

# PIANO

DIN rail power supplies | 36 - 480W | 1-phase



# Simplicity. Without compromises.



Price advantage thanks to basic functionality

High efficiency, lifetime and reliability

Robust and light-weight polycarbonate housing

## PIANO

The PIANO product family has been developed for users who require a **simple and reliable** power supply.

The focus of PIANO power supplies is on the **core features**: Efficiency, lifetime, reliability and size. Expensive additional functions, such as power reserves, were deliberately omitted. This allows a **cost-oriented design** without compromising on quality. PIANO power supplies are **perfectly suited** for a wide variety of applications.

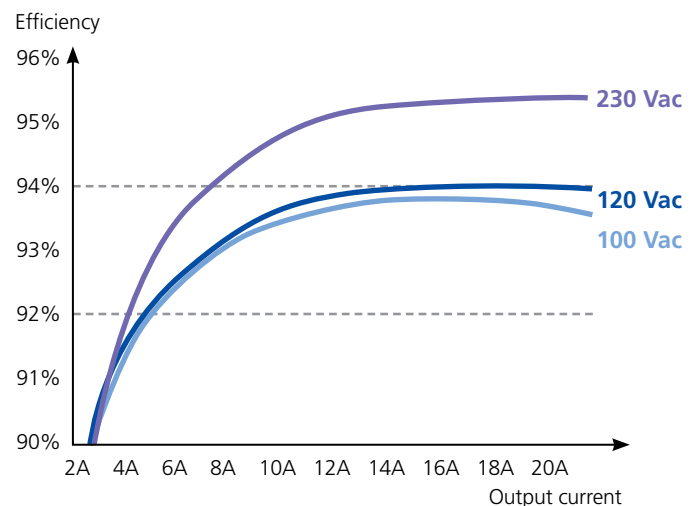
More demanding applications can be realised using the fully equipped DIMENSION products.

## At a glance



### Reduce costs

- **High efficiency**  
Low power losses lead to a long lifetime and continuously reduced operating costs.
- **Compact design**  
Its narrow width saves costly space in the system.
- **Single-board design**  
All components are assembled on one PC-board. The cost savings in the production and testing process are reflected in the prices of the products.



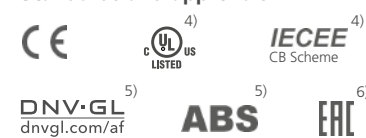
# Technical data

	36W PIM36	60W PIM60	90W PIM90	120W PIC120	240W PIC240	480W PIC480
<b>Output</b>						
Output current, nominal	1.5A	5A	2.5A	3.8A	3.8A	5A
Output voltage, nominal	24V	12V	24V	24V	24V	24V
DC output voltage range	24-28V	12-15V	24-28V	24-28V	24-28V	24-28V
Hold-up time, typ. at 230V <sub>ac</sub>	161ms	114ms	113ms	119ms	119ms	33ms
<b>Input</b>						
AC input voltage, nominal	100-240V	100-240V	100-240V	100-240V	100-240V	100-240V
AC input voltage range	90-264V	90-264V	90-264V	90-264V	90-264V	180-264V
Power factor, typ.	0.46	0.49	0.47	0.45	0.45	0.54
Input inrush current, typ. AC (+40°C)	TBD	31A	35A	40A	40A	28A
Operational temperature range	-10°C to +70°C	-10°C to +70°C	-10°C to +70°C	-10°C to +70°C	-10°C to +70°C	-10°C to +70°C
<b>Efficiency</b>	> 90%	90.7%	91.8%	93.8%	93.8%	90.5%
<b>MTBF SN 29500, IEC61709 at +40°C</b>	TBD	TBD	TBD	TBD	TBD	1720kh
<b>Minimum lifetime expectancy at +40°C and 100% load</b>	115 kh 100Vac	89 kh 100Vac	115 kh 100Vac	102 kh 100Vac	102 kh 100Vac	47kh
<b>Mechanical data</b>						
Dimensions WxHxD	22.5x90x91mm	36x90x91mm	36x90x91mm	36x90x91mm	36x90x91mm	39x124x124mm
Weight	138g	225g	220g	270g	270g	350g
DC-OK relay contact	-	-	-	-	-	.241C yes/.242C no
Connection terminals	push-in	PIM60.121: push-in PIM60.125: screw	PIM60.241: push-in PIM60.245: screw	push-in	screw	screw
<b>Order number</b>	<b>PIM36.241</b>	<b>PIM60.121</b> <b>PIM60.125</b>	<b>PIM60.241</b> <b>PIM60.245</b>	<b>PIM90.241</b>	<b>PIM90.245</b> <b>PIM90.245-L1</b> 2)	<b>PIC120.241C</b> <b>PIC120.242C</b>
						<b>PIC120.241D</b>
						<b>PIC240.241C</b>
						<b>PIC240.241D</b>
						<b>PIC480.241C</b>
						<b>PIC480.241D</b> 3)
						<b>PIC480.481D</b> 3)

