IconTrust® HMI

Digital Functional Safety up to SIL3

IconTrust®

DEUTA-WERKE
Technology under Control

»IconTrust® HMI
Digital Functional Safety«

Safe Display
SIL3

Safe Input
SIL2

IconTrust® Technology

Most system architectures for control and operator stations primarily focus on securing the electronic process control computer. However, the potential vulnerability associated with digital display units often remains unmitigated. Errors may be caused by the presentation of incorrect data, which operating personnel on-site are unable to validate in real time during normal operation.

IconTrust® HMI - digital functional safety up to SIL3

IconTrust® monitors defined areas on the TFT display and differentiates between valid and invalid information. With the IconTrust® HMI, you can place safety-relevant display and operating elements such as indicator lights, buttons or texts on your user interface in the shortest possible time. The IconTrust® technology independently monitors the display and input areas.

In the event of deviations, IconTrust® triggers a safety-related reaction. For each individual area, the displayed image is analysed in each refresh cycle and compared with the value of the respective input variable.

IconTrust® HMI is a PROFINET/PROFIsafe field unit

As part of a safety instrumented system, the panel is not connected to the Internet. The IconTrust® HMI is used solely as a safety operating unit with a fixed location and complies with 62443 SL1.

The IconTrust® HMI offers user authentication

Different user roles such as engineering (administrators, engineering and service); production (operators, observers and auditors) can be authenticated.

Simply safer

IconTrust® provides greater safety than conventional methods by ensuring that the values displayed in the safety-relevant area of a TFT screen accurately and reliably reflect the determined data. Users are immediately able to recognise any deviations. The functional safety requirements can be implemented and validated up to the highest SIL level.
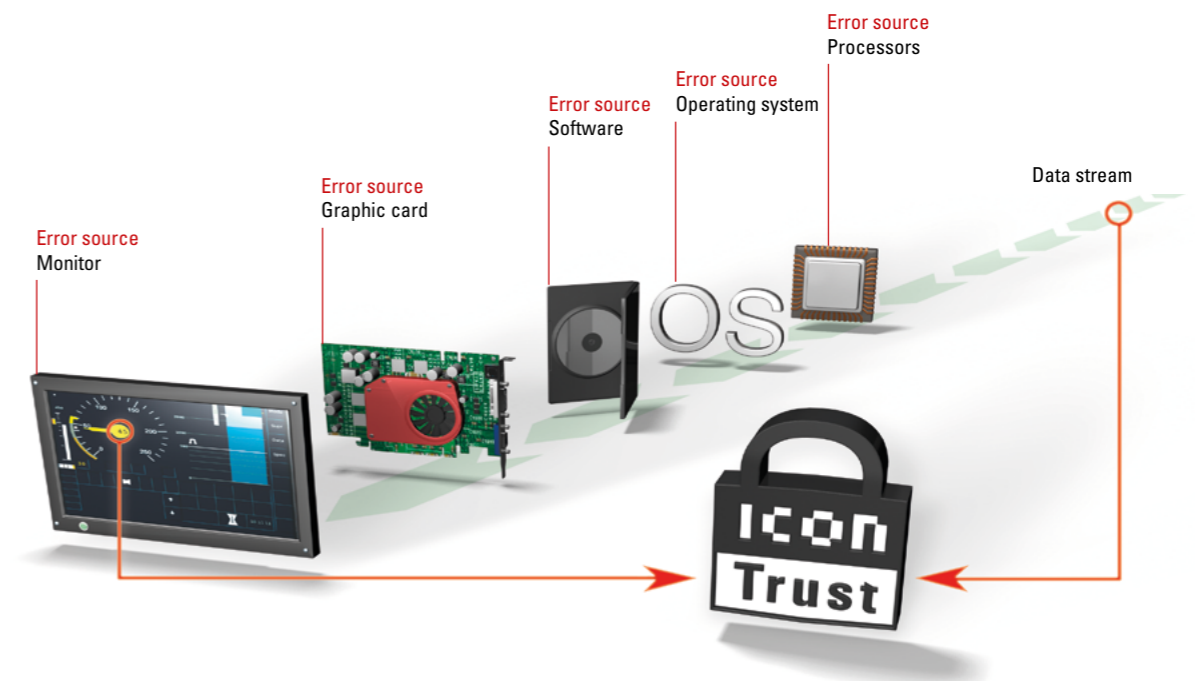
Significantly more flexible

