- **ENR 12…15 dB typical**
- **High stability**
- **Good flatness**
- **No high voltage supply required**
- **Compact solid state source**
- **High reliability, rugged construction**

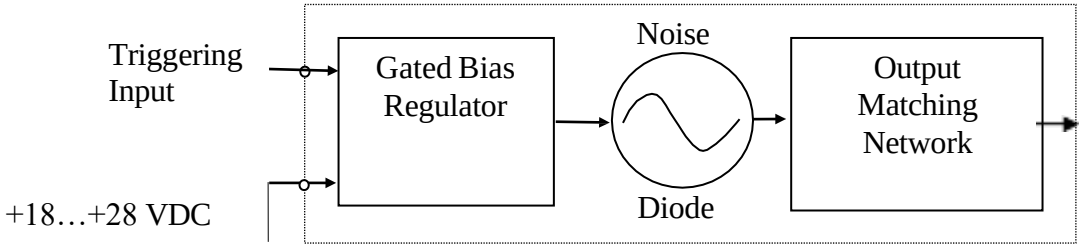
Applications

- Laboratory measurement and test equipment
- Mm-wave noise source
- Calibration
- Noise figure measurement

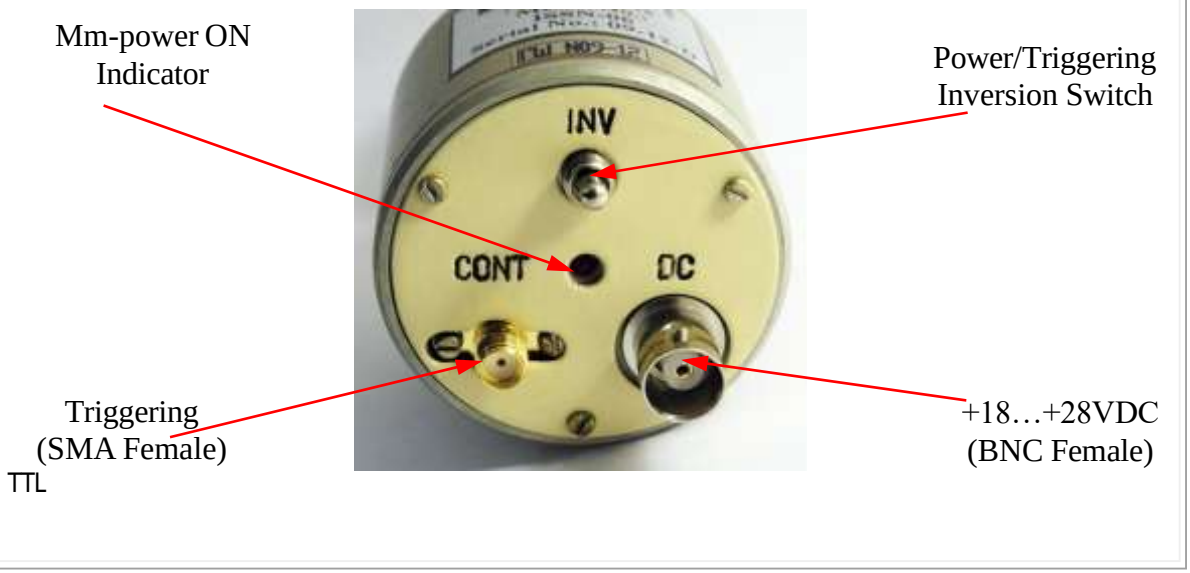
Description

ELVA-1 solid-state noise source **ISSN-XX** series delivers a uniform level of noise power spectral density within the whole waveguide frequency range. Sources are available in eight waveguide bands covering 26.4-170 GHz. A Silicon IMPATT diode is employed as a fundamental building block of the source. High stability of the device allows it to be used for test and instrumentation applications in place of gas-tube noise sources. Low DC power requirements eliminate the need for complex high voltage supplies. There are two operation modes: CW mode and pulsed AM mode with modulation frequency up to 1 kHz. Typical value of excess noise ratio (ENR) as a function of frequency is given on the plot below.

