

Installation and operating instructions

AMBUS® Gate

A modular remote meter readout system

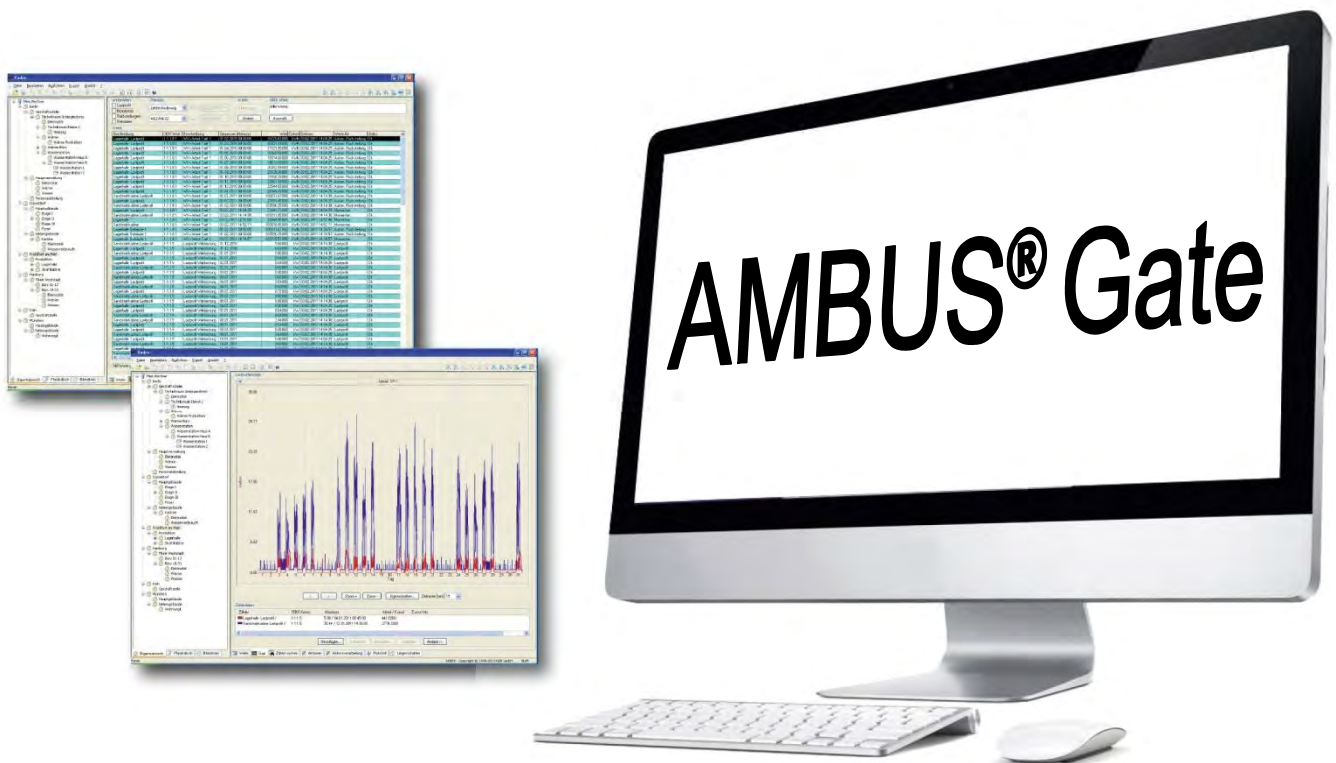


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1 Introduction

AMBUS®Gate is a high-execution remote meter reading system which was developed by INTEGRA Metering during 1998 and 1999, in order to reflect the varied requirements in the area of consumption meters (electric power, gas, water, heating etc.) in the development of a new system, right from the outset.

From the ground up, AMBUS®Gate has been developed as a system encompassing all manufacturers and is not linked to any meter type or protocols of a specific manufacturer. AMBUS Gate's component-oriented development towards a physical level, which illustrates the information path from the computer to the meter, and towards an organisational level, which reflects the corresponding commercial structure, is indeed unique in this market segment.

Moreover, AMBUS®Gate has been developed on a totally target-oriented basis and the possibility of adding further modules, e.g., protocols or meter types, also equips it for future requirements.

Below is a summary of the main functions of the AMBUS®Gate software:

Universal values database

All read data values, irrespective of the bus systems or meter types on which they are based, are saved to a standard database. Each value is converted to the OBIS standard and is then available for further processing.

Flexible bus systems

AMBUS®Gate supports M-Bus, LONWORKS®, IEC 1107 und bi-directional 433 MHz wireless-conformity meters.

Flexible meter connections

Its modular architecture allows AMBUS®Gate to support meters by various connections. For this, Dr. Neuhaus modems, ABB modems, Enercom 100 modems, Bär modems, Wackenhut modems or other conversion factors are, for example, available. By developing other modules, other conversion factors can also be supported, with the result that AMBUS Gate is almost arbitrarily configurable to the physical circumstances of the meter connection.

Easy meter management

Meters, irrespective of type, are stored at an organisational and physical level and can be administered from these angles. All types of meter are stored in a separate database so that the end-user does not have to set detailed configuration options but only global parameters, such as a bus address.

Actions

On any organisational or physical level, thus even with any meter, AMBUS Gate allows any number of "actions" to be defined. Actions are modules which AMBUS Gate can implement at prestipulated times and intervals. Examples we can give are readout actions with which the selected meter range can be read out according to specific criteria (e.g. desired OBIS characteristic values).

Export profiles

AMBUS Gate allows any number of export profiles to be produced, which fill a data export in each case. An export profile can export to various formats, e.g., MS Excel or a ZVEI-compliant ASCII file and MSCONS EDIFACT. Export profiles may be saved as an action at any time, to enable an automatic export. The export data are available as files in predefined directories or are sent automatically as ASCII-based emails.

Graphic and tabular display

On the one hand, the meter data can be displayed in clear, tabular form and, on the other hand, in a graph.

System requirements

- Single-user version of AMBUS®Gate requires the following minimum PC components in order to run: Microsoft Windows 2000/XP or Windows Vista
- Client/server version of AMBUS Gate requires the following minimum PC components in order to run: Microsoft Windows XP or Windows 2003 Server
- Pentium 1 GHz
- 512MB RAM
- 300MB available hard drive space (space depends on the number of meters to be set up in AMBUS Gate)
- 1024 x 768 screen resolution
- Windows-compatible mouse
- Windows-compatible modem (for remote meter reading at the control centre)
- USB port for licence dongle

Detailed prototyping

Each execution of actions, such as readouts, is saved by AMBUS Gate to the database in its own protocol table and can be viewed by the user at any time.

Variable time base

AMBUS Gate converts all the meter data to UTC format. This guarantees that no data are lost during any time change from CET to CEST and that the user still has the greatest possible flexibility for displaying values. In all of AMBUS Gate's value displays, the user can choose which time base they would like to see, e.g., UTC/ CET or CET/CEST.

The time bases explained:

- UTC: Universal Time also known as Greenwich Mean Time (GMT) (zero hour)
 - CET: European Time (UTC + one hour)
 - MESZ: Central European Summer Time (UTC + two hours)
-

2 Database support

Before a start can be made to actually installing AMBUS Gate, a decision should be made on the database to be used.

AMBUS Gate can be installed for two database systems.

Single MS Access-compatible database

AMBUS Gate contains all the necessary database drivers, so that no additional licence costs have to be paid for them.

MS SQL server 2005 database

There is a version of the licence-free Microsoft SQL Server 2005 Express Edition on the AMBUS Gate installation CD. It is limited to a maximum of 4GB data volume. No additional licence costs have to be paid for it.

If a larger SQL Server installation with more than 4GB data volume is planned, an MS SQL server 2005 licence must be obtained.

The MS Access-compatible database should be used for single-user versions and for smaller quantities of data. 500 or 1000 single M-Bus meters can be easily processed with this variant but it is not advised to install hundreds of load profile meters.

In addition to more powerful database implementation, the MS SQL server offers the possibility of creating backups online, as well as executing automatic database optimisation, and should, therefore, be used for systems which have to be online 24 hours a day. The SQL Server is also suitable for network installations. The individual possibilities of an SQL Server-based installation are illustrated in the following diagram:

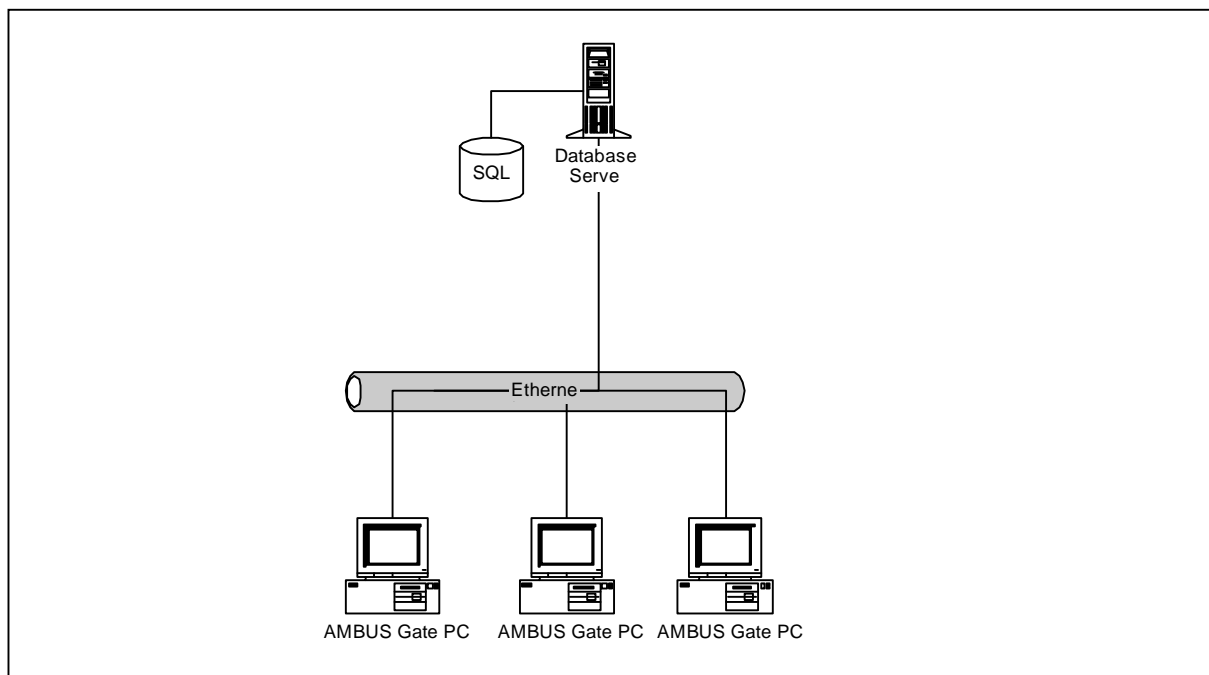


Fig. 2-1 AMBUS®Gate SQL Server configuration possibilities

As can be seen from the diagram, the SQL Server can be configured for a small network installation.

For instructions on configuring individual features of an SQL Server installation, e.g. for setting up automatic backups and data replications with other sites, you should ask your local system provider.

Please bear in mind that AMBUS®Gate can always use both database systems.

3 Installation

The AMBUS®Gate single-user version runs identically on Windows 2000/XP and Vista, and that is why only the installation in Windows XP is described here.

If there is already a previous AMBUS®Gate installation on your computer, there is, therefore, no need to delete it. The existing version is simply updated.

The copy-protection dongle has to be installed on the computer only when the program starts. It does not have to be connected for the actual installation.

To install AMBUS®Gate on a computer, you must proceed as follows:

Please insert the CD-ROM in your CD-ROM drive. Internet Explorer opens automatically. "Install" must now be selected in the AMBUS®Gate single-user version.

After start-up, the following welcome screen appears:



Fig. 3-1 Welcome screen

Click "Continue" to continue installing AMBUS®Gate.



Fig. 3-2 Licence agreement

Read the general licensing conditions. Then choose the option, "I agree with the licensing agreement conditions", if you accept the conditions and would like to continue with the installation. The user and company names must then be entered below:



Fig. 3-3 User and company names

After confirmation of user and company name entry, the dialogue for specifying the target directory appears:



Fig. 3-4 Target directory selection

The default should normally be accepted. Another path may, however, be selected.

Note: If another AMBUS®Gate installation is already on the target computer, the path for the existing installation must be specified. To avoid problems, it is recommended that you accept the default installation.

If the target directory has been chosen, the next step is to specify the user's desired software features:



Fig. 3-5 Selection of software features:

The individual features are explained here:

AMBUS®Gate

Installation of the AMBUS®Gate software with an MS Access database to store the read and evaluated data. The condition for using this software is a valid licence dongle.

Dongle driver

Installs the dongle driver. AMBUS®Gate requires this driver, to be able to access the licence dongle.

Open SQL Server database

Creates an SQL Server database on an already installed SQL Server and links it with AMBUS®Gate. Install a version of the SQL Server available to you, in order to be able to use this option. If you do not open any SQL Server database, an MS Access database opens automatically.

Adobe Acrobat Reader

Installs Adobe Acrobat Reader for viewing/readout PDF documents. This is necessary for readout the user manual in electronic form.

After the selection of the features comes the installation request:

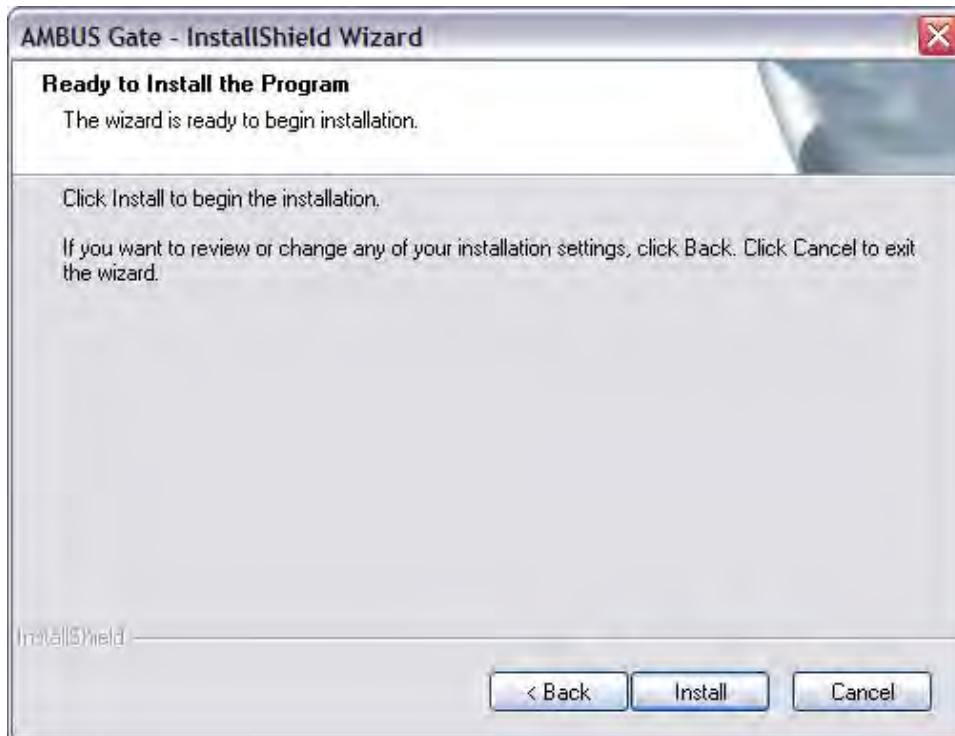


Fig. 3-6 Installation

The installation runs after the "Install" button has been pressed.

After the installation has been completed, the release notes for the current version can be displayed:



Fig. 3-7 Finish installation

After installation, AMBUS®Gate is available for use. The hardware protection device (dongle) must be connected to the computer's USB port.

AMBUS®Gate can be conveniently started from the Start Menu, using Program Files >Aquametro >AMBUS Gate.

4 Operation

4.1 Program start

To start AMBUS®Gate, please go to Start Menu > Programs > Aquametro and select the application "AMBUS Gate".

During the start-up process, a start screen is shown which displays the loading process. The AMBUS®Gate database is updated during the loading process.

If there is no hardware protection device, the following message is displayed:



Fig. 4-1 Licence not found

Please ensure that there is a properly licensed hardware protection device (dongle) on your computer. AMBUS®Gate does not work without this hardware protection device.

4.2 Introduction to the AMBUS®Gate structure

AMBUS®Gate is designed as a modular remote meter reading system which wins support on account of its easy, flexible configuration, logical structure and consistent user guidance. In order to represent the various installation options in metering, e.g. use of conversion factors, modems, meters, buses and protocols, an analogue structure has been chosen for the software, so that the installation of devices in the software corresponds logically to the real installation.

For this, a hierarchical concept was chosen, which reflects the physical path of the signals from the local computer right to the meter. This path can be graphically configured by AMBUS®Gate. No external files, scripts or other configuration information must be processed. All the information which has to be configured to set up a meter or other devices can be processed in the standard AMBUS®Gate interface.

During AMBUS®Gate's development, much emphasis has been placed on user guidance, so that only the really essential information is read out by the user. Much device-specific information, such as, for example, query telegrams for ZVEI [Central Association for Electricity and Industry] meters or for M-Bus meters is stored in a "device database", which is primarily serviced and updated by Aquametro. End user can thus conveniently select a device type and only configure simpler parameters such as a bus address or a baud rate. They do not, however, have to concern themselves with many internal parameters.

AMBUS®Gate does not contain any kind of commercial analysis of the acquired data, such as invoicing or classification of meter data. Integration with other systems, to achieve an overall management and analysis system should be pointed out, such as one in the most simplified form, a calculation by MS Excel, or in the more advanced form, with incorporation in the IS-U/CCS System of SAP R/3.

4.3 *Fundamentals of AMBUS®Gate and EDIS/OBIS*

From the ground up, AMBUS®Gate has been developed as a system, in order to read out and control meters from any manufacturer. Thus AMBUS®Gate is not tied to the meters, protocols, physical interfaces or modems of specific manufacturers but, by means of adapting and adding modules, offers the possibility of supporting any kind of bus protocols, meters and modems, as well as conversion factors.

This autonomy regarding specific bus systems brings with it the problem of standardising the value indicators of individual buses. In the early days of AMBUS®Gate, the EDIS index system existed as a draft (DIN 43863-3), which was later accepted into the OBIS (Object ID System) standard. In addition to the information on financial highlights in the electric power area, the financial control systems of other major media are available in this OBIS.

That is why the focus during development has been on combining all the values and information into a standard financial control system. Since the EDIS standard was the most advanced for its day, and could, in theory, accommodate all types of energy, it was chosen as the standard for AMBUS®Gate. Since there is now, in OBIS, an official standard, the financial control system has been cautiously expanded and extended in accordance with this standard. Unfortunately there has still not been any agreement among the manufacturers in the gas and water/heating area, with the result that the OBIS financial control system is used only by manufacturers in the electric power area. Efforts towards standardisation are, however, being made. (January 2006 version)

For the end-user, many advantages are now being created by this AMBUS®Gate standardisation. The end-user no longer has to concern themselves with which value is read by which bus system, in order to be able to compare, for example, an M bus electricity meter with a ZVEI meter, but all the values are uniformly labelled in the database and the display.

A unified standard can also be made a condition of the further export of meter values in clearing systems and AMBUS®Gate can be used as a central integration solution which comprehensively solves the technical problems of remote meter reading

4.4 AMBUS®Gate basic screen

AMBUS®Gate provides the following user interface to configure the various configuration options and readout mechanisms:

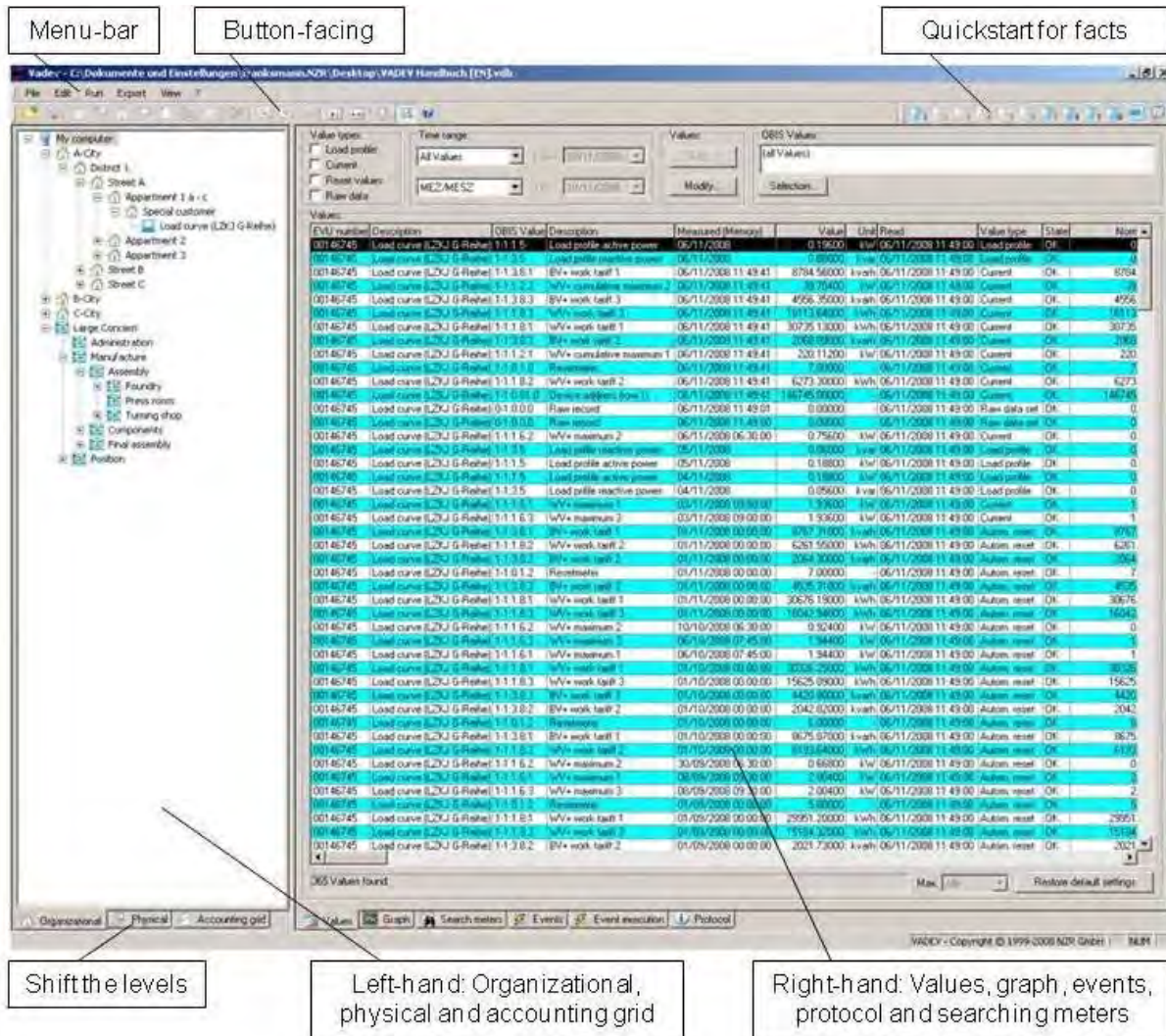


Fig. 4-2 Basic screen

The AMBUS®Gate user interface is based on Windows Explorer, in order to markedly reduce the user induction period. Navigating in the meter database is similar to navigating on the hard disk.

The AMBUS®Gate basic screen is divided into two halves. On the left-hand side is the meter base, displayed either in organisational or physical sequence. Other functions are possible on the right-hand side, especially the display of values, diagrams, actions and protocol information, as well as the meter search.

Since both halves of the screen provide related information, the halves can be synchronised. This displays, for example, the values of the currently selected meter or of the level, or marks the meter being searched on the left half of the screen. Since a synchronisation process can last for several seconds, depending on the circumstances, synchronisation is normally switched off but can, however, be switched on in the "View" menu on a one-off or permanent basis.

4.5 Opening databases

AMBUS®Gate can manage several databases. This can, for example, be used for managing clients or for switching between MS-Access and SQL Server databases. To open a database, the *File/Open* menu item must be selected, whereupon the following dialogue is displayed:



Fig. 4-3 Database type selection

Always open this database

With this option, you set the standard database. It is automatically loaded the next time the program starts.

AMBUS®Gate database file (MS Access 2000)

Here you can select which data source should be opened. When you select a AMBUS®Gate database file, the usual file selection dialogue appears.

AMBUS®Gate archive database file

This selection opens an archive database file. An archive database file contains archived meter data. You can display, show in diagram form, or export these meter data.

MS SQL server data source

If an SQL Server data source is opened, a standard data link dialogue appears, for which the database must be selected:

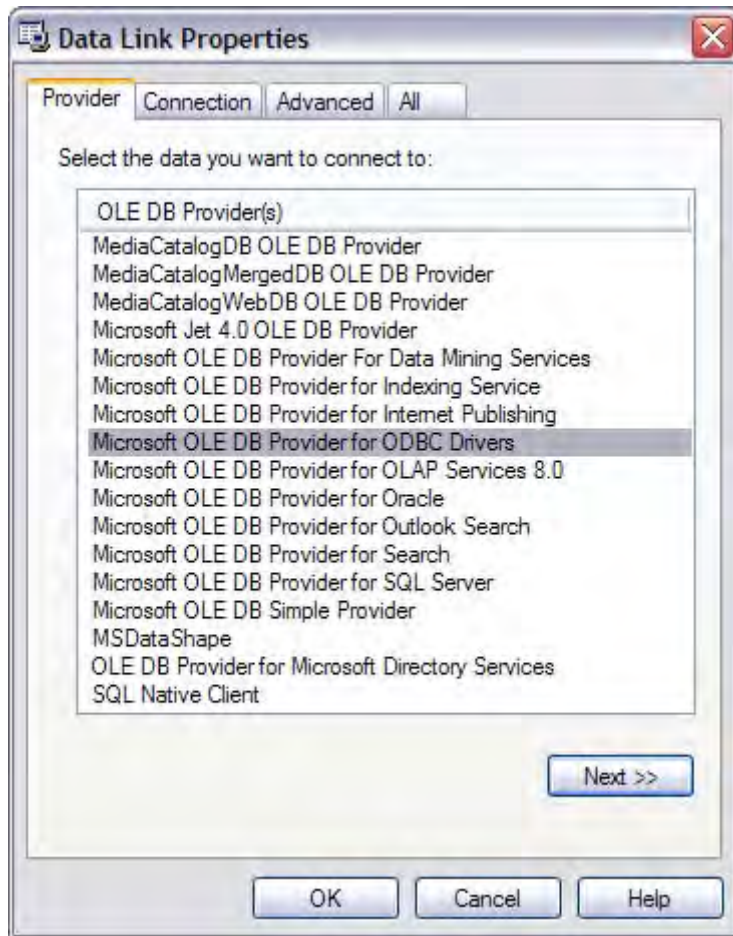


Fig. 4-4 Data linking provider

Here you must select, “*Microsoft OLE DB Provider for SQL Server*”. Then click “Continue”.

Note: It is also possible to use other database systems from AMBUS®Gate - Oracle, for example. Generally speaking, these have not yet been tested for their functionality with AMBUS®Gate, and in that respect it is impossible to make a statement as to whether AMBUS®Gate also works perfectly in these databases. In individual cases, please contact Aquametro to clarify possibilities of having AMBUS®Gate operate with other database systems.

In the next window, information then appears for connecting the particular database:



Fig. 4-5 Data linking server

- Server name
Using the pop-up menu, all the SQL servers which exist in the domain can be shown. In this way, select an SQL Server which exists in the network and which manages the AMBUS®Gate database.
Note: In the case of an SQL Server installation on the same computer, this field can be left blank.
- Icon
 - Windows 2000/XP/2003/Vista clients
For clients based on Windows NT, Windows NT's integrated security should be selected.
- Database
All the databases managed by the SQL Server can be displayed via the pop-up menu. In this case, the AMBUS®Gate database must be selected. As standard, this is *AgateDB*. Finally, "Test Connection" must be pressed in order to ensure that the connection data have been correctly entered. This should be acknowledged by the following message.



Fig. 4-6 Test connection

After confirmation with the *OK* button, AMBUS®Gate opens the particular database on the SQL Server.

4.6 Explanation of the physical and organisational levels

In order to select a display of the meter installation which is as realistic as possible, a hierarchical sequence of meters has been developed, in order to replicate a meter's real installation path in the software, too. This supports the user in the installation process, especially if the physical path is rather complex and contains several devices and conversion factors.

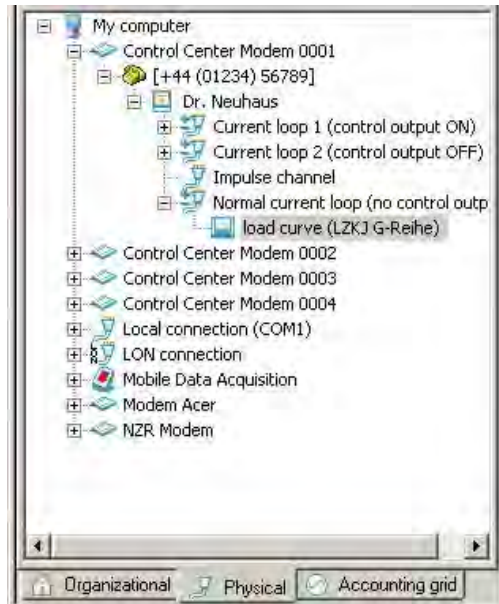


Fig. 4-7 Physical level

As can be seen, the path to the *Load curve (LZKJ G-series)* meter leads through a local control modem *Control modem_0001*, the phone number level below it *[+44 (01234) 56789]*, a meter modem *Dr. Neuhaus* and its power interface without control output. This path must be graphically configured and also adjusted physically, using the appropriate wires. From this information, AMBUS®Gate creates all the necessary switching and parameterisation information, in order to communicate with the meter.

As a counterpart to the physical level, an organisational level has also been created, which enables meters to be sequenced organisationally. In this process, the user is completely free to configure suitable classification methods and levels for themselves. The meaning of the organisational level will become clear with later readouts or exports, as organisation is necessary according to, for example, street, customer or tariff, which has no connection at all with the physical requirements such as, for example, modem or 2-wire line.

As a result of the consistent separation of organisational and physical levels, a prominent execution characteristic of the AMBUS®Gate software also becomes clear, and that is the free configuration and allocation of meters and customers. With AMBUS®Gate it is not necessary to allocate a modem phone number to every meter or to connect meters in accordance with the customer structures. Instead, decisions can be made according to local perspectives in planning the meter network, i.e. if two meters are in proximity to one another at local level, they can be connected to the same bus cable, even if this affects various customers, residential streets or districts.

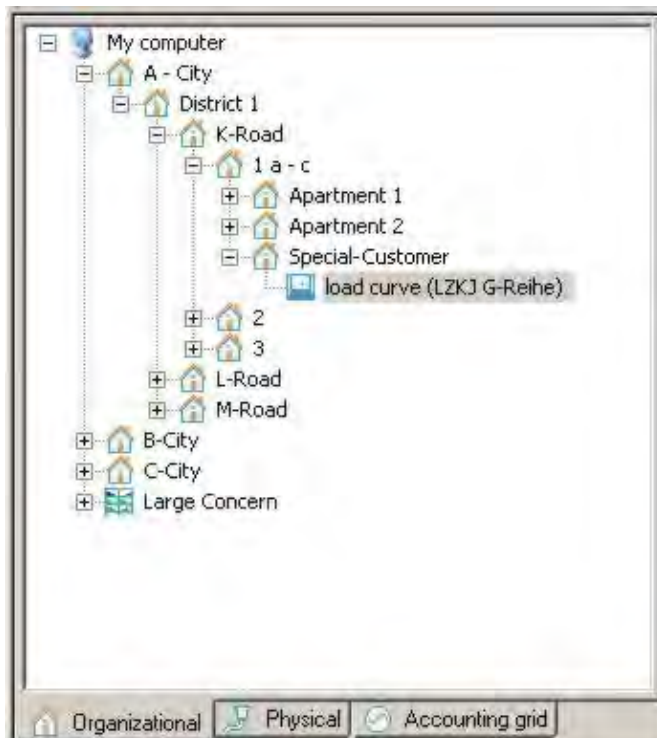


Fig. 4-8 Organisational level

As can be seen from the example, the load profile meter (LZKJ G-Reihe) is physically connected to the cable of the Dr. Neuhaus modem, but is allocated completely independently on an organisational level.

The result of this concept is that every meter appears both on the physical level and on the organisational level. The couplers (residential blocks or modems), however, exist only in the particular hierarchy.

To make it easier to find meters on both levels, the last selected meter is automatically sought and displayed when the levels are switched.

4.7 Explanation of the right screen half

Further information on the configured meters and information is displayed on the right half of the screen, such as the values read in tables or graphs, or the configured actions and also the actions currently being executed, as well as protocol reports of the completed actions.

The search function of meters should hereby be emphasised. As a result of sequencing on organisational and physical levels, the organisation of meters is indeed simplified but it is distinctly more complicated to find meters other than by organisational sequences, as, in theory, all the levels must be searched manually - which is not practicable, especially in the case of a large stock of meters. That is why a search function is provided for AMBUS®Gate, which makes it possible to search for meters under several search criteria, e.g. the EVU [electricity supply company] number or the owner's name. The meters found can finally be displayed at the appropriate level, organisationally or physically, by means of synchronisation. The search function is described in more detail in other chapters.

4.8 Setting up meters

Before a new meter is set up, the appropriate levels should firstly be created, so that the meter may be easily sequenced.

4.8.1 Creating organisational levels

In order to create an organisational level, the higher organisational level on which a new one is to be created, must be selected. In the case of an empty database, this is simply the "My Computer" level.

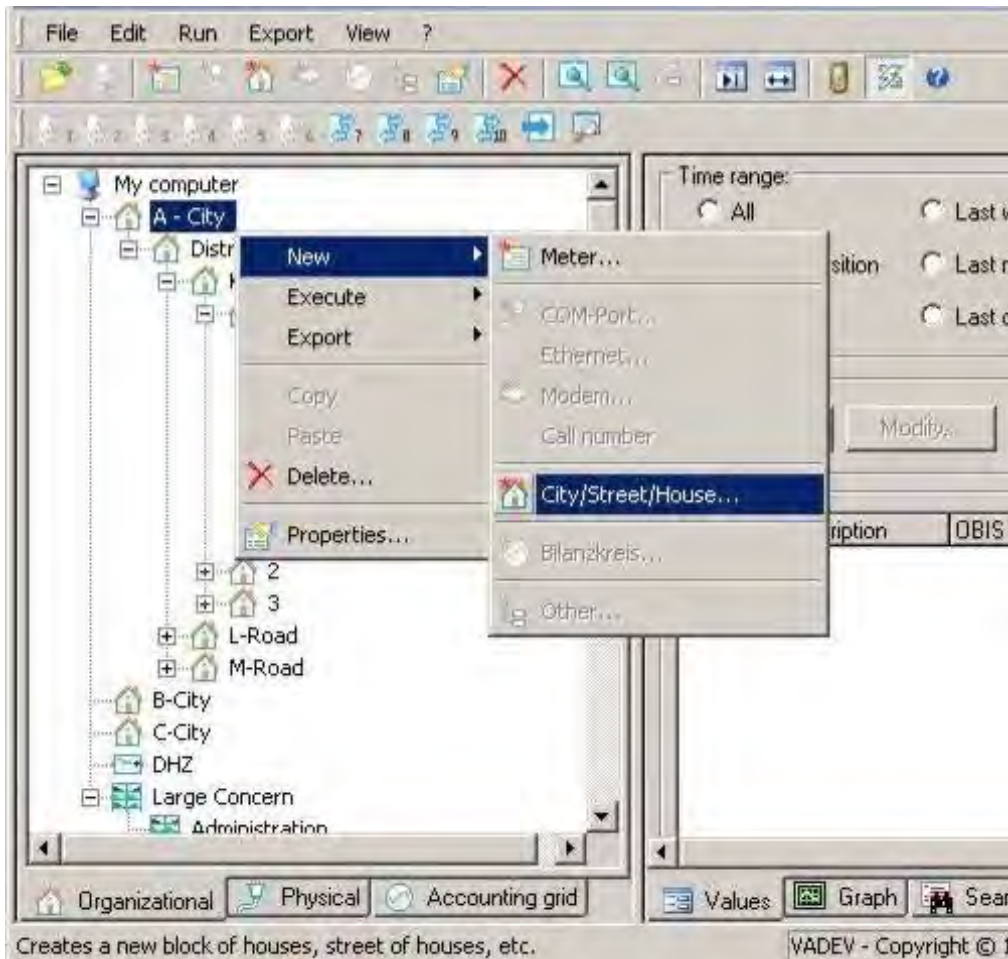



Fig. 4-9 Opening house/block

At this level a house or block can be created with the right mouse button either under the *New* item, from the button bar () or from the *Edit/New* menu.

Then the characteristics of the new level are shown as follows:

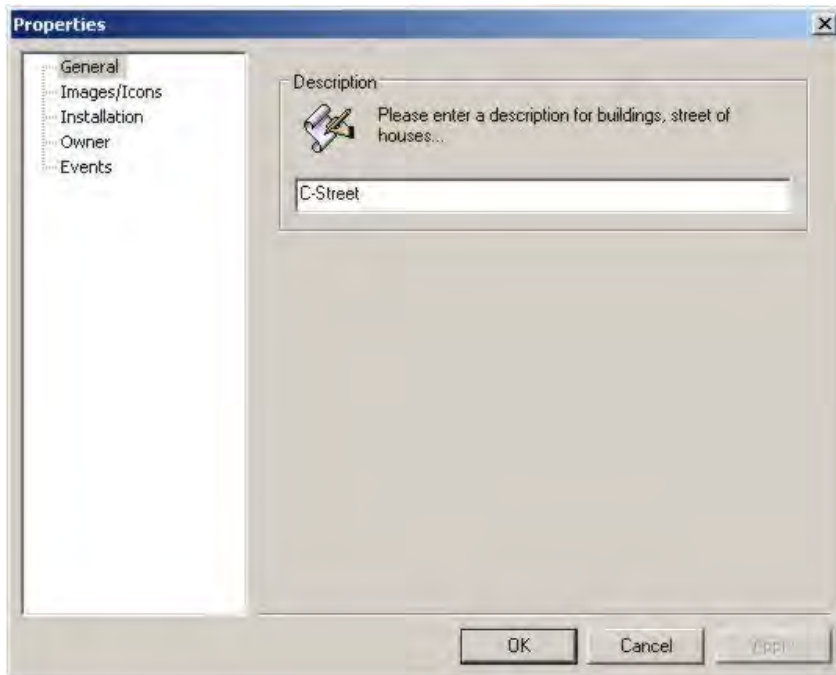


Fig. 4-10 Opening house/block > General

General

Allows a name to be entered for the level. This name is then displayed accordingly on the left side of the screen, and should be used by the user for ID (similar to a directory name).

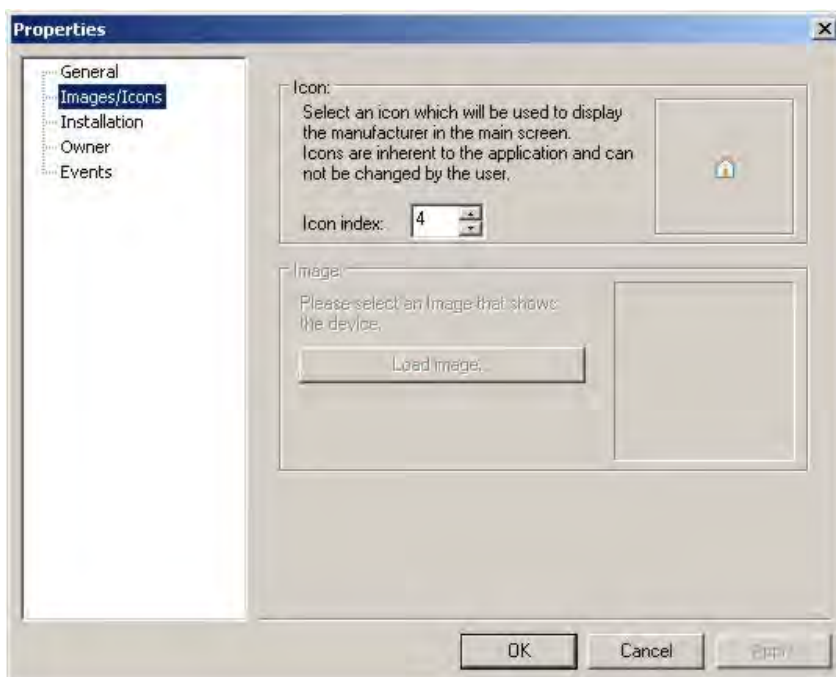


Fig. 4-11 Opening house/block > Images/icons

Images/icons

Here an icon (tiny image), which provides the user with fast ID of the level, can be allocated to the level.

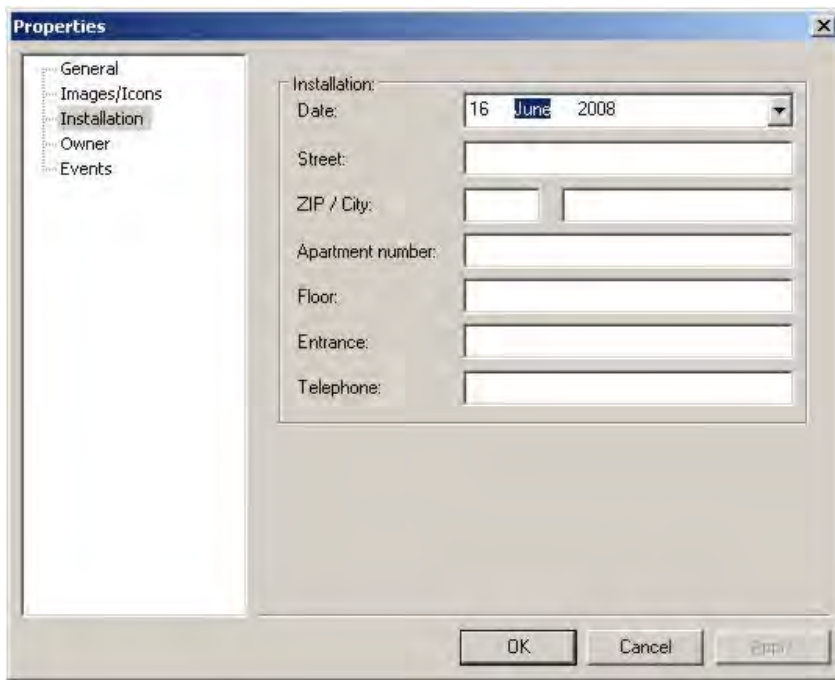


Fig. 4-12 Opening house/block > Installation

Installation

As an option, information on the subsequent installation site and the owner of meters can be entered here. This information is copied to the lower levels in order to achieve a situation, while data is being created, in which the information does not have to be entered afresh for every meter from every level but is accepted once when the previous level is opened.

In order to use this functionality as fully as possible, it is recommended to set up a creation process of levels above town > street > house.

The acceptance of installation data from the particular levels should be displayed as follows:

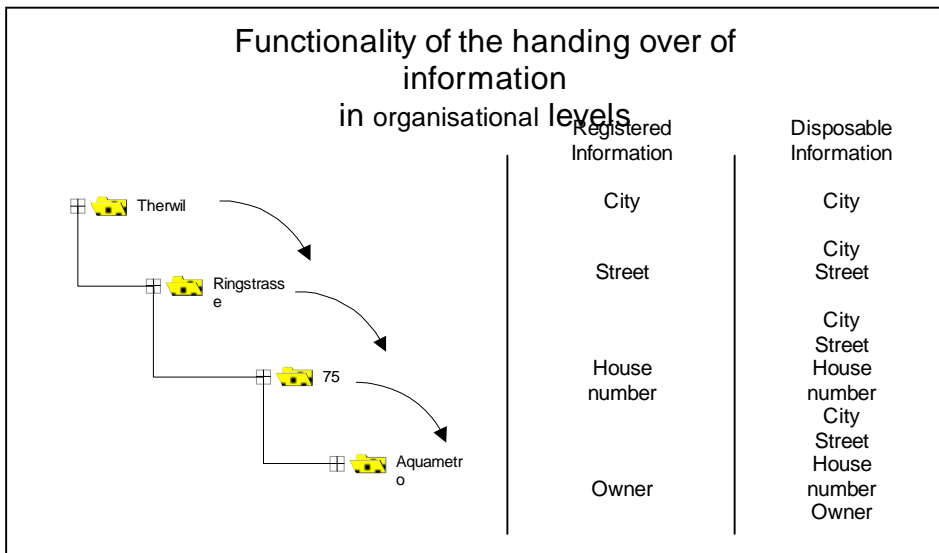


Fig. 4-13 Transfer of information - organisational

Only the new information is entered at each level; all the other information is transferred from the higher levels.

It should be remembered that this sequence is only a suggestion, in order to simplify further entries. AMBUS®Gate does not prescribe any particular structure at the organisational level; it can be set up as desired.

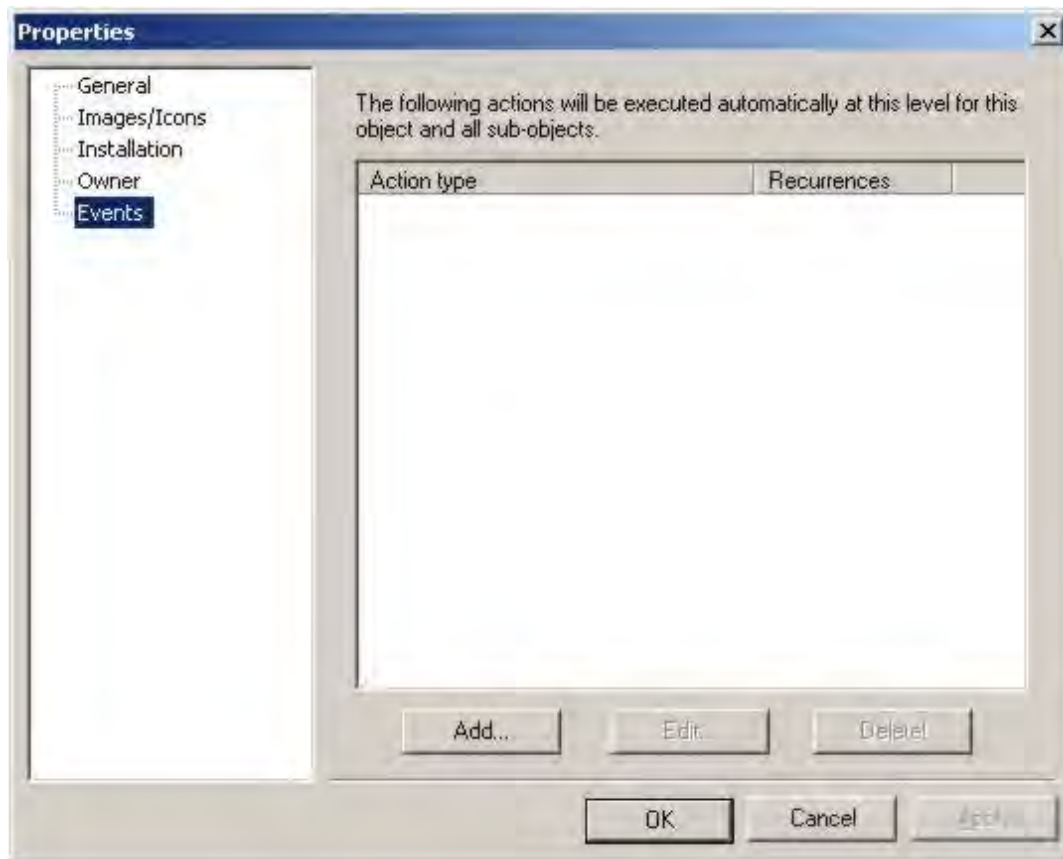


Fig. 4-14 Opening house/block > Actions

Here you can enter actions which should be executed at this level. An action always refers to a level and all the sub levels contained in it, for example, meters. If, for example, a readout action is defined at the level of a residential street, all the meters in the residential street are read.

4.8.2 Creating physical levels

Physical levels reflect, step-by-step, a meter's physical connecting path in AMBUS®Gate. AMBUS®Gate uses these levels to develop a connection with a meter, whereby each physical level is discreetly provided by a driver in AMBUS®Gate and can provide special functions, such as a Dr. Neuhaus modem.

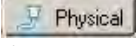
Setting up physical levels is, of course, not as flexible as setting up the organisational levels, as AMBUS®Gate already prevents impossible connections. A meter, for example, can thus not be connected directly to the computer but only via a local COM port, an MDE device or via a modem. That is why it can happen that AMBUS®Gate does not allow a further level to be set up under a specific level e.g. you cannot connect a Dr. Neuhaus meter modem directly to your computer, only via a control modem. In this case, please check the currently selected level.

A physical connection to a Dr Neuhaus modem via a modem route is developed below. Refer to the following chapters for other modems or another connection (such as M-Bus, LON or wireless).

In reality, a meter is connected via a Dr Neuhaus modem, via the following stations from your own computer:

- > a local modem (control modem)
- > the Dr Neuhaus modem
- > the particular current loop of the Dr Neuhaus modem
- > the actual meter (20 mA meter, connected directly)

This physical connecting path can now be directly configured in the AMBUS®Gate software.

Firstly, the physical level for the display must be selected by clicking the correct button (). Then, in a similar way to creating an organisational level, the next higher level, in this case the *My computer* level, must be selected. As a first step, the control modem, or preferably the modem route, must now be configured. This occurs by making a selection with the right mouse button and the

New.../Modem menu item, by pressing the () symbol or via the *Edit/New.../Modem* menu.

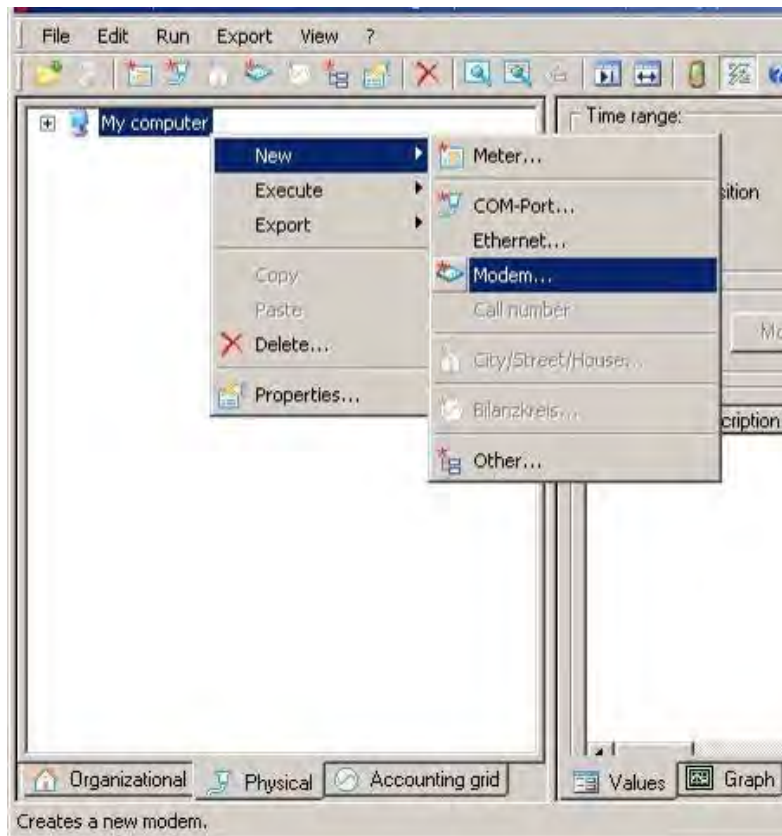


Fig. 4-15 Opening modem

Now, as a first step, a level for a control modem must be configured:

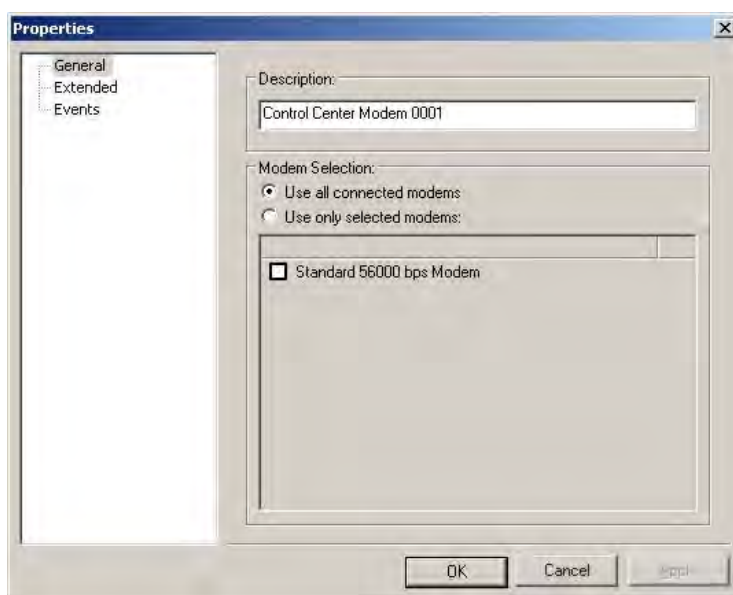


Fig. 4-16 Modem → General

In the name field, any name you like must be allocated to a control modem. The choice of modem for readout can be left to the system using “*Use all connected modems*”. Alternatively, with the “*Use only the selected modems*” option, the choice can be limited to the selected modems.

In the second step, any extended modem settings must be introduced:

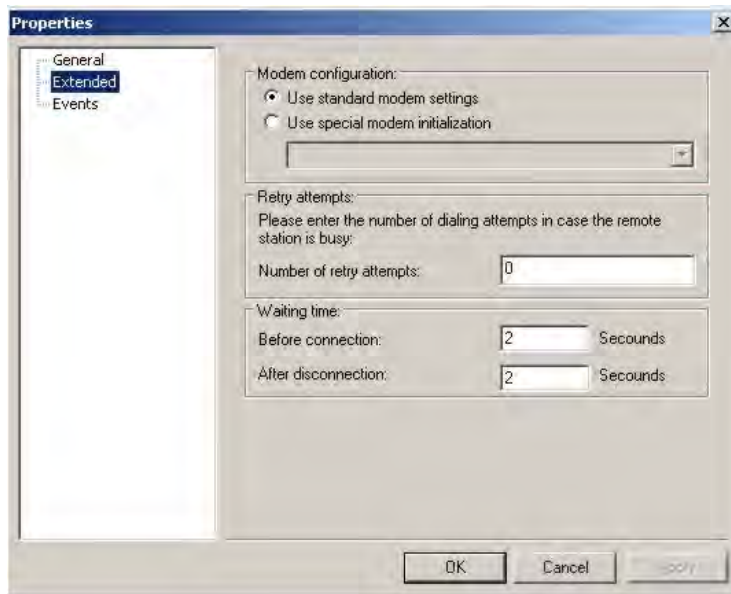


Fig. 4-17 Opening modem → Extended

If the control modem in use needs extended settings (see manual for the modem in use), they must be entered under the “Use special modem initialization” option.

With the “Number of retry attempts” option, the number must be set which shows how often the try should be started to establish a connection with the meter modem, if it is not successful.

Here it is also possible to specify waiting times before and after establishing the connection.

At this control level, one (or more) phone number levels must now be set up.

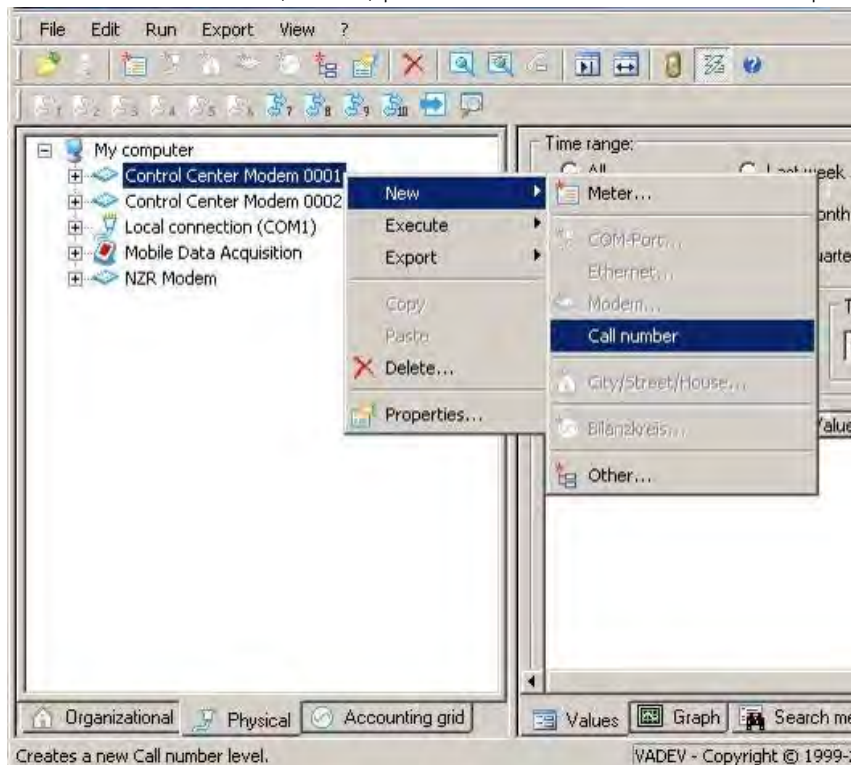


Fig. 4-18 Opening phone number

This modem route contains, in the form of information, the phone number for dialling, which must be entered as **connection** in modem properties.

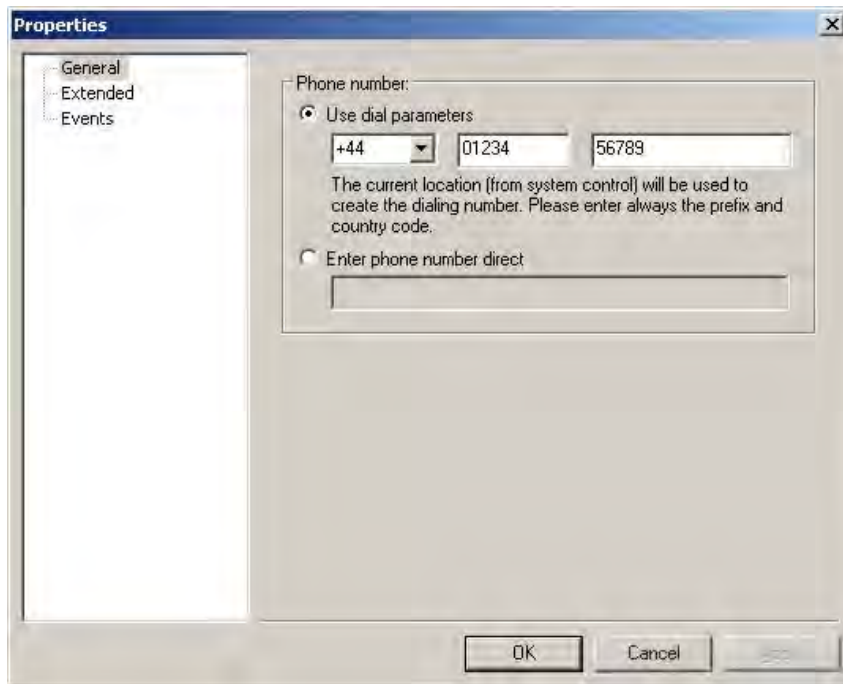


Fig. 4-19 Opening modem → General

For the *Use dialling parameters* item, the complete number, including country code, must now be entered. The other configuration items are listed in Chapter 6 Device information. Special modem parameters for data transfer must possibly be set in expanded form for this item.

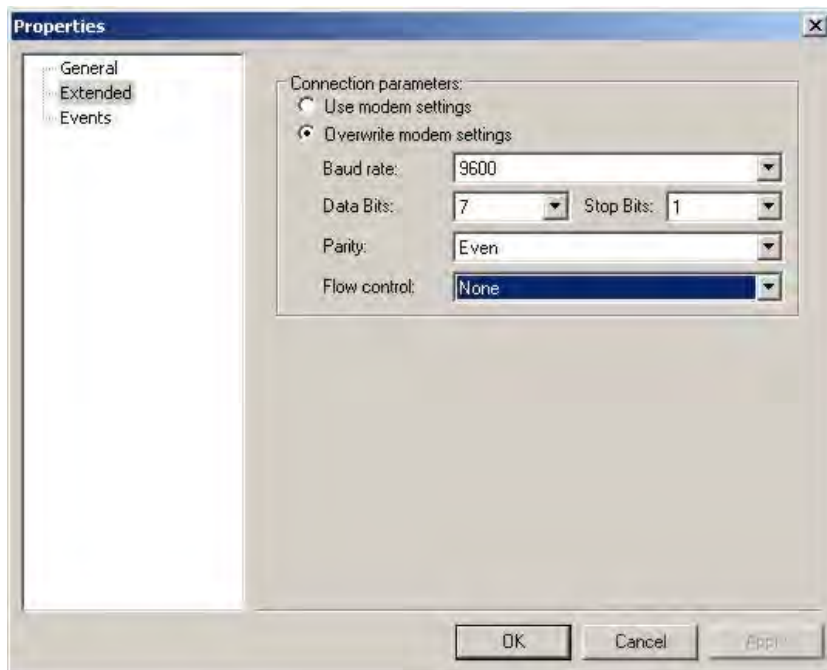



Fig. 4-20 Opening modem → Extended

The modem's data rate is now set to the transparent readout of an IEC1107 meter. This is necessary for transparent mode. In our example, however, the number of modem settings is sufficient because a Dr Neuhaus modem is installed later.

After the distance for the control modem is configured, the next thing that has to be done is to connect a meter modem (Dr Neuhaus modem, in this case) to the control modem. For this purpose, the modem just created must be selected by the right mouse button, as well as menu item *New.../Other...*

Alternatively, you can press the  symbol in the button bar.

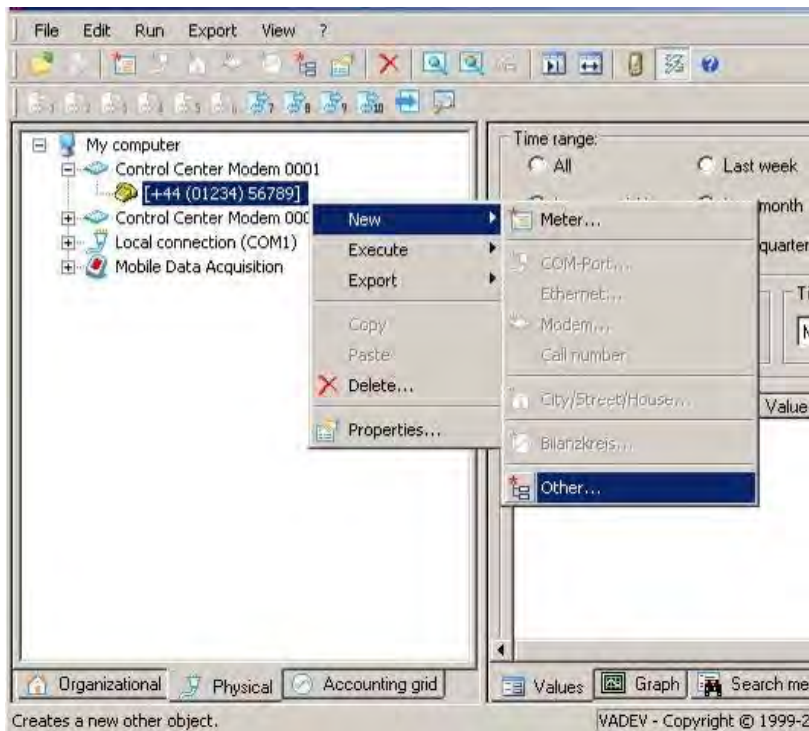


Fig. 4-21 Setting up modem to modem connection

A list appears of available devices which AMBUS®Gate supports at this level. Select the Dr. Neuhaus ZDUE MOD plus:



Fig. 4-22 Select connection

The modem ID and the control password for the Dr Neuhaus modem must be entered. For more detailed information on the Dr Neuhaus modems, please read up on device information in Chapter 6 Device information.

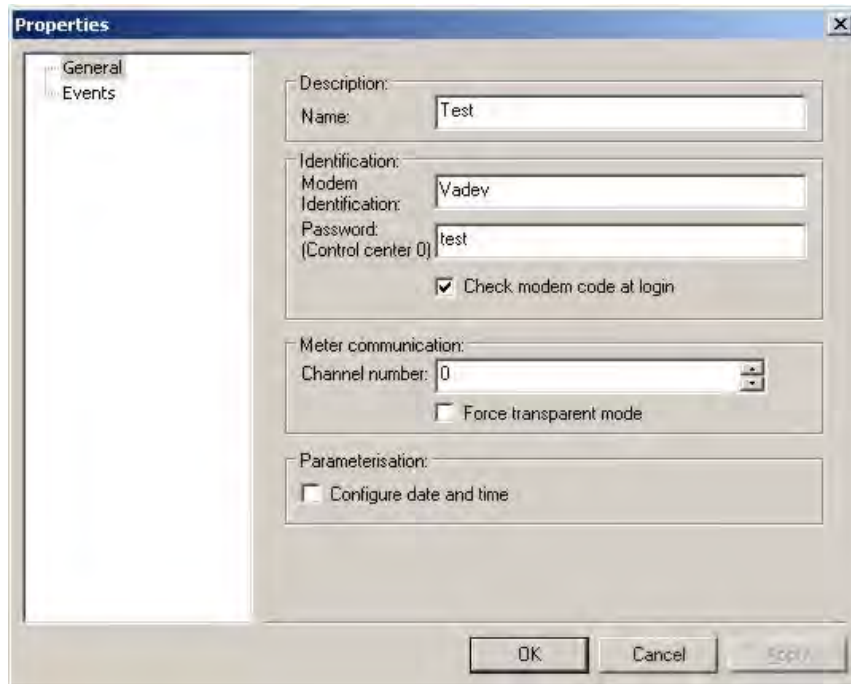


Fig. 4-23 Dr. Neuhaus meter modem configuration

After the information has been confirmed, the Dr Neuhaus modem appears at the physical level and meters can be directly connected to the individual current loop outputs of the Dr Neuhaus modem.

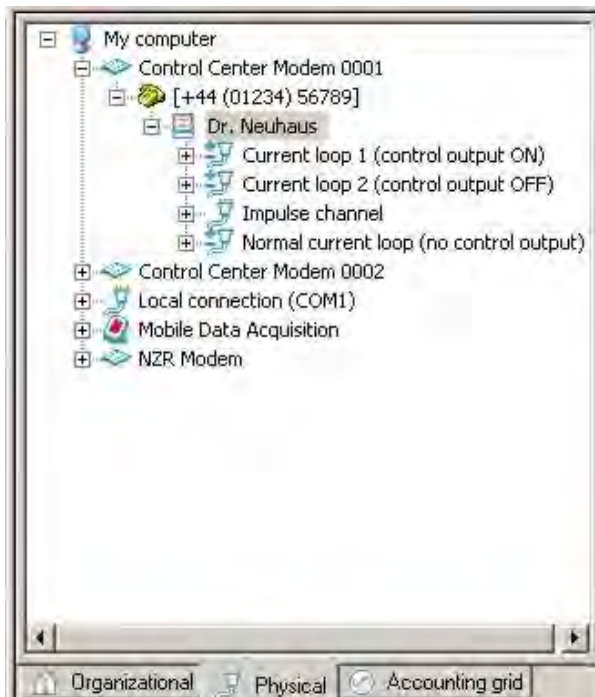



Fig. 4-24 Dr. Neuhaus meter modem configuration

4.8.3 Creating meters at the correct level

After both an organisational and a physical level have been prepared, suitable meters may now be connected. In the example shown, a EMH LZKJ-G meter is now connected to the Dr Neuhaus modem, without affecting its control output.

A meter can be created both on the organisational and on the physical level and AMBUS®Gate will then automatically request allocation to the other particular level.

The Dr Neuhaus modem's *Normal current loop* must be selected by the right mouse button and a

To select a new counter, click on New.../counter. You can also press the symbol () on the button bar.

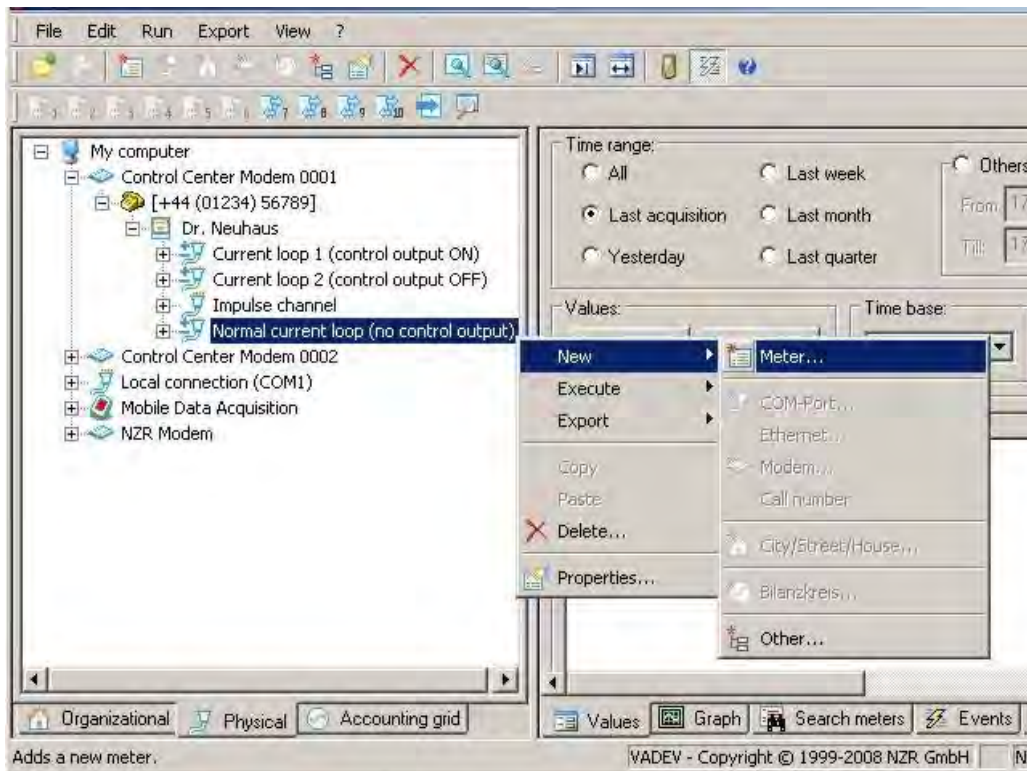


Fig. 4-25 Opening new meters

A list appears of manufacturers and meter types which the current version of AMBUS®Gate supports. Care must be taken to ensure that only the licensed meters are displayed.

Thus no M-BUS meters are displayed as a possible selection for a valid AMBUS®Gate licence for IEC1107 meters.

If the desired meter should not be on the list, please contact Aquametro for further information on AMBUS®Gate licensing.

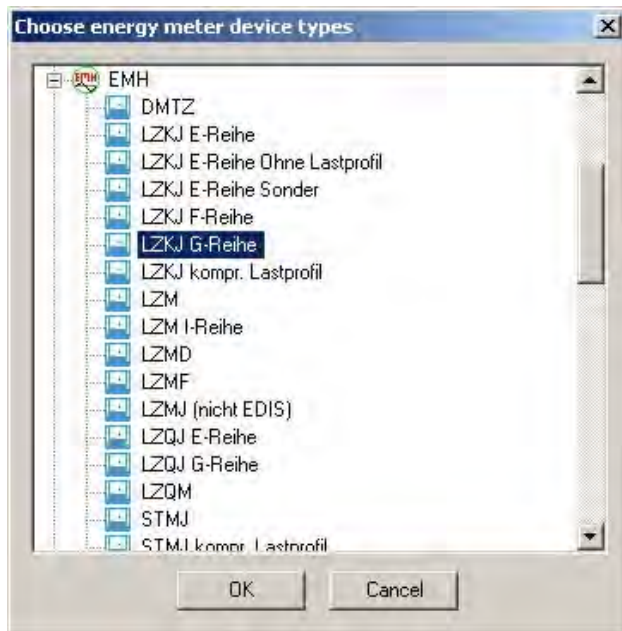


Fig. 4-26 Device type selection

After the meter has been selected, the individual data may now be entered.

General

All general information on the meter, for example, description, serial number, etc. may be entered here. All the information shown, especially the EVU number, is only used by the end user for identifying the meter. Here the meter designations may be entered, according to your own desired ID system. AMBUS®Gate does not require any of the information mentioned in order to execute a readout.

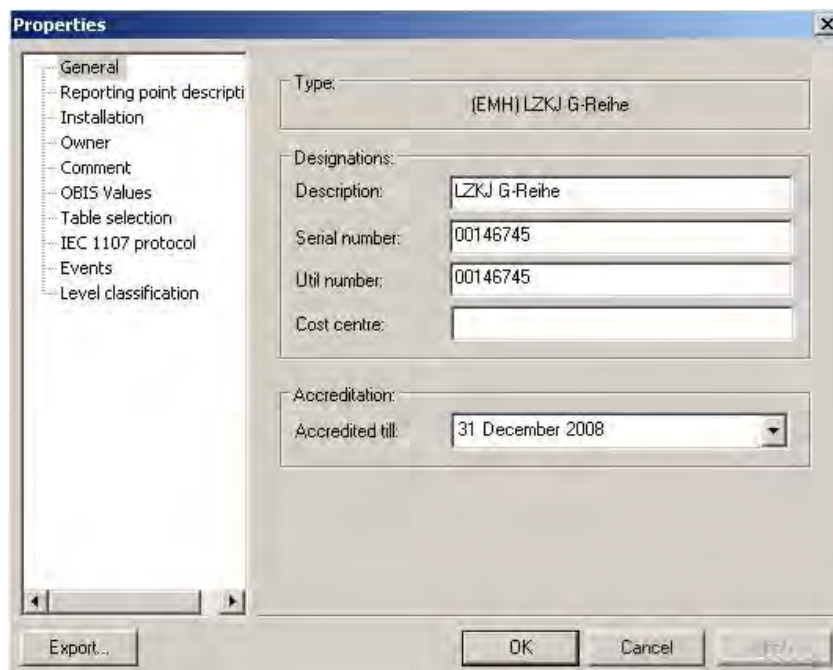


Fig. 4-27 Modem configuration → General

Meter point designation

The meter point designation item is relevant only to the budget level option, which we do not intend to discuss at this point. (see Chapter 11.1.1 Budget level and Chapter 11.1.2 Meter point designation)

Installation

In a similar way to the organisational levels, the desired information may be entered here. Since the meter has not been directly created by the organisational level, the parameters have not yet been entered in advance.

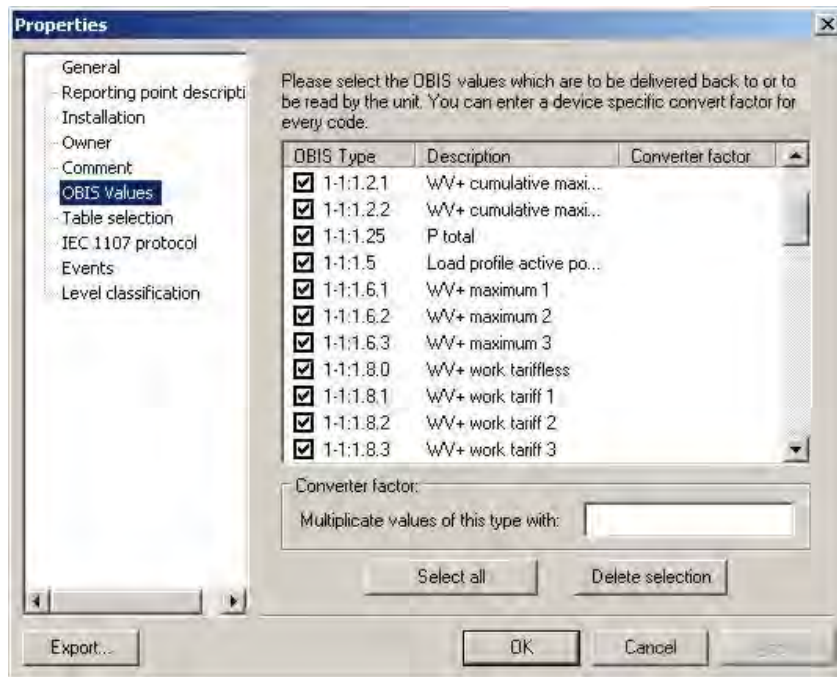


Fig. 4-28 Modem configuration → Installation

Owner

In the same way, general information on the owner must be entered here. This information is not required by AMBUS®Gate and is provided only for identifying the meter for the end-user.

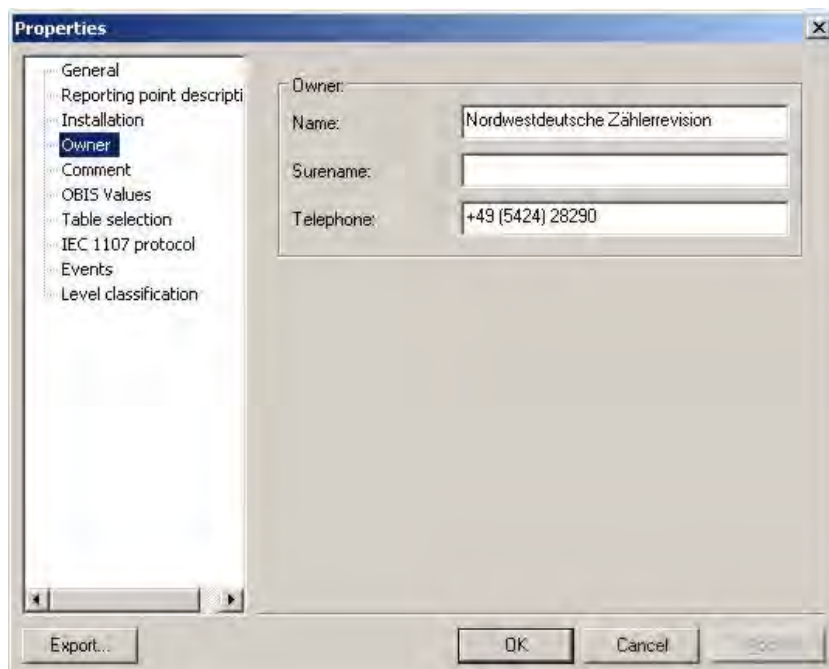


Fig. 4-29 Modem configuration → General

Comment

The comment field may be used freely by the end-user. AMBUS®Gate permits a search for keywords in the comments field, in order to find meters under any preferred criteria, if necessary.

