

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

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

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		+44.0		dBm
Gain		25.0		dB
Gain Flatness		1.0		± dB
Input Return Loss	-15			dB
Operating Voltage	+10	+12	+14	VDC
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.

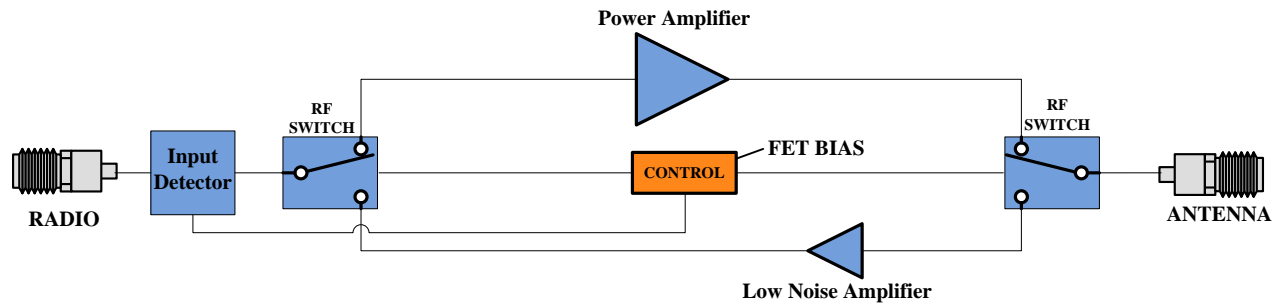
ENVIRONMENTAL / PROTECTIONS			
PARAMETER	MIN	MAX	UNIT
Operating Temperature (Housing Temp.)	-40	+85	°C
Humidity Range	0-95		%
Altitude	0-30,000		ft.
Shock / Vibration	MIL-STD-810 and equivalents		--
Max RF Input	17		dBm
PA Baseplate Shutoff Temperature	+85		°C

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	FWD 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		
9-11,20-21	GND	+VDC Supply Return		
7	Status	BDA Status - TTL High = Normal Operation, TTL Low = Error Condition	Output	5V TTL
8	Tx/Rx	TTL High or No Connection = Tx, TTL Low = Rx	Input	3.3V TTL
19	SGND	Signal Ground		
14-18	Reserved	Reserved for future use	--	--

802-11G (20 MHz BW) DATA RATE VS. OUTPUT POWER			
OFDM MODULATION	DATA RATE	POUT (W) MIN.	EVM
64QAM	54 Mbps	5	≤ -27 dB
16QAM	36 Mbps		≤ -21 dB
QPSK	12 Mbps		≤ -15 dB
BPSK	9 Mbps	20	≤ -7 dB

