

OPTIMEX 64

ADVANCED OPTICAL ANALYZER OF EXPLOSIVE PROCESSES

The OPTIMEX™ 64 is an advanced scientific instrument used for the measurement of detonation velocity (and other parameters of detonation) and shock waves using multiple fiber optic probes along with the continuous recording of light signal intensity.

The OPTIMEX 64 is an extended version of OPTIMEX 8 with the ability to accommodate even more optical measurement channels. The channel count can be user defined from 8 to up to 64. With such a high number of fiber optic probes, the instrument's capabilities resemble those of a high-speed streak camera. The fiber optic probes principally provide full resistance against humidity and electromagnetic disturbances allowing the instrument to be combined with other instrumentation.

APPLICATIONS

The OPTIMEX 64 has all the application capabilities of the OPTIMEX 8 and the VOD 815 and many others. It can handle measurements of detonation velocity of energetic materials in advanced research, industrial, military, educational or engineering applications.

The instrument records full light intensity-time profiles at specific places within an explosive charge which allows to track detonation or shock waves. Analysis of light intensity profiles makes evaluation of such signals robust and reliable for all existing samples including non-ideal explosives. Explosive's translucency, low light emissivity, afterburning, etc. will no longer spoil the measurement results.

Tasks for OPTIMEX 64 may include determination of:

- ▶ Detonation velocity, a basic parameter of all explosives
- ▶ Detonation wave curvature, a measure of an explosion's ideality
- ▶ Shock velocities in inert materials, useful for the estimation of Chapman-Jouguet detonation pressure
- ▶ Shock or detonation wave tracking in complex explosive initiation trains
- ▶ Basic cylinder expansion testing where the wall velocity is a measure of explosive strength (a less precise and less expensive alternative to the VeloreX PDV)

ADVANTAGES & FEATURES

- ▶ Up to 64 passive optical probes according to the customer's requirements (plastic or glass fibers or a combination)
- ▶ Full light intensity-time profiles recording
- ▶ Immune to stray currents and EM disturbances
- ▶ Touch screen LCD display
- ▶ Automated data evaluation routines
- ▶ Battery powered, internal memory
- ▶ Wi-Fi module (optional)



design by Jan ERMIS



Detonation wave curvature measurement

COMPLIANCE

- EN 13630-11 Explosives for Civil Uses – Detonating cords and safety fuses - Part 11: Determination of velocity of detonation of detonating cords
- EN 13631-14 Explosives for Civil Uses – High explosives, Part 14: Determination of Velocity of Detonation
- EN 13763-23 Explosives for Civil Uses – Detonators and relays – Part 23: Determination of the shock-wave velocity of shock tube



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