



# 现场总线电缆 Fieldbus Cable

**安徽天康(集团)股份有限公司**  
ANHUI TIANKANG(GROUP)SHARES CO.,LTD.

# Brief Introduction to Anhui Tiankang (Group) Shares Co., Ltd.

## 企业简介

安徽天康集团股份有限公司位于安徽省东部的天长市，东邻扬州50公里，南面与南京毗邻。

集团现下设有：安徽省天康光电有限公司以下（简称：光电公司）、安徽省天长市仪表厂、安徽省天康药业有限公司等多家分支机构。

集团主要以电线电缆、仪器仪表、医药的生产制造和销售为主，经过多年的努力发展，现已成为一个年销售总额近20亿元，注册资金1.06亿元，员工人数3000多人的国家大型工业企业。

其中光电公司主要生产的电线电缆品种包括：35KV及以下交联电力电缆，塑料绝缘信号控制电缆，（本安）仪表电缆，核电站用IE级K3类电缆，现场总场电缆、阻燃耐火电缆，硅橡胶扁电缆以及防腐耐高温氟塑料电缆等特种电缆系列。

产品严格按照国家标准GB、国际标准IEC和国外先进发达国家标准，如：BS、VDE、UL等设计生产。

为提高和完善产品质量，集团于96年底在同行业中率先通过ISO9002质量体系论证审核验收，并于二年内完成版本升级工作，除此以外，电缆方面还取得了其它相关证书，如：生产许可证，CCC证书，国家免检证书等。

良好的质量保证及快捷，周到的服务赢得了广阔的市场，电缆和仪表纷纷在国内、外各大工程项目中使用，如配套出口的国外项目：越南协福电厂、巴基斯坦AES电站、伊朗煤油厂等；国内项目：秦山核电站、扬子巴斯夫工程、上海赛科石化工程、大连、茂名石化工程等，具体请见集团的资质证书和销售业绩表。

最后，衷心感谢社会各界朋友的关心和支持，我们会加倍在今后为广大用户提供更多、更好的产品和服务而努力。





Anhui Tiankang (Group) Shares Co., Ltd. lies in Tianchang city, east of Anhui province, near Nanjing in the south and Yangzhou in the east within 50 kilometers.

Anhui Tiankang (Group) Shares Co., Ltd. was established with investment by several enterprises including Anhui Tiankang Optic-electric Co., Ltd., Anhui Tianchang Instrument Plant, Anhui Tiankang Medical Products Co., Ltd., etc.

The company mainly manufactures and sells various wires & cables, meters & instruments and medicines. Through many years of hard working, our company has become national large industrial enterprise with RMB 106 million Yuan registered capital, more than 3000 employees and RMB 2 billion Yuan total amount of sales per year.

Main cable & wire products manufactured by Optic-electric company include: 35KV or lower cross-linked power cable, signal control cable with plastic insulation, intrinsic safety instrument cable, class K3 cable of IE grade for nuclear power station, fieldbus cable, flame retardant & fire resistant cable, silicon rubber flat cable and special cables such as corrosion & high temperature resistant fluoro-plastic cable etc.

The products are designed and manufactured strictly according to the standard of GB(national standard), IEC(international standard) and standard executed in advanced country overseas such as BS, VDE, UL standard.

In order to improve and perfect product quality, our company firstly passed ISO9002 quality system in later year of 1996 compared with similar field and finished upgrading work of this version within two years. We also got other relevant certificates of cable such as Production License, CCC certificate, certificate of National Products Exempt from Inspection etc.

We have won wide market on the basis of good quality guarantee and quick easy service. Cables and instruments are widely used in many large projects home and overseas. For experience list in overseas project, such as Vietnam Xiefu Power Plant, Pakistan AES Power Station and Iran Coil Oil Plant etc; For experience list at home project, such as Qinshan Nuclear Power Station, Yangtze BASF project, Shanghai Secco Petrochemical project, Dalin Petrochemical project and Maoming Petrochemical project etc. For details, please see enterprise certificate and experience list of sale.

