# Brief instruction of *SIMEAS Q80 V2*

**IF-Config**
*Start>Siemens Energy>SIMEAS> SIMEAS Q80 Manager> IF-Config*

**1**
**IF-Config**
*Set the IP-Adresses of all devices*

**Simeas Q80 Manager**
*Start>Siemens Energy>SIMEAS> SIMEAS Q80 Manager>SIMEAS Q80 Manager V2*

**2.1**
**Device Definition**
*All SIMEAS Q80 devices will be listed for the configuration*

**2.2**
**Topology**
*Parameterization of the Topology*

**2.3**
**Set up**
*Enter the measurement task / Start the measure*

**Autotransfer**
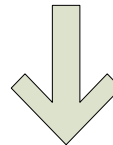*Start> Siemens Energy>SIMEAS Q80 Manager> Autotransfer*

**3**
**Autotransfer**
Einstellungen für Datenübertragung von den Geräten

**Autoreport**
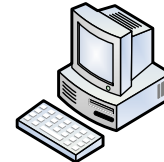*Start>Siemens Energy>SIMEAS>SIMEAS Q80 Manager>Autoreport*

**4**
Autoreport is automatically created at the end of the measurement.

**Simeas Q80 Manager**
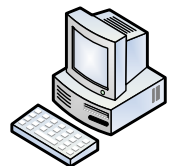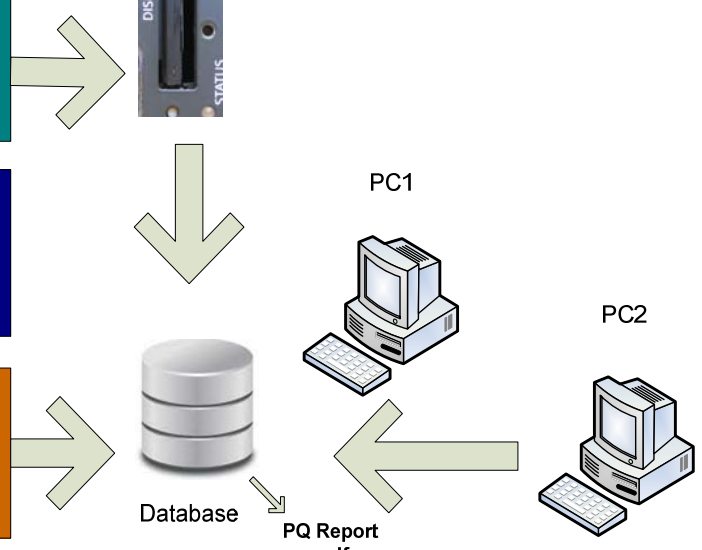*Start>Siemens Energy>SIMEAS> SIMEAS Q80 Manager>SIMEAS Q80 Manager V2*

**5**
**Evaluation**

PC1

PC2

Database

PQ Report
.pdf

## INDEX

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## 1. IF-CONFIG

Setting of network parameters:

- Enter the IP address with IF-Config
  - Start>Siemens Energy> SIMEAS Q80 Manager> IF-Config
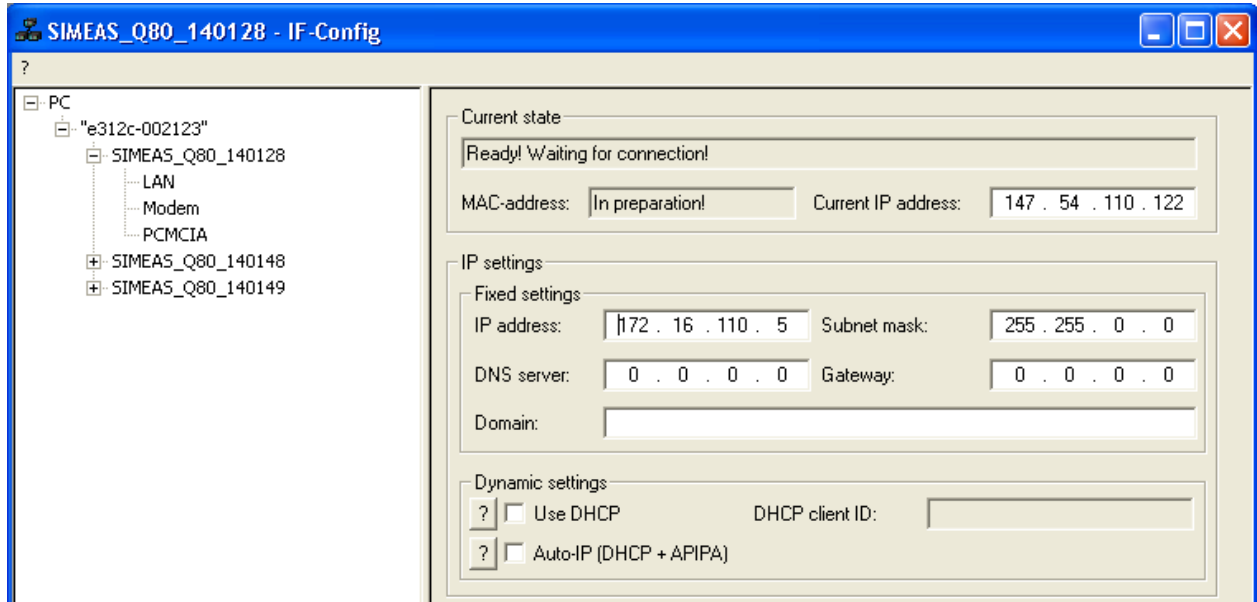- The IP address must be entered either in the IP fixed settings or be configured automatically with DHCP.

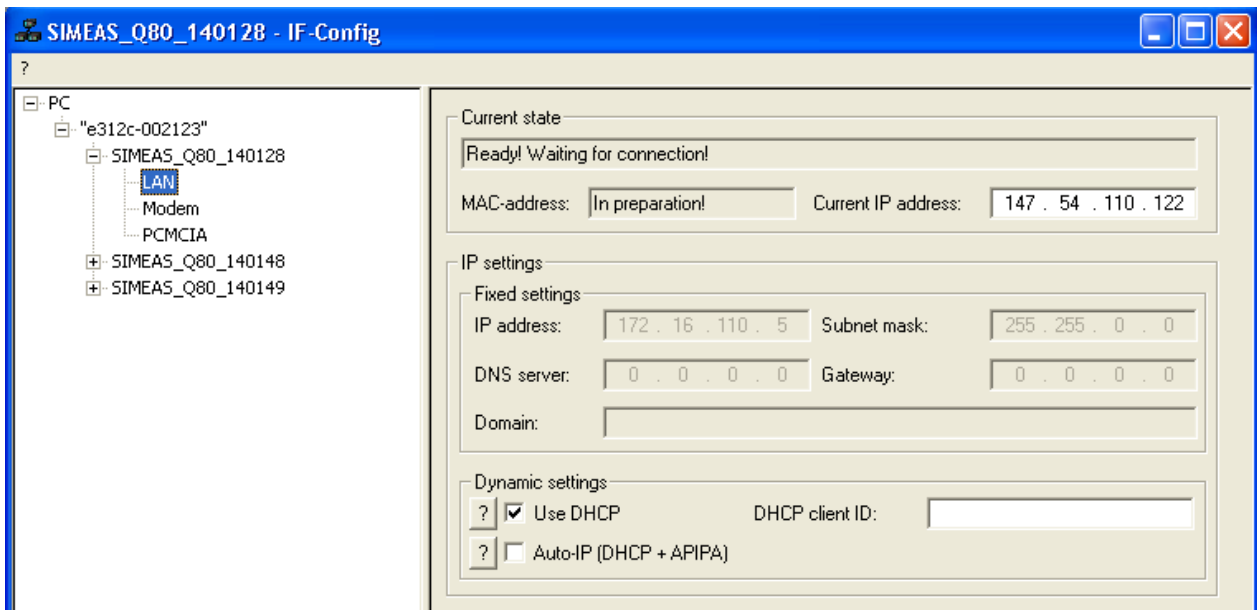**Figure 1: IF-Config with fixed IP-Address**

**Figure 2: IF-Config with DHCP**

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## 2. SETTING UP

The device definition, topology, settings and measurements, can be found in Q80 Manager. In order to define the topology, it shall be necessary to add all devices in the software.

