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DEUTA – The Home of Trust-Technology:

IconTrust® SignalTrust® TouchTrust® SelectTrust®

DEUTA IconTrust® - Trust Terminals

You can trust!

09_2015_US

IconTrust® – You can Trust.

DEUTA AMERICA

»DEUTA IconTrust® - Infinite control up to SIL 3«

The IconTrust technology

The innovative technology independently monitors the display and input areas. In case of deviations IconTrust triggers a safety-oriented response. For each individual area, in each image refresh cycle in IconTrust the displayed image is analysed and compared with the value of the respective input signal.

The patented system ensures that the information is demonstrably up-to-date and correct without the actual application for displaying the information being subject to a verification procedure. Because of this independence IconTrust enjoys almost limitless applicability.

Application

IconTrust is the generic solution for all TFT displays that need to meet SIL requirements. This includes, e.g., displays in driver's cabs and controller equipment in rail transport.

Within the scope of the safety expertise on existing applications, adaptations outside the monitored areas do not require re-verification. Our customers can simply adjust safety areas and contents with the IVEN configuration tool. This saves on costs for complex recertification.

DEUTA as sole provider offers the combination of highly-available redundant displays, safe SIL 3 display and SIL 2 input.

IconTrust® Simply safer

IconTrust reduces investments and life cycle costs.
With IconTrust, software changes in the application, project-specific adaptations of the application and hardware obsolescences do not require complete re-verification and re-validation. Thanks to IconTrust, re-evaluation is superfluous in nearly all cases. The life cycle costs remain low.

IconTrust® – clearly more flexible

The type and layout of the display can be modified flexibly and simply with IconTrust – even in safety-related areas. If the application is currently being developed or adapted to a new requirement, safety can be reconfirmed without time-consuming qualification processes.

IconTrust® – permanently reliable

IconTrust is a safe, reliable, flexible and cost-effective technology for consistently checking TFT displays in safety-critical applications – and has been for decades.

The innovative and patented IconTrust procedure guarantees secure and reliable playback on TFT panels, monitors and terminals. The SelectTrust add-on provides reliability for information entered via touch screen.

Which input signals does IconTrust monitor®?

In principle, all types of input signals can be monitored with IconTrust technology. These can be represented as symbols, needle instruments or bar graphs, letters, text or colour play. If required, it is possible to allow different screen representations for one and the same value of the same input signal (equivalent representations). Alongside, the configuration of an error counter for the delayed triggering of the safety reaction can be selected.

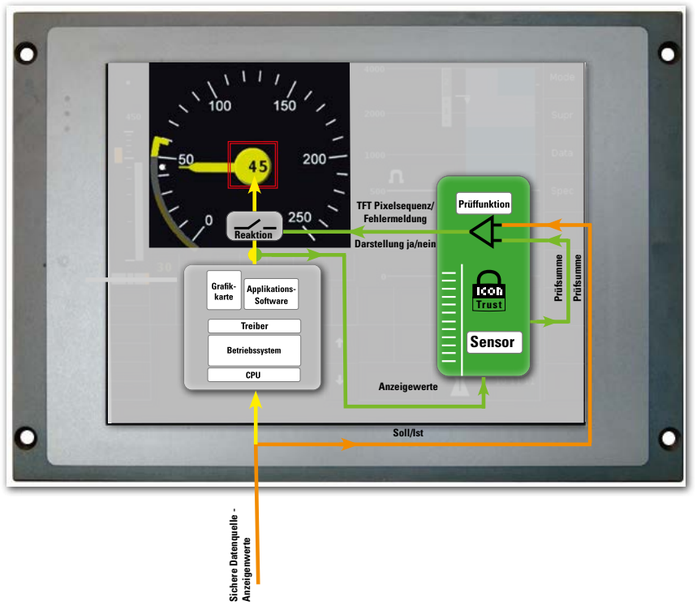
IconTrust® – The design

IconTrust can be optionally integrated with its Trust variants within the DEUTA MFT range. As such, IconTrust can be installed in MFT devices without modifying the external interfaces and can only be discerned on the outside by its identification plate.

IconTrust® as safety upgrade

DEUTA Trust terminals are equipped with IconTrust as standard. As a rule, however, IconTrust can also be easily retrofitted to other standard market displays and display applications. If the customer is already using newer DEUTA display technology, a “safety upgrade” with IconTrust is a simple matter without great effort.

IconTrust® Technologies



IconTrust technology: The independent monitoring unit guarantees that only correct display values are represented.

IconTrust® is realised through economical components available long-term.

IconTrustGenericPlus: already evaluated in many projects up to SIL 3.

IconTrust®

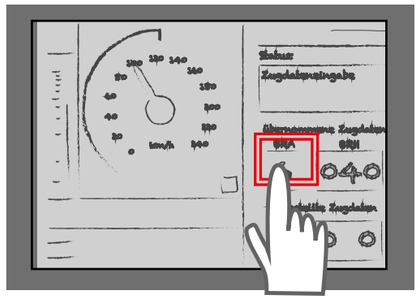
IconTrust **monitors predefined areas on the TFT display.** IconTrust analyses the displayed image there and compares the image data with the value of the original input variable. In the event of deviations IconTrust triggers a safety-oriented response.

