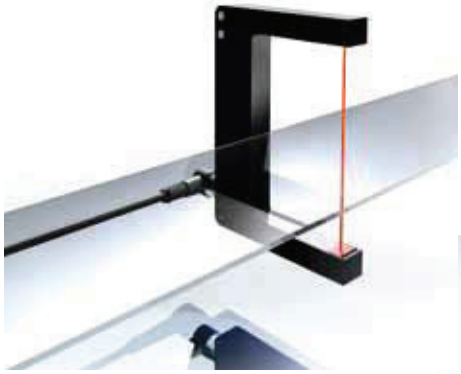
Through-beam sensors are unsurpassed in their accuracy, their ability to distinguish small parts and fine detail and their operating reliability. However, they do take some time to install and configure. This does not apply to fork sensors, since the emitter and receiver are already installed and easy to adjust. Nevertheless, their accuracy, ability to distinguish small parts and fine detail and their operating reliability is outstanding. Laser fork sensors achieve the best results in these kinds of tasks. Balluff laser fork sensors are ideally used for precisely positioning and reliably detecting fast-moving processes and small parts. This opens a vast range of applications in robotics and automation.

Features
- Integrated electronic processor unit
- Rugged metal housing
- Glass optical surface
- High resolution
- Available in red light, laser light, IR or pin point
- Identical housing dimensions for all light types
- 10×10 mm fork arm, even for large fork openings
- Stackable
- Laser Class 1

Applications
- Parts sensing on conveyor and feed belts
- Label sensing on transparent backing material
- Part dimension checking
- Counting parts in assembly lines
- Tool break monitoring
- Position checking
- Feed control on automatic assembly equipment
- Checking for completeness (e.g. connector pins)
- Level monitoring of containers
- Handling- and assembly



Type		Fork opening	Resolution	Light type					Output		Switching type		Switching frequency	U_S	Connection		Features		Page
				Red light	Red light, pin point	Laser light	Infrared	Red and green light	PNP transistor	DSC (Dynamic Sensor Control)	Light switching	Dark switching		10...30 V DC	M8 plug, 3-pin	M8 plug, 4-pin	Transparency detection	Fluid detection	
Ordering code																			
Part number																			
Fork sensors																			
BGL001W	BGL 5A-001-S49	5 mm	0.3 mm	■					■		■	■	3 kHz	■	■				240
BGL001Z	BGL 5A-005-S49	5 mm	0.2 mm		■				■		■	■	5 kHz	■	■				244
BGL0021	BGL 5A-007-S49	5 mm	0.8 mm				■		■		■	■	3 kHz	■	■				248
BGL0001	BGL 10A-001-S49	10 mm	0.3 mm	■					■		■	■	3 kHz	■	■				240
BGL0003	BGL 10A-005-S49	10 mm	0.2 mm		■				■		■	■	5 kHz	■	■				244
BGL0005	BGL 10A-007-S49	10 mm	0.8 mm				■		■		■	■	3 kHz	■	■				248
BGL000R	BGL 20A-001-S49	20 mm	0.3 mm	■					■		■	■	1.5 kHz	■	■				241
BGL000U	BGL 20A-005-S49	20 mm	0.2 mm		■				■		■	■	5 kHz	■	■				245
BGL000Y	BGL 20A-007-S49	20 mm	0.8 mm				■		■		■	■	2 kHz	■	■				249
BGL0016	BGL 30A-001-S49	30 mm	0.3 mm	■					■		■	■	1.5 kHz	■	■				241
BGL0019	BGL 30A-003-S49	30 mm	50 µm			■			■		■	■	5 kHz	■	■				252
BGL001C	BGL 30A-005-S49	30 mm	0.2 mm		■				■		■	■	5 kHz	■	■				245
BGL001F	BGL 30A-007-S49	30 mm	0.8 mm				■		■		■	■	2 kHz	■	■				249
BGL003J	BGL 30A-011-S49	30 mm	0.6 mm				■		■		■	■	2 kHz	■	■			■	256
BGL003N	BGL 30A-013-S49	30 mm	0.8 mm				■		■	■	■	■	200 Hz	■	■				257
BGL001J	BGL 50A-001-S49	50 mm	0.4 mm	■					■		■	■	1.5 kHz	■	■				241
BGL001M	BGL 50A-003-S49	50 mm	80 µm			■			■		■	■	5 kHz	■	■				253
BGL001P	BGL 50A-005-S49	50 mm	0.3 mm		■				■		■	■	5 kHz	■	■				245
BGL001T	BGL 50A-007-S49	50 mm	1.0 mm				■		■		■	■	2 kHz	■	■				249
BGL003P	BGL 50A-013-S49	50 mm	1.0 mm				■		■	■	■	■	200 Hz	■	■				257
BGL0023	BGL 80A-001-S49	80 mm	0.4 mm	■					■		■	■	1.5 kHz	■	■				242
BGL0025	BGL 80A-003-S49	80 mm	0.1 mm			■			■		■	■	5 kHz	■	■				253
BGL0027	BDL 80A-005-S49	80 mm	0.4 mm		■				■		■	■	5 kHz	■	■				246
BGL0029	BDL 80A-007-S49	80 mm	1.2 mm				■		■		■	■	2 kHz	■	■				250
BGL002T	BDL 80A-009-S49	80 mm	50 µm			■			■		■	■	5 kHz	■	■		■		255
BGL003L	BDL 80A-011-S49	80 mm	0.8 mm				■		■		■	■	2 kHz	■	■			■	257
BGL003R	BDL 80A-013-S49	80 mm	1.2 mm				■		■	■	■	■	200 Hz	■	■				257
BGL0007	BGL 120A-001-S49	120 mm	0.5 mm	■					■		■	■	1.5 kHz	■	■				242
BGL0009	BGL 120A-003-S49	120 mm	0.15 mm			■			■		■	■	5 kHz	■	■				253
BGL000C	BGL 120A-005-S49	120 mm	0.5 mm		■				■		■	■	5 kHz	■	■				246
BGL000F	BGL 120A-007-S49	120 mm	1.5 mm				■		■		■	■	1 kHz	■	■				250
BGL000J	BGL 180A-001-S49	180 mm	0.6 mm	■					■		■	■	1.5 kHz	■	■				243
BGL000L	BGL 180A-005-S49	180 mm	0.6 mm		■				■		■	■	5 kHz	■	■				247
BGL000N	BGL 180A-007-S49	180 mm	1.5 mm				■		■		■	■	2 kHz	■	■				251
BGL0010	BGL 220A-001-S49	220 mm	0.6 mm	■					■		■	■	1.5 kHz	■	■				243
BGL0012	BGL 220A-005-S49	220 mm	0.6 mm		■				■		■	■	5 kHz	■	■				247
BGL0014	BGL 220A-007-S49	220 mm	1.5 mm				■		■		■	■	2 kHz	■	■				251
BGL002L	BGL 21-IR	2 mm	0.25 mm				■		■		■	■	25 kHz	■		■			259
BGL002M	BGL 21-RG	2 mm	0.25 mm					■	■		■	■	25 kHz	■		■			259

