IOT & SOFTWARE

# Databox

## Monitoring, control & analysis for managing installations

The Future is Efficiency
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Circutor

In order to efficiently manage our installation, we must monitor the most critical data, analyse them and lastly act on those processes that require it. To do so, we need to install measurement and activation equipment capable of gathering this data and communicating it with a management platform.

**DataBox** is an Industrial IoT platform that has been designed to solve this need. The platform gives any type of user, whatever their level of knowledge, a tool that will allow them to view, analyse and store the data from their installation, making all the data available in a structured and accessible way.

# Worry-free management & control

## What is DataBox?

**DataBox** DataBox is an *online* software platform designed for data logging, monitoring, remote device control and analysis for your IoT projects.

Our system is in charge of receiving data from any device, managing, monitoring and exporting information; receiving real-time alarms, performing actions, remote control and analysing high volume data through dashboards, reports and advanced big data analysis tools.

## What advantages does it offer?

**DataBox** lets you make comparisons, from the simplest to the most complex. It records and displays measured parameters and your own ratios and KPIs over time, cross-referencing data from one or several installations. You set the limit.

The platform has pre-configured templates and customised reports. Templates designed for energy monetisation and savings, baseline comparison, temperature control and simulating electricity bills.

### Monitoring

Energy efficiency is much more than just monitoring electricity consumption. Parameters such as temperature, humidity, air quality, and so on, have a major impact on an installation's operating status. **DataBox** is a 100% multi-variable platform that is fully open to Circutor and third-party devices, as it uses Modbus industrial communication protocols (RTU and TCP), compatible with equipment with RS-485, Ethernet or LoRa private wireless communications.

