



**Sensor solutions
for car washes**

Safe, precise, and reliable:

The safe and reliable system

With the continued development of environmentally friendly electric vehicles, car ownership is showing no signs of decreasing and the importance of private motor vehicles looks set to continue. Car care and maintenance is essential to preserve the value, which means the importance of car washes is equally high.

A seamless and efficient car wash procedure will leave customers satisfied. Reliable technical solutions prevent damage to the vehicles and system and avert downtime.

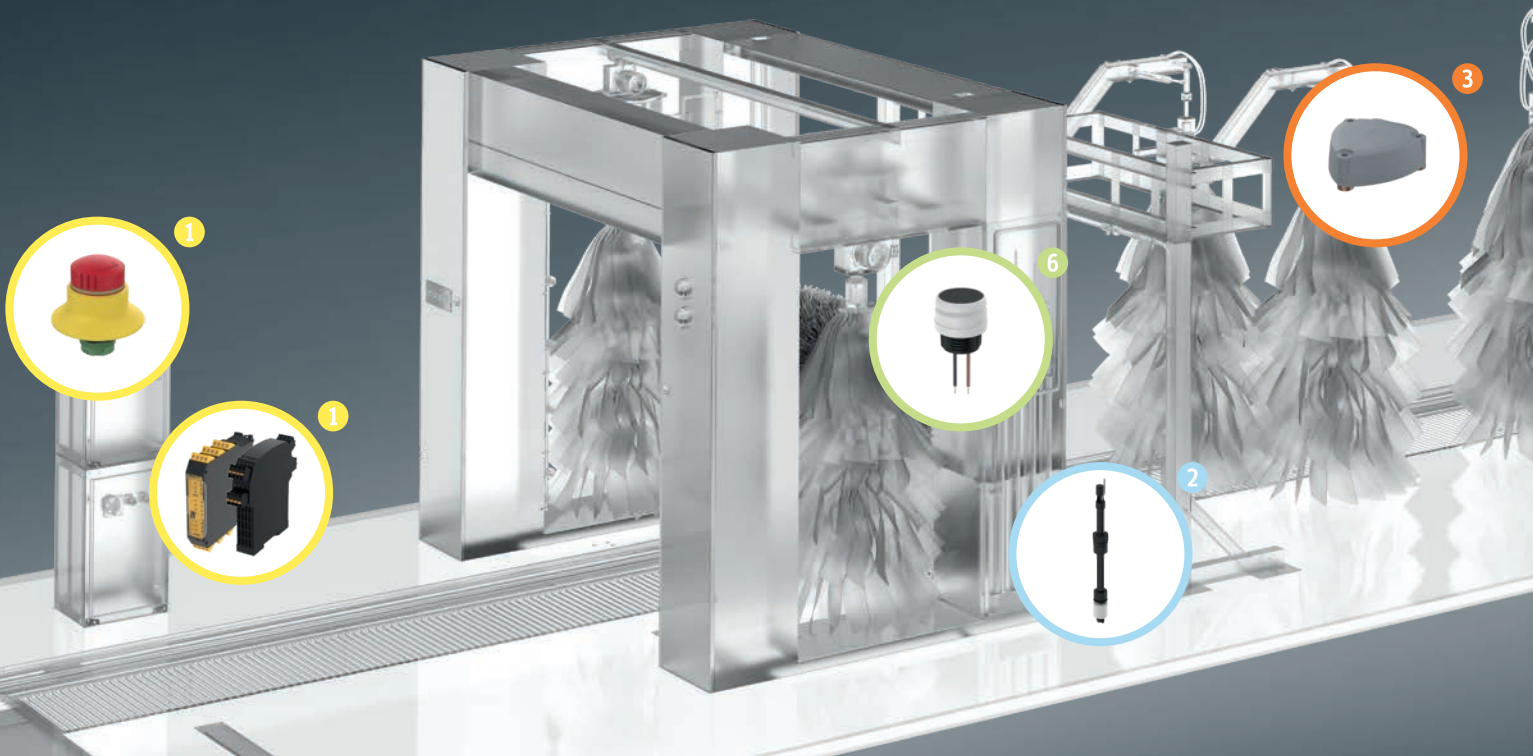
Our sensor products are precise and work safely even under the extreme conditions of car washes. From safety system to level measurement, we offer product solutions that you can rely on.

1 Machine safety

Operation, service, and maintenance – Safety components such as emergency stop buttons are used to protect people and machinery. elobau's machine safety range offers the essential products required to keep your system working reliably.

