

# SIEMENS



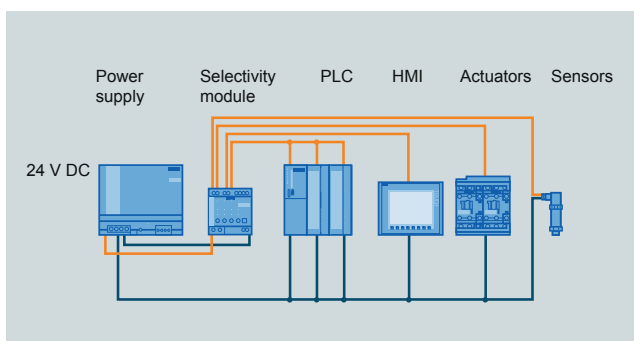
Brochure

Issue  
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SITOP PSE200U

## Electronic protection of 24 V DC load circuits with fast fault localization

The SITOP PSE200U selectivity module distributes the load current across several 24 V DC load circuits and monitors them reliably for overload and short-circuit conditions. The electronics permit brief current peaks caused, for example, by high inrush currents, but isolate 24 V DC load circuits in the event of an extended overload. This is ensured even on high-resistance lines and in the case of "creeping" short-circuits. In such cases, miniature circuit breakers fail to trip, or trip too late, even if the power supply unit could deliver the required tripping current. The SITOP PSE200U continues to supply 24 V DC to the load circuits not affected by an overload – a feature which avoids a possible total system failure. The single-channel message version facilitates rapid, channel-specific fault localization via just one digital input at the PLC.



As electronic protection, the SITOP PSE200U selectivity module switches faulty 24 V DC load circuits off immediately, and continues to supply the other 24 V DC load circuits without any interruption.

### Your benefits at a glance

- Reliable tripping regardless of cable lengths or cross-sections
- Four 24 V DC load circuits per module, in two versions with adjustable output current range of 0.5 to 3 A or 3 to 10 A
- Easy configuration thanks to individual setting of maximum channel current using potentiometers
- Two versions for remote diagnostics: common signaling contact or single-channel signaling
- Evaluation for modules with single-channel signaling via free of charge SIMATIC S7 function blocks (S7-1200/300/400)
- LEDs for fast on-site fault localization
- Remote reset possible from a central location
- Simple commissioning thanks to manual switch on/off of channels using reset button
- Sequential connection delay of individual 24 V DC load circuits reduces total inrush current
- Sealable transparent cover protects against maladjustment of tripping current and sequential delay

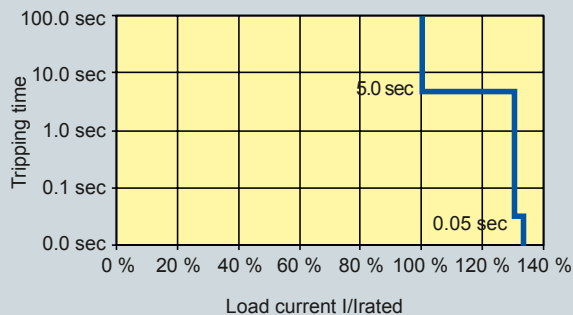
Answers for industry.

## Optimized for switched-mode power supply units

The SITOP PSE200U is specially designed to protect 24 V DC individual load circuits supplied by switched-mode power supplies. Individual setting of the tripping current allows optimum adaptation to the respective load circuit. Engineering effort is minimal since the switch-off characteristic always guarantees reliable tripping – even with high line impedances that limit the short-circuit current. SITOP PSE200U reliably disconnects the faulty path as soon as the current exceeds the set value by a small amount.



Switch-off characteristic



Response with current requirements per output circuit ...

- From 0 A up to set value ( $I/I_{rated} = 100\%$ )  
→ no switch-off
- From set value up to 130%  
→ switch-off after approx. 5 s
- Above 130% of set value  
→ current limiting to approx. 130% for typ. 50 ms, then switch-off
- Above set value with simultaneous collapse of supply voltage below 20 V DC  
→ immediate switch-off

## Miniature circuit breakers with high current consumption

Miniature circuit breakers require several times the rated current in order to trip within a few milliseconds. With this high current requirement, the line resistance can no longer be neglected. This is because the resistance prevents the required tripping current from flowing, independent of the current source. Therefore fast tripping is only possible up to certain cable lengths and starting from larger cable cross-sections. In addition to the line resistance, the overall circuit design (e.g. contact resistances at terminals) must be taken into consideration when configuring miniature circuit breakers.

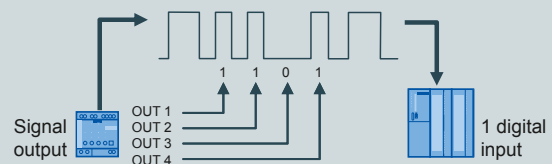
## Increasing plant availability

SITOP PSE200U also has another important function: The electronics continuously monitor the 24 V DC input voltage. As soon as the 24 V DC threatens to fail, the path with a higher current than the set current is disconnected immediately. All other circuits continue to be supplied without interruption. Even PLCs, which can only bridge power failures for a few milliseconds, continue to run without problems.