At last, thanks for the care and support from people in all walks of life. We'll continue to devote ourselves to supplying better products and services to customers.



# 现场总线电缆 Fieldbus Cable

本产品按照Q/TK.J.04.040 (IEC61158-2、EN50170-2)制造及检验。

## 一、运用范围

本产品适用于工厂底层现场环境中的过程自动化控制及测量设备间的连接线,用以构建一种开放、分散的数字化现场总线式通信系统。适合在室内、室外、潮湿或干燥的环境中安装在电缆桥(托)架,管道内使用。

## 二、型号及名称

电缆型号 Cable type	电缆名称 Cable description
TKFF-A	绞合铜芯导体18AWG/7, 物理发泡皮聚乙烯绝缘, 全屏蔽, A型, FF现场总线电缆 Type A cable for fieldbus system based on Fieldbus Foundation with stranded copper conductor, 18AWG/7, physical foaming skin PE insulation, full shielding
TKFFAR-A	绞合铜芯导体18AWG/7, 物理发泡皮聚乙烯绝缘, 全屏蔽, 钢丝铠装, A型, FF现场总线电缆 Type A cable for fieldbus system based on Fieldbus Foundation with stranded copper conductor, 18AWG/7, physical foaming skin PE insulation, overall shielding, steel wire armor
TKPC	单根铜芯导体22AWG/1, 物理发泡皮聚乙烯绝缘, 全屏蔽型profibus总线电缆 Type A cable for fieldbus system based on Profibus with single copper conductor, 22AWG/1, physical foaming skin PE insulation, full shielding

## 三、型号中各字母意义说明

字母代号 Code	意义说明 Description	备注 Remark
TK	总线电缆系列代号 Series code of fieldbus cable	-
FF	基金会现场总线电缆 FF fieldbus cable	参照IEC61158-2标准。Please see IEC61158-2 standard for reference
A	Type A的简写 Abbreviation of Type A	A型总线电缆具有优良的长距离(1900米)传输性能, 在工业系统中它是常用的一种总线电缆。 Type A fieldbus cable has good feature of long-distance transmission performance, and is widely used in the field of industrial system.
AR	Armour的英文简写 Abbreviation of Armor	总线电缆铠装层一般均采用钢丝缠绕形式。如需钢带铠装形式应有明确的文字说明。Armor material of fieldbus cable is steel wire wrapping. Specific description should be written if steel tape armor is needed.
PC	Profibus cable的简写 Abbreviation of Profibus cable	参照EN50170-2标准。 Please see EN50170-2 standard for reference
ZR	阻燃性能 Flame retardant performance	如有此项要求应在型号前加注“ZR-”, 如ZR- TKFF-A。 Prefix “ZR” should be added to the original type if flame retardant cable is needed. eg. ZR- TKFF-A
WDZ	低烟无卤阻燃、丁晴阻燃 Low smoke & free halogen & flame retardant	如有此项要求应在型号前加注“WDZ-”, 如WDZ- TKFF-A。 Prefix “WDA” should be added to the original type if low smoke & free halogen & flame retardant cable is needed. eg. WDZ- TKFF-A

It is manufactured and tested according to Q/TK.J.04.040 (IEC61158-2、EN50170-2) standard

## Application

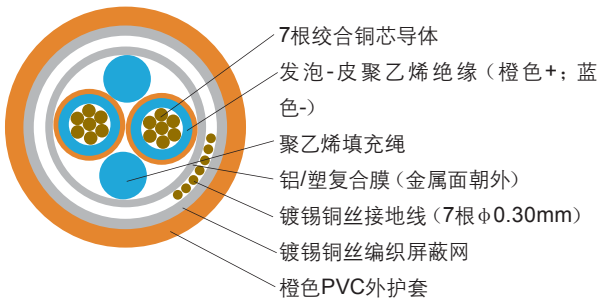
It is used as connection cable between process automatic control and measure equipment in site environment of industrial bottom layer. It is used to construct an open & dispersing digital communication system for fieldbus cable. Recommended for indoor and outdoor installation, in dry and wet location, on racks, on trays, in conduits.

