ANODYNE ELECTRONICS MANUFACTURING CORP.

SPECIAL NOTICE

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Please note the transition to convert product manuals and supporting documentation is an ongoing process and is being addressed on an ‘as needed’ basis.

All references to NAT product part numbers (and associated images) are equivalent to AEM product part numbers.

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SM47

VR33 Series
DC Power Converter

INSTALLATION AND OPERATION MANUAL

REV 5.00 May 21, 2012

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The status of this installation and operation manual is controlled by the revision shown on the title page. The status of each section is controlled by revision shown in the footer of each page. All revisions affecting sections of this manual have been incorporated.

AEM MANUAL REVISIONS

Section	Revision Number	Revision Description	Date
All	Rev: 5.00	Updated template	May 21, 2012

Table of Contents

Section 1.0 Description

1.1 Introduction

This manual contains information on the VR33 Series DC Power Converters. Descriptions and information will be given for the VR33-001 and the VR33-002 models. Any differences between the two models will be noted. All derivative products will be covered by manual supplements, which can be obtained from AEM as required. Information in this section consists of purpose of equipment, features and specifications.

1.2 Purpose of Equipment

The VR33 is a power conversion device designed to increase the nominal 28 Vdc aircraft voltage to 33 Vdc using high speed switching DC-DC conversion.

When used in conjunction with the AEM PA250/PA700 Series or high power RA amplifiers, the additional available voltage provided by the VR33 significantly increases the available power to the speakers and thus extends the audible range of the system.

1.3 Features

The VR33-001 is use3d with the PA250-xxx Audio Power Amplifier, and boosts the output power from 250 to 400 Watts.

The VR33-002 provides two outputs, which makes it ideal for use with the PA700-xxx Audio Power Amplifier. It boosts the PA700-xxx output power from 700 to 850 Watts.

1.4 Specifications

1.4.1 Electrical Specifications

Input		
Input Power	VR33-001	140 Watts
Input Power	VR33-001	280 Watts
Input Voltage		+28-0 Vdc nominal +21.0 Vdc minimum +32.0 Vdc maximum
Input Current	VR33-001	5.0 Adc + PA250-xxx current (15-20 Adc full load)
	VR33-002	10.0 Adc + PA700-xxx current (35 Adc full load)

Output	
Output Power Capacity	100 Watts (each converter)
Output Voltage	Input voltage + 5.0 Vdc (Nominally 28.0 Vdc + 5.0 Vdc = 33.0 Vdc)
Output Current Capacity	20.0 Amps dc (each converter)

1.4.2 Physical Specifications

Height	1.56" (39.6 mm) max excluding connectors
Depth	10.00” (254.0 mm) max excluding connectors
Width	8.75” (222.3 mm) max excluding connectors
Weight VR33-001 VR33-002	2.7 lbs (1.23kg) 3.9 lbs (1.77 kg)
Mounting	Beneath PA250 or PA700 Power amplifier
Material/Finish	Black Anodized Aluminum
Connectors VR33-001 VR33-002	One circular crimp bulkhead plug Two circular crimp bulkhead plugs

1.4.3 Environmental Specifications

Temperature:	-40° C. to +70° C
Altitude	25,000 feet
Vibration	DO-160C, Sec. 8.0, Cat. N
Compliance:	DO-160C Env. Cat. B4-XXNXXXXXXXXXXXXXXX

1.5 Unit Nomenclature

VR33-001	Boosts PA250 to 400 Watts Weight: 2.7 lbs. (1.23 kg)
VR33-002	Boosts PA700 to 850 Watts Weight: 3.9 lbs. (1.77 kg)

End of Section 1.0

Section 2.0 Installation

2.1 Introduction

Information in this section consists of: unpacking and inspection procedures, installation procedures, post-installation checks, and installation drawings.

2.2 Unpacking and Inspection

Unpack the equipment carefully. Inspect the unit visually for damage due to shipping and report all such claims immediately to the carrier involved. Note that each unit should have the following:

- VR33 Series DC Power Converter
- Product Information Card
- Release certification

Verify that all items are present before proceeding and report any shortage immediately to your supplier.

2.2.1 Warranty

All Anodyne Electronics Manufacturing Corp. (AEM) products are warranted for 2 years. See the website www.aem-corp.com/warranty for complete details.

2.3 Installation Procedures

2.3.1 Cabling and Wiring

The VR33-001 is mounted directly beneath the PA250 Power Amplifier, and the VR33-002 is mounted directly beneath the PA700 Power Amplifier, with the VR33 connected in series. No additional cabling is required.

For all other cabling requirements, consult the PA250 and PA700 Series High Power Voice Amplifiers manual, SM44.

