

DESCRIPTION

This class AB GaN 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

- Forward Power Measurement
- Temp. Monitor Output
- Manual or Automatic Tx/Rx Switching Available
- Over-Temperature Protection
- Optional Heatsink
- Tx / Rx Status Monitor

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
PSat Power Output		+47.0		dBm
Gain		25.0		dB
Gain Flatness		1.0		± dB
Input Return Loss	-15			dB
Operating Voltage	+10	+12	+14	VDC
Current Draw		6.0	15.0	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		dB
Gain Flatness			1.0	± dB
Noise Figure		2.5		dB
OIP3		+15.0		dBm
Input Return Loss	-10			dB
Current Draw		100.0		mA

MECHANICAL		
PARAMETER	VALUE	UNIT
Dimensions (L x W x H)	5.3 x 3.25 x 0.6	in
RF Connectors (Input / Output)	SMA-F / SMA-F	--
DC / Control Connector	21 Pin Micro-D	--
Cooling	Baseplate Conduction - Optional Heatsink Available	--
Mounting	4-40 Thru Holes	--
Weight	13	oz.
Weight With Heatsink	35	oz.

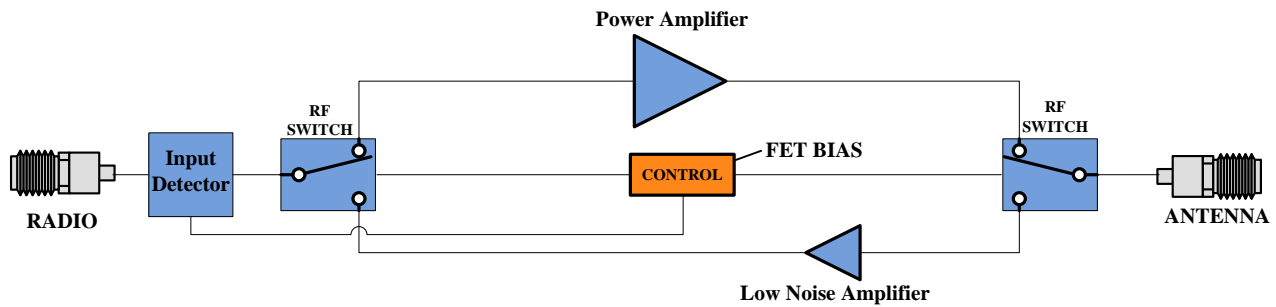
ENVIRONMENTAL / PROTECTIONS			
PARAMETER	MIN	MAX	UNIT
Operating Temperature (Housing Temp.)	-40	+85	°C
Storage Temperature	-60	+100	°C
Humidity Range	0-95		%
Altitude	0-30,000		ft.
Shock / Vibration	MIL-STD-810 and equivalents		--
Max RF Input	17		dBm
PA Baseplate Shutoff Temperature	+85		°C

INPUT/OUTPUT PINS				
AMPLIFIER CONNECTOR TYPE:		21 PIN MICRO-D FEMALE		
TRIAD CABLE PART NUMBER:		CBL45		
PIN LABEL	NAME	DESCRIPTION	TYPE	LEVEL
1-3,12-13	+VDC	Supply Voltage - Range Specified in Datasheet	Power	--
4	TX DET	Tx Amp RMS Power Detector	Output	Analog
5	TEMP	Temp Monitor: Temp in DegC = (Vout - 0.5V) * 100	Output	Analog
6	RAD DET	Radio Input RMS Power Detector	Output	Analog
7	STATUS	BDA Status - TTL High = Normal Operation, TTL Low = Error Condition	Output	3.3V TTL
8	TX/RX	Tx/Rx Switching - TTL High = Tx Amp Enabled, TTL = Rx Amp Enabled	Input	3.3V TTL
9-11,20-21	GND	+VDC Supply Return	Power	---
14	STATE	BDA Operational State - TTL High = Tx Amp Active, TTL Low = Rx Amp Active	Output	3.3V TTL
15-18	Reserved	Reserved for Future Use, Do Not Connect	---	---
19	SGND	Signal Ground	--	--