2 Level measurement

Chemical dosing and monitoring – The right kinds of washing chemicals are required to achieve optimal results. These are added to the washing process with special dosing pumps. The chemicals are removed from containers that are located either in gantry top rails, cabinets, or separate technical rooms. elobau suction pipes ensure reliable removal and keep the pumps from running empty.



System solutions from elobau

3 Sensors

Position monitoring of brushes and fans – Motor-driven brushes and rollers are positioned either by pneumatic or hydraulic cylinders. Pneumatic cylinder switches as well as tilt and angle sensors monitor the exact position of the movable fans at all times and capture the deflection and tilt of the rollers.

4 Sensors

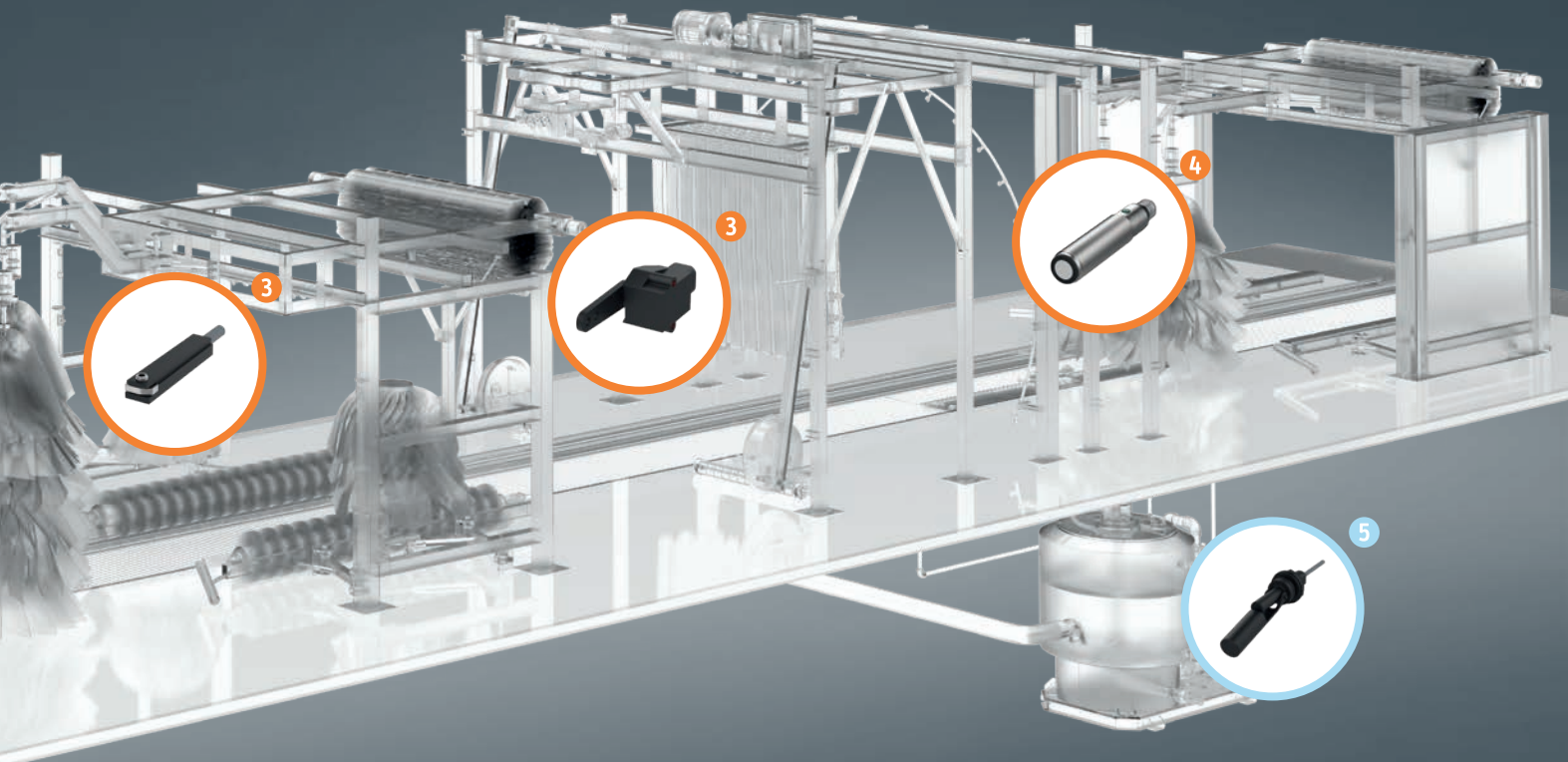
Detection of the vehicle position – Detecting the position of the vehicle is one of the most important tasks in the washing process. Ultrasonic sensors from elobau reliably detect whether the vehicle is present and what position it is in.

