Product Catalog

Our systems and solutions for photovoltaic power plants

www.solar-motors.com

SAT CONTROL®

Want to get more?

Product Catalog

Dear Costomers,

Photovoltaic electricity, once confined to space exploration, has since the beginning of the 21st century, gained access to the realm of power generation.

The impressive growth of the PV market, mainly driven during those years by the European interest for this particular technology, has since then led to a major decrease in system prices, bringing PV technology among the emerging technologies for power generation on a large scale.

At Sat Control we are proud to be one of the first companies worldwide to successfully implement innovative, cost-effective, reliable, robust and active solar tracking systems in the world.

Sat Control accelerates technological innovations by industry led research and development tracking systems offering outstanding long-term performance. Sat Control provides solutions that demonstrate cost effectiveness, added value, and go beyond the business. Setting the highest quality standards is Sat Control's main objective.

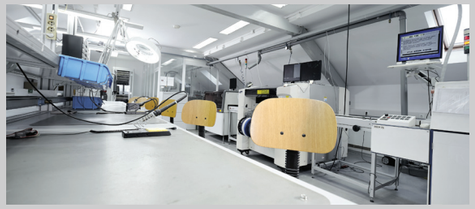
Sat Control products are a result of intensive research and development efforts, manufactured in a state of the art automated production environment and comply with the principal international standards: International Protection Rating (IEC 60529 IP33), Electromagnetic Compatibility (EMC Directive 89/336/EEC) and Low Voltage Equipment Directive (EEC Council Directive 73/23/EEC).

Components and materials used in production originate from well established suppliers, are pre-certified, tested and meet the highest quality standards. Due to the strict quality control at each step of the production process, Sat Control is able to offer its customers up to 10-year product warranty.

Headquartered in Slovenia, at Sat Control we find our place predominantly in diverse international markets. Tracker installations of every size have been deployed internationally, including utility-scale projects in more than 45 countries over the world including Germany, France, Italy, Slovakia, Czech Republic, Australia, India, Canada and the United States.

Sat Control's strategic goal is to become globally innovative and competitive Solar Energy enterprise, providing the most appropriate solar tracking technology for achieving the highest performance and most cost-effective production of solar electricity.

Bogdan Bolka
CEO of Sat Control



Malá Domaša, Slovakia, 264
Trenčin, Slovakia, 144
Lazany, Slovakia, 362
Iža, Slovakia, 426
Czech Republic, Zbraslav, 100
Romania, Moldovanesti
Romania, Ucea de Sus
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Italy, Vittoria, 78
Ptuj, Slovenija, 3,75 kWp
Spain, Madrid, 170
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Holeby, Denmark
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Great Britains, Hexam, 3,75 kWp
Japan, Wakabayashi, 22
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Japan, Shimada, 44
Thailand, Lampang, 120 MW
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Jordan, Amman, 6
Canada, Quebec, 10,95 kWp
Japan, Fujii, 50
Japan, Ogura, 50
Australia, Mullumbimby, 12
New Zealand, Auckland, 3,75 kWp
South Africa

Dual-Axis SOLAR TRACKER for 15 panels ST44M3V15P

Code: 0153

- 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 RS485
- For surface area up to 25 m² and max. 345 kg
- Made in Europe

Mechanical Capabilities
- Dual-Axis
- Hour Angle Limit 100˚, software and hard ware limit 50°E to 50°W
- Elevation angle 15-90˚, adjustable start
- Hour-angle motor, Linear Motor SM4S900M3 with stroke of 900 mm
- Elevation-angle motor: Linear Motor SSM4S900M3 with stroke of 900 mm
- For 15 pieces of solar panels, dimensions 0,99 m x 1,65 m in total 25 m²
- Max. weight of solar panels, 23 kg/panel

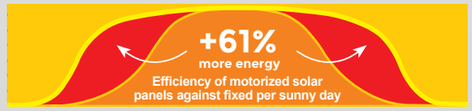
Positioning System Data
- Operating Protocol TdAPS (Time derived Astronomical Positioning System)
- GMT clock timer with EOT and calendar

Communication Data
- USB communication interface
- Networking solution for control from centre RS485

Electrical Data
- Motor Power Supply 24 VDC ± 15% (2.5A current capacity) SMPS must have 150% inrush current

Environmental Data
- Operating temperature from- 25°C to +70°C (optionally with artic grease for teperatures from -40°C up to +70°C)
- Max. safe wind speed 144 km/h

Quality Certificates
- International Protection Rating (IEC 60529) IP63



ST54 Dual-Axis SOLAR TRACKER ST54M3S30 with slewing drive for 30 m2

Code: 0099

- 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 comunication port, RS485 or Wireless (ZigBee communicaton module)
- For surface area up to 30m² and max. 375 kg
- Made in Europe

Mechanical Capabilities
- Dual-Axis
- Azimuth angle range, 350° slewing drive
- Elevation angle range, 5° to 90°
- Azimuth angle motor, slewing drive SD5M3
- Elevation angle motor, Linear Motor SM4S900M3 with stroke of 900 mm
- Max. dimensions of a solar panel, 15 pieces of 2 m x 1 m in total 30 m²
- Max. weight of a solar panel, 15 pcs per 25 kg

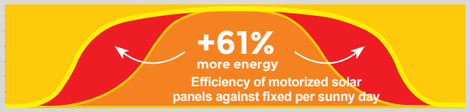
Positioning System Data
- Tracking accuracy, up to 0,1°
- TdAPS (Time derived Astronomical Positioning System)
- GMT clock with EOT and calenda

Communication Data
- 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

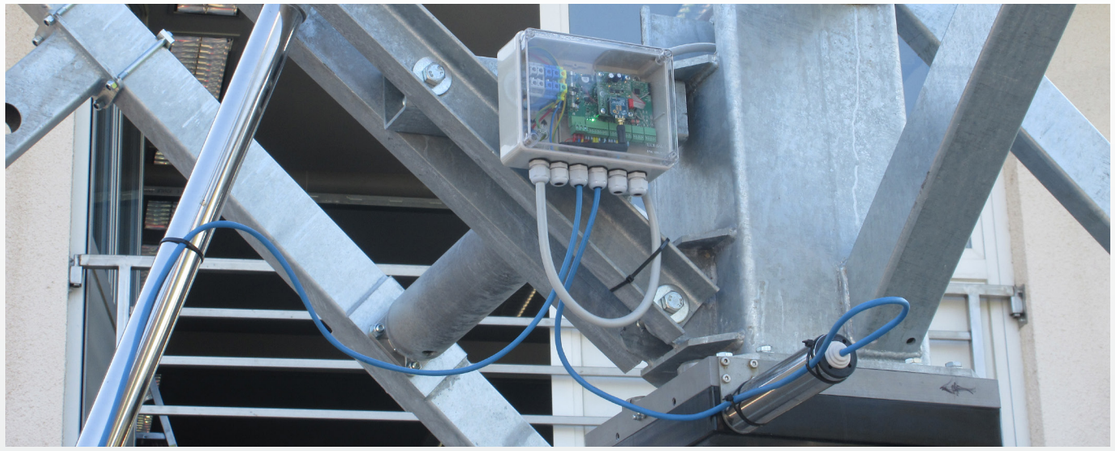
Electrical Data
- Motor Power Supply, 24 VDC ± 15% (5A current capacity) SMPS must have 150% inrush current

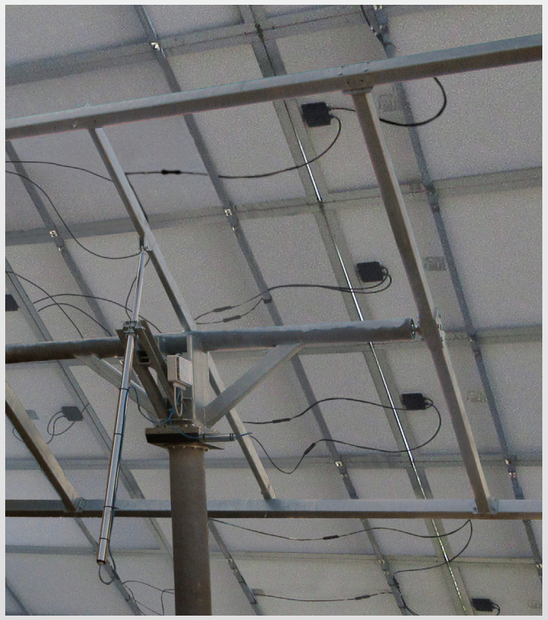
Environmental Data
- Operating temperature, -25°C to +70°C (with artic grease from -40°C up to +70°C)
- Wind parameters, max. wind speed in operating in any working position is 20 m/s, survival max. wind gust speed not operating is 30 m/s

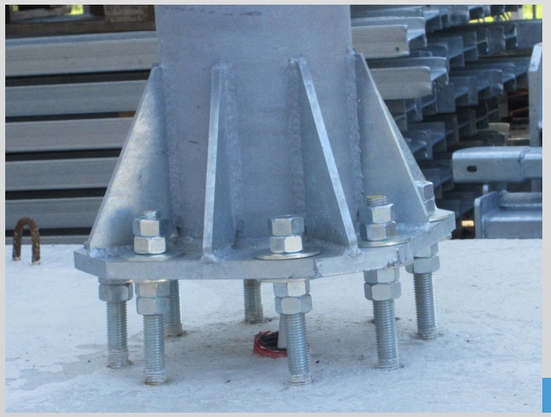
Quality Certificates
- International Protection Rating (IEC 60529), IP63



More information visit







Dual-Axis SOLAR TRACKER for 4 panels, model ST44M2V4P

Code: 0103

- 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 RS485
- For surface area up to 6,5 m² and max. 80 kg
- Made in Europe

Mechanical Capabilities
- Dual-Axis
- Hour Angle Limit 100˚, software and hard ware limit 50°E to 50°W
- Elevation angle 15-90˚, adjustable start
- Hour-angle motor, Linear Motor SM4S510M2 with stroke of 510 mm
- Elevation-angle motor: Linear Motor SM4S510M2 with stroke of 510 mm
- For 4 pieces of solar panels, dimensions 0,99 m x 1,65 m in total 6,5 m²
- Max. weight of solar panels, 20 kg/panel

Positioning System Data
- Operating Protocol TdAPS (Time derived Astronomical Positioning System)
- GMT clock timer with EOT and calendar

Communication Data
- USB communication interface
- Networking solution for control from centre RS485

Electrical Data
- Motor Power Supply 24 VDC ± 15% (2.5A current capacity) SMPS must have 150% inrush current

Environmental Data
- Operating temperature from- 25°C to +70°C (optionally with artic grease for teperatures from -40°C up to +70°C)
- Max. safe wind speed 120 km/h

Quality Certificates
- International Protection Rating (IEC 60529) IP63

More information visit

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Dual-Axis SOLAR TRACKER for 3 panels ST44M2V3P

Code: 0121

- 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 RS485
- For surface area up to 4,9 m² and max. 60 kg
- Made in Europe

Mechanical Capabilities
- Dual-Axis
- Hour Angle Limit 100°, software and hard ware limit 50°E to 50°W
- Elevation angle 15–90°, adjustable start
- Hour-angle motor, Linear Motor SM4S510M2 with stroke of 510 mm
- Elevation-angle motor: Linear Motor SM4S510M2 with stroke of 510 mm
- For 3 pieces of solar panels, dimensions 0,99 m x 1,65 m in total 4,9 m²
- Max. weight of solar panels, 20 kg/panel

Positioning System Data
- Operating Protocol TdAPS (Time derived Astronomical Positioning System)
- GMT clock timer with EOT and calendar

Communication Data
- USB communication interface
- Networking solution for control from centre RS485

Electrical Data
- Motor Power Supply 24 VDC ± 15% (2.5A current capacity) SMPS must have 150% inrush current

Environmental Data
- Operating temperature from– 25°C to +70°C (optionally with artic grease for teperatures from –40°C up to +70°C)
- Max. safe wind speed 144 km/h

Quality Certificates
- International Protection Rating (IEC 60529) IP63

More information visit

www.solar-motors.com

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Dual-Axis SOLAR TRACKER for 2 panels ST44M2V2P

Code: 0124

- 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 RS485
- For surface area up to 3,3 m² and max. 40 kg
- Made in Europe

Mechanical Capabilities
- Dual-Axis
- Hour Angle Limit 100°, software and hard ware limit 50°E to 50°W
- Elevation angle 15-90°, adjustable start
- Hour-angle motor, Linear Motor SM4S510M2 with stroke of 510 mm
- Elevation-angle motor: Linear Motor SM4S510M2 with stroke of 510 mm
- For 2 pieces of solar panels, dimensions 0,99 m x 1,65 m in total 3,3 m²
- Max. weight of solar panels, 20 kg/panel

