

SPECIFICATIONS

- **Protocol:** IBM 5250 and 5250 Express for systems AS/400 and Systems 34/36/38
- **Terminals:** 3179, 3180, 3196, 3197, 3476, 3477, 5250, 5251, 5291, 5292, and compatibles
- **Printer's Supported:** 3262, 3812, 4214, 4224, 4234, 5219, 5224, 5225, 5226, 5262, and compatibles
- **Cable Types:**
 - Fiber Optic:** Multi-mode glass fiber of sizes 50/125, 62.5/125, or 100/140 micron
 - STP:**
 - Twinax female to DB-9 female
 - 3 ft. OST# 310-00012-000
 - 6 ft. OST# 310-00013-000
 - DB-15 female to DB-9 female
 - 3 ft. OST# 310-00014-000
 - 6 ft. OST# 310-00015-000
 - UTP:**
 - Level 3 (EIA/TIA 568):
 - 24 AWG solid copper 100 +/- 15 Ohms @ 1.0 Mhz;
 - 7db per 1,000 ft. @ 1.0 Mhz (lower grade wiring at shorter distances)
- **Data Rate:** 1 Mbps +4%, -2%
- **Supported Distances:**
 - Multi-mode fiber:** 15,000 ft.
 - Singlemode fiber:** 30,000 ft.
 - Port STP:** 5,000 ft.
 - Port UTP:** 3,000 ft.
- **Indicators:**
 - Power:** Green LED
 - Test Mode:** Red LED
 - Link:** Green-Red LED
 - Port:** Green-Red LED
- **Physical Dimensions:** W:3.46"xD:2.83"xH:0.78"
- **Weight:** 2 lbs.
- **Power Supply (External):** 9 VDC @ 1.2A
- **Temperature:**
 - Operating:** 0° to 40°C
 - Storage:** -40° to 75°C
- **Humidity:** Up to 90% (non-condensing)

TECHNICAL SUPPORT

For assistance in installing this product, contact Omnitron's Technical Support Department.

Phone: (949) 250-6510
 Fax: (949) 250-6514
 Address: Omnitron Systems Technology, Inc.
 27 Mauchly #201
 Irvine, CA 92618, USA
 Email: support@omnitron-systems.com
 URL: www.omnitron-systems.com

**OmniRepeater™ 400FTD**

Systems AS400/3X
 Fiber to Desk Repeater

User's Manual

27 Mauchly #201, Irvine, CA 92618; (949) 250-6510, Fax: (949) 250-6514
 Document #040-02900-001

SAFETY CONSIDERATIONS

Warning

The instructions in this User's Manual are for use by qualified personnel only. To avoid electrical shock, do not perform any servicing of this unit or its accessories (such as power units) other than that contained in the operating instructions, unless you are qualified and certified to do so by Omnitron Systems Technology, Inc.

Caution

All user-required operations can be performed without ever opening the unit's cover. Never attempt to open or remove the unit's cover or tamper with its power units (other than plugging and unplugging them as specified in the operating instructions).

Line Voltage

Before Connecting the Power units to the line voltage, make sure that the voltage of the power source (wall outlet) matches the voltage specified on the power units.

Warranty

This **OST** product is warranted to the original purchaser against defects in material and workmanship for a period of **TWO YEARS** from the date of shipment. This warranty period may be extended to **LIFETIME** by the original purchaser if the product is **REGISTERED** with **OST** within 90 days from the date of shipment. TO REGISTER, PLEASE COMPLETE AND MAIL OR FAX BACK THE REGISTRATION CARD. During the warranty period, **OST** will, at its option, repair or replace a product which is proven to be defective.

For warranty service/repair, the product must be sent to an **OST** designated repair facility, shipment prepaid by the Buyer. **OST** will pay postage/shipping charges to return the product to Buyer (using **OST**'s standard shipping method).

Limitation of Warranty

The foregoing warranty shall not apply to defects resulting from improper or inadequate use and/or maintenance of the equipment by Buyer, Buyer-supplied equipment, Buyer-supplied interfacing, unauthorized modifications or tampering with equipment (including removal of equipment cover by personnel not specifically authorized and certified by **OST**), misuse, operating outside the environmental specification of the product (including but not limited to voltage, ambient temperature, radiation, unusual dust, etc.), or improper site preparation or maintenance.

No other warranty is expressed or implied. **OST** specifically disclaims the implied warranties of merchantability and fitness for any particular purpose.

