

POWER SUPPLIES

for maximum reliability



SWITCH CABINET COMPONENTS IN MACHINE AND SYSTEM INSTALLATIONS

For an optimum power supply and the highest level of machine availability.

ELECTRONICS IN THE CABINET

A reliable and machine-independent power supply is part of an efficient sensor system. PSU switching power supply units have a maximum efficiency of up to 95% with minimum power loss. The combination of the power boost function and current limiter makes it possible to start even when the loads are high. The wide input voltage range of our PSUs makes them suitable for use all around the world. PLM is the intelligent power supply system for applications in 24-V DC range. The switch cabinet component monitors up to four channels, signals critical loads and in the case of overloads or short-circuits it cuts out completely. To achieve maximum machine availability, power supply systems are often built redundantly, with two power supplies. The PBM active redundancy module decouples two independent power supplies and generates a redundant 24 V DC control voltage.



INDUSTRIAL POWER SUPPLIES AND MODULES FOR LOAD CIRCUIT MONITORING AND LOAD DISTRIBUTION

powerreserve.

- Power boost for up to 150 % for current spikes
- 20 % more power compared to the nominal current on a permanent basis
- Parallel connection of the PSU for redundant set-up or performance increase
- Higher efficiency > 95 % and derating happens only at 60°C

think modular.

- Compact size through 2.5–40 A power scaling
- 1 and 3 phase switching power supply units
- PLM load circuit monitoring module with 4 channels
- Optimal power distribution using the PBM balancer module

easyhandling.

- Push-in contacts for a simple connection
- Integrated electronic fuse
- 24–28 V DC secondary voltage can be set
- Alarm contacts and bright status LEDs
- Bridge system for PLM and PBM modules for reduced wiring available as accessory (MOD-ZBR-V1, part no. 50132611)

Power supplies and load circuit monitoring in the switch cabinet



Optimum system availability in one safety application



INDUSTRIAL SWITCHING POWER SUPPLY UNITS

For a reliable power supply system.

LOAD CIRCUIT MONITORING

To achieve the maximum machine availability.

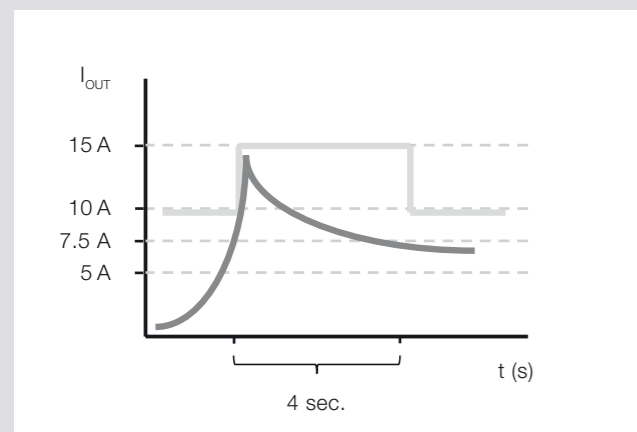


Switching power supply units
PSU 110 / 210 / 230 Power Supply Units

	PSU 110	PSU 210 / 230
Design	Standard	Professional
Output current	2.5A / 5A / 10A	5A / 10A / 20A / 40A
Type	1-phase	1-phase and 3-phase

- Efficiency up to 95 %
- 150 % power boost for at least 4 seconds
- Derating happens only at 60°C
- Metal housing with narrow overall width and optimal EMC characteristics
- High power-failure bridging
- Common alarm contact for overvoltage, short-circuit and temperature for PSU 210 / 230
- Parallel mode: performance increase of up to 5 switching power supply units
- With push-in terminals (no tool required), LED-status display

150 % power boost function at 10 A nominal output current



PREVENTATIVE DIAGNOSIS

- PSU 230 – 40 A continuously monitors
- Temperature
 - Start processes
 - Load
 - Life expectancy of components



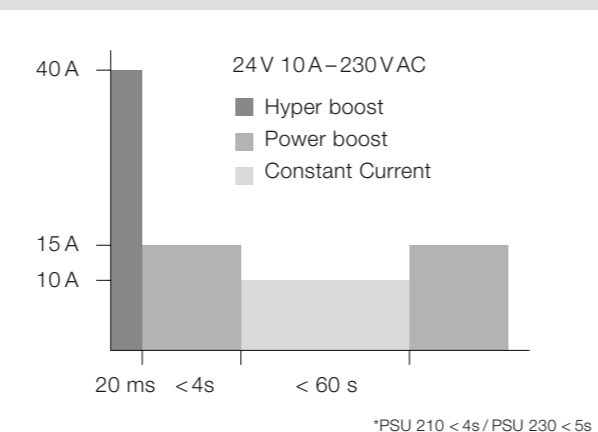
The projected life expectancy of the PSU can be ascertained in this manner and passed on to the controller via a diagnosis contact.

