Installation and operating instructions

IFA router

These operating instructions are part of the product.

▶ Read these operating instructions carefully before use.

▶ keep them over the entire lifetime of the product,

▶ and pass them on to any future owner or user of this product.

EN

Content

Product information

EC declaration of conformity

"This product conforms to the applicable European directives with regard to its design and its operating behaviour. This conformity has been verified. Further information in this regard can be obtained from your dealer."

1   Product description

1.1   Proper usage

The IFA router (Internet remote display router) is a part of the Internet-based digital remote display for the visualisation of a solar thermal system. The IFA router enables the display of temperature and performance data of a solar thermal system in your Internet browser window*. In order to be able to display this data, you will need a PC with Internet connection. For this purpose, the solar thermal controller (referred to below as "controller") regularly transmits its measured values to the IFA router, which prepares the data and forwards it to a server. The server archives the data and generates graphics for the Internet browser. Password-protected server access secures this customer data against unauthorised access.

The current temperature readings of the selected solar energy system are visualised. In addition, the temperature curves are shown in a temperature diagram. When using a heat meter, instantaneous power, energy balances and CO_2 savings are also displayed.

The prerequisites for the Internet-based remote display are a suitable controller and an Internet connection via a broadband router with modem** for the IFA router. The broadband router must have a free LAN port and be continuously connected to the Internet. The controller and the broadband router with modem are not included in the IFA router delivery package.

The IFA router can also send the graphics via the integrated WLAN to a WLAN-capable digital picture frame.

tested browsers: Microsoft Internet Explorer® 6 and 7, Mozilla Firefox® 3.0 and 3.5.

*** DSL, cable modem or another broadband connection. Analogue modems and ISDN are not supported.*

1.2   Components

The remote display consists of the following components:

- A suitable solar thermal controller (not included in the IFA router delivery package)
- RS232 interface cable with 9-pin D-sub socket, 3-wire
- RS232-USB converter with 9-pin D-sub connector, cable with USB connector
- IFA router (ASUS WL-500g Premium V2 with special firmware for remote displays)
- USB flash drive, with firmware for remote displays
- Mains cable for connecting the IFA router to the LAN port of a broadband router
- Broadband router with modem** with continuous Internet connection and a free LAN port (not included in the IFA router delivery package)
- PC or laptop with Internet connection and Microsoft Internet Explorer® 6 or 7, Mozilla Firefox® 3.0 or 3.5 Internet browser (not included in the IFA router delivery package)
- Kodak EasyShare W820 for remote display via WLAN-capable digital picture frames (not included in the IFA router delivery package)

*** DSL, cable modem or another broadband connection. Analogue modems and ISDN are not supported.*

1.2.1   ASUS router with firmware for remote displays

The most important component of the remote display is the ASUS WL-500gP V2 IFA router with a special firmware for remote displays. Since the operating system and application software of the ASUS router have been replaced by firmware, the original manual for the ASUS router is rendered invalid. The technical data of the IFA router as well as the approvals and certifications of the IFA router remain valid.

1.3 Functionality

The controller cyclically sends the current system data to the IFA router, which forwards the data to a central server. This server then displays the data in visualised form on the Internet. The data is embedded into the appropriate system image in the IFA router and the temperature diagram is generated. The system image and the temperature diagram are sent via the wireless LAN interface from the IFA router to a digital picture frame.

WLAN

Digital picture frame

IFA router

Solar controller

Broadband router with modem

Server
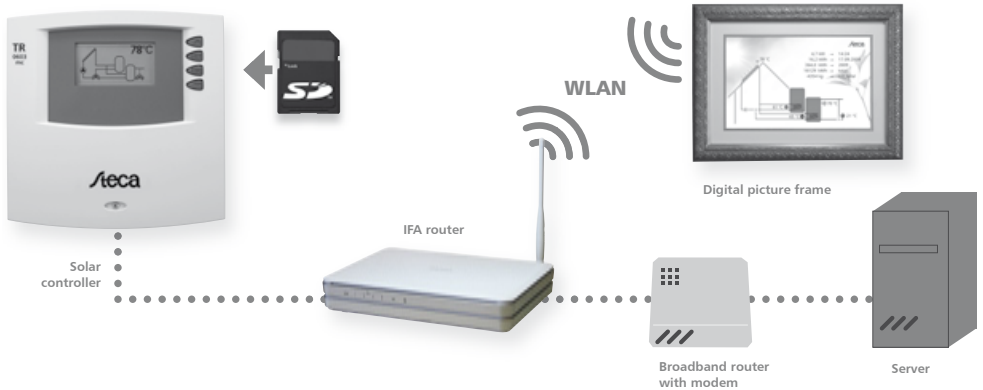
The system image and temperature diagram are shown as follows on the digital picture frame:

1.3.1 System image

Current temperature of sensor T1 [°C] or [°F]

T1: Sensor on terminal 1 of the solar controller
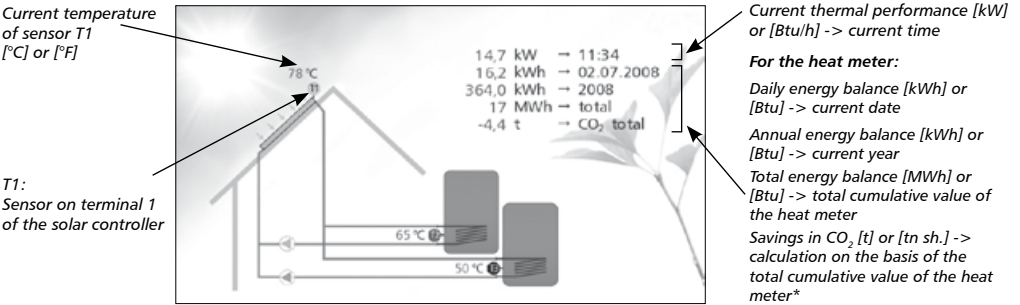