- Start the SIMEAS Q80 Manager
  - Start> Siemens Energy> SIMEAS> SIMEAS Q80 Manager> SIMEAS Q80 Manager V2.
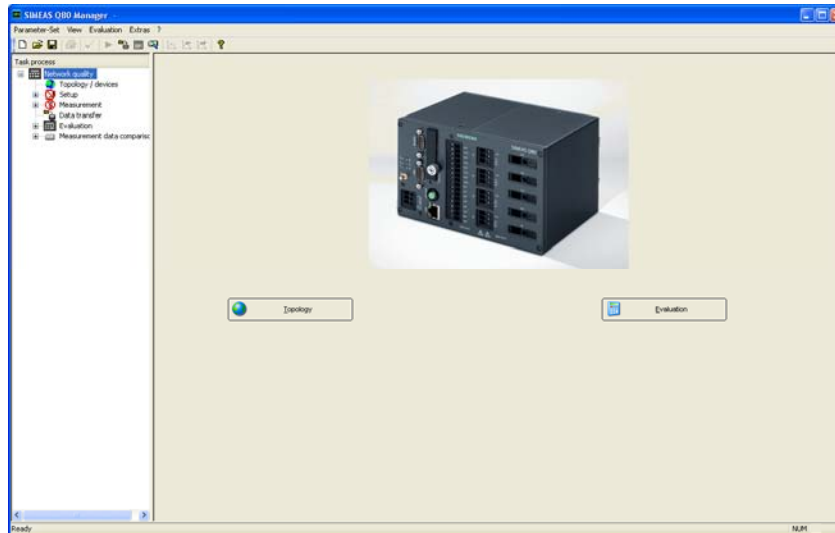- Click on "*Topology*".



**Figure 3: Loading a configuration**

### 2.1 Device definition

In the Topology / device menu 2 tables "Device definition" und "Topology" are displayed.

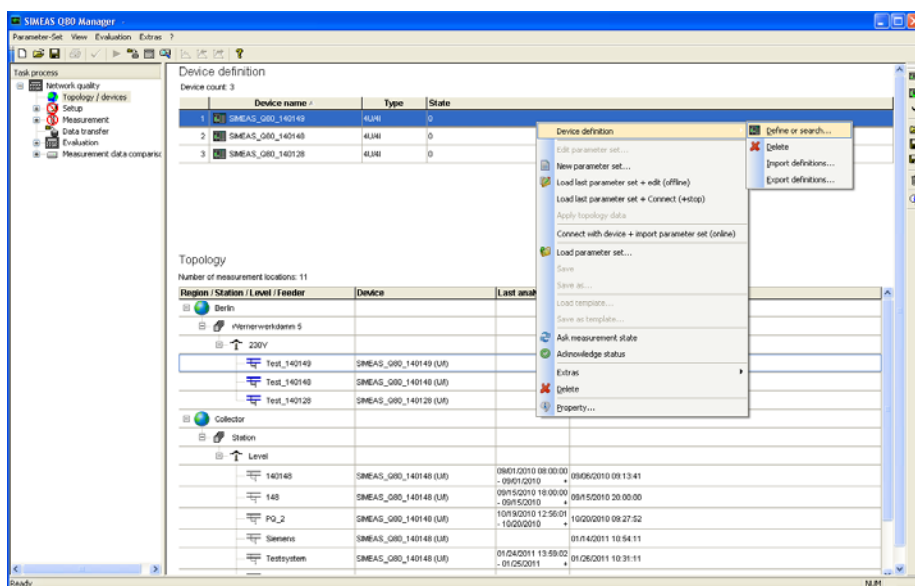- Select by right click on your mouse the option Device Definition> Define or search ...> New.



**Figure 4: Overview of all devices**

- Click on the button "*Network search*".
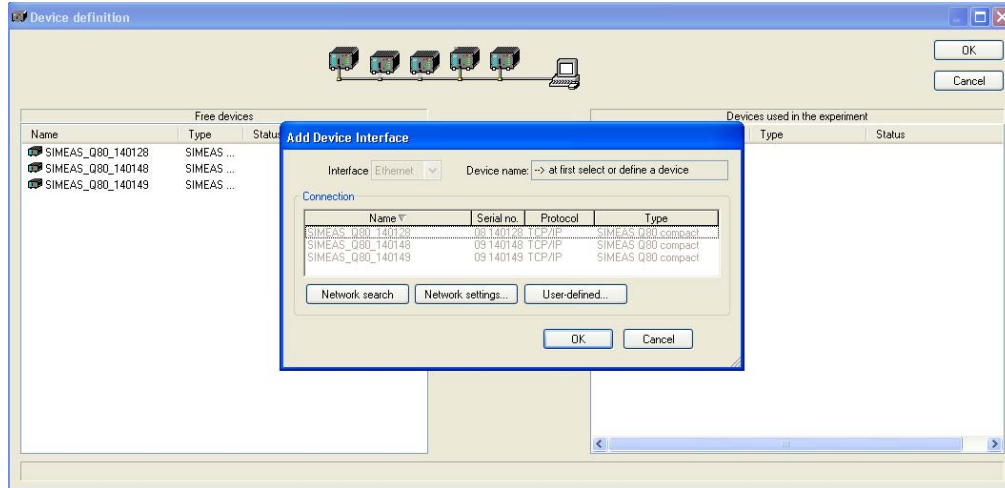- Select the device, click the "*Add*" button and repeat it for all other devices.



**Figure 5: Device selection**

## 2.2 Topology

In the Topology / devices window, enter the following data in the topology option:

- Right-click on the Collector and select Definition> New Region> name, e.g. "*Town1*"> Ok in order to define new regions.
- Right-click on the defined new region and select Definition> New Station> name, e.g. "*Street1*"> Ok.
- Right-click on the defined new station and select Definition> New voltage level> e.g. "*230V*" name> Ok.
- Right-click on the defined voltage level and select Definition> New feeder, enter a name e.g."*SIMEAS_Q80_140149*" and associate from the list on the device name a measurement device. Further devices can be entered under the same voltage level through the new feeder option.

In Collector remain all earlier defined devices or old measurements visible. After completing the system configuration these files can be deleted.
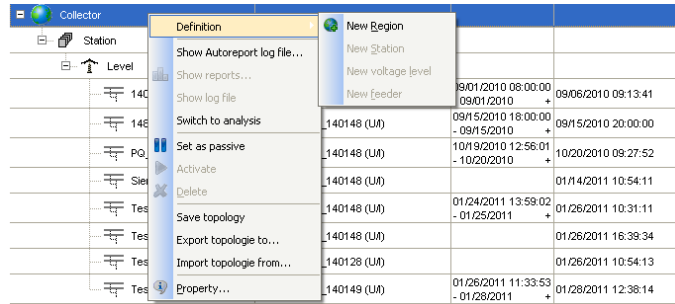
**Figure 6: cutout from the topology**

## 2.3 Parameterization of devices

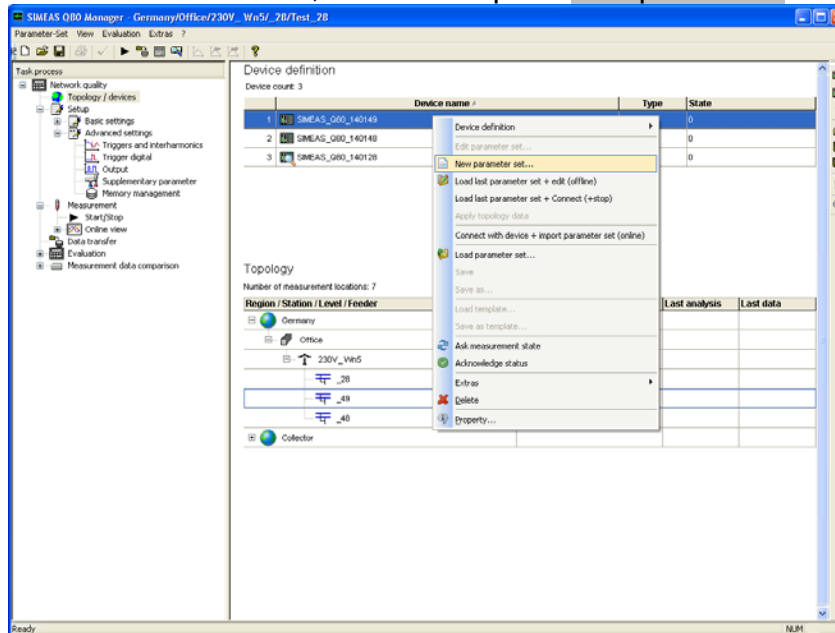- With right click on the defined device, select the option new parameter set.



**Figure 7: Entry a new parameter**

- Introduce a new Name e.g."*Test_1*"> and click on continue.
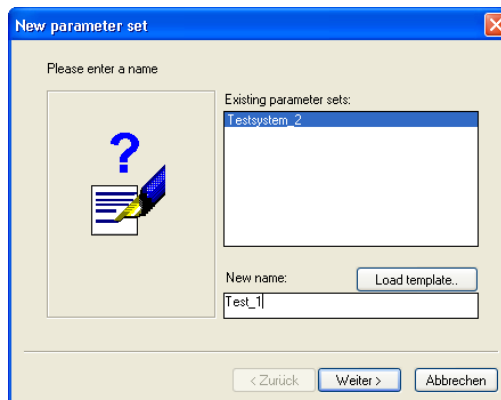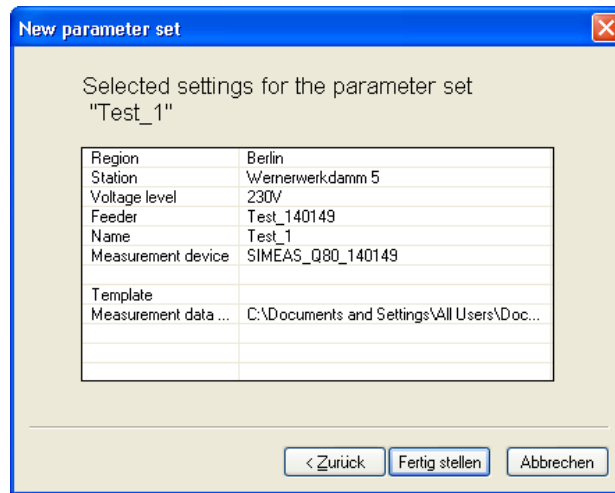


**Figure 8: Entry of a name for a new the measurement task**

- Click on the Finish button to create a new measurement task. By "*Finish*" will be confirmed that a new configuration was created with the default settings.



