

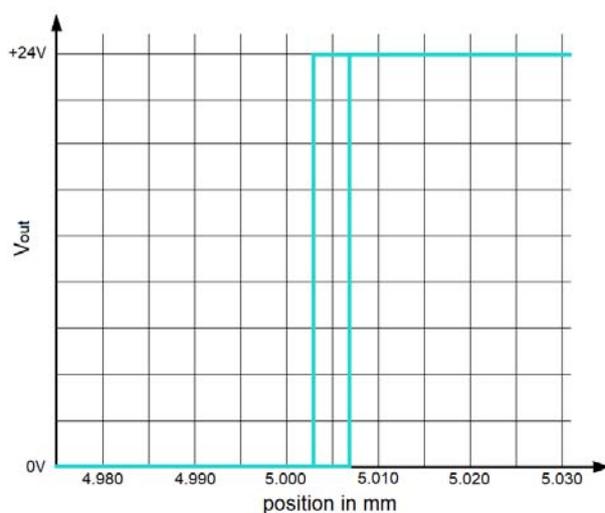
Press information from Sensor Instruments

January 2021

Micrometer-exact positioning of punching strips

29/01/2021. Sensor Instruments GmbH: During the production of punched articles, the punching procedure requires the exact positioning of the punching strips as the processing of the punching strip is performed in a number of process steps in the punching machine. The metal band must be positioned exactly within the punching tool after every processing step (punching and bending procedure). The position notification is usually performed within a stroke procedure ($0^\circ \dots 180^\circ$) using a through beam light barrier and assignment of the respective rotary encoder position during the signal exchange of the light barrier. Ideally, the through beam light barrier should be a fork light barrier and should be able to be integrated in the punching tool, something which requires robust sensors which can resist mechanical vibration. The light barrier should be cutting oil resistant and insensitive to soiling. Quick running punching machines under the presses running at several thousand strokes per minute require a very high switching frequency and a high degree of position-exactness.

The fork light barriers of the **FIA-L series** from Sensor Instruments GmbH were designed especially for this deployment. In addition to a high degree of insensitivity to extraneous light, a high level of oil resistance, a small laser spot size of 0.2mm in diameter, a low optical divergence of the red laser beam and a high position exactness of better than $5\mu\text{m}$, the **FIA-L-RL series** provides a switching frequency of 25kHz. The compact structure of the fork light barrier is ideally suited for use in a punching tool. The sensor is available with a plug output (4 pole M8) or an oil resistant PUR cable. The light barrier is optionally available with various tool plugs. The voltage supply amounts to +24V, the light barrier is reverse polarity protected and short-circuit proof. The switching output is npn and pnp-capable. The use of a laser class 1 laser transmitter ($<0.39\text{mW}$) means that no extra protective measures are required.



The switching accuracy of the FIA-L-RL light barriers lies at $5\mu\text{m}$



Blanked part



Precise positioning of the blanked part using the FIA-L-RL fork light barrier

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