

Power solid-state relays

Switch high AC loads up to 75 A completely wear-free and noiseless

C

Due to their high shock and vibration resistance, the large switching current and the option of simple fusing, our power solid-state relays outperform by far any electromagnetic relays, especially in the process industry.

The compact modules need just a low control power at the input, have fast response times and operate noiseless. The optional 1PH-Control-Unit allows the current monitoring of up to five parallel connected loads.

Our new power solid state relays are ideally suited for a multitude of diverse tasks: switching of pipe heaters and infrared heaters, or permanent current monitoring.



High current load integral

The high current load integral I^2t of 6,000 A²s allows affordable device protection using standard circuit breakers for variants with 35 A load current.

Simple current monitoring

The optional, plug-on monitoring module warns when current drops by 16 % or more. Short-circuit, line-break and defective loads are detected.

High output current
Ideal for controlling pipe heaters due to the high output current of 50 or 75 A. The compact design allows direct mounting at application site.

PSSR - 1-phase

- Single-phase load circuit: 12–275 V AC / 25 A
- Ready-to-use: snap on - connect - ready
- Zero-cross switch
- Noiseless, wear-free switching
- Attachable monitoring module

**Technical data****Control side**

Rated control voltage
Power rating
Pul-in/drop-out voltage, typ.
Input frequency
Status indicator
Protective circuit

Load side

Solid-state type
Rated switching voltage
Continuous current
Min. switching current
Max. switching current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit, load side
Switch-on delay / Switch-off delay
Output voltage frequency range
Pulse load, max. current
Load category
Load limit integral (I^2t) < 10 ms

General data

Ambient temperature (operational)
Storage temperature
Humidity
Approvals
Standards

Insulation coordinates

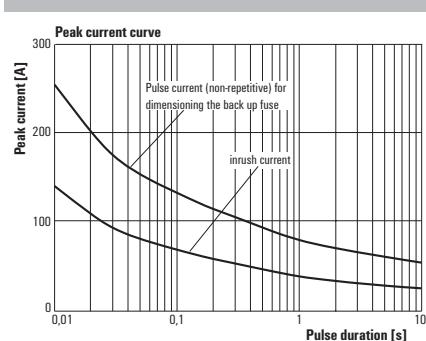
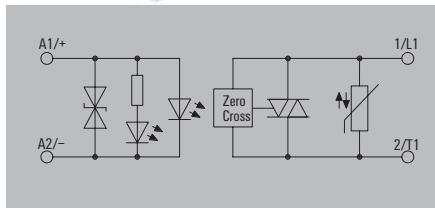
Impulse withstand voltage
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

Dimensions

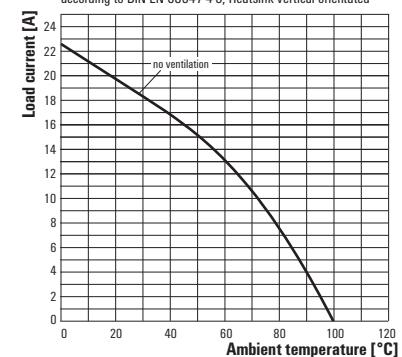
Clamping range (rated / min. / max.) control side mm²
Clamping range (rated / min. / max.) load side mm²
Depth x width x height mm

Note**Ordering data**

Screw connection

PSSR 24 V DC / 1 PH AC 25 A

Derating curve
according to DIN EN 60947-4-3, Heatsink vertical orientated

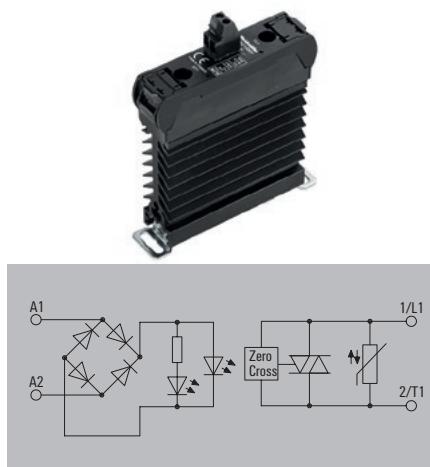
**Note**

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

Accessories**Note**

PSSR - 1-phase

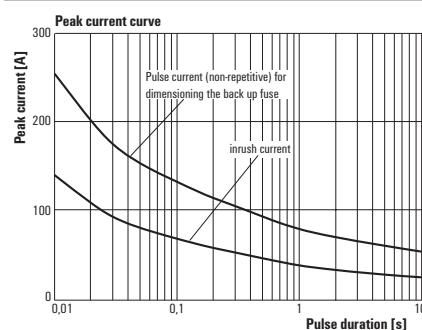
- Single-phase load circuit: 12–275 V AC / 25 A
- Ready-to-use: snap on - connect - ready
- Zero-cross switch
- Noiseless, wear-free switching
- Attachable monitoring module

