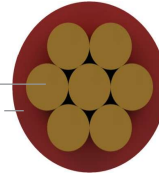


# PVC INSULATED CABLE - CU/PVC



Cu Conductor



## APPLICATION

Main building internal wiring, for power and lighting networks. Also suitable for use as an earth wire.

## STANDARDS

|                      |                    |
|----------------------|--------------------|
| Design Specification | MS 2112-3, BS 6004 |
| Conductor            | IEC 60228          |

## CONSTRUCTION

|                      |  |
|----------------------|--|
| Conductor            | Plain Annealed Copper, Class 2   |
| Insulation           | Polyvinyl Chloride (PVC) compound, PVC/C   |
| Colour of Insulation | Red, Yellow, Blue, Black, Green, Green/Yellow, White.<br>Other colours are upon request. |

## ELECTRICAL CHARACTERISTICS

|                                      |               |                           |                     |
|--------------------------------------|---------------|---------------------------|---------------------|
| Operating Voltage, U <sub>0</sub> /U | 450/750 V     | Test Voltage              | 2.5kV for 5 minutes |
| Operating Temperature                | -15°C to 70°C | Max Conductor Temperature | 70°C                |

# PVC INSULATED CABLE - CU/PVC

## CU/PVC - SINGLE CORE

| Nominal Area (mm <sup>2</sup> ) | Number / Wire Diameter (No./mm) | Thickness of Insulation (mm) | Approx. Overall Diameter (mm) | Approx. Cable Weight (kg/km) |
|---------------------------------|---------------------------------|------------------------------|-------------------------------|------------------------------|
| 1.5                             | 7/0.53                          | 0.70                         | 3.10                          | 25                           |
| 2.5                             | 7/0.67                          | 0.80                         | 3.70                          | 35                           |
| 4                               | 7/0.85                          | 0.80                         | 4.30                          | 55                           |
| 6                               | 7/1.04                          | 0.80                         | 4.80                          | 75                           |
| 10                              | 7/1.35                          | 1.00                         | 6.20                          | 120                          |
| 16                              | 7/1.70                          | 1.00                         | 7.00                          | 180                          |
| 25                              | 7/2.14                          | 1.20                         | 8.50                          | 285                          |
| 35                              | 19/1.53                         | 1.20                         | 9.70                          | 380                          |
| 50                              | 19/1.78                         | 1.40                         | 11.40                         | 510                          |
| 70                              | 19/2.14                         | 1.40                         | 13.00                         | 720                          |
| 95                              | 19/2.52                         | 1.60                         | 15.20                         | 990                          |
| 120                             | 37/2.03                         | 1.60                         | 16.70                         | 1230                         |
| 150                             | 37/2.25                         | 1.80                         | 18.70                         | 1520                         |
| 185                             | 37/2.52                         | 2.00                         | 20.50                         | 1900                         |
| 240                             | 61/2.25                         | 2.20                         | 23.70                         | 2500                         |
| 300                             | 61/2.52                         | 2.40                         | 26.20                         | 3130                         |
| 400                             | 61/2.85                         | 2.60                         | 29.80                         | 3980                         |
| 500                             | 61/3.20                         | 2.80                         | 33.40                         | 4990                         |
| 630                             | 61/3.65                         | 2.80                         | 37.40                         | 6380                         |

