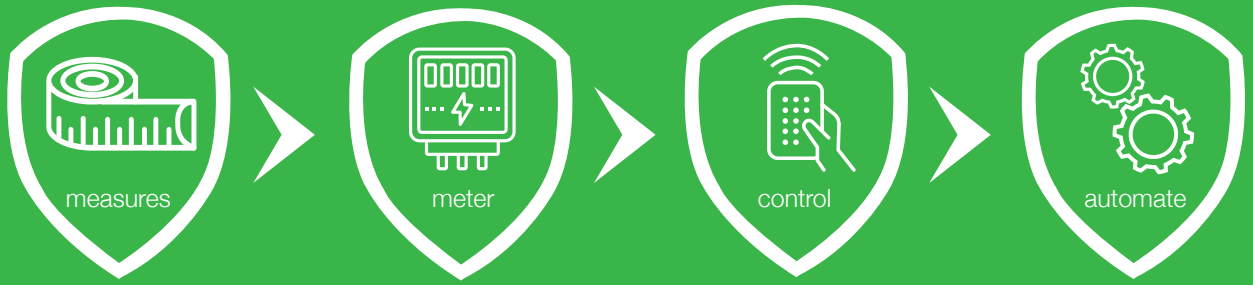
Intelligent Smart Metering Solutions



RIVERTON AFRICA LTD
Creative Engineering Solutions

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Riverton Africa is an integrated engineering services group that is based in Africa and has adopted a multifaceted diversified strategy, by providing our customers with major benefits that range from;

1. innovative engineering solutions
2. manufacturing
3. logistics
4. supply and value chain technologies.

we power Africa from within.

Our Philosophy

Focused Vision

... is to be the very best creative and innovative, integrated engineering service provider group in Africa.

Steadfast Mission

We leverage the potential of integrated engineering to empower people and businesses achieve their set goals. By providing high quality products and services that enriched with innovative, practical solutions, and actionable strategies.

Core Values

- Trust
- Innovation
- Credibility
- Dedication
- Reliability
- Quality.

Our Ethos

Highly Motivated

... and centered around, growing by learning new technology thus being able to offer our clients the best solutions.

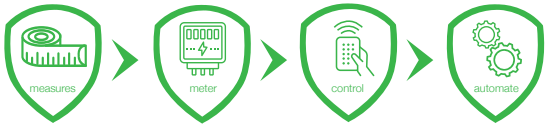
Work Ethic

Strong, Dependable and Responsible.

Positive Attitude

We posses a positive work attitude, that is highly motivated.

Intelligent Smart Metering Solutions



Intelligent Smart Metering Solutions for Electricity Utilities

We are bringing Tanzanian homegrown IOT new technologies to solve every day consumers' electric problems to fit their houses with available power utility and their rooftop solar panels. All the while, since the grid infrastructure is ageing, and huge investments potentially await. The challenges are well-known. Now as a group of dedicated Tanzanian engineers we are working hard to solve them!

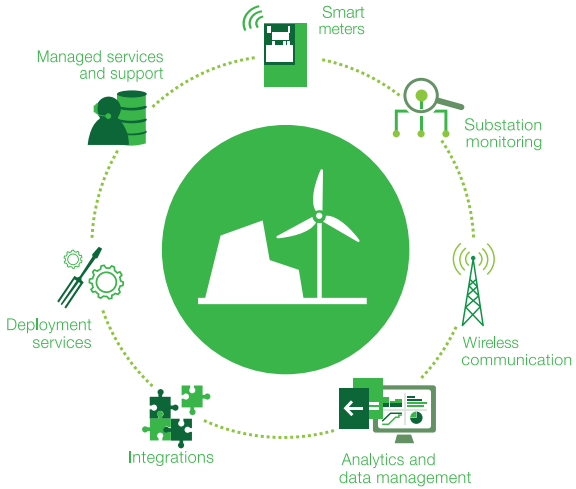
In **Payless**™ we believe Smart metering is a cornerstone in ensuring the optimal use of energy resources and utility assets with a potential that goes far beyond just collecting reliable meter data for billing purposes. The digital utility of tomorrow uses smart meter data intelligently to gain actionable insights into what goes on under the ground in the outermost areas of the distribution grid.

Your full-service Metering Partner

Providing an integrated solution that covers the entire smart metering value chain, we enable utilities to simplify their smart metering operations and run an efficient grid.

We have enough experience with electricity metering, but what sets us apart is our mindset. Our aim is to be a trusted partner who innovates with our customers and help them grow their business, streamline operations and adapt to future demands.

We get our hands dirty every day hosting and operating our own smart metering systems for a number of our customers in Tanzania. That, along with our customer-driven innovation processes, puts you and your challenges at the center of everything we do.



Unleash the digital grid

Smart electricity meters & devices for the intelligent grid

Digitizing the grid begins with the devices that measure and collect data and bring intelligence to the edge of the grid. Our smart electricity meters and sensors are designed for much more than gathering data for consumption billing – they are the powerful engines behind the intelligent grid.

