

NILSON

INSTRUMENTATION CABLES PRODUCT APPLICATION & MATERIALS



PRODUCT APPLICATION

The A70-A75 range is a particular group of multicore cables with solid / stranded / flexible conductors and numbered cores for the interconnection of electrical instruments and control equipment in industry and processing plants. Typical uses are for interconnecting :

- electrical measuring devices to instrument panel
- instrument to instrument
- electrical sensing devices
- control cabinets to supervisory consoles and panels
- remote auxiliary contacts to

supervisory indicators

- telemeters to recorders and annunciators and for general transmission of electrical signals in any systems of remote control, indication, telemetering, monitoring and analysis where a rugged communication type cable is required.

Typical wiring systems will use multi - pair cables to connect control room equipment to junction panels in field junction boxes. Single pair cables are used to connect junction panels to field devices.

A70 - A75 cables are suitable for use in those areas where it is necessary to provide protection from :

- interference to the transmission signal by other electrical circuits
- physical damage to the cable by including in the designs various screens and coverings.

These cables are intended for use in instrumentation and control circuits where the normal operating voltages would not be expected to exceed 240 Volts. Rms.

MATERIALS

COMPONENT	MATERIAL
Conductors	Plain Bare/Tinned Copper as Specified
	Size :- 0.5 sq mm 0.75 sq mm 1 sq mm 1.5 sq mm
	Solid :- 1/0.8 1/1.0 1/1.12 1/1.40
	Stranded :- 7/.3 7/0.37 7/0.43 7/0.52
	Flexible :- 16/.2 24/.2 32/.2 48/.2
Insulation	Polyvinyl Chloride (PVC) 70°C flame retardant. Radial thickness - 0.6 mm nominal for A70 multi - pair and A73 multi-triple cables; 0.5 mm nominal for B71 single pair and single triple, and B 75 multi-pair cables.
Screen	Aluminium / polyester bonded together as a faiminate - total thickness of 0.05mm and width as required.
Drain Wire	7 / 0.2 mm or single tinned copper wire or as required.
Communication Wire (when specified)	7 / 0.2 mm tinned copper wire Orange PVC insulated 70°C located in centre of cable.
Wrapping Tape	0.025mm thick polyester tape.
Inner Sheath (Bedding)	PVC Black 70°C Flame Retardant.
Armor - As required.	Galvanised steel wire/strip.
Outer Sheath/Jacket	PVC Black 70°C Flame Retardant. OR Specified Colour.

Manufactured by

Anandji Cables

7, Moon Light Shopping Centre, M. V. Road, Andheri (E), Bombay-400 069. Phone : 8322446 Fax : 91-22 - 8212172

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INSTRUMENTATION CABLES



CONSTRUCTION & ASSEMBLY SPECIFICATIONS & STANDARDS

Wire identification	Single and Multiple pairs Positive wire - white Negative wire - Black	Single and Multiple triples Positive wire - white Negative wire - Black Compensating or balancing wire - red
Element	An element consists of a pair or a triple formed by twisting the wires together. Elements are twisted with different twist lengths to reduce interference between them.	
Element Identification	The white wire of an element is numbered (O. D. 2.2 mm) minimum or colour coded for all cables except for a single pair and a single triple.	
Screened element (IS)	The twisted element is wrapped with aluminium/polyester laminate as a tape with the bare / tinned copper wire laid in contact with the aluminium side of the tape. A further layer of polyester tape is applied over the core.	
Cable core	The cable core is formed by assembling the required number of elements, which are laid concentric layers as necessary. A polyester tape is applied over the core.	
Screened core (CS)	The aluminium/polyester laminate is applied as a screen over the core in lieu of the plain tape with the tinned copper drain wire laid in contact with the aluminium side of the tape.	
Sheath	The wrapped core is sheathed with black PVC. OR Specified colour.	
Armour (SWA)	A further protective covering can be provided by the application of galvanised steel wires / strips and a black PVC oversheath. OR specified colour.	

