

## 12.0 Meter Radio Telescope



RTP120 with a 12m dish is a high-end product, Plug & Play system which is designed for researchers and professionals. The antenna support/tower can be steel or reinforced concrete structure. The lower tower section offers rack space for the RF subsystems and baseband equipment and receivers or customer furnished equipment. Thanks to dual shape optics for achieved the superior G/T performance.

The RTP120 offer high pointing/tracking accuracies, and are suited for multi-mission operation in Radio Astronomy applications. Antennas can be equipped with electrical reflector heating systems or Cryogenic cooling system. The ability to integrate the international project like VLBI is the advantage of this system. RTP120 is a Radio Telescope package ideal for observation of weak celestial sources in spectral line or continuum mode in any bands from L to Ka.

### RTP-120 INCLUDES:

- 12.0 meter dual-reflector shape antenna
- Full sky coverage motorized mount with Azimuth over Elevation configuration
- Metal or concrete tower
- high resolution ( 0.01° ) encoders
- Limit switches safety mechanism
- Rack mount Antenna Controller
- Rack mount Back-End receiver unit for continuum and spectral line observation
- L-Band Front-End unit
- Imaging and control software with radio sources database.
- 100 meter control and coax cables
- One year warranty and 10 years part supply



### OPTIONS:

- C, Ku, X and Ka bands Front-End unit
- Calibration Noise Source
- Training and installation services
- Reflector heating system
- Cryogenic cooling system

### ELECTRICAL SPECIFICATIONS:

Operating frequency	<b>L-Band</b> (1350 to 1450 MHz)	<b>Ka-Band</b> (21-22.5GHz)
Polarization	Linear	Linear
G/T	24.07 dB/K @1450MHz El=5°	47.69 dB/K @22 GHz El=5°
Gain	43.0 dB	66.60 dB
VSWR	≤1.35:1	≤1.35:1
Beamwidth	1.20° @ 1.45GHz	0.08° @ 22 GHz
First Sidelobe	< -14dB	< -18dB
Axial ratio	≤1dB	≤1dB
Isolation	≥40dB	≥40dB
Receiver B/W	Variable from 10 Hz to 3000 MHz	
Receiver detectable signal level	-165 dBm	
Minimum Spectral Line Resolution	1 Hz	

### MECHANICAL/ENVIRONMENTAL SPECIFICATIONS:

Antenna Diameter	12.0 meter
Reflector type	Dual reflector shape
Mount type	Az over El
Antenna travel range	Az=0 to 360° , El=0 to 90°
Acceleration (each axis)	constant
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