## Type and Description

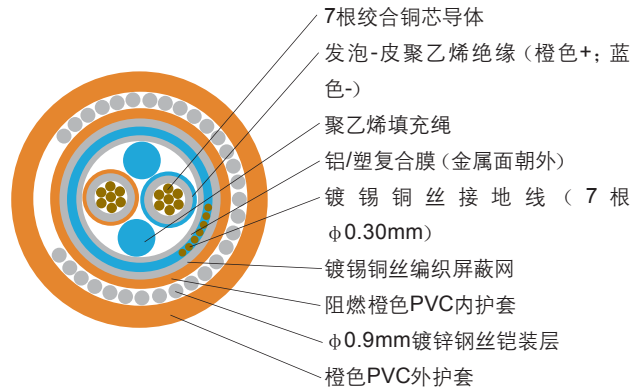
## Type-naming code

#### 四、电缆结构示意图

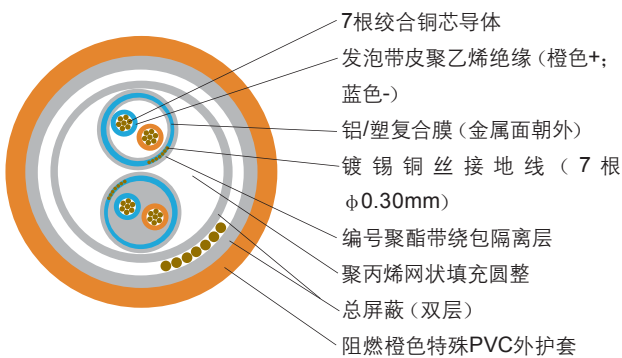
#### The figure of cable structure



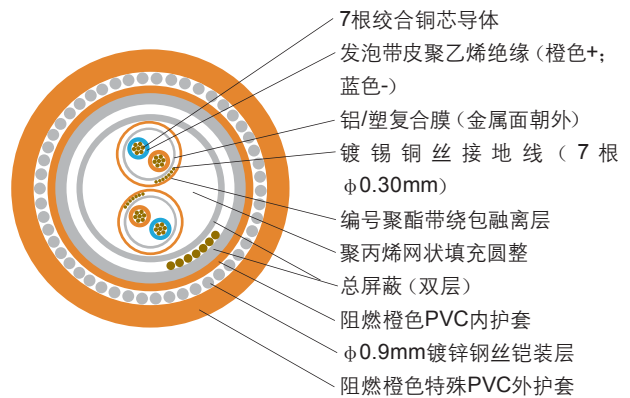
型号: TKFF-A  
规格:  $1 \times 2 \times 0.8\text{mm}^2$ (18AWG)



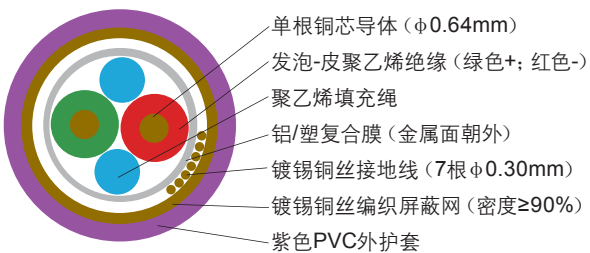
型号: TKFFAR-A  
规格:  $1 \times 2 \times 0.8\text{mm}^2$ (18AWG)



型号: TKFF-A  
规格:  $2 \times 2 \times 0.8\text{mm}^2$ (18AWG)



型号: TKFFAR-A  
规格:  $2 \times 2 \times 0.8\text{mm}^2$ (18AWG)