Exclusive Remedies

The remedies provided herein are the Buyer's sole and exclusive remedies. **OST** shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any legal theory.

Applications

The drawing on the opposite page illustrates three different applications of the OmniRepeater.

A. Fiber-to-the-desk

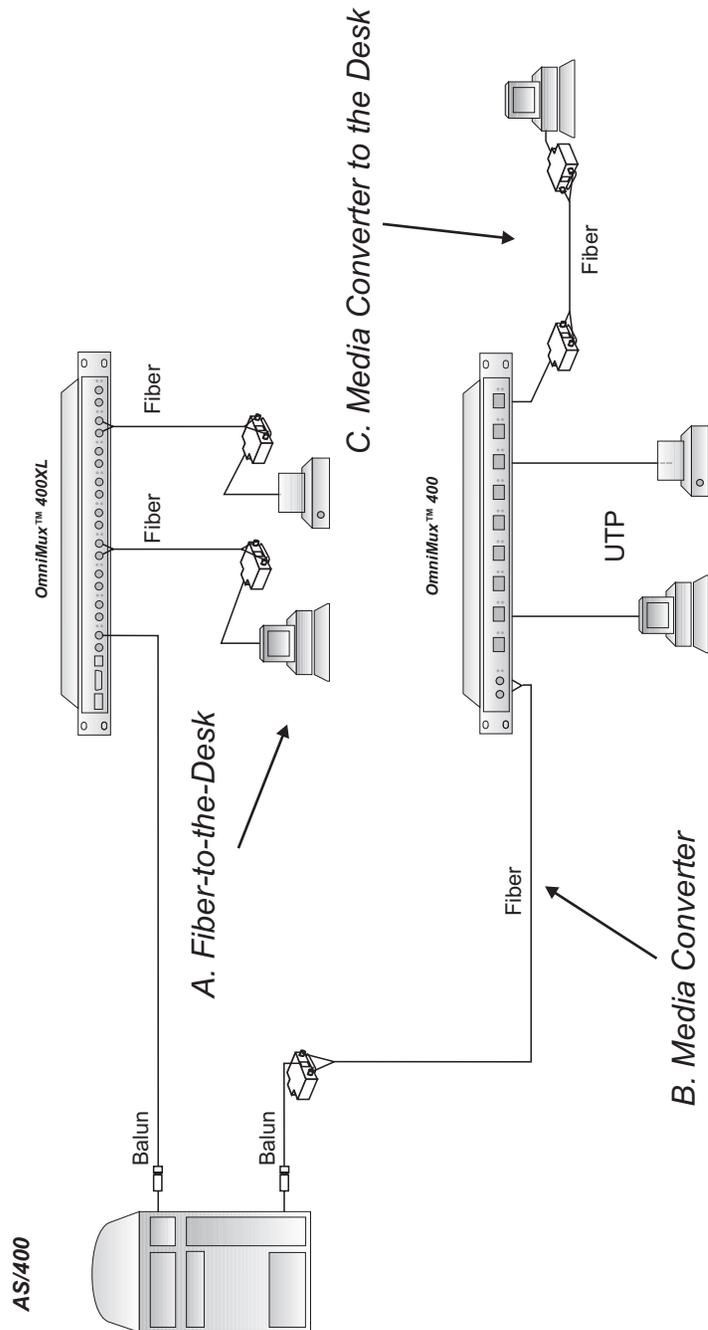
Application A shows the host computer attached to an OmniMux 400XL which is configured as a fiber star. In this fiber-to-desk application, the OmniRepeater 400FTD acts as a media converter. Fiber-to-desk solutions support longer cable distances and high noise immunity.

B. Media Converter

Application B shows the host computer attached to an OmniRepeater 400FTD, which in turn, is attached to a remote OmniMux 400 which is configured as a star.

C. Media Converter to the Desk

Application C shows a remote user workstation attached to an OmniMux 400 via two OmniRepeater 400FTD units. The OmniRepeater 400FTD's allow very long cable runs to unusually remote worksites.