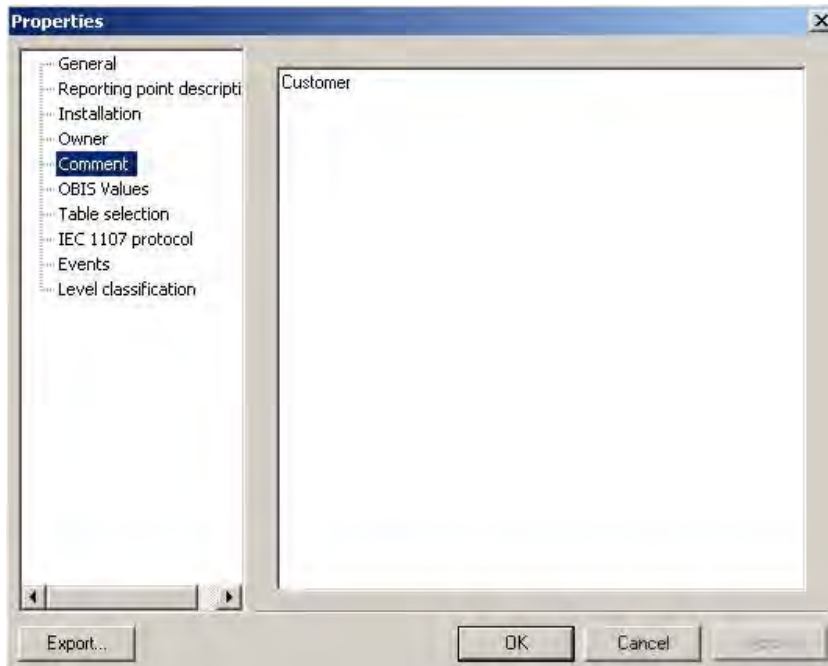


Fig. 4-30 Meter configuration → Comment

OBIS values

On this configuration sheet are shown all the OBIS values which the selected device supports. You can now deselect the particular values which AMBUS®Gate is generally not supposed to return, in order to restrict the data volume. You can, of course, overwrite directly in the case of each individual readout, during the readout action. In the same way, conversion factors for individual OBIS values may be entered, so that a value-specific adaptation may take place directly during the readout.

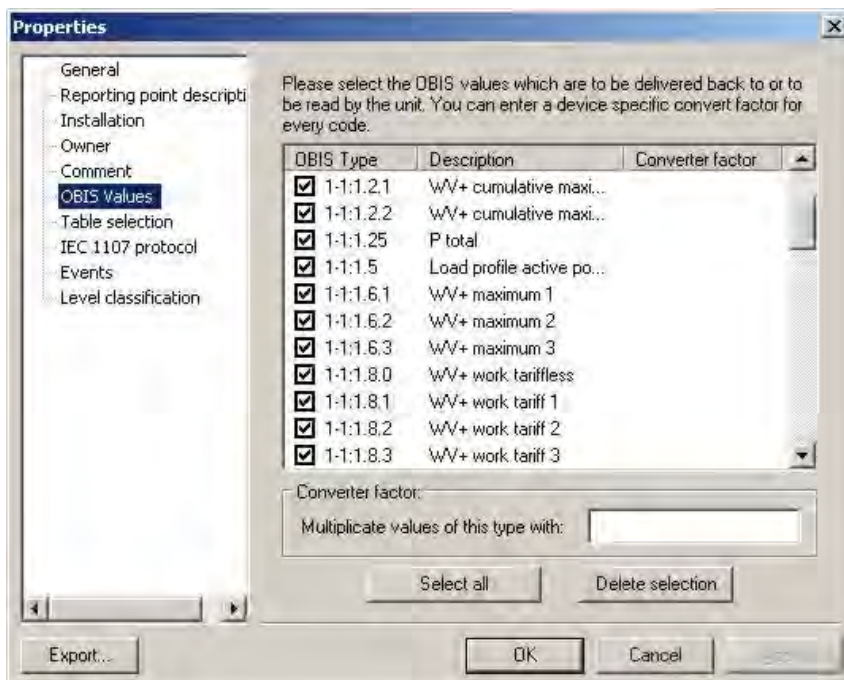


Fig. 4-31 Meter configuration → OBIS values

Table selection

In the table selection, you may choose the tables which are intended for readout out for each readout.

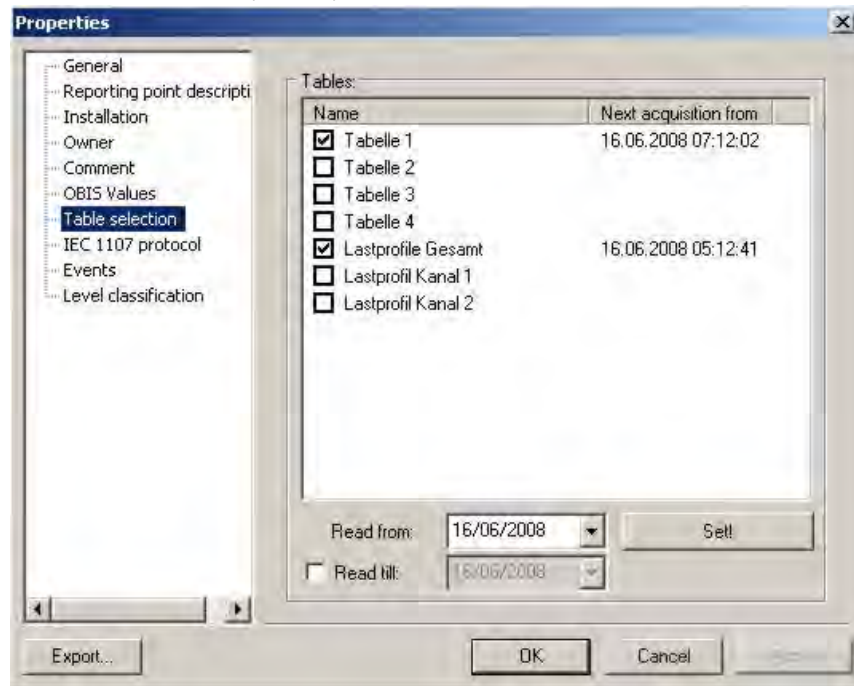


Fig. 4-32 Meter configuration → Table selection

The real readout profile is, therefore, stored here - the invoicing data (Table 1) and the load profile (Overall Load Profile), in this case.

If another data set is read out temporarily, it can be implemented by the "Meter reading extended..." button. See Chapter 4.16.

Using the "Readout from.." option, the time stamp for the last readout can be reset. If necessary, the meter with the selected data can be reopened from this point.

IEC 1107 protocol

Since the EMH meter selected is a ZVEI meter with the IEC1107 protocol, AMBUS®Gate displays the correct protocol information. The Bard rate can thus be configured, either as a fixed baud rate or as a variable one, in accordance with IEC1107 MODE C or B. You will find more detailed information in Chapter 9 *Protocol Information*.

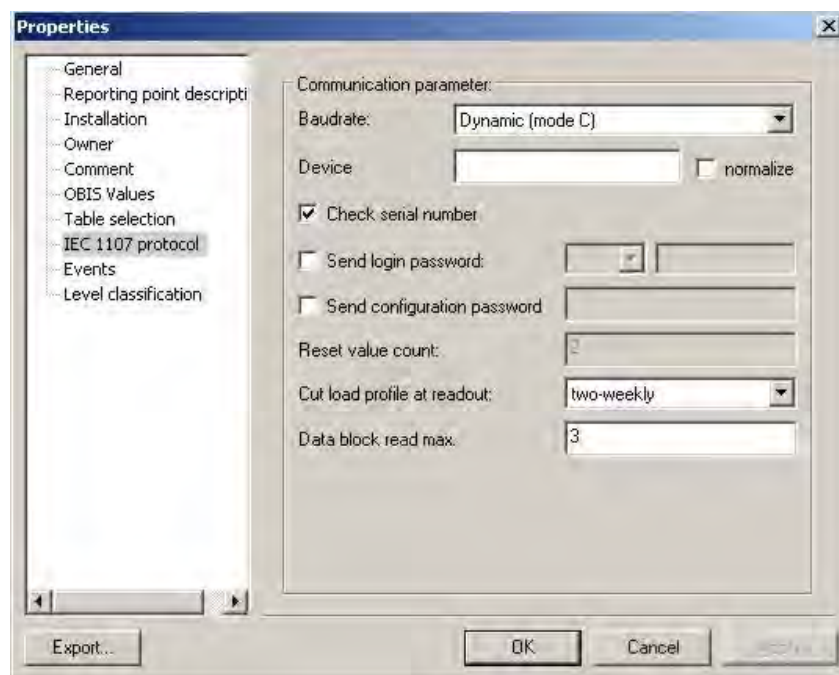


Fig. 4-33 Meter configuration → IEC 1107 protocol

Actions

In a similar way to the organisational and physical levels, actions, such as readouts or exports at meter level, may be directly configured here. This is clarified in the following chapters. (see Chapter 4.16.3

Setting up automatic readouts)

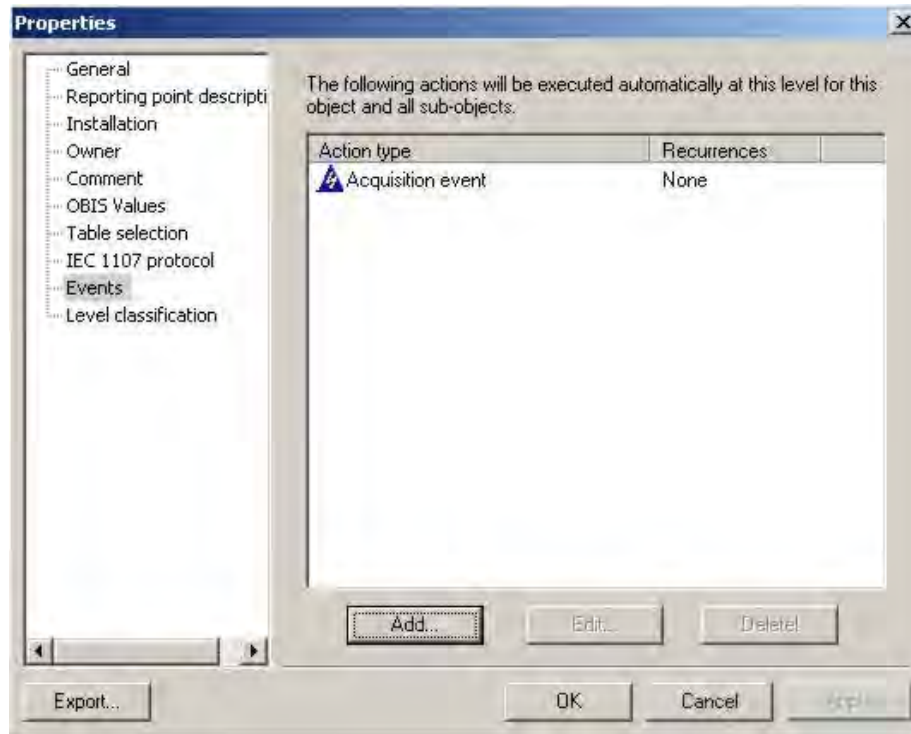


Fig. 4-34 Meter configuration > Actions

Substitute value creation

The substitute value creation option is configurable for M-BUS and LONWORKS meters. For more detailed information, see chapter 7.6

Substitute value creation.

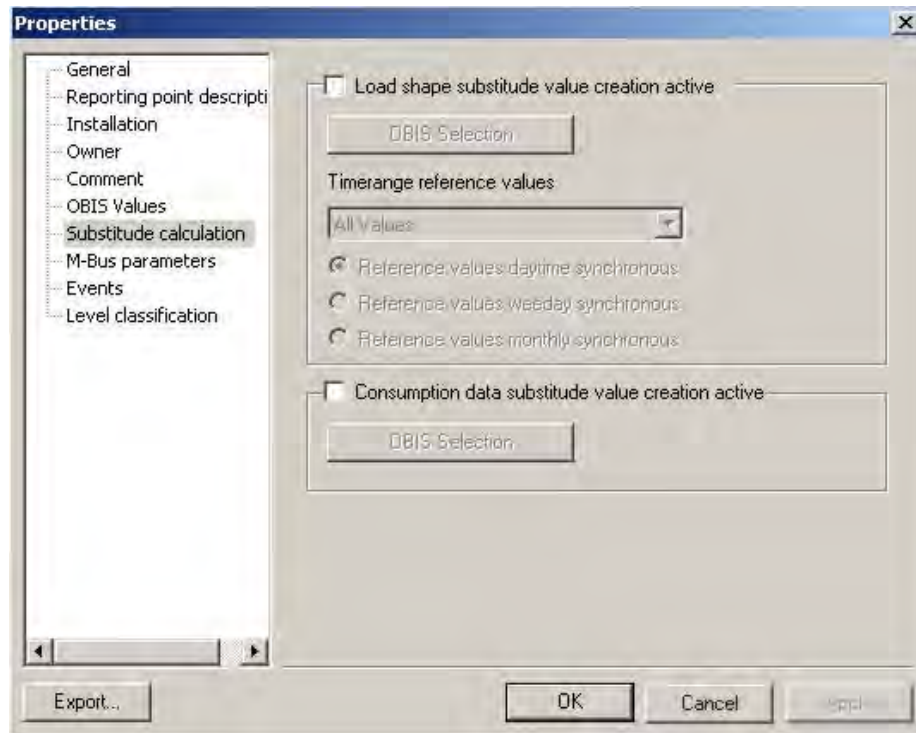


Fig. 4-35 Meter configuration > Substitute value creation

Level allocation

Finally, the meter still has to be added to the appropriate other level (the organisational one, in this case). This is particularly important if you create meters from the organisational level so that the meter can be allocated to a physical connection. If you should forget this, AMBUS®Gate points it out by means of an error message.

The best option is to create the meter directly in its physical location. At the organisational level, it can then be moved anywhere you wish by drag and drop.

After being created, the meter exists both at the physical level and at the organisational level.

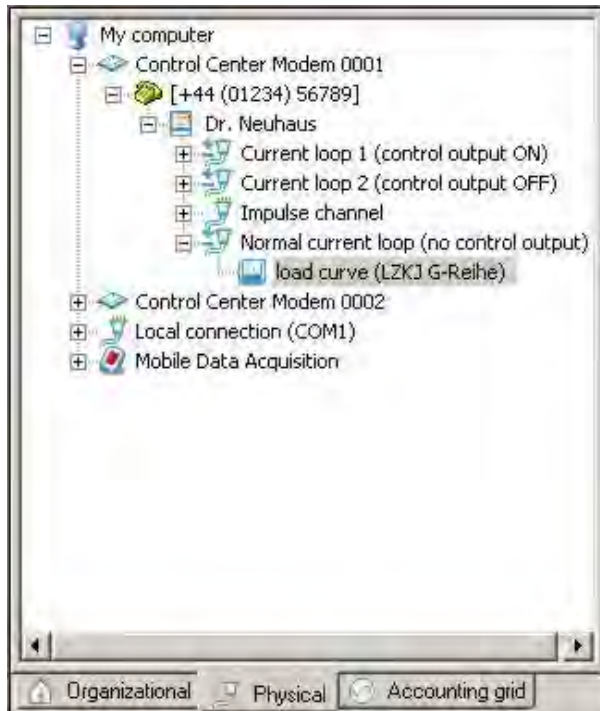


Fig. 4-36 Meter at physical level

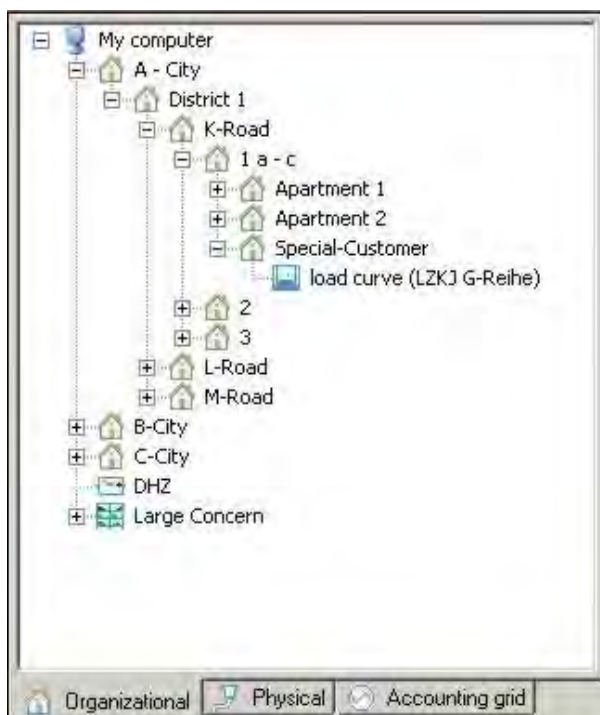



Fig. 4-37 Meter at organisational level

4.8.4 Checking the information

Since errors may sneak in during a meter setup process, especially during allocation to the physical level or also during the input of a bus address, it is recommended to carry out a test readout after the setup process. The read-out values are, in fact, displayed during this test readout but not saved to the database.

In order to carry out a test readout, the particular meter must be directly selected and selected in the *Execute/test meter* menu. Alternatively, you can press the () symbol on the button bar.

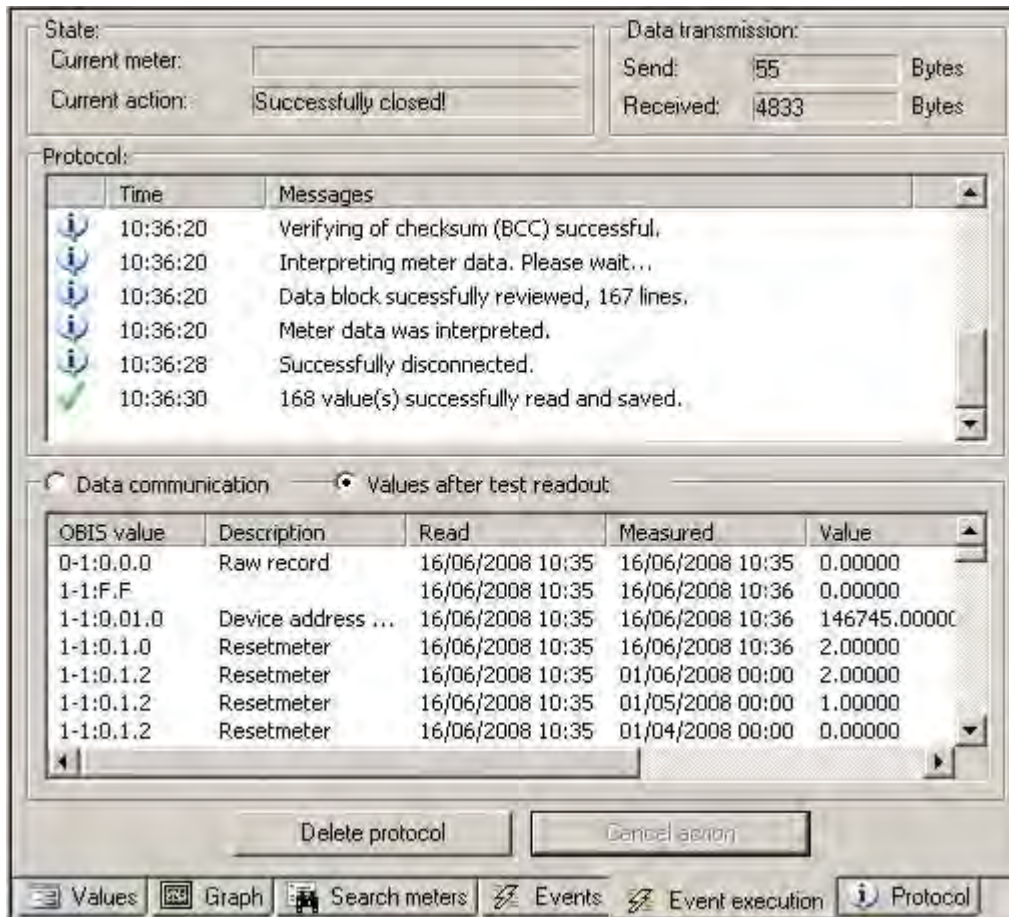


Fig. 4-38 Check meter


If all the data have been entered correctly, the above screen, for example, is displayed. Any error messages are displayed in the *Protocol*. A list of the values read out is displayed underneath. An explanation of the individual values is dealt with in the next chapter (Chapter 4.9 Display of values).

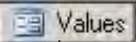
4.9 *Display of values*

As soon as a meter has been read and the values saved to the database, the measurements can be conveniently displayed. You can look up information on Meter readings in Chapter 4.16

Reading meters.

Since the value display is a function of the right screen half, both the screen halves must firstly be synchronised. To do this, you must simply select a level, either organisationally or physically, and

select *Display/Always Synchronise* in the menu. Alternatively, you can press the () symbol in the button bar.

Then the value display () on the bottom right-hand half of the screen must be selected and the period to be displayed (e.g., Last Readout) must be selected. The desired values are then displayed.

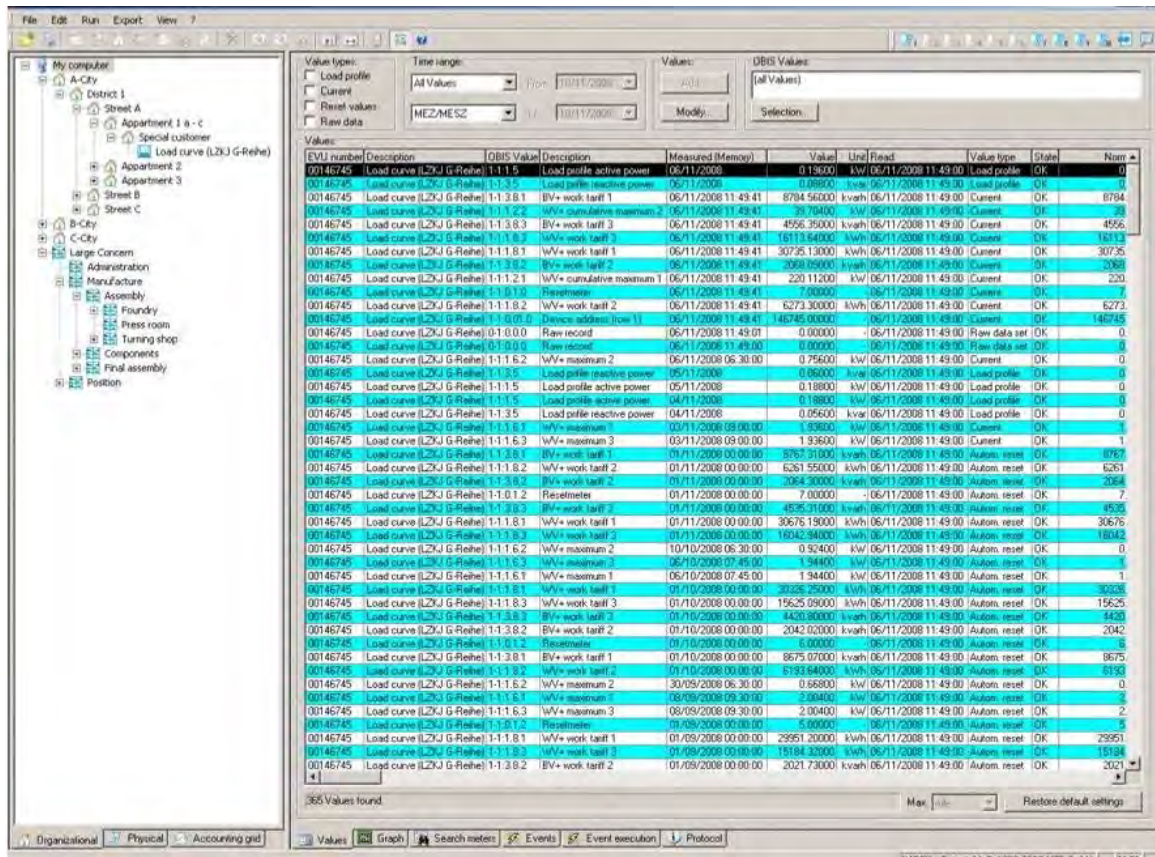


Fig. 4-39 Display of values

Filtering values:

AMBUS®Gate allows the following filtering of values in the normal value display:

Period

The period of values for display, e.g., All (no restriction) Last Readout, etc.

Types of value

Current Values, Reset Values or Load Profile Values

Time scale

The timescale for display, e.g., UTC, MEZ or MEZ/MESZ

OBIS selection

Permits the display of some OBIS measured values which should be displayed.

AMBUS®Gate stores the following detailed information for each individual value read out:

EVU number

The EVU number of the particular meter is displayed here.

Description

The description of the meter as it is also displayed on the levels on the left-hand side of the screen.

OBIS value

The OBIS index of the particular value

Description

The meaning of the OBIS index, as officially specified.

Measured (memory)

The time at which the value is measured by the meter. Here, for example, are specified the times of resets, of memory values or of maximal values. This time is not connected with the actual readout time.

Value

The particular value converted to the particular unit. This is the invoice-specific value after the conversion to the OBIS standard and after adaptation of any conversion factors.

Unit

The unit which belongs to the particular OBIS index.

Read

The time at which the AMBUS®Gate value was read out. In the case of current values, the measured and the read time are usually the same.

Types of value

AMBUS®Gate distinguishes between current values, values for automatic and manual resetting and you load profile values. These types of values may also be specified later during the export, in order to retain the desired invoicing values.

Status

The status of the values is displayed, that is whether or not the meter was affected by a power failure in the particular period, or in the event of processing being done manually.

Standard

Here the value is displayed as the OBIS standard. This value is the device value after adaptation to the OBIS standard but before invoicing, with any conversion factors.

Raw value

Here the meter's raw value is displayed, still before any conversion to the OBIS standard. With many bus systems, other units or indices are used and the original numerical value is recorded here as a raw value.

Raw data

Here the raw protocol data which have resulted in the value are saved. In the case of M-Bus or bus meters, part of the protocol package is displayed accordingly, in binary form; with ZVEI meters the particular row is displayed. This can be used, for example, to compare the settings.

For the value display, AMBUS®Gate permits filtering according to time period (selectable in the particular field), according to value types (in the appropriate field) and according to OBIS indices.

4.10 Adding or changing values manually

If meter values are changed or added manually, a value table, such as Display of values in Chapter 4.9, must be displayed. With the value tables then displayed, individual values may be selected with the mouse and changed by pressing the *Change...* button. The following data of a value may be changed:

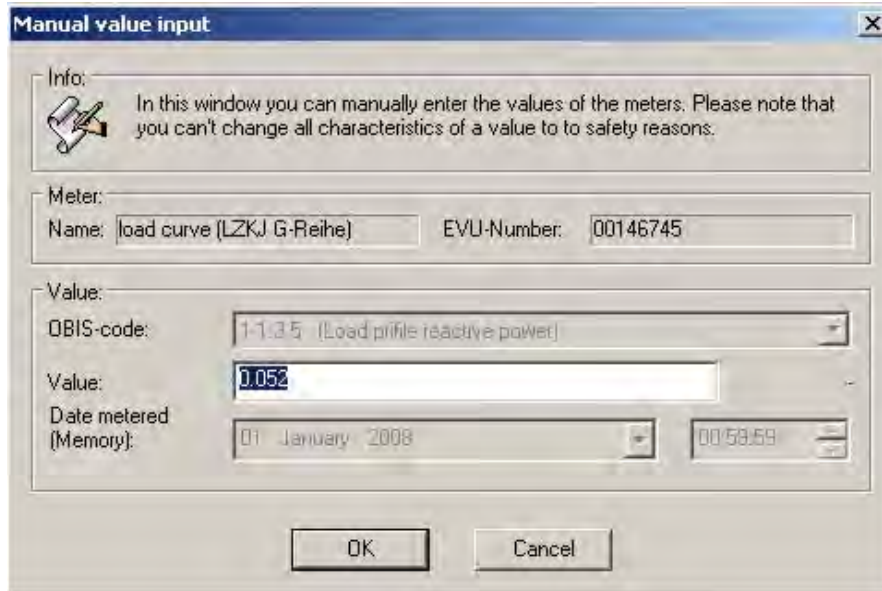


Fig. 4-40 Manual input of values Change value

In the case of values that already exist, only the invoicing value can be changed. It is not possible to change raw values. As soon as the value has been changed manually, the *Manual Input* value appears in the Status column.

In order to add values, the particular meter must be selected at the organisational or physical level because AMBUS®Gate is otherwise unable to allocate the new value to a meter. After an individual meter has been selected, the *Add...* button may be pressed on the value table, whereupon the following screen appears:

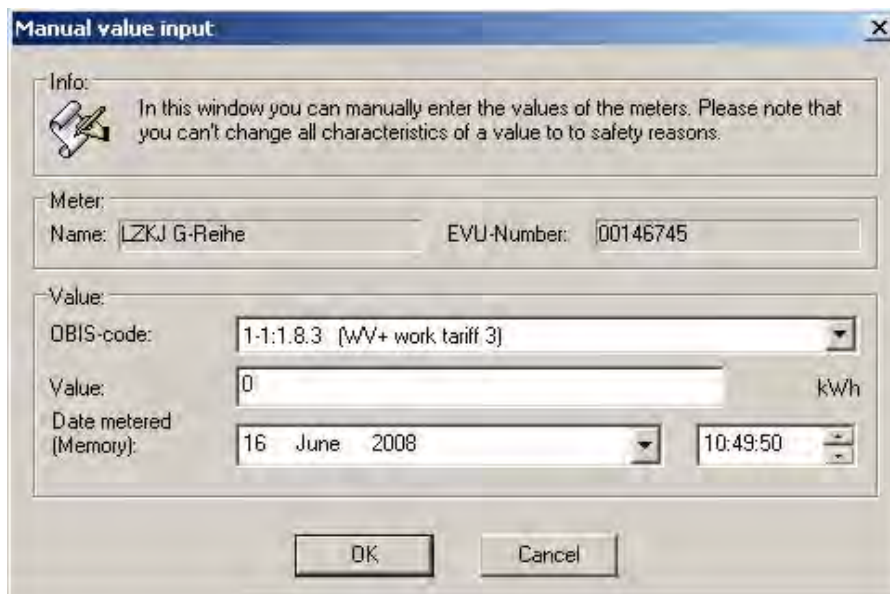


Fig. 4-41 Manual input of values: Add value

The OBIS index must now be selected and a time specified for the value. After the window has been confirmed, the new value is accepted in the values database with the remark, of course, that the value has been inserted or changed manually.

4.11 Saving raw data

AMBUS®Gate provides two variants for saving raw data. As can be seen above, the row for each value is displayed in the data block. AMBUS®Gate also provides the opportunity of saving the entire data block as a unit. The latter is then displayed in the values display with the special "0-1:0.0.0" OBIS index:

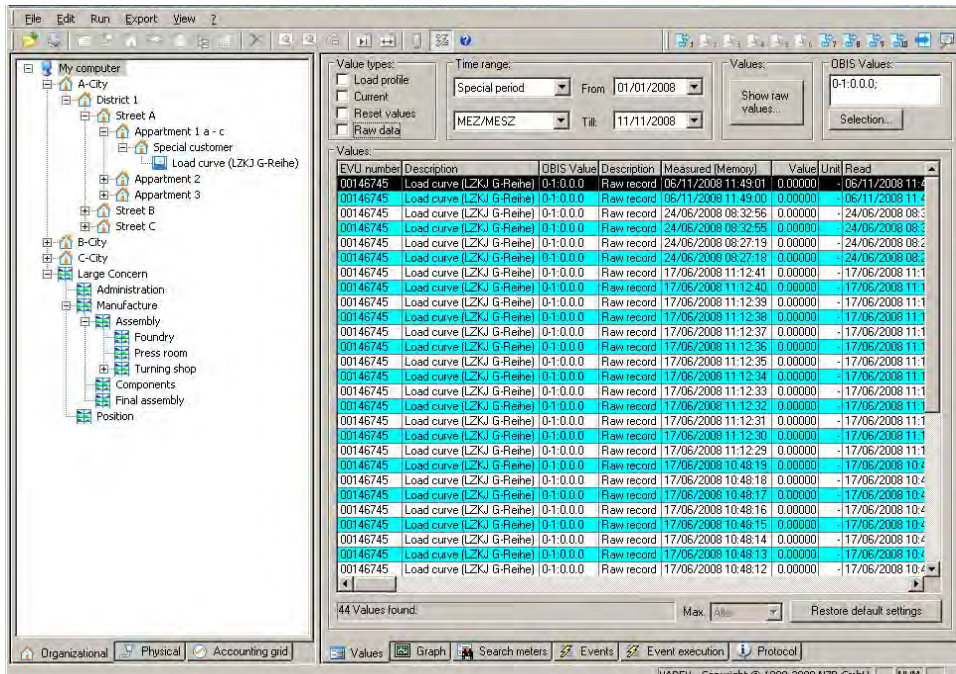


Fig. 4-42 Value table: Raw data set

By pressing the "Display raw data" button, the complete raw data set is displayed:

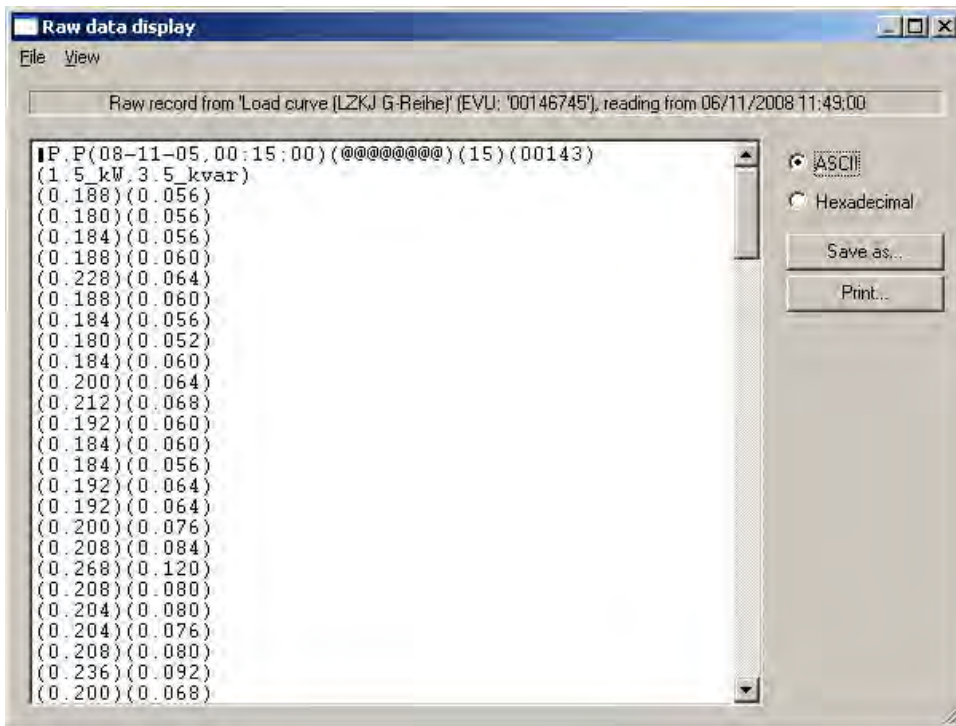
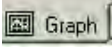


Fig. 4-43 Raw data set display

By means of functions in the file menu, the raw data set can be saved to a file. Changing the raw data set in the AMBUS®Gate database is possible only with considerable effort and with extensive knowledge of databases and programming. This almost eliminates any effect on the data transferred from the meter.

4.12 Display of load curve graphs

AMBUS®Gate permits a convenient display of load curve graphs, including a series of standard analyses. The load curve display is incorporated directly in AMBUS®Gate, so that the load curve data are simply read from the AMBUS®Gate database.

The load curve display is enabled by the graph () being displayed on the right-hand side of the screen.

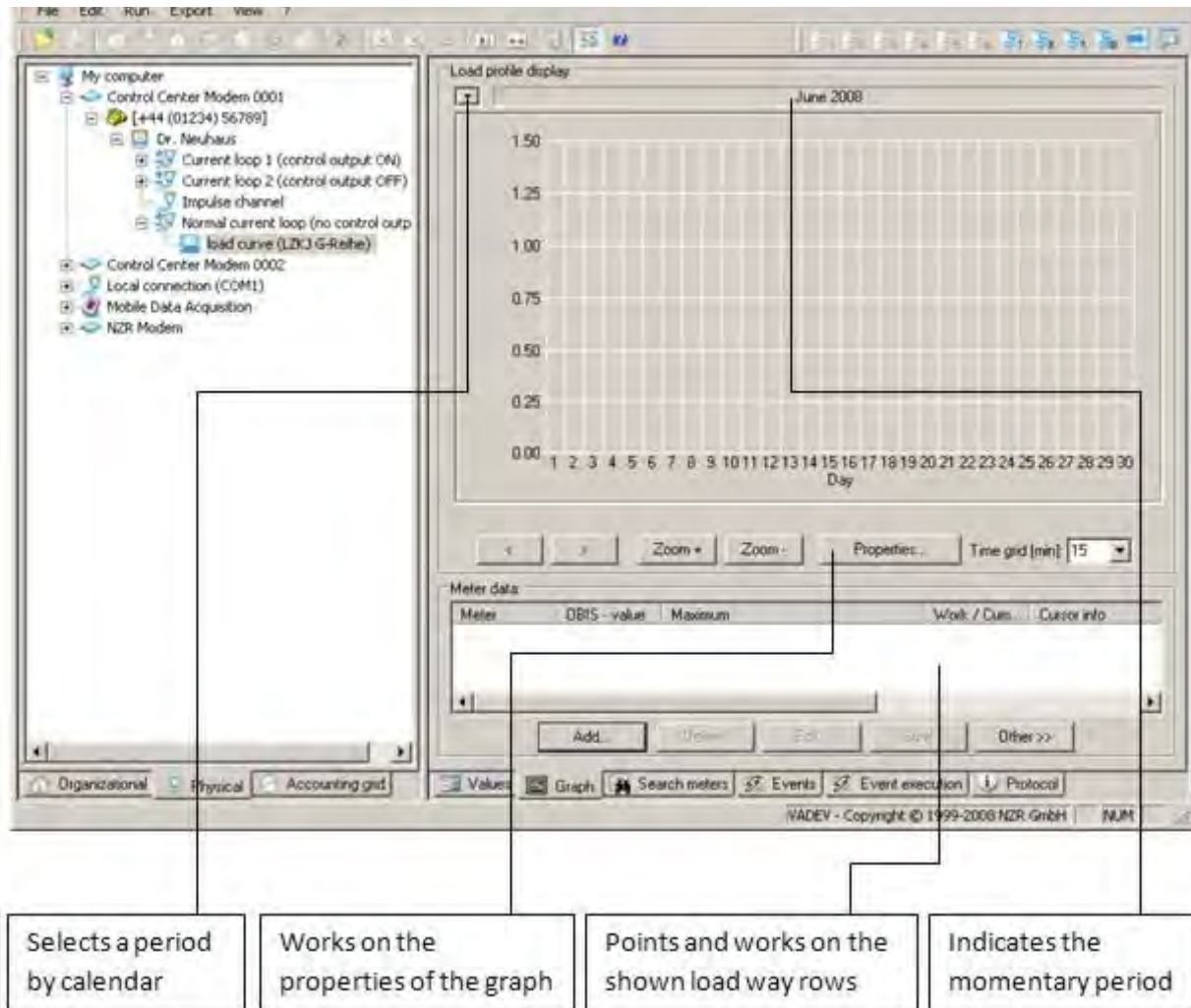


Fig. 4-44 Graph display structure

Adding load curve data

In order to add load curve data to the graph, please select the particular meter on the left-hand side of the screen and press the graph's *Add...* button. The following selection is displayed:

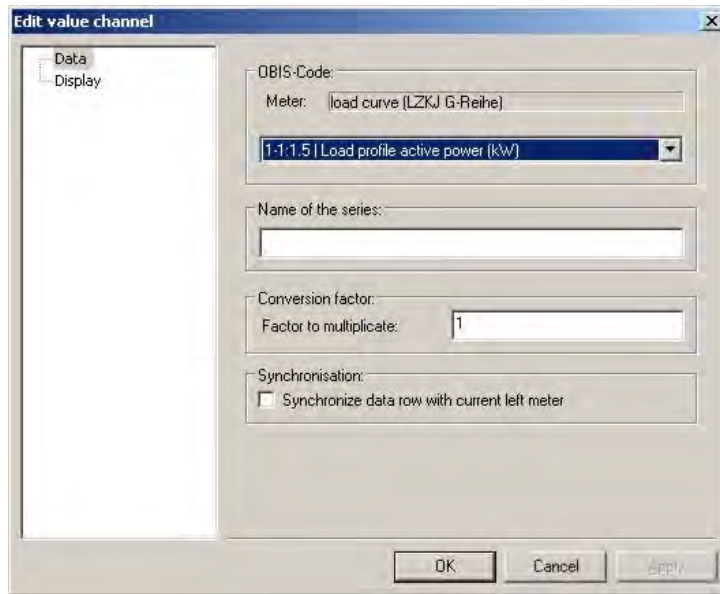



Fig. 4-45 OBIS index selection

The OBIS index for display must first be selected under *OBIS index*, .e.g., 1-1:1.5 as load profile value. A scalar multiplication factor, e.g., a conversion factor, may be specified. A name for the data series may also be entered.

AMBUS®Gate can also synchronise the load curve grab with the left-hand side of the screen so that the meter's load profile is automatically displayed each time a meter is selected. For this purpose, select *Synchronise this data row with the current left-hand meter* and ensure that the main synchronisation is switched on by ().

Under *Display*, the following settings can be edited:

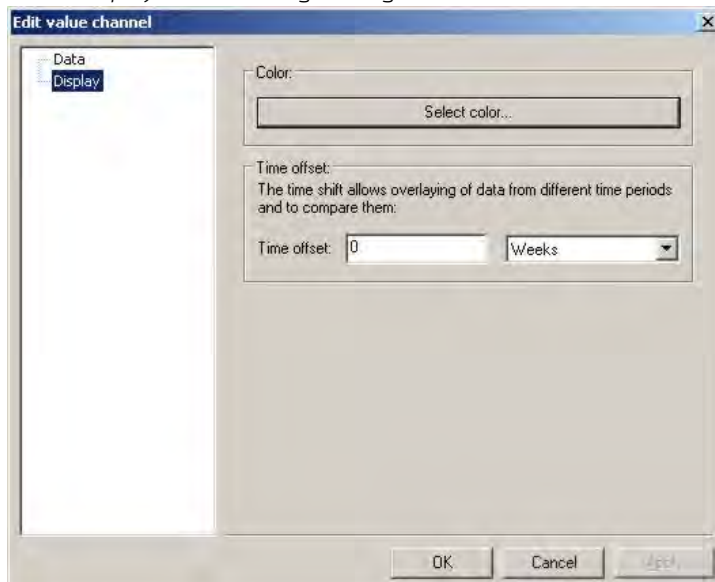


Fig. 4-46 Colour/time delay selection

With *Select colour* you can select the colour of the graph.

The time delay option contains a horizontal shift of values along the time axis so that, for example, data for various months can be placed directly one above the other and can thus be easily compared. If the selection is confirmed, the load curve graph is loaded and displayed:

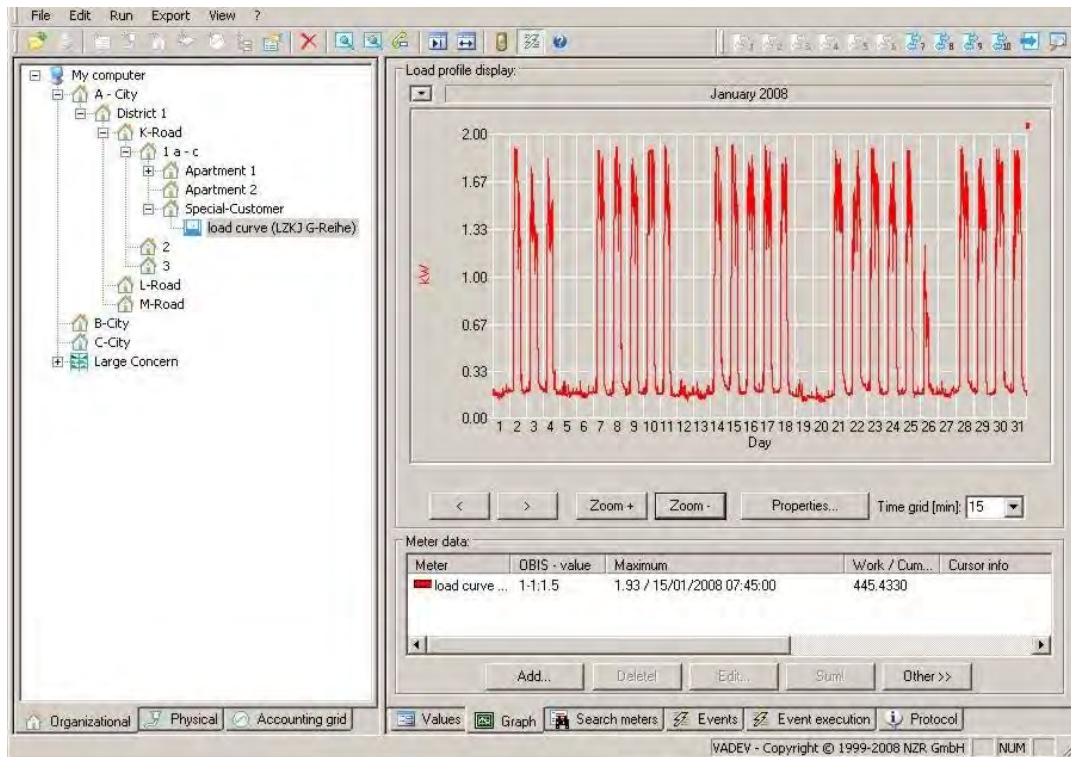


Fig. 4-47 Colour/time delay selection

Working with the cursor

For accumulating individual days or weeks automatically, you can simply select the desired area with the cursor. Information on the maximum and on the work accumulated in the meter data window is displayed:

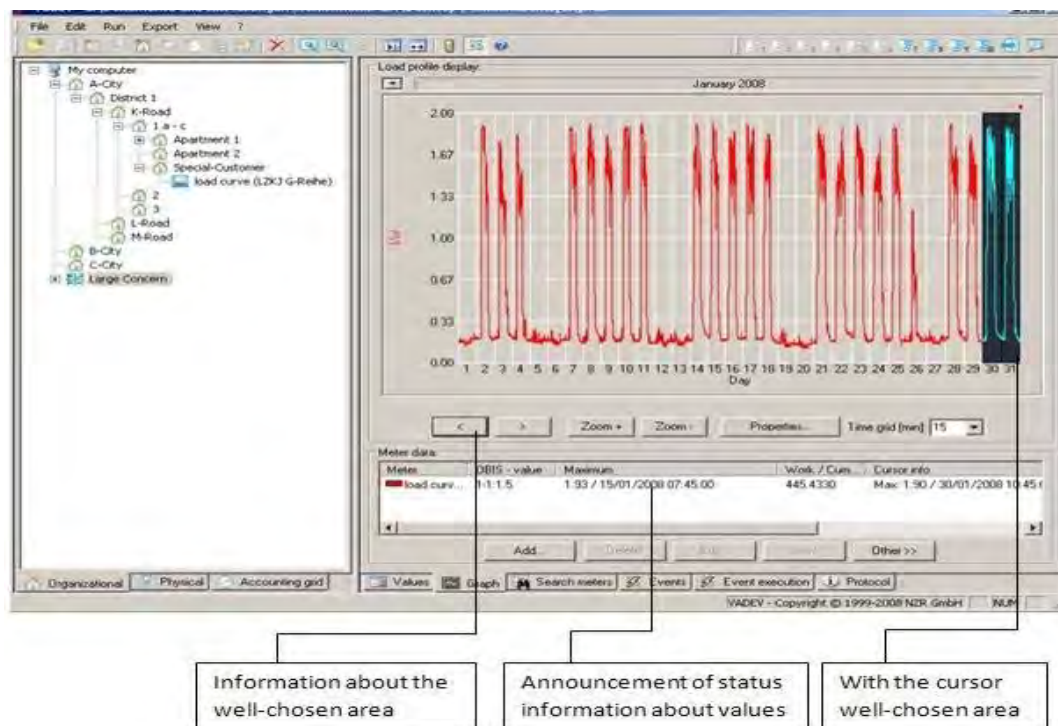


Fig. 5-48 Selection of specific time ranges

Double-clicking on a day in the graph switches to the daily display. The period displayed can also be changed by the Zoom+ and Zoom- buttons:

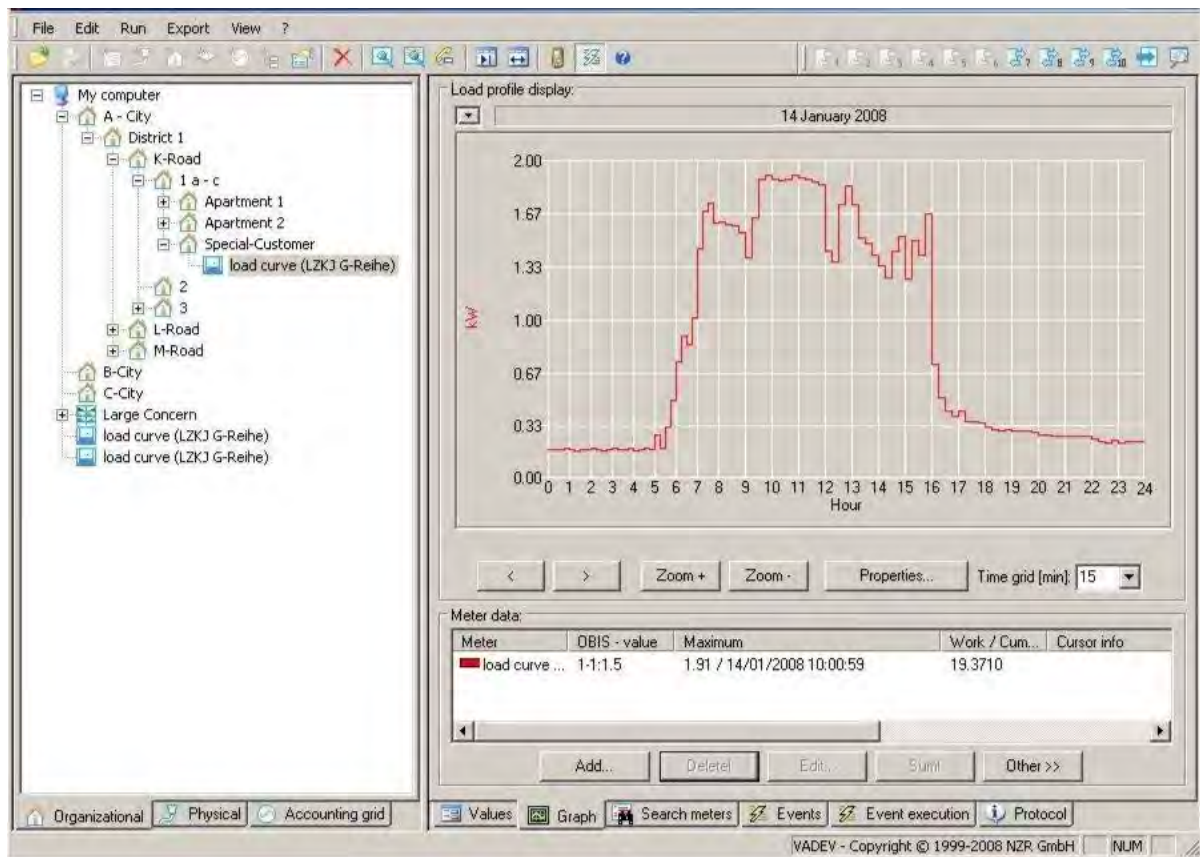


Fig. 4-49 Daily values display

Editing load curve data

In order to edit a load curve line, e.g. in order to change a conversion factor, simply select the roll in the *Meter data* list, and press the *Edit...* button. The settings are the same as for adding load curve data, as described above.

Removing load curve data

In order to remove a load curve row, simply select the row in the *Meter data* list and press the *Remove* button.

Adding load curves

AMBUS®Gate permits two or more load curves to be added easily and directly. To do this, select the load profile rows to be added in the *Meter rows* list. Note: Use STRG + mouse-click in order to select several rows, as with Windows Explorer.

Then simply press the *Add* button.

Note: If you wish to subtract rows, simply insert a negative conversion factor in the particular number row and continue with an addition. Remember that adding occurs online, so that any change to a basic number row e.g., by changing a conversion factor, immediately affects the added row displayed.

Exporting load curves

AMBUS®Gate permits a simple ASCII export to the screen or to a file. To do this, select the desired load profile graph in the meter data window and select *Others/ASCII graph export*. The following window is displayed:

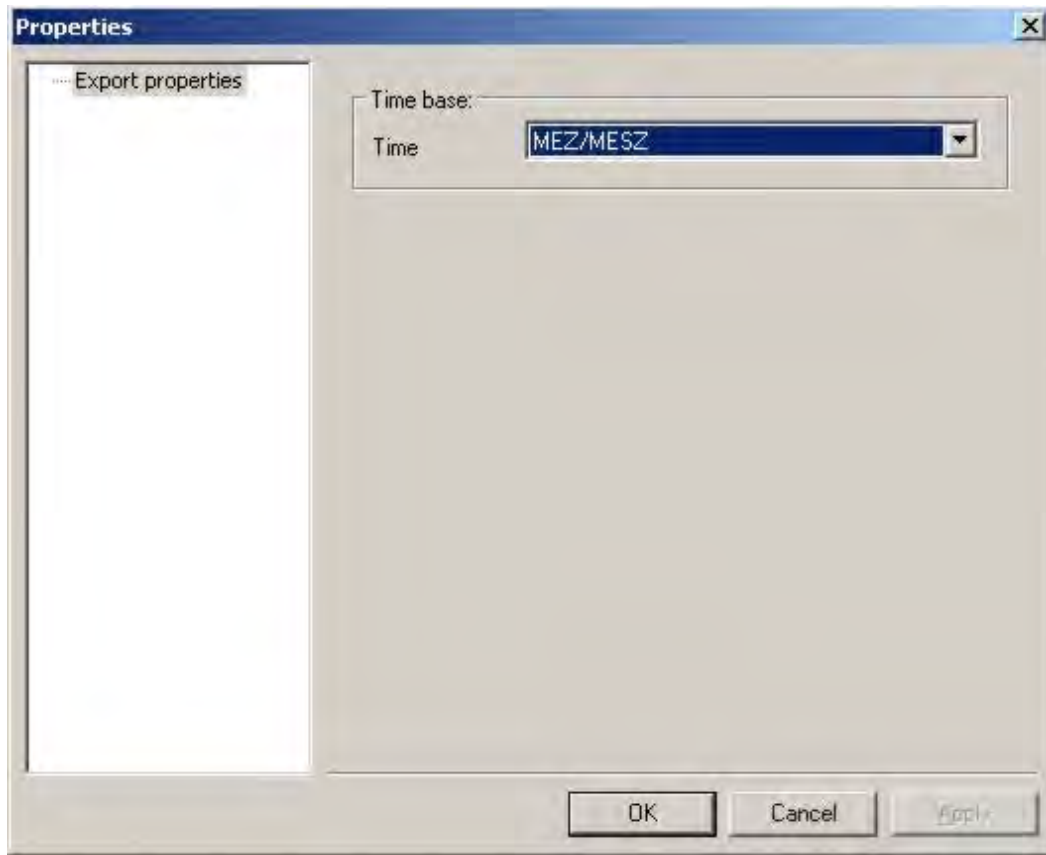


Fig. 40 Time base

Here, simply select the time base with which you wish to write the exported data. The following export takes place:

```

Main electricity meter
987654321
1-1:1.5
01.04.2000
01:00:00
(0.000)
(0.100)
(0.096)
(0.140)
(0.100)
(0.096)
(0.136)
(0.100)
(0.096)
(0.136)
(0.104)
(0.104)
    
```

In the headers, AMBUS®Gate writes the meter name, the electricity supply company number, the OBIS index and the date and time stamp for the first export value. Then the load curve values are listed at 15-minute intervals. You can achieve a more complex and generally MORE applicable form of data export by means of export profiles, which will be described at a later stage in this manual.

Graph functions

You can change parameters of the graph using the *Properties* button:

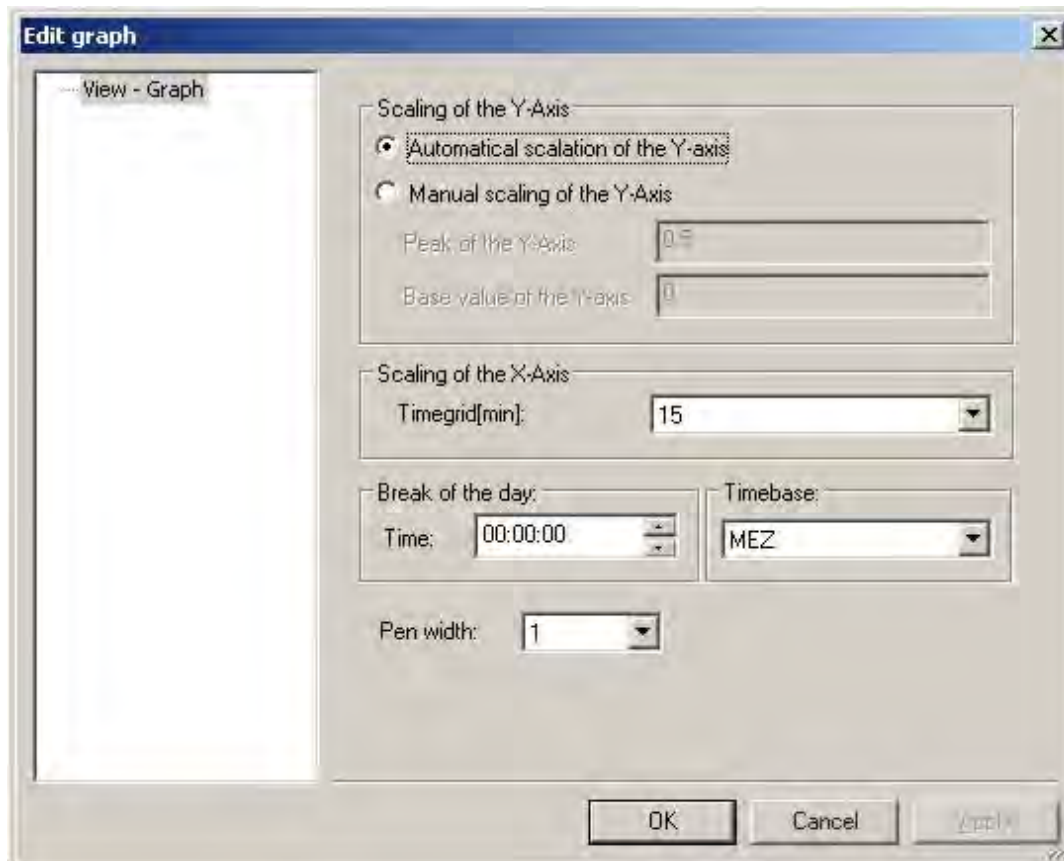


Fig. 4-50 Editing graph

Here, a manual scalation of the Y axis may be undertaken or automatic scalation accepted.

- *Time base*
A time base for the graph may be selected here.
- *Start of day*
Specifies the clock time which is considered the start time for a day. For specific energy types, such as gas, other values may be inserted here, e.g., 6 am.

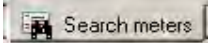
Print

The load curve graph may be printed out at any time. For this, the *Print* menu item in the *File* menu must be selected.

It must be borne in mind that, with many black and white printers, unrecognizable ID of the individual lines can result; in case of doubt it is sensible to choose another colour or to use a colour printer.

4.13 Searching for meters

In addition to navigating through the various levels, AMBUS®Gate also provides the opportunity to search manually or dynamically for meters, according to specific criteria. For this purpose, the search

function on the right-hand side of the screen may be enabled by pressing the () button. The following screen is displayed:

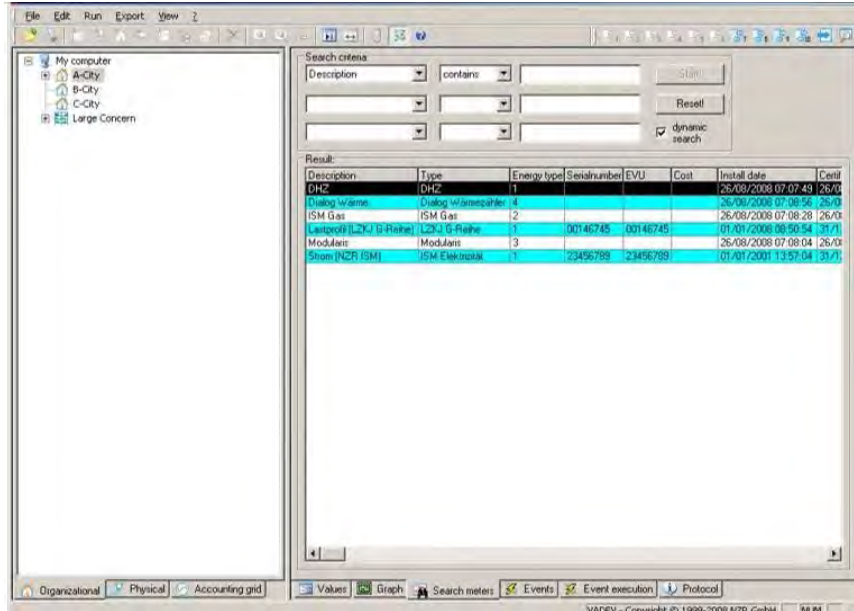


Fig. 4-51 Meter search view

In the search criteria field, up to three different criteria may be specified, which must all apply to one meter simultaneously, in order to appear in the search result. A search may be configured as follows, for example:

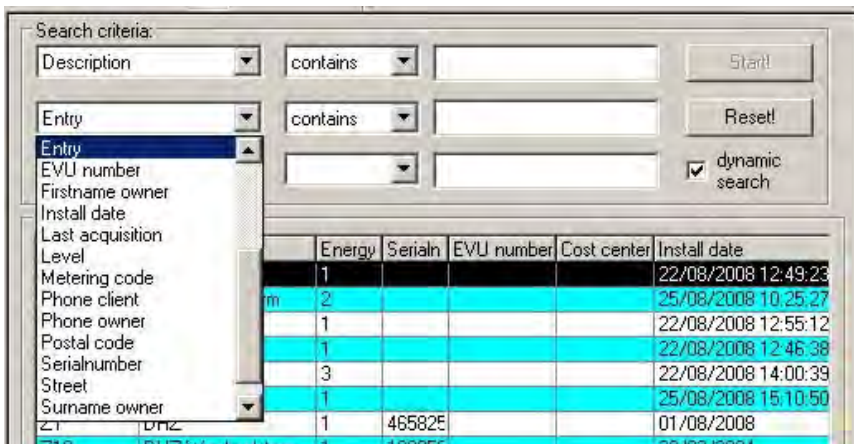

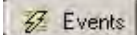


Fig. 4-52 Search criteria setting

Each of the previously-entered fields for a meter can thus be searched according to specific criteria. A search is started with the *Start!* button and the meters found are displayed in the *Result* field. In order to enable a meter search via the “Dynamic meter search”, it must be selected from the search criteria. So that the search achieves the most accurate result possible, selection must be chosen from the criteria and it is automatically displayed from the first character in the Result field. By a synchronisation process, it is then possible to display the meters found in the organisational or physical level. For this, the particular meter found must be selected and chosen from the *View/Synchronise* menu, or the () icon in the button bar must be pressed.

4.14 Displays of actions

Actions are normally defined in the particular level. An automatic readout of a residential street, for example, or an automatic export of specific customers can thus be configured. In order to clearly display the *actions* defined by the AMBUS®Gate system, an action display has been developed

which can be enabled in the right half of the screen by the ( Events) button.

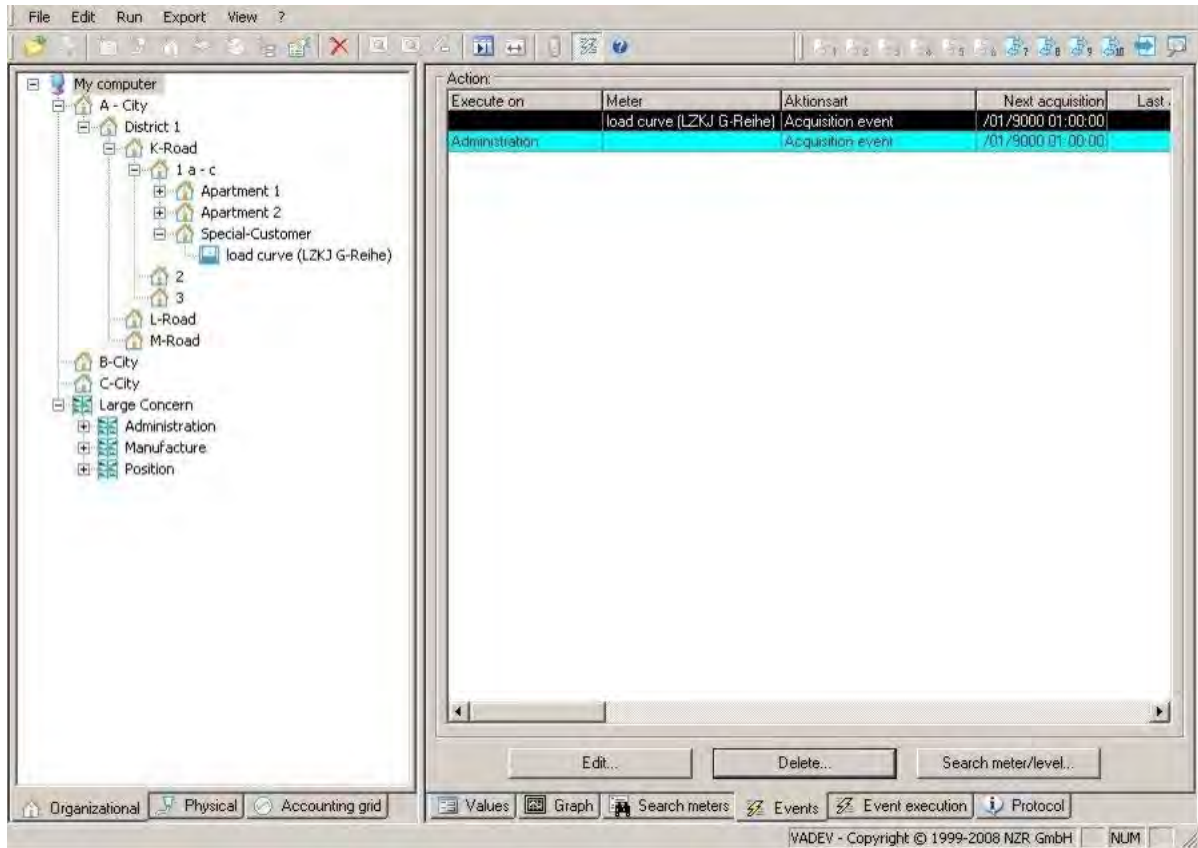



Fig. 4-53 Actions

AMBUS®Gate then displays a list of all the defined actions. Here, actions may be deleted and changed and the particular level searched.

4.15 Display and printout of protocol information

All the errors or success reports accumulated during the execution of an action (e.g. export or readout) are saved by AMBUS®Gate in an appropriate protocol.

This protocol can be enabled on the right half of the screen by pressing the () icon.

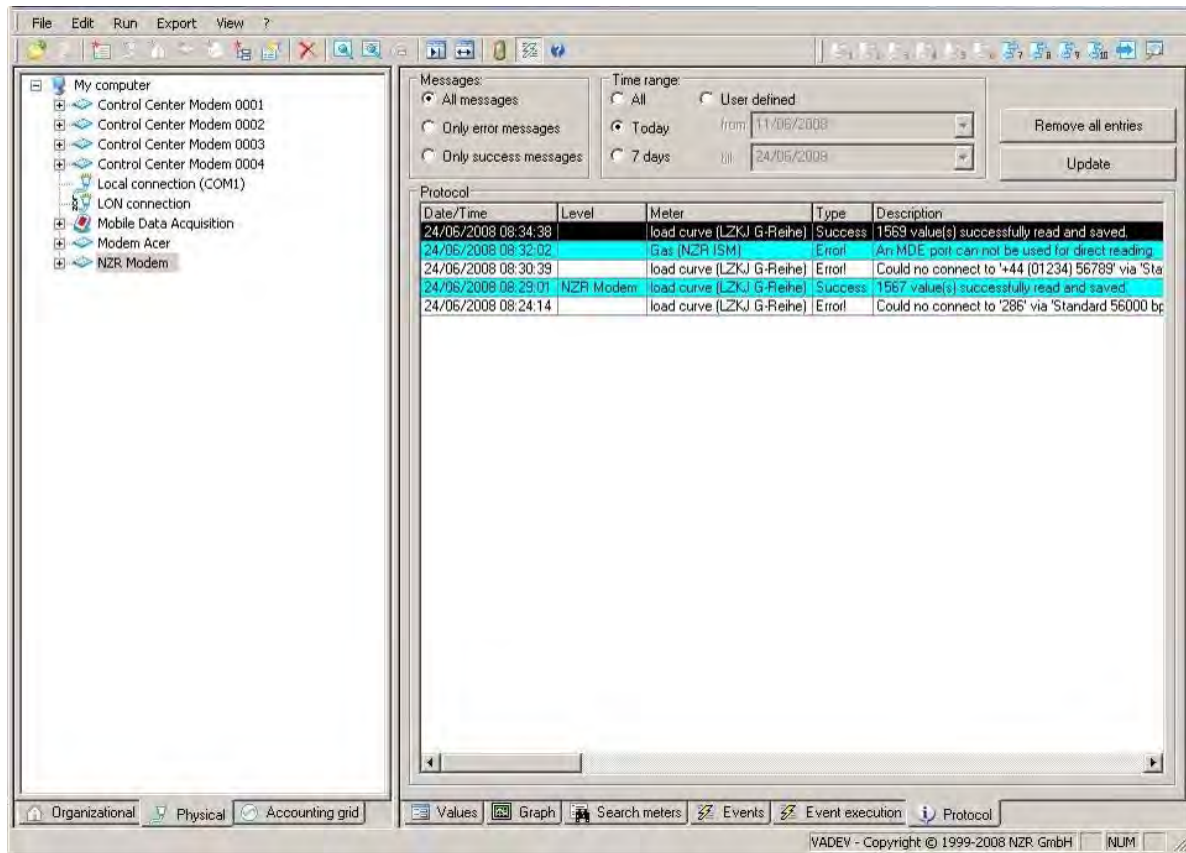



Fig. 4-54 Protocol information display

Either all messages or only error messages can be shown. The protocol continues to be written until a manual deletion is executed by the user pressing the *Delete protocol completely* button.

A printout is possible by selecting any protocol entry and then pressing the printer symbol ().

4.16 *Reading meters*

AMBUS®Gate provides several possibilities for reading meters. If only control values are to be read without being saved, there is a possibility of executing a test readout directly, as described in Chapter 4.8.4

Checking the information.

For regular reading including saving, AMBUS®Gate provides the opportunity of reading all or specific values manually. There is also the possibility of executing automatic readouts in the form of actions.

4.16.1 Extended meter reading

A manual readout of specific values is started as follows:

The level containing the meters for reading must firstly be selected. This may be an organisational level (e.g., district, residential street or house), a physical level (e.g., meter modem or current loop, etc.) or a specific meter.

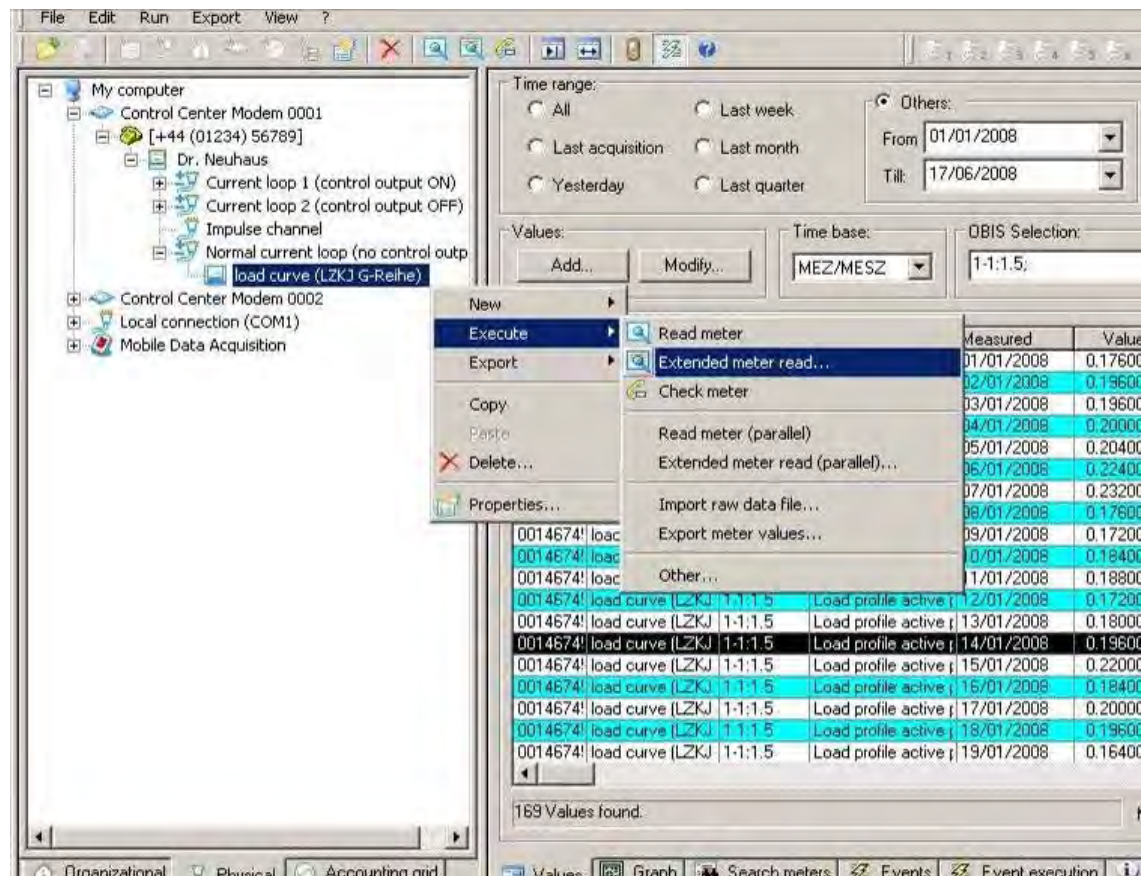



Fig. 4-55 Meter reading extended...

If a level or a specific meter has been selected, the readout is executed by the *Execute/Read out specific meter values* menu item or the readout is executed by the menu item or alternatively by pressing the () icon in the button bar.

A dialogue then appears for configuring the readout:

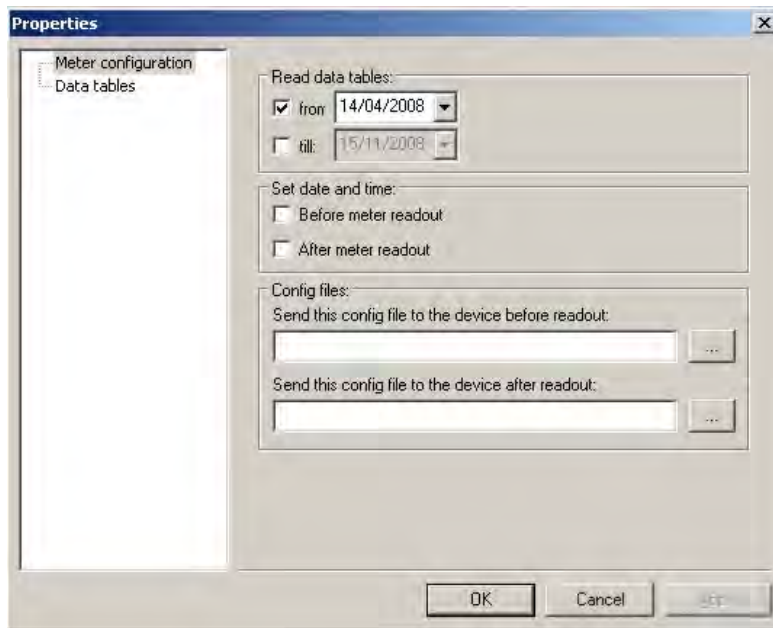


Fig. 4-56 Meter configuration

Here you can specify whether the existing time stamp in the database should be the basis of the new readout or this “dated:” time stamp can be reset in the “Data Tables” option. If the “until:” time stamp is not set, reading will continue until the current system time of the control computer.

There is the possibility of transferring the system time to the meter(s) to be read. For this, only one of the options in “Set date and time” has to be selected.

Alternatively, a special setting file can be transferred to the meter(s).

Note: The contents and meaning of the setting files are meter-specific and are not handled further in AMBUS®Gate. Please refer to the meter manufacturer or their special configuration software in order to obtain suitable setting files. These setting files are also independent of buses.

An alternative data selection of the tables for the setting in the meter properties can be chosen for this readout below.

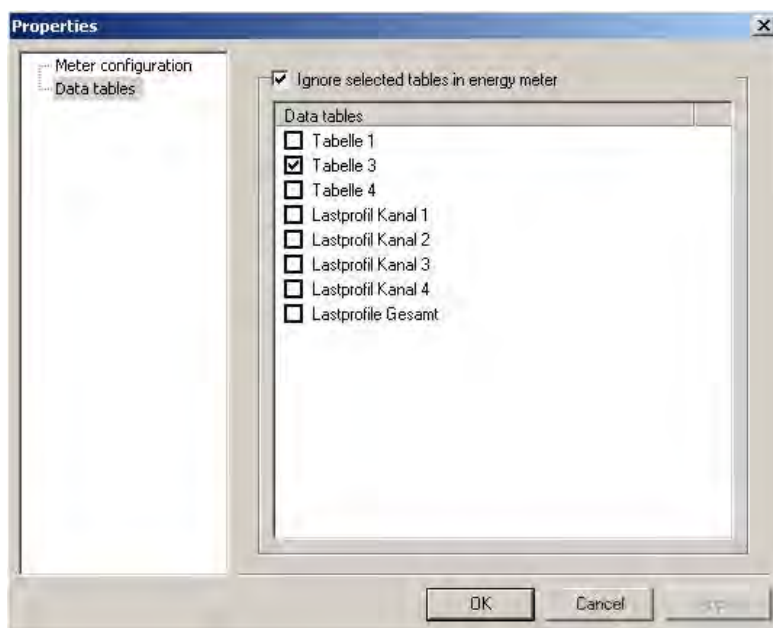



Fig. 4-57 Data tables

4.16.2 Reading out all the values

Reading out all of a meter's values is done in a similar way to reading out specific values. After a level has been selected, the readout is started by the *Execute/Read meter* menu item or by pressing the () icon in the button bar.

