Shenzhen Signal Electronics Co.,Ltd

CE LVD TEST REPORT

Prepared For :	**Shenzhen Signal Electronics Co.,Ltd** Building 15,Xia Lang Industrial Zone,He Shui Kou Community,Matian Street,Guangming New District,Shenzhen,GD.CHINA
Product Name:	M12 MALE&FEMALE CONNECTOR
Trade Name:	/
Main Test Model :	M12 MALE&FEMALE CONNECTOR
Additional Model :	M5、M8、M9、M16、M23、7/8″、M17、RD24
Prepared By :	BST Testing(Shenzhen) Co., Ltd. No.7, New Era Industrial Zone, Guantian, Bao'an District, Shenzhen, Guangdong, China
Test Date:	Dec.28, 2023- Jan.04，2024
Date of Report :	Jan.04，2024
Report No.:	XD2532450580104137AR

BST TESTING (SHENZHEN) CO., LTD. APPROVED

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TEST REPORT
EN 61984
Connectors – Safety requirements and tests

Testing laboratory	
Name.....:	BST Testing(Shenzhen) Co.,Ltd.
Address.....:	No.7, New Era Industrial Zone, Guantian, Bao'an District, Shenzhen, Guangdong, China
Testing location.....:	BST Testing(Shenzhen) Co.,Ltd.
Applicant	
Name.....:	Shenzhen Signal Electronics Co.,Ltd
Address.....:	Building 15,Xia Lang Industrial Zone,He Shui Kou Community,Matian Street,Guangming New District,Shenzhen,GD.CHINA
Test specification	
Standard.....:	EN 61984: 2009 IEC 61984:2008
Test procedure .....:	CE
Procedure deviation.....:	N.A.
Non-standard test method.....:	N.A.
Test item	
Description.....:	M12 MALE&FEMALE CONNECTOR
Model and/or type reference.....:	M12 MALE&FEMALE CONNECTOR
Manufacturer.....:	Shenzhen Signal Electronics Co.,Ltd
Address .....:	Building 15,Xia Lang Industrial Zone,He Shui Kou Community,Matian Street,Guangming New District,Shenzhen,GD.CHINA

Test case verdicts	
Test case does not apply to the test object..... :	N(.A.)
Test item does meet the requirement..... :	P(ass)
Test item does not meet the requirement.....:	F(ail)
General remarks	

"(see remark #)" refers to a remark appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a comma is used as the decimal separator. The test results presented in this report relate only to the object tested. This report shall not be reproduced except in full without the written approval of the testing laboratory.	Attached with: A. photo documentation Remark: General product information: All models have the similar construction except sizes of appearance and electrical parameter Model list: M5、M8、M9、M16、M23、7/8″、M17、RD24

Copy of marking plate:

On the product body:

Product : M12 MALE&FEMALE CONNECTOR
Model: M12 MALE&FEMALE CONNECTOR
Rating: AC110-250 4A

Manufacturer: Shenzhen Signal Electronics Co.,Ltd
Address:Building 15,Xia Lang Industrial Zone,He Shui Kou Community,Matian Street,Guangming New District,Shenzhen,GD.CHINA

