2.1

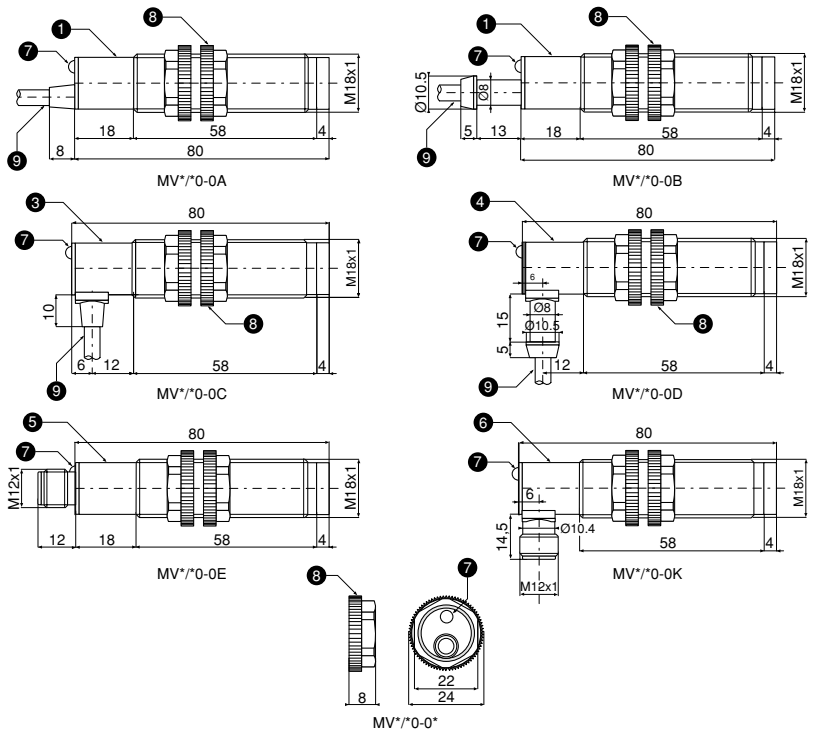
SERIE MV-MQ

Multivoltage M18 photoelectric sensors axial and with right angle optics - AC

- Wide range of models: diffuse, retro-reflective, polarized, through-beam detection and with background suppression
- New through-beam models with high sensing range
- New retro-reflective models with polarized light (with visible beam)
- New models with fixed distance background suppression (MV0 and MV1)
- New models with right angle optic (MQ)
- 6 cable exit options to suit any installation
- M12 plug cable exit in axial or right angle shape (also available in all MV serie)
- Low leakage current and high output current
- IP67 protection degree
- Complete protection againts electrical damage
- Wide range of connectors, accessories and reflectors available

