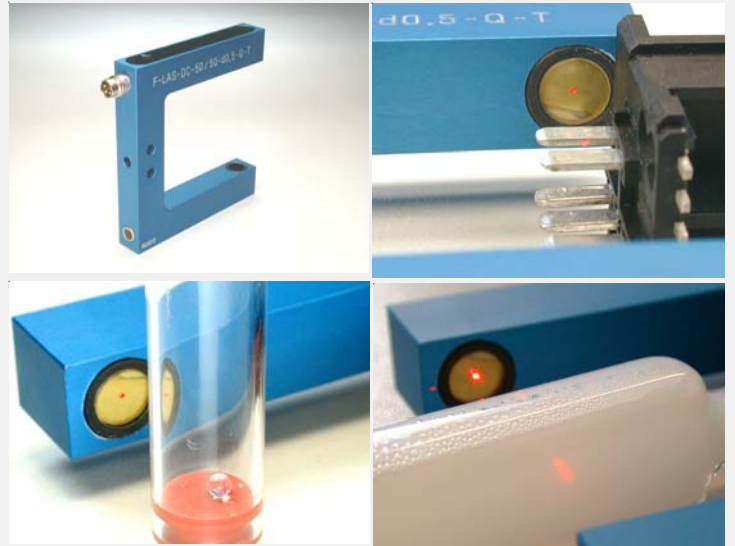


# F-LAS Series

## Product Information

Parallel laser light with homogeneous light distribution in round or rectangular cross-section detects smallest objects. The sensitivity is set by means of a potentiometer.

These laser light barriers are ideal for positioning tasks.



## Characteristics

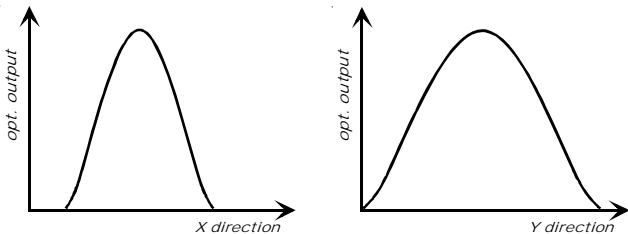
### Collimated laser beam

The laser light beam that is emitted by a high-precision optical unit allows the very precise detection of smallest objects (e.g. threads) even in case of a large transmitter/receiver distance. The low divergence of the light beam almost completely reduces the measuring error that is caused by moving the measuring object from the transmitter in the direction of the receiver.

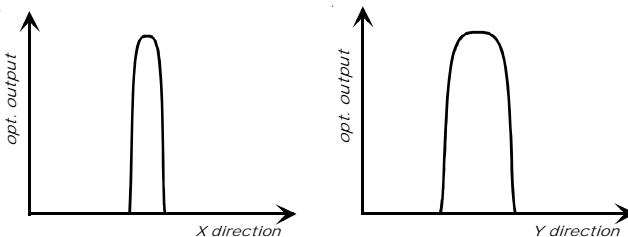
- Advantages:
- Visible light beam
  - Telecentric design
  - Exact shadow projection onto the receiver
  - The distance of measuring object from the transmitter or receiver has no influence on the measuring signal in a wide range

### Homogeneous light distribution

The use of high-precision apertures in the transmitter ensures optimum adaptation to the respective application. Apart from a large variety of standard apertures special apertures can be realised. The aperture ensures an homogeneous light distribution in the beam and a sharp beam limitation.



