

Parameter Editor .MAP120 User Manual



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# **Revision history**

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b	06.07.2012	Changes to .MAP120 release 2.1	
С	04.04.2013	Changes to .MAP120 release 2.2	
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e	09.12.2014	Changes to .MAP120 release 3.0 (see also read-me file); Communication with message security and additional access mechanisms (authentication), individual passwords and keys per device, enhanced storage policy for keys and password enhanced character set for passwords, new icons in communication toolbar, new folder icon in tree, new representation of errors and warnings. Document structur modified.	
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k	31.05.2017	Changes to .MAP120 release 3.9 (see also read-me file); New section 2.3 for re- quired setting when operating .MAP120 on high resolution displays, several shifts of menu items in the menu bar, changed firmware selection for creation of new device descriptions, updated parameterisation wizard for new device types, new version of communication settings, extended access levels, new level authentifica- tion using SHA-256, several minor changes (text, screenshots).	
m	18.07.2019	Changes to .MAP120 release 4.4 (see also read-me file); adaptation to changed communication user interfaces.	

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# Introduction

Scope	The present user manual is designed for the Landis+Gyr .MAP120 Para- meter Editor <b>Release 4.4</b> and higher.				
Purpose	This user manual contains all information required for the use of the Landis+Gyr .MAP120 Parameter Editor. It not only provides explanations concerning functionality and general procedures, but also gives detailed, illustrated instructions on how to use the software.				
Target group	The contents of this user manual are intended for technically qualified per- sonnel of energy supply companies responsible for system planning, para- meter setting and installation of devices.				
Conditions	The Landis+Gyr .MAP120 Parameter Editor runs on PCs with Windows operating system. To understand this user manual, you need basic knowledge of Windows and its terms, as well as a general idea of how to operate a PC. Furthermore, you need to be familiar with the functional principles of the various devices supported by the Landis+Gyr .MAP120 Parameter Editor, which are described in the corresponding user manuals and functional descriptions.				
Conventions	The followir	ng conventions are used in this manual:			
	1. 2. 3.	Ordinal numbers are used for individual steps in the instruc- tions.			
	Tools	Buttons, menu names and individual menu items appear in bold text.			
	[F1]	Keys are shown in square brackets.			
	[Ctrl]+[V]	Key combinations are shown with a plus sign (e.g. [Ctrl] key kept pressed while pressing [V] key)			
	"Options"	Names of windows and elements appear in quotation marks.			

# 1 Overview

The Landis+Gyr .MAP120 Parameter Editor supports services needed to edit and download complete device descriptions (parameterisations) into the supported Landis+Gyr devices.

The following diagram illustrates the various fields of application of the Landis+Gyr MAP and .MAP Tools.

Manufacturer	Utility Central Services Utility Local Services						
Configuration Par isat	meter- on Test + Verification Installation Readout M	laintenance					
MAP190/120	мариио						
.MAP120	.MAP110	.MAP100					

# 1.1 Functions

The Landis+Gyr .MAP120 Parameter Editor supports the following main use cases:

- 1. Creating a device description file for manufacturing and documentation purposes
- 2. Changing parameters of a connected device (e.g. at utility central services)

The range of functions comprises:

- Create and edit device descriptions
- Read complete device descriptions from devices
- Write complete device descriptions or specific parameter groups (e.g. time of use, security system) to devices and execute related actions (e.g. clock setting, register reset)
- Save and open complete device descriptions
- Print device descriptions
- Compare two device descriptions

## **1.2** Communication channels

The Landis+Gyr .MAP120 Parameter Editor can communicate with the devices via the following communication channels:

- Serial: Optical reading head, Bluetooth reading head, RS232, RS485, CS, M-Bus
- Modem: PSTN, GSM
- Network: GPRS, Ethernet

# **1.3 Communication protocols**

The Landis+Gyr .MAP120 Parameter Editor supports the following communication protocols:

- dlms / HDLC
- dlms / TCP (wrapper) with IPv4 and IPv6
- dlms / UDP (wrapper) with IPv4 and IPv6
- IEC 62056-21 (formerly known as IEC 1107)

# 1.4 dlms security

The Landis+Gyr .MAP120 Parameter Editor supports the following dlms security features:

- dlms access security (low level and high level security)
- dlms message security (security suite 0)

# 1.5 Editions

The Landis+Gyr .MAP120 Parameter Editor is only available in a Standard Edition.

# 1.6 Supported devices

Please refer to the read-me file (see section 7.8 "Displaying release notes") for a list of supported devices.

# 2 Installation and Uninstallation

This section describes the installation of the Landis+Gyr .MAP120 Parameter Editor on your PC and its uninstallation if it is no longer used.

# 2.1 Installation

System requirements	To be able to run the Landis+Gyr .MAP120 Parameter Editor, your PC must be equipped with the operating system Windows 10, Windows 8, Windows 7 or Windows Vista.
	For 64 bit operating systems dedicated hardware drivers (e.g. for the opti- cal head or other communication equipment) might be needed. Please contact the vendor of your devices to obtain a driver update, if necessary.
	Additionally, the following system component, which is not part of the Landis+Gyr .MAP120 Parameter Editor, must be installed on your PC:
	.NET Framework Version 4.6.1 or later
Administrator privileges	Administrator privileges on your computer are required for the installation and the licensing.
Installation software	The installation software for the Landis+Gyr .MAP120 Parameter Editor can be downloaded to your PC via the Internet from the Landis+Gyr homepage <u>www.landisgyr.eu</u> . Please contact your sales representative to receive the required username and password for the download.
Language	The required language must be selected at installation time. It can be changed again at any time in the Landis+Gyr .MAP120 Parameter Editor.
Preparation	Please read the file "dMAP120_Readme.txt" with current information about the present release of the Landis+Gyr .MAP120 Parameter Editor.
First installation	Start the installation file "Setup.exe" and then follow the instructions of the setup wizard.
Upgrades	Close the Landis+Gyr .MAP120 Parameter Editor, if it is in use. Then start the installation file "Setup.exe" and follow the instructions of the setup wizard.
	When <b>upgrading a former release 4.4</b> to the latest release 4.4, the former release will be automatically replaced by the newer one. All data including the license and the communication settings is kept.
	When <b>upgrading a former release 2.x, 3.x, 4.0, 4.1, 4.2 or 4.3</b> to the latest release 4.4, the new release can be installed in parallel to a former release in a separate directory. All data including the license and the communication settings is kept.
	Former releases 1.x can't be upgraded.
	Landis+Gyr recommends to remove older releases since they will no longer be supported.

## 2.2 Uninstallation

If the Landis+Gyr .MAP120 Parameter Editor is no longer needed, it should be uninstalled.

To do so, open the Windows Control Panel and use "Uninstall a program" from the "Programs" category.

# 2.3 Required setting when operating .MAP120 on high resolution displays

On computers with high resolution displays (e.g. UHD with 3840 x 2160 pixels) or in general when using a Windows display scale factor of more than 150% a special setting is required to operate the Landis+Gyr .MAP120 Parameter Editor. Without this setting the tool will appear very small with a scale factor of 100% and can hardly be used.

The Landis+Gyr .MAP120 Parameter Editor must be started using a link in which the "Disable display scaling on high DPI settings" property is ticked in the "Compatibility" tab:

	20 - 3.9 Properties	
Security	Details	Previous Versions
General	Shortcut	Compatibility
	ility troubleshooter.	s version of Windows, try
ow do I choose con	npatibility settings mar	nually?
Compatibility mode		
Run this progra	m in compatibility mod	e for:
Windows 8		$\sim$
Settings		
Reduced color	mode	
8-bit (256) color	$\sim$	
Run in 640 x 48	0 screen resolution	
Disable display	scaling on high DPI se	ettings
Run this progra	m as an administrator	
Change settir	ngs for all users	
	1	

Nevertheless a few icons in the application tool bar still will be shown minimized. But this doesn't affect the usability of the Landis+Gyr .MAP120 Parameter Editor.

It is planned to modify the program so that it will work properly in the future without this setting.

# 3 Licensing

This section explains the licensing concept and describes the steps necessary for licensing the Landis+Gyr .MAP120 Parameter Editor.

# 3.1 Licensing concept

After installation, the Landis+Gyr .MAP120 Parameter Editor is in the unlicensed state, i.e. it can only be used as demo version with reduced range of functions. In order to permit the use of the Landis+Gyr .MAP120 Parameter Editor without restrictions, it must be licensed. For this purpose, the following licensing data can be obtained from the Landis+Gyr representative responsible, which must be entered in the Landis+Gyr .MAP120 Parameter Editor:

- User Name
- User Group
- License Key

The procedure is described in section 3.2 "Entering license data".

1)

#### MAP120 licence key is not valid for .MAP120

The license key for the former Landis+Gyr MAP120 Parameter Editor cannot be used for the Landis+Gyr .MAP120 Parameter Editor. A new licence key is required.

The license of the Landis+Gyr .MAP120 Parameter Editor release 2.2 or later is handled individually per Windows user and per .MAP120 main release on a single PC. If several persons share the same PC, the required .MAP120 user group with its specific functionality can therefore be individually assigned to each Windows user (up to release 2.0 the same license was used for all Windows users of a single PC and all .MAP120 releases).

When upgrading a former .MAP120 release 2.x to release 2.2 or later the current license is kept, i.e. it is copied once for each Windows user of the PC from the former release.

From release 2.1 any license change or a new license only affects the current Windows user and the current .MAP120 main release.

The license conditions remain unchanged, i.e. all existing and new licenses can be further used by one or several Windows users on one or several PCs. Please note, that normally the user name in the .MAP120 licence and the Windows user name are different.

# 3.2 Entering license data

Î

This section describes the licensing procedure required for unrestricted use of the Landis+Gyr .MAP120 Parameter Editor. The license data received from Landis+Gyr following your order is required for this purpose.

#### Administrator privileges required

Administrator privileges on your computer are required for the licensing.

#### Procedure:

- 1. Click on **Start** and then under **All programs** select the **Landis+Gyr** program group.
- 2. Right click on the Landis+Gyr .MAP120 4.4 command and then select the entry "Run as administrator" in the popup menu appearing. The Landis+Gyr .MAP120 Parameter Editor is started.
- 3. Select **License** from the **Tools** menu. The "License" window appears.

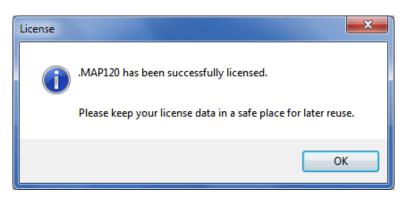
License	
User Name:	Demo User
User Group: License Key:	Demo
	OK Cancel

- 4. Enter the user name provided by Landis+Gyr in the "User Name" entry box.
- 5. Select the user group provided by Landis+Gyr in the "User Group" drop down list.
- 6. Enter the licence key provided by Landis+Gyr in the "License Key" entry box.

License	
User Name:	Henry Miller
User Group:	Standard 🗸
License Key:	6034-22FC-C860-2293
	OK Cancel

7. Click on OK.

The licence data is checked and a success message is displayed.



#### 8. Click on OK.

The licensing procedure is terminated.

The Landis+Gyr .MAP120 Parameter Editor is now ready for use according to the instructions given in the following sections.



#### Keep the license key in a safe place

Please note that due to security reasons the license key is not shown anymore if the "License" window is reopened. Keep the license key in a safe place for further use.

# 4 Description of user interface and general functions

This section describes the user interface of the Landis+Gyr .MAP120 Parameter Editor and contains procedures to use its functions.

## 4.1 Overview

The user interface of the Landis+Gyr .MAP120 Parameter Editor comprises the following areas:

- Menu bar (1) with menus to select functions.
- Toolbars (2):
  - Application toolbar
  - Access level toolbar
  - Address toolbar (either phone number or IP address is visible)
  - Device toolbar
  - Communication channel toolbar
- Device description window:
  - Tree view of device description (3)
  - Detail view of device description (4)
  - Status bar of device description (5)
- Communication log (6) for recording and analysing communication activities
- Status bar (7) for displaying data about the current communication status.

🛷 .MAP120 - [LGZ12129973 (V070104)*]					- 🗆 🗙
<u>File View Communication Tools Windows Help</u>	C				- 8 ×
📄 📜 🛃 🗞 🍇 🥥 🎔 🤭 🖤 Client: [G] Managemen	nt Ac	cess, static password 🔹 🎲	Phone:	- 🎲 🔯	6
Device: any device - ; 10005		<ul> <li>Channel: USB 19200</li> </ul>		- @	2
🕲 A Q 📜 📕		2			
4 📰 20000: Landis+Gyr E450	*	Network (0-0:199.13.0)			*
4 📰 10000: Device Settings		Network (0-0:199.15.0)			
Description Internation		Nominal Voltage	230	Y (4)	
▲ 10140: Network		Nominal Current	5	Α 4	
10155: Network					
10156: LED Pulse Output	E	Start Current	20	mA	
Discrete Terminals		Maximum Current	100 -	A	
10002: Clock		Power Factor Calculation Method	export •	1	E
10141: Time Of Use (TOU)				J	
<ul> <li>10031: Energy Registers</li> <li>10059: Demand Registers</li> </ul>		Apparent Calculation Method	vectorial 🔹	]	
<ul> <li>Duby: Demand Registers</li> <li>10059: Demand Registers</li> <li>10154: Operating Time Registers</li> </ul>		Phase Sequence Detection enabled			
10134: Operating Time Registers		Phase Sequence Direction	clockwise (L1L3L2) 🔻	1	
10144: Load Profile 1		Phase sequence Direction	CIOCKWISE (LILSL2)	J	
10143: Load Profile 2					
District Street		LED Pulse Output (0-0:199.2.0)			
10145: Standard Event Log		Pulse Constant	1000 • imp/kWh im	p/kvarh	
10146: Fraud Detection .	-	Pulse Length	2 ms		-
Device Description ID: LGZ12129973 Firmware Version: V0701	104	Parameterisation ID: JSE0007C	Type Designation:	ZMX310CGU1L1D3.21 S2	6
📜 🗐 🏋 💽 🎲 Find 🔺 🗸				Commu	nication Log
00280240ms - HDLC R<- 7EA01E03037340CC8180120501000					*
00280240ms - HDLC R<- UA-Frame SrcAdr=1 DestAdr=1 S 00280240ms - LLC End Close	Send	FrSize=U RecFrSize=98 Poll=	True FrameValid=Tr	<sup>ue</sup> 6	_
00280240ms - DLMS set State: CLOSED					*
<					P.
Session: disconnected (dlms - COM3 - 19200 bps)		0		<b>- 975</b> 👍 976	

The sizes of the areas for the tree view, detail view and communication log can be set individually with the movable separators situated in between (click separator and move with mouse button pressed).

The status bar and the communication log can be faded in or out using the corresponding menu points of the "View" or "Communication" menu.

# 4.2 Menu bar

The menu bar of the Landis+Gyr .MAP120 Parameter Editor contains the following menus for selecting functions:

Menu	Menu entry	Description of function
File	New	See section 5.1.1 "Creating new device descriptions"
	Open	See section 5.1.2 "Opening existing device descriptions"
	Save	See section 5.1.3 "Saving device descriptions"
	Save as	See section 5.1.4 "Saving device descriptions under a new name"
	Close	Closes the active device description window
	New from OMT file	For LG internal purposes only
	Change firmware version	For LG internal purposes only
	Print page setup	See section 5.1.5 "Defining the print layout for device descriptions"
	Print	See section 5.1.7 "Printing device descriptions"
	Print preview	See section 5.1.8 "Previewing the printout on the screen"
	Exit	Terminates the Landis+Gyr .MAP120 application
View	Compare to file	See section 5.1.11 "Comparing a device description to a file"
	Compare page setup	See section 5.1.6 "Defining the print layout for compare results"
	Status bar	See section 5.1.9 "Switching the status bar on and off"
Communication	Connect	Dials the selected phone number to establish a modem connection
	Disconnect	Terminates an existing modem connection
	Load from device	See section 5.1.10 "Reading device descriptions from a device"
	Send to device	See section 5.3.2 "Starting the parameterisation wizard"
	Abort	Interrupts the existing communication session
	Communication settings	See section 6.2 "Communication settings"
	Communication log	See section 4.5 "Communication log"
Tools	ASCII character converter	See section 7.1 "Converting ASCII to text or vice versa"
	Licence	See section 3.2 "Entering license data"
	Startup language	See section 7.2 "Changing the language of the user interface"
	Options	See section 7.5 "Defining storage location of communication settings"

Menu	Menu entry	Description of function	
Windows	Cascade	Arranges windows in an overlapped fashion	
	Tile vertical	Arranges windows in non-overlapped vertical tiles	
	Tile horizontal	Arranges windows in non-overlapped horizontal tiles	
	Close all	Closes all open device description windows	
Help	Help	See section 7.7 "Displaying tool help"	
	Release notes	See section 7.8 "Displaying release notes"	
	About .MAP120	See section 7.9 "Displaying the current program release and checking for updates"	

# 4.3 Toolbars

#### 4.3.1 Application toolbar



The application toolbar contains the following buttons for direct selection of frequently required functions:

- Creates a new device description (see section 5.1.1 "Creating new device descriptions")
- Opens a stored device description file (see section 5.1.2 "Opening existing device descriptions")
- Saves the selected device description file (see section 5.1.3 "Saving device descriptions")
- Prints the selected device description (see section 5.1.7 "Printing device descriptions")
- Displays a print preview of the selected device description (see section 5.1.8 "Previewing the printout on the screen")
- Displays the communication settings window (see section 6.2 "Communication settings")
- Fades the command log in or out (see section 4.5 "Communication log")
- Loads the device description (all parameters) from the device (see section 5.1.10 "Reading device descriptions from a device")
- Starts the parameter wizard
   (see section 5.3.2 "Starting the parameterisation wizard")
- Interrupts the existing communication session

Buttons which are not applicable in a specific situation are disabled and shown in grey.

#### 4.3.2 Client toolbar

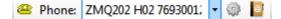
Client: [0] Public Access, no authentication

The access level toolbar allows selection of the required access level. Only fully defined access levels are displayed, a level can occur more than once with different settings.

Clicking on in the access level toolbar displays the access level settings (see section 6.2.6 "Access levels").

#### 4.3.3 Address toolbar

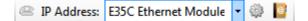
The phone number or IP address drop down lists displayed depending on the communication settings allow selection of the corresponding entry in the address book.



The phone number of the required modem can be selected in the "Phone" drop down list if a modem is selected as communication channel.

Clicking on in the address toolbar makes the connection to the selected phone number. When the connection is made, the drop down list is blocked and the icon on the button changes its appearance.

Clicking on in the address toolbar terminates the modem connection.



The IP address and port number of the required device can be selected in the "IP Address" drop down list, provided a network card is selected as interface in the communication profile settings. The phone Icon is deactivated.

Clicking on in the address toolbar displays the selected address book entry.

Clicking on III in the address toolbar displays the address book (see section 6.2.4 "Address data").

#### 4.3.4 Device toolbar

Device: ZMX310G	-	IEC;HDLC	12129973 ; 10973	- 🔅	
-----------------	---	----------	------------------	-----	--

The device toolbar allows the selection of devices with predefined settings (device series and device addresses).

With the checkbox "IEC;HDLC" you can deactivate and again activate the device address and in the drop down list you can select all defined device addresses.

Device: ZMX310G 🔹 🗔 IEC;HDLC 12129973 ; 10973 🔹 🍕
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Clicking on in the device toolbar displays the device settings (see section 6.2.3 "Device data").

## 4.3.5 Communication channel toolbar

Channel: USB - Optical Head - COM3 - 9600 🔹 🎲

The communication channel toolbar allows the selection of communication channels with predefined settings (e.g. interface, transmission protocols etc.).

Clicking on in the communication channel toolbar displays the channel settings (see section 6.2.2 "Communication channel data").

# 4.4 Device description window

The device description window shows the parameters of a device. Normally it is shown maximised, i.e. it uses the entire space in the .MAP120 Parameter Editor.

👽 .MAP120 - [LGZ12129973 (V070104)*]				
💸 Eile View Communication Iools Windows Help 🛛 🖉 🗙				
📄 📜 🛃 🗞 🔕 🥪 💇 💎 🖤 Client: [G] Management Ad	cess, static password 🔹 🏟	🕾 Phone: 🔹 👘 📴		
Device: any device - ; 10005	<ul> <li>Channel: USB 19200</li> </ul>	- @		
🕐 🦾 🔍 🔭 🔍	2			
4 20000: Landis+Gyr E450		*		
4 📰 10000: Device Settings	Network (0-0:199.13.0)			
10001: Configuration	Nominal Voltage	230 V		
▲ 🔤 10140: Network	Nominal Current	5 A		
10155: Network				
10156: LED Pulse Output	Start Current	20 mA		
🛛 📰 10056: Terminals	Maximum Current	100 · A		
▷ 📰 10002: Clock	Power Factor Calculation Method	export • E		
10141: Time Of Use (TOU)	Power Pactor Calculation Method	export		
10031: Energy Registers	Apparent Calculation Method	vectorial 🔹		
10059: Demand Registers	Phase Sequence Detection enabled			
Interview of the second sec				
▷ □ 10142: Billing Data ▷ □ 10144: Load Profile 1	Phase Sequence Direction	clockwise (L1L3L2) 🔻		
10144: Load Profile 1				
10143. Edd Profile 2 10080: Multi Utility	LED Pulse Output (0-0:199.2.0)			
10145: Standard Event Log	Pulse Constant	1000  imp/kWh imp/kvarh		
▷				
Device Description ID: LGZ12129973 Firmware Version: V070104	Pulse Length Parameterisation ID: JSE0007C	2 ms *		
Device Description 1D: Lo212129973 Firmware Version: V070104	Parameterisation ID: JSE0007C	Type Designation: ZMX310CGU1L1D3.21 S2		
Session: disconnected (dlms - COM3 - 19200 bps)		🦊 975 👍 976 🚬 🙀		

Clicking the button in the upper right corner of the .MAP120 downsizes the device description window, so that more than one device description window can be displayed at once. Using the entries "Cascade" or "Tile" from the "Windows" menu allows automatic arrangement of windows.

LGZ12129973 (V070104)*					×
🕸 📖 🍳 🗼 🕨 🕕		1			
<ul> <li>20000: Landis+Gyr E450</li> <li>10000: Device Settings</li> </ul>	<b>*</b>	Network (0-0:199.13.0)			Â
D 10001: Configuration		Nominal Voltage 5	230	V	
10140: Network 10056: Terminals	E	Nominal Current	5	Α	
▷ 10002: Clock		Start Current	20	mA	E
<ul> <li>I0141: Time Of Use (TOU)</li> <li>I0031: Energy Registers</li> </ul>		Maximum Current	100 -	A	
10059: Demand Registers		Power Factor Calculation Method	export •		
Interpretating Time Registers Interpretating Data		Apparent Calculation Method	vectorial 🔹		
10144: Load Profile 1		Phase Sequence Detection enabled			
<ul> <li>10143: Load Profile 2</li> <li>10080: Multi Utility</li> </ul>	<b>.</b>	Phase Sequence Direction	clockwise (L1L3L2) 🔻	]	
Device Description ID: LGZ12129973 Firmware Version	: V0701	04 Parameterisation ID: JSE0007	C 👩 Type Designatio	n: ZMX31	10C

- 1 Toolbar of tree view
- 2 Tree view
- 3 Movable separator
- 4 Toolbar of detail view

- 5 Detail view (detailed view of selected tree items)
- 6 Status bar of device description

Device description windows are divided into two by a movable separator (can be moved by clicking and shifting the separator). The tree view on the left side of the window contains a general tree representation, while the detail view on the right side displays details of the currently selected tree item (parameter or folder).

