

# AUTOMATED WATER KIOSKS

# AQtap water dispenser



INTEGRATED REVENUE  
COLLECTION AND WATER  
MANAGEMENT FOR  
**SUSTAINABLE WATER SUPPLY**



# MEETING THE CHALLENGES FOR SUSTAINABLE WATER SUPPLY

Grundfos AQtap addresses some of the main challenges for providing reliable and sustainable water supply in the developing world. These issues include improving the ability to collect and manage revenue to secure funds for service and ensure accountability towards investors.

Grundfos AQtap is an intelligent water dispenser that can be used at any water kiosk. It's simple and intuitive to use, and water consumers pay for the water via a WaterCard. The use of smart cards for revenue collection is transparent and reliable for the consumers and efficient for you as the water service provider.

Furthermore, Grundfos AQtap is connected to an integrated water management system that keeps track of all water data and credit transactions.

## SAY YES TO SMARTER WATER MANAGEMENT

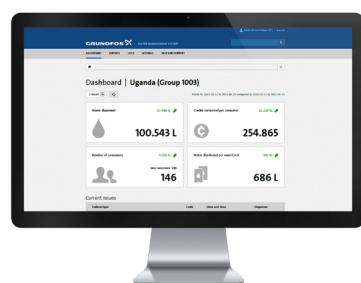
With Grundfos AQtap, the journey from a conventional water kiosk to a sustainable solution is complete. Grundfos AQtap is a single product that combines three elements essential to smarter water management:



**Smart card revenue collection**  
– where water credits are stored on WaterCards



**AQtap dispenser unit**  
– where water is tapped and credits managed



**Water management system**  
– where data from transactions and operations are processed and published

## SAY YES TO

- Smart card revenue collection for full accountability
- Full control over all water data
- A trustworthy service and maintenance setup
- A water solution that ensures more reliable water
- SAY NO to commercial losses
- SAY NO to poor water management systems
- SAY NO to downtime in the water system
- SAY NO to unreliable water supply

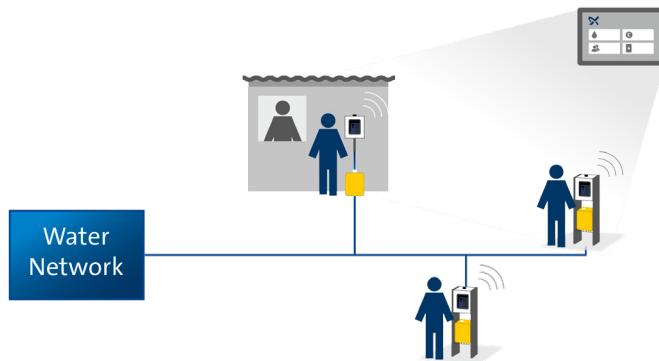
# PLACE IT WHEREVER YOU NEED TO **IMPROVE** AND **EXPAND** WATER SUPPLY

Grundfos AQtap can be installed in small or large water schemes in both urban and rural settings.

When combined with the vast range of high quality pumps, controls, disinfection and water treatment solutions from Grundfos, systems can be designed to meet project-specific requirements and criteria.

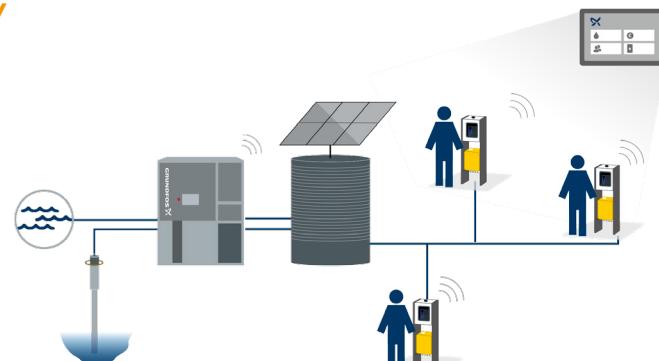
## **WATER KIOSK CONNECTED TO WATER NETWORK**

The AQtap dispenser unit can be connected to the public water network, either for a single water kiosk or a complete grid of grouped water kiosks. This efficient solution enables the improvement and expansion of water supply in urban and peri-urban areas.



