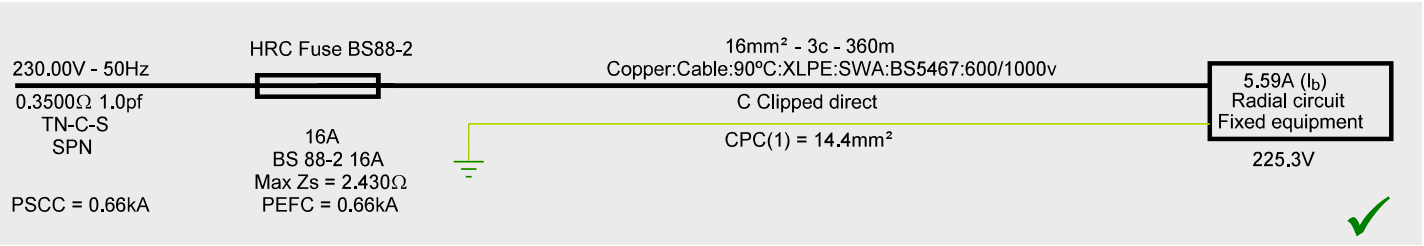
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FP02 - 09



Cable Data				16mm² - 3c - 360m
Copper:Cable:90ºC:XLPE:SWA:BS5467:600/1000v:Table 4E4				
Cable Rating I_t (tabulated)	Table 4E4A Col-2	110A		
Cable Rating I_Z (effective)		110A	$I_Z \geq I_b$	PASS
mV/A/mtr (tabulated)	Table 4E4B Col-3	2.9mV/A/m (r)		
mV/A/mtr (temperature corrected)	operating 30.15ºC	2.358mV/A/m (r)		
Voltage drop permitted (per phase)	3.00% (6.90V)			
Voltage drop Calculated (per phase)	2.06%	Circuit voltage drop = 4.74V		PASS

Correction Factors				C (total) = 1.000
Ambient temperature (C_a)	30ºC	C_a = 1.000	Table 4B1	
Grouping (C_g)	1 ccts	C_g = 1.000	Table 4C1	

Circuit Protective conductors (cpc)				Total cpc value = 1.3486Ω
Minimum copper cpc required ($S = \sqrt{I^2t/k}$)	0.29mm²	k = 143	0.146 sec	I = 108.01 A
Cable sheath (copper equivalent)	14.4mm²	14.4mm²	CPC ≥ $\sqrt{I^2t/k}$)	PASS

Protective Device Details				
BS 88-2 16A				BS 88-2
Selected for	Overload and short-circuit protection			
Rating (I_n) ≥ load (I_b)	16	16 ≥ 5.59	$I_n \geq I_b$	PASS
Rating (I_n) ≤ cable rating (I_Z)	16	16 ≤ 110	$I_n \leq I_Z$	PASS
Breaking capacity (I_{cn})	16.5kA	16.5 ≥ 0.66	$I_{cn} \geq I_{sc}$	PASS
Operating current (I_2)	25.6A			
Calculated disconnection time	0.146 sec			PASS
Maximum permitted disconnection time	0.4 sec	Table 41.1		
Impedance of device (Z)	2.430Ω	2.430 ≥ 2.1295	Z ≥ Zs	PASS

Earth Fault Data				
Earth fault loop impedance (Ze)	0.3500Ω			
Circuit R1 value	0.4308Ω			
Circuit R2 value	1.3486Ω			
Circuit R1+R2 value	1.7795Ω			
Earth loop impedance (Zs=Ze+R1+R2)	2.1295Ω	2.43 ≥ 2.1295	Z ≥ Zs	PASS
Earth fault current ($I_a=U_o/Zs$)	108.01A	U_o = 230.00V	Zs = 2.1295Ω	

Short Circuit Data				
Prospective short circuit current	0.66 kA			
Short circuit withstand time ($t = k^2S^2/I^2$)	448.741 sec	k = 143	S = 16mm²	I = 108.01 A