



UNDERGROUND · CS-430

BURY IT, CLOSE THE PIT. IT GOES STILL AND LISTENS

A passive seismic and acoustic node on long-life battery — reporting only over a buried fibre link.

PERIMETER WATCH · CHOKEPOINT SENSING · TREMBLER LINE NODE · STANDALONE LISTENING POST

- PATENT PENDING
- EXPORT-CONTROLLED — INTERNATIONAL TRANSFER SUBJECT TO CANADIAN GOVERNMENT PERMITS
- PASSIVE SENSING NODE — NO WARHEAD, NO FUZE, NO ENERGETIC MATERIAL, NO OFFENSIVE CAPABILITY

~4.5 KG ALL-UP NODE MASS	~Ø90 MM SEALED HOUSING DIAMETER	~380 MM SEALED HOUSING LENGTH	0 RADIO LINKS ONCE EMPLACED — FIBRE ONLY, EVER
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OVERVIEW

A NODE THAT BURIES ITSELF, THEN GOES STILL.

Part of the **4-system Underground line** — shares its envelope and doctrine with Trembler Line, Ferret, Badger.

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Mole CS-430 is a small platform for persistent, silent watch. It is emplaced — augered or hand-buried into a surveyed position — and then it stops moving, stops transmitting, and starts listening. A geophone-and-acoustic sensor package on a long-life battery keeps watch over a single approach or chokepoint for years, not hours.

Mole is the fleet's individual sensing unit. Strung node-to-node on a fibre trunk to a monitored head-end, a chain of Mole units becomes the Trembler Line system (CS-435) — a picket that detects, localizes and cues a Ferret unit forward, human-in-the-loop, before anything physical happens. But a single Mole does not need the chain to be useful: emplaced alone, it is a standalone listening post in its own right, watching one approach nobody else has eyes on.

The emplacement discipline borrows directly from the group's own directional-drilling practice — three decades of putting a tool exactly where a survey says it goes, blind, underground. Mole does not bore; it is seated with the same pre-job discipline an HDD crew runs today: surveyed position, precise placement, a documented as-built. The heritage is in the precision, not the hole.

THE CLAIM

SEND A SENSOR. NOT A SENTRY.

Every hour a Mole node keeps silent watch on a chokepoint is an hour nobody had to stand a post there in person. It has one job — sense — and it does that job with nothing to give it away: no light, no signal, no schedule to be caught out on.

