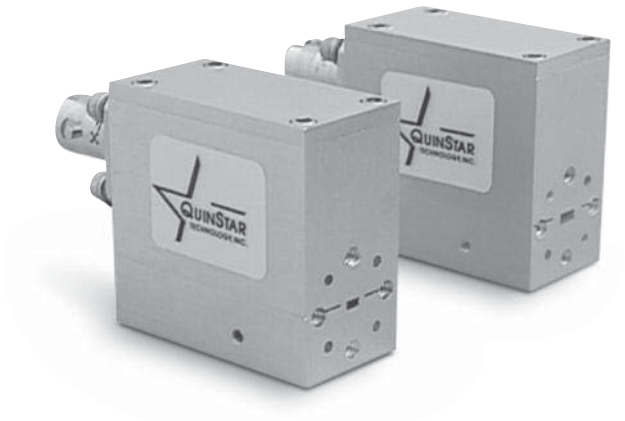
QUINSTAR TECHNOLOGY, INC.

Noise Sources
QNS

Characteristics

- Broadband Coverage
- High Noise Power Output
- Compatible with Most Noise Figure Meters
- Fast Rise/Fall Time



Product Description

QuinStar Technology's **QNS** series of **millimeter-wave noise sources** cover the frequency range of 18 to 110 GHz in seven waveguide bands with up to full standard waveguide band coverage. They feature stable noise power output, high switching speed and relatively flat high output power. Careful device selection, special cavity design and matching circuits have all contributed to a reliable design that is highly stable with time and over temperature.

The noise output power of these noise sources is specified in terms of **excess noise power ratio** (ENR) as a function of frequency. QuinStar Technology offers three versions of these noise sources to suit virtually any application. Full waveguide band noise sources are offered for use with Noise Figure Meters. These models provide very flat ENR (nominally 15 dB) over complete standard waveguide bands in the 18 to 110 GHz region. Higher power noise sources offer amplified output power (ranging from 20 to 30 dB ENR) over the 18 to 110 GHz frequency range. Narrowband versions with high output power are offered for subsystem applications and special test equipment. These nominally offer 1 to 2 GHz bandwidth with excellent flatness and stable characteristics. An integral isolator is offered as an option for improved VSWR. QuinStar can readily provide a custom-designed noise source to suit unique applications or subsystem requirements.

Series QNS noise sources are ideally suited for measuring noise figure of amplifiers and receivers using the most currently available noise figure meters and eliminate the need for gas tubes. They are also well suited for calibration and built-in test functions in many sensitive receiver subsystems, radiometers and measurement instruments.

Specifications

Frequency Range (GHz)		**18-26.5**	**26.5-40**	**33-50**	**40-60**	**50-75**	**60-90**	**75-110**
Output Waveguide Size		WR-42	WR-28	WR-22	WR-19	WR-15	WR-12	WR-10
Excess Noise Ratio (ENR) (dB typ)	Instrumentation Sources (Fullband Version) [1]	15	15	15	15	15	15	12
	Amplified Noise Power Sources (Broadband Version) [2]	20-30	20-30	20-30	20-30	20-30	20-30	20-30
	High Power Sources (Narrowband Version) [3]	25	23	21	20	20	17	15
Output Power Flatness (dB typ)	Instrumentation Sources (Fullband Version) [1]	±1	±1	±1	±1	±2	±3	±3
	Amplified Noise Power Sources (Broadband Version) [2]	±1.5	±2.0	±2.5	±2.5	±2.5	±2.5	±2.5
	High Power Sources (Narrowband Version) [3]	±0.5	±0.5	±1	±1	±1	±1	±1
Stability of Noise Power Output for All Models (typ)	Temperature Stability, dB/°C typ.	0.01	0.01	0.01	0.01	0.015	0.015	0.015
	Stability With Bias Voltage, dB/1% Bias Voltage Change [4]	0.1	0.1	0.1	0.1	0.15	0.15	0.15

[1] Fullband coverage. Other waveguide bands are available.
[2] Fullband up to 40 GHz, any 10 GHz band within the 40-110 GHz range.
[3] 2 GHz bandwidth anywhere in waveguide band.
[4] Operating voltage 28 VDC (optional 15 VDC).

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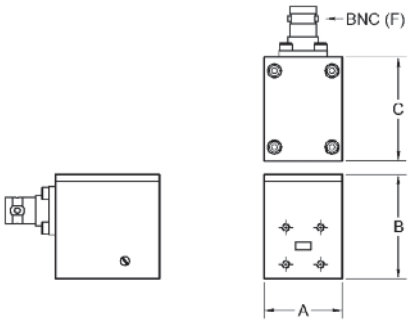
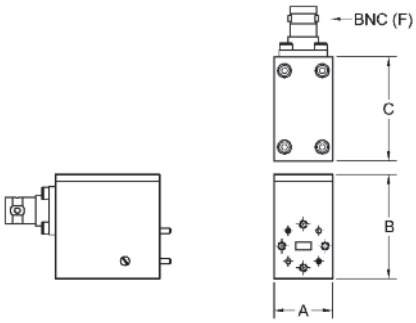
Outline Drawings/Mechanical Specifications



WR-42 and WR-28



WR-22 through WR-10

FREQUENCY BAND	WAVEGUIDE SIZE	FLANGE PATTERN	OUTLINE DIMENSIONS, inches/mm		
			A	B	C
K	WR-42	UG-595/U	0.88/22.4	1.72/43.7	1.44/36.6
Ka	WR-28	UG599/U	0.75/19.0	1.55/39.4	1.30/33.0
Q	WR-22	UG383/U	1.13/28.7	1.50/38.1	1.31/33.3
U	WR-19	UG383/U-M	1.13/28.7	1.50/38.1	1.31/33.3
V	WR-15	UG385/U	0.76/19.3	1.50/38.1	1.50/38.1
E	WR-12	UG387/U	0.76/19.3	1.50/38.1	1.50/38.1
W	WR-10	UG387/U-M	0.76/19.3	1.50/38.1	1.50/38.1

Ordering Information

Model Number **QNS -** **AB CD E F**

Please specify exact frequency range when ordering.

frequency

Fullband: FB
Narrowband: center frequency rounded to nearest GHz (A0 = 100 GHz, A1 = 101 GHz, B1 = 111 GHz, etc.)

excess noise ration (ENR) in dB

version

T = instrumentation version (fullband) without isolator
E = amplified power version without isolator
M = narrowband, high power version without isolator
L = instrumentation version (fullband) with isolator
P = amplified power version with isolator
N = narrowband, high power version with isolator
Z = custom

waveguide band designator

K = K-band
A = Ka-band
Q = Q-band
U = U-band
V = V-band
E = E-band
W = W-band

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