

The Meter Set Is the Bottleneck

**How the simplicity of Xplorobot Laser OGI cuts leak survey time in half
— and turns every survey into an auditable record of what leaked and what did not**

Leak survey labor is mostly two things: walking and stopping. Walking the mains and walking each service is a fixed cost — no instrument changes how far a technician has to travel. What varies is what happens once they arrive at the meter set. That interval, repeated at every service on the map, is where a significant fraction of a survey program’s labor budget is actually spent, and it’s the only place a faster technology can meaningfully change the number.



Xplorobot Laser
OGI Sensor

When using a survey instrument with a pump (i.e. a “sniffer”), surveying a meter set is a contact procedure. Depending on the utility, the procedure may call for the technician to “box” or follow a “trace outline” of the meter set, or may prescribe tapping and dwelling on every fitting on the assembly — riser, regulator, unions, meter connections and house line tie-in — one at a time, and it must be done slowly enough for the instrument to respond. The industry average to measure just the meter set is roughly 90 seconds per service — this is an average over residential meters, larger commercial meter sets and multi-meter manifolds. Using the Xplorobot Laser OGI replaces this procedure with a rapid standoff observation: the technician uses the guide laser of the Xplorobot sensor and quickly traverses it across the whole assembly, detecting any leaks present — here the average is about 10 seconds per service (again, including individual meters and larger manifolds). If a leak is present, its location is immediately shown on the live camera image along with an audible and vibration alarms.

Let’s quantify what this looks like just for the survey-only portion — for now, we’ll set aside other efficiency gains like automated data capture and reporting since those scale with the number of leaks found.

1. Two ways to count the time savings



Large meter set assembly — this example has over 50 individual measurement points but can be measured by Xplorobot Laser OGI in about 20 seconds.

Comparing survey time for sniffers and Laser OGI at the meter can be modeled two ways using actual field data: 1) analyzing how long it takes to investigate a single leak indication from advanced mobile leak detection (AMLD) that has 12 services and 0.14 miles of main (a typical number of services per indication), and 2) analyzing how long it takes to survey an entire map section (400 services) using traditional walking leak survey (no AMLD involvement).

Both use standard industry production rates from field trials — 50 services per mile of main, 2.5 miles of main walked per hour, 30 seconds to walk each service line — and hold everything else constant except what instrument is used to check the meter for leaks. For simplification, we have described

neighborhoods where the meter sets are at the fronts of structures with no can’t-gain-access (CGA) constraints.

The resulting efficiency gain when using Laser OGI on above-ground infrastructure accounts for over 50% labor savings on the measurement-only part of the survey — whether you’re looking at one AMLD indication or walking a whole map. And you can use Laser OGI for the whole process including below-ground leak survey — above-ground infrastructure is just where most of the efficiency is gained.

Investigating one AMLD indication

12 services • 0.14 miles of main

Sniffer



Xplorobot Laser OGI



58.5% less field time per indication

Surveying one full map

400 services • 8 miles of main

Sniffer



Xplorobot Laser OGI



53.8% less field time per map

All values in minutes. The two panels use different time scales – compare bars within a panel, not across.

	Per AMLD indication	Per survey map
Services in scope	12	400
Miles of main (at 50 services per mile)	0.14	8.0
Walking the main (at 2.5 miles of main per hour)	3.4 min	192.0 min
Walking all service lines (30 sec. each)	6 min	200.0 min
Meter sets — sniffer (90 sec. each)	18 min	600.0 min
Meter sets — Laser OGI (10 sec. each)	2 min	66.7 min
Total field time — sniffer	27.4 min	992.0 min
Total field time — Xplorobot Laser OGI	11.4 min	458.7 min
Labor saved	58.5%	53.8%

Two notes on conservatism

This example deliberately excludes drive time, setup, any CGA time and grading leaks which are unaffected by technology choice since findrates are generally similar with both technologies. This is the main reason the 27-minute sniffer figure for a single AMLD indication is well below the 60 to 120 minutes commonly cited for that work. But if your survey-only follow-up time numbers are in fact higher, the time savings are larger, not smaller.

Field time surveying only. Excludes travel to and from the map, sniffer instrument warmup and calibration, and time spent grading leaks that are found — none of which the instrument choice changes.

2. Ease of use is the mechanism, not a feature

Ten seconds per meter set is only achievable if the instrument requires nothing of the operator beyond looking.

Four properties get it there:

The whole meter assembly measured in one sweep.

- There is no sequence to execute and nothing to physically reach.
- The image from a fast sweep covers the riser, the regulator, the meter and all the connections at once.

There is nothing to interpret.

A leak is rendered in color on the live view in real time, exactly where it is and its concentration is digitally logged.

