

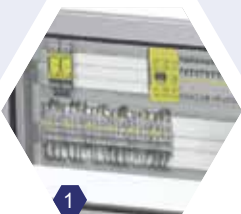
Machine Guarding Safety Products

GK-C 2019: Product line overview



SCHMERSAL
THE DNA OF SAFETY

Application Finder



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Safety Controllers

Programmable Safety Controllers

- General Purpose Safety Controllers
- Muting Module, Double Reset
- Monitor 2 Safety Functions
- Output Expander
- Input Expander
- Safe Standstill Monitoring
- Serial Diagnostic Gateway

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Guard Door Monitoring

Electronic Safety Sensors
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Connectivity

Schmersal offers several simple and low cost plug & play field installation systems for series wiring of safety devices, achieving up to Cat. 4 / PLE / SIL 3. These systems allow for individual evaluation of diagnostic signals from each connected safety device, with locking devices being actuated individually. Most installation systems are capable of communicating with common field buses, via the PSC1 Programmable Controller or a Universal Gateway module.

Series wiring...

with CSS-Y adaptors

Adaptor with M12 connection used to series connect up to 31 electronic safety devices with Serial Diagnostics (SD).

CSS-Y-8P



CSS-Y-A-8P

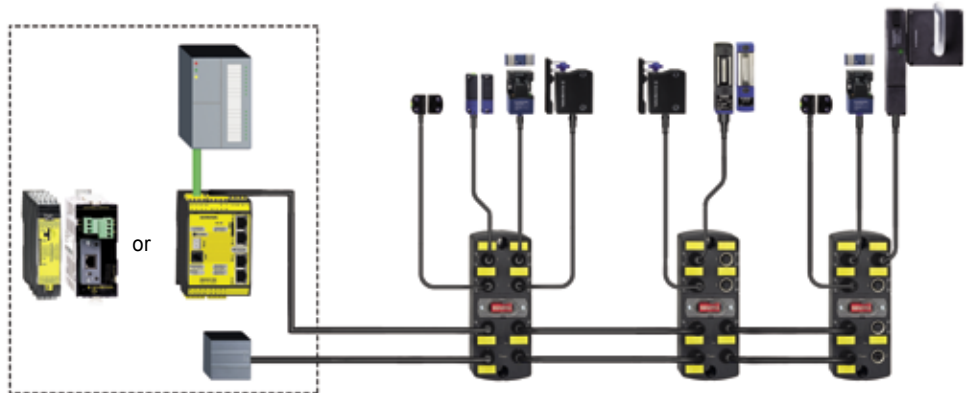


with PFB

The PFB is an IP67 rated passive field box which can connect up to 4 electronic safety devices or Serial Diagnostic (SD) devices in series. It features integrated LEDs to show status of each device, and is easy to configure via DIP switches.

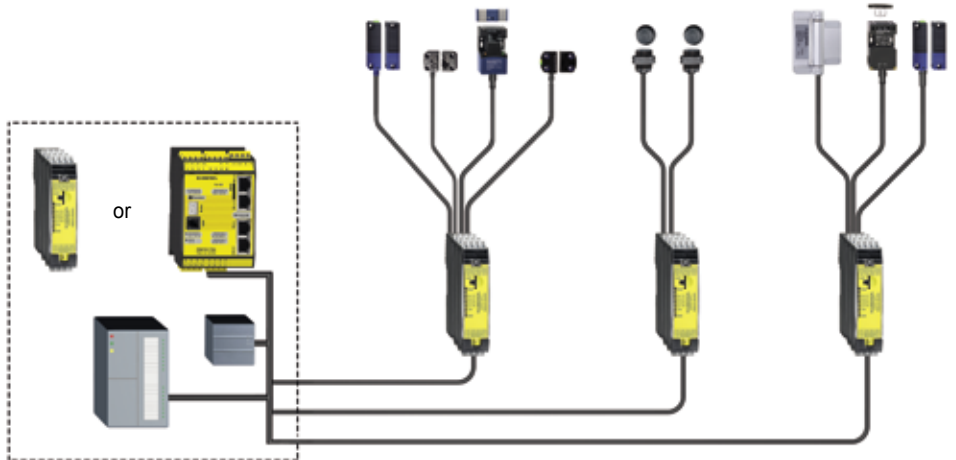


PFB



with SRB-E-204PE input expansion modules

The active input expander modules SRB-E-204PE are used for safe series connection of electromechanical with dry contacts or electronic devices having OSSD semiconductor outputs. Up to 4 devices can be connected per module. The module can be configured for up to nine different application settings via a rotary knob switch on the face of the unit.



with AS-Interface Safety at Work

AS-Interface Safety at Work is a safety bus system based upon the open standard of AS-International. It is a simple yet flexible solution to quickly, efficiently, and cost-effectively integrate a vast safety system. Safety and non-safety components are connected to a central two wire cable which carries power and signals to a monitor. The system can be connected to popular field buses.



