INDUSTRIAL AUTOMATION & SYSTEMS ENGINEERING

Technical Specification Datasheet

System: Free-Standing Control Panel **Model Ref:** CP-FS-1808-X **Date:** June 2026

1. ENCLOSURE OVERVIEW

This technical specification covers the engineering details of the premium free-standing industrial control panel enclosure designed for multi-zone automation, power distribution, and PLC control applications. Built from heavy-duty sheet steel, the enclosure features comprehensive ingress protection, professional thermal management, and an optimized internal footprint for high-density component installation.

2. MULTI-VIEW LAYOUT & ARCHITECTURAL CONFIGURATION

The physical design relies on a highly modular four-view architectural standard ensuring easy operational access, routine maintenance, and seamless plant floor integration:

- **Front View (Operational Access):** Features a full-height single hinged door equipped with integrated support framing, continuous polyurethane foam-in-place sealing gasket, and a door-mounted active extraction fan. The spacious internal backplate accommodates tiered DIN rail channels and standardized wire-duct channels.
- **Side Views (Left & Right):** Formed from seamless sheet steel panels equipped with a durable low-profile mechanical locking latch handle and integrated lower air intake louver grilles fitted with fine particulate filters.
- **Rear View (Structure):** Completely sealed rigid rear panel configured with structural reinforcement corner fasteners and a bottom passive ventilation cutout ensuring uniform chimney-effect airflow throughout the chassis.

3. INTERNAL ELECTRICAL & CONTROL COMPONENTRY

The internal layout is structured into logical voltage zones to minimize electromagnetic interference (EMI) and facilitate safe troubleshooting:

Upper Level: Power & Distribution

Accommodates heavy-duty main circuit breakers, miniature circuit breakers (MCBs), contactors, surges, and phase barriers. Features clear terminal marking strips for primary grid supply inputs.

Mid Level: Logic & Control

Designed for central processing units (PLCs), I/O modules, communication couplers, and interface relays. Wired cleanly using standard finger-lump slotted wiring ducts for dynamic cable routing.

4. TECHNICAL PARAMETERS & STRUCTURAL SPECIFICATIONS

Parameter Specification	Engineering Standard / Value
Enclosure Type	Free-Standing Industrial Control Cabinet (Single-Door)
Material Composition	High-grade cold-rolled sheet steel (Frame: 2.0mm, Door/Panels: 1.5mm)
Surface Finish	Electrostatic powder coating, textured finish RAL 7035 (Light Grey)
Ingress Protection Rating	IP54 / NEMA 12 compliant (with proper fan/filter maintenance)
Thermal Management	1x Door-Mounted Active Exhaust Fan; Lower Side Passive Intake Louvers
Handling & Rigging	4x Heavy-Duty Lifting Eye Bolts securely anchored to top frame corners
Base / Mounting	Integrated 100mm black plinth base with front/rear access panels

Engineering Integration Note

Always ensure minimum clearance distances of 200mm around the side and rear ventilation louvers during final positioning on the plant floor to guarantee unrestricted airflow and optimal thermal dissipation profiles.