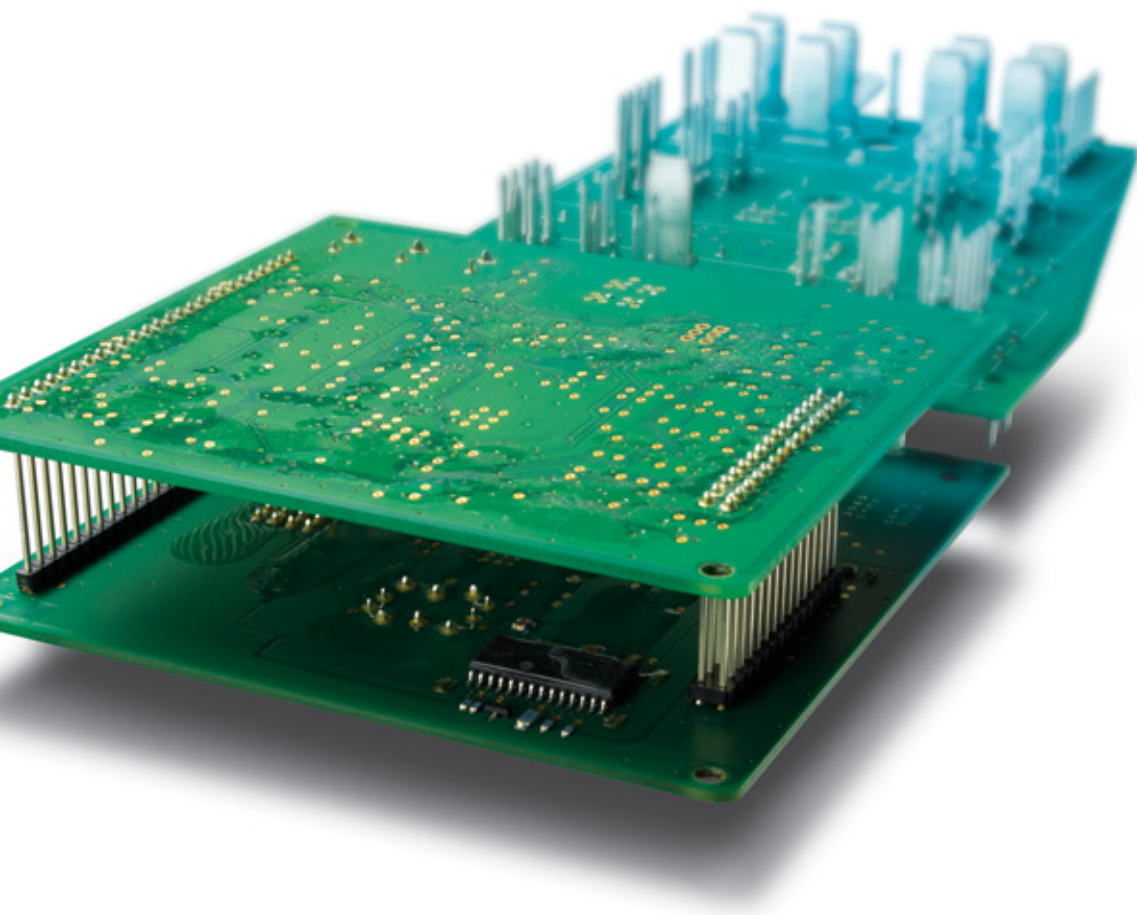


Electrical Centers



**DELPHI**



Rear-seat entertainment, touch screen navigation, eight-channel digital surround sound, all with voice activation—today's vehicles are filled with cool gadgetry. For manufacturers, this can be a weighty proposition. But Delphi can help you with all the engineering challenges involved. We offer a sophisticated "toolkit" for optimizing your Electrical/Electronic architecture and a full selection of electrical centers. We'll find the smallest, smartest, most cost-effective way to add features and functionality to your next-generation vehicles. Without adding a lot of extra baggage.

## A broad perspective supported by a broad portfolio.

Electrical/electronic architecture impacts every vehicle system. No surprise then, that an optimized E/E architecture can give you a competitive edge.

To achieve optimization, Delphi combines a total systems approach with the right technological building blocks — offering a product range broad enough to support whatever E/E architecture you choose for your vehicle.

Our industry-leading portfolio includes electrical/electronic distribution systems, connection systems and electrical centers. As the key enablers of an optimized architecture, electrical centers (EC) often employ layered bussing to better direct the complexity of the E/E system into one adaptable center.

Delphi has electrical centers for every preference and use, from stamped metal to Printed Circuit Board (PCB) to IBECs.

From our regional engineering centers in North and South America, Europe and Asia, we supply electrical centers to a variety of automotive and commercial markets. In every case, we apply the right technology at the lowest cost. It's part of our culture to form strategic, collaborative engineering relationships with our customers and to provide customized solutions.

With Delphi on board, complexity is simpler to manage.

