



本质安全电路用控制电缆 ► Control Cables for Intrinsically Safe Circuit

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■ 执行标准

本产品技术指标均符合Q/321084KLA059标准（等效采用英国BS5308）

■ 适用范围

本电缆具有低电容和低电感，并具有极好的屏蔽性能和抗干扰性能，因而防爆性能优于一般计算机电缆和控制电缆。它适用于有防爆要求场合的集散系统和自动化检测控制系统等电路中作微弱信号的传输用线。

■ 使用特性

额定电压 U_0/U : 300/500V、450/750V

最高工作温度：一般型不超过70℃

交联聚乙烯绝缘不超过90℃

耐热105℃的最高不超过105℃

最小弯曲半径：无铠装层电缆应不小于电缆外径的8倍

有铠装层电缆应不小于电缆外径的12倍

■ Executive standard

The technical data of these products all comply with Q/321084 KLA059 standard which is equivalent to British standard BS 5308.

■ Range of application

With excellent performance of screen and anti-interference, this low-capacitance and low-inductance product exceeds normal types of computer cables and control cables in the property of explosion-proof performance. It is used in transmission line of weak signals in distribution systems with explosion-proof requirement and circuits of automatic inspection and controlling systems.

■ Operating characteristics

Rated voltage U_0/U : 300/500V, 450/750V

Max. working temperature: For common types: $\leq 70^\circ\text{C}$

For XLPE insulated cables: $\leq 90^\circ\text{C}$

For types of heat-proof 105°C : $\leq 105^\circ\text{C}$

Min. bending radius: For cable without armor ≥ 8 times of outer diam.

For cable with armor ≥ 12 times of outer diam.

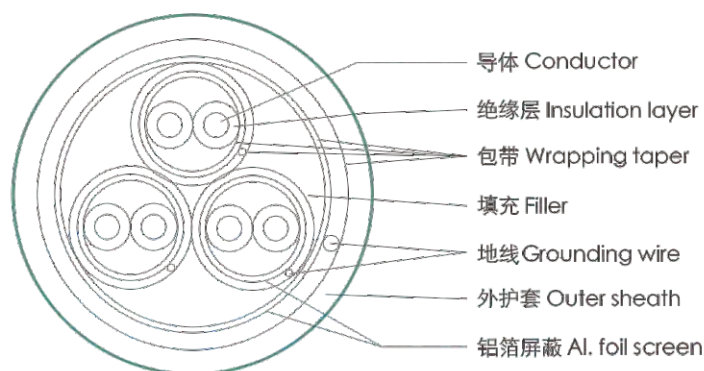
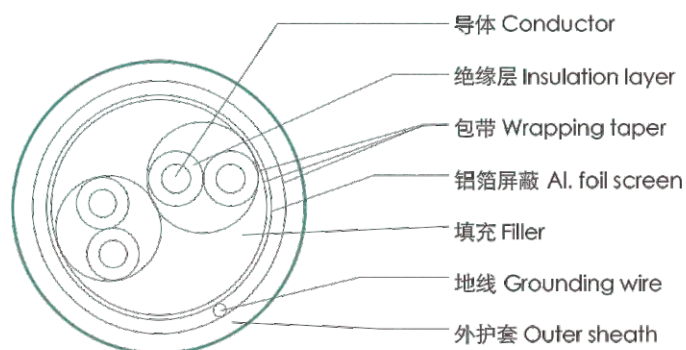
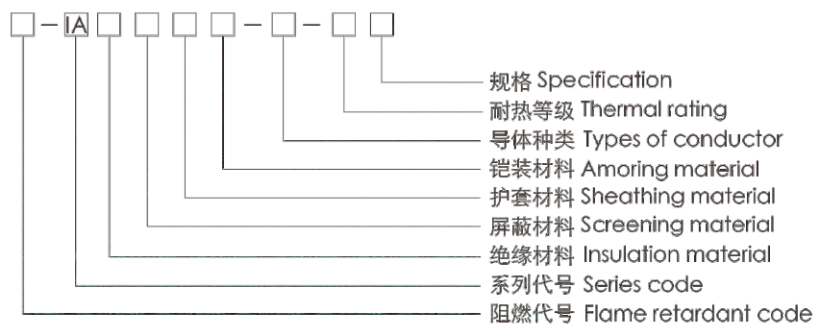
■ 主要技术指标 Main technical index

