

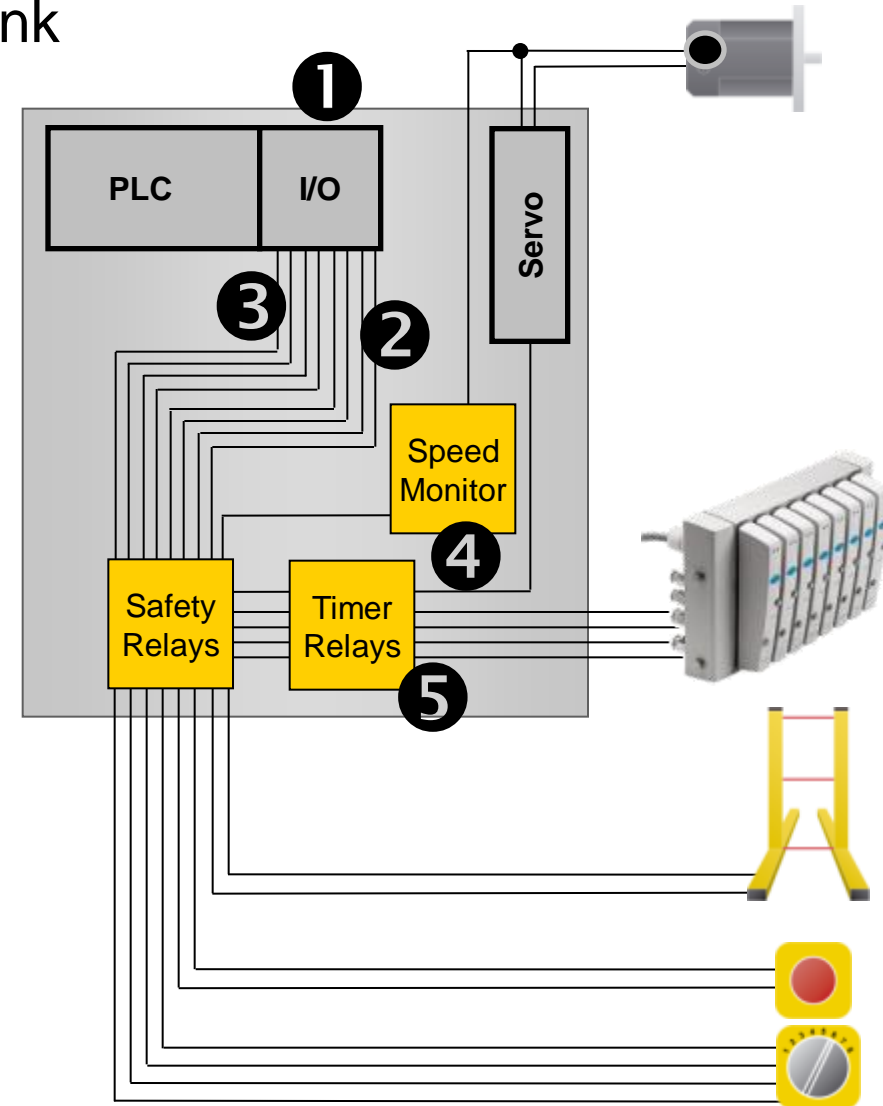
open 
SAFETY

open**SAFETY**

Der offene safety Standard für ALLE
Kommunikationsprotokolle

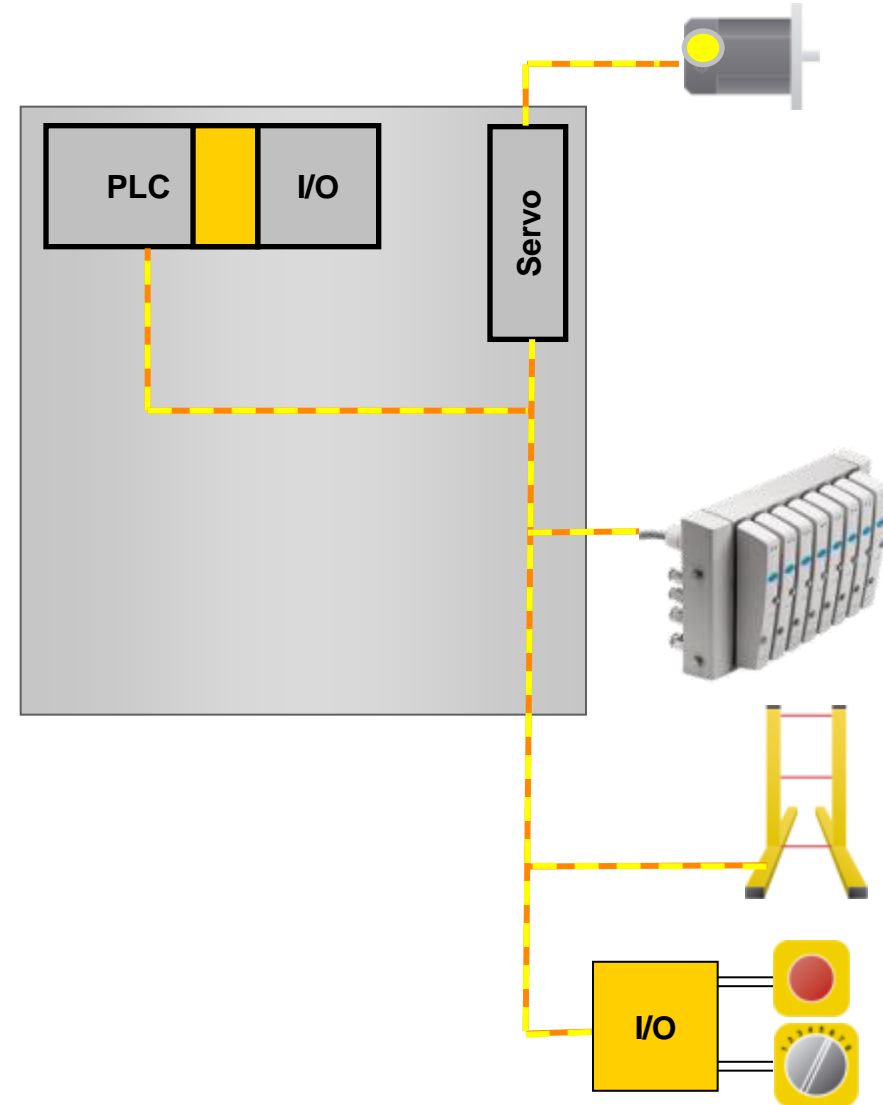
- Sicherheitsrelais im Schaltschrank
- Sicherheitsapplikation durch Verdrahten

- ❶ Zentrale DI/DO Module
- ❷ Zusätzliche Sensorverdrahtung
- ❸ Zusätzliche Aktorverdrahtung
- ❹ Speed Monitor für Safe Motion Control
- ❺ Zeitrelais zum synchronen Abschalten



Wie Sicherheitstechnik aussehen sollte!

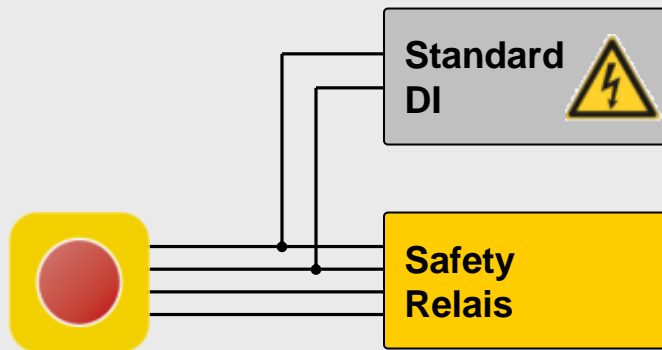
- Integriert
- Flexibel
- Dezentral
- Zertifiziert



