SSR-1446034540-06-M4

D-Band Radiometric Receiver, 110 to 170 GHz, 4.5 dB NF, 40 dB Gain

SSR-1446034540-06-M4 is a D-Band direction based radiometric receiver that can be used to measure the average power of the noise coming from a physical object in frequency range of 110 to 170 GHz. By averaging large number of independent samples, this radiometric receiver can determine the average noise power with a fractional uncertainty. The receiver LNA has a typical gain of 40 dB with a typical noise figure of 4.5 dB. The receiver includes a high sensitivity Schottky diode detector with a 23 dB typical gain video amplifier. The receiver is designed and manufactured for passive image camera applications. The RF port of the receiver is a WR-06 waveguide with a UG-387/U-M anti-cocking flange. The DC bias and the video output is combined via a LEMO connector for high EM isolation. A male mating cable is included with the receiver. With a large selection of ERAVANT standard and custom antennas, many radiometric receivers can be formed and readily available for various radiometric system applications.

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency	110 GHz		170 GHz
Noise Figure		4.5 dB	
LNA Gain		40 dB	
Integrated Video Amplifier		Yes	
Video Amplifier Gain		23 dB	
Sensitivity[1]		0.4 K	
Video Output[2]	2,400 mV		2,800 mV
Video Bandwidth		200 kHz	
Bias Voltage		+5 V_{DC}	
Bias Current		70 mA	100 mA
Specification Temperature		+25°C	
Operating Temperature	-40°C		+85°C

1. **Sensitivity is defined** as $\Delta T = (TA + TN)/\sqrt{\beta\tau}$, where TA=295 K, β=60 GHz, τ=1 μS
2. **Video Output** is a difference output in the range of ±1,200 to ±1,400 mV.

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FEATURES

- Low Noise Figure
- High Sensitivity
- Fully Integrated Module
- Compact Size
- Included Mating Cable

APPLICATIONS

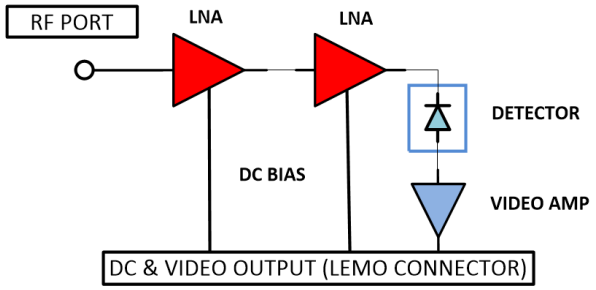
- Passive Image Camera Systems
- Concealed Object Detection Systems
- Airplane Landing Systems

SUPPLEMENTAL DETAILS

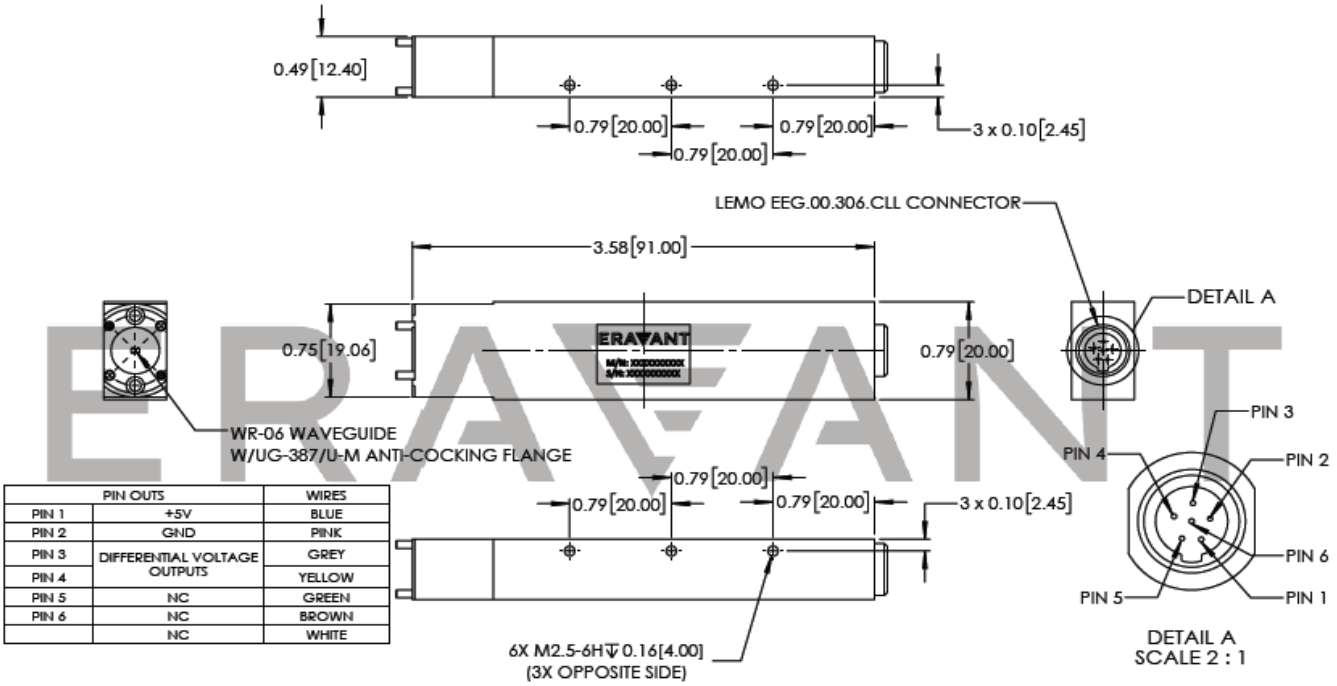
Mechanical Specifications:

Item	Specification
RF Ports	WR-06 Waveguide with UG387/U-M Anti-Cocking Flange
Video Output Port	LEMO EEG.00.306.CLL (mating cable to pigtails included; outline for pinout)
Bias Port	LEMO EEG.00.306.CLL (mating cable to pigtails included; outline for pinout)
Housing	Brass
Finish	Gold Plated
Weight	10.6 Oz
Size	3.58” (W) X 0.79” (L) X 0.49” (H)
Outline	SR-SD-MKR1-A

Block Diagram:



Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeters])



PIN OUTS		WIRES
PIN 1	+5V	BLUE
PIN 2	GND	PINK
PIN 3	DIFFERENTIAL VOLTAGE OUTPUTS	GREY
PIN 4		YELLOW
PIN 5	NC	GREEN
PIN 6	NC	BROWN
	NC	WHITE

NOTE:

- Other mechanical configurations are available under different model number.
- A testing cable with LEMO Male 6 pin connector (M/N: SSR-CC-L6M-S1) to connect to LEMO Female port is included.
- Eravant reserves the right to change the information presented without notice.

CAUTION:

- Exceeding absolute maximum ratings shown will damage the device.
- The device is static sensitive. Always follow ESD rules when working with the device.
- If a waveguide is present, any foreign objects in the waveguide will cause performance degradation and may damage or destroy the unit.
- The case temperature of the device shall never exceed +50 ˚C. Use proper Heatsink or fan if necessary.

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