

Datasheet

SAFESERIES SIL RELAYS

SCS Series

NEW



Weidmüller's single and dual channel DIN rail-mounted SCS Series are relay modules suitable for switching safety related circuits up to SIL3 level according to IEC 61508, for high risk installations.

Typical applications include safety interlocks for burner management systems, over-fill controls for bulk liquid storage tanks and plant shut-down systems.

The SCS Series is part of Weidmüller's broad range of high reliability electronics and electrical connectivity products which services process industries and factory automation systems worldwide.

- SIL relays for process Emergency Shut-Down systems
- Certified cULus and to IEC 61508 for SIL3 (TÜV)
- Energized or de-energized to safe modes
- Single and two-channel models
- Monitoring options with wide-range input voltage

Safe control of back-up systems

The monitoring circuit option takes inputs from 24 to 230 V AC/DC and the safety relay is intended for use in back-up systems or storage tank overfill prevention.



Safe use in corrosive environments

The SIL3 relay is also available with a G3 coating, which makes it especially suitable for use in aggressive environmental conditions.

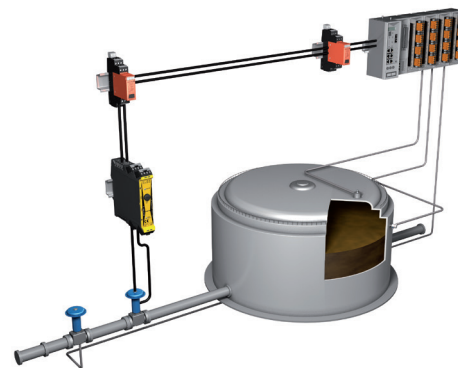
Safe control of burner operation

Fuel flow to the burner may be cut-off in a boiler alarm condition. SAFESERIES offers a SIL3 fuel cut-off relay which interfaces with the burner management controls.



Safe activation and deactivation

This flexible safety relay can be used in either energize-to-safe or de-energize-to-safe mode. This makes it suitable for use both with actuators which should be powered-on under safe conditions or those which should be powered-off.



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SIL3 relays

- With and without monitoring circuit
- Wide-range input voltage in the monitoring circuit
- Externally accessible fuse
- TÜV certified “Safety Approved”
- SIL3 rated when internal or external output fuse used

SCS 24 V DC P1SIL3DS

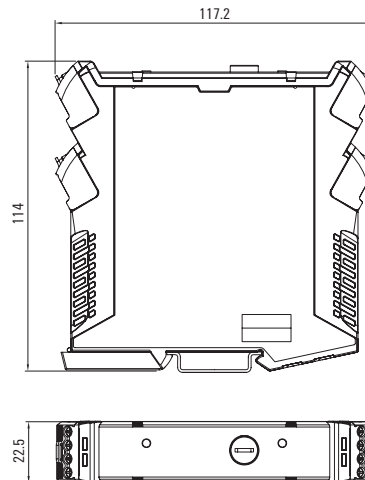
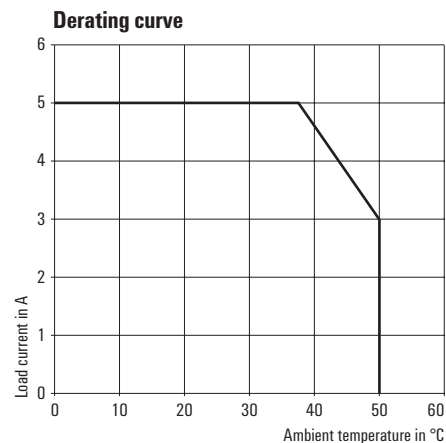
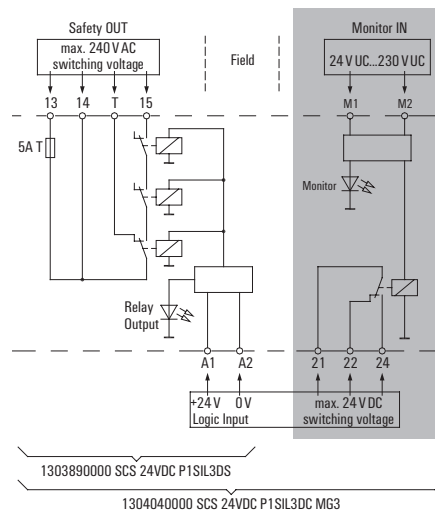