Unless otherwise indicated these cables comply with the following standards :	
CONDUCTOR	IS - 8130 - 1984
INSULATION	IS - 5831 - 1984 (Compound Only)
INNER SHEATH (BEDDING)	IS - 1554 - Part-I 1988 (Compound Only)
ARMOUR (GALVANISED STEEL WIRE)	IS - 3975
OUTER SHEATH	IS - 5831 (Compound Only)

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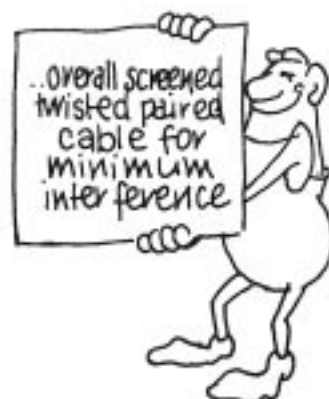
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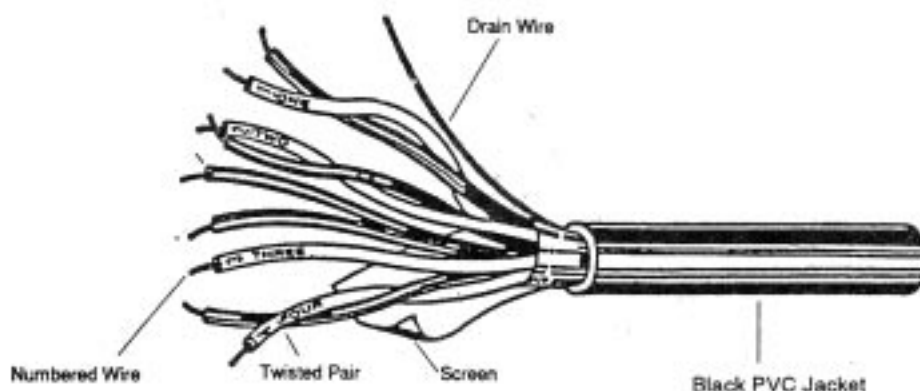
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INSTRUMENTATION CABLES

PVC insulated, twisted pairs,
collectively screened with drain wire
PVC Jacketed



CODE NOS A7001 to A7016 CS



FOR DETAILED INFORMATION ON PRODUCT APPLICATION, MATERIALS, CONSTRUCTION & ASSEMBLY, SPECIFICATIONS & STANDARDS REFER TO NILSON CABLES GENERAL PAGES NIC-1 & NIC-2

Code Nos &	Number of Pairs	Number & Diameter of Wires No./mm	Current Rating	Core Diameter mm
A7001/CS	1	1/0.8 7/1.3	4A	2.2
A7002/CS	2	16/2		
A7004/CS	4	1/1.0 7/0.37	7A	2.55
A7006/CS	6	24/2		
A7008/CS	8	1/1.12 7/0.43	11A	2.7
A7010/CS	10	32/2		
A7012/CS	12	1/1.40		
A7016/CS	16	7/0.52 48/2	14A	2.9

Property	Value	Units
Conductor Resistance as per	IS	Ohms/km
	8130-84	
Insulation Resistance @ 27°C	36.7	Megohms km
Maximum AC Voltage Withstand	3	kV
Capacitance of Pairs	200	pF/m
Conductor to Screen Capacitance	400	pF/m

* All cables are tested between conductors and conductors to screen for one minute.
Note : (a) All cables are subject during manufacture to in-process spark testing @ 6kV A.C
(b) These cables are not to be regarded as power cables or for the direct connection of equipment to mains power supplies.

Anandji Cables policy is one of continual product improvement; details as published may be subject to change.

