

Solar positioner MICRO-F

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Code: 0453

Standalone Solar Tracker Controller MICRO-F positioner for PMDC motors

The MICRO-F Solar Tracker Controller is designed to operate one dual-axis, or two single-axis solar trackers with PMDC motors. It is ideally suited for sites with a single or limited number of solar trackers. The MICRO-F has USB connectivity to manage via PC directly and RS485 communication for wired distance monitoring via RS485 to USB converter. It can also be monitored and managed wirelessly. Also, with additional connecting on to SIGMA solar server the remote monitoring and management through internet. Simple and fast installation, high reliability.

Features

- Supports dual-axis, up to two single-axis, rolland-tilt trackers with PMDC motors.
- Stand alone or with Sigma server
- Integrated interface for LoRa WL Module (module available for additional payment)
- Calculated solar position using astronomical algorithms.
- Automatic detection of storm with parameterized peak wind speed threshold with wind sensor.
- Parameterized fixed positions for Snow, Storm or Clean positions.
- Alarming at electro-mechanical failure.
- Manual control of motors.
- Power fail detection.
- Tracker position feedback through quadrature encoder without any external sensor or with external inclinometer.
- Optional fine tuning via optic sensor.
- Optional moving out of sun for certain angle when thermal collectors overheated.
- Optional monitoring of solar irradiation and/or temperature probes.
- Tracker mode for following the sun or Heliostat mode with supported three different target positions through the three different time periods per day.
- Parameterized geographic location, tracker geometries (many), heliostats, supported slewing drives and linear actuators.
- Monitoring and managing of solar tracker via free program Helios Analytics.
- Integrated support for Android app via USB.

Description

One Controller - Many Applications – The MICRO-F stand-alone solar tracker controller can be used in a wide range of solar tracker applications through an extensive set of parameters. It is being used in new applications, but can also be used in the retrofit market.

Dual-Axis Trackers – One MICRO-F positioning controller is capable of managing a single dual-axis tracker through the two motor channels with PMDC motors. The tracker can either be of the traditional azimuth / elevation type (cartesian coordinate system), roll (east-to-west) and elevation type (polar coordinate system).

Single-Axis Trackers – One MICRO-F positioning controller is capable of managing up to two single-axis solar trackers through the two integrated motor channels. The tracker(s) can either rotate around the North/South, East/West or Polar Axis.

Communication – Using the USB port or RS485 or LoRa MICRO-F positioning controller through the PC app Helios analytics allow full control, setup, monitoring, and software updates, or with the set-up with Sigma.

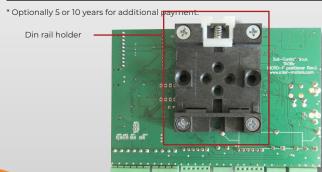
Local Control – Basic local tracker control can be done through onboard push-buttons, or more extensively through the Android app Helios analytics which is used to define controller parameters and/or monitoring.



