

# LED Cold Lightsources

## ▼ General Advantages

### ▼ Essential reduction of cost of ownership

- 30.000 hrs **LED lifetime**  $L_{70\%}$ 
  - No bulb stock
  - No service downtimes
- **80 % energy savings** (20W vs 100W)

## ▼ Photonic Product Range

- ▼ **F1** → **100 W equivalent**
- ▼ **F1 R** → 100 W equivalent remote control
- ▼ **F3000** → **150 W equivalent, remote control via USB and footswitch**



F1



F3000



## Cost of Ownership of LED Lightsources

Savings compared to 150W halogen lightsource

Green fields may be edited

### Global Parameters

Weeks / year	52
Days / week	5
Average useful lifetime / years	7,0

Operating hrs / week	40
Operating hrs / year	2.080
Operating hrs / lifetime	14.560

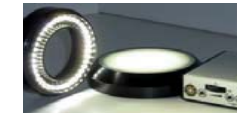
### Efficiency of lightsource technology (typical)

Tungsten bulb	15 Lumen / Watt
Halogen	25 Lumen / Watt
LED	75 Lumen / Watt
Xenon	90 Lumen / Watt

Operating hrs / day	8
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### Bulb lifetime (lumen maintenance) L<sub>70</sub>

defined as time period until the emitted light energy of an illuminant has degraded to 70% of initial value



### Photonic Lightsource

Illumination Technology  
Illuminant Wattage  
Brightness (comparable to)

#### PL 3000B

Halogen Lightsource  
Bulb 150W  
150W Halogen  
Fiberoptic Lightguide

#### F1

LED Lightsource  
LED Module 30W  
100W Halogen  
Fiberoptic Lightguide

#### F 3000

LED Lightsource  
LED Module 50W  
> 150W Halogen  
Fiberoptic Lightguide

#### Dual HiPow Spots

LED Lightsource  
LED Module 6W  
150W Halogen  
Direct Illumination

#### 40 LED Ringlight

LED Lightsource  
LED Module 20W  
100W Halogen  
Direct Illumination

#### 80 LED Ringlight

LED Lightsource  
LED Module 40W  
> 150W Halogen  
Direct Illumination

	PL 3000B	F1	F 3000	Dual HiPow Spots	40 LED Ringlight	80 LED Ringlight
<b>Bulb</b>						
Bulb lifetime L <sub>70</sub> / hours	400	30.000	30.000	30.000	30.000	30.000
Bulb lifetime / month	2,31	173,08	173,08	173,08	173,08	173,08
Bulb lifetime / years	0,19	14,42	14,42	14,42	14,42	14,42
Bulbs /year	5,2	0,069	0,069	0,069	0,069	0,069
Price of bulb / €	25,00 €	- €	- €	- €	- €	- €
Bulb cost / year	130,00 €	- €	- €	- €	- €	- €
<b>Energy</b>						
Wattage / Watt	200	40	60	10	30	50
Energy / year in kWh	416	83,2	124,8	20,8	62,4	104
Price of kWh Energy	0,19 €	0,19 €	0,19 €	0,19 €	0,19 €	0,19 €
Energy cost / year	79,04 €	15,81 €	23,71 €	3,95 €	11,86 €	19,76 €
<b>Illumination system (list price)</b>						
Lightsource	575,00 €	440,00 €	650,00 €	418,00 €	434,00 €	890,00 €
Dual gooseneck lightguide (av)	190,00 €	190,00 €	190,00 €	- €	- €	- €
System price	765,00 €	630,00 €	840,00 €	418,00 €	434,00 €	890,00 €
System cost / year	109,29 €	90,00 €	120,00 €	59,71 €	62,00 €	127,14 €
<b>Cost of ownership / year</b>	318,33 €	105,81 €	143,71 €	63,67 €	73,86 €	146,90 €
<b>Cost of ownership / lifetime</b>	2.228,28 €	740,66 €	1.005,98 €	445,66 €	516,99 €	1.028,32 €
<b>Savings / year</b>		212,52 €	174,61 €	254,66 €	244,47 €	171,42 €
<b>Savings / lifetime</b>		1.487,62 €	1.222,30 €	1.782,62 €	1.711,29 €	1.199,96 €
<b>Savings compared to PL3000</b>		67%	55%	80%	77%	54%

# Photonic LED Cold Lightsources

## Additional Advantages

- ▼ **No visible color temperature shift** on dimming
- ▼ **Neutral white light, 5800 K**
- ▼ **Robust metal housing, ESD socket**
  - Insensitive to vibration, shock, oily vapours
  - Ideal for harsh environment
- ▼ **F1 has no fans, noiseless, no vibrations**
  - Ideal for lab use or cleanrooms
- ▼ **DC driven**
  - No flicker with digital cameras
- ▼ **Wide range power supply**
  - One box sells worldwide



F1



F3000

**Perfect replacement** for halogen cold light inspection setups

Existing lightguide and inspection procedure stays in place

# F3000 LED

- ▼ **Brighter than 150W Halogen**
  - 640 lm with lightguide active Ø 8mm, L=1000 mm
- ▼ **Natural white light 5800 °K**
  - Halogen Filter available
- ▼ **Stable operation with Goosenecks**
- ▼ **Excellent stacking stability**
- ▼ **Vertical Operation**
- ▼ **Robust metal housing**
- ▼ **Extremely low noise fan**
- ▼ **Graphic Display**
- ▼ **Remote Control**
  - Hand/Footswitch or PC via USB



Lossless adaption to  
Schott lightguides  
No adapter needed to  
Volpi lightguides



