DEFENCE · CS-810

THE MACHINE GOES IN. THE OPERATOR STAYS OUT.

A removable robot operator that takes the seat of a fire, rescue or hazmat machine you already own — and works its own joysticks, levers, pedals and switches.

SEAT-ANCHORED RETROFIT · WIRED-ONLY COMMS · NOBODY IN HARM'S WAY

PATENT PENDING

EXPORT-CONTROLLED — INTERNATIONAL TRANSFER SUBJECT TO CANADIAN GOVERNMENT PERMITS

OPERATOR SYSTEM — NEVER OPERATES A WEAPON, HANDLES ENERGETIC MATERIAL, OR FITS TO A WEAPON PLATFORM

13	7	5	0
ACTUATOR MODULES IN THE SE-SERIES FAMILY	AUTHORITY MODES, OFF TO AUTONOMOUS	MECHANICAL STATES, OEM TO FAULT/SAFE	RADIOS OR GNSS RECEIVERS ANYWHERE ON THE UNIT

OVERVIEW

A ROBOT OPERATOR. NOT A NEW MACHINE.

> Part of the **5-system Defence line** — shares its envelope and doctrine with Defender, Beaver, Wolverine.

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Responder CS-810 is a self-contained unit that sits in the operator's seat of a machine the customer already owns — excavator, dozer, loader or tractor — and works that machine's own joysticks, levers, pedals and switches with its own actuators. A camera reads the dashboard. It never connects to the host machine's CAN bus, ECU or firmware; the only wire between the two is a fused feed from the accessory point. It lifts out, and the machine is standard again.

The purpose is stated plainly: put the machine into the fire, the flood, the collapse, the contaminated ground, and leave the person outside it. Responder is the civil emergency-services profile on this platform — fire ground, structural collapse, hazmat, disaster response, flood and wildfire earthworks, rubble and route clearance for civil agencies.

Responder is one of two profiles built on the same Eddie CS-8xx hardware. Defender CS-820 carries the identical dock, actuator modules and authority model into field-engineering work — earthworks, berms, obstacle reduction, route and rubble clearance for a unit's own plant. The hardware does not change between the two profiles; the rule set — the tasks each is allowed to run, and the safe state each goes to when something falls outside the rules — does.

Status: **IFC — In Test.**

THE CLAIM

NOBODY IN THE SEAT. NOBODY IN HARM'S WAY.

The dock is the machine's own seat-belt anchors and pins, and it stays with the machine. The unit lifts out and the machine returns to standard operation — nothing cut, wired or reprogrammed to put it back the way it came.

HOW IT WORKS

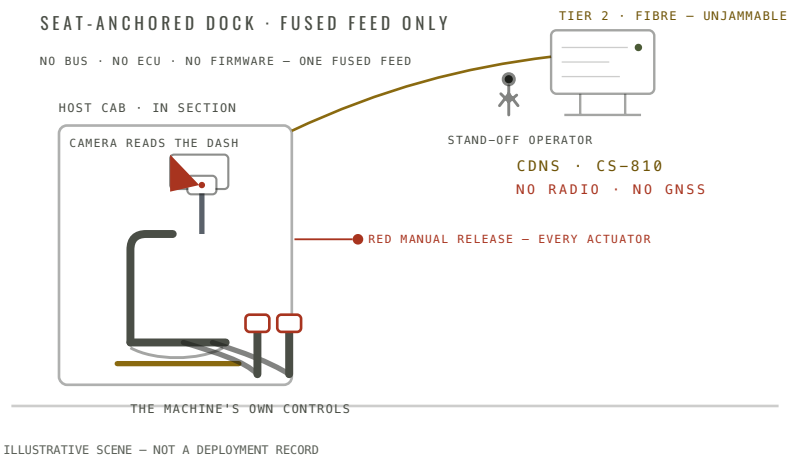
MECHANISM

SEAT IN. COUPLERS ON. NOTHING WIRED TO THE MACHINE.

Every connection Responder makes is mechanical, optical or electrical — never a tap into the machine's own systems. The dock anchors to seat-belt pins that are already there; the couplers land on controls that are already there; the one new wire is a fused feed from the accessory point.