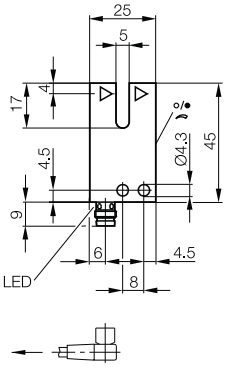
NPN on request

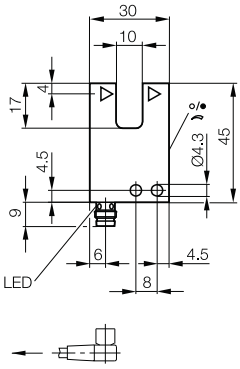
Fork Sensors
Red light

Series		**BGL**	**BGL**	
Fork opening		**5 mm**	**10 mm**	
Fork depth		**17 mm**	**17 mm**	
PNP NO/NC	**Ordering code**	**BGL001W**	**BGL0001**	
	Part number	BGL 5A-001-S49	BGL 10A-001-S49	
Supply voltage U_S		10...30 V DC	10...30 V DC	
No-load supply current I_0 max.		≤ 35 mA	≤ 35 mA	
Output current		200 mA	200 mA	
Switching type		Light/dark switching (selectable)	Light/dark switching (selectable)	
Polarity reversal/short-circuit protected		Yes/Yes	Yes/Yes	
Settings		Potentiometer, 270°	Potentiometer, 270°	
Emitter, light type		LED, red light	LED, red light	
Wavelength		640 Nm	640 Nm	
Resolution (smallest discernible part)		0.3 mm	0.3 mm	
Repeat accuracy		20 µm	20 µm	
Switching hysteresis		≤ 0.1 mm	≤ 0.1 mm	
Output function indicator		Yellow LED	Yellow LED	
Response time		0.166 ms	0.166 ms	
Switching frequency		3 kHz	3 kHz	
Degree of protection as per IEC 60529		IP 67	IP 67	
Ambient temperature T_a		–10...+60 °C	–10...+60 °C	
Ambient light limit according to		EN 60947-5-2	EN 60947-5-2	
Material	Housing	GD-Zn	GD-Zn	
	Optical surface	Glass	Glass	
Connection		M8 connector, 3-pin	M8 connector, 3-pin	

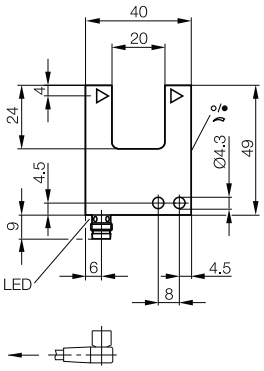

Connector orientation

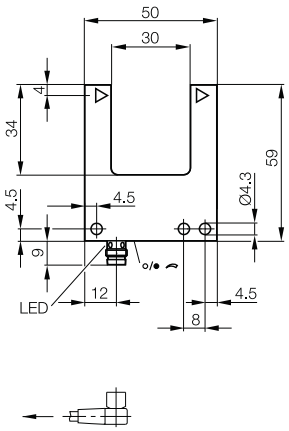
Other fork openings on request.

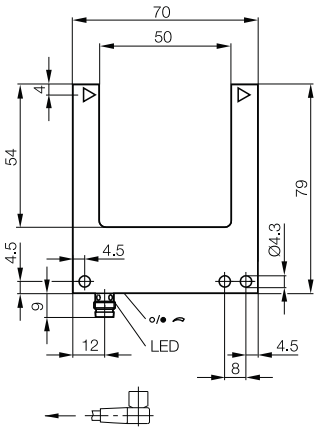


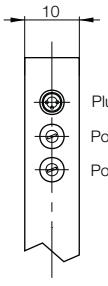


BGL	**BGL**	**BGL**
20 mm	**30 mm**	**50 mm**
24 mm	**34 mm**	**54 mm**
BGL000R	**BGL0016**	**BGL001J**
BGL 20A-001-S49	BGL 30A-001-S49	BGL 50A-001-S49
10...30 V DC	10...30 V DC	10...30 V DC
≤ 35 mA	≤ 35 mA	≤ 35 mA
200 mA	200 mA	200 mA
Light/dark switching (selectable)	Light/dark switching (selectable)	Light/dark switching (selectable)
Yes/Yes	Yes/Yes	Yes/Yes
Potentiometer, 270°	Potentiometer, 270°	Potentiometer, 270°
LED, red light	LED, red light	LED, red light
640 Nm	640 Nm	640 Nm
0.3 mm	0.3 mm	0.4 mm
20 µm	20 µm	40 µm
≤ 0.1 mm	≤ 0.1 mm	≤ 0.15 mm
Yellow LED	Yellow LED	Yellow LED
0.33 ms	0.33 ms	0.33 ms
1.5 kHz	1.5 kHz	1.5 kHz
IP 67	IP 67	IP 67
–10...+60 °C	–10...+60 °C	–10...+60 °C
EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
GD-Zn	GD-Zn	GD-Zn
Glass	Glass	Glass
M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin



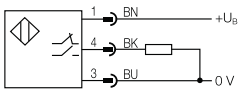






Wiring diagram

PNP

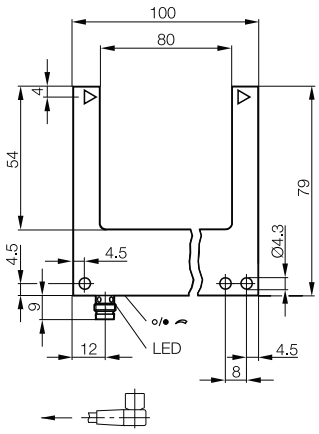


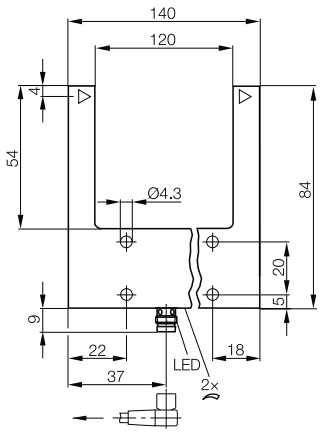
Fork Sensors
Red light

Series		**BGL**	**BGL**	
Fork opening		**80 mm**	**120 mm**	
Fork depth		**54 mm**	**54 mm**	
PNP NO/NC	**Ordering code**	**BGL0023**	**BGL0007**	
	Part number	BGL 80A-001-S49	BGL 120A-001-S49	
Supply voltage U_S		10...30 V DC	10...30 V DC	
No-load supply current I_0 max.		≤ 35 mA	≤ 35 mA	
Output current		200 mA	200 mA	
Switching type		Light/dark switching (selectable)	Light/dark switching (selectable)	
Polarity reversal/short-circuit protected		Yes/Yes	Yes/Yes	
Settings		Potentiometer, 270°	Potentiometer, 270°	
Emitter, light type		LED, red light	LED, red light	
Wavelength		640 Nm	640 Nm	
Resolution (smallest discernible part)		0.4 mm	0.5 mm	
Repeat accuracy		60 µm	80 µm	
Switching hysteresis		≤ 0.2 mm	≤ 0.2 mm	
Output function indicator		Yellow LED	Yellow LED	
Response time		0.33 ms	0.33 ms	
Switching frequency		1.5 kHz	1.5 kHz	
Degree of protection as per IEC 60529		IP 67	IP 67	
Ambient temperature T_a		–10...+60 °C	–10...+60 °C	
Ambient light limit according to		EN 60947-5-2	EN 60947-5-2	
Material	Housing	GD-Zn	GD-Zn	
	Optical surface	Glass	Glass	
Connection		M8 connector, 3-pin	M8 connector, 3-pin	

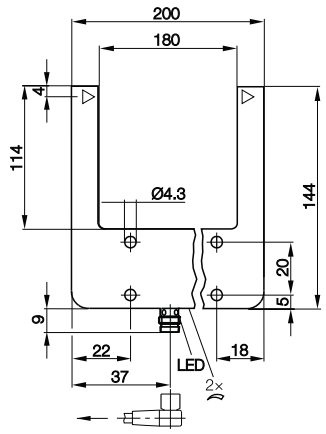

Connector orientation

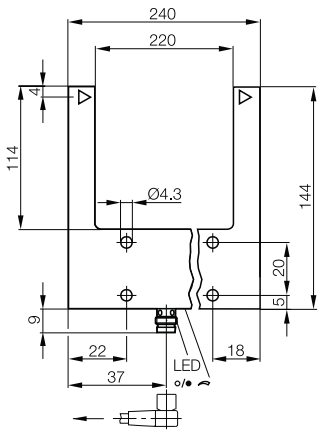
Other fork openings on request.

