



# Caledonian

## Instrumentation cables to BS 5308 and ESI 09-6



[www.caledoniacable.com](http://www.caledoniacable.com)

Addison





# Company Profile

Caledonian, established in 1978, offers one of the most complete lines of fiber and copper cabling system solutions with over hundreds of different cabling system products. Our superior products provide leading edge within every cable series and for every application.

Among the national and international standards with which our cables could comply are: BS - British Standard; LPCB Fire Performance Standard. ISO Standard etc. Caledonian Cables offers a comprehensive stock of cables and cabling products through its nationwide network of resellers and distributors. Caledonian Cables has continually expanded its global presence in Europe and Asia.

Caledonian & Addison, produces a wide range of cables for communication, power and electronics in its primary plants in UK, Italy and Spain. To stay in front, we continually keep expanding our manufacturing capabilities in more low cost region such as Romania, Taiwan, Malaysia etc. This low-cost manufacturing facilities enable us provide a flexible, scalable global system that delivers superior operational performance and optimal results for our customers.

Our extensive global network of manufacturing facilities gives us significant scale and the flexibility to fulfill our customer requirements. This global presence provides design and consultancy solutions that are combined with core cable manufacturing, logistic services, and vertically integrated with our E-commerce technologies, to optimize customer operations by lowering costs and reducing time to market.

Caledonian & Addison has been respected for its high standards of quality, excellent service level, competitive pricing and a unique and innovative spirit. With our latest technologies, we are both inspired and well-positioned to meet the changing needs of our customers. We have the resources to diversify and to enhance our product lines and services. We understand the need for change and with our accurate planning, we are ready for the future and the promise of new marketing opportunities. Our tradition of growth through excellence is assured.

Our Design Centers work closely with customers to constantly improve its standard range of products and technologies and to develop customized, country and industry-specific solutions. Caledonian & Addison has established an extensive network of design, manufacturing, and logistics facilities in the world's major markets to serve the growing outsourcing needs of both multinational and regional customers.



# Our Certificate



## Registration Certificate

*This document certifies that the administration systems of*

### *Caledonian Cables Limited*

*Marchants Industrial Centre, Mill Lane, Laughton, Lewes, Sussex, BN8 6AJ*

*have been assessed and approved by QAS International  
to the following management systems, standards and guidelines:*

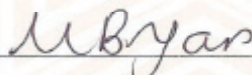
**ISO 9001 : 2008**

*With the permitted exclusion of clauses 7.3 Design and Development*

**The approved administration systems apply to the following:**

*The manufacture and supply of electrical cables and  
ancillary power equipment to customers internationally.*

Original Approval ..... **6<sup>th</sup> September 1997**.....  
Current Certificate ..... **7<sup>th</sup> February 2012**.....  
Certificate Expiry ..... **7<sup>th</sup> February 2013**.....  
Certificate Number ..... **A6211**.....



**On behalf of QAS International**

[www.qas-international.com](http://www.qas-international.com)

This certificate remains valid while the holder maintains their quality administration systems in accordance with the standards and guidelines stated above, which will be audited annually by QAS International.

The holder is entitled to display the above registration mark for the duration of this certificate.

This certificate must be returned to QAS International on reasonable request.

Issuing Office: QAS International, The Gig House, Oxford Street, Malmesbury, Wiltshire, SN16 9AX



