MaxWeb xp

Installationsanleitung ■ Installation instructions ■ Mode d'emploi d'installation ■ Manual de instalación ■ Istruzioni per l'installazione

SolarMax®
by Sputnik Engineering

Contents

1 About this installation manual

This instruction manual is part of the delivery and must be read thoroughly before using the device for the first time. No work other than the tasks described in this manual may be carried out on the device or connected components. Sputnik Engineering AG declines any liability in the event of non-observance of the installation instructions.

This installation guide describes the installation, the startup and the functions of the MaxComm accessory component MaxWeb xp. Further user information can be found in the MaxWeb xp Help menu.

1.1 Where to keep this manual

The system operator must ensure that this instruction manual is available to those responsible for the power plant at all times. If this original manual is lost, an up-to-date version can be downloaded from our website at all times (www.solarmax.com).

2 Safety instructions

ATTENTION

- MaxWeb xp must only be operated with the enclosed power supply unit plugged into a 230 VAC socket.
- MaxWeb xp must only be installed in dry, clean rooms (protection class IP20).
- Only SolarMax devices with RS-485 interfaces may be connected to the “RS-485” sockets. The interface carries active signals!
- The power supply for MaxWeb xp must be ensured. Sudden interruptions to the power supply (pulling the mains plug during operation, unstable mains etc.) can lead to total failure of the device. In this case the warranty becomes void, and the user loses the right to make claims under warranty.

2.1 Appropriate use

The web-based MaxWeb xp data logger is solely for the logging of device and plant data within a MaxComm communications network. MaxWeb xp provides the following basic functions:

- Internet-capable data logger for system communication via standard Internet browser
- Automatic data transfer to the SolarMax web portal and three further e-mail recipients as XML file
- Permanent system monitoring
- Automatic alarms via e-mail or SMS to up to three recipients
- Up to 100 devices can be connected via RS485 interface
- Communication via GPRS or Ethernet
- Control of large displays and MaxVisio

3 Scope of delivery

Please check that the following parts are included:

- 1 MaxWeb xp
- 1 plug-in power supply unit 230 VAC / 15 VDC
- Assembly components for wall and top hat rail mounting
- 1 grey Ethernet connection cable (patch cable) for connection to a LAN network, DSL router or switch/hub
- 1 red crossover Ethernet connection cable for connection to a PC

For the “GPRS” version additionally:

- 1 GSM aerial with connection cable
- 1 short, red crossover Ethernet connection cable

4 Procedure

Proceed as follows to commission the device:

1. Installing the device: chapter 5; page 47.
2. Installing a MaxComm network: chapter 6; page 50.
3. Establishing an internet connection: chapter 7; page 53.

5 Installation and commissioning

5.1 Siting

Please note the following when siting your MaxWeb xp:

- MaxWeb xp meets the requirements of protection class IP20 and is therefore only suitable for installation in dry, clean spaces. For outdoor installation or operation under adverse conditions the device must be mounted in an additional casing that meets the requirements of the required protection class.
- The ambient temperature must be between –20 °C and +40 °C.
- To connect the plug-in power supply a 230 V power socket must be within reach of the connection cable.
- For the GPRS version, the GSM signal of the respective mobile communications provider must be adequately strong. The GSM must be installed in a suitable location.

5.2 Device installation

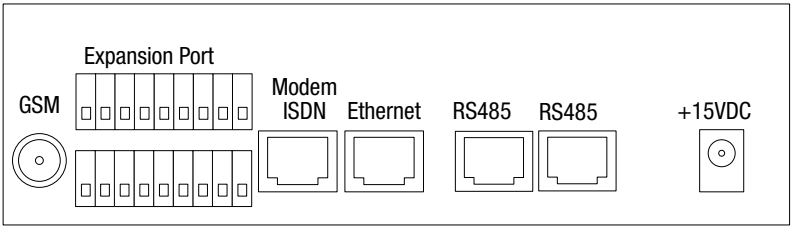
5.2.1 Wall

Attach the two grey PVC parts to the back of the device using the enclosed screws. The device can now be simply installed at the selected location.

5.2.2 Top-hat rail

Attach the two grey metal parts to the back of the device using the enclosed screws. The device can now be simply hooked into a top-hat rail.

5.3 Connections



Port	Purpose
Expansion Port	Connection for irradiation and temperature sensors, for external alarm systems and a wireless reciever for the optional MaxRemote. *Active signals!* See section “Expansion Port”.
GSM	Screw terminal for connecting the GSM aerial (GPRS version only).
Ethernet	RJ45 socket for Ethernet connection cable.
Modem / ISDN	RJ45 socket for modem connection cable and for the configuration of the GPRS modem.
RS-485	RJ45 sockets for connecting the MaxComm network cable. *Active signals!*
+15 V_{DC}	Jack socket for connecting the 15 V_{DC} plug-in power supply unit.

5.4 Displays

The five LEDs at the top of the casing indicate the operational status:

Version	RI	CD	DATA	STATUS	OH
GPRS	-*	*On:* Lights up if the Ethernet/GPRS bridge is inserted.	Flashes during data reception from the devices.	Lights up when MaxWeb xp is running.	*On:* the device is registered in the GSM network and connected to the Internet. *Off:* the device is registered in the GSM network. *Flashing:* initialisation phase.
Ethernet	-*	*On:* electrical connection to the network is active. *Off:* no connection.			-*

* Has no function in the GPRS and Ethernet versions

5.5 Switching on and off

Plug the round connector of the power supply unit into the "+15 VDC" socket of the MaxWeb xp unit. Then plug the power supply unit into a 230 VAC socket.

ATTENTION

The 230 Volt power supply to the MaxWeb xp data logger should be separate from the power supply of the inverters. If this condition is not met, the MaxWeb xp will be cut off from its power supply when the line protection is triggered. As a result MaxWeb xp will be unable to record data or send any alarm signals.

As soon as the power supply is connected, MaxWeb xp starts and the status LED comes on. After approx. 30 seconds the device is accessible via the web browser.

Always switch MaxWeb xp off via the ⏻ -button! Press and hold the key until the status LED goes out and the device switches to standby mode. The power supply can now be removed if required.

In order to start the device from standby mode, press and hold the ⏻ -button until the status LED comes on. A restart from standby mode is possible only after 30 seconds.

6 Installation of the MaxComm network

NOTE

Detailed information on the design of a MaxComm communication network can be found in the technical details on MaxComm. This document can be downloaded from our website (www.solarmax.com; area downloads/data communication).

6.1 Connection options

Up to 100 devices with a MaxComm interface can be connected to your MaxWeb xp data logger.

