

SIMOCRANE CeNIT

Straight Run Controller for EOT Cranes

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The Problem

There is high wear and tear on crane wheels in extended means of transport like EOT cranes and sliding platforms.

- Cause: Frequent contact of wheel flange against the rail.
- Factors contributing to off-tracking: Unbalanced Loads (or load on one side), rails not being the same height, dirty rails, non-uniform distance between parallel rails
- Consequence: Mechanical wear and tear due to off-tracking
- Impact: Hampers operational efficiency, increases maintenance expenses for replacement, poses safety risks
- Additional issues: Tilting or jamming of the crane, could block other cranes

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Solution

Use Simocrane CeNIT to avoid unwanted movement and align the crane with the rail center.

- Reduced wear and tear of wheel flanges and rails
- Improved precision of crane traversal and increased safety doe to minimal risk of collision
- Prevents jamming and tilting

Simocrane CeNIT has been successfully used in coil store, scrap, and tambour cranes.



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How does it Work?

Simocrane CeNIT includes a control unit based on the S7-1200, an integrated web server, four inductive sensors for monitoring crane traversal.

Based on the travel direction (forward/backward), contactless inductive sensors measure the transverse offset between the track wheel and rail.

CeNIT guides the crane parallel to the track by providing compensating torques based on the offset.

If the crane is too far to the left, it is steered to the right and vice versa; if it is centered, it travels straight ahead.

Key Features

- **Precision Control**: Maintaining ±5 mm Corridor Around Rail Center
- **Seamless Integration**: Low Programming Effort to connect to PLC
- **Easy Parameterization**: Integrated Web Server for Configuration
- **Record and Display**: Analysis of crane path based on sensor data
- **Plug and Play**: Solution supports non-Siemens Drives

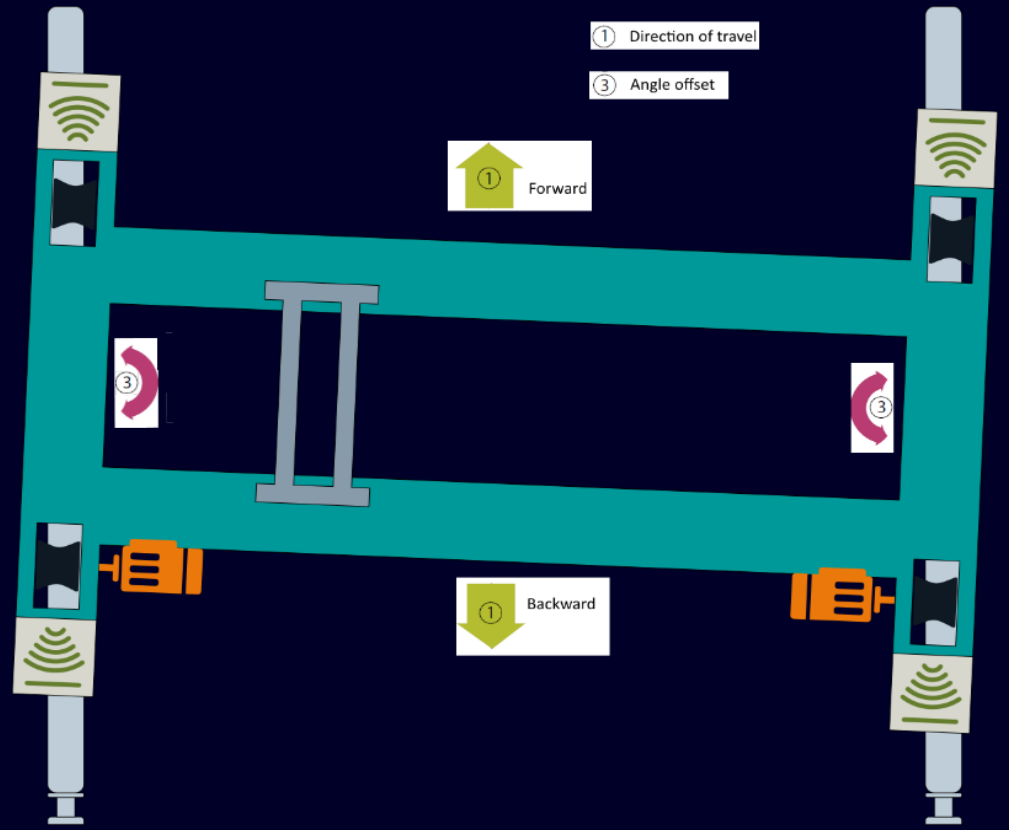

***Figure**: Depending on the travel direction (forward/backward), the sensor pair for each direction measures the wheel's centered run on the rail. These analog signals are transmitted to the S7-1200 controller.*

