

THE ALL-IN-ONE PLATFORM FOR MONITORING YOUR SEWER NETWORK

From the reading in the chamber to the number on the board paper.

FlowSense takes telemetry from any logger fleet, turns it into an operations picture your team can act on today, and into the engineering evidence you need to justify capital spend. Monitoring, analytics, hydraulic modelling and reporting are one continuous chain in one system, so no one re-keys a number between stages and every figure stays traceable back to the reading that produced it.

CATEGORY

Sewer network monitoring, flow analytics, hydraulic modelling, pump station management and trade waste

DATA IN

Loggers collected by EDS, your own SCADA five ways, and reviewed CSV import

DELIVERY

Cloud hosted and browser based. Desktop, tablet and mobile, nothing to install

DATA OUT

Branded PDF and CSV reports, scheduled SFTP, FTPS and MQTT feeds, SWMM and GeoJSON export

INSTRUMENTATION

Vendor independent. Flow, depth, velocity, rainfall, water quality, battery and signal

STANDARDS

Built to CIWEM UDG, WEF MOP FD-6, WSA 02, AR&R 2019, AS/NZS 3500.3, QARTOD, EPA SWMM and the NSW Liquid Trade Waste Guidelines

WHAT IT IS

Three products in one, and one record underneath them.

Each layer below is normally bought separately, from a different supplier, with a spreadsheet between them. In FlowSense they share one database, one set of units and one timeline.

Monitor

Live fleet status with every site judged against its own usual, site detail, alarms, telemetry and battery health, rainfall context, pump station flow and condition from run times, and early warning of blockages before a pipe surcharges.

REPLACES THE LOGGER
VENDOR'S PORTAL

Analyse

Rainfall derived infiltration and inflow quantified in kilolitres, dry weather flow profiled, depth and velocity hydraulics, catchment flow balance, data quality scored.

REPLACES SPREADSHEETS AND
MANUAL I&I STUDIES

Engineer

Sixteen project based workspaces: calibrated RTK models, a dynamic wave network model, the I/I heat map, and cost per kilolitre of infiltration removed.

REPLACES A MODELLING
CONSULTANCY ENGAGEMENT

DATA ACQUISITION

Every way in, one validated record.

Automatic collection

Readings arrive on their own from your instrument fleet, on a schedule set per site. EDS operates and monitors that collection chain as part of the subscription.

Instrumentation from several manufacturers is supported side by side. New site types are onboarded without a platform change, so the network you buy next still lands in the same record.

Your own SCADA

Five transports: **HTTP push** from your SCADA to our HTTPS endpoint, up to 10,000 readings a request and 240 requests a minute per token; **MQTT**, where we connect out to your broker, optionally over TLS, and read JSON or Sparkplug B; **API polling** of your system or your supplier's cloud, every 1 to 1,440 minutes, signed in with a bearer token, an API key in a header or query, a username and password, or OAuth2 client credentials with the token renewed before it expires; **file pickup** from your SFTP or FTPS server, 20 files and 30 MB a file per run; or **file drop**, where your historian uploads the same exports to an SFTP folder we host, signed in by password or public key, 30 MB a file.

Nothing to install at your end, and with a push or a file drop nothing opened inbound at all. Unmapped tags land in a review queue and are counted and discarded until an operator maps them, so nothing a SCADA sends can create a channel by itself. Ingest tokens are write only and cannot read a single stored value.

Reviewed CSV import

CSV up to 20 MB, comma or semicolon delimited, with the timestamp column found by name and ISO 8601, day first or month first dates read with or without a time, in 12 or 24 hour form, with an offset or in the zone chosen at upload. Staged and reviewed before commit, with matched, changed, new and removed counts and a chart of the stored record against the file that catches a file in the wrong zone; replace a range, replace the history or merge the missing; and a 30 day undo window.