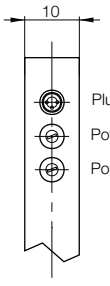




	BGL	BGL	
	180 mm	**220 mm**	
	114 mm	**114 mm**	
	BGL000J	**BGL0010**	
	BGL 180A-001-S49	BGL 220A-001-S49	
	10...30 V DC	10...30 V DC	
	≤ 35 mA	≤ 35 mA	
	200 mA	200 mA	
	Light/dark switching (selectable)	Light/dark switching (selectable)	
	Yes/Yes	Yes/Yes	
	Potentiometer, 270°	Potentiometer, 270°	
	LED, red light	LED, red light	
	640 Nm	640 Nm	
	0.6 mm	0.6 mm	
	80 µm	80 µm	
	≤ 0.2 mm	≤ 0.2 mm	
	Yellow LED	Yellow LED	
	0.33 ms	0.33 ms	
	1.5 kHz	1.5 kHz	
	IP 67	IP 67	
	–10...+60 °C	–10...+60 °C	
	EN 60947-5-2	EN 60947-5-2	
	GD-Zn	GD-Zn	
	Glass	Glass	
	M8 connector, 3-pin	M8 connector, 3-pin	







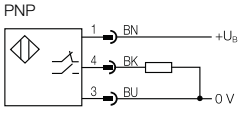
Plug, LED output function indicator

Potentiometer light/dark switching

Potentiometer, sensitivity

Wiring diagram

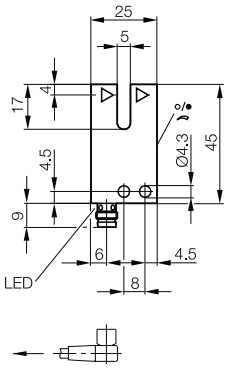
PNP

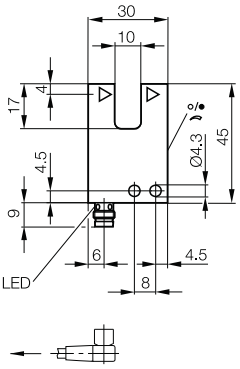


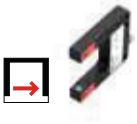
Series		**BGL**	**BGL**	
Fork opening		**5 mm**	**10 mm**	
Fork depth		**17 mm**	**17 mm**	
PNP NO/NC	**Ordering code**	**BGL001Z**	**BGL0003**	
	Part number	BGL 5A-005-S49	BGL 10A-005-S49	
Supply voltage U_S		10...30 V DC	10...30 V DC	
No-load supply current I_0 max.		≤ 35 mA	≤ 35 mA	
Output current		200 mA	200 mA	
Switching type		Light/dark switching (selectable)	Light/dark switching (selectable)	
Polarity reversal/short-circuit protected		Yes/Yes	Yes/Yes	
Settings		Potentiometer, 270°	Potentiometer, 270°	
Emitter, light type		Red light, pin point	Red light, pin point	
Wavelength		640 Nm	640 Nm	
Resolution (smallest discernible part)		0.2 mm	0.2 mm	
Repeat accuracy		20 µm	20 µm	
Switching hysteresis		≤ 70 µm	≤ 70 µm	
Output function indicator		Yellow LED	Yellow LED	
Response time		0.1 ms	0.1 ms	
Switching frequency		5 kHz	5 kHz	
Degree of protection as per IEC 60529		IP 67	IP 67	
Ambient temperature T_a		–10...+60 °C	–10...+60 °C	
Ambient light limit according to		EN 60947-5-2	EN 60947-5-2	
Material	Housing	GD-Zn	GD-Zn	
	Optical surface	Glass	Glass	
Connection		M8 connector, 3-pin	M8 connector, 3-pin	


Connector orientation

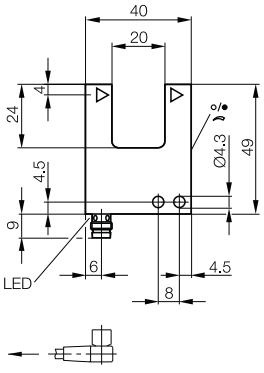
Other fork openings on request.

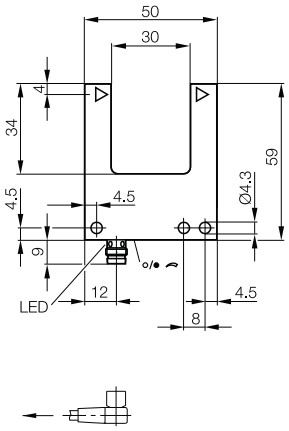


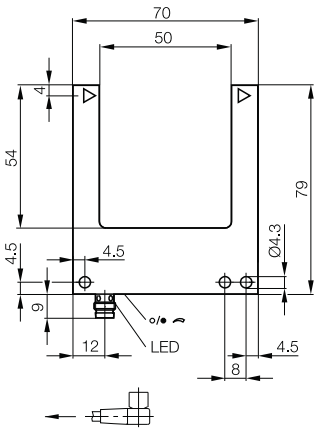




BGL	BGL	BGL
20 mm	**30 mm**	**50 mm**
24 mm	**34 mm**	**54 mm**
BGL000U	**BGL001C**	**BGL001P**
BGL 20A-005-S49	BGL 30A-005-S49	BGL 50A-005-S49
10...30 V DC	10...30 V DC	10...30 V DC
≤ 35 mA	≤ 35 mA	≤ 35 mA
200 mA	200 mA	200 mA
Light/dark switching (selectable)	Light/dark switching (selectable)	Light/dark switching (selectable)
Yes/Yes	Yes/Yes	Yes/Yes
Potentiometer, 270°	Potentiometer, 270°	Potentiometer, 270°
Red light, pin point	Red light, pin point	Red light, pin point
640 Nm	640 Nm	640 Nm
0.2 mm	0.2 mm	0.3 mm
20 µm	20 µm	30 µm
≤ 70 µm	≤ 70 µm	≤ 0.1 mm
Yellow LED	Yellow LED	Yellow LED
0.1 ms	0.1 ms	0.1 ms
5 kHz	5 kHz	5 kHz
IP 67	IP 67	IP 67
–10...+60 °C	–10...+60 °C	–10...+60 °C
EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
GD-Zn	GD-Zn	GD-Zn
Glass	Glass	Glass
M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin

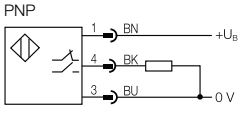


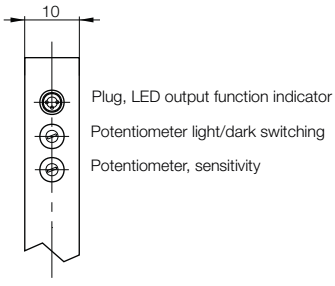


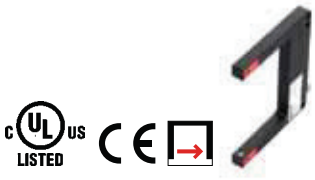


Wiring diagram

PNP



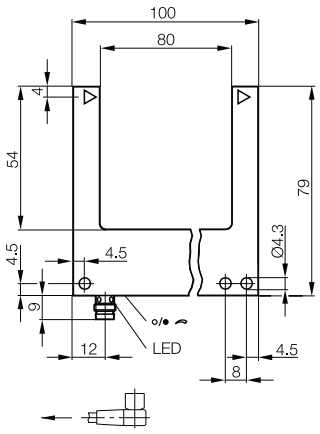


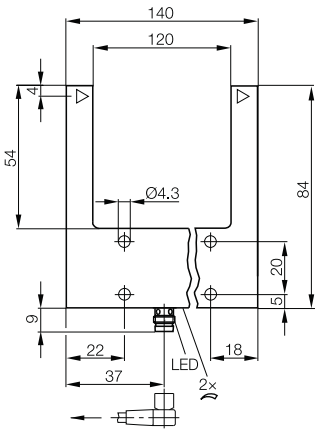


Series		**BGL**	**BGL**	
Fork opening		**80 mm**	**120 mm**	
Fork depth		**54 mm**	**54 mm**	
PNP NO/NC	**Ordering code**	**BGL0027**	**BGL000C**	
	Part number	BGL 80A-005-S49	BGL 120A-005-S49	
Supply voltage U_S		10...30 V DC	10...30 V DC	
No-load supply current I_0 max.		≤ 35 mA	≤ 35 mA	
Output current		200 mA	200 mA	
Switching type		Light/dark switching (selectable)	Light/dark switching (selectable)	
Polarity reversal/short-circuit protected		Yes/Yes	Yes/Yes	
Settings		Potentiometer, 270°	Potentiometer, 270°	
Emitter, light type		Red light, pin point	Red light, pin point	
Wavelength		640 Nm	640 Nm	
Resolution (smallest discernible part)		0.4 mm	0.5 mm	
Repeat accuracy		40 µm	50 µm	
Switching hysteresis		≤ 0.15 mm	≤ 0.15 mm	
Output function indicator		Yellow LED	Yellow LED	
Response time		0.1 ms	0.1 ms	
Switching frequency		5 kHz	5 kHz	
Degree of protection as per IEC 60529		IP 67	IP 67	
Ambient temperature T_a		–10...+60 °C	–10...+60 °C	
Ambient light limit according to		EN 60947-5-2	EN 60947-5-2	
Material	Housing	GD-Zn	GD-Zn	
	Optical surface	Glass	Glass	
Connection		M8 connector, 3-pin	M8 connector, 3-pin	

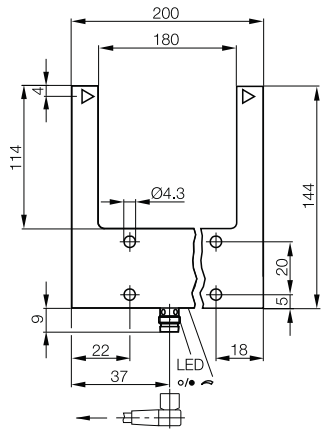

Connector orientation

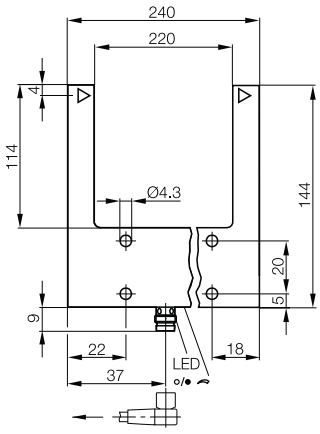
Other fork openings on request.





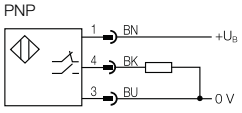
	BGL	BGL	
	180 mm	**220 mm**	
	114 mm	**114 mm**	
	BGL000L	**BGL0012**	
	BGL 180A-005-S49	BGL 220A-005-S49	
	10...30 V DC	10...30 V DC	
	≤ 35 mA	≤ 35 mA	
	200 mA	200 mA	
	Light/dark switching (selectable)	Light/dark switching (selectable)	
	Yes/Yes	Yes/Yes	
	Potentiometer, 270°	Potentiometer, 270°	
	Red light, pin point	Red light, pin point	
	640 Nm	640 Nm	
	0.6 mm	0.6 mm	
	60 µm	60 µm	
	≤ 0.2 mm	≤ 0.2 mm	
	Yellow LED	Yellow LED	
	0.1 ms	0.1 ms	
	5 kHz	5 kHz	
	IP 67	IP 67	
	–10...+60 °C	–10...+60 °C	
	EN 60947-5-2	EN 60947-5-2	
	GD-Zn	GD-Zn	
	Glass	Glass	
	M8 connector, 3-pin	M8 connector, 3-pin	

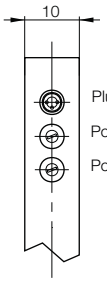




Wiring diagram

PNP

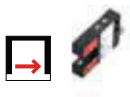




Plug, LED output function indicator

Potentiometer light/dark switching

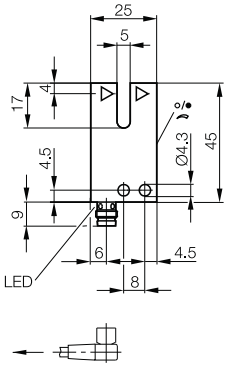
Potentiometer, sensitivity

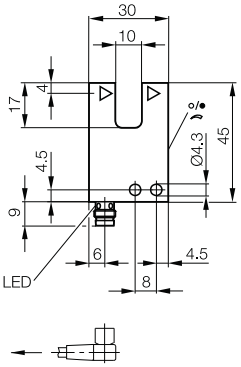


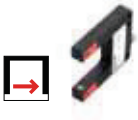
Series		**BGL**	**BGL**
Fork opening		**5 mm**	**10 mm**
Fork depth		**17 mm**	**17 mm**
PNP NO/NC	**Ordering code**	**BGL0021**	**BGL0005**
	Part number	BGL 5A-007-S49	BGL 10A-007-S49
Supply voltage U_S		10...30 V DC	10...30 V DC
No-load supply current I_0 max.		≤ 35 mA	≤ 35 mA
Output current		200 mA	200 mA
Switching type		Light/dark switching (selectable)	Light/dark switching (selectable)
Polarity reversal/short-circuit protected		Yes/Yes	Yes/Yes
Settings		Potentiometer, 270°	Potentiometer, 270°
Emitter, light type		Infrared	Infrared
Wavelength		880 Nm	880 Nm
Resolution (smallest discernible part)		0.8 mm	0.8 mm
Repeat accuracy		0.1 mm	0.1 mm
Switching hysteresis		≤ 0.3 mm	≤ 0.3 mm
Power-on indicator		Green LED	Green LED
Output function indicator		Yellow LED	Yellow LED
Response time		0.166 ms	0.166 ms
Switching frequency		3 kHz	3 kHz
Degree of protection as per IEC 60529		IP 67	IP 67
Ambient temperature T_a		–10...+60 °C	–10...+60 °C
Ambient light limit according to		EN 60947-5-2	EN 60947-5-2
Material	Housing	GD-Zn	GD-Zn
	Optical surface	Glass	Glass
Connection		M8 connector, 3-pin	M8 connector, 3-pin

 Connector orientation

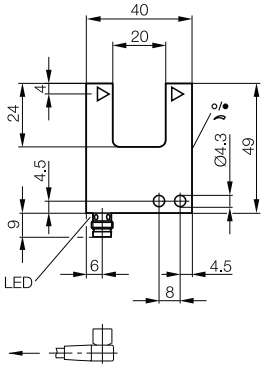
Other fork openings on request.