Both sectors of the window have horizontal and/or vertical picture scrolling functions if part of the window half cannot be seen. Scrolling does not affect the focus.

Clicking the est button in the upper right corner of a downsized device description window maximises the device description window again.

**Tree view toolbar** The toolbar of the tree view contains the following elements:

 Displays the online help for the device displayed in the tree (Details see below under "Displaying device help")



Zooms the content of both sectors of the device description window in a range from 1.00 to 3.00 in steps of 0.20:

- Fully left = magnification factor 1.00, i.e. original size
- Fully right = magnification factor 3.00, i.e. 3 times bigger size



Allows a full text search in the tree (details see below under "Full text search in tree view")

Expands all folders of the tree

Collapses all folders of the tree

**Tree view** 

A tree view, e.g. as generally familiar from the file system tree of Windows Explorer, is ideally suited for navigating in ordered structures with folders and subfolders.

4 🧰 20000: Landis+Gyr E450
I0000: Device Settings
I0001: Configuration
10207: Configuration
🔰 10212: Channel Number of Energy and Demand Registers
I0140: Network
🍈 10155: Network
I0156: LED Pulse Output
🔺 📰 10056: Terminals
🔰 10057: Digital Input
🔰 10216: Output 1
🔰 10210: Relay Control 2
10122: Control Output Scheduler
4 10002: Clock
🕑 10003: General Clock Configuration
🕑 10004: Clock Synchronisation
📎 10006: Daylight Saving Time Settings
10220: Network Time Synchronisation
10141: Time Of Use (TOU)
蹙 10239: Time Of Use

**Tree items** For the Landis+Gyr .MAP120 Parameter Editor the tree consists of a hierarchical arrangement of tree items (folders and parameters).

Tree items are shown as follows:

- Folder
- Configuration parameters
- Network parameters
- Clock parameters
- Time of use parameters
- Communication parameters
- Other parameters

#### **Folder handling** Each folder can be expanded and collapsed individually.

Collapsed folder items are preceded by an expansion icon  $\mathbb{P}$ , expanded folder items by a collapse icon  $\square$ .

To expand or collapse individual folders there are the following possibilities:

Using the mouse:

- Clicking on the expansion icon b of a folder expands this folder (the expansion icon b changes to a collapse icon a).
- Clicking on the collapse icon a of a folder collapses this folder (the collapse icon a changes to an expansion icon ▶).
- Double-clicking on a closed folder icon a or on the folder name behind the icon expands or collapses this folder.

Using the keyboard:

- Pressing the [\*] key of the numerical keyboard expands the whole tree of the selected folder (i.e. subfolders in the folder will also be expanded).
- Pressing the [+] key of the numerical keyboard expands the selected folder, but doesn't expand its subfolders.
- Pressing the [-] key of the numerical keyboard collapses the selected open folder or the next higher folder if a closed folder was selected.

Using the buttons in the tree view toolbar:

- Clicking on keywards all folders of the tree.
- Clicking on 📥 collapses all folders of the tree.

Details of the selected parameter in the tree are displayed in the right-hand part of the device description window where the parameters can be edited in the corresponding fields.

	→ LGZ12129973 (V070104)*
	🔍 🚰 🔍 👢 💺 🛛 👢
	20000: Landis+Gyr E450     20000: Device Settings     10000: Device Settings     10140: Network     10056: Terminals     100002: Clock
	Image: Several Clock Configuration       Clock Synchronisation (1-0:0.9.11)         Image: Several Clock Synchronisation       Synchronisation Lock         Image: Several Clock Synchronisation       Maximum Time Shift without Registration         Image: Several Clock Synchronisation       Image: Several Clock Synchronisation Lock         Image: Several Clock Synchronisation       Image: Several Clock Synchronisation Lock         Image: Several Clock Synchronisation       Image: Several Clock Synchronisation         Image: Several Clock Synchronisation       I
	Device Description ID: LGZ12129973 Firmware Version: V070104 Parameterisation ID: JSE0007C Type Designation: ZMX310C
Detail view toolbar	The toolbar of the detail view contains the folder up button . Clicking on this button selects the next higher folder above the currently selected tree item.
Device description status bar	The status bar below the device description displays the following device description values:
	Device Description ID
	Firmware Version
	Parameterisation ID
	Type Designation
	Note: In newly created device descriptions the Device Description ID and the Parameterisation ID are still undefined.
Displaying device help	Clicking on in the toolbar of the tree view of the device description window displays the online help for the opened device description. These help texts correspond to the contents of the device functional description.
	Find the desired information. Since the help function is a standard Windows function, it will not be explained at this point. More details are found in the Windows manual belonging to your PC.
Full text search in tree view	With the search function you can perform a full text search in the tree view of the device description window (Note: The detail view of the device description window is not included in the search).
	Procedure:
	<ol> <li>Click on A in the tree view toolbar. The "Find .MAP120" window appears.     </li> </ol>

Find .MAP120 - [Device Description (V070202)*]
Find what all nodes Containing Find
☑ ignore case
Results (0)
Node Text
Close

- 2. Enter the term you want to find in the entry box. If you have already carried out searches previously, you can click on the arrow behind the entry box and select one of the previous terms in the appearing list. The terms remain in the list until the program is terminated.
- 3. Deactivate the check box "ignore case" if the search shall be case sensitive.
- 4. In the selection field select
  - containing to search for the term at any place within the tree text,
  - **starting with** to search for the term at the beginning of the text or
  - ending with to search for the term at the end of the text.
- 5. Click on "Find".

The search result is listed in the "Results" area.

In the example shown with the term "time" and the attributes "containing" and "ignore case" all folders and elements containing the term "Time" are listed.

Note that the whole text is considered, including the item number. Therefore a search for "time" with attribute "starting with" would not show any result, whereas a search for "time" with attribute "ending with" would show for instance the element "10240: Billing Period Reset Lockout Time" since here the term "Time" appears at the end of the text.

Find	.MAP12	0 - [Device Description (V070202)*]
r F	ind what	
a	l nodes	containing
ti	me	C Find
	ignore	case
r R	esults (1	2)
	Node	Text
1		10006: Daylight Saving Time Settings
2		10220: Network Time Synchronisation
3	Folder	10141: Time Of Use (TOU)
4		10239: Time Of Use
5	Folder	10154: Operating Time Registers
6		10170: Operating Time Register 1
7		10171: Operating Time Register 2
8		10172: Operating Time Register 3
L <u>e</u>		10173 O 1' T' D ' A
		Close

6. Click on a result line in the list to highlight the corresponding folder or element in the tree (the folder containing the element is automatically expanded).

) ( <b>Q ]</b> k	Find .MAP120 - [Device Description (V070202)*]	× 1
20000: Landis+Gyr E450	- Find what	
I0000: Device Settings		
10001: Configuration	all nodes  Containing	
10140: Network	time Q Find	
10056: Terminals		í
4 10002: Clock	☑ ignore case	
🕑 10003: General Clock Configuration		
10004: Clock Synchronisation	Results (12)	
🕑 10006: Daylight Saving Time Settings		
🕑 10220: Network Time Synchronisation	Node Text	1
10141: Time Of Use (TOU)	1 10006: Daylight Saving Time Settings	
10031: Energy Registers	2 10220: Network Time Synchronisation	
10059: Demand Registers	3 Folder 10141: Time Of Use (TOU)	
10154: Operating Time Registers		
10142: Billing Data		
10144: Load Profile 1	5 Folder 10154: Operating Time Registers	
10143: Load Profile 2	6 10170: Operating Time Register 1	
10080: Multi Utility	7 10171: Operating Time Register 2	
10145: Standard Event Log	8 10172: Operating Time Register 3	
10146: Fraud Detection		1 I
10147: Quality Of Supply	Close	
10148: Disconnector		
10104: Demand And Current Supervision	×	

# 4.5 Communication log

#### Additional knowledge required

Additional knowledge is required to analyse communication activities.

Clicking on in the application toolbar shows or hides the communication log, where all communication activities can be traced and analysed.

First, the trace level has to be adjusted for each trace type supported as follows:

 Click on in the communication log toolbar. The ".MAP120 - Communication Tracers" window appears.

Communication Tracers	×
COSEM Trace	on 💌
DLMS Trace	medium 🔻
GATEWAY Trace	low 🔻
LLC Trace	low 🔻
WRAPPER Trace	medium 🔻
HDLC Trace	medium 🔻
IEC Trace	medium 🔻
	OK Cancel

- 2. Select in the "COSEM Trace" drop down list whether the COSEM Trace shall be on or off.
- 3. Select in the other drop down lists the resolution of the DLMS, GATE-WAY, LCC, WRAPPER, HDLC and IEC tracers (low, medium, high) or switch them off.
- 4. Click on OK.

All communication activities are traced in the communication log according to the settings made.

1. 🔒 🗈 🗙 🗟 🌼	Find AT Commun	ication Log
00166624ms - DLMS	set State: OPENING	
00166671ms - LLC	Open	
00166671ms - HDLC	Open	
00166733ms - HDLC	wait 200 ms	
00166983ms - HDLC	S-> SNRM-Frame SrcAdr=1 DestAdr=1 SendFrSize=248 RecFrSize=248 Poll=True FrameValid=False	
00166999ms - HDLC	S-> 7EA01E0303934E2B8180120501F80601F8070400000010804000000155B67E	
00167061ms - HDLC	R<- 7EA01E0303934E2B8180120501F80601F8070400000010804000000155B67E	
00167077ms - HDLC	R<- SNRM-Frame SrcAdr=1 DestAdr=1 SendFrSize=248 RecFrSize=248 Poll=True FrameValid=True	
00167077ms - HDLC	EchoHandler on	
00167092ms - HDLC	R<- 7EA01E03037340CC81801205010006016207040000001080400000014F047E	
00167108ms - HDLC	R<- UA-Frame SrcAdr=1 DestAdr=1 SendFrSize=0 RecFrSize=98 Poll=True FrameValid=True	-
< III		•

To analyse a specific string, mark it and click on in the communication log toolbar. This opens the ".MAP120 - Protocol Analyzer" window.

Protocol Analyser	
6128A109060760857405080102A203020100A305A103020100BE0F040D0800065F04001012201770FA00	*
	Ŧ
Analyse	
DLMS PDU Gateway LLC HDLC Frame Wrapper Ciphered APDU	_
vith additional field information Identifier Length Value	
DLMS_PDU[97] {** ApplicationAssociationResponse **}	*
ApplicationAssociationResponse Sequence	
<pre>[1] application-context-name ObjectIdentifier ::= SeguenceOf 6 Element(s)</pre>	
0: Unsigned32 = 96 (0x0000060) {** joint-iso-ccitt, country **}	
1: Unsigned32 = 756 (0x00002F4) {** country-name **}	_
2: Unsigned32 = 5 (0x00000005) {** identified-organization **}	=
3: Unsigned32 = 8 (0x00000008) {** DLMS-UA **} 4: Unsigned32 = 1 (0x00000001) {** application-context **}	
4: Unsigned32 = 1 (0x0000000) {** application-context **}	
5: Unsigned32 = 2 (0x00000002) {** Short_Name_Referencing_no_ciphering **}	
[2] result AssociationResult = 0 (accepted)	
[3] result-source-diagnostic	
AssociateSourceDiagnostic[1] {** AcseServiceUser **}	
Integer8 = 0 (0x00) (null)	
[30] user-information (InitiateResponse)	
OctetString[13] = 0800065F04001012201770FA00	
DIMS_PDU[8] {** initiateResponse **}	
InitiateResponse Sequence Optional Flag = False {** negotiated-guality-of-service **}	
Unsigned8 = 6 (0x06) {** negotiated-duality-of-service **}	
Conformance[24] = 00000100010010000001000 {** negotiated-conformance **}	
Bit(23) = 0 {** action **}	Ŧ
Save as Close	

Clicking on in the communication log toolbar opens the "Open Communication Log" dialogue window to display logs previously saved again. Clicking the right mouse button in the communication log followed by selection of the **Open Log File** menu item in the pop-up menu appearing has the same effect.

Clicking on in the communication log toolbar opens the "Save as" dialogue window to save the log displayed in a freely selected directory either as RTF file (default) or as text file. Clicking the right mouse button in the communication log followed by selection of the **Save as** menu item in the pop-up menu appearing has the same effect.

Clicking on in the communication log toolbar copies the content of the communication log to the Windows clipboard, from where it can be inserted into another application (e.g. in a word processing program). Clicking the right mouse button in the command log followed by selection of the **Copy all** menu item in the pop-up menu appearing has the same effect.

Clicking on in the communication log toolbar deletes the communication log. Clicking the right mouse button in the communication log followed by selection of the **Clear** menu item in the pop-up menu appearing has the same effect. **Full text search** With the search function you can perform a full text search in the communication log window.

Enter the term you want to find in the entry box of the toolbar (the search is not case sensitive) and then click on **v** or **a** for searching downwards or upwards starting from the currently marked position in the communication log window. The first occurrence of the searched term is highlighted.

Example: Searching the term "auth" finds as first occurrence the DLMS entry "set State: AUTHENTICATION".

00166671ms         HDLC         Open           00166673ms         HDLC         wait 200 ms	). 🔒 🗈 🗡 🖾 🌼	auth AT Communication	Log
00167092ms - HDLC R<- 7EA01E03037340CC818012050100060162070400000010804000000014F047E 00167108ms - HDLC R<- UA-Frame SrcAdr=1 DestAdr=1 SendFrSize=0 RecFrSize=98 Poll=True FrameValid=True 00167108ms - LLC End Open	0166733ms - HDLC 0166983ms - HDLC 0166999ms - HDLC 0167061ms - HDLC 0167077ms - HDLC	wit 200 ms S-> SNRM-Frame SrcAdr=1 DestAdr=1 SendFrSize=248 RecFrSize=248 Poll=True FrameValid=False S-> 7EA01E030393422B8180120501F80601F8070400000010804000000155B67E R<- 7EA01E030393422B8180120501F80601F807040000001804000000155B67E R<- SNRM-Frame SrcAdr=1 DestAdr=1 SendFrSize=248 RecFrSize=248 Poll=True FrameValid=True	
	0167092ms - HDLC 0167108ms - HDLC 0167108ms - LLC	R<- 7EA01E03037340CC818012050100060162070400000001080400000014F047E R<- UA-Frame SrcAdr=1 DestAdr=1 SendFrSize=0 RecFrSize=98 Poll=True FrameValid=True	

Clicking again on  $\mathbf{v}$  or  $\mathbf{A}$  searches for further occurrences of the term.

# 4.6 Status bar

Session: busy (dlms - COM3 - 19200 bps)

The following data is normally displayed in the status bar:

- Session information, e.g. connected, busy or disconnected
- Protocol, port and transmission rate (in parentheses)
- Number of objects sent (blue) and received (green)
- Data indication (running from left to right while data is transmitted)

Communication Settings: saved

975 1976

During and after editing communication settings the status bar shows information about the communication settings, e.g.

- loading (while loading)
- loaded (while the communication settings are displayed for editing)
- saving (while saving)
- saved (after editing the communication settings)

The Landis+Gyr .MAP120 Parameter Editor is used to edit and download complete device descriptions (parameterisations) into supported Landis+Gyr devices.

# 5.1 General functions

This section describes general functions selectable in the menus of the menu bar (see section 4.2 "Menu bar").

## 5.1.1 Creating new device descriptions

New device descriptions can be created for any supported device firmware version from templates available in the .MAP120 application.

#### Procedure:

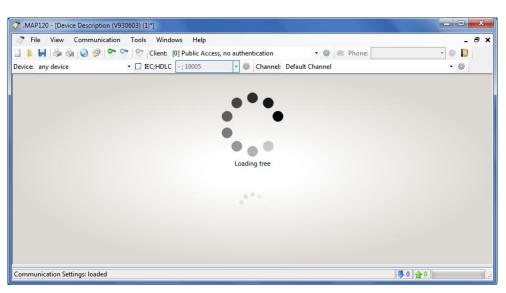
- 1. Click on in the application toolbar or select **New** from the **File** menu. The "New Device Description" window appears.
- 2. Select the device series, the type and the firmware version.

New Device Description		
Device Series	Туре	Firmware
© E35C	CZCXi100Q	V94.00.00
E450 S4	ZMXi300Q	V93.12.12
© E450 S3/S2		V93.11.11
© E450 S1		V93.10.10
© E460		V93.06.03
		V93.05.02
© E570		V93.04.01
© L540		V93.03.01
		V93.00.00
		OK Cancel

3. Click on **OK**.

The selected device description is created and loaded into the .MAP120 Parameter Editor.

During this operation, an indication in the device description window informs about the step in progress, e.g. "Loading tree".



Afterwards, the selected device description is displayed in the .MAP120 Parameter Editor.

MAP120 - [Device Description (V930603) (1)*]		
<u>File View Communication Tools Windows He</u>	lp	_ 8 >
🗋 📜 📙 🗞 🍇 🔕 🥩   💎 💎   ি Client: [0] Public.	Access, no authentication 🔹 🌸 🗠 Phone:	- 🔅 🔯
Device: any device - ; 10005	- 🗇 Channel: Default Channel	- 0
🥺 🚔 🔍 👠 🖡		
20000: Landis+Gyr E450           10000: Device Settings           10001: Configuration           10101: Configuration           10102: Clock           10000: Levice Settings           10100: Retwork           10000: Clock           10141: Time Of Use (TOU)           10141: Load Profile 1           10141: Load Profile 2           10141: Standard Event Log           10122: Fraud Detection and Access Supervision	<ul> <li>10000: Device Settings</li> <li>20001: Logistics</li> <li>20002: MAP</li> </ul>	
Device Description ID: Firmware Version: V930603	Parameterisation ID: Type Designation: ZMXi310CQU0L0D3.21 S4	
Communication Settings: loaded		<b>^</b> 0

4. Perform the intended work with the device description: You can edit the parameters of the device description (see section 5.2 "Editing parameters"), save it (see section 5.1.3 "Saving device descriptions") or write it into a device (see section 5.3.1 "Parameterisation wizard").

## 5.1.2 Opening existing device descriptions

Existing device descriptions can be opened in the .MAP120 Parameter Editor.

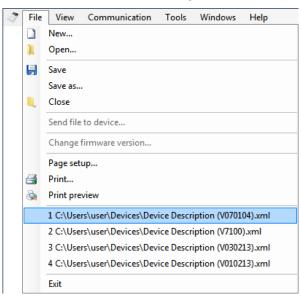
#### **Procedure:**

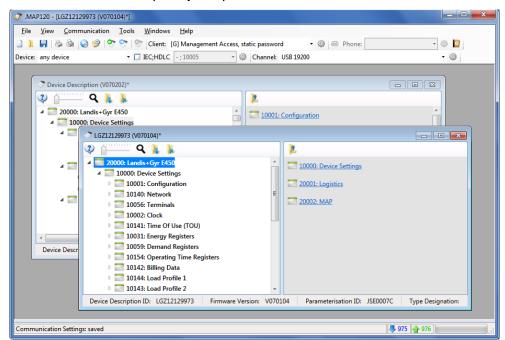
1. Click on in the application toolbar or select **Open** from the **File** menu. The "Open" window appears (this is an operating system dialog window and therefore the dialog language depends on the version of your Windows user interface).

		y Documents ► Landis+Gyr ► dMAP120 ► 2.0	<b>-</b>   4 <sub>7</sub>	Search 2.0	2
ganize • New folder				III • 🔲	0
<ul> <li>Contacts</li> <li>Desktop</li> <li>Downloads</li> <li>Favorites</li> <li>Links</li> <li>My Documents</li> <li>His6</li> <li>Landis+Gyr</li> <li>dMAP</li> <li>dMAP110</li> <li>MAP120</li> <li>1.1</li> <li>2.0</li> <li>My Data Sources</li> </ul>	•	Name  Device Description (V7100).xml  Device Description (V010213).xml  Device Description (V030213).xml  Device Description (V070104) - Copy.xml	Date modified 03.11.2011 13:49 03.11.2011 13:09 08.10.2010 08:21 03.11.2011 13:49	Type XML Document XML Document XML Document	S
📙 My Meetings	*	< III.			
File <u>n</u> ame:			- Dev	vice Description files (*	xı •

- 2. Select your personal data folder in the displayed tree structure if it is not already displayed.
- 3. Double-click on the desired entry in the list or select it and then click on **Open**.

The selected device description will be loaded and displayed. It is also possible to select a recently opened device description from the MRU (most recently used) list in the **File** menu. This list contains as maximum the last 6 opened file names. Clicking on a list entry opens the corresponding device description directly.





The device description just opened becomes the active window.

4. Perform the intended work with the device description: You can edit the parameters of the device description (see section 5.2 "Editing parameters"), save it (see section 5.1.3 "Saving device descriptions") or write it into a device (see section 5.3.1 "Parameterisation wizard").

#### 5.1.3 Saving device descriptions

Complete device descriptions can be saved in device description files under the original name. If the device description was newly created or is to be saved under a new name, you have to proceed as described in section 5.1.4 "Saving device descriptions under a new name".

#### **Procedure:**

- 1. Activate the window with the device description to be saved.
- 2. Click on 🛃 in the application toolbar or select **Save** from the **File** menu.

If the device description was modified since it was last saved (recognisable by the asterisk in the title bar) the modified data will overwrite the previously stored data without any warning.

If the device description was not modified (no asterisk in the title bar) it will not be saved again.

If a new device description has not yet been saved, it will be saved using the "Save As" function described in the next section. Complete device descriptions can be saved under a new name.

#### Procedure:

- 1. Activate the window with the device description to be saved under a new name.
- Select Save As from the File menu. The "Save as" window appears (this is an operating system dialog window and therefore the dialog language depends on the version of your Windows user interface).
- 3. Select the desired data folder in the displayed tree structure if it is not already displayed.

A list of all stored device description files of the same type will be shown.

Save Device Description As			<b>**</b>
🕞 🕘 - 🗼 « Users 🕨 rahm	nc ► My Documents ► Landis+Gyr ► dMAP120 ► 2.0	<ul> <li>+<sub>↑</sub> Searc</li> </ul>	h 2.0 P
Organize • New folder			II • 🕜
	Name Device Description (V010213).xml Device Description (V030213).xml Device Description (V070104).xml	Date modified 03.11.2011 13:09 08.10.2010 08:21 03.11.2011 13:49	Type XML Document XML Document XML Document
1 My Data Sources	• • •		•
File <u>n</u> ame: Device De Save as type: Device De	escription (V7100).xml scription files (*.xml)		•
lide Folders		Save	Cancel

4. Enter the desired name for the device description in the entry box "File name".

If the device description was newly created, the proposed name corresponds to the connected device. Otherwise the name formerly used is proposed. You can overwrite this proposal.

5. Click on **Save**.

The device description will be saved. The device description name in the title bar changes according to the selected name.

## 5.1.5 Defining the print layout for device descriptions

The "Print page setup" function allows you to determine the desired page layout for printouts of a device description.

#### Procedure:

1. Select **Print page setup** from the **File** menu.

The "Page Setup" window appears (this is an operating system dialog window and therefore the dialog language depends on the version of your Windows user interface).

