



X/Y Antenna Pedestal Technology







Fixed and Deployable Systems and Radomes

Space & Component Technology | www.trackmysat.com



Comtech Introduction

Comtech Space & Component Technology provides the customer a complete satellite and tracking solution for your ground stations in frequencies ranging from UHF, L, S, X, C, and Ku to Ka, Q, and V.

We offer a range of X/Y tracking antennas from 30 centimeters to 11 meters coupled with our installation expertise and worldwide support in extreme environments such as the Arctic, Middle East and Tropics. Comtech Space & Component Technology provides the customer a complete satellite and tracking solution for your ground stations.



Type 1 Deployable with non-ground penetrating mount

Features:

- 30 centimeters to 11 meters antenna size
- X/Y axis configuration (Series A through Type 6 for increasingly larger dishes)
- Transmit/receive feed technologies through V-band
- Designed for tracking LEO, MEO, HEO and GEO spacecraft
- Applications include Earth Observation, Remote Sensing, Communications and TT&C functions
- Lights-out operation, including ethernet (TCP/IP) and M&C software is provided with Linux-based M&C system, includes SNMP and XML support



Type 1 on a platform



Type 2 ground mount

Program and Auto Track Performance

- Effective program track capabilities that utilize ephemeris data in the form of Two Line Element (TLE) data and other formats
- Autotrack Capabilites:
 - » Low loss mode coupler tracking system for high frequencies and larger aperture antennas that does not affect G/T performance
 - » Software assisted autotrack the low velocity tracking dynamic of the X/Y allows the implementation of real time signal level peaking throughout the track by utilizing unique tracking algorithms to control the servo control system

Radome Options:

The Comtech X/Y Antenna Systems do not require a radome for operation, but for extreme locations Comtech can provide a cost-effective radome solution. A radome offers many advantages like protection from extreme weather conditions, extension of component life and provides antenna position concealment.

- Radome Diameter Sizes: 1.5 meters to 20 meters (larger on request) tuned for the frequency or frequencies of interest
- Foam Core Sandwich Composition three types of construction
 - 'A' sandwich consisting of three layers
 - 'C' sandwich consisting of five layers
 - 'S' space frame design using a fiberglass framing with a reinforced PTFE-impregnated glass fiber (Teflon) fabric (ideal for wideband applications)
 - Wind Speed: Radomes capable of surviving in winds up to 200 km/hr 300 km/hr (depending on specific model)



Antenna in 5m radome with integrated ring wall



Additional Features & Options:

- Deployable, trailer, truck and skid mounts
- High-performance shaped Cassegrain feed configurations
- Multi-frequency feed systems
- Highly-responsive installation and maintenance services
- Full RF and data chain including:
 - » Frequency converters, spectrum analyzers, RF switching, demodulators/modems, uplink amplifiers
- Mode coupler auto-track and software RSSI auto-track (ideal for X/Y low dynamic)
- Integrated UHF Transmit and Receive capabilities



Type A Micro Deployable

X/Y System Advantages:

Cost Advantage: Simplified and elegant design, advanced manufacturing techniques, and use of commercial components makes the X/Y one of the most cost-effective antenna products available in the industry

High Performance:

- System eliminates the "keyhole" at zenith or "cone of silence" associated with overhead passes experienced on other pedestal configurations
- Less dynamic tracking motion of the X/Y antenna over an El/Az provides for more accurate pointing, which is especially important when tracking Ka-band
- Low dynamic of movement greatly reduces system wear, thus extending the system life and reducing maintenance
- No cable wrap issues; no need for rotary joints or slip rings
- Precision gear assemblies *eliminate drive-system backlash*

Delivery: 14 to 26 weeks (ARO) for the 1st system, delivery schedules will vary based on system requirements, antenna size and factory loading at the time of the order. Some X/Y positioner stock is maintained on the shelf and ready for delivery, please inquire.

Carbon Fiber Reflectors: No need to heat the dish to avoid expansion and contraction as temperatures change; greater gain performance over an aluminum dish, especially at the higher Ka-band through V-band ranges. Heated reflectors for ice and snow removal are available.

