



APPLICATION

- For industrial, non-industrial, power engineering, public use and commercial facilities, container stations and other.
- To be used as primary switchgears, sectional or switching/connecting switchgears.
- Protection of electrical devices against consequences of shortings and overloads on the LV side.
- Distribution and measurement of electricity.

GENERAL CHARACTERISTICS

The RP industrial switchgears feature simple and clear layout of electrical connections and the design that guarantees safety of operation. With high degree of protection (IP 4X – IP 54), the RP switchgears are used in direct vicinity of machines and devices. Reliability and easy expansion are very important factors in designing our switchgears.

The main advantages are:

- Resistance to mechanical damages.
- Clear layout of connections.
- Safety of use.
- Reliability of operation.
- Easy expansion.

EQUIPMENT

Configuration

A.MZ - The incoming module with the disconnecting switch (max. 4000 A) or power switch (max. 4000 A) with the possibility of locking under load, the cables are run from the top or from the bottom with rail or cable systems.

B.MS - The coupling module for operation as an SZR unit along with the incoming modules. the cables are run from the top or from the bottom with rail or cable systems.

B.MP - The measurement module strip-type fuse-switch-disconnectors, moulded-case fuse-switch disconnectors or MCCBs (160 A to 1250 A), available devices: NSL, SL, ARS, LTL, SLBM, RBK, RB-2(s), other, the size of the 00 group inserts: 4.

- The power supplied with cables, with V type terminals for two cables with the cross section up to 240 mm².
- The current circuits with the cross section matching the load (Cu), The PEN busbar with the possibility of PE + N separation.
- Covered redundancy circuits.

D.BK - The reactive power compensation module - compensation of inductive and capacitive reactive power up to 400 kVar.

E. Other modules e.g. control or communication.

The RP industrial switchgears are fitted with distribution, protection and control components for the main and auxiliary circuits, which may be installed as cubicles:

- Fixed, with all the components installed permanently on the board or on the TH35 rail.
- Withdrawable, as a single unit or a set of units installed in a sliding cassette.



The RP industrial switchgears are also provided on the basis of systems from other producers.

Enclosure

Steel OU-1(2), aluminium OU-1S

- Internal or external, free-standing or wall-mounted on a plinth.
- Open-work, made of steel frame covered with steel or aluminium sheet (welded and screwed).
- Powder painted in any colour (RAL), with surface structure highly resistant to destruction.
- Connected to the plinth.
- Polyurethane foam gaskets.
- Provided in Class I or II appliance standard.
- Up to IP 55 protection level.
- Mechanical resistance up to IK 08.

Installation parts:

- Vertical installation profiles: steel, with openings, installed on the frame.
- Installation base: galvanised, installed on vertical installation profiles made of galvanised sheet for current circuit switches.
- Wire ducts with the cross section matching the type and number of cables.
- 19" internal tilting frame, symmetrical or asymmetrical.
- Cable clamps with the cable management bar.
- Masking panels: made of plastic or sheet metal, installed to the enclosure structure or to the internal frame with masking panel clamps.
- The control panel with the mimic panel, made in a unique way by applying offset-printed sheets affixed on the whole surface of the panel, with the possibility of printing any design. Installed in the internal frame.
- Lighting: two fluorescent lamps installed in the upper part to ensure uniform illumination along the entire width. Limit switches

and a cam switch are installed in the cabinet (the components may be installed in any place, as required by the Client).

- Ventilation with a fan and proper openings in the enclosure to allow continuous flow of air.

Framework: steel frame

- Made of welded steel profiles.
- With openings for installation of the board or of vertical installation profiles.

Side covers

- Installed to the frame with Allen screws.
- Metal sheet thickness matching the dimensions.
- The width of the enclosure does not change with side covers installed.

Door

- Solid or transparent.
- Opened to one or both sides (the back cover) to ensure better access to the components.
- With one or two wings.
- With a pin tumbler lock (of any shape) or an espag lock with a system cylinder and an additional padlock.
- Three-point bolts.
- Internal hinges.
- Opening to 120°.
- Ground bolts with cables.

