

CommX Tracking Antenna



Introduction

The High-Performance dual axis antenna positioner is a compact elevation over azimuth, light weight, system designed as a turnkey generic solution for antenna tracking.

The System provides the following main features:

- Two optional tracking options :
 - Communication based (RSSI) tracking system
 - GPS based tracking system
- Light weight (Less than 12 kg).
- Compact design.
- Operation on a single power source (12 vdc).
- Low power consumption (22W Watt nom.).
- Easy interface to any platform via LAN
- Onboard sensors: GPS, IMU, Compass.
- Onboard Linux Single board computer for system management.
- Incorporating a continues rotation slip ring

System Characteristics	
Type:	2 gimbal systems
Field of regard:	
- Elevation:	+70 to -10
- Azimuth:	360 continues
Angular velocity:	Up to 60/sec in azimuth and up to 20/sec in elevation
Internal Radio options:	
- 1W	
- 5W	
Antenna:	Any antenna up to 15Kg
Controls	
Power SW ON/OFF	
Auto tracking / Manual selector	
Azimuth and elevation (Manual Control Joystick).	
Environmental Conditions:	
Temperature	-10C to +50C
Humidity:	Up to 95%
Power:	
Voltage	12VDC
Power Consumption	22Watt (nominal)

- ✓ **COMPACT & LIGHT**
- ✓ **360° CONTINUOUS**
- ✓ **12 VDC INTERNAL BACK UP**
- ✓ **AUTOMATIC TRACKING**
- ✓ **READY FOR INTEGRATION**
- ✓ **ANTENNA POSITIONER**
- ✓ **MANUAL CONTROL OPTION**
- ✓ **EMBEDDED SBC**
- ✓ **LAN / SERIAL**
- ✓ **SUPER DUTY DRIVE**
- ✓ **WEIGHT LESS THAN 12KG**
- ✓ **AZIMUTH ANGULAR VELOCITY 60°/SEC**
- ✓ **ELEVATION ANGULAR VELOCITY 6.4°/SEC**

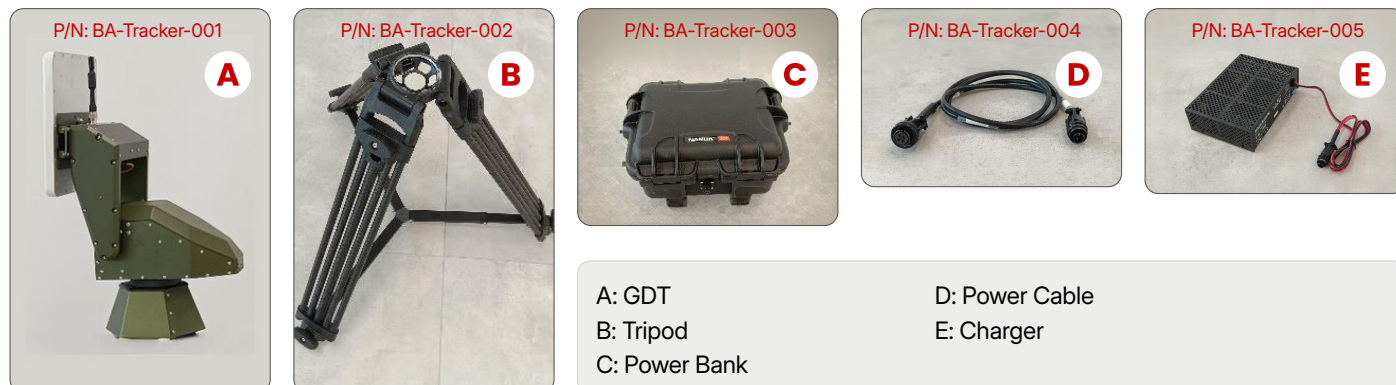


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1. Description

System parts: product includes



Basic operation:

Standard operation of the system includes:

- Assembling the GDT on the tripod.
- Connecting the power cable to the Power Bank.
- Connecting the power cable to the GDT.
- Turning on the GDT.

Operation Mode:

After powerup, the GDT will wait for a valid RSSI value, and for the Mode Switch to be on Auto. Once the RSSI values are valid, and the Mode Switch is set to Auto, the GDT will start operation.

Initial Scan mode:

After powerup, the GDT will start on Initial Scan Mode. In this mode, the GDT will move the antenna to tilt angle: 0
Then, start a 360deg rotation to CW search for the highest RSSI value direction. When the 360 scan is done, the GDT will turn to the direction where the highest RSSI values measured. Next, the GDT will scan on the tilt axis. The GDT will tilt to -10deg, and then to +25deg. the GDT will then tilt back to the angle where the best RSSI measured. The next step is Tracking mode.

