Specification	AXGPS9000	Rev.: 2	Date: 2018-08-27

Oscillator type: GPS-Disciplined OCXO 10.000 MHz in 19” rack (1 HU)

Features:

- **Slim 19” rack with 1 HU**
- **Low Phase Noise 10.000 MHz Output**
- **Ultra-Low Noise Option available**
- **1 PPS 50 Ohm Output for distribution**
- **External 1 PPS 50 Ohm Reference Input**
- **RS-232 Interface with NMEA-0183 standard**

Parameter	min.	typ.	max.	Unit	Condition
Nominal output frequency		10.000		MHz	(Note 2)
Frequency stability					
Tracking accuracy (GPS locked)			$1 \cdot 10^{-12}$		24 hours average
Holdover stability (GPS 24 hours unlocked after 7 days locked)		$5 \cdot 10^{-10}$			Temperature ΔT <± 2K
RF output					
Signal waveform		Sine wave			
Load R_L		50		Ω	±5%
Output level	+12	+14		dBm	Front panel indicator
Harmonics		-60	-40	dBc	
Spurious			-80	dBc	
Phase Noise (Note 3)		See table 1			Option 1
Short-term stability (ADEV)			$1 \cdot 10^{-11}$		@ τ = 1 sec
1 PPS output					
Signal waveform		HCMOS			
Output level	3	4		Vpp	
Load R_L		50		Ω	
Rise & decay time			5	ns	
Accuracy (RMS) to UTC		30		ns	GPS locked 24 hours
Holdover stability (GPS 24 hours unlocked after 7 days locked)			±4	µs	Temperature ΔT <± 2K
1 PPS indicator		LED at front panel			
1 PPS reference input					
Signal waveform		HCMOS			
Input level	2.5			Vpp	
Input impedance		50		Ω	
GPS input					
Input frequency		1575.42		MHz	
Input impedance		50		Ω	
Receiver Sensitivity	-160		-144	dBm	
Antenna		Passive			5 V
Interface					
Baud rate		57600		bps	
RX/TX level		RS-232			
Communication		Status information / NMEA-0183			(Note 4)
Lock Detect Indicator		LED at front panel			

Parameter	min.	typ.	max.	Unit	Condition
AC Supply voltage V_S	100	230	240	V	IEC 60320-1 / C14
AC Supply input frequency	50		60	Hz	
Power consumption			20	W	
Operating temperature range	-10		+60	°C	
Enclosure size (see drawing) (LxWxH)	483x250x44			mm	Color "black"
Drawing number	AXZ10.01121.01				
RF Input Connectors (GPS & 1PPS IN)	SMA female				@ Rear plate
RF Output Connectors (10MHz/1PPS OUT)	BNC female				@ Rear plate
Communication Connector	9-Pin D-Sub male with jack posts				@ Rear plate
Weight		3		kg	

Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Other output frequency on request
3. Other phase noise performance on request
4. See user manual for AXGPS9000

Absolute Maximum Ratings

Parameter	min.	max.	Unit	Condition
AC Supply Voltage V_S	90	260	V	
AC Supply input frequency	47	63	Hz	
AC Supply input current		2	A	Fuse accessible at rear
Load R_L	0	∞	Ω	No damage
Storage Temperature	-20	+70	°C	

Ordering Code

Model	Option 1 [Phase noise]	Revision	Frequency [MHz]
AXGPS9000	Table 1	Rev.2	10.000