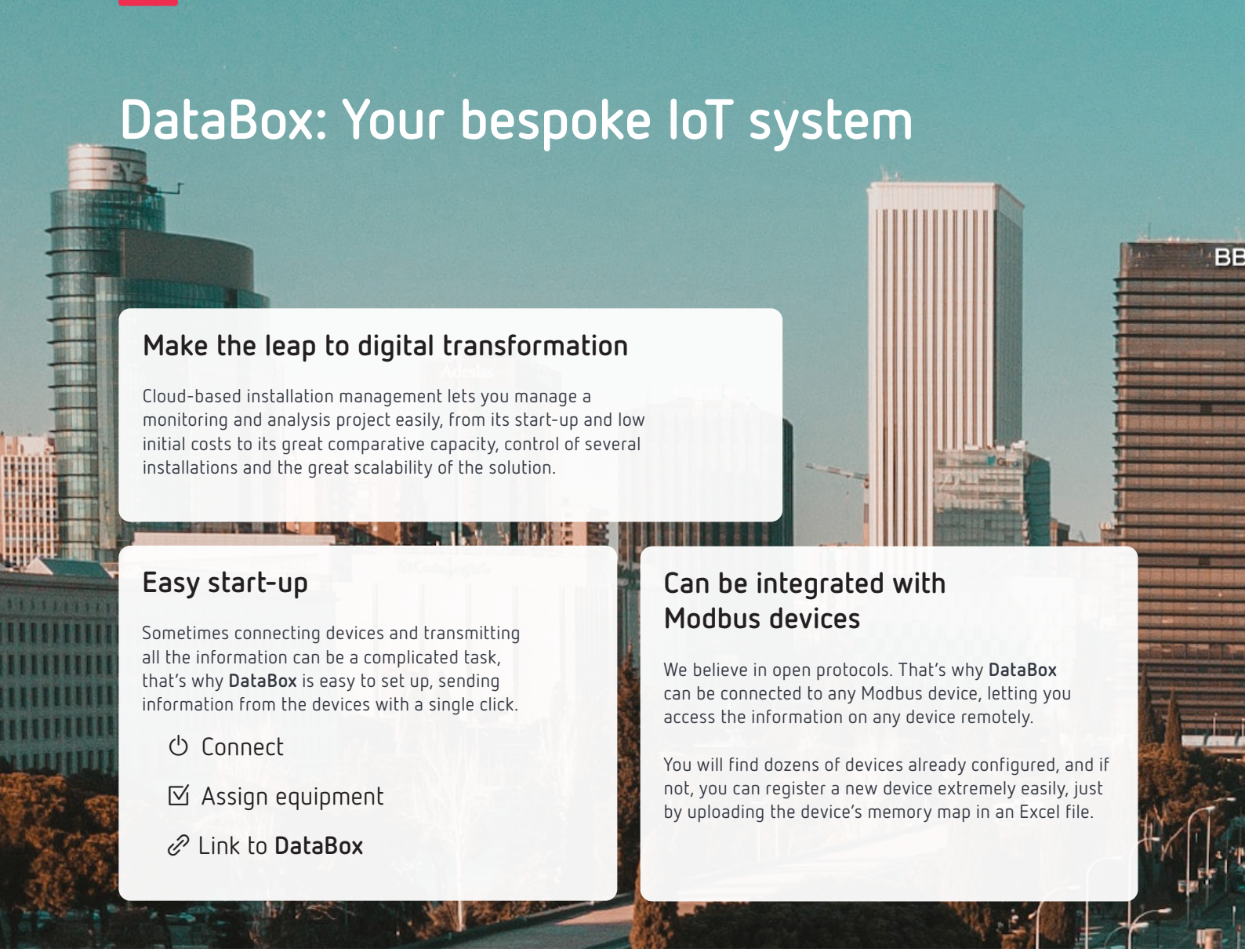
### Remote control & activation

Interface with the equipment in your installation by reading or writing parameters in real time using SCADA synoptic displays. Automate processes by performing conditioned or scheduled actions using a calendar. Speed up your start-ups using our *"Connection test"* tool, which lets you verify the communication of the equipment installed to check that it is correctly installed.

### Efficient analysis

**DataBox** offers a number of analysis tools to get the most out of the monitored data from your installations. Setting formulas and KPIs, comparing data from several installations, importing additional data to those recorded and making comparisons with historical data are just some of them. Apply quantitative and temporal filters to your comparative analyses and get the most out of our Big Data tool.

# DataBox: Your bespoke IoT system



## Make the leap to digital transformation

Cloud-based installation management lets you manage a monitoring and analysis project easily, from its start-up and low initial costs to its great comparative capacity, control of several installations and the great scalability of the solution.

## Easy start-up

Sometimes connecting devices and transmitting all the information can be a complicated task, that's why **DataBox** is easy to set up, sending information from the devices with a single click.

- Connect
- Assign equipment
- Link to **DataBox**

## Can be integrated with Modbus devices

We believe in open protocols. That's why **DataBox** can be connected to any Modbus device, letting you access the information on any device remotely.

You will find dozens of devices already configured, and if not, you can register a new device extremely easily, just by uploading the device's memory map in an Excel file.

## Solutions for all sectors & needs

- Climate & cooling
- Power management
- Maintenance & management
- Power distribution
- M2M
- Building monitoring
- Industry 4.0
- Smart cities
- Electric mobility
- OEM

CLOUD

## IoT industrial platform

Data processing, monitoring and analysis software in the cloud:

- Parameter reading
- Calculation of KPIs
- Reports
- Multi-point comparisons

Display on configurable screens, time scheduling of actions and creation of tariff structures.

Cloud computing

Ethernet
VPN GPRS
Public GPRS

## ePick Gateway

It is the brains of the installation. It is responsible for data collection, with the capacity to store 400,000 parameters, smart calculation of ratios and alarm notification in real time.

Model with integrated VPN SIM card available.


Fog computing

Ethernet
RS-485
Private LoRa

INSTALLATION

## Sensors & analysers

Circutor equipment and any monitoring and control device with protocol:

- RTU Modbus
- TCP Modbus
- Private LoRa

These devices are responsible for real-time measurement and action in coordination with the installation's Gateway.