型号: TKPC  
规格:  $1 \times 2 \times 22\text{AWG}$

五、结构参数表

Structure parameter

电缆规格 Cable specification	TKFFAR-A type					TKFF-A type			
	钢丝直径mm Diameter of steel wire	外护套厚度mm Outer sheath thickness	近似外径mm Approximate outer diameter	允许拉力N Pulling tension allowed	重量Kg/km Weight	外护套厚度mm Outer sheath thickness	近似外径mm Approximate outer diameter	允许拉力N Pulling tension allowed	重量Kg/km Weight
1×2×0.8 (18AWG)	0.9	1.2	12.0	1250	280	1.0	7.9	90	88
2×2×0.8 (18AWG)	0.9	1.5	17.8	2000	400	1.5	13.0	180	165
5×2×0.8 (18AWG)	1.25	1.6	22.0	4000	770	-	-	-	-
10×2×0.8 (18AWG)	1.25	1.7	27.0	6250	1130	-	-	-	-

注：根据用户需要，TKFFAR-A型、TKFF-A型电缆的导体也可制成镀锡铜线七根绞合的形式，订货时用文字注明即可。

Note: We also produce TKFFAR-A and TKFF-A type cable with conductor of 7 stranded tinned copper wires according to the requirement of customer. Special description should be made in ordering.

电缆规格 Cable specification	TKPC type			
	外护套厚度mm Outer sheath thickness	近似外径mm Approximate outer diameter	允许拉力N Pulling tension allowed	重量Kg/km Weight
1×2×22AWG	1.0	8.0	80	78

注：根据用户需要，TKPC型电缆的导体也可采用镀锡铜线的形式，订货时用文字注明即可。

We also produce TKPC type cable with conductor of tinned copper wire according to the requirement of customer. Special description should be made in ordering.

六、性能参数表

Performance parameter

项目 Item	单位 Unit	指标Indices	
		TKFFAR-A、TKFF-A	TKPC
20℃时导体最大直流电阻 Max DC resistance of conductor at 20℃	Ω/km	不镀锡: 22.7;Untinned: 22.7 镀锡: 23.0;Tinned: 23.0	不镀锡: 59.0;Untinned: 59.0 镀锡: 61.0;Tinned: 61.0
屏蔽标称阻抗 Nominal impedance of shielding	Ω/km	单对: 9;Single pair: 9 多对: 18;Multi-pair: 18	9
工作电容 (1kHz) Operating capacitance(1kHz)	PF/m	芯-芯: ≤60;Core to core: ≤60 芯-屏蔽: ≤115;Core to shielding: ≤115	芯-芯: ≤30;Core to core: ≤30 芯-屏蔽: ≤58 Core to shielding: ≤118
对地电容不平衡 Capacitance unbalance to earth	PF/km	≤2000	≤1500
特性阻抗 Characteristic impedance	Ω	100±20 (31.25 kHz)	150±15 (3MHZ)
衰减Attenuation	dB/km	≤3.0 (39 kHz)	0.25/0.625/1.25/3.125/16MHZ 6 / 9 / 12 / 18 / 40
传输延迟(7.9kHz~39kHz) Propagation delay change (7.9kHz~39kHz)	μs/km	≤1.7	-
工频电压试验 A.C. voltage test	V/1min	1000	1500
传输速率 Transmission velocity	/	31.25kbit/s	1.0Mbit/s
导体长期允许最高工作温度 Max long-term operating temperature of cable	℃	70	
最大工作电压 Max operating voltage	V	300	
最小允许弯曲半径 Min bending radius	mm	TKFFAR-A 型不小于12倍的电缆外径；其它型号不小于8倍的电缆外径。No less than 12 times that of cable outer diameter for TKFFAR-A type cable; No less than 8 times that of cable outer diameter for cable with other type.	

## 七、成品电缆表面标识方法

成品电缆的外护套表面连续喷印有：制造商名称、型号、规格、传输速率、工作电压的完整标志，相邻两个完整标志之间的距离为1m。

## Marking method of finished cable

Outer sheath of finished cable should be printed as order clearly with manufacturer, type, description, transmission velocity and operating voltage. The distance between two anastatic prints shall be at least 1m.

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# TIANKANG GROUP