



FACTORY AUTOMATION

PHOTOELECTRIC SENSORS

OVERVIEW



fP PEPPERL+FUCHS



Sensor type:

VariKont

VariKont L

Technical Data

Supply voltage:	10 - 30 V DC	10 - 30 V DC	10 - 30 V DC
Connection:	terminal compartment; conductor csa $\leq 2.5 \text{ mm}^2$	plug -V1 (M12) QUICKON	terminating resistor
Dimensions (mm):	40 x 140 x 40 (WxDxH)	40 x 55.5 x 40 (WxDxH)	30 x 90 x 40 (WxDxH)
Protection class:	IP 67	IP 67	IP 67
Ambient temperature:	-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C
Standards:	EN 60 947-5-2	EN 60 947-5-2	EN 60 947-5-2

Through beam sensors

Sensing range (m):

Type of light:

Stability control output/-display:

Accessories:

Switch output:

Switching frequency (Hz):



Reflex sensors

Sensing range (m):

On reflector:

Type of light/Polarising filter:

Stability control output/-display:

Accessories:

Switch output:

Switching frequency (Hz):



Direct detection sensors

Sensing range (m):

Type of light:

Stability control output/-display:

Background masking:

Accessories:

Switch output:

Switching frequency (Hz):



Sensors with light guides

Sensing range (m):

with

Type of light:

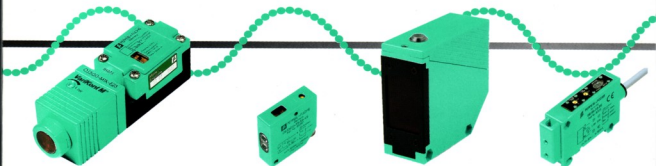
Stability control output/-display:

Accessories:

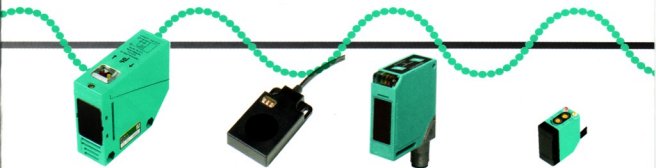
Switch output:

Switching frequency (Hz):





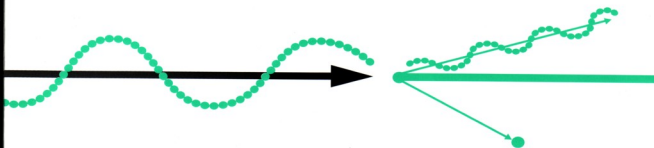
VariKont M	F3	F5	F6
10 - 60 V DC (two wire)	10 - 30 V DC	0 - 30 V DC	10 - 30 V DC
terminal compartment; conductor csa ≤ 2.5 mm ²	2 m PVC or PUR-cable plug V3 (M8)	terminal compartment, conductor csa ≤ 2.5 mm ²	2 m PVC-cable plug V1 (M12)
1 x 30 (WxDxH)	12.7 x 40 x 40 (WxDxH)	85 x 89 x 34 (WxDxH)	15 x 65 x 35 (WxDxH)
IP 67	IP 67	IP 64	IP 63
-25 °C ... +70 °C	-25 °C ... +70 °C	0 °C ... +50 °C	-25 °C ... +55 °C
EN 60 947-5-2	EN 60 947-5	EN 60 947-5-2	EN 60 947-5-2
0 (two wire)	2.0; 1.0 (two wire)	20.0	
50 mm	50 mm x 50 mm / ø 80 mm	100 mm x 100 mm	
light 660 nm, polarising filter	IR-light 950 nm	IR-light 880 nm	
sensing head moveable, light guide, reflector	reflector, mounting attachment	reflector, mounting attachment; analog output 4 ... 20 mA	
n/p; normally open/normally closed selectable; N/dark ON selectable	n/p/n/p; normally open/normally closed; light ON, dark ON	n/p; normally open; light ON selectable	
2-wire; normally open/normally closed; N/dark ON programmable wiring			
5 k; 100 (two wire)	200; 100 (two wire)	10	
3 (two wire)	0.3; 0.15 (two wire)	5.0	
light 950 nm	IR-light 950 nm	IR-light 880 nm	
2-wire not available	-/-	-/-	
plastic light guide	—	—	
sensing attachment, timer, sensing head moveable, light guide, pulse lengthening (not available for two wire)	mounting attachment	mounting attachment; analog output 4 ... 20 mA	
n/p; normally open/normally closed selectable; N/dark ON selectable	n/p/n/p; normally closed; light ON/dark ON	n/p; normally open; light ON selectable	
2-wire; normally open/normally closed; N/dark ON programmable wiring			
5 k; 100 (two wire)	200; 100 (two wire)	10	
0.07 / 0.15 (direct detection/through beam mode)			0.07 / 0.15 (direct detection/through beam mode)
plastic light guide			plastic light guide
light 950 nm			red light 680 nm
sensing attachment, sensing head moveable, pulse lengthening			"top hat" rail mounting
frequencies selectable			
n/p; normally open/normally closed selectable; N/dark ON selectable			n/p/n/p; normally open/normally closed; light ON/dark ON programmable wiring
5 k			100/200/700/1.5 k



