

SOLUTION GUIDE

DVM ExP2

FUNCTIONAL DESIGN SPECIFICATION

Introduction

The DVM ExP2 system delivers BATS' innovative connect and track technology, allowing for the dynamic connection and continual movement of high-throughput point-to-point (PTP). BATS systems provide stabilized microwave links that can automatically adjust for movement, either due to environmental or requirement changes; and provide a stable and secure, high-bandwidth, private communications and data pipeline either back onshore, with vessels and platforms in-field, or both.

The DVM ExP2 is designed as a purge/pressurization enclosed system for use in a ATEX/IECEX Class 1 Zone 1 hazardous area environment. Aside from the DVM's normal RF/communications function, the system features a fiberglass / composite-reinforced dome design and a 316L stainless steel automatic all-digital Ex p purge/pressurization system (P2); that operates by monitoring and controlling the atmosphere within the protected domed enclosure. The system includes a pressure relief vent with flow and pressure monitoring at the exhaust, ExPDU with additional alarm monitoring port, and provisions for both single and dual ODU applications.

Tracking System Operation

BATS Connect & Track technology leverages the use of voltage changes from the radio signal level (RSL) port from the ODU provided by the radio manufacturer. Through BATS partnership with many leading providers of microwave communications, both single and dual ODU systems can be connected via BATS proprietary radio signal converter interface (RSC). Signal level data provided by the ODU from the RSL port is then converted into actionable IP data that is then read by the rackmount control unit (RMCU) as a radio monitor stream.

The RMCU takes calibrated gyro, GPS, heading, and radio monitor stream data, and utilizes predictive and reactive tracking algorithms to provide precise control data for the positioner unit. The system will continue to provide control instructions while monitoring signal health in real-time to deliver the best possible signal quality, even through movement.

In the event of a connection loss, the system will perform two functions.

- 1.) The RMCU will instruct the positioning unit to move to the link's last known or current position, or;
- 2.) The RMCU will instruct the positioning unit to perform a horizon scan for a viable signal.

In the event that a viable signal cannot be found, the RMCU will send out a connection status beacon to another spatially diverse system if available on the vessel. If system connection status is valid, (another BATS system is currently connected and passing data), the system will return to a home state until prompted by either a location change, or a status beacon from another BATS system on the vessel.



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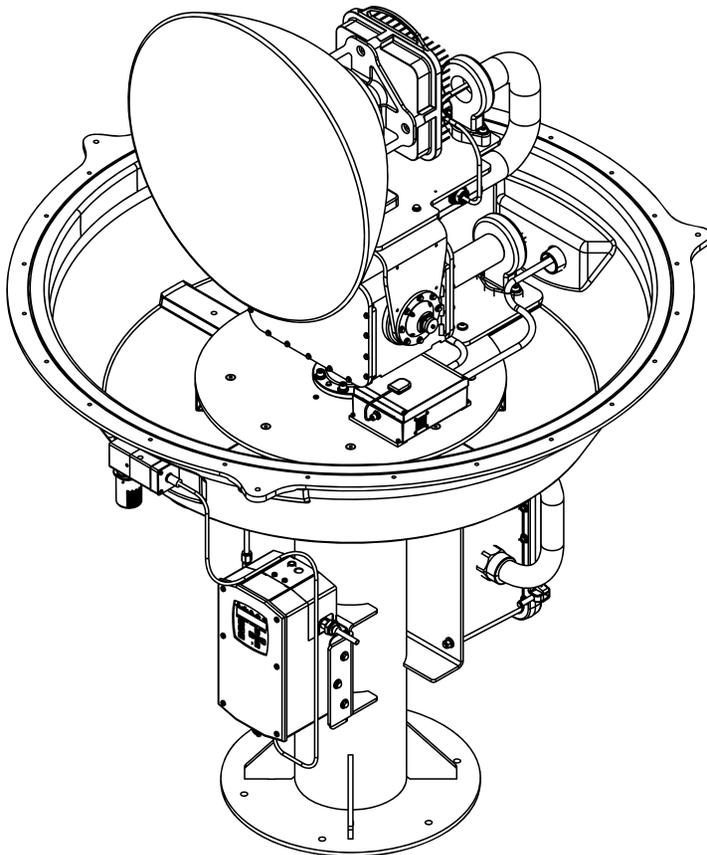
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Ex Protection System Operation

BATS industry leading ExP2 system delivers protection for critical components operating in ATEX/IECEX Zone 1, Class 1 hazardous areas.