**Figure 9: Entry of a measurement task**

### 2.3.1 Basic settings

- Enter the basic settings (name, department ...)
- Select the power frequency.
- Select the type of network connection.
- Enter the rated voltage and the operating voltage. To the operating voltage belong all thresholds (Trigger, Power Quality Report). If you use voltage transformers, activate the *"Converter"* option and then select the rated values of the voltage transformers into the fields "*Primary value*" ph-ph and "Secondary value" ph-ph.
- Select the option "*Current recording active*" if you use current measurement.
- Select the input current by clicking one of the options offered under "*Current input*"
- Select on the list *"Input range"* the desired input current. If you use current transformers, activate the *"Converter"* option and enter the rated values of the current transformer into the fields *"Primary Value"* and *"Secondary Value".*

**Figure 10: Fill-out form for basic settings**

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2.3.2 Trigger and Interharmonics

- Select the respective trigger (records of voltage, current and frequency caused by limit violations) by activating the trigger. Note: Do not activate curve comparison triggers for unknown signals to save memory on internal disk.
- In the table "*Monitoring of fixed frequencies*", click on a number to enter the frequency.

**Figure 11: Fill-out form for the triggers and interharmonics**

### 2.3.3 Trigger Digital

- Switch the status to *"active"* in order to monitor a digital input.
- Define 0 → 1 or 1 → 0 for the trigger condition of the signal.

**Figure 12: Entry form for the Digital Trigger**

### 2.3.4 Output

- Choose in the option list function the desired function for the digital outputs.

**Figure 13: Entry form for the Outputs**

2.3.5   Supplementary parameter

- Record of averages, data reduction and limits for event messages should not be changed, because the defaults values for the analysis are preset by default according to the standard EN50160.
- In order to have a faster PC-evaluation of events or the finalization of a measurement interval, UDP messages are enabled.
- Enter the port and receiving IP address. Please note that the port should not be blocked by a firewall. These settings need to be matched with the Auto-transfer settings.
- Choose from the list time interval, the desired monitoring interval. In the example, the device sends messages every 20 seconds to the IP address 147.54.111.150 UDP on the port 1300 in order to announce at Autotransfer that new data are available.

**Figure 14: Events, messages and UDP**

- In memory management, choose from the list storage location *"Removable drive"*.
- On the measurement intervals list, select how long should be the measurement interval for each Power quality report.

When the measuring intervals are finished, a power quality report will be created in pdf format through the Autoreport program. (E.g. if 1 day was selected, then each day a new Power Quality Report will be created).

**Figure 15: Entry of memory management**

2.3.6  Start/Stop measurement

- Click on the Connect button.
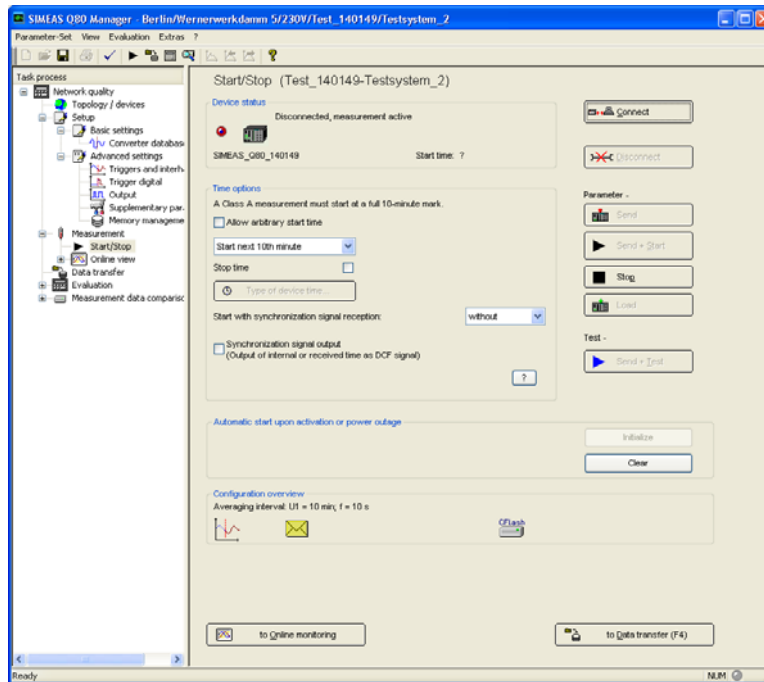


**Figure 16: Start / Stop**

- Click the button "Type of device time" to set the device time zone.
- Here you enter the parameters for the NTP synchronization: Enter the IP-address of the NTP server (e.g. ptbtime1.ptb.de or 192.53.103.108).
- Introduce the "*Max. time deviation*" (e.g. 100 ms). Note: The first synchronization on NTP take a long time, this parameter can be adapted later, once the device is synchronized.
- Introduce the *"Max. Time to wait for synchronization*" (e.g. 600 ms) and click on "*Ok*".
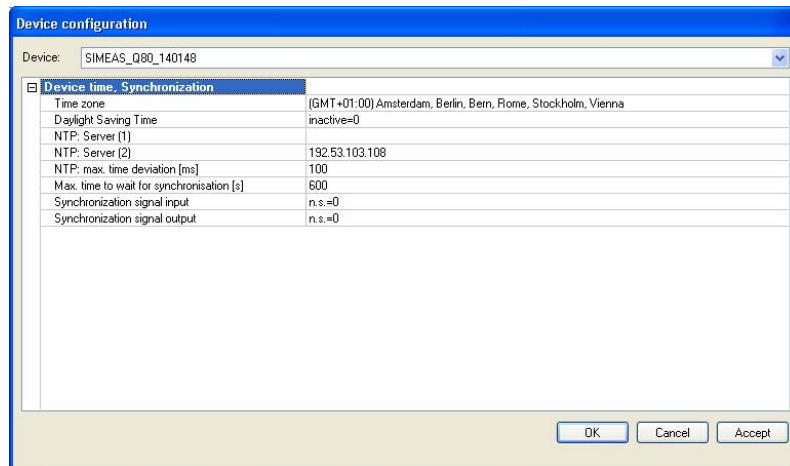


**Figure 17: NTP-time server configuration**

- Click the button *"Send"* (See Figure 16) and wait about 20 minutes. During this time the devices are not measuring since there are time leaps. If you have several devices all of them shall be adjusted first.
- To check your settings click on the button "*Send + Test*" and the device will make a test measurement. In this case, measured data are not saved. Now, if it is necessary the duration of the "*Max. time deviation"* can be adapted.
- Click on the button *"Initialize"* (See Figure 16) to activate an automatic restart after power outage.
- Click the *"Send + Start"* (See Figure 16) button to start the measurement.

## 3. AUTOTRANSFER

Auto transfer was developed for the automatic data transmission of multiple SIMEAS Q80 devices. As a FTP client, it is connected cyclic or with UDP Messages (Events or a finalization of a measurement interval) with the measurement devices and copy the measured data to the server.