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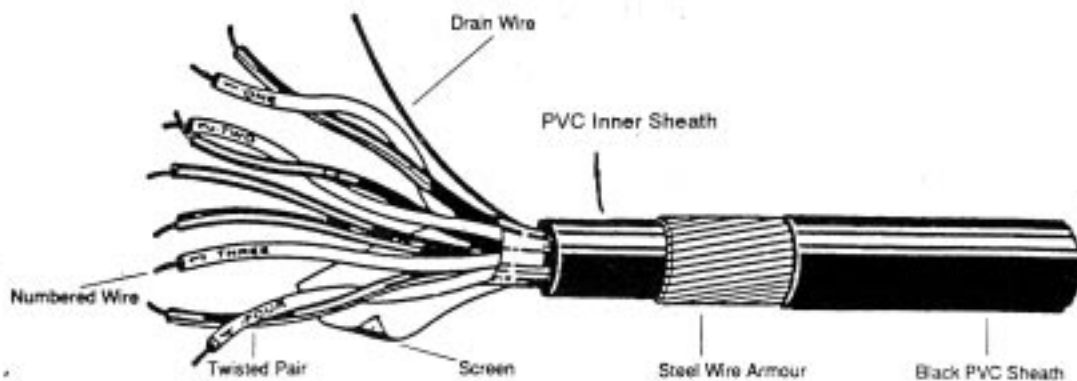
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INSTRUMENTATION CABLES

PVC insulated, twisted pairs, laid up. collectively screened with drain wire, PVC bedded, GSW armoured & PVC sheathed.



CODE NOS A7001-A7016 CS/SWA



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Code Nos & Number of Pairs	Number & Diameter of Wires No./mm	Current Rating	Core Diameter mm
A7001/CS/SWA	1/0.8	4A	2.2
	7/3		
A7002/CS/SWA	16/2	7A	2.55
	1/1.0		
A7004/CS/SWA	7/0.37	11A	2.7
	24/2		
A7006/CS/SWA	1/1.12	14A	2.9
	7/0.43		
A7008/CS/SWA	32/2		
	1/1.40		
A7010/CS/SWA	7/0.52		
	48/2		

Property	Value	Units
Conductor Resistance as per	IS 8130-84	Ohms/km
Insulation Resistance @ 27°C	36.7	Megohms km
Maximum AC Voltage Withstand	3	kV
Capacitance of Pairs	200	pF/m
Conductor to Screen Capacitance	400	pF/m

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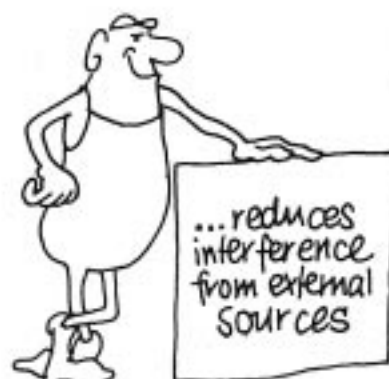
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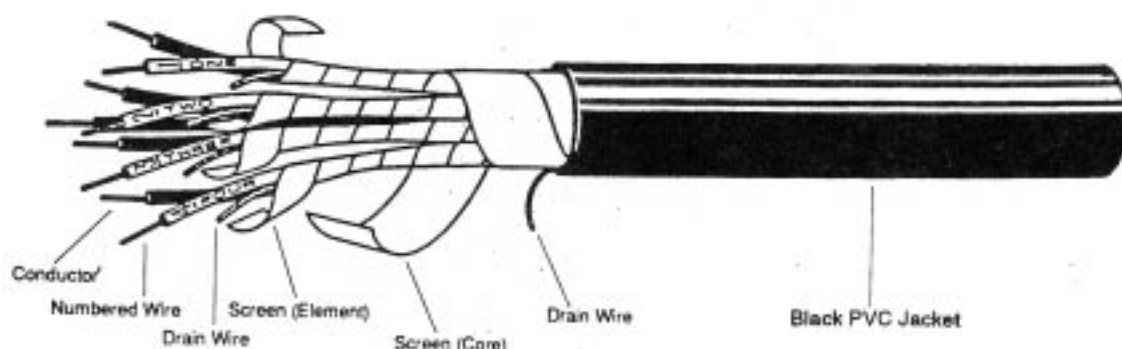
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INSTRUMENTATION CABLES

PVC insulated, Individually screened & isolated twisted pairs, laid up with drain wires, collectively screened, & PVC Jacketed.