802-11G (20 MHz BW) DATA RATE VS. OUTPUT POWER			
OFDM MODULATION	DATA RATE	POUT (W) MIN.	EVM
64QAM	54 Mbps	10	≤ -27 dB
16QAM	36 Mbps	15	≤ -21 dB
QPSK	12 Mbps	20	≤ -15 dB
BPSK	9 Mbps	40	≤ -7 dB

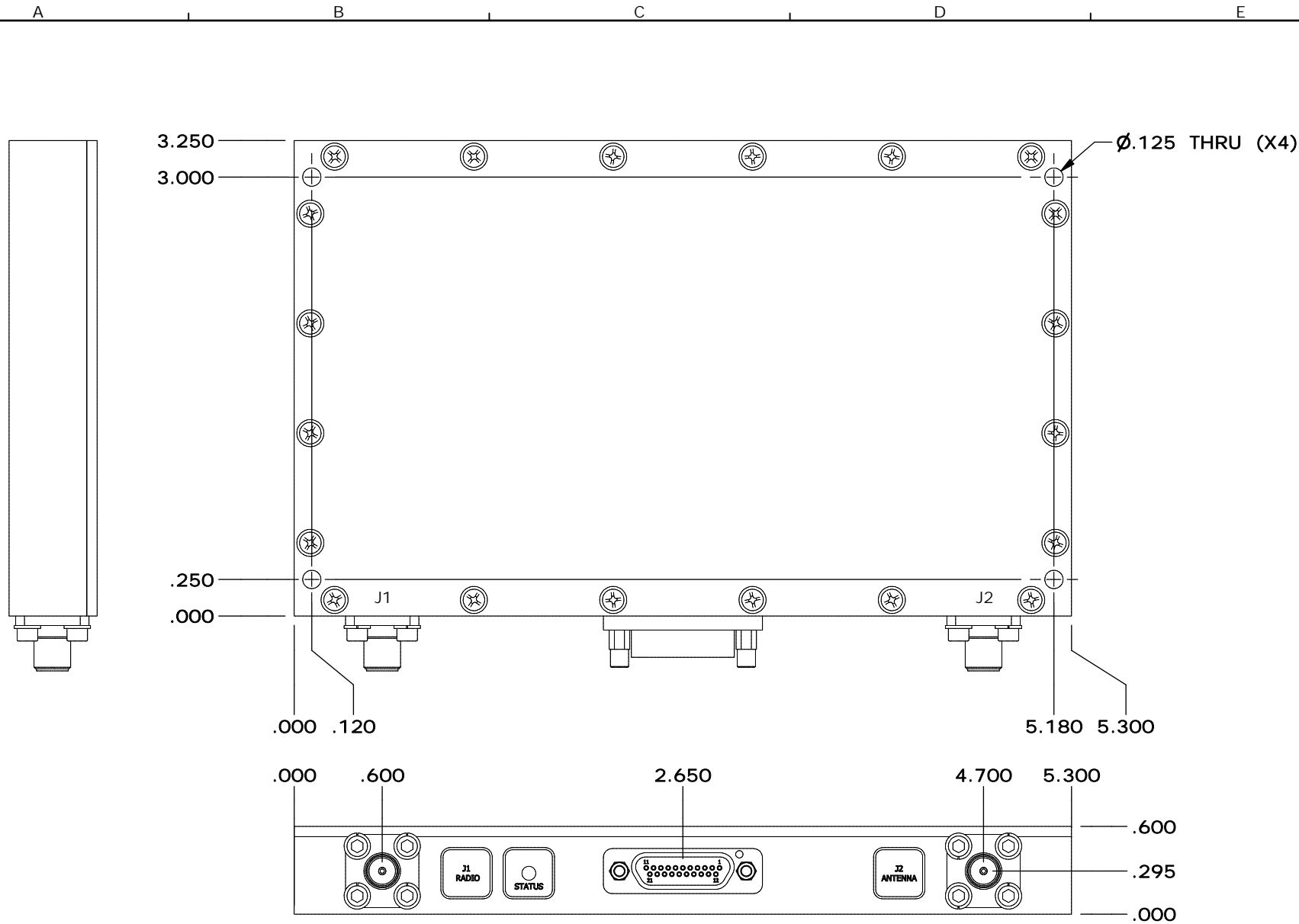
See our [application note](#) that describes how this table was calculated and provides notes on in-system performance

High-Level Block Diagram



Ordering Guide – Configuration Information		
Model Number	Amplifier Option	Heat Sink Option
TTRMXXXX	- XXX	- XXX