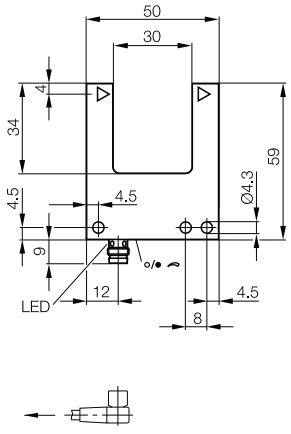


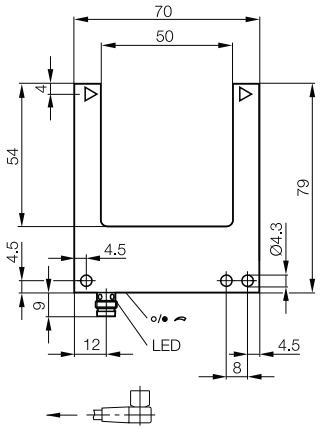


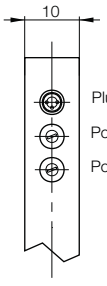




BGL	**BGL**	**BGL**
20 mm	**30 mm**	**50 mm**
24 mm	**34 mm**	**54 mm**
BGL000Y	**BGL001F**	**BGL001T**
BGL 20A-007-S49	BGL 30A-007-S49	BGL 50A-007-S49
10...30 V DC	10...30 V DC	10...30 V DC
≤ 35 mA	≤ 35 mA	≤ 35 mA
200 mA	200 mA	200 mA
Light/dark switching (selectable)	Light/dark switching (selectable)	Light/dark switching (selectable)
Yes/Yes	Yes/Yes	Yes/Yes
Potentiometer, 270°	Potentiometer, 270°	Potentiometer, 270°
Infrared	Infrared	Infrared
880 Nm	880 Nm	880 Nm
0.8 mm	0.8 mm	1 mm
0.1 mm	0.1 mm	0.12 mm
≤ 0.3 mm	≤ 0.3 mm	≤ 0.3 mm
Green LED	Green LED	Green LED
Yellow LED	Yellow LED	Yellow LED
0.25 ms	0.25 ms	0.25 ms
2 kHz	2 kHz	2 kHz
IP 67	IP 67	IP 67
–10...+60 °C	–10...+60 °C	–10...+60 °C
EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
GD-Zn	GD-Zn	GD-Zn
Glass	Glass	Glass
M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin

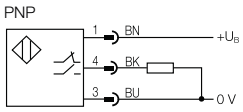








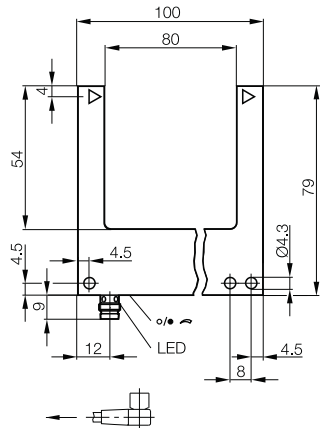
Wiring diagram

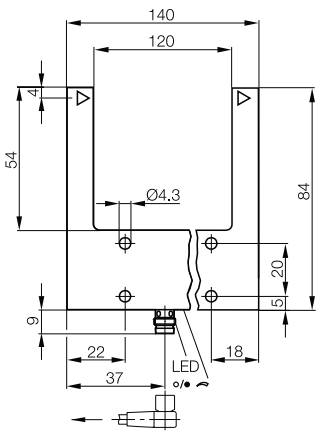


Series		**BGL**	**BGL**	
Fork opening		**80 mm**	**120 mm**	
Fork depth		**54 mm**	**54 mm**	
PNP NO/NC	**Ordering code**	**BGL0029**	**BGL000F**	
	Part number	BGL 80A-007-S49	BGL 120A-007-S49	
Supply voltage U_S		10...30 V DC	10...30 V DC	
No-load supply current I_0 max.		≤ 35 mA	≤ 35 mA	
Output current		200 mA	200 mA	
Switching type		Light/dark switching (selectable)	Light/dark switching (selectable)	
Polarity reversal/short-circuit protected		Yes/Yes	Yes/Yes	
Settings		Potentiometer, 270°	Potentiometer, 270°	
Emitter, light type		Infrared	Infrared	
Wavelength		880 Nm	880 Nm	
Resolution (smallest discernible part)		1.2 mm	1.5 mm	
Repeat accuracy		0.15 mm	0.2 mm	
Switching hysteresis		≤ 0.4 mm	≤ 0.5 mm	
Power-on indicator		Green LED	Green LED	
Output function indicator		Yellow LED	Yellow LED	
Response time		0.33 ms	0.5 ms	
Switching frequency		2 kHz	1 kHz	
Degree of protection as per IEC 60529		IP 67	IP 67	
Ambient temperature T_a		–10...+60 °C	–10...+60 °C	
Ambient light limit according to		EN 60947-5-2	EN 60947-5-2	
Material	Housing	GD-Zn	GD-Zn	
	Optical surface	Glass	Glass	
Connection		M8 connector, 3-pin	M8 connector, 3-pin	

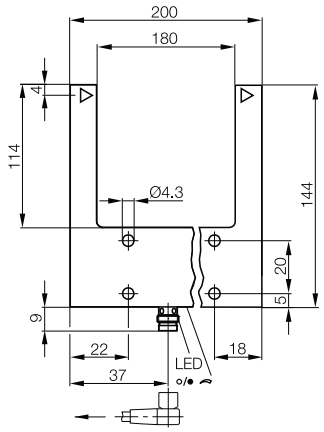

Connector orientation

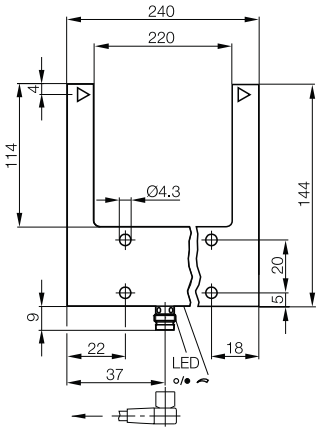
Other fork openings on request.

