

fiberplex
TECHNOLOGIES, LLC

USER MANUAL

Telephone Disconnect Unit
TDU-4000

Warning for Your Protection

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

The apparatus shall not be exposed to dripping or splashing. No objects filled with liquids, such as vases or drink cups, shall be placed on the apparatus.

“WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.”

General Installation Instructions

Please consider these general instructions in addition to any product-specific instructions in the “Installation” chapter of this manual.

Unpacking

Check the equipment for any transport damage. If the unit is mechanically damaged, if liquids have been spilled or if objects have fallen into the unit, it must not be connected to the AC power outlet, or it must be immediately disconnected by unplugging the power cable. Repair must only be performed by trained personnel in accordance with the applicable regulations.

Installation Site

Install the unit in a place where the following conditions are met:

- The temperature and the relative humidity of the operating environment must be within the specified limits during operation of the unit. Values specified are applicable to the air inlets of the unit.
- Condensation may not be present during operation. If the unit is installed in a location subject to large variations of ambient temperature (e.g. in an OB-van), appropriate precautions must be taken.
- Unobstructed air flow is essential for proper operation. Ventilation openings of the unit are a functional part of the design and must not be obstructed in any way during operation (e.g. - by objects placed upon them, placement of the unit on a soft surface, or improper installation of the unit within a rack or piece of furniture).
- The unit must not be unduly exposed to external heat sources (direct sunlight, spot lights).

Ambient Temperature

Units and systems by FiberPlex are generally designed for an ambient temperature range (i.e. temperature of the incoming air) of +5...+40 °C. When rack mounting the units, the following facts must be considered:

- The permissible ambient temperature range for operation of the semiconductor components is 0 °C to +70 °C (commercial temperature range for operation).
- The air flow through the installation must allow exhaust air to remain cooler than 70 °C at all times.
- Average temperature increase of the cooling air shall be about 20 °C, allowing for an additional maximum 10 °C increase at the hottest components.

If the cooling function of the installation must be monitored (e.g. for fan failure or illumination with spot lamps), the exhaust air temperature must be measured directly above the modules at several places within the enclosure.

Grounding and Power Supply

Grounding of units with mains supply (class I equipment) is performed via the protective earth (PE) conductor integrated in three pin Phoenix™ connector. Units with battery operation (< 60 V, class III equipment) must be earthed separately. Grounding the unit is one of the measures for protection against electrical shock hazard (dangerous body currents). Hazardous voltage may not only be caused by defective power supply insulation, but may also be introduced by the connected audio or control cables.

This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. If the attachment plug needs to be changed, refer servicing to qualified personnel.

Warranty, Service and Terms and Conditions of Sale

For information about Warranty or Service information, please see our published 'Terms and Conditions of Sale'. This document is available on fiberplex.com, or can be obtained by requesting it from clients@fiberplex.com or calling 301.604.0100.

Disposal

Disposal of Packing Materials

The packing materials have been selected with environmental and disposal issues in mind. All packing material can be recycled. Recycling packing saves raw materials and reduces the volume of waste. If you need to dispose of the transport packing materials, recycling is encouraged.

Disposal of Used Equipment

Used equipment contains valuable raw materials as well as substances that must be disposed of professionally. Please dispose of used equipment via an authorized specialist dealer or via the public waste disposal system, ensuring any material that can be recycled has been. Please take care that your used equipment cannot be abused. After having disconnected your used equipment from the mains supply, make sure that the mains connector and the mains cable are made useless.

Disclaimer

The information in this document has been carefully checked and is believed to be accurate at the time of publication. However, no liability is assumed by FiberPlex for inaccuracies, errors, or omissions, nor for loss or damage resulting either directly or indirectly from use of the information contained herein.

Introduction

The TDU-4000 provides protection for phones from being used as clandestine listening devices. The unit electrically disconnects the telephone line from the phone when the phone is in the “on hook” position. During disconnect the telephone line is left open, while the voice path on the phone is grounded. This disables room audio from being transmitted onto the telephone line to prevent any eavesdropping. The phone will only connect to the telephone line when it is in the “off hook” position. The “Off Hook” detect and “Ring” detect signals are also opto-isolated from the phone.