CE

DIMENSIONAL DRAWING

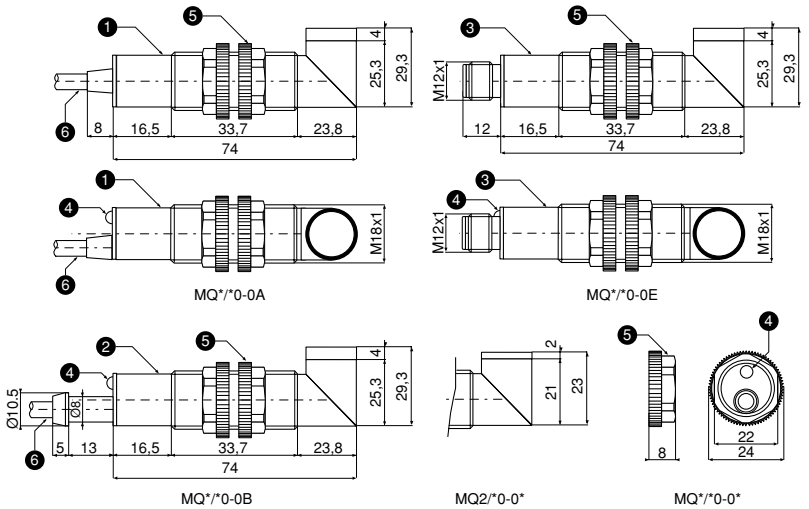


Key

1	Axial cable exit	7	Red LED (output state MV0-1-2-4-6-C-P-D-R) Red LED (supply/check MVE)
2	Axial cable exit with tang (1)	8	Tightening nut plastic housing
3	Right angle cable exit	9	Cable 3(2)x0,34 mm^2, Ø4,7mm, PVC, 2m
4	Right angle cable exit with tang (1)		
5	M12 plastic plug cable exit		Connectors **CD** serie
6	M12 right angle plug cable exit		Accessories **ST** serie

(1) Available only on request

DIMENSIONAL DRAWING



Key

1	Axial cable exit
2	Axial cable exit with tang (1))
3	M12 plastic plug cable exit
4	Red LED (output state MQ2-4-6-C-P-D-R) Red LED (supply MQE)
5	Tightening nut plastic housing
6	Cable 4(2)x0,34 mm^2, Ø4,7mm, PVC, 2m

Connectors **CD** serie

Accessories **ST** serie

Wide range of models with high sensing range

diffuse 100, 200 and 400mm;
retro-reflective 4m;
polarized 3m;
through-beam 16 and 32m;
new fixed distance 50 and 100mm
background suppression.

Multivoltage 20-253Vac

The MV series with TRIAC output and M18x80mm plastic housing can operate between 20 and 253 Vac and therefore it can be employed with the full range of industrial voltage.

Low leakage current

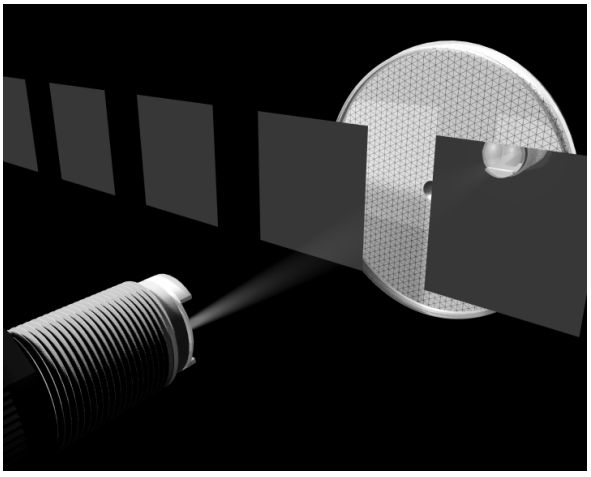
The leakage current (only 1,5mA to 253Vac) is suitable for **driving small relays** (and for the parallel connection of more sensors) while the high output current also allows one to drive **power relays as well as contactors.**

Cable exit in 6 different versions

To meet any installation need:
standard cable exit,
standard cable exit with tang,
right angle cable exit,
right angle cable exit with tang,
M12 axial plug cable exit and
M12 right angle plug cable exit.

New through-beam with high sensing range

MS series keeps the first place in the market for the high distance which can be reached thanks to the introduction of new MSE-MSD through-beam with sensing range of 32m.



New polarized models with visible red light

MSP retro-reflective and polarized model represent the most suitable solution for correct detection of high reflecting targets.

ORDERING SYSTEM

M V 0 / A 0 - 0 A — diffuse - retro-reflective - background suppression

serie			cable exit
M18 multivoltage photoelectric sensor	MV	A	axial cable exit
M18 photoelectric sensor with right angle optic	MQ	B	(2) axial cable exit with tang
model		C	(3) right angle cable exit
50mm backgroung suppression (1)	0	D	(2)(3) right angle cable exit with tang
100mm backgroung suppression (1)	1	E	M12 plug cable exit (plastic housing)
100mm diffuse reflection	2	K	(3) M12 right angle plug cable exit
200mm diffuse reflection	4		housing
400mm diffuse reflection	6	0	plastic housing
4m retro-reflective	C		output type
3m polarised retro-reflective	P	1	AC output
output state			
NO output state	A		
NC output state	C		

(1) The background suppression are available on **MV** serie only. (2) Available only on request.
(3) Not available on **MQ** serie.