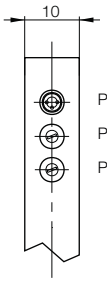




	BGL	BGL	
	180 mm	**220 mm**	
	114 mm	**114 mm**	
	BGL000N	**BGL0014**	
	BGL 180A-007-S49	BGL 220A-007-S49	
	10...30 V DC	10...30 V DC	
	≤ 35 mA	≤ 35 mA	
	200 mA	200 mA	
	Light/dark switching (selectable)	Light/dark switching (selectable)	
	Yes/Yes	Yes/Yes	
	Potentiometer, 270°	Potentiometer, 270°	
	Infrared	Infrared	
	880 Nm	880 Nm	
	1.5 mm	1.5 mm	
	0.2 mm	0.2 mm	
	≤ 0.5 mm	≤ 0.5 mm	
	Green LED	Green LED	
	Yellow LED	Yellow LED	
	0.25 ms	0.25 ms	
	2 kHz	2 kHz	
	IP 67	IP 67	
	–10...+60 °C	–10...+60 °C	
	EN 60947-5-2	EN 60947-5-2	
	GD-Zn	GD-Zn	
	Glass	Glass	
	M8 connector, 3-pin	M8 connector, 3-pin	



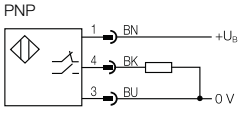




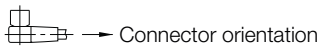
Plug, LED output function indicator
Potentiometer light/dark switching
Potentiometer, sensitivity

Wiring diagram

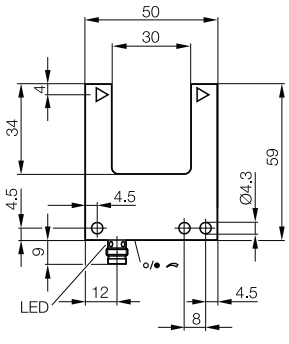
PNP

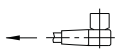


Series			**BGL**
Fork opening			**30 mm**
Fork depth			**34 mm**
PNP	NO/NC	**Ordering code**	**BGL0019**
		Part number	BGL 30A-003-S49
PNP	NO/NC	**Ordering code**	
Transparency detection		Part number	
Supply voltage U_S			10...30 V DC
No-load supply current I_0 max.			≤ 20 mA
Output current			200 mA
Switching type			Light/dark switching (selectable)
Polarity reversal/short-circuit protected			Yes/Yes
Settings			Potentiometer, 270°
Emitter, light type			Laser, red light
Wavelength			650 Nm
Laser class			1
Resolution (smallest discernible part)			50 µm
Repeat accuracy			10 µm
Switching hysteresis			20 µm
Output function indicator			Yellow LED
Response time			0.1 ms
Switching frequency			5 kHz
Degree of protection as per IEC 60529			IP 67
Ambient temperature T_a			–10...+60 °C
Ambient light limit according to			EN 60947-5-2
Material		Housing	GD-Zn
		Optical surface	Glass
Connection			M8 connector, 3-pin



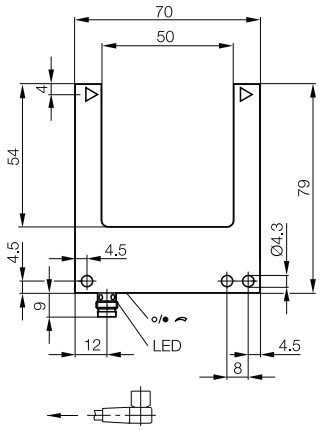
Other fork openings on request.

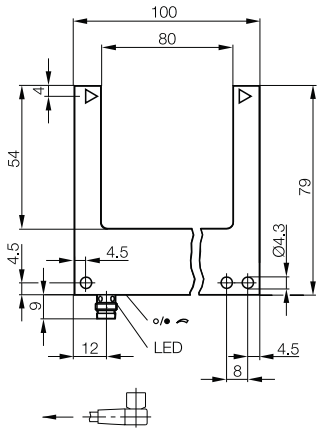


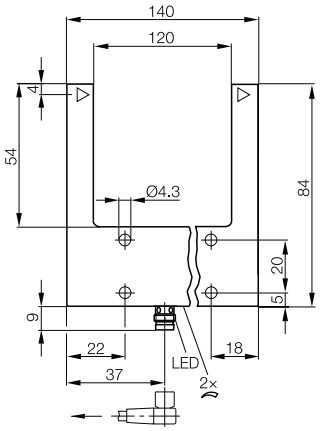


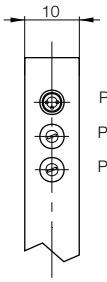


BGL	BGL	BGL
50 mm	**80 mm**	**120 mm**
54 mm	**54 mm**	**54 mm**
BGL001M	**BGL0025**	**BGL0009**
BGL 50A-003-S49	BGL 80A-003-S49	BGL 120A-003-S49
10...30 V DC	10...30 V DC	10...30 V DC
≤ 20 mA	≤ 20 mA	≤ 20 mA
200 mA	200 mA	200 mA
Light/dark switching (selectable)	Light/dark switching (selectable)	Light/dark switching (selectable)
Yes/Yes	Yes/Yes	Yes/Yes
Potentiometer, 270°	Potentiometer, 270°	Potentiometer, 270°
Laser, red light	Laser, red light	Laser, red light
650 Nm	650 Nm	650 Nm
1	1	1
80 µm	0.1 mm	0.15 mm
10 µm	10 µm	10 µm
25 µm	30 µm	50 µm
Yellow LED	Yellow LED	Yellow LED
0.1 ms	0.1 ms	0.1 ms
5 kHz	5 kHz	5 kHz
IP 67	IP 67	IP 67
–10...+60 °C	–10...+60 °C	–10...+60 °C
EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
GD-Zn	GD-Zn	GD-Zn
Glass	Glass	Glass
M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin





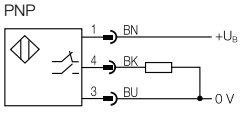




Plug, LED output function indicator
Potentiometer light/dark switching
Potentiometer, sensitivity

