



POAM Electronics offers the **Professional Series Solar Radio Telescopes**; **SRT18-PRO (1.8m)**, **SRT37-PRO (3.7m)**, and **SRT60-PRO (6.0m)**; specifically engineered for high-precision solar observation and signal monitoring.

The **SRT18-PRO** supports a frequency range of **2 GHz to 6 GHz**.

The **SRT37-PRO** covers a wider range from **1 GHz to 6 GHz**.

The **SRT60-PRO** offers **broadband coverage from 100 MHz to 6 GHz**, achieved by integrating a **Log-Periodic Dipole Array (LPDA)** antenna alongside the main reflector to extend reception in lower band from **100 MHz**



3.7m antenna with 1GHz to 6GHz wideband feed



6m antenna with side LPDA to cover low frequency band 100MHz to 1 GHz and wideband feed of 1 to 6 GHz  
**Note:** this mount is Normal SRT60 and not SRT60-Pro

## Full Rotation Mount

The POAM Professional Series SRT telescopes are equipped with a **full-rotation mount**, offering **360° azimuth** and **0° to 180° elevation** range. This design provides **complete sky coverage without a zenith keyhole**, enabling seamless solar tracking from **sunrise to sunset**. With **low backlash**, **high positioning accuracy**, and **durable long-life construction**, these mounts are ideal for **continuous and fully automated solar observation and monitoring**.



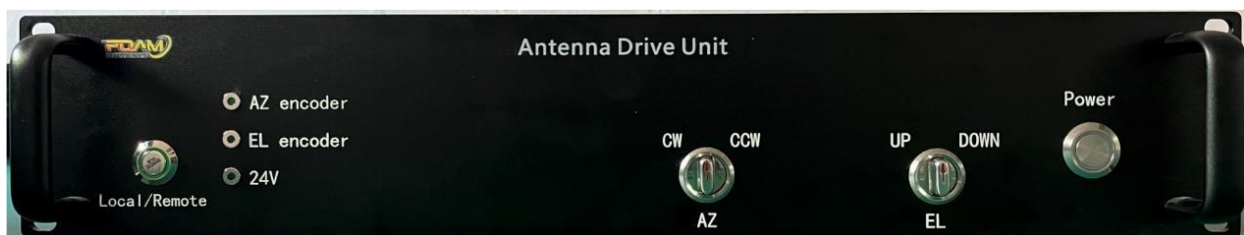
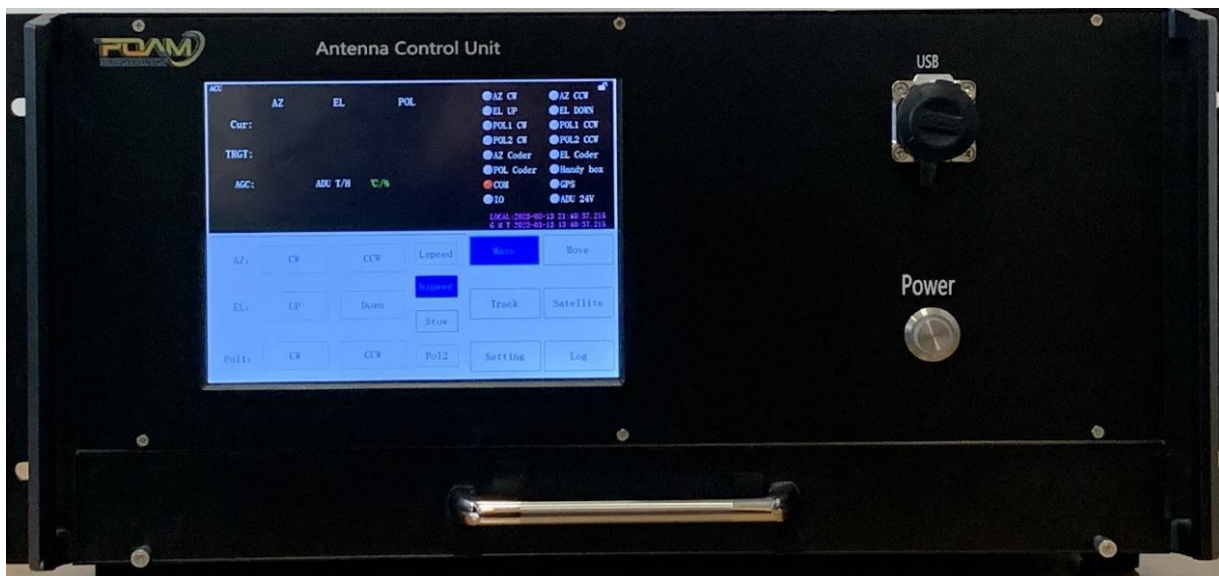
SPR60-PRO and SRT37-PRO full rotation mount

