

Polycarbonate enclosures provide durability and customisation for fume cupboard controls

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The laboratory is a crucial setting as a controlled environment across industrial and academic research for pharmaceutical development. To ensure the quality of production samples, as well as to protect the safety of personnel operating within these environments, fume cupboards are essential. Durable enclosures are important to protect the control system's electronics, and Spelsberg UK has been supplying a major manufacturer of airflow monitors and controls with customised enclosures to protect the control systems.

Laboratory development and testing processes involve a range of potentially noxious chemicals and substances, and without a fume cupboard, the atmosphere within the lab can reach high concentrations of fumes, vapours, or dust. Temperature Electronics' systems regulate the air quality of lab and industry-scale production processes to ensure safety and production efficacy, and they are operating in thousands of laboratories across the world.

Supplying fume cupboard OEMs and laboratory companies around the world, Temperature Electronics Ltd (TEL), headquartered in Glossop, Derbyshire, designs and manufactures airflow monitoring and control systems. TEL's technology is based on a proprietary airflow sensor that measures face or duct velocities.

The sensor's key advantage is that its operation has no inherent drift, meaning that it provides stable, accurate readings across long-term operation, without the need for recalibration. This optimises safety and environmental conditions within a lab, while in conjunction with the controller, minimises energy use - benefits that are also

important to large scale industrial plants, where TEL's control equipment is also installed.

Protecting the PCB

TEL applies its technology across a range of solutions, including laboratory room space controllers, that could host up to 64 fume cupboards, through to individual controllers for air ducts and sashes. The wide range of applications for airflow monitoring and control means that the company's services could be required for complete bespoke installations, through to retrofit of individual controllers.

Crucial to each controller is the PCB, hosting the intelligence that achieves automated management to maintain the required environmental conditions. To protect the PCB and its power terminals, TEL's design includes industrial enclosures by Spelsberg.

"Although many of the controllers are installed in laboratories, they can also be used in industrial settings. Wherever they're installed, the enclosures must provide protection against impact, as well as moisture and dust ingress," explains TEL's Anthony Boyd.

Durable polycarbonate

The company primarily uses a combination of Spelsberg TK and TG enclosures, constructed from highly durable polycarbonate, that provide lasting protection to the electronics housed within. As well as meeting electrical conformance, Spelsberg's boxes also achieve UL marking, crucial to TEL's US market.

Another key benefit of polycarbonate construction is the ability to rapidly customise the enclosures. Spelsberg's housings are used across 14 different TEL products, each of which has distinct PCB connection requirements. This not only requires

flexibility over specific terminal connections for each controller design, but its corresponding enclosure also needs to allow specific cable routing. As well as a mains power cable, the PCB requires various communications and I/O cables that need entry/exit points designed into the enclosure.

Spelsberg UK, based in Telford, Shropshire, achieves all required CNC customisation with an in-house team. The CNC engineers can issue bespoke designs as required, or they can program cutting and drilling according to customer-issued CAD drawings. For any new design, Spelsberg typically provides a prototype within five working days. Scaling up production, the company delivers 300 to 500 CNC customised enclosures to TEL each month.

Quality finish

Although every controller's capabilities are centred around its PCB, the main point of physical and visual contact for the user is the enclosure. As the company's control products are commonly installed within laboratories and settings such as pharmaceutical production facilities, it's crucial for the housing to have a clean and modern design.

"The finish of the enclosures is the right kind of design our products need for our target market," says Anthony. "The boxes have clean lines, and they demonstrate durability. As we use Spelsberg enclosures throughout our range of airflow monitoring and control systems, the uniformity they have, across various sizes and models, is also important to us."

Fume cupboard manufacturers are TEL's core market, both in the UK and across the globe, especially in the US and India. Requiring a regular, high-volume supply of products that are dependable for use in the field, this makes Spelsberg a key supplier for TEL's strategic plans.

“The range and uniform quality of the enclosures, along with the CNC machining to suit our individual products, means Spelsberg continues to be a key factor in our overall product quality,” Anthony confirms.

Image captions:

Image 1: Custom enclosures from Spelsberg UK to protect control systems in an environment such as industrial and academic research for pharmaceutical development.



Image 2: Custom enclosures from Spelsberg UK to protect control systems in an environment such as industrial and academic research for pharmaceutical development.



Image 3: Spelsberg TK and TG enclosures, constructed from highly durable polycarbonate, that provide lasting protection to the electronics housed within.



Image 4: Spelsberg TK and TG enclosures, constructed from highly durable polycarbonate, that provide lasting protection to the electronics housed within.

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About Spelsberg

Spelsberg is one of the largest manufacturers of electrical enclosures in the world. With over 4,000 enclosures available as standard and further customisation possible, it offers solutions for almost any application.

With the largest supply of non-metallic enclosures, ex-stock in the UK, its products are often available for delivery within 24 hours; customisation is possible on any product, including bespoke entries, engraved corporate logos or fitted terminals, within 48 hours. Products can be ordered direct from Spelsberg or from most leading supply specialists including RS, Rapid, Farnell and CPC.

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