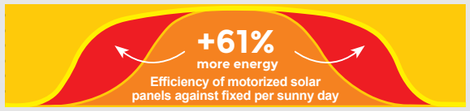
Positioning System Data
- Operating Protocol TdAPS (Time derived Astronomical Positioning System)
- GMT clock timer with EOT and calendar

Communication Data
- USB communication interface
- Networking solution for control from centre RS485

Electrical Data
- Motor Power Supply 24 VDC ± 15% (2.5A current capacity) SMPS must have 150% inrush current

Environmental Data
- Operating temperature from- 25°C to +70°C (optionally with artic grease for teperatures from -40°C up to +70°C)
- Max. safe wind speed 144 km/h

Quality Certificates
- International Protection Rating (IEC 60529) IP63



More information visit

Single axis on-line tracker for 24 panels

Code: 0179

- 25 years operational life
- up to 10 year warranty
- ultra low maintenance
- low power consumption
- easy installation set up
- equipped with powerful analytics
- backtracking function included
- designed and manufactured in EU

Mechanical Capabilities
- Single-Axis
- Hour Angle Limit 100˚, software and hard ware limit 50°E to 50°W
- Elevation angle, horizontal in-line tracker
- Hour-angle motor, Linear Motor SM4S700M3 with stroke of 700 mm
- For 24 pieces of solar panels, dimensions 0,99 m x 1,65 m in total 47,5 m^2
- Max. weight of solar panels, 25 kg/panel

Positioning System Data
- Operating Protocol TdAPS (Time derived Astronomical Positioning System)
- GMT clock timer with EOT and calendar

Communication Data
- USB communication interface
- Networking solution for control from centre RS485

Electrical Data
- Motor Power Supply 24 VDC ± 15% (2.5A current capacity) SMPS must have 150% inrush current

Environmental Data
- Operating temperature from– 25°C to +70°C (optionally with artic grease for teperatures from –40°C up to +70°C)
- Max. safe wind speed 180 km/h

Quality Certificates
- International Protection Rating (IEC 60529) IP63

More information visit

Single-Axis SOLAR TRACKER for 4 panels ST40M2V4P

Code: 0104

- 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, CPV and lighter thermal panels
- 7 hours of automatic tracking at perpendicular angle
- User friendly web interface for monitoring, setting and upgrading
- USB comunication port, optionally RS485
- For surface area up to 6,5 m² and max 80 kg
- Made in Europe

Mechanical Capabilities
- Single-Axis
- Hour Angle Limit 100˚, software and hard ware limit 50°E to 50°W
- Elevation angle 15–90˚, adjustable start
- Hour-angle motor, Linear Motor SM4S510M2 with stroke of 510 mm
- For 4 pieces of solar panels, dimensions 0,99 m x 1,65 m in total 6,5 m²
- Max. weight of solar panels, 20 kg/panel

Positioning System Data
- Operating Protocol TdAPS (Time derived Astronomical Positioning System)
- GMT clock timer with EOT and calendar

Communication Data
- USB communication interface
- Networking solution for control from centre RS485

Electrical Data
- Motor Power Supply 24 VDC ± 15% (2.5A current capacity) SMPS must have 150% inrush current

Environmental Data
- Operating temperature from– 25°C to +70°C (optionally with artic grease for teperatures from –40°C up to +70°C)
- Max. safe wind speed 100 km/h

Quality Certificates
- International Protection Rating (IEC 60529) IP63

More information visit

Single-Axis SOLAR TRACKER for 3 panels ST40M2V3P

Code: 0115

- 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, CPV and lighter thermal panels
- 7 hours of automatic tracking at perpendicular angle
- User friendly web interface for monitoring, setting and upgrading
- USB comunication port, optionally RS485
- For surface area up to 4,9 m² and max 60 kg
- Made in Europe

Mechanical Capabilities
- Single-Axis
- Hour Angle Limit 100˚, software and hard ware limit 50°E to 50°W
- Elevation angle 15–90˚, adjustable start
- Hour-angle motor, Linear Motor SM4S510M2 with stroke of 510 mm
- For 3 pieces of solar panels, dimensions 0,99 m x 1,65 m in total 4,9 m²
- Max. weight of solar panels, 20 kg/panel

Positioning System Data
- Operating Protocol TdAPS (Time derived Astronomical Positioning System)
- GMT clock timer with EOT and calendar

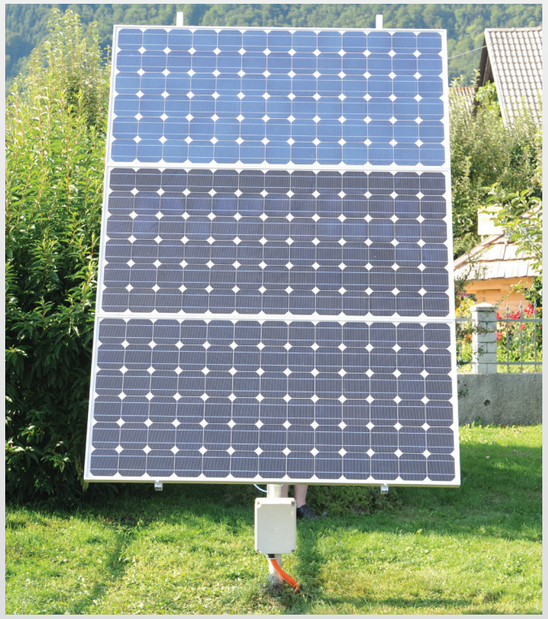
Communication Data
- USB communication interface
- Networking solution for control from centre RS485

Electrical Data
- Motor Power Supply 24 VDC ± 15% (2.5A current capacity) SMPS must have 150% inrush current

Environmental Data
- Operating temperature from– 25°C to +70°C (optionally with artic grease for teperatures from –40°C up to +70°C)
- Max. safe wind speed 120 km/h

Quality Certificates
- International Protection Rating (IEC 60529) IP63

More information visit



Single-Axis SOLAR TRACKER for 2 panels ST40M2V2P

Code: 0122

- 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, CPV and lighter thermal panels
- 7 hours of automatic tracking at perpendicular angle
- User friendly web interface for monitoring, setting and upgrading
- USB comunication port, optionally RS485
- For surface area up to 4,9 m² and max 60 kg
- Made in Europe

Mechanical Capabilities
- Single-Axis
- Hour Angle Limit 100°, software and hard ware limit 50°E to 50°W
- Elevation angle 15–90°, adjustable start
- Hour-angle motor, Linear Motor SM4S510M2 with stroke of 510 mm
- For 2 pieces of solar panels, dimensions 0,99 m x 1,65 m in total 3,3 m²
- Max. weight of solar panels, 20 kg/panel

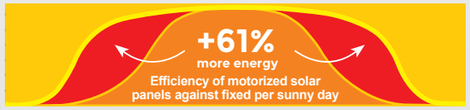
Positioning System Data
- Operating Protocol TdAPS (Time derived Astronomical Positioning System)
- GMT clock timer with EOT and calendar

Communication Data
- USB communication interface
- Networking solution for control from centre RS485

Electrical Data
- Motor Power Supply 24 VDC ± 15% (2.5A current capacity) SMPS must have 150% inrush current

Environmental Data
- Operating temperature from– 25°C to +70°C (optionally with artic grease for teperatures from –40°C up to +70°C)
- Max. safe wind speed 144 km/h

Quality Certificates
- International Protection Rating (IEC 60529) IP63



More information visit

Single-Axis SOLAR TRACKER for 1 panel SM3SPMOG+

Code: 0135

- 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 6,7 hours of automatic tracking at perpendicular angle
- User friendly web interface for monitoring, setting and upgrading
- Comunication port RS485
- For surface area up to 2m² and max. 25 kg
- Made in Europe

Mechanical Capabilities
- Single-Axis
- Hour Angle Limit 92° typical / 100° max., software and hardware limit (46°E to 46°W)
- Elevation angle 75°, manual fixation
- Hour-angle motor, Brush DC motor with position encoder on cogwheel
- 1 piece of 2,0 m x 1,0 m in total 2,0 m²
- Max. weight of solar panels, 25 kg/panel

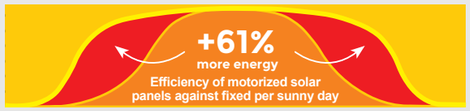
Positioning System Data
- Operating Protocol TdAPS (Time derived Astronomical Positioning System)
- GMT clock timer with EOT and calendar

Communication Data
- USB communication interface
- Networking solution for control from centre RS485

Electrical Data
- Motor Power Supply recommended constant 12 VDC (working from 10 to 15 VDC), (1 A current capacity @ 12V)

Environmental Data
- Operating temperature from– 25°C to +70°C
- Max. safe wind speed 130 km/h

Quality Certificates
- International Protection Rating (IEC 60529) IP33, water resistant



More information visit

Dual-Axis Heliostat for mirror application up to 25 m²

Code: 0105 – ST44M3HEL25M

- 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 Heliostats, Tower Receiver CSP and Natural Daylightning System
- 13 hours of automatic tracking and sun mirroring
- User friendly web interface for monitoring, setting and upgrading
- USB comunication port, RS485
- For surface area up to 25m² and max 450 kg
- Made in Europe

Mechanical Capabilities
- Dual-Axis
- Hour Angle Limit 100˚, software and hardware limit
- Elevation angle 15–90˚, adjustable start
- Hour-angle motor, Linear Motor SM4S900M3 with stroke of 900 mm
- Elevation-angle motor: Linear Motor SM4S900M3 with stroke of 900 mm
- For 8 pieces of mirror panels, dimensions of 1.250 mm x 2.500 mm with net surface of 25 m²
- Max. weight of mirror panel, 30 kg/panel

Positioning System Data
- Operating Protocol TdAPS (Time derived Astronomical Positioning System)
- GMT clock timer with EOT and calendar

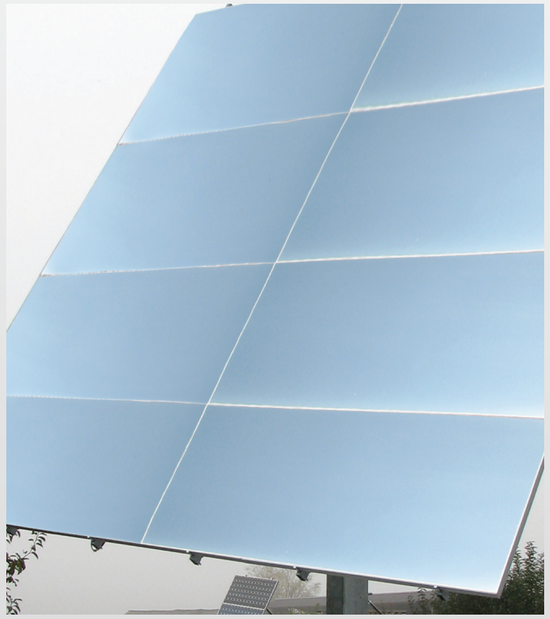
Communication Data
- USB communication interface
- Networking solution for control from centre RS485

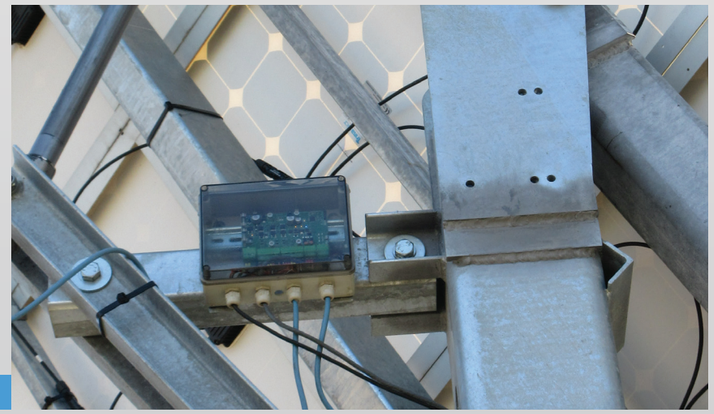
Electrical Data
- Motor Power Supply 24 VDC ±15% (5A current capacity) SMPS must have 150% inrush current