Manual sites

History that never had a logger. A 2019 flow survey or a meter since removed is created by hand, placed on the map, given channels, and read by every heat map, model and volume total exactly as a live site is. Nothing polls it, so it never counts as an outage.

Rainfall

Model rain at each site's own grid cell, ECMWF IFS at 9 km via Open-Meteo, filed in the hour it fell and topped up every six hours to keep 90 days complete, so "did it rain there" is always answerable. Your own gauges, uploaded as CSV or arriving on telemetry, outrank the model, and every total reads one source for its window, so a storm is never counted twice. The odds of rain ahead come from the 51 member ensemble, and every forecast is scored two days after its window closes.

Integrity rules

The same rules apply however a reading travelled. **Field timestamps are kept**, never the time of collection, and a record without a trustworthy time is skipped rather than guessed. Synthetic "as of now" readings and future dated rows are rejected. Duplicates are dropped on channel and timestamp, so any file, message or batch is safely re-sendable. Writes are all or nothing, and every collection is logged.

Outage recovery

The Data Recovery tool finds the windows a site went quiet and refills them from source, reaching back up to 60 days, so a network or instrument outage does not leave a permanent hole that only surfaces once a report is already wrong.

MONITOR

The whole fleet on one screen, live.

Network Overview

What needs attention comes first, worst first, beside a colour coded site map held in view on a wide screen, and pointing at a row rings its site on the map. Every site is judged against its own usual: the latest hour against the day and time pattern learned from that site's own four weeks, with rain in the last day shown beside it so a rise after rain is never read as a fault. Status tiles that open their lists, alarms still breaching told apart from cleared alarms waiting to be acknowledged, communications, missing data, recent anomalies, network rainfall, and a "Your sites" panel of the reader's own pins with a 24 hour trace against the usual range.

Refreshes every 60 seconds with WebSocket push in between, a return to the page paints at once from memory, and unacknowledged alarms are counted on the browser tab.



Fleet health	Data age coverage grid (fresh within 2 hours, recent within 6, aging within 24, stale beyond) and battery classification by chemistry across the fleet: a 12 V pack warns at 11.8 V and is critical at 11.0 V, a 3.6 V lithium cell at 3.4 and 3.2 V, a 3.0 V lithium cell at 2.8 and 2.6 V, a percentage at 40 and 20. A replace by date is projected from each site's own 60 day discharge trend by Theil-Sen, quoted as a range, so a dying logger is a planned visit rather than a surprise gap. Offline is judged on when each site last delivered, against twice its own measured cadence, never sooner than 24 hours and never later than 7 days.
Site detail	Whatever the site measures, read as it was read: a tile per measurement (flow, level, pump runs, pH, conductivity, gas, an overflow, anything), each at its quantity's precision, with pumps and alarms read as states, how long and how often, never averaged, and a totaliser never leading. Up to eleven tabs, each where the site's channels support it: Overview, Diagnostics, Analysis, I/I, Alarms, Scattergraph, Water quality, Balance, Insights, Calibrations and Field notes, over multi axis interactive charts across every channel, with a pane able to read two scales left and right. Under the chart, each channel's latest, low, mean and high for the window with its coverage; the period compared with the last on what the site measures; zoom, pan, wheel zoom, channel toggling, date presets and CSV export on every chart, which breaks at an outage rather than drawing across it; the site seen from above at the foot of the page; and the site list shows every measured channel, not only flow, depth and velocity.
Alarms	Threshold, no data and pump condition rules, site wide or channel specific, checked every minute and edge triggered so you are told when the state changes rather than every cycle. Per rule recipient lists and cooldowns, delivery by email and SMS, acknowledgement individually or in bulk, and an acknowledgement belongs to the account, so your team and EDS each keep their own. Every alarm says whether it is still breaching, cleared or acknowledged. A threshold rule deliberately ignores stale data, so a dead logger frozen on a breaching value cannot hold an alarm open. That is the no data rule's job.

ANALYSE

Infiltration and inflow, quantified rather than described.

