

WHITE RABBIT ZEN TP-FL

The fundamental standalone node



WHITE RABBIT ZEN TIME PROVIDER: WR-ZEN TP-FL

The fundamental standalone node that provides the White Rabbit features to a wide range of applications making use of its redundant connections. The WRZEN TP-FL easily distributes time and frequency to other equipment by implementing widely available timing protocols: PTP, NTP, 10MHz/PPS.

The WR-ZEN TP-FL combines ultra-stable clocks with low jitter and temperature compensated clock resources to enhance its synchronization accuracy in a costeffective 1U form factor.

Features:

4x 1PPS expansion board optionally supported.

8x 1PPS expansion board optionally supported.

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Technical Specifications

System On-Chip	
SoC	Xilinx Zynq series
CPU	Dual ARM® Cortex™-A9 MP@ 866MHz
Memories	• 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): • 10 MHzSINOUT ref. clock (PLL) • CLK OUT(LVTTL) • PPS OUT (LVTTL) • PPS IN (LVTTL) • 10MHz IN (TTL/CMOS/ ECL/clipped sine)
LCD	Information panel for alert & network
Expansion	4x SMA coaxial connectors(3.3V/50Ω): • PPS out(LVTTL)

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
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Physical Specification

Dimension	444 mm x 43 mm x 221 mm
Color	White (Metallic)

Certification

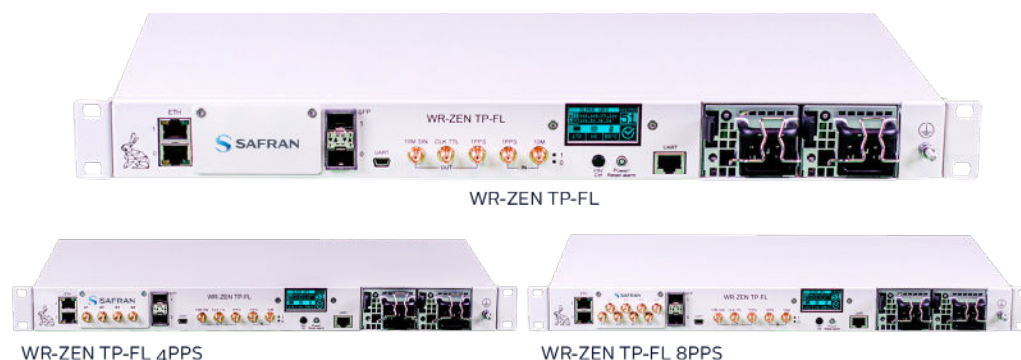
Soldering	IPC-A-610 Rev E Class 2
Others	CE, FCC, ISO-9001, ISO-14001, ROHS,SE

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



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