

Dual-Axis SOLAR TRACKER ST54M3S30 with slewing drive for 30 m²

Code: 0099

www.solar-motors.com

- Slewing drive with 350° turning range
- With time-derived astronomical positioning for the automatic sun-tracking
- Dual-axis azimuth-elevation solar tracker with embedded positioner
- Time controlled astronomical algorithm for sun tracking
- Simple installation and synchronization of sun time
- Usable for PV, CPV and lighter thermal panels and Heliostats
- Up to 23 hours automatic tracking at perpendicular angle
- User friendly web interface for monitoring, setting and upgrading
- USB communication port, RS485 or Wireless (ZigBee communication module)
- For surface area up to 30m² and max. 375 kg
- Made in Europe

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Made in Europe

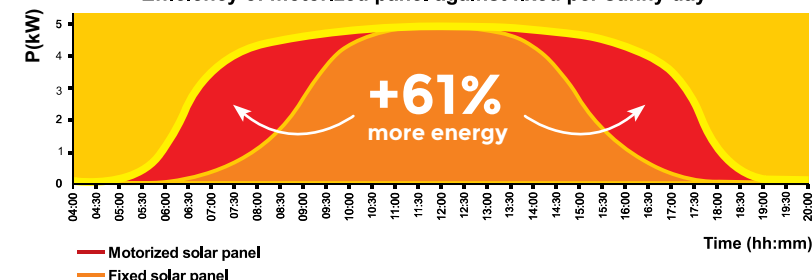
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Mechanical Capabilities	
Number of turning axis	Dual-Axis
Azimuth angle range	350° slewing drive
Elevation angle range	5° to 90°
Type of azimuth angle motor	slewing drive SD5M3
Type of elevation angle motor	Linear Motor SM4S900M3 with stroke of 900 mm
Backstructure size	5,5 x 5 m; for panel surface area 6 x 5 m (15 panels)
Type of backstructure clamp	Toothed scissors grippers - 90 pcs
Max. dimensions of a solar panel	15 pieces of 2 m x 1 m in total 30 m ²
Max. weight of a solar panel	15 pcs per 25 kg; total max. 375 kg
Estimated service life of motors	800-1000h of motor operation (DC motor replace on 8 years if each day one cycle), backup battery replace on 3-5 years if battery in, all other 25 years
Estimated service life of tracker	25 years
Positioning System Data	
Tracking accuracy	up to 0,1°
Operating Protocol	TdAPS (Time derived Astronomical Positioning System)
Type of Positioning System	Servo driver positioner with TdAPS arc logic function calc.
Type of positioner	Din Rail positioner Nano-D or Micro-D and exterior cables
Type of timer	GMT clock with EOT and calendar
Type of application program for supervision and setting	Solar tracking system monitor via Sigma web site or Helios analytics program
Setting and changing data via PC	Yes, via RS485 or Wireless ZigBee or via USB
Monitoring possibility via PC	Yes
Turned on the position sent from PC	Yes
Turning time interval	From 20 sec to 900 sec
Communication Data	
Type of communication interface	USB interface for Micro-D; RS485 or Wireless ZigBee for Nano-D
Networking solution for control from centre	RS485 or Wireless ZigBee for Nano-D
Firmware - Software	
Upgrading possibility via PC	Yes, via USB with Helios Analytics or via RS485 at Sigma Web site or via Wireless ZigBee
Electrical Data	
Motor Power Supply	24 VDC +5% / -15% (5A current capacity) SMPS must have 150% inrush current
Backup battery	CR 1225 coin
Standby consumption (when is not moving)	60 mA ± 30% @ 24VDC
Power supply connection	1 piece of 2 Wire Cable with an Internal Cu Conductor of 2,5 mm ² (for lenghts up to 30 m), (not included with kit)
Junction Box	190 (L) x 140 (W) x 70 (H) mm with connection harness
Environmental Data	
Operating temperature	- 25°C to +70°C (optionally with artic grease for teperatures from -40°C up to +70°C)
Operation at humidity	0% to 100%, relative humidity
Wind parameters	max. wind speed in operating in any working position is 20 m/s survival max. wind gust speed not operating (table is not in saffe wind position) is 30 m/s survival max. wind gust speed in safe wind position - (horizontal) 50 m/s
Snow parameters	snow load 108 kg/m ² area a2 - up to 400 above sea level detailed wind table on request
Corrosion, weather and chemical resistance	
Hot-dip galvanizing (HDC, EN ISO 1461)	75-100 µm (equivalent of 50 years)
Packaging	
Dimensions of a packed product	1 box of 6100 (L) x 800 (W) x 1200 (H) mm (Wooden Box is not icluded with kit)
Product weight	750 kg
Quality Certificates	
International Protection Rating (IEC 60529)	IP63
Electromagnetic Compatibility (EMC Directive 89/336/EEC)	Yes
Low Voltage Equipment Directive (EEC Council Directive 73/23/EEC)	Yes
Optional Properties	
Anti-Shadowing Function	Yes, included
HelioStat usage	Yes, for additional payment



Efficiency of motorized panel against fixed per sunny day



Real energy measurement of two equal solar panels (fixed and motorized)

Three equal solar panels were exposed to the sun and the converted electrical power was measured.

Test conditions: Solar panels (all): 5.0 kWp (producer spec.at AM 1.5), Date: July 2010 Time: 4:00 to 20:00 (sun time), Geo. latitude: 46°N, Weather conditions: sunny

Results: Average energy of fixed: 5016 Wh, Average energy of motorized: 40620 Wh, Note: sum of motor energy consumption through all day at full load is 40 Wh or 0.1% of all collected energy, Efficiency of the motorized panel: 161.7%



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