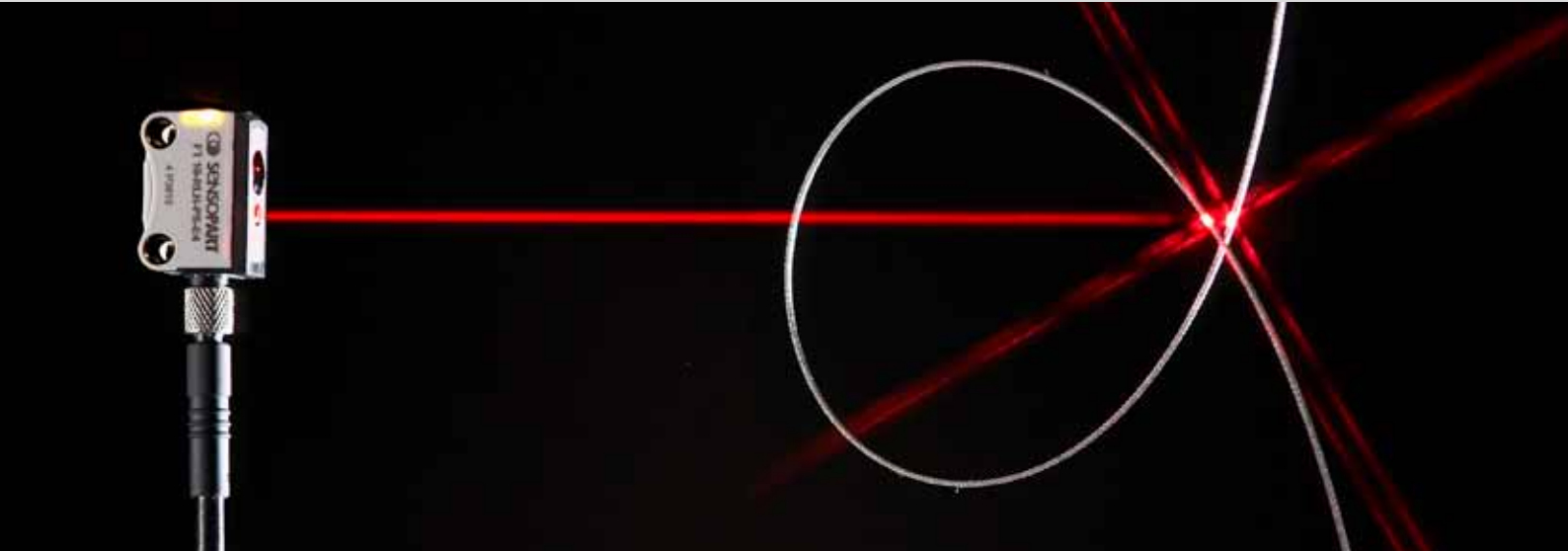# Our smallest sensor.

F 10 laser sensors in a subminiature design.

Small but powerful.

The smallest laser sensor with adjustable background suppression.

Mini sensor with maximum user comfort: A comfortable start-up with electronic teach and clearly visible status LEDs – not to be be taken for granted in this sensor size.

FT 10 BGS – THE FLAGSHIP

- Subminiature sensor with laser light and adjustable background suppression

- Detection range up to 60 mm

- Precise and reliable switching performance even on changing object surfaces and colours

- Teach-in

- Bright or shiny background machine parts do not affect the switching performance

Small size, high performance: The F 10 is the only subminiature sensor using laser light on the market. Its light spot is so sharp & accurate that small parts can be reliably detected, even at large distances. For example, the proximity switch with background suppression can easily detect a 0.5 mm diameter wire at a distance of 60 mm - it can therefore hold its own amongst the considerably larger models of its class.

The F 10 does not just offer excellent performance data. Its unmistakable design also offers special features unique for its size. The dovetail mount facilitates fine adjustment in difficult locations and the M5 connector enables easy connection and sensor replacement. As you can see, we have done everything to ensure you get the most from our smallest sensor!

