

POSITIONER

| | |
|-------------------|--------------------------------|
| Motor Voltage | 24-48 VDC |
| Load Capacity | 300 lbs. |
| Duty Cycle | Intermittent |
| Duty Life | 100,000 hours |
| Pan Range | 360° degrees continuous |
| Pan Speed | 1° to 85° per second (+/-0.1°) |
| Pan Torque | 258 ft/lbs. continuous |
| Pan Motor Current | 615 W, max. full load |

| | |
|---|--------------------------------|
| Elevation Axis (high torque/low speed Reduction Standard) | |
| Tilt Range | 180° (+/-90°) |
| Tilt Speed | 1° to 60° per second (+/-0.1°) |
| Tilt Torque | 412 ft/lbs. continuous |
| Tilt Motor Current | 615 W, max. full load |

| | |
|---|--------------------------------|
| Elevation Axis (low torque/high speed Reduction Optional) | |
| Tilt Range | 180° (+/-90°) |
| Tilt Speed | 1° to 85° per second (+/-0.1°) |
| Tilt Torque | 258 ft/lbs. continuous |
| Tilt Motor Current | 615 W, max. full load |

| | |
|------------|---|
| Motor Type | Brushless Servo AZ and EL |
| Connector | <TBD> (Power/Signal - Base), PT02E-12-10S (Power/Signal - Elevation Arm) |
| Dimensions | 15.5"H X 11"W X 10"D (39.37 x 27.94 x 25.4 cm) |
| Weight | 75 lbs. (34 kg) |
| Drive | Harmonic AZ/EL |

| | |
|--------------------|--|
| Slip Rings | 4@10 Amps and 14@2 Amps, Plus Ethernet |
| Backlash | Zero |
| Encoder Resolution | 0.0001856° AZ and EL |
| Control | RS-232, RS-485, CAN, Ethernet, Device Net (Ethernet with control GUI standard) |

| | |
|---------------|---|
| Material | Aluminum with stainless steel fasteners |
| Finish | White (contact factory for other color options) |
| Environmental | IP67, designed for compliance with MIL-STD 810G |



Shown with BMA-4 reflector



Ground Control Station (GCS) Ready For Operation

> Ordering Information

| | |
|------------|---|
| 810800300 | BMA-7100; Pan/Tilt Pedestal; Heavy Duty Positioner; Continuous Rotation, controller, GPS receiver |
| 8013885400 | BCIU-7100, System Control Interface Unit |
| 130099196 | Multi-Control Point-Plus™ (MCP+), Antenna Control Application for Windows® |
| 7313337150 | LDF4-50A, 1/2" Heliac RF cable, 150' (consult factory for other lengths) |
| 7314276150 | Control Cable Assy; Length 150' (consult factory for other lengths) |
| 810000305 | BTA-200, Heavy Duty Tripod |
| 250000051 | BTA-CASE2, Transit Case for BTA-200 tripod |
| TBD | Reflector and Feed (varies by frequency and application) |
| | GCS-1, Ground Control Station case 1 for control PC, 17" LCD, keyboard, mouse |
| | GCS-2, Ground Control Station case 2 for BCIU-7100, tracking receiver, 17" LCD viewing monitor |
| | Shipping Case for Antenna and cables (varies by antenna model) |
| 8014981400 | BMRT-4B Tracking Receiver, four band (L/S/C1/C2) |
| | Add dual channel rotary joint |
| | Add tactical pedestal stabilization for COTM |
| | Select optional low torque/high speed elevation control (specify at time of order) |
| | Upgrade for corrosive/marine operation |

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REAL-TIME MISSION CRITICAL VIDEO | DATA SOLUTIONS

BMA-7100 Tracking Antenna Systems



Shown with BMA-2/4 truncated reflector

> Applications

- Border Security
- Law Enforcement
- Forward ATC
- ISR Aircraft Microwave Link
- UAV/UAS Microwave Link
- Portable or Fixed Installations

> Benefits

Advanced Antenna Designs

- High gain for maximum range
- Low side lobes and narrow azimuth beamwidth provide isolation from off-axis interference and multipath reflections
- Truncated Elevation reduces need for tilt adjustments, simplifying alignment
- Single and multi-band versions