The data tables stored in the meter properties are queried. During the readout, the following dialogue appears, providing information on the readout's further progress:

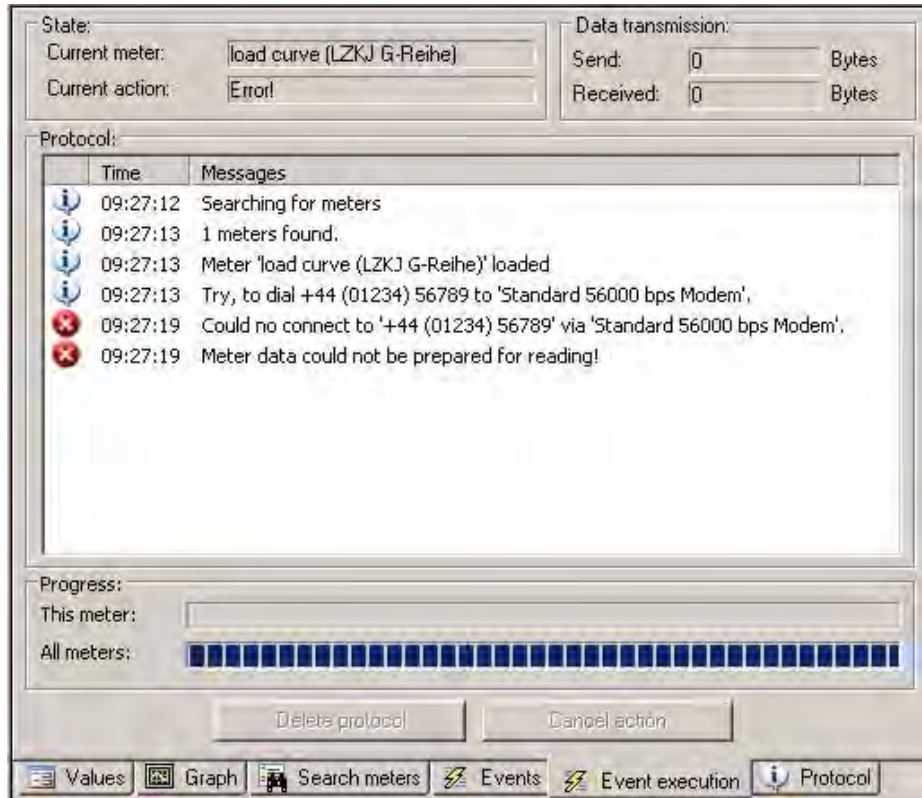



Fig. 4-58 Dialogue readout

Error messages, such as the inaccessibility of remote nodes or errors in the control modem are listed and written to the protocol.

4.16.3 Setting up automatic readouts

In order to execute an automatic readout of meters at specific times and intervals, a suitable action can be set up. For this purpose, the level must firstly be selected from which a meter is to be read out,

e.g. a district or a street. The *Edit/Properties...* menu item or alternatively the () icon in the button bar must be selected.

The **Actions** tab exists at every level and it can be used as follows:

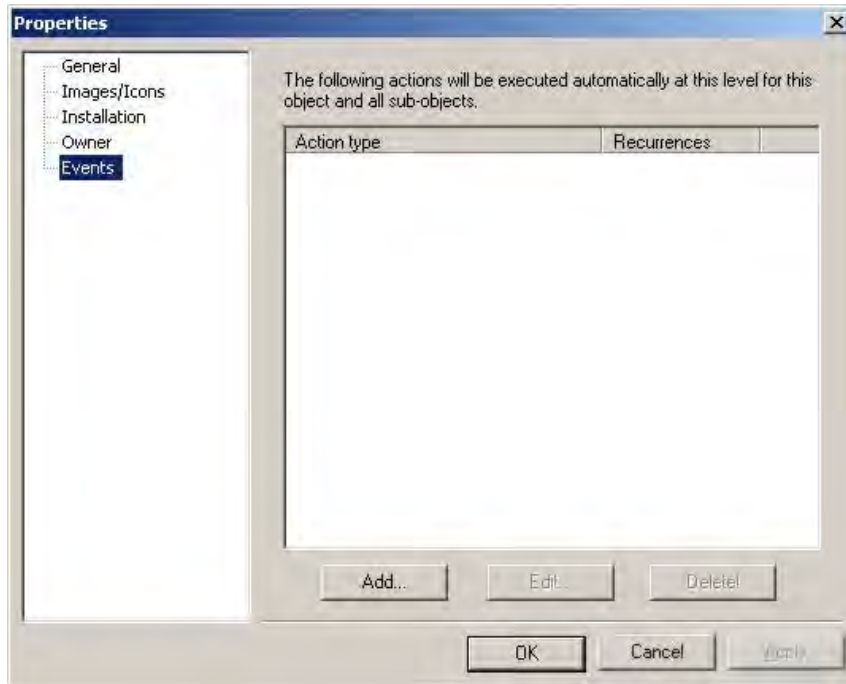


Fig. 4-59 Actions

All the actions for this level can be viewed, set up and deleted here.

To set up a new readout action, the *Add...* button must be pressed. A list appears of all the possible actions which can be executed at this level.



Fig. 4-60 Action type selection

After the desired action has been selected, the dialogue must be confirmed by OK.

Then the selected readout action must be configured:



Fig. 4-61 Action properties

No change has to be entered at the Target Computer item. Here it is merely confirmed that the action is executed at the present “.” level.

Firstly, it can now be specified when the readout action is to be executed. Specify the first execution date and time here, as well as the repeat interval.

These settings can also be executed as for “Meter reading extended...”.

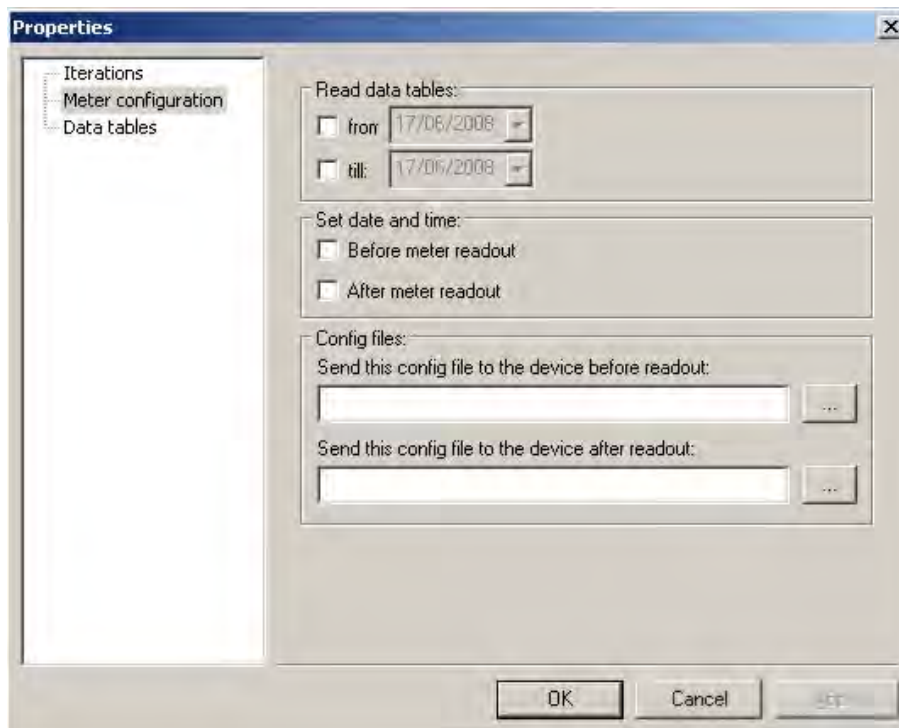


Fig. 4-62 Meter configuration by automatic actions

This can be used for setting the time in the device as part of the readout.

There is the further possibility of opening the data tables differently from the setting saved in the meter.

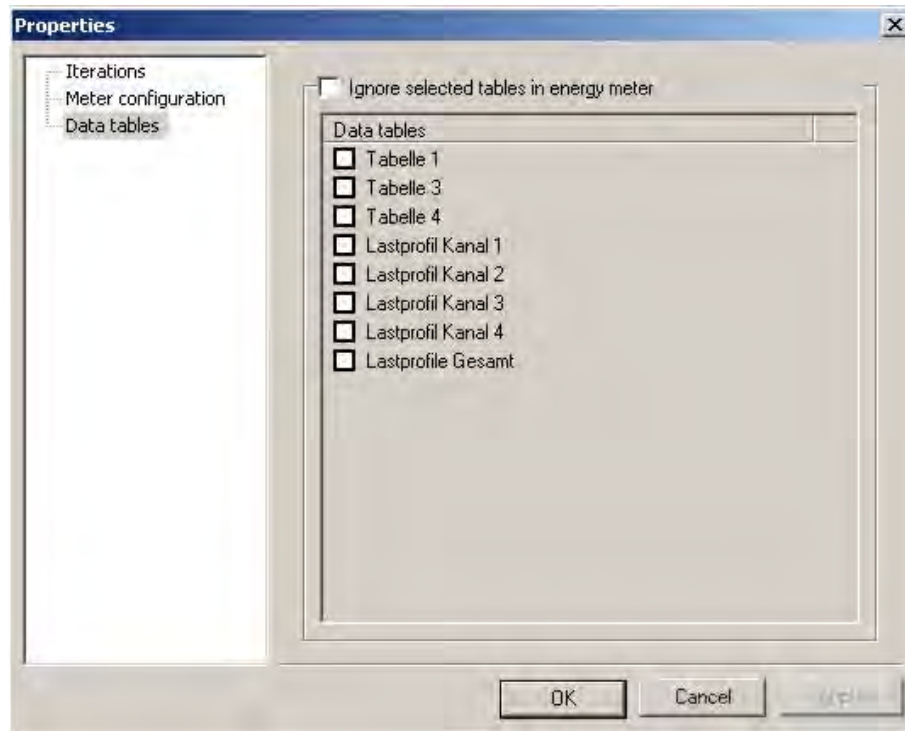


Fig. 4-63 Data tables by automatic actions

After the configuration has been confirmed, the readout action is set up and is executed automatically. Please ensure that Action Processing is switched on. The AMBUS®Gate screen flashes, as soon as Action Processing is switched off.

4.17 Time-dependent level allocations

AMBUS®Gate permits time-dependent allocation to a level. This functionality may be used for managing the switching of meters, for example.

In order to set a time-dependent level allocation, the meter must be edited and switched to the "Level allocations" side.

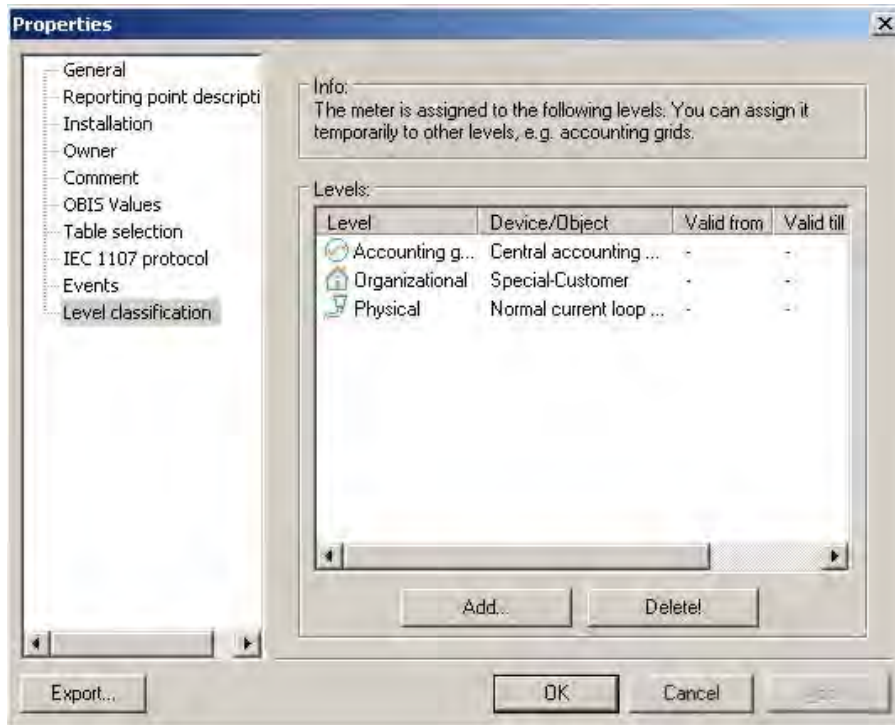


Fig. 4-64 Level allocation

Shown here are the current allocations of the particular levels. In order to allocate a meter to an intended physical level of "store" from a specific date, press "Add".

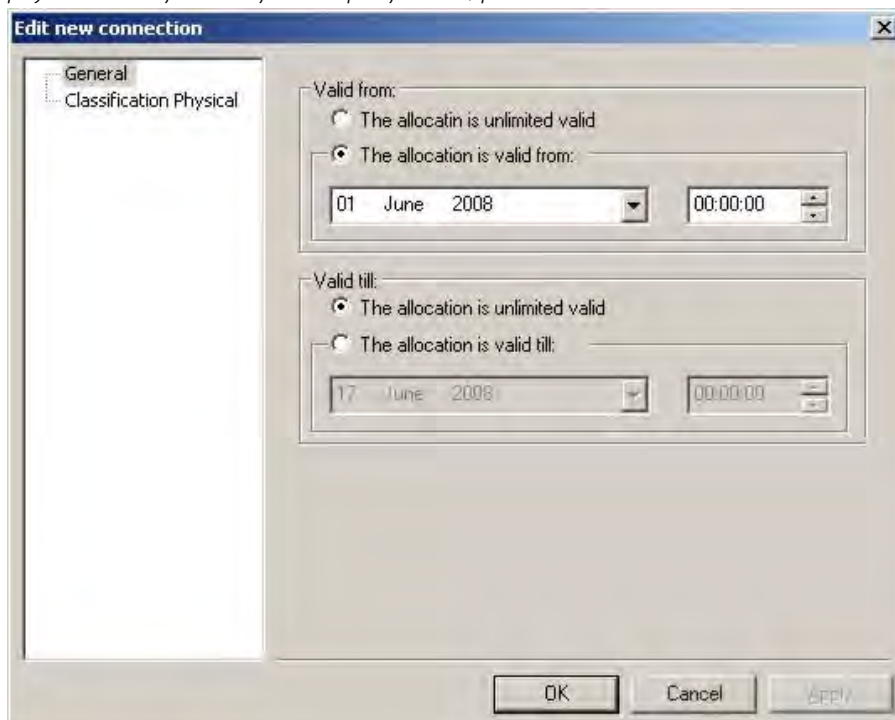


Fig. 4-65 Validity period

A beginning or end date may be selected for the allocation. An allocation can then occur in the particular level.

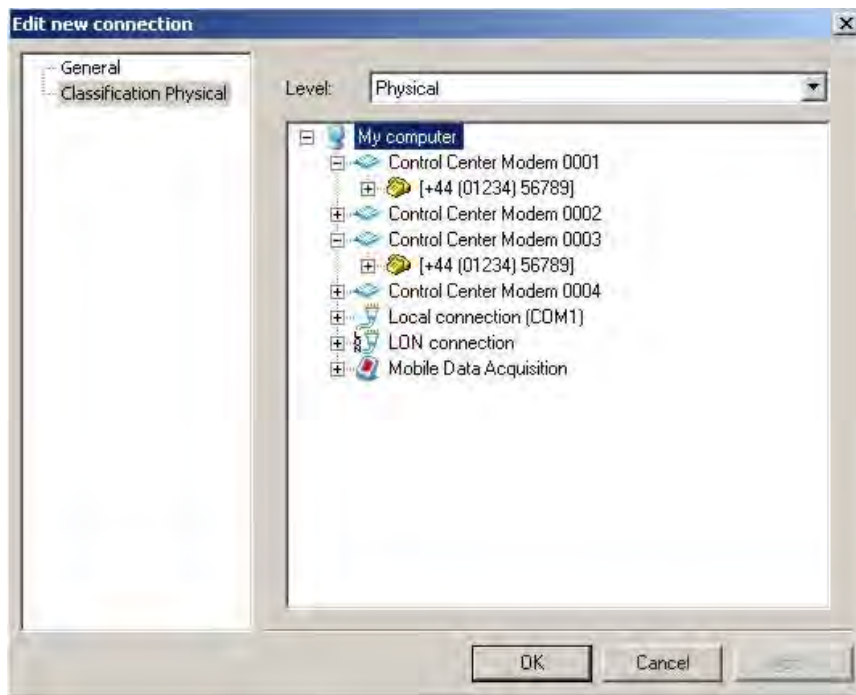


Fig. 4-66 Physical allocation

As a result of confirmation, the new allocation is displayed:

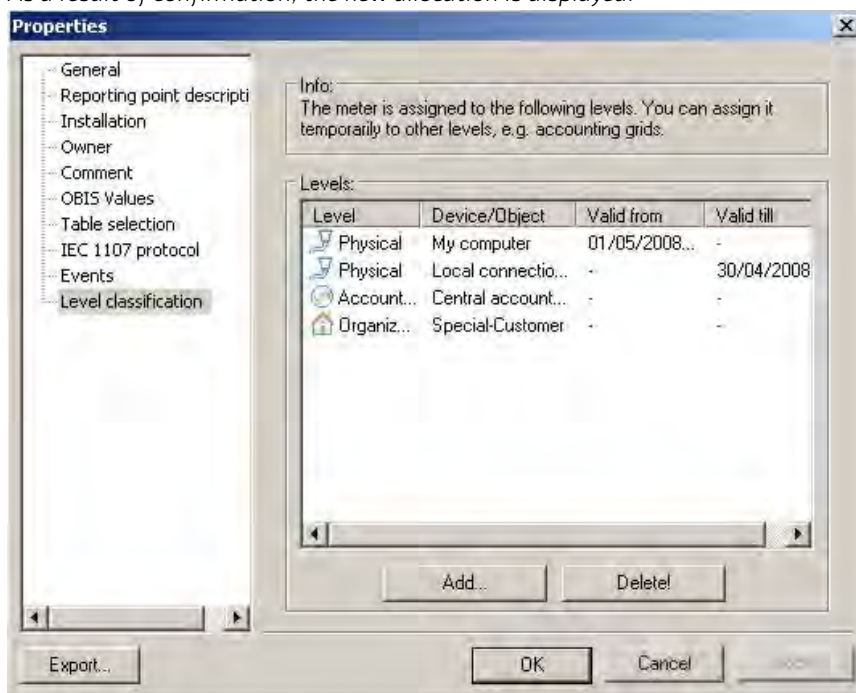


Fig. 4-67 New level allocation

Note that the validity of the old “Normal current loop” allocation has been restricted. An object cannot appear several times in the same level simultaneously.

It is important to note, in a reading after 01/05/2008 (in the above example) that AMBUS®Gate no longer attempts to read the meter at the given physical level. To this extent, these allocations may be set in advance.

The same thing, of course, also applies to the budget level, where there will often be changes in ETSO energy ID codes, if, for example a customer changes suppliers.

5 Export functions

In addition to data acquisition, data export is a main component of AMBUS®Gate software. A data export is provided for many formats, such as Microsoft Excel, VDEW MSCONS or also a line-based ASCII format. These exports may be individually configured by the user.

5.1 Introduction to the export structure

In order to create flexibility of export structures, AMBUS®Gate has two basic components:

- export profiles
- export value tables

Here, value tables are always allocated to a profile. AMBUS®Gate supports any number of export profiles which, in turn, can contain any number of value tables. In the example of an Excel export profile, the following structure is possible:

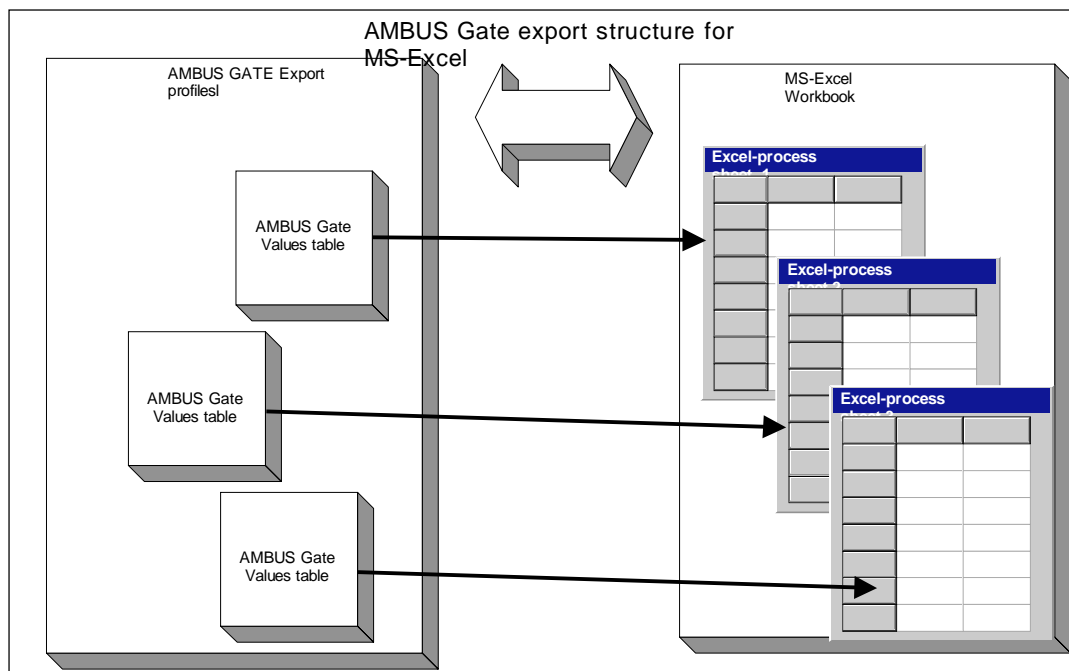


Fig. 5-1 AMBUS®Gate export structure

One single export profile can thus write several spreadsheets and several data sets to a single Excel work folder, with an export profile containing several value tables.

This applies, however, not only to Excel but to all types of ASCII exports. The only difference with ASCII exports is that all the tables for an export are exported to a file.

5.2 Setting up export profiles

In order to edit export profiles, select the “Edit export profiles” menu item:

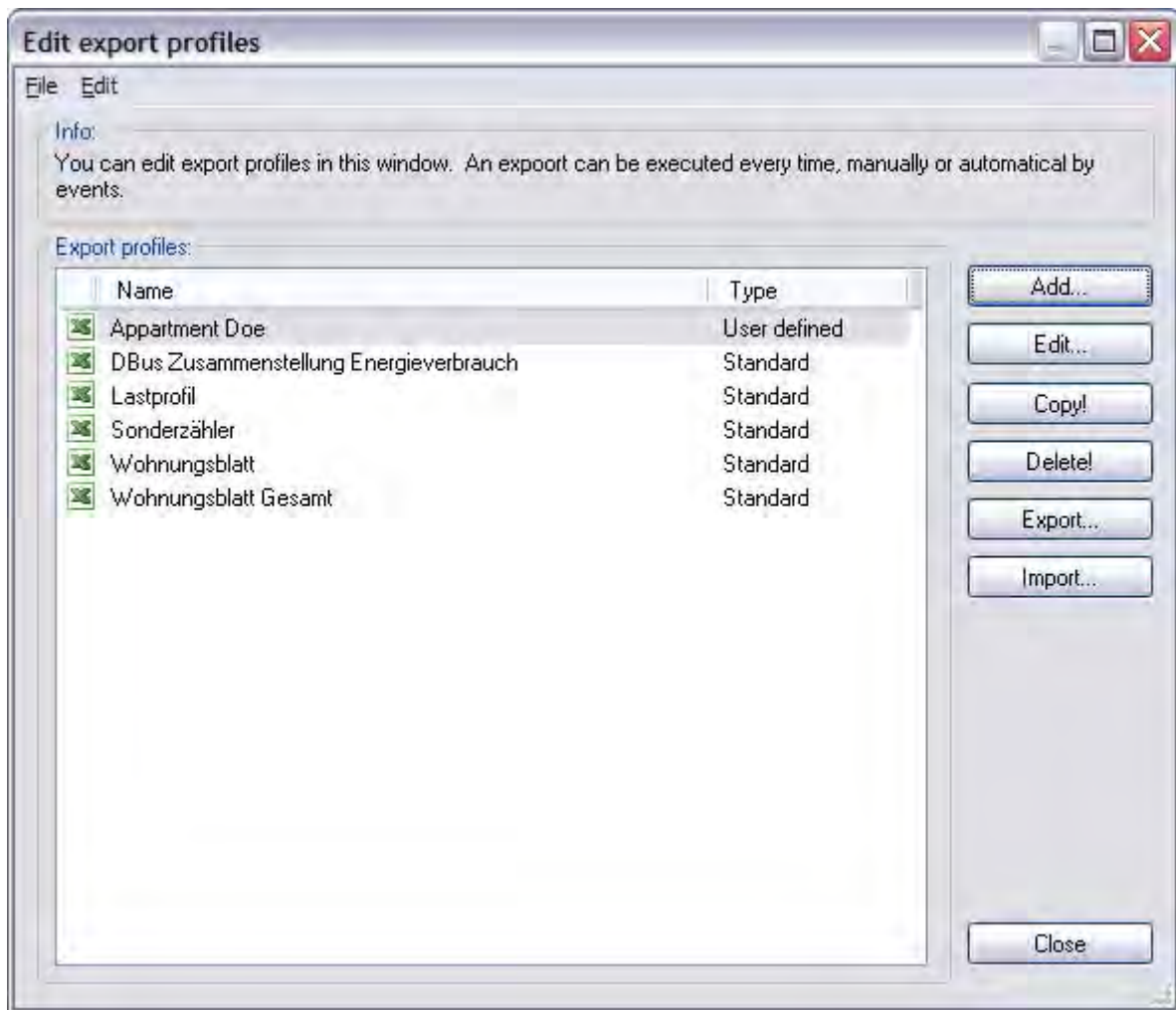


Fig. 5-2 Export profiles overview

In this window, export profiles are reopened or changed. When the export profile is opened, the export format is also specified and a single export profile defined, i.e. an Excel or ASCII export. The configuration for an Excel export is described below.

5.3 Setting up an Excel export profile

5.3.1 General information for an Excel export

To set up an Excel export profile, menu item *Edit export profile* must be selected and the *Add...* button pressed.



Fig. 5-3 Excel export profile selection

A list of the possible export profiles appears. *Microsoft Excel* must be selected here. A new export profile is displayed, which can be edited as follows:

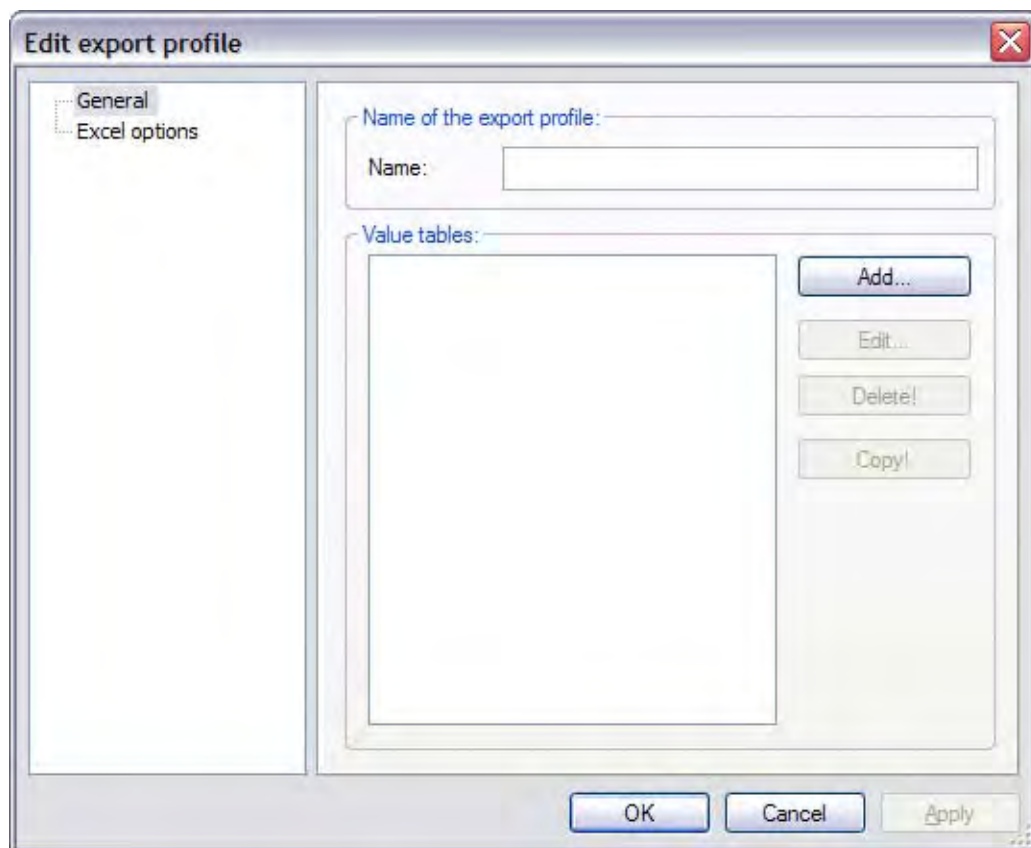


Fig. 5-4 Edit export profile

General

A name for an export profile must be entered here. Value tables for the export profile may be opened here in the same way (see Chapter 5.3.2 Configuration of value tables).

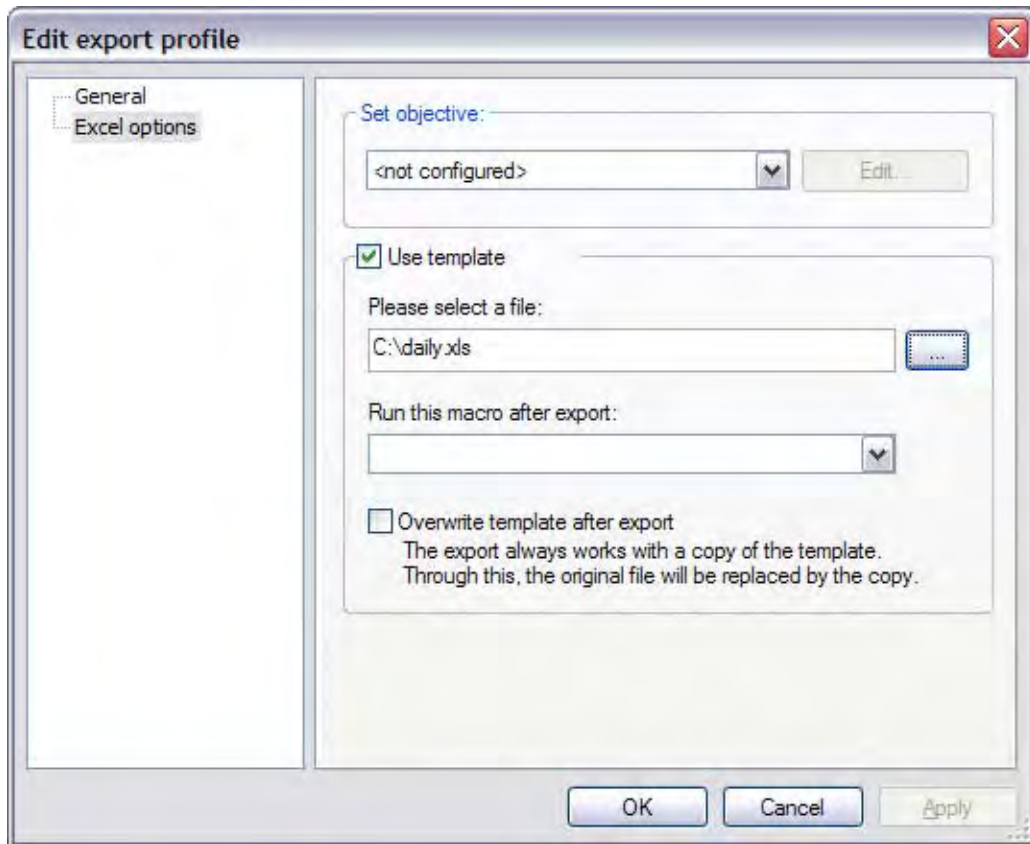


Fig. 5-5a Excel Options

Excel options

All Excel-file-specific options may be executed in Excel Options.

- Specify target
 - Here, the target for the export may be specified. Possible targets are as follows:
 - Single file
 - FTP data transfer
 - email

You will find further information on this in Chapter

Export targets 5.5

- Use template
A template for the export is specified here. This template is used for every data export of this type. A copy of the template is created, to which the export data are saved. The copy is then submitted to the specified target.
- Execute this macro after the export
Here, a macro name can be specified, which can be automatically executed after the export. If an Excel file has previously been configured, all the macros are listed in the Excel file.
- Overwrite template after export.
AMBUS®Gate always operates with a copy of the template. If the template has to be updated after every export, the template is replaced by the copy, using this setting.

5.3.2 Configuration of value tables

After an export profile has been generally set up, the value tables have to be configured. One or more value tables may be allocated to each export profile. This occurs in the *General* tab.

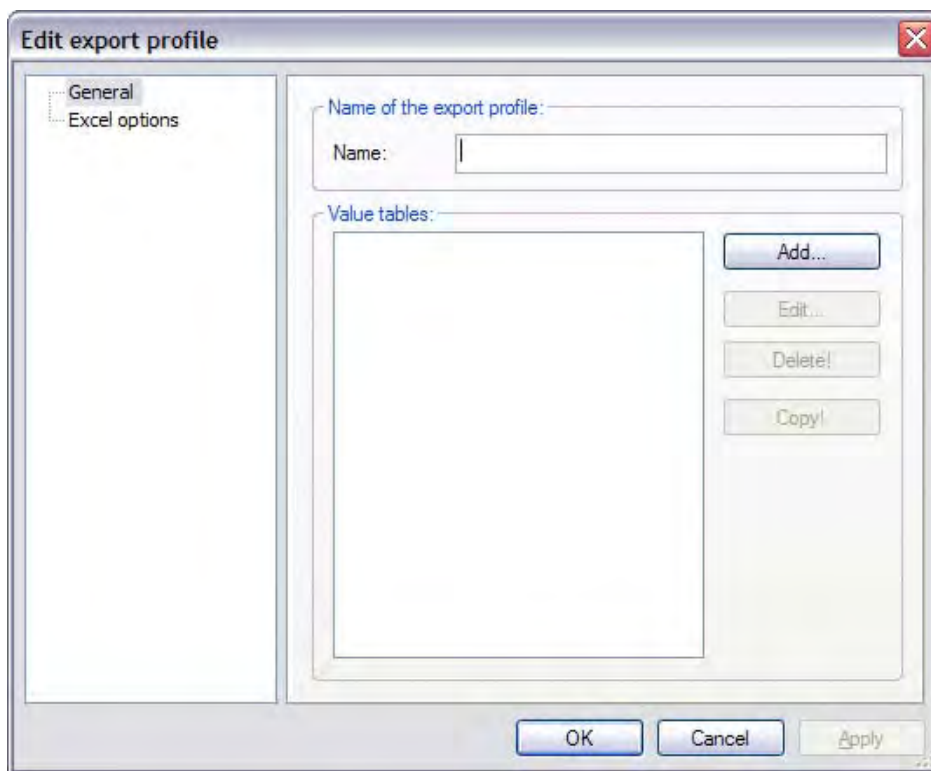


Fig. 5-6 Excel general

By pressing the *Add...* button, a new value table is opened:

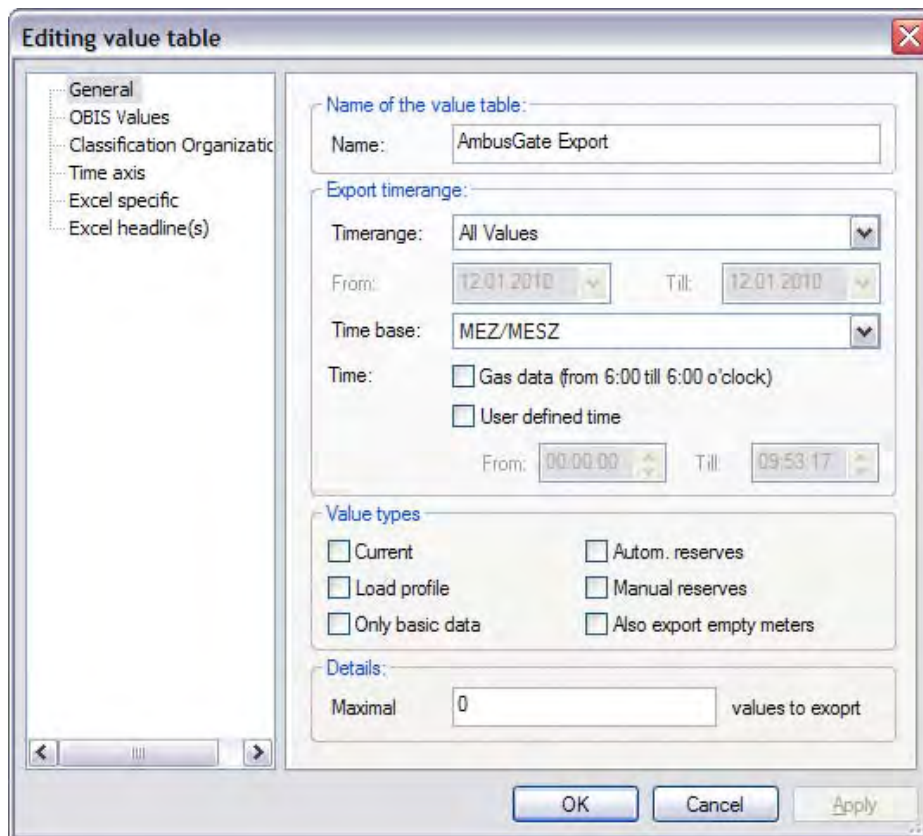


Fig. 5-7 Value table general

General

- Name
The name of the value table is entered here.

 - Period
The period must be chosen, from which the data in the database are to be selected. Possible periods are as follows:
 - All the values
All the values in the selected OBIS values are exported.
 - Yesterday
The values of the previous day are exported
 - Last week
 - Last month
 - Last quarter
 - Last year
 - This year
 - The last seven days
 - Last readout
 - Special period
When this option is chosen, the period must be entered in the "from...to" fields. (Selection via calendar)

 - Time base
The time base for the export must be chosen here. The following time bases are possible:
 - CET/CEST (Central European Summer Time)
 - CET (Central European Time)
 - UTC (*Coordinated Universal Time = Greenwich Mean Time, GMT*)
 - Gas data from 6 am to 6 am
 - Take reset values from the previous day into account

 - Maximal
Here information can be given on the amount of the maximal values of an OBIS type to be exported. When 0 is specified here, all the values of an OBIS type are exported within the period.

 - Types of value
Through selection of the value types, the correct, usage-relevant data or only the meter data without values are filtered.
 - Current
The current usage values are added to the export profile
 - Load profile
The existing load profile values are exported (OBIS 1.5 to 4.5)
 - Automatic resets
Memory values (automatic reset values) are added to the export profile
 - Manual resets
Memory values (manual reset values) are added to the export profile
 - Master data only
 - Only the meters' master data are exported and not their values. This is a useful function for an oversight of the management of incorporated meters.
 - Also export empty meters
This function may be used with data from meters to be exported, even if there are no data for the specified period, in the case of one or more meters. During the export, a data set with all the meters is created, with the "empty" meters being without values in this data set. These empty meters are not exported without this option being specified and are completely absent from the data set created in the export.
-

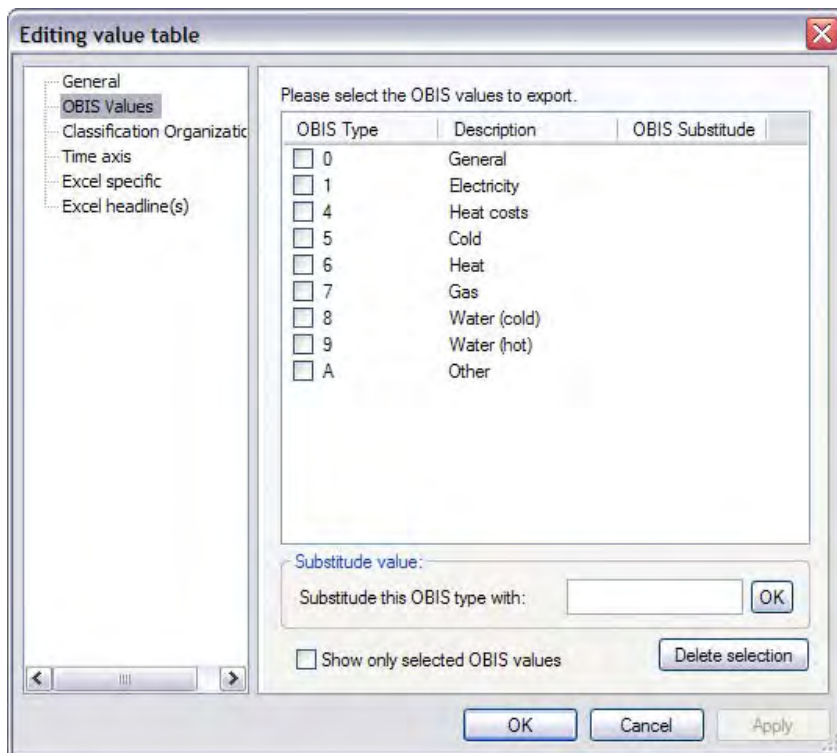


Fig. 5-8 OBIS selection

OBIS values

Here all OBIS indices which are to be exported in this value table may be selected. If no indices are selected here, all the OBIS indices contained in the database are exported.

You may select as many OBIS indices as you like.

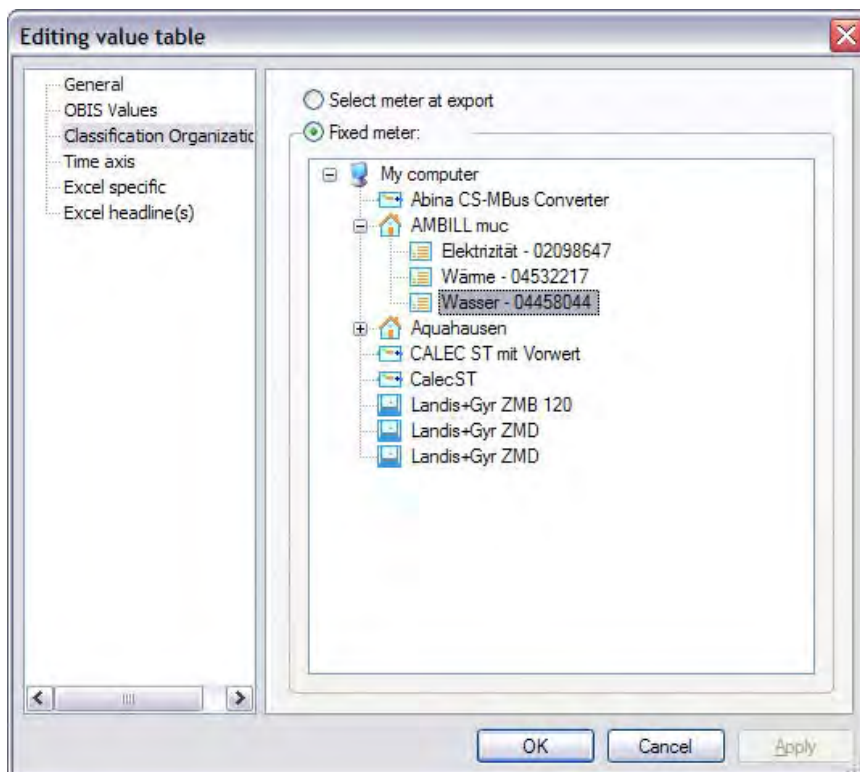


Fig. 5-9 Meter specifications

Select meters during export

If you choose this option, the quantity of meters is selected during export. This occurs by executing the export at a specific level in the AMBUS®Gate tree structure.

Specify meter

In this option, a meter or a level can be firmly specified in the export profile. The export is then always executed at the specified level.

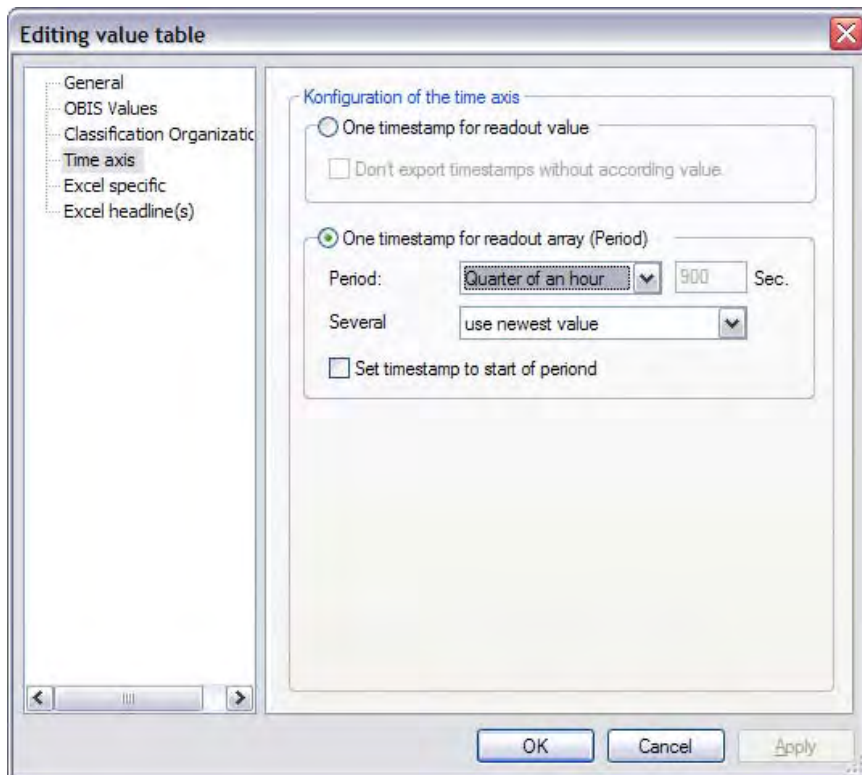


Fig. 5-10 Time axis

Time axis

- *One time stamp per readout value*
Here, each individual value is exported in two columns; the first column specifies the value's measurement time (time stamp) and the second column specifies the value itself.
- *One time stamp per readout row*
For exporting many values or comparing meters, it is possible to write the columns synchronously which means that the time stamp is written in the first column of the spreadsheet and the values of the individual meters and OBIS indices are written in the subsequent columns. It can happen in this case that some columns remain empty, if there are no values for the times.
With this setting, a summary can also be selected, so that, for example, all the values for a month, a day, an hour etc. are summarised in one cell. Here, AMBUS®Gate can add the values and use the latest or the oldest value.
- *In the case of double values*
If time values are combined, such as with an export of load profile data on a 15-minute basis, it can happen that several values exist for the same period. Depending on the requirements of the export, it may be sensible to add values or use the latest or oldest value. If, for example, usage values are exported and a monthly summary executed, there should be no adding but the latest value should be used instead. Adding is possible with load profiles, in order to add incomplete measurement periods automatically.
- *Set time stamp to measurement period start*
AMBUS®Gate normally adds the real times for the values read out along the time axis, e.g., 17:34:40 for a load profile value measurement period which has started. If the time stamp is set to measurement period start, all the time stamps in the axis are edited on the basis of the chosen combination. In the case of a 15-minute basis, only "17:30:00", "17:45:00" etc. time stamps are still found.

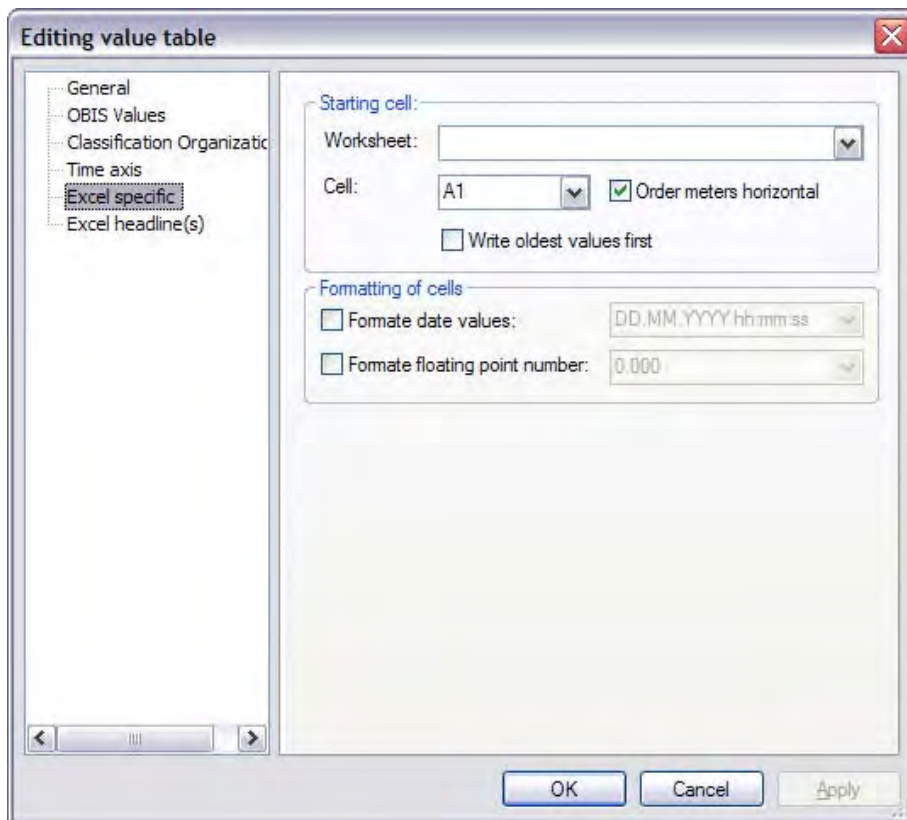


Fig. 5-11 Excel-specific settings

Excel-specific

- Spreadsheet
The Excel spreadsheet to which the value table is to be exported must be specified here. If an Excel file is already configured in the export profile, all the spreadsheets contained in this file are also displayed.
- Cell
Specifies the cell from which the values are to be written.
- *Arrange meters horizontally*
If this field is selected, AMBUS®Gate writes the meters horizontally in columns and the periods vertically in lines. If this field is not selected, AMBUS®Gate writes the meters vertically in lines and the periods horizontally in columns.
Observe the Excel-specified restriction to a maximum of 65535 lines and 256 columns. When exporting many meters, it thus makes sense **not** to write the data horizontally. If you are exporting the load curve data for a few meters, for example, it makes sense to write the data horizontally.
- Write oldest values first
When this option is chosen, AMBUS®Gate starts with the oldest value from the value row.
- Formatted date values
With this option, values which are recognised as date values are displayed in the selected date format in Excel.
- Formatted numbers of floating points
The number of floating points is regulated here. This setting is controlled by entering the “0” and can be set to a maximum of the third decimal place. Example: 0.000

In order to find the best export formula for an individual export, the export profiles supplied in AMBUS®Gate, for example, can be viewed and executed.

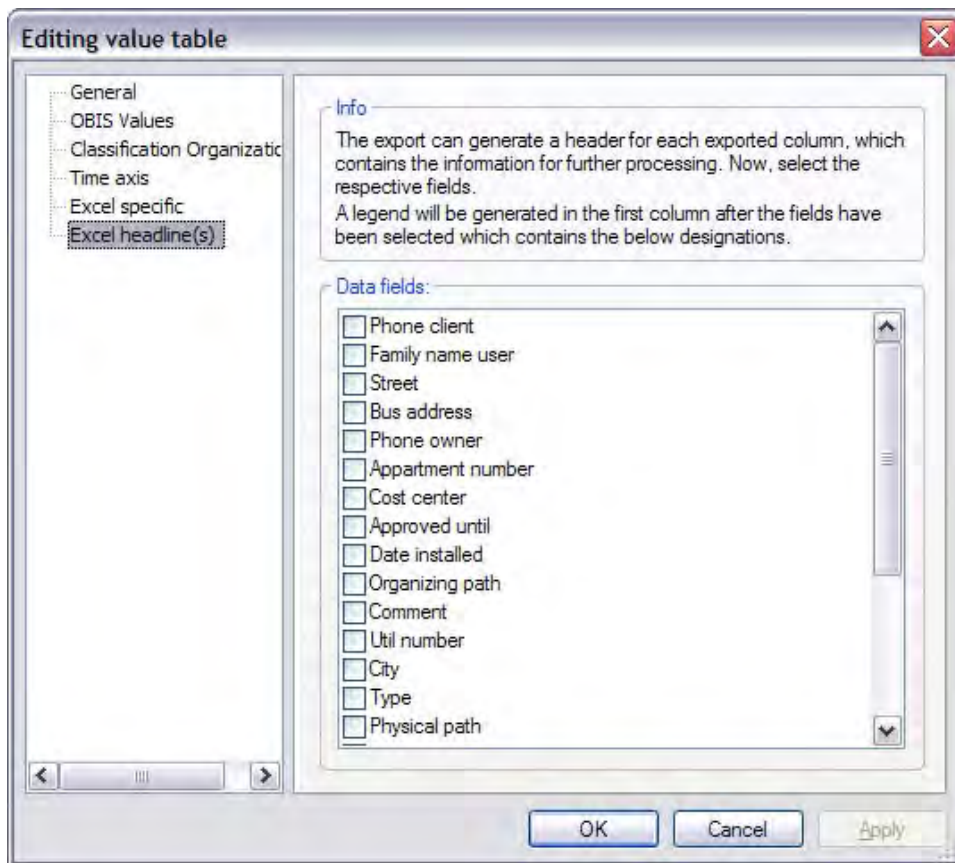


Fig. 5-12 Excel header

Excel header

For each column to be exported, AMBUS®Gate generates a header which contains various pieces of information on the meter, the OBIS index and the unit. Here you can choose which extra information for the particular meter should be transferred to the header of the Excel spreadsheet.

In each case, the OBIS index, the OBIS designation and the unit for the meter value are displayed in the header.

As an option, the complete organisational path for the meter may be exported. Among other things, this can be used at a later stage for carrying out an allocation of meters to customers by Excel macro.

5.3.3 Creating an Excel file

A new file can be opened with Microsoft Excel for the straightforward creation of an Excel file as a direct export file or template. This empty, unedited work folder is totally adequate for an Excel export of AMBUS®Gate meter data.

Individually prepared work folders can also be incorporated in an Excel export in the same way.

5.4 Setting up an ASCII export profile

The ASCII export is modularly built, so that all possible ASCII formats can be implemented very easily. In particular, the ASCII export structure is structured as follows:

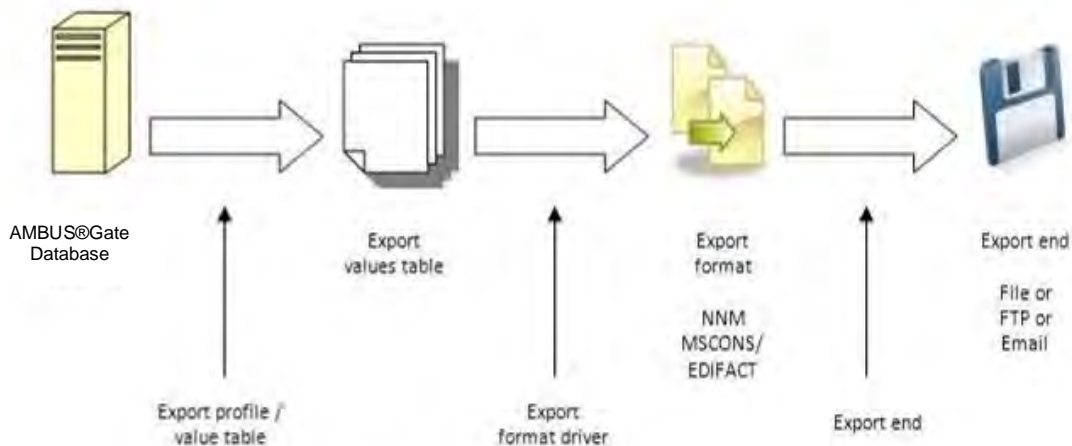


Fig. 5-13 ASCII export profile configuration possibilities

As can be seen from the diagram, an ASCII export profile can thus be configured in three places - on the export profile, on the export format driver and on the export target. The individual configuration possibilities are described below.

Note: To a major extent, setting up an ASCII export profile is similar to setting up an Excel profile. In this respect, only the differences for setting up an ASCII profile are described here.

An ASCII export profile is set up via the menu item *Edit export profiles...* and by pressing the *Add...* button.



Fig. 5-14 ASCII export profile selection

The ASCII Export item must be selected here. The following dialogue is displayed:

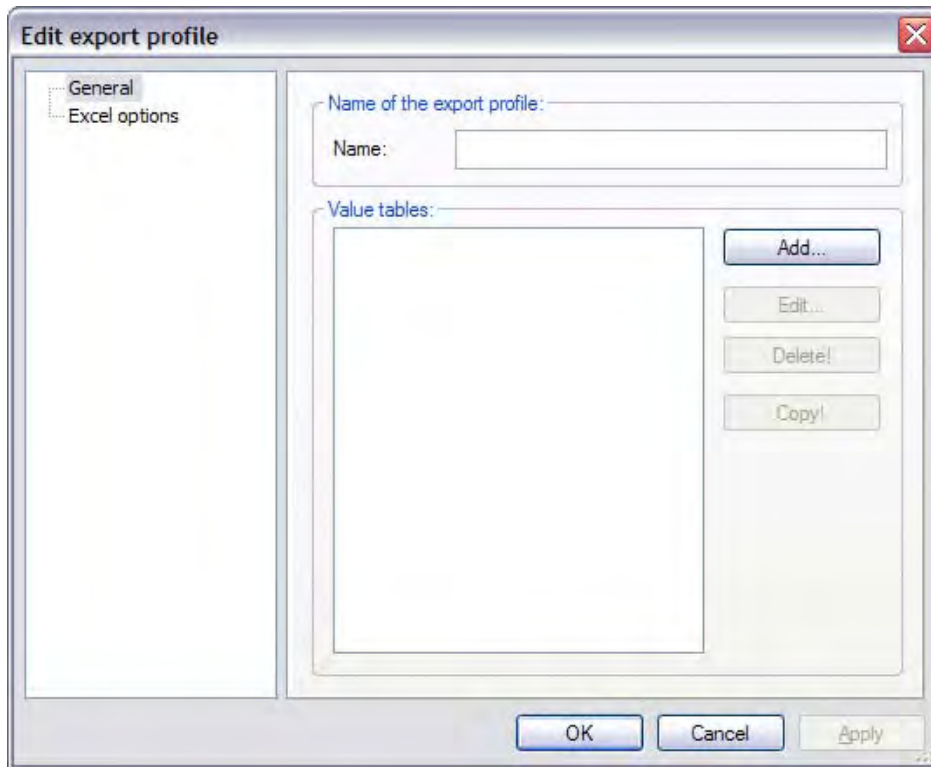


Fig. 5-15 General ASCII export profile

Setting up value tables and the quick start allocation is identical to the Excel export and is not described further here. Only the register for the “ASCII target” is relevant.

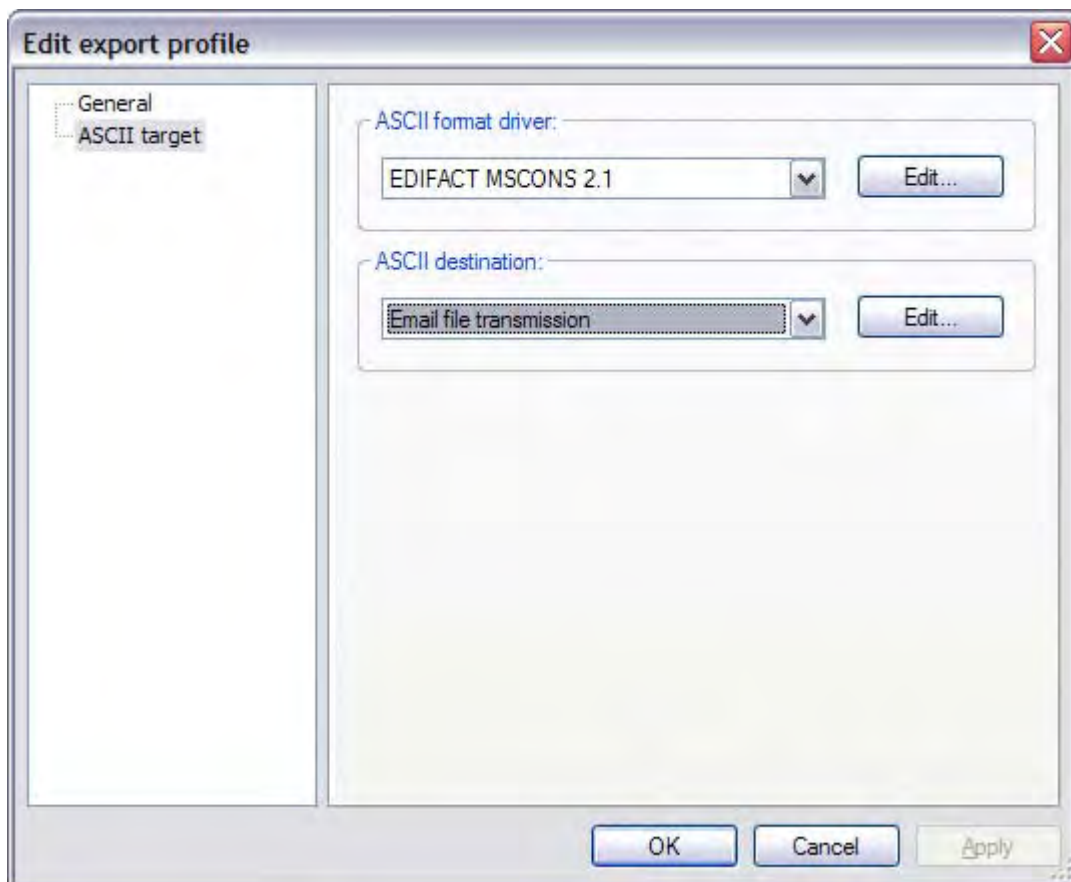


Fig. 5-16 ASCII target

ASCII target:

The ASCII format driver, which determines the export format to be created, and the export's ASCII target are configured. A description of the individual formats can be found in the following chapters.

- *ASCII format driver*
Selection of the ASCII format for which the export is to be generated. A detailed description of the individual formats can be found in the following chapters.
- *ASCII target*
Selection of export target. Possible targets are as follows:
 - Single file
 - FTP data transfer
 - email

A detailed description of the possibilities can also be found in the individual chapters.

The following value tables window is opened by “Add” in the “General” register:

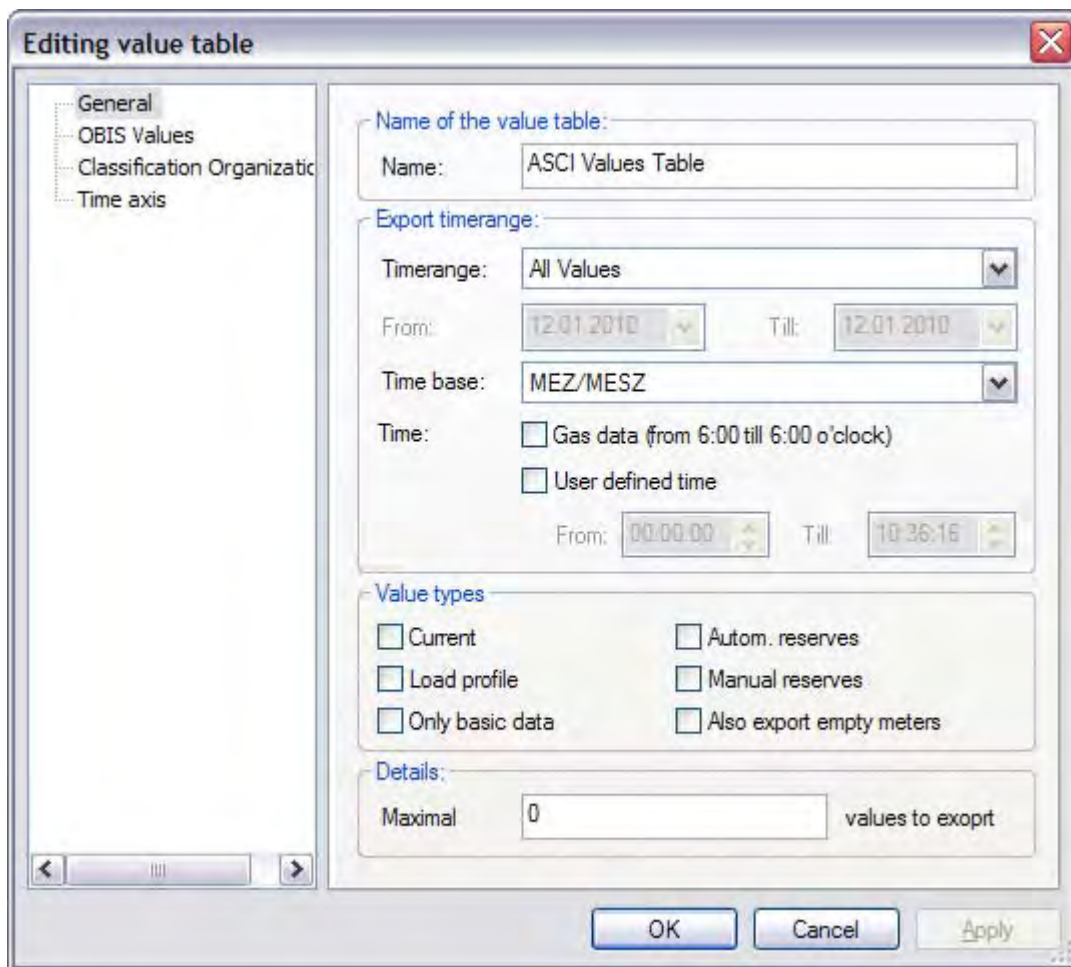


Fig. 5-17 Configuration of the value table:

The configuration of the value tables occurs in an identical way to that of the value tables in Excel export profiles and is not described further here. (see Chapter 5.3.2 Configuration of value tables)

5.4.1 Network usage manager (EAM)

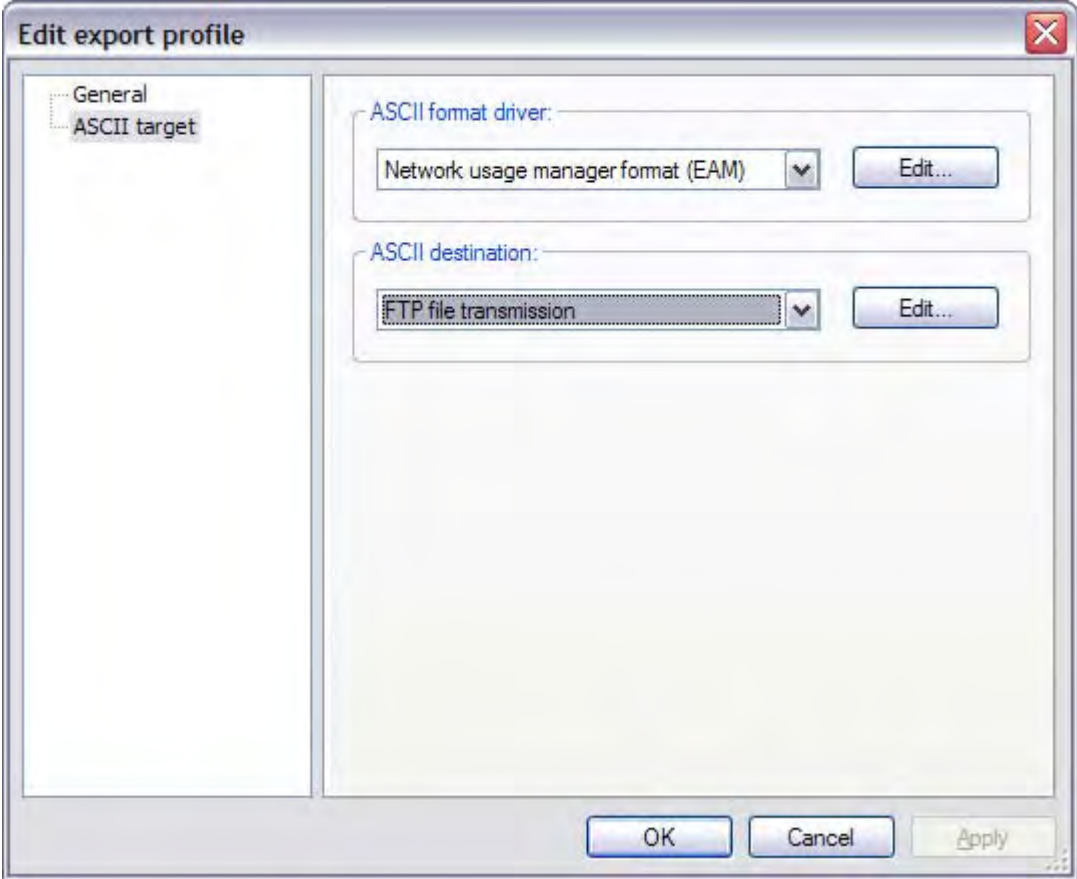


Fig. 5-18 ASCII format driver Network usage manager (EAM)

With this driver, AMBUS®Gate can generate the format required by the network usage manager (NNM). It should be remembered that this format is a load curve format and because of that the value table configured for it should export only load profile values.

The following example of a configuration is suggested for value tables in the NNM export:

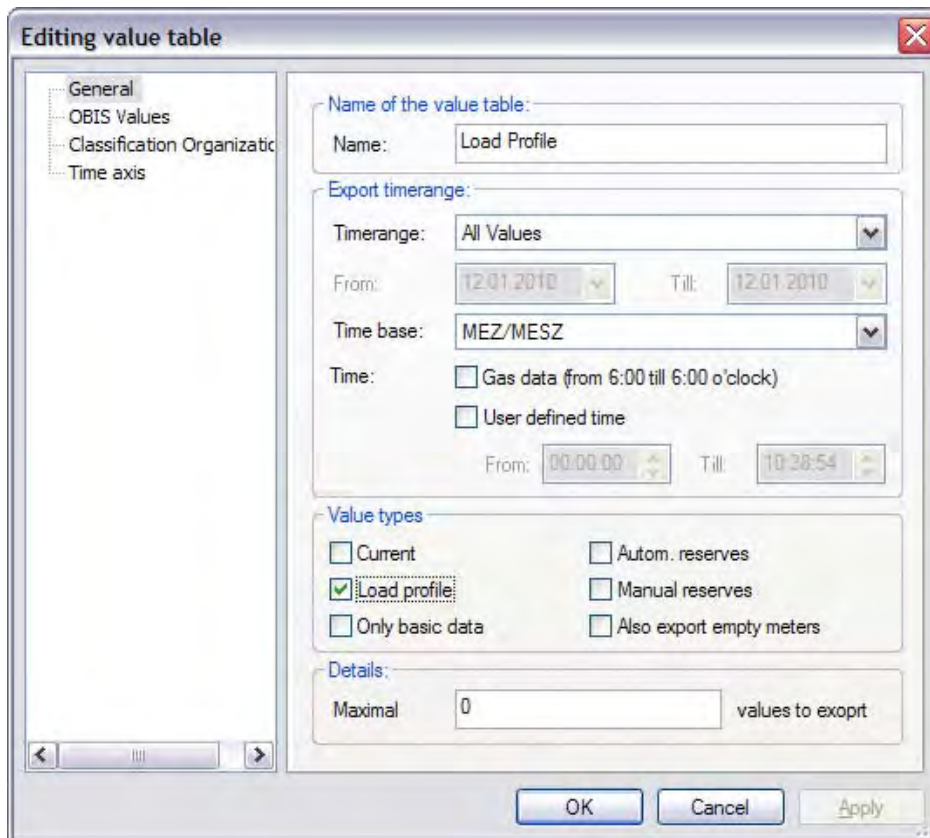


Fig. 5-19 Suggestion for NNM value table general

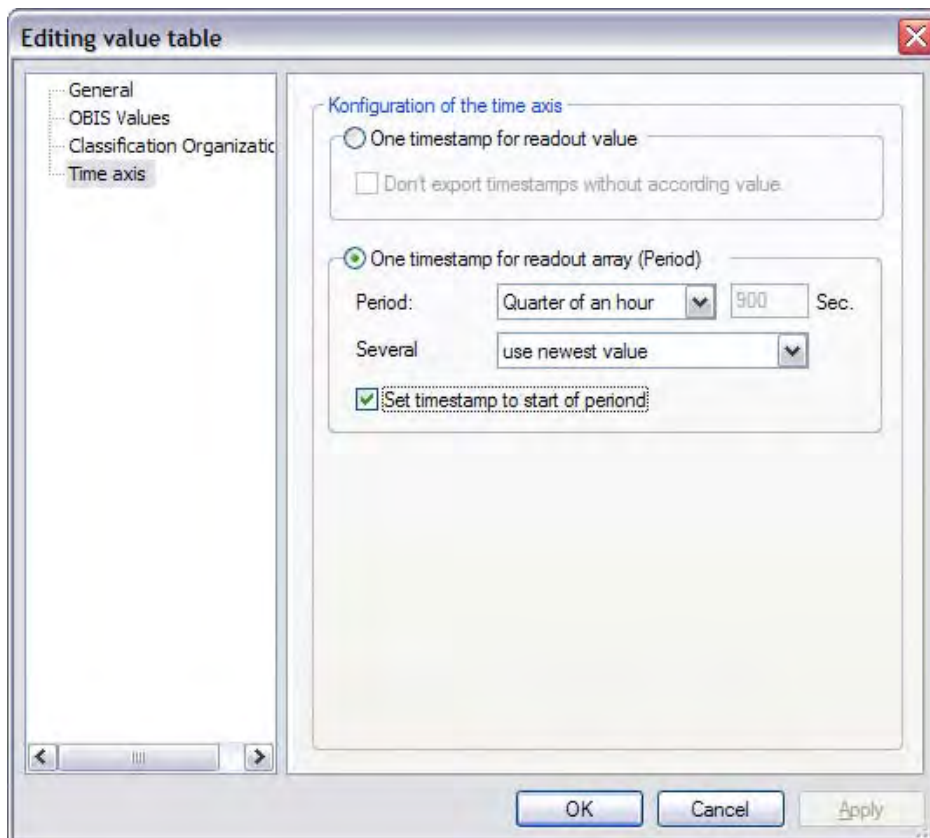


Fig. 5-20 NNM value table time axis suggestion

5.4.2 EDIFACT/MSCONS export

By means of this export driver, it is possible for AMBUS®Gate to export data in the EDIFACT/MSCONS format. There are four MSCONS drivers in AMBUS®Gate. They are for Versions 1.6b and 2.0 d on the one hand and for Versions 2.1 and 2.1g on the other (as of August 2008). As is generally the case with all exports, there is a possibility of defining several tables for an export profile. This example should demonstrate the point:

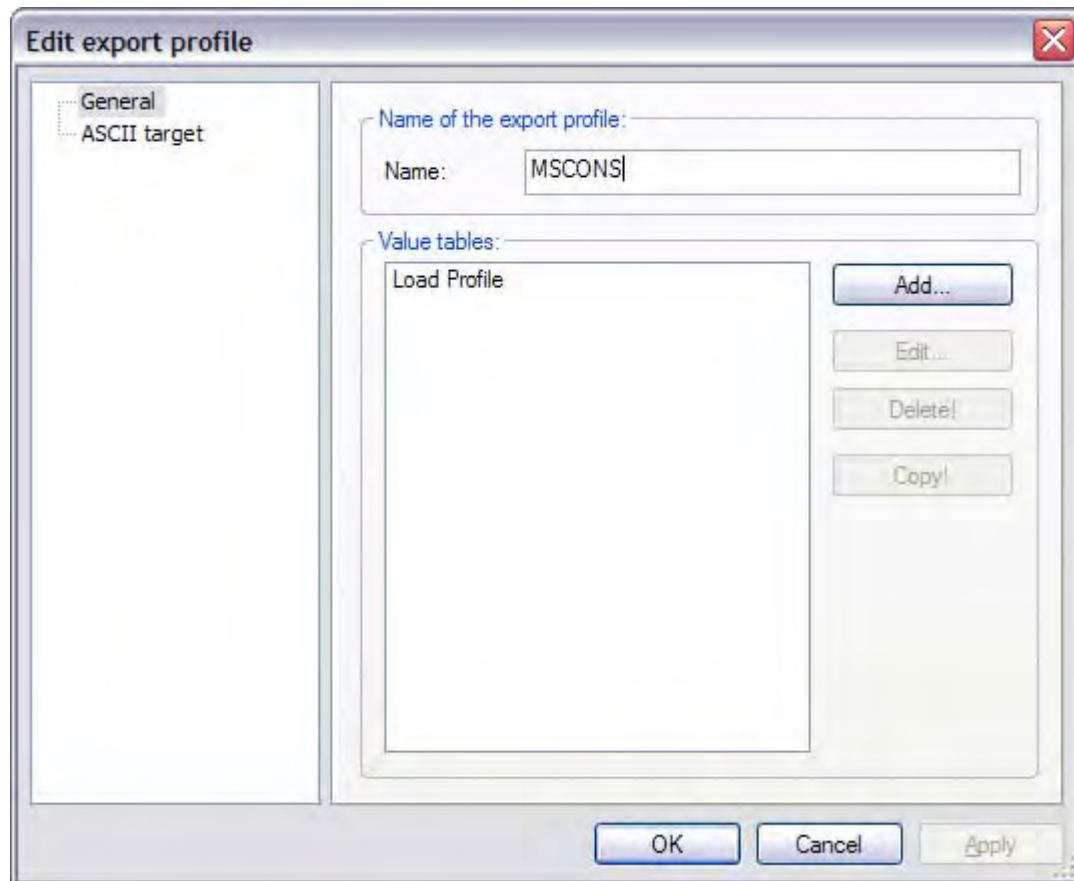


Fig. 5-21 MSCONS export profile

In this profile, tables are opened for load profile, maximum and effective power. The selected OBIS values are handled in the same way in every profile. On execution, the export opens a file into which all the meter data selected in the tables flow in EDIFACT/MSCONS format.

The editing of the individual export tables may be done in any way you wish (in the same way as the other exports). It is not possible to edit the driver separately for the individual tables. If a table with another EDIFACT configuration setting is to be processed, a new export must be opened for this table.

