



### Enhance Your MPU5's Range and Capabilities

Extend the range and throughput of your MPU5 tactical radio network with the TTRM3000 Bi-Directional Amplifier from Triad RF Systems.

Engineered specifically to pair with and enhance your MPU5 distance and throughput performance, this 3-Channel MIMO / MANET BDA offers a maximum output power of 16 Watts per channel, for a total output of 48 Watts.

Its high output power and small size make it the perfect addition to vehicle-integrated radios or unmanned systems where performance and portability is essential.

## TTRM3000

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### FEATURES

- Fully compatible and designed to pair with MPU5
- Over / Under / Reverse Voltage Protection
- Temp. Monitor Output
- Auto Tx/Rx Switching (RF Detect)
- Forward Power Measurement

### APPLICATIONS

- Military or Commercial Radio Systems
- Unmanned Systems
- Vehicle Systems
- Aircraft Systems
- Fixed Site Infrastructure

## CHARACTERISTICS/SPECIFICATIONS

Specifications subject to change without notice. Typical performance at VDC at 25°C in a 50Ω system.

### Tx Specifications (Per Stream)

Parameter	Min.	Typ.	Max	Unit
Operating Frequency	2200	—	2507	MHz
64QAM Power Output 20 MHz BW, -27 dB EVM Limit	37	—	—	dBm
BPSK Power Output 20 MHz BW, -9 dB EVM Limit	42	—	—	dBm
Maximum Power Output CW Sweep at Design Limit, 5-6 dB gain compression	42	43	—	dBm
Small Signal Gain	17	18	—	dB
Small Signal Gain Flatness	—	—	1	dB (peak to peak)
Input Return Loss	—	—	-13	dB
Tx / Rx Switching Time	—	1	2	μS

### Rx Specifications (Per Stream)

Parameter	Min.	Typ.	Max	Unit
Small Signal Gain	3	4	—	dB
Small Signal Gain Flatness	—	—	1.5	dB (peak to peak)
Noise Figure	—	3	4	dB
Input Return Loss	—	—	-10	dB

### Power Supply Specifications

Parameter	Min.	Typ.	Max	Unit	Notes
Supply Voltage Range	12	—	28	VDC	
Average Operating Current Draw (Idle)	—	—	0.7	A	28A supply voltage, idle in receive mode
Average Operating Current Draw (64QAM Power Output)	—	—	3.9	A	28A supply voltage, 50% Tx Duty Cycle
Average Operating Current Draw (BPSK Power Output)	—	—	6.6	A	28A supply voltage, 50% Tx Duty Cycle

### Mechanical Specifications

Parameter	Value	Unit	Notes
Dimensions (L x W x H)	4 x 3.5 x 1.35 (101.6 x 88.9 x 34.3)	in (mm)	
Cooling	Integrated Heatsink		Optional cooling fan kit included
Cooling Fan Kit	24V 60MM FAN		Included with unit
Weight	23.2 (658)	oz (g)	

### Interface Specifications

Parameter	Value	Notes
RF Connectors (Input / Output)	TNC-F / TNC-F	
Power / Signal Connector	2M801-010-02ZNU7-10PA	Connector appearing on unit (Manufacturer P/N)
Mating Connector	2M801-007-16M7-10SA	Mating connector required for interfacing (Manufacturer P/N)
Test Integration Cable	CBL66	Triad P/N. Not included, available for purchase separately.

### Environmental Specifications

Parameter	Min.	Max	Unit
Operating Temperature (Housing Temp.)	-40	95	°C
Storage Temperature	-40	100	°C
Altitude	0	20,000 (6,096)	ft. (m.)
Ingress Protection Rating	IP67		-
Shock / Vibration	Designed to comply with MIL-STD-810 Shock/Vibration Test Methods		-

### Protections / Maximum Ratings

Parameter	Value	Unit	Notes
Maximum RF Input (Per Stream)	30	dBm	CW Power
Over Temp Protection Trip Level	85	°C	Internally Monitored System Temperature
RF Output Open Load Survivability	40	dBm	CW with an open circuit at the antenna port

