.MAP



Parameter editor

.MAP120

User manual



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Revision history

Version	Date	Comments
а	22.05.2012	First edition.
b	06.07.2012	Changes to .MAP120 release 2.1.
С	04.04.2013	Changes to .MAP120 release 2.2.
d	15.11.2013	Changes to .MAP120 release 2.3; Support for Windows 8, comparison of device descrip- tions, separate layout definitions for print and comparison. Print preview changed, check for update can be called up from "About" window. Several minor changes (text, screenshots, index).
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 passwords, enhanced character set for passwords, new icons in communication toolbar, new folder icon in tree, new representation of errors and warnings. Document structure modified.
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n	13.01.2020	Changes to .MAP120 release 4.5 (see also read-me file); adaptation to changed communi- cation user interfaces. New screenshots with Windows 10 operating system.
р	04.12.2023	Landis+Gyr contact address updated.
AA	18.12.2023	Windows OS version updated.
AB	06.05.2024	Info on the new user management license added in section 3.2.

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Introduction

Scope	The present user manual is designed for the Landis+Gyr .MAP120 Parameter Editor Release 4.5 and higher.			
Purpose	.MAP120 Pa	nual contains all information required for the use of the Landis+Gyr rameter Editor. It not only provides explanations concerning function- leral procedures, but also gives detailed, illustrated instructions on he software.		
Target group	of energy su	s of this user manual are intended for technically qualified personnel pply companies responsible for system planning, parameter setting ion 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 followin	g conventions are used in this manual:		
	1. 2. 3.	Ordinal numbers are used for individual steps in the instructions.		
	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	Utilit	y Central Service	s Utility Lo	cal Services		(
Configuration	Parameter- isation	Test + Verification	Installation	Readout	Ма	aintenance
MAP190	/120		.MAP110			.MAP100
.MAP1	20		INAPTIO			.IMAP100

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 7.9 "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 or Windows 11.
	For 64 bit operating systems dedicated hardware drivers (e.g. for the optical 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 upgrading a former release 4.5 to the latest release 4.5, the former release will be automatically replaced by the newer one. All data including the license and the communication settings is kept.
	When upgrading a former release 2.x, 3.x, 4.0, 4.1, 4.2, 4.3 or 4.4 to the latest release 4.5, 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 removing 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 fullscreen optimizations" checkbox is ticked in the "Compatibility" tab:

-	Details	Previous Versions
General	Shortcut	Compatibility
unning the com Run compatibilit w do I choose c ompatibility mod	patibility troubleshoote y troubleshooter ompatibility settings ma	anually?
Windows 8		~
ettings Reduced colo	r mode	
B-bit (256) color	~	
	480 screen resolution een optimizations am as an administrato	r
Run this progr		
	h DPI settings	

Furthermore the "Override high DPI scaling behaviour." checkbox in the additional window which appears after clicking the button **Change high DPI settings** must be ticked:

Landis+Gyr .MAP120 - 4.5 P	Properties	×
Choose the high DPI settings	for this program.	
Program DPI		
Use this setting to fix sca instead of the one in Set Open Advanced scaling sett	tings	program
A program might look blurry changes after you sign in to this scaling problem for this set for your main display wh	Windows. Windows ca program by using the I	an try to fix OPI that's
Use the DPI that's set for m	y main display when	
I signed in to Windows	\sim	
Learn more		
High DPI scaling override		
Override high DPI scaling Scaling performed by:	g behavior.	
Application	~	
	ОК	Cancel

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

Landis+Gyr provides two different license types.

- The standard license
- The user management license

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

3.1 Concept of the standard license

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 3.1.1 "Entering license data".



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.

3.1.1 Entering license data

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.

(\mathbf{i})

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.
- Right click on the Landis+Gyr .MAP120 4.5 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.

User Name:	Demo User
User Group:	Demo
License Key:	

- 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.

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

7. Click on OK.

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

License	×
.MAP120 has been successfully licensed. Please keep your license data in a safe place for later reuse. OK	

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.

(\mathbf{i})

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.

3.2 User management license

In the last few years many utilities have understood that smart metering is a part of their smart grid and with this, part of critical infrastructure. Millions of smart meters, deployed in every residential home, must be protected against misuse as an entry point into the utility IT network. This triggers increased security at smart meters and also at any field tools and in particular the Landis+Gyr dMAP tools.

Our dMAP tools (dMAP120 ver. 4.14.x and later) with the new user management address these needs. With the user management license, dMAP Tool Users must authenticate themselves when using the dMAP tools by entering their username and password. For each dMAP Tool User, the dMAP transmits a pre-defined user ID to the linked meter. The meter then stores this user ID, allowing utilities to identify the tool user who communicated with a meter and to some extent the changes made to the meter parametrisation.

For maximum security, it is even possible to "dongle" a Tool User to one specific PC. If activated, the dMAP tool traces the login data of the Tool User and transmits it to a SFTP server.

Detailed information is described in an additional user manual, which will be provided with the user management license. Please get in touch with your Landis+Gyr representative for a commercial offer on this new functionality.



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 - [LGZ1030739188859 (V931010)*]			- 🗆 X
💸 Eile View Communication Iools Windows Help	0		- 8 ×
🗋 📜 📙 💩 🍓 🥥 🧐 🐡 💇 🖤 Client: [G] Manageme	ent Access, static password 🔹 👳	🕸 Phone:	- • 🗋 👩
Device: ZMXi320CQ • 🔲 IEC;HDLC 39188859;98	59 🔹 🏶 Channel: USB - Optical Hei	ad - COM5 - 9600	• •
🥹 n q 🗼 🖡	R.		
🗸 🚞 20000: Landis+Gyr E450	A Network (0-0:199.13.0)		^
🗸 📰 10000: Device Settings	Nominal Voltage	230	V O
> 10001: Configuration 3	and services managements		4
V Total 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	(0) import ~	
> 🚞 10031: Energy Registers	Apparent Calculation Method	(1) Vectorial	
> 🚞 10059: Demand Registers			
> 📰 10250: Tariffication	Phase Sequence Detection enabled	4 🔽	
> 10141: Time Of Use (TOU)	Phase Sequence Direction	(1) Anticlockwise (L1L2L3) ~	
> 10142: Billing Data			
> 10144: Load Profile 1 > 10143: Load Profile 2	LED Pulse Output (0-0:199.2.0)		
> 10080: Multi Utility	Normal Mode		
> 10481: Event Logs		imp/kWh	
> 10322: Fraud Detection and Access Supervision	Pulse Constant	1000 imp/kvarh	
> 10147: Quality Of Supply	Pulse Length	2 ms	
Device Description ID: LGZ1030739188859 Firmware Version:	V931010 Parameterisation ID: LGW	1040s Type Designation:	ZMXI320CQU0L1D3.31 54 5
🕁 📴 🗡 🗔 🧶 Search 🛛 🔺 🔻			Communication Log
97515250ms - DLMS set State: OPENING 97515250ms - HDLC Open			6
97515250ms - HDLC wait 200 ms			•
	=1 SendFrSize=248 RecFrSize=248 80601F807040000000108040000000155		ie .
٢			>
Session: disconnected	7	4	1490 🔂 1491

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 3.1.1 "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 7.8 "Displaying tool help"
	Release notes	See section 7.9 "Displaying release notes"
	About .MAP120	See section 7.10 "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")
H	Saves the selected device description file (see section 5.1.3 "Saving device descriptions")
2	Prints the selected device description (see section 5.1.7 "Printing device descriptions")
2	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")
Ŷ	Fades the command log in or out (see section 4.5 "Communication log")
6	Loads the device description (all parameters) from the device (see section 5.1.10 "Reading device descriptions from a device")
0	Starts the parameter wizard (see section 5.3.2 "Starting the parameterisation wizard")
<u>@</u>	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 for different devices.

Clicking on in the access level toolbar displays the access level settings (see section 6.2.3.3 "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 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.



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.



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.

) (q 🗼 🗼 🕕	2	4	
20000: Landis+Gyr E450	Network (0-0:199.13.0)		
The settings The settings The settings The settings The settings The settings The setting	Nominal Voltage	230	v
> 10140: Network	5 Nominal Current	5	A
> 10056: Terminals > 10002: Clock	Start Current	20	mA
> 10031: Energy Registers	Maximum Current	100	A
> 📑 10059: Demand Registers	Power Factor Calculation Method	(0) import	•
 10250: Tariffication 10141: Time Of Use (TOU) 	Apparent Calculation Method	(1) Vectorial	u .
> 10142: Billing Data	B Phase Sequence Detection enabled		
> 10144: Load Profile 1 > 10143: Load Profile 2	Phase Sequence Direction	(1) Anticlockwise (L1L2L3)	-

- 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 evice 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:

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

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



Expands all folders of the tree



.

Expands all folders of the tree

search in tree view")

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.

🗸 🚞 20000: Landis+Gyr E450
✓ 10000: Device Settings
10001: Configuration
10207: Configuration
10212: Channel Number of Energy and Demand Registers
🗸 🚞 10140: Network
10155: Network
10156: LED Pulse Output
10056: Terminals
3 10057: Digital Input
3 10216: Output 1
10293: Output 2
> 🚞 10416: Output Control
✓ 10002: Clock
10003: General Clock Configuration
10004: Clock Synchronisation
10006: Daylight Saving Time Settings
10031: Energy Registers
3 10235: Test Mode
> 10327: Energy Total Registers
> 10328: Rated Energy Registers
> T10059: Demand Registers

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:			
	Tolder Folder			
	Configuration parameters			
	ONETWORK parameters			
	Source Clock parameters			
	Time of use parameters			
	E Communication parameters			
	S Other parameters			
Folder handling	Each folder can be expanded and collapsed individually.			
	Collapsed folder items are preceded by an expansion icon <a>, expanded folder items by a collapse icon <a>.			
	To expand or collapse individual folders there are the following possibilities:			
	Using the mouse:			
	 Clicking on the expansion icon >> of a folder expands this folder (the expansion icon >> changes to a collapse icon >>>). 			
	 Clicking on the collapse icon w of a folder collapses this folder (the collapse icon w changes to an expansion icon »). 			
	 Double-clicking on a closed folder icon are 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 keypands all folders of the tree. 			

• Clicking on **I** collapses all folders of the tree.

Detail view of device description

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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.

V û 🍳 👗 💺	2		
20000: Landis+Gyr E450 Toron 10000: Device Settings	General Clock Configuration (0	-0:1.0.0)	
> 10001: Configuration	Time Base	(1) internal crystal ~	
> [10140: Network	Deviation of Local Time to UTC	-60	mîn 🕕
 T0056: Terminals 10002: Clock 10003: General Clock Configuration 10004: Clock Synchronisation 10006: Daylight Saving Time Settings 10031: Energy Registers 	Clock Synchronisation (1-0:0.9. Synchronisation Lock Maximum Time Shift without Re of a Clock Adjusted Event	1 hour *	

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 Para- meterisation 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 func- tion, 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:

1. Click on **S** in the tree view toolbar. The "Find .MAP120" window appears.

Find .MAP120 - [LGZ103073	9188859 (V931010) (2)*]	
Find what		
all nodes	containing	~ Q Find
		v
✓ ignore case		
Results (0)		
Node Text		
	Close	

- 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.

F	ind what	ət	
2	all node	s 🗸 containing	
ti	me		▼ Q Find
~	/ ignor	e case	
	Node	Text	
1	Node	Text 10006: Daylight Saving Time Settings	
1			
		10006: Daylight Saving Time Settings	
2		10006: Daylight Saving Time Settings 10141: Time Of Use (TOU)	
2	Folder	10006: Daylight Saving Time Settings 10141: Time Of Use (TOU) 10239: Time Of Use	

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).

