

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

Manual or Automatic Tx/Rx Switching Available
Over / Under Voltage Protection

Over-Temperature Protection
Temp. Monitor Output

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

TX SPECIFICATIONS(PER CHANNEL)				
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	-14			dB
Operating Voltage	+12		+28	VDC
Tx / Rx Switching Time		1.0	2.0	uS
RX SPECIFICATIONS(PER CHANNEL)				
PARAMETER	MIN	TYP.	MAX	UNIT
P1dB Power Output		+5.0		dBm
Gain		12.0		dB
Gain Flatness			1.0	± dB
Noise Figure		2.5		dB
OIP3		+15.0		dBm
Input Return Loss	-10			dB
Current Draw		250.0		mA

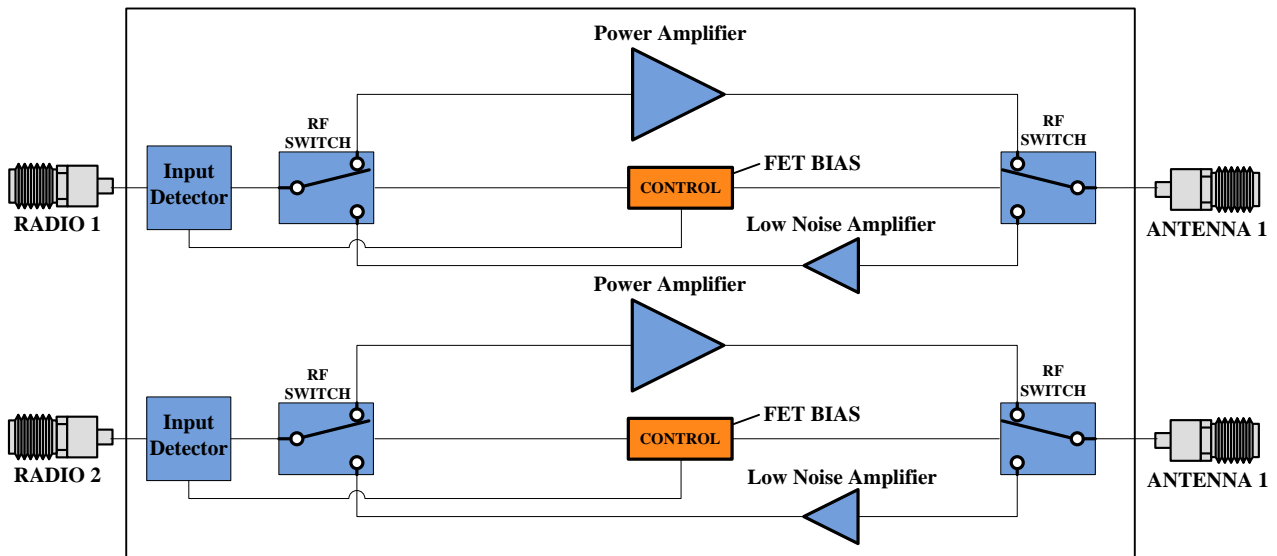
MECHANICAL			
PARAMETER	VALUE		UNIT
Dimensions (L x W x H)	6 x 4.77 x 2.5		in
RF Connectors (Input / Output)	TNC-F / TNC-F		--
DC / Control Connector	Circular Locking		--
Cooling	Baseplate Conduction - Optional Heatsink Available		--
Mounting	#8 Slots		--
Weight	40		oz.
ENVIRONMENTAL / PROTECTIONS			
PARAMETER	MIN	MAX	UNIT
Operating Temperature (Housing Temp.)	-40	+85	°C
Humidity Range	0-100		%
Altitude	0-20,000		ft.
Shock / Vibration	MIL-STD-810 and equivalents		--
Max RF Input	20		dBm
PA Baseplate Shutoff Temperature	+85		°C

