INTELIX LABS

DRONE · COUNTER-DRONE · AIRSPACE SECURITY

TECHNOLOGY BRIEF · 2026

Cheap.
Autonomous.
Unjammable.

In three years the small-drone threat has outrun the defences built for it. Fibre-optic control, onboard autonomy and swarming each break a different assumption in the legacy counter-drone stack.

MARKET CONTEXT

A defence market compounding fast.

$5.1B

2025

Global counter-UAS market value

$8.5B

2026

Current-year estimates range as high as $14.4B

$28B

2032

Projected counter-UAS market value

5.5×

GROWTH

Projected expansion across the seven-year window

THE PLATFORMS

One word, a dozen machines.

FIRST-PERSON VIEW

Sub-kilogram racing airframes adapted for precision strike. Cheap, fast, expendable, flown manually on video.

LOITERING MUNITION

One-way attack platforms that orbit an area until a target is designated.

MULTIROTOR

The hover-capable workhorse. Dominant in inspection, public safety and last-mile delivery.

TETHERED

Persistent overwatch powered from the ground. Effectively unlimited endurance, fixed position.

FIXED-WING & VTOL HYBRID

Range and endurance for corridor mapping, border patrol and long-range reconnaissance.

LONG-ENDURANCE

Hydrogen fuel cell and heavy-fuel airframes pushing multi-hour pipeline and maritime patrol.

WHAT CHANGED

Four shifts that broke the old stack.

Every legacy counter-drone architecture assumes the target emits radio, depends on satellites, and arrives alone. All three assumptions now fail.

FIBRE-OPTIC CONTROL

A hair-thin glass filament replaces the radio link. Nothing to detect, nothing to jam.

ONBOARD AUTONOMY

Machine-vision guidance needs no link at all once the aircraft is launched.

SWARMING

Decentralised coordination saturates defences designed for one target at a time.

GNSS-DENIED FLIGHT

Visual and inertial navigation survives satellite jamming and spoofing.

THE HARD PROBLEM

You cannot jam a beam of light.

Fibre-optic FPV drones trail a filament that carries control and video as pulses of light, unspooling in flight. First fielded operationally in 2024, now standard in contested airspace. Typical spools run one to ten kilometres.

WHAT IT GIVES THE OPERATOR

- Immunity to jamming and spoofing
- No radio emissions to geolocate
- Higher bandwidth, lower latency
- Flight through tunnels and terrain that blocks radio

WHAT IT DEFEATS

- Passive RF detection — there is no signal to hear
- RF jamming — there is no link to break
- GNSS spoofing — there is no satellite dependency
- Protocol takeover — no protocol is exposed

AUTONOMY

From one pilot to none.

Autonomy removes the link entirely — and with it every countermeasure that targets the link. Coordination is moving from a central controller to negotiation between aircraft.

EDGE INFERENCE

Detection and tracking models running on the airframe inside a hard latency budget.

TERMINAL GUIDANCE

Vision-based lock in the final seconds, after any link is lost or jammed.

AGENT COORDINATION

Role assignment negotiated between aircraft, with no controller to remove.

DECENTRALISED C2

Losing airframes degrades the swarm rather than stopping it.

THE CIVIL FRONTIER

The same airframes, regulated differently.

1,000+	< 2 min	26	35%+
AGENCIES	TO SCENE	STATES	CAGR
Public safety bodies cleared to automate first-responder flights	Typical drone arrival at an emergency call, ahead of first units	Covered by advanced air mobility eVTOL integration pilots	Projected growth in drone delivery through the decade

