



COMPLIANCE TESTING REPORT FOR AUSTRALIAN STANDARD AS/CA S008:2010 REQUIREMENTS FOR CUSTOMER CABLING PRODUCTS

Client:	Schneider Electric (Australia) Pty. Ltd.		
Address:	33-37 Port Wakefield Road, Gepps Cross SA 5094.		
Report Number:	0505SCH_ACT4P6UPEJ3RBK_S08		
Date of Testing:	13 January to 28 April 2014		
File Number:	SCH131120		
Product Name:	Cat 6 Outdoor Cable		
Product Brand:	Schneider Electric		
Product Model No.:	ACT4P6UPEJ3RBK		
Product Description:	Cat 6 Outdoor Cable		
Result:	Complies*		
Compiled by:	Philip Hitchcock Testing Engineer		
Approved by:	Martin Garwood Laboratory Manager		
Date of Issue	05 May 2014		
<p>Results appearing herein relate only to the sample(s) tested. This report may not be reproduced in any form unless done so in full.</p> <p>This report is issued errors and omissions exempt and is subject to withdrawal at Austest Laboratories discretion. * Refer to summary page for any conditions.</p>			

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SUMMARY OF COMPLIANCE WITH AUSTRALIAN STANDARD
AS/CA S008:2010

The Cat 6 Outdoor Cable was supplied for AS/CA S008:2010 testing by Schneider Electric (Australia) Pty. Ltd. of Gepps Cross, SA, Australia.

The Equipment Under Test (EUT) consisted of a length of outdoor cable consisting of twisted 4 pair (UTP) construction. The conductors were 0.565mm diameter solid copper and were insulated with foam PE. The sheath was advised as LLD-PE. The cable was fitted with an internal spreader. A filling compound was used to waterproof the pairs.

The cable sample supplied had embossed cable markings as follows:
SCHNEIDER ELECTRIC ACTASSI ACT4P6UPEU3RBK  ISO 11801 Ed2:2012
AS/NZS 3080:2013 AS1049.2:2008 4PR 23AWG UTP CAT6 CABLE S02 14093 00M

The Cat 6 Outdoor Cable **COMPLIES** with the tested clauses of AS/CA S008:2010.

SPECIAL CONDITIONS FOR COMPLIANCE:

The cable must comply with Clause 5.6.3 requirements for insulation and sheath materials.

The cable is designed for outdoor use only and is not intended for use within a building.

The cable is not intended for use as a telephone cable.

Clause 5.6.5 UV resistance was not tested as part of this report. Please refer to Austest Report No. 0417SCH_ ACT4P6UPEJ3RBK _UVR dated 17 April 2014 for details of UV testing.

The requirements for labelling cable and cable products are specified in the ACMA Telecommunications Cabling (Customer Equipment and Customer Cabling) Notice.

Possible Test Case Verdicts:

- test case does not apply to the test objectN(.A)
- test object does meet the requirementsP(ass)
- test object does not meet the requirementsF(ail)
- testing was not performed.....NT
- noted.....ND

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AS/CA S008:2010			
Clause	Requirement - Test	Result - Remark	Verdict
5.	REQUIREMENTS		P
5.1	GENERAL Cabling products shall be physically distinguishable from products used for distribution or connection of AC mains supply.		P
5.2	MARKINGS		P
5.2.1	Labelling Notice		ND
5.2.2	Inappropriate markings Cabling products intended solely for telecommunications use shall not bear markings indicating hazardous services.		P
5.2.3	Additional markings (excluding cable markings)		N
5.2.3.1	International protection (IP) rating		N
5.2.3.2	Multidiscipline telecommunications connecting hardware		N
5.3	UNDERGROUND CONDUIT		N
5.4	CABLE DISTRIBUTION DEVICES		N
5.5	OPTICAL FIBRE DISTRIBUTION DEVICES AND ENCLOSURES Optical fire distribution devices and splice enclosures shall comply with AS/NZS 2211.1		N

