

**DESCRIPTION**

This class A GaAs module is designed for both military and commercial applications. It is capable of supporting any signal type and modulation format, including but not limited to 3-4G telecom, WLAN, OFDM, DVB, and CW/AM/FM. The latest device technologies and design methods are employed to offer high power density, efficiency, and linearity in a small, lightweight package.



**FEATURES**

Over / Under / Reverse Voltage Protection  
Optional Heatsink  
Temp. Monitor Output

High Speed Tx/Rx Switching Control  
Manual or Automatic Tx/Rx Switching Available  
Manual Gain Control

Specifications subject to change without notice. Typical performance at +12VDC at 25°C in a 50Ω system

Tx SPECIFICATIONS				
PARAMETER	MIN	TYP.	MAX	UNIT
Operating Frequency	4400		5000	MHz
P1dB Power Output		+44.0		dBm
Gain	24.0	25.0		dB
Gain Flatness		1.0		± dB
Input Return Loss	-10	-12		dB
Operating Voltage	+11	+12	+13	VDC
Current Draw		9.0		A
Tx / Rx Switching Time		1.0	2.0	uS

Rx SPECIFICATIONS				
PARAMETER	MIN	TYP.	MAX	UNIT
P1dB Power Output		+5.0		dBm
Gain	10.0	11.0		dB
Gain Flatness		1.0		± dB
Noise Figure		4.0		dB
OIP3		+15.0		dBm
Input Return Loss		-12		dB
Current Draw		100.0		mA

MECHANICAL		
PARAMETER	VALUE	UNIT
Dimensions (L x W x H)	5.3 x 3.25 x 0.57	in
RF Connectors (Input / Output)	SMA-F / SMA-F	--
DC / Control Connector	15 Pin Micro-D	--
Cooling	Baseplate Conduction - Optional Heatsink Available	--
Mounting	#4 Thru Holes	--
Weight	13	oz.
Weight With Heatsink	35	oz.

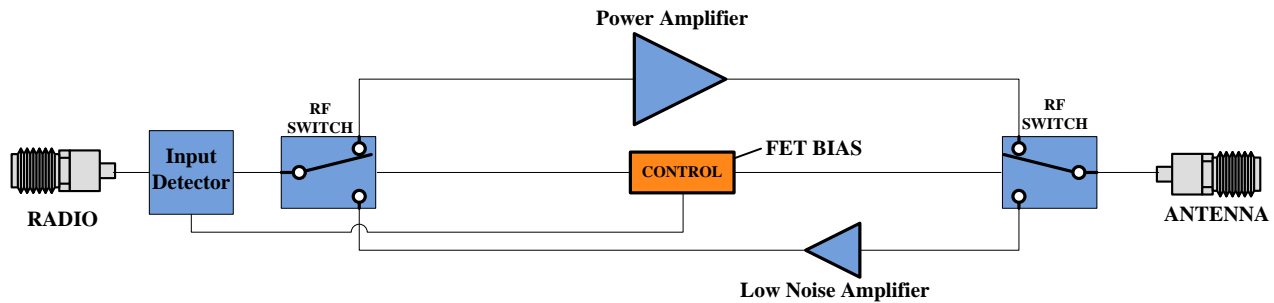
ENVIRONMENTAL / PROTECTIONS			
PARAMETER	MIN	MAX	UNIT
Operating Temp. (Housing Temp.)	-40	+85	°C
Storage Temp Range	-60	+100	°C
Humidity Range	0-100		%
Altitude	0-30,000		ft.
Shock / Vibration	MIL-STD-810 and equivalents		--
Max RF Input	+22		dBm
Load VSWR @ P1dB	Open / Short Output Protection		--
PA Baseplate Shutoff Temperature	+90		°C