Page Setup				×
	Schulerungerhammen Schulerungerhammen Heiner Schuler Schulerungerhammen Schulerung	ny: 2700 <del>, ar ga</del> amy A		
Paper				
Si <u>z</u> e:	A4 (210 x 297 m	m)		-
Source:	Bypass			•
Orientation	Margins	(millimeters)		
Portrait	<u>L</u> eft:	10.16	Right	10.16
Landscape	<u>T</u> op:	15.24	Bottom:	15.24
			ок	Cancel

- 2. Make the required settings.
- 3. Click on **OK**.

This terminates the page setup for printing. You can now perform a print preview on the screen (see section 5.1.8 "Previewing the printout on the screen") or start the printout directly (see section 5.1.7 "Printing device descriptions").

#### 5.1.6 Defining the print layout for compare results

The "Compare page setup" function allows you to determine the desired page layout for printouts of the compare results.

#### **Procedure:**

 Select Compare page setup from the File menu. The "Page Setup" window appears (this is an operating system dialog window and therefore the dialog language depends on the version of your Windows user interface).

Page Setup				<b>X</b>
	Contraction of the second seco	ary= 2/20 <del>00 - 2000 - 2</del> /100 ary= 2/200 2000 - 2000 - 100		
Paper				
Size:	4 (210 x 297 m	ım)		-
Source: E	ypass			-
Orientation	Margins	(millimeters)		
© P <u>o</u> rtrait	<u>L</u> eft	10.16	<u>R</u> ight	10.16
Landscape	<u>T</u> op:	15.24	Bottom:	15.24
			ОК	Cancel

- 2. Make the required settings.
- 3. Click on OK.

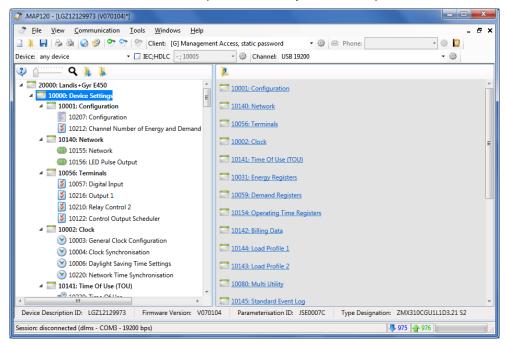
This terminates the page setup for compare results. You can now display a compare preview on the screen (see section 5.1.11 "Comparing a device description to a file") and start the printout directly from there.

#### 5.1.7 Printing device descriptions

The "Print" function prints out the device description in the predefined form (see section 5.1.5 "Defining the print layout for device descriptions").

#### **Procedure:**

1. Activate the device description window you want to print.



2. Select **Print** from the **File** menu.

The "Print" window appears.

Clicking on in the application toolbar would start printing immediately without displaying the "Print" window.

3. Make the necessary settings (number of pages and copies).

Select Printer			
CHZUGCold	r on chzugvs44		Microsoft XPS Doc
😅 Fax			Send To OneNote
Microsoft O	ffice Live Meeting 2007 Doo	cument Writer	
4			۲
Status:	Ready		Preferences
Location:	Zug, Switzerland		
Comment	Ricoh Aficio MPC5000 - Follow	You Color	Find Printer
Page Range			
Aļi		Number of c	opies: 1 🌲
Selection	Current Page		
Pages:		Collate	-0-0-0
Enter either a sing page range. For e	le page number or a single example, 5-12		112233

4. Click on Print.

> The device description is printed out on the selected printer as defined by default.

If desired, the print layout can be changed individually (see section 5.1.5 "Defining the print layout for device descriptions"). A preview prior to printing can also be performed (see section 5.1.8 "Previewing the printout on the screen").

#### 5.1.8 Previewing the printout on the screen

The "Print Preview" function allows you to check the result of the page setup by previewing the printout on the screen prior to printing.

#### **Procedure:**

- 1. Activate the device description window you want to preview on the screen.
- Click on in the application toolbar or select **Print preview** from the 2. File menu.

The "Print Preview" window appears.

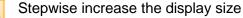
Print Preview - [LGZ12129973 (V070104)*]	
.MAP120 2.3.12	LGZ12129973 (V070104)*
20000: Landis+Gyr E450	
10000: Device Settings	
10001: Configuration	
10207: Configuration	
Firmware Version Network Type Connection Type Accuracy Measurement Type Voltage Range Current Range Frequency Disconnector Remote Communication Interface Local Communication Interface User Communication Interface Digital Input Outputs No Power Read Extended Power Supply Configuration ID Type Designation	V070104 four wire network (M) direct connected MID class B active and reactive energy (four quadrant) 3x 220/380240/415 V 5 (100) Å 50 Hz 3-pole disconnector (live) GSM/GPRS/IVMTS (2G3G) wired M-Bus according to EN 13757-2 wireless M-Bus (868 MHz) 1 digital input 1 digital output (90mA/230VAC) & 1 non-latching relay (8A/230VAC) disabled SMS alerts possible after power outage MHBC3313UDW12nS ZMX310GU1L1D3.21
10140: Network	
10155: Network (0-0:199.13.0)	
Nominal Voltage	230 V -
Type text to find	,

The parameter designations are listed in the left column, the parameter values in the right column.

3. Select the display size by clicking one of the icons in the top line of the window:

<del>@</del>	Display original size (100 %)
F	Display page width
	Display whole page
EE	Display two pages

ΞE





Stepwise decrease the display size

4. If you are looking for a specific parameter designation or value you can either navigate to the corresponding position by scrolling with the mouse wheel or by using the scroll bar or you can use the search function (full text search) in the bottom line of the window:



Enter the text to find in the entry box. Clicking on the blue arrows finds the next or previous occurrence of the text string and highlights it in the page preview. In the drop down list behind the blue arrows you can select match criteria, e.g. match case.

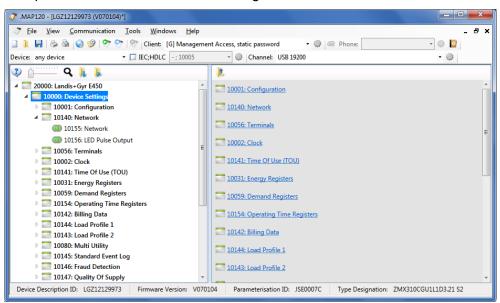
- 5. Click on if you want to copy a previously highlighted text section into the Windows clipboard from where you can insert it into a document using the insert function [Ctrl]+[V].
- 6. Click on if you want to print the device description. The "Print" window appears (the dialog language depends on the version of your Windows user interface). Make the necessary settings (printer selection, printer properties, paper size, source and orientation) then click on **Print**.
- 7. Close the "Print Preview" window if you don't want to print the device description.

The "Status bar" toggle function enables you to hide or show the status bar in the main window of the application.

#### **Procedure:**

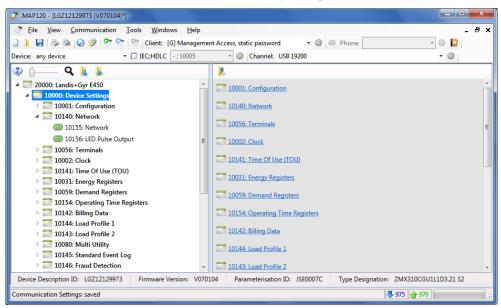
1. Select **Status bar** from the **View** menu.

A tick in front of the menu item indicates that the status bar is currently switched on. After clicking on the menu item the tick in front of it disappears and the status bar is no longer visible.



2. Select **Status bar** again from the **View** menu, if you want to show the status bar (toggle function).

No tick in front of the menu item indicates that the status bar is currently invisible. After clicking on the menu item the tick in front of it reappears and the status bar is displayed again.



## 5.1.10 Reading device descriptions from a device

Device descriptions can be read from supported Landis+Gyr devices via the available communication channels of these devices. Please note that always a new device description is created when reading from a device. It is not possible to overwrite the currently open device description.

### **Procedure:**

- 1. Prepare the communication as described in section 6.2 "Communication settings".
- 2. Click on in the application toolbar or select **Load from device** from the **Communication** menu.

The connection to the selected device is established via the selected communication channel and the device description is read from the device into a new device description window. The device identification and the firmware version are displayed in the title bar. During the readout process, which can take several minutes depending on the number of items to be read, a rotating display is shown in the device description window.



After completing the readout the device description is displayed.

→ LGZ12129973 (V070104)*	
😲 📋 🔍 🖡 🖡	2
20000: Landis+Gyr E450     10000: Device Settings	10000: Device Settings
10000: Device Settings     10001: Configuration	20001: Logistics
□ 10140: Network □ 10056: Terminals	20002: MAP
▶ 📰 10002: Clock	
<ul> <li>10141: Time Of Use (TOU)</li> <li>10031: Energy Registers</li> </ul>	
10059: Demand Registers	
<ul> <li>10154: Operating Time Registers</li> <li>10142: Billing Data</li> </ul>	
<ul> <li>10144: Load Profile 1</li> <li>10143: Load Profile 2</li> </ul>	
Device Description ID: LGZ12129973 Firmware Version: V070	104 Parameterisation ID: JSE0007C Type Designation: ZMX

3. Perform the intended work with the device description: You can edit the parameters of the device description (see section 5.2 "Editing parameters"), save it (see section 5.1.3 "Saving device descriptions") or write it into a device (see section 5.3.1 "Parameterisation wizard").

## 5.1.11 Comparing a device description to a file

This function allows you to compare the displayed device description with a device description saved in a file.

The compare page setup can be defined as described in section 5.1.6 "Defining the print layout for compare results".

#### **Procedure:**

- Display the device description which you intend to compare with an other device description saved in a file (proceed as described in section 5.1.2 "Opening existing device descriptions") or in section 5.1.10 "Reading device descriptions from a device").
- 2. Select Compare to file from the Tools menu.

The "Open" window appears (this is an operating system dialog window and therefore the dialog language depends on the version of your Windows user interface).

ganize • New folder				· ·	0
<ul> <li>Contacts</li> <li>Desktop</li> <li>Downloads</li> <li>Favorites</li> <li>Links</li> <li>My Documents</li> <li>His6</li> <li>Landis+Gyr</li> <li>dMAP</li> <li>dMAP110</li> <li>dMAP120</li> <li>1.1</li> <li>2.0</li> <li>My Data Sources</li> </ul>		Name Device Description (V7100).xml Device Description (V010213).xml Device Description (V030213).xml Device Description (V070104) - Copy.xml	Date modified 03.11.2011 13:49 03.11.2011 13:09 08.10.2010 08:21 03.11.2011 13:49	Type XML Document XML Document XML Document XML Document	S
📙 My Meetings	*	< III			

- 3. Select your personal data folder in the displayed tree structure if it is not already displayed.
- 4. Double-click on the desired entry in the list or select it and then click on **Open**.

The displayed device description will be compared with the selected device description and compare result displayed in the "Compare Preview" window.

.MAP120 2.3.12 - Compare	LGZ12129973 (V070104)*	Device Description (V070104).xml
20000: Landis+Gyr E450		
10000: Device Settings		
10001: Configuration		
10207: Configuration		
Firmware Version Network Type Connection Type Accuracy Measurement Type Voltage Range Current Range Frequency Disconnector Remote Communication Interface Local Communication Interface User Communication Interface Digital Input Digital Input	V070104 four vire network (M) direct connected active and reactive energy (four quadrant) 3x 220/380240/415 V 5 (100) A 50 Hz 3-pole disconnector (live) GSM/GPRS/UMTS (233G) wired M-Bus according to EN 13757-2 wireless M-Bus (688 MHz) 1 digital output 1 digital output 1 digital output	V070104 four vive network (M) direct connected IEC class 2 active and reactive energy (four quadrant) sx 220/380240/415 v 5 (100) A 50 Hz 3-pole disconnector (live) GSM/GPRS/UMTS (2G3/G) wired M-Bus according to EN 13757-2 wireless M-Bus (686 MHz) 1 digital output (90mA/230VAC), & 1 non-latching re
No Power Read Extended Power Supply Configuration ID Type Designation	disabled SMS alerts possible after power outage M1BC3313UDW12nS ZMX310GU1L1D3.21	disabled SMS alerts possible after power outage M12C3313UDW12nS ZMX320GU1L103.21
10140: Network		
10155: Network (0-0:199.13.0)		
Nominal Voltage	230	230

The parameter designations are listed in the left column, the parameter values of the displayed device description in the centre column and the parameter values of the device description from the file in the right column. Differing parameter values are highlighted with the defined colour (see section 7.3 "Defining colours").

See section 5.1.8 "Previewing the printout on the screen" for a description of the handling features in the "Compare Preview" window.

## 5.2 Editing parameters

A parameter can be edited in the detail view of the device description window after selecting the parameter or folder containing the parameter in the tree view of the device description window (see section 4.4 "Device description window").

Depending on the parameter type, parameters can be modified in different manners:

- Entering parameter values in entry boxes (see section 5.2.1)
- Selecting parameter values in drop down lists (see section 5.2.2)
- Selecting option parameters (see section 5.2.3)
- Activating or deactivating checkboxes (see section 5.2.4)
- Defining lists by selecting objects (see section 5.2.5)
- Using special functions (e.g. importing time of use tables) (see section 5.2.6)

The corresponding procedures and special features are explained in the indicated sections with some examples. Specific instructions are contained in the functional descriptions of the supported devices.

### 5.2.1 Entering parameter values

Certain parameter values can be entered in entry boxes, in the following example the deviation of local time to UTC and the maximum time shift without registration of a clock adjustment event.

General Clock Configuration (0-0:1.0.0)			
Time Base	(1) internal crystal 🔻	]	
Deviation of Local Time to UTC	120	min 🕕	
Clock Synchronisation (1-0:0.9.)	11)		
Synchronisation Lock	0 min 🔻		
Maximum Time Shift without Re of a Clock Adjusted Event	gistration 9 s		

The unit of the value is indicated behind the entry box.

The allowed entry range is indicated with a tooltip if the mouse pointer is positioned on the entry box (in the example shown the value must be in a range from 2 to 255 s).

Clock Synchronisation (1-0:0.9.11)	
Synchronisation Lock	0 min 🔻
Maximum Time Shift without Registration of a Clock Adjusted Event	9 s
	2255 s

If an **1** icon is displayed hehind the entry box, you can position the mouse pointer over this icon to display a tooltip with information (more complex instructions and examples) about the entry box, e.g. about the deviation between local time and UTC:

General Clock Configuration (0	-0:1.0.0)	
Time Base	(1) internal crystal 🔻	
Deviation of Local Time to UTC	-60 min 🌘	<u></u>
Clock Synchronisation (1-0:0.9.) Synchronisation Lock	11) 0 min 🔻	-720720, 30 min steps Western Europe: 0 min Central Europe: -60 min Eastern Europe: -120 min

The entries made will be validated against the allowed values. If a value exceeds the allowed range this is indicated with a red blinking frame around the entry box with red background and a red frame around the area.

Clock Synchronisation (1-0:0.9.11) 😵 -	
Synchronisation Lock	0 min 🔻
Maximum Time Shift without Registration of a Clock Adjusted Event	1 s

If you position the mouse pointer over the error icon  $\bigotimes$ , a tooltip with information about the error is displayed:

Clock Synchronisation (1-0:0.9.11)	<b>Q</b>
Synchronisation Lock	Time shift out of range
Maximum Time Shift without Registe of a Clock Adjusted Event	ration 1 s

#### 5.2.2 Selecting parameter values

Certain parameter values can't be entered in entry boxes but must be selected from a given number of possibilities, in the following example the synchronisation look time can only be set to one of the five values presented in the drop down list.

Clock Synchronisation (1-0:0.9.11)	
Synchronisation Lock	0 min 🔻
Maximum Time Shift without Registration	0 min
of a Clock Adjusted Event	15 min
or a clock hajasted Event	30 min
	1 hour
	1 day

Not only values but also features can be selected in drop down lists.

Digital Input (0-0:1	.99.3.0)	
Input Functionality	(2) pulse counter 🔻	
	(0) disabled	
	(1) alarm input	
	(2) pulse counter	
	(3) external disconnector button	

#### 5.2.3 Selecting option parameters

Certain parameters can be set by selecting one of the indicated options, in the following example the date and time reset.

Billing Period Reset (0-0:15.0.0)	
Reset Date and Time	
$\bigcirc$ undefined	Day
e monthly	on: 1 🔹
© weekly	Hour Minute
© daily	at: 00 🔻 00 🔻
$\bigcirc$ at daylight savings time begin and end	

Changing the selection can have an immediate influence on other parameters or parameter attributes. In the above example the fields on the right side disappear for instance if "undefined" is selected.

## 5.2.4 Activating or deactivating checkboxes

Certain parameters can be set by selecting several of the indicated options, in the following example the standard event trigger sources.

'ree Path 🔰	Lanc	lis+Gyr E450\Device Settings\Standard Event Log\Standard	
Standard	Event Lo	og Trigger Sources (0-0:96.11.0)	*
<b>×</b> ×			
enabled	Event	Event Name	
	1	Power down	
	2	Power up	=
<b>V</b>	3	Daylight saving time enabled or disabled	
	4	Clock adjusted (old date/time)	
	5	Clock adjusted (new date/time)	
<b>V</b>	6	Clock invalid	-
<b>v</b>	9	TOU activated	
<b>V</b>	10	Error register cleared	
<b>v</b>	11	Alarm register cleared	
<b>V</b>	12	Program memory error	
<b>V</b>	13	RAM error	
<b>V</b>	14	NV memory error	
<b>v</b>	15	Watchdog error	
<b>V</b>	16	Measurement system error	Ŧ

Clicking on a checkbox toggles between activated (tick set) and deactivated (tick removed).

Clicking on the 🗹 icon activates all checkboxes.

Clicking on the 📕 icon deactivates all checkboxes.

Activating or deactivating a checkbox can have an immediate influence on the parameter display. In the following example the maximum demand register parameters are only displayed with activated checkbox.

Maximum Demand Register 1 (1-0:1.6.0)				
Monitored Value	Current average demand +A (QI+QIV) 🔻			
Control Signal	always active			
Rate Number	•			

With deactivated checkbox the parameters are not visible.

Maximum Demand Register 1 (1-0:1.6.0)	

## 5.2.5 Defining lists by selecting objects

Certain parameters (e.g. profiles, display lists, service lists etc.) can be set by copying a number of objects from a choice list into a captured object list and defining the order of the selected list entries.

apture Period 1					
Captured Object	List:				
Choice:			Rema	aining Number of	Entries 1
+				- 🔦	¥
Logical Name; Attribute Index	Register	Group		Logical Name; Attribute Index	Register
1-0:82.8.0; 2	Pulse counter	Energy Total	1	0-0:1.0.0; 2	Clock
1-0:16.8.0; 2	Active energy A (QI+QIV-QII-QIII)	Energy Total	2	0-0:96.10.2; 2	Profile state 2
1-0:15.8.0; 2	Active energy A (QI+QII+QIII+QIV)	Energy Total	3	1-0:1.8.0; 2	Active energy import +A (QI+QIV)
1-0:4.8.0; 2	Reactive energy export -R (QIII+QIV)	Energy Total	4	1-0:2.8.0; 2	Active energy export -A (QII+QIII)
1-0:5.8.0; 2	Reactive energy +Ri (QI)	Energy Total	5	1-0:3.8.0; 2	Reactive energy import +R (QI+QII)
1-0:6.8.0; 2	Reactive energy +Rc (QII)	Energy Total	6	1-0:1.8.1; 2	Active energy import +A (QI+QIV) rate 1
1-0:7.8.0; 2	Reactive energy -Ri (QIII)	Energy Total	7	1-0:1.8.2; 2	Active energy import +A (QI+QIV) rate 2
1-0:8.8.0; 2	Reactive energy -Rc (QIV)	Energy Total	8	1-0:1.8.3; 2	Active energy import +A (QI+QIV) rate 3
1-0:10.8.0; 2	Apparent energy export -VA (QII+QIII)	Energy Total	9	1-0:1.8.4; 2	Active energy import +A (QI+QIV) rate
1-0:9.8.0; 2	Apparent energy import +VA (QI+QIV)	Energy Total			

Clicking on moves the selected entry of the choice list to the captured object list (to the first position if no entry is currently selected in the list or otherwise underneath the selected entry in the list).

Clicking on moves the selected entry of the captured object list back to the choice list (to the original predefined position).

Clicking on solution or clicking on clicki

## 5.2.6 Using special functions

Certain parameters can be set using special functions, in the following example the definition of time of use tables.

•			Ē		Ô.		4			
ctive	e TOU	Passiv	e TOU	Sp	ecial [	ays	Em	nerge	ncy S	ettings
	D ACTI	VE								
Sea	son Tab	le								
4	E.	×	Į.	1						
	Seaso	n Name	Mor	nth	Day	Wee	k Na	me		
1		1	Janu	ary	1		1			
2		2	April		1		2			
3		3	Nove	ember	1		3			
_				-						
- 1	h	~	1	1						
	Mart	Manag	Man	Tur	W	Thu	E.c.	C - 4	C	
4		Name	Mon		Wed	Thu	Fri	Sat		
1		1	1	1	1	1	1	1	1	
2		1 2	1 3	1 3	1 3	1 3	1 3	1 3	1 3	
		1	1	1	1	1	1	1	1	
2 3		1 2	1 3	1 3	1 3	1 3	1 3	1 3	1 3	
2 3 Day	7 Tables	1 2	1 3	1 3	1 3	1 3	1 3	1 3	1 3	
2 3 Day	7 Tables	1 2 3	1 3 1	1 3 1	1 3 1	1 3 1	1 3 1	1 3 2	1 3 2	
2 3 Day	7 Tables	1 2	1 3	1 3 1	1 3 1	1 3 1	1 3	1 3 2	1 3	
2 3 Day Day	7 Tables	1 2 3	1 3 1 Day	1 3 1	1 3 1	1 3 1	1 3 1	1 3 2	1 3 2	
2 3 Day Day	y Tables y ID 1	1 2 3 	1 3 1 Day	1 3 1 ID 2	1 3 1	1 3 1	1 3 1	1 3 2	1 3 2	
2 3 Day Day	y Tables y ID 1	1 2 3 × ×	1 3 1 Day	1 3 1 ID 2	1 3 1		1 3 1	1 3 2	1 3 2	

The special functions (import, save, copy, paste, add, remove etc.) can be selected by clicking on the corresponding icons (their function is indicated in a tooltip if the mouse pointer is positioned on the icon).

Specific instructions for the use of these functions are contained in the functional descriptions of the supported devices.

### 5.2.7 Invalid parameter settings

Invalid parameter settings are indicated with an error icon <sup>20</sup> and a red frame around the invalid area in the detail view. Additionally, an error icon • is displayed in the tree item with the invalid parameter and in all hierarchical higher folders.

