



Medical Centre

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 medical centre 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 Medical Centre projects.

Typical Characteristics of Medical Centre

Building configuration

- Area of 500 m²
- Test processing capacity of 400k/month

Network configuration

- RMU
- MV/LV transformer of 500 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 Medical Centre electrical distribution system is designed to receive electrical power through local distribution utility. This architecture is a radial configuration with one transformer (500 kVA) feeding various loads within the medical centre and its premises. Emergency diesel generator (450 kVA) is provided to power the entire facility during loss of utility power for extended periods. For services where no power interruption is permitted, such as MRI, ultrasound scan, other critical medical equipment, CCTV, voice alarm, billing counters 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

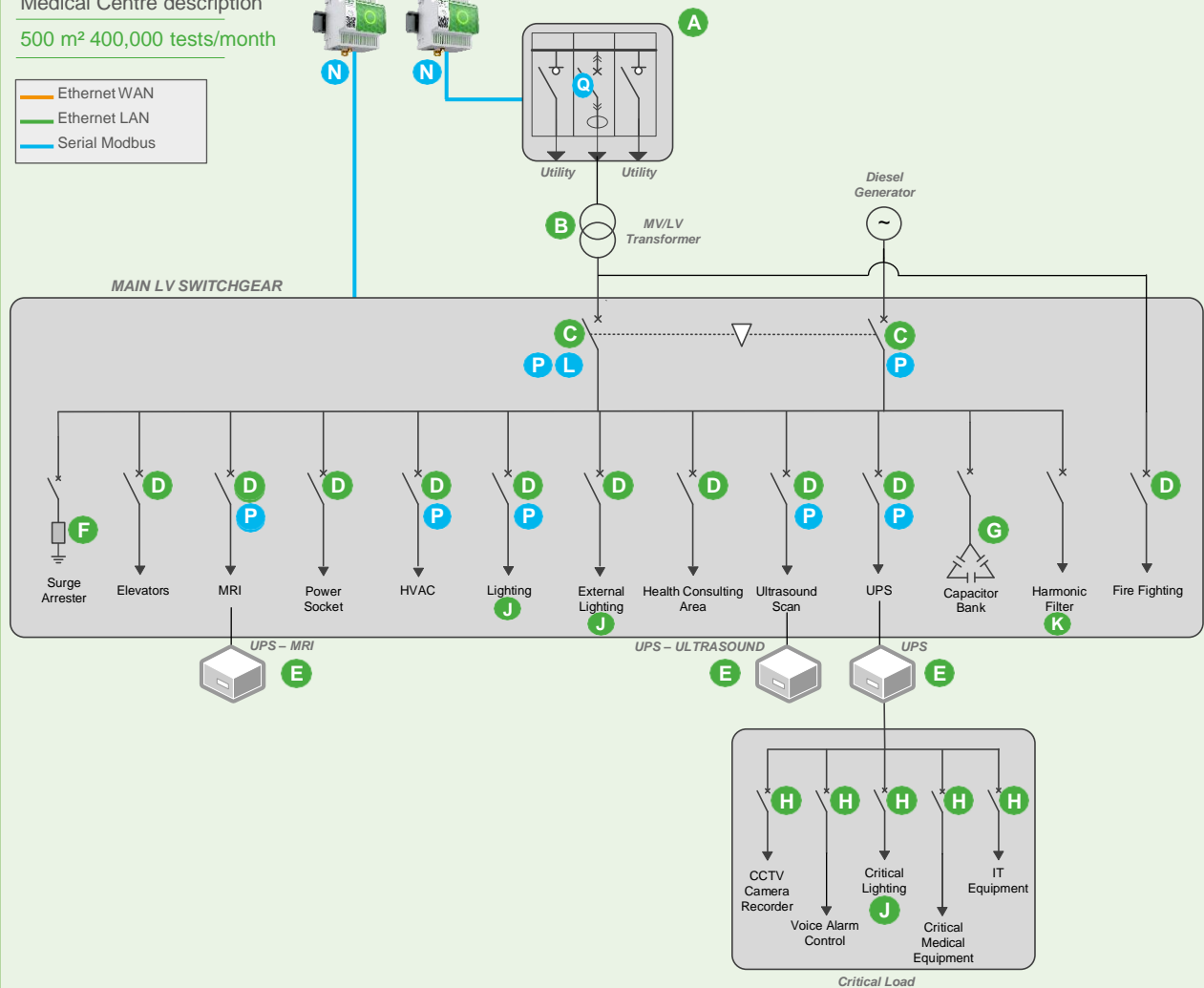
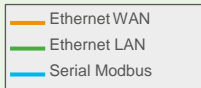
EcoStruxure
Facility Expert