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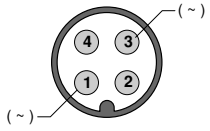
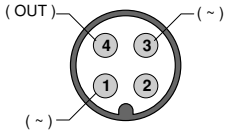
SPECIFICATIONS

Model	M*0/**-**	M*1/**-**	M*2/**-**	M*4/**-**	M*6/**-**	M*C/**-**	M*P/**-**
Type	diffuse reflection					retro-reflective	
	background suppression		standard			standard	polarized
Nominal sensing distance(Sn)	50mm (1)	100mm (1)	100mm (1)	200mm (1)	400mm (2)	4m (3)	3m (3)
Emission	infrared (880nm)						red (660nm)
Tolerance	+15/ 0% Sn		+15/ -5% Sn				
Differential travel	≤5%		≤10%				
Repeat accuracy	5%						
Operating voltage	20 - 253Vac / 50...60Hz						
No-load supply current	40mA$_{RMS}$		30mA$_{RMS}$				
Load current	5...300mA$_{RMS}$ (Ta=50°C)						
Inrush current	6A (Ton=10ms)						
Leakage current	1,5mA$_{RMS}$ max.(Voltage=250Vac)						
Voltage drop	3V max. I_L=300mA						
Output type	TRIAC						
Switching frequency	25Hz						
Time delay before availability	200 ms						
Temperature range	-25°....+70°C (without freeze)						-25°....+60°C
Temperature drift	10% Sr						
Interference to external light	3000 lux (incandescent lamp), 10000 lux (sunlight)						
Protection degree (DIN 40 050)	IEC IP67						
LED indicators	red (output energized)						
Housing material	PBT (plastic housing), polycarbonate (cable exit)						
Lenses material	plexiglas 7N						
Tightening torque	1Nm						
Weight (approx.)	35 - 100g						

(1) with 100x100mm white matt paper; (2) with 100x100mm white matt paper; (3) with standard reflector Ø80mm (RL110 supplied seperately).

CONNECTORS

M12 (emitters)	M12
	

ORDERING SYSTEM

M V E / 0 0 - 0 A — through-beam

series			cable exit
M18 multivoltage photoelectric sensor	MV	A	axial cable exit
M18 photoelectric sensor with right angle optic	MQ	B	(2) axial cable exit with tang
model		C	(1) right angle cable exit
standard emitter	E	D	(1)(2) right angle cable exit with tang
16m standard receiver	R	E	M12 plug cable exit (plastic housing)
32m high distance receiver	D	K	(1) M12 right angle plug cable exit
output state			**housing**
emitter	0	0	plastic housing
NO output state	A		**output type**
NC output state	C	0	AC output

(1) Available on **MV** serie only.
(2) Available only on request.

