

# Demonstration program: processing the values from four scanning heads

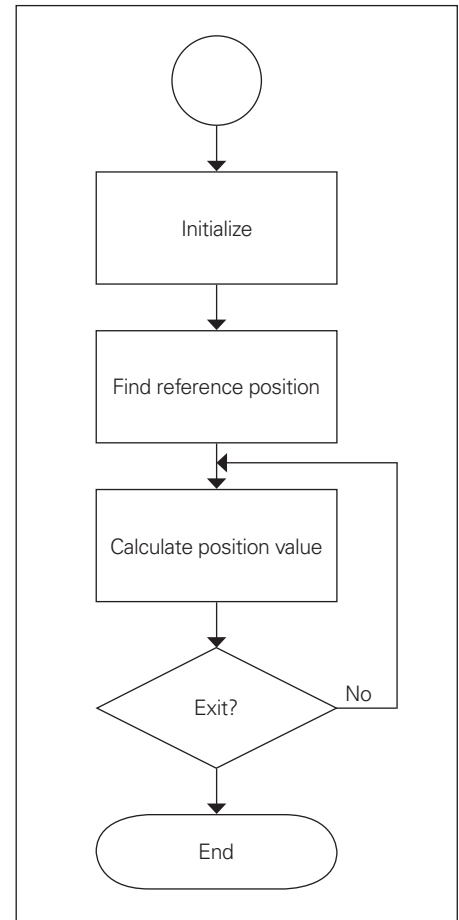
Angle encoders without integral bearing are very frequently used for the azimuth and elevation axes of telescopes. These angle encoders (such as ERP and ERA) consist of two components, the scanning head and the graduation carrier (e.g. glass disk with hub, steel drum or steel tape), which must be aligned relative to each other during mounting. The eccentricity of the shaft as well as installation and adjustment therefore have a decisive effect on the achievable accuracy.

Telescope applications are often equipped with multiple scanning heads, in order to eliminate radial runout errors and to improve the overall accuracy. Simultaneous capture of the positions of all scanning heads followed by averaging of all positions is intended to increase the overall accuracy.

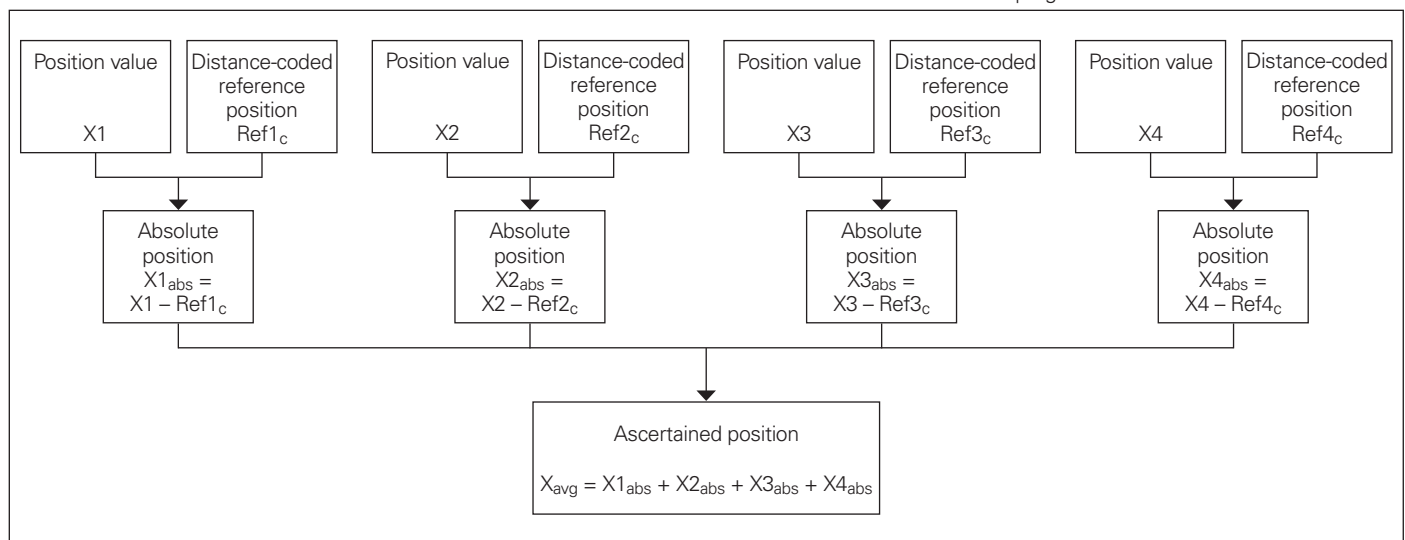
In order to ensure that all positions can be averaged, they must all be available as absolute position values. Therefore it is absolutely essential that a reference run be made with all scanning heads. Only then can the correct absolute position values be ascertained and output.

Up to four scanning heads can be connected to one EIB 749 external interface box. If there are more scanning heads in the system, additional EIB 749 interface boxes must be combined. The positions are then calculated by the customer application, which runs on a higher-level computer (PC or laptop).

HEIDENHAIN provides a demonstration program for capturing and averaging the position values of four scanning heads. It describes the configuration of the EIB 749 and demonstrates how the positions are processed. The illustrations show the structure of the program and the algorithm for processing the position values.



Basic program structure



Algorithm for processing the position values from the four scanning heads

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**For more information**

- Product overview: *Interface Electronics*