项目 Items		单位 Unit	技术指标 Technical index	
			PE绝缘 PE Insulation	PVC绝缘 PVC Insulation
工作电容(芯-芯) $\leq$ Working capacitance (core-core)		pF/m	90	180
电容不平衡(1kHz) $\leq$ Capacitance imbalance		pF/m	1	/
分布电感 $\leq$ Distributed inductance		$\mu\text{H}/\text{m}$	0.6	0.6
电感电阻比 $\leq$ LR ratio	0.5mm ²	$\mu\text{H}/\Omega$	20	20
	0.75mm ²		20	20
	1.0mm ²		25	25
	1.5mm ²		35	35
抗外磁场干扰(400A/m) $\leq$ Anti-outer magnetic field interference		mV	5	5
抗静电感应(20kV) $\leq$ Anti-static induction		mV	80	80
抗射频干扰(120dB)在20-200MHz频带内透入 $\leq$ Anti-radio frequency interference (120dB) (within the range of 20-200MHz) $\leq$		dB	60	60
绝缘电阻(20℃) $\geq$ Insulation resistance(20℃) $\geq$		M Ω .km	1000	25
试验电压 Test voltage		V/1min	2000	2000
阻燃性 Flame retardant			符合GB/T18380-2008要求 Conforms to GB/T18380-2008	

注：阻燃性要求不适用于非阻燃型电缆。

Note: Flame retardant requirement is not suitable for non-flame retardant cables.

■ 型号说明 Type description



项目 Items	代号 Codes	说明 Descriptions	
阻燃代号 Flame retardant designation	/	非阻燃可省略	Can be omitted for non-flame retardant
	ZR	阻燃(一般表示为C级阻燃)	Flame retardant(usually described as class C)
	ZA	A级阻燃	Class A flame retardant
	ZB	B级阻燃	Class B flame retardant
	ZC	C级阻燃	Class C flame retardant
	DDZ	低卤低烟阻燃	Low halogen low smoke flame retardant
	WDZ	无卤低烟阻燃	Halogen free low smoke flame retardant

项目 Items	代号 Codes	说明 Descriptions	
系列代号 Series code	IA	本质安全电路用控制电缆 Control cable for intrinsically safe circuit	
绝缘材料 Insulation material	Y YJ V	聚乙烯 交联聚乙烯 聚氯乙烯	Polythene XLPE PVC
屏蔽材料 Screening material	P P1 P2 P3	铜丝编织P和P2、P1和P3可以组成复合屏蔽 Woven Cu wire and P2, P1 and P3 can be combined into compound screen 镀锡铜丝编织 Tinned Cu wire woven 铜/塑复合带 Cu./plastic compound tape 铝/塑复合带 Al./plastic compound tape	
护套材料 Sheathing material	Y V	耐光热聚乙烯 聚氯乙烯	Light and heat resistant polythene PVC
铠装材料 Armoring material	22 32	钢带铠装 细钢丝铠装	Steel tape armored Thin steel wire armored
导体种类 Kind of conductor	A B R	单股导体 七股绞合导体 多股软导体	Single strand conductor Conductor stranded by seven wires Multi-strand flexible conductor
耐热材料 Heat-proof material	/ 90 105	最高工作温度70℃(省略) 最高工作温度90℃ 最高工作温度105℃	Can be omitted at max. operating temp. 70℃ Max. working temp. 90℃ Max. working temp. 105℃
规格 Specification		填写对数×单元芯数×导体截面N×n×s Fill in pair No. x Unit core No. x Cross section area N x n x s 对数 (N) : 2, 3 Pair No. (N): 2, 3 单元芯数 (n) : 2, 3 Unit core number(n): 2, 3 导体截面 (S) : 0.5, 0.75, 1.0, 1.5, 2.5 (mm ²) Cross section area (S): 0.5, 0.75, 1.0, 1.5, 2.5 (mm ²)	

