



Research & Development Company
PROMELECTRONICA

OUR PROJECTS



MAINLINE RAILWAYS



INDUSTRIAL RAILWAYS

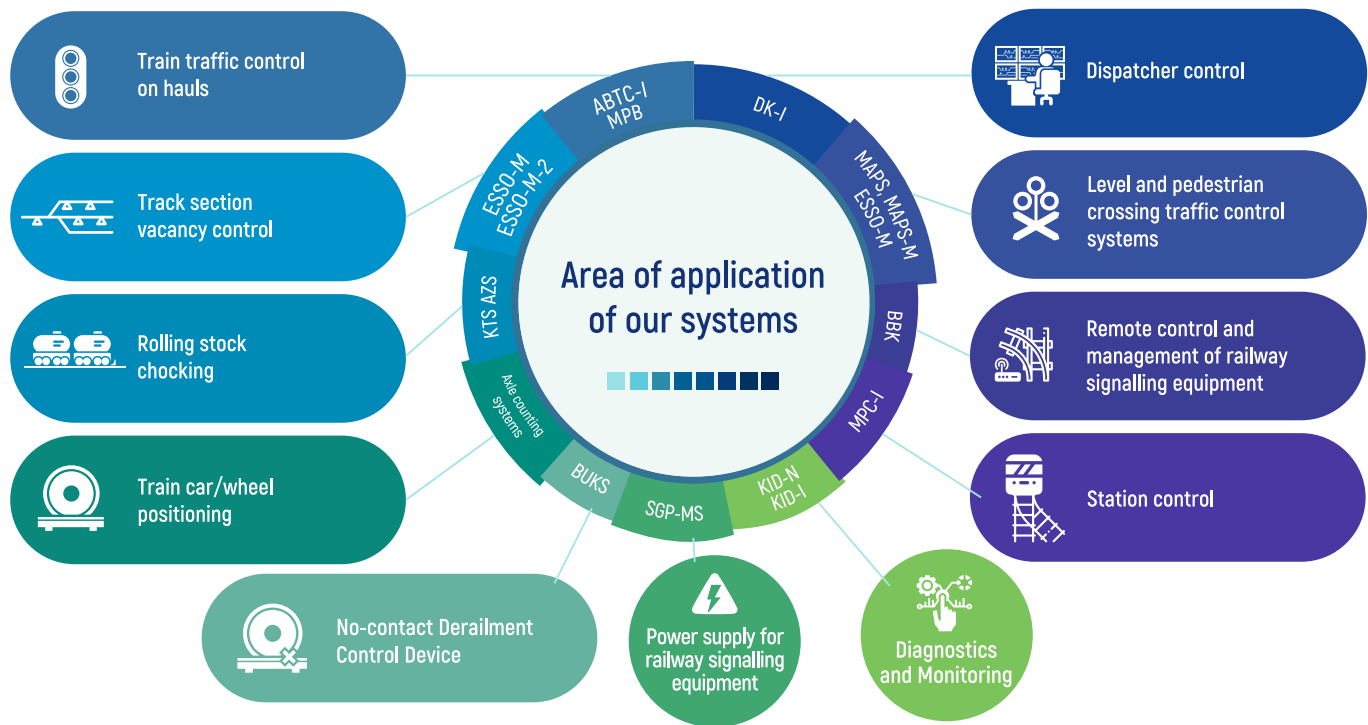
30 years R&D Company Promelectronica has been developing electronic signalling and telecommunication equipment for mainline railways, approach tracks of industrial companies and subway.

We have full arrangement of equipment for ensuring train traffic at stations, mainlines and level-crossings. Our systems are working in various climactic and operating conditions to ensure train traffic safety. Our developments and implementation services have all the necessary certificates and permits. We run responsible business and strive for growth together with our customers and partners. Cases of real cooperation and implemented projects at industrial and mainline railways speak more about what we do and demonstrate professionalism and responsibility of Promelectronica's team.

We are proud of our projects, our customers and we'd like to share some cases with you with a great pleasure. These are not all the cases that we have in our invaluable experience, but ones that feature the most capabilities, implemented functions and peculiarities of Promelectronica's products.

We wish you success and new achievements!

Sincerely yours,
team of Promelectronica



SERVICES:

- development of railway signalling;
- manufacture and complete supply of equipment;
- design and surveying, commissioning and construction works;
- author's supervision and retrofit;
- personnel training.