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Technical Capabilities

Geometrical Operation Single or Dual Axis Positioner Type Stand alone Positioner Communication Primary - USB-B2.0, secondary - RS485 MODBUS RS485 750 m twisted pair @ 0,5mm pair wire Interface wireless for LORA WLM Engine WLM Max. number of controlled devices For Max. 2 Linear Motors or Slewing drives Power supply External SMPS type Power supply Input voltage 24 VDC +5% / -15% Power consumption in idle 1 W Selectable Hall output voltage 5/2/20 v Environmental conditions in operation Ambient temperature -5 °C +75 °C Relative air humidity 0% - 85%, non-condensing General data 125 g Weight 125 g Wounting options 13 / 28 / 85 Weight 125 g 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) Status display LEDs for power 4, com. (2), ES (4), HS (4), Out (4), ERR (2)	Operation	
Communication Positioner communication Primary - USB-B2.0, secondary - RS485 MODBUS RS485 750 m twisted pair @ 0,5mm pair wire Interface wireless for LORA WLM Engine Max. number of controlled devices For Max. 2 Linear Motors or Slewing drives Power supply Power supply External SMPS type Input voltage 24 VDC +5% / -15% Power consumption in idle 1W Selectable Hall output voltage 5/12/20v Environmental conditions in operation Ambient temperature -35 °C +75 °C Relative air humidity 0% 85%, non-condensing General data Dimensions (W / H / D) in mm 113 / 28 / 85 Weight 125 g Mounting location Indoors Mounting location DIN rail mounting Status display LEDs for power 4, com. (2), ES (4), HS (4), Out (4), ERR (2) Hall signals 2 Hall signals par Axis; 90° shifted (quadrature encoder) End switches 2 Switches per Axis (non required, one point only 1) normally closed/open Manual buttons 2 (East-West, Reference) + 1x (Dind for wireless) 3 (motor rotation, reference, bind) Inputs for sensors Wind, Sun, 2x optical Sun Upgrading In The Field via USB, via RS485, via radio WLM LORa Extension connector RS232 device/analog, digital inputs Language versions – manual English Language versions – manual English Eventificates and approvals www.solar-motors.com	Geometrical Operation	Single or Dual Axis Positioner
Primary - USB-B2.0, secondary - RS48S MODBUS RS48S 750 m twisted pair @ 0,5mm pair wire Interface wireless for LORA WLM Fingine Max. number of controlled devices For Max. 2 Linear Motors or Slewing drives Power supply Power supply External SMPS type Input voltage 24 VDC +5% /-15% Power consumption in idle 1W Selectable Hall output voltage 5/12/20v Environmental conditions in operation Ambient temperature 35 °C +75 °C Relative air humidity 05 °M. 85%, non-condensing Coneral data Weight 125 g Mounting location Indeons Mounting options Indeons DIN rail mounting Status display LEDs for power 4, com. (2), ES (4), HS (4), Out (4), ERR (2) Hall signals 2 Latal signals per Axis; 90° shifted (quadrature encoder) End switches 2 Switches per Axis (one required, one optional) - normally closed/open Manual buttons 2 Switches per Axis (one required, one optional) - normally closed/open Upgrading In the Field via USB, via RS48S, via radio WLM LORa Extension connector RS232 device/analog digital inputs Language versions - manual English Language versions - manual English Eventficates and approvals www.solar-motors.com	Туре	Stand alone Positioner
RS485 750 m twisted pair @ 0,5mm pair wire Interface wireless for LoRa WLM Engine Nax. number of controlled devices for Max. 2 Linear Motors or Slewing drives Power supply Power supply External SMPS type Input voltage 24 VDC +5% / -15% Power consumption in idle 1W Selectable Hall output voltage 21/2/ov Environmental conditions in operation Ambient temperature 35°C +75°C Relative air humidity 0% 85%, non-condensing Ceneral data Dimensions (W H / D) in mm 113 / 28 / 85 Weight 125 g Mounting location Indoors 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 (one required, one optional) - normally closed/open Manual buttons 2 (East-West, Reference) + 1x (bind for wireless) 3 (motor rotation, reference, bind) Inputs for sensors Wind, Sun, 2x optical Sun Upgrading In The Field via USB, via RS485, via radio WLM LoRa Extension connector RS232 device/analog,digital inputs Language Versions - manual English Language versions - manual English Language versions - manual English Evatures Certificates and approvals www.solar-motors.com	Communication	
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Fingline Max. number of controlled devices For Max. 2 Linear Motors or Slewing drives Power supply External SMPS type Input voltage 24 VDC +5% / -15% Power consumption in idle 1 W Selectable Hall output voltage 5/12/20v Environmental conditions in operation -35 °C +75 °C Relative air humidity 0 % 85%, non-condensing Ceneral data	RS485	750 m twisted pair @ 0,5mm pair wire