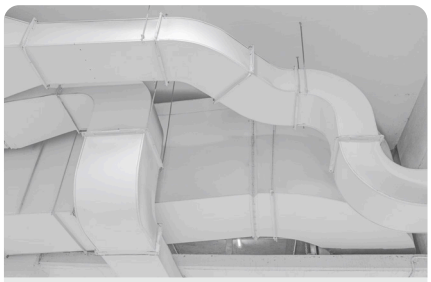

- Temperature sensors
- Flow sensors
- Power measurement
- $CO_2$ measurement
- Humidity measurement
- Status measurement
- Pressure measurement
- Time measurement

Edge computing

# Applications to get the most out of the DataBox platform

## Submetering and rebilling

Monitor your energy analysers and meters, create electricity supplies to monetise/bill energy consumption to different lessors and set up automatic sending of electricity bills to pass on the energy cost to each of them, clearly and without errors.



## Industrial refrigeration

Continuously record the energy consumption and temperature data of your cold rooms; set up real-time alarms to detect abnormal temperatures or poorly closed doors and schedule monthly reports to audit energy consumption and temperature evolution to safeguard your cold chain.

## Multi-point management

Manage your chain of installations, including supermarkets, hotels or restaurants and centralise all the data on a single platform. Create a command centre for each installation, create totalising indicators, set up reports that summarise the data comprehensively and analyse a large amount of data with the multi-centre comparative tool for big data projects.

## Irrigation control

Set up a schedule to automate your irrigation system and monitor the soil moisture of your farm to ensure your crop production. And forget about wiring sensors, by using our long-range wireless communications. Don't worry about distances, as you can control all your sensors over ranges of up to 10 km.

## Monetisation of water/ gas consumption

Read and record water and gas consumption directly from your meter (through Modbus) or do it by installing pulse meters. Convert your measurements into supplies to monetise your consumption, including billing by tranches for water or agreed prices for gas.

## Photovoltaic plant

Monitor the production and energy consumption of your photovoltaic plant and manage the surpluses released to the grid. Create KPIs to know the utilisation rate of your plant and assess its performance. You can also measure solar radiation and the temperature of your PV panels to efficiently manage your maintenance tasks.

# Two better than one.
# You decide how to connect to DataBox

## ePick Gateway

### Models adapted to suit your needs


**ePick** is the brains of the installation. The device works as a gateway designed to communicate with machines and sensors, gathering and storing data from the entire installation and sending it to the DataBox server for further processing.

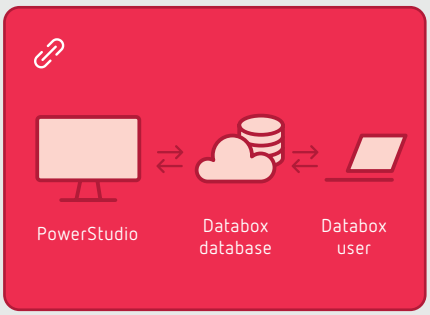
There are two models available: **ePick VPN GPRS** and **ePick NET GPRS**. The VPN model includes a SIM card with free two-way communications throughout Europe. It always establishes automatic communication with the platform by GPRS, with no need for any additional configuration, making it very easy to set up. The NET model has the option of communicating either through GPRS or Ethernet, both with networks fully configured according to the needs of each user.

Besides the integrated GPRS modem, the device also has an RS-485 port and an Ethernet port for both configuring (NET version) and connecting to any device in the installation.

The **ePick** has been designed for easy installation on DIN rail, occupying only 5 modules, facilitating interconnection with other equipment sharing the same location.

**Technical specifications**

| Model | ePick VPN GPRS | ePick NET GPRS |
|---|---|---|
| | SIM included | SIM not included |
| | Plug & Play | User network configuration |
| | GPRS communication | |
| | Simultaneous RS-485 and Ethernet | |
| | Circutor equipment drivers | |
| | Generic off-the-shelf Modbus drivers | |

