

HSR/PRP Time-aware Redbox-DAN PCIe Network card

2U / without SFPs

<https://www.welotec.com/products/hsr-prp-time-aware-redbox-dan-pcie-network-card-full-height>



HSR/PRP Time-aware Redbox-DAN PCIe Network card



Supports IEC 62439-3 v3 Clause 5 “High-availability Seamless Redundancy (HSR)” Supports IEC 62439-3 v3 Clause 4 “Parallel Redundancy Protocol (PRP)” PCI Express x1 compliant 2x HSR/PRP/Ethernet ports + 1x Ethernet port IEEE 1588-2008 PTPv2 Ordinary Clock and Boundary Clock support -40°C to +70°C operating temperature range 3U compatible with Welotec RSAPC (Rugged Substation Automation PC), Alderamin Mk3 and Vega 2U compatible with Welotec RSAPC Mk2



Flexible connectivity

Multimedia and multi-rate support (10/100/1000BaseT, 1000SX, 100FX with the same board). Valid for legacy PCI.



Easy to install and operate

Plug & Play: standard Ethernet driver for Windows, Linux, FreeBSD, DOS, and HTML5 embedded webserver for config.



Value added functionality

Operates as DAN and Redbox through its additional third port (savings in Redbox devices). Hardware proven HSR/PRP solution.



Edge computing

Embedded intelligence to support PTP & Edge computing.



Reliability and availability

Specifically designed for critical systems with industrial grade components and wide operating temperature range -40°C to +70°C.



Upgradable

Upgrade guaranteed to latest version of the standards (based on FPGA technology).



Synchronization output

PPS and/or IRIG-B signal output for synchronizing third parties.

Technical Details

Communications

IEEE 1588	Autonomous management of Supervision Frames and IEEE 1588-2008 PTPv2 support
Zero-Packet-Loss redundancy modes	IEC 62439-3 v3 Clause 5 “High-availability Seamless Redundancy (HSR)” Supported modes: H, N, T, U, HSR-SAN, PRP-HSR, HSR-HSR» IEC 62439-3 v3 Clause 4 “Parallel Redundancy Protocol (PRP)” Supported modes: Duplicate discard, duplicate accept, transparent reception, PRP-HSR
Additional features	- Cut-through operation for the HSR ring to minimize the latency in the ring - - Store&forward for PRP and Ethernet operation - VLAN support - Ethernet type based or IEEE 802.1P Traffic prioritization
Optional modes	- IEC 62439-2 Clause 5 “Media Redundancy Protocol (MRP)” - “Device Level Ring (DLR)” for Ethernet IP - RSTP IEEE802.1w

Interfaces

Ethernet	2x HSR/PRP/Ethernet ports + 1x Ethernet port
Media options	SFP supports: - 10/100/1000Base-T - 1000Base-X - 100Base-FX
PPS	1x PPS Output
PCIE	PCI Express x1 compliant



Software features

Network drivers	Ethernet network drivers available for most OS (Linux, Windows, VxWorks, etc.)
IEEE 1588	IEEE 1588-2008 PTPv2 Ordinary Clock and Boundary Clock support. Profiles: Default, Power, IEC 61850-9-3, AS

Processing performance

FPGA	On-board FPGA for high-speed network switching and PTP timestamping
CPU	Multi-core CPU unit to support autonomous software application

Configuration and Management

Webserver	On-board integrated Web Server to provide HTML5-GUI configuration access: - Accessible through HTTP(S) - Configuration profiles and Firmware updates - Real-time network monitoring
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Environmental

Operating temperature range	-40°C to +70°C
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