

CHACO

Saw-blade deviation detector and sawing operation optimizer

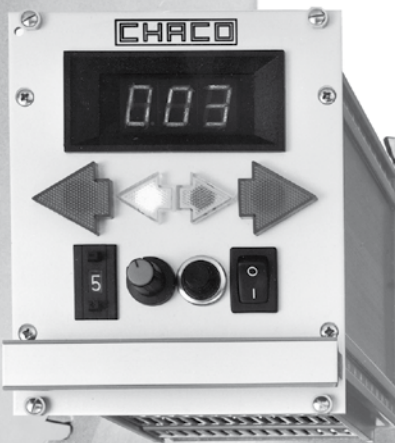
An electronic blade control system for the measuring and display of lateral and axial movements of the saw-blade, without any mechanical contact or wear.

Highly sensitive proximity sensors measure the exact amount and the direction of blade deviations and bring them instantly with a resolution of 0,01 mm / .001" (lateral), resp. 0,1 mm / .01" (axial) to display. The tolerable deviation may be pre-selected in 9 steps from 0,1 to 0,9 mm (.004 to .036").

The Blade Watcher offers an analogue output signal which is in direct relation to the blade deviation, for a possible utilisation in an automatic carriage speed control system and secondly, a contact with zero potential for the use in combination with an external warning system.

Blade Watcher BE 200

BE 200-E



BE 200-A



Explanation of System Functions

The electronic saw control system BE 200 for the measuring and display of lateral and axial blade movements works with highly sensitive proximity sensors which read deviations with an accuracy of 0,01 mm / .0002" (lateral), respectively 0,1 mm / .01" (axial). Sensors are protected against dust, humidity and physical shocks. They are to be mounted just below the upper saw guide and are connected with the control gear through a shielded coaxial extension cable 25 m (82 ft.) or 8 m (26 ft.) long. Custom made extension cables up to 50 m (164 ft.) long can be supplied upon request and at additional cost.

In the control gear, signals from sensors are registered, processed, transformed and simultaneously shown on the LED-display in the form of easy readable figures 15 mm (9/32") high. The control gear shows the exact amount and the direction of the actual blade deviation with a resolution of 0,01 mm / .0002" (lateral), respectively 0,1 mm / .01" (axial). The direction of movement is shown by two pairs of arrow lamps. One of the smaller, yellow lamps will light up as soon as any deviation occurs, the larger, red arrow lamps as soon as the deviation reaches or surpasses the pre-selected, tolerable deviation. Depending on the direction of the deviation, the l.h. or r.h. arrow lamps will be switched on. This deviation limit can be freely selected in 9 steps from 0,1 to 0,9 mm (.004" to .036"). The direction of the illuminated arrow lamps should correspond with the direction of the blade deviation as observed from the position of the sawyer. The sense of display of the arrow lamps may be reversed by pressing the reversing switch.

When a red arrow light is switched on, the operator must instantaneously reduce the carriage speed, thereby eliminating excessive strain on the blade and bringing the blade back on track. On the other hand, the sawyer may increase the speed until the deviation raises to a value just below the tolerated deviation and reduce it again should the deviation exceed the tolerated limit. With other words, he may optimise the sawing process quantity and quality wise by holding the carriage speed at or just below the pre-selected, tolerated deviation limit.

The Blade Watcher features an analogue output signal which is in direct relation to the blade deviation. It serves the use in an automatic carriage speed control system. This signal ranges from zero to +10 V DC, representing zero to +/- 1,0 mm / zero to +/- .04" deviation in either direction.

Furthermore, the Blade Watcher offers a contact with zero potential to be used in combination with an optional external warning system, such as an alarm lamp or an acoustic signal (options). This contact is rated for max. 60 VAC, 1 A. It closes as soon as the pre-selected, tolerated deviation will be reached and opens again as soon as the deviation declines to a value below the tolerated limit. As part of an automated sawing system, this contact may be used to initiate an emergency stop.

The new generation of control gears is based on a microprocessor. This allows a simple adjustment of the system voltage for 220 V or 110 V AC supply voltage and the display of the actual blade deviation in millimetre or inch. Furthermore it is open with regard to the realisation of often heard requests from clients for such options as: Connection of the control gear with a computer or a printer through an interface RS 232C for data recording and data administration; independent selection of the tolerated blade deviation limit for blade movements towards the left and the right, simple and economical monitoring of double cut band saws and multiple band saw lines with a single display Blade Watcher, supplemented by a display unit that shows the saw blade that is actually being monitored, meaning the saw blade which performs momentarily the largest deviation. Further options upon request.

What are YOUR profits from the employment of the Blade Watcher?

- Better and constant quality of the sawed timber, reduced timber target size and kerf width.
- The sawyer can rationalise the sawing process by varying the carriage speed in dependence of the tolerated blade deviation.
- The sawyer is warned of technical problems such as wear on saw guides, dullness of saw-blade, wheel misalignments etc.
- Extended blade life and reduced maintenance costs.
- Realisation of an automatic carriage speed control possible.

The Blade Watcher is available in the following executions:

Control System BE 200-E: For immersed mounting into the main operators control panel, for the monitoring of one saw-blade.

