Landis+Gyr
manage energy better

ADVANCE System
Energy Metering System

Project:
Wikinger Offshore ST (DE) - Ibedrola

Date: 3 března 2017

File name: P3788

© Landis+Gyr

Table of content

© Landis+Gyr

1 INTRODUCTION

Metering devices used for electricity, heat, gas, water and anything else that can be called energy have a common denominator.

The significance of energy, as a type of information is increasing dramatically. Energy is expensive and so data about its flow is becoming highly valuable.

Devices intended for metering contain not only large volumes of energy data but also much other valuable information for the field of identification, statistics, security and communications. To be able to use this information in the area of Systems, technology or environmental protection, we need to know how to collect, store, aggregate and forward them farther on.

All this is possible thanks to an efficient and reliable tool ADVANCE System.

The ADVANCE System is an up-to-date program created on the .NET platform, intended for acquisition of metering devices data. The system is a comprehensive tool for the administration and dynamic management of metering points.

We thank you for your interest in ADVANCE System, the AMM solution for small, industrial, commercial and residential applications.

2 THE ADVANCE SYSTEM

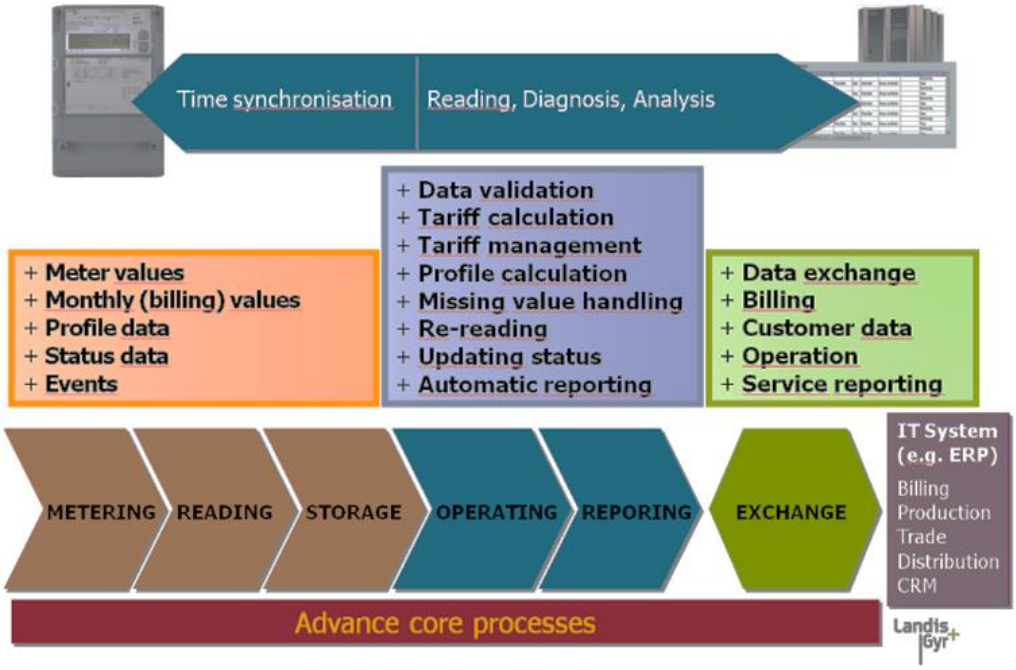
2.1 ADVANCE System at a glance

- Automatic acquisition of data for billing and recording of profiles
- Data normalisation
- Quick data preview
- Management of templates and measuring devices + Auto Template feature
- Data visualization (graph or table)
- Aggregation functions
- Dynamic groups
- Virtual metering points
- Data comparison
- Data export
- Tariff management and data structuring
- Support of all major ICG meter types as well as residential meters from various vendors
- Simple installation (one package for everything)
- User friendly (graphical) environment
- Common communication standards
- Modular
- Wide Market Penetration (Heat Meter Systems, Shopping malls, Telco Operators, Railways, Small hydro, solar and wind power plants, Grid and production companies, Pilot and small PLC systems…etc.)

2.2 ADVANCE System concept

ADVANCE System role is the storage of all meter data and the provision of easy to use validation and reporting facilities.

