

## Scientific Instrument Manufacturer

### OVERVIEW

A major international scientific instrument provider to healthcare and other applications found issues with an existing supplier's components. During use within an instrument's internal high voltage power supply, they started to become unreliable after only a year or more in the field.

A failure that occurs before shipment is frustrating, costly, and time-consuming enough – but a field failure is a far bigger issue. Above all, it is experienced directly by the customer, and as such, is damaging to the manufacturer's reputation.



### The HRC05 Series

### THE CHALLENGE

Accordingly, the manufacturer had an essential requirement to find an alternative supplier who could deliver accurate, miniature high voltage power components that would perform completely reliably for critical long-term applications.

Modification to allow drop-in replacement for the original parts could not be avoided, as some specific technical issues had to be resolved.

Confidence in the supplier, as well as the components themselves, was equally essential. The manufacturer needed evidence of a low supply chain risk. And this could only come from a supplier with the size and resources to not just provide the right product, but also to ensure stability for the instrument line's entire production and aftersales lifetime.

## THE SOLUTION

The manufacturer decided to approach XP Power due to their long experience of the company as a dependable, global supplier. XP Power could offer superior, compact high voltage design capabilities coupled with in-depth technical and design-in support. This meant that XP Power could adapt the HRC05 miniature 5W regulated high voltage DC-DC converter product to the manufacturer's particular needs. They both worked together on a design in process that solved three specific problems:

**Ripple:** Developed a filter solution with parameters that would satisfy the manufacturer's stringent ripple tolerance requirements.

**EMC compliance:** Improved the EMC performance as required by the customer to meet the application's stringent criteria. The design has been updated to ensure it exceeds customer expectation.

**Voltage monitoring:** The customer required the voltage monitoring specification to be improved to achieve 10% wider operation, while maintaining a tighter voltage tolerance. This was achieved by modifying the original circuit.

The XP Power skilled high voltage design group's attention to detail ensured that each stage of the project was a success. Firstly, the three modifications achieved an optimum balance between performance and cost. Next, samples were provided to the manufacturer on schedule as agreed. Finally, long term reliability was assured by being built into both the design and the manufacturing processes. This was backed up by extensive validation testing throughout the development process, and quality controls in manufacturing and beyond.

## RESULTS

XP Power's track record was facilitated by their position as a major global supplier, with a \$300m turnover and 50 years' history in providing advanced high voltage solutions together with unrivalled technical and customer support.

This background, together with XP Power's performance during the design, sampling and manufacturing stages, and their validation and quality control measures, gave the manufacturer confidence to move forward with their own qualification process. They had peace of mind in designing in the new high voltage power supply. And, in the long run, they will be spared from potential field failure and supply chain issues.