

SCS GNSS Receiver - Main Features

Dual Redundant GPS/GLONASS/GALILEO/BEIDOU Receiver 10 Output x 1PPS, 10 MHz Outputs, Seamless redoundant

Description

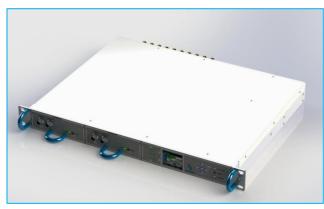
The systems in these series represent the ideal solution to problems of synchronization for distribution networks of broadcasting signals or in every kind of network that required Frequency and Timing reference. They make possible to obtain a high-precision frequency source wherever there is unavailable GNSS signal. The GNSS receivers, designed whit "Carrier Aided Tracking" technology with 12 parallel channels, are available in single or redundant version with automatic seamless switch-over, which provides a commutation without interruption.

Distributors are available, moreover, for frequency reference signals as well as for timing-reference signals. The discontinuity of the presence of the reference signal does not jeopardize operation of the equipment, thanks to the substantial stability of the oscillator.

The sturdiness of the system in case of reference signal lack was obtained by comparing the local source frequency with the reference signal frequency and correcting the possible drift of the local frequency of the integrated oscillator.

The dual GNSS Receiver contains two fully redundant GNSS receiver boards, each with their own OCXO, GNSS module and GNSS antenna input. The redundancy is at power supply level as well. Each receiver has an OCXO (oven controlled crystal oscillator) which runs at 10MHz. The accuracy of this OCXO is better than 0.3Hz (0.3 ppm). When the GNSS signal is present and is detected, the OCXO frequency is controlled to match the accuracy of the GNSS time reference. The number of cycles of this signal is counted over a period of one second, as given by the 1PPS signal from the GNSS module. This way the frequency error of the OCXO is derived. If the GNSS module tracks only 3 satellites or less, it becomes impossible to extract the GNSS time information. If this happens, the microcontroller stops adjusting the OCXO frequency. The OCXO is left running in open loop, with the last tuning voltage known before the GNSS module lost track. When both receivers do not receive the GNSS signal, then the frequency accuracy is set by the OCXO accuracy, which is less than 0.3ppm. This function is named Hold Over.

When the GNSS signal came back, a special algorithm, studied for SFN broadcasting network drive the equipment to a smoothing come back from the Hold Over.





GNSS receiver front view



GNSS receiver rear view



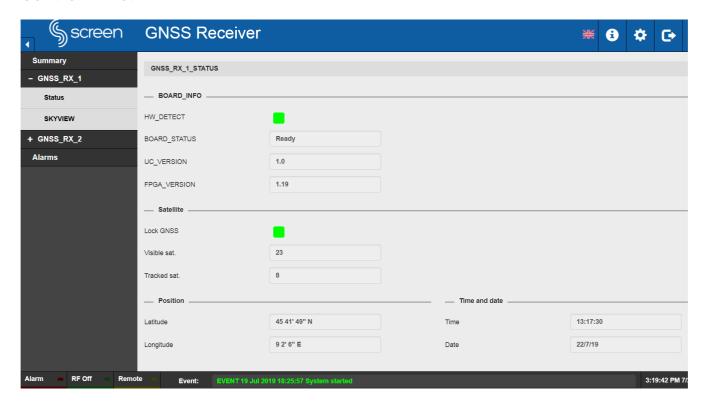




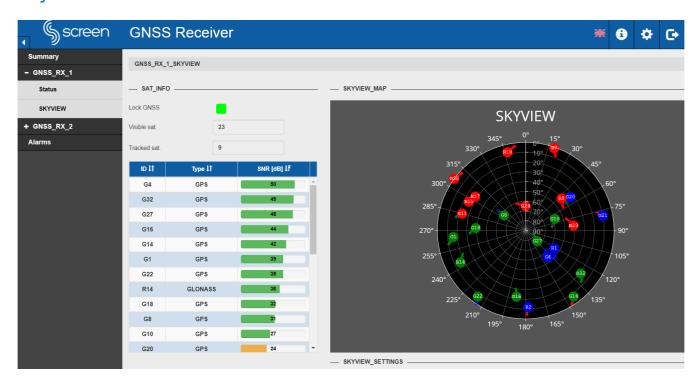




Control Panel



Skyview



Details

- $_{\circ}$ 12 parallel channels.
- $_{\circ}$ C/A code 1,023 MHz chip rate.
- $_{\circ}\,$ Carrier Aided Tracking.
- Precision in position: 25 m (SA absent),100 m (SA spec. UD DoD)
- o Suitable for use with active antennas.
- ∘ LAN TCP/IP
- o SNMP
- $_{\circ}\,$ Aux TLS relay contact available on the rear panel.
- o RS485,RS232 Communication

FREQUENCY REFERENCE		
Number of outputs	10 x BNC, 50	
Output signal	5 or 10 MHz, sine wave, 1 V p.p	
Short term stability	Better than 5x10-12 (1sec)	
Frequency accuracy	Better than 3x10-12 (24hours continuos power up and GNSS)	
Hold over drift	5x10-10/day	
Phase noise @ 100 Hz	Better then -145 dBc/Hz	
Phase noise @ 10 kHz	Better then -155 dBc/Hz	
Cold startup	Less then 10 min.	

TIMING REFERENCE		
Number of outputs	10 x BNC, 50	
Output signal	1 PPS, 5 V TTL, square wave	
Timing accuracy	100 ns peak (24 hours continuous power up and GNSS)	

GENERAL	
GNSS antenna input connector	N female, 50 , lightning protection available as option
Switchover function (redundant models only)	Auto
Operating temperature	-10°C to +45°C
Maximum relative humidity	90%, non condensing
Power supply	90 to 264 V AC, 24/48 V DC
Dimensions	1 RU (19" rack)
Weight	5 kg (approx)

OPTIONS
Power supply in redundant configuration
Lightning protection
Rear Input GNSS antenna
Kit SCS 118 Antenna GNSS