

Communication Without Restrictions

Bodine Electric Company gearmotors deliver precise motion for satellite antennas

Matthew Jaster, Senior Editor



Bodine Electric Company has provided components for Fly-Away and Drive-Away systems for C-COM.

C-COM Satellite Systems, a manufacturer of mobile satellite antennas, has integrated several models of Bodine Electric motors across a variety of platforms. These motors are primarily used to drive the Azimuth and Elevation axes on their Fly-Away (portable) and Drive-Away (vehicle-mounted) systems. At the push of a button, these antennas automatically deploy and begin scanning the sky to acquire a satellite signal. Within minutes, users can establish a strong, stable connection, a process

made seamless and reliable thanks in large part to the performance and precision of Bodine's motors.

"C-COM needed a small and lightweight gearmotor from us in order to accommodate a highly portable, easily assembled Fly-Away satellite antennas," said Terry Auchstetter, director of marketing and product development at Bodine. "Our DC planetary gearmotor is the ideal combination of a small permanent magnet DC motor—which is capable of a momentary peak torque much greater than its continuous

rating and a small planetary gearbox—which is also capable of a very high momentary peak torque by virtue of the load distribution of the multiple planet gears."

The Bodine type 24A4BEPM-60P2 measures only 2.4 inches in diameter, 7.7 inches long and weighs only five pounds, but it is capable of a peak torque of 245 lb.-in.

"C-COM's Fly-1202 antennas are deployed in some of the world's most challenging environments, from the subzero temperatures of

the Arctic, to the hot and humid regions of South America, to the dry, dusty terrain of Australia,” said Warren Rawlings, purchasing and production manager at C-COM. “We required a motor that could perform reliably in all these conditions. It also needed to deliver enough torque to rotate the antenna while remaining compact enough to fit within our transportable systems. Bodine Electric’s gearmotors met all these demands and more. Their motors offer high precision and minimal backlash, which is essential for acquiring and maintaining a stable satellite connection. As our antennas evolved, so did our collaboration with Bodine, now many of the motors we use today are custom-built to meet C-COM’s exact specifications.”

Telecommunication Experts

Established in 1997, C-COM Satellite Systems Inc., Ottawa, Canada, is involved in the design, development and manufacture of commercial grade, fully motorized, auto-pointing mobile antennas for the delivery of broadband Internet to remote locations.

The company has been a pioneer in the one-button, auto-deploy VSAT market – with over 11,000 units in the field, in over 100 countries.

C-COM has developed Comms-on-the-Pause (COTP) antennas that operate in all major satellite bands (Ka, Ku, C, and X-band), in sizes (from 74cm to 2.4M) and in various formats (Drive-Away, Fly-Away, Manpack and Fixed Motorized).

Precise Positioning

For each system, C-COM required two gearmotors to position the antenna to connect to orbiting telecommunications satellites. The gearmotors deliver precise motion during the initial search of the satellite and then remain idle until the antenna is moved to a new location. These mobile antennas are often used in remote locations to broadcast news or sports events, or for emergency and military communications, therefore the gearmotors



The 24A-60P planetary PMDC gearmotor provides high starting torque, adjustable speed and predictable performance.

needed to be able to operate in harsh outdoors environments and run from a 24 VDC power source.

“Our design team recommended a 24A-60P planetary PMDC gearmotor with custom wiring, shaft, mounting and encoder. The gearmotors provide high torque and precise motion, are small enough to fit the portable application. This proved to be a more cost competitive solution,” Auchstetter said.

This design included:

- A totally enclosed type 24A-60P, 24V planetary PMDC gearmotor with needle bearings for high peak torque and long life.
- Sealed gearbox, high-performance lubricant for outdoor applications
- Built-in encoder, 1,000 PPR, quadrature signal is fed into 2-axis motion controller for precise elevation, azimuth, and polarization angle adjustments
- Watertight wiring harness
- Modified mounting and shaft

The 24A-60P gearmotor combines the high-performance 24A PMDC motor with the type-60P planetary (60 mm) gearhead. The gearmotor’s small diameter and predictable variable speed performance make it an ideal drive for industrial automation, pumps, packaging equipment and many other industrial applications. This gearmotor is suitable for applications that require higher torque than conventional

helical/spur gearheads can provide, especially for intermittent duty.

Bodine DC speed controls are designed to deliver optimal performance from the company’s 12, 24, 90, or 130 Volt PMDC motors and gearmotors. Stock controls are available with either filtered or unfiltered DC output. Current limit, torque limit, maximum/minimum speed, and acceleration/deceleration time can all be adjusted to fit each application.

Application Advantages

Fly-Away antennas are tripod based with transportable cases. They can be deployed and disassembled without tools within a few minutes. They can also be easily transported. These antennas need agile, lightweight and powerful components in order to meet the remote operational requirements for today’s telecommunication needs.

“At C-COM, we prioritize reliability, cost-effectiveness, and product availability when selecting component suppliers,” Rawlings said. “Bodine Electric consistently delivers on all three. Just as important to us is the quality of the working relationship. We value suppliers who are responsive, knowledgeable, and committed to collaboration. Our representative at Bodine exemplifies this approach, taking the time to understand our requirements and ensuring we always get the right motor for the application.”

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