

PHOTOELECTRIC UNIVERSAL SYSTEM (U-System)

The photoelectric universal system simplifies the use of light-barriers and reflex scanners in the industrial field. A couple of basic units with integrated amplifiers will do, to solve almost any application.

Photoelectric sensors Type FMS-18-...

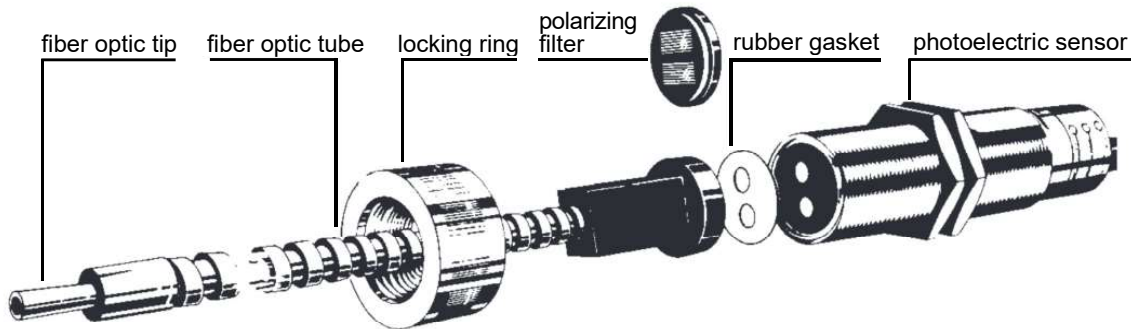


are suitable for small to medium sensing distances. Switching frequencies up to 5 kHz can be realized. The actual version is a sophisticated device that integrates a micro-controller. This means a much better temperature stability and more accurate switching points. The output can be inverted by the use of the potentiometer which is also used to adjust the sensing distance. The FMS 18 U-System sensors also integrate 2 output stages, one NPN and one PNP.

Photoelectric sensors Type FMS-30-...



register the whole area between small and large sensing distances with different switching frequencies. To extend the resolution of the potentiometer, sensors with larger sensing distances have a switch on the front-side to reduce the sensing distance by half. Another switch is used to invert the output signal. This allows the sensor to supply the correct logical signal (normally open or normally closed) depending on the application. Each universal sensor has an PNP and an NPN output. On demand other output variations can be realized.



The U-System sensors can be used in these three operating modes:

1. Reflex-scanner mode:



diffuse reflex scanner
(proximity mode)

The sensor, using a plastic filter to protect its optical parts, sends out a lightbeam. Any object that comes into that beam reflects it back to the receiver causing the sensor to switch.

2. Glass-fiber-optic reflex-scanner mode:



Glass-fiber-optic
reflex scanner

The sensor, that is equipped with a glass-fiber-optic scanner, sends out a light beam. Even small objects will reflect the beam, causing the sensor to switch.

3. Glass-fiber-optic light-barrier (thru-beam) mode:



Glass-fiber-optic
light-barrier (thru-beam)

The light-beam will be transmitted over the one fiber optic and enter the other one. In case it will be interrupted, the sensor switches. This allows for example a very accurate positioning.

Glass-fiber-optics

As part of the U-System-sensors Locon offers a broad range of standardized glass-fiber-optics and, for special demands, specially manufactured items.



Glass-fiber-optics can be used in high temperature and in space limited areas. They do not age and are mostly insensitive to environmental conditions.

Depending on the type, they consist of about 200 to 5.000 single glass fibers with a diameter between 30 and 50 μm .

Two different coatings can be chosen, depending on the application. Chrome plated metal coating for higher ambient temperature and mechanical protection and silicone coated stainless steel sleeving for use in areas that demand a higher protection standard or higher flexibility.

Glass-fiber-optics are available with axial (straight) and also with radial (right angle) light-output (tip).

They can also be delivered with lengths different from the standard. Glass-fiber-optics are an ideal solution for many applications. I.e. extreme temperatures, limited space or very accurate positioning.

Ask us!

Design and technical details subject to change

Locon Sensor Systems, Inc.

Set Up Guide for Photoelectrical Sensors & Fiber Optic Cables

Before you begin:

- Set the SN switch on the front side of the Sensor to the appropriate positions:
 - SN = full sensing distance adjustable
 - SN/2 = only half of the sensing distance adjustable, but higher resolution of the Potentiometer
- Set the output switch on the front side to the output function you desire (N.O. or N.C. output, only for FMS-30... series). Please remember that the output stage for glass-fiber-optic light barriers will be inverted.
- On the FMS-18 the output stage can be inverted by turning the potentiometer as far as possible to the left. In that position the LED's start blinking. If the LED is on the position you desire (N.O. or N.C.) turn the potentiometer a little to the right and the output stage is adjusted.