# PVC INSULATED CABLE - CU/PVC

## Electrical Characteristic – PVC & PVC/PVC – Single Core Cables

**Table A1.1: Current Carrying Capacity**

| Current Carrying Capacity                         |   |                                     |   |                                     |  |  |   |   |         |  |          |
|---|---|-------------------------------------|---|-------------------------------------|--|--|---|---|---------|--|----------|
| Conductor Cross-Sectional Area (mm <sup>2</sup> ) | Reference Method A<br>(Enclosed In Conduit In Thermally Insulating Wall etc.) |                                     | Reference Method B<br>(Enclosed In Conduit On A Wall or In Trunking etc.) |                                     | Reference Method C<br>(Clipped Direct)                   |  | Reference Method F<br>(In Free Air or On A Perforated Cable Tray, Horizontal or Vertical) |   |         |  |          |
|   | 2 Cables, Single-Phase AC or DC (Amp)   | 3 or 4 Cables, Three-Phase AC (Amp) | 2 Cables, Single-Phase AC or DC (Amp)                                     | 3 or 4 Cables, Three-Phase AC (Amp) | 2 Cables, Single-Phase AC or DC, Flat and Touching (Amp) | 3 or 4 Cables, Three-Phase AC, Flat and Touching (Amp) | Touching  |   |         | Spaced by 1 Cable Diameter   |          |
|   |   |                                     |   |                                     |  |  | 2 Cables, Single-Phase AC or DC, Flat or Touching (Amp)                                   | 3 or 4 Cables, Three-Phase AC, Touching (Amp) |         | 2 Cables, Single-Phase AC or DC, or 3 Cables, Three-Phase AC, Flat (Amp) |          |
|   |   |                                     |   |                                     |  |  |   | Flat  | Trefoil | Horizontal   | Vertical |
| 1   | 11  | 10.5                                | 13.5  | 12                                  | 15.5   | 14   | -   | -   | -       | -  | -        |
| 1.5   | 14.5  | 13.5                                | 17.5  | 15.5                                | 20   | 18   | -   | -   | -       | -  | -        |
| 2.5   | 20  | 18                                  | 24  | 21                                  | 27   | 25   | -   | -   | -       | -  | -        |
| 4   | 26  | 24                                  | 32  | 28                                  | 37   | 33   | -   | -   | -       | -  | -        |
| 6   | 34  | 31                                  | 41  | 36                                  | 47   | 43   | -   | -   | -       | -  | -        |
| 10  | 46  | 42                                  | 57  | 50                                  | 65   | 59   | -   | -   | -       | -  | -        |
| 16  | 61  | 56                                  | 76  | 68                                  | 87   | 79   | -   | -   | -       | -  | -        |
| 25  | 80  | 73                                  | 101   | 89                                  | 114  | 104  | 131   | 114   | 110     | 146  | 130      |
| 35  | 99  | 89                                  | 125   | 110                                 | 141  | 129  | 162   | 143   | 137     | 181  | 162      |
| 50  | 119   | 108                                 | 151   | 134                                 | 182  | 167  | 196   | 174   | 167     | 219  | 197      |
| 70  | 151   | 136                                 | 192   | 171                                 | 234  | 214  | 251   | 225   | 216     | 281  | 254      |
| 95  | 182   | 164                                 | 232   | 207                                 | 284  | 261  | 304   | 275   | 264     | 341  | 311      |
| 120   | 210   | 188                                 | 269   | 239                                 | 330  | 303  | 352   | 321   | 308     | 396  | 362      |
| 150   | 240   | 216                                 | 300   | 262                                 | 381  | 349  | 406   | 372   | 356     | 456  | 419      |
| 185   | 273   | 245                                 | 341   | 296                                 | 436  | 400  | 463   | 427   | 409     | 521  | 480      |
| 240   | 321   | 286                                 | 400   | 346                                 | 515  | 472  | 546   | 507   | 485     | 615  | 569      |
| 300   | 367   | 328                                 | 458   | 394                                 | 594  | 545  | 629   | 587   | 561     | 709  | 659      |
| 400   | -   | -                                   | 546   | 467                                 | 694  | 634  | 754   | 689   | 656     | 852  | 795      |
| 500   | -   | -                                   | 626   | 533                                 | 792  | 723  | 868   | 789   | 749     | 982  | 920      |
| 630   | -   | -                                   | 720   | 611                                 | 904  | 826  | 1005  | 905   | 855     | 1138   | 1070     |
| 800   | -   | -                                   | -   | -                                   | 1030   | 943  | 1086  | 1020  | 971     | 1265   | 1188     |
| 1000  | -   | -                                   | -   | -                                   | 1154   | 1058   | 1216  | 1149  | 1079    | 1420   | 1337     |

