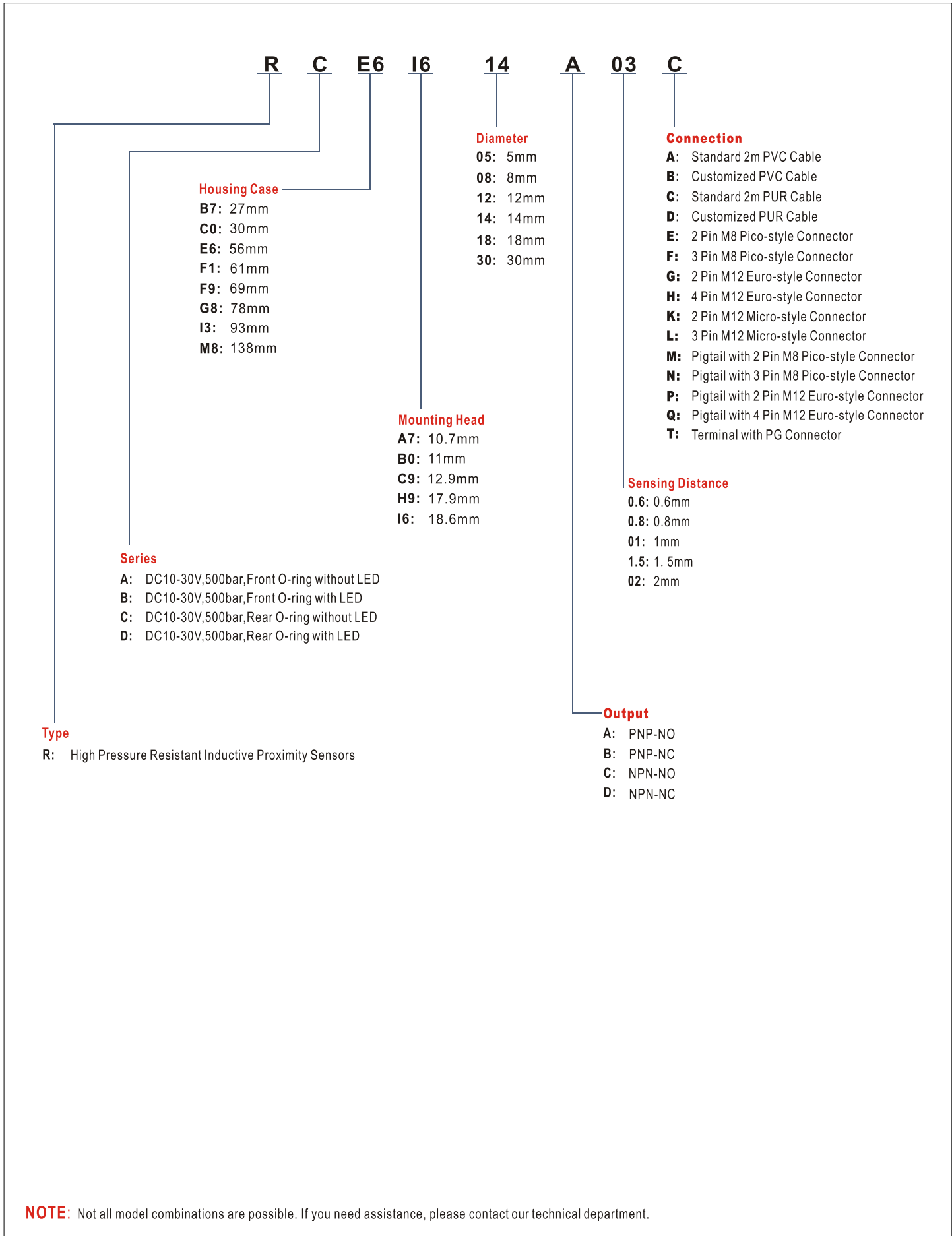




SELECTION GUIDE FOR HIGH PRESSURE RESISTANT PROXIMITY SENSORS



NOTE: Not all model combinations are possible. If you need assistance, please contact our technical department.



