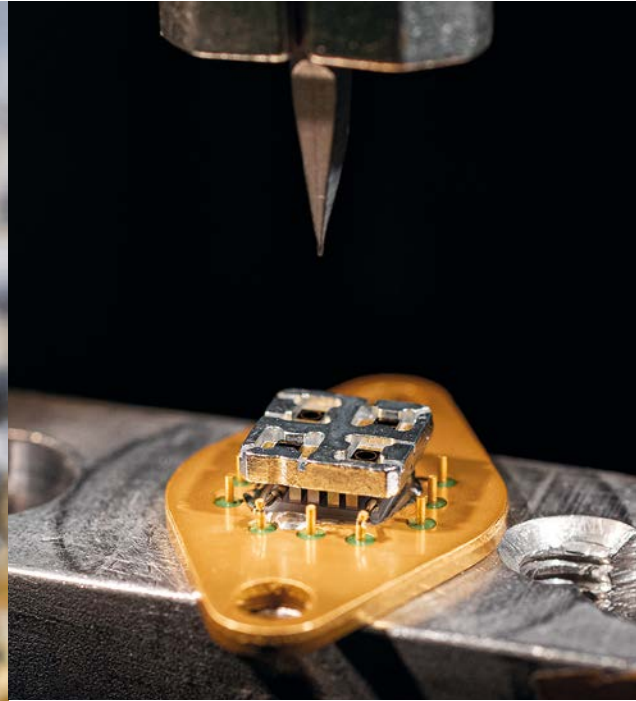


CUSTOM LED MODULES & OPTODETECTORS



Senop is specialized in customized LED module and optodetector projects that can include component sourcing, prototyping and volume production for industrial use. Our detectors may vary from the smallest to the largest TO-type cans with or without a peltier cooler and thermistor for temperature control.

We have decades of experience with electronic module packing and our highly qualified experts are prepared to meet even your most challenging needs. All Senop's LED modules and optodetectors are made in Finland. We also offer a wide range of high-quality optics and optical components to support different modular solutions.

ADVANCED MULTICHANNEL OPTODETECTORS

Senop provides fully customizable modules in the wavelength range of 300 nm to 5000 nm. State-of-the-art production facilities guarantee an extremely low light leakage between channels as well as high-quality temperature tracking and micro-optics to improve signal-to-noise ratio.

Specifications of multichannel optodetectors

- Detector chips: Si, PbSe, lead salts, InGaAs, Extended InGaAs
- Wavelength range: 300 nm – 5000 nm
- Light leakage between channels: <0.01%
- Temperature tracking 0.01%/°C
- Micro-optics available
- Channels quantity: up to 6 channels into TO-8 (TO-66)

VERSATILE LED MODULES

We manufacture light sources for different spectroscopic applications. LED modules have various wavelength ranges (from 280 nm to 2500 nm) and bandwidths (from 10 nm to 150 nm). For even higher and more versatile performance, you can also have them equipped with thermistor and peltier elements.

