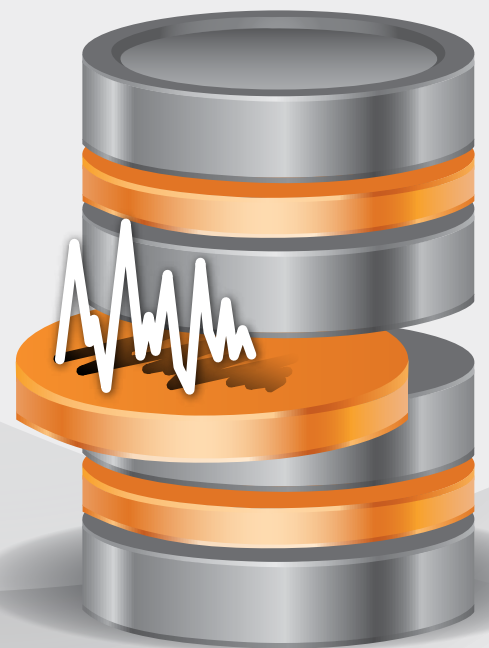
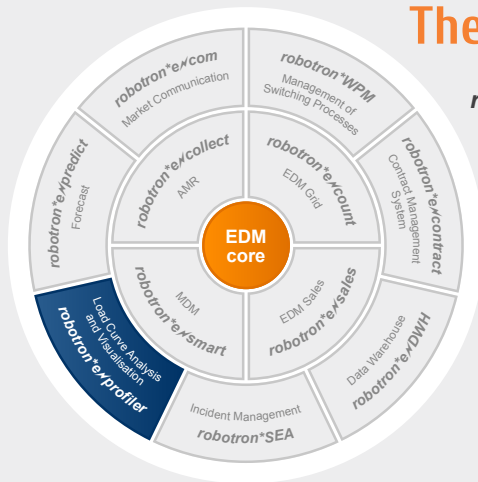


# Load Profile Analyzation and Visualization



## The tool



**robotron\*exprofile** is a comprehensive and easy-to-use tool for load curve visualization and analysis for a wide variety of applications. It combines various graphic analysis tools, practical calculation and editing functions as well as comprehensive report and monitoring possibilities in an innovative manner. The diversity of illustration for different kinds of equidistant time series (e.g. consumption quantities, weather data, price curves) allows for the application of the product in various areas. This way, for instance the analysis of historical data for offer preparation is just as possible as the optimization of consumption forecasts or the application in the context of an energy management system according to DIN EN ISO 50001.

Robotron  
Energy Market Suite

## Areas of application

The **robotron\*exprofile** is mainly used for:

- ▶ Sales employees of energy supplying companies
  - Preparation of customer visits
  - Live presentation at customer's premises
  - Consumption analysis to evaluate and to consult customers
  - One-time or routine transfer of reports concerning the consumption behavior of customers (i.e. as a customer service)
- ▶ Forecast specialists for
  - Creation of comprehensible load curve analyses
  - Determination of suitable model time periods for forecasting
  - Optimization of forecast results
- ▶ Users of energy management for
  - Energy efficiency monitoring
  - Introduction of DIN EN ISO 50001
- ▶ Back office employees of energy supply
  - Rolling out and editing of time series
  - Price fragmentation of forecasted load curves
- ▶ Energy consuming industrial businesses, chain or service operators
  - Consumption analysis, consumption monitoring (e.g. peak load time windows)
  - Analysis of energy flows
  - Comprehensive energy controlling and energy reports
  - Control mechanism and projection in terms of energy costs



## Overview

**robotron\**e* profiler** is installed in just 5 minutes and can be used immediately. The program is executed locally on the computer of the user. Data is provided by the file system by connection of network drives and optionally via interfaces to databases or web services. As a result of this kind of flexibility it is possible to use centrally administered data of various clients or analyze time series provided ad hoc at the client.

In terms of usability it is essential that the user interface is intuitive. The operating concept and menus have been developed taking into account MS Office products 2007/10 in order to simplify access conditions and daily use compared to the previous version.

## Directories

These data can be accessed at any time, as long as the respective directory is available.