■ 型号及名称 Type and description

序号 No.	型号 Types	名称 Descriptions	备注 Remarks
1	IAPV	铜芯聚氯乙烯绝缘及护套铜丝编织分屏蔽本安用控制电缆 Cu core, PVC insulated and sheathed, Cu wire braided individual screen, intrinsically safe control cable	聚氯乙烯绝缘复合屏蔽本安电缆具有良好的电性能和抗干扰性能, 可用于高要求及强干扰场合。 PVC insulated compound screen intrinsically safe cable has good electrical performance and anti-interference performance, which can be used in strict demand and strong interference occasions.
2	IAPVP	铜芯聚氯乙烯绝缘及护套铜丝编织分屏蔽及总屏蔽本安用控制电缆 Cu core, PVC insulated and sheathed, Cu wire braided individual and overall screen, intrinsically safe control cable	
3	IAP2V	铜芯聚氯乙烯绝缘及护套铜/塑复合膜分屏蔽本安用控制电缆 Cu core, PVC insulated and sheathed, Cu/plastic composite film individual screen, intrinsically safe control cable	
4	IAP2VP2	铜芯聚氯乙烯绝缘及护套铜/塑复合膜分屏蔽及总屏蔽本安用控制电缆 Cu core, PVC insulated and sheathed, Cu/plastic composite film individual and overall screen, intrinsically safe control cable	
5	IAP3V	铜芯聚氯乙烯绝缘及护套铝/塑复合膜分屏蔽本安用控制电缆 Cu core, PVC insulated and sheathed, Al/plastic composite film individual screen, intrinsically safe control cable	
6	IAP3VP3	铜芯聚氯乙烯绝缘及护套铝/塑复合膜分屏蔽及总屏蔽本安用控制电缆 Cu core, PVC insulated and sheathed, Al/plastic composite film individual and overall screen, intrinsically safe control cable	
7	IAPVR	铜芯聚氯乙烯绝缘及护套铜丝编织分屏蔽本安用控制软电缆 Cu core, PVC insulated and sheathed, Cu wire braided individual screen, intrinsically safe control soft cable	
8	IAPVPR	铜芯聚氯乙烯绝缘及护套铜丝编织分屏蔽及总屏蔽本安用控制软电缆 Cu core, PVC insulated and sheathed, Cu wire braided individual and overall screen, intrinsically safe control soft cable	
9	IAPV	铜芯聚乙烯绝缘聚氯乙烯护套铜丝编织分屏蔽本安用控制电缆 Cu core, PE insulated, PVC sheathed, Cu wire braided individual screen, intrinsically safe control cable	聚乙烯绝缘复合屏蔽本安电缆具有极好的电性能和抗干扰性能, 可用于高要求及强干扰场合。 PE insulated compound screen intrinsically safe cable has good electrical performance and anti-interference performance, which can be used in strict demand and strong interference occasions.
10	IAPVP	铜芯聚乙烯绝缘聚氯乙烯护套铜丝编织分屏蔽及总屏蔽本安用控制电缆 Cu core, PE insulated, PVC sheathed, Cu wire braided individual and overall screen, intrinsically safe control cable	
11	IAP2V	铜芯聚乙烯绝缘聚氯乙烯护套铜/塑复合膜分屏蔽本安用控制电缆 Cu core, PE insulated, PVC sheathed, Cu/plastic composite film individual screen, intrinsically safe control cable	
