IZAR@SET

User Manual

User Manual

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nt o t on

s o so t e

IZAR@SET is a PC application for the configuration of complex devices like heat and water meters.
ou can also use it to read measured values and data logs analyse systems and save counter logs.

ste e e ents

The following requirements are recommended for normal use. Depending on the application the use of other configurations may be possible or necessary especially regarding data security and the required functions.

Operating systems supported
- Microsoft Windows P with Service Pack 2
- Microsoft Windows Vista
- Microsoft Windows 7 32-bit system

Recommended hardware
- CPU with minimum clock frequency of 2 Hz
- 1024 MB main memory
- 100 MB of available hard disk space
- CD-ROM drive
- etwork card for TCP IP protocol
- Screen with minimum resolution of 1024 x 768 pixels
- Bluetooth interface internal or external as USB stick with Widcomm Microsoft or BlueSoleil stack

Optional hardware components
- Serial interface for serial opto head

If problems occur with your built-in or external Bluetooth device we recommend using one of the following devices
- Fu itsu Siemens USB Bluetooth stick V2.1 for Windows P
- Fu itsu Siemens USB Bluetooth stick V2.0 for Windows 7

e es

The following devices can currently be configured with IZAR@SET
- Sonometer 1100
- SC LAR I T 8

ou must also use the Installation and Operating uide for configuring these devices. This contains detailed explanations of the device functions.

Only a limited number of parameters can be changed in the Standard mode of the program. To set other device parameters the system must be equipped with a dongle with the

necessary activation licence. More about this can be found in Section 3.2 Authorization levels.

Setting the parameters is explained in more detail in Section 5.4 Tab cards and Section 6 Configuring devices.

o t t e se n

This User Manual describes how to set up and use the IZAR@SET software. Please read the User Manual carefully before starting to work with the software.
Always have the Operating uide for your meter available.

Various font formats are used to make it easier for you to find your way around the User Manual

e o n o t on	o tt n	e
Commands	*italics*	Command *Save profile*
Safety Information	o	t s not oss e to n e t e e e n t e on t on o ess
References to sections	underlined	More about this can be found in Section 3.2 Authorization levels.
Functions in Expert mode	framed by dotted line	This function is only available in Expert mode.
Functions in Test Lab mode	framed	This function is only available in Test Lab mode.
Descriptions Instructions	normal	Please read the User Manual carefully before starting to work with the software.

Symbols used

		Damage to equipment or data loss is possible. Observe the causes and countermeasures.
		Additional information to simplify using the software.

C sto e s o t

ou can contact our Customer Support team as follows

H DROMETER mbH
Industriestra e 13
91522 Ansbach
ermany

Phone 49 981 1806 0
Fax 49 981 1806 605
E-mail support@hydrometer.de
Internet www.hydrometer.de

nst t on

The installation program for the IZAR@SET software can be downloaded from the Diehl Hydrometer home page.

Proceed as follows to download

o to our home page at www.diehl.com and click the *ro cts Sol tio s* register on the left. Then click *ro ct o loa* . The Product Download section opens with its three-column overview.

Select the desired partner in the left column *ro eter*
Select the product heading in the centre column *eteri S ste s* This heading opens.
ow select the product *S* .
Select the category in the right column *Soft are*.

The software .exe is available below this overview. Click the software title light green to start the download.

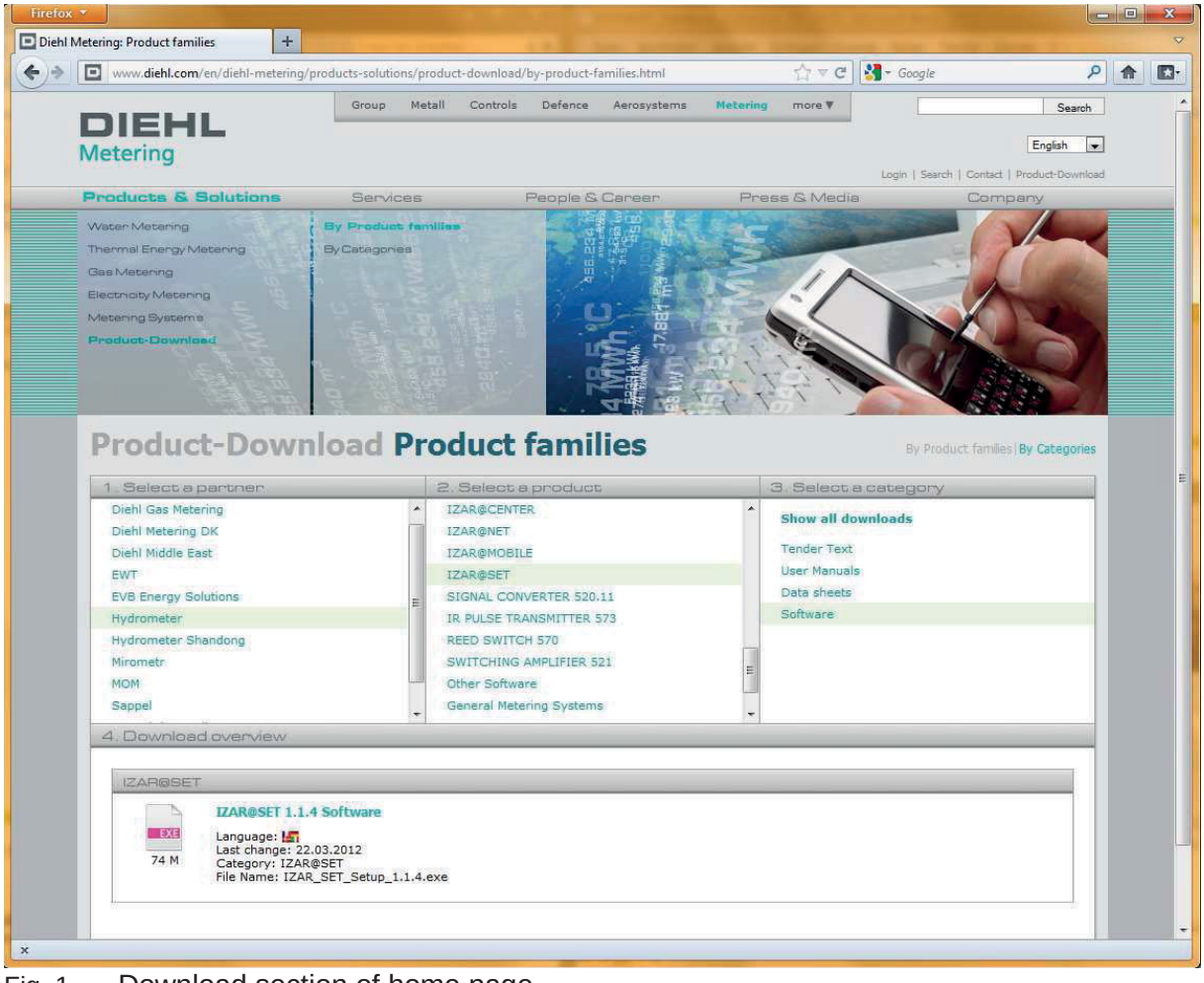

Fig. 1 Download section of home page

The installation is carried out in the DIEHL Metering program directory on your local hard disk.

s so t een es o to nt e ton n t n o e n
o non e t n n e e ete s o nt e
ton n et o eo est o e o nee on e t
t e ee nt t o ton see e ton t o ton e es

t t n

t t n t e so t e n o n n

When starting the program from the Start menu you must log in. The user name is *a i* the password is *ra io*.

Fig. 2 Login

t o t on e e s

In **t n o e** you can read the meter read logs and save logs as csv files but you can only change a few items of data.

For the **e t o e** you need a USB dongle with the respective authorization. Depending on the write protection of the device you can change parameters in this mode but not data relevant to verification.

To use the **est o e** test centres need a special USB dongle with more functions than the dongle for Expert mode. In Test Lab mode you can change fundamental device settings including verification data.

ou can purchase the authorization for Expert mode or Test Lab mode from Hydrometer who will then provide you with the necessary dongle. Connect the dongle to your PC laptop and restart the software. All functions of the relevant mode will then be available for your use.

o on e st s e onne te o o n n one o t e t o n e o es s s ne ess to o e ess to t e n e n t ons

Conne t n e es to

e t e se te e t n e o t e e e e o e e n t t

IZAR@SET can read devices and write configurations to devices using a Bluetooth opto head or a serial interface.

e etoot o to e s e e t n nte n tte ee t e tte s ent e

If you have a PC or laptop with a Bluetooth interface follow the instructions in Section 4.1 Setting up a Bluetooth connection.

If your PC or Laptop is OT equipped with a Bluetooth interface follow the instructions in Section 4.2 Setting up a Bluetooth connection with USB Bluetooth stick.

If you use a serial opto head to connect the device and PC laptop follow the instructions in Section 4.3 Setting up a connection with serial opto head.

ett n etoot onne t on

If you have a PC or laptop with a Bluetooth interface set up the connection between the software and device as follows

1. Start the IZAR@SET software and log in see Section 3.1 Starting the software and logging in .
   The main dialogue window appears.

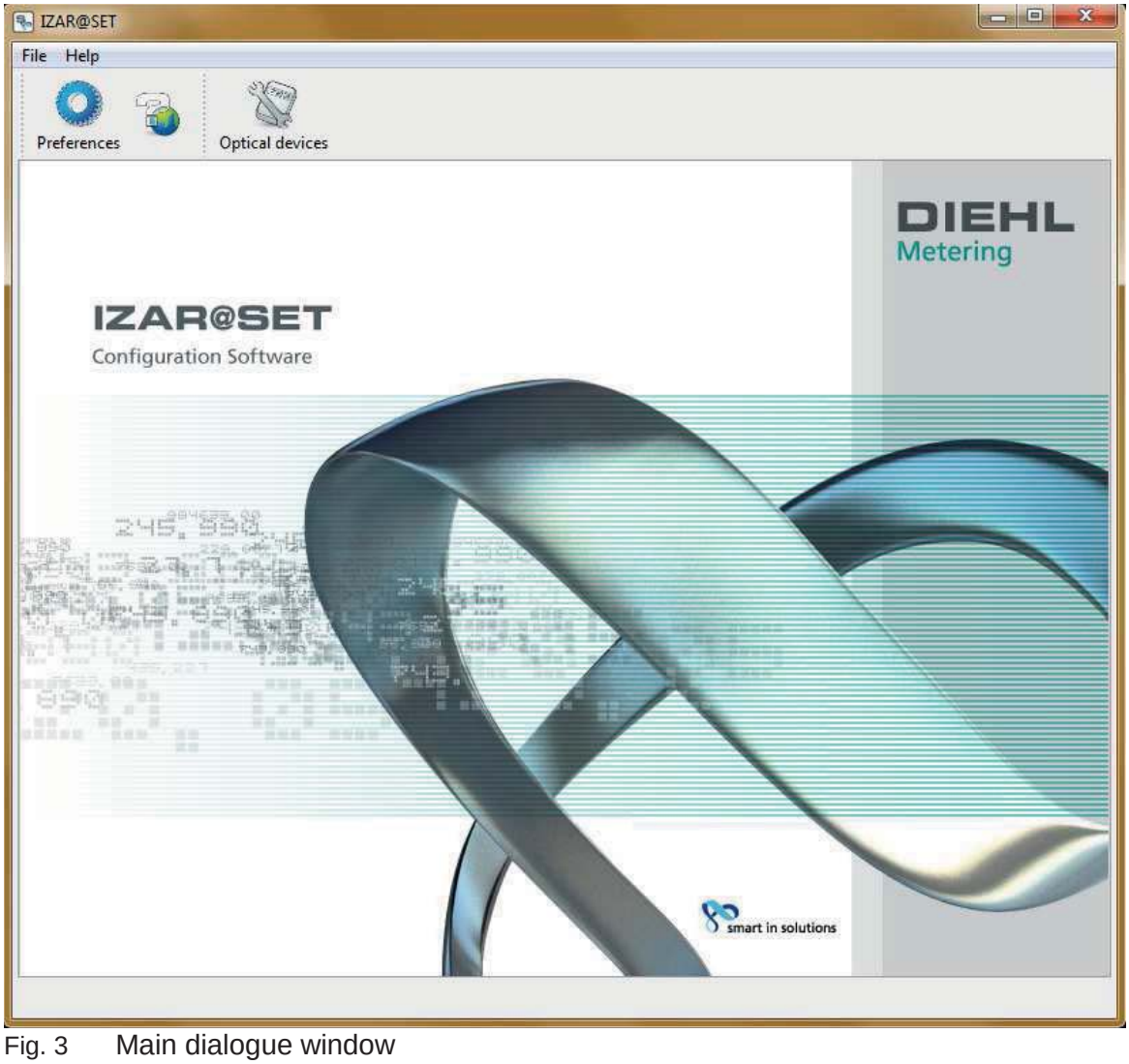

Fig. 3 Main dialogue window

2. Switch on the opto head by sliding the control to O .
3. Place the opto head on the optical interface of the meter.

Fig. 4 Opto head on system device and switched on

4. Click the *ser refere ces* symbol. Click *o icatio* in the menu on the left. Select the second option and set the desired COM interface. The COM interface for the Bluetooth settings is assigned by the operating system or selected Control Panel Set

up new Bluetooth connection .
Confirm and close the User Preferences by clicking .

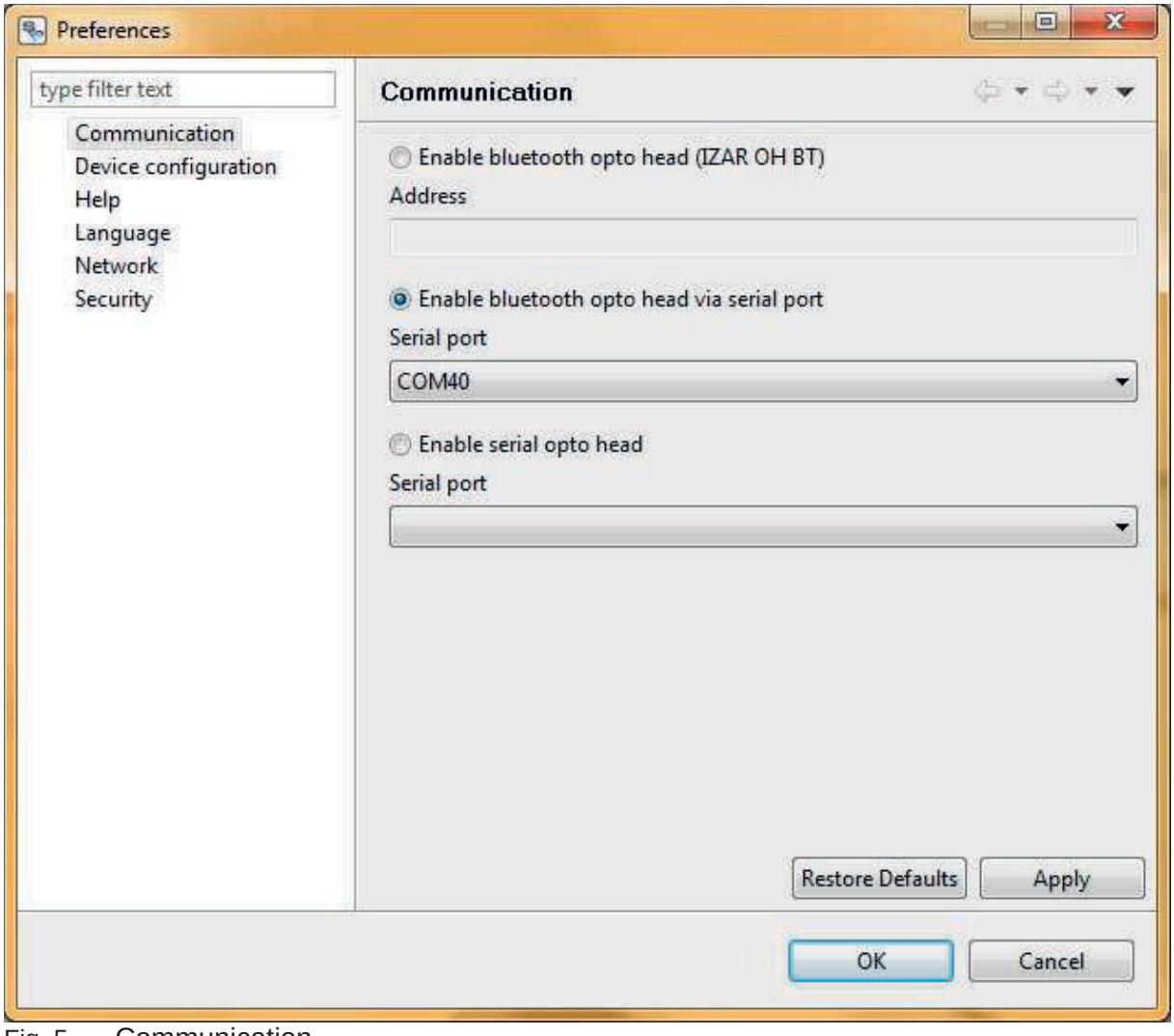

Fig. 5 Communication

The Bluetooth connection is set up. The blue lamp on the opto head lights if set-up is successful.

Fig. 6 Bluetooth connection complete

5. Click the *ptical evice* symbol to automatically identify the device to be configured. While the software is scanning for the device and reading the data a progress bar in the status line shows the status.

nn n o ess n e o te t t e e tton ne t to t e o ess

ou then pass to the configuration phase. A user interface specially for the device appears for setting the specific parameters of the device.

