

XTBM-Pro X10 Signal Analyzer

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Revised 10-03-2013

The XTBM-Pro is an advanced X10 signal analyzer for home automation systems. It is an enhanced version of the basic XTBM. Both units can display signal voltage, carrier frequency, and powerline noise in the default X10 Powerline Monitor mode, but the Pro can help solve the most difficult X10 control problems with the additional operating modes listed below.



X10 Powerline Monitor – This default mode displays the X10 signal and background noise levels with 10mV resolution, transmitter frequency, and the last valid decoded X10 command. It will also report several types of communication errors. Some installations contain a repeater, such as the X10 XPCR or XTB-IIR [<http://jvde.us/xtb/XTB-IIR.pdf>]. The XTBM contains a transmitter to check for a repeater whenever it is first plugged into an AC outlet, and the strength of the repeated signal will be displayed if one is active in the system. The Pro can recheck the repeater signal level by just pressing a button.

Prior history – This is a non-volatile storage of the last X10 reading taken before the XTBM-Pro was unplugged. This is handy to check changes in signal and noise levels as you move around from outlet to outlet. The prior history shows both signal and noise levels, and also whether the last command was the result of an XTBM repeater check.

Pre and Post Noise – In addition to continually monitoring the background noise level in the middle of the X10 sample window, this mode also samples noise at the very beginning and very end of the window. It will also display the noise frequency or the number of noise cycles inside the X10 reception window for random or transient noise.

Bargraph – This provides a quick graphic indication of X10 signal and noise levels along with the actual voltage measurements. When the two halves of the doublet are different amplitudes, the stronger half will be displayed.

Bitmap – This displays the full 44-bit pattern for a standard X10 doublet command. The voltage levels for each bit pair underlined by the cursor are displayed. The switches move the cursor back and forth to display the voltages for all 44 bits.

Command Log – A history of the most recent 100 commands received since the unit was plugged in is retained in RAM along with the signal levels for those commands. The switches scroll back and forth through the log file. In addition to an index that indicates the position in the log, each record is also time stamped with the elapsed time from when the XTBM was plugged in. As a further aid in diagnosing control problems, the logging mode will display the data associated with an extended command as 4 hexadecimal characters in the form Hnn_XcABCD, where H is the house code and nn the unit code.

Status monitor – The XTBM-Pro also includes a signal reporting capability that can monitor the output of two-way modules like the RR501 that respond to the X10 Status Request command. When enabled, the XTBM will watch for any Status_ON or Status_OFF commands, and will report the received signal strength as a P pre-set dim command in a pseudo log scale. A smart controller can monitor those pre-set dim commands, and issue an alert when there is a significant change in signal level.

Complete instructions for the XTBM-Pro are available here: http://jvde.us/xtb/XTBM-Pro_instructions.pdf