



Custom Connector Solutions

EDAC



Integrity

We uphold the highest standards in all our business practices



Respect

We treat everyone with dignity and fairness, fostering a culture of inclusivity and collaboration



Quality

We are committed to delivering the highest quality products and services that exceed our customers' expectations



Innovation

We strive for continuous improvement, staying at the forefront of technology and industry trends

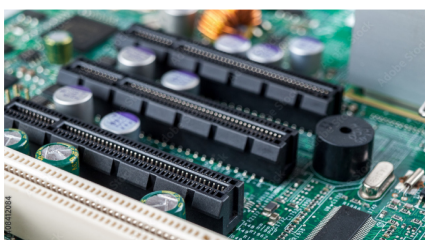
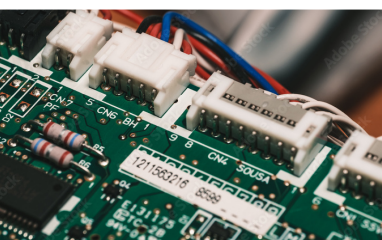
About Us

Established in 1966, EDAC soon became a world leader in providing connectors for card edge and rack and panel applications. Since then, we have expanded our product offering to include one of the widest ranges of interconnect solutions in the world. Products include D-Sub, RJ45, USB, HDMI, inline plug and socket, headers, spring loaded pogo pin, and waterproof connectors. Cable assemblies and custom solutions are also available. Our innovation guides us into new customer opportunities as we challenge the status quo. This belief resonates throughout the organization and results in exceptional quality service globally.

Our Capabilities

EDAC has established itself as a global leader in connector manufacturing with a head office and dedicated design engineering center in Canada. Our extensive global customer support system includes dedicated program management, order fulfillment, and highly trained field support. Our global fulfillment centers, distribution and manufacturing representative networks, can coordinate the delivery of EDAC products to any customer in any country.

We are proud of our global engineering team which is well positioned to serve customers throughout the world. Our specialty is resolving electronic connector issues by designing cost-effective solutions that exceed the expectations of our customers. Our value proposition encompasses dedicated account teams for our customers that include ODM, OEM, CM, and distribution channels.

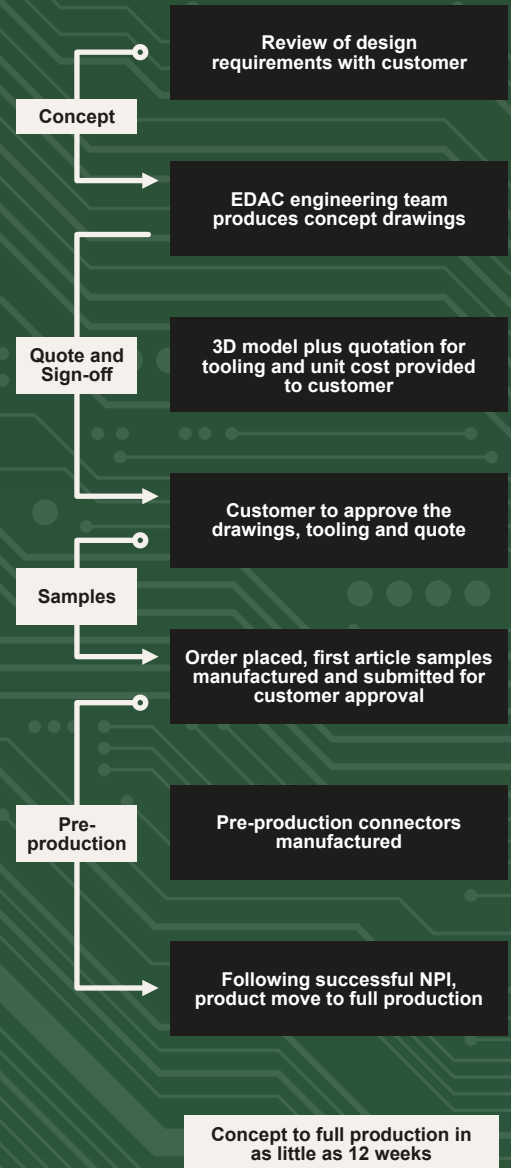
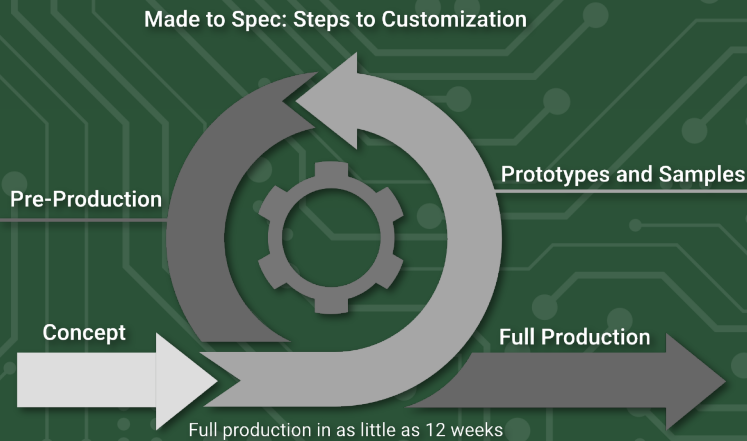