Tracking Mode:

In Tracking Mode, the GDT will alternate between Pan and Tilt scans.

Pan Scan: the GDT will scan to the left and right, searching for the point of highest RSSI measured.

If a peak is detected, the GDT will stay on this azimuth until the RSSI value is dropped, or when a timer is up.

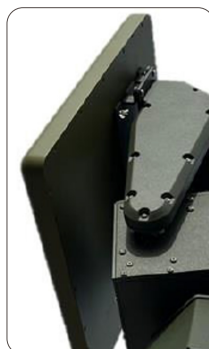
Tilt Scan: the GDT will tilt up and down 7.5deg in each direction to look for improved RSSI reception.

The GDT will Run 3 Pan scans and then do one Tilt Scan.

Accessory Options (sold separately)



P/N: BACS-001



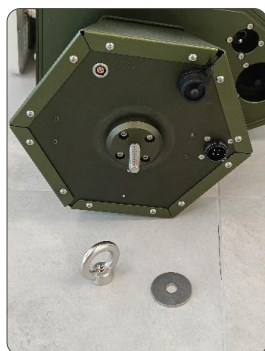
(*) Direct Antenna can be selected per Customer /
System Requirements
Default P/N ANTBA-DPI9B-1927

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2. Assembly

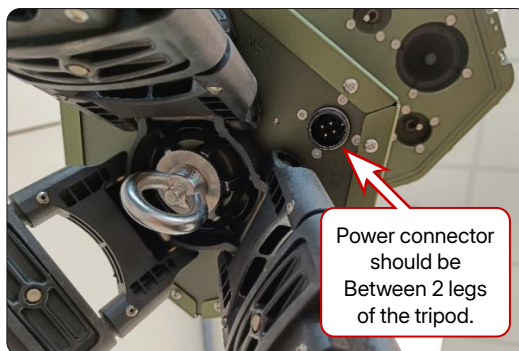
- Note:** the GDT is top heavy, it requires 2 persons to assemble the GDT on the tripod to prevent from the GDT to fall.
- Note:** Make sure to lay the Tripod on Level ground.
- Note:** Do not extend the GDT legs.



A.
Remove the Eye nut and washer from the Holding screw.



B.
one person will hold the GDT on the Tripod, while the second person insert the thread the Washer and Eye nut.



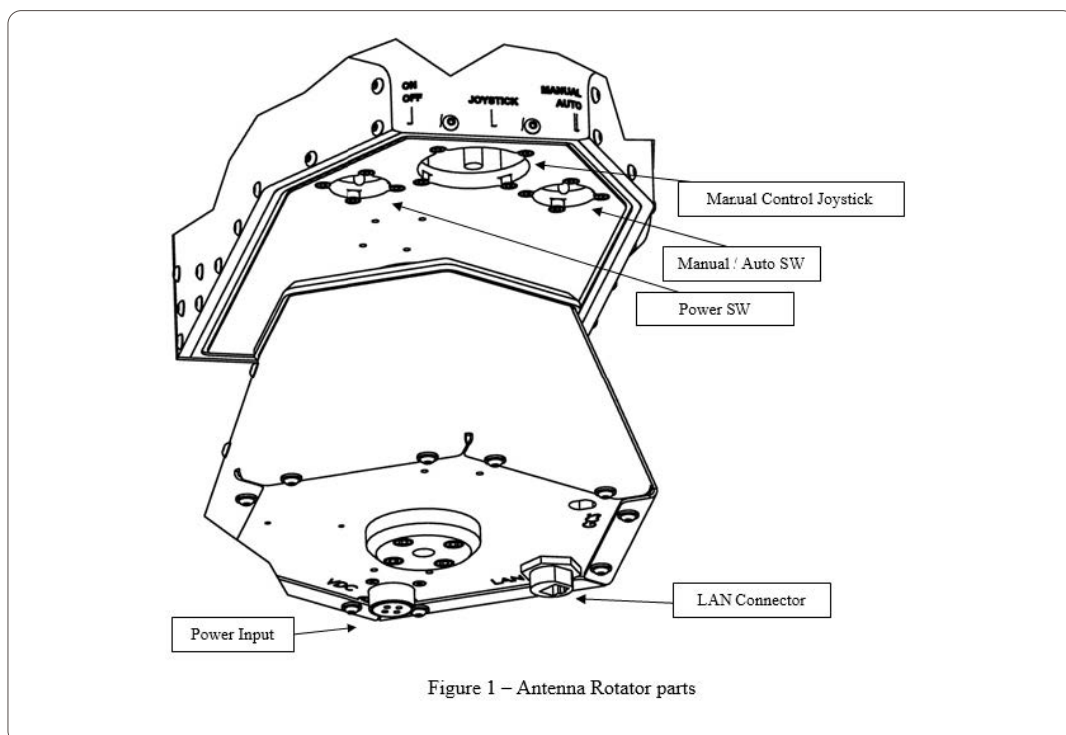
C.
before tightening the Eye nut, align the power connector between 2 legs for easy connection to the power cable.