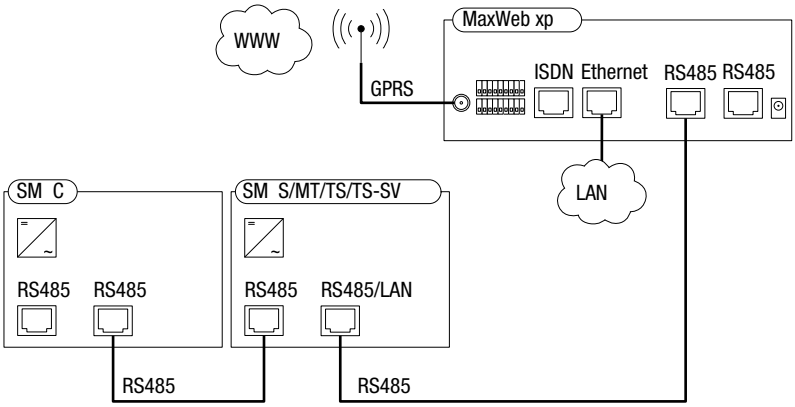
Device	Purpose
SolarMax inverters	All SolarMax inverters from the E and C series
MaxMeteo	Module for connecting a temperature and irradiance sensor
MaxCount	Module for connecting pulse counters with S0 interface (utility companies)
MaxConnect plus	Generator connection box with string current monitoring
MaxDisplay 1.0 / 2.0	LCD or LED large displays with MaxComm interface [1)]

1) Large displays with a MaxComm interface are offered by several display manufacturers. With MaxVisio Sputnik Engineering offers a dedicated display as a complement to MaxWeb xp. Further information can be found on our website at www.solarmax.com.

6.2 Wiring

Use commercially available RJ45 network cables, also referred to as RJ45 patch cables, for wiring the MaxComm network. These cables are available in different lengths from IT retailers. Alternatively you may assemble the cables yourself using suitable tools. We recommend using single-screened category 5 cables (CAT 5e).

The individual devices are connected with patch cables as shown below. All SolarMax devices with a MaxComm interface have two RJ45 sockets.



ATTENTION

Special RJ45 connector kits with IP54 protection for C and S series string inverters are available from your SolarMax distributor. These connectors must be used unless the inverters are installed in a dry, clean environment.

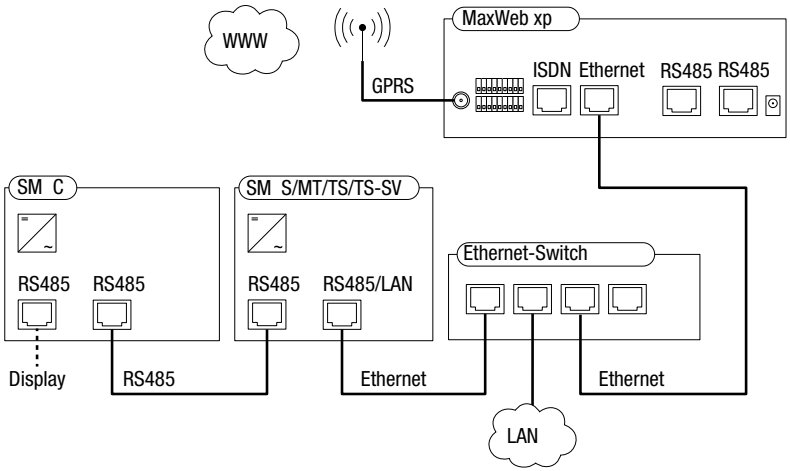
The maximum cable length for MaxComm networks is 300 metres. Should you wish to install a larger network, please contact the SolarMax service centre.

6.3 Addressing

For MaxWeb xp to be able to detect connected devices, you must assign an unambiguous device address to every device. Please note that each device address must be used once only. You will find instructions for setting the address in the product description of the corresponding device.

6.4 Ethernet connection

All inverters and devices with an Ethernet interface can be operated within a LAN network together with MaxWeb xp.
The inverters connected to MaxWeb xp by means of the Ethernet interface assume the gateway function for the other devices. Behind the gateway inverters the MaxComm network consists of RS485 connections.
This permits topologies to be visually realised such as those shown in the following diagram:



Please observe the following items, if you are using this mode of operation:

- MaxWeb xp does not allow for simultaneous connection of Ethernet and RS485 connections.
- You must configure the gateway inverters for the Ethernet connection. You can find information on the aforementioned in the device documentations.
- The TCP port must be identical for all gateway inverters.
- Each device within the MaxComm network must be equipped with an unambiguous device address (the gateway inverters as well).
- The MaxWeb xp connection option must be set to the Ethernet interface.
- MaxWeb xp and the SolarMax inverters do not support automatic network integration (DHCP). MaxWeb xp and each gateway inverter therefore require a static IP address.
- Depending on the devices used and the design of the MaxComm network, additional network infeeds are required.

7 MaxWeb xp: connection and configuration

7.1 General

The following description relates to a PC running on Windows XP.

7.1.1 Connection cable

- For a connection to the LAN, the DSL router or the hub/switch use the grey cable.
- For a direct connection to the Ethernet interface of your PC use the red (crossover) cable.

7.1.2 IP Address

- MaxWeb xp requires a static IP address in your network. The automatic IP address assignment using DHCP is not supported by MaxWeb xp.
- The prefixed IP address of MaxWeb xp is 192.168.1.234. If the prefixed address of MaxWeb xp is outside the address range (subnetwork mask) of your network or this address has already been assign to another device, you must temporarily modify the network configuration of your PC as described in section 7.1.3 and change the default setting of MaxWeb xp. Otherwise you can create a connection to MaxWeb xp without any further settings.

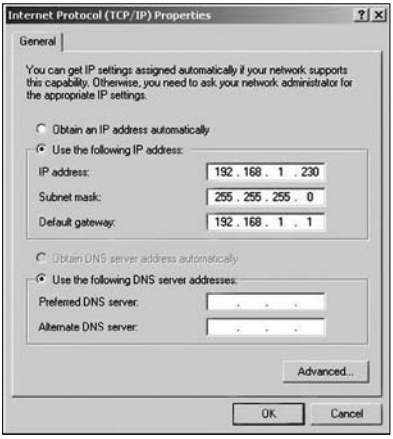
7.1.3 Modifying your network settings

NOTE

Check the correctness of your entries. If the entries are faulty, there is a likelihood that MaxWeb xp will no longer be accessible via the Ethernet interface after a reboot.
➡ Just in case, write down the values you have set before you reboot MaxWeb xp.