Custom Design Philosophy

At EDAC, we take pride in our ability to manufacture custom connectors and modify standard connectors to fulfill customer requirements. This is what sets us apart from our competitors.

We are capable of creating customized products to meet customer requirements when off-the-shelf products are not suitable. Additionally, we are able to produce a product from concept to reality in a mere 12 weeks, with prototypes available within 4 weeks.

Our Engineering teams are highly qualified and experienced, ready to design products to a set specification and generate models and drawings. We also offer rapid prototyping through 3D printing, with quick turn samples available.



Custom Solution Considerations

Special Technical Requirements

- Voltage requirements beyond standard ratings
- High temperature plastics to withstand non-standard temperatures
- Molded strain relief

Proprietary Design

- Proprietary Design where a customer wishes to use their own design
- Custom connector or cable assembly not readily available through standard channels

Special Sealing / Size Limitation

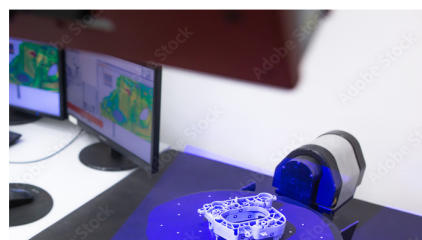
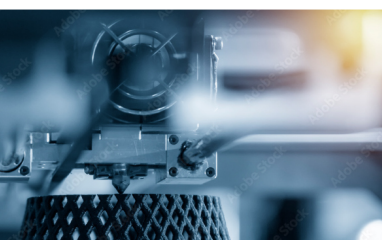
- Sealing for harsh environments
- Unusual or constrained spaces where standard products will not fit

Security

- Quick release system where there is a trip hazard
- Unique custom connector required to prevent non-approved cable insertion
- Polarized or 'keyed' system to prevent mis-mating
- Locking system for prevention of unauthorized removal

End of Life (EOL)

- EDAC has the ability to manufacture alternatives to obsolete connectors
- Not only end your search, but incorporate value-added features you require





Example: Battery Holder Connector

Custom design where certain features and performance characteristics are needed or design requires major modifications to fit application and provide distinct features and benefits to the end product.

Scope

Developed a lithium-ion battery cover and holder for server farms to act as a power management system. The batteries are used during peak hours, while the servers run off the main grid and recharge the batteries during off-peak hours.

Challenge

The design was to improve operational conditions including deflection forces of the signal/power contacts, cover, and batteries at peak loads of 25°C to 85°C, 12 amp to 19 amp.

