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Clearguard WSD wheel detector

Efficient and reliable wheel detection

The Clearguard WSD (Wheel Sensor Double) double wheel detector is an electronic switch which responds contactlessly to wheel flanges.

It comprises two electronic proximity sensors mounted with a certain offset in the direction of travel and is suitable for counting functions demanding a direction criterion.

The Clearguard WSD is used as wheel detection equipment in a new generation of axle counting systems offered by Siemens and can be integrated as an initiation and normalization facility into the Wayguard Simis LC grade-crossing protection system.

Benefits

TSI-compliant in accordance with most recent standard

Maintenance-free; readjustment is dependent on degree of rail wear

No electrical adjustment necessary (intelligent self-adjustment)

No electronics required in trackside connection box

No trackside connection box required

Mounting-compatible with other wheel detector attachments (same drilling dimensions)

Rail web or rail base clamp attachment

Rail web attachment possible over sleeper

Max. traversal speed of 450 km/h



Technical data	
Train operation	
Detection	wheel flange
Rail profiles	all common rail profiles with heights of between 127 mm and 192 mm when new, channel rails with cutout
Wheel diameter	250 mm to 2,300 mm
Wheel flange geometry	as per Railway Building and Operation Regulations (EBO); others upon request
Wheel flange depth	25 mm to 38 mm below top of rail
Wheel flange width	≥ 20 mm, measured at 10 mm height above measuring circle level / running tread
Lateral running variation	≤ 75 mm
Traversal speed	≤ 50 km/h for wheel diameter of ≥ 250 mm ≤ 80 km/h for wheel diameter of ≥ 300 mm ≤ 160 km/h for wheel diameter of ≥ 360 mm ≤ 250 km/h for wheel diameter of ≥ 600 mm ≤ 400 km/h for wheel diameter of ≥ 800 mm ≤ 450 km/h for wheel diameter of ≥ 900 mm on tracks with DC traction: ≤ 160 km/h
Smallest detectable wheel (example)	wheel diameter ≥ 320 mm wheel flange depth ≥ 25 mm wheel flange width ≥ 19 mm traversal speed ≤ 10 km/h lateral running variation ≤ 70 mm
Rail current immunity operational	≤ 2 kA _{rms} with AC traction ≤ 10 kA with DC traction
Rail current immunity during contact line short-circuit	≤ 15 kA _{rms} with AC traction ≤ 30 kA with DC traction
Behavior (static)	
Switching state	continuous occupied state for stationary wheel per subsystem
System offset	93 mm ± 5 mm
Behavior (dynamic)	
Output signals	pulse length proportional to speed
Electrical data	
Outputs	idle current 5 mA ± 5%
Cabling	
Cable type	star-quad or paired
Cable cores	4 cores (2 cores per subsystem)
Loop resistance	≤ 362 Ω, depending on evaluation unit
Cable capacitance	≤ 145 nF/km
Control distance	≤ 6.5 km
Environmental conditions	
Operating temperature –40 °C to +85 °C	
IP rating as per EN 60529	IP 66 IP 68 (1,000 mm water gage / 60 min)