



INDUSTRIAL · CS-710

CARRY THE SIGNAL TO WHERE THE WORK IS

A deployable chain of relay nodes — command, telemetry and position augmentation for civil fleets working past the edge of the network.

ANCHOR · GUY · RAISE · LINK · VOTE

2 GOVERNING USE CASES STATED BY NAME — NO-LINE-OF-SIGHT VALLEY, NO-INFRASTRUCTURE PASTURE	4 DEPLOYMENT METHODS FOR A NODE — HAND-CARRY, VEHICLE, CARGO MOVER SLING-PLACED, OR DROPPED	3 GNSS RECEIVERS IN THE SITE'S NAVIGATION VOTE BASELINE	0 WORK PERFORMED BY THE CHAIN ITSELF — ITS WHOLE JOB IS KEEPING OTHER MACHINES' LINKS ALIVE
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OVERVIEW

THE SPINE THE FLEET DOESN'T CARRY ITSELF.

Part of the **4-system Industrial line** — shares its envelope and doctrine with Self-Charging Dock, Cargo Mover, Fibre Spool Line.

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The Relay Chain is a deployable chain of packable relay nodes: anchor a mast, raise an antenna, and a work zone that had no command link, no telemetry path and no GNSS correction now has one. It is a support system, not a vehicle — it does no work of its own. It exists so the machines that do the work stay connected while they do it.

Two use cases set the design honestly, stated plainly rather than smoothed over: a helicopter logging operation in a steep, deeply-incised coastal valley, where line of sight to any fixed station simply does not exist from the draw; and a remote prairie pasture being sprayed, where the terrain is flat but the problem is that there is no infrastructure at all over a very large working area. One case is about geometry; the other is about absence. The chain has to answer both.

It sits in the Industrial line's ground-infrastructure block alongside the Self-Charging Dock (CS-700) — the two products that don't do the fleet's work but make the fleet's work possible. The dock buys back turnaround; the chain buys back the link. Its function is a connectivity spine: command and telemetry relay, GNSS position augmentation, and data backhaul, so a machine's control link and navigation do not depend on infrastructure that was never built where the job is.

THE IDEA

Every other machine on this line does the work. This one lets the others keep doing it.

HOW IT WORKS

MECHANISM

HOW IT WORKS

ONE PACKABLE NODE — A CHAIN THAT CAN CHOOSE ITS SHAPE.

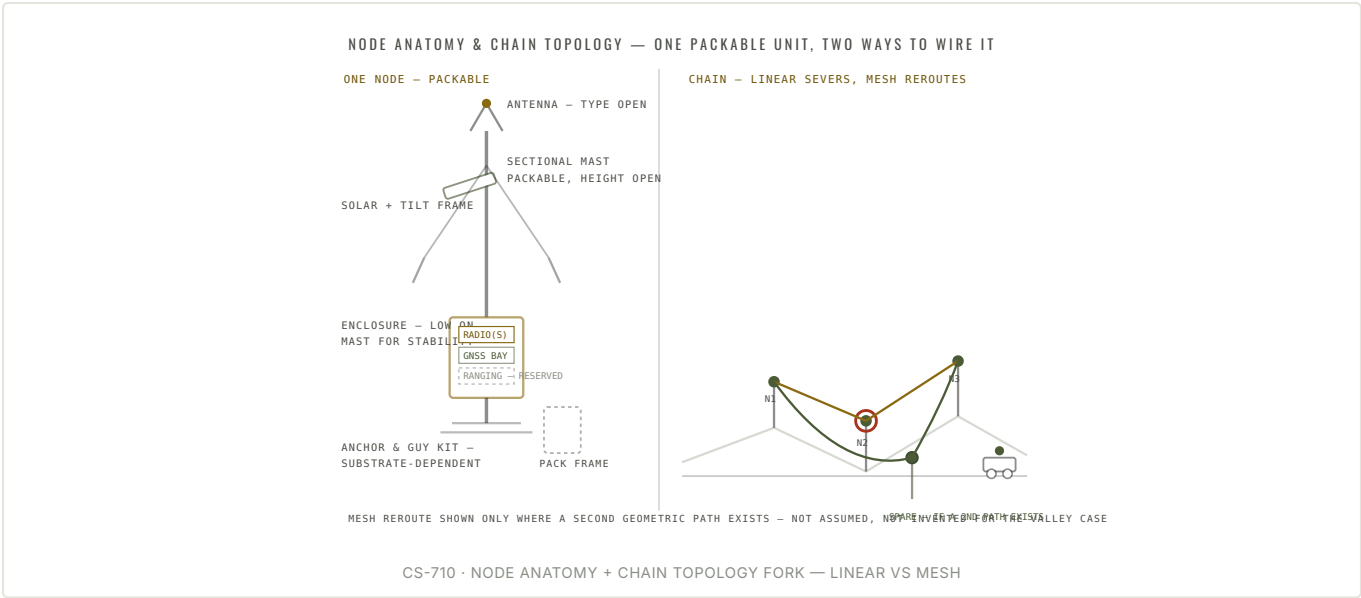
THE SIGNATURE MECHANISM · NODE & CHAIN TOPOLOGY