) — • • • • • • • • • • • • • • • • • •			
20000: Landis+Gyr E450	Find what		
10000: Device Settings	all nodes containing v	0	
> T10001: Configuration	time	Q Find	
> [] 10140: Network			
> 📰 10056: Terminals	✓ ignore case		
v 📰 10002: Clock	Results (6)		
10003: General Clock Configuration			
10004: Clock Synchronisation	E		
10006: Daylight Saving Time Settings	Node Text		
> 📰 10031: Energy Registers	1 10006: Daylight Saving Time Settings		
> 📰 10059: Demand Registers	2 Folder 10141: Time Of Use (TOU)		
> 📰 10250: Tariffication	3 10239: Time Of Use		
> 📑 10141: Time Of Use (TOU)	4 10240: Billing Period Reset Lockout Time		
> Toll 10142: Billing Data	5 Folder 10464: Time of Use and Tariff Management		
> T10144: Load Profile 1	6 10426: Time of Use and Tariff Management		
> 📰 10143: Load Profile 2			
> T 10080: Multi Utility			
> 🚞 10481: Event Logs	A		
> [] 10322: Fraud Detection and Access Supervision	Close		
> a 10147: Quality Of Supply			

4.5 Communication log

(i)

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:

1. Click on 🤷 in the communication log toolbar.

The ".MAP120 - Communication Tracers" window appears.

COSEM Trace	on	~
DLMS Trace	medium	~
GATEWAY Trace	low	~
LLC Trace	low	~
WRAPPER Trace	medium	~
HDLC Trace	medium	~
IEC Trace	medium	~

- 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, GATEWAY, 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.

📙 🗎 🗙 🛄 🎄 Se	arch 🔺 Communication Log
97731500ms - DLMS	R<- block: 2 last block: True 020412000409060004180205FF0F02120000020412000409060004180;
97731500ms - DLMS	R<- 0C0100010A020412000809060000010000FF0F02120000020412000109060004600A03FF0F0212000002041200
97731500ms - DLMS	set State: OPEN
97731671ms - COSEM	Clear Command List(s)
97731718ms - DLMS	set State: CLOSING
97731718ms - HDLC	Close
97731718ms - HDLC	S-> DISC-Frame SrcAdr=1 DestAdr=1 Poll=True FrameValid=True
97731718ms - HDLC	S-> 7EA00703035380D77E
97731796ms - HDLC	R<- 7EA009030373C058470F7E
97731796ms - HDLC	R<- UA-Frame SrcAdr=1 DestAdr=1 SendFrSize=0 RecFrSize=0 Poll=True FrameValid=True
97731796ms - DLMS	set State: CLOSED
<	>

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



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 searchWith 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 \forall or \blacktriangle 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".

📙 🗎 🗡 🛄 🐡 auth	▲ ▼ Communication	Log
97515250ms - DLMS	set State: OPENING	^
97515250ms - HDLC	Open	
97515250ms - HDLC	wait 200 ms	
97515468ms - HDLC	S-> SNRM-Frame SrcAdr=1 DestAdr=1 SendFrSize=248 RecFrSize=248 Poll=True FrameValid=True	
97515484ms - HDLC	S-> 7EA01E0303934E2B8180120501F80601F8070400000010804000000155B67E	
97515531ms - HDLC	R<- 7EA01E0303934E2B8180120501F80601F8070400000010804000000155B67E	
97515531ms - HDLC	R<- SNRM-Frame SrcAdr=1 DestAdr=1 SendFrSize=248 RecFrSize=248 Poll=True FrameValid=True	
97515531ms - HDLC	EchoHandler on	
97515625ms - HDLC	R<- 7EA020030373F02E81801405020080060200F807040000000108040000000187CB7E	
97515625ms - HDLC	R<- UA-Frame SrcAdr=1 DestAdr=1 SendFrSize=120 RecFrSize=240 Poll=True FrameValid=True	
97515625ms - DLMS	set State: AUTHENTICATION	
<		5

Clicking again on **v** or **a** searches for further occurrences of the term.

4.6 Status bar

Session: busy (dlms - COM5 - 9600 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: loaded	J 0 合 0	1
communication settings, loaded		

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)

5 Device description functions

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.

Device Series	Туре	Firmware
O E35C	O ZCXi100Q	V94.00.00
O E360	TMXi300Q	V93.12.12
E450 S4		V93.11.15
O E450 S3/S2		V93.11.11
O E450 S1		V93.10.10
		V93.06.03
O E460		V93.05.02
O E570		V93.04.01
O L540		V93.03.01
O E660		V93.00.00

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.

🕽 📜 🛃 🤪 🥹 🧐 🗢 😁 🖤 Client: [0] Public Acce	ss, no authentication 🔹 🏶 🐵 Phone:	- 0 D
evice: Default Device -; 10005	🔹 🏟 Channel: CommunicationChannel	• 🕸
 20000: Landis+Gyr E450 20000: Device Settings 10000: Device Settings 10000: Configuration 10140: Network 10056: Terminals 10056: Terminals 10002: Clock 10031: Energy Registers 10059: Demand Registers 10059: Demand Registers 10059: Demand Registers 10059: Dimand Registers 10159: Demand Registers <l< th=""><th> 10000: Device Settings 20001: Logistics 20002: MAP </th><th></th></l<>	 10000: Device Settings 20001: Logistics 20002: MAP 	
Device Description ID: Firmware Version: V931212 Para	meterisation ID: Type Designation: ZMXi310CQU0L0D3.21 S4	
ommunication Settings: loaded		

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).

→ ~ ↑ 🦲 « V4.1 » Zero Series »	Device configuration	> E35C module > Standard 0 series config >	♥ Ů	earch Standard 0 series c	onfig P
Irganize 👻 New folder				III •	
o Documents	* ^	Name	Date modified	Туре	Size
Desktop	1	O ALT	29.10.2018 18:26	File folder	
5 E450 Steiermark	1	Series V4.1_CU11G150(V54).xml	28.08.2015 12:50	XML Document	2
0 DC250		Series V4.1_FU11G15B(V54).xml	28.08.2015 12:51	XML Document	2
6 E360 LTE	1	Oseries V4.1_FU11G150(V54).xml	28.08.2015 12:51	XML Document	2
Documentation	1	Oseries V4.1_GG11G15B(V54).xml	28.08.2015 12:51	XML Document	2
Flex Module		Oseries V4.1_GU11G15B(V54).xml	28.08.2015 12:52	XML Document	2
6 E35C 2G&3G V4.x	1	Series V4.1_GU11G150(V54).xml	28.08.2015 12:52	XML Document	2
LTE NB1 & M1 Trials 2018	1	EKZ_E35C_config_26082015 (V540100).xml TimeOfUse.xml	18.09.2015 08:51 20.09.2017 14:09	XML Document XML Document	2
E450 Vader	*	a limeoroseami	20109-2017 14:09	AML Document	
Quality issue 2019					
Tenders	*				
Temp	1				
- Downloads					
Pictures	* ~	¢			
File name:				Device Description files (turnell ave
File Dames			~ [Device Description files (,xmij ~

- 2. Select your personal data folder in the displayed tree structure if it is not already displayed.
- 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:

- 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.

- 🕂 🕆 📙 « V4.1 » Zero Series » Device configuration » I	E35C mod	ule > Standard 0 series config > 🛛 🗸 🖑	Search Standard 0	series config 🔎
Organize 👻 New folder				iii • 🔞
 Back up settings Desktop Documents Microsoft Teams Chat Files This PC 3D Objects Desktop Documents Documents Music Pictures Videos 	^	Name ALT Socies V4.1_CU11G150(V54).xml Socies V4.1_FU11G158(V54).xml Socies V4.1_FU11G158(V54).xml Socies V4.1_GG11G158(V54).xml Socies V4.1_GG11G158(V54).xml Socies V4.1_GU11G150(V54).xml EKZ_E35C_config_26082015 (V540100).xml TimeOfUse.xml	Date modified 29.10.2018 18:26 28.08.2015 12:50 28.08.2015 12:51 28.08.2015 12:51 28.08.2015 12:51 28.08.2015 12:52 28.08.2015 12:52 18.09.2015 08:51 20.09.2017 14:09	Type File folder XML Docume XML Docume XML Docume XML Docume XML Docume XML Docume
Windows (C:)	÷	<		
File game: Device Description (V541111).xml				1
Save as type: Device Description files (*.xml)				

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).

	Numerican starts for the second start of the s	
Paper		
Size:	A4 (210 x 297 mm)	~
Source:	Auto	~
Orientation	Margins (millimeters)	
Portrait	Left: 10.16 Righ	t: 10.16
OLandscape	Top: 15.24 Botto	om: 15.24

- 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:

1. Select **Compare page setup** from the **View** 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).

Paper	1 - Constraints of the second
Size:	A4 (210 x 297 mm)
Source:	Auto
Source.	
Orientation	Margins (millimeters)
	Margins (millimeters) Left: 10.16 <u>Bight:</u> 10.16

- 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	and the second se
CHZUGPrint on CHZUGVS45	Microsoft XPS Document
Microsoft Print to PDF	Send To OneNote 2016
٢	>
Status: Paused	Preferences
Location: Zug, Switzerland Comment:	Find Printer
Page Range	Number of copies: 1
O Selection O Current Page	
Enter either a single page number or a single page range. For example, 5-12	123 123

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.
- 2. Click on in the application toolbar or select **Print preview** from the **File** menu.

The "Print Preview" window appears.

🗅 🔍 🤍 🗒 🖻		
AMP301525	Desite Descriptive (16)	aay
20030: Landis*Cyt 6450 19030: Device Settinge 19031: Configuration VIST: Configuration		
Tan Assignments Formare tradition Metanol Tana Manania	So 2010 Dim. Sector (5 y Tr. 1000 A 2014 B Social Annual Annual (2014 B Name Name Tr. 1001 Annual Tr. 1001 Annual Tr. 1001 Annual Tr. 1001 Annual Tr. 1001 Annual Tr. 1001 Annual	antiantine energy that gandrami(n) ALIZOAC(& 1 manimum (seep (SALIZOAC)
Conduct Preve Supply Configuration Co 10140: Network	WEED SUBJECTIVE	a mele sproig to rules
North Network (No. 1984-1985) Northol Utility Northol Connet Stat Donet Manune Count and Power Fatto Zanadas Methol Againet Causality Methol Phene Seguero Devolte antibilit Phene Seguero Devolte antibilit	200 5 300 00 interes crivitemente 01 (Interese (j. 1.3.2)	V A A
10:00 LED Pains Copys (10:1082-20) Name Note Pains Constant False Constant False 2 (in the pains with a sensity (22) On f monte detected Pains CA. There Notes Pains CA. There Notes Pains CA. The Notes Pains CA. The Pains Pains False Constant False Constant Fals	1000 3 1 8 10000 2	ingkithingkean na ngkithingkean ngkithingkean
Result Sine to resman mode. 199550: Terminicale 199557: Digitel Viguel (I-Sh1986.3.2) Vigue Viguel Sizeritorially	32. Cl) pulse sturter	-
(10):10 Couput 1 (1-143.35) Couput 7 (1-143.35) Couput 7 (1-145.16) Couput 7 (1-145.16) Couput 1 (1-145	nist com visy CLass come	
1000: Output 2 (-5.3 M-3.10) Delpat Type Delpat Type Delpat Rockmailty Reve Consus Settings Datast Messel Mer	num-saidbing winy (2) fees downed	

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:



Display original size (100 %)



Display page width



Display whole page

Display two pages


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:

Type text to find	1	Type text to	find	4 .	,
-------------------	---	--------------	------	-----	---

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 figure 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.

5.1.9 Switching the status bar on and off

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.



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.





