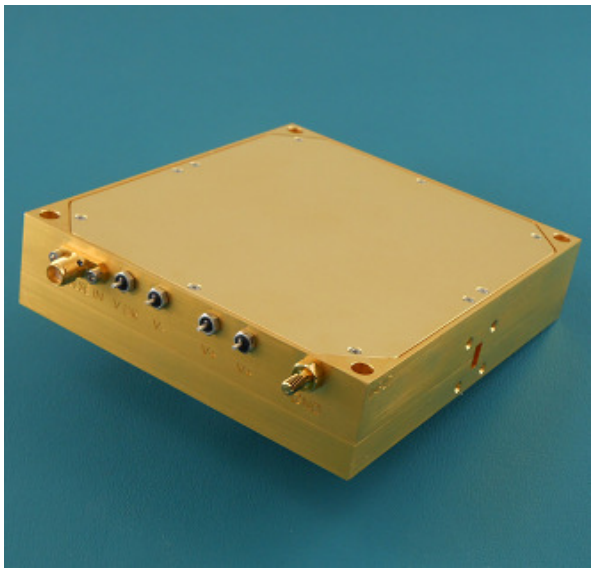
PULSED AMPLIFIERS



FEATURES:

- High gain, pulsed/CW operation
- 0-100% duty cycle
- High Speed Switching
- Military or commercial units available
- Waveguide interfaces as required
- Internal voltage regulation and bias circuitry
- State-of-the-art output power performance

APPLICATIONS:

- Transmitters
- Amplified sources
- Radar front-ends
- Communication subsystems

DESCRIPTION

Millitech's series pulsed PAM power amplifiers utilize advanced GaAs and GaN MMICs to obtain high output power in the 33 to 110 GHz frequency range.

Each pulsed amplifier has internal bias circuitry that generates gate control voltages, provides proper voltage sequencing and incorporates reverse voltage protection. Positive and negative biases are required.

The standard amplifier interfaces include waveguide interfaces ranging from WR-28 to WR-10. Custom frequency pulsed amplifiers not listed are available upon request, often with the same lead time and no NRE.

Millitech's pulsed amplifiers offer high gain and output power. An SMA TTL input allows for pulsed operation. Amplifiers may also be run in CW mode with the pulsed input disconnected.

Coupled outputs are available for some models.

The broad bandwidth and high power of the series pulsed PAM power amplifier makes them perfect for a wide range of applications including transceivers and upconverters, EW systems, instrumentation, and radar systems. For applications that don't require the pulse feature, please refer to series AMP and LNA.

