The Elster Kent/ Telbit Pre-Paid Domestic Metering System

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Domestic Pre-Paid metering for individual connections

A reliable, effective income generating system for water sales.

The Pre-Paid Domestic Water Dispenser

The Domestic Water Dispenser (DWD) is designed for individual households, to control the dispensing of pre-paid quantities of water. It consists of three main components, the Electronic Module, Latching Valve and Water Meter with pulse output.

A multi-tier step tariff system monitors the monthly consumption of the consumer, and charges him using the appropriate tariff. A monthly Consumption Profile is generated, which in turn is loaded back onto the token. This profile is uploaded to the Management System the next time the consumer purchases credit.

Programmable to accommodate:

- Multi-tier programmable stepped tariff levels.
- Credit Low Early warning.
- Auto-Debit to deduct a predetermined amount of credit weekly or monthly, as a basic charge for sewerage, refuse removal, etc.
- Daily limit to control the quantity of water dispensed per day.
- Daily free credit allowance. (Any currency.) And free basic water.
- Arrears payment facility to allow customers to pay off their arrears at the vending station.
- Arrear amount paid can be a fixed monthly charge or percentage per transaction.
- Emergency Credit.
- Expiry date for Maintenance & Engineering tokens.
- Token can be programmed to allow one touch conversion from pre-paid to post-paid water meter and vice versa.

Features:

- Automatic Dispenser configuration.
- Monthly Consumer consumption profile.
- Secure Encrypted Tokens.
- Electronic Totalizer with 0.5 litre resolution.
- LCD Display indicates
  - Credit remaining (Any currency).
  - Free water remaining.
  - Amount of free water used.
  - Tariff level and rate.
  - Leak Detection.
  - Tamper Detection.
- Electronics water resistant to IP 67.
- Calculated Alkaline battery life up to 5 years; replaceable on site.

Security Token and Tamper Switches

- Tampering results in switch being activated and water being shut off.
- Token options for levels of authorization.
- Password protection.
- Full financial audit on all transactions.
- Tokens cannot be duplicated or reloaded.

Consumer Token

Maintenance Token

Engineering Token
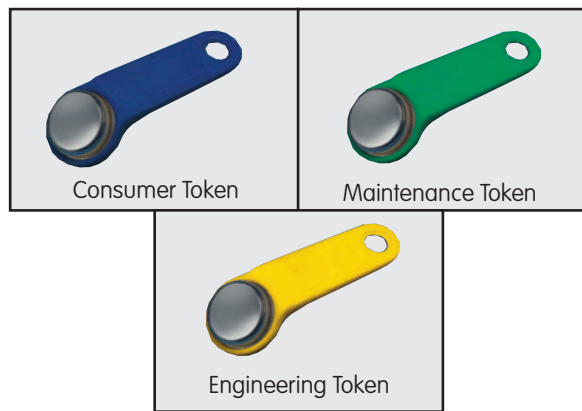
Token Benefits

- Read/write token with non-volatile memory
- Encrypted token with cycle counter eliminates fraud
- Ensures transfer of up to date info of usage
- Data retention over 10 years
- Resistant to extreme environmental conditions
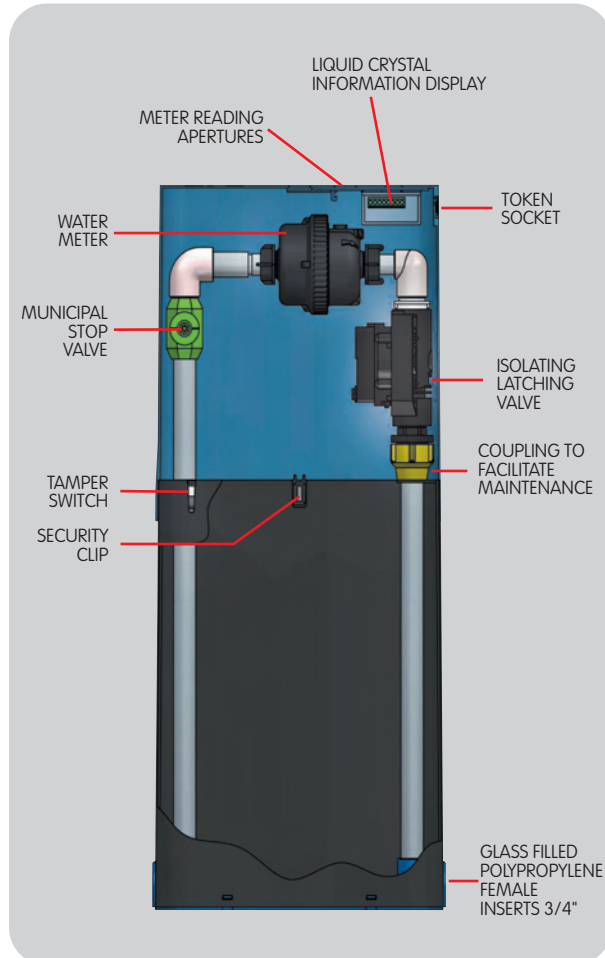 - shock and temperature (-20° to +70° C)

