

# DEUTA AMERICA

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SIL 2 & SIL 3 certified  
**10.000**  
 sold  
**IconTrust®**  
 Terminals  
 worldwide

## DEUTA – The Home of Trust-Technology:



IconTrust®



MouseTrust®



TouchTrust®



SelectTrust®



View Trust & Generic Trust  
**DEUTA HMI Safety Package**  
 Safe Display (SIL3)  
 Safe Operation (SIL2)



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IconTrust® – You can Trust.



Safe display  
up to SIL3

Safe touch input  
up to SIL2

## » DEUTA HMI Safety Package - Safe Display & Safe Operation«

**DEUTA Trust technology for more safety in display and operation!**

Functional safety is essential for the protection of people. What has been safety standard in the railway sector for more than 10 years, is now state of the art for all industries: the safe display and data entry on a TFT screen up to Safety Integrity Level 3.

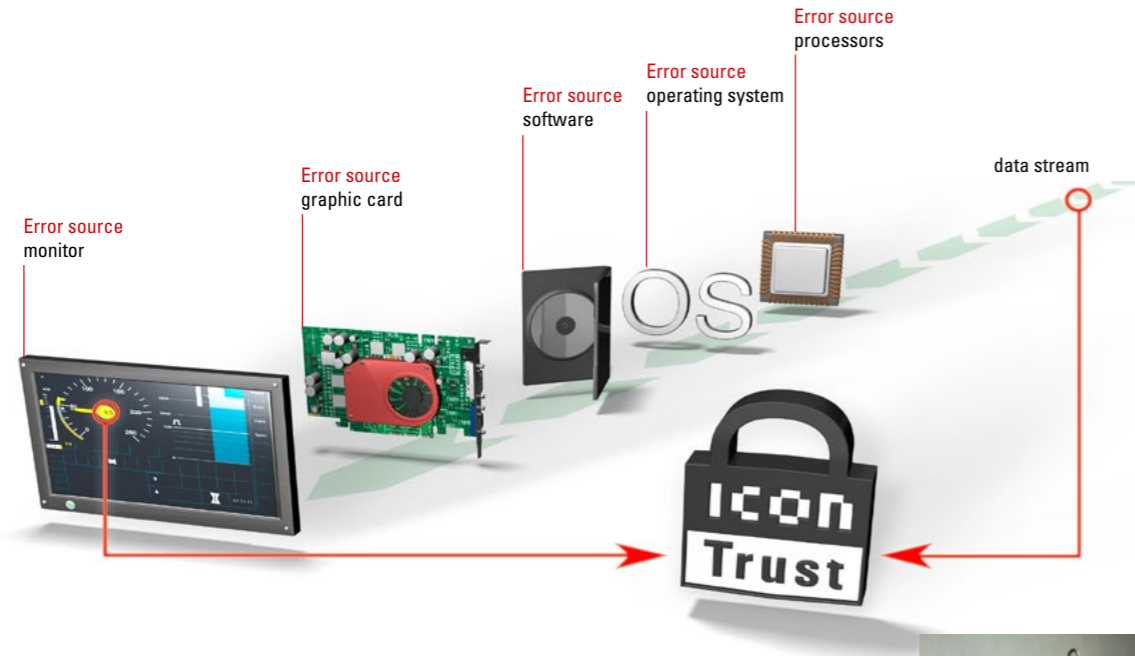
DEUTA has developed a safety upgrade for standard (COTS) terminals. The HMI safety package is assessed according to the basic safety standard for functional safety IEC61508 meeting the requirement SIL3 for safe display and for the safe data entry SIL2.

The HMI Safety Package is designed so that it can be integrated with minimum effort in existing HMI devices. Since the assessment has already been carried out, the effort for the assessment of the entire appliance is minimal.

The HMI Safety Package with the safe communication protocol (e.g., PROFIsafe) offers the possibility to map safe display and operating units with standard TFTs.



## Safety Gaps inside TFT Panels



People make decisions relying on the displayed information on TFT displays. These decisions have an impact on the safety or endangerment of people or property. If process values are displayed distorted, accidents are inevitable. There is safety, only if correct data are also reliably displayed correctly. This is the task for and the achievement of IconTrust.



The approaches applied today to display safely information on TFT panels are extensive and yet not sufficient. Potential errors remain undetected. These can come from different sources of error, for example:

- error in the computer cores, caches, graphic units (freezing)
- error in the operating systems and complex software
- the position and the evaluation of the data input via touchscreen or mouse

### Trust technologies in the HMI Safety Package – maximum safety

The DEUTA Trust technologies are the solution for all TFT displays which have to be safe and therefore need to meet a certain Safety Integrity Level (SIL). These include, for example, displays in the cockpit of modern trains, control rooms or process monitoring systems with operator stations.