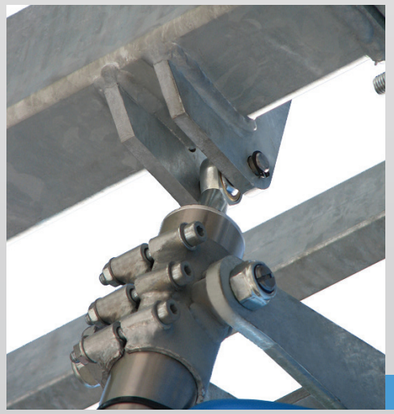
Environmental Data
- Operating temperature from– 25°C to +70°C (optionally with artic grease for teperatures from –40°C up to +70°C)
- Max. safe wind speed 144 km/h

Quality Certificates
- International Protection Rating (IEC 60529) IP63

More information visit



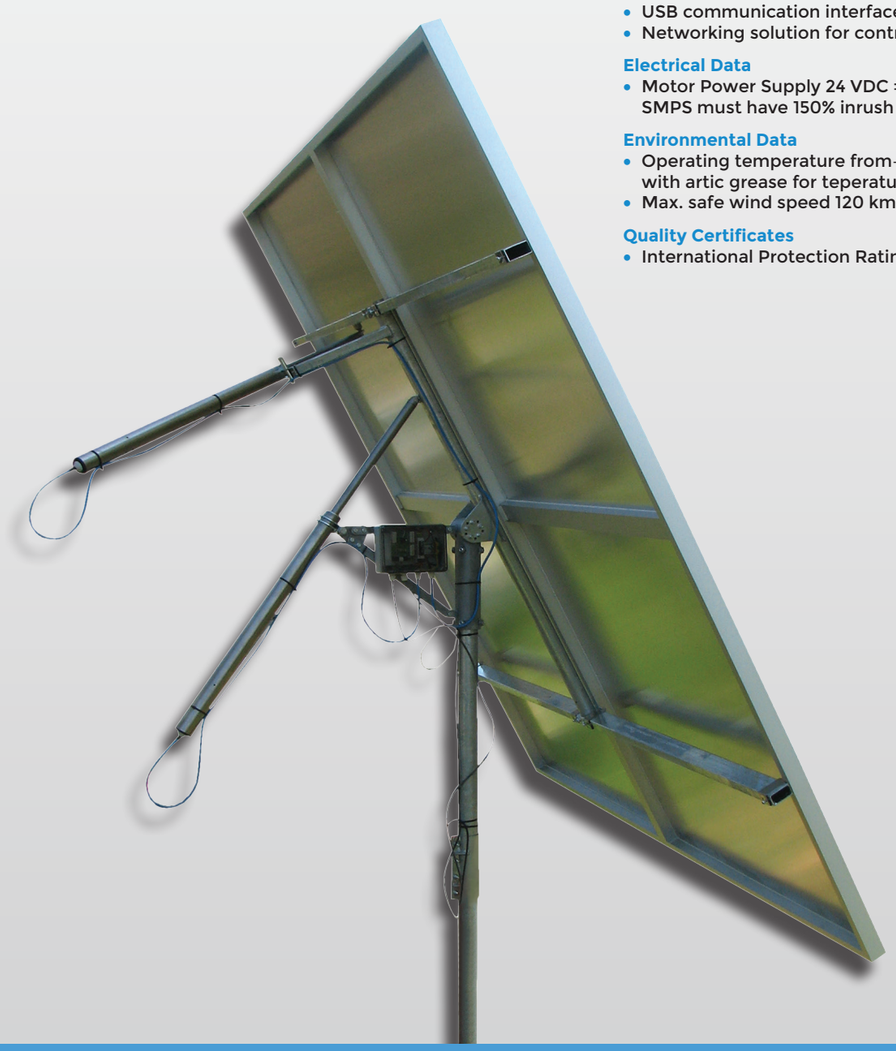




Dual-Axis Heliostat for mirror application up to 6,2 m²

Code: 0110 – ST44M2HEL6M

- 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 Heliostats, Tower Receiver CSP and Natural Daylightning System
- 13 hours of automatic tracking and sun mirroring
- User friendly interface for monitoring, setting and upgrading
- USB comunication port, RS485
- For surface area up to 6,2m² and max 90 kg
- Made in Europe



Mechanical Capabilities
- Dual-Axis
- Hour Angle Limit 100˚, software and hard ware limit 50°E to 50°W
- Elevation angle 15–90˚, adjustable start
- Hour-angle motor, Linear Motor SM4S510M2 with stroke of 510 mm
- Elevation-angle motor: Linear Motor SM4S510M2 with stroke of 510 mm
- For 2 pieces of mirror panel, dimensions of 1.250 mm x 2.500 mm with net surface of 6,2 m²
- Max. weight of mirror panel, 30 kg/mirror

Positioning System Data
- Operating Protocol TdAPS (Time derived Astronomical Positioning System)
- GMT clock timer with EOT and calendar

Communication Data
- USB communication interface
- Networking solution for control from centre RS485

Electrical Data
- Motor Power Supply 24 VDC ± 15% (2.5A current capacity) SMPS must have 150% inrush current

Environmental Data
- Operating temperature from– 25°C to +70°C (optionally with artic grease for teperatures from –40°C up to +70°C)
- Max. safe wind speed 120 km/h

Quality Certificates
- International Protection Rating (IEC 60529) IP63

More information visit

Dual-Axis Heliostat for mirror application up to 3,1 m²

Code: 0122 - ST44M2HEL3M

- 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 Heliostats, Tower Receiver CSP and Natural Daylightning System
- 13 hours of automatic tracking and sun mirroring
- User friendly interface for monitoring, setting and upgrading
- USB comunication port, RS485
- For surface area up to 3,1 m² and max 90 kg
- Made in Europe

Mechanical Capabilities
- Dual-Axis
- Hour Angle Limit 100°, software and hard ware limit 50°E to 50°W
- Elevation angle 15-90°, adjustable start
- Hour-angle motor, Linear Motor SM4S520M2 with stroke of 520 mm
- Elevation-angle motor: Linear Motor SM4S520M2 with stroke of 520 mm
- 1 mirror panels, dimensions of 1.250 mm x 2.500 mm with net surface of 3,1 m²
- Max. weight of mirror panel, 30 kg/mirror

Positioning System Data
- Operating Protocol TdAPS (Time derived Astronomical Positioning System)
- GMT clock timer with EOT and calendar

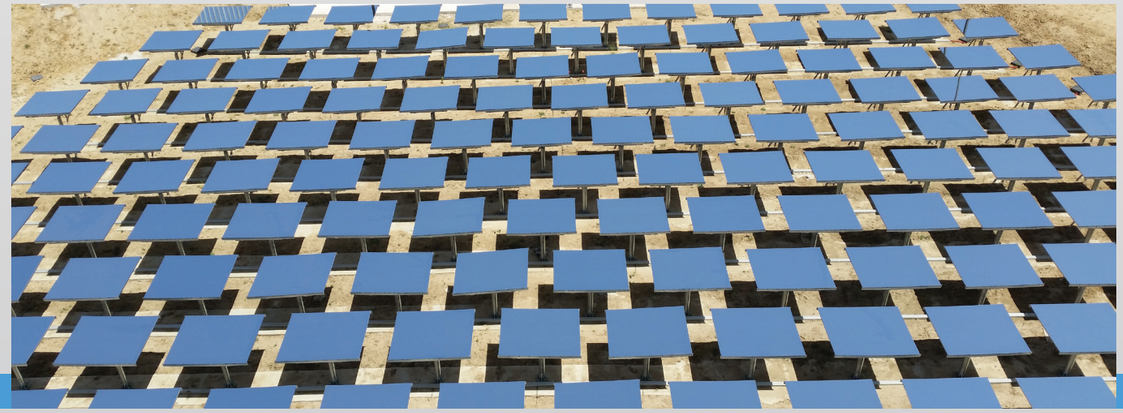
Communication Data
- USB communication interface
- Networking solution for control from centre RS485

Electrical Data
- Motor Power Supply 24 VDC ± 15% (2.5A current capacity) SMPS must have 150% inrush current

Environmental Data
- Operating temperature from- 25°C to +70°C (optionally with artic grease for teperatures from -40°C up to +70°C)
- Max. safe wind speed 120 km/h

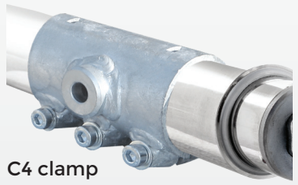
Quality Certificates
- International Protection Rating (IEC 60529) IP63

More information visit



Series SM4 M2

U8 clamp



C4 clamp

Ordering information – coding explanation

SM4	S510	M2	NC
Series prefix	S – Stroke lenght	Motor type	Clamp type
SM4	S200-200 mm	M2 – brush DC motor	NC – no clamp
	S300-300 mm	M2B – brush less DC motor	C4 – clamp
	S450-450 mm		U8 – clamp
	S510-510 mm		

Model	EAN	Stroke	A closed	A open	Clamp type
SM4S200M2U8	0069	200 mm	48.5	348.5	U8
SM4S300M2U8	0068	300 mm	48.5	348.5	U8
SM4S400M2NC	0172	400 mm			no clamp
SM4S510M2NC	0077	510 mm			no clamp

Mechanical Capabilities

- Construction material of linear motor Stainless steel tubes and spindle and high carbon steel
- Spindle type and material ACME stainless spindle
- Stroke lenght
  SM4S300M2U8 – stroke 300 mm
  SM4S400M2NC – stroke 400 mm
  SM4S510M2NC – stroke 510 mm
- Max. static load 340 kgf
- Dynamic load capacity 220 kgf
- Rod end type Rod end type Rodend with groowe 12 mm and hole dia. 10 mm
- Speed at no load 1,5 mm/s at no load
- Resolution 265,33 pulses/mm
- Backlash max 0,15 mm optionally possible less

Electrical Data

- Motor power supply 24VDC +/– 15% 2A (2,5A current capability) (In rush 300% on Max. current or softstart)*
- Power consumption in operation Rated 36W at 20% duty cycle
- Electrical connections Typical 2x1 mm² + 5x0.22 mm² (Hole size on connector 1.5 mm²)

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

Corrosion, weather and chemical resistance

- Corrosion Protection PLASOX® plasmanitriding with subsequent oxidation, corrosion resistant material Zn/Ni/Ni 10 umm, rest stainless steel

Packaging

- Dimensions of a packed product 1box of 1000(L) x 80(W) x 60(H) mm
- Product weight (neto)

  SM4S300M2U8 – 3.5 kg

  SM4S400M2NC – 4.5 kg

  SM4S510M2NC – 4.94 kg

Quality Certificates

- International Protection Rating (IEC 60529) IP63
- Electromagnetic Compatibility (EMC Directive 89/336/EEC)
- Low Voltage Equipment Directive (EEC Council Directive 73/23/EEC)

Optional Properties

- Heliostat usage
- CPV usage (concentrated PV usage)
- Guarantee time2 years as standard, 5 years for +20% *** 10 years for +35% ***

