HYDROLEX®
WATER MANAGEMENT SYSTEM

FACT SHEET

HYDROLEX® WATER MANAGEMENT SYSTEM

SMART, END-TO-END WATER MANAGEMENT

Turn raw field data into actionable insight.

One intelligent system for metering, network monitoring, leak and loss detection, and utility reporting.

Hydrolex® Water Management System is a smart water management platform built for municipal water boards, utilities and industrial water users. It converts raw field data into actionable insight, helping operators reduce non-revenue water, respond to incidents faster and plan infrastructure investment with confidence.

What Hydrolex® Delivers

- A single view of network performance across bulk meters, zone meters and consumer connections.
- Early detection of leaks, bursts and abnormal consumption through continuous data analysis.
- Digital twin modelling of the water network to support planning and 'what-if' scenario testing.
- Automated, audit-ready reporting for utilities, regulators and funding bodies.
- A scalable rollout path — from pilot zones to full network-wide deployment.

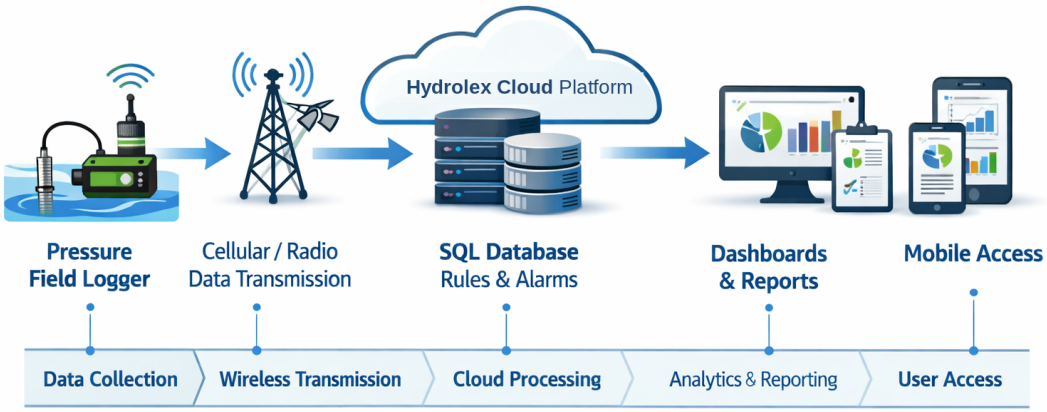
4 Connected system layers

4 Core platform modules

5 Stages, field to mobile

3 Phased deployment steps

How Hydrolex® Data Flows



DATA COLLECTION DEVICES

Smart shut-off valves • Pressure • Flow

Smart water meters • Pressure field loggers

WIRELESS TRANSMISSION

Sigfox • LoRaWAN • NB-IoT • GPRS

Cellular / radio data transmission to the cloud

System Architecture — Four Connected Layers

1 Field Layer

Flow and pressure sensors, level sensors, smart water meters, smart shut-off valves and GSM telemetry data loggers installed across the network.

2 Connectivity Layer

Secure Sigfox, LoRaWAN, NB-IoT, GPRS or cellular communication carrying field readings to the Hydrolex® cloud platform at defined intervals.

3 Data & Analytics Layer

A central data lake, network performance engine and digital twin model that validate, contextualise and analyse incoming readings.

4 Presentation Layer

A single-view operational cockpit, dashboards and automated reports used by operators, engineers and management.

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Four Core Hydrolex® Modules

Data Lake

Centralised, validated storage for all meter, sensor and telemetry data across the network — the single source of truth for reporting and analysis.

Network Performance

Continuous monitoring of flow, pressure and consumption patterns to flag leaks, bursts, unmetered use and abnormal demand in near real time.

Digital Twin

A live digital model of the water network used to simulate operating conditions, test interventions and support capital planning decisions.

Single View Cockpit

One consolidated operational dashboard giving operators and management a live, at-a-glance status of the entire network.

Data & Analytics Capabilities

ANALYTICS CAPABILITIES

- Non-revenue water (NRW) tracking, with zone-by-zone loss breakdowns.
- Leak and burst alerts generated from abnormal flow and pressure patterns.
- Consumption trend analysis to identify unusual or unauthorised usage.
- Historical and predictive reporting to support budgeting and maintenance planning.
- Configurable alert thresholds and escalation rules per zone or asset.

REPORTING OUTPUTS

- Automated periodic reports for utility management, funders and regulators.
- Audit-ready records supporting compliance and grant-funded infrastructure programmes.
- Exportable data views for engineering and planning teams.

Hardware & Sensor Integration

Bulk & Zone Flow Meters

Electromagnetic and ultrasonic flow meters for bulk supply and district metered area (DMA) monitoring.

Pressure & Level Sensors

Continuous pressure and reservoir/tank level monitoring across the distribution network.

GSM Telemetry Data Loggers

Intelligent loggers that capture and transmit field readings over cellular networks at configurable intervals.

Smart Shut-off Valves & Controls

Remotely monitored and, where required, remotely actuated valves for pressure management and zone isolation.

Deployment & Implementation Model

1 Discovery

Site assessment, network review and identification of priority zones or assets for initial deployment.

2 Implementation

Installation and commissioning of field hardware, connectivity and the Hydrolex® platform for the agreed scope.

3 Expansion

Phased roll-out to additional zones or the full network, informed by results from the initial deployment.

Support & maintenance: Alvatech (Pty) Ltd provides ongoing technical support, calibration and system maintenance for the full duration of the deployment, backed by local service capacity in South Africa.

Measurable Value for Utilities

Reduced Non-Revenue Water

Earlier leak detection and zone-level visibility help lower physical and commercial losses.

Faster Incident Response

Real-time alerts let teams act on bursts and abnormal events before they escalate.

Informed Capital Planning

Digital twin modelling supports evidence-based investment and maintenance prioritisation.

Regulatory-Ready Reporting

Automated, audit-ready reports simplify compliance and engagement with funders and regulators.

ALVATECH
WATER TECHNOLOGY

Deployed & supported by **Alvatech (Pty) Ltd**
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Ready to bring Hydrolex® to your network?
Alvatech is ready to discuss a pilot deployment, full-scale rollout, or integration with your existing metering and SCADA infrastructure.

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