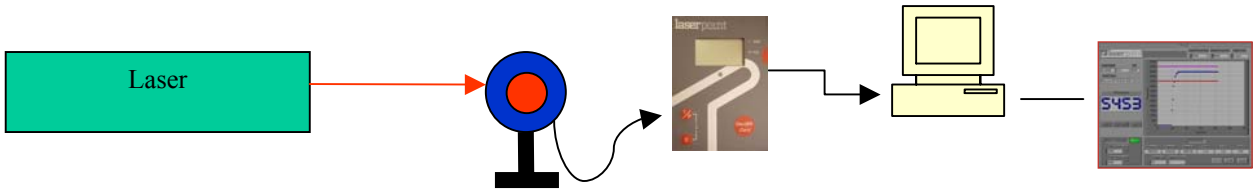
Applications of Power and Energy Meters

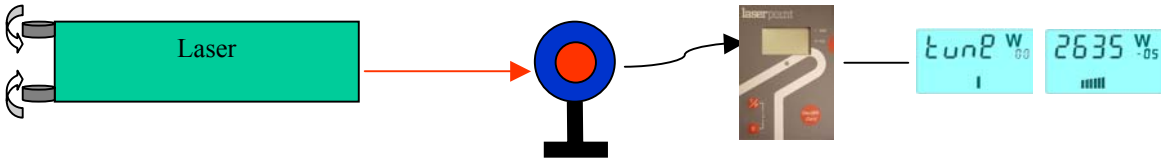
Measurement of long term stability

Long term verification of stability , necessary for example for the final validation of a laser source, is made by directly placing a power meter head , e.g. associated to the **PLUS** monitor, in front of the laser. The main screen of **PLUSSOFT** shows the long term behaviour of up to 12 hours. Plus and PlusSoft also have the possibility to set hi and low alarm thresholds .



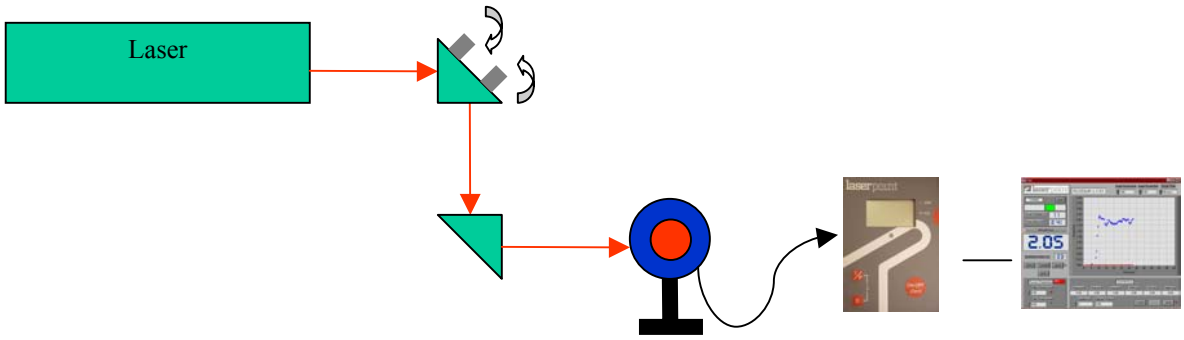
Alignment of laser cavities

Alignments require continuous tweaking of cavity mirrors: during these actions values change very quickly and understanding whether tuning is improving or not need a proper tool. Digital displays, with their fast running numbers are very un-easy; on the contrary, analog displays with their moving needle require a lot of attention to catch the value. Bargraphs are of great help to provide an immediate feeling of the direction of alignment, like in LaserPoint **PLUS**:, to have a fast perception of tuning direction at the same time maintaining the possibility to read the reached value.



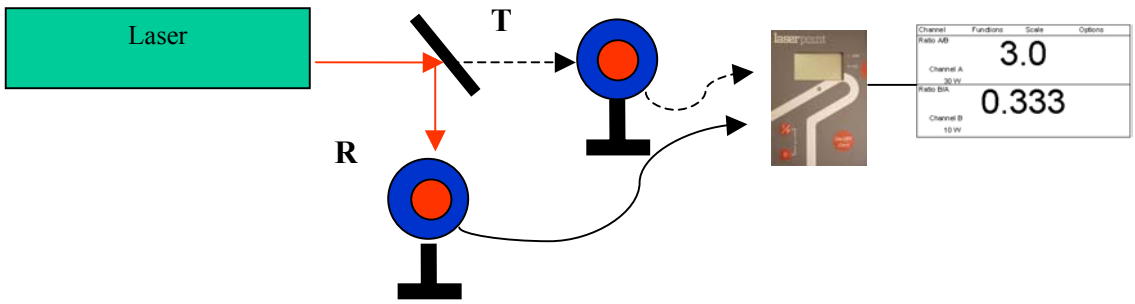
Alignment of optical set-ups

Optical losses can be introduced by a number of reasons, like the non correct angular positioning of elements or by damaged components; more often a sensitive decrease of throughput can be reached by misalignments or simply by summing individual losses of optical components. A power/energy meter positioned along the beam path, permitting correct alignments and verification of losses, optimises yield and efficiency of the optical system.



Measurement of losses

Verification of reflectivity, transmission and losses of beam splitters, filters and other optical elements can be done by inserting a power/energy meter in front or behind the component. Dynamic changes, like modification of behaviour or performances under the action of temperature variations, can be also monitored.



Statistical measurements of laser or laser machine behaviour

Statistical measurements are used for monitoring quality aspects of a source, a laser machine or set-up. Having for references heads bearing a **NIST** (National Institute for Standard and Technology) and **PTB** (Physikalisch-Technische Bundesanstalt**)** traceable calibration , data can be used for internal files, for quality reports, can be added to manuals or given to customers. All relevant statistical information as Current Value, Min &Max Values, Average, RMS Stability, Standard Deviation are supplied by the **PLUSoft** on measurement periods as long as required. For easiest handling, all statistical data can be transferred and saved on files or printed