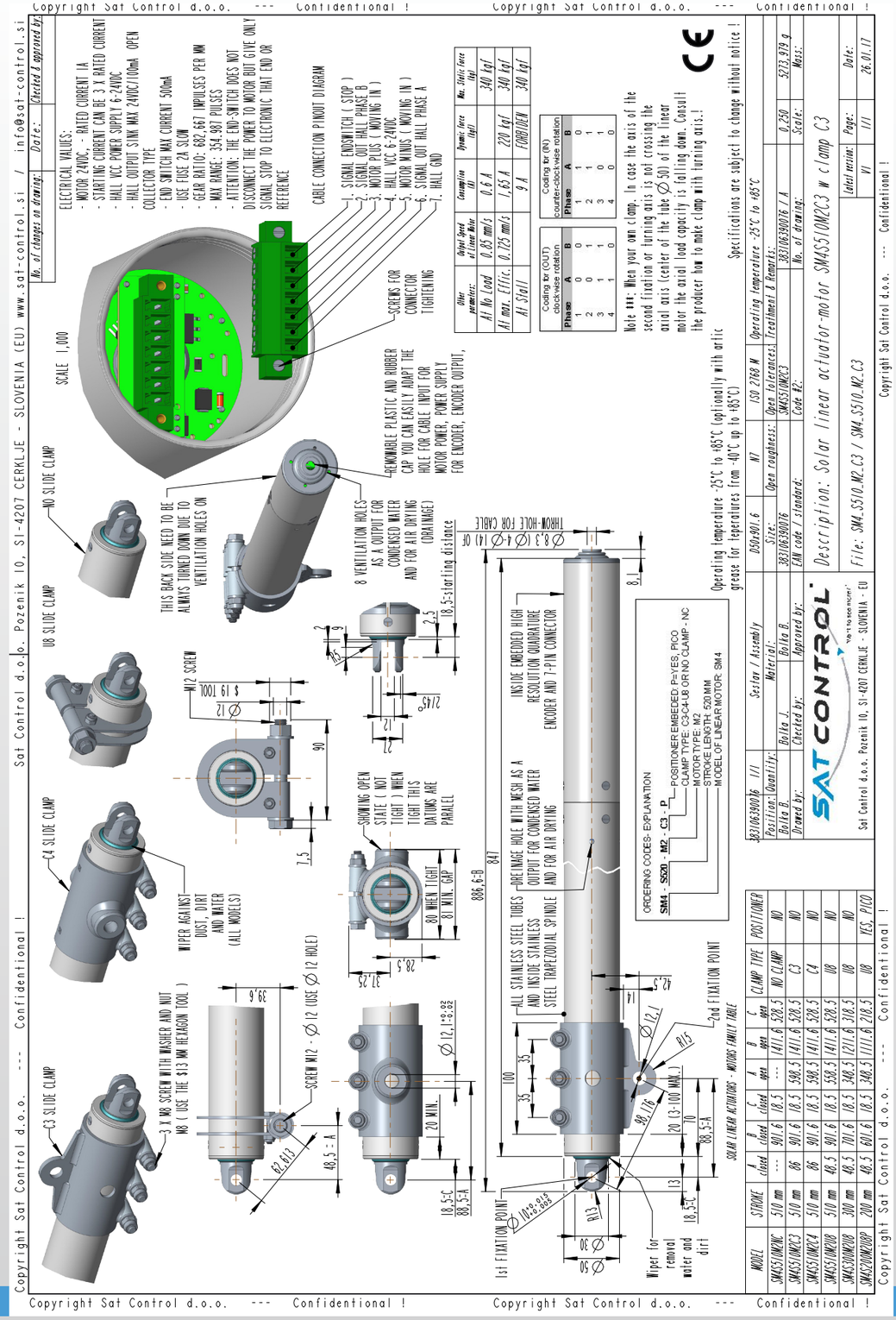
* NOTE: Lifetime of the brash in the motor is 30% shorter if motors don't have soft start and stop
*** NOTE: For additonal payment

SM4S510M2NC Code: 0077

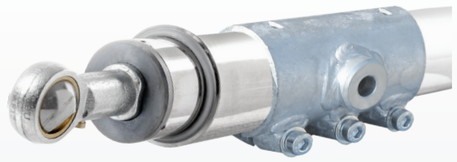
SM4S510M2C4 Code: 0175

SM4S510M2U8 Code: 0078

More information visit



Series SM4 M3



with C4 clamp

Ordering information – coding explanation

SM4	S900	M3	NC
Series prefix	S - Stroke lenght	Motor type	Clamp type
SM4	S200-200 mm	M3 - brush DC motor	NC - no clamp
	S300-300 mm	M3B - brush less DC motor	C4 - clamp
	S450-450 mm		U8 - clamp
	S600-600 mm		
	S700-700 mm		
	S800-800 mm		
	S900-900 mm		

Model	EAN	Stroke	A	B	Clamp type
SM4S200M3C4	0101	200 mm	684	763,6	C4
SM4S300M3NC	0093	300 mm	784	863,6	no clamp
SM4S450M3C4	0085	450 mm	934	1013,6	C4
SM4S500M3NC	0075	500 mm	984	1063,6	no clamp
SM4S600M3NC	0092	600 mm	1084	1163,6	no clamp
SM4S600M3C4	0178	600 mm	1084	1163,6	C4
SM4S700M3NC	0181	700 mm	1184	1263,6	no clamp
SM4S700M3C4	0177	700 mm	1184	1263,6	C4
SM4S900M3NC	0094	900 mm	1384	1463,6	no clamp
SM4S900M3C4	0095	900 mm	1384	1463,6	C4

Mechanical Capabilities

- Construction material of linear motor Stainless steel tubes and spindle and high carbon steel
- Spindle type and material ACME stainless spindle
- Stroke lenght**
  SM4S600M3NC – stroke 600 mm
  SM4S700M3NC – stroke 700 mm
  SM4S900M3C4 – stroke 900 mm
- Max. static load 1500 kgf
- Dynamic load capacity 800 kgf
- Rod end type Spherical bearing with hole dia. 12 mm with pivot angle of 13°
- Speed at no load 2,33 mm/s
- Resolution 188 pulses/mm
- Backlash max. 0,15 mm

Electrical Data

- Motor power supply 24VDC +/– 15% 4A (5A current capability) (In rush 300% on max. current or softstart)*
- Power consumption in operation Rated 36W, max. 100W at 20% duty cycle
- Power supply connection 1 piece of 2 Wire Cable with an Internal Cu Conductor of 1,5 mm² (not included in kit)

Environmental Data

- Operating temperature –25°C to +85°C (optionally with arctic grease for teperatures from –40°C up to +85°C)
- Operation at humidity 0% to 100%, relative humidity
- Corrosion Protection, weather and chemical resistance PLASOX® plasmanitriding with subsequent oxidation

Packaging

- Dimensions of a packed product
  1 box of 1600 (L) x 80 (W) x 80 (H) mm
- Product weight neto
  SM4S600M3NC – 8,5 kg
  SM4S700M3NC – 8,5 kg
  SM4S900M3C4 – 8,5 kg

Quality Certificates

- International Protection Rating (IEC 60529) IP63
- Electromagnetic Compatibility (EMC Directive 89/336/EEC)
- Low Voltage Equipment Directive (EEC Council Directive 73/23/EEC)

Optional Properties

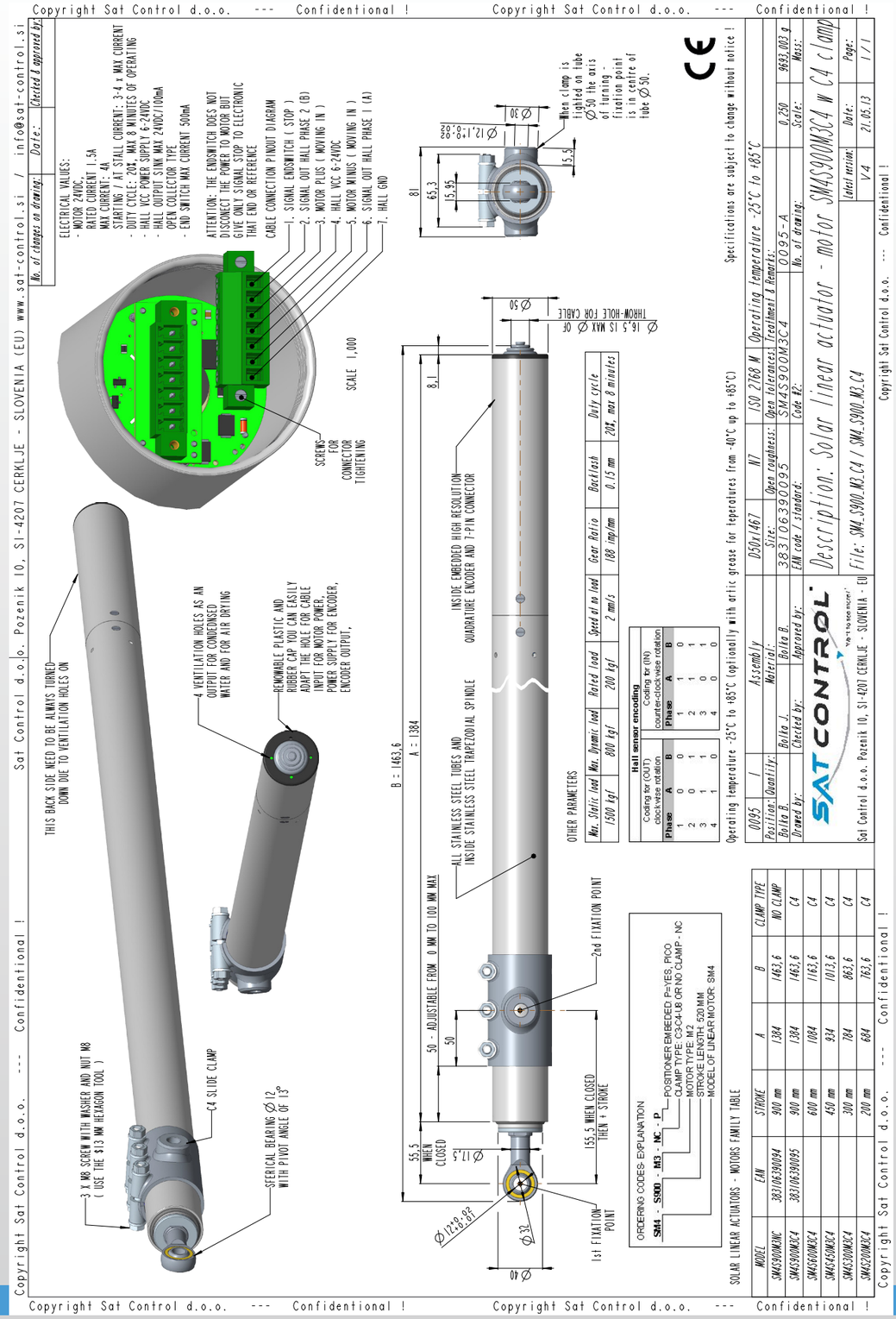
Guarantee time 2 years as standard, 5 years for +20% *** 10 years for +35% ***

* NOTE: Lifetime of the brash in the motor is 30% shorter if motors don't have soft start and stop,
** NOTE: Other dimensions optianally
*** NOTE: For additonal payment

SM4S600M3NC Code: 0092

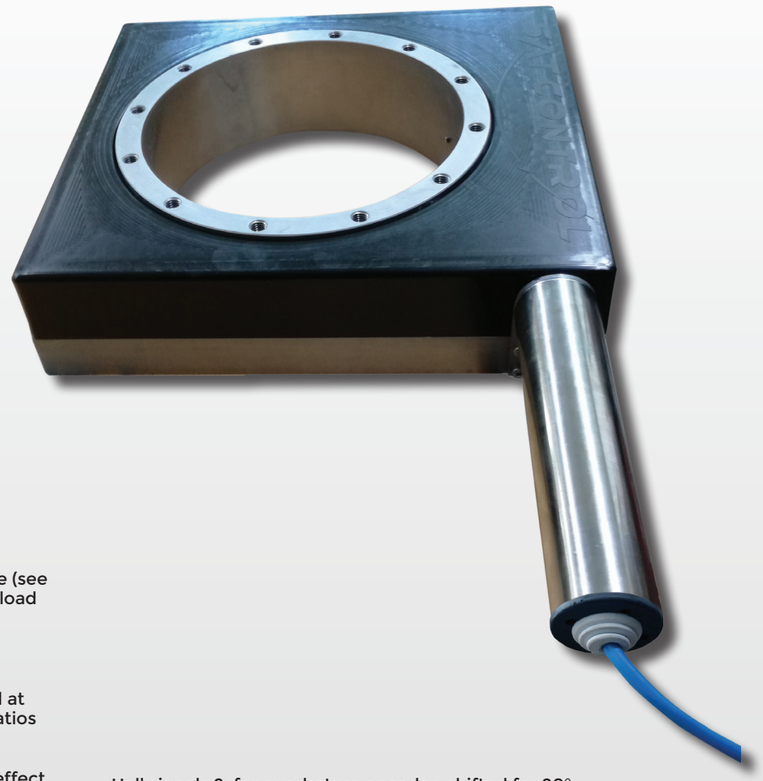
SM4S900M3C4 Code: 0095

More information visit



Slewing drive SD5M3

Code: 7400



Drive units for solar Sun-tracker systems

Solar power plants require robust drive systems with high accuracy, efficiency and virtually maintenance-free long-term operation showing a high degree of reliability.

Only components specially designed for outdoor use can meet the requirements. Worm gear units are ideally suited for the azimuth adjustment of a tracker, since they can be used for virtually backlash-free transmission ratios and very slow movements.

By target-oriented selection of defined materials, required parameters such as perfect wear behaviour, high fatigue strength and long-term corrosion protection are achieved and implemented.

