



Supermarket

Easy Reference Architecture Guide

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Electric

Objective

The purpose of this document is to provide architectural guidance for the design and implementation of electrical distribution system for supermarket with focus on fit-for-purpose solution using Schneider Electric's cost-optimized range of products.

Target Audience

This reference architecture guide is intended for Contractors and Panel Builders who are responsible for Supermarket projects.

Typical Characteristics of Supermarket

Building configuration

- Area of 7000 m² inclusive of shopping, parking and cargo areas

Network configuration

- RMU
- MV/LV transformer of 800 kVA
- Main LV switchgear

Alternative power supplies

- A genset is proposed as back-up power source
- UPS is proposed to maintain critical loads supply

Optimized Performance by Fit-for-Purpose Design

Electrical Network

The Supermarket electrical distribution system is designed to receive electrical power through local distribution utility. This architecture is a radial configuration with one transformer (800 kVA) feeding various loads within the facility. Emergency diesel generator (650 kVA) is provided to feed the essential loads during loss of utility power. For services where no power interruption is permitted, such as CCTV, voice alarm, IT and POS equipment, and critical lighting, usage of UPS is recommended.

Digitalization

With the Agile approach of 'just enough design', the selection of cost-conscious digital metering (EasyLogic PM2000 series for incomers and PM1000H series for major loads) together with simple, bundled power monitoring system (EcoStruxure Power Monitoring Expert – Express Edition) to form the foundation of an energy management infrastructure that is scalable, expandable and future-ready. Additionally, with the concept of easy to deploy, easy to use and easy to maintain, this basic but powerful energy and power monitoring system: drives energy usage awareness by turning metering data into actionable information; presents energy usage and consumption through easy-to-interpret graphical dashboards and reports that help kick off the sustainability journey; and identify areas of abnormal power consumption and highlight possible areas of improvement in order to reach energy efficiency and conservation goals. Optionally, it is cloud-ready for EcoStruxure Facility Expert SaaS.

Electrical Distribution and Digital Architectures and System

Edge Control Software

EcoStruxure
Power Monitoring Expert
Express Edition



Cloud-based Software and App

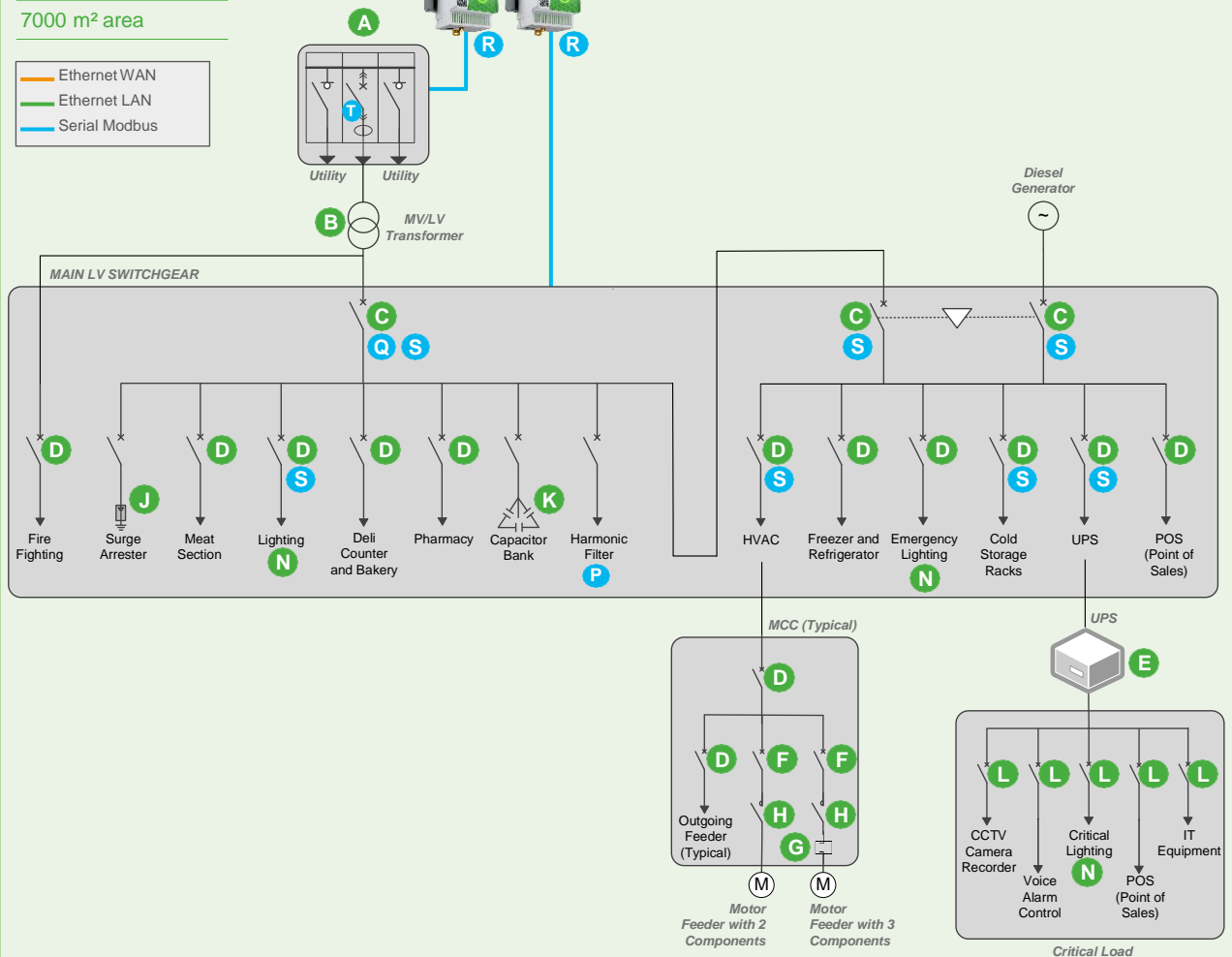
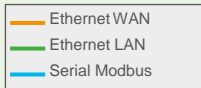
EcoStruxure
Facility Expert



