



enerchart: functional overview

(enerchart version 1.28.1, dated 10.01.2020)

The functional diversity of enerchart leaves nothing to be desired. You will be surprised by the extremely flexible dashboards, use the multi-client capability to integrate your own customers into the system, automatically read practically every networkable meter, facilitate manual readings with the corresponding mobile app, enjoy a true cross-vendor LoRaWAN integration, or seamlessly integrate enerchart into your product portfolio thanks to its OEM capability.



Discover more at www.enerchart.com

Presentation

- Dashboards with freely positionable for elements to facilitate individual design goals
- Unlimited number of dashboards per user with optional sharing with other users/user groups
- Elements in dashboards: tables and graphical charts (interactive live previews of all charts), individual values, text elements (headings, text fields), image files, website embeddings, RSS feeds, news, wizards). Each element has numerous display configuration options
- Single value elements for displaying current values/states, variously configurable
- Linking between dashboards possible
- Function for duplicating full dashboards or dashboard layouts
- Converting dashboards to PDF
- Automated sending of dashboard PDFs via e-mail in selectable cycles to select recipients (groups)
- Function menu collapsible; full-screen view
- Automatic web slideshows from dashboards (these can also be displayed without a session)

Analysis and visualization

- Numerous chart types for representing time series: State charts, 15-minute course, continuous curve, counter reading course, scatter chart, carpet plot, Sankey flow chart, ABC analysis, pie chart.
- Displayable as a chart and/or table
- Automatic conversion between consumption and curse
- Diagrams for representing states: Image reports (any background images)
- Interactive map reports with OpenStreetMap (from v. 1.29)
- Report on measures
- Automatic or controllable scaling of the measuring unit
- Interactive measuring points (shows data on MouseOver)
- Display of up to 16 measuring points per diagram, as well as different measurement types (Y-axes) and separate or common display of measurement types
- Comparison of up to three different time periods per chart—in each other or among each other.
- Flexible time selection: absolute or relative (e.g., current week) time period. Grid unit, pre-offset, and post-offset.
- Interactive time selection: zoom in/out, scrolling (12 jump widths selectable)
- Numerous display parameters can be controlled: grid, color inversion, interpolation, fill area, separate or joint display of measured variables, axis dimensions, insertion of measures and threshold violations, insertion of minimum, maximum and average lines, insertion of setpoints, color control (default and, if necessary, individually per chart)
- Transposing tables and carpet plots
- Color limit adjustment for carpet plots
- Modification my drag&drop for Sankey flowcharts
- Controllable point consolidation for regression diagrams
- Export as high-resolution PNG graphic (e.g., for printed products)
- Display of real-time data (flowing curve)
- Limitation of the visualized data to weekly schedules (e.g., shift times) and calendars (e.g., "working days only")
- Creation of unlimited hierarchical measuring point structures as a tree
- Generation and display of any number of virtual (mathematical) measuring points. These can be formed from sums (with additional differential measuring points) or from almost arbitrarily formulatable formulas (e.g., arithmetic operators, trigonometric operators, IF-THEN conditions ...)

Energy management according to ISO 50001

- Documentation of measures and notes on measurement data
- Reminder function for future actions (notification to selectable users (groups))
- Unlimited number of file attachments (per upload) per action/note
- Can be displayed as a chart and/or table
- Unlimited number of freely definable conversion factors (e.g., tariffs)
- Dynamic conversions as time series
- Unlimited number of freely definable weekly schedules (for performance mapping, e.g., shift schedules, working hours, and machine operating hours).
- Unlimited number of freely definable calendars (e.g., operating days and holidays)
- Import of calendars via iCal file

- Creation of any key figures via virtual measuring point
- Comparison of key figures relating to other periods (*as of version 1.29*)

Monitoring and control

- On the import level: Automatic checking of incoming measurement data for plausibility/gaps incl. alerting of definable users (groups)
- On the analysis level: Free definition of upper and/or lower thresholds, test for static limit or for excessive percentage growth (dynamic thresholds).
- Notification of threshold value violations with definable texts to selectable users (groups)
- List of all threshold violations
- Switching of actuators in case of threshold violations
- Limitation of threshold value monitoring to fixed times, weekly schedules, or calendars
- Correction of wrong/missing measuring points incl. automatic documentation (note function).
- Correction possibilities: ignore, replace by static value, take over from existing measuring point (also same) and/or previous period, linear interpolation between meter readings, mark as "meter change" and delete calculated consumption on change, multiply values by fixed factors, import values from CSV, and delete values.

