

PERFORMANCE CONTROL FOR PV PLANTS LOGGING AND VISUALIZATION SYSTEMS USING SOLLOG

The datalogger SolLog, since years successfully installed for measuring photovoltaik (PV) plants, now has got extended functionality. One significant renewal is the automatical performance control function for PV plants. Previous functions are expanded and improved.

The data logger not only logs data but also controls displays for the use in visualization tableaus as well as on touchscreen monitors (point-of-information systems), because it uses a serial RS232 port and an additional system integrated serial bus port.



Description of Function

The SolLog is a development based on an industrial system, which is mainly used for wide area heating control. It is easy to install, easy to configure, robust and has several inputs and outputs. Therefore it is an ideal base for the use of measurement activities in solar thermal and solar PV systems.

Because of its four analogue and four digital inputs the SolLog can be used universally and system independently as a watching and controlling unit. SolLog does not use the port of an inverter but only its input ports itself by logging energy output and solar irradiance. For the automatical performance control the SolLog detects the operation mode by a self-learning algorithm and can recognise also failures of smaller parts of the PV plant and degradation over several years.

Also the sensors are checked for plausibility to ensure a reliable performance control. In case of failure a relay will be activated and an alarm message via fax, sms or email can be send by a seperate message modem.

So it is a ideal solution for the component and producer independant control of solar systems (PV or solar thermal).

Together with the SolLog a visualization tableau is available. Solar irradiance, PV or thermal power, temperature, yearly produced energy, produced energy for specific times (for example energy output since installation) and so on can be shown on high contrast and serial controlled LC displays (25 or 50 mm height).



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DATA LOGGER

Industrial Product

Data Logger with integrated performance control function

- Performance Control Function for PV plants, message via alarm relay and fax, sms or email
- Detection of global and particular failures
- Industrial product from technical building control
- 4 analogue inputs (8 analogue inputs by abolition of the digital inputs and arithmetic channels), max. failure $\pm 1\%$
- 4 digital counter inputs
- 4 arithmetic channels (for combination of channels, for performance control)
- 1 potential free output (30 Vdc / 10 A)
- Logging capacity 320 kB, memory depth over 1 year by logging eight channels every hour
- Real time clock, accuracy: ± 10 s per year
- Logging interval settable (1 minute to 1 day)
- Two lines alphanumeric LC display, shows actual values, state of performance control function, alarm messages
- Phoenix Combicon terminal plug, screws
- RS232 serial port for PC or modem contact, optional RS485 port
- Linking of several SolLog by RS485 bus
- Direct LC display control via additional serial bus
- Remote access for data transfer and configuration via analogue modem
- Delivery incl. power supply, data cable, manual, data and configuration software
- Optional available: Internet visualization software SolWeb
- Optional available: Message modem for alarm messages of performance control function via fax, sms or email

VISUALIZATION TABLEAU

Full Coloured Printing
Plate of Acryl
Aluminium Frame
LC Displays

Visualization Tableau

- Standard housing or frame for outdoor vitrines and showcases
- Fully coloured printing on polycarbonat plate (acryl glass)
- No holes for the LC displays within the acryl glass
- Four digits with 25 or 50 mm height and six digits with 25 mm LC displays (for example solar irradiance, thermal or PV electrical power and energy production) available
- Modular expansion
- Very little power consumption (all together including data logger about 1.7 W, that is about 15 kWh per year)



IRRADIANCE

Silicon Irradiance Sensor

Measurement of Solar Irradiance

- Silicon Irradiance Sensor Si-01TCext with 0 to 1 V at 0 to 1000 W/m²
- Silicon Irradiance Sensor Si-01TC-T with 0 to 1 V at 0 to 1000 W/m² and measurement of cell temperature (can be used as PV module equivalent)

PHOTOVOLTAIC

Measuring Converter for
power and energy

Measurement of Electrical Values

- Measuring converter for PV power and PV energy (EZW or EZD), 0 ... 20 mA output for PV power, 1 impulse per kWh for PV energy, Input 230 V_{AC} and 5 A (expandable via current converter in 15 steps up to 1000 A, preferences via code switch within the measuring converter)
- Energy counter for one phase ac with impulse output and internal electromechanical counter
- Transducer for sinoidal currents with 20 mA output

SOLAR THERMAL SYSTEMS

Thermal Energy Counter,
collector temperature

Measurement of Thermal Values

- Thermal energy counter with impulse output
- Digital, calibratable temperature sensors for use at large cable lengths
- Alternative use of Pt100 temperature sensors is possible