Programmable Safety Controller



Series	PSC1-C-10	PSC1-C-100	SafePSC2
Inputs	14 safe inputs (up to PLe / SIL3)	14 safe inputs (up to PLe / SIL3) 20 selectable safe in-/outputs	Programming Software <ul style="list-style-type: none"> Modern, object-oriented environment Preconfigured elements Application code reuse by macros Search functions Tracking by color representation and status messages Easy to detect safety functions through practice oriented libraries for logic, Safe Drive Monitoring, SD-bus and encoder elements Configurable user permissions
Outputs	4 selectable safe semiconductor: 2 A p-switching or p-/n-switching 2 safe relay for 24 VDC or 230 VAC, 2 A 2 signaling, 250 mA 2 pulse (clock outputs) for monitoring of dry contacts	4 selectable safe semiconductor: 2 A p-switching or p-/n-switching 2 safe relay for 24 VDC or 230 VAC, 2 A 2 signaling, 250 mA 2 pulse (clock outputs) for monitoring of dry contacts	
Options	Modular expandable with up to 2 I/O modules (central) Universal communication interface Memory card (SDHC) Safe drive monitoring, for 1 or 2 axes Integrated serial diagnostic (SD) gateway	Modular expandable with up to 8 I/O modules (central / decentral) Universal communication interface Memory card (SDHC) Modular expandable up to 6 safe drive monitoring modules (max. 12 axes)	

The PSC1 is a modular and freely programmable compact safety controller for safe signal processing of safety switchgear. The system has several distinct features:

Universal communication interface



Universal field-bus connections available



Serial Diagnostic gateway

Up to 31 Schmersal electronic devices with Serial Diagnostics can be connected and evaluated, with their extended diagnostic data sent via the PSC1 universal communication interface to a field-bus system.

Memory card

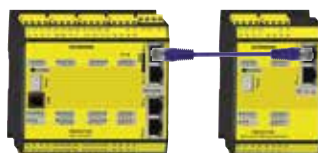
Written programs can be downloaded to the PSC1 module either by computer interface or by memory card option on available modules. The memory card option allows for quick programming of multiple identical systems.

Safe Master to Master communication



Safe cross-communication is used to combine safety controllers, to safely exchange data via local Ethernet SMMC communication. In a complete system, safe signals from emergency stop or signals from interlocks can be communicated using the safe cross-communication.

Safe remote IO communication



For the decentral application structure the PSC1-E-37-14DI-4DO-2RO-RIO remote I/O expansion module is available. The local communication is realized via the Ethernet SDDC protocol.

Safe drive monitoring



Many safety features are supported:

Safe shut-down:

- Safe Torque OFF (STO)
- Safe Break Control (SBC)

Safe stopping:

- Safe Operating Stop (SOS)
- Safe Stop 1 (SS1)
- Safe Stop 2 (SS2)

Safe monitoring:

- Safe Speed Monitor (SSM)
- Safe Cam (SCA)

Safe movement:

- Safely-Limited Speed (SLS)
- Safe Speed Range (SSR)
- Safe Direction (SDI)
- Safely-Limited Acceleration (SLA)
- Safe Acceleration Range (SAR)

Safe positioning:

- Safely-Limited Position (SLP)
- Safely-Limited Increment (SLI)
- Safely Emergency Limit (SEL)

General Purpose Safety Controllers



Model	Operating Voltage (UB)	Types of Inputs Monitored	No. of Devices Monitored	No. of Safety Outputs	No. of Aux. Outputs	Feedback Monitoring	Type of Reset	Cross-short Monitoring
SRB-E-201LC	24V DC	Dry & PNP	1	2 PNP	1	Yes	Monitored-manual, Automatic, or Manual	Selectable
SRB-E-201ST	24V DC	Dry & PNP Two-hand control	1	2 PNP	1	Yes	Monitored-manual, Automatic, or Manual	Selectable
SRB-E-204ST	24V DC	Dry & PNP	4	2 PNP	4	Yes	Monitored-manual, Automatic, or Manual	Selectable
SRB-E-301ST	24V AC/DC	Dry & PNP	1	3 relay	1	Yes	Monitored-manual, Automatic, or Manual	Selectable
SRB-E-301MC	24V AC/DC	Dry & PNP	1	3 relay	1	Yes	Monitored-manual, Automatic, or Manual	Selectable
SRB-E-212ST	24V DC	Dry & PNP	1	2 stop 0 1 stop 1	2	Yes	Monitored-manual, Automatic, or Manual	Selectable
SRB-E-232ST	24V DC	Dry & PNP	1	2 stop 0 3 stop 1	2	Yes	Monitored-manual, Automatic, or Manual	Selectable
SRB-E-322ST	24V DC	Dry & PNP	1	3 stop 0 2 stop 1	2	Yes	Monitored-manual, Automatic, or Manual	Selectable
SRB 301 HC/R	24V AC/DC or 48-230V AC	Two-hand control Safety Mats	2	3	1 NC	Yes	Monitored-manual	Yes
SRB 301 HC/T	24V AC/DC or 48-230V AC	Safety Mats	1	3	1 NC	Yes	Monitored-manual or Automatic	Yes