- Open the Autotransfer program under Start> Siemens Energy> SIMEAS Q80 Manager> Autotransfer> Settings> and click on new device.
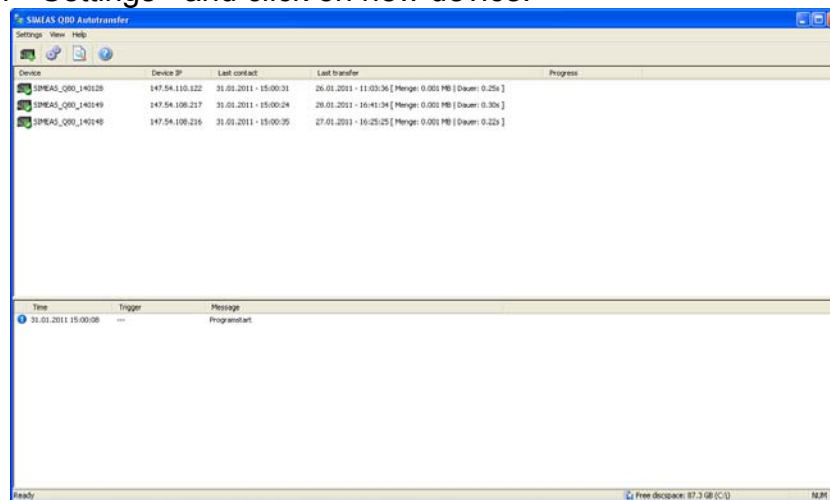


**Figure 18: Autotransfer program**

- In the "*Defaults*" tab, enter the general information for a data transfer.
- Define a default device (e.g. "Simeas ").
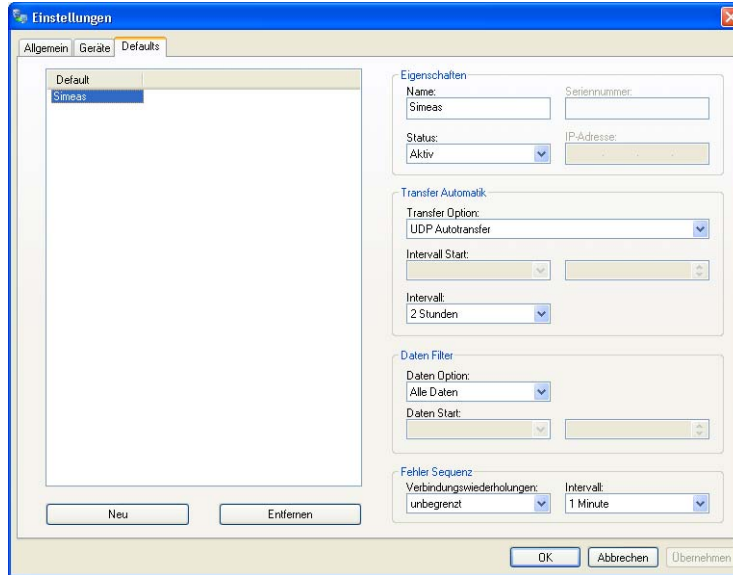
**Figure 19: Autotransfer Default**

- In the "*Global*" tab the directories of the transfer and service data can be changed. This changes shall be matched in the Simeas Q80 manager (See AUTOREPORT)
- Assign the "*Port*" number to the default device.
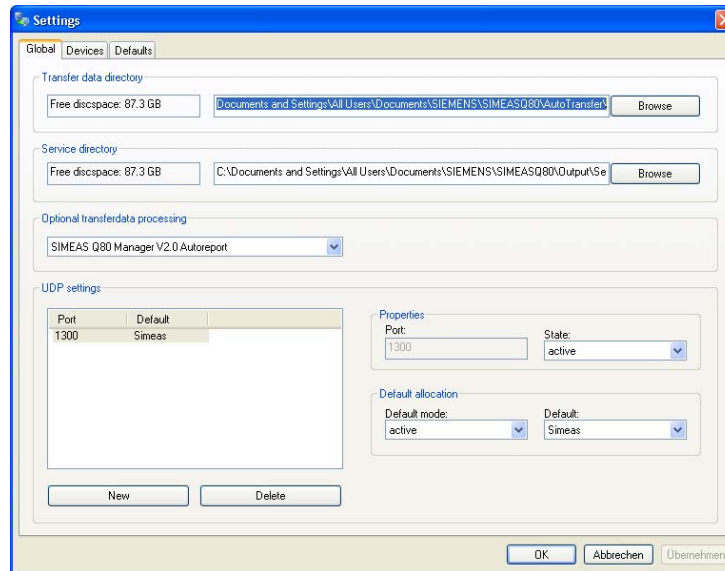

**Figure 20: Autotransfer General**

- In the "*Devices*" tab, the definitions of devices, which were integrated via UDP, are shown automatically. If no message is received from a measuring instrument, the device will be verified per default every 2 hours.

  A fast transfer of new data (e.g. Events) from the measuring device for the evaluation on PC is quickly possible with UDP-Autotransfer. In case of cyclic transfer, the events will be only transmitted after the end of the defined time interval. If you do not activate the UDP-telegrams, you must register the devices manually.
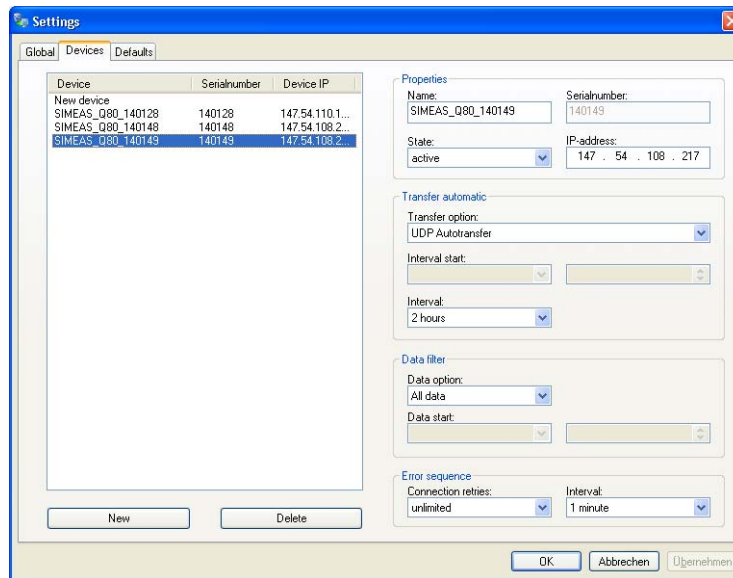
**Figure 21: Auto Transfer Devices: Manual entry of equipment**

## 4. AUTOREPORT

The program Autoreport takes the data provided by the Autotransfer program and creates a report for each device after the end of the defined measurement interval.

The directories, in which temporary measuring data, PQ data base, power quality reports and the set of parameters are stored, can be specified in SIMEAS Q80 under Menu>Extras>Options.
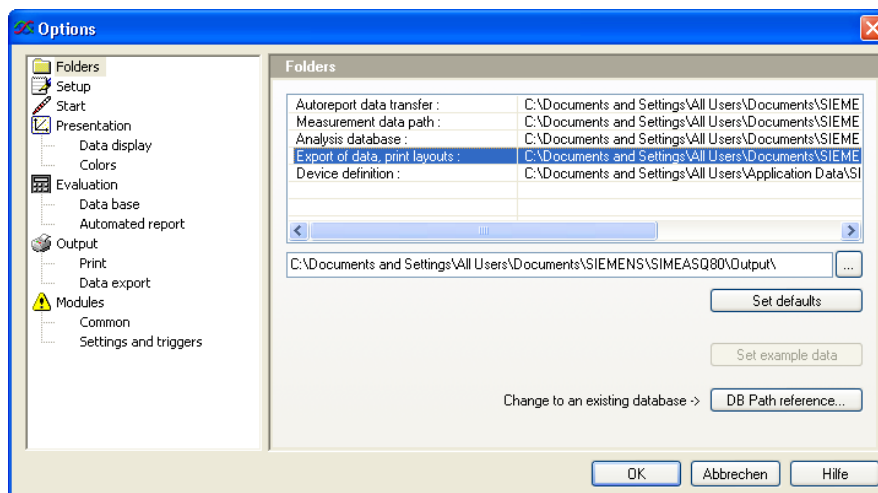
**Figure 22: Directories for measuring data**

The data directories shall match with the settings on the Autotransfer program.

The evaluation is carried out according to defined limits of the Standard. (Default Standard is EN 50160).

With the option "*further criteria*", you can limit the evaluation to recently captured measurements. Additionally, "*ignore intervals smaller than*" enables short test measurements to be disregarded.
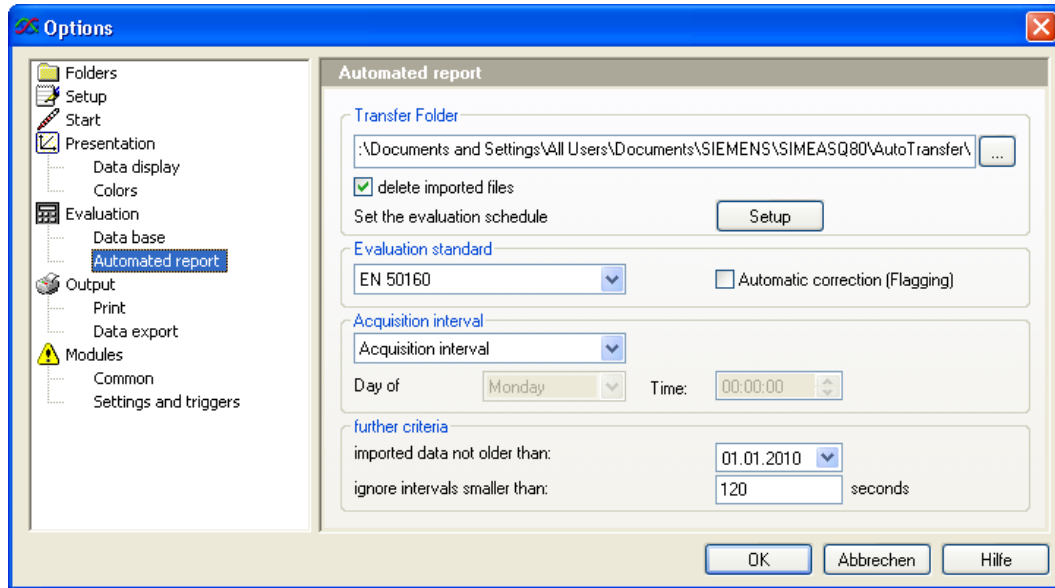