The EDIFACT format is edited in the ASCII Target dialogue:

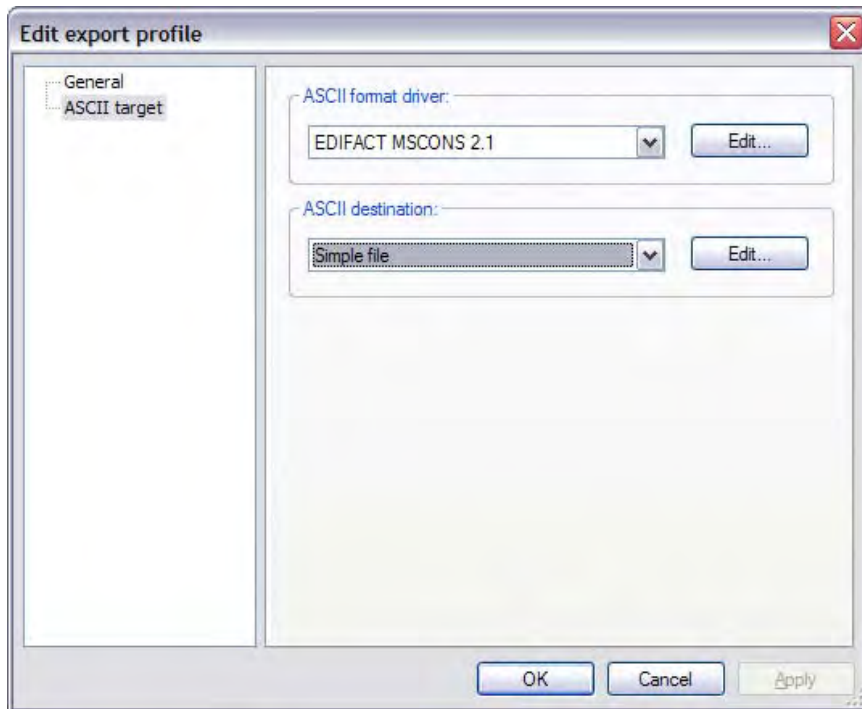


Fig. 5-22 Selection: EDIFACT export (MSCONS 2.1)

By pressing the “Edit” function button of the EDIFACT Export driver, the following selection window appears:

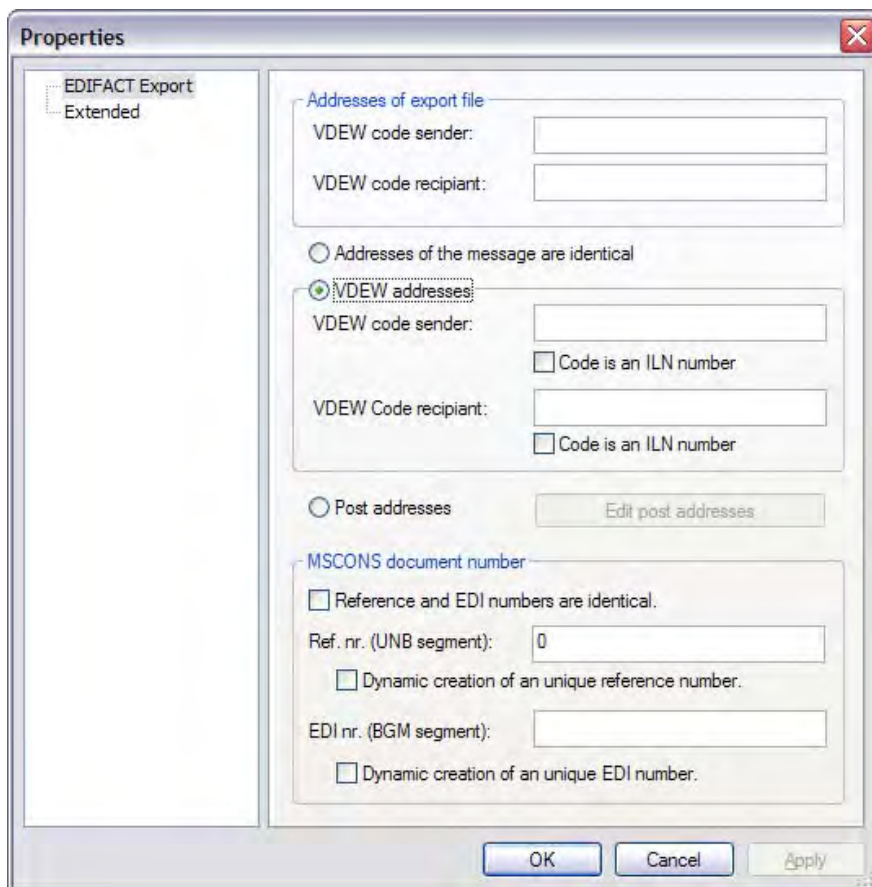


Fig. 5-23 EDIFACT/MSCONS driver configuration

A sender and a recipient of the export file and of the message received must be entered here. The codes used here are managed by the Electricity Industry Association (VDEW) and you can look them up on <http://codenummern.strom.de/>.

- Export file address
The VDEW codes for the sender and the recipient of the export file are entered here. Here, the sender is always the network operator. The recipient is the network operator's supplier.
- The addresses of the message are identical
If the VDEW codes are the same for the sender and the recipient of the export file, input can be discontinued by checking this box. This is the case if the network operator creates the MSCONS message themselves and sends it to their suppliers. If this option is not enabled, the differing addresses must be entered. The following cases are conceivable here:
 - The export file has been created by a service provider on behalf of the network operator. The message must be sent by the service provider directly to the network operator's supplier. The entries must be executed as follows:
Export file addresses:
VDEW code sender = service provider's code
VDEW code recipient = supplier's code
Addresses for export message:
VDEW code sender = network operator's code
VDEW code recipient = supplier's code
 - The export file has been created by a service provider and should be sent to the supplier by the network operator.
Export file addresses:
VDEW code sender = service provider's code
VDEW code recipient = network operator's code
Addresses for export message:
VDEW code sender = network operator's code
VDEW code recipient = supplier's code
- Address for export message (postal addresses)
The VDEW codes for the sender and the recipient of the export message are entered here. If the postal address is to be used for sending the export message, the box at "Use postal address" must be checked and the details for "Name", "Number and Street/Post Box:", "Postcode, town" and "State" must be entered.
- EDI message number

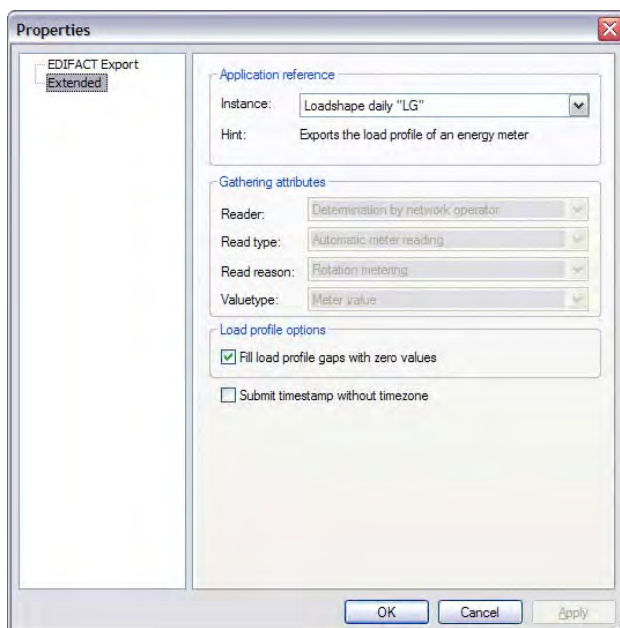


Fig. 5-24 Application reference

Application reference

The possible application references are to be explained here. The following references are conceivable:

Form

- Load curve, daily “LC”
 - Creates a new time stamp for every day, followed by 96¼ hours of values.
- Load curve, any “TL” (technical supply conditions) period
 - Exports all the values of a load profile followed by a “start-end” time stamp for each value
- Energy volume
 - Exports the supplied energy volume for a selected period with “start and end” time stamp
- Invoicing list, “IL” meter status
 - Exports a meter status including time stamp and acquisition characteristics

Acquisition characteristics

- Meter reader
 - Calculation by the network operator
 - Calculation by the supplier
 - Calculation by the measurement point operator
 - Calculation by the measurement service provider
- Type of readout
 - Automatic remote meter reading
 - Customer self-reading
- Readout reason
 - Regular reading
 - Interim reading (e.g. on change in tariff)
 - Device change
 - Contract change (change of supplier or moving in/out)
- Type of meter status
 - Meter status (for regular or interim reading)
 - Initial meter status (for change of device/supplier and moving in)
 - Final meter status (for change of device/supplier and moving out)
- Load profile options

Complete load profile gaps with zero readings

When this option is chosen, the gaps in the load profile are transferred as zero readings. There is no substitute accumulation of value.
- Transferring time stamps without specifying time zone

When this option is chosen, time stamps are transferred without the time zone being specified. The time stamp is in the form of the above examples. If the option is disabled, every time stamp allocated to a measurement is in the following form:

QTY+46:1.700'

DTM+163:200507010000?+02:303'

DTM+164:200507010015?+02:303'

Measurement

In a short time stamp (time and MESZ) Final

time stamp (time and MESZ)

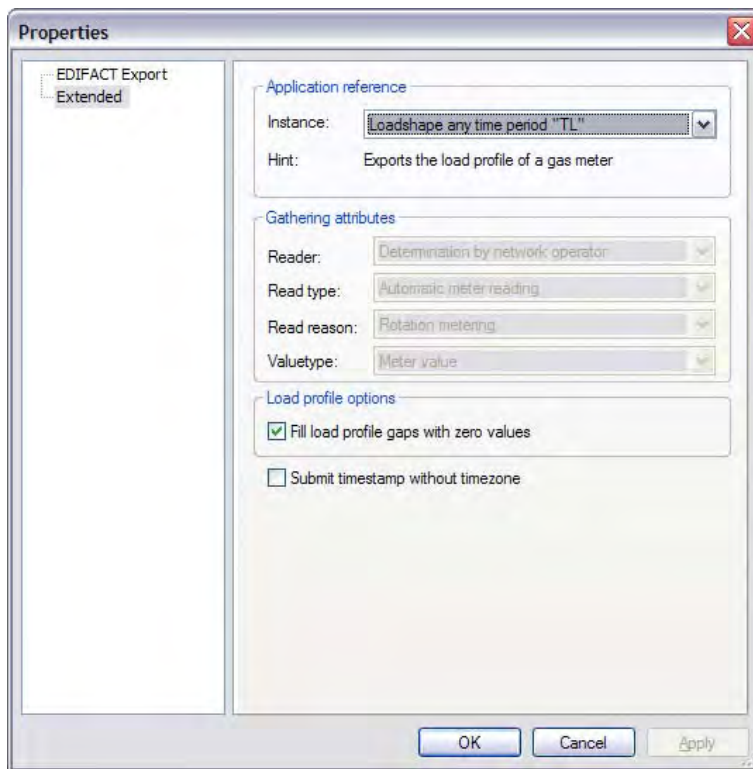


Fig. 5-25 MSCONS 2.1g application reference

Form

- Load curve, any "TL" period (exports a meter's load profile)
 - Preliminary hourly energy value (7-1:33.3.71)
 - Final hourly energy value (7-1:33.3.71)
- Invoicing list, "IL" meter status (exports a meter's status)
 - Operating volume meter status (7-1:3.0.0)
 - Standard volume at (7-1:3.2.0) meter status

Options

- Send meter status
- Send heat value
- Transferring time stamps without specifying time zones

Acquisition characteristics

- Meter reader
 - Calculation by the network operator
 - Calculation by the supplier
 - Calculation by the measurement point operator
 - Calculation by the measurement service provider
- Type of readout
 - Automatic remote meter reading
 - Customer self-reading
- Readout reason
 - Regular reading
 - Interim reading (e.g. on change in tariff)
 - Device change
 - Contract change (change of supplier or moving in/out)
- Type of meter status
 - Meter status (for regular or interim reading)
 - Initial meter status (for change of device/supplier and moving in)
 - Final meter status (for change of device/supplier and moving out)
- Number of places before the decimal point
- Number of decimal places

5.4.3 OBIS/line-based export

The line-based export allows **itself** to be fully configured and serves as a general export format for connecting to systems which are not explicitly supported.

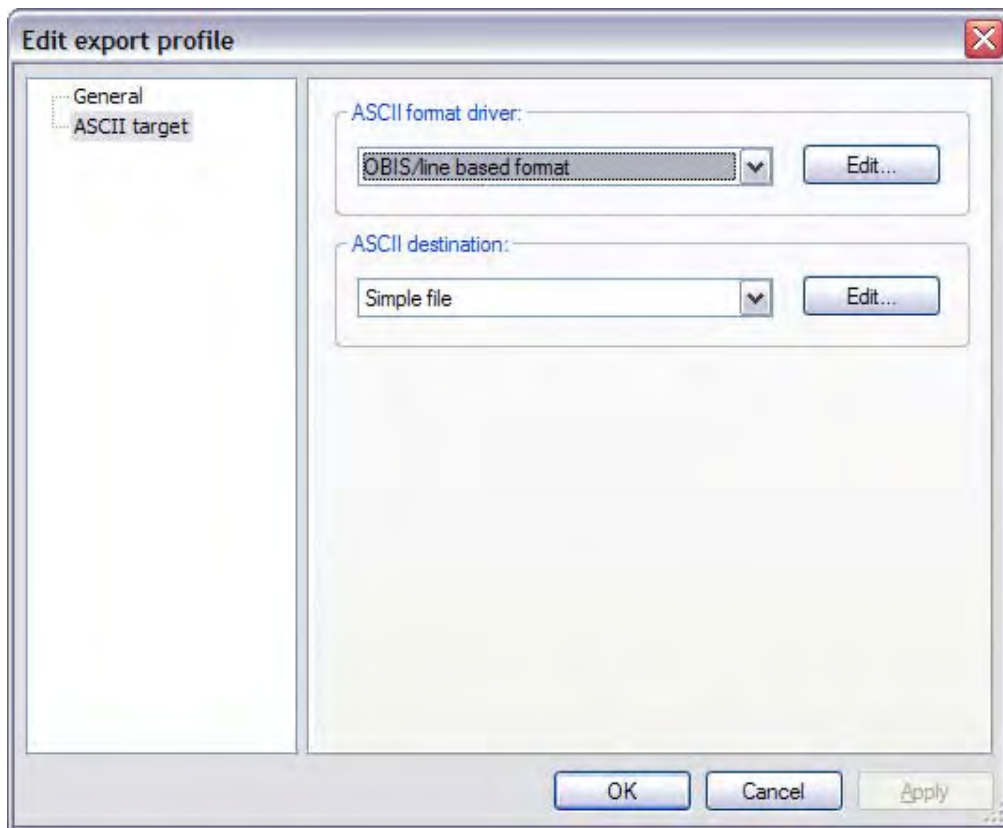


Fig. 5-26 OBIS index selection

The following settings may be carried out for the line-based export:

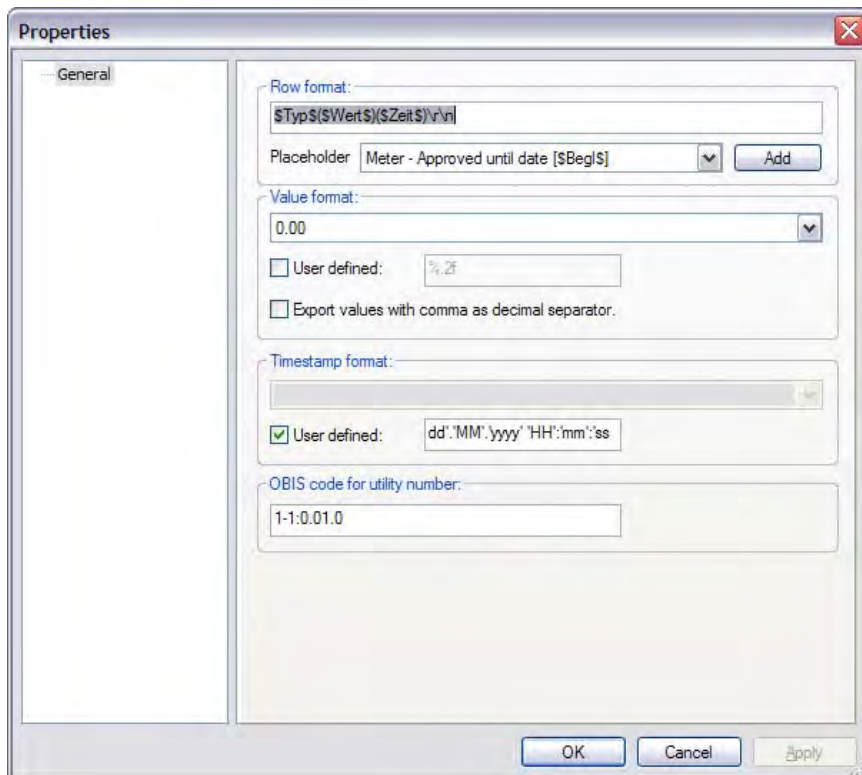


Fig. 5-27 OBIS configuration/line-based format

Lying format

The format for an export line is configured here. AMBUS®Gate replaces “placeholders” with the appropriate values. The following placeholders are possible:

\$Typ\$	The OBIS index for the export value
\$KNZ\$	The obis index without specification of medium or channel
\$Wert\$	The value in itself - see below for format
\$Zeit\$	The value's time - see below for format
\$MC\$	The meter point designation in accordance with VV2
\$EVU\$	The current meter's electricity supply company number The
\$Status\$	status field for the value
\$KoSt\$	Cost centre
\$SerNum\$	Serial number
\$Beschr\$	Description
\$Begl\$	Certified until
\$InstDat\$	Installation date
\$Zählertyp\$	Meter type
\$Strasse\$	Installation - street
\$Plz\$	Installation - postcode
\$Ort\$	Installation - town
\$Wohnung\$	Installation - flat number
\$TelZähler\$	Installation - phone
\$Etage\$	Installation - floor
\$Vorname\$	Owner - Surname
\$Nachname\$	Owner - First name
\$TelBesitzer\$	Owner - phone
\$EAWilken\$	Energy type for the export to Wilken ENER:GY
\$RST\$	Specification of reset for measurement (Attention: Only for use with the export periods “Last month” and “Last readout”)
\r	Carriage return
\n	Line feed
\t	Tab

Values format

This field specifies the values format. Here there should be a character string such as “%.2f”, which means that the value should be given to two decimal places. A place may be given in front of the point, for the minimal amount of places before the decimal point.

A comma can be provided as an alternative to the point in the values format. This results in an export of the values with a comma instead of a point.

Examples:

%03.3f	Delivers values in the form of 012.000
%.2f	Delivers values in the form of 12.00
%,3f	Delivers values in the form of 12,000

Time stamp format

Specifies the format for the time stamp. The placeholders have the following meanings here:

yy	year, two places
yyyy	year, four places
MM	month, two places
dd	day, two places
hh	hour, two places in 12-hour format
HH	hour, two places in 24-hour format
mm	minutes, two places
ss	seconds, two places

Characters to be provided in between must be inside single quotation marks.

Example:

yy'-,MM'-,dd', 'HH': 'mm' yyyy'-	gives 01-12-31,23:15 gives
,MM'-,dd', 'HH': 'mm': 'ss	2001-12-31,23:15:00

OBIS code for electricity supply company number

If there is a code entered here for the electricity supply company number, the latter is exported as a separate line in front of every exported value. This guarantees that a measurement is allocated to an electricity supply company number.

5.5 Export targets

5.5.1 Local file

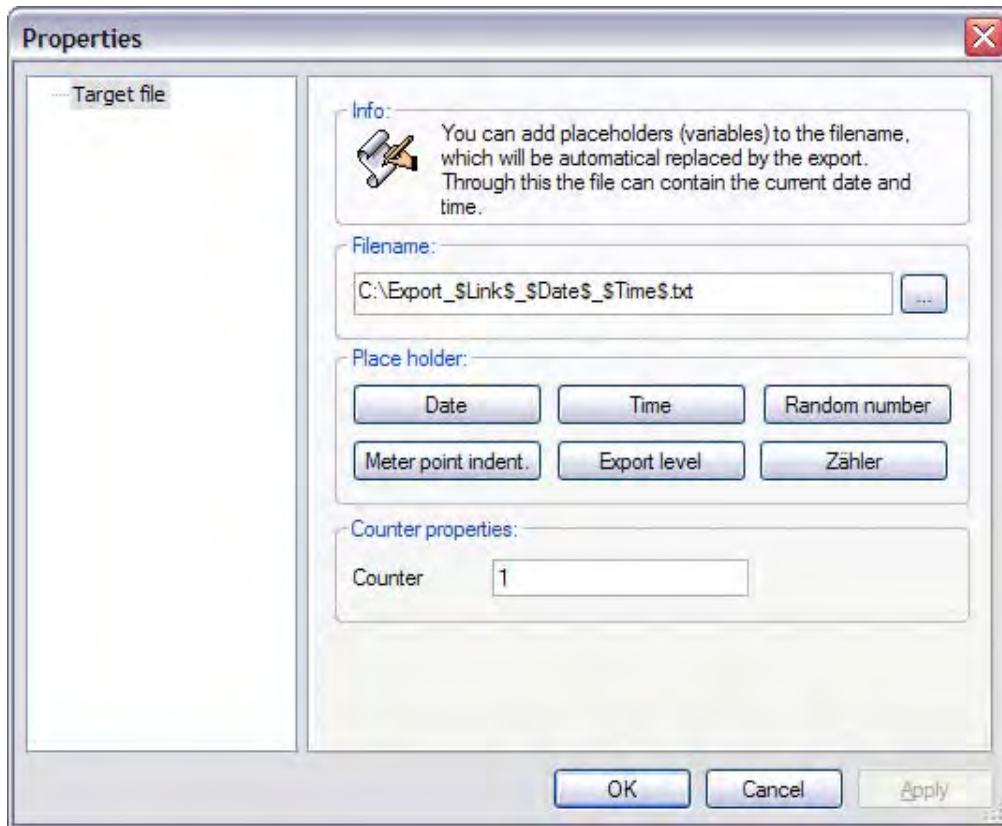


Fig. 5-28 Filename configuration

With this export target, AMBUS®Gate generates the export data in a local file in the chosen format. It the file path may be specified here. Here, AMBUS®Gate can complete the filename for the runtime according to specific criteria. The particular possibilities are displayed in the window above.

The following dynamic variables may be supplemented in the filename:

- Export level: name of the exported level,
- Meter point designation: meter's meter point designation
- Date: current date at time of export (system time)
- Time: current time at time of export (system time)
- Random number: a random number generated by AMBUS®Gate

In order to add a placeholder, the cursor must be moved to any point in the name of the target file and the desired button for the variable must be pressed.

Make sure that the file extension is correct. With ASCII files, the filename must end in ".txt" and with Excel files it must end in ".xls".

5.5.2 FTP data transfer

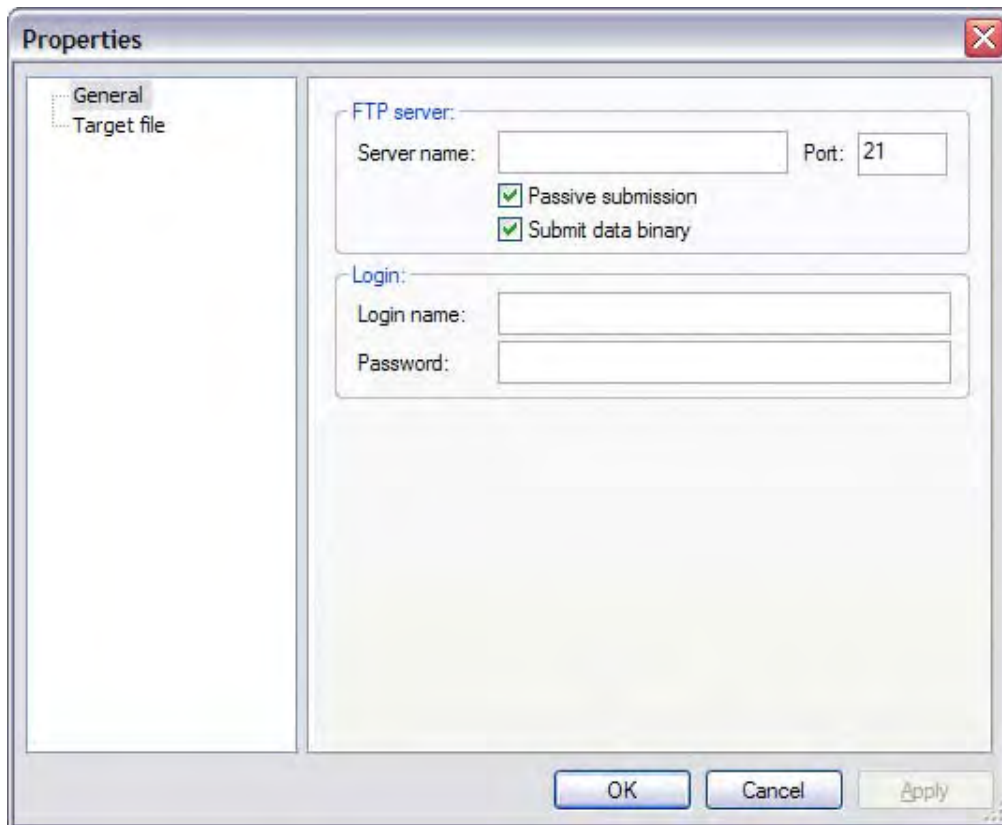


Fig. 5-29 FTP server configuration

This target causes AMBUS®Gate, to initially write the data to a temporary file on the hard disk and to send them after export directly to a server in the Internet or Intranet, via FTP. Here, the server name and login information must be entered.

- Server Name
The server name is entered here, e.g., 'ftp.firma.de'
- Port
The connection is usually established via Port 21. If the server uses another port, the appropriate setting can be made here.
- Passive transfer
The type of transfer may be specified here. Most FTP servers support passive mode. Background: When you establish a connection to an FTP site, the server itself normally forms an additional data connection with your PC, in order to send data. Since, however, most PCs use a firewall, this process fails. If, however, the server supports passive transfers, the PC (client) establishes the additional connection itself.
- Transfer data in binary-coded form
Here a selection is made as to whether the data are to be transferred in binary format or in ASCII format.
- Login name/Password
For anonymous access, 'anonymous', as login name, and a valid password should be entered.

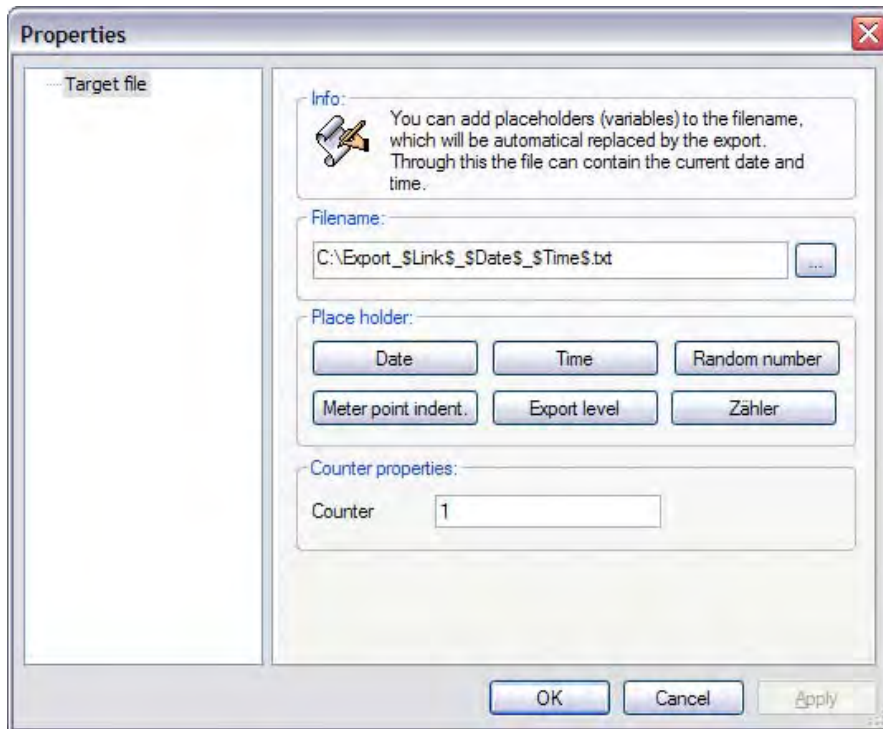


Fig. 5-30 FTP target file

Here, the file path is entered on the server to which AMBUS®Gate transfers the target file. The filename may be assigned dynamically

5.5.3 email transfer

By means of email transfer, AMBUS®Gate can send the exported meter information directly by e-mail to one or more users. AMBUS®Gate uses SMTP (Simple Mail Transfer Protocol) for sending the data. AMBUS®Gate should thus be connected to the Internet directly or via a router or have access to an in-house SMTP server.

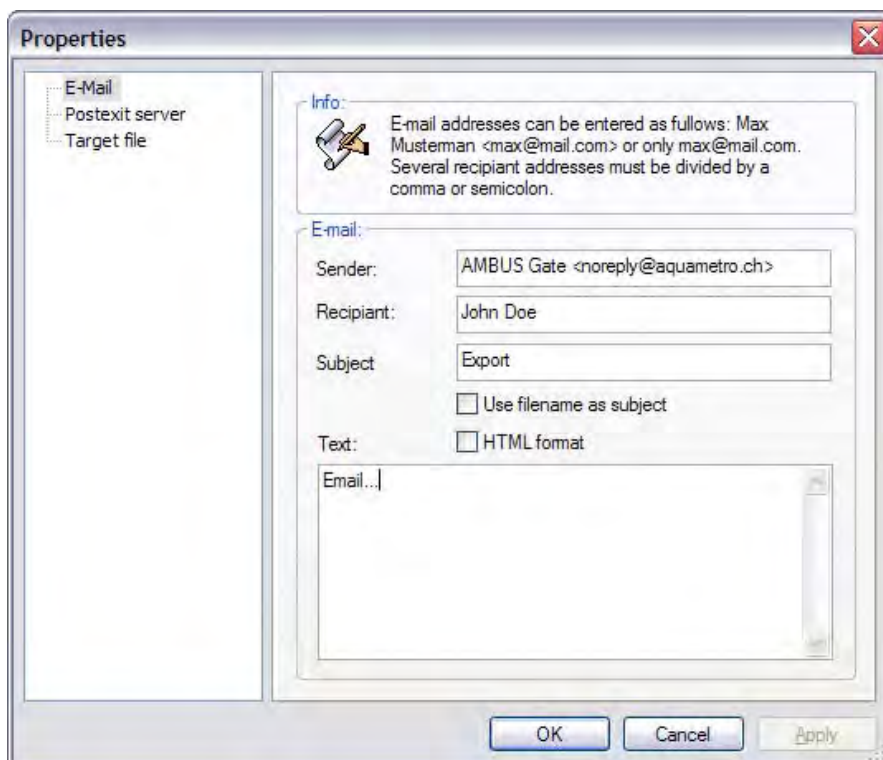


Fig. 5-31 email configuration

email

- **Sender**
Enter the email sender here.
- **Recipient**
One or more email recipients may be specified here. Several email addresses may be separated by comma (,) or semicolon (;).
- **Subject**
Enter the subject of the email here. AMBUS®Gate permits variables inside the subject line so that the recipient may be informed in the subject line about time and type of data, for example.

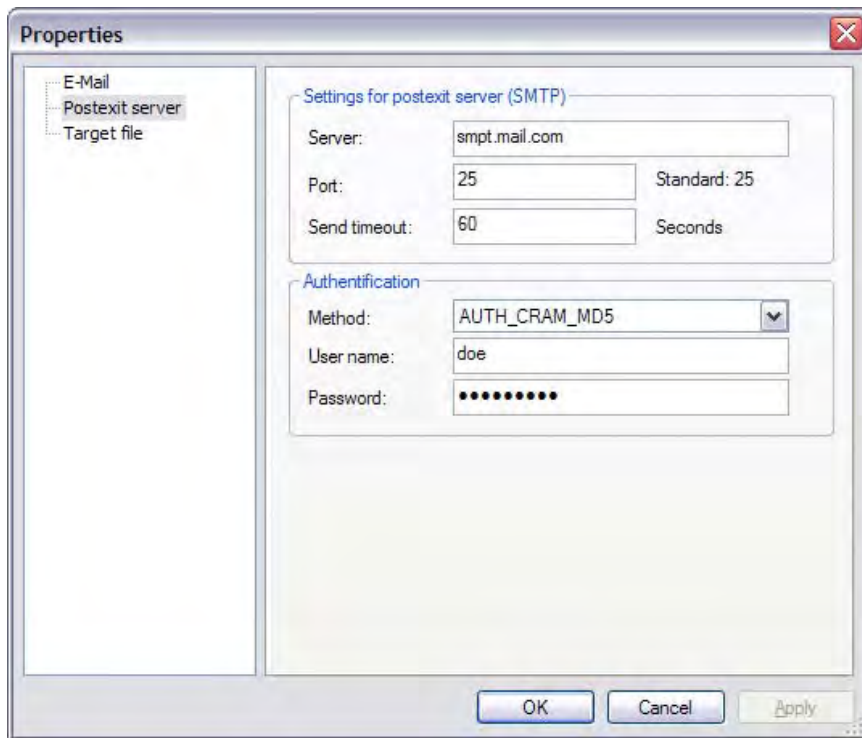


Fig. 5-32 Outbox server

Settings for outbox server (SMTP)

- **Server**
Enter the IP address or the server name here.
- **Port**
Enter the port number here.
- **Send timeout**
Enter here the maximal time in seconds that AMBUS®Gate waits for the email to be sent. With slow Internet connections, an accordingly higher figure should be entered here.

Authentication

- **Method**
 - AUTH_NONE
Select this method, if no authentication is necessary.
 - AUTH_CRAM_MD5
 - AUTH_LOGIN
 - AUTH_PLAIN
Select an appropriate method for authentication. Most SMTP servers support the AUTH_CRAM_MD5 or the AUTH_LOGIN method.
 - AUTH_NTLM
Choose this method if a Microsoft Exchange server is used as SMTP server and authentication is necessary.
- **Username**

Enter the username here.

- Password
Enter the password here.

Note: As a rule, you receive information on authentication from the operator of the SMTP server.

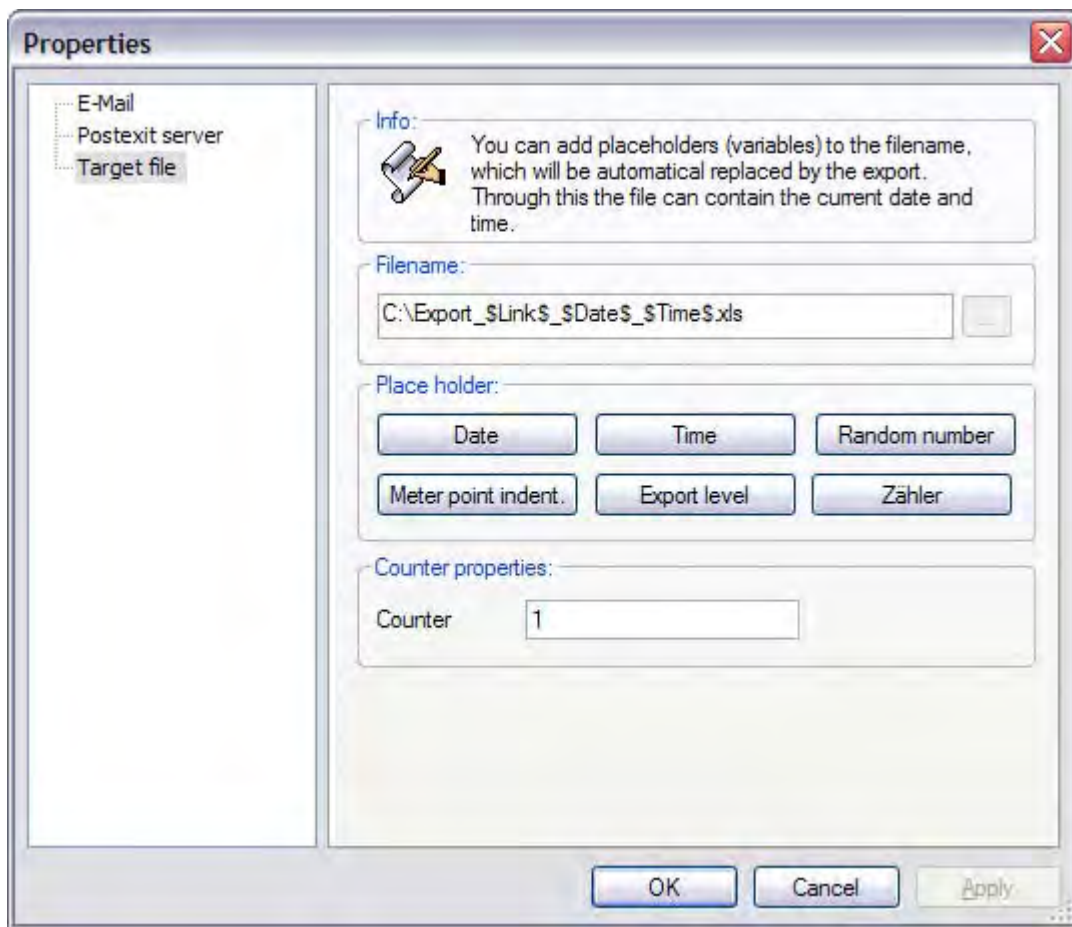


Fig. 5-33 email file attachment

The name of the target file which is added to the email as a file attachment is configured here. The filename may be assigned dynamically (see Chapter 0).

5.6 Calling up an export profile

A specified export profile can be executed automatically or manually. For manual execution, it is simply a matter of selecting the physical or organisational level which contains all the meters for export. Then the *export Export/Meter values...* menu item is selected. A list of the available export profiles appears.

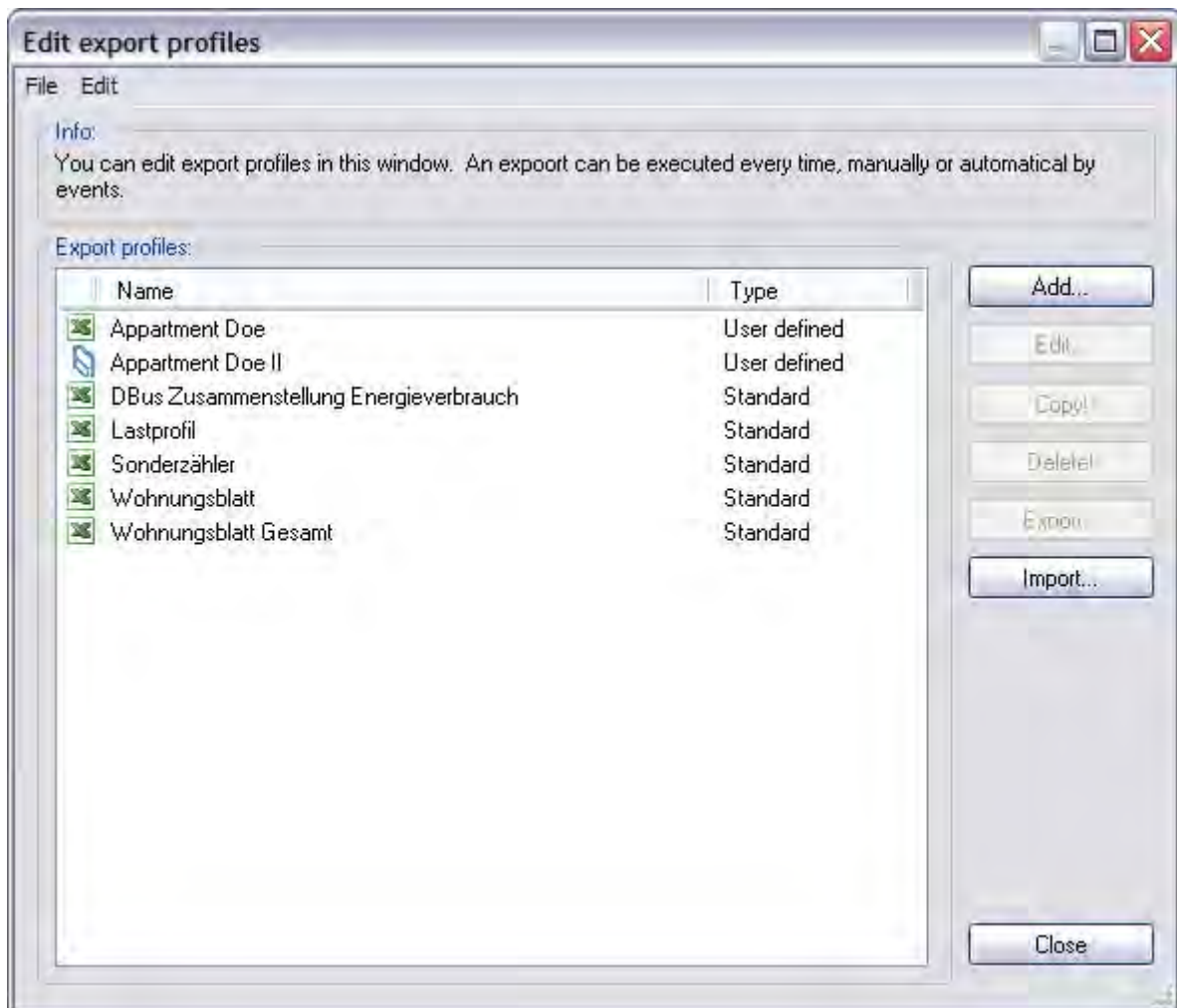



Fig. 5-34 Available export profiles

The appropriate profile may then be selected. On selection, the export profile is executed.

5.7 Automatic execution of export profiles

Setting up an automatic execution is the same as setting up an automatic readout, as they are both based on AMBUS®Gate's general action architecture.

For this purpose, the physical or organisational level from which the meter values are to be exported is firstly selected.

Choosing the *Edit/Properties...* menu item or alternatively pressing the () icon in the button bar causes the Properties dialogue for the level/meter to appear.

The **Actions** tab exists at every level and it can be used as follows:

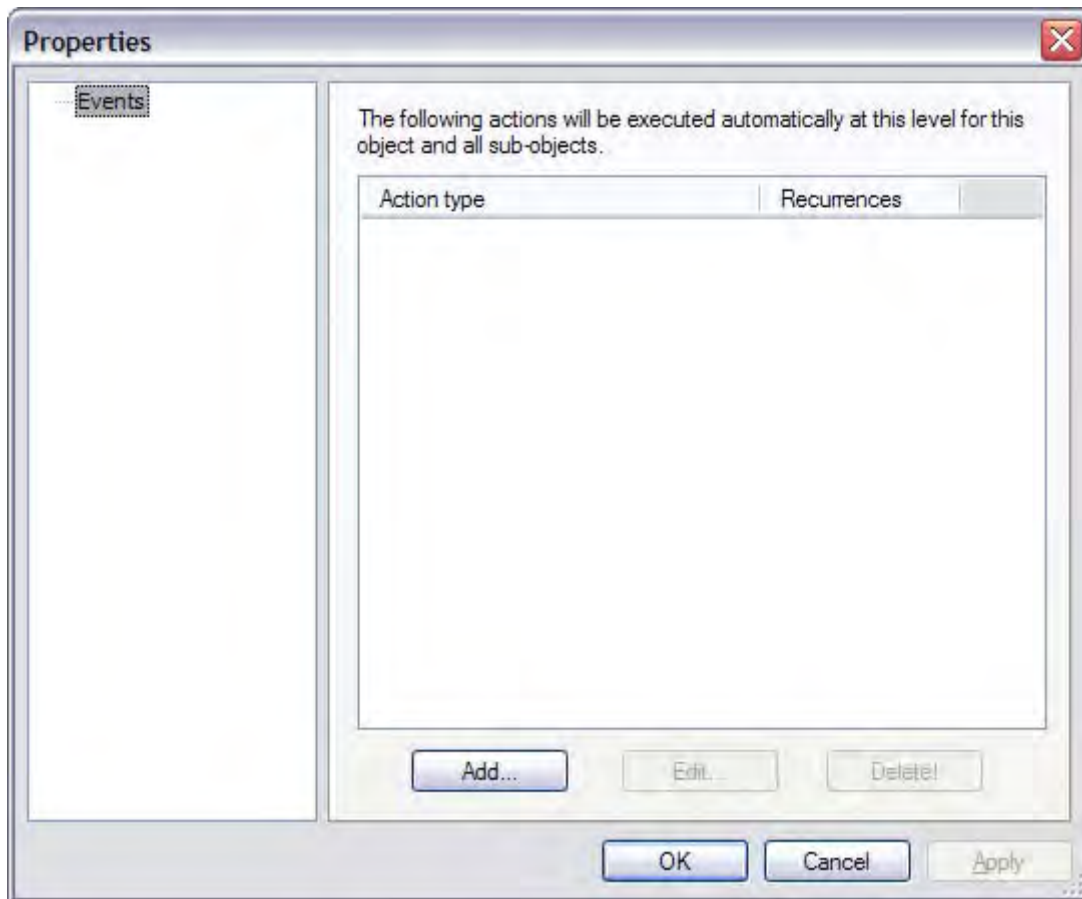


Fig. 5-35 Add actions

All the actions for this level can be viewed, set up and deleted here.

To set up a new export action, the *Add...* button must be pressed. A list appears of all actions possible at this level.



Fig. 5-36 Actions list

The Export action must be chosen here.

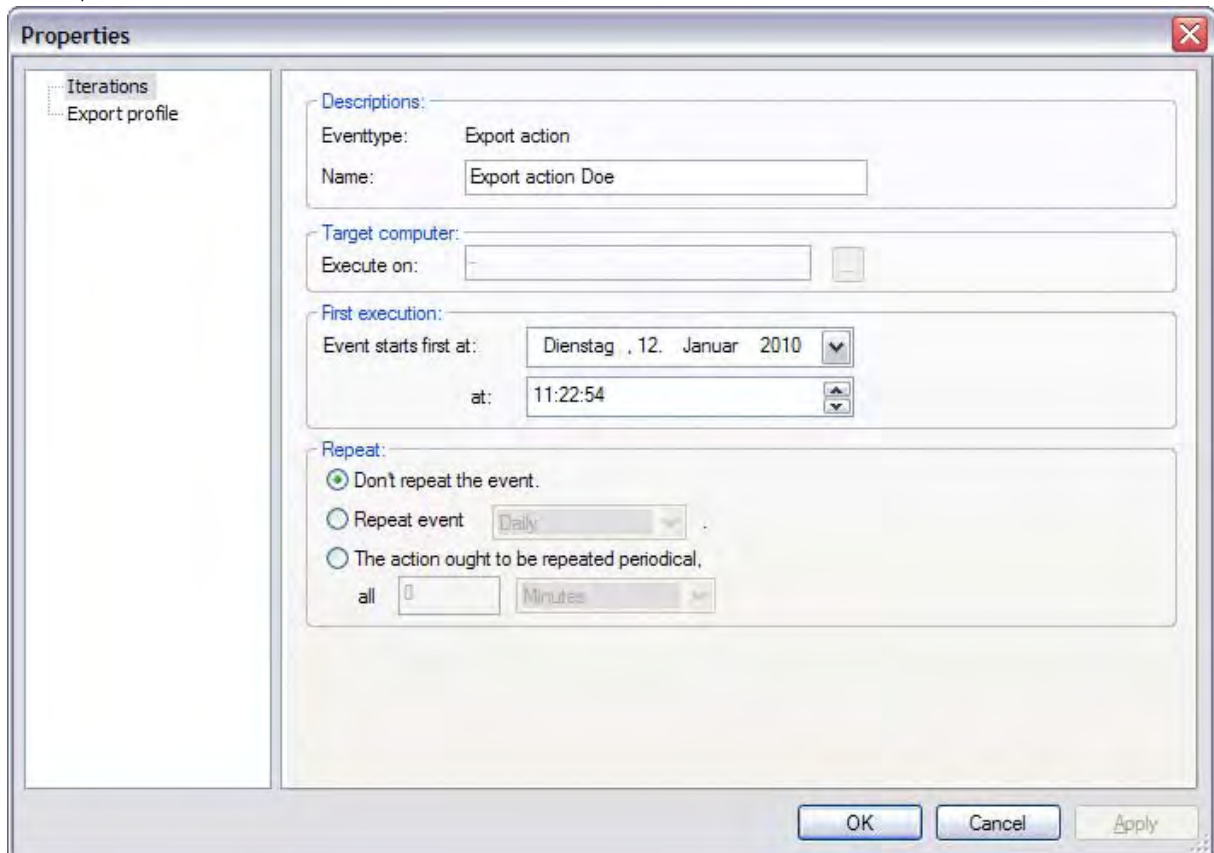


Fig. 5-37 Export configuration

Repetitions

As with readout actions, the level, the first execution date and the repetitions are configured here.

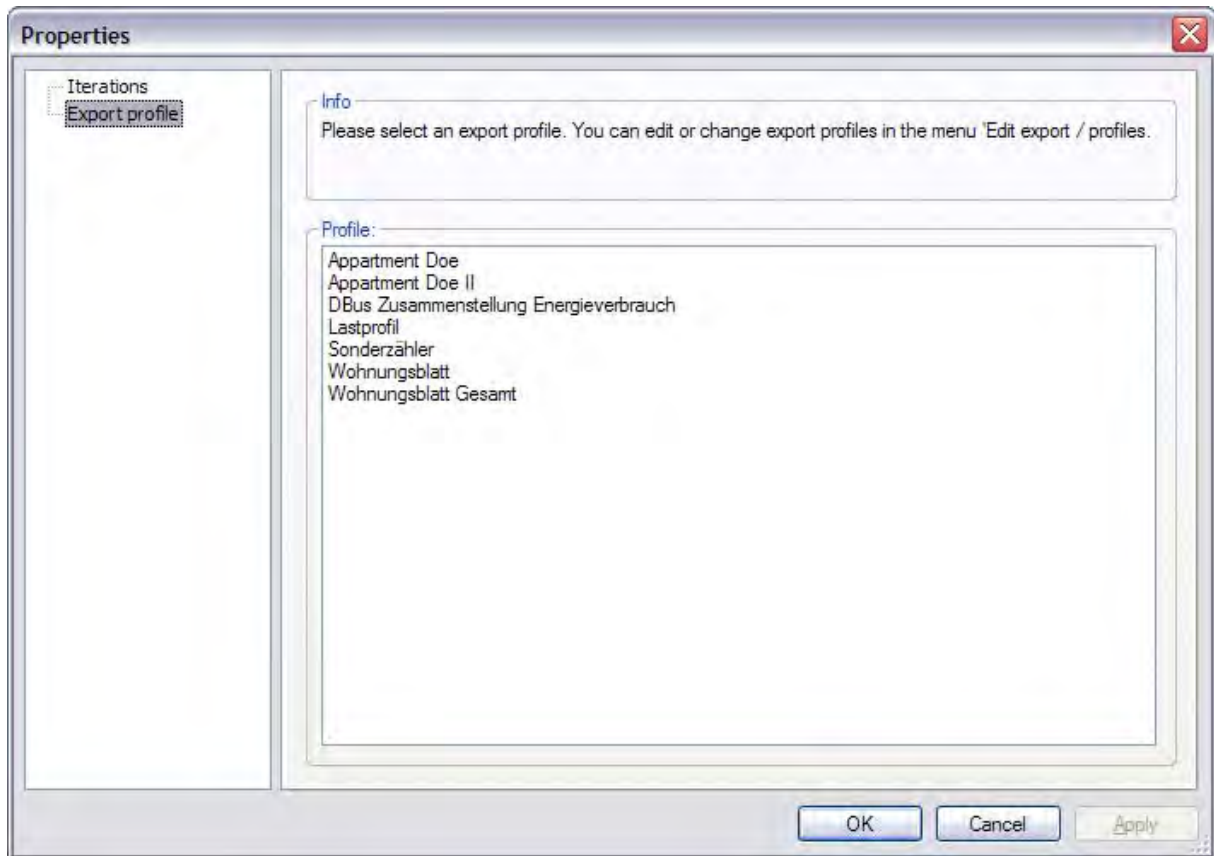


Fig. 5-38 Export file selection

Export profile

The export profile which is to be executed immediately is selected here.

6 Device information

Based on AMBUS®Gate's flexible architecture, several modules or drivers are provided for remote meter reading in AMBUS®Gate. The individual configuration options for the devices are noted below.

The following table, which clarifies the possible combinations of modems and meters, is intended as a planning aid. It should be noted that the restrictions mentioned are manufacturer-specific and do not depend on AMBUS®Gate.

Modem	Pulse meter	M-Bus meter	20mA/IEC1107 meter
Dr. Neuhaus ZDUE MOD plus III	1		#, *
Dr. Neuhaus ZDUE MOD	-	-	!, only with fixed 300 baud rate, no MODE C
ABB modem	-	-	!, only with fixed 300 and 1200 baud rate, no MODE C
Bär/Dietrich UNIMOD analogue/GSM modem	-	#, *, with M-BUS module	!, *, with 20mA interface module, only with fixed baud rate, 300, 1200, 2400, 4800, no MODE C
Enercom 100, other 20mA transparent modems	-	-	!, only with fixed 300 baud rate, no MODE C
Wackenhut IMOD 24	5	-	!, only with fixed baud rate, no MODE C
Actaris Sparkline modem (analogue/GSM)	-	-	!, *
Elster DM100/DM600	3	-	!, *
Elster DM130/DM430	-	-	!, *
Enercom 400€ / 400(G)	1	-	!, * FNP protocol
AMBUS Unimod C-A/-I/-G/-T	!, with M-BUS module	!, with RS232 module	!

Key:

- #: Fully functional, control modem may be operated with the settings 8 databits, NO PARITY, 1 stop bit.
- !: Conditionally functional - control modem and meter must be adapted.
- : Not functional
- *: For automatic parameterisation, AMBUS®Gate has its own driver for the modem.

Notes:

In the case of the individual protocols, both physical interfaces and data protocols are included. Individual meter manufacturers also provide ZVEI meters with M-Bus interface, for example. These must then be treated like a 20 mA meter, with corresponding encodings.

6.1 Control modem

AMBUS®Gate supports all Windows-compatible control modems via the Windows TAPI interface. The only limitation here turns out to be the meter modems, as many control modems are unable to work with all the meter modems, such as the Enercom 100. With these meter modems, special modem initialisation procedures must also be carried out, so that an error-free connection results.

For configuring the control modem (or, to be more accurate, the distance modem) AMBUS®Gate provides the following adjustment possibilities:

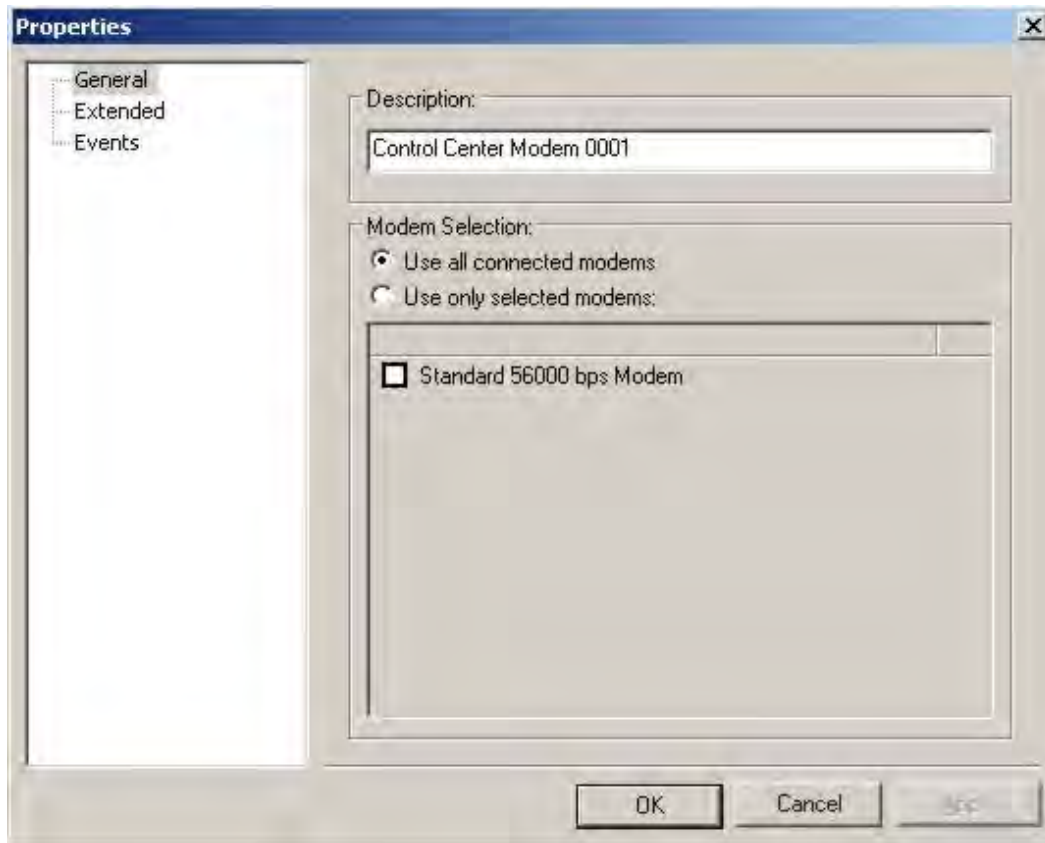


Fig. 6-1 Control modem selection

General

Displayed here (connected to the computer) are the modems or ISDN adapters, via which AMBUS®Gate can receive a connection to meter modems. If a special modem is to be used for communication, it must be specifically selected; otherwise AMBUS®Gate uses any available modem at all.

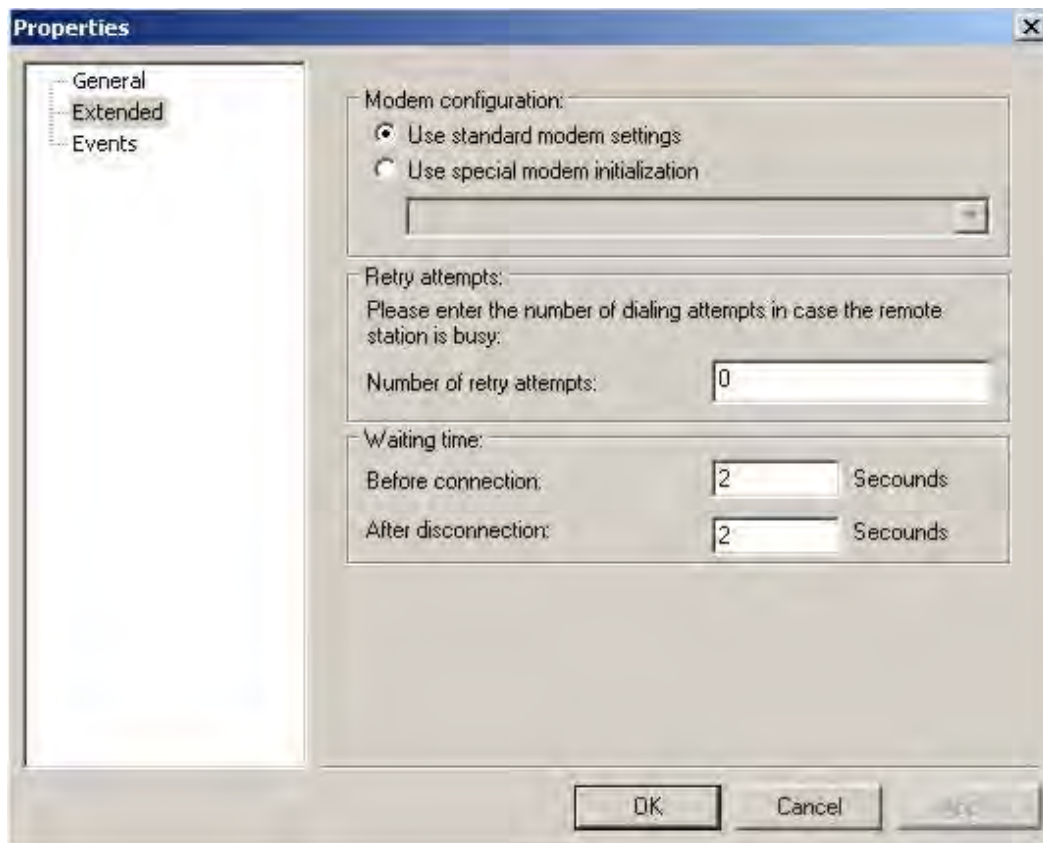


Fig. 6-2 Extended modem settings

Extended

In the *Extended* field, individual parameters may be assigned for a control modem:

- Modem configuration
Here, special initialisations may be manually entered for a control modem.
- Repeat attempts
If the remote node is occupied or currently inaccessible, the number of repeat attempts may be specified here.
- Waiting time
Before and after the connection is established, waiting times may be specified for the start and the end of the meter communication.

6.2 Phone-number level

The phone number level must be set up underneath a modem level on the physical path.

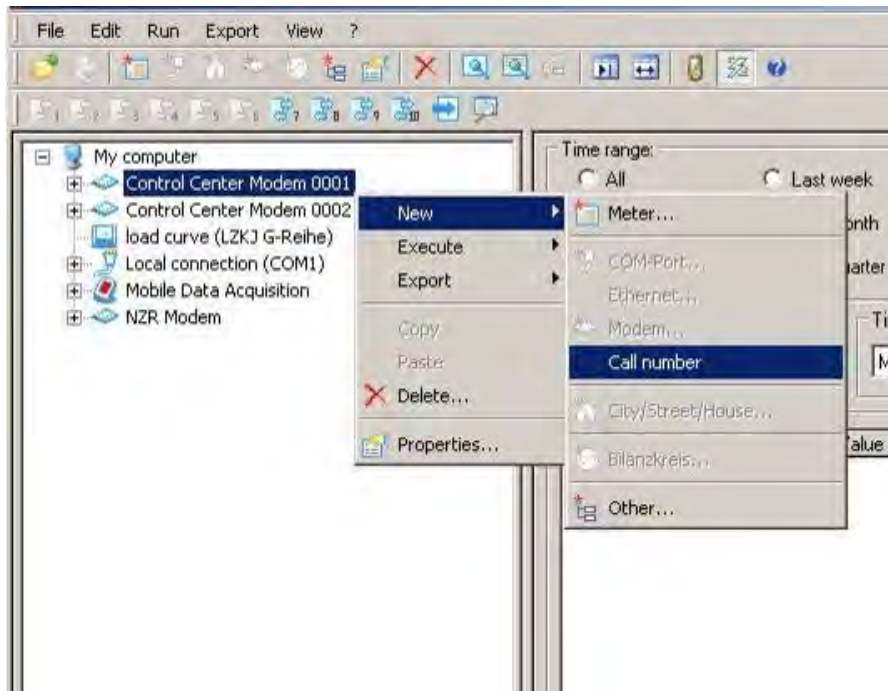


Fig. 6-3 Creating phone-number level

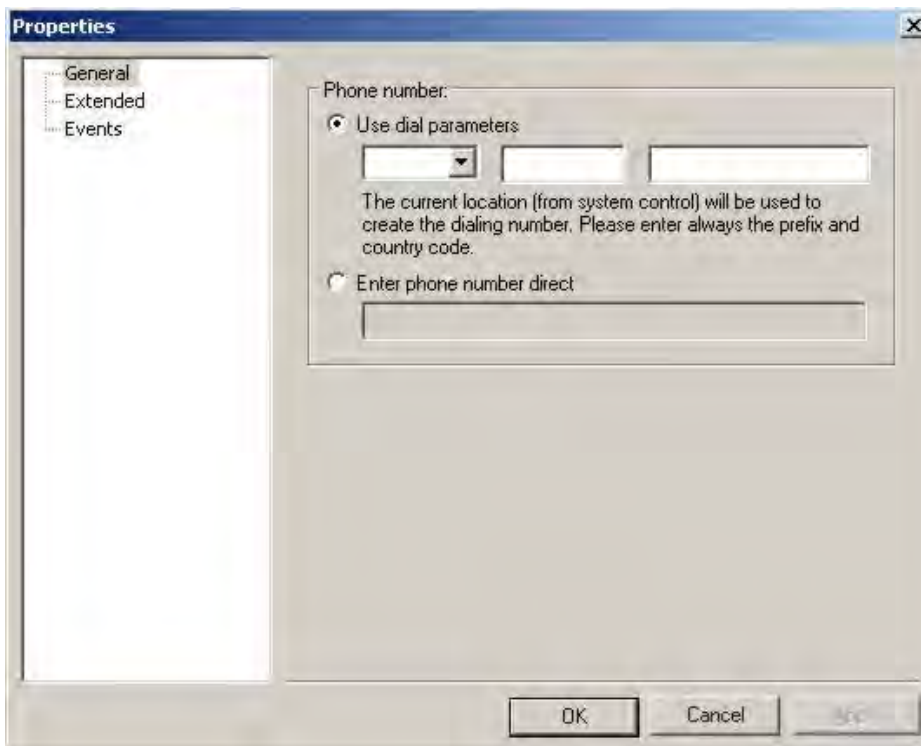


Fig. 6-4 Phone number

- Phone number

AMBUS®Gate can manage both a complete phone number, including area code and country code, and a direct phone number. From the complete phone number, AMBUS®Gate creates the number to be dialled using the dial parameters settings (*in the system controls/modems*). In the case of direct entry, enter only the particular number sequence.

It is possible to enter all the external phone numbers with the dialling parameters. Should it happen that the dialling code or an official retrieval index is entered, this can be done in the system controls without having to adapt a phone number in AMBUS®Gate itself.

In the case of home systems it is possible to enter internal phone numbers directly but to enter the external numbers via the dialling parameters

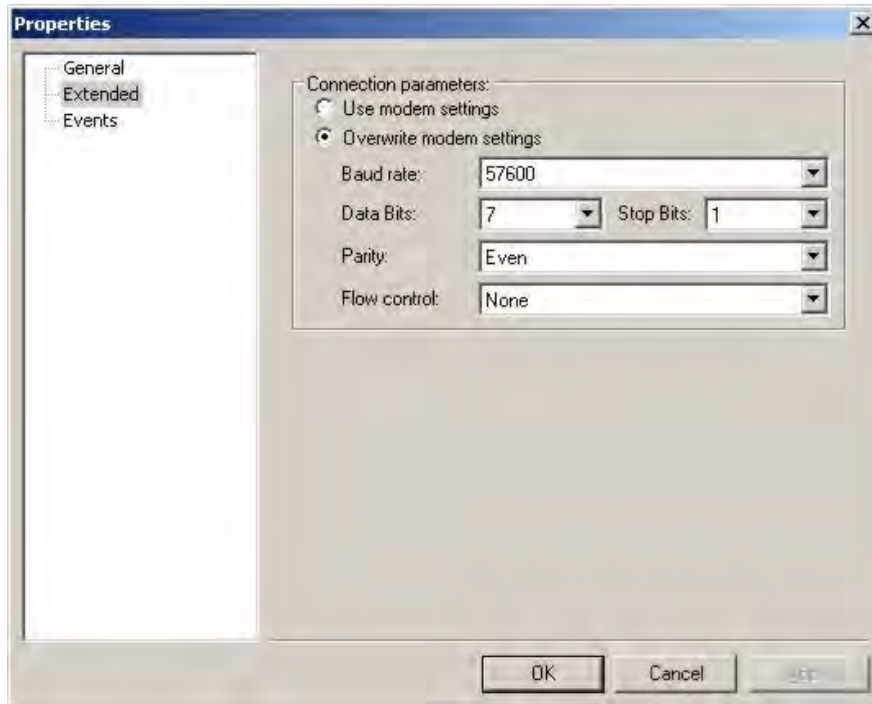


Fig. 6-5 Phone-number level extended

- Connection parameters

For many modems, special settings are necessary. Thus, for the IEC1107 protocol, many meter modems operate directly with seven data bits, straight-through parity and one stop bit, whereas the standard settings are 8, N, 1. With such modems, the modem setting in this configuration of the control modem must be overwritten by 7, E, 1. The particular modems are named in the following chapters.

6.3 Dr. Neuhaus ZDUE MOD/GSM/ISDN plus

The Dr. Neuhaus ZDUE MOD plus is an intelligent meter modem which has many parameterisation and settings options. AMBUS®Gate contains its own driver, in order to execute all the necessary parameterisation options on the Dr. Neuhaus ZDUE MOD plus. All the information refers to the GSM and ISDN variants of the modem.

Note: AMBUS®Gate does not provide any support for automatic modem call-backs. In the same way, parameterisation of phone-call time windows is not possible directly from AMBUS®Gate.

For the best and straightforward use of the Dr. Neuhaus modem, the AMBUS®Gate driver is developed in such a way that meter-specific parameterisations are executed automatically. It is not necessary to parameterise the meter call ups, switching outputs or transparent modes, as this is automatically done by AMBUS®Gate during the readout process. The configuration screen for a Dr Neuhaus modem is designed in a correspondingly straightforward way:

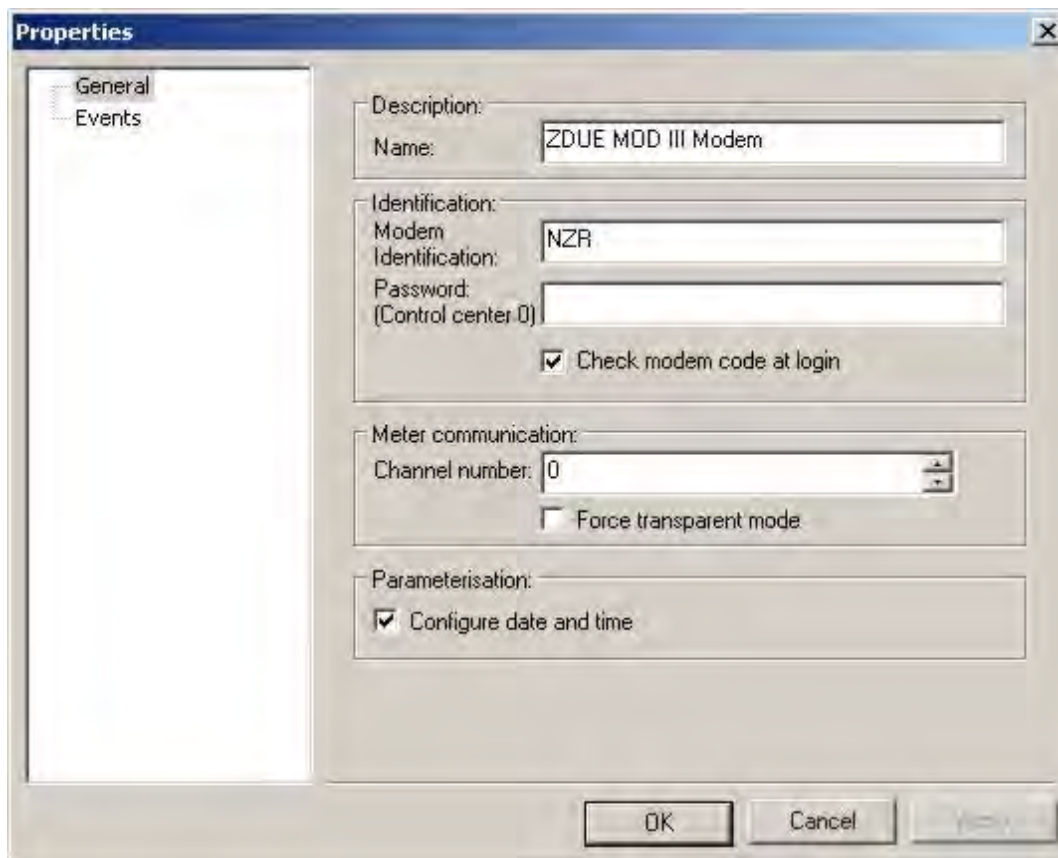


Fig. 6-6 Dr. Neuhaus modem parameterisation options

Properties

- **Name**
The name is only used internally to display the modem and has no significance for communication at a later stage.
 - **Modem ID**
Here the ID of the Dr. Neuhaus modem must be entered (configured by **ak**). This ID is checked while the connection is being established, but it has to match exactly.
 - **Password (control centre 0)**
Since AMBUS®Gate always performs a new parameterisation of the Dr. Neuhaus modem during the readout, AMBUS®Gate has to be entered in Dr. Neuhaus as “control centre 0”. For that reason, enter any password assigned here.
 - *Check modem ID during login*
During login, AMBUS®Gate performs a standard check as to whether the selected modem has the same ID. This is another safety procedure, in case a wrong telephone number is entered, for example. In individual cases, it may be advisable to switch off this check and that can be done here.
Note: This check must be enabled for a parameterisation of the modem, as the error message “‘ak’ command could not be performed” appears otherwise.
 - *Channel number*
AMBUS®Gate normally uses only the 0 meter channel to communicate with meters, i.e. the particular meter is reconfigured for each readout by the commands *z0a* and *z0p*. In individual cases this may result in problems with external software which also claims Channel 0. As an alternative, AMBUS®Gate can function using another meter channel (0-9) on the Dr. Neuhaus modem.
 - *Use only transparent mode*
This setting causes AMBUS®Gate to read out meters in transparent mode via the Dr. Neuhaus modem. Normally the modem's IEC1107 control commands are used. This setting may be used, for example, if the control centre 0 password is not recognised and AMBUS®Gate cannot, therefore, configure the modem's IEC1107 mode.
 - *Set the date and time*
With this setting, AMBUS®Gate reparameterises the modem's time and date for each readout. AMBUS®Gate also supports the Dr. Neuhaus modem's control output. In many cases, this output is used for switching between current loops, in order to connect to non-addressable meters or to develop a combined M-Bus/IEC1107 route. The configuration with AMBUS®Gate is particularly straightforward, as only the meter underneath the current loop level has to be set up.
-

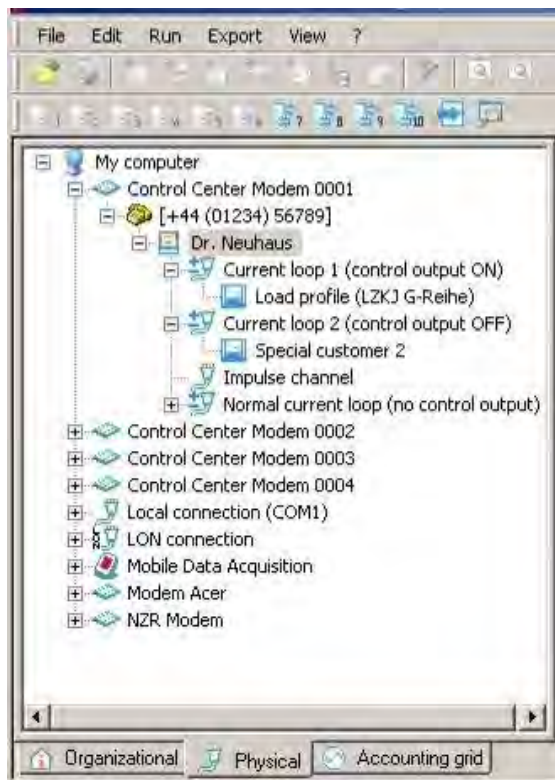


Fig. 6-7 Current loop switch

With a configuration of this kind, AMBUS®Gate automatically switches the output control by means of Dr Neuhaus modem's "da" command, so that the necessary route can be enabled in each case.

AMBUS®Gate also provides the opportunity to perform the necessary obligatory Dr Neuhaus parameterisation by means of a special action. This means that the modems may be directly installed without performing a configuration by any tools.

To perform a compulsory parameterisation on the Dr Neuhaus modem, you must proceed as follows:

- Set up modem in AMBUS®Gate with the desired ID and password
- Select Dr. Neuhaus modem, choose "Execute/Others..." and the following window appears:



Fig. 6-8 Obligatory parameterisation action

Select the Dr Neuhaus parameterisation:

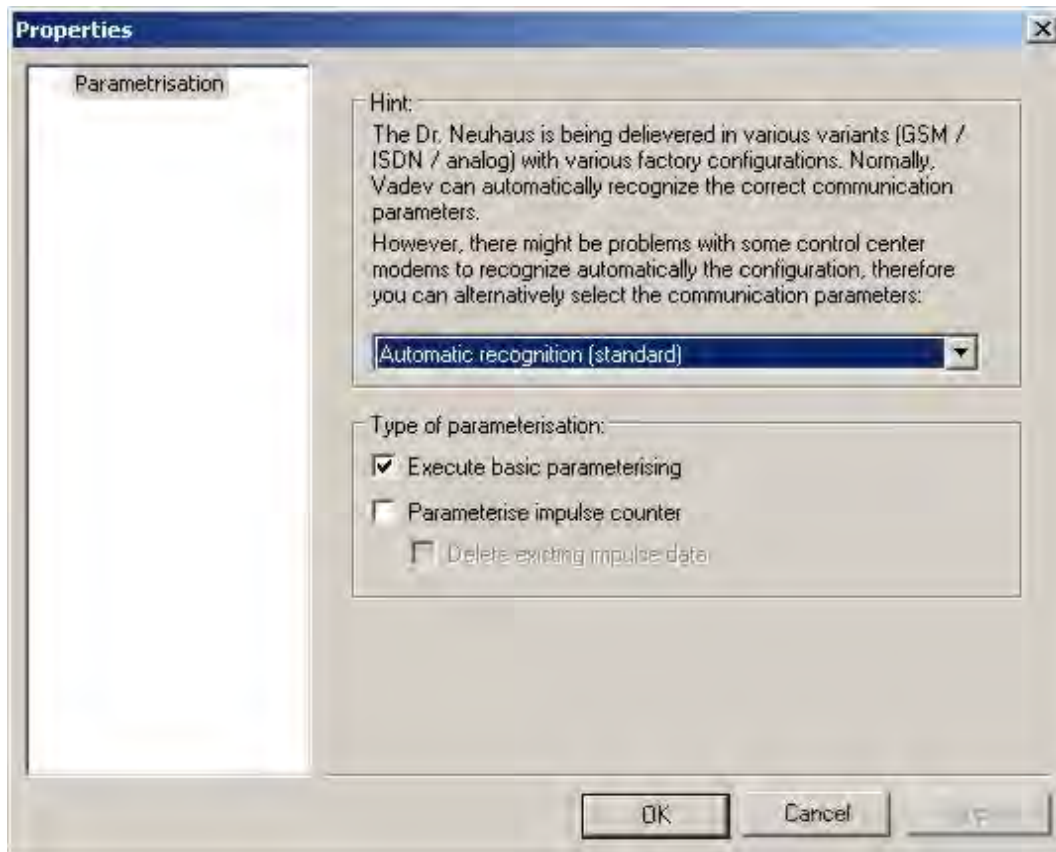


Fig. 6-9 Communication parameter selection

The properties for the imminent parameterisation of the Dr Neuhaus modem may be selected here. First of all, the baud rate recognition should be checked. Since, for example, the Dr Neuhaus analogue modems are factory-parameterised to 7 data bits, AMBUS®Gate can possibly cause problems when it uses GSM control modems. In case of doubt, it is advised to first perform an automatic recognition procedure and, if it fails, to try parameterisation to eight or seven data bits.