Muting module

SRB 202 MSL	24V DC	Muting module	2	2	2	Yes	Automatic	Yes
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Double Reset

SRB 100 DR	24V AC/DC	Dry contacts	2	1	None	N/A	Monitored-manual DOUBLE RESET	N/A
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Monitor 2 Safety Functions

SRB-E-402ST	24V DC	Dry & PNP Two-hand control	2	4 relay	2	Yes	Monitored-manual, Automatic, or Manual	Selectable
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Safety Output Expansion Module

SRB 402 EM	24V AC/DC	N/A	N/A	4	2 NC	Yes	Monitored-manual, Automatic, or Manual	N/A
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Input Expansion Module

SRB-E-204PE	24V DC	Dry & PNP	4	2 **	4	No	N/A	Selectable
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** SRB-E-204PE outputs must be monitored by safety controller

Safe Standstill Monitoring

Model	Type	Operating Voltage	Input types	Enabling circuits	Auxiliary outputs
SRB-E-302FWS-TS	Standstill, timer	24V DC	1 or 2 impulse sensors	2 Relay 1 PNP	2 PNP
SRB-E-402FWS-TS	Standstill, timer, guard monitoring*	24V DC	1 or 2 impulse sensors	2 Relay 2 PNP	1 NC 1 PNP
DN3PS2	Sensorless Standstill	24V DC	Back EMF	2	None

* offers additional guard door monitoring circuit

Serial Diagnostic Gateway

Model	Field Bus Protocol
SD-I-DP-V0-2	PROFIBUS DP
SD-I-U-CCL	CC-Link
SD-I-U-EIP	EtherNet IP
SD-I-U-MT	Mobius/TCP
SD-I-U-DN	DeviceNet
SD-I-U-PN	ProfiNetIO
SD-I-U-EC	EtherCAT

Electronic Safety Sensors



Series	CSS180	CSS30S	CSS34	RSS260	RSS36	RSS16
Technology	Pulse Echo	Pulse Echo	Pulse Echo	RFID	RFID	RFID
Housing	Thermoplastic	Stainless Steel	Thermoplastic	Thermoplastic	Thermoplastic	Thermoplastic
IP Rating	IP65, IP67	IP65, IP67, IP68, IP69K	IP65, IP67	IP65, IP67	IP65, IP67, IP69K	IP65, IP66, IP67
Dimensions	0.7" dia 3.6"	1.18" dia 3.5"	1" 4" 1"	1.5" 1.25" 0.7"	1" 4.2" 1"	2" 3.5" 1.25"
Connections	Quick Connect Prewired cable	Quick Connect	Quick Connect Prewired cable	Quick Connect	Quick Connect	Screw terminals Cage clamps Quick Connect
Contact Options	1P2P	1P2P SD2P	1P2P SD2P	1P2P SD2P	1P2P SD2P	1P2P SD2P
Features	Flush mounting Integrated LED	Concealed mounting Integrated LED	Actuation from end or side EDM Version Integrated LED	Individual coding Integrated LED	Individual coding Magnetic latching version (18N) with door stop Integrated LED	Individual coding Magnetic latching version (40/60N) with door stop Integrated LED
Actuators (order separately)	CST180-1 CST180-2	CST30S-1	CST34-V-1 (Head) CST34-S-1 (side) CST34-S-3 (compact)	RST260-1 RST16-1 (flat) RST-U-2 (compact)	RST36-1 RST36-1-R (magnetic) RST16-1 (flat) RST-U-2 (compact)	RST16-1-R (magnetic) RST16-1 (flat) RST-U-2 (compact)
Available as		SD	SD	SD	SD	SD






Electronic Locking Devices



Series	MZM100	NEW AZM201	AZM300	AZM400
Technology	Pulse Echo	RFID	RFID	RFID
Locking	Electromagnet	Solenoid	Solenoid	Motorized Bolt
Housing	Thermoplastic	Thermoplastic	Thermoplastic	Die cast aluminum
IP Rating	IP65, IP67	IP66, IP67	IP66, IP67, IP69K	IP66, IP67
Dimensions	1.75" 7.25" 1.75"	1.57" 8.66" 1.96"	3.4" 4" 1.33"	6.2" 3" 1.85"
Connections	Quick Connect	Screw terminals Cage clamps Quick Connect	Quick Connect	Quick Connect
Contact Options	1P2P SD2P	1P2P SD2P	1P2P SD2P	1P2P 2P2P (ST2)
Features	Door stop Magnetic latching	Individual coding Lockout device Emergency Exit	Individual Coding Door Stop Adjustable latching Emergency Exit Lockout device	Individual Coding Emergency Exit Electric by-pass
Actuators (order separately)	MZM100-B1.1	B1 Slide bolt B30 Door handle	AZ/AZM300-B1	AZM400-B1
Available as	SD	SD	SD	






