ORBIT

OceanTRx™

OceanTRx7™

Maritime Stabilized VSAT System

Technical Note

Power Supplies

Document: TEC32-1664-004,

September 2013

COMMUNICATION WITHOUT BOUNDARIES

Orbit Communication Systems Ltd. P.O.B. 42504, Israel, Tel: +(972) 9 892 2777, Fax: +(972) 9 885 5944 **www.orbit-cs.com**

Copyright

Disclaimer of Warranty

Orbit Communication Systems Ltd. has made every effort to ensure the accuracy and relevancy of the material in this document. It is expected that all sections of this document will be read thoroughly and that all information and procedures should be fully understood.

However, Orbit Communication Systems Ltd. assumes no responsibility for any errors that may appear in this document, and reserves the right to make changes to the document without notice.

Orbit Communication Systems Ltd. makes no warranty of any kind in regard to this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Orbit Communication Systems Ltd. disclaims any responsibility for incidental or consequential damages in connection with the furnishing, performance or use of this document.

Parts of this document may be based on hardware or software developed by third-party vendors. Orbit Communication Systems Ltd. disclaims any responsibility for the accuracy of this document with respect to such hardware and software, and assumes no responsibility for incidental or consequential damages arising due to discrepancies between this document and such hardware or software.

Revision History and Control

Revision History

Rev #	Modified by	Date	Comments
.	Albert	September 24, 2013	New Release

About this Manual

This manual is designed to guide you through the procedures required for maintaining the `POWER SUPPLIES` for the OceanTRx7™ Maritime Satellite Communication System.

Text Conventions

Style	Indicates	Example
Text	Normal descriptive text	Contents
`Text`	Words or figures that appear on the screen or that should be typed The name of a file or directory	`System Status`
`<Text>`	A key to be pressed	`<ESC>`
`TEXT`	The name of a hardware component	`ANTENNA`
Text	The name of a GUI element	**Operation Screen**
➢	The description of a procedure	➢ **To configure…**

Notations

	Indicates important information that should be noted.
	Indicates a potential hazard.
	Indicates the safest method of installation or an operation that *must be adhered to.*

Effective Releases

This document is effective for both OrBand™(AL-7107) and OceanTRX7™ Maritime Satellite Communication System.

For a description of the changes between OrBand™ and OceanTRX7™, refer to the *OceanTRx7™ Maritime Satellite Communication System Release Notes*.

Table of Contents

1 Introduction

1.1 Purpose

The purpose of this Technical Note is to provide detailed instructions on how to replace a POWER SUPPLY.

1.2 Principles

The following principles must be followed when performing the procedures in this Technical Note.

1.2.1 Torque Table

The following table provides the torque that should be used when tightening screws of the listed types, as relevant.

Table 1-1: Torque Values

Screw Type	Torque
M8	$25^{N}/_{m}$
M6	$10.2^{N}/_{m}$
M5	$6^{N}/_{m}$
M4	$2.5^{N}/_{m}$
M3	$1.35^{N}/_{m}$

1.3 Power Supplies Description

The system contains AC-to-DC modules which convert the AC mains input voltage (90-130/200-250 VAC, 50/60 Hz) to:

1) +24 VDC for distribution to the ACU which serves as a DC-DC conversion box for the remaining ADE components (for example, ADMX, IMU, GPS).
2) 2x48 VDC, two of these modules are connected in series providing +96 VDC to the SERVO subsystem.

The AC mains input voltage is connected to the ADE POWER BOX. The power supply modules and other ADE components located above the TURNTABLE receive power from the POWER BOX via the AZIMUTH AXIS SLIP-RING/ROTARY-JOINT ASSEMBLY.

A UPS should be used for the power supply.

