Power over Camera Link Standard Saves Space in Factory Floor Machinery

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In Japan, space is a precious commodity. In the manufacturing setting, companies strive to make the most of every square inch. To that end, the Japan Industrial Imaging Association (JIIA) led the development of the Power over Camera Link (PoCL) Interface Standard for digital cameras and frame grabbers used in Machine Vision systems.

PoCL defines a design for the Camera Link interface in which power is funneled through the data cable, virtually eliminating the need for a separate power cable. The standard saves board space and panel real estate, allowing designers to make smaller cameras that take up less space on the production line. However, performance is not sacrificed. It also enables plants to upgrade from analog to digital without adding bulk. In fact, PoCL cameras are typically smaller than analog cameras.

The global Machine Vision industry’s trade group, the Automated Imaging Association, adopted the PoCL standard in 2007. In the U.S., where factory floor space is more abundant, the standard has been slow to catch on. Yet, as manufacturers strive to cut costs, the PoCL standard makes economic sense.

PoCL specifications enable a single-cable solution by replacing two of the four bare drain wires of conventional Camera Link cable with insulated wires. The two insulated wires provide power to the camera on connector pins one and 26, which were previously ground pins. The remaining two drain wires provide a return path for the power circuit. The cable’s inner shield effectiveness is not compromised even though two drain wires are reassigned.

To prevent damage to sensitive equipment, PoCL frame grabbers will automatically stop the flow of power when legacy cables or cameras are connected. A legacy camera may still work if a separate power supply is used, but a PoCL camera will

not work unless power is provided with a PoCL cable.

PoCL-compatible cables and connectors, however, can be used with legacy cameras and frame grabbers. High Speed 0.8 mm Cable Assemblies, from 3M, are designed for use with the standard. The 26-position Mini Delta Ribbon (MDR) and Shrunk Delta Ribbon (SDR) Connectors, both from 3M, have been approved by the AIA for its PoCL interface standard.

For manufacturers looking to conserve space on the line, the PoCL standard for Machine Vision provides a cost-effective way to shrink camera equipment without losing performance.

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