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TOTAL ELECTRONICS SOLUTION
Minority Woman-Owned Business

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Cable & Harness Assemblies – Electronic Roadway Connectors

In electronics circuit design there is understandably a significant amount of design effort dedicated to the printed circuit board assembly, the brains of any electronic device. However, poorly designed cable and harness assemblies can ultimately lead to expensive failures of the overall system. Just like planning roadway intersections; if not done properly traffic can be slowed or stopped. The industry standard for cable and wire harness assemblies is IPC/WHMA–A–20.

Here are some helpful considerations for proper cable and harness designs… *(source WHMA.org)*

- ***Class Identification***: This is an important step and can be defined by your company or your contract manufacturer. The class sets the level of standards that apply. The end use is an important consideration that can help define the class such as Medical Devices, Military, Space,or Industrial.
- ***Class 1 - General:*** Includes products suitable for applications where the major requirement is the function of the completed assembly. i.e. Consumer Appliances.
- ***Class 2 - Dedicated Service:*** Includes products where continued performance and extended life is required, and for which uninterrupted service is desired. Typically, the end-use environment would not cause failures. i.e. Televisions, Home Computers and Phones.
- ***Class 3 - High Performance/Harsh Environment:*** Includes products where continued performance or performance on demand is critical, downtime cannot be tolerated, end-use environment may be uncommonly harsh, and the equipment must function when required, such as life support systems. i.e. Medical Devices, Military and Space Applications.
- ***Contract Manufacturer (CM) Selection:*** Having the right partner is critical in ensuring the proper quality levels and production capabilities for your electronic interconnection needs. CMs with significant experience in the needed Class and the appropriate current certifications can definitely pay off.

(Please refer to the additional information on "Finding the Right Partner".)

Links and Resources: here are a couple of helpful resources...

- *https://www.whma.org (Wiring Harness Manufactures' Association offers training materials and services)*
- *https://www.ipc.org (Institute for Printed Circuits offers several design courses, standards and documents for electronics design)*

Finding the Right CM Partner

Finding the right CM partner can be difficult, but is a key consideration. Getting the best results depends on many considerations such as your stage of development (prototype, production, large scale production) and the Class requirements.

Good CM's are continually upgrading their equipment capabilities. They can help you move through the stages to full scale volumes. For example, a CM that also has hand assembly can save time and tooling costs until you are ready to make the jump to full volume with automated tooling costs.

Experienced CM's also have most standard connection tooling available, reducing tooling and NRE costs. When full production volumes are needed, matching the right level of automation to your volume will help save costs and delivery time.

Checking a CM's equipment list, capabilities and certifications are also a key step to success. As components continue down a path of further miniaturization, processing equipment accuracy becomes even more critical. SoPark's extensive cable and harness experience can be the right partner for you.

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