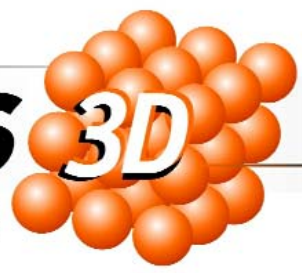


CORRSYS 3D

Industry & Rail Sensors AG



CORREVIT[®] *to measure dynamics precisely*

Non-contact optical sensor systems for precise, slip-free rail vehicle testing and permanent monitoring of length and speed



**CORRSYS 3D INDUSTRY & RAIL
SENSORS AG**

**A COMPLETE RANGE OF SOLUTIONS
FOR NAVIGATION & TESTING**

CORRSYS 3D

provides a comprehensive range of technologies for accurate measurement of rail vehicle dynamics, including:

- ***Non-contact optical sensors***
- ***Data acquisition and evaluation systems***
- ***Software***
- ***Accessories***

for:

- ***Distance measurement in various operating states like standstill, braking, high-speed ride, navigation, and position***
- ***Slipfree acquisition of vehicle speed***
- ***Determination of slip between rail and track wheel***
- ***Acquisition of speed changes with direct reference to the track***
- ***Constant precise, direct length measurement instead of calculating models***

Our mission is to supply the technology that precisely fits your testing needs.

Please feel free to contact us for information about the many additional sensor technologies we offer...

IMAGINE OPTIC - MOTION DYNAMICS

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CORREVIT® is a registered trademark of CORRSYS-DATRON Sensorsysteme GmbH

CORREVIT® R-350 Rail

Non-contact optical sensor

for

slip-free measurement of longitudinal dynamics of trams and metropolitan railways



Features

- CORREVIT® R-350 Rail Sensor with working range of 350 ±50 mm
- Applicable from 0.3 kph ... 400 kph
- For temporary short-term measurement with trams and metropolitan railways
- Due to its considerably extended working range, the R-350 Rail Sensor is ideally suited for railway applications, where higher working ranges are required
- Adjustable filter time (unfiltered, 8 ... 512 ms), FIR Filter with constant filter time (adjustable)
Considerably improved performance is enabled by the application of the latest technologies:
 - ⇒ LED illumination
 - ⇒ Smallest dimensions
 - ⇒ Improved distance linearity,
 - ⇒ Easier mounting
 - ⇒ Improved signal processing by ideal combination of the analog and digital signal conditioning (DSP-FPGA technology).
 - ⇒ Reduced noise of the output signal
 - ⇒ Improved measurement features on various surfaces
 - ⇒ Improved standstill
 - ⇒ Quick filter start-up
- Extremely high measuring accuracy* better than ±0.1% as a result of precise optics and digital signal processing.
- Programmable standard analog and digital signal outputs
- All measured values available
- Direct connection to PC and virtually all data acquisition systems
Signal outputs: Analog / Digital
 CAN Bus V 2.0B
 RS232
- Negligible service and maintenance requirements as a result of durable technology
- Tested and used under extreme environmental conditions

Application

Designed for measurement of distance and speed up to 400 kph as well as acceleration (brake tests) on dry and wet rail surfaces

Article no.:
R-350 Rail 15098

CORREVIT® ID-150 Sensor

Non-contact optical sensor

for

Non-contact and slip-free length and speed measurement of moving strip materials



Features

- Speed range 0.2 ... 500 m/min
or 0.4 ... 2000 m/min alternative
with high optical pulse resolution of 6000 / 3600 pulses/m
- Pulse output programmable from 1 ... 20000 p/m
- Speed-based linearity of target distance <math>< \pm 0.05\%</math>
- Measurement uncertainty of final value better than 0.1 %* because of precise optical grating technology
- Direction detection
- Standstill detection
- Long-lasting, controllable illumination based on high-output infrared LEDs
- Compact, extreme robust sensor housing
- Several standardised digital interfaces for length-reports and analogue interface for speed-reports, as well as calibratable pulse-output using the latest processor technology
- Easy handling, quick installation on production line by full industrial capability (IP 66, opt. IP 67) and direct access to any Process controller
- Can be used under extreme environmental conditions
- Low maintenance and service demands due to long-term stable technology