Keyed Interlocks



Series	AZ15	AZ16	AZ17	TZG	AZ3350	AZ415	AZ201
Housing	Thermoplastic	Thermoplastic	Thermoplastic	Thermoplastic	Die-Cast Aluminum	Die-Cast Aluminum	Thermoplastic
IP Rating	IP67	IP67	IP67	IP67	IP67	IP67	IP66, IP67
Dimensions	2" 3" 1.25"	2" 3.5" 1.25"	1.25" 2.5" 1.25"	2" 3.75" 1.75"	1.75" 4.5" 1.5"	3.5" 4" 1.75"	1.57" 8.66" 1.96"
Connections	Screw terminals Quick Connect	Screw terminals Quick Connect	IDC connection Quick Connect	Screw terminals	Screw terminals	Screw terminals	Screw terminals Cage clamps Quick Connect
Contact Options	1 NC	1 NO & 1 NC 2 NC 1 NO & 2 NC 3 NC	1 NO & 1 NC 2 NC	1 NO & 1 NC 2 NC	1 NO & 2 NC 3 NC	2 NC / 1NO,1NC 2 NC / 2 NC 2 NC / 2 NO 1NO,1NC/1NO,1NC	1P2P SD2P
Features	4 key entries	Individual coding 4 key entries	Individual coding 2 key entries	Rotatable head	Rotatable head	Adjustable Ball latch (up to 400N)	RFID Sensor Individual coding Lockout device
Actuators (order separately)	AZ15/16-B1 -B2 (flexible) -B3 (flexible) -B6 (flexible)	STS Door handle magnetic latch ball latch +other accessories	AZ17/170-B1 AZ17/170-B5 AZ17-B6 (flexible) B25 Door handle	TZ/CO TZ/CW Curved options Flexible options	AZ3350-B1 Curved options Flexible options STS Door handle	AZ/AZM415-B1 -B2 (flexible) -B3 (flexible) STS Door handle	B1 Slide bolt B30 Door handle
Available as		 					 SD

Solenoid Interlocks



Series	AZM161	AZM170	TZF/TZM	AZM190	AZM415
Housing	Thermoplastic	Thermoplastic	Thermoplastic	Thermoplastic	Die-Cast Aluminum
IP Rating	IP67	IP67	IP67	IP67	IP67
Dimensions	3.5" 5.125" 1.25"	2.5" 5" 1.25"	4" 5" 1.5"	2" 7" 1.75"	5" 5.5" 2"
Connections	Screw terminals Cage clamps Quick Connect	IDC Connection Screw terminals Quick Connect	Screw terminals	Screw terminals	Screw terminals Quick Connect
Contact Options	1NO & 1NC / 3 NC 1NO & 1NC / 1NO & 2NC 1NO & 2NC / 3 NC 1NO & 2NC / 1NO & 1NC 1NO & 2NC / 1NO & 2NC	1NO & 1NC 2NC 1NO & 1NC / 1NO & 1NC 1NO & 1NC / 2NC 2NC / 1NC 2NC / 1NO 1NO & 2NC / 0NO & 0NC 1NO & 2NC / 1NO & 1NC 1NO & 2NC / 2NC	2 NC / 1 NO 2 NC / 2 NO	1NO & 1NC / 1NC 1NO & 1NC / 1NO 2NC / 1NC 2NC / 1NO	1NO & 1NC / 1NO & 1NC 1NO & 1NC / 2NC 1NO & 1NC / 2NO 2NC / 1NO & 1NC 2NC / 2NC 2NC / 2NO
Features	Emergency Exit Individual coding	Individual coding	Rotatable head	Rotatable head	Emergency Exit
Actuators (order separately)	AZM161-B1 AZM161-B6 (flexible) STS Door handle + other accessories	AZ17/170-B1 AZ17/170-B5 AZM170-B6 (flexible) B25 Door handle	TZ/CO TZ/CW Curved options Flexible options	AZM190-B1 AZM190-B5 AZM190-B3 (flexible)	AZ/AZM415-B1 -B2 (flexible) -B3 (flexible) STS Door handle
Available as	 	 			

Door Handle Actuators



Series	STS	B30	B25	B4PS
Compatible with	AZ16, AZ3350, AZ415 AZM161, AZM415	AZ201 AZM201	AZ17 AZM170	AZ415 AZM415
Emergency exit handle	Optional	Optional	--	--
Materials	Die cast aluminum	Thermoplastic	Thermoplastic	Metal
Features	Handle options Inside or outside mounting Left or right opening Retracting actuator Lockout device option	Handle options Inside or outside mounting Left or right opening Retracting actuator Lockout device option RFID - individual coding 3 point locking option	Handle options Left or right opening Retracting actuator	Sliding bolt with handle Left or right opening Retracting actuator Ball latch on retraction

Accessories



TFA / TFI	CSA-M-1	PL--M20	Tamperproof screws	Mounting plates	Lock out devices
Guard alignment aid	Magnetic latch	Pilot light kits, M16 or M20	One-way screws	Available for most models, ordered separately	Available for most models, ordered separately