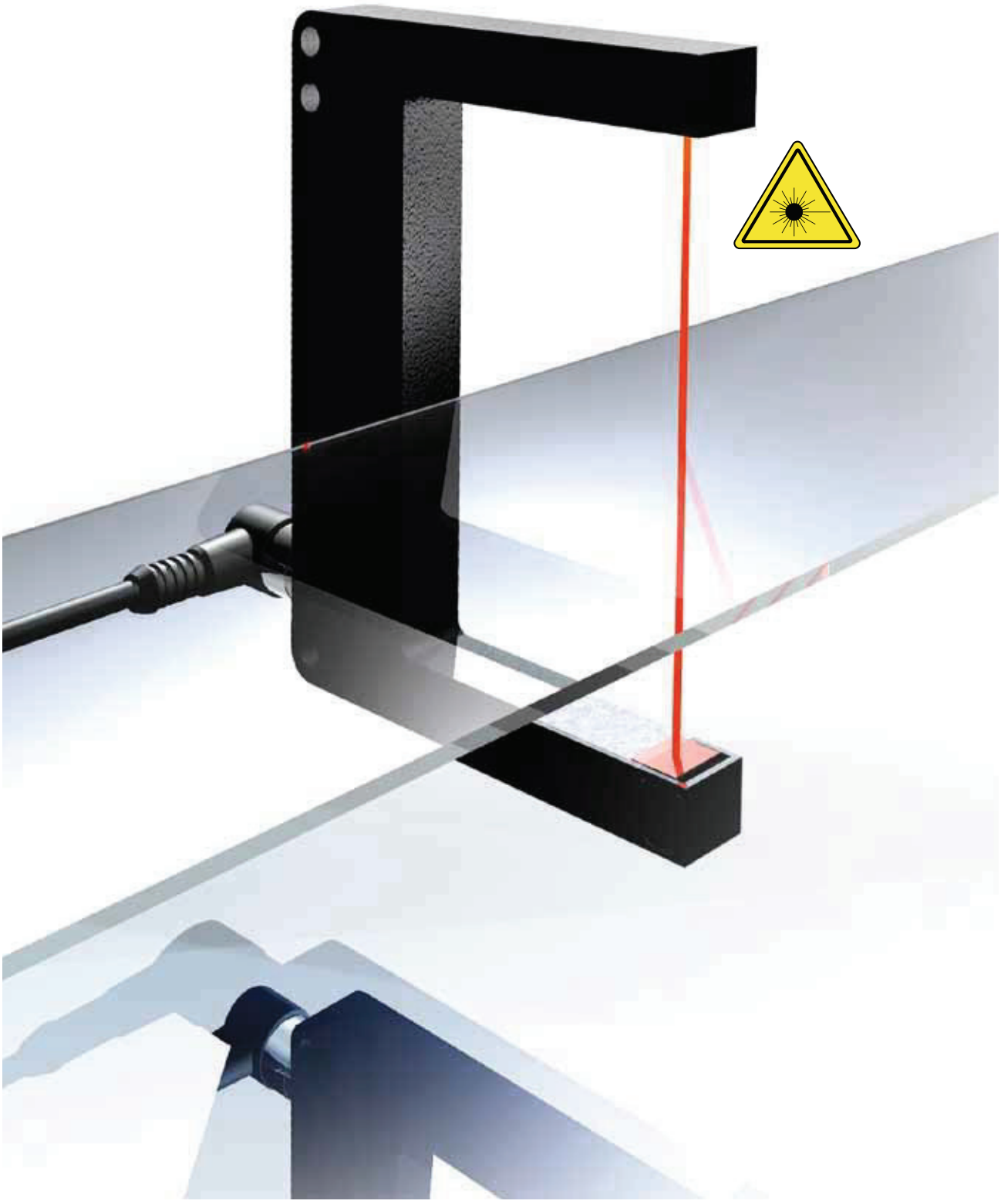
Wiring diagram

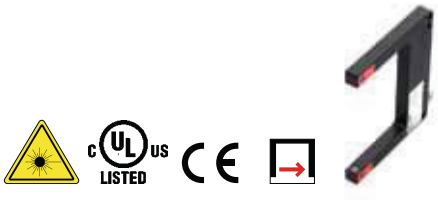
PNP



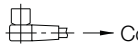
Reliable transparency detection with Laser fork sensors BGL

- No misalignment of emitter and receiver
- Easy, fast commissioning
- Reliable detection of transparent objects

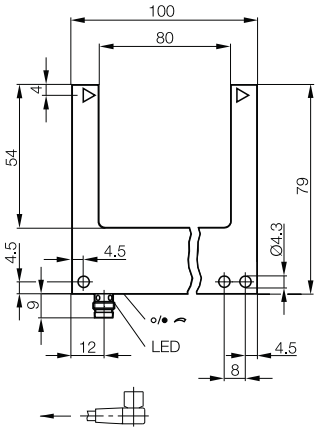




Series			**BGL transparent detection**
Fork opening			**80 mm**
Fork depth			**54 mm**
PNP	NO/NC	**Ordering code**	**BGL002T**
Transparency detection		Part number	BGL 80A-009-S49
Supply voltage U_S			10...30 V DC
No-load supply current I_0 max.			≤ 20 mA
Output current			200 mA
Switching type			Light/dark switching (selectable)
Polarity reversal/short-circuit protected			Yes/Yes
Settings			Potentiometer, 270°
Special features			detects transparent objects
Emitter, light type			Laser Class 1
Wavelength			650 Nm
Resolution (smallest discernible part)			50 µm
Repeat accuracy			10 µm
Switching hysteresis			30 µm
Power-on indicator			
Output function indicator			Yellow LED
Response time			0.1 ms
Switching frequency			5 kHz
Degree of protection as per IEC 60529			IP 67
Ambient temperature T_a			–10...+60 °C
Ambient light limit according to			EN 60947-5-2
Material		Housing	GD-Zn
		Optical surface	Glass
Connection			M8 connector, 3-pin


Connector orientation

Other fork openings on request.



Maximum reliability – simple handling

Balluff BGL laser fork sensors ensure completely reliable detection of transparent objects.

They also provide the unsurpassed benefits of fork sensors: Emitters and receivers do not have to be aligned, and misalignment no longer occurs. BGL laser fork sensors are therefore characterized by simple and fast commissioning as well as maximum reliability.

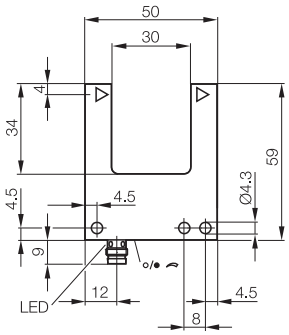
Fluid detection
The photoelectric sensors with fork openings of 30 mm and 80 mm are suitable for detecting the level of clear, colored or turbid fluids with a water content > 15% through transparent container walls. Balluff offers a solution for applications where other sensors reach their limits. For example, this fork sensor can detect fluids containing water in small, transparent hoses with a diameter of ≤ 6 mm.

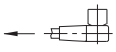
Dynamic Sensor Control (DSC)
provides high-quality information in addition to the sensor function. This lets users immediately detect whether increasing contamination has started impairing the accuracy of a sensor, and does so during ongoing operations. This enables immediate correction. Accordingly, DSC increases the productivity of systems and machines.

Series			**BGL fluid detection**
Fork opening			**30 mm**
Fork depth			**34 mm**
PNP	NO/NC	**Ordering code**	**BGL003J**
Fluid detection		Part number	BGL 30A-011-S49
PNP	NO/NC	**Ordering code**	
DSC (Dynamic Sensor Control)		Part number	
Supply voltage U_S			10...30 V DC
No-load supply current I_0 max.			≤ 35 mA
Output current			200 mA
Switching type			Light/dark switching (selectable)
Polarity reversal/short-circuit protected			Yes/Yes
Settings			Potentiometer, 270°
Special features			detects liquids with 15% or more water
Emitter, light type			Infrared
Wavelength			1480 Nm
Resolution (smallest discernible part)			0.6 mm
Repeat accuracy			0.1 mm
Switching hysteresis			≤ 0.2 mm
Power-on indicator			Green LED
Output function indicator			Yellow LED
Response time			0.25 ms
Switching frequency			2 kHz
Degree of protection as per IEC 60529			IP 67
Ambient temperature T_a			–10...+60 °C
Ambient light limit according to			EN 60947-5-2
Material		Housing	GD-Zn
		Optical surface	Glass
Connection			M8 connector, 3-pin


Connector orientation

Other fork openings on request.