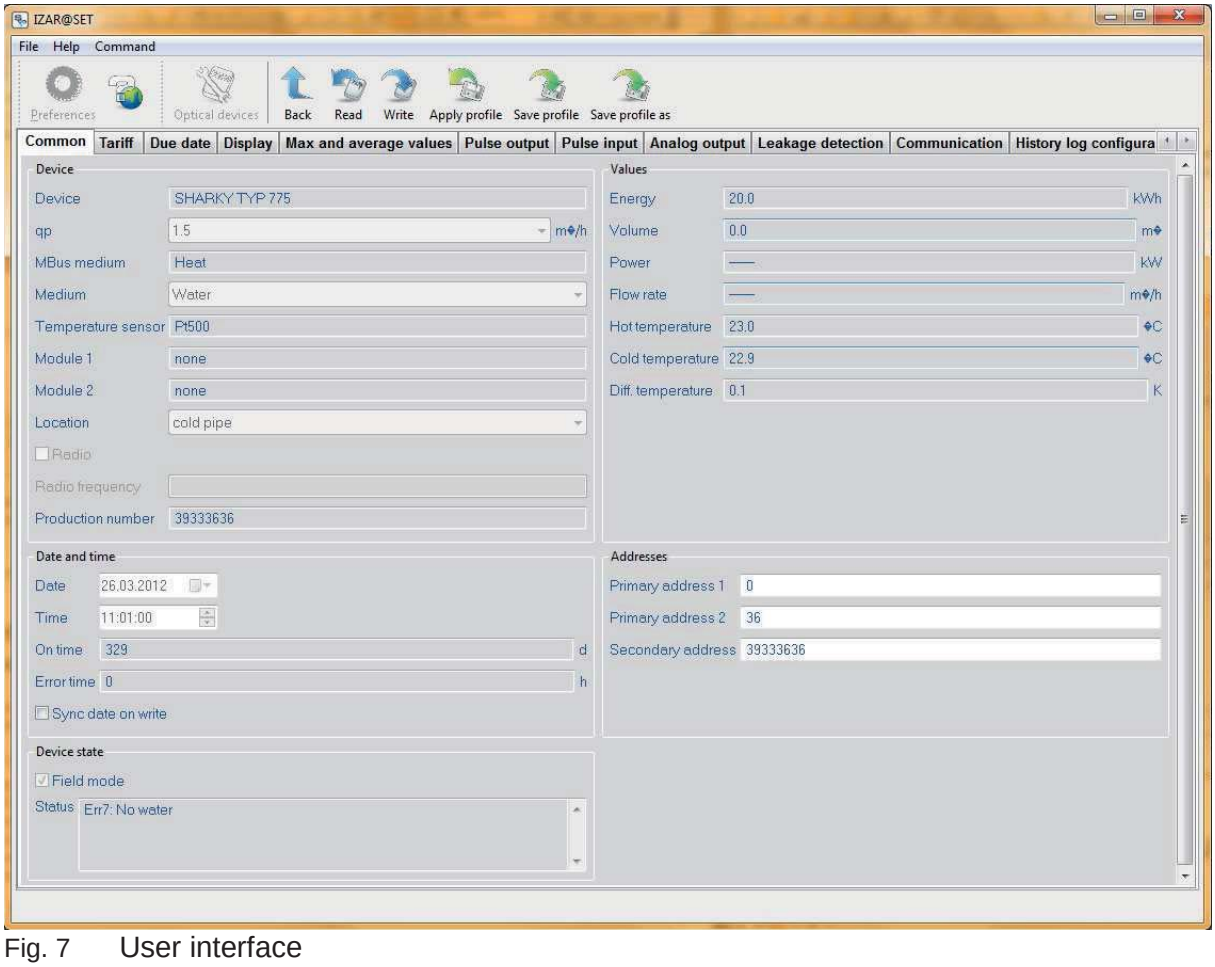

Fig. 7 User interface

ett n etoot onne t on t etoot st

If your PC or laptop is not equipped with its own Bluetooth interface use a USB Bluetooth stick see Section 1.2 System requirements .

1. Insert this USB Bluetooth stick in a free USB slot of your PC or laptop.

   C o t t e o o n sn t est o t e st t e

   Install the driver software for the USB Bluetooth stick takes place automatically or use the enclosed CD .

   Add a new wireless device to your PC or laptop. Do this by selecting the *I etoot evices* folder in the Control Panel of your PC laptop. Click the *ireless evice* function and follow the instructions that appear.

e note o t e etoot ess o t e o to e o t e sett n n t e ess n e o n n e t e o e tes o t e o to e

2. Start the IZAR@SET software and log in see Section 3.1 Starting the software and logging in .
   The main dialogue window appears.
3. Carry out steps 2 to 6 as described in Section 4.1 Setting up a Bluetooth connection.
   Click the *ser refere ces* symbol. Click *o icatio* in the menu on the left.
   Select the first option and enter the MAC address of the opto head. Confirm and close the *ser refere ces* by clicking .

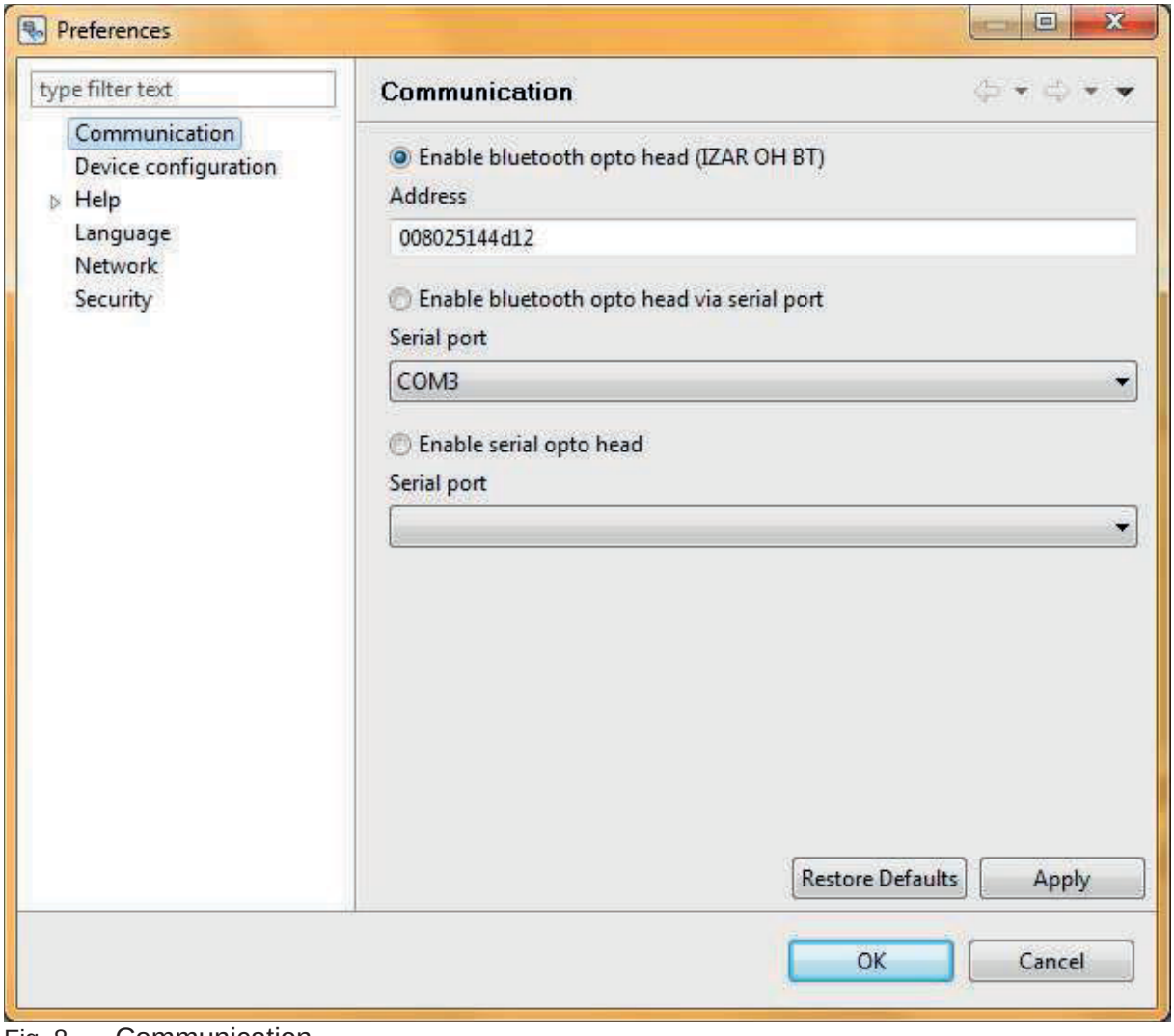

Fig. 8 Communication

ett n onne t on t se o to e

If you wish to set up the connection between software and device over a serial interface proceed as follows

n o to e s e s o te

1. Start the IZAR@SET software and log in see Section 3.1 Starting the software and logging in .
   The main dialogue window appears.
2. Connect the serial opto head to a serial port of your PC laptop.
3. Carry out steps 2 to 6 as described in Section 4.1 Setting up a Bluetooth connection.
   Click the *ser refere ces* symbol. Click *o icatio* in the menu on the left.
   Select the third option and set the desired interface. Confirm and close the *ser refere ces* by clicking .

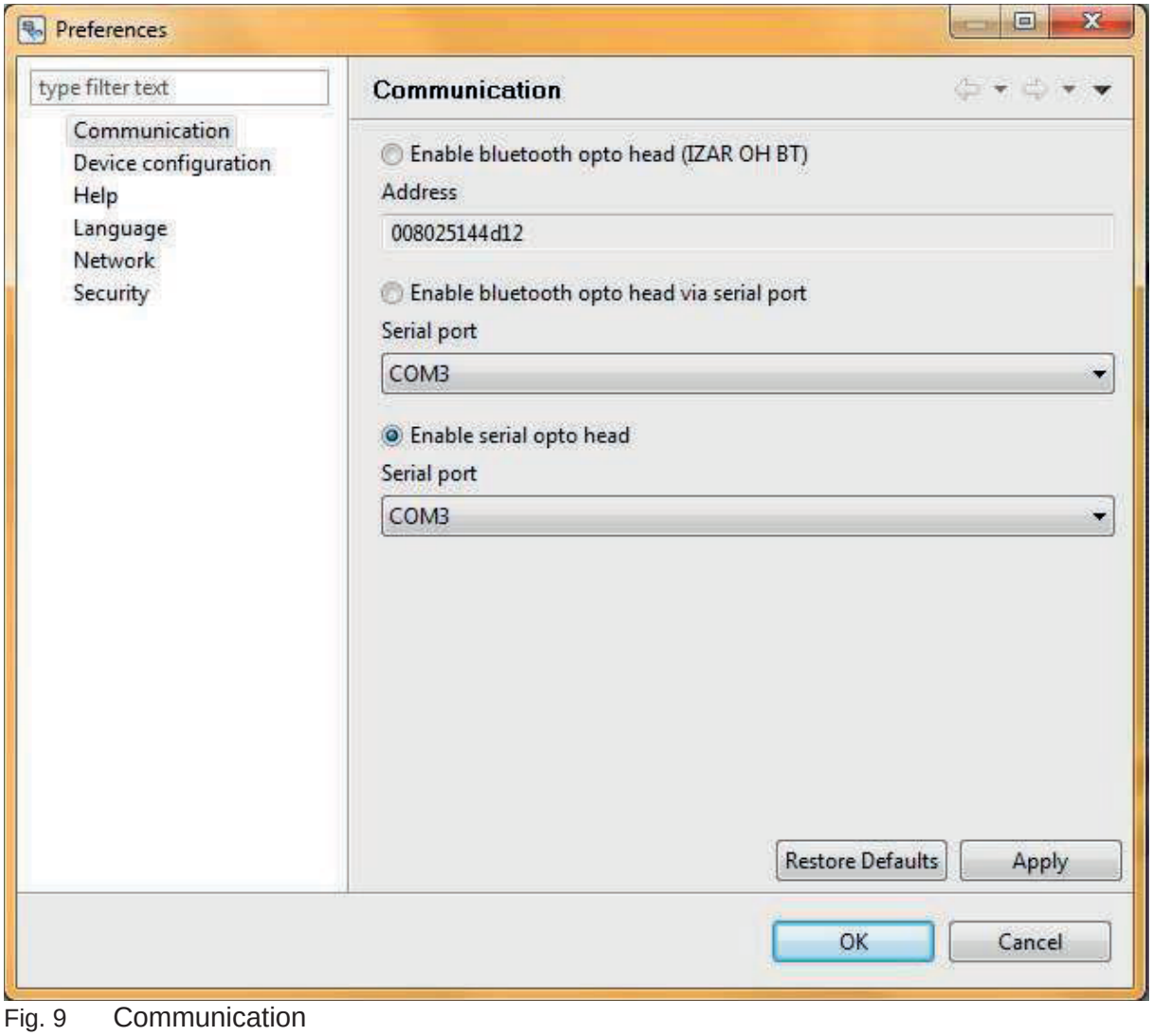

Fig. 9 Communication

se e e en es

By selecting the *ser refere ces* menu option in the main dialogue window you access the dialogues for the general application settings. ou can set relevant conditions for the application here.

e e on t on

The functions in the *evice o fi ratio* dialogue are not available for all devices or all parameters.

The functions in the *evice o fi ratio* dialogue are only available in Expert mode.

llo i riti of evices it o t prior rea i
It is sometimes necessary to configure a number of identical devices with the same setting. To speed up processing this configuration should be possible without prior reading see Section 6.3 Working with profiles .

llo i riti of evices if i vali para eter states e ist
It is not possible to write a device if errors still exist in the fields of individual tab cards. This function explicitly allows writing despite the existence of errors but you are notified of the error see Section 6.1 Input aids .

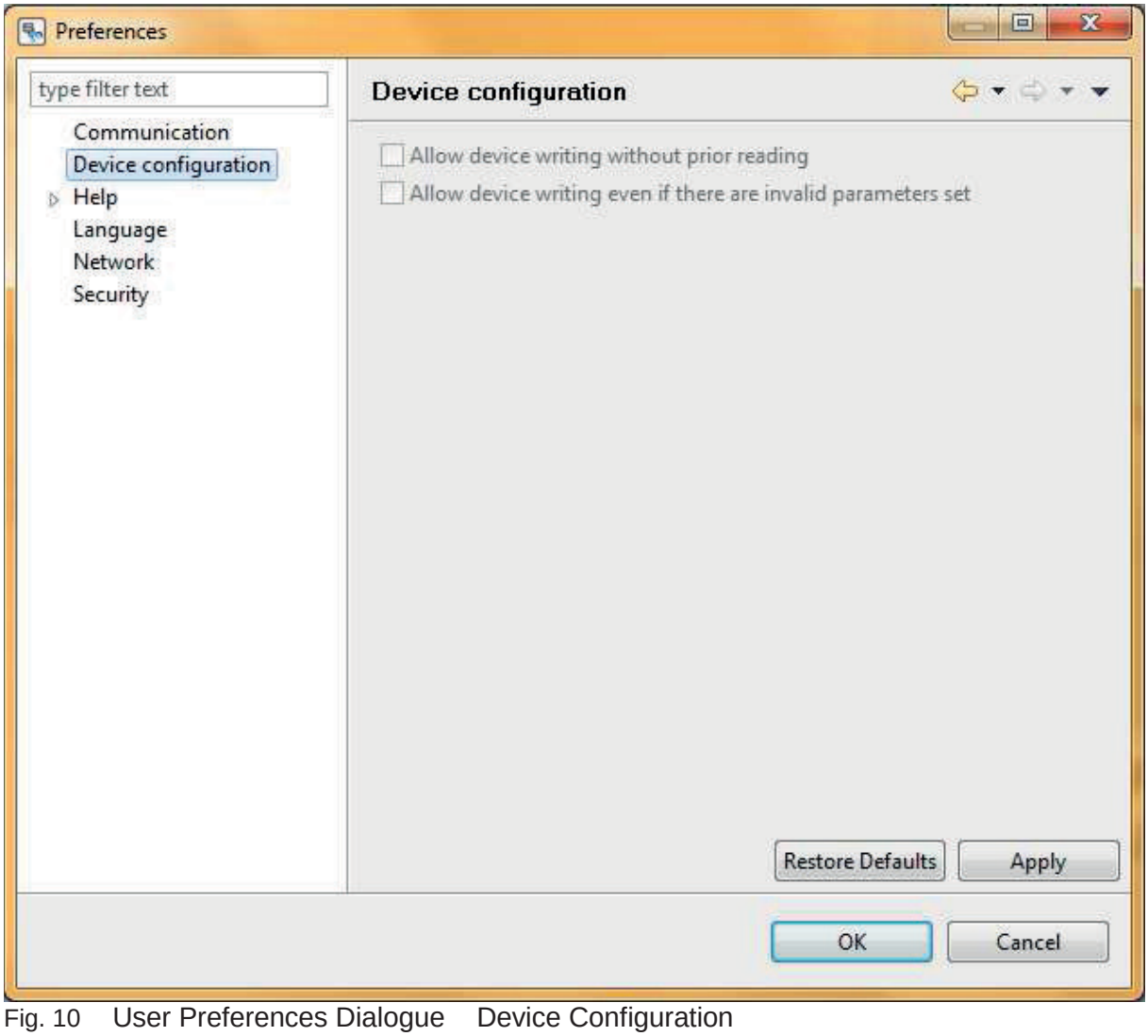

Fig. 10 User Preferences Dialogue Device Configuration

e

The *elp* dialogue can be used to define the display of the help texts. ou can choose whether the help appears in the dynamic help view or is opened in a web browser.

