

»DEUTA-WERKE Your ETCS solution partner

worldwide & borderless«

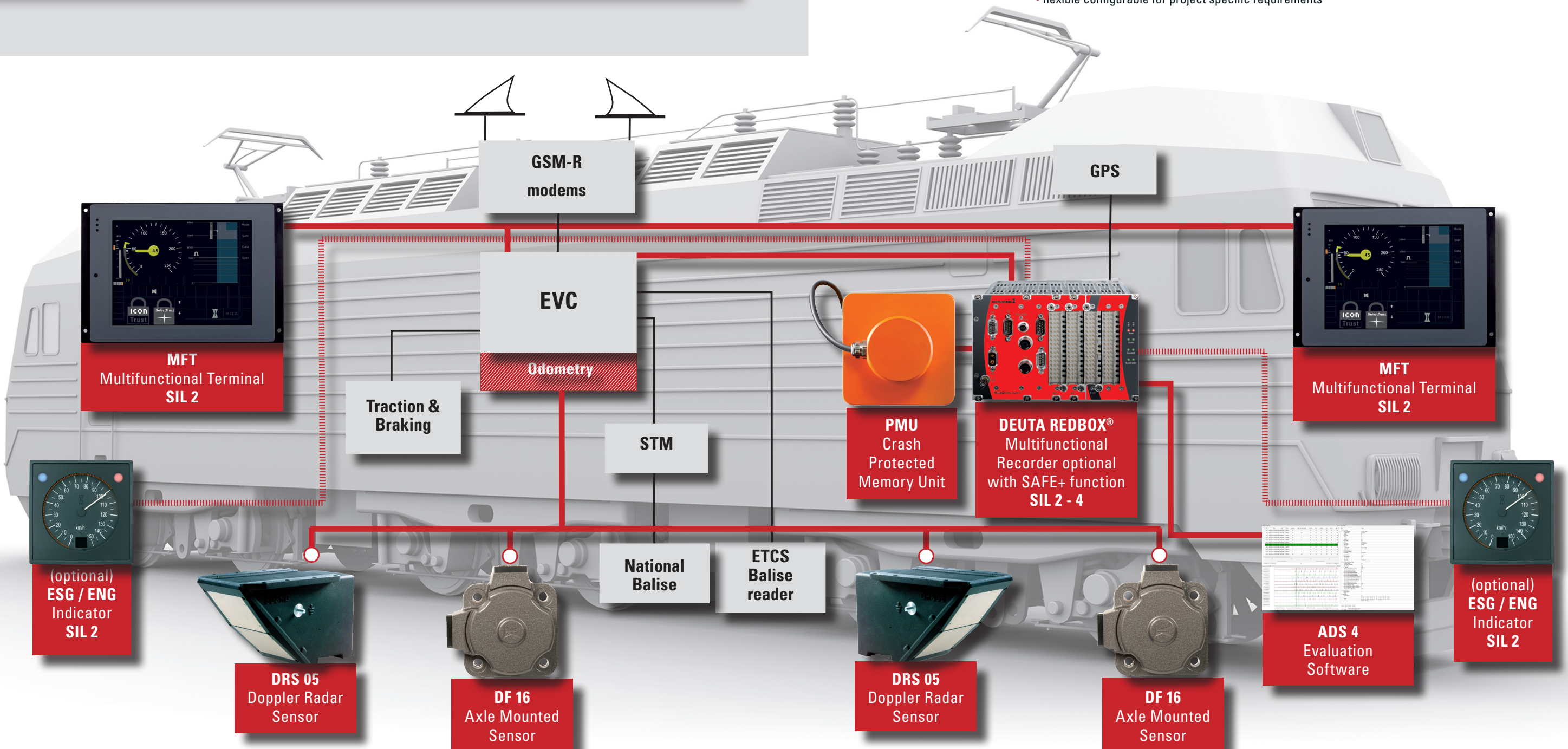
Flexible onboard component solutions for ETCS systems with different bus architectures:

They permit interoperable train traffic in compliance with international railway safety standards.

DEUTA ETCS products support locomotive drivers, raises daily train operation capacities, lowers energy consumption rates and increases passenger safety.

DEUTA ETCS products and systems are:

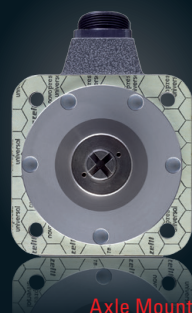
- integrable in different bus architectures
- SIL certified (SIL 2 - SIL 4)
- compact designed even for narrow installation conditions
- flexible configurable for project specific requirements



ETCS Product Information

»DEUTA Products offer maximum ETCS safety

within a unique range«



Axle Mounted Sensor: DF 16

Axel-mounted Speed Sensors with proven performance:

The speed sensors are driven via a mechanical coupling by the axle of the vehicle. A wide range of different drive solutions offers the use of Deuta pulse generators even under difficult mounting conditions. They can be integrated into the safe system in order to create safe speed information.

- up to 6 independend channels
- ideal retrofit solution - with form-fit-function compatibility
- reduction of wiring costs

Multifunctional Terminals:

DEUTA Multifunctional Terminals are the optimal solution for customised display and visualisation applications. With IconTrust® equipment, our Multifunctional Terminals become safe SIL Terminals. IconTrust® monitors safety relevant areas of display on your Multifunctional Terminal up to Safety Integrity Level 2.

Safety relevant software applications are easily updtated with the IconTrust® toolbox.

