relpol® S.A.

Digital System for Protections, Automation, Measurements, Control, Registration and Communication

CZIP

It is our Europroduct

CZIP System valued by professionals

Digital controllers for low tension bays CZIP-1, CZIP-2R, CZIP-3H, CZIP-4Q are polish products designed by the Poznań Technical University, Regulus Company and Relpol S.A. POLON Company.
Due to excellent co-operation between the research personnel and engineers as well as the experience of specialists working in the power engineering sector, the constructed product complies with world standards and fulfils all requirements of the national power industry.

CZIP-1
The set is designed for operating MT switching station bays:
- linear without a local power plant CZIP-1L,
- linear with a local power plant, including a wind power plant CZIP-1E,
- MT side of 110 kV/MT transformer CZIP-1T
- MT/0,4 transformer CZIP-1Y,
- own needs in a compensated network CZIP-1K,
with a neutral point earthed through a resistor CZIP-1P,
with a parallel choke and resistor circuit CZIP-1X,
- rails connector CZIP-1S,
- battery of capacitors CZIP-1C,
- voltage measurement CZIP-1U,
- HV asynchronous motor CZIP-1M.

Users can carry out redefinition of the set's software themselves, thus adapting the set for operating one of the MT bays.

CZIP-2R
The set is designed for the implementation of the SZR automation (automatic back-up activation system) in medium tension switchgears.

CZIP-3H
The set is designed for the extensive operation of the 110 kV bay of a 110 kV/MT transformer, covering protections, measurements, control, communication, registration and co-operation with station automatic control systems. It can work with differential protections.

CZIP-4Q
The set is designed for measuring the out of tune level of a capacity current compensation in MT networks with a zero point earthed through a choke. The measurement of the marked, out of tune coefficient is carried out together with the measurement of the network leakage and the following currents: capacity, inductive and residual. The measurement is carried out on request in a selected section without interrupting the operation of a station.

Detailed information on Digital Systems for Protections, Automation, Measurements, Control, Registration and Communication CZIP can be found in the products catalogue available at **www.relpol.com.pl**

Basic technical parameters

PHASE CURRENT INPUT CIRCUITS	
Rated current In	5 A or 1 A
Measurement range	0-192 A
Measurement error (0,35-50A)	<1,5%
Rated frequency fn	50 Hz
Power consumption (I=In)	<0,5 VA
PHASE VOLTAGE INPUT CIRCUITS	
Rated voltage	Un100 V
Measurement range	0-130 V
Measurement error within the measurement range	< 1,5%
Rated frequency fn	50 Hz
Power consumption (U=Un)	< 0,4 VA
INPUT CIRCUITS OF ZERO-SEQUENCE CURRENT	
Rated current I0n	0,5 A
Measurement range	0-6 A
Measurement error (20 mA 3,5 A)	< 1,5%
Rated frequency fn	0 Hz
Power consumption (I=I0n)	< 0,1 VA
INPUT CIRCUITS OF ZERO-SEQUENCE VOLTAGE	
Rated voltage U0n	100 V
Measurement range	0-130 V
Measurement error within the measurement range	< 1,5%
Rated frequency fn	50 Hz
Power consumption (U=U0n)	< 0,4 VA
TWO-STATE INPUT CIRCUITS	
Remote control engineering circuits • rated input voltage	 24 V or 220 V
• input voltage range	17-32 or 88-253 V
• current consumption at 24 V (220 V)	
Other circuits	< 0,25 mA (< 3 mA)
• input voltage	88-253 V
• current consumption at 220 V	< 3 mA
RELAY OUTPUT CIRCUITS	
Rated voltage	220 V
Permanent current-carrying capacity	5 A
Opening of inductive circuit	
• 220 V DC, L/R = 40 ms	0,1 A
• 220 V AC, cos = 0,4	2 A
CIRCUITS OPERATING WITH A CIRCUIT-BREAKER	
Duration of a triggering pulse	0,2-1 s
Max. preparation time of a circuit-breaker's drive	5-30 s
OTHER DATA	
Power supply	
• rated supply voltage	220 V AC
• allowable range of supply voltage changes	88-253 V AC
• power consumption at 220 V	< 15 W
Environmental conditions	
• ambient temperature	-5C…+40C
• storage temperature	-25C…+70C
• atmospheric pressure	> 800 hPa
• relative humidity	no condensation
Weigh	7 kg
Dimensions (a x b x h)	306 x 175 x 220 mm
Housing protection grade	IP 40i
Resistance to external disturbances	
• interfering signal	2,5 kV / 1MHz / 400 ud/s
Compliance with standards	PN-EN 60255-5, PN-EN 50263

Basic functional features

Digital controllers for medium tension baySCZIP-1, CZIP-2R, CZIP-3H, CZIP-4Q have got:

- 24 two-state optoisolated inputs
- 16 relay inputs
- 13 signal lamps
- ON and OFF pushbuttons for controlling a bay circuit-breaker by means of the set's keyboard,
- possibility of storing 256 reports and a power meter witH a holding circuit,
- disturbance recorder (registers 8 electric quantities during the period of 1x2,56 s or 3x1,28 s; optionally up to 40,96 s),
- FLASH reprogrammable memory
- two independent communication couplings:
  RS-232C (max 19200 Bd)
  RS-485 or fibre optics (max. 230400 Bd).

