The miniature range camera Swiss Ranger SR-2 is a non-contact, compact and easy-to-use range camera that can be used to monitor hazardous areas in buildings, vehicles or on machines. The SR-2 is based on the time-of-flight (TOF) principle and works with a modulated infrared light source. The emitted light pulses are reflected by the objects in a scene and travel back to the camera, where their precise time of arrival is measured locally in each “smart” pixel of a custom image sensor. In contrast to conventional cameras, the SR-2 range camera thus not only determines the local brightness in the scene, but also the complete distance map, i.e. the 3D model of its environment.

The Swiss Ranger SR-2 is a standalone range imaging system, including an illumination unit, a dedicated smart 3D optical sensor and its control/readout electronics enclosed in a very compact aluminum casing. Depth images as well as conventional gray-scale images are delivered through a USB 2.0 interface.

The versatility of the SR-2 camera allows customization of the camera settings for a given vision-system application. The settings are permanently stored in an onboard EEPROM and are employed in the auto-load mode of the camera for configuration after power up. User-friendly programming of the settings is achieved with the delivered software, based on the USB 2.0 communication protocol. Moreover, the electronic shutter enables a wide range of exposure times. To accommodate greater dynamic ranges, several images taken with different user-defined exposure times can be combined in one single depth map.

The miniature range camera SR-2 is the first product in a line of new 3D imaging products. CSEM, the leader in optical time-of-flight range imaging, offers a wide range of solutions for the development of dedicated products and specific applications.

### Features

**Number of pixels (ROI option)** | Up to 124 x 160
---|---
**Depth resolution** | Down to 5 mm
**Wavelength of illumination** | 870 nm
**Illumination power** | 800 mW optical
**Maximum range** | 7.5 m
**Frame rate** | Up to 30 fps
**Diagonal field of view (HxW)** | +/- 30° (+/- 21° x +/- 23°)
**Interface** | USB 2.0
**Connector** | Mini USB Type-B
**Power supply** | + 12 V / 1.5 A DC
**Power consumption** | 18 W max.
**Lens** | f= 8 mm, F/# = 1.4, M 12x0.5
**Dimensions (mm)** | 135 (W) x 45 (H) x 32 (D)
**Weight** | 0.2 kg

* depends on ROI, exposure time, etc.

### Applications

- Automotive
- Safety
- Security and surveillance
- Telemonitoring
- Robot vision
- Autonomous vehicles
- PC peripherals, games and toys

---

**www.csem.ch**
**imaging@csem.ch**

CSEM SA, Badenerstrasse 569, CH-8048 Zurich, Switzerland
Phone +41 44 497 1411 • Fax +41 44 497 1400