Design and layout of the display can be modified flexibly and easily with IconTrust®, even in safety-relevant areas. If the application has just been developed or is adapted to a new requirement, safety can be reconfirmed without a time-consuming qualification process.
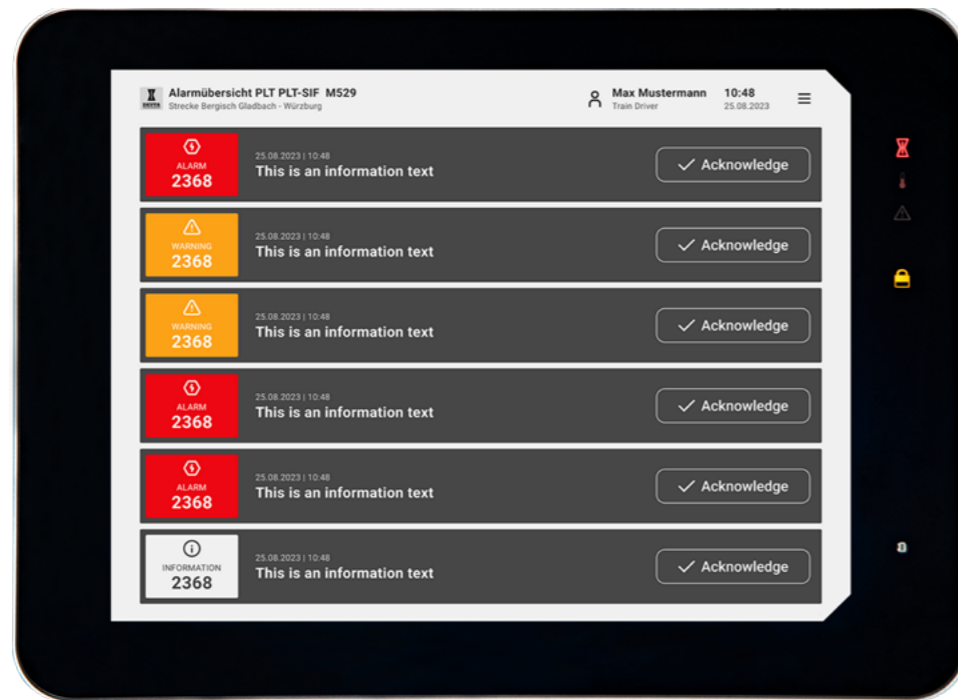
15 Years of IconTrust®

Over the 15-year IconTrust® era, 30,000 SIL-certified displays featuring IconTrust® technology have already been successfully implemented across various projects.

Our customers value IconTrust® because it guarantees the safe display of data regardless of the hardware platform and allows flexible customization of the application outside the monitored safe areas without updating the safety certificate. This makes IconTrust® the safest, most reliable, flexible and cost-effective safety technology for human-machine interfaces up to SIL 3.