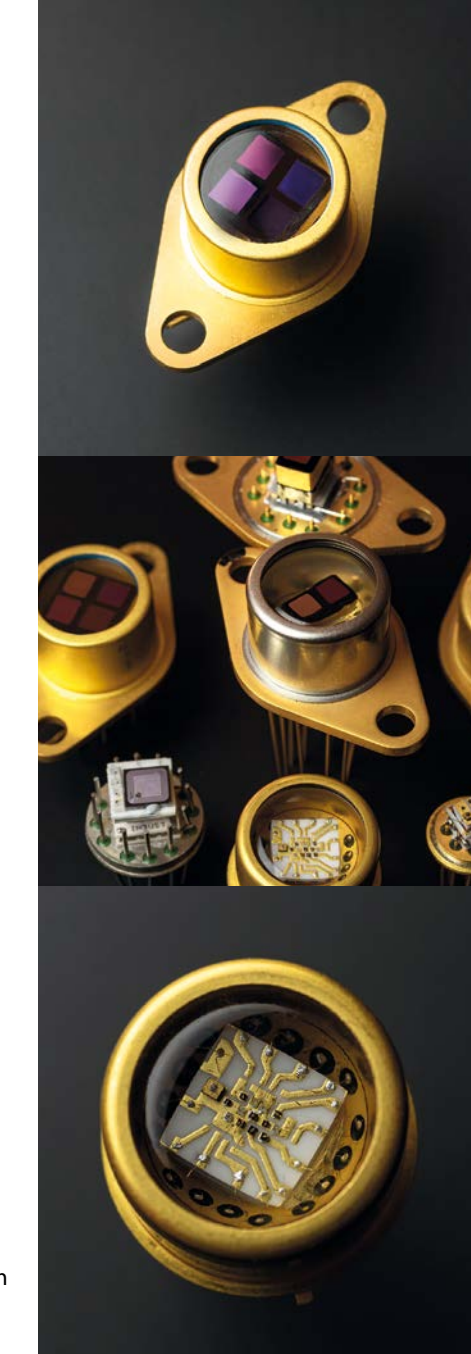
Specifications of LED modules

- CW accuracy: 5 nm – 20 nm
- Chip sizes: 0.2 mm x 0.2 mm – 1.5 mm x 1.5 mm
- Chip amount: 1–12 LEDs in single TO-can
- Micro-optics available for beam collimation

MANUFACTURING TECHNIQUES AND DESIGN

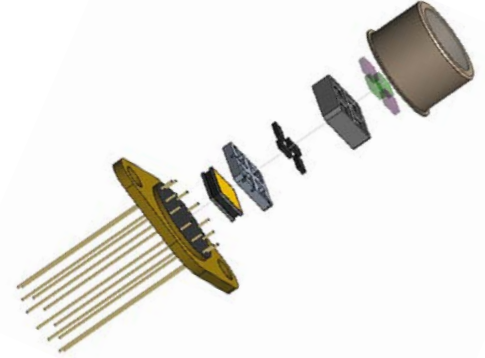
LED modules and multichannel optodetectors

- ISO 6–7 (MIL class 1000–10000) qualified clean room equipped with semiautomatic wire and die bonders, welders for TO-type and hybrid packages as well as laser for special package closure and hermetic sealing.
- Testing laboratory rooms and equipment.



OPTICS AND OPTICAL COMPONENTS

We provide you with high-quality custom optics and optical components designed to support different modular solutions. Their overall quality is ensured by our complete in-house service and manufacturing chain from optical designing, measuring services and prototyping to completed devices.



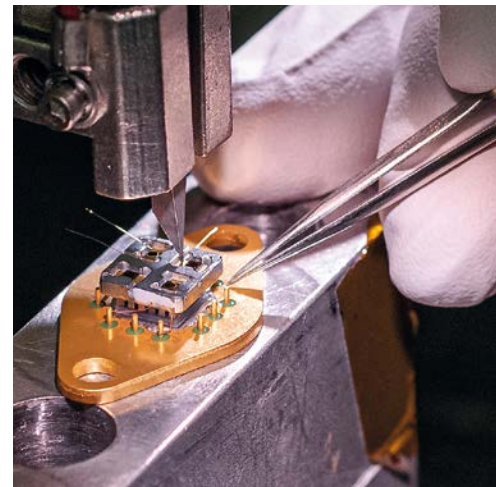
HIGH PERFORMANCE FOR HARSH ENVIRONMENTS

Senop's optodetectors, LED modules and optical components are designed to enhance your operations in challenging conditions.

- Each component is robust and rugged to resist shock, high temperatures and humidity.
- Custom modules are lightweight to meet with today's portability and energy saving standards.
- High level of in-house design guarantees consistent reliability and extended operational capability even in harsh conditions.
- Package is hermetically sealed in nitrogen which prevents the formation of moisture and oxidation in the components and which in turn enhances product durability.

Optics and optical components

- Plasma Ion Assisted Deposition (PIAD) coating system with optical monitoring enables hard coatings at low temperatures with all commonly used dielectric, metal, fluoride and sulfide materials.
- Quality measurement systems including interferometers, goniometers, autocollimators, spherometers, spectrophotometer and 3D measurement system.
- Fast prototyping and delivery for test purposes.
- Optical designing service, 3D designing for precision mechanics, thin film designing services, environmental testing services, measuring services and capability for full system designs.



SENOP

Senop Oy
Tutkijantie 5 K
FI-90590 Oulu, Finland
Tel. +358 20 734 3500
optronics@senop.fi



senop.fi