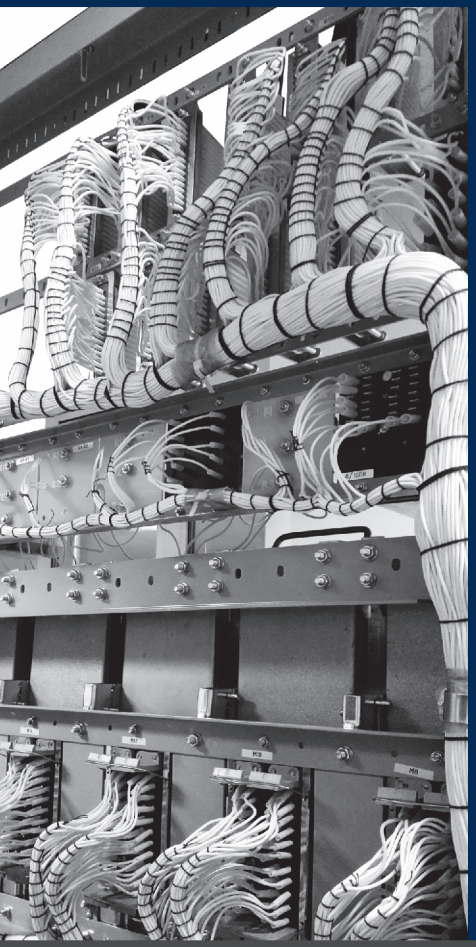
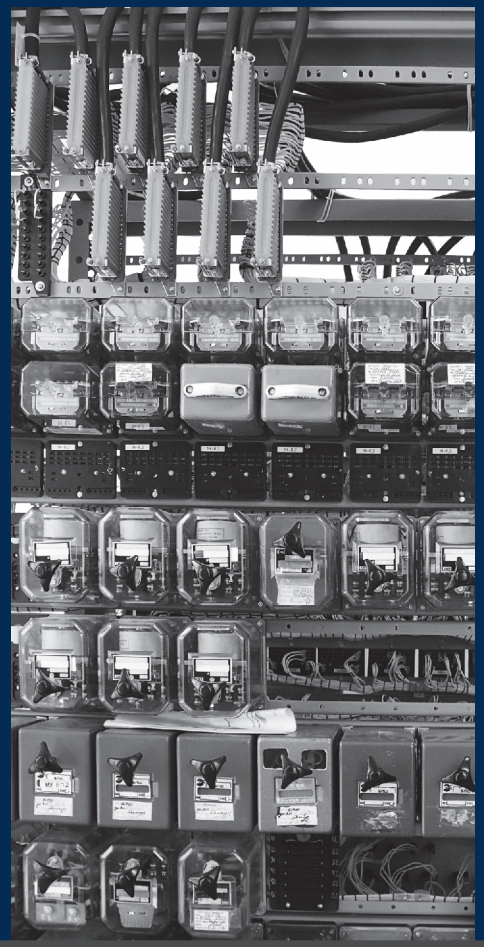
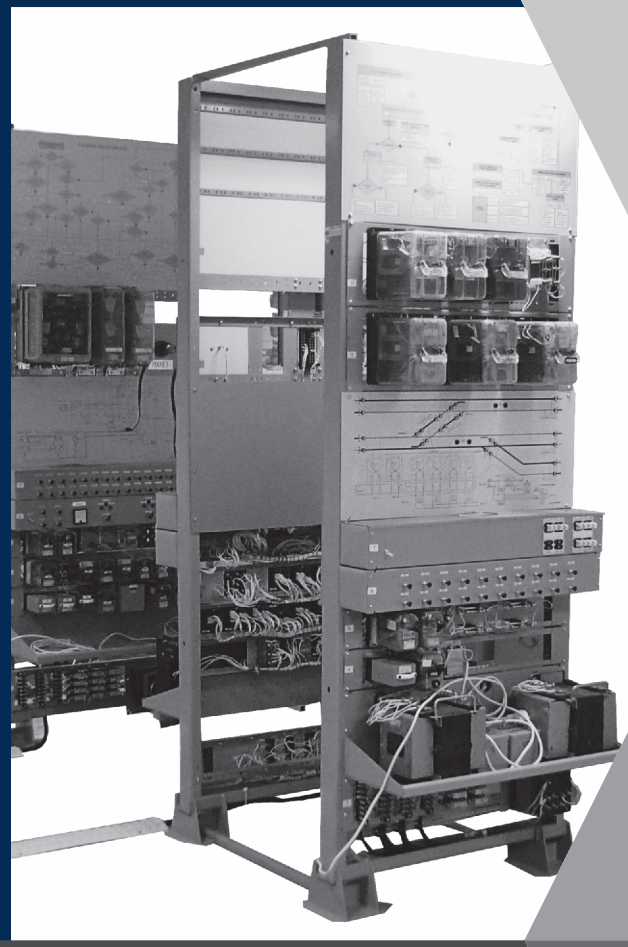
TRAINER-SIMULATION COMPLEXES

research & production center

NOVATRANS







VISIBILITY • MODULARITY • INTERACTIVITY

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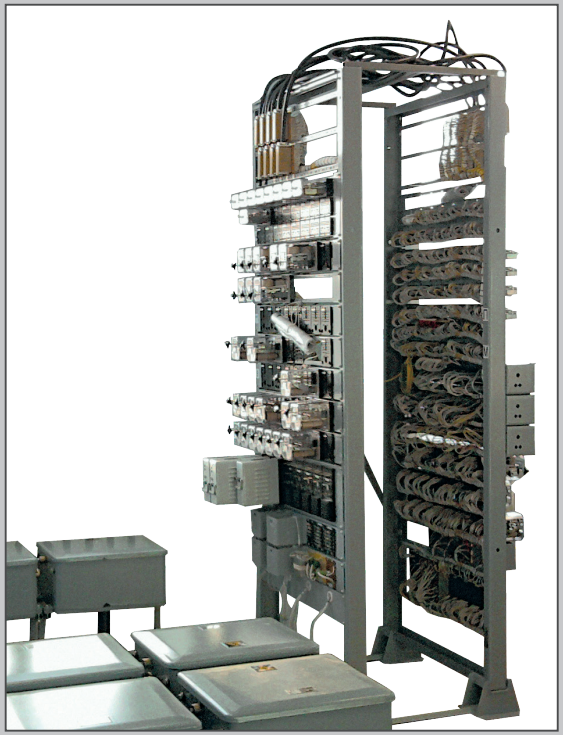


The Trainer-simulation complex is the best option for training economy of automation and telemechanics. The catalogue you are holding in your hands is dedicated to the «Simulators for SCBer» intended to testing the knowledge received in practice.

Research & Production Center «Novatrans» is a team of professionals having an over 40 years' experience in automation and telemechanics on railway transport. In 2009 we teamed up in the research-and-production center, to provide conditions for railway specialists' professional growth of on the basis of the world and own development.

Our priority is producing modern simulators and training materials for learning railway automatics systems in the branches of SCB, educational institutions, industrial railway tracks enterprises and railway specialists' training centers RPC «Novatrans» activity aims at building and maintaining long-term and effective partnerships.

To do this, we work closely with recognized industry experts-managers of JSC (Open Joint Stock Company) «Russian Railways», railway training institutions, JSC «ELTEZA» enterprises.

Rafail Valiev,
CEO and founder of RPC «NovATrans»

IDEOLOGY OF PRODUCTS

Our goal is to provide a certain educational site with specific training equipment and all necessary materials. As you know, quality learning and practicing skill is a complex approach to learning. In order to implement this approach we developed for You a complex of products «Signaling, centralization and blocking skills» consisting of electronic courses, instructions, posters, books and simulators.

RPC «Novatrans» Activity aims at building and maintaining long-term and effective partnership relations with its customers.

AN IMPORTANT PRINCIPLE OF OUR WORK

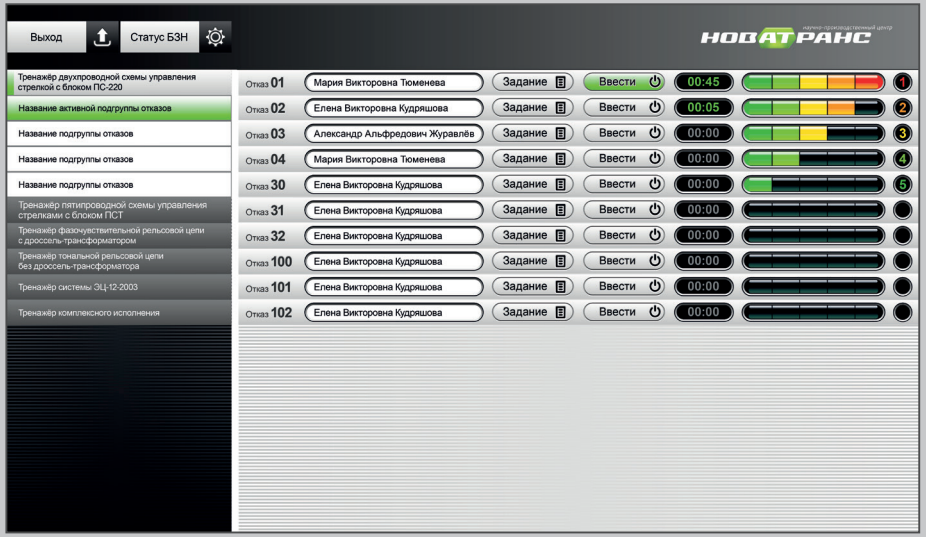
To provide a specific learning object with a full range of services and equipment.

We perform the whole complex of services:

- Effective development of training materials, methods, simulators.
- Our high-quality production of simulators.
- Fast delivery of products.
- Installation and commissioning work in the classrooms.

SCB SKILLS ARE IMPROVING, DUE TO:

- Excellent knowledge of signaling systems. For this study the series «Book FOR SCBer». Each of them is dedicated to only one device or the system which is considered with maximum depth. «Posters for SCBer» made on the most relevant topics will provide effective technical training.
- Proper implementation of technology maintenance of signaling systems. «Courses for SCBer» with electronic blocks of teaching and knowledge tests are aimed at it.
- Calm behavior in emergency situations. «Simulators SCBer» will help You in this.



Distinctive features of RPC «Novatrans» equipment	
Maximum use of real standard automation devices	This will allow You to consolidate knowledge of the operation principles and maintenance technology of the systems/devices
The possibility of introducing real failures in the schema	Promotes the acquisition of quick search troubleshooting skills
The possibility to test learning results using an APM teacher	APM teacher

CUSTOMER REVIEWS:

Andrey Petrovich Pashov, Ekaterinburg-sorting SCB branch (SHC-5) of the Sverdlovsk railway

Chief engineer:

«Mechanics and technicians learn at the simulators of RPC «Novatrans» in a relaxed atmosphere, we Explain everything to them, look at the failures and they learn how to work with these devices. We really need simulators for tonal track circuits and level crossing signaling system».

Alexey Anatoljevich Zanoza, Skovorodino SCB branch (SHC-7) of TRANS-Baikal railway

Chief engineer:

«RPC «Novatrans» offers training equipment not in the computer version, they are close to reality. Their advantage is that working with real equipment, mechanics it is necessary to perform measurements using real devices, read in the data and take their own decisions. And when working on a computer simulator, the employee often seeks the right answer by selecting».

VISIBILITY. MODULARITY. INTERACTIVITY.

- Each product information is structured to the maximum and presented in the form of color schemes, pictures, real devices, videos.
- Each product is designed to study, consolidate and test Your knowledge on a specific device or system.
- Interaction with You is due to the exchange of information and receiving feedback in real time.

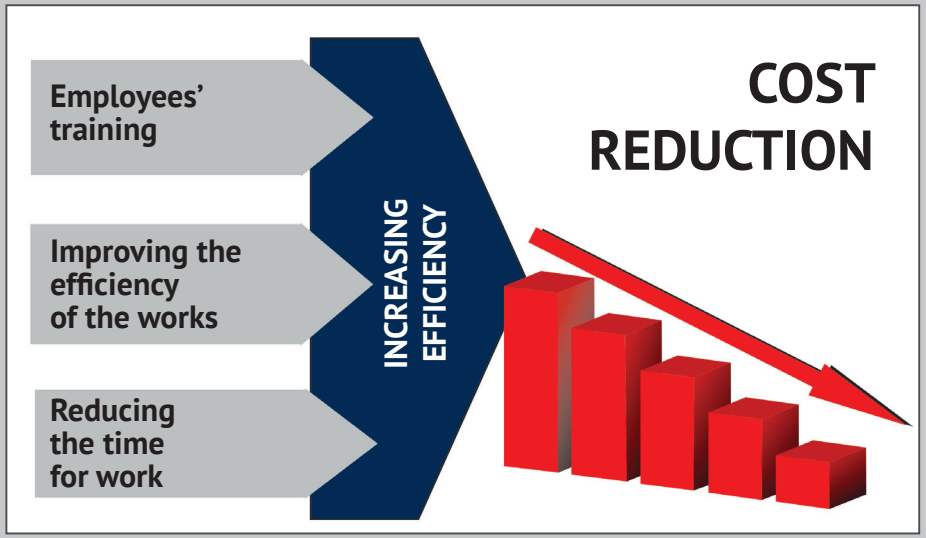
All together the products of «SIGNALING, CENTRALIZATION AND BLOCKING SKILLS» form a united system of effective preparation to act in the real world.

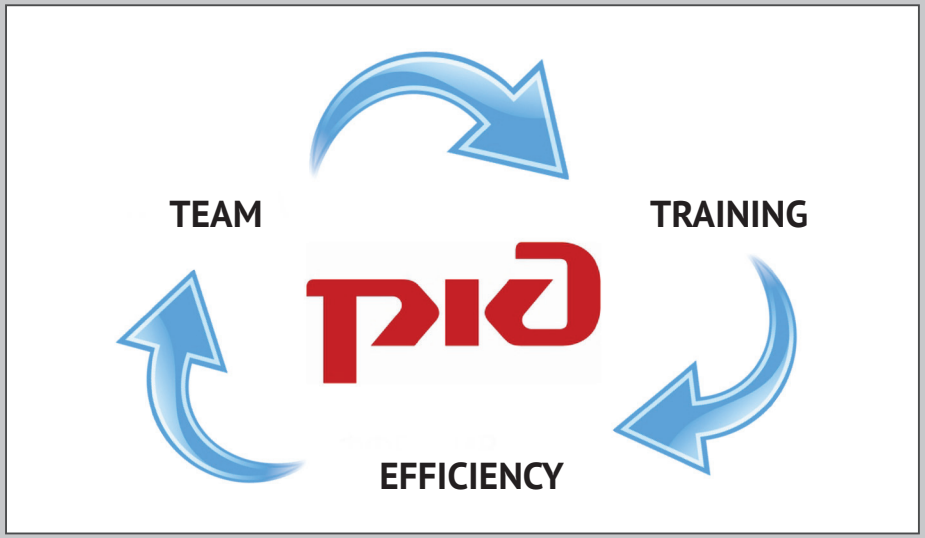
IN ATRAINING MODE YOU CAN:

- Experiment, make mistakes, see the result and assess consequences in the training mode.
- Overcome fear and uncertainty, hindering real activity.
- Several times Reduce the risk of committing blunders in the workplace.

SIMULATORS ALLOW YOU TO LEARN:

- The most common systems of electric interlocking.
- Operation of control circuits and alarm of the entrance traffic light.
- Operation of automatic locks and shift direction schemes.
- Operation of automatic level crossing alarms systems.
- Operation of extensive tonal and phase-sensitive rail circuits.
- Operation of shunt standard control circuits.





EFFECTIVENESS OF TRAINER-SIMULATION COMPLEXES IMPLEMENTATION

RPC «Novatrans» Trainer-simulation complexes aim at studying railway automation devices and systems, troubleshooting possible problems emerging in the process. Classes on simulators increase efficiency in training and lead to lower costs for reimbursement damage from train delays due to railway automatics devices and systems failures.

INTRODUCTION OF SIMULATORS AT INDUSTRIAL ENTERPRISES

Hardware simulators are useful to industrial companies with special purpose railways of 200 km and longer, electric interlocking of shunts and signals, having a railway workshop f and signaling, centralization and blocking.