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AS/CA S008:2010			
Clause	Requirement - Test	Result - Remark	Verdict
5.6	CABLES		P
5.6.1	General A customer cable shall meet the requirements of Clauses 5.6.2 to 5.6.9 where specified in Clauses 5.6.10 to 5.6.18 of this Standard.		P
5.6.2	Conductor and optical fibre identification Shall use a system of identification such that all conductors, coaxial tubes or optical fibres within the cable are readily distinguishable visually from one another.	4 twisted pairs. Pairs are identified as: Blue, orange, green, brown. the matching mate in a pair is white insulation with a coloured stripe	P
5.6.3	Insulation and sheath material		NT
	(a) shall use insulation and sheath materials suitable for telecommunications purposes;	FOAM PE insulation LLD-PE sheath	ND
	(b) Where PVC insulation or sheath materials are used, they shall comply with the requirements of Table 1 or 2, as applicable: and		N
	Table 1 - PVC Insulation Requirements Tensile strength (unaged): 13 MPa Elongation (unaged): 100% Elongation (Aged): 50% of initial after 100C at 120h Volatile Loss: 20 g/m2 after 80C aging for 120h Volume Resistivity: 400GΩ m at 23C, 0.4GΩ m at 60C		N
	Table 2 - PVC Sheath Requirements Tensile strength (unaged): 12 MPa Elongation (Unaged): 100% Elongation (Aged): 50% of initial after 100C at 120h Volatile Loss: 20 g/m2 after 80C aging for 120h		N
	(c) Where non-PVC insulation or sheath materials are used, they shall comply with the requirements of AS 1049 for-		NT
	(i) Tensile Strength Test (Aged/Unaged);		NT
	(ii) Elongation Test (Aged/Unaged); and		NT

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	(iii) Shrinkback Tests for that particular type of insulation and sheath.		NT
5.6.4	Flammability A cable that is required to comply with this Clause shall pass the combustion propagation test of Method 5.6 including Appendix A and B of AS 1660.5.6.	Outdoor Cable is not intended for use within a building	N
5.6.5	UV resistance Requirements of AS 1049 for cables exposed to UV radiation.	Refer to Austest report No. 0417SCH_ACT4P6UPEJ3RBK_UVR	NT
5.6.6	Metallic conductors		P
5.6.6.1	Conductor composition Any metallic conductors, other than copper-clad steel used as an inner conductor in coaxial cable, or copper-clad aluminium with a centre conductor greater than 2mm used as an inner conductor in coaxial cable- (1) shall be either plain or plated copper; (2) may be either a single, solid conductor or multi-stranded; (3) the DC resistance shall be less than the values given in Table 3; and (4) the conductor finish should be plain or tinned	Requirement: 75.2 Ω /km max. Measured: 67.4 Ω /km Solid plain copper diam. = 0.565 mm All pairs measured and average calculated.	P
5.6.6.2	Electrical withstand voltage A multi-conductor cable that is required to comply with this Clause by any of Clauses 5.6.10 to 5.6.18 of this Standard, when tested at a frequency of 50 Hz on at least 1 m length; (a) shall be able to withstand the appropriate AC voltage levels and test method listed in Table 4, without breakdown for a period of 60 s or a period of 2 s as stated; and (b) for Test 2 and 3, all cables/cordages shall comply to the Table 4 limits using the test specified in AS/NZS 3191 Table 2.1, test number 8(a), and using test method referred in Clause 3.5.1 of AS/NZS 1660.3.	Refer to Appendix.	P

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Clause	Requirement - Test	Result - Remark	Verdict
5.6.6.3	<p>Mutual capacitance</p> <p>(a) The maximum mutual capacitance between the two wires forming a pair measured at any frequency in the range 800 Hz to 1000 Hz shall not exceed the relevant value given in table 5.</p> <p>(b) The measurement, referred to in Clause 5.6.6.3 (a) shall be performed on a minimum cable length of 100m</p> <p>(c) The mutual capacitance shall be corrected to a length of 1000m</p>	The cable is not intended for use as a telephone cable	N
5.6.6.4	<p>Capacitance unbalance</p> <p>(a) The maximum capacitance unbalance between pairs measured at any frequency in the range 800 Hz to 1000 Hz shall not exceed the relevant value given in Table 5.</p> <p>(b) During the measurement referred to in Clause 5.6.6.4 (a), all conductors, other than those under test and the metallic shield (where applicable) shall be connected to earth.</p> <p>(c) The measurement shall be performed on a minimum cable length of 100m.</p> <p>(d) The capacitance unbalance between two pairs of wires with one pair designated 'A' and 'B' and the second pair designated 'C' and 'D'.</p> <p>(e) The capacitance unbalance shall be corrected to a length of 500m.</p>	The cable is not intended for use as a telephone cable	N
5.6.6.5	<p>Insulation resistance</p> <p>(a) shall not be less than the relevant value given in Table 5;</p> <p>(b) the measurement shall be made on a minimum length of 100m of cable or cordage at a potential of 500Vd.c. \pm50Vd.c. and the reading taken after the application of the voltage for 60s; and</p> <p>(c) the insulation resistance shall be corrected to a length of 1000m.</p>		P
5.6.7	<p>Metallic shield</p> <p>(a) any shield provided in the cable shall be electrically continuous; and</p> <p>(b) Where a foil shield is employed, a drain wire shall be placed in continuous contact with the metallic surface of the shield.</p>		N N N