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

High-Level Block Diagram

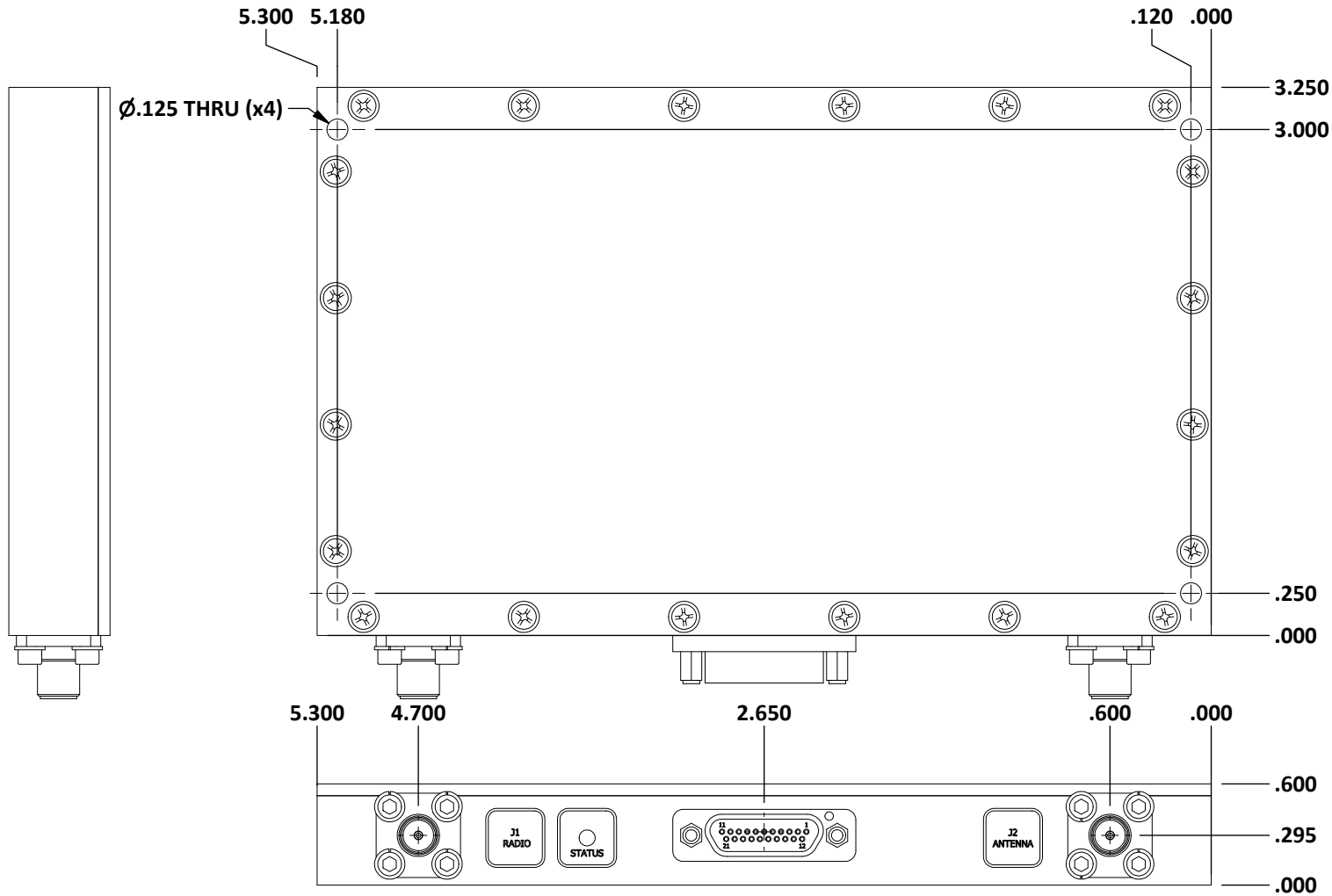


Ordering Guide – Configuration Information		
Model Number	Amplifier Option	Heat Sink Option
TTRMXXXX	- XXX	- XXX

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

MATERIAL: ALLOY 6061 FINISH: MIL-DTL-5541 TYPE 2 CLASS 3

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0	INITIAL RELEASE	01/31/18	SC
1	E18365	08/13/18	SC
2	E20567	02/18/20	AK



