

FF Fieldbus Cable

■ Standard

It is manufactured according to Q/3204AV×041 (GB/T16657. 2、IEC61158-2) standard.

■ Application

It is used for the communication link with digital, two-way and multipoint between the intelligent measurement & control equipment and automatization & display system. It conforms to the FF requirement.

■ Basic type and description

Table 1

Type	Description
BJYP3E/SC	PE insulated,Aluminum/plastic individually shield,low smoke and halogen free polyolefin sheath FF Fieldbus cable
BJYP3C3E/SC	PE insulated,Aluminum/plastic individually and common shield,low smoke and halogen free polyolefin sheath FF Fieldbus cable
BJYC3E/SC	PE insulated,Aluminum/plastic common shield,low smoke and halogen free polyolefin sheath FF Fieldbus cable

■ Explanation of the symbols in the type

Table 2

Item	Symbol	Explanation
Series	BJ	FF Fieldbus cable
Insulation	Y	PE
Individually shield	(omitted)	No shield
	P	Copper wire braided individually shield
	P1	Tinned copper wire braided individually shield
	P2	Copper/plastic individually shield
	P3	Aluminum/plastic individually shield
Common shield	(omitted)	No shield
	C	Copper wire braided common shield
	C1	Tinned copper wire braided common shield
	C2	Copper/plastic common shield
	C3	Aluminum/plastic common shield
Bedding/sheath	V	PVC
	Y	PE
	E	Low smoke and halogen free polyolefin
Armor	(omitted)	Unarmored
	2	Steel tape armored
	3	Steel wire armored
Outer sheath	2	PVC

	3	PE
	E	Low smoke and halogen free polyolefin
Flame characteristic	(omitted)	No requirement
	SA	Bunched flame retardant
	SB	Low smoke and low halogen bunched flame retardant
	SC	Low smoke and halogen free bunched flame retardant
Velocity code	H1 (omitted)	31.25kbit/s, low speed
	H2	1.0Mbit/s, high speed
	H3	2.5Mbit/s, high speed
Specification		Number of groups \times number of cores in group \times nominal sectional area (mm ²), thereinto: 1) number of groups: 1,2; 2) number of cores in group is 2; 3) conductor specification: 0.8mm ² (18AWG)、1.0mm ² 、0.3mm ² (22AWG) . 4) in addition,may select other specification according to the requirement of customer.
Note: 1.May select and combine all kinds of type to meet the requirement according to type explanation above. 2.Conductor may be tinned or Untinned.The conductor construction may be the class 1 or class 2 of GB/T3956 or IEC 60228.In addition,may select other type conductor according to the requirement of customer.		

■ Indication example

The indication of FF Fieldbus cable consists of product type and specification. For example:

FF Fieldbus cable, Velocity is 为 31.25kbit/s (H1type), PE insulated, Aluminum/plastic shield, low smoke and halogen free flame retardant polyolefin sheath, 1pair, normal sectional area 0.8mm² (18AWG), is indicated with:
BJYC3E/SC-H1 1 \times 2 \times 0.8mm² (18AWG)

■ Properties

Detailed properties of products are shown in the table3.

Table 3

Item		Unit	Parameters				
Transmitting velocity		---	31.25kbit/s	31.25kbit/s	1.0Mbit/s	1.0Mbit/s	2.5Mbit/s
Transmitting mode		---	Voltage type	Voltage type	Voltage type	Current type	Voltage type
Normal sectional area of conductor		mm ²	0.8 (18AWG)	1.0	0.33 (22AWG)	0.33 (22AWG)	0.33 (22AWG)
Test frequency(fr)		---	31.25kHz	31.25kHz	1.0MHz	1.0MHz	2.5MHz
Impedance	fr	Ω	100 \pm 20%	100 \pm 20%	---	---	---
	0.25fr	Ω	---	---	150 \pm 10%	150 \pm 10%	150 \pm 10%

	1.25fr	Ω	---	---	$150 \pm 10\%$	$150 \pm 10\%$	$150 \pm 10\%$
Max.Attenuation	0.25fr	dB/km	---	---	6.5	6.5	10
	1.25fr	dB/km	3.0	3.0	13	13	20
Max.L/R (1kHz)		$\mu\text{H}/\Omega$	25	25	25	25	25
Max.Capacitance (1kHz)		pF/m	115	115	115	115	115
Max.Long-term operating temperature of conductor		$^{\circ}\text{C}$	70	70	70	70	70
Max.DC resistance of conductor at 20 $^{\circ}\text{C}$	Untinned	Ω/km	21.8	18.1	55.4	55.4	55.4
	Tinned	Ω/km	23.2	18.2	59.4	59.4	59.4
Min.Insulation resistance at 20 $^{\circ}\text{C}$		$\text{M}\Omega \cdot \text{km}$	1000	1000	1000	1000	1000
Test voltage		KV	1.5	1.5	0.5	0.5	0.5
Min.bending radius	Armor or metal tape shield construction	---	12times of cable diameter				
	Other construction	---	6 times of cable diameter				

■ Construction and dimension

It is shown in table 4

Table 4

Max diameter(mm)						
Cable type	$1 \times 2 \times 0.8\text{mm}^2$ (18AWG)	$2 \times 2 \times 0.8\text{mm}^2$ (18AWG)	$1 \times 2 \times 1.0\text{mm}^2$	$2 \times 2 \times 1.0\text{mm}^2$	$1 \times 2 \times 0.33\text{mm}^2$ (22AWG)	$2 \times 2 \times 0.33\text{mm}^2$ (22AWG)
Individually shield	---	14.0	---	14.5	---	12.0
Individually and common shield	---	15.5	---	15.5	---	13.5
common shield	9.5	14.0	10.0	14.0	8.5	12.5
Individually shield and steel tape armor	---	18.0	---	18.0	---	16.0
Individually & common shield and steel tape	---	19.0	---	19.0	---	17.0

armor						
common shield and steel tape armor	12.5	17.5	13.0	18.5	11.5	16.0
Individually shield and steel wire armor	----	19.5	----	20.0	----	18.0
Individually & common shield and steel wire armor	----	21.0	----	21.0	----	19.0
common shield and steel wire armor	14.0	19.5	14.0	19.5	13.0	17.5