Power Monitor / Power Monitor 51A

Power Monitor Manager software user manual

Weidmüller

1.1 Revision history

Version	Date	Change
00	04/2015	First edition

1.2 Contact address

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Table of contents

2. Introduction

2.1 Scope

This manual describes several functions of the Power Monitor Manager software. The installation, communication and basic setup as well as the functions are shown and explained. Troubleshooting for known issues is also integrated.

2.2 Copyright and trademark

- Modbus Protocol is a communication protocol developed by Modicon Inc. for PLC. Modbus is the registered trademark of Schneider Electric.
- All other company names or product names that may be mentioned in this publication are trademarks or registered trademarks of their respective owners.

2.3 Requirements

Software

- Install the enclosed Power Monitor Manager software, version 1.20 and S/E-Converter Administrator.
- Power Monitor software needs the Microsoft .NET Framework 4.0 to run.

Ethernet connection

- Connect the Serial/Ethernet Converter to your local Ethernet or directly to your computing device via an RJ45 cable.
- Make sure you are in the same IP range as the Serial/Ethernet Converter.
- The default IP of the Serial/Ethernet Converter is 192.168.1.110.

Others

- Make sure you have administrator rights on the computer.
- Make sure the computer and Serial/Ethernet Converter are in the same network sector.

2.4 RS485 communication

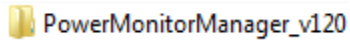
Please refer to our Power Monitor Manual for more information. You can download it in our product catalogue.

3. Installation

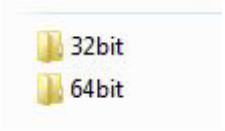
STEP 1 Download the "Power Monitor Manager 51A" software.

Downloads	
Manual	German (PDF), English (PDF)
Package insert	English (PDF)
Quick reference guide	Operation with S-/E-Converter; English (PDF)
Software	Power Monitor Manager; vers. 1.20 (EXE)
Declaration of Conformity	German (PDF)
Tools	Description ModBus registers (XLS)

STEP 2 Unzip the file.



STEP 3 Select the correct folder for your OS. You can check this in Windows Start Menu <System control> <System>.

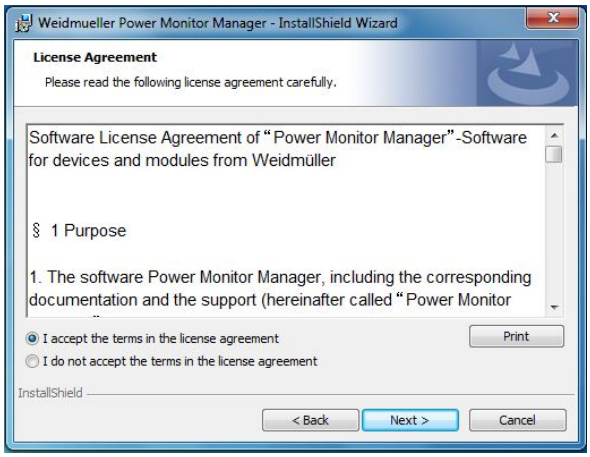


STEP 4 Run "setup.exe".

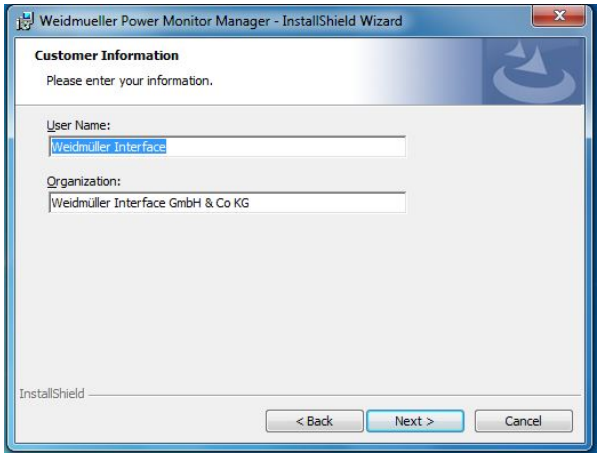
STEP 5 Select your preferred language.

STEP 6 Click on [Next].

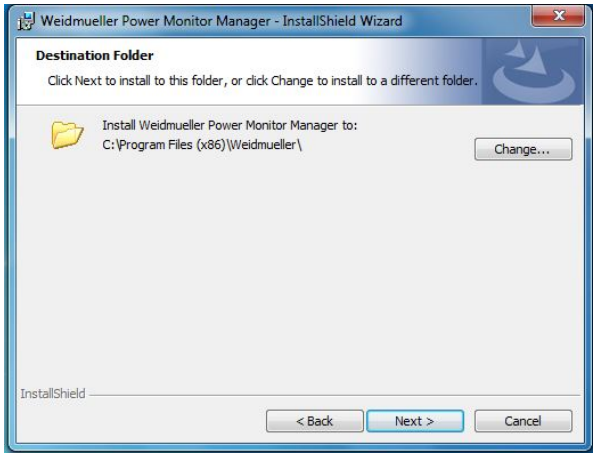
STEP 7 Read and accept the terms in the license agreement then click on [Next].



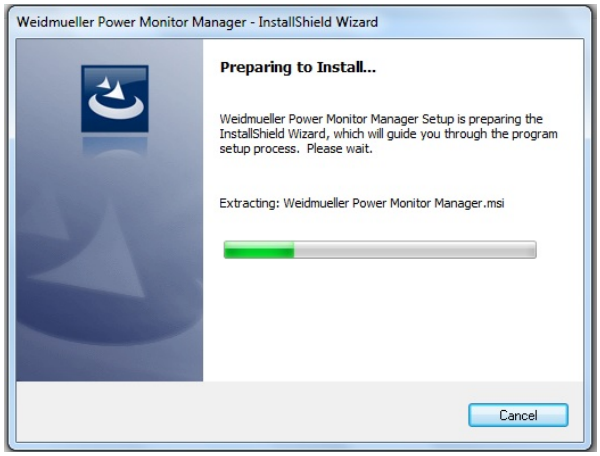
STEP 8 Enter your user name and your organization and click on [Next].



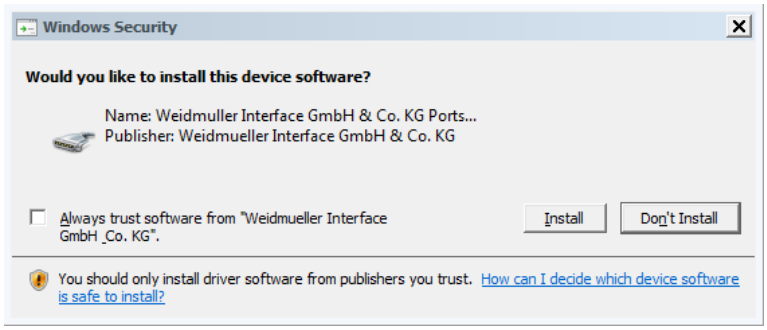
STEP 9 Click on [Change] to change the destination folder if needed and click on [Next] when ready.



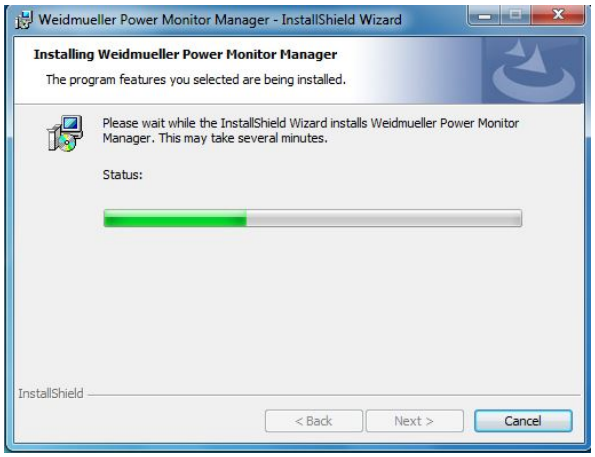
STEP 10 The installer will now install the software.



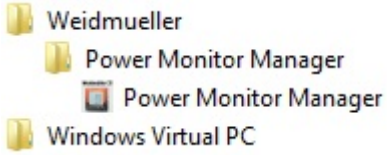
STEP 11 If your system asks you to install the driver, click on [Install].