The unit's body sits in a cradle resting on the OEM seat pan, in the operator's own seat, with the machine's own lap belt threaded through a closed tunnel between the cradle rails. From there, actuator modules pin to whatever the machine already has — hand levers, a tiller, the steering wheel from its centre, pedals, gates, rotaries, switch stations — while a camera reads the dashboard. Nothing connects to the host machine's CAN bus, ECU or firmware; the fused accessory feed is the only wire that crosses between the two.

Before the first task, and every day after, the unit works each control through a set of calibration steps — learning where neutral sits, where the limits are, and how the control returns when it is released. Controls wear and no two machines are quite alike, so this runs every day the unit works, not once at install. Key rotation is left out of the actuator set on purpose: a key is a human's authority token, not a step for the unit to take.



CS-810 · SEAT INSTALL — MECHANICAL AND OPTICAL, NOTHING WIRED TO THE HOST

SPECIFICATIONS

CAPABILITIES & SPECIFICATIONS

RESPONDER CS-810

INTERFACE & FIT

Mounting / dock	The machine's own seat-belt anchors and pins — stays with the machine
Seating	Unit body in a cradle resting on the OEM seat pan, in the operator's own seat
Belt routing	The machine's own lap belt threads a closed tunnel between the cradle rails
Host machines	Excavator, dozer, loader or tractor — the customer's own machine, unmodified
Removal	Lifts out; the machine returns to standard operation

DRIVE & CONTROL

Actuation	The host machine's own joysticks, levers, pedals and switches, worked by the unit's own actuators
Actuator modules	13 — SE-HAND · SE-TILLER · SE-WHEEL · SE-PEDAL · SE-PEDAL-HI · SE-GATE · SE-ROTARY · SE-SWITCH · SE-SWITCH-MATRIX · SE-AUX · SE-SENSE · SE-DOCK · SE-CORE
Steering	Driven from the centre of the machine's own steering wheel via a machine-specific adapter plate
Dashboard reading	A camera reads the machine's dashboard
Host bus connection	None — no link to the CAN bus, ECU or firmware; the only wire is a fused feed from the accessory point
Electrical	24 VDC family-wide; 12 V machines get conversion in the fit kit
Comms	CAN 2.0 / Ethernet, wired only — wireless never carries the safety loop or a motion command
Guidance tiers	Tier 1 preset at the dock · Tier 2 fibre-tethered, human-in-loop · Tier 3 onboard optical-AI, sealed rule set
Radios / GNSS aboard	0
Calibration	Worked through a set of steps every day it operates, learning neutral, limits and control return

AUTHORITY & STATES

Authority modes	7 — OFF · MANUAL · ASSIST · APPROACH · TELEOP · AUTONOMOUS · MAINTENANCE
Mechanical states	5 — 0 OEM · 1 INSTALLED/DISENGAGED · 2 ARMED · 3 AUTONOMOUS CONTROL · 4 FAULT/SAFE
Key rotation	Excluded from the actuator set — keys are human authority tokens
Task safe-states	Each task in the rule set carries its own defined safe state: withdraw to the dock line, ground the implement and hold, or run to the tether end — designed per task, in advance
Physical release	A hardwired stop and a red manual release on every actuator, always mechanical, always available

SECURITY & AUTHORIZATION

Rule sets & firmware	Signed and sealed; a hardware root of trust runs nothing unsigned; no debug access on shipped units
Tamper response	Ends in a safe stop and a retained log — tampering made expensive, slow, obvious and self-defeating
Authorization model	A lease, issued and withdrawable by Canadian Shield; delivered by wire or at the dock, never by radio
Withdrawal / expiry	Safe stop, then the minimum-risk condition; the unit stays installed and will not run until re-authorized — the host machine is never touched
Keys	Held in Canada

STANDARDS & COMPLIANCE	
Design standards named	**ISO 12100 · ISO 13849 · ISO 17757 · ISO 19014 — named at design; no conformity assessment has been performed**
Ownership	**Customer owns the machine and the hardware; the configuration and application are Canadian Shield's, licensed and revocable**
Weapon scope	**None — never operates a weapon, handles energetic material, or is fitted to a weapon platform: a carrier and an operator, not a munition**
Patent status	**Patent pending**
Export control	**Export-controlled — international transfer subject to Canadian government permits; export posture is counsel-first**

DESIGN STANDARDS ARE NAMED AT DESIGN; NO CONFORMITY ASSESSMENT HAS BEEN PERFORMED AGAINST ANY OF THEM. MASS, REACH AND ENDURANCE FIGURES ARE MACHINE-SPECIFIC AND ARE NOT PUBLISHED HERE.