HOW IT WORKS

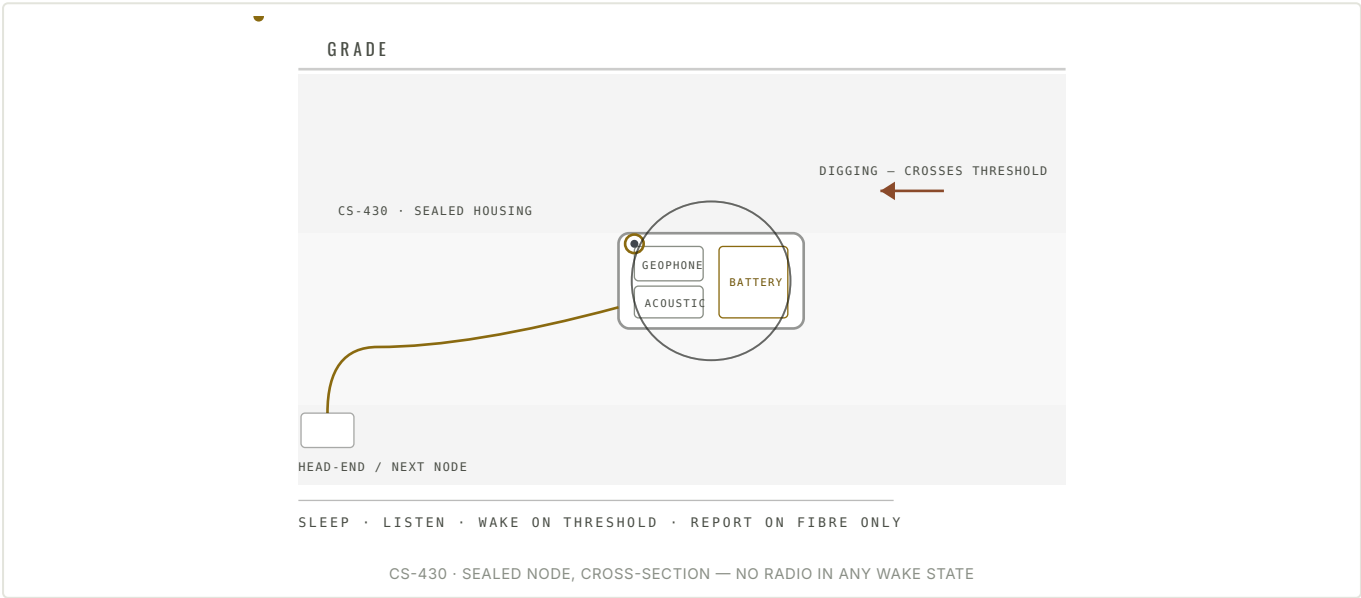
MECHANISM

SLEEP. LISTEN. WAKE ON THRESHOLD. REPORT ON FIBRE.

Emplacement first: augered or hand-buried into a surveyed position, the node is seated, the fibre lead is spliced or seated into a head-end or the next node down the chain, and the pit is closed. From that moment, Mole does not move and it does not broadcast — there is no radio to turn on.

Most of its life is spent in an ultra-low-power sleep-and-listen cycle purpose-built to stretch a battery pack over years, not weeks. A tri-axial geophone and accelerometer package reads ground-borne vibration; an acoustic sensor reads what travels through air and structure. Both feed a threshold detector tuned to reject wind, weather and passing wildlife while catching digging, footsteps, vehicles and tunnelling.

When a signal crosses threshold, the node wakes, classifies the event, and reports once — over the buried fibre link, to the head-end, or to its neighbours if it is part of a Trembler Line chain. Never over the air, in any configuration. If the chain calls a response, that response is a Ferret unit interposing on a human decision. Mole's own output stops at data on a wire; it has no way to act on what it hears.



SPECIFICATIONS

CAPABILITIES & SPECIFICATIONS

MOLE CS-430	
DIMENSIONS & MASS	SENSING & DETECTION
Configuration	Sealed cylindrical housing, direct-buried or augered in
Housing dimensions	~90 mm dia x ~380 mm length
All-up mass	~4.5 kg
	Sensor package
	Tri-axial geophone · MEMS accelerometer · acoustic sensor
	Detection range
	Footsteps and digging — tens of metres; vehicles — farther, soil-dependent
	Threshold tuning
	Rejects wind, weather and passing wildlife; catches digging, footsteps, vehicles and tunnelling
	Wake / report latency
	Sub-second threshold trip; report to head-end under 1 s over fibre
REPORTING & COMMS	POWER & ENDURANCE
Comms	Buried fibre only, node-to-node or direct to head-end — no radio
Emissions over the air	None, in any wake state or configuration
Chain role	Node of the Trembler Line CS-435 picket — also emplaced standalone as a single listening post
	Battery chemistry
	Primary lithium, long-shelf-life cell class
	Standby endurance
	Years-class at ultra-low duty cycle
	Duty cycle
	Sleep-and-listen — wakes on threshold, classifies, reports once
EMPLACEMENT & ENVIRONMENT	COMPLIANCE
Emplacement method	Auger or hand-buried, surveyed position — HDD-heritage survey discipline
Burial depth	0.3–1.0 m nominal, site-dependent
Operating temperature	–40 °C to +50 °C class
Recovery	Dug back along its own fibre lead — or logged and left in place by decision
	Patent status
	Patent pending
	Export control
	Export-controlled — international transfer subject to Canadian government permits; export posture is counsel-first
	Munitions classification
	Passive sensing node — no warhead, no fuze, no energetic material; no offensive capability of any kind
	Payload
	None — sensing electronics and battery only
	Response scope
	Physical response is Ferret CS-420, tasked on a human decision — not this node

ANY DETECTION-RANGE FIGURE STATES ITS SOIL AND THREAT CLASS — THAT IS HOUSE POLICY, NOT FINE PRINT. MOLE IS THE SINGLE NODE; THE CHAINED, MULTI-NODE PICKET IS TREMBLER LINE CS-435, AND THE PLATFORM THAT ANSWERS A CUE IS FERRET CS-420.

THE TRADES, STATED

NO RADIO, IN ITS PUREST FORM.

