



RCW-3

**MONITORING CONTINUITY
OF THE TRIPPING CIRCUIT**



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CERTYFIKAT IEn

NR 033/2012
(POŚWIADCZENIE)

*Nazwa i adres
posiadacza certyfikatu:*

Zakład Produkcyjny Aparatury Elektrycznej Sp. z o.o.
ul. M. Konopnickiej 13,
41-100 Siemianowice Śląskie

Nazwa wyrobu:

Przełącznik kontroli ciągłości obwodów wyłączających

Typ (odmiany):

RCW-3

Producent:

Zakład Produkcyjny Aparatury Elektrycznej Sp. z o.o.
ul. M. Konopnickiej 13,
41-100 Siemianowice Śląskie

*Podstawowe parametry
i zastosowanie:*

Według załącznika
Przełączniki przeznaczone do kontroli ciągłości obwodów
wyłączających i sygnalizacji jej braku.

*Wyrób spełnia wymagania
zawarte w:*

PN-EN 60255-1:2010

*Zgodnie ze sprawozdaniem
z badań wykonanym przez:*

Instytut Energetyki

Nr i data sprawozdania:

EAZ/1541/2012

Okres ważności:

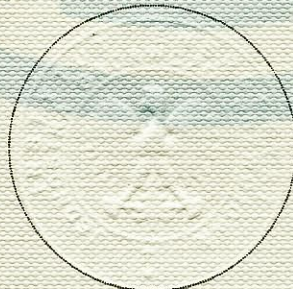
od listopada 2012 do listopada 2017

Prawo do posługiwania się certyfikatem w okresie jego ważności dotyczy wyłącznie tych egzemplarzy/partii wyrobów, które spełniają wyżej określone wymagania i posiadają identyczne właściwości (parametry) jak wzory/próbki wyrobów przedstawione do badań.

Zestawienie przypisanych parametrów wyrobu zawiera załącznik do niniejszego certyfikatu.

Model certyfikacji obejmuje:

- badania i ocenę jakości projektowej,
- ocenę systemu jakości dostawcy.



DYREKTOR
INSTYTUTU ENERGETYKI

Jacek Wańkowicz
dr hab. inż. Jacek Wańkowicz

Warszawa, dnia 22.11.2012 r.

