

The New Generation
of Software for Designing
and Dimensioning
Low-Voltage
Electrical Networks

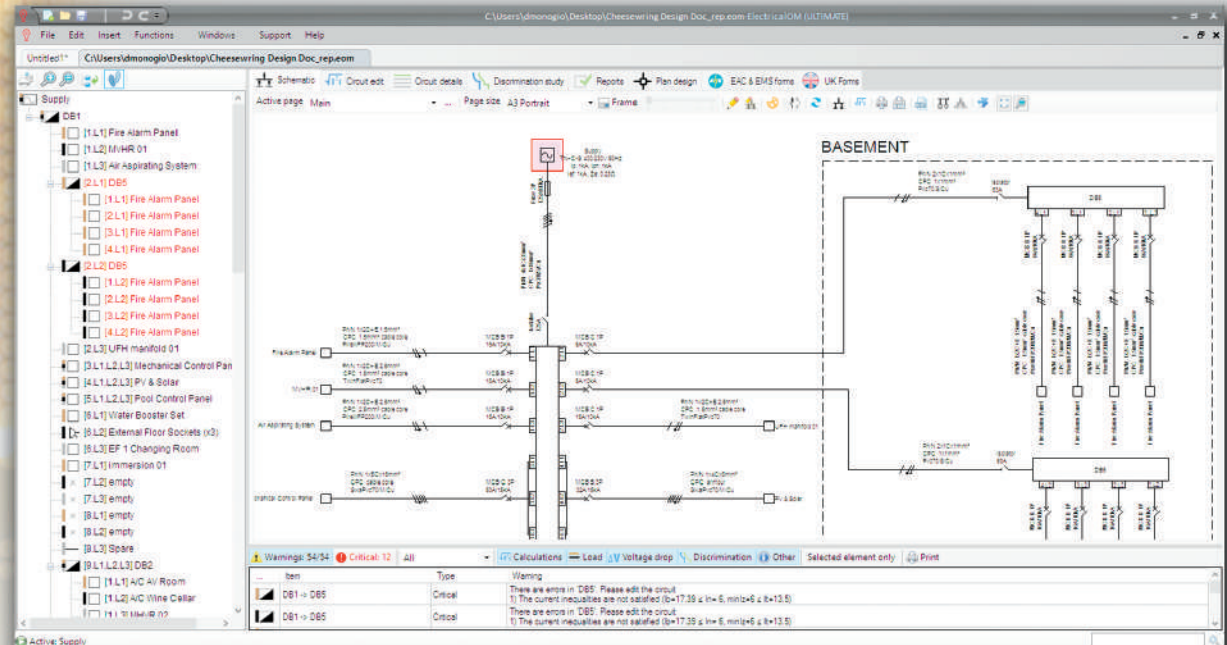
18th Edition Ready



The Ideal Electrical Design Software

ElectricalOM is a Powerful, Fast, Accurate Software Solution for all types Domestic, Commercial and Industrial Low Voltage Electrical Designs

- > Interactive CAD-Based Environment
- > Precise Calculations
- > Detailed Warning Messages
- > Automated Schematic Diagrams
- > Modular Solution



Powerful Cable Sizing Software

18th Edition Ready. Fully compliant with BS 7671:2018

The Software intelligently re-calculates the circuits with any change and produces quick and useful indications so the user understand what's being affected during the change

- > Detailed warnings in each affected circuit
- > Warnings are grouped based on the severity
- > Warnings can be easily reviewed, filtered and printed