💸 .MAP120 - [Device Description (V480400)*]		
<u>File View Communication Tools Windows Help</u>	- 8	×
🗋 📜 🛃 😓 💩 🥝 🤗 🤭 💎 🕅 Client: [G] Management.	ment Access, static password 🔹 🏟 🗠 Phone: 🔍 🔹 🔯	
Device: any device - ; 10005	Channel: USB 19200	
😲 📁 🔍 📜 🐌	1 A	
▲ 🧿 20000: Landis+Gyr E450 🔺	Time Of Use (0-0:13.0.0) 🔞	*
▲ 💽 10000: Device Settings		
10001: Configuration	Active TOU 🔇 Passive TOU Special Days Emergency Settings	
10140: Network		
10056: Terminals	TOU ID ACTIVE Day ID 3 not found in any day table	
10002: Clock	Season Table	
10031: Energy Registers		
Demand Registers		
<ul> <li>10250: Tariffication</li> <li>10141: Time Of Use (TOU)</li> </ul>	Season Name Month Day Week Name	
● 10141: Time Of Use [100]	1 0 January 1 1	
<ul> <li>Interview of the second second</li></ul>	2 1 April 1 2	Ξ
10142: bining Data	3 2 November 1 3	
10143: Load Profile 2		
10080: Multi Utility	Week Table	
10145: Standard Event Log	🕂 🕂 X / 🗎 🐧	
▷ 📰 10146: Fraud Detection	Week Name Mon Tue Wed Thu Fri Sat Sun	
10147: Quality Of Supply	1 🛛 1 1 1 1 1 3 3	
10148: Disconnector		
10104: Demand And Current Supervision	3 3 1 1 1 1 2 2	
10269: Alarms		
Display	Day Tables	
10152: Identification Numbers		
<ul> <li>10105: Communication Interfaces</li> <li>10153: In Home Display</li> </ul>		
<ul> <li>▶ ■ 10153: In Home Display</li> <li>▶ ■ 10119: Security System</li> </ul>	Day ID 1 X Day ID 2 X	
	arameterisation ID: Type Designation: ZMXi310CPU1L1D3.31 S2	
Session: disconnected (dlms - COM3 - 19200 bps)	975	].::

The reason for the error (in the above example a missing day table) can be indicated with a tooltip if the mouse pointer is positioned on the error icon.

Please note, that only an error icon is displayed in the tree but not the cause of the error.



#### Possibility of consecutive errors

The error indicated in the tree can also be a consecutive error whose reason is another modified parameter.

#### 5.2.8 Local warnings

Parameter settings which affect a function – but are not invalid – are identified with a local warning indicated in the detail view but not in the tree. Such parameter settings are admissible (i.e. they may be intended) and do not need to be corrected.

The local warning is indicated with a warning icon 4 (e.g. in lists) or with an orange frame (e.g. around entry boxes).

In the example below the warning icons indicate, that the corresponding registers are inactive (because the energy registers 13 to 16 have been disabled). By positioning the mouse pointer on the warning icon the cause of the warning is displayed as tooltip.

hoice:		Regi	ster List:		Reg	ister A	ctivat	ion:		
+			- 🖈	*	•	X				
ogical Name	Register		Logical Name	Register	alwave active	RATE1	RATE2	RATE3	RATE4	
		1	1-0:1.8.1	Active energy import +A (QI+QIV) rate 1						
		2	1-0:1.8.2	Active energy import +A (QI+QIV) rate 2			1			
		3	1-0:1.8.3	Active energy import +A (QI+QIV) rate 3				1		
		4	1-0:1.8.4	Active energy import +A (QI+QIV) rate 4					1	
		5	1-0:2.8.1	Active energy export -A (QII+QIII) rate 1						
		6	1-0:2.8.2	Active energy export -A (QII+QIII) rate 2			1			
		7	1-0:2.8.3	Active energy export -A (QII+QIII) rate 3				1		
		8	1-0:2.8.4	Active energy export -A (QII+QIII) rate 4					1	
		9	1-0:3.8.1	Reactive energy import +R (QI+QII) rate 1						
		10	1-0:3.8.2	Reactive energy import +R (QI+QII) rate 2			1			
		11	1-0:3.8.3	Reactive energy import +R (QI+QII) rate 3				1		
		12	1-0:3.8.4	Reactive energy import +R (QI+QII) rate 4					1	
		13	0-0:127.0.13	Inactive object						
		14	Inactive object	Inactive object						
		15	10-0:127.0.13	Inactive object						
		16	0-0:127.0.16	Inactive object						

In the following example the orange frame around the entry box "Threshold" indicates that the supervision has been switched off by entering the value "0".

Supervision Settings					
Threshold	0	w			
Minimum Over Threshold Duration	180	s			
Action Up	disconnect 🔹				
Minimum Under Threshold Duration	180	s			
Action Down	reconnect 🔹				

By positioning the mouse pointer on the entry box with the orange frame the cause of the warning is displayed as tooltip.

Supervision Settings	
Threshold	0 W
Minimum Over Threshold Duration	If the threshold is set to 0 no actions will be triggered because the threshold
Action Up	di is exceeded all the time and it's impossible to go below it.
Minimum Under Threshold Duration	180 s
Action Down	reconnect

In the following example the warning icon 1 and the orange frame around the "Action" drop down lists indicate that the control remains disabled until an action is selected.

By positioning the mouse pointer on the warning icon the cause of the warning is displayed as tooltip:

▼ Fuse Supervision L1 (0-0:31.128.0)	This control	remains disabled until an action is selected.
Control Source	~1	
Monitored Value	1-0:31.7.0 Current	11
Supervision Settings		
Threshold	343.64	А
Minimum Over Threshold Duration	90	s
Minimum Under Threshold Duration	90	s
Action Up	no action 🔹	
Action Down	no action 🔹	
Control Signal	always active 🔻	

## 5.3 Sending device description or parameter group to a device

## 5.3.1 Parameterisation wizard

The parameterisation wizard is used to write a complete device description or a selected parameter group to a device in a secure manner to guarantee that devices are parameterised consistently. Therefore the wizard always checks the necessary access rights before writing any parameter. Only changed parameters are written to the device.

The following parameter groups can be selected in the parameterisation wizard:

- All parameters including TOU but without security system
- TOU only
- Security system only (access rights, security definitions, passwords)

For the parameterisation of devices with all parameters except the security system the parameterisation wizard permits the input of individual parameter values, such as device and parameterisation identification numbers for convenient parameterisation of several devices with the same parameters. The identification numbers entered are written to the device instead of the corresponding values from the device description. Furthermore the device clock can be set to PC time or to PC time plus an offset in the range of ±12 hours.

The parameterisation wizard also allows actions to be performed after parameterisation, e.g. resetting registers and profiles.

The starting of the parameterisation wizard and its various parameterisation possibilities are described in the following sub-sections.

**Note:** The available functions – especially the security system settings – differ depending on the device type.

### 5.3.2 Starting the parameterisation wizard

The precondition for selecting the parameterisation wizard is that a device description is displayed in the .MAP120, either read out from a device, opened as file or newly created and edited.

#### **Procedure:**

Click on in the application toolbar or select **Send to device** from the **Communication** menu.

The window "Step 1: Selection of parameter group" of the parameterisation wizard appears, communication is started and the data is read from the connected device.

The firmware version, the configuration ID and the parameterisation ID of the device description (column "Tree") and the device connected (column "Device") are displayed in the "Device Information" area, e.g. for a connected E450 ZMX310G meter:

🤣 Parameterisation Wizard				X
Step 1: Selection of parame	ter group			
Device Information				
	Tree	Device		
Firmware	V070104	V070104		
Configuration	M1BC3313UDW12nS	M1BC3313UDW12nS		
Parameterisation ID	JSE0007C	JSE0007C		
Logical Device Name		LGZ12129973		
Parameter Group				
All parameters except se	curity system			
© <u>T</u> OU only				
Security system only				
· · · · · · · · · · · · · · · · · · ·				
			<u>N</u> ext >	<u>C</u> ancel

In the "Parameter Group" area the required parameter group can be selected if the indicated conditions are fulfilled:

#### All parameters except security system

can only be selected if the firmware and the configuration ID of tree and device correspond.

#### • TOU only

can only be selected if the tree and the device have a time switch according to the configuration and both belong to the same device series.

#### • Security System only

can only be selected if the firmware of tree and device correspond and the necessary security level has been selected. Please contact your local Landis+Gyr representative to get more information.

## 5.3.3 Parameterising all parameters except security system

#### Procedure:

- 1. Start the parameterisation wizard (see section 5.3.2 "Starting the parameterisation wizard").
- 2. Select the parameter group option "All parameters except security system".
- 3. Click on Next >.

The window "Step 2: Selection of ID numbers and clock handling" appears. The device identification numbers and the clock data are displayed. Please note that the display is depending on the device connected, i.e. the number of available IDs can be different.

- 4. Select the IDs which are to be modified and enter the desired values in the input boxes of the "Tree" column. Please note that the entered values are only used for the parameter-isation of the device but are not stored in the device description displayed in the .MAP120. Only the selected IDs will be written to the device (an empty entry box deletes the corresponding value in the device).
- 5. Select the desired device clock handling option (the date and time, the DST bit and the clock invalid bit of the device clock status are shown):
  - Do not change clock
  - Set clock to PC time
  - Set clock to PC time plus offset (possible range: ± 12 hours)

Parameterisation Wizard						
Step 1: Selection of parameter gro Step 2: Selection of ID numbers a Step 3: Performing parameterisati Step 4: Actions after parameterisati	nd clock handling					
	Tree	Device				
Device ID 1	12129973	12129973				
Device ID 2	123456	123456-78				
Device ID 3		]				
Device ID 4		]				
Device ID 5		]				
Device Clock						
Do not change clock	28.02.2014 - 22:39:3	2 DST off Clock valid				
Set clock to PC time						
Set clock to <u>P</u> C time plus offset	t 0 – h					
		< <u>B</u> ack N	lext >	<u>C</u> ancel		

6. Click on **Next >**.

The window "Step 3: Performing parameterisation" appears. In order to guarantee that the device is parameterised consistently the wizard checks the necessary access rights, reads the data from the device and compares the data before writing the changed parameters to the

device. The progress of the parameterisation is indicated with a progress bar and a green tick is set for every action executed successfully. At the end the currently active communication channel will be closed.

Parameterisation Wizard			×
Step 1: Selection of parameter group Step 2: Selection of ID numbers and clo Step 3: Performing parameterisation Step 4: Actions after parameterisation	ick handling		
Checking security	✓		
Reading data from device	✓ <u>R</u> etry		
Comparing tree and device data	✓ <u>Stop</u>		
Writing parameterisation to device	<ul> <li>✓</li> </ul>		
		<u>N</u> ext >	<u>C</u> ancel

## 7. Click on **Next >**.

The window "Step 3: Actions after parameterisation" appears.

Parameterisation Wizard			×
Step 1: Selection of parameter group Step 2: Selection of ID numbers and cloc Step 3: Performing parameterisation Step 4: Actions after parameterisation	ck handling		
Reset Registers All registers Energy total registers Energy tariff registers Demand registers Operating time registers Average diagnostic registers M-Bus registers Reset Alarm / Error Reset Alarm / Error Alarm Error	Reset Logs All event logs Event logs M-Bus event logs Reset Profiles All profiles Meter profiles M-Bus profiles Reset All Complete reset		*
		<u>N</u> ext >	Cancel

- Select the desired resetting actions. The possible selection is determined by the configuration of the device and is related to the capabilities of the device.
- 9. Click on **Next >**.

If at least one action was selected, the communication with the device is established, the access rights for the selected actions are checked and the actions are performed if possible. At the end the currently active communication channel will be closed and the end window is displayed.

🤣 Parameterisation Wizard	i -		×
	Parameterisation successfully completed!		
		<u>N</u> ext Device <u>F</u> i	nish

 Click on **Next Device** if another device shall be parameterised or click on **Finish** to terminate parameterisation. The parameterisation wizard is restarted or terminated depending on the button clicked.

## 5.3.4 Parameterising time of use

- 1. Start the parameterisation wizard (see section 5.3.2 "Starting the parameterisation wizard").
- 2. Select the parameter group option "TOU only".
- 3. Click on **Next >**. The window "Step 2: Selection of time of use data" appears.
- 4. Select the time of use data to be written to the device (either complete time of use or only individual parts).

Parameterisation Wizard			×
Step 1: Selection of parameter grou Step 2: Selection of time of use data Step 3: Performing parameterisation Step 4: Actions after parameterisation	3 1		
TOU			
Complete TOU	Tree	Device	
Active TOU	JSE2	JSE	
Passive TOU	JSE3	JSE	
Activation date	2016-09-05	undefined	
Special days table			
Emergency settings			
	< <u>B</u> a	ck <u>N</u> ext >	<u>C</u> ancel

5. Click on Next >.

The window "Step 3: Performing parameterisation" appears and the parameterisation is performed (see point 6 to 10 in section 5.3.3 "Parameterising all parameters except security system").

## 5.3.5 Parameterising device security system

- 1. Start the parameterisation wizard (see section 5.3.2 "Starting the parameterisation wizard").
- 2. Select the parameter group option "Security System Only".
- 3. Click on **Next >**. The window "Step 2: Selection of security system data" appears.
- 4. Select the security system data to be written to the device (read/write access rights and/or access level definitions except passwords).
- 5. Select the passwords which are to be modified and enter the desired values in the "Enter New Password (Secret)" window, which appears

after clicking on the Edit icon *lin* in front of the corresponding password field.

Please note that the display or selection of passwords is dependent from the connected device and that the entered values are only used for the parameterisation of the device but are not stored in the device description. Only the selected passwords will be written to the device.

🤣 Parameterisation Wizard	x
Step 1: Selection of parameter group Step 2: Selection of security system data Step 3: Performing parameterisation Step 4: Actions after parameterisation	
Security System	
C Access Rights	
C Access Level Definitions	
Passwords / Secrets	
🗆 Level 1 🖊 ********* 🏋 (1) low level authentication using a static password	
Level 2 🖊 (4) high level authentication using SHA-1	
Level G      (1) low level authentication using a static password	
< <u>B</u> ack <u>N</u> ext > <u>C</u> ar	cel

Click on *k* behind the password field, if you want to delete again an entered password.

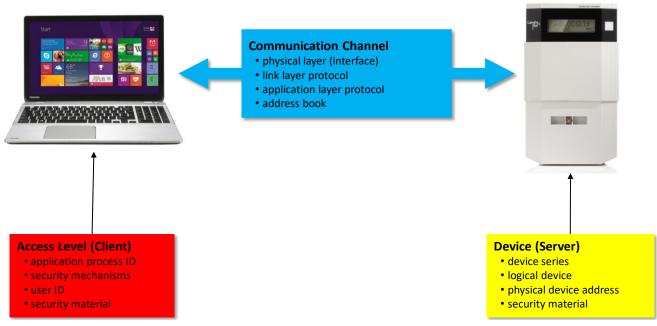
6. Click on **Next >**.

The window "Step 3: Performing parameterisation" appears and the parameterisation is performed (see point 6 to 10 in section 5.3.3 "Parameterising all parameters except security system").

This section describes all aspects of communication with devices, in particular the communication settings in the Landis+Gyr .MAP120 Parameter Editor for various applications.

# 6.1 Basic principle

The communication between the Landis+Gyr .MAP120 Parameter Editor and a device via a communication channel is strictly client/server based. The client is part of the .MAP120 Parameter Editor, the server is located in the end device (e.g. the meter).



The required settings in the Landis+Gyr .MAP120 Parameter Editor comprise the following three main areas:

- Communication channel
- Device (Server)
- Access level (Client)

## 6.1.1 Communication channel

The communication connection from the Landis+Gyr .MAP120 Parameter Editor to one or more devices can be made in various ways:

- With a serial connection to a device.
  - With an optical reading head placed at the optical interface of the device (only point-to-point connection to a device possible).
  - With a Bluetooth reading head (radio transmission over short distances, only point-to-point connection to a device possible).
  - With a direct connection to a device, e.g. via an RS232, M-Bus, CS or network interface as used in various communication units. If the communication unit has a second interface (e.g. RS485), multiple connections are possible to further devices.

- With a modem connection to a device or several devices, if these are connected together by a multiple connection by RS485, CS or M-Bus. Note: the modem must first have been installed and configured on the PC.
- With a **network** connection over a network interface or the Internet to one or several devices, if these are connected together by a multiple connection by RS485, CS or M-Bus.

In addition to the physical communication channel also various other settings are stored here, e.g. used protocol variants, transmission rates, delays, timeouts, etc.

## 6.1.2 Device

In this area, optional device-specific data can be specified. This mainly includes the device type or the device series as well as some address information to address the device (server) via a multiple connection.

From version 3.0 an individual set of keys and passwords can be defined for a device, which is then available for the communication with this device.

## 6.1.3 Access level

An access level defines all settings required on the Landis+Gyr .MAP side (client). This includes in particular the identification of the client as well as the algorithms used for the access and message security. If desired, the necessary keys and passwords can also be stored.

From version 3.0 also device-specific access levels can be specified in addition to the access levels available for all devices.

## 6.2 Communication settings

All communication settings can be defined and modified in the "Communication Settings" window.

Click on in the application toolbar or select **Communication settings** from the **Communication** menu.

The "Communication Settings" window appears with selected "Connections" tab.

💐 Communicati	ion Settings										- • ×
Connections	Address Book Access	Levels									
Devices 🕂	×	8 1		Commu	unica	ation Channels		+ ×		I P	2
Device Name	Device Series			Chanr	nel I	Name		Interfa	ace		
AD-FE11G150	E35C_AD_xE			Defau	lt Cł	nannel		COM3			
AD-xU	E35C_AD_xU			Mode	m			Standa	rd 5	6000 bps Modem	
any device	Undefined			TCP_IF	>			Broado	om	NetXtreme Gigabit	Ethernet - 169.254.7.82
ZCX110P	E450_ZxX100_300P			USB -	Opt	ical Head - CON	13 -	9600 COM3			
ZMX310G	E450_ZMX300G			USB 1	920	0		СОМЗ			
ZMX310P	E450_ZxX100_300P			<u> </u>							
Links	8										
	cation Channel	Remote Address		Address		HDLC Address		Network ID		Network Address	
Default Ch	annel	71 0/21 0.0		lefined		undefined		undefined		undefined	
Modem TCP IP		ZMX310G Distribution West		lefined lefined		undefined undefined		undefined undefined		undefined undefined	
	cal Head - COM3 - 9600	Distribution west		lefined		undefined		undefined		undefined	
USB 19200				lefined		undefined		undefined		undefined	
		11									
Data Version:	14 Storage Policy: p	permanent	F	ile Locatio	on:	<u>C:\Users\user\</u>	Арр	Data\Local\L	and	is+Gyr\dMAP	4

The "Communication Settings" window is subdivided into the following areas:

- List of devices (1) with their names and the associated device series.
  - The list can be sorted by any column in ascending or descending order, by default the devices are displayed in ascending order by name.
  - The currently selected device is highlighted and the selection is not changed by a new sorting.
- List of communication channels (2) with their names and the associated interface, e.g. COM port, modem or network card.
  - The list can be sorted by any column in ascending or descending order, by default the communication channels are displayed in ascending order by name.
  - The currently selected communication channel is highlighted and the selection is not changed by a new sorting.
- List of links (3) between devices and communication channels with the possible additional information, particularly with addresses and phone numbers. The items displayed depend on the selected device or communications channel (see also section 6.2.5 "Links between devices and communication channels").
- Status bar (4), in which the currently used version of the communication data and their location (see section 7.5 "Defining storage location of communication settings") can be seen as well as the current storage

policy of passwords and keys (see section 7.6 "Defining storage policy for keys and passwords").

In the following figure a device (highlighted blue) is selected in the list of devices. All the communication channels not linked are greyed out in the list of communication channels and the links with their attributes are shown in the list of links.

Connections	Address Book Access	Levels						
evices 🛉	× 🖍	e	Commun	nication Channels	+	$\sim$	In C	
Device Name	Device Series		Channe	el Name		Interfac	e	
AD-FE11G150	E35C_AD_xE		Default	Channel		сомз		
AD-xU	E35C_AD_xU		Modem	ı		Standard	d 56000 bps Modem	
any device	Undefined		TCP IP			Broadco	m NetXtreme Gigabi	t Ethernet - 169.254.7.8
ZCX110P	E450_ZxX100_300P		USB - C	Optical Head - COM	13 - 9600			
ZMX310G	E450_ZMX300G		 USB 19	•		COM3		
ZMX310P	E450_ZxX100_300P					55115		
nks	ation Channel	Remote Address	IEC Address	HDLC Address	Netv	vork ID	Network Address	
IIKS C	ation Channel	Remote Address ZMX310G		HDLC Address		vork ID	Network Address	5
Communio Modem	ation Channel	ZMX310G			unde			5
Communio Modem	cal Head - COM3 - 9600	ZMX310G	undefined	undefined	unde unde	fined	undefined	s 

In the figure below a communication channel (highlighted blue) is selected in the list of communication channels. All the devices not linked are greyed out in the list of devices and the links with their attributes are shown in the list of links.

Devices	×	1	c	ş	Communic	ation	h Channels	4	×			8				
Device Name	Device Series				 Channel	Name	e	-	Interface			-				
AD-FE11G150	E35C AD xE				Default C	hann	el		COM3							
AD-xU	E35C AD xU				Modem				Standard 56	000 hns	Mod	em				
any device	Undefined				TCP IP				Broadcom N				therr	ot - 1	60.25	47
ZCX110P	E450_ZxX100_300	P			-	tical I	Head - COM	2 - 0/		endem	e olg		men	iet - 1	.05.25	
ZMX310G	E450_ZMX300G				USB 1920		rieau - COlvi	5 - 90	COM3							
ZMX310P	E450 ZxX100 300	P			USB 1920	0			СОМЗ							_
	di s															
Device	Remote Address		-	IEC Address	HDLC Address		Network ID	_	Network Address							
Device any device	Remote Address ZMX310G			undefined	undefined		undefined		ndefined							
Device any device ZMX310G	Remote Address ZMX310G ZMX310G			undefined undefined	undefined undefined		undefined undefined		ndefined ndefined							
Device any device	Remote Address ZMX310G ZMX310G			undefined	undefined		undefined		ndefined							

Landis+Gyr recommends to define the required data in the following sequence:

- 1. Communication channels (see section 6.2.2 "Communication channel data")
- 2. Devices (see section 6.2.3 "Device data")\*
- 3. Addresses (see section 6.2.4 "Address data")
- 4. Links between devices and communication channels including the relevant attributes (see section 6.2.5 "Links between devices and communication channels"
- 5. Access levels (see section 6.2.6 "Access levels").

### 6.2.2 Communication channel data

After the installation of the .MAP120 Parameter Editor only a default device named "any device" and a default communication channel named "Default Channel" are defined. These default communication settings are the basis for a local readout of a meter with an optical reading head connected to the serial interface. At least the serial interface (COM port) has to be adapted in most cases.

The following basic procedure should be adopted to create and store a new communication channel definition (specific examples are given in section 6.5 "Communication examples"):

 Click on in the application toolbar or select Communication settings from the Communication menu. The "Communication Settings" window appears with selected tab

"Links" (as shown here with the default communication settings or with additional data, if already defined).

2. Highlight a communication channel in the communication channel list (default channel or any other communication channel, if already defined).

Series	Communication Channels + X S B Channel Name Interface Default Channel COM3
ned	Default Channel COM3
•	
	DLC Address Network ID Network Address defined undefined undefined
· · · _ · · ·	

3. Click on the window toolbar in the "Communication Channels" area.

The "Communication Channel" window appears. The entry box "Name" contains the placeholder name "CommunicationChannel", all other fields contain a copy of the data of the selected communication channel and can now be modified.

