

# FW-UTPS400 Overview

## Introduction:

FW-UTPS400 is two FireWire (1394a) to one RJ45 port S400 Repeater

FW-UTPS400 enables 1394 signals to be transmitted and received over Cat5 or Cat6 Unshielded Twisted- Pair (UTP) cable.

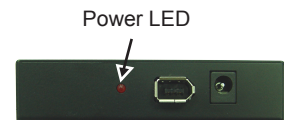
FW-UTPS400 is optimized to create long-haul IEEE 1394b-2002 connections over Cat5 or Cat6 at the S400 data rate, but it can also be used at S200 and S100.

FW-UTPS400 also works for Cat5-structured wiring cable that is typically installed in a home or office.

## Typical Equalization Performance

1394 Rating	Range using	
	Cat5e	Cat6
S100	55m	55m
S200	55m	55m
S400	55m	55m

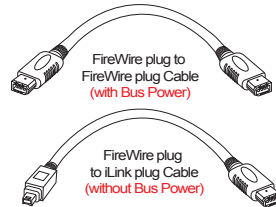
\* Measurements performed in lab conditions



## Specification:

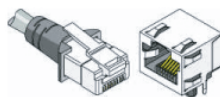
- Provides Two FireWire (6pin) ports and one RJ45 port
- Pin assignment of FireWire Connector

Pin	Signal
1	+V (Bus Power)
2	0V (Ground)
3	TPB-
4	TPB+
5	TPA-
6	TBA+



- Pin assignment of the RJ45 connector is compatible with 100baseT Ethernet (pin1,2,3,6). Users can use the crossover type Cat5e or Cat6 cable.

Pin	Signal
1	TPB+
2	TPB-
3	TPA+
4	+V (Bus Power)
5	0V (Ground)
6	TPA-
7	
8	



- Fully Supports Provisions of IEEE 1394a.2000 and 1394.1995 Standard for High Performance Serial Bus
- Fully Interoperable With Firewire, SB1394, DishWire, and i.LINK Implementation of IEEE Std 1394
- Fully Supports Provisions of IEEE Std 1394b-2002 at S400B Signaling Rates

Mode	Mode9	Mode10
SW1	ON	OFF
SW2	OFF	ON
Port 0	B2	S

LEGEND:

DS = 1394a-2000, data strobe-only, S400, S200, and S100 operating speeds

B2 = 1394b-2002 Beta-only, S200b and S100b operating speeds

B4 = 1394b-2002 Beta-only, S400b, S200b, and S100b operating speeds

S = TPBIAS#\_SD# terminal is in signal detect input mode

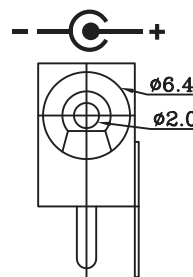
T = TPBIAS#\_SD# terminal is in TPBIAS output mode

\* Default Mode: 10

- Equipped with a multi-rate adaptive equalizer which restore IEEE Std 1394b signals received over Cat 5 or Cat6 Unshielded Twisted Pair (UTP) Cable at 400 Megabits per Second (Mbps/s)

## DC Power Jack:

- DC Power Connector: Walkman-type 2.0 mm DC Jack
- Power Input Range: DC 8V~30V, max. 1.35A



## Electric power consumption:

Under 1.5W

## Hardware Requirements:

### Desktop PC:

With either a built-in FireWire (IEEE-1394) controller or a FireWire (IEEE-1394) to PCI Host Adapter equipped with an external FireWire (IEEE 1394) port.

### Laptop PC:

With either a built-in FireWire (IEEE-1394) controller or a FireWire (IEEE-1394) to CardBus PC Card equipped with an external FireWire (IEEE 1394) port.

## OS Requirements:

- Windows XP SP2
- Mac OS X 10.3.5 or later,
- Linux kernel 2.6.12.4 or later.

