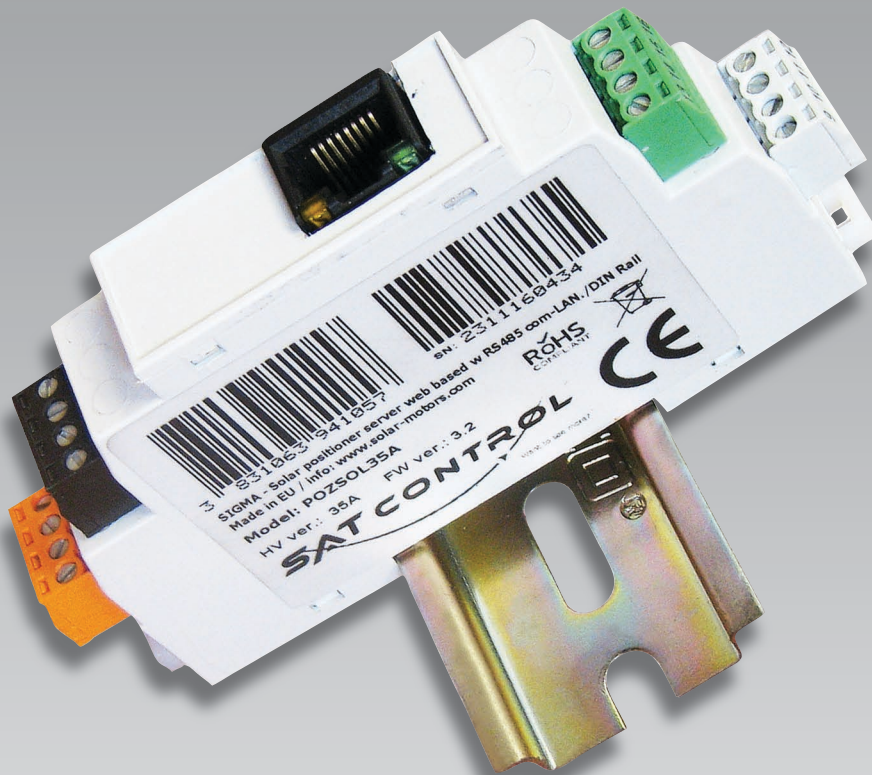


Sigma Solar Server

Our systems and solutions for photovoltaic power plants



SAT CONTROL

Want to get more?™

Sigma Solar Server POZSOLSIG1 / 383106394105



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	4 digital inputs
Ethernet	10/100 Mbit, RJ45
RS485	2 Pin Connector

Max. number of controlled devices

Solar Tracker	64
---------------	----

Max. communication range

Ethernet	100 m
RS485	1200 m

Power supply

Power supply	Plug-in power supply
Input voltage	12VDC - 24 VDC
Power consumption	Type 4 W / max. 12 W

Environmental conditions in operation

Ambient temperature	-20 °C ... +60 °C
Relative air humidity	0 % ... 45 %, non-condensing

Memory

Internal	0.5MB
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	German, English, French, Italian, Spanish; Slovenian

Features

Operation	Integrated Web server (Internet browser)
Warranty	5 years
Certificates and approvals	www.Solar-Motors.com

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Benefits of Sigma - Nano solar power plant system

Sigma-Nano system is single master multi slave system for driving solar trackers to gain maximum power from carried solar panels. Sigma is master, which sends angle commands by RS485 communication bus to the Nano. Nano is power driver (positioner) for solar tracker. Power plant has many of Nanos, while there is only one Sigma.