5 Level measurement

Water treatment and water recovery – In modern car washes, water treatment and water recovery is critical to the overall system. Water conservation as well as cost-effectiveness make the use of such a water treatment system indispensable. Suction pipes and float level sensors from elobau ensure flawless operation by reliably protecting the processes and pumps.

6 Operator controls

Operation and maintenance – Various controls and pumps are operated by push buttons. elobau has an extensive range of push buttons for this purpose.



POSITION DETECTION OF VEHICLES

1 Presence detection of a vehicle

Car washes are usually in standby mode when not in use to save expensive resources. But when a car enters the car wash, the ultrasonic sensors working in “reflective barrier” mode will detect its presence, and the car wash will start up. The distance to the ground is set as a fixed value so when a vehicle enters the car wash, the sensor detects a different value and the washing process is started up.

2 Capturing the vehicle position

The parking position of a car in a gantry car wash can be reliably and precisely determined with contactless ultrasonic sensors. To prevent collisions between the vehicle and the gantry top rails, the vehicle must be centered and parallel to the guide rails. Continuous measurements between the vehicle and gantry top rails are taken during operation to protect the vehicle and the system against damage.

Ultrasonic sensors from elobau offer many advantages when used in car washes. The function of the sensors is not affected by the spray of the high-pressure nozzles or the surface condition, nor the colour or the temperature of the vehicles. The large measurement range of up to six meters ensures reliable measured values even over long distances. Multiple ultrasonic sensors can be used seamlessly together as the sensors can be synchronized to prevent crosstalk. The multiplexing mode ensures precise measurements when measuring irregular shapes or surfaces in multi-sensor operation. The contactless nature of the ultrasonic sensors means they are wear-free and also low-maintenance. The sensors can be programmed via I/O-Link and are therefore Industry 4.0-ready.



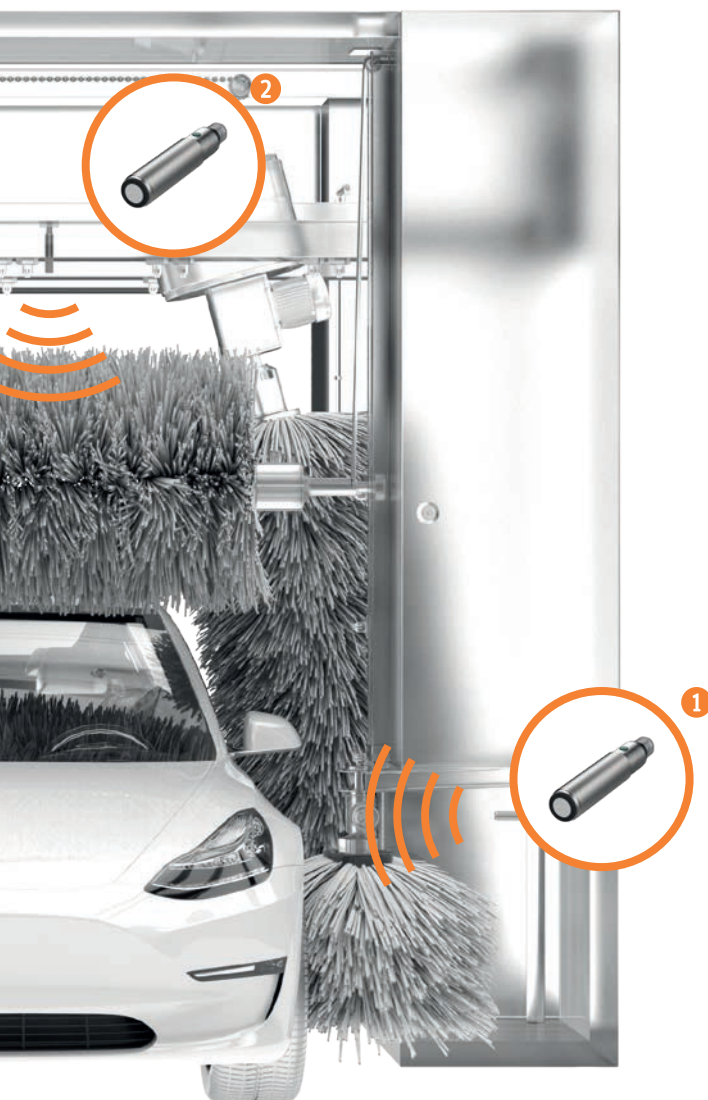
POSITION MONITORING OF BRUSHES AND FANS

Measurement of basic and end position

If the brush or fan is moved back to the initial position, it is necessary to detect the end position and stop the drive. Special pneumatic cylinder switches monitor the pneumatic cylinders.