## Environmental Condition:

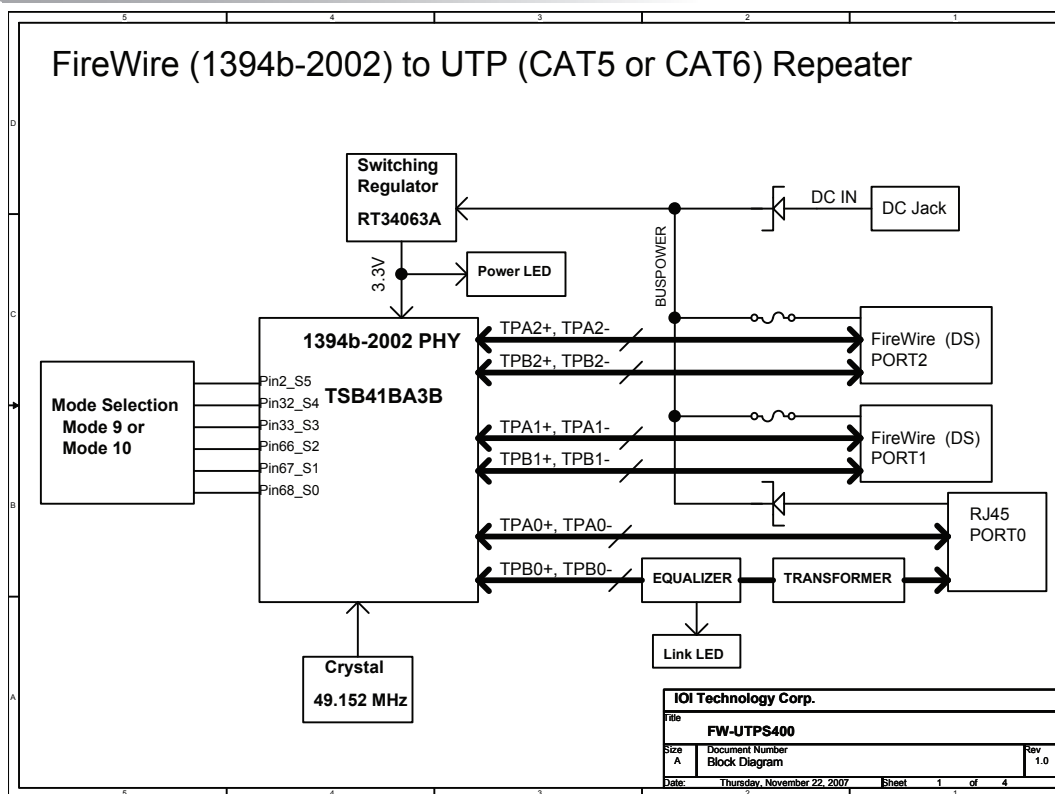
Storage Temperature : -20 degC to 75 degC  
Operating Temperature : 0 degC to 60 degC

## RoHS:

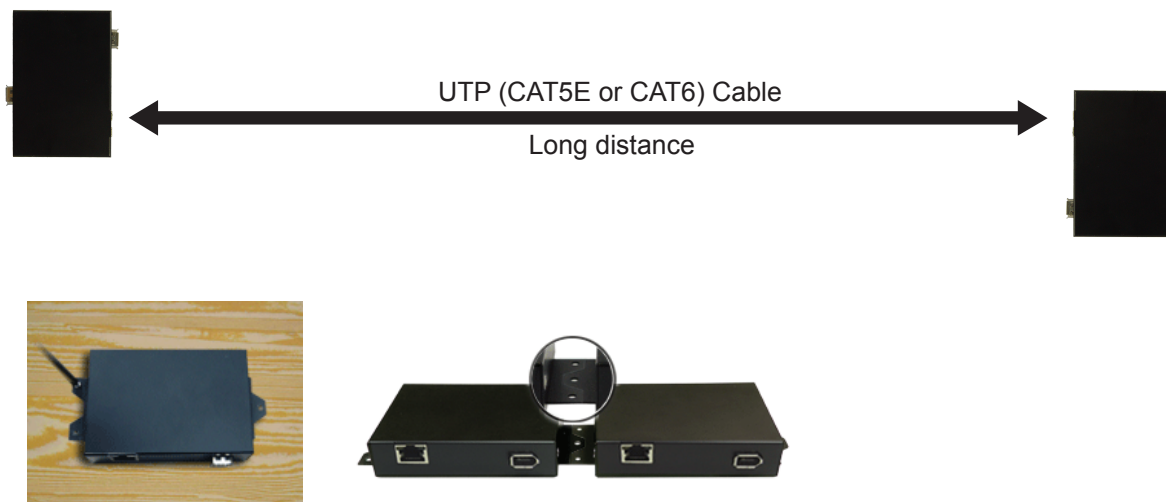
This repeater is satisfied with RoHS regulations. Material of solder is satisfied with following definition.