Technical data

Temperatures	
Ambient temperature (operational)	-25...+50 °C
Storage temperature	-40...+85 °C
General data	
Noxious gas resistance to EN 60068-2-60	Yes (art. No.: 1304040000 only)
Input (safety circuit)	
Rated control voltage	24 V DC ± 20%
Guaranteed current consumption of 24 V DC -10 %	35 mA
Power consumption	42 mA
Status indicator	LED yellow
Input (monitor circuit)	
Rated control voltage	24 V AC/DC...230 V AC/DC ± 10 %
Current consumption	23 mA @ 24 V DC, 4,4 mA @ 230 V AC
Status indicator	LED yellow
Output (safety circuit)	
Contact design	NO contact
Max. switching current, internal fuse	5 A (refer to derating curve)
Max. switching current, external fuse	5 A (refer to derating curve)
Max. permitted switching voltage	250 V AC / 30 V DC
Max. permitted switching current	8 A
Min. switching power	12 V / 10 mA
Max. switching power	2000 VA
Switch-on time	typ. 7 ms
Base material of the contact	Ag Ni 0.15
Internal fuse	5 A time-lag
External back-up fuse	5 A time-lag
Short-circuit-proof	No
Output (monitor circuit)	
Contact design	CO contact
Max. permitted switching voltage	24 V DC
Max. allowed switching current	30 A
Min. switching capacity	1 V / 1 mA
Contact base material	AgNi 5µm Au
Switch-on time	typ. 17 ms
Short circuit resistant	No
Insulation coordination (EN 50178)	
Rated voltage	300 V
Creepage and clearance distance input – output	≥ 5.5 mm
Creepage and clearance distance output – output	≥ 5.5 mm
Dielectric strength input – output	1.2 kV _{eff} / 1 min.
Dielectric strength output – output	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	1.2 kV _{eff} / 1 min.
Impulse withstand voltage	6 kV (1.2/50 µs)
Surge voltage category	III
Pollution severity	2
Further details of approvals / standards	
Standards / Approvals	EN 61000, EN 61326-3-2, EN 61508 / cULus, SIL3
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.13 / 2.5
Depth x width x height	mm 114 / 22.5 / 117.2
Note	

Temperatures		
Ambient temperature (operational)	-25...+50 °C	
Storage temperature	-40...+85 °C	
General data		
Noxious gas resistance to EN 60068-2-60	Yes (art. No.: 1304040000 only)	
Input (safety circuit)		
Rated control voltage	24 V DC ± 20%	
Guaranteed current consumption of 24 V DC -10 %	35 mA	
Power consumption	42 mA	
Status indicator	LED yellow	
Input (monitor circuit)		
Rated control voltage	24 V AC/DC...230 V AC/DC ± 10 %	
Current consumption	23 mA @ 24 V DC, 4,4 mA @ 230 V AC	
Status indicator	LED yellow	
Output (safety circuit)		
Contact design	NO contact	
Max. switching current, internal fuse	5 A (refer to derating curve)	
Max. switching current, external fuse	5 A (refer to derating curve)	
Max. permitted switching voltage	250 V AC / 30 V DC	
Max. permitted switching current	8 A	
Min. switching power	12 V / 10 mA	
Max. switching power	2000 VA	
Switch-on time	typ. 7 ms	
Base material of the contact	Ag Ni 0.15	
Internal fuse	5 A time-lag	
External back-up fuse	5 A time-lag	
Short-circuit-proof	No	
Output (monitor circuit)		
Contact design	CO contact	
Max. permitted switching voltage	24 V DC	
Max. allowed switching current	30 A	
Min. switching capacity	1 V / 1 mA	
Contact base material	AgNi 5µm Au	
Switch-on time	typ. 17 ms	
Short circuit resistant	No	
Insulation coordination (EN 50178)		
Rated voltage	300 V	
Creepage and clearance distance input – output	≥ 5.5 mm	
Creepage and clearance distance output – output	≥ 5.5 mm	
Dielectric strength input – output	1.2 kV _{eff} / 1 min.	
Dielectric strength output – output	1.2 kV _{eff} / 1 min.	
Dielectric strength to mounting rail	1.2 kV _{eff} / 1 min.	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Surge voltage category	III	
Pollution severity	2	
Further details of approvals / standards		
Standards / Approvals	EN 61000, EN 61326-3-2, EN 61508 / cULus, SIL3	
Dimensions		
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.13 / 2.5	
Depth x width x height	mm 114 / 22.5 / 117.2	
Note		

The SCS 24 V DC P1SIL3DS safety relay is used in areas that require a functionally safe shutdown. This component fulfills the requirements of IEC 61508, SIL3. cULus Listed to UL 508 and CSA C22.2 No.14 under file E223474.