Many Feed Options

- LNA Selected for High dynamic range
- GPS Data and/or Pseudo-Monopulse Tracking Options
- Single or Dual Axis Tracking
- Receive-Only or Receive/Transmit for Full Duplex Operation
- Filters Selected According To Operating Range

Heavy Duty Positioner

- Rugged and Accurate Harmonic Drives
- Built-in RF rotary joint standard
- Continuous rotation without limits standard
- Encased slip ring assembly with corrosion-resistant, precious metal tracks and brushes
- Pan rate twice that of other systems

User Friendly Operation

- MCP+™ Windows® provides complete control of the portable tracking system with just an Ethernet connection
- Straight forward control buttons and meters are easy to understand and operate
- Auto-Acquire mode simplifies target location

> System Description

Introduced in 2017, BMS' new BMA-7100 antenna system is already deployed with the Egyptian Army. The continuously rotatable positioner replaces the venerable BMA-5000 and BMA-7000 Series commercial duty pedestals. The new pedestal incorporates a fully integrated controller, GPS receiver, and multi-band tracking receiver, needing only a power entry and Ethernet connection for full operation. Featuring encoder accuracy of 0.0001856°, the BMA-7100 is perfect for pointing high frequency, high gain reflectors with accurate and repeatable results. Options include tactical grade stabilization for use in Communications-On-The-Move (COTM), and a marine upgrade for use in and around corrosive environments. Using dual harmonic drives with zero backlash, reduced weight and size, and brushless AZ and EL servo

motors, the BMA-7100 load capacity exceeds 300 lbs. Capable of steering up to a six foot diameter reflector, the unit is perfect for establishing any medium to long distance terrestrial airborne datalink. When combined with BMS's new STS-E duplex data radio, the BMA-7100 is an economical and high quality commercial alternative to bespoke ITAR digital data links. The Multi-Control Point-Plus™ Windows application completes the system offering a comprehensive, flexible, and powerful tool for your antenna positioning needs.

The BMA-7100 system can be configured with several types of high gain reflectors:

| Reflector Options | | |
|-------------------|-------------------------|---------------|
| MODEL | DESCRIPTION | GAIN @4.7 GHz |
| BMA-2/4 | Truncated 2'x4' | 30 dBi |
| BMA-2/4-3PC | Truncated 2'x4' 3 piece | 30 dBi |
| BMA-4 | 4' diameter round | 32 dBi |
| BMA-3/6 | Truncated 3'x6' | 33 dBi |
| BMA-3/6-3PC | Truncated 3'x6' 3 piece | 33 dBi |

The BMA-7100 system has several unique features that allow stable and accurate aircraft tracking in a variety of situations. Each system can be ordered with Pseudo-Monopulse mode, a method of RF tracking that does not require constant GPS location updates from the aircraft. This method is resistant to jamming and works well in a GPS denied environment. A programmable "scan" mode assists the operator by automatically panning the sky and horizon until an on-frequency signal is detected. The operator verifies a usable signal and commands the system into Auto-Trak™ mode. The antenna positioner continues to accurately track until the signal is lost or operator re-directs the antenna. The optional BMRT-4 quad-band tracking receiver eliminates the need for a log amp error output connection between receiver and system controller. This feature makes the BMA-7100 system agnostic as to receiver used. Very useful in situations where a specialized or classified receiver is required, or multiple receivers are used. The BMA-7100 system controller may also operate in the more common GPS mode where continuous location updates are received from the aircraft. The system controller uses GPS coordinates to develop a reciprocal pointing azimuth toward the target. Using the Aero-Trac™ mode requires the antenna positioner be calibrated to the cardinal compass points prior to use. Not a requirement for Auto-Trak mode.

| Frequency Legend | |
|------------------|---------------|
| BAND | SPAN |
| L | 1700-1900 MHz |
| S | 2000-2500 MHz |
| C1 | 4400-5000 MHz |
| C2 | 5250-5850 MHz |

