

Flexible and fast format adjustment in woodworking machines

Being able to react flexibly and quickly to customer wishes is indispensable for many furniture manufacturers and joineries. Fast and reliable format changes are a prerequisite for maximum machine availability and thus for high productivity.

Bus-based electronic position indicators from ELGO Electronic support the machine operator during manual format changes and ensure complete control and process reliability with bidirectional transmission of the values between machine control and adjustment unit.

Three axes at a glance

In many applications, stops and guide plates are moved directly onto linear guides. With the bus-capable modular measuring and display system Z60-014 from ELGO Electronic, nominal and actual positions of up to three axes can be processed and displayed simultaneously. The operator can change formats quickly and flexibly and check them on site. The display receives the current position data via external magnetic sensors connected to the display unit. By coupling several devices, up to 100 axes can be adjusted.

The Z60-014 display is equipped with a serial RS485 interface for communication with the machine controller (PLC). In woodworking machines in which format adjustments are carried out manually by the operator but monitored by a PLC, each linear adjustment unit is assigned a target position by the controller. The nominal values are transmitted to the position display and can be read there for each axis. At the same time, the measured actual values are read out by the PLC and the machine is only released after correct feedback of all manually set positions. The interface integration thus enables a high level of process reliability, and rejects or damaged format parts are avoided.

The Z60-014 display enables the operator to have three axes in view at the same time. Despite its compact design, the display has a sufficiently large LCD display that allows the operator to read the position values easily. Thanks to the stored target positions, format changes can be carried out manually quickly and easily. An arrow on the display indicates the direction of the format adjustment. If the axis is correctly positioned, the arrow disappears, "OK" appears and the value is highlighted in black. Even a readjustment, for example if the axis has been moved unintentionally from the target position, can be carried out quickly.

The operator can choose which value he wants to be displayed for each axis: the current position, the deviation from the target position or the target value. Other parameters that are available separately for each axis and that can be individually programmed are parameters such as offset, tolerance window and the unit of measurement used (mm or inch).

Quasi-absolute measuring system: Actual position is immediately available after restarting the machine.

The accumulator integrated in the display unit permanently detects the position even when the power is switched off. When the machine is switched on again, the operator is directly shown the current position and can start adjustment immediately without having to carry out any referencing beforehand. The battery provides an operating time of up to 12 weeks.

Magnetic measuring principle

The connected magnetic sensors operate according to the magnetic measuring principle. A magnetically coded tape is glued along the axis to be monitored as a measuring standard and scanned by the magnetic sensor attached to the travel unit. The advantages of this non-contact measurement technology lie in its long service life, as the system operates almost wear-free, and in its great robustness to harsh environmental conditions.

ELGO Electronic has been developing and manufacturing measuring and positioning technology for modern machine construction for 40 years. Position displays, measuring systems and positioning controls from ELGO have long been part of the basic equipment of numerous woodworking machines and in many other processing machines. With more than 3.5 million meters of magnetic tape produced per year, ELGO is a leading supplier in the field of magnetic tape technology.