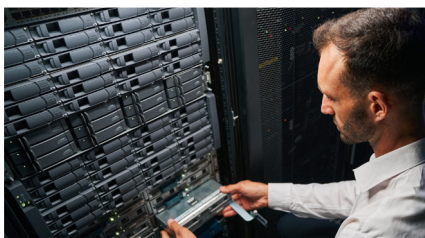
Solution

The contacts are gull-wing style with specified spring forces, gold plated on active contact areas. Resin materials are used to reduce deflection during assembly, increasing durability during full power load.

Application

Lithium Ion Battery Pack Housing

EDAC





Example: High Density D-Sub Connector

Variation of standard product by taking an existing connector and modifying areas to meet customer application requirements. Often achieved using existing tooling or nominal low cost tooling modifications.

Scope

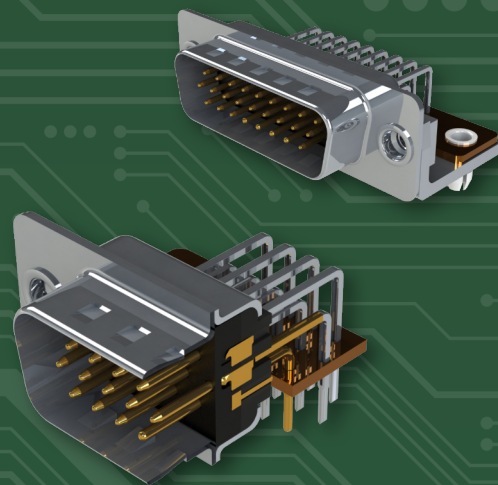
Provided standard high density 26 contact D-Sub connector with 4 contacts at 5A current and 22 contacts at 3A current contact rating.

Challenge

Stamped contacts did not meet power requirements, and populating the entire connector with machined contacts was cost prohibitive.

Solution

Designed a hybrid high density D-sub connector with machined and stamped contacts. 4 power and 22 signal contacts for the required current.



Application

Aerospace In-flight
Infotainment





Example: Rectangular Connector

The enhancement of a customer's solution to improve functionality, reduce labor and reduce cost anywhere from product assembly level through to product implementation.

Scope

To provide a value-added solution to an existing Rack and Panel connector in which the high cost of labor and the unreliable manual soldering process are eliminated while still creating a robust connection for test panel equipment in the automotive sector.

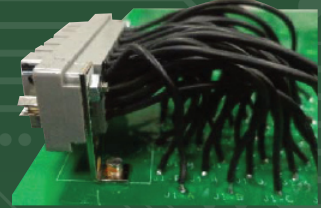
Challenge

Designing a connector to replace wires and creating a 90-degree connection on a PCB to maximize reliability and increase test capabilities.

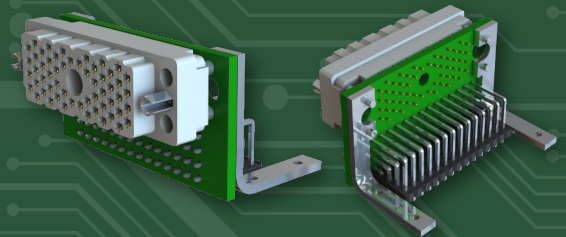
Solution

The results included integrating a custom PCB, header, and bracket; eliminating soldering wires and labor costs while providing a rugged solution for long-term reliability.

Before



After



Application

Transportation and Automotive Diagnostic Equipment





Example: Waterproof Micro USB Connector

Custom design is where certain features and performance characteristics are needed or a design requires major modifications to fit the application and provide distinct features and benefits to the end product.