Our electric meters offer all the functionality that you can expect from a smart meter – including your choice of communication technology, be it RF mesh or P2P. The range of choices includes NB-IoT. The accuracy of our meters is unrivalled, ensuring reliable consumption billing and satisfied end-users.

Over-the-air firmware upgrades keep the electricity meters up-to-date and ready for new use cases for the entire meter lifetime of up to 20 years, while exceptionally low failure rates protect your ROI.

Remote Electricity Meter Reading

Payless Cloud™ is a complete smart metering system that supports all the daily tasks involved in remote reading of smart meters and daily management of your meter data and communication network. At the same time, it's a highly advanced smart grid platform that pushes intelligence to the edge of the grid with its reliable and accurate electricity meters and near-real time wireless two-way communication. It integrates data from secondary substations to give a more detailed overview of the low-voltage grid and can be expanded with advanced analytics tools for even more actionable insights and a fully transparent grid.

Plus, it's flexible, modular and scalable up to more than 1 million metering points. A synchronized development process across the entire platform ensures that all building blocks fit so that you always get full system support for new use cases and functionality.



Multi-utility smart metering

Our second-generation multi-utility solution combines two highly specialized systems that give Electricity, Air Conditioning and Water utilities maximum value of their meter data. Start which either of the two systems and expand your solution when you need it.

Services

There's a lot more to a successful smart metering project than just procuring some bits and pieces of hardware and software. It's a complex IT project, a heavy logistics task and a long-term investment that should continue to deliver value every single day of its lifetime. A modern smart metering solution is a business system in its own right and fully integrated into the utility's broader IT ecosystem.

Did that make it sound complicated? It doesn't have to be. Our modularized services let you take exactly the amount of responsibility that suits your organization, whether you only need advice and consultancy before handling deployment and operations yourself or you prefer leaving everything in the hands of an industry expert.

So let your resources, finances and timeframe decide your level of involvement in deployment and operation of your AMI system. Our services include several models for AMI deployment, cloud-based "as a Service"-packages and day-to-day support.

Meter Analytics

Everyone's talking about data. and as a power utility, chances are you already have it in abundance. Let's put it to use! So imagine what it will mean to be able to even out the grid load, spot theft and easily identify technical losses – and the reason behind them. Imagine the possible savings from utilizing your equipment to the fullest and being able to reduce and target your investments in new cables and transformers. With intelligent analytics tools, all of this is entirely possible.

Our intelligent electric grid analytics platform provides you with actionable grid insights and detailed knowledge about what goes on under the ground, even in the outermost areas of the low-voltage grid.

Meter Data Security at the core

Our smart metering solutions are developed with enterprise-grade security standards as an integral part of the security DNA. The security architecture of Payless Cloud™ follows a defense-in-depth strategy towards minimizing the impact of a failure or breach. State-of-the-art AES 128-bit encryption covers all communication within and between AMI components, preventing intruders from reading and/or manipulating data and commands. And of course, we hold an ISO 27001 certification within IT security.

But there is so much more to data security than encryption! Never underestimate the impact of people and processes – we apply more about a holistic approach to data security.

HVAC Smart Metering Solutions



As a Tanzania's energy demand and urbanization continue to rise, fossil fuels are being exhausted and the economic as well as environmental costs of energy production increase. This stresses the need for not only reducing consumption but also improving the efficiency of how energy is produced, managed and distributed.

As a result, utilities today are required to become more energy efficient while, at the same time, optimizing operations, increasing cost efficiency and providing even better service to end-users. Smart metering is a central part of the solution, because you cannot optimize what you do not measure. Frequent and accurate meter data provide utilities real-time insight about their distribution network, the end users and the buildings they supply.

Buildings Air Conditioning and heating is facing a new energy reality – a reality in which smart metering provides the basis for high energy efficiency by adding data-based knowledge to the paradigm.

Today's energy challenges call for smarter and more energy efficient cities focusing on sustainable resource utilization. Intelligent cooling solutions plays a key role in this development.