Environmental Resilience: System designed for operation in coastal, arctic, and desert environments.



6.3m antenna on trailer mount



Deployable with breakaway X/Y mount



Type 5 on a tower



Type 5 ground mount

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Mechanical					
Specifications	Pedestal Weight (lbs) Height (ft/in)	Dish Sizes	Pedestal Weight (lbs) Height (ft/In)	Dish Sizes	
Apertures sizes:	Series A (45lbs) Series B (90lbs)	30cm to 50cm 80cm to 1.2m	Type 3 (2,700lbs) (9'10"-14'9")	3.5m—5.5m (Outdoor System) 6.1m (In-Radome System)	
	Series C (165lbs)	1.4m to 1.8m	Type 4 (3,850lbs) (9'10"-14'9")	5.0m (In-Radome System)	
	Type 1 (725lbs) (72" to 94")	1.8m—3.4m (Outdoor System) 3.7m (In-Radome)	Type 5 (5,500lbs) (14'9"-20')	5.0m—7.3m (Outdoor System) 7.6m—9.0m (In-Radome System)	
	Type 2 (2,200lbs) (9'10" - 12'2")	3.0m—3.7m (Outdoor System) 4.2m—4.5m (In-Radome)	Type 6 (12,500lbs)	7.6m—9.0m (Outdoor System) 8.0m—11.0m (In-Radome System)	
Point Accuracy	0.1º to 0.05º (configuration dependent)				
Position Step Resolution	0.00040				
Acceleration	10º/S² max				
Velocity	5°/s typical to 20° max (note X/Y configuration only requires a fraction of the velocity that would be required with a typical El/Az configuration)				
Axis Configuration	X over Y geometry				
Axis Travel	Full hemispheric coverage				
Horizon Limits	-1º typical				
RF					
Frequency Ranges	UHF, L, S, X, C, Ku, Ka, Q, and V bands				
Polarization	Left Hand and/or Right Hand Circular Polarization (linear on request)				
Feed Configurations	Multi-band prime focus and/or Cassegrain configuration				
Autotrack leed options	Mode-coupler mono-pulse of KSSI Software tracking				
G/T Performance Samples ^[1]	3.0-meter X-band 24.0dB/K Prime focus feed 3.7-meter X-band 27.5dB/K Cassegrain feed 4.2-meter S-band 16.0dB/K Prime focus feed 5.0-meter X-band 29.5 dB/K Cassegrain feed 5.5-meter X-band 30.2dB/K Cassegrain feed 6.1-meter X-band 31.0dB/K Cassegrain feed 7.3-meter X-band 32.6dB/K Cassegrain feed				
Control System					
Monitor & Control	Full Linux based, includes satellite scheduler and TLE propagator.				
Interface	100/240Vac 1phase 15, 2004 Tupos 5 and 6 require 2 phase 200VAC at 200 (415) (415)				
Power	Jwer 100/240vac, 1pnase, 15~30A; 1ypes 5 and 6 require 3-phase 208VAC or 380/415VAC				
Environmental (without Radome)					
Wind Speed	80km—100km/hr wind (62 mph) Operational ^{[2] [3]}				
Tomporatura					
	100% Polative Humidity				
Driving rain					
Briving runn					

[1] G/T Performance at 5° elevation clear sky

[2] Optional measures (heaters, radomes, HVACS) can be taken to improve operational

environmental limits [3] Depends on pedestal/antenna combination

About Comtech

Comtech Telecommunications Corp. (Nasdaq: CMTL) designs, develops, produces and markets innovative products, systems and services for advanced communications solutions. The Company sells products to a diverse customer base in the global commercial and government communications markets. For more information visit www.comtechtel.com.

Contact

Space & Component Technology 6181 Chip Ave. Cypress, CA 90630 USA Toll Free: 1.866.264.0793 www.trackmysat.com

Comtech Mission Critical Technologies

275 West Street Annapolis, MD 21401 USA Toll Free: 1.800.557.5869 Outside US: +1.410.263.7616 www.comtech-mct.com

