

Technical data

Basic data

Series	MSI 420
Type	Safety control
Application	Monitoring of safety functions
Number of safe I/Os	16 IN, 4 OUT, 4 programmable I/O

Functions

Functions	24 safe I/Os
	4 configurable safe I/Os (via software)
	40 certified function modules
	Configuration via mini USB or Ethernet (TCP/IP)
	Expandable with up to 12 I/O modules
	Freely configurable with MSI.designer (license-free)
	Modularly expandable safety control
	Program memory in SD card format (512 MB)
	Switching current 4 A per output
	Transfer of diagnostic data via external fieldbus gateways
	Up to 300 function modules in a project

Characteristic parameters

SIL	3, IEC 61508
SILCL	3, IEC/EN 62061
Performance Level (PL)	Up to and including e, EN ISO 13849-1
PFH _D	4,3E-09 per hour
Mission time T _M	20 years, EN ISO 13849-1
Category	4, EN ISO 13849

Electrical data

Performance data	
Supply voltage U _B	24 V, DC, -30 ... 25 %
Power consumption, max.	3.3 W
Output circuit	
Number of outputs	4 Piece(s)
Number of configurable inputs/ outputs	4 Piece(s)
Type of digital output	Transistor
Short circuit protection, outputs	Yes
Nominal output current per output, max.	≤ 12 A / 8 ms
Control circuit	
Number of inputs	16 Piece(s)
Voltage permitted at the input	HIGH: 13 ... 30 V LOW: -5 ... +5 V
Input current at signal 1	HIGH: typ. 2.3 mA / max. 6 mA LOW: < 2

Service interface

Type	Ethernet, USB
Ethernet	
Function	Configuration via software
Ethernet protocol	TCP/IP
USB	
Function	Configuration via software

Connection

Number of connections	3 Piece(s)
Connection 1	
Function	Signal IN Signal OUT Voltage supply
Type of connection	Terminal
Type of terminal	Screw terminal
No. of pins	32 -pin
Connection 2	
Function	Configuration interface
Type of connection	USB
Connector type	USB 2.0 Mini-A
Connection 3	
Function	Configuration interface
Type of connection	RJ45
Cable properties	
Connection cross sections	1 x 0.2 to 2.5 mm ² , wire 1 x 0.2 to 2.5 mm ² , wire 1 x 0.25 to 2.5 mm ² , wire with wire-end sleeve 2 x 0.2 to 1.0 mm ² , wire 2 x 0.2 to 1.0 mm ² , wire 2 x 0.25 to 1.0 mm ² , wire with wire-end sleeve

Mechanical data

Dimension (W x H x L)	45 mm x 96.5 mm x 121 mm
Net weight	290 g
Housing color	Gray
Type of fastening	Snap-on mounting

Environmental data

Ambient temperature, operation	-25 ... 65 °C
Ambient temperature, storage	-25 ... 70 °C
Relative humidity (non-condensing)	10 ... 95 %

Certifications

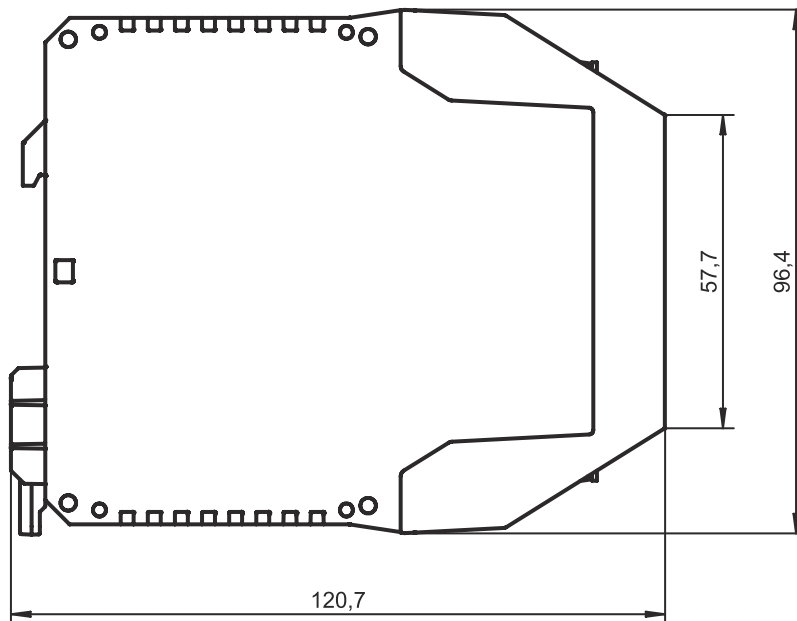
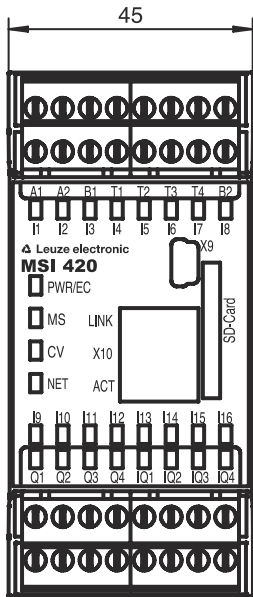
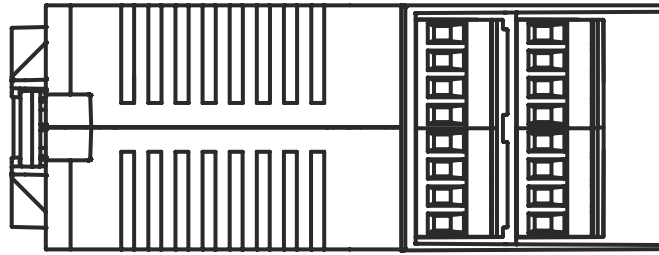
Degree of protection	IP 20
Protection class	III
Approvals	c UL US TÜV Rheinland
Vibration resistance	5 ... 150 Hz
Test procedure for oscillation in accordance with standard	EN 60068-2-6
Shock resistance, single shock	30 g, 11 ms, EN 60068-2-27
Shock resistance, continuous shock	10 g, 16 ms, EN 60068-2-29