F8	F17	F22	F28
10 - 30 V DC; 12 - 240 V DC terminal compartment, cable cross section ≤ 10 mm plug V1 (M12) 25 x 75 x 64 (WxDxH) IP 66 -25 °C ... +55 °C EN 60 947-5-2	10 - 30 V DC 2 m PUR-cable 30 x 50 x 10 (WxDxH) IP 67 -25 °C ... +70 °C EN 60 947-5-2	10 - 30 V DC plug V1 (M12), 5 pole 18 x 45 x 50 (WxDxH) IP 67 25 °C ... +70 °C EN 60 947-5-2	10 - 30 V DC 2 m PUR-cable 12 x 24 x 26 (WxDxH) IP 67 -25 °C ... +55 °C EN 60 947-5-2
20.0 IR-light 940 nm -/+ mounting attachment, timer npn/pnp; normally open/normally closed; light ON/dark ON selectable 300; 25 (relay output)		15.0 red light 660 nm -/+ mounting attachment, timer npn/pnp; normally open/N. normally closed; light ON/dark ON programmable 1000	5.0 IR-light 950 nm -/+ mounting attachment npn/pnp; normally open/ normally closed; light ON/dark ON selectable 200
5.0 50 mm x 50 mm red light 660 nm -/+ reflector, mounting attachment npn/pnp; normally open/normally closed; light ON/dark ON selectable 300; (relay output)	2.0 50 mm x 50 mm IR-light 950 nm -/+ reflector npn/pnp; normally closed; dark ON 500	6.0 polarized (2.0 clear glas) 50 mm x 50 mm red light 660 nm -/+ reflector, mounting attachment npn/pnp; normally open/normally closed light ON/dark ON programmable 1000	2.0; 1.5 (polarized) 50 mm x 50 mm IR-light 950 nm -/+ reflector, mounting attachment npn/pnp; normally open/ normally closed light ON/dark ON selectable 500
0.8; 2.0 IR-light 940 nm -/+ available mounting attachment, timer relay output; npn/pnp; normally open/normally closed; light ON/dark ON selectable 300; 25 (relay output)	0.08 IR-light 950 nm -/+ — mounting attachment npn/pnp; normally open light ON 500	0.5 red light 660 nm -/+ available mounting attachment npn/pnp; normally open/normally closed light ON/dark ON programmable 1000	0.4 IR-light 950 nm -/+ — mounting attachment npn/pnp; normally open/normally light ON/dark ON selectable 500

beam mode)

used selectable;



Sensor type:	VariKont M	VariKont	F3	F5*
Technical Data	Supply voltage: 6 - 20 V DC	6 - 20 V DC	6 - 18 V DC	6 - 20 V DC
	Connection, dimensions, protection class and ambient temperature see corresponding sensors on the left side.			
	Standards: DIN 19234 (NAMUR)	DIN 19234 (NAMUR)	DIN 19234 (NAMUR)	DIN 19234 (NAMUR)