A typical link consists of one TDU-4000 with connections to the POTS line and to the subscriber’s phone. FiberPlex recommends “R” units for high security applications, which include added shielding and filtering for RFI suppression.

Key Features

- Units will not allow propagation of signals to Central Office or PBX when the phone is on-hook
- Compatible with:
 - Standard phones
 - STU-III phones
 - Fax machines
 - modems

Getting Started

Initial Inspection

Immediately upon receipt, inspect the shipping container for damage. The container should be retained until the shipment has been checked for completeness and the equipment has been checked mechanically and electrically. If the shipment is incomplete, if there is mechanical damage, or if the unit fails to operate notify FiberPlex and make the shipping materials available for the carrier’s inspection.

Features

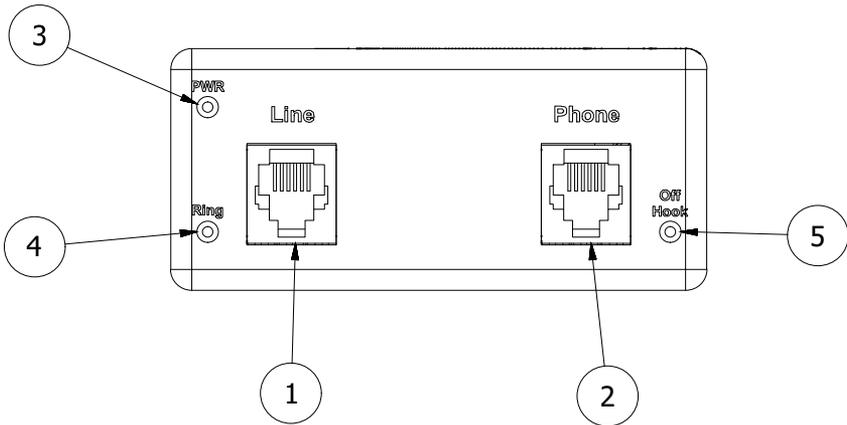


Figure 1: TDU-4000 Front Face

- 1 **LINE RJ-11 Jack** – This port is to be connected to the Central Office or PBX via telephone line cord.
- 2 **PHONE RJ-11 Jack** – This port is to be connected to the user’s phone or other device via telephone line cord.
- 3 **Power Indicator LED** – This LED indicates the presence of DC power in the unit. The LED can interpreted according to the following table.

PWR Indicator Status	
Green	Power supply is operating properly.
Off	No power from the power supply or open fuse inside the TDU-4000. Check that the power supply is functioning properly. If so, reset the internal fuse by disconnecting the TDU module from the power supply for thirty (30) seconds, then reattach. If the PWR led is still off or not constant, replace the TDU.

- 4 **Ring Indicator LED** – This LED indicates the presence of a phone ring signal. The LED can interpreted according to the following table.

Ring Indicator Status	
Red	Ringing voltage detected.
Off	No ringing voltage detected.

- 5 **Off-Hook Indicator LED** – This LED indicates whether or not the phone is on the hook. The LED can interpreted according to the following table.

Off Hook Indicator Status	
Red	Phone is off hook (in use).
Off	Phone is on hook (idle).

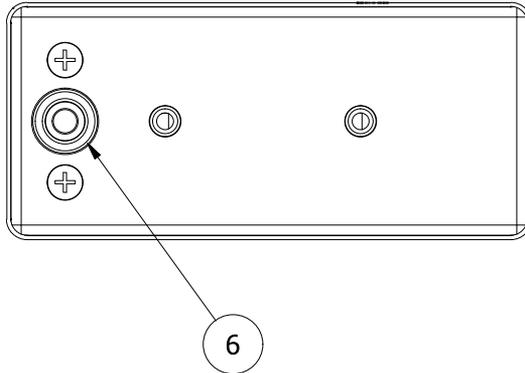


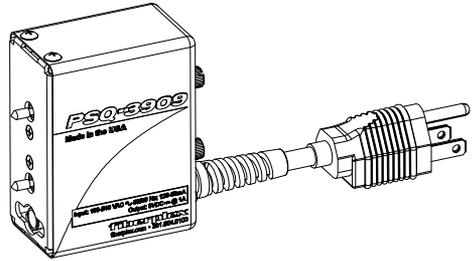
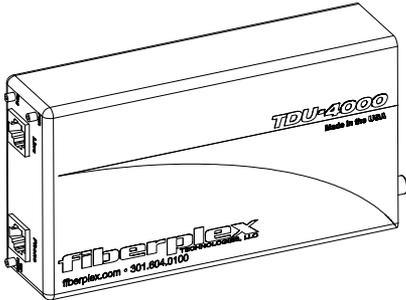
Figure 2: TDU-4000 Rear Face

- ⑥ **Power connector** – This LEMO™ circular connector is designed to interface with either a PSQ-3900 series power module or RMC-3000 series chassis (with accompanying CMA-3002 adapter), and provide power to the TDU module.