Connector Cables

Compatible cables are available for every ST (Quick Connect) model



M8 connector

3 pole
4 pole
6 pole

M12 connector

3 pole
4 pole
5 pole
8 pole

M23 connector

9 pole
12 pole

Right angled connector (W)



Double ended cable

Straight connector (G)



Connector only (no cable)

Various cable lengths available: 0.5M, 1M, 2M, 5M, 15M, 20M

Coded Magnet Sensors



Series	BNS260	BNS36	BNS40S	BNS16	BNS333	BNS30/300/303	BNS-B20
Housing	Thermoplastic	Thermoplastic	Stainless Steel	Thermoplastic	Thermoplastic	Thermoplastic Metal (BNS30)	Thermoplastic
IP Rating	IP67	IP67	IP69K	IP67, IP69K	IP65	IP67	IP67
Dimensions	1" 1.4" 0.5"	1" 3.5" 0.5"	1" 3.5" 0.5"	2" 3.5" 1.25"	1.7" 4.5" 1.7"	1.18" dia 3.07"	4.7" 4.7" 1.7"
Connections	Quick Connect Prewired cable	Quick Connect Prewired cable	Prewired cable	Screw Terminals Quick Connect	Screw Terminals	Quick Connect Prewired cable	Quick Connect Prewired cable
Contact Options	1 NO & 1 NC 2 NC 1 NO & 2 NC 3 NC	1 NO & 1 NC 2 NC 1 NO & 2 NC 3 NC	1 NO & 2 NC	1 NO & 2 NC	1 NC	30/300: 1 NC 303: 1 NO & 1 NC 2 NC 1 NO & 2 NC 3 NC	1 NO & 1 NC 2 NC 1 NO & 2 NC
Features	Optional LED	Optional LED	Rear side mounting Optional LED	Double actuation option	5 actuation planes	Optional LED	Optional LED
Actuators (order separately)	BPS260-1 BPS260-2	BPS36-1 BPS36-2	BPS40S-1, -C BPS40S-2, -C	BPS16	BPS300, BPS303 BPS303 SS (stainless steel)		BNS-B20-B01 (Door handle)
Available as							

Hinged Safety Switches



Series	T.C235	T.C236	TV.S335	TESZ	TESF	TESK
Type	Limit Switch	Limit Switch	Axle Limit Switch	Hinge replacement	Hinge replacement	Hinge replacement
Housing	Metal	Thermoplastic	Metal	Thermoplastic	Metal	Metal
Max rotation	180°	180°	360°	135°	180°	270°
Opening Angle	4.5° (preset for left, right or swing doors)	4.5° (preset for left, right or swing doors)	2°	4°	3° (Adjustable or preset @ 0° or 180°)	3° (Adjustable or preset @ 0° or 180°)
IP Rating	IP67	IP67	IP67	IP65	IP65	IP65
Dimensions	1.25" 1.25" 2.5"	1.25" 1.25" 2.5"	1.5" 1.25" 3"	3" 2.4" 1.4"	3.5" 4.5" 0.9"	3" or 3.8" 4.5" 0.8"
Connections	Screw Terminals	Screw Terminals	Screw Terminals Quick connector	Screw Terminals	Screw Terminals Quick connector	Quick Connect Prewired Cable
Contact Options	1 NO & 1 NC 2 NC 1 NC	1 NO & 1 NC 2 NC 1 NC	1 NO & 1 NC 2 NC 1 NO & 2 NC 3 NC	1 NO & 2 NC 3 NC	1 NO & 2 NC 2 NO & 2 NC	2 NC 1 NO & 1 NC 1 NO & 2 NC 1 NO & 3 NC 2 NO & 2 NC
Features	Rotatable head 90° steps	Rotatable head 90° steps	Universal joint Rotatable head 90° steps	Additional matching hinge	Additional matching hinge. Inside or surface mounting	Additional matching hinge. Inside or surface mounting.
Available as						

