AST INTERNATIONAL
ADVANCED SENSOR TECHNOLOGIES

Clear Vision Sensor

SENSORS FOR MEASURING CLEANING LIQUIDS

FILL LEVEL:

The fill level of the cleaning liquid is precisely measured based on hydrostatic pressure, ensuring accurate detection of the liquid in the tank.

CONCENTRATION:

The ethanol concentration is continuously monitored to provide optimal cleaning performance and ensure effective frost protection.

TEMPERATURE:

The temperature of the liquid is tracked to accurately assess its properties, ensuring the system operates effectively in varying conditions.

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MARKET TRENDS:

- Increasing number of camera and lidar systems per vehicle
- Increased level of autonomous driving and more sophisticated assistance systems

SENSOR KEY FEATURES:

- Unique combination of fluid fill level, ethanol concentration, and temperature measurement in one sensor.
- Provision of information on optimal water-ethanol mixing ratio according to expected weather conditions.
- Different integration options, flexible positioning and mounting in the tank

BENEFITS:

- **Safety:** Continuous monitoring of washer fluids supports clear vision systems for camera- and windshield-cleaning, especially important for autonomous driving
- **Efficiency:** Precise measurement reduces fluid waste by ensuring only the necessary amount of cleaning liquid is used.
- **Freeze protection:** Accurate ethanol concentration measurement supports optimal clearing and cleaning performance in varying ambient temperatures and weather conditions.

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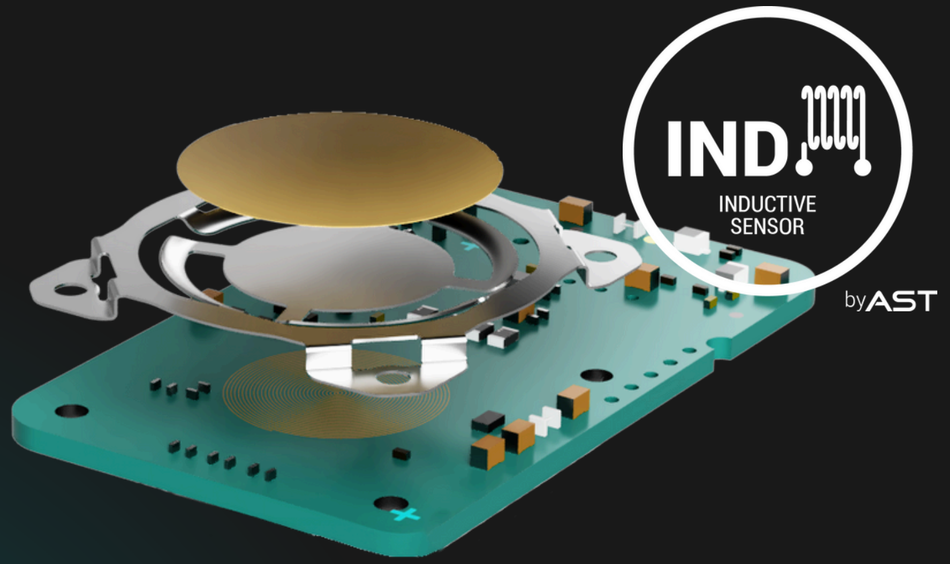
TECHNOLOGIES:

THERMAL CONDUCTIVITY MEASUREMENT

The thermal conductivity is used to determine the concentration of different ingredients. AST's patented thermal conductivity sensors measure how heat spreads through washing liquid. Ethanol has a lower thermal conductivity compared to water - this enables precise determination of ethanol concentration.

HYDROSTATIC PRESSURE SENSING

Hydrostatic pressure sensing measures the level of fluid based on the pressure exerted by the liquid column on a membrane. The sensor uses a specific membrane that translates this pressure into an electronic signal. This method ensures accurate level measurement regardless of tank geometry.



TEMPERATURE MEASUREMENT

Fluids are dependent on temperature. The temperature measurement supports compenstation of temperature effects and ensures measurement results with highest precision.

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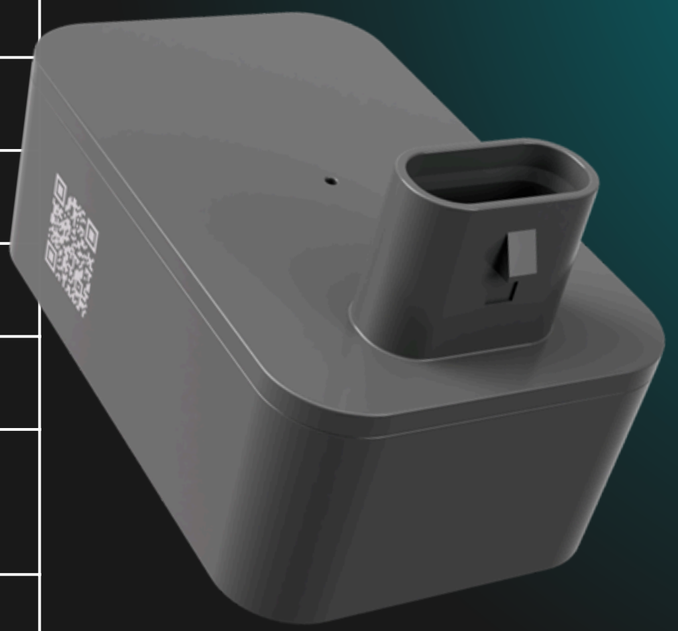
TECHNICAL DATA:

Fluid level measuring range	0 mm to 1000 mm
Ethanol percentage in water	0 to 100%
Tank temperature measuring range	-40°C to +80°C
Fluid level accuracy	± 4% fullscale
Ethanol percentage accuracy	± 4 wt%
Temperature measurement precision	± 1°C
Possible interface	CAN, LIN, SENT and more
Possible ISO 26262 safety level	ASIL B



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AST is your global innovation partner for sensors and controls. We develop high-quality sensor solutions in the fields of energy infrastructure, industry and mobility.

AST is spezialized in sensors and controls for high-currents, liquids and gases.

Get in touch with us!

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