**PSSR 230 V AC / 1 PH AC 25 A****Technical data****Control side**

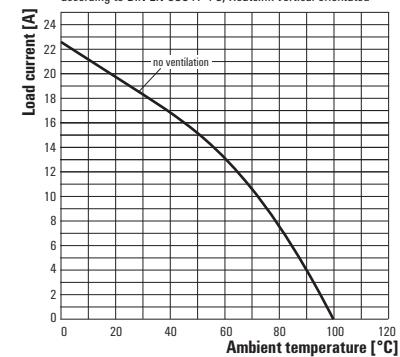
Rated control voltage
Power rating
Pull-in/drop-out voltage, typ.

Input frequency**Status indicator****Protective circuit****Load side****Solid-state type****Rated switching voltage****Continuous current****Min. switching current****Max. switching current****Voltage drop at max. load****Leakage current****Short-circuit-proof / Protective circuit, load side****Switch-on delay / Switch-off delay****Output voltage frequency range****Pulse load, max. current****Load category****Load limit integral (I^2t) < 10 ms****General data****Ambient temperature (operational)****Storage temperature****Humidity****Approvals****Standards****Insulation coordinates****Impulse withstand voltage****Clearance and creepage distances for control side - load side****Oversupply category****Pollution degree****Dimensions****Clamping range (rated / min. / max.) control side** mm^2 **Clamping range (rated / min. / max.) load side** mm^2 **Depth x width x height**

mm

Note**160...240 V AC/DC** **$\leq 1.38 \text{ VA}$** **160 V / 5 V AC****160 V / 5 V DC****10 Hz****LED yellow****Rectifier****Triac (zero-cross switch)****12...275 V AC****17 A (AC51) at 40 °C, 3.5 A (AC 53)****5 mA****25 A** **$\leq 1.25 \text{ V}$** **$\leq 1 \text{ mA}$** **No / Varistor** **$\leq 30 \text{ ms} / \leq 30 \text{ ms}$** **50...60 Hz****250 A (10 ms), non-recurrent****AC 51, AC 53****340 A's****-55 °C...100 °C****-55 °C...125 °C****40...85 % (indoor) no condensation****CE; cURus; EAC****EN 60947-4-3, EN 60950, IEC 60335-1****4 kV (1.2/50 μs)** **$\geq 6.5 \text{ mm}$** **III****2**

Derating curve
according to DIN EN 60947-4-3, Heatsink vertical orientated

**Ordering data****Screw connection**

Type	Qty.	Order No.
PSSR 230VAC/1PH AC 25A	1	1406220000

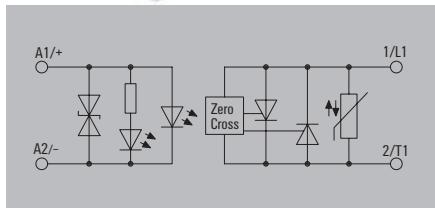
Note

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

Accessories**Note**

PSSR - 1-phase

- Single-phase load circuit: 24–510 V AC / 35 A
- Ready-to-use: snap on - connect - ready
- Zero-cross switch
- Noiseless, wear-free switching
- Attachable monitoring module
- High capacity for handling surge currents
 $I^2t = 6000 \text{ A}^2\text{s}$ (10 ms)
- Fusing with B circuit breaker possible

**PSSR 24 V DC / 1 PH AC 35 A****Technical data****Control side**

Rated control voltage	3.5...32 V DC
Power rating	≤ 280 mW
Pull-in/drop-out voltage, typ.	3 V / 2 V DC
Input frequency	10 Hz
Status indicator	LED yellow
Protective circuit	Suppressor diode

Load side

Solid-state type	Thyristor (zero-cross switch)
Rated switching voltage	24...510 V AC
Continuous current	23 A (AC51) at 40 °C, 12 A (AC 53)
Min. switching current	5 mA
Max. switching current	50 A
Voltage drop at max. load	≤1.35 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤ 10 ms / ≤ 10 ms
Output voltage frequency range	50...60 Hz
Pulse load, max. current	1100 A (10 ms), non-recurrent
Load category	AC 51, AC 53
Load limit integral (I^2t) < 10 ms	6000 A ² s