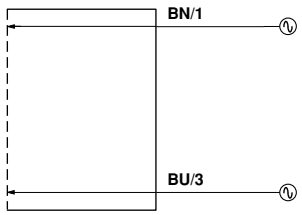
2.1

SPECIFICATIONS

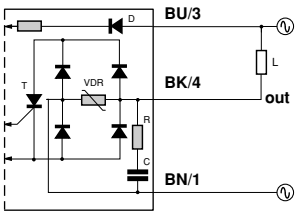
Model	M*E/**-** and M*R/**-**	M*E/**-** and M*D/**-**
Type	through-beam	
	standard	high distance
Nominal sensing distance(Sn)	16m	32m
Minimum detectable object	Ø7,5mm	
Emission	infrared (880nm)	
Tolerance	see Sr (glossary)	
Differential travel	≤10%	
Repeat accuracy	5%	
Operating voltage	20 - 253 Vac / 50...60Hz	
No-load supply current	30mA$_{RMS}$ (emitter), 15mA$_{RMS}$ (receiver)	
Load current	5...300mA$_{RMS}$ (Ta=50°C)	
Inrush current	6A (Ton=10ms)	
Leakage current	1,5mA$_{RMS}$ max. (Voltage=250Vac)	
Voltage drop	3V max. I_L=300mA	
Output type	TRIAC	
Switching frequency	25Hz	
Time delay before availability	200 ms	
Temperature range	-25°....+70°C (without freeze)	
Temperature drift	10% Sr	
Interference to external light	3000 lux (incandescent lamp), 10000 lux (sunlight)	
Protection degree (DIN 40 050)	IEC IP67	
LED indicators	red (output energized)	
Housing material	PBT (plastic housing), polycarbonate(cable exit)	
Lenses material	plexiglas 7N	
Tightening torque	1Nm	
Weight (approx.)	70 - 200g	

