POWER SUPPLIES
for maximum reliability
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.

SWITCH CABINET COMPONENTS IN MACHINE AND SYSTEM INSTALLATIONS

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

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

- Power reserve.
  - 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

- Easy handling.
  - 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)

- 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

Power supplies and load circuit monitoring in the switch cabinet

Optimum system availability in one safety application.
For a reliable power supply system.

LOAD CIRCUIT MONITORING
To achieve the maximum machine availability.

**INDUSTRIAL SWITCHING POWER SUPPLY UNITS**

**20% MORE POWER**
- Integrated function reserve for subsequent machine expansion
- Price advantage, as smaller device can be used
- Lower space requirements inside the cabinet

<table>
<thead>
<tr>
<th>PSU 110</th>
<th>PSU 210 / 230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>Standard</td>
</tr>
<tr>
<td>Output current</td>
<td>2.5 A / 5 A / 10 A</td>
</tr>
<tr>
<td>Type</td>
<td>1-phase</td>
</tr>
</tbody>
</table>

- 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

**LOAD CIRCUIT MONITORING**

**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.

**24 V 10 A – 230 V AC**
- Hyper boost
- Power boost
- Constant Current

**Switch-off behavior of PSU 210/230**

**INTELLIGENT CURRENT DISTRIBUTION WITH A PLM**
- Switches short-circuit off safely
- Switches overcurrents off safely and fast
- Switches capacitive loads on safely

**Load circuit monitoring (4-channel)**

**PLM 06/10 Power Load Monitoring Modules**

<table>
<thead>
<tr>
<th>PLM 06</th>
<th>PLM 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part designation</td>
<td>MOD-EAC-12-04/06A-24V</td>
</tr>
<tr>
<td>Output current</td>
<td>1/2/4/6 A</td>
</tr>
<tr>
<td>Input voltage</td>
<td>Adjustable by detent for every channel</td>
</tr>
<tr>
<td>Alarm</td>
<td>11 V – 30 V DC</td>
</tr>
<tr>
<td>Switch-on capacity</td>
<td>Potential free relay contact</td>
</tr>
<tr>
<td>Remotely acknowledged</td>
<td>Max. 20 mF (per channel)</td>
</tr>
</tbody>
</table>

- 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

**Conventional installation**

**PLM – intelligent current distribution and load circuit monitoring**

**Switching power supply units**

PSU 110 / 210 / 230 Power Supply Units

**Switch-off behavior of PSU 210/230**

**150% power boost function at 10 A nominal output current**

**Switches short-circuit off safely**

**Switches overcurrents off safely and fast**

**Switches capacitive loads on safely**

**Integrated function reserve for subsequent machine expansion**

**Price advantage, as smaller device can be used**

**Lower space requirements inside the cabinet**

**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**

**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**

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**No dependence on temperature, no current limiting**
LOAD CIRCUIT MONITORING AND REDUNDANCY MODULES

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

INTELLIGENT LOAD CIRCUIT MONITORING

Safeguarding in a targeted way is the focus here in modern power supply systems – because failure of an intelligent power supply system is often fatal for the entire system. The Leuze PLM-20/50 series is the solution: the monitoring and redundancy modules are designed to provide a targeted level of protection and safeguarding.

The Leuze PLM-20/50 modules offer the following features:

- **Redundancy:** Each power supply module has a passive or active Fail-Safe feature.
- **Auto-Balancing:** Each channel can be balanced automatically to ensure equal current distribution.
- **Output Current:** Maximum current of 2 × 20 A or 1 × 40 A per module.
- **Input Voltage:** 18 – 30 V DC
- **Alarm:** Potential-free relay contact
- **Display:** 2× status LED (red/green)
- **Dimensions:** 90 × 70 × 80 mm

For higher safeguarding against failure and system availability, the Leuze PLM-20/50 modules provide a targeted level of protection.

Long life expectancy via 50:50 autobalancing

87% less power loss relative to diode modules

Redundancy modules

**PBM 20 / PBM 50 Power Balance Module**

Leuze electronic PLM

INORM (A)

100 %

70 %

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.

PSU 110

PSU 210

PSU 230

Order no. 50132582 50132583 50132584 50132585 50132586 50132587 50132588 50132589 50132590 50132591

Phases 1 1 1 1 1 1 3 3 3 3

Current 2.5 A 5 A 10 A 5 A 10 A 20 A 5 A 10 A 20 A 40 A

PSU Details

- **Power Factor:**
  - Power factor correction: > 0.96 at 230 VAC
  - > 0.84 at 230 VAC
  - > 0.80 at 230 VAC
  - > 0.65 at 230 VAC
  - > 0.55 at 230 VAC

- **Input Voltage:**
  - 100…265 V AC 95…265 V AC
  - 100…265 V AC 85…250 V DC
  - 3 × 324 V AC … 572 V AC / 450 V DC … 745 V DC

- **Switch-on Current Shock:**
  - < 13 A
  - < 14 A
  - < 15 A
  - < 16 A

- **Output Voltage:**
  - 24 – 28 V adjustable

- **Power Boost:**
  - No
  - 150 % for 5 seconds
  - 150 % for 2 seconds

- **Efficiency:**
  - Up to 87 %
  - Up to 95 %

- **Certifications:**
  - UL listed

TECHNICAL DATA

An overview of all technical details.

Quick Selection

<table>
<thead>
<tr>
<th>PSU 110</th>
<th>PSU 210</th>
<th>PSU 230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>f (ms)</td>
<td>Output</td>
</tr>
<tr>
<td>Frequency</td>
<td>50 Hz</td>
<td>Output Power</td>
</tr>
<tr>
<td>Phase</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Order no.</td>
<td>50132582</td>
<td>50132583</td>
</tr>
<tr>
<td>Phases</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Current</td>
<td>2.5 A</td>
<td>5 A</td>
</tr>
<tr>
<td>Input Voltage</td>
<td>18 – 30 V DC</td>
<td>18 – 30 V DC</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>24 V DC (SELV), ±1 %</td>
<td>24 – 28 V adjustable</td>
</tr>
<tr>
<td>Power Boost</td>
<td>No</td>
<td>150 % for 5 seconds</td>
</tr>
<tr>
<td>Efficiency</td>
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<tr>
<td>Certifications</td>
<td>UL listed</td>
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</tr>
</tbody>
</table>

Dimensions (H × W × D) 76 × 38 × 108 mm 115 × 62 × 125 mm 128 × 68 × 165 mm 123 × 50 × 138 mm 123 × 65 × 138 mm 123 × 85 × 138 mm 143 × 50 × 143 mm 143 × 65 × 143 mm 143 × 65 × 167 mm 138 × 109 × 182 mm

Other

- Relay alarm contact for short-circuits, overloads and excess temperature
- Additional preventative diagnosis contact

Competitors

Leuze electronic PLM

INORM (A)

100 %

70 %
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
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