

LC 2001 (1 col.) - LC 2004 (4 col.)



- A range of 7 different fibres:
 - Tip from de $\varnothing 1,8$ to $\varnothing 18$ mm
 - Sensing distance from 2 to 60 mm
- Operating voltage: 24 VDC
- Outputs: PNP / NPN
- Response time: 1 ms or 20 ms according to selected mode

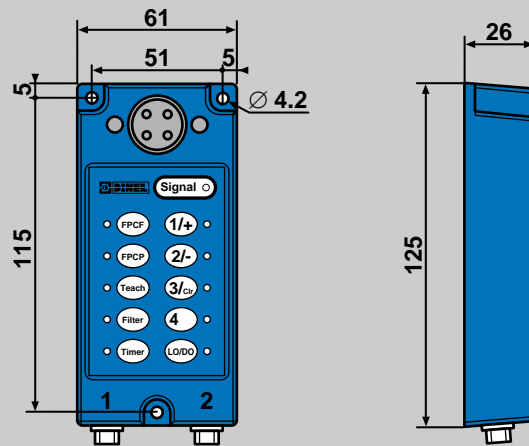
Description :

- Detection of one to four recorded colours
- Fibres: see next page
- Self-teach function: easy and quick adjustment
- External input for self-teach (channel 1)
- 3 sensitivities: fine, medium and low
- Keyboard locking feature
- Programmable timer
- Four NPN/PNP outputs
- Light on / dark on selection
- M12 plug
- IP 65 polycarbonate housing

Applications :

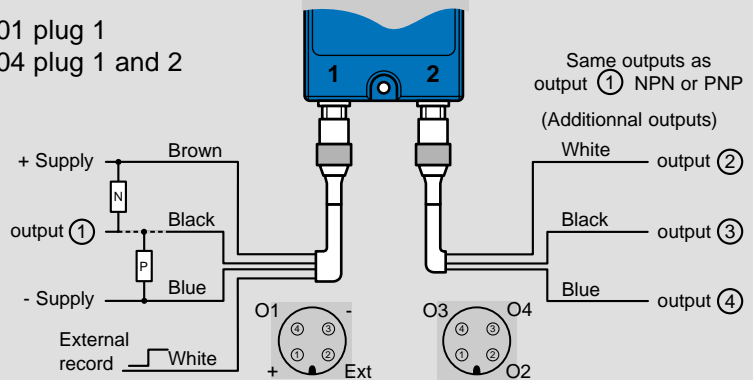
- Detection of marks and coloured tags.
- Quality control:
 - lids colour.
 - presence of labels.
- Detection of coloured wires.
- Detection of coloured liquids.
- Sorting out of colored parts.

Dimensions



Wiring Connections

LC 2001 plug 1
LC 2004 plug 1 and 2

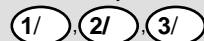


Keyboard and Visualisation

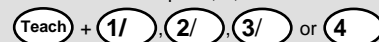
Programming for FPCF type and FPCP type:



To select sensitivity: fine, medium, large:



To record colours on output 1, 2, 3 or 4:



To adjust the timer:



To adjust the filter:



To select light on / dark on:



Next to every key, a LED indicates the status of the function.

Technical Information

Supply	voltage	24 VDC \pm 10% ripple < 10% within specified limits
	consumption	120 mA
Response time	t_{on} or t_{off}	1 ms (mode FPCF) - 20 ms (mode FPCP)
	switching frequency	500 Hz (mode FPCF) - 25 Hz (mode FPCP)
Outputs	max. nominal intensity	100 mA per output
	voltage drop at 100 mA	< 2,2 V
	voltage drop at 10 mA	< 0,5 V at low level
Emission	LED	red, green, blue
Timer	range	0 to 5 s
	increment duration	first increment : 50 ms, following increments : 250 ms
Temperature	operating	0 to 40 °C
	storage	-20 to 60 °C
External light immunity	incandescent light	3 000 lux
	sunlight	5 000 lux
Protections	supply	inverse polarity protection
	output	permanent short-circuit or over-load protection
	degree of protection	IP 65
External record	on	4 to 24 V, 10 μ s minimum
	off	< 1 V
Recording	duration	1 s