Indicators:

Our indicators provide additional safety. ESG Indicators are stepper motor driven speed indicators which provide feedback of needle position to the train computer (EVC) by an integrated monitoring system and feedback communication via RS485 interface. The vehicle driver gets a visible failure indication in case of a malfunction. ENG indicators can be used within a SIL 2 speed measurement system. EGS indicators are equipped with up to two moving coil instruments which are independent of each other.



Doppler Radar Sensor: DRS 05/1 S1

DRS 05/1 S1 Doppler Radar Sensor:

Special two-channel algorithms analyse the Doppler signals of both antennae. The DRS 05/1 S1 sensors are optimised for speeds from 0.2 to max. 600 km/h without influence of wheel slip and slide. The speed and signal quality information is transmitted over a serial RS485 interface in the form of data packets. The protocol is aligned to the client's specific requirements, and contains information on the status of the signal processing. Parameters derived from the speed, such as distance and acceleration, are provided in the protocol. Type DRS05/1 S1 dual-channel Doppler radar sensors with integral protective hood (increased protection against impact of stones).

DEUTA REDBOX® Multifunction Recorder

DEUTA REDBOX® Multifunction Recorders are flexible designed to match various interface and mounting conditions, depending on the vehicle environment. The sophisticated REDBOX concept provides journey data recording and innovative possibilities for service and data evaluation. The compact dimensions, expandability and easy worldwide data access through a web interface underlines the flexible use. In this way, the status of the recorder, data memory and communication status are always under your control.



Multifunction Recorder DEUTA REDBOX® with optional SIL certification



Multifunction Terminal optional with IconTrust®



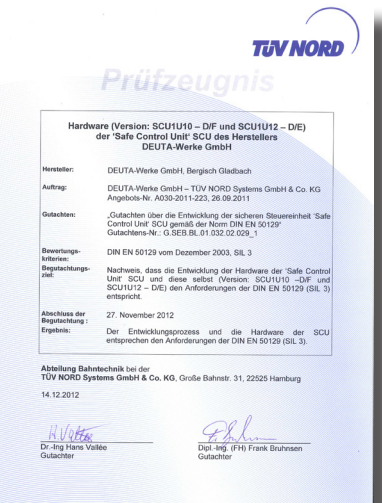
Stepper Motor Indicator ESG 14



Moving Coil Indicator EGS







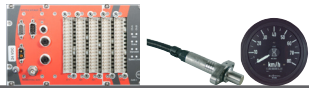






ENG Indicator



»A small Italian referenc e abstract«

Everything from one source for Italy:

Deuta has a long tradition in developing and projecting products for the Italian railway market
- hand in hand with train builders, signalling companies and the Italian operators.
DEUTA develops, qualifies, produces and supplies high quality railway products together with worldwide support and field service. From printed circuit board layout to logistics, all of our milestones are part of our ISO 9000:2001 certification and IRIS processes.

Project	Product	Customer Reference	Vehicle Type
SCMT / SSC	Pulse generator <i>DF 16</i> Multifunction Terminal <i>MFT L 11 S8 by</i> Indicator <i>ESG 14</i> 	ASTS Alstom ECM GE Transportation Mermec	Trenitalia EMU DMU, E402, E403, E444R E656, E655, Ale668 Ale682, Ale724 Vivalto
CBTC Stockholm	Pulse generator <i>DF 16</i> 	GE Transportation	Different trains
Highspeed Trains	Indicator <i>ESG 14</i> Radar Sensor <i>DRS 05</i> 	ASTS Alstom	ETR485, ETR500, ETR600, NTV Italo AGV, Cisalpino ETR 610
Circumvesuviana	Recorder <i>KWR 21</i> Pick-Up <i>HS 22</i> Indicator <i>ENG</i> 	AnsaldoBreda	New ETR200
GENOVA-CASELLA Line	DEUTA <i>REDBOX®flex SAFE+</i> Pick-Up <i>HS 22</i> Indicator <i>ENG</i> 	AnsaldoBreda	Tram-Treno
Metro Milan/Brescia/ Riyadh	Recorder <i>KWR 30</i> including <i>SIFA ES 122</i> incl. crash protected memory <i>PMU 21</i> Counter <i>ZE 10/1</i> Pick-Up <i>HS 22</i> Generator <i>DF 17</i> Multifunction Terminal <i>MFT 5</i> Indicator <i>ENG</i> 	AnsaldoBreda ASTS	Driverless metro
Diesel Multiple Units	Pick-Up <i>HS 22</i> Recorder <i>EFA 21</i> Generator <i>DF 16</i> Indicator <i>ENG</i> 	AnsaldoBreda	IC2 / IC4
SIRIO TRAM	Recorder <i>KWR 6</i> Indicator <i>EZG 10/8</i> 	AnsaldoBreda	SIRIO Göteborg
SIRIO TRAM	Indicator <i>ENG 10/ 8</i> 	AnsaldoBreda	SIRIO Tram (different projects)
TRAM Trieste	SIFA <i>ES 122</i> 	AnsaldoBreda	
TRAx	Pick-Up <i>HS 22</i> Indicator <i>EQG</i> Multifunction Terminal <i>MFT 8 S2 by</i> 	Bombardier	

»Whereever you need us
we shall be there«

We speak Italian: Isoil Industria SpA

Isoil Industria SpA is for more than 20 years the reference point for the Italian railway and transportation market. The aim of the ISOIL engineers is to offer to our customers devices, systems, solutions and services at the front end of the technology able to answer globally to their needs and to establish long-lasting relationships based on mutual trust and esteem.



Isoil Industria SpA offers:

- Wide stock with short delivery on main products
- Logistical support
- Certified repair center for fast and efficient product repairs
- Local product training
- Field service for survey and commissioning
- Technical and Sales support
- Sample Availability for presentations or functional tests

