



PRODUCT DATA SHEET

HLX-PDS-2026-009 Rev D

August 2026

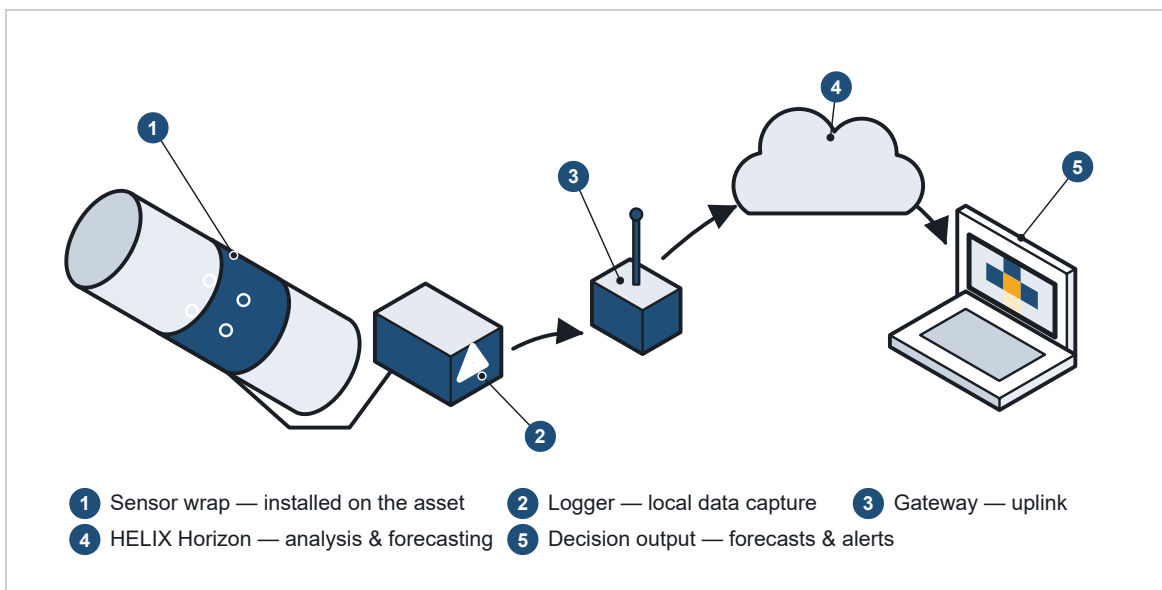
HELIX Horizon

Screening-to-3D registration and condition-visualization software

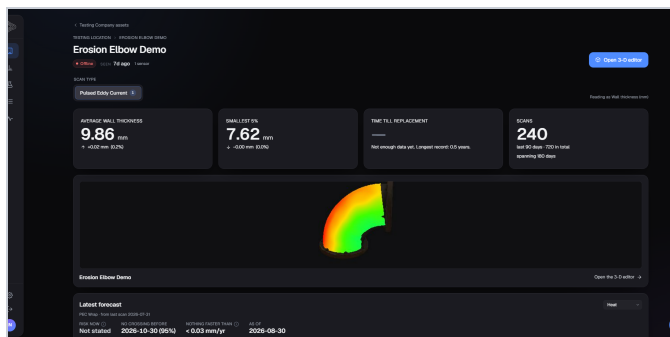
SHOWN: CAPILANO RIVER HATCHERY · FISHERIES AND OCEANS CANADA · REF HLX-2026-001

What Horizon does

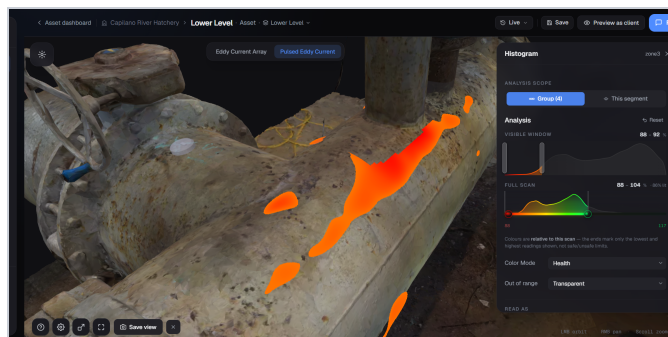
HELIX Horizon registers every screening and monitoring result to its physical location on a LiDAR + photogrammetry 3D model of the real asset. Each pulsed eddy current (PEC) reading, each eddy current array (ECA) sample and each sensor-wrap measurement is placed on the captured geometry where it was taken, so reported indications can be relocated in the field and compared against a future survey acquired under suitably comparable conditions.