Current thermal performance [kW] or [Btu/h] -> current time

For the heat meter:

Daily energy balance [kWh] or [Btu] -> current date

Annual energy balance [kWh] or [Btu] -> current year

Total energy balance [MWh] or [Btu] -> total cumulative value of the heat meter

Savings in CO_2 [t] or [tn sh.] -> calculation on the basis of the total cumulative value of the heat meter*

* Sources: Renewable Energy Sources in Figures - National and International Development; Federal Ministry for the Environment, Nature Conservation and Nuclear Safety for Europe: CO_2-savings factor 232 g CO_2/kWh_{therm} for North America/Canada: Hawaiian Electric Co., Inc. HECO Residential Rebate Program, Solar water heating system information sheet (2007): 1.918 lbs CO_2 / kWh_{therm}

1.3.2 Temperature diagram

Legend: T1: Sensor on terminal 1 of the solar controller

Temperature curves

Y-axis: Temperature in °C or °F. The scaling is done automatically.

X-axis: Time of day in hh:mm. The scaling is done automatically.

2 Safety

2.1 Dangers during assembly/commissioning

The following risks exist during the commissioning of the router and the picture frame:

- Danger to life due to electric shock caused by a damaged mains adapter plug.
- During work on the controller, the safety instructions for the controller instructions must also be followed.
- Ensure that the permissible ambient conditions at the installation site are maintained.

2.2 Detecting faults

▶ As soon as it becomes evident that safe operation is no longer guaranteed (e.g. visible damage), remove the device from the mains supply immediately.

2.3 Exclusion of liability

The manufacturer can neither monitor the compliance with this manual nor the conditions and methods during the installation, operation, and usage of the devices. Improper installation of the system may result in damage to property and, as a consequence, bodily injury.

Therefore, the manufacturer assumes no responsibility or liability for any loss, damage or costs arising from or in any way related to incorrect installation, faulty performance of the installation work, improper operation as well as wrong use.

Likewise, the manufacturer assumes no responsibility for infringement of patent rights or violations of other rights of third parties arising from the use of the devices.

The manufacturer reserves the right to make changes to the product, technical data or installation and operating instructions without prior notice.

The manufacturer assumes no responsibility for the content of the images uploaded. The responsibility for the content of the uploaded images lies solely with the operator.
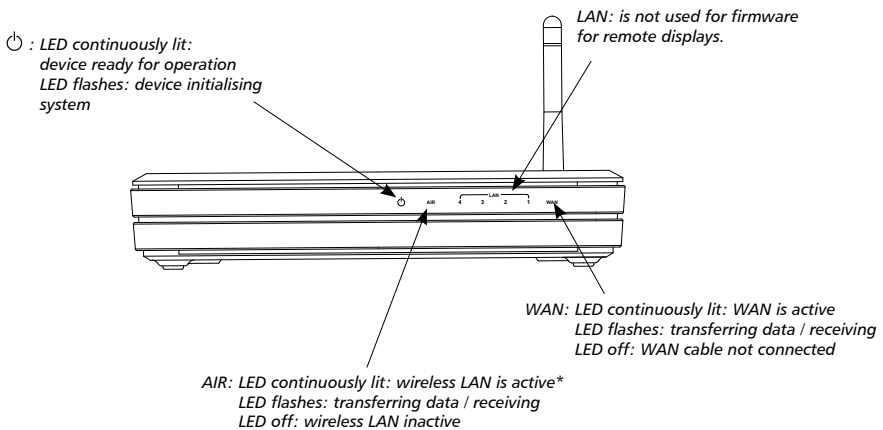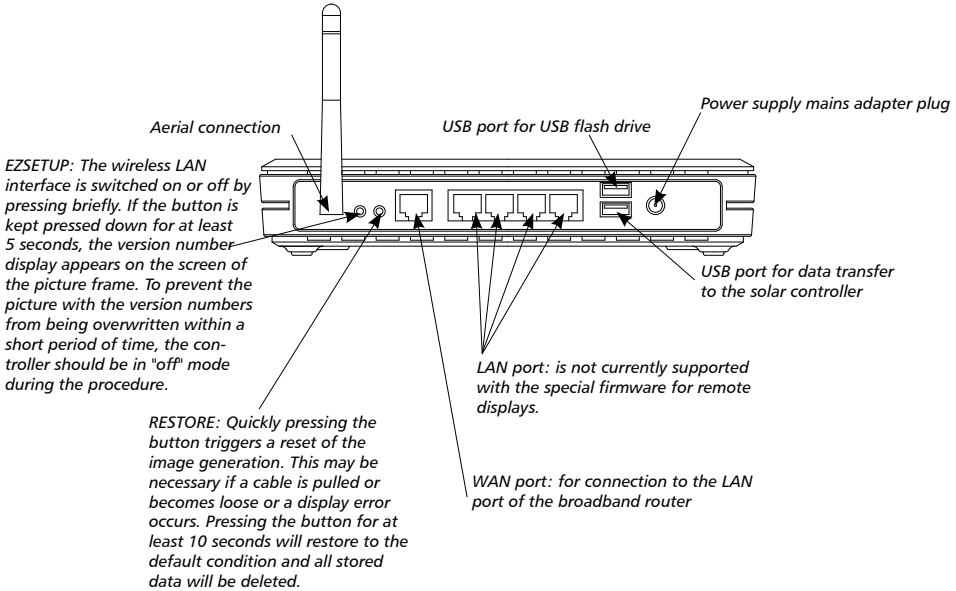
4 About this manual

4.1 Applicability

This manual covers installation, commissioning, and operation of the IFA router for remote display of a solar thermal system. The relevant instructions from the respective manufacturers are to be followed for the remaining components, e.g. broadband router, picture frame and solar control.