LGZ1030739188859 (V931010)*	2	
20000: Landiss Gyr E450 10000: Device Settings 10001: Configuration 10140: Network 10056: Terminals 10002: Clock 100031: Energy Registers 10059: Demand Registers 10250: Tariffication 10141: Time Of Use (TOU) 10142: Billing Data	 10000: Device Settings 20001: Logistics 20002: MAP 	
> 10144: Load Profile 1 > 10143: Load Profile 2	~	

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 another 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 **View** 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).

→ ~ 个 🧧 « V4.1 » Zero Series »	Device configuration	> E35C module > Standard 0 series config >	~ Ö -	Search Standard 0 series c	onfig 🔎
Irganize 🔻 New folder				III •	
o Documents	* ^	Name	Date modified	Туре	Size
Desktop	1	ALT	29.10.2018 18:26	File folder	
E450 Steiermark	1	Device Description (E360A01).xml	21.11.2019 10:46	XML Document	4
0 DC250	1	Device Description (E360B01).xml	26.11.2019 08:39	XML Document	4'
6 E360 LTE	1	Device Description (V541111).xml	21.11.2019 10:45	XML Document	2'
Documentation	1	Device Description (V931010).xml	21.11.2019 10:56	XML Document	2
Flex Module		TimeOfUse.xml	20.09.2017 14:09	XML Document	
6 E35C 2G&3G V4.x	*				
LTE NB1 & M1 Trials 2018	*				
E450 Vader	#				
Quality issue 2019	1				
Tenders					
o Temp	*				
Downloads	1				
F Pictures	* •	¢			
File name:			~	Device Description files (xml) ×

- 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.

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").

			_	_		
MAP120 4.5.25 - Company	LO210070018885	i (vsototoj*		0	AnAm Description (VI231010), set	
Index Logical Neme; Hegister Attribute Index		Diapley ID		upical Neme Minbute Indet		Display ID
1 1-00.9-2:2 Local date				-0.0.9.2.2	Loof dele	
2 1-010.9.1;2 Lincal little			2 1	42.0.9.1.2	Loos ime	
10162: Identification Numbers						
10124 Device ID 1 (Menufacturer Serial Number) (0-0:9	4L1.0)					
Device ID 1 (Mesufacturer Senal Number)	30186850			3	301889990	
10127: Device IO 2 (UBBy Seriel Number 2) (5-0.98.1.1)						
Device ID 2 (URI); Senal Number 2)	20185860			3	291888599	
10128; Device ID 3 (UBBy Seriel Number 3) (D-0.98.1.2)						
Owkise ID 3 (USBI); Seriel Number 3)	12342678					
10122: Device ID 4 (UBII) Seriel Number 4) (S-0.98.1.3)						
Device ID 4 (UBIty Seriel Number 4)						
10130. Device ID 5 (UBBy Seniel Number 5) (0-0.98.1.4)						
Denice ID 5 (URIN Senal Number 5)						
10273: Device ID 6 (IDIS Certificate Number) (0-0.95.1.5						
Device ID 8 (IDIS Certificate Number)	Deutow 1D ft				Device ID ft	
10131: Parameterialization (0 (1-0.0.2.1)						
Penersdation (2)	LOWTHER				JGW1040x	
10106: Communication Interfaces						
10177: Service Communication						
10108. Opical Interface (0-0/22.0.0)						
Instantiasiun Speel HOLC Instantii Oufer Size	20000 1291				200 128	19m
DUMS Hargonian Delay	0					174
10178; Local Communication						
10107, Wired M-Bus Interface (5-0.24.8.0)						
M-Box Instantiation Speed	2400			3	2400	ten.
10334: Consumer Information Interface						
10335 Optical Interface (5-1 22.0.0)						
Transmission Speed	3600				MCID	14+
HOLC Inevent Buffer Size	728			1	128	Sylee
10338. Wired M-Bus Interface (0-2:22.0.0)						
Transmission Speed HOLC Transmit Buffer Size	2400				2400	ten Tolen
The second secon	1420			1	45	Dybes
2019-11-26 05:58:23			dia+Gar			38

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. Synchronisation Lock	11) 0 min 🔻
Maximum Time Shift without Re of a Clock Adjusted Event	egistration 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 behind 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:

Time Base	(1) internal crystal 🔻	
Deviation of Local Time to UTC	-60	min 🕕
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	1s

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)	<u> ?</u>
Synchronisation Lock	Enter an integer number between 2 and 255!
Maximum Time Shift without Registr of a Clock Adjusted Event	ation 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	
	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	
	(4) rate control input	

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.

Reset Date and Time		
O undefined	Day	
monthly	1 ~	
🔿 weekly	Hour	Minute
) daily	00 ~	00 ~
daylight saving 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.

Standard Event Log Trigger Sources (0-0:96.11.0)

enabled	Event	Event Name
~	1	Power down
~	2	Power up
~	3	Daylight saving time enabled or disabled
-	4	Clock adjusted (old date/time)
~	5	Clock adjusted (new date/time)
~	6	Clock invalid
~	9	TOU activated
~	10	Error register cleared
~	11	Alarm register cleared
~	12	Program memory error
-	13	RAM error
~	14	NV memory error
-	15	Watchdog occurred
~	16	Measurement system error

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 De	emand Register	1 (1-0:1.6.0)
Monitored Value	Current averag	ge demand +A (QI+QIV) ~
Rate Number	0 ~	rate controlled

With deactivated checkbox the parameters are not visible.

Maximum Demand Register	1 (0-0:127.0.101)	
-------------------------	-------------------	--

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.

mpact Read							
able Capturing	\checkmark						
Access Time	Window						
Captured Object	List						
Choice:			C	aptu	red Object List:		
+				*	*	*	•
Logical Name; Attribute Index	Register	Group			Logical Name; Attribute Index	Register	
1-0:82.8.0; 2	Pulse counter	Energy Total	1	9	0-0:1.0.0; 2	Clock	
1-0:16.8.0; 2	Active energy A (QI+QIV-QII-QIII)	Energy Total	2		1-0:1.8.1; 2	Active energy import +A (QI+QIV) rate 1	
1-0:15.8.0; 2	Active energy A (QI+QII+QIII+QIV)	Energy Total	3		1-0:1.8.2; 2	Active energy import +A (QI+QIV) rate 2	
1-0:2.8.0; 2	Active energy export -A (QII+QIII)	Energy Total	4	H	1-0:2.8.1; 2	Active energy export -A (QII+QIII) rate 1	
1-0:22.8.0; 2	Active energy export -A (QII+QIII) L1	Energy Total	5		1-0:2.8.2; 2	Active energy export -A (QII+QIII) rate 2	
1-0:42.8.0; 2	Active energy export -A (QII+QIII) L2	Energy Total					
1-0:62.8.0; 2	Active energy export -A (QII+QIII) L3	Energy Total					
1-0:1.8.0; 2	Active energy import +A (QI+QIV)	Energy Total					
1-0:21.8.0; 2	Active energy import +A (QI+QIV) L1	Energy Total					
1-0:41.8.0; 2	Active energy import +A (QI+QIV) L2	Energy Total					
1-0:61.8.0; 2	Active energy import +A (QI+QIV) L3	Energy Total					
1-0:4.8.0; 2	Reactive energy export -R (QIII+QIV)	Energy Total					
1-0:3.8.0; 2	Reactive energy import +R (QI+QII)	Energy Total					
1-0:5.8.0; 2	Reactive energy +Ri (QI)	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 or moves the selected entry of the captured object list one position up or down.

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.

ctiv	e TOU	assive	тоц	Sne	cial D	ave	Em	erner	nev Se	ettings	
		_	100	- ope		0,5	-	erge	icy or		
DU I	DACTIVE										
Sea	son Table										
	- 1	X	1	/							0
	Season	Name	Mo	nth	Day	Wee	ek Na	ame			
1	1		Ja	nuary	1		1				
2	2		A	pril	1		2				
3	3		Nov	ember	1		3				
We	ek Table										
	-	K	1	/			C				0
	Week N	ame	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
1	1		1	1	1	1	1	1	1		
2	2		1	3	3	3	3	3	3		
3	3		1	1	1	1	1	2	2		
	y Tables	3	ĸ	Day ID	2			Da	y ID	3	1
	4	X		à	R						 0
	Start Ti	me A	tion					_			 -
-	00:00	e	xecut	e rate :	script	1 ~					
1											

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 Solar and a red frame around the invalid area in the detail view. Additionally, an error icon solar played in the tree item with the invalid parameter and in all hierarchical higher folders.



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.

 $(\mathbf{\hat{I}})$

Possibility of consecutive errors

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

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.

Choice:		Reg	ister List:		Regist	er Acti	vation:		Passiv	e Register Activ	vation
*			- *	* 0	+	X				X 🔉	
Logical Name	Register		Logical Name	Register	always active	RATE1	RATES	RATE4	always active		
0-0:C.8.7	Operating time rate 7	1	1-0:1.8.1	Active energy import +A (QI+QIV) rate 1		v					
0-0:C.8.8	Operating time rate 8	2	1-0:1.8.2	Active energy import +A (QI+QIV) rate 2							
0-0:C.8.9	Operating time rate 9	3	1-0:1.8.3	Active energy import +A (QI+QIV) rate 3			-				
		4	1-0:1.8.4	Active energy import +A (QI+QIV) rate 4							
		5	0-0:127.0.5	Inactive object		☑ [
		6	1 m. 0.127 0.6	Inactive object							
		7	Inactive object	Inactive object			-				
		8	1. 0-0:127.0.8	Inactive object							
		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			-				
		11	1-0:3.8.3	Reactive energy import +R (QI+QII) rate 3			-				
		12	1-0:3.8.4	Reactive energy import +R (QI+QII) rate 4							

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	\$
Action Up	local disconnect ~	
Minimum Under Threshold Duration	180	5
Action Down	local connect ~	

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

Supervision Settings 🦺	
ic a	the threshold is set to 0 no actions will be triggered because the threshold ecceeded all the time and it's impossible to go below it.
Minimum Over Threshold Du	local disconnect v
Minimum Under Threshold Durat	on 180 s
Action Down	local connect v

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			×
Step 1: Selection of p	arameter group			
Device Information				
	Tree	Device		
Model ID	V931010	V931010		
Configuration	M1AD3313QDO13ns	M1AD3313QDO13ns		
Parameterisation ID	LGW1040s	LGW1040s		
Logical Device Name	•	LGZ1030739188859		
Parameter Group				
• <u>All parameters ex</u>	cept security system			
O IOU only				
O Security system of	only (access rights, secu	rity definitions, passwords)		
			<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 parameterisation 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)

Device IDs			
	Tree	Device	
Device ID 2	39188859	39188859	
Device ID 3	12345678		
Device ID 4			
Device ID 5			
Device ID 6	Device-ID-6	Device-ID-6	
Device Clock			
Do not change clock	03.09.2018 - 14:5	59:19 DST on Clock valid	
O Set clock to PC time			
O Set clock to <u>P</u> C time pl	us offset 0 🖂 h		

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.

narameterisation Wizard			×
Step 1: Selection of parameter group Step 2: Selection of ID numbers and o Step 3: Performing parameterisation Step 4: Actions after parameterisation	lock handling		
Checking security	1		
Reading data from device	 Image: A second s		
Comparing tree and device data	 Image: A second s		
Writing parameterisation to device	1		
Activating parameters	1		
		<u>N</u> ext >	Cancel

7. Click on **Next >**.

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

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	Reset Logs All event logs Event logs M-Bus event logs Reset Profiles All profiles Meter profiles Meter profiles M-Bus profiles Reset All Complete reset	
---	---	--

8. 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.