How data reaches Horizon — sensor wrap (1) to logger (2) to gateway (3) to HELIX Horizon (4) to decision output (5). Representative system layout; screen contents indicative only.



The asset dashboard — KPI tiles above the live condition map. HELIX demonstration asset (Erosion Elbow Demo).

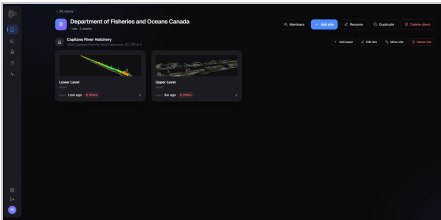


The 3-D view — screening results as a colour map on the captured geometry. Capilano River Hatchery (DFO), real engagement data.

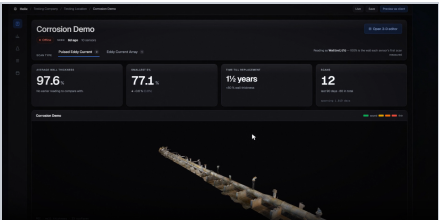
Colour in the model represents relative screening response — not condition severity and not pass/fail status. The model is a spatial baseline: a re-visitable record of where the asset was screened, what the instruments saw, and how the picture changes over time.

Three levels of view

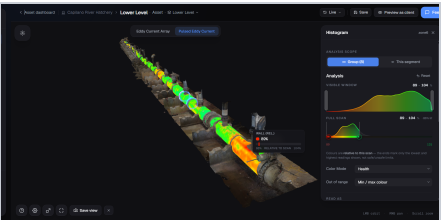
Level	What it shows
Portal home	Your sites and assets at a glance — asset cards with latest condition map, last-seen status and reporting state.
Asset dashboard	KPI tiles (Average wall thickness, Smallest 5%, Time till replacement, Scans), scan-type selector (PEC / ECA) and the 3D model.
Asset detail (3D view)	Heatmap layers on the model, per-zone histogram analysis, point-of-interest cards, scan replay, time slider, forecasts.



Portal home — the DFO site with its monitored assets.



Asset dashboard — KPIs above the condition map.



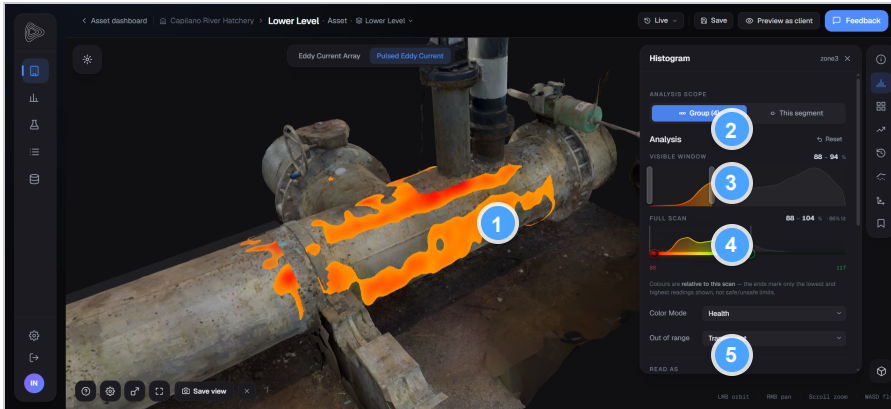
Asset detail — heatmap, tooltip, histogram analysis.

Left and right: Capilano River Hatchery (DFO), real engagement data. Centre: HELIX demonstration asset (Corrosion Demo).

Scope and limits. Horizon visualizes screening and monitoring data; it does not certify the asset to any code scheme, and fitness-for-service remains a regulated engineering assessment that stays with your engineers. PEC values are relative (τ -based) apparent-wall responses, not absolute thickness, unless a material reference exists. ECA reports indication locations; it does not size defects. Software access is provided for the client's internal reference and does not transfer or waive responsibility for decisions made from it.

