



HIMax[®]

Flexible Safety for Maximum Profitability

HIMax is a flexible platform for critical production processes that you can never afford to have go down. HIMax adapts to all I/O-count, response-time and fault-tolerance requirements as well as centralized and distributed applications. HIMax delivers availability for life by enabling uninterrupted system operation throughout your plant's life cycle. Hardware and software changes can be performed without system interruption. Alternative CPU modules make HIMax suitable for meeting high performance and critical control requirements as well as for use in small and mid-sized safety applications.

HIMax systems

- SIL 3, PL e
- SIL 4 CENELEC
- Nonstop operation
- Maximum performance
- Maximum configuration flexibility for life
- Different mechanical concepts
- Small, mid-sized and large applications

Certificates/standards

- IEC 61508:2010, Part 1-7
- IEC 61511:2004, Part 1-3
- ANSI/ISA-84.00.01-2004
- EN ISO 13849-1:2008 (PL e)
- EN 62061:2005
- EN 50156-1:2004
- EN 12067-2:2004
- EN 298:2012
- EN 61131-2:2007
- EN 61000-6-2:2005
- EN 61000-6-4:2007 + A1:2011
- EN 54-2:1997/A1:2006
- EN 50130-4:1998-2003
- NFPA 72:2010, 85:2011, 86:2011
- EN 60079-15:2010 ATEX (Zone 2, T4), IEC Ex (Zone 2, T4)
- EN 50271:2010
- EN 50495:2010
- ANSI/ISA-S 71.04 Class G3 (Tropicalization)
- UL (UL 508)
- cUL (CSA-C22.2 No. 142)
- FM CLASS 1 DIV2
- Achilles Level I Certification
- EN 50126:1999 (SIL 4)
- EN 50129:2003 (SIL 4)
- EN 50128:2011 (SIL 4)
- BUREAU VERITAS
- DNV (DET NORSKE VERITAS)
- Lloyd's Register Type Approval
- Russia EAC
- ABS Design Assessment

Additional certificates available on website

List of Modules

HIMax Modules	Type	Description
Central modules		
Processor module	X-CPU 01	For high performance and critical control requirements
Processor module	X-CPU 31	For small and mid-sized safety applications
System bus module	X-SB 01	–
Communication module	X-COM 01	4 x RJ-45, 2 x 9-pole D-Sub, up to 6 different protocols
Input/output modules		
Input modules		
Digital input module	X-DI 64 01	64 channels, 24 VDC, SIL 3
Digital input module	X-DI 64 51	64 channels, 24 VDC
Digital input module	X-DI 32 01	32 channels, 24 VDC, SIL 3
Digital input module	X-DI 32 02	32 channels, 8.2 VDC, proximity switch, line monitoring, SIL 3
Digital input module	X-DI 32 03	32 channels, 48 VDC, SIL 3
Digital input module	X-DI 32 04	32 channels, 24 VDC, SOE, SIL 3
Digital input module	X-DI 32 05	32 channels, 8.2 VDC, proximity switch, line monitoring, SOE, SIL 3
Digital input module	X-DI 32 51	16 channels, 120 VAC, SIL 3
Digital input module	X-DI 32 52	32 channels, 8.2 VDC, proximity switch, line monitoring
Digital input module	X-DI 16 01	16 channels, 120 VAC, SIL 3
Digital input module	X-AI 16 51	16 channels, 0/4 ... 20 mA, ± 280 mV, galvanically isolated, thermocouple TC, Pt100
Digital input module	X-AI 32 01	32 channels, 4 ... 20 mA, line monitoring, SIL 3
Digital input module	X-AI 32 02	32 channels, 4 ... 20 mA, line monitoring, SOE, SIL 3
Digital input module	X-AI 32 51	32 channels, 0/4 ... 20 mA, line monitoring
Counter module	X-CI 24 01	24 channels, 0 ... 20 kHz, SIL 3
Counter module	X-CI 24 51	24 channels, 0 ... 20 kHz
Output modules		
Digital output module	X-DO 32 01	32 channels, 24 VDC, 0.5 A, short-circuit monitoring LS, individual channel shut-off, SIL 3
Digital output module	X-DO 32 51	32 channels, 24 VDC, 0.5 A, protected outputs, group shut-off
Digital output module	X-DO 24 01	24 channels, 24 VDC, 0.5 A, line monitoring LS/LB, individual channel shut-off, SIL 3
Digital output module	X-DO 24 02	24 channels, 48 VDC, 0.5 A, line monitoring LS/LB, individual channel shut-off, SIL 3
Relay output module	X-DO 12 01	12 channels, 230 VAC/DC, current measurement, cycle counting, SIL 3
Digital output module	X-DO 12 02	12 channels, 24 VDC, 2 A, short-circuit monitoring LS, individual channel shut-off, SIL 3
Relay output module	X-DO 12 51	12 channels, 230 VAC/DC
Analog output module	X-AO 16 01	16 channels, 4 ... 20 mA, pairwise galvanically isolated
Analog output module	X-AO 16 51	16 channels, 4 ... 20 mA
Further modules		
HART communication module	X-HART 32 01	32 modems, SIL 3, X-AI 32 01, X-AI 32 02, X-AI 32 51, X-AO 16 01, X-AO 16 51
Overspeed trip module	X-MIO 7/6 01	3 counter, 4 digital input, 5 digital output, 1 relay channel, SIL 3
Dimensions		
Size of modules	All	310 x 29 x 230 mm

Specifications are subject to change.

Highlights

- XMR architecture and integrated redundancy management deliver “availability for life”
- Unique common-cause protection
- All changes, additions and maintenance procedures are possible without stopping a HIMax system
- CPU self-educates when processor module is replaced
- Proof tests can be conducted online
- Stores up to 2,500 diagnostic entries in the processor module and 500 entries per I/O module automatically
- Multitasking – run up to 32 user programs simultaneously
- Sequence of event (SOE), storage for 5,000 events, 1 ms resolution quality
- Redundant integrated and protected power distribution
- Two or three wiring inputs/outputs per channel to help eliminate additional wiring
- Remote rack functionality enables star topology
- HIMax – HIMatrix PES, redundant link via SafeEthernet
- Optimize process simulation and operator training with the HIMax Safety Simulator X-OTS

Typical applications

- Emergency Shutdown Systems (ESD)
- Fire & Gas Systems (F&G)/ (Gas Warning Systems)
- High Integrity Pressure Protection Systems (HIPPS)
- Pipeline Management & Control (PMC)
- Turbo Machinery Control (TMC)
- Burner Control Systems and Boiler Protection (BCS)
- Interlocking
- Level Crossings
- Rolling Stock

SILworX

- Function Block Diagrams
- Sequential Function Charts
- ST (Structured Text)
- C-Code (Optional)

Operating principles

- De-energize to trip
- Energize to trip

Communication options

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

- SafeEthernet
- OPC DA (OPC A&E)
- Modbus TCP Master & Slave
- PROFINET and PROFIsafe
- Modbus RS485 Master & Slave
- PROFIBUS DP Master & Slave
- Send & Receive TCP
- ComUserTask (CUT), user-programmable port RS422, RS485, UDP, TCP, SNMP
- HART over IP (V7)