10. 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	a n			
TOU				1
Complete TOU	Tree	Device		
Active TOU	02 <u>0</u> 0_00	02 <u>0</u> 0_00		
Passive TOU	QUART1			
Activation date	01.01.2020	undefined		
✓ Special days table				
Emergency settings				
			Next >	Cancel

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 settings which shall apply to all levels:
 - Access Level Definitions (Access and Message Security Settings)
 - Access Rights
 - Changeability of Access Rights
- 5. In the "Password (Secret) and Settings per Level" area select one tab after the other and where required activate the checkboxes "Access and Message Security Settings" and "Access Rights" if not already set for all levels. Please note that the number of displayed level tabs is dependent from the connected device.
- 6. Activate the checkbox "Password (secret)" if the password of the corresponding level shall to be modified and enter the desired values in the "Enter New

Password (Secret)" window, which appears after clicking on the Edit icon *lease* in front of the corresponding password entry box.

Please note 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	×
Step 1: Selection of parameter group Step 2: Selection of security system data Step 3: Performing parameterisation Step 4: Actions after parameterisation	
All Levels	
 Access Level Definitions (Access and Message Security Settings) Access Rights Changeability of Access Rights 	
Password (Secret) and Settings per Level	
Level 0 Level 1 Level 2 Level 3 Level 9 Level G Level L	
 ✓ Access and Message Security Settings ☐ Access Rights ✓ Password (secret) ✓ (1) low level authentication using a static password 	
Next > Ca	ncel
<u>Mext</u> Za	ncei

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

7. 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").

6 Communication with devices

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.

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.

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.

Connections ,	Address Book																		
Devices +	×	1	8	0	Co	mmunication C	hann	els 🕂		X		1		8	2		0		
Device Name	Device Series			 	(Channel Name		Inter	ace										
AD-FE11G150	E35C - AD-xE				C	efault Channel		COM	1										
Default Device	undefined				N	Aodem		Cone	ant	USB CX	9301	10 ACE	Mo	odem	1				
D-L1	E360 - D/F/M-	L1			T	CP-IP		Realte	k PC	le GBE	Fam	ily Cor	ntro	ller -	192.16	8.1.20			
ZMD402CT	E650/S650 - Z	xD300/400			h	JSB - Optical He	ad -	9600 COM	5										
	F100 7 30100	10000															-		
ZMX310P	E450 - ZxX100	/300P																	
ZMX310P ZMXi300Q	E450 - 2xX100																		
	E450 - ZxX100																		
ZMXi300Q	E450 - ZxX100	/300Q	fress	IEC Address		HDLC Address		Network ID		Netw	ork A	Addres	5						
ZMXi300Q	E450 - ZxX100	/300Q	Iress	IEC Address undefined		HDLC Address		Network ID		Netw			5						
ZMXi300Q	E450 - ZxX100	/300Q	fress								fined		5						
ZMXi300Q inks X Communici Default Chr	E450 - ZxX100	7300Q B Remote Add		undefined		undefined		undefined		undet	fined		5						

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.

Devices X P Communication Channels X P Device Name Device Series Interface Interface AD-FE11G150 E35C - AD-xE Default Device Interface Interface Default Device undefined Interface Default Channels Interface DL1 E360 - D/F/M-L1 Interface Interface Interface ZMX010P E450 - ZxX100/300P Its Copyright Part Part Part Part Part Part Part Par								Address Book	Connections A
Device Name Device Series Channel Name Interface AD-FE11G150 ESC - AD-xE Default Channel COM1 Image: Company Device Series Default Device undefined Comexant USS CV93010 ACF Modern Image: Comexant USS CV93010 ACF Modern D-L1 E360 - D/F/M-L1 Comexant USS CV93010 ACF Modern Image: Comexant USS CV93010 ACF Modern ZMD402CT E500/S650 - ZxD300/400 USB - Optical Head - 9600 COM5 ZMX310P E450 - ZxX100/S00P Image: Comexant USB - CV93010 ACF Modern Image: Comexant USB - CV93010 ACF Modern		1 8	+ ×	on Channels	Communicati	o	1 8	X	evices +
Default Device undefined Modem Conexant USE CX93010 ACF Modem D-L1 E360 - D/F/M-L1 TCP-IP Realtek PCIe GBE Family Controller - 192.168.1.20 USB - Optical Head - 9600 COM5 ZMX310P E450 - 2xX100/300P Control Head - 9600 COM5 Combined - 100 - 1			Interface	me	Channel Nat			Device Series	Device Name
D-L1 E360 - 0/F/M-L1 TCP-IP Reattek PCIe GBE Family Controller - 192.168.1.20 ZMD402CT E550/S550 - 2xD300/400 USB - Optical Head - 9600 COM5 ZMX310P E450 - 2xX100/300P COM5 COM5				viel.	Default Char			E35C - AD-xE	AD-FE11G150
ZMD402CT E650/S650 - ZxD300/400 USB - Optical Head - 9600 COM5 ZMX310P E450 - ZxX100/300P		(93010 ACF Modem	Conexant US8 C		Modem			undefined	Default Device
ZMX310P E450 - ZxX100/300P		E Family Controller - 192.168.1.20	Realtek PCIe GE		TCP-IP		L1	E360 - D/F/M-L	D-L1
			COM5	al Head - 9600	USB - Optica		xD300/400	E650/S650 - Zx0	ZMD402CT
ZMXG300Q E450 - ZxX100/300Q							/300P	E450 - ZxX100/3	ZMX310P
							0/300Q	E450 - ZxX100/	ZMX6300Q
inks X									
		Network Address		HDLC Address	IEC Address		Remote Addre	ation Channel	Communica
* USB - Optical Head - 9600		undefined	undefined	undefined	undefined 🗌	n West		ation Channel	Communica TCP-IP

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.

Connections	Address Book												
Devices +	XI	P		Communication (Chann	nels 🕂		X	1		e		
Device Name	Device Series			Channel Name		Inte	erfac	e					
AD-FE11G150	E35C - AD-xE			Default Channel	el.	CON	41						
Default Device	undefined			Modem		Con	exar	nt USB CX9	3010 AC	FMo	dem		
	E360 - D/F/M-L1			TCP-IP		Real	ltek	PCIe GBE	Family (Contr	oller - 192.168.1.20	8	
ZMD402CT	E650/S650 - ZxD300/400			USB - Optical H	lead -	9600 CON	45						
	E450 - ZxX100/300P												
ZMXi300Q	E450 - ZxX100/300Q												
			IEC Address	HDLC Address		Network ID		Network	Address				
nks X Device	E450 - ZxX100/300Q Remote Address		IEC Address undefined	HDLC Address		Network ID		Network J					
inks X	E450 - ZxX100/300Q Remote Address 50 Ethernet Module								d				

6.2.1 Recommended input sequence

Landis+Gyr recommends defining the required data in the following sequence:

- 1. Communication channels (see section 6.2.2 "Communication channel data")
- 2. Devices including the corresponding access data (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"

6.2.2 Communication channel data

After the installation of the .MAP120 Parameter Editor only a default device named "Default 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"):

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

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

Connections Address Book Devices Communication Channels Communication Channels Channel Name Interface Default Device undefined Default Channel COM1	Devices + Communication Channels + X P Device Name Device Series Default Device undefined Default Channel COM1		n Settings						~
Device Name Device Series Default Device undefined Channel Name Interface Default Channel COM1	Device Name Device Series Channel Name Interface Default Device undefined Channel Name Interface Default Channel COM1	Connections Add	iress Book						
Default Device undefined Default Channel COM1	Default Device undefined Default Channel COM1	Devices 🕂	×	02	Communication Chan	nels 🕂	× /	8	
	inks	Device Name	evice Series		Channel Name In	nterface			
		Default Device u	ndefined		Default Channel C	DM1			
inks X									
Device Remote Address IEC Address HDLC Address Network ID Network Address	Device Remote Address IEC Address HDLC Address Network ID Network Address	inks X	1						
Default Device undefined undefined undefined undefined	Default Device undefined undefined undefined undefined		Remote Address	IEC Address	s HDLC Address	Network ID	Network Addr	ess	

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	Channel			
Name Commun	icationChannel			
Interface				
Interface Type		Seria	l (optical head or 3	3-wire) v
Physical Interfa	ce	COM	1	v
Template for Lo	ower Layer Settings	selec	t template	~ Apply
Physical Layer	dlms Link Layer	dims Application Layer	IEC	
Serial Interfac		300	v	bps
Port Settings		8 Bit	(8 data bits / no p	arity) ~
Idle time aff	ter 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

 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	n Channel				
Name USB - Op	ptical Head - 9600				
Interface					
Interface Type			Serial (optical	head or 3-wire)	v
Physical Interfa	ace		COM5		~
Template for L	ower Layer Settings		select template	e	~ Apply
Physical Layer	dlms Link Layer	dlms Application	Layer IEC		
Serial Interfac	ce				
Transmission	Speed		9600	~ bps	
Port Settings			8 Bit (8 data bi	its / no parity)	÷
Idle time af	ter 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 ms). Then enter the required value in the "Idle time after connection" entry box.

If interface type "Network" is selected:

	Channel					3
ame TCP-IP						
Interface						
Interface Type			Network	¢		ų
Physical Interfac	e		Realtek	PCIe GBE Family	/ Controller - 192	168.1. ~
Template for Lov	wer Layer Settings		select te	mplate	~	Apply
Physical Layer	dlms Link Layer	dlms Applicatio	on Layer	EC		
Network Interf	ace					
Protocol			TCP	v		
Source Port			0			
Idle time afte	er connection		0		ms	

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

If interface type "Modem" is selected:

ame Modem						
Interface						
Interface Type			Modem			v
Physical Interfa	ce		Conexant US	68 CX93010 A	CF Modem	v
Template for Lo	ower Layer Settings		select templ	ate	v	Apply
Physical Layer	dlms Link Layer	dlms Application	Layer IEC			
] Idle time aft	ter connection		0		ms	

 Tick the "Idle time after connection" checkbox if you want to modify the default initial delay (IEC standard value = 0 ms), 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

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

Communication Channel		1
Name USB - Optical Head - 9600		
Interface		
Interface Type	Serial (optical head or	'3-wire) "
Physical Interface	COM5	ÿ
Template for Lower Layer Settings	select template	~ Apply
Physical Layer dlms Link Layer	Ilms Application Layer IEC	
dlms Link Layer Protocol	HDLC via IEC mode E	÷
IEC Mode E		
Transmission Speed Switching	9600	bps
✓ Intercharacter Timeout	3000	ms
Maximum Number of Retries	3	
HDLC		
Maximum HDLC Buffer Size	248	bytes
Message Timeout	3000	ms

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
 3). 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

