

Quick-Start Guide

POWERLINC™ MODEM - INSTEON SERIAL INTERFACE (DUAL BAND)

Serial RS-232 and TTL Interface (#2413S)

INSTEON™ PowerLinc interface with RS-232 serial and electronic TTL communications for full-time software and hardware host applications.



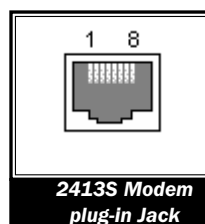
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Key Features

- No background software needed with computer programs
- Straightforward and simplified command set
- Simple to use RS-232 communications
- Direct TTL connection for hardware devices
- Stores over 2,016 INSTEON Links in 128Kb of non-volatile memory
- Uncontrolled feed-through AC outlet other electrical devices
- Communicates via powerline and RF INSTEON for maximum reliability

Connector Specifications

- Pin 1: RS232 to PC pin 2 (Rx)
- Pin 2: Not Connected
- Pin 3: TTL Output (from PLM)
- Pin 6: TTL Input (from PLM)
- Pin 7: Common ground
- Pin 8: RS232 from PC pin 3 (Tx)
- Pins 4&5: Not connected



Power-up Behavior

LED On Steady	PLM detected an external EEPROM for storage of database links.
LED blinks six times	PLM has not detected an external EEPROM and will use the internal EEPROM of the processor chip.
LED is Off	While being plugged in, the user pressed and held the SET button for 3 seconds causing the PLM to perform a factory reset. At the conclusion of the reset, the PLM's LED will operate like one of the two modes above.

Communications

The RS-232 Serial communications to the PowerLinc Modem (PLM) are:

19,200 baud	8 data bits	No parity	1 stop bit
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Note: each byte sent to the PowerLinc Modem will be echoed back to the host.

For developers and programmers interested in learning more about the PowerLinc, information on the PowerLinc Modem Developer Kit can be found at: <http://www.smarthome.com/insteon/sdk2600s.html>

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Tips for Using PowerLinc Modem

- Do not plug PowerLinc Modem into a power strip or AC line filter.
- Some computers and their accessories can absorb PowerLinc Carrier (PLC) signals off the power lines. Since PowerLinc Modem will be so close to the computer, **the power strip for the computer should be filtered.** Use Smarthome's FilterLinc™ #1626 on the computer's power strip to keep the PowerLinc Modem's signals from getting absorbed by the computer equipment.
- Don't plug other PLC transmitters into the same outlet as PowerLinc Modem. Every PLC transmitter will absorb the other transmitter's PLC signals when they are not transmitting. In some cases, up to half the signal can be lost due to nearby transmitters.
- If the computer's serial port is shared with another hardware device (scanner, pda, etc.) be sure to turn off that device's program on the PC. If left running, the home automation software will not be able to communicate to the PowerLinc Modem.



Specifications

General	
SmartLabs Product Number	2413S - PowerLinc Modem Module
Warranty:	2 years
Software:	Sold Separately
Operation	
Operation Modes	INSTEON only, X10 only, INSTEON and X10 Combo Mode
Interface	
Connector Type	RJ-45
Interface	RS-232 & TTL
Features	
INSTEON Addresses	1 hard-coded out of 16,777,216
INSTEON Links	2016 out of 16,777,216 possible
INSTEON Device Category	0x03 (Network Bridges)
INSTEON Device Sub-Category	0x11
INSTEON Powerline Freequency	131.65 kHz
Minimum Transmit Level	3.2 Vpp into 5 Ohms
Minimum Receive Level	20 mVpp nominal
INSTEON Messages Repeated	Yes
X10 Powerline Frequency	121 kHz
X10 Messages Repeated	No
Mechanical	
Operating Conditions	Indoors, 40 to 132 F, up to 85% relative humidity
Physical	3.9" H x 2.6" W x 1.5" D x 9.6 oz
Electrical	
Supply Voltage	120 Volts AC +/- 10%, 60 Hertz, single phase
Pass-through outlet	Un-controlled 3-prong (with ground) 120V, 15 amps
Certification	Safety tested for use in USA and Canada (ETL #3017581)

FCC Compliance Statement

This device complies with FCC Rules Part 15. Operation is subject to two conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference that may be received or that may cause undesired operation. The digital circuitry of this device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio and television reception. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause such interference, which can be verified by turning the device off and on, the user is encouraged to eliminate the interference by one or more of the following measures:

- Re-orient or re-locate the receiving antenna of the device experiencing the interference.
- Increase the distance between this device and the receiver.
- Connect the device to an AC outlet on a circuit different from the one that supplies power to the receiver.
- Consult the dealer or an experienced radio/TV technician.

WARNING! Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

SmartLabs Limited Warranty

SmartLabs warrants to the original consumer of this product that, for a period of one year from the date of purchase, this product will be free from defects in material and workmanship and will perform in substantial conformity to the description of the product in the owner's manual. This warranty shall not apply to defects or errors caused by misuse or neglect.