



DEUTA Functional Safety Systems

DEUTA REDBOX safety systems

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DEUTA-WERKE 
Technology under Control

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»System Solutions which fulfill customer requirements

Project Planning with Precision.«

DEUTA REDBOX Safety Systems cover the entire spectrum for the measurement, recording and visualisation of speed. Our components fulfill safety functions up to safety level SIL 4. We are the sole supplier worldwide which designs, develops and manufactures components in-house for safe speed systems. In addition to the reduced effort involved in system certification, our customers benefit from our forward-looking obsolescence policy during the project phase. We understand the complexity and the demands made on a safety system and we follow up on this throughout the entire life cycle of our long-lived products. The technological variance of our products facilitates customer-specific adaptations.

If required, DEUTA-WERKE will also manage communications with the system assessor. Our customers can bank on the experience and precision of DEUTA - it saves time and money.

DEUTA provides comprehensive support for SIL certification of speed systems, including the following:

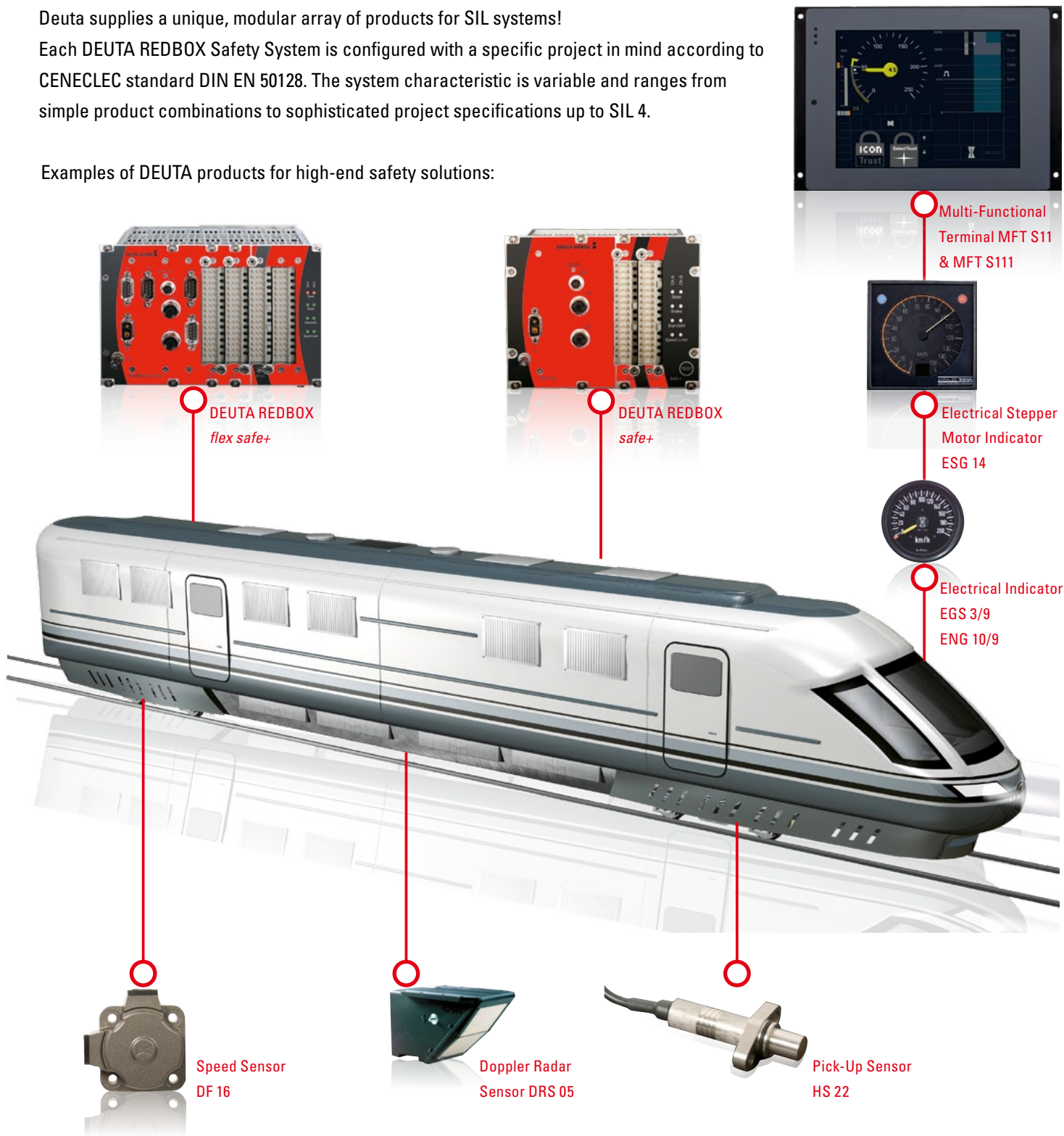
- Risk analysis and determination of the required Safety Integrity Level in different safety functions, e.g.
 - Safe transmission of speed
 - DSD (Drivers Safety Device)
 - Standstill detection
 - Rollback protection
 - Monitoring of maximum speed
 - Transmission of safe speed to other systems in the vehicle
 - Analogue speed display
- System design concepts with tried and tested components or components to be newly developed by DEUTA depending on the required Safety Integrity Level of the various safety functions.
- Integration tests and production of the necessary SIL documentation in preparation for certification
- Management of obsolescence processes including assimilation of evaluation or renewed certification