Ambient Air Temp: 30°C

Conductor Operating Temp: 70°C

**Note:** The above table is in accordance with 18<sup>th</sup> Edition of IEE Wiring Regulations.

# PVC INSULATED CABLE - CU/PVC

**Table A1.2: Voltage Drop**

| Conductor Size (mm <sup>2</sup> ) | 2 Cables, DC (mV/A/m) | 2 Cables, Single-Phase AC                                       |       |       |  |       |       | 3 or 4 Cables, Three-Phase AC                                   |       |       |  |       |       |                               |       |       |        |       |       |        |       |       |
|-----------------------------------|-----------------------|---|-------|-------|--|-------|-------|---|-------|-------|--|-------|-------|-------------------------------|-------|-------|--------|-------|-------|--------|-------|-------|
|                                   |                       | Reference Methods A & B (Enclosed in Conduit/Trunking) (mV/A/m) |       |       | Reference Methods C & F (Clipped Direct, On Cable Tray or In Free Air) |       |       | Reference Methods A & B (Enclosed in Conduit/Trunking) (mV/A/m) |       |       | Reference Methods C & F (Clipped Direct, On Cable Tray or In Free Air) |       |       |                               |       |       |        |       |       |        |       |       |
|                                   |                       | Cable Touching (mV/A/m)   |       |       | Cable Spaced* (mV/A/m)   |       |       | Cables Touching, Trefoil (mV/A/m)                               |       |       | Cables Touching, Flat (mV/A/m)   |       |       | Cables Spaced*, Flat (mV/A/m) |       |       |        |       |       |        |       |       |
| 1.0                               | 44.000                | 44.000  |       |       | 44.000   |       |       | 44.000  |       |       | 38.000   |       |       | 38.000                        |       |       | 38.000 |       |       | 38.000 |       |       |
| 1.5                               | 29.000                | 29.000  |       |       | 29.000   |       |       | 29.000  |       |       | 25.000   |       |       | 25.000                        |       |       | 25.000 |       |       | 25.000 |       |       |
| 2.5                               | 18.000                | 18.000  |       |       | 18.000   |       |       | 18.000  |       |       | 15.000   |       |       | 15.000                        |       |       | 15.000 |       |       | 15.000 |       |       |
| 4                                 | 11.000                | 11.000  |       |       | 11.000   |       |       | 11.000  |       |       | 9.500  |       |       | 9.500                         |       |       | 9.500  |       |       | 9.500  |       |       |
| 6                                 | 7.300                 | 7.300   |       |       | 7.300  |       |       | 7.300   |       |       | 6.400  |       |       | 6.400                         |       |       | 6.400  |       |       | 6.400  |       |       |
| 10                                | 4.400                 | 4.400   |       |       | 4.400  |       |       | 4.400   |       |       | 3.800  |       |       | 3.800                         |       |       | 3.800  |       |       | 3.800  |       |       |
| 16                                | 2.800                 | 2.800   |       |       | 2.800  |       |       | 2.800   |       |       | 2.400  |       |       | 2.400                         |       |       | 2.400  |       |       | 2.400  |       |       |
|                                   |                       | r   | x     | z     | r  | x     | z     | r   | x     | z     | r  | x     | z     | r                             | x     | z     | r      | x     | z     | r      | x     | z     |
| 25                                | 1.750                 | 1.800   | 0.330 | 1.800 | 1.750  | 0.200 | 1.750 | 1.750   | 0.290 | 1.800 | 1.500  | 0.290 | 1.550 | 1.500                         | 0.175 | 1.500 | 1.500  | 0.250 | 1.550 | 1.500  | 0.320 | 1.550 |
| 35                                | 1.250                 | 1.300   | 0.310 | 1.300 | 1.250  | 0.195 | 1.250 | 1.250   | 0.280 | 1.300 | 1.100  | 0.270 | 1.100 | 1.100                         | 0.170 | 1.100 | 1.100  | 0.240 | 1.100 | 1.100  | 0.320 | 1.150 |
| 50                                | 0.930                 | 0.950   | 0.300 | 1.000 | 0.930  | 0.190 | 0.950 | 0.930   | 0.280 | 0.970 | 0.810  | 0.260 | 0.850 | 0.800                         | 0.165 | 0.820 | 0.800  | 0.240 | 0.840 | 0.800  | 0.320 | 0.860 |
