

**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)
    - 1 Mbps +4%, -2%
- **Data Rate:**
- **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**

## **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**

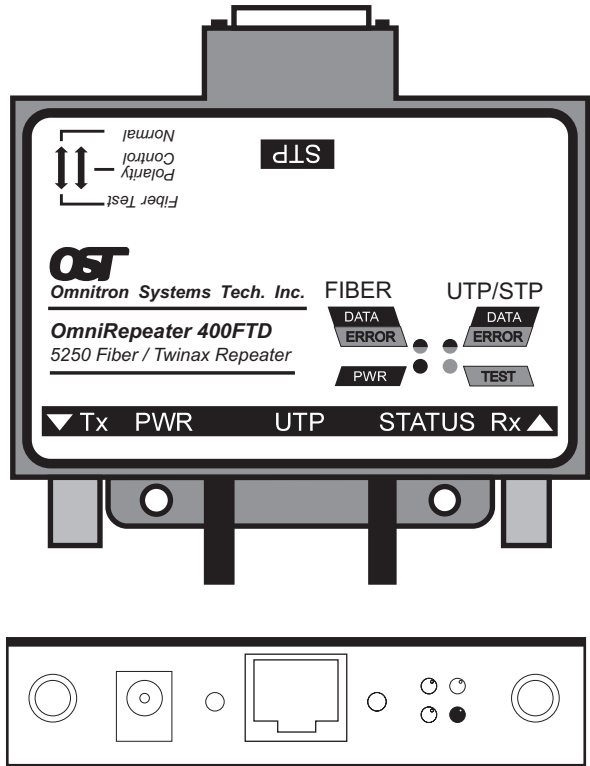
Application C shows a remote user workstation attached to an OmniMux 400 via two OmniRepeater 400FTD units. The OmniRepeater 400FTD's allow very long cable runs to unusually remote worksites.



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

| POLARITY     | SWITCH 1 | FIBER TEST MODE | SWITCH 2 |
|--------------|----------|-----------------|----------|
| Inverted     | Down     | Turned Off      | Down     |
| Non-Inverted | Up       | Turned On       | Up       |

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



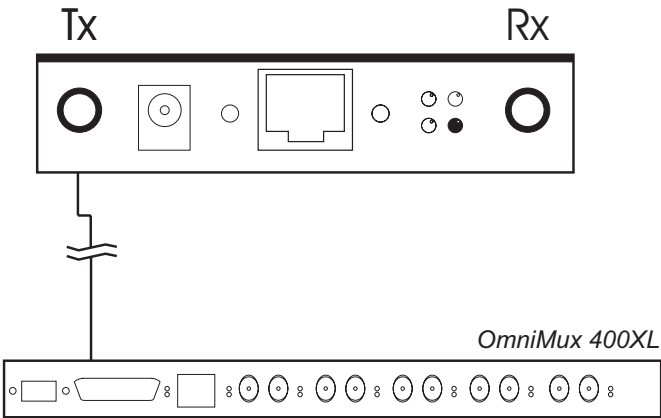
The meaning of the LEDs is shown on the cover of the OmniRepeater 400FTD and in the tables below.

**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 |

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

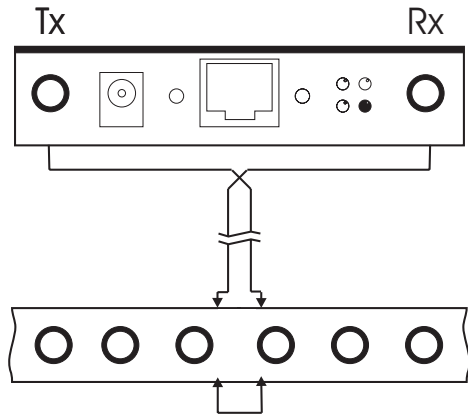
To test the integrity of fiber optic cables as well as the fiber receiver of any Omnitron 5250 fiber device (such as the OmniStar 400, OmniMux 400, or OmniMux 400XL), connect the transmitter of the OmniRepeater 400FTD to the receiver of the other Omnitron 5250 fiber device. If the fiber is unbroken, 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.

Loopback Fiber Optic Media Test - Via Patch Panel

To test the ingrate 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.

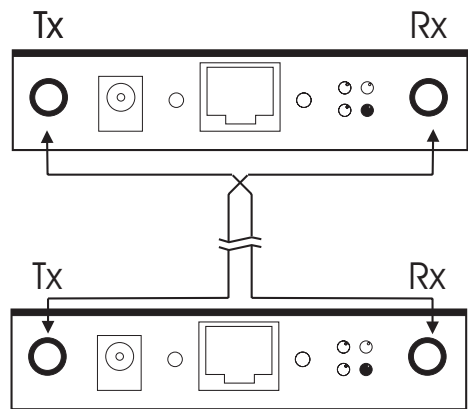


If the fiber optic cables are unbroken, the fiber link LED will illuminate green. As before, note that the fiber test mode LED will be red, and the Power LED will be green.

**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

- 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.
- 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.
- Inspection – Inspect each item for any apparent damage, any evidence of damage should be noted and reported immediately.
- Content – Review the content; the following items should be included:
  - OmniRepeater 400FTD Unit
  - One (1) Power Supply Module
  - User Manual (this document)
- 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

- Turn off the terminal or printer being attached.
- Attach the terminal or printer with the appropriate cable to the OmniRepeater 400FTD.
- Attach the fiber optic cables to the transmit and receive fiber optic connectors.
- Plug the external power supply into the appropriate AC wall outlet.
- Plug the power jack into the OmniRepeater 400FTD power connector.
- 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

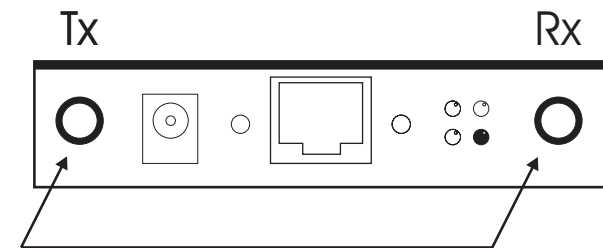
The OmniRepeater 400FTD supports several test configurations.

### WARNING

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

### 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.