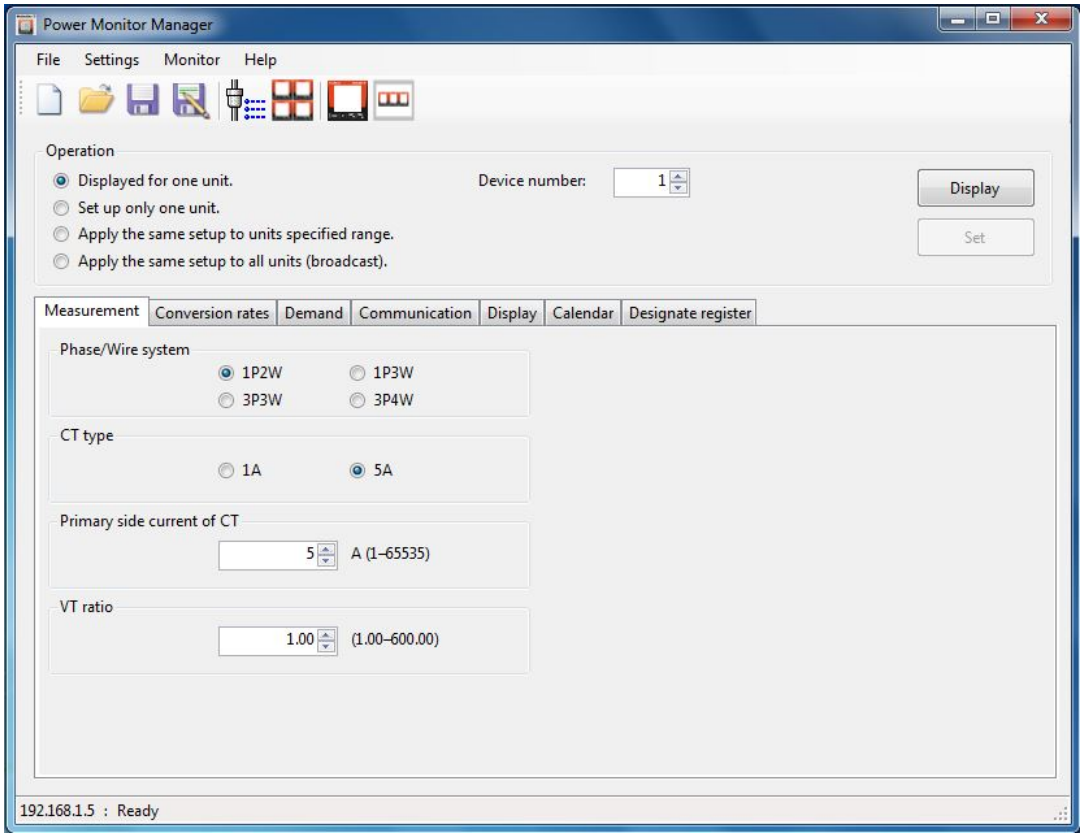


STEP 12 Wait until the installer has finished the installation.



STEP 13 Start the application. You can find it in the Windows Start Menu folder "Weidmueller".



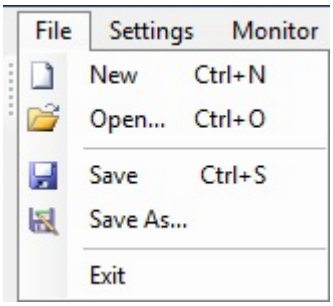


4. Toolbars

This chapter describes the function of the toolbars and buttons.

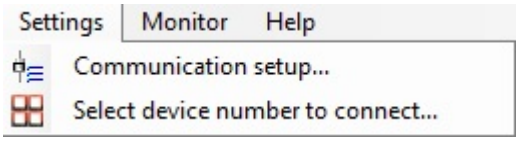
4.1 File

The dropdown menu "File" provides all the basic actions to create, open and save your settings.



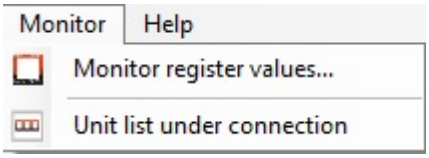
4.2 Settings

In this menu you can choose your preferred communication setup and the number of devices you would like to connect to.



4.3 Monitor

The "Monitor" menu shows you the current data and the status of the connected devices. You can also save your data.



4.4 Help

In this menu you can find the current version and the license information.

4.4.1 New

Creates a new file with standard parameters

4.4.2 Open

Opens a saved file with the saved parameters

4.4.3 Save

Saves the current parameters

4.4.4 Save as

Saves the current parameters in a ".wmpm" file in the chosen path

4.4.5 Communication setup

Opens the communication setup window, where the communication parameters are defined

4.4.6 Select device number to connect

Opens the window where the number of devices to connect to is shown.

4.4.7 Monitor register values

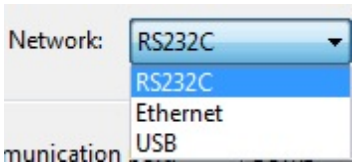
Monitors the current values of the selected variables and logs them to a ".csv" file.

4.4.8 Unit list under connection

Shows the connection status of the connected devices

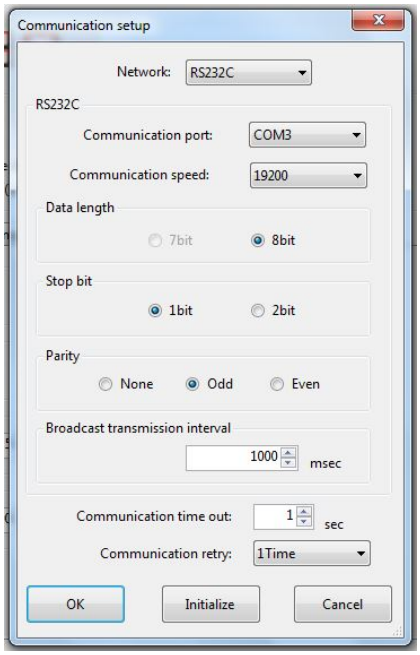
5. Connection/Communication

There are three different types of communication with the Power Monitor. You can communicate via RS232C, Ethernet or via a USB connection.

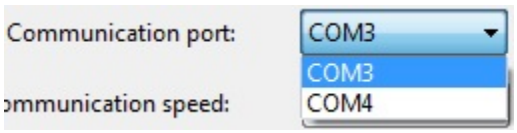


5.1 RS232C communication

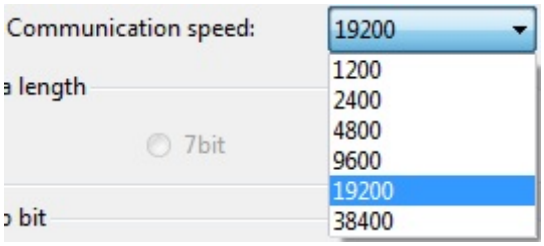
Clicking on  [Communication setup] and choosing RS232C as Network opens this window, where you have multiple options for configuring your communication type. For RS232C communication, you need a Serial/Ethernet converter like the Weidmüller "IE-CS-2TX-1RS232/485". If you already have one, please configure it as described in the Power Monitor quick guide (document number 1502950000).



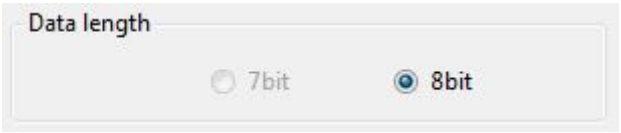
Select the configured communication port.



Select the configured communication speed (Baud rate).



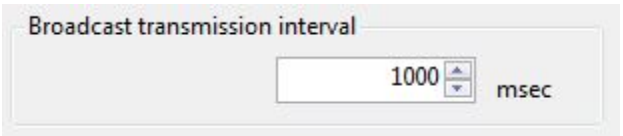
Set the data length.



The previously configured stop bit length can be selected here.

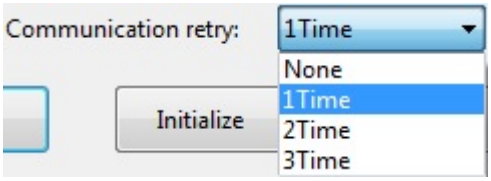
In the same way as the Stop bit, the parity bit can be selected here as configured with the Serial/Ethernet Converter.

Set the required broadcast transmission interval (range 0 to 65535).

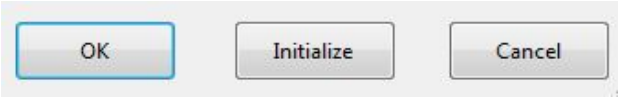


Select the duration of a communication timeout until a system response (range 1 to 99).

Set the number of system retries in the event of a communication timeout.