SCB BRANCHES:

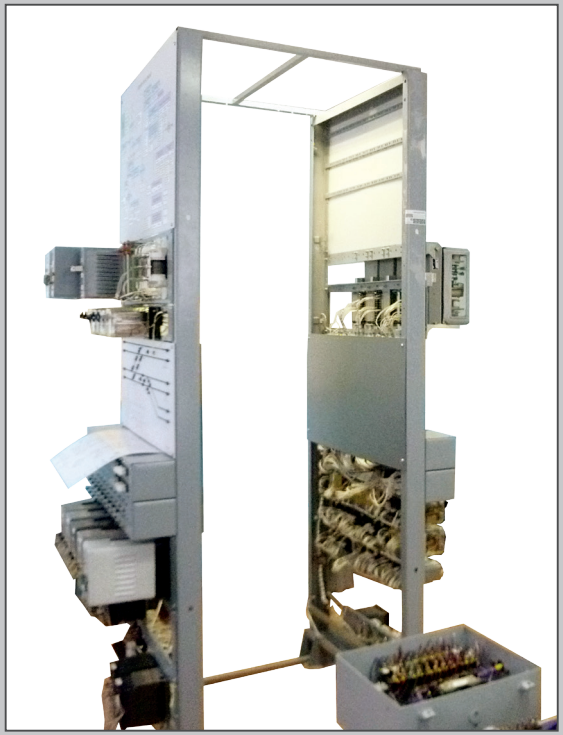
- In the first year after implementing a simulator the expenses to compensate the damage from train delays is reduced by at least 20%.
- By the fifth year of operating the expenses to compensate damages from delay make up only 40% of the original cost of the branch prior to the implementation of the trainer-simulation complex.
- Return of investment to purchase the trainer-simulation complex will take place in the 3 year of operation.

EDUCATIONAL INSTITUTIONS:

- Introducing trainer-simulation complexes helps additional training of the specialists.
- Graduates trained at trainer-simulation complexes, get more in-depth knowledge in operating railway automation devices and systems.
- Using learning technologies at the trainer-simulation complex increases the prestige of the educational institution among the others.

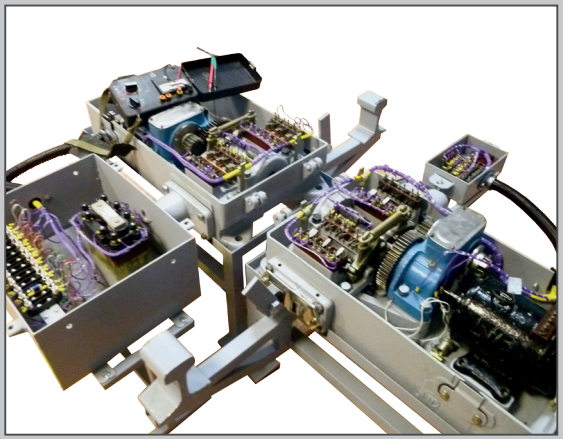
INDUSTRIAL ENTERPRISES:

- After implementing and training at the simulators time for searching failures and troubleshooting will be reduced by 2-10 times, which will increase the production process of the company and bring additional income.
- The accidents occurring in the operation process due to device and signaling systems failures will be reduced to 90%, which will reduce the costs for their reconstruction.
- Return of the investment for purchasing f the training complex happens within 3 to 5 years of operation.



The simulator of control schemes for shunts (switches). Designed for studying two-wire control scheme for a single / dual shunt with the starting unit PS-220.

The trainer-simulation complex allows to enter **30** faults



PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

IT ALLOWS YOU TO EXPLORE:

- Principles of two-wire control circuits operation of a shunt with the starting unit PS-220.
- An Order to switch the shunt off centralization, preserving the use of signals.
- A method of finding failures in the control scheme of the shunt and the model layout.
- The order of work for maintenance of a Centralized shunt.

The simulator consists of a constable and outdoor equipment.

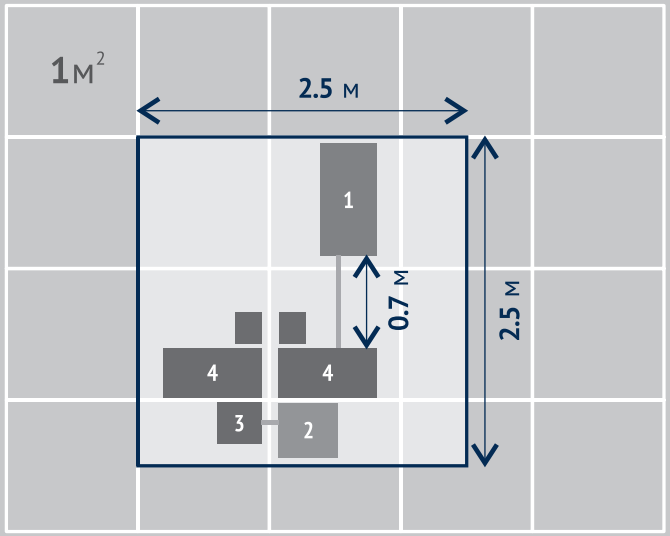
The indoor equipment consists of a relay rack with the installed control panel.

The outdoor equipment consists of an electric switch drive (one or two), a transformer box and a clutch.

On the lower front panel of the rack there is a circuit diagram of the two-wire scheme to control a shunt. The upper front panel of the Cabinet presents an algorithm to search for failures.

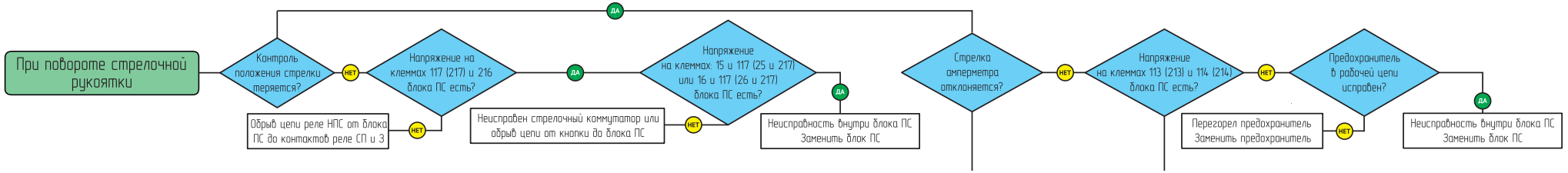
It allows you to work out practical skills of searching for violations of normal operation of signaling systems.

TWO-WIRE CONTROL CIRCUIT OF A SINGLE COUPLED ARROW WITH A STARTING BLOCK OF PS-220



Specifications	
Supply voltage	220V with a frequency of 50 Hz
Maximum power consumption	not more than 1000 W
Operating conditions	
Ambient air temperature	from +5°C to +35°C
Relative humidity	80% at the temperature +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
Dimensions of the outdoor equipment (HxWxD) mm	800x1000x800 mm
Weight not more than	600 kg

THE FAILURES SEARCH ALGORITHM



DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- Standard design solutions: «501-0-98 «Diagrams of route relay interlocking MRC-13».

THE TRAINER-SIMULATION COMPLEX INCLUDES:

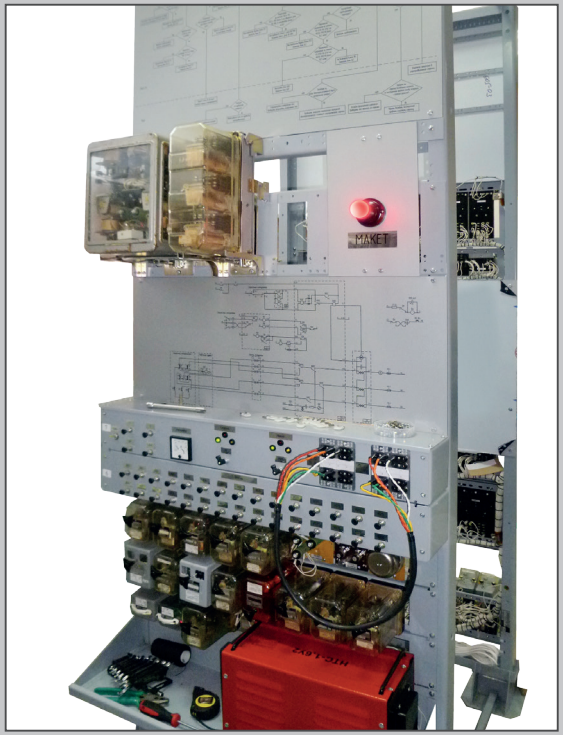
- Relay Cabinet, control panel.
- Concept and algorithm of searching failures.
- One or two switches of the actuator with DC motor 160V (type at Customer's choice).
- Transformer box / transformer box and clutch UPM.

Delivery options:

- Simulator to study two-wire control circuits of a single shunt with the starting unit PS-220.
- Simulator to study two-wire control circuits of coupled shunt with a starting block PS-220.

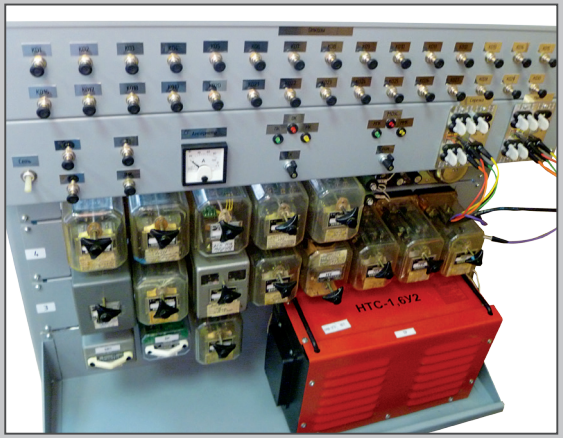
THE LOCATION OF THE EQUIPMENT SYSTEM:

- Relay Cabinet (1).
- Transformer box (2).
- The clutch UPM (3).
- Switch (shunt) actuator (4).



The simulator to control shunts. Designed to study five-wire control circuits of single / dual shunt with the starting unit PST.

The trainer-simulation complex allows to enter **30** faults



PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

IT ALLOWS YOU TO EXPLORE:

- The principles of two-wire control circuits operation of a shunt with the starting unit PS-220.
- An Order to switch the shunt off centralization, preserving the use of signals.
- A method of finding failures in the control scheme of the shunt and the standard layout.
- The order of work for maintenance of a Centralized shunt.

The simulator consists of a constable and outdoor equipment.

The indoor equipment consists of a relay rack with the installed control panel.

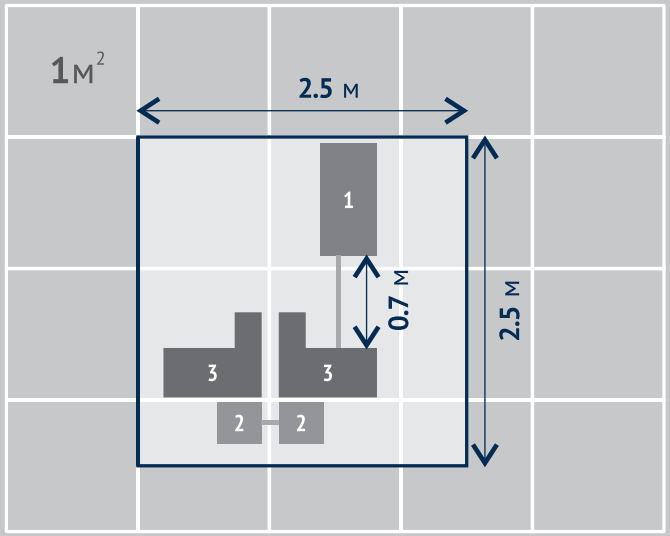
The outdoor equipment consists of an electric switch drive (one or two) and coupler.

On the lower front panel of the Cabinet there is a schematic diagram of a five-wire control circuits of a shunt. The top of the front panel

the Cabinet presents the failures search algorithm.

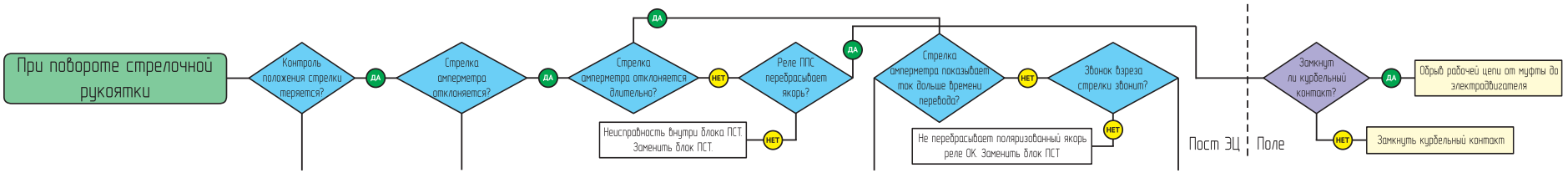
It allows you to work out practical skills of searching for violations of the normal operation of SCB signaling systems.

FIVE-WIRE CONTROL CIRCUIT OF A SINGLE TWIN SHUNT WITH A STARTING BLOCK OF THE PST TYPE



Specifications	
Supply voltage	380V frequency 50 Hz
Maximum power consumption	not more than 1000 W
Operating conditions	
Ambient temperature	from +5°C to +35°C
Relative humidity	80% at the temperature +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
Dimensions of the outdoor equipment (HxWxD) mm	800x1000x800 mm
Weight not more than	600 kg

THE FAILURES SEARCH ALGORITHM



DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- Instruction GTSS 1247/1350: «About the development of the PST block to control switches of the three-phase current electric drive«.

THE TRAINER-SIMULATION COMPLEX INCLUDES:

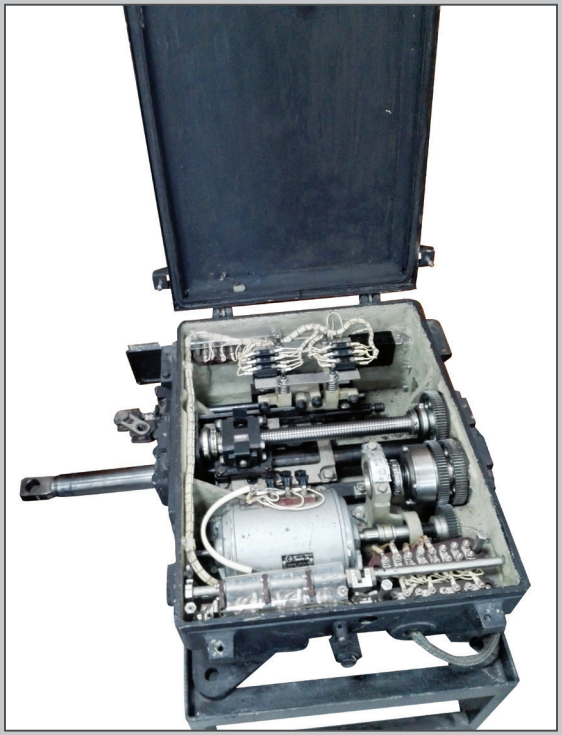
- Relay Cabinet, control panel.
- Concept and algorithm of searching for failures.
- One or two actuator motor AC 190V switches (any type to suit the Customer's choice).
- One or two joints of UPM.

Delivery options:

- Simulator to study five-wire control circuits of the single shunt with the starting PST unit.
- Simulator to study five-wire control circuits coupled for the shunt with the starting PST unit.

THE LOCATION OF THE EQUIPMENT SYSTEM:

- Relay Cabinet (1).
- UPM Clutch (2).
- Switch actuator (3).



The simulator of shunt control circuits. Designed to study five-wire control circuits for a single shunt with a double transfer.

The trainer-simulation complex allows to enter **30** faults

PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

IT ALLOWS YOU TO EXPLORE:

- The principles of five-wire control circuits operation of a shunt with a double transfer.
- An Order to switch the shunt off centralization, preserving the use of signals.
- A method of finding failures in the control scheme of the shunt and the standard layout.
- The order of work for maintenance of a Centralized shunt.

The simulator consists of a constable and outdoor equipment.

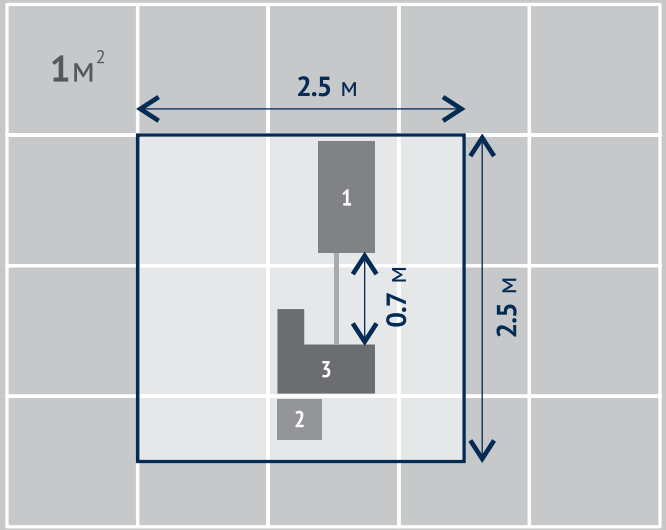
The indoor equipment consists of a relay rack with the installed control panel.