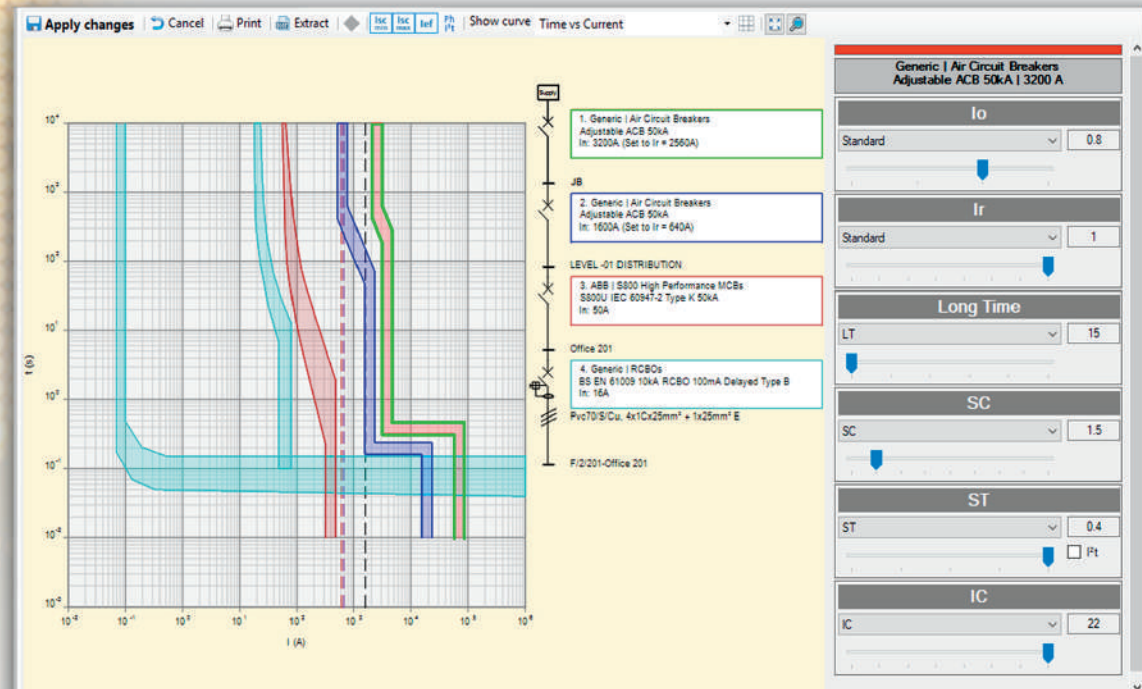
The screenshot displays the software interface for cable sizing. The main window is titled "Three-phase 400V and N 230V 50Hz". The interface is divided into several sections:

- Supply from:** Office 201, Plan prefix: F/2/201, Description: Office 201.
- Load:** Sub-circuits selected. kVA/phase: 11.9, 4.86, 8.98. Diversity: 1.00, 1.00, 1.00. cosp: 1, 1, 1. 3rd Harmonics(%): 1.03, 0, 0.
- Warnings:** Voltage Drop within circuit L1: 10.52 V (4.57%), Voltage Drop within circuit L2: 0 V (0%), Voltage Drop within circuit L3: 6.96 V (3.03%).
- Phase fault:** max Isc (kA): 1.5724, min Isc (kA): 0.6688, max Isc at starting point (kA): 27.9204, min Isc (kA): 0.6688, Ze (Ω): 0.01.
- Earth Fault:** Ief (kA): 0.6084, Idn(A): 0.1, Ze (Ω): 0.02.
- Disconnection Time (sec):** RCBO: 0.01 ≤ 5, Maximum: 5, Zi(Ω): 0.3591, max Zi(Ω): 2185.
- Installation:** Category: In trunking, Method: Method B, Description of the ins: Cables in an open or running horizontally, Reference method: B.
- Conductor Selection:** A list of cable sizes (C.S.A in mm² / Rating) is shown, with 25 mm² (89A) selected. Other options include 1.5 (12A), 1.5 (15.5A), 2.5 (21A), 4 (28A), 6 (36A), 10 (50A), 16 (68A), 25 (89A), 35 (110A), 50 (134A), 70 (171A), 95 (207A), 120 (239A), 150 (262A), 185 (296A), 240 (346A), 300 (394A), 400 (467A), 500 (533A), 630 (611A).
- Status Bar:** Warnings: 224/224, Critical: 74, All. Calculations: Load, Voltage drop, Discrimination, Other. Selected element only.

Selectivity (Discrimination) Analysis

ElectricalOM performs checks for all the protective devices in the electrical installation and warns the Designer of any selectivity problems discovered

- > Manufactured Specific Data
- > Over-Current and Earth Fault Selectivity Checks
- > Time-Current Curve Checks
- > Energy-Based Selectivity Checks



Detailed and Comprehensive Reports

An intuitive and user-friendly reporting environment allows the user to choose which reports to print. Reports can be directly printed or exported to Pdf, Word or Excel format

- > Source Characteristics
- > Circuits Schedule
- > Cable Calculation Reports
- > Voltage Drop Analysis
- > Street Lighting
- > Power Factor Correction
- > Bill of Quantities and much more...