12	IAP2VP2	铜芯聚乙烯绝缘聚氯乙烯护套铜/塑复合膜分屏蔽及总屏蔽本安用控制电缆 Cu core, PE insulated, PVC sheathed, Cu/plastic composite film individual and overall screen, intrinsically safe control cable	
13	IAP3V	铜芯聚乙烯绝缘聚氯乙烯护套铝/塑复合膜分屏蔽本安用控制电缆 Cu core, PE insulated, PVC sheathed, Al/plastic composite film individual screen, intrinsically safe control cable	
14	IAP3VP3	铜芯聚乙烯绝缘聚氯乙烯护套铝/塑复合膜分屏蔽及总屏蔽本安用控制电缆 Cu core, PE insulated, PVC sheathed, Al/plastic composite film individual and overall screen, intrinsically safe control cable	
15	IAPVR	铜芯聚乙烯绝缘聚氯乙烯护套铜丝编织分屏蔽本安用控制软电缆 Cu core, PE insulated, PVC sheathed, Cu wire braided individual screen, intrinsically safe control soft cable	
16	IAPVPR	铜芯聚乙烯绝缘聚氯乙烯护套铜丝编织分屏蔽及总屏蔽本安用控制软电缆 Cu core, PE insulated, PVC sheathed, Cu wire braided individual and overall screen, intrinsically safe control soft cable	
17	IAYJPV	铜芯交联聚乙烯绝缘聚氯乙烯护套铜丝编织分屏蔽本安用控制电缆 Cu core, XLPE insulated, PVC sheathed, Cu wire braided individual screen, intrinsically safe control cable	交联聚乙烯绝缘复合屏蔽本安电缆, 优越于普通的聚乙烯和聚氯乙烯, 而且在电气、热、机械、耐腐蚀等方面具有优良的性能。 XLPE insulated compound screen intrinsically safe cable superior to the normal PE and PVC cable and has excellent performance in electrical, thermal, mechanical, chemical corrosion resistance, etc.
18	IAYJPVP	铜芯交联聚乙烯绝缘聚氯乙烯护套铜丝编织分屏蔽及总屏蔽本安用控制电缆 Cu core, XLPE insulated, PVC sheathed, Cu wire braided individual and overall screen, intrinsically safe control cable	
19	IAYJP2V	铜芯交联聚乙烯绝缘聚氯乙烯护套铜/塑复合膜分屏蔽本安用控制电缆 Cu core, XLPE insulated, PVC sheathed, Cu/plastic composite film individual screen, intrinsically safe control cable	
20	IAYJP2VP2	铜芯交联聚乙烯绝缘聚氯乙烯护套铜/塑复合膜分屏蔽及总屏蔽本安用控制电缆 Cu core, XLPE insulated, PVC sheathed, Cu/plastic composite film individual and overall screen, intrinsically safe control cable	
21	IAYJP3V	铜芯交联聚乙烯绝缘聚氯乙烯护套铝/塑复合膜分屏蔽本安用控制电缆 Cu core, XLPE insulated, PVC sheathed, Al/plastic composite film individual screen, intrinsically safe control cable	
22	IAYJP3VP3	铜芯交联聚乙烯绝缘聚氯乙烯护套铝/塑复合膜分屏蔽及总屏蔽本安用控制电缆 Cu core, XLPE insulated, PVC sheathed, Al/plastic composite film individual and overall screen, intrinsically safe control cable	
23	IAYJPVR	铜芯交联聚乙烯绝缘聚氯乙烯护套铜丝编织分屏蔽本安用控制软电缆 Cu core, XLPE insulated, PVC sheathed, Cu wire braided individual screen, intrinsically safe control soft cable	
24	IAYJPVPR	铜芯交联聚乙烯绝缘聚氯乙烯护套铜丝编织分屏蔽及总屏蔽本安用控制软电缆 Cu core, XLPE insulated, PVC sheathed, Cu wire braided individual and overall screen, intrinsically safe control soft cable	