Benefit

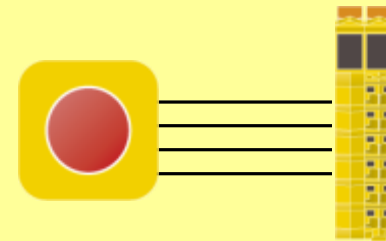
1

Hart verdrahtet



- **Zusätzliche Verdrahtung**
- **Statische Diagnose**
- **Anzahl Komponenten erhöht die Komplexität**

Integriert

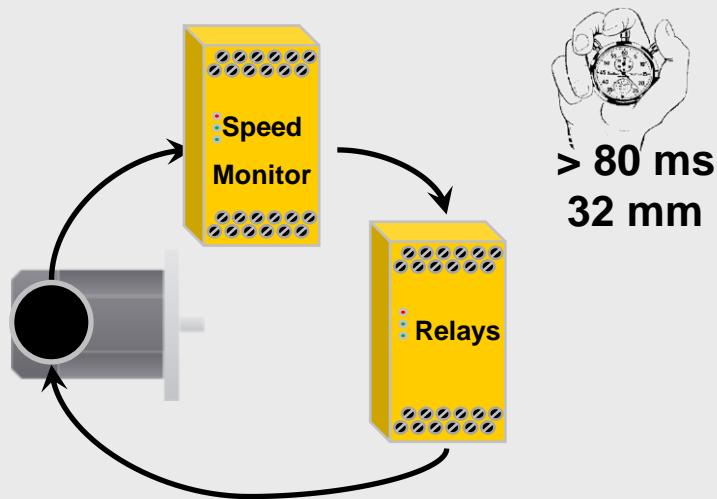


- **Einsparung von Verdrahtung durch weniger Komponenten**
- **Einfache Wartung durch intelligente FB**

Benefit

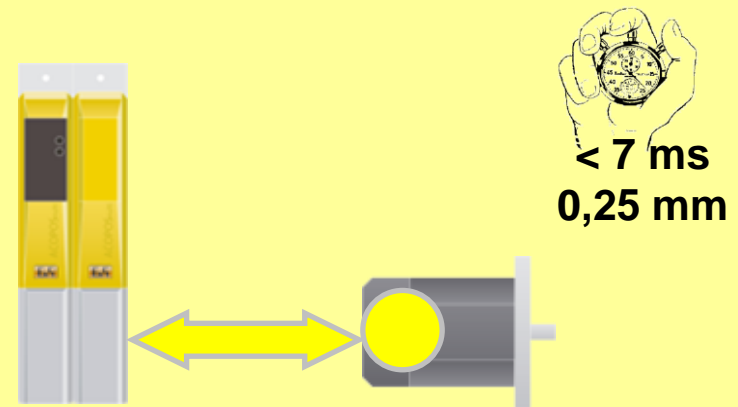
2

Hart verdrahtet



- Reaktionszeit abhängig von den Relais
- Kommunikation zwischen CPU und Safety I/Os?

Integriert



- Schnellste Reaktionszeit durch direkte Kommunikation
- Minimale Maschinen Stellfläche

Benefit

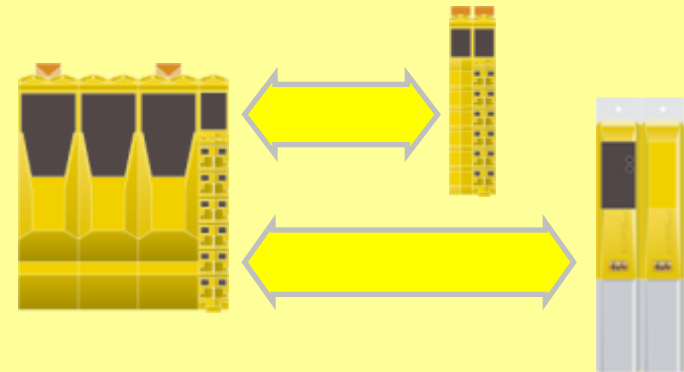
3

Hart verdrahtet



- Erhöhte Fehlerwahrscheinlichkeit
- Langwierige Reparatur
- Lange Stillstands Zeiten