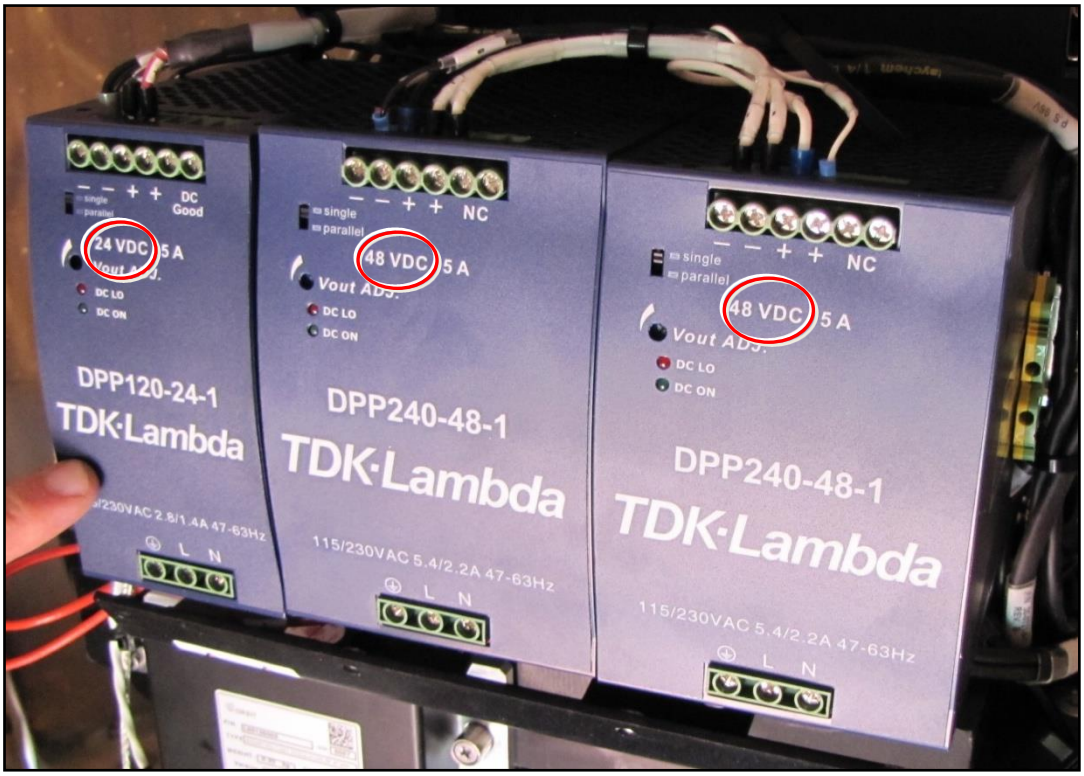


Figure 1-1: Power Supplies Unit

1.4 Spare Kit Contents

The following tables provide a list of the parts in the POWER SUPPLIES spare kit.

Table 1-2: Spare Part Kit Contents (ACU)

KIT32-1664-009-SP		
P/N	**Description**	**Quantity**
E22000031	P.S 115/230VAC 24V 5A 120W	1
K03000010	RUB 3M 950+SILIC 2MM FOR PSU	1
PKG-049	PKG BOX 240X150X130mm RSC	1

Table 1-3: Spare Part Kit Contents (Servo Power)

KIT32-1664-010-SP		
P/N	**Description**	**Quantity**
30-0727-9-1	CABLE DC POWER PS2 TO PS3 AL-7107-PSU	1
E22000022	P.S 115/230VAC 48V 5A 240W LF	2
K03000010	RUB 3M 950+SILIC 2MM FOR PSU	1
PKG-049	PKG BOX 240X150X130mm RSC	1

1.5 Required Tools and Parts

The following table provides a list of tools and customer-supplied parts that are needed to perform the procedures in this Technical Note.

Table 1-4: Required Tools and Parts

Tool/Part Name	Notes	Figure
Medium Phillips screwdriver		
Flat screwdriver		
Tie cutter		

2 Preliminary Procedures

➢ **To Perform Preliminary Procedures:**

The following preliminary procedure must be performed before replacing a POWER SUPPLY:

1 The preliminary procedure described below must be performed before replacing the SHUNT REGULATOR:

1. Open the RADOME hatch.
2. Switch off the ADE POWER BOX at the ANTENNA PEDESTAL base (located inside the RADOME).
3. Toggle the SERVO DRIVER MAINT/OPER switch on the servo driver to MAINT position to release the brake and allows smooth movement of the axis .
4. Manually rotate the PEDESTAL AXES to gain convenient access to the serviced unit.

