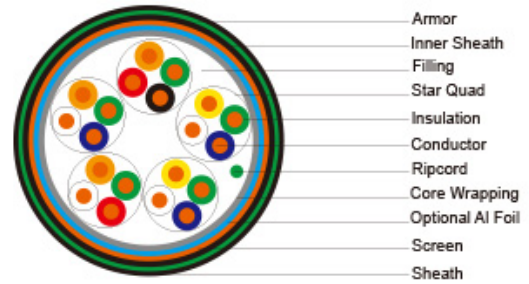


PE Insulated Air Core/Jelly Filled Star Quad
Railway Signalling Cables to VDE 0816/DIN 57816



Application	The cables are designed to give good protection to the core against inductive interference. The cables are used for outdoor signaling equipment.
Standards	VDE 0816/DIN 57816
Construction	
Conductors:	Solid annealed bare copper 0.9/1.4mm as per ASTM B-3/IEC 60228 Class 1
Insulation:	Solid polyethylene as per ASTM D 1248/IEC 60708
Cabling Element:	Four insulated conductors are twisted together to form a quad
Cable Core Assembly:	The cores are cabled together in concentric layers to form the cable core. Units are identified by colour coded binders
Core Wrapping:	One or more non-hygroscopic polyester tapes are helically or longitudinally laid with an overlap
Electrostatic Screen:	Copper tape or copper wire braid with wire diameter of 0.12mm
Bedding:	PE or LSZH
Electrostatic Armour:	Two steel tapes of 0.5mm or 0.8mm are helically applied with gap. The outer tape will cover the gap left by the inner one
Sheath:	PE/PVC or LSZH
Ripcord:	Nylon ripcord may be placed parallel to the cores to facilitate sheath removal

Electrical Properties

Nominal Conductor Diameter	mm	0.9	1.4
Conductor Size	mm ²	0.636	1.539
Maximum Conductor Resistance @20°C	Ω/km	28	12.1
Minimum Insulation Resistance @500V DC	MΩ.km	35000	5000
Maximum Resistance Unbalance	%	2.5	2.5

Maximum Mutual Capacitance @0.8KHz	nF/km	45	50
Maximum Capacitance Unbalance @1KHz pair-to-pair	pF/500m	250	250
Maximum Capacitance Unbalance @1KHz pair-to-ground	pF/500m	1200	1200
Maximum Average Attenuation @1KHz	dB/km	0.7	0.46
Maximum Average Attenuation @10KHz	dB/km	1.6	0.85
Maximum Average Attenuation @30KHz	dB/km	2.1	1.3
Dielectric Strength Conductor to Conductor 3secs	V DC	3000	3000
Conductor to Screen 3secs	V DC	3500	3500
Nominal Insulation Thickness	mm	0.45	0.65
Nominal Insulated Conductor Diameter	mm	1.8	2.7

Reduction Factor

Type group	Frequency Hz	Cable reduction factor(planning values)at field strength		
		70V/km	100V/km	350V/km
1,5	1623	0.70	0.60	0.92
2,3,6,7		0.55	0.45	0.80
4,8		0.30	0.25	0.70
1,5	50	0.45	0.38	0.52
2,6		0.21	0.17	0.29
3,7		0.42	0.37	0.30
4,8		0.17	0.14	0.12

Reference length is 300m. Conversion factor for different lengths L (at least 200m): L/300

Type Codes

AJ-	-Outdoor cable with protection against inductive influences
2Y	- Solid PE
Y	- PVC
H	- LSZH
(St)	- Static shield of plastic-backed aluminum Tape for indoor cables
D	- Shield of copper wire whipping.

S	- Railway signaling cable
Lg	- Stranded in layers
(...Cu)	- Total cross section of copper shield in mm sq
(fK)	- Longitudinally applied copper tape, supplement to (St)
2B...	- two layers of steel tape, thickness of steel tape in mm

Mechanical and Thermal Properties

Temperature range during operation (fixed state): -30°C – +70°C

Temperature range during installation (mobile state): -20°C – +50°C

Minimum bending radius: 15 x Overall Diameter

Colour Code

Coloured rings on the insulation

The tracer quad in each layer has a red helix

Dimensions And Weight

VDE CODE:

Copper tape screen & steel tape thickness of 0.5/0.8mm

AJ-2Y(St)YbY...x4x0.9/1.4 S Lg (fK) (2B 0.5) AJ-2Y(St)YbY...x4x0.9/1.4 S Lg (fK) (2B 0.8)

Copper wire screen (wire diameter of 1.2mm) & steel tape thickness of 0.8mm

AJ-2YDYbY...x4x0.9/1.4 S Lg (...Cu/2B 0.5) AJ-2YDYbY...x4x0.9/1.4 S Lg (...Cu/2B 0.8)

