

AR-FS2-20VU

FAST SWITCHING SERIES

MODEL AR-FS2-20VU

Fast Switching Series
30-512 MHz
20 WATTS CW/PEP

Enhanced battlefield communications are achieved with the latest MANET waveforms and AR Modular RF's Fast Switching Series of tactical booster amplifiers. Operating in the 30 to 512 MHz UHF range, the AR-FS2-20VU unit provides 20 Watts output power across the band. Supporting fully automatic T/R Switching in less than 2 μ s and harmonic suppression, the unit continues Ametek's commitment to AR Modular RFs long standing tradition of building rugged and reliable radio agnostic amplifiers.

The AR-FS2-20VU amplifier is set up for easy operation with minimum operator intervention for rapid deployment. A wide range of available RF input powers and DC Voltages, make the amplifier flexible for vehicles, drop kit, and airborne applications.

Extending the range and quality of tactical radios has never been easier.

Key Features:

- *Fast T/R Switching – under 2 μ s*
- *Fully Automatic, Autosensing, T/R Switching Booster Amplifier with Automatic Harmonic Suppression*
- *Radio & Waveform Agnostic*
- *AM, FM, PM, PWM, Narrowband, Wideband, OFDM, CDMA/WCDMA, Frequency Hopping*
- *High Duty Cycle – 90% at 25°C, Indefinitely*
- *Mobile Form Factor*
- *Night Vision Goggles (NVG) Compatible LED Indicator*
- *Battery & Vehicle Operation*

Protections:

- *Input Overdrive*
- *ALC*
- *Antenna mismatch*
- *Over Temperature*



The following specifications apply to the AR Modular RF booster model AR-FS2-20VU – a standard amplifier providing 20 Watts output power from 30 to 512 MHz with manual Bypass mode to support outside of this band.

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PERFORMANCE SPECIFICATIONS: AR-FS2-20VU

RF PERFORMANCE

SPECIFICATION		UNIT	MIN	TYPICAL	MAX	NOTES	
Amplifier Class		-	A/B			Modulation: AM, FM, Narrowband, Wideband, Frequency Hopping, CMDA/WCDMA, and OFDM	
Frequency Response		MHz	30	-	512	Active TX/RX Band	
T/R Switching	TX Keying Threshold	Normal	13 ± 3			Independent of rated input power. User controlled in Options menu	
		High	23 ± 3				
	T/R		µs	-	-	2	
	R/T		µs	-	-	2	
	Out of Band ↔ Bypass		µs	-	10	25	Automatic out of band switch to bypass mode
Bypass		-	Instantaneous			Full Duplex (no TX/RX gain, minimum loss)	
Transmit	Rated Output Power	dBm	42	43	45	Rated output power achieved at rated input power	
	Input Power for Rated Power	dBm	-	-	33	Single carrier peak power	
	Gain	dB	9	10	11	In Band	
Receive	Gain (LNA)	dB	6	12	17	Active LNA, In Band	
	Noise Figure (LNA)	dB	2	4	7	Active LNA, In Band	
	Insertion Loss	dB	-	1.5	-	In Band	
Bypass	Insertion Loss	dB	-	-	1	In Band	
Radio / Antenna Port Impedance		Ohm	-	50	-		
VSWR Tolerance		-	-	-	Infinite	Protections against mismatch; Power delivered to load may be reduced or unit may switch to bypass	
Spurious Outputs		dBc	-	-	-55	@ Rated output, < 100 kHz from carrier, 10 Hz RBW	
			-	-	-70	@ Rated output, > 100 kHz from carrier, 10 Hz RBW	
Harmonic Performance		dBc	-	-	-60		

RF performance metrics guaranteed at rated input power and 22 C

THERMAL

SPECIFICATION	UNITS	DETAILS	NOTES
Duty Cycle	%	90	At ambient temperature of 22°C or below, indefinitely

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PRODUCT DETAILS – AR-FS2-20VU

DC POWER

SPECIFICATION	UNITS	TYPICAL @ 24 VDC	MODE
Input Voltage Range	VDC	12 to 35.5	
Power Consumption	W	TBD	Transmit (<i>at rated input power</i>)
		TBD	Receive

MECHANICAL & ENVIRONMENTAL

SPECIFICATION	UNITS	DETAILS	NOTES
Size	inches	4.0" W x 1.8" H x 9.7" L	Not including connectors
		4.0" W x 1.8" H x 9.7" L	Including connectors
Weight	lbs.	2.4	
Operating Temperature	C	-30°C to +60°C	Ambient, See Application Note for duty derating
Relative Humidity	%	95	Maximum, non-condensing
Cooling	-	Passive	Natural Convection / Radiation
Sealing	-	IP67	Waterproof to 1m for 30 minutes minimum
Construction	-	Aluminum housing with integrated heatsink	Black anodized

INTERFACE & CONTROL

The AR-FS2-20VU has interface and control elements on both the front and rear panels. The amplifier can be used standalone (only RF and DC power connections). Remote Monitor and Control interface is available. Contact Factory for details.

INTERFACE	PANEL	DETAILS	NOTES
Radio Connection	Front	TNC-F	RF ports; Alternate connector options possible
Antenna Connection	Front	TNC-F	
DC Power Connection	Rear	Shell Size-Insert 8-4	Compatible with MIL-DTL-26482, Series 1 connectors
Remote Monitor & Control	Rear	Shell Size-Insert 10-6	Compatible with MIL-DTL-26482, Series 1 connectors

PERFORMANCE STANDARDS

AR Modular RF booster amplifiers can be designed to meet many military standards including, but not limited to:

- MIL-STD-810x
- MIL-STD-461x
- MIL-STD-1399x

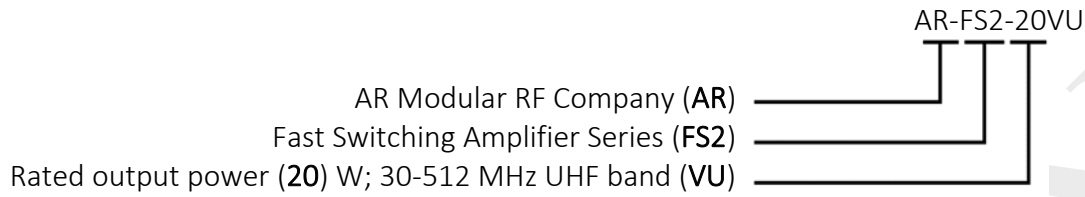
Please speak with your Ametek Sales Representative if compliance to these or any other standards is required.

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ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
AR-FS2-20VU	Standard model, 20 W rated output, 2 W rated input



ACCESSORIES

MODEL NUMBER	DESCRIPTION

IN DESIGN