



## TRADE FAIR DATES

You can find the latest trade fair dates on our website at:  
[dates.ipf-electronic.com](http://dates.ipf-electronic.com)

### OTQ8-series



## NOT STANDARD ISSUE – BUT OTQ8

The **OTQ80470**, **OTQ80475** and **OTQ80477** optical sensors from ipf electronic are highly developed devices that are characterized by their versatility. The sensors are housed in robust plastic housings via a teach-in function for easy setting of the sensing range. With an operating voltage of 10 to 30V DC and a maximum current consumption of 40mA, they are also energy-efficient..

The **OTQ80470** works with a pin-point LED that emits a point-shaped, pulsed red light with a wavelength of 644nm. The sensing range of the sensor extends from 3 to 132mm, the adjustment range is 20 to 120mm. The sensor is short-circuit and reverse polarity protected, making it particularly robust and safe in operation. With a switching frequency of up to 1kHz and a response time of 0.5ms, the sensor with background suppression (irrelevant objects in the background are reliably suppressed) is extremely fast and precise.

The **OTQ80475** differs from the other sensors presented here in its intensity differentiation, in which the diffuse-reflection sensor evaluates the intensity of the light reflected by an object. It works with an LED (point-shaped light) that emits pulsed red light with a wavelength of 644nm. The sensing range of the sensor extends from 20 to 200mm. With a switching frequency of up to 2kHz and a response time of just 0.25ms, it is particularly fast and is suitable for applications that require high-speed detection.

The **OTQ80477** with background suppression uses a linear light beam and has a sensing range of 20 to 120mm. The diffuse-reflection sensor is particularly suitable for detecting objects with rather uneven or irregular surfaces due to the linear light beam. The wavelength of the emitted red light is also 644nm. The device has a switching frequency of 250Hz and a response time of 2ms. The **OTQ80470**, **OTQ80475** and **OTQ80477** sensors offer a number of advantages that make them an excellent choice for many industrial applications:

- ✓ Thanks to the background suppression and the point-shaped or linear light beam form, the sensors (**OTQ80470** and **OTQ80477**) can reliably detect objects in front of a background, almost regardless of the object surface and color.
- ✓ The teach-in function enables all sensors to be quickly and easily adapted to different operating conditions. This saves time and reduces the effort involved in installation and configuration.
- ✓ The plastic housing and IP67 degree of protection make the sensors resistant to dust and water, allowing them to work reliably even in demanding environments. The sensors also have M3 threads of stainless steel for easy and secure mounting. This increases the life of the sensors and reduces maintenance costs.
- ✓ The sensors in this series can be operated in both light-on/dark-on mode so that, for example, the switching output is active when the sensor recognizes the light beam reflected by the object (light-on mode). This means that the devices are versatile and can be flexibly adapted to different applications and requirements.
- ✓ With response times of just 0.25ms to 2ms and switching frequencies of up to 2kHz, the sensors are ideal for applications that require fast and precise detection. This improves both efficiency and performance in dynamic processes.

The sensors are connected via 4-pin M8 plug-in contacts. The teach-in function is activated using a ferromagnetic tool. The sensors also offer interference suppression, which prevents mutual interference and thus ensures reliable detection with several sensors in a small installation space. (he)

## **ROUND TECH IN A SQUARE SHELL— WITH PLENTY TO OFFER**

When precision meets versatility, there is often a small technical miracle behind it. This is also the case with the **OT450420** optical sensor with background suppression from ipf electronic. This compact device reliably recognizes objects - regardless of shape, color or material - it always cuts a fine figure, even in harsh industrial environments.

You could say that the round sits in the square: inside the square sensor housing, a round, pinpoint-accurate LED emits pulsed red light at a wavelength of 630 nanometers. This enables the sensor to reliably detect objects within a range of 30 to 550 millimeters. Thanks to the integrated teach-in function, setting the desired sensing range is particularly easy: a brief contact with a ferromagnetic tool on the blue teach-in LED at the back of the housing is all it takes - and the sensor is ready to go.

With a response time of just 1 millisecond and a switching frequency of up to 500Hz, the **OT450420** reacts at lightning speed- ideal for applications where every millisecond counts. At the same time, the integrated background suppression ensures that only what is really relevant is detected.



The device also impresses across the board in terms of safety and operating comfort. It has short-circuit and reverse polarity protection and is protected against dust and water in accordance with IP67. The connection is made via an M12 plug contact. Integrated interference suppression also prevents several sensors installed at a short distance from each other from interfering with each other.