 Sensors for Ex-area	Reflex sensor				
	Sensing range (m):	2.0	5.0	1.0	8.0
	On reflector:	ø 80 mm	100 mm x 100 mm	ø 80 mm	100 x 100 mm
	Type of light:	red light 660 nm	red light 660 nm	red light 660 nm	red light 660 nm
	Stability control output/-display:	-/-	-/-	-/-	-/-
	Accessories:	reflector, mounting attachment, sensing head moveable	reflector, mounting attachment, sensing head moveable	reflector, mounting attachment	reflector, mounting attachment
	Switch output:	light ON/dark ON programmable wiring	light ON/dark ON programmable wiring	light ON/dark ON	light ON/dark ON programmable wiring
	Switching frequency (Hz):	100	100	100	100
	PTB Nr.:	Ex 93.C.2118 Ex ia IIC T6	Ex 95.D.2147 Ex ia IIC T6	Ex-94.C.2052 Ex ia IIC T6	Ex-97.0.2264 Ex ia IIC T6
	Direct detection sensors				
	Sensing range (m):	0.3	1.0	0.15	2.0
	Type of light:	IR-light 880 nm	IR-light 860 nm	IR-light 860 nm	IR-light 860 nm
	Stability control output/-display:	-/-	-/-	-/-	-/-
	Accessories:	reflector, mounting attachment, sensing head moveable	reflector, mounting attachment, sensing head moveable	reflector, mounting attachment	reflector, mounting attachment
	Switch output:	light ON/dark ON programmable wiring	light ON/dark ON programmable wiring	light ON/dark ON	light ON/dark ON programmable wiring
	Switching frequency (Hz):	100	100	100	100
	PTB Nr.:	Ex 93.C.2118 Ex ia IIC T6	Ex 95.D.2147 Ex ia IIC T6	Ex-94.C.2052 Ex ia IIC T6	Ex-97.D.2264 Ex ia IIC T6

Sensor type:	VariKont M	VariKont	F3	F8
Technical Data	Supply voltage: via AS-Interface	via AS-Interface	via AS-Interface	via AS-Interface
	Connection, dimensions, protection class and ambient temperature see corresponding sensors on the left side.			
	Standards: EN 60 947-5-2	EN 60 947-5-2	EN 60 947-5-2	EN 60 947-5-2

 Bus compatible Sensors	Reflex sensor				
	Sensing range (m):	3.0	10.0	2.0	5.0
	On reflector:	ø 80 mm	100 mm x 100 mm	ø 80 mm	ø 80 mm
	Type of light:	red light 660 nm	red light 660 nm	IR-light 950 nm	red light 660 nm
	Accessories:	reflector, mounting attachment, sensing head moveable	reflector, mounting attachment, sensing head moveable	reflector, mounting attachment	reflector, mounting attachment
	Switch output:	light ON/dark ON programmable	light ON/dark ON programmable	light ON/dark ON programmable	light ON/dark ON programmable
	Switching frequency (Hz):	200/1.5 k	200/1.5 k	100	100
	Direct detection sensors				
	Sensing range (m):	0.5	2.0	0.3	0.8
	Type of light:	IR-light 950 nm	IR-light 880 nm	IR-light 950 nm	IR-light 940 nm
	Accessories:	mounting attachment, light guide, sensing head moveable	mounting attachment, sensing head moveable	mounting attachment	mounting attachment
	Switch output:	light ON/dark ON programmable	light ON/dark ON programmable	light ON/dark ON programmable	light ON/dark ON selectable
	Switching frequency (Hz):	200/1.5 k	200/1.5 k	100	100