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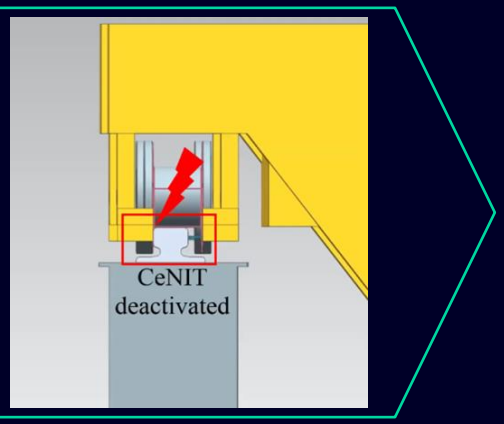
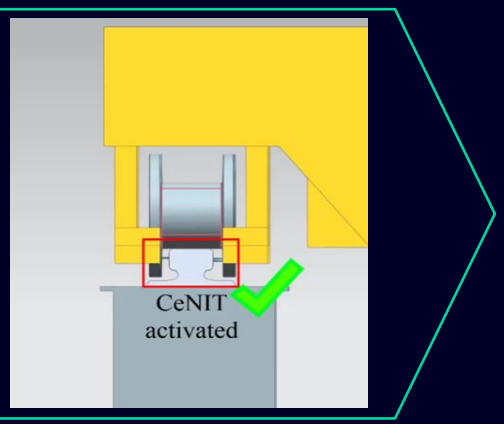
SIMOCRANE CeNIT

Maximize Efficiency, Minimize Maintenance



Without SIMOCRANE CeNIT

- Regular crane downtime (upto 24 hours*)
- Unforeseen expenses (labour, wheels, rails etc.,)
- Overhead costs for wheel change (144 k EUR every 2 months*)



With SIMOCRANE CeNIT

- Uninterrupted operations – High crane availability
- Decreased Maintenance Costs
- Increases crane wheel lifetime - Less frequent wheel change (after 6 years*)

* Data based on Case Study of German Steel Plant

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CeNIT Crane Control Integration

