


**THPR**  
 EVOLUTION

**Longer Range | Higher Data Rates | Lowest SWaP**

The THPR1070 Triad High Power Radio (THPR), contains a Silvus StreamCaster SC4410-467-O radio at its core and combines with our high-power RF subsystems in a low SWaP package. This 4 channel, C-Band amplified radio integrates the necessary Silvus 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 +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.


**THPR1070**

# TABLE OF CONTENTS

- THPR1070 Features
- Link Distance Capabilities
- Electrical Specifications
- Environmental Specifications
- Mechanical Specifications
- Mechanical Drawing
- DC/Control Connectors
- Cable Options / Ordering Information

**THPR1085 SPECIFIC FEATURES**

- 4700 - 5000 MHz C-Band Coverage
- 80W (20W per channel) amplified Tx power
- Integrated Silvus SC4410-467-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 auxillary supply.

Contact Triad RF for more details.

### LEDs

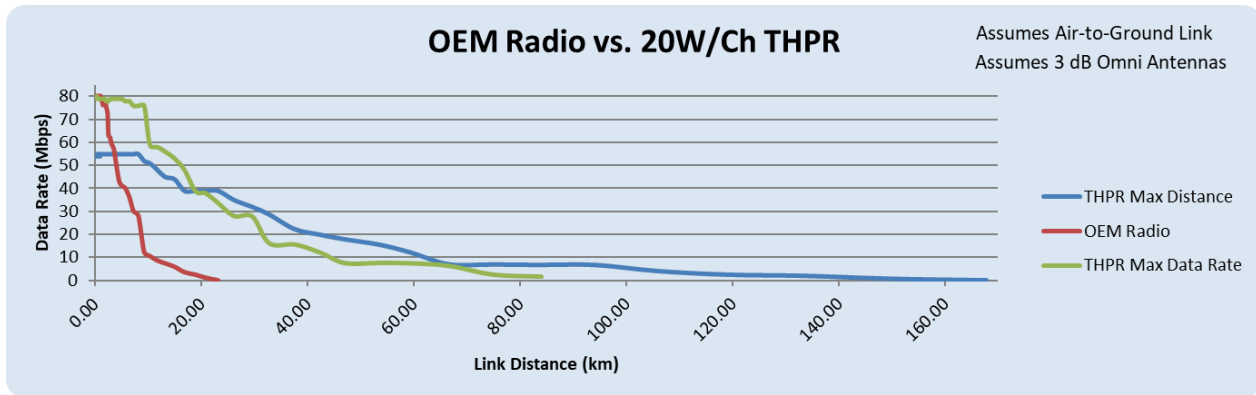
Tx/Rx status LEDs and error indicator LEDs included in unit.

### 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	4700	—	5000	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)	—	—		A	+V supply voltage
Average Operating Current Draw (5 Mbps)	—			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)	—			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