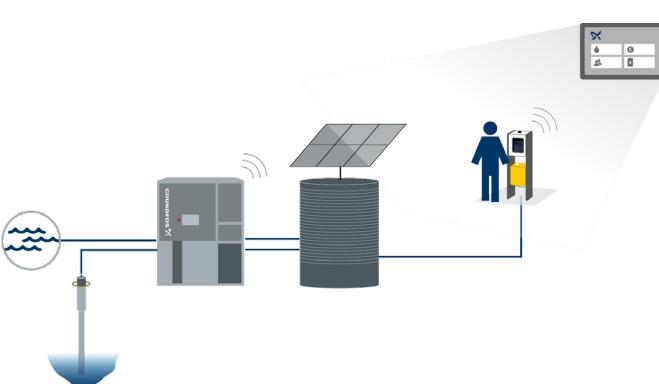
## **MINI-GRID OF WATER KIOSKS CONNECTED TO WATER SUPPLY**

A complete grid of AQtap water kiosks can be supplied by water from the same water supply system, depending on the pressure. Water supply can be from groundwater intake or a surface water treatment system. This is the reliable and efficient solution for water supply infrastructure to larger settlements in rural and urban areas not connected to the main water network.



## **WATER KIOSK CONNECTED TO WATER SUPPLY**

This is the total solution for sustainable water supply in rural and peri-urban areas not connected to the main water network. The water kiosk is connected to a water tank supplied by groundwater or treated surface water using proven Grundfos solar driven pumps and – if required – Grundfos AQpure water treatment systems.



# SURPRISINGLY EASY WATER DISPENSING

THE AQtap DISPENSER UNIT IS EXTREMELY TOUGH  
AND SURPRISINGLY EASY TO USE



The consumer experiences minimal downtime in water supply while gaining a positive and transparent water tapping experience.

This is made possible by the:

- Simple and intuitive interface
- Closed system for credit transactions using smart cards
- Precise dispensing with minimum water wastage



#### **Load a WaterCard and start tapping water**

The key to the system is the smart card – called a WaterCard – that allows the consumer to tap water. Experience has shown that in areas with reliable water supply using Grundfos AQtap, water consumption actually increases, as consumers are confident that they are getting the water they are paying for.

## **THIS IS HOW IT WORKS**

Consumers load credits onto their WaterCard, either through local water credit vendors or via mobile payment. They are then ready to tap water, and this is done in four easy steps:



1. Place the WaterCard in the slot to see the credit balance and water price
2. Push the water button to start tapping water.  
Tapping is metered on the AQtap dispenser unit display
3. Push water button to stop tapping
4. Transaction is confirmed on AQtap dispenser unit display

# **A CLOSER LOOK AT THE AQtap DISPENSER UNIT**

The AQtap dispenser unit includes a range of features that ensure surprising ease-of-use, much reduced service and maintenance and very reliable operation.



**DESIGN** – Unmatched robustness and tampering protection. It is highly accessible for installation and service with a simple and intuitive user interface designed for low-literacy users.

**DIRECT FLOW SENSOR** – No mechanical wear parts ensures longer lifetime operation and disregards air pockets. Provides information on water pressure to detect infrastructure leakages.

**VALVE & FLOW RESTRICTOR** – Requires the lowest installation pressure on the market while ensuring a stable and comfortable flow at higher pressures.

**SMART CARDS** – Wireless technology designed to withstand harsh environments.

**APPROVALS** – Comply with WRAS drinking water approval and the respective National Telecommunication Authorities.

**CONNECTIVITY** – Online when a connection is available; still fully functional even when offline. Sends data daily and in case of alarm and warning.

**POWER** – Runs on grid or from solar panels and has a backup battery capable of 250 tappings, making the installation flexible and self-sustaining.

# EFFICIENT REVENUE COLLECTION

The unique platform for efficient revenue collection is fully integrated into Grundfos AQtap. To tap water from the AQtap dispenser unit, the consumer requires a WaterCard with a positive balance of water credits. The consumer buys water credits either on-site or using mobile payment.

Smart cards are activated by you as water service provider and in addition to the WaterCard used by consumers there are three other types of smart card, all administered by you and your administrators.