Air Conditioning Billing and Beyond

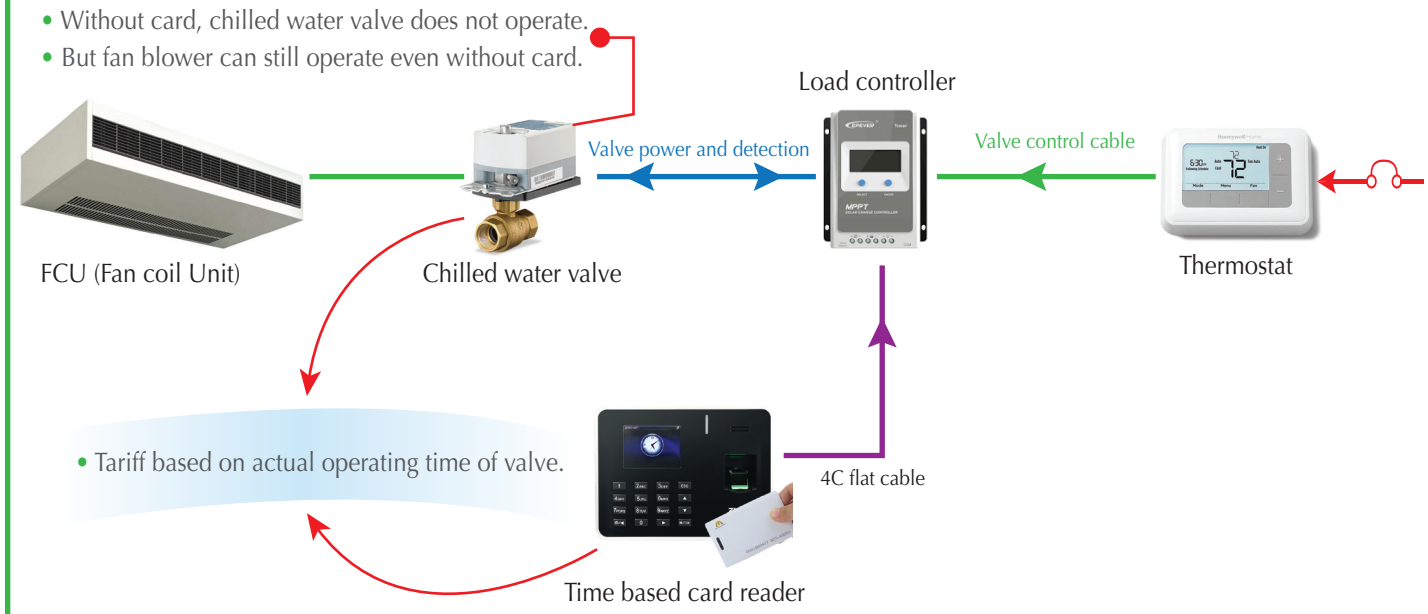
Until now, the primary driver for metering has been the need for Building owners to bill end users for their energy consumption. This need is often met using basic walk-by or drive-by remote reading solutions that allow utilities to go out and collect data without having to disturb the end users. However, meter data can be used much more proactively. With the strong focus on the added value frequent data can provide, fully automatic network solutions are becoming more common and are now available at a reasonable cost. Smart energy meters give cooling utilities a detailed overview of the actual state of the distribution network by providing precise information about flow and temperatures, which can be combined with additional measurements, such as pressure, in strategically important parts of the network. This allows utilities to start working specifically on addressing the installations that place the most strain on the network – due to, for example, high return temperatures or high average volume – thereby generating significant energy savings for them and their customers.

The prerequisite for high energy efficiency is transparency. Without frequent meter data, buildings cooling lack knowledge of where and how improvements can be made – and they are unable to evaluate the effect of their actions.

Payless™ HVAC Time Tariff Prepaid Meter

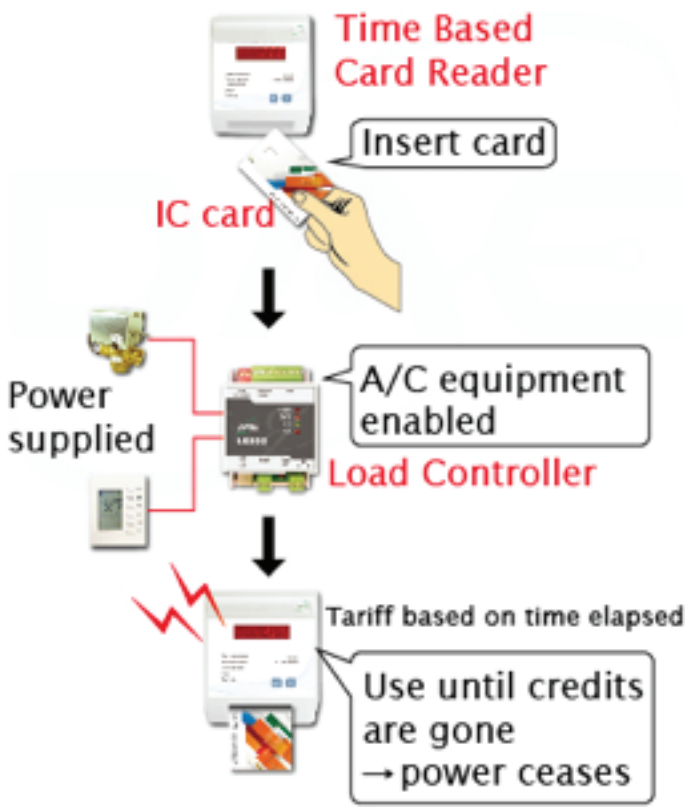
This solution is applicable to HVAC central air conditioning wherein AC use is based on the operating time of the room blower fan. Energy tariff is not suited for central or VRV air conditioning as the power consumption information is not readily accessible, so time tariff is the way to go for both. For example, In a classroom that uses either VRV or central air conditioning, electricity tariff is not applicable, so only time tariff can be applied.

