GENERAL DESCRIPTION

The NWHPRA021S is a high-power receiver assembly (HPRA) offering 34dB gain and 4dB noise figure over the 20MHz to 1000MHz band. The HPRA includes SPDT switch, Limiter, LNA and output power detector. A digital 16dB gain control feature is included.

FEATURES

- 20W Input power handling capability
- Output power limiting protection for user's receiver

APPLICATIONS

- Communication
- Defense
- Industrial

ELECTRICAL PARAMETERS

Parameter	Unit	Min	Typ.	Max	Remarks
Operating Frequency Range (BW)	MHz	20		1000	
Gain	dB	32		36	
Gain flatness	dB			±1.8	
Gain setting (Gmin to Gmax)	dB	18.5		34.5	
Gain setting step size	dB		1		Digital attenuator controlled externally through discrete lines.
Number of Gain setting control lines	-		5		5 discrete bits
Noise figure at Gmax (zero attenuation)	dB				
20MHz to 30MHz				4	@ 25°C
				6	@ 70°C
30MHz to 40MHz				3	@ 25°C
				4.5	@ 70°C
40MHz to 1000MHz				2.5	@ 25°C
				3.5	@ 70°C
Input power handling	W		20		Includes Limiter
Output power	dBm			-10	Output power limiting function included
Input power	dBm		-52		
Limiter recovery time	µs			0.5	

NANOWAVE Technologies Inc.
425 Horner Avenue
Etobicoke, ON M8W 4W3
Canada
Phone: +1 416 252-5602
Fax: +1 416 252-7077
Email: sales@nanowavetech.com

Copyright © 2025 NANOWAVE Technologies Inc. All rights reserved.
The information in this document is subject to change without notice. NANOWAVE and the NANOWAVE logo are trademarks of NANOWAVE Technologies Inc. Other trademarks, product and company names are the property of their respective owners and do not imply specific product and/or vendor endorsement or association.

Parameter	Unit	Min	Typ.	Max	Remarks
Gain Control line interface			TTL		Low" (0-0.8V) "High" (2.0-5.0V) TTL current ± 1.3mA max.
RF Switch control lines			1 discrete bit		TX Path: "Low" (0 - -0.8V) RX Path: "High" (-2.0V - -5.0V)
RF Switch isolation	dB				
ANTENNA to Tx (Rx ON)		20			
ANTENNA to Rx (Tx ON)		50			
RF Switch Insertion Loss	dB				
Tx to ANTENNA (Tx ON)				-1	
RF Switch speed	µs				
Tx-ANTENNA from OFF to ON			130		
Tx-ANTENNA from ON to OFF				10	
ANTENNA-Rx from OFF to ON			100		
ANTENNA-Rx from ON to OFF				1	
ANTENNA Input Return Loss	dB			-12	
Rx Input Return Loss	dB			-16	
Tx Output Return Loss	dB			-15	
DC Supply Voltage	V		12		
DC Supply Current	A		0.25		

MECHANICAL AND ENVIRONMENTAL PARAMETERS

Parameter	Unit	Min	Typ.	Max	Remarks
Operating Temperature Range	°C	-20		+70	
Storage Temperature Range	°C	-55		+100	
Dimension W x H x D	Inch/mm	5.00 x 1.16 x 4.00 / 127.0 x 29.5 x 101.6			Including mounting feet
Weight	Grams		530		
MTBF	Hours		400,000		@30°C operation
Transmitter Input	-		SMA		
Antenna Port	-		SMA		
Receiver Output	-		SMA		
DC Power and Control Connector	-		1924169		

Notes:
Specifications subject to change without notice

NANOWAVE Technologies Inc.
425 Horner Avenue
Etobicoke, ON M8W 4W3
Canada
Phone: +1 416 252-5602
Fax: +1 416 252-7077
Email: sales@nanowavetech.com

Copyright © 2025 NANOWAVE Technologies Inc. All rights reserved.
The information in this document is subject to change without notice. NANOWAVE and the NANOWAVE logo are trademarks of NANOWAVE Technologies Inc. Other trademarks, product and company names are the property of their respective owners and do not imply specific product and/or vendor endorsement or association.