Prepared by : Lanya Li
Engineer

Reviewer :
Supervisor

Approved & Authorized Signer :
Manager

EN 61984			
Clause	Requirement + Test	Result - Remark	Verdict

	MECHANICAL TEST GROUP A (TABLE 10)		P
A1	VISUAL EXAMINATION: IEC 60512 Test 1a		P
6.2.2	Marking indelible and easily legible		N/A
	Minimum marking on the connector a) trademark		N/A
	Markings a) trademark and b) type identification on smallest unit of packaging		N/A
	All other markings (c – k) given in the technical documentation or catalogue of the manufacturer		N/A
	c) Rated current ..... :	4A	P
	c) Rated voltage ..... :	AC110-250	P
	e) Over voltage category ..... :	/	P
	f) Pollution degree ..... :	II	P
	g) Protection degree ..... :	IPX0	N/A
	h) Range of temperature ..... :	(LLT – ULT)	P
	i) Type of terminals .....:	quick-connect terminations	P
	j) Connectable conductors ..... :		P
	k) Reference to this standard or to the DS		N/A
6.2.3	Position for the contacts and protective earthing contacts clearly indicated. Marking of protective earthing contacts applies symbol ⏚ or “PE”. This requirement is not necessary for non rewirable connectors.		N/A
6.9.2	Fixing means not used to fix live parts.		P
6.9.3	Termination without damage possible.		P
6.10	CBC has adequate breaking capacity.		N/A
6.11	Free connector: Wires protected against shear and tensile stress at the termination and secured to prevent twisting.		P
	The above requirement does not apply to:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	a) free connectors for termination to cables in fixed mountings (plug connection in the sense of a detachable connection)		N/A
	b) free connectors in which the terminations are protected against pull and twisting by mounting		P
	provisions in the end-use product		N/A
	DIMENSIONAL EXAMINATION: IEC 60512		P
6.19	Clearances and creepage distances according to IEC 60664.	see table 0.2	P
	Connector dimensions comply with the DS or manufacturer's specification.		P
A2	DURABILITY OF MARKING		N/A
7.3.2	Test liquid: water Test piston size 1; force 5 N; 10 cycles IEC 60068-2-70 Test Xb „Abrasion of marking“		N/A
	VISUAL EXAMINATION: IEC 60512 Test 1a		N/A
	Visible with the naked eye		N/A
A3	POLARISATION AND CODING: IEC 60512 / Test [13e]		P
	- For unenclosed connectors (internal connections) 20 N		N/A
	- For enclosed connectors (external connections) 1,5 x mating force, but not higher than 80 N		P
6.3	Multipole connector: Contact between protective earthing contacts and live contacts is not possible by engagement.		N/A
6.9.1	Multipole connector: Polarisation prevents improper connection of mating parts.		N/A
	VISUAL EXAMINATION: IEC 60512 Test 1a		P
	No damage likely to impair function		P
A4	PROVISIONS FOR EARTHING		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.5.1	For a CBC the earthing contact is a “first make - last break” contact.		N/A
7.3.3	No electrical contact indication between earth contact and the other contacts.		N/A
6.5.4	CONNECTION OF THE PROTECTIVE EARTH CONNECTOR		N/A
	VISUAL EXAMINATION: IEC 60512 Test 1a		N/A
	Remove any available covers if required.		N/A
6.5.4.1	The protective conductor terminal accepts a		N/A
	conductor with a minimum cross-section as specified in Table 1, Column 2:		
	Minimum cross- section according to Table 1....:	mm²	
6.5.4.2	With regard to design and type of construction, the protective conductor terminations are at least equivalent to the other terminations according to clause 6.:		N/A
A5	INTERLOCK		P
7.3.4	The specimens are engaged by hand over their full engagement distance. All other contacts are wired in series. The interlock contacts “make last and break first”, before any other contact does.		P
6.7	The connector with an interlock cannot be engaged or disengaged as long as the contacts are live.		P
A6	TERMINATIONS		P
6.6	Range of connectable conductor(s) .....:		--
6.6.1 a)	Test acc. to: IEC 60352-1 Wrapped connections		N/A
6.6.1 b)	Test acc. to: IEC 60352-2 Crimped connections		P
6.6.1 c)	Test acc. to: IEC 60352-3 or IEC 60998-2-3 Accessible insulation displacement connections		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.6.1 d)	Test acc. to: IEC 60352-4 or IEC 60998-2-3 Non-accessible insulation displacement connections		N/A
6.6.1 e)	Test acc. to: IEC 60352-5 Press-in connections		N/A
6.6.1 f)	Test acc. to: IEC 60352-6 or IEC 60998-2-3 Insulation piercing connections		N/A
6.6.1 g)	Test acc. to: IEC 60999-1 or IEC 60999-2 or IEC 60352-7 Screwless-type clamping units		N/A
6.6.1 h)	Test acc. to: IEC 60999-1 or IEC 60999-2 Screw-type clamping units		N/A
6.6.1 i)	Test acc. to: IEC 60760 or IEC 61210 Flat, quick-connect terminations		N/A
	Test acc. to: IEC 60068-2-20		N/A
	Solder terminations		
	Other terminations, not mentioned above, acc. to IEC standard.....:		N/A
A7	CONTACT RETENTION IN INSERT: IEC 60512 Test 15a		P
	Test load shall be three times the specified insertion force (mating) of one contact or the specified insertion force of one contact plus 50 N, whichever is less. Minimum test load 20 N.		—
	VISUAL EXAMINATION: IEC 60512 Test 1a		P
6.18.2	Contacts safety retained		P
	No axial displacement likely to impair normal operation		P
A8	CABLE CLAMP: IEC 60512		P
6.17	The cable clamp is made of insulating material or metal.		P
6.17	Metal cable clamps meet one of the following requirements:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	a) Provided with a covering of insulating material to prevent any accessible metal part becoming live in case of a fault.		N/A
	b) No contact possible with the IEC test finger according to IEC 60529.		N/A
	c) Be connected to protective earth.		N/A
	Cable clamping range (6.17 Table 6 or manufacturer's specification) .....:	from: mm to: mm	—
A8.1	CABLE CLAMP (PULL) IEC 60512 Test 17c		P
	VISUAL EXAMINATION: IEC 60512 Test 1a		P
	Covers mounted / contacts not connected	See appended table A8.1	P
A8.2	CABLE CLAMP (TORSION): IEC 60512 Test 17d		P
	VISUAL EXAMINATION: IEC 60512 Test 1a		P
	Covers mounted	See appended table A8.2	P
A9	MECHANICAL STRENGTH IMPACT (Only free Connectors and CBC): IEC 60512 Test 7b		P
	Dropping cycles: 8 positions in 45° steps		—
	Dropping height .....:	mm	—
	VISUAL EXAMINATION: IEC 60512 Test 1a		P
6.18.1	No damage likely to impair safety		P
6.18.3	Internal insulations not damaged		P
	Parts against electric shock not damaged		P
	Clearances and creepage distances not reduced		P
	SERVICE LIFE TEST GROUP B (TABLE 11)		P
B1	INITIAL MEASUREMENTS (CONTACT RESISTANCE): IEC 60512 Test 2b		P
	Reference value for subsequent measurement:	See appended table B1	
	Test current .....:	10A	