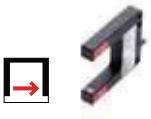
Suitable connectors
(please order separately)

Size	Design	Cable material	Color	Length	Ordering code
M8, 3-pin	Straight	PUR	Black	2 m	**BCC02M8**
M8, 3-pin	Straight	PVC	Gray	2 m	**BCC02NU**
M8, 3-pin	Angled	PUR	Black	2 m	**BCC02ML**
M8, 3-pin	Angled	PVC	Gray	2 m	**BCC02P5**

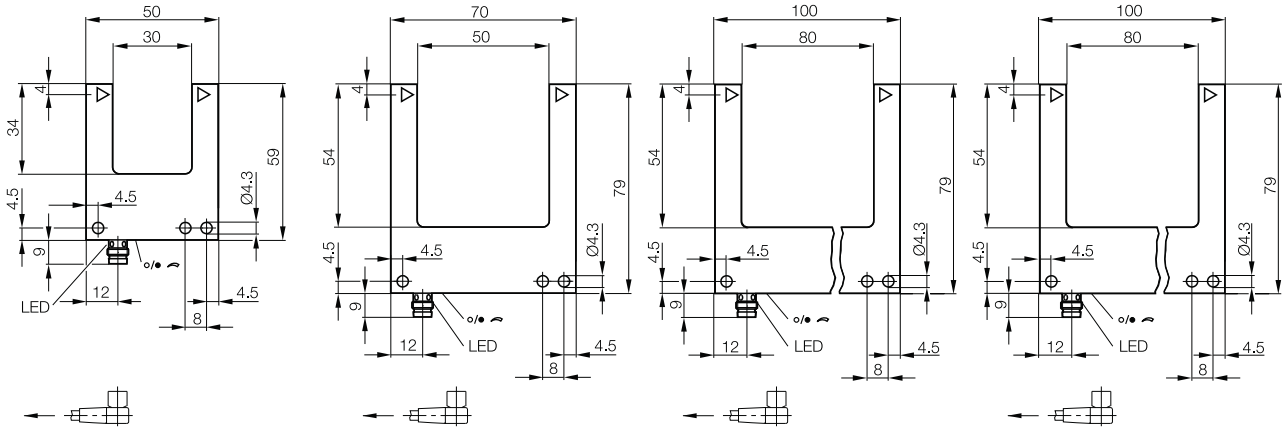
Connectors without LED are suitable for PNP and NPN sensors.

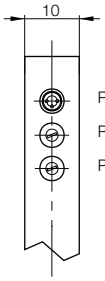
More electrical accessories: You can find a large selection of plug connectors and connector cables in a wide variety of cable materials, colors and lengths in our **Industrial Networking and Connectivity catalog.**

Mechanical accessories: You can find a large selection of mounting components of all types, such as clamping holders, mounting brackets and the Balluff mounting system BMS, in our **Accessories Line** catalog.




BGL with DSC	**BGL with DSC**	**BGL fluid detection**	**BGL with DSC**
30 mm	**50 mm**	**80 mm**	**80 mm**
34 mm	**54 mm**	**54 mm**	**54 mm**
		BGL003L	
		BGL 80A-011-S49	
BGL003N	**BGL003P**		**BGL003R**
BGL 30A-013-S49	BGL 50A-013-S49		BGL 80A-013-S49
10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
≤ 35 mA	≤ 35 mA	≤ 35 mA	≤ 35 mA
200 mA	200 mA	200 mA	200 mA
Light/dark switching (selectable)	Light/dark switching (selectable)	Light/dark switching (selectable)	Light/dark switching (selectable)
Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Potentiometer, 270°	Potentiometer, 270°	Potentiometer, 270°	Potentiometer, 270°
Contamination detection	Contamination detection	detects liquids with 15% or more water	Contamination detection
Infrared	Infrared	Infrared	Infrared
880 Nm	880 Nm	1480 Nm	880 Nm
0.8 mm	1 mm	0.8 mm	1.2 mm
0.1 mm	0.12 mm	0.1 mm	0.15 mm
≤ 0.3 mm	≤ 0.3 mm	≤ 0.2 mm	≤ 0.4 mm
Green LED	Green LED	Green LED	Green LED
Yellow LED	Yellow LED	Yellow LED	Yellow LED
2.5 ms	0.25 ms	0.25 ms	2.5 ms
200 Hz	200 Hz	2 kHz	200 Hz
IP 67	IP 67	IP 67	IP 67
–10...+60 °C	–10...+60 °C	–10...+60 °C	–10...+60 °C
EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
GD-Zn	GD-Zn	GD-Zn	GD-Zn
Glass	Glass	Glass	Glass
M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin

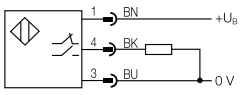




Plug, LED output function indicator
Potentiometer light/dark switching
Potentiometer, sensitivity

Wiring diagram

PNP

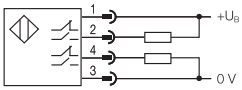


The fork sensor BGL 21 is a photoelectric sensor using a microcontroller for the setup process and function monitoring. All the user needs to do is press a button to access all the data needed for configuring the sensor.
An adjustment aid on the top and bottom of the sensor specifies the object position during configuration.
The internal microcontroller monitors all settings to ensure optimum switching frequency, repeat accuracy and rejection of optical interference and ambient light. The **BGL 21-RG** has a red and green emitter diode, which is ideal for detecting colored markings on transparent backing material. Which color of emitter light is more appropriate for the particular task is automatically determined during setup.
The **BGL 21-IR** model with an infrared emitter makes it possible to scan labels or holes on backing material.

Features
- Fast, fully automatic sensor calibration
- User interface has just one button and two LEDs
- Very short response time and high repeat accuracy
- Very resistant to optical interference and ambient light
- NPN/PNP output on separate pins with overload protection
- M8 connector block can be rotated 90°
- Metal housing

Applications
- Detecting markings on backing material
- Label detection
- Monitoring web tracking
- Web break monitoring
- Hole checking in thin materials (< 2 mm)

Wiring diagram



Suitable connectors
(please order separately)

Size	Design	Cable material	Color	Length	Ordering code
M8, 4-pin	Straight	PUR	Black	2 m	**BCC02N2**
M8, 4-pin	Straight	PVC	Gray	2 m	**BCC02PL**
M8, 4-pin	Angled	PUR	Black	2 m	**BCC02NC**
M8, 4-pin	Angled	PVC	Gray	2 m	**BCC02PZ**

Connectors without LED are suitable for PNP and NPN sensors.

More electrical accessories: You can find a large selection of plug connectors and connector cables in a wide variety of cable materials, colors and lengths in our **Industrial Networking and Connectivity catalog.**

Series			**BGL**	**BGL**
Fork opening			**2 mm**	**2 mm**
Fork depth			**50 mm**	**50 mm**
PNP/NPN NC/NO		**Ordering code**	**BGL002L**	**BGL002M**
		Part number	BGL 21-IR	BGL 21-RG
Supply voltage U_S			10...30 V DC	10...30 V DC
No-load supply current I_0 max.			≤ 55 mA	≤ 55 mA
Output current			100 mA	100 mA
Switching type			Light/dark switching (selectable)	Light/dark switching (selectable)
Polarity reversal/short-circuit protected			Yes/Yes	Yes/Yes
Settings			Teach-in	Teach-in
Emitter, light type			Infrared	Red and green light
Wavelength			880 Nm	636 nm/536 nm
Resolution (smallest discernible part)			1 mm	0.5 mm
Repeat accuracy			80 µm	80 µm
Switching hysteresis			≤ 0.2 mm	≤ 0.2 mm
Output function indicator			Yellow LED	Yellow LED
Power/error indicator			Green/red LED	Green/red LED
Response time			20 µs	20 µs
Switching frequency			25 kHz	25 kHz
Degree of protection as per IEC 60529			IP 65	IP 65
Ambient temperature T_a			–20...+60 °C	–20...+60 °C
Ambient light limit according to			EN 60947-5-2	EN 60947-5-2
Material		Housing	Anodized aluminum	Anodized aluminum
		Optical surface	Glass	Glass
Connection			M8 connector, 4-pin	M8 connector, 4-pin