Communication Ch	nannel					<b>×</b>
Name Commun	icationChannel					
Interface						
L.L. C. T.			Contra L (			
Interface Type	$\equiv$	optical head or 3	s-wire)			
Physical Interfac	e		СОМЗ			•
Template for Lo	wer Layer Settings		select te	emplate		Apply
Physical Layer	dlms Link Layer	dlms Applicatio	n Layer	IEC		
Serial Interface	e					
Transmission S	Speed		300	•	bps	
Port Settings			8 Bit (8	data bits / no p	arity)	•
Idle time after	er connection		0		ms	
						OK Cancel

- 4. Enter a name for the new communication channel definition in the entry box "Name".
- 5. Select the interface type of the connected device in the "Interface type" drop down list:
  - Serial (optical head or 3-wire)
  - Bluetooth optical head (PMR\_1)
  - Bluetooth optical head (PMR\_1A)
  - Modem
  - Network
- 6. Select the used interface in the "Physical interface" drop down list:
  - an available COM port if "Serial" or "Bluetooth optical head" was selected as interface type (the COM port number of a serial interface can be found in the Windows device manager),
  - an available modem if "Modem" was selected as interface type or
  - an available network adapter if "Network" was selected as interface type.
- 7. Select the suitable template for the communication channel settings in the "Template for lower layer settings" drop down list. The following templates are available (selection possibilities dependent on the selected physical interface and interface type):
  - Serial IEC (start protocol IEC with 300 bps)

- Serial dlms (dlms/HDLC protocol with 9600 bps)
- M-Bus dlms (dlms/HDLC protocol with 9600 bps and 9 Bit transmission)
- Bluetooth IEC (same as "Serial – IEC", but with special control of the Bluetooth reading head)
- Bluetooth dlms (same as "Serial – dlms", but with special control of the Bluetooth reading head)
- PSTN Modem (dlms/HDLC protocol with extended timeouts of 5 s)
- GSM Modem (dlms/HDLC protocol with extended timeouts of 10 s)
- Wired HDLC (dlms/HDLC protocol via wired network, e.g. Ethernet)
- Wired Wrapper (dlms/Wrapper protocol via wired network, e.g. Ethernet)
- Wireless HDLC (same as "Wired – HDLC", but with extended timeouts since the transmission times can be significantly higher e.g. with GPRS)
- Wireless Wrapper (same as "Wired – Wrapper", but with extended timeouts since the transmission times can be significantly higher e.g. with GPRS)

After selection of a template the button "Apply" is activated. If you click on it, all communication channel settings are set automatically according to the template.

8. Now you can directly continue according to subsection 6.2.2.5 "Terminating the communication channel definition" or check the settings on each tab according to the following subsections.

### 6.2.2.1 Physical Layer

1. Select the "Physical Layer" tab.

Depending on the interface type selected the setting possibilities are different.

#### If interface type "Serial" or "Bluetooth optical head" is selected:

Communication Cl	hannel						
Name USB - Op	tical Head - COM3	- 9600					
Interface							
Interface Type	Serial (optical head or 3-wire)						
Physical Interfac	СОМЗ				•		
Template for Lo	wer Layer Settings		select te	emplate			Apply
Physical Layer	dlms Link Layer	dlms Application	n Layer	IEC			
Serial Interface	e						
Transmission S	Speed		9600		•	bps	
Port Settings			8 Bit (8	data bit	s / no pa	rity)	•
Idle time afte	er connection		0			ms	
							OK Cancel

- 2. Select the transmission rate corresponding to the device in the "Transmission speed" drop down list for local communication.
- 3. Select the required communication port settings in the "Port settings" drop down list:
  - 8 Bit (8 data bits / no parity) (default), to be used normally
  - 9 Bit (8 data bits / even parity), to be used if the connection to the serial interface of the PC is made via an USB M-Bus converter
- 4. Tick the "Idle time after connection" checkbox if you want to modify the default initial delay (IEC standard value = 0). Then enter the required value in the "Idle time after connection" entry box.

#### If interface type "Network" is selected:

Communication Cl	hannel					×
Name TCP-IP						
Interface						
Interface Type			Network	k		•
Physical Interfac	e		Broadco	om NetXtre	me Gigabit	Ethernet - 169.25 🔻
Template for Lo	wer Layer Settings		select te	emplate		Apply
Physical Layer	dlms Link Layer	dlms Applicatio	n Layer	IEC		
Network Inter	face					
Protocol			ТСР		•	
Source Port			0			
Idle time afte	er connection		0		ms	
L						OK Cancel

- 5. Select the required communication protocol in the "Protocol" drop down list:
  - TCP (Transmission Control Protocol)
  - **UDP** (User Datagram Protocol)
- 6. If required enter a source port number (only if IPv6 is used) otherwise do not change the default setting "0" (automatic selection).
- 7. Tick the "Idle time after connection" checkbox if you want to modify the default initial delay (IEC standard value = 0). Then enter the required value in the "Idle time after connection" entry box.

## If interface type "Modem" is selected:

Communication Cl	hannel					×
Name Modem						
Interface						
Interface Type			Modem			•
	-				0 bps Modem	
	Physical Interface					
Template for Lo	wer Layer Settings		select te	emplate	2	<ul> <li>Apply</li> </ul>
Physical Layer	dlms Link Layer	dlms Application	n Layer	IEC		
📃 Idle time afte	er connection		0		ms	
						OK Cancel

2. Tick the "Idle time after connection" checkbox if you want to modify the default initial delay (IEC standard value = 0), e.g. with GSM networks. Then enter the required value in the "Idle time after connection" entry box.

## 6.2.2.2 dlms Link Layer

1. Select the "dlms Link Layer" tab. The settings on this tab apply if the dlms protocol is used.

Communication C	hannel				×		
Name USB - Op	otical Head - COM3	- 9600					
Interface							
Interfere Trans			Carial (a	ation band on 2			
Interface Type				ptical head or 3	-wire)		
Physical Interface			COM3 •				
Template for Lower Layer Settings		select template   Apply					
Physical Layer	dlms Link Layer	dlms Application	n Layer	IEC			
dlms Link Layer	Protocol		HDLC		•		
HDLC							
Maximum	HDLC Buffer Size		248		bytes		
🛛 Message T	ïmeout		1500		ms		
Maximum Nu	mber of Retries		5				
					OK Cancel		

- 2. Select the required protocol for the planned activity in the "dlms Link layer protocol" drop down list. Possible settings:
  - HDLC, if the HDLC protocol must be used
  - HDLC via IEC mode E (default), if the IEC protocol must be used for opening the communication
  - **COSEM Wrapper**, if the COSEM Wrapper over the TCP protocol must be used
- 3. Depending on the selected link layer protocol, the IEC Mode E, HDLC or COSEM Wrapper areas are displayed to make the required settings.

In the **IEC Mode E** area (only displayed if "HDLC via IEC mode E" is selected as link layer protocol):

- Transmission speed switching: Select the required maximum transmission rate (default = 9600 bps). Untick the checkbox if you don't want to allow transmission rate switching.
   Note: In case of modem or network connections no real change is made but only the transmission rate character in the protocol is altered.
- Intercharacter timeout: After expiration of the set time the transmission is automatically ended if no further data is transmitted. If you untick the checkbox, no automatic termination of the transmission occurs.

Maximum number of retries: Select the number of retries (default value = 3). If you select 0, no retries occur.

In the **HDLC** area (only displayed if "HDLC" or "HDLC via IEC mode E" is selected as link layer protocol):

- Maximum HDLC buffer size: Tick the checkbox if you want to modify the default value (128 bytes). The HDLC buffer size determines how many useful data can be transmitted in one data packet. Reduce the value in case of communication problems.
- Message timeout: If you untick the checkbox, no automatic termination of the transmission occurs.
- Maximum number of retries: Select the number of retries (default value = 1). If you select 0, no retries occur.

In the **COSEM Wrapper** area (only displayed if "COSEM Wrapper" is selected as link layer protocol):

- Message timeout: If you untick the checkbox, no automatic termination of the transmission occurs.

## 6.2.2.3 dlms Application Layer

1. Select the "dlms Application Layer" tab.

The settings on this tab apply if the dlms protocol is used.

Communication Channel			×		
Name USB - Optical Head - COM3 - 960	00				
Interface					
Interface Type	Serial	Serial (optical head or 3-wire)			
Physical Interface	СОМЗ	COM3 •			
Template for Lower Layer Settings	select	select template			
Physical Layer dlms Link Layer dlm	ms Application Layer	IEC			
Referencing Method	Short	Name (SN) referer	ncing 🔹		
The command set supported by logical n unless otherwise instructed.	ame referencing is ve	ry limited. Please	use short name referencing		
Maximum Number of Elements in Li	sts 45				
Single Request Firmware Releases	B08;B0	B08;B09;B10;B11;C06;C07;C08;C09;D41;D42;D43;V0			
Maximum dlms Buffer Size	0		bytes		
Block transfer with set, write and act	ion services supporte	d			
Keep alive Interval	15		s		
Use release service to close Associat	ion Application				
			OK Cancel		

 Select "Short name (SN) referencing" or "Logical name (LN) referencing" method. The command set supported by LN referencing is very limited. The .MAP tools only work with short names. Therefore SN referencing is the preferred choice unless otherwise instructed.

- 3. Tick the "Maximum number of elements in list" checkbox to activate the use of lists for read and write operations. Enter the "Maximum number of elements in list". In case of readout problems this value (default = 45) can be reduced down to 1. It should be noted that this slows down the readout significantly.
- 4. If required, modify the "Single request firmware releases". This entry box contains all releases (separated by semicolons), for which automatically single requests will be used, i.e. no list requests are used.
- 5. Tick the "Maximum dlms buffer size" checkbox if you want to limit the maximum buffer size in the .MAP tool for writing of data (default value = 0). Then enter the required value in the "Maximum dlms buffer size" entry box. Principally the buffer sizes for writing and reading reported from the device are used. If a maximum buffer size is determined, this size is not exceeded during writing, even if the device reports a bigger write buffer size. If you untick the checkbox, the buffer size is unlimited, i.e. buffer size indicated by the device is used.
- 6. Tick the "Block transfer with set, write and action services supported" checkbox if you want to allow write operations with blocks and if your device also supports block transfers. The use of blocks for writing depends on the data quantity, the maximum number of list items and the dlms buffer size. It is recommended to disable this setting in case of transmission problems.
- 7. Keep alive interval: After this time an "Alive-Packet" is to be sent in order to maintain the connection. The value must be greater than the message timeout value (default = 15 s). If you untick the checkbox, the function is switched off.
- 8. Tick the "Use release service to close Association Application" checkbox if a release request shall be sent before closing the HDLC connection (with COSEM Wrapper a release request is always sent).

## 6.2.2.4 IEC

1. Select the "IEC" tab.

The settings on this tab apply for devices that support solely the IEC protocol.

Communication Cl	hannel				×	
Name USB - Op	tical Head - COM3	- 9600				
Interface						
Interface Type			Serial (opt	tical head or 3-	wire) 🔹	
Physical Interfac	:e		СОМЗ		•	
Template for Lo	Template for Lower Layer Settings		select template			
Physical Layer	dlms Link Layer	dlms Application	n Layer	IEC		
Transmission	Speed Switching		9600	•	bps	
Intercharacte	er Timeout		1500		ms	
Maximum Num	ber of Retries		1			
Password for R5	W5 Commands				(static)	
Maximum R1/W	1 Command Size		16		bytes	
					OK Cancel	

- Select the required maximum transmission rate (default = 9600 bps) in the "Transmission speed switching" drop down list. Untick the checkbox if you don't want to allow transmission rate switching. Note: In case of modem or network connections no real change is made but only the transmission rate character in the protocol is altered.
- 3. Intercharacter timeout: After expiration of the set time the transmission is automatically ended if no further data is transmitted. If you untick the "Intercharacter timeout" checkbox, no automatic termination of the transmission occurs.
- Select the number of retries (default value = 3) in the "Maximum number of retries" drop down list. If you select 0, no retries occur.
- 5. Enter the required static password (8 characters) for R5/W5 commands in the "Password for R5/W5 commands" entry box.
- Enter the maximum length in bytes of the R1/W1 commands in the "Maximum R1/W1 command size" entry box. This value limits the block size for the transmission of large amounts of data, e.g. display lists or tables of use. Values greater than 16 bytes are not supported by all devices. Please refer to the respective device documentation to find out which values are supported by your device.

## 6.2.2.5 Terminating the communication channel definition

- 1. Click on **OK**.
  - The new communication channel definition is saved. A new entry with the defined name appears in the communication channel list.

Devices 🕂	Address Book	Access L	P		Communication Channel	s 🕇	X	A <sup>3</sup>	2
			6			s <b>T</b>			6
	Device Series				Channel Name		Interface		
any device	Undefined				Default Channel		COM3		
					USB - Optical Head - Co	JM3 - 9600	COM3		
	ji .		C Address		Network 10	Network Ad	4		
Links Device any device	Remote Addre		C Address defined	HDLC Addre		Network Ad	dress		

- 2. Define further required communication channels in the same way.
- 3. Close the "Communication Settings" window.



#### Modifying or deleting communication channel definitions

If you intend to modify or delete a communication channel definition, mark the corresponding entry in the communication channel list and then

- click on \_\_\_\_\_ in the window toolbar in the "Communication Channels" area to modify the marked entry of the communication channel list or double click on the entry.
- click on \_\_\_\_\_ in the window toolbar in the "Communication Channels" area to delete the marked entry of the communication channel list (deletions must be confirmed).

#### 6.2.3 Device data

After the installation of the .MAP120 Parameter Editor, only a default device named "any device" and a default communication channel named "Default Channel" are defined. These default communication settings are the basis for a local readout of a meter with an optical reading head connected to a serial interface.

Additionally, other device-specific properties can be defined here, if required. From version 3.0 this includes also device-specific access levels with individual keys and passwords for a device. This allows the setup of a simple device management.

The following basic procedure should be adopted to create and store a new device definition (specific examples are given in section 6.5 "Communication examples"):

- Click on in the application toolbar or select Communication settings from the Communication menu. The "Communication Settings" window appears with selected tab
- 2. Highlight a device in the device list (any device or other device, if already defined).

"Links".

Communication Settings			- • ×
Connections Address Book	Access Levels		
Devices 🕂 🗡	ø* 8	Communication Channels 🛉 🗡 💉	8
Device Name Device Series		Channel Name Interface	
any device Undefined		Default Channel COM3	
Links 🗙 💉			
Communication Channel			5
Default Channel	undefined undefined	undefined undefined undefined	
Data Version: 14 Storage	Policy: never	File Location: <u>C:\Users\user\AppData\Local\Landis+Gyr\c</u>	IMAP

3. Click on the window toolbar in the "Devices" area. The "Device" window appears. The entry box "Name" contains the placeholder name "Device", all other boxes contain the data of the selected device and can now be modified.

Device	×
Name Device	
Type Address Access Levels Keys	
Device Type	
Device Series undefined	
Logical Device Base Meter / Module 🔻 1	
The logical device may be overridden by a command in some cases.	
	OK Cancel

4. Enter a name for the new device definition in the entry box "Name".

#### 6.2.3.1 Type

1. Select the "Type" tab.

Device	
Device	×
Name ZMX310G	
Type Address Access Levels Keys	
Device Type	
Device Series undefined	
Logical Device Base Meter / Module 🔻 1	
The logical device may be overridden by a command in some cases.	
	OK Cancel

- 2. Select the device series in the "Device series" drop down list. The selected device series has the effect, that the command tree will be changed accordingly, if the device is selected in the device toolbar. If you leave "undefined", no adaptation of the command tree occurs.
- If required, enter the manufacturer serial number with a maximal length of 20 characters and a restricted character set ('0'..'9', 'A'..'Z', 'a'..'z') in the "Manufacturer Serial Number" entry box.
   Please note that this entry has currently no meaning but may be used for extended device management in the future.
- 4. Select the device type in the "Logical device" drop down list: "Base meter / Module" (=1) or "Communication Unit" (=17) or "user defined" for devices from third party suppliers (in this case, you must enter the logical device number according to the manufacturer information). Note that the logical device may be overridden by a command in some cases, if the command is implemented only for a specific logical device (e.g. communication unit).

#### 6.2.3.2 Address

- 1. Select the "Address" tab, if a device address shall be used.
- 2. Set a tick to the "IEC address" and/or "HDLC address" checkbox and enter the address(es).

If you enter an IEC address first and then click on the arrow button behind the two entry boxes, the HDLC address is automatically calculated and entered (see section 6.3 "Addressing devices").

Device		
Name ZMX310G		
Type Address A	ccess Levels Keys	
Physical Device A	ddress	
IEC Address	12129973	
HDLC Address	10973	
The use of an IEC o	nd/or HDLC address defined here is controlled by the link settings.	
	OK Cancel	

#### 6.2.3.3 Access levels

1. Select the "Access levels" tab to define device-specific features for access.

Device	
Name ZMX310G	
Type Address Access Levels Keys	
Device Specific Access Levels	
Access levels without authentication are not device-specific. The global (any device) access levels can be used instead.	Settings
The global (any defice) decess teres can be used instead.	
	OK Cancel

From release 5.0 individual device-specific access levels can be defined for a device, which are then only available for use with this device.

#### 2. Click on **Settings**.

The "Access Levels" window appears for the specified device. The device name is displayed in the top right corner.

Access Level	Client AP	Authentication	Additional Requisites	Message Security Policy	Security Setup	Supported Protoco
[0] Public Access	16	no authentication		no ciphering	n/a	IEC and dlms
[1] Data Collection	32	low level authentication using a static password		no ciphering	n/a	IEC and dlms
[1] Data Collection	32	high level authentication using SHA-256		no ciphering	local	dims only
[2] Utility Field Service	48	low level authentication using a static password		no ciphering	n/a	IEC and dlms
[2] Utility Field Service	48	high level authentication using a coded password		no ciphering	n/a	IEC and dlms
[2] Utility Field Service	48	high level authentication using TEA		no ciphering	n/a	IEC only
[2] Utility Field Service	48	high level authentication using SHA-1		no ciphering	n/a	dlms only
[2] Utility Field Service	48	high level authentication using GMAC		no ciphering	local	dlms only
[2] Utility Field Service	48	high level authentication using SHA-256		no ciphering	local	dlms only
[3] Utility Service	64	no authentication	service menu required	no ciphering	n/a	IEC and dlms
[4] Extended Utility Service	80	no authentication	hardware switch required	no ciphering	n/a	IEC and dlms
[5] Extended Consumer	17	low level authentication using a static password		no ciphering	n/a	dlms only
[6] Remote Data Collection	18	low level authentication using a static password		no ciphering	n/a	dlms only
[7] Remote Service	19	no authentication		no ciphering	n/a	dims only
[7] Remote Service	19	low level authentication using a static password		no ciphering	n/a	dlms only
[7] Remote Service	19	high level authentication using a coded password		no ciphering	n/a	dlms only
[G] Management Access	1	low level authentication using a static password		no ciphering	n/a	dims only
[G] Management Access	1	high level authentication using SHA-1		no ciphering	n/a	dlms only
[G] Management Access	1	high level authentication using GMAC		no ciphering	global	dlms only
[G] Management Access	1	high level authentication using SHA-256		no ciphering	global	dims only
[A] Utility Defined	22	no authentication		no ciphering	n/a	dlms only
[A] Utility Defined	22	low level authentication using a static password		no ciphering	n/a	dlms only
[A] Utility Defined	22	high level authentication using a coded password		no ciphering	n/a	dims only
[C] Read Administrator	96	high level authentication using a coded password		no ciphering	n/a	dlms only

3. Check whether the access levels you want to use are defined correctly (an 1 icon in the first column indicates for instance a missing or incom-

4. Click on **OK**.

The "Access Levels" window disappears again and the defined devicespecific access levels are displayed.

Device	×
Name ZMX310G	
Type Address Access Levels Keys	
Device Specific Access Levels	
<ul> <li>[2] Utility Field Service, static password - ZMX310G</li> <li>[2] Utility Field Service, SHA-1 authentication - ZMX310G</li> <li>[2] Utility Field Service, SHA-256 authentication - ZMX310G</li> <li>[G] Management Access, GMAC authentication - ZMX310G</li> </ul>	
Access levels without authentication are not device-specific. The global (any device) access levels can be used instead.	Settings
	OK Cancel

Device		
Name ZMX310G		
Type Address Access Levels Keys		
Global security setup (0-0:43.0.0)		
Global Authentication Key (GAK)		
Global Unicast Encryption Key (GUEK)		
Local security setup (0-0:43.0.2)		
Local Authentication Key (AK Local)		
Local Unicast Encryption Key (UEK Local)		
Administrator security setup (0-0:43.0.3)		
Admin Authentication Key (AK Admin)		
Admin Unicast Encryption Key (UEK Admin)		
The use of authentication and encryption keys depends on the security policy selected in an access level.		
Import K	leys	
	OK Cancel	

2. If you intend to use access levels with message security, you must enter the required authentication and/or encryption keys (GAK and GUEK) for this device. The keys are not defined per access level, but only once for a device. You can either import these keys from a received key file (see section 6.2.3.5 "Importing keys") or click on the

corresponding edit icon and type in the key in the "Enter new key" window as hexadecimal value or as visible string.

Enter new key		
Global Authenticatio	n Key (GAK)	
visible string	0x D0D1D2D3D4D5D6D7D8D9DAD8DCDDDEDF	•
hexadecimal	characters 32/64	
		<u>OK</u> <u>Cancel</u>

3. Click on **OK**.

The key is stored and the associated device-specific access levels are indicated additionally.

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Device		
Name ZMX310G		
Type Address Access Levels Keys		
Global security setup (0-0:43.0.0)		
Global Authentication Key (GAK)	×	
Global Unicast Encryption Key (GUEK)	× ×	
Local security setup (0-0:43.0.2)		
Local Authentication Key (AK Local)		
Local Unicast Encryption Key (UEK Local)		
Administrator security setup (0-0:43.0.3)		
Admin Authentication Key (AK Admin)		
Admin Unicast Encryption Key (UEK Admin)		
The use of authentication and encryption keys depends on the security policy selected in an access level.		
Import Keys		
	OK Cancel	

The keys are displayed in the GAK and GUEK entry boxes as placeholders with 10 asterisks, regardless of the effective length of the key.

Note: Clicking on the key entry box allows deleting defined keys again.

4. If you intend to use local (level 1 and 2) and/or administrator (level L) access levels with message security, you must enter the required authentication and/or encryption keys (AK Local/UEK Local and or AK Admin/UEK Admin) for this device. You can either import these keys from a received key file (see section 6.2.3.5 "Importing keys") or click

on the corresponding edit icon and type in the key in the "Enter new key" window as hexadecimal value or as visible string.

5. Continue as described in section 6.2.3.6 "Terminating the device data definition" after the manual key entry.

# 6.2.3.5 Importing keys

Device	×
Name ZMX310G	
Type Address Access Levels Keys	
Global security setup (0-0:43.0.0)	
Global Authentication Key (GAK)	$\mathbf{\times}$
Global Unicast Encryption Key (GUEK)	$\mathbf{X}$
Local security setup (0-0:43.0.2)	
Local Authentication Key (AK Local)	$\mathbf{X}$
Local Unicast Encryption Key (UEK Local)	×
Administrator security setup (0-0:43.0.3)	
Admin Authentication Key (AK Admin)	$\mathbf{X}$
Admin Unicast Encryption Key (UEK Admin)	$\mathbf{X}$
The use of authentication and encryption keys depends on the security policy selec	ted in an access level.
Import Keys	
	OK Cancel

If the authentication and/or encryption keys are not available in a legible form, you can import them from a key file.

Proceed as follows

-

1. Click on **Import Keys**. The "Import Keys" window appears

me	import Keys	window appears.

Import Keys			≚ 🕹		
Encryptior	n Keys				
Device Sel	Device Selection				
		Key(s) found:			
Utility Key	·				
File Name					
Password			ОК		
			OK Cancel		

- 2. Click on in the "Encryption Keys" area and select the directory where the key file is stored in the displayed tree or enter the path to this directory. The available device serial numbers will be listed in the "Device Selection" area.
- 3. Click on in the "Utility Key" area and select the directory where the key file with the utility key is stored in the displayed tree or enter the path to this directory (this file is required to decrypt the key file).