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Clause	Requirement + Test	Result - Remark	Verdict

B2	BREAKING CAPACITY (ONLY FOR CBCs)		N/A
7.3.5	Operating cycles .....:		—
	Speed of insertion/ withdrawal .....:	0.8 m/s	
	Test voltage .....:	V	
	Test current .....:	A	
	Power factor / cos( ) .....:	0.9 0.05	
	Time constant	1 ms 15%	
	VISUAL EXAMINATION: IEC 60512 Test 1a		N/A
6.14.2	No damage occurred, which could impair normal use		N/A

B3	MECHANICAL OPERATIONS: IEC 60512 Test 9a		P
7.3.9	Operating cycles .....:	2000	
	Insertion speed .....:	0.01 m/s	
	Rest .....:	30 s	
	VISUAL EXAMINATION: IEC 60512 Test 1a		P
6.14.1	No damage occurred, which could impair normal use		P

B4	FINAL MEASUREMENTS (CONTACT RESISTANCE): IEC 60512 Test 2b		P
	Test current .....:	10A	
	R2 1,5 R1 or R2 5 m + R1.....:	See appended table B4.1	P
	DIELECTRIC STRENGTH: IEC 60512 Test 4a		P
	a) Impulse withstand voltage .....:	2.5kV	
	b) r.m.s. withstand voltage .....:	1.39kV	
6.13	No breakdown or flashover occurred	See appended table B4.2	P

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Clause	Requirement + Test	Result - Remark	Verdict