<p>Features</p> <ul style="list-style-type: none"> ▪ M12mm housing size ▪ Sn=1.5mm, shielded ▪ 500bar operating pressure ▪ 10-30VDC operating voltage ▪ Ceramic ZrO2 sensing face ▪ Stainless steel housing case ▪ NPN, PNP Output ▪ NO,NC Function ▪ Short circuit protection ▪ Overload protection ▪ Reverse polarity protection ▪ M12 Connector version ▪ IP68 Protection 		



Connection	4 Pin M12 Connector	4 Pin M12 Connector
Mounting	Shielded	Shielded
NPN-NO	RAE6H912C1.5H	RAF9C912C1.5H
NPN-NC	RAE6H912D1.5H	RAF9C912D1.5H
PNP-NO	RAE6H912A1.5H	RAF9C912A1.5H
PNP-NC	RAE6H912B1.5H	RAF9C912B1.5H

General Data		
Housing size	M12mm	M12mm
Installation type	Shielded	Shielded
Sensing distance(Sn: mm)	1.5mm	1.5mm
Effective sensing distance (Sr: mm)	90 ... 110% of Sn	90 ... 110% of Sn
Assured operating distance(Sa: mm)	0 ... 80% of Sn	0 ... 80% of Sn
Pressure rating	500bar	500bar
Peak pressure	1000bar	1000bar
Hysteresis	<15%	<15%
Material	Stainless steel case;Ceramic ZrO2 sensing face;FKM O-ring	Stainless steel case;Ceramic ZrO2 sensing face;FKM O-ring

Electrical Data		
Operating voltage	10 ... 30VDC	10 ... 30VDC
Repeated accuracy	±10%	±10%
Ripple	<10%	<10%
No load current	<10mA	<10mA
Max. Load current	200mA	200mA
Leakage current	<0.01mA	<0.01mA
Voltage drop	<1.5V	<1.5V
Switching frequency	800Hz	800Hz
Response time	0.1ms/0.1ms	0.1ms/0.1ms
Rated insulation voltage	75VDC	75VDC
Operating temperature	-25°C ... +70°C	-25°C ... +70°C
Storage temperature	-40°C ... +80°C	-40°C ... +80°C
Temperature drift	<10%	<10%
Power indicator	No	No
Function indicator	No	No
Reverse polarity protection	Yes	Yes
Short-circuit protection	Yes	Yes
Overload trip point	220mA	220mA
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4

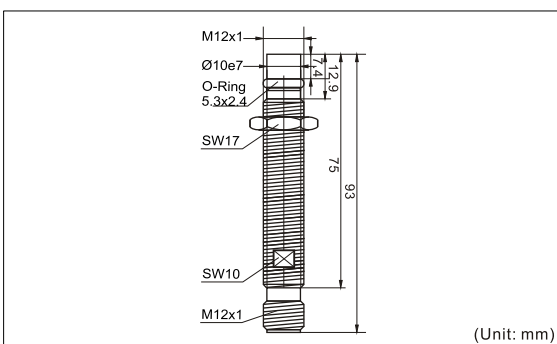
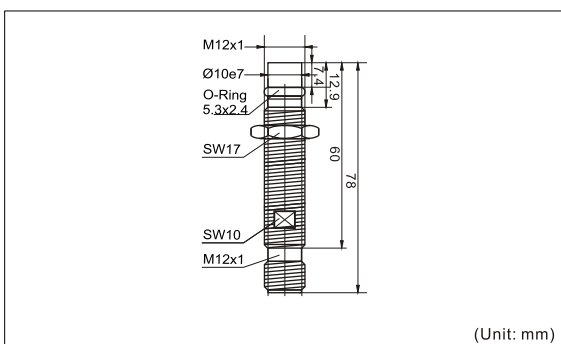
Mechanical Data		
Tightening torque	<15Nm	<15Nm
Protection	IP67 / IP68 /IP69K	IP67 / IP68 /IP69K
Shock rating	Shock, half-sinus, 30gn, 11ms	Shock, half-sinus, 30gn, 11ms
Vibration rating	55Hz, 1mm ampl., 3x30min.	55Hz, 1mm ampl., 3x30min.
EMC	IEC 60947-5-2	IEC 60947-5-2
Accessory	Nut	Nut
Connection	4 Pin M12 connector	4 Pin M12 connector
Weight	Approx. 28g	Approx. 34g