Integriert

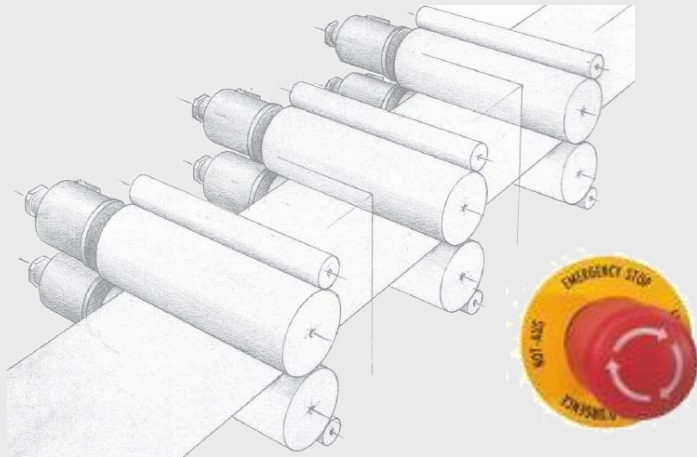


- Electronic data sheet
- Diagnose über Fernwartung
- Password geschützt

Benefit

4

Hart verdrahtet



- Nur Safe Torque Off

Integriert

Function acc. IEC61800-5-2

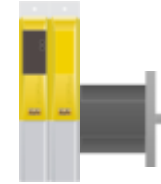
STO – Safe Torque Off
STO1 – Safe Torque Off one channel
SBC – Safe Brake Control
SS1 – Safe Stop 1
SS2 – Safe Stop 2
SOS – Safe Operating Stop
SLS – Safely Limited Speed
SDI – Safe Direction
SLI – Safely Limited Increment
SMS – Safe Maximum Speed

- Intelligente safe motion Funktionen

- Sicherheitsprotokolle
 - ProfiSafe ist **limitiert** für Profibus und Profinet
 - CIPSafety ist **limitiert** für Rockwell und SERCOS
 - EtherCAT Safety ist **limitiert** für EtherCAT
 - Safety Net p ist ein **proprietäres** Protokoll von PILZ
- Diese Protokolle sind für die jeweiligen Technologien **geschützt** oder **limitiert!**
- Diese Technologien sind **NICHT** kompatibel!

- Sicherheitsprotokolle
 - ProfiSafe ist **limitiert** für Profibus und Profinet
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 - Safety Net p ist ein **proprietäres** Protokoll von PILZ
 - openSAFETY ist **offen** und für **alle** Feldbusse zugänglich
- openSAFETY ist ein **offener** Standard und komplett Technologie **unabhängig!**