Mechanical Capabilities

- Raceway diameter 280 mm (11 inch)
- Max. Static axial load 350 kN at 7 kNm of axial torque (see load diagram) or 120 kN at 20 kNm axial torque (see load diagram)
- Max. Static axial torque 20 kNm at 120 kN (see load diagram)
- Max. static radial load 15 kNm
- Max. dynamic radial load 600 Nm at I (mot) = 4A and at planetary gear head ratio 1 / 188,611 (different gear ratios and motor power provide different dynamic torque, another types of gearheads available on request)
- Backlash 0.03°–0.15° depend from client's demand (effect on price)
- Turning speed at no load 1.8 °/s
- Turning speed at load 0.9 °/s
- Gear ratio of Worm gear / Worm spindle 1 / 100
- Gear ratio of planetary gear motor 1 / 188.611(another gear ratios available on request)
- Heliostat usage Yes, backlash > 0.05°
- CPV usage (concentrated PV usage) Yes, backlash > 0.1°
- Slewing drive table size 350 x 380 x 93.5 mm
- Inner diameter of slewing drive 240 mm
- Diameter of screw ring at inner ring by slewing drive 260 mm
- Construction material High carbon steel, quenched / tempered, stainless steel tube
- Spindle type and material Worm wheel – high carbon steel quenched / tempered

Electrical Data

- Motor power supply 24VDC +20% / –10% (5A current capability)
- Power Tolerance +20% / –10%
- Power in operation Rated 36W, max.100W at 20% duty cycle
- Power in standby 0,1Wh / h (4mA at 24VDC)
- End switches 1endswitch embeded and functional when turning CCV
- Estimated service life Slewing drive 30.000 revolutions at full load, PMDC motor 1500 h of operation
- Hall signals 2, for quadrature encoder, shifted for 90°
- Resolution 0,00477° = 1 pulse, 209,5678 pulses/°
- Duty cycle 20% max. 8 minutes in operating continuously
- Electromagnetic Compatibility (EMC Directive 89/336/EEC) Yes
- Low Voltage Equipment Directive (EEC Council Directive 73/23/EEC) Yes

Corrosion, weather and chemical resistance

- Operating temperature –25°C to +85°C, optional with special arctic grease –40°C to +85°C
- Relative air humidity 0% to 100%, relative humidity
- Corrosion Protection Zn/Ni/Ni 12um (min 25 years corrosion resistance)
- International Protection Rating (IEC 60529) IP63, outdoor usage in harsh environment

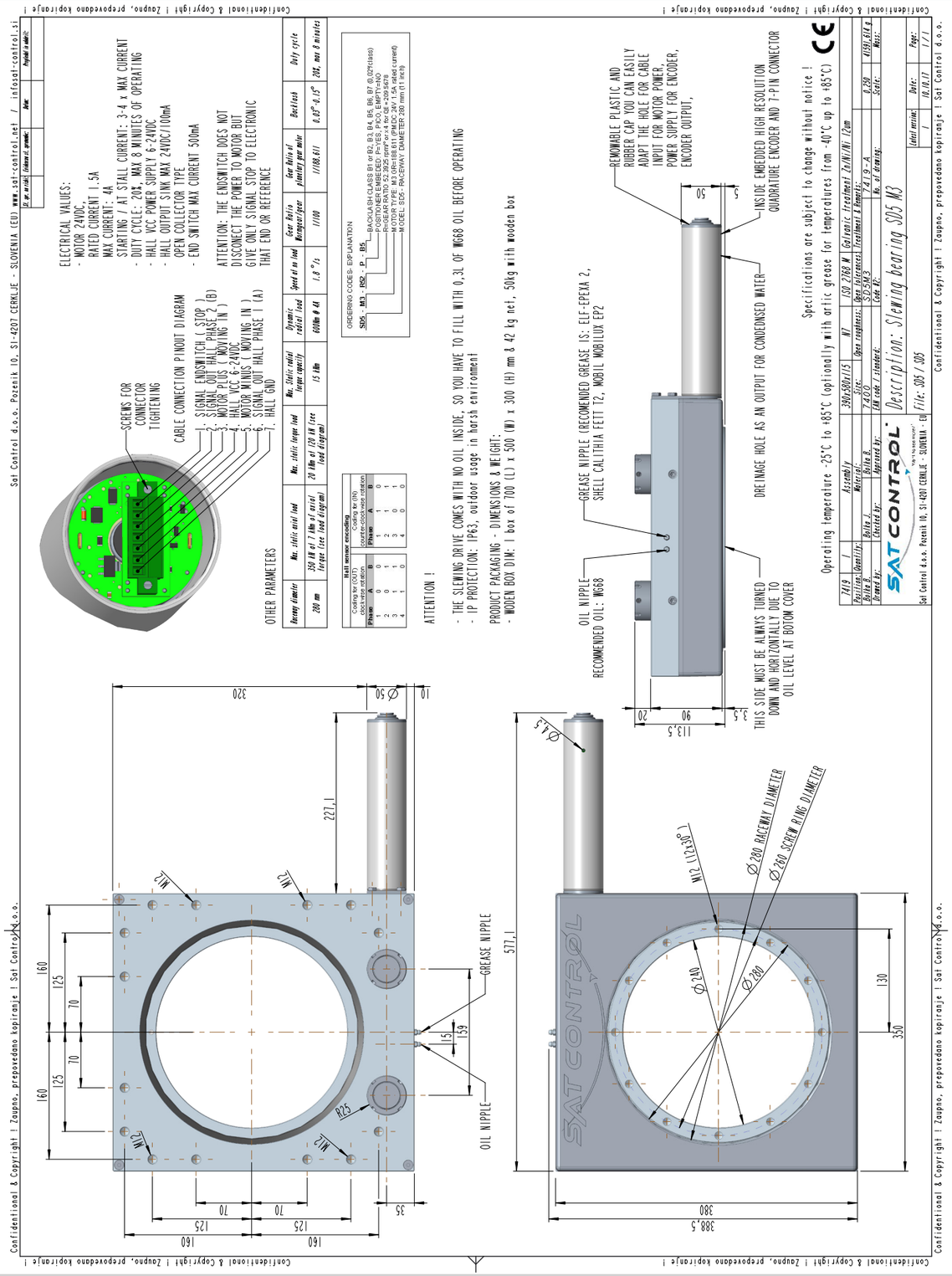
Packaging

- Dimensions (W / H / D) in mm Packed product in wooden box of 700 (L) x 500 (W) x 300 (H) mm
- Weight 2 kg net, 50 kg with box

Guarantee conditions

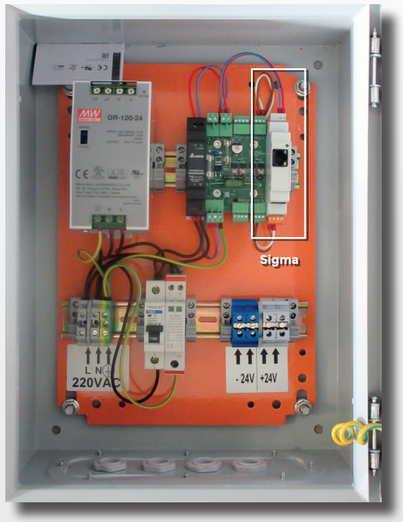
- Guarantee time 2 years

More information visit



Sigma Solar Tracking Server

Code: 4105



The standardized data interface for large-scale systems
Large-scale plants and PV power utility stations require customized monitoring solutions and need to link systems and components into one joint control system. Sigma Server set new communication standard in the field of automation technology, that enables simple and reliable data exchange between products and applications. With the Sigma Solar Server, Sat Control equipment can be very easily integrated into compatible systems.

Overview

Professional
- Visualization, control and monitoring of large-scale plants
- Integration of Sat Control equipment into existing control-room technology

Flexible
- Data interface in accordance with the communication standards in the field of automation technology
- Simple and fast installation, high reliability

Technical Capabilities

Communication
- Communication with Enigma Analytics Ethernet
- PC communication Ethernet
- Tracker communication RS485

Interfaces
- Analog and digital inputs 3 digital inputs
- Ethernet 10/100 Mbit, RJ45
- RS485 3 Pin Connector

Max. number of controlled devices
- Solar Tracker 64 (Dual Axis) or 128 (Single Axis)

Max. communication range
- Ethernet 100 m, RS485 1000 m

Power supply
- Power supply External Power Supply
- Input voltage 12–24VDC
- Power consumption Type 4 W / max. 12 W

Environmental conditions in operation
- Ambient temperature –20°C ... +45°C
- Relative air humidity 0% ... 45%, non-condensing

Memory
- Internal 0,5 MB, External SD card 2 GB

General data
- Dimensions (W / H / D) in mm 110 / 55 / 17
- Weight 100 g
- Mounting location Indoors
- Mounting options DIN rail mounting
- Status display LEDs

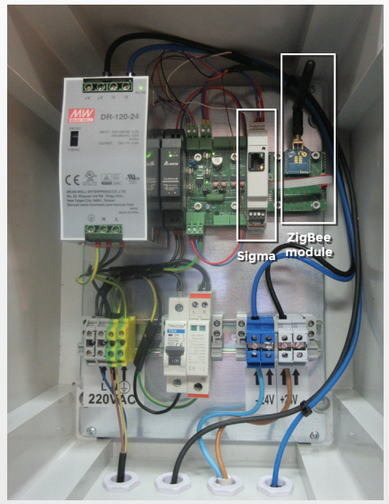
Languages
- Software language English
- Language versions – manual English

Features
- Operation Integrated Web server (Internet browser)
- Warranty 2 years*
- Certificates and approvals www.solar-motors.com

* Optionally 5 or 10 years for additional payment.

Sigma Solar Tracking Server with ZigBee mash network

Code: 4128



The standardized data interface for large-scale systems
Large-scale plants and PV power utility stations require customized monitoring solutions and need to link systems and components into one joint control system. Sigma Server set new communication standard in the field of automation technology, that enables simple and reliable data exchange between products and applications. With the Sigma Solar Server, Sat Control equipment can be very easily integrated into compatible systems.

Overview

Professional
- Visualization, control and monitoring of large-scale plants
- Integration of Sat Control equipment into existing control-room technology

Flexible
- Data interface in accordance with the communication standards in the field of automation technology
- Simple and fast installation, high reliability
- ZigBee Wireless mash network, easy installation which mean no communication cables for installation on ground.
- Less chances of spreading damages due to lightning strike.

Technical Capabilities

Communication
- Communication with Enigma Analytics Ethernet
- PC communication Ethernet
- Tracker communication RS485 Wireless with ZigBee module
- Wireless communication protocol IEEE® 802.15.4 • • OEM RF Modules by MaxStream

Interfaces
- Analog and digital inputs 3 digital inputs
- Ethernet 10/100 Mbit, RJ45
- RS485 3 Pin Connector

Max. number of controlled devices
- Solar Tracker 48 (Dual Axis) or 96 (Single Axis)

Max. communication range
- Wireless mash network 150 m on open field

Power supply
- Power supply External Power Supply
- Input voltage 12–24VDC
- Power consumption Type 4 W / max. 12 W

Environmental conditions in operation
- Ambient temperature –20°C ... +45°C
- Relative air humidity 0% ... 45%, non-condensing

Memory
- Internal 0,5 MB, External SD card 2 GB

General data
- Dimensions (W / H / D) in mm 110 / 55 / 17
- Weight 100 g
- Mounting location Indoors
- Mounting options DIN rail mounting
- Status display LEDs

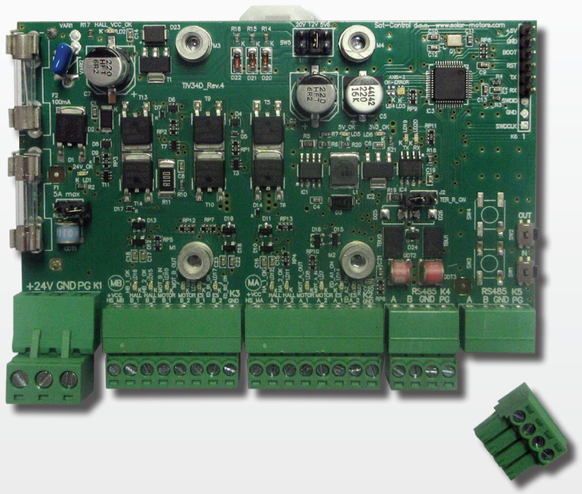
Languages
- Software language English
- Language versions – manual English

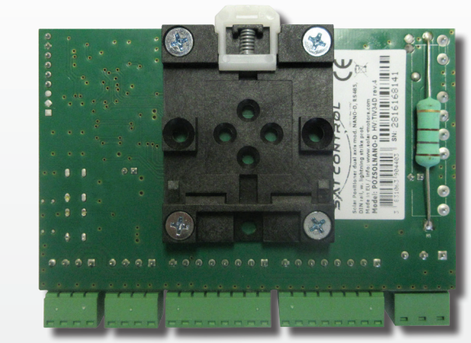
Features
- Operation Integrated Web server (Internet browser)
- Warranty 2 years*
- Certificates and approvals www.solar-motors.com

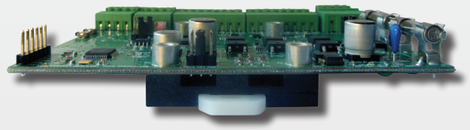
* Optionally 5 or 10 years for additional payment.