Scope

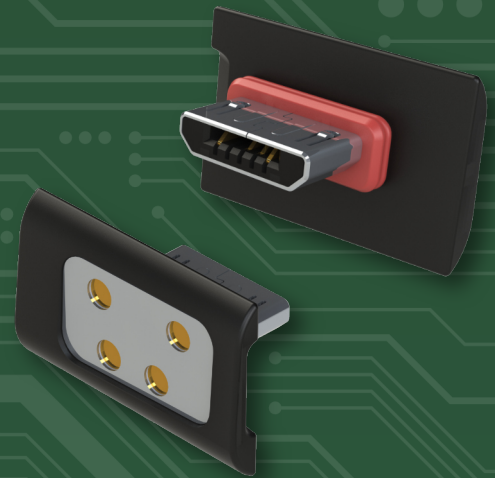
Design an Enterprise Wireless Mobile PBX charging system using a splash proof Micro USB Connector that can support seamless communication between different departments and locations.

Challenge

The custom USB Micro connector must be waterproof and fit into an existing mobile PBX phone, without requiring any wires in order to improve the charging and data transfer capabilities of the mobile PBX phone.

Solution

Designed a custom Micro USB connector with 4 charging pods that are splash-proof, cordless, and fit perfectly into the existing device improving charging capabilities and user experience.



Application

Enterprise PBX Wireless Device





Example: Ruggedized Card Edge Connector

Modifications to an existing design to improve performance and reliability while reducing costs.

Scope

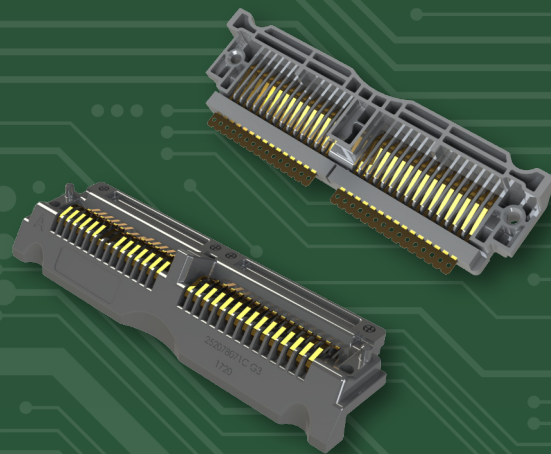
Evaluate the impact of designing a rugged connector with resistance to humidity, for payment solutions in gaming, retail, kiosk, and vending applications.

Challenge

Redesigning the connector to conform and comply with many compliance regulations while maintaining functionality and reliability to improve product quality.

Solution

Developed an advanced insulator and contact design that enhanced durability against vibration and shock, while providing improved dielectric withstanding voltage and temperature cycling at an affordable cost. This led to a superior connector that outperformed previous designs and offered exceptional value to customers.



Application

Payment Solutions for ATM,
Gaming, Self Check-out,
and Vending Applications





Example: DC Power Jack Connector

Developed a key-type solution wherein the connector was inserted inside the plug and twisted, which would lock it into place by using a spring action.

Scope

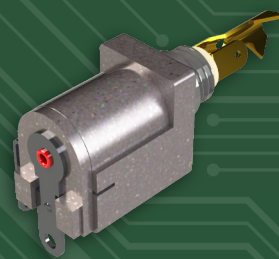
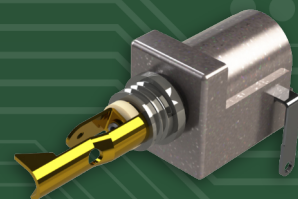
To develop a non-standard DC power jack connector that was proprietary and incompatible with any other plug or jack combinations available in the market.

Challenge

The connector was required to be tamper-proof, lock into place when inserted, and have sufficient durability to withstand damage if pulled out accidentally without unlocking.