Using the sensor as plain reflex-scanner:

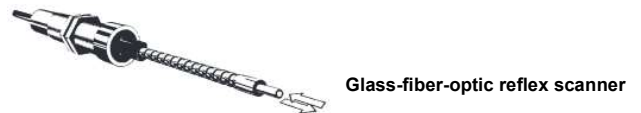
- Attach the Filter to the Sensor and fix it with the locking ring.
- The sensor can be mounted in any position. We recommend the use of a mounting bracket. The front must face in the direction of the object that has to be detected.
- Hook power to the sensor when the object that has to be detected will be as far away as possible.



- Adjust the sensing distance with the potentiometer, by first turning it left, until the sensor turns off (only green LED is on). Then, with the object to be detected in front, it should be adjusted so, that the red LED (function reserve) will be off.

Using the sensor as glass-fiber-optic reflex-scanner:

- Attach the fiber-optic to the Sensor and fix it with the locking ring.
- The sensor can be mounted in any position. We recommend the use of a mounting bracket.
- The fiber-optic can be routed to the position where the object has to be detected.
- The fiber-optic tip must face in the direction of the object that has to be detected.
- Hook power to the sensor.



- Adjust the sensing distance with the potentiometer, by first turning it left, until the sensor turns off (only green LED is on). Then, with the object to be detected in front, it should be adjusted so, that the red LED (function reserve) will be off when the object that has to be detected will be as far away as possible.

Using the sensor as glass-fiber-optic light-barrier:

- Attach the fiber-optic to the Sensor and fix it with the locking ring
- The sensor can be mounted in any position. We recommend the use of a mounting bracket.
- The fiber-optic can be routed to the position where the object has to be detected.
- The fiber-optic tips must face each other.
- Hook power to the sensor.



- Adjust the sensing distance with the potentiometer, by first turning it left, until the sensor turns off (only green LED is on). Then turn it right until the red and yellow LED come on and turn it further until only the yellow LED and the green LED will be on and the red LED (function reserve) will be off.
- The object to be detected should now interrupt the light-beam.

Function reserve output:

Some sensors have a function reserve output. This output has the same function as the function reserve LED. It comes on when the sensor is in the last 10 % of it's sensing range and it turns off, when the sensor is in the first 90 % of it's sensing range. That gives you the possibility to check whether the sensing distance has been reduced by dirt or dust. Then the sensor should be cleaned.

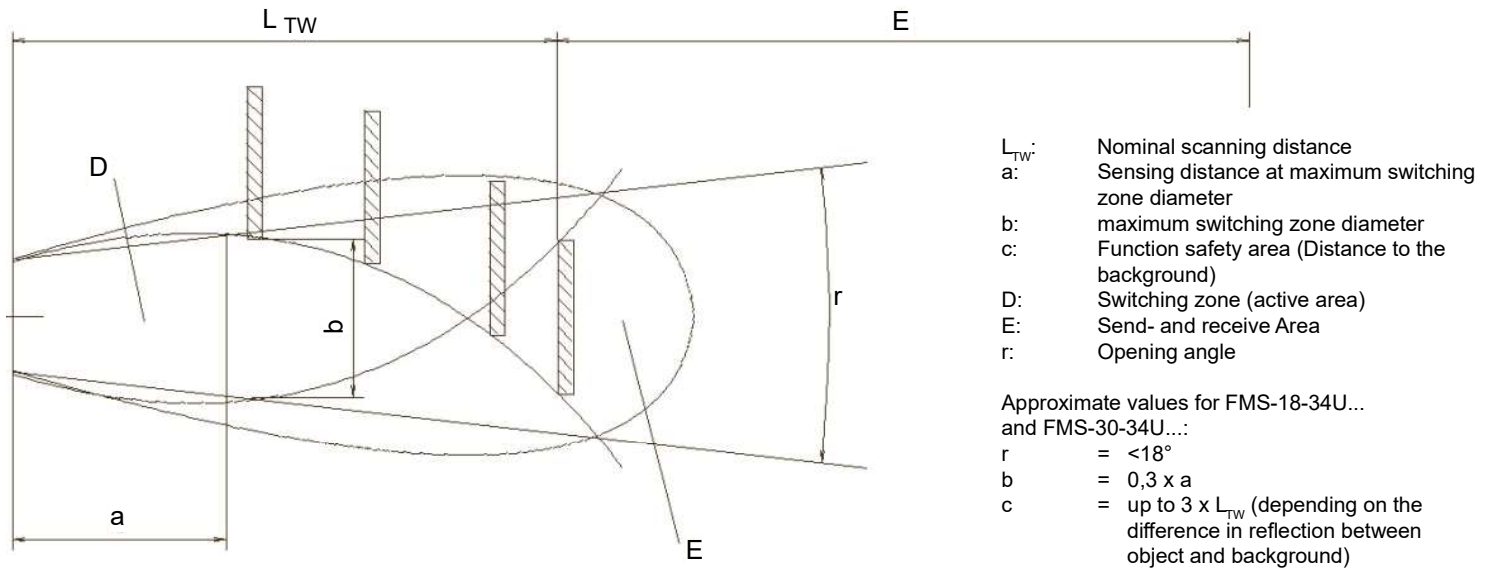
WARNING: The use of any Locon sensor for the purpose of health and/or safety of persons is not permitted.

