

Instrumentation Cables

500V Pairs or Triads

PVC Insulated, Individual & Overall Screen, Unarmoured & Armoured,
PVC Sheathed Cable

Description: CU/PVC/ISOS/PVC-UV or CU/PVC/ISOS/PVC/SWA/PVC-UV

Model Code: PIOP-UV or PIOPSP-UV



| | |
|-------------------------|--|
| Application : | This cable is used in machines, measuring instruments, and control systems for the transmission of analogue and digital signals. |
| Voltage rating : | 500V |
| Construction : | Plain annealed copper (IEC 60228 Class 2), PVC insulated, twisted pairs or triads, individual and overall screen (aluminium/polyester tape with finned copper drain wire), unarmoured or galvanized steel wire armoured, UV resistant PVC sheathed cable |
| Insulation colour : | Pairs : Black, White (with numbering) Triads : Red, Black, White (with numbering) |
| Sheath colour : | Black (other colour upon request) Blue (for intrinsically safe system upon request) |
| Specification : | BS EN 50288-7, IEC 60332-1-2 IEC 60332-3 (upon request) |
| Operating temperature : | 70°C |

| No. of Pairs/Triads | Conductor | | Insulation Thickness (mm) | Unarmoured Cable | | | Armoured Cable | | |
|---------------------|---------------------------------|------------------------------|---------------------------|------------------|-----------------------|----------------|-----------------|-----------------------|----------------|
| | Nominal Area (mm ²) | No./Diam. of Strand (no./mm) | | Part No. | Approx. Overall Diam. | Approx. Weight | Part No. | Approx. Overall Diam. | Approx. Weight |
| | | | | | (mm) | (kg/km) | | (mm) | (kg/km) |
| 2P | 0.5 | 7/0.31 | 0.6 | 042P3620 | 11.8 | 150 | 042P3621 | 16.9 | 465 |
| 4P | | | | 044P3620 | 13.7 | 220 | 044P3621 | 19.0 | 585 |
| 6P | | | | 046P3620 | 16.5 | 305 | 046P3621 | 21.7 | 735 |
| 8P | | | | 048P3620 | 18.7 | 390 | 048P3621 | 24.8 | 1020 |
| 10P | | | | 040P3620 | 21.3 | 485 | 040P3621 | 27.3 | 1195 |
| 12P | | | | 048P3620 | 22.1 | 545 | 048P3621 | 28.3 | 1290 |
| 16P | | | | 04FP3620 | 24.6 | 685 | 04FP3621 | 30.4 | 1690 |
| 20P | | | | 04KP3620 | 27.2 | 840 | 04KP3621 | 34.3 | 1950 |
| 24P | | | | 04RP3620 | 30.3 | 1000 | 04RP3621 | 37.4 | 2245 |
| 36P | | | | 04P23620 | 34.9 | 1405 | 04P23621 | 43.3 | 3165 |
| 2T | | | | 042T3620 | 12.9 | 185 | 042T3621 | 18.2 | 525 |
| 4T | | | | 044T3620 | 15.3 | 285 | 044T3621 | 20.7 | 685 |
| 6T | | | | 046T3620 | 18.4 | 395 | 046T3621 | 24.6 | 1020 |
| 10T | | | | 040T3620 | 23.6 | 620 | 040T3621 | 29.8 | 1410 |
| 12T | | | | 04BT3620 | 24.6 | 700 | 04BT3621 | 31.5 | 1720 |
| 16T | | | | 04FT3620 | 27.4 | 885 | 04FT3621 | 34.3 | 2020 |
| 24T | 04RT3620 | 34.0 | 1320 | 04RT3621 | 42.0 | 3030 | | | |

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Description: CU/PVC/ISOS/PVC-UV or CU/PVC/ISOS/PVC/SWA/PVC-UV