Black channel Prinzip



open SAFETY

Any fieldbus



POWERLINK

Modbus

SERCOS

EtherNet/IP

PROFINET

Black channel Prinzip

open SAFETY



open SAFETY



Any fieldbus

POWERLINK

Modbus

SERCOS

EtherNet/IP

PROFINET

Mechanismen zu Safety-Integrity

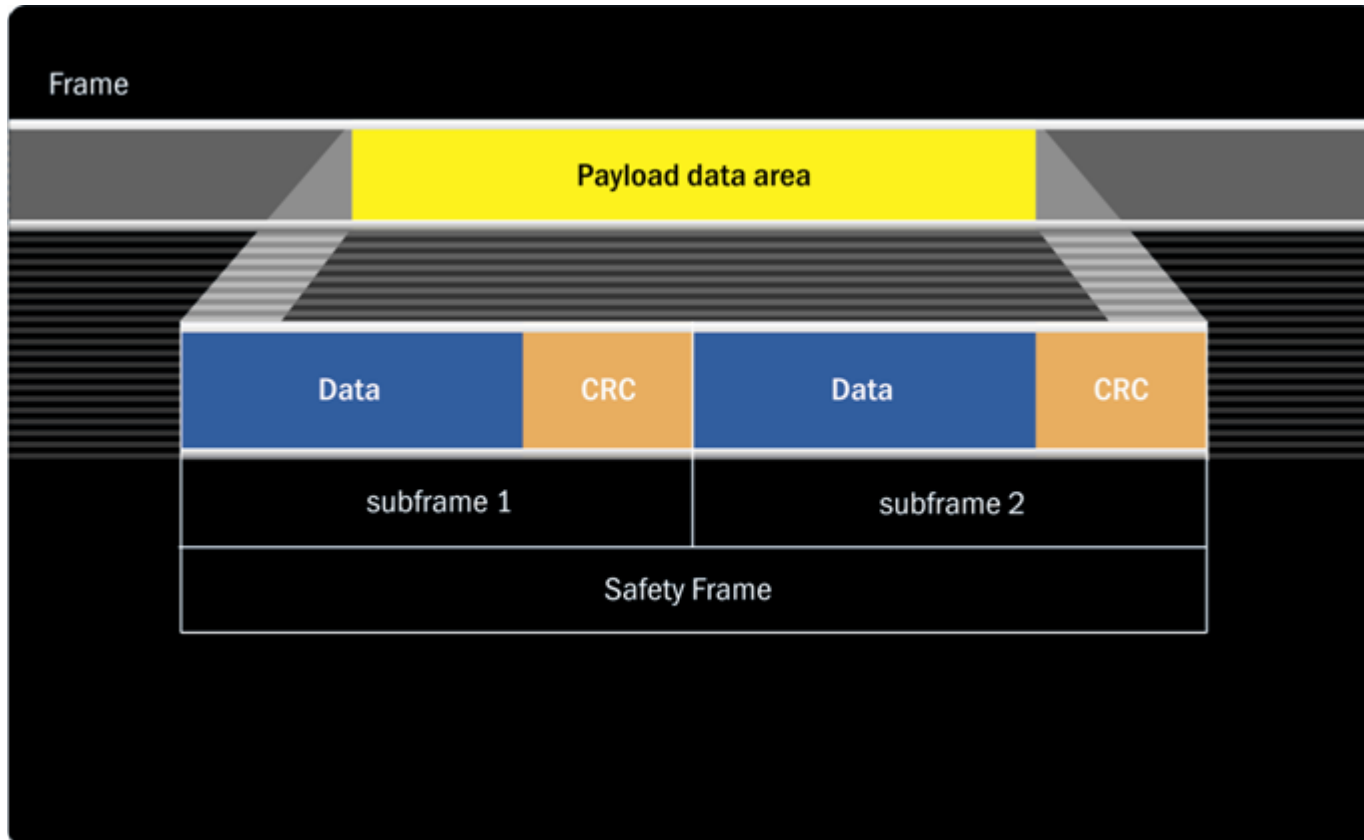
- Anforderungen an den Safety Layer nach IEC 61784-3

Preventive/corrective measures

Faults	Time stamp	Time monitoring	Identifier	CRC Protection	Redundancy with cross-checks	Distinct frame structures
Duplication	Blue					
Loss		Green				
Insertion			Blue			
Incorrect sequence	Blue					
Delay	Blue	Green				
Distortion				Blue	Orange	
Mix-up of standard and Safety Frames						Green