1. Connect MaxWeb xp directly to the Ethernet interface of your PC using the red crossover cable.
2. From Windows XP open the menu Control panel /Settings/ Network Connections / LAN connection. Select “Internet protocol TCP/IP” and click on “properties”.

3. Write down the existing settings. Then change the settings as shown in the screenshot and then save them by clicking OK.



IP-Adresse: 192.168.1.230

Subnetwork mask: 255.255.255.0

Standard gateway: 192.168.1.1

7.2 MaxWeb xp Ethernet

If you have a MaxWeb xp Ethernet, open your web browser and enter the address http://192.168.1.234 and the Login screen of MaxWeb xp appears. Log in using the user name admin and the password solarmax.com. You can now continue directly with the installation Wizard (section 7.4).

7.3 MaxWeb xp GPRS

7.3.1 Recommendations for the SIM card

To use MaxWeb xp via GPRS you need a SIM card with GPRS data service. The services and tariffs offered by different providers vary widely. For this reason only general instructions can be given at this point.

- Required services: E-Mail, VPN, and DNS
- The following ports must be activated: 25, 53, and 9300
- Required protocol: TCP/UDP
- Do not use pre-paid cards.
- Select a provider offering good network quality at the selected location so that expensive roaming fees can be avoided.

- For smaller PV systems and daily data transfer the contract should allow for a minimum data volume of 30 MB per month. Select a larger data volume if you wish to record a large quantity of data, access the installation regularly online, or transfer data at short intervals.

NOTE

Data volumes quickly exceed 30 MB if MaxWeb xp must interrupt and re-establish the VPN connection several times a day. This can happen if the signal is too weak (see also section 7.3.2) or if other nearby GPRS devices compromise the bandwidth. In situations like these you should conclude a payment card agreement with a larger data volume (e.g., 100 MB or 300 MB).

Inclusive contracts are generally significantly more cost-effective than billing based on actual data transfer.

- Please note that certain contracts are based on block rounding for the transferred data. Select a contract with daily or session-based block rounding. Hourly block rounding or block rounding with large data blocks (>100 kB per day) is not advisable.
- MaxWeb xp GPRS is continuously connected to the Internet. Therefore please make sure you select a card contract that is based on data volume rather than time. Otherwise you may incur high charges.

7.3.2 Important pre-installation instructions

- The magnetic-base aerial provided is designed for application in dry rooms. It must not be placed in metal cabinets, behind thick concrete walls, in basements or other electromagnetically screened spaces. Installation of the aerial and operation of MaxWeb xp GPRS near areas with strong electromagnetic radiation or areas that are sensitive to such radiation should be avoided.

ATTENTION

Insufficient reception means greater data volumes due to malfunctioning connections. You can still read the signal strength after completing the Wizard process at “Plant data – Overview”. The value of the signal strength displayed must be at least “16”.

- For locations with weak GSM reception a rod aerial with 3 dB gain is available from your SolarMax distributor. This aerial may be installed outdoors.
- Connect the magnetic base or rod aerial to the designated “GSM” screw terminal. Tighten the locking nut without forcing it until the limit stop is reached.
- To access MaxWeb xp from your PC the network connection of your PC must be appropriately configured. Proceed as described in section 7.1.3, subsections 1 to 3.
- Do not insert the SIM card until you reach the step described below.
- To install the SIM card, open MaxWeb xp using a small Phillips screwdriver. Disconnect the power supply before opening MaxWeb xp.
- Proceed with caution when installing the SIM card. Do not use force and avoid contact with the electronic components. Leave the SD card in its base.

7.3.3 GPRS configuration

1. Connect the the Ethernet socket of your PC with the Modem socket of the MaxWeb xp using the red crossover cable.
2. To access MaxWeb xp the network connection of your PC must be appropriately configured. For this reason please follow the steps described in section 7.1.3 before you proceed to the GPRS configuration.
3. Enter http://192.168.1.1 in the web browser. Click OK at the login screen (no user name/password is required) and select GSM/GPRS.

Proceed as follows:

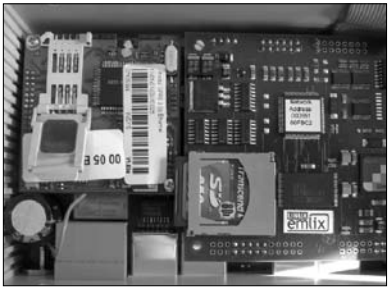
Parameter	Input
PIN (2x)	PIN of the SIM card according to card contract
APN	APN of the network operator
PPP Username	GPRS user name of the network operator
PPP Password (2x)	GPRS password of the network operator

The other fields must not be changed!

4. Then click on “Save”. Do not click on the Restart button. Instead, switch off MaxWeb xp as described in section 5.5 “Switching On/Off”. Disconnect MaxWeb xp from the mains.

7.3.4 Installing the SIM card

5. Release the four screws under the edge of the cover and lift it off.
6. Insert the SIM card into the card holder and lock it.



7. Replace the lid on the MaxWeb xp and screw it down tightly.
8. Switch on MaxWeb xp as specified in the instructions.
9. Wait until the “OH” LED is lit continuously (sequence: blinking – flashing – continuous). This process may take up to one minute.

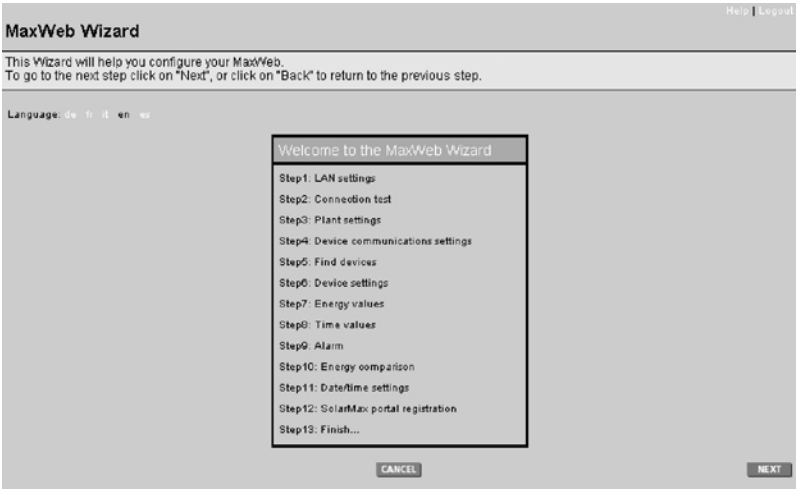
MaxWeb xp is now connected with the GPRS network.

