

WEB'log PRO

PowerControl



Operating Instructions



Spicherer Str. 48

D-86157 Augsburg

Tel.: +49 (0) 821 / 3 46 66-0

Web: www.meteocontrol.com

Technical Support:

Tel.: +49 (0) 821 / 3 46 66-88

Fax: +49 (0) 821 / 3 46 66-11

e-mail: technics@meteocontrol.com

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Subject to technical alterations.




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1. Notes on using the Operating Instructions

These instructions describe the additional function “PowerControl” (MPC) for the WEB'log PRO.

For further information about this topic:

 WEB'log	Operating Instructions for <i>WEB'log PRO</i>
 Web portal	<i>Web portal</i> documentation
 Inverter	Inverter documentation

2. Overview

2.1 EEG (German Renewable Energy Act)

In accordance with the German Renewable Energy Act (EEG 25.10.2008, Section 11 Feed-in management), all operators of photovoltaic systems with a feed-in rate of more than 100 kWp are obliged to participate in grid safety management.

This enables grid operators to reduce the feed-in power from systems of this size by remote control or completely disconnect them from the grid.

2.2 System requirements

- Receipt of the setpoint value for the feed-in power via a ripple control receiver. The ripple control receiver transmits the signal via relays to the WEB'log PRO.
The relays signal either On/Off operation (100% / 0%) or a reduction level specified by the grid operator (e.g. 100% / 60% / 30% / 0%).
- The reduction level must be set on the inverter within the reaction time specified by the grid operator.
- The grid operator receives prompt confirmation of the set reduction level.

Note:

- PowerControl is only supported by WEB'log PRO
- Ripple control receivers with a pulse output are not supported

3. Technical description

3.1 Functional principle

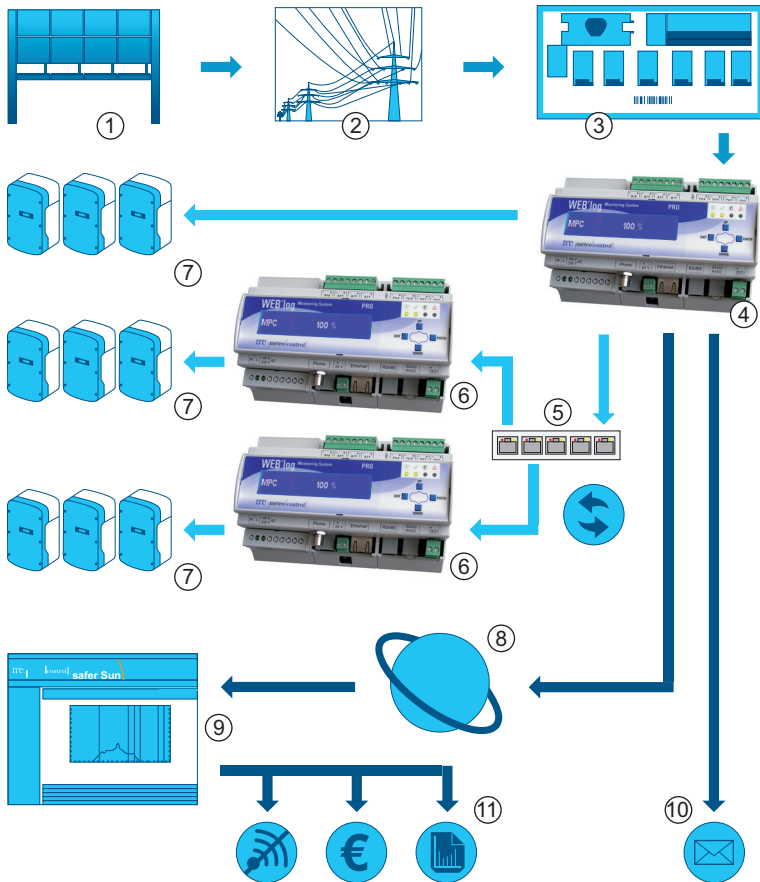


Fig. 1: Functional principle, PowerControl

- | | |
|-----------------------------|--|
| (1) Grid operator | (7) Inverters |
| (2) Public grid | (8) Internet |
| (3) Ripple control receiver | (9) Web portal |
| (4) WEB'log master | (10) Notification of feed-in reduction |
| (5) Ethernet switch | (11) Alarms, power feed-in difference report |
| (6) WEB'log slave | |

3.2 Functions

3.2.1 Master functionality



In larger systems with a number of WEB'log PRO devices, one WEB'log PRO is assigned the role of master.

The master is connected to the ripple control receiver and distributes the information via Ethernet to all the WEB'log PRO devices or to the configured IP addresses by means of a broadcast.

3.2.2 Notification of change in power level



If the power level is changed, the WEB'log PRO informs one or more recipients via the configured means of communication.

The message details the time when the change came into effect, and the specified power level.