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Clause	Requirement - Test	Result - Remark	Verdict
5.6.8	Water penetration test Water Penetration specified in Clause 25, Method-F5B of IEC 60794-1-2.		P
5.6.9	Integral bearer or strengthener		N
5.6.10.	Cable with specific attributes Where a cable is claimed to have specific attributes, such as rodent or termite resistance or armouring strength, evidentiary documentation shall be made available on request to support the claim.		N
5.6.11	Metallic paired cable		N
5.6.11.1	General requirements Metallic paired cable, other than cordage, a cord or a special application cable, shall comply with the following Clauses: 5.6.2, 5.6.3, 5.6.4, 5.6.5, 5.6.6.1, 5.6.6.2, 5.6.6.3, 5.6.6.4, 5.6.6.5, 5.6.7, 5.6.8 and 5.6.9.		P
5.6.11.2	Construction A cable intended to carry a frequency of 300 Hz or greater shall be shielded or of twisted pair construction.		P
5.6.12	Cordage with metallic conductors		N
5.6.12.1	General requirements Cordage with metallic conductors shall comply with the following Clauses: 5.6.2, 5.6.3, 5.6.4, 5.6.5, 5.6.6.1, 5.6.6.2, 5.6.6.3, 5.6.6.4, 5.6.6.5 and 5.6.7.		N
5.6.12.2	Conductor composition Conductors in metallic cordage should be of stranded or tinsel conductor construction when frequent movement of the cordage is anticipated.		N
5.6.13	Cords with metallic conductors		N
5.6.13.1	General requirements A cord with metallic conductor shall comply with the following Clauses: 5.6.2, 5.6.4, 5.6.5, 5.6.6.1, 5.6.6.2, 5.6.6.5 and 5.6.7		N
5.6.13.2	Cords exceeding a length of 10m A cord with metallic conductors that exceeds a length of 10m shall comply with Clause 5.6.13.1 and the following Clauses: 5.6.3, 5.6.6.3 and 5.6.6.4.		N

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Clause	Requirement - Test	Result - Remark	Verdict
5.6.13.3	<p>Cord anchorage or strain relief</p> <p>A cord with metallic conductors-</p> <p>(a) shall be secured in any plug or socket connected to a cord by an appropriate anchorage or strain relief; and</p> <p>(b) When subjected to a force of 45 N gradually applied between the cord and the plug or socket for a period of 60s, the cord shall not be longitudinally displaced by more than 2mm, nor show any appreciable strain at the connection.</p>		N
5.6.14	Metallic jumper wire and jumper cable		N
5.6.14.1	<p>General requirements</p> <p>Metallic jumper wire and jumper cable shall comply with the following Clauses: 5.6.2, 5.6.3, 5.6.4, 5.6.6.1, 5.6.6.2, 5.6.6.5 and 5.6.7.</p>		N
5.6.14.2	<p>Twist rate</p> <p>Metallic jumper wire and cable shall have a minimum of 13 twists/metre in each pair.</p>		N
5.6.15	Coaxial cable		N
5.6.16	Optical fibre cable		N
5.6.17	Blown fibre tube systems		N
5.6.18	Special application cables		N
5.6.18.1	<p>Compliance</p> <p>A cable intended for a special application and intended for use in a cabling system connected to a carrier's network shall-</p> <p>(a) comply with Clauses 5.6.18.2 and 5.6.18.3; and</p> <p>(b) have insulation, sheath and jacket material that complies with AS 1049.1 when tested to AS 1049.2.</p>		N
5.6.18.2	<p>General requirement</p> <p>A special application cable installed within a building shall comply with clause 5.6.4.</p>		N

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5.6.18.3	Cable with metallic conductors A special application cable with metallic conductors- (a) shall comply with the testing requirements of the relevant Standard as listed by way of example in Table 6, to meet the requirements for its intended use; or (b) where Clause 5.6.18.3 (a) is not applicable- (i) the cable should comply with the following Clauses of this Standard: 5.6.6.1, 5.6.6.2, 5.6.6.5 and 5.6.7. (ii) where the cable is intended to be used as a telephone cable, it shall comply with the following Clauses of this Standard: 5.6.6.3 and 5.6.6.4.		N
5.7	CONNECTING HARDWARE, INCLUDING PLUGS AND SOCKETS OF ALL DESIGNS		N
5.8	CABLING PRODUCTS FOR UNDERGROUND AND AERIAL INSTALLATIONS		N

