

# GA40

## GNSS In-line Low Noise Amplifier



- Gain: 40dB, 30dB, 20dB, 10dB (can be Specified).
- Noise Figure < 1.5dB.
- Frequency Range: 1150~1650MHz .
- Response For: GPS/GLONASS/Beidou/Galileo/IRNSS/QZSS/SBAS/NAVIC.
- GPS L1 Beidou B1 filter can be customized.
- Connectors: NF、SMA、TNC、BNC (Options) .
- Pass DC.

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## Description

The GA40 line amplifier is a single-stage, low-noise, waterproof amplifier. It supports full-band satellite systems. It is applied to line relay amplification of GNSS antenna, extend the length of coaxial cable between GNSS antenna and GNSS receiver, and applied to primary amplification of satellite signals. The GA40's power pickup method: DC power from input port or output port.

## Specifications

Parameter		Conditions	Min	Typ	Max	Units
Freq. Range	wideband	full band	1150		1650	MHz
	narrowband	GPS L1 and Beidou B1	1557		1587	MHz
In & Out Imped.		In, all output ports		50		$\Omega$
Gain		In- Output ports	39.5	40	41.5	dB
Input SWR					2.0:1	-
Output SWR					2.0:1	-
Noise Figure					1.5	dB
Gain Flatness		full band			1.5	dB
		GPS L1 and Beidou B1			1	dB
Group Delay Flatness				1		ns
DC IN		DC input on IN or OUT port	3.3	5	16	VDC
Operating Temperature			-40		85	$^{\circ}\text{C}$
Equipment current	GA40	Equipment loss current			20	mA
	GA40-H				50	mA
Max Current		Pass DC, DC Input to Output			250	mA
Max RF Input		Max RF input without damage			0	dBm
Max Output power	GA40				-7	dBm
	GA40-H				4	dBm
Out-of-band rejection (narrowband)		DC~1525MHz	35			dBc
		1625~3000MHz	30			dBc

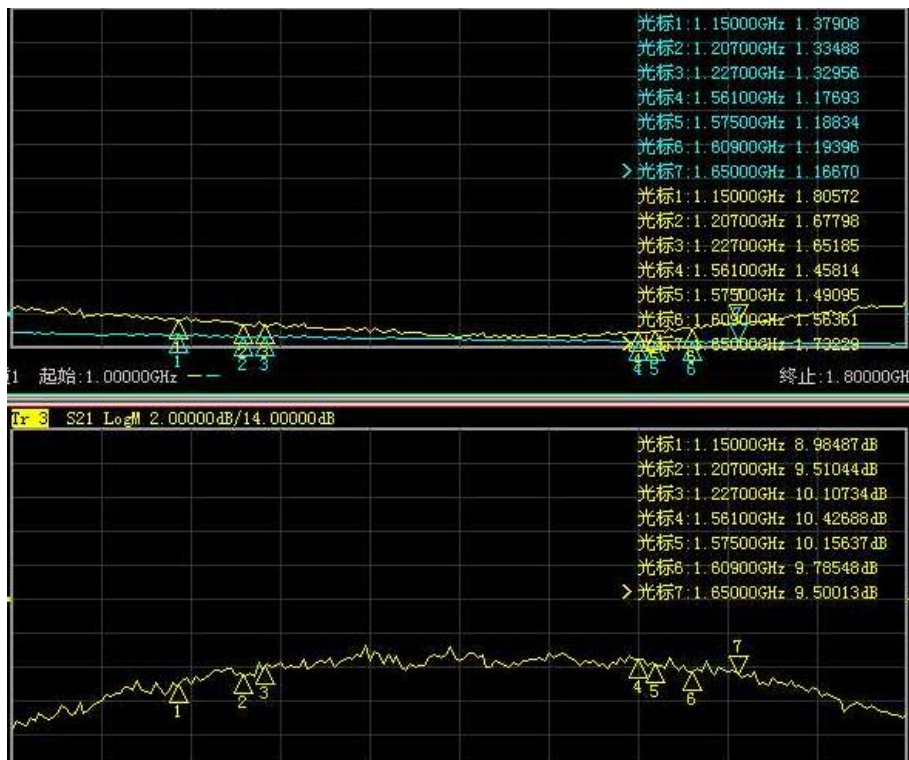
## GA40 RF Characterization Parameter Table