WIRING DIAGRAMS

emitter — **M*E/00-0***



AC output — **M**/*0-0***

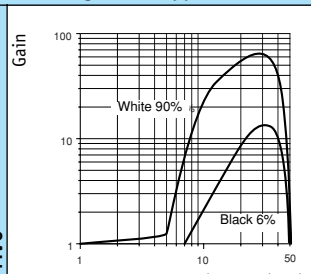


2.1

CHARACTERISTIC CURVES

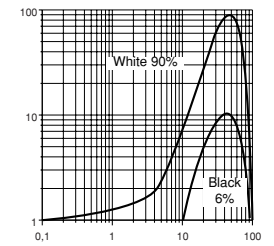
Background suppression

MV0



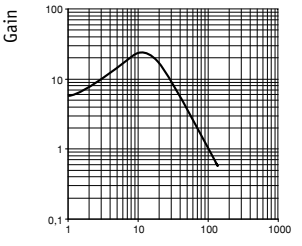
Background suppression

MV1



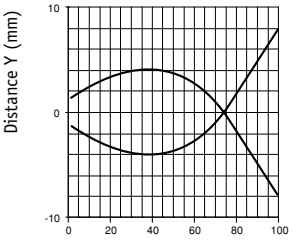
Excess gain

M*2



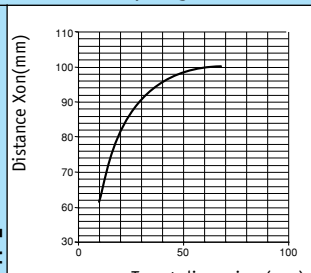
Parallel displacement

M*2



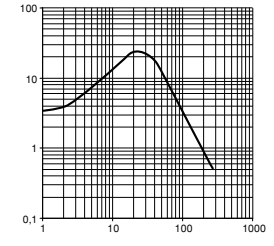
Distance / target size

M*2



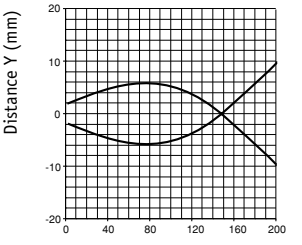
Excess gain

M*4



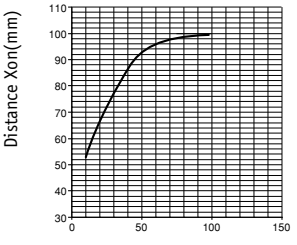
Parallel displacement

M*4



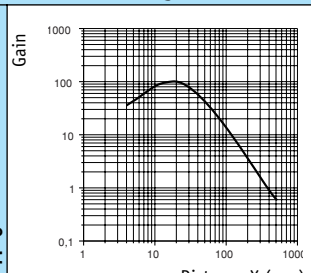
Distance / target size

M*4



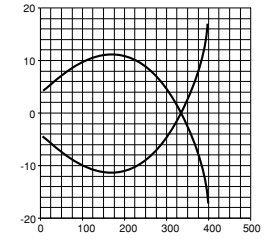
Excess gain

M*6



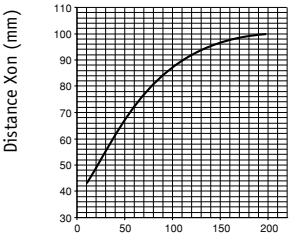
Parallel displacement

M*6



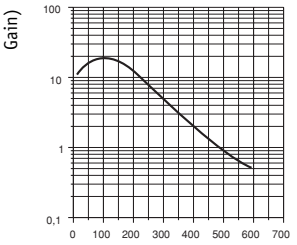
Distance / target size

M*6



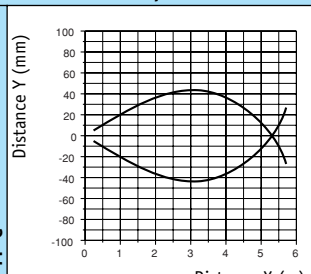
Excess gain

M*C



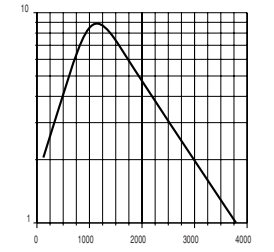
Parallel displacement

M*C



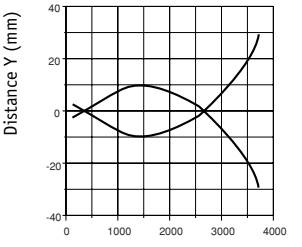
Excess gain

M*P



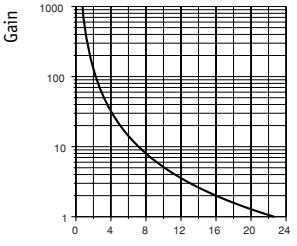
Parallel displacement

M*P



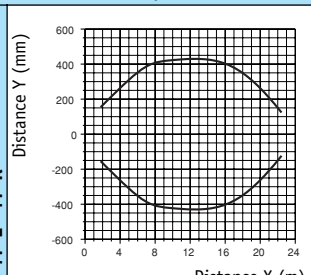
Excess gain

M*E - M*R



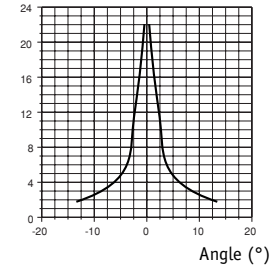
Parallel displacement

M*E - M*R



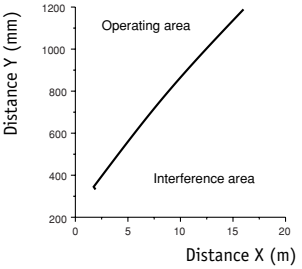
Angular displacement

M*E - M*R



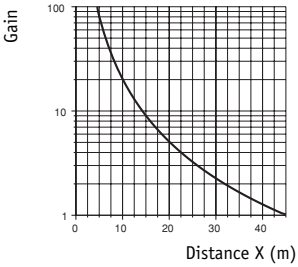
Mutual interference

M*E - M*R



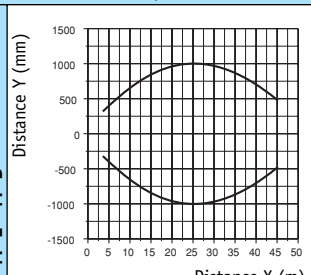
Excess gain

M*E - M*D



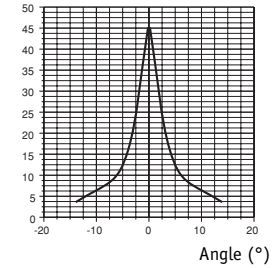
Parallel displacement

M*E - M*D



Angular displacement

M*E - M*D



Mutual interference

M*E - M*D