Electrical and Digital Architecture

Supermarket description

7000 m² area



MV Switchgear



Minera MV/LV
Transformer



EasyPact MVS
ACB



EasyPact CVS
MCCB



Easy UPS
1 Ph & 3 Ph



Easy TeSys
Power



Easy TeSys
Protect



Easy TeSys
Control

● Equipment

● Connected devices



Surge
Arrester



EasyLogic PFC
Capacitor



Easy 9



Wiring
Devices



EasyLogic
APF



EasyCom



Panel Server
Gateway



EasyLogic
Power Meter



PowerLogic P1

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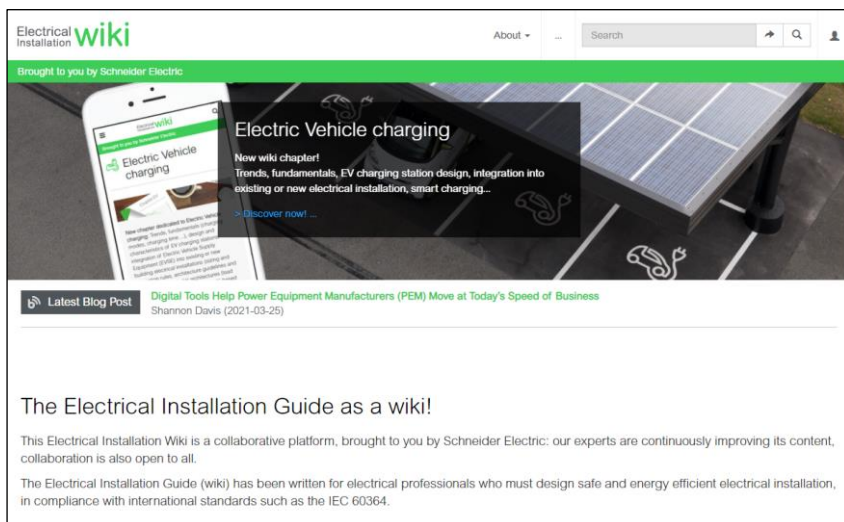
Schneider
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Schneider Electric Offers