ONE PACKABLE NODE — A CHAIN THAT CAN CHOOSE ITS SHAPE

Every node is the same packable unit: a sectional mast carrying an antenna, a solar-fed power module, a GNSS positioning bay, and a radio, all planted on an anchor-and-guy kit sized to the ground it stands on. Erect one, and it relays. Erect a line of them, and they form a chain.

The chain can be built two ways, and the choice is stated as an open design fork rather than a settled answer neither engineering study has earned. Wired in a line — a linear chain — every node and every link must hold, and losing one severs everything downstream. Wired with alternate paths — a mesh — the chain can route around a lost node, but only where a second geometric path actually exists. On a narrow incised coastal valley, that is a real question, not a marketing one: there may be exactly one ridge line with the sight lines a link needs, and no amount of engineering invents a second one where the terrain doesn't offer it.

When a link is under strain, the shed order is design intent, not a frozen specification: data backhaul goes first, position augmentation second, and command and telemetry relay last — the machine's command link is built to be the last thing the chain gives up.



- 1 · ANCHOR

Stakes, rock anchor or ballast set first — substrate governs the choice.
- 2 · GUY

The guy set goes on before the mast is loaded, not after.
- 3 · RAISE

The mast comes up from the lee side, into the anchored guys.
- 4 · LINK

Radio and antenna come alive; the node joins the chain.
- 5 · VOTE

GNSS positioning bay joins the multi-receiver vote and relays corrections.

SPECIFICATIONS

CAPABILITIES & SPECIFICATIONS

RELAY CHAIN CS-710

DIMENSIONS & CONSTRUCTION		PERFORMANCE	
Designation	CS-710 · Relay Chain — Industrial Series, ground-infrastructure block, with the CS-700 Self-Charging Dock	Erection sequence	Anchor first · guy before raising · raise from the lee side — one-person erection is the target constraint
Node architecture	Sectional mast · antenna · radio module(s) · GNSS/positioning bay · power module · anchor & guy kit · pack frame — one packable unit, common across every node	Loss-of-link shed order	Data backhaul first · position augmentation second · C2/telemetry last — design intent, not yet a frozen specification
Anchor & guy kit	Soil stakes · rock anchors · dead-weight ballast · guy set — substrate varies within one job; ballast trades against carry mass		
NETWORK & POWER		DEPLOYMENT	
Role	Deployable connectivity spine — C2/telemetry relay, GNSS position augmentation, data backhaul — serving civil fleet vehicles working beyond fixed infrastructure	Deployment methods	Hand-carry (baseline) · vehicle-placed · Cargo Mover CS-600 sling-placed · dropped — site-dependent; dropped placement is speculative, not baseline
Radio	Single vs dual dissimilar radios — node-level redundancy, an open design fork	Battery replenishment	One possible path — packs cycled through the CS-700 dock magazine; a cross-package idea under discussion, not a claim
Positioning	RTK-capable GNSS per node · every node relays corrections — the multi-receiver vote is the site's navigation baseline		
Dissimilar nav source	Terrestrial-ranging module — volume reservation only; unproven at this stage and never claimed delivered		
Power	Battery + solar array; generator port reserved — battery+solar vs small generator is an open design fork; Alberta-winter cold-soak is the sizing case		
Chain topology	Linear (series) or mesh (redundant paths) — an open design fork; a mesh reroute is only real where a second geometric path exists		
Control & navigation	Commercial/licensed radio C2 + GNSS — permitted on this surface civil line, the chain's entire function, stated as a feature		
Spectrum	Radio operation is licensed by ISED in Canada. Band, power and emission class are open; no classification or clearance is claimed.		
MATERIALS & CONSTRUCTION		SIGNATURE & POWER	
Recovery	Every placement logged · recovery mirrors placement · abandonment is a reportable event — not an option, a binding design rule	Surface boundary	The chain is a surface line product only — it never follows the fleet underground, because the no-radio-underground doctrine forbids it there, without exception
COMPLIANCE			
Standing	Nothing on this page is a specification, offer, commitment or price. Range, node spacing, node count, battery life and availability depend on the governing variables stated below — no headline figure is published without them.		

