



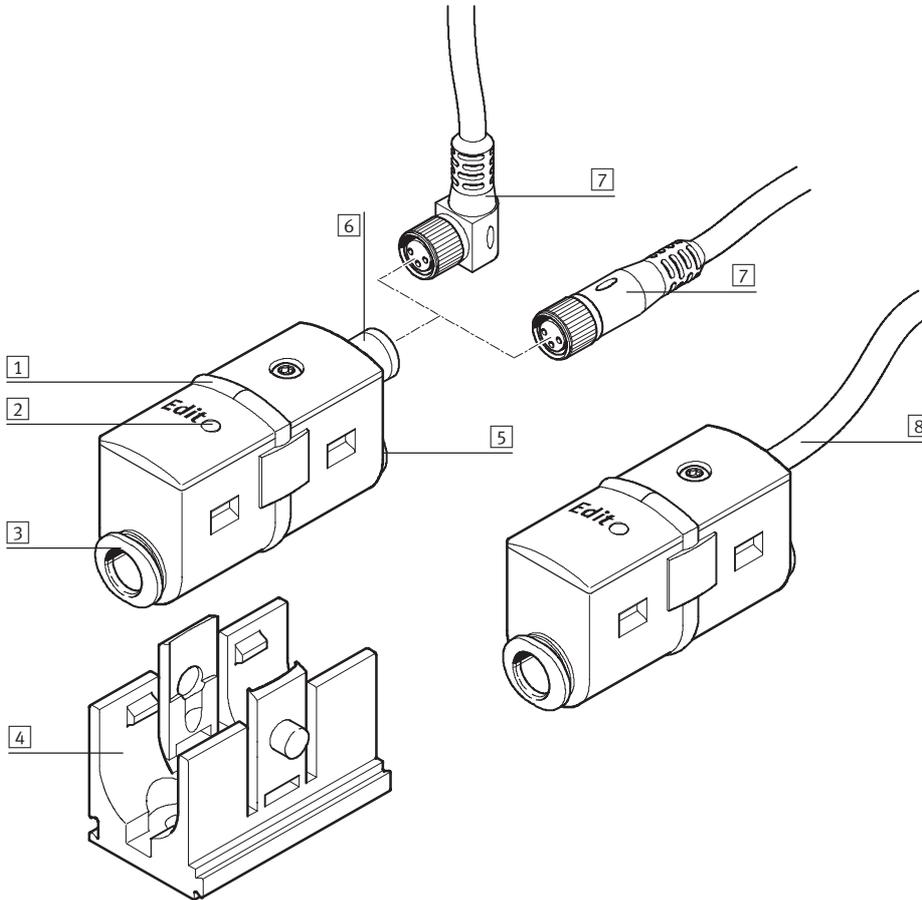
- Programmable and configurable pressure switch for simple pressure sensing tasks
- Teach-in function for programming
- Integrated microprocessor
- Operating status indicated by an LED visible from all sides
- Modular concept ensures easy-to-order, customised configurations

# Pressure switch SDE5

Key features at a glance



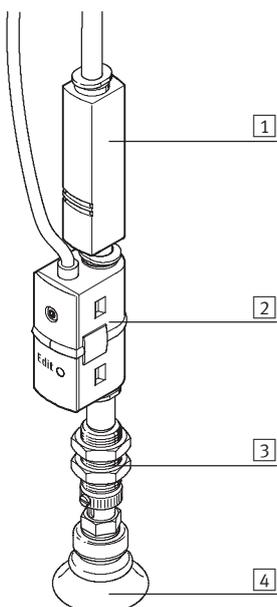
## Function overview



- 1 Yellow LED display, visible from all sides
- 2 Programming pushbutton
- 3 Pneumatic connection
- 4 Clip-in, dovetailing bracket for wall-mounting (included in the scope of delivery)
- 5 Pneumatic connection or blanking plug
- 6 Plug M8x1
- 7 Cable with socket SIM-M8 (must be ordered separately → 4 / 8.1-28 or via the modular system → 4 / 8.1-27)
- 8 Free cable end

## Application example

Separation of parts by checking the applied vacuum



- 1 Vacuum generator VN
- 2 Pressure switch SDE5
- 3 Suction cup holder HCL
- 4 Suction cup ESS

Two pressures must be programmed (taught-in) for this application:

- Teach-in pressure 1: Part gripped
- Teach-in pressure 2: Part not gripped

Operating mode 1 of the SDE5 calculates the average of the stored teach-in pressures:

If the applied vacuum is below the average, the workpiece is regarded as gripped and the SDE5 registers it as an acceptable part.