DC / CONTROL PINS		
PIN LABEL	NAME	DESCRIPTION
1-4	+VDC	Supply Voltage - Range Specified in Datasheet
5	Sig. GND	Return for all Signal and CTRL Pins
6	Gain CTRL	High=No Gain Change, Low=Gain Reduced by 3dB
7	Status	3.3V TTL Logic Output
8	TEMP	Temp Monitor: Temp in DegC = (Vout - 0.5V) *100
9-12	GND	+VDC Supply Return
13-14	N/C	No Connection
15	TX/RX CTRL	3.3V TTL. High = TX, Low = RX

802-11G (20 MHz BW) DATA RATE VS. OUTPUT POWER			
OFDM MODULATION	DATA RATE	POUT (W) MIN.	EVM
64QAM	54 Mbps	5.0	≤ -27 dB
16QAM	36 Mbps	7.8	≤ -21 dB
QPSK	12 Mbps	11.0	≤ -15 dB
BPSK	9 Mbps	20.0	≤ -7 dB

See our [application note](#) that describes how this table was calculated and provides notes on in-system performance

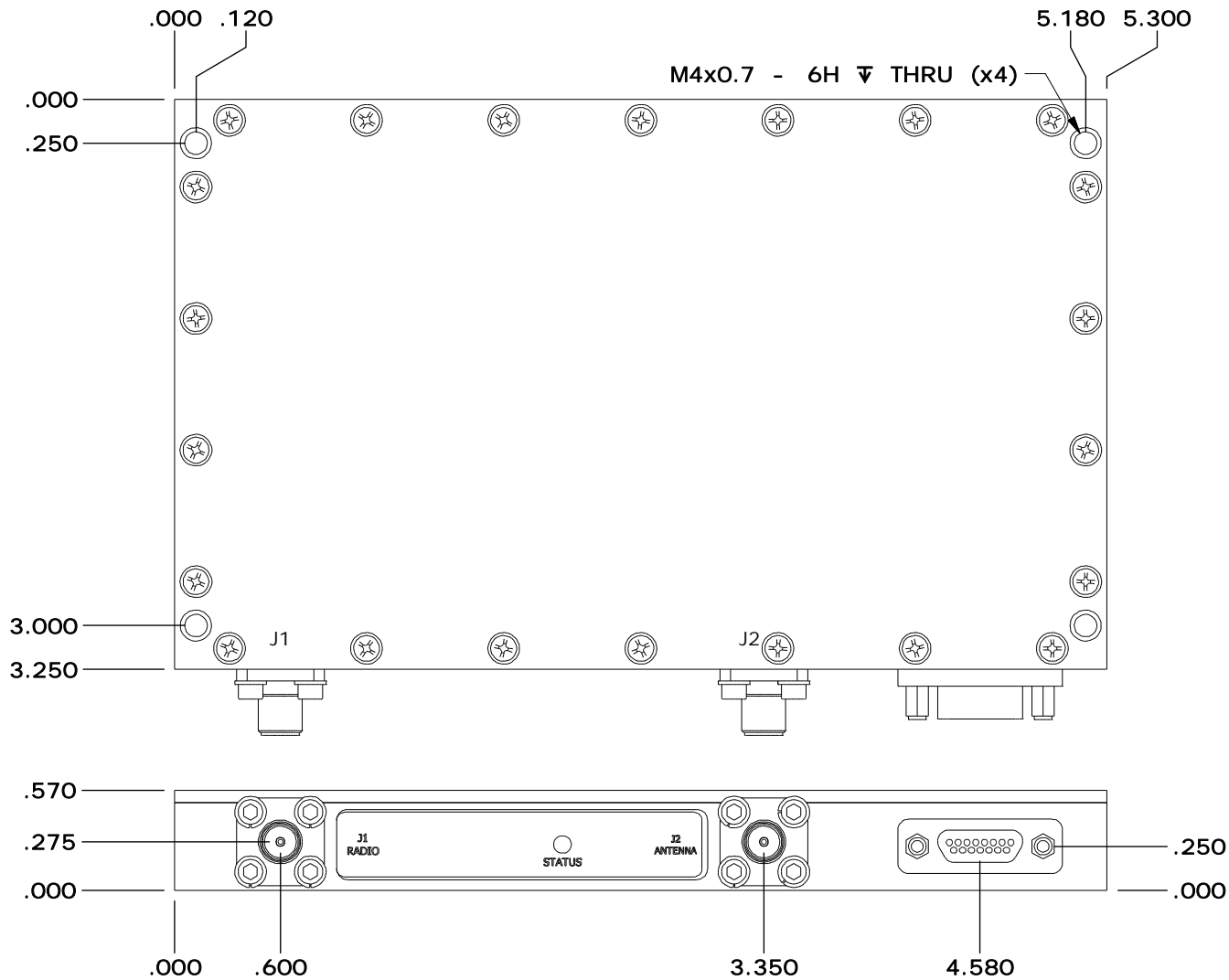
### High-Level Block Diagram



Ordering Guide – Configuration Information		
Model Number	Amplifier Option	Heat Sink Option
<b>TTRMXXXX</b>	<b>- XXX</b>	<b>- XXX</b>

Amplifier Options		Heat Sink Options	
Suffix	Description	Suffix	Description
D01	Automatic Tx/Rx Switching	(none)	No Heat Sink Included
D02	Manual Tx/Rx Switching	HS	Standard Heat Sink
DXX	Custom Amplifier Configuration (issued by Triad upon customer request)	HSF	Heat Sink with Integrated Cooling Fan
		HSX	Custom Heat Sink Configuration

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0	INITIAL RELEASE	5/3/15	DMC



