

TABLE BEC 113 Current Ratings for Power & Control cables 600/1000V BS6883, IEC60331 and IEC60332

| Nominal area of conductor mm ² | Single Core | Volt drop mV/A/M | | | Two Core | Volt drop mV/A/M | | Three and Four Core | |
|--|---|------------------|-----------------|----------------|--------------------------------------|------------------|-----------------|-------------------------------|---------------------------------------|
| | Current rating dc or single phase ac or three phase ac amp | dc | Single phase ac | Three phase ac | Current rating dc or single phase ac | dc | Single phase ac | Current rating three phase ac | Volt drop per amp per metre mV |
| | | mV | mV | mV | | mV | mV | | |
| 1.0 | 17 | 53 | 53 | 46 | 14 | 54 | 54 | 12 | 47 |
| 1.5 | 21 | 34 | 34 | 29 | 18 | 35 | 35 | 15 | 30 |
| 2.5 | 30 | 18 | 18 | 16 | 25 | 18 | 18 | 21 | 16 |
| 4 | 40 | 12 | 12 | 10 | 34 | 12 | 12 | 29 | 10 |
| 6 | 51 | 7.6 | 7.6 | 6.6 | 43 | 7.8 | 7.8 | 36 | 6.7 |
| 10 | 71 | 4.5 | 4.5 | 3.9 | 60 | 4.6 | 4.6 | 50 | 4.0 |
| 16 | 95 | 2.7 | 2.7 | 2.3 | 81 | 2.7 | 2.7 | 67 | 2.3 |
| 25 | 125 | 1.7 | 1.7 | 1.5 | 105 | 1.7 | 1.7 | 89 | 1.5 |
| 35 | 155 | 1.2 | 1.2 | 1.1 | 135 | 1.2 | 1.2 | 105 | 1.1 |
| 50 | 190 | 0.96 | 0.98 | 0.87 | 165 | 0.98 | 1.0 | 135 | 0.89 |
| 70 | 240 | 0.67 | 0.69 | 0.63 | 200 | 0.68 | 0.70 | 170 | 0.64 |
| 95 | 290 | 0.48 | 0.52 | 0.49 | 250 | 0.49 | 0.53 | 205 | 0.50 |
| 120 | 340 | 0.38 | 0.42 | 0.43 | 290 | 0.39 | 0.43 | 240 | 0.44 |
| 150 | 385 | 0.31 | 0.36 | 0.38 | 330 | 0.31 | 0.39 | 270 | 0.38 |
| 185 | 440 | 0.25 | 0.42 | 0.34 | 370 | 0.25 | 0.32 | 305 | 0.34 |
| 240 | 520 | 0.19 | 0.27 | 0.31 | 445 | 0.19 | 0.27 | 365 | 0.31 |
| 300 | 590 | 0.15 | 0.24 | 0.29 | 505 | 0.15 | 0.24 | 415 | 0.29 |

The maximum sustained current ratings show above for cables run open or enclosed are based on an ambient air temperature of 45°C and a maximum conductor operating temperature of 90°C. They apply where up to 6 cables are bunched together and are subject to a correction factor of 0.85 where more than six cables are so bunched. The ratings do not provide for every condition under which the cables may possibly be used. For correction factors based on ambient temperatures other than 45°C, refer to following table.

Temperature rating factors:

| | | | | | | | | | | | | | |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ambient temperature °C | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 |
| Rating factor | 1.25 | 1.20 | 1.15 | 1.11 | 1.05 | 1.00 | 0.94 | 0.88 | 0.82 | 0.75 | 0.67 | 0.58 | 0.47 |

Voltage Drop

The above ac voltage drop values are quoted on a 'per metre run' (ie: they 'go' and 'return' in both single and multi-core cables) basis at a frequency of 60Hz. If, for those conductor sizes where reactance become significant it is required to calculate the voltage drop values at 50Hz, the following formulae apply:

$$\text{Single Phase } V_{50}^2 = 0.694V_{60}^2 + 0.306V_0^2$$

$$\text{Three Phase } V_{50}^2 = 0.694V_{60}^2 + 0.299V_0^2$$

In which V1 = dc volt drop per ampere per metre.
V₅₀ = 50Hz volt drop per ampere per metre.
V₆₀ = 60Hz volt drop per ampere per metre.

battindustrial.sales@batt.co.uk