4.2 Users

The remote display and the IFA router can be operated by the user by following these instructions.

Use the remote display and the IFA router only after you have carefully read and understood the operating instructions and the safety instructions. Adhere to all safety instructions and consult professional personnel in the event of any ambiguities.

This device is not intended for persons (or children) with physical, sensory, or mental disabilities, or who have inadequate experience and knowledge, unless they were instructed in the proper use of the device and initially supervised by a person who is responsible for their safety. Children should not be left alone with the device, to ensure that they do not play with it.

4.3 Description of symbols

4.3.1 Structure of the warning notices

⚠ SIGNAL WORD

Type, source and consequences of the danger!

▶ Measures for avoiding danger.

4.3.2 Danger levels in warning notices

Danger levels	Likelihood of occurrence	Consequences resulting from non-compliance
⚠ DANGER	Imminent threat of danger	Death, serious bodily injury
⚠ WARNING	Possible threat of danger	Death, serious bodily injury
⚠ CAUTION	Possible threat of danger	Minor bodily injury
CAUTION	Possible threat of danger	Property damage

4.3.3 Notes

NOTE

Note on easier and safer working habits.

▶ Measures for easier and safer working habits.

4.3.4   Other symbols and markings

Symbol	Meaning
✓	Condition for action
▶	Call to action
⇨	Result of action
•	List
Emphasis	Emphasis

5   Mounting and installation

NOTE

Please note the MAC address before mounting. This is on the rear side of the IFA router and is required for registration (see drawing below).

5.1   Mounting the router

The device can be mounted on the wall or the ceiling.

1. Locate the mounting holes on the underside.

2. Mark the two upper holes on the wall or on a raised level surface.

3. Tighten the two screws on the wall far enough that only a residual length of 0.5 cm protrudes.

4. Hook the mounting holes of the ASUS WL-500gP V2 onto the screws.

Reading the MAC address
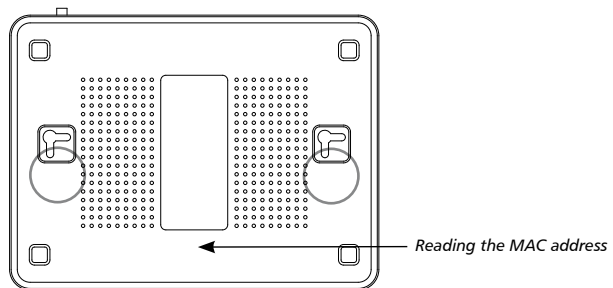
NOTE

Re-align the screws if you are not able to mount the ASUS wireless LAN router, or if it is too loose.

5.2 Installation

In the following, the individual steps for installing the remote display are described. Please follow the sequence.

1. Connect the RS232 interface cable to the controller. Please also see the instructions for the controller. Pay attention to the wire colours.
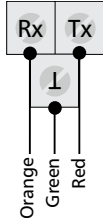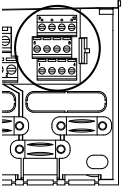
Terminal diagram of the
RS232 interface

⚠ DANGER

Risk of death by electrocution!

▶ Prior to opening the controller casing, disconnect the controller from the mains.

2. Connect the RS232 interface cable to the RS232-USB converter.

3. Plug the USB connector of the RS232-USB converter into the USB port of the IFA router for data transfer.

4. Plug the USB flash drive into the USB port of the IFA router.

5. Mount the antenna on the IFA router (only when using a digital picture frame).

6. Connect the power supply of the IFA router to the IFA router and connect to the mains.

NOTE

The IFA router needs about 1 minute for system initialisation after switching it on. The IFA router is ready for use when both the power LED and the "AIR" LED are permanently lit.

Exception: In the WPA or WPA2 mode, "AIR" will only light up when you try to establish a connection between the picture frame and the IFA router.

7. Connect the controller to the mains.

⚠ DANGER

Risk of death by electrocution!

▶ Make sure that the controller is closed.

8. Please note only when using a digital picture frame: Assemble the digital picture frame and put it into operation. See the Kodak EasyShare W820 user manual and Chapter 7 "Using a digital picture frame: commissioning".

9. Connect the mains cable to the **WAN port of the IFA router** and to the **LAN port of the broadband router**. The address is issued in the IFA router either via DHCP (automatic issue of the IP address) or can be given statically in the configuration file, see Chapter 8.3.

10. Registration: Please contact the seller or specialist dealer and give them the MAC address on the rear side of your IFA router (see drawing Chapter 5.1). You will then receive your access data: your username, password and web address.

6 Internet remote display

6.1 Registration

In order to be able to operate the Internet remote display, you must first register the IFA router. Contact the seller or specialist dealer and give them the MAC address on the rear side of your IFA router (see drawing Chapter 5.1). They will then give you your access data: Your username, display password and a settings password.

Web address:
www.solarthermalweb.de or
www.solarthermalweb.com

Username

Login: Log in
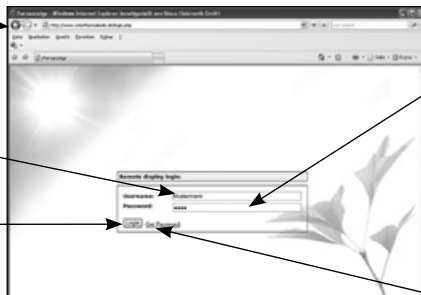
Password:
A display password is given to enable you to display the data. The settings password is required if you wish to make individual settings on the display.