■ 规格及外径参数 Specification and outer diameter parameters

规格 Specifications	电缆最大外径 Max. outer diameter							
	IAYPV IAPVP IAYJPV	IAYPVR IAPVPR IAYJPVR	IAYPVP IAPVPP IAYJPVP	IAYPVPR IAPVPVR IAYJPVPR	IAYP2V IAPV2V IAYJP2V	IAYP2VP2 IAPV2VP2 IAYJP2VP2	IAYP2V22 IAPV2V22 IAYJP2V22	IAYP2VP2-22 IAPV2VP2-22 IAYJP2VP2-22
1x2x0.75	8.1	8.3	9.2	9.4	8.0	—	—	—
2x2x0.75	16.2	16.5	18.4	18.7	15.2	15.5	19.2	19.5
3x2x0.75	17.0	17.5	19.2	19.6	16.0	16.5	20.0	20.5
4x2x0.75	17.6	18.2	20.8	21.3	17.0	17.8	21.0	21.8
5x2x0.75	20.2	20.7	22.3	22.8	19.6	20.5	23.6	24.5
7x2x0.75	22.0	22.6	24.2	25.0	21.0	21.8	25.0	25.8
8x2x0.75	23.6	24.3	26.0	26.9	22.6	23.4	26.6	27.4
9x2x0.75	25.5	26.3	27.6	28.5	24.5	25.3	28.5	29.3
10x2x0.75	27.3	28.2	29.5	30.4	26.5	27.3	31.0	31.5
12x2x0.75	28.6	29.5	30.8	31.9	27.6	28.4	32.0	32.8
14x2x0.75	30.2	31.2	32.3	33.4	29.5	30.5	33.5	34.5
16x2x0.75	31.92	33.0	34.1	35.2	31.0	31.8	35.0	35.8
19x2x0.75	33.6	34.2	35.8	37.1	32.5	33.2	36.5	37.2
1x2x1.0	8.5	8.7	9.8	10.0	8.4	—	—	—
2x2x1.0	16.8	17.2	18.9	19.3	15.8	16.2	19.8	20.2
3x2x1.0	17.9	18.4	20.1	20.6	17.0	17.6	21.0	21.6
4x2x1.0	19.4	20.0	21.5	22.2	18.5	19.2	22.5	23.2
5x2x1.0	21.4	22.3	23.4	24.2	20.4	21.2	24.4	25.2
7x2x1.0	23.1	24.1	25.3	26.2	22.1	23.0	26.1	27.0
8x2x1.0	24.8	25.9	27.4	28.5	23.5	24.5	27.5	28.5
9x2x1.0	27.1	28.4	29.3	30.7	26.1	27.0	30.1	31.0
10x2x1.0	28.6	30.0	30.9	32.3	27.5	28.2	31.5	32.2
12x2x1.0	30.2	31.8	32.5	33.9	29.2	30.0	33.2	34.0
14x2x1.0	31.7	33.3	34.0	35.5	30.5	31.2	34.5	35.2
16x2x1.0	33.6	35.3	35.7	37.4	32.5	33.2	36.5	37.2
19x2x1.0	35.5	37.4	38.0	40.0	34.5	35.2	38.5	39.2
1x2x1.5	9.0	9.7	10.7	10.9	9.5	—	—	—
2x2x1.5	18.2	19.4	21.2	21.6	18.0	18.6	22.0	22.6
3x2x1.5	20.0	20.5	22.3	22.8	19.0	19.6	23.0	23.6
4x2x1.5	22.0	22.7	24.2	24.9	21.0	21.6	25.0	25.6
5x2x1.5	23.9	24.8	26.0	26.8	22.8	23.5	26.8	27.5
7x2x1.5	26.0	26.9	28.2	29.2	25.0	25.6	29.0	29.6
8x2x1.5	28.2	29.4	30.5	31.7	27.0	27.6	31.0	31.6
9x2x1.5	30.4	31.8	32.6	34.0	29.4	30.2	33.5	34.2
10x2x1.5	32.5	34.0	34.8	36.4	31.5	32.5	35.5	36.5
12x2x1.5	34.3	35.9	36.4	38.1	33.3	34.3	37.3	38.3
14x2x1.5	36.2	38.1	38.6	40.7	35.0	35.6	39.0	39.6
16x2x1.5	38.1	40.2	40.7	42.9	37.0	37.6	41.0	41.6
19x2x1.5	40.5	42.8	42.3	45.7	39.5	40.2	43.2	44.2