Safety Rated Limit Switches



Series	PS116	NEW PS215	NEW PS216	NEW PS226	NEW PS315	NEW PS316
Housing	Metal head Thermoplastic body	Metal	Thermoplastic	Thermoplastic	Metal	Thermoplastic
IP Rating	IP66, IP67	IP66, IP67	IP66, IP67	IP66, IP67	IP66, IP67	IP66, IP67
Dimensions	1.22" 0.62" 2.24"	1.2" 1.3" 2.6"	1.2" 1.3" 2.6"	2.3" 1.3" 2.2"	1.5" 1.4" 3"	1.5" 1.4" 3"
Connections	M12 Connector Prewired cable	Screw terminals M12 Connector	Screw terminals M12 Connector	Screw terminals M12 Connector	Screw terminals M12 Connector	Screw terminals M12 Connector
Contact Options	1 NO & 1 NC 2 NO & 1 NC 1 NO & 2 NC 2 NC	1 NO, 2 NO 2 NC, 3 NC 1 NO & 1 NC 1 NO & 2 NC 2 NO & 1 NC	1 NO, 2 NO 2 NC, 3 NC 1 NO & 1 NC 1 NO & 2 NC 2 NO & 1 NC	1 NO, 2 NO 2 NC, 3 NC 1 NO & 1 NC 1 NO & 2 NC 2 NO & 1 NC	1 NO, 2 NO 2 NC, 3 NC 1 NO & 1 NC 1 NO & 2 NC 2 NO & 1 NC	1 NO, 2 NO 2 NC, 3 NC 1 NO & 1 NC 1 NO & 2 NC 2 NO & 1 NC
Features	10 Actuation heads Rotatable heads 45° steps	10 Actuation heads Rotatable heads 45° steps	10 Actuation heads Rotatable heads 45° steps	10 Actuation heads Rotatable heads 45° steps	7 Actuation heads Rotatable heads 45° steps	7 Actuation heads Rotatable heads 45° steps

Actuator types

for PS116, PS215, PS216, PS226



for PS315, PS316



Key Transfer System



Series	SHGV	SHGV/ESS21S2	SVE	SVM
Type	Guard Locking Device	Key Selector Switch	Multi-key Interlock	Key Distribution Station
Housing	Metal	Metal/Thermoplastic	Thermoplastic	Aluminum (box) Stainless Steel (plate)
IP Rating	IP65	IP65	IP65	IP65 (box) / IP40 (plate)
Connection	N/A	Screw Terminals	Screw Terminals	N/A
Contact Options	N/A	1NO & 1NC	Magnet: 1NO & 1NC Selector: 1NO & 1NC 1NO & 2NC	N/A
Features	1 or 2 locking barrels	Additional contacts Colored key grips	1, 2 or 3 selector switches	6 or 10 keys
Available as				

Safety Edges



Series	SE 40	SE 70
Dimensions	1" wide, 1.5" high	1.18" wide, 2.3" high
Length	SE-P40-1250 = 1,250 mm SE-P40-2500 = 2,500 mm SE-P40-5000 = 5,000 mm SE-P40-10000 = 10,000 mm	SE-P70-1250 = 1,250 mm SE-P70-2500 = 2,500 mm SE-P70-5000 = 5,000 mm SE-P70-10000 = 10,000 mm
Mounting rails	SE-AL10-1250 SE-AL12-1250	SE-AL20-1250 SE-AL22-1250
Additional Components	SE-T.40 end cap	SE-T.70 end cap
	SE-SET sensor set SE-100C Safety Controller SE-304C Safety Controller SE-400C Safety Controller	

Safety Mats



Series	SMS4	SMS5
Dimensions	250 mm x 500 mm 500 mm x 500 mm 500 mm x 1000 mm 750 mm x 1000 mm 1000 mm x 1000 mm 1000 mm x 1500 mm	250 mm x 500 mm 500 mm x 500 mm 500 mm x 1000 mm 750 mm x 1000 mm 1000 mm x 1000 mm 1000 mm x 1500 mm
Mounting ramp edge	Separate	Integrated
Accessories	Precut trim kits: SMS4-RS-250-500 SMS4-RS-500-500 SMS4-RS-500-1000 SMS4-RS-750-1000 SMS4-RS-1000-1000 SMS4-RS-1000-1500	----
	SRB301HC Safety Controller	

Custom sizes, colors, and tread patterns are available.

Optoelectronic Safety Devices



Series	SLC440COM	NEW SLC440COM IP69	SLC440	NEW SLC440 IP69	SLC445	SLC420	SLB440
Profile	1" 1.30"	2" Dia	1" 1.30"	2" Dia	1" 1.30"	2" Dia	1" 1.30" 3.6"
Resolution	14 mm, 30 mm, 35 mm	*	14 mm, 30 mm	*	14 mm, 30 mm	14 mm, 30 mm, 50 mm	----
Protection heights	330 mm ... 1930 mm	330 mm ... 1770 mm *	170 mm ... 1930 mm	170 mm ... 1770 mm *	170 mm ... 1770 mm	170 mm ... 1770 mm	----
Range	0.3 m ... 10 m	*	0.3 m ... 10 m	*	0.3 m ... 10 m	0.3 m ... 10 m	0.3 m ... 15 m
Functions	Start interlock LED end cap	IP69 housing Plastic Endcaps Start interlock LED end cap	LED end cap 7 segment display Blanking Contactor control Beam Coding Start interlock Double reset	IP69 housing Stainless Steel or Plastic Endcaps LED end cap 7 segment display SLC440 functions	LED end cap 7 segment display Muting Cyclic function Multiscan +SLC440 functions Complete muting sensor set available	Blanking Contactor control Beam Coding Start interlock	Single beam LED end cap Start Interlock Beam Coding
IP Rating	IP67	IP69	IP67	IP69	IP67	IP67	IP67
Type 2 Version	SLC240COM	----	----	----	----	----	SLB240
Light Grid Version	SLG440COM 2, 3, or 4 beam	SLG440COM IP69 2, 3, or 4 beam	SLG440 2, 3, or 4 beam	SLG440 IP69 2, 3, or 4 beam	SLG445 2, 3, or 4 beam	SLG420 2, 3, or 4 beam	----
Available as						IP69K option High range to 18m	High range to 75 m Heater for -30°C

* IP69 versions: The IP69 housing is a separate part number. A SLC/SLG 440 or SLC/SLG 440COM model must be ordered with the IP69 housing at time of order. Factory will only ship fully assembled, sealed units. Resolution, protection height, range, and functions are all subject of SLC/SLG chosen.

