RST – Transformer Switchgear of MV/LV Pole Stations

REM 2 Design

APPLICATION

- In terms of electricity distribution;
- protection of outlet circuits on the nN side;
- protection of electrical equipment against the effects of short circuits and surges and in distribution networks;
- for balancing energy consumption and control measurements;
- can operate in TN-S, TN-C, TN-C-S, TT and IT three-phase networks;
- designed to be mounted under a transformer on a pole.

EQUIPMENT

Enclosure

Aluminum OU-1/OU-2

- aluminum sheet with a minimum thickness: 2 mm, bent, welded together, suitable for side fastening;
- high mechanical strength and a degree of protection that prevents the ingress of dust and mechanical damage;

  powder coated in any colour (e.g. RAL 7032, 7035);
- the dimensions of the switchgear are free, tailored to the individual needs of the customer.

The aluminum enclosure is made in protection class I or II.

Common features of OU enclosures

- double-sided doors, separate for individual modules, opening at an angle of 180 degrees, three-point locking;
- internal hinges with anti-burglary striker;
- basque lock lockable with a padlock or system cylinder;
- gable or envelope roofs equipped with fireplaces with diameters adapted to the dimensions of multi-finger heat-shrinkable heads;
- the bottom of the enclosure has a hole for cable entry through the cable duct;
- Marking of the switchgear with durable engraved plastic plates, enabling the identification of all relevant components.

The enclosure has a ventilation labyrinth to prevent the accumulation of water and moisture.

Accessories

- K-AL cable duct, made of aluminum sheet or composite, in any color. The dimensions of the duct are adapted to the number of circuits and the height of the enclosure;
- FM metal or FB concrete foundation, allowing the switchgear enclosure to be installed as a free-standing foundation at the station pole;
- OM clamps made of galvanised steel profiles, enabling direct mounting of the switchgear on the rod. The design of the enclosure provides any spacing and shape of clamps;
- The P-stand allows additional support and support points for the switchgear enclosure with non-standard equipment such as increasing the number of apparatus and devices, rail cross-section.

Current tracks

- current circuits made of screwed copper flat bars with a cross-section selected for the current load, equipped with pressed-in rivet nuts enabling the assembly of live strip apparatus;
- PEN rail can be divided into PE and N.

Configuration

MZ/MO - supply and drain module

- power supply made by means of separate V or VLM terminals for two cables with a cross-section of up to 2x4x240A and 4x240A;
- power strip and box fuse disconnectors or circuit breakers: 400/630/910/1250 A with or without burn-out control of KPW inserts;
- power supply of the generator bay with 400 A/630 A strip switch-disconnector;

- drain disconnectors or strip and box fuse bases 160/250/400/630/910 A with or without burn-out control of KPW inserts;
- current transformers of the measuring and balancing module selected in accordance with the guidelines of the energy distributor and seller;
- back-up circuits shielded without and with liner burn-through control.

MP - metering and balancing module in accordance with the guidelines of the energy distributor and seller;

SON - lighting module, a system for controlling street lighting in the vicinity of the station.

RATED PARAMETERS

Rated switching voltage:	230/400 V
Rated insulation voltage:	690 V
Rated frequency:	50 Hz
Surge voltage withstanding:	12 kV
Rated continuous current of the main rails:	400/630/910/1250 A
Rated continuous current of drain rails:	160/250/400/630/910 A
Rated short-term withstand current:	20 kA (1 s.)
Rated peak withstand current:	40 kA
Short-circuit current of internal arc discharge:	16 kA
IP rating:	44
IK degree of mechanical resistance:	10
Protection class:	I/II
Network Layouts:	TN-S, TN-C, TN-C-S, TT, IT
Height/Width/Depth:	Unlimited

COMPLIANCE WITH STANDARDS

- **PN-EN 61439-1**
  'Low-voltage switchgear and controlgear assemblies - Part 1: General provisions';
- **PN-EN 61439-2**
  'Low-voltage switchgear and controlgear assemblies - Part 2: Switchgear and controlgear assemblies for electrical power distribution';
- **PN-E-05163**
  "Low-voltage switchgear and controlgear assemblies covered. Guidelines for testing under conditions of arc discharge resulting from an internal short circuit';
- **PN-EN 50274**
  'Low-voltage switchgear and controlgear assemblies - Protection against electric shock - Protection against unintentional direct contact with hazardous live parts';
- **PN-EN 62208**
  "Empty enclosures for low-voltage switchgears and control rooms. General requirements';
- **PN-EN 60529**
  "Enclosure Ratings (IP Code)";
- **PN-EN ISO 4628**
  "Paints and varnishes - Assessment of the deterioration of coatings - Determination of the amount and extent of damage and the intensity of uniform changes in appearance - Part 6: Assessment of the degree of chalking by tape";
- **PN-EN ISO 2409**
  "Paints and varnishes — Grid incision testing";
- **PN-EN 62262**
  "Degrees of protection against external mechanical impacts provided by enclosures of electrical equipment (IK code) (IDT PN-EN 50102:2001)".