



Made UNDER high pressure



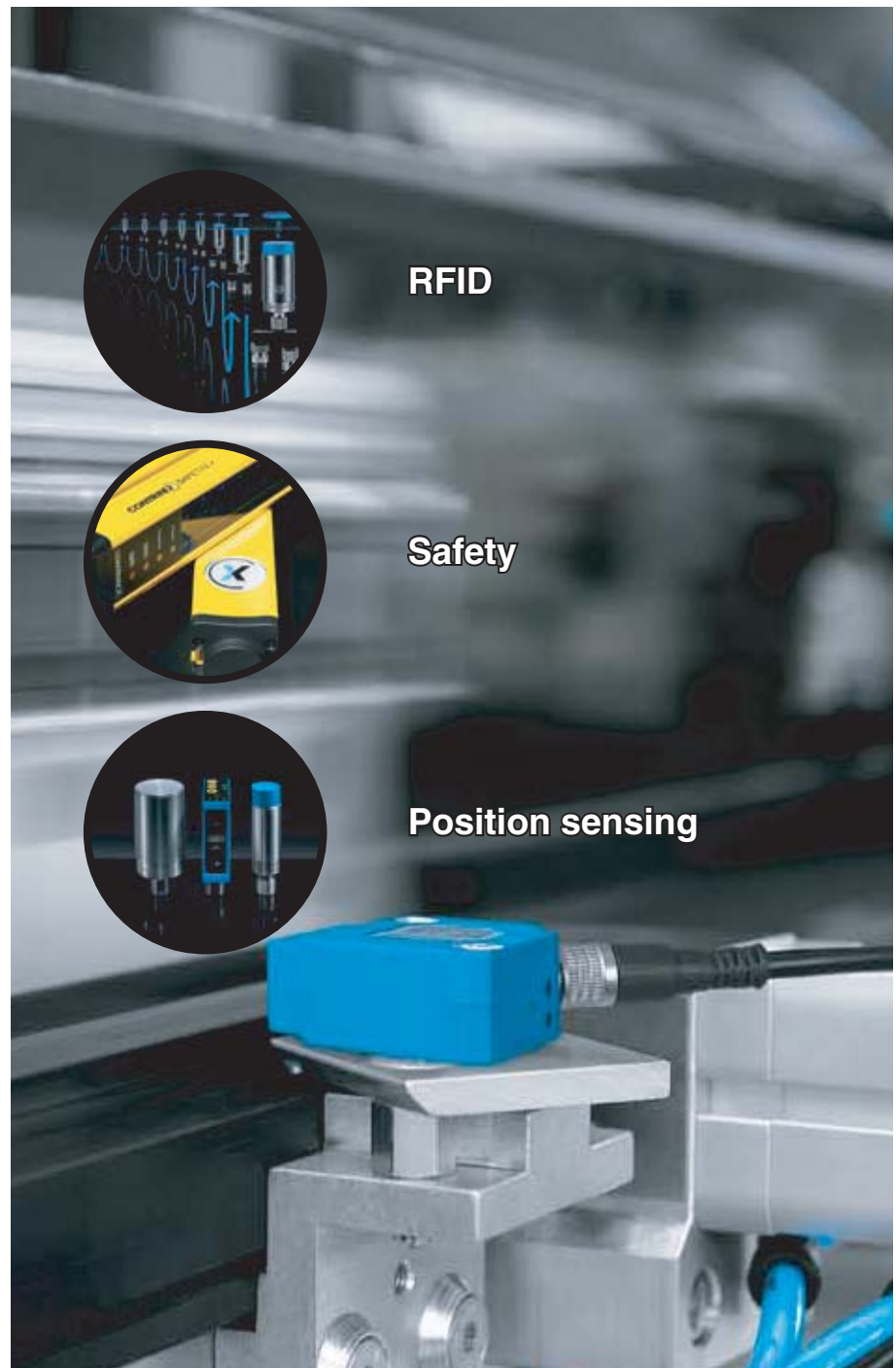
Made FOR high pressure

THE CONTRINEX HIGH-PRESSURE-RESISTANT INDUCTIVE SENSOR SERIES

## COMPANY

Contrinex is a leading international high-tech sensor company with headquarters in Switzerland.

Contrinex provides quality and highly innovative sensing solutions for factory automation, including photoelectric and inductive sensors, as well as RFID and safety systems.



RFID

Safety

Position sensing

## BEYOND THE STANDARD

High-pressure-resistant inductive sensors are used in applications where sensors have to deal with a higher pressure than the ambient pressure.

As opposed to the market standard, Contrinex offers sensors that are not only resistant to high pressures, but can also withstand high vacuum without degassing.

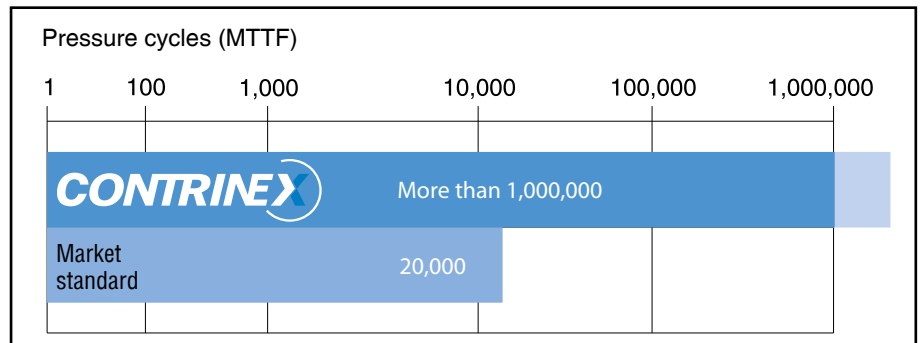
The ceramic face which is shrunk onto the stainless steel housing withstands an extraordinary number of pressure cycles and guarantees a completely gas-tight sensing face. Furthermore, the sensors feature long operating distances and wide temperature ranges.