## The HMI Safety Package

With the HMI Safety Package, in principle, all types of input variables can be supervised which are represented as symbols, pointer instruments or bar graphs, letters, text or even as a play of colours. If required, it is possible to allow different screen representations for one and same value of the input variable (equivalent representations).

The DEUTA HMI Safety Package is assessed according to the basic safety standard for functional safety IEC61508 and meets the requirements:

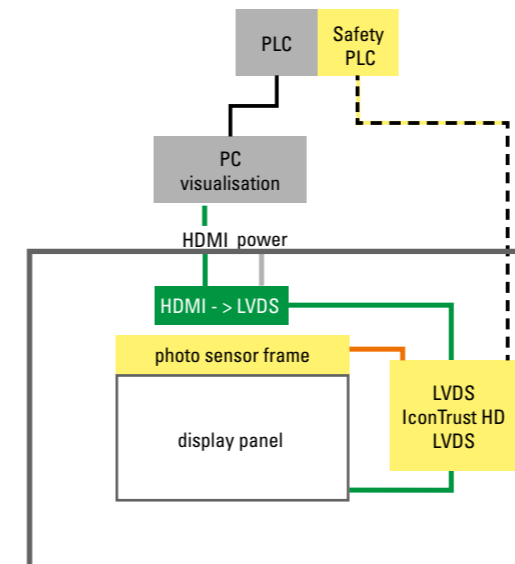
- Safe display: SIL3/PI-e
- Safe input: SIL2/PI-d



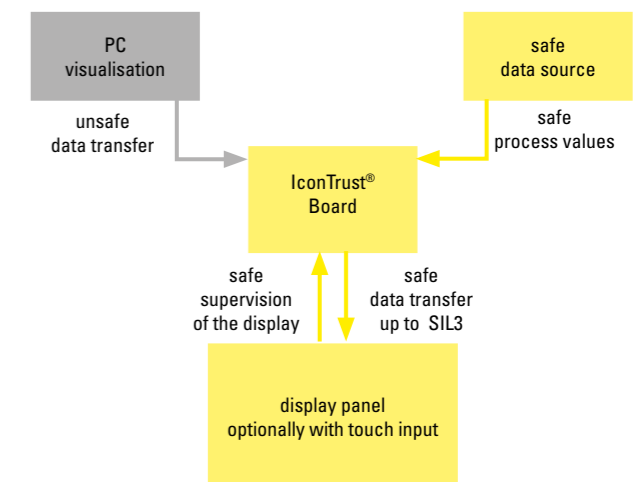
The patented Trust functions included in the DEUTA HMI Safety Package ensure that safety-relevant display contents are represented in a functionally safe manner – without interfering with the customer application. In contrast to conventional methods, the Trust technologies offer more safety for the display and the operation in safety-relevant areas of a TFT, representing reliably the determined values. The user can immediately recognise when deviations occur.

### Significantly more flexible

With IconTrust, type and layout of the representation can be modified flexibly and easily in safety relevant areas. In case the application is just being developed or, if it is being adapted to a new requirement, then safety can be reverified without a time-consuming qualification process. The safety concept is modular and can be retrofitted to any existing HMI system.



TFT with DEUTA HMI Safety Package



## From Safety-related information to Safe Display

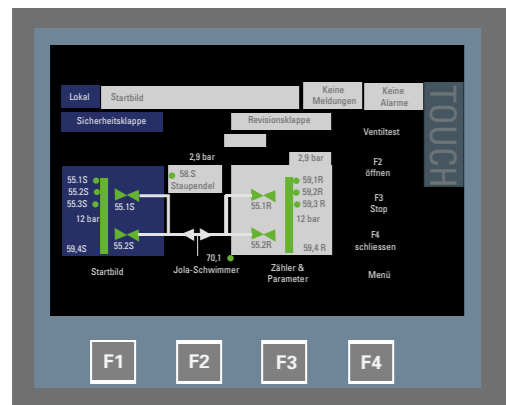
DEUTA Trust technologies are supervision systems which supervise the signal flow to the TFT display in the HMI device as well as the TFT display. The decision whether or not information is displayed correctly within certain supervised areas is derived from a target/actual comparison of the process values to be displayed. The Trust technologies: IconTrust, SelectTrust and MouseTrust ensure the topicality and correctness of the data displayed without having to subject the actual application for displaying the information, which may be based on unsafe TFT technology, to a verification process.