## Fast, channel-exact diagnostics


The SITOP PSE200U module with single-channel signaling requires only one digital input for signaling the switched-off channel to the PLC. Evaluation is carried out using a SIMATIC S7 function block (for SIMATIC S7-1200/300/400), enabling simple integration into the S7 diagnostics and host control or HMI systems.

SITOP PSE200U with single-channel signaling:  
Cyclic signaling of channel states to the PLC



The SITOP PSE200U module with single-channel signaling outputs the status of the 4 channels cyclically by means of a serial code which can be read in by a digital PLC input. Function blocks for SIMATIC S7-1200/300/400 for STEP 7 Classic and TIA-Portal are available free of charge for the evaluation. Further information as well as the function blocks for downloading can be found at:

<http://support.automation.siemens.com/WW/view/en/61450284>

Technical specifications				
				
	SITOP PSE200U with common signaling contact		SITOP PSE200U with single-channel signaling	
Order No.	6EP1961-2BA11	6EP1961-2BA21	6EP1961-2BA31	6EP1961-2BA41
<b>Input</b>				
Rated voltage $V_{in \text{ rated}}$	24 V DC			
Voltage range	22 ... 30 V DC			
Input current	40 A max.			
<b>Output</b>				
Rated voltage $V_{out \text{ rated}}$	Typ. $V_{in} - 0.2 \text{ V}$			
Number of output channels	4	4	4	4
Rated current $I_{out \text{ rated}}$ up to +60 °C per channel	3 A	10 A	3 A	10 A
Setting range per channel	0,5 ... 3 A	3 ... 10 A	0,5 ... 3 A	3 ... 10 A
Set time delay	0 ms, 25 ms or 100 ms (identical between outputs) or load-optimized (as soon as the previous output is less than the set rated value)			
Efficiency at $V_{out \text{ rated}}, I_{out \text{ rated}}$	Typ. 99%			
<b>Protection and monitoring</b>				
Status displays	Three-color LED per channel: green for output connected, yellow for output manually disconnected, red for output disconnected due to overload/short-circuit			
Signal output	Common signaling contact, changeover contact, contact rating 24 V/0.5 A		Single-channel signaling: cyclic signaling for channel-specific evaluation using SIMATIC S7 function block	
Protection class	Class III			
Degree of protection (EN 60 529)	IP20			
Approvals	UR (UL 2367), cURus (UL508, CSA C22.2 No. 14), ATEX (EN 60079-0, -15)			
<b>Connections</b>				
Input +24 V DC (load and electronics supply)	2 screw-type terminals for 0.5 mm ... 10 mm <sup>2</sup>			
Input 0 V (electronics supply)	2 screw-type terminals for 0.5 mm ... 4 mm <sup>2</sup>			
Outputs 1 to 4	1 screw-type terminal per channel for 0.5 ... 4 mm <sup>2</sup>			
Signal output	3 screw-type terminals for 0.5 mm ... 4 mm <sup>2</sup>		1 screw-type terminal for 0.5 ... 4 mm <sup>2</sup>	
Remote reset	1 screw-type terminal for 0.5 mm ... 4 mm <sup>2</sup>			
<b>General data</b>				
Emitted interference	EN 61000-6-3, EN 55022 Class B			
Noise immunity	EN 61000-6-2			
Ambient temperature range	0 ... +60 °C (-25 to +85 °C transport/storage)			
Mounting	DIN rail EN 60715 35 x 7.5/15			
Dimensions (width x height x depth) in mm	72 x 80 x 72	72 x 80 x 72	72 x 80 x 72	72 x 80 x 72
Weight	Approx. 170 g	Approx. 220 g	Approx. 170 g	Approx. 220 g

## Get more information

More on the SITOP PSE200U selectivity module:  
[www.siemens.com/sitop-select](http://www.siemens.com/sitop-select)

Information material for download:  
[www.siemens.com/sitop-infomaterial](http://www.siemens.com/sitop-infomaterial)

Using the SITOP Selection Tool to select the appropriate power supply:  
[www.siemens.com/sitop-selection-tool](http://www.siemens.com/sitop-selection-tool)

Operating instructions for downloading:  
[www.siemens.com/sitop/manuals](http://www.siemens.com/sitop/manuals)

CAX data (2D, 3D, circuit diagram macro) as download:  
[www.siemens.com/sitop-cax](http://www.siemens.com/sitop-cax)

Industry Mall for electronic ordering:  
[www.siemens.com/industrymall](http://www.siemens.com/industrymall)

SITOP contact:  
[www.siemens.com/automation/partner](http://www.siemens.com/automation/partner)

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