CODE NOS A7001-A7016 IS/CS



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Code Nos & Number of Pairs	Number & Diameter of Wires No./mm	Current Rating	Core Diameter mm
A7001/IS/CS	1/0.6	4A	2.2
A7002/IS/CS	7/1.3		
A7004/IS/CS	16/2	7A	2.55
A7006/IS/CS	1/1.0		
A7008/IS/CS	7/0.37		
A7010/IS/CS	24/2	11A	2.7
A7012/IS/CS	1/1.12		
A7016/IS/CS	7/0.43		
	32/2	14A	2.9
	1/1.40		
	7/0.52		
	48/2		

Property	Value	Units
Conductor Resistance as per.	IS	Ohms/km
	8130-84	
Insulation Resistance @ 27°C	36.7	Megohms km
Maximum AC Voltage Withstand	3	kV
Capacitance of Pairs	200	pF/m
Conductor to Screen Capacitance	400	pF/m

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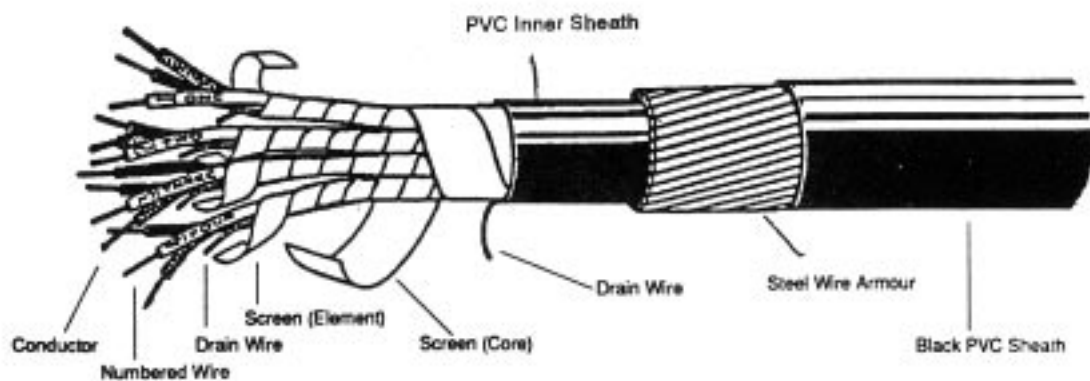
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INSTRUMENTATION CABLES

PVC insulated, individually screened & isolated twisted triples, laid up with drain wires collectively screened, PVC sheathed. GSW armoured and PVC Sheathed



CODE NOS A7301 to A7316 IS/CS/SWA



FOR DETAILED INFORMATION ON PRODUCT APPLICATION, MATERIALS, CONSTRUCTION & ASSEMBLY, SPECIFICATIONS & STANDARDS REFER TO NILSON CABLES GENERAL PAGES NIC-1 & NIC-2

Code Nos & Number of Triples	Number & Diameter of Wires No./mm	Current Rating	Core Diameter mm
A7301/IS/CS/SWA	1/0.8	4A	2.2
	7/0.37		
	16/2		
A7304/IS/CS/SWA	1/1.0	7A	2.55
A7306/IS/CS/SWA	7/0.37		
A7312/IS/CS/SWA	24/2	11A	2.7
	1/1.12		
A7316/IS/CS/SWA	7/0.43	14A	2.9
	32/2		
	1/1.40		
	7/0.52		
	48/2		

Property	Value	Units
Conductor Resistance as per	IS 8130-84	Ohms/km
Insulation Resistance @ 27°C	36.7	Megohms km
Maximum AC Voltage Withstand	3	kV
Capacitance of Pairs	200	pF/m
Conductor to Screen Capacitance	400	pF/m