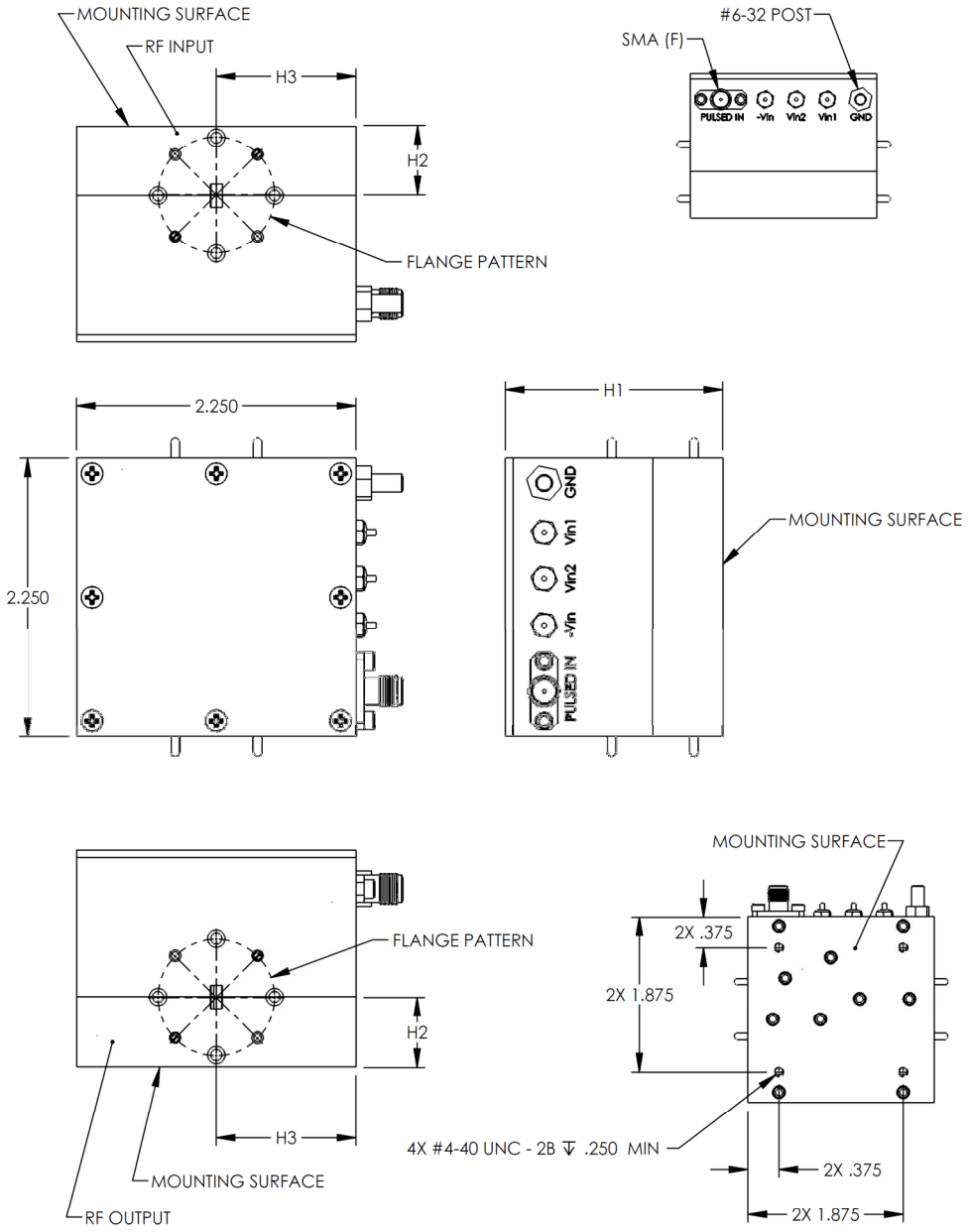
ELECTRICAL SPECIFICATIONS

Model Number	FLow	FHigh	Gain (typ.) (dB)	1dBCP (typ.) (dBm)	Psat (typ.) (dBm)	Connector	Current (A) (typ. at Psat) [2]	Input Voltage (V) (min-max) [1]	Max RF Input Power (dBm)	Outline Drawing
PAM-28-01080	26.5	31	23	33.5	34	WR-28	4.00	7 – 7.5	24	Fig. 1
PAM-28-40040	32.5	35.5	33	37	40	WR-28	22	7.5 – 8	*	Fig. 2
PAM-28-40050	32.5	35.5	31	35	38	WR-28	8	7.5 – 13	*	Fig. 2
PAM-28-01230	32	36	17	33	35	WR-28	4.00	7.5 – 8.5	*	Fig. 1
PAM-28-01180	30	40	15	30	31	WR-28	2.00	7.5 – 11	24	Fig. 1
PAM-28-01100	36	40	13	27.5	*	WR-28	1.50	9 – 12	27	Fig. 1
PAM-22-01120	41	46	13	30	31	WR-22	2.70	8 – 10	29	*
PAM-22-01240	42	47	22	*	32.5	WR-22	*	7 – 10	*	*
PAM-22-40060	42	47	41	*	37.5	WR-22	*	7.5 – 8	*	Fig. 2
PAM-19-40090	47	52	29	18.5	21	WR-19	*	*	-10	Fig. 2
PAM-15-02100	50	66	22	15	*	WR-15	0.25	7.5 – 15	2	Fig. 1
PAM-15-40070[3]	59	63	28.2@59 GHz, 34.6@60 GHz, 29.4@61 GHz, 24.2@62 GHz, 20.2@63 GHz	*	31.5@59 GHz, 33@60 GHz, 34.5@61 GHz, 33@62 GHz, 31@63 GHz	WR-15	*	*	*	Fig. 3
PAM-15-41050[3]	59	63	36	19	*	WR-15	*	7.5 – 12	0	Fig. 3
PAM-15-02630	50	70	17	11 (50-60 GHz) 17 (60-70 GHz)	15 (50-57 GHz) 19 (57-70 GHz)	WR-15	0.35	7.5 – 15	*	Fig. 1
PAM-15-40120[3]	57	66	27	28	31	WR-15	3.75	7.5 – 15	*	Fig. 2