Roof

- Made of adjustable-height cover to ensure additional ventilation.
- The cover has additional openings, with grommets to run cabling from cable routes.
- Eyebolts.

Base

- With an opening with a cable grommet to run the cables from the cable duct.



- Ready for installation of the plinth with screws.

Dimensions

The size matching the type and range of devices and individual needs of the Client.

Typical dimensions:

- Height: 1800/2000/2200 mm.
- Width: 400/600/800/850/1000/1050/1250/1400 mm.
- Depth: 250/300/400/600/800 mm.

Modular enclosure

- Compact, lightweight modular framework design made of steel galvanised or aluminium profiles, connected with cast aluminium or polyamide connectors for connecting individual elements without any tools and ensuring the proper rigidity of the structure.
- High mechanical strength and protection level to prevent penetration of dust and mechanical damages.
- Full enclosure, covers made of steel sheet with an anti-corrosion coat, powder painted in any colour, provided as fixed or tilting units for easy inspections and thermography observation.
- The internal space with isolated parts: functional modules, current circuits.
- Allows to change the power supply side by replacement of the switchgear power supply module or installation of the metering module.
- Connection of the modules with screws (without riveting or welding) for quick removal of the modules, delivery of the switchgear in modules to the place of installation (when space is limited) and assembly on site.
- Set on an additional frame matching the dimensions of the cable duct.
- The switchgear can be built to any dimensions, to meet the specific

needs of the Client.

- Angular connection of modules, e.g. at 90°.
- Eyebolts for (travelling) crane transport.

Accessories

- **Plinth:** solid or ventilated, of any height.

Markings

The external marking of the cabinets is laser engraved on metal or plastic plates of any colour, the markings of the components and cabling are provided on the basis of the PN-EN 61082-1 standard. The electrical devices are described in accordance with the diagram of the internal connections and the design guidelines. Mimic panels are executed in a unique way by applying offset-printed sheets on the whole surface of the installation base, with the possibility of printing any design.

Busbars

Busbars and their connections are made of Cu, matching the required current load and the types of the components. Cu busbars may be located in any part of the module (top, back, bottom) and their profiling allows easy access during setting up the cables.

BASIC TECHNICAL DATA

Rated operational voltage:	230 V / 400 V
Insulation rated voltage:	500 V / 690 V
Rated frequency:	50 Hz
Impulse withstand voltage:	8 kV
Bus bar rated continuous current:	1250/1600/2500/4000 A
Outgoing busbar rated continuous current:	160/250/400/630 A
Rated short-time withstand current:	40 kA (1 s.)
Rated peak withstand current:	80 kA
Internal arc short-circuit current:	20 kA
IP protection level:	4X/2X, 44-55
IK level of protection against mechanical impact:	10
Appliance class:	I
Dimensions of incoming / outgoing terminals:	without limitations
Network arrangements:	TN-S, TN-C, TN-C-S, TT, IT
Height / width / depth:	without limitations

COMPLIANCE WITH STANDARDS

- **PN-EN 61439-1**
„Low-voltage switchgear and controlgear assemblies. Part 1: General rules.”;
- **PN-EN 61439-2**
„Low-voltage switchgear and controlgear assemblies - Part 2: Power switchgear and controlgear assemblies.”;
- **PN-E-05163**
„Enclosed low-voltage switchgear and controlgear assemblies. Guide for testing under conditions of arcing due to internal fault.”;
- **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 switchgear and controlgear assemblies - General requirements.”;
- **PN-EN 60529**
„Degrees of protection provided by enclosures (IP Code)”;
- **PN-EN ISO 4628**
„Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 6: Assessment of degree of chalking by tape method.”;
- **PN-EN ISO 2409**
„Paints and varnishes - Cross-cut test.”;
- **PN-EN 62262**
„Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code) (IDT PN-EN 50102:2001)”.