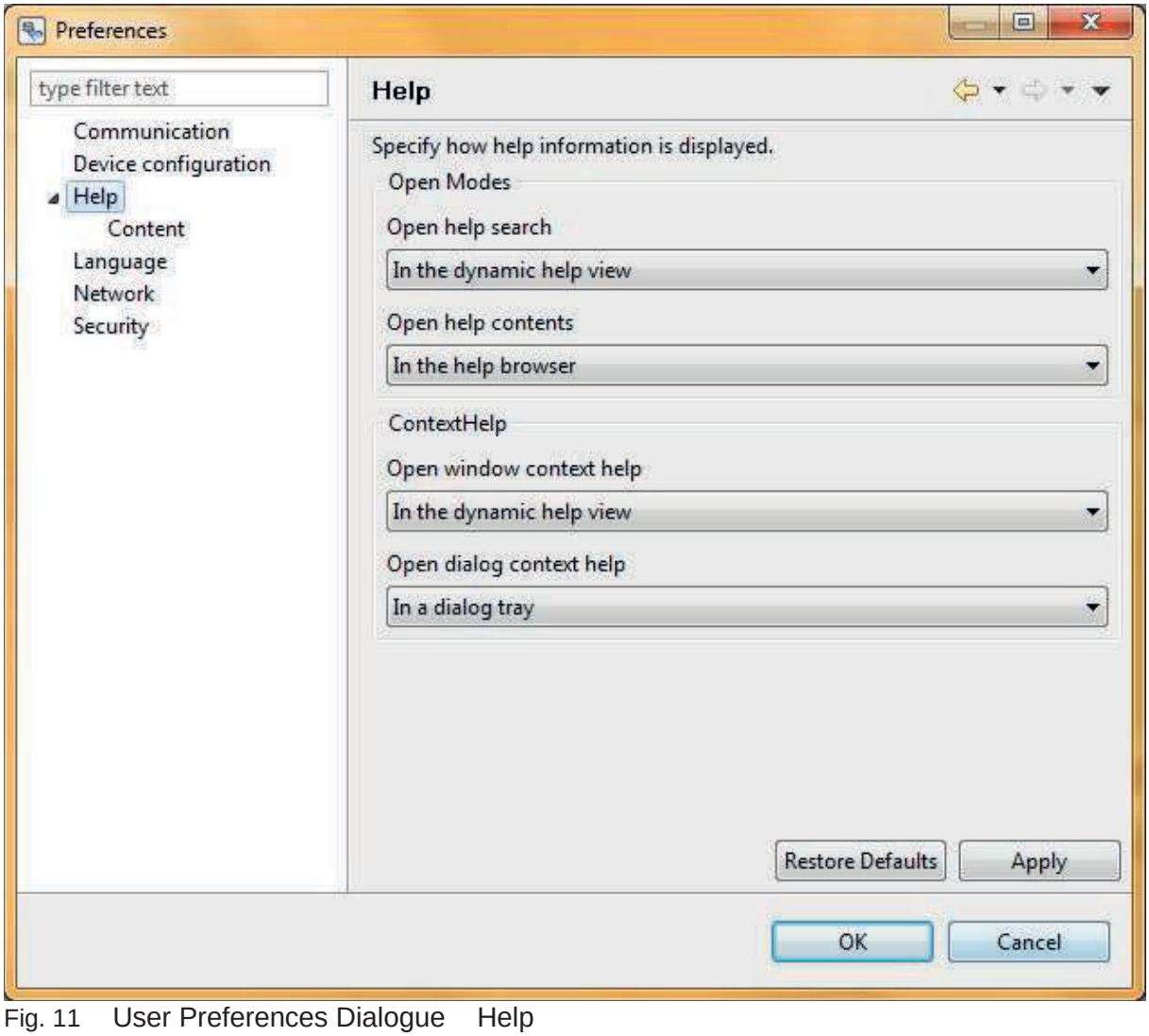

Fig. 11 User Preferences Dialogue Help

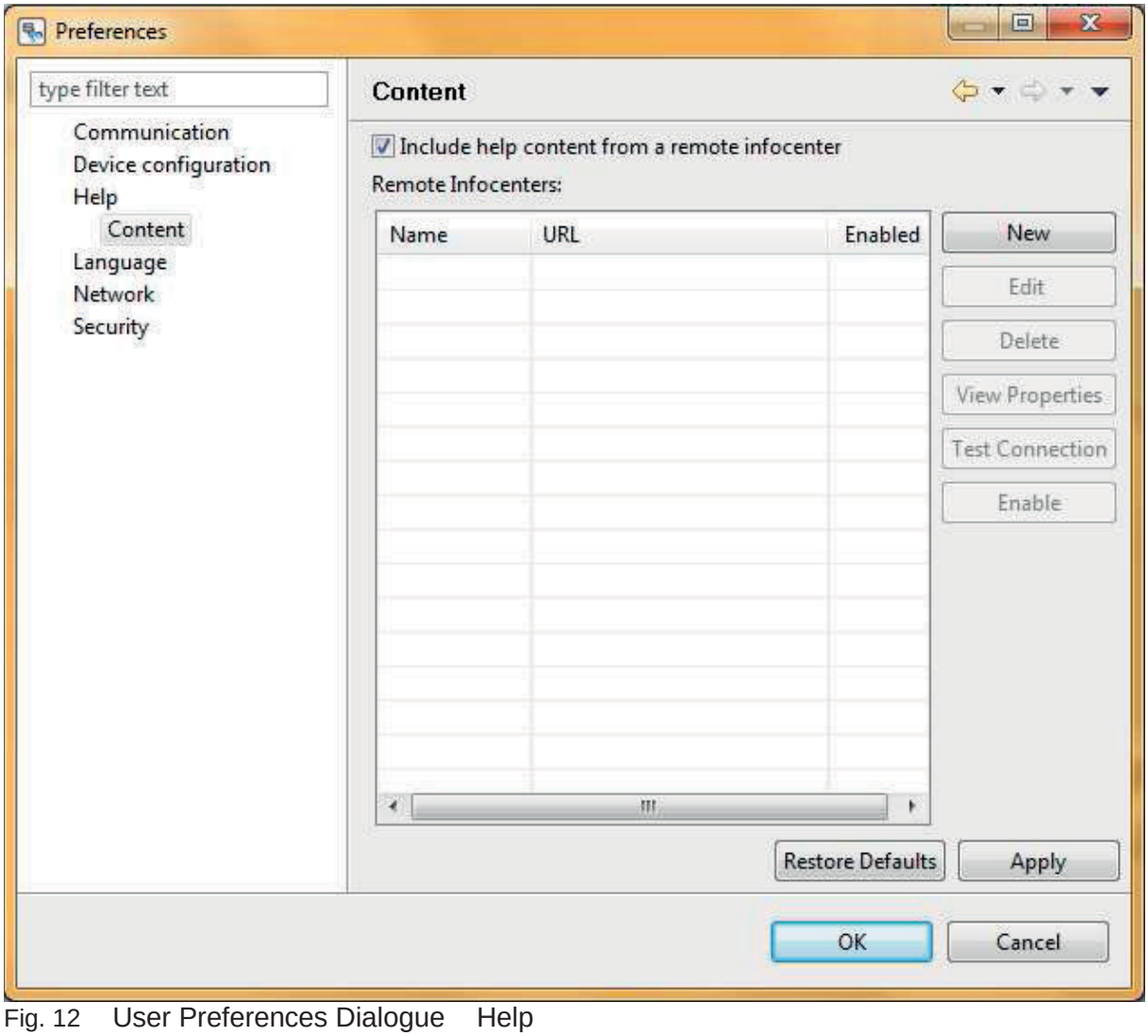

Fig. 12 User Preferences Dialogue Help

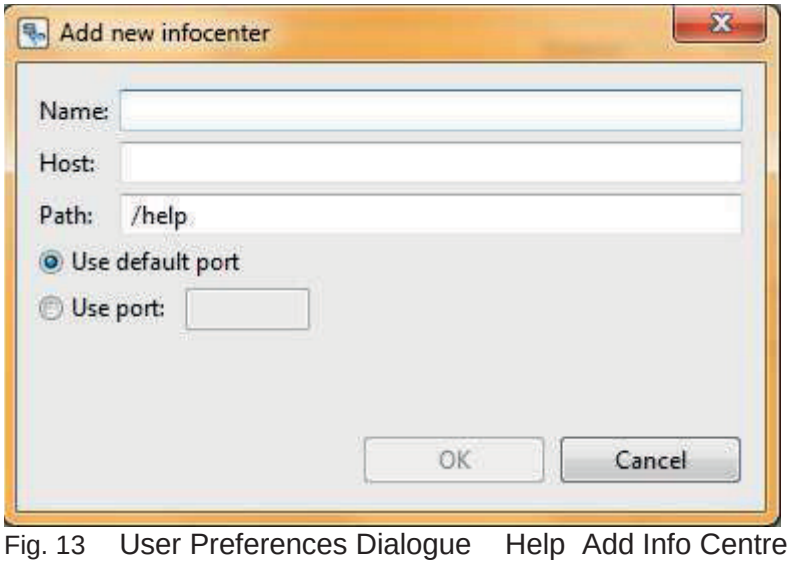

Fig. 13 User Preferences Dialogue Help Add Info Centre

Co n t on

The *o icatio* dialogue is for specifying how IZAR@SET communicates with the devices connected to it. The settings shown below are possible
Detailed information on connecting devices to the software can be found in the preceding Sections 4.1 Setting up a Bluetooth connection 4.2 Setting up a Bluetooth connection with USB Bluetooth stick and 4.3 Setting up a connection with serial opto head.

- Bluetooth opto head IZAR OH BT
  Enter the Bluetooth address printed on the opto head .

s o t on on n t ons etoot st o oso t
o o o o eso e s nst e n t e s ste e
o o n o t on st e se o ot e etoot st s e os
etoot so t e

- Bluetooth opto head IZAR OH BT via serial Enter a virtual COM port to which the Bluetooth opto head is connected. Configure the virtual COM port in accordance with the User uide for your Bluetooth stick.

- Serial opto head Enter the COM port of the serial opto head

e t

The *Sec rit* dialogue is used to define whether IZAR@SET is to change the password and or radio key on the device during device configuration.

ou can only change these settings in Expert mode.

eep pass or
The device radio key is not changed.

Set ra io e to efa lt
If activated the device is rewritten with the default radio key.

Set o ra io e
If activated the device is rewritten with the radio key entered.

ote t t t e o e e e s st so e t e o es on n
o e

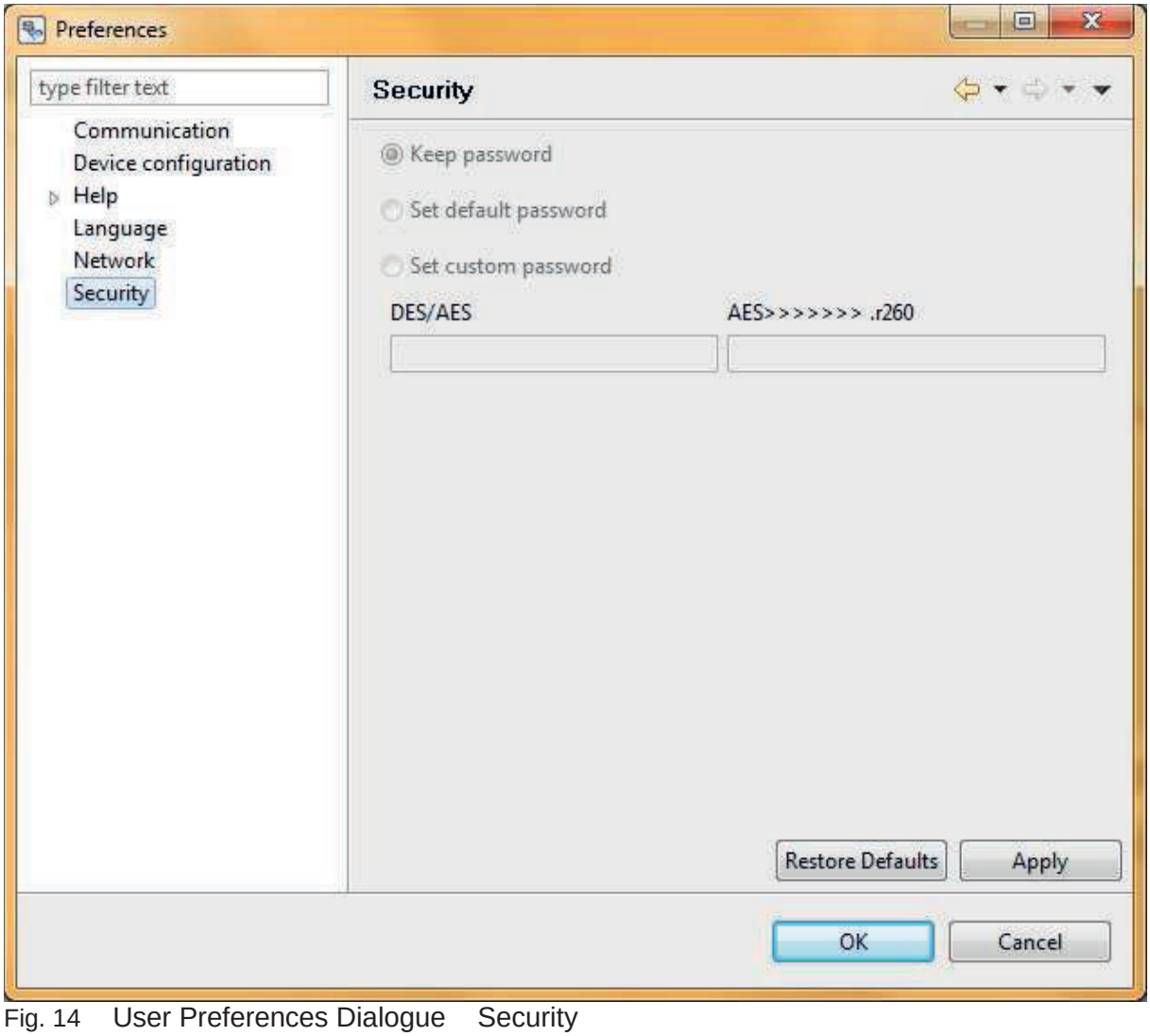

Fig. 14 User Preferences Dialogue Security

n e sett n

The *a a e Setti* dialogue is for setting the language in which dialogues and texts are displayed in IZAR@SET. The language setting also changes the display of the date or numerical values.

The following languages are possible

- erman
- English
- French
- Hungarian
- Polish

te n n t e n e st e est te o t e n e to e o e e e t e

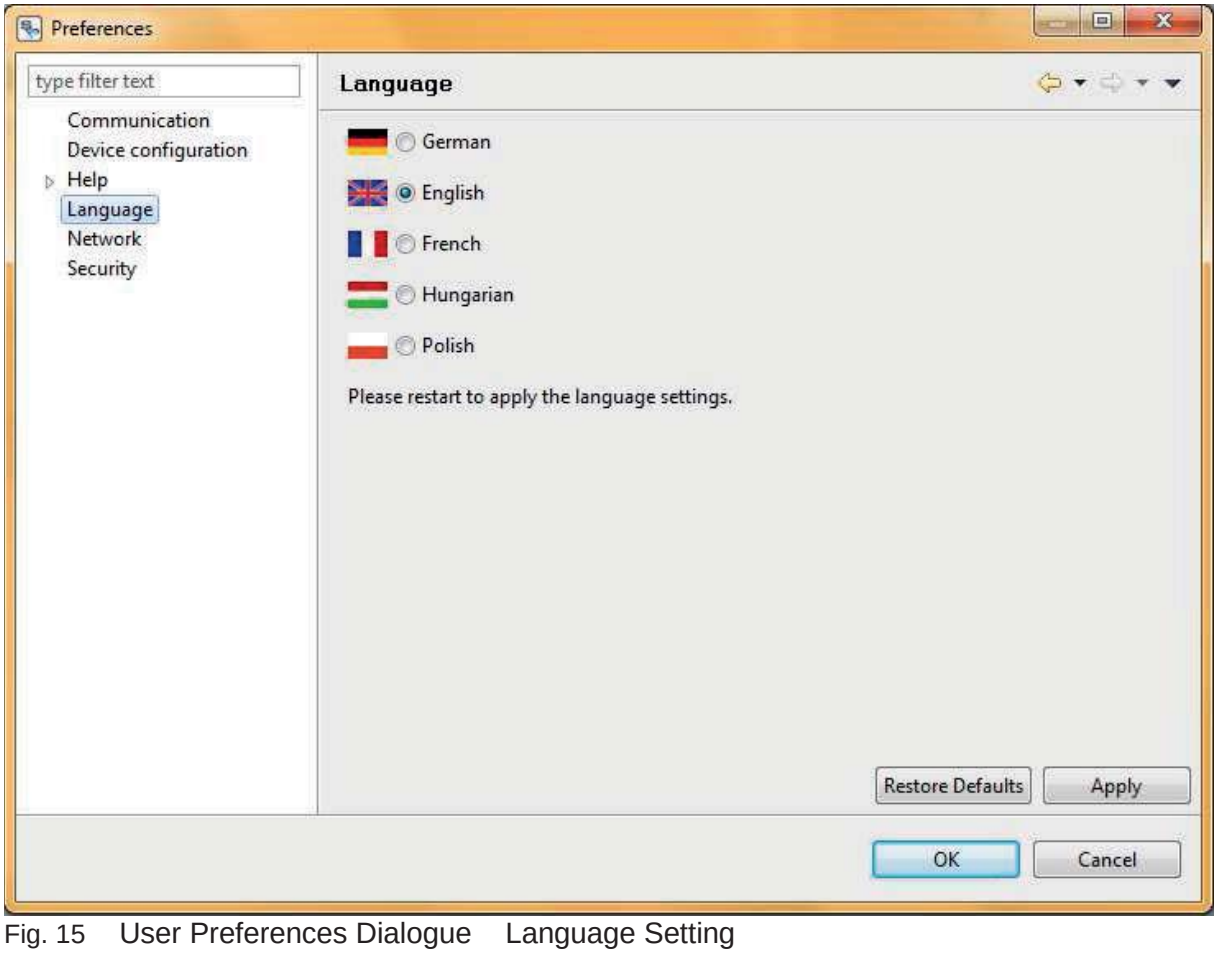

Fig. 15 User Preferences Dialogue Language Setting

ett n

se nte e

The figure below shows the basic design of the user interface and the following sections provide more information about the various parts.

