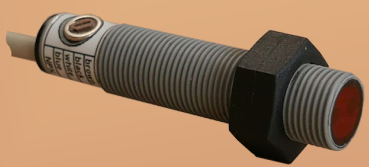
"ESA Control" Ltd

DIFFUSE

PHOTOELECTRIC SENSORS

for direct current

DC



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M8 diffuse photoelectric sensor for direct current

ODM1-08

fig.1

Application and operating principle

The presented M8 diffuse photoelectric sensor serves to switch direct current circuits. The sensor emits modulated ray of light, which is reflected by the passing (coming near) object and returns back to the sensor. When an object passes in front of the sensor active surface its output switches from one state to another. Nominal switching distance of the sensor is measured by the help of white cardboard with size 50x50 mm. The output indicator of sensor is on, when the receiver output is active.

Technical parameters

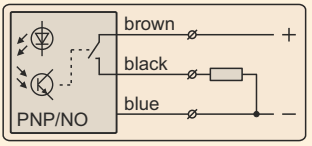
Operating distance, *Sn*	0...45 mm
Supply voltage, *Us*	9…36 VDC (Ripple ±10 %)
Residual voltage (max), *Ures*	0,8 V (I = 250 mA)
Load current (max), *Iout*	250 mA
Protection of output, *Iprot*	No
Current consumption, *Is*	10 mA
Switching frequency (max), *fo*	300 Hz
Spectrum area of operating	850…950 nm
Operating ambient illumination	0...10'000 Lx
Operating temperature range, *Tamb*	-25º…+70ºC
Degree of protection	IP65
Output light indicator	LED
Connection cable	3x0.25 mm², L=2 m, PVC
Overall dimensions	M8x1, L=46 mm
Housing - metallic	CuZn (Ni plated)

Protection from reverse inclusion of the supply voltage.
There is no protection of the output from overcurrent and short circuit.

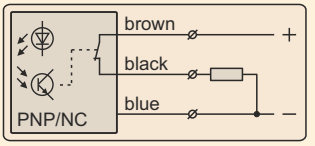
Type parameters

Type	Output function	Scheme of connection
ODM1-08.11.F	PNP / NO	11
ODM1-08.12.F	PNP / NC	12
ODM1-08.21.F	NPN / NO	21
ODM1-08.22.F	NPN / NC	22

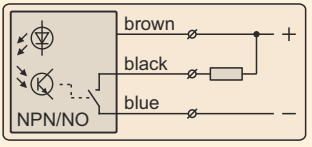
Schemes of connection



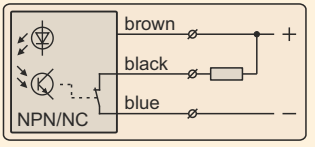
Scheme 11



Scheme 12



Scheme 21



Scheme 22

M12 diffuse photoelectric sensor for direct current (DC)

ODP1-12

fig.1

Application and operating principle

The presented M12 diffuse photoelectric sensor serves to switch direct current circuits. The sensor emits modulated ray of light, which is reflected by the passing (coming near) object and returns back to the sensor. When an object passes in front of the sensor active surface its output switches from one state to another. Nominal switching distance of the sensor is measured by the help of white cardboard with size 100x100 mm. When there is object in front of the sensor, the output indicator is on. The sensor has a potentiometer for adjusting the maximum action distance Sn.

Technical parameters

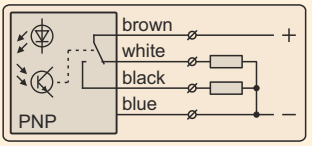
Operating distance, *Sn*	0...150 mm
Supply voltage, *Us*	9…36 VDC (Ripple ±10 %)
Residual voltage (max), *Ures*	0,8 V (I = 250 mA)
Load current (max), *Iout*	250 mA
Protection of output (scanning), *Iprot*	350 mA (25ºC)
Current consumption, *Is*	10 mA
Switching frequency (max), *fo*	150 Hz
Spectrum area of operating	850…950 nm
Operating ambient illumination	0...10'000 Lx
Operating temperature range, *Tamb*	-25º…+70ºC
Degree of protection	IP54
Output light indicator	LED
Connection cable	4x0.25 mm², L=2 m, PVC
Overall dimensions	M12x1, L=56 mm
Housing - plastic	PVC

Full protection to 40V:
Protection against incorrect connection of cables, current overload and short-circuit at the outputs.