RECEIVER OPTIONS

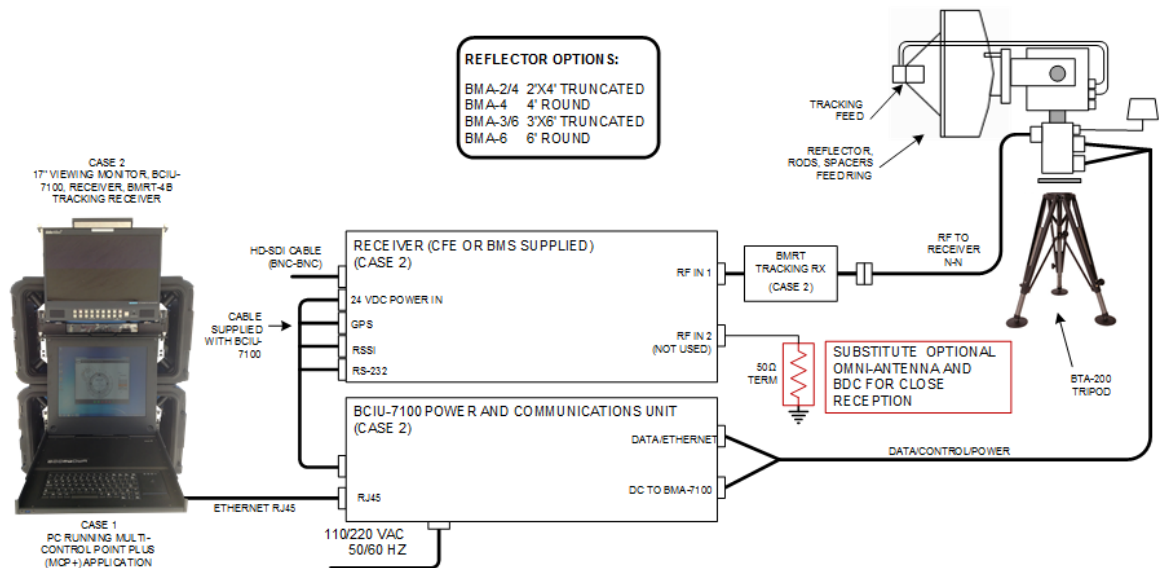
While the BMA-7100 terrestrial tracking system can be integrated with any customer furnished transmit/receive options, the system can be supplied with a turn-key end-to-end transmitter/receiver solution based on BMS' proven COFDM digital data links. In this form BMS supplies both ends of the data link which can be a simplex downlink or a fully symmetric duplex link using FDD techniques.

COTM

The BMA-7100 system can be configured for Communications On The Move by adding the tactical stabilization option. This makes the system suitable for use on vehicles or for shipboard operation.

| MODE | RX ONLY OR TX/RX | MONOPULSE | BAND | MODE | RX ONLY OR TX/RX | MONOPULSE | BAND |
|-------------|------------------|-----------|-------|-------------|------------------|-----------|-------|
| SINGLE AXIS | R | NO | L | SINGLE AXIS | R/T | YES | L/S |
| DUAL AXIS | R | NO | L | SINGLE AXIS | R/T | YES | L/C1 |
| SINGLE AXIS | R | NO | S | SINGLE AXIS | R/T | YES | L/C2 |
| DUAL AXIS | R | NO | S | SINGLE AXIS | R/T | YES | S/S |
| SINGLE AXIS | R | NO | C1 | SINGLE AXIS | R/T | YES | S/C1 |
| DUAL AXIS | R | NO | C1 | SINGLE AXIS | R/T | YES | S/C2 |
| SINGLE AXIS | R | NO | C2 | SINGLE AXIS | R/T | YES | C1/C1 |
| DUAL AXIS | R | NO | C2 | SINGLE AXIS | R/T | YES | C1/C2 |
| SINGLE AXIS | R | YES | L | SINGLE AXIS | R/T | YES | C2/C2 |
| DUAL AXIS | R | YES | L | DUAL AXIS | R/T | NO | L/S |
| SINGLE AXIS | R | YES | S | DUAL AXIS | R/T | NO | L/C1 |
| DUAL AXIS | R | YES | S | DUAL AXIS | R/T | NO | L/C2 |
| SINGLE AXIS | R | YES | C1 | DUAL AXIS | R/T | NO | S/S |
| DUAL AXIS | R | YES | C1 | DUAL AXIS | R/T | NO | S/C1 |
| SINGLE AXIS | R | YES | C2 | DUAL AXIS | R/T | NO | S/C2 |
| DUAL AXIS | R | YES | C2 | DUAL AXIS | R/T | NO | C1/C1 |
| SINGLE AXIS | R/T | NO | L/S | DUAL AXIS | R/T | NO | C1/C2 |
| SINGLE AXIS | R/T | NO | L/C1 | DUAL AXIS | R/T | NO | C2/C2 |
| SINGLE AXIS | R/T | NO | L/C2 | DUAL AXIS | R/T | YES | L/S |
| SINGLE AXIS | R/T | NO | S/S | DUAL AXIS | R/T | YES | L/C1 |
| SINGLE AXIS | R/T | NO | S/C1 | DUAL AXIS | R/T | YES | L/C2 |
| SINGLE AXIS | R/T | NO | S/C2 | DUAL AXIS | R/T | YES | S/S |
| SINGLE AXIS | R/T | NO | C1/C1 | DUAL AXIS | R/T | YES | S/C1 |
| SINGLE AXIS | R/T | NO | C1/C2 | DUAL AXIS | R/T | YES | S/C2 |
| SINGLE AXIS | R/T | NO | C2/C2 | DUAL AXIS | R/T | YES | C1/C1 |
| | | | | DUAL AXIS | R/T | YES | C1/C2 |
| | | | | DUAL AXIS | R/T | YES | C2/C2 |