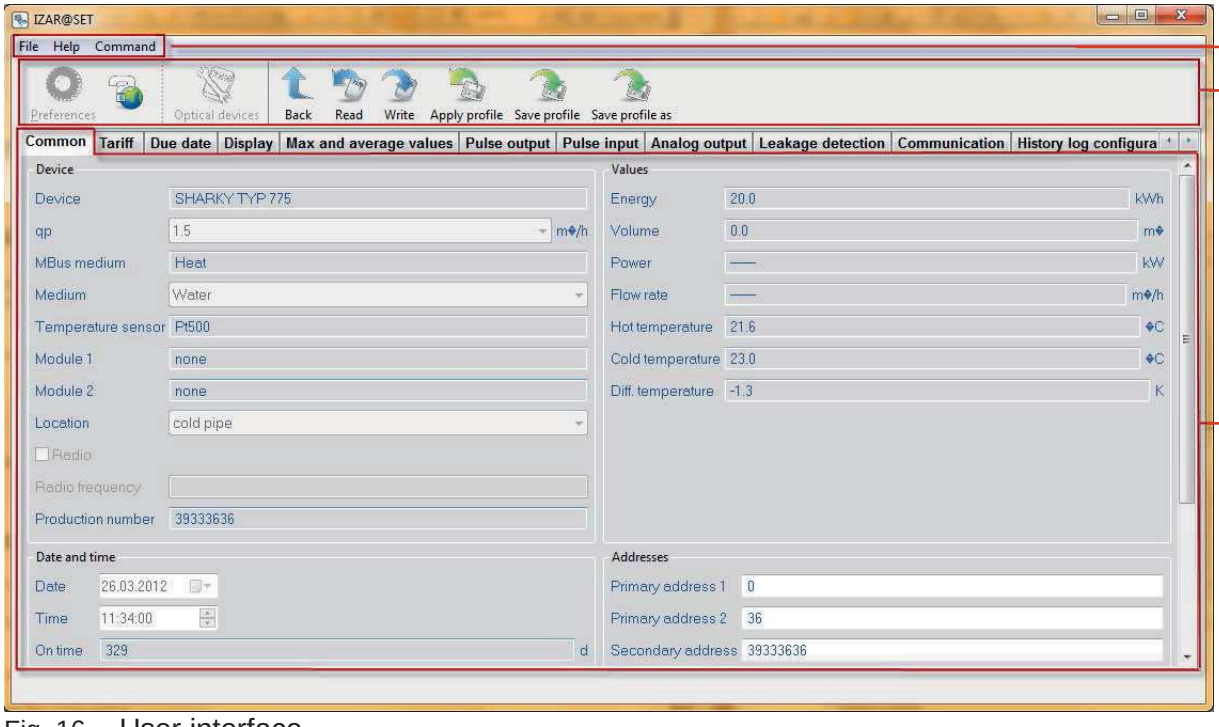

Fig. 16 User interface

Legend

1 Menu bar
2 Toolbar
3 Configuration dialogues arranged as tab cards

en

The *ptical evices* button in the main menu of the program is used to read the device connected.
The following commands are then available in the menu bar

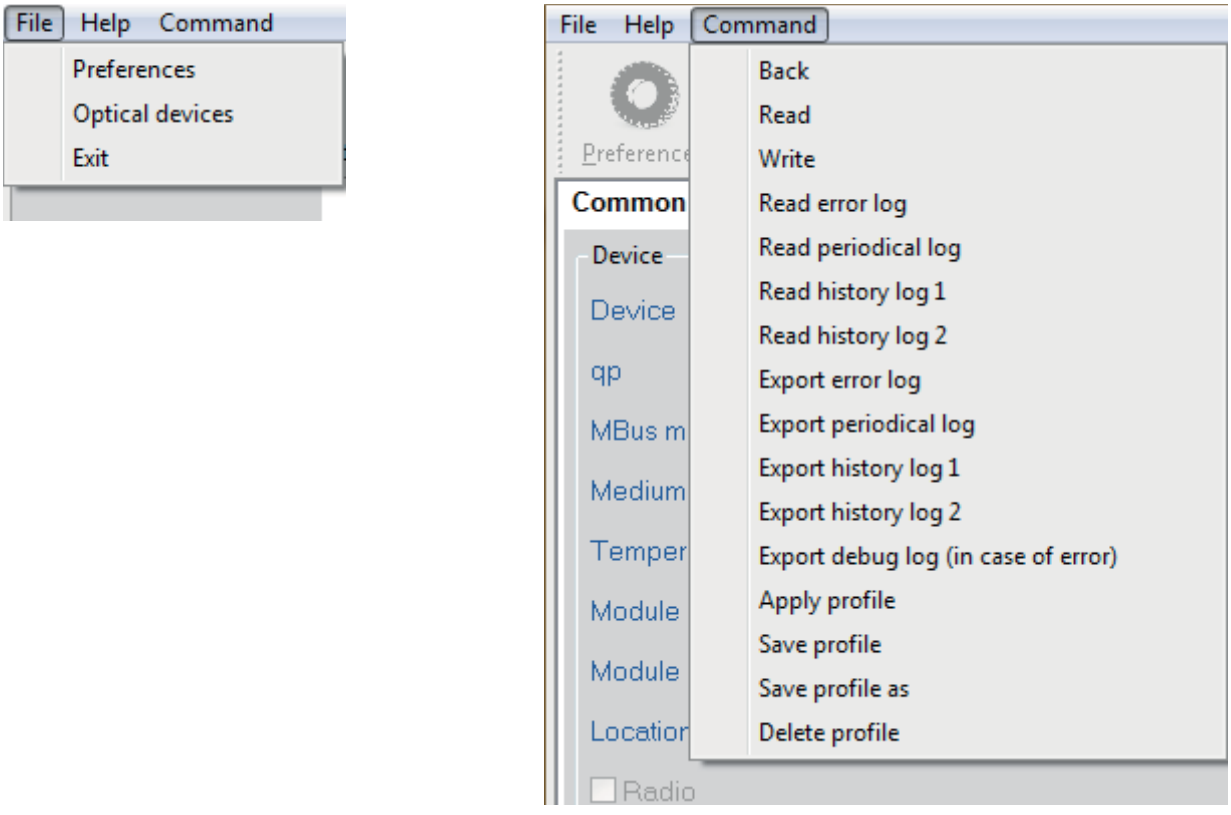

Fig. 17 Commands in the menu bar

ac opens the main menu
it closes the program

ea the device is read again only the current values are shown the logs are called up via the *o a s* menu
rite writes changes to the device

ea reads the various logs
- *rror lo*
- *erio ical lo*
- *istor lo*
- *istor lo*

The associated tab cards are filled.

port of the various logs
Writes the selected log see above as csv file to the Data folder in the program directory C Programs Diehl Metering IZAR SET IZAR.
The file name consists of the production number of the device the name of the log and the time of saving.

reate ia ostic file if error occ rs
This command creates an encrypted diagnostic file which can be evaluated by Customer Support at Hydrometer if an error occurs. In this case as much data as possible is read from the meter which means this operation can take a very long time. ou should therefore only use this command in the event of an error.

lear

e e e st o t e es e t e e n t on

The clear function is only available in Expert mode and Test Lab mode.

- Clear operating hours
- Clear error time
- Reset leakage alarms
- Clear error log
- Reset the device and all logs

Profiles

- *ppl profile*
  Here you call up a stored profile of a device configuration. The settings from this profile are applied to the current device.
- *Save profile*
  ou transfer the changes made to the device settings to the current profile. A profile must be available and selected.
- *Save profile as*
  ou transfer the changes made to the device settings to a new profile.
- *elete profile*
  ou delete a selected profile.

Detailed information can be found in Section 6.3 Working with profiles.

oo

ou can use the symbols in this bar to read parameters change parameters for the device and create delete and apply profiles to the device.

o n es e not s e nt e e nt o e e te t e *Write* o n nt e en o n e t s e n t e ent ete s o t e e e t t e *Read* o n o e n o t on n e o n n e t on Con n e es

The following commands are available in the toolbar

Fig. 18 Toolbar

ac opens the main menu

ea the device is read again only the current values are shown the logs are called up via the *o a s* menu

rite writes changes to the device

Profiles see Section 5.2 Menu bar

s

s o t s

Related data in the tab cards can be grouped with a frame. The data groups are arranged according to window size.
The following figure shows you examples of the data groups.

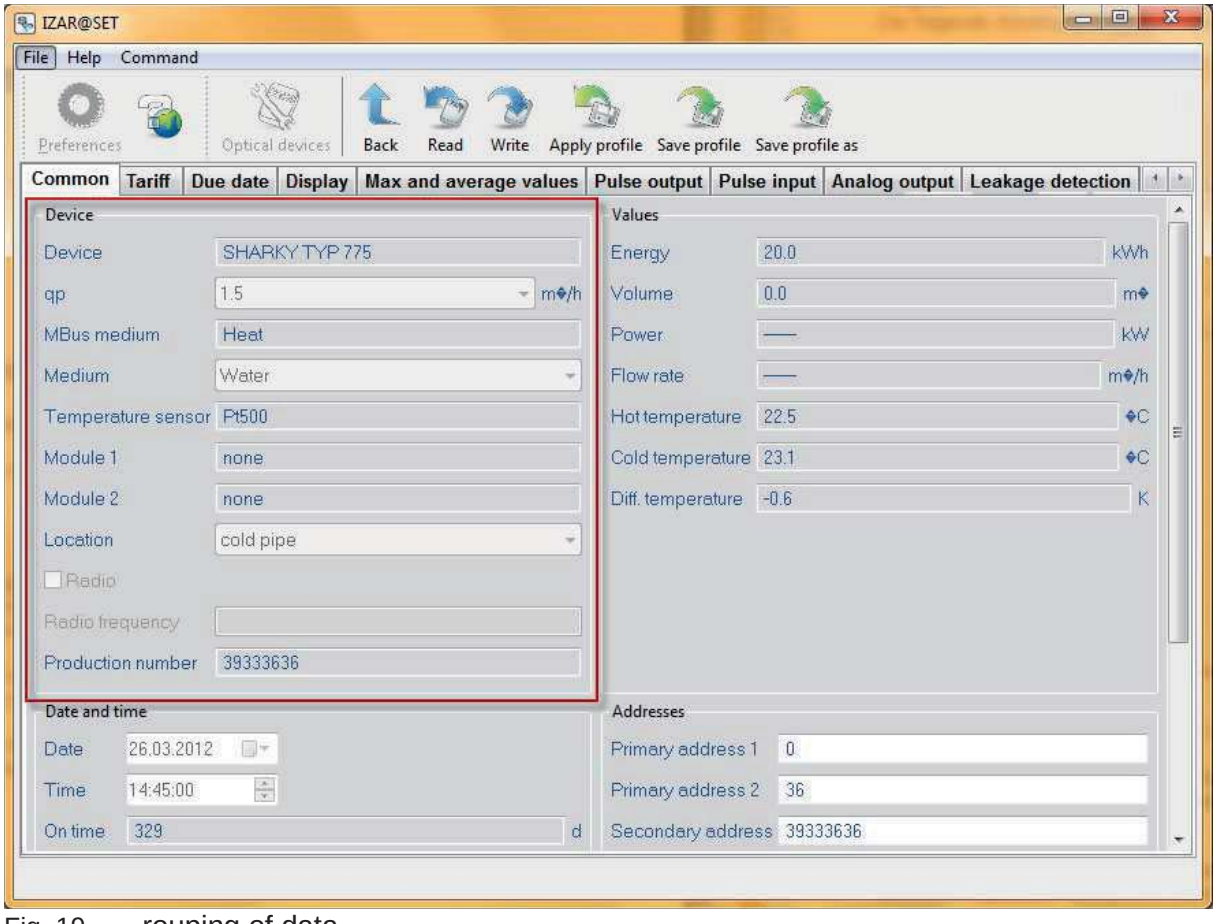

Fig. 19 rouping of data

A tab card is displayed by clicking its tab. The tab of the active tab card is highlighted. The tab cards can be opened in any order. ou can use the arrow keys to the right of the tabs to change to any tab cards not displayed in the window.

The device data are distributed to and shown on various tab cards. ou can carry out calibration of your device in the individual tab cards.

ou can configure your device for other tab cards e.g. set the tariff settings and set days define maximum and mean values calibrate leakage detection or evaluate stored data.

e o *“common”* t o ono ete

The tab card shows general data for the device.

The data are combined in logical groups

- Device full identification and device designation
- Values meter counts
- Date and time can be synchronized to the PC in Expert mode
- Addresses primary and secondary addresses of the device can be changed
- Device status shows the protection level and current error messages of the device

ou can change the date time and addresses of the device.

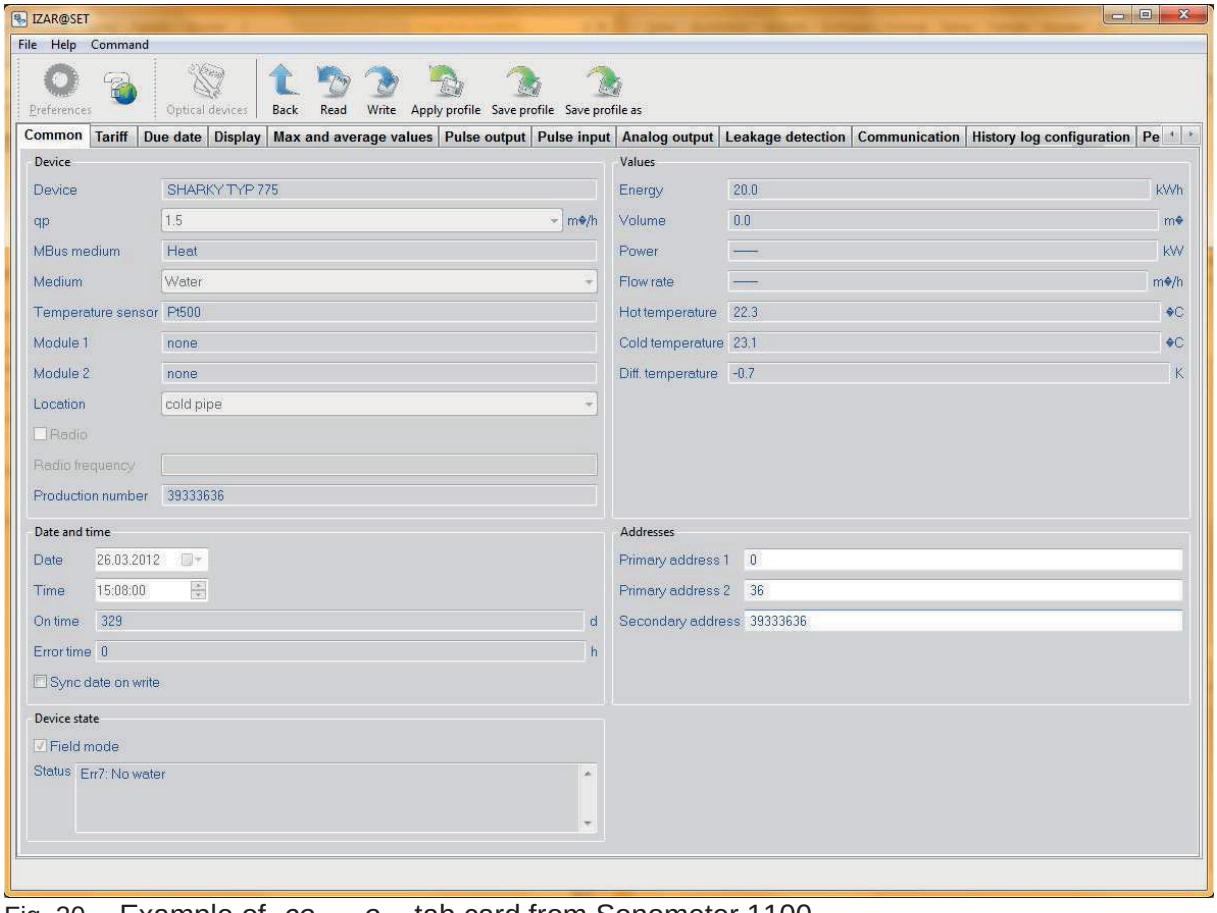

Fig. 20 Example of *co o* tab card from Sonometer 1100

Con n e es

n t s

The following input aids are provided to simplify entering values

Dates are entered using a calendar display. This opens when you click the button on the right of a date field. ou can also enter a date directly in the input field.
In addition discrete values are entered using selection fields that only offer you a choice of valid values.

Lists right-left lists are available for you to assign mass data. Here the available fields are shown in the left column and the fields already selected in the right column.

Multi-line windows are used to display log data. Pop-up windows appear if questions or messages must be taken into account when changing data.

Many parameters have side effects.
For example the parameter that defines the tariff mode influences another field such as the tariff limit. These relationships are indicated in the user interface by a yellow background to highlight parameters that are changed when another parameter is changed.

Invalid inputs are indicated in a similar way. If an input field contains an invalid value or its value becomes invalid because another parameter has been changed the background of the invalid parameter is marked red.

Con n e e

When you order a device you will be asked for your required parameters and these will already be set on delivery. If you have not provided any information with your order the device will be supplied with the default settings.

se s n t n o e n on n e te n e o es
o e ete s n on e n e t es ste s e e t
on e t t e e e nt en e t te

To access device configuration click *ea* in the main dialogue window. The device is first read and its current values shown in the user interface.

ou can then start changing the device parameters.
ou can change as many parameters as you wish as the changes initially have no effect on the device but are only made in IZAR@SET. Every change is checked for valid inputs so invalid inputs or the consequences for dependent parameters are shown immediately.

our changes are not saved in the device until you execute the *rite* command. ou can read the current device values again with the *ea* command. Unwritten changes to parameters are overwritten and set to the values of the device see Section 6.3.2 Apply profile .

ns et tt eo to e e ns onne te tot e e e n t e on t on n t tt eo to e ss t e on o onne te to t e C

o n t o es

To configure many devices with the same settings you can save settings for each type of device as profiles. A profile comprises only the changed parameters.

C e t n o e

1. To create a profile first read the device.
2. Carry out any changes required for the profile.
3. Execute the command *Save profile as*. Only the changes made are logged and saved as a profile.
4. ou can also extend a profile retrospectively. This is done by making the device changes necessary for the extension and saving these under the existing profile.

e o e s s e n t e so t e t s not t ns o t e t on e t e so t e

o e

1. First read the device then open the *ppl profile* command in the menu bar.
2. Select one of the stored profiles. The changes are made in the IZAR@SET software.
3. Press the *rite* button to save the changes.
4. Read the device again to make sure the changes have been saved successfully.

