M/50/EAP, M/50/EAN, M/50/IOP & M/50/EHP
Magnetically operated switch, solid state

- Magnetically operated switch, solid state - round style
- IO-Link version available
- Suitable for all cylinder ranges with magnetic piston
- Switches can be mounted flush in all profile cylinders
- Reliable switching with a very fast reponse time
- Particularly suited for use in high levels of vibration
- LED indicator as standard
- UL listed



Technical features

Operation:
PNP / NPN (see table)
Output with LED (yellow)
Normally open (standard)

Switching voltage (Ub):
10 ... 30 V d.c.
("supply class 2" acc. to cULus)

Voltage drop at output:
< 2,5 V

Residual current:
< 0,5 mA

Switching current (see graph):
100 mA max. (standard)
300 mA max. (M/50/EHP)

Switching power:
3,0 W max. (standard)
9,0 W max. (M/50/EHP)

Response time:
< 0,1 ms (standard)
< 5 ms (M/50/IOP)

Operating frequency:
1 kHz (standard)
200 Hz (M/50/IOP)

Responsiveness:
2,8 mT

Hysteresis:
0,5 ... 1,5 mT
0,2 mT (M/50/IOP)

Repeatability:
< 0,1 mT

Protection rating (EN 60529):
IP67 (standard)
IP68 (M/50/EAP/5U, M/50/EHP/5U)

Operating temperature:
-40 ... +80 °C (-40 ... 176 °F) (permanently fixed cable)
-25 ... +80 °C (-13 ...176 °F) (moving cable)

Cable type:
PVC 3 x 0,14 mm² (standard)
PUR 3 x 0,14 mm² (M/50/E*P/*U and all variants with connector)

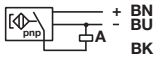
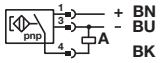
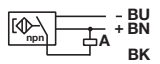
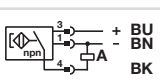
Cable length:
2, 5 and 10 m

Electromagnetic compatibility according to:
EN 60947-5-2

Materials:
Housing: plastic
Thread insert: brass
Set screw: stainless steel
Cable: see table below

Mounting type:
Flush mountable

Technical data - Solid state

Symbol	Voltage (V DC)	Current maximum (mA)	Function	IO-Link *1)	Operating temperature (°C)	LED	Protection class	Connector	Cable length (m)	Cable type	Weight (g)	Model
	10 ... 30	100	PNP		-40 ... +80	•	IP67	---	2	PVC 3 x 0,14	23	M/50/EAP/2V
	10 ... 30	100	PNP		-40 ... +80	•	IP67	---	5	PVC 3 x 0,14	56	M/50/EAP/5V
	10 ... 30	100	PNP		-40 ... +80	•	IP67	---	10	PVC 3 x 0,14	102	M/50/EAP/10V
	10 ... 30	100	PNP / NPN	•	-40 ... +80	•	IP67	---	5	PVC 3 x 0,14	56	M/50/IOP/5V
	10 ... 30	100	PNP		-40 ... +80	•	IP68	---	5	PUR 3 x 0,14	56	M/50/EAP/5U
	10 ... 30	100	PNP		-40 ... +80	•	IP67	---	10	PUR 3 x 0,14	102	M/50/EAP/10U
	10 ... 30	300	PNP		-40 ... +80	•	IP67	---	2	PVC 3 x 0,14	23	M/50/EHP/2V
	10 ... 30	300	PNP		-40 ... +80	•	IP67	---	5	PVC 3 x 0,14	56	M/50/EHP/5V
	10 ... 30	300	PNP		-40 ... +80	•	IP67	---	10	PVC 3 x 0,14	102	M/50/EHP/10V
	10 ... 30	300	PNP		-40 ... +80	•	IP68	---	5	PUR 3 x 0,14	56	M/50/EHP/5U
	10 ... 30	100	PNP		-40 ... +80	•	IP67	M8 x 1	0,3	PUR 3 x 0,14	7	M/50/EAP/CP
	10 ... 30	100	PNP / NPN	•	-40 ... +80	•	IP67	M8 x 1	0,3	PUR 3 x 0,14	7	M/50/IOP/CP
	10 ... 30	100	PNP		-40 ... +80	•	IP67	M12 x 1	0,3	PUR 3 x 0,14	16	M/50/EAP/CC
	10 ... 30	100	PNP		-40 ... +80	•	IP67	M12 x 1	2	PUR 3 x 0,14	35	M/50/EAP/CC/2
	10 ... 30	100	PNP / NPN	•	-40 ... +80	•	IP67	M12 x 1	0,3	PUR 3 x 0,14	16	M/50/IOP/CC
	10 ... 30	300	PNP		-40 ... +80	•	IP67	M8 x 1	0,3	PUR 3 x 0,14	7	M/50/EHP/CP
	10 ... 30	100	NPN		-40 ... +80	•	IP67	---	2	PVC 3 x 0,14	23	M/50/EAN/2V
	10 ... 30	100	NPN		-40 ... +80	•	IP67	---	5	PVC 3 x 0,14	56	M/50/EAN/5V
	10 ... 30	100	NPN		-40 ... +80	•	IP67	---	10	PVC 3 x 0,14	102	M/50/EAN/10V
	10 ... 30	100	NPN		-40 ... +80	•	IP67	M8 x 1	0,3	PUR 3 x 0,14	7	M/50/EAN/CP