COMPREHENSIVE PROJECTS

More than 300 design and survey works are carried out by own efforts.
About 100 projects implemented as a turnkey solution. Our projects feature facilities of the following enterprises and mainlines:



NORINICKEL

PJSC "MMC "Norilsk Nickel"



EVRAZ NTMK



JSC Russian Railways



PAO Chelyabinsk Metallurgical Plant (part of PAO Mechel)



AO Pervouralsk New Pipe Plant
(part of CHELPIPE Group)



Uzbek Railways



OOO Novorossiysk
Oil Terminal



PHOSAGRO

Apatit
(part of PhosAgro Group)



ZAO South Caucasian
Railway



PAO NOVATEC –
Purovsky Plant



SUEK-Krasnoyarsk



OOO EuroChem –
Usolsky Potash Plant



ОАО Sredneuralsk
Copper Factory



Bulgarian Railways

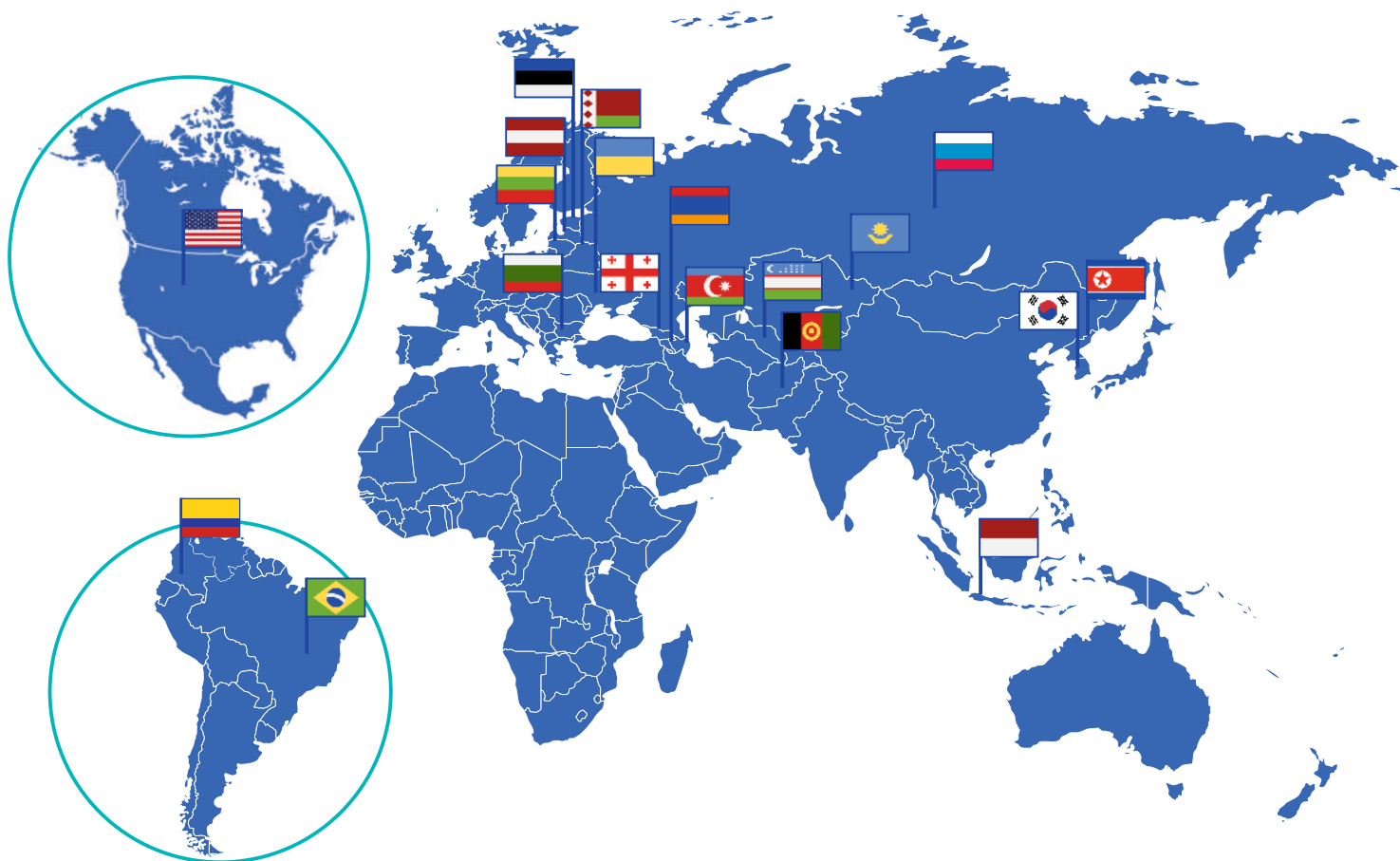


Kazakh Temir Zholy
(Kazakh Railways)



NLMK Group

SCOPE OF IMPLEMENTATION



Our systems are presented in 19 countries.