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

Interface Interface Type Serial (optical head or 3-wire) Physical Interface COM5 Template for Lower Layer Settings select template Physical Layer dIms Link Layer Physical Layer dIms Link Layer Referencing Method Short Name (SN) referencing The command set supported by logical name referencing is very limited. Please use short name referencing unless otherwise instructed. Maximum Number of Elements in Lists 45 🗲 Single Request Firmware Releases B08;809;B10;B11;C06;C07;C08;C09;D41;D42;D43;VC Maximum dlms Buffer Size 0 bytes Block transfer with set, write and action services supported 30 s V Keep alive Interval 30 s	~] Apply
Physical Interface COM5 Template for Lower Layer Settings select template Physical Layer dlms Link Layer Physical Layer dlms Link Layer Physical Layer dlms Application Layer IEC Referencing Method The command set supported by logical name referencing is very limited. Please use short name referencing unless otherwise instructed. Maximum Number of Elements in Lists Maximum dlms Buffer Size Maximum dlms Buffer Size Block transfer with set, write and action services supported Keep alive Interval	~] Apply
Template for Lower Layer Settings select template Apply Physical Layer dlms Link Layer dlms Application Layer IEC Referencing Method Short Name (SN) referencing The command set supported by logical name referencing is very limited. Please use short name referencing unless otherwise instructed. Image: Command set supported by logical name referencing is very limited. Please use short name referencing unless otherwise instructed. Image: Command set supported by logical name referencing is very limited. Please use short name referencing unless otherwise instructed. 45 Image: Command set supported set set supported set set supported set supported set set supported set	Cobby
Physical Layer dlms Link Layer dlms Application Layer IEC Referencing Method Short Name (SN) referencing The command set supported by logical name referencing is very limited. Please use short name referencing unless otherwise instructed. Image: Common set supported by logical name referencing is very limited. Please use short name referencing Image: Common set supported by logical name referencing is very limited. Please use short name referencing Image: Common set supported Image: Common set supported by logical name referencing is very limited. Please use short name referencing Image: Common set	Cobby
Referencing Method Short Name (SN) referencing The command set supported by logical name referencing is very limited. Please use short name referencing unless otherwise instructed. Maximum Number of Elements in Lists Maximum Number of Elements in Lists Single Request Firmware Releases B08;809;810;811;C06;C07;C08;C09;D41;D42;D43;V0 Maximum dlms Buffer Size Block transfer with set, write and action services supported Keep alive Interval 30	I) referencina
The command set supported by logical name referencing is very limited. Please use short name referencing unless otherwise instructed. Maximum Number of Elements in Lists Maximum Number of Elements in Lists Single Request Firmware Releases B08;809;810;811;C06;C07;C08;C09;D41;D42;D43;V0 Maximum dlms Buffer Size Block transfer with set, write and action services supported Keep alive Interval	l) referencing
unless otherwise instructed. Maximum Number of Elements in Lists Single Request Firmware Releases B08;809;B10;B11;C06;C07;C08;C09;D41;D42;D43;V0 Maximum dlms Buffer Size Block transfer with set, write and action services supported Keep alive Interval 30	,
Single Request Firmware Releases B08;B09;B10;B11;C06;C07;C08;C09;D41;D42;D43;V0 Maximum dlms Buffer Size 0 Block transfer with set, write and action services supported Keep alive Interval 30	
Maximum dlms Buffer Size 0 bytes Block transfer with set, write and action services supported Keep alive Interval 30 s	
Block transfer with set, write and action services supported Keep alive Interval 30	;C06;C07;C08;C09;D41;D42;D43;V
Keep alive Interval 30 s	bytes
✓ Use release service to close Association Application	s

- 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 Lists" checkbox to activate the use of lists for read and write operations. Enter the maximum number of elements in lists. 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 time-out value (default = 30 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	Channel				×									
Name USB - Op	tical Head - 9600													
Interface														
Interface Type Physical Interface Template for Lower Layer Settings			Serial (optical head or 3-wire) ~ COM5 ~ select template ~											
									Physical Layer	dlms Link Layer	dlms Application	Layer	ic	
									✓ Transmissio	Transmission Speed Switching				bps
✓ Intercharact	✓ Intercharacter Timeout				ms									
Maximum Num	ber of Retries			3 🗘										
Password for RS	5/W5 Commands				(static)									
Maximum R1/W1 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.
- 4. Select the number of retries (default value = 3) in the "Maximum Number of Retries" entry box. 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.

- commu	ication Settings								
Connections	Address Book								
Devices -	+ ×	1	8	Communication Channels	+	X	1	8	
Device Nam	e Device Serie	is		Channel Name	Interfac	e			
Default Dev	ice undefined			Default Channel	COM1				

- 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 "Default 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.

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"):

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

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

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

	tion Settings																
Connections A	Address Book																
evices 🕂	×	1	8		c	Commu	nicatio	on Channe	els	+	2	<	1	1		p	
Device Name	Device Series			_		Chann	el Nan	me		Interfa	ace					_	
Default Device	undefined					Defaul	t Cha	innel		COMI							
nks X	1																
1163	ution Channel	Remote Ad	idress			Address		HDLC Ade	CONTRACT.	100	twork	3.7.4	Netwi		0000	ess	

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.

Jevice			
lame Device			
Type Address Clients			
Device Type			
Device Series	undefined	1	
Manufacturer Serial Number			
Logical Device	Base Meter / Module ~	1	
The logical device may be over	rridden by a command in :	ome cases.	

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

6.2.3.1 Type

1. Select the "Type" tab.

	2		
Name	ZMXi300Q		
Туре	Address Clients		
Dev	vice Type		
Dev	ice Series	undefined ~	
Mar	nufacturer Serial Number		
Log	ical Device	Base Meter / Module ~ 1	
The	logical device may be over	ridden by a command in some cases.	

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 this selection is only possible if the device series is set to "undefined". Otherwise it is fix set to "Base Meter / Module" (=1) or "Communication Unit" (=17), depending on the selected device series. Also 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 ZMXi300Q		
Type Address Clie	ents	
Physical Device Ad	ldress	
✓ IEC Address	39188859	
HDLC Address	9859	
The use of an IEC a	nd/or HDLC address defined here is controlled by the link settings.	
	ОК	Cancel

6.2.3.3 Access levels

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

1. Select the "Clients" tab to define the device-specific access levels.

Device	ė							
ame	ZMXi300	Q						
Гуре	Address	Clients						
Dev	vice Specif	ic Access Leve	ls					
[3]	Utility Ser	cess, no auther vice, no authe	ntication					
[F]	Manufacto	urer Access, st	atic passy	word				
	Settings		h	mport all Crede	ntials (Offline)	Import all C	redentials (O	nline)
							ОК	Cance

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" or with fix set password as "[F] Manufacturer Access" can be used. They are shown in the list of device specific access levels by default. For all other required access levels the credentials have to be entered as described below or imported (see section 6.2.3.4 "Importing keys").

2. Click on Settings.

The "Access Levels" window appears for the specified device.

The device name is displayed in the top left corner.

The window 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.

4	MXi300Q	V				
	Access Level	Client AP	Authentication	Additional Requisites	Message Security Policy	Supported Protocol
	[0] Public Access	16	no authentication		no ciphering	IEC and dlms
ł.	[1] Data Collection	32	low level authentication using a static password		no ciphering	IEC and dlms
ł.	[1] Data Collection	32	high level authentication using SHA-256		no ciphering	dims only
1	[2] Utility Field Service	48	low level authentication using a static password		no ciphering	IEC and dlms
1	[2] Utility Field Service	48	high level authentication using SHA-1		no ciphering	dims only
i.	[2] Utility Field Service	48	high level authentication using GMAC		no ciphering	dims only
1	[2] Utility Field Service	48	high level authentication using SHA-256		no ciphering	dims only
	[3] Utility Service	64	no authentication	service menu required	no ciphering	IEC and dlms
ł.	[G] Management Access	1	low level authentication using a static password		no ciphering	dims only
ł.	[G] Management Access	1	high level authentication using SHA-1		no ciphering	dims only
i.	[G] Management Access	1	high level authentication using GMAC		no ciphering	dims only
1	[G] Management Access	1	high level authentication using SHA-256		no ciphering	dims only
1	[] Security Auditor	5	high level authentication using GMAC		no ciphering	dims only
1	[] Calibration Lab	6	high level authentication using GMAC		no ciphering	dlms only
1	[] Communication Module	7	high level authentication using GMAC		no ciphering	dims only
I.	[] Local Operator	9	high level authentication using GMAC		no ciphering	dims only
ŧ.	[L] Access Administrator	2	low level authentication using a static password		no ciphering	dlms only
1	[L] Access Administrator	2	high level authentication using SHA-1		no ciphering	dims only
1	[L] Access Administrator	2	high level authentication using GMAC		no ciphering	dims only
1	[L] Access Administrator	2	high level authentication using SHA-256		no ciphering	dims only
	[F] Manufacturer Access	104	low level authentication using a static password	hardware switch required	no ciphering	dlms only
	[X] User Defined 1	0	no authentication		no ciphering	IEC and dlms

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

ccess Level Definition - ZMXi300	Q	
[2] Utility Field Service		
Client Application Process ID	48	User ID 0
Access Security		
Authentication	low level authenticat	tion using a static password 🔗
Additional requisites		
Message Security		
Authenticated	Encrypted	Signed
Credentials		
Password (secret)		
Global Authentication Key (GAI	K)	
Global Unicast Encryption Key	(GUEK)	×
	Import Credentials (Offline)	Import Credentials (Online)
Supported protocols	IEC and dims	

- 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.
- 5. 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).

 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.

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

- Only for access levels with high level authentication using GMAC and SHA-256: Tick the "Authenticated" and or "Encrypted" checkboxes for the corresponding message security (for both request and response).
 "Signed" is reserved for future use and can therefore not be selected.
- 8. Only for access levels with low level authentication or with high level authentication using SHA-1:

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**.

Static password		
visible string	98765432	0
O hexadecimal	characters 8/16	

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 - ZMXi300Q		2
[2] Utility Field Service		
Client Application Process ID	48	User ID 0
Access Security		
Authentication	low level authentica	tion using a static password $^{\circ}$
Additional requisites		
Message Security		
Authenticated	Encrypted	Signed
Credentials		
Password (secret)	"	🗙
Global Authentication Key (GAK)		
Global Unicast Encryption Key (GL	JEK)	
Im	nport Credentials (Offline)	Import Credentials (Online)
Supported protocols	IEC and dims	
		OK Cancel

9. Only for access levels with high level authentication: Either import the required authentication and/or encryption keys (GAK and GUEK) from a received key file (see section 6.2.3.4 "Importing keys") or

click on the corresponding edit icon and type in the key in the "Enter new key" window either as visible string or hexadecimal and then confirm the entry with **OK**.

A5A4A3A2A1A0AAABACADAF	0
30/64	
	QK Cancel

For security reasons, the key 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.

5] Management Access		
Client Application Process ID	1 User ID	0
Access Security		
Authentication	high level authentication using	GMAC ~
Additional requisites	-	
Message Security		
✓ Authenticated	Encrypted	Signed
Credentials		
Password (secret)		×
Global Authentication Key (GA	.K) 🖍	×
Global Unicast Encryption Key	(GUEK) 💉	×
Import C	Credentials (Offline) Import Credentia	a <mark>ls (</mark> Online)

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

10. Click on **OK**.

The "Access Levels" window appears again.

No \triangle icons are displayed in the first column of the newly defined access levels.

Access Level	Client AP	Authentication	Additional Requisites	Message Security Policy	Supported Protocol
[0] Public Access	16	no authentication		no ciphering	IEC and dlms
[1] Data Collection	32	low level authentication using a static password		no ciphering	IEC and dlms
[1] Data Collection	32	high level authentication using SHA-256		no ciphering	dlms only
[2] Utility Field Service	48	low level authentication using a static password		no ciphering	IEC and dims
[2] Utility Field Service	48	high level authentication using SHA-1		no ciphering	dims only
[2] Utility Field Service	48	high level authentication using GMAC		no ciphering	dims only
[2] Utility Field Service	48	high level authentication using SHA-256		no ciphering	dlms only
[3] Utility Service	64	no authentication	service menu required	no ciphering	IEC and dlms
[G] Management Access	1	low level authentication using a static password		no ciphering	dlms only
[G] Management Access	1	high level authentication using SHA-1		no ciphering	dlms only
[G] Management Access	1	high level authentication using GMAC		authentication and encryption	dlms only
[G] Management Access	1	high level authentication using SHA-256		no ciphering	dims only
[] Security Auditor	5	high level authentication using GMAC		no ciphering	dims only
Calibration Lab	6	high level authentication using GMAC		no ciphering	dims only
[] Communication Module	7	high level authentication using GMAC		no ciphering	dlms only
[] Local Operator	9	high level authentication using GMAC		no ciphering	dlms only
[L] Access Administrator	2	low level authentication using a static password		no ciphering	dlms only
[L] Access Administrator	2	high level authentication using SHA-1		no ciphering	dims only
[L] Access Administrator	2	high level authentication using GMAC		no ciphering	dlms only
[L] Access Administrator	2	high level authentication using SHA-256		no ciphering	dims only
[F] Manufacturer Access	104	low level authentication using a static password	hardware switch required	no ciphering	dlms only
[X] User Defined 1	0	no authentication		no ciphering	IEC and dims

11. Click on **OK**.

On the "Clients" tab of the "Device" window the defined device-specific access levels are displayed.