Color code: see page 4 *1) IO-Link functionality: see next page

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IO-Link Switch conforming to IEC 61131-9

Properties and Functionality	M/50/EAP, M/50/EAN M/50/EHP	M/50/IOP	IO-Link
Operating Mode	Standard	Standard	
Power LED		•	•
LED sensor signal	•	•	•
Normally open (delivery status)	•	•	•
Normally closed		O	•
Delay mode		O	•
Installation aid		•	•
Temperature measurement			•
Detection counter			•
Teach functionality			•
Responsiveness adjustment			•

Note: IODD for the M/50/IOP switches available on the Norgren homepage.
https://www.norgren.com/uk/en/technical-support/software
• = included
O = optional (manufacture pre-setting required)

Option selector

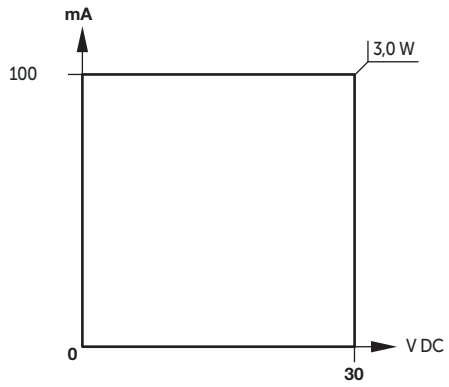
M/50/★★★/★★★

Function	Substitute
PNP	EAP
NPN	EAN
IO-Link	Substitute
PNP / NPN	IOP
Increased switching power	Substitute
PNP	EHP

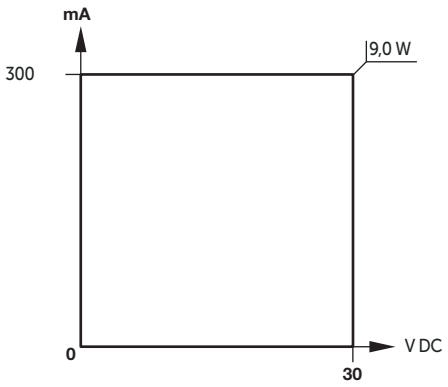
Cable	Substitute
PVC (Standard)	V
PUR	U
Cable with connector	-
Cable length/connector	**Substitute**
2 m	2
5 m	5
10 m	10
Cable (0,3 m) with connector M8 x 1	CP
Cable (0,3 m) with connector M12 x 1	CC

Switching current and switching voltage

M/50/EAP, M/50/EAN, M/50/IOP



M/50/EHP



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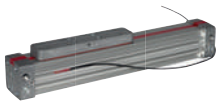
Cylinder ranges suitable for flush switch mounting

ø 32 ... 125 mm ISO 15552	ø 20 ... 125 mm ISO 21287	ø 16 ... 80 mm	ø 32 ... 125 mm	ø 32 ... 100 mm	ø 10 ... 40 mm
ISOLine™ Clean Line IVAC Industrie	Compact Cylinder	LINTRA® Plus	Rotary Cylinder	Cylinder with guiding	Sort stroke unit Slide tables
					
Type	Type	Type	Type	Type	Type
PRA/801000/M	RA/191000/M	M/146000/M	M/162000/M	M/61000/M	M/60100/M
PRA/802000/M	RA/192000/M	M/146100/M			M/61200/M
PRA/803000/M	RA/193000/M	M/146200/M			
PRA/822000/M					
PRA/862000/M					

Mounting brackets for magnetic switches

Cylinder with tie rods RA/80*000/M, RA/8000/M, KA/802000/M, RM/900/M	Compact Cylinder RM/9*000	Roundline cylinder RM/55401/M, KM/55001/M, VSM/55640/N2	Roundline cylinder > 15 mm stroke R./57*00/M, RM/8000/M, KM/8000/M, RM/28000/M, VSM/55625/N2	Roundline cylinder < 15 mm stroke R./57*00/M, RM/8000/M, KM/8000/M, RM/28000/M, VSM/55425/N2
				
