GNS

Synchronizers series

TIMING REFERENCE GNSS LOCKED

1pps + 10MHz OUTPUTS

The high quality, professional and cost-effective solution

- High reliability and compact size
- Powerful algorithms
- High precision
- Low cost of ownership

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The **GNS Series** is a new concept GNSS (Global Navigation Satellite System) receiver/synchronizer.
Using **GPS, GLONASS, GALILEO, BeiDou, QZSS satellites** it generates time and frequency signals (**1ppS and 10MHz**) suitable for equipment needing a **high precision clock reference** and for the stable synchronization of **Single Frequency Networks** (SFN).

This innovative product series has **unique special features**, with proprietary algorithms, to prevent network de-synchronization (Holdover error recovery, Single satellite operation, Fast cold start-up, Zero cumulated error, etc.) and is **available in redundant configurations** and as **OEM parts**.

The GNSS receiver, specifically developed for the **timing function**, can operate while receiving a **single satellite**, providing 1pps and locking a 10MHz **oven type** reference oscillator.

This unit has been designed to **avoid synchronization problems** (i.e.: cumulated error, wander, holdover error, cold start-up error, etc.) for **critical applications** (e.g.: digital broadcasting SFN networks).

Moreover, the reference high-stability oven oscillator is capable of **maintaining the synch over long periods** when there is an intermittent signal from the GNSS satellites.

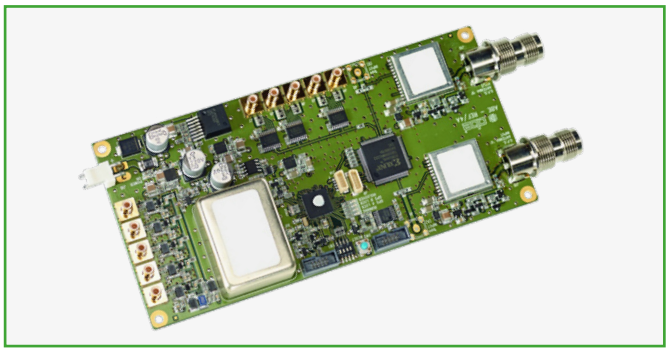
The unit can be equipped with redundant GNSS receiver, oven oscillator and power supply **to increase reliability**.
Equipment configurations include possibility to have **up to 12 couples of output signals** (1pps and 10MHz).

PRODUCT SKILLS

- **High sensitivity** and **fast acquisition GNSS receiver**
- **Single satellite reception operation**
- **Zero cumulated error** and **Fast cold start-up** functions
- **Anti-jamming** function
- **High stability** and **low phase noise** 10MHz oven oscillator
- **Long hold-over time** and **hold-over error recovery**
- **Multiple 1ppS and 10MHz** outputs
- **Redundant configurations** for satellite receivers, oven oscillators and power supplies
- User friendly **local and remote control** includes on-board display, Web GUI, SNMP
- Stand-Alone **19" 1U Rack drawer**
- Available as **OEM units**

MAIN AVAILABLE OPTIONS

- **High performance oven reference**
- **Redundant power supply**
- **Redundant GNSS receiver**
- **Redundant GNSS receiver & oven oscillator**
- **5 to 12 outputs** (10MHz + 1ppS) according to the model
- Receiving **antennas** and **cables**
- **D.C. power supply** (also with backup battery)



TECHNICAL SPECIFICATIONS

GNSS Receiver	
Tracking capability	Up to 32 satellites simultaneously GPS, GLONASS, GALILEO, BeiDou, QZSS constellations
Sensitivity	-155dBm
Input impedance	50Ω
Input connector	TNC female (other types on request)
Antenna power supply	+5Vdc (excludible)
1pps accuracy (when locked)	15ns (1 sigma)
Typical 10MHz output frequency accuracy (when locked)	$1x10^{-10}$
Long time typical 10MHz frequency stability (when locked)	Same as GNSS reference (≥$1x10^{-12}$ daily average)
10MHz oven oscillator stability (free run) **Standard version** **High performance version**	 ≥ $1x10^{-9}$/day ≥ $2x10^{-10}$/daily average
10MHz Oven oscillator phase noise **Standard version** **High performance version**	 ≤-90dBc/Hz @ 1 Hz offset ≤-120dBc/Hz @ 10 Hz offset ≤-140dBc/Hz @ 100 Hz offset ≤-150dBc/Hz @ 1 KHz offset ≤-155dBc/Hz @ 10 KHz offset ≤-95dBc/Hz @ 1 Hz offset ≤-125dBc/Hz @ 10 Hz offset ≤-145dBc/Hz @ 100 Hz offset ≤-150dBc/Hz @ 1 KHz offset ≤-155dBc/Hz @ 10 KHz offset
Output impedance	50Ω
Output connector	BNC female
1pps output level	5Vpp
10MHz output level	+10dBm (±2dB)
GENERAL SPECIFICATIONS	
Power supply	85 to 264Vac 50/60Hz - other on request
Remote control interface	Ethernet 10/100 Base-T (SNMP, Web server); RS485 on request
Operating temperature range	0 to +45°C