If you have selected the command *evice co fi ratio llo evice riti it o t prior rea i* under User Preferences a profile can be transferred to the connected device without prior reading. At least one device must be read previously however because you can only execute the *rofile* command from the device view.

o es n on e e to e es o t e s e ene t on

e ete o e

1. Use this command to delete a profile you no longer require.
2. Select the profile to be deleted if several profiles exist and confirm the deletion by clicking .

C n n e es

t s not oss e to n e t e e e n t e on t on o ess

To configure another device first finish the current configuration process completely and return to the main dialogue of IZAR@SET.
Connect a new device. Start a new configuration using the command *ptical ea i* for device detection.

n n on t on

When you have made all the required configurations close the configuration process completely by returning to the main dialogue of IZAR@SET. Exit the program using the menu *ile it*.

e

Selecting the *elp* menu option in the main dialogue window gives you access to the User Manual and other information.

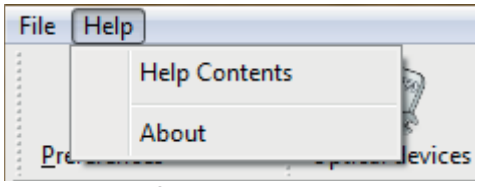

Fig. 21 Help menu

Selecting the *o t* menu option shows the licence information.

Fig. 22 Information about IZAR@SET

elp opens the User Manual.

e not es

H DROMETER mbH Ansbach ermany 2000 2008

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Diehl Metering
Industriestra e 13
91522 Ansbach ermany

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The customer acquires the following on conclusion of this contract and payment of the full purchase price

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b a non-exclusive licence to use the acquired software in the current version at the time of acquisition including any official updates releases published by the LICE SOR up to this time. The customer receives this licence provisionally on taking possession of the software until a possible default on payment. In the event of default on payment the licence is automatically cancelled until the customer settles any outstanding payments.

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t Con ent t

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t tten o

Changes to this contract including changes to this written form clause subsidiary agreements or amendments and supplements shall be made in writing.

t e n e o s t on

1 This contract is governed by erman law excluding U Sales Law.

2 The place of urisdiction including for action against the LICE SOR is Ansbach. The LICE SOR may alternatively file proceedings at any other legally provided places of urisdiction.

t en es

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The Sonometer 1100 ultrasonic energy meter is available in three variants heat meter heat meter with cooling tariff and cooling meter.
The IZAR@SET display may vary according to the variant used.

Sonometer 1100 is used for measuring thermal energy flow rate and temperatures and has the option of reporting flow rate deviations leaks .

Sonometer 1100 operates in the temperature range from 5..90 130 150 C depending on variant and nominal size.

C to

The following figure shows the design of the integrator. More detailed information is available in the separate Operating uide for Sonometer 1100.

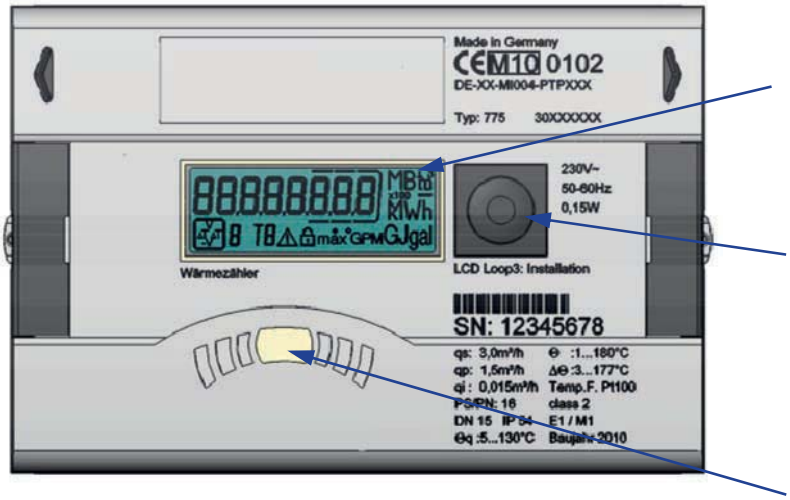

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Fig. 23 Design of integrator in Sonometer 1100

9.2 Reading and configuring Sonometer 1100

9.2.1 Connecting Sonometer 1100 to IZAR@SET

Start the software and connect the Sonometer 1100 to your PC/laptop (see Section 4 Connecting devices to IZAR@SET).

Click the *Optical Devices* button to automatically identify the Sonometer 1100 to be configured. While the software is scanning for the device and reading the data, a progress bar in the status line shows the status.

A running process can be aborted with the red button.

NOTE

You then pass to the configuration phase. A user interface appears for setting the specific parameters of the Sonometer 1100.

9.2.2 Common tab card

The tab card shows general data for the device.

Device	Values (current meter counts)
• Device name – Sonometer 1100 • q_p m³/h • Medium to be measured – heat • Temperature sensor – Pt500 • Module 1 • Module 2 • Installation location – is entered automatically • Radio • Frequency • Production number – is entered automatically	• Energy kW/h • Volume m³ • Power kW • Flow rate m³/h • Temperature (hot) ℃ • Temperature (cold) ℃ • Temperature difference K
Date and time	Addresses
• Entered automatically	• Entered automatically
Device status	
• Shows the protection level and current error messages of the Sonometer 1100	

The date and time of the device can be changed in Expert mode.

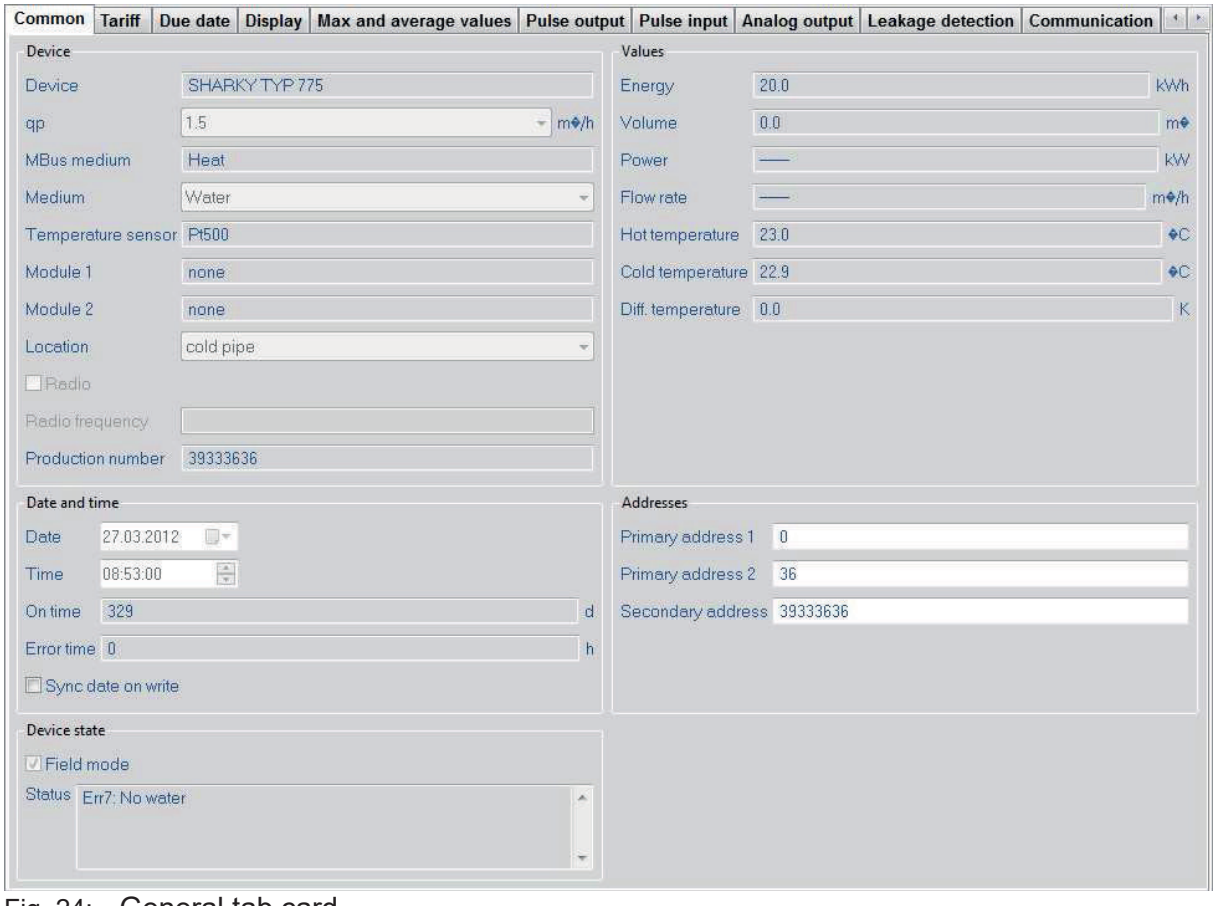


Fig. 24: General tab card

9.2.3 Tariffs tab card

You can set four different tariff counters in the Sonometer 1100.
The tariff registers only accumulate if the tariff condition is fulfilled.
The following table contains the tariff conditions for tariff logs 1 to 4.

You can only set tariff 1 and 2 in Expert mode or Test Lab mode.

Tariff types, value limits and resolutions

Type	Limit	Resolution limit
⊠T	1 .. 255 ℃	1 K
Tr,Tf	1 .. 255 ℃	1 K
P	1 .. 255 kW	1 kW
Q	0.1 .. 25.5 m³/h	0.1 m³/h
Z		15 minutes

Time-controlled tariff Z (example):

Day	Time
Mon-Fri on	06:00
Mon-Fri off	22:00
Sat-Sun on	06:00
Sat-Sun off	22:00

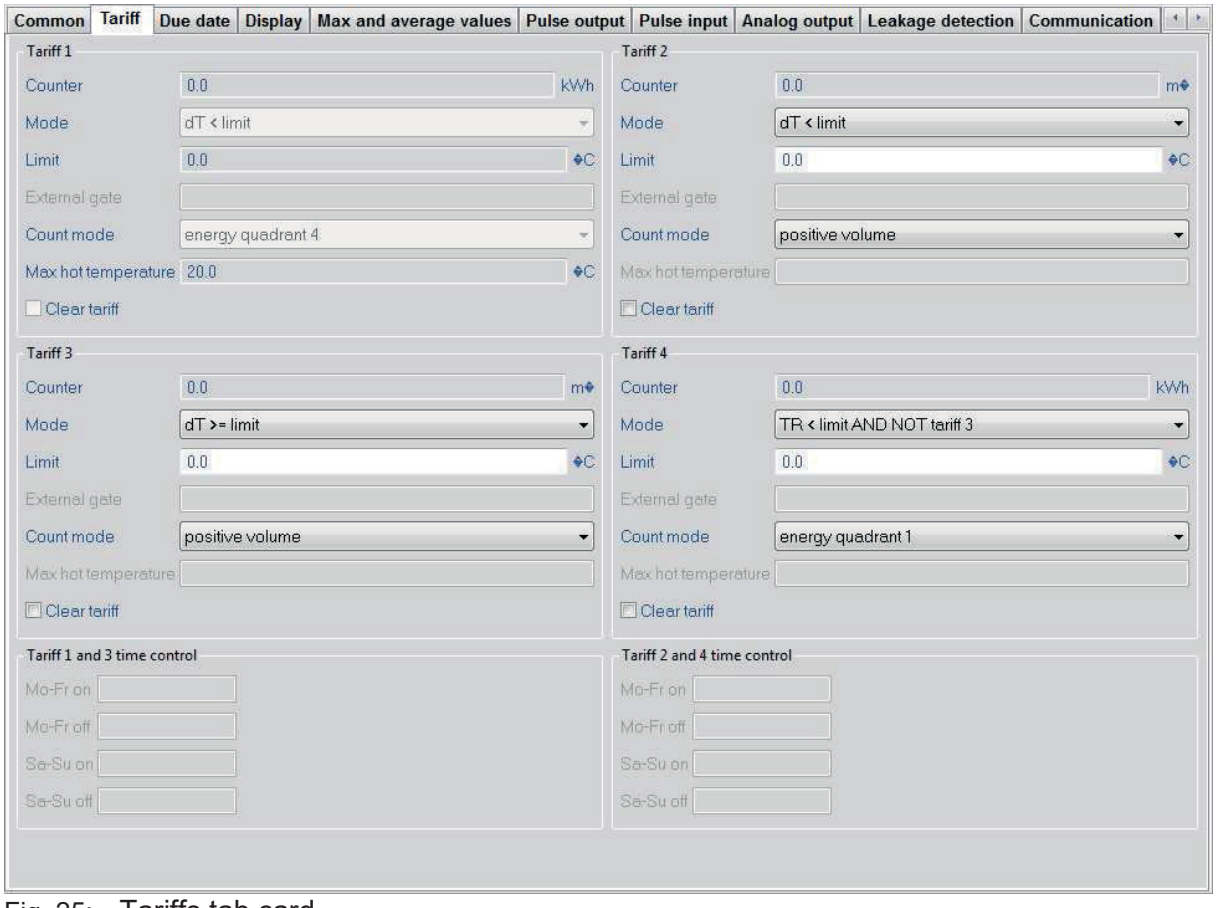


Fig. 25: Tariffs tab card

Energy and volume are the main registers. These registers always count the data as well. The tariff registers are four extra registers, which count depending on the condition being met in the *Mode* field.

In *Count mode* they select which data are to be counted in the tariff register, depending on the mode:

1. Energy
   Distinguishes between counting in quadrant 1 ... 4 or forward or return energy (temperature-independent)
2. Volume
   Distinguishes between forward or return volume
3. Time

You can also select externally controlled as count mode, in which case the accumulation is controlled externally.

The necessary settings are marked in yellow on the tab card, depending on which mode/count mode you select:

Example 1 (heat tariff):
You select count tariff *dT >= limit* as mode. Enter a value for the limit, e.g. 30 °.
Select Energy Quadrant 1 as count mode (quadrant 1 is the heat tariff). Enter the **minimum** temperature (sensor in the hot line) for this heat tariff, e.g. 20 °C. If the forward flow drops below this temperature, the accumulation is stopped.

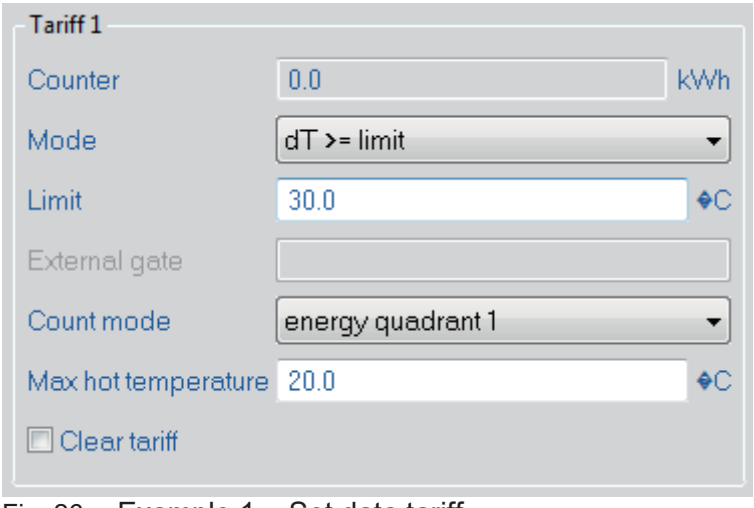


Fig. 26: Example 1 – Set data tariff

Example 2 (cooling tariff):
You select count tariff dT <= limit as mode. Enter a number to mark the limit, typically 0K for cooling tariff.
Select Energy Quadrant 4 as count mode (quadrant 4 is the cooling tariff). Enter the **maximum** temperature (sensor in hot line) for this tariff, e.g. 20 ℃.
This prevents measurement at the automatically set heat temperature of > 20 ℃ with the system switched off.

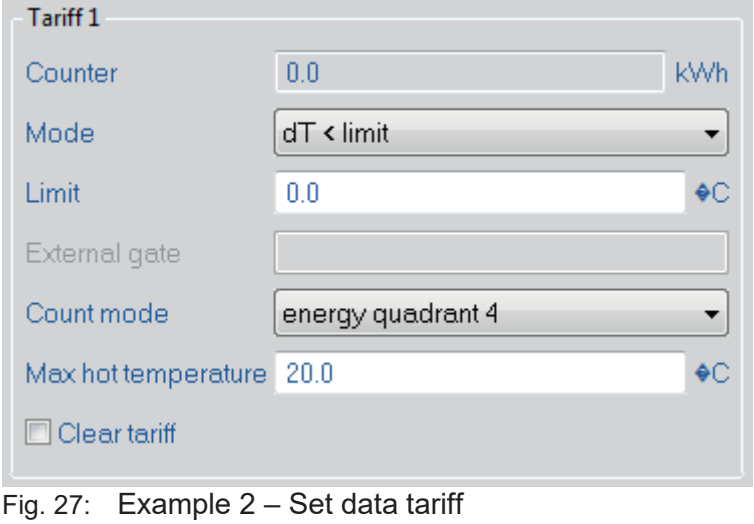


Fig. 27: Example 2 – Set data tariff

Example 3:
You select the *time controlled* time tariff as mode. Enter the times in which the data are to be accumulated under Tariff 1 and 3 time-controlled in the bottom section of the display.
Select Energy of the desired quadrant as count mode.