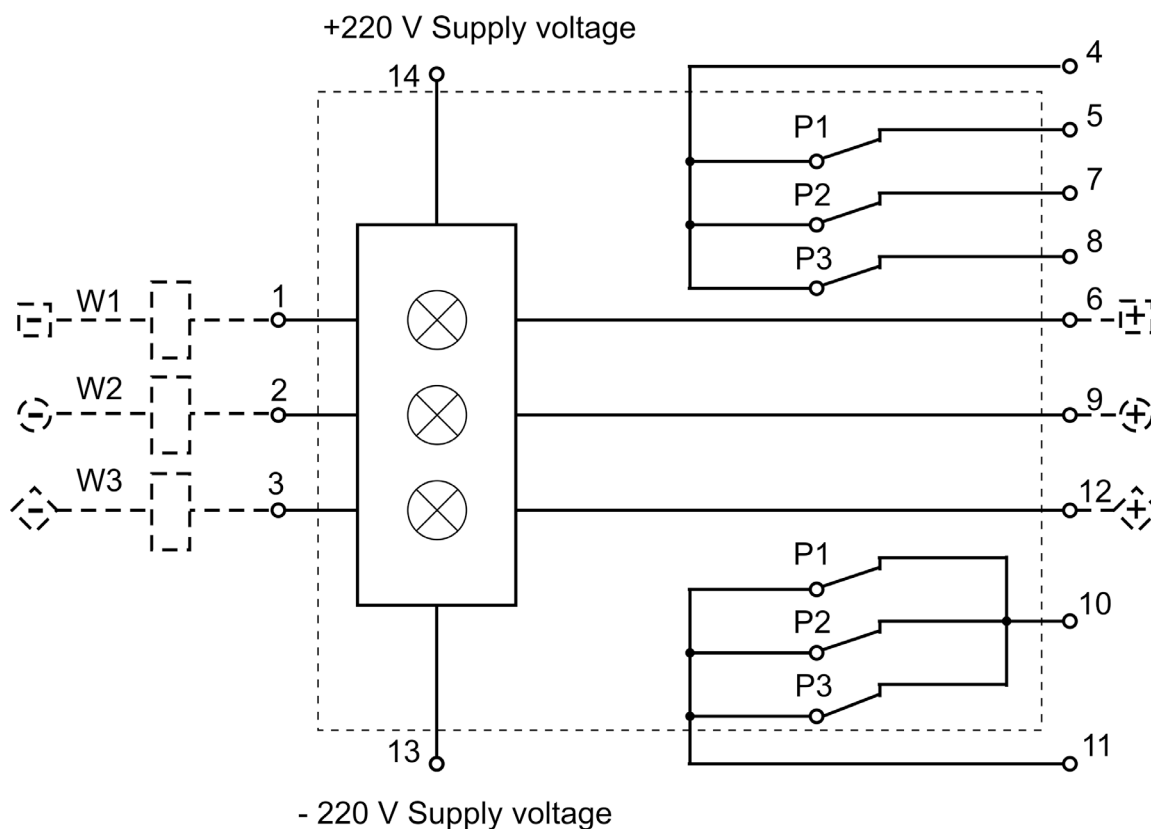
APPLICATION

The RCW-3 relay is designed for monitoring continuity of a tripping circuit, and signalling its loss. The relay may monitor continuity in one, two or three tripping circuits of power breakers. The RDC-3 set of resistors if designed to cooperate with RCW-3 relay.

CONSTRUCTION

The RCW-3 relay has three independent, isolated input elements. Each element is equipped with: LED indicating the state of the monitored circuit, independent contacts – made in case of lack of the circuit continuity or loss of supply voltage, and a W/Z switch – turning on or off the input element. The relay is also equipped with a LED signalling power supply, and one make contact signalling lack of continuity of any of the active circuits or loss of supply voltage.

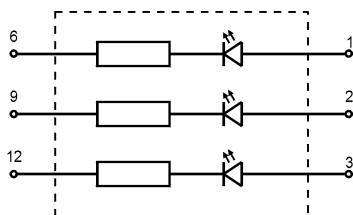
The scheme of connections (terminations) of the relay is presented on picture 1.



Picture 1. The relay monitoring continuity of the tripping circuit type RCW-3 – functional scheme

The RDC-3 set of resistors contains 3 independent, isolated circuits. Each one of them consists of resistors and a diode signalling current flowing through the resistor.

The scheme of connections (terminations) of the set is described on picture 2.



Picture 2. RDC-3 set of resistors – functional scheme of terminations.

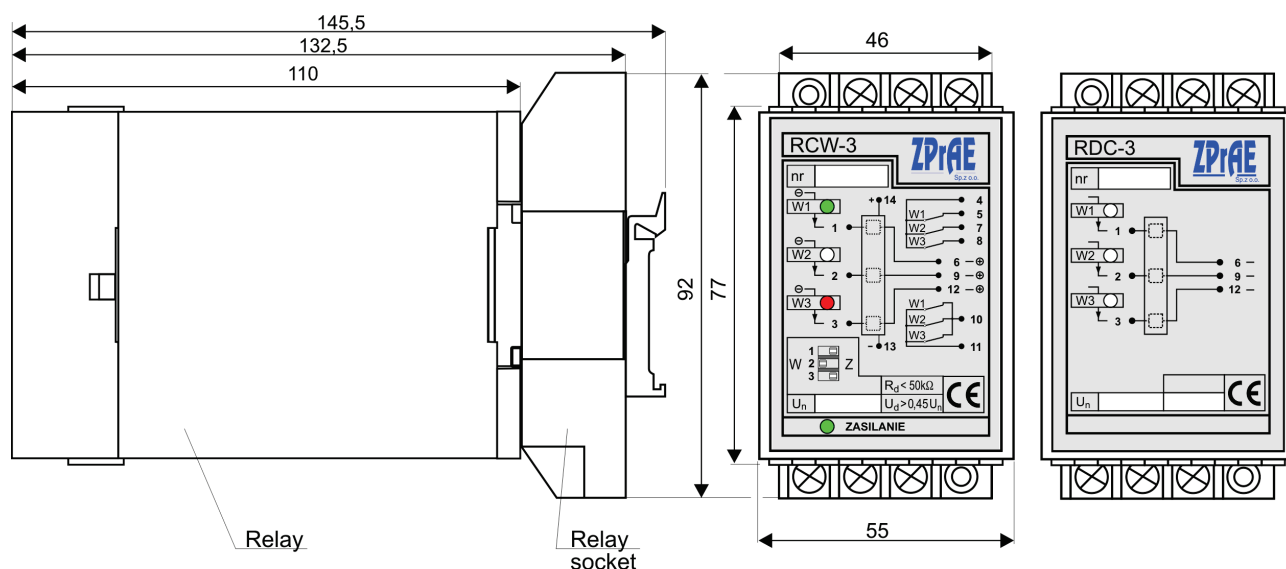
The RCW-3 relay as well as the RDC-3 set of resistors are mounted in a typical CN 55 AK housing, sizes 110 × 55 × 77 mm, with 14 terminations in a form of a plug, suitable to be mounted in a GZ-14 socket (plate-mounting), GZ-14U (35 mm bus-mounting), identically as for the R15 4P relay. The dimensions are presented on picture 3.