Central Air Conditioning FCU (Fan Coil Unit): Tariff Based on chilled water valve on Time.



USAGE

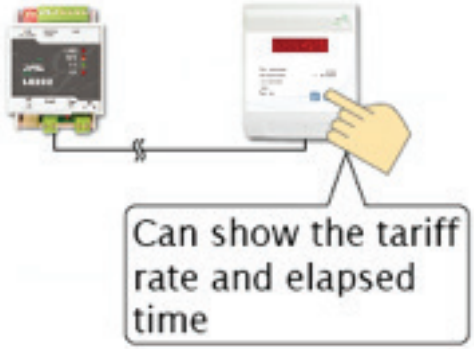
OPERATION



TOPPING UP



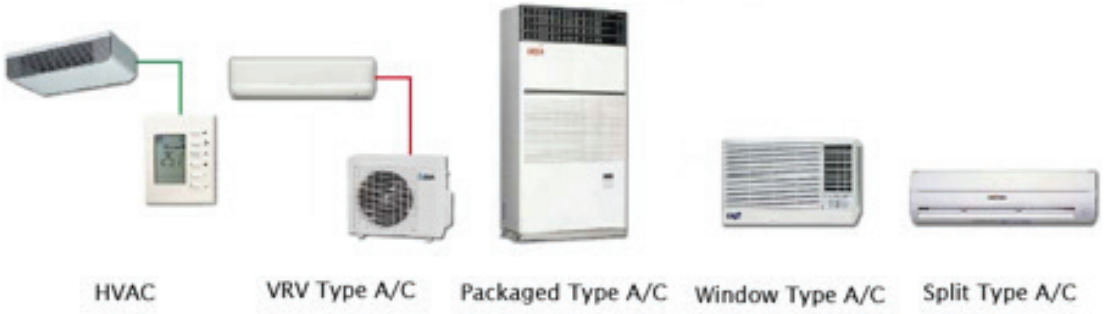
DISPLAY



- The card reader should be installed near the living or activity space for convenient access.
- Power: User inserts card to get power.
- Tariff: Works like a prepaid style phone card, credit is deducted as time elapses.
- Finished Using: Removing card cuts off power.
- Topping Up: User just buys a loaded smart card to use; once used up, the card can be reloaded and reused.

Suitable ACs

Can be used for various types of air conditioners including: central a/c, split-type a/c, window type, standing box type, and variable frequency a/c.



Benefits

- **Change Behavior:** When the user pays, they become more conscientious of their energy use and will try to conserve energy as extraneous use comes out their own pocket.
- **Managed Use:** Having a card before being able to use is also a form of managed use, as only authorized personnel will possess a card and can use the a/c.
- **Time Based Tariff:** Certain a/c types is not amenable to electricity metering as the electricity used is not directly measurable; in these cases, one can meter the elapsed time instead; but regardless of whether the purpose is for tariffing or to save energy, time-based tariffing is the best solution.

Smart Submetering Solutions

With changing demands, new and emerging technologies as well as an increasing number of offers in the market, there is plenty to take in when deciding on metering solutions to support your business. Especially when metering is just a small part of it. So why not make it simple and do it right rather than doing it over?

A submetering solution from PaylessTM gives you a complete overview of the water, heat/cooling and electricity consumption. It is ideal for both Residential and commercial property management, Manufacturing industries, Institutions etc. In addition to enabling cost allocation based on actual consumption rather than estimates, it increases energy efficiency and makes the process of preparing for billing of tenants or allocating costs to specific areas or buildings both easier and more accurate.

Automatic data collection from submeters helps you avoid a lot of the hassle and save much of the time otherwise spent on doing it manually. And costs are reduced as a result of quick detection of leaks and excessive consumption before causing unnecessary damage to buildings and belongings.

As a low-cost investment, submetering solution we are offering provides full transparency of individual energy consumption to tenants and apartment owners. This transparency enables to actively steer and reduce their energy consumption – simply by changing their own behavior and without further technical equipment. We are seeing savings potentials of between 15 and 30% of energy, costs and CO2 emissions. This makes submetering the most efficient measure to save energy in buildings.

Whereas energy utilities bill the total consumption of the individual buildings as costs, energy service providers like PaylessTM record using advanced metering technology how these costs are distributed within the building. Making sure everyone only pays for what they actually consume.

Water Smart Metering Solutions

Intelligent solutions for water utilities

There is a lot on the line for water utilities today. From reducing Non-Revenue Water and managing an aging infrastructure to optimizing operations and ensuring a safe and steady water supply. How do you handle these challenges – let alone overcome them?