If the applied vacuum is above the average, the workpiece is regarded as not fully gripped and is rejected as unacceptable.

Other applications:

- Pressure monitoring (pressure present?)
- Regulator monitoring (pressure in desired range?)
- Detection of objects by means of back pressure monitoring

# Pressure switch SDE5

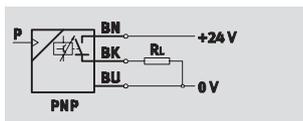
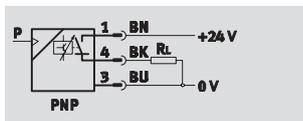
Type code

		SDE5	-	D2	-	0	-	Q6	-	P	-	M8	-	G5	-		-	
<b>Type</b>																		
SDE5	Pressure switch																	
<b>Pressure measuring range</b>																		
V1	-1 ... 0 bar																	
D2	0 ... 2 bar																	
D10	0 ... 10 bar																	
<b>Switching function</b>																		
FP	Freely programmable																	
Threshold comparator with fixed hysteresis, 1 teach-in pressure																		
O	Normally open contact																	
C	Normally closed contact																	
Threshold comparator with fixed hysteresis, 2 teach-in pressures																		
O1	Normally open contact																	
C1	Normally closed contact																	
Threshold comparator with variable hysteresis, 2 teach-in pressures																		
O2	Normally open contact																	
C2	Normally closed contact																	
Window comparator with fixed hysteresis, 2 teach-in pressures																		
O3	Normally open contact																	
C3	Normally closed contact																	
<b>Pneumatic connection</b>																		
Push-in connector at both ends																		
Q3	For tubing OD 3 mm																	
Q4	For tubing OD 4 mm																	
Q6	For tubing OD 6 mm																	
Push-in connector at one end																		
Q3E	For tubing OD 3 mm																	
Q4E	For tubing OD 4 mm																	
Q6E	For tubing OD 6 mm																	
<b>Electrical output</b>																		
P	1 switch output PNP (positive switching)																	
<b>Electrical connection</b>																		
K	2.5 m cable																	
M8	3-pin M8 plug																	
<b>Connecting cable</b>																		
SIM cable with straight connection socket																		
G	2.5 m long																	
G5	5 m long																	
SIM cable with angled connection socket																		
W	2.5 m long																	
W5	5 m long																	
<b>Teach-in point 1 permanently set</b>																		
...X	Permanent factory setting as per customer's requirement, required switching pressure [bar]																	
<b>Teach-in point 2 permanently set</b>																		
...Y	Permanent factory setting as per customer's requirement, required switching pressure [bar]																	

# Pressure switches SDE5

Technical data

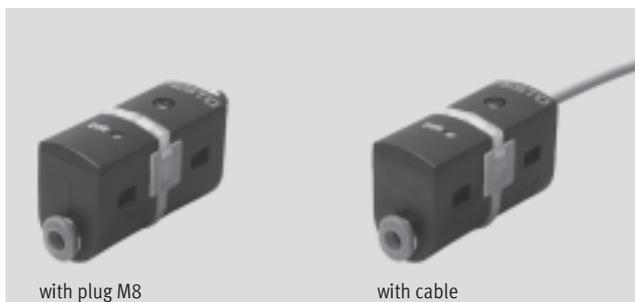
Function



- Voltage  
15 ... 30 V DC

- Pressure  
-1 ... +10 bar

- Temperature range  
0 ... 50°C



with plug M8

with cable

## General technical data

Mechanical	
Pneumatic connection	Push-in connector at one or both ends, QS-3, QS-4 or QS-6
Method of measurement	Piezoresistive pressure switch
Measured variable	Relative pressure
Reproducibility of switching value	±0.3% of the measuring range final value
Hysteresis FS	2%
Electrical connection	
Electrical connection	Plug M8x1, round design to EN 60947-5-2, 3-pin 3-core cable, 2.5 m long
Type of mounting	Via accessories
Assembly position	Any <sup>1)</sup>
Electrical	
Operating voltage range [V DC]	15 ... 30
Max. output current [mA]	100
Protection against short circuit	Pulsed
Protection against polarity reversal	For all electrical connections
Switching output	PNP
Switching function	→ Table 4 / 8.1-23
Switching element function	NO contact, NC contact or switchable
Type of display	Yellow LED, visible from all sides
CE marking symbol (see conformity declaration)	As per EU EMC directive

1) The collection of condensate in the sensor should be prevented.

