



## EQCO800SC Single Coax Transceiver 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 1.25Gbps over low cost cables. The EQCO800SC is designed to transport FireWire signals bi-directionally over a single coax at speeds up to 1.25Gbps.

There are two configurations: for 75  $\Omega$  cable as used in cable TV and security camera links and 50 $\Omega$  for automotive and some industrial applications.

### 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
- Home Networking
- When Cat5 or Cat6 cabling is not available and existing 75 $\Omega$  coax is not used for analogue TV signals. TV, STB, PVR connections including inter-room links
- 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 Multi-Rate bi-directional link technology
- Combined transmitter and receiver with an integrated equalizer to form a bidirectional connection over a single 50 $\Omega$  coax cable
- Conforms to TS2007005 and TS2008001 of the 1394 Trade Association
  - Seamless connection with any IEEE1394b compliant PHY
  - Supports IEEE 1394b – S800, S400, S200 and S100 data rates
  - Compatible and supplemental to IDB-1394 Automotive Specification
- Sophisticated Auto-mute functionality for lowest application power
  - Separate mute function for transmit and receive signal paths
  - Remote signal Detect with direct Light Emitting Diode driving capability
  - Performance similar to 1394TA “PMD for Fiber Optic Wake-on-LAN”
  - Low Power - 65mA (fully active), 5 $\mu$ A (TX and RX mute)
- Internal LVDS termination resistors for low external discrete count
- Allows power distribution over the coax, on top of the data signals
- Single 3.3V supply

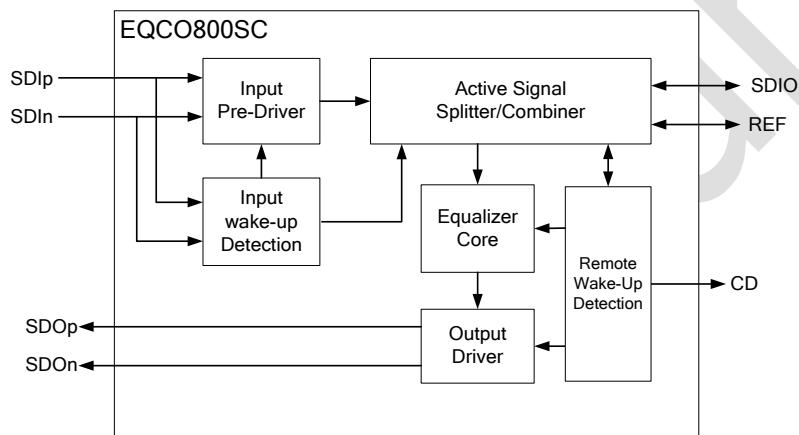


- 16-pin, 0.65mm pin pitch, 4mm QFN package
- Pb-free and RoHS compliant

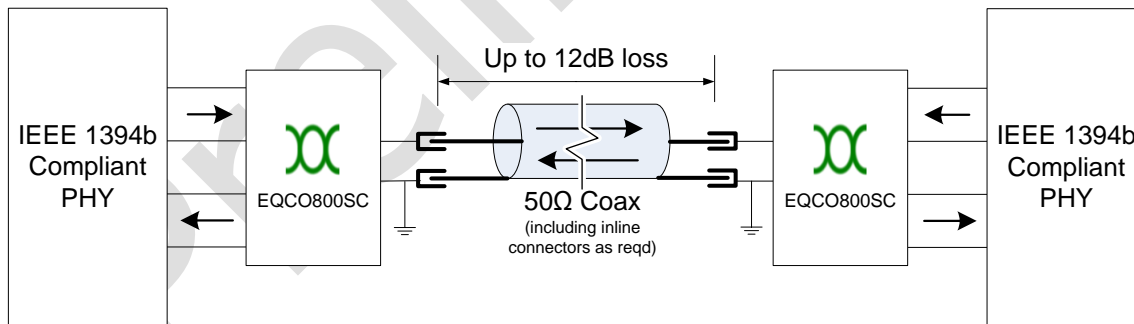
### Typical Equalization Performance

1394 Rating	Range using		
	RG174 (Ø 2.8mm)	RTK (Ø 2.8mm)	RG58 (Ø 5mm)
S100	40m	70m	70m
S200	30m	70m	70m
S400	25m	50m	50m
S800	18m	30m	30m

### Internal Block Diagram



### Typical 1394 Coaxial connection



The use of low coax driver voltages (typically 300mV) contributes to power efficiency of the whole system and also to low EMI emissions from the cable and connectors. The EqcoLogic equalizer is a new device designed to work with low received voltages, recovering attenuated signals and boosting the received voltage to the 200mV expected by the 1394b PHY.

### Product Status

EqcoLogic is sampling the EQCO800SC to selected customers together with circuit design advice. The company intends to launch the product commercially in early 2009.