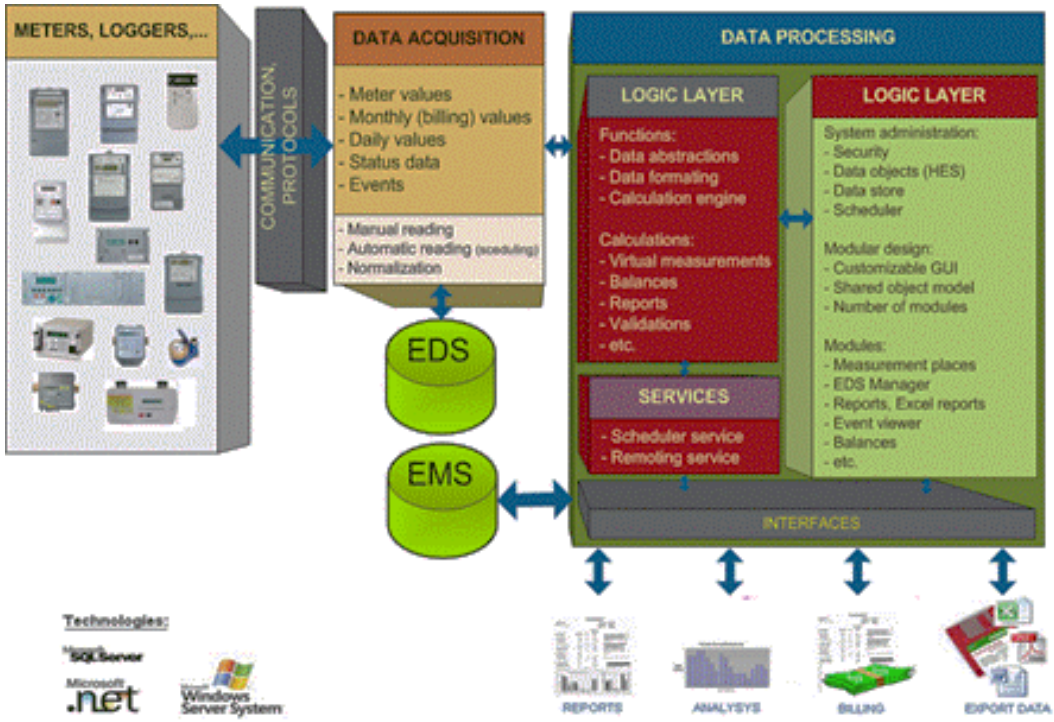
The ADVANCE System acquires meter data directly through leased lines, PSTN, GSM connections (VPN over FIX IP).



© Landis+Gyr

System can be direct connected to other data objects, databases over WAN, VPN or Web Services if the source database is available as well. If there is no possibility to connect to other system databases directly, it is possible to exchange data with other third systems through standard export/import function using XML or txt files.

ADVANCE System has a powerful client like stand-alone application or EasyView web-based access application. It offers powerful tool for creating various reports but in addition it also offers a range of specialised reports for validation and reporting and enables an open system for making interfaces easily (billing, dispatching…).
ADVANCE System utilizes the latest software technology from Microsoft Corporation. SQL Server environment provide state-of-the-art DB services and the .NET architecture guarantees the consistency of APIs and portability of the code (investment protection).



ADVANCE’s scalability and the modular design provide the prerequisites for any custom tailored solution required by customers.

Data Processing – Meter Data Management system (MDM system) section contains several objects that share common interfaces and utilities (Core Object). The GUI (Graphical User Interface) itself is divided into several building blocks (modules). Logic layer handles all calculations, formatting and the data abstraction.

Data Acquisition – Head End System (HES) section is an independent subsystem with its own data structure (database) and its own set of services (communication drivers, normalization driver, and scheduler).