* All cables are tested between conductors and conductors to screen for one minute.
 Note : (a) All cables are subject during manufacture to in-process spark testing @ 6kV A.C
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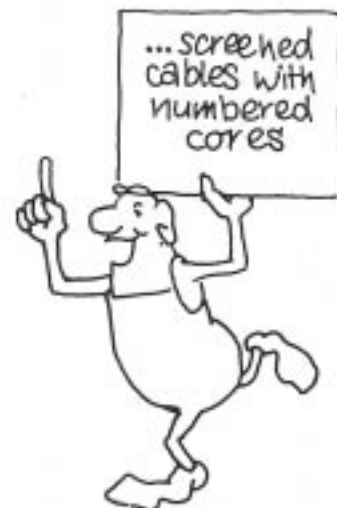
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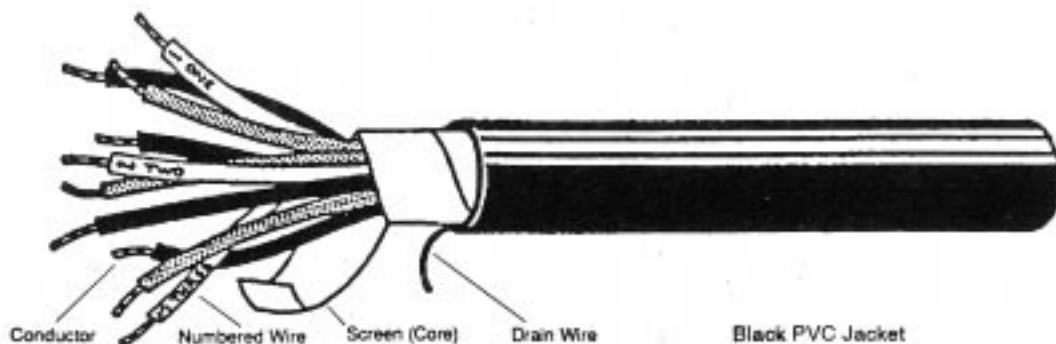
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INSTRUMENTATION CABLES

PVC insulated, twisted triples,
laid up, collectively screened with
drain wire, PVC Jacketed.



CODE NOS A 7301 - A 7316 CS



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A7301/CS	1/0.8	4A	2.2
	7/3		
	16/2		
A7304/CS	1/1.0	7A	2.55
A7306/CS	7/0.37		
A7312/CS	24/2	11A	2.7
	1/1.12		
A7316/CS	7/0.43	14A	2.9
	32/2		
	1/1.40		
	7/0.52		
	48/2		

Property	Value	Units
Conductor Resistance as per	IS	Ohms/km
Insulation Resistance @ 27°C	8130-84	Megohms km
Maximum AC Voltage Withstand	36.7	kV
Capacitance of Pairs	3	pF/m
Conductor to Screen Capacitance	200	pF/m
	400	pF/m

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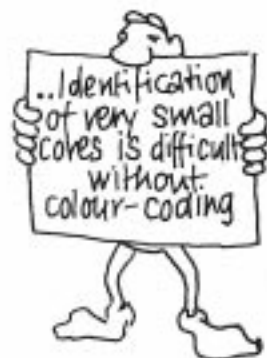
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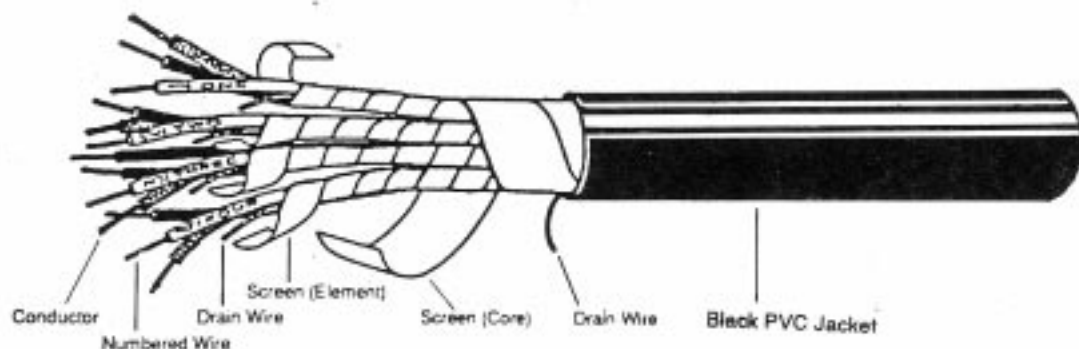
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CODE NOS A 7301 - A 7316 IS/CS