## Operating and environmental conditions

Pressure measuring range [bar]	-1 ... 0	0 ... 2	0 ... 10
Operating medium	Filtered compressed air, lubricated or unlubricated, grade of filtration 40µm		
Threshold value setting range	0 ... 100%		
Ambient temperature [°C]	0 ... 50		
Temperature of medium [°C]	0 ... 50		
Corrosion resistance class CRC <sup>1)</sup>	2		
Protection class to EN 60 529	IP 40		
Certification	c UL us - Recognized (OL)		

1) Corrosion resistance class 2 according to Festo standard 940 070  
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

## Weights [g]

With plug M8x1, without wall bracket	19
With cable, without wall bracket	47
Wall bracket	5.5

# Pressure switches SDE5

Technical data



Switching functions	NO switching element (normally open)	NC switching element (normally closed)
<b>Operating mode</b> Mode 0 Threshold value with fixed hysteresis, 1 teach-in pressure		
<b>Mode 1</b> Threshold value with fixed hysteresis, 2 teach-in pressures		
<b>Mode 2</b> Threshold value with variable hysteresis, 2 teach-in pressures		
<b>Mode 3</b> Window comparator with fixed hysteresis, 2 teach-in pressures		

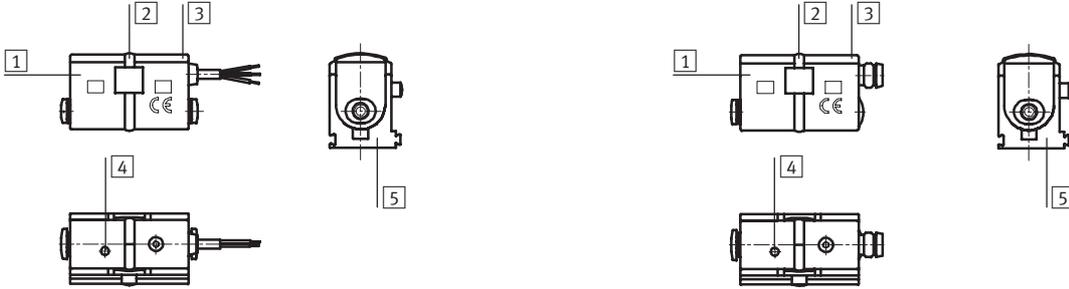
- A Binary output signal
- p Pressure
- SP Switching point
- TP Teach-in pressure
- Hy Hysteresis

# Pressure switches SDE5

Technical data



## Materials

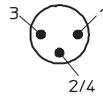
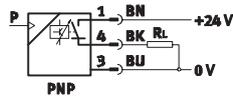


## Pressure switches

1	Housing	Polyacetate, reinforced
2	Fibre optic display	Polyamide
3	Cover	Polyphenylene sulphide, reinforced
4	Pushbutton	Silicone rubber
5	Wall bracket	Polypropylene

## Terminal allocation

Variant with plug M8x1

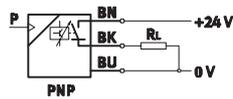


1 = brown  
2/4 = black  
3 = blue

- Note

The colours specified are for cables with socket SIM-...

Variant with cable

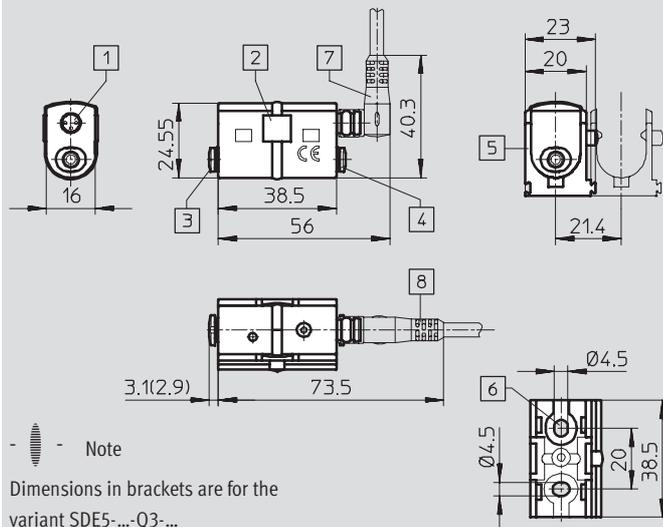


BN = brown  
BK = black  
BU = blue

## Dimensions

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Variant with plug M8x1



- Note

Dimensions in brackets are for the variant SDE5-...-Q3-...