**Figure 23: Directory for Power Quality Reports**

## 5. EVALUATION

The evaluation of the measured task can be found in Q80 Manager. Such evaluations are executed over the entire measurement according to the standard EN50160. Based on the predetermined limits, a network quality report is generated

### 5.1 Display PQ Reports

Through the option "*Show Reports*" (See Figure 24) on the SIMEAS Q80 Manager, the generated Power Quality Report can be displayed and listed quickly for each device.
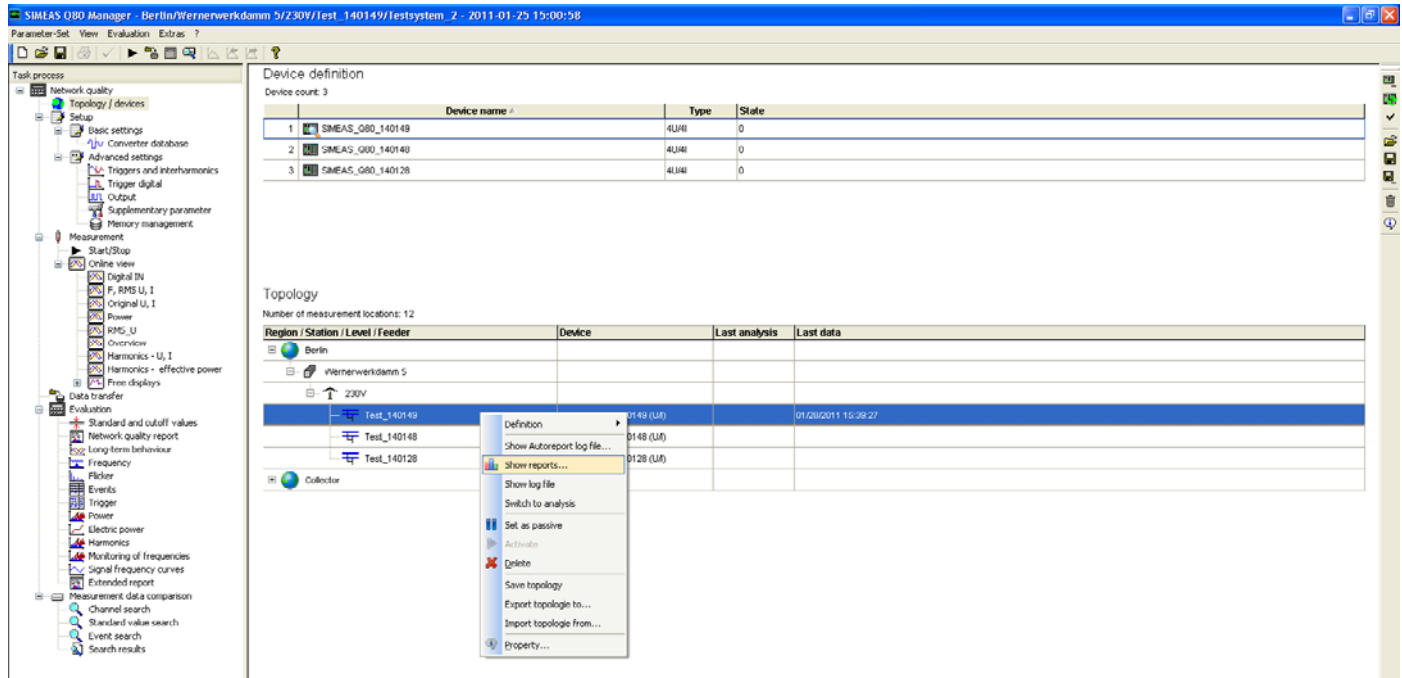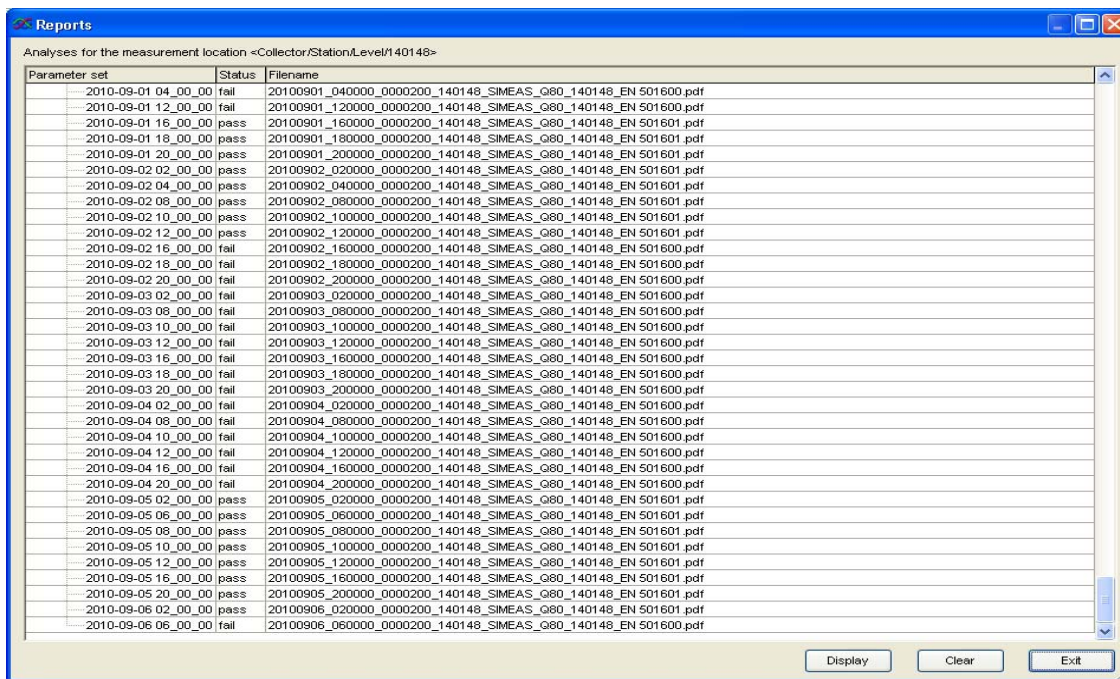
**Figure 24: Display a Power Quality Report**



**Figure 25: List of Power quality reports**

### 5.2 Evaluation of measuring data

A list of previous transmitted data can be reached directly in SIMEAS Q80 Manager.
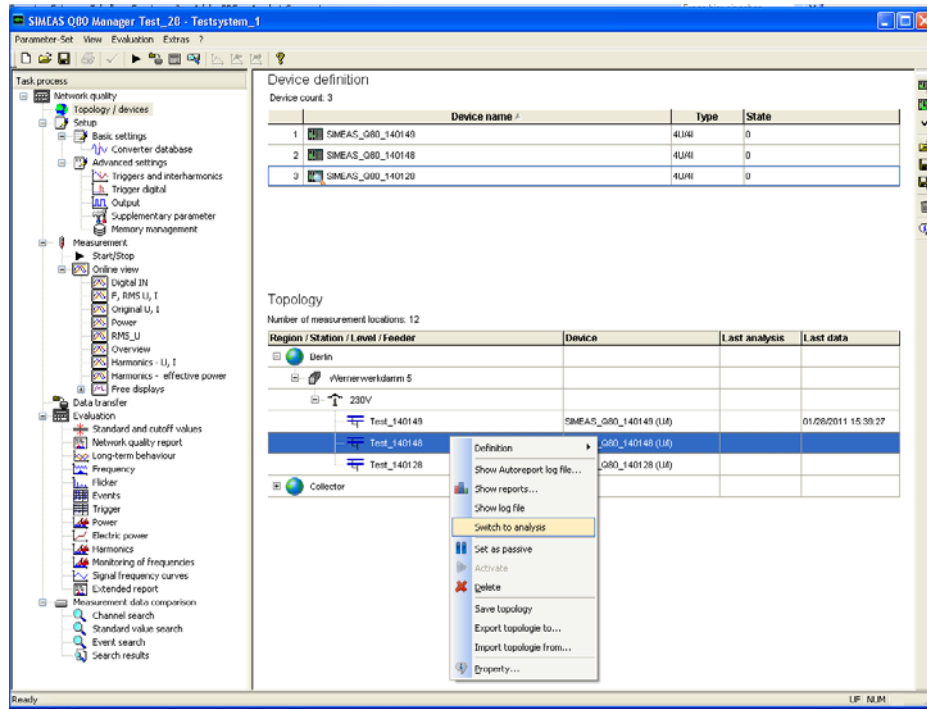