7.3.5 Establishing the connection with MaxWeb xp / configuration

10. Remove the red Ethernet cable from the “Modem” socket and plug it into the “Ethernet” socket of MaxWeb xp.
11. Enter http://192.168.1.234 in the web browser. The MaxWeb xp login screen will appear.
12. Enter admin as user name and solarmax.com as password and click “OK” in order to log into MaxWeb xp. The start-up screen of the installation Wizard appears.
13. Start the configuration, the device installation and the registration of MaxWeb xp with the help of the Wizard.

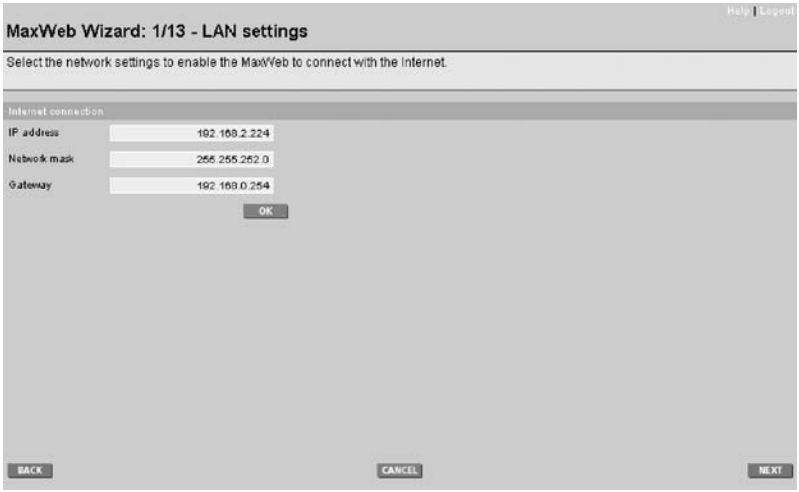
7.4 Installation Wizard MaxWeb xp

The Wizard helps you configure your MaxWeb xp correctly. The configuration consists of 13 steps.



You can complete all the steps in the Wizard only if MaxWeb xp is connected to the Internet. The other network subscribers must also be connected via an RS 485 or Ethernet interface and configured with the correct address.

To go to the next step just click on NEXT. Click BACK to return to the previous step. Exit the Wizard and log out of MaxWeb xp by clicking on CANCEL.



MaxWeb xp Wizard - LAN settings

If necessary you can use this step to change the IP address, network mask and the IP address of the gateway. Assign MaxWeb xp an IP address to enable a connection to your router and the Internet. After the IP address has been changed MaxWeb xp is rebooted.

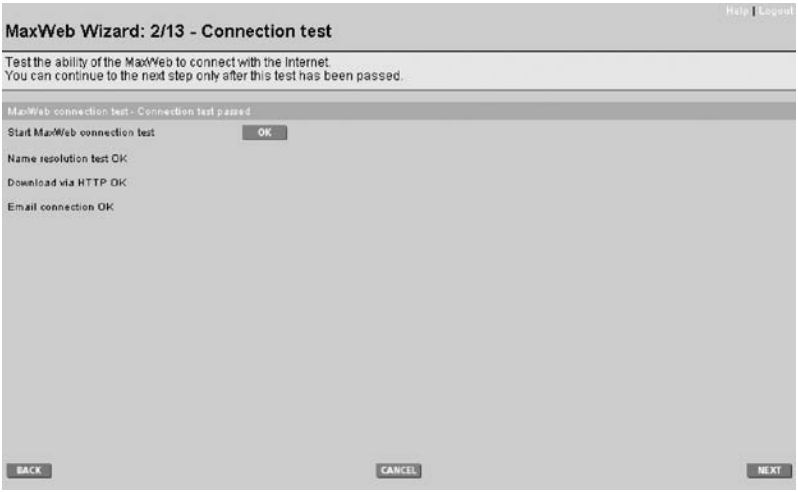
If you connected MaxWeb xp via the red crossover cable directly to your PC, use the grey cable to connect MaxWeb xp to your local network. Your PC must also be connected to the same network. Then enter the previously defined IP address of MaxWeb xp in your web browser and log in again.

If the IP address does not require any changes you can proceed directly to the next step in the Wizard. MaxWeb xp must definitely have a functioning Internet connection before you proceed to the next step in the Wizard.

Please ensure that when using MaxWeb xp Ethernet the following router ports are opened for external connects:

Port	Protocol
25 (SMTP E-Mail traffic)	TCP/UDP
53 (DNS)	TCP/UDP
9300 (VPN)	TCP/UDP

Once you have made all the necessary seetings, proceed to the next step by clicking NEXT.



MaxWeb xp Wizard - Connection test
This step tests the Internet connection. It checks the name resolution, http download, and the E-Mail connection. Click OK to run the test.

If any test fails the Internet connection must be checked. Check the following items:

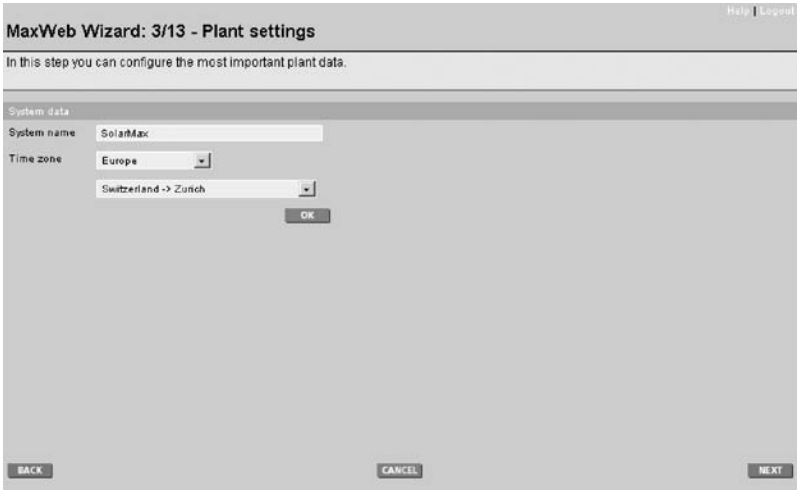
- Is the IP address correct?
- Does the subnetwork mask agree with the subnetwork mask of your network?
- Do you have access to the Internet via your router?

The Wizard cannot continue to be used unless the Internet connection has passed the test.

Instruction regarding MaxWeb xp GPRS:

During Maxweb xp GPRS, the test is executed in the background. Log out of MaxWeb xp and remove the red Ethernet cable from the socket labelled Ethernet and connect the sockets labelled Modem and Ethernet on the MaxWeb xp with the red, short Ethernet cable.