The screenshot displays the MORECSOFT software interface with a detailed report for 'Pressure Pump 2'. The report is organized into several sections:

- Analytical calculations:**

Description	Pressure Pump 2	Voltage / Phase	Single phase-HI (230V) / L3
Supply from	DB-K-Common (Way 2)	Circuit type	Pressure pump Type Direct On Line Efficiency = 1
- Circuit design data:**

Conductor type	30.16m, Single-core 70°C thermoplastic insulated non-armoured, 2x1C+1.5mm ² + 1x1.5mm ² E		
Element	Copper (Cu)	Armour	No
Temp (°C)	Full loaded 70 / Actual 32	Reference	BS4041
Installation method	In conduit in a wall - Reference method B	Conduction factors	Ct: 1 Cg: 1 Ca: 1 Cb: 1 Cc: 1
Settings	In Plastic Conduit Ø16 Light 1 Bends, Ambient temperature (°C): 30		
Protective conductor	Separate conductor		
C.P.C.	Separate conductor (mm ²)	Other cpc (mm ²)	0
Total equivalent to Cu (mm ²)	1.5		1.5
Protective devices	Generic: BS EN 61009-2-ARCB0 30mA Type C RCBO, 6ATouch voltage = 0.03V (Maximum = 50V)		
- Circuit calculations:**

Design current (Ib)		3.91	6 (D/L, 3.91)	3.91	17.5	0.4373	0.4373	0.0864	0.0745
Phase conductor Z1									
CPC Z2									
Earth external									
Phase external									
- Load factors:**

Design load	L1	L2	L3	N/Totals	Voltage drop	L1	L2	L3
Current (A)	-	-	3.91	3.91	Source (%)	-	-	0.03
Load (kVA)	-	-	0.9	0.9	Circuit (%)	-	-	1.3
Reactive (kVAr)	-	-	0.9	0.9	Total (%)	-	-	1.33
Spares (%)	-	-	0	0	Limit	-	-	Public apply other use 4.5%
- Earth fault Calculations:**

Earth fault current (kA)	Zs (Ω)	Max Zs (Ω)	Min Disconnection time (s)	Device Disconnection time (s)	Min CPC (mm ²)
0.2294	0.9524	7283.3333	0.4	0.01	0.36
- Phase fault Calculations:**

Max at starting point (kA)	Max at end point (kA)	Min at end point (kA)	Disconnection time of RCBO (s)	Conductors withstand duration (s)
4.4835	0.2958	0.243	0.01	0.5

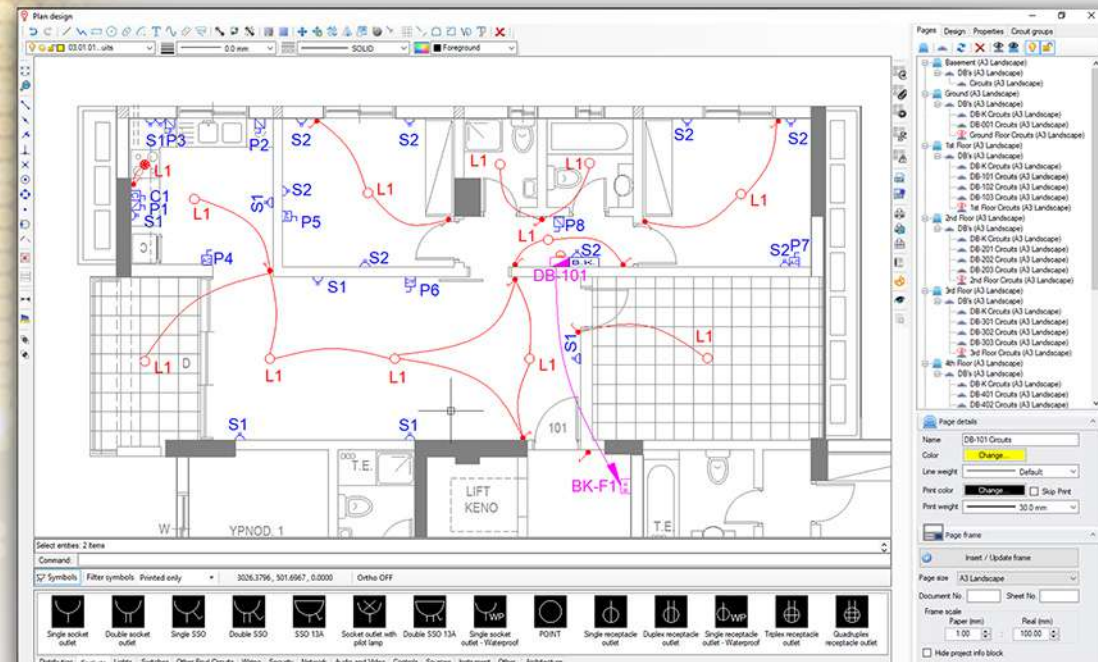
The interface also shows a sidebar with report options like 'Cover page', 'Content', 'Plan supply', 'Circuits schedule', 'Brief calculations', 'Voltage drop analysis', 'Analytical calculations', 'Earth fault loop impedances', 'Power factor correction', 'Bill of quantities', 'Plan list of materials', 'Schematic diagrams', 'Boards single line diagrams', and 'Plan drawings'. The status bar at the bottom indicates 'Warnings: 254/254', 'Critical: 71', and 'All'.

