



WHITE RABBIT ZEN TIME PROVIDER

WR-ZEN TP-32BNC

The **reliable** node that provides multiple legacy 10MHz/xPPS timing outputs for all equipment in your rack cabinet through White Rabbit time transfer and its **redundant connections**.

The WR-ZEN TP-32BNC easily distributes time and frequency to other equipment by implementing **standard timing protocols** such as PTP, NTP, IRIG-B, 10MHz/xPPS, etc.

The WR-ZEN TP-32BNC combines ultra-stable clocks with low jitter and **temperature compensated** clock resources to enhance its synchronization accuracy.



Technical Specifications / WR-ZEN TP-32BNC

System On-Chip

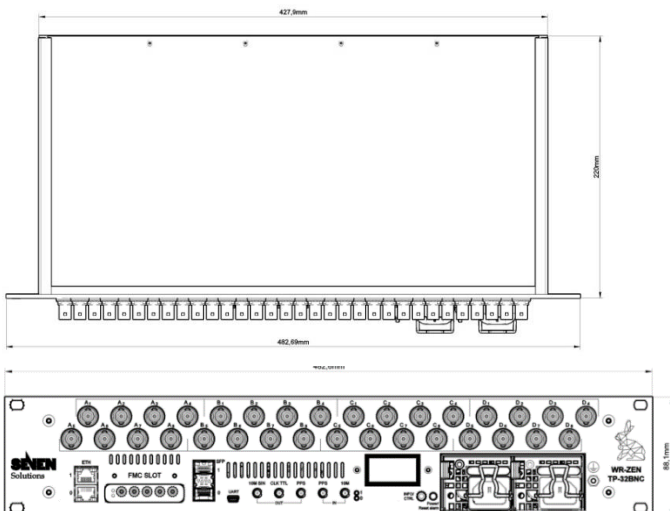
SoC	Xilinx Zynq series
CPU	Dual ARM® Cortex™-A9 MP@ 866MHz
Memories	<ul style="list-style-type: none"> ▪ 512 MB DDR3 (32-bit bus) ▪ 256 Mbits Quad-SPI Flash ▪ 16GB SD Card

Software

OS	Linux (Kernel v4.6)
Time Sync.	White Rabbit PTPv2 (default and G.8265.1 profiles, up to 16 unicast clients) NTP (client & server)
Protocols	TCP/IP, SSH, SNMPv3, TFTP, DHCP, ARP, DNS, HTTP (web interface)

Front Panel

Ethernet	2x 10/100/1000 Base-T RJ45 (Management, PTP, NTP)
SFP Ports	2x 1GbE
Clocks I/O	5xSMA coaxial connectors (3V/50Ω): <ul style="list-style-type: none"> ▪ 10 MHz SINOUT ref. clock (PLL) ▪ CLK OUT (LVTTTL) ▪ PPS OUT/IRIG-B (LVTTTL) ▪ PPS IN (LVTTTL) ▪ 10MHz IN (TTL/CMOS/ECL/clippedsine)
Fanout	32 BNC configurable outputs divided in 2 groups (1.7V/50Ω): <ul style="list-style-type: none"> ▪ A&B: 10MHz (xPPS under license) with 50Ω termination ▪ C&D: xPPS, IRIG-B with selectable 50Ω termination
LCD	Information panel for alert & network
Debug	USB Mini-B (ARM-UART)



HIGHLIGHTS

- ✓ Sub-nanosecond time accuracy
- ✓ Remote configuration and monitoring
- ✓ Distance range over 80 km using fiber
- ✓ Xilinx Zynq Family (ARM Dual Core)
- ✓ Linux OS
- ✓ WR and PTPv2
- ✓ Robustness & Redundancy
- ✓ 32 configurable timing outputs

Clock Performance

Phase noise (dBc/Hz)		Master	GM	Slave
	1Hz	-78.7	-86.2	-76.5
	10Hz	-107.5	-87.6	-79.7
	100Hz	-132.6	-107.2	-112.4
	1kHz	-143.5	-140.8	-143.6
	10kHz	-147.5	-143.0	-145.3
	100kHz	-145.6	-146.0	-149.1
TDev				
	▪ @ 1 sec	1.92E-11		
	▪ @ 10 sec	1.93E-12		
	▪ @ 100 sec	1.94E-13		
	▪ @ 1000 sec	1.98E-14		

Physical Specification

Dimension	428 mm x 88 mm x 220 mm
Color	White (Metallic)

Certification

Soldering	IPC-A-610 Rev E Class 2
Others	CE, FCC, ROHS, SE, ISO-9001, ISO-14001

Power Supply

Input	Redundant 2x 100-240VAC, 50-60 Hz
Output	12V DC, 6.66A – 80W max

Environmental Conditions

Temperature	-10°C ~ +50°C
Humidity	0% ~ 90% RH

