The ezeio® mkII System overview

Take a look at the most powerful & user-friendly system components in the world of IIoT

ezeio® mkII Hardware

Combining all hardware & firmware components needed for making IIoT work. 100% remotely managed, configured & synchronized. 5-in-1 hardware controller:

o Input/Output Unit
o Data Logger
o Modem (LTE Cat M1) & Gateway
o PLC (edge processing)
o System Functionality

ezeio® mkII Cloud Software & eze.io User Interface

The ezeio® Cloud is a highly optimized solution for the automated synchronization of the entire deployed ezeio® Hardware units. It's the core architecture which makes the system highly secure, fully redundant and greatly scalable from one to hundreds of thousands of ezeio's. The eze.io User Interface is the single hub for all of the Users technical and managerial needs. Any number of ezeio® Hardware units can be accessed by as many users as needed.

o Account Management
o Configuration Management
o Scripting Editor
o Live status
o Dashboards
o Alarms & Notifications
o Timers & Schedules
o Mapping & Geofencing

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The ezeio® mkII Cloud Software (eze.io)

ezeio® System is 100% remotely managed with total control for the user

1. The powerful eze.io User Interface

One single "hub" for all technical & managerial user needs.

Through the eze.io User Interface any number of users can access any number of ezeio® Hardware units based on their individual privileges. 100% of the system features and functionalities are managed through the web portal. This is a significant security feature as there is no other way to interact with the system ... not remotely, not locally on the hardware level.

o Account Management
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2. Dashboard & widgets

Customized data visualization for sensors to whole applications and systems.

The dashboards can be freely created based on predefined widgets. There are no limits set in term of the size of the dashboards or the number of used widgets. Widgets can be simple such as dials and graphs but also very powerful applications in itself with control and automation functionality ("Super Widgets"). Here some examples of the available widget types:

o Field value/text widgets
o Dials/gauge widgets
o Graphs widgets
o Tables widgets
o Push/sliding button widgets
o Clock/date widgets
o Map widgets with geofencing details
o Aggregation "Super Widgets" (in table or map form) for the consolidation of deployments
o Scheduling "Super Widget"

Above widget types can be combined into newly created widgets for customization purposes by the eze System development team. This will give full flexibility for creating new custom applications.

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3. Group & account management

Create any numbers of accounts & groups.

The group & account tree functionality is a very powerful managerial tool for the entire deployed systems. It allows to structure the deployments in an form or way, i.e.
by location, by type of equipment, by business unit or it allows you to map your own and your customers commercial ecosystem.
There are no upper limits for creating groups and accounts as well as levels within the tree structure.

4. User management & privileges

A very unique system for managing the access rights for every single user.

o The user management and privileges system within the eze.io environment is another extraordinary functionality which allows inviting users into any specific group and account with very specific access rights.
o Users can be invited various groups and accounts individually and this within the up- and downstream tree structure.
o The privilege system gives the option to assign very specific access rights and privileges for each invited user which will ensure that users only have the privileges they need for their specific needs and assignments. A single user can have different privileges for different groups and accounts.
o The privileges span in small increments from very limited "view only" to full administrator rights.

eze io

The ezeio® mkII Cloud Software (eze.io)

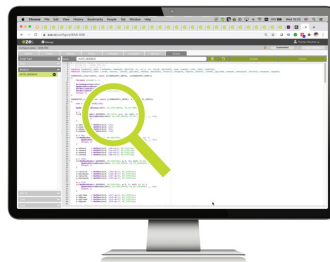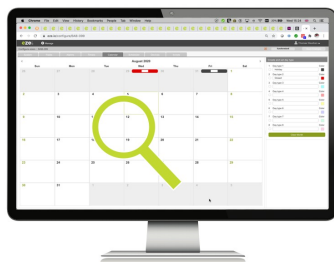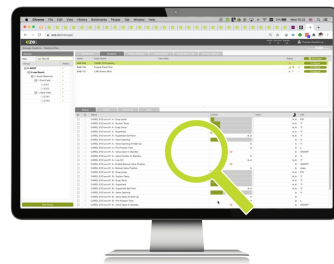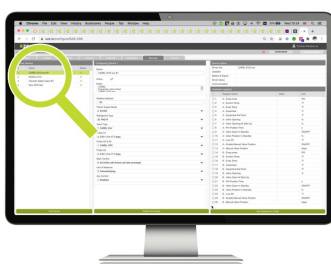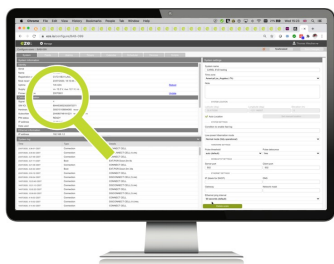## ezeio® System is 100% remotely managed with total control for the user

5. The unique ezeio® configuration management system

Total control of every single ezeio® deployment.

The configuration management system is the "heart" of the ezeio® mkII System. It gives 100% control of the configurations for every deployed ezeio® mkII Hardware and this from simple settings to complex scripting. The current configuration management components are:

o System status overview
o Fields overview & management
o Alarms & notification configuration
o Timers configuration
o Schedule configuration
o Calendar configuration
o Device/driver overview & management
o User scripting management

All configuration updates within the system are fully automated and synchronised. Even offline ezeio® mkII hardware units are managed automatically. They will be updated with the latest configuration whenever the are again online. This takes every burden of the user so that she/he can focus on its core work.

eze io®

The ezeio® mkII hardware

Combining all hardware & firmware components needed for making IIoT work. 100% remotely managed, configured & synchronized.