B5	BENDING (FLEXING) TEST (To be performed on new specimen)		P
7.3.10	Only non-rewirable connectors		P
	Rated current .....:	10A	
	Rated voltage .....:	250V	
	Wire cross section .....:		
	Load: 0,75 mm² / 20 N ; 0,75 mm² / 10 N	20N	
	Numbers of bending .....:	500	
	DURING THE TEST		P
	No interruption of the test current		P
	No short-circuit between the conductors		P
	AFTER THE TEST		P
	Cable support sleeve not loosened from the body		P
	Insulation shows no signs of abrasion or of wear and tear.		P
	Broken strands do not pierce the insulation.		P
	VISUAL EXAMINATION: IEC 60512 Test 1a		P
6.14.3	No damage occurs, which could impair normal use.		P
	THERMAL TEST GROUP C (TABLE 12)		P
C1	TEMPERATURE RISE TEST: IEC 60512 Test 5A		P
	Test conductor length according Table 7..... :		
	Test conductor cross-section ..... :		
7.3.7	Mated specimen ..... :		
	Test current ..... :	10A	
	Ambient temperature – components ..... :	25°C	
	Upper limit temperature – components ..... :	125°C	

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Clause	Requirement + Test	Result - Remark	Verdict
6.16	The upper limiting temperature specified for the specimen is not exceeded	See appended table C1	P
	CLIMATIC TEST GROUP D (TABLE 13)		P
D1	INITIAL MEASUREMENTS (CONTACT RESISTANCE): IEC 60512 Test 2b		P
	Reference value for subsequent measurement .:	See appended table D1	
	Test current .....:	10A	
D2	COLD: IEC 60512 Test 11j		P
	Mated specimen .....:		
	Test duration .....:	2 h	
	Lower temperature limit .....:	-10°C	
	VISUAL EXAMINATION: IEC 60512 Test 1a		P
6.6.3	Sufficient contact pressure through insulation		P
6.8 / 6.15	No visual damage, no cracks on insulations parts likely to impair safety		P
6.18.3	Internal insulation shows no damage likely to impair safety		P
	No damage occurred, which could impair normal use		P
D3	DRY HEAT: IEC 60512 Test 11i		P
	Mated specimen .....:		—
	Test duration .....:	7 days	—
	Upper temperature limit .....:	125°C	—
	VISUAL EXAMINATION: IEC 60512 Test 1a		P
6.6.3	Sufficient contact pressure through insulation		P
6.8 / 6.15	No visual damage, no cracks on insulations parts likely to impair safety		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.18.3	Internal insulation shows no damage likely to impair safety		P
	No damage occurred, which could impair normal use		P
D4	PROTECTION AGAINST CORROSION: IEC 60512 Test 11g		N/A
7.3.14 Test 1	Flowing mixed gas corrosion according to IEC 60512-11-7, test 11g Method 1 or alternatively Method 4 (Table 1 of IEC 60512-11-7)). Test duration is 4 days.		N/A
7.3.14 Test 2 alternative	Sulphur dioxide test with general condensation of moisture according to ISO 6988 . Test duration is 24h (1 test cycle)		N/A
	VISUAL EXAMINATION: IEC 60512 Test 1a		N/A
6.21	Function guaranteed		N/A
	No damage occurred, which could impair normal use		N/A
D5	FINAL MEASUREMENT (CONTACT RESISTANCE): IEC 60512 Test 2b		P
	Test current .....:	10A	
	R2 1,5 R1 or R2 5 m + R1 .....:	See appended table D5	P
D6	DIELECTRIC STRENGTH: IEC 60512 Test 4a		P
	Mated specimen .....:		
	Impulse withstand voltage .....:	2.5kV	
	r.m.s. withstand voltage .....:	1.39kV	
6.13	No breakdown or flashover occurred	See appended table D6	P
	DEGREE OF PROTECTION TEST GROUP E (TABLE 14)		P
E1	PROTECTION AGAINST ELECTRIC SHOCK		P
	Unenclosed connectors (for use inside an enclosure):		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	5.4 c1) COC classified as IP0X, no test required		N/A
6.4.2.2	5.4 c2) COC Hand back safety (IP1X or IPXXA) 50 mm sphere pressed with 20 N against mated specimen. No live parts accessible.		N/A
6.4.2.3	5.4 c3) COC Finger safety (IP2X or IPXXB) Jointed test finger pressed with 20 N against mated specimen. No live parts accessible.		N/A
6.4.2.3	5.4 d) CBC finger safety (IP2X or IPXXB) Jointed test finger pressed with 20 N against mated and unmated specimen. No live parts accessible.		N/A
	Enclosed connectors (COCs and CBCs)		N/A
6.4.1	Test at mated and unmated specimen. Jointed IEC test finger pressed with 20 N against the surface except the mating face of the male part of the connector. Creepages and clearances ensured between live parts and test finger.		P
	All parts necessary to ensure protection against electric shock only removable with a tool.		P
6.4.3	For a CBC, protection against electric shock is ensured also during insertion and withdrawal. This is proved by use of the jointed IEC test with a test force of 20 N. Creepages and clearances ensured between live parts and test finger.		N/A
E2	PROVISION FOR EARTHING		N/A
7.3.13 6.5.3	Resistance between accessible metal parts and the earthing contact ≤ 100 m ..... :	m	N/A