Max. number of controlled devices For Max. 2 Linear Motors or Slewing drives Power supply External SMPS type Input voltage 24 VDC +5% / -15% Power consumption in idle 1W Selectable Hall output voltage 5/12/20v Environmental conditions in operation Weight Ambient temperature -35 °C +75 °C Relative air humidity 0% 85%, non-condensing Ceneral data 0 Dimensions (W / H / D) in mm 113 / 28 / 85 Weight 125 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) - normally closed/open Manual buttons 2 (East-West, Reference, bind) Inputs for sensors Wind, Sun, 2x optical Sun Upgrading In The Field via USB, via RS485, via radio WLM LoRa Extension connector RS232 device/analog,digital inputs Language English	Interface	wireless for LoRa WLM
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Power supply External SMPS type Input voltage 24 VDC +5%/-15% Power consumption in idle 1 W Selectable Hall output voltage 5/12/20V Environmental conditions in operation -35 °C +75 °C Relative air humidity 0% 85%, non-condensing Ceneral data -35 °C +75 °C Dimensions (W / H / D) in mm 113 / 28 / 85 Weight 125 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) - normally closed/open Manual buttons 2 (East-West, Reference) + 1x (bind for wireless) 3 (motor rotation, reference, bind) Inputs for sensors Upgrading In The Field via USB, via RS485, via radio WLM LoRa Extension connector RS232 device/analog,digital inputs Languages English Coftware language English Language versions – manual English <td>Max. number of controlled devices</td> <td>For Max. 2 Linear Motors or Slewing drives</td>	Max. number of controlled devices	For Max. 2 Linear Motors or Slewing drives
Input voltage 24 VDC +5% / –15% Power consumption in idle 1W Selectable Hall output voltage 5/12/20v Environmental conditions in operation Ambient temperature -35 °C +75 °C Relative air humidity 0% 85%, non-condensing Ceneral data Dimensions (W / H / D) in mm 113 / 28 / 85 Weight 125 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) - normally closed/open Manual buttons 2 (East-West, Reference) + 1x (bind for wireless) 3 (motor rotation, reference, bind) Inputs for sensors Wind, Sun, 2x optical Sun Upgrading In The Field via USB, via RS485, via radio WLM LoRa Extension connector RS232 device/analog.digital inputs Language Software language English Language versions - manual English Features Warranty 2 years* Certificates and approvals www.solar-motors.com	Power supply	
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Selectable Hall output voltage Fivironmental conditions in operation Ambient temperature -35 °C +75 °C Relative air humidity 0% 85%, non-condensing General data Dimensions (W / H / D) in mm 113 / 28 / 85 Weight 125 g Mounting location 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) - normally closed/open Manual buttons 2 (East-West, Reference) + 1x (bind for wireless) 3 (motor rotation, reference, bind) Inputs for sensors Wind, Sun, 2x optical Sun Upgrading In The Field via USB, via RS485, via radio WLM LoRa Extension connector RS232 device/analog,digital inputs Languages Software language English Language versions – manual English Features Warranty 2 years* Certificates and approvals	Input voltage	24 VDC +5% / –15%
Environmental conditions in operation Ambient temperature -35 °C +75 °C Relative air humidity 0% 85%, non-condensing Ceneral data Dimensions (W / H / D) in mm 113 / 28 / 85 Weight 125 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 (none required, one optional) - normally closed/open Manual buttons 2 (East-West, Reference) + 1x (bind for wireless) 3 (motor rotation, reference, bind) Inputs for sensors Wind, Sun, 2x optical Sun Upgrading In The Field via USB, via RS485, via radio WLM LoRa Extension connector RS232 device/analog,digital inputs Languages Software language English Language versions – manual English Features Warranty 2 years* Certificates and approvals www.solar-motors.com	Power consumption in idle	1 W
Ambient temperature -35 °C +75 °C Relative air humidity 0% 85%, non-condensing Ceneral data Dimensions (W / H / D) in mm 113 / 28 / 85 Weight 125 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) - normally closed/open Manual buttons 2 (East-West, Reference) + 1x (bind for wireless) 3 (motor rotation, reference, bind) Inputs for sensors Wind, Sun, 2x optical Sun Upgrading In The Field via USB, via RS485, via radio WLM LoRa Extension connector RS232 device/analog,digital inputs Languages Software language English Language versions – manual English Features Warranty 2 years* Certificates and approvals www.solar-motors.com	Selectable Hall output voltage	5/12/20v
Relative air humidity 0% 85%, non-condensing Ceneral data Dimensions (W / H / D) in mm 113 / 28 / 85 Weight 125 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) - normally closed/open Manual buttons 2 (East-West, Reference) + 1x (bind for wireless) 3 (motor rotation, reference, bind) Inputs for sensors Wind, Sun, 2x optical Sun Upgrading In The Field via USB, via RS485, via radio WLM LoRa Extension connector RS232 device/analog,digital inputs Languages Software language English Language versions – manual English Features Warranty 2 years* Certificates and approvals www.solar-motors.com	Environmental conditions in operation	
