

TSC 4037A 1 x 16 L1/L2 Distribution Amplifier

Operations and Maintenance Manual



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TSC 4037A 1 x 16 L1/L2 Distribution Amplifier Operations and Maintenance Manual

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Revision History

Revision	Description	Date	Approved
A	Initial Release	26 Oct 2004	GAR
B	Add jumper information	28 June 2005	GAR
C	Change default jumper setting, add D.O.C. and additional specs.	25 May 2006	GAR

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1: Introduction



Note

FIRST READ THIS MANUAL THOROUGHLY!

This is especially true for the sections regarding **Safety** and **Installation**.

1.1 Symbols

These symbols appear throughout the manual as well as on the unit itself.



Note

This symbol means the following information is a note that gives you important information that may affect how you use the 4037A.



Caution, refer to manual. Read all instructions in Manual before using this product.



Caution – Risk of Electrical shock



Fuse symbol



Earth terminal symbol: Used to indicate an earth ground connection to chassis.

1.2 About This Manual

This manual tells you how to install, set up, monitor, and troubleshoot the 4037A.

“[Chapter 1, Introduction](#)” explains symbols that appear in the manual and on the unit as well as documentation conventions. The chapter also briefly describes the 4037A.

“[Chapter 2, Installing and Setting Up the 4037A](#)” contains important safety information and describes how to install the 4037A.

“[Chapter 3, Troubleshooting the 4037A](#)” describes how to replace fuses and verify operational problems.

“[Chapter 4, Warranty and Shipping Information](#)” explains how to contact Timing Solutions Corporation for warranty service and provides shipping guidelines.

“[Appendix A, Specifications](#)” contains the detailed specifications for the 4037A.

1.2.1 Conventions

This manual uses several typographical conventions to help explain how to use the 4037A.

Convention	Definition
Bold	Words in bold show: <ul style="list-style-type: none">■ Buttons and icons to click■ Menu options to select■ Commands to type■ Non-variable information displayed in response to commands
<i>Italics</i>	Words in <i>italics</i> show: <ul style="list-style-type: none">■ Names of windows and dialog boxes■ Variable information displayed in response to commands

1.3 4037A Overview

The TSC 4037A is a one input, sixteen output L1/L2 amplifier housed in a 1U (1.75") high 19 inch rack mount chassis. It provides sixteen outputs from a single input. The front panel provides green LED status for the voltage being supplied to the antenna (5V or 12V). Additionally, there is a green LED that provides power status.

[Figure 1](#) shows the 4037A's front panel, and [Figure 2](#) shows the 4037A's rear panel.



Figure 1: Front panel



Figure 2: Rear panel

2: Installing and Setting Up the 4037A

2.1 Safety First!



Warnings:

This unit is for INDOOR USE ONLY. It is not protected against a harmful ingress of moisture.

Do not attempt to install or operate this equipment if you have not first acquired proper training.

Equipment is intended to be installed in an Enclosed or Open type equipment rack

Ensure that all cables are properly connected. The power cord must be easy to remove from the back.

Verify that input line voltage and current capacity are within specifications before turning on power to the unit.

Disconnect all sources of input power before removing the top cover of this unit.

Operating and maintenance personnel must receive proper training before installing or maintaining electrical equipment.

2.2 Unpacking

To unpack the TSC 4037A unit:

1. Unpack and carefully inspect the unit.
 2. Check for physical damage.
 3. If no physical damage is apparent, then proceed with making appropriate connections.
 - If physical damage is observed, immediately contact Timing Solutions and the carrier.
 4. Save the shipping container for submitting any necessary claims to the carrier.
-

2.3 Cleaning



Warning

Do not spray or use too much liquid when cleaning the unit. Liquid can enter the unit and damage sensitive electronic components.

Clean the main chassis with a soft cloth dampened with a mild soap and water solution.

2.4 Installing the 4037A

The 4037A is shipped ready for installation into a standard 19" (48.3 cm) rack. Provisions are included for mounting General Devices slides with part numbers C-300-S-126, -128 and -130.

2.4.1 Required materials for installation

North American or European IEC power cord. One or the other will be supplied with the unit.

Customer supplied double-shielded RG223 cables with TNC connectors from source, and to next devices in system.

Rack-mount slide kit from General Devices, C-300-S-126, -128 or -130 (Optional)

Rack mounting screws, screwdriver, and slide as needed.

2.4.2 Making Connections

2.4.2.1 Input Power

AC INPUT POWER - The input power to the unit is supplied through a detachable 3-prong power cable. First plug the female end into the male IEC-320 plug on the rear of the unit, then plug the male end of the cable into a 100V~ to 240V~, 50/60 Hz power source.



Warning

Ensure that this power supply cord is connected to a properly grounded mains receptacle to ensure safety.



Since the unit does not have an AC Mains Power Switch, both the Appliance Inlet Connector and the Plug on the detachable type power supply cord are considered to be suitable Disconnect Means for disconnecting the unit from the AC Mains Supply. If the rear of the unit is not accessible after installation in the instrument rack, the User is responsible for the provision of a suitable external AC Disconnect Means for the unit.

2.4.2.2 Output Signals

Connect up to sixteen cables to the **OUTPUT** TNC connectors on the rear panel of the unit to supply users with a copy of the input signal.

2.4.3 Input Signal and antenna bias setting

Before connecting the antenna input signal, ensure that the antenna bias supply voltage jumper is set to the position which will provide the proper voltage to your antenna. There are three different settings for the antenna voltage: +5 VDC, +12 VDC and no DC voltage supplied. The unit ships from the factory with a default setting of no DC voltage. To change the setting; remove the top panel from the unit, locate jumper JP1 and place it in the position to provide the appropriate voltage. If you do not want to supply a DC voltage to your Antenna, place the jumper on JP2 for future use if you need to supply a voltage to the antenna.