E3	DEGREE OF PROTECTION IP CODE: IEC 60529		P
7.3.6.3	Tests for IP Codes higher than IP2X or IPXXB		N/A
6.12 7.3.7.1	IP code according to IEC 60529 in mated condition or according manufacturers conditions ..... :	IPX0	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Maximum and minimum cross-section wiring or cable diameter connected ..... :	mm² / mm mm² / mm	—
7.3.7.2	Protection against ingress of foreign solid objects, tested according to IEC 60529		N/A
7.3.7.3	Protection against harmful ingress of water, tested according to IEC 60529		N/A

A8.1	**TABLE: Covers mounted / contacts not connected**				P
Nominal size (mm):	[mm]		Tensible force [N]	Displacement [mm]	
-	Min.	8.2	80	≤1.5	P
	Max.	-			
-	Min.	8.2	80	≤1.4	P
	Max.	-			
-	Min.	8.2	80	≤1.5	P
	Max.	-			

A8.2	**TABLE: Covers mounted**				P
Nominal size (mm):	[mm]		Torque [Nm]	Twist [°]	
-	Min.	8.2	0.1	≤ ±5	P
	Max.	-			
-	Min.	8.2	0.1	≤ ±4.5	P
	Max.	-			
-	Min.	8.2	0.1	≤ ±5.0	P
	Max.	-			

B1	**TABLE: Initial measurements (Contact resistance)**						P
Test current ..... :			4 A				—
Test sample	Contact	1	2	3	PE		
1	U1 [mV]	206	207.1	-	-		-
	R1 [m]	13	12.9	-	-		
	Contact	1	2	3	PE		
2	U1 [mV]	215	208.8	-	-		-
	R1 [m]	13.5	13.0	-	-		
	Contact	1	2	3	PE		
3	U1 [mV]	211.8	214.2	-	-		-
	R1 [m]	13.2	13.4	-	-		
supplementary information:							

B4.1	**TABLE: Final measurements (Contact resistance)**					P
Test current..... :			4 A			
Number of cycles..... :			500			
Condition ..... :			R2max 1,5R1 or R2max 5 m + R1			
Test sample	Contact	1	2	3	PE	
1	R2max [m]	13.3	13.1	-	-	
	U2 [mV]	215	207	-	-	
	R2 [m]	13.7	13.2	-	-	
	Contact	1	2	3	PE	—
2	R2max [m]	14.2	13.7	-	-	
	U2 [mV]	224.2	216.4	-	-	
	R2 [m]	14.2	13.8	-	-	
	Contact	1	2	3	PE	—
3	R2max [m]	13.9	13.3	-	-	
	U2 [mV]	219.7	209.4	-	-	
	R2 [m]	13.9	13.2	-	-	
supplementary information:						

B4.2	**TABLE: Dielectric strength (mated specimen)**			P
Test voltage applied between:	a) Impulse withstand voltage applied	b) r.m.s withstand voltage applied	Breakdown / flashover (Yes/No)	
Contact - Contact	2.95KV	-	No	
Contact - Earth	-	-	-	
Contact - Surface	4.8KV	-	No	
supplementary information:				

C1	**TABLE: Temperature rise test**				P
	Ambient temperature (°C) ..... :	24.5			
Thermocouple Locations		Test current (A)	Upper temperature limit (ULT) (°C)	Temperature measured (°C)	—
Contact 1		4	125	75.4	-
Contact 2		4	125	77.4	-
supplementary information:					