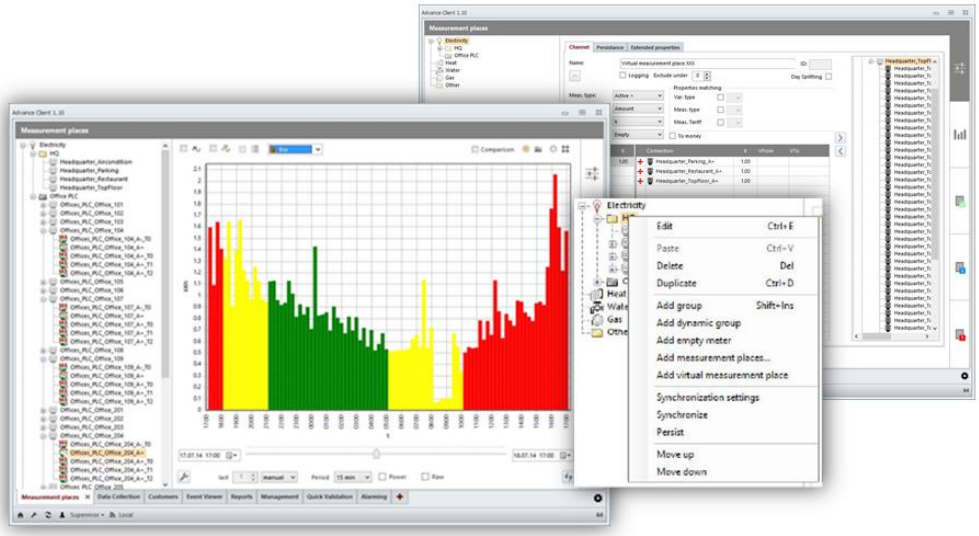
ADVANCE's modular architecture provides many different configurations. It can be configured as a standalone system for less demanding customers with small number of metering points and tight budget or as a large multi-user system with one or more data acquisition systems.

2.3 ADVANCE System modules description

ADVANCE System contains these two basic modules:

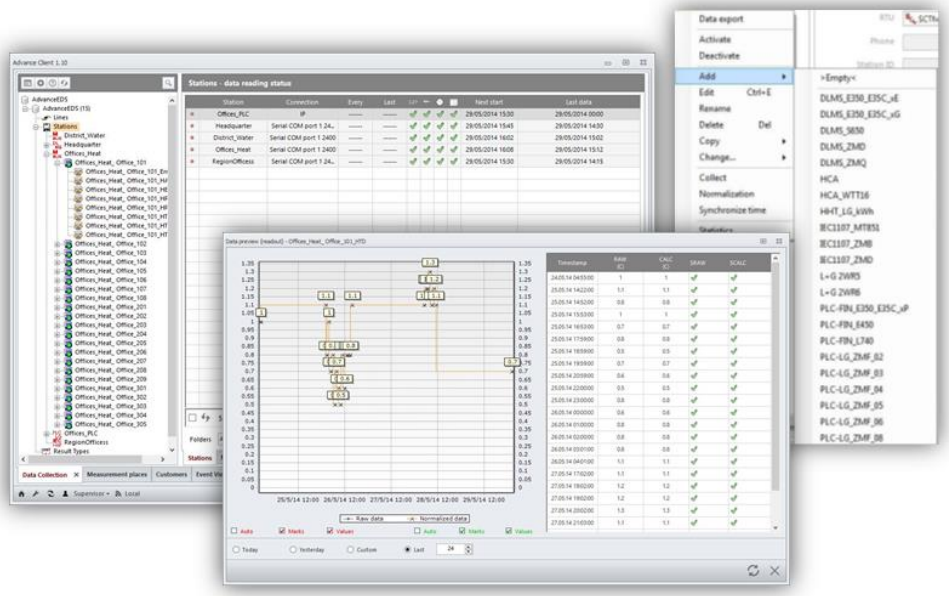
Measurement Places Module

Defines physical and virtual metering points or their groups; displays statuses (missing data, failures) as well as collected data in tables or charts; setup of validation and synchronization, analyses and summaries.



Data Collection Module (data acquisition)

This Module is able to support the latest meter communication standards and media, such as PSTN, GSM, GPRS, LAN, fibre optic, leased lines, satellite, etc. It is tested for 75+ different meter types of various vendors, and 15+ different meter protocols. Multi-utility with electricity, gas, water, and heat/cold is also supported to guarantee future expansions.



