

„Power Over“ Products

Simplifying Machine Vision systems with integrated power supply for digital interface standards

Many applications in Machine Vision have high demands on the spacial integration or on a high mobility. Not only cameras have to become smaller or more robust for strong movements, but also the data and power cables. The fewer cables are needed, the more flexible and smaller, the system can be realized.

With the adoption of „power over“ technologies in Machine Vision standards, the realization of an one- cable system solutions is greatly simplified.

The best-known standards in Machine Vision are: Power over Camera Link (PoCL and PoCL Lite), Power over Ethernet (PoE) and the new standards Power over CoaXPress (mandatory) and Camera Link HS (optional).

With this technology, the power management is implemented via the data cable. The available power is defined differently depending on the standard:

Name	Voltage	Power		Specification
PoCL	12V	4W	per camera	Camera Link 1.2
PoCL lite	12V	4W	per camera	Camera Link 2.0
PoE	48V	15,4W	per camera	IEEE802.3af
PoE plus	48V	25.5W	per camera	IEEE802.3at
PoCXP	24V	13W	per port	CoaXPress 1.0

The technology is equipped with a surge protection as well as supports the SafePower protocol that prevents damage by overvoltage when connecting incompatible components accidentally. The SafePower protocol addresses the sensor electronics on the frame grabber. Power is only be switched on, if the connected camera is „power over“ compliant.

Silicon Software offers an extensive support of „Power over“ technology with its product portfolio.

For Camera Link, there is a choice between 5 models, from a single-channel image acquisition board up to a programmable high-performance board with DMA900 technology. PoCL-compatible cameras can be powered up to 12 volts and 4 watts, when the frame grabber is connected to the PC power supply. This power is even sufficient for the new generation of Camera Link Full Configuration cameras. The two high-performance models microEnable IV AD4-PoCL and VD4 PoCL can even transfer the full data rate of 800 MByte/s via a single DMA channel by an optimization of the DMA technology.



microEnable IV AQ4-GPoE with support of Power over GigabitEthernet and voltage injector)not displayed)

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By the use of reprogrammable FPGA processors in our PoCL frame grabber models, it was possible to implement the PoCL lite standard in addition. A selection in the configuration software switches between CL, PoCL and PoCL lite modes. Even mixed operation is detected and supported.

For the GigE Vision standard, the product portfolio was extended on two further models, supporting the „Power over Ethernet“ (PoE) technology and complete the successful models microEnable IV-AQ4 GE and GE-VQ4. Silicon Software offers optionally voltage injectors for powering PoE-compliant GigE Vision cameras up to 48 volts and 30 watts.

The CoaXPress standard defines in its specification a power supply over data cables as a mandatory feature. Thus, the „Power over CoaXPress“ (PoCXP) technology on image acquisition card and image processing boards from Silicon Software will be available for model versions with BNC connectors and 5W5 connectors.

The Camera Link HS standard proposes a power supply over data cables as an optional technology. With the release of the specification Silicon Software will define the final product features and the support of the „power over“ technology.

Available or planned models:

Standard / Frame Grabber	Description
Camera Link	
microEnable IV AS1-PoCL	1-channel image acquisition board with MDR26 connector
microEnable IV AD1-PoCL	2- channels image acquisition board with MDR26 connector
microEnable IV AD1-mPoCL	2-channels image acquisition board with SDR26 connector
microEnable IV AD4-PoCL	2-channels high performance image acquisition board with MDR26 connector
microEnable IV VD4-PoCL	2-channels high performance image processing board with MDR26 connector
GigE Vision	
microEnable IV AQ4-GPoE	4-channels image acquisition board with PC voltage injector (optional)
microEnable IV VQ4-GPoE	4-channels image processing board with PC voltage injector (optional)
CoaXPress	
All microEnable 5 CXP models	up to 4-channel image acquisition and processing boards

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