3.2.3 Deactivation of alarms



(Portal function – in preparation)

In the event of a forced reduction, certain alarms are deactivated for the duration of the reduction (e.g. comparison of irradiance and generated power).

The Internet portal "SaferSun" detects the specified reduction and deactivates the alarms for the relevant period.

3.2.4 Calculation of the power feed-in difference



(Portal function – in preparation)

Provides an overview of the power not fed into the grid.

The power feed-in difference is calculated from the simulated daily power value and the current actual feed-in power for the given day. This is displayed in the Internet portal.

3.2.5 Reporting function



(Portal function – in preparation)

Reports can be set up to provide detailed information in the event of a reduction.

4. Installation

4.1 Ripple control receiver

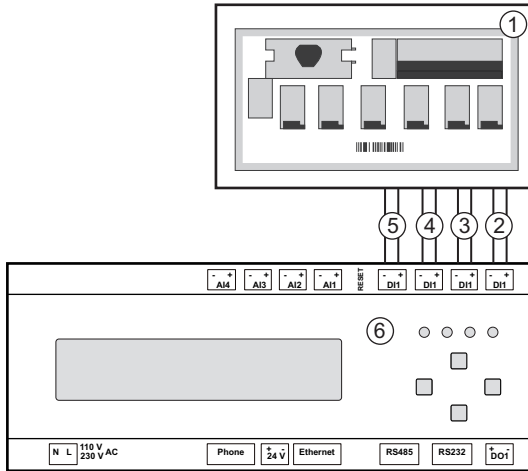


Fig. 2: Connecting the ripple control receiver

- (1) Ripple control receiver
- (2) Digital input DI1
- (3) Digital input DI2
- (4) Digital input DI3
- (5) Digital input DI4
- (6) WEB'log PRO

Note: When PowerControl is activated, the digital inputs of the master must not be configured for any other purpose.

Note: Ripple control receivers with a pulse output are not supported.

4.2 Master / slave connection

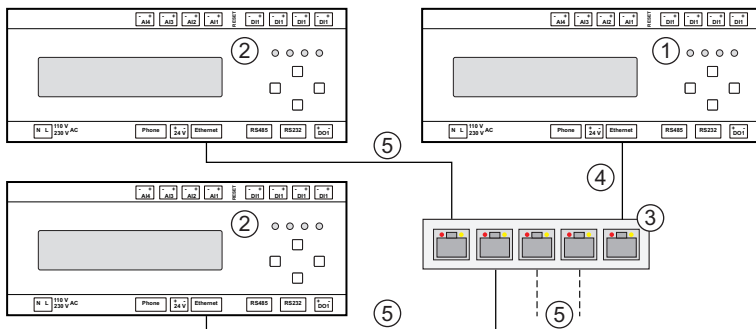


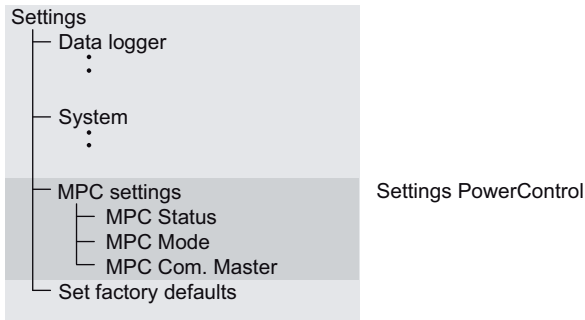
Fig. 3: Master / slave connection

- (1) WEB'log PRO Master
- (2) WEB'log PRO Slave
- (3) Ethernet switch
- (4) Connection from WEB'log PRO master to Ethernet switch
- (5) Connection from WEB'log PRO slave to Ethernet switch

- All of the WEB'log devices must be in the same network (subnet mask)
- Each WEB'log must be assigned its own IP address
- Two WEB'log devices can be connected directly using a cross cable
- For more than two WEB'log devices, an Ethernet switch is required

5. Operation

5.1 Menu structure on the device



Note: The MPC settings are only accessible via the menu PIN “0010”.

5.1.1 Meaning of the menu items

MPC Status

- Active: PowerControl is active
- Inactive: PowerControl is inactive

MPC Modus

- Master: WEB'log PRO functions as master
- Slave: WEB'log PRO functions as slave

MPC Com. Master

- Master: WEB'log PRO is configured as master
- Active: Connection to master is active
- Interrupted: Connection to master is interrupted

Note: The network connection takes a few seconds to be re-established. If the connection to the master is interrupted, the slaves use the set default power level (default: 100%) after 50 seconds.

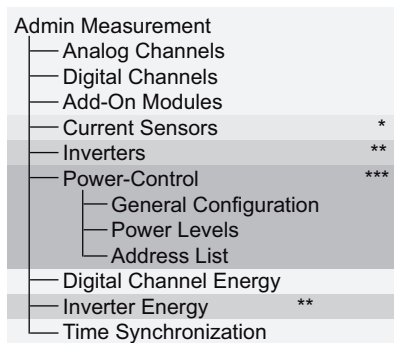
5.2 Menu structure in the web browser

1. In the “Start center”, select the “Profi page”.
2. Select “Login” on the “General” tab.
3. Enter the administrator password “ist02” and confirm with the “Login” softkey.