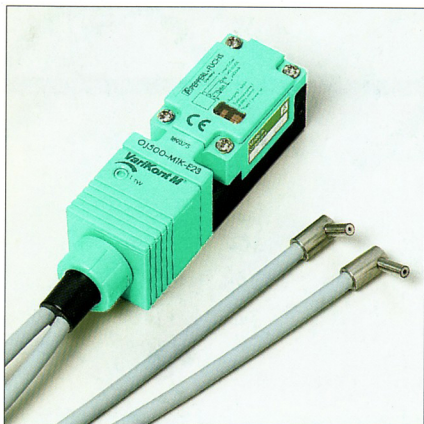


Sensor type:		4/5GM	12GM	18GM
Technical Data	Supply voltage:	10 - 30 V DC	10 - 30 V DC	10 - 30 V DC
	Connection:	5 m PUR-cable; Plug V3	2 m PVC-cable; Plug -V1 (M12)	2 m PVC-cable; Plug -V1 (M12)
	Dimensions (mm):	ø 4 mm, l = 35 mm; plug connector l = 45 mm M5 x 0.5; l = 35 mm; plug connector l = 45 mm	M12 x 1; l = 55 mm	M18 x 1; l = 70 mm
	Protection class:	IP 67	IP 67	IP 67
	Ambient temperature:	0 °C ... +55°C	-25 °C ... +55 °C	-25 °C ... + 55 °C
	Standards:	EN 60 947-5-2	EN 60 947-5-2	EN 60 947-5-2
Through beam sensors	Sensing range (m):	250	5.0	5.0
	Type of light:	IR light 880 nm	red light 660 nm	IR light 940 nm
	Stability control output/-display:	-/*	-/-	-/-
	Accessories:	mounting attachment	mounting attachment	mounting attachment, tilted mirror 90°
	Switch output:	npn/pnp; n. open/n. closed; light On/dark On; programmable wiring	npn/pnp; n. open/n. closed; light On/dark On; programmable wiring	npn/pnp; n. open/n. closed; light On/dark On; programmable wiring
Reflex sensors	Sensing range (m):	2.0; 1.0 (polarized)	3.0; 1.5 (polarized)	
	On reflector:		50 mm x 50 mm	50 mm x 50 mm
	Type of light/Polarising filter:		red light 660 nm	IR light 880 nm
	Stability control output/-display:	-/-	-/-	
	Accessories:		mounting attachment, reflector	mounting attachment, reflector tilted mirror 90°
Direct detection sensors	Sensing range (m):	50	0.2	0.2
	Type of light:	IR light 880 nm	red light	IR light 940 nm
	Stability control output/-display:	-/*	-/-	-/-
	Background masking:	-	available	-
	Accessories:	mounting attachment	mounting attachment	mounting attachment, tilted mirror 90°
Sensors with light guides	Sensing range (m):			0.03 / 0.2 (direct detection/through beam mode)
	with			glass fibre light guide
	Type of light:			IR light 940 nm
	Stability control output/-display:		-/-	
	Accessories:			mounting attachment, off-set lens, npn/pnp; norm. open/norm. closed; light On/dark On programmable wiring
	Switch output:	npn/pnp; n. open/n. closed; light On/dark On; programmable wiring	npn/pnp; n. open/n. closed; light On/dark On; programmable wiring	npn/pnp; n. open/n. closed; light On/dark On; programmable wiring
	Switching frequency (Hz):	250	700	300
	Switching frequency (Hz):			300
	Switching frequency (Hz):			300
	Switching frequency (Hz):			300

* = available

- = not available

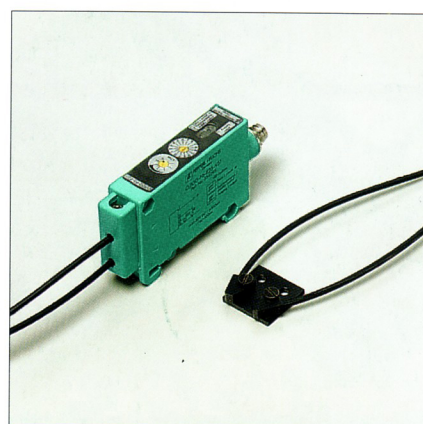
Light Guides and Accessories



Sensor of the series VariKont M with glass fibre light guide for direct detection.



Cylindrical sensor of the series M18 with glass fibre light guide for through beam operation.



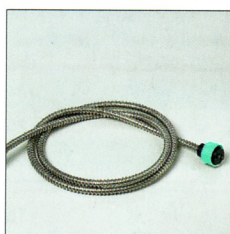
Sensor of the series F6 with plastic light guide for through beam operation.



Light guide with silicone covering.



Light guide with plastic covering.



Light guide with metal covering.



Accessories: e.g. adaptor, fixing clamps, mounting brackets, retro-reflectors, glass fibre and plastic light guide, cable connectors.

Please find our complete program on photoelectric sensors, light guides and accessories in our catalog Sensors 2, Photoelectric Sensors or on our CDROM.