F 10 – HIGHLIGHTS AT A GLANCE

- Subminiature sensor for installation in tight spaces
- Bright, precise laser light spot for first-rate small-part detection and easy alignment
- Comfortable use via electronic teach key or control cable
- Ingenious mounting accessories for quick and simple integration
- Wide range of product versions to suit all requirements
- Robust, glass fibre reinforced plastic housing (IP67) with Ecolab accreditation
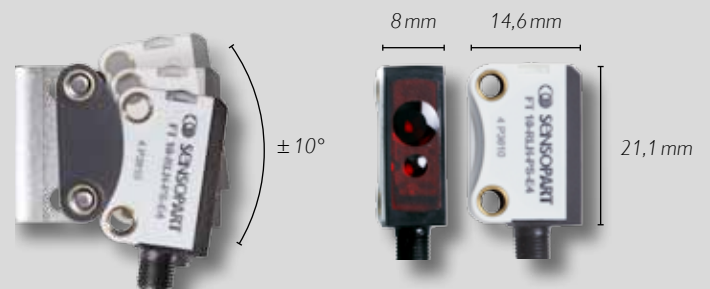- Permanent, cleaning-resistant laser marking

Dovetail:
The dovetail bracket is inserted in the corresponding channel on the sensor housing and simplifies fine adjustment of the sensor.

M5 connector:
The F 10 is available either with a M5 connector, with a pigtail cable (200 mm) and moulded M8 connector or with a fixed cable.

Easy installation:
If the sensor is to be installed in a cramped location, we recommend the dovetail mounting bracket that enables precision alignment of the sensor.

Special features:
The distinguishing features of the F 10 are the glass fibre reinforced plastic housing with integrated mounting sleeve, the dovetail guide fitted at the back of the sensor and the permanent laser marked type designation.
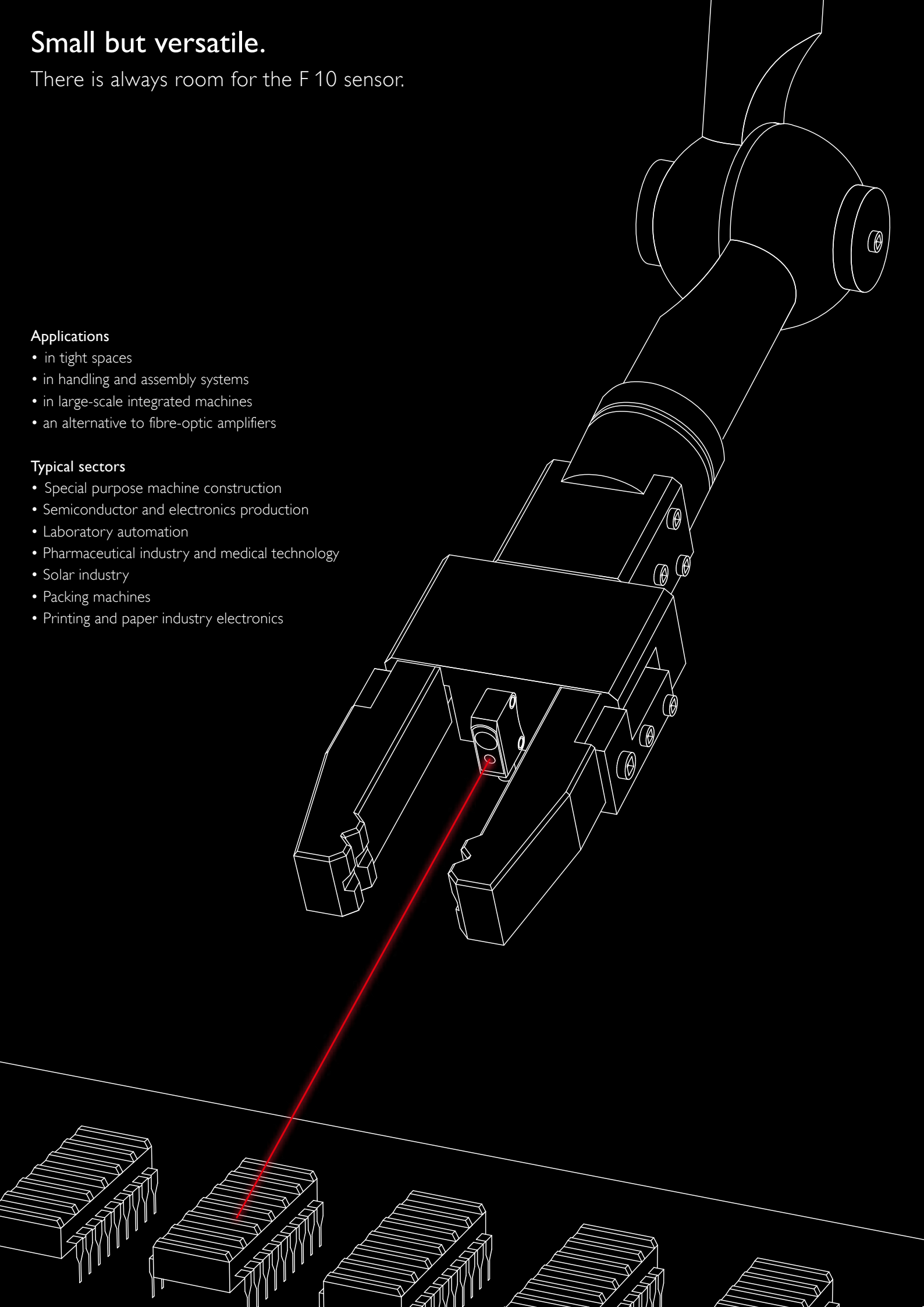
Small but versatile.
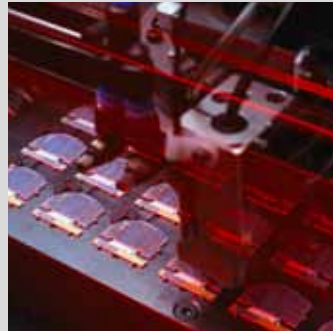
There is always room for the F 10 sensor.

