

Lexgate

project, engineering & solution guide - v4.0

Scope of the Document	1
Lexgate at a glance	1
Lexgate project guide	2
Defining the project goal	2
Engineering	2
Building plan	2
Energy metering scheme	2
Metering infrastructure	2
Offer	2
Example components (meter, gateway, PLC) Tendering	4
Delivery, installation and configuration	6
Lexgate integration	6
Training and project completion	6
Lextira partner	6
Lexgate architecture	7
Lexgate API	7
Lexgate import interfaces	8
Lexgate export interfaces	8

Scope of the Document

This document shows engineers, property owners and administrators the steps with which a Lexgate project is successfully implemented.

A sample offer for a Lexgate solution with a sample of meter system components is also covered in this document.

Lexgate at a glance

With Lexgate's modern web platform, you can digitize and automate your energy management and ancillary costs settlement process. Since Lexgate is metering infrastructure independent, Lexgate is the solution for metering and automated billing of electricity, heat, water and other energy sources.

Depending on your needs, Lexgate provides modules for further processing of the metering data. Thanks to numerous features, such as metering failure detection Lexgate guarantees correct metering data and energy billing.

Lexgate is compatible with building management systems, SmartMeters and older analog meters.

Lexgate project guide

With the goal of benefiting from digital energy management in a building, it is advisable to divide the project into sub-projects.

Defining the project goal

You start the project, with defining the project's goal and which Lexgate modules will be used.

With the basic module metering and the expansion modules accounting and reporting, Lexgate can digitize and partially automate the entire process from the metering point to the auxiliary bill. Thanks to the API (interfaces), Lexgate can also be integrated into an existing IT architecture.

Engineering

The engineering ensures that important documentation is available or is being created. The evaluation of the appropriate metering setup and its price is also a result of the engineering process.

Building plan

It is important that there is a building plan with the units enumerated. This plan and the labels of the units are the basis for mapping the real estate structure in Lexgate.

Energy metering scheme

The metering scheme defines the meter details and energy flow for the metered location. If the metering setup needs to be adapted or renewed, the metering scheme is used as a basis for offers. Later, the metering scheme is used for setting up the metering infrastructure and as its documentation. When setting up the project, meters, cost center structure and cost allocators in Lexgate, the metering scheme is also used.

Metering infrastructure

Depending on the building and the existing infrastructure, an evaluation is made, if any changes on the metering infrastructure are needed. Once this has been done, the appropriate metering and meter reading technology can be determined for the project. Although Lexgate also supports manual meter data input, automatic meter reading has many advantages. There are numerous standard solutions on the market for getting the meter data in realtime from old and new meters.

Offer

After the solution has been engineered a price is determined for it. The following is a possible structure of a complete Lexgate solution with new standard meters.

1. Electrical meters

Offer and implementation by electrical company, metering provider or Lextira partner

- a. Shipping of meters
- b. Installation of meters
- c. BUS addressing (only meter excl. Gateway) according to according to Energy metering scheme or BUS address concept
- d. Setup and documentation

2. Heat meters

Offer and implementation by building technology companies, metering provider or Lextira partner

- a. Shipping of meters and accessories
- b. Installation of meters
- c. BUS addressing (only meter excl. Gateway) according to according to Energy metering scheme or BUS address concept
- d. Setup and documentation

3. Water meter

Offer and implementation by building technology companies, meter Inga bidder or Lextira partner

- a. Shipping of meters and accessories
- b. Installation of meters
- c. BUS addressing (only meter excl. Gateway) according to according to Energy metering scheme or BUS address concept
- d. Setup and documentation

4. Gateway or PLC

Offer and implementation by building technology companies, meter Inga bidder or Lextira partner

- a. Gateway
 - i. Shipping of the gateway
 - ii. Setup the gateway
 - iii. If not available providing an Internet connection
 - iv. Configuration of Internet connection
 - v. Configuration of Lexgate connection FTP (S), HTTP (S)
 - vi. Configuration of BUS meters (gateway only, excl. BUS meters) according to according to Energy metering scheme or BUS address concept
 - vii. Documentation
- b. PLC
 - i. Shipping of the PLC
 - ii. Setup of the PLC
 - iii. If not available providing an Internet connection
 - iv. Configuration of Internet connection
 - v. Basic configuration of the PLC
 - vi. Configuration of Lexgate connection FTP (S), HTTP (S)
 - vii. Configuration of BUS meters (gateway only, excl. BUS meters) according to according to Energy metering scheme or BUS address concept
 - viii. Option: configuration of self-consumption and energy optimization on PLC.
 - ix. Documentation

5. Lexgate - metering, monitoring, reporting, billing

Offer and implementation by Lextira partner

- a. Option: Customer-specific integration into existing IT architecture
- b. Option: Customer-specific front-end solution
- c. Setup project
- d. Setup gateway, PLC and meters
- e. Setup cost centers based on the energy metering scheme
- f. Customer Training
 - i. Contact management
 - ii. Contract management
 - iii. Auxiliary invoice generation