# Table of Contents

## BS5308 Part 1 / Type 1 (unarmoured cables)

BS5308 Cable Part 1 Type 1 PE-OS-PVC.....7

BS5308 Cable Part 1 Type 1 PE-IS-OS-PVC.....10

BS5308 Cable Part 1 Type 1 MG-XLPE-OS-LSOH.....13

BS5308 Cable Part 1 Type 1 XLPE-OS-LSOH.....15

BS5308 Cable Part 1 Type 1 XLPE-IS-OS-LSOH.....18

## BS5308 Part 1 / Type 2 (armoured cables)

BS5308 Cable Part 1 Type 2 PE-OS-SWA-PVC.....21

BS5308 Cable Part 1 Type 2 PE-IS-OS-SWA-PVC.....24

BS5308 Cable Part 1 Type 2 MG-XLPE-OS-SWA-LSOH.....27

BS5308 Cable Part 1 Type 2 MG-XLPE-IS-OS-SWA-LSOH.....29

BS5308 Cable Part 1 Type 2 XLPE-OS-SWA-LSOH.....31

BS5308 Cable Part 1 Type 2 XLPE-IS-OS-SWA-LSOH.....34

## BS5308 Part 1 / Type 3 (lead sheath cables)

BS5308 Cable Part 1 Type 3 PE-OS-Lead-SWA-PVC.....37

BS5308 Cable Part 1 Type 3 PE-IS-OS-Lead-SWA-PVC.....40

## BS5308 Part 2 / Type 1 (unarmoured cables)

BS5308 Cable Part 2 Type 1 PVC-OS-PVC.....44

BS5308 Cable Part 2 Type 1 PVC-IS-OS-PVC.....48





## BS5308 Part 2 / Type 2 (armoured cables)

BS5308 Cable Part 2 Type 2 PVC-OS-SWA-PVC.....	51
BS5308 Cable Part 2 Type 2 PVC-IS-OS-SWA-PVC.....	55

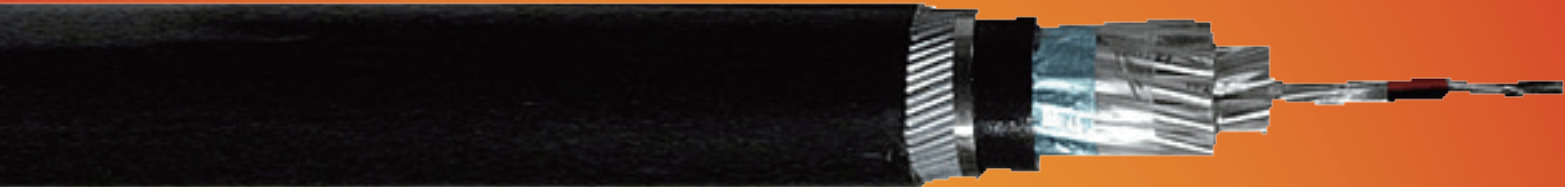
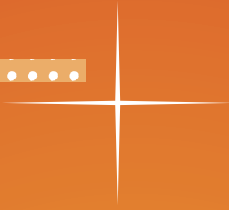
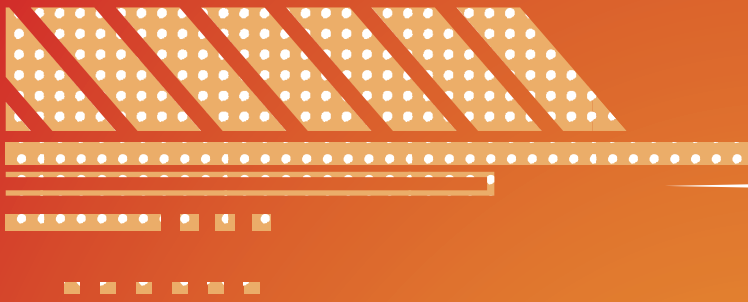
## Instrument Cables to ESI 09-6

Multipair instrument cables ESI 09-6 Issue 5.....	59
Multipair instrument cables ESI 09-6 Issue 6.....	62

## Technical Reference

BS5308 Cable Part 1 Reference.....	66
BS5308 Cable Part 2 Reference.....	70
Multipair instrument cables ESI 09-6 Issue 5 and 6.....	74





## **BS5308 Part 1**

### **BS5308 Part 1 / Type 1 (unarmoured cables)**

BS5308 Cable Part 1 Type 1 PE-OS-PVC  
BS5308 Cable Part 1 Type 1 PE-IS-OS-PVC  
BS5308 Cable Part 1 Type 1 MG-XLPE-OS-LSOH  
BS5308 Cable Part 1 Type 1 XLPE-OS-LSOH  
BS5308 Cable Part 1 Type 1 XLPE-IS-OS-LSOH

