



Press Release

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Schroff PXI Express System

High data transmission rates for test and measurement signals

STRAUBENHARDT – Pentair is expanding its product range with a modular PXI Express system for test and measurement applications. As with all Schroff products, the off-the-shelf component options ensure flexibility and cost-efficient adaptation of numerous customer or application requirements.

PXI Express offers a modular architecture, combining the PCI Express bus with the CompactPCI Express form factor for a wide range of PC-based testing and measurement applications. After a period of initial hesitation, the number of users who have switched over from PXI to PXI Express has grown steadily over the last few years. A reason for this includes the demand for higher data transmission rates, and in comparison to PXI, PXI Express clearly comes out on top.

One of the challenges for the development of a PXI Express backplane, the heart of the system, becomes apparent in the combination of PXI Express, PCI Express, CompactPCI or PXI cards in a single system. In order to combine the classic CPCI and PXI cards with the new CPCI Express and PXIe cards, and to address the slots, a PCIe-to-PCI bridge is required. An additional issue is the necessity for a system slot with only a small number of PCIe lanes. In order to establish a larger system with more than four system slots, a PCIe switch is required which can address the additional slots. The third challenge is what is referred to as clock generation with PXI Express. In comparison to PXI, the trigger and clock signals are faster by a factor of 10, from a 10 MHz clock to a 100 MHz clock. This fast clock must either be generated on the backplane or come from a board or from an external source. During operation, shifting between these sources must be possible within the speed of the clock.

These requirements result in relatively elaborate wiring, which is directly integrated with many active backplanes that are currently available on the market. Thus, changes and modifications can be very expensive. For its PXI Express backplane, Pentair has chosen to go down a different path. The backplane is designed to be as passive as possible, and the PCI bridge, PCIe switch and clock functions are executed as separate modules and arranged on the rear side of the backplane between or above

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the slots. As a result, a more compact structure is possible in comparison to an active backplane. Thanks to the modular concept, standard components can be used and any PXI Express backplane configuration can be easily implemented. Only the passive part of the backplane must be adapted, so that costs are held to a minimum—even in the case of low quantities. The PCI bridge module, PCIe switch module and clock module developed by Pentair are tested and verified. The PCIe Switch module is already equipped with a PCI Express Gen3 switch, relieving the need for any updates that would otherwise be necessary at a later point in time.

The complete Schroff PXI Express system is based on the modular 44 HP wide and 4 U high Schroff RatiopacPRO Air case with integrated ventilation concept and fan control. An industrial-capable power supply unit with the conventional PC-voltages (3.3 V, 5 V, ± 12 V and 5 V standby) are used as a power supply unit. If the main switch is enabled, the system can be started or shut down by means of the push button. More powerful fans or a different power supply can be used should they be necessary in certain applications—since the modularity refers not only to the backplane, but to the entire system.

More information: schroff.pentair.com



Image caption: Schroff PXI Express system for testing and measurement applications

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About Pentair plc

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