



HIMatrix®

## Flexible SIL 4 Controllers

HIMatrix is a range of versatile, commercial off-the-shelf (COTS) controllers for small to mid-scale safety-critical applications in the rail industry. The standard system is pre-certified in accordance with CENELEC SIL 4 and can be used in any system integrator solution. Designed to be compact, vibration and shock resistant, and having an extended operating temperature range, HIMatrix is ideal for demanding environments, such as passenger trains. HIMatrix is easy to install and can be used in networked and time-critical applications.

### Characteristics

- CENELEC SIL 4
- Fast, flexible, compact
- Extremely cost-effective
- Distributed applications
- Applications with just a few I/O points

### Engineering Tools

HIMatrix systems can be engineered using SILworX.

- Function block diagrams (FBD)
- Sequential function charts (SFC)
- Structured text (ST)
- C code (optional)

### List of Certificates

- EN 50126:1999 (SIL 4)
- EN 50128:2011 (SIL 4)
- EN 50129:2003 (SIL 4)
- EN 50159:2010
- EN 50155:2007
- EN 50125-3:2003

See the full list at [www.hima.com](http://www.hima.com)

## List of Modules

The extensive hardware range and safety-related networking of the systems via SafeEthernet (redundant communication is also possible) guarantee high levels of flexibility and optimum adaptation to the application requirements.

HIMatrix Systems	Inputs Analog/Digital	Outputs Analog/Digital	Ethernet Switch Ports	Line Monitoring*	Special Features
<b>Compact PES</b>					
F35 03	8 / 24	- / 8	4	Yes	Plus 2 counters 100 kHz, approved for use in Ex Zone 2
F30 03	- / 20	- / 8	4	Yes	-
<b>Remote I/Os</b>					
F1 DI 16 01	- / 16	- / -	2	Yes	-
F2 DO 16 01	- / -	- / 16	2	-	8 outputs 2 A, 8 outputs 0.5 A
F2 DO 16 02	- / -	- / 16	2	-	Relay outputs up to a contact potential of 60 V
F2 DO 8 01	- / -	- / 8	2	-	Relay outputs up to a contact potential of 230 V
F2 DO 4 01	- / -	- / 4	2	-	Load of up to 5 A
F3 DIO 8/8 01	- / 8	- / 8	2	Yes	Additional 2 L-switching outputs
F3 DIO 16/8 01	- / 16	- / 8	2	Yes	2-pin outputs
F3 DIO 20/8 02	- / 20	- / 8	2	Yes	-
F3 AIO 8/4 01	8 / -	4** / -	2	-	Supply for NAMUR proximity switches and 24 V
<b>Modular PES</b>					
F60 CPU 03	- / -	- / -	4	-	6 slots for I/O modules
<b>I/O Modules</b>					
AI 8 01	8 / -	- / -	-	-	-
DI 32 01	- / 32	- / -	-	Yes	Cross-circuiting in connection with DIO 24/16
DI 24 01	- / 24	- / -	-	-	110 V input voltage
MI 24 01	24 / 24	- / -	-	-	Current inputs 4 – 20 mA, alternatively NAMUR inputs
DIO 24/16 01	- / 24	- / 16	-	Yes	-
CIO 2/4 01	- / -	- / 4	-	-	2 counters up to 1 MHz
<b>Power Supply</b>					
PS 01	- / -	- / -	-	-	-
<b>Extended Temperature Range (-25°C to 70°C)</b>					
GEH 014	- / -	- / -	-	-	-
PS 014	- / -	- / -	-	-	-
CPU 034	- / -	- / -	4	-	-
AI 8 014	- / -	- / -	-	-	-
CIO 2/4 014	- / -	- / 2	-	-	-
DI 32 014	- / 32	- / -	-	Yes	-
DI 24 014	- / 24	- / -	-	-	-
DIO 24/16	- / 24	- / 16	-	Yes	-
MI 24 014	24 / 24	- / -	-	-	-
F35 034	8 / 24	- / 8	4	-	-
F30 034	- / 20	- / 8	4	Yes	-
F3 DIO 20/8 024	- / 20	- / 8	2	Yes	-
F3 DIO 16/8 014	- / 16	- / 8	2	Yes	-
F3 DIO 8/8 014	- / 8	- / 8	2	Yes	-
F3 AIO 8/4 014	8 / -	4** / -	2	-	-
F2 DO 16 014	- / -	- / 16	2	-	-
F2 DO 8 014	- / -	- / 8	2	-	-
F1 DI 16 014	- / 16	- / -	2	Yes	-

Specifications are subject to change without notice.

\* configurable \*\* non safety-related

### Typical Applications

- Signaling
- Railway crossings
- Rolling stock
- Power supply
- Interlocking

### Operating Principles

- De-energize to trip
- Energize to trip

### Communication Options

- CPU and COM offer SIL 4 via SafeEthernet
- OPC DA (OPC A&E)
- Integrated Ethernet switch, 100 MB (with VLAN)

Additionally, each COM can simultaneously operate up to 6 protocols from the following list:

- Modbus TCP master/slave
- PROFINET and PROFI-safe
- Send & receive TCP
- CAN bus
- PROFIBUS DP master/slave
- Modbus RS485 master/slave
- ComUserTask (CUT), user-programmable port RS422, RS485, UDP, TCP
- SNTP

For further information, please contact:

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Find out more online:

 [www.hima.com/en/industries-solutions/rail](http://www.hima.com/en/industries-solutions/rail)