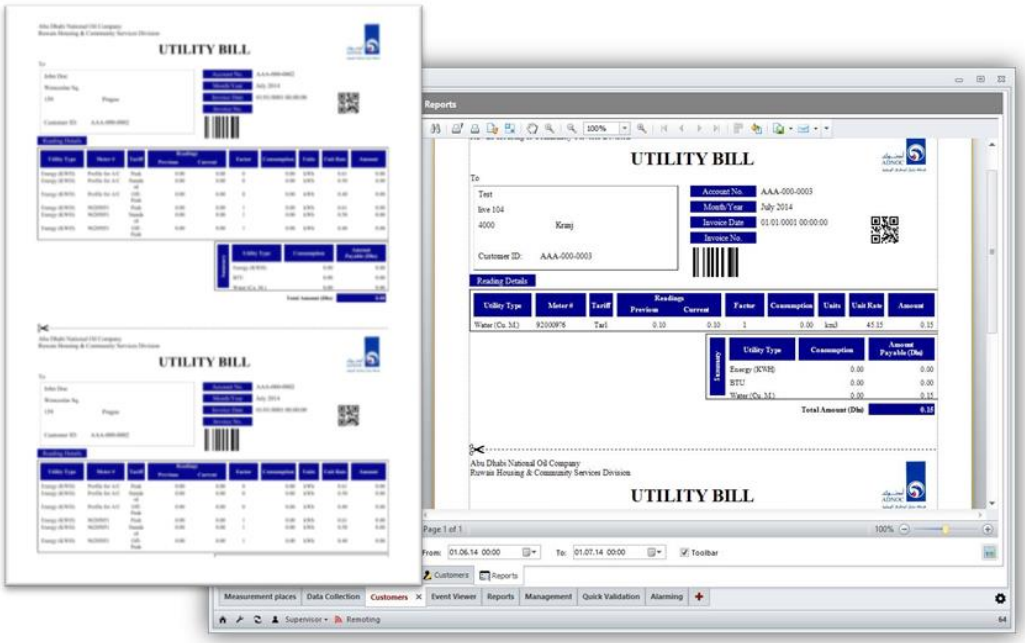
Part of Data Collection Module is Data Archiving. ADVANCE Data Archive contains information of archived stations, devices, channel definitions and meter channel data (CALC and RAW) for each month. Archiving functionality could be used in order to decrease size of active ADVANCE database. Data older than defined period could be automatically stored into archive files and deleted from active

© Landis+Gyr

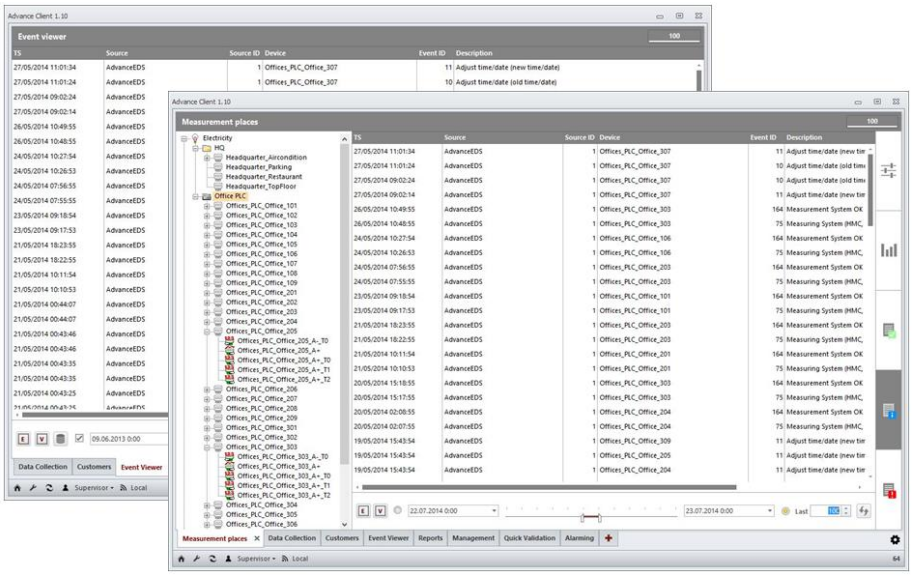
database. For every ADVANCE EDS database in ADVANCE System, data archive can be created. There is ADVANCE Archiving Service in background. Service is configured from Collection module. Archive period is one month.

It can also contain any or all of those modules:

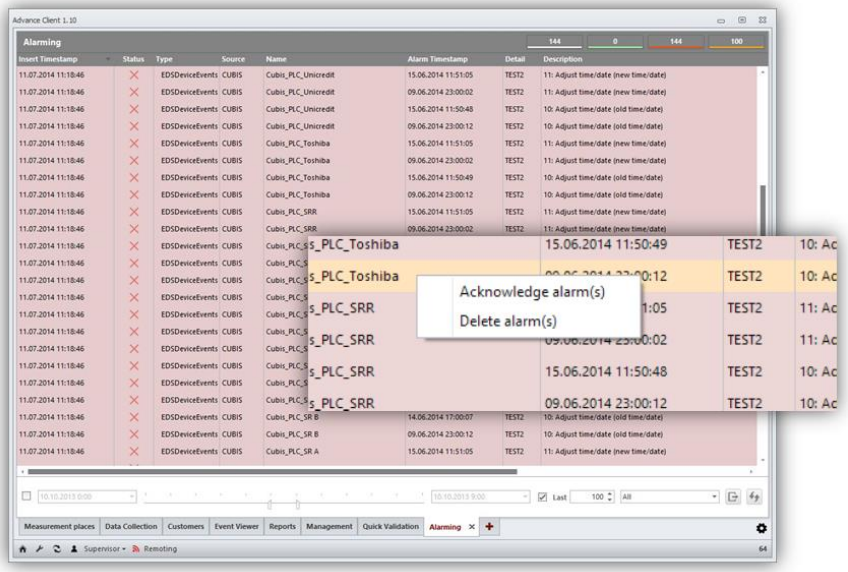
Customer Module implements functionality to create billing reports (billing statements, invoices) of individual customers. The billing report includes: Date of issue, date due; Billing period; Customer details (account number, name, address etc.); Customer consumption; Customer share in the common area consumption and Additional charges (meter installation charges, annual connection charges, etc.). This module is also Multi-Utility ready.



Event Viewer Module is used for checking meter event logs. Viewed log can also be exported to Excel file using default style or by using pre-generated template file. Event viewer module is comprised of two sections or view modes: View by node (directly visible in Measurement places module) and View by filter, solely available in Event Viewer module itself.



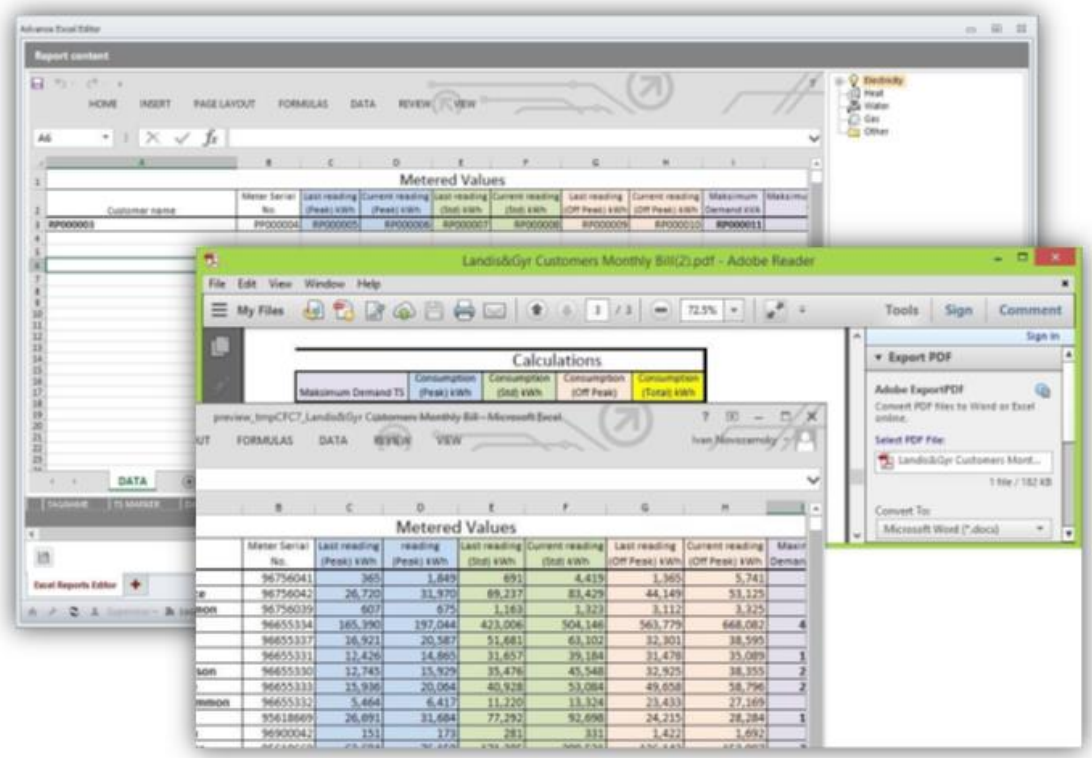
Alarming is able to quickly provide customer with information about specified events as they appear in the system. Alarming is configured as a module in Advance SW and is able to send alarms to Windows desktop as well as specified email addresses. Source of the alarms can be Validation, Spontaneous events, Data acquisition tasks, Meter alarms and time difference properties.