Device		
ame ZMXi300Q		
Type Address Clients		
Device Specific Access L	evels	
[0] Public Access, no au	thentication	
[1] Data Collection, stat	ic password	
[2] Utility Field Service,	static password	
[3] Utility Service, no au	thentication	
[G] Management Acces	s, GMAC authentication	
[L] Access Administrato	r, static password	
[F] Manufacturer Acces	s, static password	
Settings	Import all Credentials (Offline)	Import all Credentials (Online)
		OK Cancel
		Children

All these fully defined access levels can be selected in the "Client" drop down list in the client toolbar if the corresponding device is selected in the "Device" drop down list.



12. Continue as described in section 6.2.3.5 "Terminating the device data definition".

6.2.3.4 Importing keys

If the authentication and/or encryption keys are not available in a legible form, you can import them from key files (offline) or from a remote key management system (online).

Offline key import



Required key files

The required key files will be supplied to you by your Landis+Gyr representative.

Device						
lame	ZMXi300	Q				
Туре	Address	Clients				
Dev	ice Specif	ic Access Level				
[0]	Public Acc	ess, no authen	tication			
[3]	Utility Sen	vice, no authen	tication			
[F]	Manufacto	urer Access, sta	tic password			
100			1.0			
	Settings		Import all (Credentials (Offline)	Import all Crede	entials (Online)
	occuriga		mportant		mport di crede	
						OK Cance

Proceed as follows to import keys from key files:

1. Click on **Import all Credentials (Offline)**. The "Import Keys" window appears.

Encryption Keys File Name		
Device Selection	Key(s) found:	
Utility Key		
File Name		
Password		ОК
		OK Cancel

- 2. Click on in the "Encryption Keys" area. The "Open" window appears.
- 3. Select the directory where the encryption key file is stored in the displayed tree.
- 4. Select the encryption key file you want to import.

🗧 🚽 🍸 🛄 > AppData > Lo	cal > Landis+Gyr > dMAP	v Ö S	Search dMAP	Q
Organize 👻 New folder			BEE 🔸	
ComponentOne_LLC	Name	Date modified	Туре	Size
ConnectedDevicesPlatfo	tmp	26.11.2019 10:49	File folder	
CrashDumps	tmp 101126	26.11.2019 10:49	File folder	
CrashRpt	AddressBookV14.xml	29.11.2019 10:31	XML Document	
D3DSCache	AddressBookV15.xml	02.12.2019 09:44	XML Document	
DBG	DeviceConnectionSettingsV14.xml	29.11.2019 10:31	XML Document	
Diagnostics	DeviceConnectionSettingsV15.xml	02.12.2019 09:44	XML Document	
ElevatedDiagnostics	GB_51300256_18346-10_LANDIS+GYR(PL)	25.06.2014 17:18	XML-Document	
	GULF_V2.0_Example V7.xml	26.11.2019 16:57	XML Document	
GEFEG	PhoneBook.xml	28.07.2005 20:07	XML Document	
Google	SecuritySettingsV14.xml	29.11.2019 10:31	XML Document	
GrapeCity,_Inc	SecuritySettingsV15.xml	02.12.2019 09:44	XML Document	
Information Factory	📑 xPhoneBook.xml	28.07.2005 20:07	XML Document	
installdi 🗸	<			>
File name: GB_51	300256_18346-10_LANDIS+GYR(PL)SP.Z.O.Oxml	~	Device Description files	(*.xml) ~

5. Click on Open.

The keys are imported from the encryption key file and the available device serial numbers will be listed in the "Device Selection" area.

mport Keys			
Encryptio	n Keys		
File Name	C:\Users\user\AppData\Local\Landis+Gyr\dMAP\GB_		_51300256_18346-10
Device Se	lection		
14797082		Key(s) found:	
14797083			
14797084			
14797085 14797086			
Utility Key	r);		
File Name			
Password			ОК
			OK Cancel

- Click on in the "Utility Key" area. The "Open" window appears.
- 7. Select the directory where the utility key file is stored in the displayed tree.
- 8. Select the utility key file you want to import. This file is required to decrypt the key file.

← → ~ ↑ 🦲 → AppData → Loca	I > Landis+Gyr > dMAP	ע ט Sea	arch dMAP	م.
Organize - New folder				· 🔟 🕄
ComponentOne_LLC ^	Name	Date modified	Туре	Size
ConnectedDevicesPlatfo	tmp	26.11.2019 10:49	Dateiordner	
CrashDumps	tmp 101126	26.11.2019 10:49	Dateiordner	
CrashRpt	RWE_privkey.pem	07.01.2014 13:00	PEM-Datei	
D3DSCache				
DBG				
Diagnostics				
Diagnostics ElevatedDiagnostics				
Contraction of the Contraction o				
ElevatedDiagnostics				
ElevatedDiagnostics GEFEG				
ElevatedDiagnostics GEFEG Google				
ElevatedDiagnostics GEFEG Google GrapeCity,_Inc Information Factory	<			>

9. Click on **Open**.

The utility key is imported from the key file.

Encryptio	n Keys
File Name	C:\Users\user\AppData\Local\Landis+Gyr\dMAP\G8_51300256_18346-10
Device Se	lection
14797082 14797083 14797084 14797085 14797086	Key(s) found: Authentication Key Unicast Encryption Key - Utility Field Service, static password - Utility Field Service, SHA-1 authentication - Utility Field Service, SHA-256 authentication Authentication Key
Utility Key	1
ile Name	C:\Users\user\AppData\Local\Landis+Gyr\dMAP\RWE_privkey.pem

10. Click on **OK**.

The "Import Keys" window disappears and the associated device-specific access levels are displayed.

Devic	e		
Vame	ZMXi300Q		
Туре	Address Clients		
De	vice Specific Access Levels		
[0]	Public Access, no authentio	cation	
[1]] Data Collection, static pass	word	
[2]	Utility Field Service, static p	password	
[3]] Utility Service, no authenti	cation	
[G]] Management Access, GMA	AC authentication	
[L]	Access Administrator, stati	c password	
[F]	Manufacturer Access, stati	c password	
	Settings	Import all Credentials (Offline)	Import all Credentials (Online)
_			
			OK Cancel

Online key import



Required prerequisites

Before you can import keys online from a remote key management system the required credentials must have been entered on tab "Key Management system" in the "Options" window (see section 7.7 "Defining the key management system").

line)
nne)

Proceed as follows to import keys from a remote key management system:

1. Click on **Import all Credentials (Online)**. The "Import Keys" window appears.

		stem	
E			
Access Level	Client AP	Authentication	Statu
[1] Data Collection	32	high level authentication using SHA-256	-
[2] Utility Field Service	48	high level authentication using SHA-1	•
[2] Utility Field Service	48	high level authentication using GMAC	-
[2] Utility Field Service	48	high level authentication using SHA-256	-
[G] Management Access	1	high level authentication using SHA-1	-
[G] Management Access	1	high level authentication using GMAC	-
[G] Management Access	1	high level authentication using SHA-256	•
Role: Security Auditor	5	high level authentication using GMAC	-
Role: Calibration Lab	6	high level authentication using GMAC	-
Role: Communication Module	7	high level authentication using GMAC	
Role: Local Operator	9	high level authentication using GMAC	-
[L] Access Administrator	2	high level authentication using SHA-1	•
[L] Access Administrator	2	high level authentication using GMAC	•
[L] Access Administrator	2	high level authentication using SHA-256	_
	Access Level [1] Data Collection [2] Utility Field Service [2] Utility Field Service [2] Utility Field Service [3] Utility Field Service [6] Management Access [6] Management Access [6] Management Access [6] Management Access Role: Security Auditor Role: Calibration Lab Role: Communication Module Role: Local Operator [L] Access Administrator	Access Level Client AP [1] Data Collection 32 [2] Utility Field Service 48 [3] Management Access 1 [6] Management Access 1 [7] Management Access 1 [8] Management Access 1 [9] Management Access 1 Role: Security Auditor 5 Role: Collibration Lab 6 Role: Local Operator 9 [1] Access Administrator 2	Access Level Client AP Authentication I1 Data Collection 32 high level authentication using SHA-256 [2] Utility Field Service 48 high level authentication using SHA-16 [2] Utility Field Service 48 high level authentication using GMAC [2] Utility Field Service 48 high level authentication using SHA-256 [G] Management Access 1 high level authentication using GMAC [G] Management Access 1 high level authentication using GMAC [G] Management Access 1 high level authentication using GMAC [G] Management Access 1 high level authentication using GMAC [G] Management Access 1 high level authentication using GMAC [G] Management Access 1 high level authentication using GMAC [G] Management Access 1 high level authentication using GMAC [G] Management Access 1 high level authentication using GMAC [G] Management Access 1 high level authentication using GMAC Role: Security Auditor 5 high level authentication using GMAC Role: Communication Module 7

2. In column "Import" set a tick to all access levels for which you want to import keys from the remote key management system.

in the window toolbar selects all checkboxes and

in the window toolbar unselects all checkboxes.

3. Click on in the window toolbar or on **Request keys from remote** system.

If the keys are available on the remote key management system they will be imported. This is indicated with "Success" in column "Status" and with "Import succeeded" in the "Import information" area.

If a key is not available on the remote key management system this is indicated with "Missing" in column "Status" and with "No appropriate data in response" in the "Import information" area (in this case the **OK** button is not released; untick the checkbox for the corresponding access level and repeat the request).

Import	Access Level	Client AP	Authentication	Status
	[1] Data Collection	32	high level authentication using SHA-256	-
~	[2] Utility Field Service	48	high level authentication using SHA-1	Success
~	[2] Utility Field Service	48	high level authentication using GMAC	Success
~	[2] Utility Field Service	48	high level authentication using SHA-256	Success
~	[G] Management Access	1	high level authentication using SHA-1	Missing
	[G] Management Access	1	high level authentication using GMAC	-
	[G] Management Access	1	high level authentication using SHA-256	-
	Role: Security Auditor	5	high level authentication using GMAC	-
	Role: Calibration Lab	6	high level authentication using GMAC	-
	Role: Communication Module	7	high level authentication using GMAC	-
	Role: Local Operator	9	high level authentication using GMAC	-
~	[L] Access Administrator	2	high level authentication using SHA-1	Success
-	[L] Access Administrator	2	high level authentication using GMAC	Success
~	[L] Access Administrator	2	high level authentication using SHA-256	Success
] Utility - Impor] Utility	Field Service - high level authe succeeded Field Service - high level authe	ntication u		^

4. Click on **OK**.

The "Import Keys" window disappears and the associated device-specific access levels are displayed.

OK <u>C</u>ancel

lame	ZMXi300Q		
ype	Address Clients		
Dev	vice Specific Access Lev	els	
[0]	Public Access, no auth	entication	
[1]	Data Collection, static	password	
[2]	Utility Field Service, sta	atic password	
[3]	Utility Service, no auth	entication	
[G]	Management Access,	GMAC authentication	
[L]	Access Administrator, s	static password	
[F]	Manufacturer Access, s	static password	
	Settings	Import all Credentials (Offline) Impo	ort all Credentials (Online)

6.2.3.5 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.