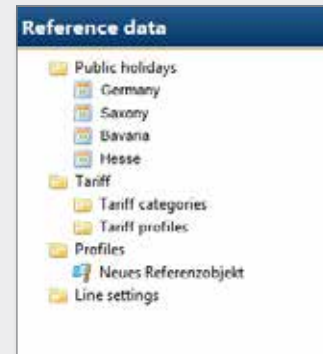
Program window



## Reference data

The reference data management records different parameters which cannot be stored as time series yet are important for further data analysis. This way tariffs and related profiles can be stored and assigned to lines or customers using drag & drop. Furthermore, users are able to create periodic profiles (e.g. school holidays, variable shift patterns) as well as list profiles (e.g. opening hours, day length) and assign visualized time series for a better illustration.

The CSV import function provides for the administration of holidays and list profiles to summarize larger time periods with just one click. Customers working with **robotron\**e*count** or **robotron\**e*sales** are able to import all holiday regions directly via interface.



Reference data

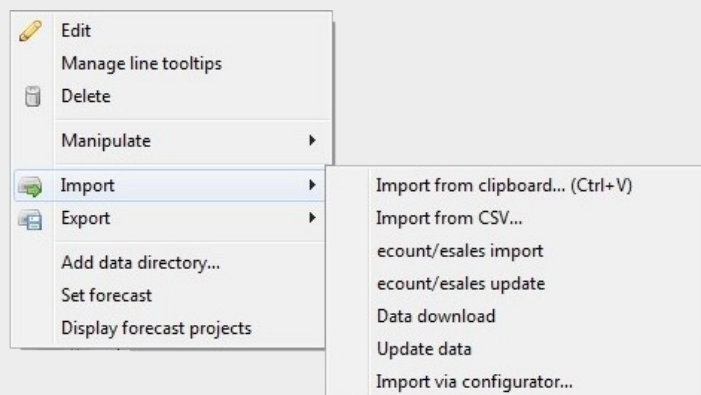
## Import/export

Different options enable the import of time series to be considered depending on data availability. Transmitting data directly from an open CSV or Excel file using copy & paste is the simplest option. The import using drag&drop of CSV files and EDIFACT MSCONS is possible. With an adequate configuration all further formats (XLS, XLSX, TXT, LPEX, eblX) are supported by the system and consequently can be imported the same way. Furthermore data can be loaded by opening directories directly from the program applying the standard CSV import or the import configurator. Therefore the configurator allows for the greatest possible degree of freedom when configuring

customized formats. Once this configuration is set up, it enables a fully automated and time controlled import.

In terms of export of data the formats EDIFACT MSCONS, CSV and XLS/XLSX are supported. Import is started manually via a context menu at the curve and/or the metering point. It is also possible to have the export automatically executed in intervals using time control. In addition, graphical analysis allows for providing single values as well as complete data sets of one or more time series for a specific time period by copy&paste to other programs.

