Single-Axis SOLAR TRACKER for 1 panel
ST3SPMOG+ for 0.2 kWp @ 15% pan. eff.

- With time-derived astronomical positioning for the automatic sun-tracking
- Single-Axis solar tracker with embedded positioner
- Time controlled astronomical algorithm for sun tracking
- Simple installation and synchronization of sun time
- Usable for PV and lighter thermal panels
- 100° correspond to 7 hours of automatic tracking at perpendicular angle
- User friendly web interface for monitoring, setting and upgrading
- USB communication port, optionally USB2.0, RS485
- For surface area up to 2m² and max. 20 kg
- Made in Europe

SunTracer ST3SPMOG+ Single-Axis
with backstructure for 1 panel
Product code: 0135

GREEN ENERGY

www.solar-motors.com
Mechanical Capabilities

Number of turning axis  Single-Axis
Hour Angle Limit   90° typical / 100° max., software and hardware limit
Elevation angle     75° manual fixation
Type of hour-angle motor   Servo motor with position encoder on cogwheel
Type of elevation-angle motor / |
Hour-angle shaft diameter and length Ø40 mm, L=1150 mm (steel)
Turning speed of hour angle shaft  0.5°/s ± 25% @ 24V at no load
Turning speed of elevation shaft / |
Max. dynamic torque of the hour-angle shaft  65 Nm
Max. dynamic torque of elevation shaft / |
Destructive torque of the hour-angle shaft >200 Nm
Destructive torque of elevation shaft / |
Backstructure size   2 pcs of 1000 (H) mm
Type of backstructure clamp Toothed scissors gripers - 4 pcs
Hub diameter for mounting Ø80-60,0 mm
Max. dimensions of a solar panel 1 piece of 2.0 m x 1.0 m in total 2.0 m²
Max. weight of a solar panel 1 pc per 25 kg
Estimated service life  5,000 rotations of 200° or 10 years

Positioning System Data

Tracking accuracy  <0.5° (optionally <0.1° - for additional payment)
Operating Protocol  TdAPS (Time derived Astronomical Positioning System)
Type of Positioning System  Servo driver positioner with TdAPS arc logic function calc.
Type of positioner  Solar Positioner SP27E
Type of timer  GMT clock with EDT and calendar
Type of application program for supervision and setting  Solar tracking system monitor with help of Helios Analytics program
Setting and changing data for PC  Yes, it can be setup 1000 parameters (Helios Analytics program)
Monitoring possibility via PC  Yes, it can be monitored 1000 parameters (Helios Analytics program)
Turned on the position sent from PC  Yes, it turn on position sent from PC (Helios Analytics program), also all other setting can be commanded with string sent from PC
Turning time interval  1min. - 15min.

Communication Data

Type of communication interface  USB interface since beginning of the January 2010, before RS232
Networking solution for control from centre  USB2.0, RS485
Firmware - Software  Yes, firmware via PC with help of Helios Analytics program
Upgrading possibility via PC  Yes, via firmware via PC, also all other setting can be commanded with string sent from PC

Electrical Data

Motor Power Supply  Recommended constant 24 VDC (working from 12 to 30 VDC), 0.5 A current capacity @ 24V
Backup battery  CR 1225 coin, need to replace each 3-5 years
Max. consumption during the operation of the hour-angle shaft  500 mA @ 65 Nm
Max. Current of elevation shaft / |
Standby consumption (when is not moving)  35 mA ± 25% @ 24V
Power supply connection  1 piece of 2 Wire Cable with an Internal Cu Conductor of 10mm² (not included with kit)

Environmental Data

Operating temperature  -25°C to +70°C
Operation at humidity  0% to 90%, relative humidity
Max. safe wind speed  max. 4m/s
Corrosion, weather and chemical resistance  Neutral Salt Spray (3000 h, EN ISO 9227 NS5) /
Hot dip galvanizing (HSG, EN ISO 1461) /

Packaging

Dimensions of a packed product  1 box of 1175(L) x 135(W) x 200(H) mm
Product weight  9 kg

Quality Certificates

International Protection Rating (IEC 60529)  IP33
Electromagnetic Compatibility (EMC Directive 89/336/EEC)  Yes

Optional Properties

Anti-Shadowing Function  Yes, included
Heliostat usage  No

Real energy measurement of two equal solar panels (fixed and motorised)
Three equal solar panels were exposed to the sun and the converted electrical power was measured.
Test conditions: Solar panels (all): 200 Wp (producer spec. at AM 1.5), Date: July 2010
Time: 4:00 to 20:00 (sun time), Geo. latitude: 46°N, Weather conditions: sunny
Average energy of fixed solar panels: 296 Wh, Average energy of motorised: 1956 Wh, Note: sum of motor energy consumption through all day at full load is 206 Wh or 1.45%
of all collected energy, Efficiency of the motorized panel: 69%