

Precision Calibrated Solid State Noise Sources



Features

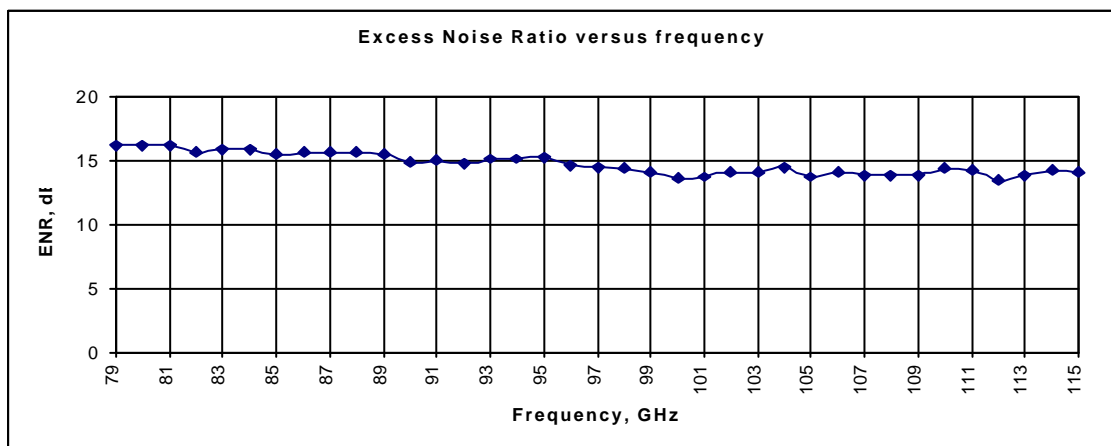
- ENR 15 dB typical
- High stability
- Good flatness
- No high voltage supply required
- Compact solid state source
- High reliability, rugged construction

Applications

- Calibration
- Noise figure measurement
- Instruments and test equipment
- Space and Hi-Rel systems

Description

ELVA-1 solid-state noise source **ISSN** 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.



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
Input 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 (typ)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Biasing Voltage, V	+18	+18	+18	+18	+18	+18	+18	+18
Sizes, mm								
Cylinder diameter/length	70/70	70/70	70/70	50/60	50/60	50/60	50/60	50/60

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

There are the following controls and plugs on the control panel of the device:

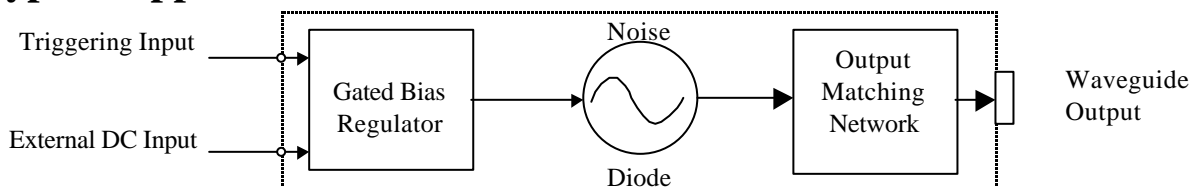
- Power connector. Specially supplied not SMA type to avoid possibility to change it with triggering plug. Few reply connectors are supplied together with the device.
- Triggering plug.
- Power switch.
- Power indicator.

Delivery time 6-8 weeks for all models. All ELVA-1 noise sources are warranted by the manufacturer for one year after receipt.

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 series would be supplied optionally.

Typical Application



How to Order

Specify Model Number **ISSN-XX-ABBC**

XX- waveguide band (WR-Number)

A - flange type

R = round

S = square (WR-28 only)

C – AC voltage power supply options

1 = 110 VAC/60Hz, 2 = 220 VAC/50Hz,

3 = 100VAC/50Hz power supplies

BB – ENR options (ENR in dB)

Consult ELVA-1 for ENR higher 15 dB



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