



Quad PHY Interface Enables Rugged Multiport IO-Link Masters

MILPITAS, CA – December 11, 2013 – Linear Technology Corporation introduces the [LTC2874](#), an IO-Link master IC, combining a power and communications interface to four remote IO-Link devices (slaves). A rugged interface and rich feature set make the LTC2874 ideal for larger systems implementing IO-Link (IEC61131-9) in harsh, industrial environments. Managing four slaves per master IC, the LTC2874 reduces board space, design complexity and costs while increasing reliability.

Unique features of the LTC2874 include automatic Wake-Up Request (WURQ) generation and an output supply current-boosting capability for slave start-up. The WURQ generator produces self-timed wake-up pulses of correct polarity, reducing demands on the microcontroller. Safety mechanisms manage multiport and repeat WURQs to prevent thermal overload and maintain error-free communication. The current-boosting pulse generator fully implements the start-up current pulse requirements added to the IO-Link v1.1.1 specification.

The LTC2874 adds robustness and reliability to the physical interface specified in the IO-Link standard. The onboard Hot Swap™ controller and external N-channel MOSFET in the power interface protect connected devices from inrush currents during start-up and fault conditions. Integrated $\pm 50\text{V}$ blocking diodes in the data line interface protect against faults and high voltage excursions, making it well-suited for the harsh PLC environment driving cables up to 20m long. The data lines withstand $\pm 8\text{kV}$ HBM ESD without latchup or damage; all other pins are protected to $\pm 6\text{kV}$ HBM. A SPI interface allows host configuration and monitoring of multiple parameters including input supply voltage, output power good status, and fault events. Programmable controls for Hot Swap current limit foldback, circuit breaker timers, noise suppression filters and current sinking add flexibility for communication and fault handling in various systems.

Other capabilities make the LTC2874 suitable for a variety of applications. An 8V to 30V operating range supports the legacy Standard I/O (SIO) mode and other industrial applications.

Driver outputs can be paralleled to achieve 4× the drive capability required by IO-Link.

Signaling pins are compatible with IEC 61131-2 type 2 and type 3 digital I/O. A cable-sensing feature ensures that power supply outputs turn on only after cables are connected, allowing hot-plugging without sparking, which might otherwise reduce connector lifetime.

The LTC2874 supports the industrial operating temperature range of –40°C to 85°C, and is available in a RoHS-compliant 5mm × 7mm QFN or TSSOP package. The LTC2874 pricing starts at \$7.94 each in 1,000-piece quantities and is available today in production quantities. The LTC2874 complements the [LT3669](#) IO-Link device (slave) PHY interface. For more information, visit www.linear.com/product/LTC2874

Photo Caption: 4-Port IO-Link Master PHY Interface

Summary of Features: LTC2874


- IO-Link Compatible (COM1/COM2/COM3)
- Hot Swap™ Controller Protected Supply Outputs
- Configurable 100mA (4-Port), 200mA (2-Port), or 400mA (1-Port) CQ Drive Capability
- ±50V Line Protection
- Short Circuit, Input UV/OV & Thermal Protection
- Optional Interrupt & Auto-Retry after Faults
- 4-Wire SPI-Compatible Serial Interface
- 2.9V to 5.5V Logic Supply for Flexible Digital Interface
- No Damage or Latchup to ±8kV HBM ESD
- 38-Lead (5mm x 7mm) QFN & TSSOP Packages

About IO-Link

IO-Link (IEC 61131-9) is a 24V cable interface that allows smart sensors and actuators to exchange advanced configuration, status and diagnostics information using a powerful, but simple protocol. For more information, visit www.io-link.com

About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for over three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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