Integrated CAD Plan Design Add-on

Automate the Electrical Design Process by creating Electrical Plan Drawings and collect from them information for the circuit calculations such as cable lengths and installation points per circuit

User extendable symbol library with 3D elevation properties that enable the designer accurately model the placement of each symbol and wiring in the building

Fully compatible with AutoCAD® dwg files



Integrated Certification Add-on

We have incorporated Schematics and Certification in to a single solution that enables you to fill in design details from the schematic model

- > Compliant with the 18th Edition
- > No need for a separate certification software
- > Produce Certificates such as EIC, EICR, MW and many more
- > Fill in Observations and Limitations quickly and easily
- > Enables you to store Clients, Engineers and Test Instruments
- > Fill in information Automatically or Manually
-are just of the new features available

TO BE COMPLETED IN EVERY CASE		TO BE COMPLETED ONLY IF THE DISTRIBUTION BOARD (DB) IS NOT CONNECTED DIRECTLY TO THE ORIGIN OF THE INSTALLATION																													
DB Location	Supply to DB is from:	Associated RCD (if any)	Zs at DB		Operating times At 1 x I _{dn} of associated RCD (if any)						ms																				
DB Designation	No of phases	Nominal Voltage	V	RCD No of Poles	I _{pn} at DB	ms					ms																				
LL SUPPLY	Overcurrent protective device for the distribution circuit:	Rating:	A	RCD Rating	mA	Correct supply polarity confirmed					Phase sequence confirmed (where appropriate)																				
Details of test instruments used (state serial and/or asset numbers)																															
Multi-functional	RCD	Earth fault loop impedance		Details of circuits and/or installed equipment vulnerable to damage when testing																											
Insulation resistance	Continuity	Earth electrode resistance																													
Circuit Details				Conductor details				Overcurrent protective devices				RCD				Test results															
Circuit Number	Designation	Type of wiring	Reference method (a)	Number of points served	Live (mm ²)	CPC (mm ²)	Max disconnection time permitted by BS7671 (s)	BS(EN)	Type No.	Rating (A)	Capacity (kA)	Operating current (In) (mA)	Maximum Zs permitted by BS7671 (Ω)	R1	R2	R1 + R2	Live/Line (Ω)	Insulation resistance (MΩ)	Test voltage (DC V)	Inserter or #	Polarity	Zs (Ω)	Maximum measured Disconnection time (ms)	RCD	AFCD						
1.L1	GRD-CORRIDOR LIGHTING	A	E	30	1.5	1	0.4	61009	B	10	10	30	7280.33	NA	NA	NA	2	>500	>500	500	✓	2.1	15	✓	N/A						
2.L1	GRD-CLEANER SOCKET	A	A	5	2.5	1.5	0.4	61009	B	10	10	30	7280.33	NA	NA	NA	2	>500	>500	500	✓	2.2	11	✓	✓						
3.L1	1ST-CORRIDOR LIGHTING	O	C	30	1.5	1	0.4	61009	B	10	10	30	7280.33	NA	NA	NA	2	>500	>500	500	✓	2.3	23	✓	N/A						
4.L1	1ST-CLEANER SOCKET	A	C	5	2.5	1.5	0.4	61009	B	10	10	30	7280.33	NA	NA	NA	2	>500	>500	500	✓	2.3	12	✓	N/A						
5.L1	GRD-2BED APT-HEAT RECOVERY UNIT1	A	E	1	1.5	1	0.4	61009	B	10	10	100	2185	NA	NA	NA	2	>500	>500	500	✓	2.1	12	✓	N/A						
6.L1	GRD-2BED APT-HEAT RECOVERY UNIT1	O	C	1	1.5	1	0.4	61009	B	10	10	100	2185	NA	NA	NA	2	>500	>500	500	✓	2	15	✓	N/A						
7.L1	GRD-2BED APT-HEAT RECOVERY UNIT1	O	C	1	1.5	1	0.4	61009	B	10	10	100	2185	NA	NA	NA	2	>500	>500	500	✓	1	17	✓	N/A						
8.L1	GRD-2BED APT-HEAT RECOVERY UNIT1	O	C	1	1.5	1	0.4	61009	B	10	10	100	2185	NA	NA	NA	2	>500	>500	500	✓	1	15	✓	N/A						
9.L1	GRD-2BED APT-HEAT RECOVERY UNIT1	O	C	1	1.5	1	0.4	61009	B	10	10	100	2185	NA	NA	NA	2	>500	>500	500	✗	2	19	✓	N/A						
10.L1	GRD-2BED APT-HEAT RECOVERY UNIT1	O	C	1	1.5	1	0.4	61009	B	10	10	100	2185	NA	NA	NA	2	>500	>500	500	✓	3	13	✓	N/A						
• See Table 4A2 of Appendix 4 of BS7671												TESTED BY																			
CODES FOR TYPE OF WIRING												Name (Capital)										Position									
A Thermoplastic sheathed cables												Signature										Date									
B Thermoplastic cables in metallic conduit																						06/09/2018 07:45:01									
C Thermoplastic cables in non-metallic conduit																															
D Thermoplastic cables in metal trunking																															
E Thermoplastic cables in non-metallic trunking																															
F Thermoplastic (PVC) cables																															
G Thermoplastic (PVC) cables																															
H Metal-insulated cables																															
O - Other																															