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



DRAWN	scopp	1/31/2018
DESIGNED	DMC	5/11/2017
CHECKED		
ENG APPROVED		
MFG APPROVED		



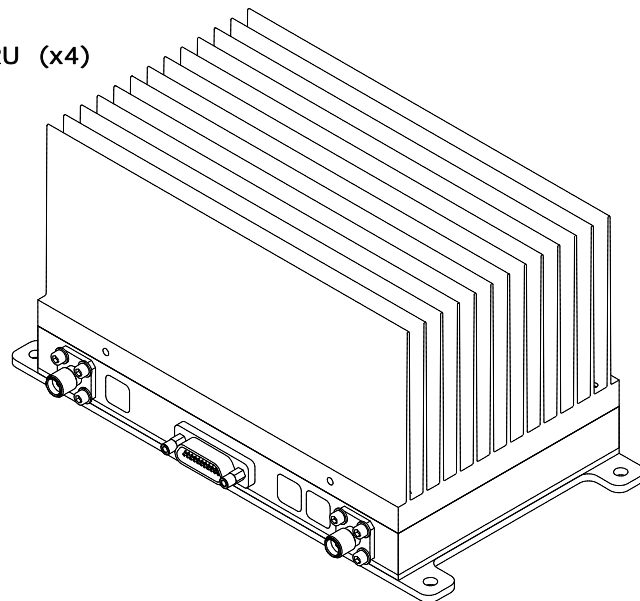
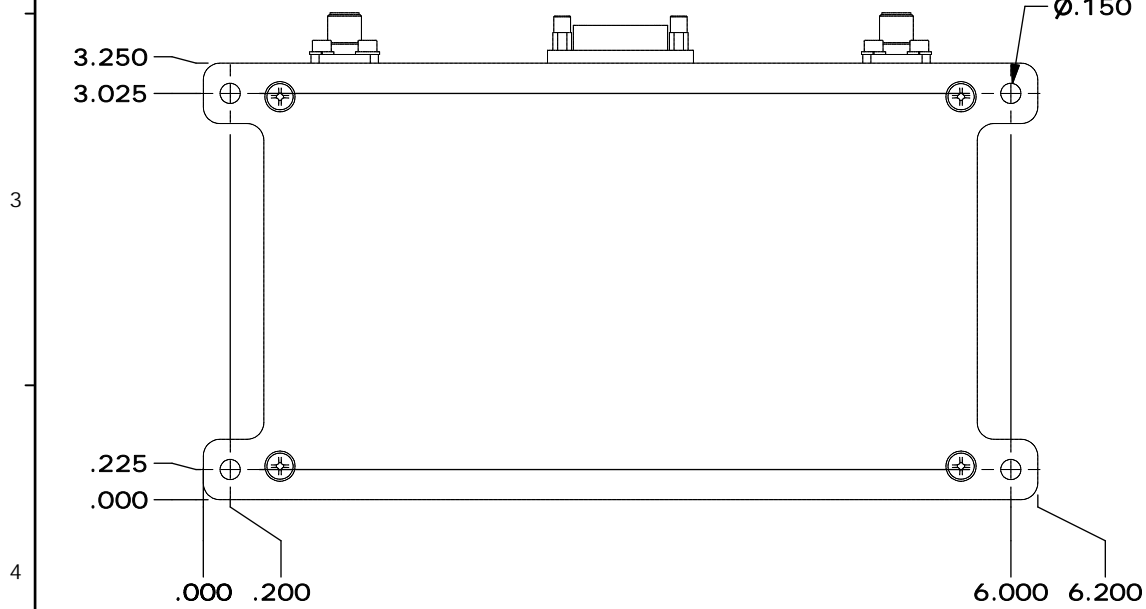
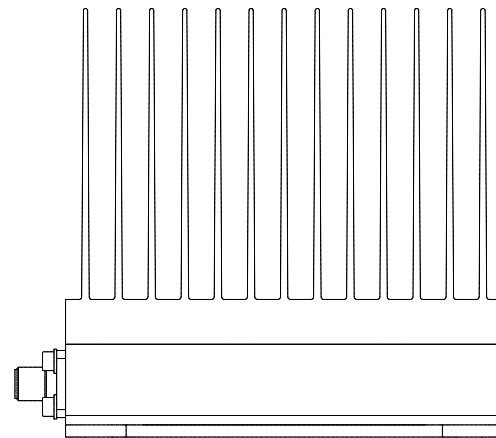
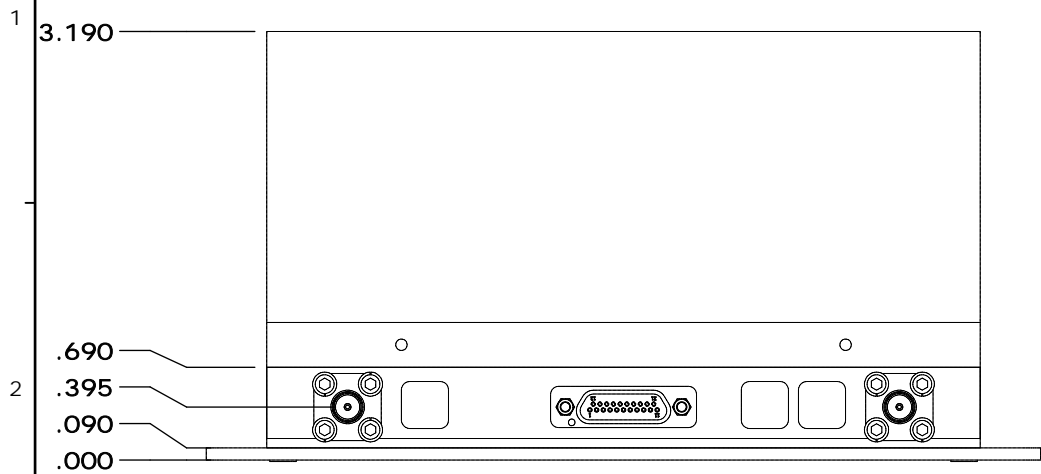
11 HARTS LANE SUITE 1
EAST BRUNSWICK, NJ 08816
855- 558- 1001