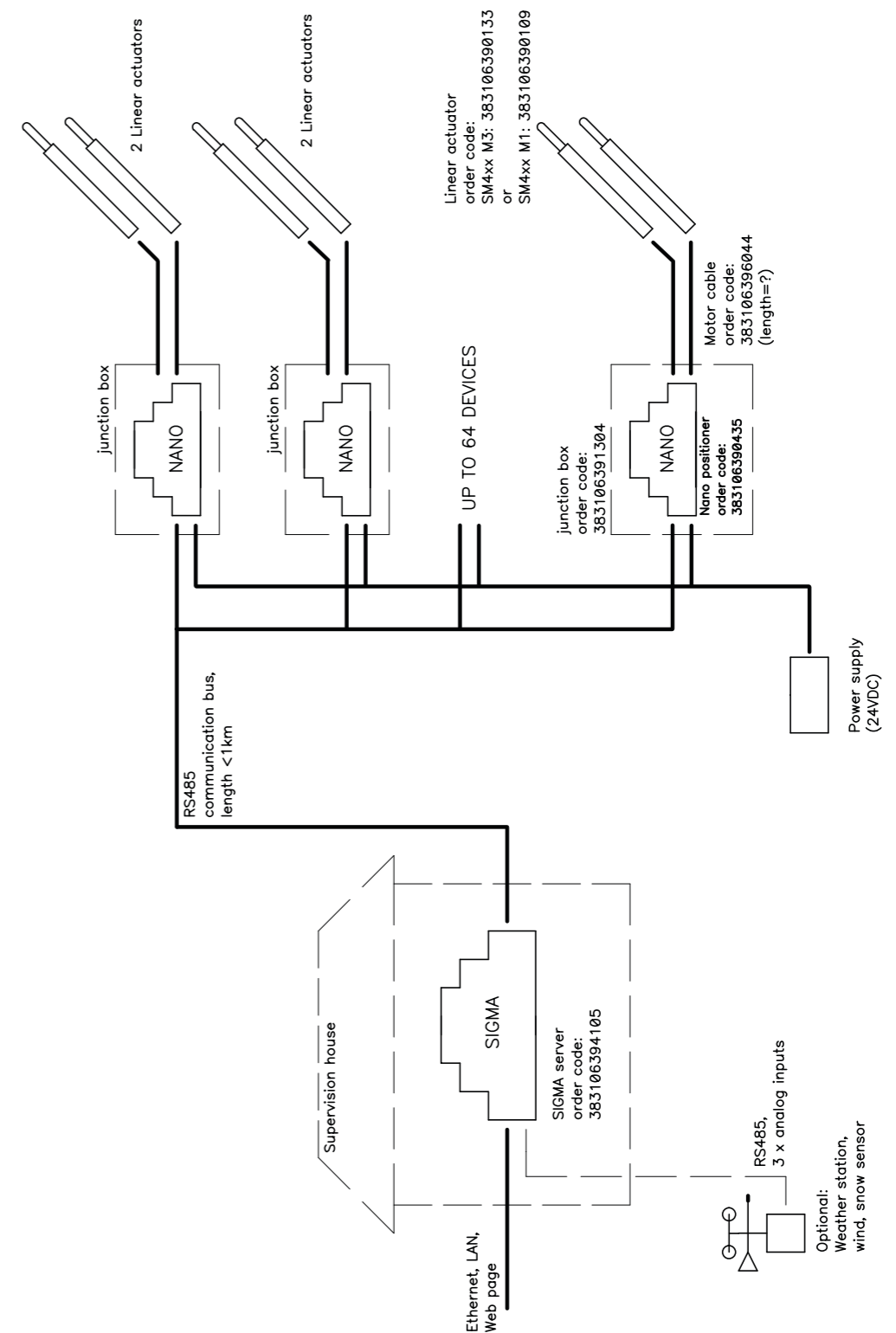
Properties of Sigma:

- Reliable RS485 communication bus for controlling slaves, at maximum length up to 1km.
- Single, small, DIN rail module
- Powerful microcontroller, running reliable embedded OS.
- User interface made as Web page, accessible via Ethernet, internet, no special program required.
- Connection for many external weather sensors. Sigma will respond on many predefined weather conditions.
- Accurate astronomical calculation with 0.5 deg resolution, including "anti-shadowing" function.
- Including different geometries for different trackers. New geometry can also be added.
- Self upgrading. When new firmware release is available, Sigma upgrades itself without need of any user interaction. User defined upgrading schedule.
- Easy and fast replacing, plug-in connection.

Properties of Nano:

- Powerful motor driver for motors up to 150W.
- Soft start and soft garanties longer motor's life time.
- Single, small, DIN rail module.
- Moving range limitation.
- Current limitation to avoid over drive.
- Self sychronization with misalignment counter.
- Resolution better than 290 counts per 1mm motor movement.
- Additional function moves the tracker to pre-defined position when master communication failed for certain time.
- Status indication shows the state, where the Nano is working in.
- Self upgrading. When new firmware release is available, Sigma upgrades itself without need of any user interaction. User defined upgrading schedule.
- Easy and fast replacing, plug-in connection.