- 1 Plug M8x1, 3-pin
- 2 Yellow LED display, visible from all sides
- 3 Pneumatic connection QS-3, QS-4 or QS-6
- 4 Pneumatic connection QS-3, QS-4 or QS-6 or blanking plug with SDE5-...-Q...E-...
- 5 Bracket for wall mounting
- 6 Through-hole for mounting screw
- 7 Angled connection socket SIM-M8-3WD
- 8 Straight connection socket SIM-M8-3GD

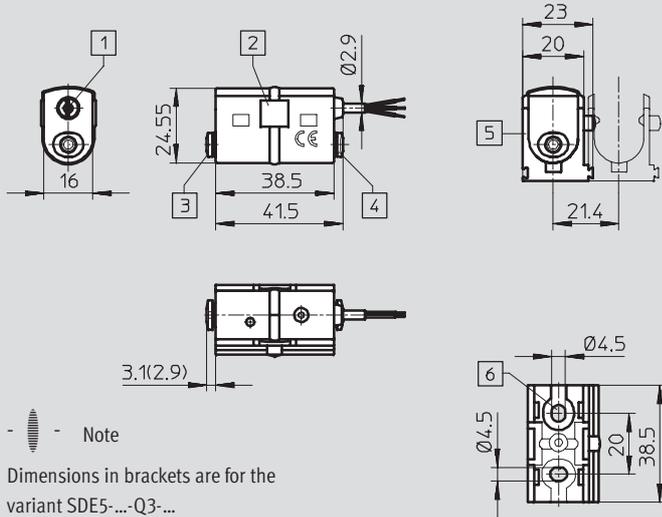
# Pressure switches SDE5

Technical data



## Dimensions

Variant with cable



- 1 PUR cable, 3-core, 2.5 m long
- 2 Yellow LED display, visible from all sides
- 3 Pneumatic connection QS-3, QS-4 or QS-6
- 4 Pneumatic connection QS-3, QS-4 or QS-6 or blanking plug with SDE5-...-Q...E-...
- 5 Bracket for wall mounting
- 6 Through-hole for mounting screw

Note

Dimensions in brackets are for the variant SDE5-...-Q3-...

## Ordering data – Threshold value with fixed hysteresis, 1 teach-in pressure

Pressure measuring range	Pneumatic connection		For tubing O.D. [mm]			Electrical connection		Part No.	Type	
	At one end	At both ends	3	4	6	Plug M8x1	Cable			
<b>NO contact</b>										
-1 ... 0 bar	■	-	■	-	-	■	-	527 459	SDE5-V1-O-Q3E-P-M8	
	■	-	-	■	-	■	-	527 460	SDE5-V1-O-Q4E-P-M8	
	■	-	-	-	■	■	-	527 461	SDE5-V1-O-Q6E-P-M8	
	-	■	■	-	-	■	-	527 456	SDE5-V1-O-Q3-P-M8	
	-	■	-	■	-	-	■	-	527 457	SDE5-V1-O-Q4-P-M8
	-	■	-	-	-	■	■	-	527 458	SDE5-V1-O-Q6-P-M8
0 ... 2 bar	■	-	-	-	■	-	■	542 888	SDE5-D2-O-Q6E-P-K	
0 ... 10 bar	■	-	■	-	-	■	-	527 465	SDE5-D10-O-Q3E-P-M8	
	■	-	-	■	-	■	-	527 466	SDE5-D10-O-Q4E-P-M8	
	■	-	-	-	■	■	-	527 467	SDE5-D10-O-Q6E-P-M8	
	-	■	■	-	-	■	-	527 462	SDE5-D10-O-Q3-P-M8	
	-	■	-	■	-	■	-	527 463	SDE5-D10-O-Q4-P-M8	
	-	■	-	-	-	■	■	-	527 464	SDE5-D10-O-Q6-P-M8
	■	-	-	-	-	■	■	542 890	SDE5-D10-O-Q6E-P-K	
<b>NC contact</b>										
0 ... 10 bar	■	-	-	■	-	■	-	542 889	SDE5-D10-C-Q4E-P-M8	
	■	-	-	-	■	■	-	542 894	SDE5-D10-C-Q6E-P-M8	
	■	-	-	-	■	-	■	542 895	SDE5-D10-C-Q6E-P-K	

Note

Additional wall brackets can be reordered using the embossed part number.