Article no.:
ID-150 24100/14100

*with calibration on the test surface

CORREVIT® RAIL 200

Non-contact optical sensor

for

slip-free measurement of longitudinal dynamics of rail vehicles



Features

- Track-independent, highly dynamic direct measurement with the railhead as reference
- Velocity range from 0.2 ... 200 kph; 1600 pulses/m
- Reliable data collection during braking and coasting close to standstill
- Stand-still detection (<0.2 kph)
- Direction control
- Uncertainty of measurement better than 0.05 %* of final value achieved by application of precise optical gratings
- Extremely robust construction with mechanically damped optical tube for mounting the sensor at the bogie and external filter electronics
- Illumination by 5 extremely long-life, high-power infrared LEDs
- Optical dirt detection in %-steps for highest functionality
- Programmable analog and digital standard signal outputs using newest processor and operation control technology (DSP)
- Simple handling and direct connection to a PC or a wide variety of evaluation and control systems
- Robust steel case provides excellent protection against stone impact
- Low maintenance and service demands due to long-term stable technology

Application

- Drive system (slipfree measurement of velocity, acceleration, wheel slip)
- Braking distance
- Navigation / positioning

Article no.:
Rail 200 Sensor 13100

*with calibration on the test surface
and >20 km

HF Height Sensors HF-500C / HF-750C

Optical laser height sensor

for

non-contact distance measurement



Features

- Compact design: small, lowweight, robust
- With spray guard for better performance in wet conditions
- Measuring range: HF-500C = 125 ... 625 mm
HF-750C = 150 ... 900 mm
- For static and dynamic measurement
- Insensitive to solar radiation by special filter
- Analog, RS232 and CAN Bus output
- Easy to mount
- Tested and used under extreme environmental conditions
- The sensors can be configured with the CORRSYS-DATRON Software CeCalWin Pro via the serial port (RS232)

Application

The compact CORRSYS-DATRON HF-xxxC Sensors are designed for use in dynamic vehicle testing applications that require accurate measurement of the following variables:

- Ride height
- Displacement
- Determination of pitch/roll angle

Article no.:

HF-500C **15380**

HF-750C **15914**

Profile Scanner PS 620

Optical laser sensor

for

non-contact outline measurement
of rail and wheel profile



Wheel Profile

The non-contact acquisition of the wheel flange profile enables quick evaluation during a service or operating phase directly at the moving vehicle. The measured parameters, i.e. surface line, wheel flange height, width, and gradients, as well as wheel width build the electronic data set that documents - quickly and reliable - profile changes and wear of the wheel set.

The development of the Profile Scanner PS 620 was focused on highest precision, easiest handling, and quick measurement.

- Technical Data:
Measurement ranges for wheel flange (height/width): 20 ... 40 mm $\pm 0,1$ mm, indication steps 0,01
Tread profile range: 145 mm
Max. profile frequency: 3000 profile/sec. 3072000 dots/sec.
- Graphical profile presentation with characteristic values

Rail Cross Section

As the rail profile is subjected to permanent wear, it must be monitored continuously.

The profile scanner is designed for quick and precise, graphical acquisition of rail sections for comparison with the nominal profile.

The low weight and the uncomplicated handling of the profile scanner ensure comfortable and easy testing.



TANS 3-Axis

3-axis navigational sensor

for
Dynamic yaw rate measurement

The CORRSYS-DATRON Navigation Sensor Module TANS 3-Axis combines a solid-state, tri-axial rate gyro with a tri-axial accelerometer in a single, ultra-compact housing.



Features

- Simultaneous measurement in 6 axes (3-axis rate gyro & 3-axis accelerometer)
- $\pm 3g$, accelerometer
- ± 150 degrees/sec., rate gyro
- Temperature range: -40°C to $+85^{\circ}\text{C}$
- max. 2,000g unpowered shock survival
- ultra-compact, approx. 100 x 60 x 35 mm (4 x 2,25 x 1,375")
- lightweight, 230 g (8,2 oz)

Article no.:
TANS 14645

DAS-2AD/24V

for acquisition of longitudinal dynamics

Designed for use with
CORREVIT® RAIL Sensors



Features

- Quick and easy mounting of the complete measurement system
- Online display of up to 3 measured variables and 5 measurement values after finishing the measurement
- 24 volt basic supply for DAS-2AD/24V and further system supply 12 volt for CORREVIT® R-350 Rail, RAIL, LFII-P Rail, and other sensors
- Optional LED display with 3 big measurement values, free selectable
- Operating control via display
- All required hardware and software triggers are available at exact time determination (e.g. for hardware trigger 1 ms)
- Can be triggered on all channels, i.e. all channels may be used as triggers
- Measurement data can be stored on a S-RAM card up to 8 MByte for further computer processing (PC with PCMCIA-drive)
- Variable connecting options for sensors (RPM and flow meter, wheel incremental transducer; optional: acceleration sensor, pedal force sensor)
- Direct communication between PC and DAS-2AD/24V via serial interface for configuration of the measurement task, using CeCalWin Pro software.
- Most favorable price-performance ratio

Application

The DAS-2AD/24V data acquisition and evaluation system is designed for use with our proven CORREVIT® Sensors. The measured data that are recorded at the test track can be immediately evaluated during the test. The system may be applied for the following tests:

- Distance and speed
- Braking distance measurement
- Acceleration measurement
- Coast-Down-Test
- Consumption measurement
- Determination of $v_{\max/\min}$

Article no.:

DAS-2A0D/24V 14436

DAS-3

for vehicle dynamics measurement

with CORREVIT® sensors

Features

The DAS-3 Ultra-Compact, In-Vehicle Data Acquisition and Evaluation System represents the next logical step in the evolution of the proven CORRSYS-DATRON DAS-2A Compact Data Acquisition System.

