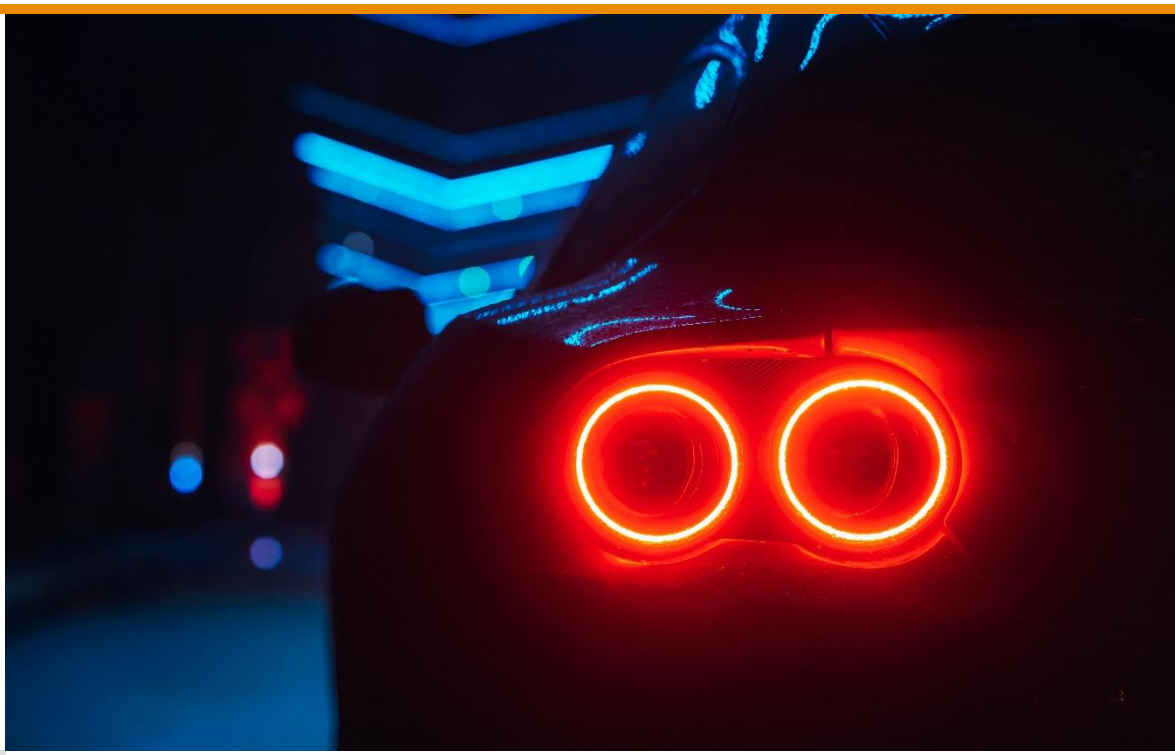
CASE STUDY

intertronics
Adhesives and protective materials, application systems, and surface measurement for advanced manufacturing

Fisnar dispensing robots
Automation and productivity enhancement



Customer benefits

- Waste reduction
- Accurate and repeatable dispensing of adhesives onto complex assemblies
- Consistent support from Intertronics as a technical partner
- Expanded production capacity and business growth

Six years of expert support fuels motorsport growth through automation

When components get smaller and tolerances tighten, manual assembly processes quickly become the weakest link in the production line. For one high-performance motorsport electronics manufacturer, a long-term partnership with adhesives and dispensing specialist Intertronics has helped to forge a stronger chain. Integrating multiple dispensing robots over six years of collaboration has transformed production repeatability, eliminated a costly scrap problem, and enabled the business to grow with confidence.

At the highest level of motorsports, performance demands on all components are immense. To withstand the extreme vibration and environmental exposure of the racetrack, while adding as little weight to the vehicle as possible, is a serious design challenge. With changes such as the International Automobile Federation's (FIA) reduction of Formula 1 cars' minimum weight by 30 kg for the 2026 season, these demands are only growing greater.

The electronics company manufactures custom-made exterior LED lighting and display products for the highest level of motorsport. Its assemblies integrate dissimilar materials — metals, plastics, composites, and optical components — in compact, intricately contoured housings. As the industry has come to focus on smaller, lighter bespoke components, rather than commercial off-the-shelf parts, repeatability and accuracy in production have become key considerations.

