



GENERAL CHARACTERISTIC

Medium Voltage protection relay type mZAZ PLUS is dedicated to be used in power system protection and control systems of MV network. mZAZ PLUS relay provides comprehensive protection and control functions library. The device is equipped with settable analog inputs, it provides customizable set of protection functions, programmable logic, measurments, signalling and other functions – based on open software library, what allows to adapt relay to protected object and fulfil customer's needs.

Protection and control functions	ANSI Signature	Version of mZAZ- PLUS				
instary		G	L	Μ	Т	Ρ
Three-phase, overcurrent	50/51	•	•	•	•	•
Three-phase, overcurrent, inv. time char.	51		•	•		
Ground overcurrent	50N	•	•		•	•
Ground overcurrent, inv. time char.	51N		•	•	•	
Thermal overcurrent	49M			•		
Overload, RMS value-based	49R			•	•	
Negative-sequence overcurrent	46	•		•	•	
Negative-sequence overcurrent, inv. time char.	46			•		
Negative-sequence overcurrent, inv. time char.	46G	•				
Under-/overvoltage, three phase	27/59	•	•	•	•	•
Residual overvoltage	59N	•	•	•	•	•
Negative-sequence overvoltage	47	•	•	•	•	•
Positive-sequence undervoltage	27D			•		•
Rate of change of voltage by volt.der.(dU/dt)	27S/59S	•				•
Rate of change of voltage by av. volt. ch.(ΔU/ΔT)	27SA	•				•
Undervoltage by voltage integral	271					•
Ground fault, admitance-based	21N		•			
Ground fault, admitance-based, directional	21N		•			
Ground overcurrent, directional	51N/67N		•	•	•	
Temperature based	38	•	•	•	•	•
Undercurrent (against motor idle)	37			•		
Against motor stall	51LR			•		
Against locked rotor	51LR			•		
Motor start-up supervision, extended start	48			•		
Motor start-up supervision, no. of starts	66			•		
Under-/overfrequency	81L/81H	•				•
Rate of change of freq. by freq.der. (df/dt)	81S	•				•
Rate of change of freq. by av. freq. ch.(Δf/ΔT)	81SA	•				•
Voltage vector shift	VVS	•				
Reverse power	32R	•				
Rate of change of power	32S	•				
External protection	62	•	•	•	•	•
UFLS, UVLS, Load restorarion						•
Auto-reclose	79		•			

Main features

- customizable by manufacturer set of protection and control functions
- programmable logic set by manufacturer setting is partially available for user
- free SMiS software for setting the relay
- 8 measuring inputs for use with protection purpose transformers
- 2 measuring inputs for use with transducers: 4-20 mA, 0-10 V
- 8 fully programmable relay outputs
- 12 binary inputs divided into three sections
- front panel equipped with alphanumeric display (2x16) and set of buttons
- measurments of measured and calculated electrical values
- real time clock
- event recorder and last disturbance parameters recorder
- recorder of samples or magnitudes of measured values during disturbance, logic
- inputs recorder
- sum of tripped currents counter
- counter of protection operations
- trip command
- RS-485 and mini-USB port for remote control by MODBUS-RTU protocol



- self-test system to control proper operation of relay
- screw terminals for measuring inputs, pluggable terminals for other inputs
- multilevel security against unauthorised access
- high stability, accuracy and reliability ensured by digital technology

TECHNICAL DATA

Rated measuring current	1A, 5A
Rated measuring voltage	100V, 230V, 400V
Rated frequency	50 Hz
Auxilliary voltage	24, 48/60 V DC
	110, 230 V AC/DC
Control voltage	acc. to aux voltage
Setting ranges of threshold values	see product datasheet
Accuracy of current inputs	1%
Accuracy of voltage inputs	0,5%
Accuracy of power measuring	2,5%
Accuracy of angle measuring	1,5°
Accuracy of time measuring	1% ±10ms
Burden in measuring inputs	≤0,5 VA/input
Burden of supply module	≤8W
Continous measured current	4In
Thermal withstand (1s)	80In
Dynamic withstand	200In
Relay outpus S1-S5 data:	
Continuous contact carry	6 A/250 VAC/24 VDC
Max. breaking capacity AC1	1500 VA/250 V
Max. breaking capacity DC1	144 W/24 V
Relay outpus S6-S8 data:	
Continuous contact carry	8 A/250 VAC/24 VDC
Max. breaking capacity AC1	2000 VA/250 V
Max. breaking capacity DC1	192 W/24 V
Ambient temperature	-20 – 50 °C
Humidity (with no condensation)	≤95%
Weight	~1,5kg
Dimensions (width x height x depth) – without terminals	144mm x 96mm x 116mm
Electromagnetic compatibility	acc. to EN 60255-26
Insulation	acc. to EN 60255-27

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