

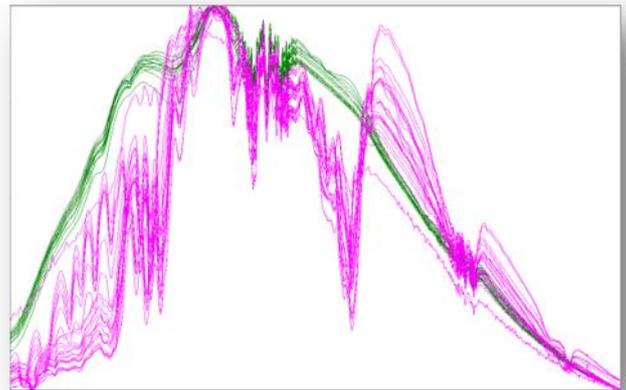
tri²dent™ – the first sensor for Material Recognition

The new sensor *tri²dent*™ („tri-eident“) is based on an innovative concept: whereas classical photo sensors work in a single wavelength range (e.g. infra-red or red) or monitor the color of an object, and comprehensive spectral analysis is very expensive and often not suited for process control, *tri²dent*™ is using up to three different wavelengths simultaneously thus allowing simple spectroscopic analysis with a compact sensor!

tri²dent™ allows the utilization of specific absorption profiles of materials in question, which is an intrinsic material property: Each material has specific absorption bands in the near infrared (NIR) range, this means. its molecules are forced by that specific electromagnetic radiation to vibrate, so absorbing specific light energy.

tri²dent™ is a flexible technology platform that may be easily adjusted to new customer needs:

In a preliminary spectral chemo metric analysis the specific absorption profiles of the materials in question are examined and potentially useable wavelengths are identified. According to these results the sensor has to be adapted in terms of optical components and signal processing before starting the first practical tests.



absorption profiles of different materials

With its multispectral NIR-concept *tri²dent*™ allows to differentiate materials and substances not according to their (varying) color but due to chemical properties, **new applications** may be realized:

- material recognition instead of presence recognition
- to distinguish different materials
- the measurement of the concentration of ingredients of transparent or semi-transparent materials
- moisture measurement, etc.

But *tri²dent*™ may not only be used as material sensor in the NIR- range but can also be adjusted for applications in visible or even UV-light, thus enabling e.g. to differentiate between UV marks.

The parametrization of the sensors is done by means of the intuitive user software, which allows individual modelling.



tri²dent™ may be used with or without fibre optic cable or probe, thus allowing applications also in high temperature and under heavy industrial conditions!

| | |
|----------------------|---|
| Sensing range: | application specific |
| Light range: | NIR (VIS/UV) |
| Switching frequency: | 20 Hz |
| Supply voltage: | 12VDC / 24VDC / 230VAC |
| Outputs: | up to 4 analog (4-20mA)/2 digital (relay change) |
| Protection: | IP 65 |
| Ambient temperature: | sensor: - 10° ... + 50° C fibre optic cable/probe: > 200°C |