D1	**TABLE: Initial measurements (Contact resistance)**						P
Test current .....:		4 A					—
Test sample	Contact	1	2	3	PE		
1	U1 [mV]	213.0	219.7	-	-		-
	R1 [m]	13.7	13.5	-	-		
supplementary information:							

D5	**TABLE: Final measurements (Contact resistance)**					P
Test current ..... :		4A				
Condition ..... :		R2max 1,5R1 or R2max 5 m + R1				
Test sample	Contact	1	2	3	PE	
1	R2max [m]	13.8	13.6	-	-	-
	U2 [mV]	218.7	210.7	-	-	
	R2 [m]	13.9	13.4	-	-	
supplementary information:						

D6	**TABLE: Dielectric strength (mated specimen)**		P
Test voltage applied between:	a) Impulse withstand voltage applied	b) r.m.s withstand voltage applied	Breakdown / flashover (Yes/No)
Contact - Contact	2.95KV	-	No
Contact - Earth	-	-	-
Contact - Surface	4.8KV	-	No
supplementary information:			

0.1	**TABLE: Characteristic features**	
Example ..... :	X	Please mark relevant line with "X"
Kind of equipment	X	Connector without breaking capacity (COC)
		Connector with breaking capacity (CBC)
Existence of an enclosure		Unenclosed connector
	X	Enclosed connector
Design of the connector		Fixed connector
	X	Free connector
Additional characteristics		Connector with protective earthing contact
	X	Connector without protective earthing contact
		Connector with cable clamp
	X	Connector without cable clamp
		Connectors (COC) with protection against electric shock for hand back safety, when mated
	X	Connectors (COC) with protection against electric shock for finger safety
		CBC with protection against electric shock for finger safety, both in mated and unmated condition
	X	Degree of protection of a connector
		Connector for class II equipment
	X	Connector with interlock
		Connector without interlock
	X	Non-rewirable connector
		Rewirable connector

0.1	**TABLE: Characteristic features**	
Pollution degree		1
	X	2
		3
		4
Over voltage category		I
	X	II
		III
		IV
Operating cycles		10
		50
		100
	X	500
		1000
		2000
		5000
		According manufacturer's:
Bendings		10
		50
		100
	X	500
		1000
		2000
		5000
		20000
		According manufacturer's:

0.1	**TABLE: Characteristic features**	
Upper temperature limit		70°C
		85°C
		100°C
	X	125°C
		According manufacturer's:
Lower temperature limit	X	-10°C
		-25°C
		-40°C
		-55°C
		0°C
		According manufacturer's:
Type of conductor	X	Solid
		Flexible
Termination and connection		Wrapped connection
		Crimped connection
		IDC Accessible
		IDC Non-accessible
		Press in connections
		Insulation piercing connections
		Solder termination
		Screwless-type clamping units
		Screw-type clamping units
	X	Flat, quick-connect terminations
	X	According manufacturer's:
Values for cable clamp		[4–9 mm]
		[9-12 mm]
		[12-20 mm]
		[20-32 mm]
		[33-42 mm]
		[42 mm]
	X	According manufacturer's:

0.1	**TABLE: Characteristic features**
Rated voltage(s)..... :	220V
Rated current ..... :	4A
Rated impulse voltage(s) ..... :	2500V
Rated insulation voltage(s) ..... :	250V
Number of poles ..... :	2
Protection degree (IP-Code) ... :	IPX0
Mounting ..... :	Inter connection
Wire cross section area or cross section range ..... :	/
Material and coating of female contact ..... :	PBT
Material and coating of male contact:	PBT

0.2	**TABLE: Clearance and creepage distance measurements**				
Type / Shell-size / etc. ..... :	Function	Reinforce	-	-	-
Rated voltage [V] ..... :	250	250	-	-	-
Pollution degree ..... :	II	II	-	-	-
Isolation material group ..... :	IIIa	IIIa	-	-	-
Impulse withstand voltage [kV] :	2.5	2.5	-	-	-
Test voltage [kV] ..... :	-	-	-	-	-
Clearances required ..... :	1.5mm	3.0mm	-	-	-
Clearances measured ..... :	>2.0mm	>5.0mm	-	-	-
Creepage distances required .. :	2.5mm	5.0mm	-	-	-
Creepage distances measured :	>3.0mm	>6.0mm	-	-	-
Supplementary information:					

