ekor.sys: automation, control, protection, metering and communications of the Electrical Network

ekor.sme

MV and LV monitoring / supervision

Reliable innovation. Personal solutions.
Applications

» Energy balancing
» Network technical losses measurement
» Fraud detection
» Distribution transformer performance monitoring
» LV supply quality management
» LV voltage profiling
» Phase load balancing

transforma.smart (transformer with on-load tap changer) control unit
» Transformer load profiles
» Transformer losses

Climatic

IEC 60068-2-1
IEC 60068-2-2
IEC 60068-2-78
IEC 60068-2-30

Mechanical

IEC 60255-21-1
IEC 60255-21-2

Power

IEC 60265
IEC 60056

CE Conformity

CE-26/08-43-EE-1
IEC 60255

Technical characteristics

General

Phase current sensors 3
Voltage sensors 3 (capacitive)
Time synchronisation Yes

Power supply options

AC [V<sub>min</sub>–V<sub>max</sub>] 110 ... 230 ± 20 %
DC [V<sub>min</sub>–V<sub>max</sub>] 24 ... 125 ± 20 %
Consumption [VA] < 2

Frequency [Hz; Hz] 50; 60 ± 1 %

Current inputs

Primary phase [A ... A] 5 ... 630 (acc/ model)
Earth [A ... A] 0.5 ... 50 (acc/ model)
Impedance [Ω] 0.1

Accuracy

Voltage 0.5%
Current 0.5%
Active Energy Class B (IEC 50470-3)
Reactive Energy Class 2 (IEC 62053-23)

Digital outputs

Voltage [V<sub>max</sub>] 270
Current [A] 5 (AC)
Switching power [VA] 750 (resistive load)

Communications

Front port configuration USB mini-B interface
Rear port remote control RS485–RJ45
Protocol IP IEC 60870-5-104, MODBUS (RTU), IEC 60870-5-103
Protocol serial PROCOME

Setup and monitoring program (optional)

Indications

Error display USB mini-B interface
History Log RS485–RJ45

Features

Seamless integration with Ormazabal RTU and commercial SCADA systems

This solution optimizes cost and footprint using voltage and current sensors, instead of conventional Instrument transformers.

Factory installed sensors prevent errors during onsite works and ensures accuracy all over the sensor/wiring/electronics chain.

Preface

ekor.sme together with Ormazabal’s current and voltage sensors is a general purpose MV and LV monitoring and supervision solution.

It provides high accuracy, real-time monitoring and reporting of the most important metrics of three phase MV/LV distribution transformers.

» Line voltage
» Phase Current
» Active and reactive power
» Active energy
» Four quadrant reactive energy

All power data is communicated to the back office over an Ethernet or a serial connection using industry standard protocols (IEC 60870-5-104, DNP3, ModBUS, IEC 60870-5-103…)

Tests

Insulation

IEC 60255-5

EMC

IEC 60255-11
IEC 60255-22-1
IEC 60255-22-2
IEC 60255-22-3
IEC 60255-22-4
IEC 60255-22-5
IEC 60255-22-6
IEC 61000-4-8
IEC 61000-4-12
IEC 60255-25

Climatic

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Design

1 ekor.sme
2 Switchgear
3 Current sensors
4 MV voltae sensors ekovvt-c