Mounting brackets				
				

Cylinder Ø (mm)	Model	Cylinder Ø (mm)	Model	Cylinder Ø (mm)	Model	Cylinder Ø (mm)	Model	Cylinder Ø (mm)	Model
32 ... 200	QM/27/2/1	12 ... 100	M/P72487B	32	QM/33/432/22	10	QM/33/010/22	10	QM/33/010/23
250	QM/27/2/2			40	QM/33/440/22	12	QM/33/012/22	12	QM/33/016/23
320	QM/27/2/3			50	QM/33/450/22	16	QM/33/016/22	16	QM/33/016/23
				63	QM/33/463/22	20	QM/33/020/22	20	QM/33/020/23
				80	QM/33/080/22	25	QM/33/025/22	25	QM/33/025/23
				100	QM/33/100/22	32	QM/33/032/22		
				125	QM/33/125/22	40	QM/33/040/22		
						50	QM/33/050/22		
						63	QM/33/063/22		

Dimensions see relevant cylinder data sheets.

Accessories

Plug-in connector cable with nut



Outer cover	Cable length (m)	Weight (kg)	Connector	Connector
PVC 3 x 0,25	5	0,18	M8 x 1 straight connector	M/P73001/5
PUR 3 x 0,25	5	0,18	M8 x 1 straight connector	M/P73002/5
PVC 3 x 0,25	5	0,18	M8 x 1 angled connector 90°	M/P34615/5
PUR 3 x 0,25	5	0,18	M8 x 1 angled connector 90°	M/P34596/5
PUR 3 x 0,34	5	0,21	M12 x 1 straight connector	M/P34594/5

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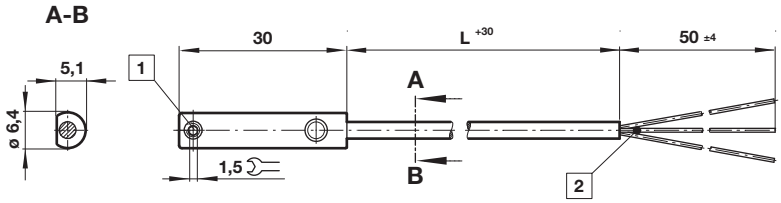
Dimensions

Dimensions in mm
Projection/First angle

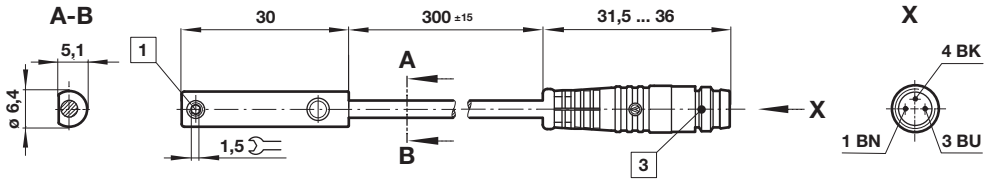
M/50/EAP/*V,
M/50/EAP/*U,
M/50/IOP/5V,
M/50/EHP/*V,
M/50/EHP/5U,
M/50/EAN/*V
Cable length L = 2, 5 or 10 m





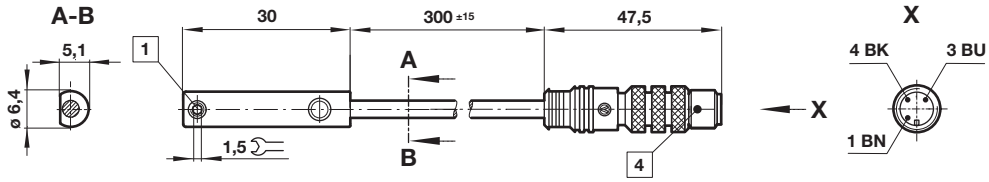
M/50/EAP/CP,
M/50/EAN/CP,
M/50/IOP/CP,
M/50/EHP/CP





M/50/EAP/CC,
M/50/IOP/CC,
M/50/EHP/CC





1 Fixing screw
2 Color code: BK = black (output); BN = brown (+); BU = blue (-)
3 Connector M8 x 1; 1 BN = +; 3 BU = -; 4 BK = output
4 Connector M12 x 1; 1 BN = +; 3 BU = -; 4 BK = output

Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under »Technical features/ data«.
Before using these products with fluids other than those specified, for non-industrial applications, life-support systems or other applications not within published specifications,
consult Norgren.
Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.
System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.
System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.

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