Error source
Processors

Error source
Operating system

Error source
Software

Error source
Graphic card

Error source
Monitor

Data stream

»SIL3 – Commercial Off-The-Shelf«

The digitalisation of functional safety is revolutionising the process industry.
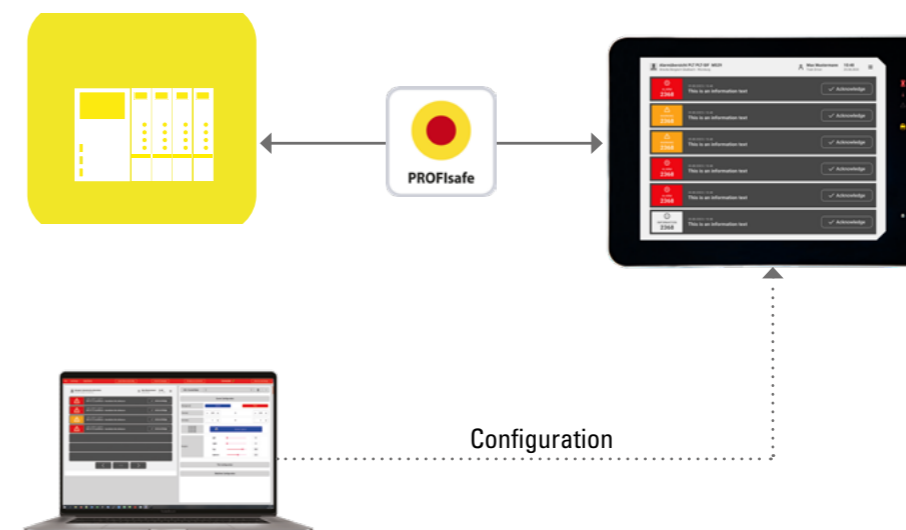
Configuration using a web browser
The fields displayed on the IconTrust® HMI can be easily and flexibly edited via a web interface. This shows a live preview of the HMI configuration centered on the screen. A preview directly on the IconTrust® HMI is also possible at any time.

This allows all of the individual fields' properties, together with global settings – such as field size and spacing – and grid alignment to be easily customised.

Transferring the created configuration to the device
IconTrust® HMI configurations can be downloaded locally. This facilitates the creation of a configuration library of different applications and revision levels.

The configuration files can be uploaded to the web interface or directly to a device at any time for further editing. Replication of the configuration on other IconTrust® HMIs can be performed remotely via the network. For example, changes can be quickly transferred from one device to all other IconTrust® HMIs in the system.

Configuration

IconTrust® HMIs for SIL-operation
The IconTrust® HMI offers up to 20 SIL-display or input fields – comparable to lights and pushbuttons on switchboards. The SIL-fields are laid out in the form of a (configurable) grid. The number of screen masks can be extended as required.

For the operator, the fields are clear and easy to read and understand by means of text, icons or graphics as well as colours. By using a configurable background image, the assignment of display and input fields to system components can be presented to the operator in an intuitively clear manner

Non-safe information (e.g. historical values, progress curves or work instructions) is available in an optional 'web view' displayed next to the fields. Changes to the HMI can be made quickly and easily at any stage of the project. Both the safe and non-safe screen content are displayed on an HTML5 based user interface.

Integration into existing PLC systems
Integration with safety controllers is carried out as usual via a GSD file. The configuration report of the IconTrust® HMI can be used as the basis for controlling the display and input fields as well as for integration tests.

- DEUTA IconTrust® HMI
- 12" TFT monitor, 1024x768
- Display SIL3
- Input SIL2 (touch)
- PROFIsafe V2.4, V2.6.1
- Visualisation with a web-based configuration
- 20 SIL display and input fields for each screen mask
- Different screen masks
- User authentication
- Display safe and non-safe content (HTML5)

»IconTrust® HMI

Safety with a High Degree of Flexibility«

Typical IconTrust® HMI use cases:

- Matrix panel
- Operating mode selection
- Recipe selection
- Batch selection
- Process value display and input
- Alarm lists
- Standard operating procedure
- Maintenance override (MOS)
- Hybrid operation (Non-SIL and SIL)

»3 Steps

Towards a Safe HMI«

The safe display and operating elements can be quickly configured in the web browser and customised in a variety of project-specific ways. Time-consuming and cost-intensive work steps for project changes are no longer necessary. The new operating units are reconfigured remotely on the IconTrust® HMI.