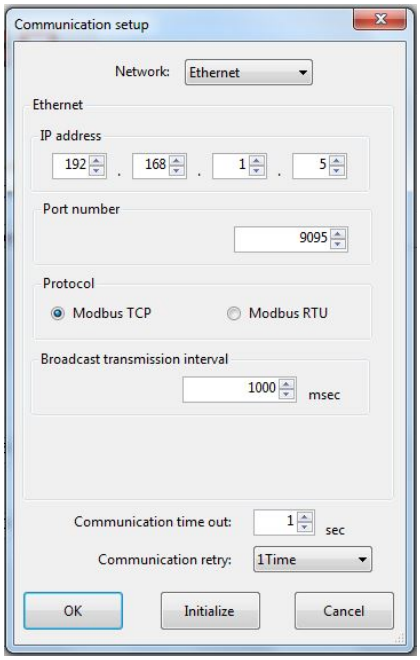
OK: Accepts your settings
Initialize: Resets the settings
Cancel: Cancels the progress



5.2 Ethernet communication

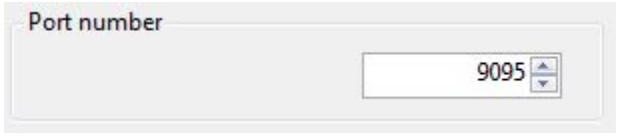
If you prefer communication via Ethernet instead of RS232C, you should make sure that the Power Monitor is in the same network as your computer or is at least connected directly to it via an RJ45 cable.

If you click on [Ethernet] in the dropdown menu in the communication setup, the window will have a different appearance. The Broadcast transmission interval, communication timeout and the communication retry options are still available and have the same range as explained in chapter 5.1 "RS232C communication".

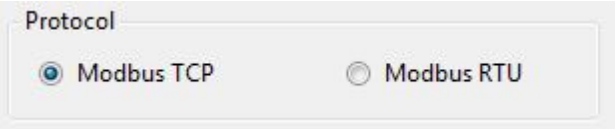


Select the IP address for your Power Monitor here (range of every window: 0 to 255).

Set the port number for your Power Monitor (range 0 to 65535).



Select the preferred communication protocol.

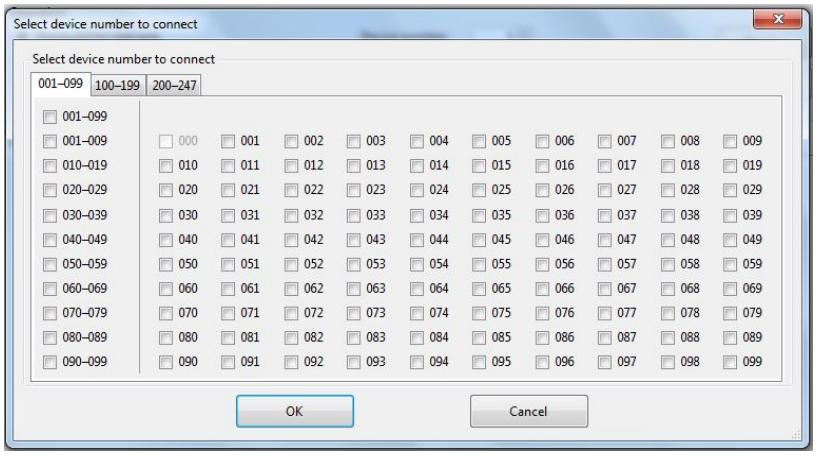


5.3 Communication success

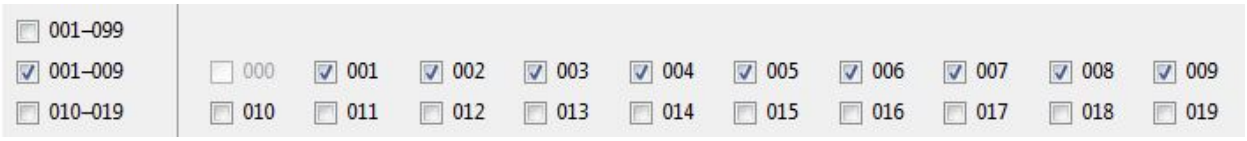
When you have finished your communication setup, test the communication by clicking on [Display]. If the connection is successful the following text will appear at the bottom left.

6. Device number selection

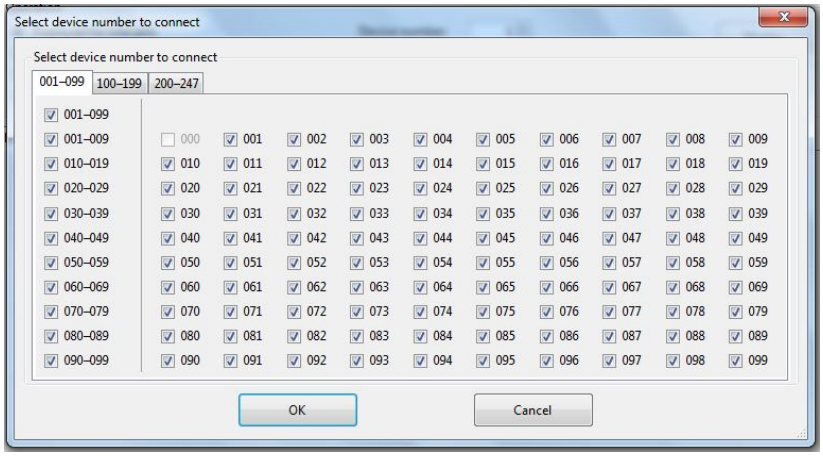
Clicking on [Select device number to connect] will open the following window. None of the checkboxes are activated.



You can click on the numbers to activate individual devices or click on the checkboxes on the left. This results in different options. You can select a block of 10 devices or select all the devices displayed by clicking on the button at the top.



Click on [Ok] if you want to accept your settings or click on [Cancel] to reset it.



NOTICE

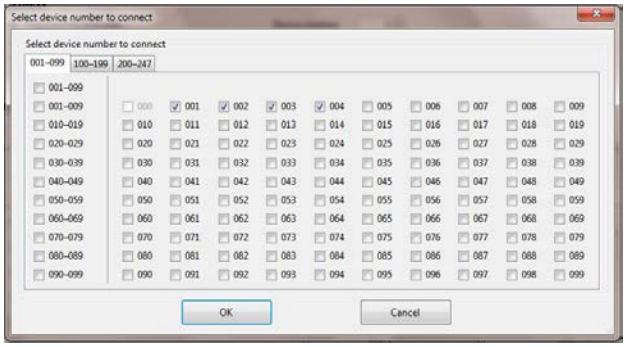
This tool is not available for USB.

7. Connection list

	NOTICE
	To demonstrate this tool, one Power Monitor was connected via an RS232 connection (see chapter 5.1 "RS232C communication"). Although only one Power Monitor was connected, a test for communication with 4 devices was set up. This demonstrates the process of checking the connections and the final status display.

STEP 1

Select the number of devices you would like to connect to (see chapter 6 "Device number selection").

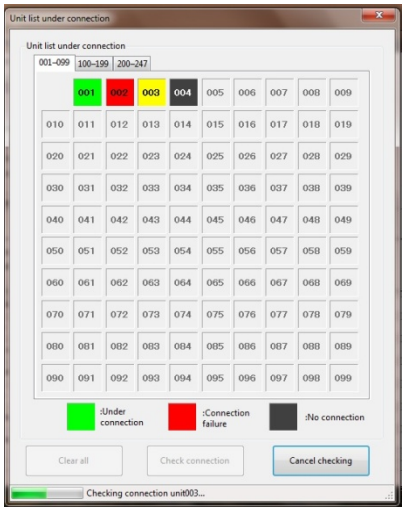


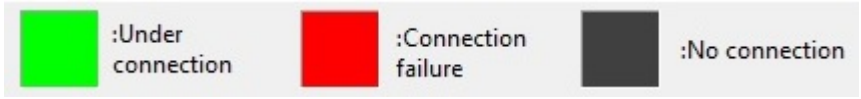
STEP 2

Open the  [Unit list under connection] menu. You will now see the number of devices you selected against a grey background. This indicates that there is no connection or in this case, no connection has been established yet.

STEP 3

Click on the [Check connection] button and the system will automatically start the check. In the following image on the left you can see the 4 phases during the connection. Device 1 (which is actually connected) is displayed as "Under connection". Device 2 is displayed as "Connection failure". Device 3 is currently being tested so it is displayed with a yellow background and device 4 has not been checked yet. After the test, only device 1 is displayed with a green background, the other devices are displayed with a red background.