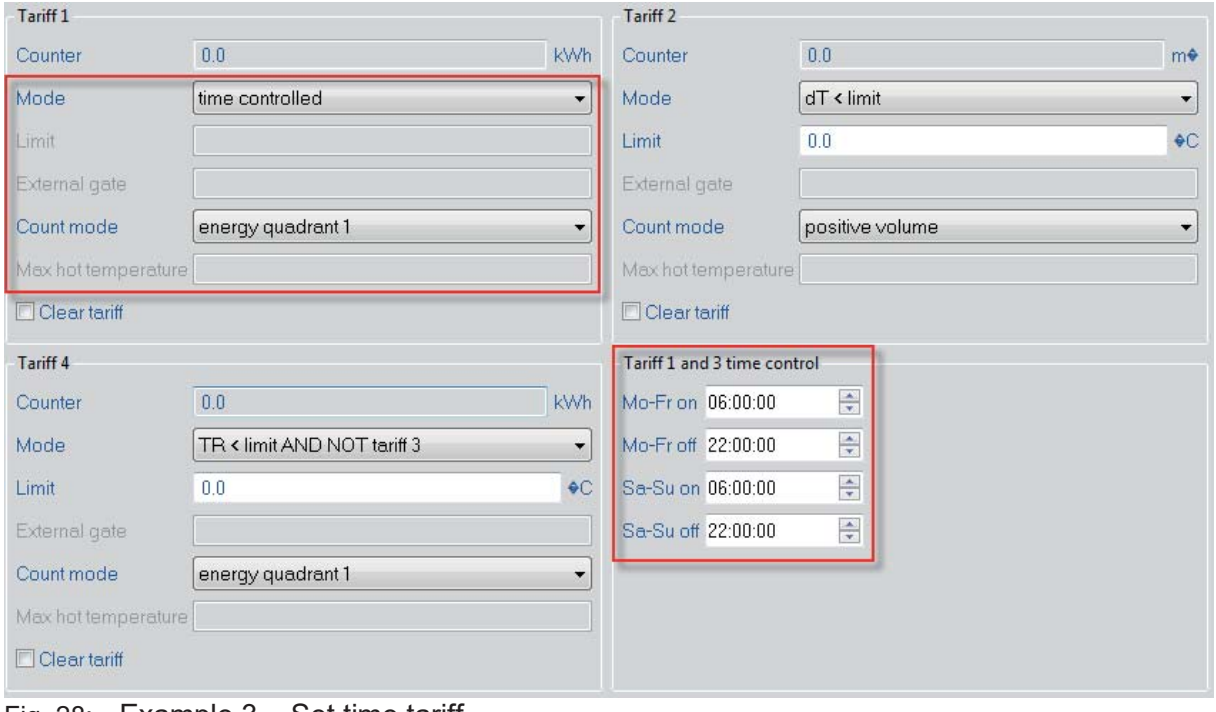


Fig. 28: Example 3 – Set time tariff

Example 4:
Select *externally controlled* as mode.
As count mode select the pulse input that is to externally control the data accumulation.

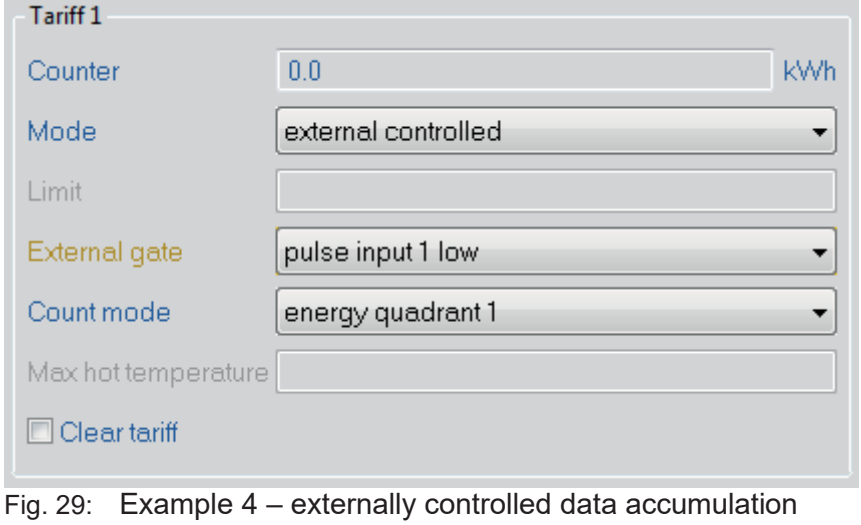


Fig. 29: Example 4 – externally controlled data accumulation

The setting "low" or "high" after the definition of the external port defines the respective input level for active accumulation.

The "Forward Energy" and "Return Energy" count modes work with a real sensor temperature in the hot line, but with a permanently programmed cooling temperature (ex-works setting 0 ℃).

9.2.4 Due date tab card

A set day is a copy of the relevant accumulating register at the set time.
The default settings for the set days are 1.6 and 31.12. The value group *Set Day 1/2 current values* shows you the values of the current set day, the value group *Set Day 1/2 last values* shows you the values of the previous set day.

You can set two different set days. You can choose set days between daily, weekly (stating the weekday), twice monthly, monthly or annually. The current and last set day values are shown for these.

NOTE

The set day values always refer to the beginning of the day, i.e. to 0:00:00 on the day indicated.
This also makes a set day of 29.2 possible.

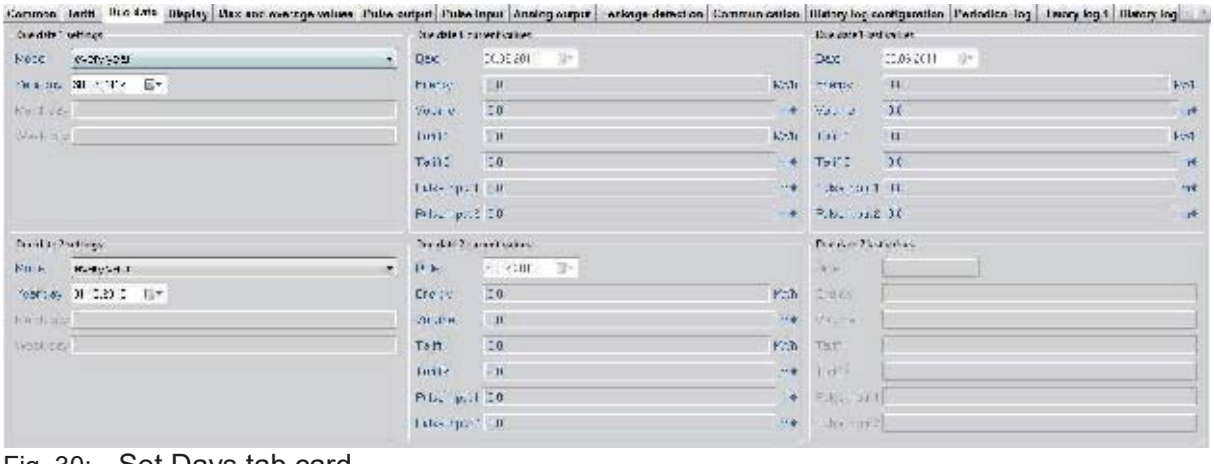


Fig. 30: Set Days tab card

9.2.5 Display tab card

The Sonometer 1100 is supplied ex works with a basic loop structure as default setting.

You can change the loops in Expert mode.

You can define up to six different loops for the device display. A list of all the fields available is displayed for each loop, from which you can select the desired fields.

Loop 1 and loop 3 can not be disabled or enabled, they are enabled at the factory. You can change loop 1 up to loop 5 in the order of appearance in each loop and add or remove values. The appearance of loop 6 cannot be changed.

The following conditions apply:
The total number of selectable fields for all loops is limited to 60 fields. If more data are selected, they are not accepted for the respective loop.

Loop 1 cannot be deactivated.

NOTE

The verified register must always be in the first position.

The following fields must be defined in a desired loop of the display. These fields cannot be removed from a loop until they have been added to another loop.

- Installation position
- Error status
- Display test
- Software version : OUT4 (optical test pulses)

The desired fields are activated or deactivated and the number of entries specified in loop 6 (monthly log). Free configuration of loop 6 is not possible; here are predefined information selectable.

NOTE

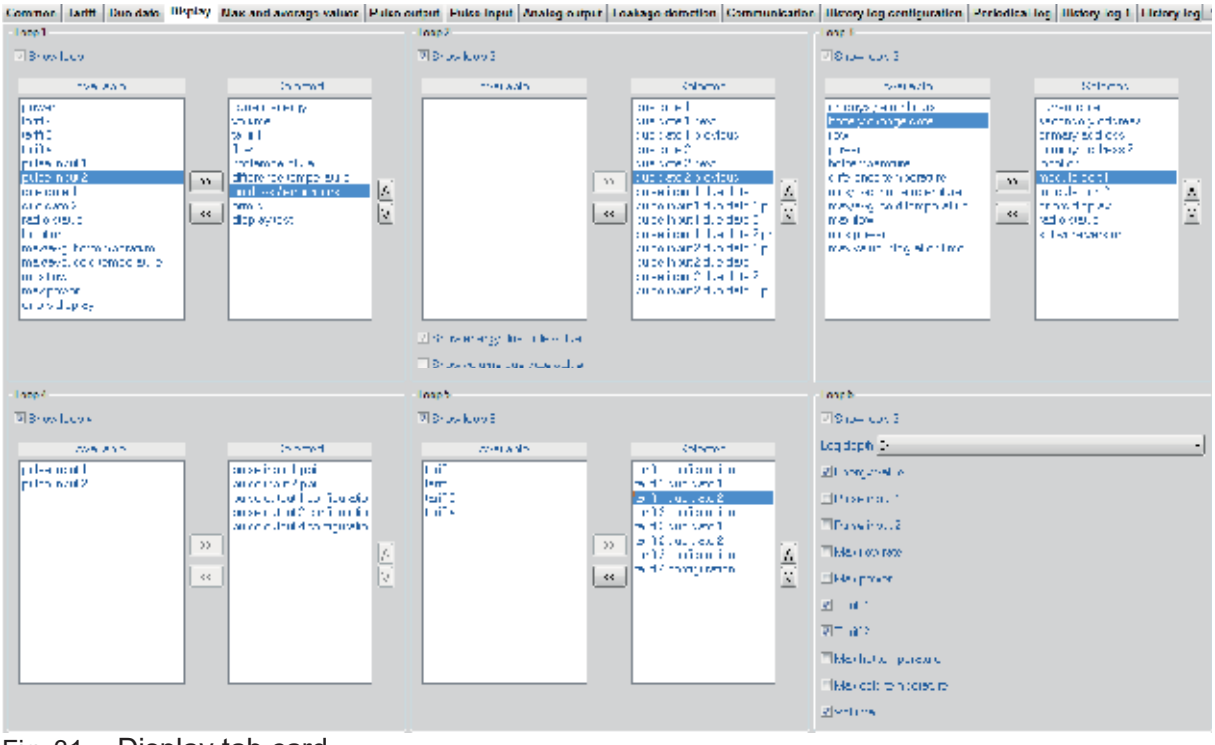


Fig. 31: Display tab card

9.2.6 Maximum and Average Values tab card

This tab card comprises 5 sections (i.e. 5 registers) and is directly related to the settings in the “History Log Configuration” tab card.

NOTE

The integration interval for determining maximum values must always be smaller than the mode of the periodic log. For example, it is NOT possible to set both to daily!

EITHER maximum values OR mean values are always stated.

The five registers show maximum values with their date and time. To prevent short-term peaks being received as maximum values, the integration interval serves as a mean time to dampen such short-term peak values. This means the highest mean values are stored in the maximum values.

These maximum and mean values are stored in the periodic log and optionally in the log. The cyclic storage interval of the periodic log therefore also represents the time period for determining the maximum values.

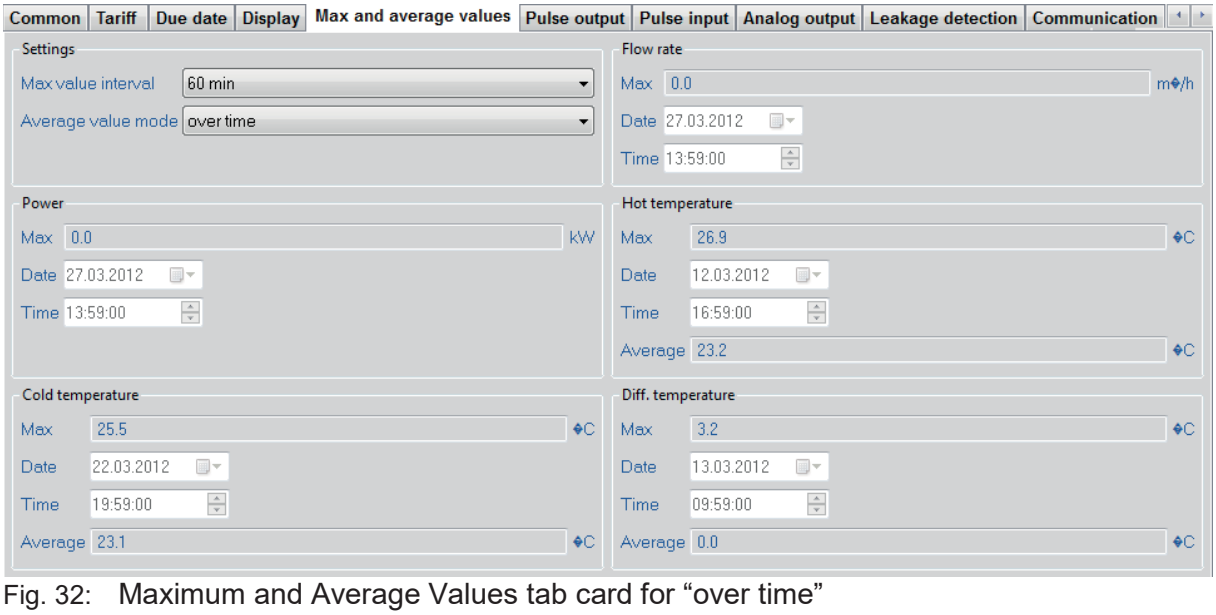


Fig. 32: Maximum and Average Values tab card for “over time”

For the temperatures, a maximum value with time stamp and the “last” mean value of the integration interval are shown.

The maximum values are only valid if you select *over time* as mode. Maximum values are still shown for flow rate and power for all the other settings, but mean values are now determined continuously for the temperatures.

The recorded values are stored in the logs (periodic log and history logs)

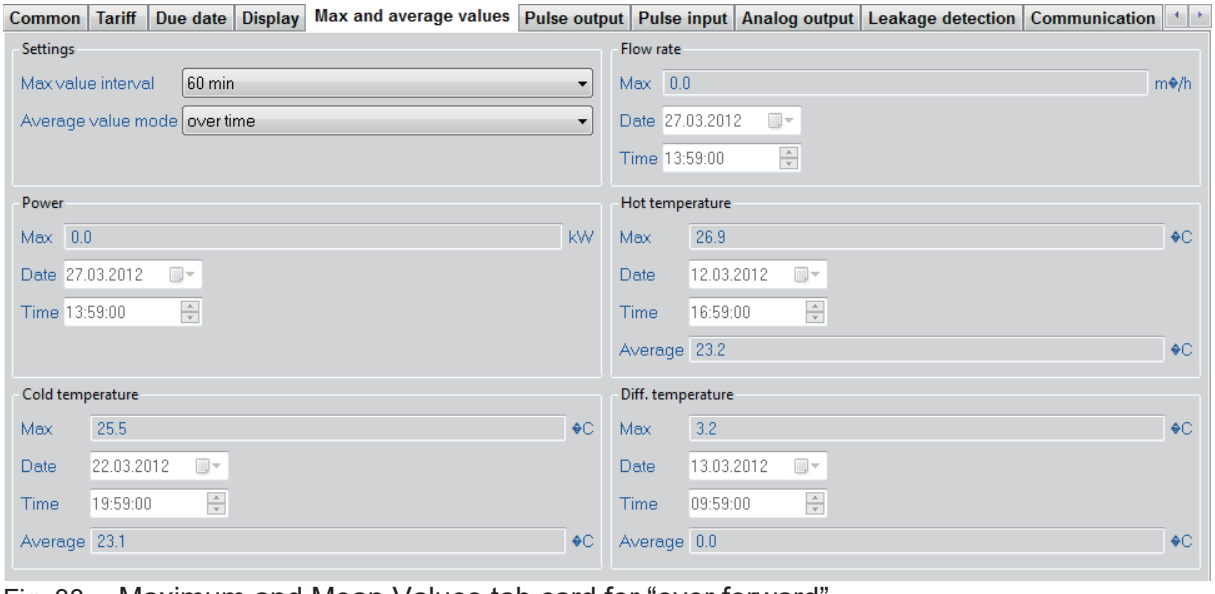


Fig. 33: Maximum and Mean Values tab card for “over forward”

Here you can change the integration interval for the maximum values and the mode for calculating the mean values in Expert mode.

Integration interval:

- 6, 15, 30, 60 minutes
- 24 hours
- 1024 seconds

Over time:
For this type of determination, the maximum values and the date and time of their occurrence are shown for all registers.

Forward, return and total volume:
The maximum values for flow rate and power are created only for the forward direction, and mean values for hot and cold temperature sensors.

9.2.7 Pulse Output tab card

You can define two pulse outputs.

The energy pulse output is marked as standard as “01 - ” on the module and “Out1” in the display. The volume output is marked as “02 - ” on the module and “Out2” in the display.

See the separate Operating Guide for Sonometer 1100 for information on how to install these outputs in Sonometer 1100.

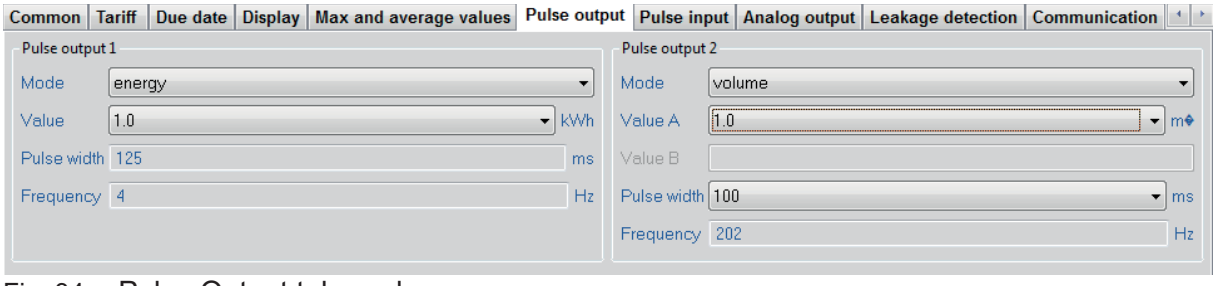


Fig. 34: Pulse Output tab card

Pulse output 1 has a fixed pulse width and frequency.
The pulse width of pulse output 2 can be varied, which results in a maximum pulse frequency.

