


THPR
 EVOLUTION

Longer Range | Higher Data Rates | Lowest SWaP

The THPR1053 Triad High Power Radio (THPR), contains a Silvus StreamCaster SC4410-139-O radio at its core and combines with our high-power RF subsystems in a low SWaP package. This 4 channel, L-Band amplified radio integrates the necessary Silvus radio with Triad RF's amplification, control circuitry, and interfaces to achieve higher RF output power, greater throughput, and longer link distances than stand-alone radios.

Offering +22 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.


THPR1053

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THPR1053 SPECIFIC FEATURES

- 1350 - 1440 MHz L-Band Coverage
- 80W (20W per channel) amplified Tx power
- Integrated Silvus SC4410-139-O MIMO Radio
- Compatible with other Silvus radios and networks
- Integrated heatsink and fan

THPR SERIES FEATURES

- Fully Integrated High-Power RF Sub-System & Radio
- Extended Range/Data Rate over Stand-Alone Radio
- Easy installation into vehicles, aircraft, and unmanned systems
- Enhanced RF Link Control via USB
- Wide Vin, 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 SoC-based microcontroller, allowing for enhanced control and monitoring features accessible via USB, including:

- Independent RF power control per stream
- Transmit and Reflected Power Measurements and Alarms
- Temperature Monitoring and Protection
- LED Controls
- Power Circuit Monitoring and Alarms
- RF Power Calibration
- Cooling fan Controls and Alarms
- Automatic Power Output Settings

A complete list of features and commands can be provided upon request.

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 for more details.

LEDs

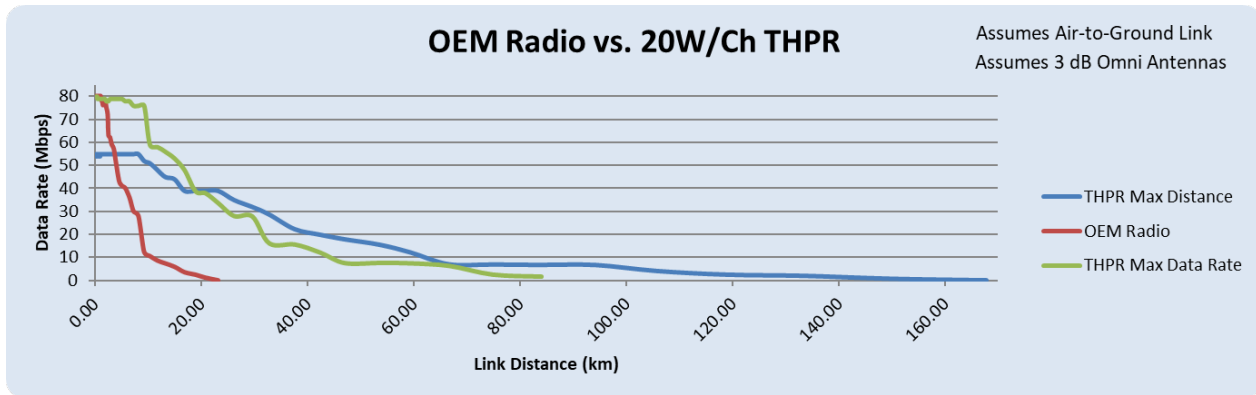
Tx/Rx status LEDs and error indicator LEDs included in unit.

RF Blanking

RF Blanking option for EMCON / No Emissions State.

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 your link requirements.



CHARACTERISTICS/SPECIFICATIONS

Electrical Characteristics

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

Electrical Specifications

Parameter	Min.	Typ.	Max	Unit	Notes
Supply Voltage Range	+22	+28	+32	VDC	
Average Operating Current Draw (Idle)	—	—	1	A	+28V supply voltage
Average Operating Current Draw (5 Mbps)	—	6.3	7	A	+28V supply voltage, RF power is set to minimum of 20W per Stream operating at a low data rate MCS.
Average Operating Current Draw (20+ Mbps)	—	5	6	A	+28V 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	Integral heatsinking with forced air cooling option			—	
Altitude	0	—	30000	ft.	For altitude testing above 25,000 ft. please contact Triad RF.
Shock / Vibration	Designed to MIL-STD-810			—	Designed to accommodate typical MIL-STD-810G vehicular shock/vibration test method
Ingress Protection Rating	IP67			—	