1. Design
The user positions the desired buttons on the interface. Text or graphic symbols as well as colour can be freely selected for each field.
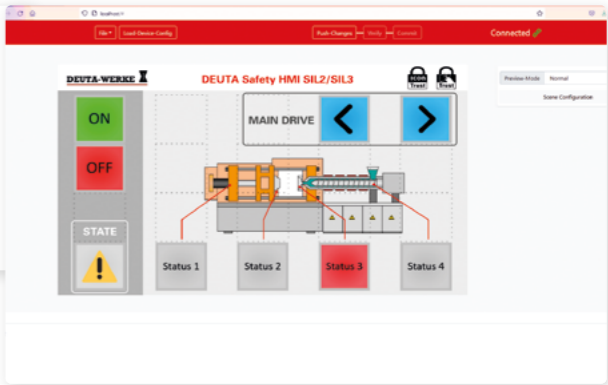
2. Transfer and generate
The data are transferred from the browser to the IconTrust® HMI. An IconTrust® configuration with an associated report is generated, which can be used for verification and documentation.

3. Integrate
All of the IconTrust® HMI fields are now connected to the safety controller via PROFIsafe. The IconTrust® HMI can be integrated into the safety infrastructure.

»Safety Configuration Report

Automatically generated within minutes«

Web-Editor

The graphical user interface is designed using the supplied web editor, which is easy to use and allows simple and intuitive setup without in-depth technical knowledge.
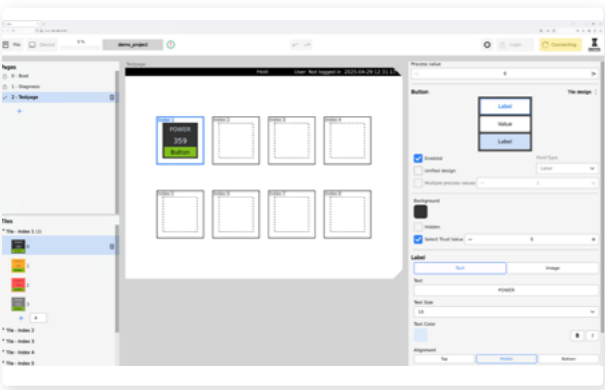
Toolchain

The IconTrust® HMI uses a qualified toolchain to generate a safety configuration that matches the GUI and an associated report. The GUI can be easily transferred to other HMIs, ensuring 'availability' and 'reusability'.

Safe display
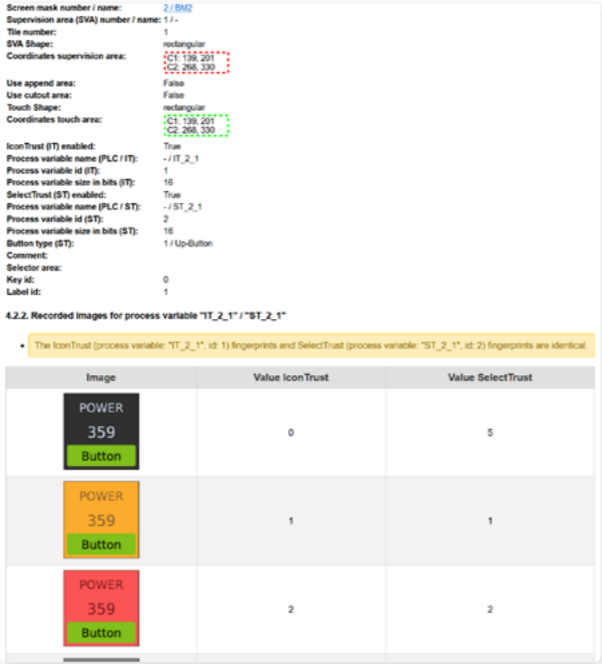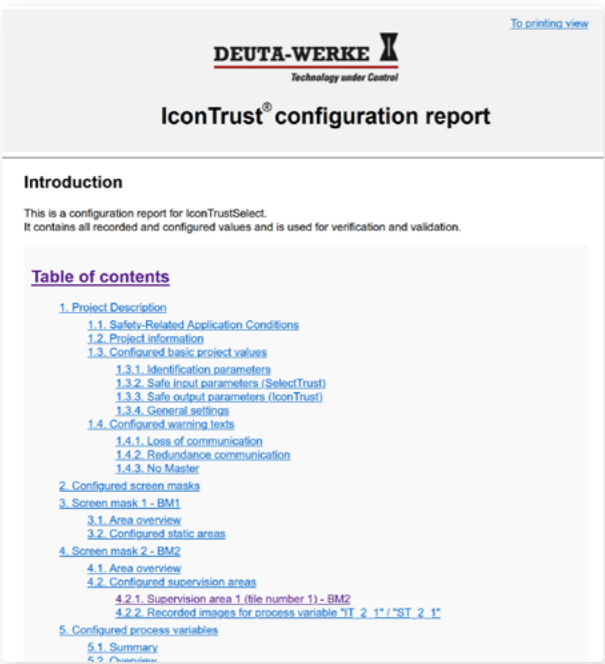
Safe Operation

