



Longer Range, Higher Data Rates, Lowest SWaP

The THPR1078 Triad High Power Radio (THPR), contains a Silvus Technologies SC4210-139-O radio at its core and combines with our high-power RF subsystems in a low SWaP package. This 2x2 MIMO amplified radio integrates the necessary Silvus Technologies radio, RF amplification, control circuitry, and interfaces to achieve higher RF output power, greater throughput, and longer link distances than the stand-alone radio.

Offering +16 to +32 VDC Input Voltage, this THPR contains BDAs, RF filtering, and innovative SoC-based monitoring and controls, with real-time power measurement and link diagnostics.

THPR1078

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THPR1078 Specific Features

- 1350-1440 MHz Coverage
- 20W amplified transmit power per channel
- Integrated Silvus Technologies SC4210-139-O 2x2 MIMO radio
- Compatible with other Silvus Technologies radios and networks
- Optional cooling fans for extended operating temperature range

THPR Series Features

- Fully Integrated High-Power RF Sub-Systems & Radio
- Extended Range and Data over Stand-Alone Radio
- Easy installation into ground vehicles, aircrafts, and unmanned systems
- Wide Supply Voltage Range, Single DC Supply

THPR Series Applications

- Long Distance High Data Rate ISR Links
- UAS, UGV, and USV Video & Data Links
- Military MANET
- Maritime High-Throughput LOS / NLOS Systems
- Point-To-Point and Mesh Networking

ADDITIONAL FEATURES

Internal Microcontroller

This THPR is equipped with an SoC-based microcontroller, allowing for enhanced control and monitoring features accessible via USB, including:

- Temperature Monitoring and Protection
- Power Circuit Monitoring and Alarms
- Cooling Fan Controls and Alarms
- LED Controls

LEDs

Tx/Rx status LEDs and error indicator LEDs included in this model.

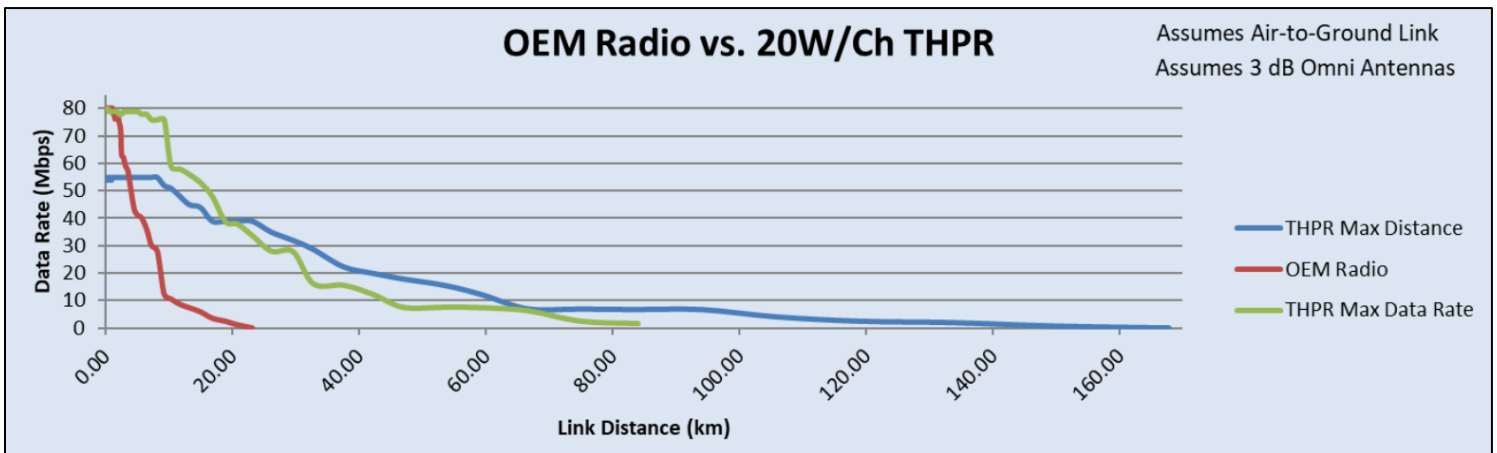
External Accessories

External accessories such as GPS active antennas, camera, and other products can be powered through the THPR's 5V / 1A auxiliary supply.

Contact Triad RF Systems for more details.

LINK DISTANCE CAPABILITIES

The chart below provides estimates for our THPR series' achievable link distances, based on typical bandwidth needs and antenna configurations. Contact Triad for our expert ISR link team to assess you link requirements.



CHARACTERISTICS & SPECIFICATIONS

Specifications subject to change without notice. Typical performance at +28VDC at 25°C in a 50Ω system.

RF Specifications

Parameter	Min.	Typ.	Max	Unit	Notes
Operating Frequency	1350	—	1440	MHz	—
Power Output per MIMO Stream (5 Mbps)	20	—	—	W	Minimum RF Power for MCS values and bandwidths at this data rate.
Power Output per MIMO Stream (20+ Mbps)	5	—	—	W	Minimum RF Power for MCS values and bandwidths at this data rate.