Condition mapping and zone analysis

Click any scan and its histogram loads in the analysis panel — the whole distribution of readings for that zone. From there the job is simple: **quantify what the colours show, and search the scan for the readings that matter**. Below, the visible window has been tightened to the thinnest band of the Capilano scan (88–94%) with out-of-range readings set to transparent — everything else vanishes, and the model shows exactly where the low readings live.



Searching a scan for its thinnest readings — Capilano River Hatchery (DFO), real engagement data.

Colours are relative to this scan — they mark the lowest and highest readings shown, not safe/unsafe limits.

How the histogram works

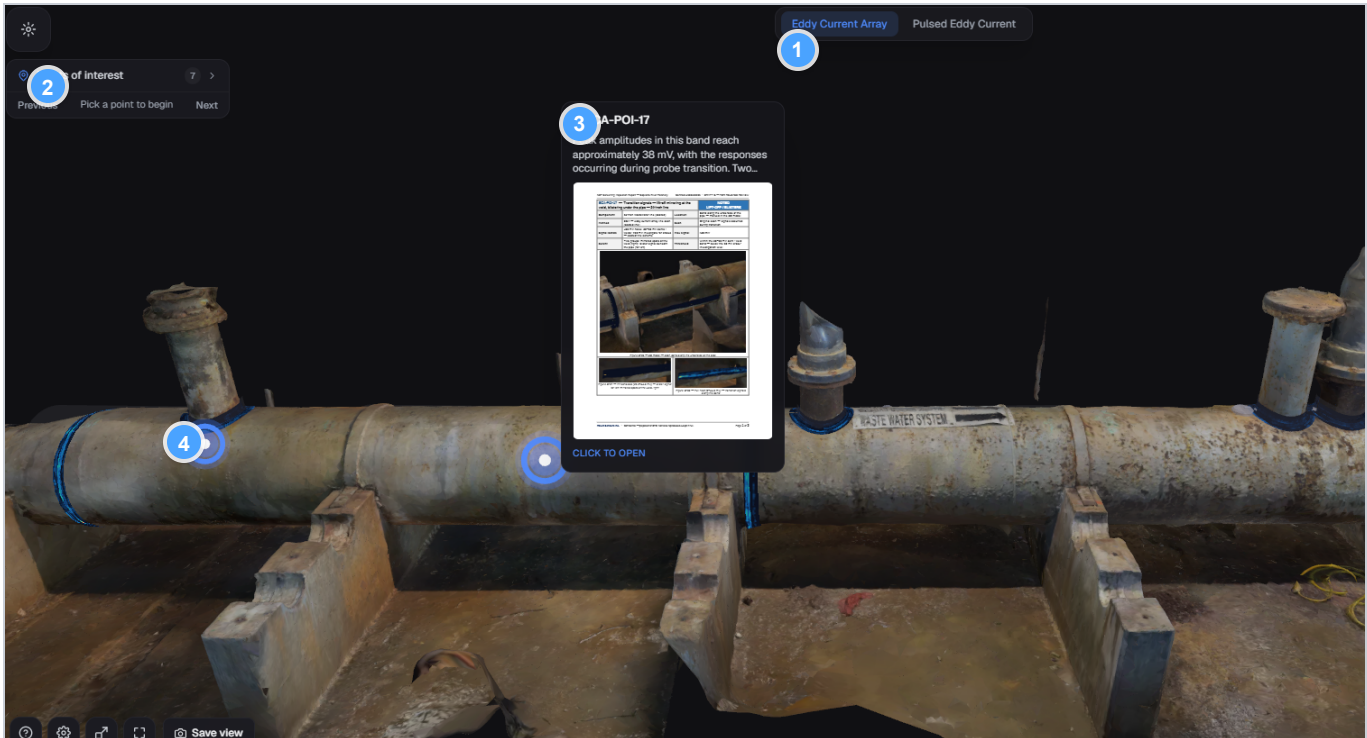
- 1 Only readings inside the window stay painted — the patches are the scan's thinnest band, in place on the asset.
- 2 **Analysis scope** — quantify a group of segments together, or one segment alone.
- 3 **Visible window** — drag the band over the distribution; the colour gradient spans exactly the window you set.
- 4 **Full scan** — the zone's whole distribution, with the window marked and the share of lit points reported.
- 5 **Out of range: transparent** — readings outside the window vanish (or clamp to min/max colour, or drop to greyscale).

