

Physics

Chemistry · Biology

Technology

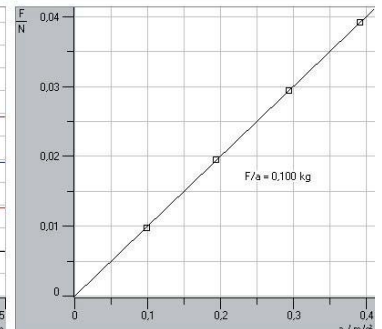
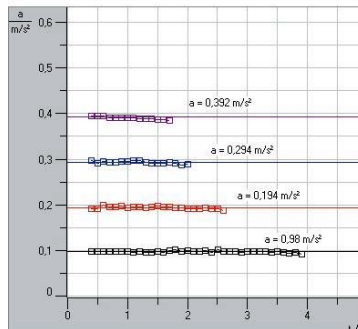
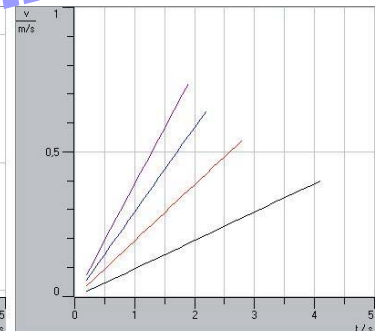
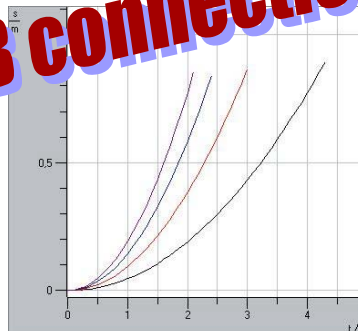
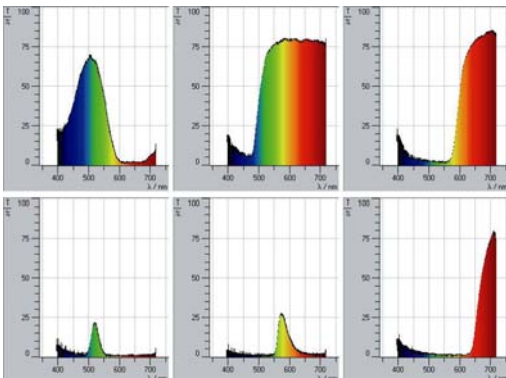