Solution

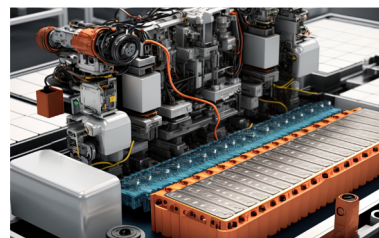
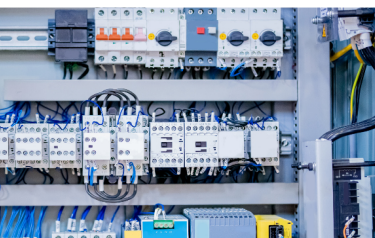
We used the smallest pin size on the male side that was still strong enough to handle the operating load. We constructed similar-sized holes on the female side and incorporated a locking mechanism while adhering to space limitations.



Application

Electronic Power Connection

EDAC





Example: 100 Pin D-Sub Connector

Design Engineers needed extensive calculations to reduce the pin diameter for a 100-pin connector. They also developed a manufacturing design to utilize existing equipment and prevent pin interference.

Scope

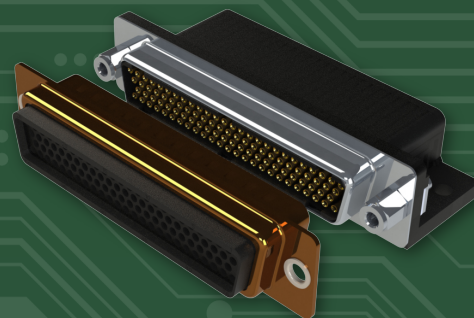
To develop a unique D-sub connector that could accommodate up to 100 pins and be in a 90-degree right angle orientation, fitting within the same connector size that is typically designed for 78 pins.

Challenge

To design a manufacturing process capable of producing a 100-pin connector using existing equipment while ensuring that the higher density of contacts does not cause any interference between the pins.

Solution

The results were to use a force fitting process to install the pins which proved to be a workable solution with minimum capital tooling expense.



Application

Military Grade Technology





Example: Waterproof Cable Assembly

Design a cost-effective cabling system that can scale from a single monitor to a daisy chain monitor system while meeting regulatory requirements.

Scope

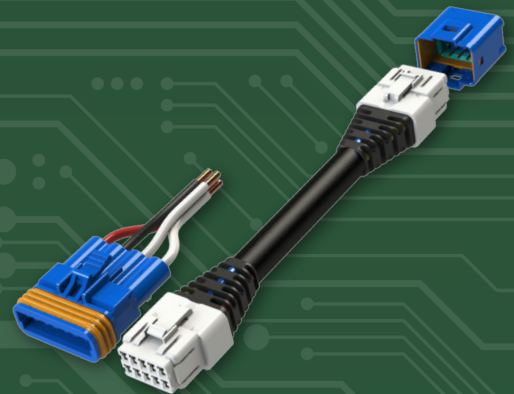
To design a low-cost waterproof cabling system that could be used effectively in large-sized LED/LCD monitors in outdoor stadiums without affecting the power or signal transmission quality.

Challenge

To maintain a cabling system that scaled from a single monitor to a daisy chain monitor system meeting the required specifications of the regulatory authority.

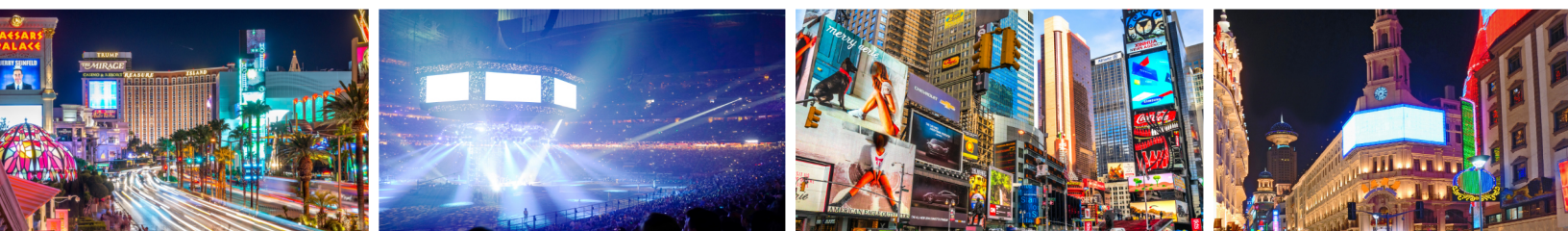
Solution

The solution was to optimize the waterproof connector by improving the electromagnetic interface using twisted pair cables and simplifying the sealing process from IP67 to IP54, thereby reducing overall costs.