The DAS-3 System consists of a base data acquisition module, and a control and display unit. The base module incorporates two primary components: an acquisition module and a processor module, and also includes Ethernet, USB, COM and connections for additional displays.

This new design enables simple, cost-effective expansion of the unit's functionality. Optional extension modules, e.g. for pressure and temperature measurements, can be easily connected to the base module.

Article no.:

DAS-3 14834



DAS-3 Temperature Module

for extension of the

DAS-3 data acquisition system

Features

- 16 Bit resolution
- Synchronous acquisition of all measurement channels
- 16 isolated temperature inputs
- Fail-safe signal transmission via internal CAN
- Power supply via DAS-3
- Minimum wiring effort

Article no.:

DAS-3 Temperature Module

15421



EUROPE

AUSTRIA

- Bombardier, Wien
- Vossloh-Kiepe, Wien

BELGIUM

- Alstom, Charleroi
- Bombardier, Brügge

GERMANY

- Bombardier Transportation, Henningsdorf
- Bombardier Transportation, Mannheim
- BVG Berliner Verkehrsbetriebe GmbH
- DLR, Braunschweig
- Hanning & Kahl, Oerlinghausen
- Hannover Verkehrsbetriebe
- Hamburger Hochbahn
- Siemens AG, Berlin
- Siemens AG, Braunschweig
- Siemens AG, Krefeld
- Siemens AG, Wegberg-Wildenrath
- Stadler Pankow GmbH, Berlin/Velten
- Vossloh-Kiepe, Düsseldorf

FRANCE

- Alstom
- CTS Strasbourg (Verkehrsbetriebe)
- Metro Lyon
- Semitag Tramway, Genoble

ITALY

- Alston Ferrovaria (BO)
- Ansaldo Breda, Pistoia
- Ansaldo Transporti (NA)
- ATAC, (Rom)
- GTT, Turin
- Tram Bus, Rom
- Trambus, Turin
- Trenitalia, Florenz

SWITZERLAND

- ASCOM Schweiz AG, Bern-Bümplitz
- Prose AG, Winterthur
- Rätische Bahn, Landquart
- SBB, Bern
- Schranz Elektronik GmbH
- Stadler Altenrhein AG, Altenrhein
- Stadler Bussnang AG, Bussnang

SPAIN

- ADIF
- Railway Research Center University
- TIFSA Engineering

AMERICA

NORTH AMERICA

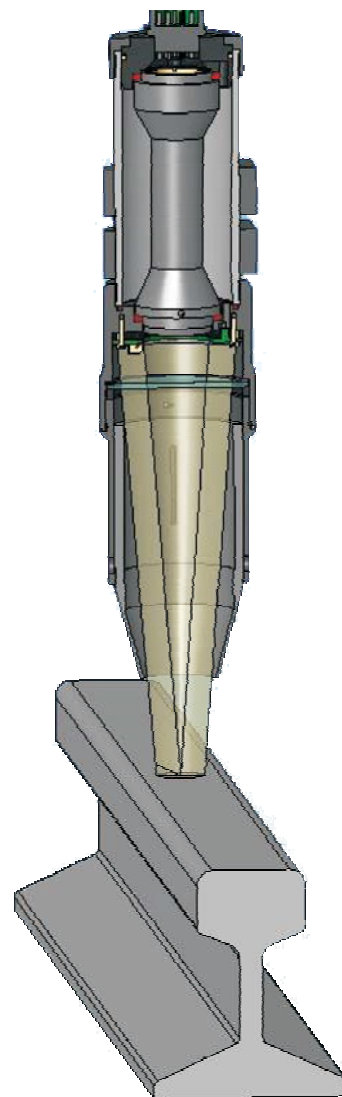
USA

- Kawasaki RAIL
- New York Metro

SOUTH AMERICA

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- Knorr Brasil



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In a continuous effort to improve our products, CORRSYS 3D reserves the right to change specifications without prior notice.

To learn more about the complete line of dynamic vehicle testing solutions and accessories from CORRSYS 3D Industry & Rail Sensors AG, please visit www.corrsys3d.com or contact your local representative