1. Select Rail Size:
   [>80mm] OR [<80mm]
2. Communication Protocol:
   [PROFIBUS] OR [PROFINET]

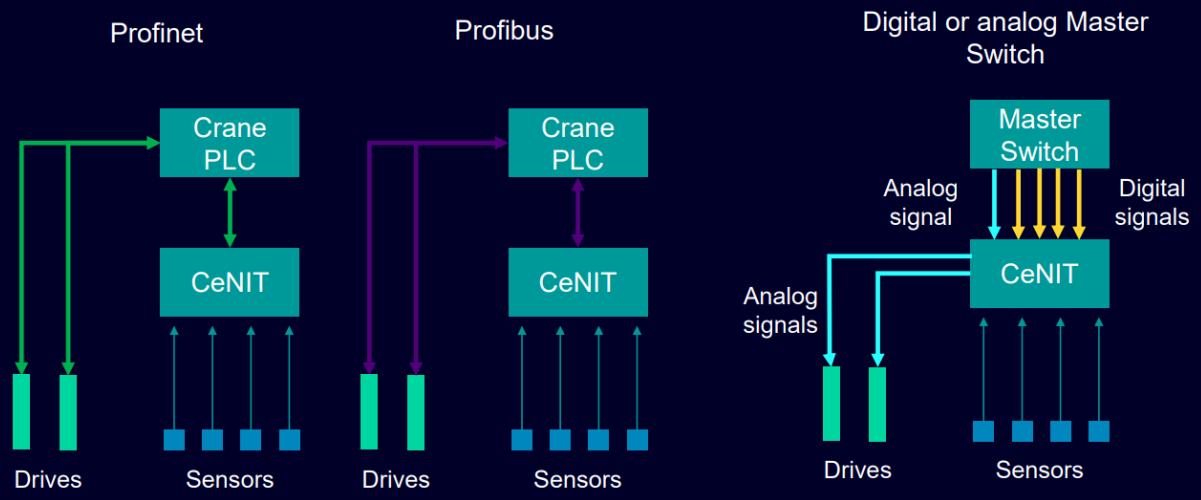

***Figure**: Opportunities for Integration via PROFINET(Analog/Digital) or PROFIBUS*

	Rail > 80mm	Rail <= 80mm
PROFINET (please apply a notation if PROFINET or analog/digital control is used)	VSR:021097773	VSR:021097772
PROFIBUS	VSR:021097774	VSR:021097765

Pre-conditions:

- **Rails**: Level, untilted with even span
- **Track guiding deviation**: ±15 mm max (between wheel and track)
- **Sensor mounting**: Possible on both head beam ends
- **Control cabinet and I/O module space**: 450 x 120 mm (preassembled) or 210 x 100 mm (with own wiring)
- **Heat dissipation**: 25 mm clearance above/below
- **Drives**: Continuously controlled (Converter drives) on both crane sides

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Scope of Supply

- Pre-assembled Control Unit based on the S7-1200, wired on a DIN rail (TS35)
- An integrated web server for diagnosis and parameterization (DiagCeNIT)
- Four inductive analog sensors with sensor mounting
- Documentation in German or English on CD
- Installation and Commissioning Support



Figure: Pre-assembled Controller Unit

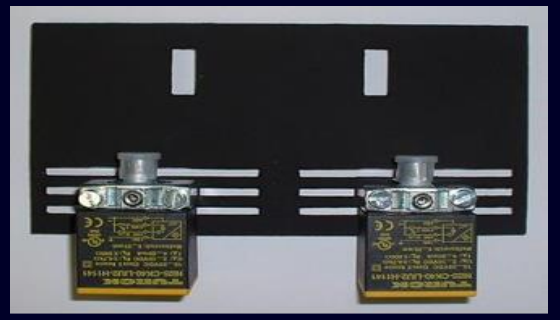

Figure: Mounting plate with inductive-sensors

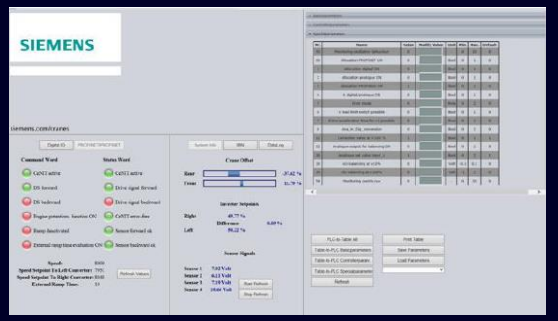

Figure: Image of the web application DiagCeNIT



Figure: SIMATIC S7-1200 components used

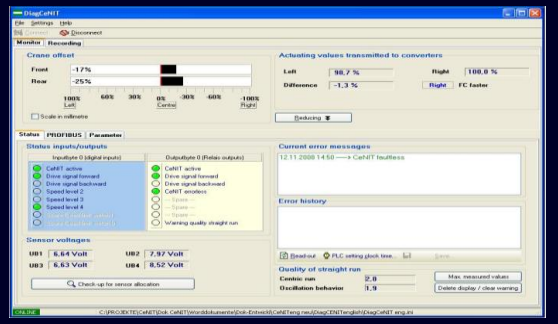

Figure: Diagnosis using DiagCeNIT

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Order Details Summary

SIOS-ID: 60162652

1 ORDER via EDI(SAP)

Approx.8 weeks (INCO 2010)

2 DELIVERY

Prepare for Straight-Run Control Commissioning and notify atleast 4 weeks in advance.

3 COMMISSIONING

Order details & prices	
Contact(s)	Application Center Cologne (applications.aud.koe.nrh.rd@siemens.com)
Location	APC Cologne
Simocrane CeNIT Variant VSR Number	021097772 or 021097773 or 021097774 or 021097765
Conditions of delivery	INCOTERMS 2010
AL	N
ECCN	5A991X
GBK	R252
Comdity code	85371091
Praef:	N: ALL
LKZ	DE
Our Org-ID	A4027462
Delivery time	Approx.8 weeks

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