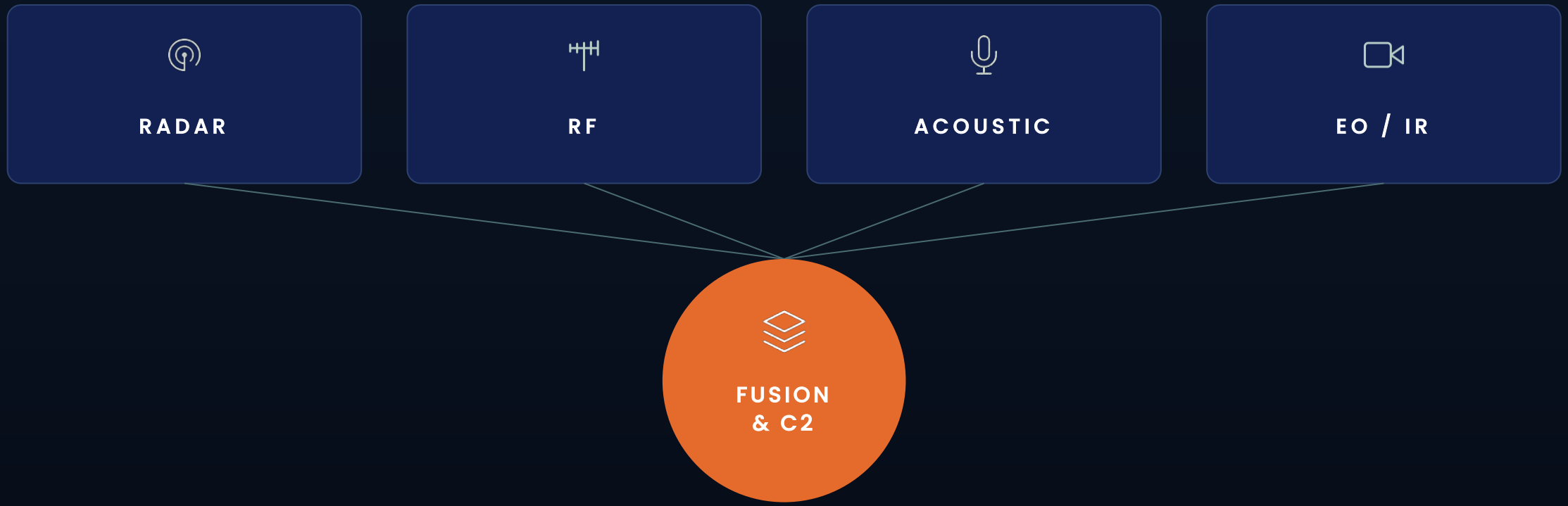
DETECTION

Five sensors. Five blind spots.

MODALITY	STRENGTH	BLIND SPOT
RADAR	Volume search and long-range early warning	Small radar cross-section; Doppler notch blind zones; cannot classify the target
RF ANALYSIS	Classifies commercial types from protocol signature	Completely blind to autonomous and fibre-optic aircraft
EO / IR	Visual confirmation and positive identification	Narrow field of view, needs cueing; weather and thermal crossover
ACOUSTIC	Passive; catches radio-silent platforms	Effective only to a few hundred metres; collapses in urban noise
REMOTE ID	Cheap cooperative identification	Sees only compliant aircraft; trivially defeated by an adversary

FUSION

Slew to cue. One track, many sensors.



Radar detects, RF classifies, acoustic confirms, EO/IR identifies — cross-validated into one track before an operator is ever alerted.

MITIGATION

Soft kill. Hard kill.

NON-DESTRUCTIVE

RF jamming — sever the control link

GNSS jamming and spoofing — corrupt the navigation solution

Protocol takeover — assume control and land the aircraft

Geofence injection — deny entry by policy

Every one of these needs the target to use radio or satellites

PHYSICAL

Interceptor drones — ram or net the target in flight

Net capture — recovers the airframe intact for forensics

Proximity-fuzed and programmable ammunition — volume defeat

Directed energy — laser and high-power microwave

Debris and collateral risk transfer to the defender

DIRECTED ENERGY

Deep magazines, cents per shot.

Directed energy moved from trials to operational deployment during 2026. It solves two problems conventional interceptors cannot: magazine depth and cost per engagement.

HIGH-ENERGY LASER

Fifty to three-hundred kilowatt class. Sub-second engagement against one precise target at a time.

HIGH-POWER MICROWAVE

A wide beam pulse that disables electronics across an entire formation simultaneously.

THE CONSTRAINT

Line of sight, weather attenuation, thermal load and power draw. A top layer, not a replacement for the ones beneath it.

THE ASYMMETRY

The economics decide the doctrine.

$0.05	$5–13	$1–3K	$5M
MICROWAVE	LASER	NET INTERCEPT	GUIDED MISSILE
Per engagement — one beam against many aircraft	Per engagement — energy cost only	Per capture — airframe recovered intact	Per round for a top-tier surface-to-air interceptor

A threat airframe can cost under a thousand dollars. Any defence that costs more per engagement than the attack loses on arithmetic alone.

AUTHORITY

The binding constraint is rarely technical.

MITIGATION IS RESTRICTED

In most jurisdictions, interfering with an aircraft in flight is a criminal act regardless of intent. Detection is broadly lawful; defeat is not.

INTERCEPTION & PRIVACY

Capturing control-link or video traffic can engage wiretap and data-protection statutes.

SPECTRUM LAW

Jamming and spoofing breach telecommunications law in most jurisdictions — including over your own property.

BVLOS RULEMAKING

Routine beyond-line-of-sight flight is still pending final US rulemaking; the rule entered final review in July 2026.

DELEGATED AUTHORITY

A 2026 US interim rule extends defeat authority to certified state, local and tribal agencies under federal oversight.

LIABILITY SITS WITH YOU

Debris, collateral damage and airspace disruption are the defender's exposure, not the intruder's.

REFERENCE ARCHITECTURE

Four layers. No single point of failure.

01

DETECT

Overlapping modalities, so no sensor gap becomes a coverage gap.

02

CLASSIFY

Fused tracks, intent assessment and drone-versus-bird discrimination.

03

DECIDE

Rules of engagement, legal authority check and operator confirmation on one screen.

04

DEFEAT

Tiered effectors from soft kill through directed energy, matched to threat and to law.

THE NEXT STEP

An airspace threat assessment.

A site-specific survey of your airspace exposure — sensor coverage, legal authority and effector options, mapped to your perimeter.