Application

Waterproof Electromagnetic Device





Example: D-Sub Power Connector

Designing and manufacturing power contacts capable of sustaining 25 amps per contact. The contact had to be rounded with three segments in a dome shape for complete mating connectivity.

Scope

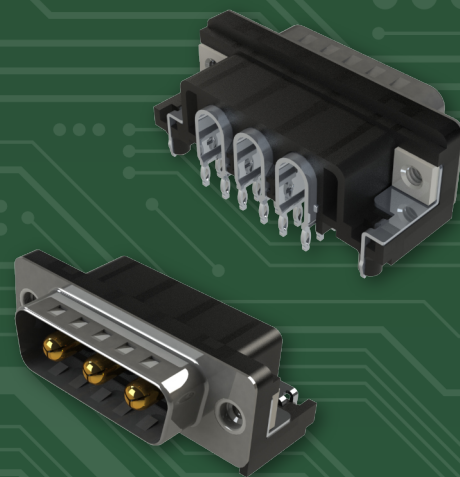
To develop a power D-Sub connector with a planned end-of-life by the incumbent supplier. The features and technical specifications required a drop-in replacement appropriate for a press-fit application.

Challenge

The challenge was the design and manufacturing of the power contact to support 25 amps using a stamped process. The contact had to be rounded with 3 segments in a dome shape to withstand full mating connectivity.

Solution

Successful design meeting the spec requirements, including using standard housing and shell materials to reduce cost and require minimal tooling on the stamped contact.



Application

Industrial Power Machines





Example: Polarized D-Sub and Backshell

To design a shell and key base to mate before the D-Sub cable is connected to the board. The project required minimal tooling, an ease of use design, and scalable manufacturing.

Scope

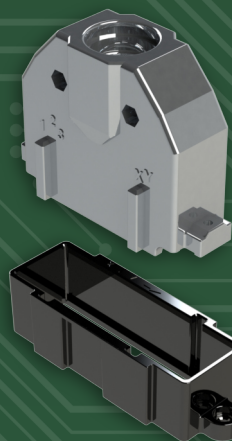
To design a D-Sub cable assembly backshell with polarization to prevent mis-mating to the PCB board.

Challenge

The challenge was the shell and key base must mate before the D-Sub cable to the connector on the board. Restrictions included minimal tooling, ease of use, and manufacturing.

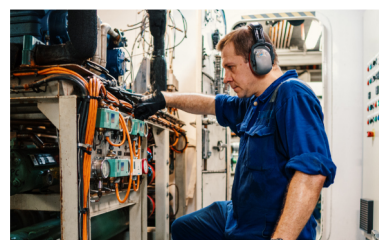
Solution

The solution was to incorporate interchangeable inserts in the mold for multiple polarized positions identified by letters and numbers. We also increased the height of the PCB key base adaptor on the board by 10mm to mate to the D-Sub shell before the connector.



Application

Industrial Electrical
Transformers and
Generators





Example: Press-Fit Connectors

Wind turbine control systems require durability, straightforward assembly, and a dependable connection to ensure optimal performance.