GetPassword:
Click here if you have forgotten your password.

6.2 Displaying the data

In order to display and analyse data on www.solarthermalweb.de or www.solarthermalweb.com, log in with your username and the display password.

The data in the solar energy system is shown in a system image, and in a temperature diagram, see Chapter 1.3.1 "System image" and 1.3.2 "Temperature diagram". With the Internet remote display, the images can be displayed in a slideshow or changed manually.

Logout: Log out

Slideshow on:
the slideshow has been selected. The slideshow is stopped when you press the button.
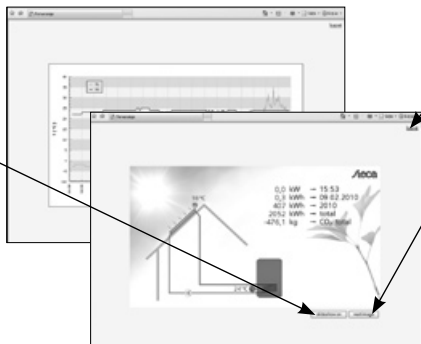
Next image:
The image display is changed manually.

6.3 Settings

With the Internet remote display, the image sequence can be adapted and supplemented with your own images. Log in to www.solarthermalweb.de or www.solarthermalweb.com with your username and the settings password.

Upload additional pictures / logo:
Upload additional pictures, each with a maximum size of 1 MB.

Pictures:
Uploaded image data

Units: Physical units

Web form:
Length of time a picture is displayed during the slideshow

Logo:
Logo from your dealer

Diagram title:
Diagram title of your display

Select inputs for diagram:
Sensor selection

TS Analyzer Files:
Download the measured values for the month

Upload additional pictures / logo: You have the option of showing your own images in the slideshow in addition to the system image and temperature diagram. To do so, the additional images must be uploaded onto the server. To upload an image, select "Image" in the selection window, then click on "Search" to select and upload the required image. The image is added on to the end of the slideshow. You can upload maximum 10 images onto the server, with a maximum image size of 1 MB.

If authorised by the seller or specialist dealer, you can insert your customer-specific logo into the system image. To do so,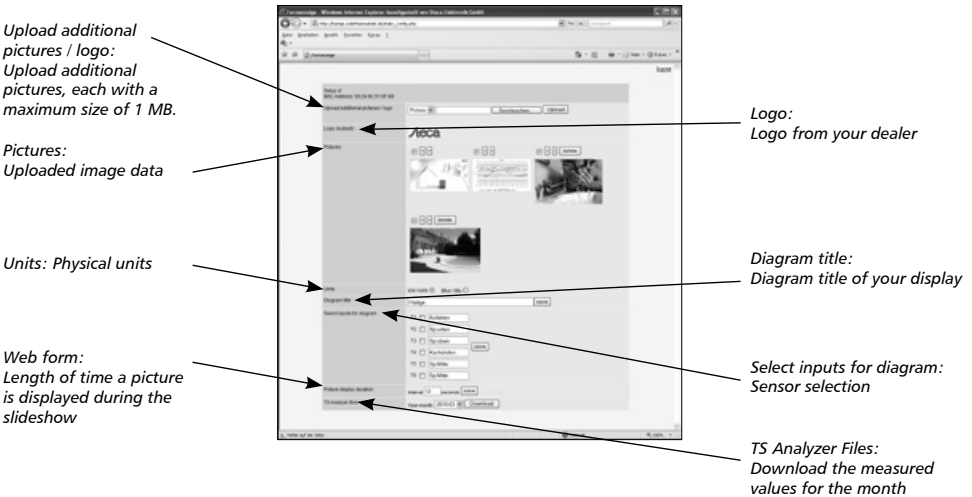 select "Logo" instead of "Image" in the selection window. If you have been blocked from incorporating a customer-specific logo by the seller or specialist dealer, the word "(locked)" will be shown in the "Logo" field.

NOTE

Requirement for the image/logo: only images in the JPEG format can be used. The suffix for each of the images must be "jpg".

Logo: The logo currently displayed is shown.

Pictures: Here, both the system images and all your own images on the server are shown.

The position, and therefore the sequence, of the images in the slideshow can be changed using the "<" and ">" arrow buttons. Press "delete" to delete the image from the server. The checkmark is used to deactivate an image, but the image is not deleted from the server.

Units: The physical units for output and energy can be shown in metric units kW / kWh or in Btu/h / Btu as commonly used in the USA.

Diagram title: A diagram title can be defined which is displayed above the temperature diagram. The required title is written into the line with a maximum of 50 characters, and stored with "save".

Select inputs for diagram: Additional temperature sensors can only be shown in the temperature diagram by setting the control check-mark, and not in the system image. If no sensor has been selected, the standard setting is used, i.e. the solar energy system sensors are shown.

Additionally, individual names can be defined for the temperature sensors and shown in the legend. The required designation is written into the appropriate line with a maximum of 12 characters, and stored with "save".

Web form: The time between two image changes during the slide-show can be set using "Images refresh rate".

TS Analyzer Files: The measured values of the controller which are stored on the server can be downloaded as a ZIP file by pressing "Download". In order to limit the data load of the file, the individual download is restricted to one month.

7 Using a digital picture frame: initial commissioning

The IFA router can also send the graphics via the integrated WLAN interface to a WLAN-capable digital picture frame.