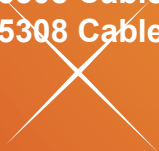


### **BS5308 Part 1 / Type 2 (armoured cables)**

BS5308 Cable Part 1 Type 2 PE-OS-SWA-PVC  
BS5308 Cable Part 1 Type 2 PE-IS-OS-SWA-PVC  
BS5308 Cable Part 1 Type 2 MG-XLPE-OS-SWA-LSOH  
BS5308 Cable Part 1 Type 2 MG-XLPE-IS-OS-SWA-LSOH  
BS5308 Cable Part 1 Type 2 XLPE-OS-SWA-LSOH  
BS5308 Cable Part 1 Type 2 XLPE-IS-OS-SWA-LSOH

### **BS5308 Part 1 / Type 3 (lead sheath cables)**

BS5308 Cable Part 1 Type 3 PE-OS-Lead-SWA-PVC  
BS5308 Cable Part 1 Type 3 PE-IS-OS-Lead-SWA-PVC



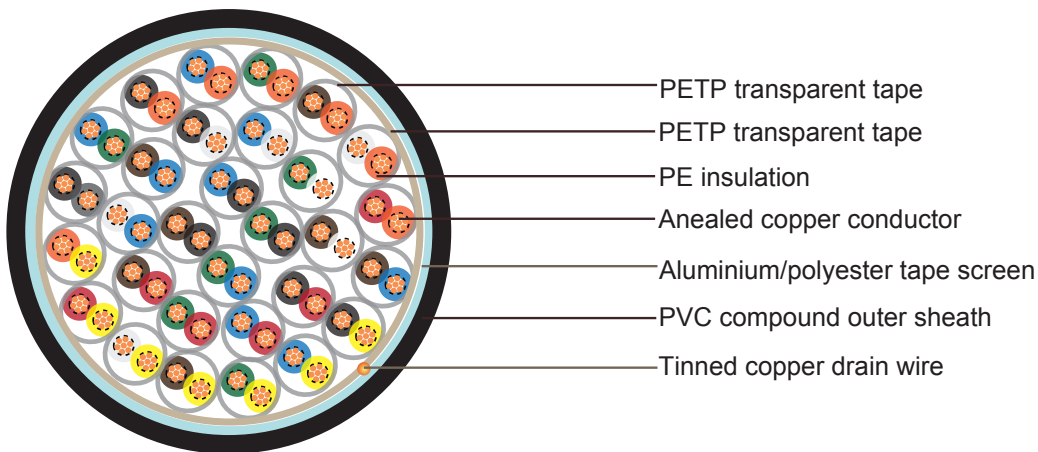


## BS5308 Cable Part 1 Type1 PE-OS-PVC / RE-2Y(St)Y

### Application

The unarmoured versions (Part 1 Type 1) are generally use for indoor installation and suitable for wet and damp areas. Generally used within industrial process manufacturing plants for communication, data and voice transmission signals and services, Also used for the interconnection of electrical equipment and instruments, typically in petroleum industry.

### Construction



<b>Conductor</b>	Annealed or tinned copper, sizes: 0.5mm <sup>2</sup> and 0.75mm <sup>2</sup> multistranded(Class 5), 0.5 mm <sup>2</sup> , 1.0 mm <sup>2</sup> solid(Class 1), 1.5mm <sup>2</sup> or 2.5mm <sup>2</sup> , multistranded(Class 2) to BS6360
<b>Insulation</b>	PE (Polyethylene) type 03 to BS6234
<b>Pairing</b>	Two insulated conductors uniformly twisted together with a lay not exceeding 100mm
<b>Colour code</b>	See technical information
<b>Binder tape</b>	PETP transparent tape
<b>Collective screen</b>	Aluminium/polyester tape is applied over the laid up pairs metallic side down in contact with tinned copper drain wire, 0.5mm <sup>2</sup>
<b>Outer sheath</b>	PVC Sheath, type TM 1 or type 6 to BS 6746
<b>Sheath colour</b>	Black or blue





## Mechanical and Electrical Properties

Operating temperature: -40°C up to + 70°C( fixed installation)  
0°C to +50°C(during operation )