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# VideoCom USB 337 47 USB

**registering motion  
now faster by USB connection**





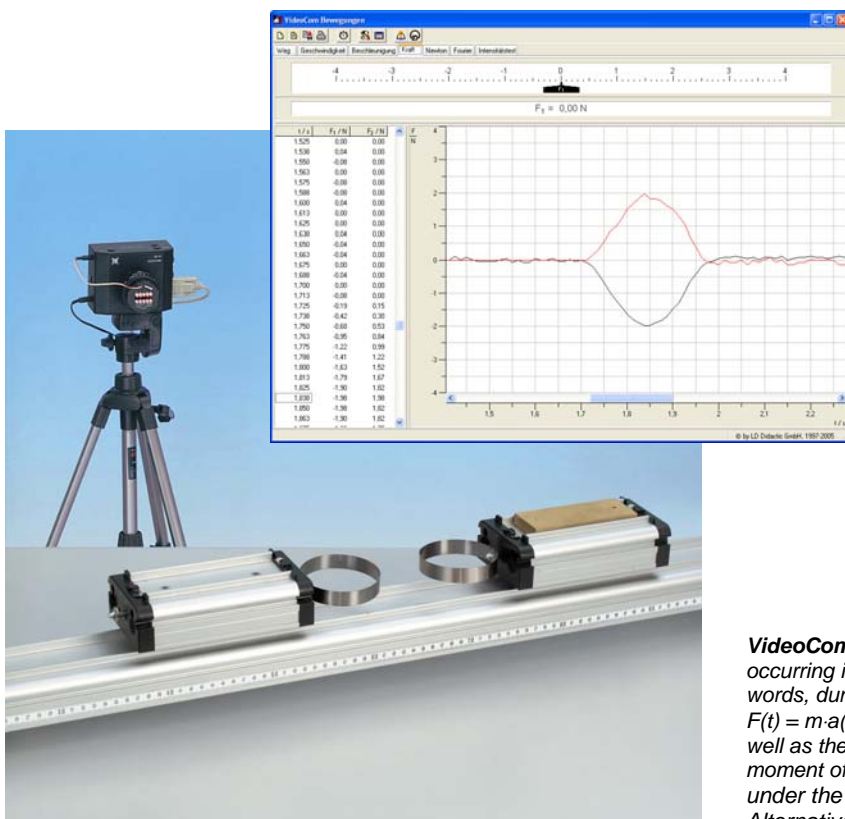
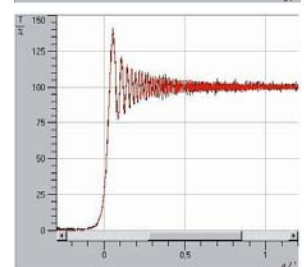
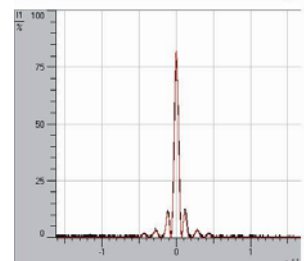
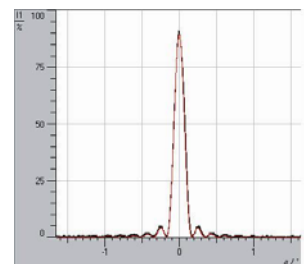
## 337 47 USB VideoCom USB

Single-line CCD camera for high-resolution optical registration of motions and relative measurement of intensities. The CCD camera is connected to a computer via the USB port; including software for recording and evaluating measurements.

- single-line CCD with 2048 pixels (28 mm long)
- angular resolution greater than  $0.01^\circ$  (corresponding to 0.25 mm at a distance of 2 m)
- resolution of intensity measurements: greater than 0,5 %
- max. 160 frames per second
- registers the positions of up to 10 bodies simultaneously
- 50-mm lens with adjustable focus and stop plus screwed-on LED flash
- USB port, compatible to USB 1.1 and 2.0, full speed
- sheet of retroreflecting film (DIN-A5 sheet, self adhesive)
- stand rod with standard camera thread for setups on the optical bench
- scope of delivery: USB cable and plug-in power supply unit 12 V AC/20 W
- software (also available for downloading free of charge from our website: <http://www.ld-didactic.com>)

### Measuring principle

When **registering motion**, a strip of self-adhesive retroreflecting film is attached to one or more moving bodies. VideoCom detects the light pulses of the flash LEDs reflected by the film and uses these to pinpoint the actual positions of the bodies. This enables a wide range of experiments on one-dimensional motions to be carried out using existing equipment (e.g. track, pendulum). When the setup is fully assembled, VideoCom is calibrated using the software by specifying two different positions. Once the system is calibrated, the software can be used to display and calculate the  $s(t)$ ,  $v(t)$  and  $a(t)$  curves, as well as a number of additional calculations and evaluations (e.g.  $F(t) = m \cdot a(t)$ , zooming, best-fit straight line and parabola, integration, Fourier analysis). For **relative measurements of intensities**, VideoCom converts an intensity distribution into up to 2048 relative brightness values (each with eight-bit resolution). The software can be used to compare two intensity distributions (e.g. for measuring filter transmission curves).



*VideoCom is fast enough to measure the accelerations  $a(t)$  occurring in the compression and extension of springs - in other words, during the actual collision process. We can use the relation  $F(t) = m \cdot a(t)$  to confirm Newton's third law ("action = reaction") as well as the law of conservation of linear momentum. At each moment of collision, the transferred momentum values (areas under the two curves) have the same absolute value. Alternatively, the linear air track can be used.*