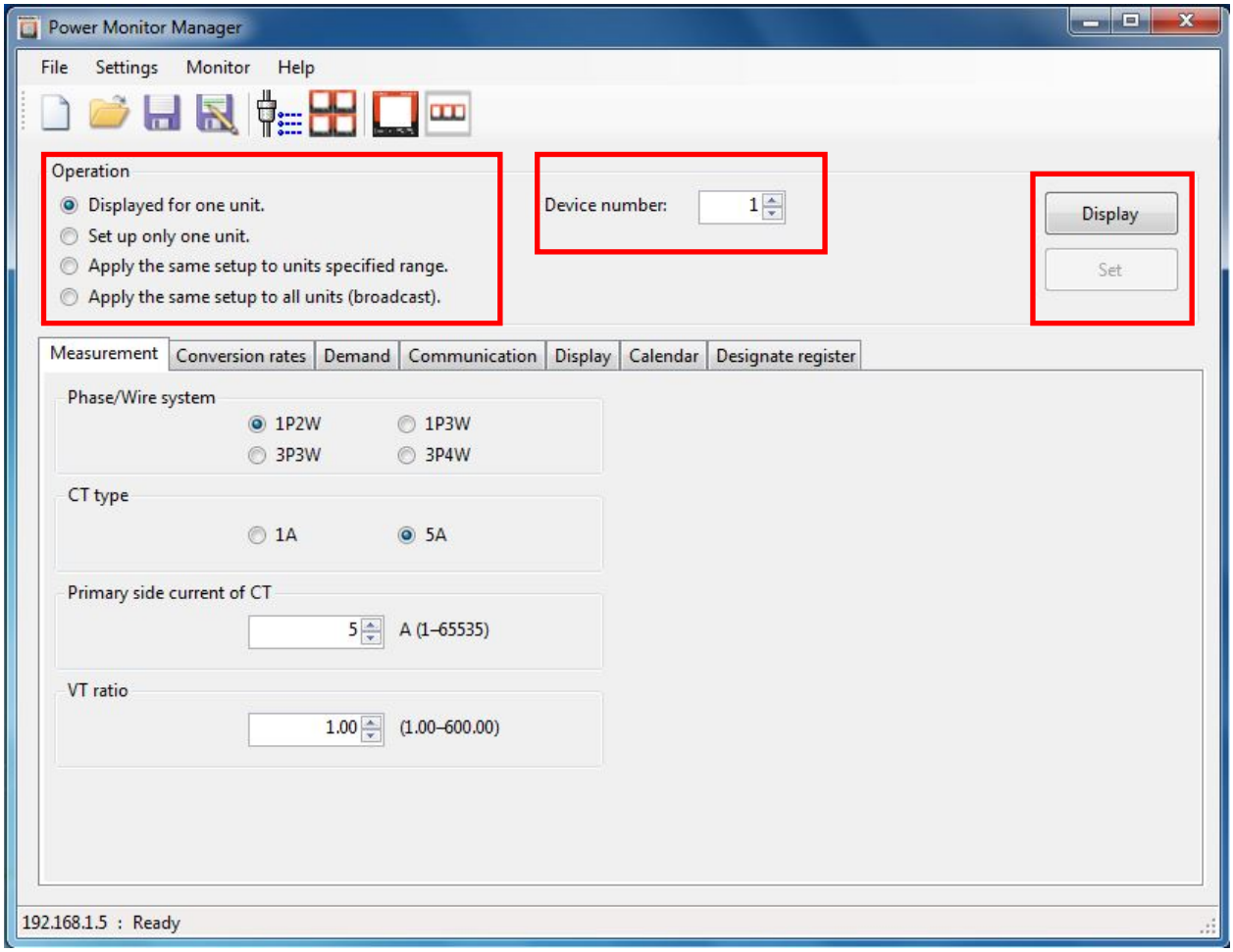




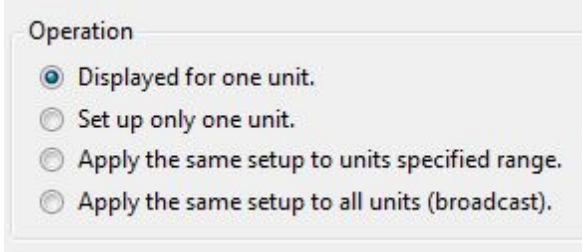
NOTICE

This tool is not available for USB.

8. Settings

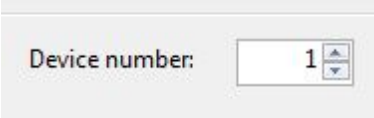


Select the required operation for your devices.
[Displayed for one unit] shows you the current settings on one device.
[Set up only one unit] sets the current configuration for the selected device.
[Apply the same setup to all units] sets the current configuration for all connected devices.



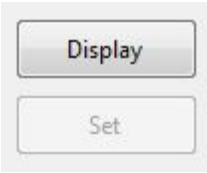
If you click on [Apply the same setup to units specified range], you can choose the range of units you want to set the same configuration for.

Select the "Device number" you want to set or of which you wish to display the data.

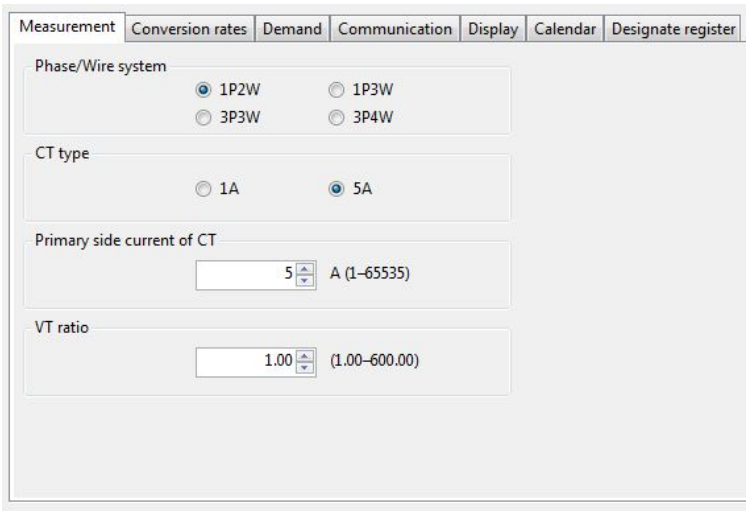


If [Displayed for one unit] is activated, the [Display] button is available. You can now display the settings of the currently set device number.

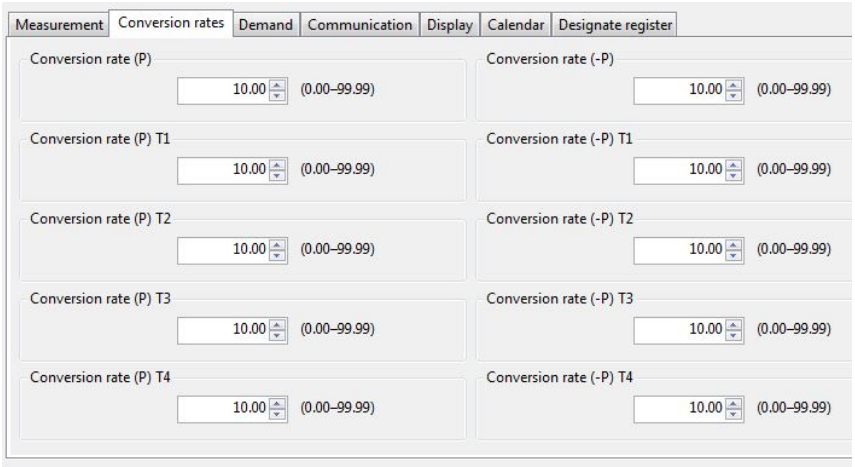
[Set] is activated for every other operation and sets your selected configuration for the Power Monitor.



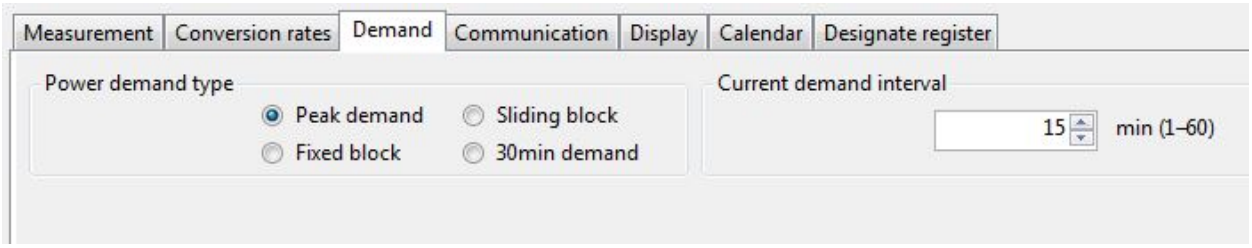
In the first menu you can select the outward connections which are connected to the Power Monitor.
The "Phase/Wire system" you connected the Power Monitor to can be seen in the Power Monitor Manual.
You can see the CT and VT information directly on the products used.

