

Cable Calculation Report

Project Reference: [REDACTED]

Job Number: [REDACTED]

Reg Auth: BS7671

Document No: [REDACTED]

Created On: [REDACTED]

Rev Date:

Created By: GC

Revised By:

Revision:

Calculated in accordance with BS 7671:2018

Active Source: Source-1

Circuit

Id No.: DB Ext
Connected From: PB01
Load Type: Distribution Board

Name:
To: DB EXT

Design Current Ib (A): 35.5

Comments:

Protective Device

[a] = Auto, [f] = Fixed, [m] = Max.

Overcurrent Protection: Schneider, Compact NSX MCCB, NSX100F, TM-D
Rating In (A): 63 [f]

Overload Setting Ir (A): 63 [m]
AFDD: N/A

Conductors

[a] = Auto, [f] = Fixed, [d] = Double

Multicore 90°C thermosetting armoured *RUN TO 70°C Cu Table 4D4 **1 x 1 x 4c** **Size (mm²): 25.0 [f]**
Euro Class: Undefined **Length (m): 8** **Max Length for Volt Drop(m): 0.00**
Neutral: 25.0 mm² [a]
31 - On horizontal/vertical perforated tray **Arrangement: Horizontal Touching**

Rating Factors

[u] = User Defined

Air Temperature (°C) = 30.0 Ca = 1.00 [BS 7671:2018, Table 4B1]
Circuits In Group = 3 Cg = 0.87 [BS 7671:2018, Table 4C4] Not Subject to Simultaneous Overload
No. of trays = 2 No. of circuits per tray = 2
3rd Harmonics (%) = 0.00 Ch = 1.00

Cable sizing (A)

Sized For: Phase Current Carrying Capacity

Auto-sized for current-carrying capacity and voltage drop limits.

Design Current Ib = 35.5
Device Rating In = 63 Overload Setting Ir 63 [Ir > Ib]
Min. Cable Capacity Iz = 64.5 [BS 7671, Appendix 4, Equation (3/4)]
Actual Cable Rating It = 110.0 [It > Iz]

Load Current and Voltage Drop	L1	L2	L3	Neutral
Design Current Ib (A/PF)	35.5 / 0.95	0.3 / 0.95	34.9 / 0.95	34.9
3rd Harmonic Current (A)	0.0	0.0	0.0	0.0
Voltage Drop - This circuit (V/%)	0.37 / 0.16	-0.21 / -0.09	0.28 / 0.12	
Voltage Drop - From Source (V/%)	0.68 / 0.29	0.01 / 0.00	0.65 / 0.28	

Earth Fault

Circuit Protective Conductor (mm²)

Armour 70 [a]

[a] = Auto, [f] = Fixed

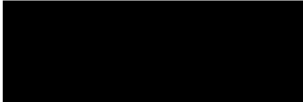
Earth Fault Loop Impedance (Ω)	Ze 0.02157	Z1 0.00696	Z2 0.02400	Zs 0.04967	Max. Zs 0.44899	Earth Fault Current (kA) 4.42
Disconnection time (s)	From characteristic < 0.1			Maximum for circuit: 5.00		
Circuit Protective Conductor (mm²)				Armour 70 [a]		
CPC Adiabatic check (mm²)	CPC Section = Armour 28			Total = 28 Min. Section = 3.76		

Note: Earth Fault Current and Max Zs have been factored by Cmin

Phase Fault

Phase Fault Current Max./Min. (kA)	Source End: 14.473 / 13.603	Load End: 11.306 / 8.110
Protective Device Breaking Capacity (kA)	Icu: 36	Ics: 36
Adiabatic Check:	CPD Energy Let-through (A²s): 305.93 x 10³	Adiabatic Limit k²S² (A²s): 8.27 x 10⁶

Circuit Chart



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Board Data

Id No: DB EXT **Name:** [Redacted]
Rating (A): 0 **Fault Rating:** 0 **Model No:** [Redacted]
No. of Ways: 6 **Spare %:** 50 **Ze (ohms):** 0.04967

Incomer details

Id No: PB01 **Name:** DB Ext
Nominal Rating(A): 63

Way	Phase	Cable Id No: Cable Name:	Protective Device (A):		RCD:	AFDD:	Conductors (mm ²):	
			In	Ir			Phase	Sep. CPC
1	L1	1L1 External Building Ltg	10	N/A	30mA	N/A	1.5	
1	L2	1L2 External Column Ltg	10	N/A	30mA	N/A	2.5	
1	L3	1L3 External Columns Car Park Ltg	10	N/A	30mA	N/A	2.5	
2	L1	2L1 External Building Ltg	10	N/A	30mA	N/A	1.5	
2	L2	2L2 External Ltg	10	N/A	30mA	N/A	1.5	
2	L3	Spare						
3	L1,L2,L3	Spare						
4	L1	4L1 EV Charge Post1	40	N/A	30mA	N/A	6	
4	L2	Spare						
4	L3	4L3 EV Charge Post2	40	N/A	30mA	N/A	6	
5	L1,L2,L3	Spare						
6	L1,L2,L3	Spare						