Beam profile in the two main axes without aperture



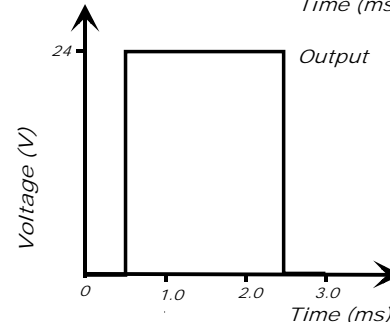
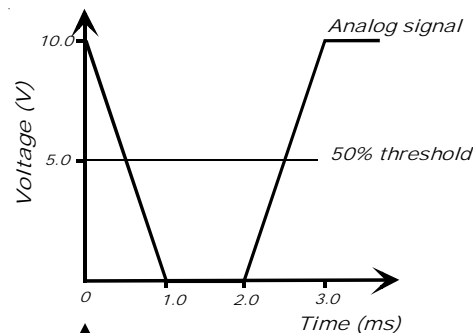
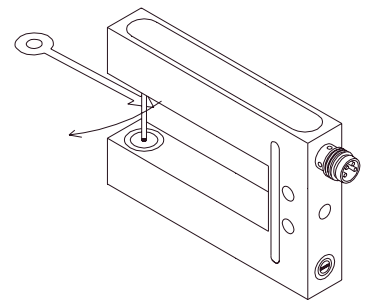
F-LAS Series: Beam profile in the two main axes with aperture

### Monitor signal

In addition to the switching signal the fork light barriers of series F-LAS also provide an analog signal. "Monitoring" of the analog voltage allows a better evaluation of the switching signal. The output can also be used for measuring tasks.

### Functional principle

The signal at the analog output decreases proportionally with increasing laser beam covering.





**Characteristics**

**Pulsating light operation (F-LAS-AC)**

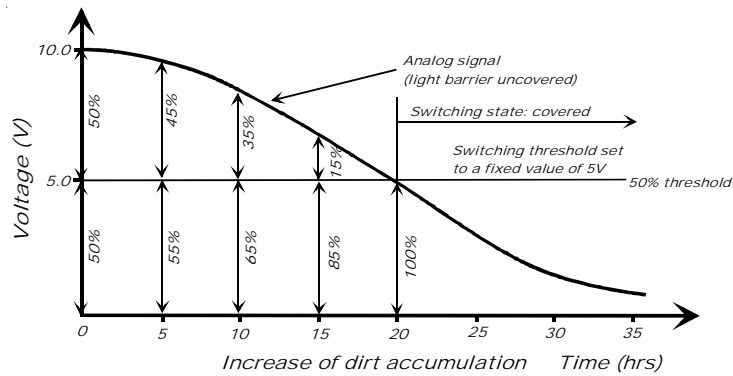
If considerable influence from external light must be expected at the place of laser light barrier application, it is recommendable to use a pulsed system for increased switching reliability. Due to the use for narrow-band electronic filters only the modulated light of the transmitter is detected. Even pulsed light sources such as fluorescent lamps have no influence on the switching reliability.

**Constant light operation (F-LAS-DC)**

In case of high switching frequency requirements a non-pulsed system can be used. Here external light suppression is ensured by means of narrow-band optical filtering. Therefore constant-light light barriers are suitable for fast processes or for measuring objects moving at high speed. Due to the analog output constant-light light barriers of F-LAS Series can also be used for measuring tasks.

**High positioning accuracy**

In conventional light barriers the switching threshold, which depends on a fixed voltage (absolute value), is set by means of a potentiometer. As a consequence the switching point shifts with increasing accumulation.



Example: The switching threshold is set to a fixed value of 5V which, in case of a 10V analog signal (without dirt accumulation and covering), leads to a change of the switching state at 50% covering of the light spot. In case of increasing dirt accumulation the analog signal decreases, while the switching threshold remains constant. This means that the light spot no longer has to be covered by 50% in order to cause switching of the light barrier.