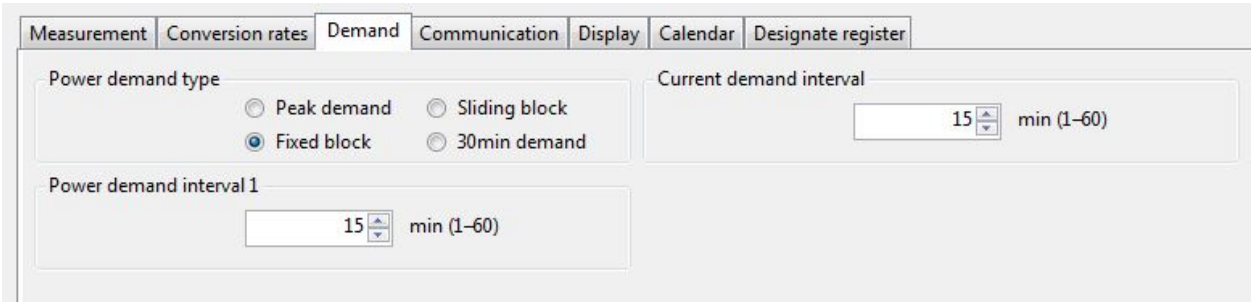


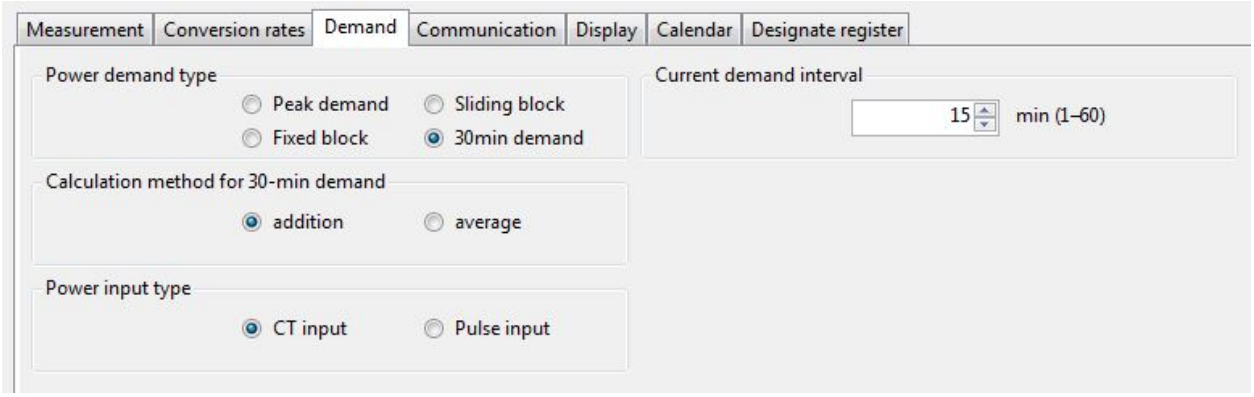
Set the conversion rate per integral active power (P) and per integral export power (-P) 1 kWh. You can set 5 kinds of rate for each time zone; all-time, time zone 1, time zone 2, time zone 3 and time zone 4. Rate for all-time is used when the time program is not set. When you set one or more time programs, the rates for time zone 1, 2, 3 and 4 are used. Rate for all-time is not used.



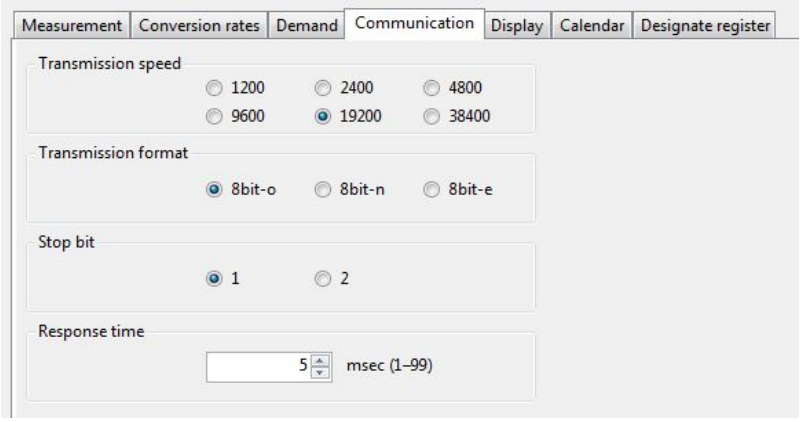
The [Demand] menu contains several submenus depending on which "Power demand type" you choose. The [Peak demand] menu only contained the "Current demand interval" switch as in all other submenus too. Clicking on [Sliding block] will offer you two new windows "Power demand interval 1" and "Power demand interval 2". The first one is also displayed when you click on [Fixed block]. In the [30 min demand] menu you can choose your calculation method and the power input type (according to IEC 61557-12).



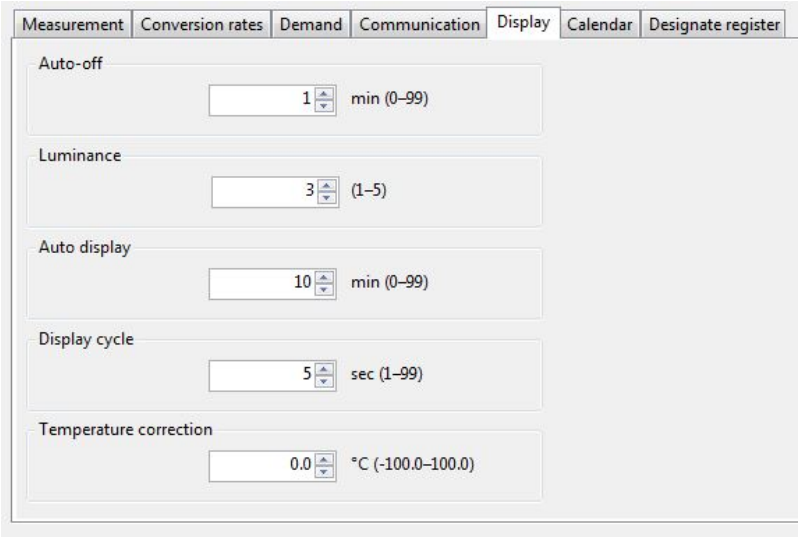




Set the communication settings of your Power Monitor in this menu. The communication settings have to be the same as on your S/E-Converter or in your communication setup of the Power Monitor Manager software. The "Transmission format" sets up the data length and the parity bit (-o for odd, -n for non and –e for even).