OPERATION

When supply voltage is not applied to the relay all diodes are out, and the output relay is not energised (all contacts are made). After application of voltage to terminals (13/14) the output relay is powered and a green LED lights up. All the input elements that are OFF, have their diodes out and relays steadily energised. All the input elements that are ON, have their diodes on (red light) and the relay is not energised (all contacts are made). In a specified time t_z after confirming continuity of the tripping circuit (when the input resistance between the input terminal and the voltage negative pole is lower than R_d or the input voltage between the input terminal and the voltage positive pole exceeds U_d) the relay of this input element operates (contacts are broken) and a green diode lights up. In case, the resistor identifies lack of continuity (when the input resistance exceeds R_d or the input voltage is lower than U_d) after a specified time t_p the relay releases (contacts are made) and the colour of the LED changes into red.

The W/Z 1,2,3 switches turn ON (pos. right) or OFF (pos. left) a specified input element. In case the input element is ON, the state of the relay and colour of the LED depend on the monitored circuit. When the input element is OFF the LED is out and the relay is steadily energised.

Application of the RDC-3 set of resistors ensures proper monitoring of tripping circuits continuity by RCW-3 also when the circuit breaker is open. However, if the "trip" impulse is permanent, the RCW-3 will signal lack of circuit continuity. In such case the diodes in RDC-3 light up, informing about persisting tripping impulse. The method of connection of the RCW-3 to the steering circuits of the power breaker is presented on pictures 4-7.



Picture 3. Dimensions of the housing

TECHNICAL INFORMATION OF THE RCW-3 RELAY

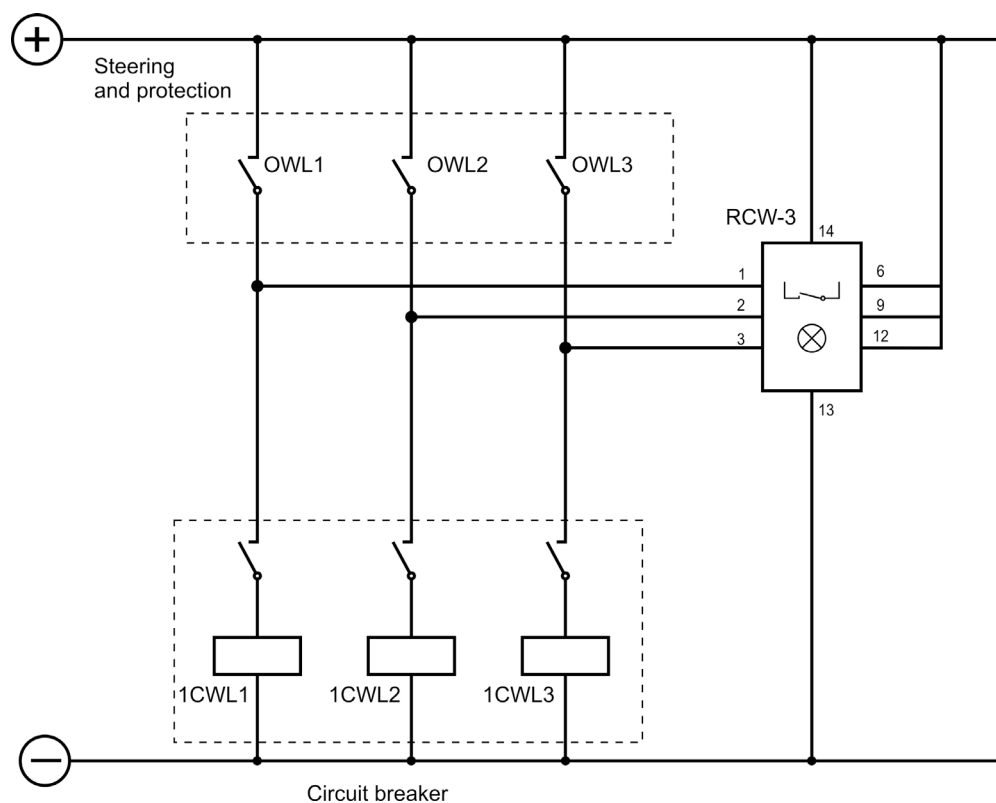
Supply Voltage	
Rated voltage of the coil	UN = 220 V DC, or other as ordered
Operate range of the input voltage	0,8 ... 1,1 UN
Monitored circuit	
No. of controlled circuits	1,2 or 3
Voltage to operate (default settings)	$U_d > 0,45 U_n$ or other as agreed
Operate time t_z (default settings)	$t_z = 1$ s or other as ordered (0,1...15 s)
Release time t_r (default settings)	$t_r = 3$ s or other as ordered (0,1...15 s)
Output contacts	
Maximal continuous current	I = 5 A
Maximal breaking capacity	I = 0,1 A for U = 220 V
Insulation	
Rated insulation voltage	250 V
Rated impulse voltage (1,2/50 μ s) between the coil and the contacts	4000 V
Overvoltage category	III
Proof voltage between the coil and the contacts	2 kV; 50 Hz; 1 min
General information	
Ingress Protection of the housing (IP)	IP40
Ambient temperature	From -5 °C to +40 °C
Terminations (socket / plug)	As for R15 4P
Signalisation of Operation	LED diode, contacts of the resistor
Dimensions	77 × 55 × 110 mm (H×W×D)
Mounting	Mounting socket
Weight	<0,3 kg