In the following procedures, be very careful when tightening and loosening the screws with which the parts are assembled and attached to the system. Some of these screws are delicate and can be damaged by excess force. When using an Allen key make sure to insert the key all the way into the screw head to avoid thread stripping.

WARNING!

The Utility Outlet is connected directly to the vessel's AC voltage input terminals (125 VAC / 250 VAC). Therefore, there still exists live voltage at the Utility Outlet after disconnecting the power supply to the ADE using the Mains Power On/Off Switch.

Only qualified and authorized personnel are allowed to carry out system service/maintenance procedures.

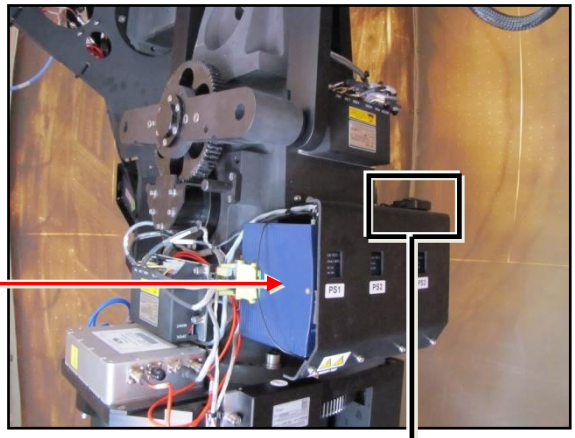
3 Replacing a Power Supply

3.1 Removing the Power Supply

➢ **To Remove the Power Supply:**

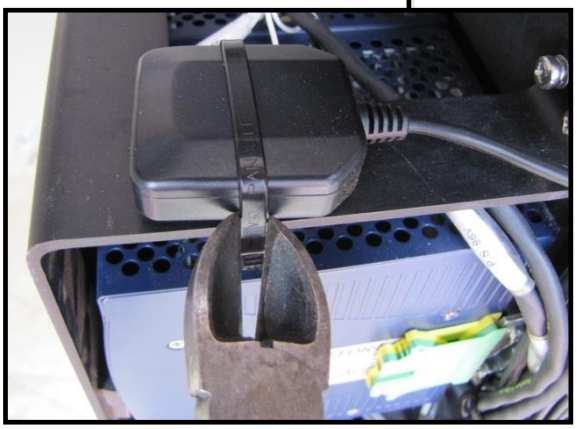
Step 1

Locate the POWER SUPPLIES module.



Step 2

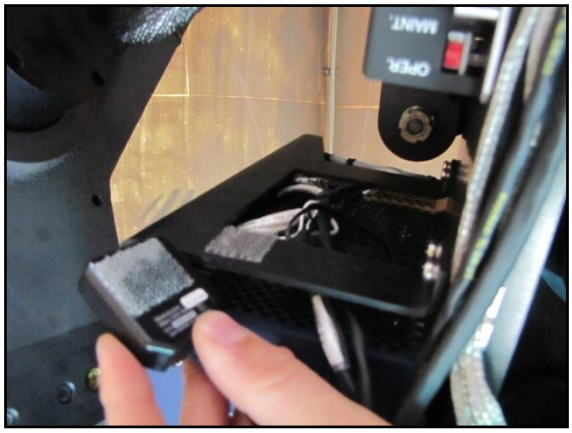
Cut tie wrap securing GPS MODULE.



Step 3

Remove GPS MODULE.

Scotch is securing the GPS MODULE to the PS cover.

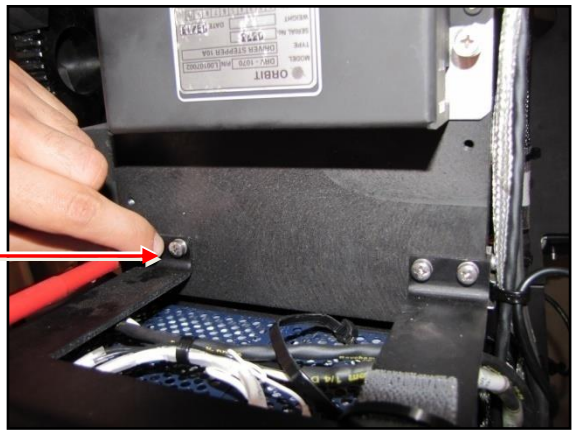


Step 4

Remove the screws securing the POWER SUPPLY's COVER to the PEDESTAL using a Phillips screwdriver.