### Configuration / Ordering Options

Model Number	Description
TTRM3000-DO1	TTRM3000 with automatic Tx/Rx switching

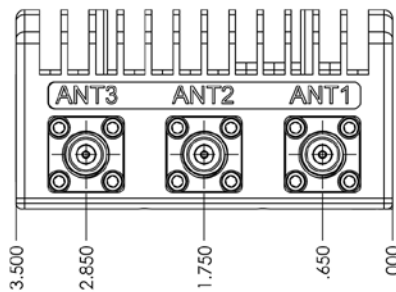
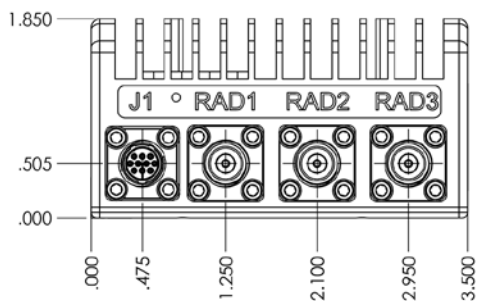
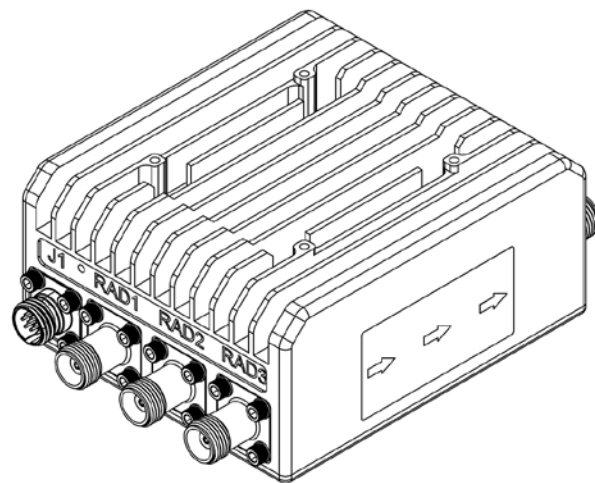
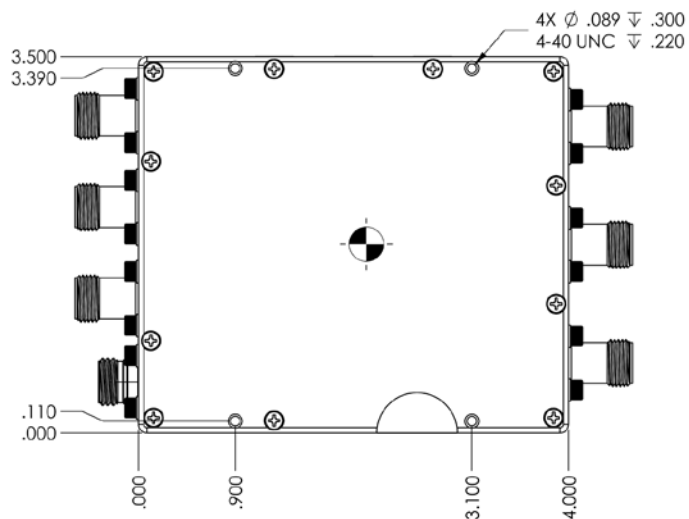
Please confirm with Triad that the desired configuration is available prior to ordering.

**DC/CONTROL CONNECTORS**

**Input/Output Pins**

Amplifier Connector Type		Triad Cable Part Number		
12 Pin Circular Locking		CBL66		
Pin	Name	Description		
1	+VDC	Power	Supply Voltage	Range specified in datasheet
2	+VDC			
3	+VDC			
4	+VDC			
5	GND	Power	Supply Voltage Return	—
6	GND			
7	GND			
8	GND			
9	N/C	—	No Connect	—
10	N/C			

**MECHANICAL DRAWING**



NOTES:

1. ALL DIMENSIONS ARE NOMINAL UNLESS OTHERWISE NOTED