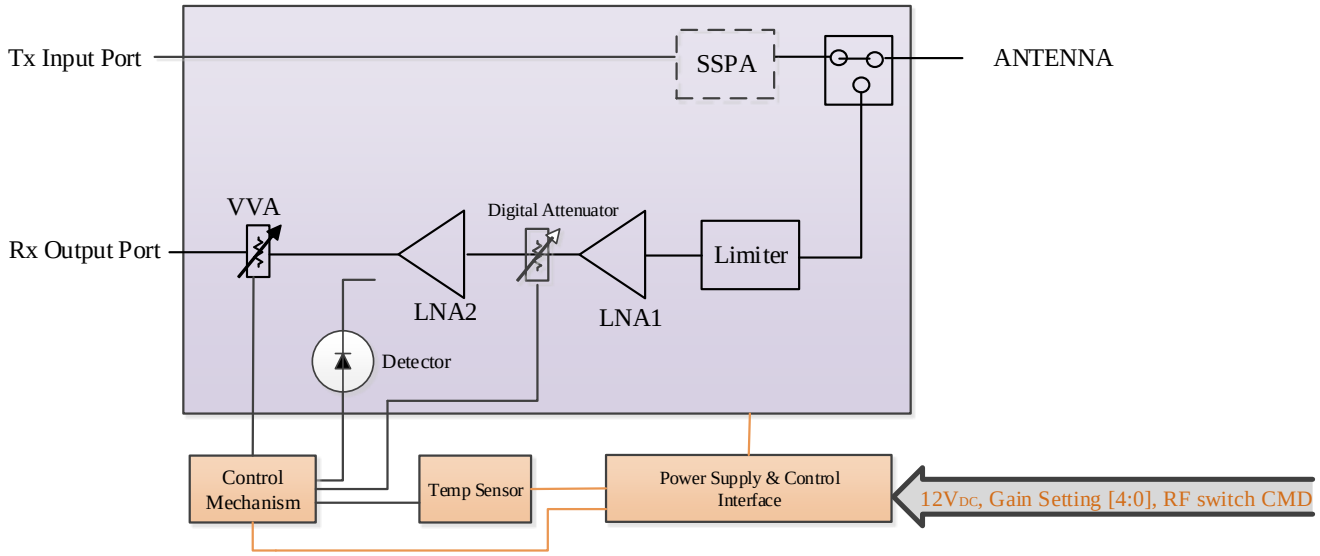

Figure 1: HPRA block diagram

Table 1: Power and Control Connector

PIN ID	Signal	Comment
1	INPUT_+12V	Input Voltage +12V
2	GND	Ground
3	GAIN_SET_[0]	Gain Setting Control Pin 0
4	GAIN_SET_[1]	Gain Setting Control Pin 1
5	GAIN_SET_[2]	Gain Setting Control Pin 2
6	GAIN_SET_[3]	Gain Setting Control Pin 3
7	GAIN_SET_[4]	Gain Setting Control Pin 4
8	GND	Ground
9	RF_SW_CMD	Control for RF switch
10	GND	Ground

NANOWAVE Technologies Inc.
425 Horner Avenue
Etobicoke, ON M8W 4W3
Canada
Phone: +1 416 252-5602
Fax: +1 416 252-7077
Email: sales@nanowavetech.com

Copyright © 2025 NANOWAVE Technologies Inc. All rights reserved.
The information in this document is subject to change without notice. NANOWAVE and the NANOWAVE logo are trademarks of NANOWAVE Technologies Inc. Other trademarks, product and company names are the property of their respective owners and do not imply specific product and/or vendor endorsement or association.