»Digital Control Panels

Functionally Safe and Flexible«

State of the art for safe operation and display

For functionally safe display and input in safety control systems, control panels provide the required safety level – but at the cost of time and flexibility throughout all project phases. Fundamental decisions made during initial planning can only be revised later with significant effort. Even simple changes and additions require a maintenance window, and during operation, the buttons must be regularly inspected.

Digital, flexible and safe switchboards – up to SIL3

The IconTrust® HMI is a panel based on a bright TFT screen. Indicator lights and push-buttons can be configured via a web browser in a very short time – and adapted to meet the needs of specific projects in a variety of ways. Time- and cost-intensive work steps for project changes are not necessary. The new operating units are reconfigured remotely on the HMI.

»With Time and Cost Savings«

IconTrust® Safety

- Display and input up to SIL3 (in accordance with IEC 61508)
- Fully technically monitored
- A manual availability check is unnecessary ("lamp test")
- Proven technology – in use for over 15 years
- Long-term availability proven use in railway applications

Engineering

- Via web browser, no separate software necessary
- Rapid planning and replanning without removal and installation
- Easy creation of a configuration library
- Easy duplication to further devices (redundancy, exchange)

Flexibility

- Free assignment and display of fields
- Rapid change between revision statuses or variants
- Changes can be remotely imported, no rewiring or reassembly required
- Non-SIL content can be changed at any time without affecting safety

Ergonomics

- Intuitive operation and monitoring
- Process-supported operator intervention unnecessary
- Button functions can be clarified using pictograms

Security

- IconTrust® bundles all safety measures
- Diverse and separate from visualisation and system
- Software or operating system update without affecting safety

IconTrust® HMI

Operation	
Operating mode	Complex control panels, multi-page, limit value input, parameter input & display
Use cases	Alarm panel, step chain, recipe selection, complex control panel
Number of screen pages	Configurable
Input/output fields	20 per screen page
Field labelling & colours	Freely definable
Display	
Display size	12.1"
Resolution	1024x768
Touch type	capacitive
Functional safety (IEC61508)	
Display	SIL3
Entry	SIL2
Interfaces	
Ethernet	2x PROFINET with MRP, 1x Service
PROFINET	
Conformance Class	CC-B (RT)
MRP	yes
Profile	PROFIsafe V2.4 / V2.6.1
Protection category	
Front/rear	IP42
Engineering software	
Project planning	Web interface / GSDML
Ambient conditions	
Installation orientation	Landscape
Temperature	-25°C to +55°C
Power supply	
Supply voltage	24V DC
Safe supervision function	IconTrust® safe display: up to SIL3
	IconTrust® safe input: up to SIL2
Certification	Acc. EN 50126, EN 50128, EN 50129 Acc. IEC 61508
Ongoing certification	IEC 61508
	ISO 13849 PLe
	IEC 62061 SIL3
	PROFINET / PROFIsafe
	EC 62443-4-2 SL-1

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