Import Keys		
Encryption File Name	n Keys C:\Users\user\AppData\Local\Landis+Gyr\dMAP\GB_51300256_18346-10_L	
Device Se	lection	
14797082 14797083 14797084 14797085 14797085	Key(s) found: - Utility Field Service, static password - Utility Field Service, SHA-1 authentication - Utility Field Service, SHA-256 authentication - Global Authentication Key - Global Unicast Encryption Key	* III *
<ul> <li>Utility Key</li> </ul>	,	
File Name Password	C:\Users\user\AppData\Local\Landis+Gyr\dMAP\RWE_privkey.pem	 ОК
	OK	cel

If you position the mouse pointer on a line of the device selection, a tooltip with a list of keys found is displayed.

4. Click on **OK**.

The keys are imported from the key file and assigned to the appropriate fields. The associated device-specific access levels are displayed.

Device	
Name ZMX310G	
Type Address Access Levels Keys	
Global security setup (0-0:43.0.0)	
Global Authentication Key (GAK)	
Global Unicast Encryption Key (GUEK)	
Local security setup (0-0:43.0.2)	
Local Authentication Key (AK Local)	
Local Unicast Encryption Key (UEK Local)	
Administrator security setup (0-0:43.0.3)	
Admin Authentication Key (AK Admin)	
Admin Unicast Encryption Key (UEK Admin)	
The use of authentication and encryption keys depends or	n the security policy selected in an access level.
Import Key	/5
L	OK Cancel

## 6.2.3.6 Terminating the device data definition

1. Click on **OK**.

The new device definition is saved. A new entry with the defined name appears in the device list.

Connections	Address Book	Access L	evels						
evices 🛉	×	<i>.</i>	8		Communication Cha	annels 🕂 🕂	× –	1	8
Device Name	Device Series				Channel Name		Interface		
any device	Undefined				Default Channel		COM3		
ZMX310G	E450_ZMX300G	i							
	ji -								
IIK3	ation Channel	Remote A	Address	IEC Address	HDLC Address	Network ID	Network A	ddress	

- 2. Define further devices in the same way, if required.
- 3. If you have imported address data from a MAP110 phone book, modify the "undefined" device series to the appropriate device series and delete imported devices which are not required.
- 4. Close the "Communications settings" window.

# **(i)**

#### Link to communication channel is required

Each device must be linked to at least one communication channel (see section 6.2.5.1 "Defining link between device and communication channel"), so that it can be used.

# **(i)**

#### Modifying or deleting device definitions

If you intend to modify or delete a device definition, mark the corresponding entry in the device list and then

- click on \_\_\_\_\_ in the window toolbar in the "Devices" area to modify the marked device definition or double click on the device definition.
- click on \_\_\_\_\_ in the window toolbar in the "Devices" area to delete the marked device definition. Deletions must be confirmed. The default device definition "any device" can't be deleted.

#### 6.2.4 Address data

After the installation of the .MAP120 Parameter Editor, no address data (IP addresses and phone numbers) are defined.

Proceed as described in the following subsections to generate address book entries.

#### 6.2.4.1 Phone numbers

Define the phone numbers required for modem connections as follows:

- Click on in the application toolbar or select Communication settings from the Communication menu. The "Communication Settings" window appears with selected tab "Links".
- 2. Select the "Address Book" tab.

Tommunication Settings	
Connections Address Book Access Levels	
IP Addresses 🕂 💉 📔	Phone Numbers 🕂 💉 🔟
Address Description	Number Description
Data Version: 14 Storage Policy: never Fi	ile Location: <u>C:\Users\user\AppData\Local\Landis+Gyr\dMAP</u>

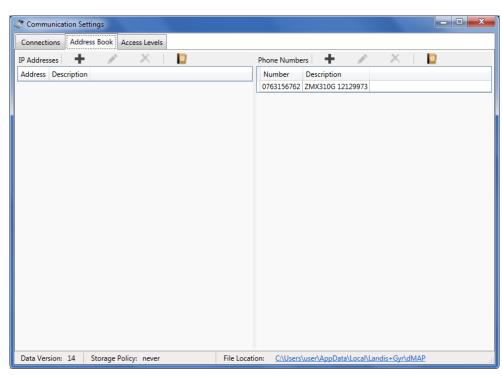
3. Click on the window toolbar for phone numbers (right window).

The "Address Book" window appears.

4. Enter a clear designation of the device in the "Name" entry box and the phone number of the desired device in the "Phone number" entry box.

Address Book		
Phone		
Name	ZMX310G 12129973	
Phone number	0763156762	
	Use comma to wait for dial tone e.g. 0,01234567	
	OK	

- 5. Click on OK.
  - The "Address Book" window disappears. The phone number is saved and then appears as entry in the address book.



- 6. Define further phone numbers in the same way, if required.
- 7. Close the "Communications settings" window.
- $(\mathbf{i})$

#### Modifying or deleting phone numbers

If you intend to modify or delete a phone number, select the corresponding entry in the phone number list and then then

- click on \_\_\_\_\_ in the window toolbar in the "Phone numbers" area to modify the marked entry of the address book or double click on the entry.
- click on \_\_\_\_\_ in the window toolbar in the "Phone numbers" area to delete the marked entry of the address book (deletions must be confirmed).

#### 6.2.4.2 IP addresses

Define the IP addresses required for TCP/IP connections as follows:

- Click on in the application toolbar or select Communication settings from the Communication menu. The "Communication Settings" window appears with selected tab "Links".
- 2. Select the "Address Book" tab.

Communication Settings		X
Connections Address Book Access Levels		
IP Addresses 🕂 💉 🚺	Phone Numbers 🕂 💉 🔟	
Address Description	Number Description	
Data Version: 14 Storage Bolics: page		
Data Version: 14 Storage Policy: never	File Location: <u>C:\Users\user\AppData\Loca\Landis+Gyr\dMAP</u>	

- 3. Click on the window toolbar for IP addresses (left window). The "Address Book" window appears.
- 4. Enter a clear designation of the device location in the "Name" entry box.
- 5. Select with the corresponding radio button whether an IPv4 address or an IPv6 address or an URL shall be entered. Enter the IPv4 or IPv6 address or the URL in the corresponding entry box and the port number of the desired device in the "Port" entry box.

Address Book	
· IP	
Name	Ethernet Module
Address -	
IPv4	
© IPv6	192 . 168 . 200 . 20
© URL	
Port	4059
	OK Cancel

Please note that when you use an URL, a corresponding service must be active (e.g. dyn DNS), which forwards the requests to the correct address in the underlying network.

6. Click on **OK**.

The "Address Book" window disappears. The IP address is saved and then appears as entry in the address book.

Tommunication Se	ttings		
Connections Addr	ess Book Access Levels		
IP Addresses 🛛 🕂	/ X 🔤	Phone Numbers 🕂 💉	×   📴
Address	Description	Number Description	
192.168.200.20:4059	Ethernet Module		
Data Version: 14	Storage Policy: never	File Location: <u>C:\Users\user\AppData\Local\Lar</u>	ndis+Gyr\dMAP

- 7. Define further IP addresses in the same way.
- 8. Close the "Communications settings" window.



#### Modifying or deleting IP addresses

If you intend to modify or delete an IP address, select the corresponding entry in the IP address list and then then

- click on \_\_\_\_\_ in the window toolbar in the "IP Addresses" area to modify the marked entry of the address book or double click on the entry.
- click on \_\_\_\_\_ in the window toolbar in the "IP Addresses" area to delete the marked entry of the address book (deletions must be confirmed).

#### 6.2.4.3 Importing address book

If the Landis+Gyr MAP110 Service Tool is already installed on the PC, its phone book can be imported. Likewise, the address book of a Landis+Gyr .MAP tool from another source (e.g. from another PC or another directory) can be imported.

Import an existing address book as follows:

- Click on in the application toolbar or select Communication settings from the Communication menu. The "Communication Settings" window appears with selected tab "Links".
- 2. Select the "Address Book" tab.

Communication Settings	
Connections Address Book Access Levels	
IP Addresses 🕂 💉 📔	Phone Numbers 🕂 💉 🛛 📴
Address Description	Number Description
Data Version: 14 Storage Policy, paper	
Data Version: 14 Storage Policy: never	File Location: C:\Users\user\AppData\Local\Landis+Gyr\dMAP

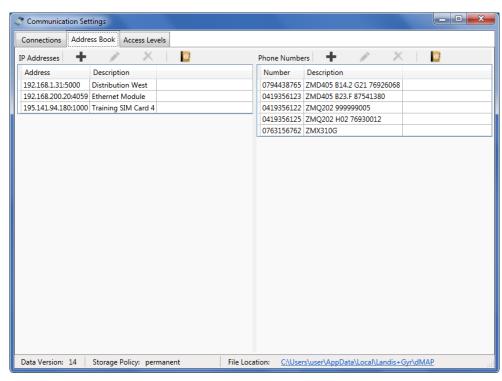
3. Click on in the window toolbar for IP addresses or phone numbers.

The "Import Address Book" window (open dialog) appears.

- 4. Select in the open dialog the phone book file to be imported (the corresponding directory of the latest installed MAP110 release 3.x will be selected by default, to directories of other .MAP releases you must navigate yourself):
  - "PhoneBook.xml" for importing a MAP110 phone book or
  - "AddressBookVxx.xml" (xx = data version) for importing a .MAP phone book.
- 5. Click on **Open**.

All IP addresses and phone numbers are imported from the selected address book if not already existing in the .MAP110 address book. The imported data appear as entries in the IP addresses list and in the phone number list.

When a MAP110 phone book "PhoneBook.xml" has been imported, additionally all device addresses are converted into devices.



- 6. Close the "Communications settings" window.
- 7. If you have imported address data from a MAP110 phone book "PhoneBook.xml", check the device settings (see section 6.2.3 "Device data") again, since device addresses from the imported phone book have been converted into devices. Before you can use the device definitions created that way these have to be linked manually with a communication channel (see section 6.2.5 "Links between devices and communication channels").

# **î**

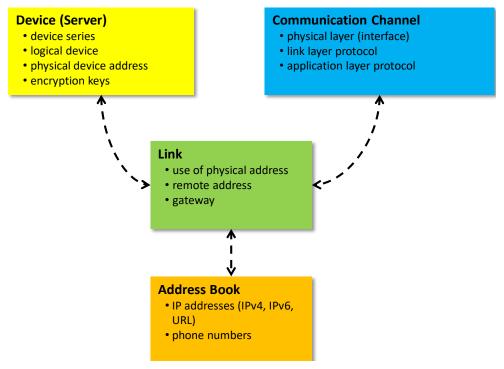
#### Modifying or deleting address book entries

If you intend to modify or delete an address book entry, select the corresponding address book entry in the IP address or phone number list and then then

- click on \_\_\_\_\_ in the window toolbar in the "IP adresses" or "Phone numbers" area to modify the marked entry of the address book or double click on the entry.
- click on \_\_\_\_\_ in the window toolbar in the "IP adresses" or "Phone numbers" area to delete the marked entry of the address book (deletions must be confirmed).

#### 6.2.5 Links between devices and communication channels

Device and communication channel are connected by a link in an appropriate manner to each other (see the overview below) to allow a flexible and convenient use.



# The link determines how a device can be reached via a communication channel.

Each device must be linked to at least one communication channel, so that it can be used.

Only the available (linked) communication channels can be selected in the "channel" drop down list (see section 4.3.5 "Communication channel tool-bar") for a specific device.

For each device/communication channel link the following attributes can, if required, be defined:

- IEC address (if defined for the device)
- HDLC address (if defined for the device)
- Phone number (for modem communications channels only)
- IP address and port number (for TCP/IP communication channels only)
- dlms gateway network ID and network address

If a dlms device in a local network is not directly accessible, a dlms gateway must be used (e.g. Zigbee device via Ethernet gateway). The dlms gateway requires additional information in order to forward dlms requests to the correct device in the local network.

Each defined device can be linked to one or more defined communication channels and each communication channel with one or more devices.

## 6.2.5.1 Defining link between device and communication channel

#### Procedure:

1. Click on in the application toolbar or select **Communication settings** from the **Communication** menu.

The "Communication Settings" window appears with selected tab "Links". The device list and the communication list are displayed.

Connections	Address Book Acces	s Levels		
evices 🛉 🕂	×	e	Communication Channels	× # 2
Device Name	Device Series		Channel Name	Interface
AD-FE11G150	E35C_AD_xE		Default Channel	COM3
AD-xU	E35C_AD_xU		Modem	Standard 56000 bps Modem
ny device	Undefined		TCP IP	Broadcom NetXtreme Gigabit Ethernet - 169.254.7.82
CX110P	E450_ZxX100_300P		USB - Optical Head - COM3 - 9600	COM3
MD402CT	E650_ZxD300_400		USB 19200	COM3
2MX310G	E450_ZMX300G			COMP
MX310P MXi310Q	E450_ZxX100_300P E450_ZxX100_300Q			
nks	1			
111K3	ation Channel	Remote Address	IEC Address HDLC Address Netw	ork ID Network Address
IIK3	ation Channel	Remote Address	IEC Address HDLC Address Netw	ork ID Network Address

- 2. Select a device from the device list (or alternatively a channel from the communication channels list).
- 3. Click on in the window toolbar in the "Devices" area (or alternatively in the "Communications Channels" area). The "Device/Communication Channel Link" window appears with the device fixed and the communication channel selectable:

Device / Communication Channel	l Link 💌
Device	AD-FE11G150 -
Communication Channel	Default Channel 👻
	Default Channel Modem
Destination Server	TCP_IP
Physical Address	USB - Optical Head - COM3 - 9600 USB 19200
Use IEC address	11943599
Use HDLC address	4599
dlms Gateway	
Network ID	0
Network Address 0	x 00
Currently very limited suppo accordingly.	ort in the devices. Only enable this feature if instructed
	OK Cancel

or alternatively with the communication channel fixed and the device selectable:

Device / Communication Channel	Link 📧	
		]
Device	AD-FE11G150 •	
Communication Channel	AD-FE11G150	
	AD-xU ZCX110P	
	ZMD402CT	
Destination Server	ZMX310G	
	ZMX310P	
Physical Address	ZMXi310Q	
Use IEC address	11943599	
Use HDLC address	4599	
dlms Gateway		
Network ID	0	
Network Address 02	c 00	
Currently very limited suppo accordingly.	rt in the devices. Only enable this feature if instructed	
	OK Cancel	

4. In the "Communication Channel" drop down list select one of the defined communication channels (or alternatively in the "Device" drop down list one of the defined devices).

- 5. If more than one communication channel is defined for a device, one channel can be determined as preferred channel. When selecting this device the preferred channel is always selected as default channel. Tick for this the checkbox "This is the preferred channel for this device". The preferred channel is then marked with a yellow star in the "Communication Settings" window.
- 6. Only for modem communication channels: in the "Phone Number" drop down list select one of the defined phone numbers.
- 7. Only for TCP/IP communication channels: in the "Destination server" drop down list select one of the defined IP addresses.
- 8. If the IEC or HDLC address defined for the device shall be used: set a tick to the "Use IEC address" or "Use HDLC address" checkbox. See also section 6.3 "Addressing devices").
- 9. If a dlms gateway shall be used: set a tick to the "dlms Gateway" checkbox, select a network ID and define the additional information in order to forward dlms requests to the correct device in the local network:
  - the network must be identified by a number (network ID) and
  - the address of the device in the local network must be specified in the correct format (network address).



**dlms Gateway feature not yet supported by Landis+gyr devices** Please note that the dlms gateway feature is for future expansion only and not yet supported by the Landis+Gyr devices. For the time being make sure to disable it.

## 6.2.5.2 Terminating the link definition

1. Click on **OK**.

The "Device/Communication Channel Link" window disappears and the new defined link is displayed in the communication channel links list.

2. If more than one communication channels shall be usable to access the device (or alternatively if more than one device shall be accessible via the communication channel), define another link the same way.

💐 Comr	nunicati	on Settings											_ <b>D</b> _ X
Connec	tions	Address Book	Access	Levels									
. ·		×		e		<u> </u>		ation Channels		+ ×		J P	
Devices				6								I G	
		Device Series				Chanr				Interfa	ce		
		E35C_AD_xE				Defau	t Cl	hannel		COM3			
AD-xU		E35C_AD_xU				Mode	m			Standa	rd 5	6000 bps Modem	
any de		Undefined				TCP_IF	)			Broade	om	NetXtreme Gigabit	Ethernet - 169.254.7.82
ZCX11		E450_ZxX100_3				USB -	Opt	tical Head - CON	13 -	9600 COM3			
ZMD40		E650_ZxD300_4				USB 1	920	0		СОМЗ			
ZMX31		E450_ZMX3000											
ZMX31		E450_ZxX100_3				_							
ZMXi3	10Q	E450_ZxX100_3	00Q										
Links	$\times$	and the second s											
Co	mmunic	ation Channel		Remote Address	)	IEC Address		HDLC Address		Network ID		Network Address	
TC	P_IP			Ethernet Module		undefined		undefined		undefined		undefined	
US	B - Optio	al Head - COM	3 - 9600	)		undefined		undefined		undefined		undefined	
									-				
Data Ve	ersion: 1	14 Storage	Policy:	permanent		File Locatio	n:	C:\Users\user\	Арр	Data\Local\L	andi	s+Gyr\dMAP	

- 3. Define the links for all devices (or alternatively for all communication channels) the same way.
- 4. Close the "Communications settings" window.



#### Modifying or deleting links

If you intend to modify or delete a link, select the corresponding entry in the link list and then

- click on \_\_\_\_\_ in the window toolbar in the "Links" area to modify the marked entry of the link list or double click on the entry.
- click on \_\_\_\_\_ in the window toolbar in the "Links" area to delete the marked entry of the link list (deletions must be confirmed).

Note: Links related to the default device "any device" can't be deleted, they only can be edited.

#### 6.2.6 Access levels

After the installation of the .MAP120 Parameter Editor no passwords for the different access levels are defined. Therefore only the access levels without password protection, e.g. "[0] Public Access" can be used.

The various access levels and their fields of application are described in section 9 "Short description of device security system".

From version 3.0 an individual set of keys and passwords can be defined for a device, which is then available for the communication with this device.

Define the passwords or keys used by the .MAP120 Parameter Editor for all required access levels according to the passwords or keys set in the devices as follows:

1. Click on in the application toolbar or select **Communication** settings from the **Communication** menu.

The "Communication Settings" window appears with selected tab "Links".

Access Level	Client AP	Authentication	Additional Requisites	Message Security Policy	Security Setup	Supported Protocols
[0] Public Access	16	no authentication		no ciphering	n/a	IEC and dlms
<ol> <li>Data Collection</li> </ol>	32	low level authentication using a static password		no ciphering	n/a	IEC and dlms
<ol> <li>Data Collection</li> </ol>	32	high level authentication using SHA-256		no ciphering	local	dlms only
[2] Utility Field Service	48	low level authentication using a static password		no ciphering	n/a	IEC and dlms
[2] Utility Field Service	48	high level authentication using a coded password		no ciphering	n/a	IEC and dlms
[2] Utility Field Service	48	high level authentication using TEA		no ciphering	n/a	IEC only
[2] Utility Field Service	48	high level authentication using SHA-1		no ciphering	n/a	dlms only
[2] Utility Field Service	48	high level authentication using GMAC		no ciphering	local	dlms only
[2] Utility Field Service	48	high level authentication using SHA-256		no ciphering	local	dlms only
[3] Utility Service	64	no authentication	service menu required	no ciphering	n/a	IEC and dlms
[4] Extended Utility Service	80	no authentication	hardware switch required	no ciphering	n/a	IEC and dlms
[5] Extended Consumer	17	low level authentication using a static password		no ciphering	n/a	dlms only
[6] Remote Data Collection	18	low level authentication using a static password		no ciphering	n/a	dlms only
[7] Remote Service	19	no authentication		no ciphering	n/a	dlms only
[7] Remote Service	19	low level authentication using a static password		no ciphering	n/a	dlms only
[7] Remote Service	19	high level authentication using a coded password		no ciphering	n/a	dlms only
[G] Management Access	1	low level authentication using a static password		no ciphering	n/a	dlms only
[G] Management Access	1	high level authentication using SHA-1		no ciphering	n/a	dlms only
[G] Management Access	1	high level authentication using GMAC		no ciphering	global	dlms only
[G] Management Access	1	high level authentication using SHA-256		no ciphering	global	dlms only
[A] Utility Defined	22	no authentication		no ciphering	n/a	dlms only
[A] Utility Defined	22	low level authentication using a static password		no ciphering	n/a	dlms only
[A] Utility Defined	22	high level authentication using a coded password		no ciphering	n/a	dlms only
[C] Read Administrator	96	high level authentication using a coded password		no ciphering	n/a	dlms only

2. Select the "Access Levels" tab.

The tab contains a list of all access levels with "Client AP" (User ID, UID), authentication, additional requisites, message security policy, security setup and supported protocols that can be used for any device. An  $\triangle$  icon is displayed in the first column as long as the access level is not correctly defined (e.g. missing or incomplete password). Accordingly marked access levels will not be shown in the Client toolbar.

3. Specify the access levels to be used by double clicking the correspond-

ing entry (or by selecting it and clicking on the edit icon ) and then making the necessary entries in the appearing "Access level Definition" window.

Depending on the access level to be defined and other inputs, the individual fields can be modified or are set immutable.

Access Level Definition			<b>E</b>
[G] Management Access			]
Client Application Process ID	1	User ID	0
Access Security			
Authentication	high level authentication using GMAC		*
Password (secret)			
Additional requisites	-		
Message Security			
Security policy	no ciphering		
Security setup	global		
The necessary keys are defined	<u> </u>		
Supported protocols	dlms only		
		ОК	Cancel

- Only for user defined access levels: Enter a "Client Application Process ID" (default is 16).
   For all other access levels the "Client Application Process ID" is fix assigned in a range from 1 to 255 and cannot be changed.
- Tick the "User ID" checkbox if you want to send additional information about the user to the device and then enter a user ID in the range from 1 to 255 (0 = don't use a user ID). The device only allows to establish a connection if this user ID is also enabled there. A user ID is currently only supported by a few devices. Please refer to the respective device documentation to find out whether this is supported by your device or not (not to be selected as default).

#### 6.2.6.1 Access security

1. Only for user defined access levels: Select the type of authentication in the "Authentication" drop down list.

The selection is described in section 9.2 "Security attributes" under "Access authentication").

For all other access levels the authentication is fix assigned and cannot be changed.

Access Level Definition	
[X] User Defined 1	
Client Application Process ID	16 User ID 0
Access Security	
Authentication	no authentication
Password (secret)	no authentication low level authentication using a static password
Additional requisites	high level authentication using a coded password high level authentication using TEA
Message Security	high level authentication using MD5 high level authentication using SHA-1 high level authentication using GMAC
Security policy	high level authentication using SHA-256
Security setup	n/a v
The necessary keys are defined	in the device definition.
Supported protocols	dlms only
	OK Cancel

2. Only for access levels with authentication: Click on the edit icon and then enter the password or key in the appearing "Enter New Password (Secret)" window either as visible string or hexadecimal and then confirm the entry with **OK**.