HOUSING OUTLINE DRAWING 170

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

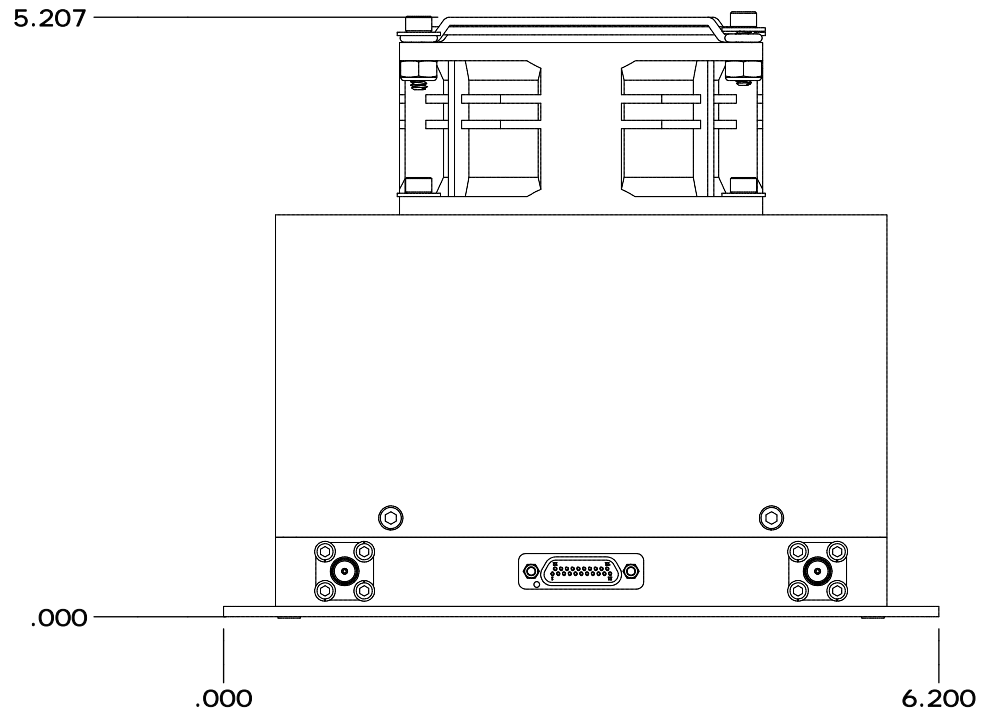
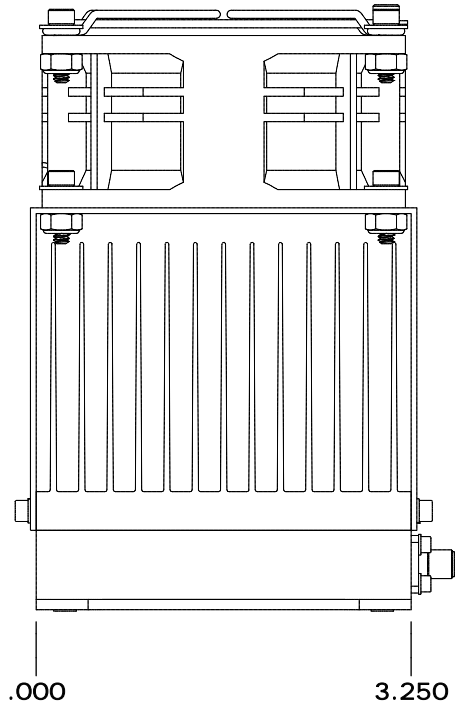
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A	OL_170	1
SCALE: NONE	CAGE CODE 67DZ3	SHEET 1 OF 4

