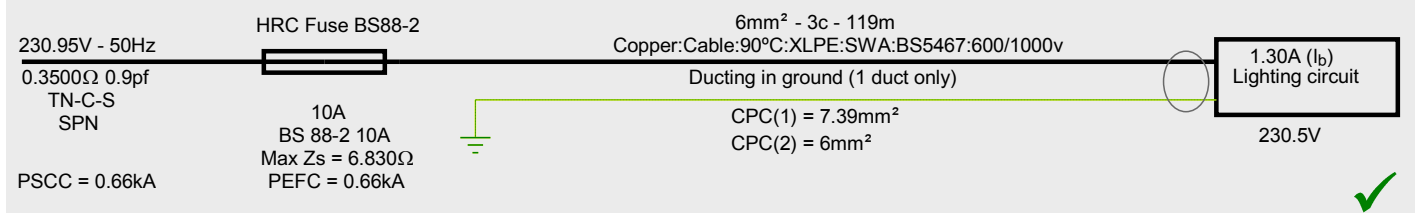


Col 2 - 13

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Cable Data

6mm² - 3c - 119m

Copper: Cable: 90°C: XLPE: SWA: BS5467: 600/1000v: Table 4E4

Cable Rating I_t (tabulated)	Table 4E4A Col-6	53A		
Cable Rating I_z (effective)		53A	$I_z \geq I_b$	PASS
mV/A/mtr (tabulated)	Table 4E4B Col-3	7.9mV/A/m (r)		
mV/A/mtr (temperature corrected)	operating 20.04°C	6.173mV/A/m (r)		
Voltage drop permitted (per phase)	5.00% (11.55V)			
Voltage drop Calculated (per phase)	0.17% (0.40V)	Circuit voltage drop = 0.40V		PASS

Correction Factors

C (total) = 1.000

Ambient temperature (C_a)	20°C	$C_a = 1.000$	Table 4B2	
Grouping (C_g)	1 ccts	$C_g = 1.000$	Table 4C3	
Soil thermal resistivity	2.5K.m/W	$C_s = 1$	Table 4B3	
Buried Cable Depth	0.7m	$C_d = 1$	Table 4B4	

Circuit Protective conductors (cpc)

Total cpc value = 0.2499Ω

Minimum copper cpc required ($S = \sqrt{I^2 t/k}$)	0.53mm ²	$k = 143$	0.069 sec	$I = 238.97 A$
Cable sheath (copper equivalent)	7.39mm ²	7.39mm ²		
Internal core	6mm ²	6mm ²	$CPC \geq \sqrt{I^2 t/k}$	PASS

Protective Device Details

BS 88-2 10A

BS 88-2

Selected for	Overload and short-circuit protection			
Rating (I_n) $\geq$ load (I_b)	10	$10 \geq 1.3$	$I_n \geq I_b$	PASS
Rating (I_n) $\leq$ cable rating (I_z)	10	$10 \leq 53$	$I_n \leq I_z$	PASS
Breaking capacity (I_{cn})	16.5kA	$16.5 \geq 0.66$	$I_{cn} \geq I_{sc}$	PASS
Operating current (I_2)	16.0A			
Calculated disconnection time	0.069 sec			PASS
Maximum permitted disconnection time	5 sec	Table 41.1		
Impedance of device (Z)	6.830Ω	$6.830 \geq 0.9664$	$Z \geq Z_s$	PASS

Earth Fault Data

Earth fault loop impedance (Z_e)	0.3500Ω			
Circuit R1 value	0.3665Ω			
Circuit R2 value	0.2499Ω			
Circuit R1+R2 value	0.6164Ω			
Earth loop impedance ($Z_s = Z_e + R1 + R2$)	0.9664Ω	$6.83 \geq 0.9664$	$Z \geq Z_s$	PASS
Earth fault current ($I_a = U_0/Z_s$)	238.97A	$U_0 = 230.95V$	$Z_s = 0.9664\Omega$	

Short Circuit Data

Prospective short circuit current	0.66 kA			
Short circuit withstand time ($t = k^2 S^2 / I^2$)	12.891 sec	$k = 143$	$S = 6mm^2$	$I = 238.97 A$

Supply - Col 2 - 13

6mm ² - 3c - 119m								
Section	Load	Load(t)	Distance	Voltdrop	R1+R2	Zs	Isc	Description
1	.4	1.3	30	0.217	0.2210	0.57098	0.404	2 - 9
2	.4	0.9	18	0.090	0.2194	0.56940	0.406	10
3	.4	0.5	25	0.069	0.3380	0.68798	0.336	11
4	.1	0.1	46	0.026	0.5413	0.89132	0.259	13

Total	1.30A	119.00m	0.40V	0.616Ω	0.966Ω
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