***** END OF REPORT BODY *****

Appendix A – Additional Test Data
Appendix B – Photographic Record of Sample
Appendix C – Information supplied by the Client

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Appendix A	Additional test data		
Clause	Requirement - Test	Result - Remark	Verdict

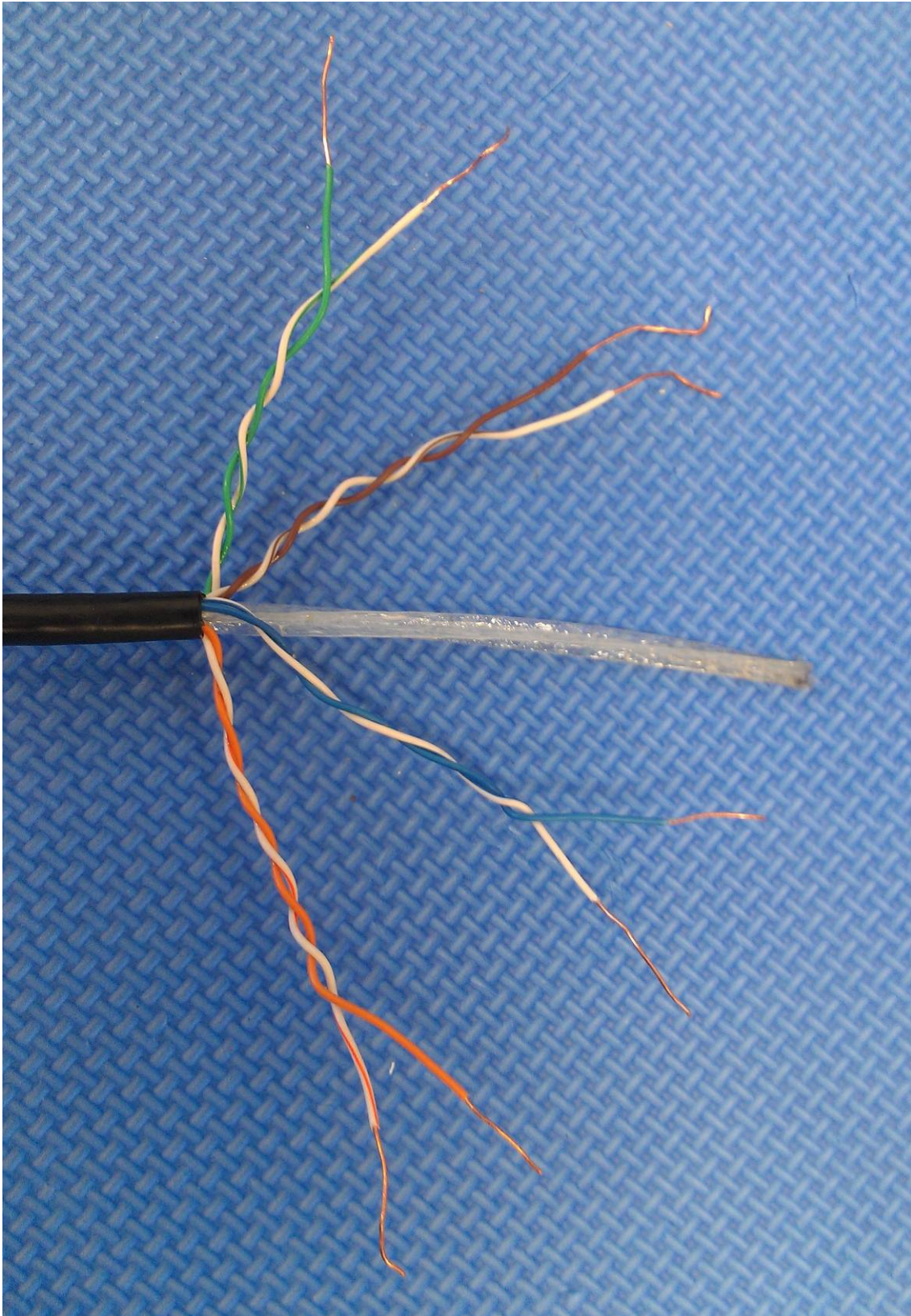
5.6.6.2	TABLE: Cable – Electrical Withstand Voltage		P
Test voltage applied between:		test voltage (V)	breakdown Yes / No
Blue wire to all other conductors		2kV a.c.	No
Blue/White wire all other conductors		2kV a.c.	No
Orange wire to all other conductors		2kV a.c.	No
Orange/White wire to all other conductors		2kV a.c.	No
Green wire to all other conductors		2kV a.c.	No
Green/White wire to all other conductors		2kV a.c.	No
Brown wire to all other conductors		2kV a.c.	No
Brown/White wire to all other conductors		2kV a.c.	No
All conductors to outside of sheath		4.5kV a.c.	No