## Antenna Controller (ACS-4)

### High-Performance Three-Axis Smart Tracking System

The ACS-4 is a state-of-the-art, three-axis **antenna control system** designed for precise and reliable tracking. It includes a **5U rackmount Antenna Control Unit (ACU)** with an intuitive **touchscreen interface**, **GPS integration**, **fiber optic communication**, **remote access**, and a suite of advanced features.

The **Antenna Drive Unit (ADU)** is housed in a compact **2U rackmount enclosure**, connected to the ACU via a standard **RJ45 cable**. Together, the ACS-4 system provides accurate real-time control and display of **azimuth (Az)** and **elevation (El)** positions, ensuring smooth and continuous antenna tracking with high precision.



## Feed

At **POAM Electronics**, we design **wideband dual-polarized feed systems** for prime focus dishes, optimized for high-precision solar and radio observations.

- The **SRTF1** model supports a **1 GHz to 6 GHz** frequency range and is ideal for **larger antennas**, such as **3.7 m and 6.0 m** reflectors.
- The **SRTF2** model covers **2 GHz to 6 GHz** and is designed for **smaller antennas**, including **1.8 m dishes**.

To extend coverage to **lower frequency bands (100 MHz to 1 GHz)**, we integrate a **Log-Periodic Dipole Array (LPDA)** antenna mounted alongside the **6.0 m reflector**. This hybrid configuration enables **continuous wideband solar monitoring** across **100 MHz to 6 GHz**, ensuring complete spectrum coverage for advanced research and observation.



## Radio Telescope Control Software (RTCS) – Version 2

All POAM's solar radio telescopes come with a radio telescope control software RTCS that is used for controlling and data acquisition and runs under Windows 10 or later.

The Radio Telescope Control Software (RTCS) Version 2 is specifically developed for solar radio astronomy applications. It provides precise control of antenna movement and enables data acquisition from compatible radio telescope receiver systems.

RTCS supports automated antenna tracking, radio source scanning, and real-time position display in both Equatorial and Horizontal coordinate systems. The software includes an integrated radio source database containing positional and intensity data for 80 strong radio sources, including pulsars and the Sun.

It offers real-time measurement and visualization of signal amplitude within a user-selected frequency range or resolution bandwidth. A built-in signal calibration module ensures accurate capture and analysis of transient events, which is essential for studying solar radio emissions.

RTCS includes both manual and automatic solar tracking modes, with options for daily and extended continuous observations. The output data for solar tracking is provided in **Solar Flux Units (SFU)**, based on the internal calibration process, ensuring consistency and accuracy in flux density measurements.



## Calibration Unit:

In both radio and solar astronomy, accurate measurement of received signals is critically dependent on proper calibration. This involves comparing the observed signal from the antenna with a known reference signal, typically generated by a calibrated noise source. Such calibration is essential for determining key observational parameters, such as the **absolute solar flux** in solar monitoring applications, or the **absolute gain** and **system temperature** in general radio astronomy.

Without this calibration step, measurements can be significantly affected by system noise, receiver gain variations, temperature drift, or impedance mismatches. By establishing a known reference level, astronomers can convert raw signal data into scientifically meaningful units, such as **Solar Flux Units (SFU)**, and ensure consistency across observation sessions and systems.

