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What is a Logic Analyser? by [Ewan Fisher](#)

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Most non-technical people hearing the term Logic Analyser would struggle to understand what the machine is or the benefits to them of using one.

For ease of understanding, a Logic Analyser is a piece of electronic equipment which is capable of displaying signals in a digital circuit. It measures the voltage of "logic" electric signals which would otherwise be too fast to measure.

Although Logic analysers appear similar to oscilloscopes, there are a number of differences which make each machine usable for a variety of tasks and measuring requirements.

Once the data has been captured, the analyser is able to convert it into a variety of formats for ease, experimentation and further analysis. The data can also be uploaded to various soft and hardware computers.

The Varieties

Because of the vast number of uses and requirements of a logic analyser, there are three main versions available on the open market.

These fall into distinct categories.

Mainframe Analysers consider a chassis which can contain the display, controls, computer and space for installing the required hardware. These can be programmed by the user according to their specific needs and requirements.

Standalone units are those which are brought ready for use with the various programmes fitted at the manufacturing stage.

The third option is PC based analysers which have hardware connected to the computer via a USB or Ethernet connection. The software of the computer then receives the data and stores it for analysis and measurement.

A fourth (hybrid) option are those analysers which are known as mixed signal oscilloscopes and combine the functions of the two pieces of machine for the ease of the user.

Choosing the Logic Analyser for a Specific Use

One of the limitations of typical oscillators and logic analysers is the lack of screen space and memory which can assist a user with study and analysis.

Given that many of the devices are used by professionals who may wish to not only capture and save their data but analyse it at a later time for trouble shooting purposes and those for scientific enquiry, its little wonder that some of the hand held devices have proved inadequate for this use.

However, an analyser which required the hardware or software of a traditional "monitor and tower" computer would have meant that their use was near impossible in the field of work, especially if this involved rough terrain or moving from space to space.

The developments in laptop and hand-held computing technology have led to developments in the technology used to produce and create logic analysers which can be adapted to new and modern laptops, giving the best of both worlds in a convenient and portable casing but having the full benefit of the software to analyse, trouble shoot and make decisions out in a field setting.

The USB Logic Analyser available from proto-PIC is one such logic analyser, giving users the full benefit of the powerful and useful machine with the portability and functions required to make the very best of it.

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[Ewan Fisher](#) - About Author:
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