Ordering data

	with monitoring
	without monitoring
	with monitoring and G3 gas-corrosion resistant
Note	

Type	Qty.	Part No.
SCS 24VDC P1SIL3DS M	1	1303760000
SCS 24VDC P1SIL3DS	1	1303890000
SCS 24VDC P1SIL3DS MG3	1	1304040000

SIL3 relays

- Energized / de-energized to safe
- Test inputs for testing the relay contacts
- Externally accessible fuse
- TÜV certified "Safety Approved"
- SIL3 rated when internal or external output fuse used

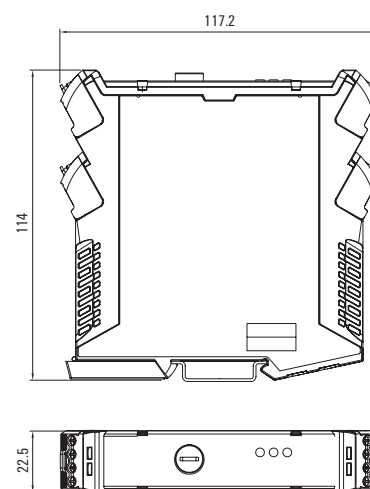
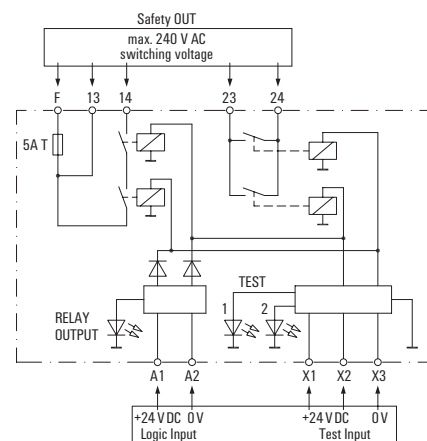
SCS 24 V DC P2SIL3DSES



The safety relay SCS 24 V DC P2SIL3DSES is used in areas that require functionally safe deactivation or activation. The requirements according to IEC 61508, SIL3 can be fulfilled with this module.

Technical data

Temperatures		
Ambient temperature (operational)	-25 °C...+50 °C	
Storage temperature	-40 °C...+85 °C	
Input (safety circuit)		
Rated control voltage	24 V DC -15 / +20%	
Guaranteed current consumption of 24 V DC -10 %	35 mA	
Power consumption	45 mA	
Status indicator	LED yellow	
Test inputs		
Rated control voltage	24 V DC	
Status indicator	LED red flashing: test input is triggered	
Number of test inputs	2	
Output (safety circuit)		
Contact design	1 x de-energized to safe (NO contact), 1 x energized to safe (NO contact)	
Max. switching current, internal fuse	5 A (refer to derating curve)	
Max. switching current, external fuse	5 A (refer to derating curve)	
Max. permitted switching voltage	250 V AC	
Max. permitted switching current	8 A	
Min. switching power	12 V / 10 mA	
Max. switching power	2000 VA	
Switch-on time	< 5.5 ms (DTS), < 5 ms (ETS)	
Base material of the contact	Ag Ni 0.15	
Internal fuse	5 A time-lag	
External back-up fuse	5 A time lag	
Short-circuit-proof	No	
Insulation coordination (EN 50178)		
Rated voltage	300 V	
Creepage and clearance distance input – output	≥ 5.5 mm	
Creepage and clearance distance output – output	≥ 5.5 mm	
Dielectric strength input – output	1.2 kV _{eff} / 1 min.	
Dielectric strength output – output	1.2 kV _{eff} / 1 min.	
Dielectric strength to mounting rail	1.2 kV _{eff} / 1 min.	
Impulse withstand voltage	6 kV (1.2/50 μs)	
Surge voltage category	III	
Pollution severity	2	
Further details of approvals / standards		
Standards / Approvals	EN 61000, EN 61326-3-2, EN 61508 / SIL3	
Dimensions		
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.13 / 2.5	
Depth x width x height	mm 114 / 22.5 / 117.2	
Note		
	DTS (de-energized to safe) ETS (energized to safe)	
Ordering data		
Type	Qty.	Part No.
SCS 24VDC P2SIL3DSES	1	1319270000
Note		



SIL3 relays

- Positively-driven contacts
- 2-channel design
- Insert according to EN 50156
- TÜV certified "Safety Approved"