OUTLINE DRAWING

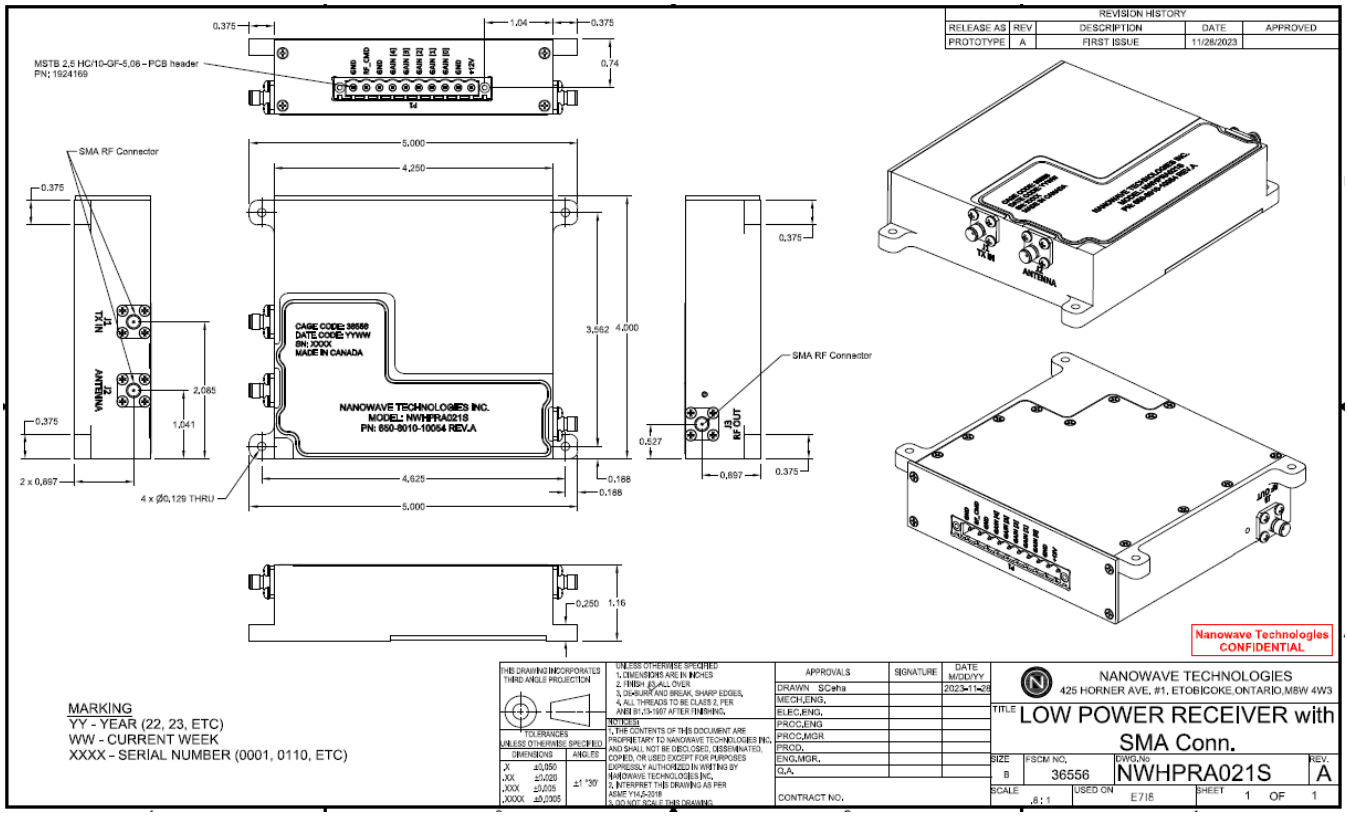

Figure 2: NWHPRA021S Outline Drawing

ADDITIONAL FEATURES

- Marking: The unit is marked with Manufacturer Part Number, Date Code, and Serial Number.
- All plating and painting is RoHS compliant

For further information please contact NANOWAVE Technologies Inc. at *sales@nanowavetech.com* , or call at (+1) 416-252-5602.

NANOWAVE Technologies Inc.
425 Horner Avenue
Etobicoke, ON M8W 4W3
Canada
Phone: +1 416 252-5602
Fax: +1 416 252-7077
Email: sales@nanowavetech.com

Copyright © 2025 NANOWAVE Technologies Inc. All rights reserved.
The information in this document is subject to change without notice. NANOWAVE and the NANOWAVE logo are trademarks of NANOWAVE Technologies Inc. Other trademarks, product and company names are the property of their respective owners and do not imply specific product and/or vendor endorsement or association.