

Advanced Energy® AE SiteLink

Installation and troubleshooting

June 2015



English Hi Logout

Dashboard Statistics



Plant overview

- AEI 1TL Demo Site 4
- AEI 3TL Demo Site 1
- AEI 3TL Demo Site 2
- AEI 3TL Demo Site 3
- AEI PV Heater Demo Site...

Welcome REFU Gastzugang! You have successfully logged in.

Overall info

Income	619,423 €
Total energy	1,404,380 kWh
Reduced CO ₂	772 t
Actual power	20.1 kW
Daily energy	54.2 kWh
Generator output	246.74 kWp
Nr of plants	4
Nr of inverters	16
Nr of heating plants	1

Map



List of plants

Plants Heating plants

Plant name	Postal code	Town	Generator output	AC power	Daily energy	Daily energy normalized	Income	Status
AEI 1TL Demo Site 4	72581	Dettingen	2.40 kWp	- W	- kWh	- Wh/Wp	1,835 €	✓
AEI 3TL Demo Site 1	72555	Metzingen	155.60 kWp	8,375.8 W	21.3 kWh	0.14 Wh/Wp	557,253 €	✓
AEI 3TL Demo Site 2	72116	Mörsingen	8.46 kWp	1,038.9 W	2.7 kWh	0.32 Wh/Wp	9,262 €	✓
AEI 3TL Demo Site 3	72581	Dettingen	78.12 kWp	10.7 kW	29.1 kWh	0.37 Wh/Wp	51,073 €	✓

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1. The monitoring portal AE SiteLink

1.1. GENERAL INFORMATION

Any operator of a photovoltaic plant focuses his attention on the yield of the plant. He is therefore primarily interested in ensuring and monitoring the operability of the plant.

To facilitate remote monitoring of system performance and vital statistics, we have established our internet-based monitoring portal SiteLink. This portal allows you to make comprehensive evaluations and comparisons. For example, you can compare predicted and actual plant yields given insolation and temperature data from field located sensors.

Wherever you have access to the internet, you just have to enter your login data to monitor your photovoltaic plant.

The following advantages are offered by SiteLink:

- Configuration of plants and subplants: easy incorporation of the AE inverters through a unique activation code, location data, plant-specific data, photo of the plant.
- Display of current parameters for each plant and each inverter: overall yields, daily yields (absolute and standardized), AC/DC output (absolute and normalized), AC/DC voltage, AC/DC current, AC frequency, device temperature, and additionally insolation and cell temperature values.
- Display of the plants and inverters in clearly arranged lists for easy comparison.
- Graphical and tabular evaluation of historic data (day, month, year and overall views, display of all plant and inverter parameters, combination of several channels in one diagram by means of a user configurable display).
- User Management
- Overview of plant locations on an interactive map.
- Multilingual capability of the entire application with location specific presentation of numerical values and date formats.
- No additional data logger required.

1.2. DESIGNATED USE

AE SiteLink is an internet-based monitoring portal for photovoltaic plants. This portal allows you to make comprehensive evaluations and comparisons. For example, you can compare predicted and actual plant yields given insolation and temperature data from field located sensors.

Any other use is considered improper.

1.3. TECHNICAL REQUIREMENTS

- An activation code for each inverter is required. This is usually next to the type plate. Otherwise it can be obtained through the Service.
- If the inverter is AE IMC PMU controlled, it must be configured. See manual http://www.advanced-energy.com/images/REFUsol/BA_REFUPMU_EN.pdf.
- Without AE IMC PMU, the inverter must be integrated into the home or office network.
- Port 80 must be open on the network.

- You have to create your plant in AE IMC SiteLink.

AE SiteLink works with the following web browsers:

- Internet Explorer (version 9.0 or above)
- Mozilla Firefox (version 2.0 or above)
- Opera (version 8.5 or above)
- Apple Safari (version 3.0 or above)
- Google Chrome

JavaScript and cookies must be activated within the browser, to ensure that all application functions can be used.

1.4. IMPORTANT NOTES

In general, The General Terms of Delivery of AE are applicable.

This document may be revised and updated if necessary. Nevertheless, actual product features may differ from those listed here.

For this reason, we cannot give any warranty on completeness. The current version can be downloaded at http://www.advanced-energy.de/de/1TL_3TL_Downloads.html or is available through the usual distribution channels.

Warranty and liability claims in case of damage of any kind are excluded if they are attributed to one or more of the following causes:

- Improper or inappropriate use of AE SiteLink.
- Unauthorized modification of the product.
- Operation of the product in violation of the legal provisions valid at the place of use.
- Failure to observe the warnings and safety-related guidelines in all documents relevant to the product.
- Natural disasters.
- Hardware and software not procured from AE is subject to the particular manufacturer's license and liability agreements.
- Maloperation of the product under the influence of connected or adjacent devices (hardware) and software .
- The use of AE Site Link is not free!
- Current prices are available on request from AE.

2. Installation

2.1. HARDWARE INSTALLATION



Note

AE SiteLink is an internet-based monitoring portal for photovoltaic plants. You can customize your hardware and network connection, depending on the number of inverters existing in the local network and depending on the structure of an existing network (LAN) .



Note

Configuration of the network requires special IT knowledge. Please consult your network administrator or contact your IT provider.

Network hardware is not contractually part of AE SiteLink.