Wait roughly 3 minutes, remove the short Ethernet cable, and connect the long, red Ethernet cable to your PC and log into MaxWeb xp again as described in section 7.3.5. and click the REFRESH button.

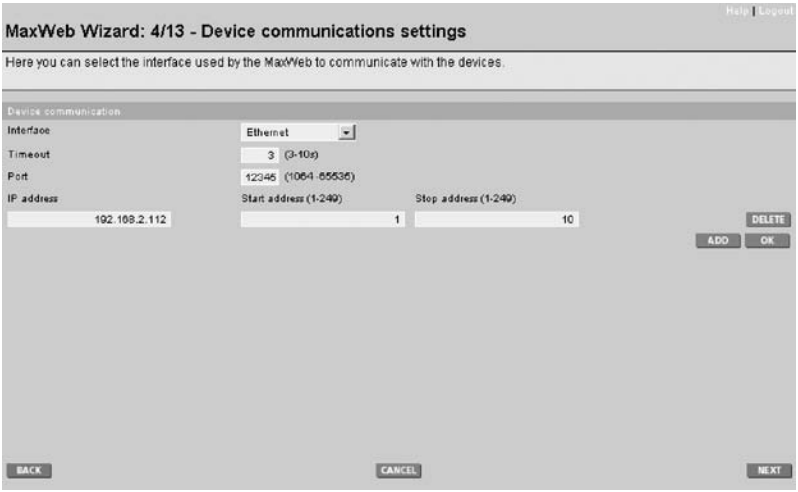


MaxWeb xp Wizard - Plant settings

Enter a name for your plant for the SolarMax web portal and the local time zone. Click OK to save your settings.

MaxWeb xp Wizard - Device communications settings

The communications modus to the inverters can be selected here. If you have selected RS485, no further entries are necessary and you can click NEXT to proceed to the next step.

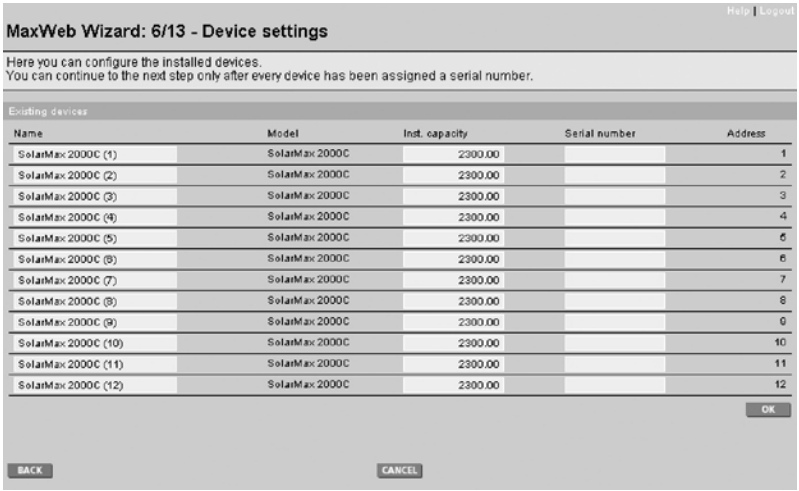


If you selected Ethernet you can configure the Ethernet communication with the S-series inverters. Select a TCP communications port (range 1064 to 65535). The same port must also be set on the inverters. Configure a timeout for data transfer (range: 3 s to 10 s). We recommend you set a longer timeout for networks under a high load. Enter the IP address for each inverter in the Ethernet mode and enter the relevant device address range (the start and stop addresses, range 1 to 249).

The connections can be deleted at any time by clicking DELETE. Click ADD to create a new connection. Click OK to save the changes.

MaxWeb xp Wizard - Find devices

Click on START. MaxWeb xp begins to search the whole address range for installed devices. You can interrupt the search once you are certain that above the current search address there are no further devices. In this case click on STOP.
To accept the result of the search acknowledge it by clicking OK. Click CANCEL to reject the result and retain the former configuration.

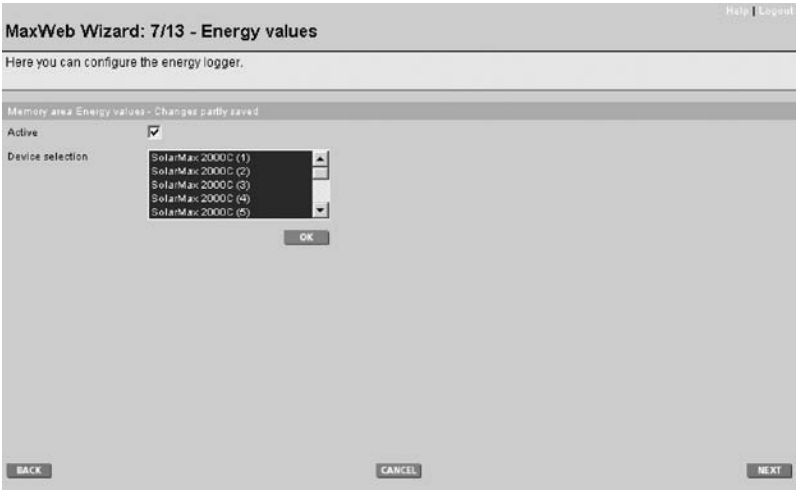


NOTE

If MaxWeb xp does not detect or display all devices, the internet browser may be configured incorrectly (see chapter 11, page 77).

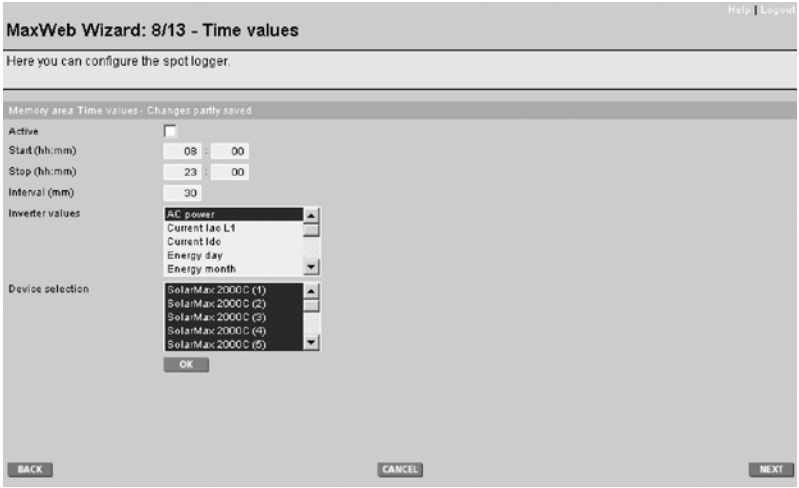
MaxWeb xp Wizard - Device settings

Here you can see the currently installed devices. You can adapt the names, the installed capacity and the serial numbers. The values are accepted by clicking OK.