INPUT/OUTPUT PINS		
AMPLIFIER CONNECTOR TYPE:	14 PIN CIRCULAR LOCKING	
TRIAD CABLE PART NUMBER:	CBL68	
MATING CONNECTOR PART NUMBER:	687	
PIN LABEL	NAME	DESCRIPTION
B, E, F	+VDC	Supply Voltage - Range Specified in Datasheet
L,K,P	GND	Ground
A	STATUS	BDA Status - TTL High = Normal Operation, TTL Low = Error Condition
C	Tx/Rx	TTL Control Line for Manual TX/RX Control - TTL LOW: RX Mode, TTL HIGH: TX Mode
J	STATE	BDA Operational State - TTL High = Tx Amp Active, TTL Low = Rx Amp Active
M	TEMP	Temp Monitor: Temp in DegC = (Vout - 0.5V) * 100
R	SGND	Signal Ground
D	FAN+	Fan supply (+28v)
N	FAN-	Fan return (GND)
H	NC	No Connection

802-11G (20 MHz BW) DATA RATE VS. OUTPUT POWER(PER CHANNEL)			
OFDM MODULATION	DATA RATE	POUT (W) MIN.	EVM
64QAM	54 Mbps	4	≤ -27 dB
16QAM	36 Mbps	8	≤ -21 dB
QPSK	12 Mbps	12	≤ -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



