

**OPTOELECTRONIC ZERO-
POINT-CONTROL
9100
TECHNICAL DOCUMENTATION**

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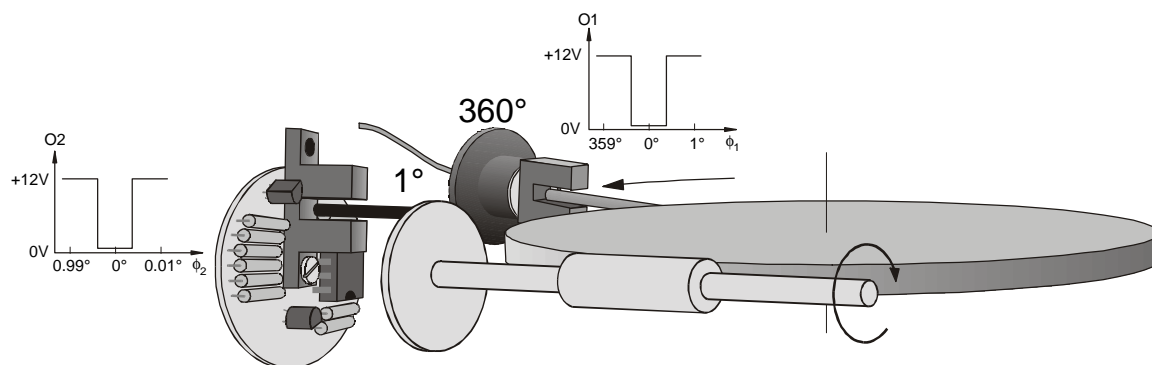
Revision 2
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Optoelectronic Zeropoint Control 9100

The co-operation of two independent light barriers allows the reproducible installation of the goniometer's reference position. The first (360°-) light barrier serves to indicate the immediate proximity of the reference position, the second (1°-) light barrier permits the exact and reproducible fine-adjustment of the reference position.

The 360°-light barrier is located in the housing of the worm-wheel gear, the 1°-light barrier for the fine-adjustment is located at the end of the driving shaft on the opposite side to the stepping motor. Worm-wheel and driving shaft are equipped with fine metal pins which trigger the light barriers when they pass the ray path. The amplifier circuit generates independent output signals, one for each light barrier.

The output contacts O1 (360°) and O2 (1°) usually show a signal level of +12V DC. This signal drops to 0V when a pin interrupts the ray path and triggers the light barrier.



A suitable evaluation of these two signals allows an exact and reproducible adjustment of the reference position of the goniometer. Usually, the 360°-light barrier signal is used to slow down the driving motor to an adequate start-stop speed.