0.3.1	**TABLE: IEC 60112 / Tracking test**						
Specimen				Erosion depth [mm]			
Part	Material	Material-thickness [mm]	Colour	PTI Test solution [A]	CTI	PTI Test solution [B]	Result
Supplementary information:							

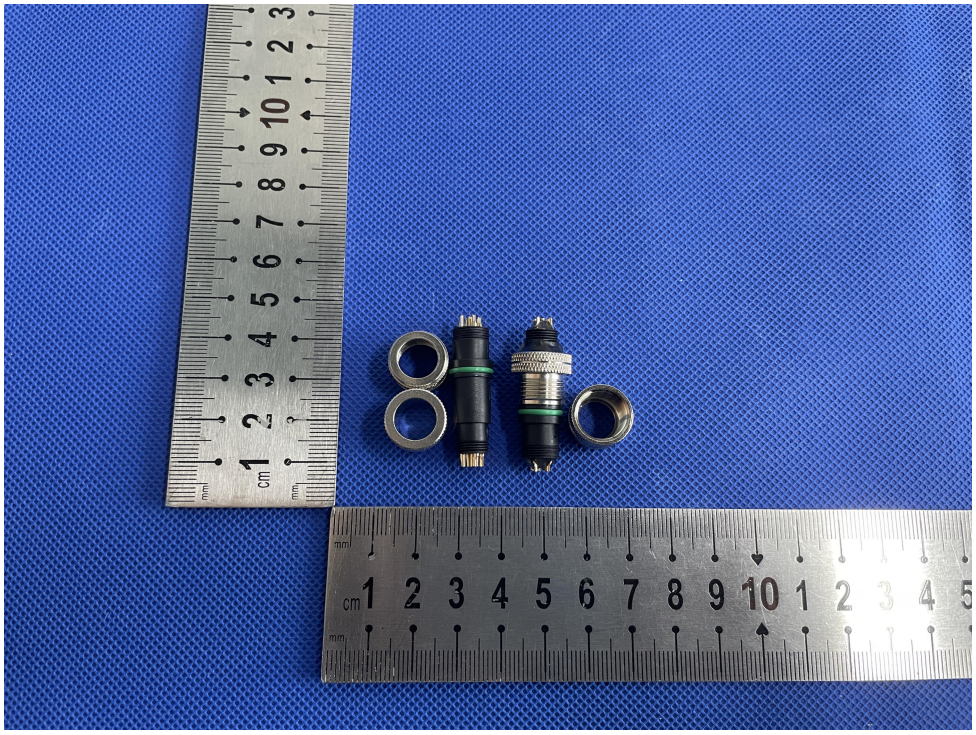
0.3.2	**TABLE: IEC 60695-2-11 / Glow-wire-test [60 s]**								
Specimen				Flame					
Part	Material	Material-thickness [mm]	Colour	[°C]	Start [s]	End [s]	Height [mm]	Ignition of tissue paper	Result
Plastic	PBT	>2.5	black	650	0	0	0	-	P
Supplementary information:									

0.3.3	**TABLE: IEC 89/336/CD / Ball-pressure test**						
Specimen				Ball-pressure test			
Part	Material	Material-thickness [mm]	Colour	[C°]	Measured [mm]	Required [mm]	Result
Plastic inside	PBT	>2.5	black	125	1.5	2.0	P
Supplementary information:							

0.3.4	**TABLE: IEC 60695-2-2 / Needle-flame test**						
Specimen				Flame			
Part	Material	Material-thickness [mm]	Colour	Burning duration [s]	Start [s]	End [s]	Result
Plastic	PBT	2	Black	10	1	5	P
Supplementary information:							

ANNEX A: Photo-documentation

Over view for model M12 MALE&FEMALE CONNECTOR



Over view for model M12 MALE&FEMALE CONNECTOR

End of report