Techical specification	FMSC Master FMSC Slave 1 and 2
scope of application	Programmable controller for safe and non safe applications
Safety design of hardware	SIL 3 (IEC61508), Pl e EN ISO 13849-1

Electrical specification	FMSC Master FMSC Slave 1 and 2
Power supply	24V DC
Tolerance range	18 ... 30,0 V DC max. 10% ripple
Current consumption	typ. 20 mA
Fuse for power supply	T 20 A extern
Terminal connection power supply input level output level	screw- or spring type max. 2,5 mm^2 max. 1,5 mm^2 max. 2,5 mm^2
Interface	Mirco USB for programming, hardware diagnosis and Debug-Mode

Inputs	FMSC Master FMSC Slave 1 and 2
Number of inputs	6 (24V) and 6 (24V oder 5V)
Galvanic isolation	no
Signal level at log "0"	0 ... 8V DC at 24V 0 ... 1,5V DC at 5V
Signal level at log "1"	15 ... 28V DC at 24V 3,5 ... 6V DC at 5V
Input current	4 mA (at 24V)
min impulse duration	0,5 ms / 10 ns flank detection
Status displayed via	LED

Outputs - safe	FMSC Master FMSC Slave 1
Number of outputs - safe	4
Galvanic isolation	no
Output current at log "1"	max. 4 A
Short circuit protection	electronically
Status displayed via	LED

Outputs - Standard	FMSC Master FMSC Slave 1 and 2
Number of outputs - standard	5 (Slave 2 has 1 output)
Galvanic isolation	no
Output current at log "1"	max. 0,5 A
Short circuit protection	electronically
Status displayed via	LED

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FMSC System-family

Technical data

Mechanical specification	FMSC Master FMSC Slave 1 and 2
Design size (hxbxt) without connectors	114,5 x 22,5 x 99 mm
Installation on top hat rail	according to DIN 50 022
Protection class housing	IP 20
Protection class terminals	IP 20
Weight	130 gr / 170 gr with connectors

Environmental conditions	FMSC Master FMSC Slave 1 and 2
Operating temperature range	0 ... + 55° C
Storage temperature range	-25° C ... +70° C
Relative humidity	10% ... 95% RH
Creep distance	DIN EN 50 178
Oscillation	DIN EN 60 068-2-6
EMC	DIN EN 61 000-6-2
Condensation	not allowed

Technical data	FMSC Master FMSC Slave 1 and 2
Number of counter inputs	2
Typ of sensors	Linear encoder Rotary encoder
Signal voltage	5V or 24V
Resolution linear encoder	1 - 1000 μm
Resolution rotary encoder	1 - 36000 Pulses
The smallest possible speed with linear encoder	>= 1 mm/s
The smallest possible speed with rotary encoder	>= 1 U/min
Number of pulse counter	2

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FMSC System-family

Technical data

electrical data	FMSC Slave Modbus ASCII
power supply	24V DC
	18 ... 30,0 V DC
current draw	typ. 20 mA
Fuse	T 1 A external
connection type	screw plug connector / Sub-D connector
voltage supply	max. 2,5 mm^2
output	max. 2,5 mm^2

mechanical data	FMSC Slave Modbus ASCII
size (HxDxW) without connector	114,5 x 22,5 x 99 mm
mounting on top-hat trail	according to DIN 50 022
protection method housing	IP 20
protection method connector	IP 20
weight	100 gr / 120 gr with connector

enviromental conditions	FMSC Slave Modbus ASCII
operating temperatur	0 ... + 55° C
storage temperatur	-25° C ... +70° C
relativ humidity	10% ... 95% RH
leakage current	DIN EN 50 178
Vibrations	DIN EN 60 068-2-6
EMC	DIN EN 61 000-6-2
condensation	prohibited

technical data	FMSC Slave Modbus ASCII
interfaces	RS485 : screw plug connector BLxT Prog : screw plug connector RS232 : SUB-D 9-pin

Outputs - standard	FMSC Slave Modbus ASCII
quantity	1
galvanical isolation	no
output current at log "1"	max. 0,5 A
short circuit protection	electronical

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FMSC system family

technical data

electrical data	FMSC Slave EtherCat
power supply	24V DC
	18 ... 30,0 V DC
current draw	typ. 20 mA
Fuse	T 1.5 A external
connection type	screw plug connector / RJ45 socket
voltage supply	max. 2,5 mm^2
output	max. 2,5 mm^2

mechanical data	FMSC Slave EtherCat
size (HxDxW) without connector	114,5 x 22,5 x 99 mm
mounting on top-hat trail	according to DIN 50 022
protection method housing	IP 20
protection method connector	IP 20
weight	100 gr / 106 gr with connector

enviromental conditions	FMSC Slave EtherCat
operating temperatur	0 ... + 55° C
storage temperatur	-25° C ... +70° C
relativ humidity	10% ... 95% RH
leakage current	DIN EN 50 178
Vibrations	DIN EN 60 068-2-6
EMC	DIN EN 61 000-6-2
condensation	prohibited

technical data	FMSC Slave EtherCat
interfaces	BLxT Prog : screw plug connector EtherCat : RJ45 sockets (IN/OUT)