CZIP-1L, CZIP-1E

Protections:
Overcurrent time-lag + operational characteristics
Overcurrent short-circuit
Earth fault: overcurrent, admittance, comparing-admittance, conductive (directional and undirectional), susceptance directional
Return power
CZIP-1E
(operates with local power plants, including wind power plants):
Against an island operation and Automatic frequency mistuning
Overvoltage
Undervoltage
Automation:
Automatic re-activation
Works with Automatic frequency mistuning and Automatic re-activation/Automatic frequency mistuning
Works with Local circuit-breaker back-up

CZIP-1T

Protections:
Overcurrent against overload
Overcurrent time-lag
Overcurrent short-circuit
Return power
Earth fault
Overvoltage
Protection of cumulative rails

Automation:
Local circuit-breaker back-up
Capacitors battery regulator
Works with Automatic back-up activation system

CZIP-1Y

Protections:
Independent short-circuit
Dependent short-circuit
Overvoltage
Undervoltage
Overcurrent against overloads
Earth fault overcurrent and admittance

Automation:
Works with Automatic frequency mistuning and Automatic re-activation/Automatic frequency mistuning

Works with Local circuit-breaker back-up

CZIP-1K, CZIP-1P, CZIP-1X

Protections:
Overcurrent time-lag
Overcurrent short-circuit
Earth fault
Flow
Gas

Automation:
Supervision of Automatic forcing of active component
Works with Local circuit-breaker back-up
CZIP-1P: Supervision of resistor
Resistor's automatic re-activation
Works with Automatic back-up
CZIP-1X: Supervision of choke and resistor activation system

CZIP-1S

Protections:
Overcurrent time-lag + operational characteristics
Overcurrent short-circuit
Overcurrent short-circuit of cumulative rails
Earth fault
Automation:
Local circuit-breaker back-up
Works with Automatic back-up activation system

CZIP-1C

Protections:
Overcurrent against overloads
Overcurrent time-lag against interphase short-circuits
Overcurrent against internal short-circuits
Overcurrent earth faults
Overvoltage
Automation:
Clock controlling Capacitors battery activation
Works with Local circuit-breaker back-up

CZIP-1U

Protections:
Phase overvoltage
Phase undervoltage
Overvoltage earth fault
Automation:
Automatic frequency mistuning (subfrequency II-stage)
Automatic re-activation/Automatic frequency mistuning

CZIP-1M

Protections:
Independent short-circuit (interphase)
Dependent short-circuit (overcurrent)
Against results of asymmetry
Against idle operation
Thermal against results of overloads
Against results of prolonged start-ups
Underpower against results of active power drop
Against rotor blocking
Group of voltage protections
Earth fault: independent overcurrent, admittance
Automation:
Works with Automatic frequency mistuning and Automatic re-activation/Automatic frequency mistuning
Start-up of Local circuit-breaker back-up

CZIP-2R

Automatic back-up activation in open and hidden back-up circuits
Undercurrent element Overcurrent element
Control of residual voltage
Control of voltage differences
Permanent locking of Automatic back-up activation system
Temporary locking of Automatic back-up activation system

CZIP-3H

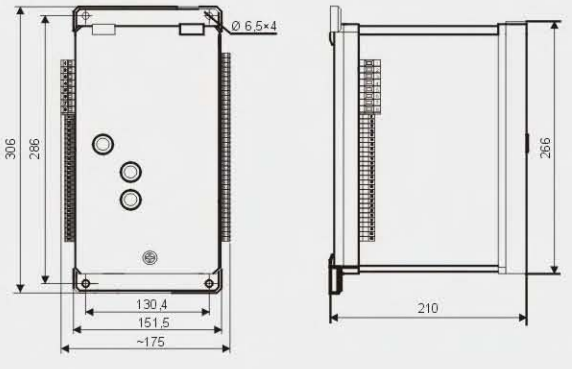
Protections:
Overcurrent against overloads
Overcurrent time-lag against external interphase short-circuits
Overcurrent short-circuit against internal interphase short-circuits
Zero-current against earth faults
Zero-voltage against earth faults
Automation:
Works with Automatic back-up activation system
Works with Local circuit-breaker back-up

CZIP-4Q

Measurements:
In a selected section, in coupled sections, measurement time about 4 seconds
Measurement locks:
During earthing, during Automatic forcing of active component, after overload of a forcing device
Protections:
Overcurrent forcing

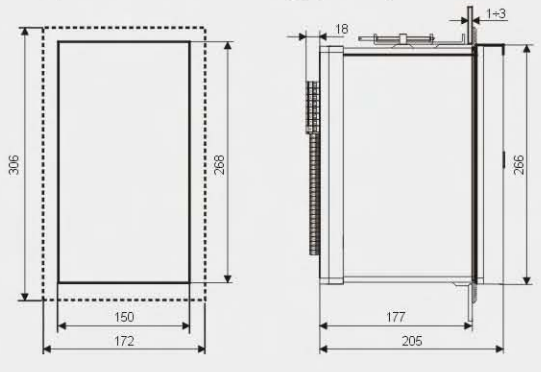
Types of mounting and dimensions [mm]