The fleet's no-radio doctrine says the link is the vulnerability. Mole is where that rule reaches its cleanest expression: once the fibre is spliced and the pit is closed, the node emits nothing over the air, ever — not a beacon, not a heartbeat, not a status ping. There is nothing to intercept because there is nothing being sent to intercept.

Mole is a purely passive sensing node. It has no offensive capability of any kind — no warhead, no fuze, no energetic material anywhere in the design. It cannot engage anything it detects; it can only report what it hears, once, over the wire. When a detection needs a physical response, that call is a Ferret unit's job, sent forward on a human decision — Mole's role ends at data on a fibre.

FAMILY CONTEXT

ONE NODE. A WHOLE PICKET, STRUNG.

Mole CS-430 feeds the Trembler Line system (CS-435): strung node-to-node on a fibre trunk, a chain of Mole units detects, localizes and cues a Ferret to interpose — human decides, always. Badger and Aquifer make the holes the family uses; Mole, Ferret, Muskrat, Gopher and the Farell Pig work holes and passages that already exist. The whole family sits on the group's own three-decade directional-drilling practice — the same discipline that steers a bore blind now seats a listening node exactly where a survey says it goes.

DEPLOYMENT

PUTTING A NODE IN THE GROUND, WALKED THROUGH.

One emplacement, walked end to end — illustrative of how the node is used, not a mission record.

01 · ARRIVAL

SURVEY, EMPLACE, SPLICE THE FIBRE

The position is surveyed first — the same pre-job discipline an HDD crew runs today. The node is augered or hand-buried in, seated at depth, and the fibre lead is spliced into the head-end or the next node down the chain. The pit closes. No link check — the link is a wire, and it is either spliced or it isn't.

02 · WORK

DORMANT, LISTENING, SILENT UNLESS SOMETHING CROSSES THRESHOLD

Mole spends most of its life asleep between listens, an ultra-low-power cycle built to stretch the battery over years. It says nothing until a signal crosses threshold — then it wakes, classifies, and reports once over the fibre. No schedule, no heartbeat, no emission to find with a receiver.

03 · RECOVER

DUG UP ON ITS BREADCRUMB — OR LOGGED AND LEFT

A node can be recovered by digging back along its own fibre breadcrumb to the housing. Just as often, the right call is to leave it in place: a designed, logged abandonment, not a loss. Either way the outcome is a decision made on purpose, not a search for something missing.

THE FAMILY

RELATED SYSTEMS

CS-435 · THE PICKET SYSTEM

TREMBLER LINE

Mole nodes strung node-to-node on a fibre trunk — the chain detects, localizes and cues a Ferret forward on a human decision.

CS-420 · THE RESPONSE

FERRET

The unit a detection cues forward, human-in-the-loop — Mole's job ends at data on a wire; Ferret does the moving.

CS-410 · MAKES THE HOLE

BADGER

With Aquifer CS-411, makes the holes the family uses — Mole, Ferret and the rest work holes and passages that already exist.

Mole CS-430 · patent pending · export-controlled — international transfer requires Canadian government permits; export posture is counsel-first. A purely passive sensing node — no warhead, no fuze, no energetic material anywhere in the design, and no offensive capability of any kind; it senses only. No radio and no GPS in any configuration — once emplaced it emits nothing over the air, ever, and reports only over a buried fibre link. Physical response to a detection is Ferret CS-420 scope, tasked on a human decision — not this node; the chained picket is Trembler Line CS-435.



BURY IT, CLOSE THE PIT. IT GOES STILL AND LISTENS

MOLE · UNDERGROUND · CS-430

One node. A whole picket, strung.

01

REQUEST A TECHNICAL EXCHANGE

A working session with engineering, not sales — bring your engagement problem, we bring the mechanism.

02

REQUEST THE UNDERGROUND FAMILY DATA PACK

Drawings, tolerances and test basis for Mole and its siblings, gated behind export screening.

03

DISCUSS A TRIAL QUANTITY

Tell us end-user, jurisdiction, quantity band and timeline — we respond against your program, not a price list.

SALES

sales@cdnshield.ca

GENERAL

info@cdnshield.ca

WEB

cdnshield.ca

Direct lines, named points of contact and facility details are shared with qualified programs following screening — not withheld, sequenced.

Canadian Shield is a defence and industrial drone company, backed by SIG: four-domain uncrewed systems built for jammed, GPS-denied environments — no-radio by design, manufactured for cost and salvo depth.

Mole CS-430

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