Electrical and Digital Architecture

Medical Centre description

500 m² 400,000 tests/month



MV Switchgear



Minera MV/LV
Transformer



EasyPact MVS
ACB



EasyPact CVS
MCCB



Easy UPS
1 Ph & 3 Ph



Surge Arrester

● Equipment

● Connected devices



EasyLogic PFC
Capacitor



Easy 9



Wiring
Devices



EasyLogic
APF



EasyCom



Panel Server
Gateway



EasyLogic
Power Meter



PowerLogic P1

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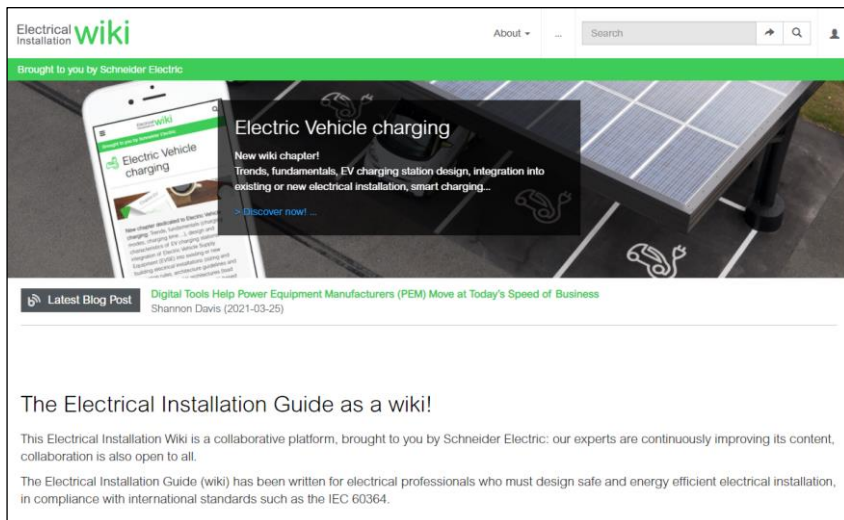
Schneider
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Schneider Electric Offers

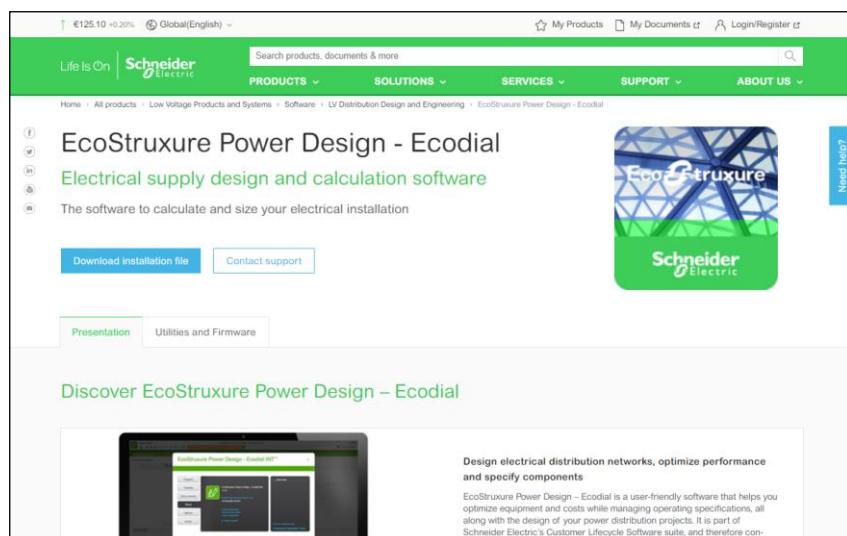
| Products | | |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 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 |
| 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 |
| 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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Schneider Electric Industries SAS

35, rue Joseph Monier - CS 30323
92506 Rueil Malmaison Cedex

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