### **Systems, signals, simplicity.**

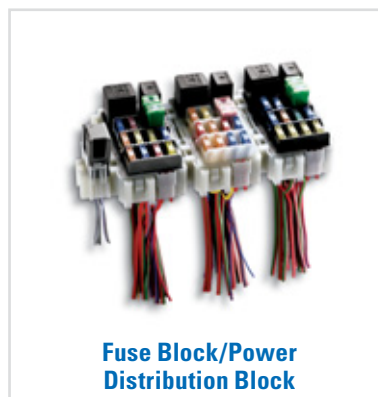
Electrical centers centralize electrical power and signal distribution, circuit protection and switching devices into one discrete location. By combining fuse and relay centers, splices and harness-to-harness interconnects into centralized packages, electrical centers simplify the overall E/E system design. Which in turn eliminates cost and mass.

Because of Delphi's full systems capability, deep product portfolio and vast experience, we can help you select the best layout for your vehicle. We launched our bussed electrical center (BEC) technology in 1991 and have evolved and shaped it ever since, embedding greater E/E functions and logic with every step. Each evolution has yielded greater value for our customers, providing more content per dollar.

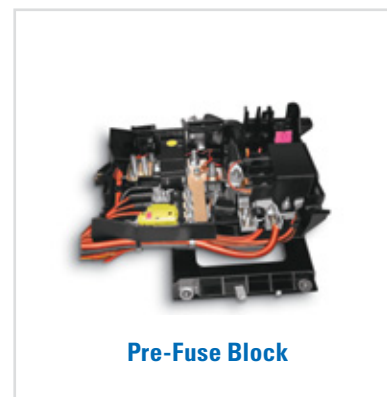
Optimization is the next opportunity for improvement. And Delphi remains on the forefront, with next-generation technology that includes IBECs, Battery Disconnect Safety Devices and other "smart" electronics integration.

# Powerful Building Blocks: Our Electrical Center Portfolio

We've pioneered EC technology for vehicles all over the world, but we feel that our innovation has only just begun. Here is a summary of our portfolio offerings.



**Fuse Block/Power Distribution Block**



**Pre-Fuse Block**

## Applications

- Full-range of power distribution applications

- Designed for underhood, passenger compartment and rear-mounted battery applications

## Function

- Hard-wired housing for circuit protection and power switching devices
- Integrates fuses and relays directly into wiring
- Eliminates loose-piece electrical centers

- Centralizes high-current fuses at the battery
- Provides high-current fusing to support power partitioning
- Pulls high-current function out of EC and into the pre-fuse block

## Capabilities/Advantages

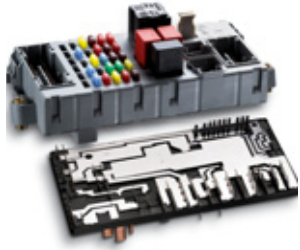
- Separate electronic module(s)
- On-site vehicle packaging
- Lowest component cost

- Optional location for Delphi's market-leading BSDS technology
- Can house IVT sensor

## Benefit

- Lowest-cost method of packaging circuit protection and power switching devices
- Custom-designed for unique vehicle packaging

- Reduces cost and complexity of other ECs
- Provides circuit protection for high-current cables



**Stamped Metal  
BEC**



**PCB BEC  
(Same as Stamped Metal BEC Plus)**



**IBEC/Smart Junction Block  
(Same as PCB BEC Plus)**

- Proven, robust design for both CV and automotive applications

- Designed for applications needing no constraints of the terminal type or arrangement
- Applications needing increased freedom for connection system selection

- Designed to support centralized and distributed solutions
- Designed for applications needing no constraints of the terminal type or arrangement
- Applications needing increased freedom for connection system selection

- Removes the power switching circuit protection from the EDS
- Designed as a stand alone, does not require hard wiring

- Flexible to E/E architecture revisions — does not require stamping die modification
- Designed to deliver space efficiency
- Enables printed circuit board-mounted components
- PCB process efficiency allows for quick turnaround on modifications

- Integrates body control electronics into the electrical center
- Introduces electronics for serial communication, microprocessor-controlled functions
- Enables electronic circuit protection

- Plug-in electronics capability
- Reduces overall electrical distribution system cost

- Plug-in electronics capability
- Board-mounted electrical components
- Flexibility

- Integrated electronics
- Scalable across multiple platforms
- Lowest overall electrical/electronic system cost

- Reduces cable and splices from the wiring harnesses
- Fosters electrical architecture optimization
- Robust stamped-metal bussing technology
- Fosters electrical architecture optimization

- 40% reduction in size and mass versus stamped metal
- Incorporates low-cost, board-mounted components

- Lowest total E/E architecture cost



## **A total systems approach and total accessibility.**

Our total systems approach has helped make us a world leader in the design, development, validation and manufacturing of E/E architecture. Our optimization capabilities include the following areas:

- Power distribution/wiring
- Interconnects, sensors, actuators
- Circuit protection/power switching
- Body electronics
- Electrical centers

As a world leader, we know it's important to be available to our customers locally — wherever "local" is. So our global product engineering services include complete product and process development, program implementation and certified testing. Our capabilities include but aren't limited to:

- Mechanical design
- Electrical design
- Program management
- CAD
- Prototype fabrication



Electrical centers make it possible for today's vehicles to do what they do. They also open the door for tomorrow's advances. As new features are added, Delphi's expertise will continue to make greater functionality possible, while keeping weight and costs within reasonable bounds. For improved reliability and reduced complexity, make sure Delphi electrical centers are on board your next-generation vehicle.

# DELPHI

Driving Tomorrow's Technology

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