

Sensor host controller cascades up to 60 beams

Sick (Germany) has introduced a "light chain" system featuring up to 60 individual beams. The Flexchain host controller comes optionally with a CANopen interface.



The Flexchain controller connects the sensors via IO-Link or discrete lines (Photo: Sick)

Instead of rigid enclosure profiles with fixed sender and receiver modules Sick offers a "light chain" of cascading sensors. The up to 60 individual beams of this flexible light grid can not only be arranged independently of one another, but also generated by either through-beam photoelectric sensors, photoelectric retro-reflective sensors, or photoelectric proximity sensors – including in a mixed configuration. Similar to a light chain, the sensors are cabled as a cascade using pigtailed in customizable lengths. This minimizes electrical installation effort compared to individually wired photoelectric sensors. The flexible sensor system is controlled via a host controller, which is a compact central unit with a CANopen interface for integration into the machine or plant's control environment.

The sensor system operates like a light grid. The individual beams cycle sequentially at a rate of 200 μ s, which prevents sensors from mutually interfering and sensor signals from being superimposed, even if the optics modules are mounted extremely close together. Incorrect measurement data and output signals are thus safely avoided and the light grid runs all the time.

In contrast to conventional light grids, the introduced concept allows the different sensors to be positioned individually. This makes it possible to vary the beam separation according to the application. The sensor system also enables measuring ranges and detection zones of different widths to be set up within a single task. The user is free to choose the detection principle: through-beam photoelectric sensors, photoelectric retro-reflective sensors or photoelectric proximity sensors from the supplier's G6 family of sensor products. The G6 family has been fitted with an Asic for the light grid. They can also be used in combination with each other.

The Flexchain light grid can be commissioned via the two-button display of the CANopen host module. All connected sensors are identified, addressed, and taught-in automatically at the touch of a button. It is also possible to configure application-specific logics in the host controller. Customized parameterization can be performed via USB with the aid of the Sopas software tools by Sick.

The sensor data can either be evaluated in the Flexchain host controller directly or forwarded via CANopen to another higher-level host controller. The sensor system also offers a range of real-time diagnostic options including in relation to sensor parameterization, the degree of contamination of the individual sensors, and current communication behavior within the system. Potential faults can be detected early, so failures and downtimes can be prevented.

[hz](#)