General data

Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE; cURus; EAC
Standards	EN 60947-4-3, EN 60950, IEC 60335-1

Insulation coordinates

Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 6,5 mm
Overtoltage category	III
Pollution degree	2

Dimensions

Clamping range (rated / min. / max.) control side	mm ²
Clamping range (rated / min. / max.) load side	mm ²
Depth x width x height	mm

Note**Ordering data**

Screw connection

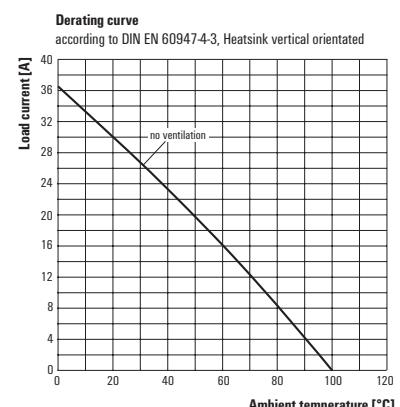
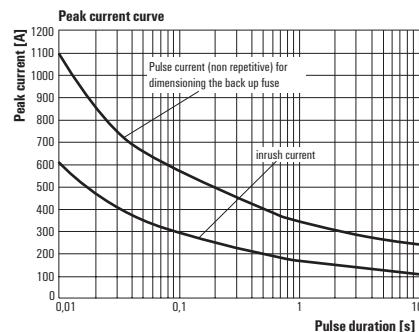
1.5 / 0.13 / 3.3
6 / 1.5 / 6
115.9 / 22.5 / 98

Note

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

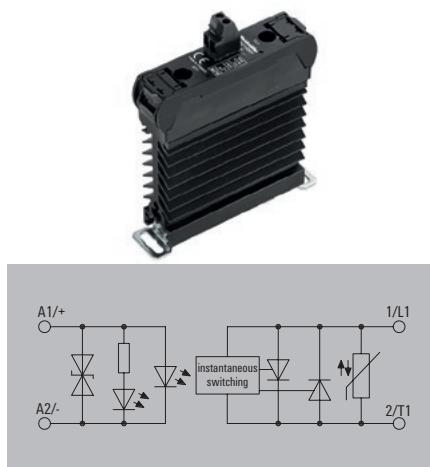
Accessories

Note



PSSR - 1-phase

- Load circuit 1-phase 24...510 V AC, 22 A at 40°C ambient temperature
- Ready-to-use: snap on-connect-ready
- Instantaneous-switching output
- Wear-free & silent switching
- Plug-in monitoring module

**PSSR 24 V DC / 1 PH AC 22 A I****Technical data****Control side**

Rated control voltage	3.5...32 V DC
Power rating	< 500 mW
Pul-in/drop-out voltage, typ.	3 V / 2 V DC
Input frequency	10 Hz
Status indicator	LED yellow
Protective circuit	Suppressor diode

Load side

Solid-state type	Thyristor (instantaneous-switching)
Rated switching voltage	24...510 V AC
Continuous current	22 A (AC51) at 40 °C, 7 A (AC 53)
Min. switching current	5 mA
Max. switching current	50 A
Voltage drop at max. load	≤1.25 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤0,1 ms / ≤ 10 ms
Output voltage frequency range	50...60 Hz
Pulse load, max. current	530 A (10 ms), non-recurrent
Load category	AC 51, AC 53
Load limit integral (I^2t) < 10 ms	1400 A ² s

General data

Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE; EAC
Standards	

Insulation coordinates

Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 3.2 mm
Overtoltage category	III
Pollution degree	2

Dimensions

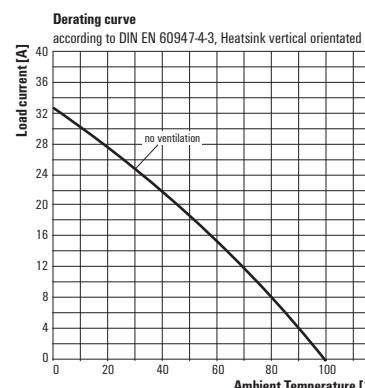
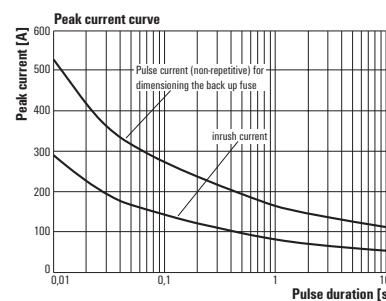
Clamping range (rated / min. / max.) control side	mm ²
Clamping range (rated / min. / max.) load side	mm ²
Depth x width x height	mm