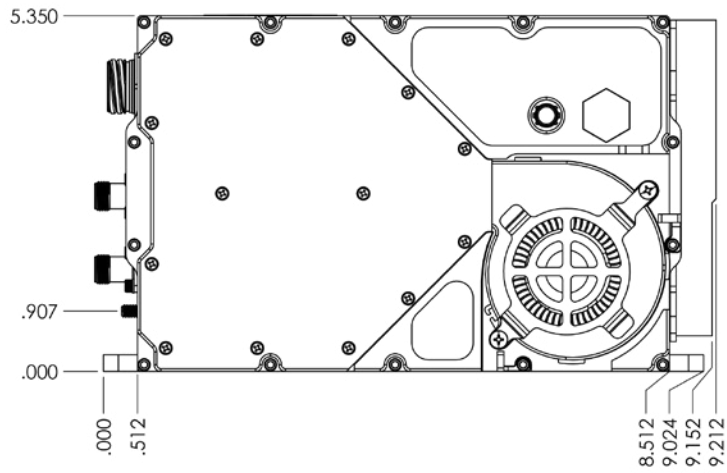
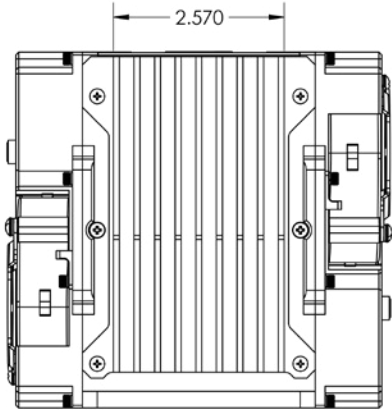
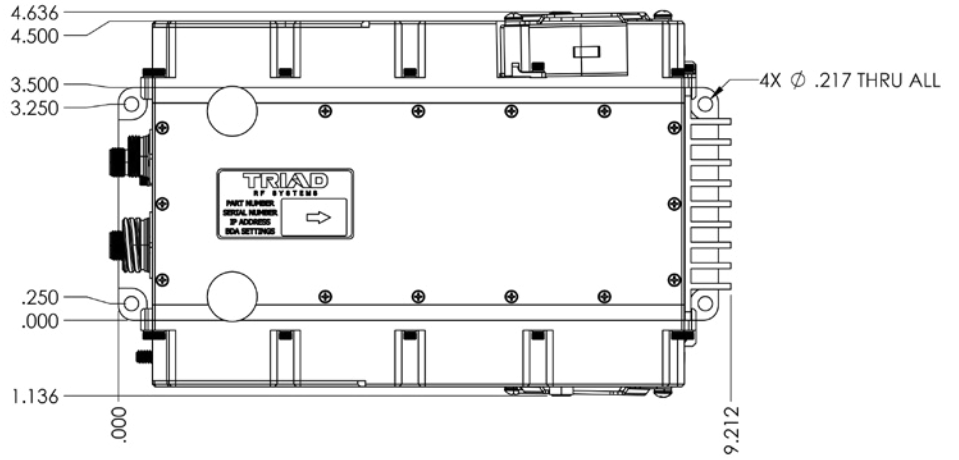
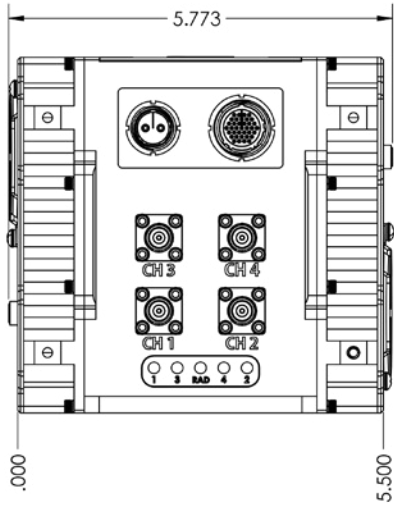
CHARACTERISTICS/SPECIFICATIONS

Mechanical Specifications

Parameter	Value	Unit	Notes
Dimensions	9.212 x 5.773 x 5.35 (234 x 146.6 x 135.9)	in (mm)	L x W x H
Antenna RF Connectors	TNC-F	Connector Type	
DC Connector	801-011-07X10-2PA	Part Number	Mating Connector PN: 801-007-16M10-2SA
Signal Connector	801-011-07X13-37PA	Part Number	Mating Connector PN: 801-007-16M13-37SA
Weight	138 (3912)	oz (g)	



MECHANICAL DRAWING



DC/CONTROL CONNECTORS

J1 Connector - DC Connector (Glenair PN: 801-011-07X10-2PA)

Pin	Description	Notes
1	+Vin	Power Supply In
2	-Vin	Isolated from GND

J2 Connector - Signal Connector (Glenair PN: 801-011-07X13-37PA)

Pin	Description	Type	I/O	Notes
1	N/C	-	-	Not Connected
2	N/C	-	-	Not Connected
3	N/C	-	-	Not Connected
4	Zeroize	Signal	Input	3.3V Logic Input, Active Low
5	Power Enable Status	Signal	Output	Output Indicator, GND = Operating, Open = Standby
6	N/C	-	-	Not Connected
7	Audio GND	Signal	-	Isolated From GND
8	Speaker Out	Data	Output	
9	USB0 GND	Data	-	Connected to GND
10	GND	Signal	-	Signal GND Reference
11	GND	Signal	-	Signal GND Reference
12	N/C	-	-	Not Connected
13	N/C	-	-	Not Connected
14	USB0 D-	Data	-	Silvus USB0
15	USB0 D+	Data	-	Silvus USB0
16	Power Enable	Signal	Input	See Section 14
17	MIC IN	Data?	Input	
18	Reserved	-	-	
19	PTT	Signal	Input	
20	USB0 VBUS	Data	Input	Silvus USB0
21	USB1 D-	Data	-	Silvus USB1
22	USB1 GND	Data	-	Connected to GND

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J2 Connector - Signal Connector (Continued)

(Glenair PN: 801-011-07M13-37PA)

Pin	Description	Type	I/O	Notes
23	USB INT GND	Data	-	Connected to GND
24	RS232 TX	Data	Output	RS232 FROM Radio
25	RS232 RX	Data	Input	RS232 INTO Radio
26	USB1 ID	Data	-	Silvus USB1
27	USB1 VBUS	Data	Input	Silvus USB1
28	USB1 D+	Data	-	Silvus USB1
29	USB INT D+	Data	-	THPR USB
30	USB INT VBUS	Data	Input	THPR USB
31	ETH0 TX+	Data	Output	
32	ETH0 TX-	Data	Output	
33	ETH0 RX-	Data	Input	
34	USB INT D-	Data	-	THPR USB
35	+5V OUT 1	Power	Output	Can Source 1A
36	+5V OUT 2	Power	Output	Can Source 1A
37	ETH0 RX+	Data	Input	

CABLE OPTIONS

For available cable options, please [contact us](#) for inquiries and pricing.