THE TRADES, STATED

NOT “STOP AND WAIT.” A SAFE STATE FOR EVERY TASK.

The fleet's default when something falls outside the rules is: stop, go to the minimum-risk condition, call a human. That default holds almost everywhere in this fleet — and it is precisely wrong for the seats Responder is built to fill.

In a burning structure or on a failing slope, stopping and waiting for a person can itself put a person in harm's way. So each task in the Responder rule set carries its own defined safe state — withdraw to the dock line, ground the implement and hold, or run to the tether end. That state is designed per task, ahead of the call, and it is never chosen in the moment: the moment is exactly when a machine should not be improvising what "safe" means.

The authority chain does not bend for the tempo of an emergency. Responder is mechanical and optical scope only — a carrier and an operator, never a strike platform. It never operates a weapon, never handles energetic material, and is never fitted to a weapon platform. Weaponization is not a product decision.

THE CHAIN OF AUTHORITY

AI PLANS. RULES GOVERN. HUMANS AUTHORIZE. SAFETY HAS VETO.

Onboard optical-AI proposes inside its own sealed rule set; the rule set governs what may even be proposed; a human authorizes the task before it runs; and the physical stop and the red manual release on every actuator always remain — the lock is on the logic, never on safety.

DEPLOYMENT

A SEAT, FILLED AND EMPTIED.

One fit-and-recover cycle, walked through — illustrative of how the unit is used, not a mission or incident record.

01 · FIT

THE DOCK GOES IN ONCE

The dock anchors to the machine's own seat-belt pins — a fit done once, ahead of any call. The unit itself stays in its case until a seat needs filling, and the machine works exactly as it always has in the meantime.

02 · ENGAGE

COUPLERS ON, CAMERA UP, RULE SET LOADED

On site, the unit sets into the dock, couplers land on the host's own joysticks, levers, pedals and switches, and the camera reads the dash. The rule set for the task — preset, fibre-tethered, or onboard optical-AI — loads before anything moves.

03 · RECOVER

LIFTS OUT, MACHINE STAYS STANDARD

When the seat is needed again, the unit lifts out. Nothing was cut, wired or reprogrammed on the machine — it is exactly what its manufacturer built, and the record of the task stays with Canadian Shield, not with the machine.

THE FAMILY

RELATED SYSTEMS

CS-820 · EDDIE · FIELD ENGINEERING

DEFENDER

The same dock, modules and authority model, ruled for a different job: earthworks, berms and revetments, obstacle reduction, route and rubble clearance on ground where a person should not sit.

CS-250 · GROUND

BEAVER

Tracked. Battery-electric. Field engineer for route, berm and winch work — an anchored winch pulls roughly seven times what the tracks alone can.

CS-260 · GROUND

WOLVERINE

A compact tracked carrier that places self-reacting tools at the work face — the force closes on the structure, not the machine.

CS-590 · INDUSTRIAL

ENVIRO

A tracked, teleoperated manipulator platform for shoreline and land cleanup — reach, load and slope, enforced as one envelope.

Responder CS-810 · patent pending · export-controlled — international transfer requires Canadian government permits; export posture is counsel-first. A carrier and an operator, not a munition — Responder never operates a weapon, handles energetic material, or is fitted to a weapon platform. It never connects to the host machine's CAN bus, ECU or firmware; the only wire is a fused feed from the accessory point. Defender CS-820 carries the same Eddie hardware into field-engineering work — that profile belongs to Defender's own brochure, not this one.

CANADIAN SHIELD

A DIVISION OF SIG | SUSTAINABLE INFRASTRUCTURE GROUP

THE MACHINE GOES IN.
THE OPERATOR STAYS OUT.

RESPONDER · DEFENCE · CS-810

AI plans. Rules govern. Humans authorize. Safety has veto.

01

REQUEST A TECHNICAL EXCHANGE

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

02

REQUEST THE DEFENCE FAMILY DATA PACK

Drawings, tolerances and test basis for Responder 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.

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