Excel Reports
Contains two parts:

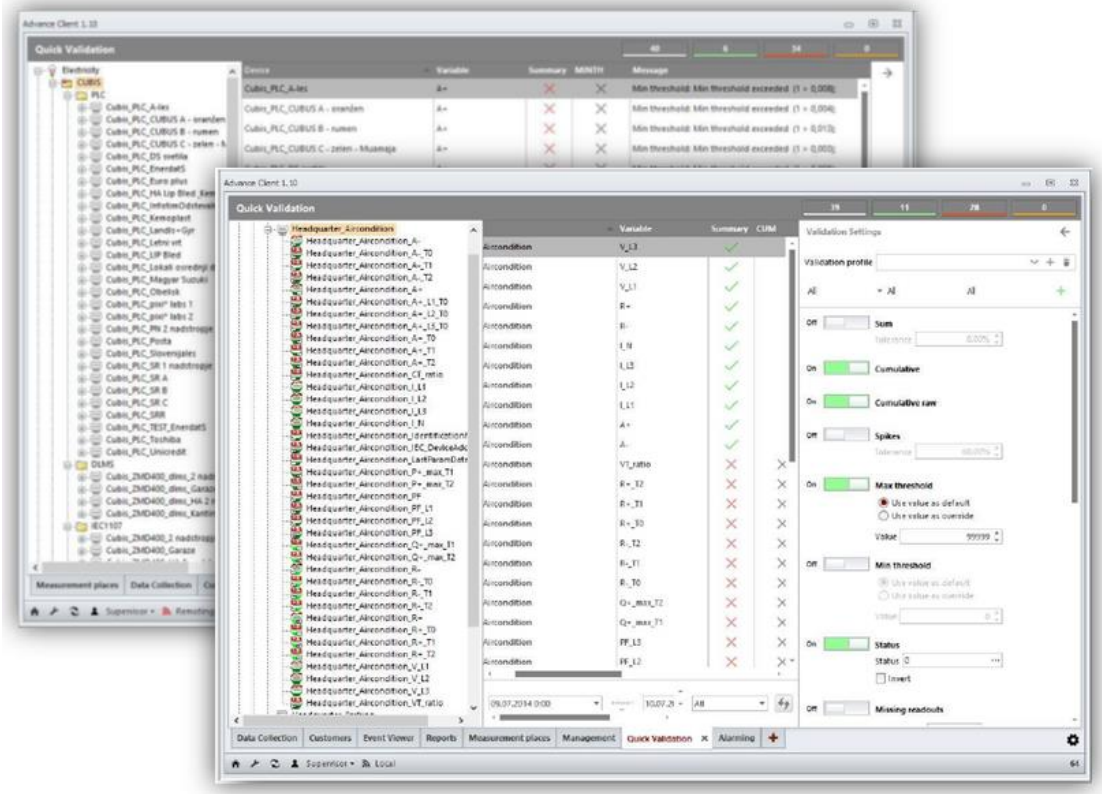
- **Viewer Module** is tool for scheduling and executing of pre-created Excel reports. The module also stores history of each report execution. The reports could be easily exported to PDF or XLS file formats directly.
- **Excel Reports Editor Module** is used to create comprehensive reports with combination of Advance database and powerful MS Excel functionalities. Reports could be easily edited directly in Advance client application within MS Excel environment.