7.1 Commissioning for the first time

When starting the digital picture frame for the first time, please see the Kodak EasyShare W820 user's guide "Getting started".

7.2 Language selection

See the user's guide for the Kodak EasyShare W820 "Getting started", setting the language. Once the language has been selected, the digital picture frame will start looking for wireless networks.

7.3 Wireless network

⇨ *All available wireless networks will be displayed.*

Select the network "TK RW2 Net" and press "OK".

7.4 Safety check

The system performs a safety check. The picture frame indicates that the network is not secured since the delivery status of the remote display is without any preset encryption.

There is no factory preset encryption because no security-relevant information is being transmitted. The message box is closed by selecting "Finish". If you want to encrypt image data, see section 8.3.11, "Wireless LAN encryption".

7.5 Confirming the network connection

A successful connection to the wireless network "TK RW2 Net" is confirmed. The digital picture frame is now asking to install the EasyShare software on the IFA router.

Prompt the installation with "Search now".

7.6 Detected devices

The detected devices are listed. Select "SolarShare" and complete the installation with "FINISHED".

7.7 Setup completed successfully

The successful installation is confirmed again.

The confirmation can be closed from the menu window "[Home]".

7.8 Home

You will see the home page of the setup. To enable the display of the system images, select "Images and videos".

7.9 Images and videos

Available images / videos are displayed. Select "SolarShare" and confirm with "OK".

7.10 SolarShare contents

The contents of "SolarShare" is displayed as a thumbnail. The contents consist of the system image with the current temperature values and the daily diagram.

Either a single image can be displayed or a slide show can be started.

7.11 Single image display

For the single image display, simply select the desired image and confirm with "OK".

This opens the selected image permanently, e.g. the "System image".

7.12 Slideshow

The slideshow is started from the menu window "[Start]". The system image and the daily diagram are displayed alternatingly in 5-second intervals.

In addition, separate images can be embedded in the slideshow (see chapter 10 "Appendix: Adding your own images to a slideshow"). The default duration of the image display is 5 seconds but it can be changed in the setup window of the picture frame.

8 Changing the WLAN settings

If another wireless network is run within range of the IFA router, it may be necessary to change the channel or the network name of the WLAN network in order to prevent faults occurring. In addition, the encryption of the WLAN network can be adjusted as required.

To do this, the configuration file "Config.wri" on the USB flash drive needs to be modified (see section 8.1 "Appendix: configuration file").

NOTE

Config.wri may only be opened with Microsoft® WordPad!

Please note that after changes have been made to the WLAN settings, the network settings of the picture frame need to be re-adjusted.

8.1 Appendix: configuration file

The "Config.wri" configuration file on the USB flash drive contains all settings which can be changed by the end customer.

The file "Config.wri" is located in the directory: Share -> Config.

The "Config.wri" file must be opened with Microsoft® WordPad in order to edit it.

8.2 How to edit the configuration file

▶ The IFA router and digital picture frame have to be disconnected from the mains.

▶ Remove the USB flash drive from the IFA router and plug it into the USB port of a PC.

▶ Open the Config.wri file with Microsoft® WordPad, edit it and save with the same name.

▶ Remove the USB flash drive from the USB port of your PC and plug it into the IFA router.

▶ Connect the IFA router to the mains and wait until it is ready for operation.

▶ Connect the digital picture frame to the mains and make any necessary changes to the settings (see section 7, "Using a digital picture frame: initial commissioning").

NOTE

Config.wri may only be opened with Microsoft® WordPad!

The USB flash drive may not be formatted!

8.3   Contents of the configuration file

;####################################
;### Fernanzeige Konfiguration / Remote display configuration ###
;####################################

;1: Einstellungen bezueglich Fernanzeige / Settings regarding remote display
[FERNANZEIGE_CONFIG]

;1.1: Anlagenbild (aktiv: 1 / inaktiv: 0) / System image (active: 1 / inactive: 0)
system_active = 1

;1.2: Zeittagesdiagramm (aktiv: 1 / inaktiv: 0) / daily time diagram (active: 1 / inactive: 0)
diagram_active = 1

;1.3 Ueberschreibe Bitmaske Eingaenge Diagram / Override bitmask Inputs diagram (T6|T5|T4|T3|T2|T1) ... exp. „0|0|1|1|1|1"
;diagram_bitmask_override = „0|0|1|1|1|1"

;1.4 Ueberschreibe CO2 Faktor / Override CO2 factor
;factor_CO2 = 0.232

;1.5: Diagrammtitel / diagram title (50 Zeichen/50 chars)
diagram_title = „"

;1.6: Texte fuer Diagrammlegende / Texts for diagram legend (12 Zeichen/12 chars)
diagram_t1_text = „T1"
diagram_t2_text = „T2"
diagram_t3_text = „T3"
diagram_t4_text = „T4"
diagram_t5_text = „T5"
diagram_t6_text = „T6"

;1.7: Einheiten im Systembild / units in system image („kw" oder „btu")
system_units = „kw"

;####################################
;### WLAN Konfiguration / WLAN Configuration ###
;####################################

;2: Einstellungen bezueglich Wireless LAN / Settings regarding wireless LAN
[WLAN_CONFIG]

;2.1: WLAN nach Einschalten des Routers ausschalten (ja: 1 / nein: 0) / disable wireless after power on (yes: 1 / no: 0)
wlan_disabled = 0

;2.2: WLAN Netzwerkname / WLAN network name

ssid = „TK RW2 Net"

;2.3: WLAN Kanal (Wert zwischen 1 und 11) / WLAN channel (Value between 1 and 11)

channel = 6

;2.4: WLAN Verschluesselung / WLAN encryption („OPEN", „WEP", „WPA", „WPA2")

encryption = „OPEN"