🛷 Communication Settings	- o x
Connections Address Book	
Devices 🕂 🗶 🖋	Communication Channels 🕂 🗡 🖉
Device Name Device Series	Channel Name Interface
Default Device undefined	Default Channel COM1
ZMXi300Q E450 - ZxX100/300Q	
inks 🔀 🎤	
Communication Channel Remote Address	IEC Address HDLC Address Network ID Network Address
Data Version: 15 Storage Policy: permanent	File Location: C:\Users\user\AppData\Loca\Landis+Gyr\dMAP

- 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.

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 **even** 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 "Connections".
- 2. Select the "Address Book" tab.

network Communication Settings	- 🗆 ×
Connections Address Book	
IP Addresses 🚺 🖌 💉 📘	Phone Numbers 🕂 💉 🔀 📘
Address Description	Number Description
Data Version: 15 Storage Policy: permanent	File 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.

ZMX310G 12129973	
0763156762	
Use comma to wait for dial tone e.g. 0,01234567	
Use comma to wait for dial tone e.g. 0,01234567	
OK	Cance
	0763156762 Use comma to wait for dial tone e.g. 0,01234567

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.



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:

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

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

2. Select the "Address Book" tab.

Communication Settings	- 🗆 ×
Connections Address Book	
IP Addresses 💽 🔶 💉 📘 💟	Phone Numbers 🕂 💉 🔣
Address Description	Number Description
Data Version: 15 Storage Policy: permanent	File Location: C:\Users\user\AppData\Local\Landis+Gyr\dMAP

- 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.

IP	
Name	Ethernet Module
Address	
IPv4	
O IPv6	192 . 168 . 200 . 20
Port	4049

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.

🛷 Communicatio	on Settings							×
Connections Ad	dress Book							
IP Addresses	+ /	×	Phone	Numbers	+	1	X	
Address	Description	n	Nun	ber D	escription			
192.168.200.20:40	49 Ethernet M	lodule						

- 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	— <u> </u>
Connections Address Book	
P Addresses 🛛 🛨 🧪 🗡 📘	Phone Numbers 🛛 🕂 🧪 📉 📘
Address Description	Number Description

- 3. Click on **I** in the window toolbar for IP addresses or phone numbers. The "Open" window appears.
- 4. Select in the "Open" window 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.

Connections Addre	ss Book				
P Addresses 🛉	X	Phone Numb	ers 🕇 🖊	X	
Address	Description	Number	Description		
192.168.1.31:5000	Distribution West	0794438765	ZMD405 814.2 G21 769	26068	
192.168.200.20:4059	Ethernet Module	0419356123	ZMD405 B23.F 8754138	30	
195.141.94.180:1000	Training SIM Card 4	0419356122	ZMQ202 999999005		
		0419356125	ZMQ202 H02 76930012	2	
		0763156762	ZMX310G		

- 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").

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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 Addresses" 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 Addresses" 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 toolbar") 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 "Connections". The device list and the communication list are displayed.

· · · · · · · · · · · · · · · · · · ·	and the second second															-	_			
Connections	Address Book																			
Devices 🕂 🕂	X	r (ş		Com	nunicatio	on Channels		+	X		1			d	ē				
Device Name	Device Series				Cha	nnel Nar	ne	In	terface											
AD-FE11G150	E35C - AD-xE				Def	ault Cha	nnel	co	DM1										1	
Default Device	undefined				(Mo	iem.			nexan			Ó ACF	Mo	de	m					
D-L1	E360 - D/F/M-L1				TCP	-ip		Re	altek P	Cie GB	E Fam	ly Con	trol	ler		192	168	1.20		
ZMD402CT	E650/S650 - ZxD	300/400			USE	- Optica	(Head - 96		21/15											
ZMX310P	E450 - ZxX100/30	OOP																		
ZMXi300Q	E450 - ZxX100/30	00Q																		
inks X	E450 - ZxX100/30																			
inks X	E450 - ZxX100/30			IEC Addre:	HDLC Addr		Vetwork ID		Networ	25.00	ess									

- 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	AD-FE11G150
Device	AD-FEITIGI50
Communication Channel	Default Channel 🗸
	Default Channel
Destination Server	Modem
Desunation Server	TCP-IP
hysical Address	USB - Optical Head - 9600
Use IEC address	39188859
Use HDLC address	9859
dlms Gateway	
Network ID	0
Network Address 0	bx 00
Currently very limited suppo accordingly.	ort in the devices. Only enable this feature if instructed

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

Device	AD-FE11G150 ~
Communication Channel	AD-FE11G150
	Default Device
	D-L1
Destination Server	ZMD402CT
	ZMX310P
hysical Address	ZMXi300Q
Use IEC address	39188859
Use HDLC address	9859
dlms Gateway	
Network ID	0
	line line
Network Address 0x	00
Currently very limited suppor accordingly.	t in the devices. Only enable this feature if instructed

- 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.
- 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.

AND MADE AND A DECK												
Connections	Address Book											
Devices 🕂 🕂	X	1	8	(Communication C	hannels	+	X	1	8		
Device Name	Device Series				Channel Name		Interfac	e				
AD-FE11G150	E35C - AD-xE				Default Channel							
Default Device	undefined				Modern		Conexar	t USB CK930	10 ACF M	odem		
D-L1	E360 - D/F/M-	L1			TCP-IP		Realtek	PCIe GBE Fan	nily Contra	oller - 192	168.1.20	
ZMD402CT	E650/S650 - Z	D300/400			USB - Optical H	ead - 960	0 COM5					
ZMX310P	E450 - ZxX100	/300P										
ZMXi300Q	E450 - ZxX100	0/300Q										
	stion Channel	Remote 4	ultrass	IFC Address	HDIC Addre	eee NJ	etwork ID	Natuori	Address			
Communica	ation Channel	Remote A		IEC Address	and the second second		etwork ID		: Address			
Communica TCP-IP		Distributio		IEC Address undefined 39188859	HDLC Addre	🗌 un	etwork ID defined	Network	d			
Communica TCP-IP	ation Channel	Distributio		undefined	undefined	🗌 un	defined	undefine	d			

- 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 "Default Device" can't be deleted, they only can be edited.

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 6.2.3.3 "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 in the address toolbar to 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:

- 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 "Serial 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 Mo



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").
- Click on in 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.
- 2. Enter a hexadecimal ASCII character sequence or a text string in the corresponding entry box.

The converted text or sequence is displayed immediately.

ASCII Character Sequence to Text Converter		×
Hexadecimal ASCII Character Sequence:		
616263414243		
Text:		
abcABC		
Copy Hex Stream Copy Text		

- 3. 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		3
English		Ý
	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.

General	Communication Settings	Key Mangement System	
Colours	-		
Colour	of differences in file compari	son	
Prompt			
ŭ.	npt to save changed device o	description before closing	
	ipt to sore changed device t	acception before crosing	
			OK Cance

- 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".

- 4. 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:

1. Select **Options** from the **Tools** menu.

The "Options" window appears with selected "General" tab.

Options			
General	Communication Settings	Key Mangement System	
Colours			
Colour o	of differences in file comparie	son 🚺	
Prompt			
Prom	pt to save changed device o	description before closing	
			OK Cancel

- 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 _____ and select a directory in the tree appearing or enter the path to the desired directory.

Options			
General	Communication Settings	Key Mangement System	
File Loc	ation s\user\AppData\Local\Landis	s+Gyr\dMAP	
permneve	Policy of Keys and Password nanent r ed until 25 , November	A change of the storag policy leads to the dele of all keys and passwo	etion
		[OK Cancel

 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.

Data deletion with each modification

Any modification in the storage policy causes a deletion of all passwords and keys.

Procedure:

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

Options		
Seneral File Loc	Communication Settings	Key Mangement System
Storage O perm neve	s\user\AppData\Local\Landis Policy of Keys and Password nanent r ed until 25 , November	A change of the storage policy leads to the deletion of all keys and passwords.

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.

Click on **OK**.
 The "Options" window disappears and the new settings are saved.
7.7 Defining the key management system

With this setting, you can set the credentials for accessing the productive and test key management system.

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Required credentials

All required credentials will be supplied to you by your Landis+Gyr representative.

Procedure:

- 1. Select **Options** from the **Tools** menu. The "Options" window appears.
- 2. Select the "Key Management System" tab.

options									
Seneral	Commun	ication Settings	Key	Mangem	ent System				
leference	d Key Mar	igement System		ductive Sy	/stem 👻				
Key Mar	agement S	System (P <mark>roduct</mark> iv	/e)	(ey Mana	igement Sy	stem (Test)	Renaming	Logging	
Url									
User									
Passwor	d								1
Certifica	te								1
Key Lab	WK_LG	ß							
Key E	ncryption I	Key (KEK)							
KEK SH	are 1				KEK Sh	are 2			r
	ash)								

- 3. In the selection box "Referenced Key Management System" select "Productive System".
- 4. Click on behind the "Url" entry box. The "Url" window appears.
- 5. Enter the server name in the "Server" entry box and the port number in the "Port" entry box.

The resulting Url is displayed in the corresponding box underneath.

Server	localhost				
Port	8081]			
Resulting Url	https://localhost:8081/	ATM-KeyMan	agement-R	ST-Service/se	ervice/res

6. Click on **OK**.

The "Url" window disappears and the Url is displayed in the corresponding entry box in the "Options" window.

- 7. Enter the user name in the "User" entry box.
- 8. Click on behind the "Password" entry box. The "Enter new password (secret)" window appears.
- 9. Enter the password as visible string in the "Password (secret)" entry box.

assword (secret)		
visible string	98765432	0
hexadecimal	characters 8/255	

10. Click on **OK**.

The "Enter new password (secret)" window disappears and the password is displayed with asterisks in the corresponding entry box in the "Options" window.

- 11. Click on behind the "Certificate" entry box. The "Certificate" window appears.
- 12. Enter the certificate name in the "Certificate" entry box. Klick on **Look-up** to decrypt the certificate and display the details of the certificate.

Certificate	Certificate_12345		Look-up
Details	Certificate information: Store:	AddressBook ^ AddressBook	
	Subject: Effective date:	E=susanne.s; 23.10.2015	
	Expiration date: Issuer:	22.10.2017 (CN=SIX-Group	
	Key algorithm: Certificate hash:	1.2.840.113 E75B45B1BB41	
	Public key: Serial number:	3082010A028: 052A1F811051	
	Subject: Effective date:	E=thomas.hi 01.04.2015 :v	

13. Click on **OK**.

The "Certificate" window disappears and the certificate name is displayed in the corresponding entry box in the "Options" window.

- 14. Enter an unambiguous key label in the "Key Label" entry box. Default value is "WK_LG".
- 15. Click on behind the "KEK Share 1" entry box. The "Enter Key Encryption Key" window appears.
- 16. Enter the key encryption key share 1 (part 1) as hexadecimal string in the "KEK Share 1" entry box.

EK Share 1		
visible string	0x FFFEFDFCFBFAF9F8F7F6F5F4F3F2F1F0FFFEFDFCFBFAF9F8F7F6F5F4F3F2F1F0	0
hexadecimal	characters 32/64	

17. Click on **OK**.

The "Enter Key Encryption Key" window disappears and the key encryption key is displayed with asterisks in the corresponding entry box in the "Options" window.

 Enter the key encryption key share 2 (part 2) in the same way. The key encryption key hash value is calculated out of the two parts entered and displayed in the "KEK (Hash)" box.