Note: This setting has no effect on the data which AMBUS®Gate is parameterising. For straightforward readouts, AMBUS®Gate always parameterises a Dr Neuhaus modem to 8 data bits, no parity and one stop bit.

The pulse meter may also be parameterised here (see below) and existing data deleted.

After the selection process, AMBUS®Gate then chooses the Dr Neuhaus modem and performs the necessary parameterisation, especially the setting of the modem ID, the password and the communication parameters.

The modem's LED must light up green after successful parameterisation.

The Dr Neuhaus ZDUE MOD/GSM/ISDN plus is thus ready for use.

6.4 Pulse meters for the Dr Neuhaus ZDUE MOD plus III

AMBUS®Gate supports the pulse meter available in Version PLUS III of Dr Neuhaus. AMBUS®Gate can read out and interpret its load profile and simulate a consumption statement. For this purpose, AMBUS®Gate creates a new physical level called "Pulse Input", when setting up a Dr. Neuhaus ZDUE MOD PLUS modem.

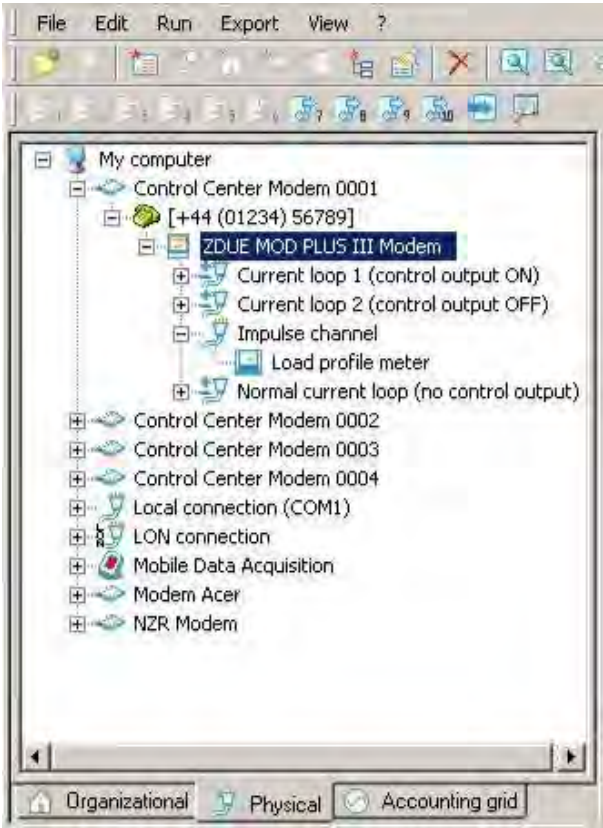


Fig. 6-10 Dr. Neuhaus pulse input

As with the Wackenhut IMOD24 VE modem, the “Pulse Input” level accommodates all the necessary settings for the pulse channel. They can be inspected by editing the levels.

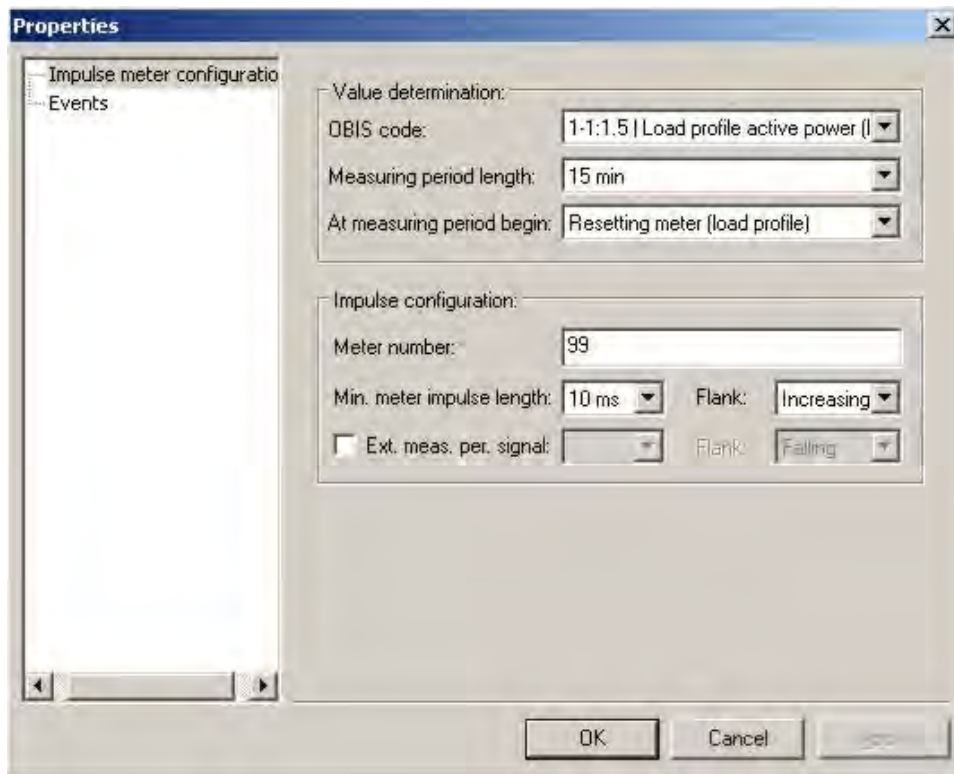


Fig. 6-11 Pulse input settings

The following settings may be performed:

- *OBIS index*
marks the OBIS index that load profile values should receive on the pulse input.
- *Measurement period length*
Specifies in minutes the length of a measurement period
- *At measurement period start*
Specifies whether the internal meter should be reset (load profile) or continue to be written (consumption). For general applications, “load profile” is always recommended here.
- *Meter number*
Here the pulse input's meter number is saved within the Dr Neuhaus modem. Here, the factory-set parameter is usually 99.
- *Minimum pulse length*
Specifies the minimal pulse length in milliseconds and serves to suppress the pulse input chatter.
- *Slope*
Specifies the slope on which the modem is counting, positive or negative.
- *Ext. Measurement period sig.*
If selected, the modem begins a new measurement period by means of an external signal, in contrast to the dial setting. Here, the minimal pulse length for chatter suppression and the particular slope may be chosen in turn.

As described above, the pulse input may be set via the Dr Neuhaus obligatory parameterisation. **Note:** It is, of course, not necessary to parameterise the Dr Neuhaus modem's meter with AMBUS®Gate. The input can, of course, also be set by the Dr. Neuhaus ZAPP software. Then only the settings for the measurement period length and the meter number should be adopted in AMBUS®Gate; otherwise it cannot perform a readout.

After the pulse input has been configured, a special meter has to be configured downstream from the pulse input in AMBUS®Gate:

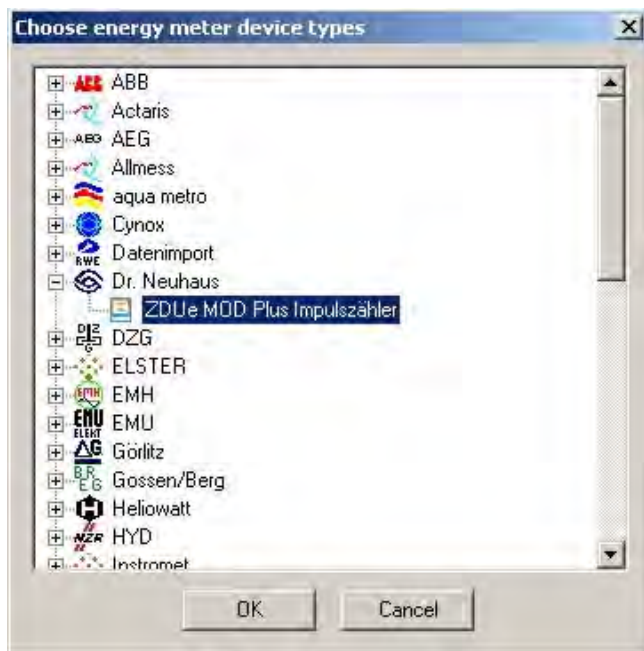


Fig. 6-12 ZDUe pulse meter selection

In addition to the general meter data, this meter provides the following setting possibilities for load profile reading:

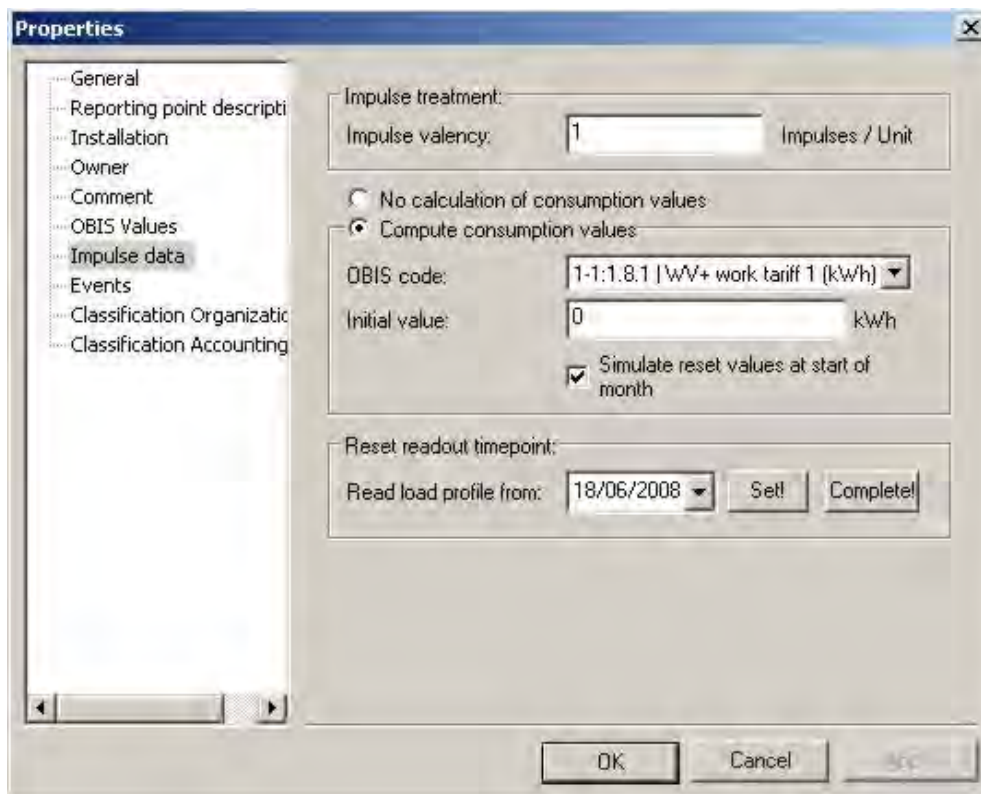


Fig. 6-13 Pulse meter settings

- Pulse value*

The number of pulses per kilowatt hour (or other measurement) is entered here. AMBUS®Gate divides the number of pulses by this figure.
- Calculated consumption values*

As an additional option, AMBUS®Gate can simulate consumption data from the pulse meter's load

curve. In order to do this, the load curve data are simply added and reset values simulated if necessary. The prerequisite for a correct calculation is, of course, a complete load profile.

- *OBIS index*
specifies the OBIS index in which the consumption data are emitted.
 - *Start status*
Specifies the meter start status in the particular unit.
 - *Simulate reset values at beginning of month*
If this option is chosen, for each load curve value AMBUS®Gate produces a total for the particular month, at midnight on the first day of the month. This can be used for calculation purposes, to determine the monthly consumption, for example.
 - *Reset readout time*
Normally AMBUS®Gate reads only new, still unread load profile data from the meter. If it is necessary, in exceptional cases, to re-read a period, the start date may be chosen and set here. Please take care to ensure that the consumption values are not recalculated here.
If the consumption values have also to be recalculated in full, the “*Complete*” button should be pressed. Then AMBUS®Gate reads out the meter's entire load profile again and recreates the consumption values based on the start status.
-

6.5 *Dr. Neuhaus ZDUE MOD/Enercom 100/ABB MTM 100*

The older Dr. Neuhaus ZDUE MOD modem, and the Enercom 100 modem and also the ABB MTM 100 are transparent meter modems. These modems do not have any facilities at all for reparameterisation and can accordingly only be used in a limited way.

Neither modem also supports baud rate switching, so that connected meters can operate only with a fixed baud rate, mostly 300 baud.

The control modem should be set to 7,E,1 which means that it must be adapted here. You will find more details on adapting the control modem in Chapter 6.1

Control modem.

6.6 Elster DM series

The Elster DM is an intelligent meter modem which has three internal IEC1107-compliant load profile meters. AMBUS®Gate contains its own driver, in order to read these pulse meters, and to execute the parameterisation of the necessary parameters on the Elster DM.

The following versions in the Elster DM series are supported by AMBUS®Gate:

- DM100: analogue meter modem (three pulse inputs + serial interface)
- DM120: analogue modem (M-Bus interface)
- DM130: analogue modem (serial interface)
- DM430: GSM modem (serial interface)
- DM600: GSM meter modem (three pulse inputs + serial interface)
- DM620: GSM modem (M-Bus interface)
- DM630: GSM meter modem (three pulse inputs + serial interface)

Note: Owing to low demand, the Elster DM300 ISDN modem has been deleted by Elster.

In order to incorporate an Elster DM in AMBUS®Gate, a physical modem connection is required, to begin with. Follow the steps outlined in Chapter 4.8.2 **Creating physical levels**, to create a connection of this type. How a control modem can now be set up downstream from this physical modem connection is already set out in the same section. Here select the ELSTER DM serial control modem from the following illustration:



Fig. 6-14 Elster DM selection

The next thing to appear is a dialogue which requests you to enter the general modem properties.

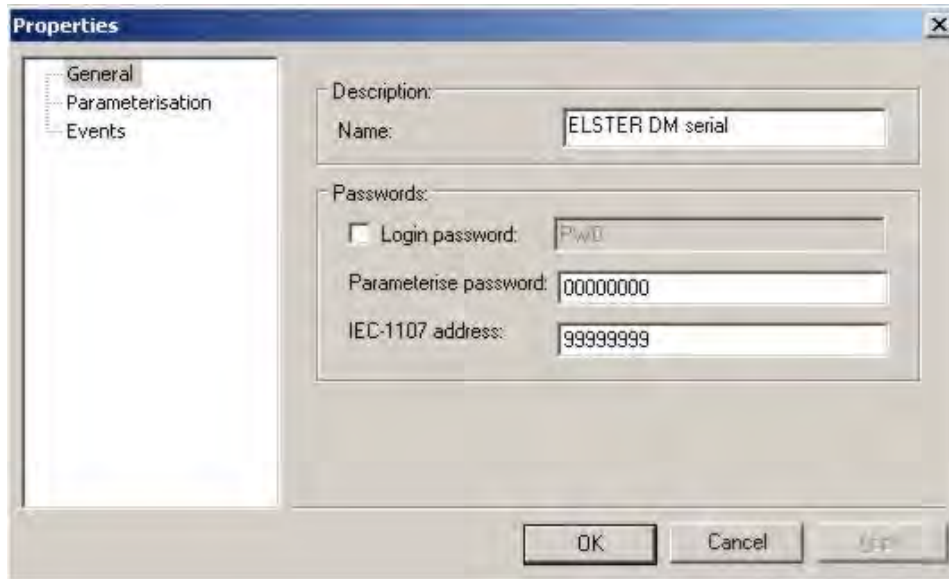


Fig. 6-15 Elster DM general settings

- Designation
 - Name
 - The name is only used internally to display the modem and has no significance for communication at a later stage.

- Passwords
 - Login password
 - With some devices in the Elster DM series, it is possible to enable password protection. You must select this field so that AMBUS®Gate sends the specified password while a connection to the modem is being established. AMBUS®Gate is in a position to send any specified password but it is only possible to parameterise a password with the Elster parameterisation software associated with the modem.
 - The following is the standard password for all Elster DM modems: PWD

 - Parameterising password
 - Here it is possible to specify a parameterising password. Specifying a password is mandatory for parameterising the Elster DM modem. All the parameterisation options for the Elster DM series are described in the following chapter.

 - IEC 1107 Address
 - It is necessary to specify an IEC 1107 address, in order to select the meter for parameterisation. This is usually the internal load profile meter with the address "99999999".

After all the parameters required by AMBUS®Gate for integrating an Elster DM have been entered, the modem's properties dialogue must be closed with "OK". The Elster DM is now added to the physical hierarchical tree in AMBUS®Gate. An example can be seen in the following illustration:

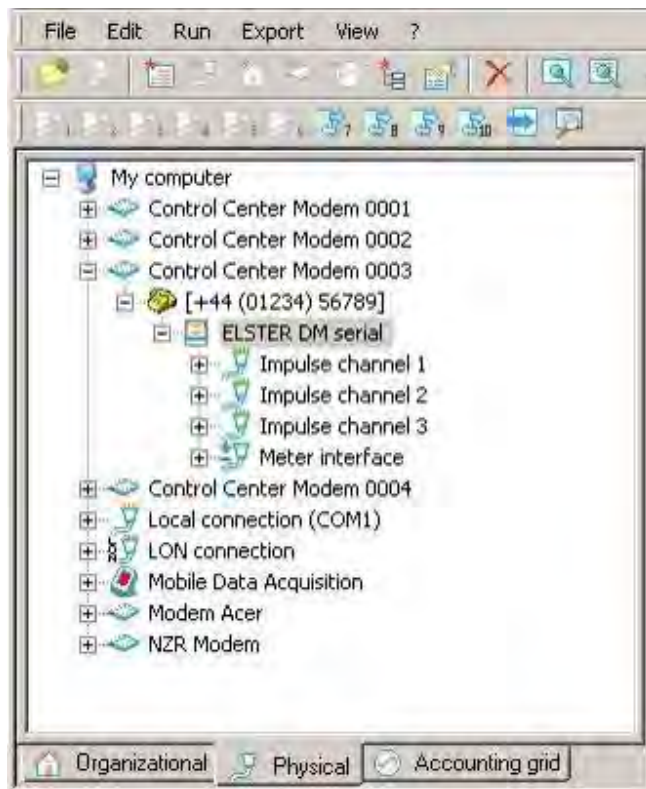


Fig. 6-16 Elster DM

Note: For logical reasons, all the modem types in the Elster DM series are displayed as in the above diagram, with three interfaces set up for the pulse inputs. If you have an Elster DM Modem, which does not have three interfaces with pulse inputs, they can be removed manually at any time, if necessary.

6.6.1 Parameterising the Elster DM

As already shown, AMBUS®Gate provides an opportunity to parameterise the Elster DM by a special action. AMBUS®Gate is in a position to parameterise all the basic options which are required for commissioning an Elster DM modem in conjunction with a meter. The modems may thus be installed directly, with no need to perform a configuration by means of external parameterising tools. The following dialogue shows all the setting possibilities which AMBUS®Gate can undertake:

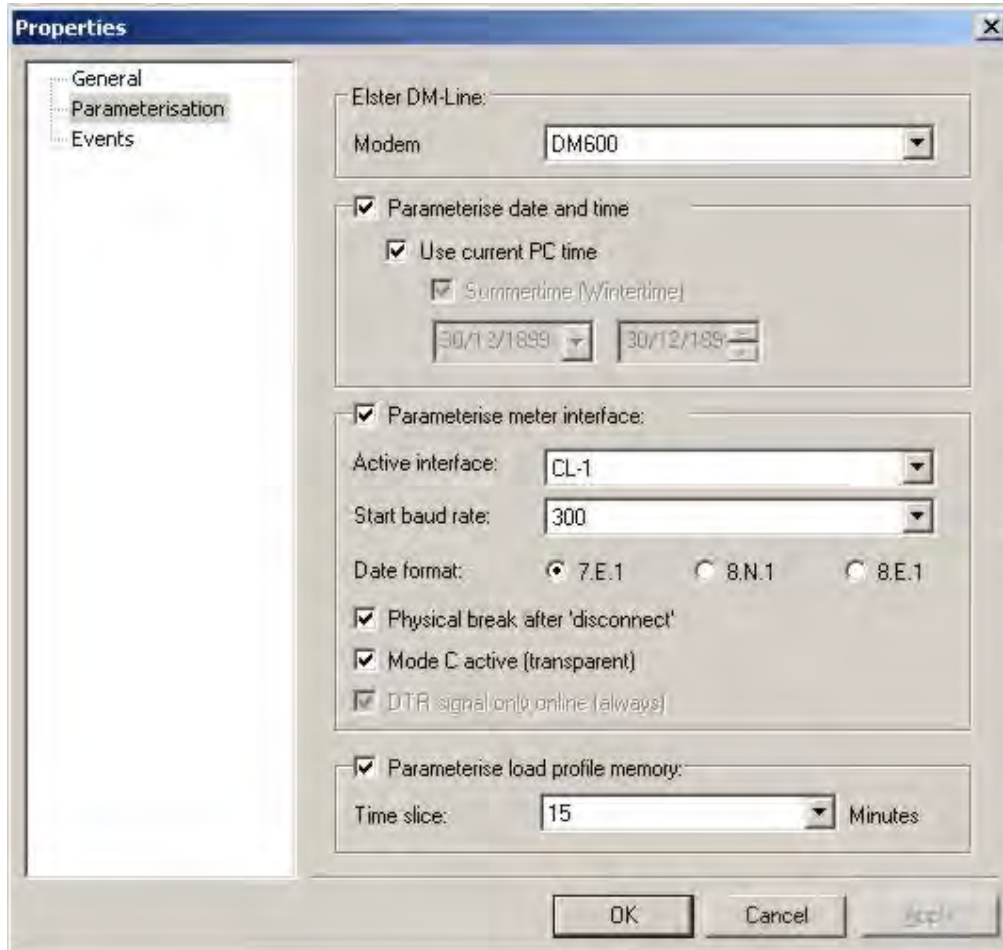


Fig. 6-17 Elster DM modem type selection

- Modem type

Each modem type in the Elster DM series has really special properties and, connected with that, its own commands for parameterisation. Depending on the modem type used, the appropriate modem must be selected here, whereby AMBUS®Gate enables or disables, completely automatically, all the possible parameterising facilities of the particular modem.
- Parameterise time and date

Every Elster modem, except for the Elster DM 430, has an internal clock which can be set by AMBUS®Gate. It is strongly recommended to use the “Use current PC time” setting. If required, however, any other time may also be parameterised.
- Parameterising meter interface
 - Active Interface

If the modem has several interface types (e.g., CL-1 or RS232), it is possible to select a suitable interface here.
 - Initial baud rate

Here it is possible to set the initial baud rate, which is initialised after a connection has been established between modem and meter. This is standardised at 300 baud when Mode C is used.
 - Data format

The meter interface's data format may be set here.

- Physical break after “Establishing connection”
A physical break can be sent to terminate any unwanted communication from the meter and to thus release the interface for a new communication.
 - Mode C active (transparent)
With Mode C, there is a switch in the automatic baud rate, in accordance with the IEC 1107 protocol. If you disable this option, the Elster modem runs in transparent mode. In this case, the baud rate used is always that used in the "Initial baud rate" option.
 - DTR signal only online (always)
This option is only enabled when sending from the RS232 interface of the DM600 and DM 630 modem types. The DTR Signal may be constantly active or only during a modem connection.
- Parameterising load profile memory
 - Time interval
The length of a measurement period may be assigned here. All the pulses occurring within this measurement period are recorded and totalled. After a measurement period has expired, the pulses which are part of it are saved as a load profile under a time stamp.

In order to complete the parameterisation of an Elster DM modem, you must proceed as follows:

- connect modem to an accessible telephone socket,
- set up modem in AMBUS®Gate,
- select the Elster DM, choose *Execute/Others...* and the following window appears:



Fig. 6-18 Parameterise Elster DM

- Select "Parameterise Elster DM" to perform a parameterisation procedure. The following dialogue appears, displaying all possible parameterisation options:

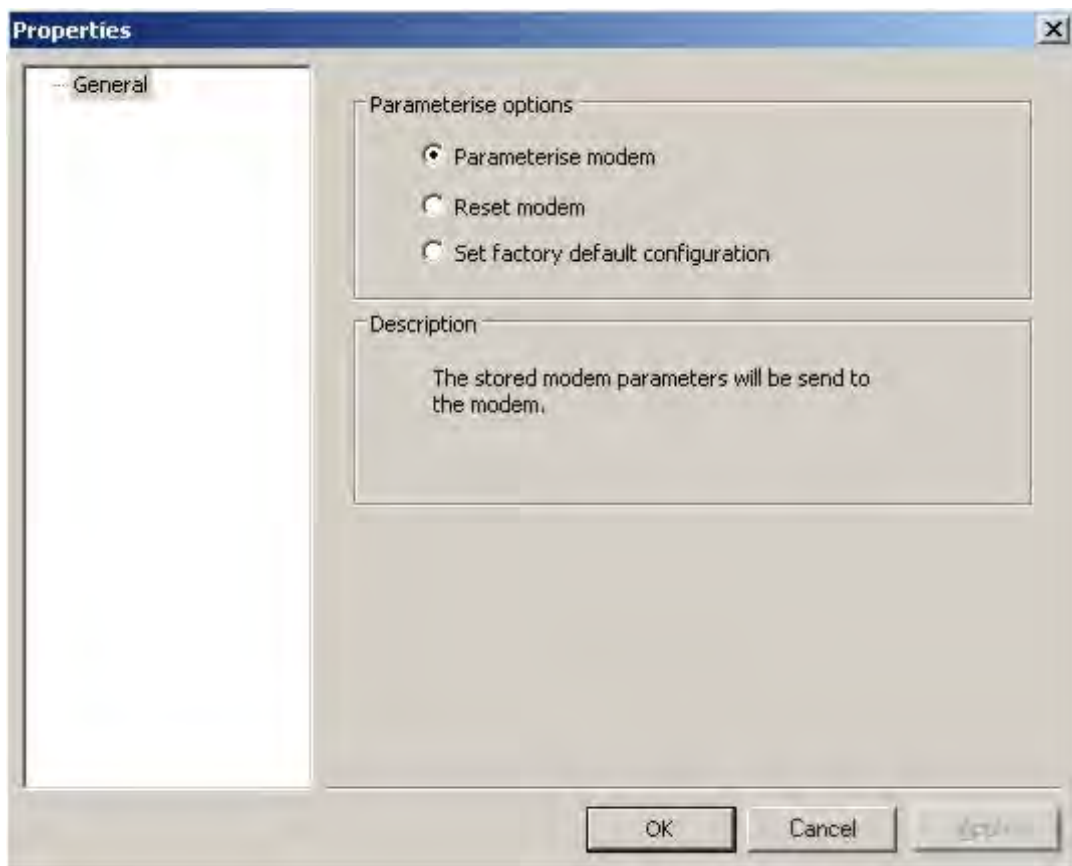


Fig. 6-19 Parameterisation options

- **Parameterisation options**
 - Parameterise modem
The properties handled in the properties dialogue for the Elster DM are sent to the modem. As a rule, the time and the measurement period are sent to the modem here. Please note that the entire load profile for all the pulse meters is deleted if the measurement period is changed. (only relevant to DM100/DM300/DM600).
 - Reset modem
The modem is reset. This starts the modem again without the parameters being changed.
 - Set factory configuration
The modem is changed to its delivery status. The basic settings are automatically adopted for all the parameters.
- **Description**
A short description of the parameterisation options selected above appears here. After selection and confirmation, AMBUS®Gate chooses the Elster DM and performs the necessary parameterisation. If possible, make sure that the modem's LED then lights up green.

6.6.2 Elster DM pulse meters

AMBUS®Gate supports all three pulse meters available in the Elster DM series. AMBUS®Gate can read out and interpret its load curve and simulate a consumption statement. For this purpose, AMBUS®Gate creates a new physical level for any connection to the modem, when it sets up an Elster DM modem. In order to assign a pulse meter to the Elster DM, you must first select a pulse input on the Elster DM. A DM pulse meter can now be assigned to the Elster DM pulse input via the device database.

For the load curve readout, the Elster DM provides the following adjustment opportunities, in addition to the general meter data, in order to evaluate the load profile:

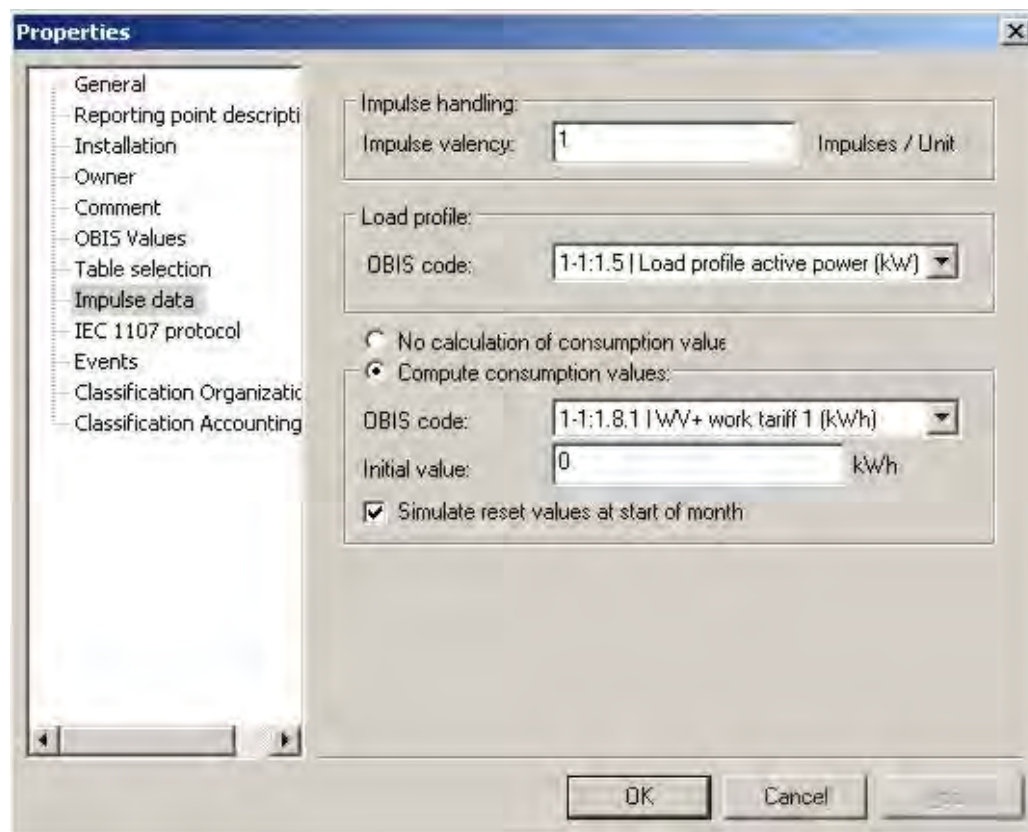


Fig. 6-20 Pulse data configuration

- *Pulse value*
The number of pulses per kilowatt hour (or other measurement) is entered here. AMBUS®Gate divides the number of pulses by this figure.
- *Calculate consumption values*
As an additional option, AMBUS®Gate can simulate consumption data from the pulse meter's load curve. In order to do this, the load curve data are simply added and reset values simulated if necessary. The prerequisite for a correct calculation is, of course, a complete load curve.
- *OBIS index*
specifies the OBIS index in which the consumption data are emitted.
- *Start status*
Specifies the meter start status in the particular unit.
- *Simulate reset values at beginning of month*
If this option is chosen, for each load profile value AMBUS®Gate introduces a total for the particular month, at midnight on the first day of the month. This can be used for calculation purposes, to determine the monthly consumption, for example.

Since the load profile meters in the Elster DM series are IEC1107-compliant, all the general IEC1107 protocol settings can be done with them. The following protocol options exist:

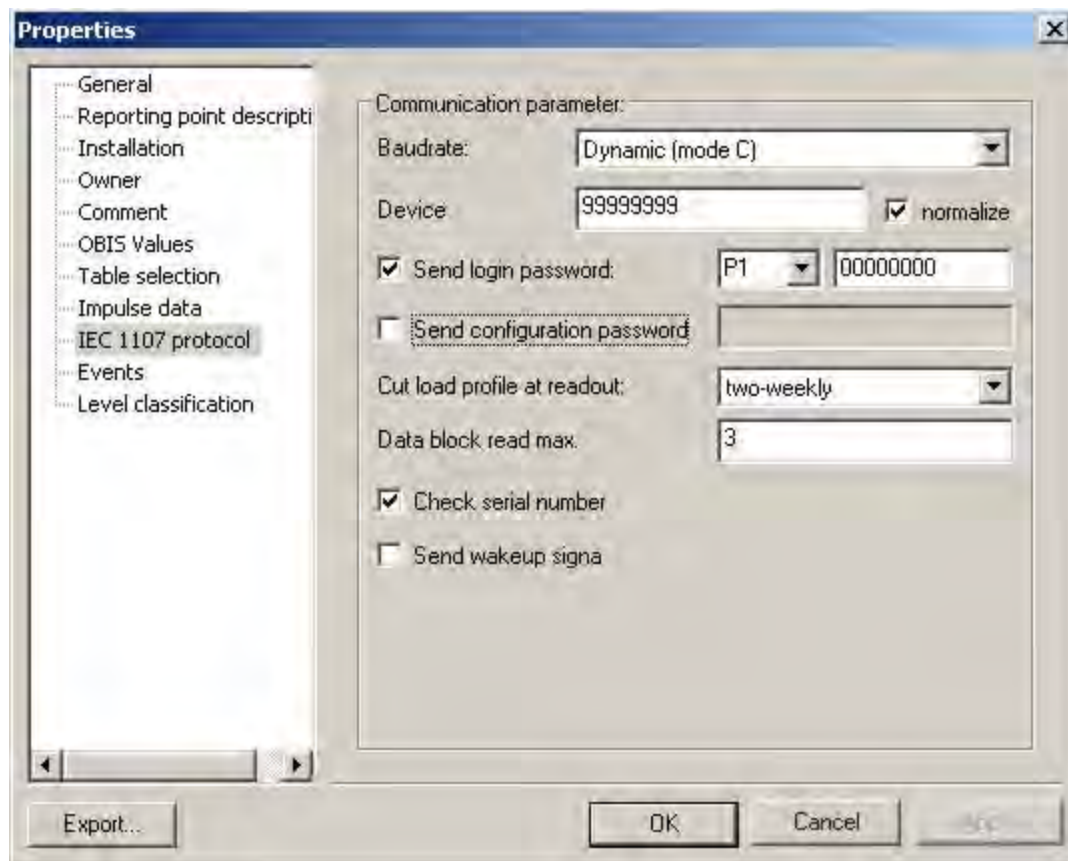


Fig. 6-21 Protocol settings

You will find a precise description of the individual protocol options in "4.8.3

Creating meters at the correct level.”

The following parameters are particularly required for the DM pulse meter:

- *Device address*
For the Elster DM 100, the factory configuration of the device address is always 99999999. This address applies to any pulse meter incorporated in the Elster DM.

- *Password*
In the factory configuration, the Elster DM's pulse meters can be read out only when a password is entered. For this reason, the “Sender password” option is automatically enabled and the password “P1 00000000” entered.

- Divide up with load profiles during readout (in IEC 1107 load profile)
The recommended setting for reading the load profiles in the Elster pulse channel is “No blocks”.

With the help of the “DMSet” parameterisation software, these parameters may be changed in any way at all. Please take into account the fact that the parameters entered in AMBUS®Gate must also be updated in the event of a change.

After the pulse meter has been correctly set up, it will be accepted in the AMBUS®Gate tree structure. An example of this is shown in the following illustration:

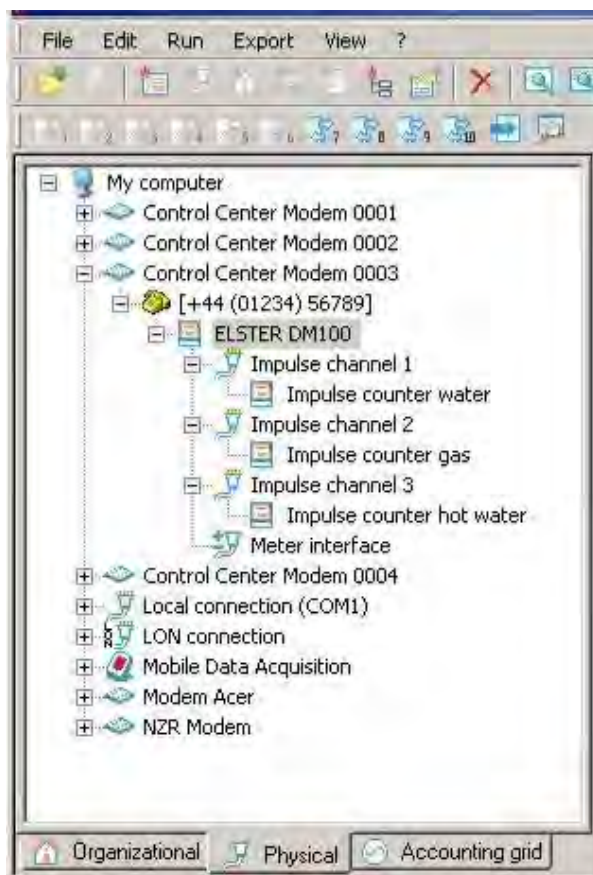


Fig. 6-22 Elster DM structure

6.7 ISDN readout

Creating a stable ISDN connection is a highly-problematical topic. Many suppliers have given up ISDN readout because of poor availability and unstable transmission and have switched to GSM instead. There are, however, areas in which there are no readout facilities except ISDN connection (no GSM network). For this precise reason, Aquametro has invested time in the evaluation of a stable, reliable ISDN readout. The result is shown in this chapter by specifying a stable configuration.

6.7.1 Design

The design of the connection should be clarified:

control computer <-RS232-> control modem <-ISDN network-> ISDN_meter modem current loop-> meter

Control computer RS232	= computer with AMBUS®Gate remote meter reading software = interface for control modem
Control modem ISDN network ISDN meter	= Insys Pocket ISDN Profi 2.0 modem = ISDN phone network (SO BUS)
modem Current loop	= AMBUS UniMod-C ISDN (alternative: Elster DM300)
Meter	= 20mA interface between meter modem and meter = any electricity meter with 20mA interface

6.7.2 Installing the Insys Pocket ISDN Profi 2.0

- Using RS232 cable, connect device to control computer's COM port and switch on.
- Insert supplied installation CD in drive
- Select phone and modem options in the system controls
- In the modem dialog, choose the "Add" button
- In the following dialogue, select the modem option (no automatic detection), enable and confirm with "Continue".
- Choose "Data medium" button
- Choose CD drive with installation CD and press "Browse"
- In the ~\driver\ISDN CD path, select the file "mdmstpox.inf" and confirm with OK.
- Press button again
- Select the TA +POX X.75 driver from the options list and confirm with "Continue" button.
- Complete installation with "Complete".
- Answer yes for any Windows signature test (e.g., driver did not pass the Windows Icon Test)!

6.7.3 Settings in AMBUS®Gate

The new modem must be set up in the usual way in AMBUS®Gate.

In the modem properties, the modem driver installed at Item 3 must be chosen:

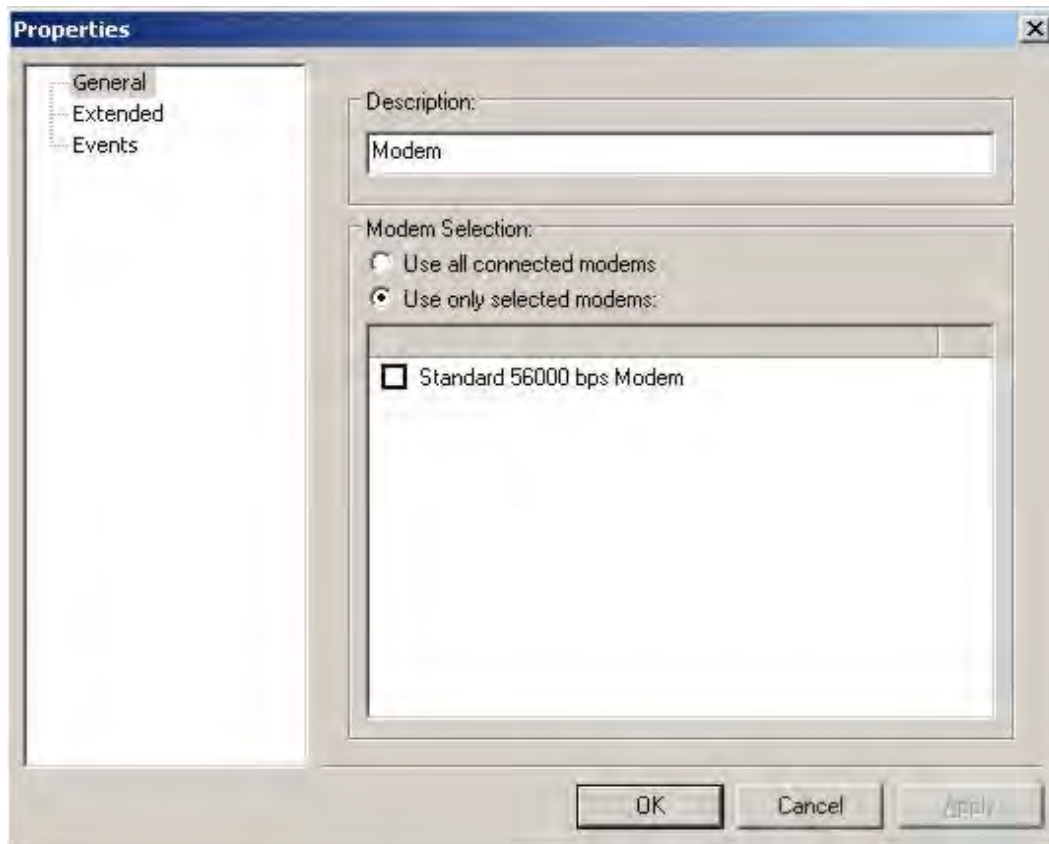


Fig. 6-23 Select modem

In AMBUS®Gate, the RS232 communication interface between control computer and control modem must be set in exactly the same way as the communication interface between meter modem and meter.

Example:
Communication on the current loop = 7E1 2400 baud
Setting the communication in the phone number level on RS232 in AMBUS®Gate:

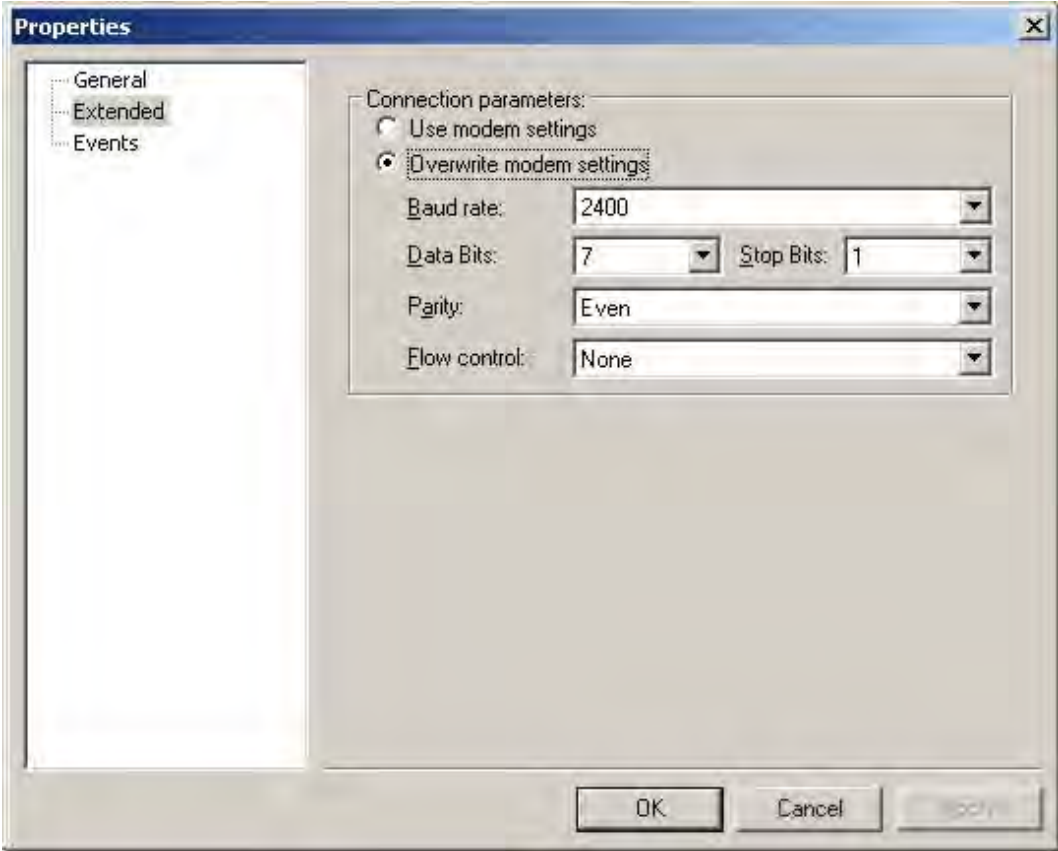


Fig. 6-24 Extended modem settings

This is the most important setting for ISDN readings. Since stable ISDN readings are possible only in transparent mode these setting must be performed on the same parameters on both sides.

6.8 Bär UniMod 01 meter modem with module for M-Bus/RS-232/20mA

In a similar way to the Dr Neuhaus modem, the Bär/Dietrich meter modem has facilities for remote parameterisation, facilities which can be fully exploited by AMBUS®Gate through the use of its own driver. This produces extensive usage possibilities, as AMBUS®Gate is able to automatically set the modem to the required interface parameters.

The following settings are available for configuring the modem:

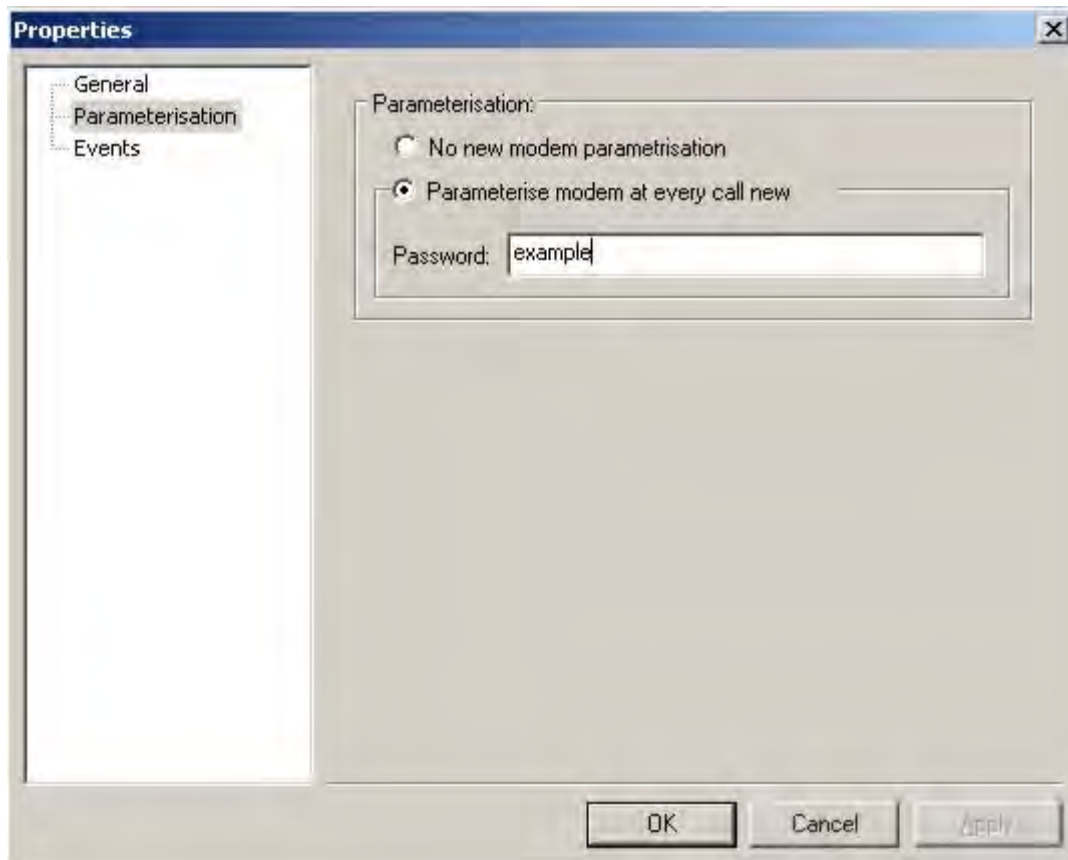


Fig. 6-25 Bär UniMod parameterisation

Parameterisation

The Bär modem may be operated without parameterisation. It then operates purely as a transparent modem, similar to the Enercom 100 modem. With this setting, any interface settings (e.g., 7,E,1) must be performed in the control modem's configuration.

If automatic reparameterisation is desired, AMBUS®Gate can adjust itself automatically to the Bär modem's parameterisation and can also automatically reparameterise this modem during operation. The modem can thus be used highly flexibly for the M-Bus interface, where different baud rates often have to be set, and also for the IEC1107 meter.

It must be noted that the Bär modem does not perform any automatic baud rate adaptation and for that reason IEC1107 meters with a fixed baud rate must be operated, e.g., 2400, 4800 or 9600 baud.

6.9 Wackenhut IMOD24 VE

The Wackenhut IMOD24 VE modem is supported by AMBUS®Gate both as a meter modem and as an integrated data logger. The individual channels of the IMOD24 can be automatically parameterised and read out by AMBUS®Gate.

The following settings may be performed for the IMOD24 VE modem:

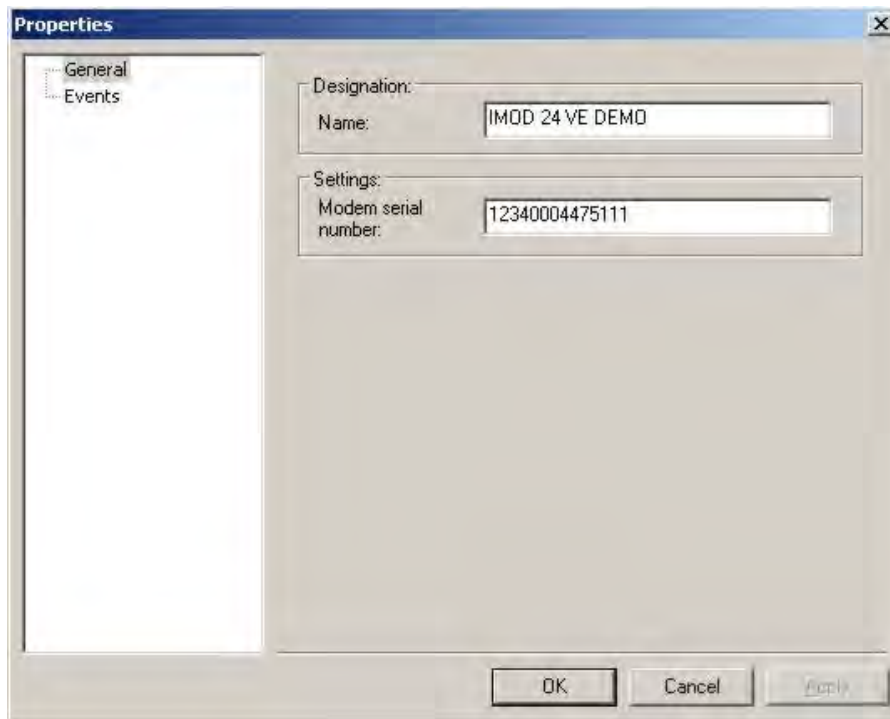


Fig. 6-26 Setting up Wackenhut IMOD 24 VE

The name is used only by AMBUS®Gate and can be freely chosen. The serial number should match that entered in the modem. The serial number can be set by AMBUS®Gate on a one-off basis.

While adding a Wackenhut modem, AMBUS®Gate automatically creates the individual physical levels for the channels.

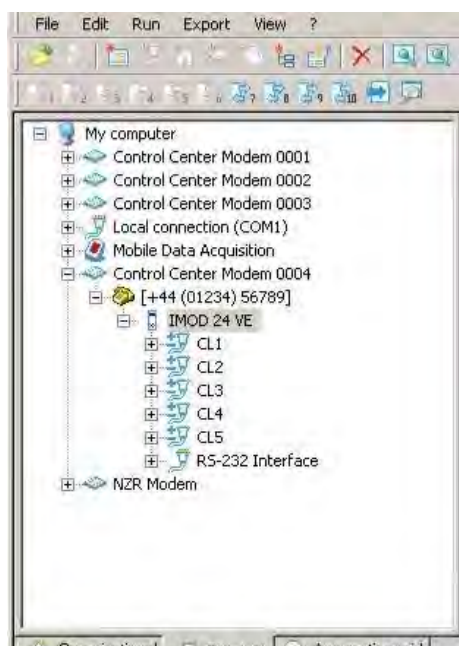


Fig. 6-27 IMOD24 VE communication paths

The following settings may be made for each individual channel:

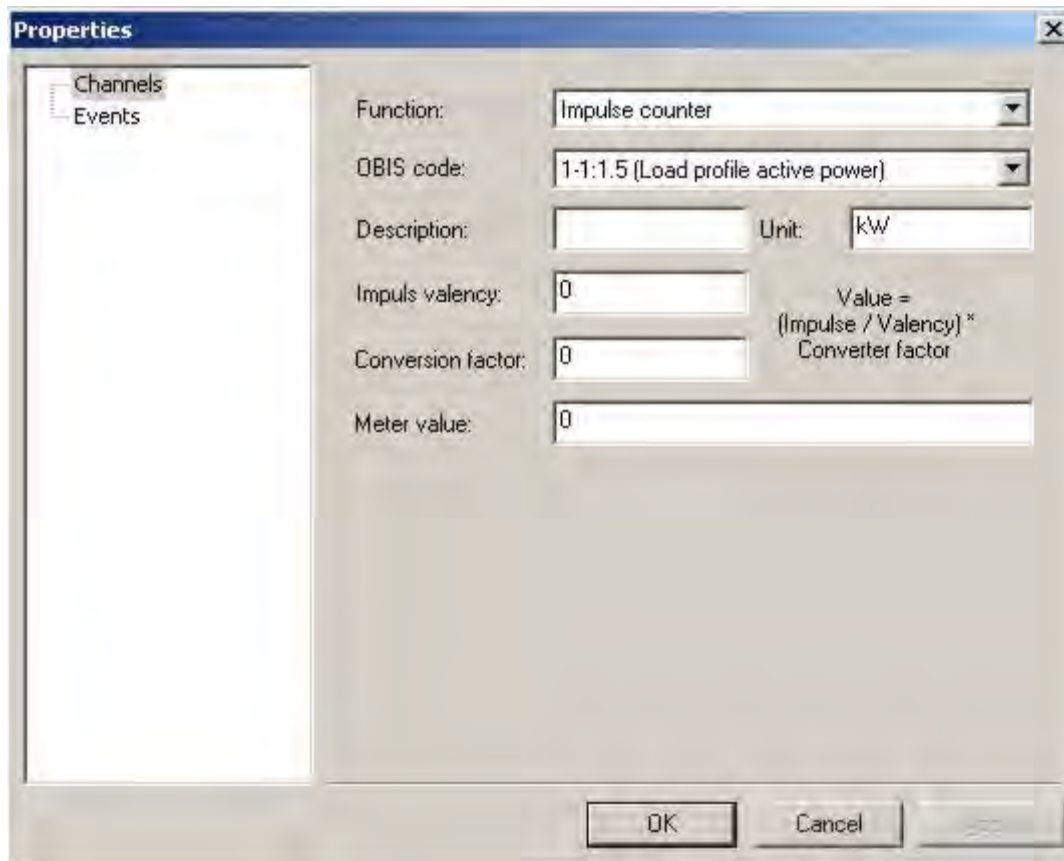


Fig. 6-28 Pulse meter settings

Firstly, the channel's function may be selected. For this, AMBUS®Gate provides the following possibilities:

- Current loop
The input is configured as a current loop interface for 20mA IEC1107 meters.
- None/Ignore
The input is not parameterised and the modem settings are retained.
- Pulse meter
The input is parameterised as a pulse meter. The following settings may be performed in turn:
 - OBIS index
The OBIS index, which is intended to be associated with this input.
 - Designation
Max. eight characters for the channel name
 - Unit
Max. eight characters for the channel unit
 - Pulse value/Conversion factor
The meter value is calculated by the following mathematical operation: Value = (pulse/quality) X conversion factor
 - Meter status
Specifies the initial meter status. The format must be given to two decimal places, separated by a dot.

All the IMOD24 channels may be set in this way. In order to parameterise the Wackenhut modem, the modem must be selected and *Execute/Others...* chosen. The following window appears:

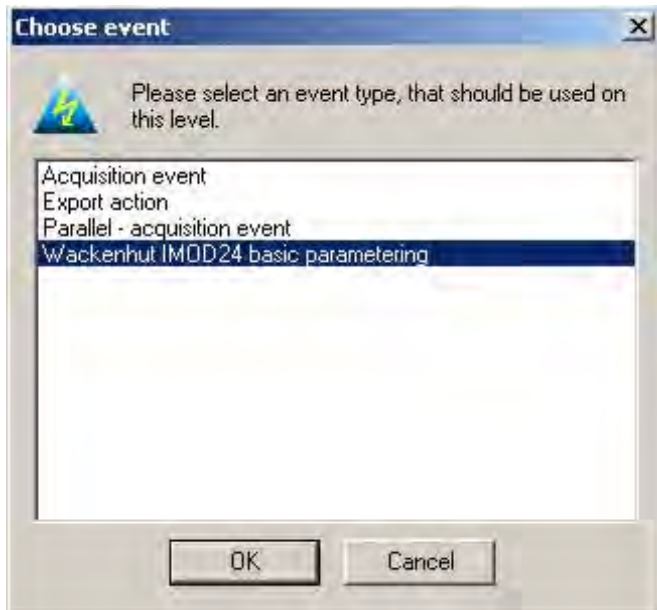


Fig. 6-29 Wackenhut IMOD24 VE basic parameterisation

“Wackenhut IMOD24 basic parameterisation” must be chosen. The following selection window appears:

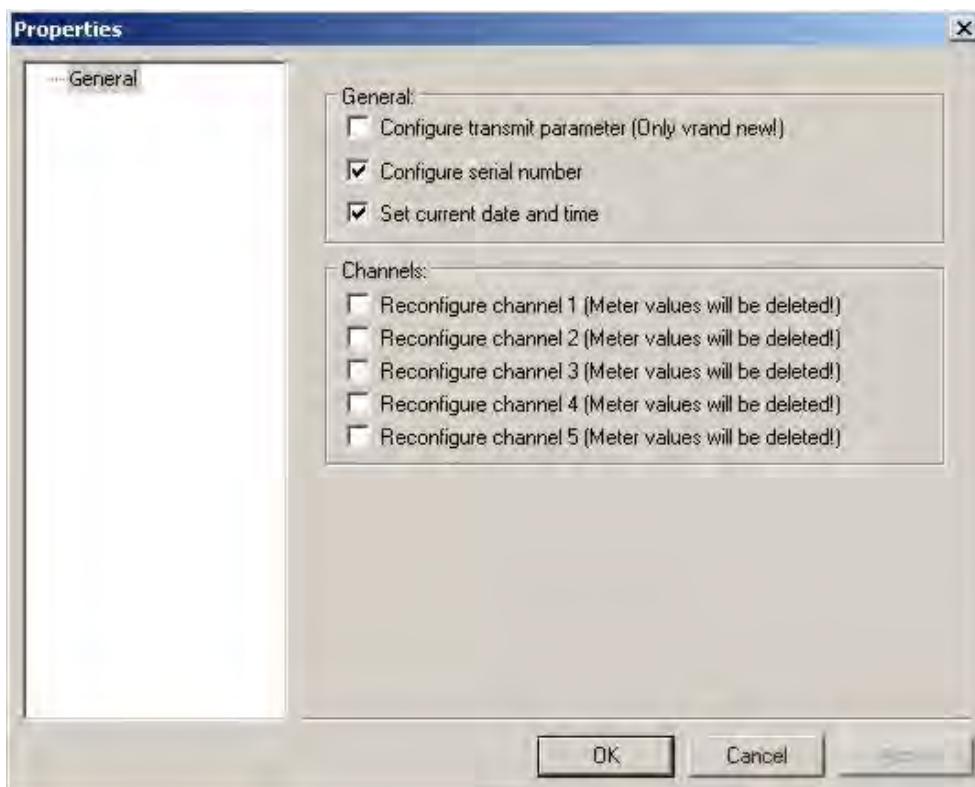


Fig. 6-30 Wackenhut parameterisation options

Here, the parameters to be configured must be chosen. It must be noted that the transfer parameters are only to be parameterised in the case of a brand new modem. In the same way, parameterisation of the individual channels is optional as the meter status is deleted for each reparameterisation.

After parameterisation, the Wackenhut IMOD24 is ready to operate.

Reading the meter statuses of pulse inputs

After a channel in the Wackenhut IMOD24 has been parameterised as a pulse input, another pseudo meter must be connected to the pulse input in AMBUS®Gate, so that it can treat the latter as normal power meters.

For this purpose, select the channel to which a meter is connected, choose the “Edit/New/Meter” menu item and choose the following meter:



Fig. 6-31 Wackenhut load curve channel selection

The Wackenhut/Load profile channel pseudo meter contains the functions for selecting your own Wackenhut IMOD24 load profile channel.

All the normal meter parameters may be entered for this meter. This meter must be responded to and read out in the same way as all normal AMBUS®Gate meters.

6.10 Görlitz ENC 400(E)

With the Görlitz ENC.400(E) there is a remote effective participant connection. The device is able to accept incoming calls and also to establish outgoing connections. For this purpose, many kinds of parameterisation facilities exist in the device. AMBUS®Gate Das not support the acceptance of an established connection based on the Görlitz ENC.400(E). Any parameterisation of the Görlitz ENC.400(E) is limited to setting a date and time.

In addition to the internal load curve meters in the Görlitz ENC.400(E) AMBUS®Gate also supports the integration of IEC 1107-compatible power meters in the Görlitz ENC.400(E). In any case, before the Görlitz ENC.400(E) is used, its configuration should be tested and, if necessary, parameterised to your requirements. For this purpose, the “PARA400” configuration program supplied by the manufacturer, Görlitz, must be used. In accordance with the Görlitz ENC.400(E) settings thus calculated, this device must be used in AMBUS®Gate. In order to incorporate a Görlitz ENC.400(E) in AMBUS®Gate, a physical modem connection is required, to begin with. Carry out the steps described in the section “4.8.2 Creating physical levels”, in order to establish such a connection. Then open the extended properties dialogue of this newly-added modem connection as further settings have to be made. Now adopt the values displayed in the following illustration into your modem settings:

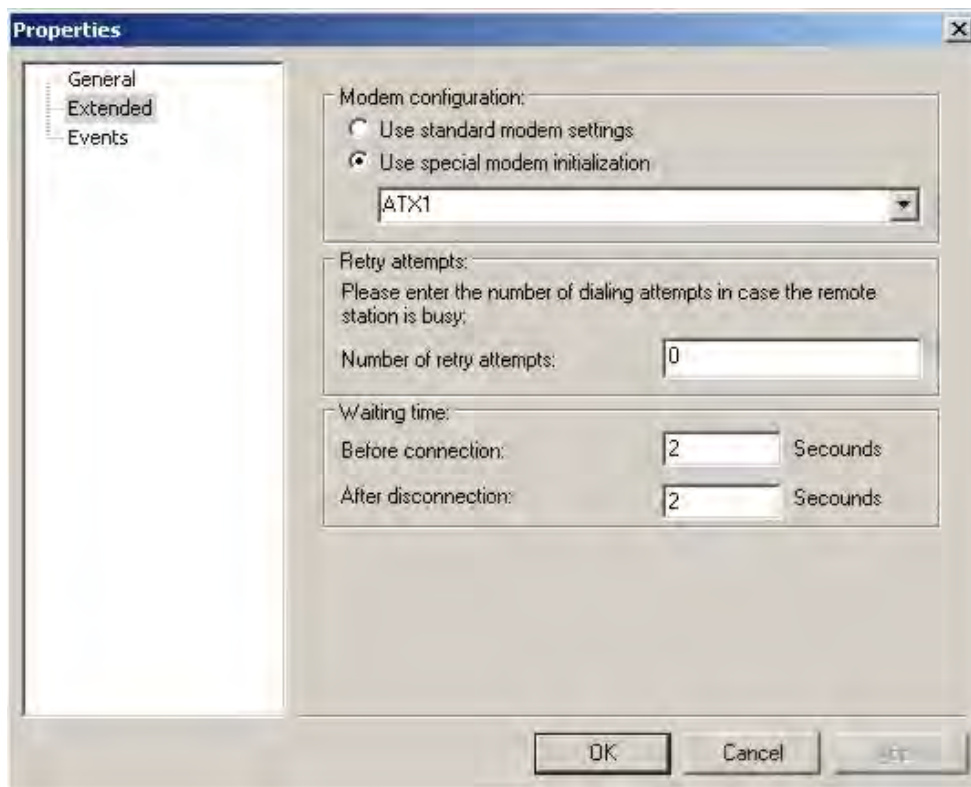


Fig. 6-32 Modem level extended settings

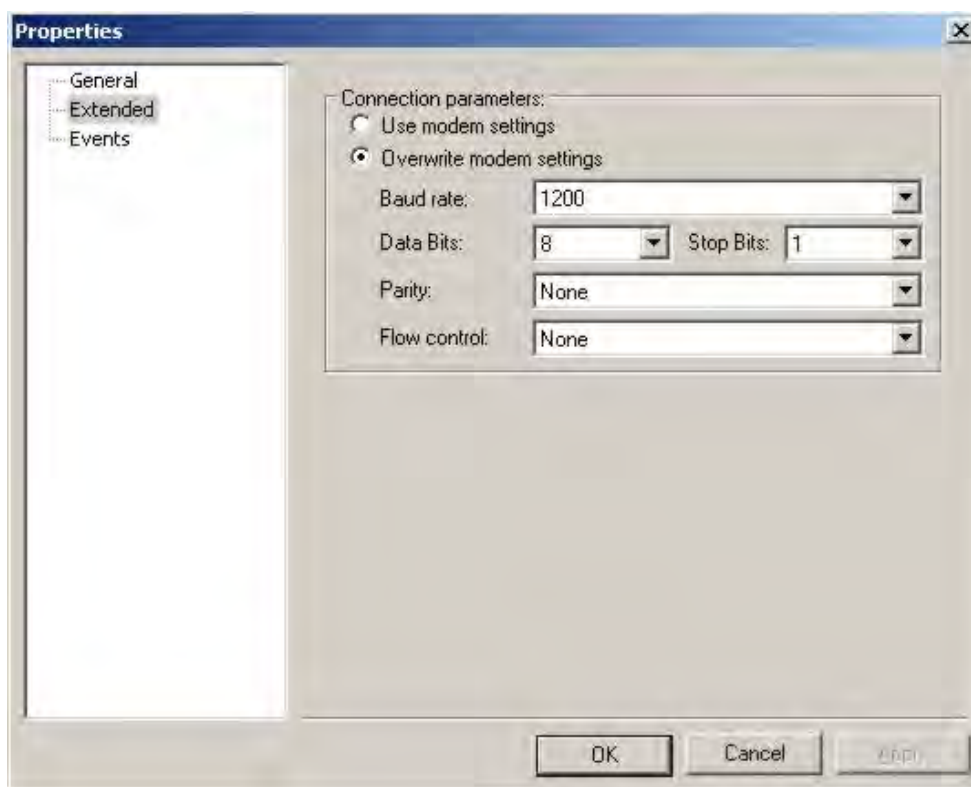


Fig. 6-33 Phone-number level extended settings

It is set out in Chapter 4.8.2 below, how a control modem can now be set up downstream from this physical modem connection. Select the ENERCOM 400 FNP modem in the following illustration:



Fig. 6-34 ENERCOM 400 FNP modem selection

Then a dialogue appears which asks you to enter all the required properties of the ENC.400(E) meter modem:

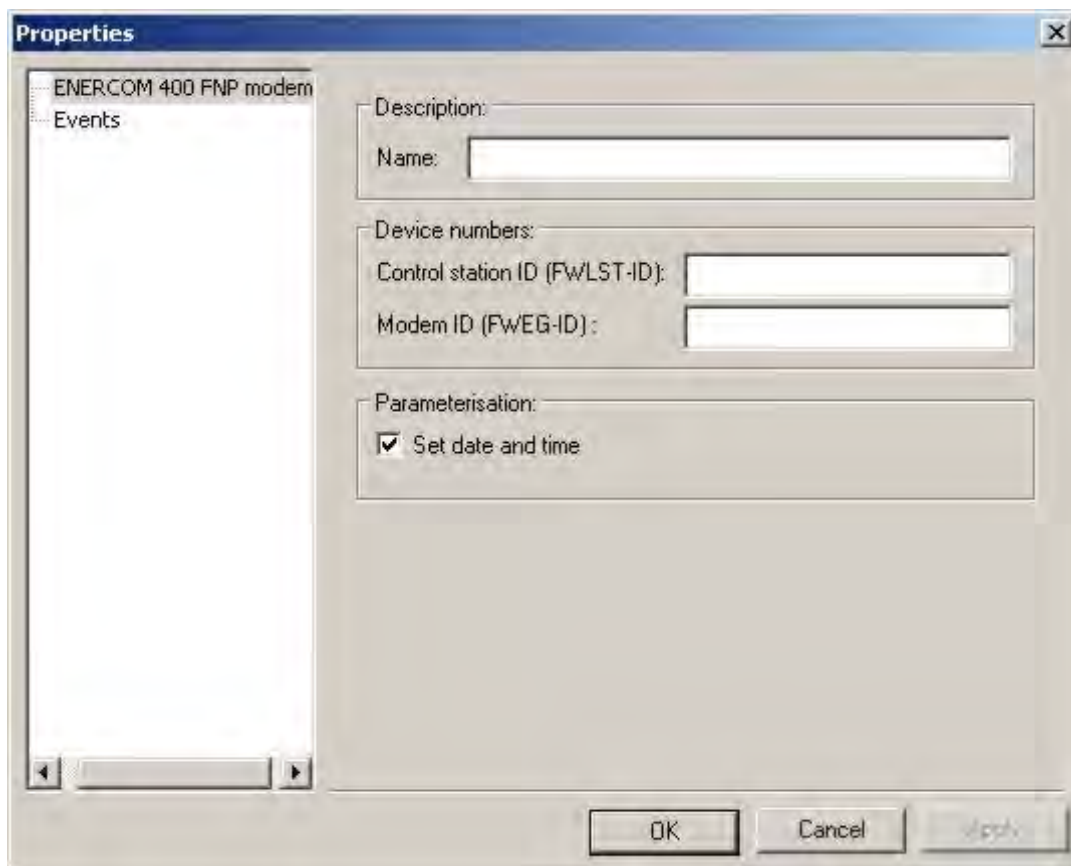


Fig. 6-35 ENERCOM 400 FNP modem settings

- **Designation**
 - Name
The name is only used internally to display the modem and has no significance for communication at a later stage.

- **Device numbers**
 - Controls – ID (FWLST-ID)
For the control ID, there is a 10-digit number which is used for testing the control.

 - Modem ID (FWEG ID):
The modem ID is the meter modem's device number. A successful login to the modem is possible only with this number. It consists of eight digits in numerical order and should be capable of being read from the modem's top surface.
Modem and control IDs can be parameterised with the help of the “PARA400” configuration program. The numerical sequences “0000000000” or “1234567890” may be preset as possible standard values for the control ID.

- **Parameterisation**
 - Set the date and time
By performing a parameterisation action, AMBUS®Gate parameterises the modem's time and date on the basis of the current PC time.

After all the parameters required by AMBUS®Gate for integrating a Görlitz ENC.400(E) have been entered, the modem's properties dialogue must be closed with “OK”. The Görlitz ENC.400(E) is now added to the physical hierarchical tree in AMBUS®Gate. An example can be seen in the following illustration:

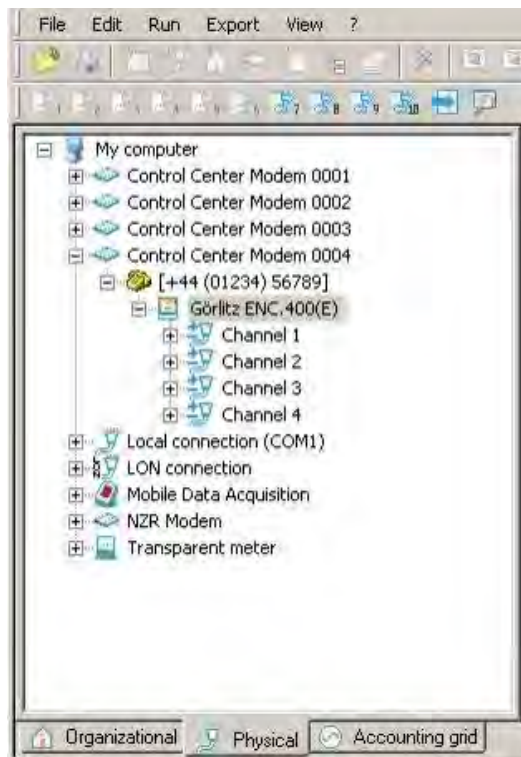


Fig. 6-36 ENERCOM 400 FNP structure

6.10.1 Görlitz ENC.400 (E) parameterisation

AMBUS®Gate also provides the opportunity to perform a parameterisation of the Görlitz ENC.400 (E) by a special action. This makes it possible to set the modem time and date.

To perform a parameterisation on the Görlitz ENC.400 (E), proceed as follows:

- connect modem to an accessible telephone socket,
- set up modem in AMBUS®Gate,
- Select the Görlitz ENC.400 (E) and *Execute/Others...* and the following window appears:

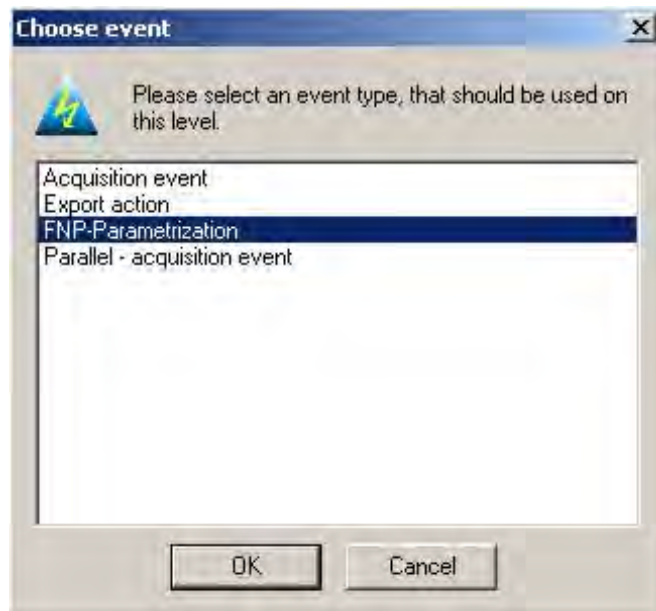


Fig. 6-37 ENERCOM 400 FNP structure

- Select FNP parameterisation and confirm with OK. A connection to the Görlitz ENC.400(E) is now established and the parameterisation is carried out.

6.10.2 Pulse meter on the Görlitz ENC.400 (E)

In the Görlitz ENC.400(E) there are two pulse meters supported by AMBUS®Gate. While setting up the Görlitz ENC.400(E), AMBUS®Gate automatically creates a new physical level for each connection to the modem (Channels 1-4). In order to allocate a pulse meter to the Görlitz ENC.400(E), a channel must firstly be selected on the Görlitz ENC.400(E). It must be noted that only Channels 3 and 4 are able to acquire pulse data. Via the device database, a pulse meter can now be allocated to the Görlitz ENC.400(E).

For the load curve readout, the Görlitz ENC.400E's pulse meter provides the following adjustment opportunities, in addition to the general meter data, in order to evaluate the load profile and the internal pulse meter:

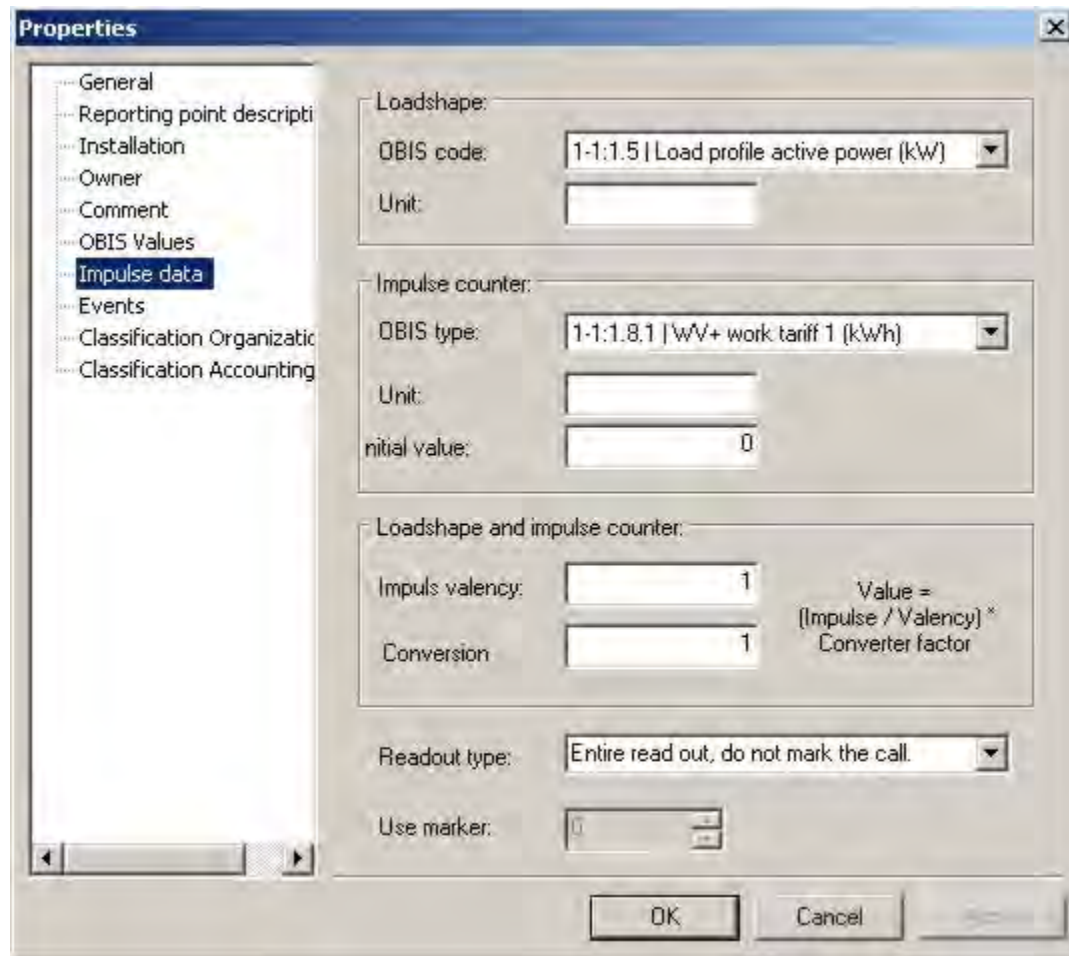


Fig. 6-38 ENC400(E) pulse data

- **Load curve**
 - OBIS index
Here you may select any OBIS index in which there is reference to the pulse meter's load curve.
 - Unit
Depending on the OBIS index selected, the appropriate unit is automatically displayed in this field. It is also possible to edit this unit, using a maximum of three characters.
- **Pulse meter**
 - OBIS index
Here you may select any OBIS index in which there is reference to the pulse meter's load curve meter.

