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Defence & Aerospace SES 2026
15th Strategic Electronics Summit
23rd & 24th July 2026
BIEC, Bengaluru
India's Premier Defence & Aerospace Electronics Platform

SES 2026 Insider

Exhibitor Perspectives!

In Conversation With...

Mr. Karthikk Raja G, CEO, Loyal Wingman Technologies

Q. Your experience spans across combat and civil platforms with complex certifications like DEFSTAN 970. How is Loyal Wingman Technologies leveraging this background to ensure indigenous electromechanical sensors meet the rigorous demands of India's strategic electronics sector?

- At Loyal Wingman Technologies, we view the transition from combat and civil aviation platforms to indigenous industrial sensors as a matter of "translational excellence." The aerospace sector both defence and civil platforms operates under the most stringent certification frameworks in the world, such as DEFSTAN 970, FAR and EASA. By applying the CADMID (Concept, Assessment, Demonstration, Manufacture, In-service, Disposal) lifecycle approach—which I have managed across global platforms—to our sensor development, we ensure that our products are not just functional, but inherently compliant with strategic requirements from day one.
- b. We treat "Strategic Electronics" with the same level of criticality as flying items. This means our electromechanical sensors and signal conditioners are built with rigorous failure mode analysis and environmental robustness, ensuring they meet the high-reliability demands of India's strategic infrastructure.

Q. With your focus on "Made in India and Make for the World", what role do you see for advanced sensor technologies in positioning India as a global hub during the discussions at SES 2026?

LOYAL WINGMAN TECHNOLOGIES

A. Advanced sensor technology is the foundation of the "Make for the World" vision. For India to become a global hub, we must move beyond being a manufacturing destination to becoming an Intellectual Property (IP) powerhouse. At SES 2026, the discussion must center on how high-precision sensors—the "eyes and ears" of modern systems—can be exported as high-value, indigenous components. By mastering the core electromechanical designs here in India, we

provide the global market with an alternative that combines cost-competitiveness with the high standards of Indian engineering.

Q. How critical is the transition from design to indigenous manufacturing in achieving the "chip sovereignty" goals often highlighted at summits like SES?

A. Design is the soul of sovereignty. You cannot have "chip sovereignty" if you are merely assembling imported components. The transition from design to indigenous manufacturing is critical because it secures the entire supply chain. When we own the design IP and the manufacturing process—such as our work with specialized core materials and signal conditioning—we eliminate dependencies on foreign vendors. This end-to-end control is the only way to ensure that the strategic electronics powering our national security remain uncompromised and resilient against global supply shocks.

Q. In the context of "Strategic Electronics," how do your signal conditioners and electromechanical products cater to the specific needs of the Aerospace and Defence domains?

A. Strategic electronics in the Aerospace and Defence domains must perform in extreme environments involving high vibration, electromagnetic interference (EMI), and thermal fluctuations. Our signal conditioners are engineered to bridge the gap between raw sensor data and the sophisticated control systems of these platforms. We focus on high-fidelity signal processing that maintains accuracy despite these harsh conditions. By ensuring our products meet industrial standards like IEC and CE while maintaining the design philosophy of MIL-grade equipment, we provide a versatile solution that fits the specific, high-reliability needs of defense ground-support and industrial automation.

Q. SES 2026 focuses on equipment for the Army, Navy, and Air Force. Which specific product innovations is your team prioritizing to support these defense branches?

A. Our team is prioritizing the development of high-precision Linear Variable Differential Transformers (LVDTs), Rotary Variable Differential Transformers (RVDTs) and associated Signal Conditioners.

- For the Army & Navy: We are focusing on ruggedized sensors for ground-based systems and maritime hardware that require high corrosion resistance and mechanical durability.
- For the Air Force (Ground Support and Flying): We are innovating in precision positioning and control electronics that support the maintenance and operational readiness of air assets. Control stick movement capturing and using it as a feedback mechanism to the FCC about the control surface actuation movement and so on.
- By utilizing advanced materials like Hiperco for our sensor cores, we are significantly enhancing the efficiency and sensitivity of these products, providing a leap in performance for indigenous defense systems.

Q. As a leader building for various engineering domains, what are the biggest certification hurdles for Indian startups aiming to compete on the global stage today?

- The biggest hurdle is the "Certification Gap" between domestic requirements and global standards. While achieving BIS or IEC certification is a significant milestone for any startup, competing on the global stage requires a deep understanding of international frameworks like EASA or FAR.
- Infrastructure Costs: The cost of environmental and EMI/EMC testing to international standards can be prohibitive for early-stage companies.
- Documentation Rigor: There is often a learning curve in maintaining the level of traceability and process documentation required by global defense and aerospace primes.
- Standardization: Navigating the overlap between different industrial standards (IEC vs. MIL-STD) requires specialized expertise that is currently in short supply within the startup ecosystem.
- Overcoming these requires a mindset shift: treating certification not as a final hurdle, but as a core design requirement from the very first sketch.

For Registration & More Information, please contact:

Mr. Rajesh Rawat
Dy. Director - Industry Promotion & Event Services
M +91 9911445890 | E: rajesh@elcina.com
www.ses-india.in | www.elcina.com