HEATSINK



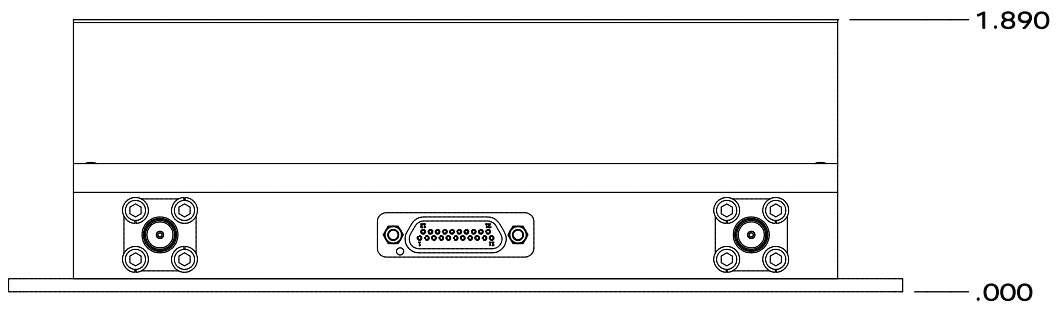
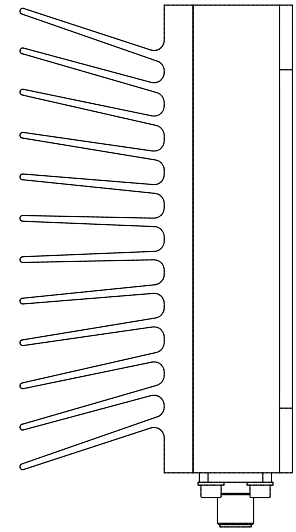
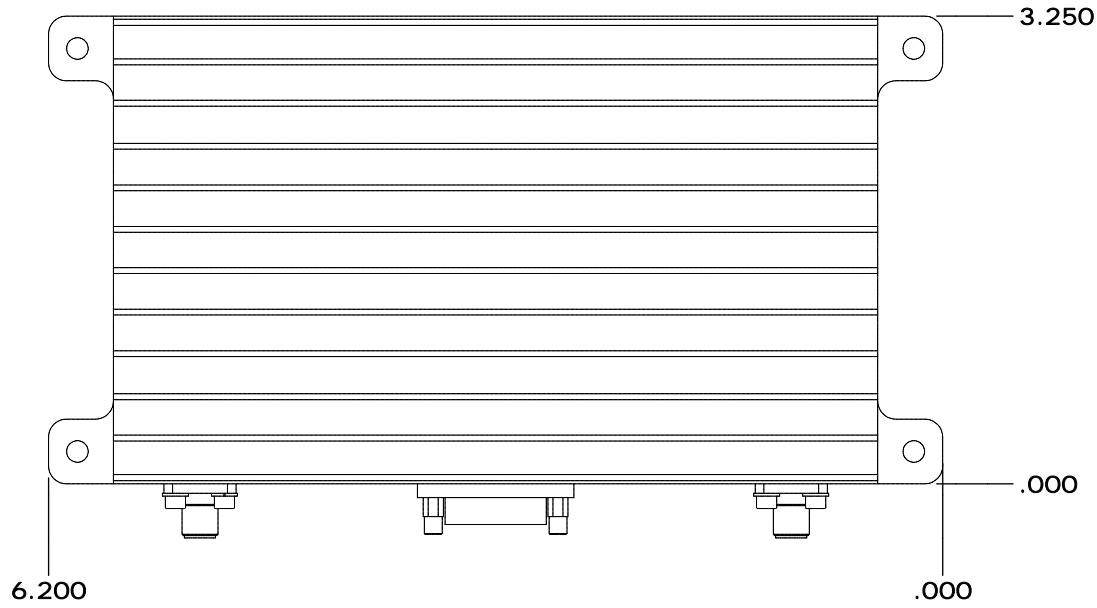
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DESIGNED	DMC	5/11/2017	SIZE	DWG NO.	REV
CHECKED			A	OL_170	1
ENG APPROVED			SCALE: NONE	CAGE CODE	SHEET 2 OF 4
MFG APPROVED				67DZ3	