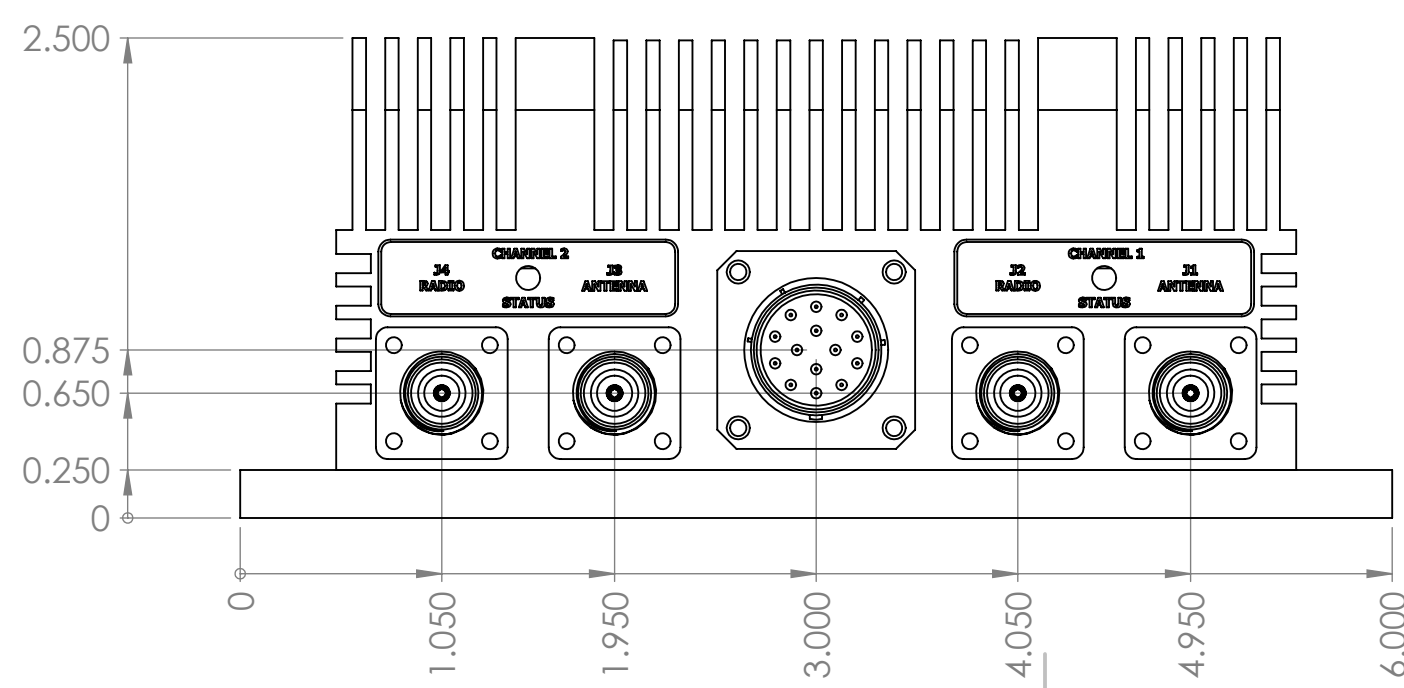
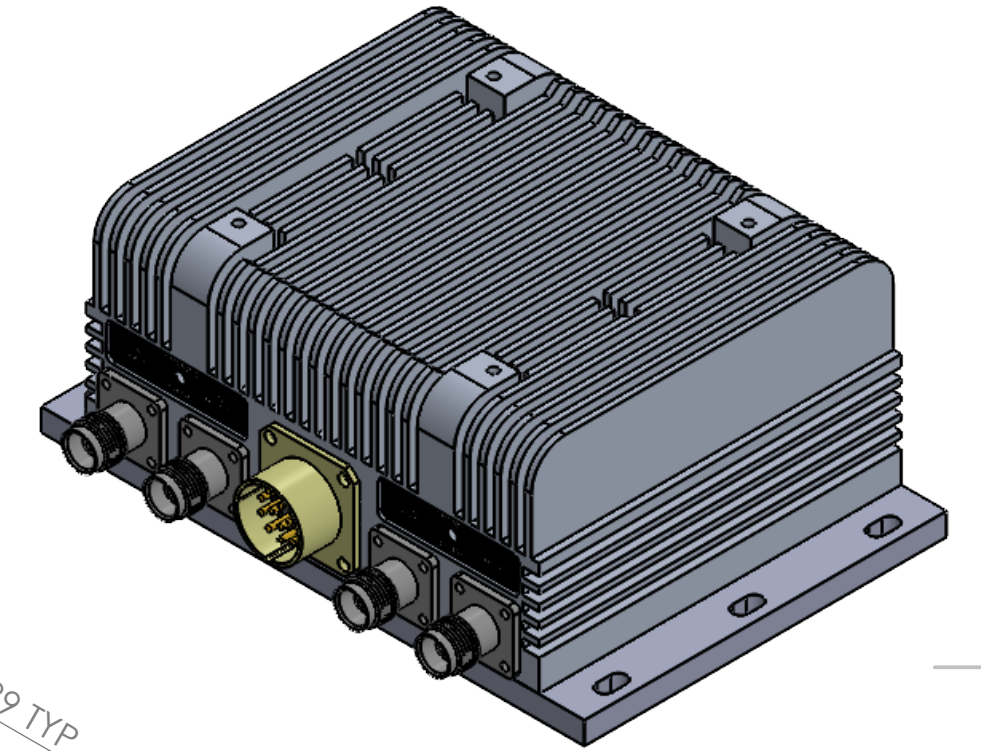
