BC Automation

Carrier-Free, Signature-Based Communication *Tech Primer - 11/07/25*

At BC Automation, we're exploring what comes after the signal — when all conventional transmission fades, yet truth still needs to be known.

Carrier-Free, Signature-Based Communication replaces broadcasting with emanation: devices that communicate through their inherent persistence rather than external power or carriers. This technology sits at the frontier of energy physics and mission assurance — enabling communication that endures where no antenna can reach.

From deep-space probes to embedded IIoT nodes, we're redefining what "connection" means in isolation.



In environments where RF, optics, or vibration cannot survive, communication fails and verification ends.

Loss of signal means loss of truth — in flight, in containment, in the field.

- Deep-ocean probes, sealed reactors, and plasma-shrouded spacecraft share a common silence
- Conventional telemetry demands energy, medium, and contact all of which vanish under extreme conditions
- Without persistent data, we lose post-event verification and mission continuity

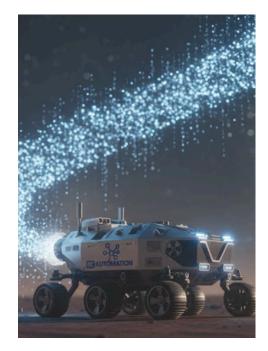
SOLUTION: Hidden Spectrum Operation

BC Automation's R&D division is developing Hidden Spectrum Operation — using the latent band of energy persistence where no antenna can reach to encode proof of operation directly into physical decay.

- Carrier-Free, Signature-Based Design replaces transmission with selfauthenticating emission
- Hidden Spectrum Persistence energy decay itself becomes the medium of continuity
- Encrypted & Plain-Sight Coding low-detectability or post-event recovery
- Signature-Based Encoding each device writes its operational truth as a verifiable physical signature, creating immutable audit trails
- Long-Life Power Integration The same isotopic decay that powers the probe becomes the basis of its communication — energy and information drawn from a single, enduring source

OUR IMPACT: Continuity Without Contact

- · Autonomous proof-of-action for defense, aerospace, and other missions
- Continuity without contact information survives where systems do not
- Ethical assurance in autonomy: a permanent audit trail
- · Zero-power telemetry for post-event and unreachable environments
- Automation's Factory 5.0 principles of transparency and dignity



101+ clients served

712+ unique processes automated

\$4.9B+ client dollars saved

"A huge asset to any company looking to improve their cost and reliability."

Chris Whitehair
SVP Global Operations at SunOpta

"[BC Automation's] solutions are most thorough and comprehensive."

Ned Mitenius

Founder & Sr Consultant at Periscope Consulting

Let's Transform Your Manufacturing Together.



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