Medium to large scale solar power plant block diagram using Sigma Server and Nano positioner



Sigma Solar Server POZSOLSIG1 / 383106394105

Web Based Solar Tracker Server

Web Control Center
72.49.55.219:1081/index

SIGMA SOLAR TRACKER SERVER WEB BASED
SAT CONTROL Web to get more!

Bootloader version 1.003
Application version 1.090
Last update 07.09.2011 14:10

MONITORING USER PARAMETERS INSTALLER PARAMETERS SLAVE PARAMETERS WEATHER PARAMETERS ABOUT LOGOUT

08:25:44
13.09.2011
U: 23.908V
I: 0.000A

Angle	Destination
A -52.17	1000
B -52.17	1000

ID	Ver	U [V]	I [A]	Remain A	Position A	Destination A	Remain B	Position B	Destination B	Status	S	M	H	T
01	2.451	23.857	0.000	-8	1001	1000	27132159	26566911	26657023	0x00000100				
02	2.451	23.929	0.000	0	1004	1000	23986431	23421183	23511295	0x00000100				
03	2.451	23.929	0.000	0	1000	1000	20955391	20226303	20381951	0x00000100				
04	2.451	23.857	0.000	0	1003	1000	26083839	25518591	25608703	0x00000100				
05	2.451	23.857	0.000	0	997	1000	31441407	30712319	30867967	0x00000100				
06	2.451	23.893	0.000	0	996	1000	19907071	19177983	19333631	0x00000100				
07	2.451	23.857	0.000	-8	1001	1000	27132159	26566911	26657023	0x00000100				
08	2.451	23.929	0.000	0	1004	1000	23986431	23421183	23511295	0x00000100				
09	2.451	23.929	0.000	0	1000	1000	20955391	20226303	20381951	0x00000100				
10	2.451	23.857	0.000	0	1003	1000	26083839	25518591	25608703	0x00000100				
11	2.451	23.857	0.000	0	997	1000	31441407	30712319	30867967	0x00000100				
12	2.451	23.893	0.000	0	996	1000	19907071	19177983	19333631	0x00000100				
13	2.451	23.929	0.000	0	1000	1000	20955391	20226303	20381951	0x00000100				
14	2.451	23.857	0.000	0	1003	1000	26083839	25518591	25608703	0x00000100				
15	2.451	23.857	0.000	0	997	1000	31441407	30712319	30867967	0x00000100				
16	2.451	23.893	0.000	0	996	1000	19907071	19177983	19333631	0x00000100				
17	0.000	0.000	0.000	0	0	0	0	0	0	0x00000000				
18	0.000	0.000	0.000	0	0	0	0	0	0	0x00000000				
19	0.000	0.000	0.000	0	0	0	0	0	0	0x00000000				

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Web Control Center
72.49.55.219:1081/index

SIGMA SOLAR TRACKER SERVER WEB BASED
SAT CONTROL Web to get more!

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MONITORING USER PARAMETERS INSTALLER PARAMETERS SLAVE PARAMETERS WEATHER PARAMETERS ABOUT LOGOUT

Server IP address: 217.72.64.90
Update path: /satcontrol/update_piko
Update time start: 0000 hhmm
Reset time: 0100 hhmm
Server port: 80
Update interval: 10 min
Update time end: 0400 hhmm
MAC address: 165E36AF866A

A1_A: 598.4000
A2_A: 862.5000
A3_A: 53.5000
A4_A: 279.0000
A5_A: 0.0000
A6_A: 0.0000
B1_A: 22.0000
B2_A: 9.6000
Gear ratio A: 294.0000
Coordinate mode A: 3
Geometry mode A: 2
Motor max range A: 260000
Motor min range A: 1000

A1_B: 598.4000
A2_B: 862.5000
A3_B: 53.5000
A4_B: 279.0000
A5_B: 0.0000
A6_B: 0.0000
B1_B: 22.0000
B2_B: 9.6000
Gear ratio B: 294.0000
Coordinate mode B: 3
Geometry mode B: 2
Motor max range B: 260000
Motor min range B: 1000

U supply factor: 0.0105
Reserved:

Save

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Sat Control d.o.o.
Pozenik 10,
SI-4207 Cerklje
Slovenia

For more information, please contact
our Customer Support Center.

Phone: +386 4 281 62 15

Fax: +386 4 281 62 13

(Charges depending on provider)

E-mail: support@sat-control.si

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The required technical options should therefore
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