The outdoor equipment consists of an electric switch drive (SP-6M or VSP-150) and a clutch.

The lower front panel of the Cabinet presents a schematic diagram of a five-wire control circuits of a shunt. The top of the front panel the Cabinet presents the failures search algorithm.

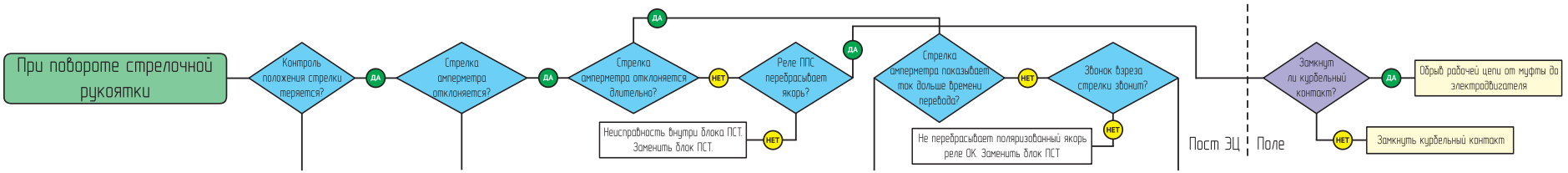
It allows you to work out practical skills of searching for violations of the normal operation of signaling systems.

FIVE-WIRE CONTROL CIRCUIT OF A SINGLE-SHUNT WITH A DOUBLE TRANSFER



Specifications	
Supply voltage	380V frequency 50 Hz
Maximum power consumption	not more than 1000 W
Operating conditions	
Ambient air temperature	from +5°C to +35°C
Relative humidity	80% at the temperature +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
Dimensions of the outdoor equipment (HxWxD) mm	800x1000x800 mm
Weight not more than	600 kg

THE FAILURES SEARCH ALGORITHM



DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- Standard materials for designing: «410305-TMP «Electric centralization of stations with shunting work EC-12-03».

THE TRAINER-SIMULATION COMPLEX INCLUDES:

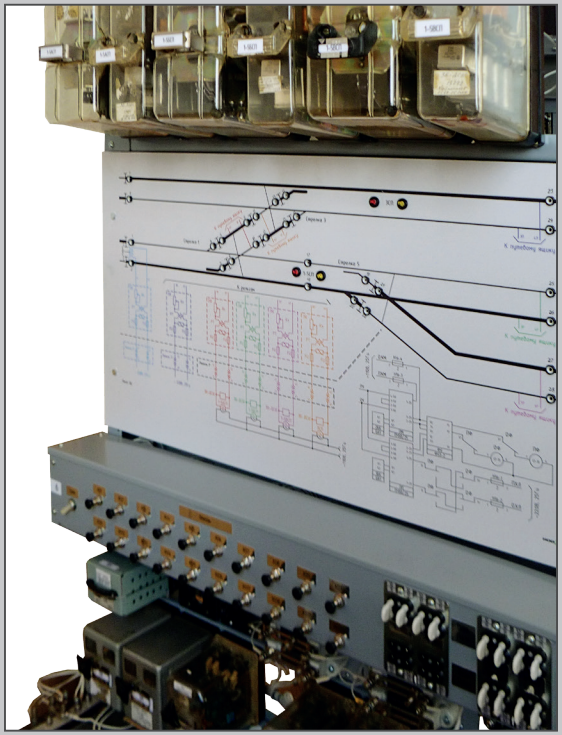
- Relay Cabinet, control panel.
- Concept and failures search algorithm.
- One switch actuator with motor AC 190V (the type of actuator is chosen by the Customer).
- One UPM clutch.

Delivery options:

- Simulator to study five-wire circuits to control a single shunt with a double transfer with the electric SP-6M drive.
- Simulator to study five-wire circuits to control a single shunt with a double transfer with the electric VSP-150 drive.

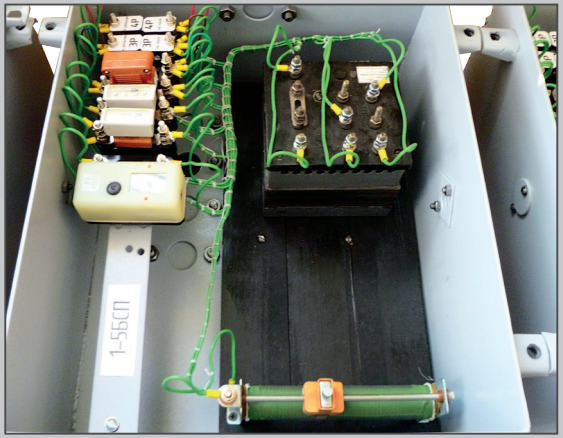
THE LOCATION OF THE EQUIPMENT SYSTEM:

- Relay Cabinet (1).
- The UPM clutch (2).
- Switch actuator (3).



The simulator of the branched railway circuits. Designed to study extensive phase-sensitive rail circuit of the alternating current of 25 Hz with all kinds of traction.

The trainer-simulation complex allows to enter **20** faults



PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

IT ALLOWS YOU TO EXPLORE:

- The principles of the branched phase-sensitive track circuit.
- A method of finding failures: disconnection, short circuit, intermittent failure and occasional failure, change of isolation resistance.
- Operation maintenance of a branched-chain phase sensitive track circuit.

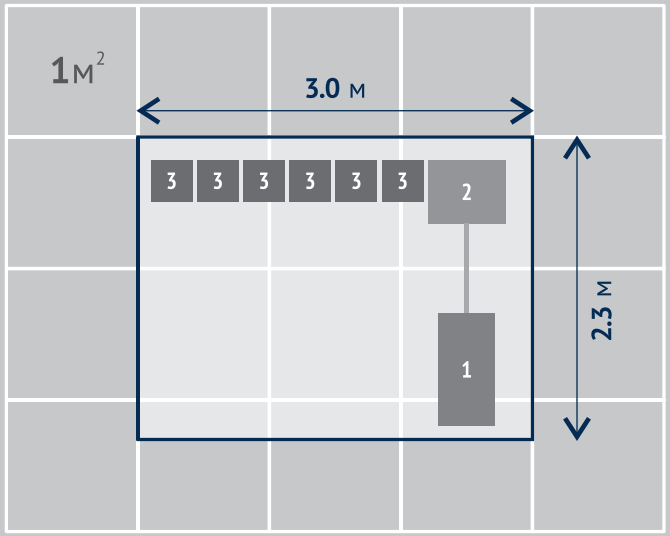
On the control panel of exercise equipment there placed measuring sockets that allow you to measure the voltage on the relay and feed ends.

The lower front panel of the Cabinet presents the mnemonic branched rail circuit. On the upper front panel of the Cabinet there is a failures search algorithm.

The simulator provides a fault input for the development of skills to search for failures.

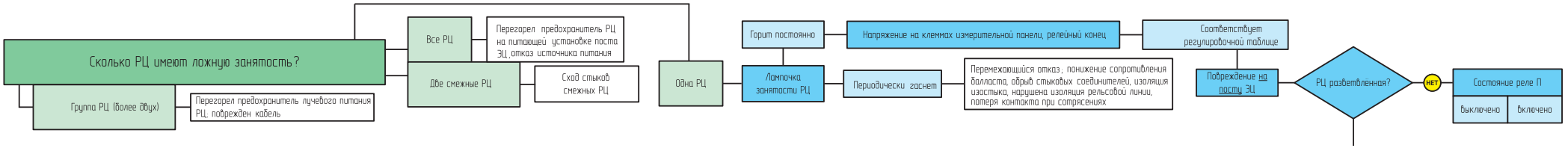
It allows you to work out practical skills of searching for violations of the normal operation of signaling systems.

BRANCHED PHASE-SENSITIVE RAIL CIRCUIT



Specifications	
Supply voltage	220 V with a frequency of 50Hz
Maximum power consumption	not more than 600 watts
Operating conditions	
Ambient air temperature	from +5°C to +35°C
Relative humidity	80% at the temperature +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
Dimensions of the outdoor equipment (HxWxD) mm	800x2000x600 mm
Weight not more than	500 kg

THE FAILURES SEARCH ALGORITHM



DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- RTS 25-DSSH16-AT-C-92 «Station phase- sensitive rail circuit of the alternating current of 25 Hz with a relay DSSH-16, encoded by current ALS 50 Hz with a standalone traction».
- 25 RS-ETOO-C-90 «Station, phase sensitive rail circuits of the alternating current of 25 Hz with the electric direct current».
- RC 25-DSSH16-ЭТ50-C-93 «the Station phase-sensitive rail circuit of the alternating current of 25 Hz with a relay DSSH-16, sections of an electric power of the alternating current».

THE TRAINER-SIMULATION COMPLEX INCLUDES:

- Relay Cabinet, control panel.
- Concept and failures search algorithm.
- Outdoor equipment – travel boxes, throttle-transformer (if there is electricity).

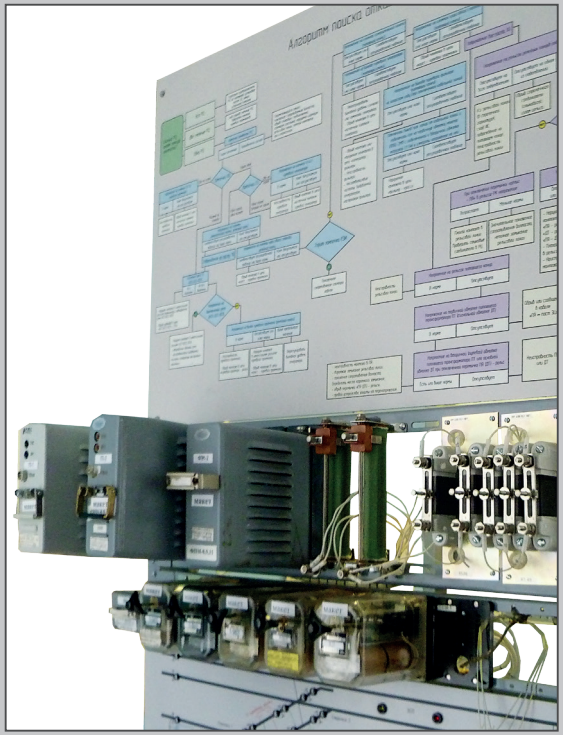
Delivery options.

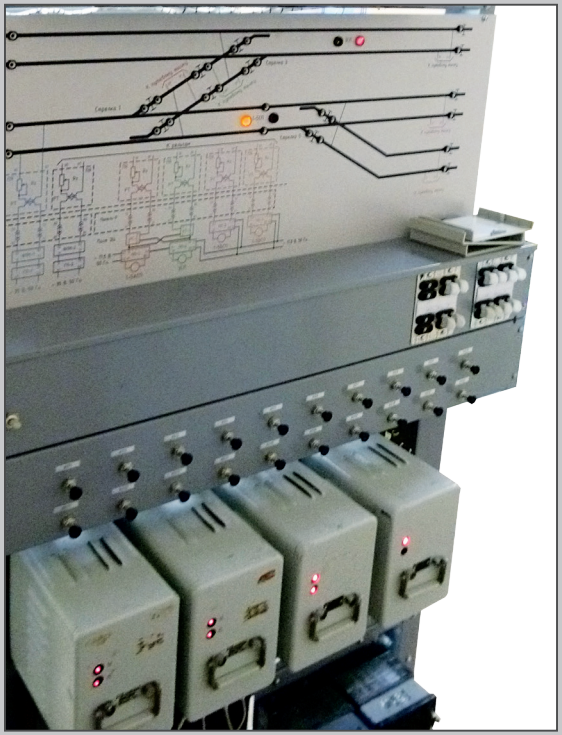
The simulator of station branched phase-sensitive rail circuit of AC at 25Hz:

- Autonomous traction.
- Electric DC.
- Electric AC.

THE LOCATION OF THE EQUIPMENT SYSTEM:

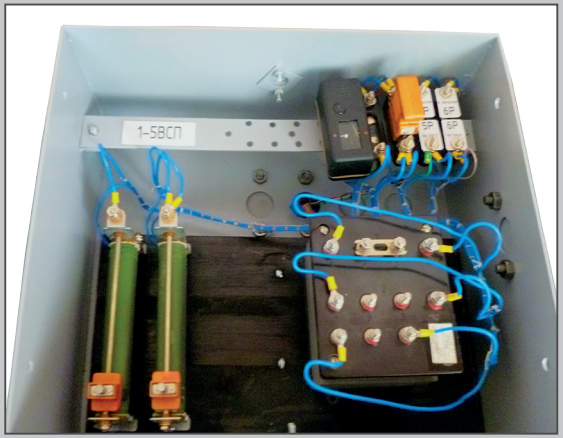
- Relay Cabinet (1).
- Choke transformer (2).
- Track box (3).





The simulator of the branched rail circuits. Designed to study extensive tonal rail circuit with all kinds of traction.

The trainer-simulation complex allows to enter **20** faults



PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

IT ALLOWS YOU TO EXPLORE:

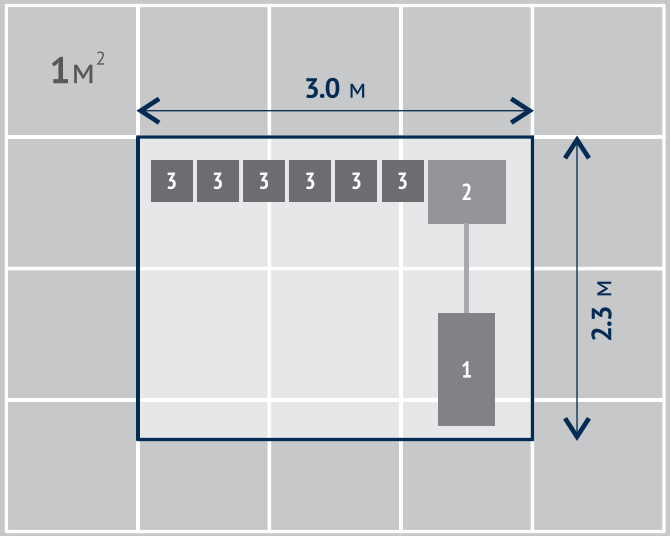
- The principles of extensive tonal rail circuits.
- A method of finding failures: disconnection, short circuit, intermittent failure and occasional failure, change of isolation resistance.
- Operation maintenance of extensive tonal rail circuits.

On the control panel of exercise equipment there placed measuring sockets that allow you to measure the voltage on the relay and feed ends of therail circuits.

The lower front panel of the Cabinet presents the mnemonic branched rail circuit. The upper front panel of the Cabinet presents a failures search algorithm.

The simulator provides a fault input for the development of skills to search for failures.

BRANCHED TONAL RAIL CIRCUIT



Specifications	
Supply voltage	220 V with a frequency of 50 Hz
Maximum power consumption	not more than 600 watts
Operating conditions	
Ambient air temperature	from +5°C to +35°C
Relative humidity	80% at the temperature +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
Dimensions of the outdoor equipment (HxWxD) mm	800x2000x600 mm
Weight not more than	500 kg

THE FAILURES SEARCH ALGORITHM

DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- TRC-AT (ALS 25, 50, 75)-S-97 «the Station rail circuits of the tonal frequency with the imposition of ALS 25, 50, 75 Hz with Autonomous traction».
- TRC-ET0O (ALS 90)--96 «the Station track circuits of the tonal frequency overlay ALS 50Hz with electric direct current».
- TRC-ET5O (ALS 25, 75)--96 «the Station track circuits of tonal frequency overlay ALS 25 (75)Hz with electric alternating current».

THE TRAINER-SIMULATION COMPLEX INCLUDES:

- Relay Cabinet, control panel.
- Concept and algorithm of search failures.
- Outdoor equipment – travel boxes, throttle-transformer (if it is electric).

