

# SystemFacts

## Highlights

- Certified up to SIL 3 (IEC 61508), PL e (EN 13849)
- High granularity/ no rack mounting
- Certified function blocks for connection to numerous sensors
- Motion function blocks in accordance with EN 61800
- High computing power and processing of complex data structures
- Implementation of large quantities of I/Os
- Import of C++ programs
- Decentralisation via system bus extension for distances up to 1,000 m
- Quick module replacement due to separated connection levels

## Applications

- Automated storage and retrieval systems
- Automated guided vehicles
- Electric monorail systems
- Amusement rides
- Cranes
- Stackers
- Reclaimers
- Baggage handling systems
- Assembly plants

## Safety functions

- Safe monitoring of position, speed, acceleration, breakdown torque
- Safe load monitoring
- Safe distance monitoring
- Complex range and/or location-dependent monitoring and emergency stop functions



## **HIMatrix**® M45

### **Simplify safe motion control. Multiply efficiency.**

Thanks to its computing power, a large variety of sensor interfaces and granular architecture, the new HIMatrix M45 safety system is suitable for complex safety-critical applications in logistics and machine safety. It makes safe motion control solutions simpler, more flexible and more profitable.

#### **Advantages**

- Fewer components (e.g., no smart bus coupling modules needed) than other solutions
- Significant reduction of planning and engineering effort
- Fewer fault sources
- Simplified procedure for program extensions and changes during operation
- Implementation of CPU-intensive solutions



SAFETY  
NONSTOP

# SystemFacts | HIMatrix safety system M45

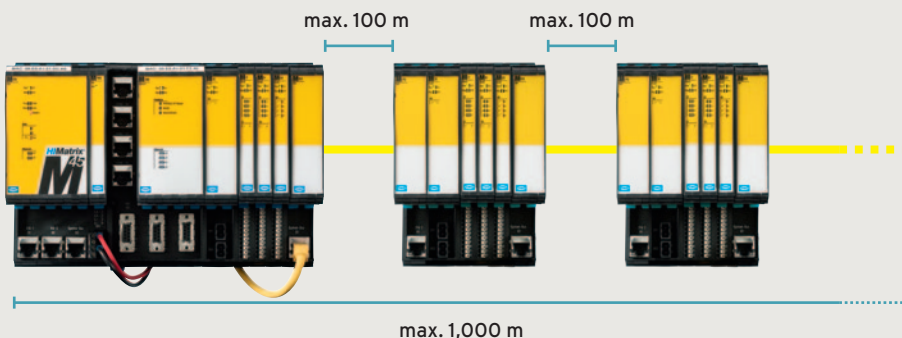
## Features

- Simplified and flexible connection of a wide range of sensors via various interfaces and certified function blocks
- Simplified implementation of mathematical functions via:
  - Support for 64-bit data types
  - Multidimensional arrays and struct variables
  - Execution of complex, mathematical operations (trig, log, etc.)
- Economic implementation of large quantities of I/Os since each CPU supports up to 62 I/O modules
- Simplified implementation of complex programs due to import options for safety-related C++ and ST programs and their corresponding conversion to function blocks
- Reload ability of the CPU for uninterrupted program and network changes
- Multitasking for up to 32 separate running programs

## Networks

- Redundant networking via **safeethernet** with usage of all Ethernet functions for safety-critical applications
- Ethernet functionalities
- Integrated switch for a variety of network structures (line, tree, star)
- Setup of multi-master networks with up to 128 participants for each CPU

## Simplified and economic decentralisation via system bus extension for distances up to 1,000 m (10 x max. 100 m)



## Software

- SILworX® - the fully integrated configuration, programming and diagnostic tool from HIMA
- Library of certified motion function blocks
- Option for importing C++ programs and Structured Text (ST)

## Available modules

CPU module	Processor module
COM module	PROFIBUS DP Master, RS485 and RS485/RS422
COM module	PROFIBUS DP Slave, RS232 and RS485/RS422
COM module	SSI, RS485 and RS485/RS422
COM module	CAN, RS485 and RS485/RS422
8-fold DI	Line control and digital input filter
8-fold DO	500 mA/channel
8-fold unidirectional counters	Option for pairwise interconnection to bidirectional counters, timestamp with 1µs resolution
2-fold relay module	Max. 250 V
System bus extension	100 m distance
Power module	8 A supply
LS module	For three-wire connection technology

## Communication

- **safeethernet**
- OPC (DA and A&E)
- Modbus TCP (Master & Slave)
- PROFINET IO (Controller & Device)
- PROFIsafe (F-Host and F-Device for PROFINET IO)
- Send & Receive TCP
- SNTp
- PROFIBUS DP (Master & Slave)
- Modbus RTU (Master & Slave)
- Connection to proprietary protocols via all the interfaces (TCP, UDP, SSI, CAN, RS485, RS422 and RS232)