



1. Detection of the alignment of a screw

The alignment of screws in a mechanical guide should be controlled. For this task a color sensor type **SPECTRO-3-FIO-JR** in connection with an optical fiber type **R-S-R2.1-(6x1)-1200-67°** and an optical frontend type **KL-8-R2.1** is used. At this the frontend **KL-8-R2.1** is tilted and the angle between the screw axis and the optical axis of the **KL-8-R2.1** frontend is around 40°. The distance of the frontend to the screw is approximately 15mm and the spot size on the screw is roughly 10mm x 2mm. If the screw is proper aligned, the back reflection of the light caused due to the thread increases the signal. As shown in the screenshots, a proper detection of the alignment of screws is possible.