4 Measurement of pitch or deflection of the brush

The tilt and deflection of rollers and brushes can be safely and easily detected by angle sensors. Angle sensors from elobau use a Hall chip and reliably provide a long service life. Tilt sensors can also be attached directly onto movable elements.



MONITORING THE WASHING CHEMICALS

1 Removal, empty signal, and dosing

Modern systems use suction pipes to remove the washing chemicals from the corresponding containers, and combine removal with empty and pre-empty signalling. They also have a filter element and offer return flow protection. For larger vessels, such as IBC containers, immersion sensors can be used. They are suspended in the container and send a signal once the minimum level is reached. The filling level of the chemicals can also be detected this way, allowing the residual amount of washing chemicals to be calculated and standstills prevented. The elobau product range, with its suction pipes and immersion sensors, is the perfect solution for your requirements.



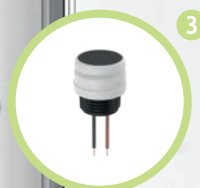
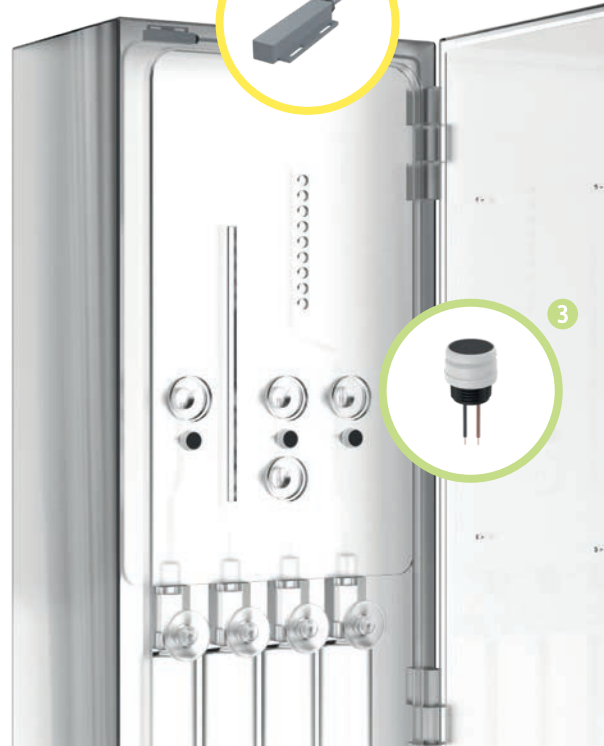
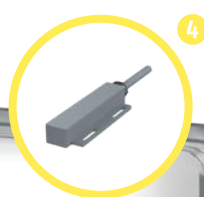
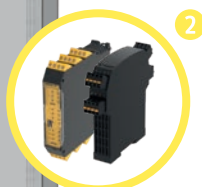
OPERATION, SERVICE, AND MAINTENANCE