规格 Specifications	电缆最大外径 Max. outer diameter							
	IAYPV IAYPV IAYJPV	IAYPVR IAYPVR IAYJPVR	IAYPVP IAYPVP IAYJPVP	IAYPVPR IAYPVPR IAYJPVPR	IAYP2V IAYP2V IAYJP2V	IAYP2VP2 IAYP2VP2 IAYJP2VP2	IAYP2V22 IAYP2V22 IAYJP2V22	IAYP2VP2-22 IAYP2VP2-22 IAYJP2VP2-22
1x2x2.5	11.4	11.6	12.8	13.1	11.0	-	-	-
2x2x2.5	22.8	23.3	25.4	25.9	20.5	21.0	24.5	25.0
3x2x2.5	24.9	24.6	26.8	27.4	23.5	24.0	27.5	28.0
4x2x2.5	26.4	27.2	29.0	29.9	25.0	25.6	29.0	29.6
5x2x2.5	28.7	29.8	31.2	32.2	27.3	28.0	31.3	32.0
7x2x2.5	31.2	32.3	33.8	35.0	30.0	30.6	34.0	34.6
8x2x2.5	33.8	35.3	36.6	38.0	32.5	33.0	36.5	37.0
9x2x2.5	36.5	38.2	39.1	40.8	35.0	35.6	39.0	39.6
10x2x2.5	39.0	40.8	41.8	43.7	37.5	38.0	41.5	42.0
12x2x2.5	41.2	43.1	43.7	45.7	40.0	40.6	44.0	44.6
14x2x2.5	43.4	45.7	46.3	48.8	42.0	42.6	46.0	46.6
16x2x2.5	45.7	48.2	48.8	51.5	44.5	45.0	48.5	49.0
19x2x2.5	48.6	51.4	51.8	54.8	47.4	48.0	51.5	52.2
1x3x0.75	8.9	9.2	12.5	12.8	8.5	-	12.0	-
2x3x0.75	16.2	16.9	20.2	20.9	15.2	16.0	19.5	20.0
3x3x0.75	17.1	18.0	21.0	21.9	16.2	17.0	20.5	21.0
4x3x0.75	18.9	20.0	23.0	24.1	17.9	18.7	22.0	22.7
5x3x0.75	20.6	21.8	24.3	26.0	19.6	20.5	23.6	24.5
7x3x0.75	22.3	23.7	26.6	28.0	21.3	22.1	25.3	26.1
8x3x0.75	24.3	25.9	28.5	30.1	23.5	24.2	27.5	28.2
9x3x0.75	26.3	27.7	30.7	32.1	25.5	26.2	29.5	30.2
10x3x0.75	28.6	30.1	33.0	34.4	27.6	28.3	31.6	32.3
1x3x1.0	9.3	9.6	12.8	13.1	9.0	-	12.5	-
2x3x1.0	16.9	17.5	20.3	21.4	16.2	17.0	20.2	21.0
3x3x1.0	18.0	18.9	21.9	22.8	17.2	18.7	21.2	22.0
4x3x1.0	19.7	20.8	23.8	24.9	19.0	20.0	23.0	24.0
5x3x1.0	21.7	22.8	26.1	27.3	21.2	22.0	25.2	26.0
7x3x1.0	23.5	25.7	27.9	29.2	22.8	23.6	26.8	27.6
8x3x1.0	25.6	27.9	30.0	31.4	24.8	25.6	28.8	29.6
9x3x1.0	27.5	29.3	32.2	33.7	27.0	27.8	31.0	31.8
10x3x1.0	30.2	32.0	34.6	36.4	29.8	30.6	33.8	34.6
1x3x1.5	10.1	10.4	13.9	14.2	10.0	-	12.5	-
2x3x1.5	19.0	19.6	23.0	23.5	18.0	18.8	22.0	22.8
3x3x1.5	21.1	22.0	24.3	25.2	20.1	21.0	24.1	25.0
4x3x1.5	22.1	23.2	26.3	27.4	21.1	22.0	25.1	26.0
5x3x1.5	24.2	25.4	28.6	29.8	23.2	24.0	27.2	28.0
7x3x1.5	26.5	27.8	31.2	32.5	25.5	26.3	29.5	30.3
8x3x1.5	28.7	30.1	33.3	34.7	27.7	28.5	31.7	32.5
9x3x1.5	31.3	32.8	35.7	37.2	30.3	31.1	34.3	35.1
10x3x1.5	33.9	35.6	38.9	40.6	33.0	33.8	37.0	37.8

交货长度:

无铠装电缆10对及以下1000米, 10对以上500米, 有铠装电缆8对及以上1000米, 8对以上500米, 允许50米以上的短线交货, 数量不超过交货总量的6%, 如有特殊要求供需双方可另行协商。

Length of delivery:

1000m for 10 and below pairs for unarmored cables, 500m for above 10 pairs for armored cables; 1000m for 8 and below pairs; 500m for above 8 pairs. A short length of delivery less than 50m is permitted, with the amount not exceeding 6% of the total length. Further special requirement can be negotiated between the buyer and the seller.