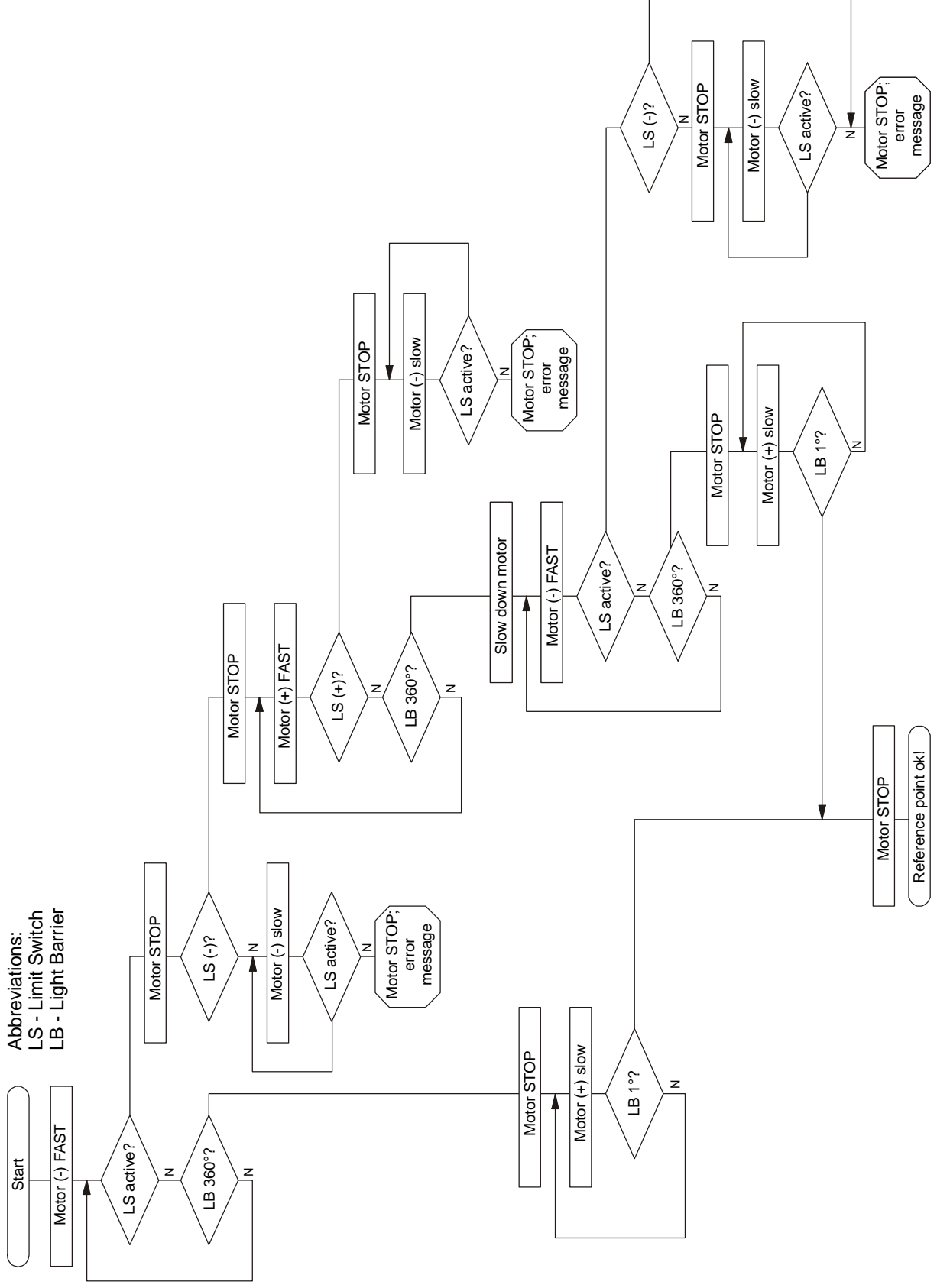
For the design of an adjust-the-reference-position procedure, you have to consider the finite diameter of the trigger pins. If you approach the reference position from opposite sides, the trigger event will appear at different locations.

Therefore, a search procedure should always approach the reference position with the same direction of movement.

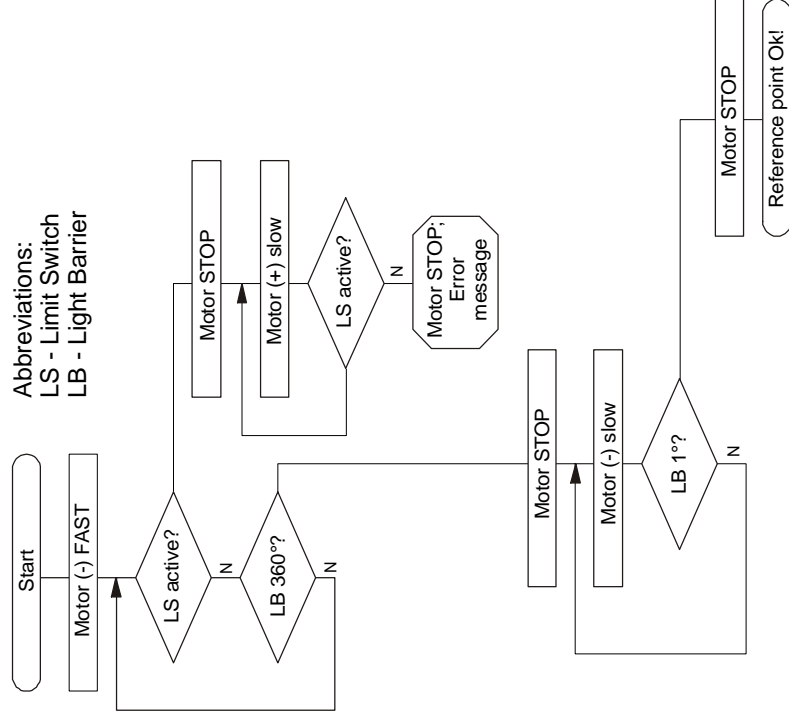
Another point to consider is the following: Depending on the type of Goniometer, it may happen that the trigger pin of the 360° light barrier has already left the ray path before the 1° light barrier generates its signal event. In other words: To install the reference position, it is probably not sufficient to connect the two light barrier signals by a logical AND-function.

The following flow chart shows the reference position search procedure of the HUBER Stepping Motor Controller SMC 9000. To be independent of the actual position of the Goniometer with respect to the reference point, the function of the limit switches is included in the procedure.