Upon startup, the P2 system purges the DVM to remove any accumulated flammable gases or dust. After the DVM has been purge-cycled to a minimum of 10 complete cycles, the P2 will begin the pressurization process. Once the appropriate pressurization level has been reached, power will be supplied to the DVM's tracking and RF transmission components from the P2-controlled ExPDU, for initial link establishment.

The system will maintain the pre-defined pressurization level, even compensating for temperature changes, until the unit is powered down for maintenance, or a fault occurs. As the system relies on a pressurized environment for protection of critical microwave components, during gas detection events, the system will remain functional, even during the loss of a pressure source, for 30min, 60min, 2hrs, or longer - through the use of an optional air receiver tank. In the event of a fault, which is dictated by a loss of pressure below the minimum threshold, the P2 system immediately sends a signal to the ExPDU to cut power to the controlled terminal block and signals an internal visual alarm on the digital screen. Additional alarm contacts are provided on the ExPDU for additional monitoring of DVM ExP2 status via client RMS.



WARNING

PRESSURIZED ENCLOSURE

DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT

THIS ENCLOSURE SHALL NOT BE OPENED UNLESS THE AREA IS KNOWN TO BE FREE OF FLAMMABLE MATERIALS OR UNLESS ALL DEVICES HAVE BEEN DE-ENERGIZED. POWER SHALL NOT BE RESTORED AFTER ENCLOSURE HAS BEEN OPENED UNTIL COMBUSTIBLE GASES HAVE BEEN REMOVED AND THE ENCLOSURE HAS BEEN REPRESSURIZED IN ACCORDANCE TO THE PRESSURIZATION SYSTEM START-UP INSTRUCTIONS.