Analysis behaviour

- A heatmap layer per scan type — PEC and ECA — switchable for the whole run or a single inspection zone.
- The window is held constant across scans during time scrubbing, so colour changes mean data changes — not scale changes.
- The relative-colour rule is repeated inside the interface itself, next to the histogram, on every analysis panel.

Points of interest and guided review

Findings are attached to the model as point-of-interest (POI) cards, each anchored where the indication was recorded. The **guided asset tour** steps a reviewer through the points in sequence — the view moves to each POI in 3D with its on-model notes — so the findings of an inspection report can be followed without driving the software. The scan can also be replayed in capture order to see how a segment was built up.



ECA layer on the 24-in wastewater line screened at the Capilano River Hatchery engagement (DFO, July 2026 — reference HLX-2026-001).
Real engagement data, reproduced from the released case study.

ECA bands mark where the array was scanned and where indications were recorded — they locate indications; they do not size defects.

In this view

- 1 **Layer switch** — toggle between the Eddy Current Array and Pulsed Eddy Current layers for the whole run or one zone.
- 2 **POI navigator** — steps through the points of interest in order (the guided asset tour).
- 3 **POI card** — the finding's register entry with its report page attached; click to open the full record.
- 4 **Registered ECA scan bands** — collar scans placed on the captured geometry, where they were acquired.

On this engagement, ~100 m of 1970s piping was screened in place — no cutting, draining or dismantling — producing 378,407 screening samples across 34 inspection zones and 46 point-of-interest entries, all registered to the model shown above.

Scan history and point detail

Where an asset carries a permanent HELIX Sensor Wrap, every scan lands in the same registered frame — so history becomes a first-class control. A time slider scrubs through the stored scans, hover tooltips read out per-point values, and an opacity fade reveals the captured asset surface beneath the colour map.



Hover tooltip and scan-history scrubbing on a PEC-wrap elbow. HELIX demonstration asset (Erosion Elbow Demo).

Colours are relative to this scan — they mark the lowest and highest readings shown, not safe/unsafe limits.

In this view

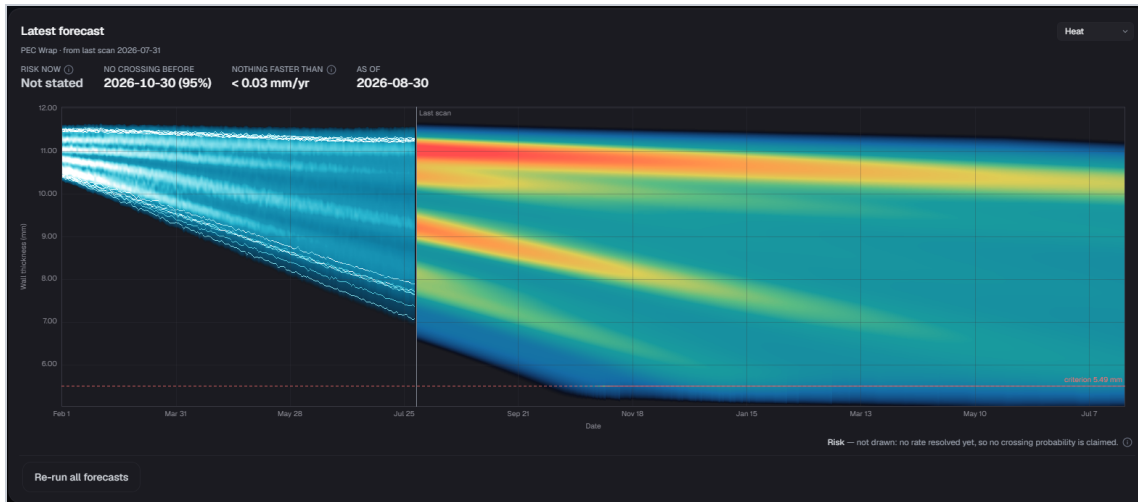
- 1 Hover tooltip** — per-point wall (rel.) value with its position marked against the scan's own range.
- 2 Greyscale out-of-range mode** — readings outside the visible window drop to neutral so the band of interest stands out.
- 3 Scan-history time slider** — scrub through stored scans; window held in mm across every frame.
- 4 Opacity fade** — see the captured asset surface underneath the colour map.