To meet these critical needs, **POAM's Calibration Unit** is designed for seamless integration with your radio telescope system. It provides a reliable and automated method to calibrate the receiver path by introducing a reference signal under controlled conditions. The unit connects via an **RJ45 interface** and can be directly managed by the RTCS (Radio Telescope Control Software), ensuring smooth operation within the control environment.

In **automatic mode**, the Calibration Unit uses a built-in high-frequency **RF switch** that is programmable via the RTCS software. This switch allows the system to alternate between three selectable states: the **antenna feed**, the **calibrated noise source**, and a **matched RF load**. By cycling through these states in a predefined sequence, users can perform precise and repeatable calibration routines without manual intervention.

This automated calibration capability not only improves accuracy but also enhances efficiency, particularly for solar observation tasks requiring frequent or continuous calibration. With this feature, POAM's system ensures long-term reliability and scientific validity of the data acquired, especially when operating under changing environmental or system conditions.



## Radio Telescope Receiver System (RTRS) -N6002

The **N6002** is a high-performance dual-channel receiver specifically designed for **radio and solar astronomy** applications. It supports both **spectrum analysis** and **continuum (total power)** measurements across a wide frequency range, making it ideal for observing solar emissions, radio sources, and background cosmic noise.

### Key Features:

- **Frequency Range:** 100 MHz to 6 GHz
- **Frequency Resolution:** < 1 kHz
- **Gain Range:** 70 dB (adjustable in 1.0 dB steps)
- **Noise Figure:** 4 dB to 5 dB
- **Maximum Input Power (Pin):** -15 dBm
- **Frequency Accuracy:**  $\pm 2.5$  ppm
- **Instantaneous Real-Time Bandwidth:** up to 50 MHz
- **No. of Channels:** 2 (supports spectrum and total power modes)
- **Digital interface port:** USB 3.0

Designed for precision and flexibility, the N6002 ensures accurate signal reception and analysis, making it a robust tool for professional and research-grade radio astronomy systems.



## RF SPECIFICATIONS:

	<b>SRT18-PRO (1.8 meter)</b>	<b>SRT37-PRO (3.7 meter)</b>	<b>SRT60-PRO (6.0 meter)</b>
Frequency band	2-6GHz	1-6GHz	100MHz to 6GHz
Polarization	LHCP and RHCP		
G/T	15.26 dB/K @4GHz El $\geq$ 10° & 75K LNA	21.52 dB/K @4GHz El $\geq$ 10° & 75K LNA	25.82 dB/K @4GHz El $\geq$ 10° & 75K LNA
Gain	36 dB @ 4GHz	42.25 dB @ 4GHz	46.45 dB @ 4GHz
VSWR	$\leq$ 1.5:1	$\leq$ 1.5:1	$\leq$ 1.5:1
Beamwidth	2.85° @ 4GHz	1.39° @ 4GHz	0.85° @ 4GHz
First Sidelobe	< -16dB	< -16dB	< -16dB
Beamwidth between first Nulls	5.82° @ 4GHz	2.84° @ 4GHz	1.75° @ 4GHz
Cross Pol Isolation	$\geq$ 35dB	$\geq$ 35dB	$\geq$ 35dB

## MECHANICAL/ENVIRONMENTAL SPECIFICATIONS:

Antenna Diameter	SRT60 (6.0m) SRT37 (3.7m) SRT18 (1.8m)
Reflector type	Prime Focus; Aluminum
Mount type	Elevation over Azimuth
Antenna travel range	Az = 0 to 360° and Elevation 0 to 180°
Velocity (each axis)	0.5 °/s
Tracking Accuracy	<0.01°
Pointing accuracy	0.01°
Surface Accuracy	<0.5 mm
Outdoor Operating Temperature	-40° to +55° C
Indoor Operating Temperature	10° to 30° C
Outdoor Humidity	0%~100%
Indoor Humidity	<85% non-condensing
Operational Wind	75 km/h gusting to 85 km/h
Survival Wind	180 km/h (in park position at zenith) gusting to 210 km/h
Seismic	0.3 G horizontal, 0.15 G vertical
Ice Loading	13mm Operational; 25mm Survival
Adaptation	Salt, pollutant, radiation, rain