TECHNICAL INFORMATION OF THE RDC-3 SET OF RESISTORS

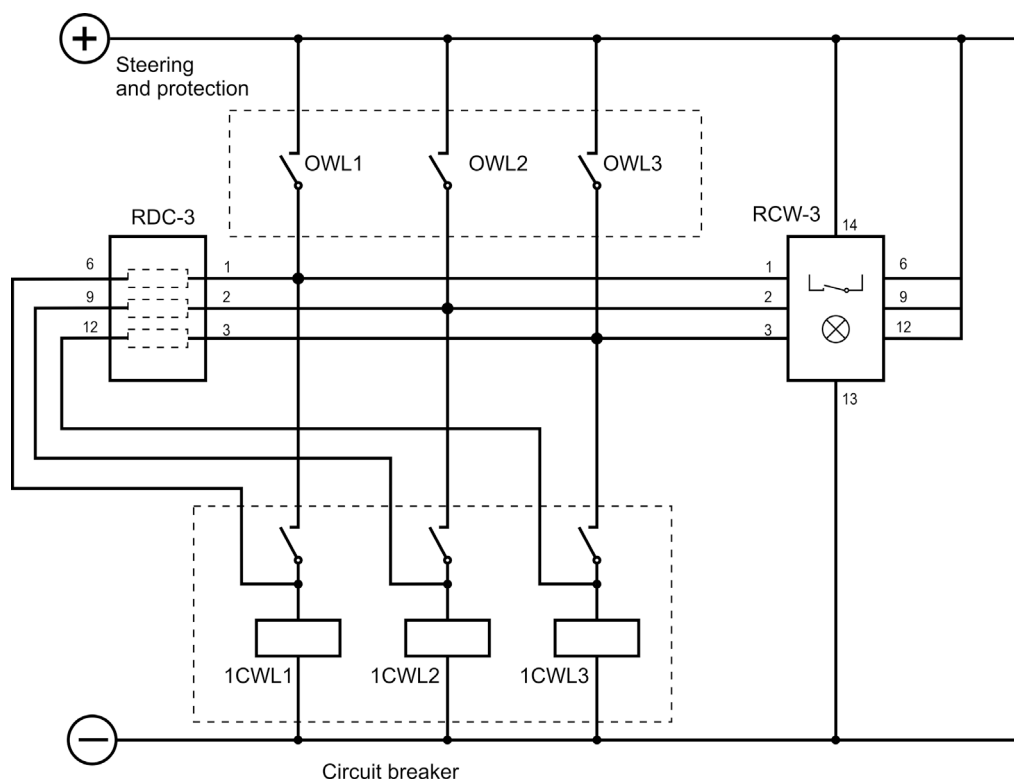
No. of circuits	1, 2 or 3
Resistance of each circuit	R = 36 k Ω
Rated voltage	Un = 220 V DC or other
Input Power	P = 1,4 W in each circuit
Ingress Protection of the housing (IP)	IP40
Ambient temperature	From -5 °C to +40 °C
Terminations (socket / plug)	As for R15 4P
Dimensions (without socket)	77 × 55 × 110 mm (Picture 3)
Mounting	See picture 3
Weight	<0,3 kg