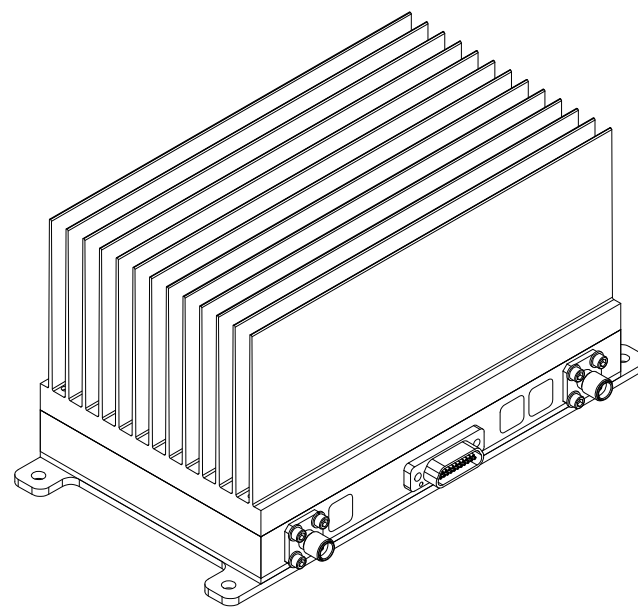
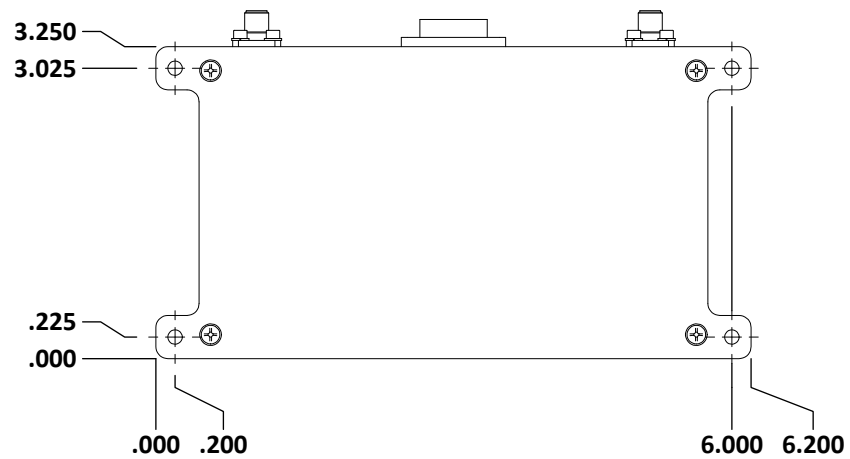
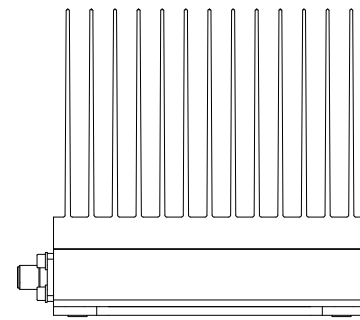
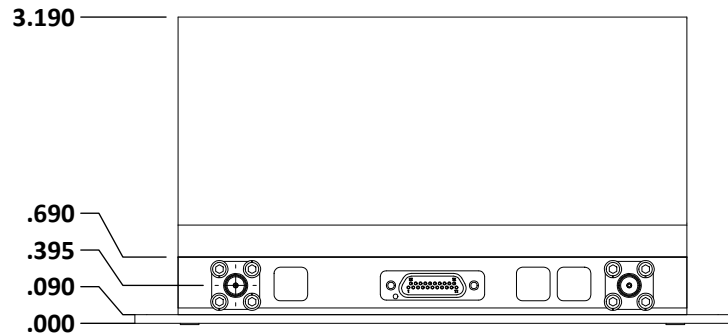
DRAWN	Anthony	2/18/2020
DESIGNED	DMC	5/11/2017
CHECKED		
ENG APPROVED		11/27/2019
MFG APPROVED		11/27/2019

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

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

SIZE	DWG NO.	REV
A	OL_170	
SCALE: NONE	CAGE CODE 67DZ3	SHEET 1 OF 5

HEATSINK



DRAWN	Anthony	2/18/2020			
DESIGNED	DMC	5/11/2017			
CHECKED			SIZE	DWG NO.	REV
ENG APPROVED		11/27/2019	A	OL_170	
MFG APPROVED		11/27/2019	SCALE: NONE	CAGE CODE 67DZ3	SHEET 2 OF 5