Data acquisition

- Measured units: the time series can be created for practically all common and unusual physical units in various scales for consumption or condition. Besides current, related measured variables, these are, for e.g., temperature, pressure, volume, volume change, speed, frequency, heat quantity, output, and lighting, costs
- Definition of own measured variables (incl. scaling) is possible
- Manual input of data via input fields and upload interfaces
- Upload formats: CSV, MSCONS, XML
- Transfer of any CSV structures and adaptation via the format editor
- Definable sequences and reading intervals for manually readable meters and data ("meter lists"), including illustrations, reminder functions, and plausibility checks.

Mobile app for meter reading

- For Android smartphones, the enerchart app for data collection and meter reading is available in Google Play
- Automatic recognition of the counter readings by camera
- Confusion-free assignment of the counters/measuring points via QR codes
- Automatic synchronization of the meter lists
- Reminder function for reading
- Automatic transmission of the read meter readings
- Simple and secure login of your own smartphones to the system
- QR code print templates for label sheets

Connectivity

- Automated readout of meters, data loggers, interfaces, IoT clouds, and sensors via interfaces
- Smallest time interval for measured values: one minute (visualization even in real time)
- Driver concept for easy extension with new connections
- Direct connection of TCP-based systems, such as Modbus-TCP, OPC UA, SNMP, FTP, KNX, BACNET, and more (*please ask for the current list or concrete drivers*)
- Connection to APIs and backends of IoT clouds: The Things Network (TTN), Actility, Lorient, NB-IoT, Sigfox, Chirpstack, and more (*please ask for the current list or concrete drivers*)
- Cross-manufacturer LoRaWAN® integration through own LoRaWAN® payload editor for dynamic (from v. 1.29) and for static LoRa® payloads. This ensures compatibility to almost all available LoRaWAN sensors
- Connection of specific devices/data loggers: Janitza ProData2, EMU M-Bus-Center, Harting SmartPN, and more (*please ask for the current list or specific drivers*)
- Individual creation of drivers for APIs or devices quickly and cost-effectively on request
- Automatic homogenization of the measuring intervals
- Measurement of the device catalog to create templates for frequently used devices/interfaces
- Intermediate instances ("intermediaries") for scalable connections of numerous, globally distributed locations

Data backup and data export

- Archiving of measurement data to relieve the database (e.g., delete/archive minute values after one year); the time series remain analyzable at larger intervals.
- Local data protection (backup)
- External data protection (backup) via FTP, SFTP, RSYNC or SMB. SNMP backup configuration
- On the analysis level: Export of all displayed data as a CSV file
- Low-Level-Export: Access to all stored measured values via user-defined SQL-View.

Administration

- Delivered as a Debian appliance (vmware or HyperV); application managed via dpkg.
- Updates from enerchart via secure update servers
- Active Directory integration of the user administration
- Comprehensive rights and role system, release groups
- Monitoring of running system services and events
- Searchable display of log entries (actions, system, importer, push service, error UUID)
- Extensive setting options for network services
- Certificate management

Further functions and properties

- Dialog language selectable per user. Currently available are English, German, and Spanish (other languages on request)
- Maintenance of any number of mandators with one enerchart instance, nested mandators structures (multilevel mandators capability), cross-mandator analysis
- User tracking function for support purposes
- Adaptive web interface (responsive design)
- Software updates, online or remotely, are possible.

The term "unlimited number" or "unlimited" means an unlimited number of objects for normal, intended use. To maintain the stability of the overall system, users, dashboards, etc. are subject to technical upper limits that are far above any normal limit of requirements.

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