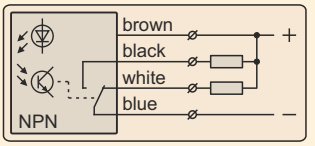
Type parameters

Type	Output function	Scheme of connection
ODP1-12.10.FKT	PNP / NO+NC	10
ODP1-12.20.FKT	NPN / NO+NC	20

Schemes of connection



Scheme 10



Scheme 20

M18 diffuse photoelectric sensor for direct current (DC)

ODP1-18

fig.1

Application and operating principle

The presented M18 diffuse photoelectric sensor serves to switch direct current circuits. The sensor emits modulated ray of light, which is reflected by the passing (coming near) object and returns back to the sensor. When an object passes in front of the sensor active surface its output switches from one state to another. Nominal switching distance of the sensor is measured by the help of white cardboard with size 100x100 mm. When there is object in front of the sensor, the output indicator is on. The sensor has a potentiometer for adjusting the maximum action distance Sn.

Technical parameters

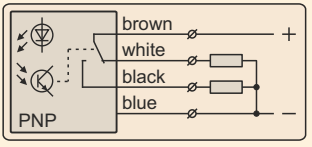
Operating distance, *Sn*	0...300 mm
Supply voltage, *Us*	9…36 VDC (Ripple ±10 %)
Residual voltage (max), *Ures*	0,8 V (I = 250 mA)
Load current (max), *Iout*	250 mA
Protection of output (scanning), *Iprot*	350 mA (25ºC)
Current consumption, *Is*	10 mA
Switching frequency (max), *fo*	150 Hz
Spectrum area of operating	850…950 nm
Operating ambient illumination	0...10'000 Lx
Operating temperature range, *Tamb*	-25º…+70ºC
Degree of protection	IP54
Output light indicator	LED
Connection cable	4x0.25 mm², L=2 m, PVC
Overall dimensions	M18x1, L=65 mm
Housing - plastic	PVC

Full protection to 40V:
Protection against incorrect connection of cables, current overload and short-circuit at the outputs.

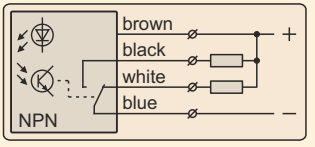
Type parameters

Type	Output function	Scheme of connection
ODP1-18.10.FKT	PNP / NO+NC	10
ODP1-18.20.FKT	NPN / NO+NC	20

Schemes of connection



Scheme 10



Scheme 20

M18 diffuse photoelectric sensor for direct current (DC)

ODP1-18/L

fig.1

Application and operating principle

The presented M18/L diffuse photoelectric sensor is used to operate in a wide range of ambient light - from dark to direct sunlight without changing its sensitivity and operating distance (Sn). It is designed for switching direct current electrical circuits. The sensor emits modulated ray of light, which is reflected by the passing (coming near) object and returns back to the sensor. When an object passes in front of the sensor active surface its output switches from one state to another. Nominal switching distance of the sensor is measured by the help of white cardboard with size 100x100 mm. When there is object in front of the sensor, the output indicator is on. The sensor has a potentiometer for adjusting the maximum action distance Sn.

Technical parameters

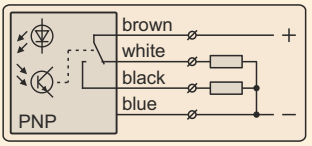
Operating distance, *Sn*	0...500 mm
Supply voltage, *Us*	9…36 VDC (Ripple ±10 %)
Residual voltage (max), *Ures*	0,8 V (I = 250 mA)
Load current (max), *Iout*	250 mA
Protection of output (scanning), *Iprot*	350 mA (25ºC)
Current consumption, *Is*	10 mA
Switching frequency (max), *fo*	150 Hz
Spectrum area of operating	850…950 nm
Operating ambient illumination	0...180'000 Lx
Operating temperature range, *Tamb*	-25º…+70ºC
Degree of protection	IP54
Output light indicator	LED
Connection cable	4x0.25 mm², L=2 m, PVC
Overall dimensions	M18x1, L=65 mm
Housing - plastic	PVC

Full protection to 40V:
Protection against incorrect connection of cables, current overload and short-circuit at the outputs.

