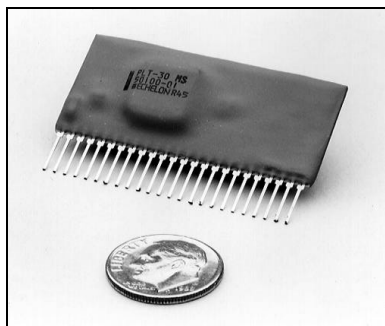


# PLT-30 POWER LINE TRANSCEIVER

## MODEL 50100-01



### FEATURES

- Direct sequence, spread spectrum power line transceiver for 9kHz-95kHz European utility applications
- CENELEC EN50065-1 compliant
- Complete transceiver in a Single In-line Package (SIP)
- Uses OEM's own power supply and coupling circuit for custom applications
- Programmable clock output eliminates the need for a separate Neuron<sup>®</sup> Chip crystal
- 2 kilobits per second network bit rate
- Packet detect output to drive a status indicator LED
- -40 to +85° C operating temperature range
- UL, CSA, VDE Recognized
- LONMARK<sup>™</sup> certifiable

### DESCRIPTION

The PLT-30 Power Line Transceiver provides a simple, cost-effective method of adding LONWORKS<sup>®</sup> power line technology to European utility control systems. Network data are broadcast through the utility's power lines, eliminating the need for dedicated wiring and greatly reducing installation costs. Designed to be used with an OEM's own power supply, power transistors, coupling circuit, crystal, and Neuron Chip, the PLT-30 transceiver is fully compliant with CENELEC EN50065-1 and is ideal for utility applications that require a high performance transceiver in a miniature form factor.

Intermittent noise sources, impedance changes, and attenuation conspire to make the power line a hostile signal path. To make the PLT-30 transceiver operate reliably, new signal processing and error correction algorithms were developed to permit operation in the presence of motor noise, electronic ballasts, dimmers, and other typical sources of interference on the power line. These innovations include:

- Low-overhead error correction technique enables the system to receive corrupted packets while maintaining a high throughput: this technique requires only six percent overhead for error correction;
- Automatic sensitivity adjustment algorithm dynamically changes the receiver sensitivity based on noise levels;
- Oversampling correlation filter and adaptive data recovery algorithm synchronize instantaneously to incoming packets;
- Tri-state power amplifier/filter combination provides a powerful output signal with a minimum number of components, and with minimal current consumption.

The PLT-30 transceiver uses an external coupling circuit and can communicate over virtually any AC or DC power mains – even unpowered twisted pair. Typical coupling circuits are shown in the User's Guide.

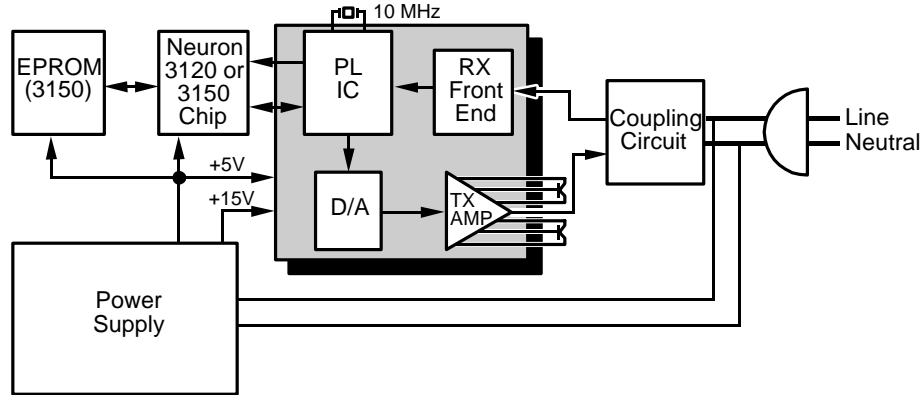
The PLT-30 transceiver is a miniature Single In-Line Package (SIP) containing Echelon's direct sequence, spread spectrum power line integrated circuit, receive front end, and transmitter amplifier and filter. The user supplies two external power transistors. The transceiver must be connected to an external 10MHz crystal, and via the CKOUT pin can supply either a 5 or 10MHz clock signal for the Neuron Chip with which it will be used. This feature eliminates the need for a separate Neuron Chip crystal.

The PLT-30 transceiver communicates at 2kbps and provides high-speed throughput to meet a wide range of control applications. The transceiver requires +15VDC @ 550mA and +5VDC @ 20mA maximum while transmitting. If a battery-backed power supply is used, the transceiver will continue signaling even during a power failure on the power mains.

Using the PLT-30 transceiver can save years of development time compared with designing a custom transceiver. The transceiver is CENELEC compliant, and VDE, UL, and CSA recognized, minimizing time consuming and expensive laboratory transceiver testing. The transceiver also meets LONMARK interoperability guidelines, and is economically priced for OEM applications of any volume.

Echelon offers a comprehensive range of development tools, network interfaces, routers, and network services tools to simplify the task of designing and commissioning products using the PLT-30 transceiver. Technical support for the transceiver is available through Echelon's LonSupport™ Premier technical assistance program.

PLT-30 Power Line Node Block Diagram (PLT-30 Transceiver shown in shaded area)



## SPECIFICATIONS

Microprocessor	Requires external Neuron 3120® or 3150® Chip; provides selectable 5 or 10 MHz clock for Neuron Chip operation
CENELEC Compliance	Compliant with CENELEC EN50065-1 specification for low-voltage signalling
Listings	UL 1950, CSA C22.2 No. 950, VDE EN60950
Bit Rate	2kbps
Transmission Technique	Direct sequence spread spectrum, 31 chips per bit
Frequency Band	9kHz-95kHz
Collision Resolution	Yes
Input Voltage	+15VDC ±5% @ 550mA , maximum transmit +5VDC ±5% @ 20mA, maximum transmit
Connector Pins	0.27mm (0.011") x 0.5mm (0.020") on 1.8mm (0.071") centers
Operating Temperature	-40 to +85°C
Non-Operating Temperature	-40 to +85°C
Operating Humidity	25-90% RH @ 70°C, non-condensing
Non-operating Humidity	95% RH @ 70°C, non-condensing
Dimensions	46mm L x 22mm H x 10mm W (1.8" x 0.85" x 0.4")
Packaging	Phenolic coated single in-line package

## ORDERING INFORMATION

Product & Echelon Model Number

PLT-30 Power Line Transceiver	50100-01
LONWORKS PLT-30 A-Band Power Line Transceiver User's Guide (order separately — not shipped with product)	078-0118-01

1. Refer to the *PLT-30 A-Band Power Line Transceiver User's Guide* for transceiver and coupling circuit design information.
2. Refer to the *Neuron Chip Data Books* from Motorola and Toshiba for Neuron Chip specifications and design information.

\* Neuron Chips and PLT-30 transceivers were not designed for use in equipment or systems which involve danger to human health or safety or a risk of property damage and Echelon assumes no responsibility or liability for use of the Neuron Chips or PLT-30 transceivers in such applications.

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