OmniRepeater™ 400FTD

Systems AS400/3X

Fiber to Desk Repeater

User's Manual

GENERAL DESCRIPTION

The OmniRepeater 400FTD is a fourth generation IBM 5250 compatible active repeater. The OmniRepeater 400FTD provides fiber-to-the-desktop, extending the applicability of the 5250 protocol. Four models offer a selection of fiber (single or multimode) and power supply (110 or 220 Volt) type. The following models are discussed in this manual:

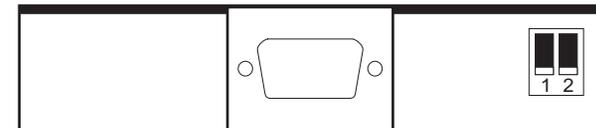
<u>STANDARD</u>	<u>DESCRIPTION</u>
2900-UDF1	Multi-mode fiber, 110 Volt power supply
2900-UDF2	Multi-mode fiber, 220 Volt power supply
2910-UDF1	Singlemode fiber, 110 Volt power supply
2910-UDF2	Singlemode fiber, 220 Volt power supply

The OmniRepeater 400FTD is capable of reliably locking and maintaining synchronization with data rate variations of -2% to +4%. It features a Digital Phase Locked Architecture which facilitates reliable operation with a high noise immunity. It allows the OmniRepeater 400FTD to reliably synchronize and lock to legitimate data frames and also to discriminate and ignore any open, shorted or noisy inputs (induced or crosstalk). This makes the OmniRepeater 400FTD a reliable solution in environments where high availability, stability, reliability and low maintenance are important.

OPERATION

Switches & Indicators

The OmniRepeater 400FTD has two switches. The switch on the left, switch 1, controls the polarity of the data. Switch 2 turns the fiber test mode on and off.

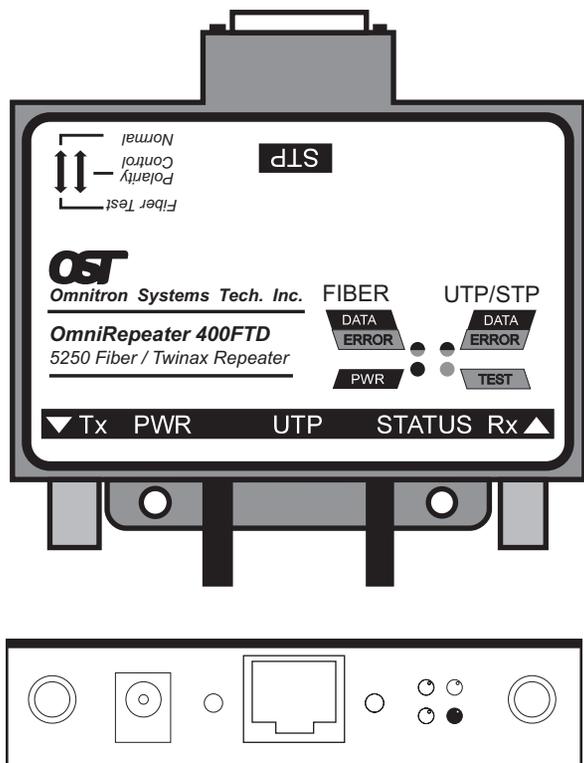


Both switches are placed in the down position at the factory. The following table explains the switch settings.

POLARITY	SWITCH 1
Inverted	Down
Non-Inverted	Up

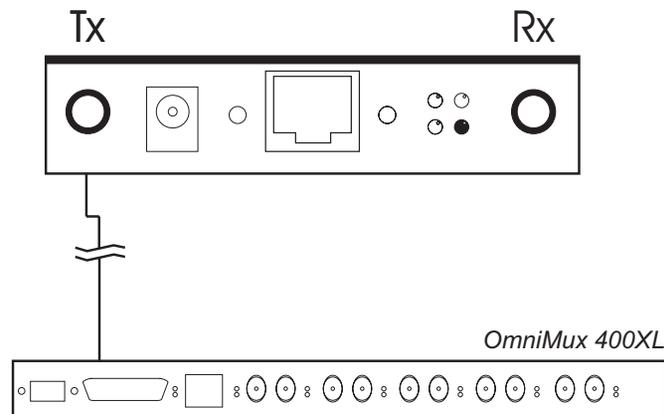
FIBER TEST MODE	SWITCH 2
Turned Off	Down
Turned On	Up

In addition to the two switches there are four LED indicators in a 2x2 cluster. Refer to the drawings below.