Flow chart of the SMC 9000 reference position search procedure for goniometers:



Flow chart of the SMC 9000 reference position search procedure for linear tables and slit screens:

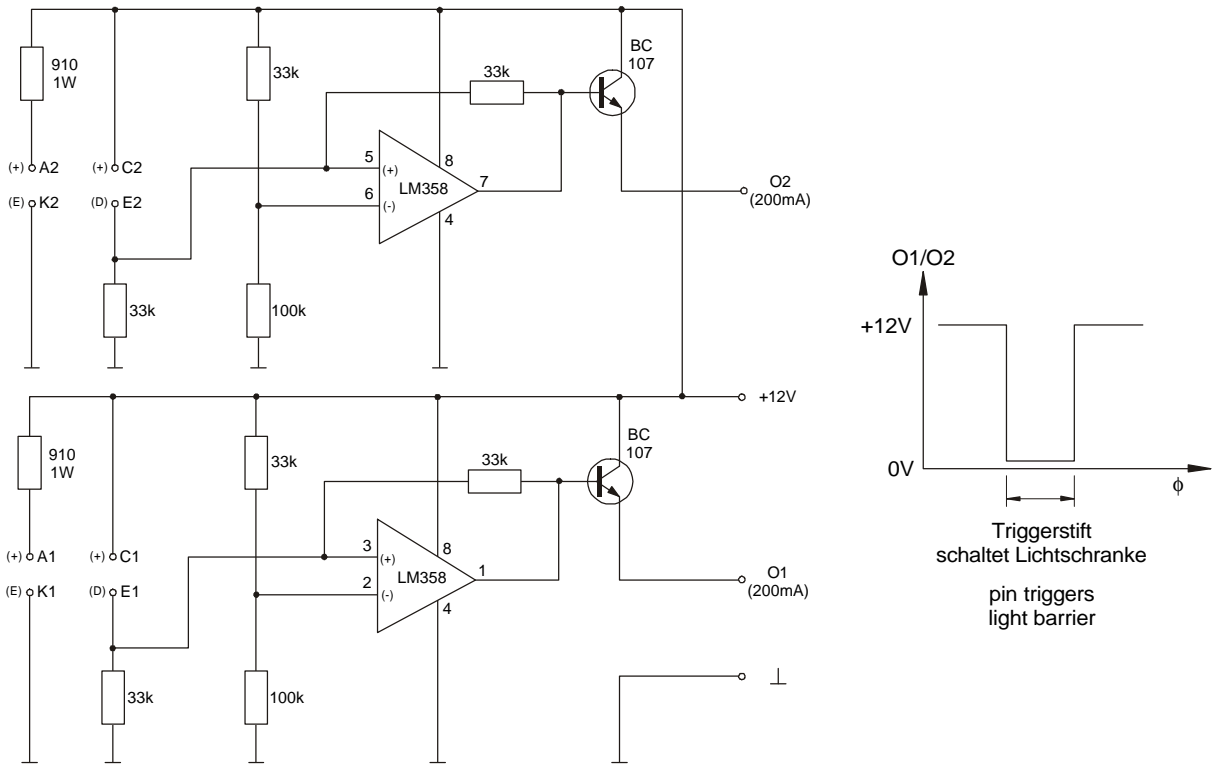


Verstärkerplatten LI01/LI05

- Schaltplan

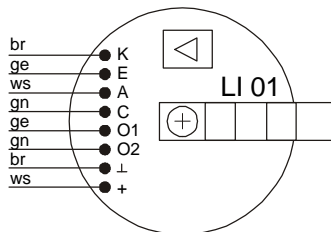
Amplifier Boards LI01/LI05

- Circuit Diagram



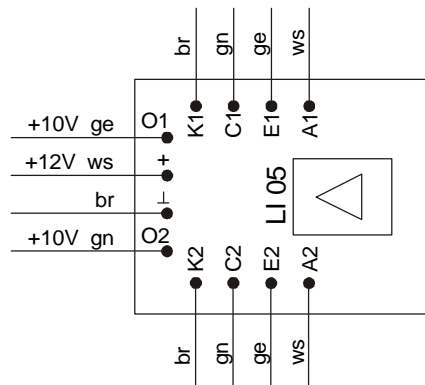
- Layout und Verdrahtung

- Layout and wiring



Lichtschanke 1° auf der Platine;
Lichtschanke 360° extern.

Light barrier 1° on board;
light barrier 360° external.



Beide Lichtschanken, 1° und 360°, extern.

Both light barriers 1° and 360° external.