- Unit
Depending on the OBIS index selected, the appropriate unit is automatically displayed in this field. It is also possible to edit this unit, using a maximum of three characters.
- Initial meter status
Specifies the initial meter status.
- **Load curve and pulse meter**
 - Pulse quality/Conversion factor
The meter value is calculated by the following mathematical operation:
value = (pulse/quality) X conversion factor These settings apply equally to the load curve and the pulse meter.
- **Type of readout**
 - General reading - do not note call
The Enercom 400's entire load profile is read out. The time of the reading is not noted.
 - General reading - note call
The Enercom 400's entire load profile is read out. The time of the reading is noted.
 - Remaining reading - do not note call
The Enercom 400 (E)'s load profile is read out from the last noted readout time. The time of the reading is not noted.
 - Remaining reading - note call
The Enercom 400 (E)'s load profile is read out from the last noted readout time. The time of the reading is noted.
- **Use markers**
To save always transferring the entire load profile memory, the FNP modem is able to remember four different readout times. In conjunction with the type of readout, it is thus possible to reduce the number of load profile data for transfer. Here it is possible to select one of these readout times by setting Markers 0-3. Each of these markers represents a possible noted readout time.

After the pulse meter has been correctly set up, it is accepted into the AMBUS®Gate tree structure. An example of this is shown in the following illustration:

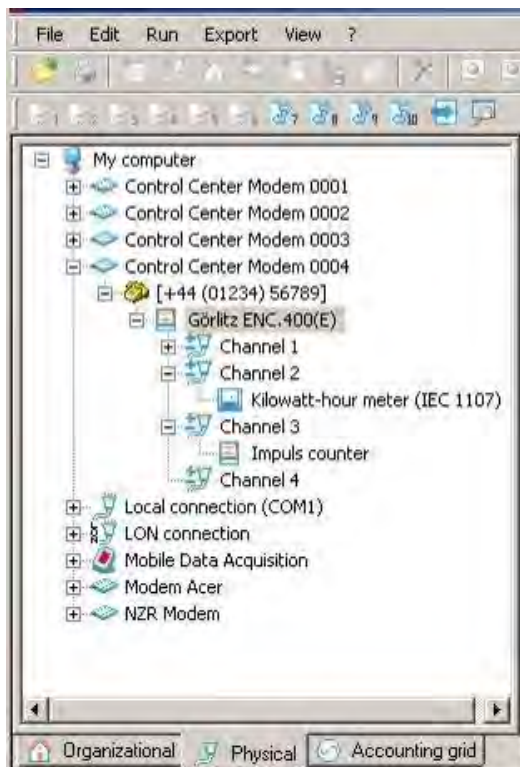


Fig. 6-39 ENERCOM 400 FNP modem structure

AMBUS®Gate also supports the setting up of IEC 1107-compliant meters. For example, in the illustration provided above an IEC 1107 electricity meter is already integrated.

Important: If IEC 1107-compliant meters are used, a reading by means of a given device address is not possible in AMBUS®Gate. Thus the maximum possible is one IEC 1107-compatible meter connected to the Görlitz ENC.400 (E). With every IEC 1107-compliant meter, the “Device address” property must be kept free. It must also be noted that the baud rate of the meter connected to the Görlitz ENC.400 (E) has to be adapted to it. And so it must be 1200 bit/sec.

6.11 LON connection

A LON connection is set up at the physical level in AMBUS®Gate. For this purpose, the interface and the name must be allocated to the LNS database.

“My Computer” must be chosen for setting up a LON connection at the physical level. Then “LON Connection (WLDV32)” must be selected in “Edit/New/Others”:



Fig. 6-40 LON connection selection

The following selection window appears:

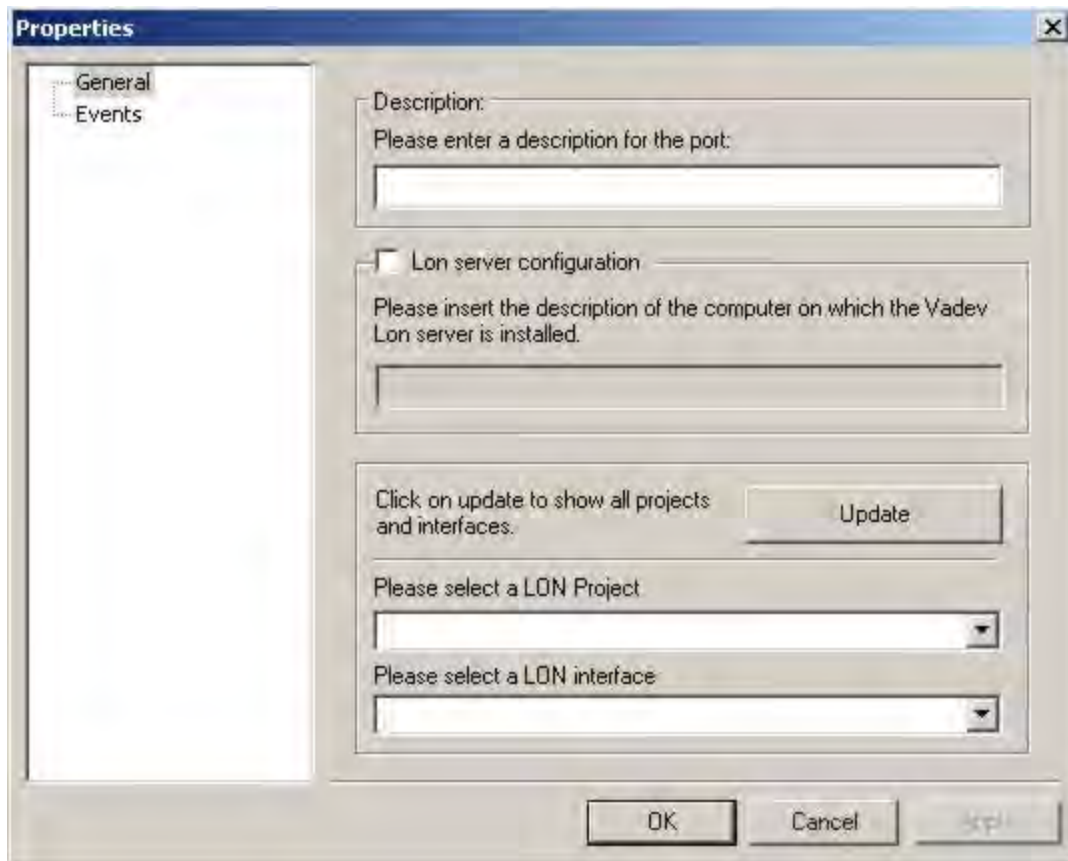


Fig. 6-41 Selection of existing LON LNS project with interface

- Designation
Any designation whatsoever may be specified for the LON connection.
- Lon server configuration
This option must be chosen if the LNS database is not on the same computer as the AMBUS®Gate software. In this case, the particular computer must be accessed via the network. In this case also, the computer name or the computer's IP address must be entered in the appropriate field.
- Update: When this button is pressed, the lists for the Lon projects and the LON Interfaces are updated. This can then be selected via the following items:
- Please select a LON project
AMBUS®Gate is searching the computer for LNS database projects. The desired project may be selected from the list by the arrow.
- LON interface
AMBUS®Gate is searching the computer for installed LON interfaces. The desired LON interface may be selected from the list by the arrow.

While adding a LON connection at the physical level, AMBUS®Gate creates a icon for the LON connection.

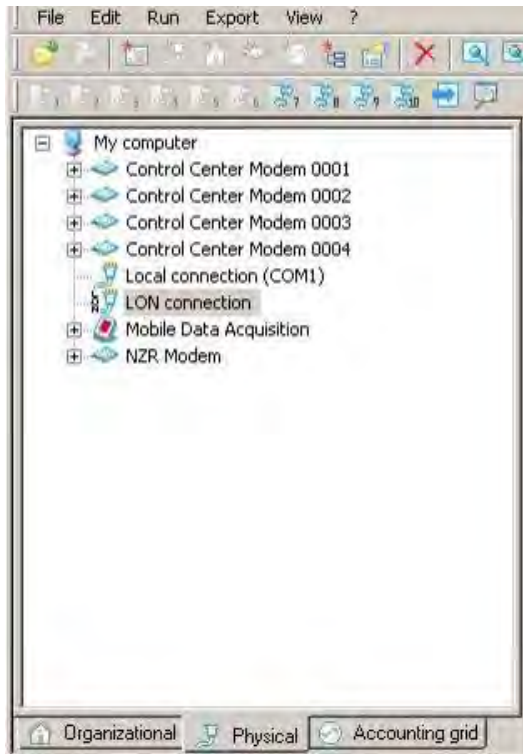


Fig. 6-42 LON connection

The rest of the meters to be read are set up at the level of the LON connection which has just been set up. (see Chapter 7.3)

Interpretation of LONWORKS® data)

6.12 Actaris Sparkline modem

The Actaris Sparkline modem is a data transfer device for remote querying and monitoring of electricity, gas or water meters. It is based on a communication module (PSTN/ISDN/GSM) and an internal controller which manages all the parameters necessary for transparent data traffic.

The Sparkline modem/ISDN/GSM provides three interfaces for communicating with terminals (power meters). RS-232, RS-485 and CS 2 Wire (power interface) The current version of AMBUS®Gate supports only the Sparkline modem variant with CL interface. The CL interface is designed as standard for active use and can be set to passive use in the device, by means of a jumper. Only one of the three interfaces can be active at the same time. For communicating with terminals, the Sparkline Light series provides only one CL interface.

For connecting with the control, there are three methods available via public communication networks: analogue modem connection (14400 or 33600 bps), ISDN and GSM.

The options shown in the following illustration can be changed in AMBUS®Gate and sent to the modem:

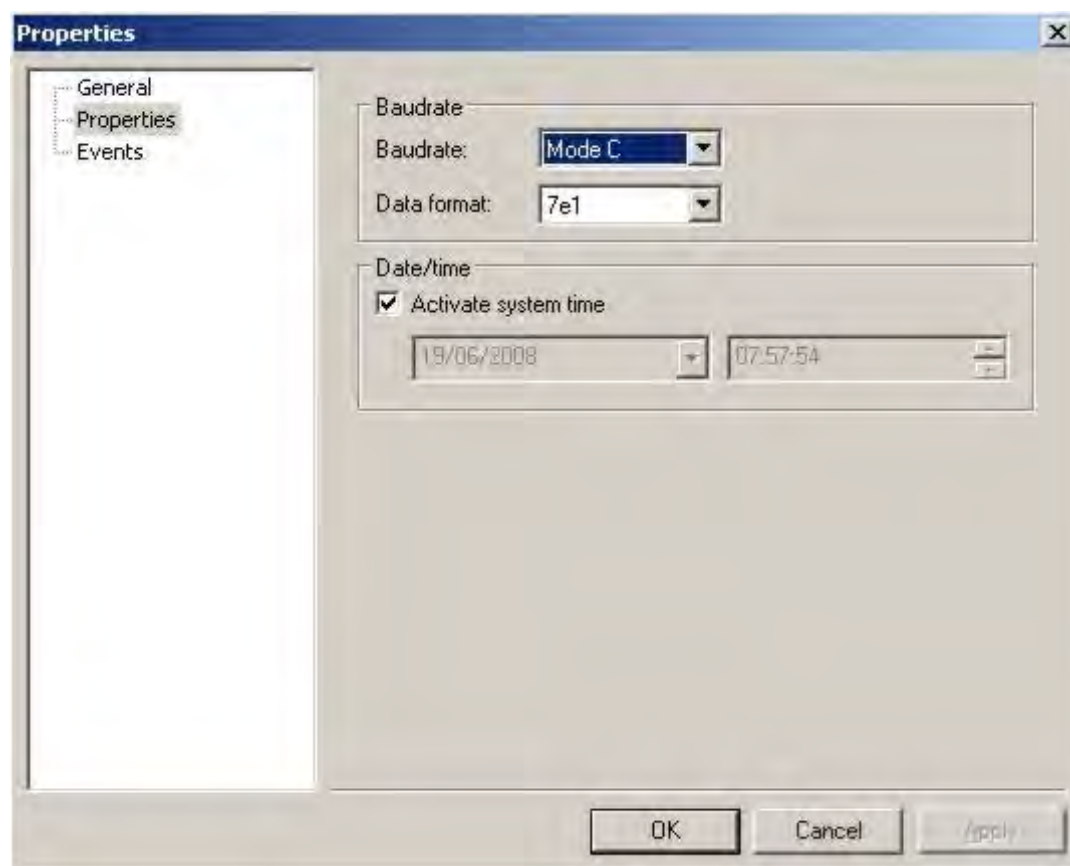


Fig. 6-43 Actaris Sparkline parameterisation

- Baud rate
The baud rate refers to the baud rate of the modem module plugged into the modem. It is normally the same as the baud rate in the meter interface.
- Data format:
The meter interface's data format may be set here.
- Enable system time
If this option is enabled, the current system time with computer date is transferred to the modem while it is being parameterised. As an option, any date together with a time may be set if this option is disabled.

The Sparkline modem is parameterised by means of the configuration action mentioned below:

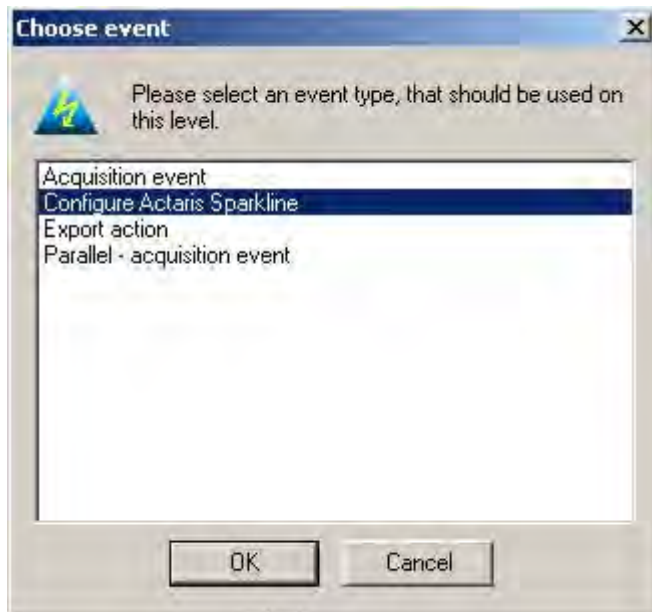


Fig. 6-44 Action: Configure Actaris Sparkline

The following selection dialogue then appears:

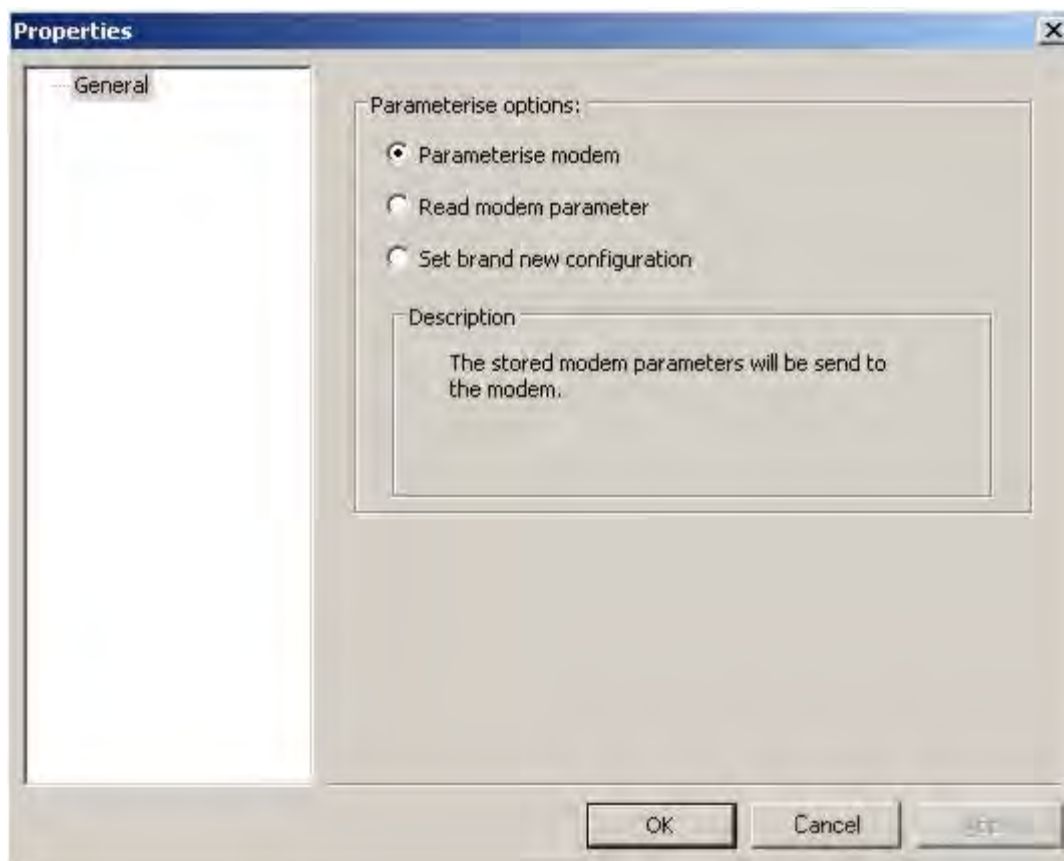


Fig. 6-44 Parameterisation options

- Parameterise modem
Here, the modem parameters set in the properties dialogue are evaluated and sent to the modem.
- Read modem parameters
The parameters entered in the modem are read out and saved in AMBUS®Gate. An overview of the parameters received by the modem can be seen in the properties dialogue. All the set values are overwritten here.

- Perform basic settings
The modem is reset in its delivery status. All the parameters are overwritten by the Sparkline modem's basic settings.

If any button is enabled and the “OK” button is pressed, AMBUS®Gate performs the particular action selected. A subsequent information dialogue gives details of the current parameterisation process. Information is given here on a successful or possibly unsuccessful parameterisation.

It is **not possible** to enter a password. It must also be noted that any enabled passwords must be disabled before using AMBUS®Gate. No password protection is enabled in the modem's basic setting.

It has proved to be the case in practice that not all meters are responsive via the Sparkline modem in Protocol Mode C. Configuring the meters to 300 baud with appropriate modem parameterisation should solve this problem.

6.13 General devices

In order to guarantee the clarity and consistency of the physical levels, AMBUS®Gate makes it possible to display transparent modems, converters and other devices which do not need any controls whatsoever, by means of a general physical device.

The following configuration options are possible for devices of this type:

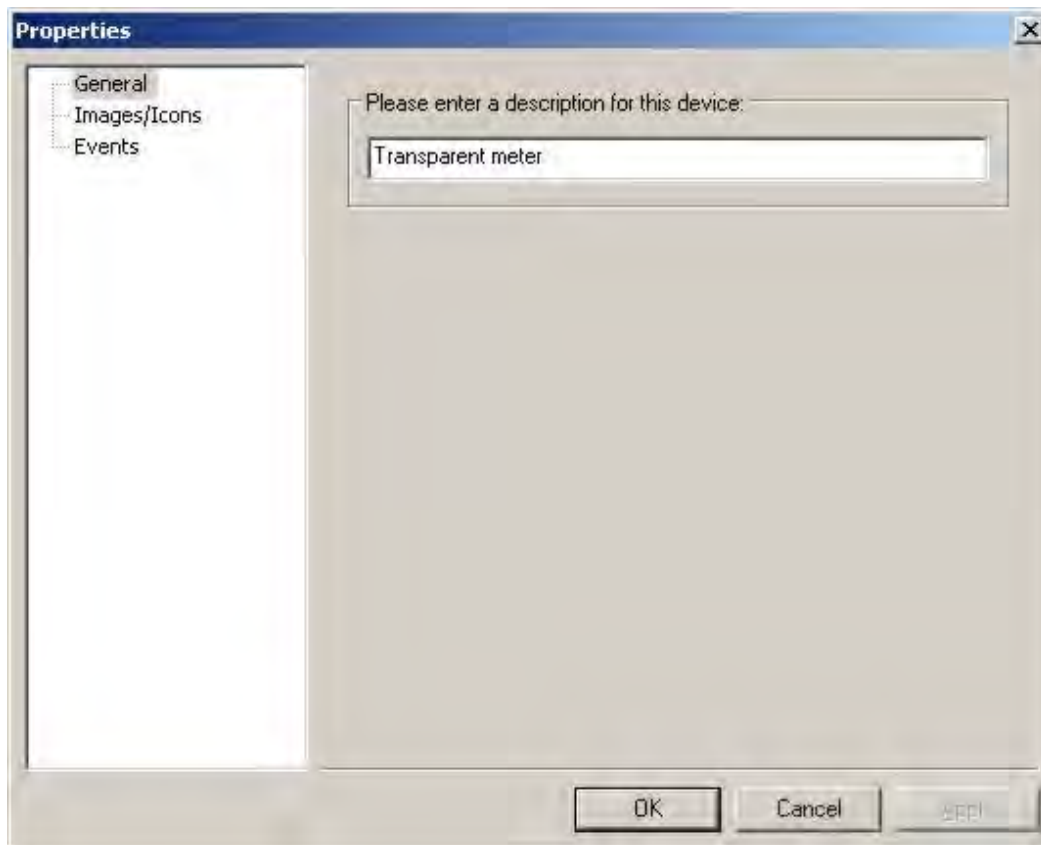


Fig. 6-45 General device

General

A name for the device may be entered here.

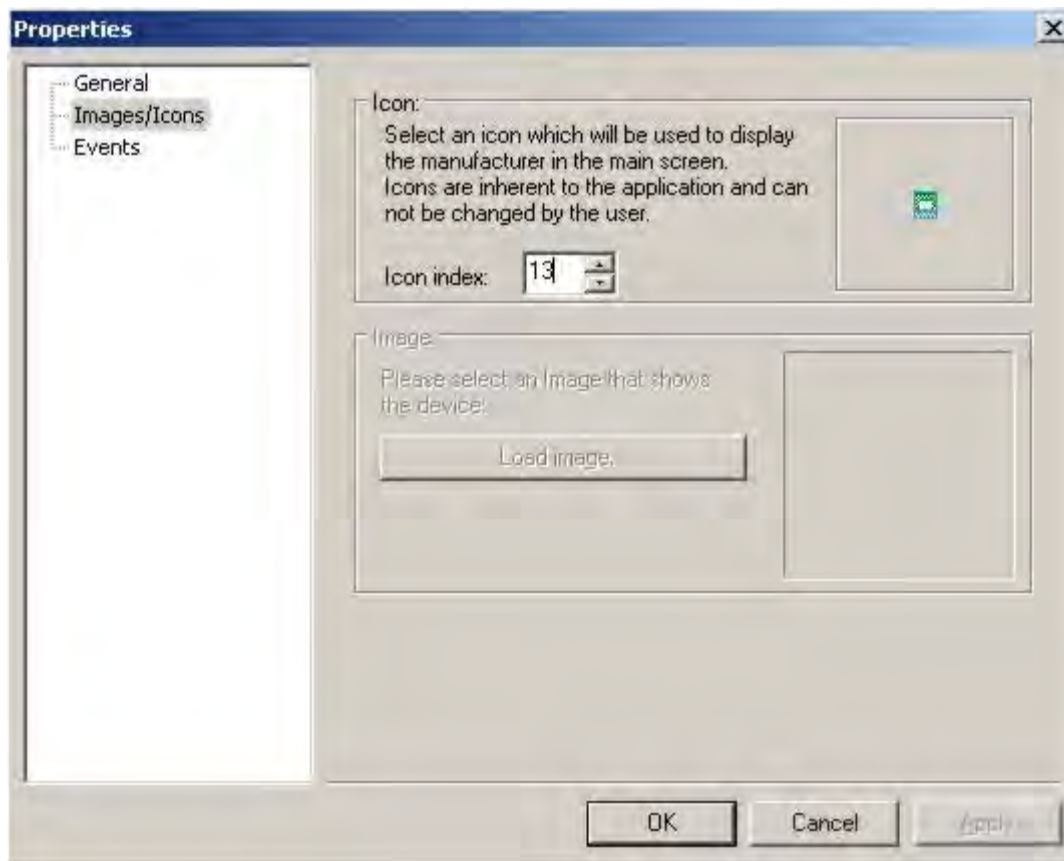


Fig. 6-46 Icon selection

Images/Icons

Here you can select a symbol for the device which makes visual identification easier for the end user.

Note: No more than 10 physical levels should be created for general devices, otherwise inconsistencies may result when the levels are used.

6.14 Virtual Meters

AMBUS®Gate allows virtual meters to be set up. Virtual meters behave like normal meters in the AMBUS®Gate system but instead of reading out a meter which exists in reality, AMBUS®Gate performs other operations. This is used, for example, for generating synthetic load curves or for simple load profile arithmetic. In order for you to be able to install a virtual meter, a suitable connection must firstly be installed at the physical level:



Fig. 6-47 Virtual connection selection

The *My Computer* main object must be selected at the physical level. Via the *New...*, *Others...* selection menu, the *Connection for virtual meters* must be selected.

The virtual meters can then be installed on the physical structure downstream from this level. The meter may be freely sequenced at the other levels.

6.14.1 Virtual meters - synthetic load profile

In order to create a meter for generating synthetic load profiles, a new meter must be set up in the usual way. The particular type must be chosen in the device database:



Fig. 6-48 Device database: Virtual meters

In the next window, the general meter data must be specified. The installation date must be noted here, as AMBUS®Gate generates the load curve from this date. The "User Profile" page is designed particularly for this meter type:

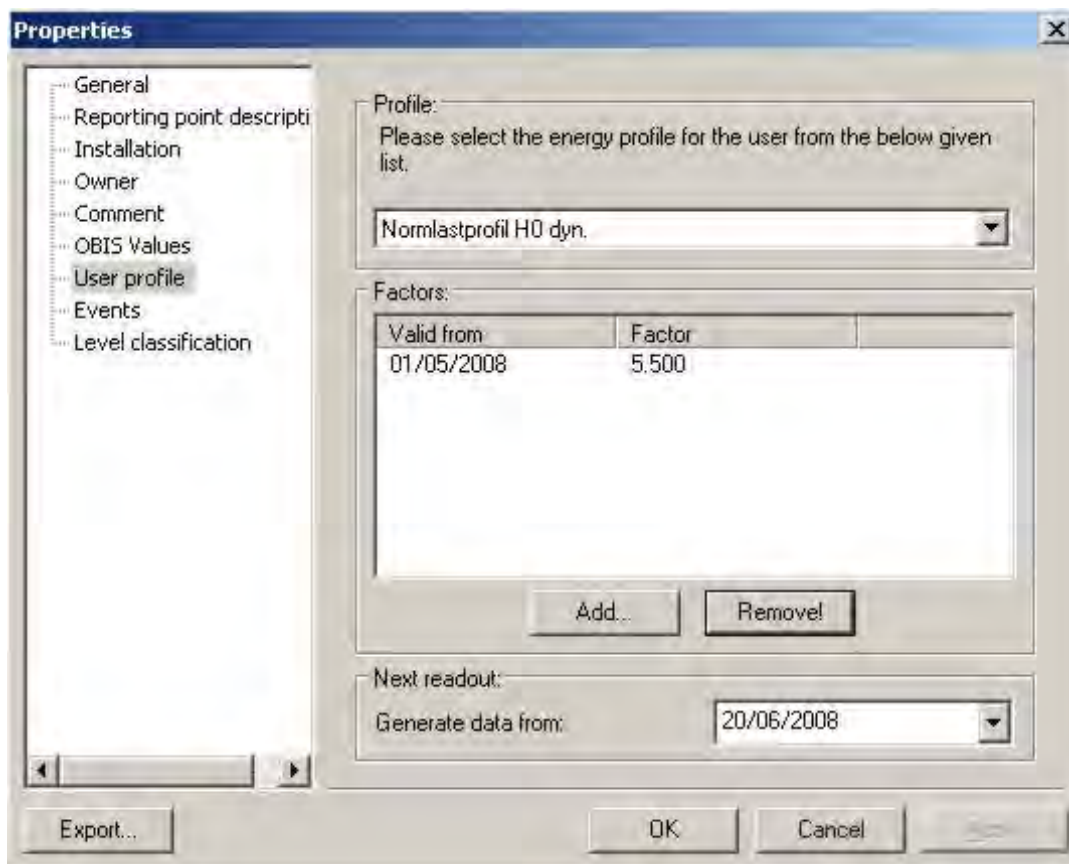


Fig. 6-49 User profile:

Here the user profile (behind which a suitable standardised load profile is saved) is selected and the multiplication factors are saved. A list of possible user load profiles is available separately and corresponds to the VDEW directives (synthetic load curves).

- Factors
The particular adaptation factors, including start time, may be specified here. New factors are entered by the *Add...* button:



Fig. 6-50 User profile factor:

In accordance with the VDEW directive, the customer's consumption for the previous year should be entered in MWh, as a factor.

Note: AMBUS®Gate generates the load curve accordingly during a reading; because of this, normal readout action should be set up on the meter.

6.14.2 Virtual meters- load profile arithmetic

By means of this virtual meter, AMBUS®Gate can add or subtract load curves of real meters and save the result accordingly.

In order to create a meter for load curve arithmetic, a new meter must be set up in the usual way. The particular type must be selected:



Fig. 6-51 Device database: Virtual meters

In the next window, the general meter data must be specified. Notice must be taken of the installation date. AMBUS®Gate generates the load curve from this date. The “Value calculation” page is designed particularly for this meter type:

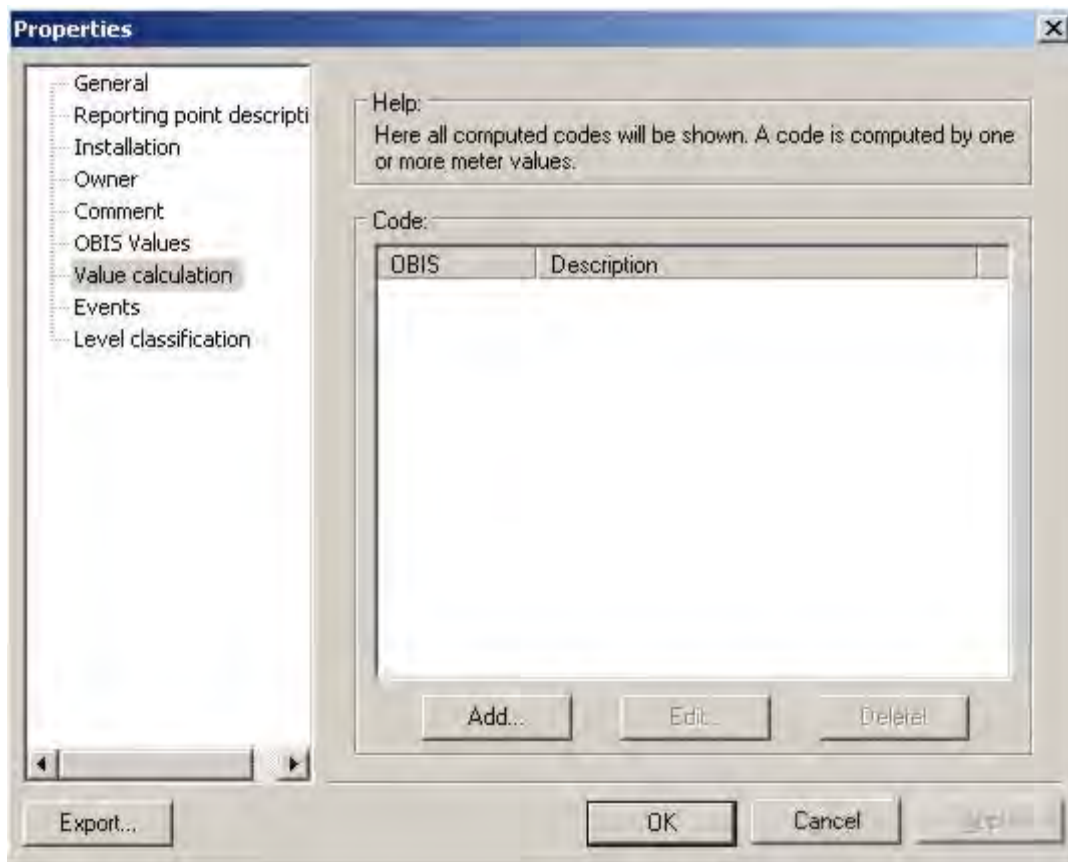


Fig. 6-52 Value calculation

AMBUS®Gate can calculate several OBIS indices for the meter simultaneously. Normally only the load profile (1-1:1.5) is used but if other indices are desired they may be configured in the same way. In order to enter an index for calculation, the *Add...* item must be chosen.

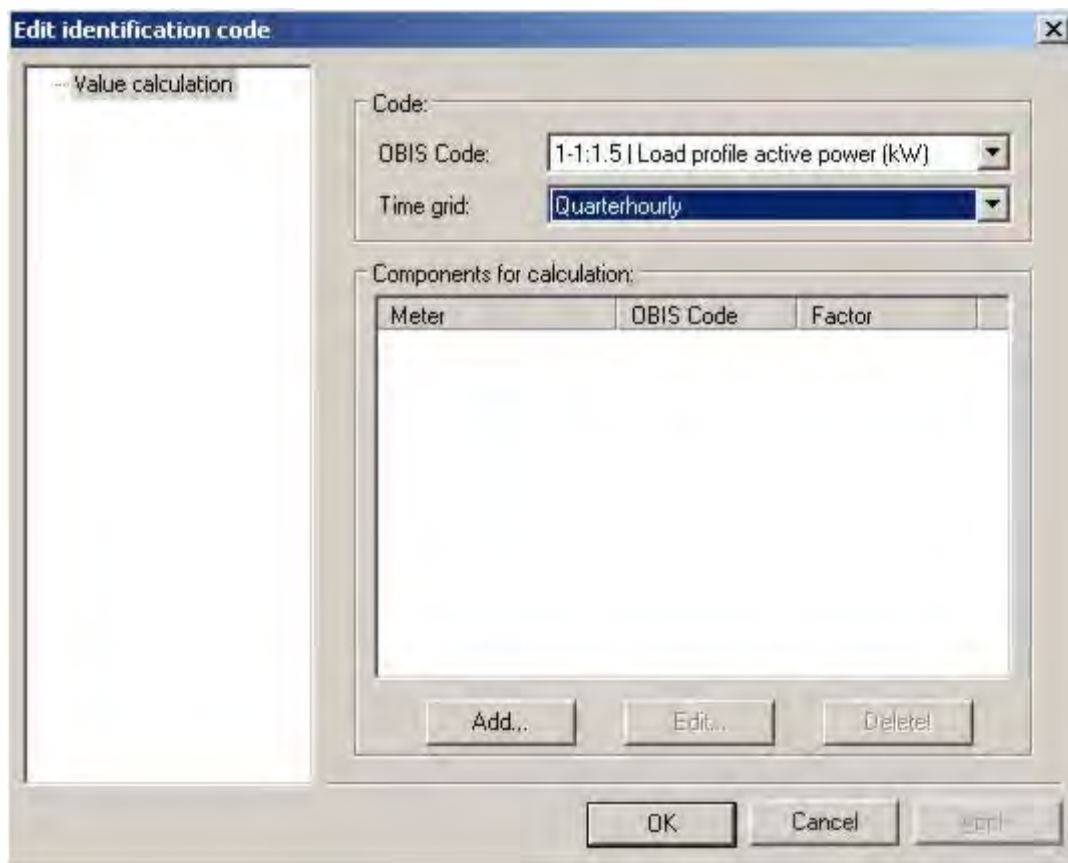


Fig. 6-53 Value calculation: Edit index

Here the new index is selected with the following settings:

OBIS index

Here you can select the OBIS index which AMBUS®Gate writes to the database for the **calculated** values:

- Time interval
Here, select the time interval for the calculation of load curves - usually *15 minutes*.

Components for the calculation

Here you choose the individual meters **of which** the values are to be linked. Here, choose *Add* to search for a meter:

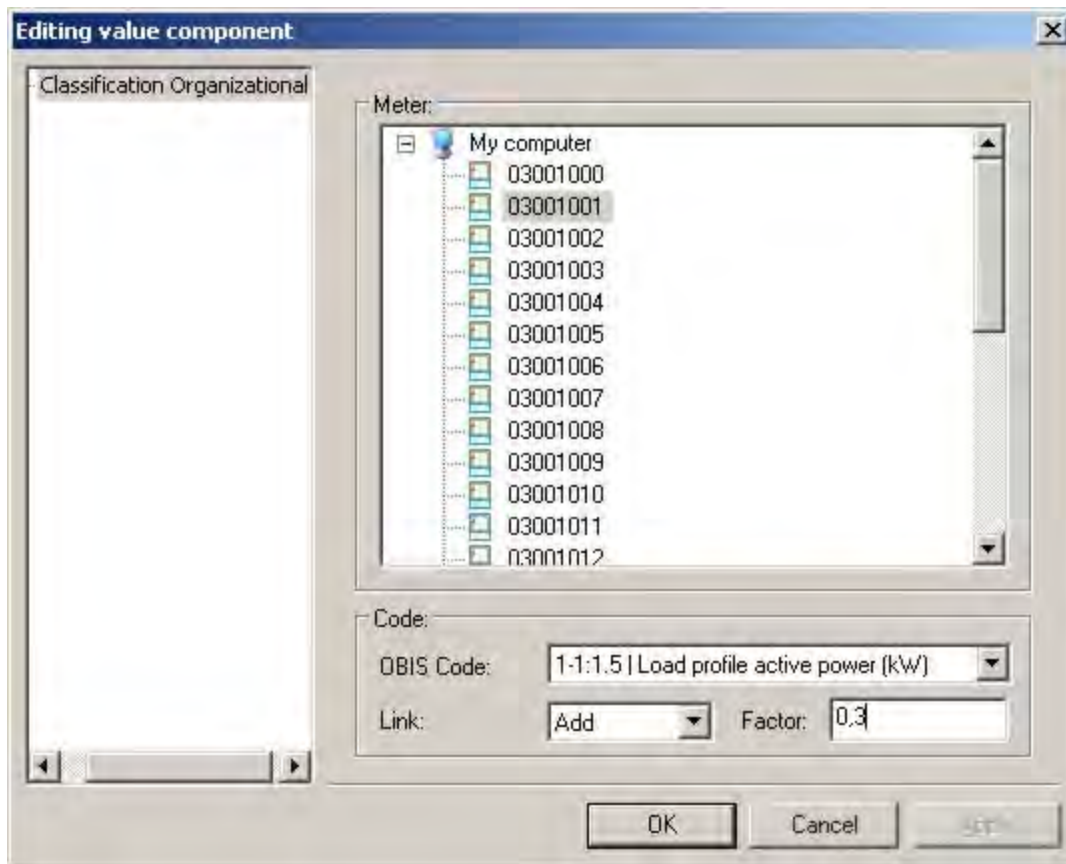


Fig. 6-54 Value calculation: Link

The meter may be selected here.

- **OBIS index**
Select the OBIS index of the selected meter; this index is to be used in the calculation.
- **Link**
Here, choose *Add* or *Subtract* as desired.
- **Factor**
Choose a factor here, e.g. 0.3. In the above example, all the 1-1:1.5s are multiplied by 0.3 and then added.

In order, for example, to calculate the mean value of two load profiles, you only have to add the two meters with the values, include a factor of 0.5 and add them up:

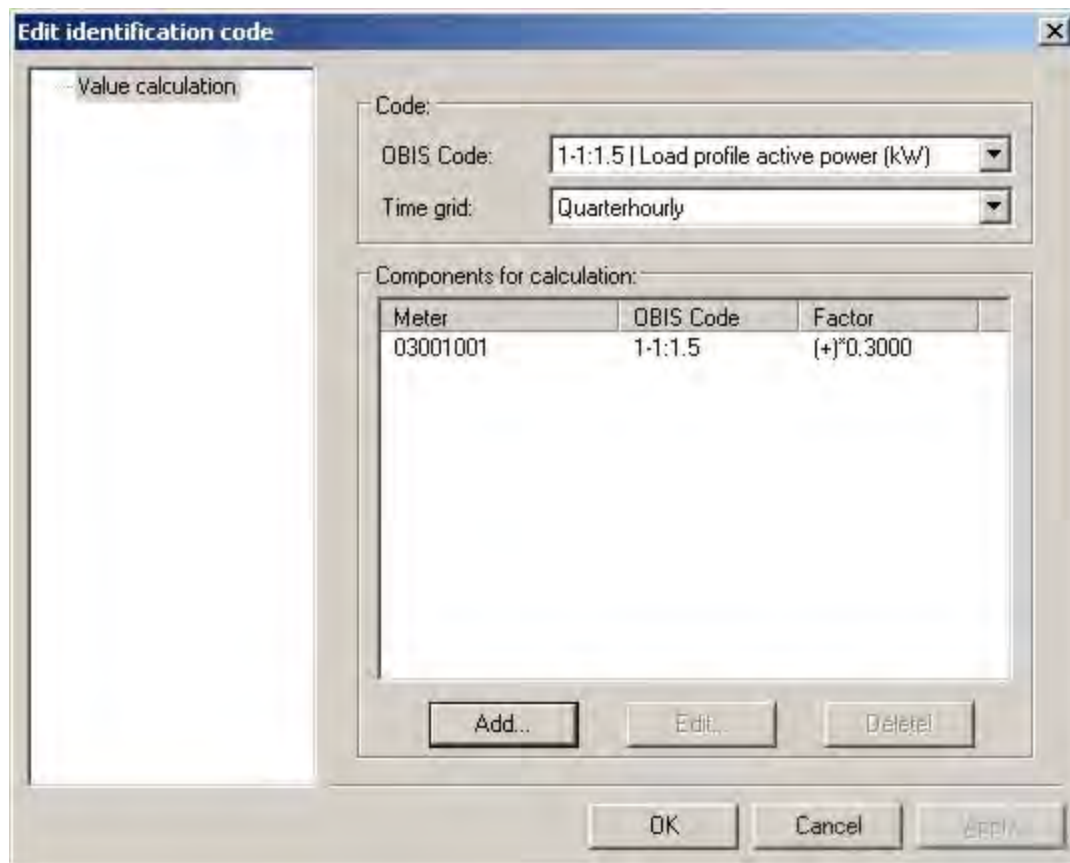


Fig. 6-55 Value calculation: Index added

Note: AMBUS®Gate does the load profile arithmetic as part of a normal readout, so that you should save a readout action on the meter or at the entire level.

6.14.3 Individual initialisation

Individual initialisation allows characters or strings to be sent, before a meter is read. This function can be very helpful, especially in the case of meters which have to be reactivated by characters being sent repeatedly.

Setup is as a “General Device” as described in Chapter 4.8.2. As device, the entry “Individual initialisation” must then be selected, as shown in Fig. 7.15-1:

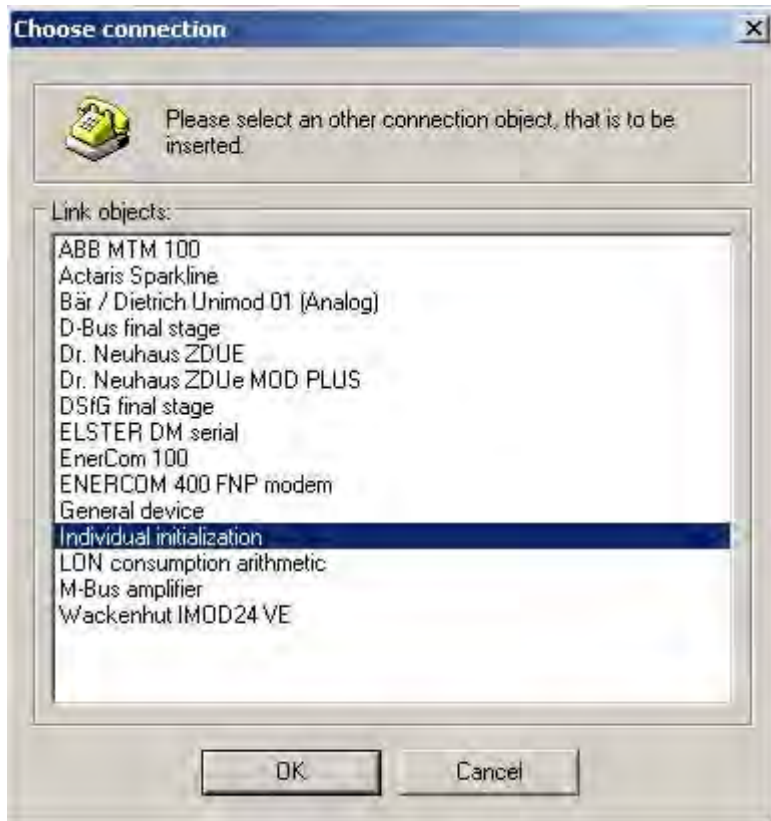


Fig. 6-56 Individual initialisation

It is possible to set up several nested initialisations with the object nearest to the meter always being used first (see Fig. 7.15-2).

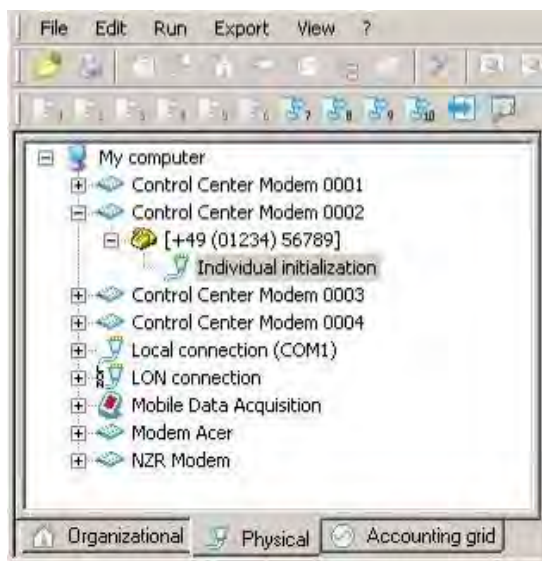


Fig. 6-57 Individual initialisation

In order to keep the initialisation as flexible as possible, in addition to specifying an initialisation string, still other options, shown in Fig.7.15-3, may be modified.

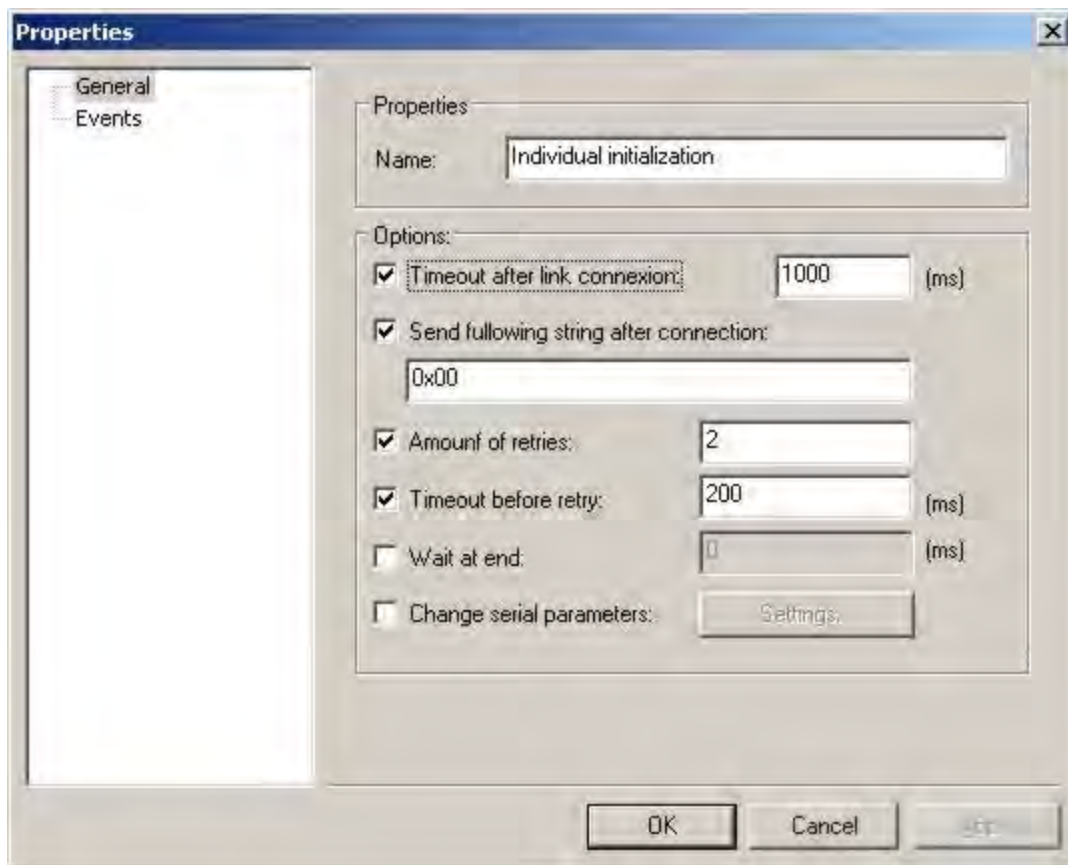


Fig. 6-58 Settings for individual initialisation

Name:

Here it is possible to assign any name for the initialisation.

Waiting time after connection is established:

Here it is possible to specify a time for waiting before AMBUS®Gate begins with the transmitter of a string. This specification is in milliseconds.

Send following string after connection has been established:

In this field it is possible to enter any string to be sent for initialising a device.

The characters "0x" are an exception. If these characters are placed in front of the string, all the following characters are interpreted in hexadecimal form. As well as digits, the letters from "a" to "f" or "A" to "F" are allowed. Two places form a hexadecimal value from 0 to 255. By means of this interpretation, it is possible to enter special and control characters which are frequently used in remote meter reading.

Number of repetitions:

In order to send a string several times, it is possible to specify the repetitions here.

Waiting time before repetition:

Waiting is for the time specified (in milliseconds), before the string for transmission is resent. The precondition is, of course, the specification of a number of repetitions.

Change the baud rate to:

Here it is possible to specify a baud rate between 300 and 38400 baud.

Wait until the end:

Waiting is for the time specified here, after a string has been sent for the last time.

7 Protocol information

An outstanding feature of the AMBUS®Gate software is a unification of the usual bus systems and protocols on the meter market. By means of its modular architecture, AMBUS®Gate supports all commonly-used protocols and provides a unified display and interface for the end-user by consistent standardisation of the values received in the OBIS system.

By this means, AMBUS®Gate must undertake some evaluations of the meter data received, as they have to be converted from the bus-specific format to the uniform AMBUS®Gate format. The individual configuration options and interpretations of the bus protocols are described in the following chapters.

7.1 Interpretation of IEC1107 meters

Compared to other meters, ZVEI/IEC1107-based meters deliver a large number of measurements and displays. Most meters have several data tables which contain different values. Moreover, many meters, such as EMH meters, permit a command mode, via which load profile data, for example, can be read out specifically according to date.

Through complex internal configuration facilities, AMBUS®Gate provides total support for these readout tables and for the command mode. To prevent the end-user from being confronted with these pieces of internal information, all the devices are preconfigured in a device database in AMBUS®Gate. The end-user must enter only "normal" parameters, such as the bus address or a baud rate.

By means of the preconfiguration process, AMBUS®Gate can determine intelligently which data table has to be read out, in order to deliver the values which the user desires. AMBUS®Gate also remembers the last readout times, so that load curves, for example, may be read out intelligently. AMBUS®Gate automatically reads only the new load curve data which are not yet in the AMBUS®Gate database.

In setting up a meter, the following end-user information is also typically required:

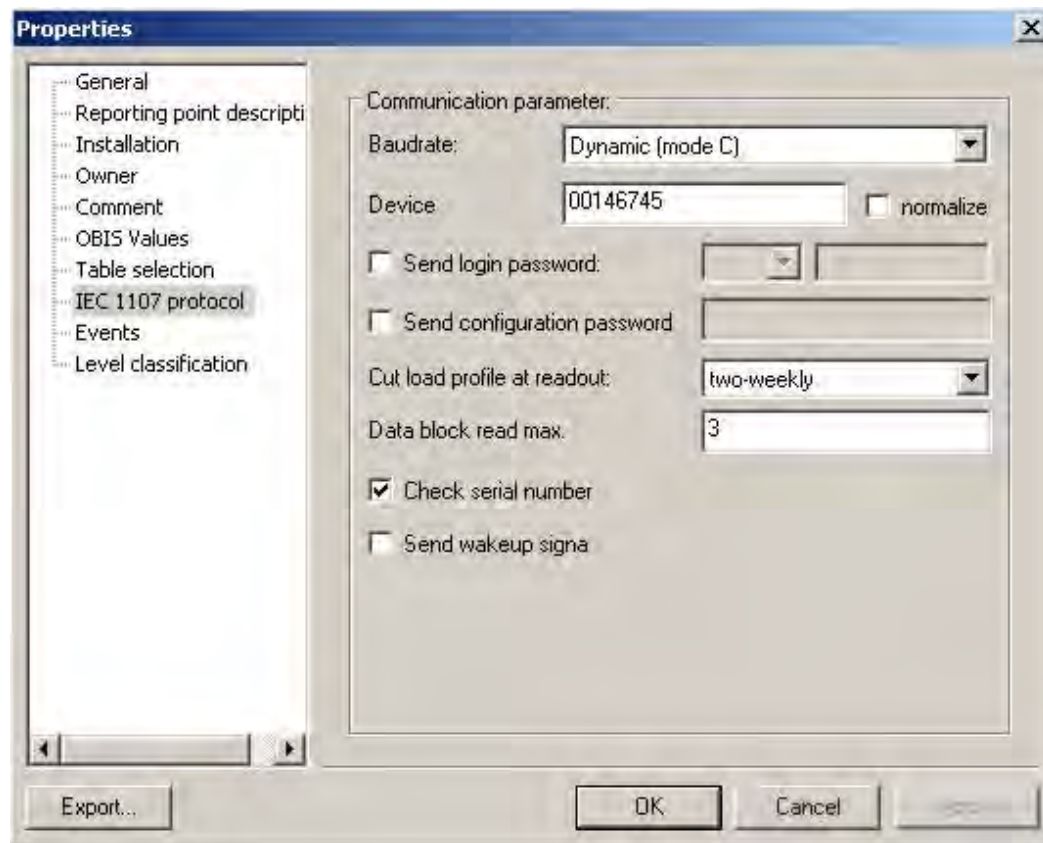


Fig. 7-1 IEC1107 protocol settings

IEC 1107 protocol

- **Baud rate**
The meter's baud rate is entered here. Dynamic (Mode C) means a transfer in IEC1107 with dynamic baud rate switching. In the case of a fixed baud rate, the latter must be entered accordingly.
- **Device address**
It is possible to connect up to four IEC1007 devices to a CLO interface (20mA). If more than one device is connected to the CLO interface, the device address has to be maintained. In the case of only one device on the current loop, this is not necessary.
- **Verify serial number**
Many meters return a serial number, which AMBUS®Gate has the option of comparing with the serial number field in the database. This can serve as an extra security check, so that values from an incorrect meter are not read and saved to the database.
- **Send login password**
Many meters require a password to access command mode. It may be entered here.
- **Number of resets**
Here the number of AMBUS®Gate resets is entered automatically and updated after each reading. Here, the user does not have to make any entries of their own. For many meters, it is important not to skip a reset as they do not return any reset table.
- **Divide up load profiles during readout**
AMBUS®Gate is able to divide up the transferred data volume during a load curve readout. This is an advantage, especially in the case of long readout intervals and poor phone connections. In the case of a false readout (checksum is wrong), AMBUS®Gate must normally request the entire data block from the meter again. While the load curve is being divided up, AMBUS®Gate automatically demands only a shorter period from the meter and therefore must resend less data in the case of a transfer error. This makes the load curve reading considerably more stable.
The block size should be determined from the experiences gleaned from former readings; as a standard value, a fortnightly division is set here, i.e. the load curve is always read out at 14-day intervals.
Interpretation instructions:
The following instructions are given for the interpretation of the IEC1107 data, in order to make it easier for users to evaluate the data read by AMBUS®Gate:

Resets

AMBUS®Gate automatically allocates each value in a reset to the particular date/time of the reset. In the same way, a reset value is identified by a special value type. AMBUS®Gate does not, however, save the number of the reset, as it is both bus-dependent and dependent on the particular meter. For many users, this is initially difficult to get used to, as they are used to the conventional notation of *03, etc. In AMBUS®Gate, these values are assigned to the particular time. That has the advantage of manual resets not making any difference in this case, as the automatic resets always occur at the same time.

To make the transition phase for data interpretation easier, in the case of saving measurements AMBUS®Gate also provides the raw data field in which the original value, including reset ID, is saved.

Setting files:

AMBUS®Gate allows setting and parameter files to be sent to the meter during a reading. The content and form of the setting files basically depend on the meter manufacturer and are in themselves of no significance to AMBUS®Gate. To make specific functions possible, for example, setting a time in the meter, AMBUS®Gate provides the use of variables within the setting file. The current time can thus be given a variable, for example, which AMBUS®Gate replaces on every call, immediately before transmission to the meter. The following variables are specified:

\$VD_TIME: [MEZ|MESZ|UTC] <datumsformat>\$

MEZ/MESZ/UTC: Specifies the time base for the current time.

The following characters are significant within the date format:

- HH- hour, in 24-hour format
- hh - hour, in 12-hour format
- mm - minutes
- ss - seconds
- dd - day
- MM - month
- yy - year, last two digits
- yy- year, all four digits

Separators may be provided in between.

Example:

\$VD_TIME: MESZ yyyy-MM-dd HH:mm:ss\$
 is replaced by the following:
 2001-08-27 13:45:20

\$VD_METER_SERIALNO\$

is replaced by the meter's serial number.

\$VD_METER_SERIALNO\$

is replaced by the meter's electricity supply company number.

7.2 Interpretation of M-Bus data

AMBUS®Gate contains an M-Bus driver, which is fully based on the M-Bus Rev 4.8 specifications. This allows AMBUS®Gate to read all types of M-Bus meters, provided that they conform to the M-Bus standard.

The following configuration options are available for M-Bus devices:

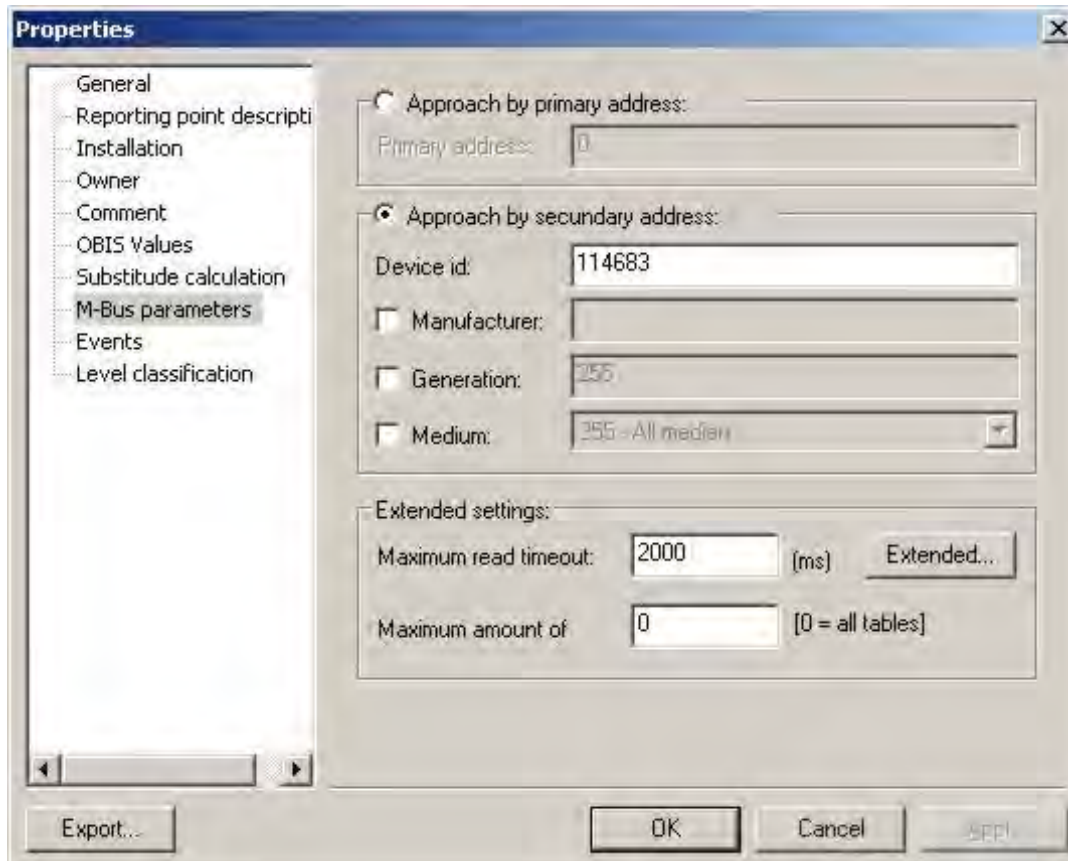


Fig. 7-2 M-BUS protocol settings M-

Bus parameters

- Control by primary address
 - Primary address
M-Bus devices may be addressed by a primary or secondary address. A primary address may be configured here.
- Control by secondary address
 - Device ID
A secondary address is specified here.
 - Manufacturer
The three-character manufacturer code for the secondary address is specified here. Note: It is normally optional to specify the manufacturer code. With devices from Kamstrup, however, the “KAM” manufacturer’s tag must always be quoted.
 - Generation
The M-BUS’s device generation is specified here. It is optional to specify the generation.
 - Medium
The medium code for the secondary address is specified here. It is also optional to specify the medium code.
- Advanced settings

- Maximal reading timeout
Specifies the interruption time for reading data. *Extended...* Here, the communication parameters for the device, related to a readout, may be changed as follows:
- The maximal number of tables is specified by the number "0". Entering continuous meters, however, can narrow it down to a more precise definition of the number of tables.

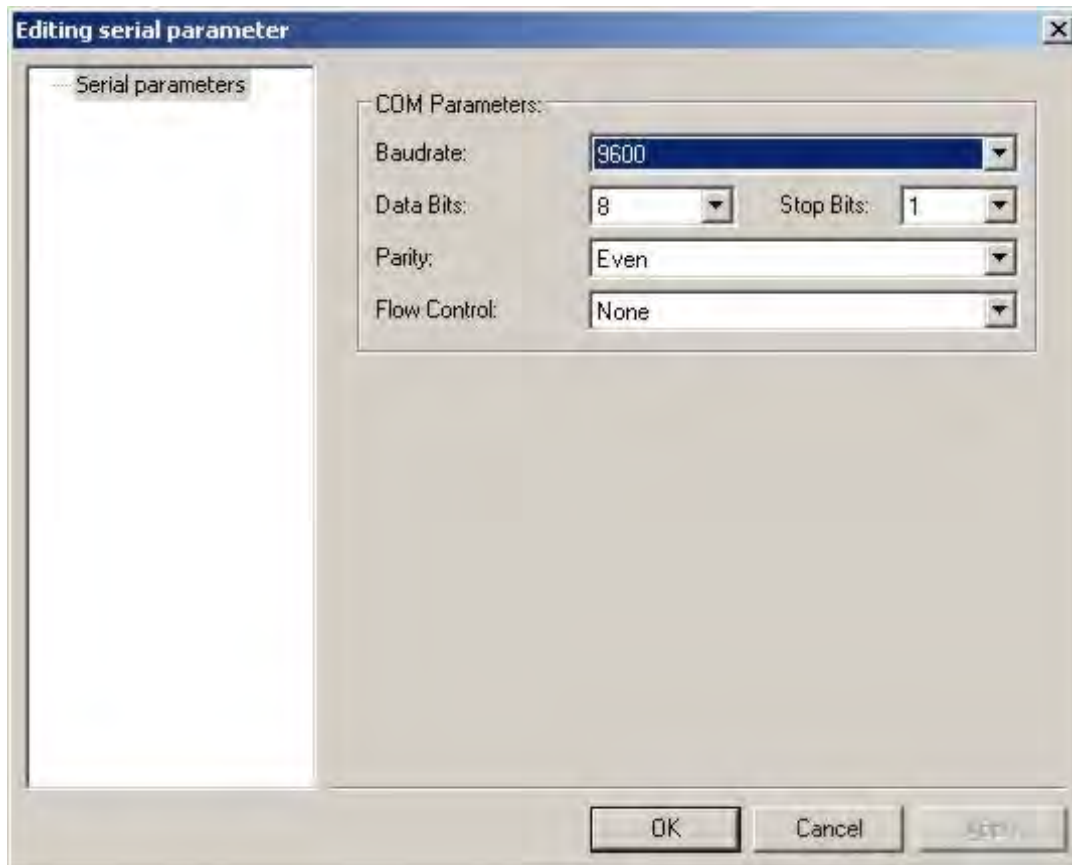


Fig. 7-3 M-BUS communication parameters

Only the baud rate normally has to be adapted here, since Communication Parameters 8,E,1 are standardised.

In the case of reading an M-Bus meter, all the standardised meter values are read out and saved. It is also possible to read out the manufacturer-specific data of an M-Bus data packet. This can be implemented for individual devices according to requirements, provided this information is available.

AMBUS®Gate includes automatic conversion of the M-Bus values to the OBIS index system. As standardisation still does not exist in many areas, the index system has been extended with caution. If standardisation is finally approved in these areas, AMBUS®Gate may accordingly perform a conversion.

AMBUS®Gate has an internal conversion table which adapts the M-Bus indices to the OBIS standard. In individual cases, it can happen that a device issues an M-Bus index which cannot yet be given an equivalent OBIS index by AMBUS®Gate. In such cases, you should contact Aquametro with the particular data, so that an adaptation process may be carried out in AMBUS®Gate.

7.3 Interpretation of LONWORKS® data

AMBUS®Gate contains a LON driver, which is based completely on access to an LNS database. Setting up the physical path is described in Chapter 6.11 This permits AMBUS®Gate to read all types of LON meters, provided they are linked to the LNS database and saved to the AMBUS®Gate device database.

LON meters from other manufacturers may be accepted in the AMBUS®Gate device database, provided standardised network variables have been used.

The following configuration options are available for LON meters:

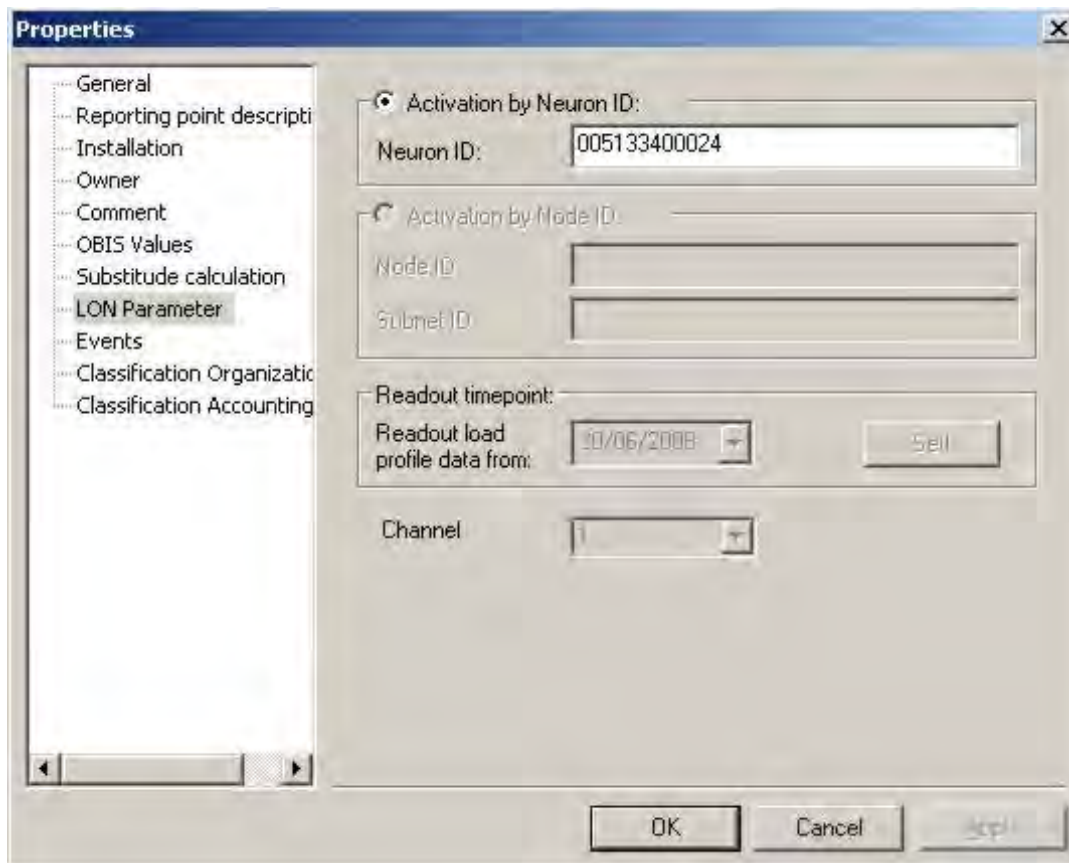


Fig. 7-4 LON-BUS protocol settings

LON parameters

- Control via Neuron ID
LON devices may be addressed by the Neuron ID. The precise notation is important here (lower/upper case).

 - Control via Node ID (*not yet implemented*).
 - Node ID
The Node ID is specified here.

 - Subnet ID
The Subnet ID is specified here.

 - Readout time
AMBUS®Gate automatically saves all the times from the last readout of all the data tables. This means that AMBUS®Gate can intelligently read only the data which have changed since the last reading, such as in the case of load curves. It may sometimes be advisable to read out older data. For this purpose, you choose the start date from which the data are to be read and confirm with "Set!" It is to be noted that the current date is normally always displayed in the date field. Here, it is not possible to come to any conclusions as to when the last reading took place.

 - Channel number
Some LON devices work as multichannel pulse data collectors and copy the meter status or the load curve. Here, the channel number used by the device may be selected. This function is enabled only for the respective devices.
-

7.4 Interpretation of the DSfG data

7.4.1 Basic DSfG principles

The abbreviation “DSfG” stands for “Digitale Schnittstelle für Gasmessgeräte” [Digital Interface for Gas Measurement Equipment] and has been stipulated by the “deutsche Vereinigung des Gas- und Wasserfaches e.V. (DVGW)” [German Association for the Gas and Water Industries] in Work Sheet G485. This standard specifies a master-slave bus system with a maximum of 31 participants. A bus participant acts as busmaster and has standard transmission rights. All the other bus participants initially operate in receive mode.

A normal DSfG-Bus consists of at least three instances:

- the convertor instance
- a register instance and
- the remote transfer unit (DFÜ)

The convertor instance specifies the interval end and creates mean measurement values from one event to the next. The register instance retrieves the meter statuses on an event-oriented basis and saves them in its archive. Using the remote transfer unit instance, these data may be queried, irrespective of the manufacturer.

A DSfG driver is incorporated in AMBUS®Gate and it can read out and process the data from a register instance. Each device is preconfigured in the specifications database. The definition of the register instance, in particular, is saved so that the driver can process the data correctly.

7.4.2 DSfG output stage

The DSfG output stage is an object which is set up on the physical level. It has the primary task of initiating communication with the remote transfer unit.

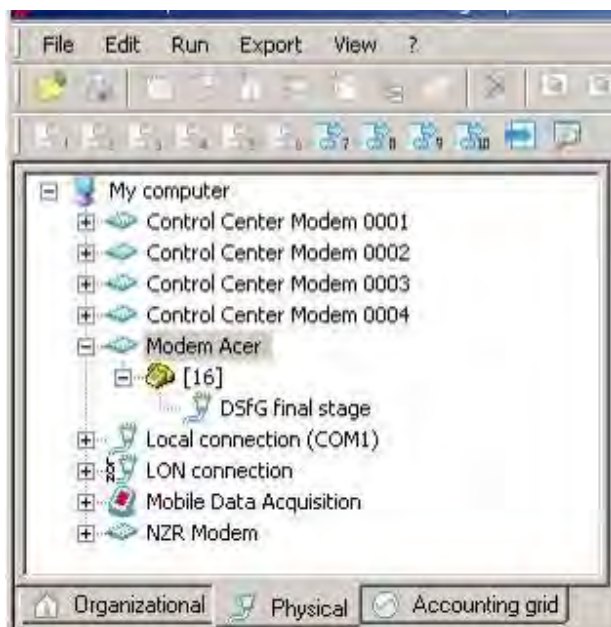


Fig. 7-5 DSfG output stage on the physical level

Select a phone number level on the physical level and then go to “New-> Others->DSfG Output Stage”.



Fig. 7-6 DSfG output stage

Then confirm your selection with OK.



Fig. 7-7 DSfG output stage configuration

In the configuration, the central ID is automatically set to “1111111111111111” (16x1). During the login process, the central ID is sent to the remote transfer unit instance and is evaluated there.

7.4.3 DSfG-Bus scan action

The DSfG-Bus scan action has been introduced to search the DSfG-Bus for participants. All 31 possible addresses are checked in the process. The participants recognised are saved in the event protocol. Then the DSfG devices can be configured accordingly.

Proceed as follows, if you wish to perform a scan action. First select the DSfG output stage in the physical view. Using the right mouse button, open the context menu and then the “Execute-> Others” menu item.

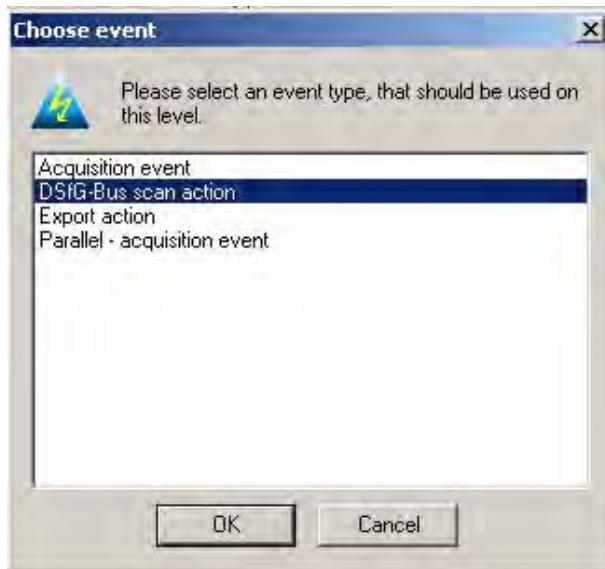


Fig. 7-8 DSfG-Bus scan action

Confirm your selection with OK.

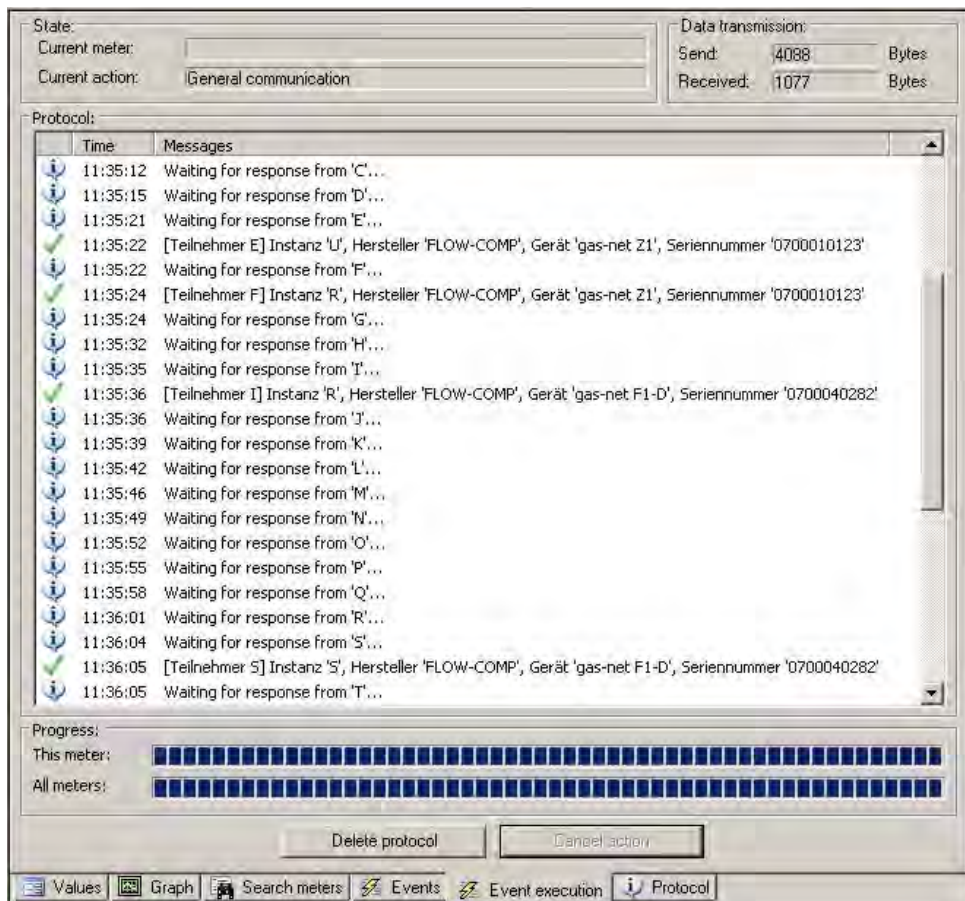


Fig. 7-9 Protocolled DSfG-Bus scan action

The bus address, instance type, manufacturer, device and serial number are produced in the report.