2.3.2 Mechanical Installation

The VR33 is designed for installation directly beneath PA250 or PA700 Power Amplifiers. The VR33 should be mounted to the bulkhead using the mounting-holes (dimensions shown on **Mechanical Installation** drawings VR33\001\922-0 and VR33\002\922-0).

2.3.3 Post-Installation Checks

2.3.3.1 Voltage/resistance checks

Do not attach the VR33 to the PA250 or PA700 until the following conditions are met.

Check the following (one connector for VR33-001, two for VR33-002):

a) Check J5 and J6 pin **<B>** for continuity to ground (less than 0.5 Ω).

b) Check P6 (aircraft power connector) pin **<A>** for +28 Vdc relative to ground.

c) Install P6 to J6 (VR33 connector), and then check J5 (PA connector) **<A>** for +33 Vdc relative to ground.

2.3.3.2 Power On checks

Install the VR33 and power up the system. Verify normal operation of all functions with reference to all system components.

Note: To verify proper operation, all functions and levels should be checked in-flight (if appropriate).

Upon satisfactory completion of all performance checks, make the required log entries and complete the necessary Regulatory Agency paperwork before releasing the aircraft for service.

2.4 Continued Airworthiness

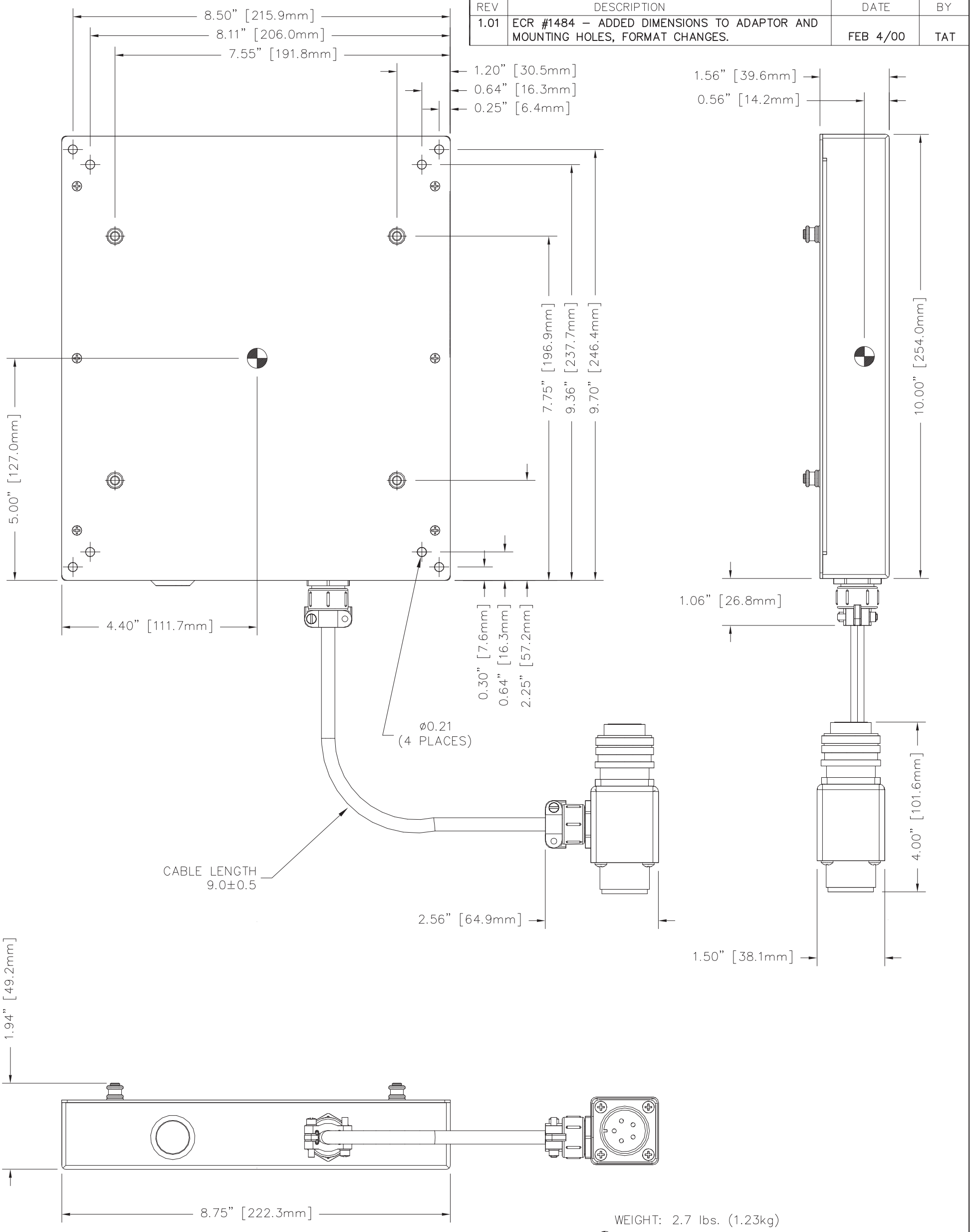
Maintenance of the VR33 is 'on condition' only. Periodic maintenance of this product is not required.