**OT450420**

The **OT450420** is a real all-rounder - precise, fast, robust and easy to operate. Anyone looking for a reliable sensor for demanding tasks will find a sophisticated solution that perfectly combines technology and practice. (he)

## **COMPACT AND CLEARLY ON TARGET**

The new **EZ360330** and **EZ360331** LED signal lights from ipf electronic have been specially developed for industrial use. Both models have five separately controllable light colors (red, yellow, green, blue, white) and offer an all-round visible 360° status display. Thanks to the robust polycarbonate construction with shatterproof and splinter-free coverage, the lights are particularly resistant to mechanical influences. With a degree of protection of IP67, the LED signal lights are protected against the ingress of dust and water, making them reliable even in harsh industrial environments.

With a diameter of 50mm, the **EZ360330** is one of the more compact designs. However, the larger diameter of 90mm makes the light signals of the **EZ360331** particularly conspicuous.

The colors are controlled via an 8-pin M12 connector. A special feature is the adjustable flashing mode at 2Hz via a 24V control input, to increase attention to the light signals if required. Color prioritization ensures that when several colors are controlled simultaneously, the one with the highest priority is always displayed (sequence: red > yellow > green > blue > white). The light operates with a supply voltage of 22.8 to 26.4V DC and is designed for ambient temperatures from -20 to +50 °C.

The new products feature an M30 mounting thread. Thanks to the included lock nut, this allows for front panel installation. Alternatively, bracket **AE000032** or mounting flange **AE000034** are also available for mounting. Using the aluminum tube **AE000033** (length: 120mm), the signal lights can also be mounted in an upright position, making them clearly visible even from greater distances.

The long service life, which is independent of switching cycles, reduces maintenance requirements for the LED signal lights to an absolute minimum. Typical areas of application for the **EZ360330** and **EZ360331** include illumination and status indication at workstations, machines and control cabinets. (sf)

**EZ360331**

**EZ360330**



## REFRESHED AND ROUND

Anyone who needs to detect metal parts in a manufacturing process relies on inductive proximity switches. These sensors operate without physical contact, are resistant to contamination and have proven themselves in a wide range of applications.

But what if, for example, a small metal object is ejected from the machine and there is no guarantee that it will pass through the sensors detection range? This is where inductive ring sensors come into play. Their detection zone is located within a circular opening. When a metal part falls through, it dampens the alternating magnetic field, triggering a switching signal. If, for example, the metal objects are transported through a plastic tube using compressed air, the tube can be routed through the ring sensor to detect the objects. The minimum detectable object size depends on the diameter of the sensors opening. Models with opening diameters ranging from 6 to 100mm are currently available.

When detecting metal parts, a distinction is made between static and dynamic operating modes. In static mode, the switching output remains active as long as an object is within the detection range (e.g. for level or jam monitoring). In dynamic mode, the metal object must be in motion. When an object is detected, the output is activated for approximately 100ms and then deactivates automatically.

A new switching operation is only possible once the object has moved on and the active zone is clear again.

In the past, implementing both operating modes with inductive ring sensors required two separate devices for each sensor size. With the new family of ring sensors from ipf electronic, only a single device version is now needed. Using the teach-in function, users can switch between static and dynamic operation, as well as choose between normally open and normally closed switching output functions. Sensitivity adjustment is still performed via a potentiometer. In addition, the integrated IO-Link interface of the new ring sensors allows for further configuration options:

- ✓ Deactivation of the local controls (Potentiometer and teach-in)
- ✓ Choice between three sensor modes (Standard, Precision und Speed)
- ✓ Hysteresis setting between 0 and 20%
- ✓ Additional virtual switching output for operation in a IO-Link-capable control (unit)
- ✓ Single-point, two-point or dynamic teaching for the switching outputs
- ✓ On and turn-off delay for the switching outputs (0 ... 60s each)
- ✓ Single value, two-value or window function for the switching outputs

The window function is an innovative feature that allows the detection of metal parts to be limited to a defined size range. Objects that are smaller or larger than this range are ignored.

The housing dimensions are identical to those of the previous models, allowing for straightforward replacement of existing older devices. The new device series is available with opening diameters ranging from 6 to 50mm. A new addition is the **IY300520**, which fills the gap between the **IY250520** (Ø 25mm) and the **IY350520** (Ø 35mm) with a ring diameter of 30mm. Devices with a ring diameter of 100mm from the previous series remain part of the portfolio in both static (**IYK00320**) and dynamic (**IYK00325**) versions. (gr)

IY-series



## **FLOWMETERS FOR SPECIAL CHALLENGES**

### **CONSUMPTION MEASUREMENT OF HYDROGEN AND OTHER TECHNICAL GASES**

Hydrogen is one of the key energy sources of the future. As a result, more and more practical applications for this medium are emerging. One example among many is the measurement of the volume of hydrogen produced using renewable energy.

High-precision and robust sensors are required to record the consumption and flow rate of hydrogen.

For this purpose, ipf electronic offers custom-made sensors such as the **SY98F002**. Like all flow sensors from ipf electronic, the **SY98F002** operates on the calorimetric principle. As a result, the device provides highly precise measurements of volume, flow rate, velocity and temperature of gaseous media. A further advantage of the calorimetric principle is that no additional temperature or pressure compensation is required.

With their die-cast aluminum housing featuring an integrated LED display and a robust sensor element made of 1.4571 stainless steel, the sensors are designed for particularly demanding industrial applications.

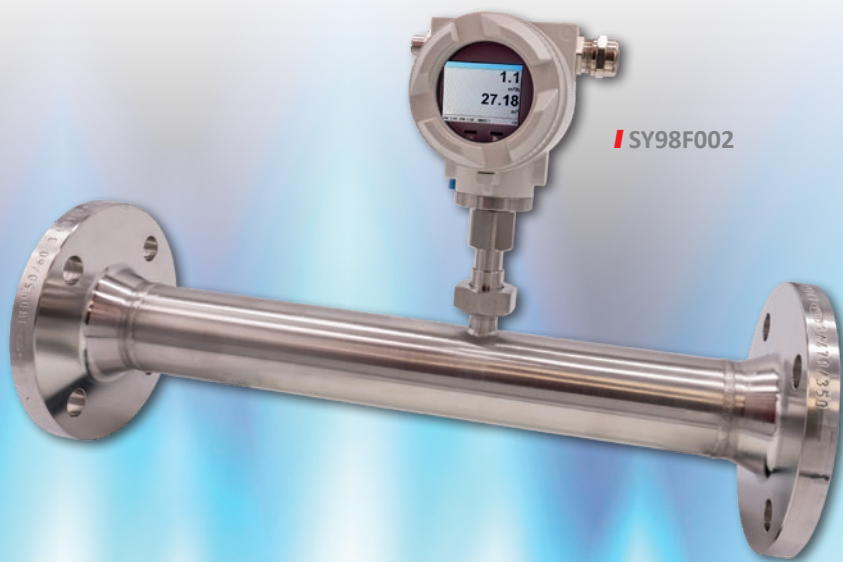
The **SY98F002** is pressure-resistant up to 16bar (other devices available as high-pressure variants on request) and is configured via two optical buttons on the easy-to-read front display. Power is supplied via a connection cable inserted into the device through the cable gland. Available data interfaces include M-Bus, RS485, Ethernet, and Ethernet with PoE (Power over Ethernet).

In addition to the **SY98F002**, ipf electronic is also able to provide other hydrogen-calibrated devices with various process

connections and data interfaces tailored to customer requirements.

#### **Additional features**

- ✓ Insertion sensor up to DN1000 or sensors with integrated measuring section up to DN80 (flange connection or thread)
- ✓ Data interfaces: MBus, Modbus RTU RS485, Ethernet TCP, Power of Ethernet, analog output (4...20mA) or pulse output
- ✓ Measurement of flow rate, total consumption, speed and temperature units freely adjustable
- ✓ Pressure range up to 16bar, special version up to 100bar
- ✓ Gas temperature up to 180 °C
- ✓ Silicone-free and specially cleaned (oil and grease-free) versions on request
- ✓ Devices for gases such as nitrogen, oxygen, carbon dioxide, nitrous oxide, natural gas, hydrogen, biogas and other gases on request (bb)



**SY98F002**



**SL98E269**



## CONDITION MONITORING THROUGH VIBRATION DETECTION

Continuous condition monitoring is essential for the efficient and reliable operation of machines and systems in the context of predictive maintenance. A key aspect of this monitoring is the detection of mechanical vibrations – caused by acceleration, speed changes, or displacement of moving components such as motors, gearboxes, rolling bearings, or industrial fans.

Ipf electronic has added the compact **WF210020** vibration sensor to its product portfolio to reliably record these measured variables.

The sensor is housed in a robust stainless steel housing (material: 1.4305) with IP67 protection, making it ideally suited for use in demanding industrial environments.

