

Delphi Automotive USB Consumer Port

► Description

With increasing consumer demand for more entertainment and data exchange within the automobile, Delphi has collaborated on the development of a Universal Serial Bus (USB) interface between the automotive electrical system and external consumer equipment. Delphi's automotive USB consumer port allows for high-rate communications of information and entertainment data including music streaming, audio/video, and passenger convenience systems. The USB interface is on its way to becoming a common automotive standard, prompting OEMs to place multiple ports throughout the vehicle interior for passenger convenience.



A main advantage of the system is that both the OEM and the customer can stay with standard automotive electrical system components and standard USB connectors. There is no need to integrate other hardware or software.

► Features

- Design incorporated illumination as well as a protective cover
- Uses standard automotive and USB connector components
- USB interface is specially designed of stainless steel for high mate/un-mate cycles
- Easily services in case of damage
- Delphi design is adaptable to USB 2.0 or 1384 (Firewire) connections
- USCAR-30 compliant

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▶ Benefits

- Provides customer with greater convenience and helps protect USB
- Simplifies build and assembly processes
- Greater convenience for end-user
- Strong, robust construction, enhances reliability, fewer repairs
- Repairability
- Lower warranty costs
- Higher speed applications
- USB electrical performance USCAR mechanical and environmental performance

▶ First Applications

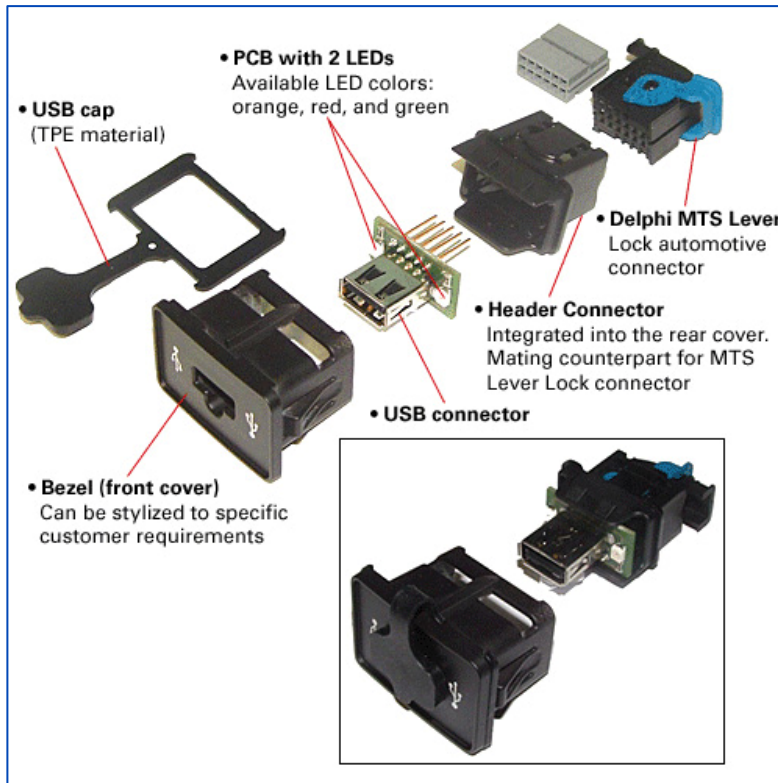
One of the first high volume automotive applications is Delphi's USB port that interfaces the vehicle audio system with external MP3 music files. The system provides a USB port in the dashboard that allows the driver to plug in a flash-memory device containing song files and listen to music through the car speakers. Other upcoming model year applications include audio/video and telematics data exchange, and multiple USB cables to individual ports including radio connections to a USB hub.

▶ Typical Applications

Delphi automotive USB connectors allow the consumer to interface with an array of onboard information and entertainment systems. Typical applications include:

- Music streaming between popular digital audio formats (MP3, etc.) and the car radio
- Data exchange between various consumer devices and the vehicle
- Passenger convenience data transfer (telematics, global positioning)
- Voice recognition systems, cell phone links, voice mail and internet communications
- Charging of consumer electronics for convenience purpose
- Vehicle diagnostics

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The configuration above shows a typical Delphi automotive USB connection system, including: the bezel (front cover) with protective cap, a USB 1.1 connector, a PCB with LEDs (to light the USB symbols on the front cover), and a header connector that interfaces to a standard 0.64 MTS automotive harness connector.

The board mounted USB connectors are the industry standard I/O interface used to connect peripheral devices to computers. The USBs provide full metal shields to help protect contacts from physical and ESD (Electro Static Discharge) damage.

▶ Delphi Advantage

- Delphi's global footprint drives the first USB automotive application in Europe
- All automotive components of the system are manufactured by Delphi
- Expertise in performance, manufacturing and assembly requirements specific to the automotive industry
- Delphi is strategically involved in the USCAR USB standards activity