

AST-02 and AST-03 ACTIVE SOLAR TRACKER

Precision Active Sun Tracking System for Solar Instrumentation



The Middleton Solar AST-02/3 is a 2-axis active sun-tracker to automatically point solar radiometers at the sun throughout the day. The AST-02 has horizontal single arm, The AST-03 has a double arm.

Performance Specification

tracking accuracy	active (sunshine), 0.02° passive (no sunshine) ¹ , 0.15°
angular velocity	9°/sec. (max.)
rotation	vertical/pan/azimuth axis = $\pm 250^\circ$ (0° = true North/South) horizontal/tilt/zenith axis = $+100^\circ, -15^\circ$ (0° = horiz, 90° = vert)
torque (at 12VDC)	AST-02 = 12Nm AST-03 = 12 x 2 = 24 Nm
payload	AST-02 = 10kg balanced AST-03 = 20kg balanced

AUTOMATIC SETUP, ACTIVE SUN TRACKING, DURABLE, AFFORDABLE

Locks onto sun using a quadrant Eye and smart positioning algorithm.

Ideal for sunphotometers, diffuse pyranometers, and pyrhemliometers².

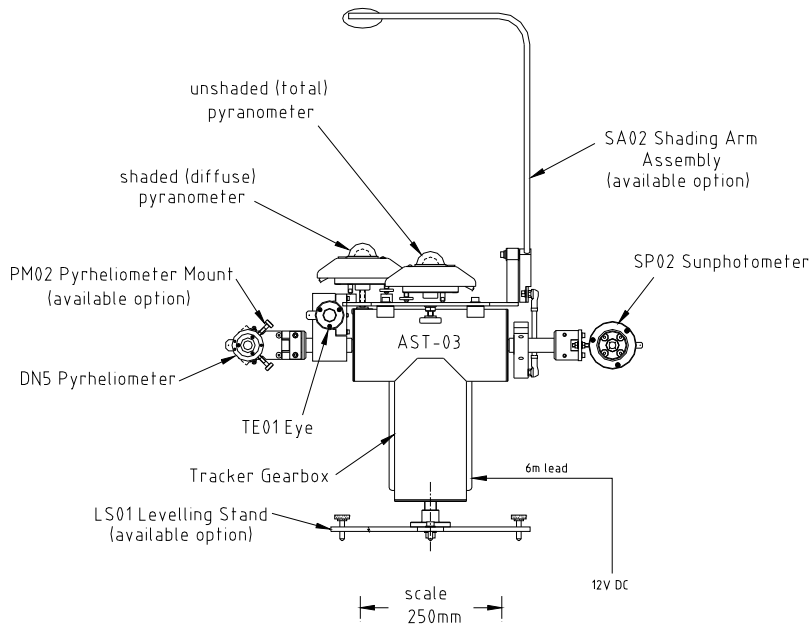
In-built computer controller, with GPS for automatic location configuration.

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

¹ passive accuracy valid for sun elevation > 5°

² DN5 Pyrhemliometer requires PM02/4 pyrhemliometer mount; EP08 series Pyranometers require SA02 Shadearm Assembly

Middleton Solar AST-02 & AST-03 Active Solar Tracker Detailed Specification



Swaps between active tracking and passive tracking depending on cloud cover.
Eye responds only to narrowband NIR so it does not react to bright sun blurred by thin cloud.
Four M8 threaded holes provided on top for fitting available options such as the SA02

General Specification

drive mechanism	direct harmonic gearing, zero backlash
motor	stepping motor
horizontal axle	Ø25 x 130mm (AST-02 = 1, AST-03 = 2)
active tracking	quadrant Eye, real-time closed-loop control
active sunshine threshold	varies with solar zenith (sun elevation angle)
operating temperature	0 to +50°C
power requirement	12V DC nominal (11-16VDC), <10W continuous
power lead	2-core, 6m
control method	in-built computer controller with GPS
user interface	status indicator LED; internal USB port
sealing	IP 65, all-weather
construction	aluminium & stainless steel
weight (standard configuration)	AST-02 = 10Kg; AST-03 = 12kg
shipping size & weight	47x43x28cm; AST-02 = 12kg; AST-03 = 14kg
standard configuration	Tracker Gearbox & Control Box, and TE01 Eye
available options ¹	LS01 Levelling Stand LP01 Levelling Plate PA01 Pan Axle Extension (Ø25mm) PM02 Pyrheliometer Mount PM04 Dual Pyrheliometer Mount PY01 Pyranometer Tilt Mount SA02 Shadearm Assembly & Platform Status Output Lead (TTL or RS232)

Specifications subject to change

¹ AST-02 type can accommodate either SA02 or PM02/4; use AST-03 type if both SA02 and PM02/4 are required