Technical data

Customs tariff number	85371091
ECLASS 5.1.4	27243001
ECLASS 8.0	27243101
ECLASS 9.0	27243101
ECLASS 10.0	27243101
ECLASS 11.0	27243101
ECLASS 12.0	27243101
ECLASS 13.0	27243101
ECLASS 14.0	27243101
ECLASS 15.0	27243101
ECLASS 16.0	27243101
ETIM 5.0	EC002538
ETIM 6.0	EC002538
ETIM 7.0	EC002538
ETIM 8.0	EC002538
ETIM 9.0	EC002538
ETIM 10.0	EC002538
UNSPSC 26.08	32151705

Dimensioned drawings

All dimensions in millimeters



Electrical connection

Connection 1

Function	Signal IN Signal OUT Voltage supply
Type of connection	Terminal
Type of terminal	Screw terminal
No. of pins	32 -pin

Terminal

Assignment

A1	+24 V
A2	GND
B1	+24 V (outputs Q1 - Q4)
B2	+24 V (outputs IQ1 - IQ4)
I1	Safe input
I2	Safe input
I3	Safe input
I4	Safe input

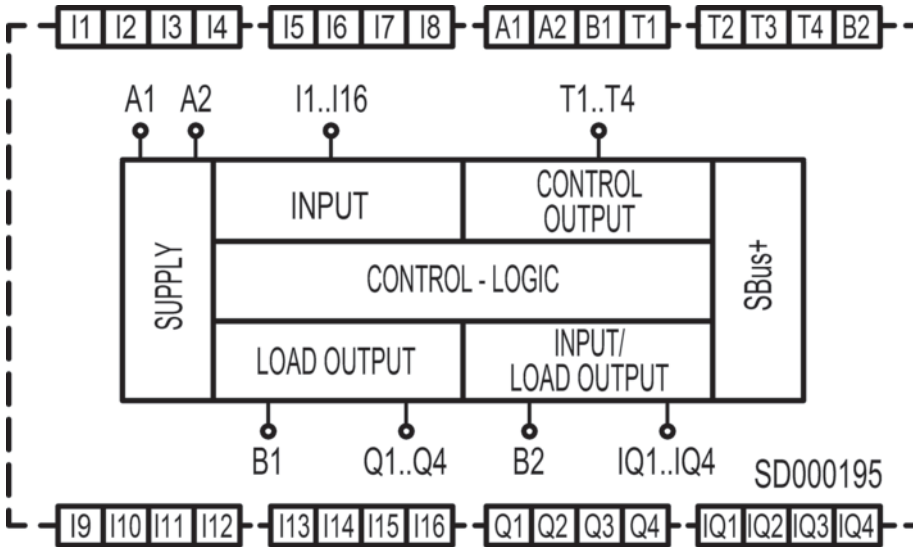
Electrical connection

Terminal	Assignment
I5	Safe input
I6	Safe input
I7	Safe input
I8	Safe input
I9	Safe input
I10	Safe input
I11	Safe input
I12	Safe input
I13	Safe input
I14	Safe input
I15	Safe input
I16	Safe input
IQ1	Safe input/output (configurable)
IQ2	Safe input/output (configurable)
IQ3	Safe input/output (configurable)
IQ4	Safe input/output (configurable)
Q1	Safe output
Q2	Safe output
Q3	Safe output
Q4	Safe output
T1	Test signal output
T2	Test signal output
T3	Test signal output
T4	Test signal output

Connection 2	X9
Function	Configuration interface
Type of connection	USB
Connector type	USB 2.0 Mini-A

Connection 3	X10
Function	Configuration interface
Type of connection	RJ45

Circuit diagrams



Notes

Observe intended use!

The product may only be put into operation by competent persons.

Only use the product in accordance with its intended use.



Accessories

Start-up/diagnosis

	Part no.	Designation	Article	Description
	50117011	KB USB A - USB miniB	Service line	Application: Oil and lubricant resistant Suitable for interface: USB Connection 1: USB Connection 2: USB Shielded: Yes Cable length: 1,500 mm Sheathing material: PVC

Accessories

General

	Part no.	Designation	Article	Description
	50132996 *	MSI-SD-CARD	Program memory	Suitable for: MSI 400 safety controllers
	50133002	MSI-SD-COVER	Cover	Contains: 10x MSI-SD-COVER Suitable for: MSI 400 safety controllers

* Necessary accessories, please order separately

Services

	Part no.	Designation	Article	Description
	S981043	CS40-E-312	Hourly rate	Details: Location and content to be agreed upon. Conditions: Price not including travel costs and, if applicable, accommodation expenses.
	S981029	CS40-T-110	Product training	Details: Location and content to be agreed upon, duration: max. 10 hours. Conditions: Price not including travel costs and, if applicable, accommodation expenses.

Note



A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.