

ekorSYS units: protection, telemanagement & communication

ekorRPS-TCP

Multifunctional protection unit for primary distribution substation



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





- ➔ 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
	IEC 60068-2-30	IEC 60255-21-1
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%
Digital Inputs	Extended (low)	[Vdc]	18 to 160
	Extended (high)	[Vdc]	86 to 280
Analog inputs	Current		5
	Voltage		4
Digital inputs / outputs	Protection		8+9 inputs
			7+7 outputs
	Control		48 inputs
			24 outputs
Communications	Ports		RS-232
			RS-485
			GOF
	Protocols		MODBUS
			PROCOME
			IEC-60870-5-101
			IEC-60870-5-103
			DNP3.0
			IEC-61850

Protection		
ekorRPS-DD		
ekorRPS-DC		
Phase overcurrent (3 x 50/51)	Directional phase overcurrent (3 x 67)	Maximum frequency / minimum frequency / frequency-derived (81M / 81m / 81R)
Earth overcurrent (50N/51N)	Directional earth fault (67N) and sensitive earth fault (67Ns)	Directional power (32)
Current unbalance/negative sequence current (46-46FA)	Isolated earth directional function (67NA)	Phase overvoltage / phase undervoltage / negative sequence overvoltage (3 x 59 / 3 x 27 / 47)
Breaker failure (50BF)	Voltage restrained overcurrent (51V)	
2nd harmonic restraint	Fuse failure	Neutral overvoltage (59N/64)
Ultrasensitive earth overcurrent (50Ns/51Ns)	Thermal image (49)	

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

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

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