Main operational documents are available in foreign languages.

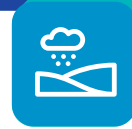
MPC-I
OVER
160
STATIONS

MPB
>110
HAULS

>40 PEDESTRIAN
CROSSINGS

MAPS OVER
110
LEVEL CROSSINGS

25000
WHEEL SENSORS
ESSO/ESSO-M



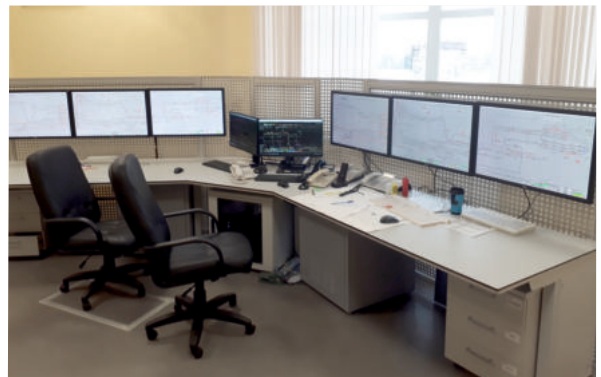
Implementation of the automatic rolling stock chocking system **KTS AZS** at **Sverdlovsk Railway**. The system chocks rolling stocks with the total mass of up to 10 000 tonnes on tracks with a slope up to 0.003, and up to 5 000 tonnes on tracks with a slope up to 0.006. Does not require the presence of signalling staff and installation of brake shoes.



So far, 122 **ESSO** counting posts are operating at the line Korotchaevo – Novy Urengoy, Sverdlovsk Railway, **Yamal Railway Company**.



ARM ETs has been applied at one of the stations of **South Ural Railway**. It is a block route-relay interlocking with computer route setting system. A conventional relay EI control panel has been replaced with the modern ARM DSP Station Master Terminal. The retrofitted EI was supplemented with the record and archive functions and remote control of a neighbor station.





Participation in implementation of the strategic project at [Far Eastern Railway](#). Construction of infrastructure at the sections Komsomolsk-on-Amur – Sovetskaya Gavan, Komsomolsk-on-Amur – Volochaevka, Baranovskiy – Makhhalino. 52 stations are fitted with [MPC-I](#) system. Urgal – Izvestkovaya section is controlled by [ESSO](#) system. [MAPS-M](#) is installed at the non-guarded level-crossing with 12 counting posts in the area of level-crossing.



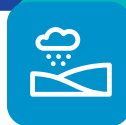
Collaboration in creation of transport infrastructure for development of natural resources in southeastern part of [Transbaikal Territory](#), construction of a new railway line Naryn – Lukogan – Bystrinskiy GOK. 6 stations are equipped with [MPC-I](#) system, 7 level-crossings – with [MAPS](#) system at the section Naryn 1 (Borzya) – Bystrinskiy GOK.



Construction of new stations at Bystrinskiy GOK: 71 [ESSO](#) counting posts are installed, 31 points are interlocked by [MPC-I](#), 2 level-crossings are controlled by [MAPS](#).

Comprehensive modernization of signalling equipment on [Sakhalin](#). 57 counting posts of [ESSO](#) system are being operated.





There are 1351 **ESSO** counting posts, 154 **MPC-I** points and 5 **MAPS** level-crossings. Remote control of two stations from a single interlocking tower was implemented in 2004 for the first time. **DK-I** Dispatcher Control System and Car Positioning System have been implemented.

The non-relay **MPC-I** with have been implemented in 2018. The equipment is placed into **MKM** container.

Three stations are equipped with **MPC-I** in a hot redundancy configuration. For the first time there has been applied UKC-U Interlocking Controller which combines functions of two UKCs introduced in one cabinet.



Comprehensive modernization of railway infrastructure on PAO Nor Nickel: 114 points are interlocked by **MPC-I**, 147 counting posts operated by **ESSO-M**, 11 level-crossings are controlled by **MAPS**, 7 hauls are controlled by **MPB**. The project features remote point control. There are three **MKM** containers. 55 km of fiber optic cable are laid down.





Extreme operating conditions of the systems at **AO Apatit**. The town is located to the north of the Arctic Circle where snow season lasts for 7-8 months. One of the stations is located in the tunnel under the mountain with daily blasting operations. **MPC-I** system operates 166 points, **ESSO** ensures control of 393 counting posts.