The **WaterCard**



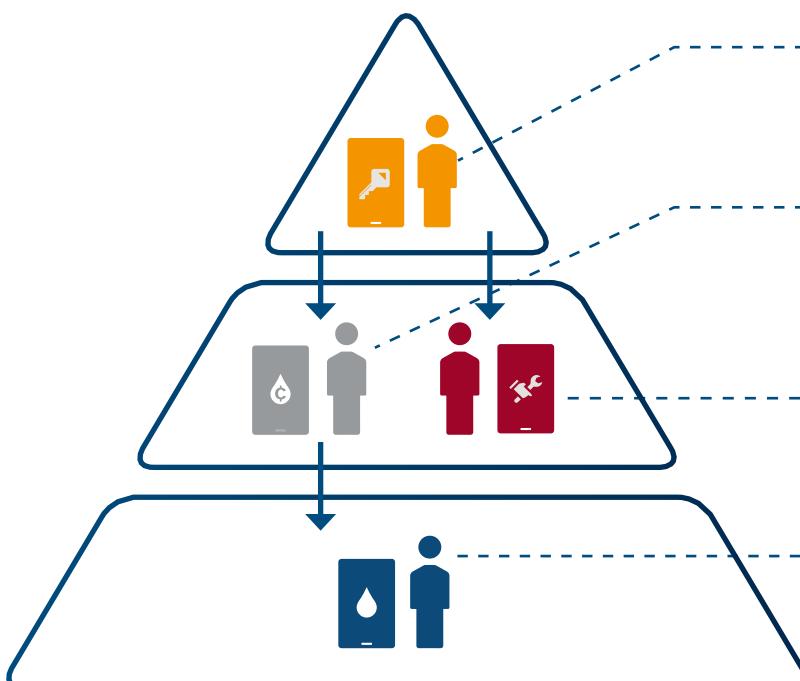
The **VendorCard**



The **AdminCard**



The **ServiceCard**



## Water Service Provider – AdminCard:

- Activate new VendorCards and ServiceCards
- Create water credits on activated VendorCards

## Water Vendor – VendorCard:

- Activate new WaterCards
- Download water credits from WMS
- Transfer water credits to a WaterCard
- Draw water from the AQtap for water credits

## Service Technician - ServiceCard

- Run commissioning and set water price
- Conduct a site acceptance test
- Reset the AQtap

## Water Consumers – WaterCard

- Draw water from the AQtap for water credits
- Download water credits from WMS
- Transfer water credits between WaterCards

## ENSURE FINANCIAL TRANSPARENCY AND ACCOUNTABILITY

Put simply, Grundfos AQtap ensures the financial transparency and accountability of your water service operations.

- The closed system for credit distribution using smart cards and possibly mobile payment ensures automatic and efficient collection of water revenues through pre-payment

• By operating water kiosks with Grundfos AQtap, water service providers can ensure a continuous revenue stream to cover, for example, the costs of ongoing operations and maintenance of the water kiosks

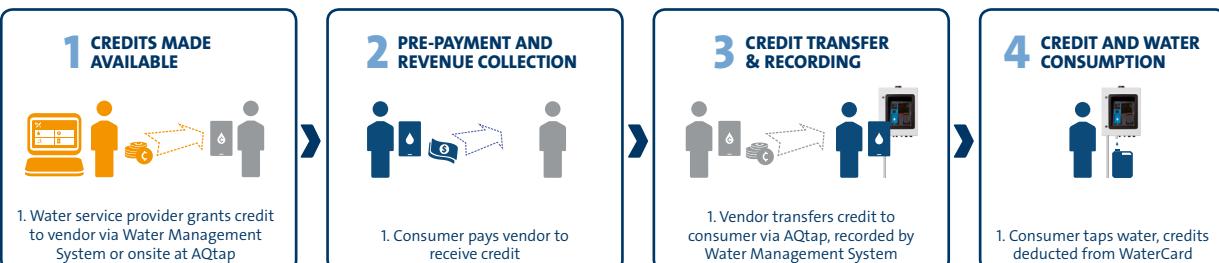
• The revenue collection platform contributes to the elimination of commercial losses in water supply while providing transparent water prices for the consumers

# REMOVE UNCERTAINTY IN REVENUE COLLECTION

Uncertainty is removed from your revenue collection, because credits are distributed within a closed system and paid for prior to water tapping. Consumers can top-up their WaterCards, either via the water vendor method or via mobile payment.



## WATER VENDOR METHOD



## 1. CREDITS ARE ACQUIRED ON SITE FROM WATER VENDORS



## MOBILE PAYMENT METHOD



## 2. CREDITS ARE ACQUIRED THROUGH MOBILE BANKING PLATFORMS

Mobile payment solutions are increasingly available in developing countries, and Grundfos provides access to multiple mobile banks. The mobile payment method ensures an automated revenue collection, eliminating the need for cash.



# SMART WATER MANAGEMENT

Using the mobile network, Grundfos AQtap is connected to a water management system that publishes data on its operational status and transactions, enabling you to manage your water kiosks remotely.

Even large numbers of water kiosks in distant locations can be monitored with the online water management system, meaning you can expand operations, establishing a new level of professional and reliable water supply service for low-income communities.

Furthermore, the water price of connected dispensers can be managed centrally from the water management system, or locally on the dispenser with a ServiceCard.



## TOTAL CONTROL AND EFFICIENCY

The water management system keeps track of all water data and credit transactions, and you do not end up in the situation where your data is incomplete or lacking. If the system goes offline for any reason, data is stored at each AQtap dispenser unit and will be sent when the mobile network is online again.

