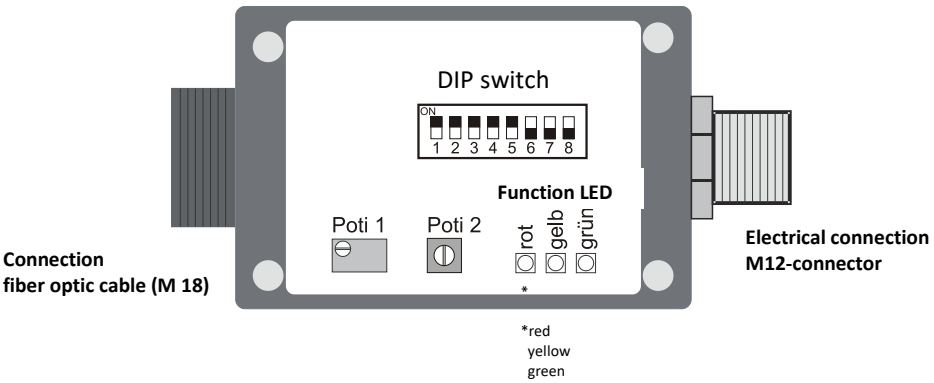
OL400721

Fiber optic amplifiers

1. Drawing



2. DIP switch

No. / function	Switch position "off"	Switch position "on"	Notes
1. Interference suppression	**Mode 1 –** 650µs	**Mode 2 –** 500µs	Time between 2 light pulses. If 2 devices are operated in parallel, select "off" for device 1 and "on" for device 2.
2. Alarm output	**dynamic**	**static** (adjustment aid)	see point 5. "Function reserve"
3. Switching output	**npn** (minus-switching)	**pnp** (plus-switching)	
4. Switching output	**dark**-on mode	**Light**-on modeg	Pushbutton operation: "on" normally open contact "off" normally closed contact Barrier operation: "on" normally closed contact "off" normally open contact
5. Switching frequency	**1,000Hz** (for very fast operations)	**300Hz** (Normal setting)	

6	**7**	**8**	**Timer function**	Setting
off	off	off	no timer function	Without time delay
off	off	on	on-delayed (on-delay, referred to the output)	0 ... 10s, adjustable with potentiometer 2
off	on	off	off-delayed (off-delay, referred to the output)	0 ... 10s, adjustable with potentiometer 2
off	on	on	pick-up and drop-out delay (on-off delay)	In each case 0 ... 10s, adjustable with potentiometer 2
on	off	off	dynamic light-on mode*	DIP switch 4 on
on	off	on	dynamic dark-on mode*	DIP switch 4 off
on	on	off	on-delayed (on-delay, referred to the output)	Time value 100ms fixed
on	on	on	off-delayed (off-delay, referred to the output)	Time value 100ms fixed

* In dynamic mode, the switching output only remains set for 100ms (light-on mode) or switched off for 100ms (dark-on mode), regardless of how long an object remains in the detection range.

3. Potentiometer

POTI 1: 15-turn potentiometer for sensitivity adjustment. Turning clockwise increases the sensitivity.

POTI 2: 270° potentiometer for setting the delay time, logarithmically adjustable between approx. 0.1s and 10s. The potentiometer is only active in on-delay, off-delay or on-off-delay mode. Turning clockwise increases the delay time.

4. Display

LED green: on when the operating voltage is applied

LED yellow: on when the switching output is active (switched through)

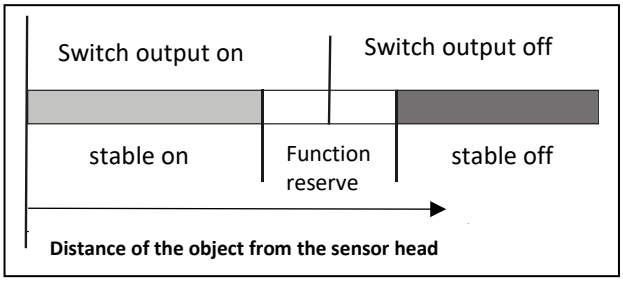
LED rot: is flashing in the function reserve area, at the same time the alarm output is set.
lights on in case of short circuit

5. Functional reserve

Functional reserve area:

The limit range in which the device still operates reliably, e.g. in the event of contamination or misalignment. If the level of contamination or misalignment continues to increase, proper operation can no longer be guaranteed.

(The graphic shows as an example the performance reserve for pushbutton operation light-on mode.)



DIP switch 2 "on": The device operates with a static performance reserve.

This setting is preferably used as a setting aid (see 7. and 8.).