SUSTAINABILITY
We design and build high performance and environmentally friendly equipment

MADE IN ITALY
Design and manpower are 100% Italian to guarantee quality and assistance

SOLIDITY
Being in the broadcast industry for nearly forty years is the most obvious proof of our seriousness

TECHNOLOGY
We believe it is essential to increase our technological know-how every day to provide excellent products

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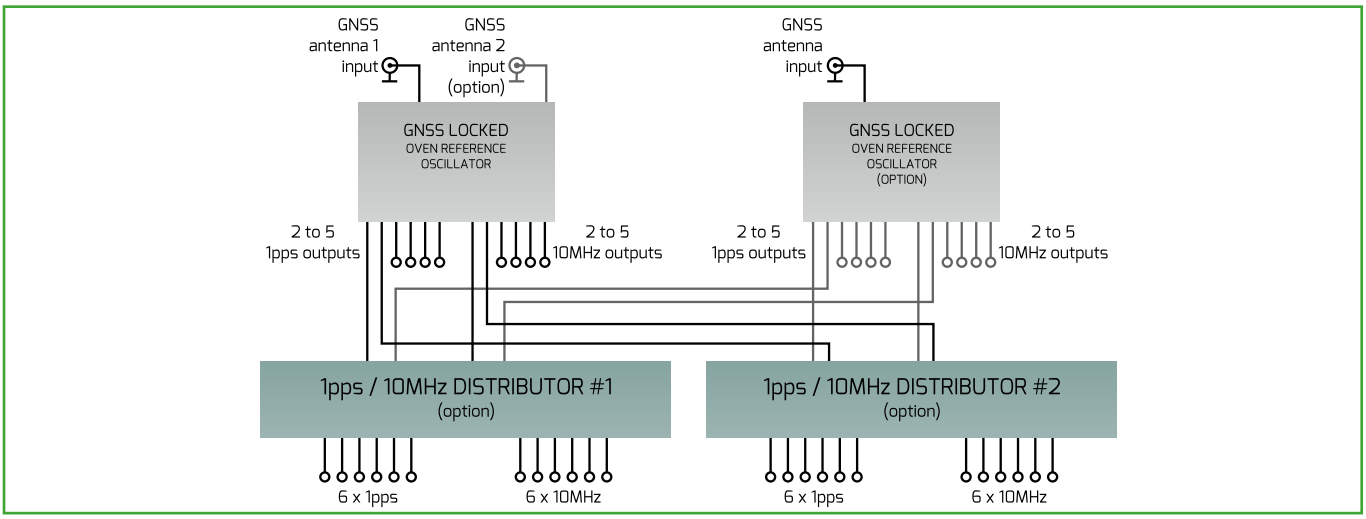
ORDERING INFO

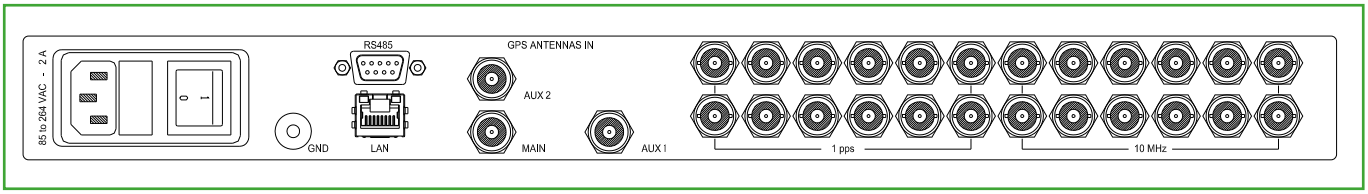
Model	Number of outputs	Configuration
GNS 1005/S	5x1pps + 5x10MHz	Single GNSS board with single GNSS receiver
GNS 1005/D	5x1pps + 5x10MHz	Single GNSS board with double GNSS receiver
GNS 1010/S	10x1pps + 10x10MHz	Single GNSS board with single GNSS receiver + distributor
GNS 1010/D	10x1pps + 10x10MHz	Single GNSS board with double GNSS receiver + distributor
GNS 1006	6x1pps + 6x10MHz	Double GNSS board (one GNSS receiver and one Oven oscillator each) + distributor with automatic switching
GNS 1012	12x1pps + 12x10MHz	Double GNSS board (one GNSS receiver and one Oven oscillator each) + two distributors with automatic switching

For available options or different configurations, please contact ABE sales office

BLOCK DIAGRAM



GNS SERIES: REAR PANEL



ABE ELETTRONICA
Via Leonardo da Vinci, 224 - 24043 Caravaggio (BG) - Italy
Tel. +39 0363 35 10 07 - Fax +39 0363 50 756 - mail@abe.it - **www.abe.it**