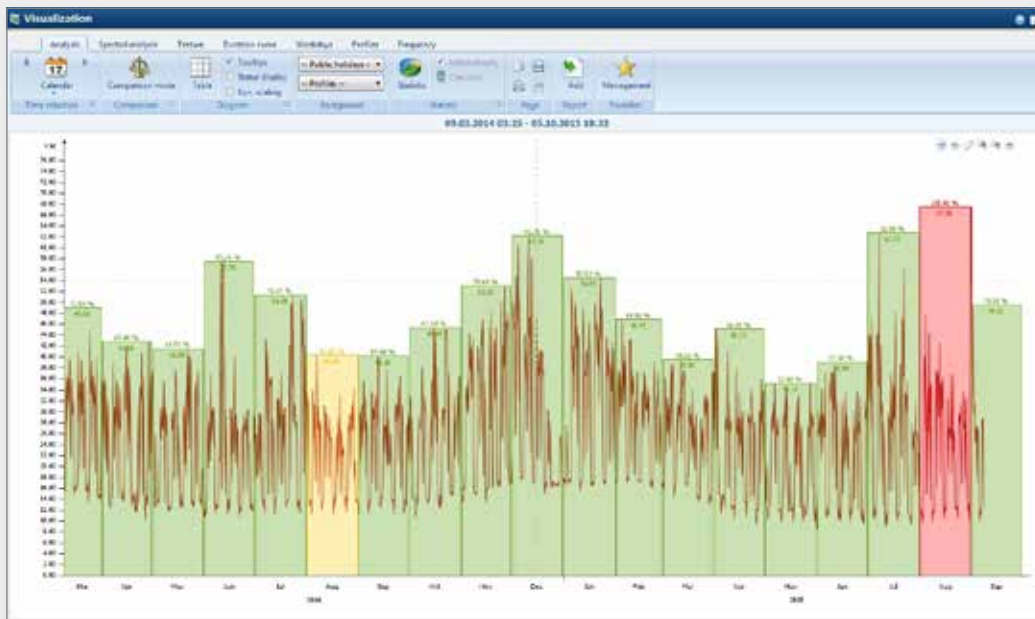
Context menu  
Import



## Functionalities

### Analysis

Load curve visualization is based on many years of experience and resulting demands of Robotron customers when applying the multiple line display of the first generation of the Energy Data Management systems **robotron\*e** *count* and **robotron\*e** *sales* as well as **robotron\*e** *profiler*. A particular positive feature is the possibility to visualize and analyze any number of lines at the same time. The arrangement of up to six different y-axes obtains a better overview for the user. An integrated comparison mode permits a view on line contents of different time periods. This way consumption behavior for comparable months over a period of several years can be analyzed. By means of a statistic function different parameters such as energy or performance minimum/maximum for free selectable time periods can be manually or automatically calculated and included in the comparison. Parameters can be displayed either in tabular form or as separate visualization.



Load curve visualization

## Spectral analysis

The spectral analysis is a tool for determining special attributes and characteristics of time series data based on the time of day and depending on the maximum of a certain time period. Therefore, the time series is divided into predefined ranges which are shown in the graphic as colored layers. Individual days or day types can be selected and emphasized using the zoom function. The respective load curve is synchronously visualized. The optimized daily minimum and maximum display can give further information regarding consumption fluctuations.

Spectral analysis with daily maximum



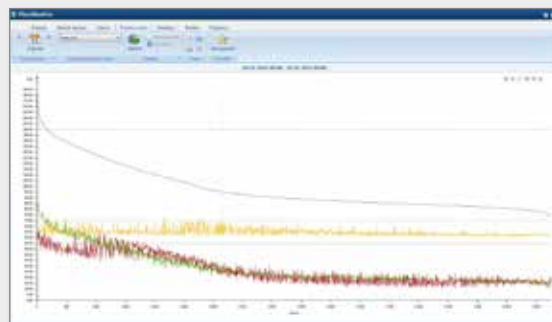
## Texture

This module can be applied for monthly visualization purposes of time series regarding their average value. At a glance the user is able to identify unusual deviations from typical consumption behaviour. Additional reference lines and threshold values can be used to monitor exceeded limit values.



## Duration curve

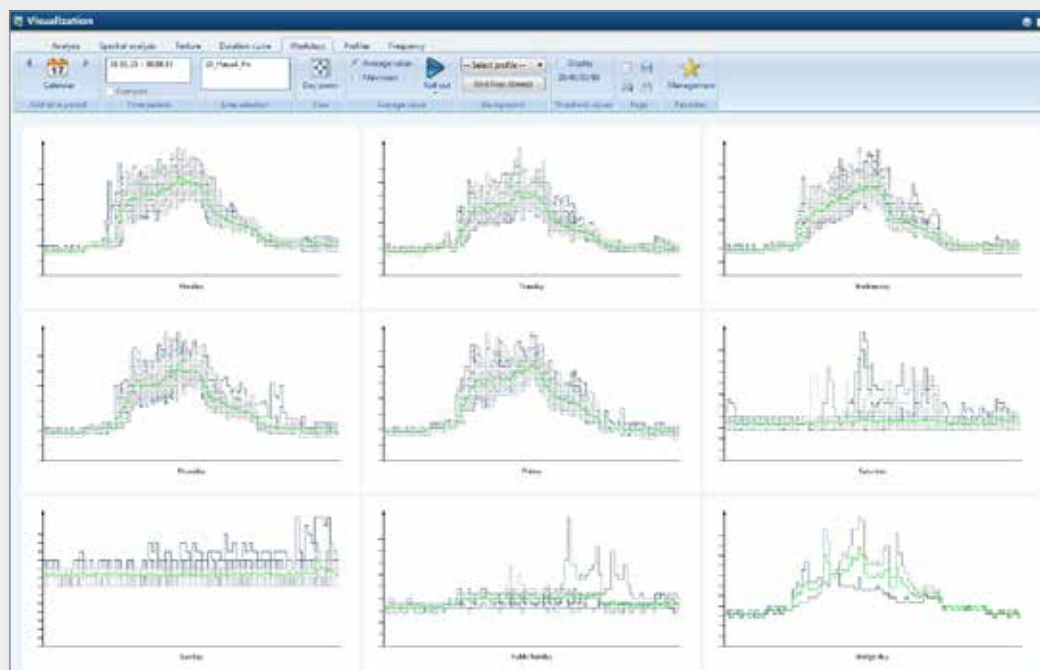
Consumptions are arranged as a curve according to their values, which are displayed for any period with proportional distribution of hours. By changing the nominal value it is possible to create different scenarios for determining consumptions above/below fixed limits at any time. The user is able to display total consumption and have corresponding low consumptions illustrated in form of a reference line. It is possible to timely weight load curve peaks for optimizing consumption behavior.