Applications

- in tight spaces
- in handling and assembly systems
- in large-scale integrated machines
- an alternative to fibre-optic amplifiers

Typical sectors

- Special purpose machine construction
- Semiconductor and electronics production
- Laboratory automation
- Pharmaceutical industry and medical technology
- Solar industry
- Packing machines
- Printing and paper industry electronics

In many applications there is simply not enough room for conventional sensors but there is for F 10: it fits in almost every nook and cranny. Whether used in handling & positioning applications, in the production of solar cells or the assembly of semi-conductor components – an F 10 can achieve top performances even installed in tight spaces. The BGS proximity switch is only $21.1 \times 14.6 \times 8$ mm^3 small and weighs just 3 grammes thus even fitting into robotic grippers where it literally carries no weight. With precise & adjustable background suppression, this sensor always triggers on the target even when bright or shiny machine parts are visible behind – something that typically affects the performance of many other sensors.

Thanks to their small dimensions and to their performance, laser sensors from the F 10 series open up completely new application potentials and make a credible alternative to – decidedly more expensive – fibre-optic amplifiers. When top performance is required in the tiniest space, F 10 is your sensor.

Miniature lightweight:
Thanks to their miniature size and light weight, the sensors from the F 10 series are tailor-made for use in very cramped spaces or on moving machine parts, for example in large-scale integrated production machines or handling & assembly systems.

Small but smart.

A sensor whose every detail counts.

Different applications each require suitable sensors. The F 10 is available as a through-beam sensor, a retro-reflective light barrier and as a proximity switch with background suppression or fixed focus – making four different versions. All product versions are equipped with a red laser light, which has a high optical performance. The very bright light spot facilitates alignment in daylight and is not dangerous as the sensors are laser class 1.

Sensors from the F 10 series offer an impressive optical performance and a well thought out housing from the robust, glass fibre reinforced plastic body with permanent laser marking, the well-designed mounting details through to comfortable settings via an electronic teach key or control cable. Thanks to the three possible modes of connection: connector, cable and pigtail cable, installation is totally flexible. The comprehensive range of accessories meets every user requirement – the only thing we do not supply is a magnifying glass!