Distance detection for the access problem.

If there are access issues, effective detection from 50 ft or more means the possibility of surveying over/through fences and gates and accessing high or hard-to-reach components without a ladder, a gate key, or a return trip.

There is a quality argument buried in the same property. The reliability of a contact sweep depends on whether that particular technician, on that particular afternoon, actually touched every fitting on the manifold. An image does not vary by operator. Survey results become repeatable across crews rather than a function of individual technique and diligence.

3. A record of coverage — for leaking and non-leaking assets alike

Survey with sniffers structurally cannot provide this capability. When a sniffer survey finds nothing, it produces nothing: no artifact nor evidence beyond perhaps a breadcrumb and methane readings showing that the route was walked, but no digital evidence showing what was checked and proof that it was measured. Absence of a leak report is not proof of a survey.

Leaks become time-stamped, 3D geospatial leak tags — methane image, component, GPS coordinates, concentration and leak rate, etc. attached to the equipment record.

Non-leaking assets become zero-emission tags: an affirmative, time-stamped 3D geospatial methane field-of-view coverage overlay on an image of the infrastructure that was measured, showing that each individual component was surveyed and read clean.

The route itself is captured as GPS breadcrumbs with associated methane readings, showing where the surveyor actually walked and which assets they actually passed.



Zero-emission tag and proof of survey with no leaks found for a meter set scanned in about 8 seconds.

The result is coverage that is traceable, verifiable and complete. “When did we survey that meter set last and where exactly was the leak we found?” become simple database queries. The extensive, digital audit trail is produced as a by-product of the survey rather than as extra work after it.

4. The survey documents itself

The second labor sink is documentation, and although we’re not modeling that labor savings here, Xplorobot collapses it into the same trigger pull that captures the leak, or no-leak tag. When a surveyor tags a leak or records a zero emission tag, the paired smartphone records and saves the methane image, GPS position, time stamp, ambient temperature, wind speed, gas concentration in ppm-m and optionally a measured leak rate.

Company procedure-specific details (i.e. leak type, grade, etc.) can also be input from pre-populated dropdowns. This all can then be uploaded to the cloud. Nothing is transcribed, nothing is re-keyed from a paper sheet at the end of the shift, and nothing depends on what the surveyor still remembers when they get back to the truck.

Reports and workorders can be generated from the Xplorobot Dashboard and include the original tag details and imagery so that repair technicians know exactly what was leaking and where. The platform integrates with company systems such as ESRI and SAP so all this information can be equally available in whatever the company system of record is. The reinspection view puts the prior and current methane images of the same component side by side for unambiguous repair and post-construction validation.



Residential meter set with a leak visualized by Laser OGI, scanned in about 5 seconds.

5. What improves besides the hours

Fewer “can’t-gain-access” reschedules. Locked gates, dogs, dangerous neighborhoods and distance can often be overcome with standoff detection, saving time and keeping crews safe.

High, inaccessible piping is now within reach. Standoff detection allows survey of tall risers on the sides of buildings which are notoriously hard to survey and are where unfound leaks can cause utilities to chase odor calls for years.

Defensible leak rates. Optional, high-accuracy quantification supports prioritization and emissions reporting of individual leaks, recorded right when they are found.

Faster emergency and odor call response. Quickly clear large banks of meter sets, quickly check windows, doors, foundations and high walls from a safe distance. Quickly visualize below-ground migration patterns.

Beyond leak survey. Post-construction and repair verification, open leak reinspection, fast methane scans of transmission and metering/regulation infrastructure that would take hours with a sniffer. Emerging applications include atmospheric corrosion detection and thermal imaging.

Integration with company systems and AMLD. Bi-directional data flow between ESRI, SAP with the ability to overlay AMLD indications and GIS on a live satellite map within the Xplorobot app.



Breadcrumb field-of-view showing areas of zero or elevated methane concentration.

Xplorobot is in service at 5,352 facilities across 79 corporate customers, 23 countries and 5 continents. Here’s what one customer had to say:

“ This technology has the ability to leapfrog camera-based OGI at about half the cost and provide a digital twin, a 3D model, at the same time. ... I could teach you or anybody in five minutes how to use it. So I’m excited because it shows if you have a leak exactly where it is, how much it is, and then shows you where you didn’t have a leak, and it has a digital record. ”

– Paul Espenan, Senior Vice President EHS&R, Diversified Energy

Testing the claim in the field

Though it’s based on real field data, the arithmetic above is only arithmetic. The proof point is on your infrastructure with your people: run one map the way you run it today and record actual field time at the meter sets; run the same map with Laser OGI and record it again. Compare the time per service at the meter, and watch how long it takes the crew to become productive with the device, because that is the variable the entire model rests on.