General	Com	munication Settings	Key	Mangem	ent Syster	n				
Reference	d Key	Mangement System	Pro	ductive Sy	∕stem ~					
Key Mar	agem	ent System (Productiv	e)	Key Mana	gement S	ystem (T	est)	Renaming	Logging	
Url	ht	tps <mark>://localhost:8081/A</mark>	TM-Ke	eyManage	ement-RE	ST-Servio	ce/ser	vice/rest/cry	pto/getKeys	
User	He	enry Miller								ſ
Password									1	
Certificate Certificate_12345										1
Key Labe	ey Label WK_LG						ĺ.			
Key E	ncrypt	tion Key (KEK)								
KEK SH	are 1	*****			KEK	Share 2	*****	****		
WEW OIL	ash)	455859BC19E448067	0E163	3D263053	0285BFA	D9E0				

- 19. In the selection box "Referenced Key Management System" select "Test System" and repeat points 4 to 18.
- 20. Select the "Renaming" tab if the key management system used has to be identified with a client name instead of a COSEM client ID. The relation between the COSEM client ID and the client name is defined in the file "KMSClientIDMapping.xml". This file has to be adapted according to the key management system used.
- 21. Tick the checkbox on the "Renaming" tab and click on to select the folder with the file "KMSClientIDMapping.xml" in the "Open" window which then appears or enter the path to the file in the entry box.

Referenced Key Management System Productive System Key Management System (Productive) Key Management System (Test) Renaming Logging Use Client Name instead of Client ID to query the KMS: Image: C:\Users\user\Documents\Landis+Gyr\dMAP120\4.5\KMSClientIDMapping.xml Image: C:\Users\user\Documents\Landis+Gyr\dMAP120\4.5\KMSClientIDMapping.xml Some KMS use instead of COSEM Client ID a free text field to identify the COSEM access client. In this case the .MAP tools have to query the customer KMS using this text as identifier. The relation between the Client ID and the Client Name is defined in the xml file given above.	Options				
Key Management System (Productive) Key Management System (Test) Renaming Logging Use Client Name instead of Client ID to query the KMS: Image: C:\Users\user\Documents\Landis+Gyr\dMAP120\4.5\KMSClientIDMapping.xml Image: C:\Users\user\Documents\Landis+Gyr\dMAP120\4.5\KMSClientIDMapping.xml Image: C:\Users\user\Documents\Landis+Gyr\dMAP120\4.5\KMSClientIDMapping.xml Some KMS use instead of COSEM Client ID a free text field to identify the COSEM access client. In this case the .MAP tools have to query the customer KMS using this text as identifier. The relation between the Client ID and the Client Name is defined in the xml file given above.	General	Communication Settings	Key Management System		
Use Client Name instead of Client ID to query the KMS: C:\Users\user\Documents\Landis+Gyr\dMAP120\4.5\KMSClientIDMapping.xmI Some KMS use instead of COSEM Client ID a free text field to identify the COSEM access client. In this case the .MAP tools have to query the customer KMS using this text as identifier. The relation between the Client ID and the Client Name is defined in the xml file given above.	Reference	ed Key Management <mark>S</mark> ystem	Productive System 👻		
C:\Users\user\Documents\Landis+Gyr\dMAP120\4.5\KMSClientIDMapping.xml Some KMS use instead of COSEM Client ID a free text field to identify the COSEM access client. In this case the .MAP tools have to query the customer KMS using this text as identifier. The relation between the Client ID and the Client Name is defined in the xml file given above.	Key Ma	nagement System (Productive	e) Key Management System (Test)	Renaming	Logging
Some KMS use instead of COSEM Client ID a free text field to identify the COSEM access client. In this case the .MAP tools have to query the customer KMS using this text as identifier. The relation between the Client ID and the Client Name is defined in the xml file given above.	Use Clie	ent Name instead of Client ID	to query the KMS:		
In this case the .MAP tools have to query the customer KMS using this text as identifier. The relation between the Client ID and the Client Name is defined in the xml file given above.	\mathbf{V}	C:\Users\user\Documents\	Landis+Gyr\dMAP120\4.5\KMSClient	DMapping.xm	nl
If renaming is used, adapt this file accordingly.	In this c The rela	ase the .MAP tools have to qu tion between the Client ID an	ery the customer KMS using this text o d the Client Name is defined in the xr	ns <mark>i</mark> dentifier.	
				-	

- 22. Select the "Logging" tab if the queries to the key management system shall be logged.
- 23. Tick the checkbox on the "Logging" tab and enter the path and the desired name of the log file in the entry box.

The log file will then be created automatically in the corresponding folder. As default value the file name "KMSLog.txt" and the default folder of the used .MAP120 version is used.

If you have already created a log file, click on _____ to select the folder and the file in the "Open" window which then appears.

Options				
General	Communication Settings	Key Management System		
Reference	ed Key Management System	Productive System 👻		
Key Mar	nagement System (Productiv	e) Key Management System (Test)	Renaming	Logging
Log Fi		dis+Gyr\dMAP120\4.5\KMSLog.txt		

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

7.8 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:

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

AP120 Help
en Zorück Drucken Index Suchen Drucken Description of user interface Device description functions Communication with devices Audiary functions Support Short description of device s OBIS identification codes List of abbreviations

- 2. 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 \times to close the online help.

7.9 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	
I. Description	^
The Landis+Gyr .MAP120 Parameter Editor is used to create and edit complete device description fill t allows the reading and writing of such files from and to devices of the E450, E460, E570 and E350 For all other service functions Landis+Gyr .MAP110 must be used.	
2. Most recent changes, enhancements and bug fixes	
Changes to release 4.3.24 (2018-11-30)	
Final device support E570 S2 G3 PLC V830505.48 Final device support E570 S2 GPRS V840505.48 Final device support E460 S1 G3 PLC 1ph BS V770100.07	
Changes to release 4.3.08 (2018-08-27)	
Device support of E570 S2 G3 PLC V830505.35 Device support of E570 S2 GPRS V840505.35 Device support of E460 S1 G3 PLC 1ph BS V770100.07	~
<	>

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

7.10 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.

	Landis+Gyr .M/	P120 - Paramete	r Editor
	Version Information		
	Version	4.5.29	🐼 Update
MAP	Date	2019-11-26	
	Build	4.5.7269.30722 (2019-11	-26)
	License		
	User name	Felix Baetschmann	
	User group	Head Quarter	
Landis Gyr	System Information		
Cy.	Operating System	Windows 10 Professional	Edition (64Bit)
http://www.landisgyr.com	.NET Framework	4.7.3190	
	Copyright © Landis+(Syr AG, 2019	

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.

		AP120 - Parameter Ed	litor
	Version Information		-
	Version	4.5.29	S Update
	Date	2019-11-26	
	Build	4.5.7269.30722 (2019-11-26)	•••• [*]
	License		
	User name	Felix Baetschmann	
	User group	Head Quarter	
Landis_	System Information		
Gyr	and the second second	Windows 10 Professional Editi	on (64Bit)
http://www.landisgyr.com	.NET Framework	4.7.3190	
	Copyright © Landis+	Gyr AG, 2019	

		AP120 - Parameter Ed	litor
	Version Information		
	Version	4.5.29	🐼 Update
	Date	2019-11-26	
	Build	4.5.7269.30722 (2019-11-26)	\checkmark
	License		
	User name	Felix Baetschmann	
	User group	Head Quarter	
Landis Gyr+	System Information		
J.	Operating System	Windows 10 Professional Editio	on (64Bit)
http://www.landisgyr.com	.NET Framework	4.7.3190	
	Copyright © Landis+(Gyr AG, 2019	

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

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

3. 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 7.8 "Displaying tool help".
- Read the content of the read-me file, supplied with the software as described in section 7.9 "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
the verification sealProtected by the verification seal, there is for many devices (e.g. under the main
face plate) a block of security switches or jumpers. Their position must be defined
in order to gain access to a particular level.

Entering the serviceIt 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 authenticationFor 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/KeysA 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	Readout of billing data by means of a handheld terminal or possibly by a central system. All billing data is readable. Limited write access possible, e.g. time/date.
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 numbers 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. Verificatio is usually required afterwards. All parameters and all billing data are readable. Write access to all data is possible, e.g. parameterisation, 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 password	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 password	Service access of the distributor. Identical to level D. In addition, changing the access rights and the password 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:

	A Defines the characteristic of the data item to be identified, e.g. abstract 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 accord- ing 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 collec- tion of examples.		
Group A	Group A of the OBIS identification can theoretically have values in the range between 0 and 9. Only the values 0 (abstract objects) and 1 (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 0 (no channel specified) 1 (channel 1) and 2 (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) ¹⁾	∑ Li	1	L1	21	L ₂	41	L ₃	61
Active power -A (QII+QIII)	∑ L _i	2	L_1	22	L ₂	42	L ₃	62
Reactive power +R (QI+QII)	∑ Li	3	L1	23	L ₂	43	L₃	63
Reactive power -R (QIII+QIV)	∑ Li	4	L1	24	L ₂	44	L₃	64
Reactive power +Ri (QI)	∑ Li	5	L1	25	L ₂	45	L3	65
Reactive power -Rc (QII)	∑ Li	6	L1	26	L ₂	46	L3	66
Reactive power -Ri (QIII)	∑ Li	7	L1	27	L ₂	47	L3	67
Reactive power +Rc (Q IV)	∑ Li	8	L1	28	L ₂	48	L3	68
Apparent power +VA (QI +QIV)	∑ L _i	9	L_1	29	L_2	49	L ₃	69
Apparent power -VA (QII+QIII)	∑ L _i	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	∑ Li	13	L1	33	L ₂	53	L3	73
Supply frequency		14	L1	34	L ₂	54	L3	74
Active power +A + -A		15	L1	35	L ₂	55	L3	75
Active power +A - -A		16	L1	36	L ₂	56	L3	76
Active power +A (QI)		17	L1	37	L ₂	57	L3	77
Active power -A (QII)		18	L1	38	L ₂	58	L3	78
Active power -A (QIII)		19	L_1	39	L_2	59	L3	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 ³⁾		97						
List objects ³⁾		98						
Data profiles ³⁾		99						

¹⁾ QI, QII, QIII, QIV = Quadrant 1, 2, 3, 4

²⁾ any phase

³⁾ 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 DGroup 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 EGroup 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 FGroup 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		

OBIS code	OBIS code (hex)	Description
(decimal)	ABCDEF	
0-0:96.2.0	00 00 60 02 00 FF	Number of parameterisations
0-0:96.2.1	00 00 60 02 01 FF	Date and time of last parameterisation
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 0D 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 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

OBIS code	OBIS code (hex)	Description
(decimal)	ABCDEF	
1-0:0.1.2	01 00 00 01 02 FF	Time and date of last billing period reset
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

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OBIS code	OBIS code (hex)	Description
(decimal)	ABCDEF	
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
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 SO pulses input 1
1-3:82.8.0	01 03 52 08 00 FF	Counter S0 pulses input 2
a-2:m.8.0	a 02 m 08 00 FF	External pulse input 1 (a = medium, m = measured quantity)
a-3:m.8.0	a 03 m 08 00 FF	External pulse input 2 (a = medium, m = measured quantity)

11 List of abbreviations

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

Abbreviation	Definition Description
DLMS	Distribution Line Message Specification Messaging system defined originally as part of the application layer of the proto- col stack for distribution line carrier systems (IEC 61334-4-41, 1996). Its universal- ity and its independence of the actual communication channel allowed DLMS to become the choice of the metering industry for any metering application (Device Language Message Specification).
EDIS	Energy Data Identification System Identification number system for clear identification of energy data according to DIN 43863-3:1997.
GSM	Global System for Mobile communications Wireless communication network for data and voice transmission.
HDLC	High Level Data Link Control Communication protocol used by COSEM (IEC 62056-46), specifying the data link layer. The HDLC standard is ISO/IEC 13239, 2000 (second edition). 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 read- ing, 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	Object Identification System Identification number system for clear identification of DLMS items.
PSTN	Public Switched Telephone Network The public switched telephone network can be used for data transmission. To this purpose a modem (modulator/demodulator) must be inserted between 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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