© Landis+Gyr



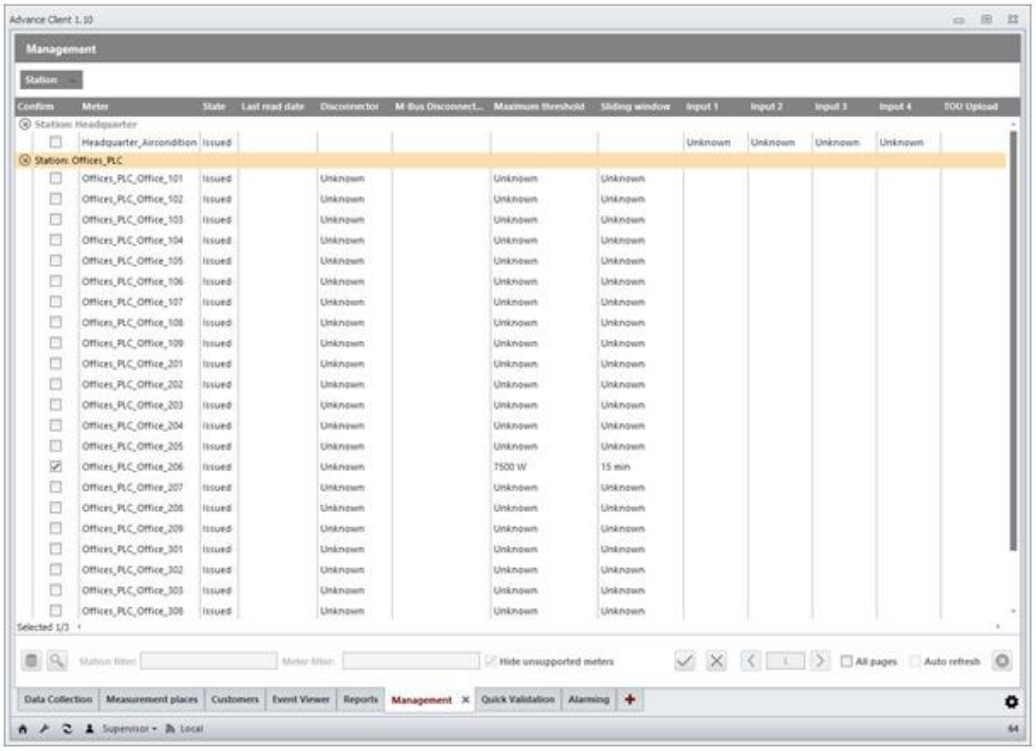
Quick Validation Module

Is used for performing most common validation tasks faster due to simplified user interface. Validation can be performed by device node or by filter, where user can select on which database source to perform validation. Validation as such is always performed in a same manner and can be applied only on one channel type or a stored validation profile consisting of more channel types, variables or tariff registers.

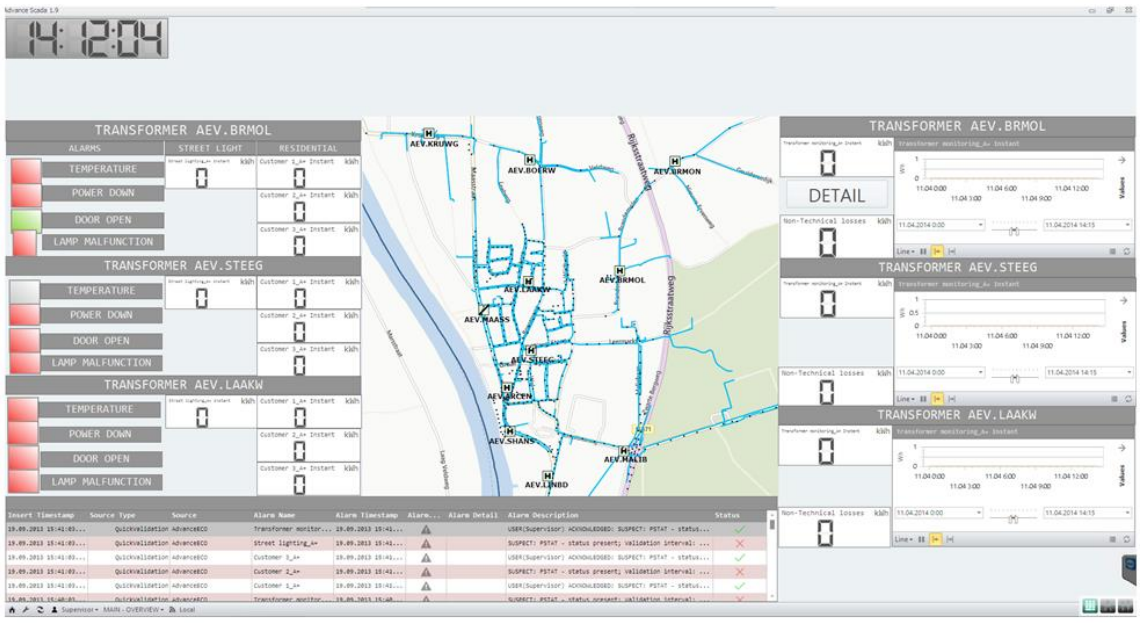


Management Module is used for managing states (e. g. breaker, relay), thresholds (e.g. power limit, current limit) and other characteristics (e. g. TOU, firmware) of remote devices (meters). This module

works in conjunction with Data Objects (Advance EDS) and Device Drivers (DLMS, M-BUS, PLC), which actually send the required stream of commands to the managed device.