After a short wait time, two additional tabs appear:

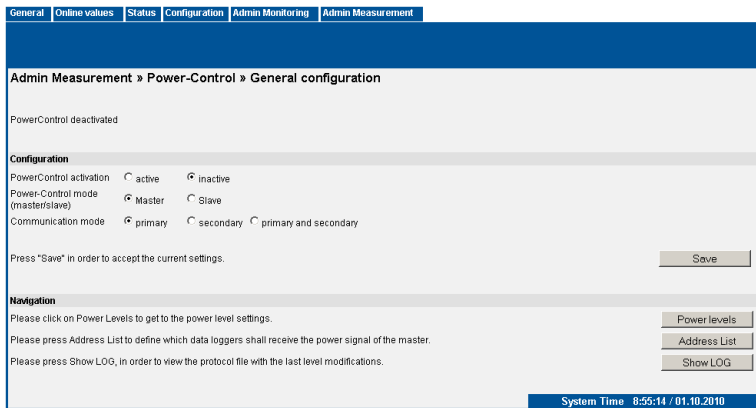
- Admin Monitoring
- Admin Measurement

Via the “Admin Measurement” tab, PowerControl can be configured using three menus:



- * Current Sensors option
- ** Inverters option
- *** PowerControl option

5.2.1 General configuration



General | Online values | Status | Configuration | Admin Monitoring | Admin Measurement

Admin Measurement » Power-Control » General configuration

PowerControl deactivated

Configuration

PowerControl activation ☐ active ☒ inactive

PowerControl mode (master/slave) ☒ Master ☐ Slave

Communication mode ☒ primary ☐ secondary ☐ primary and secondary

Press "Save" in order to accept the current settings. Save

Navigation

Please click on Power Levels to get to the power level settings. Power levels

Please press Address List to define which data loggers shall receive the power signal of the master. Address List

Please press Show LOG, in order to view the protocol file with the last level modifications. Show LOG

System Time 8:55:14 / 01.10.2010

Fig. 4: Settings: PowerControl > General configuration

Configuration

- PowerControl activation PowerControl active or inactive
- PowerControl mode WEB'log PRO as master or slave
- Communication mode Primary / Secondary / Primary and secondary (only with SMA string inverter)

Note: Most SMA string inverters support the "Primary" command. If no power reduction takes place for a particular inverter type, the setting "Secondary" or "Primary and secondary" should be selected.

- Save Saves the current settings

Navigation

- Power Levels Displays the assignment of the digital inputs and the power specifications of the grid operator
- Address List Setting the WEB'log PRO devices that are to receive the power signal from the master device
- Show LOG Displays the log file

Note: In the menu "Admin Monitoring" > "Inverters" there is the option "Alarm PowerControl". If this option is activated, an alarm is triggered whenever there is any change in the power level. All changes take effect only after selecting "Save".

5.2.2 Power Levels



Fig. 5: Settings: PowerControl > Power levels

Configuration

Shows in tabular form:

- Level Numbering of power levels
- Digital input Logic states of the four digital inputs
- Power in % Percentage for the power specification
- Save Saves the current settings

Navigation

- General Displays the general configuration
- Address List Setting the WEB'log PRO devices that are to receive the power signal from the master device
- Show LOG Displays the log file

Note: The power levels can only be configured on the master.

5.2.3 Address List

General
Online values
Status
Configuration
Admin Monitoring
Admin Measurement

Admin Measurement » Power-Control » Address List

Configuration
☐ deactivated
☒ To all participants (broadcast)
☐ To all active participants of the address list

ID no.	active	IP Address
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
18	<input type="checkbox"/>	
19	<input type="checkbox"/>	
20	<input type="checkbox"/>	

Press "Save" in order to accept the current settings.
Save

Navigation
Please click on General to get to the general configuration page.
Please click on Power Levels to get to the power level settings.
Please press Show LOG, in order to view the protocol file with the last level modifications.

General
Power levels
Show LOG

System Time 9:01:28 / 01.10.2010

Fig. 6: Settings: PowerControl > Address List

Configuration

- Deactivated Power level is not sent
- To all participants (broadcast) The power level is sent as a broadcast to all accessible devices
- To all active participants ... The power level is sent to all devices which are activated in the address list
- Save Saves the current settings

Navigation

- General Displays the general configuration
- Power Levels Displays the assignment of the digital inputs and the power specifications of the grid operator
- Show LOG Displays the log file

Note: A log file for the most recent change in power is only created once MPC has been activated.

5.3 Inverters

PowerControl only functions if the connected inverters and their firmware support power reduction.

As not all inverters support power reduction, we recommend contacting the manufacturer of the inverters used, before these are put into use.