Model Code: PIOP-UV or PIOPSP-UV

| No. of Pairs/Triads | Conductor | | Insulation Thickness (mm) | Unarmoured Cable | | | Armoured Cable | | |
|---------------------|---------------------------------|--------------------------|---------------------------|------------------|----------------------------|------------------------|-----------------|----------------------------|---------------------|
| | Nominal Area (mm ²) | No./Diam. of Strand (mm) | | Part No. | Approx. Overall Diam. (mm) | Approx. Weight (kg/km) | Part No. | Approx. Overall Diam. (mm) | Approx. Weight (mm) |
| | | | | | | | | | |
| 2P | 0.75 | 7/0.37 | 0.6 | 052P3620 | 12.5 | 175 | 052P3621 | 17.6 | 500 |
| 4P | | | | 054P3620 | 14.6 | 260 | 054P3621 | 20.0 | 640 |
| 6P | | | | 056P3620 | 17.7 | 360 | 056P3621 | 22.9 | 815 |
| 8P | | | | 058P3620 | 19.9 | 450 | 058P3621 | 25.9 | 1105 |
| 10P | | | | 050P3620 | 22.6 | 560 | 050P3621 | 28.8 | 1325 |
| 12P | | | | 05BP3620 | 23.4 | 625 | 05BP3621 | 29.5 | 1420 |
| 16P | | | | 05FP3620 | 26.1 | 795 | 05FP3621 | 33.2 | 1880 |
| 20P | | | | 05KP3620 | 29.3 | 980 | 05KP3621 | 36.3 | 2190 |
| 24P | | | | 05RP3620 | 32.4 | 1180 | 05RP3621 | 39.7 | 2530 |
| 36P | | | | 05P23620 | 37.4 | 1660 | 05P23621 | 45.7 | 3550 |
| 2T | | | | 052T3620 | 13.9 | 220 | 052T3621 | 19.3 | 590 |
| 4T | | | | 054T3620 | 16.3 | 325 | 054T3621 | 21.5 | 745 |
| 6T | | | | 056T3620 | 19.6 | 455 | 056T3621 | 25.7 | 1120 |
| 10T | | | | 050T3620 | 25.3 | 730 | 050T3621 | 32.1 | 1775 |
| 12T | | | | 05BT3620 | 26.2 | 825 | 05BT3621 | 33.3 | 1910 |
| 16T | | | | 05FT3620 | 29.3 | 1055 | 05FT3621 | 36.3 | 2265 |
| 24T | 05RT3620 | 36.4 | 1570 | 05RT3621 | 44.7 | 3400 | | | |
| 2P | 1 | 7/0.43 | 0.6 | 062P3620 | 13.1 | 190 | 062P3621 | 18.3 | 530 |
| 4P | | | | 064P3620 | 15.5 | 295 | 064P3621 | 20.8 | 695 |
| 6P | | | | 066P3620 | 18.7 | 405 | 066P3621 | 24.8 | 1055 |
| 8P | | | | 068P3620 | 21.2 | 520 | 068P3621 | 27.2 | 1135 |
| 10P | | | | 060P3620 | 23.9 | 635 | 060P3621 | 30.1 | 1450 |
| 12P | | | | 06BP3620 | 24.9 | 725 | 06BP3621 | 31.7 | 1760 |
| 16P | | | | 06FP3620 | 27.7 | 920 | 06FP3621 | 34.8 | 2080 |
| 20P | | | | 06KP3620 | 31.1 | 1050 | 06KP3621 | 38.4 | 2460 |
| 24P | | | | 06RP3620 | 34.6 | 1380 | 06RP3621 | 42.8 | 3140 |
| 36P | | | | 06P23620 | 39.6 | 1930 | 06P23621 | 48.2 | 3940 |
| 2T | | | | 062T3620 | 14.7 | 245 | 062T3621 | 20.1 | 635 |
| 4T | | | | 064T3620 | 17.1 | 370 | 064T3621 | 23.1 | 940 |
| 6T | | | | 066T3620 | 20.7 | 534 | 066T3621 | 27.0 | 1235 |
| 10T | | | | 060T3620 | 26.7 | 840 | 060T3621 | 33.8 | 1950 |
| 12T | | | | 06BT3620 | 27.9 | 970 | 06BT3621 | 35.0 | 2140 |
| 16T | | | | 06FT3620 | 31.1 | 1250 | 06FT3621 | 38.5 | 2555 |
| 24T | 06RT3620 | 38.8 | 1855 | 06RT3621 | 47.1 | 3810 | | | |