Scope

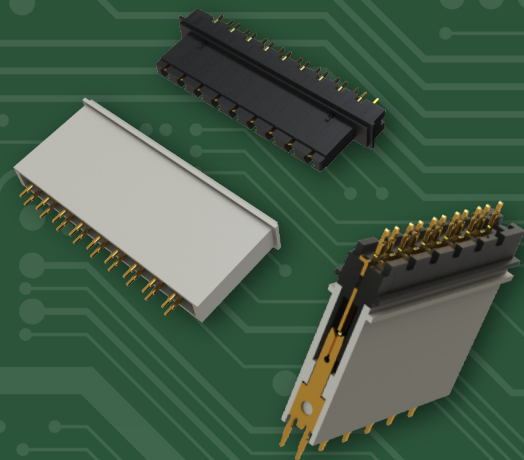
High service costs have had a significant impact on the customer's wind turbine systems. The project required a reliable and cost-effective connector that was durable and easy to assemble.

Challenge

To design a robust connector that could be easily aligned, ensuring a reliable connection while also streamlining the assembly process.

Solution

Our designed custom press-fit connectors for wind turbine control systems have heavy gold plating for durability, pre-alignment features for reliability, and Press-Fit tails to reduce assembly time. The hermaphroditic "tuning fork" contact design provides a reliable 4-point connection for on- and off-shore sites.



Application

Wind Turbine Control
Systems Module Bus
Interconnection





Example: High Temp Card Edge Connector

This project was undertaken to conserve control board space and address the stakeholders' challenge of loading processes and the large number of connectors required to operate the data storage system application.

Scope

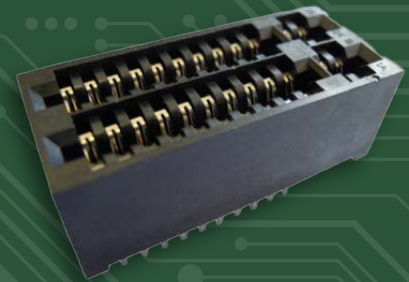
To design a compact connector optimized for space-saving and expediting the board loading process.

Challenge

The challenge was to design a connector that saved space and sped up the board loading process, by increasing mating options while operating in a high-temperature environment.

Solution

Designed a card edge connector with a dual-row insulator to significantly speed up the board loading process and increase mating options. As well as withstanding the high-temperature environment. Overall, this solution provided a compact and efficient solution with alignment for mating.



Application

Control Board for Data Storage System





Example: RJ45 Modular Jack Connector

The client needed to save PCB space for their I/O devices, while maintaining standard compatibility and a way to do quick maintenance with a glance.

Scope

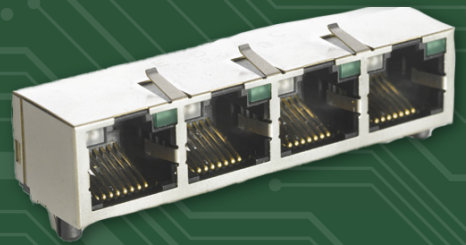
To create a solution that saves PCB space for I/O devices, maintains standard compatibility, and allows for quick maintenance. The solution should be simple to implement, and improve system performance and efficiency.

Challenge

The challenge was to design a connector to save PCB real estate. The connector should feature standard RJ45 plugs with a high-temp insulator and bi-color LED for compatibility with other systems.

Solution

Designed a 4-Port Modular Jack Connector that saves space on the PCB. Our custom design freed up 16% more PCB real estate, which provided more flexibility for the layout of other components. Additionally, the connector accommodates the customer's solder processes with a high-temperature insulator and includes a bi-color LED. This design also ensured compatibility with other systems by maintaining standard RJ45 plugs to mate side by side.



Application

I/O Data Outputs





Example: IDC Contact

The client needed to save PCB space for their I/O devices while maintaining standard compatibility with a way to do quick maintenance.

Scope

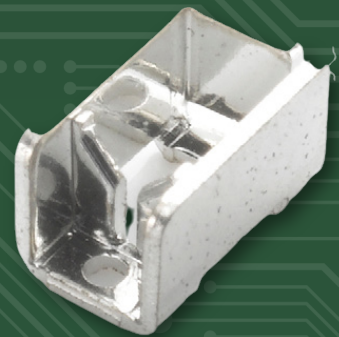
To address the customer's solder wire breakage during the PCB potting process by identifying causes and exploring alternative terminating options.