DRAWN	DMC	10/3/2013
DESIGNED	DMC	9/6/2013
CHECKED		
ENG APPROVED		
MFG APPROVED		



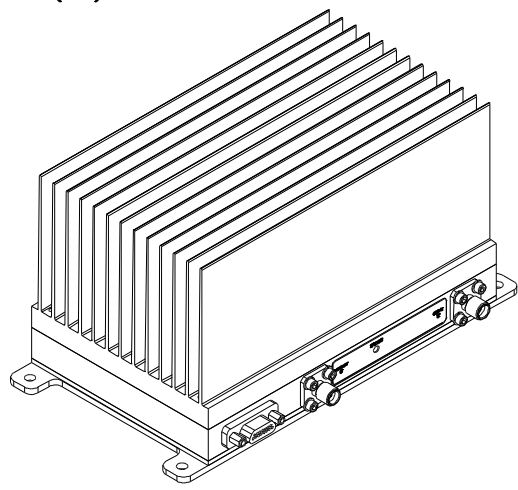
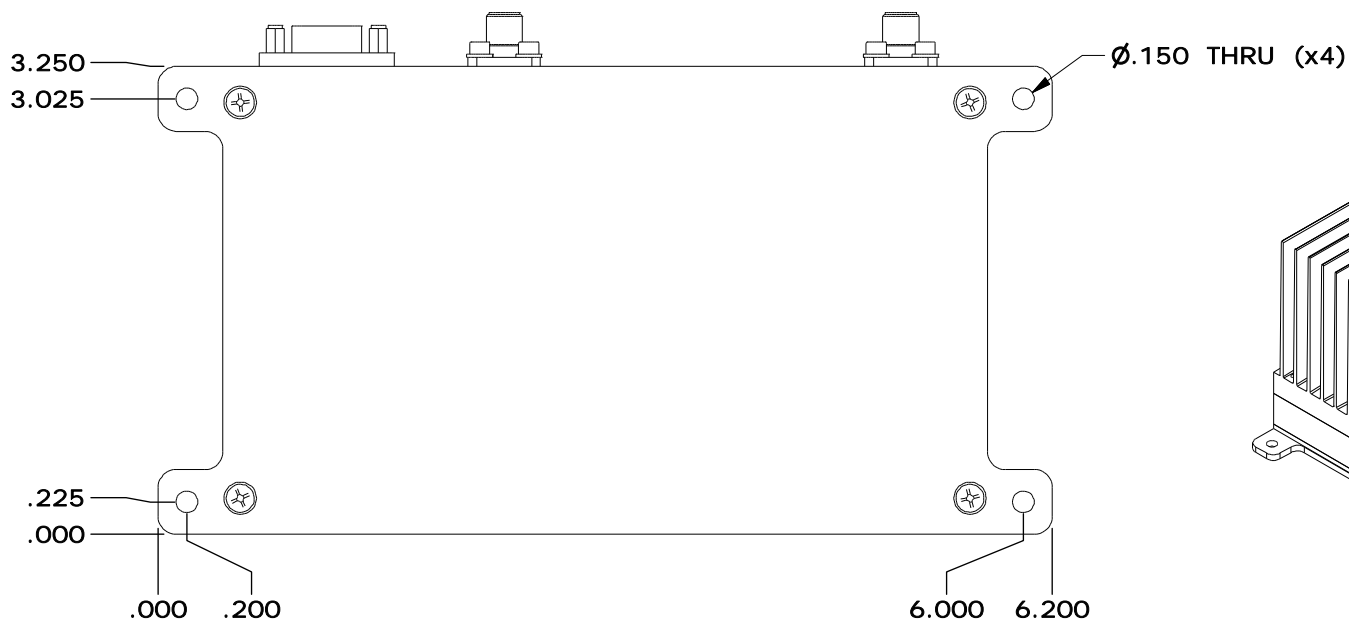
