



SCS GNSS Receiver - Main Features

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



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 with "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.



GNSS receiver front view

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.



GNSS receiver rear view

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.

DVB DVB-T2 DVB-S

ATSC a-t-s-c MOBILE DTV ISDB-T DTMB

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.

Control Panel

screen
GNSS Receiver

Summary

- GNSS_RX_1

Status

SKYVIEW

+ GNSS_RX_2

Alarms

GNSS_RX_1_STATUS

BOARD_INFO

HW_DETECT ■

BOARD_STATUS

UC_VERSION

FPGA_VERSION

Satellite

Lock GNSS ■

Visible sat.

Tracked sat.

Position

Latitude

Longitude

Time and date

Time

Date

Alarm ■ RF Off ■ Remote ■ Event: EVENT 19 Jul 2019 18:25:57 System started 3:19:42 PM 7/

Skyview

screen
GNSS Receiver

Summary

- GNSS_RX_1

Status

SKYVIEW

+ GNSS_RX_2

Alarms

GNSS_RX_1_SKYVIEW

SAT_INFO

Lock GNSS ■

Visible sat.

Tracked sat.

ID ↑↓	Type ↑↓	SNR [dB] ↑↓
G4	GPS	50
G32	GPS	49
G27	GPS	48
G16	GPS	44
G14	GPS	42
G1	GPS	39
G22	GPS	39
R14	GLONASS	36
G18	GPS	32
G8	GPS	31
G10	GPS	27
G20	GPS	24

SKYVIEW

SKYVIEW_SETTINGS

Details

- 12 parallel channels.
- C/A code 1,023 MHz chip rate.
- Carrier Aided Tracking.
- Precision in position: 25 m (SA absent),
100 m (SA spec. UD DoD)
- Suitable for use with active antennas.
- LAN TCP/IP
- SNMP
- Aux TLS relay contact available on the rear panel.
- 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 5×10^{-12} (1sec)
Frequency accuracy	Better than 3×10^{-12} (24hours continuous power up and GNSS)
Hold over drift	5×10^{-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