Frequency MHz	Gain (dB)				Noise (dB)				Output power (dBm)				Input Port VSWR				Output Port VSWR			
	10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40
1150	8.8	19.8	29.5	39.2	0.9	0.7	0.7	0.7	-42	-29	-18	-9	1.5	1.8	1.7	1.8	1.7	1.2	1.1	1.1
1176	9.1	19.8	29.6	39.4	0.9	0.7	0.7	0.7	-42	-29	-18	-9	1.5	1.8	1.7	1.7	1.6	1.2	1.1	1.1
1207	9.6	20.0	29.6	39.6	1.0	0.8	0.8	0.8	-41	-29	-18	-9	1.4	1.7	1.6	1.6	1.6	1.3	1.1	1.2
1227	10.1	20.3	30.3	39.7	1.0	0.8	0.8	0.8	-41	-29	-17.8	-8.9	1.4	1.6	1.6	1.6	1.6	1.2	1.1	1.2
1268	10.0	20.2	30.4	39.9	1.1	0.8	0.8	0.8	-41	-29	-17.8	-8.9	1.4	1.6	1.5	1.6	1.5	1.2	1.2	1.2
1545	10.1	20.0	30.2	39.9	1.3	1.0	1.0	1.0	-39	-27	-15.8	-6.8	1.5	1.3	1.4	1.4	1.4	1.2	1.3	1.3
1561	10.0	19.8	30.1	40.3	1.3	1.0	1.0	1.0	-39	-27	-15.8	-6.8	1.5	1.2	1.2	1.3	1.4	1.2	1.3	1.3
1575	10.0	20.2	30.2	40.1	1.3	1.1	1.1	1.0	-38	-27	-16	-7	1.5	1.2	1.2	1.2	1.4	1.3	1.4	1.6
1609	9.3	19.7	29.9	39.7	1.4	1.1	1.1	1.0	-38	-27	-16	-7	1.6	1.2	1.2	1.5	1.3	1.2	1.3	1.8
1650	9.2	19.5	29.8	39.6	1.3	1.1	1.2	1.1	-38	-27	-16	-6.7	1.8	1.3	1.3	1.4	1.3	1.3	1.4	1.5

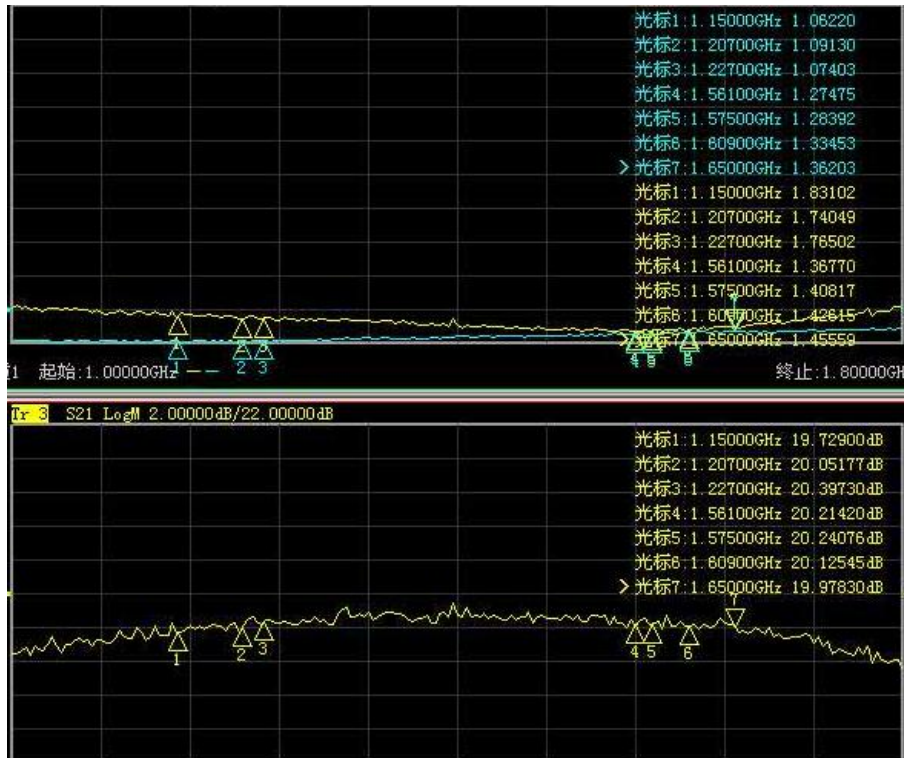
### GA40-H RF Characterization Parameter Table