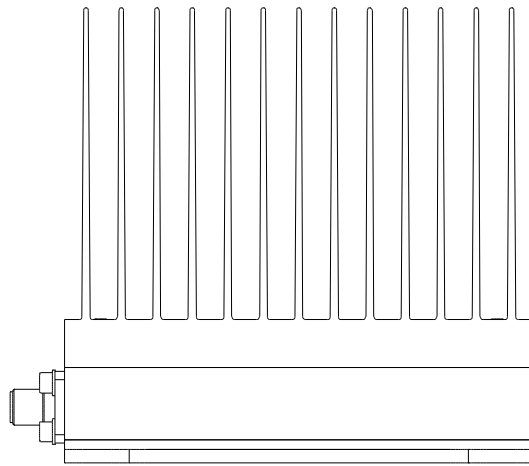
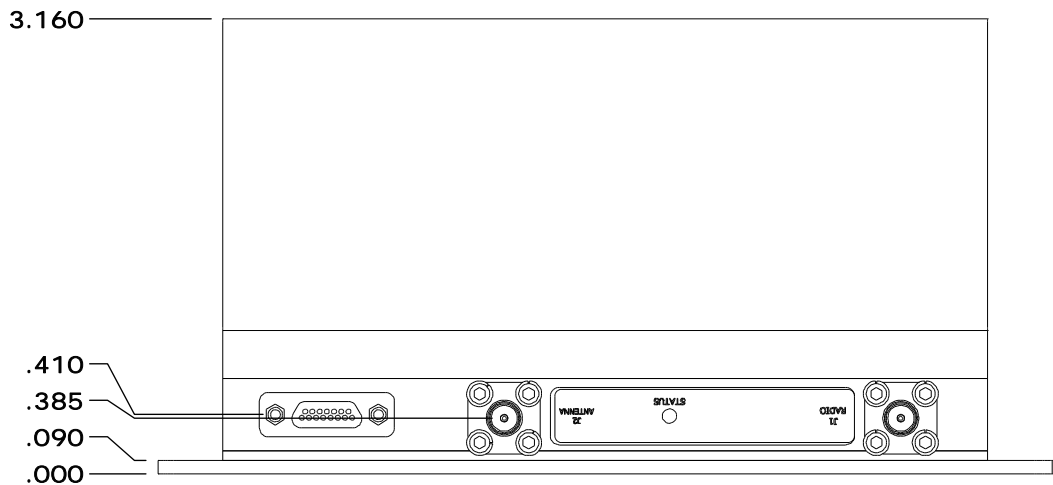
11 HARTS LANE SUITE 1  
EAST BRUNSWICK, NJ 08816  
855- 558- 1001