1589 counting posts of **ESSO** and **ESSO-M**, 93 points controlled by **MPC-I** are operating at the facilities of **NLMK Group** (**NLMK**, **NLMK-Kaluga**, **NLMK-Ural**, **Stoylensky GOK**). The hump yard at NLMK is equipped with **DKT** Technological Wheel Sensors.





AO SUEK-Krasnoyarsk: 124 points are interlocked by **MPC-I**, 233 **ESSO** counting posts, **MAPS** at the double track section. At one of the stations there have been integrated into **MPC-I** the hot redundancy and cascading technologies via Ethernet. Another station with 19 points is equipped with **ARM ETs**.

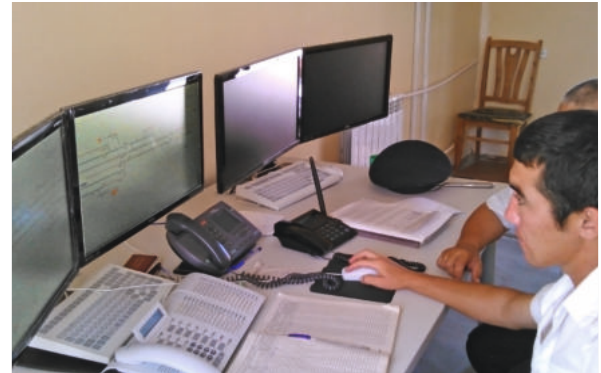


OOO UMMC-Holding, railway infrastructure OAO SUMZ. To increase the train traffic capacity at a station located 8 km away, there was used **BBK-02** which introduced remote monitoring and control of **ESSO-M** point machines and light signals over fiber optic cable. **ESSO-M** and **BBK-02** are placed in relay cabinets in close vicinity to controlled objects.





Project on a high-speed section Tashkent – Samarkand, construction of **ESSO** on the section Tashguzar – Boisun – Kumkurgan of **Uzbek Railways**. In total, there 756 **ESSO** counting posts, 2 stations interlocked by MPC-I, 12 hauls controlled by **MPB**, 11 level-crossings controlled by **MAPS**.



MPB, **ESSO**, **MAPS** have been introduced on the section Airum – Kaltakhchi of **South Caucasian Railways** (Armenia). Since South Caucasian Railways use fiber-optic communication, the application of **MPB** at 22 sections has become extremely efficient. Some sections are located at the height of 2 km above sea level.



Large scopes of works have been performed at the industrial railways of **Kazakhstan and JSC NC KTZ**: 282 **ESSO** counting posts, 6 stations interlocked by **MPC-I**, 5 level-crossings controlled by **MAPS**, 6 hauls controlled by **MPB**. There have been reduced the operating costs of the sections with decreased cargo traffic due to replacement of auto-block system with MPB. **MPC-I** laboratory training set has been installed. A new product **ESSO-ILS** has been put into operation for the first time at **Atirau Oil Refinement Factory (TOO RTI-ANPZ)**.





ESSO-M is being operating at **all types of railways of Indonesia**. In 2016 the system was introduced on railroad of coal-loading station on Sumatra Island. In 2018 **ESSO-M** and 106 DKU Wheel Sensors came into operation at the city railroad of Jakarta. Then there were equipped 2 stations and a section between them on a mainline in one of the cities of South Sumatra. In total, there were installed 37 counting posts. **ESSO-M** is operating stably in tropical conditions with high temperatures and humidity.



In the European Union our **ESSO-M** system is working at 10 stations, **MPC-I** controls one station. 230 counting posts are installed on **Bulgarian Railways**. One of the stations is equipped with **ESSO-M** ARM connected to a remote monitoring of tower equipment and DKU Wheel Sensors.





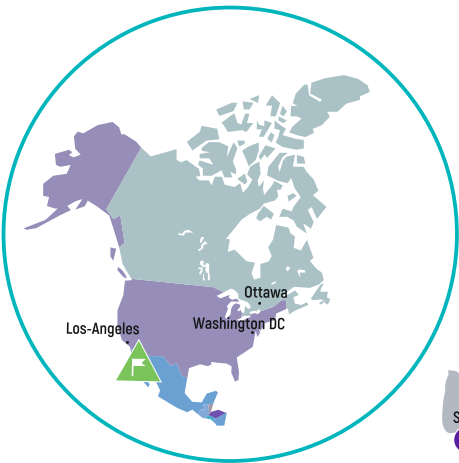
A level-crossing in Bogota, the capital of the Republic of [Colombia](#), is equipped with **ESSO-M** system. The tower equipment is placed into a relay cabinet, DKU Wheel Sensors are working as part of counting posts.