2.5 Installation Drawings

DRAWING	REV.	DESCRIPTION	TYPE
VR33-001			
VR33\001\922-0	1.01	DC Power Converter	Mechanical Installation
VR33-002			
VR33\002\922-0	1.00	DC Power Converter	Mechanical Installation

Section 2.0 ends following above documents

REVISIONS			
REV	DESCRIPTION	DATE	BY
1.01	ECR #1484 – ADDED DIMENSIONS TO ADAPTOR AND MOUNTING HOLES, FORMAT CHANGES.	FEB 4/00	TAT



WEIGHT: 2.7 lbs. (1.23kg)

CENTER OF GRAVITY ±0.05

NOTE:
CENTER OF GRAVITY TEST DONE WITHOUT CONNECTOR ASSEMBLY.

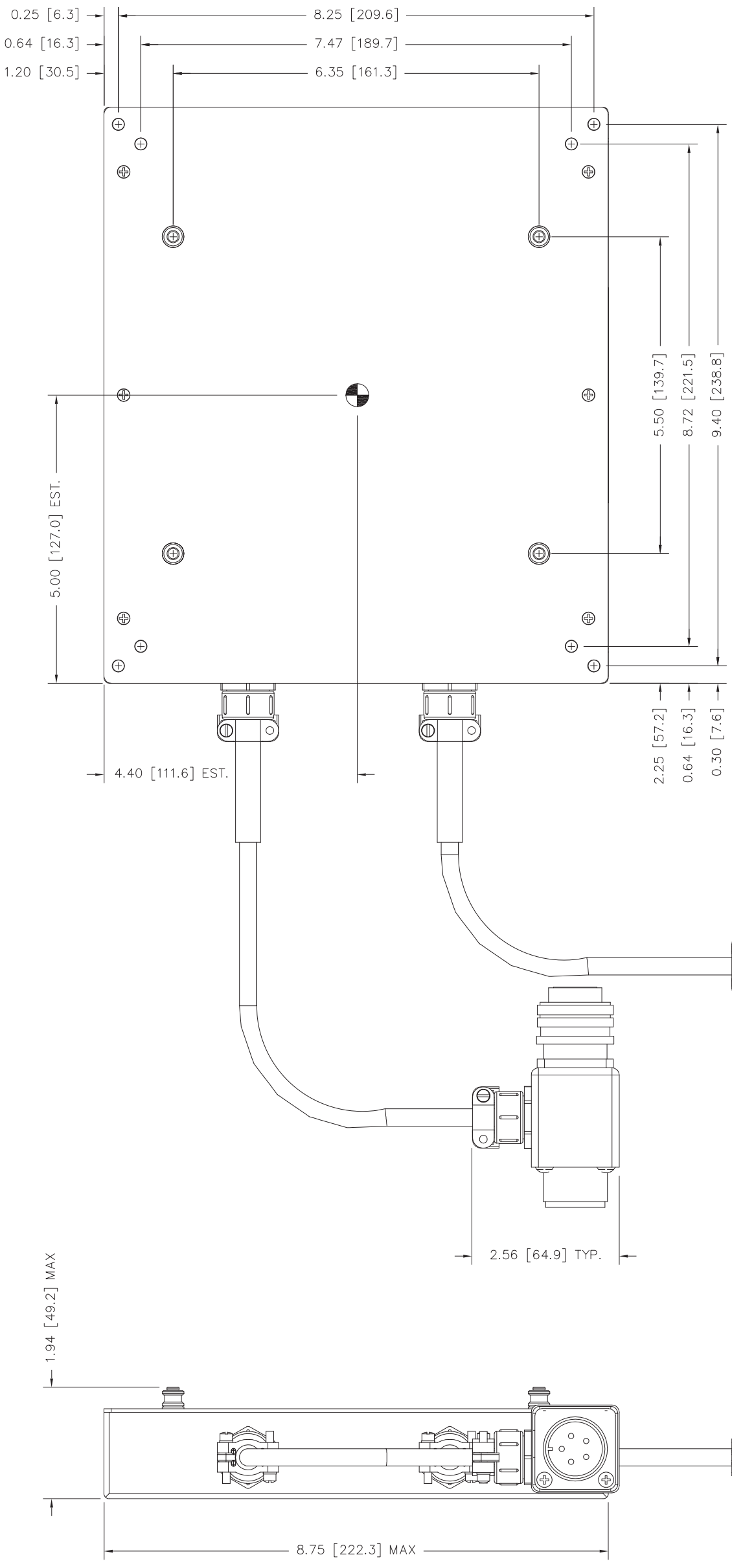
TOLERANCES UNLESS STATED OTHERWISE 0.X=+/−0.030 0.XX=+/−0.010 0.XXX=+/−0.005 0.XXXX=+/−0.002 ANGLE=+/− 0.5 DEG.	DIMENSIONS IN INCHES THIRD ANGLE PROJECTION	DESIGNED	–
		DRAWN	MWS/TAT
		DATE	JUL 21/98
		CHECKED	NAT 231 NAT 223
MATERIAL		APPROVED	NAT 117
FINISH		FILE	922−0101.DWG