The form is based on the model shown in BS 7671:2018 - Modsoft ElectricalOM Software

Ref: EICR-201805-1

8184

Extensive Database and Support

Large Database of Manufacturer Specific Data:

- > Protective Devices
- > Cables
- > Busbar Trunking Systems
- > Constantly Maintained

Unrivalled Customer Care through:

- > Automatic Updates through the Internet
- > Live Remote Support (TeamViewer®)
- > Live Chat and Support Ticketing System
- > Free UK Support Line
- > Training

The screenshot displays the 'Selection of protective device' dialog box in the MORECSOFT software. The dialog is divided into several sections:

- Checkboxes:** MCBs, MCCBs, RCBOs, ACBs, Fuses, Relay, RCDs, RCCBs, and Icu (kA) >= 0.
- Manufacturer:** A dropdown menu with 'ABB' selected. A 'Rating' list on the right shows options from 6 A to 40 A, with 32 A selected.
- Type:** A list of device types including S800 High Performance MCBs, SYSTEM pro M Compact MCBs, S400 Smissline MCBs, TMAX SP MCCB, TMAX TMD MCCB, and TMAX TMG MCCB.
- Device:** A list of specific device models such as S 280 IEC/EN 60898-1 Type B 6kA, S 280 IEC/EN 60898-1 Type C 6kA, SN 201 L IEC/EN 60898 Type B 4.5kA (1P+N), SN 201 L IEC/EN 60898 Type C 4.5kA (1P+N), SN 201 IEC/EN 60898 Type B 6kA (1P+N), SN 201 IEC/EN 60898 Type C 6kA (1P+N), SN 201 IEC/EN 60898 Type D 6kA (1P+N), SN 201 M IEC/EN 60898 Type B 10kA (1P+N), and SN 201 M IEC/EN 60898 Type C 10kA (1P+N).

Below the dialog box, a cable cross-section diagram is shown with the following details:

- Text:** 'Neutral and earth conductor are wrapped helically over core cable and separated from each other by fillers'.
- Diagram:** A circular cross-section of a cable with an 'Earthing' conductor (outer ring) and a 'Neutral' conductor (inner ring).
- Installation:** Earth continuity conductor.
- Calculations:**
 - Cable's armour C.S.A (mm²): 14.37
 - Cable's armour impedance (Ω): 0.0046
 - Adiabatic check of CPC:
 - Total CPC C.S.A (mm²): 21.86
 - Minimum CPC C.S.A (mm²): 6.4

Calculations and Dimensioning Criteria

- > Source Characteristics (earthing system, fault levels etc)
- > Cable Type and Installation Method
- > Maximum Demand, Diversity and Spare Load
- > Voltage Drop Limits
- > Environment Correction Factors
- > Min-Max Short Circuits and Earth Fault Currents
- > Cable Energy Withstand
- > Protective Devices Disconnection Time
- > Protective Devices Let-Through Energy
- > Protective Devices Current Limiting Characteristics
- > Earth Fault Loop Impedance Limits
- > Earth Fault Protection/RCD Devices
- > Touch Voltage Limit
- > Unbalanced Load
- > Neutral Current
- > Power Factor and Harmonics
- > Motor Starter Type (Direct On-Line, Star-Delta etc)
- > Motor Starting Current
- > Motor Minimum Starting Voltage
- > Parallel Source Operations
- > UPS Characteristics and Parallel Operation
- > Busbar Trunking System Thermal Limits
- > Busbar Trunking System Peak Short Circuit Withstand
- > Integrated AC & DC Systems
- > DC Battery Characteristics