The instance type may be interpreted as follows:

- R (register instance)
- W (manufacturer-specific Wieser instance)
- C (convertor instance)

The result can then be accepted accordingly in the device properties.

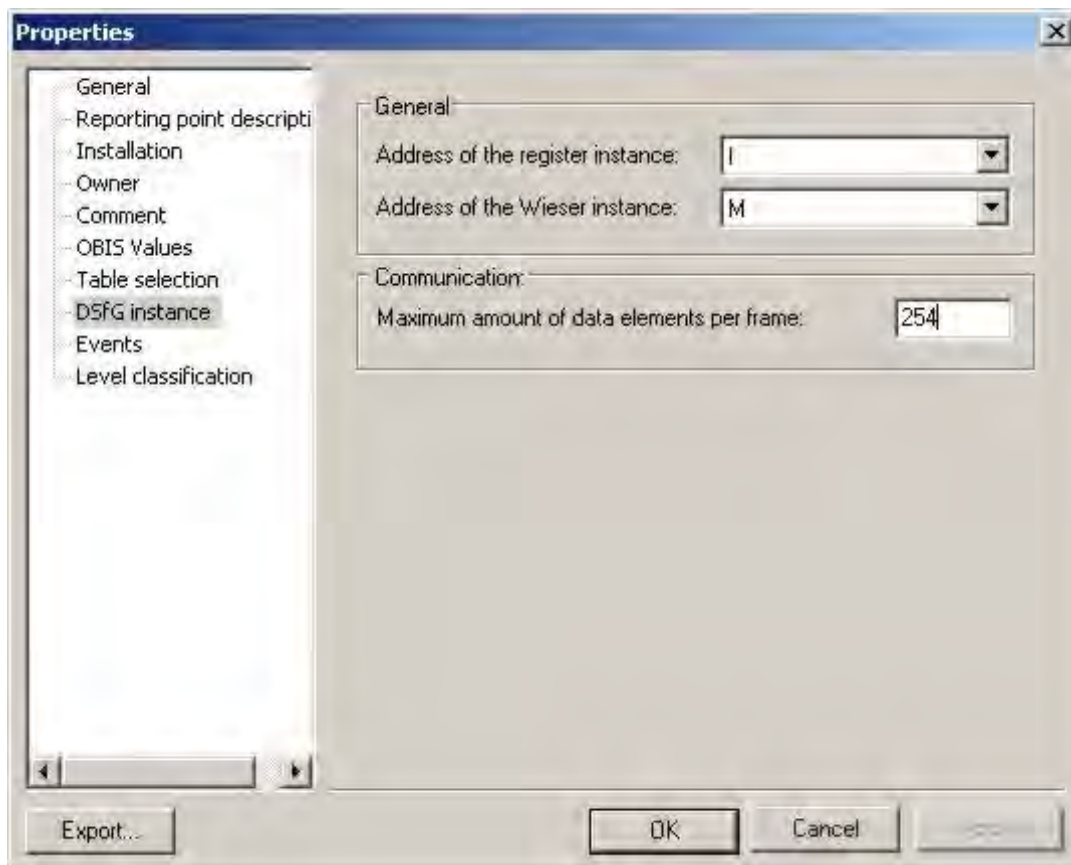


Fig. 7-10 Settings for the DSFG instance

The serial number is entered under “General” in the “Serial number” field:

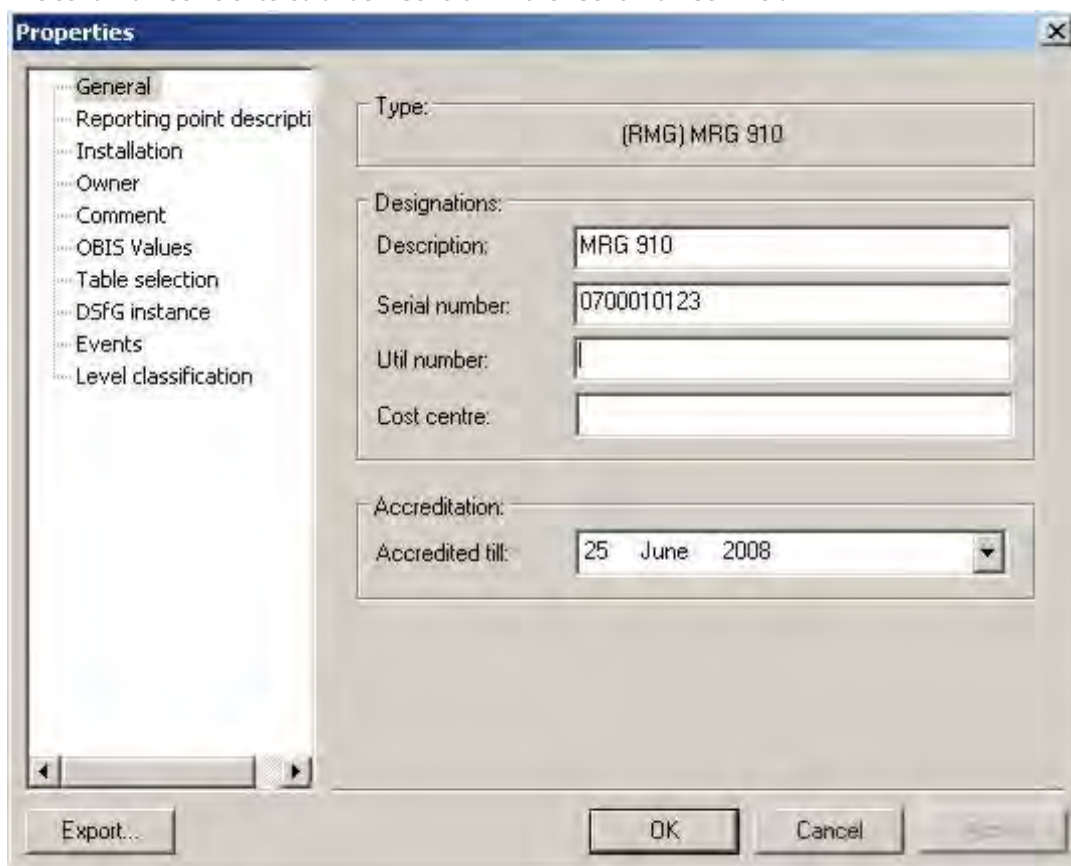


Fig. 7-11 DSFG device serial number

7.4.4 DSfG data query

Querying the DSfG data is the same as for other meters in the AMBUS®Gate system. In the table selection, it is specified which archived data have to be read out, as is the time from which they have to be queried. Data are normally acquired via several pulse inputs.

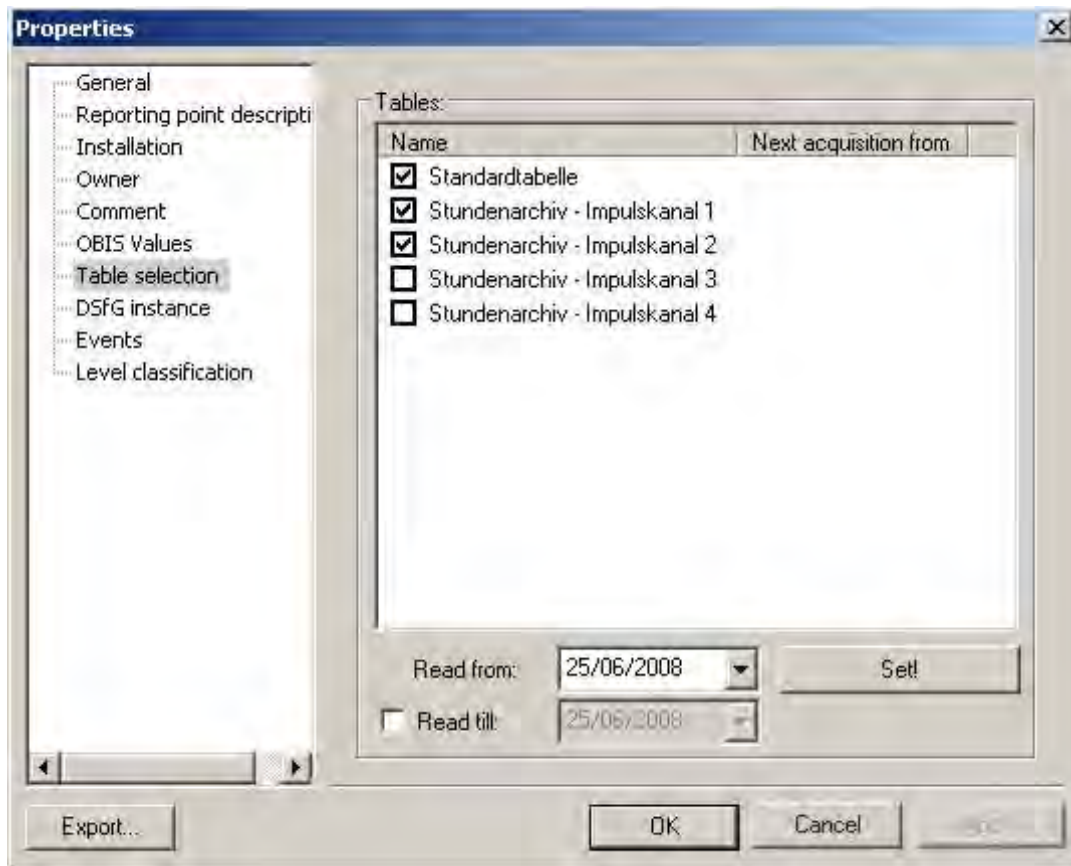


Fig. 7-12 DSfG table selection

In AMBUS®Gate, the archived load curve data are saved as counter statuses at the interval end and also as a genuine load profile. The load profile is calculated from the imported counter statuses.

The standard table supplies the current values which may be queried by the (manufacturer-specific) Wieser instance.

Additional functions

Many of AMBUS®Gate's additional functions such as an automatic data import, configuration of devices, etc., are defined as actions. This architecture allows all the functions to be modularly implemented internally.

Here there are generally-applicable actions which may be performed at any level and actions which may be performed only at specific devices. An example of a general action is a readout action or the M-Bus database import and an example of a device-specific action is the parameterisation action in Dr Neuhaus modems.

In addition to data acquisition, data export is a main component of AMBUS®Gate software. The data export function is provided for many formats, such as Microsoft Excel, VDEW MSCONS or also a line-based ASCII format. These exports may be individually configured by the user.

7.5 Raw data import

AMBUS®Gate offers the possibility of importing read-out raw data from meters at a later stage. This can, for example, be used to import already-read files from EMH's ZKP program to the AMBUS®Gate system. Another application is importing an MDE data logger readout file, for interpreting an individual radio meter from the file.

With a raw data import, AMBUS®Gate interprets the data as if they had been read out directly from the meter. For this purpose, the meter type must, of course, be recognised and incorporated in AMBUS®Gate. Furthermore, under certain circumstances, the original table must be chosen in the case of importing IEC1107 electricity meter data, as the date formats and time bases are different for many meter types. To import data for a meter, select the meter and choose *Execute/Import raw data...*

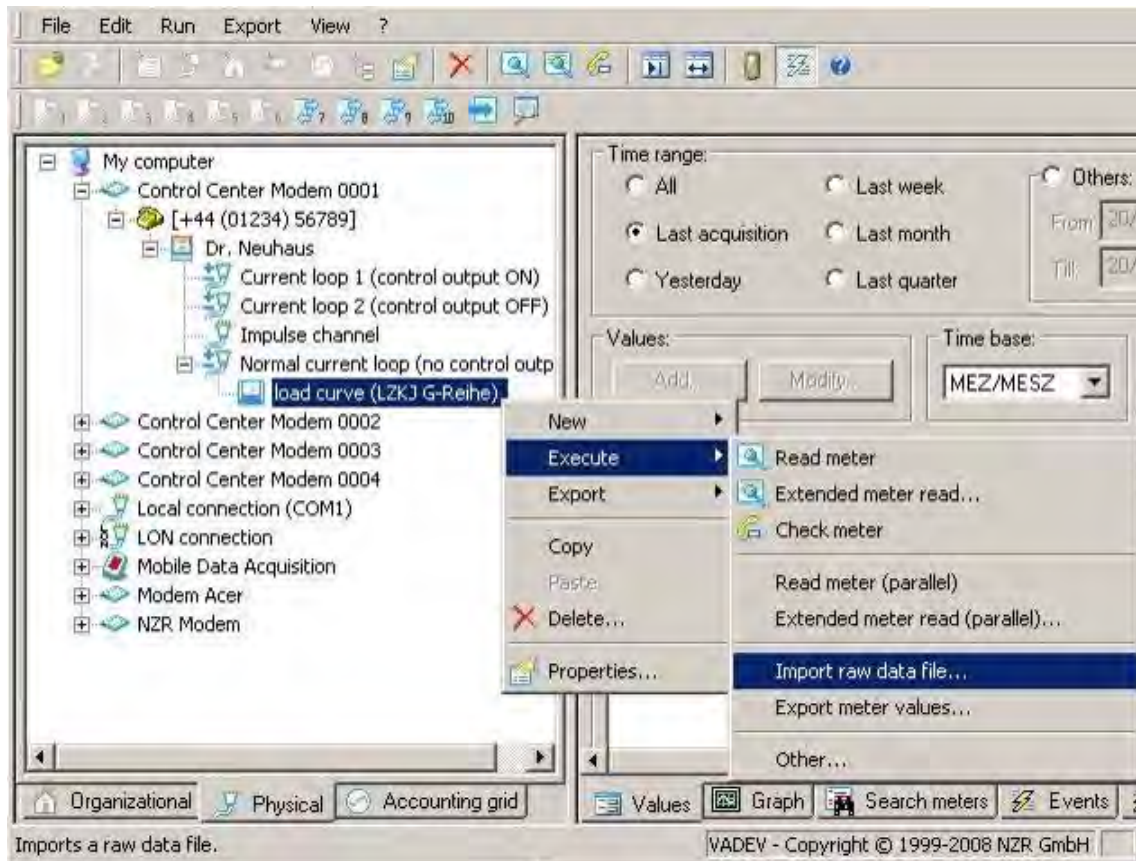


Fig. 7-13 Import raw data file

Then a selection window appears, in which the file to be loaded and the corresponding table must be selected:

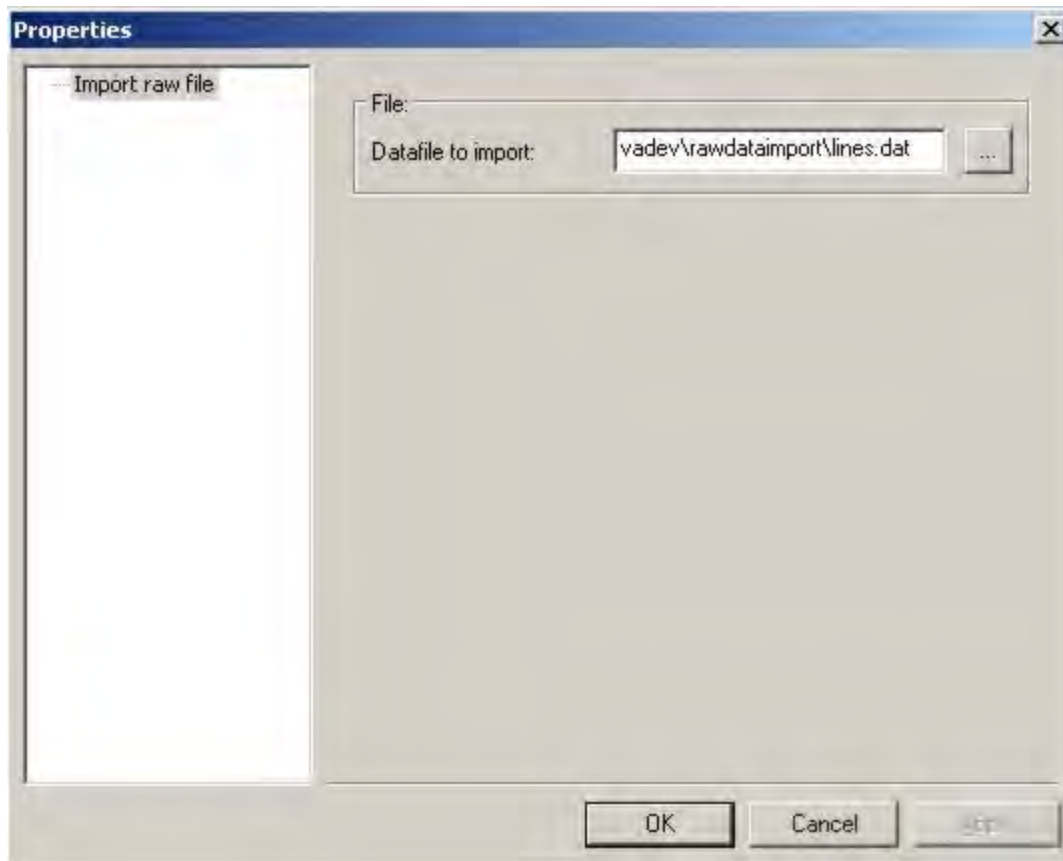


Fig. 7-14 Import raw data

After confirmation, AMBUS®Gate performs an import. Please note the following:

The user must take care to correctly allocate the file to a meter, as data which are not supposed to be allocated to this meter at all could otherwise also be imported to a meter..

Since AMBUS®Gate performs a normal interpretation of the readout data, the meter's serial number is also checked, in the case of IEC 1107 meters. If an attempt should be made to import raw data from other meters, this fails if the "Check serial number" option in IEC1107 Protocol is chosen in the meter properties. It is, therefore, advantageous to choose this option for the interpretation of raw data, in order to prevent incorrect allocations.

7.6 Substitute value creation

There is the possibility of enabling substitute value creation for M-BUS and LONWORKS data. This AMBUS®Gate functionality is not supported for IEC 1107 meters, as these devices have a data recorder which, in the case of current non-accessibility, can be read at any later time.

Substitute Value Creation must be specifically enabled in the meter properties in AMBUS®Gate. For that purpose, the Substitute Value Creation dialogue must be chosen in the meter properties

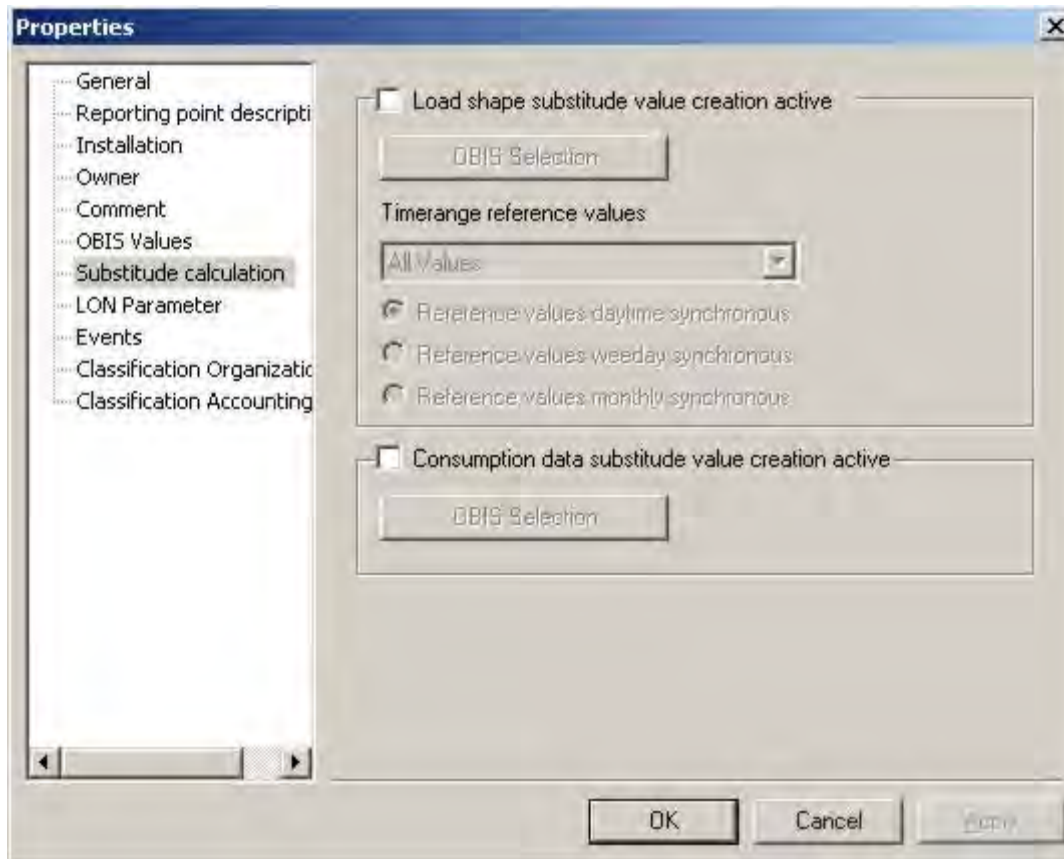


Fig. 7-15 Substitute value creation in general

Substitute value creation may be enabled for two applications:

- Substitute value creation load curves active

The following options are conceivable for substitute value creation of load curves:

- OBIS selection
The OBIS values for which the substitute value creation for load curves must be executed must be chosen here.
- Period
 - All values Substitute value creation by all the values available in the database
 - This year Substitute value creation by all the values from this current year
 - Yesterday Substitute value creation by the previous day's values
 - Last week Substitute value creation by the previous week's values
 - Last month Substitute value creation by the previous month's values
 - Last year Substitute value creation by the previous year's values
 - Last quarter Substitute value creation by the previous quarter's values
- Daytime synchronous reference values
The substitute value creation is synchronised to the daytime of the value to be created. This means that, for substitute value creation, the only values used are those which have a time stamp within the period of the value to be created
- Weekday synchronous reference values
The substitute value creation is synchronised to the weekday of the value to be created. This means that, for substitute value creation, the only values used are those which have a time stamp within the period of, and on the same weekday as, the value to be created.
- Monthly synchronous reference values
The substitute value creation is synchronised to the month of the value to be created. This means that, for substitute value creation, the only values used are those which have a time stamp within the period of, and on the same weekday and in the same month as, the value to be created.

Attention: Substitute value creation can only be successfully executed with the precondition that data also exist in the AMBUS®Gate database for the chosen period. Care must be taken to ensure that substitute value creation is parameterised accordingly.

- Substitute value creation consumption data active
 - OBIS selection
The OBIS values for which the substitute value creation for consumption data must be executed must be chosen here.

A substitute value creation process for consumption data creates a substitute value in AMBUS®Gate for the estimated meter progress in a measurement period in which the meter could not be accessed.

The substitute value creation process in AMBUS®Gate is initiated at the moment in which the current meter for reading, with substitute value creation enabled, appears with the error message "Meter could not be prepared for reading" or "Meter could not be read". In this case the substitute value creation process is enabled instead of a readout and a substitute value is created.

8 Remediating faults

By reason of its intelligent architecture, AMBUS®Gate provides only a small number of configuration options. This means that faults in configuration are largely prevented.

It is unfortunately possible, however, to parameterise many parameters incorrectly, such as baud rate, bus address or modem parameters and thus prevent successful meter reading. In the enclosures, some information and tips are mentioned which have contributed to remedying faults in practice:

8.1 *Modem – readout via phone system*

Modem faults are the most frequent problems in the installation of a remote meter reading system. An internal, widely ramified phone system is often used for reading meters. Phone systems have their own configuration facilities which have largely to be set precisely in accordance with the requirements of a modem operation. The following settings should be performed in the phone system:

Ring pattern: The ring pattern for internal and external calls is often different. With internal rings, many modems do not answer, as the programming for modems is designed for a standard ring.

Dialling tone: Telephone systems often provide another dialling tone from the standard one, which many modems interpret as the engaged tone.

Poor connection: With many telephone systems, the internal calls are set up with an incorporated delay. The modems then have no way of setting up a proper carrier.

Call waiting tone Many phone systems provide the possibility of modulating upon a call waiting tone, which emits a high audio signal, if external calls come in. With active modem communication, this immediately results in termination, as the modem carrier is disturbed.

All these problems mentioned must be remedied by configuring the telephone system and cannot be solved by AMBUS®Gate, irrespective of possibilities of switching to GSM, etc.

8.2 *Adjustment faults with modems*

With intelligent modems which have their own AMBUS®Gate driver, AMBUS®Gate emits direct error messages which indicate the cause of the fault. In many cases it is faulty recognition in the Dr Neuhaus modem or wrong password settings. These faults must be remedied directly by the end-user.

8.3 Other communication problems

The following flowcharts have been produced for the individual bus systems, to make troubleshooting easier.

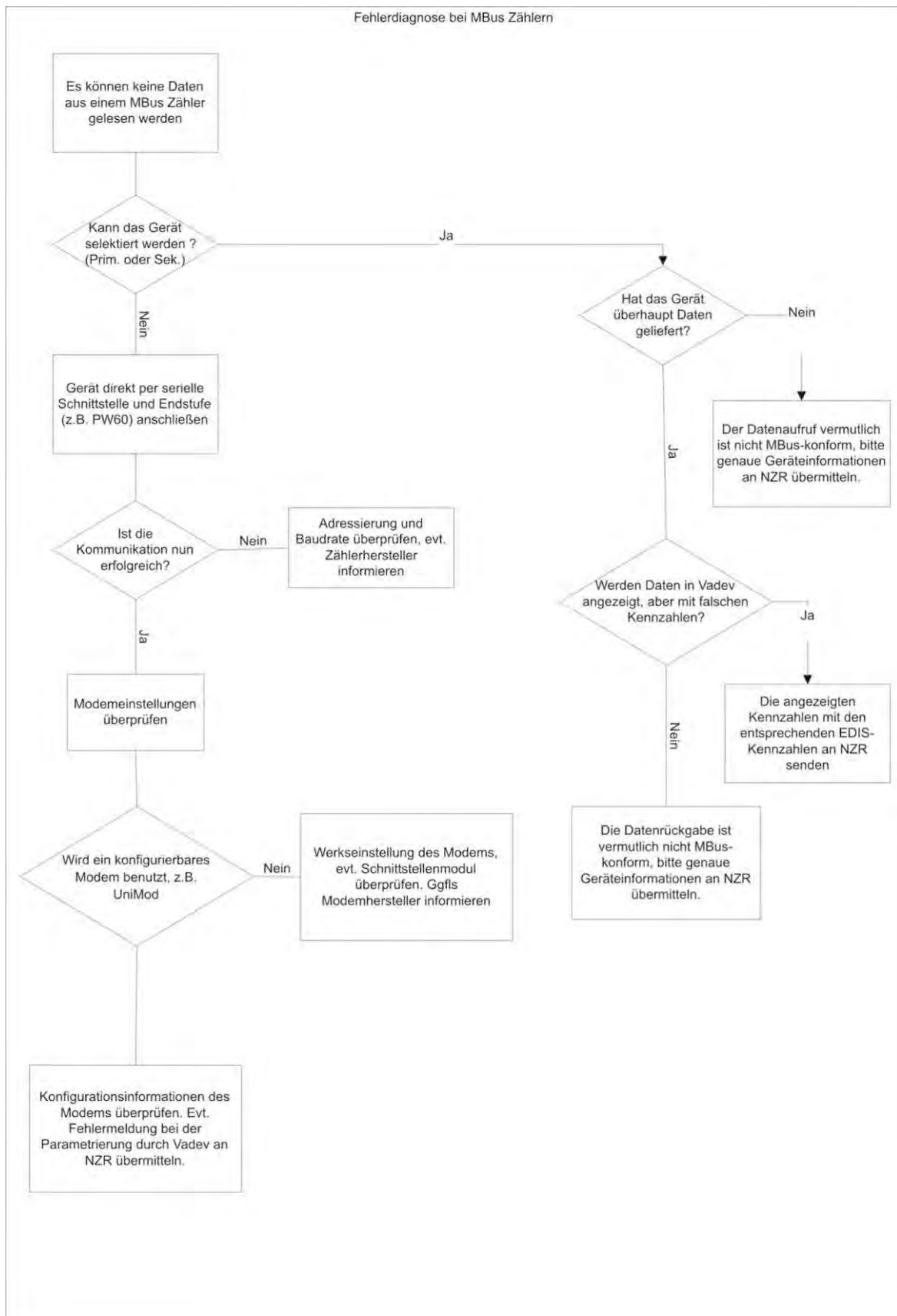


Fig. 8-1 M-BUS faults analysis

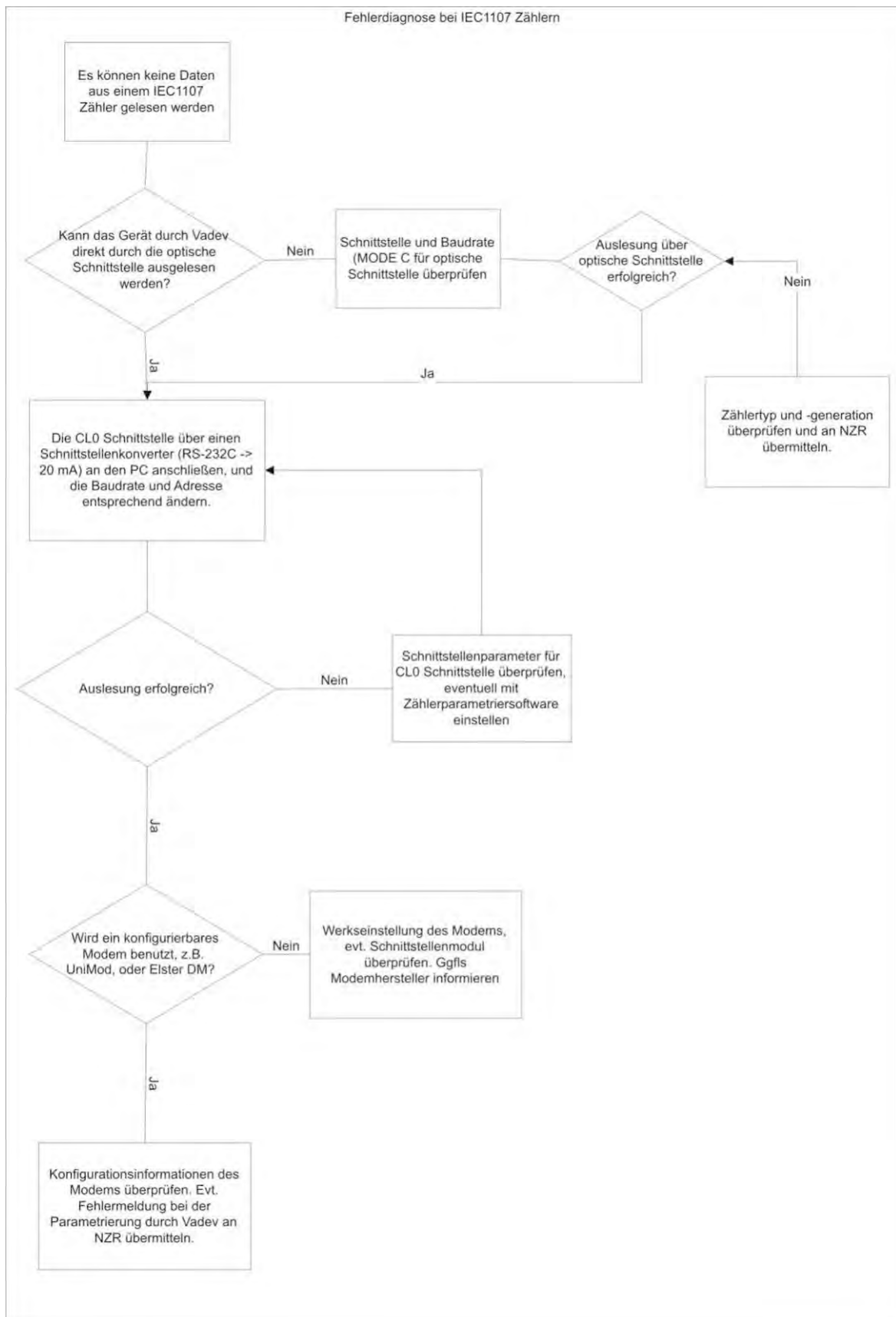


Fig. 8-2 IEC1107 meter faults analysis

8.4 *Interpretation errors*

As all the meters are preconfigured in AMBUS®Gate, they have received the necessary adjustments and been tested, faults in data interpretation cannot normally occur.

If AMBUS®Gate reports faults, especially with IEC1107 meters, this is mainly attributable to different device generations and firmware versions of the meters. Thus, EMH meters, for example, use different dates in different device generations. These are preconfigured in AMBUS®Gate with the result that the end user has normally selected a wrong meter type. In individual cases, another similar device type should be configured and tested in AMBUS®Gate, in order to identify the real device type more precisely. If, however, error messages should still be reported during the data interpretation, it is recommended that they be sent to MZR with precise details on meter types, the error messages and AMBUS®Gate's configuration database.

9 User reference

9.1 Menu items

The following menu items may be selected in AMBUS®Gate. The corresponding icon is noted in brackets on the button bar:

9.1.1 Menu: file

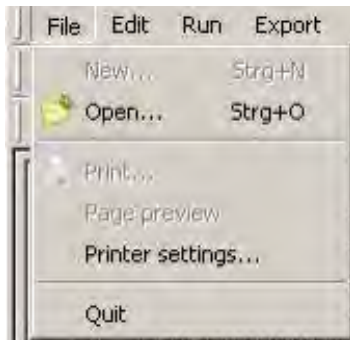




Fig. 9-1 Menu file

- Open...() Opens an existing AMBUS®Gate. (Only for Technical Support)
- Print...() Starts to print out the currently selected screen
- Printer setup: Sets up the print options
- Quit: Quits AMBUS®Gate

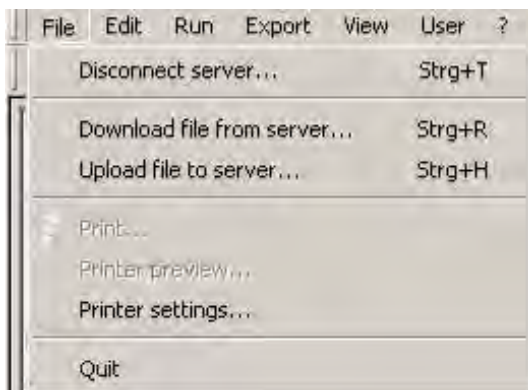


Fig. 9-2 Menu file (Client/server version)

- Cut server connection
Cuts the connection to the AMBUS®Gate server.

- Download file from server
 Transfers a file from the server to the client computer. Proceed as follows if you would like to download a file. Firstly select the file on the server. In the selection window, the computer name, for example, "AMBUS®Gate-SERVICE" is displayed as information (see chapter 14 Basic configuration)

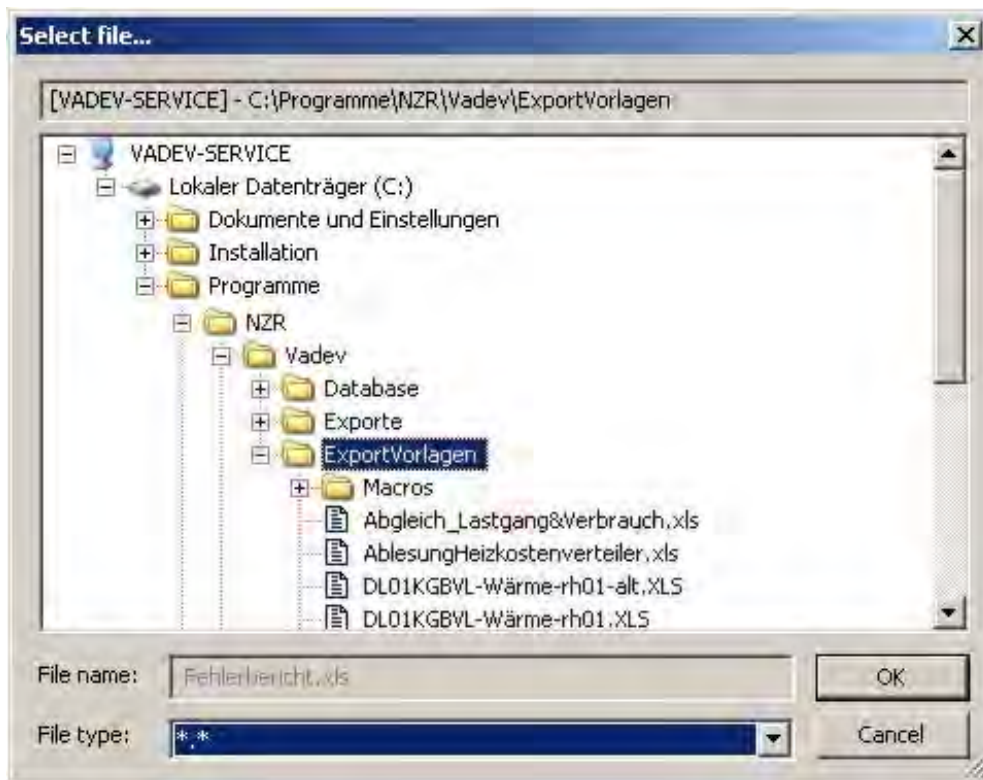


Fig. 9-3 Download file from server - selection window

After you have confirmed your selection with "OK", a window appears for inputting the target directory on the local computer. Click on "Save" to start the transfer.

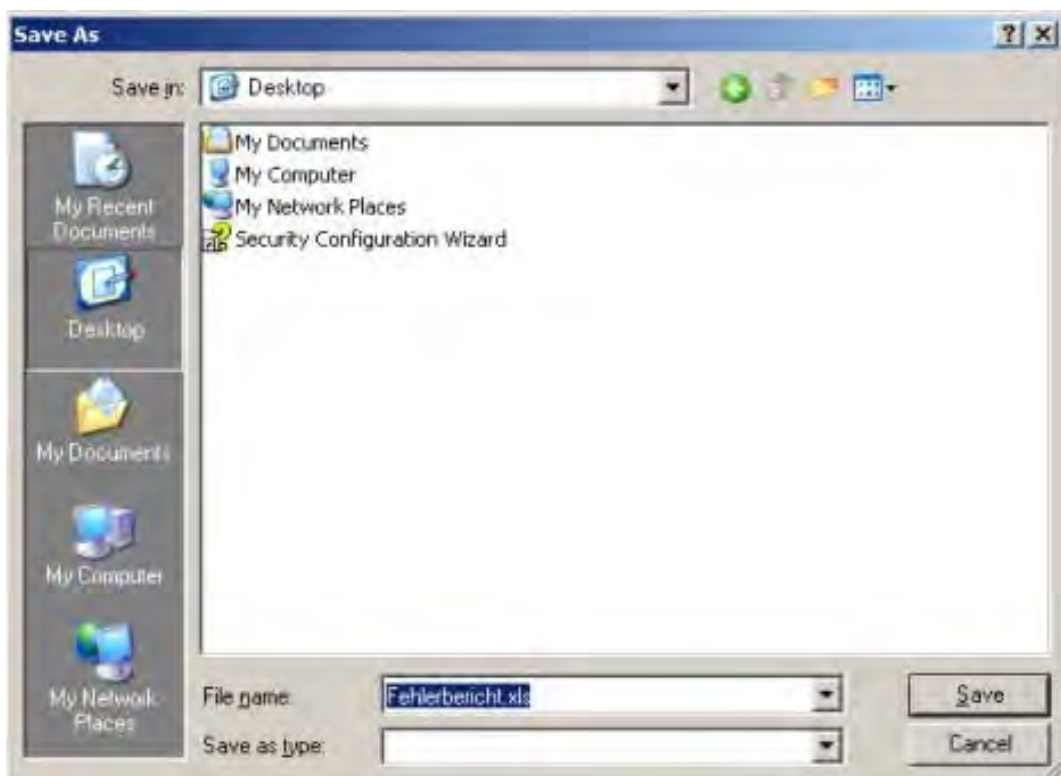


Fig. 9-4 Download file from server – specify target directory and file

- Upload file to server
Transfers a file from the local computer to the AMBUS®Gate server computer. The procedure is similar to downloading a file. First of all, you select a file on the local computer and then specify the target file on the AMBUS®Gate server computer.

9.1.2 Menu: edit

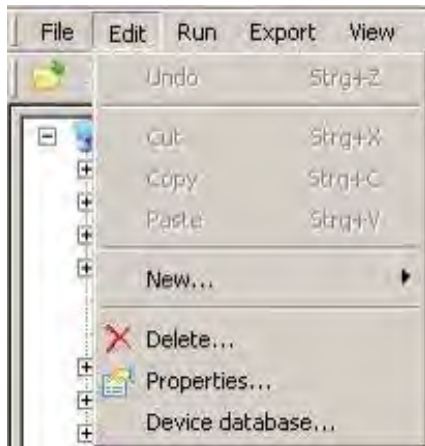






Fig. 9-5 Edit menu




- New...: Sets up a new meter or level (see below)
- Delete...: () deletes a meter or a level.
- Properties: () Edits the currently selected meter or level.
- Device database: Licence-protected option. Editing the device database is possible by activating this entry

9.1.3 Menu: Edit, new ...



Fig. 9-6 Edit new menu...

- Meter...: () Opens a new meter under the currently selected level.
- COM port: () Opens a new COM port under the currently selected level.
Creates a new network connection (TCP/IP).
- Ethernet:

- Modem...: () Sets up a new control modem or modem route.
- Phone number: Sets up a new phone number under a modem level.
- House/Block: () Sets up a new organisational level.
- Others: () Sets up another object, e.g. meter modem or output stage.

9.1.4 Menu: execute

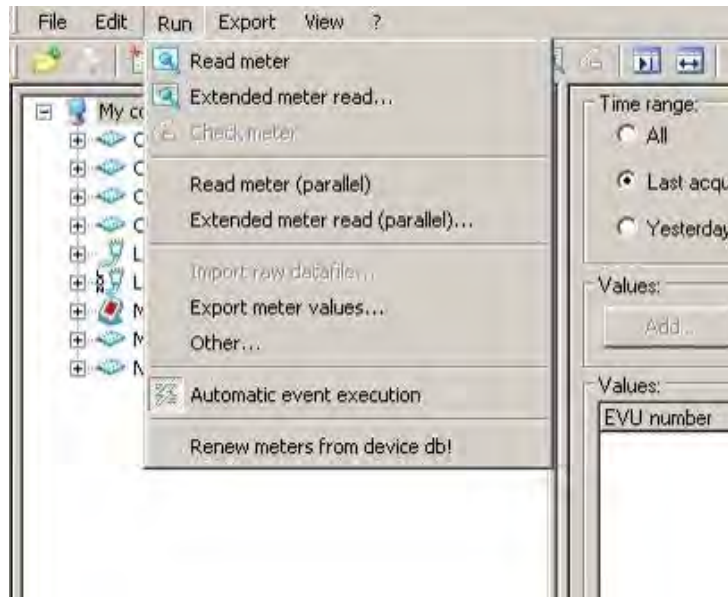






Fig. 9-7 Execute menu

- Read meters: () Reads the currently selected meter or all the meters on the current level and writes the values to the database.
- Read meters extended...: () Asks the user about the data tables to be read and attempts to read out these lists from the currently selected meters or all the meters on the current level and writes these values to the database.
- Check meters: () Performs a test readout on the selected meter without writing the values read to the database.
- Read meters (simultaneously): Reads the currently selected meters or all the meters on the current level and writes the values to the database. A simultaneous reading is performed if several modems are connected.
- Read meters (simultaneously) extended...: Asks the user about the data tables to be read and attempts to read out these lists from the currently selected meters or all the meters on the current level and writes these values to the database. A simultaneous reading is performed if several modems are connected.
- Import raw data file: Imports raw data file for the currently selected meter and opens the values interpreted from this file in the database. (see chapter 9.2 Raw Data Import)
- Export meter values: Exports the values of the selected meter according to an export profile selected in the following dialogue.

- Others...:
Displays a list of other actions which may be performed on the currently selected meter or level.
- Perform actions automatically ()
Indicates whether actions are currently being automatically performed or not. If AMBUS®Gate is being configured, it is sometimes advisable to switch off the actions.
- Renew meters from database
Performs an update of all the configured meters with the device database. Only advisable in connection with updates for Technical Support.

9.1.5 Menu: export

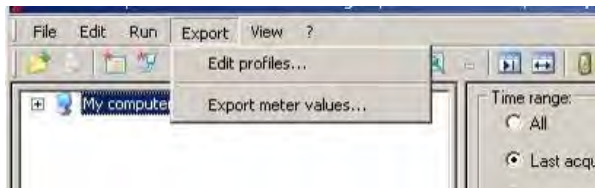


Fig. 9-8 Export menu

- Edit profile...:
Permits creation and editing of export profiles.
- Export meter values...:
Performs an export by means of an existing export profile.

9.1.6 Menu: view

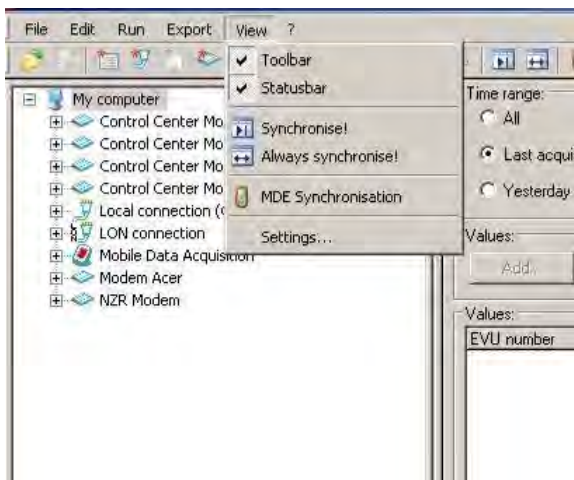





Fig. 9-9 View menu

- Button bar:
Shows or hides the icon or button bar
- Status bar:
Shows or hides the status bar at the bottom of the screen.
- Synchronise: ()
Executes a one-off synchronisation on both the screen halves.
- Always synchronise: ()
- Always switches on synchronisation for both the screen halves.
- MDE synchronisation: ()
Shows or hides the status bar at the bottom of the screen.

- Settings
When the “Set view” item is selected, the following dialogue appears:

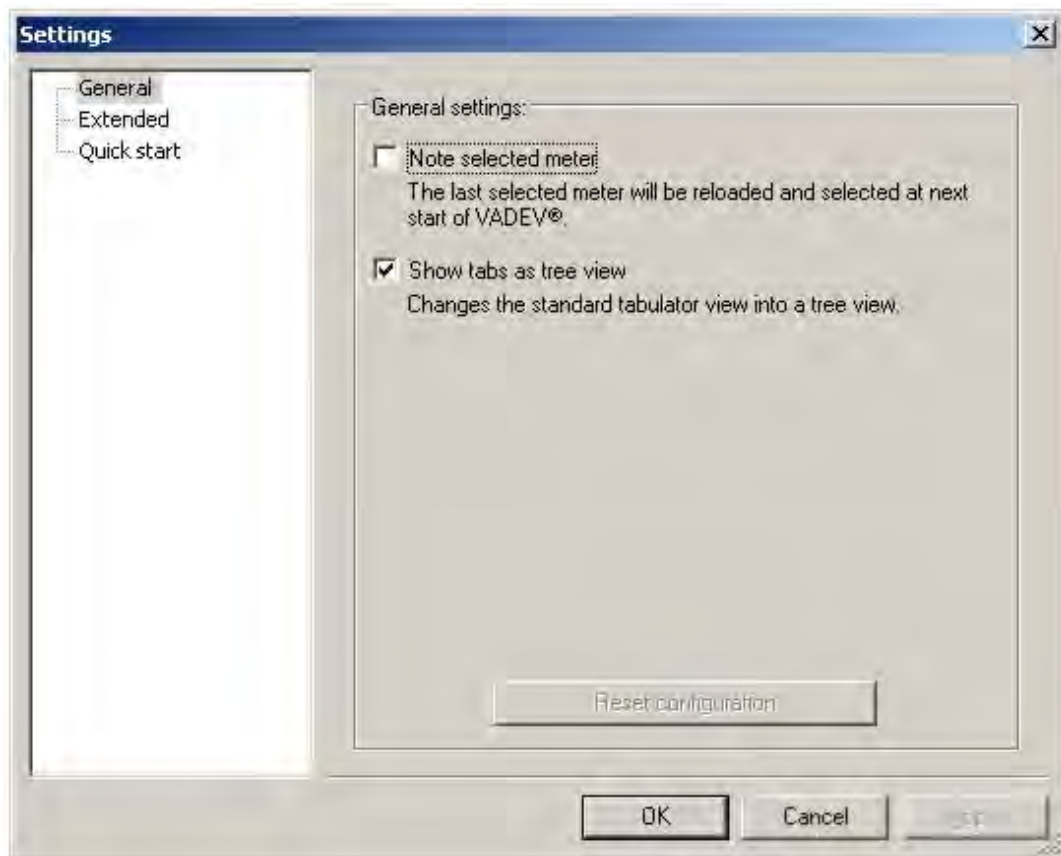


Fig. 9-10 User settings -general

User-defined settings

In this item, the user has several selection possibilities which should be explained here in greater detail:

- Save selected OBIS indices
The OBIS indices, which are set in the values view before AMBUS®Gate closes, are also set when it opens again.
- Save table column width
The set table column width in the Values or Protocol view is retained in AMBUS®Gate during closing and reopening.
- Note selected meters
The meter selected while AMBUS®Gate is closing is also selected when it opens again.
- Show tabs as tree view
Changes the usual tab view of the properties dialogue to a view in tree structure.

Extended settings:

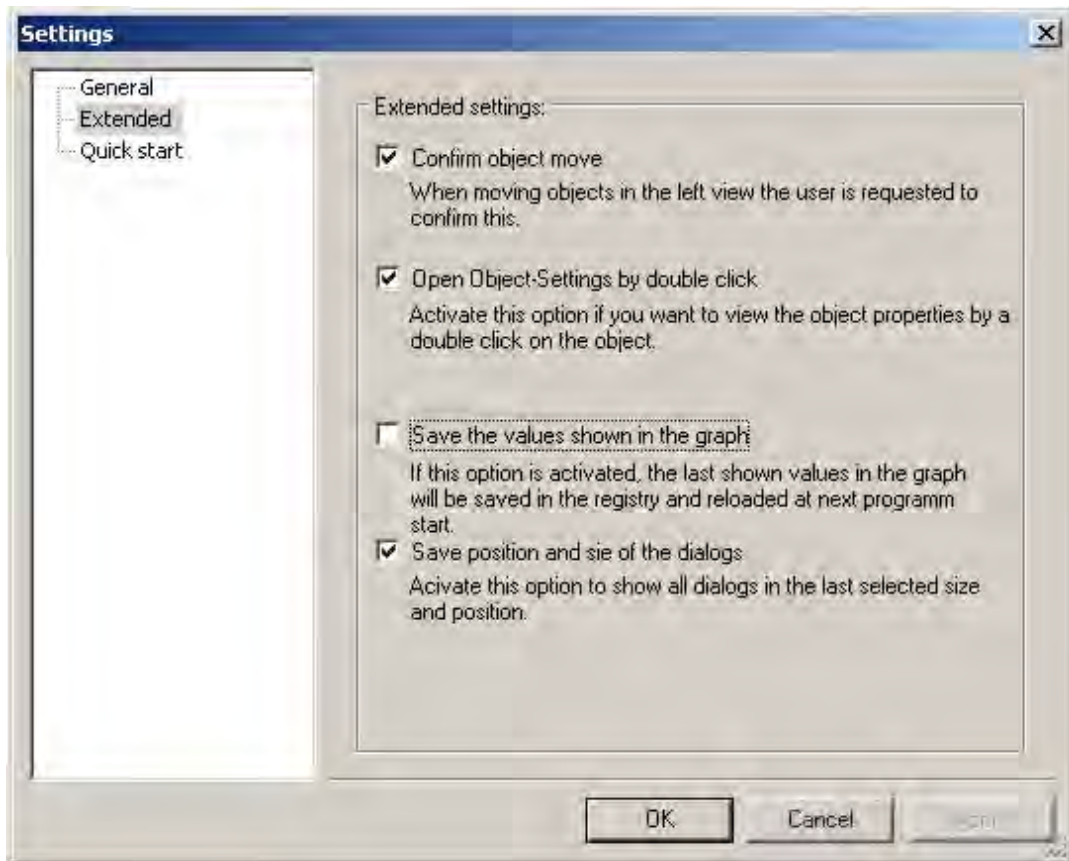


Fig. 9-11 User settings - extended

- Confirm objects move
If objects are moved in the left half of the view, the user is requested to confirm.
- Open object properties by double clicking
If enabled, the object properties are displayed by double-clicking on objects in the left half of the view.
- Saving the values displayed in the graph
If enabled, the graphs for the values last shown are displayed the next time the graph is opened.

Quick start bar:

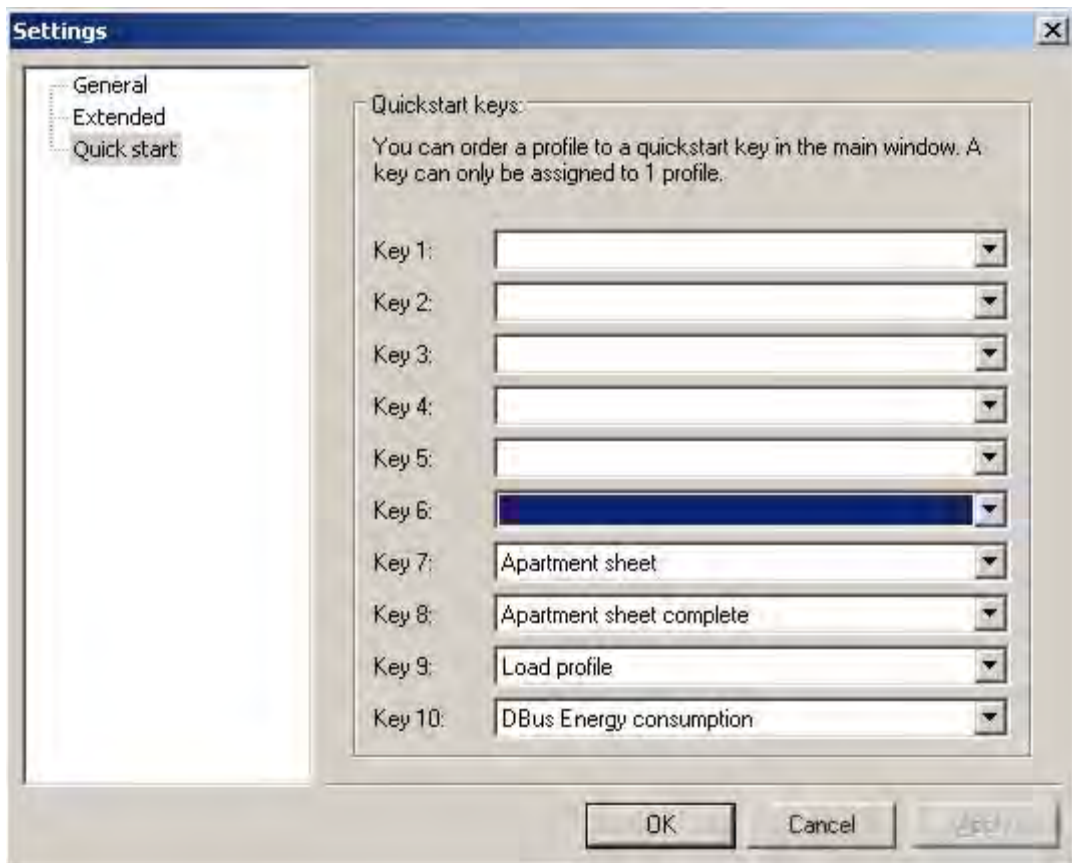


Fig. 9-12 User settings - quick start bar

The quick start bar can be configured to user specifications. A maximum of 10 keys is available. A maximum of one export file may be allocated to each key.

9.1.7 Menu: user (only client/server version)



Fig. 9-13 User menu

- Info
Displays user information.
- Administration
Opens the user administration (for administrators only)

9.1.8 Menu: help

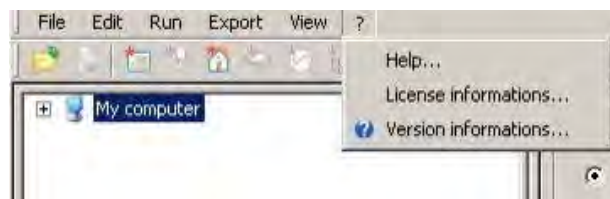


Fig. 9-14 Help menu

- Help
When this option is chosen, this manual is opened as a Windows helpfile.
- Licence information
This menu displays information on the licensed functions.
- Info on AMBUS®Gate...
This menu displays information on the AMBUS®Gate version.

10 Licensing options

The various AMBUS®Gate licensing options make possible both a low-cost start and excellent expansion capabilities for monitoring large meter systems. That is why AMBUS®Gate turns out to be a sound investment for the future which grows with your needs.

In order to preserve these capabilities, the individual modules, protocols and drivers are licensed in AMBUS®Gate individually or in packets.

You can have the currently-licensed options displayed, by having the version window displayed in *Help menu/ Licence information...* and choosing the *Licence information...* option. The following window is displayed:

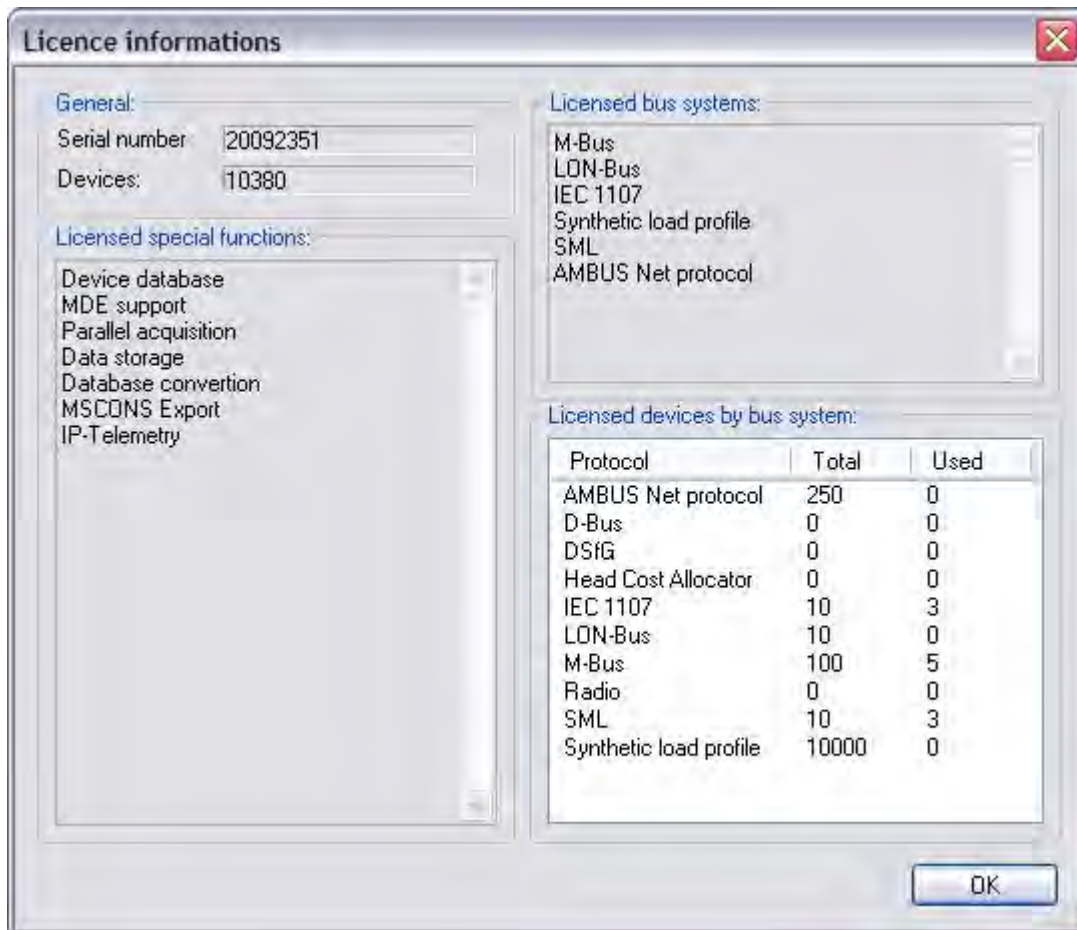


Fig. 10-1 Licence information

Here the maximal number of licensed meters, the special functions and the bus systems are displayed.

For further questions on licensing or for extending your licensed functions, please contact Aquametro.

11 Extensions

11.1 VV2 support

AMBUS®Gate contains support for the Verbände-Vereinbarung 2 (VV2) [Associations' Agreement 2], available as an option. Here AMBUS®Gate provides convenient configuration of the individual functions. By combining a new level and special actions, AMBUS®Gate can be directly extended to a system for forwarding meter information.

The individual characteristics of the VV2 support are explained below.

11.1.1 Budget level

When VV2 support is selected, AMBUS®Gate has another level, the budget level, at its disposal:

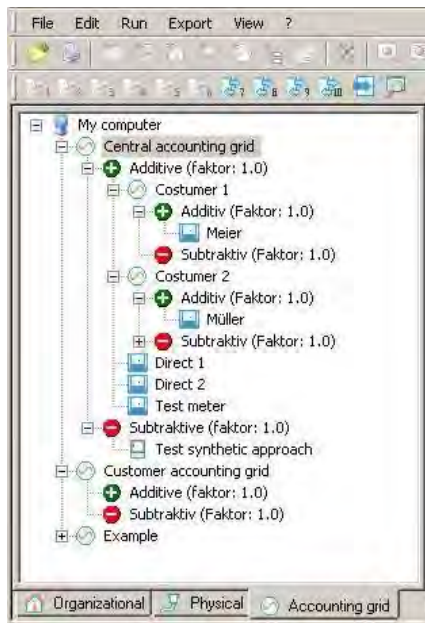


Fig. 11-1 Accounting grid

All the meters can be allocated to budget levels, irrespective of their organisational and physical sequence, so that the structures created there will not have to be changed because of access permission problems.

Here, a budget level in AMBUS®Gate accepts the following functions:

- Representation of an accounting grid
- Representation of sub-accounting grids
- Representation of meter points in accordance with VV2

At least two sub-levels, additive and subtractive, form part of a budget level. These levels decide whether a meter is added or subtracted to a budget level. Here, subtraction is intended for the analytical load curve process.

Budget surpluses may, of course, be sub-levels of other levels and in this respect a nested structure can be attained. AMBUS®Gate does not contain any restrictions on the number of nested levels.

Create budget level:

In order to create a new budget level, proceed as follows:

The particular superior level must be selected. With *Edit/New...* the accounting grid must be selected.

The following dialogue appears:

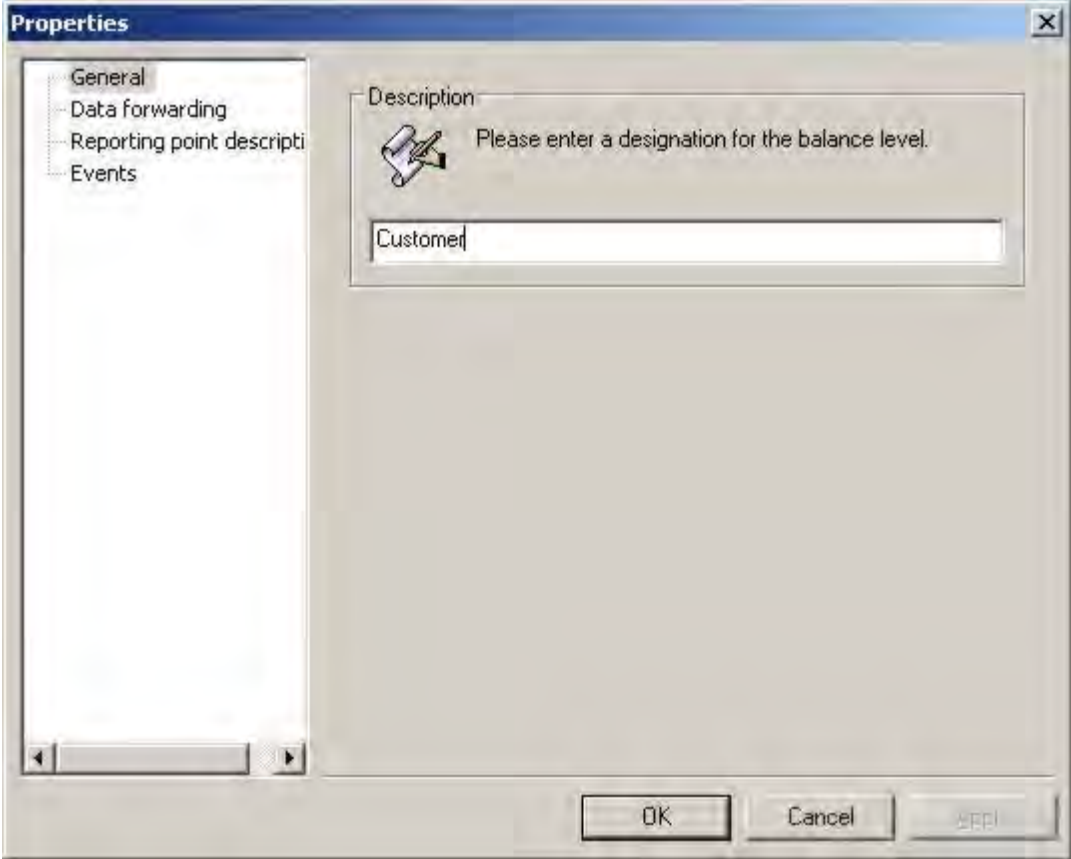


Fig. 11-2 General budget level

General

A user definable name for the level is entered here.

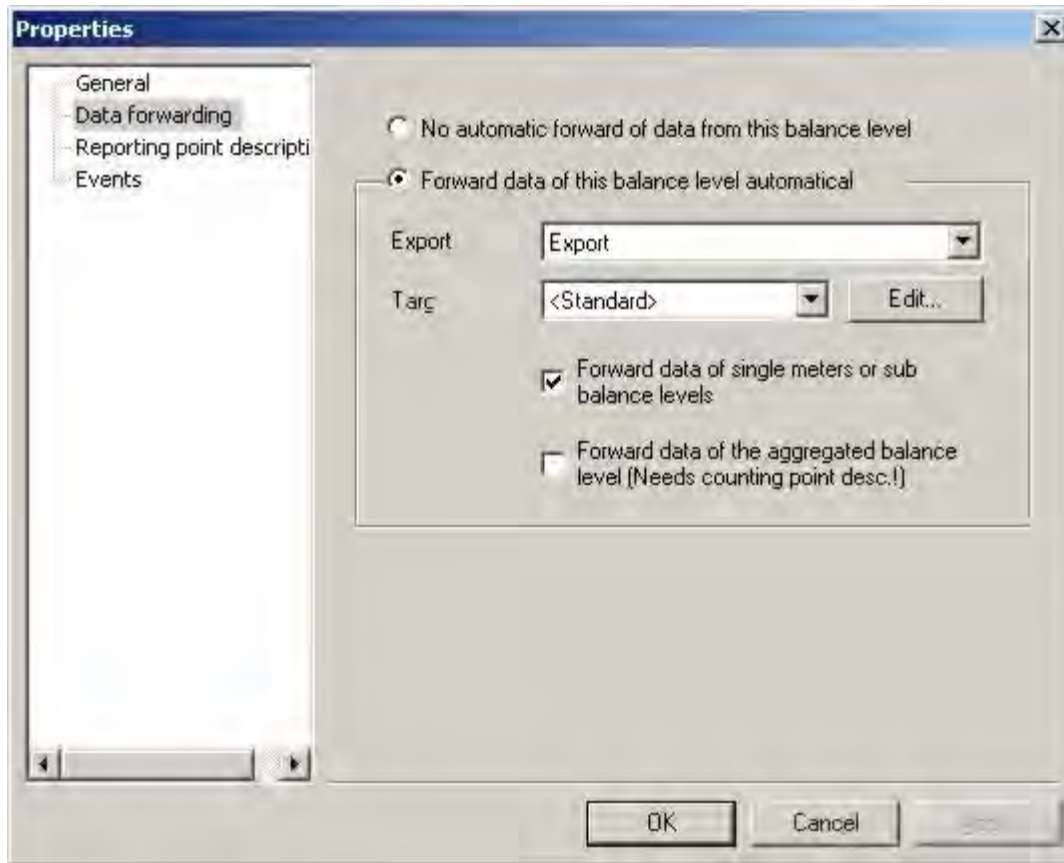


Fig. 11-3 Budget level data forwarding

Data forwarding

If the aggregated data on the budget level are to be automatically exported and forwarded, this selection may be made here.

- *Export profile*
 An already-existing export profile for export may be selected here. It must be noted that its own export format must be chosen for each budget level, i.e. different formats may be supported in access scenarios by suppliers and dealers. With the export profile, only the first values table is described.
Note: For creating an export profile for data forwarding, there should only be one values table and this load curve should be suitably configured, i.e. only one time stamp per measurement value, standardised time axis and 15 minutes of data collection (see description for NNM Export/EDIFACT Export).
- *Target*
 Allows for forwarding of the export data files to a target only applicable valid for this budget level. A uniform export profile can thus be chosen for several budget levels with the data being forwarded individually. Here it is possible, for example, to transmit automatically via FTP or email.

Note: If an Excel export file is selected, an Excel file is generated by AMBUS®Gate, as standard procedure. The latter, of course, can also be sent by FTP, if *FTP data transmission* is selected as the target. For a description of the individual targets, please look up the description of the ASCII export.

- Forward data of individual meters or sub-budget levels.
 If selected, the individual meters belonging to a level are also accepted in the export. This should be chosen, for example, in the case of forwarding to a supplier. In the case of use as a virtual meter point, this option should be switched off.
- Forward data for the aggregated budget level.
 If chosen, the aggregated budget level is forwarded, i.e. the addition and subtraction of the individual meters which form part of it. In order to identify the budget level in the export, a meter point designation must be added. This option should be chosen as a virtual meter point when, for example, the budget level is used.

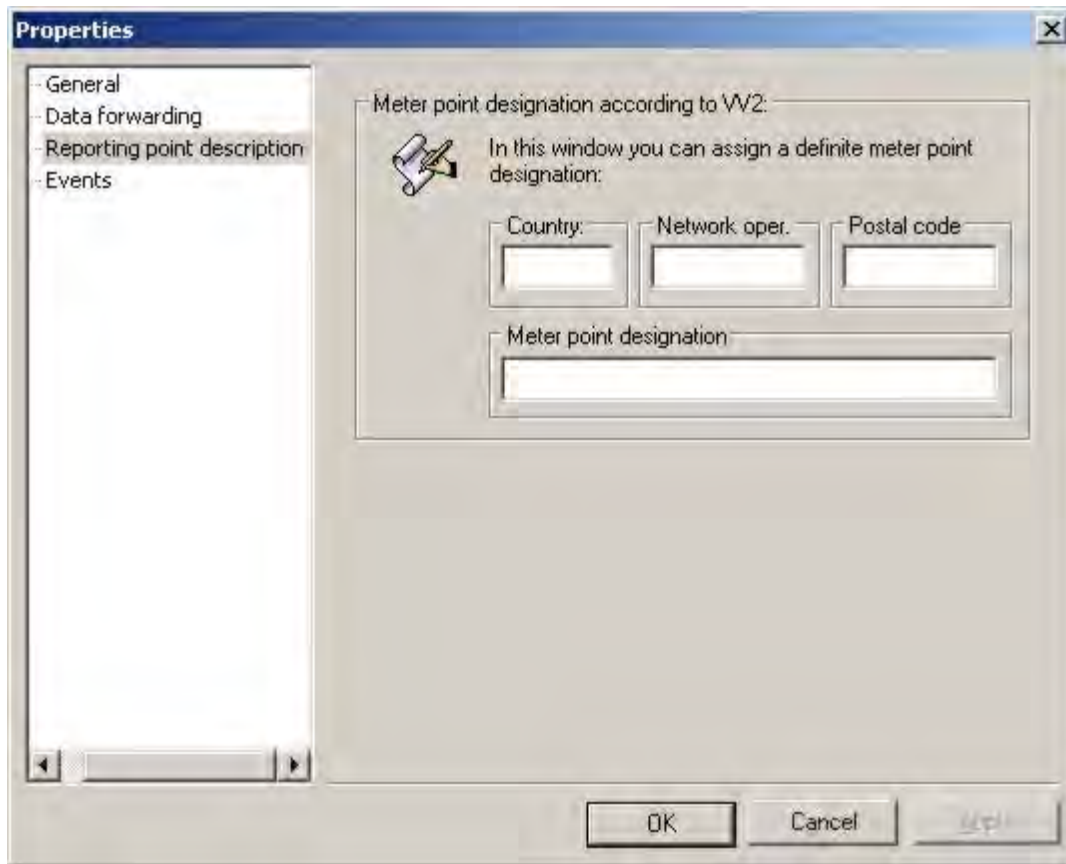


Fig. 11-4 Budget level meter point designation

Meter point designation

A meter point designation for the budget level may be entered here. This is necessary if a budget level is used as a virtual meter point.

11.1.2 Meter point designation

By means of VV2 support, a meter point designation may be entered for every meter, in accordance with VV2.

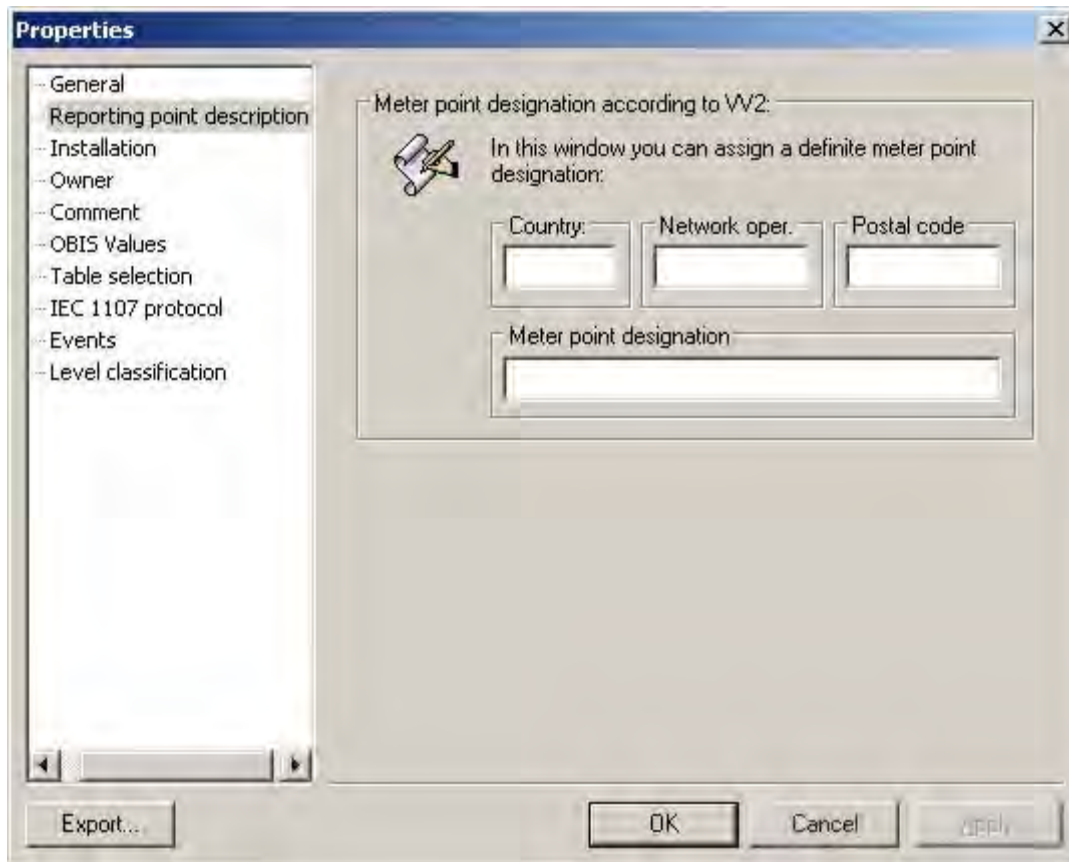


Fig. 11-5 Meter point designation for meter

A description and meanings of the individual fields can be found in the VV2 directives.

11.1.3 Data aggregation action

The budget levels apply in the data aggregation action developed especially for them. In the course of an aggregation, AMBUS®Gate fulfils the following functions:

- Aggregation of all the sub-levels
- Totalling up the particular meters and sub-levels with factors.
- Data export with the particular profiles
- Data forwarding with the targets saved in the particular budget level
- Saving the aggregated data in the database

Please note that the data aggregation is recursive, i.e. if an upper level is aggregated, all the sub levels are automatically aggregated with them. Ideally, therefore, only one level must be chosen, in order to guarantee automatic data forwarding to all suppliers and contract partners.

The data aggregation action is available as soon as you select a budget level and select *Execute/Others*



Fig. 11-6 Action: Aggregation

Only the period to be aggregated must be selected:

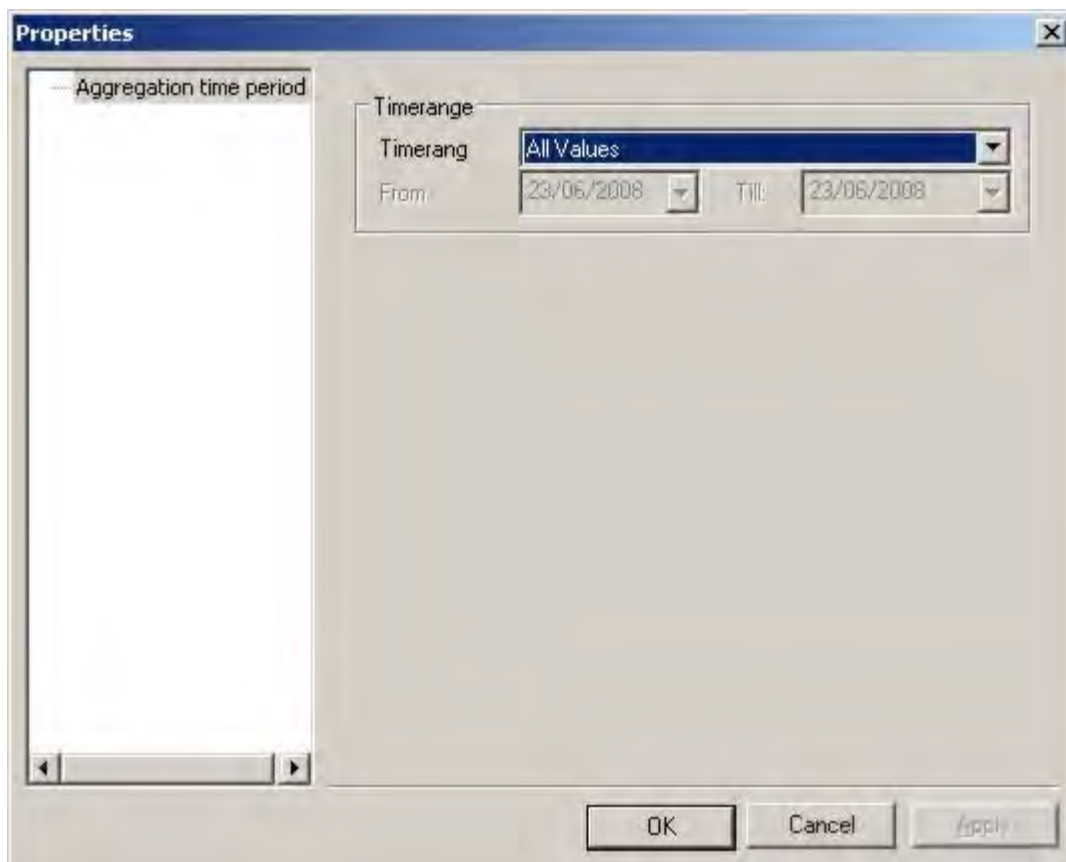


Fig. 11-7 Meter point designation for meter

Then aggregation, export and forwarding are automatic.