Minimum bending radius: 5 x overall diameter

<b>Conductor Area Size</b>	mm <sup>2</sup>	0.5	0.5	0.75	1.0	1.5
<b>Conductor Stranding</b>	No. x mm	1 x 0.8	16 x 0.2	24 x 0.2	1 x 1.13	7 x 0.53
<b>Conductor resistance max</b>	ohm/km	36.8	39.7	26.5	18.2	12.3
<b>Insulation resistance min</b>	Gohm/km	5	5	5	5	5
<b>Capacitance unbalance at 1 kHz(pair to pair screen)</b>	pF/250m	250				
<b>Max. Mutual Capacitance @ 1 kHz for Non OS or OS cables (except one-pair and two-pairs)</b>	pF/m	115	115	115	115	120
<b>Max. Mutual Capacitance @ 1 kHz IS/OS cables (include 1 pair and 2 pair)</b>	pF/m	75	75	75	75	85
<b>Max. L/R Ratio for adjacent cores(Inductance/ Resistance)</b>	µH/ohm	25	25	25	25	40
<b>Test voltage</b>	<b>Core to core</b>	V	1000	1000	1000	1000
	<b>Core to screen</b>	V	1000	1000	1000	1000
<b>Rated voltage max</b>	V	300/500	300/500	300/500	300/500	300/500

## Parameter

No. of Pairs	No. and Dia. of Wires	Nominal Conductor Cross-Sectional Area	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Nominal Dia. of Cable	Approx. Weight
	no./mm	mm <sup>2</sup>	mm	mm	mm	kg/km
1	1/0.8	0.5	0.5	0.8	5.5	35
2	1/0.8	0.5	0.5	0.8	6.8	55
5	1/0.8	0.5	0.5	1.1	10.9	125
10	1/0.8	0.5	0.5	1.2	14.4	215
15	1/0.8	0.5	0.5	1.2	16.5	300
20	1/0.8	0.5	0.5	1.3	18.8	385
30	1/0.8	0.5	0.5	1.3	22.3	545
50	1/0.8	0.5	0.5	1.5	28.5	875
1	16/0.2	0.5	0.6	0.8	6.2	60
2	16/0.2	0.5	0.6	0.8	7.6	80







No.of Pairs	No.and Dia. of Wires	Nominal Conductor Cross-Sectional Area	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Nominal Dia. of Cable	Approx. Weight
	no./mm	mm <sup>2</sup>	mm	mm	mm	kg/km
5	16/0.2	0.5	0.6	1.1	12.4	210
10	16/0.2	0.5	0.6	1.2	16.5	340
15	16/0.2	0.5	0.6	1.3	19.2	440
20	16/0.2	0.5	0.6	1.3	21.7	570
30	16/0.2	0.5	0.6	1.5	26.4	780
50	16/0.2	0.5	0.6	1.7	33.4	1130
1	24/0.2	0.75	0.6	0.8	6.7	75
2	24/0.2	0.75	0.6	0.9	8.4	100
5	24/0.2	0.75	0.6	1.2	13.8	250
10	24/0.2	0.75	0.6	1.3	18.4	450
15	24/0.2	0.75	0.6	1.5	21.1	600
20	24/0.2	0.75	0.6	1.5	24.4	920
30	24/0.2	0.75	0.6	1.7	29.5	980
50	24/0.2	0.75	0.6	2	37.6	1690
1	1/1.13	1	0.6	0.8	6.6	85
2	1/1.13	1	0.6	0.8	8	115
5	1/1.13	1	0.6	1.2	13.5	290
10	1/1.13	1	0.6	1.2	17.7	500
15	1/1.13	1	0.6	1.3	20.6	670
20	1/1.13	1	0.6	1.5	23.8	950
30	1/1.13	1	0.6	1.5	28.4	1030
50	1/1.13	1	0.6	2	36.6	1750
1	7/0.53	1.5	0.6	0.8	7.5	100
2	7/0.53	1.5	0.6	0.9	9.3	150
5	7/0.53	1.5	0.6	1.2	15.6	360
10	7/0.53	1.5	0.6	1.3	20.9	690
15	7/0.53	1.5	0.6	1.5	24.6	880
20	7/0.53	1.5	0.6	1.5	27.8	1230
30	7/0.53	1.5	0.6	1.7	33.7	1560
50	7/0.53	1.5	0.6	2	43	2400