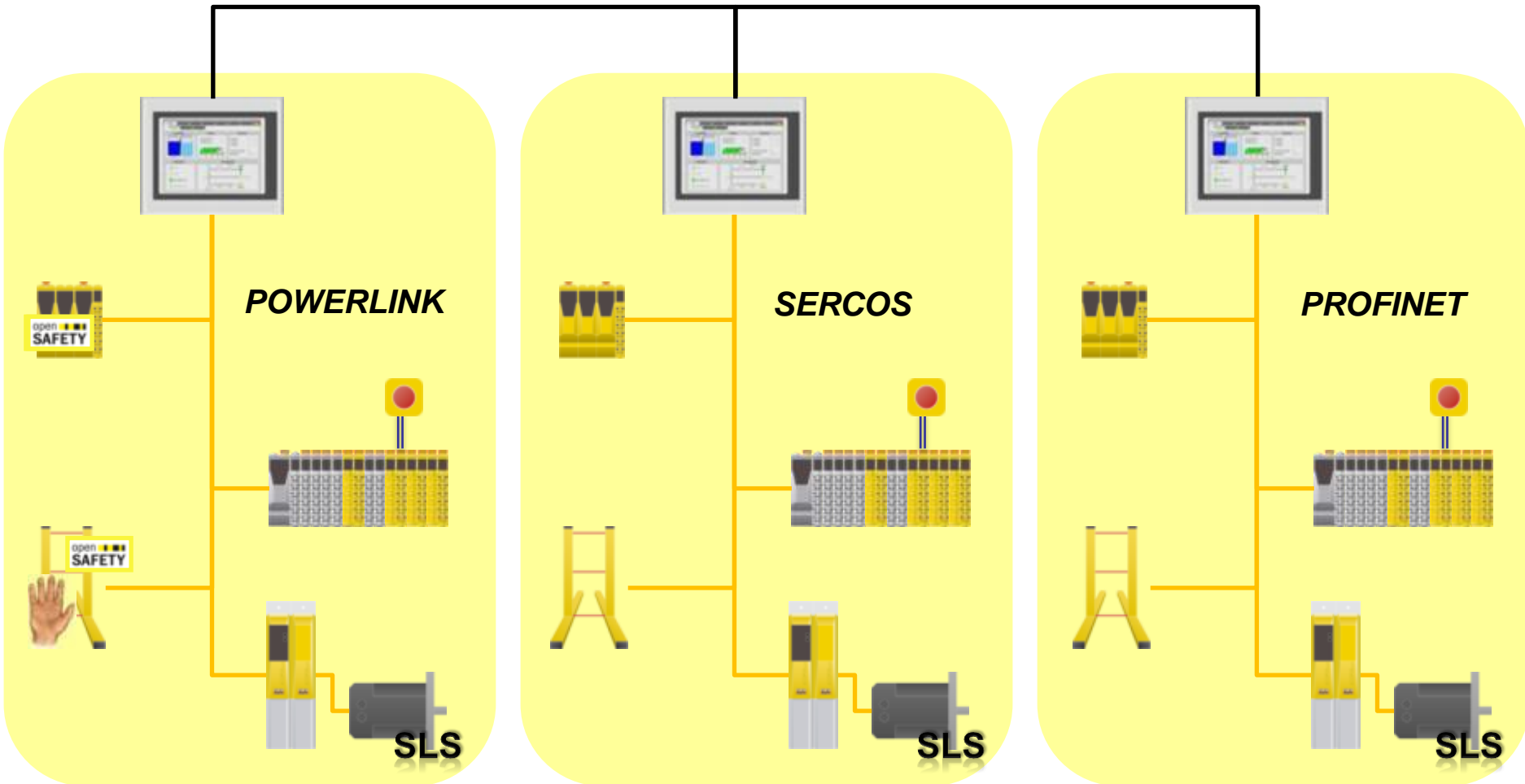
Safety measures according to IEC 61784-3

- Diversitäre Subframes (bis zu 254Bytes)