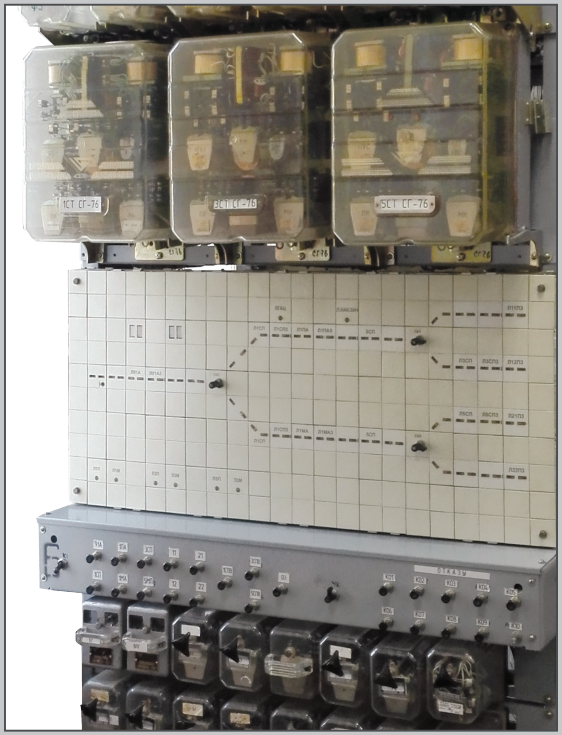
Delivery options.

The simulator of the station branched phase-sensitive rail circuit of AC at 25Hz:

- Autonomous traction.
- Electric DC.
- Electric AC.

THE LOCATION OF THE EQUIPMENT SYSTEM:

- Relay Cabinet (1).
- Choke transformer (2).
- Track box (3).



Simulators of the hump systems and devices. Designed to explore block hump automatic interlocking nine-wire control circuits of hump electric driver with the starting SG-76У unit, hump rail circuits.

The trainer-simulation complex allows to enter **20** faults

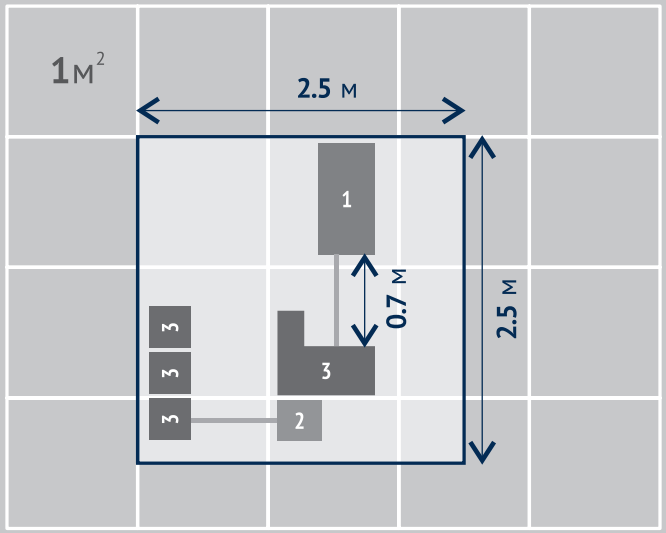
PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

IT ALLOWS YOU TO EXPLORE:

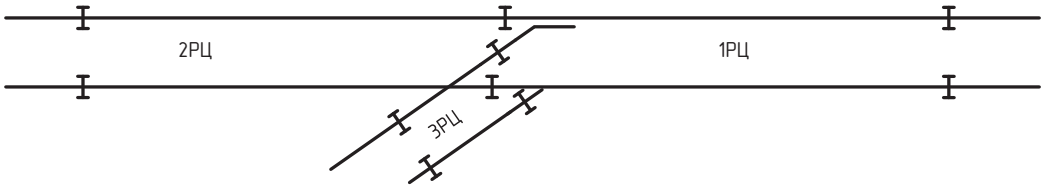
- Principles of block hump automatic interlocking operation.
- Principles of nine-wire control circuits of a hump shunt with a SG-76U block.
- Principles of hump rail circuits operation.

It allows you to work out practical skills of searching for abnormal operation of signaling systems.

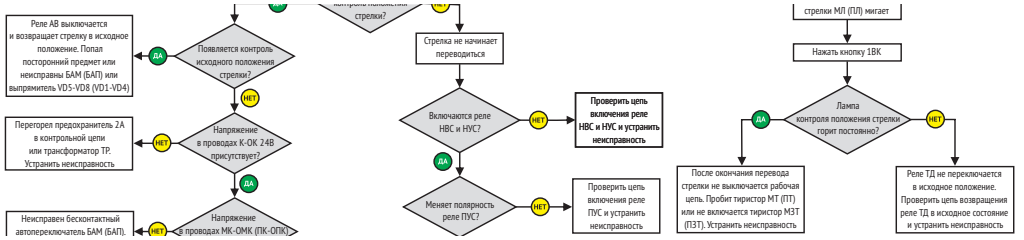


Specifications	
The power supply voltage	220V with frequency of 50Hz
Maximum power consumption	not more than 1000 W
Operating conditions	
Ambient air temperature	from +5°C to +35°C
Relative humidity	80% at the temperature +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
Dimensions of the outdoor equipment (HxWxD) mm	2000x1000x1000 mm
Weight not more than	800 kg

TRAINER-SIMULATION COMPLEX DEVELOPMENT



FAILURE SEARCH ALGORITHM



DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- Standard solutions «MG-26. Block-type hilly automatic centralization».

THE TRAINER-SIMULATION COMPLEX INCLUDES:

- Relay cabinet, control panel.
- Transformer boxes.
- Shunt electric drive of SPGB-4 type.

Delivery optons:

- The simulator of block hilly automatic centralization (BHAC).
- The simulator of the nine-wire control circuit of the hilly electric drive with the starting block SsG-76U.
- The Simulator of hilly rail circuits.

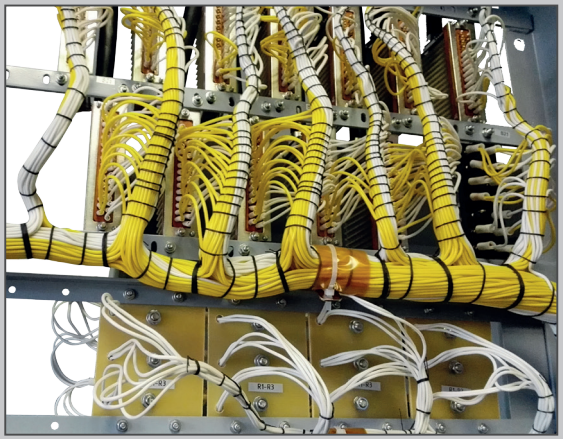
It is possible to supply a combined training complex.

THE LOCATION OF THE EQUIPMENT SYSTEM:

- Relay cabinet (1).
- UPM Coupling (2).
- Electric pointer (3).
- Transformer boxes (4).

The simulator of electrical interlocking systems. Designed to study block route relay centralization system of a major station, the control circuit of the entrance traffic lights.

The trainer-simulation complex allows to enter **80** faults



PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

ALLOWS TO STUDY OPERATING PRINCIPLES OF:

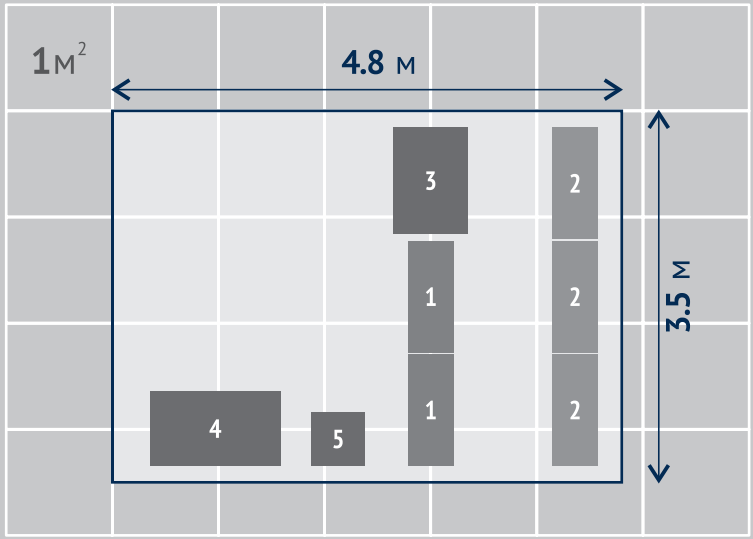
- Block route relay interlocking, designed for use on major stations.
- The entrance traffic light alarm.

THE TRAINING COMPLEX OPERATES IN THE FOLLOWING MODES:

- Installation, undo and automatic disconnection of routes.
- Support management of the artificial disconnection.
- Disconnection of unused parts of shunting routes in the corner tracks.

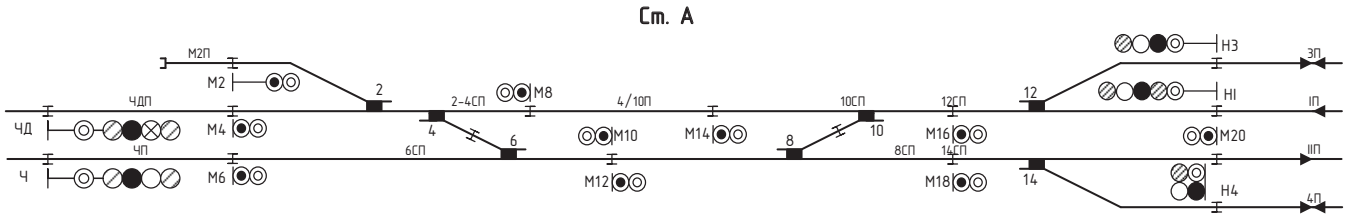
For the organization of the station management in the complex there is a led console display.

It allows you to work out practical skills of search of violations of normal operation of signalling systems.



Specifications	
Supply voltage	220V with a frequency of 50 Hz
Maximum power consumption	not more than 2000W
Operating conditions	
Ambient air temperature	from +5°C to +35°C
Relative humidity	80% at the temperature +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
Overall dimensions of the panel-Board (HxWxD) mm	1500x1200x1000 mm
Dimensions of the outdoor equipment (HxWxD) mm	1800x1500x1000 mm
Weight not more than	1000 kg

TRAINER-SIMULATION COMPLEX DEVELOPMENT



DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- Standard design solutions: «501-0-98 «Schemes of route relay centralization MRC-13».

THE TRAINER-SIMULATION COMPLEX INCLUDES:

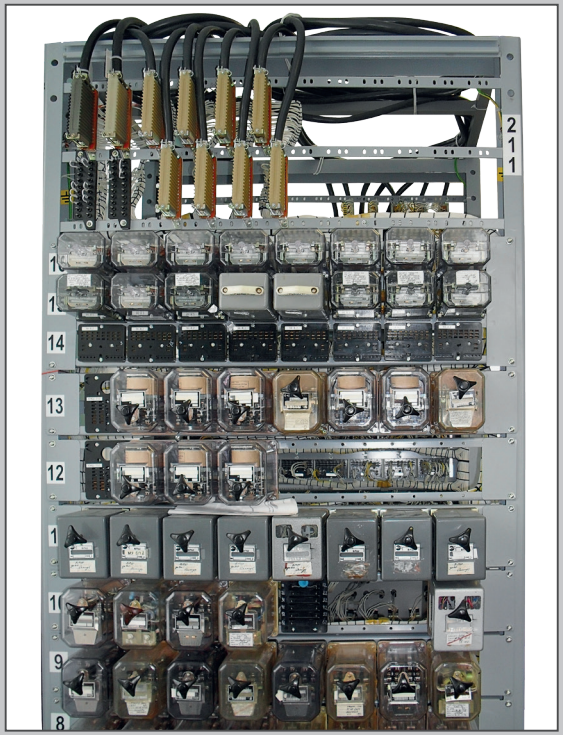
- Electric interlocking of switches(shunts) and signals of a major station of MRC-13 type.
- Control circuit of the entrance traffic lights with two-thread lamps.

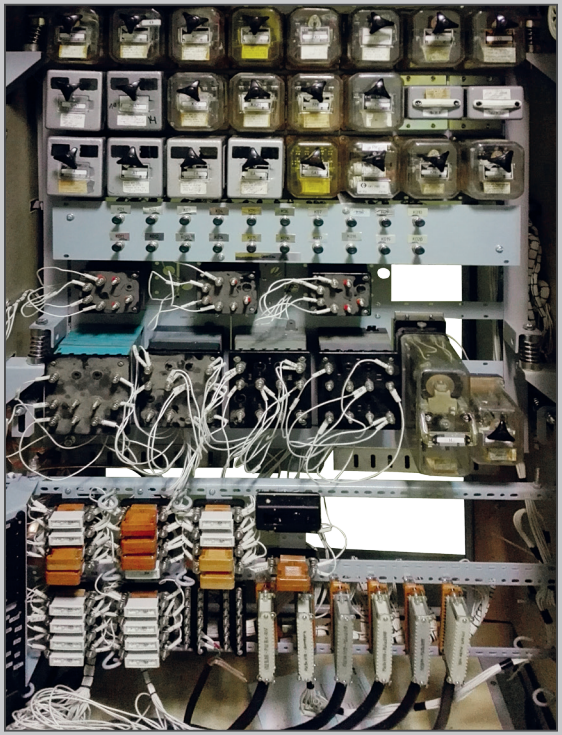
Delivery options.

It is possible to supply it with the schema of the entrance traffic light control, and without it.

THE LOCATION OF THE EQUIPMENT SYSTEM:

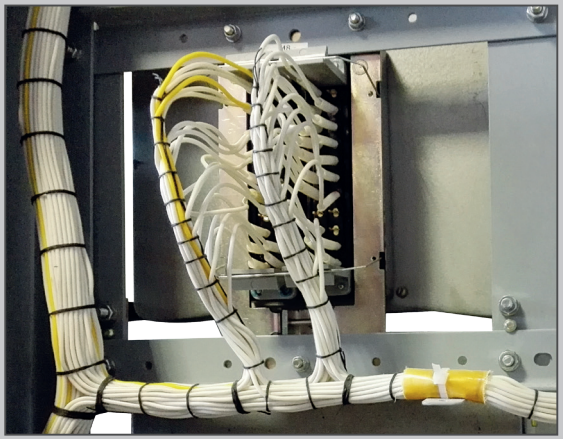
- On 2 relay racks (1).
- On 3 block racks (2).
- In the relay Cabinet of the entrance traffic light (3).
- A Mosaic panel-display of a led type (4).
- The Entrance traffic light (5).





The simulator of electrical interlocking systems. Designed to explore block electric centralization for small stations, the control circuit input traffic lights.

The trainer-simulation complex allows to enter **80** faults



PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

ALLOWS TO STUDY OPERATING PRINCIPLES OF:

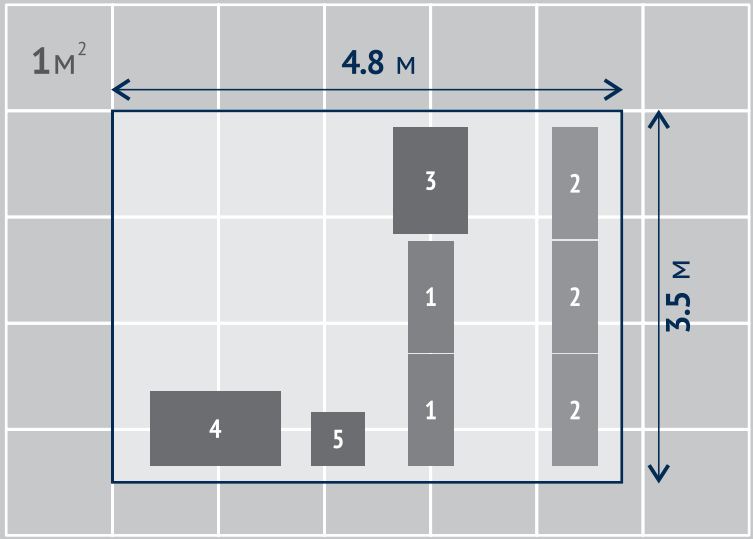
- Block interlocking system, designed for small stations.
- Alarm input of the traffic light.

THE TRAINING COMPLEX OPERATES IN THE FOLLOWING MODES:

- Installation, undo and automatic disconnection of routes.
- Support management of the artificial disconnection.
- Disconnection of unused parts of shunting routes with the corner tracks, change of the movement on the stretch.

