

IEC 61784-3 – Funktionale Sicherheit über Netzwerke für die Prozess-  
und Fabrikautomation

*IEC 61784 -Networked functional safety for process and factory  
automation*



# Fieldbus Standard IEC 61158

Safety Communication Profiles

IEC 61784-3

# IEC and DKE

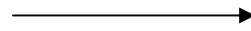


## DKE

German "Mirror" working groups:

**IEC 61508**

(Functional Safety)

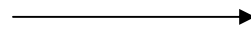


**GK914**

(Functional Safety)

**IEC 61158 / 61784-1, -2**

(Fieldbus)

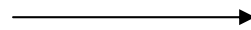


**K956**

(Fieldbus)

**IEC 61784-3**

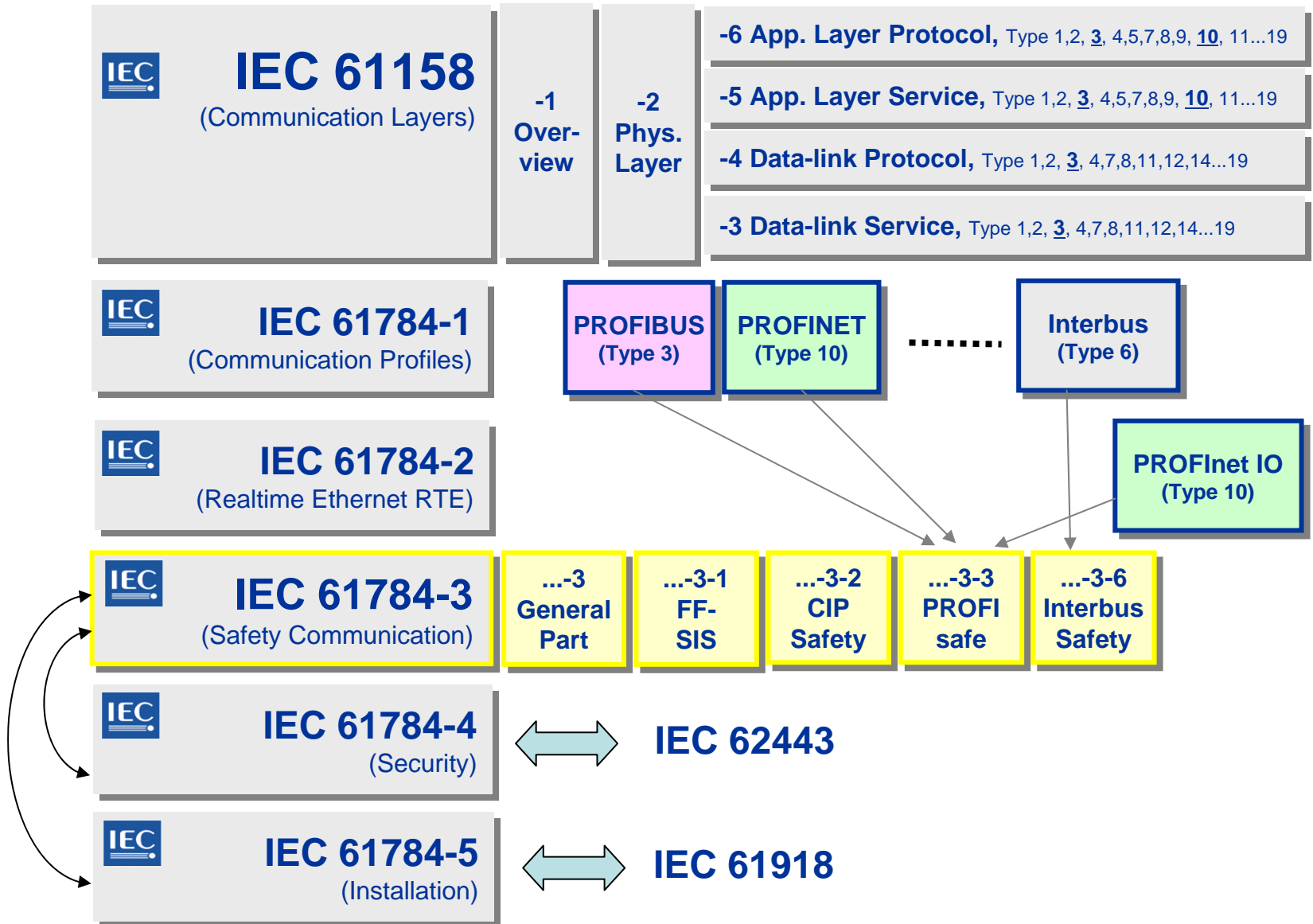
(Safety Communication)



