StationSWing ESA 44

Electronic interlocking

- **Efficient failsafe system with high availability and reliability meeting SIL4 requirements according to CENELEC**

- **Microprocessor based interlocking designed for control of medium and large railway stations and line sections**

- **Full compatibility with ERTMS / ETCS L1 / L2 / L3 (Plug & Play for AZD ERTMS / ETCS solution)**

- **Connectivity to any centralized traffic control system (Plug & Play for TrafficSWing DOZ-1)**

- **Large screen display possibility**

- **Full integration with Graphical and Technological Layer (TrafficSWing GTN)**

- **Automatic Route Setting supported**

- **Architecture allowing expansion by new types of controlled wayside signalling systems**

- **Integrated line signalling and interfacing to any external system supported**

- **Modular system, can be modified for any railway network world-wide**

- **Compact installation - space saving, low power input**

- **Low maintenance costs**

GENERAL DESCRIPTION

Station electronic interlocking StationSWing ESA 44 (further ESA 44) is designed to safeguard and control the traffic in stations with and / or without track branching.

ESA 44 is fully electronic interlocking with contactless interfaces to wayside elements. ESA 44 includes line signalling of interstation section, level crossing and pedestrian crossing system functionalities as an option.

All control, checking and logical functions of ESA 44 are executed by computers pursuant to requirements of traffic operators and state of the technological system. Electronic object controllers (EIP) are used for transmission of power signal to signal lights (LED / bulbs), indicators, point machines or for monitoring the state of track circuits, axle counters, auxiliary commanding posts, electromagnetic locks and adjacent electronic or relay systems.

BASIC TECHNICAL DESCRIPTION

ESA 44 is composed of:
- commanding level - ZPC computers. It is used for control and visual check of the traffic situation.
- control level - TPC vital computers. It is used for generating of traffic algorithms.
- executive level - EIP object controllers. It is used for generation of partial algorithms, contactless control and monitoring of wayside elements and other systems. Object

controllers can be decentralized to remote locations.

ESA 44 complies with CENELEC standards for functional and technical safety (primarily EN 50 126, EN 50 128, EN 50 129, EN 50 159) and supports meeting requirements of TSI CCS.

Safety concept is based on a 2× 2oo2 redundant architecture using diversified and defensive programming.
To increase availability, the control and executive levels use a hot standby solution.

Data transmission between levels of ESA 44 are made via open communication networks with data line backup (according to CELENEC standards) enabling full system decentralization.

ESA 44 has implemented optional functions of line signalling equipment (TrackSWing ITZZ), level crossing equipment (GateSWing), pedestrian crossing system (GateSWing) and enables interconnection with external line signalling (e.g. TrackSWing ABE-1) and level crossing elements (e.g. GateSWing PZZ-J).

ESA 44 has implemented train describer functions. ESA 44 enables integration with line part of ERTMS/ETCS of all levels: LS/L1/L2 and L3 by means of two-way functional communication with RBC (TrainSWing REA). For AZD solution AZD L1: LEU unit (TrainSWing LEA), L2: AZD RBC (TrainSWing REA) or gateway to RBC of other producers (TrainSWing IRI).

ESA 44 enables connection to the remote control system of AZD (TrafficSWing DOZ-1) or other manufacturers.
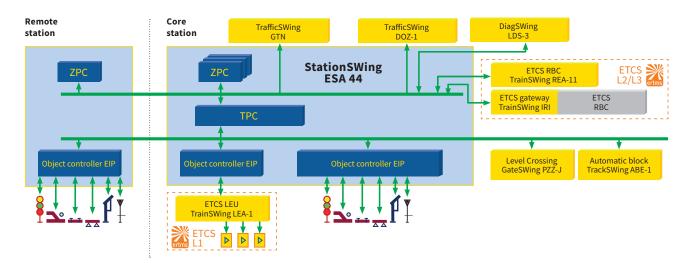
ESA 44 can be supplemented by Graphical and Technological Layer (TrafficSWing GTN) containing automatic route setting functions.

All ESA 44 levels provide functional behaviour data to DiagSWing LDS-3 and DiagSWing GDS diagnostic systems for their archiving, display, analysis and support of predictive maintenance.

ESA 44 can be customized and modified by other functions and for adverse climatic conditions.

BASIC TECHNICAL PARAMETERS

Input power supply	AC 3× 400 V ± 10 %, 50 Hz; DC 24 V ± 20 %
Temperature range	climatic category T1 according to EN 50 125-3 (commanding and control level)
	– 25 °C to + 70 °C (executive level)
Humidity	up to 80 % (commanding and control level)
	up to 100 % (executive level)
EMC compliance	EN 50121-4, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-6-4
Service life	minimum 25 years