Note**Ordering data**

	Type	Qty.	Order No.
Screw connection	PSSR 24VDC/1PH AC 22 A I	1	2531050000

Note

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

Accessories**Note**

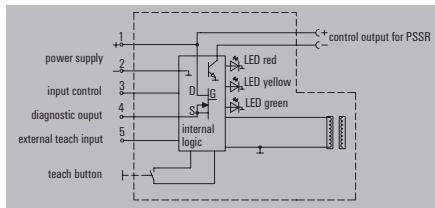
Power – Power solid-state relays

PSSR control unit

- Monitoring of up to 5 consumers connected in parallel
- Can be attached to the single-phase PSSRs
- Error message feedback output
- Undercurrent switching threshold: $0.84 \times I_{\text{setting}}$
- Teach button on the module and external teach input



PSSR 1 PH CONTROL UNIT



Technical data

Control side

Rated control voltage	4...30 V DC
Rated control current	$\leq 2.5 \text{ mA}$
Pull-in/drop-out voltage, typ.	2 V DC
Rated control voltage (external teach input)	4...30 V DC
Nominal control current (external teach input)	$\leq 2.5 \text{ mA}$

Supply

Voltage supply	8...30 V DC
Current consumption	$\leq 20 \text{ mA}$ (feedback output unloaded), $\leq 120 \text{ mA}$ (switched feedback output max. loaded)

Feedback output

Solid-state type	MOS-FET
Nominal switching voltage	8...30 V DC
Continuous current	0.1 A
Undercurrent switching threshold	$0.84 \times I_{\text{setting}}$
Current measurement range AC, min.	2 A
Current measurement range AC, max.	40 A
Switch-on delay	$\leq 100 \text{ ms}$
Switch-off delay	$\leq 100 \text{ ms}$

Control output to the PSSR

Nominal switching voltage	8...30 V DC
Solid-state type	Transistor
Switch-on delay	$\leq 15 \text{ ms}$
Switch-off delay	$\leq 16 \text{ ms}$

General data

Ambient temperature (operational)	-40 °C...80 °C
Storage temperature	-40 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Current sensor hole diameter	9 mm
Approvals	CE; EAC
Standards	EN 60947-4-3, EN 60950

Insulation coordinates

Impulse withstand voltage	
Clearance and creepage distances for control side - load side	

Overvoltage category

Dimensions

Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm

Note

Ordering data

Screw connection	Type	Qty.	Order No.
	PSSR 1PH CONTROL UNIT	1	1406230000

Note

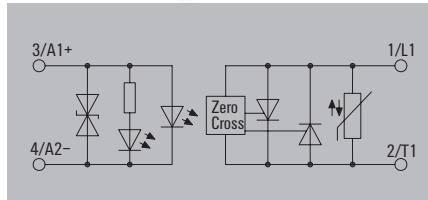
Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

Accessories

Note

PSSR - 1-phase

- Single-phase load circuit: 24–600 V AC / 50 A
- Compact design
- Zero-cross switch
- Noiseless, wear-free switching

PSSR 24 V DC / 1 PH AC 50 A HP**Technical data****Control side**

Rated control voltage	3.5...32 V DC
Power rating	≤ 280 mW
Pull-in/drop-out voltage, typ.	3 V / 2 V DC
Input frequency	10 Hz
Status indicator	Green LED
Protective circuit	Suppressor diode

Load side

Solid-state type	Thyristor (zero-cross switch)
Rated switching voltage	24...600 V AC
Continuous current	52 A (AC51) at 40 °C, mounted on heatsink with 0.75 K/W
Min. switching current	5 mA
Max. switching current	60 A
Voltage drop at max. load	≤1.35 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤ 10 ms / ≤ 10 ms
Output voltage frequency range	50 / 60 Hz
Pulse load, max. current	700 A (10 ms), non-recurrent
Load category	AC 51
Load limit integral (I^2t) < 10 ms	2450 A ² s

General data

Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE; cURus; EAC
Standards	EN 60947-4-3, EN 60950, IEC 60335-1

Insulation coordinates

Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 8 mm
Overtvoltage category	III
Pollution degree	2

Dimensions

Clamping range (rated / min. / max.) control side	mm ²
Clamping range (rated / min. / max.) load side	mm ²
Depth x width x height	mm