**Figure 26: Evaluation of measurement data "Switch to analysis"**

The Measurement data, which were measured with the same set of parameters, are displayed in the list with the same color.
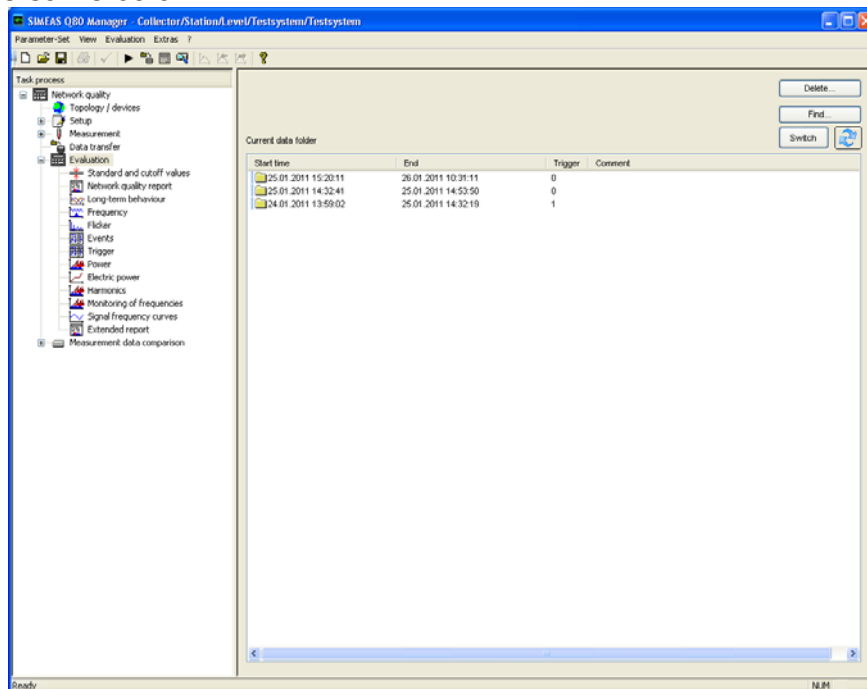


**Figure 27: Overview of Measured data**

- On the left side of Q80 Manager Application, click on *"Evaluation"* > Standard and cutoff values. Use the default values of the standard EN50160.
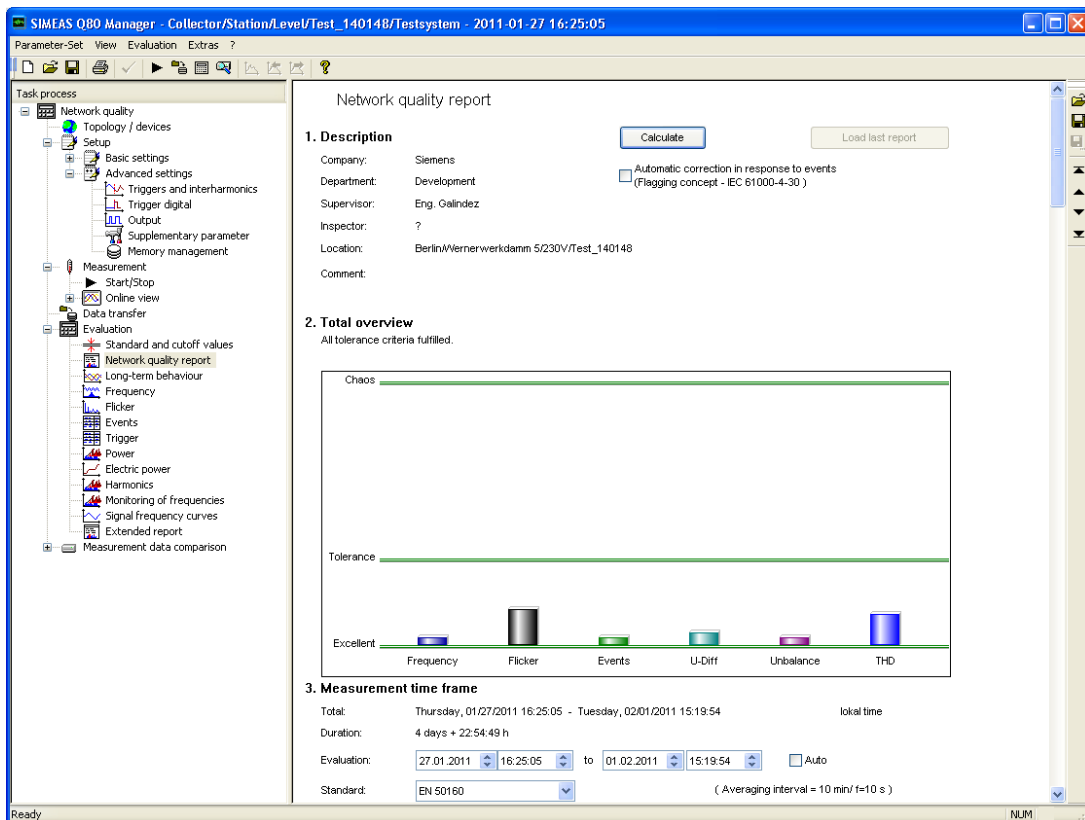- 



**Figure 28: Standard and cutoff values**

- Click on the "*Calculate"* button.



**Figure 29: Network quality report – overview**

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- After the calculation on the network quality report, another detailed evaluation can be made by the functions *("Long-term behavior", "Frequency", "Flicker", "Events"*, etc.) in a certain interval. By "*Events*", the duration and deep of the event is indicated as shown in Figure 30.
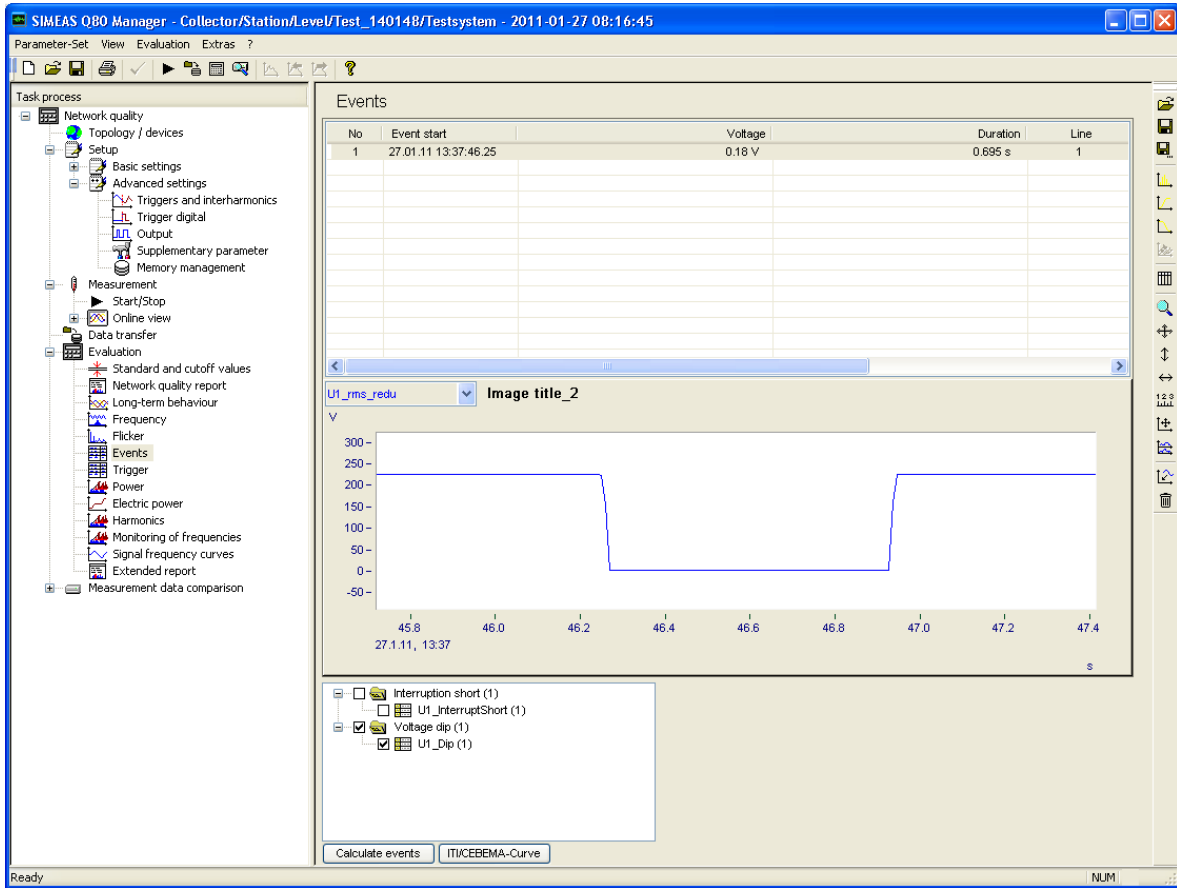


**Figure 30: Evaluation of Events**

## 5.3 Extended Report

If completed evaluations are created over several measurement intervals, the extended report function can be used.

