

Design and Development Case Study — 40% cost reduction

Inconnect—As a connector and connectivity solutions provider can not only manufacture products to your specifications but can also offer a design and development service.

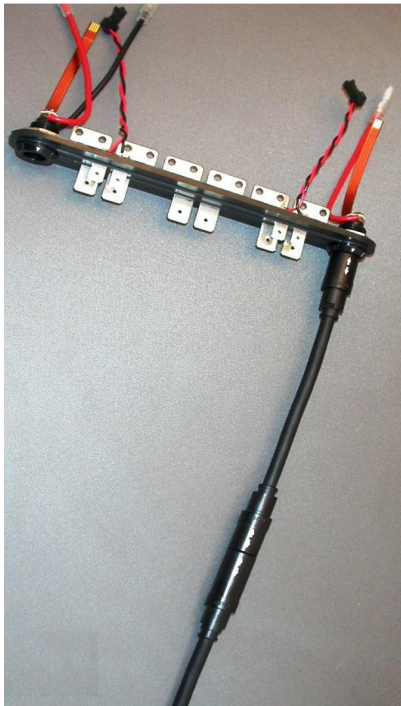
Regardless of the market sector and whether you want one or thousands we can design an interconnection product that meets your exact needs. We have experience in a wide range of solutions from simple cable preparation to complex looms involving multiple cores and connectors. We also offer an over moulding capability that can provide a rugged, tamperproof finish to any connector used.

The design process would be completed by one of our experienced engineers who would discuss your exact requirements before producing drawings and prototypes for approval.

The following case study details the design process for one of our current customers, not only were we able to provide a much more aesthetically pleasing product but we also reduced the cost of the overall package by 40%



Original Design



The original design incorporated a flat panel fitted with tin plated tab inserts using an inset moulding process, these tabs were designed with a high current capability and were used to connect to a custom designed connector so this could not be easily changed



This was designed with circular cut-outs designed to be fitted with circular push pull type connectors to handle the lower current signals.



There were further push pull type connectors forming a breakpoint within the cable loom which then continued on to terminate within a control module.

We were approached to improve product and also reduce cost we performed an assessment of the product and presented this to the customer alongside our suggestions for improvement. We then worked alongside the customers engineering team to through the design process and during the project introduction stages eventually we brought the new product into full production realising a 40% cost saving.

Concept Design & Development

Our initial assessment identified three main areas where improvements and cost savings could be made.

- Exposed tabs on the panel were often getting damaged we proposed that the next generation moulding should incorporate some protection for these. More worrying there was no latching function for the connector that fitted these tabs, this potentially allowed vibration to work connectors loose exposing tabs to the end user. Combined with the high currents running through this area this could potentially lead to dangerous situations we proposed that a latching mechanism should be incorporated into the panel to combat this. This also allowed the addition of decals to the moulding to aid the end user.
- The Push pull type connectors specified were a very expensive option, in order to reduce cost we proposed that these were designed out and replaced with a lower cost design of our own. We also proposed that this design utilised an overmoulding exterior to the connector rather than the current screw fit backshell, this would save cost and also provide a much more rugged connector.



Concept Design & Development cont.

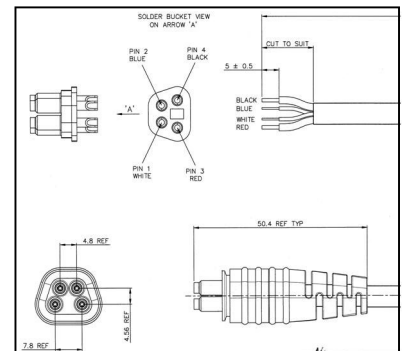
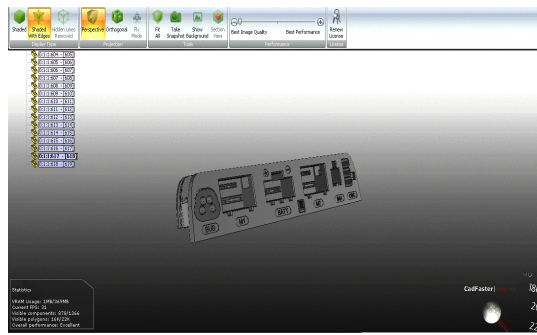
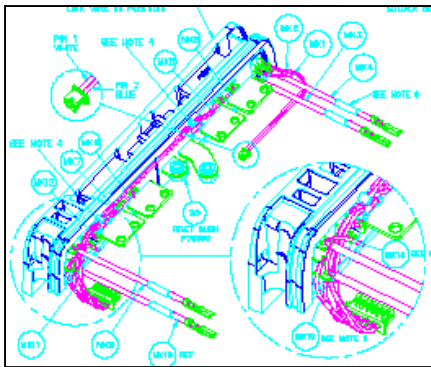
- The third suggestion we identified through our initial assessment was the incorporation of the mating half of the new connector directly into the panel moulding, this removed the need to fit connectors to the panel after moulding therefore reducing labour costs during the assembly process.



Design Finalisation

Following the initial consultation period our initial suggestions we agreed on a design concept and proceeded into the actual design stages, this involved producing 2D CAD drawings and eventually 3D models for direct loading into CAD/CAM manufacturing machinery.

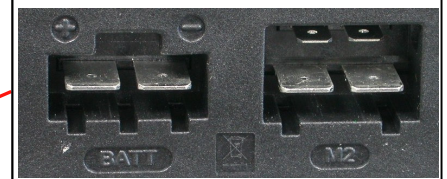
We were also at this stage able to complete the costing process and demonstrate exactly how much the customers unit cost would reduce by



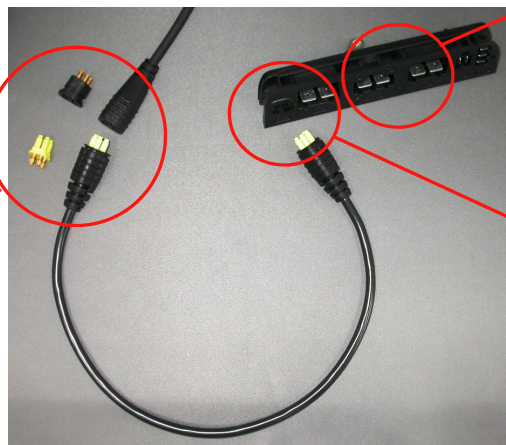
Manufacturing

Once the design process was completed and samples approved we were able to bring the product into production smoothly and without additional delays. The finished product demonstrating all of the key features initially conceptualised. And also realising cost savings across the entire project in excess of 40%

Key Feature - panel incorporates protection for high current connections and also latching feature to avoid vibration related disconnects



Key Feature - re-designed connector incorporating rugged over-moulded construction



Key Feature - mating half of connector moulded directly into panel saving labour time in manufacturing process

For more information on any of our design services contact us via phone on 0845 25 70 666 or via email on enquires@inconnect.uk.net