

Application Note



Angst+Pfister Sensors and Power is a company with a long track record in life science, serving medical device manufacturers across the globe for many decades.

Endoscope Washers fulfil the task of reprocessing endoscopes by washing, disinfecting and drying them. In addition, the channels are checked for leaks.

"Thanks to Angst+Pfister Sensors and Power, we were able to massively improve our process stability and repeatability"



Example Endoscope Washer (source: Belimed)

What are the advantages of APSP pressure sensors for Endoscope Washers?

- High accuracy miniature pressure sensor AG2/ AG4
- Real-time monitoring of tube gas filling pressure and leakage at accuracy $\pm 0.5\%$ FS
- Monitoring of chamber pressure (door thoroughly closed?)
- Backward gage - sensor resistant towards temporary humidity exposure (e.g. condensation)
- Manifold-mountable for easy integration in pneumatic block
- Individual range calibration for optimization of usable span



- Miniature pressure sensor PBM230
- Real-time monitoring of tube filling pressure and leakage, additional temperature output
- Suitable for both gas and liquids (water, disinfection agents)
- Manifold mountable for non-intrusive integration in pneumatic/hydraulic block



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How can the digital and factory-calibrated SMT172 improve monitoring of gas temperature in Endoscope Washers?

- Digital temperature sensor with PWM output for error-free transmission over long distances
- Real-time monitoring of temperature inside the chamber
- Extremely high accuracy of $\pm 0.04^{\circ}\text{C}$
- Very high Signal-to-noise ratio
- Fast response time of $t_{63\%}=0.6\text{s}$, to quickly detect temperature changes
- High repeatability of 0.01°C to increase process stability



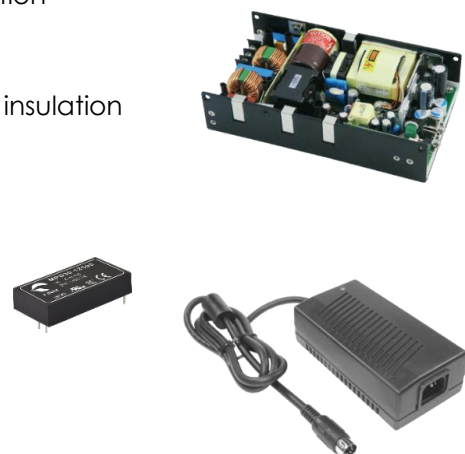
Why could the high-performance humidity sensors MVH-series be beneficial for your application?

- Real-time monitoring of humidity inside the chamber, ensure proper drying
- 0...100% RH to maintain specified humidity in drying cabinets
- Additional temperature output



How can you benefit from APSP medical power supplies/ DC-DC converters while increasing user safety?

- Compact form factor for reduced space demand
- High efficiency and low no-load energy consumption
- Extremely low leakage current
- High EMC- class
- BF (body floating) and even CF (cardiac floating) insulation
- Specific safety approval
- Design-in engineering and certification support
- Flexible customization even for smaller quantities



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What are the advantages of A+P elastomer components for Endoscope Washers?

- With our A+P specialists we realize the most suitable and efficient solutions for demanding Life Science applications in terms of sealing, fluid handling and antivibration
- Ensuring silent operation of pumps with the appropriate shock absorbers
- Comprehensive know-how in high-performance elastomers from choice of raw materials to final testing and serial production
- Solutions designated for vacuum systems/ pumps
- Extremely high chemical resistance against most liquids and chemicals
- Great range of possible operating temperatures from -60°C up to +250°C
- High resistance to pressure, compression and deformation
- Low steam permeability and minimum water absorption combined with low cold flow compared to PTFE
- High durability and reliable service
- Non-adhesive smooth surface
- Fully customizable molded specials (e.g. inflatable door sealing AIRMATIC® for pressurized/ vacuumized chambers)
- Multiple approvals and conformities



Everything from a single source!

Very fast and flexible engineering prototypes for customized solutions.

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