Electrical Specifications

Parameter	Min.	Typ.	Max	Unit	Notes
Supply Voltage Range	+16	+28	+32	VDC	—
RMS Operating Current Draw (Idle)	—	—	0.6	A	+28VDC Supply Voltage
RMS Operating Current Draw (5 Mbps)	—	2.14	5.35	A	+28VDC supply voltage, RF power is set to minimum of 20W per Stream operating at a low data rate MCS.
RMS Operating Current Draw (20+ Mbps)	—	1.79	3.21	A	+28VDC supply voltage, RF power is set to minimum of 5W per Stream operating at a high data rate MCS.

Environmental Specifications

Parameter	Min.	Typ.	Max	Unit	Notes
Ambient Operating Temperature	-45	—	70	°C	—
Cooling	Integrated Heatsink, Cooling Fan Kit Available			—	—
Altitude	0 (0)	—	25000 (7620)	ft. (m)	For altitude testing above 25000 ft. please contact Triad RF Systems.
Shock / Vibration	Designed to comply with MIL-STD-810G Shock / Vibration Test Methods			—	—
Ingress Protection Rating	IP67			—	—

CHARACTERISTICS & SPECIFICATIONS (CONT.)

Specifications subject to change without notice.

Mechanical Specifications

Parameter	Value	Unit	Notes
Dimensions	5.5 x 5.42 x 2.8 (139.7 x 137.7 x 71.1)	in (mm)	Length x Width x Height
Antenna RF Connectors	TNC-F	Connector Type	—
DC Connector	801-011-07M10-2PA	Part Number	Mating Connector PN: 801-007-16M10-2SA
Signal Connector	801-011-07M13-37PA	Part Number	Mating Connector PN: 801-007-16M13-37SA
Weight	52 (1474)	oz (g)	—

DC / CONTROL CONNECTORS

Specifications subject to change without notice.

DC Connector

THPR Connector Part Number		Mating Connector Part Number	
801-011-07X10-2PA		801-007-16M10-2SA	
Pin	Label	Notes	
1	+VDC	Power Supply In, +16-32 VDC	
2	GND	Power Supply Return (Ground)	

Signal Connector

THPR Connector Part Number			Mating Connector Part Number		
801-011-07M13-37PA			801-007-16M13-37SA		
Pin	Label	Type	I/O	Notes	
1	MPS5	Signal	Input	Multi- Position Switch Pin 5	
2	MPS3	Signal	Input	Multi- Position Switch Pin 3	
3	MPS4	Signal	Input	Multi- Position Switch Pin 4	
4	MPS2	Signal	Input	Multi- Position Switch Pin 2	
5	MPS6	Signal	Input	Multi- Position Switch Pin 6	
6	MPS1	Signal	Input	Multi- Position Switch Pin 1	
7	AUDIO GND	Signal	N/A	Audio Ground	
8	PRG/USB	Signal	Input	3.3V TTL Input-- HIGH/Floating = USB Communication LOW = Programming of PSoC	
9	AUDIO OUT	Data	Output	Audio Output	
10	RS232 GND	Data	N/A	Ground for Radio RS232	
11	5V1+ GND	Power	N/A	Ground for +5V1 Output	
12	SIG GND	Signal	N/A	Signal Ground	
13	USB0 GND	Data	N/A	Ground for radio USB0	
14	USB0 D-	Data	Input&Output	Data- for Radio USB0	
15	USB0 D+	Data	Input&Output	Data+ for Radio USB0	
16	Power Enable	Signal	Input	3.3V TTL High/ Floating = Enable Low/ GND = Shutdown	
17	MIC IN	Data	Input	Microphone Input	

18	RF BLANK	Signal	Input	3.3V TTL High/ Floating = RF Output Enabled Low/ GND = Disabled
19	PTT	Data	Input&Output	Push To Talk
20	USB0 VBUS	Data	Output	Voltage Bus for Radio USB0
21	USB1 D-	Data	Input&Output	Data- for Radio USB1
22	USB1 GND	Data	N/A	Ground for Radio USB1
23	USBT GND/ +3.3V	Data	Multi-Purpose	GND for Internal Microcontroller USB/ +3.3V when in program mode
24	RS232 TX	Data	Output	RS232 From Radio
25	RS232 RX	Data	Input	RS232 Into Radio
26	USB1 SNS	Data	Input	USB OTG Sense for Radio USB1
27	USB1 VBUS	Data	Output	Voltage Bus for Radio USB1
28	USB1 D+	Data	Input&Output	Data+ for Radio USB1
29	USBT D+	Data	Multi-Purpose	Data+ for Internal Microcontroller USB/ CLK when in program mode
30	USBT VBUS	Data	Multi-Purpose	Voltage Bus for Internal Microcontroller USB/ XRES when in program mode
31	ETH TX+	Data	Output	Ethernet Connection Pin 1
32	ETH TX-	Data	Output	Ethernet Connection Pin 2
33	ETH RX-	Data	Input	Ethernet Connection Pin 6
34	USBT D-	Data	Multi-Purpose	Data- for Internal Microcontroller USB/ DIO when in program mode
35	5V1+	Power	Output	1A Max- for +5V accessories
36	STATUS	Signal	Output	3.3V TTL Output HIGH = No Error LOW = Error
37	ETH RX+	Data	Input	Ethernet Connection Pin 3

MECHANICAL DRAWING