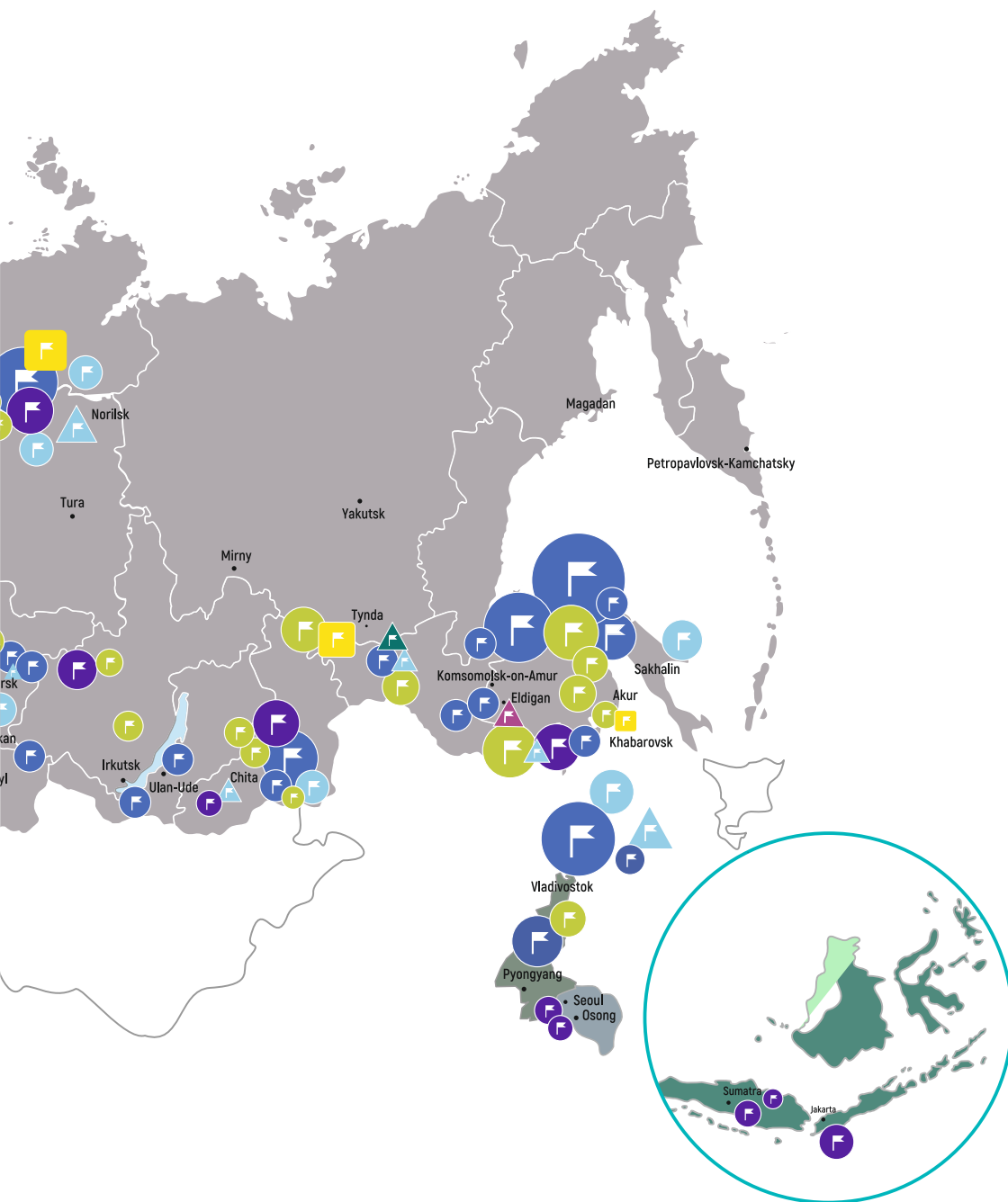


A level-crossing on a single track section in [Brazil](#) is controlled by **ESSO-M**. This track section is used for transportation of natural resources and fuel.



OUR SYSTEMS ON THE MAP





Map legend

-  ESSO
-  ESSO-M
-  ESSO-M-2
-  ESSO-ILS
-  MPC-I
-  MPB
-  MAPS
-  MAPS-M
-  ABTC-I
-  MKM
-  DK-I
-  KTS AZS
-  DKT
-  eDKT
-  BUKS

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