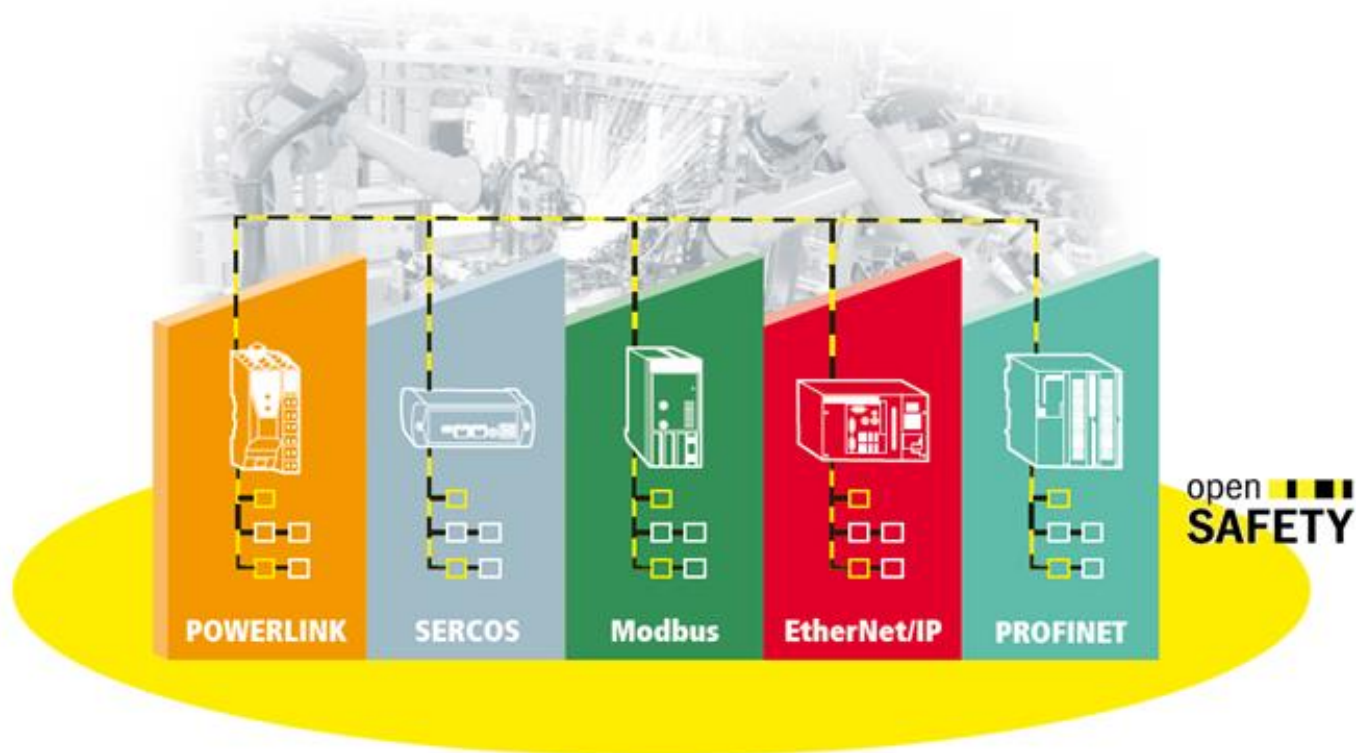
Ein Standard für ALLE Netzwerke

EtherNet/IP

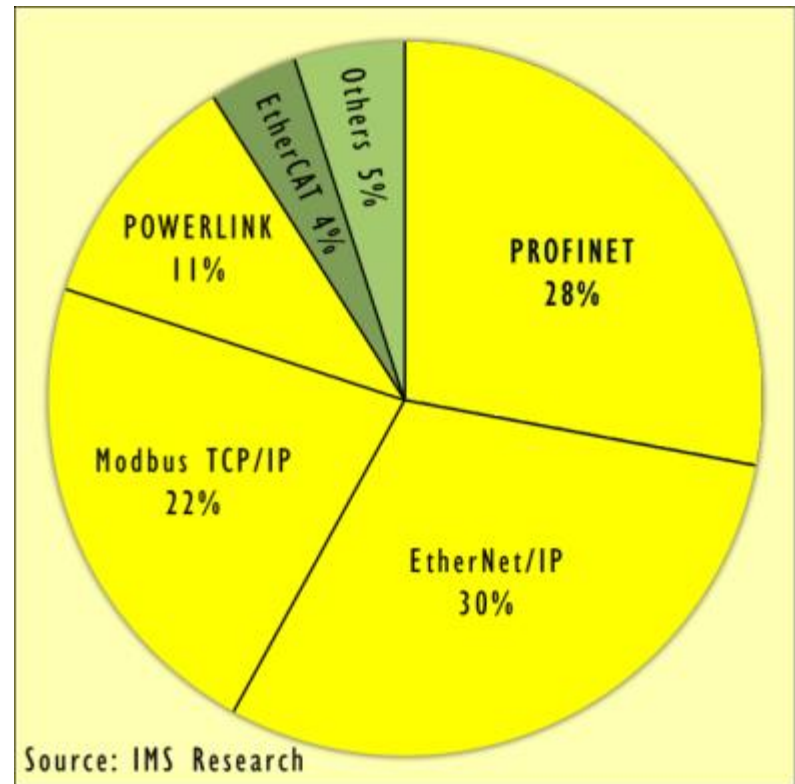


openSAFETY ist offen und unabhängig

- Weltweit das einzige 100% offene safety Protokoll
- Technisch und rechtlich absolut unabhängig
- Unterstützung durch die EPSG (Ethernet Powerlink Standardization Group)



- openSAFETY ist derzeit Verfügbar für:
 - Ethernet TCP/UDP/IP
 - EtherNet/IP
 - Modbus TCP/IP
 - POWERLINK
 - SERCOS III
 - PROFINET
- openSAFETY deckt 91% des industriellen Ethernet-Marktes ab!



openSAFETY Stack ist zertifiziert

- TÜV Zertifikat – IEC 61508 SIL3, PL e
- Zertifizierte Safe Motion Profile – IEC 61800-5-2
- Internationaler safety Standard - IEC 61784-3



- Nestlé fordert die Umsetzung von openSAFETY!



Bryan Griffen, Head of Electrical & Automation Engineering

Marktführer setzen auf openSAFETY

"WE FEEL SAFE ABOUT IT"

- Reliability, availability, interoperability, fast reaction times, deterministic behavior and open architecture are all key factors for power generation control. POWERLINK communication technology fulfills these requirements for distributed control systems and machine control, and with openSAFETY we are guaranteed full data integrity when exchanging data over multiple networks.

openSAFETY is the only safety standard that is fully open and independent, thus ensuring safe data exchange and complete interoperability in a multi-vendor network environment.

openSAFETY is the ideal solution for critical automation processes, today and in the future!"

Christian Reussner
Vize President Engineering
Power Generation & Control

ALSTOM



The open market for required safety technology significantly increasing costs, makes time-consuming and expensive test machine performance through efficient communication. openSAFETY gives us complete reliability and confidentiality. Transparency is an essential element of our business.

open SAFETY

www.open-safety.org



"WE FEEL SAFE ABOUT IT"

- Nestlé is using automation and safety components from many different suppliers. Having a single safety communication standard would allow us to reliably exchange safety information across the entire factory floor, regardless of the brand of components. Such a standard would also facilitate engineering in terms of system design and commissioning and operations in regards to maintenance and troubleshooting of safety systems."

Byron Gillies
Head of Central & Latent Engineering
Power Generation & Control



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Nestlé

"WE FEEL SAFE ABOUT IT"

- openSAFETY is a modern safety concept that allows Sidel to help our customers reduce the number of device types and the overall complexity of machine automation."

Dimitris Papadopoulos
Head of R&D System of Design
Sidel



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Sidel

openSAFETY – Ihr Schlüssel zum Erfolg



Eine starke Gemeinschaft

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