Functional Safety Systems

Deuta supplies a unique, modular array of products for SIL systems!
 Each DEUTA REDBOX Safety System is configured with a specific project in mind according to CENELEC standard DIN EN 50128. The system characteristic is variable and ranges from simple product combinations to sophisticated project specifications up to SIL 4.

Examples of DEUTA products for high-end safety solutions:



»DEUTA Products supply extra system safety.

Modular and Unique.«

The safety of people is our primary concern during the introduction of DEUTA SIL products:

Use DEUTA REDBOX Safety Systems when “functional safety” is required, because safety-triggered reactions must ensure even when normal functionality of monitoring circuits is no longer possible due to system error.

Safe+ Safety Modules for DEUTA REDBOX Recorders

The Safe+ Module of the DEUTA REDBOX Recorder assumes safety functions such as the Drivers Safety Device DSD, speed monitoring, analogue speed output, safe transmission of speed, stop detection or rollback protection.

SIL Indicators:

Our SIL Indicators provide additional safety. Die ESG Indicators with stepper motor provide feedback via a second, separate controller. They are characterised by an integrated monitoring system in the form of a feedback unit. The electrical EGS Indicators are equipped with two moving coil instruments which are independent of each other. The inputs of these are adjusted for current, voltage or PWM signals. The electrical ENG Indicators feature a moving coil instrument, the inputs of which are adjusted for current, voltage or PWM signals.

Multi-Functional Terminals:

With IconTrust® equipment, our Multi-functional Terminals become safe SIL Terminals. IconTrust® monitors safety relevant areas of display on your Multi-functional Terminal.

Axel-mounted Speed Sensors with proven performance:

The speed sensors are driven via a mechanical coupling by the axle of the vehicle. Contamination and vibrations barely affect DEUTA axle-mounted generators. They are integrated into the system in order to create safe speed information.

HS 22 Pick-Up Sensors:

The pick-up sensors use the Hall effect principle and have an extraordinarily long operating life since they deploy non-contact technology and are therefore largely free from wear.

DRS 05 Doppler Radar Sensor:

Special two-channel algorithms analyse the Doppler signals of both antennae. The DRS 05 sensors are optimised for speeds from 0.2 to max. 600 km/h.

»We will also guide your system to success

SIL 2 to SIL 4.«

Each DEUTA REDBOX Safety System is individually adapted to the requirements of our customers. We can also successfully get your safety system to certification. We provide a diverse range of services which includes the following:

- Development of SCUs (Safe Control Units) corresponding to customer requirements for safety functions - e.g. with
 - Standstill detection - SIL 4
 - Rollback protection - SIL 4
 - Speed monitoring - SIL 3
 - Speed indicator - SIL 2
 - DSD functionality with the aid of a hand switch and a foot pedal corresponding to the predetermined Safety Integrity Level - SIL 4
 - Transmission of speed values - SIL 3
- Certified components with proven performance which assume safety functions in the system
 - Axle-mounted generators
 - Speed indicators
- Final development of an architecture of the complete system consisting of the components
 - Axle-mounted generators
 - Speed indicators
 - DEUTA REDBOXflex safe+ with SCU unit
- Obtaining approval for individual safety functions according to valid safety standards for rail applications (DIN EN 50126, DIN EN 50128, DIN EN 50129)

»CERTIFIED AND ASSESSED«

Characteristics of the DEUTA Systems:

Essential system

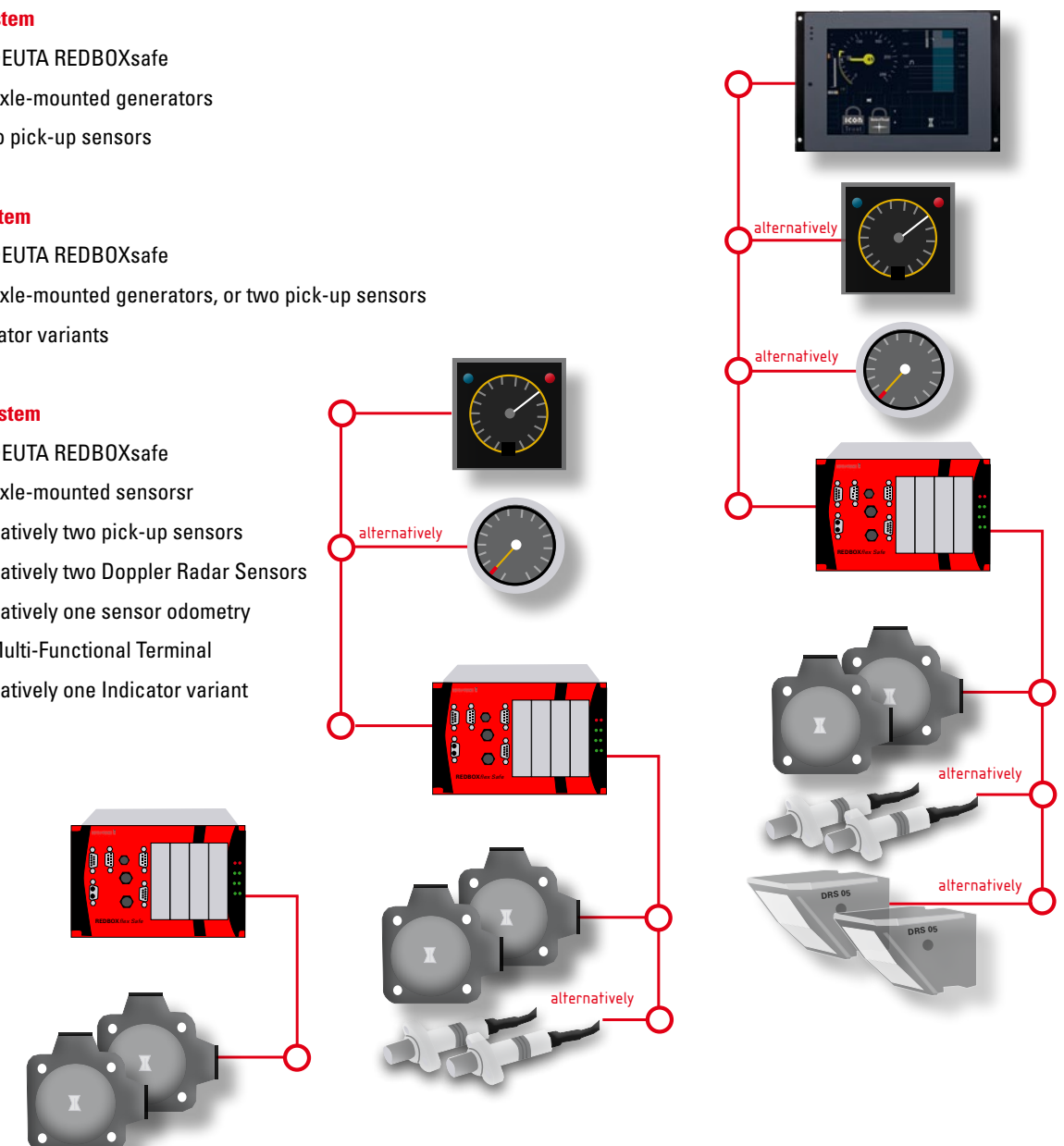
- One DEUTA REDBOXsafe
- Two axle-mounted generators or two pick-up sensors

Medium-System

- One DEUTA REDBOXsafe
- Two axle-mounted generators, or two pick-up sensors
- Indicator variants

Expanded system

- One DEUTA REDBOXsafe
- Two axle-mounted sensors
alternatively two pick-up sensors
alternatively two Doppler Radar Sensors
alternatively one sensor odometry
- one Multi-Functional Terminal
alternatively one Indicator variant



»Essential system«

»Medium system«

»Expanded system«