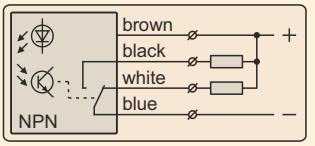
Type parameters

Type	Output function	Scheme of connection
ODP1-18.10.FKTL	PNP / NO+NC	10
ODP1-18.20.FKTL	NPN / NO+NC	20

Schemes of connection



Scheme 10



Scheme 20

M18 diffuse photoelectric sensor with convergent rays for direct current (DC)

ODP1-18/FF

fig.1

Application and operating principle

The presented M18 diffuse photoelectric sensor with convergent rays is designed to detect small and thin objects. The sensor emits modulated ray of light, which is reflected by the passing (coming near) object and returns back to the sensor. When an object passes in front of the sensor active surface its output switches from one state to another. Nominal switching distance of the sensor is measured by the help of white cardboard with size 100x100 mm. When there is object in front of the sensor, the output indicator is on. The sensor has a potentiometer for adjusting the maximum action distance Sn.

Technical parameters

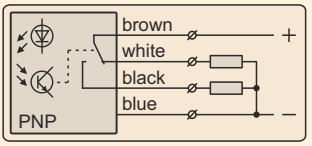
Operating distance, *Sn*	0...100 mm
Supply voltage, *Us*	9…36 VDC (Ripple ±10 %)
Residual voltage (max), *Ures*	0,8 V (I = 250 mA)
Load current (max), *Iout*	250 mA
Protection of output (scanning), *Iprot*	350 mA (25ºC)
Current consumption, *Is*	10 mA
Switching frequency (max), *fo*	150 Hz
Spectrum area of operating	850…950 nm
Operating ambient illumination	0...10'000 Lx
Operating temperature range, *Tamb*	-25º…+70ºC
Degree of protection	IP54
Output light indicator	LED
Connection cable	4x0.25 mm², L=2 m, PVC
Overall dimensions	M18x1, L=65 mm
Housing - plastic	PVC

Full protection to 40V:
Protection against incorrect connection of cables, current overload and short-circuit at the outputs.

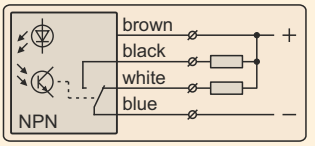
Type parameters

Type	Output function	Scheme of connection
ODP1-18.10.FFKT	PNP / NO+NC	10
ODP1-18.20.FFKT	NPN / NO+NC	20

Schemes of connection



Scheme 10



Scheme 20

ODP3-60.A diffuse photoelectric sensor for direct current (DC)

ODP3-60/A

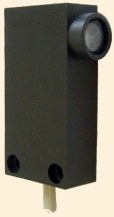


fig.1

Application and operating principle

The presented ODP3-60.A diffuse photoelectric sensor serves to switch direct current circuits. The sensor emits modulated ray of light, which is reflected by the passing (coming near) object and returns back to the sensor. When an object passes in front of the sensor active surface its output switches from one state to another. Nominal switching distance of the sensor is measured by the help of white cardboard with size 100x100 mm. When there is object in front of the sensor, the output indicator is on. The sensor has a potentiometer for adjusting the maximum action distance Sn.

Technical parameters

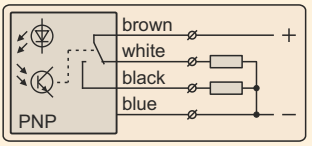
Operating distance, *Sn*	0...300 mm
Supply voltage, *Us*	9…36 VDC (Ripple ±10 %)
Residual voltage (max), *Ures*	0,8 V (I = 250 mA)
Load current (max), *Iout*	250 mA
Protection of output (scanning), *Iprot*	350 mA (25ºC)
Current consumption, *Is*	10 mA
Switching frequency (max), *fo*	150 Hz
Spectrum area of operating	850…950 nm
Operating ambient illumination	0...10'000 Lx
Operating temperature range, *Tamb*	-25º…+70ºC
Degree of protection	IP54
Output light indicator	LED
Connection cable	4x0.25 mm², L=2 m, PVC
Overall dimensions	36x15x60 mm
Housing - plastic	PA6 (Polyamide)

Full protection to 40V:
Protection against incorrect connection of cables, current overload and short-circuit at the outputs.

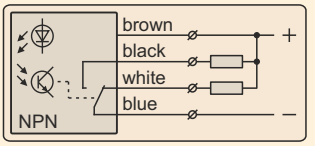
Type parameters

Type	Output function	Scheme of connection
ODP3-60.10.FKTA	PNP / NO+NC	10
ODP3-60.20.FKTA	NPN / NO+NC	20

Schemes of connection



Scheme 10



Scheme 20

M30 diffuse photoelectric sensor for direct current (DC)

ODP1-30

fig.1

Application and operating principle

The presented M30 diffuse photoelectric sensor serves to switch direct current circuits. The sensor emits modulated ray of light, which is reflected by the passing (coming near) object and returns back to the sensor. When an object passes in front of the sensor active surface its output switches from one state to another. Nominal switching distance of the sensor is measured by the help of white cardboard with size 100x100 mm. When there is object in front of the sensor, the output indicator is on. The sensor has a potentiometer for adjusting the maximum action distance Sn.