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Dimensions (W / H / D) in mm 113 / 28 / 85 Weight 125 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) - normally closed/open Manual buttons 2 (East-West, Reference) + 1x (bind for wireless) 3 (motor rotation, reference, bind) Inputs for sensors Wind, Sun, 2x optical Sun Upgrading In The Field via USB, via RS485, via radio WLM LoRa Extension connector RS232 device/analog,digital inputs Languages Software language English Language versions – manual English Features Warranty 2 years* Certificates and approvals www.solar-motors.com	Relative air humidity	0% 85%, non-condensing
Weight125 gMounting locationIndoorsMounting optionsDIN rail mountingStatus displayLEDs for power 4, com. (2), ES (4), HS (4), Out (4), ERR (2)Hall signals2 Hall signals per Axis; 90° shifted (quadrature encoder)End switches2 Switches per Axis (one required, one optional) - normally closed/openManual buttons2 (East-West, Reference) + 1x (bind for wireless) 3 (motor rotation, reference, bind)Inputs for sensorsWind, Sun, 2x optical SunUpgradingIn The Field via USB, via RS485, via radio WLM LoRaExtension connectorRS232 device/analog,digital inputsLanguagesEnglishLanguage versions – manualEnglishFeaturesEnglishWarranty2 years*Certificates and approvalswww.solar-motors.com	General data	
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Mounting optionsDIN rail mountingStatus displayLEDs for power 4, com. (2), ES (4), HS (4), Out (4), ERR (2)Hall signals2 Hall signals per Axis; 90° shifted (quadrature encoder)End switches2 Switches per Axis (one required, one optional) - normally closed/openManual buttons2 (East-West, Reference) + 1x (bind for wireless) 3 (motor rotation, reference, bind)Inputs for sensorsWind, Sun, 2x optical SunUpgradingIn The Field via USB, via RS485, via radio WLM LoRaExtension connectorRS232 device/analog,digital inputsLanguagesSoftware languageEnglishLanguage versions – manualEnglishFeaturesWarranty2 years*Certificates and approvalswww.solar-motors.com	Weight	125 g
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Hall signals2 Hall signals per Axis; 90° shifted (quadrature encoder)End switches2 Switches per Axis (one required, one optional) - normally closed/openManual buttons2 (East-West, Reference) + 1x (bind for wireless) 3 (motor rotation, reference, bind)Inputs for sensorsWind, Sun, 2x optical SunUpgradingIn The Field via USB, via RS485, via radio WLM LoRaExtension connectorRS232 device/analog,digital inputsLanguagesEnglishLanguage versions – manualEnglishFeaturesWarranty2 years*Certificates and approvalswww.solar-motors.com	Mounting options	DIN rail mounting
End switches 2 Switches per Axis (one required, one optional) - normally closed/open Manual buttons 2 (East-West, Reference) + 1x (bind for wireless) 3 (motor rotation, reference, bind) Inputs for sensors Wind, Sun, 2x optical Sun Upgrading In The Field via USB, via RS485, via radio WLM LoRa Extension connector RS232 device/analog,digital inputs Languages Software language English Language versions – manual English Features Warranty 2 years* Certificates and approvals www.solar-motors.com	Status display	LEDs for power 4, com. (2), ES (4), HS (4), Out (4), ERR (2)
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Inputs for sensors Wind, Sun, 2x optical Sun Upgrading In The Field via USB, via RS485, via radio WLM LoRa Extension connector RS232 device/analog,digital inputs Languages Software language English Language versions – manual English Features Warranty 2 years* Certificates and approvals www.solar-motors.com	End switches	2 Switches per Axis (one required, one optional) - normally closed/open
Upgrading In The Field via USB, via RS485, via radio WLM LoRa Extension connector RS232 device/analog,digital inputs Languages Software language English Language versions – manual English Features Warranty 2 years* Certificates and approvals www.solar-motors.com	Manual buttons	
Extension connector RS232 device/analog,digital inputs Languages Software language English Language versions – manual English Features Warranty 2 years* Certificates and approvals www.solar-motors.com	Inputs for sensors	Wind, Sun, 2x optical Sun
LanguagesSoftware languageEnglishLanguage versions – manualEnglishFeaturesWarranty2 years*Certificates and approvalswww.solar-motors.com	Upgrading	In The Field via USB, via RS485, via radio WLM LoRa
Software language English Language versions – manual English Features Warranty 2 years* Certificates and approvals www.solar-motors.com	Extension connector	RS232 device/analog,digital inputs
Language versions – manual English Features Warranty 2 years* Certificates and approvals www.solar-motors.com	Languages	
FeaturesWarranty2 years*Certificates and approvalswww.solar-motors.com	Software language	English
Warranty 2 years* Certificates and approvals www.solar-motors.com	Language versions – manual	English
Certificates and approvals www.solar-motors.com	Features	
	Warranty	2 years*
Life Time Min. 10 years; typical 20 years; Int. battery 5–10 years	Certificates and approvals	www.solar-motors.com
	Life Time	Min. 10 years; typical 20 years; Int. battery 5–10 years





Integrated interface for LoRa WL Module Code: 0449, WLM-LORA-TIV50-433-A (module available for additional payment)