;2.5: WLAN Passwort / WLAN password (OPEN: „", WEP: 5 o. 13 Zeichen / Chars, WPA/WPA2: 8 - 63 Zeichen / Chars)

passphrase = „"

;######################################
;### WAN Netzwerk Konfiguration / WAN Network Configuration ###
;######################################

;3: WAN Einstellungen / WAN settings

[WAN_CONFIG]

;3.1: Verwendetes Protokoll fuer IP Vergabe („static" / „dhcp")

wan_protocol = „dhcp"

;3.2: Verwendung nur wenn 3.1 „static": Angabe der IP Adresse / Only if 3.1 „static": Declaration of IP address

wan_ip_addr = „"

;3.3: Verwendung nur wenn 3.1 „static": Angabe der Subnetmaske / Only if 3.1 „static": Declaration of subnet mask

wan_netmask = „"

;3.4: Verwendung nur wenn 3.1 „static": Angabe der Gateway Adresse / Only if 3.1 „static": Declaration of gatway address

wan_gateway = „"

8.3.1 System image

;1.1: System image active: 1, inactive: 0

system_active = 1

System_active is preset in the factory to 1, so the system image can be selected and displayed in the digital picture frame.

If system_active is set to 0, the system image cannot be selected in the digital picture frame.

8.3.2 Time diagram

;1.2: Time diagram active: 1, inactive: 0

diagram_active = 1

Diagram_active is preset in the factory to 1, so the daily diagram can be selected and displayed in the digital picture frame.

If diagram_active is set to 0, the daily diagram cannot be selected in the digital picture frame.

8.3.3 Sensor selection for the temperature diagram

;1.3 Override bitmask inputs (T6|T5|T4|T3|T2|T1) e.g. "0|0|1|1|1|1"

;diagram_bitmask_override = "0|0|1|1|1|1"

The selection of the temperature sensors which are shown in the temperature diagram can be changed.

To do so, the semicolon before the phrase "diagram_bitmask_override" must be deleted and a sensor selection must be defined as shown in the example. The selection is defined by six characters which are each separated by a "|". The characters may only have the value "0" or "1"; "0" means sensor "not selected", and 1 means sensor "selected".

In the example "0|0|1|1|1|1", the sensors T1 to T4 would be selected, while T5 and T6 would be deactivated.

If you wish to return to the standard settings, you must re-write a semicolon in front of the phrase "diagram_bitmask_override".

8.3.4 CO2 factor

;1.4 Override CO2 factor

;factor_CO2 = 0.232

If you wish to use another factor than 0.232 Kg/kWh to calculate the CO2 value, this factor can be defined.

To do so, the semicolon in front of the phrase "factor_CO2" must be deleted and a factor defined as shown in the example. The physical unit of the factor is kg/kWh.

If you wish to return to the standard settings, you must re-write a semicolon in front of the phrase "factor_CO2".

8.3.5 Diagram title

;1.5: Diagram title (50 characters)

diagram_title = ""

You can specify a title for the temperature diagram which is shown above the temperature curves. The diagram title is limited to a maximum of 50 characters.

In the factory, the diagram_title is set to "", i.e. no title is defined.

The title is defined by entering characters within the quotations marks, e.g. diagram_title = "My solar energy system"

8.3.6 Diagram legend

;1.6: Texts for diagram legend (12 characters)

diagram_t1_text = "T1"

diagram_t2_text = "T2"

diagram_t3_text = "T3"

diagram_t4_text = "T4"

diagram_t5_text = "T5"

diagram_t6_text = "T6"

Names can be defined for the temperature sensors for the legend in the temperature diagram. The texts for the temperature sensors are each restricted to a maximum of 12 characters.

The legend texts diagram_t1_text...diagram_t6_text are set in the factory to "T1"..."T6".

The names are defined by changing the characters within the quotation marks, e.g. diagram_t1_text = "Collector"

8.3.7 Units for output/energy

;1.7: Units in system image ("kw" or "btu")

system_units = "kw"

The physical units for output and energy can be converted from metric units to those units commonly used in North America.

In the factory, system_units is set to "kw", i.e. the units are shown in W or Wh.

If system_units is set to "btu", the units are shown in Btu/h or Btu.

The unit prefixes, e.g. "k" (kilo), "M" (Mega) etc. are given automatically.

8.3.8 WLAN after turning on the IFA router

;2.1: Disable wireless LAN after power on (yes: 1 / no: 0)

wlan_disabled = 0

Wlan_disabled is preset to 0, so the wireless LAN is automatically enabled after restarting the IFA router.

If wlan_disabled is set to 1, the wireless LAN of the IFA router is inactive after restarting.

8.3.9 Wireless LAN name

;2.2: Wireless LAN name

ssid = "TK RW1 Net"

The ssid is preset to "TK RW2 Net", so the wireless network of the IFA router appears on the picture frame under the name "TK RW2 Net". A change of name requires a new assignment of the network in the digital picture frame.

NOTE

The name must always be given in quotation marks, e.g. "My solar energy system".

8.3.10   Wireless LAN channel

;2.3: Wireless LAN channel (value between 1 and 11)

channel = 6

The factory preset value for channel is set to 6. The value can be changed between 1 and 11.

8.3.11   Wireless LAN encryption

By default, the IFA router is supplied without wireless LAN encryption because no security-relevant information is being transmitted. If desired, the network can be encrypted with WEP, WPA or WPA2.

To do this, the configuration file "Config.wri" on the USB flash drive needs to be modified (see section 8.1 "Appendix: configuration file").