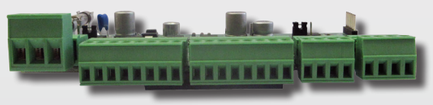
Solar positioner NANO-D

Code: 0440









Solar Positioner NANO-D for Single or Dual Axis Tracking
The dual axis Solar Positioner NANO-D set a new Positioning Accuracy Standard with RS485 communication, easy installation, safe operation and a simplified assembly concept: the new generation of positioners is ideally suited in middle-sized and large on-grid solar power plants.
With the Sigma Server, Solar Positioner NANO-D creates complete, integrated system for monitoring, diagnosis and configuration of the PV plant.

Overview
Professional
- Drive and positioning of Single or Dual Axis Solar Trackers
- Integration of Sat Control equipment into existing control-room technology

Flexible
- Data interface in accordance with the MODBUS communication standards in the field of automation technology
- Simple and fast installation, high reliability

Reliable
- Direct communication with the Sigma Solar Server via RS485 Service Interface
- Meets the requirements of the EU Low-Voltage Directive for grid safety management

Technical Capabilities

Operation
- Geometrical Operation Single / Dual Axis Positioner
- Type Slave Positioner

Communication
- Positioner communication RS485 MODBUS

Interfaces
- Max. number of controlled devices 2 (Motors or Slewing drives)

Max. communication range
- RS485 cable distance 750 mm (twisted pair @ 0,5mm pair wire)

Power supply
- Power supply External SMPS type
- Input voltage 24VDC +/-15%
- Power consumption in idle 1.5 W

Environmental conditions in operation
- Ambient temperature -30°C ... +80°C
- Relative air humidity 0% ... 85%, non-condensing

General data
- Dimensions (L / W / H) in mm 112 / 30 / 80
- Weight 73 g
- For indoor usage
- DIN rail mounting
- Status display LEDs for; power (4), com. (2), ES (4), • • HS (4), Out (4), ERR (2)
- Hall signals 2 Hall signals per Axis, 90° shifted (quadrature encoder)
- End switches 2 Switches per Axis (one required, one optional)
- Manual buttons 2 (East-West, Reference)
- Upgrading In the field via RS485 MODBUS via Sigma

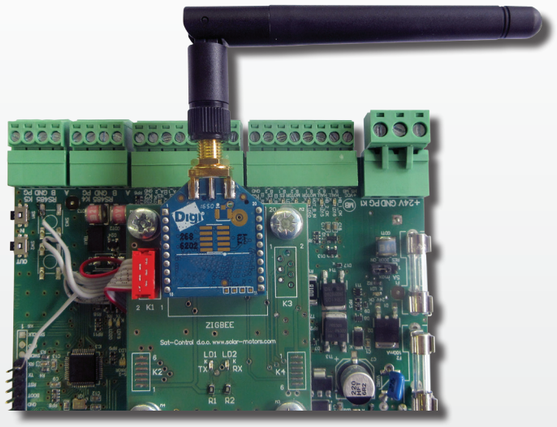
Languages
- Software language English
- Language versions - manual English

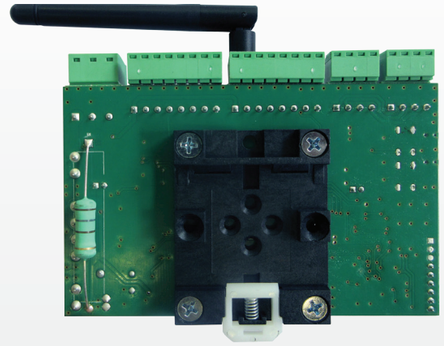
Features
- Warranty 2 years*
- Certificates and approvals www.solar-motors.com
- Life Time Min. 10 years; typical 20 years

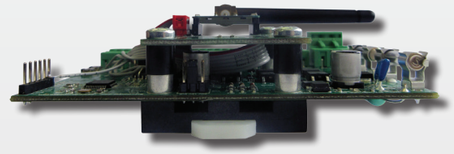
* Optionally 5 or 10 years for additional payment.

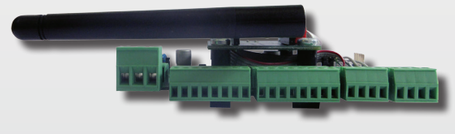
Solar Positioner NANO-D w ZigBee, DIN rail

Code: 0442









Solar Positioner NANO-D for Single or Dual Axis Tracking
The dual axis Solar Positioner NANO-D set a new Positioning Accuracy Standard with RS485 communication, easy installation, safe operation and a simplified assembly concept: the new generation of positioners is ideally suited in middle-sized and large on-grid solar power plants.
With the Sigma Server, Solar Positioner NANO-D creates complete, integrated system for monitoring, diagnosis and configuration of the PV plant.

Overview
Professional
- Drive and positioning of Single or Dual Axis Solar Trackers
- Integration of Sat Control equipment into existing control-room technology

Flexible
- Data interface in accordance with the MODBUS communication standards in the field of automation technology
- Simple and fast installation, high reliability

Reliable
- Direct communication with the Sigma Solar Server via RS485 Service Interface
- Meets the requirements of the EU Low-Voltage Directive for grid safety management
- ZigBee Wireless mash network, easy installation which mean no communication cables for installation on ground.
- Less chances of spreading damages due to lightning strike.

Technical Capabilities

Operation
- Geometrical Operation Single / Dual Axis Positioner
- Type Slave Positioner

Communication
- Positioner communication Serial MODBUS Wireless mash network with ZigBee module
- Wireless communication protocol IEEE® 802.15.4 OEM RF Modules by MaxStream

Interfaces
- Max. number of controlled devices 2 (Motors or Slewing drives)

Max. communication range
- Wireless mash network 150 m on open field

Power supply
- Power supply External SMPS type
- Input voltage 24VDC +/- 15%
- Power consumption in idle 1.5 W

Environmental conditions in operation
- Ambient temperature -30°C ... +80°C
- Relative air humidity 0% ... 85%, non-condensing

General data
- Dimensions (L / W / H) in mm 112 / 30 / 80
- Weight 73 g
- For indoor usage
- DIN rail mounting
- Status display LEDs for; power (4), com. (2)+ ZigBee (2), ES (4), HS (4), Out (4), ERR (2)
- Hall signals 2 Hall signals per Axis, 90° shifted (quadrature encoder)
- End switches 2 Switches per Axis (one required, one optional)
- Manual buttons 2 (East-West, Reference)
- Upgrading In the field via Sigma trugh Wireless mash network with ZigBee module

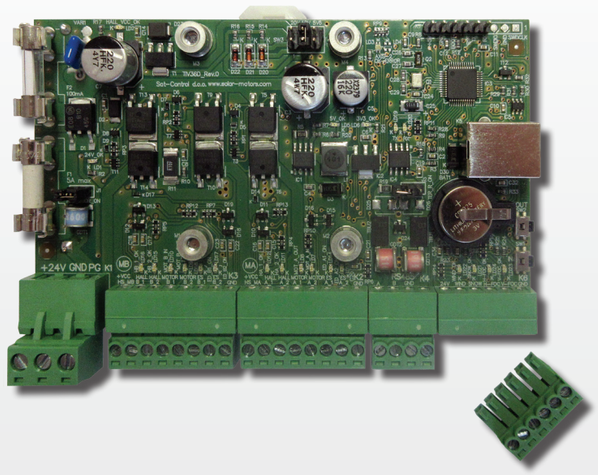
Languages
- Software language English
- Language versions - manual English

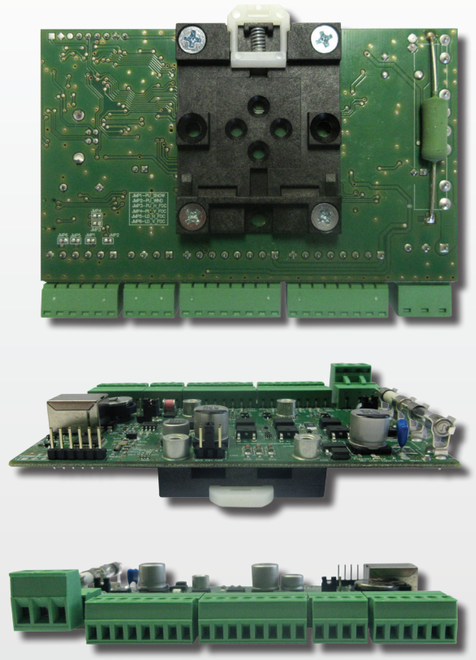
Features
- Warranty 2 years*
- Certificates and approvals www.solar-motors.com
- Life Time Min. 10 years; typical 20 years

* Optionally 5 or 10 years for additional payment.

Solar positioner MICRO-D

Code: 0441





Solar Positioner MICRO-D for Single or Dual Axis Tracking
With even better communication, usability and accuracy, the Solar Positioner MICRO-D set a new Positioning Accuracy Standards. With easy installation, safe operation, a simplified assembly concept, USB 2.0 tracker and RS485 plant communication: the new generation of positioners is ideally suited in single and middle size stand-alone grids.

Overview

Professional
- Drive and positioning of Single or Dual Axis Solar Trackers
- Integration of Sat Control equipment into existing control-room technology

Flexible
- Data interface in accordance with the communication standards in the field of automation technology
- Simple and fast installation, high reliability

Reliable
- Direct communication with Helios Analytics
- Meets the requirements of the EU Low-Voltage Directive for grid safety management

Technical Capabilities

Operation
- Geometrical Operation Single or Dual Axis Positioner
- Type Stand alone Positioner

Communication
- Positioner communication Primary – USB-B2.0, secondary – RS485 MODBUS

Engine
- Max. number of controlled devices For Max. 2 Linear Motors or Slewing drives

Max. communication range
- RS485 750 m twisted pair @ 0,5mm pair wire

Power supply
- Power supply External SMPS type
- Input voltage 24VDC +/– 15%
- Power consumption in idle 1,5 W

Environmental conditions in operation
- Ambient temperature –25°C ... +70°C
- Relative air humidity 0% ... 85%, non-condensing

General data
- Dimensions (W / H / D) in mm 116 / 30 / 80
- Weight 81 g
- Mounting location Indoors
- Mounting options DIN rail mounting
- Status display LEDs for power 4, com. (2), ES(4), HS (4), Out (4), ERR (2)
- Hall signals 2 Hall signals per Axis; 90° shifted (quadrature encoder)
- End switches 2 Switches per Axis (one required, one optional)
- Manual buttons 2 (East-West, Reference)
- Inputs for sensors Wind, Sun, 2x opticall Sun
- Manual buttons 2 (East-West, Reference)
- Upgrading In The Field via USB

Languages
- Software language English
- Language versions – manual English

Features
- Warranty 2 years*
- Certificates and approvals www.solar-motors.com
- Life Time Min. 10 years; typical 20 years; Int. battery 3 years

* Optionally 5 or 10 years for additional payment.

Helios Analytics Monitoring program

Professional management, monitoring and presentation of solar tracker

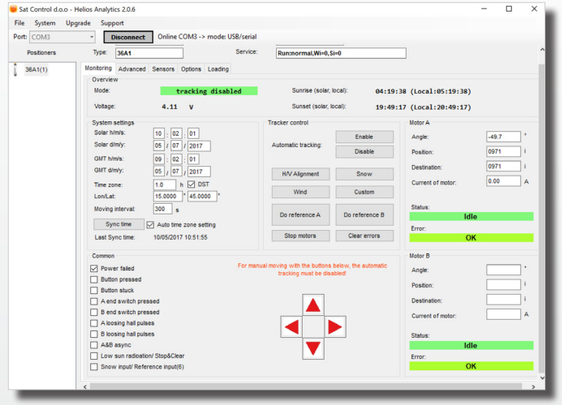
Helios Analytics program is highperformance communication hub for single- to small-scale of solar trackers. It continuously display all the data from the solar trackers on the system side, thereby keeping you informed of the system's status at any given time. The Helios Analytics is a multi-functional, energy-efficient data system which offers importing and exporting settings data for solar trackers.