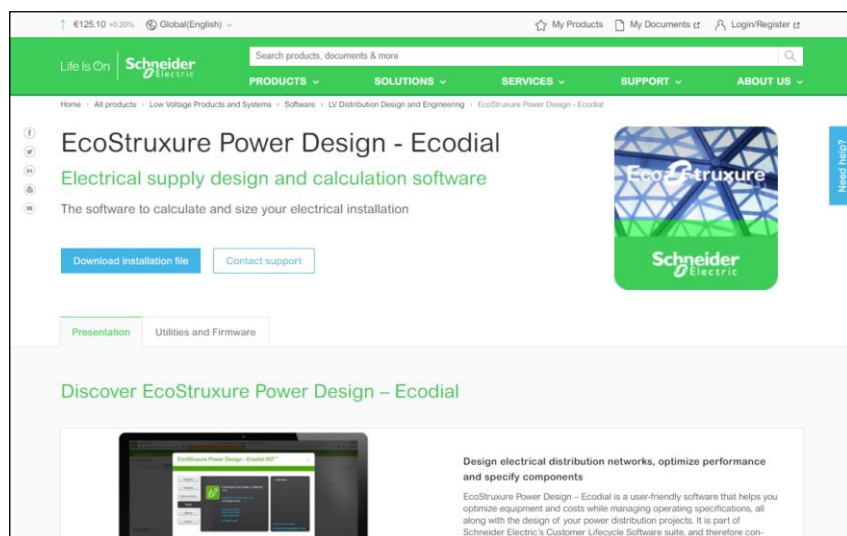
Products		
Panel Type	Description	More Information
MV Switchgear	Medium Voltage Switchgear	Link
MV/LV Transformer	Description	More Information
Minera	Oil-Immersed transformer, ground mounted, up to 3.15 MVA – 36 kV	Link
Circuit Breakers	Description	More Information
EasyPact MVS	Air Circuit Breaker 630 A to 4000 A	Link
EasyPact CVS	Molded Case Circuit Breaker 16 A to 630 A	Link
EasyPact EXE	Vacuum Circuit Breaker up to 17.5 kV	Link
Easy TeSys Power	Thermal-magnetic motor circuit breaker up to 15 kW	Link
UPS	Description	More Information
Easy UPS Single Phase	Uninterruptible Power Supply 1 Ph	Link
Easy UPS Three Phase (3S)	Uninterruptible Power Supply 3 Ph, 10-40 kVA	Link
Easy UPS Three Phase Modular	Uninterruptible Power Supply 3 Ph - Modular, 50-250 kW	Link
Overload Relay	Description	More Information
Easy TeSys Protect	Thermal overload relays from 0.1 to 630 A	Link
Contactors	Description	More Information
Easy TeSys Control	Contactors up to 630 A for AC3 and 1000 A for AC1 applications	Link
PFC / Capacitors	Description	More Information
EasyLogic PFC Capacitor Banks	Smart low voltage capacitor banks	Link
EasyLogic PFC Capacitor	LV Capacitors for power factor correction	Link
Final Distribution	Description	More Information
Easy9	MCB, RCD, Switches and Surge Protection Devices	Link
Wiring Devices	Light Switches and Electrical Sockets	Link
Surge Arrester	Description	More Information
Acti9 iPRD	Modular Surge Arrester Type 2 or 3, from 8 kA to 65 kA	Link
Harmonic Filter	Description	More Information
EasyLogic APF	Active Harmonic Filtering for commercial buildings, light industry etc.	Link
Communication Module	Description	More Information
EasyCom	Communication module for EasyPact MVS	Link
Power Meters & Gateways	Description	More Information
EasyLogic PM1000H	Digital Panel Meter, both LCD and LED displays available	Link
EasyLogic PM2000	Digital Panel Meter, both LCD and LED displays available	Link
EcoStruxure Panel Server	Serial to Ethernet, Cloud Connectivity, Data logger, Energy Server	Link
Protection Relay	Description	More Information
PowerLogic P1	Overcurrent, Earth Faults and Voltage Protection Relays	Link
Edge-Control and Cloud-based Software		
Software Systems	Description	More Information
EcoStruxure Power Monitoring Expert Express Edition	PME Express Edition is an on-premise solution for basic power monitoring and energy management that can be commissioned in hours. It is built to introduce an entry level of EcoStruxure Power to transactional channels and allows future expansion opportunities to take advantage of the full range of EcoStruxure Power applications and benefits.	Link
EcoStruxure Facility Expert	Facility Expert Energy is a web-application to monitor and analyze energy. The main energy features include energy consumption and costs monitoring (main, usage, zone, meter), alerts on energy consumption over target, multi-site comparison capability, energy site performance versus standards, power demand and power factor monitoring and monthly score cards.	Link

Useful Tools and Documentation

As part of the full engineering package, accompanying this reference architecture guide are single line diagram (SLD) in both CAD and PDF formats and EcoStruxure Power Design project file in EAC format.



[Electrical Installation Guide](#)



[EcoStruxure Power Design](#)

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