Features

- M12mm housing size
- Sn=1.5mm, shielded
- 500bar operating pressure
- 10-30VDC operating voltage
- Ceramic ZrO2 sensing face
- Stainless steel housing case
- NPN, PNP Output
- NO, NC Function
- Short circuit protection
- Overload protection
- Reverse polarity protection
- M12 Connector version
- IP68 Protection

CE



Connection	4 Pin M12 Connector	4 Pin M12 Connector
Mounting	Shielded	Shielded
NPN-NO	RAG8C912C1.5H	RAI3C912C1.5H
NPN-NC	RAG8C912D1.5H	RAI3C912D1.5H
PNP-NO	RAG8C912A1.5H	RAI3C912A1.5H
PNP-NC	RAG8C912B1.5H	RAI3C912B1.5H

General Data		
Housing size	M12mm	M12mm
Installation type	Shielded	Shielded
Sensing distance(Sn: mm)	1.5mm	1.5mm
Effective sensing distance (Sr: mm)	90 ... 110% of Sn	90 ... 110% of Sn
Assured operating distance(Sa: mm)	0 ... 80% of Sn	0 ... 80% of Sn
Pressure rating	500bar	500bar
Peak pressure	1000bar	1000bar
Hysteresis	<15%	<15%
Material	Stainless steel case;Ceramic ZrO2 sensing face;FKM O-ring	Stainless steel case;Ceramic ZrO2 sensing face;FKM O-ring

Electrical Data		
Operating voltage	10 ... 30VDC	10 ... 30VDC
Repeated accuracy	±10%	±10%
Ripple	<10%	<10%
No load current	<10mA	<10mA
Max. Load current	200mA	200mA
Leakage current	<0.01mA	<0.01mA
Voltage drop	<1.5V	<1.5V
Switching frequency	800Hz	800Hz
Response time	0.1ms/0.1ms	0.1ms/0.1ms
Rated insulation voltage	75VDC	75VDC
Operating temperature	-25°C ... +70°C	-25°C ... +70°C
Storage temperature	-40°C ... +80°C	-40°C ... +80°C
Temperature drift	<10%	<10%
Power indicator	No	No
Function indicator	No	No
Reverse polarity protection	Yes	Yes
Short-circuit protection	Yes	Yes
Overload trip point	220mA	220mA
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4

Mechanical Data		
Tightening torque	<15Nm	<15Nm
Protection	IP67 / IP68 /IP69K	IP67 / IP68 /IP69K
Shock rating	Shock, half-sinus, 30gn, 11ms	Shock, half-sinus, 30gn, 11ms
Vibration rating	55Hz, 1mm ampl., 3x30min.	55Hz, 1mm ampl., 3x30min.
EMC	IEC 60947-5-2	IEC 60947-5-2
Accessory	Nut	Nut
Connection	4 Pin M12 connector	4 Pin M12 connector
Weight	Approx. 38g	Approx. 42g



<p>Features</p> <ul style="list-style-type: none"> ▪ M12mm housing size ▪ Sn=1.5mm, shielded ▪ 500bar operating pressure ▪ 10-30VDC operating voltage ▪ Ceramic ZrO2 sensing face ▪ Stainless steel housing case ▪ NPN, PNP Output ▪ NO,NC Function ▪ Short circuit protection ▪ Overload protection ▪ Reverse polarity protection ▪ M12 Connector version ▪ IP68 Protection 	<p>(Unit: mm)</p>	<p>(Unit: mm)</p>



