Digital Instruments

RME-V01

Time and Reference Measurement System

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Introduction

RME-V01 is a Time & Reference measurement equipment for GPS or GLONASS based syncronization systems able to check the performance vs time, correlation between 10 MHz reference and PPS, NTP or PTP Server with an optional Rubidium inside.

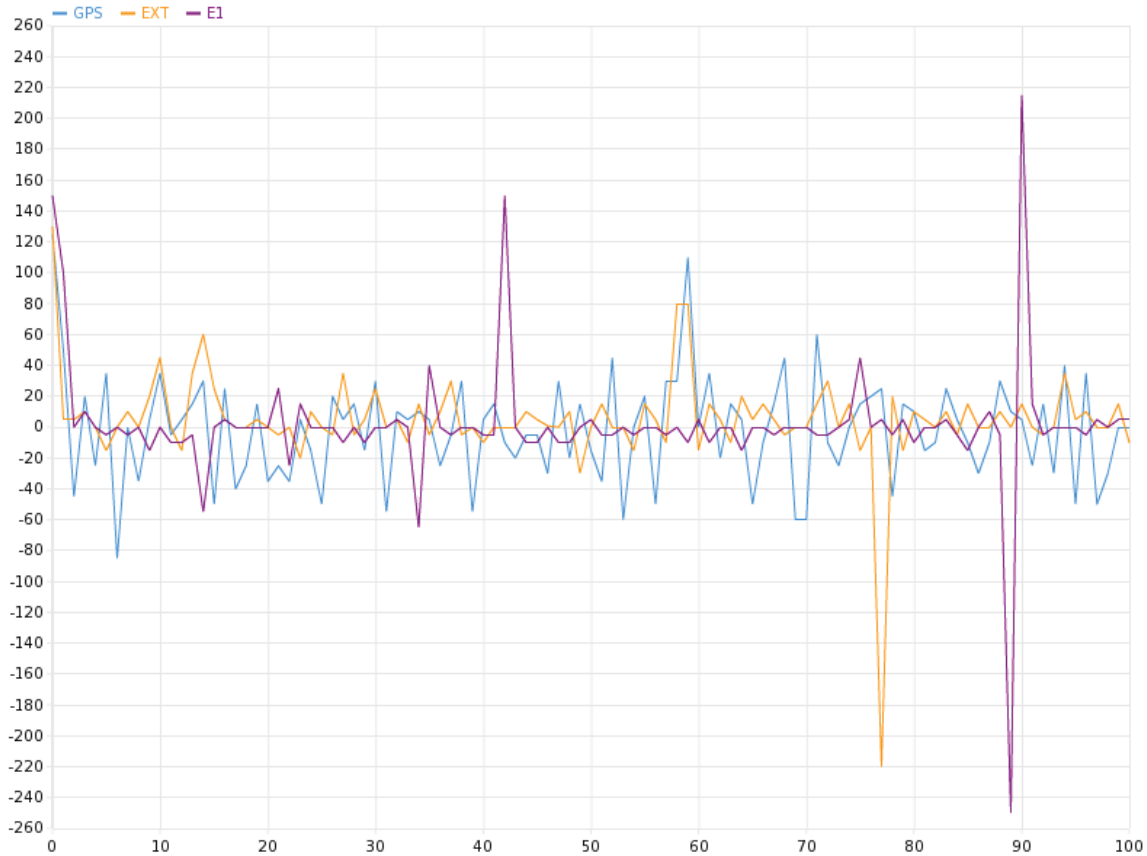
RME-V01 can also generate 10 MHz and PPS outputs choosing the best reference in input.
RME-V01 has two different couples of inputs (10 MHz, PPS) to compare (with the internal GPS or GLONASS receiver) the stability vs time, relationship between the two PPS input signals and the correlation between each source: 10 MHz and PPS.

RME-V01 is made for applications where the stability and the relationship between multiple time and reference are the key point of the transport chain like: DVB-T in SFN mode, DAB, LTE and all the applications where GNSS synchronization is required.

This equipment is managed by web based GUI, and/or SNMP. For local configuration LCD and keypad can be used. Feature of RME-V01 is also the possibility to characterize the quality of the sources provided to the equipment through the analisys of the Δf/f ratio of each source.

RME-V01 can be used as stand-alone equipment or with the internal GPS / GLONASS receiver, or with a high stability Rubidium for an accurate graph of the references applied.

RME-V01 can be programmed by user for threshold alarm, in order to provide fault situation using TRAP over SNMP v2 protocol.



Key Features

· Dual reference input (2x 10 MHz, 2x PPS)
· Long term data acquisition and monitoring
· IEEE 1588 v2 Precision Time Protocol Grandmaster
· GNSS (GPS, GLONASS and GALILEO ready) Primary Reference Time Clock (PRTC)
· PPS, ToD output connectors
· Redundant AC/DC power
· PTP and NTP slave function
· AoN Menagement System support
· Certification CE

GPS

Receiver:	1,575.42 MHz – 12 Channels
Tracking:	12 satellite correlation
PPS Accuracy:	< 50 ns
Acquisition time:	4 minutes
Local oscillator:	OCXO (ageing in holdover ±5e-11 / sec) [1]
Stability when locked:	±1e-12 after 24 hours
Antenna connector:	TNC

GLONASS

Receiver:	32 Channels (GPS L1, Glonass L1/FDMA, Galileo E1)
Tracking:	High Sensitivity (-162 dBm)
PPS Accuracy:	< 20 ns on SA
Acquisition time:	< 35 sec
Local oscillator:	OCXO (ageing in holdover ±5e-11 / sec) [1]
Stability when locked:	±1e-12 after 24 hours
Antenna connector:	TNC

Interfaces

AC Power option, 85-265 VAC (IEC 60320 C14 socket)
DC Power option, 36-72 or 18-36 VDC (terminal block)
SNMP protocol and integrated Web Server
10/100 Mbps Fast Ethernet connection with TCP/IP protocol complete of descriptive MIB on SNMP protocol
1 Time of Day (ToD) output via RS232
2 PPS input via BNC connector
2 10MHz input via BNC connector

NTP

Protocol: NTPv4
Role: Master Clock Stratum 1 (with GPS) – slave clock Stratum 2
Packet rate: 20.000 transactions per second

IEEE 1588 v2 PTP Output

IPV4 / UDP, Layer 2, Multicast, Unicast
1-step and 2-step
PTP Profiles
- ITU-T G.8265.1 Frequency Profile (IPV4)
- Power Profile (IEC C37.238)
- Default Profile (IEEE 1588 v2)

VLAN (802.1Q, 802.1p)

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VLAN (802.1Q, 802.1p)
Best Master Clock Algorithm (BMCA), with Default Profile

Syncronous Ethernet

SyncE can be used as a frequency input and can be generated as an output (as Master)
Conforms to relevant sections: ITU-T G.8261, G.8262 and G.8264 ESMC

Network Support

DHCP (RFC2131)
DSCP
HTTP
ICMP (RFC 792)
IEEE 802.1Q, 802.1p VLAN
IEEE 1588 v2 PTP
IPV4
NTP
SNMP
SYSLOG
TELNET
TIME

Status Info

status LEDs, RS232, SNMP, Web interface, LCD Display and Crosspad for local management

Mechanical

Size:	Height:	44 mm
	Width:	438 mm
	Depth:	295 mm
Rack mounts:	19”/1U.	

[1] *Holdover values are aproximated and assume operation at constant temperature, no initial frequency or phase offset, and that the unit has been powered for two weeks and locked to GNNS for three consecutive days.*