A

B

C

D

E

1

1

2

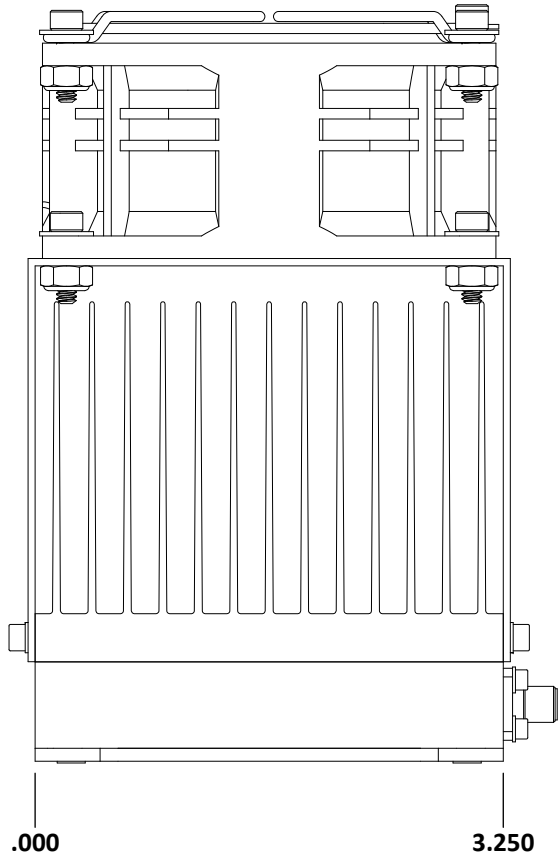
2

3

3

4

4



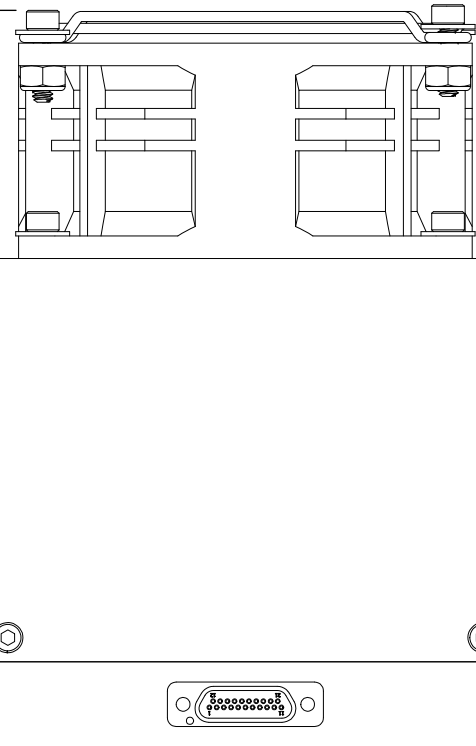
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3.491