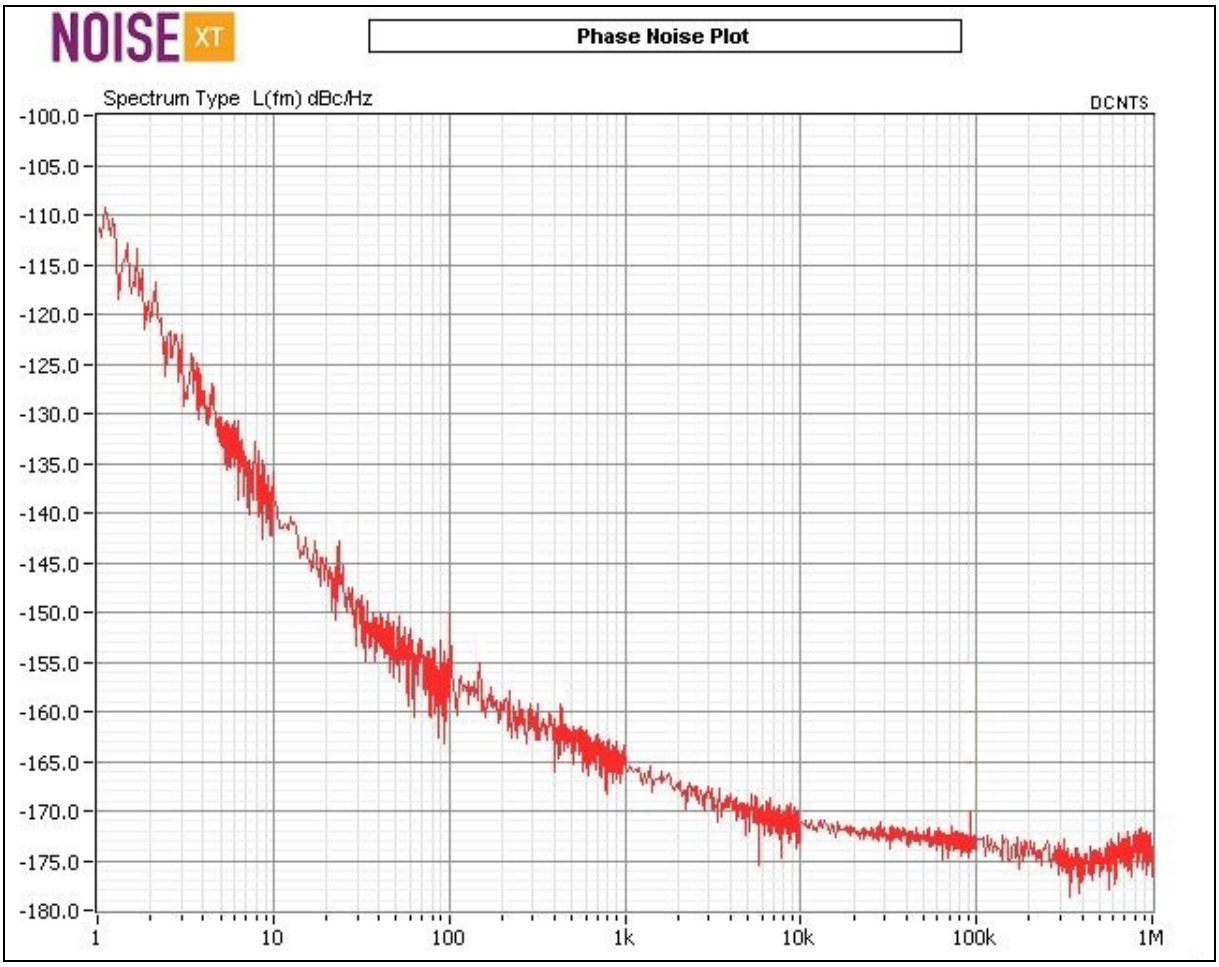
Example: AXGPS9000-LN_Rev.2 – 10.000 MHz

Phase Noise – Option 1:

Offset	10 MHz		Unit
	LN	ULN	
1 Hz	-95	-108	dBc/Hz
10 Hz	-125	-138	dBc/Hz
100 Hz	-145	-155	dBc/Hz
1 kHz	-150	-163	dBc/Hz
10 kHz	-150	-170	dBc/Hz
≥100 kHz	-150	-170	dBc/Hz