If the fiber optic amplifier is in the function reserve range, the red LED is flashing and the alarm output is set. As soon as a stable switching state is reached again, the LED goes out and the alarm output is switched off.

When the object approaches the set detection range, the function reserve range must inevitably be passed through. Thus the flashing of the red LED and also the switching of the alarm output cannot be prevented.

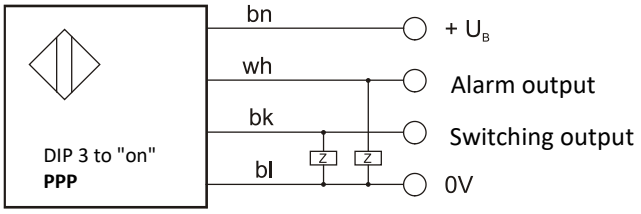
DIP switch 2 "off": The device operates with dynamic performance reserve.

This setting is preferable in normal operation! If the fiber optic amplifier has been set exactly (see 7. and 8.), it is in the state "stable off" according to the graphic example, if no object is detected and, in the state, "stable on", if an object is detected.

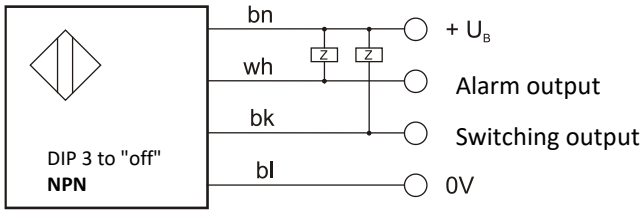
If these two states are reached during the individual processes, the red LED remains off and the alarm output is not activated. However, if, for example, the "stable on" state is no longer reached due to constant contamination, the red LED starts to flash when the switching output is switched off and the alarm output is set.

This state is only cancelled after the next safe "stable on", for example after cleaning or readjustment of the light guide.

6. Electrical connection (Cable socket M12, 4-pole, e.g. VK200321)



bn=brown, wh=white, bk=black, bl= blue



bn=brown, wh=white, bk=black, bl= blue

Important: To avoid interference coupling in the "Switching frequency 1kHz" mode (DIP switch 5 "off"), a shielded cable socket (e.g. VK205621) must be used.

7. Setting aid for pushbutton operation:

1. Remove the cover of the amplifier
2. Connect an LT..... type fiber optic cable to the amplifier and attach the pushbutton head.
3. Bring the object you want to detect close to the pushbutton head. Select the distance at which the object will later move past the pushbutton head. The switching distance Sn specified in the data sheet should not be exceeded.
4. Set DIP switch 2 to "on" and DIP switch 4 to "on".

5a. The yellow LED is not on: Turn POTI 1 clockwise until the yellow LED is on and the red LED stops flashing.

5b. The yellow LED is on: Turn POTI 1 counterclockwise until the red LED starts flashing, then turn it clockwise again until the red LED goes out.

5c. Switching point security is obtained when POTI 1 is turned clockwise approx. one more turn.

6. Remove the object to be detected. The yellow LED must go out, the red LED must not be flashing. Otherwise, the background is too bright in relation to the object. Then either the distance to the background must be increased or a darker background material must be selected.
7. Set DIP switch 2 to "off" if you want to use the dynamic alarm output.
8. Use DIP switch 4 to select the output type you require:

   "on" = light-on mode (normally open contact)

   "off" = dark-on mode (normally closed contact)
9. Screw the cover back onto the amplifier.

8. Setting aid for barrier operation:

1. Remove the cover of the amplifier.
2. Connect a fiber optic cable of type LS..... to the amplifier and align the sensor heads with each other. The distance between transmitter and receiver (Sn) specified in the data sheet should not be exceeded.
3. Set DIP switch 2 to "on" and DIP switch 4 to "off".

4a. The yellow LED is not on: Turn POTI 1 counterclockwise until the red LED starts flashing and then turn it clockwise again until the red LED goes off.

4b. The yellow LED is on: Turn POTI 1 clockwise until the yellow LED goes out and the red LED is no longer flashing.

4c. Switching point security is obtained when POTI 1 is turned clockwise approx. one more turn.

5. Bring the object to be detected between the transmitter and receiver. The yellow LED must be on, the red LED must not be flashing. Otherwise, the object is too transparent or too small. Then a light guide with a smaller cross-section or smaller active diameter must be selected.
6. Set DIP switch 2 to "off" if you want to use the dynamic alarm output.
7. Use DIP switch 4 to select the output type you require:

   "off" = dark-on mode (normally open contact)

   "on" = light-on mode (normally closed contact)
8. Screw the cover back onto the amplifier.