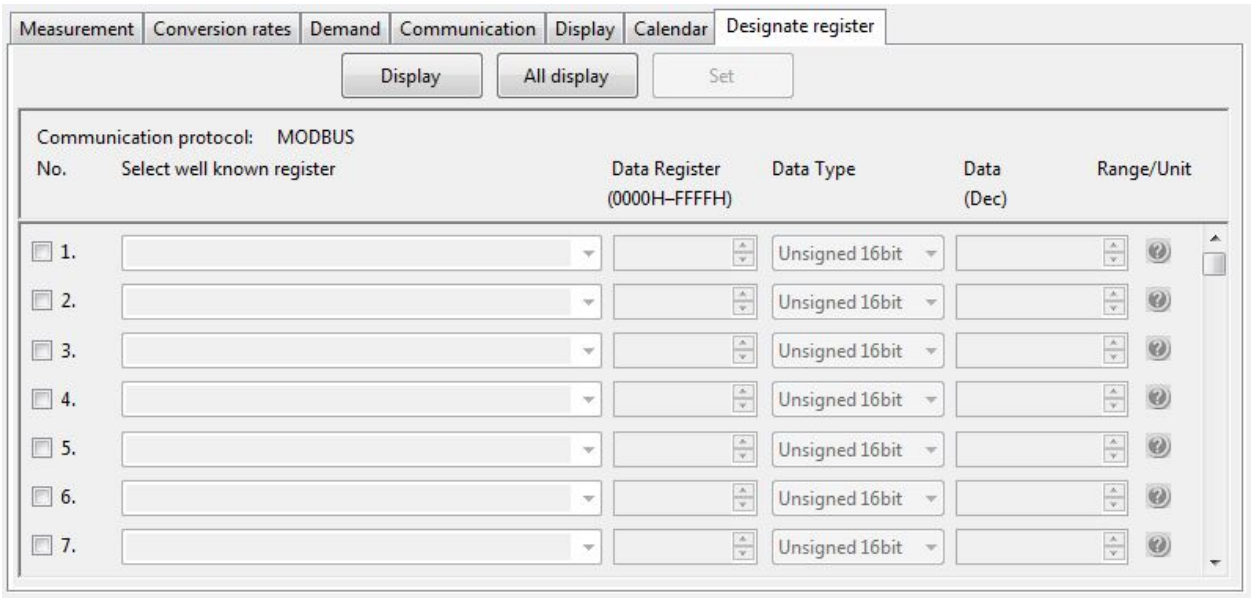


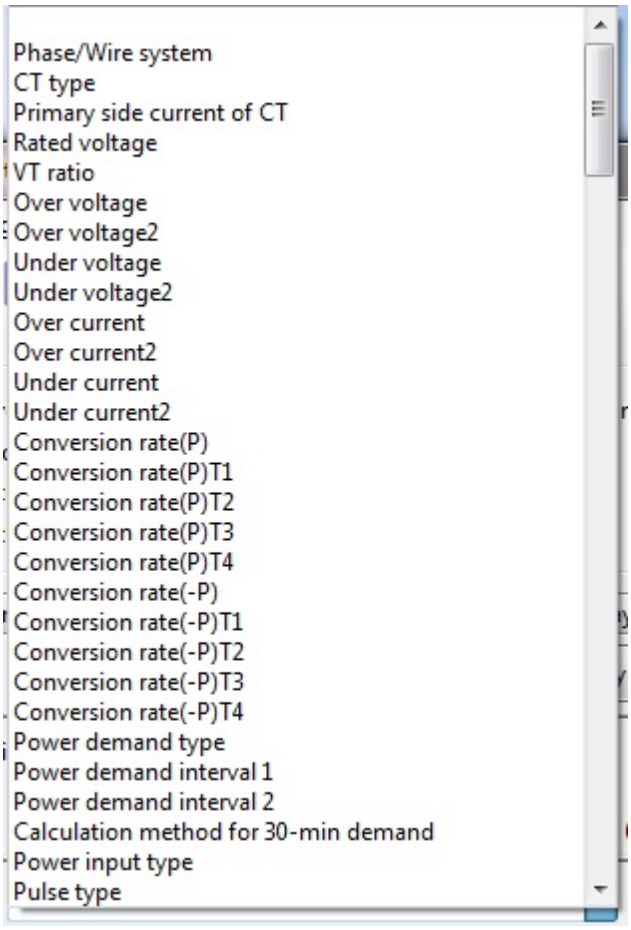
In the [Display] menu you can display and set the settings for the display of your Power Monitor. "Auto off" indicates how long the display will be illuminated. "Luminance" is the brightness of the display, "Auto display" sets the time period to start changing the menus of the Power Monitor and "Display cycle" is the duration the next menu is shown in auto mode.



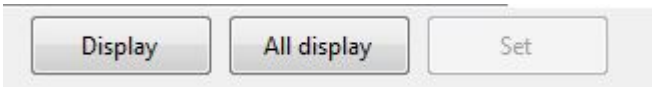
In this menu you can display and set the calendar of your Power Monitor. Clicking on [Display] will show you the time currently set on the Power Monitor, clicking on [Set] will transfer your settings to the Power Monitor.

The [Designate register] menu shows you the data registers, the data type and the data of the previous menu settings. To select one, you first need to click on the checkbox numbers. Then you make a selection from the dropdown menu from "Select well known register". The "Data Register" will be automatically displayed. Then select a "Data Type" and click on [Display]. If you want to have an overview of all the parameters, simply click on [All display].




Phase/Wire system
CT type
Primary side current of CT
Rated voltage
VT ratio
Over voltage
Over voltage2
Under voltage
Under voltage2
Over current
Over current2
Under current
Under current2
Conversion rate(P)
Conversion rate(P)T1
Conversion rate(P)T2
Conversion rate(P)T3
Conversion rate(P)T4
Conversion rate(-P)
Conversion rate(-P)T1
Conversion rate(-P)T2
Conversion rate(-P)T3
Conversion rate(-P)T4
Power demand type
Power demand interval 1
Power demand interval 2
Calculation method for 30-min demand
Power input type
Pulse type


Unsigned 16bit
Signed 16bit
Unsigned 16bit
Signed 32bit
Unsigned 32bit
HEX4 digits
HEX8 digits

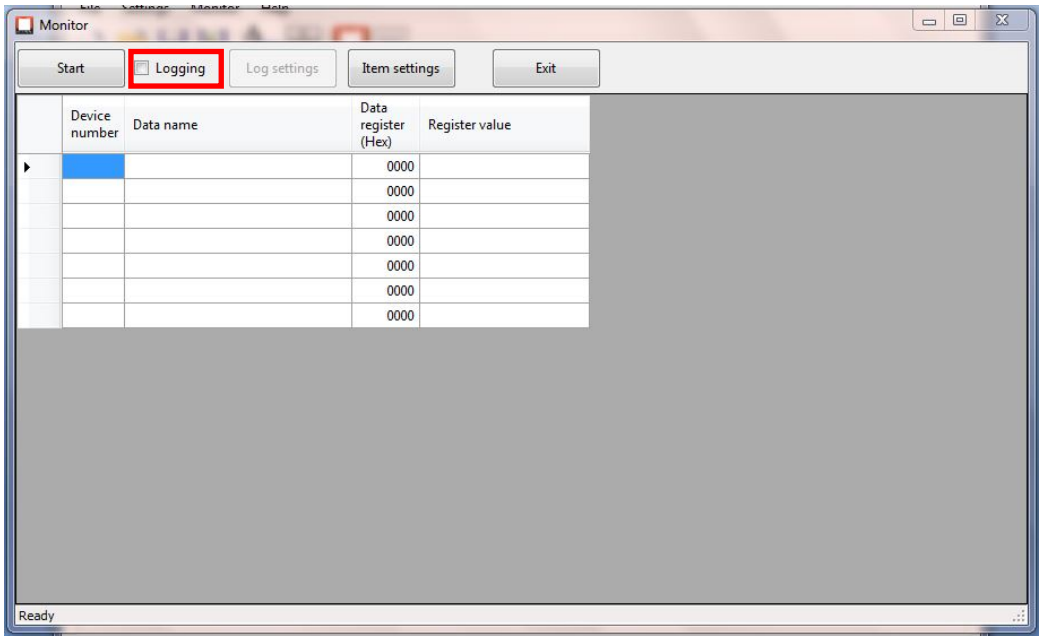

Display
All display
Set

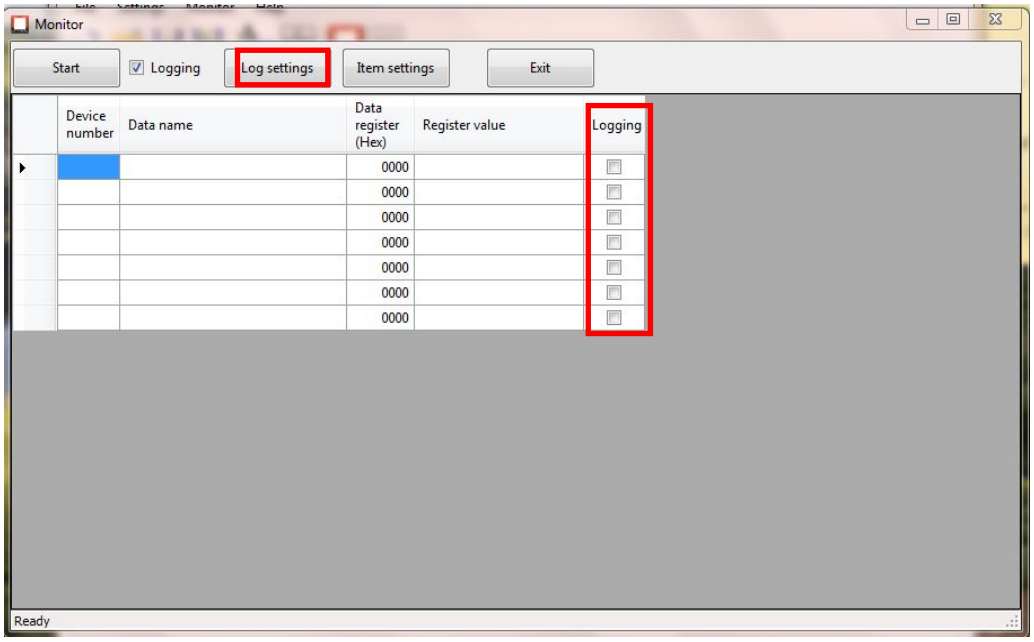
9. Data Monitoring / Data Logging

This chapter describes how to monitor and log the data you need.