PAM-12-02280	71	76	22	15	18.5	WR-12	0.25	7.5 – 15	3	Fig. 1
PAM-12-02530	71	76	17@71GHz, 17@73.5GHz, 16@76GHz	24.5@71 GHz, 24.5@73.5 GHz, 23@76 GHz	27.0@71 GHz, 26.5@73.5 GHz, 26.0@76 GHz	WR-12	0.75	7.5 – 12	15	Fig. 1
PAM-12-03270[3]	71	76	33	28.5@71.0 GHz, 29.5@73.5 GHz, 28.0@76.0 GHz	32.0@71.0 GHz, 32.0@73.5 GHz, 31.5@76.0 GHz	WR-12	3.75	7.5 – 9	-5	Fig. 3
PAM-12-02650	68	78	24	24@68 GHz 24@73.5 GHz 22@78 GHz	26.5	WR-12	0.9	7.5 – 15	*	Fig. 1
PAM-12-02330	76	81	17-21	13	*	WR-12	0.2	7.5 – 15	*	Fig. 1
PAM-10-02520	81	86	12.5	21.5	24.5	WR-10	0.7	7.5 – 15	16	Fig. 1
PAM-12-40100[3]	81	86	27	26.5	29.5	WR-12	*	*	*	Fig. 3
PAM-12-02660	76	87	25	*	24.0@76 GHz 26.0@80 GHz, 23.0@87 GHz	WR-12	0.9	7.5 – 15	*	Fig. 1
PAM-12-02670	69	89	21	14 to 18 (69-85 GHz) 18 to 16 (85-90 GHz)	16 to 20 (69-85 GHz) 20 to 17 (85-90 GHz)	WR-12	0.3	7.5 – 15	*	Fig. 1
PAM-10-02150	91	95	9	*	22	WR-10	0.3	7.5 – 15	15	Fig. 1
PAM-10-02260	90	99	20	13	16	WR-10	0.3	7.5 – 15	5	Fig. 1
PAM-10-02580	80	105	16	*	13.5	WR-10	0.15	7.5 – 12	*	Fig. 1

*** / Contact Millitech for details.**
1 / All models require an additional negative bias at -5V, not exceeding 500 mA.
2 / Quiescent current is 50-70% of current at Psat.
3 / This model has a coupled output with -25dB from the RF output.