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A7306/IS/CS	6	7/0.37		
A7312/IS/CS	12	24/2	11A	2.7
A7316/IS/CS	16	1/1.12		
		7/0.43	14A	2.9
		32/2		
		1/1.40		
		7/0.52		
		48/2		

Property	Value	Units
Conductor Resistance as per	IS	Ohms/km
	8130-84	
Insulation Resistance @ 27°C	36.7	Megohms km
Maximum AC Voltage Withstand	3	kV
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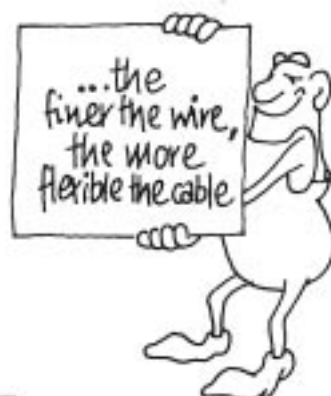
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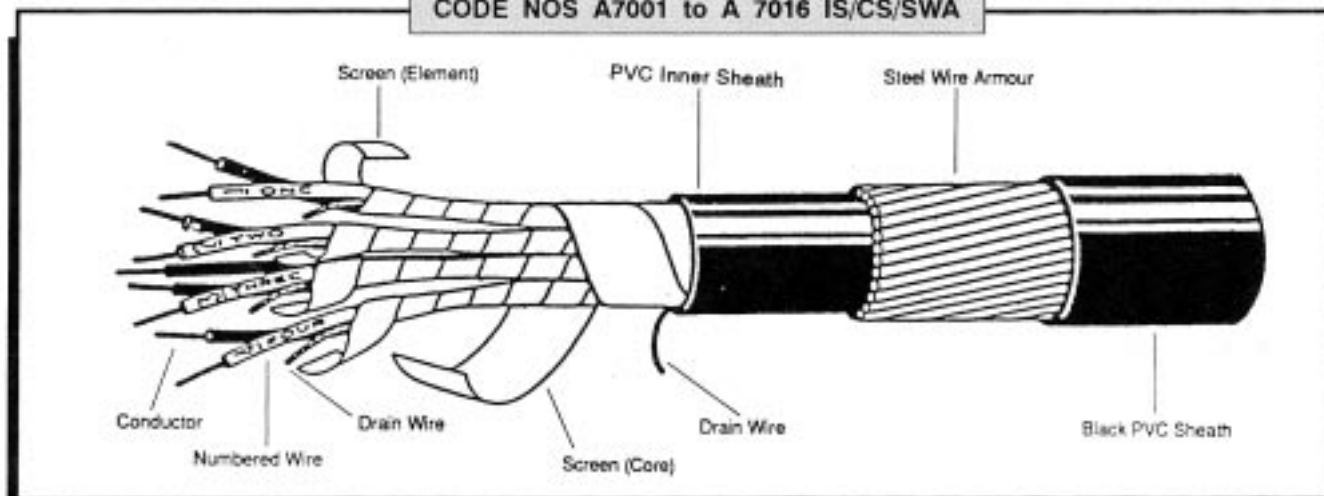
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		7/1.3		
A7002/IS/CS/SWA	2	7/1.2		
A7004/IS/CS/SWA	4	1/1.0	7A	2.55
		7/0.37		
A7006/IS/CS/SWA	6	24/2		
A7008/IS/CS/SWA	8	1/1.12	11A	2.7
		7/0.43		
A7010/IS/CS/SWA	10	32/2		
A7012/IS/CS/SWA	12	1/1.40		
A7016/IS/CS/SWA	16	7/0.52	14A	2.9
		48/2		

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Conductor Resistance as per	IS 8130-84	Ohms/km
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