



REF-V01-SF is a high-stability generator of Time and Frequency reference signals. The high-stability is obtained by tuning algorithms controlled by GPS receiver. In standard version are presents 6 independent outputs of frequency reference at 10 MHz and 4 independent outputs of PPS (pulse per second) time reference. It's extremely flexible in all applications where is necessary provide a Time-Frequency reference to more devices at the same time, ensuring a complete electrical insulation.

REF-V01-SF is particularly easy to use both for installation and maintenance. All functions are completely accessible on front panel through joypad and visualized on 40-characters large alphanumeric display. The apparatus is equipped with control software operating on PC both in local mode, through serial communication RS-232/RS485, and in remote mode through communication on Ethernet network 10/100 with TCP/IP protocol.

On request, **REF-V01-SF** provides moreover linear signal in voltage proportional to reference signal coming from GPS receiver. This option allows the tuning of eventual external device used as External frequency source (such as Rubidium).

REF-V01-SF provides the most important reports about his state of operation, also using 4 dry contact on apparatus back. Allows also an event logger functionality through 4 photo-coupled input placed on back. The Provided report allows the visualization of the exact instant when the event verified, associating days, hours, minutes and seconds with precision guaranteed by GPS receiver. **REF-V01-SF** is provided with double supply switching at extended range, operating in logical OR between network supply and external battery.

- 6 independent high-stability sine wave output at 10 MHz frequency with power level tunable digitally from – 2 dBm to 18 dBm.
- 4 independent PPS outputs with TTL level terminated at 50 Ω.
- High-stability internal oscillator OCXO with maximum frequency drift equal to $\pm 1 \times 10^{-10}$ / day in free run.
- 12 Channels GPS receiver with automatic tracking and timing error management system.
- 2 outputs configurables among TTL signal and/or voltage linear signal.
- 40-characters alphanumeric display placed on two lines with more than 30 indications about apparatus working status.
- 4 independent dry contact signals usable as apparatus status remote reporting.
- 4 photo-coupled inputs usable as event logger.
- Serial connection in RS232 or RS485 standard.
- Network connection Ethernet 10/100 standard with TCP/IP protocol.
- Management software on PC developed in Windows environment.
- Device supply in logical OR AC, DC.
- AC 110Vac at 240 Vac 50/60 Hz.
- DC 12Vdc at 50 Vdc.
- System in Rack 19" format 1U.
- 24 months guarantee.

Frequency reference

Signal: 10 MHz sine wave.
Spectral purity: -70 dBc full output power. (harmonics), -75 dBc full output power. (non-harmonics)
Phase noise: -125 dBc at 1kHz
Outputs: 6 independent digitally power tunables.
Output level: From -2 dBm to 16 dBm each output.
Output Impedance: 50 ohms
Output connectors: BNC
Stability: 1e-12 daily average OCXO locked to GPS on SA
OCXO Standard: 1e-10 daily average OCXO on free run mode.
OCXO SC: 2e-11 daily average OCXO on free run mode.

Time reference

Signal: 1 PPS, 100% Duty, Rising Edge.
Outputs: 4 independents.
Output level: TTL 5 Vpp, Square wave
Output impedance: 50 Ω
Output connectors: BNC

GPS section

Receiver: L1 1575.42 MHz 12 channels
Tracking: Correlation on 12 satellites
PPS Accuracy: < 50 ns in SA
Antenna's connector: TNC
Acquisition time: < 4 minutes

Ref TTL section

Signal: 1 PPS, 200ms Duty, 16.66 KHz Periodic, 5MHz, 10MHz
Outputs: 1 or 2 in alternative of Ref Vout.
Output level: TTL 5 Vpp, Square wave
Output impedance: 50 Ω
Output connectors: BNC

Ref Vout section

Available signals: continuous voltage proportional to External input
Outputs: 1 or 2 in alternative of Ref TTL.
Output level: From 0 to 12V rail-to rail.
Output connectors: BNC

Signaling

Serial connection: RS-232 Connector DB9 Male ± 15 kV (ESD).
Network connection: Ethernet interface 10/100, TCP/IP protocol.
Signaling: 7 dry contact over Weidmuller connector step 3.5 mm.
Remote: 4 photo-coupled contact over Weidmuller connector step 3.5 mm.

Supply

Network: 95 Vac – 240 Vac, Plug IEC320 integrated, filter EMI/RFI.
Battery: 2 independent power suppliers.

Size

Width: 1 Unity 19".
Depth: 300 mm connectors excluded.
Weight: 1.5 Kg.