Outputs - standard	FMSC Slave EtherCat
quantity	1
galvanical isolation	no
output current at log "1"	max. 0,5 A
short circuit protection	electronical

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FMSC system family

technical data

Overview about FMSC function elements

- Emergency stop
- Safety gate monitoring
- Operating mode selector switch
- Operating console evaluation
- Valve monitoring dynamically or static
- Safety light curtain evaluation
- Two hand control monitoring
- Fiessler AKAS evaluation
- Fiessler BLVT programming
- Safety foot pedals
- Fiessler AKAS muting system
- Overrun distance measurement via counter
- Direction and stop monitoring
- Brake ramp monitoring
- PSDI mode (1 up to 4 breaks)
- various muting applications

- AND - NAND
- OR - NOR
- XOR Inverter
- R- S- Flip- Flop
- Ton and Toff delay
- Monoflop rising or falling edge
- Timer Counter upward
- Decimal / binaryr or Binary / Decimal converter
- BLVT programming

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FMSC System-family

Technical data

Hardware overview	FMSC Master FMSC ECO	FMSC Master FMSC BASIC	FMSC Master FMSC ADVANCED	FMSC Master FMSC PROFI
I/O configuration	12 inputs 4 safe outputs 5 standard outputs	12 inputs 4 safe outputs 5 standard outputs	12 inputs 4 safe outputs 5 standard outputs	12 inputs 4 safe outputs 5 standard outputs
Expandable with...	- - - - -	... up to 4 slaves	... up to 8 slaves	... up to 16 slaves
Switch-off delay safe outputs in error mode	- - - - -	configurable	configurable	configurable
Fast shut down function 0,5 ms reaction time	- - - - -	- - - - -	configurable	configurable
Safe monitored number of axis	- - - - -	- - - - -	1 Axis / Master	1 Axis / Master up to 17 Axis complete system

Software overview	FMSC Master FMSC ECO	FMSC Master FMSC BASIC	FMSC Master FMSC ADVANCED	FMSC Master FMSC PROFI
PSDI - mode	- - - - -	- - - - -	implemented	implemented
Muting - application	- - - - -	- - - - -	implemented	implemented
BLVT - application	- - - - -	- - - - -	with communication Slave	with communication Slave

Connection overview		FMSC Slave 1 and 2 FMSC BASIC	FMSC Slave 1 and 2 FMSC ADVANCED	FMSC Slave 1 and 2 FMSC PROFI
Connection to Master type of slaves		FMSC Basic Master FMSC Advanced Master FMSC Profi Master	FMSC Advanced Master FMSC Profi Master	FMSC Profi Master

FMSC System-family

Type overview

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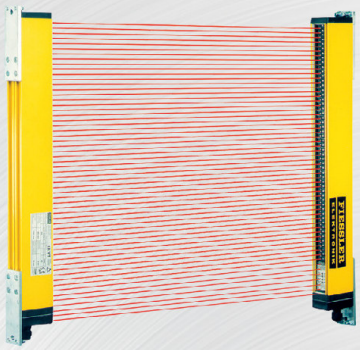
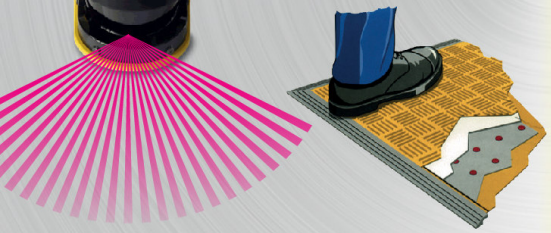
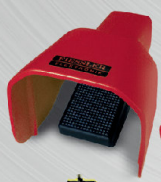
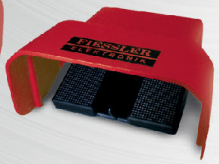
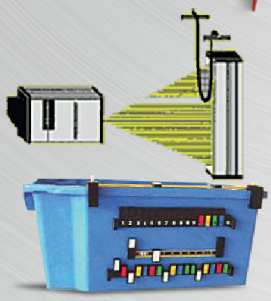
The delivery programme











Innovative solutions

Safety light curtains
Type 4, SIL 3, PL e
high range up to 60 m
Very short response time as of 2 ms
Blanking and cascading
Type 2, SIL 1, PL c
Protective field height up to 2500 m
Finger and hand guard, entrance protection
Safety controller integrated

AKAS® press brake safety system
fully automatic adjustment after tool change
laser-optics safety light grid
innovative finger guard through continuous bending without stop

FMSC safety PLC
Emergency shutdown (fast shut down) max. 0.5 ms
Expandable with up to 16 expansion modules
Easiest programming
Cat 4, SIL 3, PL e

Safety contact mats
Type 3, SIL 2, PL d
Series connection of up to ten mats
Load capacity up to 2000N
single component casting also in several colors
individual sizes and shapes
Polyurethane, aluminum or Stainless steel surface
with integrally cast ramp rail available

Safety laser scanner
Cat 3, SIL 2, PL d
Protective field 4 m, range 7 m
Metering section 50 m range
Easy assembly
Warning field 15 m
Several programmable sections

Safety foot pedals
Single-pedal or double-pedal

Controlling, detecting and measuring
Measuring light curtains
Loop sensors
Directional counting light barriers
Hole detectors
Encoding strips

FIESSLER ELEKTRONIK

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