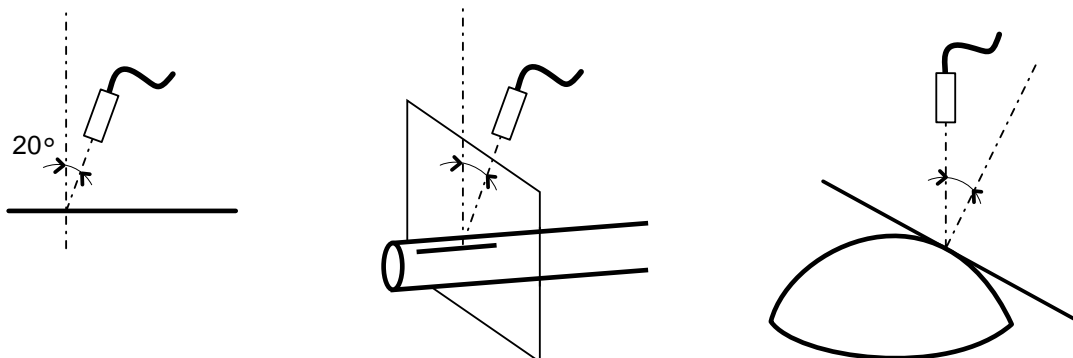
Ordering Codes

Product	Colour sensor	Colour sensor fibres
Reference	LC 2001 - 1 channel LC 2004 - 4 channels 2 m connectors (M12), cable included	see hereby

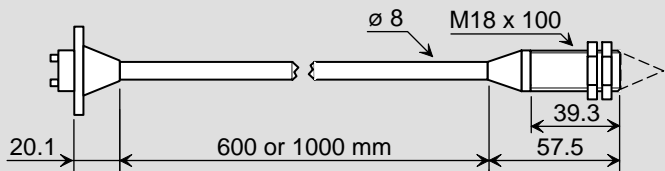
FIBRES FOR COLOUR SENSOR (FPC)

Fibre set-up:

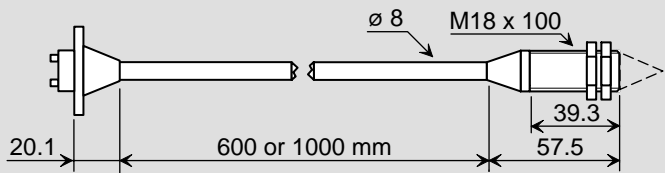
- Comply with advised sensing distance as indicated hereby.
- If the surface is glossy, tilt the tip 20° approximatly from the perpendicular to the surface.
- Plug the fibre polarized adapter in the front side of the sensor and tighten the two M4 screws.



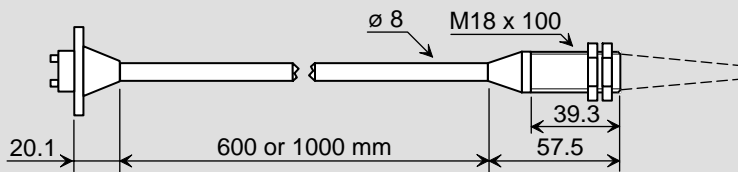
Diffuse Type - P



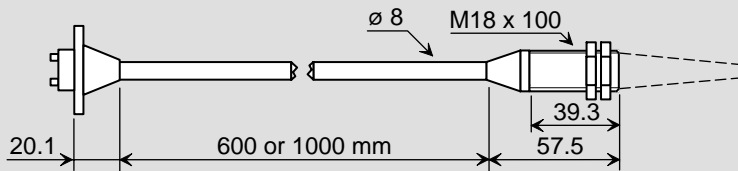
Application : Fine detection with focused spot \varnothing 1.5



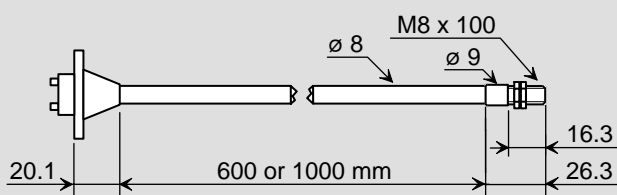
Application : Detection with focused spot \varnothing 1.5 for moving fibre



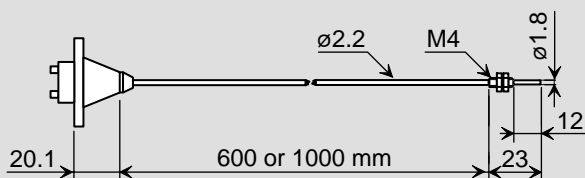
Application : Fine detection at fluctuating distance (spot approx. \varnothing 6)



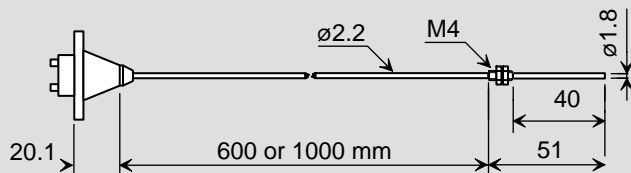
Application : Detection at fluctuating distance for moving fibre (spot approx. \varnothing 6)