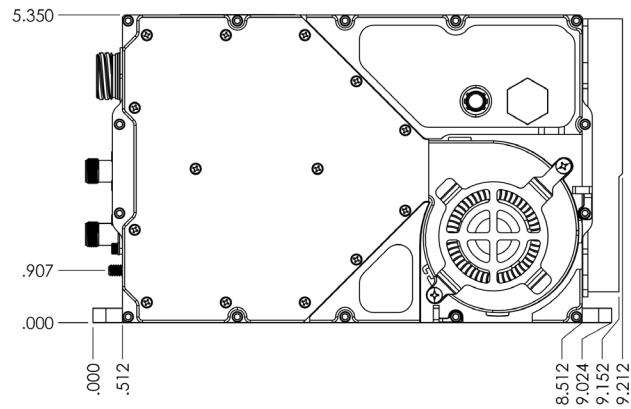
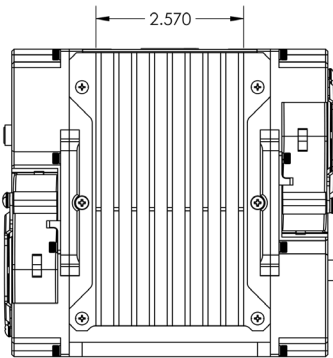
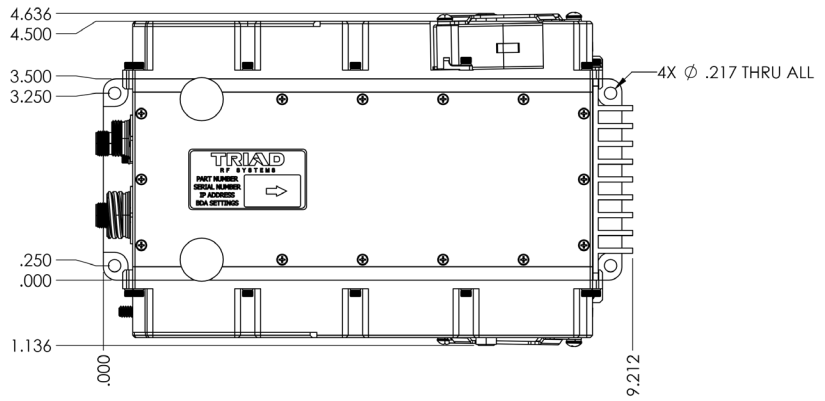
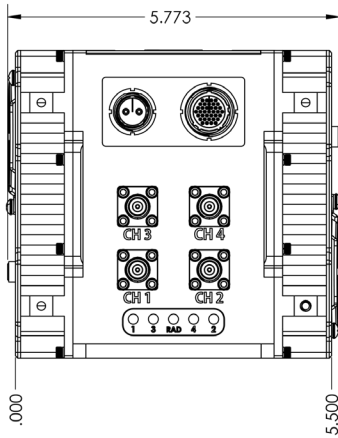
### Mechanical Specifications

Parameter	Value	Unit	Notes
Dimensions	9.21 x 5.77 x 5.35 (233.9 x 146.6 x 135.9)	in (mm)	L x W x H
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	138 (3912)	oz (g)	



### MECHANICAL DRAWING

#### THPR1085 Without Fans Installed



## DC/CONTROL CONNECTORS

### J1 Connector - DC Connector (Glenair PN: 801-011-07M10-2PA)

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

### J2 Connector - Signal Connector (Glenair PN: 801-011-07M13-37PA)

Pin	Description	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	-	GND reference for AUDIO OUT, Isolated from chassis GND
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	-	GND for Radio RS232, Connected to chassis GND
11	+5V1 GND	Power	-	GND for +5V1 Output, Connected to chassis GND
12	SIGNAL GND	Signal	-	General Purpose GND Reference, Doubles as PSoC programmer GND
13	USB0 GND	Data	-	Ground for radio USB0, Connected to chassis GND
14	USB0 D-	Data	-	Data- for Radio USB0
15	USB0 D+	Data	-	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	Signal	Input	Push to Talk
20	USB0 VBUS	Data	Input	Voltage Bus for Radio USB0
21	USB1 D-	Data	-	Data- for Radio USB1
22	USB1 GND	Data	-	GND for Radio USB1, Connected to chassis GND

Continues on next page



### J2 Connector - Signal Connector (Continued)

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

Pin	Description	Type	I/O	Notes
23	USBT GND/ +3.3V	Data	- / Input	GND for Internal Microcontroller USB, Connected to chassis GND, +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	Input	Voltage Bus for Radio USB1
28	USB1 D+	Data	-	Data+ for Radio USB1
29	USBT D+/ CLK	Data	- / Input	Data+ for Internal Microcontroller USB, CLK when in program mode
30	USBT VBUS/ XRES	Data	Input / Input	Voltage Bus for Internal Microcontroller USB, XRES when in program mode
31	ETH TX+	Data	Output	Ethernet Pin 1
32	ETH TX-	Data	Output	Ethernet Pin 2
33	ETH RX-	Data	Input	Ethernet Pin 6
34	USBT D- / DIO	Data	- / Input	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 Pin 3

## CABLE OPTIONS

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