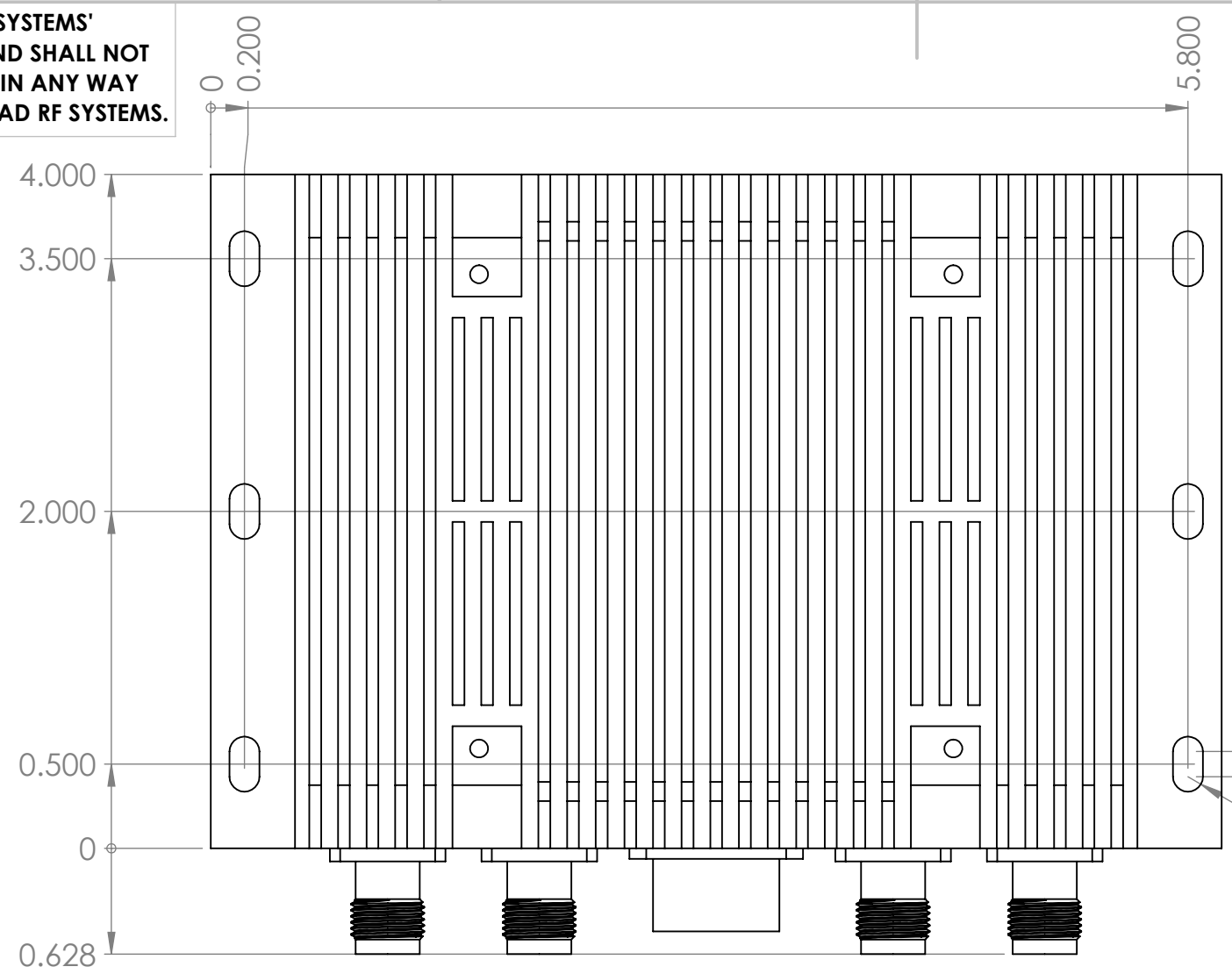
Ordering Guide – Configuration Information