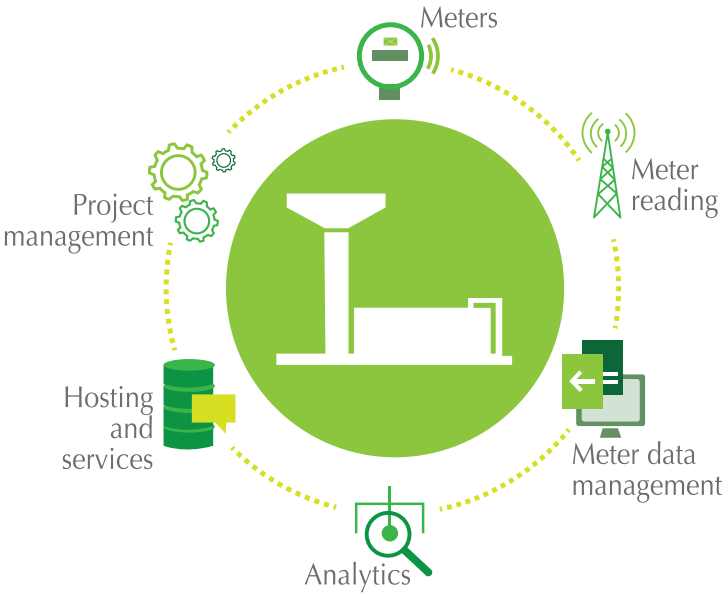
One thing is certain: it is so much easier and much more efficient if you have access to the right information at the right time.

We believe that the answers to our industry's challenges can be found through digitalization and intelligent use of data. The potential of smart water metering goes far beyond the enablement of accurate billing. It can light up your distribution network and give you the knowledge you need to effectively target your efforts and be proactive rather than reactive.



The intelligent solutions for the digital utility are here. Are you ready to reap the benefits?

Smart water metering by Payless™





Based on our experience so far in the water industry in Tanzania, we provide utilities around the world with state-of-the-art ultrasonic water meters, high-performing remote reading solutions, advanced monitoring of pressure and leakages as well as intelligent data analytics.

For us, smart metering is an intelligent enabler for improving consumer relations and optimizing operations. It is about quality management, revenue protection, asset management and Non-Revenue Water. About being able to make the right choices and chose the right investments.

We deliver solutions in all shapes and sizes, but while every project is unique, our starting point is always the same – you, the customer

Our water solutions

Smart water meters & devices

Our smart water meters and devices are based on proven technology and represent the next generation of smart metering.

While precision is at the core of everything we do, our products offer more than the data needed to conduct a fair an accurate billing. Because we believe that smart water metering is not just a matter of increased accuracy. It is also about strengthening consumer relations and optimizing operations. About quality management, revenue protection, asset management and Non-Revenue Water. It is about being able to make the right choices and chose the right investments.



Therefore, our products create transparency in the distribution network all the way to the end-users. From household and commercial water meters that provide information on the consumption to district water meters and sensors that provides valuable information on what goes on in the distribution network.

Quality is not just a priority It is our foundation

All **Payless™** smart water meters are static ultrasonic meters. They have no moving parts and are resistant to both wear and tear as well as minerals or other impurities, which ensures a high accuracy throughout the entire lifetime.

Our water meters are engineered to last with strict production, calibration and testing processes to secure a consistently high quality and an error margin close to 0% in the entire dynamic range. Meters go through extensive testing and calibration before they leave the production facilities.



Smaller meters are made from eco-friendly and durable composite while the larger meters are made from eco-friendly brass or stainless steel. Meter houses are vacuum sealed and fully watertight. The water meters are suitable for installations both indoors or outdoors and in meter pits. They can be installed both horizontally and vertically, independent of piping and installation conditions.

Water quality & hygiene

Security and hygiene to be high priority areas in both the development and production.

Our water meters are approved for use with drinking water and are disinfected, dried and packed in airtight packaging so they are not subject to environmental influences before their application. Moreover, we continuously test for disinfection effectiveness.

All these steps are carried out to ensure that only water meters of the highest quality leave production facilities.

Water meter accuracy

Accuracy is the foundation for fair billing and using the full value of data from your smart water meters.

The dynamic range is sometimes mistaken for accuracy, so that water meters with a high dynamic range are considered more accurate than those with a low dynamic range.

Albeit the dynamic range relates to accuracy, there is no direct link between the two terms. To make informed decisions about your smart water metering investment and gain the most value from it, it is time to dispel the myth and look at the facts.

Remote reading of smart water meters

Aside from the time saved compared to reading your meters manually, remote reading help you eliminates misreading errors, time consuming follow ups and estimated calculations. You get easy and secure access to meter data – without having to disturb the end-users. Remote meter reading increases the quality of your data and makes it easier to analyze as you can look at consumption and supply data from readings made at the same time. The increased reading frequency lets you evaluate the effects of your improvements and discover problems much sooner instead of just once a year!