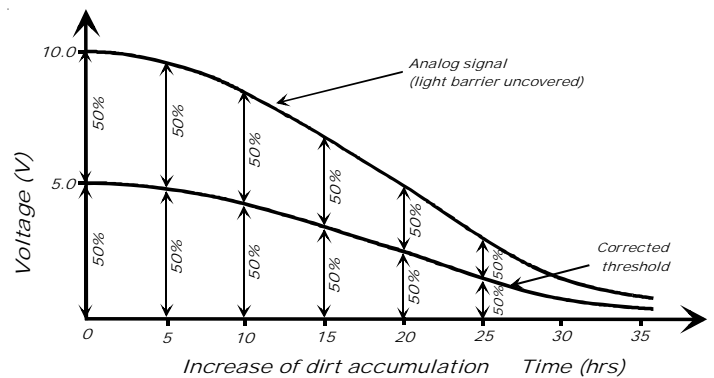
**Adjustable comparator threshold (potentiometer „T“)**

By choosing potentiometer type „T“, the level of the threshold for the digital output can be configured by means of the integrated potentiometer. If you want to adjust the threshold level using a fixed amplification for the analogue output signal, you need potentiometer type „T“. The change of switching state is indicated by the integrated LED.

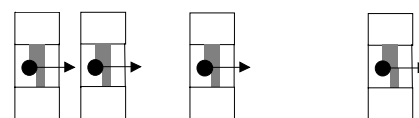
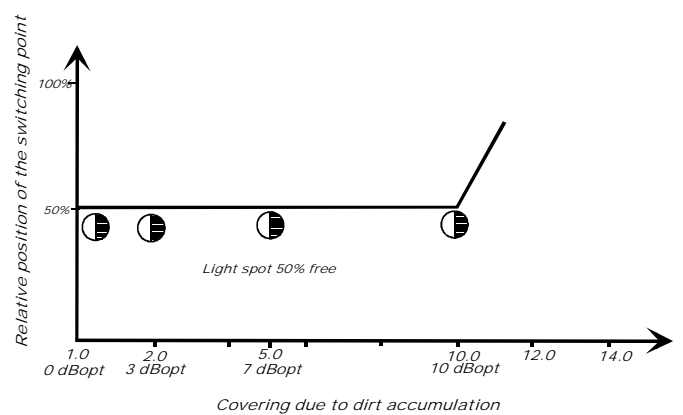
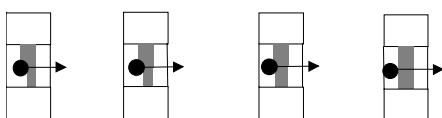
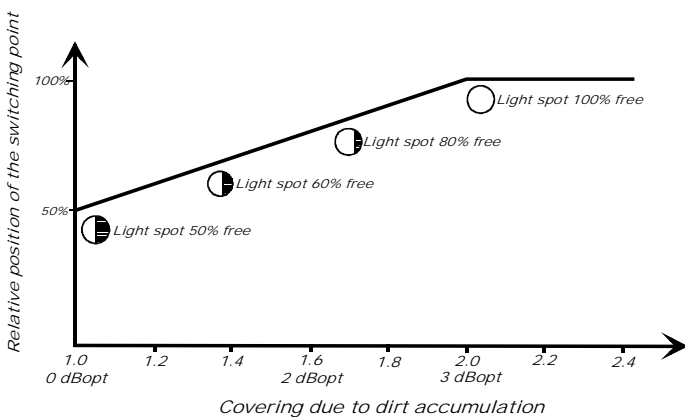
**Adjustable amplification (potentiometer „A“)**

By choosing potentiometer type „A“, the amplification factor of the analogue output signal (pin 2) can be configured by means of the integrated potentiometer. If you want to adjust the 0...10V analogue output using a fixed internal 5V threshold level, you need potentiometer type „A“.

By way of continuous monitoring of the maximum value at the receiver a dynamic correction of the switching threshold compensates the effect of dirt accumulation. This means that increased dirt accumulation does not lead to a shift of the switching point.