Amplifier Options		Heat Sink Options	
Suffix	Description	Suffix	Description
D01	Automatic Tx/Rx Switching	(none)	Integrated Heat Sink
D02	Manual Tx/Rx Switching	F	Fan with Integrated Heat Sink
DXX	Custom Amplifier Configuration (issued by Triad upon customer request)		

Please confirm with Triad that the desired configuration is available prior to ordering.

THIS DOCUMENT CONTAINS TRIAD RF SYSTEMS' PROPRIETARY DATA/INFORMATION AND SHALL NOT BE DUPLICATED, DISCLOSED, OR USED IN ANY WAY WITHOUT WRITTEN CONSENT FROM TRIAD RF SYSTEMS.

REVISIONS			
REV	DESCRIPTION	DATE	APPR
0	INITIAL RELEASE	9/28/2018	SC
1	ECN 21785	3/16/2021	SC

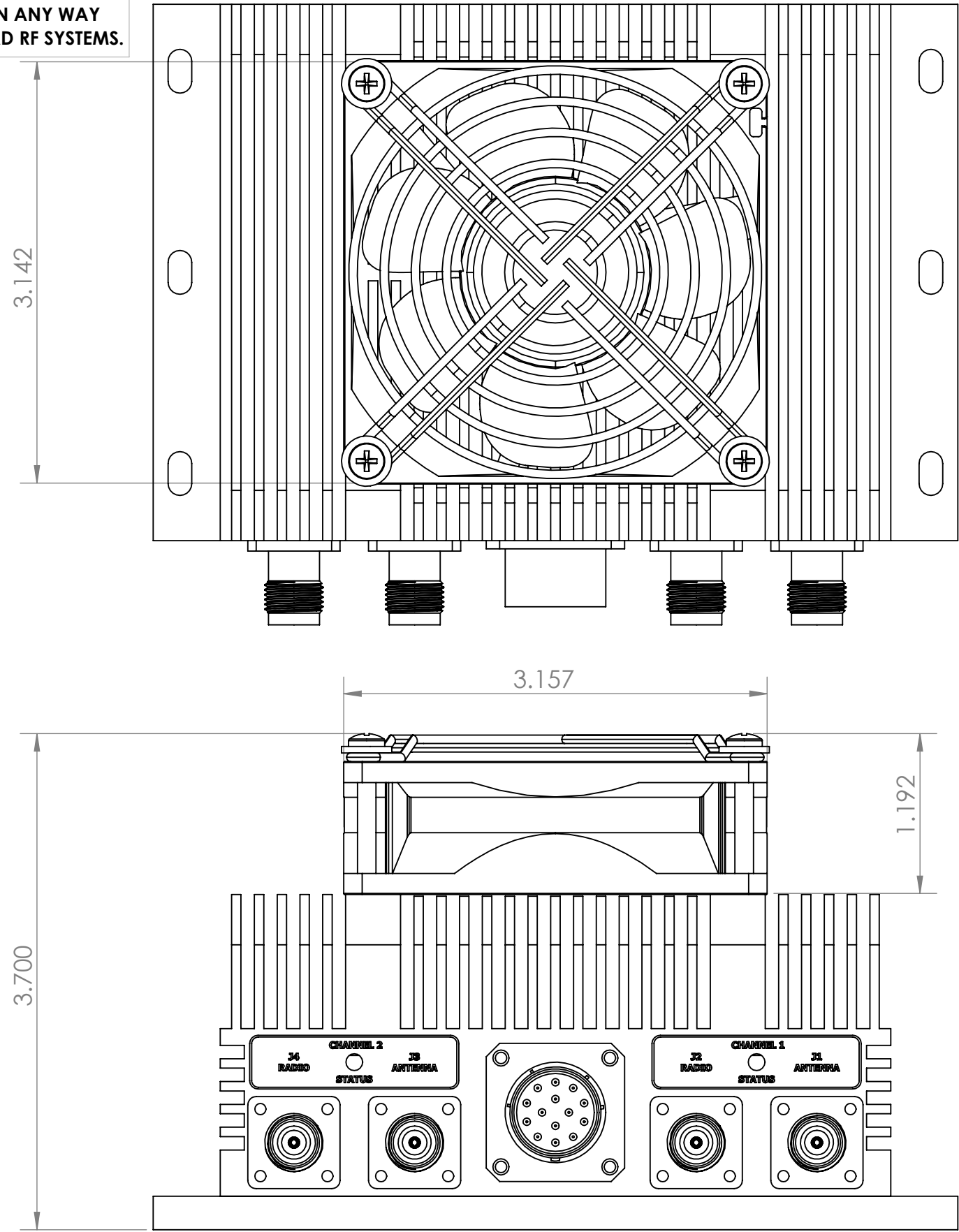