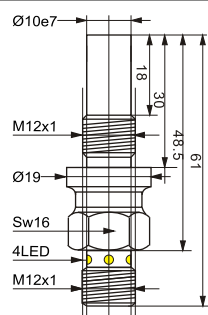

Connection	4 Pin M12 Connector	4 Pin M12 Connector
Mounting	Shielded	Shielded
NPN-NO	RAI3H912C1.5H	RAM8C912C1.5H
NPN-NC	RAI3H912D1.5H	RAM8C912D1.5H
PNP-NO	RAI3H912A1.5H	RAM8C912A1.5H
PNP-NC	RAI3H912B1.5H	RAM8C912B1.5H

General Data		
Housing size	M12mm	M12mm
Installation type	Shielded	Shielded
Sensing distance(Sn: mm)	1.5mm	1.5mm
Effective sensing distance (Sr: mm)	90 ... 110% of Sn	90 ... 110% of Sn
Assured operating distance(Sa: mm)	0 ... 80% of Sn	0 ... 80% of Sn
Pressure rating	500bar	500bar
Peak pressure	1000bar	1000bar
Hysteresis	<15%	<15%
Material	Stainless steel case;Ceramic ZrO2 sensing face;FKM O-ring	Stainless steel case;Ceramic ZrO2 sensing face;FKM O-ring

Electrical Data		
Operating voltage	10 ... 30VDC	10 ... 30VDC
Repeated accuracy	±10%	±10%
Ripple	<10%	<10%
No load current	<10mA	<10mA
Max. Load current	200mA	200mA
Leakage current	<0.01mA	<0.01mA
Voltage drop	<1.5V	<1.5V
Switching frequency	800Hz	800Hz
Response time	0.1ms/0.1ms	0.1ms/0.1ms
Rated insulation voltage	75VDC	75VDC
Operating temperature	-25°C ... +70°C	-25°C ... +70°C
Storage temperature	-40°C ... +80°C	-40°C ... +80°C
Temperature drift	<10%	<10%
Power indicator	No	No
Function indicator	No	No
Reverse polarity protection	Yes	Yes
Short-circuit protection	Yes	Yes
Overload trip point	220mA	220mA
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4

Mechanical Data		
Tightening torque	<15Nm	<15Nm
Protection	IP67 / IP68 /IP69K	IP67 / IP68 /IP69K
Shock rating	Shock, half-sinus, 30gn, 11ms	Shock, half-sinus, 30gn, 11ms
Vibration rating	55Hz, 1mm ampl., 3x30min.	55Hz, 1mm ampl., 3x30min.
EMC	IEC 60947-5-2	IEC 60947-5-2
Accessory	Nut	Nut
Connection	4 Pin M12 connector	4 Pin M12 connector
Weight	Approx. 42g	Approx. 50g



<p>Features</p> <ul style="list-style-type: none"> ▪ M12mm housing size ▪ Sn=1.5mm, shielded ▪ 500bar operating pressure ▪ 10-30VDC operating voltage ▪ Ceramic ZrO2 sensing face ▪ Stainless steel housing case ▪ NPN, PNP Output ▪ NO,NC Function ▪ Short circuit protection ▪ Overload protection ▪ Reverse polarity protection ▪ M12 Connector version ▪ IP68 Protection <p style="text-align: right;">CE</p>	 <p style="text-align: right;">(Unit: mm)</p> 	
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Connection	4 Pin M12 Connector	
Mounting	Shielded	
NPN-NO	RDF11012C1.5H	
NPN-NC	RDF11012D1.5H	
PNP-NO	RDF11012A1.5H	
PNP-NC	RDF11012B1.5H	

General Data		
Housing size	M12mm	
Installation type	Shielded	
Sensing distance(Sn: mm)	1.5mm	
Effective sensing distance (Sr: mm)	90 ... 110% of Sn	
Assured operating distance(Sa: mm)	0 ... 80% of Sn	
Pressure rating	500bar	
Peak pressure	1000bar	
Hysteresis	<15%	
Material	Stainless steel case;Ceramic ZrO2 sensing face;FKM O-ring	