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PVC Sheathed Cable

Description: CU/PVC/ISOS/PVC-UV or CU/PVC/ISOS/PVC/SWA/PVC-UV

Model Code: PIOP-UV or PIOPSP-UV

| No. of Pairs/Triads | Conductor | | Insulation Thickness (mm) | Unarmoured Cable | | | Armoured Cable | | |
|---------------------|---------------------------------|--------------------------|---------------------------|------------------|----------------------------|------------------------|-----------------|----------------------------|---------------------|
| | Nominal Area (mm ²) | No./Diam. of Strand (mm) | | Part No. | Approx. Overall Diam. (mm) | Approx. Weight (kg/km) | Part No. | Approx. Overall Diam. (mm) | Approx. Weight (mm) |
| | | | | | | | | | |
| 2P | 1.5 | 7/0.53 | 0.6 | 072P3620 | 14.4 | 235 | 072P3621 | 19.8 | 585 |
| 4P | | | | 074P3620 | 17.1 | 360 | 074P3621 | 22.3 | 800 |
| 6P | | | | 076P3620 | 20.6 | 510 | 076P3621 | 26.6 | 1195 |
| 8P | | | | 078P3620 | 23.1 | 640 | 078P3621 | 29.2 | 1420 |
| 10P | | | | 070P3620 | 26.4 | 800 | 070P3621 | 33.4 | 1905 |
| 12P | | | | 07BP3620 | 27.4 | 920 | 07BP3621 | 34.4 | 2060 |
| 16P | | | | 07FP3620 | 30.6 | 1175 | 07FP3621 | 37.7 | 2465 |
| 20P | | | | 07KP3620 | 34.1 | 1450 | 07KP3621 | 42.5 | 3185 |
| 24P | | | | 07RP3620 | 38.1 | 1745 | 07RP3621 | 46.5 | 3690 |
| 36P | | | | 07P23620 | 43.9 | 2470 | 07P23621 | 53.6 | 5190 |
| 2T | | | | 072T3620 | 16.1 | 290 | 072T3621 | 21.4 | 715 |
| 4T | | | | 074T3620 | 18.9 | 465 | 074T3621 | 25.0 | 1100 |
| 6T | | | | 076T3620 | 22.7 | 665 | 076T3621 | 29.0 | 1445 |
| 10T | | | | 070T3620 | 29.4 | 1075 | 070T3621 | 36.5 | 2300 |
| 12T | | | | 07BT3620 | 30.7 | 1245 | 07BT3621 | 38.0 | 2530 |
| 16T | | | | 07FT3620 | 34.2 | 1600 | 07FT3621 | 42.5 | 3335 |
| 24T | 07RT3620 | 42.6 | 2385 | 07RT3621 | 52.3 | 5010 | | | |
| 2P | 2.5 | 7/0.67 | 0.7 | 082P3620 | 16.9 | 310 | 082P3621 | 22.3 | 755 |
| 4P | | | | 084P3620 | 20.0 | 495 | 084P3621 | 26.1 | 1165 |
| 6P | | | | 086P3620 | 24.1 | 700 | 086P3621 | 30.3 | 1520 |
| 8P | | | | 088P3620 | 27.3 | 900 | 088P3621 | 34.4 | 2050 |
| 10P | | | | 080P3620 | 31.2 | 1130 | 080P3621 | 38.5 | 2445 |
| 12P | | | | 08BP3620 | 32.2 | 1285 | 08BP3621 | 39.5 | 2640 |
| 16P | | | | 08FP3620 | 36.2 | 1665 | 08FP3621 | 44.5 | 3500 |
| 20P | | | | 08KP3620 | 40.4 | 2060 | 08KP3621 | 49.0 | 4135 |
| 24P | | | | 08RP3620 | 45.0 | 2480 | 08RP3621 | 55.0 | 5285 |
| 36P | | | | 08P23620 | 52.3 | 3560 | 08P23621 | 62.4 | 6820 |
| 2T | | | | 082T3620 | 18.7 | 400 | 082T3621 | 25.0 | 1035 |
| 4T | | | | 084T3620 | 22.1 | 655 | 084T3621 | 28.5 | 1400 |
| 6T | | | | 086T3620 | 27.0 | 955 | 086T3621 | 34.2 | 2085 |
| 10T | | | | 080T3620 | 34.8 | 1545 | 080T3621 | 43.3 | 3320 |
| 12T | | | | 08BT3620 | 36.4 | 1790 | 08BT3621 | 44.7 | 3625 |
| 16T | | | | 08FT3620 | 40.6 | 2305 | 08FT3621 | 49.1 | 4370 |
| 24T | 08RT3620 | 50.8 | 3470 | 08RT3621 | 61.0 | 6640 | | | |

Instrumentation Cables

Table 1 : Electrical Characteristics

| Test Item \ Material | PVC | XLPE | PE |
|---|-----|------|------|
| A.C. Voltage Test (kV/1 minute) | 2 | 2 | 2 |
| Minimum Insulation Resistance (MΩ·km) | 10 | 1000 | 1000 |
| Maximum Mutual Capacitance (nF/km) | 250 | 150 | 150 |
| Maximum Capacitance Unbalance (pF/500m) | - | 500 | 500 |
| Maximum Inductance (mH/km) | 1.0 | 1.0 | 1.0 |

Table 2 : Maximum Inductance to Resistance Ratio (L/R)

| Cross-sectional Area | L/R Ratio |
|----------------------|-----------|
| (mm ²) | (μH/Ω) |
| 0.5 | 25 |
| 0.75 | 25 |
| 1 | 25 |
| 1.5 | 40 |
| 2.5 | 60 |

Table 3 : Conductor Construction Reference

| Class \ Cross-Sectional Area (mm ²) | 0.5 | 0.75 | 1 | 1.5 | 2.5 |
|---|-----------------------------|---------|---------|---------|---------|
| | No./Diam of Strand (no./mm) | | | | |
| Class 1 | 1/0.80 | 1/0.97 | 1/1.13 | 1/1.38 | 1/1.78 |
| Class 2 | 7/0.31 | 7/0.37 | 7/0.43 | 7/0.53 | 7/0.67 |
| Class 5 | 16/0.20 | 24/0.20 | 32/0.20 | 30/0.25 | 50/0.25 |

Note : For conductor resistance, please refer to Table 13 (Page 72)