I&I analytics	Peak RDII, RDII volume in kilolitres, percentage over dry weather flow, lag time from rain to response, dry weather flow average, night baseline, the 24 hour diurnal profile, and the RDII hydrograph showing measured flow against the dry weather baseline and the rainfall derived inflow.
Dry weather flow	Sanitary diurnal plus groundwater infiltration, taken from qualifying dry days only and stratified by day type, so weekend sanitary flow cannot masquerade as inflow. The groundwater component is tracked day by day rather than held constant, and steps over a storm's slow tail rather than reading it as groundwater.
Hydraulic QA	Depth and velocity scattergraph against the theoretical Manning curve, with sedimentation and erosion risk zones flagged, plus channel by channel coverage against expected reading counts.
Balance and compare	Upstream and downstream reconciliation across a catchment with mean and peak balance, unaccounted volume and average error, plus multi site comparison and trade waste discharge analysis.
Volume method	Daily volumes are the per local day average flow multiplied by 86,400 seconds, summed, with partial edge days prorated. This is how a water authority's own spreadsheet does it, and it is stated up front because it is the first thing an engineer checks.
Data scrubbing	Multi method defect detection: IQR and MAD outliers, Hampel local spikes, flatlines, negatives, rate of change spikes and cross channel regression residuals, each with a recommended interpolation method. Gap fills stay export only and never overwrite the measured record.

BLOCKAGE WATCH

Early warning that names the mechanism, not just the site.

What it reads

A gravity sewer drains almost empty in the small hours, so an obstruction shows up in the overnight trough long before it shows up anywhere else. Six signatures are read from the level trace: overnight minimum elevation, its trend, amplitude collapse, departure from the site's own learned day and time profile, flat topping and step change. Where a site also carries velocity, two more are read, the strongest being conveyance at matched depth, which compares the recent depth and velocity cloud against the baseline bin by bin. A fall in velocity at the same depth measures the pipe rather than what arrives through it.

That is what separates a restriction from a busier catchment. Both lift the trough. Only a restriction moves less water at a higher level. The verdict is a mechanism and an action: silt or grease (desilt the reach), sudden obstruction (CCTV, because a step change is debris or a partial collapse), downstream restriction (inspect below the meter), or increased load with no jetting indicated, which is the verdict that saves the money.

Rain produces every one of those signatures more strongly, so the analysis runs on dry days only and a site whose elevation appears only after rain scores zero and says so. A fortnight too wet to judge is reported as insufficient dry weather rather than as normal. A suspect channel is routed to data quality rather than to a jetting crew. A site measuring flow alone is held at watch and reads "more flow overnight", since flow cannot tell extra water from a restriction; a pump station wet well is left to PSM; and each site is judged on its own clock. Crossing the threshold opens a case with an assignee, read verdict and action first, then the numbers and the evidence, that closes on a recorded outcome, and those outcomes are what detection performance is measured from, on your network rather than asserted from ours. A one click backtest replays the detector against overflows already in your register, using only the telemetry that existed before each one.

PUMP STATION MANAGER

Station flow and pump condition from the run record you already have.

Station flow

Run time drawdown from the wet well level and pump run states your SCADA already reports, scanned at five minutes or better, and the well dimensions. Arriving flow at every timestamp, volume pumped, starts and run hours, surcharge and overflow events, storm episodes, the typical day, and kilowatt hours per megalitre where power is metered. Pumped out balances what arrived, run by run and over the window's whole pump cycles, with the well's own change stated so the two volumes reconcile; a crew visit is priced by what the level lost. In the well: the water above the pump stop and the room to the next start and to the overflow, in kilolitres.

Set-points read from SCADA are proposed, never applied until a person confirms them.

Pump delivery

Each pump's measured capacity per day, against its nameplate rating or, where it has none, its own early record. Two pumps running together are never judged against their ratings added up, and cycles the record cannot support are counted and set aside.