Note

1.5 / 0.75 / 2.5
10 / 1.5 / 10
29 / 45 / 58.5

Ordering data

	Type	Qty.	Order No.
Screw connection	PSSR 24VDC/1PH AC50A HP	2	1406240000

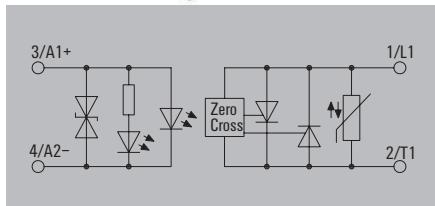
Note

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

Accessories**Note**

PSSR - 1-phase

- Single-phase load circuit: 24–600 V AC / 75 A
- Compact design
- Zero-cross switch
- Noiseless, wear-free switching
- High capacity for handling surge currents
 $I^2t = 6000 \text{ A}^2\text{s}$ (10 ms)
- Fusing with B circuit breaker possible

**PSSR 24 V DC / 1 PH AC 75 A HP****Technical data****Control side**

Rated control voltage
Power rating
Pul-in/drop-out voltage, typ.
Input frequency
Status indicator
Protective circuit

Load side

Solid-state type
Rated switching voltage
Continuous current
Min. switching current
Max. switching current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit, load side
Switch-on delay / Switch-off delay
Output voltage frequency range
Pulse load, max. current
Load category
Load limit integral (I^2t) < 10 ms

General data

Ambient temperature (operational)
Storage temperature
Humidity
Approvals
Standards

Insulation coordinates

Impulse withstand voltage
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

Dimensions

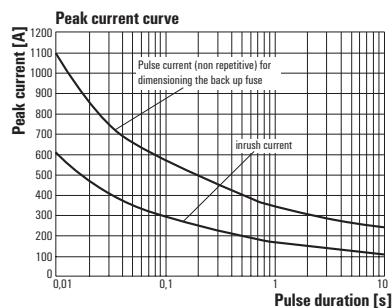
Clamping range (rated / min. / max.) control side
Clamping range (rated / min. / max.) load side
Depth x width x height

Note**Ordering data**

	Type	Qty.	Order No.
Screw connection	PSSR 24VDC/1PH AC75A HP	2	1406250000

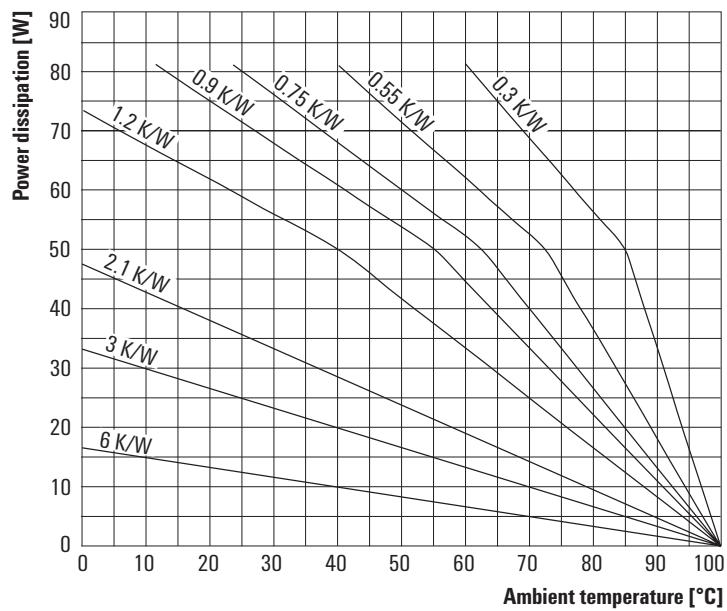
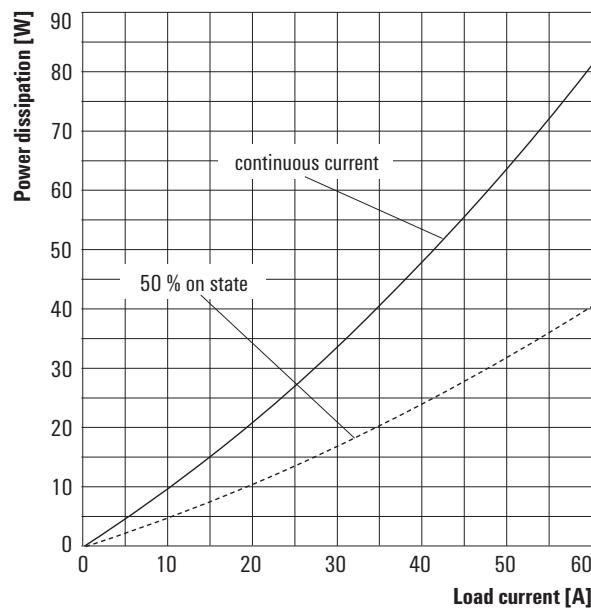
Note