Control System BE 200-A: For external mounting, for the monitoring of one measuring circle, respectively one saw-blade.

Control System BE 200-2A: For the parallel monitoring of two measuring circles, each with one measuring point (saw-blade).

The Blade Watcher represents an effective and affordable saw control system. It will serve you for many years without any problems.

Technical Specifications

Tension	230 or 110 V AC, 50 Hz, (selectable; other voltages upon request)
Fuse	0,5 A (external)
Power consumption	max. 10 VA
Measuring range	± 1 mm /.04" ($\pm .0004$ "), $\pm 1,5$ mm /.06" ($\pm .001$ "), $\pm 2,0$ mm /.08" ($\pm .002$ ")
Resolution	0,01 mm, resp. .0002" (depending on selected measurement range)
Displays	LED-display, height of figures 14 mm (.55") Yellow and red arrow warning lamps to show l.h. and r.h. deviation
Outputs	Analogue signal 0 to +10 V DC, in direct relation to blade deviation Contact with zero potential, rated for max. 60 VAC, 1 A
Sensor	Inductive proximity initiator with analogue output signal
Extension cable	Standard length 25 m (92 ft.) or 8 m (26 ft.); special length up to 98 m (321 ft.) may be supplied upon request
Ambient temperature	-10 to +40 degrees Centigrade (+14 to +104 degrees Fahrenheit)
Size of control gear (width x height x depth)	BE 200-A: 172 x 134 x 210 mm (6.8" x 5.3" x 8.3") BE 200-E: 107 x 130 x 180 mm (4.2" x 5.1" x 7.1") BE 200-2A: 203 x 196 x 210 mm (8.0" x 7.7" x 8.3")
Fixation BE 200-A	Against chassis, wall or bracket with (4) metal screws M5
Fixation BE 200-E	Immersed into main control panel with (4) metal screws M3

Explanation of control panel of blade watcher BE 200-A

Pre-selector for Deviation Limit

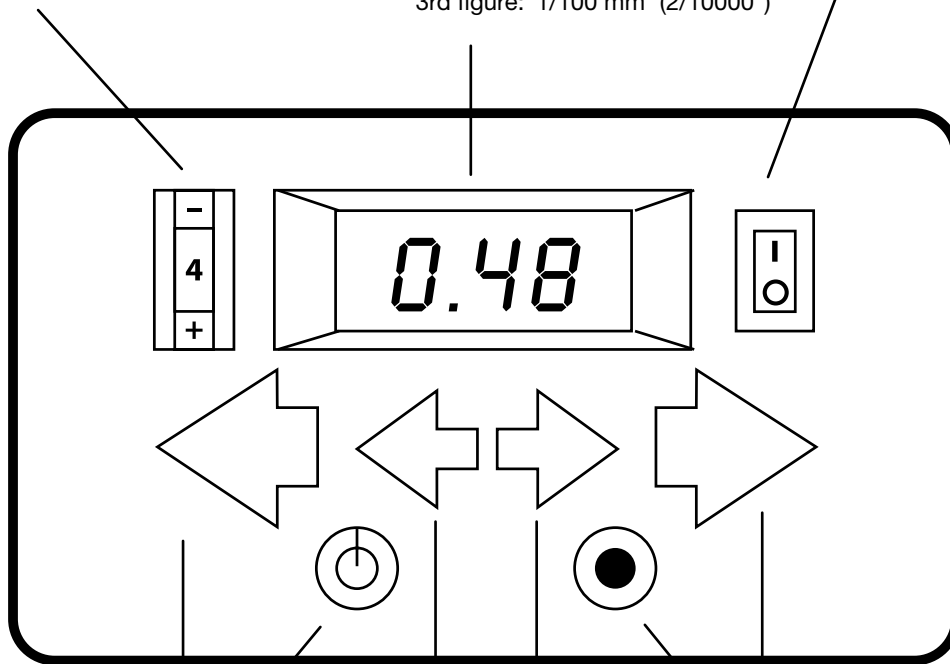
The decade switch serves the selection of the tolerable deviation limit in 9 steps and in increments of 1/10 mm from 0,1 to 0,9 mm (.004 to .036"). Press button "+" to increase and "-" to decrease the value.

Digital LED-Display

Shows actual saw-blade deviation simultaneously with a resolution of 0,01 mm (.0002") in digital form:
 1st figure: 1/1 mm (1/100")
 2nd figure: 1/10 mm (1/1000")
 3rd figure: 1/100 mm (2/10000")

Master Switch

Control gear:
 "0" OFF
 "I" ON



Red Warning Lamp

Lights up when the blade deviation reaches or exceeds the pre-selected, tolerable limit.
 Direction of deviation: Left side.

Yellow Warning Lamp

Light up as soon as any lateral blade deviation occurs. Direction of display in accordance with the sense of the actual blade deviation.

Red Warning Lamp

Lights up when the blade deviation reaches or exceeds the pre-selected, tolerable limit.
 Direction of deviation: Right side.

Zero Adjustment Potentiometer

With this switch one can adjust the control gear and display to zero. This is necessary at first installation or later in case of technical problems, such as wear on guides etc.

Display Reversing Switch

With this switch one can reverse the direction of the arrow warning lamps, in order to bring them in accordance with the actual blade deviation.

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