The settings for the wireless LAN encryption are made in "Config.wri", under "Wireless LAN encryption". If a wireless LAN encryption is selected, a password of your choice must be set under "Wireless LAN password". This password is required for access authorisation for the digital picture frame.

NOTE

Config.wri may only be opened with Microsoft ® WordPad!

;2.4: WLAN encryption ("OPEN", "WEP", "WPA", "WPA2")

encryption = "OPEN"

Factory preset value for encryption is "OPEN", so the network is not encrypted.

If the network is to be encrypted, you must set

• encryption = "WEP" for WEP encryption,

• encryption = "WPA" for WPA encryption,

• encryption = "WPA2" for WPA2 encryption.

8.3.12   Wireless LAN password

;2.5: Wireless LAN password (OPEN: "", WEP: 5 or 13 characters, WPA / WPA2: 8 to 63 characters)

passphrase = ""

The factory preset value for the password is " " because the network is unencrypted by default.

If you chose WEP encryption, the password must be entered as a 5-digit or 13-digit password, for example

password = "12345"

If you chose WPA or WPA2 encryption, the password must be entered as an 8 to 63-digit password, for example

password = "12345678"

NOTE

Only use numbers and letters for the password. A distinction is made between uppercase and lowercase letters.

8.3.13 Protocol for IP

;3.1: Protocol used for IP issue ("static" / "dhcp")

wan_protocol = "dhcp"

The protocol is pre-set in the factory to "dhcp". If a fixed IP address is used, the wan_protocol must be set to "static". Then, the IP address must be defined as shown in 8.3.14…8.3.16.

8.3.14 IP address

;3.2: Only if 3.1 "static": Declaration of IP address

wan_ip_addr = ""

If the protocol for the IP issue, as described in 8.3.13, has been set to "static", the IP address must be defined within the quotation marks, e.g. wan_ip_addr = "92.168.1.5".

8.3.15 Subnet mask

;3.3: Only if 3.1 "static": Declaration of subnet mask

wan_netmask = ""

If the protocol for the IP issue, as described in 8.3.13, has been set to "static", the subnet mask must be defined within the quotation marks, e.g. wan_netmask = "255.255.255.0".

8.3.16 Gateway

;3.4: Only if 3.1 "static": Declaration of gateway address

wan_gateway = ""

If the protocol for the IP issue, as described in 8.3.13, has been set to "static", the gateway must be defined within the quotation marks, e.g. wan_gateway = "92.168.1.1".

8.4 Restoring the configuration file

For safety purposes, a copy of the configuration file "Config.wri. backup" is saved in the "Config" directory. If problems occur after editing the configuration file "Config.wri", delete the file "Config.wri" from the config directory and rename the "Config.wri.backup" file to "Config.wri".

9 Appendix: Customised logo

Only with remote display via wireless LAN capable digital picture frames: A customised logo can be stored on the USB flash drive. The logo will be displayed on top right of the system image. The position of the logo is predetermined.

9.1 Requirements to the logo template

The maximum size of the customised logo is 200 x 40 pixels (l x w).

Larger logos must be decreased in size so that they fit into the picture area; this entails a loss of quality! Therefore, please use the specified image size. The width-to-height ratio is maintained!

The suffix for each of the images must be "jpg". The name of the logo file is: "logo.jpg".

9.2 How to apply the customised logo

If there is no logo image in the folder, applying the logo will be ignored.

▶ The IFA router and digital picture frame must be disconnected from the mains.

▶ Remove the USB flash drive from the IFA router and plug it into the USB port of a PC.

▶ Copy the logo file "logo.jpg" into the directory "share -> logo".

▶ Remove the USB flash drive from the USB port of your PC and plug it into the IFA router.

▶ Connect the IFA router to the mains and wait until it is ready for operation.

▶ Connect the digital picture frame to the mains and make any necessary setting changes.

NOTE

The USB flash drive may not be formatted!

10 Appendix: Adding your own images to a slideshow

You can add your own pictures to those in the remote display. They are then displayed alternatingly in the slideshow.

10.1 Requirements to your own pictures

- only images in the JPEG format can be used. The suffix for each of the images must be "jpg".
- The size of the picture frame is 800 x 450 pixels. Deviations from the image size can lead to loss of quality!
- The picture sizes should not exceed 100 kB, otherwise it may lead to longer loading times.
- The names 1_system.jpg and 2_diagram.jpg are in use by the remote display and cannot be chosen for your own images, otherwise they will be overwritten.

10.2 Procedure for inserting your own images

- The IFA router and digital picture frame must be disconnected from the mains.
- Remove the USB flash drive from the IFA router and plug it into the USB port of a PC.
- Copy your own images into the "share/images" folder.
  Attention: The only supported format is JPEG!
- Remove the USB flash drive from the USB port of your PC and plug it into the IFA router.
- Connect the IFA router to the mains and wait until it is ready for operation.
- Connect the digital picture frame to the mains and make any necessary setting changes.

11 Error search

The IFA router is a quality product and is designed for many years of continuous use. Should, however, a fault occur, the cause of the fault is often not the IFA router itself but the peripheral system components. The following description of some causes of problems should help the installer and operator to isolate the problem so that the system can be repaired as quickly as possible and to avoid unnecessary costs. Of course, not all possible problems can be listed here. Here you will find the most common causes of problems that cover the majority of possible faults. Only return the IFA router when you are absolutely sure that none of the problems listed below is responsible for the fault.