Emergency Cable Pull Switches



Series	ZQ700	ZQ900	T3Z068
Housing	Thermoplastic	Metal	Metal
IP Rating	IP67	IP65, IP67	IP65
Dimensions	1.6" 1.6" 6.3"	2.8" 8.6" 3.8"	7.1" 7" 4.5"
Connections	Screw Terminals	Screw Terminals	Screw Terminals
Contact Options	1 NO & 1 NC 2 NC	1 NO & 1 NC 2 NO & 2 NC 1 NO & 3 NC 2 NC, 4 NC	1 NO & 1 NC 2 NO & 2 NC 3 NO & 3 NC
Max cable length	10 meters	75 meters	50 meters (both directions)
Features	Reset button	Reset button Optional E-stop button	Bi-Directional Pull ring or key reset
Available as			

Accessories (complete custom kits or order installation components separately)



E-Stop Buttons



Control Devices with Safety Function



Series	ZSD	TFH	SEPK	SEPG	BDF200	BDF100
Type	Enabling Device	Safety Foot Switch	Two Hand Control	Two Hand Control	Control Panel	Control Panel
IP Rating	IP65	IP65	IP65	IP65	IP65	IP65
Features	Off-On-Off switch Optional top button	Off-On-Off switch Hooded housing 2 pedal version Reset button	Plastic housing Custom versions Stands available	Metal housing Custom versions Stands available	Up to 4 controls Plastic housing Wide variety of control elements	Single operator Plastic housing Wide variety of control elements
Available as					SD	

Special collections

IP69 / IP69K Rated for wash down applications

Schmersal offers an ever increasing range of products designed to be dust tight and withstand the harsh conditions of high pressure (to 1450 psi) and high temperature (to 175deg F) wash downs prevalent in hygienic applications.



Electronic Solenoid Lock
AZM300

Safety Light Curtain
SLC440COM
SLC440
SLC420

Safety Sensor
BNS40S
BNS16
CSS30S
RSS36 ST

Joysticks
RK / NK

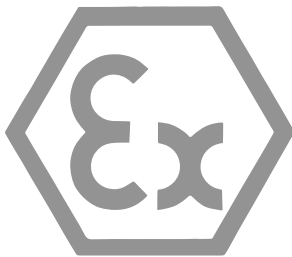
Controls

Pushbuttons
E-Stop
Signal lights
Selector switches
Step switch
Potentiometer dial
Main switch



EX for explosive applications

Areas with potentially explosive atmospheres due to the presence of gas and dust need special components that will not ignite a fire or explosion. Schmersal offers a diverse range of intrinsically safe components, EX rated for use in Zones 1, 2, 21, and 22.



Keyed Interlock
EX-AZ16
EX-AZ415
EX-AZ3350

Solenoid Interlock
EX-AZM161
EX-AZM170
EX-AZM415

Safety Controllers
SRB-101EXI
SRB-200EXI

Safety Sensor
EX-BN20
EX-BNS120
EX-BNS180
EX-BNS303
EX-BNS33
EX-BNS250
EX-BNS40S
EX-CSS180

Emergency Cable Pull
EX-T3Z068
EX-ZQ900

Limit switches
EX-T/Z235
EX-T/Z335
EX-M330
EX-441 Belt Alignment
EX-441 Slack Wire

Pushbuttons
EX-R Series

Trapped key system
EX-SHGV

Hinged
EX-TV.S335



EX Products

AS-I Integrated

AS-Interface Safety at Work is a safety bus system based upon the open standard of AS-International. It is a simple yet flexible solution to quickly, efficiently and cost-effectively integrate a vast safety system. Schmersal offers a wide variety of safety devices with integrated AS-I:



Keyed Interlock
AZ16 AS
AZ200 AS

Electronic Solenoid Lock
MZM100 AS
AZM200 AS
AZM300 AS

Solenoid Interlock
AZM161 AS
AZM170 AS

Safety Sensor
BNS260 AS
BNS36 AS
BNS16 AS
RSS260 AS
RSS36 AS

Safety Light Curtain
SLC440 AS

Safety Foot Switch
TFH232 AS

Controls
BDF200 AS
NAS311 AS (E-Stop)

Emergency Cable Pull
ZQ700 AS
ZQ900 AS

Limit Switches
T/Z235 AS
T/Z236 AS
T/Z256 AS



AS-I Products

Safe solutions for your industry

Schmersal presents a series of guides featuring a selection of Schmersal safety products which are suitable to meet the unique challenges in various industries. Check our website or contact your local Schmersal representative for more information on Industry Solutions.



