XTB-232 X10 RS232 Powerline Interface Operation

JV Digital Engineering

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ELECTRICAL CONNECTION

The XTB-232 can be plugged into any standard 120V 60Hz AC receptacle. The closer that receptacle is to the distribution panel, the stronger signals will be throughout the home. A good tuned-circuit passive coupler like the XPCP should be installed near the electrical panel to propagate the strong X10 signal to the opposite phase when X10 devices are on both phases. An active coupler/repeater like the XPCR will not do that.

The XTB-232 has an opto-isolated RS232 interface provided with isolated power, so there is complete electrical isolation between the powerline and the computer serial link. The XTB-232 can be connected to the computer with the same cable that was previously used for the CM11A. The serial configuration is 4800 baud, 8 bits, no parity, and one stop bit.

XTB-232 OPERATION

The XTB-232 should be identified as the CM11A in the automation software setup configuration. The software should recognize the XTB-232 as a CM11A with firmware version 0. The XTB-232 should then process any X10 communication between the PC and the powerline.

To be compatible with various software programs, the XTB-232 will request clock initialization when first powered up even though it does not have an internal schedule clock. It will respond to the clock initialization and status request commands, but will just return null bytes for data

The X10 transmitter in the XTB-232 auto tunes itself to 120KHz using the powerline as a reference. This may be a something to consider when using the XTB-232 in an installation powered by a generator.

To conserve energy, the XTB232 only transmits the X10 signal burst following each 60Hz zero crossing. Because of this, it is intended for use in homes with a standard 120V/240V split-phase electrical system. It must be paired with a 3-phase repeater when used in a 3-phase electrical system.

A serial message defined in the CM11A protocol document must be completed within 1 second. To quickly recover from a serial transmission error, an incomplete serial message will be purged if not completed within one second, and the LED will indicate a serial transmission error. While the timeout is necessary for robust serial communication, it can make it difficult to send commands manually for testing. Placing a jumper between pins 4 and 5 of the internal programming header can disable the timeout for manual testing. Those are the two pins at the end closest to the power transformer. The timeout should not be disabled for normal operation because it can leave the XTB-232 in an undefined state if the serial communication is interrupted.

XTB-232 LED STATUS INDICATIONS:

Dim green:	The unit is powered up and monitoring the powerline.
Bright green:	A command is being received.
Orange flicker:	A command is being transmitted.
3 red flashes:	A receiving error occurred due to noise or a weak signal.
4 red flashes:	A transmission error occurred due to noise or a collision.
5 red flashes:	An error occurred in the RS232 serial communication link.

Cable connections: (RJ11 pin 1 is on the left looking into the connector with the AC plug down.)

Signal	DB9	RJ11	Function
SIN	Pin 2	Pin 1	Serial input to PC (output from the interface)
SOUT	Pin 3	Pin 3	Serial output from PC (input to the interface)
GND	Pin 5	Pin 4	Signal ground
RI	Pin 9	Pin 2	Ring signal (input to PC)