	Material of solder
Solder Paste	SN-3.0AG-0.5CU
Flow and hand soldering	SN-0.7CU+NI

## Block Diagram:



## Application:



## Crossover Type Cat5 Cable Wiring Diagram

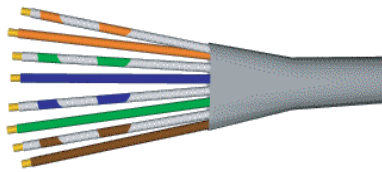
The wiring signal of the RJ45 connector is compatible with 100base T Ethernet (pin1,2,3,6). Users can use crossover type Cat5 Cable.

You need to make a cable where pins 1 & 2 from one end are connected to pins 3 & 6 on the other end, and pins 3 & 6 from the first end are connected to pins 1 & 2 on the other end. Pins 4 & 5 and 7 & 8 are unchanged.

### The two ends look like this:

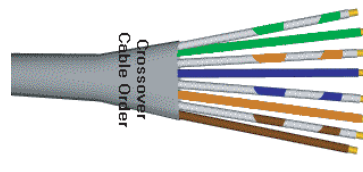
#### Standard End

Pin 1 White/Orange  
Pin 2 Orange  
Pin 3 White/Green  
Pin 4 Blue  
Pin 5 White/Blue  
Pin 6 Green  
Pin 7 White/Brown  
Pin 8 Brown



#### Crossover End

Pin 1 White/Green  
Pin 2 Green  
Pin 3 White/Orange  
Pin 4 Blue  
Pin 5 White/Blue  
Pin 6 Orange  
Pin 7 White/Brown  
Pin 8 Brown



### The following is the proper pin out and cable pair/color order for the "standard" end.

Pair#2 is connected to pins 1 and 2 like this:

Pin 1 wire color: white/orange

Pin 2 wire color: orange

Pair#3 is connected to pins 3 and 6 like this:

Pin 3 wire color: white/green

Pin 6 wire color: green

### The remaining two twisted pairs are connected as such:

Pair#1

Pin 4 wire color: blue

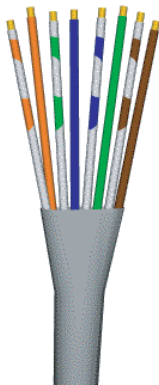
Pin 5 wire color: white/blue

Pair#4

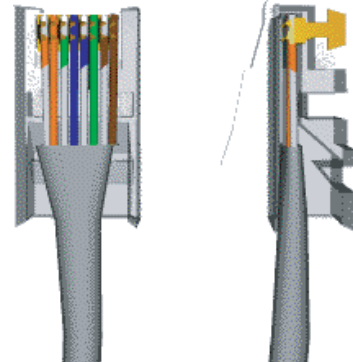
Pin 7 wire color: white/brown

Pin 8 wire color: brown

### The standard pairs are illustrated in the following diagram:



### Then when the pairs are inserted into the RJ45 plug they should look like this:



### The following is the proper pin out and cable pair/color order for the "crossover" end.

Pair#3 is connected to pins 1 and 2 like this:

Pin 1 wire color: white/green

Pin 2 wire color: green

Pair#2 is connected to pins 3 and 6 like this:

Pin 3 wire color: white/orange

Pin 6 wire color: orange

### The crossover pairs are illustrated in the following diagram:



### Then when the pairs are inserted into the RJ45 plug they should look like this:

