



FAIR TRADE DATES

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VO330570

VO330570

MUCH MORE THAN CONTACTLESS LENGTH MEASUREMENT

With the **VO330570**, ipf electronic presents an inline incremental encoder that detects all moving objects without contact, regardless of material and color. As the device works with infrared light of laser class 1, no special safety precautions are required during installation. Due to the very high sensing rate of 0.9ms, the **VO330570** is particularly suitable for detecting materials in very high-speed processes.

The **VO330570** is also capable of performing a trigger function, i.e. emitting a start pulse, e.g. for marking devices, as soon as a previously defined increment value is reached. The sensor is parameterized via a free PC software (interface: Micro-USB), whereby the units pulse/mm, m/min and mm are available.

The particular advantage of this optical system is the contactless measurement, as no mechanical components are used, meaning that the solution works without slippage and is gentle on the material. In contrast to measuring wheels and other mechanical methods, the **VO330570** thus achieves a higher measuring accuracy ($\pm 0.3\%$), whereby the distance to the surface to be sensed can be variably selected within the device sensing range of 15 to 60mm.

For measurement, the sensor is mounted in a position in which it can sense the surface of the products or materials vertically from above, e.g. on a rotating shaft, on a conveyor belt or over moving objects such as foils, cardboard boxes, plates, packaging, etc.

The **VO330570** is suitable for almost all materials and surfaces. Even with reflective and smooth surfaces, the sensor is able to provide optimum measurement results. The electrical connection is made via a 6-pin M8 plug contact (voltage range 5 to 30V DC). Status messages are provided via 2 LEDs integrated in the aluminum housing. (he)





ENERGY MONITORING WITH THE **AB000008**

The **AB000008** energy measurement module is used to continuously measure and evaluate currents and voltages in 1- and 3-phase networks with neutral conductors. This makes it ideal for energy monitoring of machines, systems and air compressors. Data is recorded, stored and processed directly in the device. The user-friendly, graphical web interface of the proprietary IIoT operating system facilitates configuration and commissioning as well as access to the recorded data.

The **AB000008** energy measurement module can be easily integrated into a network via LAN, WLAN or LTE and connected

to higher-level systems via numerous software interfaces. The **AB000008** is also compatible with the IIoT gateway **BY000002**, which opens up a wide range of possibilities in combination.

Process control

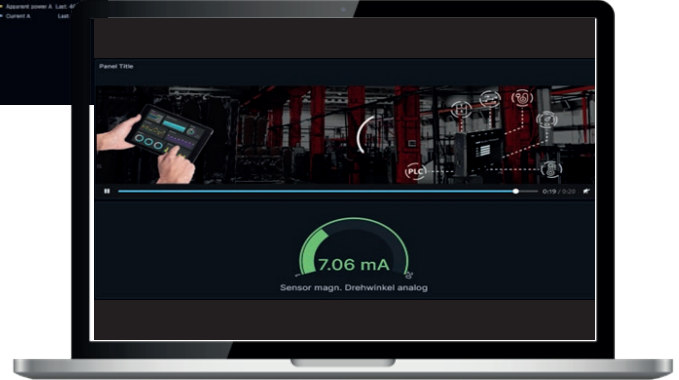
The **AB000008** can be used to continuously monitor and evaluate current, power, energy and voltage in 1-phase and 3-phase networks. This allows a comprehensive energy management system to be set up for machines, systems and air compressors. (vg)

APPLICATIONS

- ✓ Current monitoring by recording current patterns, consumption and current peaks in 1-phase and 3-phase grids
- ✓ Determination of active, apparent and reactive power as well as active and reactive energy
- ✓ Support of advanced functions such as monitoring of voltage dips and peaks, mains frequency, phase angle, total harmonic distortion of voltage (VTHD) and current (ITHD) as well as power factor measurements
- ✓ Development of an energy management system
- ✓ Productivity monitoring



Energy measurement module AB000008



Example view of "monitoring" via dashboard for monitoring e.g. machines, systems and compressed air compressors

AB000009

I/O EXTENSION FOR IIOT GATEWAY BY000002

The **AB000009** is an expansion module for the IIoT gateway **BY000002** from ipf electronic. Connected to the master gateway via Ethernet or backplane bus, the number of interfaces can be expanded almost at will by using one or more **AB000009**s. The IIoT operating system is already "onboard" and, with its user-friendly, graphical web interface, not only facilitates configuration and commissioning, but also access to the recorded data.

The **AB000009** can be easily integrated into a network (via LAN, WLAN, LTE) and connected to higher-level systems via numerous software interfaces. This means that the **AB000009** is also able to work as a stand-alone device and "data collector" if a system for signal processing and visualization is already in

use. In all other cases, the IIoT gateway **BY000002** takes over these tasks.

The **AB000009** should be combined with the IIoT gateway if, for example, the number of gateway interfaces is not sufficient. In addition, the expansion module is always useful if more comprehensive signal processing and data visualization functions are required for the recorded sensor and device data.

The combination of IIoT gateway **BY000002** and expansion module **AB000009** enables a holistic view of machines and systems and offers a wide range of applications, as a whole range of other data can be recorded and processed via the gateway. (vg)

APPLICATIONS

- For integration into an existing system for signal processing and visualization
- Expansion of the IIoT gateway **BY000002** with additional interfaces
- Lean management
- Cost efficiency

Gateway BY000002



Expansion module AB000009



EM300U21



AY000061

MERCURY-FREE SOLUTION FROM IPF:
UV LED LIGHT FOR ALL INDUSTRIAL APPLICATIONS

Manufacturers are increasingly removing mercury-containing UV fluorescent lamps from their product ranges and phasing them out completely due to the impending EU ban. As such lamps are used in various industrial sectors, they are difficult to replace and the search for suitable alternatives is often very difficult. The search is now over, as ipf is offering a robust alternative in the form of the **EM300U21** UV/A LED light.

ADVANTAGES OF THE UV-LED LIGHT

- ✓ **Ideal replacement for older UV fluorescent lamps still in use**
- ✓ **Significantly longer service life**
- ✓ **Lower energy consumption**
- ✓ **Immediately ready for operation**

A concrete example:

Two plastic components are joined together in an automated process using a transparent adhesive. In order to ensure a reliable bond, an optical sensor is used to check the presence of the adhesive at the relevant bonding points on the components. For this purpose, pigments are added to the adhesive, which are activated by UV light so that the optical sensor can now be used to check whether or not adhesive has been applied to the

relevant areas of a component. The example thus shows the potential of the **EM300U21** UV LED light, which can be used in many other applications, e.g.

- / PCB inspection (solder joint inspection)
- / Crack testing on components
- / Drying of paints/lacquers/silicones/sealers
- / Examination of fiber optics and fibers amination of fiber (testing of the cut surface)
- / Highlighting of transparent adhesives on various backgrounds (adhesive beads, sealants, etc.)
- / Large-area UV LED curing of coatings and products manufactured using additive processes such as 3D printing

The robust housing of the light (IP67) is made of aluminum and has a diameter of 30mm and a total length of 261mm. The length of the light field is 198mm. The front panel is made of scratch-resistant polymethyl methacrylate (PMMA). The beam angle of the luminaire is 120°. The **EM300U21** is designed for 24V DC. The electrical connection is made via an M12 plug connector. Screw fixing **AY000061** is available for mounting the light. (sta)

"THE BLUE ONE" GETS REINFORCEMENTS

Objects are generally difficult to detect with optical diffuse-reflection sensors if they reflect little or hardly any light onto the receiver. Deep black parts and shiny or transparent objects therefore often pose major challenges for diffuse-reflection sensors, as a stable process sequence is not always guaranteed and incorrect switching can occur. Since 2023, the **OT340571** optical diffuse-reflection sensor, which works with blue light, has been meeting these challenges with flying colors.

This success has prompted ipf electronic to expand the product segment with two new diffuse-reflection sensors. The **OTQ80571** (protection class IP67) with push-pull switching output scores points with its robust, glass fiber reinforced plastic housing and its compact dimensions of 26x15x8.2mm, which offer a decisive advantage particularly in confined installation conditions. The switching distance of the **OTQ80571** is 10...100mm. The background suppression for detection that is virtually independent of the object surface can be set precisely by teach-in or via the integrated IO-Link interface. The connection is made via an M8 cable connector

(cable length 0.2m). The **OT230321** diffuse-reflection sensor, also with background suppression, has a considerable range of up to 1.2m. The detection range can be adjusted using a potentiometer. The switching output can be configured as a normally closed or normally open contact via a control input. Another special feature is the 270° rotatable M12 connector plug, which offers significant advantages for variable mounting. The protection class of the **OT230321** is IP67. (bb)



OTQ80571

OT340571

OT230321

MOISTURE MEASUREMENT IN OIL

Water is generally undesirable in hydraulic fluids and lubricants and, in high concentrations, can cause enormous damage to machines and systems. To avoid this, ipf electronic has added the compact **YF900020** oil moisture sensor to its portfolio, which was developed to measure moisture in transformer, motor, lubricating or hydraulic oil as well as diesel fuels.

The sensor has two freely configurable analog outputs (4...20mA) and an RS485 interface with Modbus RTU, which enable high-precision measurement of the water activity (aw) and the process temperature (°C). In addition, the sensor also calculates the absolute water content (x) in ppm (parts per million). The device is mounted simply and securely via the G1/2" process connection.

The **YF900020** can withstand oil temperatures up to a maximum of 125°C and operating pressures up to a maximum of 300 bar. An additional interface adapter (**VY000026**) can also be used to make changes to the Modbus settings, scale analog outputs or assign measured values, for example.

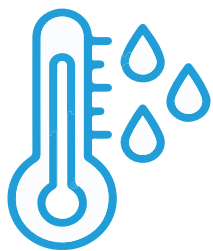
SOME EXPLANATIONS WORTH KNOWING:

Water activity aw: The water activity aw is a relative measure of moisture in oil. It describes the ratio between the actual and maximum possible amount of dissolved water in the oil at a certain temperature. The aw value indicates the degree of saturation of the oil: aw = 0 (no water), aw = 1 (complete saturation). The water activity is independent of the type of oil.

Water content x (PPM): The water content x is an absolute measure and expresses the amount of water in the oil (dissolved, emulsified or separated). The water content is measured in ppm or milligrams of water per kilogram of oil and is independent of the oil temperature. To assess the degree of saturation, x must be considered together with the temperature (T). The calculation of the water content x from the measured values for aw and T is oil-specific and requires special parameters for the respective oil. (bb)



YF900020



AT000009



YT900002

DEW POINT MEASUREMENT IN COMPRESSED AIR SYSTEMS

Compressed air has become indispensable in modern production processes. Depending on the respective application, different requirements are placed on the compressed air. Maintaining a certain moisture content or dew point is a basic requirement for every process to ensure long-term, trouble-free operation, which can also lead to greater energy efficiency with sustainable cost savings.

Condensed water in compressed air lines significantly shortens the service life of pneumatic components. Hoses become brittle and metallic components can corrode. Excessive moisture also leads to sticking of various goods that are transported pneumatically, such as sugar, flour, cement or granulate.

ipf electronic has added the **YT900001** sensor for absorption dryers and the **YT900002** sensor for refrigeration dryers to

its range especially for measuring humidity and dew point in compressed air and gases. The devices have a capacitive polymer sensor for measuring relative humidity. The sensor element is extremely long-term stable (>5 years) and also offers high accuracy ($\pm 1^\circ\text{C}$ at 50...-20°C // $\pm 2^\circ\text{C}$ at -20...-50°C).