Fiber Optic Media Test - OmniRepeater 400FTD & Omnitron 5250 Fiber Device

To test the integrity of fiber optic cables as well as the fiber receiver of any Omnitron 5250 fiber device (such as the OmniStar 400, OmniMux 400, or OmniMux 400XL), connect the transmitter of the OmniRepeater 400FTD to the receiver of the other Omnitron 5250 fiber device. If the fiber is unbroken, the fiber link activity LED of the far-end Omnitron 5250 device will illuminate green. Test each cable of the fiber optic pair in this manner.



NOTE: TURN OFF THE FIBER INSTALLATION TEST MODE TO RETURN TO NORMAL OPERATIONAL MODE.

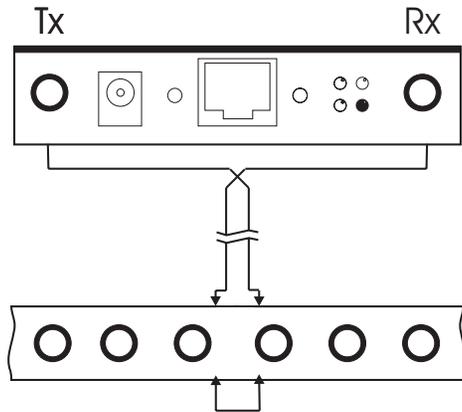
The meaning of the LEDs is shown on the cover of the OmniRepeater 400FTD and in the tables below.

Self Test Mode

ALL LEDs	MEANING
Red for 0.5 seconds, then Green for 0.5 seconds	Passed Self Test
Any other behavior	Failed Self Test, call Omnitron Tech Support @ 714-250-6510

Loopback Fiber Optic Media Test - Via Patch Panel

To test the integrity of the fiber optic cables when fiber cables are already installed to a patch panel, use a short patch cord to loopback the fiber optic pair attached to the OmniRepeater 400FTD.

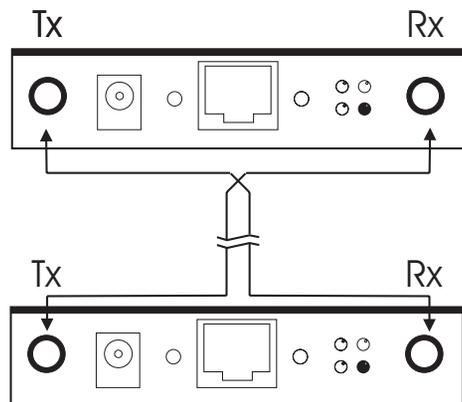


If the fiber optic cables are unbroken, the fiber link LED will illuminate green. As before, note that the fiber test mode LED will be red, and the Power LED will be green.

NOTE: TURN OFF THE FIBER INSTALLATION TEST MODE TO RETURN TO NORMAL OPERATIONAL MODE.

Fiber Optic Media Test - 2 OmniRepeater 400FTD's

To test the integrity of fiber optic cables that are already installed, use two OmniRepeater 400FTD units connected to each other in TEST mode. If the fiber media is unbroken, the link LEDs on each unit will illuminate green.



Again, note that the fiber test mode LED will be red and the Power LED will be green.

NOTE: TURN OFF THE FIBER INSTALLATION TEST MODE TO RETURN TO NORMAL OPERATIONAL MODE.

Normal Mode

TOP LEFT	MEANING
GREEN	Good data received from fiber link
RED	Data parity error received on fiber link
OFF	No data received on fiber link

TOP RIGHT	MEANING
GREEN	Good data received from copper port
RED	Data parity error received on copper port
OFF	No data received on copper port

BOTTOM LEFT	MEANING
GREEN	Power is on
OFF	Power is off

BOTTOM RIGHT	MEANING
GREEN	Fiber Installation Test Mode is ON
OFF	Fiber Installation Test Mode is OFF

DIAGNOSTIC FEATURES

The OmniRepeater 400FTD diagnostic features make it easy to install and maintain. There are three levels of diagnostics: Self Test, Fiber Installation Test, and run-time activity and error monitoring.

Self Test

The power-on self test ensures that the OmniRepeater 400FTD is fully operational. When power is applied to the unit, self testing occurs. At the end of the self test, all four LEDs will illuminate for half a second, then green for half a second. After that, the POWER LED will remain green providing a continuous indication that the external power supply is operational.

