

APT-01 AUTOMATIC PASSIVE SOLAR TRACKER

Automatic Sun Tracking System for Solar DNI Measurement



The Middleton Solar APT-01 is a 2-axis tracker to automatically point a solar pyrheliometer at the sun throughout the day. The APT-01 is a simple Passive Tracker and does without the closed-loop control Eye of the fully active AST-02/3 Tracker from which it is derived.

Performance Specification

pointing resolution	0.02°
pointing accuracy ¹	0.15°
angular velocity	9°/sec. (max.)
rotation	vertical/pan/azimuth axis = $\pm 250^\circ$ (0° = true North/South) horizontal/tilt/zenith axis = +100°, -15° (0° = horiz, 90° = vert)
torque (at 12VDC)	10Nm
payload	8kg balanced

AUTOMATIC SETUP - ACCURATE SUN TRACKING – RELIABLE - AFFORDABLE

Tracks the sun during the day and reverses to the dawn position during the night.

Ideal for Direct Normal Irradiance (DNI) measurement with a pyrheliometer.

In-built computer controller, with intergrated GPS, for fully automatic self-configuration.

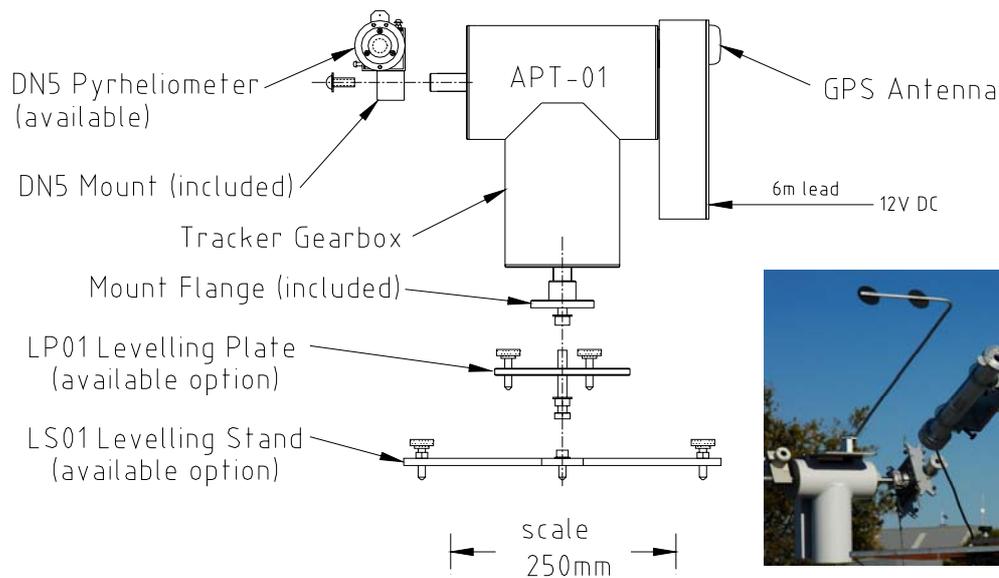
GPS clock synchronization for accurate real-time pan and tilt positioning.

Very low power requirement; suitable for solar powered battery operation.

JUST CONNECT TO 12VDC SUPPLY, ORIENT TO SUN, AND LEAVE ALONE

¹ valid for sun elevation > 5°, and for Tracker pan axis set vertical

Middleton Solar APT-01 Automatic Passive Solar Tracker



APT-01 in foreground, AST-03 in background

General Specification

drive mechanism	direct harmonic gearing, zero backlash
motor	stepping motor
horizontal axle	Ø20 x 40mm
operating temperature	-20 to +50°C
power requirement	12V DC nominal (11-16VDC), <9W continuous
power lead	2-core, 6m
control method	in-built computer controller with GPS
user interface	status indicator LED; internal USB and RS232 port
sealing	IP 65, all-weather
construction	aluminium & stainless steel
weight	8Kg
shipping size & weight	47x43x28cm; 10kg
standard configuration	Tracker Gearbox & Control Box, with fixed mount for DN5/E Pyrheliometer
available options	LS01 Levelling Stand (with spirit level) LP01 Levelling Plate (with spirit level) PA01 Axle Extension (Ø25mm) PM04 Dual Pyrheliometer Mount (requires PA01) PY01 Pyranometer Tilt Mount (requires PA01) Status Output Lead (TTL or RS232)

Specifications subject to change