MaxWeb xp Wizard - Energy values

The energy value logger records the energy values of the selected devices (kWh day, kWh month, kWh year and kWh Total) at a specified time on each day. By clicking on the "Active" box you can switch the logger on or off. Select the devices to be logged from the "Device selection" list. Select more than one by holding down the Control key (Ctrl). Click OK to save your changes.

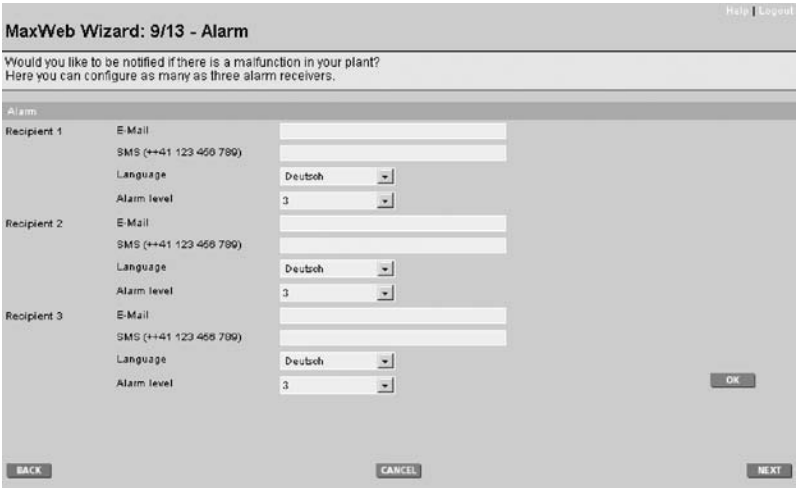


MaxWeb xp Wizard - Time values

The time value logger uses selected values to generate snapshots for a settable interval.

By clicking on the “Active” box you can switch the logger on or off. Enter the start and stop times to define the period for which data is logged.

Enter the Interval to set how frequently data is recorded. Select the log values and devices from the “Inverter values” and “Device selection” lists. Select more than one by holding down the Control key (Ctrl). Click OK to save your changes.



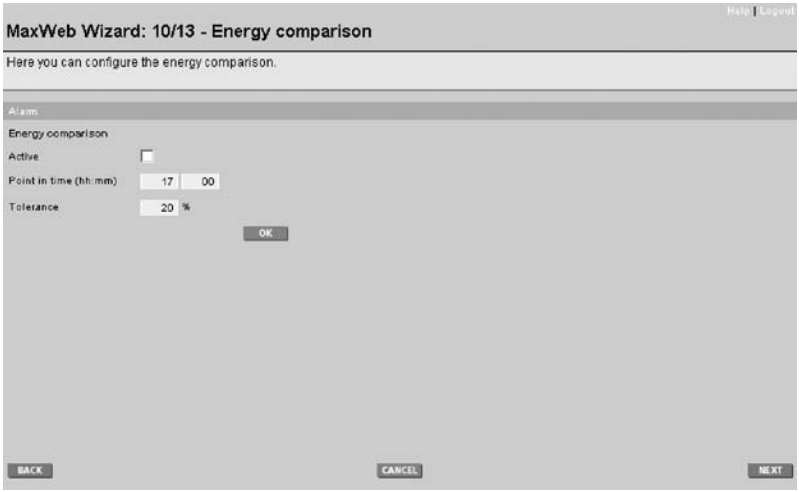
MaxWeb xp Wizard - Alarm

Recipient: Specify the email addresses and/or SMS numbers of the alarm recipients. Delete the entries to prevent alarms from being sent to a recipient. Please enter the SMS number in the international format, e.g. +491719999999.

The alarm level determines up to which degree of failure a recipient is to be alerted.

Alarm level 3: critical conditions (device error) preventing the device from feed-in operation or impairing the device and external alarm inputs.

Alarm level 4: internal malfunctions preventing the device from switching to feed mode.



MaxWeb xp Wizard - Energy comparison

The relative daily yields of all inverters are compared. The relative daily yield is calculated from the installed capacity and the daily yield. Hence the importance of correctly setting the installed capacities for each device.

If the relative yield of one or more inverters falls shorter of the mean value for all the inverters than the specified tolerance an Alarm 3 alarm is sent. Click on the “Active” box to activate or deactivate the energy comparison. Enter the time for the energy comparison in hours and minutes. The usual time for a comparison is towards the end of the feed-in operation, i.e., late evening. Enter the threshold for the energy comparison in the field labelled “Tolerance”.

Click OK to save your changes.

MaxWeb xp Wizard - Date/time settings

Enter the current date and local time. When you save the entries by clicking OK they become the system date/time for MaxWeb xp.

MaxWeb xp Wizard - SolarMax portal registration

Enter a valid E-Mail address for your portal registration. Click OK to save your entry.

The next step must wait until you have received your confirmation.

Within one hour at most you will receive an E-Mail from the SolarMax web portal with the result of the registration and your personal access data.

You can then log in at the SolarMax web portal and view the data of your PV plant. The availability of the data depends on the settings of your MaxWeb xp.

Instruction regarding MaxWeb xp GPRS:

The registration on the web portal is executed later after you have closed the installation Wizard. So you can continue without waiting to the next step.

The successful completion of the registration process is confirmed. Close the MaxWeb xp Wizard by clicking on NEXT.

The successful configuration is confirmed. Click FINISH and the standard MaxWeb xp interface is displayed.

7.5 External displays

7.5.1.Activating MaxDisplay

To use MaxWeb xp for controlling an external display you first have to activate the display interface. Proceed as follows:

1. Open the menu item Devices/External devices.
2. Select “MaxDisplay 1.0” to use a display from another manufacturer. Select “Max Display 2.0” to use MaxWeb xp in conjunction with the MaxVisio display.
3. Click “OK“ to save the changes. The display interface is now active.

7.5.2 Connecting the display

Connection conditions
RJ45 sockets (MaxWeb xp and inverter)

Procedure
Connect the display to a free RS485 connection of MaxWeb xp. You may also connect the external display to an inverter if the inverter is connected to MaxWeb xp by means of Ethernet (see section 6.4, page 52). MaxWeb xp will detect the display automatically.

8 Access to the plant via the SolarMax web portal

MaxWeb xp enables you to access your plant on the Internet via the SolarMax web portal.

Click on the system name under System data / Overview in the web portal. A new browser window will open showing the MaxWeb xp login window.