A new evaluation interval can be defined by checking other measured reports (e.g. 7 daily measurements are combined into one weekly report, and with continuous measurement 100% of the measured data will be covered).
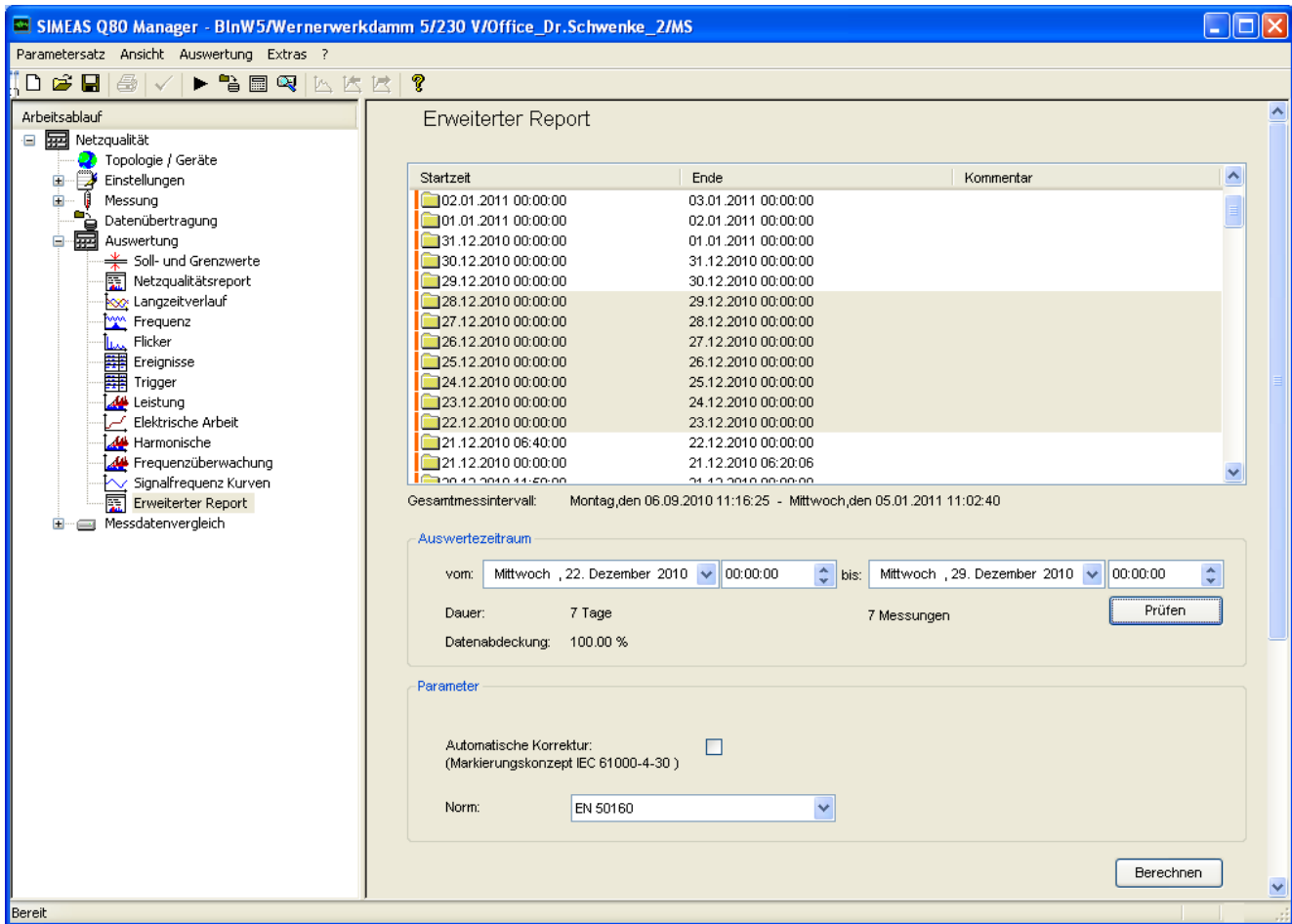


**Figure 31: Parameterization of an extended Power quality report**

## 5.4 Measurement status

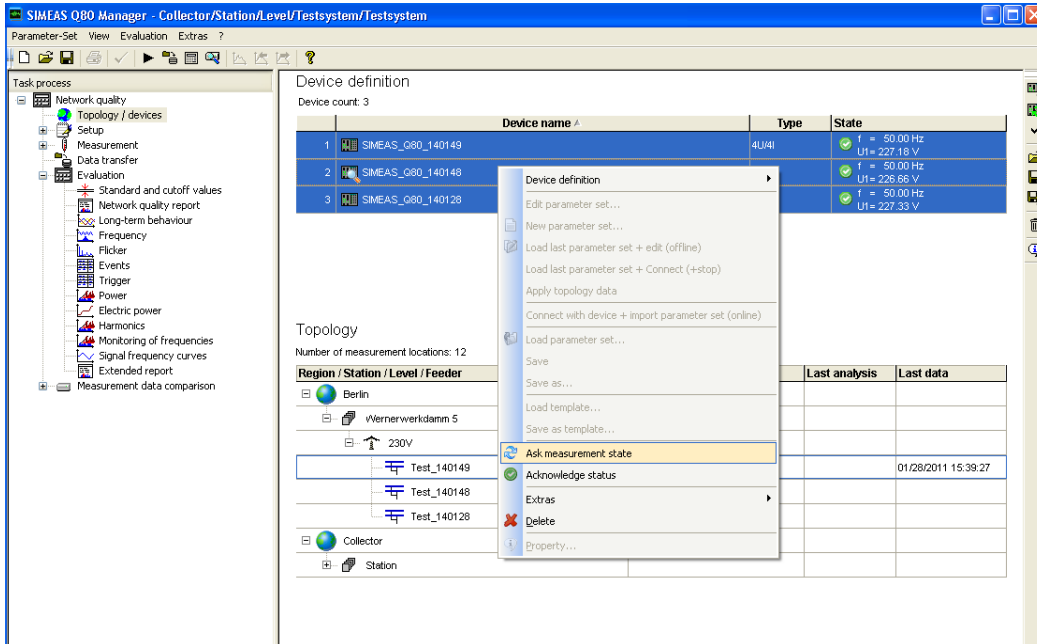By the selection of all devices in the device list, actions like ask measuring status or firmware update can be set.

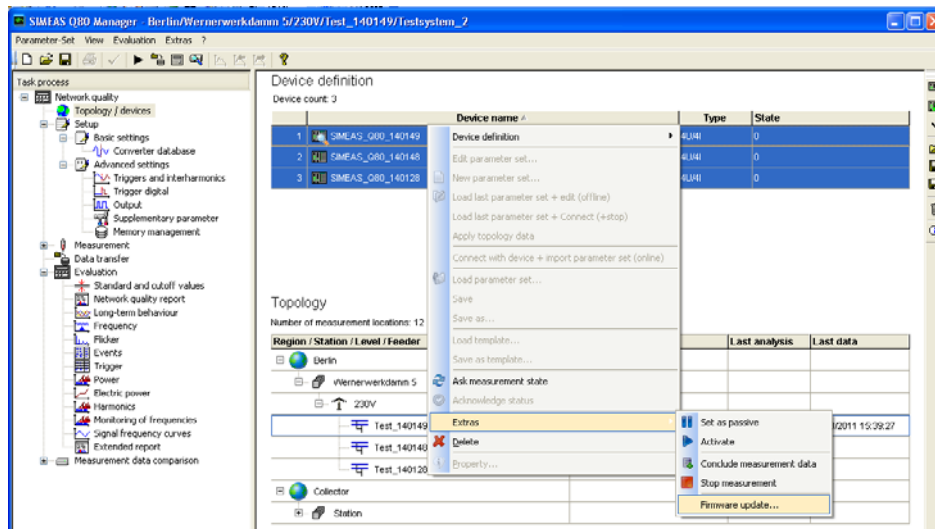

**Figure 32: Measuring state of all devices**



**Figure 33: Firmware update for all devices**

## 5.5 Access from another PC on the measurement data

The access to the database for the evaluation on PC is also possible from another PC. The list of devices and the topology can be exported and imported from another PC.
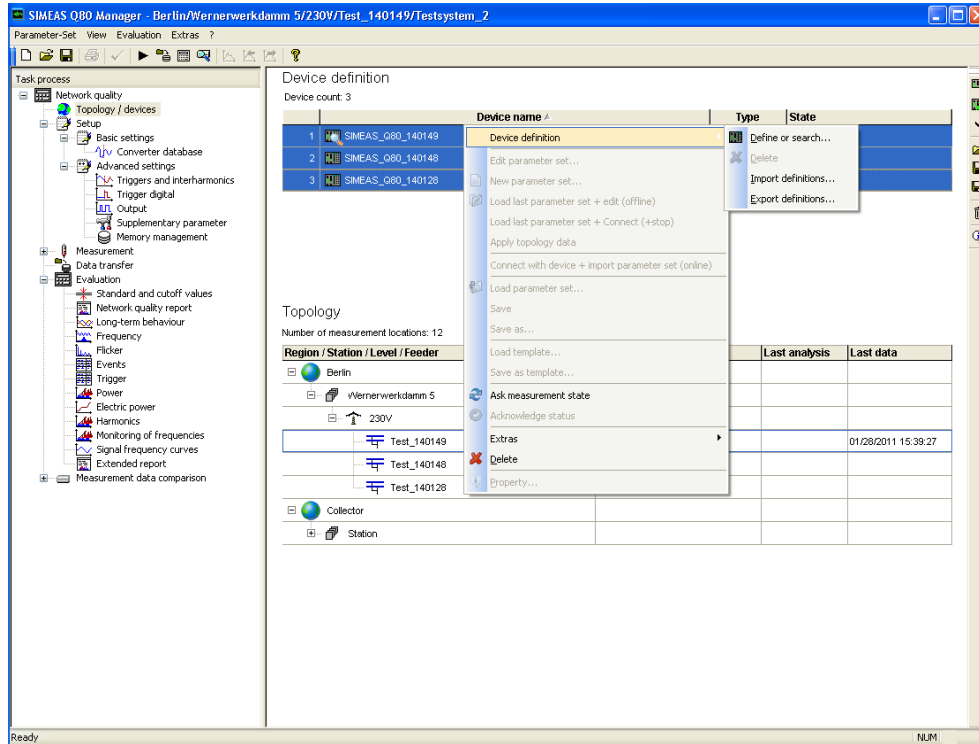


