



**ELECTROSHIELD  
SAMARA**



# **KRU-SESH-70-35**

**SWITCHGEAR FOR RATED VOLTAGE OF 35 kV**

**▼ POWERING YOUR FUTURE**

# TABLE OF CONTENTS

<b>Scopes of Application</b>	<b>4</b>
<b>KRU-SESH-70-35</b>	<b>5</b>
<b>Advantages for Users</b>	<b>6</b>
<b>Technical Data</b>	<b>6</b>
<b>Embedded Equipment</b>	<b>7</b>
<b>Technical Description of Device</b>	<b>7</b>
<b>Layout and Structure</b>	<b>8</b>
<b>Separate Devices and Elements</b>	<b>9</b>
<b>Service Solutions</b>	<b>10</b>

More detailed information in TI – 203-2018 at website [www.electroshield.ru](http://www.electroshield.ru)

# SCOPES OF APPLICATION

Generation



Grid companies



Oil and gas production and processing

**KRU-  
SESH-70-35**



Transport



Industrial enterprises



Urban networks



The products contained in this catalog are manufactured using the certified management system ISO 9001. The certificate is issued by Bureau Veritas Certification Holding SAS – UK Branch.

# KRU-SESH-70-35

The modern design solution provides convenience, simplicity and safety of operation



# ADVANTAGES FOR USERS

**KRU-SESH-70-35** is a two-side service switchgear, designed to receive and distribute AC three-phase electric energy with rated voltage of 35 kV and current of 630-2500 A with a frequency of 50 Hz. The arrangement of the switch in the front part of the cabinet ensures convenience of working with cable harnesses and transformers.

Advantages	Design features
Reliability	<ul style="list-style-type: none"> <li>• Key units are manufactured at the same enterprise</li> </ul>
Maintenance convenience	<ul style="list-style-type: none"> <li>• Current transformers are located within reach distance, access to secondary circuits is provided conveniently from the switch section</li> <li>• Earthing switch is mounted in the rear part of compartment of linear connection, its turned-on knives are well visible through windows in the rear side of cabinet</li> <li>• Control panel is on the facade door of the cabinet. The main controls and meter are placed on the panel at the level of human eyes</li> </ul>
Safety	<ul style="list-style-type: none"> <li>• The main units of the switchgear operation (withdrawable element, switch, earthing switch) with ability of full remote control (with repeater local manual control)</li> <li>• Shell localizing the arc within cabinet sections</li> <li>• Voltage presence indication</li> <li>• All the HV sections have valves to relieve overpressure. Valves of all sections are opening upwards, directing release to unmanned zone</li> </ul>
Wide range of options	<ul style="list-style-type: none"> <li>• 2-, 3-, 4- and 5-winding current transformers with sealing of the measuring circuits</li> <li>• Optionally: video monitoring of the position of the withdrawable element and the earthing switch</li> <li>• Optionally: withdrawable element electric drive</li> <li>• Optionally: earthing switch control electric drive</li> </ul>

# TECHNICAL DATA

Description of parameter	Value of parameter
Rated voltage, kV	35
Rated frequency, Hz	50
Rated current of main circuits of cabinets, A	630; 1000; 1250; 1600; 2500
Rated current of collecting buses, A	1000; 1600; 2500
Rated breaking current of switch built in the switchgear, kA	25
Thermal resistance current, kA	25
Short-time electrodynamic current, kA	64
Thermal resistance current of collecting buses, kA	31,5
Short-time electrodynamic current of collecting buses, kA	81
Cabinets weight, no more than, kg	2200
Protection degree of shells under GOST 14254-2015 in operating condition	IP30, IP31, IP40, IP41
Climatic version and placement category under GOST 15150-69	U3
Overall dimensions, mm: width / height / depth	1200 / 2415 / 2955

# EMBEDDED EQUIPMENT

Vacuum circuit breaker	HVX40
Current transformers	TOL-SESH-35
Zero-phase sequence current transformers	TZLK-SESH-0.66
Voltage transformers	ZNOL(P)-NTZ-35

Full list of equipment used in KRU-SESH-70-35 is provided in the technical information. If necessary, all the equipment specified in TI-203 can be included in the table.