A screenshot of the Grundfos Water Management System's dashboard. At the top, it shows 'Dashboard | Uganda (Group 1003)'. Below this are four main data cards: 'Water dispensed' (100.543 L), 'Credits consumed per consumer' (254.865), 'Number of consumers' (146), and 'Water distributed per waterCard' (686 L). Underneath these are sections for 'Current issues' and a table of recent alarms. The 'Current issues' section lists four 'No connection to dispenser in 48 hours' alerts for Jinja 121, Jinja 122, Jinja 119, and Jinja 118, each with a timestamp. The table has columns for Failure type, Code, Date and time, and Dispenser. A 'PRINT' button is at the bottom right.

The **dashboard** provides an overview of the performance of your group of dispensers, including a trend indicator of the water dispensed and a list of current alarms and warnings.



## CASE: NAIROBI CITY WATER

At Grundfos, we already have considerable experience with installed automated water dispensers, where the benefits of revenue collection and water management are apparent to all.

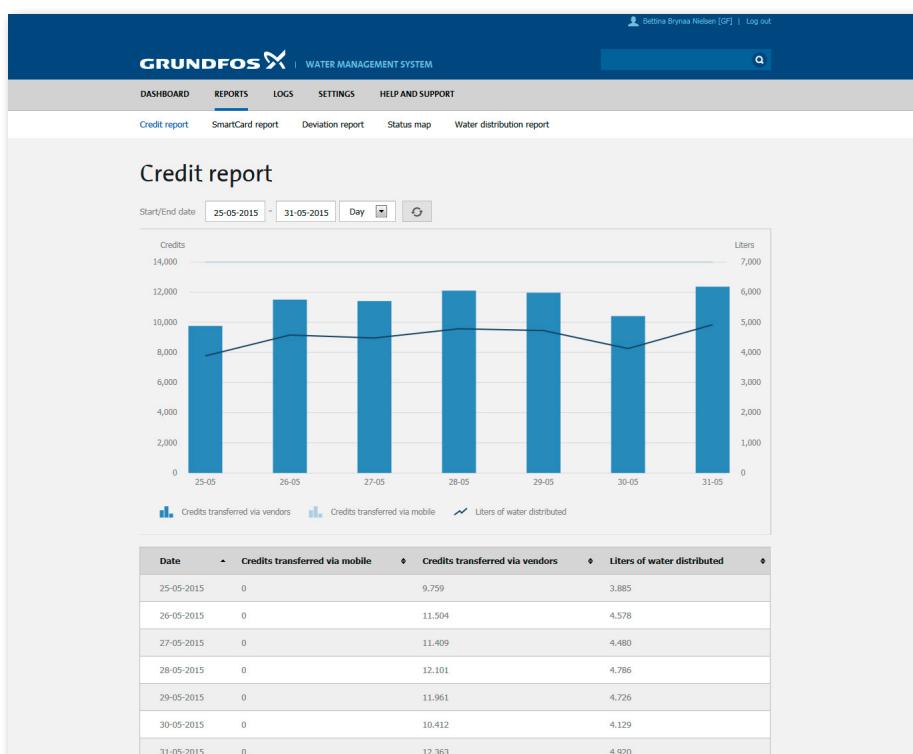
In a peri-urban area of Nairobi with informal settlements, Nairobi City Water & Sewerage Company is currently installing Grundfos AQtap water dispensers in its water supply network.

*"By automating water kiosks in informal settlements, we are able to keep the prices low and secure payment for water services provided to consumers,"* explains Philip Gichuki, Managing Director of the Nairobi City Water & Sewerage Company. *"This will help us address commercial losses due to illegal water use."*

Water kiosks automated with Grundfos AQtap will increase accessibility to water services in low-income areas, because the water service provider controls directly the price of water from the water dispenser. Furthermore, Grundfos AQtap and mobile payment will give the people in these settlements freedom to tap water when they choose, rather than getting it from kiosks that are operated by vendors at certain hours.

# FOR WATER SERVICE PROVIDERS

**Logs** show the performance data for each AQtap dispenser unit, including all water and credit **transactions**. The **service log**, showing current and past alarms and warnings, supports you in streamlining your service and maintenance processes, ensuring a service technician never needs to travel unnecessarily to remote areas.



With the notification function, you can set up the system to broadcast alarms and warnings by email or text messages to you, your service team and/or partner.

**Reports** show the distribution of credits over time, consumption of water over time and consumption patterns according to consumer type.

# PROFESSIONAL SERVICE AND SUPPORT

Together with our network of local service partners we can ensure you get the dedicated support you need to achieve long term sustainable operations, ensuring a tailored approach to your Grundfos AQtap water dispenser solution.