Please note:
Only Dallas DS1963 tokens are used as per recommendation from Dallas for monetary Credit transferes.

How the System Works
Consumer purchase of water credit.
Token transfers credit to DWD

The Zonke Above Ground Polymer Meterbox

LIQUID CRYSTAL INFORMATION DISPLAY

METER READING APERTURES

WATER METER

TOKEN SOCKET

MUNICIPAL STOP VALVE

ISOLATING LATCHING VALVE

TAMPER SWITCH

COUPLING TO FACILITATE MAINTENANCE

SECURITY CLIP

GLASS FILLED POLYPROPYLENE FEMALE INSERTS 3/4"

The Wall Mounted Above Ground Meterbox

LIQUID CRYSTAL INFORMATION DISPLAY

METER READING APERTURE

TOKEN SOCKET

SECURITY PLUG

BRASS CONNECTOR NUT

BRASS CONNECTOR NUT

TAMPER SWITCH

COVER SCREW APERTURE

ISOLATING LATCHING VALVE

LIQUID CRYSTAL INFORMATION DISPLAY

METER READING APERTURE

WATER METER

MUNICIPAL STOP VALVE

BRASS CONNECTOR NUT

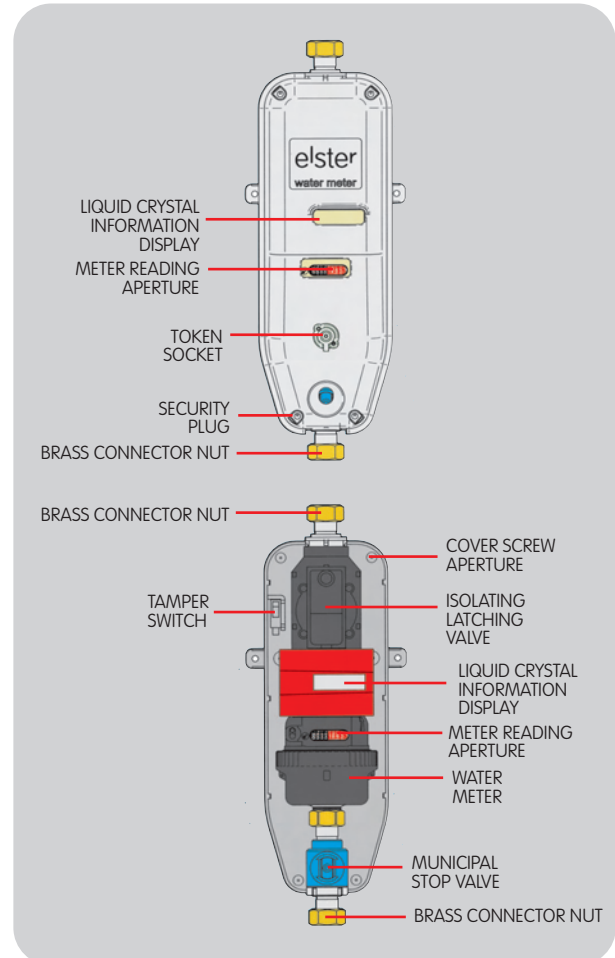### AN ABOVE GROUND POLYMER METERBOX.

The meterbox contains:

- A 15mm (or 20mm) Class"C" polymer semi-positive rotary piston water meter.
- A municipal 3-way ballcock positioned before the meter and a consumer 2-way ballcock position downstream of the water meter.
- Sliding couplings connect the inlet and outlet of the water meter and allow replacement.
- Dual key operated locking mechanism for removal of cover for maintenance.

General

The meterbox inlet and outlet connections are Ø20mm BSP female polymer threads. Sliding cover insert allows reading of water meter reading and serial number. In case of pre-paid water option the sliding cover insert also facilitates reading of the electronic display.

A COMMERCIAL TYPE POLYMER ABOVE GROUND METERBOX.