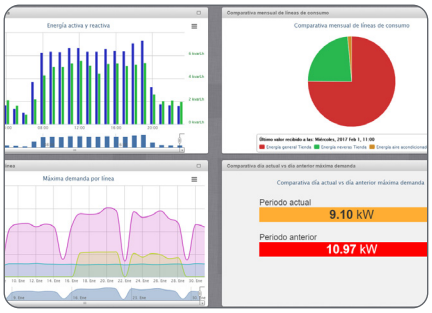



## PowerStudio → DataBox connector

### Maximise your analysis capabilities

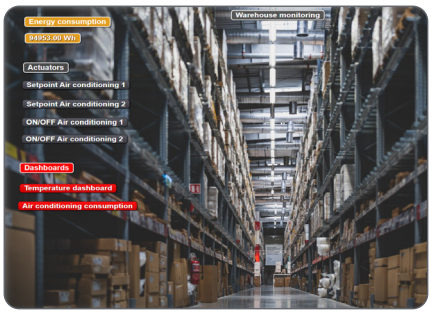
- *Installable* software to upload your data from our **PowerStudio** SGE software to the cloud.
- Substitute for a physical gateway.
- Import **PowerStudio** DB logs, including device variables and calculated variables, both stored and unstored.

# Create your IoT projects to easily manage all your installations




## Create your own dashboards and widgets

- Comparison between installations or sites
- Comparison in time (vs. previous month, vs. previous year)
- Comparisons by type of use
- Analysis using KPIs and efficiency formulas (kWh/m$^2$, kWh/occupancy, kWh/temperature, etc)
- Statistical features and histogram to analyse user-defined periods.




## Design display and control screens: SCADA Synoptic

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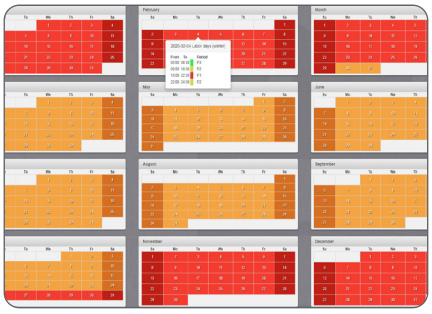
- Statistical features and histogram to analyse user-defined periods.

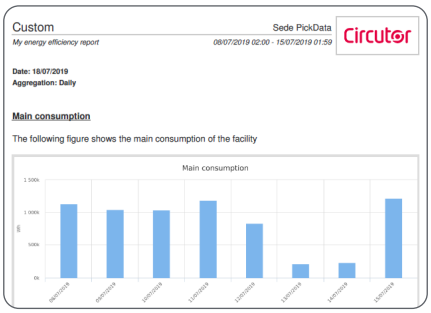

## Real-time alarms

- Alarms generated in real time in the Gateway; the decision is made in the installation itself
- Activation/deactivation of peripheral outputs depending on the status of each
- Instant notification by Telegram or email
- Alarm management through a specific Dashboard:
  - Status control (pending, attended and resolved)
  - Average resolution time, people in charge, etc.



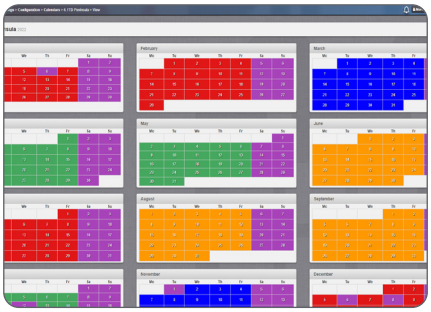
## Control and schedules

- Management of non-critical systems such as: lighting, irrigation, air conditioning, etc.
- Remote control with on-demand, real-time activation
- Scheduling of calendar and actions using a fixed timetable or astronomical control.




## Automatic sending of reports and bill simulations

- Predefined reports for cost and consumption applications, bill simulation, analysis of savings obtained, and temperature control
- Generation of customised reports according to the needs of each customer or installation
- Statistical features and histogram to analyse user-defined periods.



## Billing calendar and cost calculation

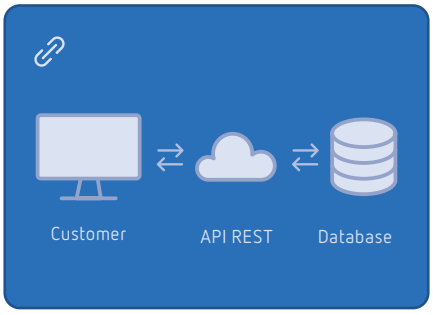
- Link your consumption to any tariff in the Spanish market (2.0 TD, 3.0Td, etc.)
- Create your own tariff/calendar and apply it to your consumption
- Monetize the energy consumption of any country worldwide.


