الکترونیک سازان فن آریا

HAFEZ-D311

رله حفاظت ریکلوزر سکسیونر ، سکشنالایزر پست توزیع

مجهز به پروتکل ارتباطی DNP3 با قابلیت ارتباط با مرکز کنترل

به کمک مودم سلولی داخلی

کاربردها

- رله بازبست خطوط توزیع
- مکان یاب و ثبات خطا در پست توزیع زمینی
- کنترلر سکسیونرهای موتوری
- رله سکشنالایزر فیدرهای فشار متوسط
- رله کنترل وصل سنکرون نقاط مانور

ویژگی‌ها

۱ ۴ ورودی جریانی و ۶ ورودی ولتاژی

۲ قابل توسعه به ۱۶ ورودی آنالوگ

۳ قابل توسعه تا ۳۸ ورودی دیجیتال و ۸ خروجی دیجیتال

۴ مجهز به پروتکل DNP3.0 و Modbus

۵ امکان ارسال مقادیر اندازه گیری و وضعیت واحد های حفاظتی به مرکز کنترل و دریافت فرمان از آن

۶ پیاده سازی الزامات امنیت سایبری (رمز نگاری داده های تبادلی از طریق پروتکل DNP3)

۷ مجهز به ثبات شکل موج (۵۰ نمونه و هر کدام به مدت ۲ ثانیه با فرکانس ۲ کیلوهرتز) و مجهز به ثبات وقایع (۲۰۰۰ رخداد)

۸ نرم افزار رابط گرافیکی برای تنظیم RTU و دریافت رخدادها و شکل موج

۹ دارای واحد حفاظتی وصل سنکرون

۱۰ قابلیت تشخیص محل و نوع خطا

● مشخصات سخت‌افزاری

Symbol	Hardware / Communication	Qnty.	Comment
3×I	Phase input current	3	0.1 to 40 In - 1% uncertainty
1×In	Neutral input current	1	0.02 to 5 In - 1% uncertainty
6×V	Voltage input	6	0.05 to 2.5 Vn - 1% uncertainty
-	Modbus RTU	1(Back)	Isolated modbus - based on RS485 hardware
-	Cellular Modem	1	2G/3G/4G Modem (optional)
	Ethernet	3(Back)	For DNP 3.0/Modbus RTU protocol over TCP/IP
-	Ethernet	1(Front)	For R/W settings, configurations, disturbances, and etc.
-	Aux. power supply	1(Back)	Compatible with requirements
-	Digital inputs	upto 38	Programmable digital Inputs (8 isolated sections)
-	Digital outputs	8	8 programable contactors
-	Signal LED	4+4+16	4 predefined, 4 for programable keys, and 16 programmable

● توابع حفاظتی

ANSI	Protection Functions	IEC	Comment
21	Fault Locator based on Impedance Calculation	Z<	Impedance calculation using distance relay approach to calculate distance to fault location
51	Inverse time-overcurrent function	I>	2 functions with adjustable IEC or IEEE std. characteristics
51N	Inverse time-earth fault function	I0>	IEC or IEEE std. characteristics, Stable against CT saturation
50	Definite time-overcurrent function	I>> - I>>>	Operation of I>>> within 14 ms in "Fast Mode", Adaptive operation to prevent severe CB ageing
50N	Definite time-earth fault function	I0>> - I0>>>	Operation of I0>>> within 14 ms in "Fast Mode", stable against CT saturation, A novel function for very sensitive high impedance earth fault detection for automation application
49	Thermal overload function	-	For load shedding or transformer/feeder outage
46	Negative-sequence overcurrent function	I2> - I2>>	Stable against CT saturation
79	Automatic recloser (Adaptive function)	-	4 shots, adaptive operation based on fault type, Operation preventation for high fault current, Compatible with fuse saving logic
-	Sectionalizer	-	Recloser Counter for use as sectionalizer
46BC	Broken-conductor detection	-	Based on the current negative sequence to its positive sequence component
-	Accurate broken-conductor monitoring function	-	Very sensitive broken conductor detection for automation application
51DC	Demand control	-	Demand calculation for load shedding or transformer/feeder outage
25	Synchronizing check		Both alarm and guard modes Both three-phase and single-phase synchronizing condition analysis
59/27	Overvoltage / Undervoltage function	-	
59N	Zero Sequence Overvoltage	-	
81O/U	Overfrequency / Underfrequency function	-	
81R	Rate of change of frequency function	-	
51C	Cold load pickup detection	-	
-	Inrush-current detection	-	Novel Inrush current detection method to enhance its security
-	CB monitor	-	Novel function to realize interrupter chamber ageing level
74TC	Trip-circuit supervision	-	Voltage-based TCS
50BF	Circuit-breaker failure function	-	

● قابلیت‌های جانبی

Additional Functions	Qnty.	Comment
Smart setting	-	To automatically adjust all the relay settable parameters by using simple data
Log measured values with PC	-	To log all measured parameters and send to a computer using ethernet connection
Fault recording of analog and binary signals	50	To record waveforms analog and digital signals (2 Seconds 2kHz sampling , 4 Seconds 1kHz Sampling)
Event recording	2000	To register events (start or trip) including fault current, date, time, and etc.
Number of setting groups	2	Adjustable by relay setting or digital inputs
Manual close / Manual open keys on panel	2	To directly issue close/open command to circuit breaker or disconnecting switch
Programmable keys on panel	4	Four programmable keys which can be defined by user or customized by manufacturer
Secure trip command to LBS	-	Reconfigure the relay prefault settings and special features for sending trip and/or reclose command to load break switch considering its technical restrictions

● مشخصات RTU

RTU Signals	Comment
Cyber Security Measures	Authentication (HMAC-SHA-256), Encryption (AES128-GMAC) and Role-Based Access Control (RBAC)
Electrical Parameter	3 Phase Voltage, Current, Power Factor and Power, Frequency and Positive/Negative Sequence Voltage and Current
Network Quality Parameters	Voltage and Current Unbalance and THD
Protection Function Signals	Earth and Short Circuit Fault, OverLoad and Power Protection
Fault Location Signals	Fault Type and Impedace
Recloser Status	Operating shot and Lockout status
Command Signals from SCADA	CB Open, Close Command
Additional Parameter	Panel temprature, SF6 Gas Pressure, Battery and Charger status, Cubicle Door Status