BS EN 60204-1:2018+A1:2025 – Electrical Control Panel Compliance Checklist

Project Details

Equipment	Traversing Building Door System
Project / Panel Reference	MAYFLOWER2-MPC01
Location	Walkway
Manufacturer / Integrator	EDS (Electrical-Data-Security) Ltd
Date of Inspection	29/04/2025
Engineer(s)	Martin Witts

1. Documentation & Design

Checklist Item	Required	Verified	Notes
Risk Assessment (ISO 12100 aligned)	Yes	☒	
Electrical Schematics	Yes	☒	
Bill of Materials with Safety Component List	Yes	☒	
Control System Functional Description	Yes	☒	
Protective Device Coordination and SCC Rating	Yes	☒	
Residual Voltage Discharge Evidence (≤60 V)	Yes	☒	
Nameplate with Ratings	Yes	☒	
Operator / Maintenance Instructions	If req.	☒	

2. Visual Inspection

Inspection Point	Verified	Comments
Enclosure and IP rating appropriate	☒	IP66
Conductor marking	☒	
Cable protection	☒	
Protective Earth (PE) bonded	☒	
Device labelling	☒	
Isolator accessible and labelled	☒ ☐	

Emergency stop present and marked	☒ ☐	
Bonding of exposed conductive parts / Structural Steel	☒ ☐	
AC/DC/SELV separation maintained	☒ ☐	

3. Electrical Testing

Test Description	Measured Value	Pass / Fail	Notes	
Insulation Resistance ≥1 MΩ		☒ ☐	7.4MΩ	
Earth Continuity ≤0.1 Ω		☒ ☐	0.00Ω	
Voltage Verification (400 V 3P)		☒ ☐	413 / 241	
Functional Bonding Integrity		☒ ☐		
Overcurrent Protection Configuration		☒ ☐		
Polarity & Rotation Verified		☒ ☐		
SELV/PELV Circuit Verification		☒ ☐		
Earth Leakage Compliance		☒ ☐	3.6mA See advisory note	
Earth Fault Loop Impedance (Zs) (sockets)		☒ ☐	Zdb:0.3 Zs:0.04Ω	
External Circuits	$I_{\Delta n}$		Icu / Icn	Loc
Motor MCB (20A)	N/A	L1 / L2 / L3	10kA	R3/1-2-3
PSU RCBO (6A)	17.1ms	☒ ☐	10kA	R3/4
Brake RCBO (6A)	17.3ms	☒ ☐	10kA	R3/5
Socket Outlet RCBO (10A)	17.3ms	☒ ☐	10kA	R3/6
PFC (incomer) kA			8.03	
Total Load A kVA kW			 14.10 3.96 3.17	

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4. Functional Testing

Function	Pass / Fail	Comments
Main isolator disconnects all live conductors	☒ ☐	
Emergency stop interrupts all hazard motion	☒ ☐	
Control logic matches schematic	☒ ☐	
Start/Stop/Reset operations function	☒ ☐	
Interlocks perform ok	☒ ☐	
Indicators and alarms are functional	☒ ☐	
Brake coil energises and releases correctly	☒ ☐	

5. Residual Voltage Discharge (≤60 V within 5s)

Component	Voltage After 5s	Pass / Fail	Notes
VFD DC Bus		☒ ☐	
Brake Coil		☒ ☐	

6. Instruments Used

Instrument	Model	Serial No.	Calibration Due
Insulation Tester	Fluke 1663-UK	5816112	01/12/2025
Continuity Tester	Fluke 1663-UK	5816112	01/12/2025
Multimeter / Clamp	Megger MET1000	452341	23/11/2025
Earth Loop Tester	Fluke 1663-UK	5816112	01/12/2025
Touch Current Meter	PRO TMP775	26543	13/10/2025

7. BS EN 61439-1 – Assembly Compliance

Requirement	Verified	Notes
Rated Current (InA) marked	☒	
Short-Circuit Withstand (Icw) declared	☒	
Degree of Protection (IP) verified - Clause 5.2	☒	
Clearances and creepage compliant	☒	
Mechanical strength verified	☒	
Internal separation defined	☒	

Terminal access & labels visible	☒	

8. BS EN 61439-1 – Performance Tests

Test Item	Method	Verified	Notes
Temperature rise	Type-tested	☒	
Dielectric withstand 2.5 kV AC	Type-tested	☒	Dielectric testing applied to passive wiring only. Active components (VFD, PLC, PSU) excluded under manufacturer's type test evidence in accordance with BS EN 61439-1 clause 10.9.
Protective circuit continuity	Measured	☒	0.00Ω
Functional unit labelling & layout	Verified	☒	

9. Components Excluded from Dielectric Testing

Component Type	Make / Model	Reference Evidence (datasheet, certificate, etc.)
VFD	Siemens SINAMICS V20 (VFD)	CE Declaration + Datasheet
PLC	Siemens LOGO	CE Declaration + Datasheet
Power Supply	Siemens SITOP PSU100L	CE Declaration + Datasheet
Terminal Blocks	Phoenix Terminal Blocks (UT 2.5)	CE Declaration + Datasheet

10. Notes

All excluded components were installed in accordance with manufacturer guidelines. Dielectric testing was applied only to passive wiring, terminals, and non-electronic elements of the assembly. Test voltages used elsewhere: 2.5 kV AC for 1 minute.

11. Declaration

Field	Detail
Engineer Name	Martin Witts
Organisation	EDS (Electrical-Data-Security) Ltd
Signature	M.Witts
Date	02/05/2025

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Advisory Note – Touch Current and Earth Leakage

These advisory outlines the distinction between Touch Current and Earth Leakage Current with respect to their relevance under BS EN 60204-1:2018+A1:2025 and associated UK compliance frameworks for electrical equipment and control panels.

Compliance Summary

BS EN 60204-1:2018+A1:2025 does not mandate routine measurement of touch current or earth leakage current for Class I electrical panels. Compliance is typically demonstrated through earth continuity, insulation resistance, verification of protection against residual voltage, and where applicable, fault loop impedance (Zs) at socket outlets.

Advisory Position

For most industrial installations, formal testing of touch current is not expected unless explicitly required by a product standard. Earth leakage current may be measured where functional safety, RCD discrimination, or operational characteristics demand closer evaluation.

Practical Considerations for Earth Leakage Measurement

In many industrial settings, control panels are bonded to structural steelwork and multiple parallel earth paths exist. Under these conditions, measurement of earth leakage current may not reflect the total leakage due to current division through structural components, armoured cable sheaths, or extraneous bonding conductors. Standard clamp measurements on a single protective conductor may therefore provide only a partial result.

These factors should be taken into account when interpreting earth leakage readings, particularly in installations with extensive steel bonding. Where leakage measurement is recorded, it should be acknowledged that structural and parallel return paths may influence the reading.