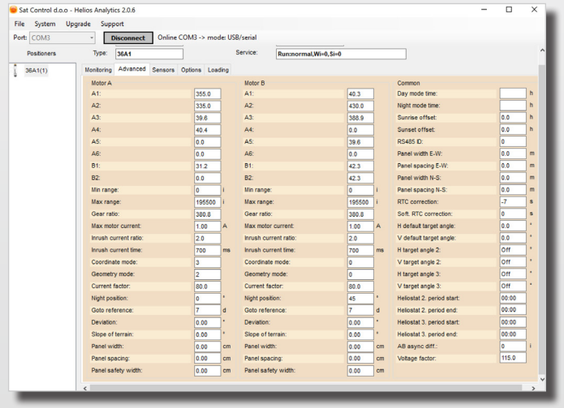
Overview

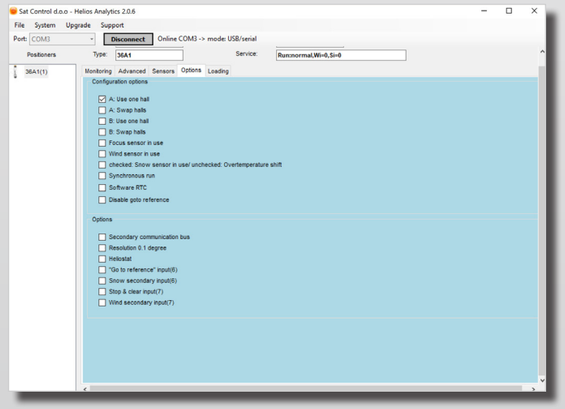
Safe
- Remote monitoring, diagnosis and configuration of the solar trackers
- Quick detection of malfunctions and notification in case of a failure
- Powerful data system for importing and exporting all trackers setting data

User-friendly
- Central administration of all customer and tracker data
- Easy remote access via PC
- Easy to understand reporting

The program is designed to edit and display the settings on the trackers.
The program is not required for the daily operation of the tracker.







Technical Capabilities

Languages
- Software language, English, German, French, Japanese
- Language versions – manual, English

System requirements
- Supported operating systems, Windows XP – Windows Vista, Windows 7, 8, 10
- Tracker communication – USB 2.0, RS 485 via RS485 to USB-adapter

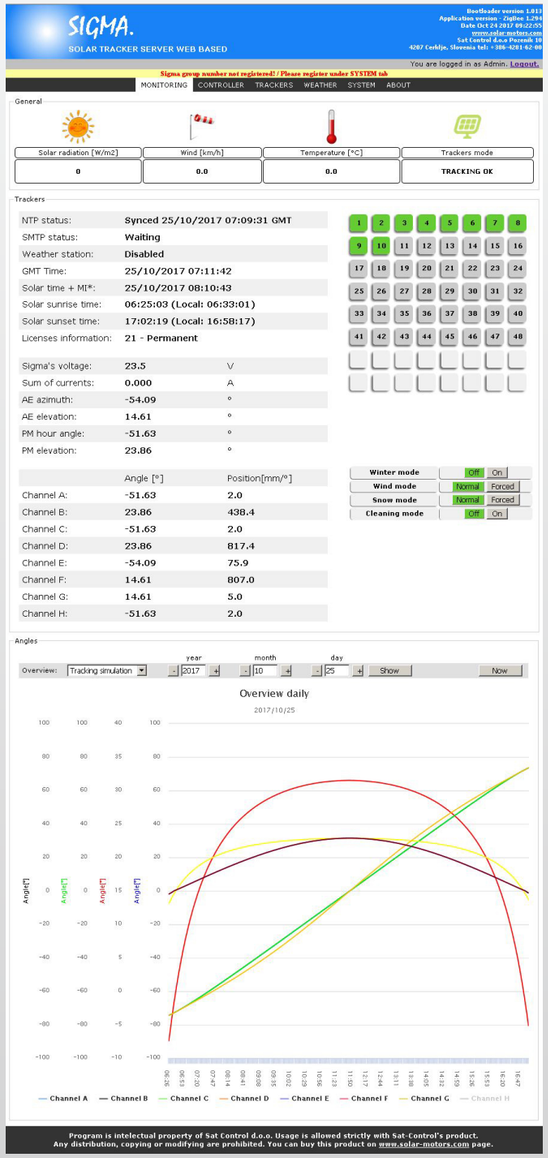
Software
- Type, Exe file with libraries in Zip package

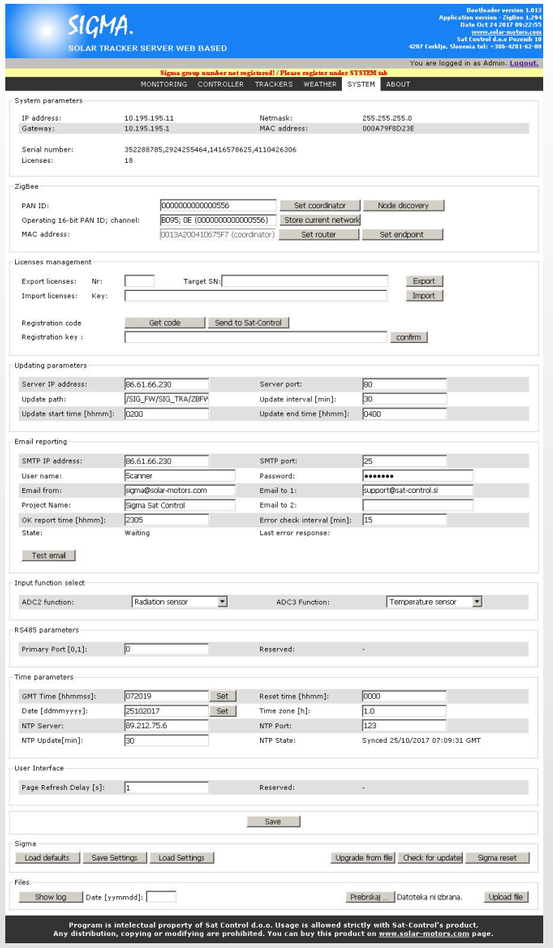
Information displayed
- Tracker status, tracker failures, tracker parameters, configuration settings

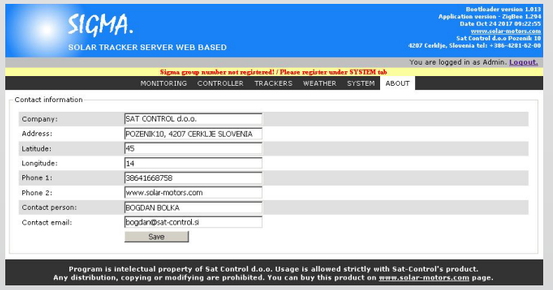
Sigma Solar Tracking Server web page

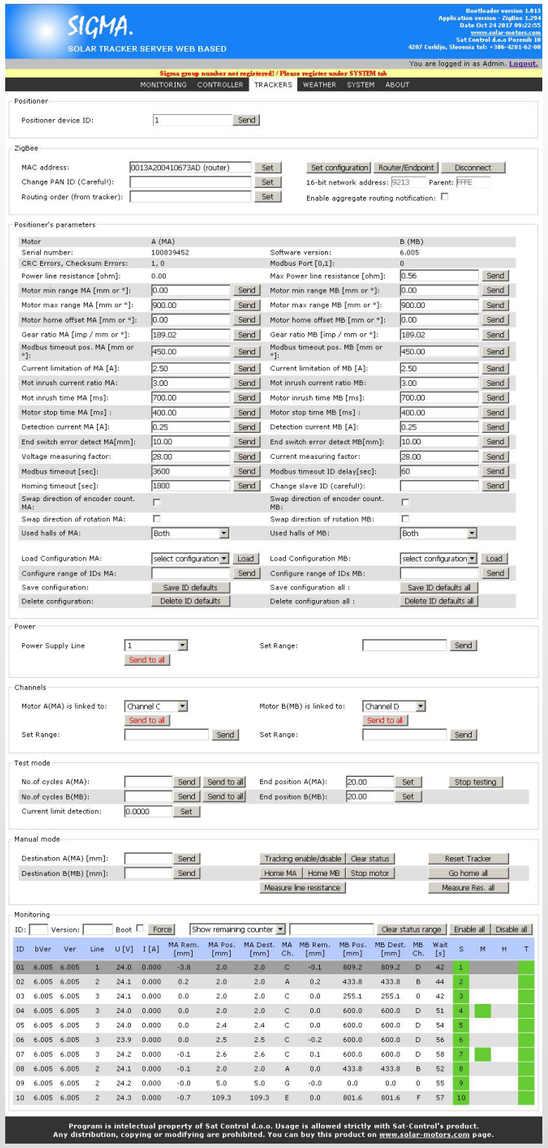
Sigma Solar Tracking Server is the standardized data interface for large-scale systems. It enables customized monitoring solutions and linking systems and components into one joint control system. Sigma Server set new communication standard in the field of automation technology, that enables simple and reliable data exchange between products and applications. With the Sigma Solar Server, Sat Control equipment can be very easily integrated into compatible systems.

- Reliable RS485 communication bus for controlling slaves, at maximum length up to 1 km or ZigBee communication with distance up to 100m between modules.
- User interface made as Web page, accessible via Ethernet, internet, no special program required.
- Accurate astronomical calculation.
- The graphical view of the movements for trackers.
- Including different geometries for different trackers.
- Management configuration of trackers.
- Connection for many external weather sensors.
- Self upgrading.
- Easy and fast replacing, plug-in connection.









Ground screw: D = 76 mm x L = 1.4 m with tube D = 63,5 mm x 4 mm x L= 2 m

Code: 1310

General group of features included in product:
SET Ground scr. D = 76 mm x L= 1.4 m with tube D = 63,5 mm x L= 2 m

Length of ground screw:
D= 76,1 mm x 3 mm x L= 1.4 m

Max. diameter of tube you can put in:
D = 63,5 mm x 4 mm L= 2 m

Surface treatment protection type and thick:
Hot bath zincking Zn 200 um EN ISO1461

Outside diameter of ground screw:
D = 63,5 mm x 4 mm x L= 1.4 m

Screw thread length:
D = 105 mm L= 540 mm

More information visit

Product Catalog
8. Ground screw

Ground screw: D = 76mm x L = 1.4m with tube D = 63,5 mm x 4 mm x L= 3 m

Code: 1312

General group of features included in product:
SET Ground scr. D = 76mm x L= 1.4 m with tube D = 63,5 mm x L= 3 m

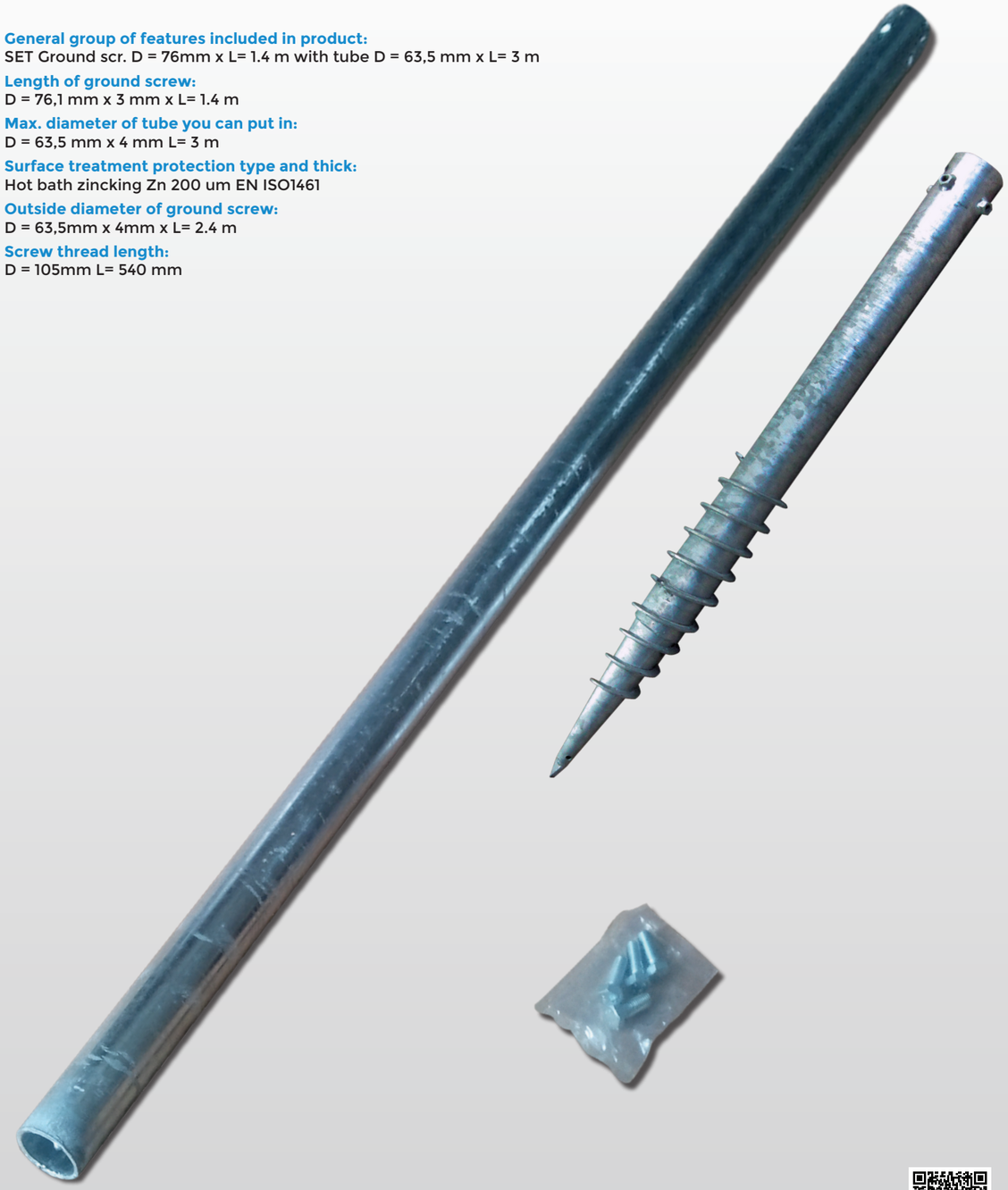
Length of ground screw:
D = 76,1 mm x 3 mm x L= 1.4 m