Rated duration curve

## Comparison of weekdays

Typical behavior patterns regarding specific weekdays can be analyzed by applying the comparison-weekday-method. Not only are calendar weekdays analyzed but also bridging days and holidays. At a glance average values of predefined periods are easily compared by day type. For a better perspective the user can switch between day view and week view. The calculated average values are rolled out as a separate line taking into consideration exclusion days and a defined period.



Comparison of week days



## Day type analysis/profiles

The load curve can be analyzed by applying mathematical methods for typical day patterns. All days within a fixed and user-defined tolerance zone are shown in one color. The resulting distribution enables users to draw conclusions of seasonal and other recurring events. This way, forecasting specialists are able to identify favorable periods for modeling a mathematical forecast.

Day type comparison



## Frequency

By applying the frequency function the user is able to display the consumption pattern for any period in terms of equally distributed value ranges (classes). The number of classes is freely selectable. An either complete or percentage distribution can be limited to a specific period of time within the curve (working days, office hours etc.).

## Formula editor

The calculation of simple operations such as consumption sums, forecast deviations of costs as well as more complex energy-related operations can be done with the formula editor. A predefined formula collection, the application of drag & drop and a fill mode allow for an easy-to-use and convenient operation of comprehensive algebra functions.



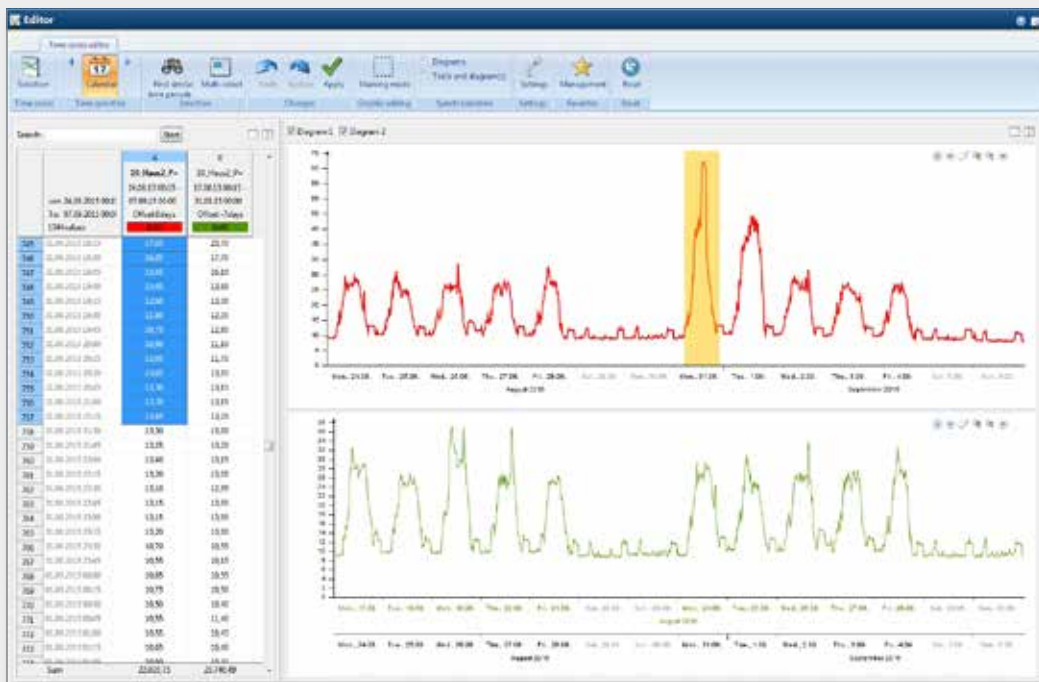
Formula editor





## Time series editor

The time series editor is an extensive tool for editing time series in an easy-to-handle and fast manner. It is applied to fill gaps in time series or correct unexpected load peaks of forecast time series. Additionally, the module assists with the correction of schedules or rework of forecast time series besides various other functionalities. Formulas as well as sum distribution for manipulation purposes can be applied in addition to the copying and transcription function. Furthermore, the time series editor enables the search for similar periods of time taking into account specific variables (e.g. temperature).



Time series editor

## Costs and prices

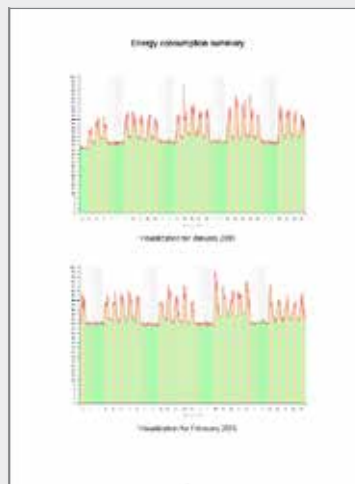