Food & Beverage



Packaging



Wood processing



Machine Tools



Elevators & escalators



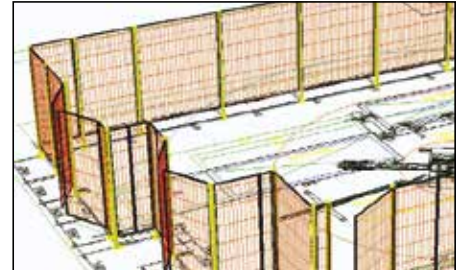
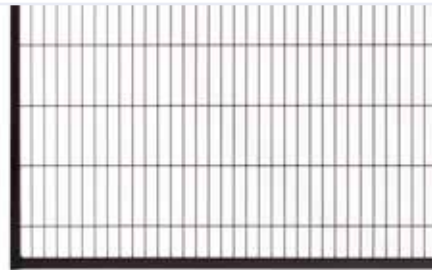
Heavy industry



SATECH Guarding Systems

Schmersal is proud to partner with SATECH to provide guarding solutions of high density steel construction.

SATECH
Modular Machine Guards



Upright posts:

Basic system: 40 x 40 mm, extruded with adjustable footings
 Strong system: 60 x 60 mm, extruded with welded base
 Color: Yellow (RAL 1021)
 Height: 2060 mm

Standard panels:

Mesh: 3 mm wire, 20 x 100 mm grid
 Frame: 20 x 20 mm, extruded
 Color: Black (RAL 9005)
 Height: 1900 mm
 Widths: 200 mm, 300 mm, 700 mm, 800 mm, 1000 mm, 1200 mm, 1500 mm

Design services and accessories

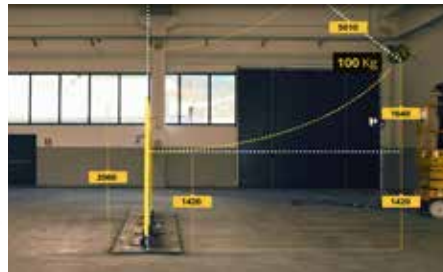
These systems are custom designed for each client. Each design generates 3D models and a full parts list, including all of the necessary installation hardware.

Accessories to finish off the system include access doors, kick plates, and cable duct supports. We offer a wide range of safety locks, door handle assemblies, and safety sensors, with special mounting brackets which can be integrated into the guards for a complete safety solution.



Captive fastening & panel clips

Panels and posts can be directly bolted together, or secured with patented adjustable clips. The system uses patented captive fasteners, per Machinery Directive 2006/42/CE, to prevent loss of hardware.



Impact testing

These systems, assembled with bolts and nuts, have been tested according to the dynamic resistance test contained in ISO 14120 Standard (Hard Body / Pendulum Test). The dynamic stress value was equal to 1600 J.

For more information:



Watch an introduction video on YouTube



SATECH catalog



Tec.nicum Engineering Services

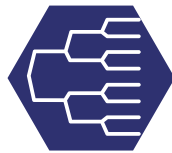
tec.nicum offers product- and manufacturer-neutral consultation on important matters relating to machine safety and work protection. Our TÜV Certified Functional Safety Engineers for Machinery can plan and realize complex solutions for safety around the world in close collaboration with clients.

The range of services offered by tec.nicum cover four segments:



academy

In the complex area of machine safety, it is important to stay ahead of the game. To do this, we offer a variety of opportunities through our tec.nicum academy: With a comprehensive range of training courses on numerous topics, including General Machine Safety, ISO13849, Safety Circuits and Wiring, and Understanding and Conducting Risk Assessments; with customer specific in-house training seminars; and webinars.



technical

With regard to technical support, our experts provide safety appraisals and check conformity with applicable legislation and standards of machine safety and work protection. From the results of these investigations, they derive manufacturer-neutral recommendations for action and corrective measures with the aim of configuring the systems in accordance with the relevant directives. All the results of the investigations are fed into a comprehensive final report.



engineering

tec.nicum engineering supports the client in the development of new machines and systems or the modification of existing machines and systems so that, even from the projection phase, machine safety is implemented as efficiently as possible. Specialists in this area accompany the whole process, from initial planning talks to the definition of requisite safety elements to safety testing and inspection of the overall installation as well as handover of the complete project documentation.



integration

The experts at tec.nicum have built up extensive experience from projects in industries such as the packaging, food processing, automotive, construction, paper manufacture, metal processing, chemicals and pharmaceuticals. They install safety switchgear and sensors and also take account of special features, such as explosive areas. Furthermore, they can assist in the parametrization, programming and installation of complex components such as optoelectronic safety products and programmable safety controllers.

tec.nicum
excellence in safety



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