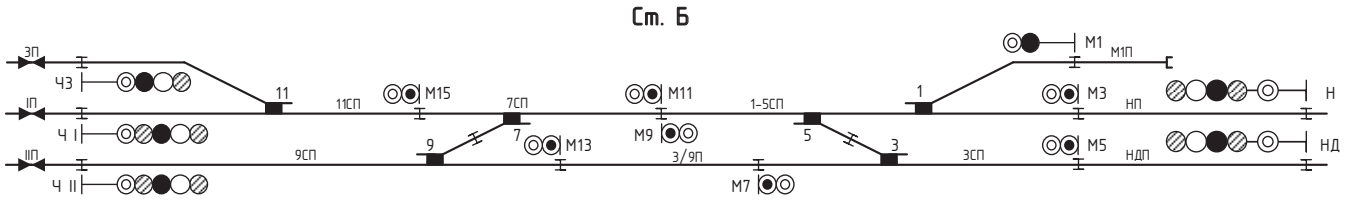
For the organization of the station control a led remote display is provided in the complex.

It allows you to work out practical skills of search for violations in the normal operation of signaling systems.



Specifications	
Supply voltage	220V with a frequency of 50 Hz
Maximum power consumption	not more than 2000W
Operating conditions	
Ambient air temperature	from +5°C to +35°C
Relative humidity	80% at the temperature +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
Overall dimensions of the panel-Board (HxWxD) mm	1500x1200x1000 mm
Dimensions of the outdoor equipment (HxWxD) mm	2000x1000x1000 mm
Weight not more than	1000 kg

TRAINER-SIMULATION COMPLEX DEVELOPMENT



DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- Typical solutions «501-0-8/75 «Scheme block electric centralization for small stations EC-9».

THE TRAINER-SIMULATION COMPLEX INCLUDES:

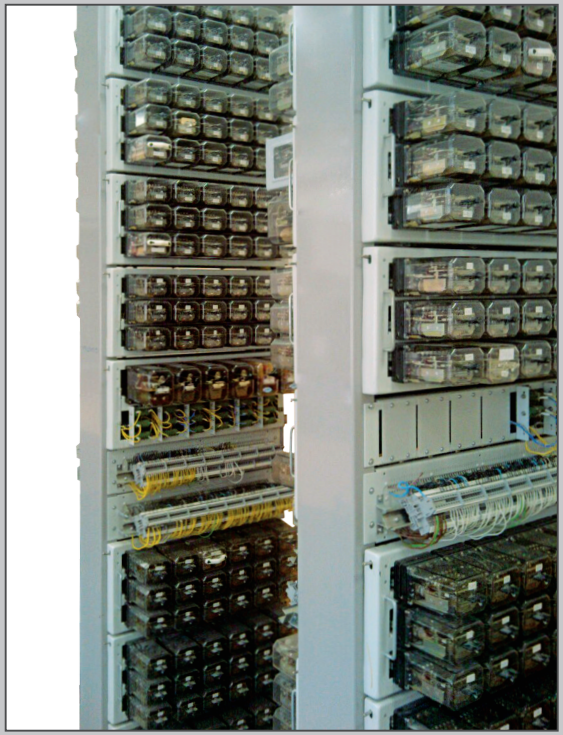
- Block electric centralization for small stations of the EC-9 type.
- Control circuit of the entrance traffic lights with two-threads lamps.

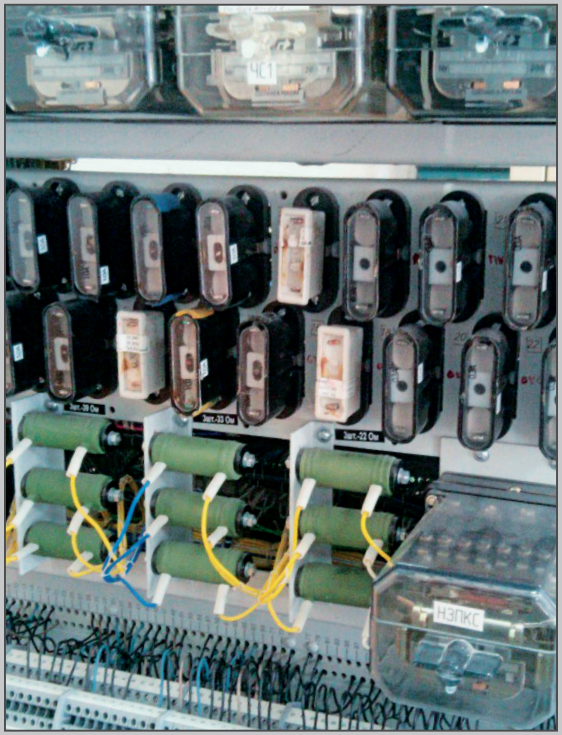
Delivery options.

It is possible to supply with it with the scheme of the entrance traffic light control, and without it.

THE LOCATION OF THE EQUIPMENT SYSTEM:

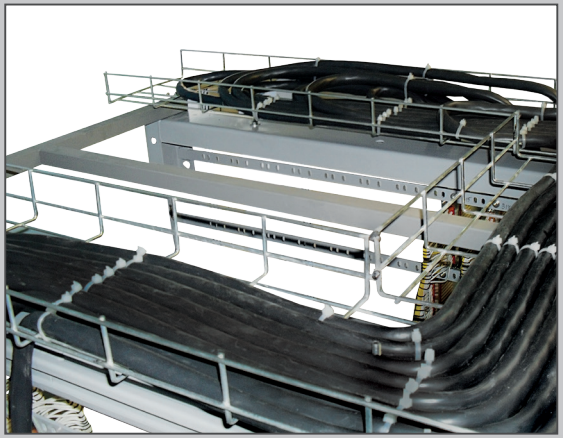
- On 2 relay racks (1).
- On 3 block racks (2).
- In the relay Cabinet of the entrance traffic light (3).
- A Mosaic panel-display of the led type (4).
- The entrance traffic light (5).





The simulator of electrical interlocking systems. Intended for studying of electric centralization system for intermediate stations with shunting operation, control circuit of the entrance traffic lights.

The trainer-simulation complex allows to enter **80** faults



PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

ALLOWS TO STUDY OPERATING PRINCIPLES OF:

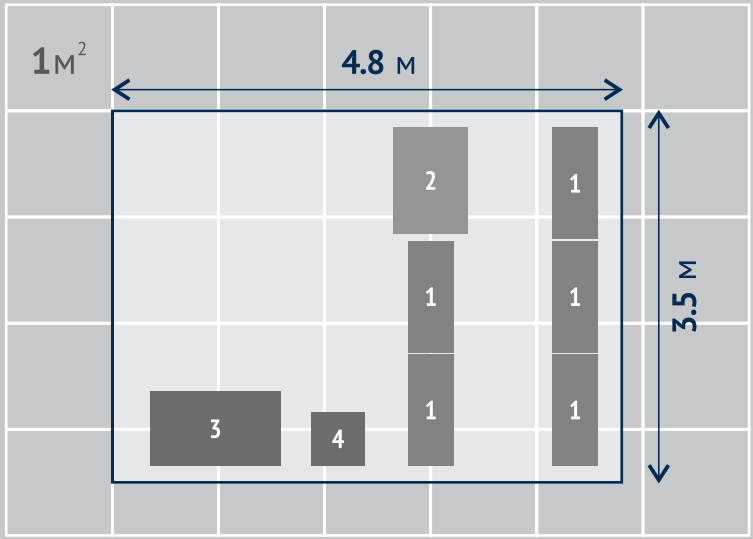
- Electric centralization system of intermediate stations with shunting work.
- The entrance traffic light alarm.

THE TRAINING COMPLEX OPERATES IN THE FOLLOWING MODES:

- Installation, undo and automatic disconnection of routes.
- Support management of the artificial disconnection.
- Disconnection of unused parts of shunting routes with the corner tracks, change of the movement on the stretch.

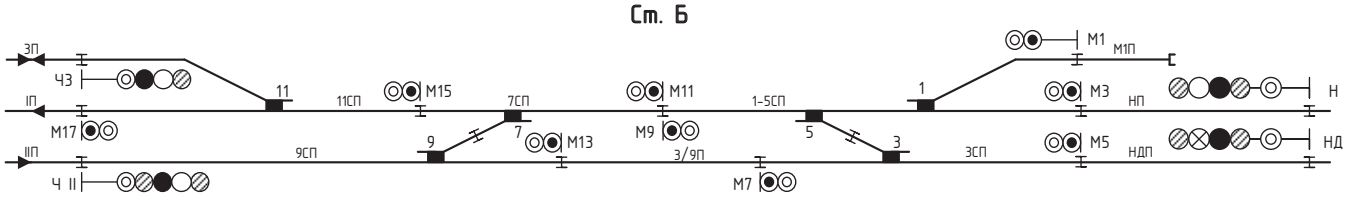
For the organization of the station control a led remote display is provided in the complex.

It allows you to work out practical skills of search for violations in the normal operation of signaling systems.



Specifications	
Supply voltage	220V with a frequency of 50 Hz
Maximum power consumption	not more than 2000W
Operating conditions	
Ambient air temperature	from +5°C to +35°C
Relative humidity	80% at the temperature +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
Overall dimensions of the panel-Board (HxWxD) mm	1500x1200x1000 mm
Dimensions of the outdoor equipment (HxWxD) mm	2000x1000x1000 mm
Weight not more than	1000 kg

TRAINER-SIMULATION COMPLEX DEVELOPMENT



DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- TMP «410305 power interlocking of intermediate stations with shunting work EC-12-2003».

THE TRAINER-SIMULATION COMPLEX INCLUDES:

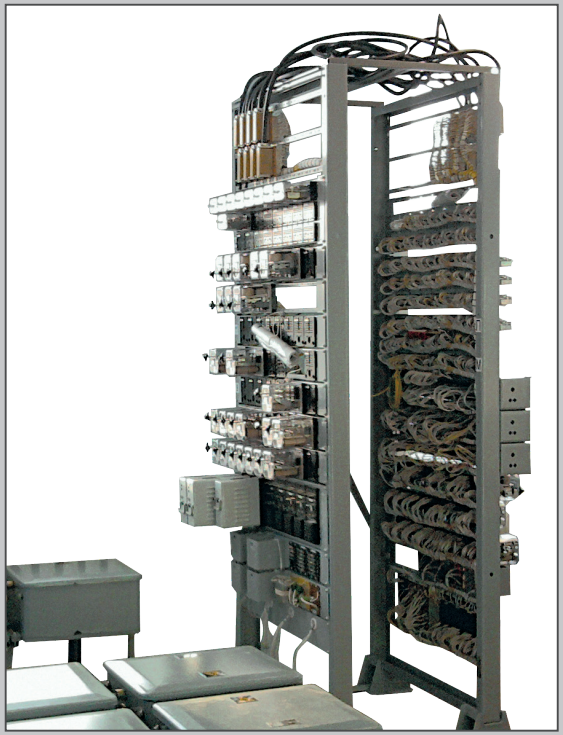
- Electric centralization of stations with shunting work EC-12-2003.
- Control circuit of the entrance traffic lights with two- thread lamps.

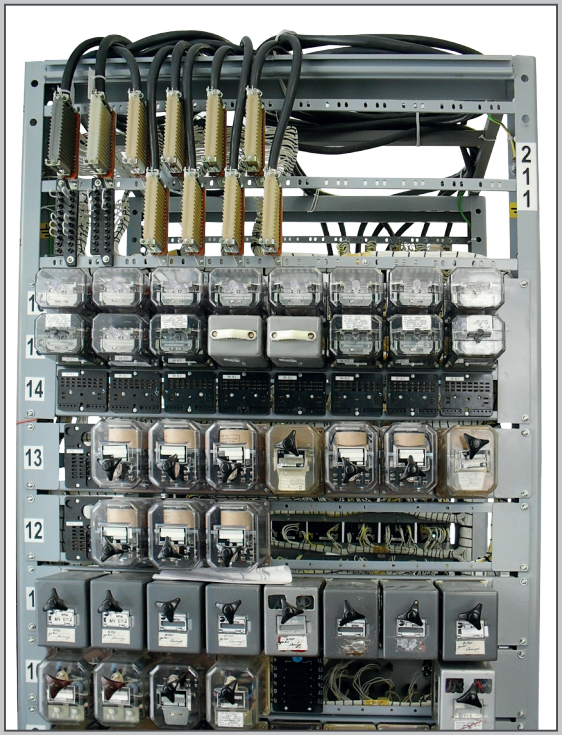
Delivery options.

It is possible to supply it with the scheme of the entrance traffic light and without it.

THE LOCATION OF THE EQUIPMENT SYSTEM:

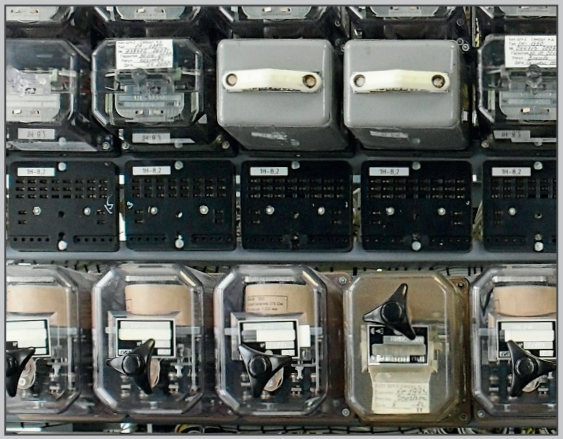
- On 5 relay racks (1).
- In the relay Cabinet of the entrance traffic light (2).
- A Mosaic panel-display of led-type (3).
- The Entrance traffic light (4).





The simulator of the interval regulation systems. Designed to study automatic block system with tone rail circuits and centralized placement of equipment, ABTC-2003.

The trainer-simulation complex allows to enter **40** faults



PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

IT ALLOWS TO STUDY:

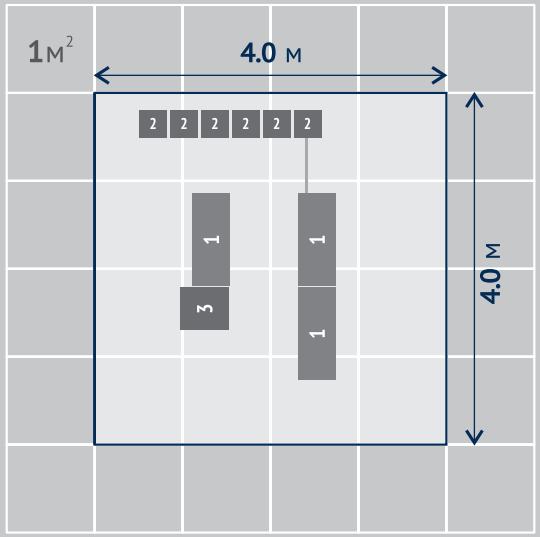
- Principles of interlocking with tonal rail circuits and centralized placement of equipment.
- A method of finding failures in the circuits of automatic block system.
- Operation maintenance of ABTC-2003.

THE TRAINING COMPLEX OPERATES IN THE FOLLOWING MODES:

- Normal auto-lock operation while the train is passing.
- Coding rail circuits during the train passing.
- Artificial cutting of the path of the stretch.

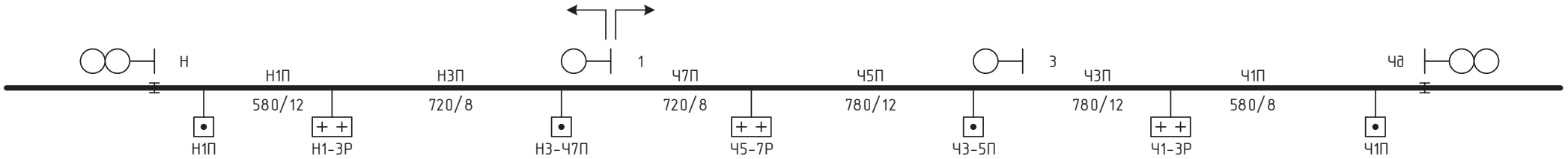
It allows you to work out practical skills of searching for violations in the normal operation of signaling systems.

ABTC-2003, THE SCHEME OF CHANGING DIRECTION



Specifications	
Supply voltage	220V with a frequency of 50 Hz
Maximum power consumption	not more than 1000W
Operating conditions	
Ambient air temperature	from +5°C to +35°C
Relative humidity	80% at the temperature +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
Weight not more than	600 kg

TRAINER-SIMULATION COMPLEX DEVELOPMENT



DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- Typical materials for design «410306-TMP Autolock with tonal rail circuits and centralized placement equipment ABTC-03».

THE TRAINER-SIMULATION COMPLEX INCLUDES:

- Relay cabinets, control panel.
- Pass a traffic light.
- Transformer boxes.