Frequency MHz	Gain (dB)				Noise (dB)				Output power (dBm)				Input Port VSWR				Output Port VSWR			
	10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40
1150	10.1	20.2	29.7	40.6	1.1	0.8	0.8	0.5	-19.8	-9.7	1.1	2.1	1.4	1.4	1.6	1.7	1.3	1.3	1.6	1.7
1176	10.3	20.2	29.9	40.6	1.1	0.8	0.8	0.5	-19.9	-9.7	1.1	2.0	1.4	1.4	1.6	1.6	1.3	1.3	1.6	1.6
1207	10.4	20.5	30.3	40.5	1.2	0.9	0.9	0.6	-20.0	-9.8	1.2	2.0	1.3	1.3	1.5	1.6	1.2	1.3	1.4	1.6
1227	10.5	20.6	30.5	40.5	1.2	0.9	0.9	0.6	-20.0	-9.8	1.3	2.1	1.3	1.3	1.5	1.6	1.2	1.3	1.4	1.5
1268	10.5	20.5	30.4	40.5	1.3	0.9	0.9	0.7	-19.9	-9.7	1.1	2.0	1.3	1.3	1.5	1.5	1.2	1.2	1.3	1.5
1545	10.0	20.1	30.3	40.0	1.6	1.3	1.5	1.0	-18.0	-6.9	4.1	4.1	1.3	1.2	1.2	1.3	1.1	1.1	1.2	1.3
1561	10.1	20.0	30.2	40.0	1.7	1.3	1.5	1.0	-18.0	-6.9	4.0	4.0	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.2
1575	10.0	20.1	30.2	40.0	1.7	1.5	1.5	1.0	-18.0	-6.9	3.1	3.2	1.1	1.2	1.1	1.2	1.1	1.1	1.2	1.2
1609	10.1	20.1	30.0	39.7	1.8	1.5	1.7	1.1	-18.0	-7.0	3.0	3.0	1.2	1.3	1.1	1.2	1.1	1.1	1.2	1.3
1650	10.4	20.4	29.7	40.1	1.8	1.6	1.7	1.3	-18.0	-7.0	3.2	3.1	1.3	1.3	1.2	1.3	1.1	1.1	1.3	1.4