As DEUTA HMI Safety Package, the Trust technologies are integrated into the standard HMI devices with minimum effort. The HMI Safety Package which has already been assessed according to IEC61508 standard, minimises the effort for the assessment of the entire appliance. The HMI Safety Package with the safe communication protocol offers the possibility to achieve an individual safety solution with standard components. The HMI Safety Package consists of the modules: IconTrust board and photo sensor unit.

Together, these modules provide the basic function of safe a display:

- The IconTrust board supervises the video data stream and compares it with safe process values transferred via a safe communication channel.
- The photo sensor unit supervises the correct functioning of the display panels.

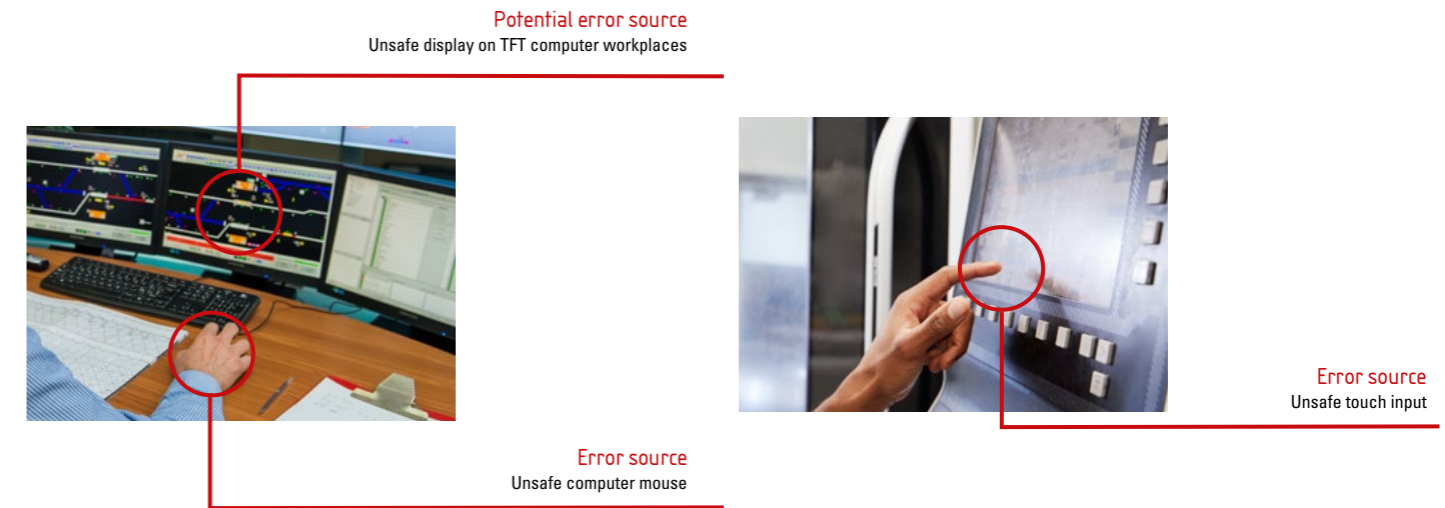
The optional elements: touch, keyboard and computer mouse constitute the safe input functions up to SIL2.



### Safe display with IconTrust:




As part of the HMI Safety Package, IconTrust supervises dedicated areas on the TFT panel and differentiates between safety-relevant and non safety-relevant information up to PL-e or SIL 3:

- supervises dynamic and static areas on the HMI panel
- recognizes the validity of displayed information
- confirms the receipt of the current process data via a safe connection
- compares the displayed process value with the input process value



### Safe operation with SelectTrust & MouseTrust:

SelectTrust and MouseTrust technologies enable a safe touch input with the Performance Level PL-d or SIL 2. The input areas shown on the display are safely supervised. With actuation, a respective safe data protocol is generated – completely independently and in parallel to the processing of non-safe input data by the HMI.

Hazardous situation	Up to SIL	DEUTA Trust Technology
 incorrect representation of a safety-relevant display	3	<b>IconTrust® SIL3</b>
 Confirmation of an incorrect touch area	2	<b>SelectTrust® SIL2</b>
 Mouse click on an incorrect displayed input area	2	<b>MouseTrust® SIL2</b>

## DEUTA Trust-Technologie - Successful Project References All Over the World

10.000 IconTrust terminals in use

DEUTA-WERKE is the world's No. 1 in the field of safe HMI terminals.