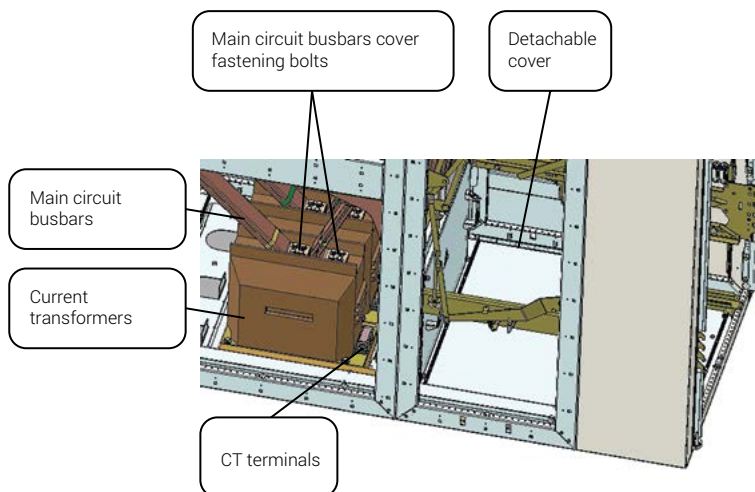
## FEATURES OF DEVICE

Switchgear KRU-SESH-70-35 is a two-side service device. All operational switching is done from the cabinet facade.

### About access to current transformers

For access to the secondary circuits of current transformers, repair of the cabinet, withdrawal of circuit breaker to repair, an inventory guide is used. For access to the terminals of current transformers:

- open the door of withdrawable element section;
- roll out the draw-out element to a repair position;
- remove the metal cover separating the withdrawable element section and the linear connection section.



**Fig. 1 – Access to current transformers**

### About secondary wiring trays

In KRU-SESH-70-35 cabinets, built-in trays are used for laying control and power cables of secondary connections along switchgear section. The trays are located at the top of the relay cabinet and have a folding cover that provides easy access to cable routing. The channel section inside the trays is 16,300 mm<sup>2</sup> for control cables and 7,200 mm<sup>2</sup> for power cables. Inside the channel, there is a metal partition for separation of control and power cables.

The trays are an integral part of the cabinet structure, which allows to refuse from hanging trays within switchgear section.

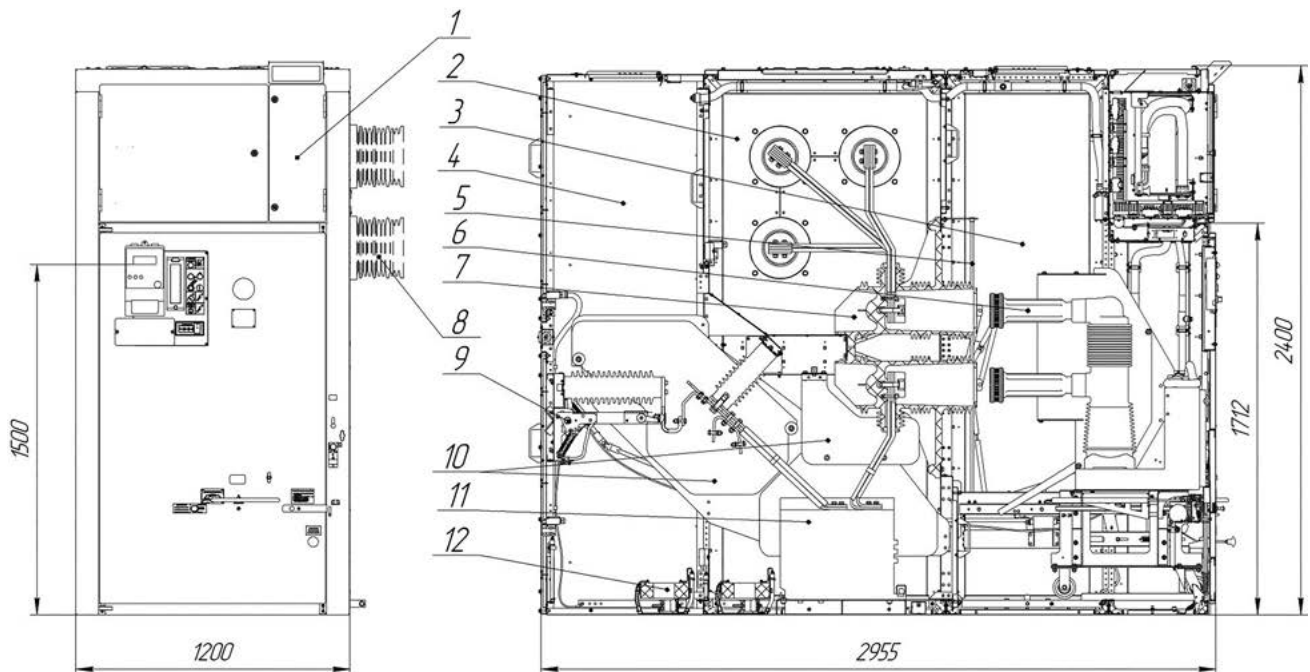
Hanging cable trays are used for the organization of communication between sections or for laying a route to stand-alone equipment (outside the sections).