THE LOCATION OF THE EQUIPMENT SYSTEM:

- Relay Cabinet (1).
- Track box (2).
- Pass a traffic light (3).

Simulator of systems of interval regulation. Designed to explore the numerical code of automatic block system and schema change of direction.

The trainer-simulation complex allows to enter **40** faults

PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

IT ALLOWS YOU TO EXPLORE:

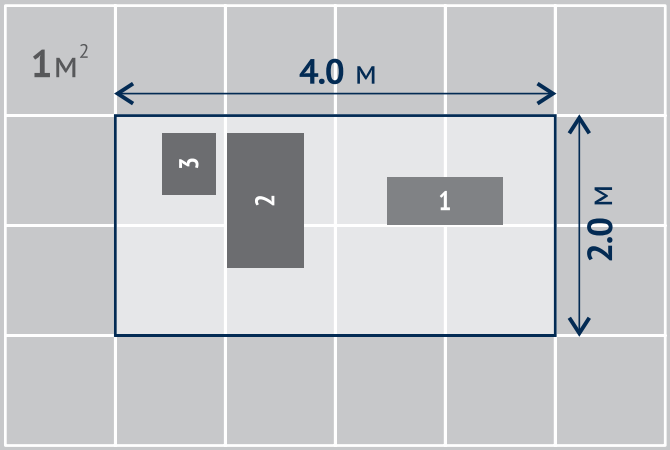
- The principles of the numerical code of automatic block system.
- The principles of operation of four-wire scheme change of direction.
- A method of finding failures in the scheme of level crossing signaling system.

THE TRAINING COMPLEX OPERATES IN THE FOLLOWING MODES:

- Normal operation of auto-lock while the train is passing.
- Coding track circuits during the passage of the train.
- Artificial cutting path of the stretch.

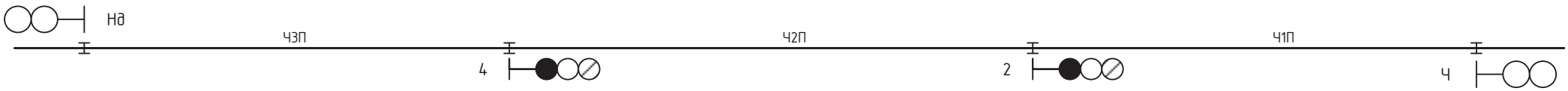
It allows you to work out practical skills of searching for violations of the normal operation of signaling systems.

NUMERIC CODE AUTOLOCK, THE SCHEME OF CHANGING DIRECTION



Specifications	
Supply voltage	220 V with a frequency of 50 Hz
Maximum power consumption	1000 W
Operating conditions	
Ambient air temperature	from +5°C to +35°C
Relative humidity	80% at the temperature +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
Dimensions of the equipment (HxWxD) mm	2000x1000x1000 mm
Weight not more than	800 kg

TRAINER-SIMULATION COMPLEX DEVELOPMENT



DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- Standard design solutions «501-05-36.Double track code 83 Autolock AC 25 and 50 Hz, with electric AB-e-K-25-50-AT 82».
- Standard materials for designing «410414-TMP Modernization of existing devices of four-wire scheme for changing direction with the protection from the feed wires of monitoring vacancy of a stage from an external source».

THE TRAINER-SIMULATION COMPLEX INCLUDES:

- Relay Cabinet, control panel.
- Relay rack SRU-M.
- Pre-entrance traffic light.

Delivery options.

It is possible to supply the training complex with a scheme of changing direction, and without it.

THE LOCATION OF THE EQUIPMENT SYSTEM:

- Relay Cabinet (1).
- Relay Cabinet (2).
- Pass a traffic light (3).

The simulator of interval regulation systems. Designed to explore the numerical code of automatic block system and the scheme of changing direction.

The trainer-simulation complex allows to enter **40** faults

PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

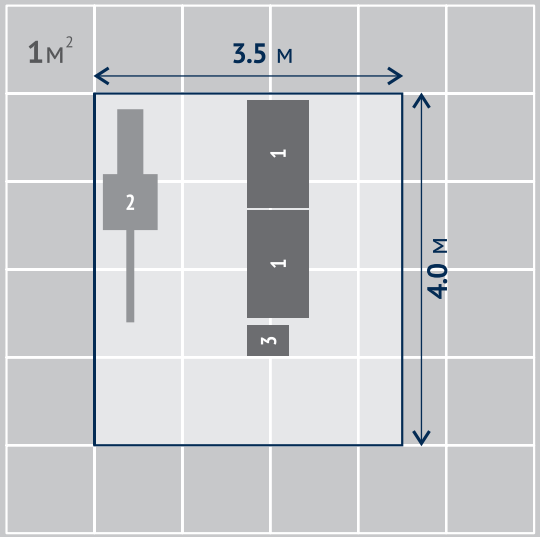
IT ALLOWS YOU TO EXPLORE:

- Principles of the automatic level crossing signaling system operation with an autobarrier.
- A method of finding failures in the circuits of level crossing signaling system.
- Operation maintenance of level crossing signaling system.

THE TRAINING COMPLEX OPERATES IN THE FOLLOWING MODES:

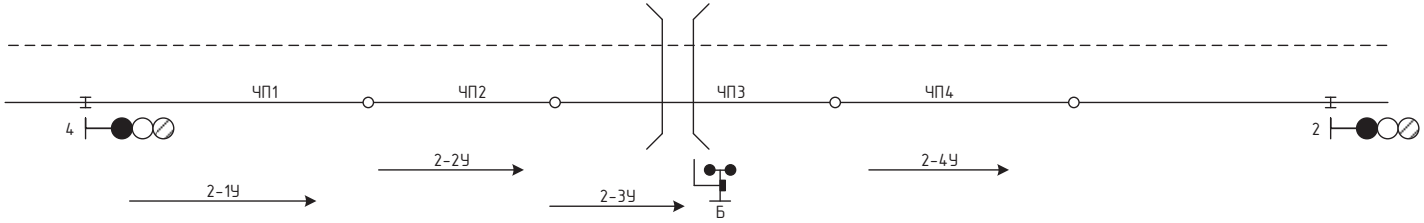
- Normal operation of auto-lock while the train is passing.
- Coding of the rail circuits while the train is passing.
- Artificial cutting the path of the stretch.

It allows you to work out practical skills of searching for violations of the normal operation of signaling systems.



Specifications	
Supply voltage	220 V with a frequency of 50 Hz
Maximum power consumption	1000 W
Operating conditions	
Ambient air temperature	from +5°C to +35°C
Relative humidity	80% at the temperature +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
Dimensions of the equipment (HxWxD) mm	2000x1000x1000 mm
Weight not more than	800 kg

TRAINER-SIMULATION COMPLEX DEVELOPMENT



DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- Standard materials for designing «410407-TMP Scheme of level crossing signaling system for level crossings located on the railway using any means of signaling and communication APS-04».

THE TRAINER-SIMULATION COMPLEX INCLUDES:

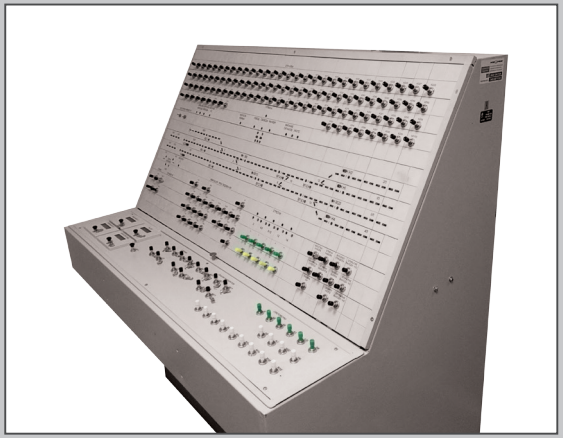
- Relay cabinets, SRU-M, control panel.
- Level crossing traffic light.
- Autobarrier PASH-1 or SHA (according to the customer's choice).

THE LOCATION OF THE EQUIPMENT SYSTEM:

- Relay rack (1).
- Autobarrier (2).
- Level crossing control panel SPS-92 (3).

The simulator of integrated performance. Designed to study block route relay centralization system of major stations adjacent to the stage, equipped with a numeric code auto lock and level crossing.

The trainer-simulation complex allows to enter **200** faults



PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

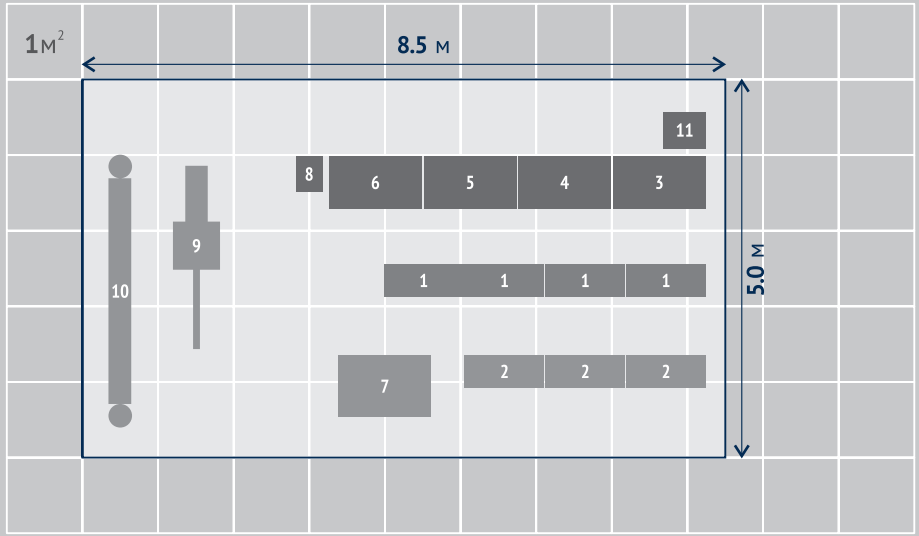
ALLOWS TO STUDY OPERATING PRINCIPLES OF:

- Block route relay interlocking, designed for major stations.
- Alarm of the entrance traffic light.
- Numerical code automatic lock.
- Four-way schema of the shift direction.
- Automatic LC signaling system.

THE TRAINING COMPLEX OPERATES IN THE FOLLOWING MODES:

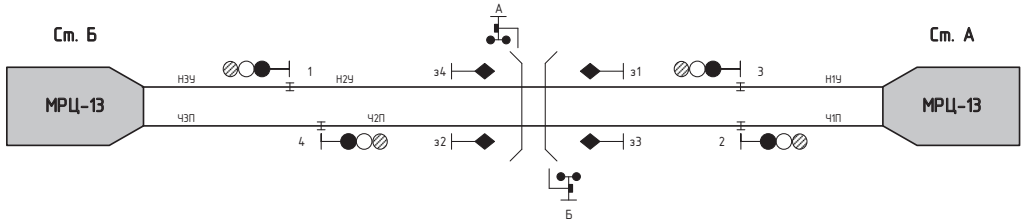
- Installation, cancellation and automatic disconnection of routes.
- Support management, artificial unlocking.
- Unlocking unused parts of shunting routes in the corner races.

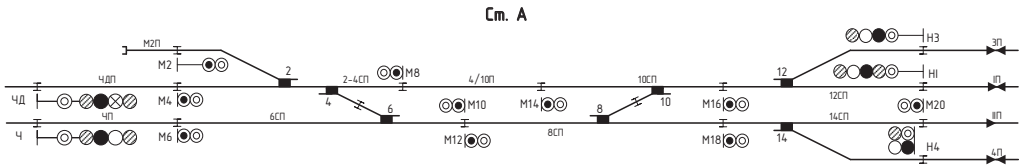
Allows you to work out practical skills of the search for violations of the signaling systems normal operation.



Specifications	
Supply voltage	220V and frequency 50 Hz
Maximum power consumption	not more than 3000W
Operating conditions:	
The ambient air temperature	from +5°C to +35°C
Relative humidity	up to 80% at +20°C
Dimensions	
Overall dimensions of the Cabinet (HxWxD) mm	2600x1000x460 mm
The overall dimensions of the panel-Board (HxWxD) mm	1500x1200x1000 mm
Dimensions of outdoor equipment (HxWxD) mm	2000x1000x1000 mm
Weight not over	2000 kg

TRAINER-SIMULATION COMPLEX DEVELOPMENT





DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- Standard design solutions «501-0-98« Route relay interlocking MRC-13Scheme».
- Technical solutions «419716 the Enable of control vanishing and dragging parts of rolling stock (OXPS) devices on the approaches to stations».
- Standard design solutions «501-05-36. 83Double-track code autolock AC 25 and 50 Hz, with electric AB-E-K-25-50 AT 82».
- Standard materials for designing «410407-TMP Scheme of LC signaling system for level crossings located on the railway using any means of signaling and communication APS-04».

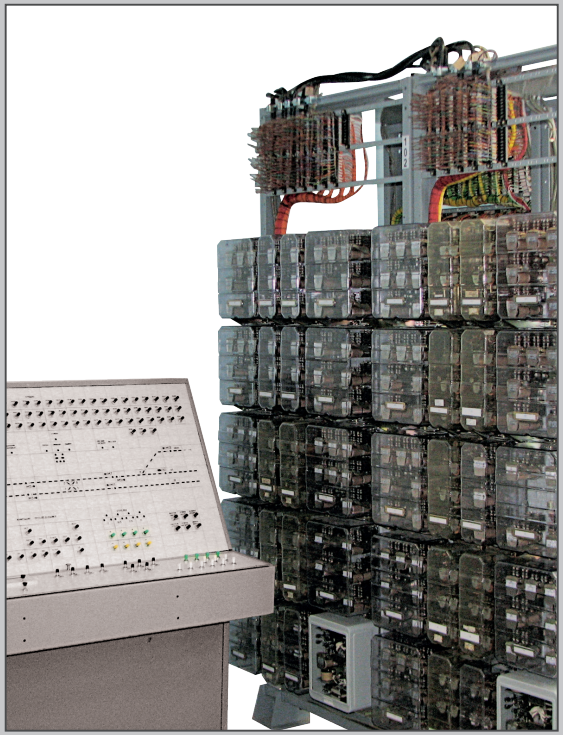
THE TRAINER-SIMULATION COMPLEX INCLUDES:

- Electric interlocking of switches and signals of a MRC-13 major station.
- A circuit to control the entrance traffic lights equipped with two-thread lamps.
- A device to monitor rolling stock derailment of VRSCD type.
- A Double-track bilateral numeric code Autolock.
- Four-wire scheme of the direction shift with the polar circuit of driving control (according to E-228-94 album).
- Automatic level crossing APS-04 signaling equipped with PASH-1 auto-shuttle.

It is possible to supply equipment with automatic level-crossing alarm of APS-04 type, and without it.

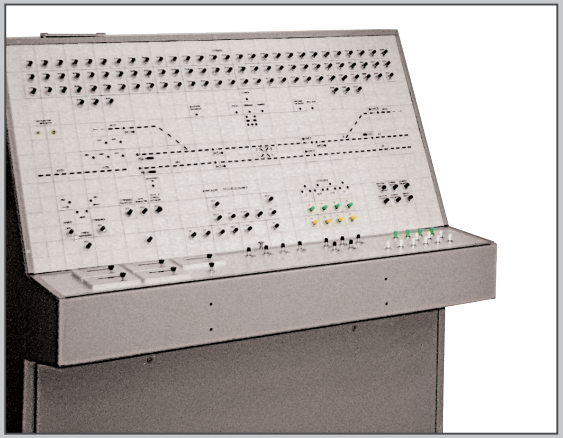
THE LOCATION OF THE EQUIPMENT SYSTEM:

- On the 4 relay racks (1).
- On the 3 block racks (2).
- In the relay Cabinet of the entrance traffic light (3).
- In the relay Cabinet of the signal point (4).
- In relay racks of the level crossing (5, 6).
- In Mosaic panel-display of the led type (7).
- A Panel to control the level crossing of SPS-92 type(8).
- The barrier PASH-1 (9).
- VRSCD (10).
- The Entrance traffic light (11).



The simulator of integrated performance. Designed for studying block route relay interlocking at Station A, electric centralization at Station B, connected by the stage, equipped with a numeric code lock and level crossing.