BROADBAND ANTENNA TRACKING SYSTEMS, INC.
8431 GEORGETOWN ROAD STE 600 INDIANAPOLIS IN USA

CE_{xxxx} Ex II 2 G Ex px IIB + H2 T4 Gb

IECEX ETL14.0000X

ETL14ATEX1234

BTS-EXP2-AV01-EX

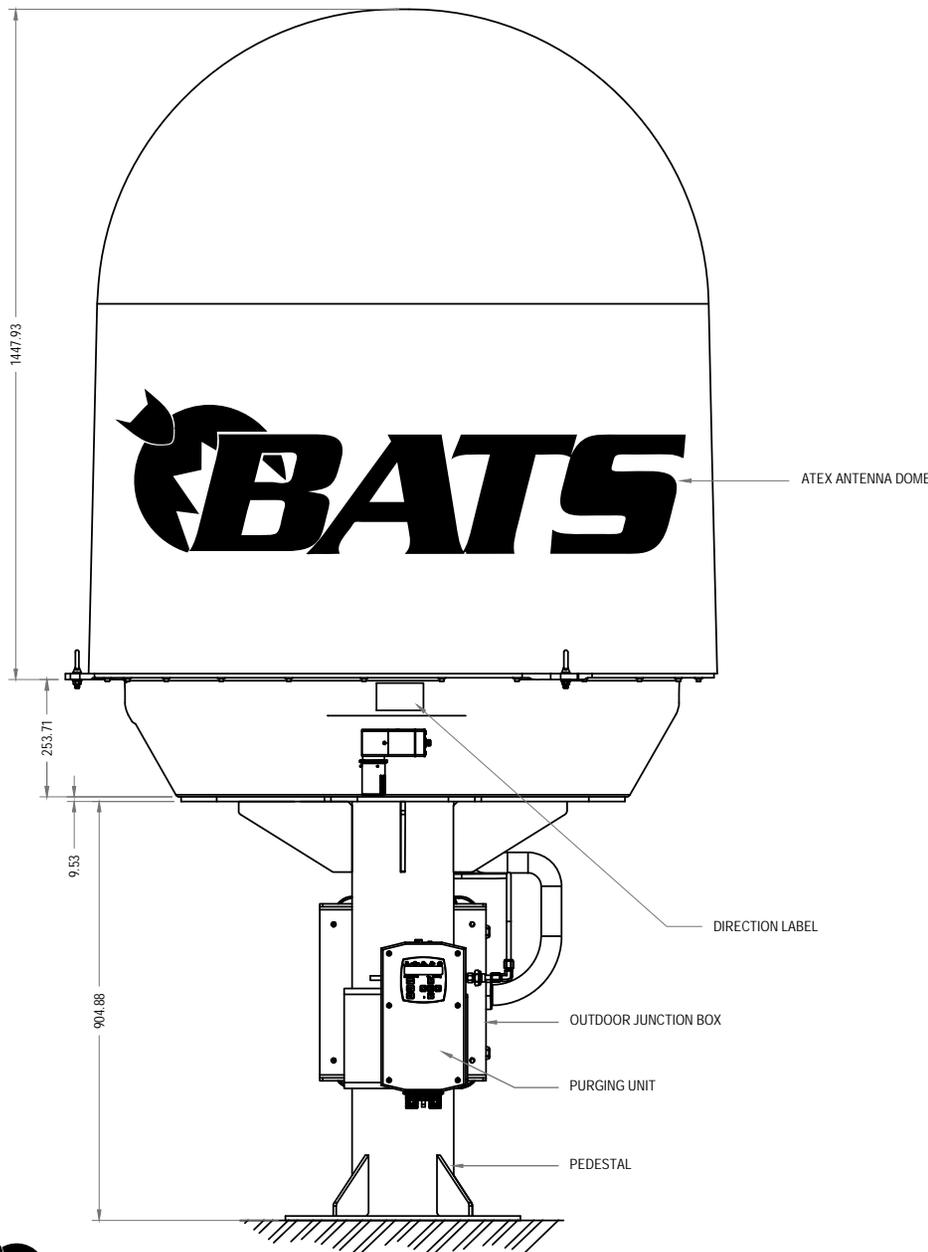
-20 °C ≤ Ta ≤ +55°C

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Specifications

DVM ExP2 - Enclosed Tracking System for Ex Environments (90 lb-ft. Ld Torque)

PHYSICAL DIMENSIONS	1358.65 (Ø) x 2616.05 (H)
WEIGHT	300 kg
ENVIRONMENTAL	Standardized to IP-66; Class 1, Zone 1 - ATEX / IECEx
OPERATING TEMPERATURE*	-20° to 60°C
PAN/TILT-AXIS RANGE	360° / 180° (±10°) *Antenna Dependent
PAN/TILT-AXIS SPEED	0° - 25°/sec (PAN) 0° - 10°/sec (TILT)
Ex PROTECTION	Ex II 2GD Ex px IIB + H2 T4

ExRMCU - Rack Mount Control Unit for DVM ExP2

PHYSICAL DIMENSIONS	1.75 inches (H) X 19 inches (W) X 13 inches (D)
WEIGHT	10 lbs
OPERATING TEMPERATURE*	0°C - 55° C (-40°C Option)
OPERATING VOLTAGE	AC: 100 - 240 VAC; 50-60 Hz
NETWORK PORTS	ETHERNET (10/100/1000 Mbps)

