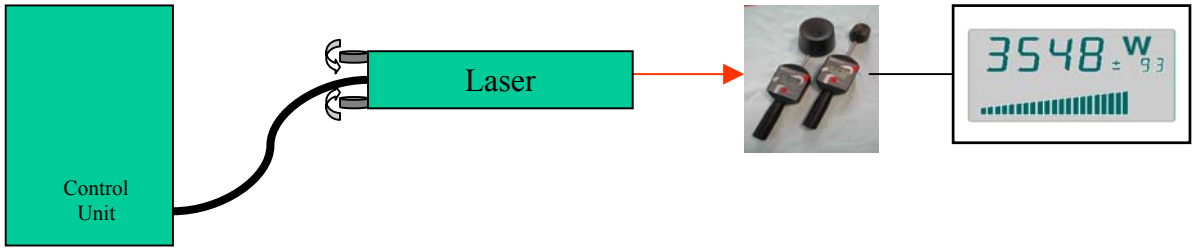
# Applications of LaserProbes

Laser Probes can be used in a variety of applications. Up to now they have been the standard measurement tool for service engineers who could rely on their portability, ease of use and quick measurement time. The new generation of probes manufactured by LaserPoint extend their range of applications and makes them available to laser technicians of any level , to any industrial job shop for internal controls, for periodical controls of medical equipment.
This is due to the number of advantages that both FIT and Cronos probes offer, when compared to old generation equipment.
For example a high degree of measurement repeatability is necessary to verify whether a source is stable or is drifting or whether the best available power has been reached after an alignment session . On standard probes, who have an error bar of 10% ( +/-5% ) , such an uncertainty can be misleading.
Fit and Cronos, with their possibility to repeat several measurements beginning a few seconds after the previous one and without stopping minutes for cooling and rinsing, offer a double advantage: save time and work with the same laser conditions.
Automatic measurements mean that there is no need to measure the exposure time and that, for this, no errors are introduced . The 4 or 8 seconds are decided by the internal clock of FIT and Cronos which start and stop measurement above a triggering level. The operator can keep the probe a longer time under the laser or even insert it in a running beam : no measurement errors are made . Readings can be done by a single person rather than the usual two operators, one at the control unit to open/close the shutter and the other one on the machine to make the measurement.
The possibility to store and recall the last measurement value helps in many industrial works, where hurry and multi-task activities may distract laser operators.
Accuracy and a high degree of repeatability of measurements are what is needed by several medical applications to know the exact power delivered to a patient. The Fit series has performances equal to power meters so that FIT probes can be a powerful substitute whether there no other needs, like long term monitoring. At a fraction of power meters cost.

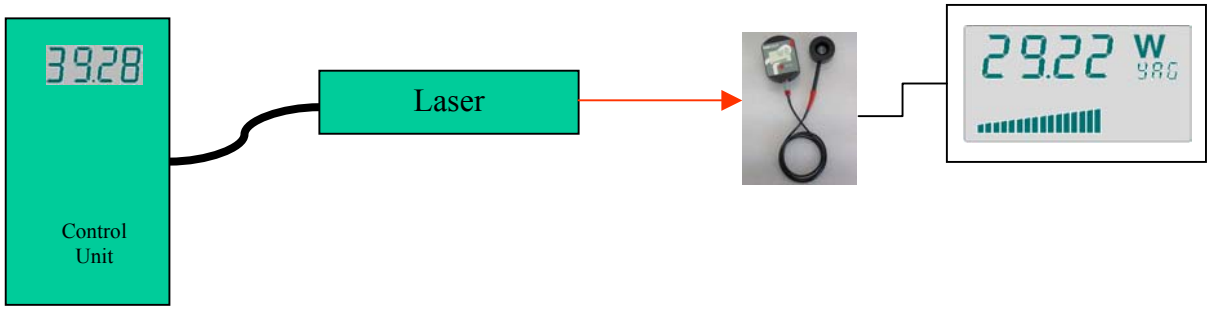
### Laser Alignment

Verification if maximum power has been reached after laser tweaking can be done in 8 sec with Cronos or 4 sec with FIT. This measurement is very useful as a crosscheck with laser internal power monitor.