HOUSING OUTLINE DRAWING 103

DIMENSIONS ARE IN INCHES  
UNLESS SPECIFIED OTHERWISE  
TOLERANCES  
DECIMALS FRACTIONS ANGLES  
XX ±.01 ± 1/32 ± 2°  
.XXX ±.005

SIZE	DWG NO.	REV
A	OL_103	0
SCALE: NONE	CAGE CODE 67DZ3	SHEET 1 OF 5

# OPTIONAL HEATSINK



DRAWN	DMC	10/3/2013	HOUSING OUTLINE DRAWING 103		
DESIGNED	DMC	6/10/2015	SIZE	DWG NO.	REV
CHECKED			A	OL_103	0
ENG APPROVED			SCALE: NONE	CAGE CODE	SHEET 2 OF 5
MFG APPROVED				67DZ3	

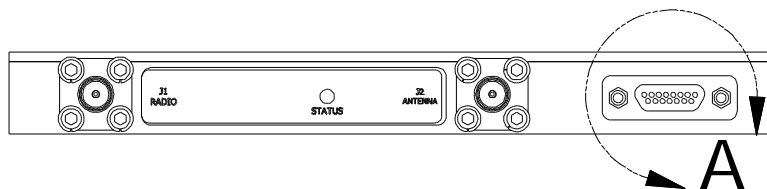
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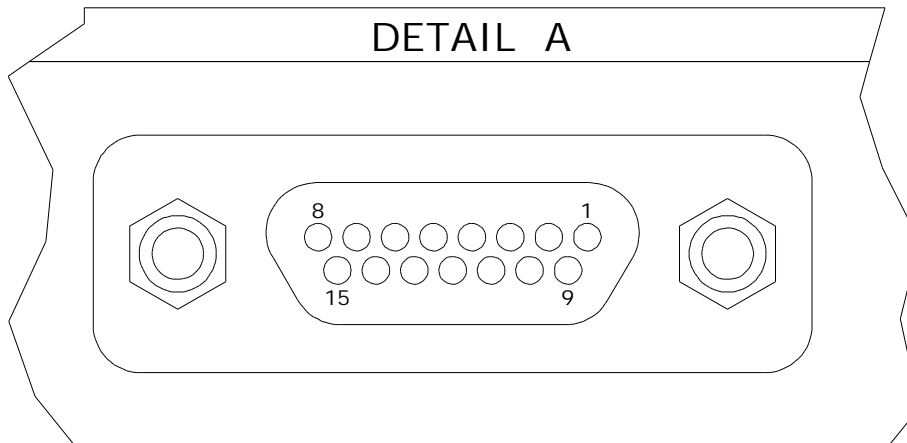
C

D

E



### DETAIL A



CONNECTOR PINOUT				
PIN	FUNCTION	TTL HIGH	TTL LOW	NOTES
1-4	+VDC	-	-	SUPPLY VOLTAGE - RANGE SPECIFIED IN DATA SHEET
5	SIG. GND	-	-	RETURN FOR ALL SIGNAL AND CONTROL PINS
6	GAIN CNTRL	HIGH GAIN SETTING	LOW GAIN SETTING	3.3V TTL LOGIC INPUT (5V COMPATIBLE). HIGH GAIN DEFAULT WITH NO CONNECTION
7	STATUS	NORMAL OPERATION	ERROR CONDITION	3.3V TTL LOGIC OUTPUT
8	TEMP	-	-	ANALOG TEMPERATURE SENSOR OUTPUT*
9-12	GND	-	-	DC RETURN
13-14	NC	-	-	NOT USED - NO CONNECTION WITHIN AMP
15	TX/RX CNTRL	SSPA IN TX MODE (LNA OFF, PA ON)	SSPA IN RX MODE (LNA ON, PA OFF)	3.3V TTL LOGIC INPUT (5V COMPATIBLE). ACTIVE ONLY IF MANUAL SWITCHING IS FITTED