Example components (meter, gateway, PLC) Tendering

Project	Type or BUS technology	Gateway, PLC example	Meter Example
Small to medium-sized metering project (approx. <150 meters) without any building automation or energy optimization automation	M-BUS	<p>Manufacturer M-Bus Gateway from EMU Electronic Ltd Jöchlerweg 2 CH-6340 Baar Switzerland</p> <p>Order number 201.250.00 EMU M-Bus Center for 250 M-Bus meters (250x1.5mA)</p> <p>201.120.00 EMU M-Bus Center for 120 M -Bus meter (120x1.5mA)</p> <p>201.060.00 EMU M-Bus Center for 60 M-Bus meter (60x1.5mA)</p> <p>201.020.00 EMU M-Bus Center for 20 M-Bus meter (20x1.5mA)</p>	<p>Electricity Schneider Electric A9MEM3135 IMPORTANT: occupies two M-BUS loads. Thus number of counters x2 for gateway calculation.</p> <p>Heating Aquametro Amtron S3U with M-BUS module</p> <p>Water Aquametro Saphir Modularis ETW 15 with M-BUS module</p>
Larger metering project (approx.> 150 meters) without any building automation or energy optimization automation	M-BUS	<p>Manufacturer WAGO Contact SA Route de l'Industrie 19, 1564 Belmont-Broye</p> <p>Order number Art.no. 787-1602 Pay attention to when Primary clocked power supply IMPORTANT: M-BUS loads dimensioning.</p> <p>Item No. 750-8100 controller PFC100no.</p> <p>item758-879 / 000-3102 SD Micro memory card; 2 GB</p>	<p>Electricity Schneider Electric A9MEM3135occupies IMPORTANT:two M-BUS loads. Thus number of counters x2 for gateway calculation.</p> <p>Heating Aquametro Amtron S3U with M-BUS module</p> <p>Water Aquametro Saphir Modularis ETW 15 with M-BUS module</p>

		<p>Item no. : 753-649 M-Bus master; IMPORTANT: One terminal for 40 M-BUS loads</p> <p>Art. : 750-602feed potential; 24 V DC; light gray</p> <p>art. : 750-600 end module; light gray</p>	
<p>metering project with building automation or energy optimization automation</p>	<p>M-BUS</p> <p>If required for short query intervals for energy management use Modbus for electrical meters</p>	<p>Manufacturer WAGO Contact SA Route de l'Industrie 19, 1564 Belmont-Broye</p> <p>Order number Item no. 787-1602 Pay attention to when Primary clocked power supply IMPORTANT:M-BUS loads dimensioning.</p> <p>Item No. 750-8100 controller PFC100no.</p> <p>item758-879 / 000-3102 SD Micro memory card; 2 GB</p> <p>Item no. : 753-649 M-Bus master; IMPORTANT: One master for 40 M-BUS loads</p> <p>Art. : 750-602feed potential; 24 V DC; light gray</p> <p>art. : 750-600 end module; light gray</p> <p>If Modbus electric meter Art. 750-652 Serial interface RS-232/485</p>	<p>Electricity Schneider Electric A9MEM3135 M-BUS or A9MEM3255 Modbus IMPORTANT: Occupies two M-BUS loads. Thus number of counters x2 for gateway calculation.</p> <p>Heating Aquametro Amtron S3U with M-BUS module</p> <p>Water Aquametro Saphir Modularis ETW 15 with M-BUS module</p>
<p>heat and water metering project in a building without BUS cabling</p>	<p>wM-BUS</p>	<p>Manufacturer Engelmann Sensor GmbH Rudolf-Diesel-Straße 24-28 69168 Wiesloch-Baiertal</p> <p>Order number 9080000004 Engelmann Connect wMBUS gateway can be ordered</p> <p>Ordered at Aquametro Switzerland or a Lextira partner</p>	<p>Radiator heat cost allocator Engelmann HCA E2 Can be ordered from Aquametro Switzerland or a Lextira partner</p> <p>Heating Aquametro Amtron S3U with wM-BUS module</p> <p>Water Aquametro Saphir Modularis ETW 15 with wM-BUS module</p>
<p>Existing, old, analog electrical, heat, water -,</p>	<p>LoRa, sigfox, GPRS</p>	<p>Contact and can be ordered from</p>	

gas meters which are to be integrated into a Lexgate solution		Lextira partner Egger Enertech AG, apo@enertech.ch	
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Delivery, installation and configuration

If the project progresses, the meters, the gateway or PLC are installed and configured according to the energy metering scheme.

Lexgate integration

After the project has been set up in Lexgate, the configuration is made based on the building plan and the energy metering scheme.

If required, customer-specific Lexgate solutions are implemented. This includes the data exchange to and from IT-Systems and the programming of customer specific front ends.