Technical parameters

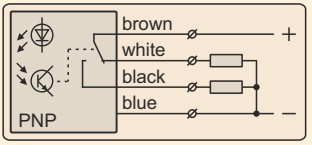
Operating distance, *Sn*	0...700 mm
Supply voltage, *Us*	9…36 VDC (Ripple ±10 %)
Residual voltage (max), *Ures*	0,8 V (I = 250 mA)
Load current (max), *Iout*	250 mA
Protection of output (scanning), *Iprot*	350 mA (25ºC)
Current consumption, *Is*	10 mA
Switching frequency (max), *fo*	150 Hz
Spectrum area of operating	850…950 nm
Operating ambient illumination	0...10'000 Lx
Operating temperature range, *Tamb*	-25º…+70ºC
Degree of protection	IP54
Output light indicator	LED
Connection cable	4x0.25 mm², L=2 m, PVC
Overall dimensions	M30x1.5, L=69 mm
Housing - plastic	PVC

Full protection to 40V:
Protection against incorrect connection of cables, current overload and short-circuit at the outputs.

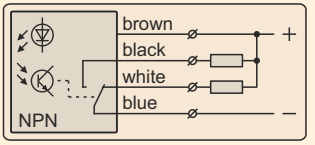
Type parameters

Type	Output function	Scheme of connection
ODP1-30.10.FKT	PNP / NO+NC	10
ODP1-30.20.FKT	NPN / NO+NC	20

Schemes of connection



Scheme 10



Scheme 20

M30 diffuse photoelectric sensor for direct current (DC)

ODP1-30/L

fig.1

Application and operating principle

The presented M30/L diffuse photoelectric sensor is used to operate in a wide range of ambient light - from dark to direct sunlight without changing its sensitivity and operating distance (Sn). It is designed for switching direct current electrical circuits. The sensor emits modulated ray of light, which is reflected by the passing (coming near) object and returns back to the sensor. When an object passes in front of the sensor active surface its output switches from one state to another. Nominal switching distance of the sensor is measured by the help of white cardboard with size 150x150 mm. When there is object in front of the sensor, the output indicator is on. The sensor has a potentiometer for adjusting the maximum action distance Sn.

Technical parameters

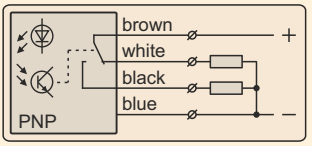
Operating distance, *Sn*	0,02...2,50 m
Supply voltage, *Us*	9…36 VDC (Ripple ±10 %)
Residual voltage (max), *Ures*	0,8 V (I = 250 mA)
Load current (max), *Iout*	250 mA
Protection of output (scanning), *Iprot*	350 mA (25ºC)
Current consumption, *Is*	20 mA
Switching frequency (max), *fo*	150 Hz
Spectrum area of operating	850…950 nm
Operating ambient illumination	0...180'000 Lx
Operating temperature range, *Tamb*	-25º…+70ºC
Degree of protection	IP54
Output light indicator	LED
Connection cable	4x0.25 mm², L=2 m, PVC
Overall dimensions	M30x1.5, L=69 mm
Housing - plastic	PVC

Full protection to 40V:
Protection against incorrect connection of cables, current overload and short-circuit at the outputs.

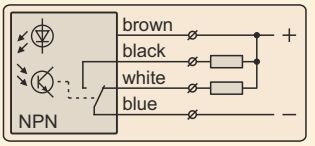
Type parameters

Type	Output function	Scheme of connection
ODP1-30.10.FKT-L	PNP / NO+NC	10
ODP1-30.20.FKT-L	NPN / NO+NC	20

Schemes of connection



Scheme 10



Scheme 20

ODP3-60 diffuse photoelectric sensor for direct current (DC)

ODP3-60

fig.1

Application and operating principle

The presented ODP3-60 diffuse photoelectric sensor serves to switch direct current circuits. The sensor emits modulated ray of light, which is reflected by the passing (coming near) object and returns back to the sensor. When an object passes in front of the sensor active surface its output switches from one state to another. Nominal switching distance of the sensor is measured by the help of white cardboard with size 100x100 mm. When there is object in front of the sensor, the output indicator is on. The sensor has a potentiometer for adjusting the maximum action distance Sn.