Power Requirements and Mounting

IMPORTANT: For many serial data applications it is necessary to provide a positive earth ground reference for proper serial operation. Earth ground can only be supplied using the Phoenix connector. DC power can still be applied with the wall adapter in conjunction with just the earth ground on the Phoenix.

Standalone Mounting



The TDU-4000 is designed for ruggedized mil applications. It is housed in the familiar FOI shielded can

Figure 2: Connecting to a PSQ-3909 for Standalone application

enclosure. For standalone applications they can be powered by adding a PSQ-4909 AC supply or a PSQ-4920 DC power supply (not included).

For more rugged mounting, wall mount adapters, WMA-2001 and WMA-3002, are available to secure the power supply and TDU-4000 with screws. The WMA-2001 has an optical patch while the WMA-3002 does not. The wall mount adapter attaches to either a horizontal or vertical flat surface and provides a convenient termination point which protects both the cable and the TDU-4000 from damage.

Rack Mount Solution

The RMC-3101 (3U, Front Load) provides up to nine available slots for any fiber optic isolator or telephone disconnect unit. The tenth available slot must be occupied by a PSM-3010 supply module. Each RMC will be shipped with one PSM. A second PSM may also be added for power redundancy, leaving eight available slots for any fiber optic isolator. On the RMC-3101, a cable bay is provided below the module bay for cable routing and enhanced air flow through two rear exhaust fans and a vented front panel.

Each TDU or FOI unit must also be installed on a CMA-3002 chassis mount adapter, which slides the unit into the slot and assures correct alignment of the power connector to the power bus inside the RMC.

FiberPlex recommends the RMC-3101R for TEMPEST or other high security applications.