Power connector should be Between 2 legs of the tripod.



D.
Connect the Power Pable to the Power Bank.

3. GDT Controls



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4. Operation

Standard operation mode – Auto.

Make sure the Mode Switch is in Auto mode.

Power on the GDT.

Once valid RSSI is received, the GDT will start its Auto operation.

- GDT will Tilt antenna to 0 deg.
- GDT will start 360 deg in azimuth, searching for highest RSSI value.
- When 360 deg scan ends, GDT will rotate to the direction where the highest RSSI was detected.
- GDT will start Tilt Scan. GDT will tilt from -10 to 25, and tilt back to the angle of best RSSI received.
- GDT will start Tracking Mode.

Skipping Initial scan.

If the user knows the direction of the Aerial unit, it is possible to manually point the GDT to the Aerial unit and skip the initial scan.

Before powering the GDT, Set the Mode Switch to Manual Mode. Use the joystick to manually point the GDT to the Aerial unit.

The user should wait at least 30 seconds after powerup before switching the Mode Switch to Auto.

Once the Switch is turned to Auto, the GDT will skip the Azimuth 360 deg scan, and jump to the Tilt scan and then move on to Tracking Mode.

Exceptions:

If Mode Switch is moved to Manual while operation, once the GDT will finish its current move, it will stop, and the joystick can be used to manually change the orientation of the GDT. Move the Mode Switch back to Auto, and the GDT will continue in Tracking Mode.

If, while in operation the RSSI reception is lost, the GDT will tilt the antenna to 0deg.

The GDT will wait for 10 seconds for RSSI to return.

If reception is not restored, the GDT will start to scan 30 deg in each direction.

After 2 scans, if no reception, the GDT will go back to initial scan mode.

5. Charging

The Power Bank must be charged before operation.

See "Energy pack charging.docx" for charging instructions.

The status of the Power Bank can be tested.

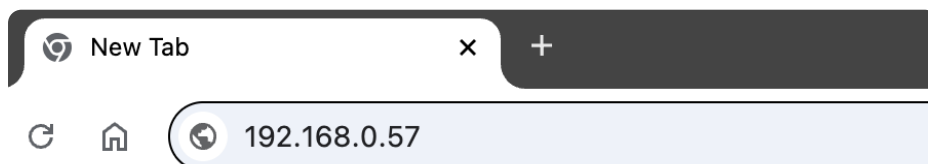
Open the lid of the Power Bank and press the button.

Charged value should be higher than, 12.4V

Note, in the photo, the Power Bank needs to be charged.



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Antenna Tracker IP Address:

Available configuration parameters include:

- **Current IP Address:** Displays the current IP address assigned to the tracker.
- **New IP Address:** Allows modification of the tracker's internal IP address. It must be in the same domain as the internal radio.
- **Subnet Mask:** The internal tracker's CPU Subnet Mask address. It must be the same as the internal radio.

Radio Configuration

This section states the system's radio configuration:

- **Tracker Radio:** The radio installed inside the tracker
- **Platform Radio:** The radio in the platform that is being tracked

For clarity and quick reference,

The current IP address and Node ID of the tracked radio are displayed in gray.

- **Radio IP Address:** The Tracker's internal radio's IP address. To change this, the user must change the radio's IP address within the radio's GUI. Only then will you be able to change this field
- **Radio Node ID:** The tracked radio Node ID. This field allows you to change the tracked radio Node ID.

commX WIRELESS

Antenna Tracker IP Address:

Current IP: 192.168.0.57

New IP Address:

Subnet Mask:

Apply IP Configuration

commX WIRELESS

Radio Configuration

Current Antenna Tracker Radio IP: 192.168.0.27
Current Remote Radio Node ID: 5

Radio IP Address:

Radio Node ID:

Apply Radio Configuration