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

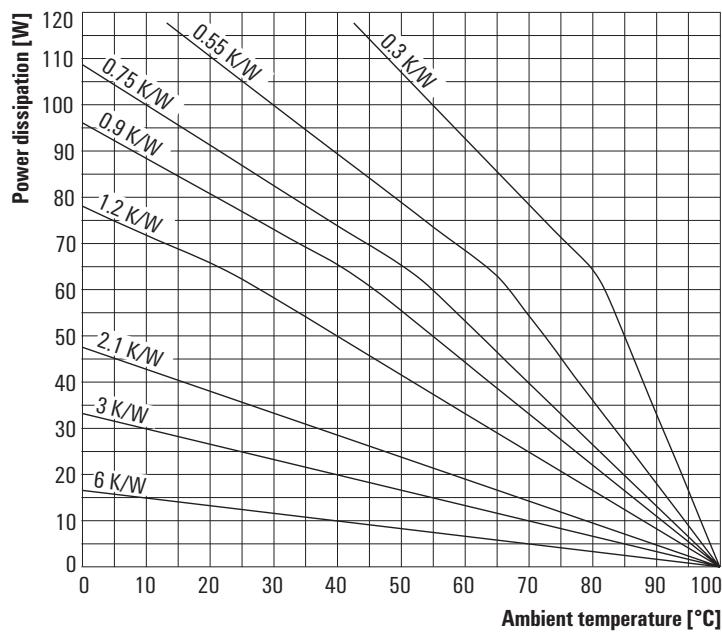
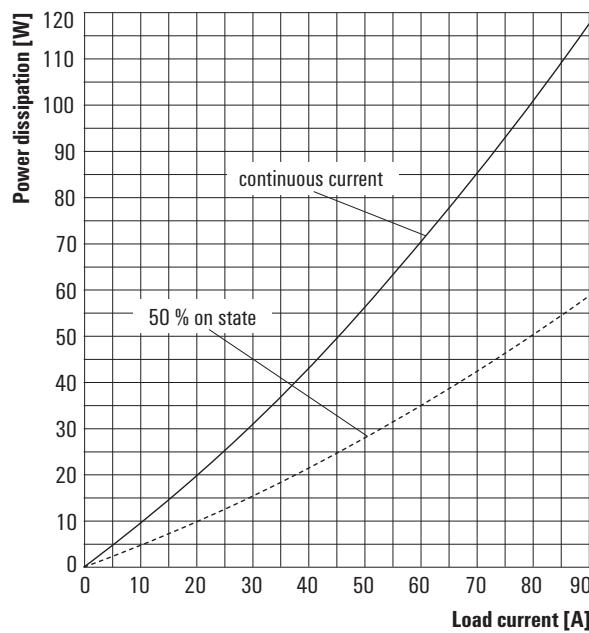
Accessories**Note**

Power dissipation and heat sink selection

Order No. 1406240000

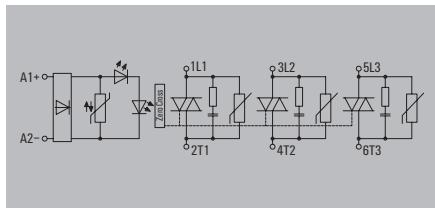


Order No. 1406250000



Power – Power solid-state relays**PSSR - 3-phase**

- Three-phase charging circuit: 24...520 V AC / 20 A at 55 °C
- Ready-to-use: snap on - connect - ready
- Zero-cross switch
- Wear-free and noiseless switching

**PSSR 24 V DC / 3 PH AC 20 A****Technical data****Control side**

Rated control voltage
Power rating
Pull-in/drop-out voltage, typ.