Enter new password (se	cret)	<b>—</b>
<ul> <li>Static password</li> </ul>		]
visible string	01234567	•
hexadecimal	characters 8/16	
		<u>QK</u> <u>Cancel</u>

For security reasons, the password (secret) is only visible as you type it in. After entering a placeholder is shown with asterisks. In case of a future modification, it must be re-entered.

Access Level Definition	
[X] User Defined 1         [X] User Defined 1         Client Application Process ID         Access Security         Authentication         Password (secret)	16 User ID 0
Additional requisites	-
Message Security	
Security policy	no ciphering *
Security setup	n/a 🔹
The necessary keys are defined	in the device definition.
Supported protocols	dlms only
	OK Cancel

Click on the kicon behind the password entry box if you want to delete a previously defined password (secret).

The unchangeable display "Additional requisites" shows information about specific access levels as "service menu required" or "hardware switch required".

#### 6.2.6.2 Message security

 Only for access levels with high level authentication using GMAC and SHA-256: Select the applicable security policy in the "Security policy" drop down list. Possible settings are "no ciphering", "authentication only", "encryption only" and "authentication and encryption". For all other access levels the security policy is set and cannot be changed.

Access Level Definition	
[G] Management Access	
Client Application Process ID	1 User ID 0
Access Security	
Authentication	high level authentication using GMAC *
Password (secret)	
Additional requisites	-
Message Security	
Security policy	no ciphering 🔹
Security setup	no ciphering authentication only
The necessary keys are defined i	encryption only authentication and encryption
Supported protocols	dlms only
	OK Cancel

The fixed display "Security setup" shows the name of the used set of keys for the access level. Possible values are "local", "global", "admin" and "n/a". For backwards compatibility reasons all existing access levels don't change and "n/a" is shown for the security setup.

Access Level Definition				
[G] Management Access Client Application Process ID Access Security	1	User ID	0	
Authentication Password (secret) Additional requisites	high level authentication using GMAC		Ŧ	
Message Security Security policy	no ciphering		•	
Security setup The necessary keys are defined a	global in the device definition.		Ŧ	
Supported protocols	dlms only			
		ОК	Cance	

The fixed display "Supported protocols" shows the supported protocols for the access level. Possible values are "IEC and dlms" and "dlms only".

## 6.2.6.3 Terminating the access level definition

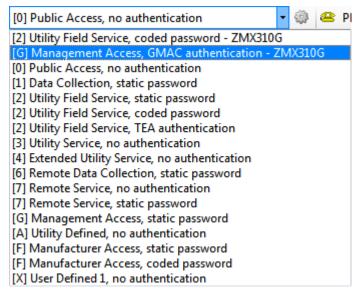
1. Click on **OK**.

The access level definition is saved and the "Communication settings" window with tab "Access Levels" appears again for the specified device.

Access Level	Client AP	Authentication	Additional Requisites	Message Security Policy	Security Setup	Supported Protocol
[0] Public Access	16	no authentication		no ciphering	n/a	IEC and dlms
[1] Data Collection	32	low level authentication using a static password		no ciphering	n/a	IEC and dlms
[1] Data Collection	32	high level authentication using SHA-256		no ciphering	local	dlms only
[2] Utility Field Service	48	low level authentication using a static password		no ciphering	n/a	IEC and dlms
[2] Utility Field Service	48	high level authentication using a coded password		no ciphering	n/a	IEC and dlms
[2] Utility Field Service	48	high level authentication using TEA		no ciphering	n/a	IEC only
[2] Utility Field Service	48	high level authentication using SHA-1		no ciphering	n/a	dlms only
[2] Utility Field Service	48	high level authentication using GMAC		no ciphering	local	dlms only
[2] Utility Field Service	48	high level authentication using SHA-256		no ciphering	local	dlms only
[3] Utility Service	64	no authentication	service menu required	no ciphering	n/a	IEC and dlms
[4] Extended Utility Service	80	no authentication	hardware switch required	no ciphering	n/a	IEC and dlms
[5] Extended Consumer	17	low level authentication using a static password		no ciphering	n/a	dlms only
[6] Remote Data Collection	18	low level authentication using a static password		no ciphering	n/a	dlms only
[7] Remote Service	19	no authentication		no ciphering	n/a	dlms only
[7] Remote Service	19	low level authentication using a static password		no ciphering	n/a	dlms only
[7] Remote Service	19	high level authentication using a coded password		no ciphering	n/a	dlms only
[G] Management Access	1	low level authentication using a static password		no ciphering	n/a	dlms only
[G] Management Access	1	high level authentication using SHA-1		no ciphering	n/a	dlms only
[G] Management Access	1	high level authentication using GMAC		no ciphering	global	dlms only
[G] Management Access	1	high level authentication using SHA-256		no ciphering	global	dims only
[A] Utility Defined	22	no authentication		no ciphering	n/a	dlms only
[A] Utility Defined	22	low level authentication using a static password		no ciphering	n/a	dlms only
[A] Utility Defined	22	high level authentication using a coded password		no ciphering	n/a	dims only
[C] Read Administrator	96	high level authentication using a coded password		no ciphering	n/a	dims only

2. If required, define additional access levels that you want to use in the same way.

All fully defined access levels can be selected in the "Client" drop down list in the client toolbar. The device-specific access levels appear with attached device name at the top of the list.



#### 3. Close the "Communications settings" window.

# 6.3 Addressing devices

For point-to-point connections, the device does not need to be specially addressed. However, with multi-drop, all devices connected to a bus system (RS485 or CS) must have their own address for individual access. This address is called the **physical device address**. In fact, even two physical device addresses are used, one for the IEC protocol (IEC device address) and the other for the DLMS protocol (HDLC device address).

Unless otherwise specified on the order, the following parameter values are set as defaults for these physical device addresses:

- Physical IEC device address = serial number (printed on face plate of device), e.g. 73852799.
- Physical HDLC device address = last 4 digits of serial number plus 1000 (because with dlms the range of addresses is limited and some addresses are reserved), e.g. 3799 for a serial number 73852799 (2799 + 1000 = 3799).

The physical device addresses are saved as parameters of the basic meter and not in the possibly used E65C communication unit. A change of the E65C communication unit does therefore not affect the addressing. With the Landis+Gyr .MAP110 Service Tool, the physical device addresses of the devices can be read with the read commands under "Communication" or modified with the write commands under "Communication".

# 6.4 Establishing the communication with devices

Once the communication settings have been made (see section 6.1 "Basic principle") the communication with a device can be established as follows:

- Select (optional) the required device from the "Device" drop down list or use the setting "any device".
- Select the required communication channel from the "Channel" drop down list.

Only those communication channels linked to the selected device are available. In the case of "any device" all communication channels are available.

• Select the required access level from the "Client" drop down list (for modem connections the predefined access level is used and the drop down list is inhibited until the connection is established, then the selection is possible).

Only access levels, which have been defined completely in the communication settings, are displayed for selection (see also section 6.2.6 "Access levels"). The device-specific access levels appear with attached device name at the top of the list.

- Only for modem connections: select the required phone number from the "Phone" drop down list.
- Only for modem connections: click on establish the connection to the device.
- Only for network connections: select the required IP address number from the "IP Address" drop down list.
- Perform the intended activity.

# 6.5 Communication examples

This section provides some examples to show how communication connections are made to devices via various communication paths and for various applications:

- Serial connection via the optical interface (see section 6.5.1)
- Modem connection (see section 6.5.2)
- Network connection via a LAN (see section 6.5.3)
- Network connection via a WLAN and the Internet (see section 6.5.4)

It is assumed in all examples that the physical connections (e.g. cable or modem connections) have already been made and the Landis+Gyr .MAP120 Parameter Editor has already been started.

### 6.5.1 Serial connection via the optical interface

This example shows how a local connection is made to a device via the optical interface. Depending on the device series used dlms or IEC is used as communication protocol.

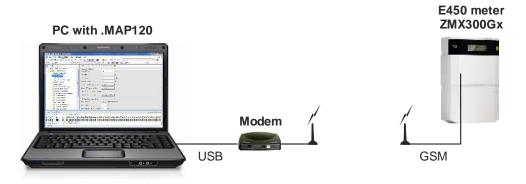


#### Procedure:

- 1. In the "Device" drop down list, select the desired device (e.g. E450 meter) and in the "Channel" drop down list the corresponding channel (if more than one channel is assigned to this device) or create a new device definition with the following settings (procedure see section 6.2.2 "Communication channel data" and section 6.2.3 "Device data"):
  - Physical interface = COM-Port assigned to the serial interface
  - Interface Type = Serial (optical head or 3-wire)
  - Template for lower layer settings = Serial dlms or "Seriell IEC" according to the device used.
- 2. In the "Client" drop down list select the required access level for the intended activity e.g. "[2] Utility Field Service".
- 3. Perform the intended activity.

#### 6.5.2 Modem connection

This example shows how a point-to-point connection is made for remote communication with an E450 ZMX300Gx meter (with 2G/3G communication module).

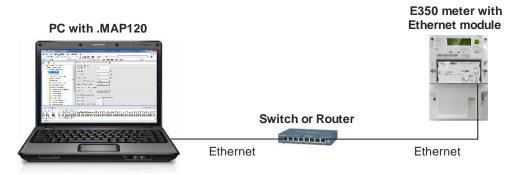


#### **Procedure:**

- 1. In the "Device" drop down list, select the desired device (e.g. E450 meter) and in the "Channel" drop down list the corresponding channel (if more than one channel is assigned to this device) or create a new device definition with the following settings (procedure see section 6.2.2 "Communication channel data" and section 6.2.3 "Device data"):
  - Physical interface = The available PSTN or GSM modem
  - Template for lower layer settings = PSTN or GSM modem
- 2. In the "Client" drop down list select the required access level for the intended work e.g. "[G] Management Access".
- 3. In the "Phone" drop down list select the required phone number of the connected device. If not already predefined, define it (for procedure see section 6.2.4 "Address data").
- 4. Click on sin the address toolbar to make connection to the modem. While making the connection the Command" window is displayed with a progress indication. When the connection is made, it is indicated in the status bar.
- 5. Perform the intended activity.
- 6. Click on in the address toolbar to conclude the modem connection when the work is done.

### 6.5.3 Network connection via a LAN

This example shows how a point-to-point connection is made via a LAN to a single E350 meter equipped with a communication module AD-xE.

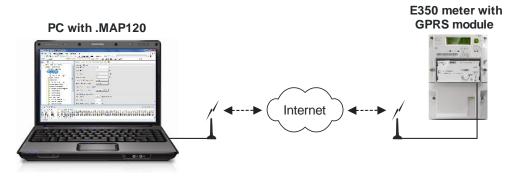


#### Procedure:

- 1. In the "Device" drop down list, select the desired device (e.g. AD-xE Ethernet module) and in the "Channel" drop down list the corresponding channel (if more than one channel is assigned to this device) or create a new device definition with the following settings (procedure see section 6.2.2 "Communication channel data" and section 6.2.3 "Device data"):
  - Physical interface = The available network card
  - Template for lower layer settings = Wired HDLC or "Wired Wrapper" according to the device used.
- 2. In the "Client" drop down list select the required access level for the intended work e.g. "[2] Utility Field Service".
- 3. In the "IP Address" drop down list select the required IP address of the connected device. If not already predefined, define it (for procedure see section 6.2.4.2 "IP addresses").
- 4. Perform the intended activity.

#### 6.5.4 Network connection via a WLAN and the Internet

This example shows how a point-to-point connection is made via a WLAN and the Internet to a single E350 meter equipped with a communication module AD-xG.



#### Procedure:

- 1. In the "Device" drop down list, select the desired device (e.g. AD-xG GPRS module) and in the "Channel" drop down list the corresponding channel (if more than one channel is assigned to this device) or create a new device definition with the following settings (procedure see section 6.2.2 "Communication channel data" and section 6.2.3 "Device data"):
  - Physical interface = The available WLAN network card
  - Template for lower layer settings = "Wireless HDLC" or "Wireless – Wrapper" according to the device used.
- 2. In the "Client" drop down list select the required access level for the intended activity e.g. "[7] Remote Service".
- 3. In the "IP Address" drop down list select the required IP address of the connected device. If not already predefined, define it (for procedure see section 6.2.4.2 "IP addresses").
- 4. Perform the intended activity.

## 6.6 Reference to other documents

Detailed information about Landis+Gyr Dialog communication solutions can be found in the following documents.

- Data sheets for various devices
- User manuals for various devices
- Functional descriptions of devices
- Detailed **application notes** for numerous reference applications with various devices for different transmission media

All these documents as well as advisory services are available from the competent representative of Landis+Gyr.

# 7 Auxiliary functions

This section describes auxiliary functions of the Landis+Gyr .MAP120 Parameter Editor:

- Converting ASCII to text or vice versa
- Changing the language of the user interface
- Defining colours
- Switching the saving prompt on and off
- Defining storage location of communication settings
- Defining storage policy for keys and passwords
- Displaying tool help
- Displaying release notes
- Displaying the current program release and checking for updates

# 7.1 Converting ASCII to text or vice versa

This function allows conversion of ASCII code into text or vice versa.

#### Procedure:

- Select ASCII character converter from the Tools menu. The "ASCII Character Sequence to Text Converter" window appears.
- Enter a hexadecimal ASCII character sequence or a text string in the corresponding entry box. The converted text or sequence is displayed immediately.

_ <b>D</b> X								
Hexadecimal ASCII Character Sequence:								
616263414243								
Exit								

 Click on Copy Hex Stream to copy the content of the hexadecimal ASCII character sequence box into the Windows clipboard or click on Copy Text to copy the content of the text box into the Windows clipboard.

You then can insert this to any place using the paste function [Ctrl]+[V].

4. Click on **Exit** to close the "ASCII Character Sequence to Text Converter" window.

# 7.2 Changing the language of the user interface

This function allows changing the language of the .MAP120 Parameter Editor user interface.

### **Procedure:**

1. Select **Startup language** from the **Tools** menu. The "Startup Language" window appears.

Startup Language	×
English	•
	OK Cancel

- 2. Select the desired language in the drop down list. English and German are available.
- 3. Click on **OK**.

The "Startup Language" window disappears. The selected language will be used upon the next startup of the .MAP120 Parameter Editor.

# 7.3 Defining colours

The colour for modified values in comparisons can be set with this setting.

### Procedure:

- 1. Select **Options** from the **Tools** menu.
  - The "Options" window appears with selected "General" tab.

Options	
General	Communication Settings
Colours	
Colou	ur of differences in file comparison
Prompt	
V P	rompt to save changed device description before closing
	<u>Q</u> K <u>C</u> ancel

- In the "Colours" area click on the button .
   The "Colour" window appears with a colour palette.
- Select the desired colour and click on OK. The "Colour" window disappears and the selected colour is shown in the field "Colour of differences in file comparison".
- Click on OK. The "Options" window disappears and the selected colour will be saved.

# 7.4 Switching the saving prompt on and off

With this setting, you can specify whether a saving prompt shall appear when closing a modified device description or not.

### Procedure:

 Select **Options** from the **Tools** menu. The "Options" window appears with selected "General" tab.

Options
General Communication Settings
Colours
Colour of differences in file comparison
Prompt
Prompt to save changed device description before closing
<u>O</u> K <u>C</u> ancel

- 2. Tick the checkbox in the "Prompt" area if a saving prompt shall be displayed before closing a changed device description or remove the tick if you do not want to get a prompt.
- 3. Click on **OK**.

The "Options" window disappears and the saving prompt setting will be saved.

### 7.5 Defining storage location of communication settings

The path to the directory where communication settings are stored can be defined with this setting.

The communication settings can be shared for all .MAP tools.

Since the keys, passwords and the storage policy are stored encrypted per Windows user, the communication settings cannot be used by other Windows users on the same PC.

### **Procedure:**

- Select **Options** from the **Tools** menu. The "Options" window appears with selected "General" tab.
- 2. Select the "Communication Settings" tab.
- 3. In the "File Locations" area click on in and select a directory in the tree appearing or enter the path to the desired directory.

Options	
General Communica	ion Settings
File Location	
C:\Users\user\App	Data \Local \Landis+Gyr\dMAP
Storage Policy of Ke	ys and Passwords
permanent	
never	
Iimited until	30.05.2017
	/
	<u>Q</u> K <u>C</u> ancel

4. Click on **OK**.

The "Options" window disappears and the new settings are saved.

All communication settings are stored in the files "DeviceConnectionSettings Vxx.xml", "AddressBookVxx.xml" and "SecuritySettingsVxx.xml" (xx = data version, e.g. 12). Please note that these files will not be automatically transferred into the new directory. If required, the files have to be copied or moved manually.

The default directory for an initial installation is "C:\Users\Current User\AppData\Local\Landis+Gyr\dMAP".

## 7.6 Defining storage policy for keys and passwords

With this setting, you can set the storage policy for passwords and keys.



### Procedure:

- 1. Select **Options** from the **Tools** menu. The "Options" window appears.
- 2. Select the "Communication Settings" tab.

Options	
General Communicat	ion Settings
File Location	
C:\Users\user\App	Data\Local\Landis+Gyr\dMAP
Storage Policy of Ke	/s and Passwords
o permanent	
never	
🔘 limited until	30.05.2017
	<u>Q</u> K <u>C</u> ancel

3. Select the desired storage policy.

**permanent:** The passwords and keys are permanently stored on the PC.

**never:** The passwords and keys are not stored, i.e. they will be lost when you exit the .MAP tool.

**limited until:** The passwords and keys are stored on the PC until the specified expiration date is reached on the PC, and then deleted.

4. Click on **OK**. The "Options" window disappears and the new settings are saved.

# 7.7 Displaying tool help

This function permits access to the help texts for the Landis+Gyr .MAP120 Parameter Editor. These help texts correspond to the contents of this user manual.

### **Procedure:**

1. Press function key [F1] or select **Help** from the **Help** menu. The online help for the Landis+Gyr .MAP120 Parameter Editor appears.

😤 .MAP120 Help	
Ausblenden Zurück Drucken Optio	
Ausblenden       Zurück       Drucken       Optic         Inhalt       Index       Suchen       Inhalt         Image: Suchen       Image: Suchen       Image: Suchen         Image: Suchen       Image: Suchen       Image: Suchen	Overview         Previous       Next         The Landis+Gyr       MAP120 Parameter Editor supports services needed to edit and download complete device descriptions (parameterisations) into the supported Landis+Gyr devices (currently only E450 meters and E35C AD-Ex communication modules).         The following diagram illustrates the various fields of application of the Landis+Gyr MAP and .MAP Tools.         Manufacturer       Utility Central Services         Utility Local Services       Installation         Readout       N
	MAP190/120 .MAP120
< )	Further information:  Functions

- Find the desired information. Since the help function is a standard Windows function, it will not be explained at this point. More details are found in the Windows manual belonging to your PC.
- 3. Click on **Example** to close the online help.

# 7.8 Displaying release notes

This function displays the latest read-me file.

### **Procedure:**

1. Select **Release notes** from the **Help** menu. The latest read-me file appears.

.MAP120 - Release Notes	x
1. Description	<u> </u>
The Landis+Gyr .MAP120 Parameter Editor is used to create and edit complete device description files. It allows the reading and writing of such files from and to devices of the E450, E460, E570 and E35C series using v For all other service functions Landis+Gyr .MAP110 must be used.	ri.
2. Most recent changes, enhancements and bug fixes	
Changes to release 4.4.38 (2019-07-11)	
- Final device support E570 S2 G3 PLC V830707	
- Final device support E570 S2 GPRS V840707 - Final device support L540 V970101	
- Final device support E450 S4 G3 PLC 1ph Steiemark V920000	
<ul> <li>Final device support E450 S4 G3 PLC 3ph Steiemark V940000</li> <li>Final device support E450 S4 G3 PLC R18 1Ph V911212</li> </ul>	
- Final device support E450 S4 G3 PLC R18 3Ph V931212	
Changes to release 4.3.24 (2018-11-30)	-
Close	
	.11

- 2. Obtain the information you are interested in.
- 3. Click on **Close** to close the read-me file again.

### 7.9 Displaying the current program release and checking for updates

This function permits the display of information on the current program release and checking whether the installed .MAP120 release is up to date.



### Internet access required

To perform a check for updates the PC must have access to the Internet, since the .MAP Home Page must be contacted for this.

### Procedure:

1. Select About .MAP120 from the Help menu.

The "About" window appears. It contains information about the current version, the license and the operating system and .NET Framework installed on this computer.

About			×
	Landis+Gyr .MA	P120 - Parameter I	Editor
	Version Information		
	Version	4.4.38	\infty Update
	Date	2019-07-09	
	Build	4.4.7129.31173 (2019-07-09	9)
	License		
	User name	Felix Professional	
	User group	Head Quarter	
Landis	System Information		
Uyi	Operating System	Windows 7 Professional Editi	ion (64Bit) Service Pack 1
http://www.landisgyr.com	.NET Framework	4.7.3062	
	Copyright © Landis+G	yr AG, 2019	
	Ok	:	

2. Click on **Check for Update** if you want to check whether the installed .MAP120 release is up to date.

An automatic query is performed on the .MAP Home Page to determine the latest released release available.

	Landis+Gyr .MA		
MAP	Version Information Version Date Build	4.4.38 2019-07-09 4.4.7129.31173 (2019-07-09)	😵 Update
Landis	License User name User group	Felix Professional Head Quarter	
http://www.landisgyr.com	System Information Operating System .NET Framework	Windows 7 Professional Editio 4.7.3062	on (64Bit) Service Pack 1
Copyright © Landis+Gyr AG, 2019			

The •... icon is displayed while the query is performed.

About		E
	Landis+Gyr .MA	P120 - Parameter Editor
	Version Information	
	Version	4.4.38 🐼 Update
	Date	2019-07-09
	Build	4.4.7129.31173 (2019-07-09)
	License	
	User name	Felix Professional
	User group	Head Quarter
Landis	System Information	
Gyr '	Operating System	Windows 7 Professional Edition (64Bit) Service Pack 1
1	.NET Framework	4.7.3062
http://www.landisgyr.com	INCLFRAMEWORK	47.3002
	Copyright © Landis+G	yr AG, 2019
	OK	<

The vicon is displayed, if the installed release is up to date.

If a later release is available, the *icon* appears. To download and install the latest release of the .MAP120 software click on this icon or on the MAP icon to access the MAP Software Download area.

If the **v** icon is displayed, no information is available or the internet access failed.

 Click on **OK**. The "About" window disappears.

# 8 Support

The following is designed to help you take the right measure to tackle any problems you may experience when using the Landis+Gyr .MAP120 Parameter Editor.

If a problem arises try to solve it yourself first by applying the following measures:

- Consult the appropriate section of this user manual.
- Invoke the help function as described in section 7.7 "Displaying tool help".
- Read the content of the read-me file, supplied with the software as described in section 7.8 "Displaying release notes".

If these measures do not help, contact your local Landis+Gyr representative.

# 9 Short description of device security system

## 9.1 Introduction

The data and parameters of the Landis+Gyr devices are protected against unintended or improper access by a flexible, multi-stage security system. It is very similar to the one used in computer systems and consists of several access levels (users) with different access rights.

Detailed information on the security system for the relevant devices is provided in the corresponding functional descriptions.

### 9.2 Security attributes

For each access level, various security attributes can be defined that must be fulfilled to gain access.

Switches protected by<br/>the verification sealProtected by the verification seal, there is for many devices (e.g. under the<br/>main face plate) a block of security switches or jumpers. Their position<br/>must be defined in order to gain access to a particular level.

**Entering the service** It may be defined that access to a certain level will only be granted from the service menu. To enter the service menu, the utility seal must be removed.