APPROVAL	DATE		Triad RF Systems 11 Harts Ln, Suite I East Brunswick, NJ 08816
DRAWN: DT	3/15/2021		
DESIGNED: DMC	9/28/2018	TITLE: HOUSING OUTLINE DRAWING 190	
ENG CHECK: SC	3/15/2021	SIZE: B	REVISION: 1.1
MFG CHECK:		DWG NUMBER: OL_190	
OPS:		SCALE: NONE	CAGE CODE: 67DZ3
			SHEET: 1 OF 2

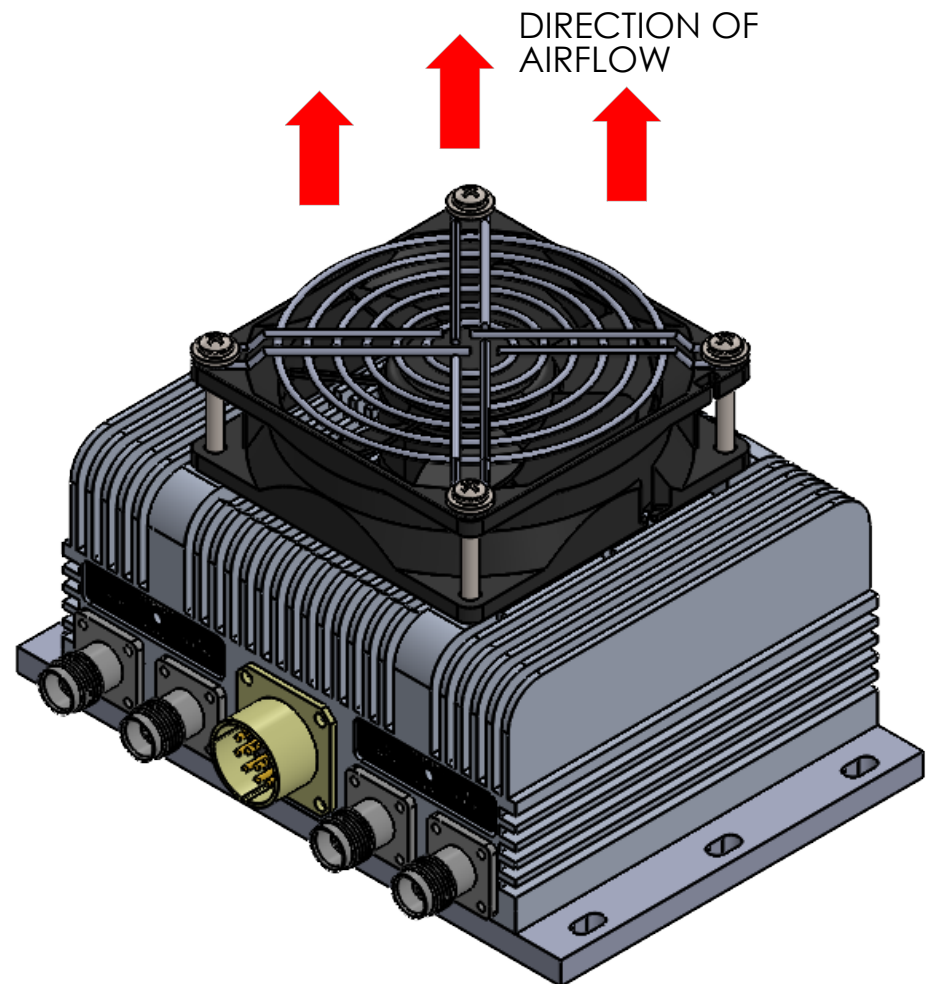
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE THICKNESS OF PLATING/FINAL FINISH TREATMENT

TOLERANCE
 2 PLACE DECIMAL: XX=±.01
 3 PLACE DECIMAL: XXX=±.005
 ANGULAR DIMENSIONS: ±1/2°

THIS DOCUMENT CONTAINS TRIAD RF SYSTEMS' PROPRIETARY DATA/INFORMATION AND SHALL NOT BE DUPLICATED, DISCLOSED, OR USED IN ANY WAY WITHOUT WRITTEN CONSENT FROM TRIAD RF SYSTEMS.



