meter diameter, 500+ degree azimuth range, 5-80 degree effective elevation range
Integrated Feed	Feed/LNA/Downconverter 1692-1712Mhz, 65-85Mhz out, gain 70db, noise figure <1.0db
Data Source	NOAA Polar Orbiters, KLM series, N Series, HRPT Chinese FY-1 POES satellites CHRPT
Operating System	SuSe Linux 9.1 or greater distribution based on Linux 2.6.X kernel
Installed Software	Automated Sciences HRPT Ingestor, Gridded Data Viewer, and other associated components. Various Open Source Packages, Netscape browser, Adobe Acrobat, and other commercial software.
Warranty	A two year limited warranty, contact us for details

Pricing and Availability

The POES Box is a powerful, complete, and very affordable system. Contact us for a quote of price and lead time.