The trainer-simulation complex allows to enter **300** faults



PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

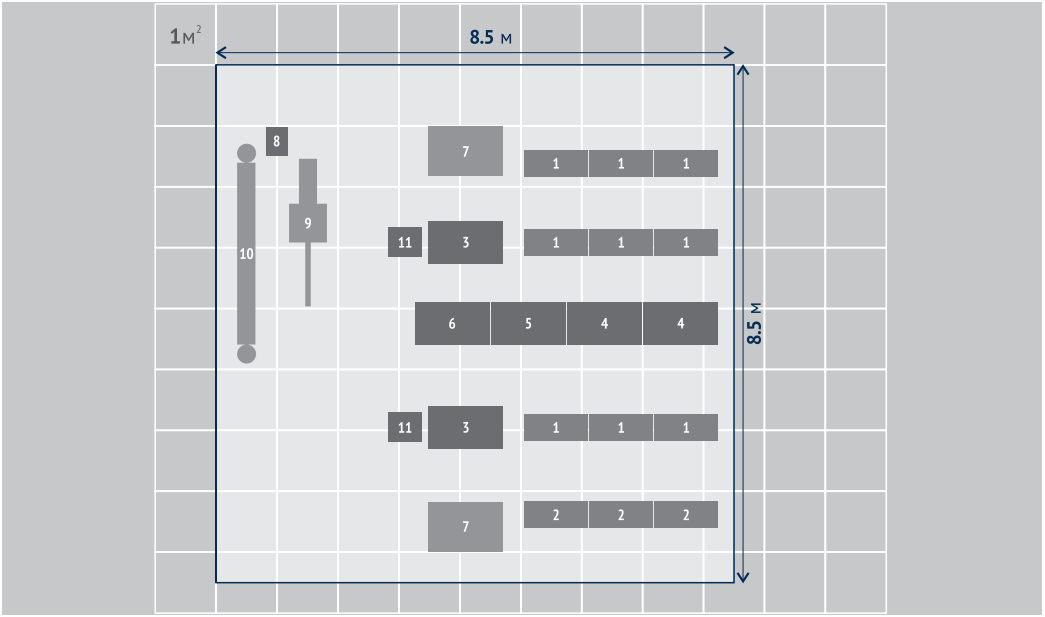
ALLOWS TO STUDY OPERATING PRINCIPLES OF:

- Block route relay interlocking, designed for using at major stations.
- Electric centralization system of intermediate stations with shunting work.
- Alarm of the entrance traffic light.
- Numerical code of automatic lock.
- Four-way scheme of the direction shift.
- Automatic Level Crossing signaling system.

THE TRAINING COMPLEX OPERATES IN THE FOLLOWING MODES:

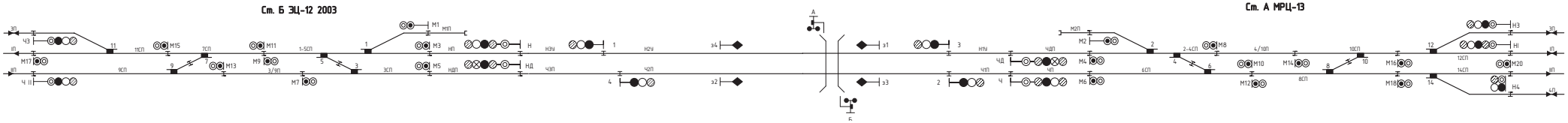
- Installation, cancellation and automatic disconnection of routes.
- Support management of the artificial disconnection.
- Disconnection of unused parts of shunting routes in the corner arrival.

Allows you to work out practical skills of searching for violations in the normal operation of signaling systems.



Specifications	
Supply voltage	220В and frequency 50 Hz
Maximum power consumption	not more than 3000W
Operating conditions	
The ambient air temperature	from +5°C to +35°C
Relative humidity	up to 80% at +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
The overall dimensions of the panel-board(HxWxD) mm	1500x1200x1000 mm
Outdoor floor equipment (HxWxD) mm	2000x1000x1000 mm
Weight, not more than	3000 kg

TRAINER-SIMULATION COMPLEX DEVELOPMENT



DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

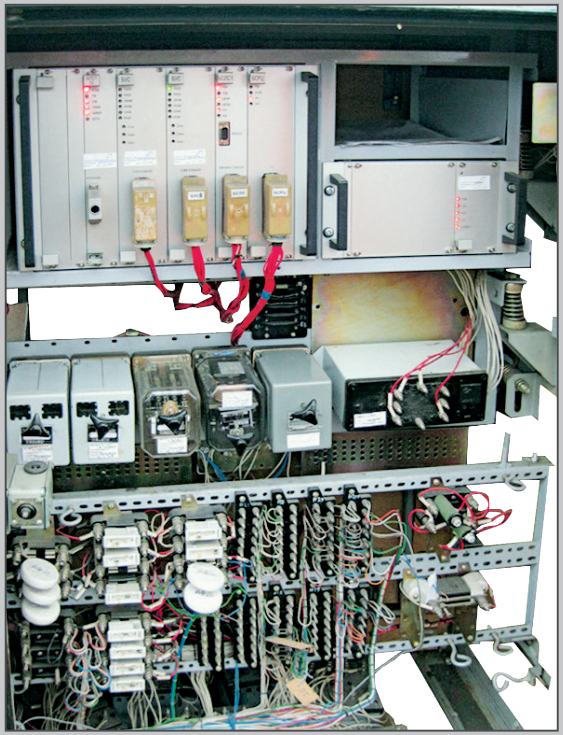
- Standard design solutions «501-0-98 « Route relay interlocking MRC-13 schemes «.
- TMP «410305 power interlocking intermediate stations with shunting work EC-12-2003».
- Technical solutions «419716 Enabling vanishing and dragging parts of rolling stock (UKSCPS) control devices on the approaches to stations».
- Standard design solutions «501-05-36.83 Double-track code Autolock AC 25 and 50 Hz, with electric AB-e-K-25-50 AT 82».
- Standard materials for designing «410407-TMP Schemes of LC signaling system for level crossings located on the railway using any means of signaling and communication APS-04».

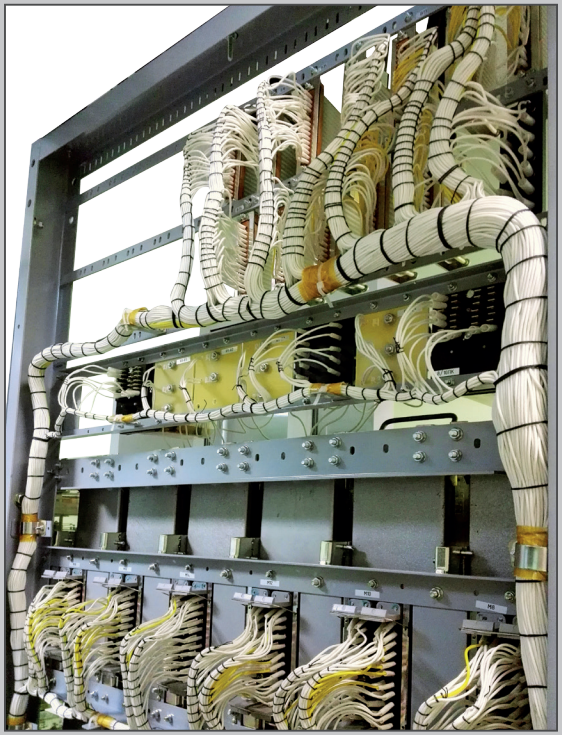
THE TRAINER-SIMULATION COMPLEX INCLUDES:

- Electric centralization of switches and signals of major stations MRC-13.
- Electric centralization of the stations with shunting work EI-12-2003.
- Scheme to control entrance traffic lights with two-thread lamps.
- Monitor derailment of rolling stock of VRSCD type.
- Double-track bilateral numeric code Autolock.
- Four-wire scheme for the change of the direction with the polar circuit to control driving (according to album I-228-94).
- Automatic level crossing signaling APS-04 with a barrier PASH-1.

THE LOCATION OF THE EQUIPMENT SYSTEM:

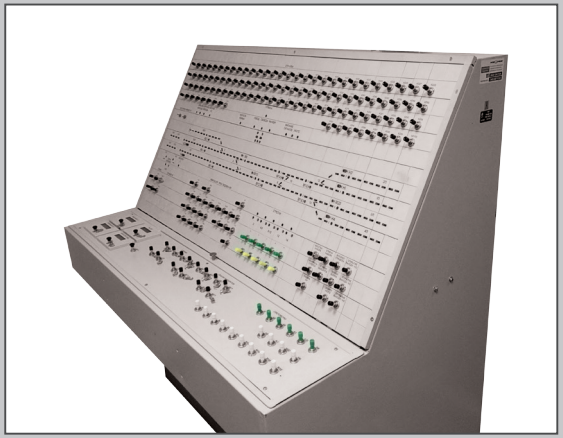
- On the 9 relay racks (1).
- On the 3 block racks (2).
- In 2 relay Cabinets of the entrance traffic light (3).
- In 2 relay Cabinet of the signal point (4).
- In 2 relay racks of the level crossing (5, 6).
- In Mosaic panel-display of the led type (7).
- A Panel to control the level crossing of SPS-92 type(8).
- The barrier PASH-1 (9).
- VRSCD (10).
- 2 Entrance traffic lights (11).





The simulator of integrated performance. Designed to study block route relay centralization system of a major station adjacent to the stage, equipped with electronic code autolocking and level crossing.

The trainer-simulation complex allows to enter **160** faults



PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

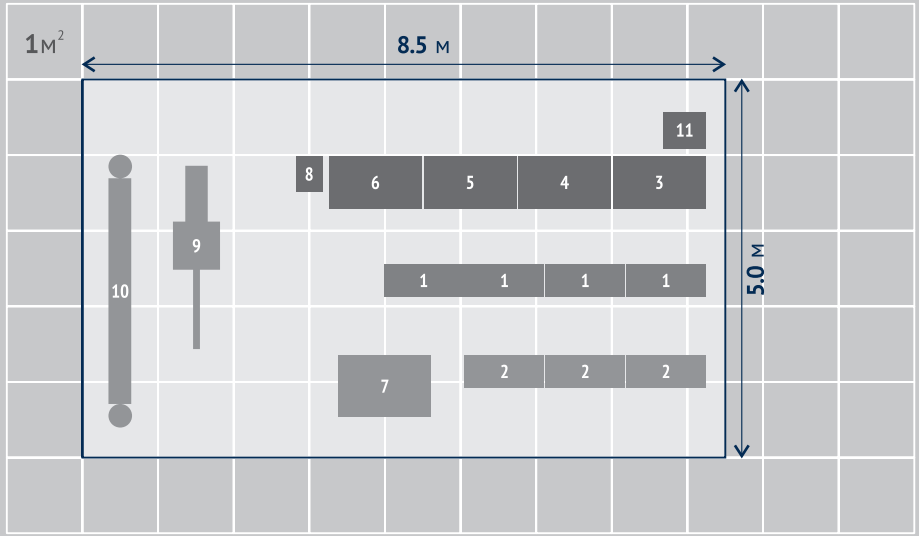
- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

ALLOWS TO STUDY OPERATING PRINCIPLES OF:

- Block route relay centralization, designed for using at major stations.
- Alarm of the entrance traffic light.
- Coded electronic autolock.
- Automatic LC signaling system.

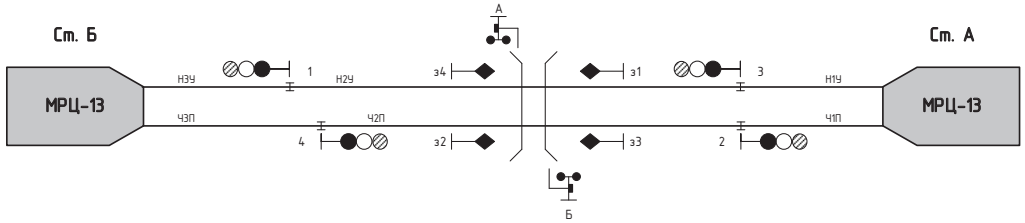
THE TRAINING COMPLEX OPERATES IN THE FOLLOWING MODES:

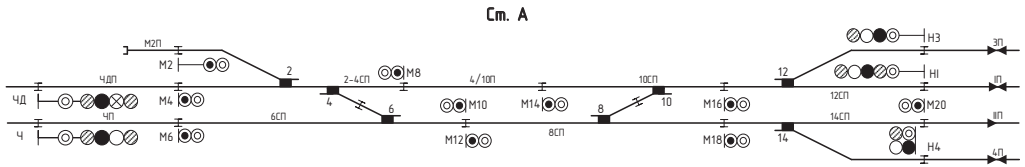
- Installation, cancellation and automatic disconnection of the routes.
- Support management of the artificial disconnection.
- Disconnection of unused parts of shunting routes in the corner arrivals.
- Allows you to work out practical skills of searching for violations in the normal operation of signaling systems.



Specifications	
Supply voltage	220V and frequency 50 Hz
Maximum power consumption	not more than 3000W
Operating conditions	
The ambient air temperature	from +5°C to +35°C
Relative humidity	up to 80% at +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
The overall dimensions of the panel-Board (HxWxD) mm	1500x1200x1000 mm
Dimensions outdoor equipment (HxWxD) mm	2000x1000x1000 mm
Weight not over	2000 kg

TRAINER-SIMULATION COMPLEX DEVELOPMENT





DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- Standard design solutions: «501-0-98 «Schemes of route relay centralization MRC-13».
- Technical solutions «419716 Enabling vanishing and dragging parts of rolling stock control devices (VRSCD) on the approaches to stations».
- TMP «410402 electronic Code autolock for single-and -double track railways CAB-2».
- Typical materials for designing «410407-TMP Scheme of LC signaling system for level crossings located on the railway using any means of signaling and communication APS-04».

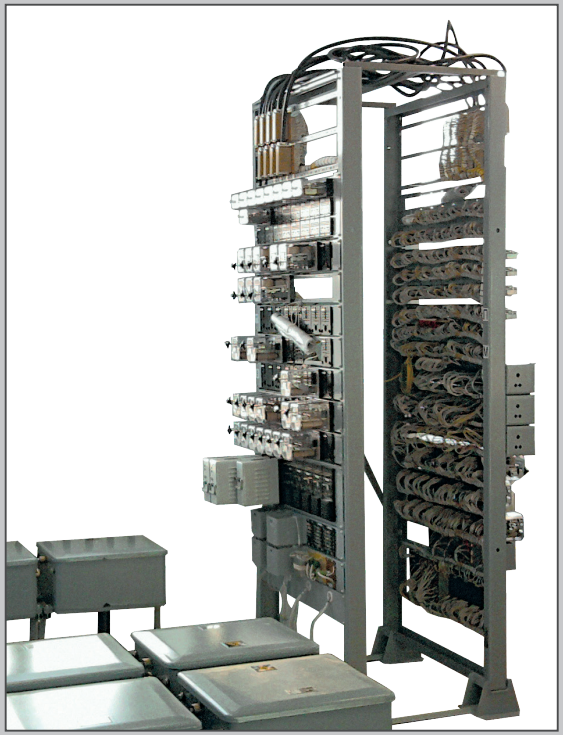
THE TRAINER-SIMULATION COMPLEX INCLUDES:

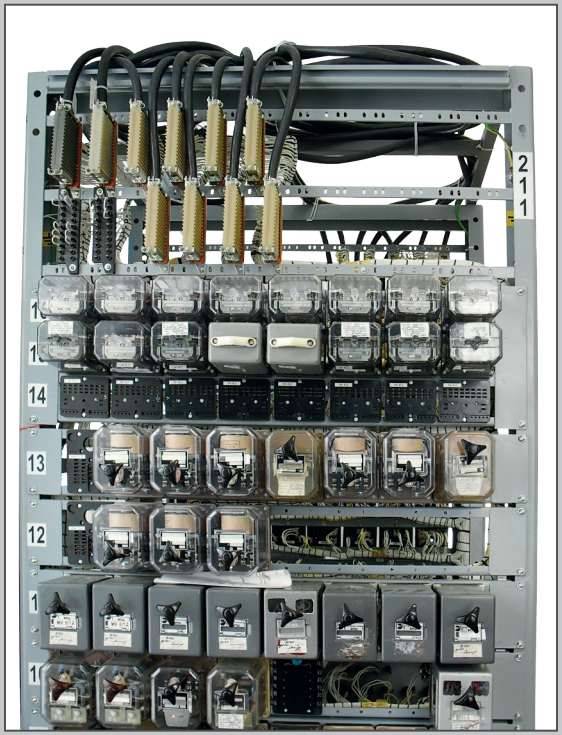
- Electric interlocking of switches and signals of a major station of MRC-13 type.
- A scheme to control the entrance traffic lights with two-thread lamps.
- A device to control derailment of rolling stock of VRSCD type.
- Double track two-way code electronic autolock.
- Automatic level crossing signaling APS-04 equipped with a barrier PASH-1.