Attention:

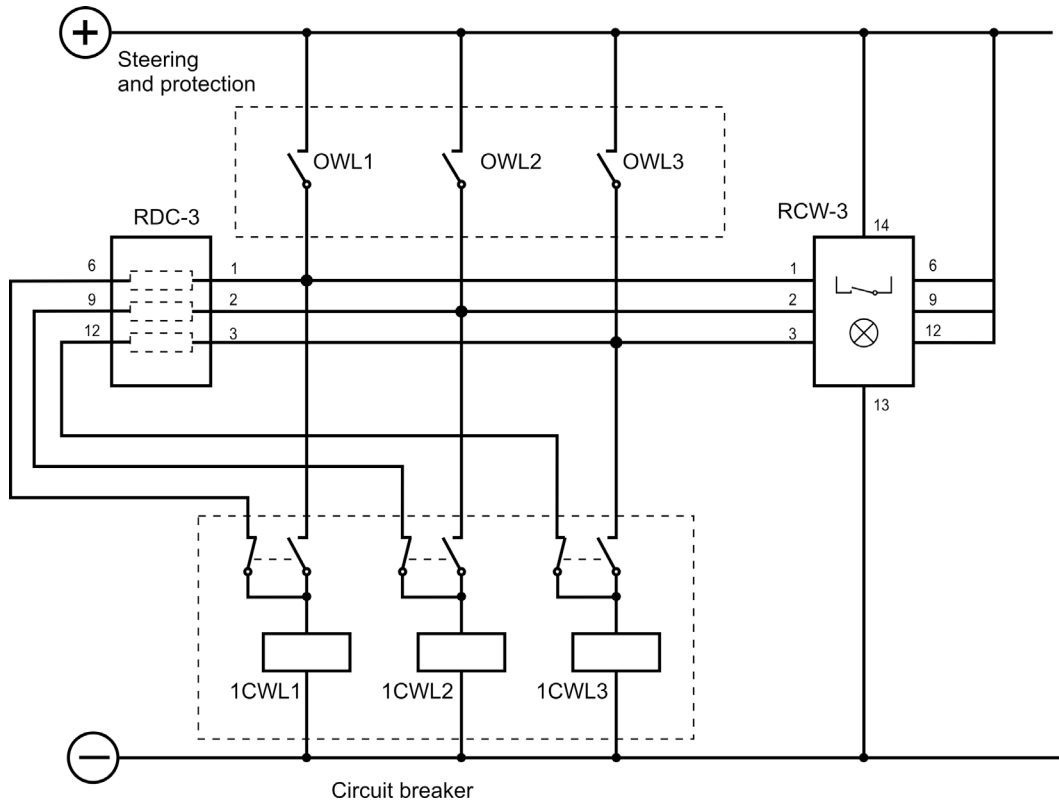
We have prepared a vast offer of auxiliary equipment in order to support mounting of our relays (cases, sockets, plugs). The auxiliary equipment is designed based on our clients suggestions and many years of our own experience. More information can be found in catalogue: "GZ-14/GZ-14Z, R-8614/R8614Z, ZAS-55, ZAS-70, sockets, cases, plugs" available at www.zprae.pl



