SMARTWATER
(Automatic Meter Reading) Device

Model: Smart-HE

Smartwater is a pulse reading device used for Automatic Meter Reading (AMR), connecting mechanical water meters with a magnetic pulse output to the Internet. The device is fitted with the Uni-Probe HE (Hall effect) magnetic sensor programmed for a 0.5L/pulse pulse ratio. The Uni-probe HE is compatible with most 15mm or 20mm domestic water meters, such as the Elster Kent V110 (KSM), Precision Meters ASM or the Sensus 220C.

The device maintains its own internal electronic totalizer of pulses received to date. The totalizer reading, along with other diagnostic data is sent daily or hourly over a low power network to a cloud server. This enables the utility management company or municipality to receive water meter readings on a regular basis using a web application, without the need to visit each and every meter.

The device is equipped with a low power long range radio transmitter for seamless integration to the Sigfox low power fixed network, covering 90% of the South African population. Sigfox is present today in almost every municipality in the country. The network eliminates the need to create your own network by installing expensive, high maintenance Data Concentrators and Gateways.

The **Smart_CIU Programmer** communicates with the device via its Infra-red Port and is used to activate the device on the Sigfox network and configure certain parameters on the device.

Leak Detection is achieved by recording the hourly consumption over a 24 hour period. Assuming there is no leak, there should be at least 1 hour without any consumption. If consumption above a pre-defined threshold is measured for every hour over a 24 hour period, it is assumed that a leak may be present. A leak notification, as well as the measured size of the leak in Litres/hour is uploaded together with the totalizer reading for the day.

Once a **Pipe Burst** is detected, an immediate notification is sent to the cloud server, to issue a pipe burst notification.

High Use is triggered when for a pre-defined number of days consumption is higher than the measured daily average.
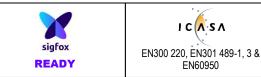

Smart-Reed Device

Universal Probe fitted with Integrity Seal

Smart_CIU Programmer

Specifications

Serial Number	11 Digits with check digit
Radio Type	Sigfox, RC1 Region
Radio Frequency	868mHz
Max. Output Power	14dBm (Maximum ERP)
Antenna	Internal Helix Coil PCB Antenna
Communications Port	Infra Red, Bi-directional
Battery Type	Field Replaceable, Resin Potted,
Battery Capacity	2.7Ah Lithium Thionyl Chloride (Li-SOCl$_2$)
Battery Life	Up to 7 years (Daily) or 2.5 years (Hourly)
Totalizer Roll-over	9999.999 m^3
Totalizer Resolution	0.001m^3
Pulse Probe Type	Magnetic Hall Effect Sensor
Pulse Probe Length	0.5 meter
IP Rating	IP68 (Submersion 1meter for 2 hours)
Operating Temperature	-10°C to 55°C
Dimensions	113mm(L) x 33mm(H) x 41mm(W)
Weight	128 gram
Mounting	Cable Ties, Screws or Double Sided Tape

Programmable Settings

- Electronic Totalizer
- Leak Threshold
- Number of Days Without Pulse
- Pipe Burst Profile
- High Use Profile
- Excessive Use Days

Uplink Data Packet

- Electronic Totalizer reading in m^3
- Uplink Profile – Daily or Hourly
- Date & Time Stamp
- Signal Strength
- Leak indication, with leak size in L/hour
- Battery status
- Error Code
- Excessive Use Detected
- Current month consumption to date in m^3
- Previous month consumption in m^3

sigfox READY

ICASA
EN300 220, EN301 489-1, 3 & EN60950

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