Components & Accessories

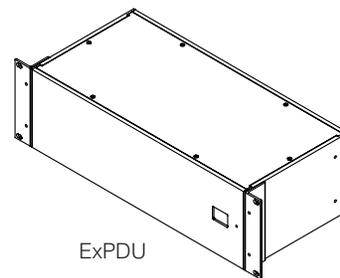
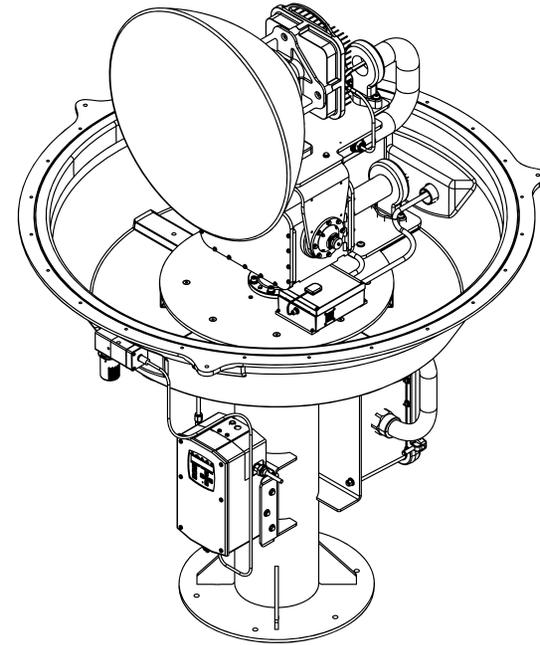
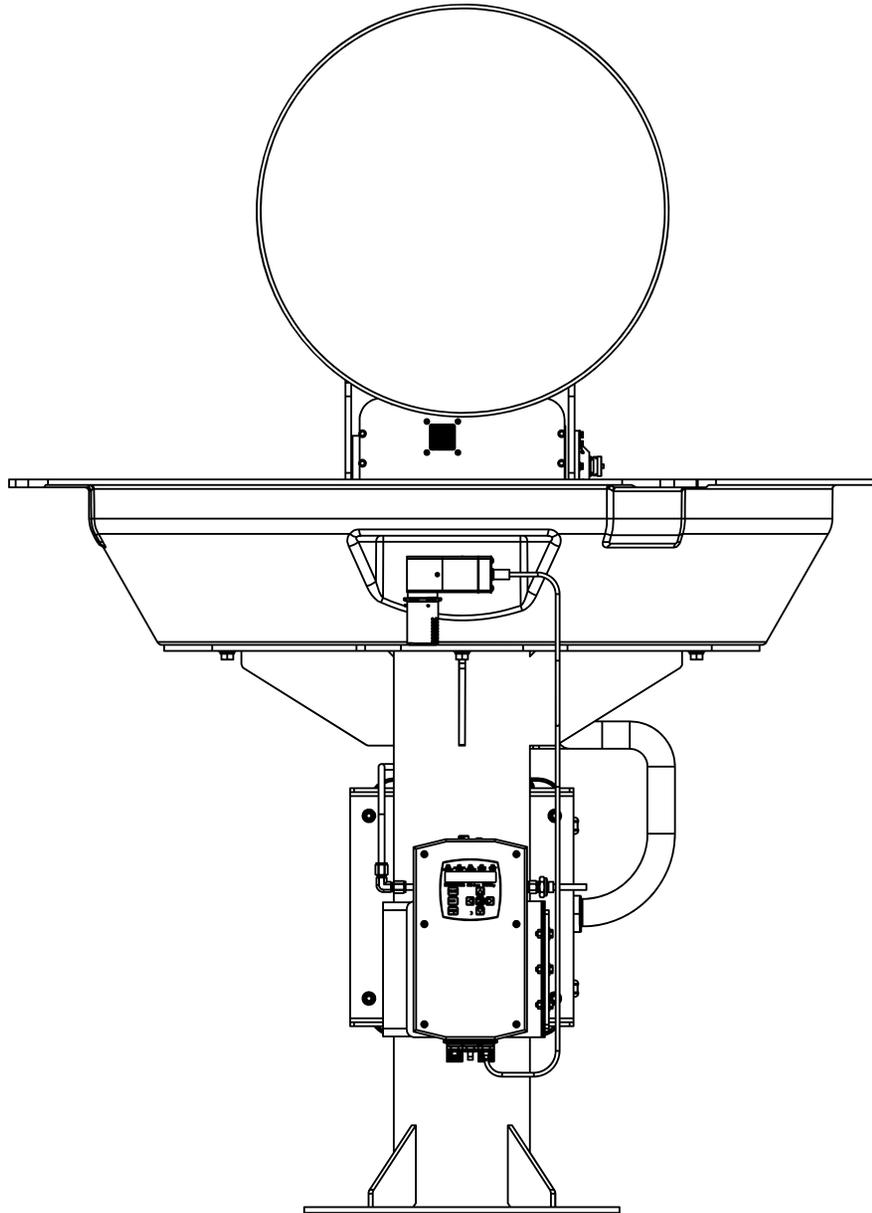
GPS Targeting Stabilizer	GPS-Based Signal Targeting & Stabilization
Junction Box	Connection Box for Extended Cabling Runs (+330 ft.)
Positioning Unit Cabling	PU Power Cables, Available up to 330 ft.
Mil-Spec Ethernet Cabling	Insulated Cat 5e Cabling, Available up to 330 ft.
Mounting Brackets / Hardware	Universal Pedestal Mount Kits, Radio Mount Kits

*Additional Components Required
*All Measurements in MM Unless Specified

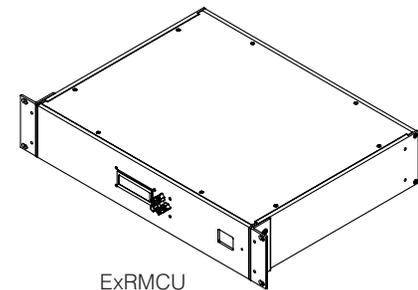
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ExPDU



ExRMCU