#### NOTES:

1) P/N OF CONNECTOR ON AMPLIFIER: ITT MDM-15SH034B. MATES WITH ITT MDM-15PH006B OR EQUIVALENT.

2) EQUATION TO CALCULATE AMP TEMPERATURE:  
(VOLTAGE READ - 0.5V) x 100 °C.

DRAWN	DMC	10/3/2013	HOUSING OUTLINE DRAWING 103		
DESIGNED	DMC	9/6/2013			
CHECKED			SIZE	DWG NO.	REV
ENG APPROVED			A	OL_103	0
MFG APPROVED			SCALE: NONE	CAGE CODE 67DZ3	SHEET 3 OF 5

A

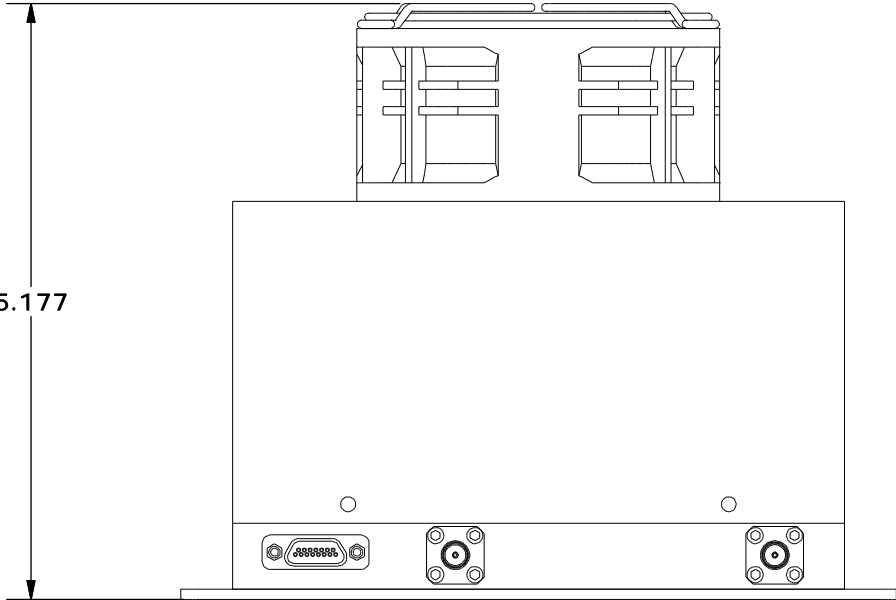
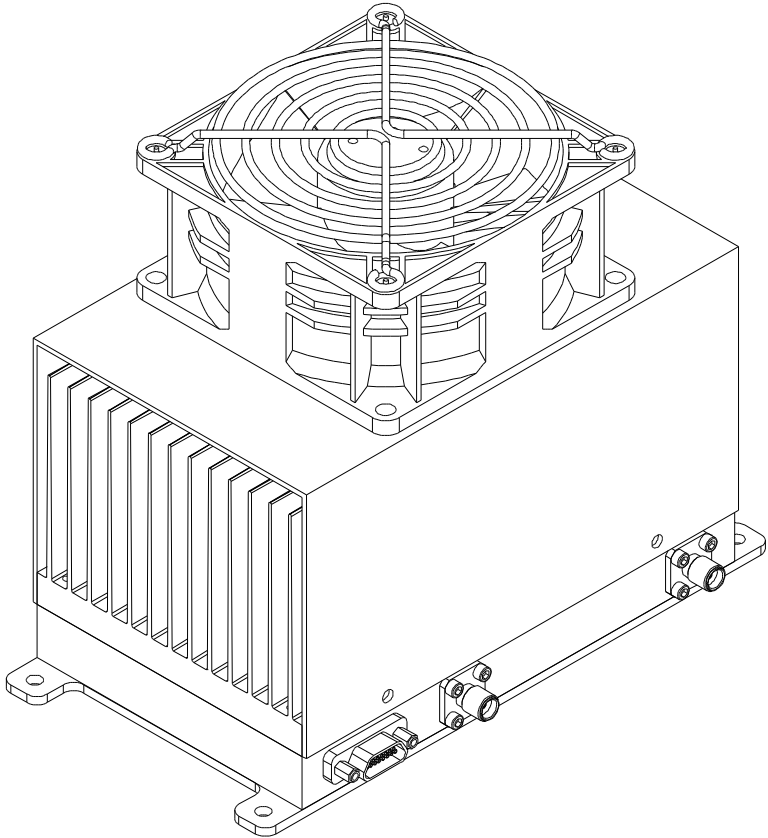
B

