

Analogue sensors for automation technology

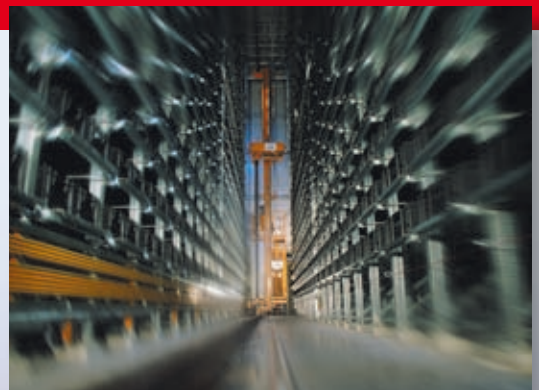


SENSOPART
SENSORS FOR AUTOMATION

Analogue sensors by SensoPart

Fast and accurate measurement, precise positioning and detection of a wide range of materials – distance measurement is a central requirement in many areas of automation technology. Whether used for checking the unwinding of coils with millimetre accuracy, detecting double sheets or accurately positioning high bay stackers – SensoPart analogue sensors are reliable tools for a variety of applications in the following sectors:

- ❖ Automotive and supply industry
- ❖ Mechanical engineering and special purpose machines
- ❖ Assembly and handling
- ❖ Packing industry
- ❖ Storage and materials handling
- ❖ Steel industry
- ❖ Textile and paper industries
- ❖ Wood industry



The technologies used are as varied as the applications themselves.

Our optical sensors use the triangulation method for working ranges under 1 m, time-of-flight measurement is used for greater operating distances.

In addition to optical sensors, ultrasonic sensors are used in particular for applications with transparent or very reflective materials whilst inductive sensors are used with close-range metallic objects and in harsh ambient conditions.

SELECTION CHART

Page	Device	Working range	Principle	Outputs
6	IS 512	0 to 6 mm	inductive	4 to 20 mA
6	IS 630 A b	3 to 8 mm	inductive	4 to 20 mA
6	IS 518	0 to 10 mm	inductive	4 to 20 mA
6	IS 630 A nb	4.5 to 12 mm	inductive	4 to 20 mA
3	FT 50 RLA-20	40 to 60 mm	red light	0 to 10V
3	FT 20 RA	20 to 80 mm	red light	0 to 10V
3	FT 50 RLA-40	45 to 85 mm	red light	0 to 10V
4	FT 50 RLA-70	30 to 100 mm	red light	PNP (1/2), 4 to 20 mA, RS485
6	UT 20-150	20 to 150 mm	ultrasonic	4 to 20 mA/0 to 10V
6	UT 20-240	50 to 240 mm	ultrasonic	4 to 20 mA/0 to 10V
6	UT 18-270	30 to 300 mm	ultrasonic	4 to 20 mA
4	FT 50 RLA-220	80 to 300 mm	red light	PNP (1/2), 4 to 20 mA, RS485
6	UM 30-300	60 to 350 mm	ultrasonic	4 to 20 mA, 0 to 10V
6	UT 12-370	30 to 400 mm	ultrasonic	4 to 20 mA
6	UT 20-700	120 to 700 mm	ultrasonic	4 to 20 mA/0 to 10V
4	FT 80 RLA-500	250 to 750 mm	red light	PNP (2), 4 to 20 mA, RS485
6	UT 18-750	50 to 800 mm	ultrasonic	4 to 20 mA
6	UM 30-1000	200 to 1300 mm	ultrasonic	4 to 20 mA, 0 to 10V
6	UM 30-3000	350 to 3400 mm	ultrasonic	4 to 20 mA, 0 to 10V
6	UM 30-6000	800 to 6000 mm	ultrasonic	4 to 20 mA, 0 to 10V
5	FT 92	0.2 to 6 m	infrared	PNP (2), 4 to 20 mA
5	FT 91	0.5 to 6 m	infrared	PNP (2), 4 to 20 mA, RS422, SSI
5	FT 90	0.5 to 10 m	infrared	PNP (2), 4 to 20 mA, RS422, SSI
5	FR 92	0.2 to 30 m	infrared	PNP (2), 4 to 20 mA
5	FR 91	0.5 to 50 m	infrared	PNP (2), RS422, SSI
5	FR 90	0.5 to 250 m	infrared	PNP (2), RS422, SSI

