




CELDA 1



ekorsys units: protection,
telemangement & communication

ekor.rps-tcp

Multifunctional protection unit for
primary distribution substation

Reliable innovation. Personal solutions.

Preface

Multifunctional protection unit integrated in **Ormazabal** Circuit-Breaker cubicles.

Two different modules with independent CPU and power supply execute the protection and control tasks respectively.

» The protection CPU measures and acts accordingly for:

- » Overcurrent (phase, neutral, directional)
- » Voltage
- » Frequency
- » Power
- » Breaker supervision

» The control CPU enables the communication and interface functions for the control and measuring operations, alarm and status signalling and the execution of operations:

- » Automation: recloser and synchrocheck
- » Metering (I, V, P, Q, E)
- » History Logs
- » Communications

Applications

Primary distribution substations:

- » Utilities
- » Large infrastructures
 - » Airports
 - » Railways
- » Electrical power stations

Most notable features

- » Cubicle, relay and current transformer assembly validated in power tests up to 20 kA.
- » Solution engineered at factory (location, wiring, transformers and relay installed are factory installed).
- » Protection and control of different CPU and power supplies.
- » Protection and control in a single unit.
- » Integrates the factory-installed protection and current transformers.
- » Compatible with the integrated control automation system..

Tests

Electrical

ENV 50204	ENV 55011
IEC 60255-5	IEC 60255-22-1
IEC 60870-2-1	IEC 61000-4-2
IEC 61000-4-3	IEC 61000-4-4
IEC 61000-4-5	IEC 61000-4-6
IEC 61000-4-8	IEC 61000-4-6
IEC 61000-4-12	IEC 61000-4-29

Environmental

IEC 60068-2-1
IEC 60068-2-2
IEC 60068-2-3
IEC 60068-2-14

Mechanical

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



Technical Characteristics

Power Supply Options

AC [Vac]	125 / 220
DC [Vdc]	24 / 48

Frequency

[Hz; Hz]	50; 60 ±1%
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Digital inputs

Extended (low) [Vcc]	18 to 160
Extended (high) [Vcc]	86 to 280

Analog inputs

Current	5
Voltage	4

Digital outputs

Protection	
Inputs	8+9
Outputs	7+7

Control	
Inputs	48
Outputs	24

Communications

Ports	RS-232 RS-485 FOC
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Protocols	MODBUS PROCOME IEC-60870-5-101 IEC-60870-5-103 DNP3.0 IEC-61850
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Protection ekor.rps-dc and ekor.rps-dd

Phase overcurrent	(3 x 50/51)
Earth overcurrent	(50N/51N)
Current unbalance/ negative sequence current	(46-46FA)
Breaker failure	(50BF)
2nd harmonic restraint	
Sobreintensidad en neutro sensible	(50Ns/51Ns)
Ultrasensitive earth overcurrent	(3 x 67) (67N)
Directional earth fault and sensitive earth fault	(67Ns)

Isolated earth directional function	(67NA)
Voltage restrained overcurrent	(51V)

Fuse failure	
Thermal image	(49)

Additional protection ekor.rps-dd

Maximum frequency / minimum frequency / frequency-derived	(81M / 81m / 81R)
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Directional power	(32)
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Phase overvoltage / phase undervoltage / negative sequence overvoltage	(3 x 59 / 3 x 27 / 47)
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Neutral overvoltage	(59N/64)
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Control functions

Three-phase recloser	(79)
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Recloser for single-phase trips due to overcurrent	(79)
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Trip/closure coil supervision	(74)
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Recloser for restart after trip due to frequency trip	(79)
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Synchrocheck	(25)
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Protection status self-diagnosis	
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Measurements

Phase, neutral and sensitive neutral currents	
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Power factor	
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Simple and compound voltages	
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Current maximeter	
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Energies	
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Inverse sequence	
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Powers	
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Harmonic distortion (THD)	
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Data acquisition

Chronological event log	
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History log of maximum and minimum measurements	
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Chronological fault log	
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Oscillography	
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