Connect the input signal cable to the **INPUT** TNC connector on the back of the unit.

3: Troubleshooting the 4037A

Perform all of the following procedures before returning the unit for service. If the unit still appears to have a problem, then call Timing Solutions Corporation and request technical support. Have the serial number of your unit ready to provide to a technical representative.

3.1 Replacing Fuses

If you know that a local event caused blown fuses throughout a rack, you can replace the fuses in each 4037A power entry module.

Required for this procedure:

- Small flat-head screwdriver
- Replacement fuse for a standard IEC 320 power entry module with fuse (5 x 20 mm, 1 A 250 V Time lag fuse)

To replace a fuse:

1. Disconnect the power cable from the back of the 4037A.
2. Using a small screwdriver, open the fuse cover on the back of the 4037A.
3. Replace the old fuses as necessary.
4. Close the fuse cover.
5. Reconnect the power cable to the back of the 4037A.

3.2 Solving Operational Problems

If the unit does not operate properly after you have verified that:

- the correct power is applied to the rear of the 4037A
and
- the fuses are good,

call Timing Solutions Corporation to obtain a Returned Materials Authorization and return the unit to TSC for repair.

4: Warranty and Shipping Information

This chapter provides information on how to contact Timing Solutions Corporation for warranty service, as well as shipping guidelines for the 4037A.

4.1 Warranty Information

The 4037A carries a warranty from Timing Solutions Corporation for a period of 1 year from date of shipment.

For repairs, contact Timing Solutions Corporation:

- Phone (303) 939-8481
- Fax (303) 443-5152

Address written correspondence to:

Timing Solutions Corporation
4775 Walnut Street, Suite 1B
Boulder, CO 80301
USA

4.2 Shipping Information

If you need to ship this system for any reason, including returning equipment to Timing Solutions for warranty service, follow these shipping instructions. Failure to follow these instructions may damage your system.

4.2.1 Packing Instructions

- Always ship the 4037A appropriately packaged to protect it from damage, preferably in the package in which it was originally shipped.
- No cables or connectors may be attached to the rear of the chassis.
- Wrap the chassis in plastic to protect against moisture.

5: Declaration of Conformity

We Timing Solutions Corporation

Of 4775 Walnut Drive Suite 1B
Boulder, CO 80301
USA

declare that:

Equipment 1 x 16 L1/L2 Distribution Amplifier
Model Number **TSC 4037A**
Product Options None

in accordance with the following Directives:

73/23/EEC The Low Voltage Directive
and its amending directives

89/336/EEC The Electromagnetic Compatibility Directive
and its amending directives

has been designed and manufactured to the following specifications:

Safety: EN61010-1: 2001
Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use -
Part 1: General Requirements

EMC EN61326-1: 2001
Electrical Requirements for Electrical Equipment for Measurement, Control and Laboratory Use -
Part 1: General Requirements
EN 55011 Class A
Radiated Emissions

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all essential requirements of the Directives.

Signed by:

Name: S.R. Stein
Position: President

Done at Boulder, Colorado U.S.A on 17 January 2005

Appendix A: Specifications

A.1 Electrical Specifications

Table 3: [Table 3](#) lists the electrical specifications for the 4037A.

Table 3: Electrical specifications

Item	Specification
Protection Class	Class I (Grounded Type)
Power Input Voltage	100 – 240 V~ 50/60 Hz 0.5 A Note: Fluctuations not to exceed $\pm 10\%$ of nominal supply voltage.
Power Inlet Type	IEC 60320 sheet C14
Power Supply Cord Set	18 AWG (0.75 mm ² minimum)
Power Mains Fuse	(2) - 250V~ 1A Time lag 5x20 mm
Signal Input and output	<ul style="list-style-type: none">■ Frequency: 1.2 – 1.8 GHz■ Impedance: 50 $\Omega \pm 5 \Omega$■ Gain: 0dB■ Input level: -20 dBm maximum■ Output isolation: > 15 dB
Connectors	<ul style="list-style-type: none">■ Input: 1 TNC■ Output: 16 TNC
Antenna bias	Jumper selectable as 0 VDC, +5 VDC or +12 VDC

A.2 Environment Specifications



Warning

Ordinary protection: This unit is for **INDOOR USE ONLY**. It is not protected against a harmful ingress of moisture. Equipment intended to be installed in an Enclosed/Open type equipment rack.

- Pollution Degree 2 per EN61010-1
- Installation (Over-Voltage) Category II for transient over-voltages per EN 61010-1
- Equipment suitable for continuous operation

Table 4 lists the environmental specifications for the 4037A.

Table 4: Environment specifications

Item	Temperature	Relative Humidity	Altitude
In Use	0°C to 50°C	0% to 90% (non-condensing)	3,000 meters (9,843 feet)
Storage	-40°C to 70°C	0% to 90% (non-condensing)	
Transportation	-40°C to 70°C	0% to 90% (non-condensing)	

A.3 Physical Specifications

Table 5 lists the physical specifications for the 4037A.

Table 5: Physical specifications

Item	Specification
Width	Standard 19-inch rack mount
Height	Standard 1U (~1.75 inches or 4.44 cm)
Depth	31.875 cm or 12.75 inches
Weight	Approximately 4.1 kg

Glossary

ESD	electrostatic discharge
LED	light-emitting diode
PDF	portable document format
PWA	printed wiring assembly
RF	radio frequency
TSC	Timing Solutions Corporation

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