It is possible to supplies the equipment with automatic level crossing alarm APS-04, and without it.

THE LOCATION OF THE EQUIPMENT SYSTEM:

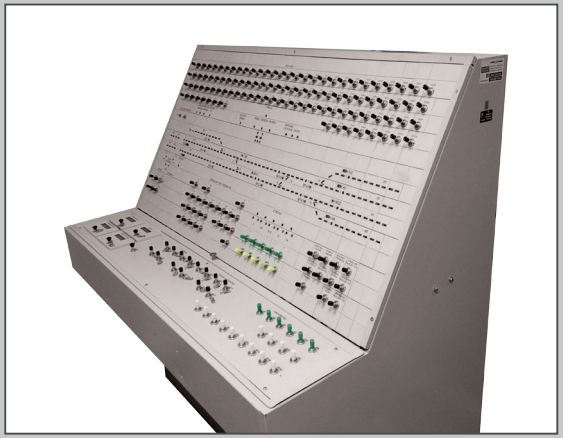
- On 4 relay racks (1).
- On 3 block racks (2).
- In the relay Cabinet of the input light (3).
- In the relay Cabinet of the signal point (4).
- In relay racks of the level crossing (5, 6).
- In a Mosaic panel-display led type (7).
- A Control panel of a level crossing SPS-92 (8).
- The barrier PASH-1 (9).
- VRSCD (10).
- An Entrance traffic light (11).





The simulator of integrated performance. Designed to study block electric centralization of small stations adjacent to the track equipped with automatic block systems with tonal rail circuits and centralized placement of the equipment and level crossing.

The trainer-simulation complex allows to enter **200** faults



PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

ALLOWS TO STUDY OPERATING PRINCIPLES OF:

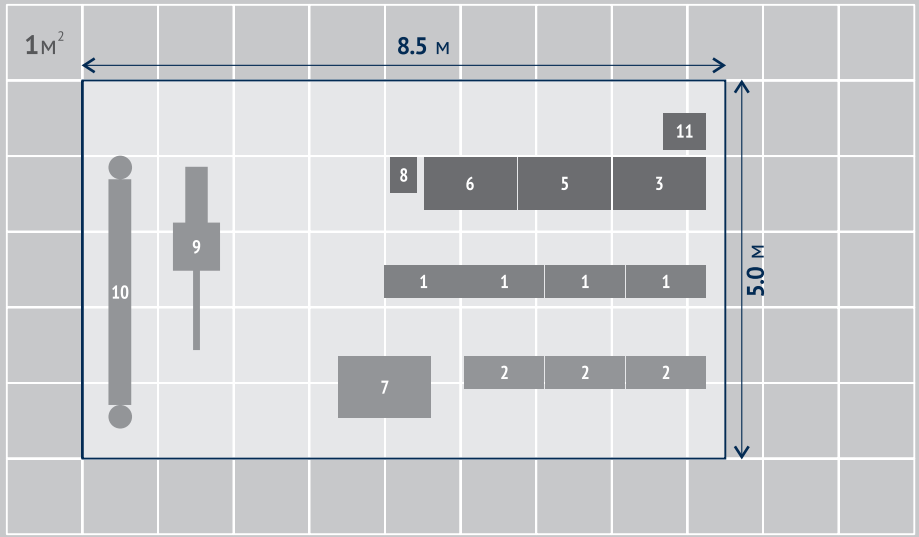
- Block electric centralization designed for using at small stations.
- Alarm of the entrance traffic light.
- Interlocking with tonal track circuits and centralized placement of equipment.
- Four-way schemes of the direction shift.
- Automatic LC signaling system.

THE TRAINING COMPLEX OPERATES IN THE FOLLOWING MODES:

- Installation, cancellation and automatic disconnection of routes.
- Support management of the artificial disconnection.
- Disconnection of unused parts of shunting routes during the corner arrivals, changing the movement on the stretch.

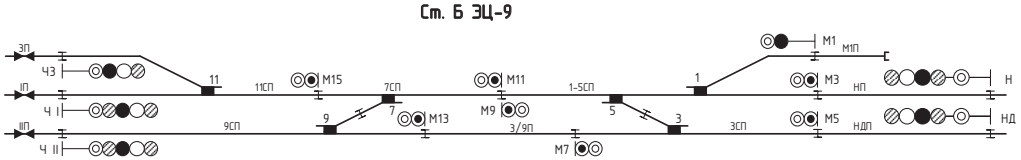
Allows you to work out practical skills of searching for violations of the normal operation of signaling systems.

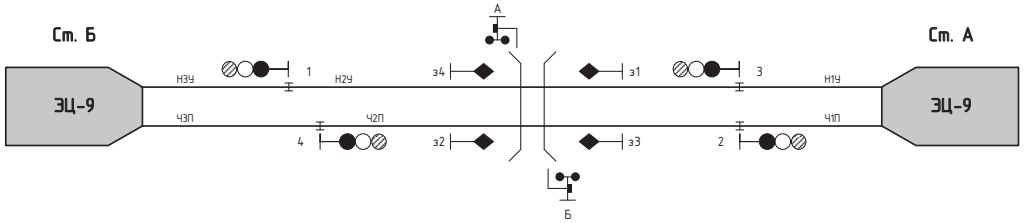
EC-9, THE ENTRANCE TRAFFIC LIGHTS, ABTC-2003, VRSCD , THE SCHEME OF CHANGING DIRECTION, AUTOMATIC LEVEL CROSSING ALARM



Specifications	
Supply voltage	220V and frequency 50 Hz
Maximum power consumption	not more than 3000W
Operating conditions	
The ambient air temperature	from +5°C to +35°C
Relative humidity	up to 80% at +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
The overall dimensions of the panel-Board (HxWxD) mm	1500x1200x1000 mm
Dimensions of the outdoor equipment (HxWxD) mm	2000x1000x1000 mm
Weight not over	2000 kg

TRAINER-SIMULATION COMPLEX DEVELOPMENT





DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- Standard solutions «501-0-8/75 block electric centralization schemes of small stations EC-9».
- Technical solutions «419716 Enabling vanishing and dragging parts of rolling stock control devices (VRSCD) on the approaches to stations».
- Standard materials for designing «410306-TMP Autolock with tonal rail circuits and centralized placement of the equipment ABTC-03».
- Standard materials for designing «410414-TMP Upgrading existing devices of a four-wire scheme for changing the direction with protection from the feed wires of monitoring vacancy of a stage from a stranger source.»
- Amendment No. 1 to « 410414-TMP Upgrading existing devices of a four-wire scheme for changing the direction with protection from the feed wires of monitoring vacancy of a stage from a stranger source.»
- Standard materials for designing «410407-TMP level crossing alarm scheme for level crossings located on the railway with any means of signaling and communication APS-04».

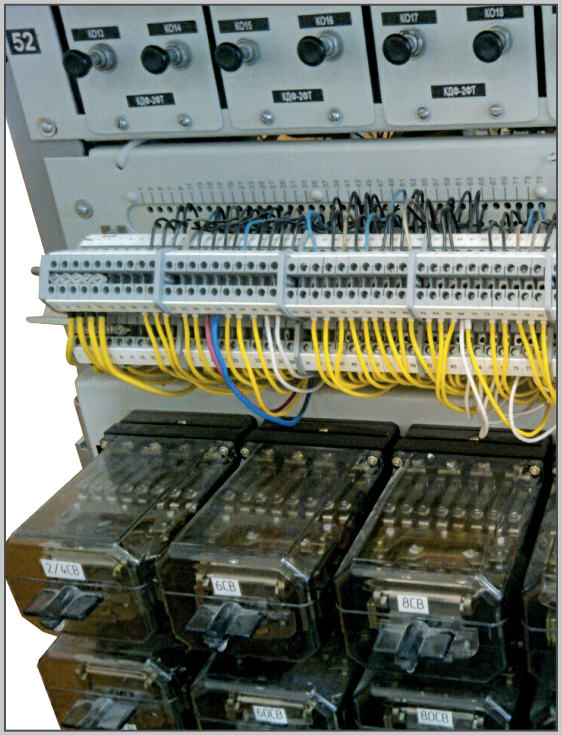
THE TRAINER-SIMULATION COMPLEX INCLUDES:

- Block electric centralization for small stations of the EC-9 type.
- Control circuit for the entrance traffic lights with two-thread lamps.
- Device for monitoring vanishing of rolling stock of VRSCD type.
- Automatic blocking system with tonal track circuits and centralized placement of the equipment.
- Four-wire scheme for changing the direction with the polar chain to control a stage.
- Automatic level crossing signaling APS-04 with a barrier PASH-1.

It is possible to supply equipment with automatic level crossing signaling APS-04, and without it.

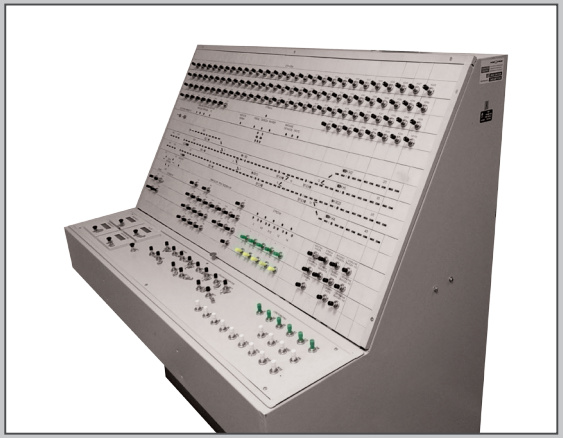
THE LOCATION OF THE EQUIPMENT SYSTEM:

- On 4 relay racks (1).
- On 3 block racks (2).
- In the relay Cabinet of the entrance traffic light (3).
- In relay racks of a level crossing (5, 6).
- A Mosaic panel-display of a led type (7).
- A Control panel of a level crossing SHPS-92 (8).
- The barrier PASH-1 (9).
- VRSCD (10).
- An Entrance traffic light (11).



The simulator of integrated performance. Designed to study electric interlocking at the station adjacent to the stage, equipped with automatic blocking system with tone track circuits, centralized location of the equipment and level crossing.

The trainer-simulation complex allows to enter **200** faults



PRINCIPLES OF DESIGNING THE TRAINER-SIMULATION COMPLEX:

- Maximum use of standard automation devices.
- The possibility of introducing failures into the schemes, which will allow you to acquire the skill of fast search for failures and troubleshooting.
- Trainers are provided with teaching aids describing the principles of the schemes and methods of searching for failures.

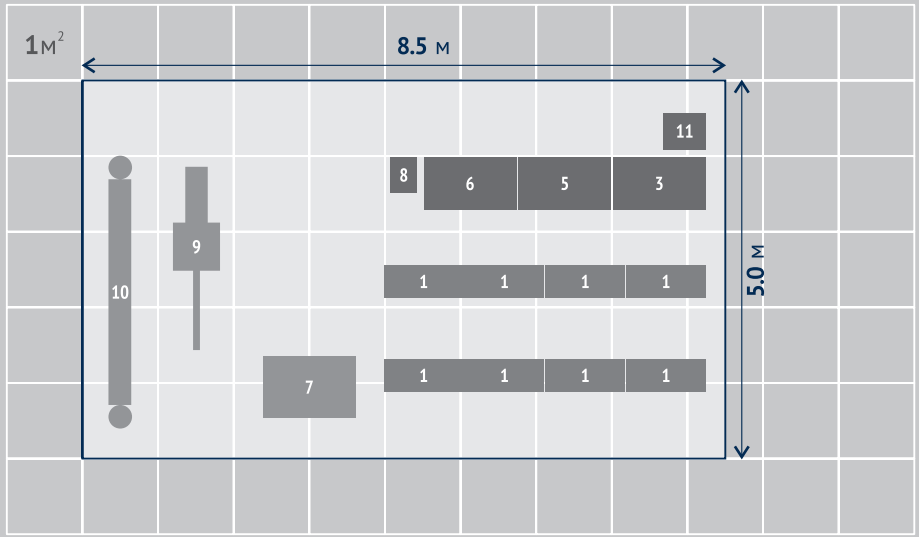
ALLOWS TO STUDY OPERATING PRINCIPLES OF:

- Electric centralization system for intermediate stations with shunting work.
- The entrance traffic light signaling.
- Automatic block system with tone track circuits and centralized placement of the equipment.
- Four-wire scheme of the direction shift.
- Automatic level crossing signaling system.

THE TRAINING COMPLEX OPERATES IN THE FOLLOWING MODES:

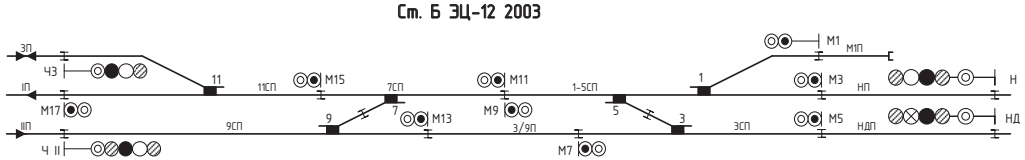
- Installation, cancellation and automatic disconnection of routes.
- Support management of the artificial disconnection.
- Disconnection of unused parts of shunting routes in the corner arrivals.

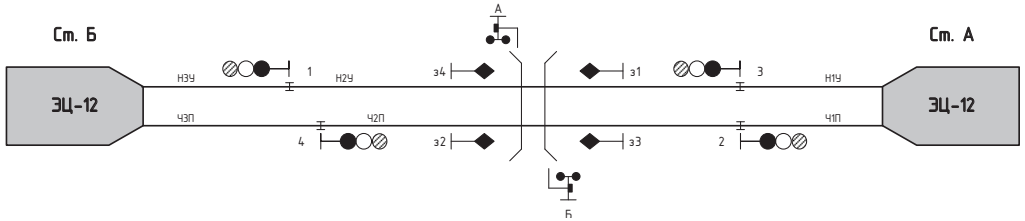
Allows you to work out practical skills of searching for violations of the normal operation of signaling systems.



Specifications	
Supply voltage	220V and frequency 50 Hz
Maximum power consumption	not more than 3000W
Operating conditions	
The ambient air temperature	from +5°C to +35°C
Relative humidity	up to 80% at +20°C
Dimensions	
Overall dimensions of Cabinet (HxWxD) mm	2600x1000x460 mm
The overall dimensions of the panel-Board (HxWxD) mm	1500x1200x1000 mm
Dimensions of the outdoor equipment (HxWxD) mm	2000x1000x1000 mm
Weight not over	2000 kg

TRAINER-SIMULATION COMPLEX DEVELOPMENT





DESIGNED IN ACCORDANCE WITH THE DOCUMENTS:

- TMP «410305 electric power interlocking of intermediate stations with shunting work EC-12-2003».
- Technical solutions «419716 Enabling vanishing and dragging parts of rolling stock control devices (VRSCD) on the approaches to stations».
- Standard materials for designing «410306-TMP Autolock with tonal rail circuits and centralized placement of the equipment ABTC-03».
- Amendment No. 1 to « 410414-TMP «Modernization of existing devices of a four-wire scheme for changing the direction with protected from recharge wires monitoring vacancy of a stage from an external source».
- Standard materials for designing «410407-TMP Scheme of level crossing signaling system for level crossings located on the railway using any means of signaling and communication APS-04».

THE TRAINER-SIMULATION COMPLEX INCLUDES:

- Power interlocking of intermediate stations with shunting work EI-12-2003.
- Control circuit of the entrance traffic lights with two-thread lamps.
- Derailment of rolling stock device of VRSCD type.
- Automatic blocking system with tone track circuits and centralized the placement of the equipment.
- Four-wire scheme for changing the direction with the polar chain to control a stage.
- Automatic level crossing signaling APS-04 with the barrier PASH-1.

It is possible to supply equipment with automatic level crossing alarm APS-04, and without it.

THE LOCATION OF THE EQUIPMENT SYSTEM:

- On 8 relay cabinets (1).
- In the relay Cabinet of the entrance traffic light (3).
- In relay racks of the level crossing (5, 6).
- Mosaic panel-display of a led type (7).
- Control panel of the level crossing SPS-92 (8).
- The barrier PASH-1 (9).
- VRSCD (10).
- The Entrance traffic light (11).

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