## Geolocation of installations and control of devices

- Geolocate all your installations on an interactive map and access them at any moment
- Remotely control all your gateways (firmware updates, remote reset, etc.).

## Compare data from all your facilities *(Analytics licence)*

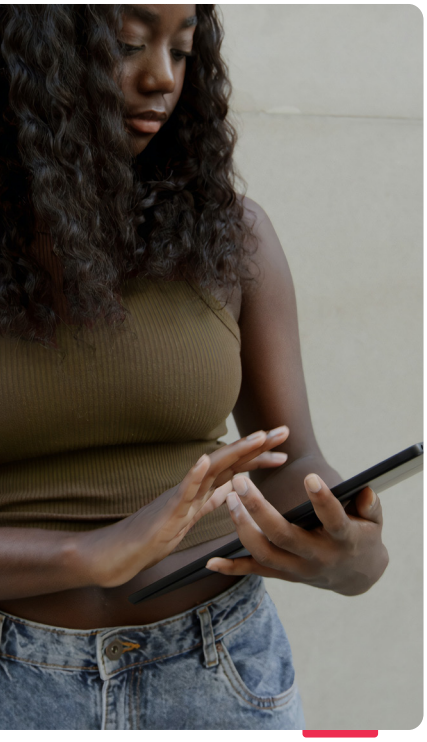
- Compare equipment, KPIs, measured and imported variables from several installations using our integrated advanced analytics tool.
- Compare data from several installations and add time and quantity filters.




## API REST

- Data export using HTTPS calls (URLs) by third parties.
- Get the latest data from your services or the history of one of them in JSON format.
- Reset the token to revoke permissions to external links.

# Structure



**DataBox** lets you manage projects from a single installation to multi-point projects with hundreds of installations**.** The structure of **DataBox** is based on companies and installations.

The installations constitute each of the points where data is gathered and, therefore, one or more gateways are installed. They always belong to one company, which can be either of the two types. The facilities are geolocated on the map and are the structure's core element.

**Companies**
Companies mean you can group together each of the figures involved in a project, such as an integrator, installer or end customer. They are structured in the form of a tree and come in two types: Partner Company or Customer Company.

**Partner Company**
These are accounts that can generate new Customer Companies, or in other words, new projects. The usual structure consists of a Partner Company, owned by the integrator, and as many Customer Companies underneath it as there are projects to manage.

**Customer Company**
A Customer Company may be associated with a single installation or a multi-point project, but it will always be managed and controlled by the same company.

# Users

To manage each company you will need at least one user. If you want to create projects and set them up on the platform, and create companies and users for your end customers, you need a **Professional** user account.

To manage multi-point projects, in the **Analytics** user account you can perform statistical analysis and multi-site and multi-variable comparisons to have full control from a single platform

To customise your own installation you have the **Advanced** user account, in which you can manage your own project at an operational level (change widgets, dashboard, reporting frequency, etc.)

For all customers who only need to view the status of their installation, the **Basic** user account provides easy access to all the data to check the evolution of the recorded parameters, alarm status, access to invoice simulations, as well as to export the data in an easy and user-friendly way.