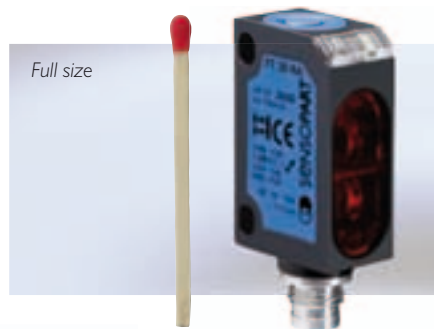
OPTICAL ANALOGUE SENSORS FOR CLOSE-UP RANGE

These sensors are easy to use and are thus ideal for simple measurement and control applications up to a max. distance of 85 mm.



- ❖ Proximity switch with analogue output 0 to 10V
- ❖ Ultra-compact ABS casing
- ❖ Working range 20 to 80 mm
- ❖ Visible red light 660 nm
- ❖ Resolution approx. 0.5 mm
- ❖ Two adjustable switch points
- ❖ Teach-in system
- ❖ ABS casing 32 x 12 x 20 mm³
- ❖ Switching output teachable as background or foreground suppression

The FT 20 RA has a signal output in addition to the analogue voltage output and offers the possibility of defining a screening function using two switch points. It can thus be used as a threshold switch.



Miniature casing

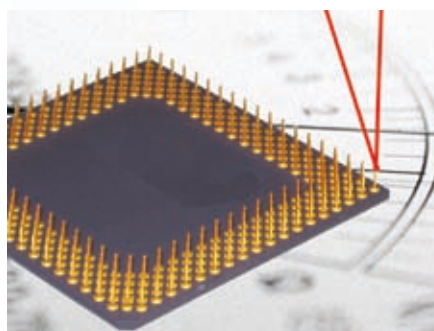
Thanks to its compact dimensions (32 x 12 x 20 mm), the FT 20 RA is also suitable for cramped installation conditions.



- ❖ Laser proximity switch with analogue output 0 to 10V
- ❖ Visible red laser light 670 nm
- ❖ Working range 40 to 60 mm or 45 to 85 mm respectively
- ❖ Resolution from 7 μm (slow version 40 Hz) and 40 μm (fast version 400 Hz) respectively
- ❖ ABS casing 50 x 17 x 50 mm³ with pivoting connector

Thanks to the fixed working distance of these analogue sensors, they are particularly easy to set-up. There is a linear rise in voltage as the distance increases.

A fast or slow version is available according to the resolution and response time required. The fast version with a switching frequency of 400 Hz is suitable for very fast processes. The slow version has a reduced switching frequency of 40 Hz, but offers a significantly higher resolution.



Highly-accurate detection

Very small object features can also be reliably detected thanks to the fine light beam.

OPTICAL ANALOGUE SENSORS WITH ADDITIONAL FUNCTIONS

These sensors supply excellent measuring results whatever the degree of reflectivity of the detected object and offer an impressive range of functions.



The FT 50 RLA is now also available in a particularly **low-priced** version: PL 5 with an analogue output, signal output and further simplified use.



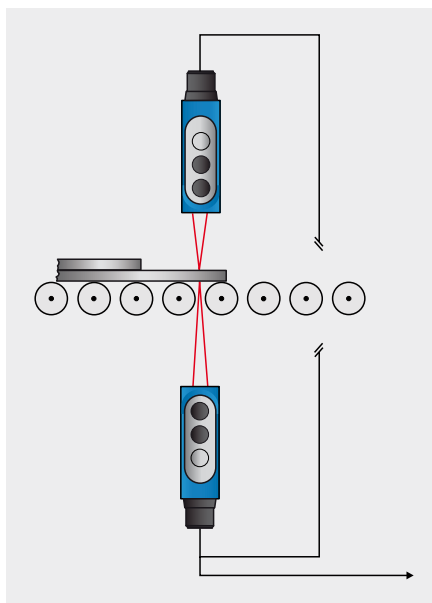
Unaffected by reflectivity

The highly-accurate triangulation sensors are unaffected by contrast and are thus ideal for the detection of different materials.