Input frequency

Status indicator

Protective circuit

Load side

Solid-state type

Rated switching voltage

Continuous current

Min. switching current

Max. switching current

Voltage drop at max. load

Leakage current

Short-circuit-proof / Protective circuit

Switch-on delay / Switch-off delay

Output voltage frequency range

Pulse load, max. current / Cartridge fuse

Load category

Load limit integral (I^2t) <10 ms**General data**

Ambient temperature (operational)

Storage temperature

Humidity

Approvals

Standards

Insulation coordination

Rated voltage

Impulse withstand voltage

Clearance and creepage distances for control side - load side

Overvoltage category

Pollution degree

Dimensions

Clamping range (rated / min. / max.) control side

mm²

Clamping range (rated / min. / max.) load side

mm²

Depth x width x height

mm

Note**Ordering data**

Screw connection

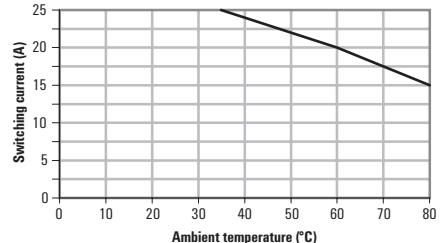
Type	Qty.	Order No.
PSSR 24VDC/3PH AC 20A	1	8952130000

Note

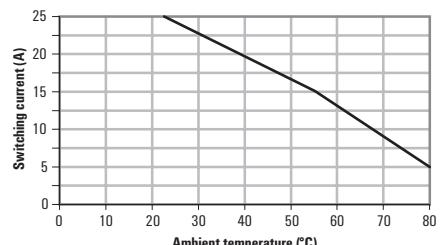
Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

Accessories**Note**

Derating curve with moderate ventilation and 50 % operational running time

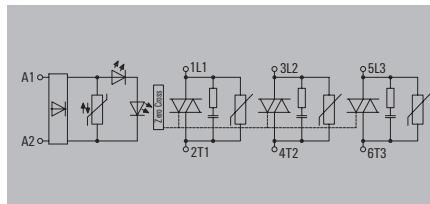


Derating curve without ventilation and in continual operation



PSSR - 3-phase

- Three-phase charging circuit: 24...520 V AC / 20 A at 55 °C
- Ready-to-use: snap on - connect - ready
- Zero-cross switch
- Wear-free and noiseless switching

PSSR 230 V AC / 3 PH AC 20 A**Technical data****Control side**

Rated control voltage
0.4...2.6 W
Power rating
Pul-in/drop-out voltage, typ.

Input frequency

Status indicator

Protective circuit

Load side

Solid-state type

Rated switching voltage

Continuous current

Min. switching current

Max. switching current

Voltage drop at max. load

Leakage current

Short-circuit-proof / Protective circuit

Switch-on delay / Switch-off delay

Output voltage frequency range

Pulse load, max. current / Cartridge fuse

Load category

Load limit integral (I^2t) <10 ms

General data

Ambient temperature (operational)

Storage temperature

Humidity

Approvals

Standards

Insulation coordination

Rated voltage

Impulse withstand voltage

Clearance and creepage distances for control side - load side

Oversupply category

Pollution degree

Dimensions

Clamping range (rated / min. / max.) control side

mm²

Clamping range (rated / min. / max.) load side

mm²

Depth x width x height

mm

Note**Ordering data**

Screw connection

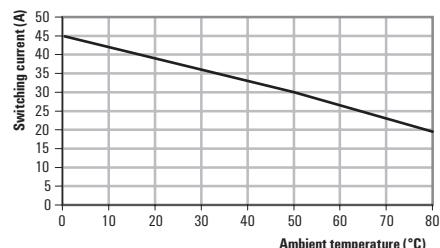
Type	Qty.	Order No.
PSSR 230VAC/3PH AC 20A	1	8952140000

Note

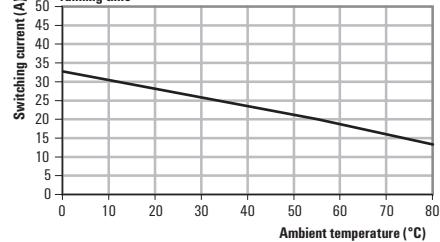
Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