IconTrust is independent of the chosen computer architecture. In the IconTrustGenericPlus model, a project-specific **time-saving SIL expertise** is possible. IconTrustGenericPlus has already been evaluated successfully in many projects up to the safety level **SIL 3**. Obsolescences and device modifications can be recertified with acceptable expenditure.

In the non safety-related display zones, **customer- or project-specific software adaptations are possible without re-evaluation**. In the safety-related areas, adaptations are easily mastered with the IconTrust **IVEN** configuration tool.

SelectTrust

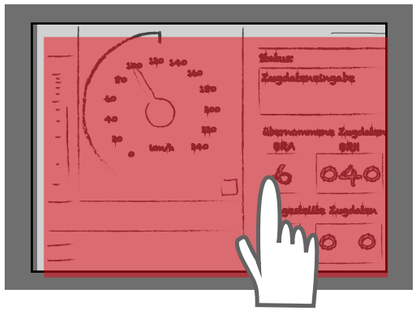
»Safe Input«



SelectTrust is worldwide the first technology to demonstrably **secure correct manual input of information** via touchscreen. This technology is invisible to the operator:
He selects and touches a graphical control element displayed on the TFT display. **SelectTrust uses IconTrust to select the activated control element**, assign a signature and transmit the corresponding checksum to the safe computer. The information of the "classical" touch event is compared with the SelectTrust signatures there on the basis of the previously defined reference tables.
This secures the reliability of the information.

TouchTrust®

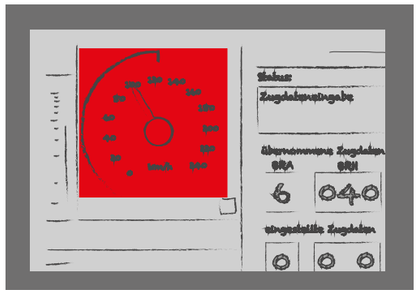
»Doubly safe«



TouchTrust is the redundant safety unit for input configuration of touch terminals. Two diversity touch units in a touch-sensitive input configuration form the basis for safety-related applications. This eliminates the risks of invalid inputs through short-term application of a conductive body or object in front of the touch panel or inertia in the elastic recovery. This patented solution is ideal for industrial plants such as e.g. industrial robots. TouchTrust is also the safety upgrade in other application areas such as in the driver's cabs of railway vehicles and the control desk of reactors.

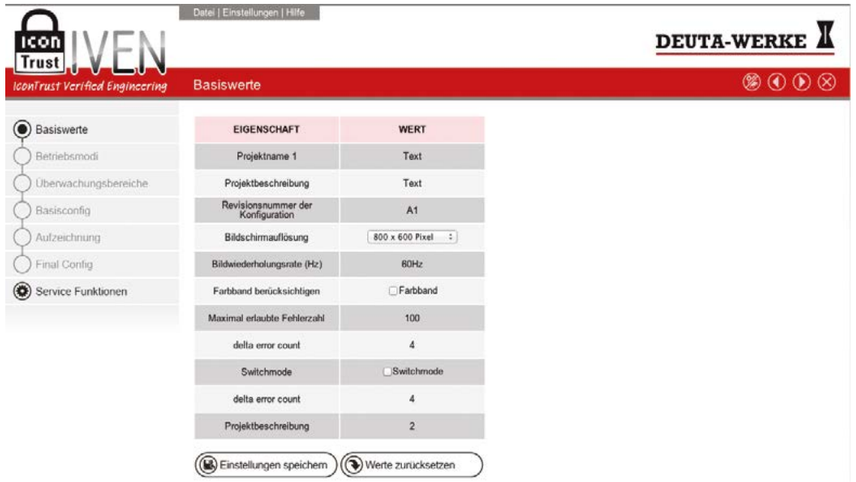
SignalTrust®

»Colour-fast«



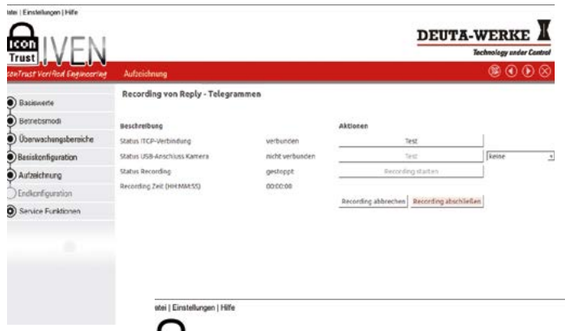
SignalTrust monitors the display of safety-related colour fields e.g. of "warning lights" on a TFT or the fields of a signal light. Alternatively, SignalTrust detects and checks background colours, e.g., red colourations during an alarm status. SignalTrust compares the displayed image data streams with the reference values of the monitoring area. Colour deviations lead to a safety-oriented response.