This optional function of **robotron\*energyprofiler** assists with the separation of long-term forecasted load curves into whole sale products. The module includes different rounding possibilities that help the sales employee to choose the most suitable option. This separation can be done independent of volume or value. Even mere tariff pricing and separation into base-peak as well as peak-off-peak are possible. Distribution is provided in annual, monthly or weekly products. The visualization of separated load curve supports the user to directly control and analyze. In addition, the residual load curve can be imported to MS Excel for further processing or stored as a line within **robotron\*energyprofiler**.

## Reports

With the reporting functions included in **robotron\*energy profiler** results of various analysis tools are redisplayed in PDF format and sent via email. As a result the user is provided with a professional report which can either take the form of a short summary or a comprehensive description including a letter and various setting possibilities. The document structure

can be individually arranged and saved for later uses. During analysis it is possible to bookmark compiled line constellations and use them to generate ad-hoc reports. Database integration facilitates the generation of reports for more than one line/customer at the same time by applying a batch mode using a random report template.

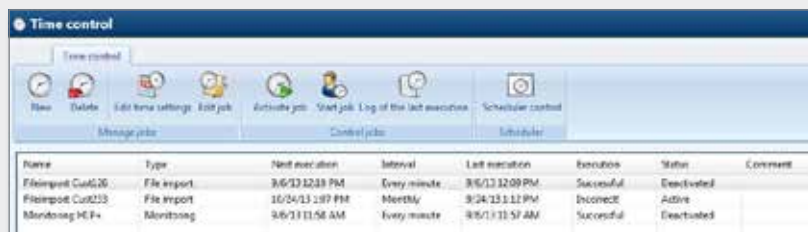
Sample reports

A table titled 'Values' showing energy consumption data for January 2015 and February 2015. The table has columns for 'Date', 'Building', 'Customer', and 'Substation'. The data is presented in a grid format with green and red cells indicating different consumption levels. The table is titled 'January 2015: New Building\_P= Customer Substation' and 'February 2015: New Building\_P= Customer Substation'.

## Time control

The implemented time control provides for recurring operations such as executing import, export or reports fully automated in any intervals at any time. In addition various monitoring functions, for instance supervision of performance minimum and maximum, operation hours, volume or plausibility of values are defined and interval-controlled executed. The results are saved as files in the system or sent per email as kind of an alarm function.

Time control



## Languages

The **robotron\**e* profiler** is currently available in German, English, French, Russian and Turkish language. Furthermore various country-specific settings for number formats are provided.

Display options



## Assistance

A number of videos regarding different topics support the simple and intuitive operation of **robotron\**e* profiler**.

Help video



## Download

Additional information and download of a functional test version:

[www.robotron.eu/robotron-eprofiler](http://www.robotron.eu/robotron-eprofiler)



Concentrated and secure -  
Robotron faces challenges



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