NOTE

For MaxWeb xp Ethernet please ensure that the following router ports are open to the outside:

Port	Protocol
25 (SMTP E-Mail traffic)	TCP/UDP
53 (DNS)	TCP/UDP
9300 (VPN)	TCP/UDP

9 Expansion Port

The expansion port is a multi-functional interface for connecting external sensors and alarm systems.

NOTE

The interface carries active signals. Use caution during wiring and observe the specified limit values. Sputnik Engineering is unable to accept liability for defects or malfunctions of MaxWeb xp or connected devices resulting from improper wiring or the failure to observe limit values.

9.1 Connection options

The expansion port has the following connection options:

- Input for an irradiance sensor with 4…20 mA current loop
- Input for a temperature sensor with 4…20 mA current loop
- Two inputs for switching contacts for external alarm sensors.
- A potential-free status signalling contact, e.g. for reporting malfunctions to a higher-level operations control system or via a visual display.
- 6 Inputs for connecting the wireless control receiver (option MaxRemote)

9.1.1 Irradiance and temperature sensor

Please note the following when connecting sensors for irradiance und/or temperature measurement to the expansion port:

- The distance between the sensor and MaxWeb xp should not exceed 50 m. For larger distances the auxiliary MaxMeteo module is required.
- The sensors can be supplied via the integrated 15 VDC / 0.5 A power supply at the expansion port, if required.
- The precision of the measuring inputs is approx. +/- 5% of the full-scale value (measured at 20 mA). Add up the measurement errors for the sensor in order to determine the overall accuracy.
- Only sensors with a 4…20 mA linear measuring signal are suitable for the measuring inputs (e.g. irradiance 4 mA = 0 W/m² … 20 mA = 1,200 W/m²).
- A combined irradiance and cell temperature sensor (Si-420TC-T) with preconfigured measuring inputs is available from Sputnik Engineering. Connect the sensor to the expansion port as follows:

Signal	Wire colour	Expansion port terminal
GND	black	GND
V+	red	V+
Irradiance	orange	AD0
Cell temperature	brown	AD1

- For other sensors adjust the measuring input parameters as required. To this end you need the linear equation for sensor, which is determined as follows:

  Linear equation y(x) = mx + b, with m representing the gradient and b the offset.

  Equation for gradient m:

$$m = \frac{y(20\ mA) - y(4\ mA)}{777.06667}$$

Equation for offset b:

b= y(4 mA) - m*194.2666

Example: Temperature sensor 4…20 mA = –50 °C…+50 °C

$$m = \frac{50 - (-50)}{777.0667} = 0.1287$$

b= (-50) - 0.1287*194.2666 = -75

For the temperature sensor you would therefore have to enter 0.1287 for the gradient and -75 for the offset.

Once the sensors are activated they appear in the system data as “MaxMeteo EP” and are allocated the first free address.

9.2 Configuration

Configure the expansion port for your data logger in the menu *Devices - External devices.* Further information can be found in the electronic help file for your MaxWeb xp.

1. Activate the necessary sensors in MaxWeb xp under Devices / External devices, and enter for each one the offset and the gradient as described above.

2. Click OK to save your entry.

3. Under Devices / Install Devices MaxMeteo is now listed as a device. If necessary you can change the name of the device.

9.3 Inputs for external alarm sensors

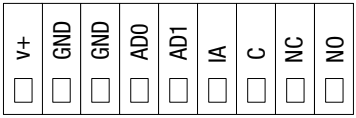
Connect switching contacts as external alarm sensors to the terminals A and B of the expansion port. The alarm sensors can be used for monitoring the function of a fan or an AC isolating switch, for example.

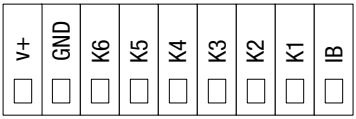
An activated switching contact that is closed continuously during the delay time will trigger an alarm. The alarm is configured under *Alarm settings*. Alarm signals are transferred as “External alarm 1” and “External alarm 2”.

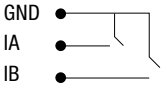
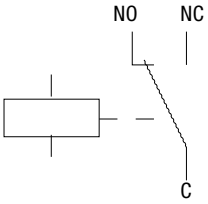
The external alarm inputs are unsuitable for personal protection or safety-relevant applications. Sputnik Engineering cannot accept liability for missing, late or incorrectly transferred alarm signals.

9.4 Terminal assignment expansion port

Expansion Port





Terminal	Function	Signal/Limit values	Connection schema
External alarm inputs			
GND	GND for A und B	for each input open: 15 V closed: < 10 mA	
IA	Alarm input A		
IB	Alarm input B		
Status signalling contact			
C	Reference	maximum switching capacity: AC: 230 V / 1 A DC: 30 V / 1 A	
NC	Closes to C in the event of an inverter fault (no mains supply).		
NO	Closed to C during normal operation or in the absence of communication with the inverter. Inactive state.		
Irradiance and temperature sensors			
GND	GND for V+		
GND			
V+	Supply voltage for sensors at AD0, AD1	15 Vdc / max. 0.5 A	
V+			
AD0	Irradiance	4…20 mA	
AD1	Temperature	4…20 mA	
MaxRemote			
V+	Radio ripple control receiver	15 VDC / max. 0.5 A	
K1-K6	Inputs for reading in the relay statuses	15 VDC	see “Guide MaxRemote”

10 Access data

Parameter	Value
User name for web browser login	admin
Password for web browser	solarmax.com
User name for dial-up connection	maxweb
Password for dial-up connection	solarmax.com
Standard IP for a LAN	http://192.168.1.234
Standard IP for a dial-up connection	http://10.0.0.234

11 Browser compatibility

MaxWeb xp can be used with all standard, current web browsers. Certain elements of the MaxWeb xp interface require JavaScript support. The JavaScript support must be activated in the web browser. MaxWeb xp was tested using the following web browsers:

- Firefox from version 3
- Internet Explorer from version 8

11.1 Useful information for Internet Explorer 6 and 7

The following settings are required for displaying the current system overview, device installation and device monitor:

1. In Internet Explorer open the menu *Tools / Internet Options / General*
2. Click on “Settings” under “Temporary Internet files” (Internet Explorer 7: “Browsing history”).
3. Select “Every visit to the page”.


Settings
Check for newer versions of stored pages:
Every visit to the page
Every time you start Internet Explorer
Automatically
Never
Temporary Internet files folder
Current location:
F:\Documents and Settings\Owner\Local Settings\Temporary Internet Files\
Amount of disk space to use:
2
MB
Move Folder...
View Files...
View Objects...
OK
Cancel

12 SolarMax Service Center

If you have technical questions or difficulties our Service Centre would be happy to help you.