Training and project completion

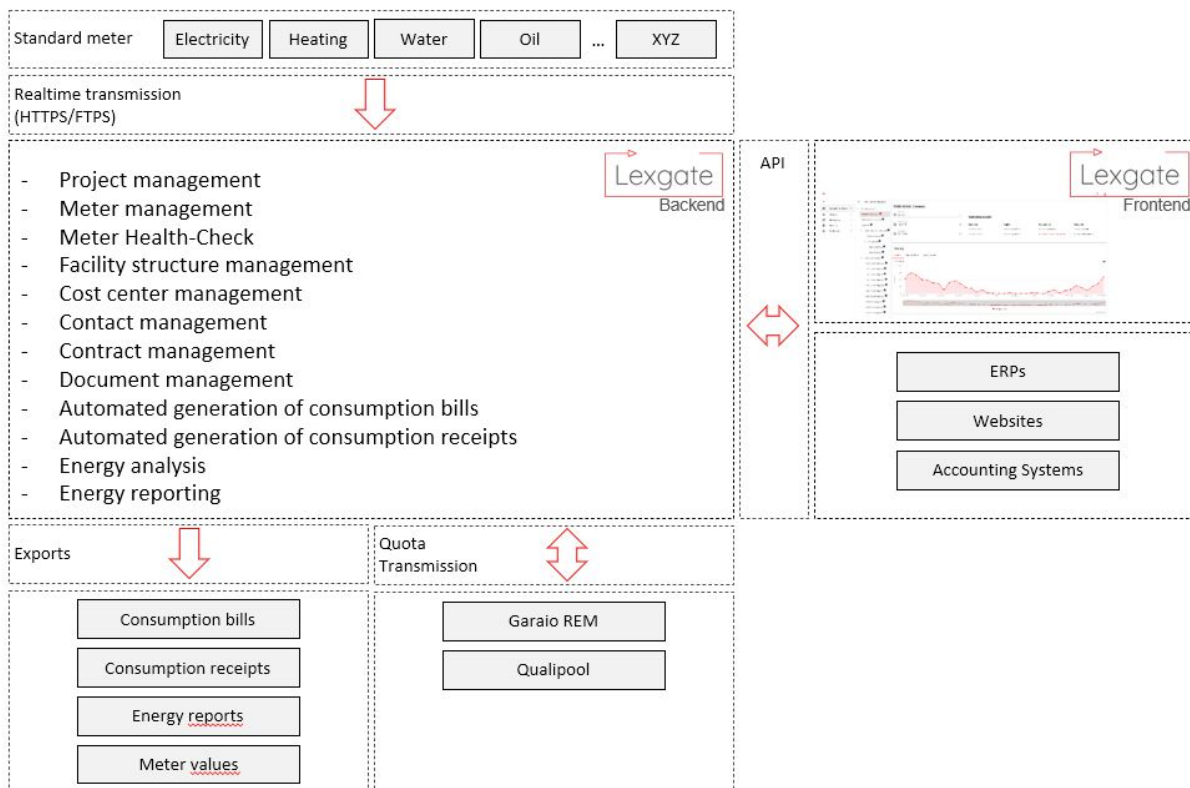
In a training, the Lextira Partner, demonstrates the simplicity of the solution and clarifies open questions.

Lextira partner

For support implementing a complete metering solution with Lexgate, please contact your Lextira partner.

Lexgate architecture

Lexgate is a web-based solution with numerous interfaces for a neathless communication with the surrounding systems.



Lexgate API

Lexgate has a full API. Lexgate can thus be integrated into any existing IT architecture. The API documentation can be found under the following link:

<https://docs.lexgate.ch/api/index.html>

Lexgate import interfaces

Lexgate-interface	description	file	upload interval	Lexgate parsing of units
FTP(S)	FTP login which can be generated on Lexgate: Example: lexgate-ftp-test: Server: ftp.lexgate.ch Username: 7MGr6KtR@lexgate.ch Password: DiMtliMw	Upload of any formatted text file	Recommendation every full hour (recommendation: NTP synchronization on gateway) Other intervals possible on request.	JsonPath XPath Regex
HTTP (S)	HTTP login which can be generated on Lexgate: Example: lexgate-http-test: Authentication: 4jQlZUvB0ywpjE2586yMHXA JomrtBZcother time fully adapted by gateway (anytime) API-URL: https://portal2.lexgate.ch/api/v1/sources/4jQlZUvB0ywpjE2586yMHXAJomrtBZc	Upload	Recommendation every full hour (recommendation: NTP synchronization on gateway) Other intervals possible on request.	JsonPath XPath regex

Lexgate export interfaces

Lexgate- Interface	Description	File
Interactive statistics	Interactive statistic for analysing the consumption of the metered units.	pdf, png and jpg Statistics export
CSV	Per meter CSV exports the first transmitted value of the day, the first transmitted value of the month or all values.	CSV
DTA-VHKA - Qualipool	Export of consumption proportions per cost center for Qualipool compatible real estate software.	DTA-VHKA - Qualipool
DTA-VHKA - REMshares	Export of consumption proportions per cost center for REM compatible real estate software.	DTA-VHKA - REM
Detailed energy consumption receipt	Per configured customer and cost center based on the consumption of any time period.	pdf by mail and archived on Lexgate.
Ancillary costs settlement	Per configured customer and cost center based on the consumption of any time period.	pdf by mail and archived on Lexgate.