The meterbox contains:

- A Ø25mm Class"C" polymer semi-positive rotary piston water meter.
- A municipal 2-way ballcock positioned before the water meter.
- Sliding couplings connect the inlet and outlet of the water meter and allow replacement of same.

General

Meterbox inlet and outlet connections are Ø25mm BSP female Polymer threads.

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Quality Control

The complete system is manufactured and approved according to SANS 1529-9 and SANS 10378:2008 quality control specifications assuring product quality.
(Approval number SA1372.)

Vending Terminals

The Vending Terminal includes both a battery operated handheld, or a mains operated desktop unit. The terminal is EMV approved and of Banking Standard. The battery operated unit has capacity to operate continuously for more than a day.

Security

The terminal can assign up to 6 users, each with its own Vendor Access Token for identification purposes, as well as 6 digit password. The password can be set with an expiry date to enforce regular password changes, as well as a lockout facility locking out a user after a number of incorrect password entries.

Bulk Credit

A terminal needs to be pre-loaded with bulk credit, before any vending can take place. Bulk Credit is loaded to the terminal either via token, or by direct connection to the Management system. Bulk credit can be sold to a vendor on a commission basis.

Vending

Up to 2500 transactions or refunds are stored on the terminal. A Cashup function is provided to balance the sales for the day with the payments collected. Provision is made for up to four payment types, such as cash, Cheque, credit card or EFT. New tariffs are loaded to the tokens when available, with meter status and consumption data collected from the token and stored in the terminal. Receipts are printed on industry standard thermal paper rolls.

Menu

The functions on the terminal are all menu driven, which defines the function it performs, creating an easy to operate, user friendly terminal.

Transaction Download

Transaction downloading is done by means of direct cable connection to the Management system. New tariffs, if available, are downloaded as well as serial numbers of any blocked tokens.

Credit Token

Token to be specially designed for the secure transfer of monetary credit utilizing cycle counters to prevent fraudulent copying and re-use of credit data. Service life of token should be at least 10 years with unlimited read and write cycles. Token shall be IP68 and not be prone to physical tampering, moisture, dust, and robust enough not to deteriorate in performance due to excessive handling. Token to store complete feedback and diagnostic data for the meter, including error codes, monthly consumption volumes, last 3 credit uploads, minimum hourly flow and totalizer.

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At the heart of any prepaid system lies its Management System. This CashFlow Pre-Paid Water Meter Management system is a Windows based system running on a SQL database platform. The system is fully scalable to run on a single PC, up to a networked Server system with multiple workstations.

Consumer & Meter & Token Registration

The personal details of each prepaid consumer is captured on the system, with details of the meter/s installed, tokens operating on the meter, and any arrears due by the consumer. Meters are localized according to Village, Zone and Area to assist the reports generator in filtering out data related to the installation. Commonly used entry field, like street name's, suburb names, city names, uses Predictive Text Typing that predicts and automatically completes the name you are entering. A quick search facility enables consumer records to be search by means of name, meter number, id, token, etc. To facilitate multiple or larger scale installations, the system allows meters to be grouped according to Village Codes. Tokens from one Village Code cannot be used on meters with a different Village Code. It is also used to differentiate one installation from another.

Vending of Credit

For small to medium sized installations, selling of credit can be done on the Management system itself. For larger and more remote installations it is recommended to use Handheld Terminals. Each vending point is preloaded with Bulk Credit, with the possibility of calculating transaction-based commission for the Vendor. During the vending process, meter status information and consumption volumes are downloaded from the token and stored on the system. A Cash-up function is provided for each vendor, to balance payments received to transactions processed. Multiple payment types are supported. Receipts are printable on any standard Receipt Printer available. The system supports multiple tariff tables, each with up to 8 stepped tariffs.

Maintenance Call Center

Proper customer support is the foundation to a successful system. The consumer visits the call center to log meter related complaints to the system, which is used to draw up job cards for maintenance staff. The job card contains all customer related details, the nature of the complaint, with a unique reference number. Feedback from the job cards are then used to draw up various Key Performance Indicator reports, to give an overview of the performance of the installation. Maintenance staff are also registered, with the ability to assign certain Special Tokens, used when performing maintenance tasks.

Reports

The system is equipped with an array of reports from transaction & sales data, consumption data, meter status and performance data. Each report is fully customizable using user set parameters and filters. Report output format is in PDF format, viewable by any compatible PDF viewer such as Acrobat. The Installation report gives a dashboard overview on all key information for an installation.