On-board mounting

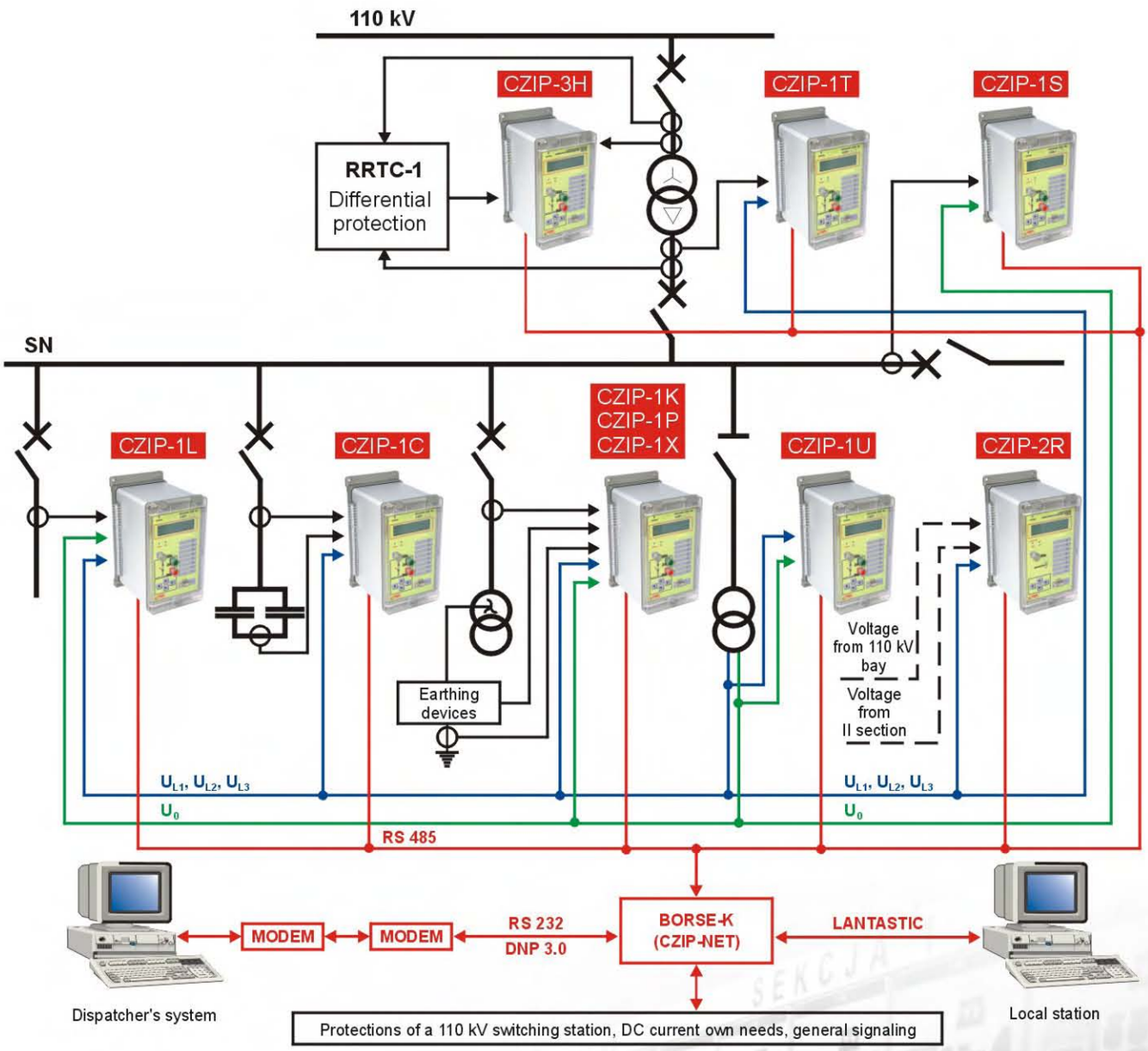


Behind-board mounting

Preparation for mounting (holes)



General diagram



CZIP is equipped with the Earth Fault Parameters Evaluation System, which converts data obtained from a hub into a form which describes the current state of a network and conditions of operation of earth fault automatic system, enabling the achievement of:

earth capacity currents in lines
currents in a circuit used for earthing the neutral point of a network (resistor, choke, devices for automatic forcing of active component)

The program included in the system also: evaluates earth fault protection settings, checks the efficiency of a compensating circuit and devices for automatic forcing of active component. The results of the program functioning are the basis for the verification of current settings and enable relevant corrections including parameters of a compensating choke.

Due to the policy of constant development, Relpol S.A. reserves the right to change data and characteristics of products.

Equipment should be operated by qualified personnel, according to regulations concerning electronic systems. Technical data are presented for information. Therefore, Relpol S.A. is not responsible for improper use of presented products.

Catalogues of products and certificates are available at **www.relpol.com.pl**

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