

## Safety drive controller

## Speed monitoring for 1 axis

## Safety-MS1



**Compact safety control with integrated drive monitoring for one axis. This device is freely programmable for the safe processing of drive-related safety functions as well as of EMERGENCY STOP switches, two-hand operator controls, light barriers, operating mode selectors, etc.**

**The basic version allows achieving 1 safe encoder connection. 14 safe inputs and 3 shut-off channels are available.**

1-encoder solutions (Incr-TTL/HTL, SinCos, Proxi-SW.) and to a limited extent also 2-encoder solutions (e.g. Incr-TTL or SSI and Incr-HTL) are supported for the safe speed and/or position detection.

- Extensive bibliotheca of pre-configured safe sensors and command device
- Complete range of speed- and position-related safe drive monitoring functions as per EN 61800 already integrated
- Encoder interface with many parameters and configuration options for 1x Incr-TTL / SinCos / SSI on front side and 1x HTL or Proxi-SW by terminals
- Graphical programming interface by SafePLC-SW

- Basic unit comes with 14 safe input lines, 3 cut off channels, hereof 1 safe relay output and 2 standard outputs
- Cross-short-cut monitoring functionality
- Output contact multiplication or increase of power capability by external contactors in connection with the device-internal monitoring function for external contacts
- Extensive diagnostic functionality integrated in FW
- Status monitoring by coded 7-segment-display and status LED's
- Quit- / Start- / Reset button on the front display
- Extendable up to max. 65 safe I/O lines by means of an integrated backplane bus (connector for top hat rail mount)
- Interface modules for all major fieldbus systems available (Profibus, ProfiNet, CANopen, EtherCAT)

### Order-No.

**Safety-MS1** Speed monitoring for 1 axis **8.MS1.000**

The programming software SafePLC and the programming cable are required for programming. The T-BUS connector is required for connecting a BUS module or an extension module.

**Accessories** T-bus connector  
Programming cable  
Programming software Safe PLC  
Parameterising software - Free

**05.TBMS.000**  
**8.0010.9000.0020**  
**05.SPLC.001**  
**05.SPMT.000**

### General data

<b>Max. number of extension modules</b>	2
<b>Interface for extension modules</b>	T-bus connector for top hat rail mount
<b>Safe digital input lines</b>	14 incl. 8 OSSD
<b>Safe digital output lines</b>	2
<b>Safe relay outputs</b>	1
<b>Standard output lines</b>	2
<b>Pulse output lines</b>	2
<b>Type of connection</b>	pluggable terminals
<b>Drive monitoring - number of axis</b>	1 axis
<b>Encoder interface front side</b>	1 x SSI; SinCos; Incr-TTL
Max. frequency SinCos; Incr-TTL	200 kHz
Clock frequency / mode SSI	Master Mode 150 kHz / Slave Mode max. 250 kHz
Type of connection	D-SUB 9 pol
<b>Encoder interface terminals</b>	1 x Proxi-Sw.; Incr-HTL
Max. frequency HTL	10 kHz
Type of connection	pluggable terminals

### Electrical characteristics

<b>Supply voltage</b>	24 V DC / 2 A
<b>Tolerance</b>	-15%, +20%
<b>Power consumption</b>	2,4 W
<b>Rated data digital inputs</b>	24 V DC / 20 mA, Typ 1 to EN 61131-2
<b>Rated data digital outputs</b>	24 V DC / 250 mA
<b>Rated data relay outputs</b>	24 V DC / 2 A and 230 V AC / 2 A
<b>Pulse output lines</b>	max. 250 mA
<b>Max. fuse on supply voltage</b>	max. 2 A

### Environmental data

<b>Operating temperature</b>	0°C ... +50°C
<b>Storage temperature</b>	-10°C ... +70°C
<b>Type of protection</b>	IP52
<b>Climate class</b>	3 acc. to DIN 50178
<b>EMI</b>	acc. to EN 55011 and EN 61000-6-2

### Safety characteristics

<b>PL acc. to EN 13849</b>	PLe
<b>PFH / Architecture</b>	2,2 x 10 <sup>-9</sup> / Architecture Class 4
<b>SIL acc. to EN 61508</b>	SIL 3
<b>Proof-test-interval</b>	20 years = max. period of application

### Mechanical characteristics

<b>Size h x d x w [mm]</b>	100 x 115 x 45
<b>Weight</b>	310 g
<b>Mounting</b>	snap-on mounting on standard head rail
<b>Max. terminal cross section</b>	1,5 mm <sup>2</sup>

