



# EQCO400T UTP Cable Equalizer for IEEE 1394b

## Introduction

EqcoLogic has developed a family of Equalizer circuits to extend the reach of IEEE 1394b (Firewire) connections with speeds of up to 500mbit/s over low cost cables. The EQCO400T is designed to transport Firewire signals over long haul CAT5 or CAT6 Ethernet Cable.

## Applications

This solution is useful and economical for many markets and applications, including the following:

- Automotive and public transport - Video, audio, navigation and information
- Camera networks - Surveillance, industrial/inspection, medical cameras
- Pro-audio
  - Point to point network links for microphone-console connections, distribution of digital audio to amplifiers and speakers etc
- Computer to Peripheral connections
  - Particularly connections to external hard drive or DVD writers; PC to personal video recorders. Also suitable for connections to low-end RAID systems.

## Features

- Patented Eqcologic adaptive equalization technology
- Multi-Rate Adaptive Equalization
- Supports IEEE 1394b - S400, S200 and S100 data rates
- Seamless connection with any IEEE1394b compliant PHY
- Internal termination resistors for low external discrete count
- Fully compatible with Power over Ethernet (IEEE 802.3af)
- Carrier Detect and Mute functionality with direct Light Emitting Diode driving capability
- Low Power 140mW or 14mW (mute) @ 3.3V
- Single 3.3V supply
- 16-pin, 0.65mm pin pitch, 4mm QFN package
- Pb-free and RoHS compliant

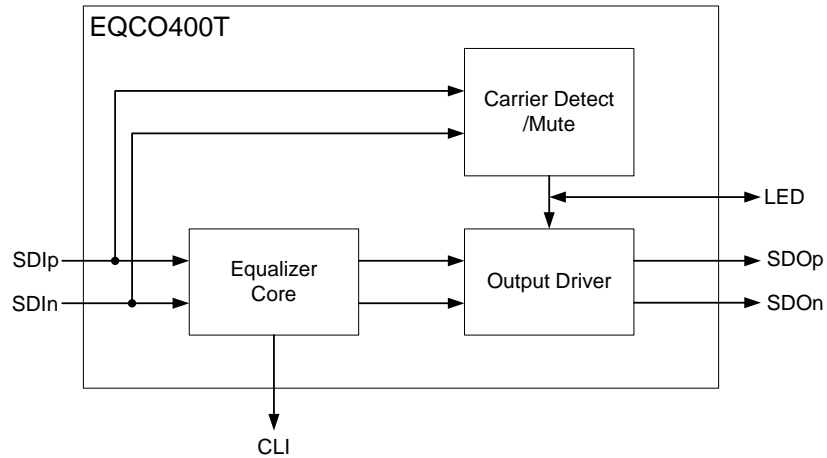
## Typical Equalization Performance

Device	1394 Data rate	Range using	
		Cat 5e	Cat 6
EQCO400T-5	S100	20m - 100m	20m - 100m
	S200	0m - 75m	0m - 75m
	S400	0m - 50m	0m - 75m
EQCO400T-7	S100	0m - 85m	0m - 85m
	S200	0m - 85m	0m - 85m

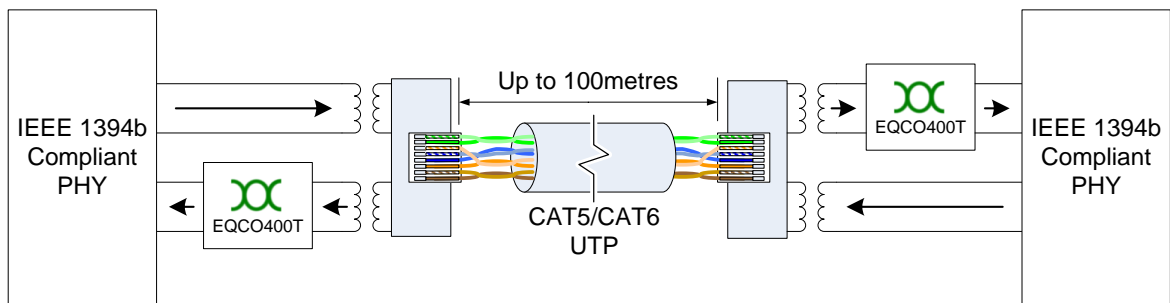
<sup>1</sup> Measured on UTP pairs 1,2 and 3,6 as per IEEE 1394-2008



## Internal Block Diagram



## Typical 1394 UTP connection



The EQCO400T is a multi-rate adaptive cable equalizer, designed to restore signals received over Cat 5 or Cat 6 Unshielded Twisted Pair (UTP) cable. For correct operation the signals must be NRZ (non-return-to-zero) encoded, DC balanced with a maximum run length of 10 bits, and have a speed (edge rate) of between 100Mbps and 500Mbps.

The EQCO400T is ideally suited for long-haul IEEE 1394b-2002 connections over Category 5 or Category 6 Ethernet cable at the S400 data rate. It can also be used at S200 and S100 data rates over even longer cables. The EQCO400T connects seamlessly to any IEEE 1394b-2002 compliant physical layer controller (PHY).

## Product Status

The EQCO400T is fully production qualified and shipping to customers worldwide.