2.2. ACTIVATION CODE

The activation code is usually next to the type plate. Otherwise it can be obtained through the Service.

2.3. NETWORK CONFIGURATION

To connect the inverter to your network via Ethernet port 80 must be enabled on the router.

Proceed to automatically integrate the inverter via DHCP in the network as follows:

1. Navigate at the display of inverter to Configuration > Communicaton > Ethernet > DHCP.
2. Enter value „1“ at DHCP

If DHCP is not activated the following additional data is necessary:

- IP Adress Network
- usable, free IP address (es)
- Subnet Mask
- IP Adress of the router



Note

Firewall, router and proxy server must be set so that it does not interfere with communication between the inverter and the AE Site Link.

Determine network settings:

Select in Windows XP "the DOS Command Prompt" Click **Start Menu**, and Programs/accessories:



Fig. 1: Windows XP Command Prompt

Select in Windows 7 the "DOS Command Prompt"

- "Click **Start Menu**, type "cmd" in the search box, hold down the **Shift key** and right-click on cmd.exe. Choose **Run as administrator** from the context menu.

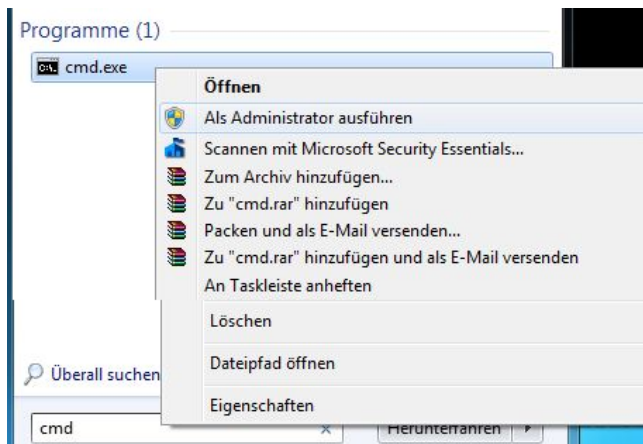


Fig. 2: Windows 7 Command Prompt

At the prompt type "ipconfig /all", so you get the network assigned IP addresses and configuration.

```

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : 
    Description . . . . . : Realtek PCIe GBE Family Controller
    Physical Address. . . . . : 1C-6F-65-A7-67-C7
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . . : fe80::b153:8599:3a49:a1b1%11(Preferred)
    IPv4 Address. . . . . : 192.168.231.22(Preferred)
    Subnet Mask . . . . . : 255.255.254.0
    Lease Obtained. . . . . : Monday, December 17, 2012 9:17:52 AM
    Lease Expires . . . . . : Tuesday, December 18, 2012 2:18:36 PM
    Default Gateway . . . . . : 192.168.230.17
    DHCP Server . . . . . : 192.168.230.7
    DHCPv6 IAID . . . . . : 236744549
    DHCPv6 Client DUID. . . . . : 00-01-00-01-15-67-00-2D-1C-6F-65-A7-67-C7

    DNS Servers . . . . . : 193.105.185.51
                           193.105.185.52
                           193.231.252.1
    NetBIOS over Tcpip. . . . . : Enabled
  
```

Fig. 3: Find IP addresses

Write down the following settings from your router:

Default(Standard) Gateway: 192.168.230.17

Subnet Mask: 255.255.254.0

With this information, select the IP address for each inverter, keeping the same format as the

Standard Gateway. For example:

Inverter 1: 192.168.230.200

Inverter 2: 192.168.230.201

2.4. IP ADDRESS SETTING ON THE INVERTER

The following settings must be made on the inverter:

- Ethernet or RS485

- Desired IP address of the inverter
- Subnet mask of the inverter
- Default Gateway
- Activation of the portal monitoring
 - ⇒ For details, please refer to the manual of your inverter.
 - ⇒ In case of problems please first contact your system administrator.

2.5. INVERTER TEST CONFIGURATION

To test the communication between the inverter and AE Site link, proceed as follows:

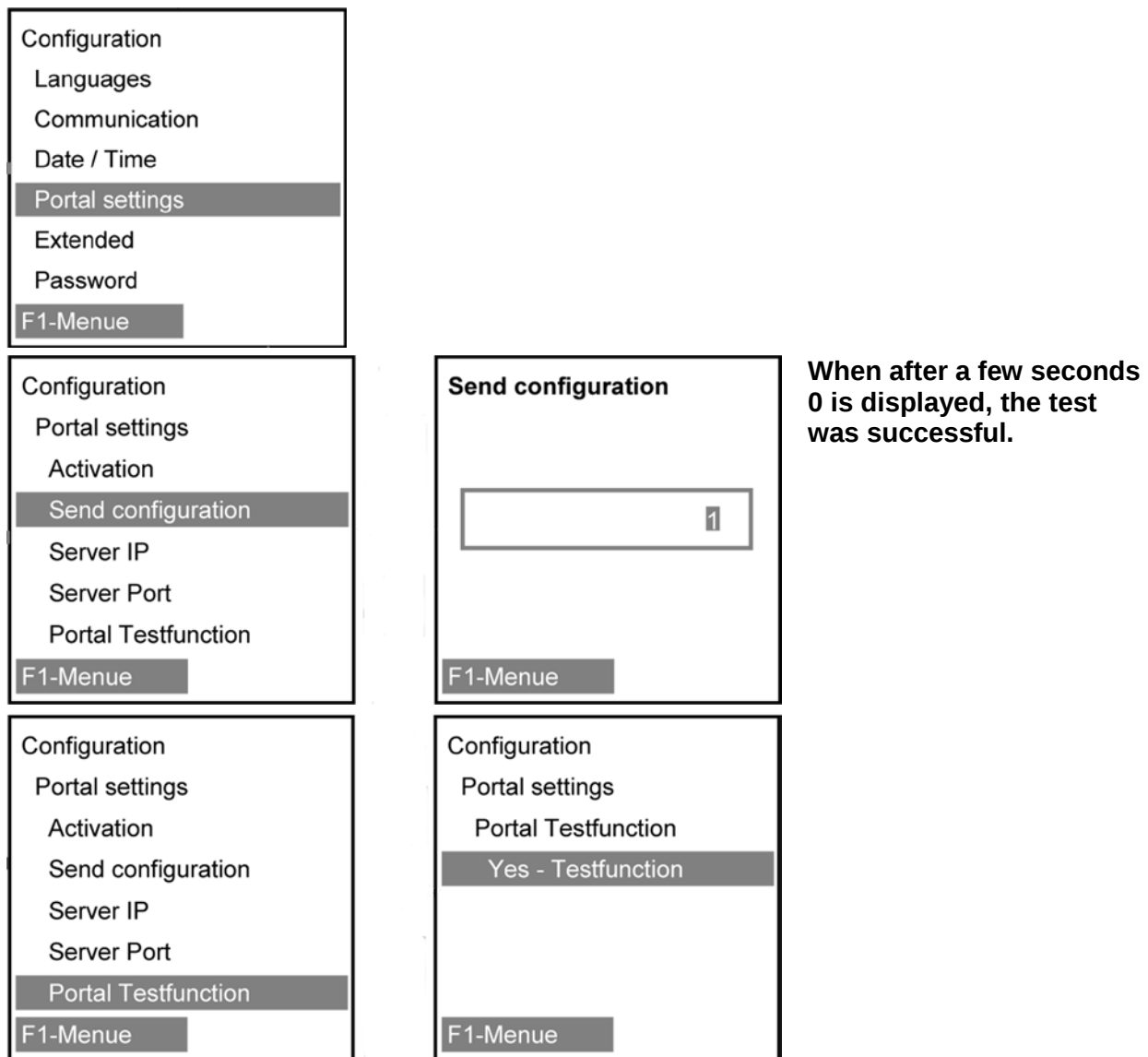


Fig. 4: Inverter test configuration

If the red hourglass go out after 5-10Sekunden, the data were transmitted.
The success of the test can only be confirmed by the AE-service.

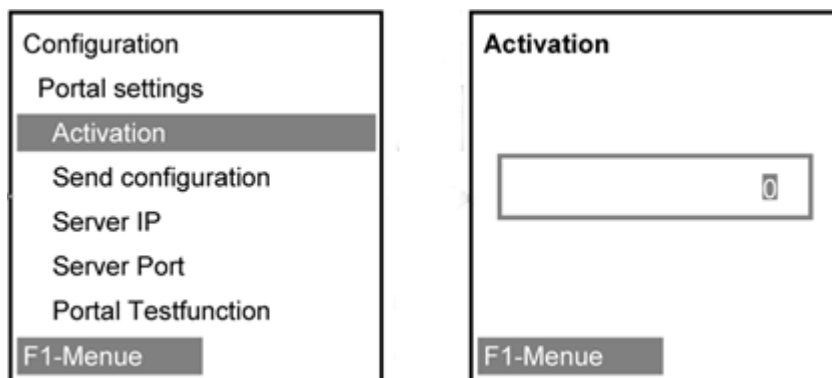


Fig. 5: Activation

For communication via RS485 (AE IMC PMU) "0" appears in the activation, for communication via Ethernet "1" appears.

2.6. CONNECTION OF INVERTERS TO THE SITELINK PORTAL WITH AE IMC PMU

Connect your PC with the AE IMC PMU. For the manual and configuration tools for AE IMC PMU see http://www.advanced-energy.de/de/1TL_3TL_Downloads.html.

With the menu item "Configuration" opens the submenu "Portal data forwarding". By enabling the forwarding of the yield data of / the Inverter to the AE Site Link Directory is released.

Here you can set how often the AE IMC PMU should send the yield data to the portal. Default is a 5 minute interval; this can be increased as needed.

With the button "Portal Test", the connection is checked. When set correctly, an acknowledgment is "test successful".

Note



If no data forwarding to the AE Site Link Directory is desired, disable the functionality "Portal data forwarding". The portal test only works when the Ethernet interface is configured correctly and the AE IMC PMU is connected to the Internet.

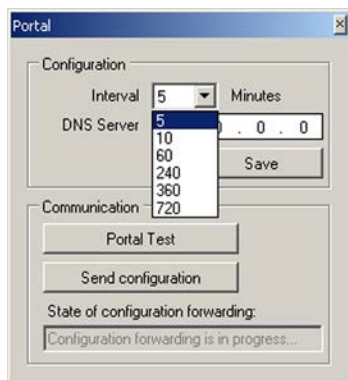


Fig. 6: Interval configuration / portal test portal for data forwarding

To accept the settings, the changes must be saved.

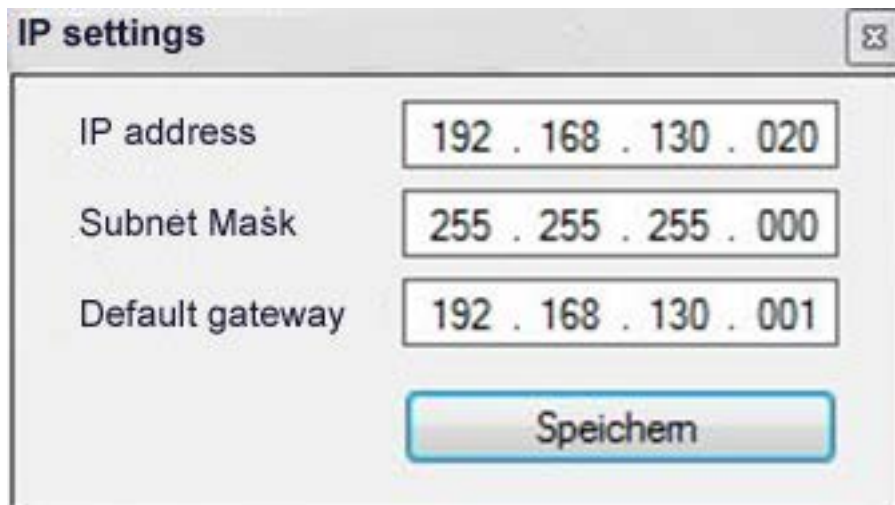
Communication

With the menu item "Configuration" opens the submenu "communication", in which two options are available: Ethernet or RS485.

Ethernet

Here the IP settings such as the IP address, subnet mask, and default gateway of the AE IMC PMU made or changed.

Factory setting (default state), of the AE IMC PMU:



The image shows a software window titled "IP settings" with a close button in the top right corner. Inside the window, there are three input fields for IP configuration: "IP address" with the value "192 . 168 . 130 . 020", "Subnet Mask" with the value "255 . 255 . 255 . 000", and "Default gateway" with the value "192 . 168 . 130 . 001". Below these fields is a button labeled "Speichern" (Save).

Fig .7: IP standard-settings of AE IMC PMU

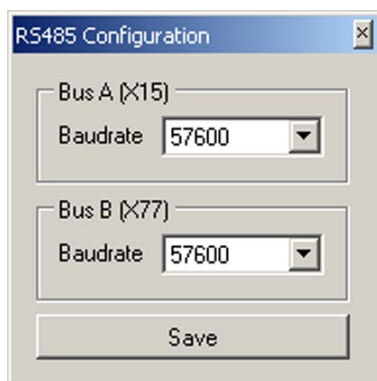
RS485

When configuring the RS485 port, the baud rate of the AE IMC PMU must be selected. By default, a baud rate of 57600 is set. We recommend using this!



Note

It must be ensured that the same baud rate is set to the AE IMC PMU and the inverter!



The image shows a software window titled "RS485 Configuration" with a close button in the top right corner. Inside the window, there are two sections: "Bus A (X15)" and "Bus B (X77)". Each section has a "Baudrate" dropdown menu, both of which are set to "57600". At the bottom of the window is a button labeled "Save".

Fig 8: IP settings of AE IMC PMU

Bus A meets the connector X15 on the AE IMC PMU.

Bus B corresponds to the connector X77 on the AE IMC PMU.

We recommend for both interfaces a baud rate of 57600 baud.

To accept the settings, the changes must be saved.

2.7. ROUTER PORT 80 RELEASE

Our inverters send the data to port 80 on our REFULOG portal. Therefore, port 80 must be enable on the router. More Information on how to unlock port-80, can be found on the router manufacturer homepage (or instructions manual).

Here we have attached an example:

Connect with your router.

Fig. 9: Port release

Enable the port forwarding for port 80.

Enter the IP address, in our example the inverter IP address is: **10,104,120,200**

Specifying the IP address is not mandatory.

2.8. REGISTRATION FOR AE SITELINK

This step can be carried out either prior to or subsequent to commissioning of the photovoltaic plant. The data already sent by the inverter to AE SiteLink do not get lost.

You can register on our homepage aesitelink.de. Click on the "Register" button and enter the required data.

After a short time, you will receive an e-mail from the AE SiteLink server for validation purposes. Click on the validation link embedded within the email to continue the validation process. This e-mail also contains your registration data which will then allow you to register with aesitelink.de **after** the validation. You should change the default password immediately after the first registration under user settings.

2.9. CONFIGURING THE PLANT IN AE SITELINK

After registering with AE SiteLink the page "Add plant" is opened. Enter your data completely and correctly; otherwise various monitoring fields will deliver incorrect values. If you do not know some of the data, contact AE service or your solar installer.

After the photovoltaic plant and the AE inverters have been correctly configured, any data that might have been sent before will be applied to the AE SiteLink monitoring portal.

The time until all data is transferred depends on the network quality.

Add plant

General information

Plant name

Max Muster Solar

Description

- 76kWp Plant
- 330 Modules
- Panel Manufacturer
- 4 RefuSol 20K Inverter

Owner

Max Muster

If a plant is marked public it will appear in the list of plants that can be viewed by everyone without logging in. Production information will be accessible but income and location details will not.

☐ Is plant public

Plant location data

Street

Uracher Straße 91

Postal code

72555

Town

Metzingen

Country

Germany

Auto-detect longitude and latitude

Latitude

48.5

Longitude

9.3

Auto-detect time zone using latitude and longitude

Time zone

Europe/Berlin

Generator/panel data

Panels

230W

Power temperature coefficient

-0.34 %/°

Orientation

0

Tilt

36

Area

10000 m²

Feed-in tariff

0.33 EUR

Fig. 10: Page „Add plant“

Once the photovoltaic plant has been successfully created, the individual inverters must be added to the plant via the "+ Inverter" menu item. To activate an inverter, the activation code of the particular inverter and the generator output connected to the inverter must be entered in the corresponding fields. If you wish, you can assign a name to the inverter.

Inverter (inverter)

Option: If you use several AE inverters in the the same postal address, you can add subplants to the configured plant via the "+ Subplant" menu item. For example, subplants can be different building roofs. Please note that these subplants must be created **before** you activate the inverters.

Add inverter

Inverter information

Name

☐ Use serial number as name

Activation Code [?]

--

i

A correct activation code is formed like this:
- #### - #####
Example: 123456789012 - 1234 - 123456789012345

Generator output

kWp

Add

 or

Cancel

Fig. 11: Adding inverter with activation code

3. Troubleshooting

3.1. CHECKLISTS

If the plant or individual inverters fail to send data to the AE SiteLink portal, the following checklist may help you to find the root cause.

3.1.1. Inverter via Ethernet to AE SiteLink

⇒ Observe the instructions in the user manual of the inverter.

If an error occurs, note in addition to the manual the following checklist to find the root cause:

Test point	Description
Cables	All cables must be checked for damage and kinks. Damaged cables must be replaced.
Connectors	The cables must be firmly connected to the connectors (strain relief). The connectors must be inserted properly and firmly (remove and re-insert connectors).
Ethernet cable connection	The cables must be properly connected. Ethernet: 1:1 S/FTP cables, max. 100 meters in length
Cable routing	Signal cables should not be placed too closely to current-carrying lines
Date and time	Set date and time to local time
Portal monitoring	The portal monitoring function must be activated
Ethernet connection	LAN Anschluss konfigurieren: • <u>Assign a unique IP</u> address • Assign the correct SubnetMask • Enter the Standard Gateway IP
Portaleinstellungen	The portal settings are: • IP = 88.79.234.30 • Port: 80 • URL: www.aesitelink.de
Test communication	Activate testfunction at inverter: ⇒ Configuration > Portal Testfunction > Yes-Testfunction The hour glass must be displayed for approx. 2 to 10 seconds and must disappear thereafter. • Shorter = was confirmed with ENTER • Longer = no internet connection • Then contact the AE Service Desk to find out whether the data package was successfully transmitted to the portal.
Configuration transmission	Check whether the device configuration has already been sent to the portal.
Data logger	The data logger must be activated.

Failure memory	Are critical messages displayed (see manual)?
Reactivation	Is the inverter reactivated automatically?

If it was not possible to complete the portal test successfully, check the following items:

Check using a laptop:

Test point	Description
Connection to router	Using command "ping IP-ROUTER", check the physical connection to the router.
AE Portal	Check whether the portal can be reached in the browser: • http://88.79.234.30 • www.aesitelink.de
Internetroute	DOS command: „tracert 88.79.234.30“ The portal IP address must be reached. The error message "Host not reachable" is correct since the "ping" is disabled for AE.
Data packages	Check the network traffic during the portal test using a network "sniffer" program: • Sent by AE Inverter • Answered by AE SiteLink

Checks on switch, firewall and router:

Test point	Description
Connect LED	The Connect LED at the port of the network device to which the inverter is connected must be lit. The Traffic LED must flare up repeatedly.
Network connection	The network device (hub, switch or router) should be set to 100 Mbits full duplex.
Computer account	Does a device require a computer account to be connected to the internet?
Internet restriction	Allow AE IMC PMU for the Internet
Port opening	Open port 80
Rule created for portal	Set up TCP/IP Request at 88.79.234.30 Port 80 as a rule
ARP Table	Has an IP been assigned to the inverter MAC address?
Log-tables	Check all log tables of the network devices • Switches • Firewall • Router
Web connections	Check the connections to the web using the "route PRINT" DOS command.
Firewall IP packets	The IP packets of the inverter must be routed to the internet at the firewall.

The latest failure report is at storage location S0, the oldest one at S100. A new failure report is always stored to storage location S0. As a result, the failure report at storage location S100 gets lost.

Parameters for configuring the inverter:

Parameter no.	Designation	Description
P 405.2	Inverter activation	• Defines whether the inverter is automati-

		cally activated with sufficient DC voltage • 3 = default value
P 407.3	Protocol	• Defines the protocol at the particular interface • 1 = REFU, SOLARLOG, Weblog • 2 = SOLARLOG (applicable only to older firmware) • 3 = MeteoControl
P 450.0	Data logger	• Defines the data logger • 0 = off • 1 = on
P 451.0	Data logger time interval	• Defines the time interval (60 / 300 / 600 sec.) at which values are stored by the data logger • 600 = default value
P 472.0	Config transmission	• Defines the transmission of configuration data • 0 = no config transmission in the queue • 1 = config data is transmitted
P 473.0	Portal monitoring	• Defines whether the inverter sends data to AE SiteLink • 0 = communication via RS485 bus • 1 = communication via RJ45 Ethernet



Hinweis

After entering data switch off the inverter for at least 30 seconds and switch it on again!

3.1.2. Inverter via AE IMC PMU to AE SiteLink

You need the following manual for the connection of a inverter via AE IMC PMU to AE SiteLink:

- AE Inverter
- AE IMC PMU (Power Management Unit)

If an error occurs, note in addition to the manual the following checklist to find the root cause:

Test cables:							
Testpoint	Description						
Cables	All cables must be checked for damage and kinks. Damaged cables must be replaced.						
Connectors	The cables must be firmly connected to the connectors (strain relief). The connectors must be inserted properly and firmly (remove and re-insert connectors).						
Cable connection RS485	The cables must be connected properly. With cable extensions, the wires must not be interchanged. <table><tr><th>Plug Inverter</th><th>PMU X77</th><th><u>or</u> X15</th></tr><tr><td>empty</td><td>1. empty</td><td>1. empty</td></tr></table>	Plug Inverter	PMU X77	<u>or</u> X15	empty	1. empty	1. empty
Plug Inverter	PMU X77	<u>or</u> X15					
empty	1. empty	1. empty					

	Pin 2 = +	2. X	2. X
	Pin 3 = -	3. X	3. X
	empty	4. empty	4. empty
Bus termination	For bus termination „X14 Out“: 1-2 and 3-4 bridge		
Surge Protection	Primary to the X77 should be used because a surge protector is integrated there.		
Cable routing	Signal cables should not be placed too closely to current-carrying lines		

Switch on the inverter and check:

Test point	Description
Date and time	Set date and time to local time
Portal monitoring	The portal monitoring function must be deactivated.
RS485 port	To configure the interface, select menu: Configuration > Communication > RS485 • USS adress once per channel = „1“ bis „31“ • Protocol = „1“ • Baud Rate = „57600“
Configuration transmission	Check whether the device configuration has already been sent to the portal.
Data logger	The data logger must be activated.
Failure memory	Are critical messages displayed (see manual)?
Reactivation	Is the inverter reactivated automatically?
Power reduction	Transmitted power reduction?

Switch on AE IMC PMU and check with PMUvis:

Test point	Description
Date and time	Set date and time to computer time
AE IMC PMU functionality	AE IMC PMU configuration ☒ AE IMC PMU main switch ☒ Power reduction ☒ Portal data forwarding
Power reduction	- Make relay configuration as specified by energy suppliers - Simulation power reduction by connecting of „X18 Pin 1“ to X17 Pin 2“ = 30 % (in the Default)
Ethernet	Configuration: IP, SubnetMask, StandardGateway
RS485	For BUS A and Bus B set Baud Rate „57600 Baud“
Portal test	Check with „Portal test“ the connection Result: „Test successful“ else Network error
Users overview	Extras: The users overview must show all connected inverters

When unsuccessful portal test, the following checks can help:

Test point	Description
Connection to router	Using command "ping IP-ROUTER", check the physical connection to the router.
AE SiteLink Portal	Check whether the portal can be reached in the browser: - http://88.79.234.30 - www.aesitelink.de
Internetrouter	DOS command: "tracert 88.79.234.30" The portal IP address must be reached. The error message "Host not reachable" is correct since the "ping" is disabled for AE.
Data packages	Check the network traffic during the portal test using a network "sniffer" program: - Sent by AE IMC PMU - Answered by AE SiteLink

Checks on switch, firewall and router:

Test point	Description
Connect LED	The Connect LED at the port of the network device to which the in-verter is connected must be lit. The Traffic LED must flare up repeatedly.
Network connection	The network device (hub, switch or router) should be set to 100 Mbits full duplex.
Computer account	Does a device require a computer account to be connected to the internet?
Internet restriction	Allow AE IMC PMU for the Internet
Port opening	Open Port 80
Rule created for portal	Set up TCP/IP Request at 88.79.234.30 Port 80 as a rule
ARP Table	Has an IP been assigned to the inverter MAC address?
Log-tables	Check all log tables of the network devices

	• Switche • Firewall • Router
Web connections	Check the connections to the web using the "route PRINT" DOS command.
Firewall IP Pakete	The IP packets of the inverter must be routed to the internet at the firewall

Parameters for configuring the inverter:

Parameter-Nr.	Bezeichnung	Beschreibung
P 405.2	Inverter activation	• Defines whether the inverter is automatically activated with sufficient DC voltage • 3 = default value
P 406.3	USS Adress	• Defines Adress of interface • Values from 1 to 31 possible
P 407.3	Protocol	• Defines the protocol at the particular interface. • 1 = REFU, SOLARLOG, Weblog • 2 = SOLARLOG (applicable only to older firmware) • 3 = MeteoControl
P 420.3	Baudrate	• Baudrate of interface RS485 • 57600= default
P 450.0	Data logger	• Defines data logger • 0 = off • 1 = on
P 451.0	Data logger time interval	• Defines time interval (60 / 300 / 600 sec.) in which stores the data logger values • 600 = default value
P 472.0	Config transmission	• Defines the transmission of configuration data • 0 = no config transmission in the queue • 1 = config data is transmitted
P 473.0	Portal monitoring	• Defines whether the inverter sends data to AE SiteLink • 0 = kommunikation via RS485 bus • 1 = kommunikation via RJ45 Ethernet
P 1162.0	Power limitation	• Defines power limitation via AE IMC PMU • Value is displayed in 0/00

**Note**

After entering data switch off the inverter for at least 30 seconds and switch it on again! After each opening of the RS485 bus, set AE IMC PMU dead and restart.