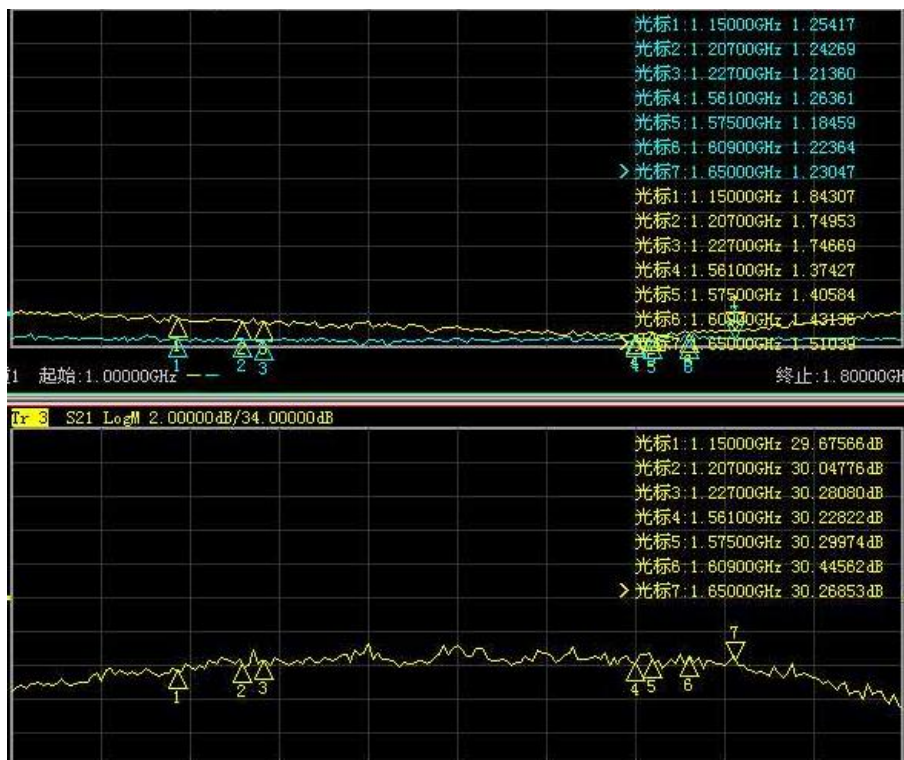
### Performance Data



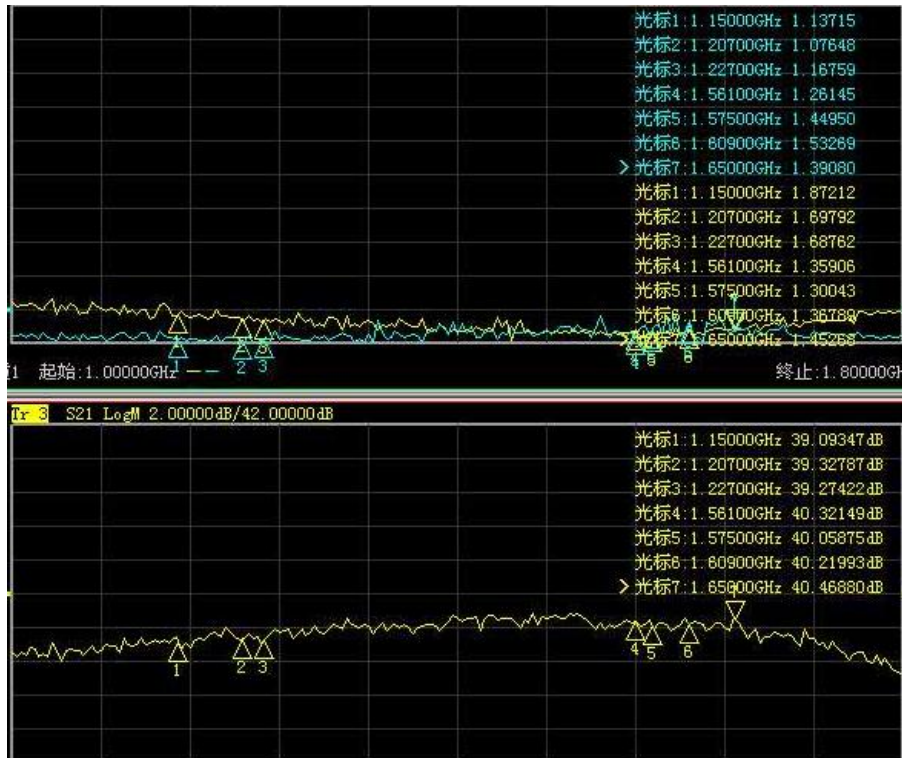
Gain :10dB



Gain :20dB

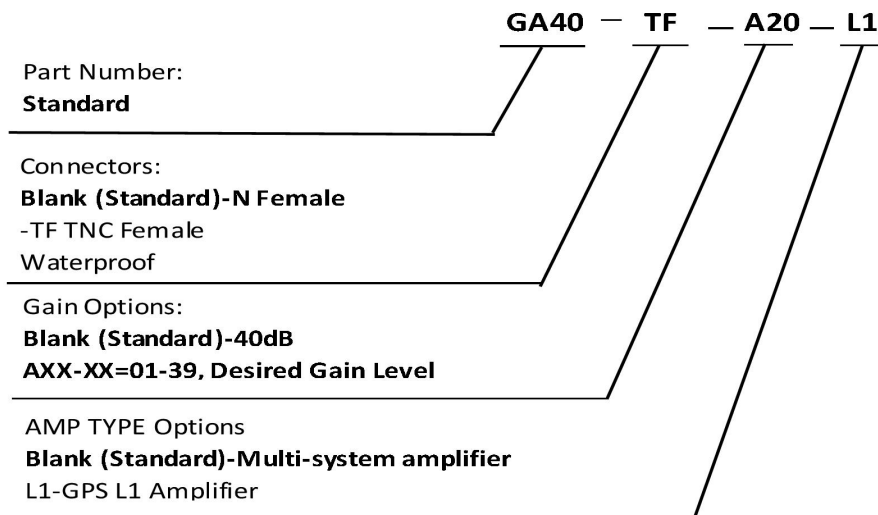


Gain :30dB



Gain :40dB

## Order Informations And Available Options

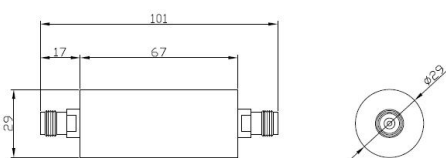



Please contact us for more configurations and application supports.

Email: [Sales@gemsnav.com](mailto:Sales@gemsnav.com).

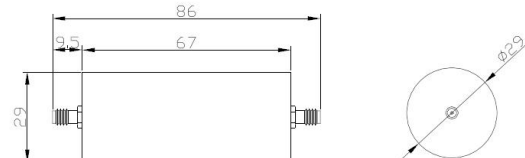
## Mechanical


◇ Name:GPS/GNSS In-Line Amplifier  
 ◇ Modle:GA40-TF  
 ◇ Material:Aluminium  
 ◇ Units:mm  
 ◇ Tolerance:±0.05



 PHONE:(86)75529644311 FAX:(86)75529644383-816 WWW.GEMSNV.COM E-MAIL:SALES@GEMSNV.COM	
MODEL GA40-TF	ORDERING CODE
NOTES: *UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL. **ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.	
2016-05-24	

◇ Name:GPS/GNSS In-Line Amplifier  
 ◇ Modle:GA40-SF  
 ◇ Material:Aluminium  
 ◇ Connector:SMA - Female/SMA - Female  
 ◇ Units:mm  
 ◇ Tolerance:±0.05



 PHONE:(86)75529644311 FAX:(86)75529644383-816 WWW.GEMSNV.COM E-MAIL:SALES@GEMSNV.COM	
MODEL GA40-SF	DRAWING DATE 2017-03-03
NOTES: *UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL. **ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.	

## Frequency reference table

Global/Compass Navigation Satellite System(GNSS/CNSS)	5					2					6/3			6			1																
Frequency (MHz)	1164	1176	1188	1192	1207	1215	1219	1227	1239	1245	1252	1259	1266	1268	1278	1290	1535	1540	1545	1550	1558	1558	1561	1563	1575	1587	1592	1602	1609	1616	2491		
GPS(USA) L1,L2,L2C,L5	L5+/-12					L2/L2C+/-12												L6+/-5						L1+/-12									
Glomass(Russia) G1,G2											G2+/-7																						
Galileo(Europian) L1,E1,E2,E5(E5a,E5b),E6	E5+/-15		E5a+/-12		E5b+/-12									E6+/-12																			
Compass (Beidou 2,China)			B2+/-10											B3+/-10																			
Beidou 1 (China,Tx(LHCP)/Rx(RHCP))																																L	S
IRNSS (India)			L5+/-15																														S+/-15
OmniStar																		O+/-14--->															