HEATSINK WITH FAN OPTION



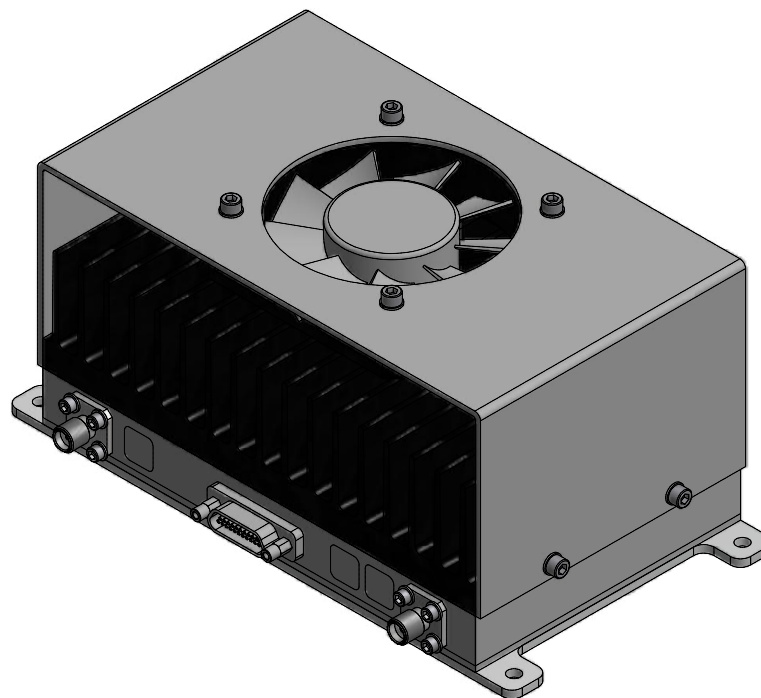
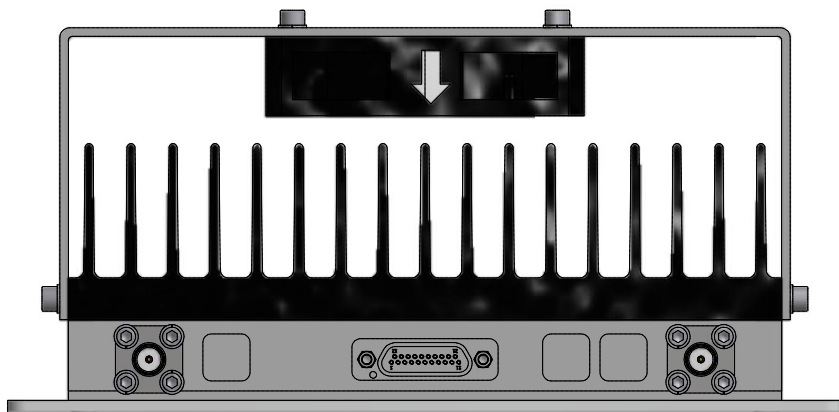
DRAWN	scopp	1/31/2018	HOUSING OUTLINE DRAWING 170		
DESIGNED	DMC	5/11/2017	SIZE	DWG NO.	REV
CHECKED			A	OL_170	1
ENG APPROVED			SCALE: NONE	CAGE CODE 67DZ3	SHEET 3 OF 4
MFG APPROVED					