****Some model numbers are ITAR controlled. Please call Millitech for details.****

OUTLINE DRAWINGS

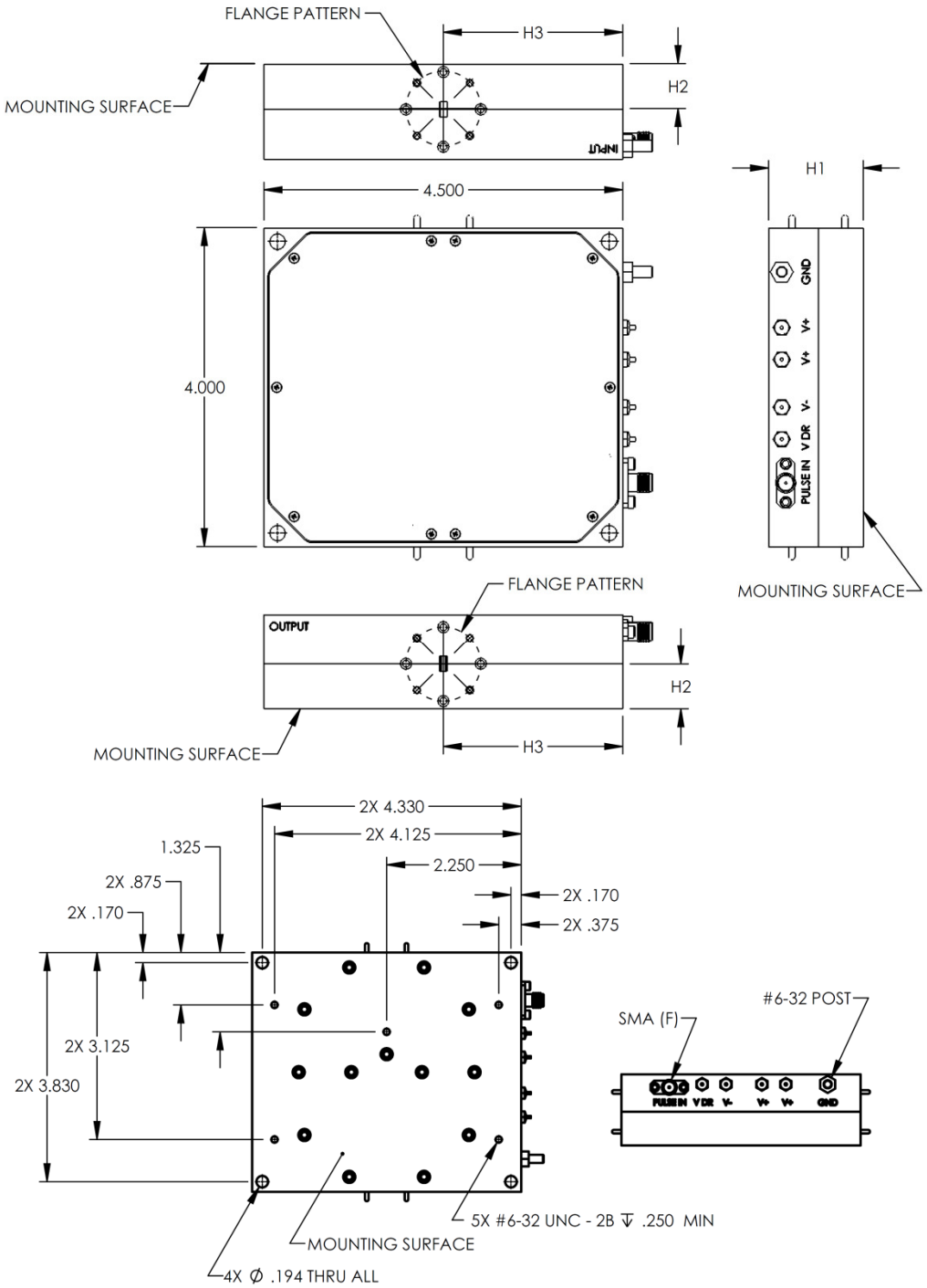


NOT TO SCALE. ALL DIMENSIONS IN INCHES

Waveguide Size	H1	H2	H3	Flange Pattern
WR-28	1.562	0.375	1.125	MIL-DTL-3922/68-002[1]
WR-19	1.750	0.563	1.125	MIL- DTL -3922/67-007
WR-15	1.562	0.375	1.125	MIL- DTL -3922/67-008
WR-12	1.562	0.375	1.125	MIL- DTL -3922/67-009
WR-10	1.562	0.375	1.125	MIL- DTL -3922/67-010