Fiber Installation Test

The OmniRepeater 400FTD includes a built-in fiber installation tester. The fiber installation test mode may be activated by moving the TEST witch to the TEST position (up). This diagnostic feature provides the installer with a visual indication that the fiber optic cabling is intact and correctly installed. During the fiber test mode a valid frame is continuously transmitted over the fiber optic link. Any Omnitron 5250 fiber device (such as the OmniStar 400, the OmniMux 400, or the OmniMux 400XL) at the far end of the fiber optic cable will illuminate its fiber optic activity LED when the fiber optic cable is unbroken and the transmitting fiber is correctly connected at the far end device receive port.

WARNING

During the fiber installation test mode, disconnect any UTP and STP connections to the host workstation controller to prevent controller conflicts.

Refer to FIBER INSTALLATION TEST CONFIGURATIONS for testing suggestions

Run-time Activity & Error Monitoring

During normal operation the Link and Port LEDs provide continuous diagnostic information. These LEDs detect and display true link and port activity and data parity errors. This is accomplished by individual port monitoring and searching for legal frame header patterns.

Upon detection of a valid frame pattern, a green LED indicator displays the detected activity. This feature assists in installation and in the selection of the correct polarity baluns and/or setting the polarity of the switch.

The data is analyzed for correct parity and the detection of parity error is indicated by a red LED. This feature facilitates the continuous monitoring of signal and line quality.

INSTALLATION

Unpacking

- a. Visual Inspection – Before unpacking, a visual inspection should be conducted in order to detect any physical damage to the equipment. Any evidence of the damage should be noted and reported immediately.
- b. Unpacking – Place shipping container on a flat surface, cut straps or tape, open top. Take out each item carefully and place securely on a clean flat surface. Return all packing material into a container (foam, boxes, etc.), close and store away for future reuse.
- c. Inspection – Inspect each item for any apparent damage, any evidence of damage should be noted and reported immediately.
- d. Content – Review the content; the following items should be included:
 - (a) OmniRepeater 400FTD Unit
 - (b) One (1) Power Supply Module
 - (c) User Manual (this document)
- e. Please note any missing items or discrepancies and report them immediately.

SITE REQUIREMENTS

Power

A power outlet 115 Volts/60 Hz (230 Volts/50 Hz) should be available within 5 ft. of the unit.

MODEL	POWER OUTLET
2900-UDF1	110 Volt - 60 Hz
2900-UDF2	220 Volt - 50 Hz
2910-UDF1	110 Volt - 60 Hz
2910-UDF2	220 Volt - 50 Hz

CONFIGURATION

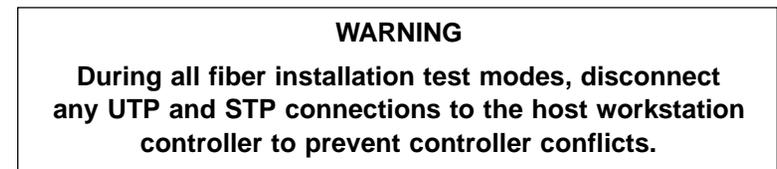
Normal

- a. Turn off the terminal or printer being attached.
- b. Attach the terminal or printer with the appropriate cable to the OmniRepeater 400FTD.
- c. Attach the fiber optic cables to the transmit and receive fiber optic connectors.
- d. Plug the external power supply into the appropriate AC wall outlet.
- e. Plug the power jack into the OmniRepeater 400FTD power connector.
- f. The LEDs will all illuminate red then green to indicate that the self test is complete. The Power LED will remain green, while the Link and Port LED will reflect the current operational status.

Refer to the APPLICATIONS section for useful application information.

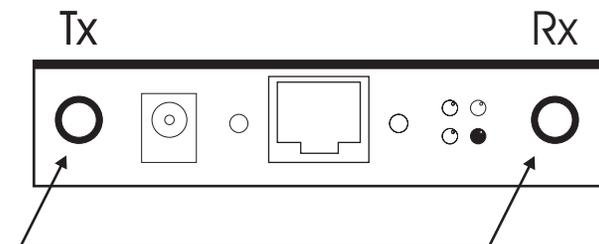
Fiber Installation Test Configurations

The OmniRepeater 400FTD supports several test configurations.



Loopback Fiber Optic Media Test - Via Patch Cable

To test the integrity of fiber optic media connect the fiber optic patch cable in a loopback fashion (i.e., one end in the transmit port and the other in the receive port). If the fiber is unbroken, the OmniRepeater 400FTD fiber link LED will illuminate green. If the fiber is partially or completely broken the LED will be red or off.



Note that the fiber test LED will be red and the Power LED will be green.

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