



DriveSWing ACBM3

Automatic train operation for metro (ATO)

- Automatic system for railway vehicle operation under the driver supervision in GoA2
- Subsystem of TrainSWing LZA (ATC)
- Speed control, automatic target braking, arrival time accuracy control with energy optimisation
- Braking curve generated onboard in real time
- Vehicle equipment control (doors, outside lights, information system)
- User-changeable onboard data (route map, timetables, vehicle parameters)
- High reliability



GENERAL DESCRIPTION

Automatic train operation DriveSWing ACBM3 (ATO) (further ACBM3) together with TrainSWing SOP-2P (ATP) forms TrainSWing LZA (ATC).

The main objective of ACBM3 is automation of driver's interventions, which significantly improves the operation quality (in time and distance). This results to smooth operation, minimum deviations from timetable, minimum traction energy consumption, precise stopping of vehicle in designated locations and full automation of door control and other vehicle equipment.

ACBM3 supports prospective full automation of metro operation (GoA4) under dispatcher's supervision.

BASIC TECHNICAL DESCRIPTION

ACBM3 uses stationary parts of automatic train protection system (e.g. TrainSWing SOP-2P). Transmission data channel track – vehicle transfers data for TrainSWing SOP-2P and also for ACBM3.

From the route map, ACBM3 receives required data independently on position of transmission elements at the railyard and provides static driving profile. ACBM3 also provides dynamic driving profile for the vehicle based on timetable, vehicle data and static driving profile. Driver can enter the train control anytime. Driver can also set directly a lower speed limit or more intensive braking by using relevant control lever without switching ACBM3 off.

ACBM3 provides (in cooperation with dispatcher's system) many functions remotely controlled by a dispatcher without interaction with driver – e.g. passage of train through station, stopping the train in designated location (even in a tunnel), blocking the departure from station, correction of timetable or introduction of brand new time table.

In cooperation with dispatcher's system (without interaction of dispatcher), ACBM3 provides also an unmanned turn of the train. At the terminal station, a train set moves automatically to reverse track and returns back again to correct departure platform without presence of a driver.





BASIC TECHNICAL PARAMETERS

Speed keeping accuracy	± 0,5 kmph
Speed limits set by driver	20 kmph to 80 kmph (with 10 kmph steps)
Stopping accuracy at station	± 0,15 m
Operational deceleration at horizontal track	0,9 m/s ²
Arrival time accuracy	-0 / +5 s
Range of arrival time correction	± 10 min., with 5 s step
Step of wheel diameter setting	1 mm, individually for each axle
Capacity of data memory	approx. 1000 km of route/1 MB
Number of routes stored in route map	up to 8
Number of stations per route	50 (can be expanded)