Accessories**Note**

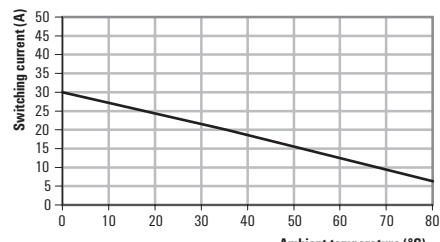
Derating curve with maximum ventilation



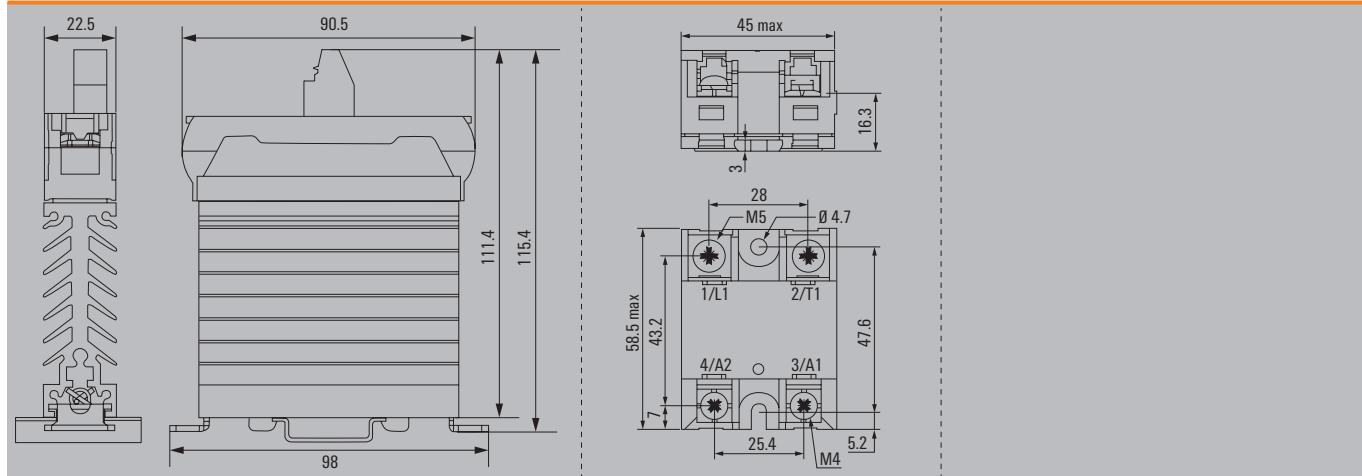
Derating curve with moderate ventilation and 50% operational running time



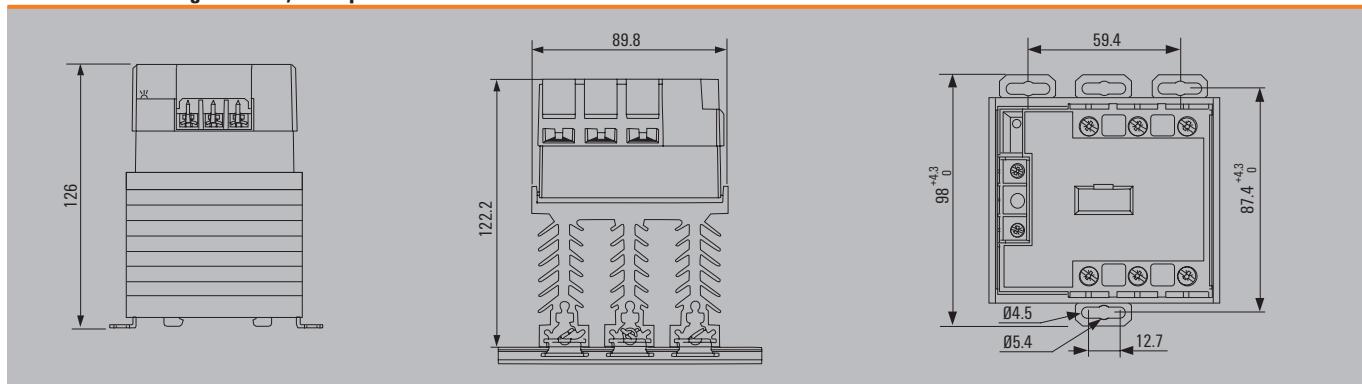
Derating curve without ventilation and in continual operation



Dimensioned drawing for PSSR, single-phase



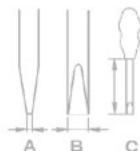
Dimensioned drawing for PSSR, three-phase



Uninsulated screwdriver

Weidmüller SoftFinish screwdriver for general uses.

Blade made from fully hardened, high-alloy chromium-vanadium-molybdenum steel, matt chrome finish.



Screwdriver for the connections on the input side

SD S

Slotted screwdriver with rounded blade SD DIN 5265, ISO 2380/2, output to DIN 5264, ISO 2380/1. ChromTop tip, SoftFinish® grip

Type	Size / AF	A	B	C	Order No.
SD S	SDS 0.6x3.5x100	0.6	3.5	100	9008330000



Screwdriver for the connections on the output side

SDK PZ

Crosshead screwdriver, Pozidriv, SDK PZ DIN 5262, ISO 8764/2-PZ, output to ISO 8764/1-PZ, ChromTop tip, SoftFinish® grip

SDK PZ2	2	100	9008540000
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