| 70                                | 0.630                 | 0.650   | 0.290 | 0.720 | 0.630  | 0.185 | 0.660 | 0.630   | 0.270 | 0.690 | 0.560  | 0.250 | 0.610 | 0.550                         | 0.160 | 0.570 | 0.550  | 0.240 | 0.600 | 0.550  | 0.310 | 0.630 |
| 95                                | 0.460                 | 0.490   | 0.280 | 0.560 | 0.470  | 0.180 | 0.500 | 0.470   | 0.270 | 0.540 | 0.420  | 0.240 | 0.480 | 0.410                         | 0.155 | 0.430 | 0.410  | 0.230 | 0.470 | 0.400  | 0.310 | 0.510 |
| 120                               | 0.360                 | 0.390   | 0.270 | 0.470 | 0.370  | 0.175 | 0.410 | 0.370   | 0.260 | 0.450 | 0.330  | 0.230 | 0.410 | 0.320                         | 0.150 | 0.360 | 0.320  | 0.230 | 0.400 | 0.320  | 0.300 | 0.440 |
| 150                               | 0.290                 | 0.310   | 0.270 | 0.410 | 0.300  | 0.175 | 0.340 | 0.290   | 0.260 | 0.390 | 0.270  | 0.230 | 0.360 | 0.260                         | 0.150 | 0.300 | 0.260  | 0.230 | 0.340 | 0.260  | 0.300 | 0.400 |
| 185                               | 0.230                 | 0.250   | 0.270 | 0.370 | 0.240  | 0.170 | 0.290 | 0.240   | 0.260 | 0.350 | 0.220  | 0.230 | 0.320 | 0.210                         | 0.145 | 0.260 | 0.210  | 0.220 | 0.310 | 0.210  | 0.300 | 0.360 |
| 240                               | 0.180                 | 0.195   | 0.260 | 0.330 | 0.185  | 0.165 | 0.250 | 0.185   | 0.250 | 0.310 | 0.170  | 0.230 | 0.290 | 0.160                         | 0.145 | 0.220 | 0.160  | 0.220 | 0.270 | 0.160  | 0.290 | 0.340 |
| 300                               | 0.145                 | 0.160   | 0.260 | 0.310 | 0.150  | 0.165 | 0.220 | 0.150   | 0.250 | 0.290 | 0.140  | 0.230 | 0.270 | 0.130                         | 0.140 | 0.190 | 0.130  | 0.220 | 0.250 | 0.130  | 0.290 | 0.320 |
| 400                               | 0.105                 | 0.130   | 0.260 | 0.290 | 0.120  | 0.160 | 0.200 | 0.115   | 0.250 | 0.270 | 0.120  | 0.220 | 0.250 | 0.105                         | 0.140 | 0.175 | 0.105  | 0.210 | 0.240 | 0.100  | 0.290 | 0.310 |
| 500                               | 0.086                 | 0.110   | 0.260 | 0.280 | 0.098  | 0.155 | 0.185 | 0.093   | 0.240 | 0.260 | 0.100  | 0.220 | 0.250 | 0.086                         | 0.135 | 0.160 | 0.086  | 0.210 | 0.230 | 0.081  | 0.290 | 0.300 |
| 630                               | 0.068                 | 0.094   | 0.250 | 0.270 | 0.081  | 0.155 | 0.175 | 0.076   | 0.240 | 0.250 | 0.080  | 0.220 | 0.240 | 0.072                         | 0.135 | 0.150 | 0.072  | 0.210 | 0.220 | 0.066  | 0.280 | 0.290 |
| 800                               | 0.053                 | -   | -     | -     | 0.068  | 0.150 | 0.165 | 0.061   | 0.240 | 0.250 | -  | -     | -     | 0.060                         | 0.130 | 0.145 | 0.060  | 0.210 | 0.220 | 0.053  | 0.280 | 0.290 |
| 1000                              | 0.042                 | -   | -     | -     | 0.059  | 0.150 | 0.160 | 0.050   | 0.240 | 0.240 | -  | -     | -     | 0.052                         | 0.130 | 0.140 | 0.052  | 0.200 | 0.210 | 0.044  | 0.280 | 0.280 |

Ambient Air Temp: 30°C  
 Conductor Operating Temp: 70°C

**Note:**

- \*Spacings larger than one cable diameter will result in a larger voltage drop.
- Correction factors for ambient temperature and group installation, please refer Derating Factor section.
- r = Resistive Component, x = Reactive Component, z = Impedance Value  
 The above table is in accordance with the 18<sup>th</sup> Edition of IEE Wiring Regulations.
- For cables having conductors of 16mm<sup>2</sup> or less cross sectional area their inductances can be ignored and (mV/A/m) values only are tabulated. For cables having conductors greater than 16mm<sup>2</sup>, cross sectional area the impedance values are given as (mV/A/m)<sub>z</sub> together with the resistive component (mV/A/m)<sub>r</sub> and the reactive component (mV/A/m)<sub>x</sub>.

The above paragraph is extracted from Appendix 4 of the 18<sup>th</sup> Edition of IEE Wiring Regulations.

The information contained within this datasheet is for guidance only and is subject to change without notice or liability. All the information is provided in good faith and is believed to be correct at the time of publication. When selecting cable accessories, please note that actual cable dimensions may vary due to manufacturing tolerances.