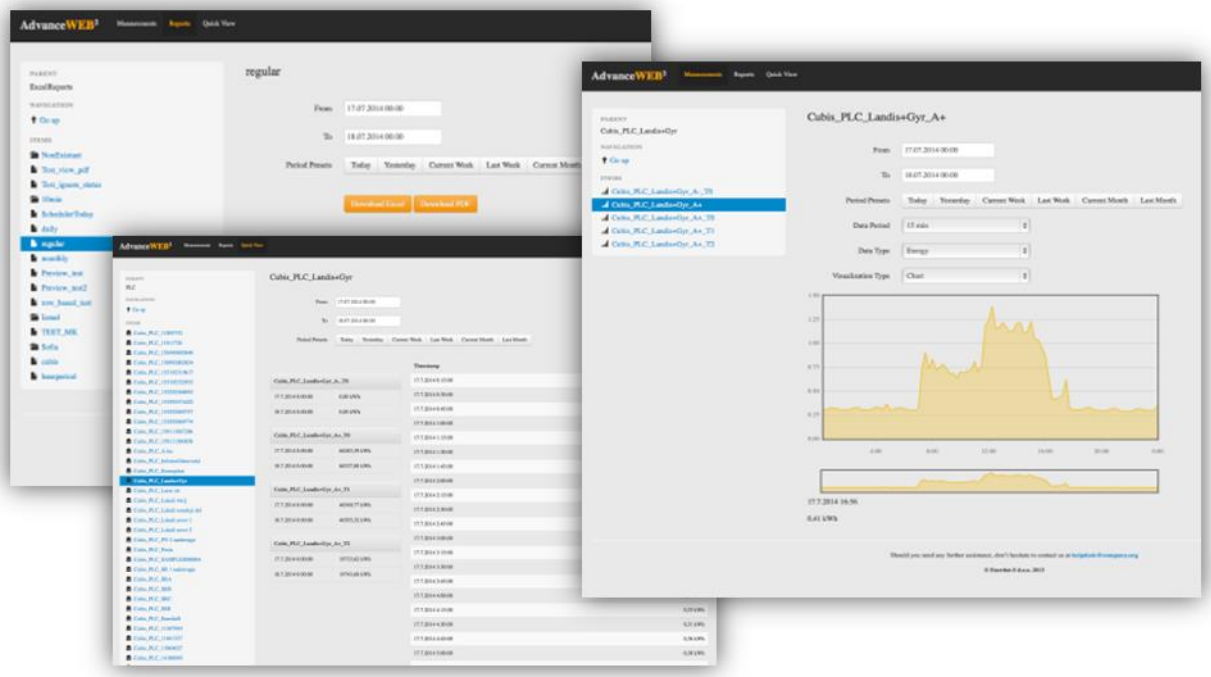


Mini SCADA is application that extends the capabilities of Advance allows visualization of the information to the operating personnel graphically, in the form of a static diagram with possibility to add active controls. This means that the operator can see a schematic representation of the plant being controlled or freely configure the application as a dynamic dashboard.



EasyView2.0 - the All-new Advance EasyView2.0 – perfect companion for Advance allowing intranet users without a great experience to display measured values in chart or table and execute pre-defined reports to Excel or PDF format using their modern web browser. EasyView2.0 is secured via user segmentation.

© Landis+Gyr



ADVANCE System exports data into CSV, XLS, PDF or XML formats.

ADVANCE System is designed as two-layer SW application with excellent scalability.

Basic layers are:

- DB layer

DB layer is based on Microsoft SQL technology. DB has been designed as meta-database allowing flexibility of the system. During design storing efficiency has been accented.

- Application layer

Allows users to access and operate system. GUI is designed as thick client build on Microsoft.Net 4.0 Framework.

3 IMPORTANT INFORMATION FOR CUSTOMER

3.1 Software Platform

Our offer assumes that OS (minimum Windows 7/Windows Server 2008 R2 or higher) and minimum Microsoft Excel 2010 or whole Microsoft Office 2013 Professional pack (in case Excel Modules are used), will be provided by CUSTOMER.

3.2 Training

To ensure smooth system operation we are offering two-, three-, four- or five-days training courses, according to your request.
We encourage customer to participate on one of the training sessions held in Prague or Ljubljana, nevertheless we are able to hold the training also at customer´s premises. In such case, travel costs for our trainer should be taken into consideration.

3.3 Documentation

To provide you with a full description of the delivered system we will deliver user manual for the applications.

© Landis+Gyr