## F3000 LED

### ▼ Remote Control Hand/Footswitch

- Toggle Standby
- Toggle Presets
- Dimming

### ▼ Remote Control from PC via USB

### ▼ Shutter / Strobe Functionality

### ▼ Easy User Interface

### ▼ All Settings easily programmable

- Brightness Presets
- Shutter / Strobe Parameters
- Resolution of Dimming Steps



# Photonic Fiberoptic Bundles

One stop shop  
for microscopy  
illumination

▼ Comprehensive portfolio of lightguides and accessories



Flexible lightguides



Flex & stay goosenecks



Ringlights, bright and darkfield



Light lines



Transmitted  
light stage



Polarizers, diffusors, filters, focussing lenses

Ringlights with focussing lens



Adapters and  
brackets



ESD versions available

# Photonic Fiberoptic Bundles

Unique patented **focusing lens** for ringlights

▼ **Increases brightness at longer working distances**

- 60 mm → 1.5x
- 75 mm → 2x
- 100 mm → 3x
- **300 mm → 7x**

▼ Standard RL 66 mm

▼ Standard RL 90° 66 mm

▼ 4 point Ringlights

- **No extra cost**

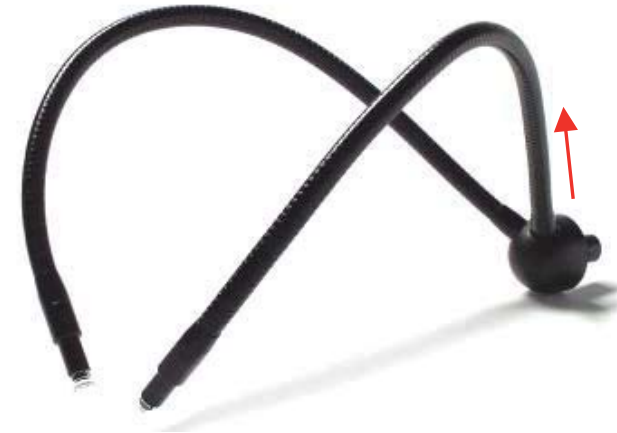




# Photonic Fiberoptic Goosenecks

## ▼ Flexarms pointing upwards

Lightsource can be positioned directly behind microscope stand



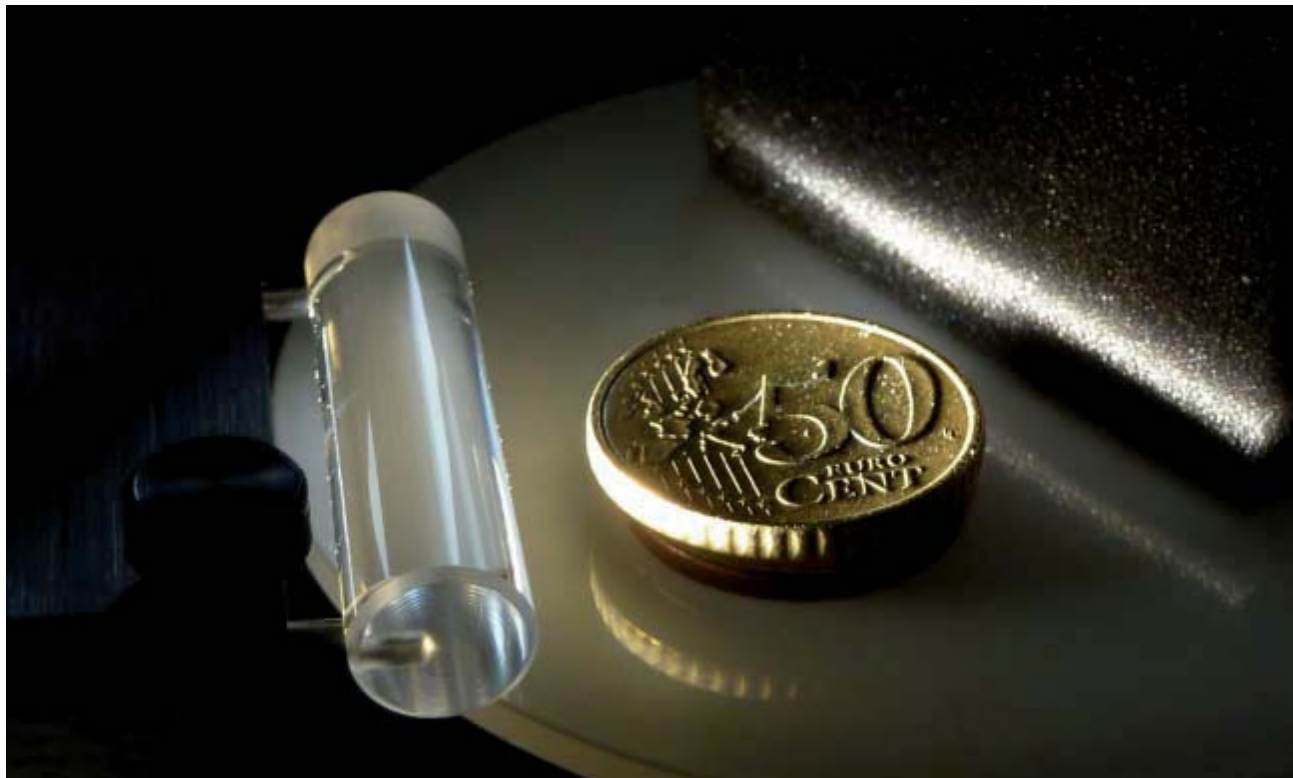
Integrated focussing lenses on fiber bundles and goosenecks - **No extra cost**





# Photonic Fiberoptic Bundles

- ▼ Unique patented **Line light converter**
  - Darkfield illumination with gooseneck or flexible bundle



## System – Diagram