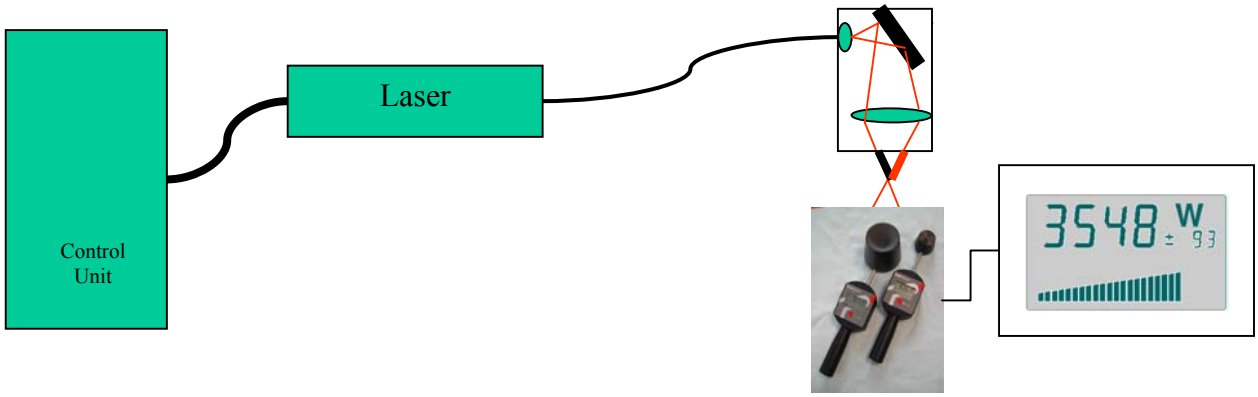

### Laser Power Monitoring

Periodical verification of real laser output can be done with laser probes, in particular if there are doubts on effective delivered power . A practical case is when the laser internal monitor displays a value, but the application is not running properly.



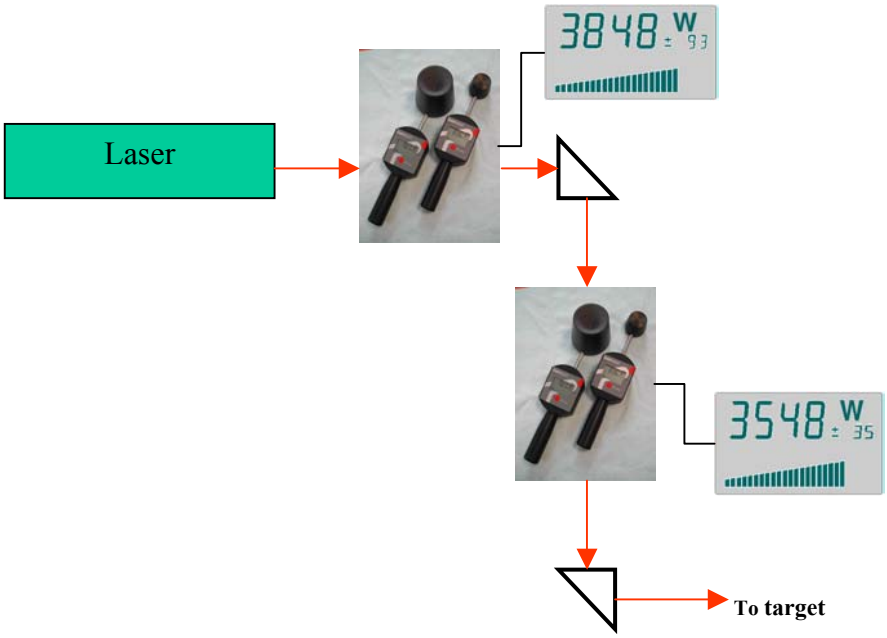
**Monitoring of complete beam delivery systems at the workplace**

A monitoring of the complete beam line, down to the workplace, can explain why cutting, welding, etc do not perform well. Cronos and Fit can easily show discrepancies with the internal laser monitor, indicate that there may be damaged components on the beam line or power losses due to misalignments.

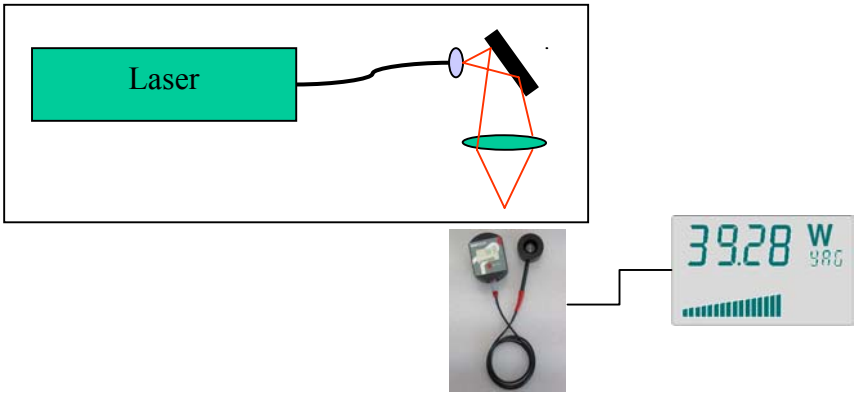



**Verification of Damaged or Dirty Components**

Locating damaged optical components can be done easily by making a reading before and a reading after the component itself. Optical components in good shape never lose more than a very few percent of laser power. Major losses can be ascribed to damages or dirt ; in any case changing the optics or clean it will save future troubles and costs. FIT and Cronos probes are ideally suited for this kind of verification since their reliable measurements permit to trust the readings and the possibility to make another measurement, a few seconds after the first one , is practically independent from laser fluctuations.



**Fast monitoring of marking and micro-welding systems**
Low and mid power lasers can be efficiently monitored by the FIT series. The 1% repeatability and high resolution (10mw on the 50W model) of those probes, make their measurements the reliable references for setting application parameters or for periodical verification.




**Fast monitoring of medical lasers**
Periodical monitoring of CW medical lasers (CO2, Yag, Argon etc) can be quickly done (4 sec) with highly reliable and precise FIT probes. Verification of losses within articulated arms, breakings of fiber tips, damages on focusing optics or handles are immediately detectable thanks to the high level of repeatability and high resolution of those probes.

