

# Digitalizing S-Bahn Hamburg Automated Train Operation (ATO over ETCS) as a major step towards fully automated railway operations

**SIEMENS**  
*Ingenuity for life*

## Project Highlights



First fully automated train operation in regional and long-distance railway traffic in Germany



European standardized train protection ETCS Level 2



Equipment of four trains and trackside operation control with ATO



Unattended, fully automated train operation between depot and platform



Highly automated train operation without driver interference

## Benefits



Increasing performance through more operated trains



Better punctuality through energy-optimized driving



Shorter halting times through optimization of entry-/exit phases



Lower operation costs by less energy consumption and maintenance needs



Enhanced passenger experience through smooth driving and braking