LOW PROFILE OPTION
CONFIRM USABILITY WITH TRIAD BEFORE ORDERING



DRAWN	scopp	1/31/2018	HOUSING OUTLINE DRAWING 170		
DESIGNED	DMC	5/11/2017			
CHECKED			SIZE	DWG NO.	REV
ENG APPROVED			A	OL_170	1
MFG APPROVED			SCALE: NONE	CAGE CODE 67DZ3	SHEET 4 OF 4

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0	INITIAL RELEASE	6/18/18	SC



DRAWN	Keenan	6/18/2018
DESIGNED	DMC	5/11/2017
CHECKED		
ENG APPROVED		
MFG APPROVED		



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TTRM4000 HS2F OPTION

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

SIZE	DWG NO.	REV
A	TTRM4000- HS2F	0
SCALE: NONE	CAGE CODE 67DZ3	SHEET 1 OF 2

A

B

C

D

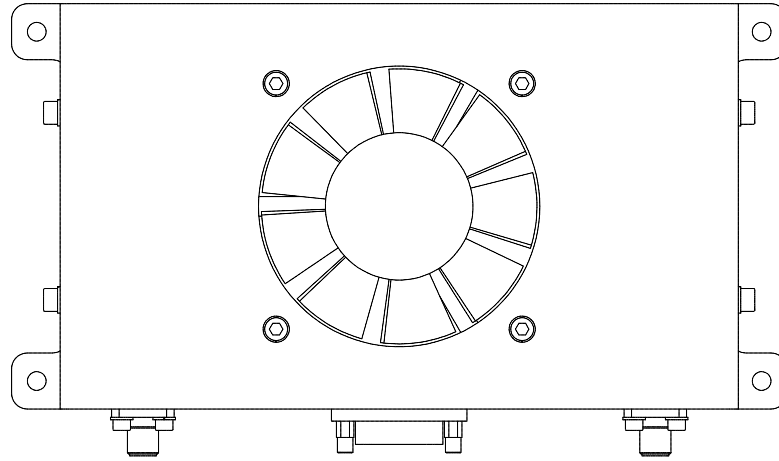
E

1

1

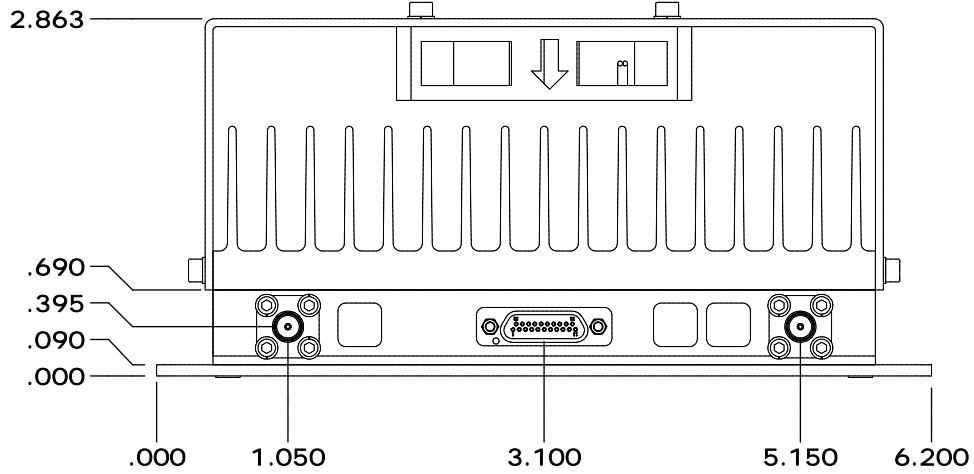
2

2



3

3



4

4

A

B

C

D

E

DRAWN	Keenan	6/18/2018	TTRM4000 HS2F OPTION		
DESIGNED	DMC	5/11/2017	SIZE	DWG NO.	REV
CHECKED			A	TTRM4000- HS2F	O
ENG APPROVED			SCALE: NONE	CAGE CODE 67DZ3	SHEET 2 OF 2
MFG APPROVED					