9.2.8 Pulse Input tab card

The module has 2 pulse inputs for connecting 2 additional pulse meters, such as water meters, gas meters or electricity meters.

Please refer to the Operating Guide for the device for information about the adjustable value in litres per pulse (l/P).
All the units available in the device are also available for you here.

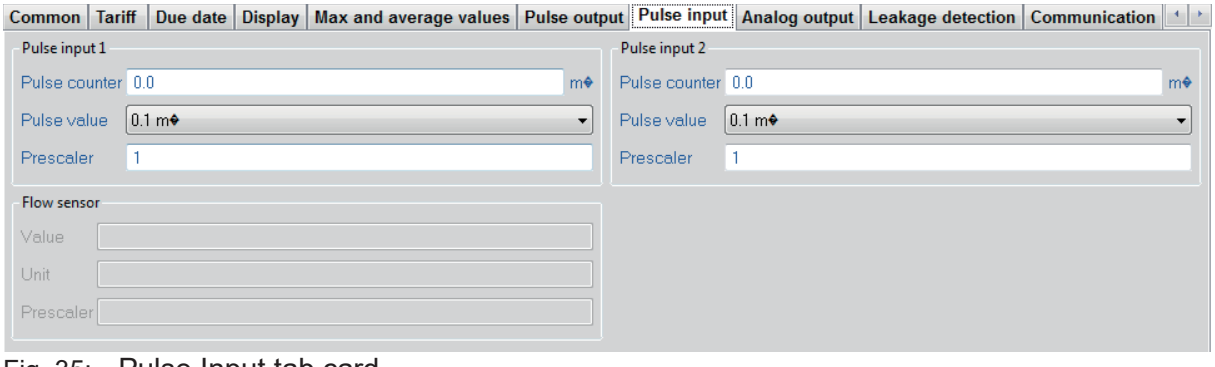


Fig. 35: Pulse Input tab card

The prescaler here acts as a “pre-counter”. For example, if this is set to 5, the Sonometer 1100 only counts every fifth pulse. This also makes it possible to set non-decadic units.

Example:
Volume meter has a pulse value of 2.5 litres/pulse:
Pulse meter 1 m³
Pulse value: 0.01 m³ ->0.01 m³ / 4=2.5 litres/pulse
Prescaler: 4

9.2.9 Analogue Output tab card

The analogue module is the same size as 2 standard modules, has 2 passive outputs and a current loop of 4 to 20 mA. Errors are generated with 3.5 mA or 22.6 mA (programmable).

You can select flow rate, power or temperatures as output values.

The passive analogue output is free configurable with all permission levels.

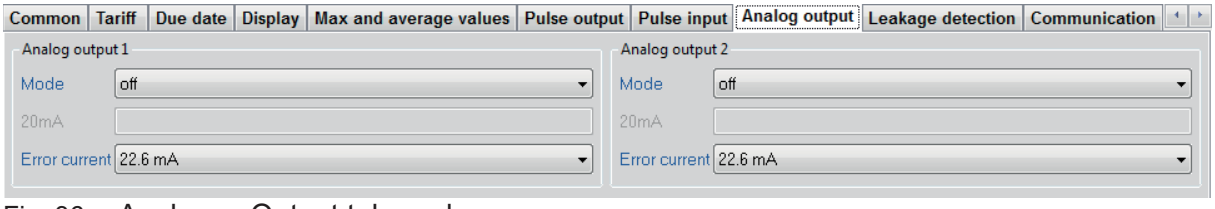


Fig. 36: Analogue Output tab card

The output values are limited to:
Flow rate: max. flow rate (dependent on nominal size)
Power: max. power (dependent on nominal size)
Absolute temperature: 125 ℃
Temperature difference: 125 K

9.2.10 Leakage Detection tab card

Clicking this tab card activates leakage detection and sets the parameters.
This requires an additional volume meter in the other line (depending on meter version).
Please refer to the Sonometer 1100 Operating Guide for details.

Water data group:
You can use pulse inputs In1 and In2 for hot water and cold water consumption.
The maximum time is the time in which the device does not expect any consumption, for example at night.

You can enter the desired time period here in Expert mode; possible settings are 1 minute to 4 hours.

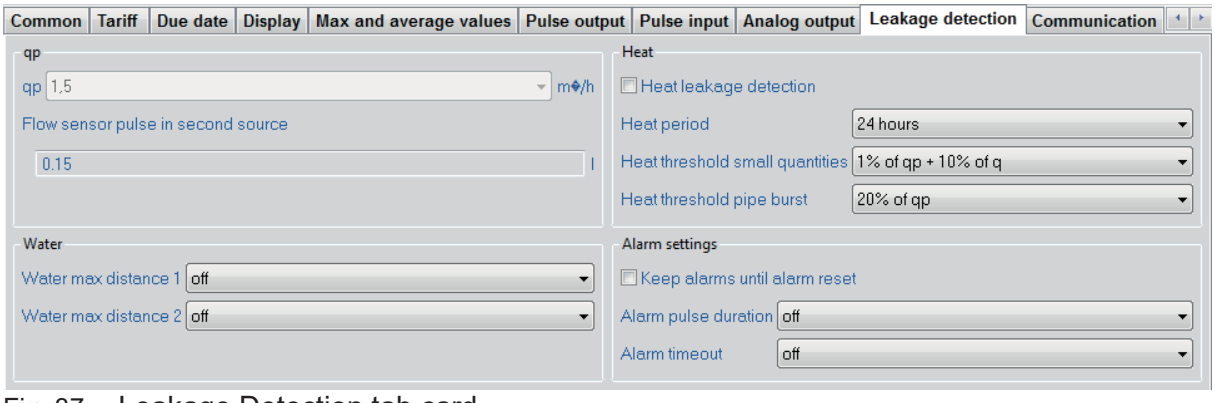


Fig. 37: Leakage Detection tab card

Water data group:
These settings refer to Sonometer 1100 itself.
This function distinguishes between detection of a “gradual” leak and a burst pipe.

An interval and a recording parameter must be defined for detection of a gradual leak. The meter determines a possible loss in the interval time based on the current flow rate and nominal size.

The burst pipe detection is a reaction to large differences between the forward and return flow rate. This immediately generates an alarm.

Alarm setting data group:
The alarm output is also retained when the leakage as such is no longer detected or detectable. The reaction to this situation can be configured.

NOTE

The alarm output is provided by the pulse out module. A suitable setting is necessary for the output.

9.2.11 Communication tab card

The Sonometer 1100 meter sup ports two communication channels over the same or different interfaces. An additional communication module can be used in radio operation.

The protocol is different for each of the two channels and can be programmed to suit customer-specific requirements. Each channel has its own primary address. The specific parameters for the device-internal radio are set as well as the protocols.

The definition for telegram 2 is also the radio protocol.

NOTE

Telegram content:
The available registers are shown, from which you select the required registers for the telegram for each communication channel. The order of the registers can also be set as desired.

Telegram length:
The length of the telegrams is calculated and shown. A maximum length of 150 bytes is possible for use as a radio telegram. A telegram length of up to 250 bytes is possible for MBUS communication. The length of the radio telegram also affects the transmit interval. A duty cycle of 0.1 % is specified for this by legislation. The transmit interval can be intentionally increased, however, in order to avoid collisions in radio traffic. This can range from 8 s to 254 s.

Here you can activate the radio communication for internal radio. The *Standby* parameter indicates that the device is in the ex works state.
This means the meter activates radio automatically if it is filled with water for at least 2 min. If the meter is then filled with water for 3 hours without interruption, radio remains activated permanently. If the water is interrupted within the 3 hours, the meter returns to *Standby*.
The radio protocol corresponds to the Hydrometer standard or the Open Metering standard and is encrypted. A transmission frequency of 868 MHz or 434 MHz is shown.

In Test Lab mode, test centres can choose between *Real Data* and *Open Metering* as radio protocol.

NOTE

The radio protocol can only be changed to Open Metering if the *Keep Password* function in the *User Preferences > Security* menu is NOT selected, so that the correct extension can be written for the radio key.

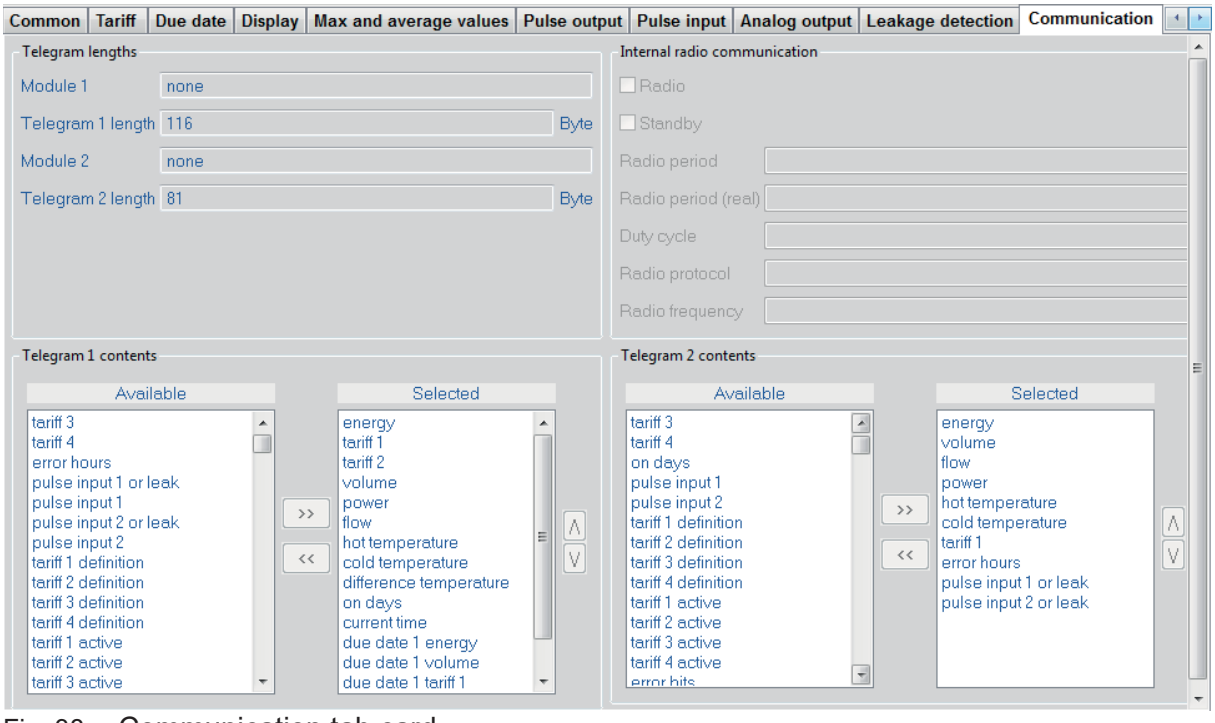


Fig. 38: Communication tab card

9.2.12 History Log Configuration tab card

This tab card contains three independent logs:

- Periodic log (with a number of fixed values)
- History log 1
- History log 2

9.2.12.1 Periodical log

This memory block has the range of values shown below.
This value block can be stored 24x times and is a rolling memory (FiFo).

- Date / time
- Energy
- Tariff energy 1
- Tariff energy 2
- Volume
- Pulse input meter 1
- Pulse input meter 2
- Tariff definition 1
- Tariff definition 2
- Pulse input definition 1
- Pulse input definition 2
- Error hours counter
- Max. flow rate
- Max. flow rate time
- Max. flow rate date
- Max. power
- Max. power time
- Max. power date
- Operating days
- Max. forward temperature
- Max. forward temperature time
- Max. forward temperature date
- Max. return temperature
- Max. return temperature time
- Max. return temperature date

The storage speed is set with the mode.

- daily
- weekly – stating day of week
- twice monthly – stating days of month
- annually on set day 1
- annually on set day 2

9.2.12.2 History log

Here you define the storage mode for the two history logs:

- every x minutes – stating number of minutes
- every x hours – stating number of hours
- daily
- weekly – stating day of week
- twice monthly – stating days of month
- annually on set day 1
- annually on set day 2

You select the values to be stored in history logs 1 and 2 separately from a list for each log.

In Expert mode you can change the date and time and the addresses of the device. You can also set the storage mode for the periodic log:

- daily
- weekly – stating day of week
- twice monthly: on the 15th and last day of the month
- monthly – stating day of month
- annually on set day 1
- annually on set day 2

ATTENTION

If you change the settings for the history logs and write these changes to the device, the current log will be cleared and the data previously collected lost.
First read out and save the data using the command *EXPORT HISTORY LOG 1/HISTORY LOG 2*.

ATTENTION

The max. values interval that stores first resets the max. and mean values. This means the following max. values with longer intervals only have values available from the fastest interval. These values can therefore be wrong. Max. values are stored in the periodic log and optionally in the history log too.

NOTE

The integration interval for determining maximum values must always be smaller than the mode of the periodic log. It is NOT possible to set both to daily!

To obtain useful data in a short period of time, for example for checking the meter settings, use history log 1. To observe long-term consumption parallel to this, use history log 2.
First divide the log memory resources. Select the ratio for dividing the memory space in the Resource Assignment data group.

- 100 % log 1 – 0 % log 2
- 90 % log 1 –10 % log 2
- 75 % log 1 – 25 % log 2
- 50 % log 1 – 50 % log 2
- 25 % log 1 – 75 % log 2
- 10 % log 1 – 90 % log 2
- 0 % log 1 – 100 % log 2

The shorter the mode, the more the data volume and the more memory space required.

NOTE

You can choose the values to be stored in history log 1 and 2 from a selection list.

ATTENTION

The max. values interval that stores first resets the max. values. This means the following max. values with longer intervals only have values available from the fastest interval. These values can therefore be wrong. Max. values are stored in the periodic log and optionally in the history log too.

The *Number of entries* field shows you how many entries you can achieve with the current settings. The more entries possible, the larger the depth of the history log; i.e. the further you can trace back the data. Process your selection of values until you reach a suitable number of entries for your purpose, then write the settings to your device.

ATTENTION

The log memories have only a limited space available. If this space is full, the oldest entry is overwritten by the newest entry (FiFo).

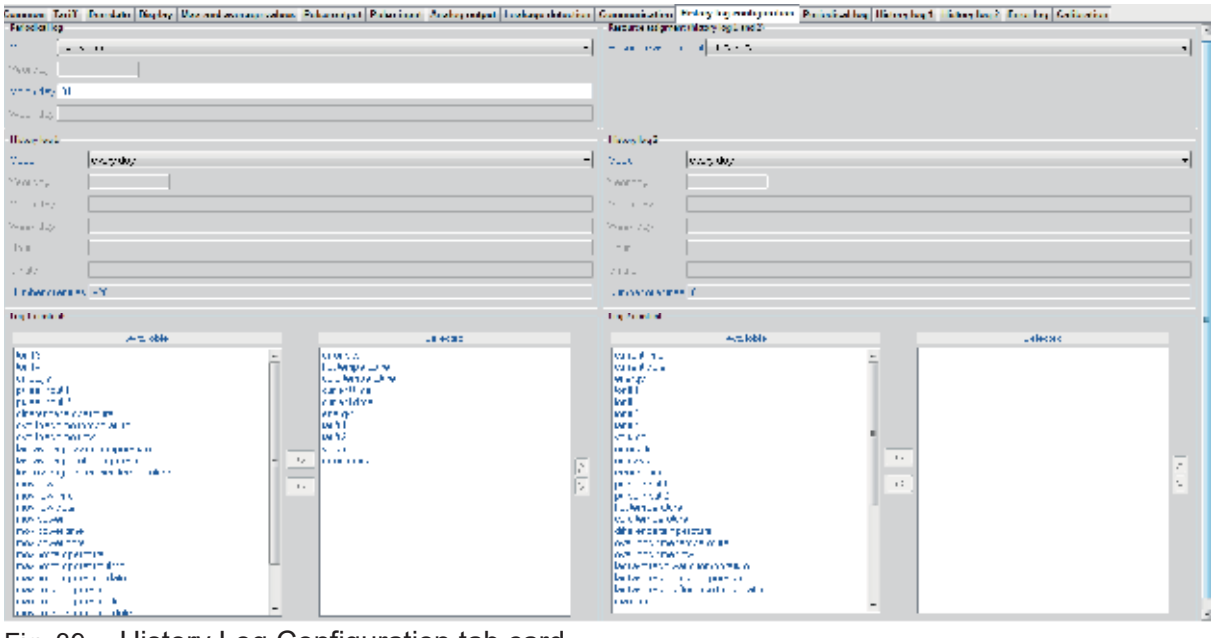


Fig. 39: History Log Configuration tab card

9.2.13 Periodical Log tab card

You access the data using the menu *Commands* > *Read Periodical Log*. A data table appears as shown in Fig. 40.

The following maximum 23 values are repeatedly stored in this log (for 2 years).