DEUTA Trust technology speaks for itself:

- generic assessment up to SIL 3
- easy portability of customer software
- usability of standard operating systems (DOS, WIN, ...)
- standard graphic tools and libraries
- software and hardware from a single source
- integrated Trust technology
- cost-efficient validation
- easy assessment of application changes, changes not subjected to assessment remain unconsidered
- independent of hardware – advantage with respect to obsolescence issues
- many successful project references with assessments of components and systems

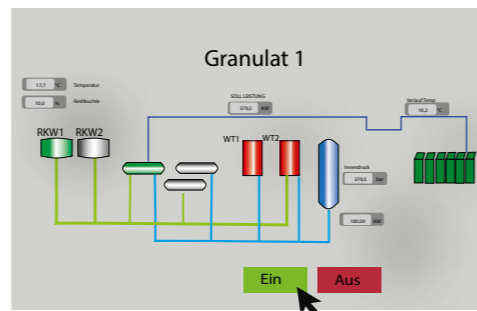
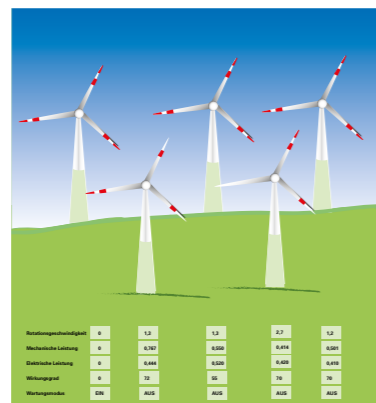