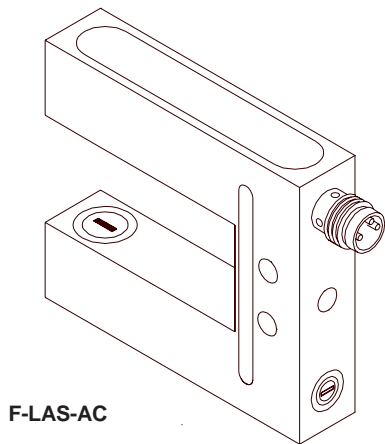


Example: In clean condition the laser light barrier of series F-LAS indicates a value of 10V at the analog output, the switching threshold adjusts itself to 50% of the analog signal, i.e. the switching state changes at 50% covering of the light spot. In case of increasing dirt accumulation the value of the analog signal decreases, but the 50% distance to the switching threshold is maintained.

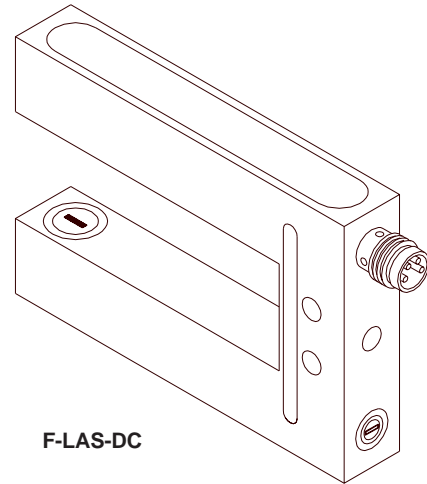




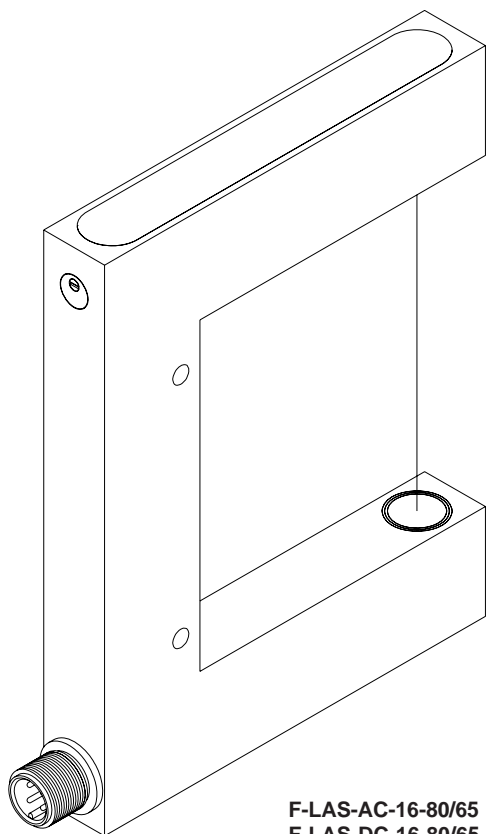
Product Line



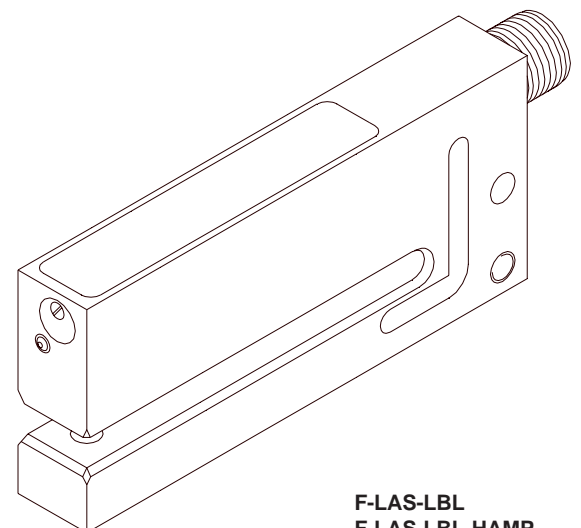
F-LAS-AC



F-LAS-DC



F-LAS-AC-16-80/65  
F-LAS-DC-16-80/65



F-LAS-LBL  
F-LAS-LBL-HAMP



Notes