SCS 24 V DC P2SIL3ES**Technical data**

Temperatures	
Ambient temperature (operational)	-25 °C...+55 °C
Storage temperature	-40 °C...+85 °C
Start circuit	
Operating voltage	22 V DC, from internal power supply
Function	falling edge (button via S33/S34), rising edge (permanent bridge via S33/S35)
Input (supply)	
Rated control voltage	24 V DC ± 15 %
Current consumption	55 mA (release circuit enabled), 6 mA (release circuit not enabled)
Guaranteed current consumption at 24 V DC - 10 %	35 mA
Response time	with bridge via C1/C2: typ. 50 ms, without bridge via C1/C2: typ. 20 ms
Status display	LED green, power, LED yellow, signal
Short-circuit detection	Yes, max 4 s up to switch-off (Polyfuse)
Monitoring circuit	
Operating voltage	22 V DC, from internal power supply
Input	2, each externally bridgeable
Output (release circuit)	
Contact version	2 NO positively-driven (EN 50205)
Switching voltage AC, max.	250 V
Max. permitted switching current	6 A
Min. switching capacity	12 V / 10 mA
Max. switching power	2000 VA
Switch-on time	55 ms (C1/C2 bridged, switched via A1/A2), 30 ms (opening/closing of monitoring circuit)
Switch-off time	20 ms (C1/C2 bridged, switched via A1/A2), 15 ms (opening/closing of monitoring circuit)
Contact base material	AgSnO
Max. switching current, external fuse	5 A
External back-up fuse	5 A time lag
Feedback output	
Contact version	1 NC positively-driven (EN 50205 type B)
Switching voltage AC, max.	250 V
Max. switching current	1 A
Insulation coordination (EN 50178)	
Rated voltage	300 V
Creepage and clearance distance input - output	≥ 5.5 mm
Creepage and clearance distance output - output	≥ 5.5 mm
Dielectric strength input - output	1.2 kV _{eff} / 1 min.
Dielectric strength output - output	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	1.2 kV _{eff} / 1 min.
Impulse withstand voltage	6 kV (1.2/50 μs)
Surge voltage category	III
Pollution severity	2
Further details of approvals / standards	
Standards / Approvals	EN 61000, EN 61326-3-2, EN 61508 / SIL3
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.13 / 2.5
Depth x width x height	mm 114 / 22.5 / 117.2
Note	

Ordering data

Type	Qty.	Part No.
SCS 24VDC P2SIL3ES	1	1319280000
Note		

Ambient temperature (operational)	-25 °C...+55 °C
Storage temperature	-40 °C...+85 °C
Start circuit	
Operating voltage	22 V DC, from internal power supply
Function	falling edge (button via S33/S34), rising edge (permanent bridge via S33/S35)
Input (supply)	
Rated control voltage	24 V DC ± 15 %
Current consumption	55 mA (release circuit enabled), 6 mA (release circuit not enabled)
Guaranteed current consumption at 24 V DC - 10 %	35 mA
Response time	with bridge via C1/C2: typ. 50 ms, without bridge via C1/C2: typ. 20 ms
Status display	LED green, power, LED yellow, signal
Short-circuit detection	Yes, max 4 s up to switch-off (Polyfuse)
Monitoring circuit	
Operating voltage	22 V DC, from internal power supply
Input	2, each externally bridgeable
Output (release circuit)	
Contact version	2 NO positively-driven (EN 50205)
Switching voltage AC, max.	250 V
Max. permitted switching current	6 A
Min. switching capacity	12 V / 10 mA
Max. switching power	2000 VA
Switch-on time	55 ms (C1/C2 bridged, switched via A1/A2), 30 ms (opening/closing of monitoring circuit)
Switch-off time	20 ms (C1/C2 bridged, switched via A1/A2), 15 ms (opening/closing of monitoring circuit)
Contact base material	AgSnO
Max. switching current, external fuse	5 A
External back-up fuse	5 A time lag
Feedback output	
Contact version	1 NC positively-driven (EN 50205 type B)
Switching voltage AC, max.	250 V
Max. switching current	1 A
Insulation coordination (EN 50178)	
Rated voltage	300 V
Creepage and clearance distance input - output	≥ 5.5 mm
Creepage and clearance distance output - output	≥ 5.5 mm
Dielectric strength input - output	1.2 kV _{eff} / 1 min.
Dielectric strength output - output	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	1.2 kV _{eff} / 1 min.
Impulse withstand voltage	6 kV (1.2/50 μs)
Surge voltage category	III
Pollution severity	2
Further details of approvals / standards	
Standards / Approvals	EN 61000, EN 61326-3-2, EN 61508 / SIL3
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.13 / 2.5
Depth x width x height	mm 114 / 22.5 / 117.2
Note	

Use where fuel flow to the burner may be cut-off in a boiler alarm condition. SAFESERIES model SCS 24 V DC P2SIL3ES offers a SIL3 fuel cut-off relay which interfaces with the burner management controls.