Core Range

# Pressure switches SDE5

Technical data



Ordering data – Threshold value with fixed hysteresis, 2 teach-in pressures									
Pressure measuring range	Pneumatic connection		For tubing O.D. [mm]			Electrical connection		Part No.	Type
	At one end	At both ends	3	4	6	Plug M8x1	Cable		
NO contact									
-1 ... 0 bar	-	■	-	-	■	■	-	542 886	SDE5-V1-01-Q6-P-M8

Ordering data – Threshold value with variable hysteresis, 2 teach-in pressures									
Pressure measuring range	Pneumatic connection		For tubing O.D. [mm]			Electrical connection		Part No.	Type
	At one end	At both ends	3	4	6	Plug M8x1	Cable		
NO contact									
0 ... 10 bar	■	-	-	-	■	■	-	542 891	SDE5-D10-02-Q6E-P-M8
	-	■	-	-	■	■	-	542 892	SDE5-D10-02-Q6-P-M8

Ordering data – Window comparator with fixed hysteresis, 2 teach-in pressures									
Pressure measuring range	Pneumatic connection		For tubing O.D. [mm]			Electrical connection		Part No.	Type
	At one end	At both ends	3	4	6	Plug M8x1	Cable		
NO contact									
0 ... 10 bar	■	-	-	-	■	-	■	542 893	SDE5-D10-03-Q6E-P-K
NC contact									
0 ... 10 bar	■	-	-	-	■	-	■	542 896	SDE5-D10-C3-Q6E-P-K

Ordering data – Freely programmable									
Pressure measuring range	Pneumatic connection		For tubing O.D. [mm]			Electrical connection		Part No.	Type
	At one end	At both ends	3	4	6	Plug M8x1	Cable		
NO contact									
-1 ... 0 bar	-	■	-	-	■	■	-	542 887	SDE5-V1-FP-Q6-P-M8
0 ... 10 bar	■	-	-	■	-	■	-	542 900	SDE5-D10-FP-Q4E-P-M8
	■	-	-	-	■	■	-	542 897	SDE5-D10-FP-Q6E-P-M8
	-	■	-	-	■	■	-	542 898	SDE5-D10-FP-Q6-P-M8
	■	-	-	■	-	-	■	542 901	SDE5-D10-FP-Q4E-P-K
	■	-	-	-	■	-	■	542 899	SDE5-D10-FP-Q6-P-K

 Note  
Additional wall brackets can be reordered using the embossed part number.

# Pressure switch SDE5

Ordering data – Modular products



M Mandatory data							O Options		
Module No.	Sensor function	Pressure range	Switching function	Pneumatic connection	Electrical output	Electrical connection	Connecting cable	Teach-in point 1 permanently set	Teach-in point 2 permanently set
529 027	SDE5	V1 D2 D10	FP O C O1 C1 O2 C2 O3 C3	Q3 Q4 Q6 Q3E Q4E Q6E	P	K M8	G W G5 W5	...X	...Y
<b>Ordering example</b>									
529 027	SDE5	- D10	- O2	- Q6	- P	- M8	- G5	- 5,5X	- 5,5Y