Only water vapor penetrates the cover electrode by diffusion and accumulates reversibly on the polymer. This changes the capacitance of the sensor. Two different temperature ranges (-80...20°C and -20...50°C) are available. The measured value can be evaluated via an analog output (4-20mA) or via the Modbus RTU interface. The **AT000009** measuring chamber is available for quick and easy installation. The connection is made via a 5-pin M12 plug (e.g. **VK505621**). The protection class is IP66. (bb)

IN THE AIR TONIGHT

YY770001 / YY770002 / YY770003

To analyze indoor environmental conditions, ipf presents the new **YY77** sensor series, which measures the parameters absolute pressure, room temperature and humidity. Due to their characteristics, these sensors offer a wide range of possible applications, such as monitoring room air in cold storage, storage or clean rooms. When monitoring the intake air in compressed air stations, the **YY77**-series can also be used with downstream control systems to ensure a constant supply of resources. This can reduce wear in pneumatic systems and increase system stability.

The **YY77**-series consists of the variants **YY770001**, **YY770002** and **YY770003**. The **YY770001** and **YY770002** sensors have an analog output or two analog outputs (4...20mA) as well as an alarm output or two alarm outputs (relays) for controlling downstream control loops. The **YY770003** has an analog output and an Ethernet TCP connection for network data transmission instead of the alarm output.

Parameters such as unit, value, hysteresis and exceeding or falling below limit values can be configured for the outputs. This is done using two operating buttons located below the integrated TFT display. The units °C, °F, hPa, mbar, bar, psi and relative humidity (%) are available as system parameters.

The devices in the **YY77**-series are operated via an M12 plug connection with a voltage of 18- 36V DC and a maximum power

YT77-series



consumption of 6.5W. Thanks to the permissible ambient temperatures of -20 to +60°C and the IP65 degree of protection, the devices can be used in many areas and are easy to handle thanks to the 180° rotatable operating unit.

The mounting bracket included in the scope of delivery always ensures the correct minimum distance between the sensors and the wall so that there is sufficient flow around the sensor on the underside of the housing. The configured settings can be protected against unintentional changes using an individual password. (he)

NEW HIGH-POWER LED SPOT FOR HIGH-SPEED CAMERA OC29 APPLICATIONS AND MORE

Due to the short exposure time, a high light output is advantageous for high-speed camera shots in order to achieve the highest possible number of images per second (fps- frames per second). A requirement that is perfectly met by the new **ES540020** high-power spotlight from ipf electronic with an illuminance of 100,000 lux (color temperature 5000K) at a distance of 500mm from an object.

The beam angle of the 16 high-power LEDs is 20°, allowing the desired recording area to be specifically illuminated. The heat dissipation of the light with an output of 43W takes place via the cooler with active fan integrated in the sturdy aluminum housing.

The optionally available power supply unit **NY000008** with on/off switch and M12 connection socket for the light's plug enables continuous operation of the high-power LED spotlight. For other applications, the spotlight can also be used in flash mode with the internal flash controller.

The **ES540020** can also be attached to the accessories of the **OC29** high-speed camera from ipf electronic via the ¼-inch thread: e.g. traverse (**AO000568**), screw clamp (**AO000577**) and ball joint (**AO000578**). (sf)



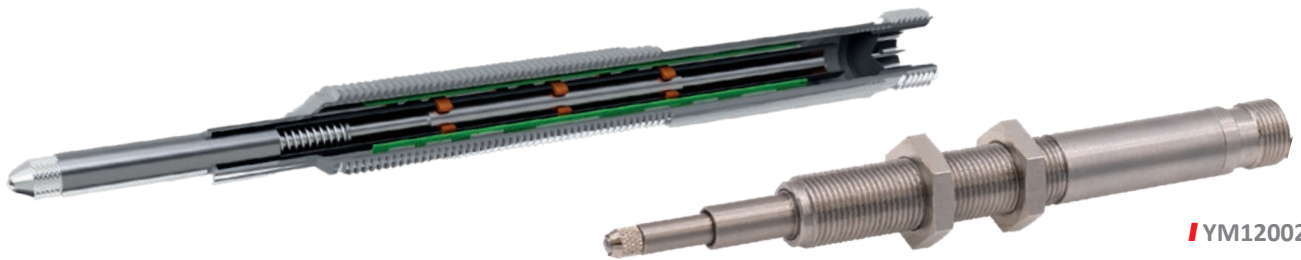
AO000568

AO000577

ES540020

AO000578

OC29 with lens e.g. AO000586



YM120020

FIRST MEASURING TAPPET

It is not always possible to determine the position of objects without contact. This may be due to the object material or other material properties. In such applications, only tactile solutions can be used and this is exactly what the **YM120020** spring-loaded measuring tappet from ipf electronic is suitable for.