Max. diameter of tube you can put in:
D = 63,5 mm x 4 mm L= 3 m

Surface treatment protection type and thick:
Hot bath zincking Zn 200 um EN ISO1461

Outside diameter of ground screw:
D = 63,5mm x 4mm x L= 2.4 m

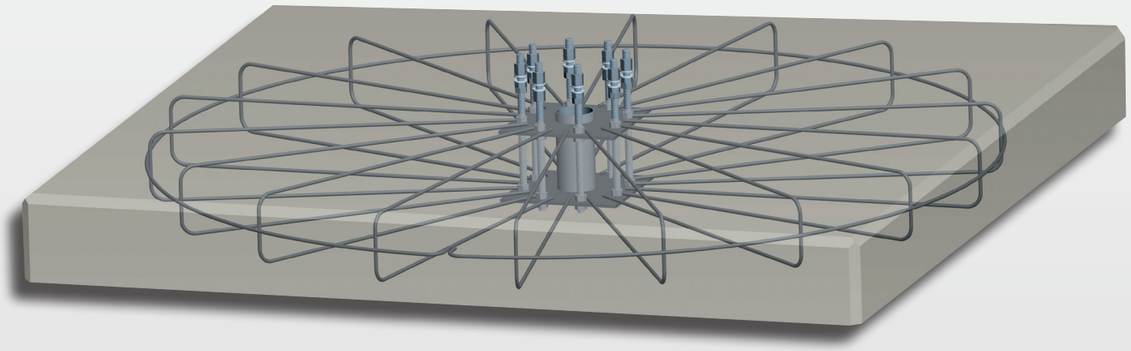
Screw thread length:
D = 105mm L= 540 mm



More information visit

Iron-reinforcement cage JASM44M3V15P

Code: 7316



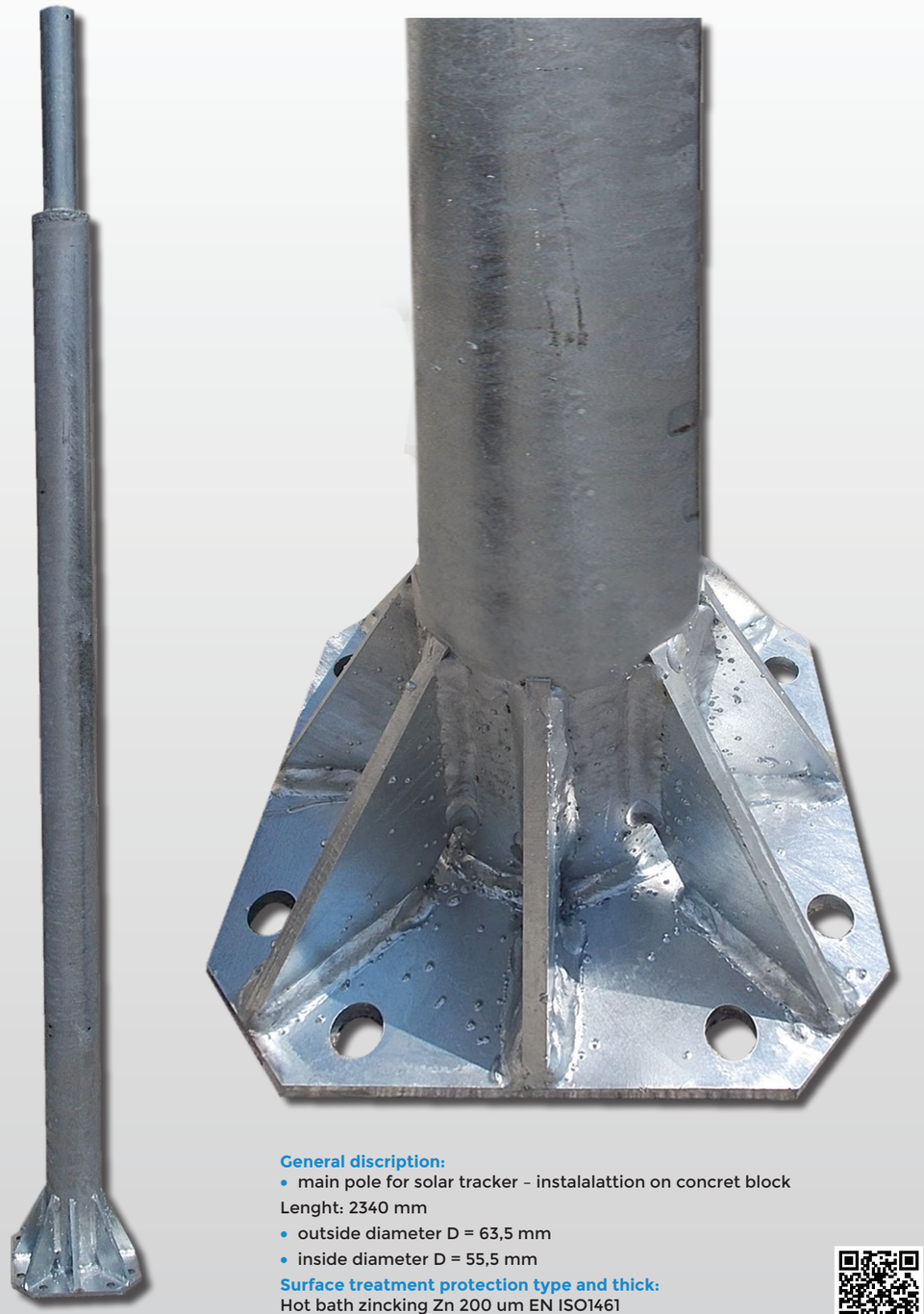
Iron-reinforcement cage for Overground Concrete Foundation for Solar Tracker ST44M3V15P

The foundation of the solar power system can take various forms. Consequently, optimum consideration can be given to the local conditions.

The rectangular overground foundation is generally used if a stony or rocky substrate precludes an underground variant of the foundation structure.

Main pole for concrete block – NSST44M2V4P

Code: 7507



General discription:

- main pole for solar tracker – instalalattion on concret block

Lenght: 2340 mm

- outside diameter D = 63,5 mm
- inside diameter D = 55,5 mm

Surface treatment protection type and thick:
Hot bath zincking Zn 200 um EN ISO1461

Wind sensor WS50 / up to 50 m/s

Code: 0213

Product Description

Specifications:

- Wind sensor for measuring wind speed
- With metalic bracket mounting

Installation and Operating Instructions

Technical data

- Measuring range: 2–50 m/s
- Electrical output: 0–73.4 Hz at 50 m/s
- Contact type: Hall sensor
- Load: max. 60 m/s, temporary
- Maximum load: 50 mA, max. 30 VDC
- Operating temperature: –30°C to +70°C
- Material: PC white (Macrolon 2405, UV stabilized)
- Wiring cable: 10 m long, LiYY 3 x 0.25 mm², blue
- Power supply: 10–30 VDC, 10 mA
- Dimensions: H 126 mm x Ø 123 mm
- Mark of conformity: CE

Installation and Operating Instructions

Wind speed values

Beaufort	m/s	km/h	Wind speed level
0	0–0.2	0–0.8	Calm
1	0.3–1.5	0.9–5.5	Light air
2	1.6–3.3	5.6–12.1	Light breeze
3	3.4–5.4	12.2–19.6	Gentle breeze
4	5.5–7.9	19.7–28.5	Moderate breeze
5	8.0–10.7	28.6–38.8	Fresh breeze
6	10.8–13.8	38.9–49.8	Strong wind
7	13.9–17.1	49.9–61.7	Near gale
8	17.2–20.7	61.8–74.3	Gale
9	20.8–24.4	74.4–88.0	Severe gale
10	24.5–28.4	88.1–102.4	Storm
11	28.5–32.6	102.5–117	Violent storm
12–17	32.7–56	118+	Hurricane

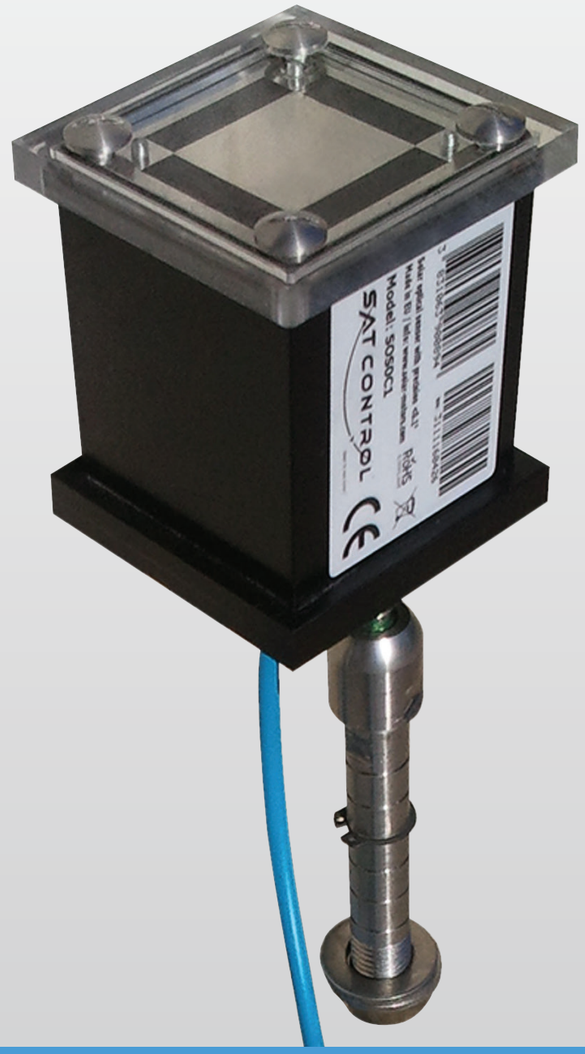
Solar Optical Sensor SOSOC1 / 383106390089

Code: 0089

Product Description

Specifications:

- Optical sensor for fine tuning of Solar Tracker for concentrator applications
- Precision better than 0.1°



Product Catalog

Solar irradiance sensor

Code: 0103

- Silicon irradiance sensors provide a simple and cost-effective opportunity to monitor the performance of a solar system at any time.
- Only if the real yield and the actual solar irradiance are measured in parallel,you can realise component failures immediately. Also faults, which are affectiongthe performance of the solar system only little, can be recognised much better and therefore eliminated earlier.
- Everybody, who wants to ensure, that the PV solar system runs at best performance, cannot abandon to use a silicon irradiance sensor!

Appreciation of your System Monitoring

Enhance your monitoring system with our solar irradiance sensors. That enables your system with powerful functions for a precise on-site perfor mance calculation and a reliable recogition and alerting,when an error occurs.

Advantages

- Built completely as a solar module, therefore extremly good comparability to energy yields and system performance of PV systems, temperature compensation for higher accuracy
- The optional cell temperature is a very good alternative to directly measured module temperature and leads to a higher accuracy in yield forecasting

Genaral data

Solar cell: monocrystalline silicon

- Measurement: possible up to 1400 W/m² (depending on sensor type)
- Working temperature: -20°C to 70°C
- Electrical connection: via 3m cable, uv and weatherproof
- Case, protection mode: powder-coated aluminum, IP 65
- Error with temperature compensation compared to pyranometer within the operating range of -20°C to 70°C and vertically beam of irradiance): ±5%

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