Block Diagram:



Inputs and Controls:



Notes:

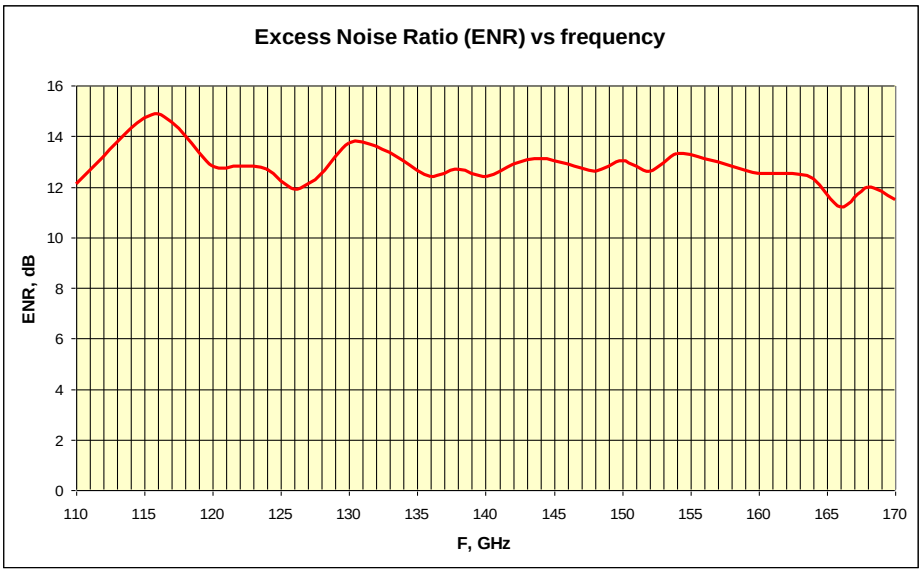
Power/ Triggering Inversion Switch can be used for manual ON/OFF. "INV" position is ON.
Microwave power can be switched with TTL-level control voltage.
If Triggering Inversion Switch is in OFF (Down) position active level is high, otherwise (INV position) – active level is low

Specifications

MODEL NUMBER	ISSN-28	ISSN-22	ISSN-19	ISSN-15	ISSN-12	ISSN-10	ISSN-08	ISSN-06
Frequency Band and Range, GHz	Ka 26.5-40	Q 33-50	U 40-60	V 50-75	E 60-90	W 75-110	F 90-140	D 110-170
Output waveguide	WR28	WR22	WR19	WR15	WR12	WR10	WR8	WR6
Waveguide Flange	UG-383/U	UG-383/U	UG-383/U-M	UG-385/U	UG-387/U	UG-387/U-M	UG-387/U-M	UG-387/U-M
Bandwidth, GHz (min)	Full	Full	Full	Full	Full	Full	Full	Full
ENR, dB (nom)	15	14	13	13	13	12	12	12
Typical Flatness, dB	±1	±1.5	±1.5	±1.5	±1.5	±1.5	±1.5	±2
Stability, dB/°C	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Stability/Day, dB (typical)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Biasing Voltage, V	+18…+28							
Sizes, mm Cylinder diameter/length (without isolator)	50/75	50/75	50/75	50/75	50/60	50/60	50/60	50/60

Notes:

Maximum operating temperature is +60°C
Diode operating current is 50…100 mA.
A limiting value of modulation frequency is 1 kHz (external triggering).
Triggering signal amplitude is TTL level.
Bias voltage is +18 V It is possible to supply the noise source with +28VDC biasing for the compatibility with commonly used noise meters.
External triggering connector is SMA female.
ENR would be increased for narrower bandwidth. Please contact factory.



Power supply for input power 220VAC/50Hz, 110VAC/60Hz or 100VAC/50Hz are available optionally.

For the precision control and fast modulation of the output power of the source Voltage Controlled Attenuator VCVA-XX series can be supplied optionally

How to Order

Specify Model Number ISSN-XX/BW/V, where

- **XX** – number of waveguide standard (Ex. 10 for WR-10 and 06 for WR-06)
- **BW** – operating bandwidth in GHz (nothing if full band)
- **V** –type of power supply: **18** or **28** if external power supply +18VDC or +28 VDC of customer's lab will be used (specify voltage), **110** or **220** if external 110VAC or 220VAC power supply is requested together with noise source

Example

ISSN-10/28 (W-band noise source with output waveguide WR-10, full band 75-110 GHz, external power supply +28VDC not requested

ISSN-06/110-140/220 (D-band noise source with output waveguide WR-06, operating frequency 110-140GHz, external 220VAC power supply requested as well