Cable Code	Number of Quads	Nominal Bedding/ Sheath Thickness mm	Nominal Overall Diameter mm	Nominal Weight kg/km
Type 1: 0.9mm Conductor, 1.8mm Insulated Wire, Copper Tape Screened, RF 0.6 Steel tape thickness 0.5mm				
TP816AJ-2Y(St)YbY-S Lg (fK)(2B0.5)-3Q09	3	1.7/1.8	22.0	810
TP816AJ-2Y(St)YbY-S Lg (fK)(2B0.5)-5Q09	5	1.7/1.8	25.5	1035
TP816AJ-2Y(St)YbY-S Lg (fK)(2B0.5)-7Q09	7	1.7/1.8	26.5	1150
TP816AJ-2Y(St)YbY-S Lg (fK)(2B0.5)-10Q09	10	1.8/2.0	32.5	1550
TP816AJ-2Y(St)YbY-S Lg (fK)(2B0.5)-14Q09	14	1.8/2.0	35.5	1870
Type 2: 0.9mm Conductor, 1.8mm Insulated Wire, Copper Wire Screened, RF 0.45 Steel tape thickness 0.5mm				
TP816AJ-2YDYbY-S Lg (23/2B0.5)-7Q09	7	1.7/1.8	28.5	1410
TP816AJ-2YDYbY-S Lg (25/2B0.5)-10Q09	10	1.8/2.0	33.0	1745
TP816AJ-2YDYbY-S Lg (25/2B0.5)-14Q09	14	1.8/2.0	36.6	2060
Type 3: 0.9mm Conductor, 1.8mm Insulated Wire, Copper Tape Screened, RF 0.45 Steel tape thickness 0.8mm				
TP816AJ-2Y(St)YbY-S Lg (fK) (2B0.8)-20Q09	20	1.8/2.0	40.0	2610
TP816AJ-2Y(St)YbY-S Lg (fK) (2B0.8)-30Q09	30	2.0/2.2	46.5	3425
TP816AJ-2Y(St)YbY-S Lg (fK) (2B0.8)-40Q09	40	2.0/2.2	50.5	4015

Type 4: 0.9mm Conductor, 1.8mm Insulated Wire, Copper Wire Screened, RF 0.25 Steel tape thickness 0.8mm				
TP816AJ-2YDYbY-S Lg (29/2B0.8)-20Q09	20	1.8/2.0	40.5	2840
TP816AJ-2YDYbY-S Lg (33/2B0.8)-30Q09	30	2.0/2.2	47.5	3655
TP816AJ-2YDYbY-S Lg (33/2B0.8)-40Q09	40	2.0/2.2	51.5	4230
Type 5: 1.4mm Conductor, 2.7mm Insulated Wire, Copper Tape Screened, RF 0.6 Steel tape thickness 0.5mm				
TP816AJ-2Y(St)YbY-S Lg (fK) (2B0.5)-3Q14	3	1.7/1.8	26.5	1140
TP816AJ-2Y(St)YbY-S Lg (fK) (2B0.5)-5Q14	5	1.7/1.8	29.5	1430
TP816AJ-2Y(St)YbY-S Lg (fK) (2B0.5)-7Q14	7	1.8/2.0	33.5	1790
TP816AJ-2Y(St)YbY-S Lg (fK) (2B0.5)-10Q14	10	1.8/2.0	39.0	2330
TP816AJ-2Y(St)YbY-S Lg (fK) (2B0.5)-14Q14	14	1.8/2.0	42.5	2805
Type 6: 1.4mm Conductor, 2.7mm Insulated Wire, Copper Wire Screened, RF 0.45 Steel tape thickness 0.5mm				
TP816AJ-2YDYbY-S Lg (25/2B0.5)-25Q14	25	1.8/2.0	35.0	2050
Type 7: 1.4mm Conductor, 2.7mm Insulated Wire, Copper Tape Screened, RF 0.45 Steel tape thickness 0.8mm				
TP816AJ-2Y(St)YbY-S Lg (fK) (2B0.8)-20Q14	20	2.0/2.2	49.0	4085
TP816AJ-2Y(St)YbY-S Lg (fK) (2B0.8)-30Q14	30	2.4/2.6	58.5	5585
TP816AJ-2Y(St)YbY-S Lg (fK) (2B0.8)-40Q14	40	2.4/2.6	64.0	6720
Type 8: 1.4mm Conductor, 2.7mm Insulated Wire, Copper Wire Screened, RF 0.25 Steel tape thickness 0.8mm				
TP816AJ-2YDYbY-S Lg (29/2B0.5)-10Q14	10	1.8/2.0	41.0	2950
TP816AJ-2YDYbY-S Lg (33/2B0.5)-14Q14	14	2.0/2.2	46.0	3615
TP816AJ-2YDYbY-S Lg (33/2B0.5)-20Q14	20	2.0/2.2	50.0	4310
TP816AJ-2YDYbY-S Lg (38/2B0.5)-30Q14	30	2.4/2.6	59.5	5850
TP816AJ-2YDYbY-S Lg (43/2B0.5)-40Q14	40	2.4/2.6	65.0	7005