Despite its compact design, the **WF210020** offers comprehensive monitoring of the following parameters:

- Vibration velocity e.g. for monitoring component fatigue (mm/s, RMS)
- Vibration acceleration e.g. for monitoring mechanical friction (g, RMS and peak)
- Temperature e.g. for monitoring temperature increases due to excessive friction (°C)

The maximum acceleration is  $\pm 15g$ , the maximum speed is 128mm/s.

The measured values are output either via an analog output (4...–20mA) or via two configurable switching outputs. In addition, the integrated IO-Link interface enables easy commissioning and customized parameterization of the sensor.

The **WF210020** is mounted via an M8x1.25mm thread. The **AY000189** magnetic holder is available as an option for flexible and quick attachment, which impresses with its high holding force of 350N. (bb)

## PRECISE AND GENTLE

In industrial manufacturing, especially in the field of highly sensitive electronics production, the precise stripping of fine single cores is a key requirement. This task is made particularly easy and gentle with the new **AV000151** stripping tool from ipf electronic.

The lightweight and handy tool is suitable for single cores with diameters from 0.3mm to 1.0mm (AWG 28 to AWG 18) and ensures precise, repeatable stripping thanks to its special steel blade – without damaging the underlying stranded copper wire. The adjustable cutting opening allows for high-precision adaptation to the respective wire diameter, even for very short stripping lengths starting at just 1.5mm.

Another advantage is that the **AV000151** is designed for a wide range of common insulation materials, including PVC,



TEFLON®, KYNAR®, TEFZEL®, and MYLAR®. This makes the tool especially versatile and practical, particularly when it comes to handling different types of cables.

If the wire diameter is not known, which can often be the case in practice, the conductor can still be stripped safely. This allows the user to approach the appropriate diameter quickly and gradually, starting with the largest possible setting, without damaging the stranded copper wire. (nc)

## SWITCH-MODE POWER SUPPLIES: UNIVERSALLY APPLICABLE FOR ALL APPLICATIONS

A voltage of 24V DC is the worldwide standard for the direct current supply of transducers, control signals, sensors, actuators and electronic assemblies in electrical control and automation technology.

For an electrical control unit to function smoothly, the selected power supply must be absolutely reliable. Likewise, production in the mechanical and plant engineering sector can only run without disruptions if a stable and secure power and voltage supply is ensured.

The large selection of DC power supplies from ipf electronic ensures exactly that, regardless of the requirements and areas of application. (bb)



### An overview of our offering:

Art. no.	Input voltage	Power	Output voltage	Output current
NG520201	85 - 264V AC	60W	24V DC	2.5A
NG320301	90 - 264V AC	76W		3.2A
NG400501	90 - 264V AC	120W		5A
NG631001	90 - 264V AC	240W		10A
NC631001	340 - 550V AC	240W		10A
NC852001	340 - 550V AC	480W		20A
NCKA4001	340 - 550V AC	960W		40A

## NEW ULTRASONIC SENSOR WITH CONVINCING TECHNOLOGY

IpF electronic is continuously improving its products. This is a key reason why the proven **UT210170** ultrasonic sensor now makes way for the new **UT210570**. The new sensor is nearly identical in size (41 x 15 x 21mm) to its predecessor, ensuring a smooth replacement in existing applications. At the same time, the **UT210570** impresses with a variety of technical enhancements:

- Mechanical optimization:**  
The new product has a robust metal connector and mounting holes amplified by metal bushes, which increases the mechanical load capacity and life span in industrial use.
- Extended visibility:**  
All-round visible LEDs for operating voltage and switching state make it easier to check the status during start-up and in running operation.
- User-friendly configuration:**  
The sensor can be conveniently set via teach-in with a ferromagnetic tool or via the white core of the 4-pin M8 connection cable.
- Extended measuring range:**  
With a measuring range of 10 to 250mm (previously 30 to 200mm), the sensor is ideal for precise level detection even in the tightest spaces. The small blind zone of only 10mm is definitely a unique selling point.

- Push-Pull-output:**  
A universal push-pull switching output ensures high flexibility in signal processing (PNP and NPN compatible, normally open / normally closed switchable).
- Digital communication:**  
The integrated IO-Link interface enables bidirectional communication with modern control systems and offers extended diagnostic data as well as additional adjustment parameters for individual requirements.