20 % MORE POWER

- Integrated function reserve for subsequent machine expansion
- Price advantage, as smaller device can be used
- Lower space requirements inside the cabinet

5 A	PSU-05A-3P-24V-H	⇔	6 A
10 A	PSU-10A-3P-24V-H	⇔	12 A
20 A	PSU-20A-3P-24V-H	⇔	24 A
40 A	PSU-40A-3P-24V-H	⇔	48 A

Switch-off behavior of PSU 210/230*



*PSU 210 < 4s / PSU 230 < 5s

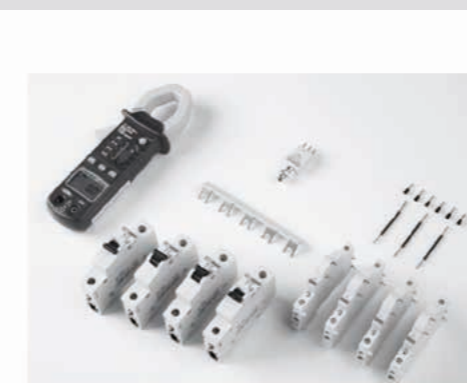


Load circuit monitoring (4-channel)
PLM 06/10 Power Load Monitoring Modules

	PLM 06	PLM 10
Part designation	MOD-EAC-I2-04/06A-24V	MOD-EAC-I2-04/10A-24V
Output current	1 / 2 / 4 / 6 A	4 / 6 / 8 / 10 A
	Adjustable by detent for every channel	
Input voltage	18 – 30 V DC	
Alarm	Potential-free relay contact	
Switch-on capacity	Max. 20 mF (per channel)	
Remote acknowledgement	Yes	

- Detect defective cables, avoid voltage dips, reduce standstill times
- Up to 30 % space saved in the switch cabinet
- Simple and fast wiring and installation
- A model to safeguard up to 4 nominal currents

Conventional installation



PLM – intelligent current distribution and load circuit monitoring



INTELLIGENT CURRENT DISTRIBUTION WITH A PLM

- Switches short-circuit off safely
- Switches overcurrents off safely and fast
- Switches capacitive loads on safely

	Z automat	C automat	Leuze PLM
Capacitive loads	Switches off ⚡	Switches on ✓	Switches on ✓
Short-circuits	Switches off ✓	Remains on ⚡	Switches off ✓
Overcurrent	Switches late ⚡	Switches late ⚡	Switches directly ✓

The PLM electronic fuse module combines the maximum performance with minimal space requirements.

- Remote acknowledgment via 24 V DC signal possible
- Minimal internal resistance - very little power loss
- Optimum switching-off behavior: as late as possible, as early as necessary
- No dependence on temperature, no current limiting

LOAD CIRCUIT MONITORING AND REDUNDANCY MODULES

Solutions for an intelligent power supply system and redundant 24 VDC control voltage.

TECHNICAL DATA

An overview of all technical details.

INTELLIGENT LOAD CIRCUIT MONITORING

Safeguarding in a targeted way is the focus here in modern power supply systems – Leuze PLM is an intelligent power supply system that is optimal for this. This means errors are found quickly so machines and systems remain available.

- Leuze PLM monitors currents: for each of the individual four current paths an individual current value can be set. The LED illuminates green.
- Leuze PLM signals critical loads: If 90 % of the load current set at the channel is reached an optical warning message occurs. The LED flashes green.
- Leuze PLM detects overstress: if the load current exceeds the current value that was set, or if short-circuits occur, Leuze PLM switches the affected channel off completely. The LED flashes red.
- Leuze PLM provides flexibility: every channel can be deactivated individually by pressing a button. The LED illuminates red. Of course the channels can also be manually switched on.

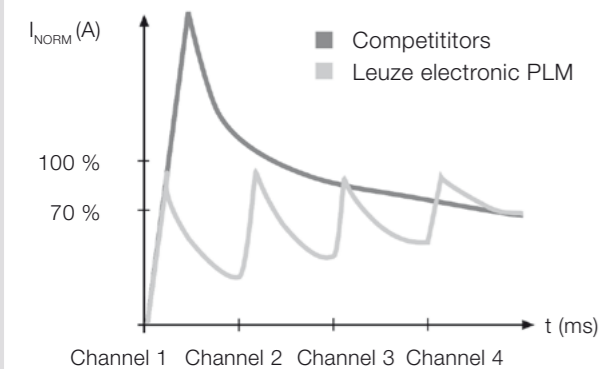


Redundancy modules
PBM 20 / 50 Power Balance Module

	PBM 20	PBM 50
Part designation	MOD-BD-I2/20-02/40A-24V	MOD-BA-I2/20-02/40A-24V
Design	Standard, passive	Professional, active
Auto-Balancing	No	Yes (50:50)
Output current	Max. 2 x 20 A or 1 x 40 A	
Input voltage	18–30 VDC	
Alarm	Potential-free relay contact	
Display	2x status LED (red/green)	
Dimensions	90 x 70 x 80 mm	

- For higher safeguarding against failure and system availability
- Long life expectancy via 50:50 autobalancing
- 87% less power loss relative to diode modules

Cascading switching on of the individual current paths makes it possible to reduce switch-on current peaks significantly