Longitudinal analytics

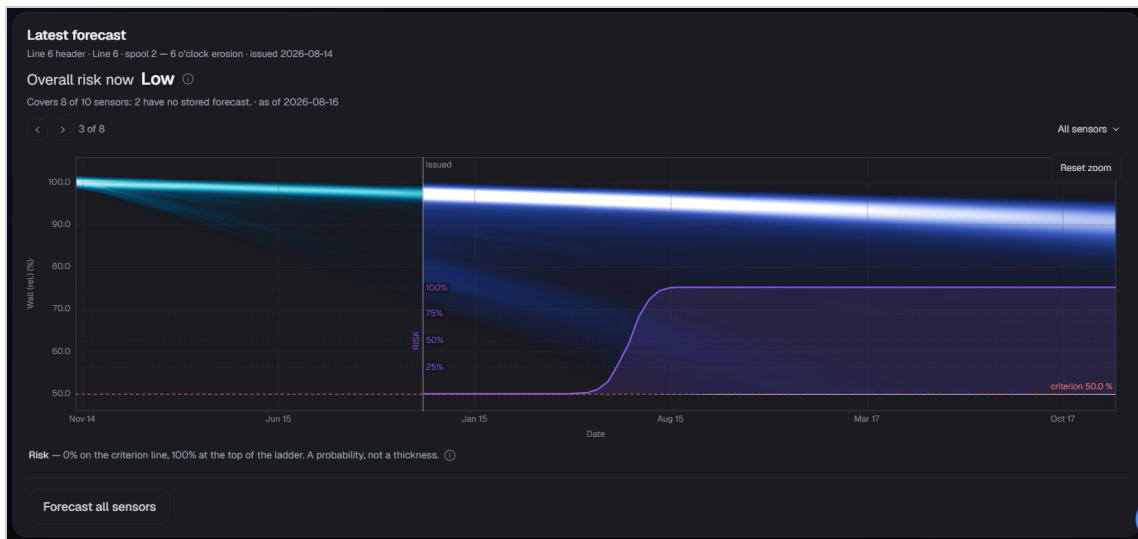
- **Sensor mean over time** — each monitored position plotted as a trend across the stored scan history, so drift in one location is visible against its neighbours.
- **Scan replay** — play any scan back in capture order to see how a segment was acquired, and add sensors or reference points for follow-up.
- **Re-survey and overlay** — a future scan, acquired and registered under suitably comparable conditions, can be compared against this baseline.

Latest forecast — probabilistic wall-thickness forecasting

The idea is simple. Every measurement the wrap has ever taken is a point on a chart: the date on one axis, the measured wall on the other. Over months, the asset's history becomes a cloud of thousands of points per sensor. Horizon fits that cloud, position by position, and watches how each trend bends — some spots hold steady, some thin faster than their neighbours, and the fit finds them. Ahead of the last scan, the fitted trends continue as a **fan of likely futures**; where the fan approaches your minimum-wall criterion, the distance becomes a date: *"No crossing before 2026-10-30 (95%)", "Nothing faster than < 0.03 mm/yr"*.



The forecast fan: measured history left of the last-scan marker, the fan of likely futures at right, and the criterion line flagged on the chart. HELIX demonstration asset.