Specification

Hardware models
o Ethernet + LTE CAT-M1
o Ethernet + 2G/3G

Security
o Secure cloud communication
o PKI & 128bit encryption

Inputs/Outputs
o 8 general purpose inputs (discrete, on pluggable terminal, fully configurable)
  • 0-10VDC (2.5mV resolution, >65kΩ input impedance)
  • 0-30mA (12.5uA resolution, 200Ω internal shunt)
  • 0-1MΩ resistance (better than 2% accuracy in the range 2k – 700kΩ)
  • Thermistor (100k, 10k or 2k types, internal excitation)
  • Dry switch (on/off, optional internal excitation)
  • Pulse (S0 or KYZ, up to 400Hz, optional internal excitation, monitor pulse rate and/or pulse count)
  • Electronic configuration of pull-up / shunt
  • Protected with PTC
  • Internal 0.5% reference
o 4 general purpose outputs (discrete, on pluggable terminal, fully configurable)
  • Output 1/2 - digital (on/off), sourcing up to 200mA each
  • Output 3 - PWM output or on/off output (sourcing up to 200mA)
  • Output 4 - analog, 0-10V, 0.1V resolution (sourcing up to 10mA)
Supports plug-in sidecar ezeio I/O expansion (third-party I/O can be added via the communication ports)

Supports up to 90 individual fields Modbus/RTU Master port (RS485)
o Up to 32 devices
o 1200 to 115200 bps

Modbus/TCP Server and Client (TP 10/100 Ethernet)
o Configurable port numbers (standard 502)

CANbus
o Supports J1939
o Optionally used for I/O expansion

SDI-12 port
o Optionally NMEA 0183 GPS

Other hardware features
o SMA antenna connector for the cellular radio
o +5V DC regulated output, max 200mA
o PTC fused DC output, max 200mA for sensors
o On-board RTC (24h supercap backup)
o 3 dual-color indicator LEDs
o Pushbutton for controlled startup/reset

Power Supply
o 12-24V DC
o Standard 5.5/2.1mm connector for plug-in power
o Optionally power input through screw terminals
o <1W average self-draw, peak (sub-second bursts) 3W
o Hibernation mode with < 0.06W average draw

Dimension & Weight
o W: 108mm, H: 90mm (excl. connectors), D: 33mm
o Allow 30mm top & bottom for connectors & wiring
o DIN rail or screw mounted
o Weight: 0.146kg

On-board Buffer Memory (non-volatile)
o Full system log data (>50 days @ 10 minutes)
o Large dynamic log data buffer, i.e.
  • 10 fields, >30 days @ 10 seconds
  • 50 fields, >30 days @ 1 minute
o Events/Alarms/Transactions (>6,000)

Schedules, Calendar
o 10-year calendar
o 30 daily schedules

Additional features
o Remote configuration management
o Live data access
o Automatic data synchronization with cloud
o Expression engine for Fields and Alarms
o Remote firmware upgrade
o Up to 8 geo fence areas with 35 points each
o Up to 200 alarm conditions
o Up to 2000 card/PIN codes
o Smart driver support
o Powerful scripting support

Others
o Operating Temperature
  • -20 to 65°C [TBC]
o Operating Humidity
  • 5 to 95%, non-condensing
o IP Rating
  • 40
o System Log Buffer
  • Approx. 56 days at 10 min logging/90 fields

Certifications
o FCC Part 15 B 15.017 & 15.109
o AS/NZS CISPR 32 (2015)
o EN 55032 (2012) +AC1
o EN 61000-3-2 (2014)
o EN 61000-3-3 (2013)
o EN 55024 (2019) +A1
o VCCI-CISPR 32:2016 Class B
o Verizon OD
o CE
o RoHS 2

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| Assets | **End-to-end ezeio® System Architecture** | Users |

| Secure-by-design | Field-proven | User-friendly |
| Universal | Highly Scalable | Cost-effective |

System Functionality

Monitoring
Real-time monitoring, data logging, alarms & notifications, reporting, predictive maintenance

Control
Direct control of devices, equipment, applications & systems

Automation
Scheduling, event / application / system automation, applying analytics & AI

Tracking
Location tracking, route optimization, geo-fencing

Consolidation
Functions/types, locations, sites, applications & systems

Transaction Management
Event Logging, payment System, access Control

| ezeio® Hardware | ezeio® Cloud | ezeio® User Interface |

Always connected!

| One single Hardware | Fully automated Management | One Hub for Everything |

One single Hardware
- I/O Unit
- Data Logger
- Gateway
- Modem
- PLC
- System

+ Edge Computing
+ 5G LTE CAT-M1
+ Unit agnostic
+ Equipment agnostic
+ 90 Inputs/Outputs
+ Modbus TCP/RTU
+ CAN bus, SDI-12
+ J1939

Fully automated Management
- Highly secure
- Redundant
- Automated sync
- Highly scalable
  - 1 to 1 million
- Virtual consolidation
- Highly optimized

One Hub for Everything
- Account Mgmt
- Config Mgmt
- Scripting Editor
- Live status
- Dashboard
- Mapping
- Reporting
- Geofencing