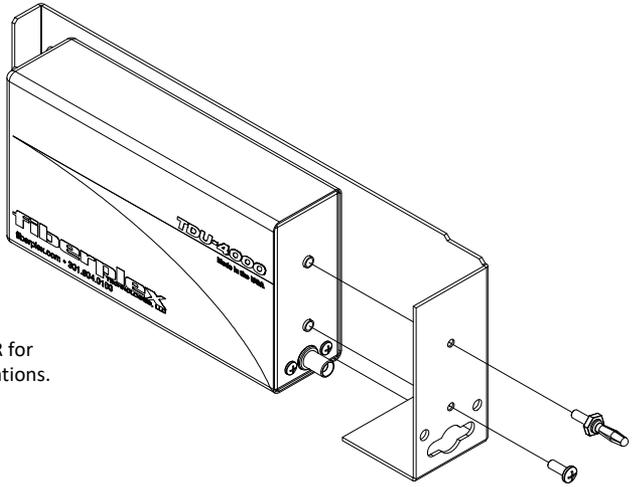


Figure 4: Installation onto a CMA-3002

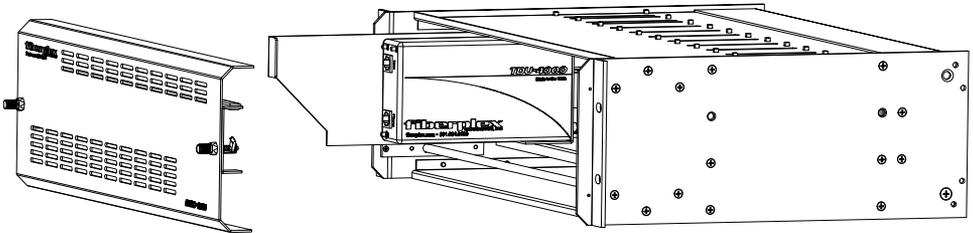


Figure 5: Installation into an RMC-3101

Specifications

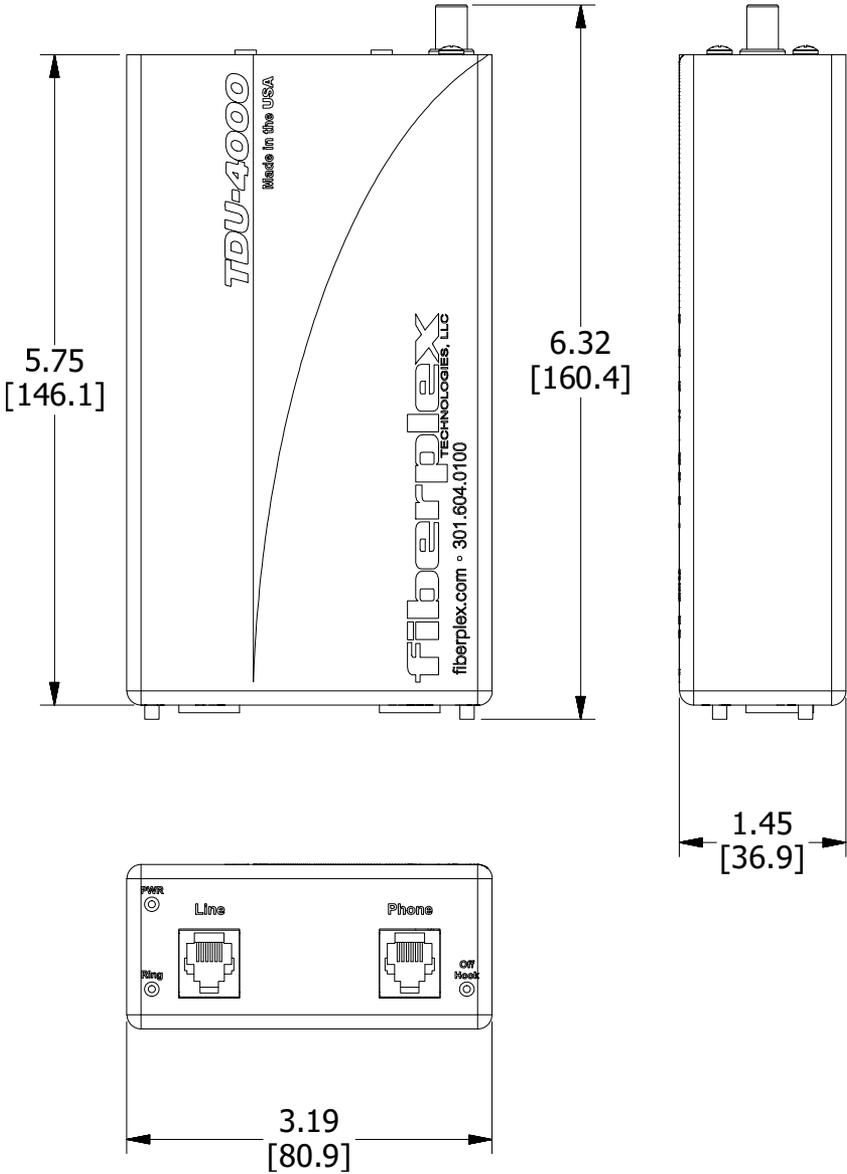


Figure 6: TDU-4000 Dimensions

PHYSICAL SPECIFICATIONS					
	Length	Width	Height	Weight	
Case Dimensions (Size 3)	5.75 in (146 mm)	1.45 in (37 mm)	3.19 in (81 mm)	2 lb (0.9 kg)	
ELECTRICAL SPECIFICATIONS					
	Min	Typ	Max	Units	
Power Requirement	Voltage Range	7	9	12	VDC
	Supply Current	-	525		W
AUDIO SPECIFICATIONS					
	Min	Typ	Max	Units	
Input Level	-	-	5	dBm	
Load Impedence	-	600	-	Ω	
Frequency Response (± 3 dB)	200	-	8k	Hz	
ENVIRONMENTAL SPECIFICATIONS					
	Min	Typ	Max	Units	
Storage Temperature	-40	-	85	$^{\circ}\text{C}$	
Operating Temperature	0	-	70	$^{\circ}\text{C}$	

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