11.1.4 Example

The following example is provided, of using VV2 extensions for practical forwarding:

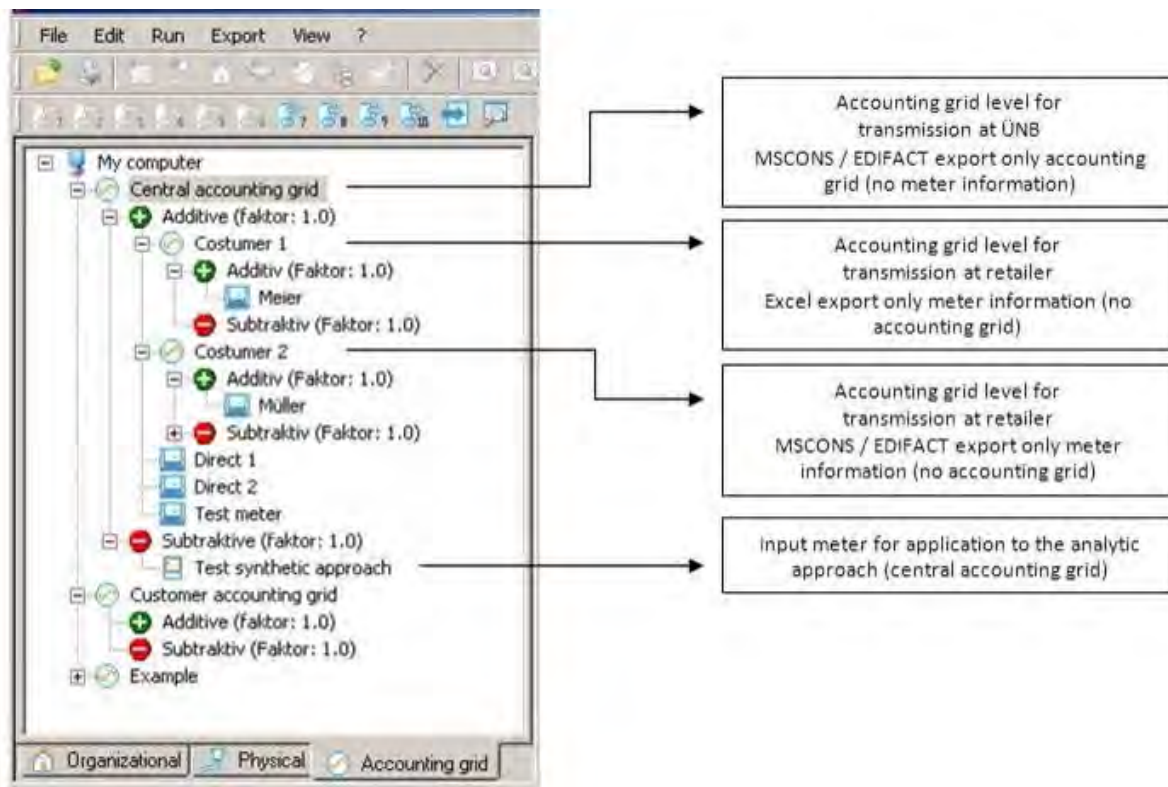


Fig. 11-8 Accounting grid example

This is indeed only a small example but it shows the efficiency of the facility for creating budget levels in AMBUS®Gate's VV2 support.

11.2 Data archiving

Depending on the settings of readout cycles, large data volumes accumulate in the AMBUS®Gate database. For capacity and execution reasons, it is advisable to remove from the database data which are no longer required. As a practical upper limit, Microsoft specifies 2 gigabytes for an Access/MSDE database. With a large number of meters, AMBUS®Gate can reach this limit in a relatively short time. The data are archived in a pre-specified file which can later be opened in AMBUS®Gate as an archive file.

Note: The archived data may be opened with AMBUS®Gate.

A data backup purely for backup and availability purposes must be created externally, i.e. outside the AMBUS®Gate application.

In order to perform a data archiving process, the "AMBUS®Gate Db-Tool" program must be started in Start->Programs->Aquametro.



Fig. 11-9 Archive data

Now choose the database which you would like to use. Then click on "Archive data".

The following selection window appears:

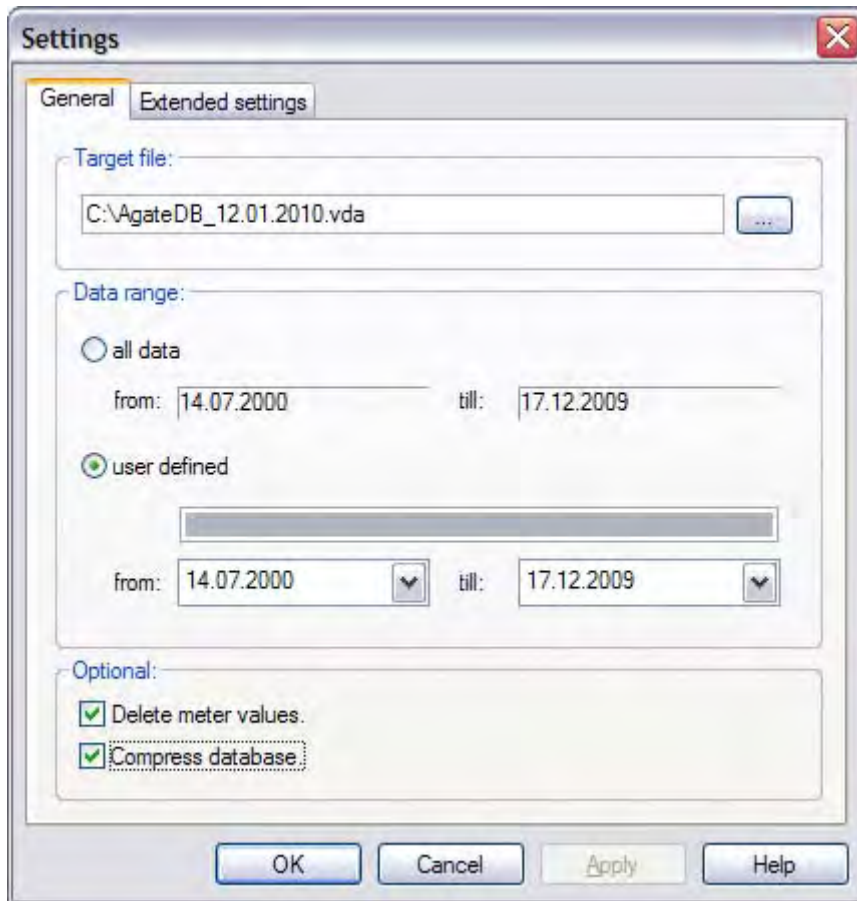


Fig. 11-10 Data archiving settings

The following settings may be performed here:

- Target file
The filename and save location for the archive must be specified here.
- Data field
 - all data
This option must be chosen, in order to archive the AMBUS®Gate database in full.
 - user-defined
This option must be chosen, in order to archive data from a specific period.
- Optional
 - remove meter values
This option must be enabled in order to then remove the archived meter values. The available free memory space in the AMBUS®Gate database is thus increased.
 - compress database
After the meter values have been removed, the database file is not reduced physically, i.e. it takes up exactly the same amount of memory on the hard disk as it did before. If it is intended to free up additional memory on the hard disk, this option must be enabled.

In the extended settings, the following setting possibilities exist:

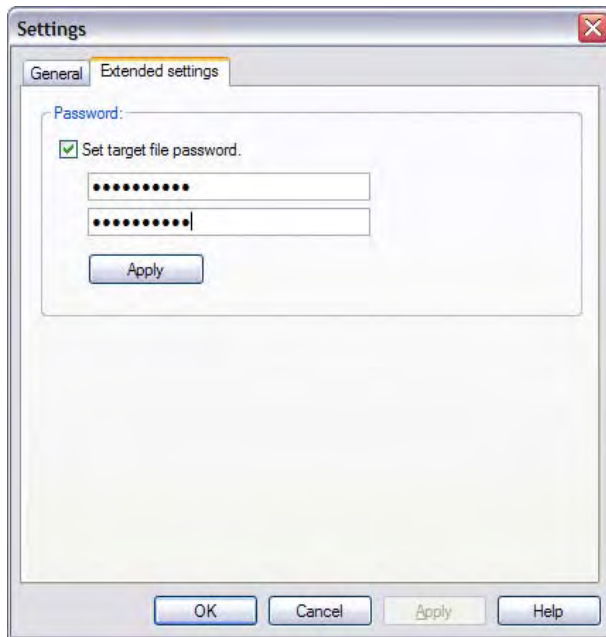


Fig. 11-11 Extended settings

- Specify password for target file
This option must be enabled, in order to specify a password for the archive. Enter the same password in both input fields. Confirm your entry by clicking “Accept”. This checks its validity.

After you have performed all the settings and clicked OK, a status window appears, informing you of the progress of the archiving process.

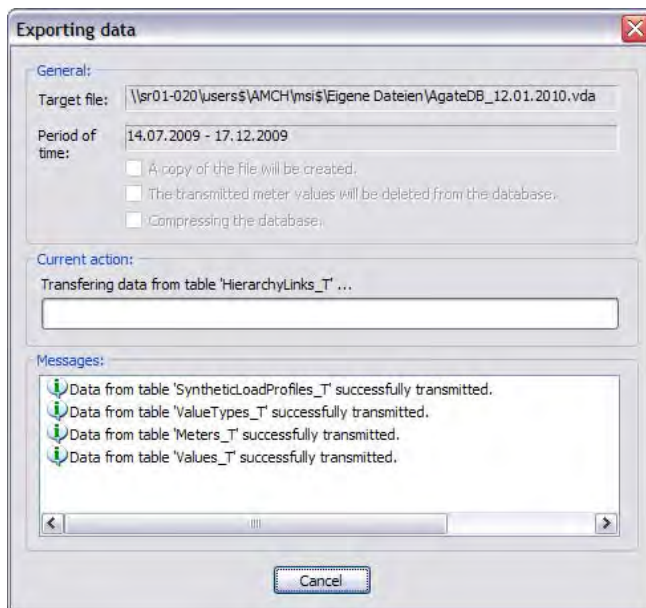


Fig. 11-12 Archiving/Backup

- General
The set archive or backup parameters are displayed here.
- Current action
Information on the progress of the current action is displayed in this field.
- Messages
All the concluded operations and any errors which occurred are shown in the message window.

11.3 Database conversion

As already mentioned, AMBUS®Gate may be linked to two different database types. They can be either a Microsoft Access or an MSDE (Microsoft Database Engine)/Microsoft SQL server database. MS Access's often makes a change to MS SQL server necessary, for example, (with no restriction on the database size). With the conversion routine, the opportunity has been created to transfer the data from the existing AMBUS®Gate database to the newly set-up database, working from the AMBUS®Gate application.

Notes: It is also possible to convert data from MS-SQL server to MS Access but this is only necessary in rare cases.

For a conversion from MS Access to MSDE/MS SQL, an MSDE or MS SQL server must exist in your system.

In order to perform a data archiving process, the "AMBUS®Gate Db-Tool" program must be started in Start->Programs->Aquametro.



Fig. 11-13 Convert database selection

Now choose the database which you would like to use. Then click "Convert database".

The following settings may now be performed in the selection window:

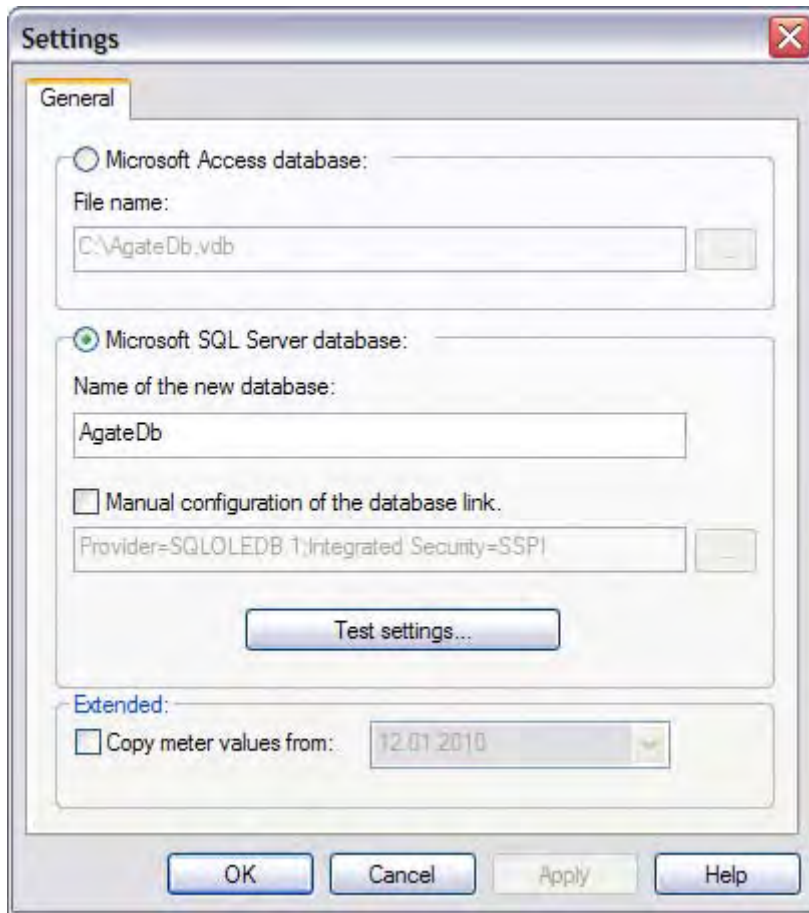


Fig. 11-14 Conversion settings

- Microsoft Access database
 - Filename
The filename and the save location for an access database which you wish to create must be specified here.
- Microsoft SQL server database
 - Name for the new database
The filename for an MSDE/MS SQL database which you wish to create must be specified here.
 - Manually configure connection to the master database
In order to be able to create a new database, AMBUS®Gate needs a valid connection to the MS SQL server here. The specified settings must be checked in the first stage. For this you must press the *Test Settings...* button. If the connection cannot be established, this box must be checked in order to manually establish the connection to the master data base on the MS SQL or, in other words, to enter it manually.
- Optional
 - Use new database in AMBUS®Gate
This box must be checked if the new database is to be registered and used directly in AMBUS®Gate.

After you have performed all the settings and clicked OK, a status window appears, informing you of the progress of the conversion process.

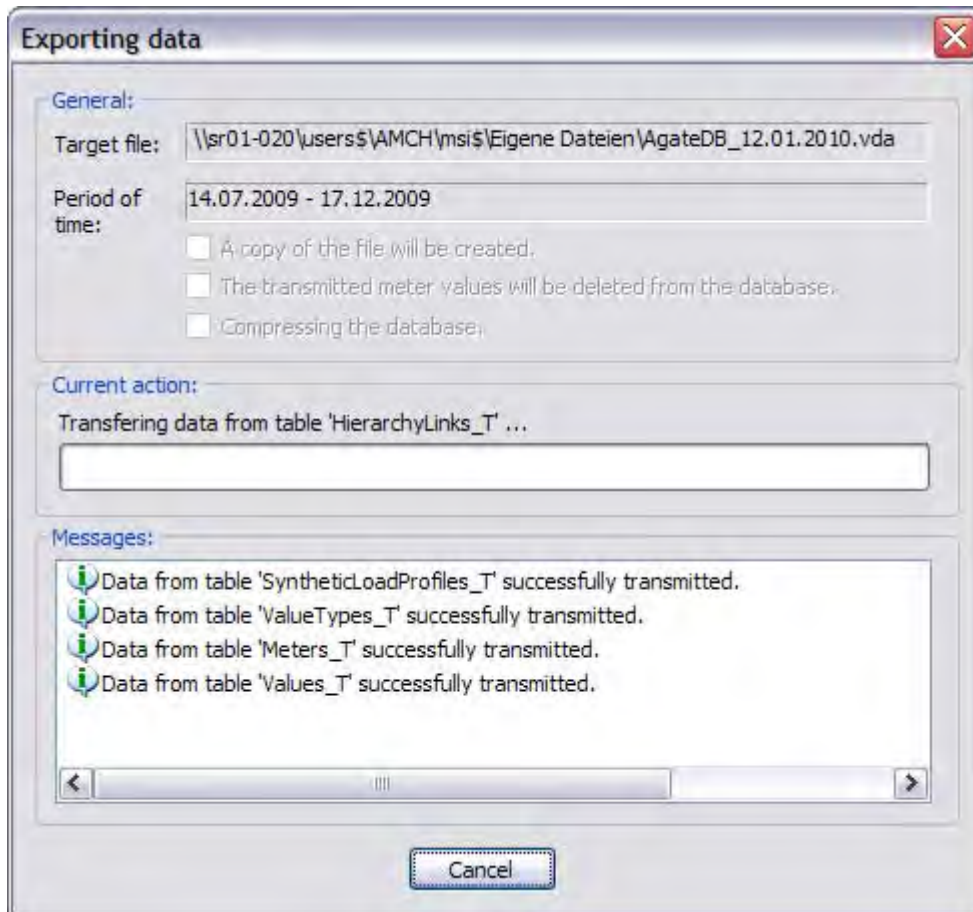


Fig. 11-15 Conversion process

- General
THE set archive or backup parameters are displayed here.
- Current action
Information on the progress of the current action is displayed in this field.
- Messages
All the concluded operations and any errors which occurred are shown in the message window.

11.4 M-Bus output stage

In order to incorporate an M-Bus output stage in AMBUS®Gate, a physical connection (COM port, Ethernet or modem) is firstly required. Follow the steps outlined in Chapter 4.8.2 *Creating physical levels*, to create a connection of this type. Select a level in the physical level and then go to “New-> Others->M-Bus Output Stage”.



Fig. 11-16 M-Bus output stage selection

Then confirm the selection with OK, to edit the properties.

M-Bus repeater

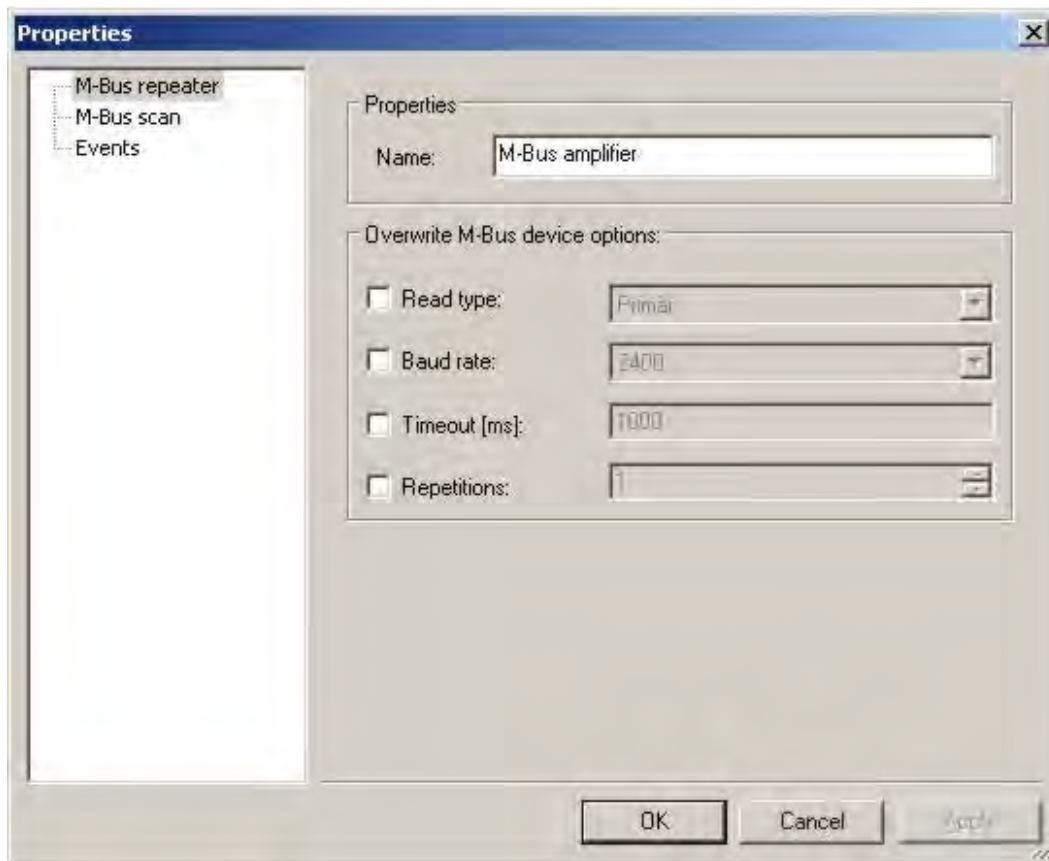


Fig. 11-17 Device options selection

Properties

- Name: When a name is entered, the output stage can be sorted in the levels

Overwrite M-Bus device options

- Type of readout: Here, M-Bus devices may be addressed by a primary or secondary address.
- Baud rate
- Timeout [ms]
- Repeat attempts

General

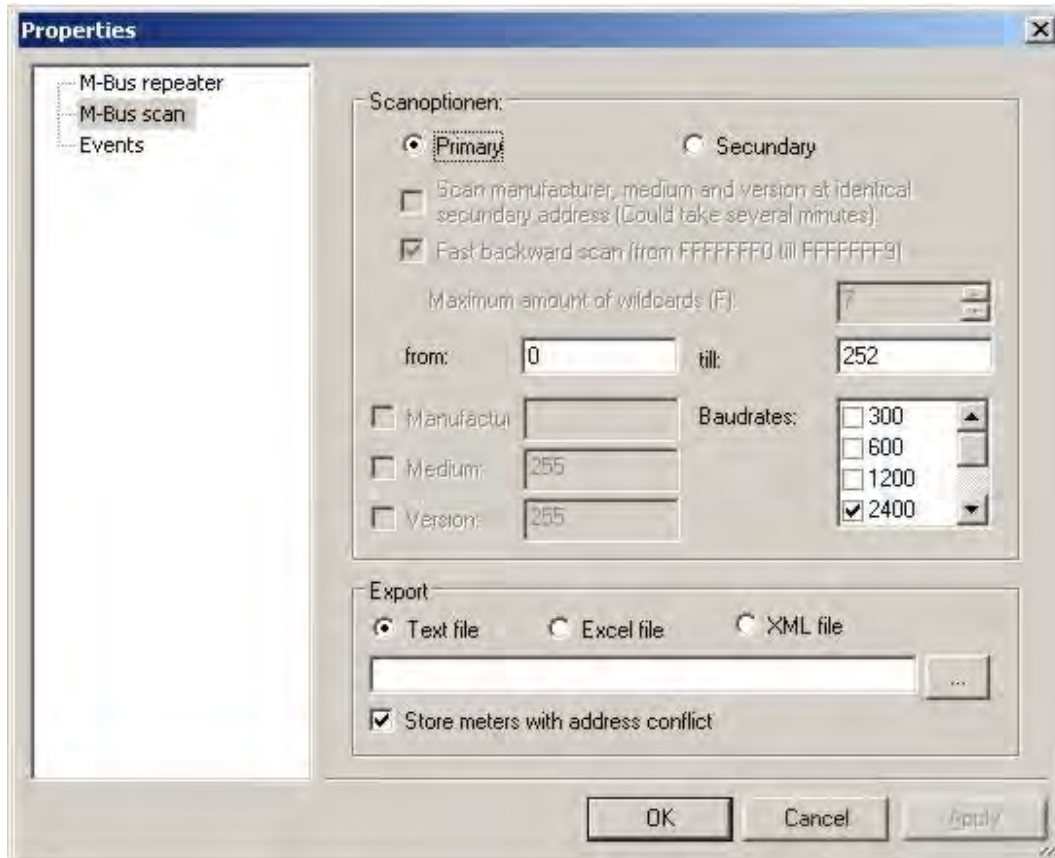


Fig. 11-18 Scanning options selection

Scanning options

- Primary or secondary: When the scan option is selected, the following options can also be generated.
 - Scan manufacturer, medium and version with same secondary address
 - Fast backward scan (wildcards may be set as an option)
- Manufacturer (specify here the three-character manufacturer code for the secondary address).

Note: It is normally optional to specify the manufacturer code. With devices from Kamstrup, however, the "KAM" manufacturer's tag must always be quoted.

- Medium
- Version

The baud rate must be set in each case

- Export is possible via a text, Excel or XML file

11.4.1 M-Bus scan routine

The *M-Bus scan routine* was introduced in order to search for meters. In this process, all the possible addresses, primary or secondary, are checked. The meters identified are then saved in an export log. Proceed as follows, if you wish to perform an M-Bus scan routine. First select the M-Bus output stage in the physical view. Using the right mouse button, open the context menu and then the “Execute-> Others-> M-Bus scan routine” menu item.

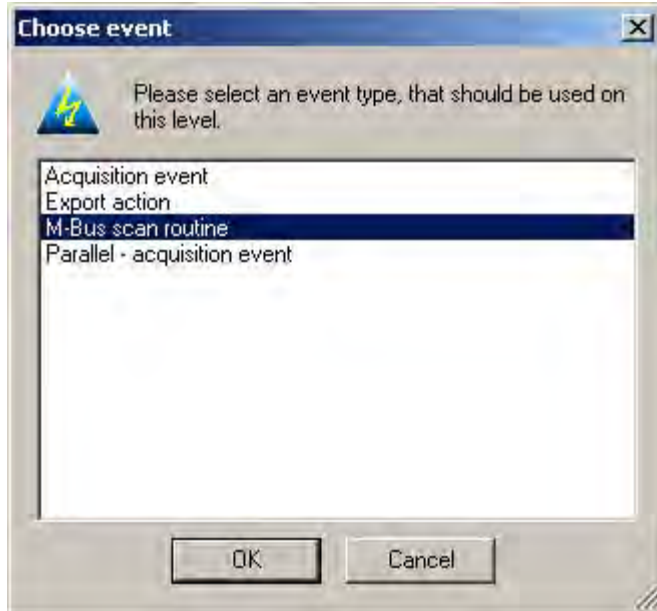


Fig. 11-19 Action: Scan routine selection

Confirm with OK and the meter data are saved to the specified path. The scan routine, can, however, last for a few minutes.

On the basis of the export, the meter data can be viewed and printed after an M-Bus scan routine, in the form of a text, Excel or XLP file.

11.5 Import action

An import action may be executed, in order to generate meters from an XLS file to AMBUS®Gate. Proceed as follows, to execute an import action. With “My Computer” and the right mouse button and then Execute->Others... the following types of action can be imported.

- import action for wireless meters
- import action for IEC1107 meters
- import action for LON meters
- import action for M-Bus meters
- import action for synthetic load profile meters



Fig. 11-20 Action: Selection for meters

After you have clicked the appropriate import action, a format template is required for importing the meters. You will find this template in the drive where you have configured the AMBUS®Gate. You open the Aquametro directory in Programs -> Aquametro -> Import Template. In this XLS file, you can edit the meter data in order to import them to AMBUS Gate.

12 Future extensions

AMBUS®Gate has been created from the ground up under the condition that it not only meets the current requirements of a remote meter reading system but also supports future extensions by its modular architecture. The following functions in particular may be extended easily and effectively.

12.1 *Support for other meters and protocols*

Incorporating other protocols which are also very different in type and function from the traditional serial protocols, such as future conceivable TCP/IP und WEB-based meter readings, may be supported in AMBUS®Gate by suitable drivers. AMBUS®Gate is by no means tied to serial data transfer but permits practically all types of data acquisition by means of its modular core.

12.2 *Support for other export formats*

The definition of export profiles and values tables represents a general approach to data export. Other formats such as XML-based exports are conceivable.

12.3 *Other extensions*

On the basis of its architecture, AMBUS®Gate is designed as a constantly developing system which is further developed above all by the recommendations and suggestions of its users during daily operation. We would be happy to implement your comments, requests and suggestions for improvement in one of the upcoming versions, in order to make working with AMBUS®Gate even more effective. We are pleased to receive your suggestions to the following e-mail address:
info@aquametro.com

13 AMBUS®Gate device database

13.1 Supported protocols

The following protocols are supported by AMBUS®Gate:

- IEC1107
- M-BUS
- Lonworks
- Wireless (Aquametro)
- FNP (Görlitz)
- LIS 200 (Elster)
- Digital Interface for Gas Devices (DSFG in German)

13.2 Supported devices

Manufacturer	Device Name	Medium	M-BUS	Lonworks	DSFG	IEC1107	FNP (Görlitz)	LIS200 (Elster)	Manufacturer-specific
ABB	AEM500	E				X			
	DZ+	E	X						
	ICM heat meter F3/F4	K	X						
	SENSYCAL	K	X						
Actaris	Sparklog	I				X			
	Load Curve Meter					X			
	Allmess	W	X						
	CF Echo II	K	X						
	CF55	K	X						
	Corus	G							X
AEG	LZ96	E				X			
	T2M	E				X			
Allmess	Integral-MK MaXX	K	X						
	Integral-MK Multisensor	K	X						
Aquametro	CALEC ST	K	X	X					
	CALEC MB	K	X						
	AMBUS IS 2	I	X						
Cynox	M-Count	I	X						
Datenimport	RWE Load Profile	E							
Dr. Neuhaus	ZDUE MOD Pulse Input	I				X			

Manufacturer	Device Name	Medium	M-BUS	Lonworks	DSFG	IEC1107	FNP (Görlitz)	LIS200 (Elster)	Manufacturer-specific
DZG	MM30	E				X			
Elster	Elster Data Logger DL210	I						X	
	Elster Data Logger DL220(W)	I						X	
	Elster Data Logger DL240								
	Elster EK260	G						X	
	Elster A1350	E				X			
	Elster A1500	E				X			
	Pulse Input DM Series	I				X			
	Instromet 555-1107	G				X			
BK-G Encoder	G	X							
EMH	DMTZ	E				X			
	LZKJ E-Series	E				X			
	LZKJ F-Series	E				X			
	LZKJ G-Series	E				X			
	LZKJ Compressed Load Curve	E				X			
	LZM	E				X			
	LZM I-Series	E				X			
	LZMD	E				X			
	LZMF	E				X			
	LZMJ	E				X			
	LZQJ E-Series	E				X			
	LZQJ G-Series	E				X			
	LZQM	E				X			
	STMJ	E				X			
	VDEW	EX							
EMU	EMU32.xx	E	X						
FLOW COMP	Gas-Net Z0	G			X				
	Gas-Net Z1	G			X				
Görlitz	ENC 400(e)	I					X		
Gossen/Berg	BLO	E		X					
	BLOi	E	X	X					
	U1389	E	X						
	U1187-U1189	E	X						
	U1681...U1689	EX							
Heliowatt	LZ96	E				X			
HYD	Scampy Cold Water	W	X						
	FLYPPER	W	X						
	Sharky 773	K	X						
Instromet	Instromet555 1107	G				X			
Iskra	MT 851					X			

Manufacturer	Device Name	Medium	M-BUS	Lonworks	DSFG	IEC1107	FNP (Görlitz)	LIS200 (Elster)	Manufacturer-specific
Ista	Pulse Module S	W	X						
	Pulsonic II M-BUS	W	X						
	Sensonic Heat Meter	K	X						
Janitza	UMG 505	E		X					
Kamstrup	KM 382 Electricity Meter	E	X						
	Multical 401	K	X						
	Multical 601	K	X						
	Multical 66C	K	X	X					
L+G	WSD Heat Meter	K	X						
L+S	Pollu t herm	K	X						
	WSF3D Heat Meter	K	X						
Landis+Gyr	LGZ	E X							
	LZ96	E X							
Littwin	CCL210	I	X						
Minol	F3/4	K	X						
	Pulse Module P2	K	X						
	Minocal WR2	K	X						
	Ultrasound 2WR5	K	X						
	Heat Meter C2	K	X						
NZR	Dialog Heat Meter	K	X			X			
	DHZ	E	X						
	EHKV	K							
	ISM Pulse Module	I	X						
	Modularis Water Meter	W	X						X
	EHZ	E	X			X			
	FHZ	EX	X						
	IC-LON-10	I X							
	IC-LON-2	I	X						
	IZ-LON	W							X
	SEM16-S	E					X		
	NDWH	EX	X						
RMG	MRG 910	G		X					
	MRG 2200	G		X					
Sensus	PolluCom E (M-Bus)	K	X						
Schlumberger	DC33	E	X						
Siemens	2WR5 Heat Meter	K	X						
	7E 62/63	E					X		
	LZ96	E X							
	MAX	E X							
	WFC 21	W	X						
Sontex	Supercal 555/556	K	X						
	Supercal 539	K	X						

Manufacturer	Device Name	Medium	M-BUS	Lonworks	DSFG	IEC1107	FNP (Görlitz)	LIS200 (Elster)	Manufacturer-specific
Sontex	Wasserzähler 580	WX							
Spx	Pollu Ther m	K	X						
	Pollux N501	K	X						
Trox	NetCom LON-WA5/B			X					
Virtuelle Zähler	Arithmetic Load Curve								X
	Synthetic Load Curve								X
Wackenhut	Pulse Meter	I							X

Medium	Designation
E	Electricity
K	Heat
W	Water
G	Gas
I	Pulse Memory Module

14 Basic configuration

The basic configuration should give the user or administrator the opportunity to adapt global settings for AMBUS®Gate. Depending on the version, various settings are possible. Under “Start->Programs->Aquametro” corresponding links are saved, depending on the version:

- AMBUS®Gate configuration
 - (Basic configuration for the AMBUS®Gate single-user version)
- AMBUS®Gate client configuration
 - (Basic configuration for the AMBUS®Gate client)
- AMBUS®Gate server configuration
 - (Basic configuration for the AMBUS®Gate server)

14.1 Path data

In the path data, all the databases which AMBUS®Gate uses are shown and can be individually configured. These settings are usually established during installation. If, however, you wish to edit these settings, select “Path data”.

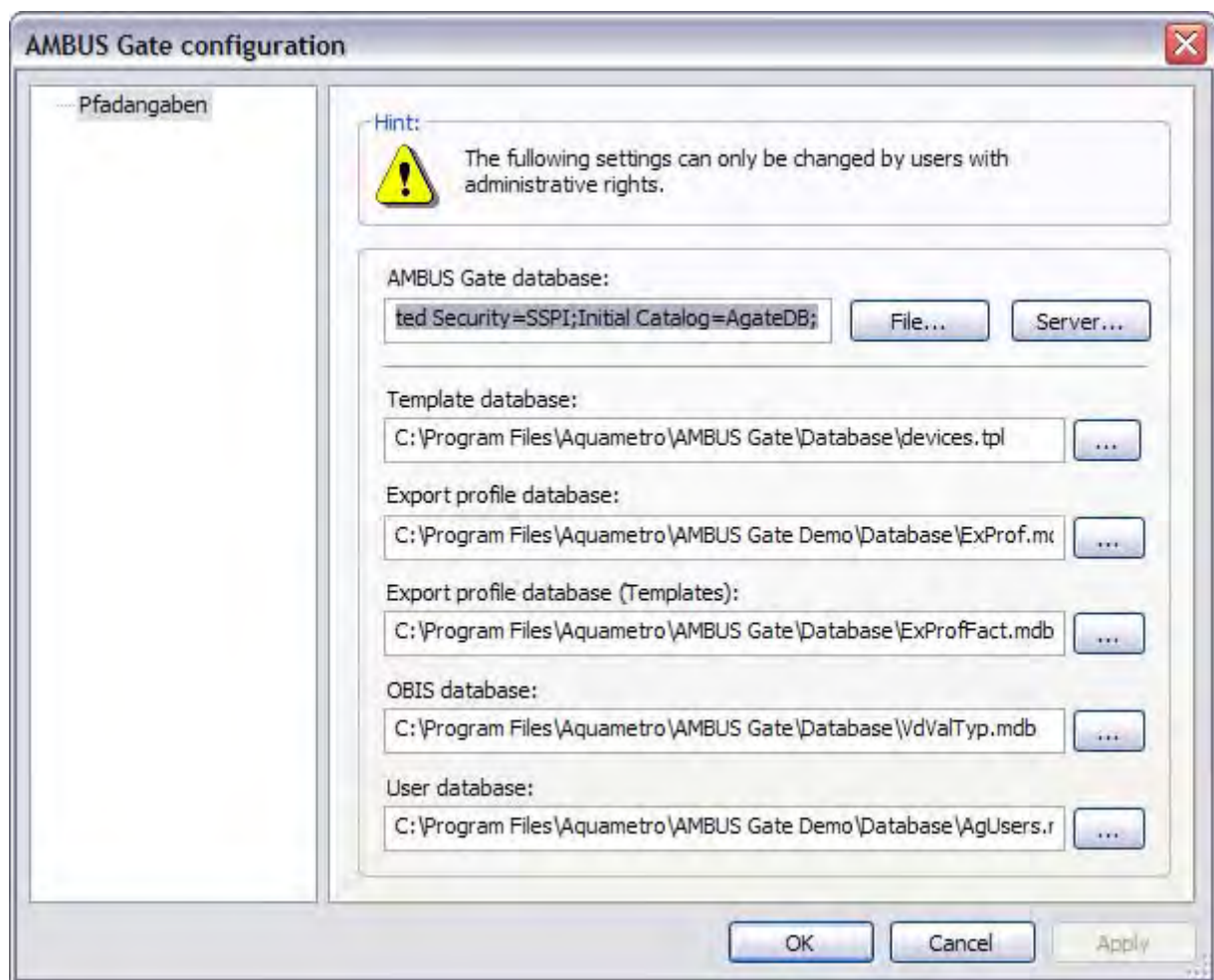


Fig. 14-1 Basic configuration - path data

- AMBUS®Gate database
The AMBUS®Gate database is the application's main database.
- Templates database (devices database)
The templates database contains the device templates and is regularly updated by Aquametro.
- Export profile database
All the configured profiles are saved in the database for export profiles.

- Export profiles database (templates)
This database is regularly updated by Aquametro. In the case of an update, the templates are automatically accepted in the main database for export profiles.
- OBIS database
This database is regularly updated by Aquametro. In the case of an update, the changes are automatically accepted in the AMBUS®Gate database.
- User database
This database saves all the AMBUS®Gate users.

14.2 DCOM (client/server version)

Communication between the AMBUS®Gate client and the AMBUS®Gate server is via DCOM. It is Microsoft's variant of a model which makes it possible for various applications to collaborate across the computer borders. Some time ago, when security gaps became known in DCOM and were specifically exploited, Microsoft found itself compelled to remedy these faults. That is why the tightened regulations apply, with Service Pack 2 for Windows XP and Service Pack 1 for Windows 2003. As a result of this, some system adjustments must be made, depending on the operating system, so that DCOM grants the connection requests of other computers. The best possible configuration of the system is normally carried out during installation.

If you select "DCOM security", the following window appears.

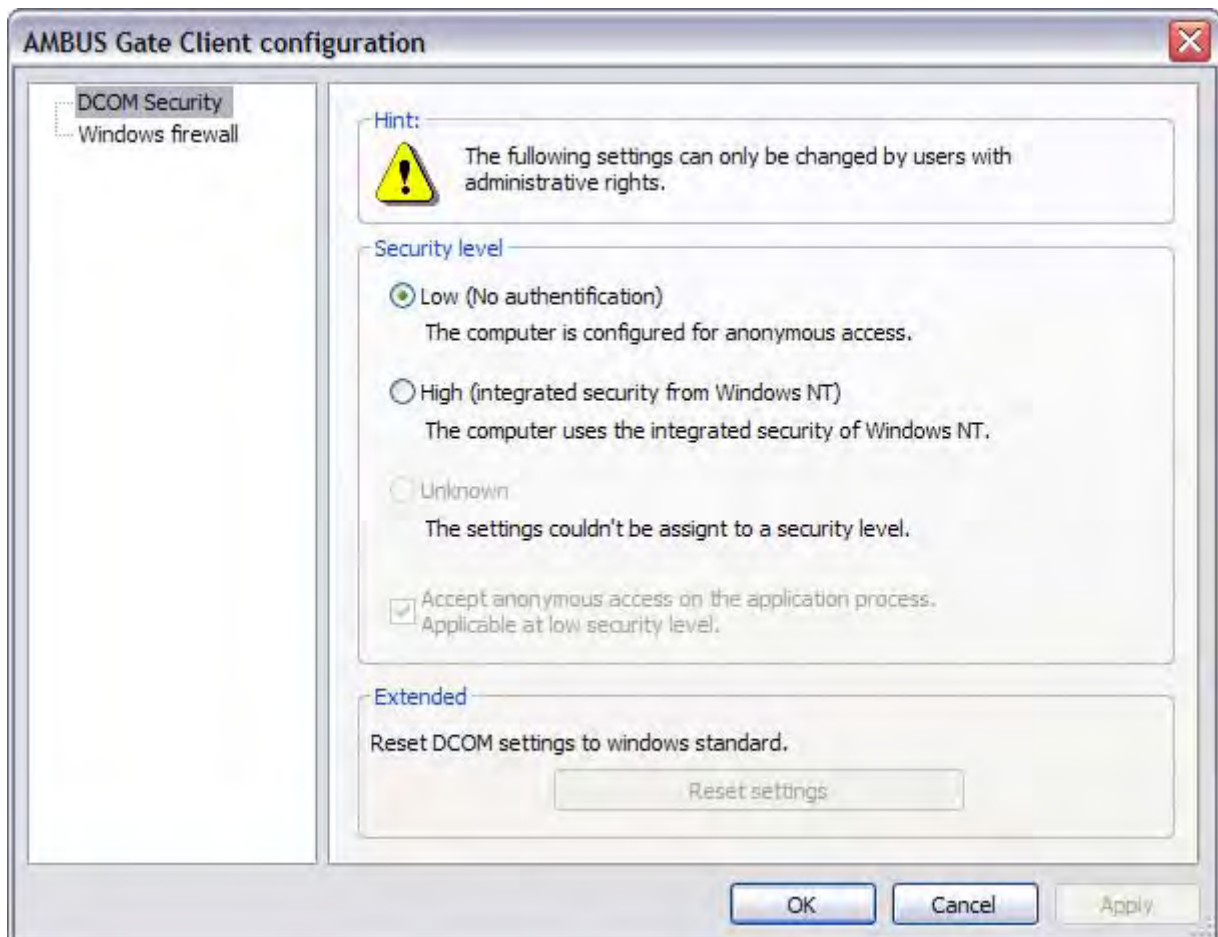


Fig. 14-2 DCOM security

Security level

- Low (no authentication)
This level is set during installation. This setting makes working with the AMBUS®Gate client possible for the following users:
 - users of Windows 98,

- users of a local account on an NT-based system (2000/XP/2003/Vista).
- users who log in under a domain on an NT-based system (2000/XP/2003/Vista).
- high (integrated Windows NT security)
 - with this setting, only users who have logged in on an NT-based system (2000/XP/2003/Vista) under a domain may work with the AMBUS®Gate client.

Note: The DCOM basic configuration must match the server computer's DCOM basic configuration on all the client computers. Otherwise connection problems may occur.

14.3 Firewall (client/server version)

Since Windows XP with Service Pack 2, Windows 2003 with Service Pack 1 and Vista, Microsoft has been including an integrated firewall as standard. So that the communication between the client and the server works, the AMBUS®Gate client must be allowed as an exception and the DCOM/RPC port (Number 135) must be opened. This also applies to other firewalls installed on the computer. Another option is to disable the computer completely. The following settings are automatically established during installation:

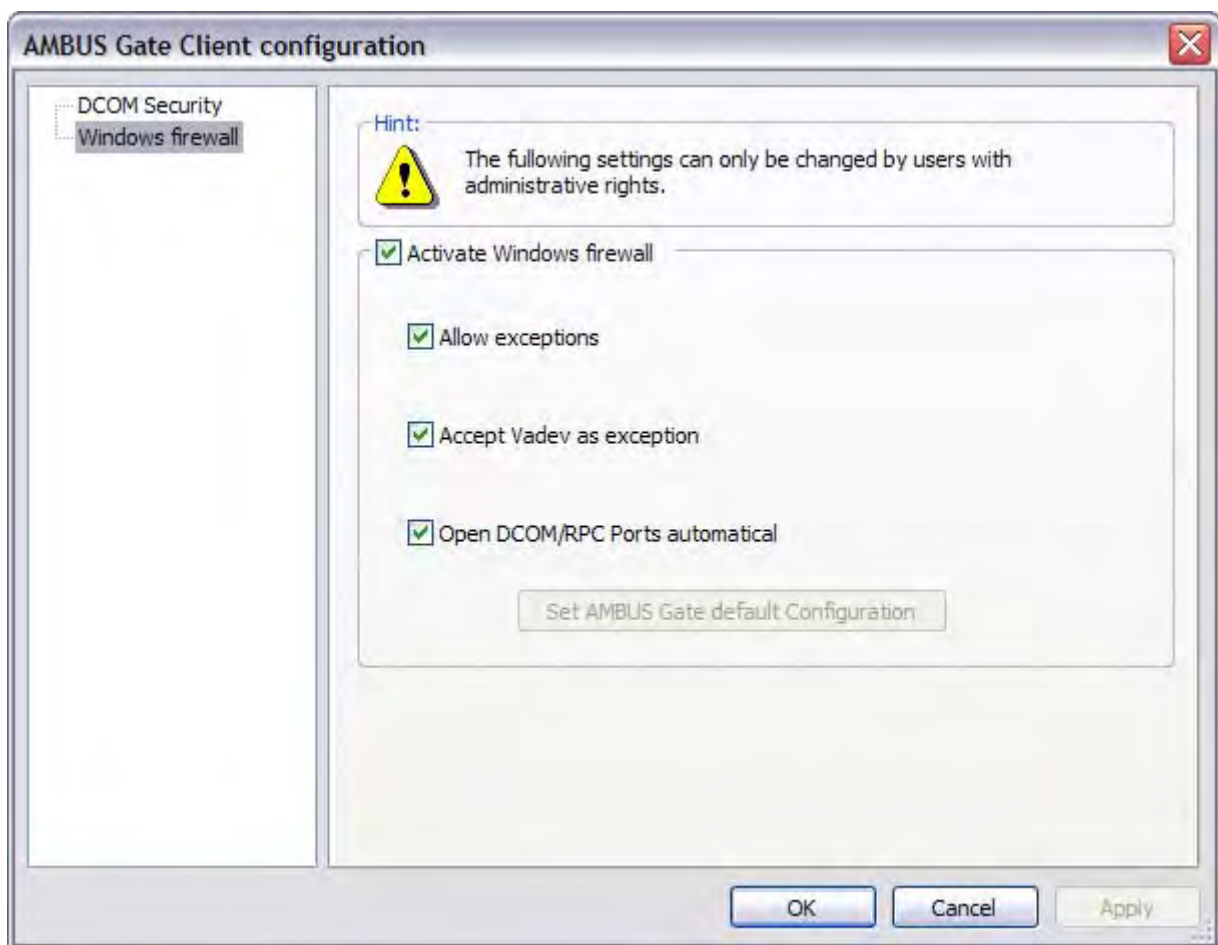


Fig. 14-3 Windows Firewall

Windows Firewall enabled

If the firewall is enabled, the following settings must be established:

- Allow exceptions
- Allow AMBUS®Gate as an exception
- Open DCOM/RPC ports automatically

15 Client/Server

15.1 Installation

For the AMBUS®Gate Client/Server version, a separate installation package is provided on a CD-ROM. In the case of the standard installation, only the AMBUS®Gate client is installed on the computer. For the installation of the AMBUS®Gate server, additional components must be selected during the installation process.

Note: It is recommended to close all open documents before the installation and to exit all running programs.

In order to begin installation, please insert the CD-ROM in the drive and start the setup program:

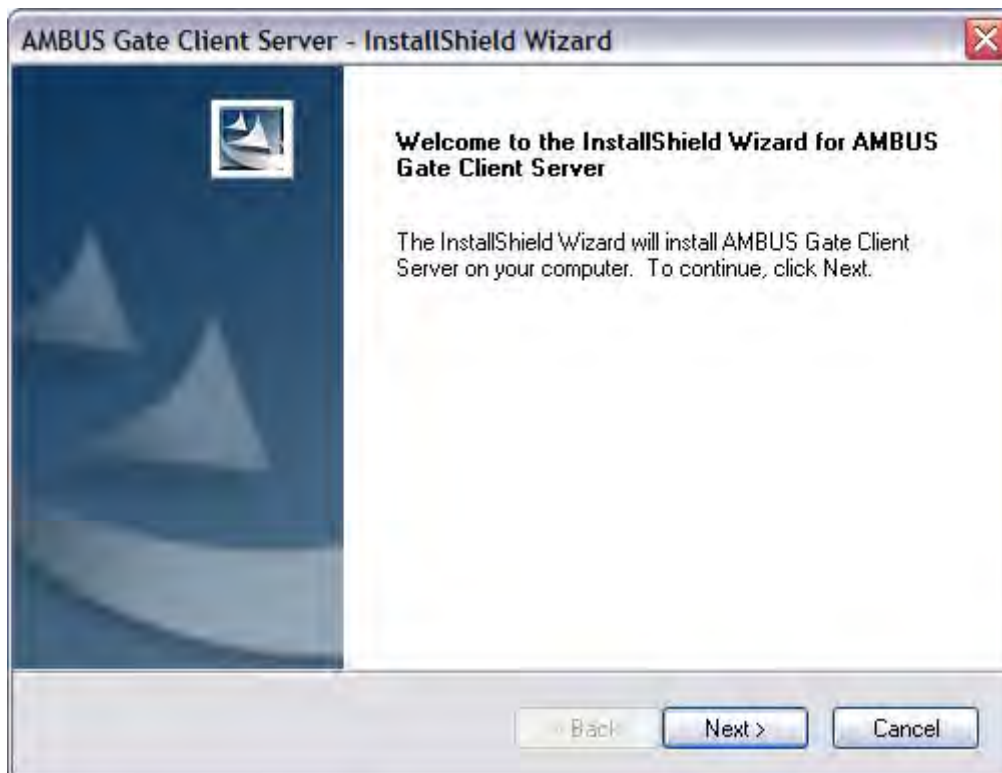


Fig. 15-1 Client/Server - installation

Then click "Continue".

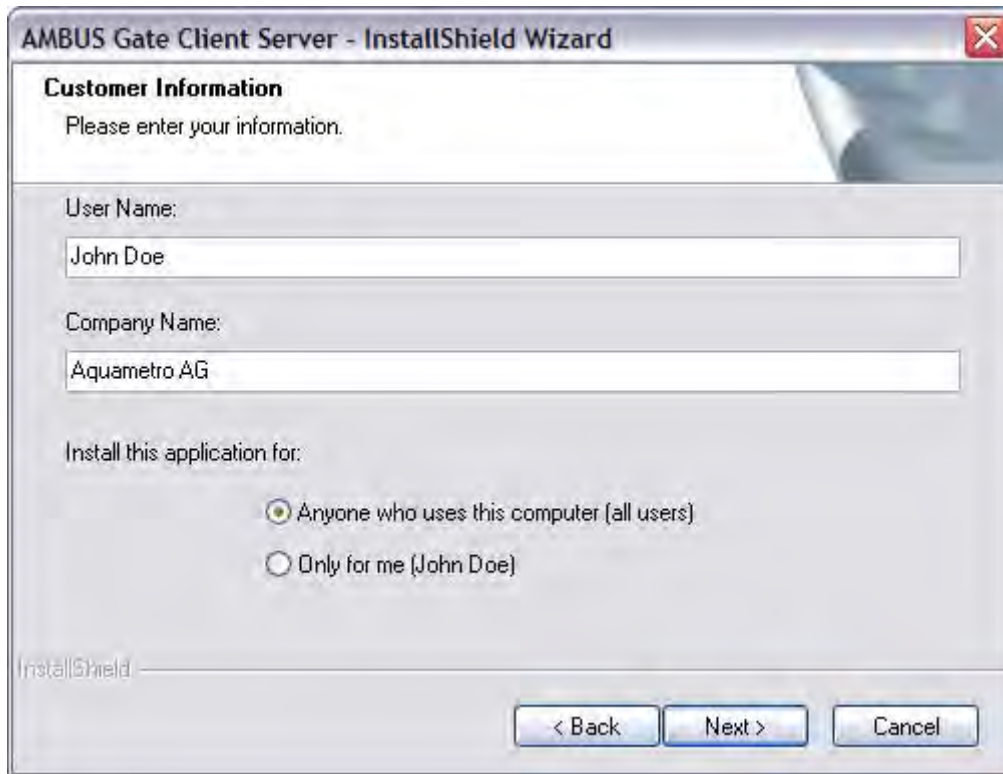


Fig. 15-2 User information - installation

You are requested to enter your user and company names. Decide on the person for whom this application is to be installed and then click "Continue".



Fig. 15-3 Installation - specify target directory

Now specify the target directory. Usually the standard directory is already specified.

In the next window, all the available components are displayed:



Fig. 15-4 Installation - component selection

- AMBUS®Gate client
 AMBUS®Gate client installation is always enabled.
- AMBUS®Gate server
 Select this setting to install the AMBUS®Gate server.
 - Dongle driver
 Installs the dongle driver. The latter is necessary for the first installation.
 - Set up SQL server database
 Sets up an SQL server database and registers it in the AMBUS®Gate system.
 The prerequisite for this option is that you have already installed and configured an instance (MSSQLSERVER) of the SQL server. There is a free version of the SQL server (MSDE 2000) on the CD-ROM. It is recommended that you operate the AMBUS®Gate server in conjunction with an SQL server. Reliable collaboration with other databases cannot be guaranteed.
- Adobe Acrobat Reader
 Acrobat Reader installation. Select this option if you do not yet have a PDF reader.

After you have selected the components, click “Continue”.

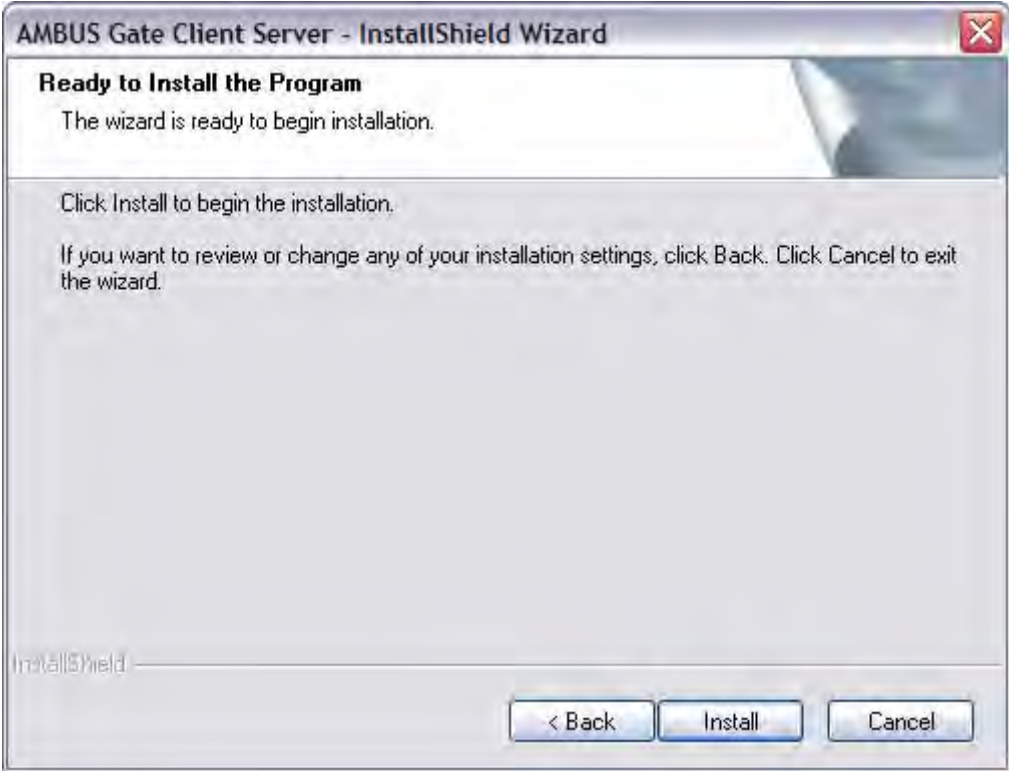


Fig. 15-5 Start installation

Start the installation by clicking “Install” once.



Fig. 15-6 Installation - progress

The setup program automatically executes all the installation steps and displays information on the finished installation process at the end.



Fig. 15-7 Installation terminated

In individual cases, it can happen that you are asked to restart the system.

After the AMBUS®Gate server has been installed, check the installation by starting AMBUS®Gate Service Manager and checking that the service is enabled:

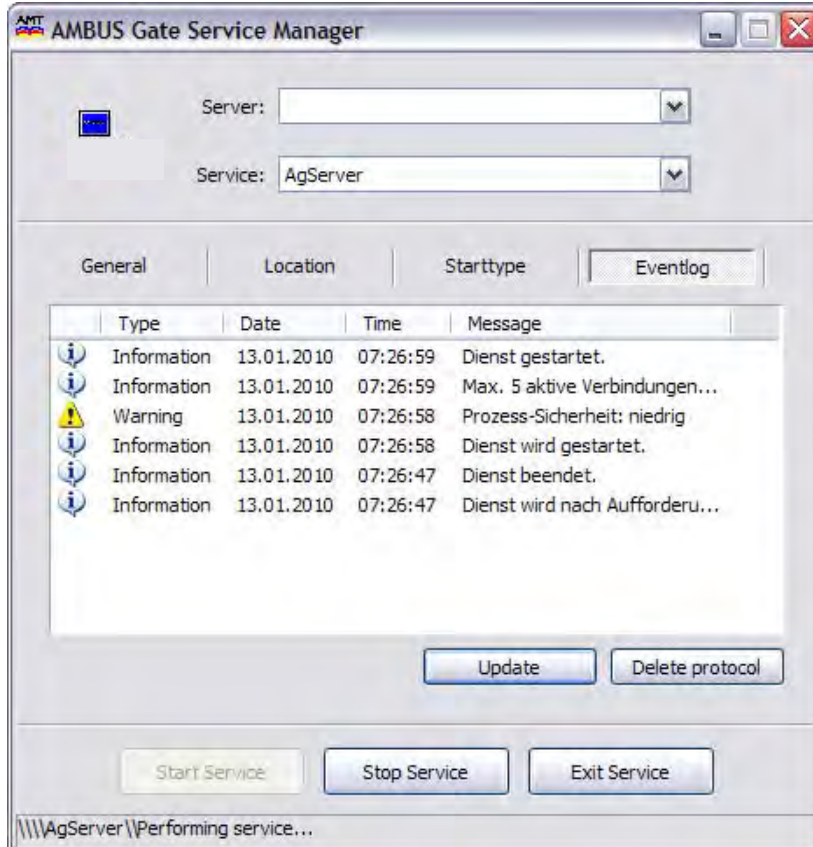


Fig. 15-8 AMBUS®Gate server installation - check

15.2 User login

The following details are required for the user login:

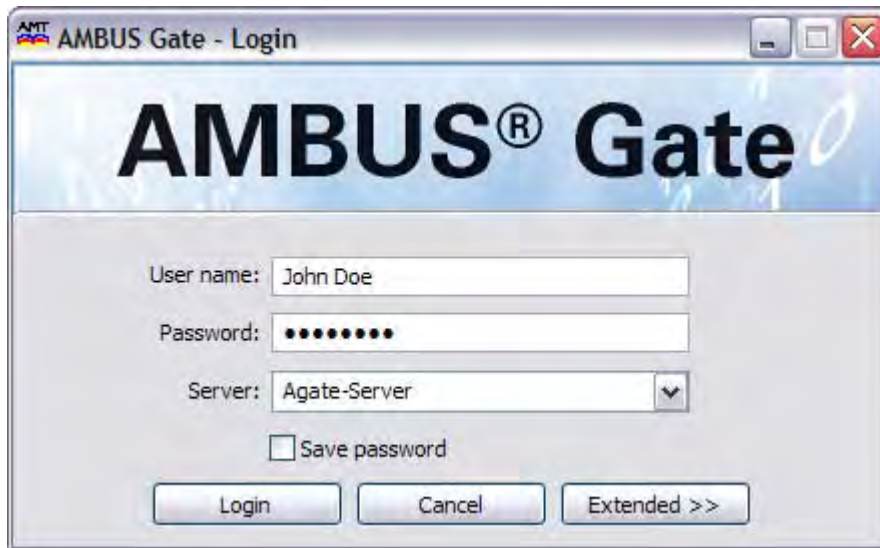


Fig. 15-9 User login

Username

Enter your username here.

Password

Enter your password here.

Server

Here you must specify the name of the computer on which the AMBUS®Gate server is installed.

Save password

Enable this option if you wish to save the password. The next time you log on, the saved password will be used automatically.

Login

Starts the login process.

Close

Closes the window.

Advanced

All the information for the login process is displayed under "Advanced".

15.3 AMBUS®Gate administrator

The AMBUS®Gate administrator is automatically set up during the installation with the username "va" and the password "va". It is recommended that you change the password after installation.

Generally speaking, the administrator has all the necessary rights and can set up, edit or delete the users via User Administration (see Chapter 15.4).

15.4 User Administration

The User Administration gives you the opportunity to display and edit the AMBUS®Gate users. Only users with administrator rights have access to User Administration.

Fig. 15-10 User Administration

Displays the User Administration interface. All the users saved in the database are listed in the table. The “Group” column shows the user group to which the user is assigned (see Chapter Fehler! Verweisquelle konnte nicht gefunden werden.). In addition to the login name, first name and surname, the creation date is given in the last column.

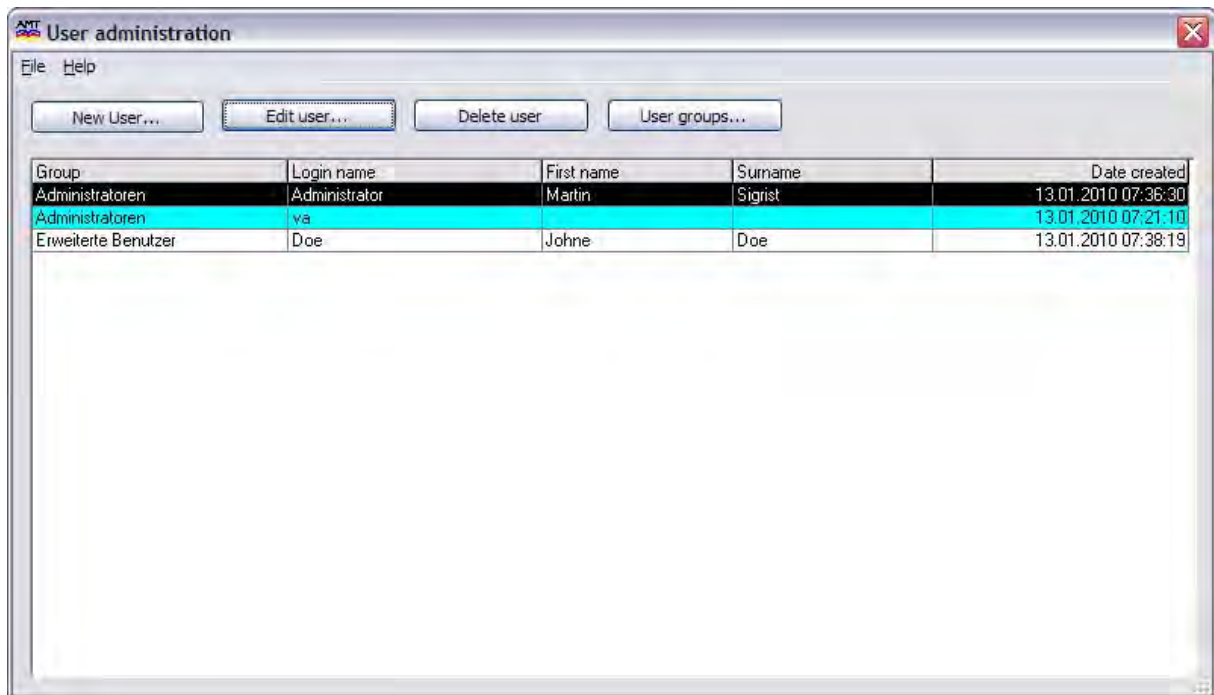


Fig. 15-10 User Administration

New user

Opens a window for entering the data of a new user.

Adapt user

Opens a window for editing the data of an existing user.

Note: The administrator is able to overwrite the user's password. The password is not displayed in plain text.

Delete user

Deletes a user from the database.

User groups

Opens a window for editing the user groups (see Chapter 15.5)

15.5 User groups

AMBUS®Gate provides the opportunity of dividing the users into groups with special authorisations. New and existing users can be assigned to any group, as desired. There are four fixed groups which cannot be changed:

Administrators

Full authorisation

Advanced users

- set up meter, modem etc. (organisational, physical and accounting grid level)
- create and change export profiles
- delete protocol
- data import

Users

- execute exports
- read meters
- diagrammatic measurement display including mathematical operations (no ASCII export)

Guest

- view measurements
- execute exports
- ball and often

If a user is given special rights, a new user group may be set up.

To add a new user group, click “User groups...” in the User Administration. Then the following dialogue is displayed:



Fig. 15-11 User groups

Click “New...” here. In the following dialogue, the name of the user group and the authorisations must be specified, as for Fig. 15-12 Add/Edit user group

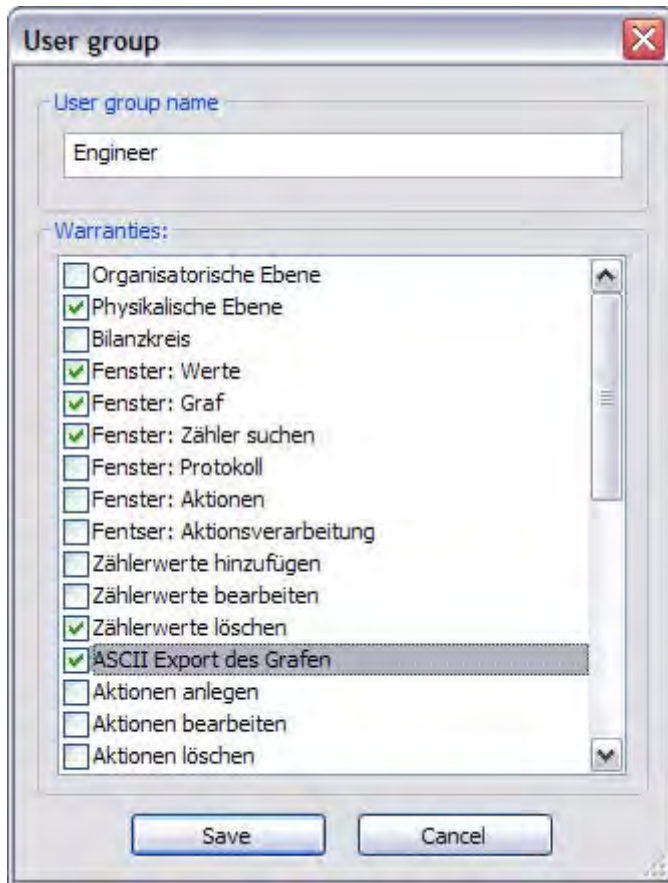


Fig. 15-12 Add/Edit user group

15.6 AMBUS®Gate Service Manager

The “AMBUS®Gate Service Manager” is a tool which supports the work with the AMBUS®Gate server. The AMBUS®Gate server is executed as a service in Windows and remains invisible to the user. The service may be started, stopped and terminated by the AMBUS®Gate Service Manager. Suitable protocol entries for the service may also be quickly displayed.

After startup, the Service Manager is added to the Windows taskbar. The menu may be opened with the right mouse button, as shown in Fig. 15-13 AMBUS®Gate Service Manager - menu

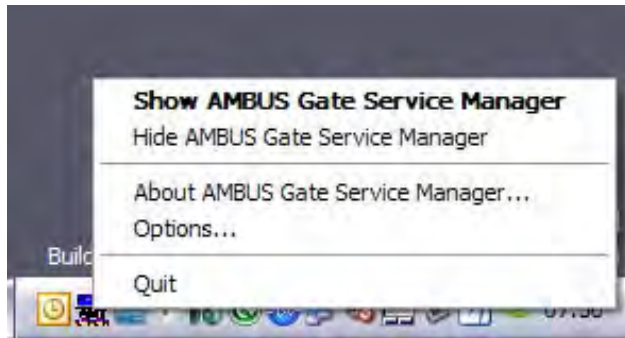


Fig. 15-13 AMBUS®Gate Service Manager - menu

When you click on Options, the following window appears:

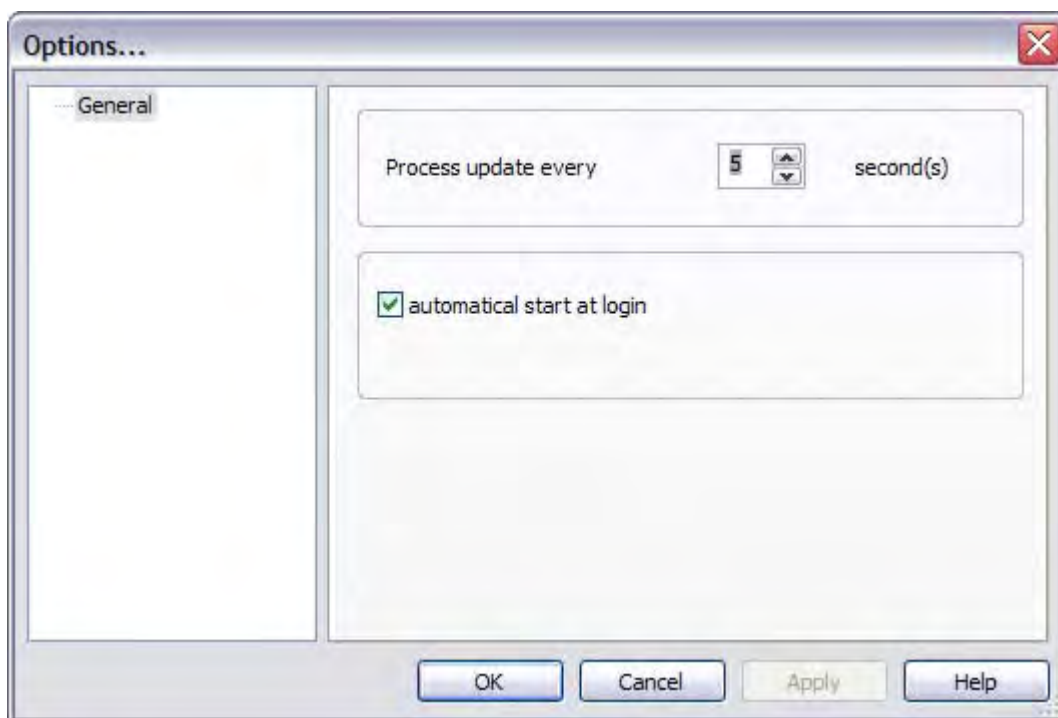


Fig. 15-14 AMBUS®Gate Service Manager - options

Update interval

Specify here the intervals at which the display is to be updated.

Automatic start on login

If you enable this setting, the AMBUS®Gate Service Manager starts automatically when the user logs in.

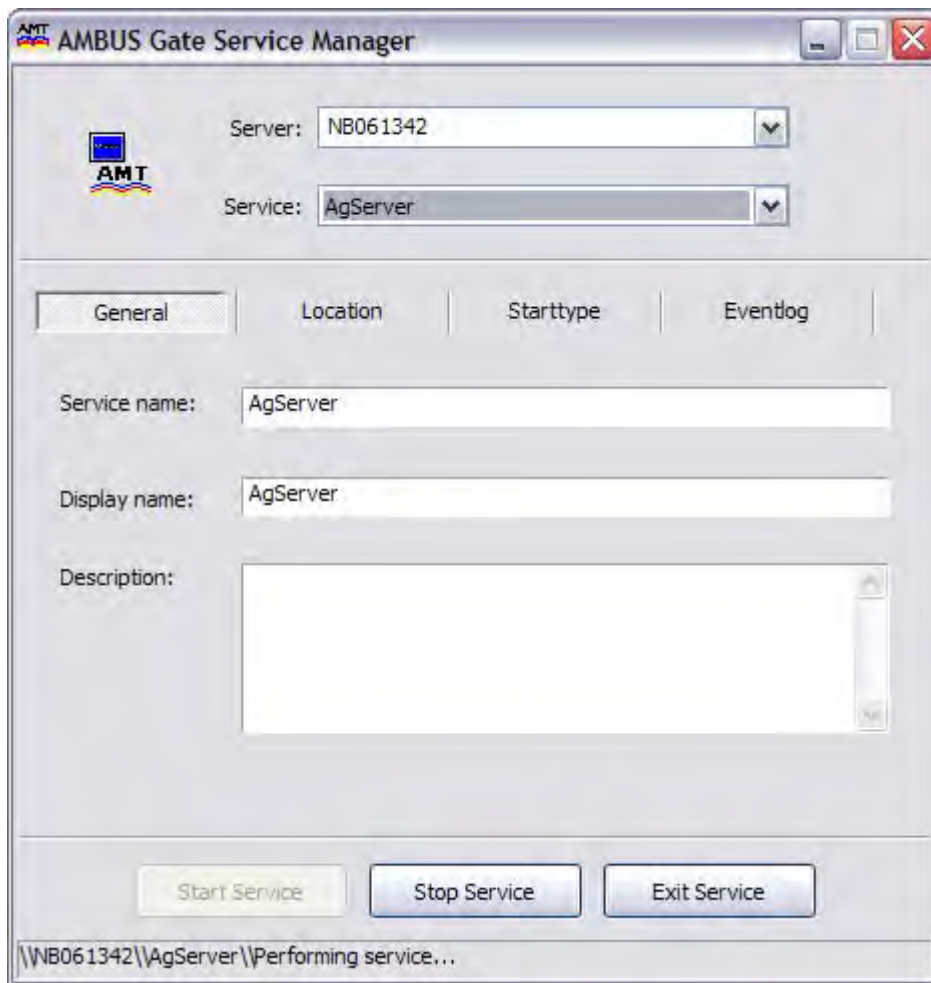


Fig. 15-15 AMBUS®Gate Service Manager - main window

The following may be set in the main window:

Server

Enter here the name of the computer on which the AMBUS®Gate server is run.

Service

After the server name has been entered, the AMBUS®Gate server service is listed here. Otherwise you receive an error message.

Start service

Causes Windows to start the service.

Stop service

Causes Windows to stop the service.

Note: With AMBUS®Gate server, “Stop” stops the automatic action execution. The server itself remains active.

Terminate service

Causes Windows to terminate the service.

To display protocol entries for the AMBUS®Gate server service, select the “Event display” field. The following window appears:

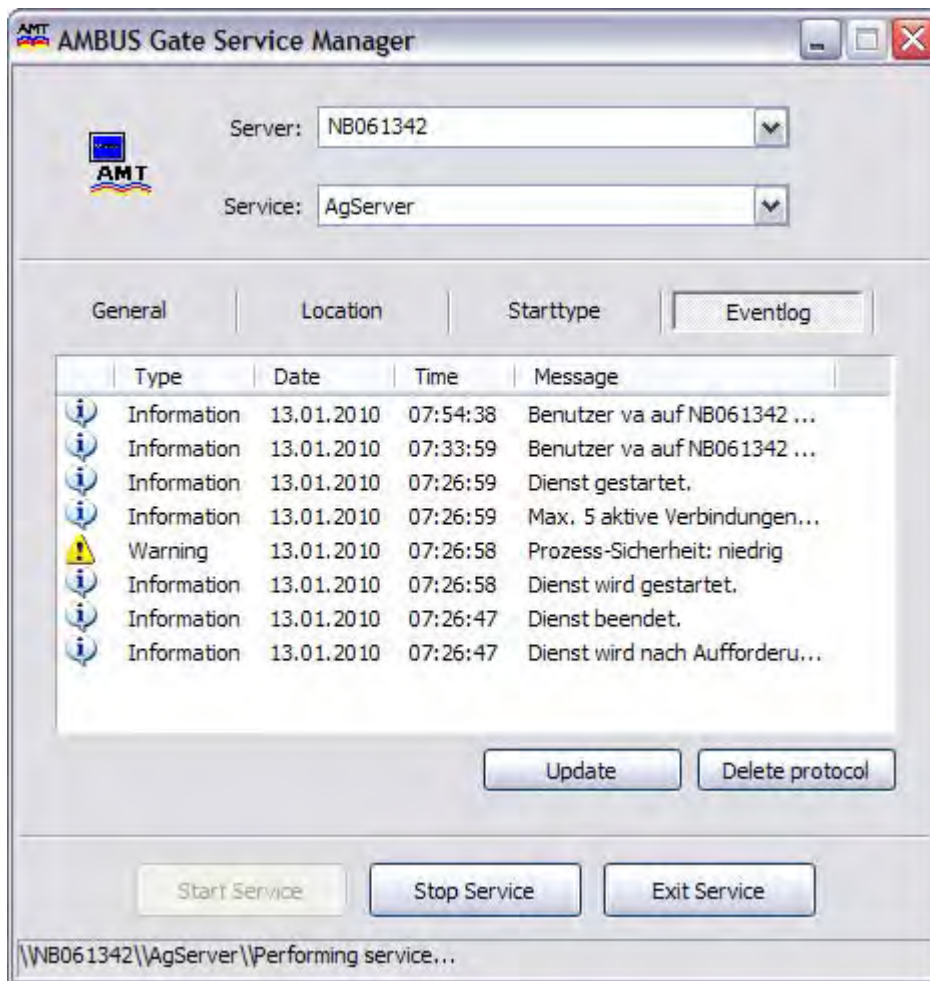


Fig. 15-16 AMBUS®Gate Service Manager - event display

Messages of various types are shown in the list. In the case of error messages, execution of the server is not guaranteed. If possible, the warning messages should be checked for the cause and dealt with immediately.

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