The **YM120020** with M12 external thread has a travel range of -5 to +5mm with a maximum linearity deviation of $\pm 0.5\%$ over the entire measuring range. The position of the plunger with hardened probe tip is output as an absolute analog signal (0-10V) via an M12-connector.

The sensor works according to the differential transformer principle. The spring-mounted measuring rod also serves as the

moving core of the excitation coil. A passive coil is positioned to the left and right of this coil. As soon as the rod is no longer in the middle 0mm position, a voltage is induced in one of the two neighboring coils and enables the displacement measurement by means of downstream electronics. This high-resolution and wear-free design achieves a high level of mechanical robustness with a shock resistance of 200g, 2ms. This functional principle also ensures that the measured value is retained after a voltage interruption.

Areas of application for the new plunger can be found across all industries in automation as well as process and quality assurance under harsh environmental conditions, such as wet conditions, aggressive chemicals or high ambient temperatures. (mo)

SY991185

RUNS BECAUSE IT'S LUBRICATED...

... this describes the function of the **SY991185** lubricant sensor in a few words.

Although the sensor in the robust cuboid aluminum housing (IP67) appears quite inconspicuous, it always monitors the relubrication of machines as required and thus prevents possible cost-intensive damage due to premature wear. The **SY991185** clearly detects whether the lubricant metered by the metering valve (e.g. oil or fluid grease) has actually been delivered to the lubrication point.

Thanks to its dynamic measuring principle, the sensor perfectly detects even the smallest dosing quantities $\geq 5\text{mm}^3$ for lubricating oils. The integrated non-contact position sensing of the measuring piston also enables fast reset times and therefore dosing cycle monitoring of up to 2 lubrications per second.

Mounting the sensor is very simple: Cut the supply line upstream of the lubrication point to be monitored and attach the open ends of the supply line to the device using M10 union nuts. The device can be installed in any position, but should preferably be installed vertically in the direction of flow for small flow rates. The **SY991185**, which is pressure-resistant up to a maximum of 70 bar, is connected via a 3-pin M8 plug (operating voltage 10 to 36V DC). (he)



SY991185



NEW AUTOMATED SYSTEM FOR PUR POTTING

Electronic devices are encapsulated in order to permanently protect their electronic components from external influences such as heat, moisture, vibration or shocks. To further optimize this important production step, ipf electronic has put a new encapsulation system into operation and opted for the proven technologies of Dopag and Universal Robots.

Everything is fully automated to reduce the workload on employees, with the robot taking over all recurring work steps. This also means shorter production times, greater efficiency in the process and optimized product quality- and therefore a real win-win situation for everyone involved.

Only the relevant parts need to be provided for potting. To do this, the robot removes a product carrier with these parts from a stack, guides it to a camera for identification and measurement and then to the dispensing head of the potting machine, which fills the devices with the PUR potting compound in several steps.

The robot then forms new stacks with the processed product carriers, in which the potting devices harden. This process can also be carried out autonomously during a night shift. After a short training period, the new system delivers fast and precise results. With the help of the camera, the different variants of the product family are recognized and encapsulated according to their individual parameters.

For optimal integration of the system into the production processes, the planning, design, essential parts of the software, the programming of the robot and the assembly were implemented by the in-house equipment construction department. The knowledge gained here serves as the basis for future expansions in this production step. ipf electronic is proud of this further important step towards automation and is looking forward to the potential that this will open up. (hma)