Operating concept

The wide range of functions can be selected with just two push buttons.



Double sheet detection

The problems caused by inaccurately guided sheets and a strongly fluctuating distance to the sensor can be successfully by-passed with the aid of differential measurement. The output signal on the master determines the thickness.

- ❖ **Laser proximity switch with Analogue output 4 to 20 mA**
- ❖ **Working range**
30 to 100 mm (FT 50 RLA-70)
80 to 300 mm (FT 50 RLA-220)
250 to 750 mm (FT 80 RLA-500)
- ❖ **Resolutions from**
0.1 mm (FT 50 RLA-70)
0.3 mm (FT 50 RLA-220)
0.75 mm (FT 80 RLA-500)
- ❖ **Visible red laser light 650 nm**
- ❖ **Intelligent teach-in operating concept**
- ❖ **Fast response time (< 0.5 ms)**
- ❖ **2 signal outputs**
- ❖ **Version with serial interface for differential or thickness measurement in master/slave mode**
- ❖ **ABS casing**
50 x 17 x 50 mm³ (FT 50 RLA)
83 x 25 x 65 mm³ (FT 80 RLA)
with pivoting connector



PC-Software

Configuration via PC software is possible thanks to the serial interface. The scanned shape can also be visualised in the software.

OPTICAL ANALOGUE SENSORS FOR LONG DISTANCES

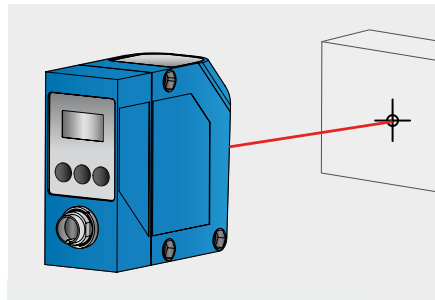
Long working ranges up to 250 m are trouble-free with **time-of-flight measurement** – ideal for storage and materials handling technology.



Working ranges of up to 250 m are possible with a reflector (FR 90 ILA). Up to 10 m can be achieved with the scanning version (FT 90 ILA).

Pilot laser

Use of a pilot laser considerably facilitates the correct setting of the F90 series over long distances. It can be switched off so as not to disturb anyone when the sensor is in operation.



- ❖ Laser proximity switch / light barrier with analogue output 4 to 20 mA
- ❖ Working range – up to 10 m with scanner, up to 250 m with reflector
- ❖ Response time from 12 ms
- ❖ High repeat accuracy
- ❖ High measuring rate
- ❖ Very good price/performance ratio
- ❖ Interfaces for maximum compatibility, SSI compatible, RS422 (Profibus and DeviceNet via Gateway)
- ❖ IR measuring laser, connectable red light pilot laser
- ❖ ABS casing 93 x 42 x 93 mm³

Display

The distance is indicated directly in mm on the display of F90 and F91 devices. An integrated background light even makes it possible to read the display in the dark.



The sensor's task is to prevent the collision of vehicles on suspension tracks. The RailPilot is the reliable solution for this task. Braking distances and distances between vehicles differ according to the type of goods being carried and the speed of travel. This requires a flexible adjustment of switching distances.

Constantly changing objects around the vehicles and the presence of other sensors do not impair RailPilot's reliable anti-collision function.