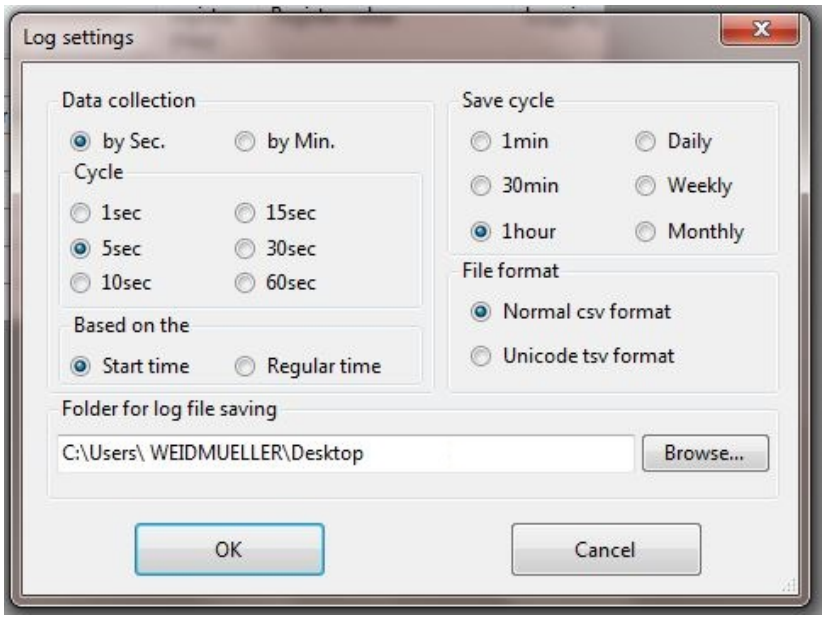
STEP 1

Open the [Monitor register values] toolbar and the following window will be displayed. If you just want to monitor your data, proceed with step 3, otherwise click the checkbox [Logging]. If you do so, the table will expand to include a new column and the [Log settings] button will no longer be transparent.



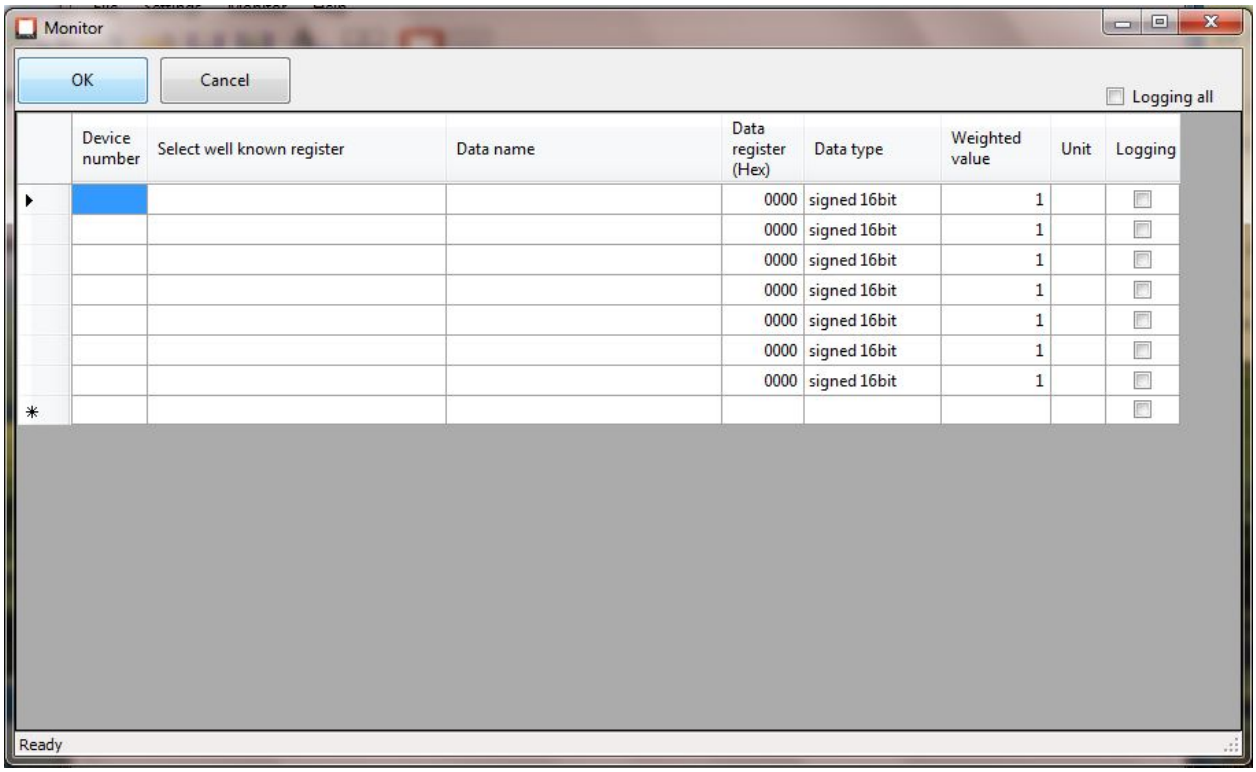


STEP 2 Click on [Log settings] and select your preferred logging settings.

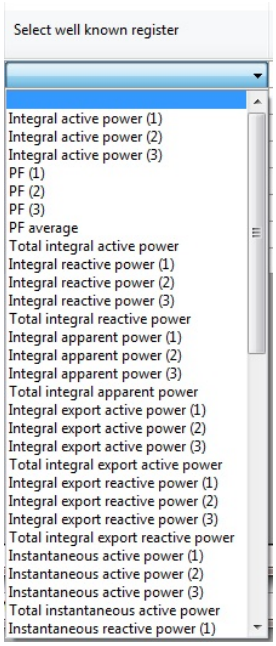


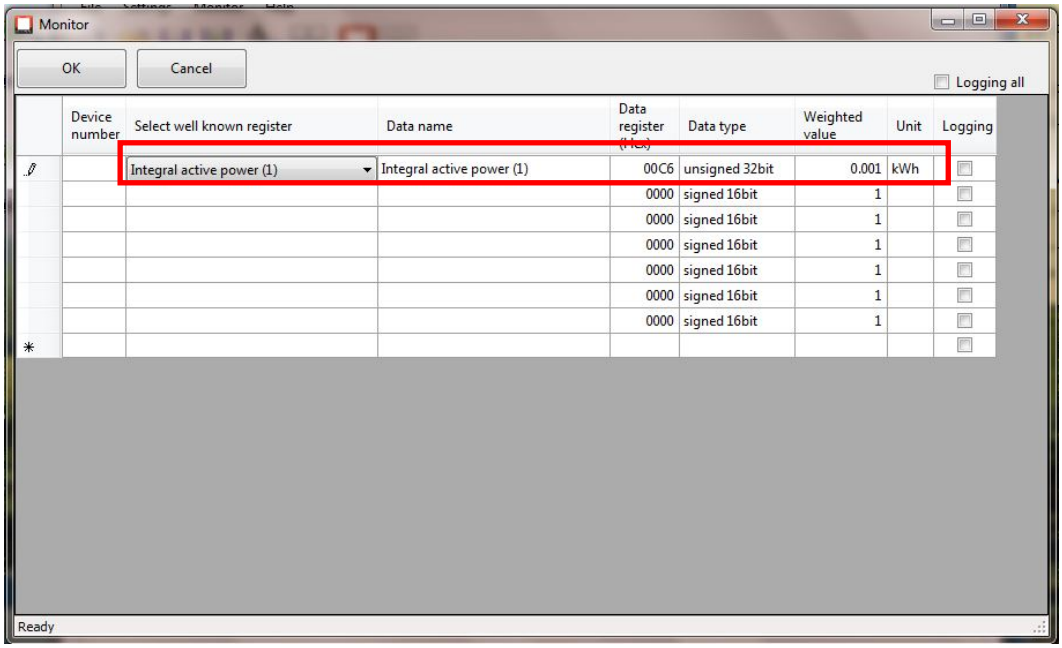
In the "Data collection" and "Save cycle" menus you can select the duration between two measurements.
"Save cycle" is the menu where you can select the time between two auto saved files.
The "File format" is either a .csv or a .tsv file depending on your selection.
The destination for the files can be browsed below.

STEP 3 Click on [Item settings] to select the values you would like to monitor or log.