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Appendix B – Photographic Record of Sample




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Appendix C – Information supplied by the Client



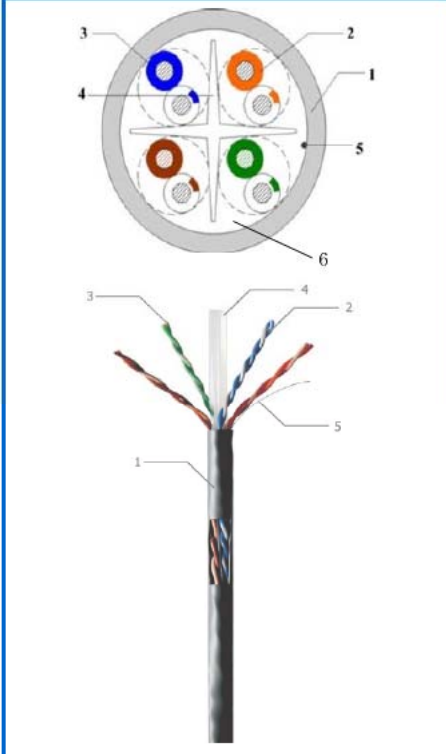
LAN Cable Series



4P 23AWG U/UTP CAT6 /LN-A0423AUC6-ENS-046
Rev.0

Description	Application
<ul style="list-style-type: none"> ● Rated temperature: 75 °C ● Reference standard:UL444, ANS/EIA-568-C.2 & IEC/ISO 11801 ● Product standard certification: ● Flame test: ● Solid bare copper conductor ● Color-coded FOAM PE insulation ● PE(UV) out jacket ● Packaging: Per customer request 	<ul style="list-style-type: none"> ● 100Base-T4 ● 100Base-TX ● 100VG-AnyLAN ● 1000Base-T ● 1000Base-TX ● 155Mbps ATM ● 622Mbps ATM

Product Figure




1. Jacket
2. Insulation
3. Conductor
4. Filler
5. Ripcord
6. Ointment-fill

Physical Characteristics

Structure	Construction	U/UTP
	Number of pairs	4Pair
	AWG	23 AWG
Insulation	Conductor dimension (mm)	0.565 +/- 0.02 mm
	Solid or stranded, bare or tinned	Solid bare copper
	Insulation Material	FOAM PE
	Insulation dimension (mm)	1.1+/- 0.06 mm
Filler	Number colour (stripe marking)	1.Blue , White/Blue(stripe) 2.Orange , White/Orange(stripe) 3.Green , White/Green(stripe) 4.Brown , White/Brown(stripe)
	Material	YES
	Ointment-fill Compound	YES
	Shield	Primary overall shield & material
Secondary overall shield & material		N/A
Shield coverage (%)		N/A
Cabling	T twisting lay length	<=30 mm
	Cabling lay length	<=200 mm
Outer jacket	Outer jacket material	LLD-PE
	Overall nominal dimension (mm)	6.7 +/- 0.3 mm
	Outer jacket thickness(Nom.)	0.7 mm
	Outer jacket rip cord	Yes
Mechanical characteristics	Operating temp. range	-20 °C ~ +75 °C
	Bulk cable weight (KG)	41 kg/km
	Max. recommended pulling tension	110 N
	Min. bend radius (install)	4 x O.D.
	Outer jacket tensile strength	>= 9.7 Mpa
	Outer jacket elongation	>=350%
	Outer jacket aging condition	100°C x 48 hrs
	After aging, tensile strength	>=75% of Unaging
	After aging, elongation	>=75% of Unaging
	Cold bend	No Crack (@ -20 °C x 4 hrs)
Electrical characteristics	Nom. mutual capacitance	<=5.6 nF/100m @1KHz
	Max. capacitance unbalance	<=330 pF/100m
	Nominal velocity of propagation	65%
	Max. delay skew	45 ns/100m
	Max. conductor DC resistance	93.8Ω/km (@ 20 °C)
	Max. conductor resistance unbalance	<=5% (@ 20 °C)
Max. insulation resistance	5000 MΩ.km	
Max. operating voltage - UL	300 V	

* Custom configuration is available upon request.



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