Technical parameters

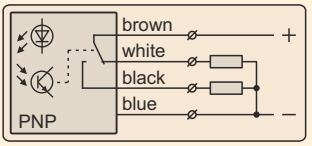
Operating distance, *Sn*	0...700 mm
Supply voltage, *Us*	9…36 VDC (Ripple ±10 %)
Residual voltage (max), *Ures*	0,8 V (I = 250 mA)
Load current (max), *Iout*	250 mA
Protection of output (scanning), *Iprot*	350 mA (25ºC)
Current consumption, *Is*	10 mA
Switching frequency (max), *fo*	150 Hz
Spectrum area of operating	850…950 nm
Operating ambient illumination	0...10'000 Lx
Operating temperature range, *Tamb*	-25º…+70ºC
Degree of protection	IP54
Output light indicator	LED
Connection cable	4x0.25 mm², L=2 m, PVC
Overall dimensions	38x15x60 mm
Housing - plastic	PA6 (Polyamide)

Full protection to 40V:
Protection against incorrect connection of cables, current overload and short-circuit at the outputs.

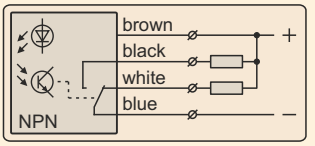
Type parameters

Type	Output function	Scheme of connection
ODP3-60.10.FKT	PNP / NO+NC	10
ODP3-60.20.FKT	NPN / NO+NC	20

Schemes of connection

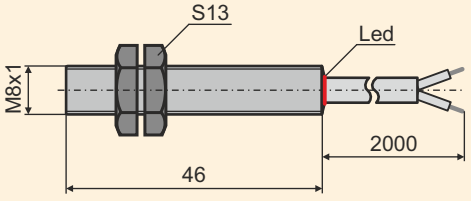


Scheme 10

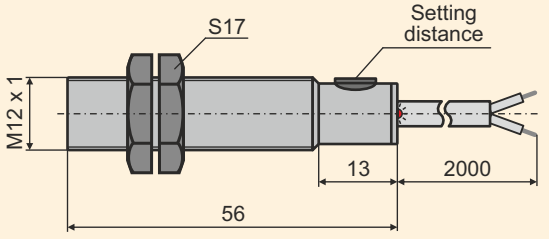


Scheme 20

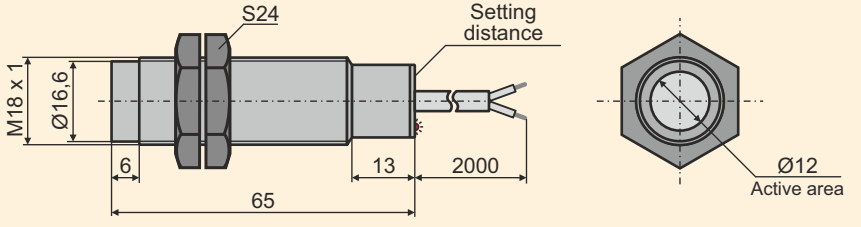
M8



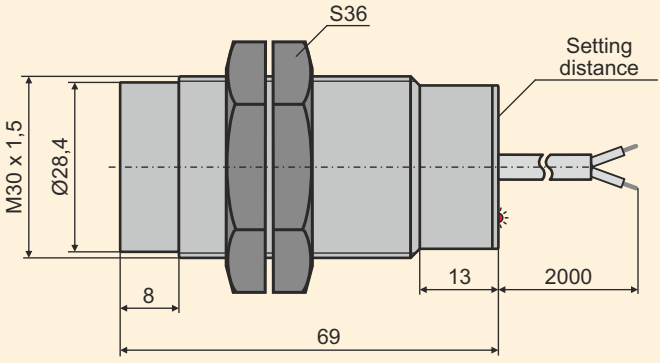
M12



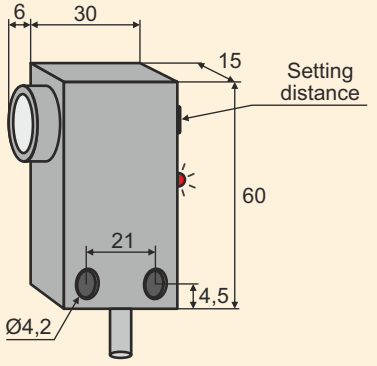
M18



M30



ODP3-60.A



ODP3-60