# LAYOUT AND STRUCTURE

Cabinet KRU-SESH-70-35 is a framed modular structure consisting of several modules, assembled with the help of junction elements.

The volume of cabinet is divided by partitions into 4 sections:

- linear connection section;
- withdrawable element section;
- busbar section;
- relay section (relay cabinet).



**Fig. 2 – Conventional layout of cubicle of KRU-SESH-70-35**

1 – relay cabinet; 2 – busbar section; 3 – withdrawable element section; 4 – linear connection section; 5 – shutter mechanism; 6 – switch on withdrawable element; 7, 8 – bushing insulators; 9 – earthing switch; 10 – isolating partitions; 11 – current transformers; 12 – zero-phase sequence current transformers.

The withdrawable element is separated from the linear connection section and the busbar section by a panel with bushing insulators. From the linear connection section, the switch is separated by a removable metal panel.

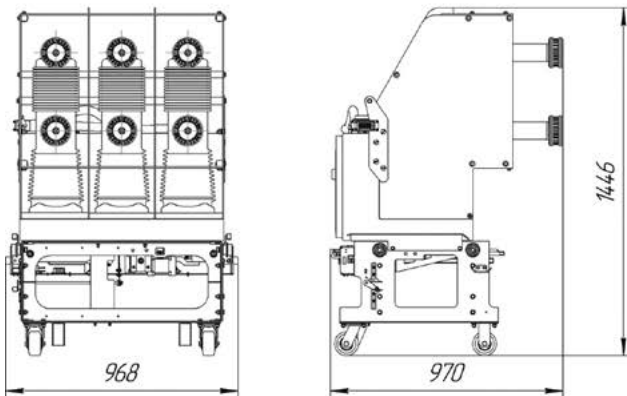
Busbar arrangement of the KRU-SESH-70-35 cabinet is made by copper conductors. Busbars and busbar arrangement are arranged in insulation (except for bolted connections).

Ventilation of the cabinet is provided through the louvers made in the overpressure relief valves.



# SEPARATE UNITS AND ELEMENTS

*Withdrawable element with switch*



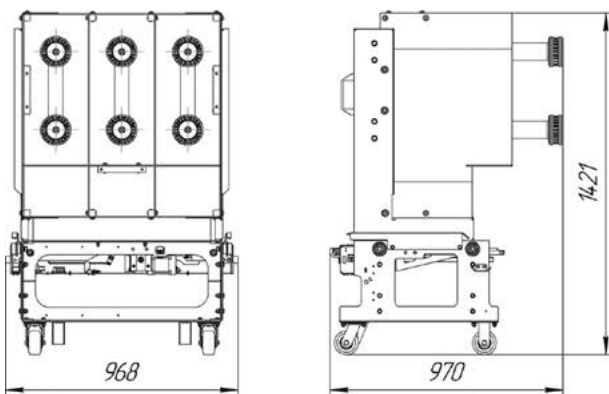
The withdrawable element is located in the front part of the cabinet and is rolled out to the floor of service corridor on inventory guide. It consists of actuator fixed to the framing and a carriage with high-voltage equipment (switch, VT, disconnecting contacts), taking, by means of the actuator (depending on the configuration with the help of removable handle or electrically) the working and control positions. Stroke of the carriage is 400 mm. For adjusting and emergency works, movement of draw-out element in any case is possible manually with a removable handle.

Drum-type contacts for all currents, up to 2500 A.

Metal horizontal partition in the lower part of the withdrawable element is removable to facilitate access to the transformers in the linear connection section.

In the standard version, up to 6 three-wire cable or up to 6 single-core sets with zero-sequence current sensors can be placed in the linear connection section.