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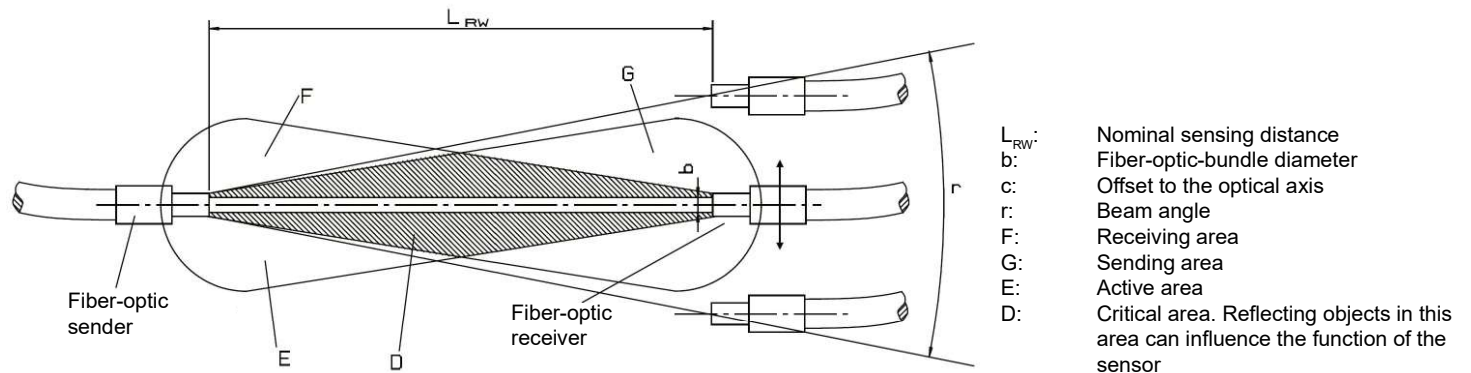
Set Up Guide for Photoelectrical Sensors & Fiber Optic Cables

Typical Switching Area

a) For reflex-scanner and photoelectrics with reflex scanner glass- fiber-optic:



b) For light-barriers or photoelectrics with glass- fiber-optic light-barriers:



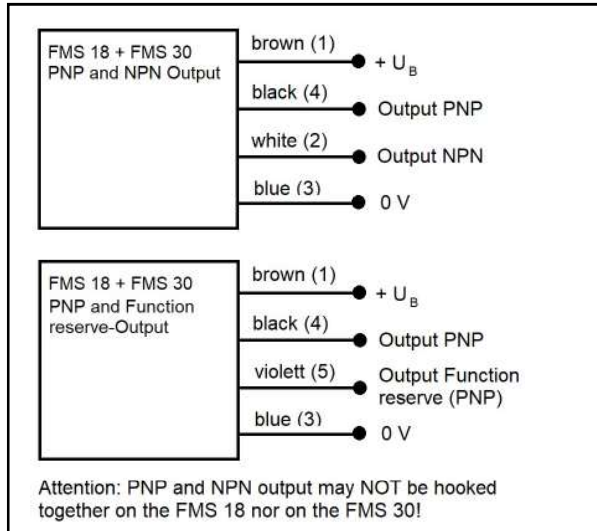
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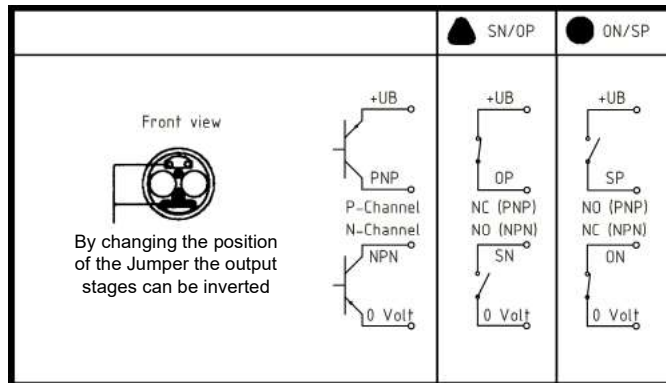
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Housing Diameter M18 & M 30

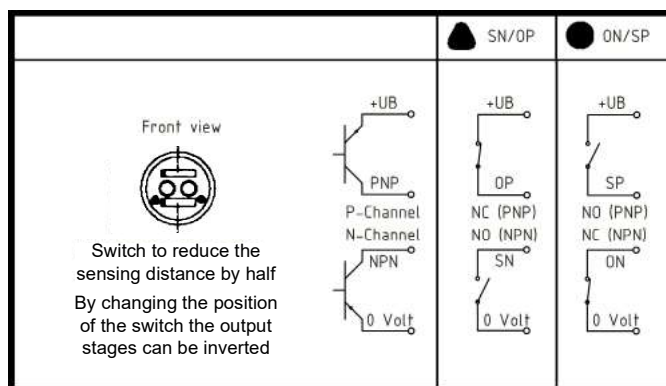
FMS18 & FMS30 Wiring & Setting Diagrams



Setting the output of the FMS 18:



Setting the output of the FMS 30:



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