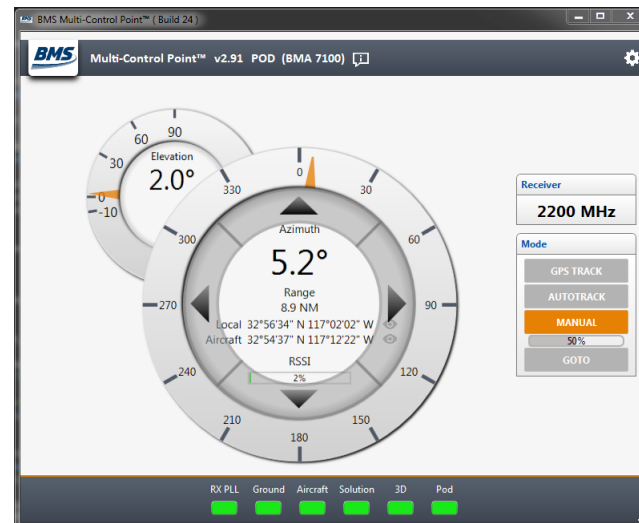
The table lists configurations available. Contact the BMS Applications Center to discuss your precise needs.



| BTA-200 Heavy Duty Tripod | |
|---------------------------|--|
| Dimensions | 45" tall x 9" dia. (114.3 x 22.86 cm) folded |
| Height | 41" (104 cm) max. 25" (63.5 cm) min. |
| Load Capacity | 400 lbs. (181.8 kg) max |
| Weight | 22 lbs. (10 kg) |
| Feet | 6" (15.2 cm) - 5/8" Staking Hole |



BCIU-7100 Antenna Control Interface Unit

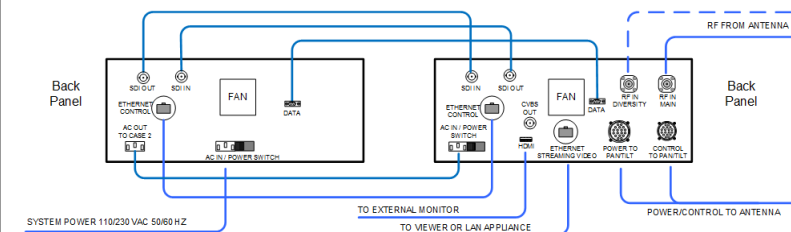


Multi-Control Point-Plus™ Home Screen



BMRT-4B Tracking Receiver shown with housing

The addition of the BMRT-4B tracking receiver makes the BMS Tracking Antenna System completely agnostic as to waveform or receiver used. Selectable bandwidths of 1, 2, 10, and 27 MHz service nearly all downlink receivers. Receiver configuration and control is accomplished using an RS-232 connection to a PC running the BMS Multi-Control Point-Plus (MCP+) Windows application. The BMRT-4B can be ordered in a stand-alone enclosure (shown) or integrated into the pedestal base.



Ground Control Station Mounted In Two Rugged 19" x 4RU Shock Mount Cases