Multiple Users

Each user is registered on the system, with a unique password.   Passwords can be setup with an expiry date to enforce regular password changes, as well as a lockout facility when the user enters his password incorrectly after a few attempts. Users are assigned to a specific role on the system, which defines and limits the functions assigned to the user.

Import and Export of Data

The design of customized import and export formats are available, to import consumer data or export transaction and consumption data to third party systems.

Specifications

THE WALL MOUNTED PRE-PAID METERBOX

A domestic water dispenser to control the dispensing of Pre-Paid quantities of water to individual households

Meter Box: To consist of a polymer bodied wall mount Pre-Paid Meterbox allowing the LCD displays to be positioned any height (to cater for disabled users) against a wall. Meterbox to contain a Class C plastic bodied volumetric water meter complete with pulse output approved by S.A Trade Metrology to SANS 1529-1: 2006. Pre-Paid meter to be complete with 20mm female brass BSP threaded nut type inlet and outlet fittings. All internal joints to be fusion welded. Meterbox to be fitted with a Municipal ball valve. All components (Meter and electronics combination, Battery, Latching Valve) must be easy accessible and interchangeable on site by maintenance personnel. Mechanical meter reading must be visible (Reading slot in Meterbox lid) to assist with detection of illegal bypass connections by consumer. Token touch port Stainless steel ring design for ease of credit/data transfer for all customers.

Approval: Complete Pre-Paid Meter to comply with SANS 1529 – 9: 2008.

Electronics: Pre-Paid Electronic module must be water resistant to IP 67, with in situ replaceable battery pack.

Security: A tamper switch ensures that no water is drawn when in tamper mode.

LCD Display: Display able to indicate monetary credit available on the meter, not limited to any particular currency, making use of user friendly icons to indicate meter status. Additional information includes: Volume consumed for the month in liters, Tariff Rate charged, Meter Totalizer in cubic meters or US Gallons, Error Codes, battery low icon, tamper mode, valve status, Module to detect possible leaks, probe or mechanical meter failure. Consumer must be able to lock his own meter (close valve) utilizing his token, to prevent unauthorized water usage.

Credit Token: Token to be specially designed for the secure transfer of monetary credit utilizing cycle counters to prevent fraudulent copying and re-use of credit data. Service life of token should be at least 10 years with unlimited read and write cycles. Token shall be IP68 and not be prone to physical tampering, moisture, dust, and robust enough not to deteriorate in performance due to excessive handling. Token to store complete feedback and diagnostic data for the meter, including error codes, monthly consumption volumes, last 3 credit uploads, minimum hourly flow and Totalizer.

THE ZONKE ABOVE GROUND POLYMER WATER METERBOX

Polymer multi purpose above ground meterbox housing a 15mm semi-positive rotary piston Class "C" water meter (or choose any type of 15mm or 20mm water meter from the list below). A 3-way ballcock is located upstream of the water meter, and a 2-way ballcock with exposed handle for the consumer is located downstream of the meter, sliding couplings connect the inlet and outlet of the water meter and allow replacement; internal piping is Ø25mm HDPE and joints are fusion welded. The meterbox inlet and outlets are Ø20mm (3/4") BSP female Polymer threads.

A sliding cover allows reading of the water meter cyclometer and the serial number. In the case of Pre-Paid, the electronic reading can also be seen. A dual key operated locking mechanism allows removal of the top half of the meterbox for maintenance.

METERBOX OPTIONS
AMR/AMI (Automatic Meter Reading)
AMR/AMI options with semi-positive rotary piston and hybrid meters.

Fixed Water Dispensers
Fixed water dispensers with 15mm semi-positive rotary piston meters.

Pre-Paid Metering
Pre-Paid metering options are available with 15 and 20mm semi-positive rotary piston or hybrid meters.

TRAINING
Intensive on-site training inclusive of installation, commissioning, operation and maintenance, incorporating hardware and software is conducted. Remote desktop software support forms an integral part of the training, thus ensuring smooth operation of the system as a whole.

Approval
Department of Trade Metrology SANS (1529-1:2006) SANS (1529-9:2008)

Warranty
All goods are tested and inspected prior to despatch. In the event of defects resulting from faulty workmanship or materials, such goods will be replaced/repaired at our discretion, free of charge at the factory, but no responsibility will be accepted for any direct or consequential damage. This warranty covers the malfunction of a correctly installed item due to a manufacturing fault, but does not cover wear and tear considered normal at the locality of installation. Meter warranty 3 years from date of manufacture. Electronic warranty 12 months from date of sale.

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