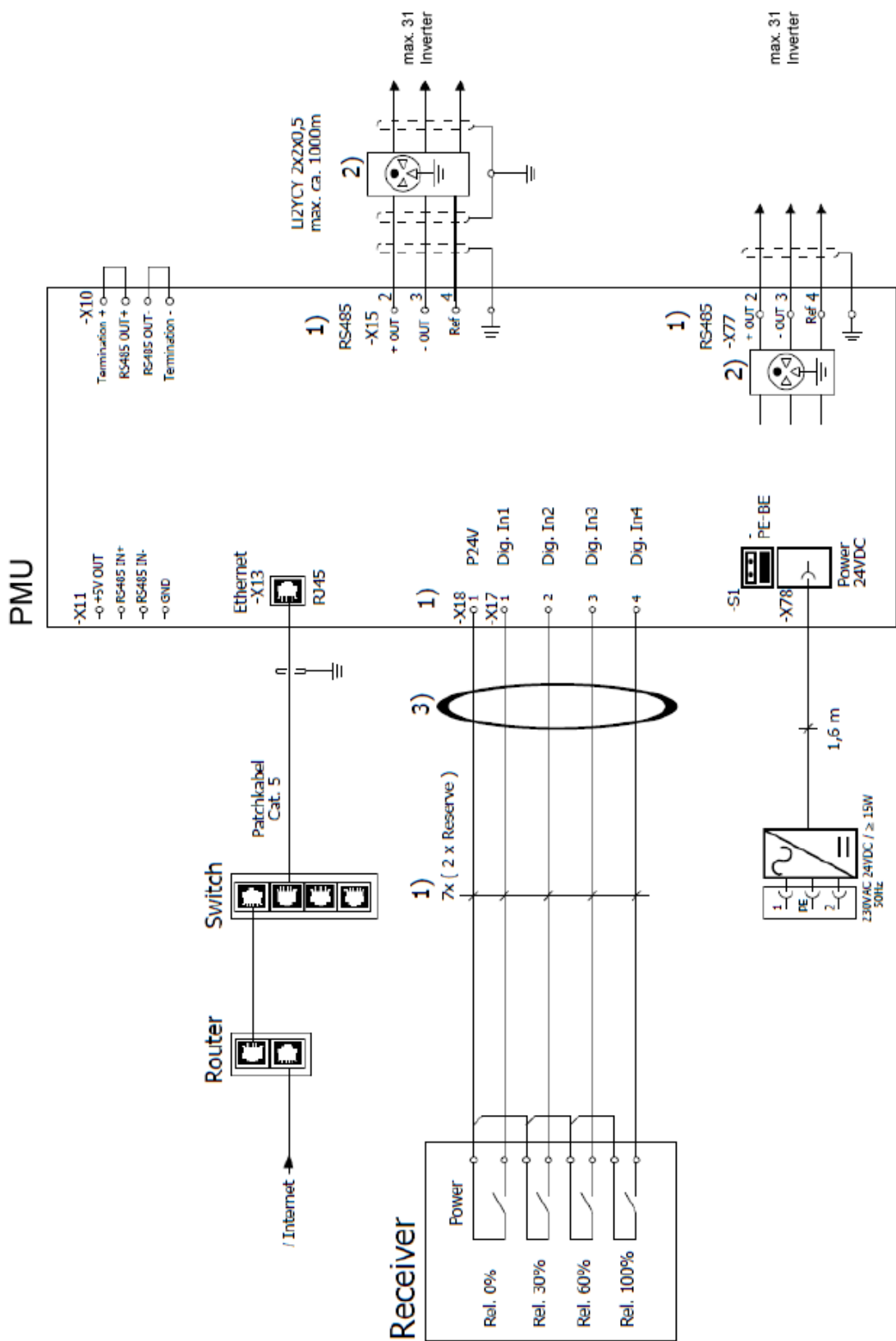


Fig. 12: AE IMC PMU (REFUpmu)

3.1.3. Checklist inverter via external data logger

The following manuals are required for connecting the inverter via an external data logger (third-party provider):

- AE inverter
- External data logger

In addition to the manuals, the sections below provide a troubleshooting summary to support you in case of a communication failure:

Primary to support you in case of a communication failure:						
Test point	Description					
Undamaged cables	All cables must be checked for damage and kinks. Damaged cables must be replaced.					
Connectors	The cables must be firmly connected to the connectors (strain relief). The connectors must be inserted properly and firmly (remove and re-insert connectors).					
Cable connection RS485	The cables must be properly connected. Ensure wires are correct in cable extensions. Properly connect the cable shield to the metal connectors and ensure the inverter is grounded. <table><tr><td>Inverter connector</td></tr><tr><td>Unassigned</td></tr><tr><td>Pin 2 = +</td></tr><tr><td>Pin 3 = -</td></tr><tr><td>Unassigned</td></tr></table>	Inverter connector	Unassigned	Pin 2 = +	Pin 3 = -	Unassigned
Inverter connector						
Unassigned						
Pin 2 = +						
Pin 3 = -						
Unassigned						
Bus termination	For bus termination "X14 Out": Bridge 1-2 and 3-4					
Cable routing	Signal cables should not be placed too closely to current-carrying lines.					