The company's founder and managing director, said:

> *"As our products got smaller, the limitations of our processes became clear. The bonding and encapsulation stages were heavily dependent on skilled*

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individuals, meaning our business model was vulnerable to disruption and limited from expanding."

"This was particularly visible in our silicone potting step, a manual process which relied on operator experience and dexterity. Around ten per cent of the products that entered this phase had to be scrapped due to potting quality falling short of the acceptance parameters. The impact on profits drove us to contact Intertronics to find a better way of working,"

From manual dispensing to robotic precision

When the manufacturer approached Intertronics, Lead Sales Specialist Darren Rea arranged a meeting and demonstration at **Intertronics' Technology Centre** in Oxfordshire.

The demonstration centred on a **three-axis dispensing robot** capable of positioning adhesive to within five microns and delivering volumetric dispensing accuracy of 99.9 per cent.

Darren Rea, Lead Sales Specialist at Intertronics, said:

"The system we demonstrated represented a step change above the level of control that manual dispensing allows. Automating that process allowed the customer to remove operator error and reach their repeatability targets. It supported quality improvement, achieving consistent adhesive volumes, movement speed, and flow rates."

Following a successful rollout of the first system, it became clear that this was the beginning of a much wider conversation. Each new lighting design brought fresh adhesive and processing challenges, and Intertronics worked closely with the customer in the early design stages to match the adhesive, dispensing method, and curing approach to the specific assembly task.

The MD, said:

"Whenever when we brought them new issues, Intertronics would help us find a way forward,"

New systems, new materials, consistent automation approach

Over the last six years, Intertronics has supplied multiple robotic dispensing systems to the manufacturer, each introduced in response to a new production requirement. All addressed the same challenge: dispensing adhesives accurately and repeatably onto complex assemblies with differing geometries and material combinations. The variation came from the products' performance requirements and the specific adhesive selected to achieve them.

Three bonding and sealing products have been central to this relationship. The first is a silicone encapsulant, used to pot the electronics of a unique digital colour display panel, which is the first of its kind.

The second, a UV-curable adhesive, is used for on-demand bonding of plastic substrates, while the third is a twin-cartridge, thermally conductive, electrically insulating epoxy that helps to dissipate heat from sensitive electronics while providing resistance to leakage current, moisture, and chemical ingress.

As production volumes and complexity grew, Intertronics introduced volumetric dispensing technology, with products capable of handling single-part materials, and the metering and mixing of two-part materials. Unlike time-pressure dispensing systems, volumetric dispensing ensures a consistent shot size and mix ratio regardless of changes in material viscosity or temperature, eliminating a further source of process variability.

Waste eliminated, business transformed

The clearest illustration of what the partnership has delivered came at the silicone potting stage. The encapsulation process that previously generated around ten per cent scrap has, since being automated with

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Intertronics' support, run for between 400 and 500 cycles without a single product being wasted. The financial and operational impact of eliminating that scrap rate has been significant.

The MD, said:

> *"The consistency that these robotics bring to the manufacturing process allowed us to automate previously specialist bonding and potting work, while upgrading the quality of our products. Our expansion has been organic and natural as a result. The silicone potting rig shows how Intertronics' continuing support has boosted our production capacity. The difference in throughput is night and day."*

Automation has also reshaped the business model itself. By removing the dependence on specific skilled individuals for precision dispensing and encapsulation work, the manufacturer has been able to expand production capacity and grow in a way that is both controlled and sustainable.

The MD continued:

> *"Some of our most complex products wouldn't have been commercially viable without these process improvements"*

A trusted partner for any process challenge

Intertronics' consistent engagement with the manufacturer as a technical partner, rather than a detached product supplier, is the key to a relationship that has blossomed since 2020.

The MD, said:

> *"The personal support that Intertronics provides, both technical and sales, is especially valuable. Basically, Intertronics has succeeded and delivered everything that we've required, across a broad range of applications, over the last six years of working together."*

Fisnar Dispensing Robots

- Perform continuous path and point-to-point motion
- Dispense dots, lines, arcs and circles
- Quick 'Fluid Purge' button
- 100 programs, 400,000 points memory capacity, 4000 points per program
- Improve productivity and throughput

Applications include: Adhesives, potting, protective materials, coatings, form-in-place gaskets

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