

PORTABLE TETHEREDSONDE WINCH MODEL PTW-9500

BULLETIN PTW-9500

$$p = \frac{\rho RT}{m}$$

$$S(\lambda) = S_0(\lambda) e^{-m \cdot \delta(\lambda)}$$

$$B(T) = bT^4$$

General Description

The Model PTW-9500 Portable Tetheredsonde Winch is designed to support tethered balloon-borne meteorological sensors. Full remote control of the powerful variable speed motor provides precise control over the altitude and tension of a tethered balloon radiosonde (tetheredsonde).

Principle of Operation

The PTW-9500 is a portable remote controlled electronic cable winch specifically optimized for the precise control of vertically-lifted balloon payloads such as tetheredsondes. As the system operates, motor speed is controlled by the user and a handheld RF-linked remote control to govern safe cable payout rates under various wind conditions.

Tetheredsondes replace the need for temporary meteorological towers and provide instant vertical wind profiles. Depending on wind conditions and loads, tethered sensors such as the YES Refrensonde can be raised & lowered throughout the boundary layer up to altitudes approaching 6500 feet (≈ 2000 meters).

The system consists of a sturdy reel mounted in an aluminum chassis, coupled to an internal variable speed DC gear motor drive. Line payout is controlled by an anti-tangle mechanism similar to those used on large fishing reels. A durable waterproof high impact plastic case protects the system and permits rapid setup. Reel speed and direction are governed by a battery-powered handheld wireless remote control unit.

Features

- Portable system, simple to use and setup
- Smooth precision DC drive motor with digital motion control
- Operates from either line AC or external 12 Vdc (via automotive cigarette lighter adapter)
- One or two winches can be remote-controlled from up to several thousand feet away
- Extended chain polyethylene tether cable material provides long life service
- Digital counter provides indication of payout
- Rugged, simple design stands up to field use



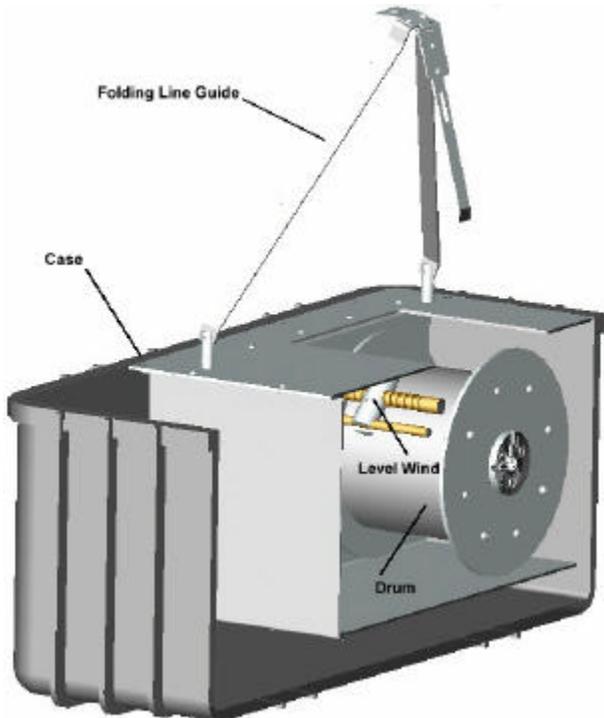
PTW-9500 Portable Tetheredsonde Winch

Applications

- Homeland defense and emergency response teams that require "go anywhere" local wind speed and direction for nuclear biological or chemical (NBC) dispersion monitoring
- Military weather teams
- Boundary layer measurements for air pollution and plume studies for EPA compliance and site certifications
- Radiosonde intercomparisons
- Vertically profiling radar and acoustic sodar comparisons
- Environmental research



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Side view cross section showing main components of winch inside the case

Specifications

| | |
|-----------------------|--|
| Power Requirements | 110/220 Vac 50/60 Hz; 12Vdc, 100 watts max |
| Drive Train | 0.1 HP dc motor |
| Operating Temperature | ±50°C storage & operating, 0-85% RH non-condensing (door open) |
| Dimensions | 27"W x 18"D x 14" H |
| Weight | ≈70 lbs. (32 kg) (depends on cable type and length) |
| Speed | 0-2 m/s (variable) |
| Maximum Load | 100 lbs. (45 kg) @ full extension |
| Drum Size | 4 in. (10 cm) |
| Maximum Line Length | 6500 ft. (2000m) for fine line (length limited by reel clearance to chassis) |

Note: Specifications subject to change without notice.



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