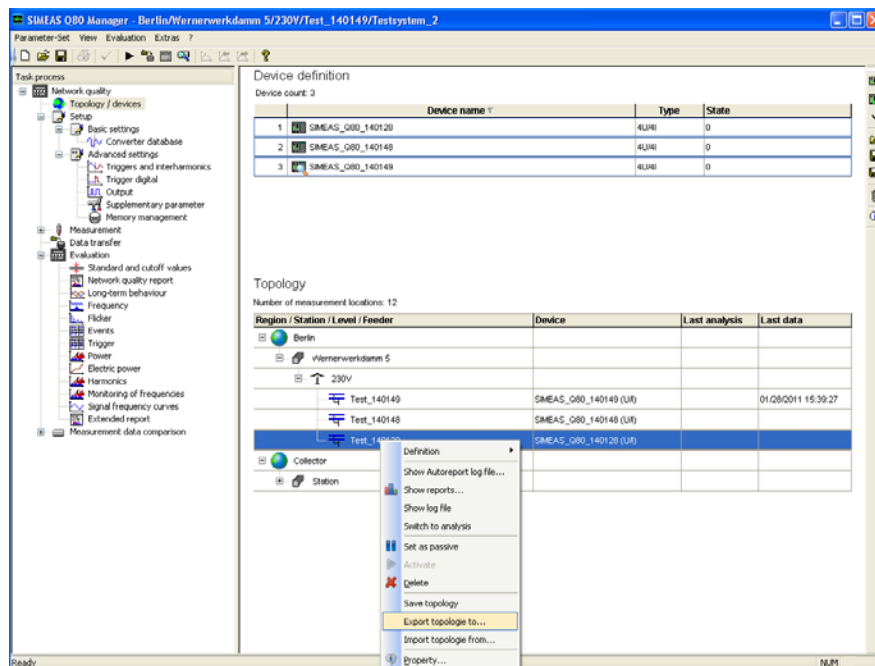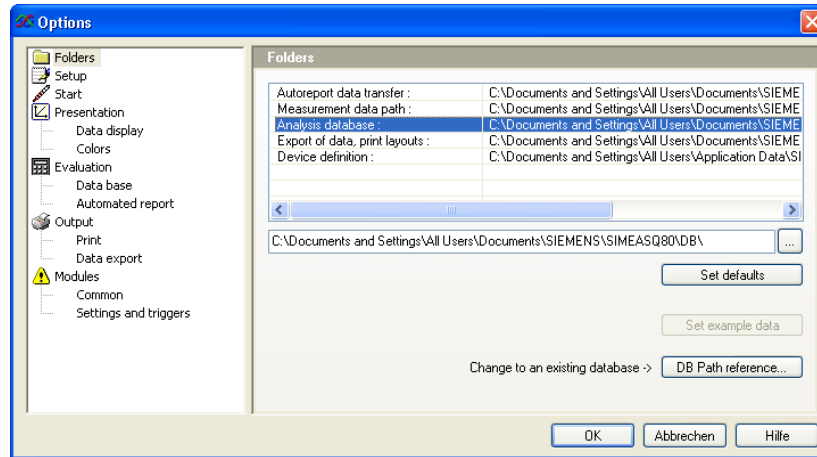**Figure 34: Import/ Export definitions**



**Figure 35: Export topology**

Furthermore, the directory path of the database from the evaluation PC must be enabled and in the other PC must be as drive connected. In SIMEAS Q80 Manager can be set up or changed the link between these paths.
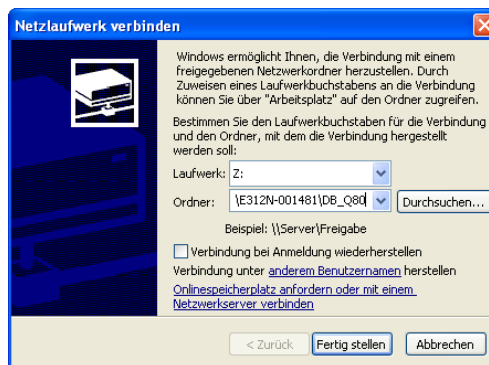


**Figure 36: index of database for the evaluation on PC**

In the existing data base is one or several links to data directories. These others links must be also adapted. The measuring data path is valid only for new data; a change will not affect the existing data.
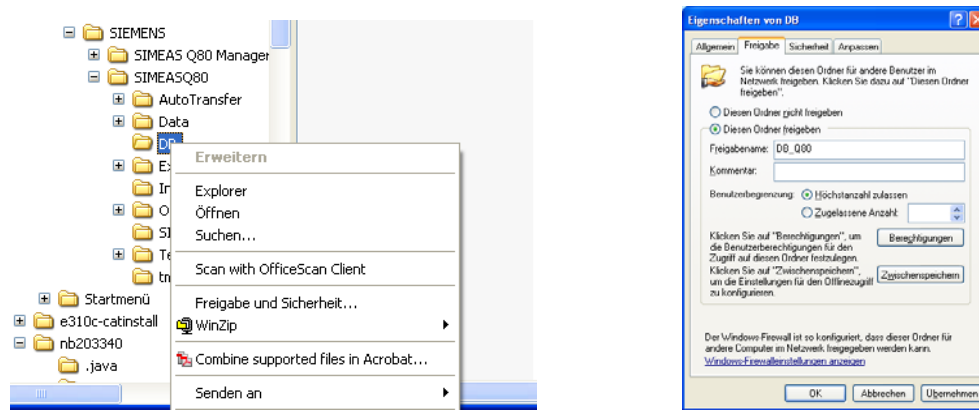


**Figure 37: Enable of the index of database for the evaluation on PC**



**Figure 38: Database folder connected in another PC**

## 5.6 Manipulation of data

The data transmission can be found in Q80 Manager. This feature allows you to transfer data from the measuring device to the PC. Once the data was transmitted, the measured data will be available in the database and can be analyzed or erased. The following steps can be use to delete an old measured task in the device.

- On the left part of the Q80 Manager Application, click on data transfer.
- Click on the button "*search hard disk*" and select the measurements the task to be deleted.
- Click on the button *"Delete"*.

Old data should be deleted regularly, since they contain parameter sets, which will be called from Autotransfer and therefore they will be indicated by the Configuration in Collector.
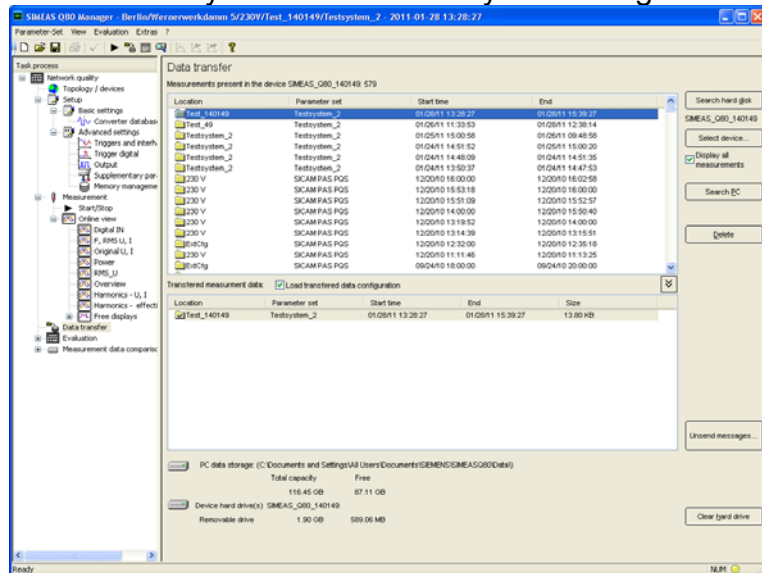


**Figure 39: Data transfer**