And it does not have to be hard to get started with remote reading. We offer a variety of automated meter reading and smart metering systems - from handheld devices or drive-by solutions to fixed networks with data coming home in daily, hourly or down to five-minute intervals - together with user friendly data management programs.

Choose the right communication technology

There are a number of communication technologies available for remote meter reading, and the development is constantly moving forward. Different technologies work well for different purposes, and your choice of communication technology should match your needs.

We have the following:



Remote meter reading affects the value of your data

There is a lot of talk about the value of data. Most agree that (more frequent) meter data is a part of the solution to the industry's challenges because it provides transparency. But, data only becomes valuable when you use it. So, what can your utility actually gain from working more proactively with meter data? And how do you calculate the value it can bring to justify the investment? By using facts and numbers from your everyday work at the utility, you get an idea of the potential that could await you.

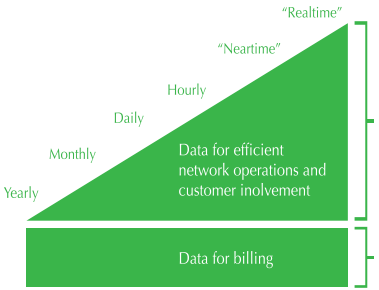
Plug & play remote meter reading



Payless Cloud™ is an effective and high-performing system for remote reading. A **Payless Cloud**™ system can be adjusted to meet your needs and be expanded as they change.

How meter reading affects the value of your data

Frequent meter readings increases the potential value of your meter data. Both Incidents and Water Intelligence can be used by utilities who read their meters via **Payless Cloud**™ Mobile reading or a **Payless Cloud**™Network. Based on bi-monthly drive by readings, they can support your daily decision making. But the more often you read your meters, the more value you will also be able to realise in terms of optimising your operations and reducing your NRW and water loss



Analytics for smart water metering

You have the meters, you collect the data, you settle the consumption – what next?

The value of your smart meter data goes far beyond accurate billing. The challenge so far has been to utilize its full potential, but with the right tools, you can do just that and transform your meter data into actionable insights.

Take the next step and fully utilize your network with Payless's analytical tools for water utilities.

Payless's analytics platform for water utilities comprises the two systems: Water Intelligence and Incidents. With these, you can effectively go from imagining "What if" to knowing "How to".

Your meter data is automatically organized, visualized and analyzed to give you a total overview of your distribution network and to give you the knowledge needed to effectively target your efforts.

Our analytics platform-PaylessCloud™



Water Intelligence offers an unparalleled overview of your different districts with detailed information on inlet flow, consumption and water loss

Turning raw data into value and overview

Water Intelligence gives you a complete overview of your distribution network split into districts. For each district, you get detailed information on inlet flow, consumption, night flow and water loss, which lets you follow developments closely, target your efforts and act as soon as the water loss increases in one district.
Managing your districts is straightforward and easy. You simply outline the individual districts in your supply area by the drop of a mouse on a map. The system validates the data quality and minimizes the risk of errors by only allowing each meter to be included in one district.

A complete overview of the water loss in your network

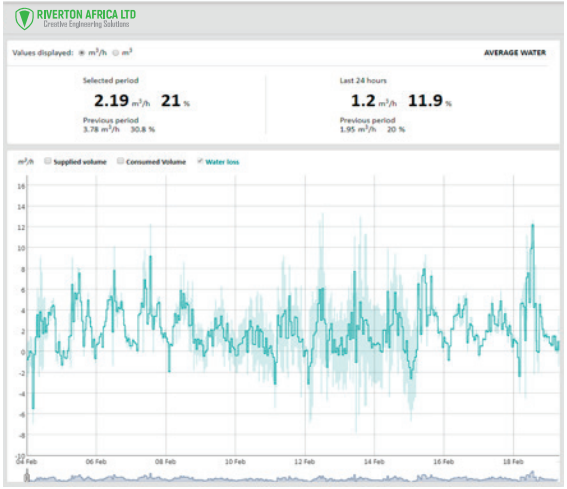
A map of your supply area provides a constant overview of the water loss in your entire network. Intuitive colour coding of your districts immediately shows their status based on your predefined limits for acceptable water loss. This enables you to target your leak detection so you can react in a matter of hours instead of days.
Continuous monitoring and daily water balances also make it possible for you to follow developments and catch smaller leaks before they develop into large-scale bursts.

Detailed insight into each individual district

For each of your districts you can dive into a detailed view of the supplied and consumed volume as well as the water loss.
Choose and switch between views based on data from the last 24 hours, the last 7 days, the last month or specify the exact period you want to examine closer.
The detailed view lets you track the water loss in a district and, in many cases, it can also help you derive the cause of the water loss.
If you also have access to the Incidents system you can also set up alarms so that you are notified automatically if the water loss in a district increases above a pre-defined limit.