Application : Fine detection with small tip dimensions



Application : Fine detection with needle nozzle tip



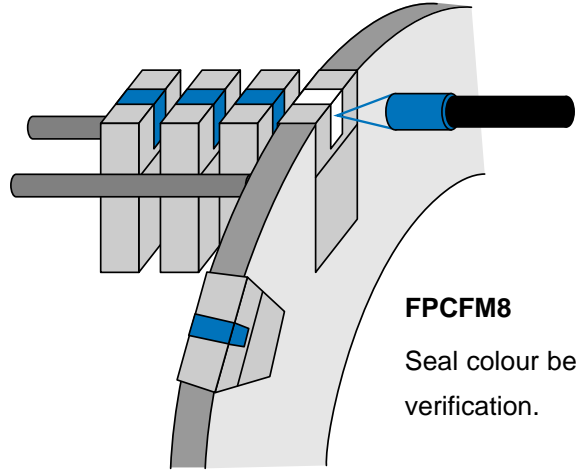
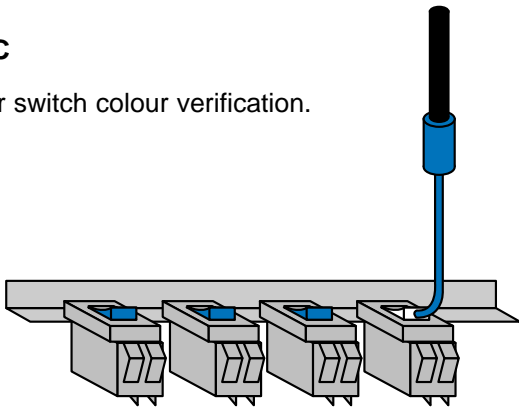
Application : Fine detection with needle nozzle tip and pliable extension

REFERENCES	LENGTH (MM)	SENSING DISTANCE (MM)	MODE / TR
FPCF 61 FPCF 101	600 1000	18	FPCF / 1 ms
FPUCF 61 FPUCF 101	600 1000	18	FPCF / 1 ms
FPCP 61 FPCP 101	600 1000	40 to 60	FPCP / 20 ms
FPUCP 61 FPUCP 101	600 1000	40 to 60	FPCP / 20 ms
FPCFM8 61 FPCFM8 101	600 1000	4 to 6	FPCF / 1 ms
FPCFA 61 FPCFA 101	600 1000	2 to 3	FPCF / 1 ms
FPCFC 61 FPCFC 101	600 1000	2 to 3	FPCF / 1 ms

TYPES OF APPLICATIONS

FPCFC

Rocker switch colour verification.

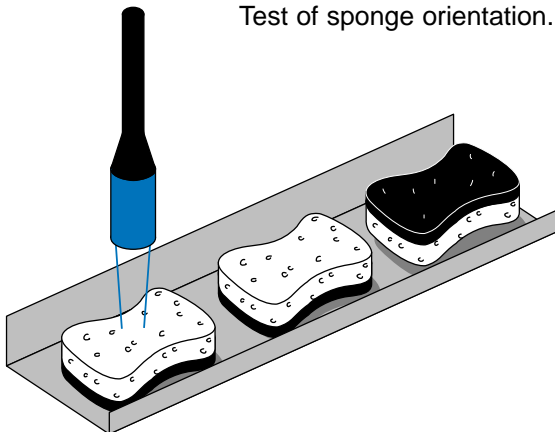


FPCFM8

Seal colour bends verification.

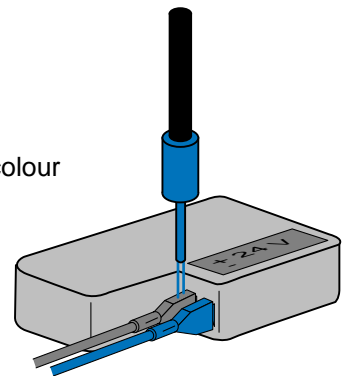
FPCP

Test of sponge orientation.



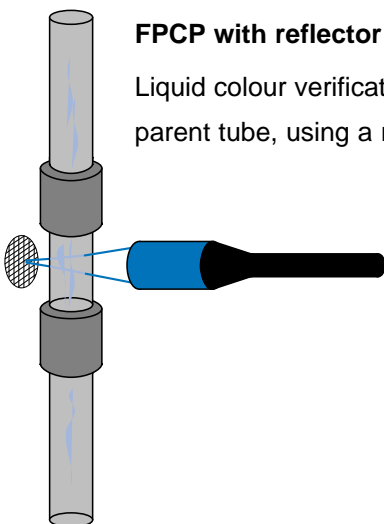
FPCFA

Correct assembly of colour coded plugs.



FPCP with reflector

Liquid colour verification in a transparent tube, using a reflector.



4 x FPCFC

Ribbon cable colour coded conductor verification.