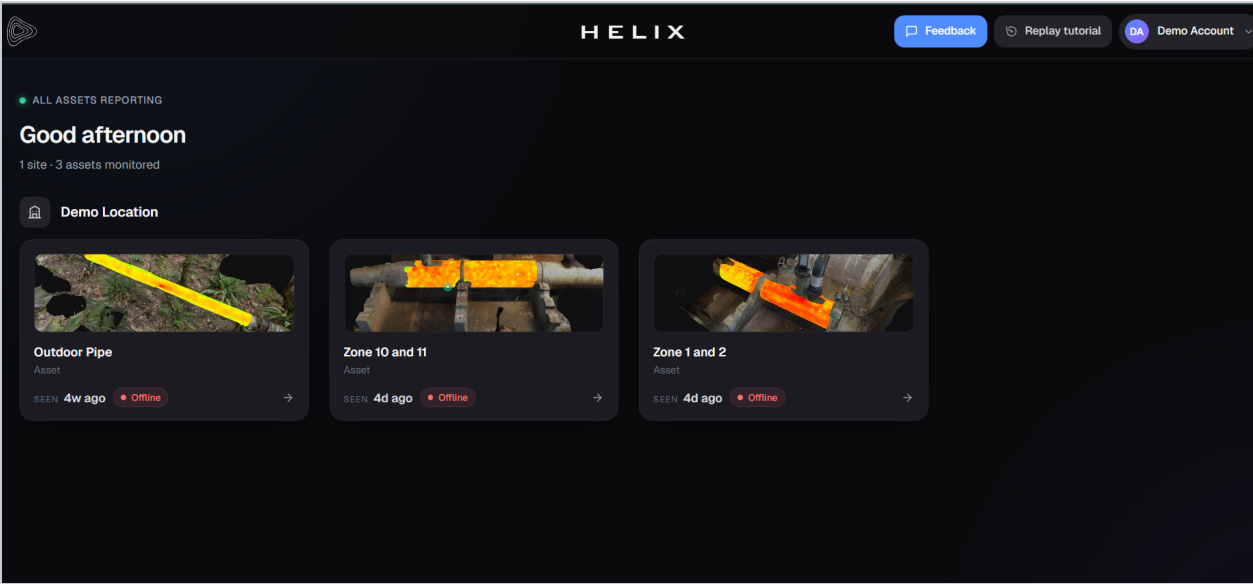


The same forecast, quantified as risk: the probability of crossing the criterion, drawn over time — 0% on the criterion line, 100% at the top. A probability, not a thickness. HELIX demonstration asset.

- **Criterion line** — the forecast is always read against a stated criterion, visible on the chart.
- **Risk curve** — crossing probability over time, summarized per asset (e.g. overall risk now: Low), with sensor coverage stated alongside.
- **No unearned claims** — where no rate is resolved yet, no risk curve is drawn and no probability is claimed.

Client portal

Horizon is delivered through a browser-based client portal. Each client sees its own sites and assets: asset cards with the latest condition map and reporting status, per-asset dashboards with KPI tiles (Average wall thickness, Smallest 5%, Time till replacement, Scans), and the full interactive model. A **Preview as client** mode lets HELIX verify exactly what your team will see before handover.



Portal home — sites and monitored assets at a glance, each card carrying its latest condition map and reporting state. HELIX demonstration account.

Data and delivery

Item	Description
Inspection report	Final report as PDF — findings, zones, points of interest, methods and limits.
Processed datasets	Processed PEC dataset and processed ECA dataset from the engagement.
Point-of-interest register	The POI and indication register, mirrored as on-model POI cards in Horizon.
Registered 3D model	LiDAR + photogrammetry model with all screening results registered to it; interactive in Horizon.
Exported model views	Static exported views of the model for reports and internal circulation.
Horizon access	Browser-based access for your team via the client portal; admin and client views, with Preview-as-client verification.

Software provided as-is. Horizon access is provided for the client's internal reference. The limitations of the underlying screening data apply to the model exactly as they apply to the reported findings, and the provision of software access does not transfer or waive responsibility for decisions made from it.

Engagement and subscription

Offering	Scope	Commercials
NDT screening inspection	Four methods on one visit: PEC wall-response screening, ECA surface-discontinuity screening, LiDAR + photogrammetry 3D capture, and registration of all results to the model in Horizon. Deliverables per page 8.	Contact HELIX Sensors for a quote.
HELIX Horizon subscription	Ongoing portal access for your team: condition maps, scan history, analytics and forecasting; continuous data where sensor wraps are installed.	Contact HELIX Sensors for a quote.
HELIX Sensor Wrap monitoring	Patent-pending permanently installed sensor wrap; continuous wall-loss monitoring with temperature compensation, feeding Horizon.	Contact HELIX Sensors for a quote.

Related documents

Document	Covers
HELIX PEC Technical Specification	PEC screening scanner (PEC-Rev1)
HELIX ECA Technical Specification	Eddy current array scanner (ECA-Rev3)
HELIX Sensor Wrap Technical Specification & Illustrated Installation Guide (HLX-QSG-2026-016)	Permanent monitoring wrap
Case study — Screening Inspection and 3D Condition Mapping, Capilano River Hatchery (ref. HLX-2026-001)	Released engagement report; source of the real-data views in this document

Contact HELIX for current revisions and additional collateral. A live demonstration of Horizon is available at demo.helixsensors.com.

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