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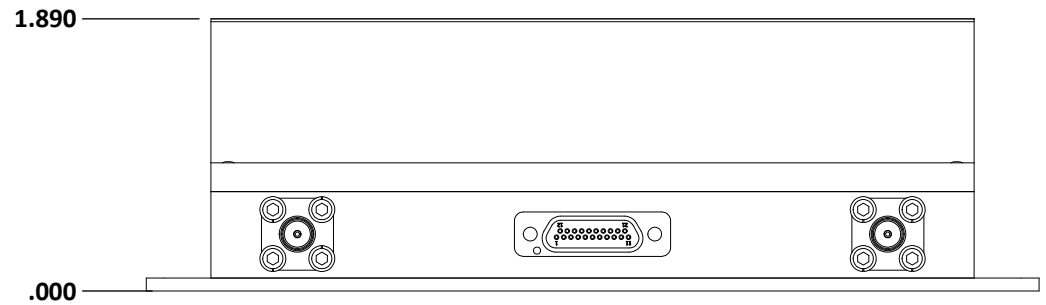
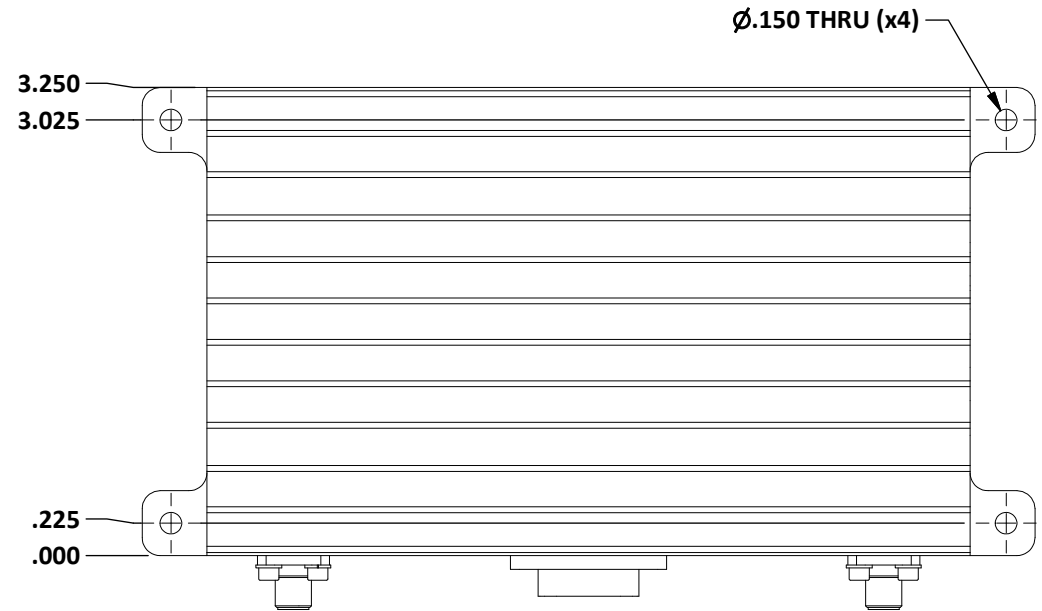
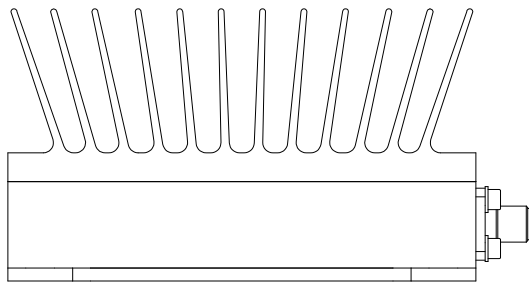
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6.200