RANGE, SPACING & BATTERY LIFE — THE GOVERNING RULE

We do not publish a headline link-range, node-spacing, node-count or battery-life figure, because none of them is a fixed property of this machine. They are outputs of variables that change site to site — and a range claim without those variables attached would be a number we could not stand behind, so we decline to make one. What we will state is the shape of the answer: geometry and cold set the ceiling before the radio ever does.

THE TRADES, STATED**COMMS INFRASTRUCTURE IS STILL MANUFACTURING.**

Canadian Shield's thesis is that manufacturing is the decisive capability. The Relay Chain advances that thesis from the infrastructure end of the Industrial line: the same packable-structure discipline, the same materials canon and the same sovereign Canadian production base, pointed at keeping a civil fleet connected instead of at doing the fleet's work directly.

The Industrial line's own navigation doctrine already leans on this product by name. The baseline three-receiver GNSS vote is backed by dissimilar sources for the faults a vote alone can't catch — inertial, barometric, optical, and terrestrial ranging carried by a relay chain. That fourth leg is the Relay Chain's own terrestrial-ranging module: reserved volume today, an open development item, never claimed as a delivered feature until it is proven.

And the estate's radio boundary runs through this product directly, not around it. The no-radio rule governs the defence, underground and tethered platforms without exception — but the Industrial line is the surface civil exception where radio and GNSS are permitted, and the Relay Chain's entire reason to exist is that permission: it is a radio relay carrying GNSS correction, openly, because a logging valley and a prairie pasture are not jammed battlespaces and we do not build for them like they are. The boundary also runs the other way without exception: the chain is a surface line only. It never follows the fleet underground, because the doctrine forbids radio there — full stop, no product-specific carve-out.

ONE SPINE, TWO MISSIONS

The valley needs geometry. The pasture needs presence.

DEPLOYMENT**NOTHING STAYS BEHIND WHEN THE JOB IS DONE.**

A Relay Chain job is a loop, not an installation: nodes go up for a working window, hold the fleet's link while the work happens, and come home when it's finished. Here is that loop, end to end.

1 · DEPLOY

THE CHAIN GOES UP

Nodes reach their positions by whichever method the terrain allows: hand-carried up a coastal ridge as the slow, cheap baseline; driven in where a road or trail exists; or slung in by a Cargo Mover (CS-600) when a spot needs exact placement and nothing else can reach it. Each node is then anchored first, guyed before it is loaded, and raised from the lee side.

2 · SUSTAIN

THE MESH HOLDS THE JOB

Once up, the chain carries the fleet's command link, telemetry and GNSS corrections for the working window. If a link comes under strain, data backhaul sheds first and command stays up longest — by design intent. We do not publish an uptime percentage: availability above 100% is not a meaningful figure, and even high availability comes from redundancy and graceful degradation, never from a claim.

3 · RECOVER

THE RIDGE IS LEFT AS FOUND

At the end of the working window, recovery mirrors placement: hand-carried nodes walk out, vehicle-placed nodes drive out, sling-placed nodes fly out. Every placement was logged — position and anchor type — so nothing is guessed at on the way back. Abandonment is a reportable event, never a shortcut.

Scenario illustrates the design intent of the operating loop. Anchoring holding capacity by substrate, mast erection in wind, and node energy performance through a cold-soak winter are exactly what the field test program exists to measure.

THE FAMILY

RELATED SYSTEMS

CS-700 · INDUSTRIAL

SELF-CHARGING DOCK

A docking and replenishment station that lets a working fleet return, recharge and redeploy without a hand touching it.

CS-600 · INDUSTRIAL

CARGO MOVER

An uncrewed VTOL cargo family — four sizes of the same machine, from toolbox to bulk lift.

CS-C001 · INDUSTRIAL

FIBRE SPOOL LINE

Guidance-fibre consumable cassettes — a physical tether option, alongside or instead of radio.

Relay Chain CS-710: patent pending · deployable civil work-zone infrastructure on the Industrial line's ground-infrastructure block — radio and GNSS are permitted and are this product's entire function, surface only, never underground. Nothing on this page is a specification, offer, commitment or representation. Spectrum licensing (ISED) is open; no classification, licence or clearance is claimed.



CARRY THE SIGNAL TO WHERE THE WORK IS

RELAY CHAIN · INDUSTRIAL · CS-710

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01 REQUEST A TECHNICAL EXCHANGE

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

02 REQUEST THE INDUSTRIAL FAMILY DATA PACK

Drawings, tolerances and test basis for Relay Chain 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.

Relay Chain CS-710

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