Every PSU provides one half of the required output current



Quick Selection	PSU 110			PSU 210			PSU 230						
	Part designation	PSU-02A-1P-24V-S	PSU-05A-1P-24V-S	PSU-10A-1P-24V-S	PSU-05A-1P-24V-H	PSU-10A-1P-24V-H	PSU-20A-1P-24V-H	PSU-05A-3P-24V-H	PSU-10A-3P-24V-H	PSU-20A-3P-24V-H	PSU-40A-3P-24V-H		
Order no.	50132582	50132583	50132584	50132585	50132586	50132587	50132588	50132589	50132590	50132591	50132591		
Phases	1	1	1	1	1	1	3	3	3	3	3		
Current	2.5 A	5 A	10 A	5 A	10 A	20 A	5 A	10 A	20 A	20 A	40 A		
PSU Details	Input												
	Input voltage	95...265 VAC / 110...300 VDC		100...265 VAC		85...265 VAC / 90...250 VDC			3x324 VAC...572 VAC / 450 VDC...745 VDC				
	Switch-on current shock after 1 ms	< 20 A		< 30 A		< 40 A			< 13 A			< 14 A	
	Output												
	Output voltage	24 V DC (SELV), ±1% / 22...28 V adjustable					24–28 V DC adjustable						
	Power boost	No					150 % for 4 seconds			150 % for 5 seconds			
	Efficiency	Up to 87 %					Up to 95 %						
	Protective measures	Short-circuit and overload proof (output)					Short-circuit and overload proof (output), current limiter						
	General specifications												
	Power-failure bridging	> 80 ms at 230 VAC		> 115 ms at 230 VAC		> 20 ms at 230 VAC			> 25 ms at 400 VAC		> 20 ms at 400 VAC		
	Status display	LED (green) for output voltage					Green/red LED						
	Standards	EN 60950-1, EN 61204-3, EN 55022 B, EN 61000-3-2					EN 60950-1, EN 61204-3, EN 55011 B, EN 61000-3-2						
	Temperature range	0...+40 °C, to +50 °C derating (storage temperature –20...+85 °C)			–25...+60 °C / 60...70 °C derating (storage temperature –40...+85 °C)			–25...+60 °C / 60...70 °C derating (start up –40 °C / storage temperature –40...+85 °C)					
	Type of fastening	Snap-on system for TH35 DIN rails (EN 60715)											
	Dimension (H x W x D)	76 x 38 x 108 mm	115 x 62 x 125 mm	128 x 68 x 165 mm	123 x 50 x 138 mm	123 x 65 x 138 mm	123 x 85 x 138 mm	143 x 50 x 143 mm	143 x 65 x 143 mm	143 x 65 x 167 mm	138 x 109 x 182 mm		
Other	Relay alarm contact for short-circuits, overloads and excess temperature										Additional preventative diagnosis contact		
Certifications	UL listed												

OUR PROMISE TO YOU

SMARTER **PRODUCT USABILITY**

With regard to our product developments, we systematically place emphasis on the especially good usability of all devices. To this end, simple mounting and alignment are taken into account – just as the uncomplicated integrability of the sensors in existing field bus systems and easy configuration, e.g. via a web browser, are.

SMARTER **APPLICATION KNOW-HOW**

Whoever can do it all, can do nothing right. Which is why we concentrate on selected target sectors and applications. There, we are specialists and know all aspects inside out. For this purpose, we optimize our solutions and offer a comprehensive product range that makes it possible for our customers to obtain the absolute best solutions from a single source.

SMARTER **CUSTOMER SERVICE**

The technical and personal proximity to our customers, and a skilled, straightforward handling of queries and problems, are among our strengths – and will remain so. Consequently, we will continue to expand our service offerings and, indeed, also forge ahead in new directions to persistently redefine the utmost in customer service. Whether on the phone, on the Internet or on-site with our customers – regardless of when and where the expertise of the sensor people is needed at any time.

Info at: www.leuze.com



SMART
SENSOR
BUSINESS

Katrin Rieker,
Sales Methods, Processes, Tools



Switching Sensors

Optical Sensors
Ultrasonic Sensors
Fiber Optic Sensors
Inductive Switches
Forked Sensors
Light Curtains
Special Sensors

Measuring Sensors

Distance Sensors
Sensors for Positioning
3D Sensors
Light Curtains
Forked Sensors

Products for Safety at Work

Optoelectronic Safety Sensors
Safe Locking Devices, Switches and Proximity Sensors
Safe Control Components
Machine Safety Services

Identification

Bar Code Identification
2D-Code Identification
RF Identification

Data Transmission/ Control Components

MA Modular Connection Units
Data Transmission
Safe Control Components
Signaling Devices
Connection Technology and Passive Distribution Boxes
Power Supply Systems

Industrial Image Processing

Light Section Sensors
Smart Camera

Leuze electronic GmbH + Co. KG
In der Braike 1
73277 Owen / Germany
Phone +49 7021 573-0
Fax +49 7021 573-199
info@leuze.de
www.leuze.com