- Date / time
- Energy
- Tariff energy 1
- Tariff energy 2
- Volume
- Pulse input meter 1
- Pulse input meter 2
- Tariff definition 1
- Tariff definition 2
- Pulse input definition 1
- Pulse input definition 2
- Error hours counter
- Max. flow rate
- Max. flow rate time
- Max. flow rate date
- Max. power
- Max. power time
- Max. power date
- Operating days
- Max. forward temperature
- Max. forward temperature time
- Max. forward temperature date
- Max. return temperature
- Max. return temperature time
- Max. return temperature date

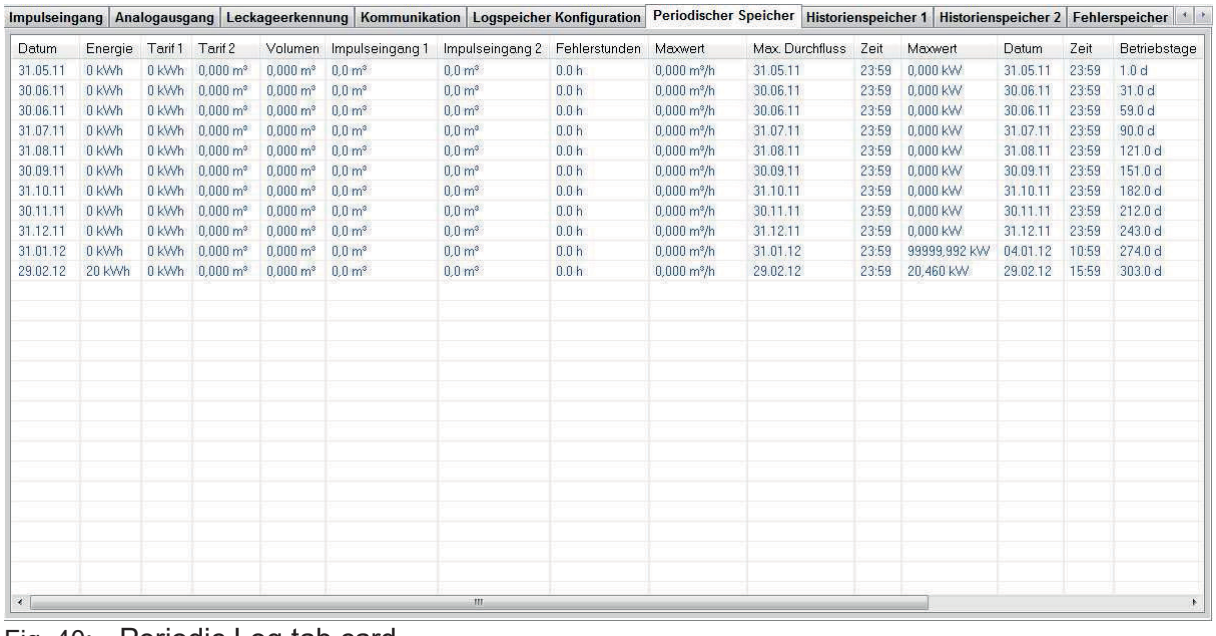
This memory space is also limited.

ATTENTION

The log memories have only a limited space available. If this space is full, the oldest entry is overwritten by the newest entry (FiFo).

You can export this table as a csv file and then process it in MS Office Excel. Click *Export Periodic Log* in the *Commands* menu. The csv file is stored in the "Data" folder of the program directory IZAR_SET/IZAR (see also Section 5.2 Menu bar).

Example:



Datum	Energie	Tarif 1	Tarif 2	Volumen	Impulseingang 1	Impulseingang 2	Fehlerstunden	Maxwert	Max. Durchfluss	Zeit	Maxwert	Datum	Zeit	Betriebstage
31.05.11	0 kWh	0 kWh	0,000 m³	0,000 m³	0,0 m³	0,0 m³	0.0 h	0,000 m³/h	31.05.11	23:59	0,000 kW	31.05.11	23:59	1.0 d
30.06.11	0 kWh	0 kWh	0,000 m³	0,000 m³	0,0 m³	0,0 m³	0.0 h	0,000 m³/h	30.06.11	23:59	0,000 kW	30.06.11	23:59	31.0 d
30.06.11	0 kWh	0 kWh	0,000 m³	0,000 m³	0,0 m³	0,0 m³	0.0 h	0,000 m³/h	30.06.11	23:59	0,000 kW	30.06.11	23:59	59.0 d
31.07.11	0 kWh	0 kWh	0,000 m³	0,000 m³	0,0 m³	0,0 m³	0.0 h	0,000 m³/h	31.07.11	23:59	0,000 kW	31.07.11	23:59	90.0 d
31.08.11	0 kWh	0 kWh	0,000 m³	0,000 m³	0,0 m³	0,0 m³	0.0 h	0,000 m³/h	31.08.11	23:59	0,000 kW	31.08.11	23:59	121.0 d
30.09.11	0 kWh	0 kWh	0,000 m³	0,000 m³	0,0 m³	0,0 m³	0.0 h	0,000 m³/h	30.09.11	23:59	0,000 kW	30.09.11	23:59	151.0 d
31.10.11	0 kWh	0 kWh	0,000 m³	0,000 m³	0,0 m³	0,0 m³	0.0 h	0,000 m³/h	31.10.11	23:59	0,000 kW	31.10.11	23:59	182.0 d
30.11.11	0 kWh	0 kWh	0,000 m³	0,000 m³	0,0 m³	0,0 m³	0.0 h	0,000 m³/h	30.11.11	23:59	0,000 kW	30.11.11	23:59	212.0 d
31.12.11	0 kWh	0 kWh	0,000 m³	0,000 m³	0,0 m³	0,0 m³	0.0 h	0,000 m³/h	31.12.11	23:59	0,000 kW	31.12.11	23:59	243.0 d
31.01.12	0 kWh	0 kWh	0,000 m³	0,000 m³	0,0 m³	0,0 m³	0.0 h	0,000 m³/h	31.01.12	23:59	99999,992 kW	04.01.12	10:59	274.0 d
29.02.12	20 kWh	0 kWh	0,000 m³	0,000 m³	0,0 m³	0,0 m³	0.0 h	0,000 m³/h	29.02.12	23:59	20,460 kW	29.02.12	15:59	303.0 d

Fig. 40: Periodic Log tab card

9.2.14 History Log 1 and 2 tab card

You access the data using the menu *Commands* > *Read History Log 1 (or History Log 2)*. A data table appears as shown in Fig. 41.

This log stores the maximum values selected by you.

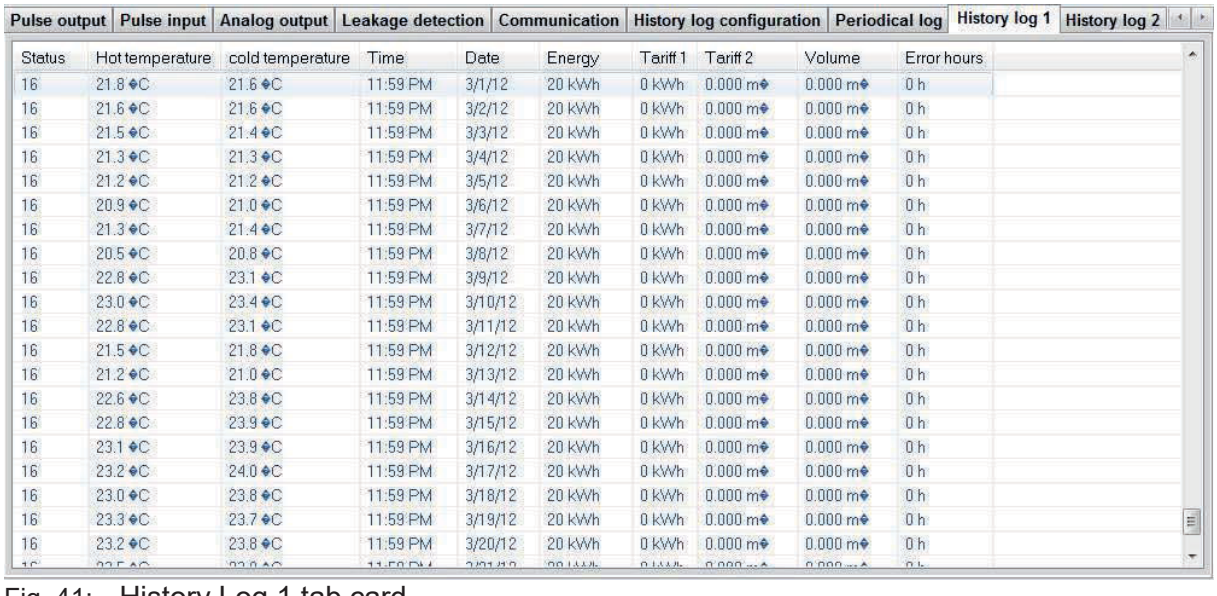
This memory space is also limited.

ATTENTION

The log memories have only a limited space available. If this space is full, the oldest entry is overwritten by the newest entry (FiFo).

You can export this table as a csv file and then process it in MS Office Excel. Click *Export History Log 1 (or 2)* in the *Commands* menu. The csv file is stored in the "Data" folder of the program directory IZAR_SET/IZAR (see also Section 5.2 Menu bar).

Example:



Status	Hot temperature	cold temperature	Time	Date	Energy	Tariff 1	Tariff 2	Volume	Error hours
16	21.8 °C	21.6 °C	11:59 PM	3/1/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	21.6 °C	21.6 °C	11:59 PM	3/2/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	21.5 °C	21.4 °C	11:59 PM	3/3/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	21.3 °C	21.3 °C	11:59 PM	3/4/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	21.2 °C	21.2 °C	11:59 PM	3/5/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	20.9 °C	21.0 °C	11:59 PM	3/6/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	21.3 °C	21.4 °C	11:59 PM	3/7/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	20.5 °C	20.8 °C	11:59 PM	3/8/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	22.8 °C	23.1 °C	11:59 PM	3/9/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	23.0 °C	23.4 °C	11:59 PM	3/10/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	22.8 °C	23.1 °C	11:59 PM	3/11/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	21.5 °C	21.8 °C	11:59 PM	3/12/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	21.2 °C	21.0 °C	11:59 PM	3/13/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	22.6 °C	23.8 °C	11:59 PM	3/14/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	22.8 °C	23.9 °C	11:59 PM	3/15/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	23.1 °C	23.9 °C	11:59 PM	3/16/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	23.2 °C	24.0 °C	11:59 PM	3/17/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	23.0 °C	23.8 °C	11:59 PM	3/18/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	23.3 °C	23.7 °C	11:59 PM	3/19/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h
16	23.2 °C	23.8 °C	11:59 PM	3/20/12	20 kWh	0 kWh	0.000 m³	0.000 m³	0 h

Fig. 41: History Log 1 tab card

9.2.15 Error Log tab card

Access the data using the menu *Commands* > *Read Error Log*. A data table appears as shown in Fig. 43.

This list shows all the errors that have occurred. The date and time are also shown. The occurrence of an error is indicated by 0 or 1. 0 = error not occurred and 1 = error occurred. All errors are stored, even if several errors occur at the same time (as in the table shown).

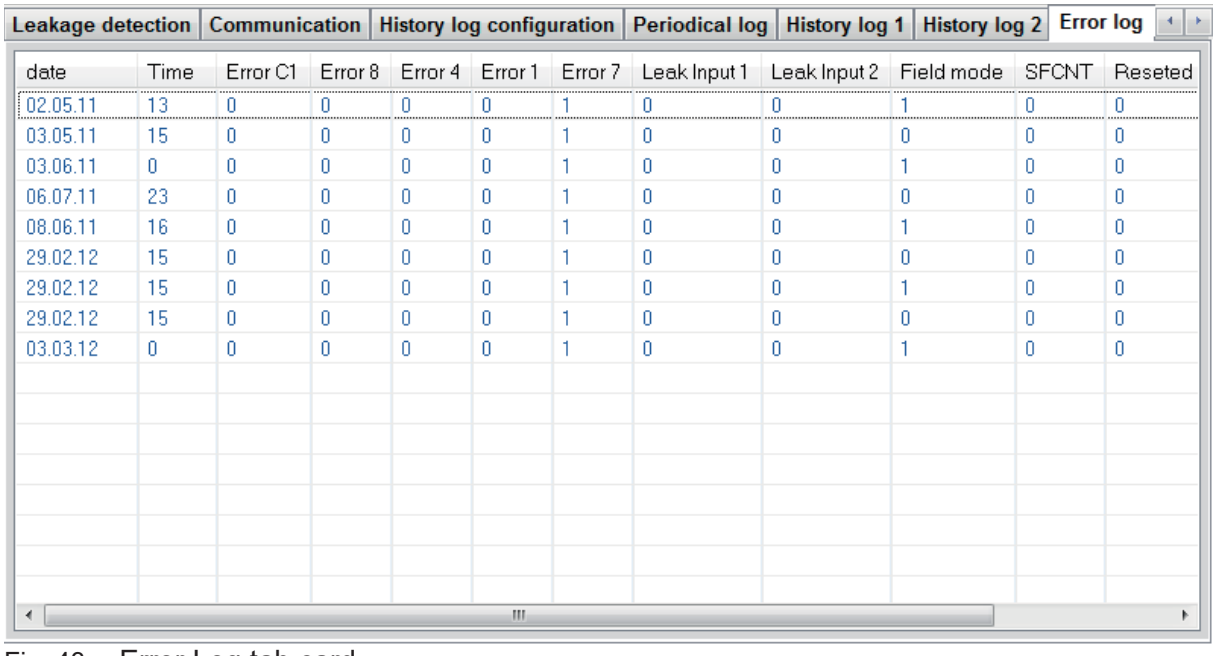
An error is not stored and indicated until it has been registered for longer than 6 minutes without interruption.

NOTE

You can export the error log table as a csv file and then process it in MS Office Excel. Click *Export Error Log* in the *Commands* menu. The csv file is stored in the "Data" folder of the program directory IZAR_SET/IZAR (see also Section 5.2 Menu bar).

Error display	Error description
C - 1	Basic parameter error in flash or RAM
E 1	Temperature range exceeds [-9.9 ℃...190 ℃] > Sensor short-circuit, sensor break
E 3	Forward and return sensor reversed
E 4	Hardware error US measurement > Transducer defective or short-circuit
E 5	Communication not possible (too frequent reading)
E 6	Wrong direction of flow in volume measuring component > Flow rate = 0
E 7	No meaningful ultrasonic receive signal > Air in the measuring path
E 8	Defective primary voltage (only if mains unit used) Supply from backup battery
E 9	Battery almost flat
E A	Leakage: burst pipe detected
E b	Leakage: heat meter leak detected
E C	Leakage: leakage pulse input 1
E d	Leakage: leakage pulse input 2

Fig. 42: Sonometer 1100 error codes



date	Time	Error C1	Error 8	Error 4	Error 1	Error 7	Leak Input 1	Leak Input 2	Field mode	SFCNT	Reseted
02.05.11	13	0	0	0	0	1	0	0	1	0	0
03.05.11	15	0	0	0	0	1	0	0	0	0	0
03.06.11	0	0	0	0	0	1	0	0	1	0	0
06.07.11	23	0	0	0	0	1	0	0	0	0	0
08.06.11	16	0	0	0	0	1	0	0	1	0	0
29.02.12	15	0	0	0	0	1	0	0	0	0	0
29.02.12	15	0	0	0	0	1	0	0	1	0	0
29.02.12	15	0	0	0	0	1	0	0	0	0	0
03.03.12	0	0	0	0	0	1	0	0	1	0	0

Fig. 43: Error Log tab card

9.2.16 Calibration tab card

The relevant data for test centres are shown here. The values for energy, volume, flow rate, power and temperatures are also shown.

These values can only be changed by test centres.

Select the battery here that is to supply power for your Sonometer 1100. The replacement data is calculated automatically and shown. You can choose between:

- A-cell (3.6 VDC, 11 years lifetime, incl. radio at reading rate of 120 s)
- D-cell (3.6 VDC, 16 years lifetime, incl. radio at reading rate of 12 s)

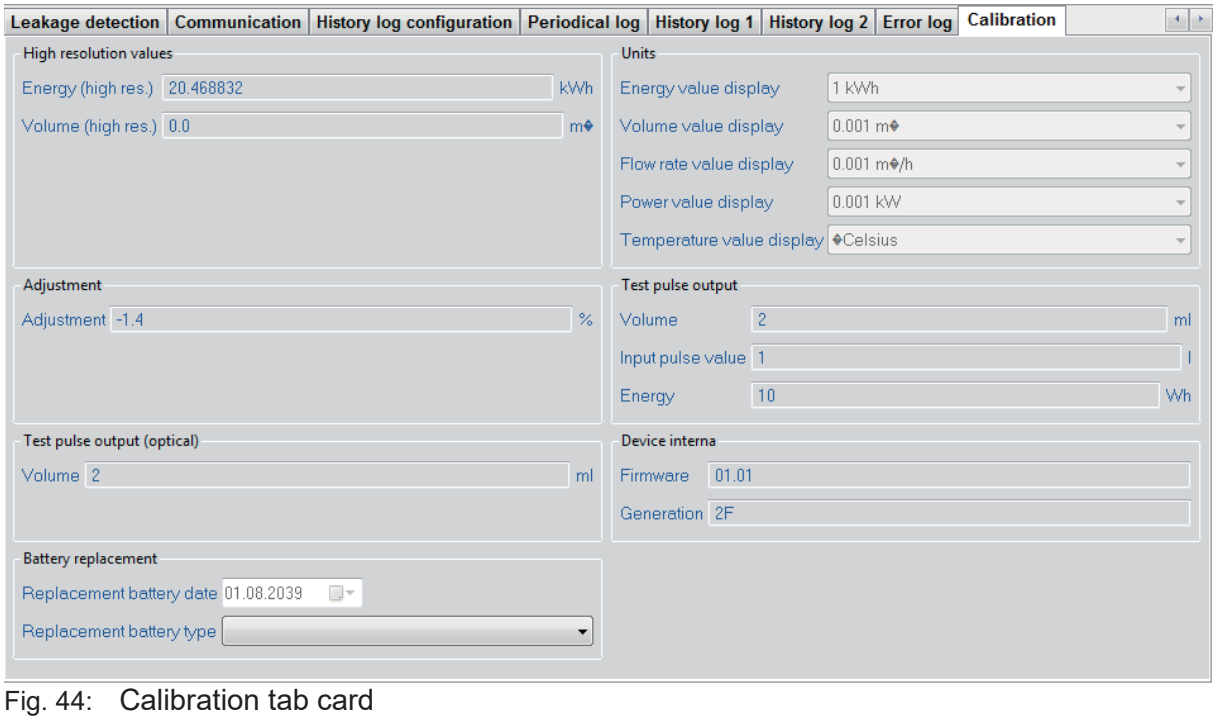


Fig. 44: Calibration tab card