C

D

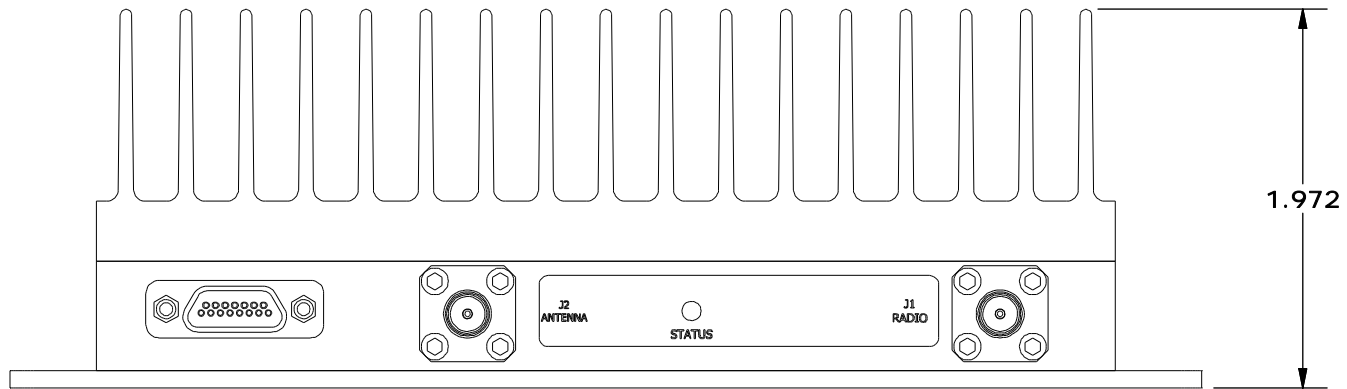
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# HEATSINK AND FAN OPTION



DRAWN	DMC	10/3/2013	HOUSING OUTLINE DRAWING 103		
DESIGNED	DMC	6/11/2015	SIZE	DWG NO.	REV
CHECKED			A	OL_103	0
ENG APPROVED			SCALE: NONE	CAGE CODE 67DZ3	SHEET 4 OF 5
MFG APPROVED					

LOW PROFILE HEATSINK OPTION  
 CONTACT TRIAD FOR SAFE OPERATING  
 CONDITIONS REQUIRED FOR USE OF LOWER  
 HEIGHT HEATSINK



DRAWN	DMC	10/3/2013	HOUSING OUTLINE DRAWING 103		
DESIGNED	DMC	6/11/2015			
CHECKED			SIZE	DWG NO.	REV
ENG APPROVED			A	OL_103	0
MFG APPROVED			SCALE: NONE	CAGE CODE 67DZ3	SHEET 5 OF 5