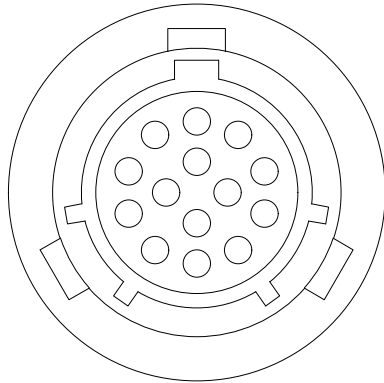
COOLING FAN OPTION



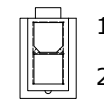
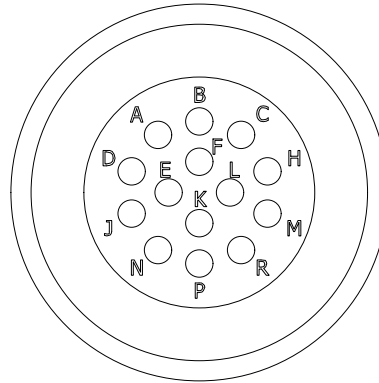
APPROVAL		DATE	TITLE: HOUSING OUTLINE DRAWING 190		
DRAWN:	DT	3/15/2021	SIZE:	REVISION:	DWG NUMBER:
ENG CHECK:	SC	3/15/2021	B	1.1	OL_190
MFG CHECK:			SCALE: NONE	CAGE CODE: 67DZ3	SHEET: 2 OF 2

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0	INITIAL RELEASE	7/11/18	DMC
1	E19504	7/6/20	AK

CONNECTOR FRONT VIEW
PT06E12-14S-SR



CONNECTOR BACK VIEW
PT06E12-14S-SR



Molex 0039013023 Front View

CBL68 Wiring - Connector PN PT06E12-14S-SR				
PIN	LABEL	WIRE COLOR	AWG	WIRE LENGTH
B, E, F	+VDC	Red	18	18"
L, K, P	GND	Black	18	18"
A	STATUS	White	20-24	18"
C	TX/RX	Blue	20-24	18"
J	STATE	Grey	20-24	18"
M	TEMP	Orange	20-24	18"
R	SGND	Black	20-24	18"
D	FAN+	Red	20-24	4"
N	FAN-	Black	20-24	4"
H	NC	-	-	-

MOLEX 0039013023 PINOUT	
PIN	PIN ON PT06E12-14S-SR
1	D
2	N

ALL WIRES MUST CONFORM TO MIL-W-16878/4 STANDARD
 MOLEX 0039013023 CONNECTOR TO SUPPLY POWER TO FAN
 PINS USED ON FAN SUPPLY CONNECTOR - MOLEX 0039000040

DRAWN	DMC	7/11/2018
DESIGNED	DMC	7/11/2018
CHECKED	DMC	7/7/2020
ENG. APPROVED	DMC	7/7/2020
MFG. APPROVED	DMC	7/7/2020



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

CBL68 Assembly

DIMENSIONS ARE IN INCHES
 UNLESS SPECIFIED OTHERWISE
 TOLERANCES
 DECIMALS FRACTIONS ANGLES
 .XX ±.01 ± 1/32 ± 1'
 .XXX ±.005
 WHEN IN DOUBT, ASK!

SIZE	DWG. NO.	REV
A	CBL68	1
SCALE: NONE	CAGE CODE 67DZ3	SHEET 1 OF 1