11.1 General error sources with the IFA router

Problem	Cause / Remedy
The time display in the system image is not updated or the message "Note: the IFA router is waiting for data from the solar controller. Please check the cable connection between the solar controller and the IFA router should there be no graphic display shown within 90 seconds!" is displayed.	Interruption of the serial connection between the controller and the IFA router. Please check the cable connection! Try resetting with the restore button.
Message "Fault: No or wrong USB flash drive inserted!".	You may only use the supplied USB flash drive. After inserting the correct USB flash drive while the device is still switched on, you may have to do a "Reset".
Message "Fault: No USB-RS232 adapter found".	Please verify that the USB serial adapter is plugged into the IFA router! After installing the adapter, you may need to do a "Reset".
Message "Fault: Incorrect software version. Please contact your specialist dealer".	The controller is sending data that is incompatible with the router version. Contact your distributor and state the two 3-digit identification numbers S: and A: ( ) on your USB flash drive and the specific firmware of the solar thermal controller (displayed in Off mode, see the solar controller operating instructions).
The logo is not displayed.	The logo must have the name "logo.jpg" and must be created in the JPEG format. It must be located on the USB flash drive in the "share\Logo" directory. By default, no logo is displayed!
"Note: Maintenance work on the router… please wait" or "Note: File system check... please wait".	The IFA router is independently conducting cleaning/maintenance work! This message usually appears daily between 00:00 and 00:15 a.m., and automatically disappears again. On no account should you pull the plug! If the message appears outside of this time period, an error has occurred. If this is the case, re-start the device!

11.2 Error causes with the picture frame

Problem	Cause / Remedy
Wireless network not found.	• Is the IFA router in operation? • Is the maximum distance to the IFA router being exceeded?
The "SolarShare" network computer cannot be found.	Can occur if you try to reconnect an existing connection. 1. Restart the IFA router and wait until the power LED is lit. 2. Switch on the picture frame and restart the network if necessary.
The wireless LAN connection is very slow, even though the picture frame is located within range of the WLAN.	The selected wireless LAN channel is already used by other devices. The wireless LAN channel can be changed with the USB flash drive of the router (see Chapter 8, "Changing the wireless LAN settings").
When setting the wireless LAN connection, the warning message appears that the connection is not secured.	By default, the wireless LAN connection is not encrypted. This allows all persons who are within range of the wireless LAN network to log into the IFA router and look at the pictures. In order to avoid this, the encryption can be activated (see Chapter 8 "Changing the WLAN settings").

11.3 Causes of faults in the IFA router

Problem	Cause / Remedy
The time in the system image and the diagram remains the same! The starting image "Remote display account successfully activated!" is shown, even though the remote display has been put into operation.	• Check the Internet connection. • If the IFA router is being operated behind a firewall, ensure that the port 5204 has been released for outgoing connections! Operation via a proxy server is currently not possible! Check whether the serial connection between the controller and the router is functional.
The web sites www.solarthermalweb.de or www.solarthermalweb.com cannot be accessed, even though the Internet is functioning!	A server error has occurred. Please contact your seller or specialist dealer.
When I want to log on, I receive the error message: "Account currently inactive! Please try again later or call your distributor".	Your account has been deactivated! Please contact your seller or specialist dealer.
When I want to log on, I receive the error message "Login failed!"	Ensure that you are using the correct access data! Please use the correct subdomain or www.solarthermalweb.de or www.solarthermalweb.com, in order to log on with your account.
You receive an error message when uploading an image (picture/logo) and the image cannot be uploaded.	Only images in the Jpeg format can be uploaded. Please observe the restricted file size of 1 MB per image.
Not possible to upload a logo.	To upload your own logo, the function must be authorised by the seller or specialist dealer! Please contact your seller or specialist dealer.

12 Legal guarantee

In accordance with European regulations, there is a 2-year legal guarantee on this product for the customer.

The seller will remove all manufacturing and material faults that occur in the product during the legal guarantee period and affect the correct functioning of the product. Natural wear and tear does not constitute a malfunction. No legal guarantee can be offered if the fault can be attributed to third parties, unprofessional installation or commissioning, incorrect or negligent handling, improper transport, excessive loading, use of improper equipment, faulty construction work, unsuitable construction location or improper operation or use. Legal guarantee claims shall only be accepted if notification of the fault is provided immediately after it is discovered Guarantee claims are to be directed to the seller.

The seller must be informed before guarantee claims are processed. For processing a guarantee claim an exact fault description and the invoice/delivery note must be provided.

The seller can choose to fulfil the legal guarantee either by repair or replacement. If the product can neither be repaired or replaced, or if this does not occur within a suitable period in spite of the specification of an extension period in writing by the customer, the reduction in value caused by the fault shall be replaced, or, if this is not sufficient taking the interests of the end customer into consideration, the contract is cancelled.

Any further claims against the seller based on this legal guarantee obligation, in particular claims for damages due to lost profit, loss-of-use or indirect damages are excluded, unless liability is obligatory by German law.

13 Technical data

ASUS WL-500g Premium V2	
Power	AC input: 100V ... 240V~ (50 ... 60 Hz); DC output: +5 V, max. 2.5 A
Frequency	2.4 ... 2.5 GHz
Data transfer rate	802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
Range	40 m indoor, outdoor (line of sight) 600 m at 11 Mbps* 25 m indoor, outdoor (line of sight) 150 m at 54 Mbps*
Output power	802.11g: 15 ... 19 dBm**
Sensitivity	-72 to -74 dBm @ 54 Mbps** -85 to -87 dBm @ 11 Mbps** -94 to -96 dBm @ 1 Mbps **

The range may vary depending on environmental conditions.

** *In a normal temperature range.*

14   Notes

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