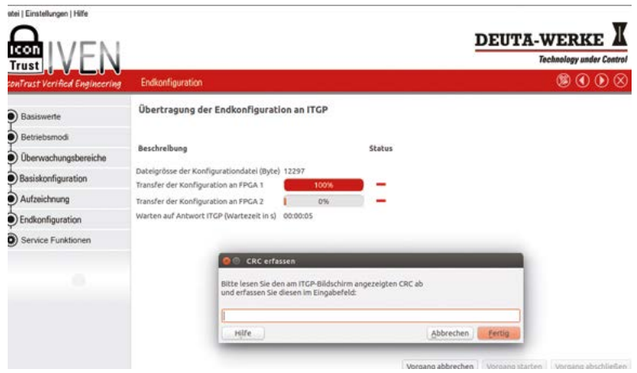
»IVEN - makes configuration easy«



There will always be new application changes and additional customer requests. **Safety-related changes** of the monitoring areas can be configured specific to project with the IVEN engineering tool and prepared for the expertise.

IVEN offers a **preview of the configured monitoring areas** and checks the configuration for consistency. In the process, IVEN records all process values with the corresponding screen photo, transfers the configuration to the IconTrust module and automatically **generates a PDF validation report** as documentation for the expertise.





Configuration, diagnostics & test made easy with IVEN:

Define:

- SIL-related monitoring areas and dialog boxes
- definition of basic parameters (resolution, error counter, etc.)

Learn:

- determine the permitted graphical elements and the corresponding checksum
- determine the latency between data input and display in the GUI

Implement:

- configuring of IconTrust board
- upload the configuration to the IconTrust board

Document:

- preparation of documentation as part of the expertise

Users can continue to use existing application software with the IconTrust concept. IconTrust works independently of operating systems, programming tools, programming language and libraries. There is no restriction on certified software tools or strictly regulated coding rules.

With IVEN our customers can configure the safety-related input and display areas.

DEUTA Hardware and Software Engineers are experts in the field of Functional Safety Engineering and make the latest SIL technologies applicable for any individual terminal solution.

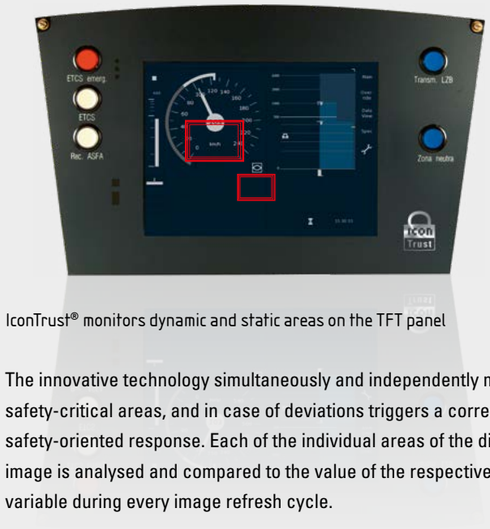
How safe are conventional TFT displays?

The approaches used today to safely display information on TFT panels are extensive, but still insufficient.
Potential errors remain undiscovered. This could originate from various sources of error, for example:

- Data corruption during transfer
- Errors in the graphical control
- Errors in the visualisation software
- Corrupted data in the graphics memory
- Corruption caused by the graphics processor or its software
- Unexpected performance of the operating system
- TFT signal driver non-responsive
- Microprocessor in error state

Infinite control

IconTrust supervises dedicated areas on the TFT panel and differentiates between safety-related and non safety-related information. To display image areas with safety-critical information, IconTrust configures dynamic and static monitoring areas.



IconTrust® monitors dynamic and static areas on the TFT panel

The innovative technology simultaneously and independently monitors the safety-critical areas, and in case of deviations triggers a corresponding safety-oriented response. Each of the individual areas of the displayed image is analysed and compared to the value of the respective input variable during every image refresh cycle.

The patented procedure demonstrably secures topicality and correctness without subjecting the actual application that presents the information to a corresponding verification procedure. Because of this independence, there are no limits to deploying IconTrust.

»DEUTA Trust technology -
Many successful project references«

DEUTA Trust technology:

+ Generic expertise up to SIL 3

+ Safe input and output

+ Software and hardware from a single source

+ Integrated Trust technology

+ Cost-efficient validation

+ Easy assessment of application changes

+ Cost-efficient

+ Many successful project references with component and system expertise

Operating principle

IconTrust is the truly safe basis for all TFT displays that must comply with a specific safety integration level (SIL).

DEUTA-WERKE is a pioneer in the verified determination and display of speed values. For 5 years DEUTA has been supplying multi-functional terminals with an expert proof of safety.

With the commencement of the new ETCS Subset-091 release, focus has been placed for the first time on the **mandatory specification of the Driver Machine Interface (DMI) as SIL component** as part of Baseline 3 and its "Safety Requirements for the Technical Interoperability". The requirement of Subset-091 regarding the monitoring of safe **display and input areas on a** touch display is monitored by **IconTrust with SelectFunctionality** on the DEUTA Multi-Functional Terminals.

DEUTA Trust terminals in train projects