

PLCA-22 Power Line Communications Analyzer Model 58022



Description

The PLCA-22 Power Line Communications Analyzer provides a simple, cost-effective method for field testing the operation and suitability of Echelon's PLT-22 transceiver for any application. By using the PLCA-22 in actual application environments (e.g., residences, commercial buildings, factories), users can quickly determine the performance of the PLT-22 transceiver as well as the need for routers, conditioning devices such as couplers, or booster amplifiers.

PLCA-22 analyzers are used in pairs: one unit sends sequentially numbered packets whose length and protocol service type is set by the user and the other unit receives the packets and displays errors as a percentage of the total number of packets sent. The PLCA-22 analyzers automatically exchange test configuration information between one another, minimizing the need for a user to access both analyzers during testing. Either analyzer can be programmed to be the Sender or the Receiver, and when one unit is set to be the Sender, the other automatically becomes the Receiver. At the end of a test, the packet error rate seen by the Receiver is automatically forwarded to the Sender for display, eliminating the need to physically observe the Receiver for test results.

Rapidly Assess Communication Performance

The user interface and flexible features of the PLCA-22 analyzer permit rapid characterization of PLT-22-based LONWORKS® networks. Dual signal strength LED bar meters, one for each of the two PLT-22 carrier frequencies, indicate both the signal level of incoming packets and the power line noise level when packets are not being transmitted. When combined with the packet error rate display, the signal strength and noise level readings indicate the suitability of a circuit for power line communications. A headphone/oscilloscope jack allows users to audibly or visually assess signal and noise characteristics.

- ▼ Simple, cost-effective power line communication test tool
- ▼ Analyzes power line signaling performance and signal margin of the PLT-22 power line transceiver
- ▼ Helps identify if routers, conditioning devices or booster amplifiers are needed
- ▼ Determines power circuit phase
- ▼ Supports virtually any AC or DC mains voltage, or un-powered wire
- ▼ Ideal for testing the power line performance of PLT-22-based nodes
- ▼ RS-232 port for data logging

Additional features include:

Operates Over Two Frequency Bands: The user can select between operation in the frequency range of 110kHz to 140kHz (C-band mode) or from 70kHz to 95kHz (A-band mode). The first frequency range is the standard for most automation applications, while the second range is typically used for meter reading in Europe. **Adjustable Transmit Level:** Users can select a 1.7, 3.5, 7, or 10Volts peak-to-peak (p-p) output level with a 1Amp or 2Amp p-p current limit. This feature allows the user to determine the value of using a higher PLT-22 output voltage or a PLA-21 Amplifier.

Adjustable Attenuation: The transmit signal can be attenuated in discrete steps to determine the system operating margin. This feature helps the user determine how close a system is to its operating limit.

Automatic Phase Detection: Since "As-Built" drawings are often unavailable or inaccurate, a phase detector feature is provided to determine the relative distribution phase between a pair of power mains circuits. This greatly simplifies system commissioning and troubleshooting.

Supports Virtually Any Mains Circuit

The PLCA-22 offers both Line-to-Neutral and Line-to-Earth coupling through the built-in AC line cord, or through a custom coupling network connected to the external coupling connector. The external coupling connector enables the PLCA-22 analyzer to communicate over virtually any AC or DC voltage power mains, and even over un-powered twisted pair.

Data Logging

Each PLCA-22 analyzer includes an output-only RS-232 communication port. This port may be connected to a PC or other data logging device to create permanent record of power line performance.

Rugged Packaging

The PLCA-22 analyzer is packaged in a rugged case that holds the electronics, power supply, LCD display, and operator keypad. Each analyzer operates from 100-240VAC or from an external DC power source; the latter permits the unit to operate from batteries in applications where AC line voltage is not available. An adjustable backlit-LCD display enhances viewing in dimly lit work environments.

Specifications

Function	Description
Microprocessor	Neuron 3150 Chip
Packet size	Adjustable via keypad, 12-76 bytes (including CRC)
Power supply type	Internal 100-120/240 VAC switching supply or external DC power supply, fused
External DC power supply (supply not included)	18VDC @ 1A
Power supply consumption	9W maximum transmit, 3W typical receive
External power supply input	Miniature power jack, 2.1mm x 5.5mm plug (Shogyo SPY1812 or equal)
Headphone/oscilloscope output	Standard 1/4" (6.4mm) jack
Coupling types	Internal or external, switch selectable. Line-to-Earth and Line-to-Neutral modes, switch selectable
Electrostatic discharge to network connector or case	No hard failures to 20,000V
Regulatory compliance	Complies with FCC power line carrier requirements for conducted emissions, and FCC Level A for radiated emissions. Complies with both CE Mark requirements and CENELEC EN50065-1 specifications for low-voltage signaling.
Listings	UL3 111-1, c-UL to CSAC22.2 No. 1010.1, TÜVEN-61010-1
Transceiver bit rate	5kbps (C-band mode), 3.6kbps (A-band mode)
Transmission technique	BPSK 110kHz-140kHz (C-band mode), BPSK 70kHz-95kHz (A-band mode)
Nominal line input voltages	100-120/24 0VAC
Line input voltage tolerance	+6, -10%
Output voltage	Selectable 1.7 to 10V p-p
Power line connector	IEC-320 compatible line cord
Operating altitude	4572m (15,000 feet max)
Non-operating altitude	7620m (25,000 feet max)
Installation categories (overvoltage)	II
Pollution degree	2
Operating temperature	0 to +40°C
Non-operating temperature	-20 to +60°C
Operating humidity (non-condensing)	25 - 90% RH @ +40°C
Non-operating humidity (non-condensing)	90% RH @ +60°C
Dimensions	184 mm x 237 mm x 102mm (7.25 x 9.35 x 4.0) excluding case handle

Ordering Information

Product	Echelon Model Number
PLCA-22 Analyzer (one pair). See price list for line cord options.	58022-P
<i>LONWORKS PLCA-22 Power Line Communications Analyzer User's Guide</i> (one copy shipped with each pair)	078-0176-01A

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