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Water Incidents

Efficient event management and information about the different digital events in your distribution network

Get eyes on your network - even when you aren't looking

Incidents constantly watches your distribution network - so you don't have to. You get efficient event management and information about the different digital events in your distribution network that requires your attention such as water leaks, dry meters, tampering attempts and more. Incidents gives you a complete overview of the different digital events in your distribution network – and the tools to prioritize and handle them.

All events are shown on a map to make it easy for you to stay up to date on the current state of your distribution network and prioritize which events to handle. You can find irregularities earlier, handle them faster and reduce the consequential damage. The events included can be alarms, notifications and info codes from supported smart meters, sensors and pumps. The events can even include alarms generated from Water Intelligence if the water loss in one of your districts rises above pre-defined limits.



Manage the events in your distribution network

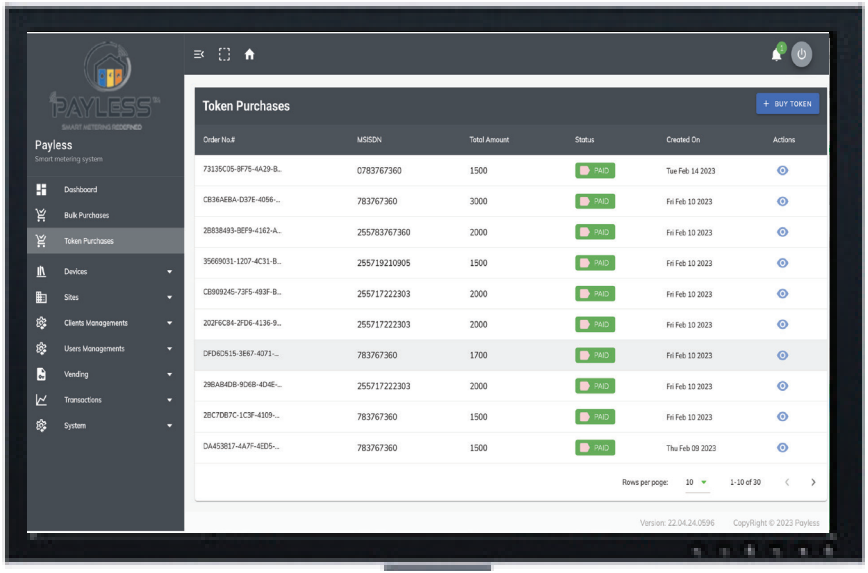
Incidents gives you the tools needed to handle the events in your distribution area.

You can assign events to members of your team for further investigation and an “acknowledge” function ensures that all events are handled. Comments can be added to the different events to ensure that important information is shared, stored and easily accessible if needed again. You can also "snooze" an event if your investigations show that the event is a false positive. This ensures that you can remove irrelevant events, avoid an information overload and get a clear overview of the events that needs your attention.

You are in control

To make sure that you can take action as soon as a critical event, like a large burst, occurs in your distribution network, you can setup alarms and be notified via either email or text message. You decide how severely events should be rated and you can sort them after severity, type, time, active or historical and whether they have been acknowledged. You can even set-up a permanent surveillance of strategically important water meters and make different rules for how you want to be notified in case of different event types.

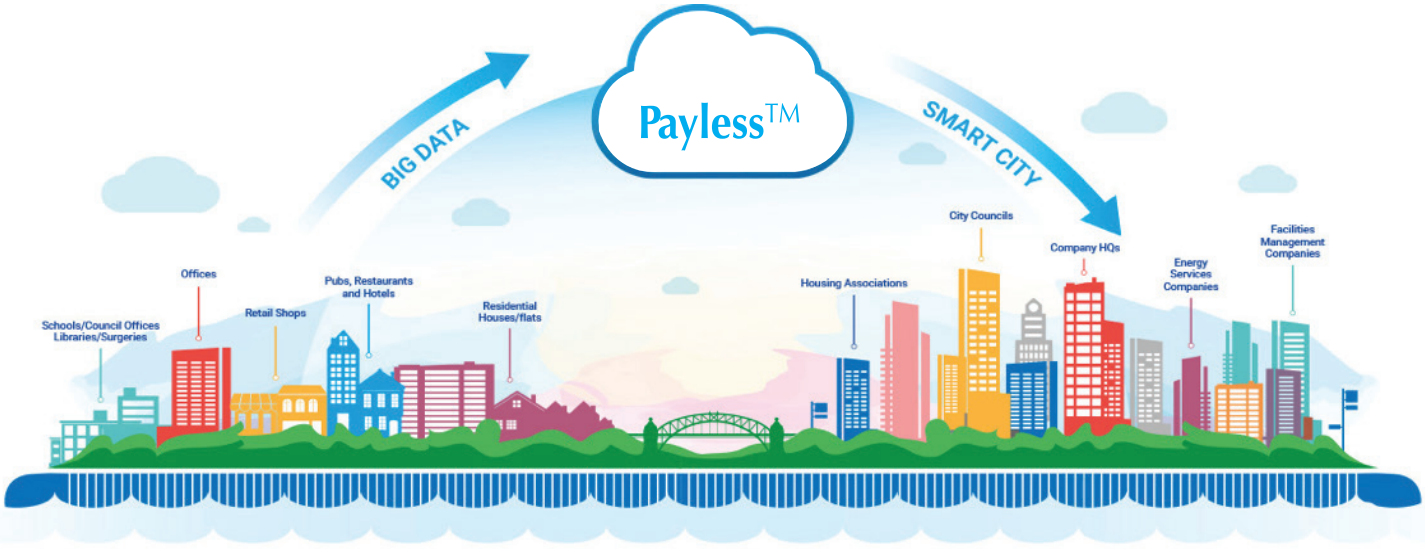
This ensures that you only receive information about relevant events and that you can be assured that your distribution network is being watched - even when you aren't looking.