- Spare parts and service kits
- Service contract with local partners
- Service training of your own staff



## CONTACT GRUNDFOS

Contact your local Grundfos sales representative to find out more about Grundfos AQtap and our holistic Lifelink solutions.

Sustainable water solutions that change lives can only be achieved through long-standing partnerships across sectors.

Grundfos Lifelink can help you with:

- Enabling funding
- Advising about feasible business models
- Engaging as a committed technology and know-how partner
- Finding and linking suitable partners for each project from our broad network of trusted partners



# TECHNICAL SPECIFICATIONS

## Technical data of dispenser

Hydraulic capacity	~ 1 m <sup>3</sup> /h (under normal working conditions)
Tapping increments	1 litre
Dimensions of inlet and outlet pipe connections	½" external thread
Weight	23 kg
Dimensions	400 x 500 x 210 mm
Protection class	IP 55
Capacity of included backup-battery	18 Ah = approx. 12 hours of operation
Battery extensibility	external battery can be connected
Reading angles of display	-/+ 60 degree
User interface	touch and sound
Direct flow sensor	<ul style="list-style-type: none"> <li>• no metering of air pockets</li> <li>• no mechanical wear parts</li> </ul>

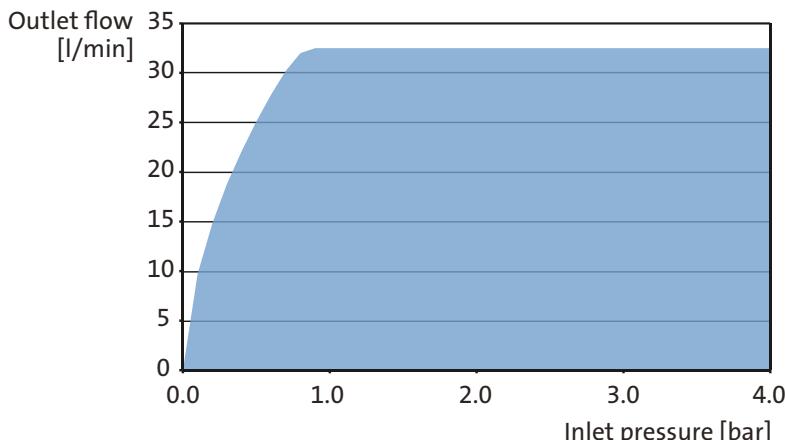
## Installation requirements

Power supply	<ul style="list-style-type: none"> <li>• grid power AC connection 110 - 240 V, 50/60 Hz</li> <li>• solar panel DC voltage 15 - 45 V / 3 A</li> </ul>
Max. power consumption	45 W (1 solar panel is enough)
Ambient temperature	5 - 40 °C
Max. relative humidity	95 %
Water quality	WHO drinking water standards
Water particle content	<ul style="list-style-type: none"> <li>• particle size max. 0.5 mm</li> <li>• install with supplied strainer</li> </ul>
Water temperature	0.1 - 30 °C
Inlet pressure range	0.2 - 4 bar (height of main tank outlet > 3 m)
Mounting	designed for wall-mounting, protected from direct sunlight

## Water management system (WMS) and connectivity

Broadcasting of alarms/warnings	setup in Water Management System
Data upload	min. every 24 hours
Data import from unconnected dispensers	via associated PC Tool
Smart card connectivity	NFC
Dispenser connectivity	GSM Quad-band and GPRS coverage
Connectivity setup	1. install SIM Card in dispenser 2. enter associated phone number, IMEI number and select telco operator in water management system The unit is functional without connectivity.
Connectivity extensibility	external antenna can be connected
Water management system browser support	<ul style="list-style-type: none"> <li>• Explorer: version 11 or newer</li> <li>• Firefox: version 10 or newer</li> <li>• Chrome: version 17 or newer</li> <li>• Safari: version 6 or newer</li> <li>• Opera: version 10 or newer</li> </ul>

## AQtap outlet flow in relation to inlet pressure



For detailed information and installation instructions, please see the Grundfos AQtap data booklet.

## Grundfos Lifelink water solutions

Lifelink is our commitment to provide sustainable water solutions in the developing world that can be customised according to project needs, delivering reliable water supply, supporting revenue collection and efficient operations. Our high quality, intelligent water solutions tailored to the developing world are built on innovative technology and mobile connectivity. Grundfos Lifelink water solutions combine our innovative and reliable technology with professional service networks to support operations on the ground.



[www.grundfos.com/lifelink](http://www.grundfos.com/lifelink)