

Multi-Pair Instrumentation Cable

BS 5308 Part 2: Types 1 & 2

Applications

Process control, equipment interconnection, typically in chemical and petrochemical locations

Family

Instrumentation Cable

Voltage: 300/500V

Design

1. Conductor

PACW to BS 6360 Class 1, 2 or 5 in 0.5/0.75/1.50 Square mm nominal diameter

2. Insulation

PVC to BS 7655

3. Twinning

Pair construction

4. Individual Screening (where required)

Aluminium/Polyester tape
Tinned Copper Drain wire

5. Collective Screening

Aluminium/Polyester Tape
Tinned Copper Drain wire

6. Armouring (where required)

7. Bedding

Flame Retardant PVC

8. Armour

Galvanised Steel Wire Armour

9. Outer Sheath

Flame Retardant PVC

Cable Physical Characteristics

Part 2: Type 1: – Collectively Screened Unarmoured

No. Pairs	Copper Diameter (sq mm)	B3 Part Number	Nominal Overall Diameter (mm)	Nominal Weight (kgs/km)
1	0.5 (16x0.2)	C1081	7.0	50
2	0.5 (16x0.2)	C1082	7.9	72
5	0.5 (16x0.2)	C1083	13.1	170
10	0.5 (16x0.2)	C1084	17.2	290
20	0.5 (16x0.2)	C1085	22.3	500
1	0.75 (24x0.2)	C1086	7.3	60
2	0.75 (24x0.2)	C1087	8.3	100
5	0.75 (24x0.2)	C1088	14.3	210
10	0.75 (24x0.2)	C1089	18.7	350
20	0.75 (24x0.2)	C1090	24.5	750
1	1.50 (7x0.53)	C1091	8.3	90
2	1.50 (7x0.53)	C1092	9.7	140
5	1.50 (7x0.53)	C1093	16.4	330
10	1.50 (7x0.53)	C1094	20.6	580
20	1.50 (7x0.53)	C1095	28.5	1100

Type 2: Part 2 – Collectively Screened Armoured

No. Pairs	Copper Diameter (sq mm)	B3 Part Number	Nominal Diameter Over Bedding (mm)	Nominal Diameter Over Armour (mm)	Nominal Overall Diameter (mm)	Nominal Weight (kgs/km)
1	0.5 (16x0.2)	C1096	7.0	8.8	11.4	240
2	0.5 (16x0.2)	C1097	7.9	9.7	12.3	290
5	0.5 (16x0.2)	C1098	13.1	14.9	17.9	510
10	0.5 (16x0.2)	C1099	17.2	19.7	22.9	880
20	0.5 (16x0.2)	C1100	22.3	25.5	29.1	1500
1	0.75 (24x0.2)	C1101	7.3	9.1	11.7	270
2	0.75 (24x0.2)	C1102	8.3	10.1	12.9	310
5	0.75 (24x0.2)	C1103	14.3	16.8	19.8	710
10	0.75 (24x0.2)	C1104	18.7	21.9	25.3	1200
20	0.75 (24x0.2)	C1105	24.5	27.7	31.3	1700
1	1.50 (7x0.53)	C1106	8.3	10.1	12.9	300
2	1.50 (7x0.53)	C1107	9.7	11.5	14.3	390
5	1.50 (7x0.53)	C1108	16.4	18.9	22.1	870
10	1.50 (7x0.53)	C1109	21.6	24.8	28.4	1500
20	1.50 (7x0.53)	C1110	28.5	31.7	35.7	2400

Part 2: Type 1: – Individually & Collectively Screened, Unarmoured

No. Pairs	Copper Diameter (sq mm)	B3 Part Number	Nominal Overall Diameter (mm)	Nominal Weight (kgs/km)
2	0.5 (16x0.2)	C1111	12.0	100
5	0.5 (16x0.2)	C1112	15.2	250
10	0.5 (16x0.2)	C1113	21.1	480
20	0.5 (16x0.2)	C1114	27.3	780
2	0.75 (24x0.2)	C1115	12.8	190
5	0.75 (24x0.2)	C1116	16.3	270
10	0.75 (24x0.2)	C1117	22.7	550
20	0.75 (24x0.2)	C1118	29.8	960
2	1.50 (7x0.53)	C1119	14.7	250
5	1.50 (7x0.53)	C1120	18.8	460
10	1.50 (7x0.53)	C1121	26.5	760
20	1.50 (7x0.53)	C1122	34.4	1350