Pump condition

Each pump's output on dry days against its own reference: slow decline, sudden drop, clearing and a pump that stops running, with the likely cause ranked rather than diagnosed. Remaining useful life is a range (Theil-Sen, the ISO 13381-1 convention) once 180 days of record support it. One alarm per finding, and logging a service restarts the reference.

It reads hydraulic output, not bearings or seals. Findings show on the PSM page, in the Pump station performance report and in the weekly email.

ENGINEERING WORKSPACE

Sixteen tools, project and scenario based, on a GIS canvas.

This is the layer that separates FlowSense from a telemetry portal. Work is organised into projects and scenarios over a map of pipes, nodes, pump stations, overflow structures and catchments, and a finished model leaves the platform in a format your other tools read.

I/I Heat Map Severity painted onto the real gravity network by catchment and flow direction	RTK Calibration SWMM compatible three component unit hydrograph, fitted per catchment	RTK Validation Independent event set validation with a per storm scorecard	Hydraulics Full dynamic wave network model, pumps, gates and control rules
Scattergraph Silt, surcharge, backwater and meter fault detection	Pump Station Volumetric pump testing and performance decay from wet well level	Overflow Forecast Design or forecast storm to predicted hydrograph and capacity exceedance	Capital Plan NPV, BCR and discounted cost per kilolitre of I/I removed, ranked
Compliance Licence limit evaluation and a sewer overflow register	Catchment Model Multi site simulation under a shared rainfall scenario with routing	DWF Dry weather flow calibration and diurnal profiling	Events Rainfall and response event detection and management
Data Scrubbing Defect detection with a recommended method per defect	QA / QC Structured review and sign off workflow	Compare Scenario against scenario	Export Excel, GeoJSON, CSV with audit trail, or EPA SWMM 5 input file

ENGINEERING DEPTH

Three things worth reading the detail on.

Heat map, six methods

A heat map is commodity. Six defensible methods, with the platform telling you which applies, is not: network constrained attribution, RDII event analysis, hydraulic capacity scoring, depth and velocity condition analysis, upstream and downstream mass balance, and RTK unit hydrograph classification.

Kriging, the default interpolation, carries a 0 to 1 confidence overlay, so the map shows the estimate and how much of it to trust. Exports as GeoJSON, CSV, PNG or JPG and a formatted A4 PDF report.

Model verification

A single whole of series score can look respectable while the model misses every storm peak, because dry stretches dominate it. Every calibration and validation therefore scores **each storm separately** against the bands consulting practice verifies against: simulated peak within 15% below to 25% above observed, event volume within 10% below to 20% above, and peak timing reported against a one hour tolerance for review.

An event passes on peak and volume together. The verdict is verified, partially verified, not verified or insufficient events, and three assessable storms is the minimum for a verified status. Every run carries a data adequacy report, so a thin window still produces a result and the result says it was thin.

Network model

One dimensional dynamic wave solver over the prepared gravity network, with friction per pipe by Manning or Colebrook-White to WSA 02 practice, design storms built from your IFD depth with AR&R 2019 areal reduction factors, and pump and gate control rules. Every run reports a mass continuity check and carries a print ready run report, and capacity screening flags any pipe that never reaches self cleansing velocity.

DELIVER

Reporting, and integration that runs both ways.

Report templates

Seven: **Flow totals** for operations and billing, **Executive summary** for management and boards, **Flow analysis (RDII and I/I)** for the I/I study, **Engineering diagnostic** for technical teams, **Site investigation** as a field ready pack, **Network performance** for asset planners, with performance comparisons and the asset register audit, and **Pump station performance (PSM)** for stations on the Pump Station Manager.

Multi site selection, custom date range, the executive summary read against five other windows including the same weeks last year, section level include and exclude so one template serves several audiences, charts in the preview and the PDF, your logo and report title applied, exported as PDF, CSV or both, on demand or on a daily, weekly or monthly schedule by email.