### General data for all versions:

Power reduction 2.5%/°C from +55°C (PIC480.241C: 1.7%/°C)  
 Humidity 5% to 95% r.h.  
 Installation height (with derating) 0 to 2,000m (up to 5,000m)  
 Shock test 30g 6ms, 20g 11ms in accordance with IEC60068-2-27  
 Warranty 3 years

### Standards and approvals

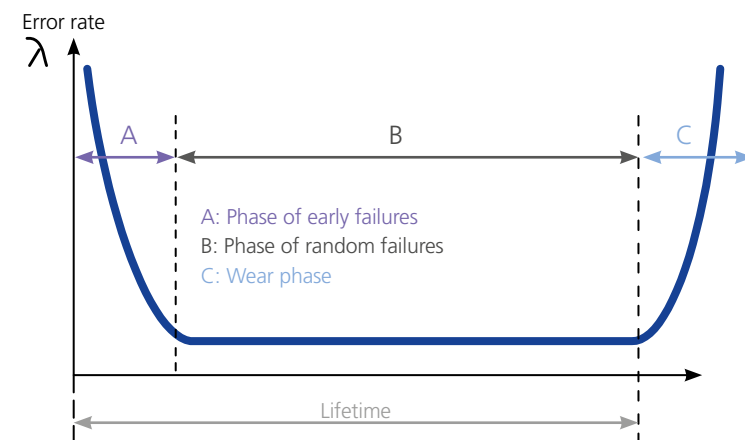


### Annotations

1) Auto-select 2) NEC Class 2 version 3) With aluminum housing 4) PIM36.241, PIM60.121 / -125, PIM60.241 / -245, PIM90.241 / -245 / -245-L1, PIC480.241D, PIC480.481D in preparation  
 5) PIC120.241C, PIC120.242C, PIC240.241C 6) PIC480.481D in preparation  
 All values are valid at 230 Vac, 50Hz, +25°C ambient temperature after a warm-up time of 5 minutes, unless stated otherwise.  
 All technical data is subject to change without notice.

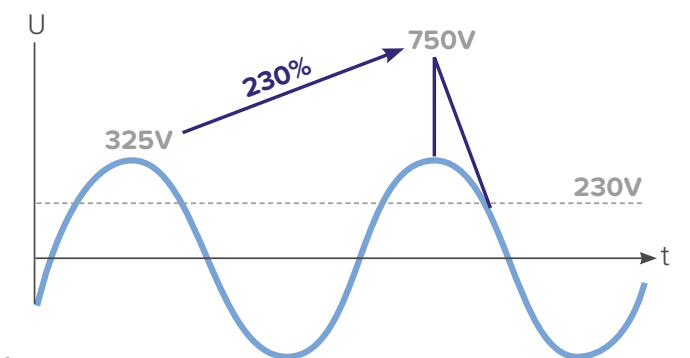
## Extend availability

- High reliability**  
PIANO power supplies are characterised by a high MTBF and thus a low failure rate in phase B (see graph).
- DC-OK**  
The DC-OK signal and the relay contact (PIC devices) for remote monitoring facilitate maintenance and increase system availability.



## Increase safety

- Robust polycarbonate**  
Due to very high efficiency values the housing is not needed for heat dissipation. This allows the use of light-weight plastic housings. The material has proven to be very reliable throughout all stress tests (shock, vibration, temperature).
- High immunity**  
The devices can withstand powerful input transients up to to 230% of the nominal input voltage. This high immunity is ensured across the entire load range.



# Well-engineered. Down to the smallest detail.

## Monitoring function

DC-OK-signal and relay contact

## Cost-oriented design

All components on one PC-board



## Robust polycarbonate housing

Resistant to heat and vibration

## Flexible selection

Versions with and without wide-range input

## Long lifetime

Components crucial for determining the product's lifetime are placed in the coolest spots

## High MTBF

Reduced number of components reduces the probability of failure

# Innovation. PIANO mini.

## Minimum size. Maximum effect.

The modern circuit design requires little space. 90W can be integrated into a housing with only 36 x 90 x 91mm. The high efficiency ensures lower power losses – even at no-load (< 0.5W).

## Push-in or screw terminals

Users have the choice between push-in and screw terminals. The push-in terminals facilitate time-saving installation without tools, and are extremely reliable in the event of shock and vibrations.

36W



PIM36

available soon

60W



PIM60

90W



PIM90

also available as  
NEC Class 2 version

## Redundancy module



### PIANO PIRD20.241

- Two inputs with common output
- Two diodes (common cathode)
- DC 12-28V  $\pm$  25% wide-range input
- Full output power between -40°C and +55°C
- Width only 39mm
- Simple wiring: Distributor terminal for negative pole available

### Benefits

Secure your system with the PIRD20.241. This diode redundancy module with basic functionality is the perfect complement to the PIANO DIN rail power supplies. Useful to build cost-effective 1+1 redundancy systems.