



Research&Development Company
PROMELECTRONICA



Control
of track section
vacancy

ESSO-M and **ESSO-M-2** Axle Counting Systems



APPLICATIONS

- Improvement of safety and operational readiness of train traffic control systems due to high RAMS values.
- Transmission of technological data on train movement to upper-level-systems.
- Reduction of running costs due to absence of external relays.

AXLE COUNTER SYSTEMS
OF R&D COMPANY PROMELECTRONICA IMPLEMENTED
**ON ALL RAILWAYS
OF JSC RUSSIAN RAILWAYS**

IMPLEMENTED
IN 9 COUNTRIES FROM NORILSK
TO JAKARTA

>25 000
COUNTING POSTS

MORE THAN 20 YEARS
OF EXPERIENCE



ESSO-M AXLE COUNTING SYSTEM

The main purpose of the system is to control vacancy/occupancy of a track section of any length and configuration, and it also can be used as an alternative to track circuits.

Integration of ESSO-M with upper-level systems is carried out via integrated secure potential-free interface.

ESSO-M is also used to back up track circuits. In case of track circuit failure, ESSO-M can be enabled for the duration of troubleshooting efforts.

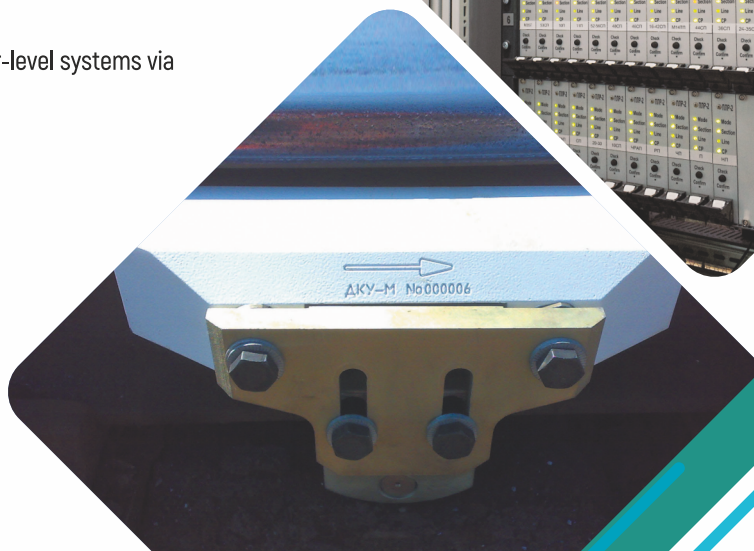
ESSO-M has been certified to CENELEC SIL4 safety integrity level.



ESSO-M-2 AXLE COUNTING SYSTEM

The system controls vacancy/occupancy of track sections of any length and configuration and offers non-relay integration with signalling systems.

ESSO-M-2 provides improved integration with upper-level systems via secure redundant digital Ethernet-based interface.



Systems are recommended for application on the **Russian Railways network**

CENELEC SIL4 safety integrity level

Operational temperature range for wheel sensors from **-60 up to +70°C**

RELIABILITY AND SAFETY

Award from the Russian Railways for the best quality of complex technical equipment

HIGH resistance to mechanical, electric and climatic effects

USER ADVANTAGES



User-friendly interface.



Integrated troubleshooting guide.



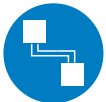
In-built diagnostic, monitoring and event logging systems (local and remote).



Does not require electronic adjustments, specialized design and configuration tools.



Can be operated with any type of ballast.



Sensor connected to indoor equipment by a single pair of wires.



DIAGNOSTICS AND MONITORING

ESSO-M/ESSO-M-2 Diagnostic System is a hardware and software complex that gathers, logs and displays diagnostic data in real time. The system transmits diagnostic data through external signalling monitoring and control systems.

ESSO-M/ESSO-M-2 Terminal is designed for real-time monitoring of the system on a station, saving and viewing system log, assistance in troubleshooting to operating personnel.

At booting the screen of ESSO-M/ESSO-M-2 Terminal displays stations available for monitoring as well as their miniaturized layouts. Scale of the selected station is adjustable.

Clicking on any track section displays full information on its current status.