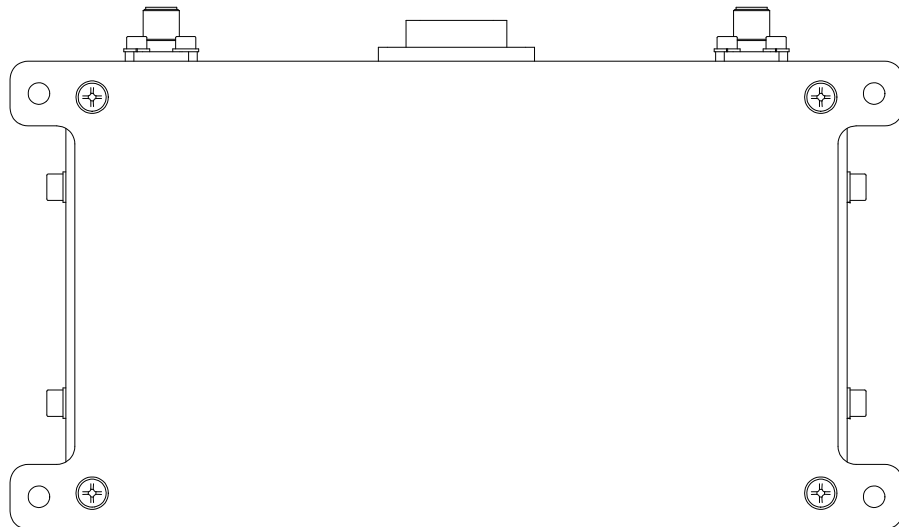
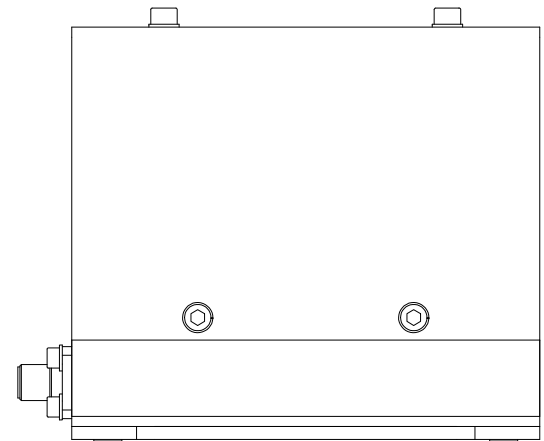
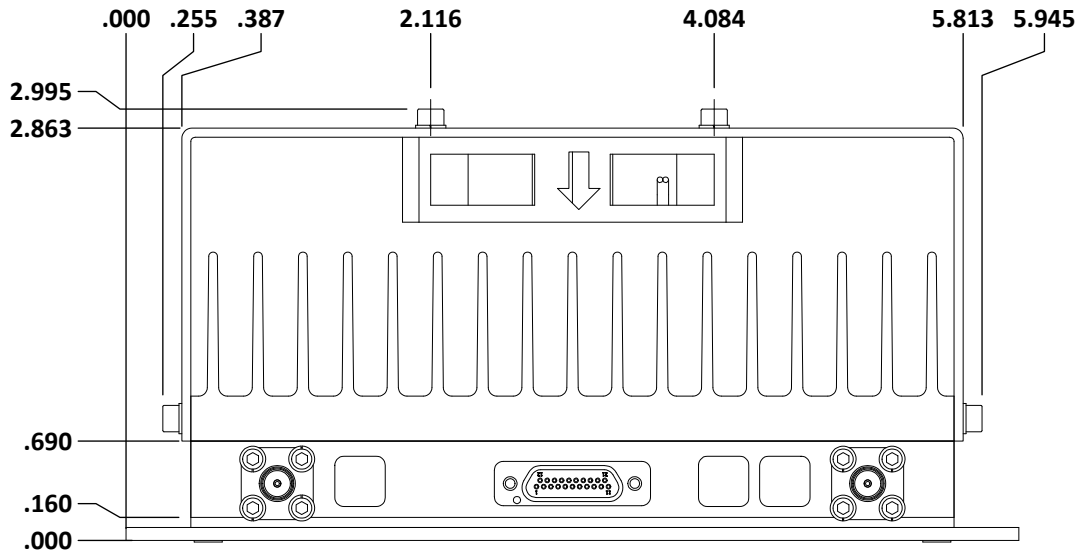
DRAWN	Anthony	2/18/2020			
DESIGNED	DMC	5/11/2017			
CHECKED			SIZE	DWG NO.	REV
ENG APPROVED		11/27/2019	A	OL_170	
MFG APPROVED		11/27/2019	SCALE: NONE	CAGE CODE 67DZ3	SHEET 3 OF 5

LOW PROFILE OPTION
 CONFIRM USABILITY WITH TRIAD BEFORE ORDERING



DRAWN	Anthony	2/18/2020			
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ENG APPROVED		11/27/2019	A	OL_170	
MFG APPROVED		11/27/2019	SCALE: NONE	CAGE CODE 67DZ3	SHEET 4 OF 5

LOW PROFILE HEATSINK FAN



DRAWN	Anthony	2/18/2020			
DESIGNED	DMC	5/11/2017			
CHECKED			SIZE	DWG NO.	REV
ENG APPROVED		11/27/2019	A	OL_170	
MFG APPROVED		11/27/2019	SCALE: NONE	CAGE CODE 67DZ3	SHEET 5 OF 5