ECOLAB

All F 10 product versions have been awarded the Ecolab certificate and therefore fulfill the highest IP requirement with regard to water-ingress and material resistance.
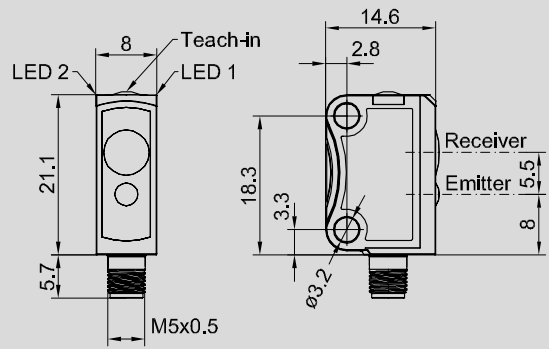
Bright but harmless laser light:
The red laser light on the F 10 produces a bright light spot which is clearly visible even by daylight. Thanks to laser class 1, the laser beam presents no user hazard.

F 10 – Technical data

153-00894

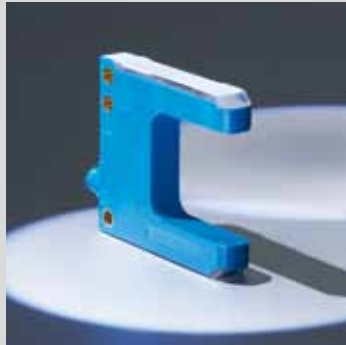|	
Light emitter/Light used	Laser, red 655 nm
Laser class	1
Operating voltage	10 to 30 V DC
Status display	2 LEDs (green/yellow)
Housing material	PUR
Connection types	• M5 connector • 2 m cable • Pigtail cable (200 mm) with moulded M8 connector
Front panel material	PMMA
Protection	IP67
Ambient temperature in use in storage	 −20 to +50 °C −40 to +80 °C

F 10 – Product overview

	Proximity switch with adjustable background suppression		Proximity switch with background suppression (fixed focus)		Retro-reflective light barrier	Through-beam light barrier
	FT 10-RLH	**FT 10-RLHR** (wide beam)	**FT 10-B-RLF1**	**FT 10-B-RLF2**	**FR 10-RL**	**FE 10-RL/ FS 10-RL**
Detection range	2 ... 60 mm	2 ... 60 mm	2 ... 15 mm	2 ... 30 mm	-	-
Max. distance	-	-	-	-	0,1 ... 2,5 m	0 ... 5 m
Scanning range	-	-	-	-	0,1 ... 2 m	0 ... 3 m
Switching frequency	1000 Hz	1000 Hz	1000 Hz	1000 Hz	1000 Hz	10 kHz
Setting	Teach-in	Teach-in	-	-	Teach-in	Teach-in

Detailed technical data and order information is available at **www.sensopart.com**

We look ahead.

Yesterday, today and in the future.

Since SensoPart was founded in 1994, we have constantly focussed on the future. Our motto has always been: We gauge ourselves not by what is possible today, but by our ideas for what can be achieved in the future. Many ground-breaking ideas from that time have since become successful products, which are now indispensible in modern automation technology – endorsed by the numerous prizes for innovation which we have received over recent years. Today, SensoPart is the technological leader in many areas of industrial sensor technology. And we still have many ideas for the future.

SENSOR TECHNOLOGY	VISION
Light barriers	Vision sensors
Proximity switches	Smart cameras
Laser sensors	Object detection
Miniature sensors	Object measurement
Distance sensors	Colour detection
Colour sensors	Code reading
Contrast sensors	Lighting
Anti-collision sensors	Lenses
Slot sensors	
Fibre-optic amplifiers	Find the suitable product
Inductive sensors	for your application under
Capacitive sensors	**www.sensopart.com/**
Ultrasonic sensors	**productfinder**