- ❖ Laser light barrier to prevent collisions on suspension tracks
- ❖ Working range 0 to 6 m
- ❖ Typical measuring accuracy +/- 10 cm
- ❖ 1 input
- ❖ 2 PNP outputs
- ❖ RS 485 interface
- ❖ Externally adjustable detection range
- ❖ Reliable suppression of external influence (beams, pillars)
- ❖ ABS casing 145 x 85 x 80 mm³

Suspension tracks with car bodies in the automotive industry

ULTRASONIC SENSORS

Ultrasonic sensors are the right choice for materials which are problematic for optical sensor systems, e.g. liquids or printed circuit boards. Our range of ultrasonic sensors leaves nothing to be desired. The variety of models and working ranges available ensure that you will find the right sensor for virtually every application. The choice of evaluating a distance-related current or voltage signal is left to you.



UT 20



- ❖ Working ranges from 20 ... 150 mm to 120 ... 700 mm
- ❖ ABS casing 32 x 12 x 20 mm³
- ❖ Working range and analogue output adjustable via teach-in
- ❖ Analogue output 0 to 10V / 4 to 20 mA



UT 12 / UT 18 / UM 30



- ❖ Working ranges from 30 ... 400 mm to 800 ... 6000 mm
- ❖ Cylindrical metal casing
- ❖ Working range and analogue output adjustable via teach-in
- ❖ Analogue output 4 to 20 mA

INDUCTIVE ANALOGUE SENSORS

The low-cost solution for metallic objects. Inductive analogue sensors only cover limited working ranges in comparison with optical or ultrasonic sensors. Due to their robustness, they are particularly suited to harsh ambient conditions.

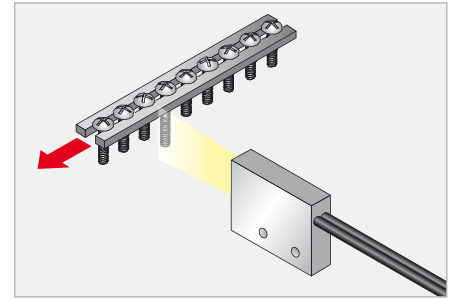


- ❖ Inductive analogue sensors with analogue output 4 to 20 mA
- ❖ Working range from 0 ... 6 mm to 4.5 ... 12 mm
- ❖ Characteristic curve decreases upon approach
- ❖ Robust metal casing

FURTHER ANALOGUE SENSORS



The FL 70 RA-D is a high-end fibre-optic amplifier with a 4 digit display. This version has an analogue and signal output and supplies a signal which is proportional to the reflectivity of the detected object and which in turn is proportional to the distance, cross-section, etc., when reflectivity from the object is constant.



The FCP light grid measures the height of an object in the measuring field and is thus suitable for detecting, measuring and counting objects of different shapes and sizes. The devices in this series are available with measuring field heights of 100, 150 or 300 mm with resolutions from 5 mm upwards.

ACCESSORIES



A reliable mode of function is not guaranteed by the sensor alone. The peripheral accessories used for installation, set-up and user support are of significant importance. For example, a fixing bracket for secure installation can simultaneously protect the sensor from mechanical damage.

From our product range

- » Anti-collision sensors
- » Capacitive sensors
- » Colour sensors
- » Contrast sensors
- » Distance sensors
- » Fibre optics
- » Inductive sensors
- » Laser sensors
- » Line cameras
- » Miniature sensors
- » Optical windows
- » Proximity switches
- » Retroreflective sensors
- » SmartPlug
- » Slot sensors
- » Through-beam sensors
- » Ultrasonic sensors
- » Vision sensors

Our concept: Speed combined with innovation, quality and customer awareness



Since the day we were founded, our investments in research and development have been way above average for this branch, and have laid the foundation for customer satisfaction and continuous growth. Today SensoPart is one of the leading suppliers of industrial sensors – including **distance sensors, vision sensors, laser sensors and colour sensors.** Recognition by independent experts is prominent evidence of our work. Indeed SensoPart has received numerous distinctions and prizes over the past years. We have been rewarded for the clear goal behind of our innovations – achieving customer satisfaction with convincing performance data and clever ideas.

- » Dr Rudolph-Eberle Prize for Innovation 2001
- » Baden Württemberg Sponsorship award for Young Companies 2002
- » German Sensor Application Prize 2003
- » German Sensor Application Prize 2004
- » Dr Rudolph-Eberle Prize for Innovation 2006



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