Payless™ Smart Metering Cloud Platform

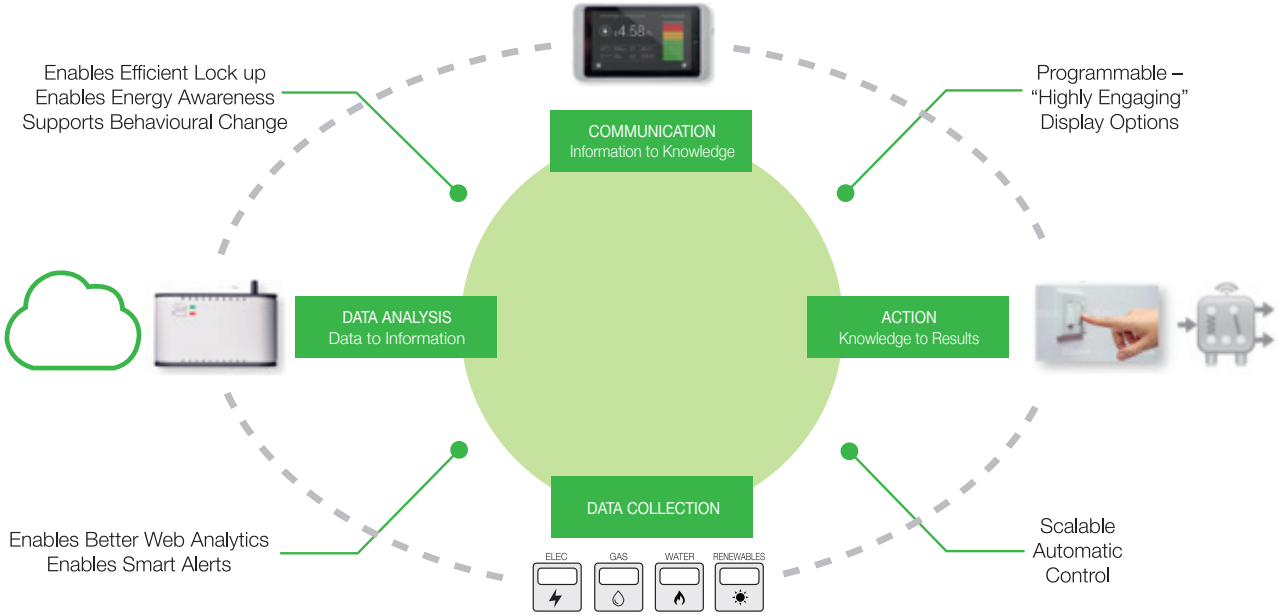
Payless™ Engineers in Tanzania work so hard to find low cost, scalable, INTERNET-OF-THINGS solutions for

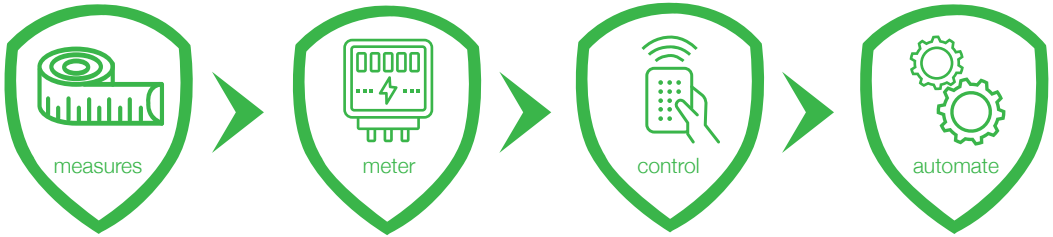
- Energy Insight,
- Buildings Automation and
- Business Intelligence.



EMP is a low cost, scalable, internet-of-things platform
for energy insight, building automation and business intelligence.

Payless™ Hardware and Software Platform is flexible as much as it gets.





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