Four screws at the lower part of the COVER.

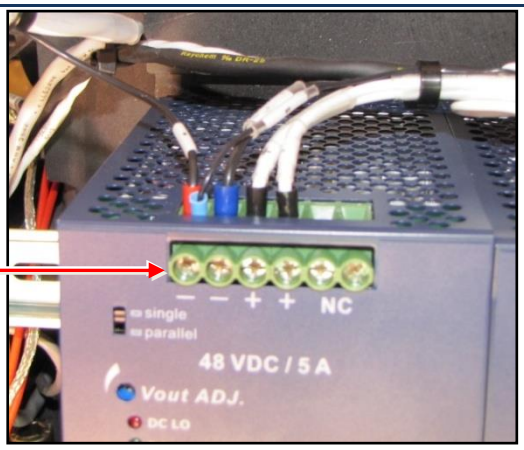
Four screws at the upper part of the COVER.



Remove the POWER SUPPLIES COVER.

Step 5

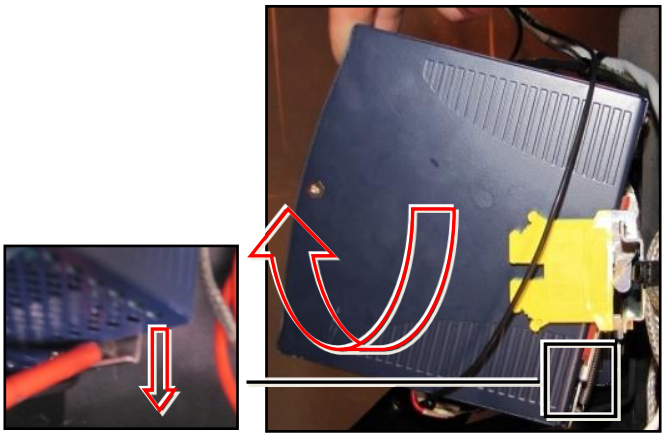
Use a screwdriver to disconnect the top wires connected to the POWER SUPPLY unit you want to remove.



Step 6

Use a flat screwdriver to release the DIN rail holder holding the POWER SUPPLY unit to its mounting strip.

Do not fully remove the unit yet.



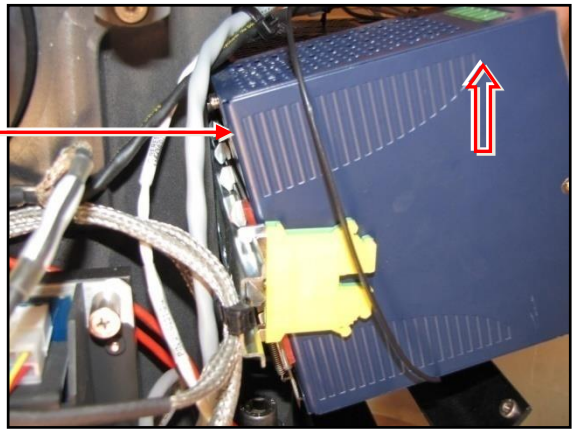
Step 7

Use a screwdriver to disconnect the bottom wires connected to the POWER SUPPLY unit.

Step 8

Remove the POWER SUPPLY unit.

Pull unit up to release from its mounting strip.

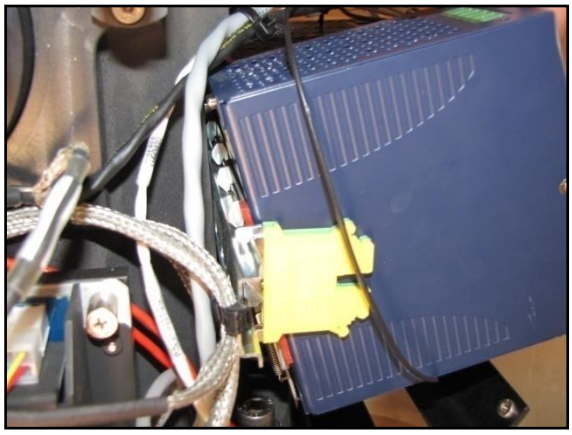


3.2 Installing a Power Supply

➢ **To Install the Power Supply:**

Step 1

Mount the new POWER SUPPLY unit on the upper side of the rail mounting strip.