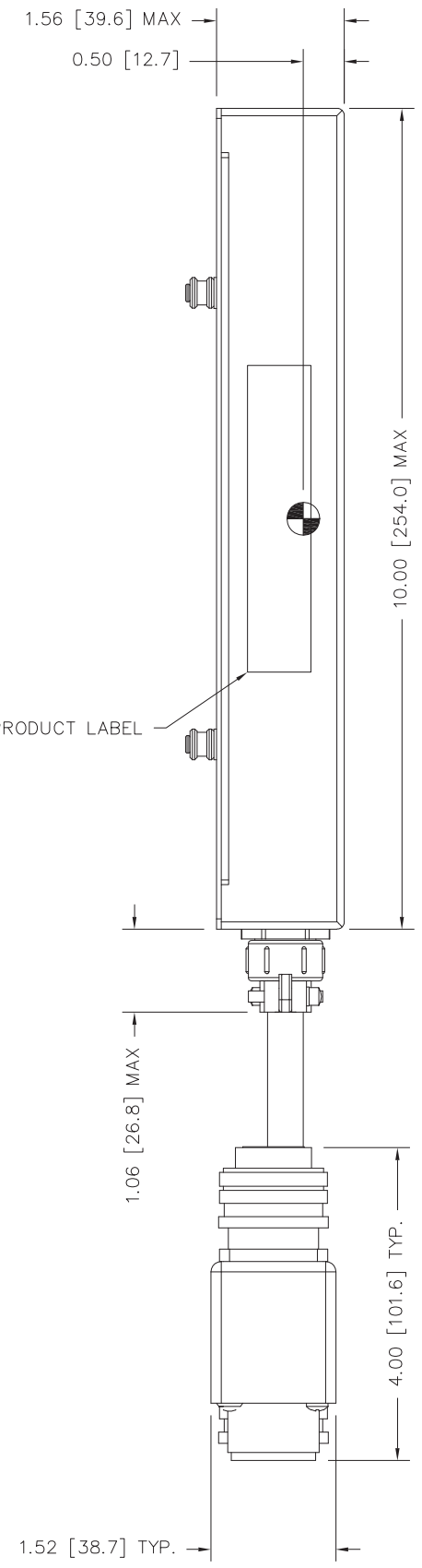
NORTHERN AIRBORNE TECHNOLOGY LTD.

TITLE: DC POWER CONVERTER

SIZE	CAGE CODE	PART NO.	REV.	SHEET
B	3AB01	VR33−001	1.01	1/1

DWG. TYPE: MECH. INSTALLATION | DWG. NO. VR33\001\922−0





CENTER OF GRAVITY

NOTES:
1. DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH ASME Y14.5M–1994.
2. CENTER OF GRAVITY TEST DONE WITHOUT CONNECTOR ASSEMBLIES.

DIMENSIONS ARE INCHES [mm]	DESIGNED	–	nat NORTHERN AIRBORNE TECHNOLOGY LTD.			
THIRD ANGLE PROJECTION	DRAWN	MWS				
	DATE	JUN 09/04	TITLE: DC POWER CONVERTER			
MASS: 3.9 lbs. (1.77 kg)	CHECKED	NAT 225 NAT 249				
MATERIAL –	APPROVED	NAT 123	SIZE B	CAGE CODE 3AB01	PART NO. VR33–002	REV. 1.00 / SHEET 1/1
FINISH –	FILE 922–0.DWG		DWG. TYPE MECH. INSTALLATION		DWG. NO. VR33\002\922–0	

Section 3.0 Operation

3.1 Introduction

Information in this section consists of the functional and operational procedures for the VR33 Series DC Power Converter.

3.2 General

The VR33 Series DC Power Converter has no operator accessible controls.

End of Section 3.0