Ordering table							
Size	5	Conditions		Code		Enter code	
M	Module No.	529 027				529 027	
	Sensor function	Pressure switch		SDE5		SDE5	
	Pressure range	Pressure range 0 ... -1 bar (relative)		-V1			
		Pressure range 0 ... 2 bar (relative)		-D2			
		Pressure range 0 ... 10 bar (relative)		-D10			
	Switching function	Freely programmable, NO contact, NC contact		-FP			
		Threshold value with fixed hysteresis, 1 teach-in point, NO contact		-O			
		Threshold value with fixed hysteresis, 1 teach-in point, NC contact		-C			
		Threshold value with fixed hysteresis, 2 teach-in points, NO contact		-O1			
		Threshold value with fixed hysteresis, 2 teach-in points, NC contact		-C1			
		Threshold value with variable hysteresis, NO contact		-O2			
		Threshold value with variable hysteresis, NC contact		-C2			
		Window comparator with fixed hysteresis, NO contact		-O3			
		Window comparator with fixed hysteresis, NC contact		-C3			
	Pneumatic connection	QS3 connection at both ends		-Q3			
		QS4 connection at both ends		-Q4			
		QS6 connection at both ends		-Q6			
		QS3 connection at one end		-Q3E			
		QS4 connection at one end		-Q4E			
		QS6 connection at one end		-Q6E			
	Electrical output	1 switch output PNP		-P		-P	
	Electrical connection	Cable 2.5 m		-K			
		M8 plug, 3-pin		-M8			
O	Connecting cable (accessory)	2.5 m SIM cable with straight connection socket	1	-G			
		2.5 m SIM cable with angled connection socket	1	-W			
		5.0 m SIM cable with straight connection socket	1	-G5			
		5.0 m SIM cable with angled connection socket	1	-W5			
	Teach-in point 1 permanently set [bar]	0 ... 10 (required switching pressure)	2	...X			
	Teach-in point 2 permanently set [bar]	0 ... 10 (required switching pressure)	2 3	...Y			

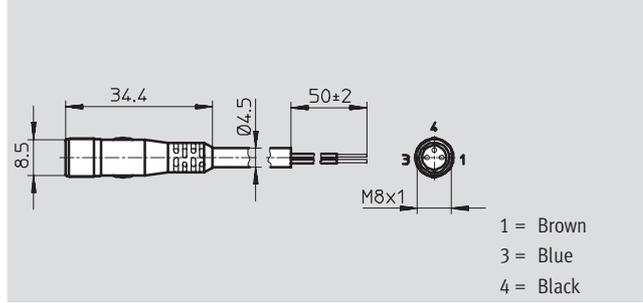
- 1 G, W, G5, W5 Only in combination with M8   
 2 X, Y Not in combination with FP, O1, C1   
 3 Y Not in combination with O, C  
 Must be evaluated if O2, C2, O3, C3, and X or Y was selected  
 Only one decimal place permissible in combination with D10

# Pressure switch SDE5

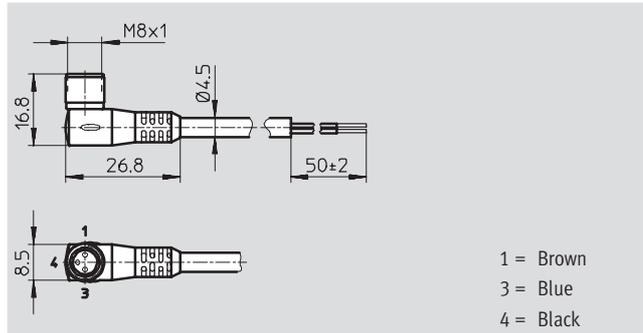
Accessories



Socket with cable  
SIM-M8-3GD-...-PU



Socket with cable  
SIM-M8-3WD-...-PU



Technical data		SIM-M8-...-2,5-PU	SIM-M8-...-5-PU	SIM-M8-...-10-PU
Cable length	[m]	2.5	5	10
Cable diameter	[mm]	4.5		
Constructional design		3x0.25 mm <sup>2</sup>		
Cable ends		Open end		
Current-carrying capacity	[A]	2.8 A		
Operating voltage		45 V AC / 70 V DC		
Protection class to EN 60 529		IP 67		
Ambient temperature				
Fixed cable installation	[°C]	-40 ... 70		
Flexible cable installation	[°C]	-5 ... 70		
Materials				
Housing		PUR		
Cable sheath		PUR		

Ordering data		Straight		Angled	
Plug outlet		Part No.	Type	Part No.	Type
Cable length	2.5 m	159 420	SIM-M8-3GD-2,5-PU	159 422	SIM-M8-3WD-2,5-PU
	5 m	159 421	SIM-M8-3GD-5-PU	159 423	SIM-M8-3WD-5-PU
	10 m	192 964	SIM-M8-3GD-10-PU	192 965	SIM-M8-3WD-10-PU

Note  
Further cables with socket  
→ 4 / 8.3-2

Core Range