**GAK914.0.2**

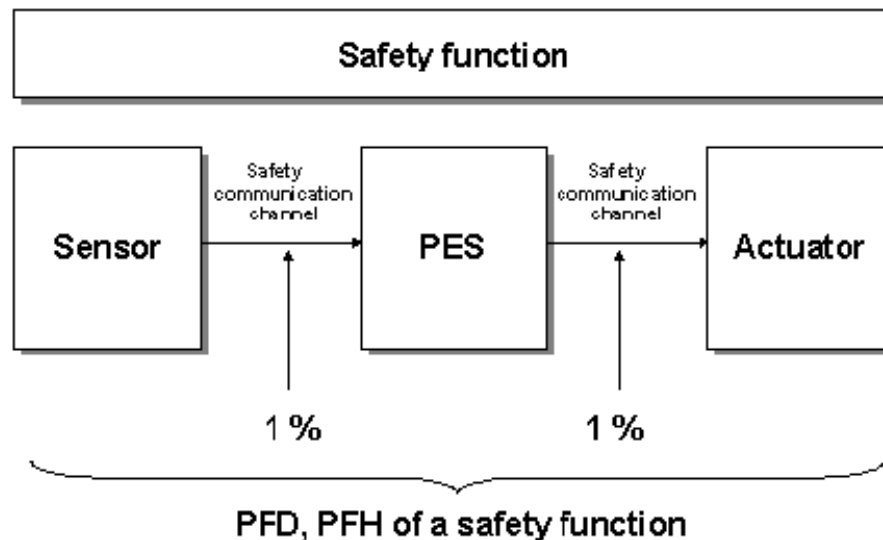
(Safety communication)

# Status of IEC 61158 / 61784



# Scope of 61784-3

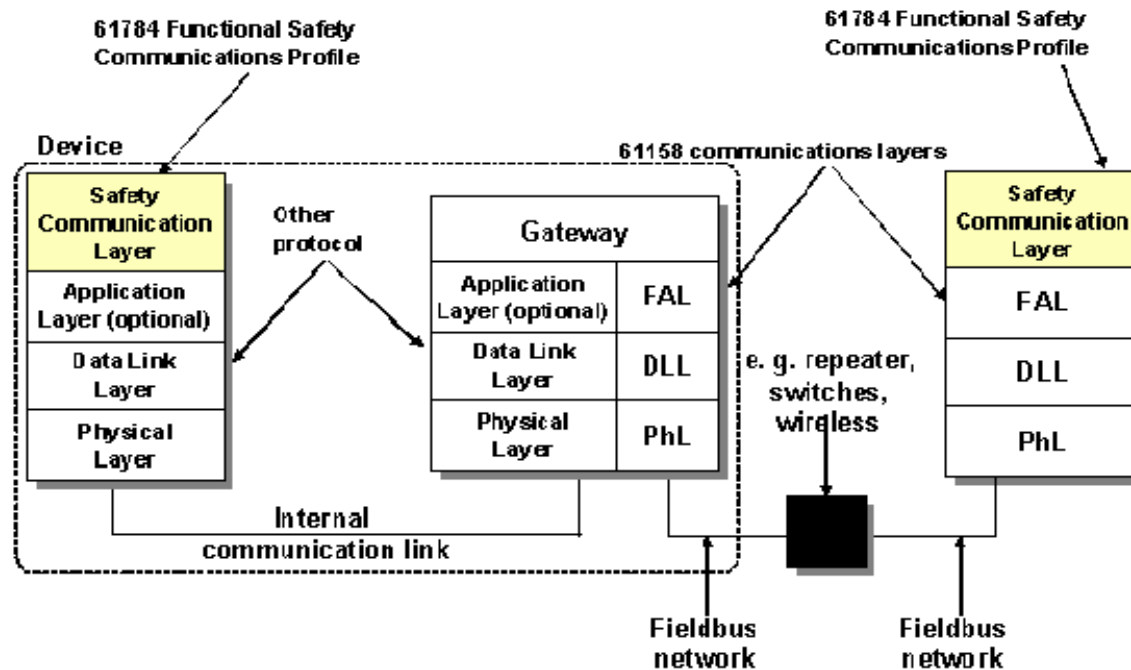
- Common principles for the transmission of safety messages within a distributed network using fieldbus technology in accordance with IEC 61508
- The safety communication channel should not consume more than 1% of the maximum PFD or PFH of the target SIL for which the functional safety communication profile is designed



- All safety systems shall provide a defined safety function response time

# Scope of 61784-3

- Functional safety communication profiles in IEC 61784-3
  - Are based on “standard” fieldbus systems specified in IEC 61158
  - Use the “black channel” approach of IEC 61508 (“unreliable” media)
  - Define an additional “safety communication layer” to perform all the measures necessary to implement transmission of safety data in accordance with IEC 61508



# Document structure

- **IEC 61784-3:** General rules and profile definitions
  - Common glossary
  - Common concepts
  - Overview of technology-specific Functional Safety Communication Profiles (FSCP's)
  - Common layout for FSCP specifications in the following subparts
- **IEC 61784-3-X:** Additional service and protocol specifications for CPF X
  - Detailed FSCP specifications for Communication Profile Family X (family number assigned in IEC 61784-1 or IEC 61784-2)
  - Edition 1 (due 2007):
    - IEC 61784-3-1: FF SIS™ (FSCP 1/1)
    - IEC 61784-3-2: CIP Safety™ (FSCP 2/1)
    - IEC 61784-3-3: PROFIsafe™ (FSCP 3/1)
    - IEC 61784-3-6: INTERBUS Safety™ (FSCP 6/1)
  - Edition 2 (planned 2009), candidates:
    - EtherCAT Safety (Germany)
    - SafetyNet-p (Germany)
    - RAPIsafe (Korea)
    - EPA Safety (China)
    - CC-Link Safety (Japan)
    - P-Net Safety (Denmark)