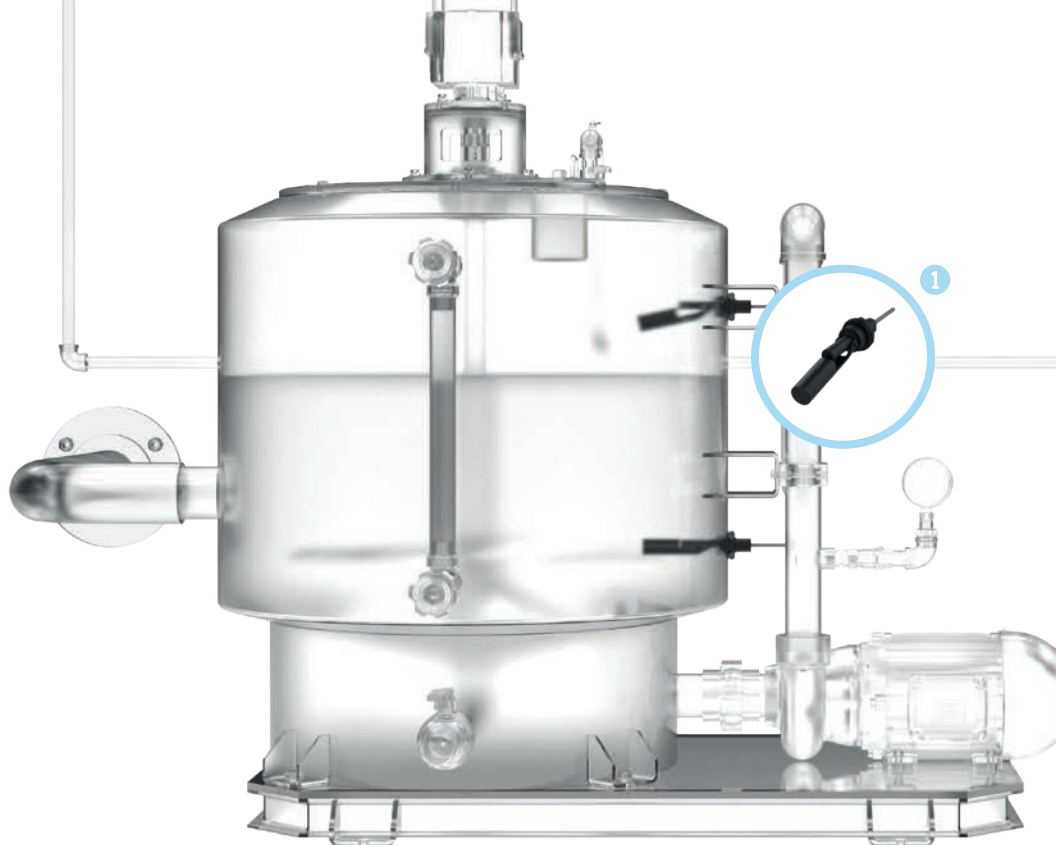
1 Emergency stop button

Car washes are operated via various terminals, and each terminal and washing hall must be equipped with at least one emergency stop button. In the case of an emergency the entire system must be shutdown to prevent injury or damage. To meet this responsibility, the emergency stop buttons must be reliable and functional at all times. Emergency stop buttons from elobau meet all common standards, are up to IP69K protection class, and are available with illumination and anti-obstruction and operation protection collars.

2 Safety evaluations

Safety evaluations are used to monitor the safety functions in car washes. To ensure a seamless washing process, elobau has various safety control units in its product range with configurable logic devices, communication-capable modules, and relay units. The elobau eloProg system solution also enables the decentralization of safety evaluations, which otherwise take place centrally in the switch cabinet.





WATER TREATMENT AND WATER RECOVERY

3 Micro and nano button switches

During service and maintenance work, it is often necessary to empty the entire system. Next, the system is centrally filled and partially aerated by the service technician. To do so, all pumps are operated by means of button switches. The 145 series range of push buttons from elobau include micro and nano push buttons that require minimal installation space.

4 Service and maintenance doors

Service and maintenance doors can be safely and easily monitored with proximity switches. A magnet is attached to the movable door, which actuates a proximity switch installed in a cabinet or gantry toprail. This keeps improperly closed doors or flaps from opening during the washing process, preventing damage to the system or vehicles. The product range from elobau features proximity switches in various designs to fit any installation situation. Two-channel safety sensors can be used optionally for safety-critical applications.

Water conservation as well as cost-efficiency make the case for installing a water treatment and water recovery system. Limit level sensors and suction pipes from the filling level measurement product range ensure a safe process.

1 Disconnect from municipal water network

The washing system is fed via a fresh water pump from your own fresh water pool, separating the washing system from the municipal water network. The storage container is monitored by a limit switch, preventing the pump from running dry if an insufficient amount of water is available. Side mounted float switches from elobau operate on a reed switch and are installed horizontally in the container wall, providing the perfect solution for this. They can even monitor the processing water feeds or high pressure water feeds, efficiently protecting the pumps.

Treatment of dirty water

Depending on the system, flocculant or other chemicals are added for the treatment process. These are usually dosed via dosing pumps, which are generally fed from a canister. A suction pipe can be used for removal from the canister, which can also signal an empty state.



elobau

The company

As an expanding, globally active, family-run foundation company with more than 800 employees, we develop and manufacture sensor technology and operator interface controls for the industrial machine and off highway vehicle sectors. Our high-quality products are characterised by a high vertical range of manufacture and are manufactured in a carbon-neutral manner in Germany. With our innovative, non-contact sensor products, we support our customers worldwide in manufacturing industrial machines and vehicles that set standards in terms of performance, operator comfort, safety and quality.

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