## Professional

**Analytics +** features
Project management
Remote device management
User registration and management.

## Analytics

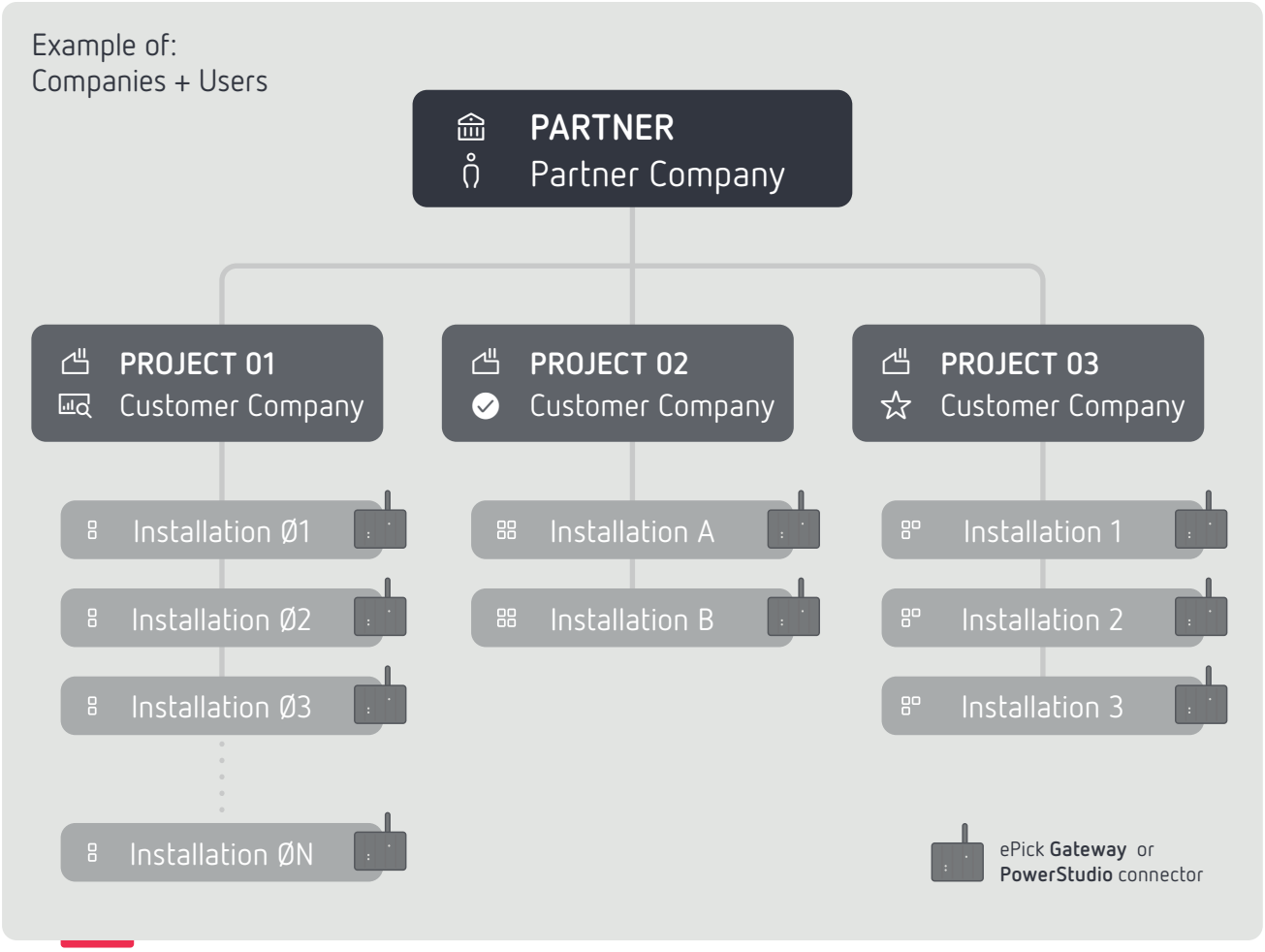
**Advanced +** features
Big data tools
Advanced comparative analysis
Access to export through API and FTP

## Advanced

**Basic +** features
Dashboard customisation
Management and configuration of reports
Management of calendars and schedules

## Basic

Data monitoring
Alarm monitoring
Time and multivariate comparisons
Scheduled report received by email.




# Plans

Each of the gateways in your installation will need a plan that enables it to send all the data it collects to the platform. Choose the data plan that best suits your needs. There are 4 plans, depending on the volume of data to be monitored and the number of alarms and/or actuators. All plans include a SIM card with free VPN communications and 2 years of data storage.

## Lite

**6** variables

**100** Alarms / Actuators

Free SIM / VPN communication

2 years storage

## Small

**18** variables

**500** Alarms / Actuators

Free SIM / VPN communication

2 years storage

## Medium

**55** variables

**1000** Alarms / Actuators

Free SIM / VPN communication

2 years storage

## Big

**100** variables

**3000** Alarms / Actuators

Free SIM / VPN communication

2 years storage

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