Table 1

Typical Phase Noise Performance "ULN" Option 1

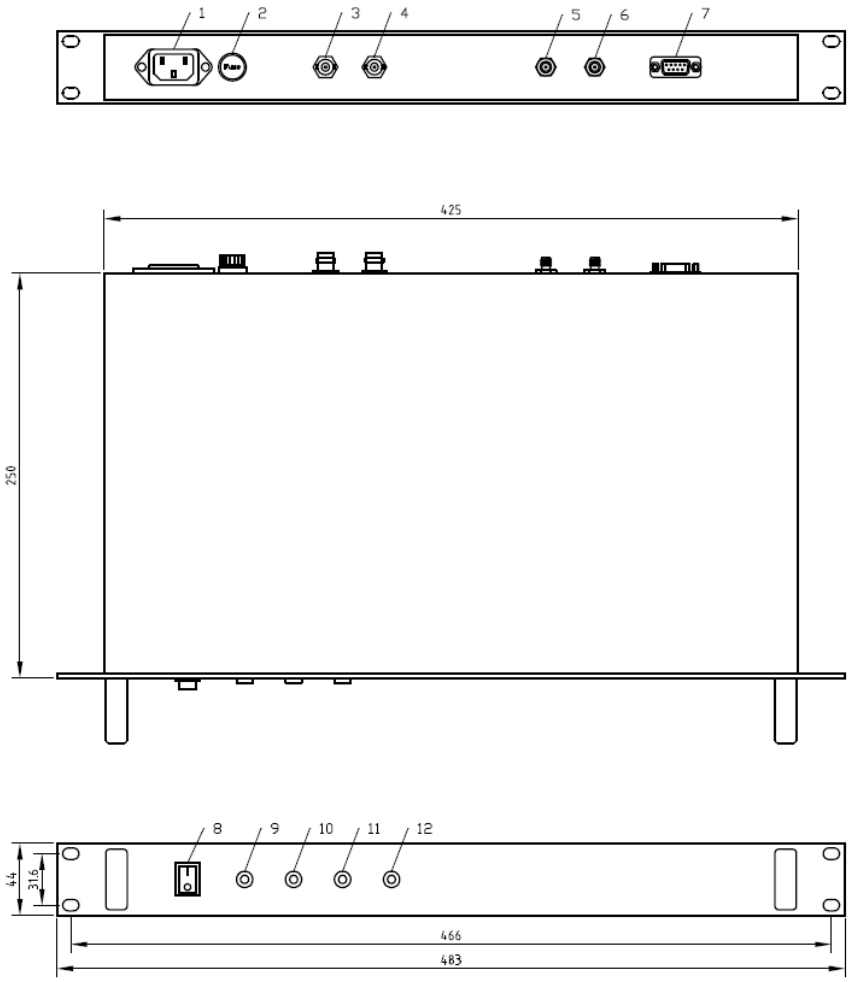


Environmental Conditions, Handling and Testing

Parameter	Procedure / Test condition
Sinusoidal vibration	max. 0.15 mm <10 Hz, 1 g at 10~2000 Hz
Random vibration	max. 0.001 g²/Hz, 10~2000 Hz
Mechanical shock	max. 10 g, 6 ms half sine
Handling and Testing	Careful handling. Avoid excessive air flow, vibration and shock during operation.
DGUV Requirement 3 Tested	✖ Yes ☐ No
RoHS-Compliant	✖ Yes ☐ No

Data sheet is for information purposes only and may be subject to modifications or may be discontinued without notice.

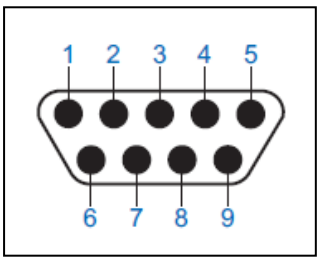
Enclosure drawing



Connections and operation

#	Panel	Symbol	Function
1	**Rear**	POWER IN	AC Supply Input (IEC 60320-1 / C14)
2		FUSE	2 A Slow 5x20 mm Fuse
3		RF OUT	RF Output 10 MHz
4		RF OUT	RF Output 1 PPS
5		RF IN	RF Input 1 PPS
6		GPS IN	GPS Input
7		COMM	Communication Interface – See table below
8	**Front**	POWER SWITCH	Power Switch ON/OFF
9		POWER ON	LED – Power ON Indicator
10		LOCK DETECT	LED – Lock Detect Indicator (GPS)
11		PPS	LED – 1 PPS Indicator
12		OL	LED – Output Level Indicator (ON > +12 dBm)

Pin connections D-Sub connector



Front View D-Sub connector

#	Symbol	Function
1	N.C.	No Connection
2	RX	Receive Data
3	TX	Transmit Data
4	N.C.	No Connection
5	GND	Common GND
6	N.C.	No Connection
7	N.C.	No Connection
8	N.C.	No Connection
9	N.C.	No Connection

Note: - Use a standard 9-Pin NULL-MODEM cable to connect the AXGPS9000 unit with your PC
- See AXGPS9000 user manual for communication protocol

Revision History

Rev.	Drawing	Date [dd.mm.yyyy]	Remarks	Author	Checked
1	D0	19.12.2017	First issue AXGPS9000	BN	HH
2	D0	12.07.2018	Major revision	HH	ME
2	D1	27.08.2018	Power consumption corrected, editorial changes	HH	ME