1 / Square Flange Pattern; Blind #4-40 Holes

Figure 1

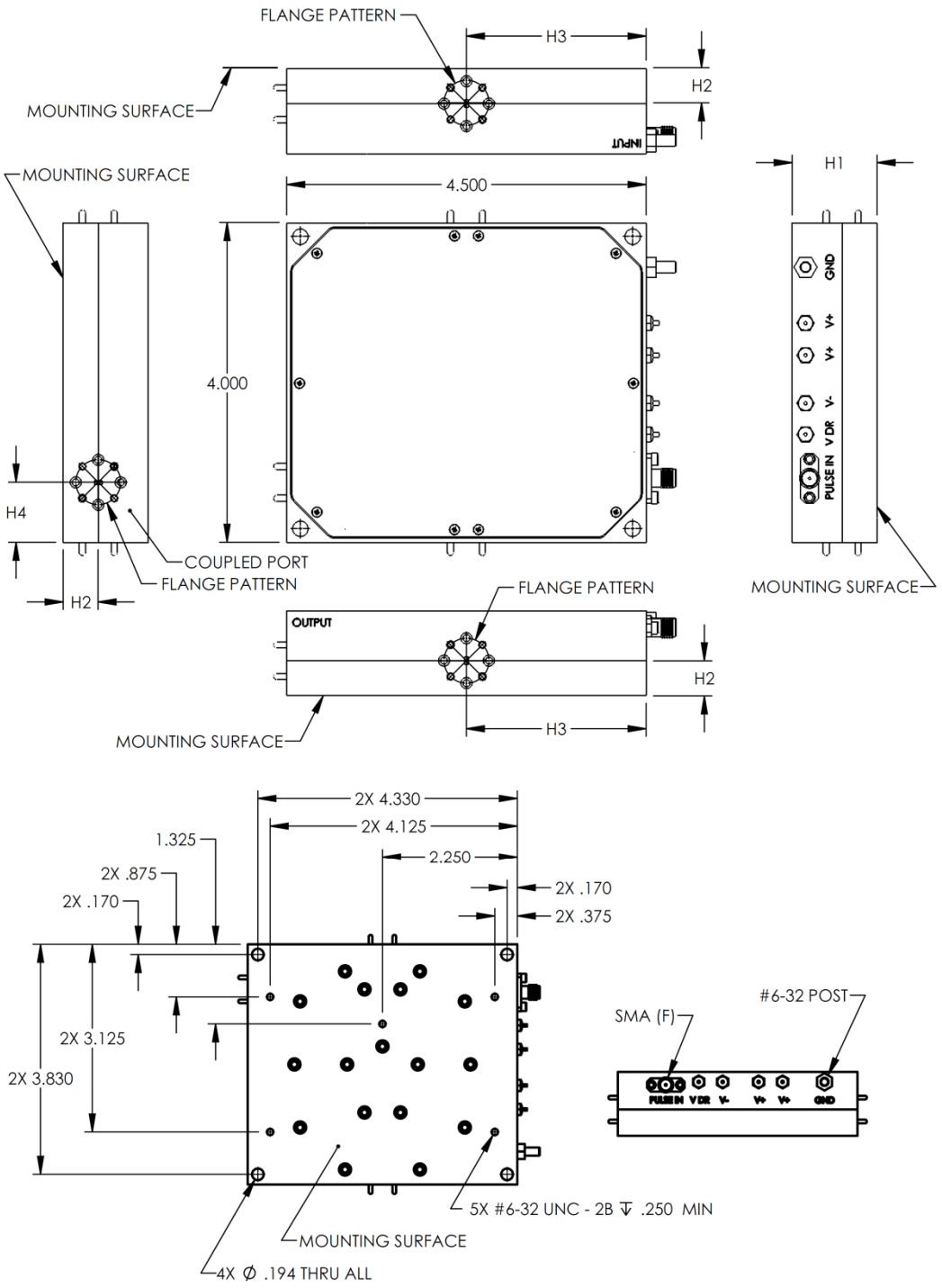


NOT TO SCALE. ALL DIMENSIONS IN INCHES

Waveguide Size	H1	H2	H3	Flange Pattern
WR-28	1.000	0.375	2.250	MIL- DTL -3922/68-002[1]
WR-22	1.188	0.563	2.250	MIL- DTL -3922/67-006
WR-19	1.188	0.563	2.250	MIL- DTL -3922/67-007
WR-15	1.000	0.375	2.250	MIL- DTL -3922/67-008

1 / Square Flange Pattern; Blind #4-40 Holes

Figure 2



NOT TO SCALE. ALL DIMENSIONS IN INCHES

Waveguide Size	H1	H2	H3	H4	Flange Pattern
WR-15	1.000	0.375	2.250	0.750	MIL- DTL -3922/67-008
WR-12	1.000	0.375	2.250	0.700	MIL- DTL -3922/67-009
WR-10	1.000	0.375	2.250	0.700	MIL- DTL -3922/67-010

Figure 3

HOW TO ORDER

Specify Model Number PAM-XX-AAAAA
XX = Standard Connector **28** – WR-28 waveguide **22** – WR-22 waveguide **19** – WR-19 waveguide **15** – WR-15 waveguide **12** – WR-12 waveguide **10** – WR-10 waveguide **08** – WR-08 waveguide
AAAAA = Standard Model Number Choose a standard model number from our product list above. If none of these products meet your requirements, please feel free to contact Millitech for a special order.
Please specify frequency range for all narrowband units.