Scheduled feeds out	Automated delivery of your data into your systems over SFTP, FTPS or MQTT, as CSV files or as JSON messages over MQTT, every 15 minutes to weekly, with per feed channel selection, test connection, payload preview, manual run and run history. The watermark advances only on a fully successful send, so a failed delivery cannot silently skip a window. Stored credentials are encrypted.
The round trip	Your SCADA feeds FlowSense and FlowSense feeds your SCADA, historian, BI stack or ETL. Very few products in this category accept the inbound half, and once a tag is mapped its readings are ordinary channel data with no separate view to learn.
Exports	CSV from any chart on a one row per minute grid, up to 400 days and several channels at once, in the reader's or a chosen time zone. Model runs as an Excel workbook, GeoJSON or CSV, the prepared network as an EPA SWMM 5 input file, and chart figures as PNG, JPG or SVG.
API and webhooks	A read API under your own keys, shown once, stored hashed, optionally limited to chosen sites or given an expiry, and revocable. It serves sites, channels, latest readings, historical readings (92 days a request, up to 50,000 a page) and alarms as JSON, at 120 requests a minute per key, with one write: the outcome of a work order. A key never sees more than the person who made it. Webhooks for alarms raised and cleared, forecast risk and blockage cases, signed with HMAC-SHA256 and tried up to six times over about two hours.

STANDARDS

Built to the published standards, and tested against them.

In the product this lives on one page, generated from the running software: each standard lists the calculations that actually cite it, and a standard nothing implements cannot appear on it. Conformance is held by tests rather than asserted once, and any of it can be walked through line by line against the running code.

STANDARD	WHAT IT GOVERNS HERE
CIWEM UDG Code of Practice for the Hydraulic Modelling of Sewer Systems, 2017	The per storm acceptance bands every calibration and validation is scored against, and dry weather flow as a diurnal stratified by day type
WEF MOP FD-6 and WPCF MOP No. 36	Dry weather flow as sanitary diurnal plus groundwater infiltration, from qualifying dry days only
WSA 02 Sewerage Code of Australia	Self cleansing velocity, level of service checks, and Colebrook-White friction per pipe
AR&R 2019, Book 2	Areal reduction factors, and AR&R temporal patterns run exactly as supplied
AS/NZS 3500.3	The Rational Method for ungauged sub-catchments, and the minimum velocity band on scattergraphs
QARTOD	The quality control test battery and flag vocabulary every sample is judged by
EPA SWMM, including EPA/600/R-15/162A	Dynamic wave routing, and the three component RTK method for rainfall derived infiltration and inflow
ISO 13381-1, prognostics	A pump's remaining useful life, counted down to a stated limit with its uncertainty
NSW Liquid Trade Waste Guidelines, 2021	Trade waste annual fee, usage, excess mass and pH charges

Published methods implemented rather than approximated:

Saint-Venant

Preissmann slot

Manning

Colebrook-White

Muskingum-Cunge

Rational Method

Nash-Sutcliffe

Kling-Gupta

Theil-Sen

Matérn 3/2 Gaussian process

ISO 8601 on every boundary

WCAG 2.1 AA contrast

The instruments EDS supplies carry certification in their own right: the Detectronic LIDoTT range is MCERTS certified for flow metering and rated ATEX and IECEx Zone 0 for hazardous atmospheres. A certified meter keeps its certification when its readings arrive in FlowSense, which stores the field time and the raw value it produced.

ACCESS, ADMINISTRATION AND PLATFORM

Your team, your structure, managed by you.

