Dual-Axis SOLAR TRACKER for 3 panels

ST44M2V3P for 0,75 kWp @ 15% pan. eff.

- With time-derived astronomical positioning for the automatic sun-tracking
- Dual-Axis 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
- 7 hours of automatic tracking at perpendicular angle
- User friendly web interface for monitoring, setting and upgrading
- USB comunication port, optionally CAN BUS ****
- For surface area up to 5,8m² and max 90 kg
- Made in Europe

SunTracer ST44M2V3P Dual-Axis
with backstructure for 3 panels, 0.75 kWp @15% eff.
Product code: 0121

GREEN ENERGY

SAT CONTROL
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+61%
more energy

**** means for additional payment

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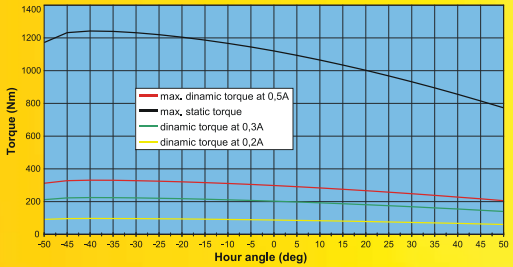
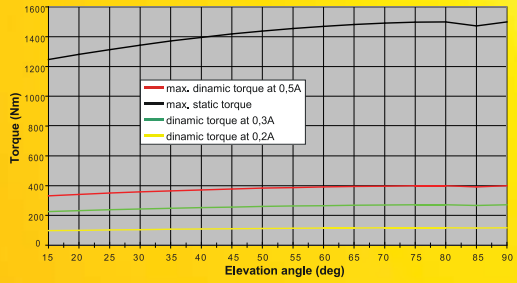
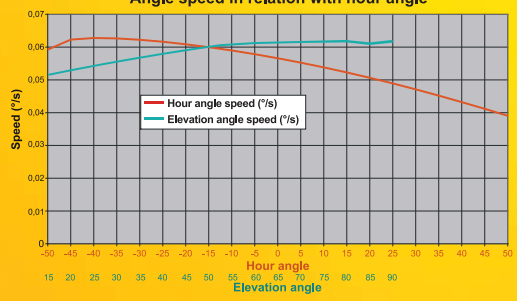
Max. torque graph of hour angle axis motor



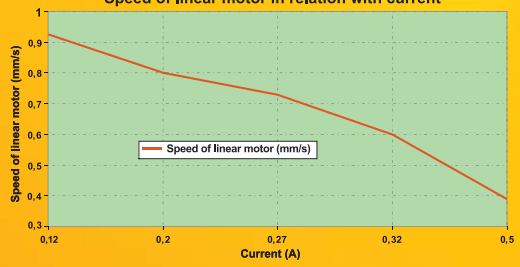
Max. torque graph of elevation angle axis motor



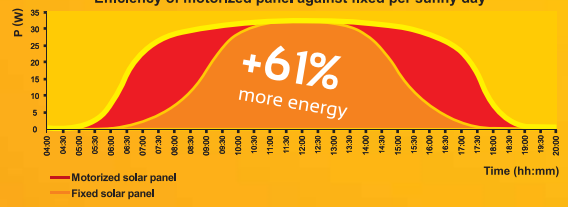
Angle speed in relation with hour angle



Speed of linear motor in relation with current



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): 0.75 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: 3762 Wh, Average energy of motorized: 6093 Wh,
Note: sum of motor energy consumption through all day at full load is 17.52Wh or 0.29% of all collected energy, Efficiency of the motorized panel: 161,5%

Mechanical Capabilities	
Number of turning axis	Dual-Axis
Hour Angle Limit	100°, software and hardware limit
Elevation angle	15 - 90°, adjustable start
Type of hour-angle engine	Linear Motor SM4S520M2 with stroke of 520mm
Type of elevation shaft and stroke	Linear motor SM4S520M2 with stroke of 520mm
Hour-angle shaft diameter and length	Ø48 mm, L=1450mm (steel)
Turning speed of hour angle shaft	0,039 - 0,063 °/s at no load, see graph
Turning speed of elevation shaft	0,052 - 0,062 °/s at no load, see graph
Max. dynamic torque of the hour-angle shaft	200 Nm - 330 Nm depend from HA, see graph
Max. dynamic torque of elevation shaft	330 Nm - 400 Nm depend from EA, see graph
Destructive torque of the hour-angle shaft	750Nm-1250Nm, depend from HA, see graph
Destructive torque of elevation shaft	1250Nm-1500Nm, depend from HA, see graph
Backstructure size	2 pcs of 1000mm (H) & 2 pcs of 3000mm (V)
Type of backstructure clamp	Toothed scissors gripers - 12 pcs
Tube diameter for mounting	Ø60 - 68 mm (not included with kit)
Max. dimensions of a solar panel	3 pieces of 0.99 m x 1.95 m in total 5.8 m2
Max. weight of a solar panel	3 pcs per 30 kg
Estimated service life	5.000 rotations of 200° or 10 years
Positioning System Data	
Tracking accuracy	<0.5° (optionally <0.1° ***)
Operating Protocol	TdAPS (Time derived Astronomical Positioning System)
Type of positioner	Servo driver positioner with TdAPS arc logic function calc.
Type of timer	GMT clock with EOT and calendar
Type of application program for supervision and setting	Solar tracking system monitor via web site
Setting and changing data via PC	Yes, It can be setup 1000 parameters
Monitoring possibility via PC	Yes, It can be monitored 1000 parameters
Turned on the position sent from PC	Yes, it turn on position sent from PC, also all other setting can be commanded with string sent from PC
Communication Data	
Type of communication interface	USB interface
Networking solution for control from centre	CAN BUS, RS485
Firmware - Software	
Upgrading possibility via PC	Yes, firmware via PC with help of web wizard
Electrical Data	
Motor Power Supply	24 VDC ± 10% (2A current capacity)
Backup battery	Backup for timer, position and data
Turning time interval	1min. - 15min.
Max. consumption during the operation of the hour-angle shaft	500mA @ 330Nm, see graph
Max. Current of elevation shaft	500mA @ 400Nm, see graph
Standby consumption (when is not moving)	20mA ± 25% @ 24V
Power supply connection	1 piece of 2 Wire Cable with an Internal Cu Conductor of 1,0 mm2 (not included with kit)
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
Max. safe wind speed	max. 144 km/h
Corrosion, weather and chemical resistance	
Neutral Salt Spray (3000 h, EN ISO 9227 NSS)	/
Hot-dip galvanizing (HDG, EN ISO 1461)	75-100 µm (equivalent of 50 years)
Packaging	
Dimensions of a packed product	1 box of 165 (L) x 22 (W) x 27 (H) cm
Product weight	47kg
Quality Certificates	
International Protection Rating (IEC 60529)	IP33
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

*** for additional payment

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