## HIGHEST PRESSURES

- ✓ Highest operating and peak pressures on the market
- ✓ 500 bar (7,250 psi) operating pressure
- ✓ 1,000 bar (14,500 psi) peak pressure
- ✓ Durable ceramic face in a stainless-steel housing

## RESISTANT TO PRESSURE CYCLES

- ✓ Up to 1,000 bar (14,500 psi) peak pressure
- ✓ Life expectancy of at least 1,000,000 pressure cycles
- ✓ 50 times higher lifetime under pressure cycles than the market standard
- ✓ All components on the pressure-free side of the housing



## GAS-TIGHT SENSING FACE

- ✓ No gas or liquid penetration
- ✓ Resistant to vacuum without degassing
- ✓ Patented heat-shrinking technology with copper sealing
- ✓ Suitable for applications in high vacuum up to  $10^{-8}$  torr ( $1.33 \cdot 10^{-8}$  mbar/ $1.93 \cdot 10^{-10}$  psi)

## LARGE TEMPERATURE RANGE

- ✓ Large temperature range from  $-25^{\circ}\text{C}$  ( $-13^{\circ}\text{F}$ ) up to  $100^{\circ}\text{C}$  ( $+212^{\circ}\text{F}$ )
- ✓ Good temperature stability due to temperature compensation
- ✓ Temperature drift below 10% of sensing range



## LONG OPERATING DISTANCES

- ✓ Up to 3 mm
- ✓ Lower risk of mechanical damages due to higher distances to moving objects
- ✓ Higher mounting tolerances

## DURABILITY TEST

- ✓ Complete series tested to 1,000,000 pressure cycles
- ✓ Pressure cycles of 0 to 500 bar (7,250 psi)
- ✓ Peak pressure test after 500,000 and 1,000,000 cycles with 1,000 bar (14,500 psi)

## QUALITY TEST

- ✓ 100% functionality test
- ✓ Pressure test with 100 pressure cycles of 800 bar (11,600 psi)
- ✓ 100% gas density test with Helium (smallest inert gas)



## CHALLENGES

- ✓ Pressures in hydraulic and pneumatic applications have doubled since the late 1990s
- ✓ Higher dynamics
- ✓ Miniaturization
- ✓ Higher loads
- ✓ Faster movements



### Conclusion:

Deceleration of the piston has to be controlled at the end of stroke to avoid damage and abrasion.

## CONTRINEX SOLUTION

By controlling the end position of the piston with high pressure resistant sensors all the benefits are combined on a cost effective and reliable base.

	Cost	Functionality	Lifetime	Space
Contrinex solution	+	+++	+++	+++
Shock absorber	+	++	+	-
Proportional valves	---	++	+	-

## CUSTOMER ADVANTAGES

- ✓ Reduced maintenance cost
- ✓ Reliable and rugged solution
- ✓ Controlled piston deceleration
- ✓ Increased lifetime of the piston due to collision avoidance at end of stroke
- ✓ Lower operating noise
- ✓ Avoidance of pressure peaks (increases lifetime of hydraulic tubes)
- ✓ No complex mechanics
- ✓ Monitoring of cylinder position



## TYPICAL APPLICATIONS

- ✓ Hydraulic cylinders
- ✓ Hydraulic pumps
- ✓ Hydraulic valves
- ✓ Lubrication systems
- ✓ Harbor cranes
- ✓ Plastic injection machines
- ✓ Concrete pumps & mixers
- ✓ Construction machinery
- ✓ Offshore installations
- ✓ Water-jet cutting machines
- ✓ High-vacuum pumps & valves

## SMALL SIZE ...

The innovation fluid power industry was able to regain applications which were lost to electric solutions before. This success was driven by several issues.

One of the reasons was the merging of hydraulic and electronic parts in fluid power components, like hydraulic and pneumatic cylinders equipped with high pressure resistant sensors from Contrinex.

Reduction in size represents a further important factor. In order to decrease the size without a loss in performance the pressure had to increase. To provide the fluid power industry with well adapted products, Contrinex developed sensors in M5 and M8 housing which are pressure resistant up to 1,000 bar (14,500 psi).

## ... HIGH PERFORMANCE

These miniature sensors deliver the high performance that Contrinex is famous for. With an operating pressure of 500 bar (7,250 psi) and a peak pressure of 1,000 bar (14,500 psi), a temperature range from -25°C (-13°F) up to +100°C (+212°F) and a sealing concept that lasts at least 1,000,000 pressure cycles, Contrinex delivers a product line with extraordinary properties.

- ✓ High performance
- ✓ Extended functionality
- ✓ Miniature housing

**Contrinex sensors guaranty the success of your fluid power solutions!**

Type	Thread size	Sn (cable)	Sn (connector)	Available
P5	M5	1 mm	---	4Q / 2010
P8	M8	1.5 mm	---	Now
P12	M12	1.5 / 2.5 mm	1.5 / 2.5 mm	Now
P18	M18	1.5 mm	1.5 mm	Now
P20	M14	3 mm	3 mm	Now





## ALL OVER THE WORLD

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