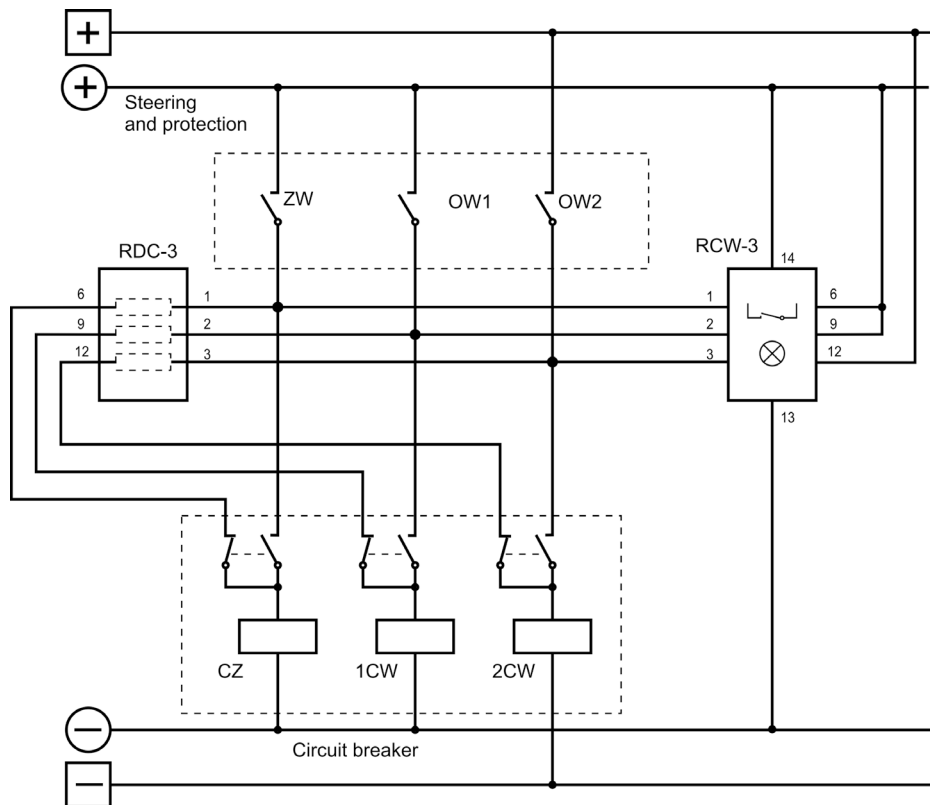
Picture 4. Scheme of connecting the RCW-3 relay to the circuit of power breaker for breaking each phase.



Picture 5. Scheme for connecting the RDC-3 set of resistors and RCW-3 relay to the circuit of power breaker for breaking each phase.



Picture 6. Scheme for alternative connecting the RDC-3 set of resistors and RCW-3 relay to the circuit of power breaker for breaking each phase.



Picture 7. Scheme for connecting the RDC-3 set of resistors and RCW-3 relay to the circuit of power breaker for 3-phase breaking.

RCW-3 + RDC-3



OFFER



RSH-3, RSH-3S - tripping

RS-6, RPD-2, RPP-4, RPP-6 - interposing

RMS-2 - signalling

RCW-3, RCDW-1 - circuit continuity monitoring

RKO-3 - power supply circuit
continuity monitoring

RB-1, RBS-1, RBS-2 - bistable

RT-22 - time

RUT-2, RUT-3 - time-voltage

RJT-1, RJT-3 - time-current

RKU-1, RKS-1 - final controlling

LZ-1, LZ-2 - operation counters

RPZ-1 - supply source switching

GPS-1 - time synchronisation

MDD-6, MDS-12 - Diode modules

PH-XX, PS-XX - Modules of switches,
pushbuttons and control lamps

Relay racks

Busbar protections and breaker failure
protections type TSL-9r, TSL-11

Auxiliary and signalization
relays

Reserve Central Signalling System
type MSA-9, MSA-12, MSA-24

Protection relays
type AZT-9, APP-9

Disturbance recorder RZS-9

Energy measurement system
and event recorder ZRZ-28

Load Resistors
for measuring transformers

DC and AC auxiliary
power supply switchgears

Cubicle-contained sets of control
and supervision protections

Modular power supplies, measuring suitcases,
measuring and registering system RFQ-8

PROFIL-L cubicles

Periodical and post-failure tests,
as well as repairs and overhauls
of busbar protections TSL

Servicing, strting-up
and post assembly tests

ZPrAE
Sp.z o.o.

ZAKŁAD PRODUKCYJNY APARATURY ELEKTRYCZNEJ

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Przeznaczone do wytworzenia i sprawdzenia przy użyciu urządzeń zakupionych w ramach projektu współfinansowanego przez UNIĘ EUROPEJSKĄ z Europejskiego Funduszu Rozwoju Regionalnego w ramach Programu Operacyjnego Województwa Śląskiego na lata 2007 - 2013



PROGRAM
REGIONALNY
NARODOWA STRATEGIA SPÓJNOŚCI



Śląskie.
Pozytywna energia

UNIA EUROPEJSKA
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ROZWOJU REGIONALNEGO