Switch on the inverter and check:

Test point	Description
Date and time	Set date and time to local time
Portal monitoring	The portal monitoring function must be deactivated.
RS485 port	To configure the interface, select menu Configuration > Communication > RS485 • USS adress once per channel = „1“ bis „31“ • Protocol = „1“ • Baud rate = „57600“
Configuration transmission	Check whether the device configuration has already been sent to the portal.
Data logger	The data logger must be activated.
Failure memory	Are critical messages displayed (see manual)?
Reactivation	Is the inverter reactivated automatically?

Commercially available data loggers in cooperation with AE

Test point	Description
Date and time	Set date and time to computer time
Firmware version	Install the latest version.
RS485 port Solar-Log	Only one inverter manufacturer may be connected to a bus connection. If you intend to connect two different manufacturers, ensure bus separation (connectors A and B).
Inverter scan	• If necessary, delete the inverter list at the Solar-Log by a reset or reset the Solar-Log to the factory settings. • Re-scan the inverters to register them. • If necessary, connect only one inverter and carry out a scan (do not forget the bus termination).
Inverter list	The overview of participants must display all inverters.
Display	The Solar-Log must display the same values as the inverters.
Ethernet to internet	The configuration of IP, SubnetMask and StandardGateway depends on the existing network.

Check MeteoControl®:

Test point	Description
Date and time	Set date and time to computer time
Firmware version	Install the latest version.
RS485 port Meteocontrol	Only one inverter manufacturer may be connected to the bus connection.
Inverter scan	• If necessary, clear the inverter list at the Web' log by a reset or reset the Web' log to the factory settings. • Re-scan the inverters to register them. • If necessary, connect only one inverter and carry out a scan (do not forget the bus termination).
Inverter list	The overview of participants must display all inverters.
Display	The Web' log must display the same values as the inverters.
Ethernet to internet	The configuration of IP, SubnetMask and StandardGateway depends on the existing network.

If it was not possible to complete the portal test successfully, make the following checks:

Test point	Description
Connection to router	Using command "ping IP-ROUTER", check the physical connection to the router.
AE SiteLink Portal	Check whether the portal can be reached in the browser: • http://88.79.234.30 • www.aesitelink.de
Internet route	DOS command: "tracert 88.79.234.30" The portal IP address must be reached. The error message "Host not reachable" is correct since the "ping" is disabled for AE.
Data packages	Check the network traffic during the portal test using a network "sniffer" program:

	• Sent by AE IMC PMU • Answered by portal
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Checks on switch, firewall and router:

Prüfpunkt	Beschreibung
Connect LED	The Connect LED at the port of the network device to which the inverter is connected must be lit. The Traffic LED must flare up repeatedly.
Network connection	The network device (hub, switch or router) should be set to 100 Mbits full duplex.
Computer account	Does a device require a computer account to be connected to the internet?
Internet restriction	Allow AE IMC PMU for the Internet
Port opening	Open Port 80
Rule created for portal	Set up TCP/IP Request at 88.79.234.30 Port 80 as a rule
ARP Table	Has an IP been assigned to the inverter MAC address?
Log tables	Check all log tables of the network devices: • Switch • Firewall • Router
Web connections	Check the connections to the web using the "route PRINT" DOS command.
Firewall IP packets	The IP packets of the inverter must be routed to the internet at the firewall.

This inverter parameters are used to set or to check the configuration of the inverters:

Parameter-Nr.	Bezeichnung	Beschreibung
P 405.2	Inverter activation	• Defines whether the inverter is automatically activated with sufficient DC voltage • 3 = default value
P 406.3	USS Adress	• Defines Adress of interface • Values from 1 to 31 possible
P 407.3	Protocol	• Defines the protocol at the particular interface. • 1 = REFU, SOLARLOG, Weblog • 2 = SOLARLOG (applicable only to older firmware) • 3 = MeteoControl
P 420.3	Baudrate	• Baudrate of interface RS485 • 57600= default
P 450.0	Data logger	• Defines data logger • 0 = off • 1 = on
P 451.0	Data logger time interval	• Defines time interval (60 / 300 / 600 sec.) in which stores the data logger values • 600 = default value
P 472.0	Config transmission	• Defines the transmission of configuration

		data • 0 = no config transmission in the queue • 1 = config data is transmitted
P 473.0	Portal monitoring	• Defines whether the inverter sends data to AE SiteLink • 0 = communication via RS485 bus • 1 = communication via RJ45 Ethernet
P 1162.0	Power limitation	• Defines power limitation via AE IMC PMU • Value is displayed in 0/00

**Note**

After completed entry, switch off the REFUSOL[®] and switch it on again after approx. 1 minute.

Whenever the RS485 bus has been opened, the data loggers must be de-energized and restarted!

4. Contact

Please address any questions on malfunctions or technical problems to:

Service hotline: +49 (0)7123 / 969 – 202 (Monday – Friday, 8 a.m. to 5 p.m)

E-mail: service.aei-power@aei.com