Access authentication For each access level it is defined how the authentication has to be performed. The following authentication types are defined:

- no authentication (access possible without password)
- low level authentication using a static password
- high level authentication using a coded password
- high level authentication using TEA (Tiny Encryption Algorithm)
- high level authentication using MD5 (Message-Digest Algorithm 5)
- high level authentication using SHA-1 (Secure Hash Algorithm)
- high level authentication using SHA-256 (Secure Hash Algorithm)
- high level authentication using GMAC (Galois Message Authentication Code)

In some cases multiple authentication types are selectable per access level.

If a static password is used, the user only needs to know the password. It is checked by the device and access is granted if the passwords match.

For all other passwords and keys the user not only needs to know the password but also an encryption algorithm. Due to the encryption, a Landis+Gyr tool is required to access such a level.

**Passwords/Keys** A password or a key must be defined for some authentication types. Static and coded passwords as well as SHA keys comprise 16 characters, TEA and MD5 keys 32 characters.

#### **Communication channels** The access to a certain level may be restricted so that it is only granted via selected communication channels. Access is for instance possible via the optical interface, the integrated interface and both communication channels of the communication unit.

**Message security** To ensure the message safety, the messages can be authenticated and/or encrypted, provided a high level authentication using MD5, SHA or GMAC is used for access authentication. The necessary keys are stored in one or several security setup objects.

### 9.3 Access levels

The Landis+Gyr devices feature up to 15 different access levels with different access rights to groups of registers and parameters. The access rights per group (read and write access) can be individually configured for every access level.

Each access level is protected by security attributes which must be fulfilled to gain access. In order to simplify the handling and to ensure compatibility to other device series, most of the security attributes have been partially or completely fixed.

All access levels are technically strictly independent i.e. a higher access level does not automatically bear all rights of the lower access levels.

### 9.4 Access levels and their application

The table below describes all access levels with their security attributes and their typical application. The access rights are defined by the utility when ordering the device. They depend on the needs of the utility and on the national regulations.

For levels 0 to 4 access is possible via the dlms and the IEC protocol, for levels 5 to G via the dlms protocol only. The UID (user identification) is used in dlms communication to select the access level.

Please note that not all access levels are available in all devices, the table below therefore just gives an overview. Please always refer to the functional description of the currently used device.

Level	Security attributes	Access rights and typical application examples	
0 Public Access UID = 16	without password without breaking a seal all interfaces	This access level is always available. All dlms devices can be accessed on this level. Some data can be read but there is no write access.	
1 Data Collection UID = 32	with static password or high level authentication without breaking a seal interfaces selectable	high level authenticationnal or possibly by a central system.without breaking a sealAll billing data is readable.	
2 Utility Field Service UID = 48	with coded password, encryption key or high level authentication without breaking a seal interfaces selectable Landis+Gyr Tool required if coded password or encryption algorithm is used.	Maintenance tasks. All parameters and all billing data are readable. Limited write access to uncritical data is possible, e.g. device addresses, identification numbers, phone num- bers etc.	
3 Utility Service UID = 64	without password breaking the utility seal necessary local interfaces only	Installation or maintenance work in the utility and in the field. All parameters and all billing data are readable. Limited write access to settable data is possible, e.g. battery operating time, switching tables etc.	

Level	Security attributes	Access rights and typical application examples	
4 Extended Utility Service UID = 80	without password breaking the verification seal necessary local interfaces only	Installation or maintenance work in the utility. Verification is usually required afterwards. All parameters and all billing data are readable. Write access to all data is possible, e.g. parameter- isation, register clearing, password setting etc.	
5 Extended Consumer UID = 17	with static password without breaking a seal interfaces selectable	Write access for the end user. All parameters and most billing data are readable. Limited write access to the end user data is possible, e.g. monitor thresholds.	
6 Remote Data Collection UID = 18	with static password without breaking a seal remote interfaces only	Remote readout of billing data by a central system. All billing data is readable. Limited write access is possible, e.g. time/date.	
7 Remote Service UID = 19	with static password without breaking a seal remote interfaces only	Installation or maintenance work in connection with a central system. All parameters and all billing data are readable. Limited write access to settable data is possible, e.g. switching tables, device addresses, identification numbers, phone numbers etc.	
G Management UID = 1	with static password or high level authentication without breaking a seal all interfaces	Installation or maintenance work after verification (locally or via a central system). All parameters and all billing data are readable. Limited write access to settable data is possible, e.g. switching tables, device addresses, identification numbers, phone numbers etc.	
L Access Administrator UID = 2	with static password or high level authentication without breaking a seal all interfaces	The same purpose as Level G, additionally the access rights of the other levels can be modified.	
8		Reserved for future expansion.	
9 Broadcast UID = 102	without breaking a seal remote interfaces only	Pre-established, to send unconfirmed messages to multiple devices (broadcast) not available in .MAP tools.	
A Utility Defined UID = 22	attributes selectable at ordering time	No typical application defined. Access rights defined at ordering time according to the needs of the utility.	
В		Reserved for future expansion.	
C Read Administrator UID = 96	with static password without breaking a seal	Allocation of read access rights All parameter and all billing data are readable. Read access rights for all lower levels (0 to B) can be allocated.	
D Utility Administrator UID = 97	with coded password breaking the verification seal necessary local interfaces only Landis+Gyr Tool required because of coded pass- word	Same as level 4. In addition, changes in the utility security system are possible: Read and write access rights can be adapted and all passwords can be changed.	

Level	Security attributes	Access rights and typical application examples
E Distributor Service UID = 100	with coded password breaking the verification seal necessary local interfaces only Landis+Gyr Tool required because of coded pass- word	Service access of the distributor. Identical to level D. In addition, changing the access rights and the pass- word of the utility administrator is possible.

# 10 **OBIS** identification codes

# 10.1 General description

For OBIS (Object Identification System) the structure **A-B:C.D.E.F** applies, whereby the individual groups have the following significance:

Α	Defines the characteristic of the data item to be identified, e.g. ab-
	stract data, electricity-, gas-, heat- or water-related data.

- **B** Defines the channel number, i.e. the number of the input of a metering equipment having several inputs for the measurement of energy of the same or different types (e.g. in data concentrators, registration units). This enables data from different sources to be identified.
- **C** Defines the abstract or physical data items related to the information source concerned, e.g. active power, reactive power, apparent power, power factor, current or voltage.

# **D** Defines types, or the result of the processing of physical quantities according to various specific algorithms. The algorithms can deliver energy and demand quantities as well as other physical quantities.

- **E** Defines the further processing of measurement results to tariff registers, according to the tariffs in use. For abstract data or for measurement results for which tariffs are not relevant, this value group can be used for further classification.
- **F** Defines the storage of data according to different billing periods. Where this is not relevant, this value group can be used for further classification.

To simplify the reading in the index field, individual groups of the OBIS code can be omitted. The abstract or physical data C and type of data D must be shown. A full specification of the OBIS identification number system can be found in standard IEC 62056-61.

Only the values of interest to metering devices are explained below with a collection of examples.

Group A	Group A of the OBIS identification can theoretically have values in the range between 0 and 9. Only the values <b>0</b> (abstract objects) and <b>1</b> (electricity related objects) appear in the Landis+Gyr .MAP120 Parameter Editor.
Group B	Group B of the OBIS identification can theoretically have values in the range between 0 and 64. Only the values <b>0</b> (no channel specified) <b>1</b> (channel 1) and <b>2</b> (channel 2) appear in the Landis+Gyr .MAP120 Parameter Editor.
Group C	Group C of the OBIS identification can have values in the range between 0 and 255. The individual values are differently assigned depending on the value of group A. The values for abstract items (group $A = 0$ ) are of no interest at this point, since they are largely specific to either context, country or manufacturer.

The following table shows the values of group C of the OBIS identification for electricity related objects. It has the form of a matrix and is read as follows: the value **46** for instance stands for reactive power in the second quadrant for phase L2.

General purpose objects		0						
Active power +A (QI+QIV) <sup>1)</sup>	∑ L <sub>i</sub>	1	$L_1$	21	$L_2$	41	$L_3$	61
Active power -A (QII+QIII)	ΣL <sub>i</sub>	2	$L_1$	22	$L_2$	42	$L_3$	62
Reactive power +R (QI+QII)	ΣL <sub>i</sub>	3	$L_1$	23	$L_2$	43	$L_3$	63
Reactive power -R (QIII+QIV)	ΣL <sub>i</sub>	4	$L_1$	24	$L_2$	44	$L_3$	64
Reactive power +Ri (QI)	ΣL <sub>i</sub>	5	$L_1$	25	$L_2$	45	$L_3$	65
Reactive power -Rc (QII)	ΣL <sub>i</sub>	6	$L_1$	26	$L_2$	46	$L_3$	66
Reactive power -Ri (QIII)	ΣL <sub>i</sub>	7	$L_1$	27	$L_2$	47	$L_3$	67
Reactive power +Rc (Q IV)	ΣL <sub>i</sub>	8	$L_1$	28	$L_2$	48	$L_3$	68
Apparent power +VA (QI +QIV)	$\sum L_i$	9	$L_1$	29	$L_2$	49	$L_3$	69
Apparent power -VA (QII+QIII)	ΣL <sub>i</sub>	10	$L_1$	30	$L_2$	50	$L_3$	70
Current	2)	11	$L_1$	31	$L_2$	51	$L_3$	71
Voltage	2)	12	$L_1$	32	$L_2$	52	$L_3$	72
Power factor	ΣL <sub>i</sub>	13	$L_1$	33	$L_2$	53	$L_3$	73
Supply frequency		14	$L_1$	34	$L_2$	54	$L_3$	74
Active power  +A + -A		15	$L_1$	35	$L_2$	55	$L_3$	75
Active power  +A - -A		16	$L_1$	36	$L_2$	56	$L_3$	76
Active power +A (QI)		17	$L_1$	37	$L_2$	57	$L_3$	77
Active power -A (QII)		18	$L_1$	38	$L_2$	58	$L_3$	78
Active power -A (QIII)		19	$L_1$	39	$L_2$	59	$L_3$	79
Active power +A (QIV)		20	$L_1$	40	$L_2$	60	$L_3$	80
Phase angles		81						
Neutral current		91						
Neutral voltage		92						
Service entries 3)		96						
Error messages <sup>3)</sup>		97						
List objects 3)		98						
Data profiles <sup>3)</sup>		99						

<sup>1)</sup> QI, QII, QIII, QIV = Quadrant 1, 2, 3, 4

<sup>2)</sup> any phase

<sup>&</sup>lt;sup>3)</sup> In all data readouts the OBIS code is shown in .MAP tools in numeric format only (as defined in the standard) instead of partly using characters. Affected values: "C"=96, "F"=97, "L"=98 and "P"=99. This now allows a correct referencing to the standard.

The values 128 to 255 have manufacturer-specific definitions. Some examples of Landis+Gyr definitions are:

Value	Application
130	Sum of all phases: reactive power quadrant I+IV+II+III
131	Sum of all phases: reactive power quadrant I+II-III-IV
132	Sum of all phases: reactive power quadrant I+IV
133	Sum of all phases: reactive power quadrant II+III
150	Phase 1: reactive power quadrant I+IV+II+III
151	Phase 1: reactive power quadrant I+II-III-IV
152	Phase 1: reactive power quadrant I+IV
153	Phase 1: reactive power quadrant II+III
170	Phase 2: reactive power quadrant I+IV+II+III
171	Phase 2: reactive power quadrant I+II-III-IV
172	Phase 2: reactive power quadrant I+IV
173	Phase 2: reactive power quadrant II+III
190	Phase 3: reactive power quadrant I+IV+II+III
191	Phase 3: reactive power quadrant I+II-III-IV
192	Phase 3: reactive power quadrant I+IV
193	Phase 3: reactive power quadrant II+III

**Group D** Group D of the OBIS identification can have values in the range between 0 and 255. The individual values are differently assigned depending on the value of group A and C, but are not described here.

**Group E** Group E of the OBIS identification can have values in the range between 0 and 255. In the Landis+Gyr .MAP120 Parameter Editor for group E for electricity-related items (group A = 1) the values corresponding to the number of tariffs specified mainly appear (0 = total of all tariffs, 1 = tariff 1, 2 = tariff 2, etc.). Other values apply for specific values of group C, but these are not described here.

**Group F** Group F of the OBIS identification can have values in the range between 0 and 255. In the Landis+Gyr .MAP120 Parameter Editor group F is not used and is therefore always set to 255.

# 10.2 Examples

The following table shows a selection of OBIS identification numbers and explains their significance.

OBIS code	OBIS code (hex)	Description
(decimal)	ABCDEF	
0-0:1.0.0	00 00 01 00 00 FF	Clock
0-0:42.0.0	00 00 2A 00 00 FF	dlms device identification
0-0:96.1.0	00 00 60 01 00 FF	Identification number 2.1
0-0:96.1.1	00 00 60 01 01 FF	Identification number 2.2
0-0:96.2.0	00 00 60 02 00 FF	Number of parameterisations

OBIS code	OBIS	cod	e (h	ex)		Description
(decimal)	AB	С	D	Е	F	
0-0:96.2.1	00 00	60	02	01	FF	Date and time of last parameterisa- tion
0-0:96.2.2	00 00	60	02	02	FF	Activation date TOU
0-0:96.2.3	00 00	60	02	03	FF	Date of last RCR program change
0-0:96.240.0	00 00	60	F0	00	FF	EEPROM identification
0-0:96.240.13	00 00	60	F0	00	) FF	Hardware ID
0-0:96.3.1	00 00	60	03	01	FF	Input terminal states base meter
0-0:96.3.2	00 00	60	03	02	FF	Output terminal states base meter
0-0:96.4.0	00 00	60	04	00	FF	Internal control signal states
0-0:96.5.0	00 00	60	05	00	FF	Internal operating state
0-0:96.6.0	00 00	60	06	00	FF	Operating time of battery
0-0:96.6.3	00 00	60	06	03	FF	Battery voltage
0-0:96.7.0	00 00	60	07	00	FF	Number of phase fails L1L3
0-0:96.7.1	00 00	60	07	01	FF	Number of phase fails L1
0-0:96.7.2	00 00	60	07	02	FF	Number of phase fails L2
0-0:96.7.3	00 00	60	07	03	FF	Number of phase fails L3
0-0:96.8.0	00 00	60	08	00	FF	Total operating time
0-0:96.8.t	00 00	60	08	t	FF	Operating time (t = tariff number)
0-0:96.90	00 00	60	5A	FF	FF	Configuration ID
0-0:96.90.1	00 00	60	5A	01	FF	Physical IEC device address
0-0:96.90.2	00 00	60	5A	02	2 FF	Physical HDLC device address
1-0:96.2.7	00 00	60	02	07	FF	Activation date passive TOU
0-0:97.97.0	00 00	61	61	00	FF	Error code register
0-0:98.1.0*126	00 00	62	01	00	7E	Stored values
0-0:240.1.0	00 00	F0	01	00	FF	Device functions
0-1:96.2.5	00 01	60	02	05	FF	Date and time of last calibration
0-1:96.240.8	00 01	60	F0	08	FF	Hardware ID of base meter
0-1:96.3.1	00 01	60	03	01	FF	Input terminal states extension board
0-1:96.3.2	00 01	60	03	02	FF	Output terminal states extension board
0-2:96.240.8	00 02	60	F0	08	FF	Hardware ID of extension board
0-2:96.240.9	00 02	60	F0	09	FF	Reference hardware ID of extension board
1-0:0.0.1	01 00	00	00	00	FF	Identification number 1.1
1-0:0.0.2	01 00	00	00	01	FF	Identification number 1.2
1-0:0.0.3	01 00	00	00	02	FF	Identification number 1.3
1-0:0.0.4	01 00	00	00	03	FF	Identification number 1.4
1-0:0.1.0	01 00	00	01	00	FF	Reset counter
1-0:0.1.2	01 00	00	01	02	FF	Time and date of last billing period reset

OBIS code	OE	SIS d	code	e (h	ex)		Description
(decimal)	Α	в	С	•	E	F	
1-0:0.2.0	01	00	00	02	00	FF	Software ID
1-0:0.2.1	01	00	00	02	01	FF	Parameterisation ID
1-0:0.2.3	01	00	00	02	03	FF	Ripple control receiver ID
1-0:0.2.4	01	00	00	02	04	FF	Connection ID
1-0:0.2.7	01	00	00	02	07	FF	Passive TOU ID
1-0:0.9.5	01	00	00	09	05	FF	Weekday
1-0:96.99.8	01	00	60	69	08	FF	Display and IEC readout ID
1-0:99.1.0	01	00	63	01	00	FF	Load profile
1-0:99.98.0	01	00	63	62	00	FF	Event log
1-1:0.3.0	01	01	00	03	00	FF	Meter constant active energy
1-1:0.3.1	01	01	00	03	01	FF	Meter constant reactive energy
1-1:0.4.0	01	01	00	04	00	FF	Scale factor for demand display
1-1:0.4.1	01	01	00	04	01	FF	Scale factor for energy display
1-1:0.4.2	01	01	00	04	02	FF	Current transformer ratio
1-1:0.4.3	01	01	00	04	03	FF	Voltage transformer ratio
1-1:13.0.0	01	01	0D	00	00	FF	Average billing period power factor
1-1:13.3.n	01	01	0D	03	n	FF	Power factor minimum (n = number)
1-1:13.31.n	01	01	0D	23	n	FF	Power factor threshold (n = number)
1-1:13.35.n	01	01	0D	23	n	FF	Power factor monitor threshold (n = number)
1-1:13.5.0	01	01	0D	00	00	FF	Last average power factor
1-1:13.7.0	01	01	0D	07	00	FF	Total power factor
1-1:14.7.0	01	01	0E	07	00	FF	Mains frequency
1-1:31.7.0	01	01	1F	07	00	FF	Current L1
1-1:31.35.0	01	01	1F	23	00	FF	Overcurrent threshold L1
1-1:32.7.0	01	01	20	07	00	FF	Voltage L1
1-1:32.31.0	01	01	20	1F	00	FF	Undervoltage threshold L1
1-1:32.35.0	01	01	20	23	00	FF	Overvoltage threshold L1
1-1:33.7.0	01	01	21	07	00	FF	Power factor L1
1-1:51.7.0	01	01	33	07	00	FF	Current L2
1-1:51.35.0	01	01	33	23	00	FF	Overcurrent threshold L2
1-1:52.7.0	01	01	34	07	00	FF	Voltage L2
1-1:52.31.0	01	01	34	1F	00	FF	Undervoltage threshold L2
1-1:52.35.0	01	01	34	23	00	FF	Overvoltage threshold L2
1-1:53.7.0	01	01	35	07	00	FF	Power Factor L2
1-1:71.7.0	01	01	47	07	00	FF	Current L3
1-1:71.35.0	01	01	47	23	00	FF	Overcurrent threshold L3
1-1:72.7.0	01	01	48	07	00	FF	Voltage L3
1-1:72.31.0	01	01	48	1F	00	FF	Undervoltage threshold L3

OBIS code	OBIS code (hex)						Description
(decimal)	Α	в	С	D	Е	F	
1-1:72.35.0	01	01	48	23	00	FF	Overvoltage threshold L3
1-1:73.7.0	01	01	49	07	00	FF	Power Factor L3
1-1:81.7.0	01	01	51	07	00	FF	Angle U(L1) to U(L1)
1-1:81.7.1	01	01	51	07	01	FF	Angle U(L2) to U(L1)
1-1:81.7.2	01	01	51	07	02	FF	Angle U(L3) to U(L1)
1-1:81.7.3	01	01	51	07	04	FF	Angle I(L1) to U(L1)
1-1:81.7.4	01	01	51	07	05	FF	Angle I(L2) to U(L1)
1-1:81.7.5	01	01	51	07	06	FF	Angle I(L3) to U(L1)
1-1:91.7.0	01	01	5B	07	00	FF	Neutral current
1-1:91.35.0	01	01	5B	23	00	FF	Overcurrent threshold N
1-1:m.2.0	01	01	m	02	00	FF	Cumulative maximum demand (m = measured quantity)
1-1:m.4.0	01	01	m	04	00	FF	Current average demand (m = measured quantity)
1-1:m.6.t	01	01	m	06	t	FF	Maximum demand register (m = measured quantity, t = tariff number)
1-1:m.8.0	01	01	m	08	00	FF	Total energy register (m = measured quantity)
1-1:m.8.t	01	01	m	08	t	FF	Energy register (cumulative) (m = measured quantity, t = tariff number)
1-1:m.9.t	01	01	m	09	t	FF	Energy register (billing period delta value) (m = measured quantity, t = tariff number)
1-1:m.29.t	01	01	m	1D	t	FF	Energy register (registration period delta value) (m = measured quantity, t = tariff number)
1-1:m.35.n	01	01	m	23	n	FF	Demand register monitor threshold (m = measured quantity, n = number)
1-2:82.8.0	01	02	52	08	00	FF	Counter S0 pulses input 1
1-3:82.8.0	01	03	52	80	00	FF	Counter S0 pulses input 2
a-2:m.8.0	а	02	m	08	00	FF	External pulse input 1 (a = medium, m = measured quantity)
a-3:m.8.0	а	03	m	80	00	FF	External pulse input 2 (a = medium, m = measured quantity)

#### List of abbreviations 11

This section explains some abbreviations used in this user manual or on dialogue windows of the Landis+Gyr .MAP120 application in alphabetical order.

Please consult also the metering glossary published on the Landis+Gyr homepage www.landisgyr.eu under "Support"  $\rightarrow$  "Metering Glossary".

Abbreviation	<b>Definition</b> Description
dlms	<b>Distribution Line Message Specification</b> Messaging system defined originally as part of the application layer of the protocol stack for distribution line carrier systems (IEC 61334-4-41, 1996). Its universality and its independence of the actual communication channel allowed dlms to become the choice of the metering industry for any meter- ing application (Device Language Message Specification).
EDIS	<b>Energy Data Identification System</b> Identification number system for clear identification of energy data accord- ing to DIN 43863-3:1997.
GSM	Global System for Mobile communications Wireless communication network for data and voice transmission.
HDLC	<b>High Level Data Link Control</b> Communication protocol used by COSEM (IEC 62056-46), specifying the data link layer. The HDLC standard is ISO/IEC 13239, 2000 (second edi- tion). Some older COSEM implementations rely on the first, 1996 edition of the standard.
IEC	International Electrotechnical Commission IEC 62056-21 is the standard "Electricity metering - Data exchange for meter reading, tariff and load control - Part 21: Direct local data exchange". This is the third edition of the formerly well-known standard IEC 61107 (IEC 1107).
.MAP	Meter Application Product The .MAP software tools have been developed and distributed by Landis+Gyr to support electricity meters. This group of tools comprises the .MAP 110 Parameter Editor and the .MAP120 Parameter Editor.
OBIS	<b>Object Identification System</b> Identification number system for clear identification of dlms items.
PSTN	<b>Public Switched Telephone Network</b> The public switched telephone network can be used for data transmission. To this purpose a modem (modulator/demodulator) must be inserted be- tween computer and telephone network and also between the telephone network and the remote device.
VDEW	Vereinigung Deutscher Elektrizitätswerke

VDEW is the central organisation of the German electrical industry. It combines and represents the interests of its members and is consultant and forward-looking body for energy questions (refer also to www.strom.de).

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#### Contact:

Landis+Gyr AG Theilerstrasse 1 CH-6301 Zug Switzerland Phone: +41 41 935 6000 www.landisgyr.com