Part 2: Type 2: – Individually & Collectively Screened, Armoured

No. Pairs	Copper Diameter (sq mm)	B3 Part Number	Nominal Diameter Over Bedding (mm)	Nominal Diameter Over Armour (mm)	Nominal Overall Diameter (mm)	Nominal Weight (kgs/km)
2	0.5 (16x0.2)	C1123	12.0	13.8	16.8	450
5	0.5 (16x0.2)	C1124	15.2	17.7	20.9	750
10	0.5 (16x0.2)	C1125	21.1	24.3	27.9	1300
20	0.5 (16x0.2)	C1126	27.3	30.5	34.3	1900
2	0.75 (24x0.2)	C1127	12.8	14.6	17.6	490
5	0.75 (24x0.2)	C1128	16.3	18.8	22.0	801
10	0.75 (24x0.2)	C1129	22.7	25.9	29.5	1800
20	0.75 (24x0.2)	C1130	29.8	33.8	37.8	2200
2	1.50 (7x0.53)	C1131	14.7	14.7	20.4	660
5	1.50 (7x0.53)	C1132	18.8	18.8	25.4	1000
10	1.50 (7x0.53)	C1133	26.5	26.5	33.5	1700
20	1.50 (7x0.53)	C1134	34.4	34.4	42.6	2800

Cable Electrical Characteristics

Conductor area (square millimetre)	0.5	0.75	1.50
Conductor construction	16x0.2	24x0.2	7x0.53
Maximum DC resistance @ 20°C (ohms/km)	39.7	26.5	12.3
Maximum Mutual Capacitance (pF/m)@ 1 KHz	250	250	250
Maximum Mutual Capacitance to screen (pF/m) @ 1 KHz	450	450	450
Maximum L/R ratio ($\mu\text{H}/\Omega$)	25	25	40
Maximum Conductor Operating Temperature (°C)	+65	+65	+65
Minimum Insulation Resistance (Ind. Conductors @ 20°C, M Ω /km)	25	25	25
Minimum Operating Temperature (Fixed installation, °C)	-20	-20	-20

Colour Code

Pair no.	a-wire	a-wire	Pair no.	a-wire	b-wire
1	White	Blue	26	RED-Blue	Blue
2	White	Orange	27	RED-Blue	Orange
3	White	Green	28	RED-Blue	Green
4	White	Brown	29	RED-Blue	Brown
5	White	Grey	30	RED-Blue	Grey
6	Red	Blue	31	BLUE-Black	Blue
7	Red	Orange	32	BLUE-Black	Orange
8	Red	Green	33	BLUE-Black	Green
9	Red	Brown	34	BLUE-Black	Brown
10	Red	Grey	35	BLUE-Black	Grey
11	Black	Blue	36	YELLOW-Blue	Blue
12	Black	Orange	37	YELLOW-Blue	Orange
13	Black	Green	38	YELLOW-Blue	Green
14	Black	Brown	39	YELLOW-Blue	Brown
15	Black	Grey	40	YELLOW-Blue	Grey
16	Yellow	Blue	41	WHITE-Orange	Blue
17	Yellow	Orange	42	WHITE-Orange	Orange
18	Yellow	Green	43	WHITE-Orange	Green
19	Yellow	Brown	44	WHITE-Orange	Brown
20	Yellow	Grey	45	WHITE-Orange	Grey
21	WHITE-Blue	Blue	46	ORANGE-Red	Blue
22	WHITE-Blue	Orange	47	ORANGE-Red	Orange
23	WHITE-Blue	Green	48	ORANGE-Red	Green
24	WHITE-Blue	Brown	49	ORANGE-Red	Brown
25	WHITE-Blue	Grey	50	ORANGE-Red	Grey

Note: The 2 Pair unscreened cables are in quad formation, colour code (clockwise); Black, Blue, Green, Brown)