Do not press down the lower part yet.

Step 2

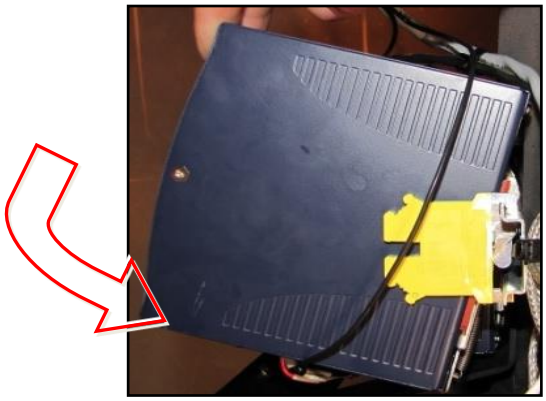
Insert the wires to their proper marked position and tighten them using a screwdriver.

Make sure you connect each wire to the same position from which it was removed (use cables markings).

Step 3

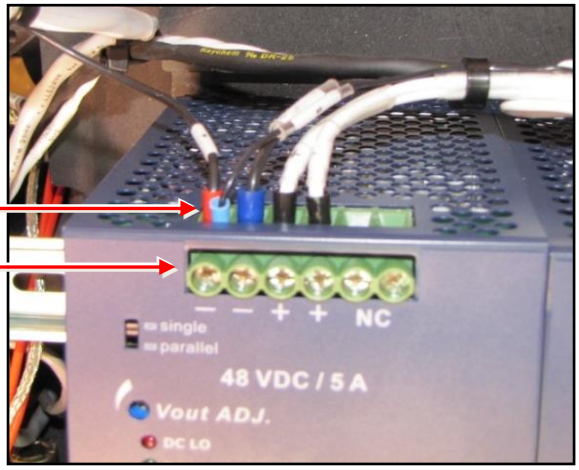
Mount the new POWER SUPPLY unit on the upper side of the DIN rail mounting strip.

Push the lower part of the POWER SUPPLY unit, click should be heard.



Step 4

Insert the wires to their proper marked position and tighten them using a screwdriver.



Make sure you fasten each wire to the same position from which it was removed (use cables markings).

Step 5

Reinstall the POWER SUPPLY's COVER.

Step 6

Hand tight the four upper Philips screws of the POWER SUPPLY's COVER.

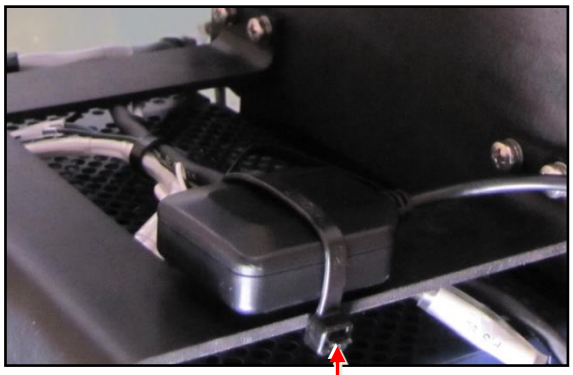
Hand tight the four lower Philips screws of the POWER SUPPLY's COVER.

Use a Phillips screwdriver to fasten all eight screws securing the POWER SUPPLY's COVER to the PEDESTAL.

Step 7

Reinstall the GPS MODULE.

Scotch securing GPS MODULE to its place.



Step 8

Use a tie wrap to secure the GPS MODULE.

4 Performing Verification Test

➢ **To Perform Verification Test:**

1. To make sure the technical process completed successfully click on **Test Traj.**
2. Inside the dome verify the green LED on the PS module is on.
3. Verify that all MTSVLINK fields are populated and there are no ERR/WRN system messages.
4. Acquire the satellite and verify normal AGC and modem RX and TX lock
5. Select mode Test trajectory from the side bar.
6. Run the system in test trajectory for at least 1 hour.
7. Verify no ERR/WRN system messages