Availability

Monday to Friday from 8.00am to 5.00pm

Calls from:

Germany	+49 180 276 5 276
Switzerland	+41 32 346 56 06
France	+33 4 72 79 17 97
Italy	+39 0362 312 279
Spain	+34 902 160 626
Belgium	+32 2 535 77 32
Czech Republic	+420 222 191 456
Great Britain	+44 208 973 2556
China	+86 21 6182 6799
Other countries	+41 32 346 56 06
Fax	+41 32 346 56 26
Email:	hotline@solarmax.com

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SolarMax®
www.solarmax.com

13 Technical Data

Dimensions (W x H x D)	177 x 102 x 52 mm
Weight without accessories	450 g
Protection class	IP20
Ambient temperature	–20 °C...+40 °C
Input voltage	15 V_{DC}
Max. power consumption	25 W

14 Disposal

MaxWeb xp should be disposed of according to the current disposal regulations for electrical waste applicable at the installation location.

15 Guarantee

Sputnik Engineering AG (hereafter: Sputnik) guarantees full function and lack of defects of its technical devices for a guarantee period specifically defined for each type of device. This guarantee period starts to run at the moment the goods leave Sputnik's factory. Exceptionally, in case of sale of goods to natural persons for non-commercial / private purposes, the guarantee period starts to run only from the time of delivery to the end-Buyer.

Duration of guarantee:

- *two years* for all central inverters and accessories;
- *five years* for all string inverters.

In case a different guarantee period is defined in the device's data sheet, the content of the data sheet precedes these GCBD.

This guarantee applies only in case of malfunctions/defects which have been discovered and notified to Sputnik within the guarantee period. The original invoice respectively the delivery receipt serve as proof for the relevant point of time. In all cases of guarantee, Sputnik must be notified of the inconformity clearly and in writing within the guarantee period.

In guarantee cases, the malfunctioning/defective device will be repaired or replaced by Sputnik-service personnel within a reasonable time, in either case free of charge, unless this is impossible or disproportionate.

Replacement or repair shall be deemed to be *disproportionate* if it imposes costs on Sputnik which, in comparison with the alternative remedy, are unreasonable, taking into account:

- the value the goods would have if there were no lack of conformity,
- the significance of the lack of conformity, and
- whether the alternative remedy could be completed without significant inconvenience to the buyer.

"Free of charge":

- The guarantee covers only the costs for labor and materials used by Sputnik to bring the devices back to full function either in *Sputnik's factory or on-site by Sputnik-service personnel*. All other costs, especially shipping costs, travel and hotel expenses for on-site repairs by Sputnik-service personnel as well as costs of repairs by the buyer himself or other persons are not covered by the guarantee and go to the expense of the buyer or the distributor, unless otherwise specified in a written agreement.
- In case of sale of devices to natural persons for non-commercial / private purposes within the EU and Switzerland, shipping costs as well as travel and hotel expenses for on-site repairs by Sputnik-service personnel are also covered by the guarantee. However, Sputnik covers only the shipping and travel expenses for the distance between Sputnik and the official Sputnik distributor, from which the defective/malfunctioning device was bought. Furthermore, Sputnik will not cover shipping costs, travel and hotel expense if the sales point of this official Sputnik distributor is located in overseas territories of the EU or outside of the EU / outside of Switzerland.

In any case, guarantee-services of Sputnik are only free of charge if Sputnik has been contacted *in advance* and has agreed to the services to be provided.

In a guarantee case, the buyer may require an appropriate reduction of the price or have the contract rescinded:

- if the buyer is entitled to neither repair nor replacement, or
- if Sputnik has not completed the remedy within a reasonable time, or
- if Sputnik has not completed the remedy without significant inconvenience to the buyer.

The buyer is not entitled to have the contract rescinded if the lack of conformity is minor.

Especially in the following cases, this guarantee does not apply and any liability of Sputnik is excluded:

- **unauthorized technical intrusions, modifications or repairs of the devices by the buyer himself;**
- **use of devices for purposes they are not intended for, incorrect or unreasonable manipulation, incorrect or unreasonable installation, especially if the installation is made by non-authorized electricians;**
- **influence of foreign substances/bodies or superior force (lightning strike, overvoltage, floods, etc.);**
- **transport damage and other damage, which has occurred after the point of time in which the risk has passed to the buyer, as well as damage caused by incorrect packaging by the buyer.**

This guarantee is compatible with the *„Directive 1999/44/EC of the European Parliament and of the Council of 25 May 1999 on certain aspects of the sale of consumer goods and associated guarantees“*. Any legal rights under applicable national legislation within the personal, objective or geographic scope of this directive are not affected.

Limitation of Liability and Warranty

To the maximum extent legally possible, any further liability of and/or alternative claims of warranty/guarantee against Sputnik are excluded. For commercial users, compensatory claims for loss of gain are also excluded.

Applicable Law

Unless explicitly agreed upon otherwise in writing, and as far as not in conflict with compulsory law, the material provisions of the UN-Convention on Contracts for the International Sale of Goods (CISG) apply.

Jurisdiction

Unless explicitly agreed upon otherwise in writing, and as far as not in conflict with compulsory law, the exclusive place of jurisdiction for all conflicts with Sputnik based on contractual, non-contractual and/or other types of claims lies in Biel, Switzerland.

21 January 2010

Certificate

Declaration of conformity

EC Declaration of Conformity

for the communication unit

MaxWeb xp

made by

Sputnik Engineering AG
Höheweg 85
CH-2502 Biel/Bienne

This Declaration is our confirmation that the product specified above conforms to the following directives:

- EMC Directive 2004/108/EC
- Low Voltage Directive 2006/95/EC
- Radio & Telecommunications Terminal Equipment Directive 1999/5/EC

The product complies with the following standards:

EMC Emission	EN 55022:	2006
EMC Immunity	EN 55024:	1998+A1:2001+A2:2003
Equipment safety	EN 60950-1:	2006
Health & Safety	R&TTE, Art. 3.1a:	1999
EMC	R&TTE, Art. 3.1b:	1999
Effective frequency spectrum utilisation	R&TTE, Art. 3.2:	1999

The product specified above hence bears the CE mark.

The Declaration of Conformity loses its validity if the product is misused or modified without proper authorisation.

Biel/Bienne, 26.11.2010

Sputnik Engineering AG

Andreas Mader

SolarMax® by Sputnik Engineering

2010/11 en

SolarMax Service Center

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2011/08

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