### Typical areas of application

Thanks to its compact design and IP67 degree of protection, the **UT210570** is ideal for use in demanding industrial environments, especially for level measurement in small containers or for object detection in automated conveyors. (sta)



**SEASONED PROFESSIONALS**

**They are still going strong and simply can not be beaten: Our devices, which have proven themselves time and again over many years, especially in tough, demanding applications.**

Inductive sensors have to be replaced when mechanical influences cause a defect. Our all-steel sensors, such as the **IC120126** or **IC210176** with up to three times the standard distance, address this problem in two ways: firstly, the one-piece metal housing offers high pressure resistance and is therefore much tougher than standard devices with a cap or active surface made of plastic. Secondly, the quasi-factor 1 devices (same switching distance for all metals) can be positioned much further away from the moving object.

**Development continues even with these classics:**

For example, the allowable ambient temperature for their operation was recently increased to +85 °C. Additionally, the integrated IO-Link interface significantly expands the functionality and thus the flexible use of the devices. New variants have also been added, such as the **IO18012F**, which features chip suppression (chip-resistant sensors).

**Magnetic cylinder sensors in metal housings for all common grooves – Why the effort?**

Because they are simply more robust! These fully electronic devices always have maximum resistance to impacts and vibrations thanks to the metal-to-metal connection in the groove, making them extremely reliable. In addition, devices such as the **MZA70176** or **MZA70175** can be adjusted in position as often as required thanks to their robust design.

**Flow there? Absolutely!**

Our **SS41** and **SS42-series** flow sensors, which operate according to the high-precision calorimetric principle, have long proven themselves thanks to their robust construction and stainless steel housing, for example in cooling circuits, as dry run protection or for filter monitoring. The media temperature can be up to +80°C. Calibration of the devices during operation is very easy thanks to a sealed potentiometer.

**Filling level and level sensors**

Our devices from the **FI52 series**, such as the **FI520170**, are an established standard for checking the minimum filling level of bulk materials and small parts in oscillation conveyors. A flexibly mounted pendulum with a metal insert, which protrudes into the oscillation conveyor, generates a switching signal via the integrated inductive sensor when the level undershoots the minimum fill level. Versions with plastic rods can be shortened as required. Metal rods can also be modified for specific applications.

**Simply buy incremental encoders with the right shaft and significantly reduce your inventory?**

Works perfectly with our robust **VD589-series**. Simply use the USB cable and free configuration software to set the desired pulses per revolution, signal level (HTL/TTL), counting direction, and reference signal, then install it directly. Good to go! (mo)





**IPF SUCCESS STORIES**

**PS180024**



**PE180424**

**LASER TECHNOLOGY FOR PINPOINT-ACCURATE MEASUREMENTS**  
**UNUSUAL APPLICATION OF IPF SENSORS ON A SPORTS AIRCRAFT RUNWAY**

Precise laser sensors from ipf electronic are usually used in many industrial applications, but can also prove their worth in an unusual location, such as at an air sports club landing championship.

Pilots have to land their aircraft as accurately as possible on a runway 850m long and 45m wide. The highest score (200 points) is only awarded if the main landing gear touches down exactly in the 3m short field A. Other fields offer graduated scores up to 5 points in the last section.

Previously, color markings and referees were used to determine the area where the landing gear of an aircraft touched down. However, possible inaccuracies and residues of the color markings on the aircraft led to the search for alternatives, which ultimately led to the use of laser sensors from ipf electronic.

Five laser light barriers- consisting of the **PS180024** transmitter and the **PE180424** receiver- were installed at the edge of the runway. The through-beam sensors (laser class 1, degree of protection IP67) work with visible red light (wavelength 650nm) and have a range of up to 60m- completely sufficient for the entire width of the runway.

Thanks to the wide supply voltage range of 10-30V DC, the devices could be self-sufficiently supplied with power via car batteries, as laying cables crosswise via the runway was prohibited.

With accessories from ipf electronic such as aluminum tubes, clamps and ball joints, the technology could be installed quickly and safely. The transmitters and receivers of the sensors were precisely aligned with the sensor tester **VY000004**.

A compact housing with a touch panel and a specially written PLC (programmable logic controller) program was used for evaluation. If an aircraft interrupted a light barrier during landing, the clock stored in the program was stopped by the respective switching signal and the corresponding time was recorded for each area. In this way, it was possible to determine exactly when which of the light barriers had emitted a switching signal in connection. The corresponding field on the runway could then be identified from the time sequence.

The new solution was convincing across the board. After all, it delivered clear results without any manual observation and significantly increased the fairness of the championship with its precision. (nc)