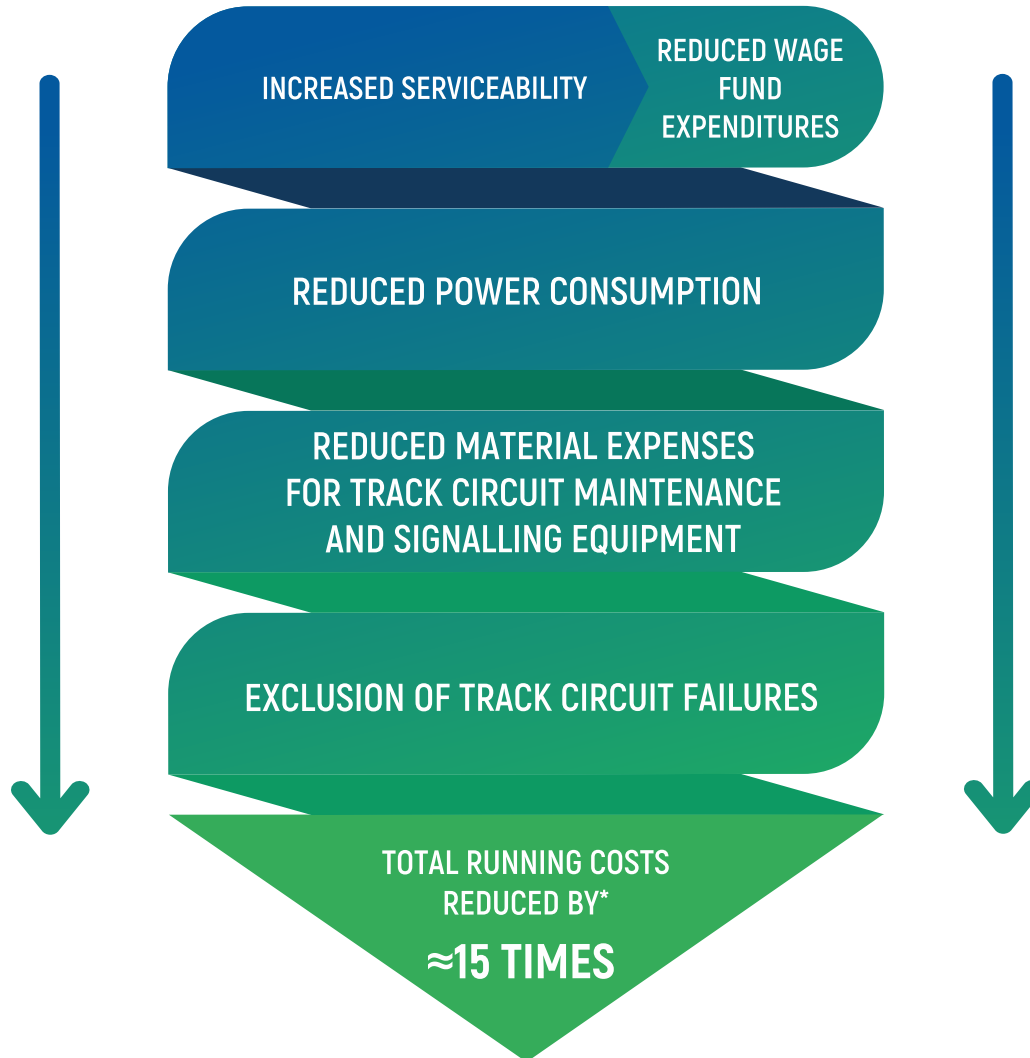
The screenshot displays the ESSO-M/ESSO-M-2 Diagnostic System interface. At the top left, it shows 'Station 1' with a status of 'online'. The main area features a track layout with various track sections labeled with codes like '53CP', '11CP', '10CP', '9CP', '8CP', '7CP', '52-56CP', '48CP', '46CP', '16-42CP', '44CP', '36CP', '40CP', '24-34CP', '12CP', '14CP', '114CP', '38CP', '20-30CP', '10CP', '58-60CP', and '40CP'. A sidebar on the left contains a list of KBR (KBR 1 to KBR 5) and PLR (PLR 1 to PLR 14) items. A detailed window for 'KBR: 4' is open, showing the following information:

KBR: 4
Reservation is ON
Failure code: 0
Main PLI
ID: 14768621240042672000
Version: 04.40
Mode: Active
Reserve PLI
ID: 14984231136577933000
Version: 04.40
Mode: Passive

Diagnosis of interfaces

External network interfaces		
	RED	BLUE
ID	15421	15421
link time	43832034	43832034
errors in headers	0	0
rejected packets	200	262
valid packets	5919	4840
other link errors	290	288

ESSO-M AND ESSO-M-2 EFFICIENCY IN COMPARISON WITH TRACK CIRCUITS



*according to calculated rate a particular mainline project



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