Electrical Data		
Operating voltage	10 ... 30VDC	
Repeated accuracy	±10%	
Ripple	<10%	
No load current	<10mA	
Max. Load current	200mA	
Leakage current	<0.01mA	
Voltage drop	<1.5V	
Switching frequency	800Hz	
Response time	0.1ms/0.1ms	
Rated insulation voltage	75VDC	
Operating temperature	-25°C ... +70°C	
Storage temperature	-40°C ... +80°C	
Temperature drift	<10%	
Power indicator	No	
Function indicator	Yes	
Reverse polarity protection	Yes	
Short-circuit protection	Yes	
Overload trip point	220mA	
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4	

Mechanical Data		
Tightening torque	<15Nm	
Protection	IP67 / IP68 /IP69K	
Shock rating	Shock, half-sinus, 30gn, 11ms	
Vibration rating	55Hz, 1mm ampl., 3x30min.	
EMC	IEC 60947-5-2	
Accessory	/	
Connection	4 Pin M12 connector	
Weight	Approx. 30g	



<p>Features</p> <ul style="list-style-type: none"> ▪ M14mm housing size ▪ Sn=3mm, shielded ▪ 500bar operating pressure ▪ 10-30VDC operating voltage ▪ Ceramic ZrO2 sensing face ▪ Stainless steel housing case ▪ NPN, PNP Output ▪ NO,NC Function ▪ Short circuit protection ▪ Overload protection ▪ Reverse polarity protection ▪ PUR cable version ▪ M12 Connector version ▪ IP68 Protection 	<p>(Unit: mm)</p>	<p>(Unit: mm)</p>



Connection	2m Cable	4 Pin M12 Connector
Mounting	Shielded	Shielded
NPN-NO	RCE6I614C03C	RCF5I614C03H
NPN-NC	RCE6I614D03C	RCF5I614D03H
PNP-NO	RCE6I614A03C	RCF5I614A03H
PNP-NC	RCE6I614B03C	RCF5I614B03H

General Data		
Housing size	M14mm	M14mm
Installation type	Shielded	Shielded
Sensing distance(Sn: mm)	3mm	3mm
Effective sensing distance (Sr: mm)	90 ... 110% of Sn	90 ... 110% of Sn
Assured operating distance(Sa: mm)	0 ... 80% of Sn	0 ... 80% of Sn
Pressure rating	500bar	500bar
Peak pressure	1000bar	1000bar
Hysteresis	<15%	<15%
Material	Stainless steel case;Ceramic ZrO2 sensing face;FKM O-ring	Stainless steel case;Ceramic ZrO2 sensing face;FKM O-ring

Electrical Data		
Operating voltage	10 ... 30VDC	10 ... 30VDC
Repeated accuracy	±10%	±10%
Ripple	<10%	<10%
No load current	<10mA	<10mA
Max. Load current	200mA	200mA
Leakage current	<0.01mA	<0.01mA
Voltage drop	<1.5V	<1.5V
Switching frequency	500Hz	500Hz
Response time	0.2ms/0.2ms	0.2ms/0.2ms
Rated insulation voltage	75VDC	75VDC
Operating temperature	-25°C ... +70°C	-25°C ... +70°C
Storage temperature	-40°C ... +80°C	-40°C ... +80°C
Temperature drift	<10%	<10%
Power indicator	No	No
Function indicator	No	No
Reverse polarity protection	Yes	Yes
Short-circuit protection	Yes	Yes
Overload trip point	220mA	220mA
Correction factors	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4	Fe37 steel=1/stainless steel approx. 0.85/brass approx. 0.5/ Al. Approx. 0.45/ copper approx. 0.4

Mechanical Data		
Tightening torque	<25Nm	<25Nm
Protection	IP67 / IP68 /IP69K	IP67 / IP68 /IP69K
Shock rating	Shock, half-sinus, 30gn, 11ms	Shock, half-sinus, 30gn, 11ms
Vibration rating	55Hz, 1mm ampl., 3x30min.	55Hz, 1mm ampl., 3x30min.
EMC	IEC 60947-5-2	IEC 60947-5-2
Accessory	/	/
Connection	2m PUR cable	4 Pin M12 connector
Weight	Approx. 102g	Approx. 85g