Access model	Role based access with per user module flags on top of it: Network Overview, Analytics, Reports, Alarms, Blockage Watch, Engineering with Data Scrubbing, I/I Heat Map and Modelling inside it, Flow Monitoring Projects, Data Export, PSM and Trade Waste. You decide exactly what each of your people sees.
Account types	Two. A wastewater network account is the platform this datasheet describes. A trade waste account is a separate product for a council's trade waste team: the discharger register, approvals never edited once issued, inspections, samples, breach alerts, letters and charges to the NSW Liquid Trade Waste Guidelines formula, with boundary meters and water quality probes checked hourly against each approval, and a demonstration account of its own. The type sets the modules an account starts with; any module can be switched on later.
Self service	Account owners create users, reset passwords, suspend accounts and set per user site and channel access without raising a ticket with EDS. Named sub-teams mirror your own org structure with inherited access, and a platform admin can delegate individual Admin sections one at a time, per person.
Network administration	An out of service flag with a client visible note so maintenance does not read as a fault, archiving that retires a site while keeping every reading, client friendly channel names in place of vendor codes, and engineered flow channels derived from area by velocity or Manning's equation where a logger does not report flow directly.
Assurance	A security log of sign-ins, failed sign-ins, two factor changes, exports and administrative actions, with the address each came from, kept for at least 365 days and supplied to your account as CSV on request. EDS also keeps usage analytics of what each person viewed, with a 90 day default window. Controls: access scoped per account and per user, two factor sign-in (TOTP, RFC 6238), which EDS can require by role, bcrypt passwords with sign-in throttling, TLS with HSTS, an enforced content security policy, encrypted stored credentials, write only ingest tokens.
Platform	Hosted in Sydney, in any modern browser on desktop, tablet or mobile, with local time zones and locale aware date entry. Live updates by WebSocket with a 60 second polling fallback, per page error boundaries so a fault in one module never blanks the app, and cache when a third party GIS or weather service is down. Readings are not purged by default; the database is backed up nightly, the newest fourteen copies kept.
Branding	Your logo through the interface and on generated reports, with a custom report title.

SCOPE NOTES

Where the boundaries sit.

Stated here rather than discovered later, because an engineering buyer will ask and the answers are good ones.

GIS network	We integrate with your GIS. Connecting a council's own network layer is a scoped integration task at onboarding, not an out of the box switch.
Upstream flow allocation	Flows in upstream pipes are a calibrated estimate derived from the downstream meter, not a measurement, and the interface labels them that way.
Network model	The dynamic wave solver is one dimensional: gravity network, pumps, gates and control rules. It does not do 2D overland flood mapping, water quality or sediment transport. A run exports as a SWMM input file, so work started here stays portable where those layers are needed. Preparing and running a large network takes minutes, not seconds.

Capacity screening	The screening table is steady uniform flow from the recorded pipe geometry, and is only as good as the GIS attributes behind it. Dynamic behaviour is the network model's job.
Blockage Watch	A statistical early warning read from each sensor's own history. It says the pipe reaching that sensor is behaving differently for a reason rain does not explain. It does not locate the obstruction, cannot see one downstream of the meter, and needs roughly two months of history plus enough dry days. Velocity signatures need a working velocity channel.
Model verification	The scorecard reports how the model performed against the storms in that window, to a published standard. It is not a promise about the next storm, and a window with fewer than three assessable storms is reported as insufficient events rather than passed.
Overflow forecast	As good as the rainfall forecast fed into it. It is a risk ranking tool, not a guarantee.
Alarm delivery	Email and SMS are set up per deployment at onboarding; SMS is at carrier cost.

NEXT STEP

See it running against a real network, not a slide.

We will demonstrate FlowSense live, including the blockage backtest replayed against a real overflow register, and we will show you the working behind every number on the screen. Bring your hardest question about how a figure was calculated. If you would rather test it on your own data first, send us the history you already have and we will stand up a 90 day trial on it.

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EDS FlowSense platform datasheet, 11 October 2026. Capabilities described are those in the released platform at the date of issue. FlowSense is built to the standards listed and tested against them. MCERTS, ATEX and IECEx certifications belong to the instruments EDS supplies. Third party product and vendor names are the trademarks of their respective owners.

DOCUMENT CONTROL	REFERENCE	REVISION
DOCUMENT		
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