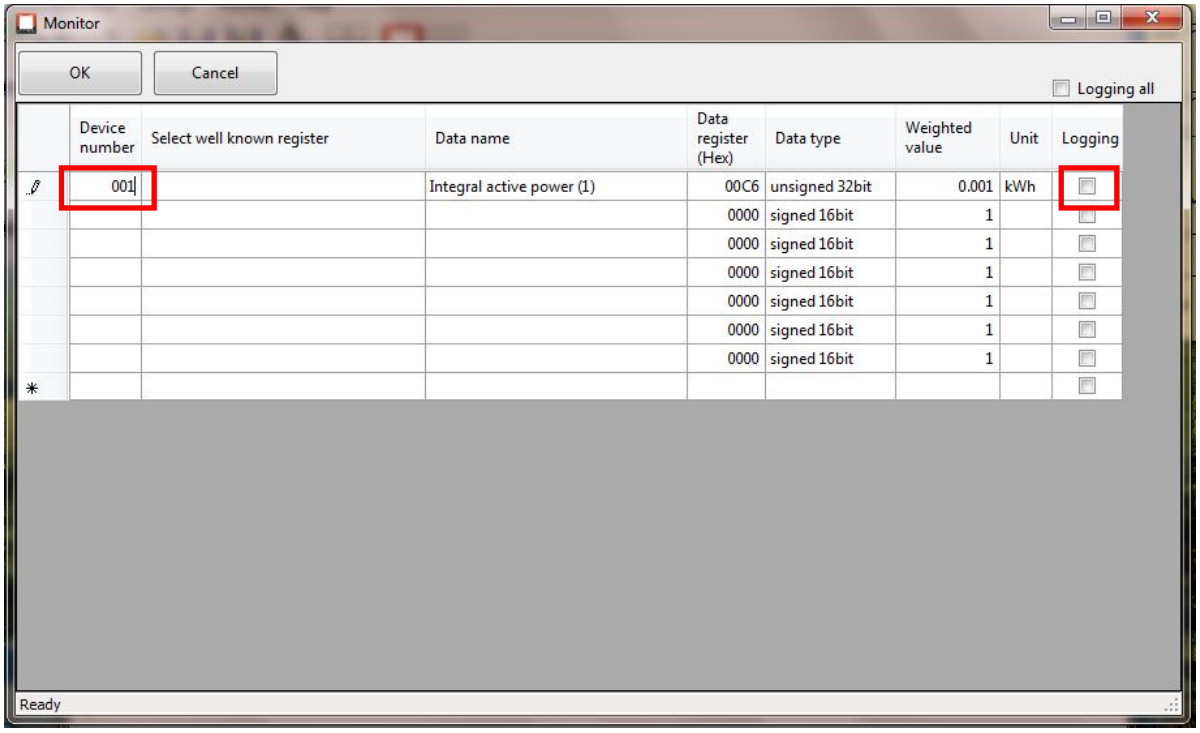


The [Select well known register] column opens a dropdown menu where you can choose all the data you wish to display on your Power Monitor. After selecting one, the data name, register and type are automatically corrected by the software. The same happens for the value and the unit.





The actual setting is not finished yet. Now you have to type in the device number of the device you want to monitor or log. Double-click in the "Device number" column and type in the three-digit number. If you want to log data, you also need to click the [Logging] checkbox for the data you want to log.

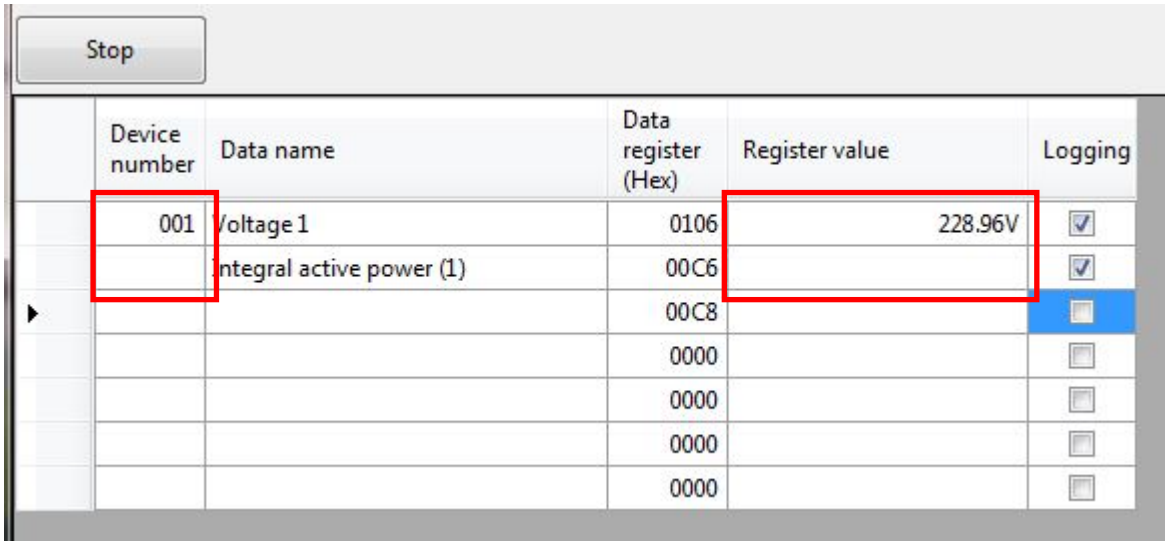


If you would like to change the name of the data, double-click in the window "Data name". Now you can type in your specific name for the data. If you would like to change anything else, proceed in the same manner.

STEP 4

Start the measurement by clicking on [Start]. You will see the instantaneous value of the measured data in the column "register value". By clicking [stop], you complete the measurement and save the data in the chosen file.

As seen below, not defining the device number will result in the value not being measured although [Logging] is checked.



10. Help for known problems

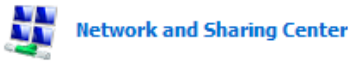
10.1 Configuring the RS232 Connection

There are actually two known problems regarding the RS232 connection.

10.1.1 The Configure button of the S/E-Converter

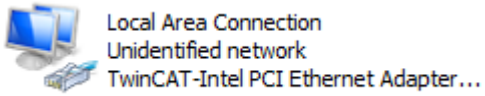
The guide for the S/E-Converter tells you to search for the Converter and then click on "Configure" afterwards. This may not work and the system tells you that progress has been aborted. Therefore a simple solution is known.

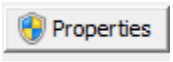
Open the "Windows Control Panel" and click on [Network and Sharing Center].

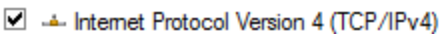


Next click on the button [Change adapter settings].

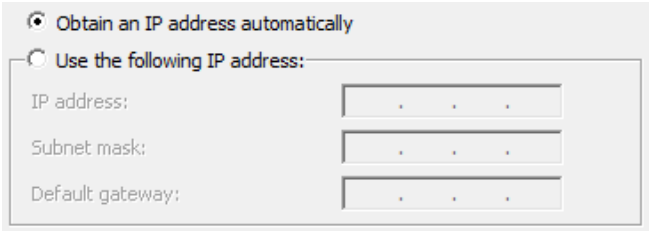
Continue and double-click on your active LAN connection. Then select [Properties] and search for the [Internet Protocol Version 4 (TCP/IPvv4)]. Double-click on it and continue.

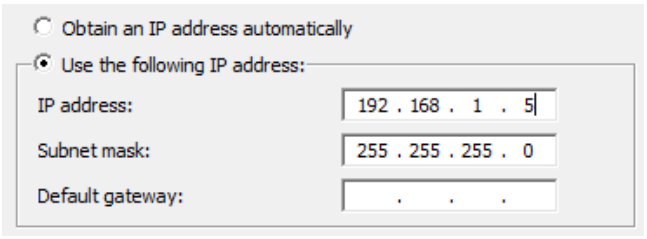






The following window will appear and "Obtain IP address automatically" is selected. Click on the [Use the following IP address] button and type in the IP address 192.168.1.X (Replace the X with any number you like).



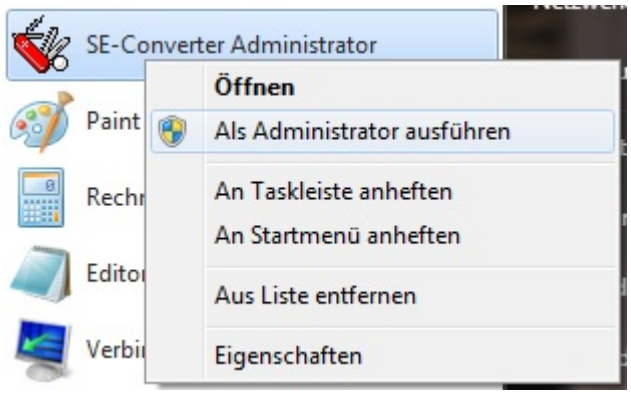


You should now be able to configure your Power Monitor.

10.1.2 Do not alter the rights to change the port

It may appear that in the last step of configuring the S/E Converter the application will tell you not to alter the rights to change the ports. An easy solution to this follows.

Open your Windows Start menu and search for the S/E Converter Administrator. Now simply right-click on it and click on [Run as administrator]. It should work then.



10.2 Insufficient system resources

The solution to this problem is just to restart your PC. After this it should work.

11. Reference list

1. Weidmüller Interface (2014). "Power Monitor 51A – Manual"
   Retrieved from www.weidmueller.com.
2. Weidmüller Interface (2014). "Power Monitor/Power Monitor 51A – Quick guide to set up a connection with the Power Monitor devices through the Weidmüller Serial/Ethernet Converter"
   Retrieved from www.weidmueller.com

www.weidmueller.com

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