Challenge

To design a custom contact that can reduce labor. This contact should provide a more efficient and cost-effective solution for terminating a wire to a Mini PCB automotive sensor.

Solution

Design eliminates the labor-intensive soldering process and the associated risk of wire joint breakage during potting. Furthermore, our IDC contacts enable automated production, thereby providing substantial cost savings. Our design offers a more efficient and cost-effective solution for connecting wires in a variety of applications.



Application

Mini PCB Automotive Sensor Wire Termination





Example: Hermaphroditic Connector

The connector for this wind turbine project must be constructed to be highly durable, as the environment in which it operates is challenging. Therefore, it is essential to ensure its durability.

Scope

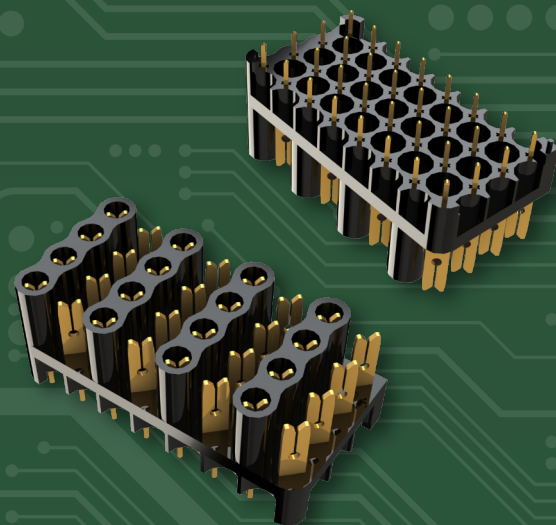
To design a highly reliable connector to reduce maintenance since there are high service costs associated with maintaining wind turbine control systems.

Challenge

Designing a connector that would perform in a highly rugged application consistently for a long period.

Solution

The design features a pre-alignment insulator to ensure reliable performance, alongside a high-temperature insulator facilitating soldering. It is suitable for pick-and-place production, and its hermaphroditic 'tuning fork' contact design provides a secure 4-point connection for both on- and off-shore applications, reducing the need for maintenance.



Application

Turbine Control System





Example: Sensor Connector

The connector for this boiler flue gas monitoring necessitated a sensor connector that could remain secure during prolonged and intensive use.

Scope

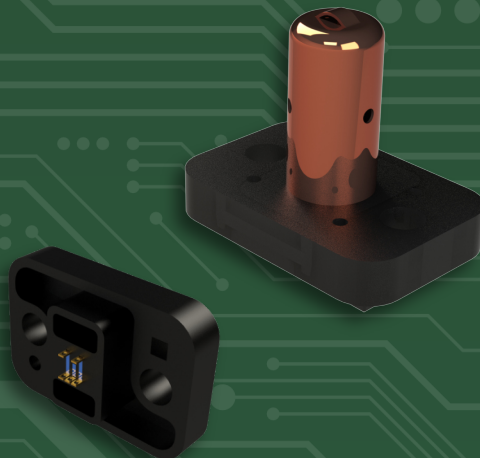
To design a robust connector that provided a reliable connection to support a secure sensor operation for gas flue monitoring.

Challenge

Designing a highly durable connector that can operate reliably in a high-temperature environment.

Solution

The design used materials that are resistant to high temperatures and features spring contacts for consistent engagement with the sensor pads. Connector orientation tabs guarantee that the mating is reliable, and an interface seal blocks any interference to the mating area or sensor operations. Moreover, the active contact area was heavily plated with gold to ensure the system's dependability. Our design provided a robust and dependable solution for gas flue monitoring applications.



Application

Boiler Flue Gas Monitoring



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Connect With Us . . . Experience Makes The Difference