ViewTrust  
Safety HMI Terminal

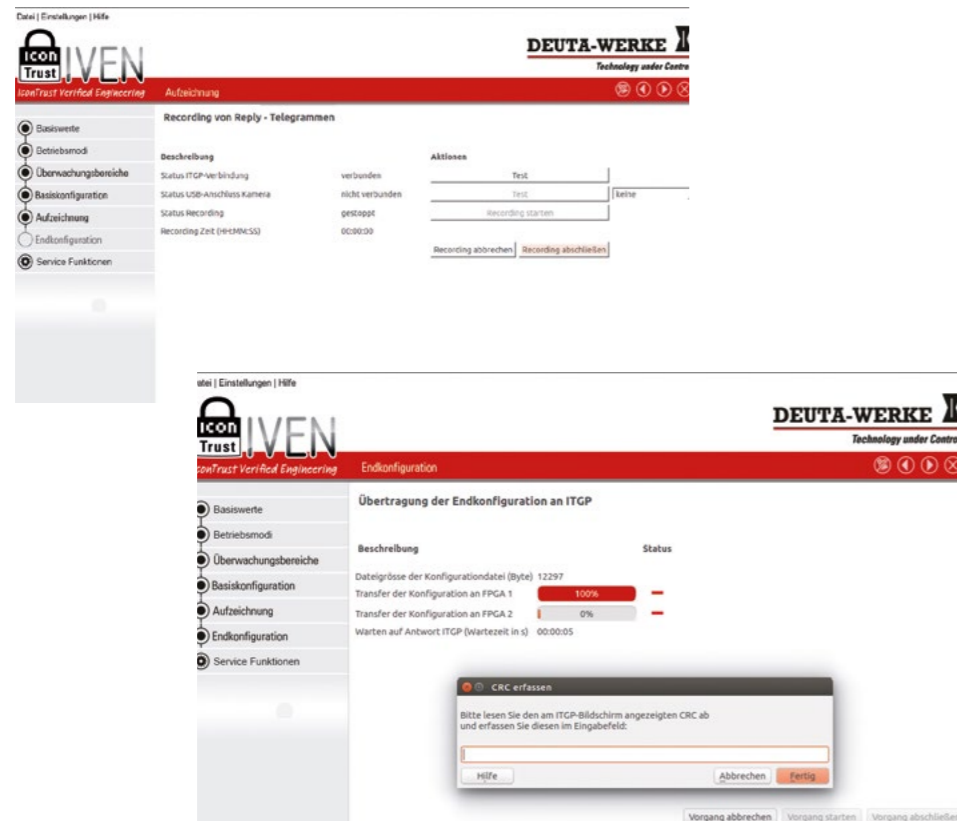


IconTrust®  
HMI Safety Package

Features/Specification	TFT displays incl. HMI Safety Package	HMI Safety Package für OEM
<b>Description</b>	TFT displays with HMI Safety Package and Trust technology full HD PROFINET / PROFIsafe	Trust technology as a retrofit package The HMI Safety Package is easily and safely integrated in the panel PC or in the monitor environment by our customers
<b>TFT size range</b>	17" up to 27"	
<b>Scope of supply</b>	ViewTrust Monitor <ul style="list-style-type: none"> <li>• incl. programming</li> <li>• incl. configuration</li> <li>• incl. IVEN configuration software</li> <li>• optional Trust-Computermaus</li> </ul>	HMI Safety Package <ul style="list-style-type: none"> <li>• incl. design reference guide</li> <li>• incl. IVEN configuration software</li> <li>• optionally MouseTrust</li> </ul>
<b>Safety Level</b>	assessment: IEC61508 basic safety standard for functional safety <ul style="list-style-type: none"> <li>• safe display: SIL3 / PL e</li> <li>• safe input (touch / mouse): SIL2 / PL d</li> </ul>	assessment: IEC61508 basic safety standard for functional safety <ul style="list-style-type: none"> <li>• safe display: SIL3 / PL e</li> <li>• safe input (touch / mouse): SIL2 / PL d</li> </ul>
<b>Optional support</b>	<ul style="list-style-type: none"> <li>• defining supervision areas</li> <li>• generating fingerprints</li> <li>• integrating in the application</li> </ul>	<ul style="list-style-type: none"> <li>• defining supervision areas</li> <li>• generating fingerprints</li> <li>• integrating in the application</li> </ul>



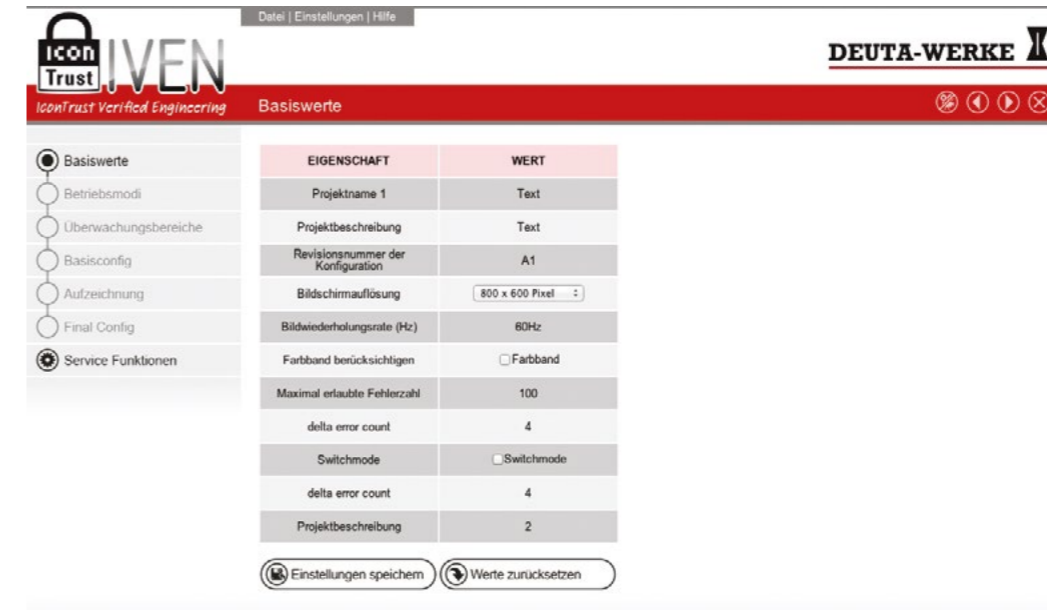
## IVEN - makes configuration easy



Application changes and project-specific adaptations can be easily implemented with the universal IVEN configuration tool.

Safety-relevant changes of the supervised areas or adaptations to new display parameters can be configured project-specifically with the engineering tool IVEN and prepared for assessment.

IVEN does not only check the configuration for consistency but provides also a preview of the configured supervised areas. In doing so, IVEN records all process values with a corresponding screen shot, transmits the configuration to the IconTrust module and automatically generates a PDF-validation report as documentation for the assessment.



### Configuration, Diagnosis & Testing with IVEN Made Easy:

#### Define :

- SIL-relevant supervised areas und screen masks
- determine basic parameters (resolution, error counter, etc.)

#### Learn:

- determine the permitted graphical elements and the corresponding checksum
- determine the latency period between data entry and representation in the GUI

#### Implement:

- configure the IconTrust boards
- upload the configuration to the IconTrust board

#### Record:

- generate a documentation as part of the assessment

Select the Trust technology and the screen parameters

pixel accurate definition and configuration of SIL relevant supervision areas

determination and storage of check sums for all permitted elements

transmission of data and configuration to the IconTrust® board