*Withdrawable element with plug contacts*



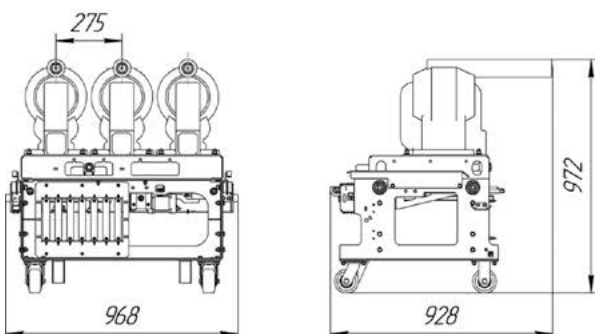
Small-size relay cabinet with a swiveling block is used. For convenient maintenance of the relay section from the switchgear, a light portable platform with a height of 400 mm is supplied. The connection between the cabinets is provided by the trays on the roof of the relay section.

Shutter mechanism is for linear movement with movement of shutters in vertical direction. In the control position of the withdrawable element, the shutters are closed.

Earthing switch is located in the front part of the linear connection section, and its turned-on knives are clearly visible through the windows in the rear walls. The actuator is made with a screw gear, the control socket is taken out to the facade. It's possible to install electric actuator.

Current transformers for currents up to 2500 A inclusively are applied of support design, TOL-SESH type.

*Withdrawable element with voltage transformer*



Arc protection is recommended to provide on fiber optic sensors, that ensures reliable activation at minimum arc fault currents. The sensors are placed in all HV sections. In the standard version, the sensors are located in three compartments: withdrawable section, the busbar section and in the linear connection section – total three sensors.

All the HV sections have valves to relieve overpressure. Valves of all sections are opening upwards, directing discharge to unmanned zone.

Overpressure relief valves can be equipped with sensors of their position – with position switches.



# SERVICE SOLUTIONS

Electroshield Samara is a trustworthy partner in the field of reliable and efficient operation of electrical equipment for enterprises of all sectors of economy.

The company provides a range of services for warranty and post-warranty maintenance of its own manufacture equipment, as well as upgrading obsolete equipment of other manufacturers.

Equipment in the course operation requires timely and high-quality maintenance.

For addressing these issues, the Service Department was established at Electroshield Samara, which main objective **is providing warranty and post-warranty maintenance – anywhere, anytime.**

**Electroshield Samara has all the necessary competencies and resources** to perform these tasks during the entire service life of equipment.

**More than 100 service engineers, located in more than 24 regional subdivisions,** travel to site to provide service support.

**The specialists have great experience, all necessary permits and equipment** for high-quality and quick performing electrical works.

## Advantages of applying to Electroshield Samara:

- Solutions from one source
- **Sureness** in operation of equipment
- Highly qualified specialists from the manufacturer
- **Effective** operation and reduction of the cost of ownership
- **Quick** response
- Support for the whole **life of devices**



The objective of our service team is to provide comprehensive service support and safe and efficient management of your electrical equipment.

#### The services of the Service Department of Electroshield Samara:

- **Installation supervision and commissioning works.**

The specialists of Electroshield Samara will endeavor best efforts to implement project as efficiently as possible and deliver it on time.

- **Inspection and modernization of equipment.**

At the stage of reconstruction of switchgears, the specialists of Electroshield Samara are ready to conduct a survey, develop recommendations and implement a project for modernization (replacement) of obsolete equipment based on solutions of the equipment manufactured by Electroshield Samara.

- **Restoring to operational state.**

Specialists of Electroshield Samara provide the necessary measures to restore the equipment serviceability to the specified performance characteristic.

- **Personnel probation training.**

Highly qualified personnel is one of the key factors of reliable operation of equipment. The set of training programs and their practical orientation will help the personnel to operate correctly and safely.

- **Spare parts supply.**

For repair and quick recovery of equipment serviceability, availability of spare parts is of great importance. The specialists of Electroshield Samara developed enlarged sets of spare parts, tools and accessories. They can be purchased together with the equipment or separately.

- **Equipment repair.**

For inspection of equipment and performing repair works, service engineer promptly visits the site.

For inspection of equipment and performing repair works, service engineer promptly visits the site [www.electroshield.ru](http://www.electroshield.ru)





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