

High Reliability at a Very Attractive Price



With the new PIANO series, PULS-quality DIN-rail power supplies are now available for even the most cost oriented user. Through a fresh and innovative approach, the intrinsic properties of a PULS power supply (high reliability and long service lifetime) have now been introduced into a product that also has significant price advantages. PIANO prices are 20 to 40% below previous model prices.

Despite our low cost requirements, an MTBF of more than 1.4 million hours and efficiencies of 90.5 to 94.5% have been achieved. This innovation was made possible by a clever single-board design, cost-saving polycarbonate housing and a design team that was focused on an intelligent design for manufacturability.

PIC120.241C

AC 200-240V

DC-OK-Signal

24V / 5A

39mm Width

PIC120.242C

AC 200-240V

24V / 5A

39mm Width

PIC120.241D

AC 100-120/200-240V

DC-OK-Signal

24V / 5A

39mm Width

PIC240.241C

AC 200-240V

DC-OK-Signal

24V / 10A

49mm Width

PIC240.241D

AC 100-240V

DC-OK-Signal

24V / 10A

49mm Width

Availability

200-240V version is currently in stock, global version will be available Q2/2015

Product Details



The five units of the new PIANO series by PULS offer:

- High reliability with basic functionality
- Long life
- Small width
- Large, rugged screw terminals
- Full performance from -10 ° C to + 55 ° C
- DC-OK relay (except PIC120.242C)
- IEC / UL 60950-1 and UL 508 (in preparation)
- Radio interference EN 55011/022 Class B
- Immunity IEC / EN 61000-6-1 and IEC / EN 61000-6-2
- 3 years warranty

Additional Benefits

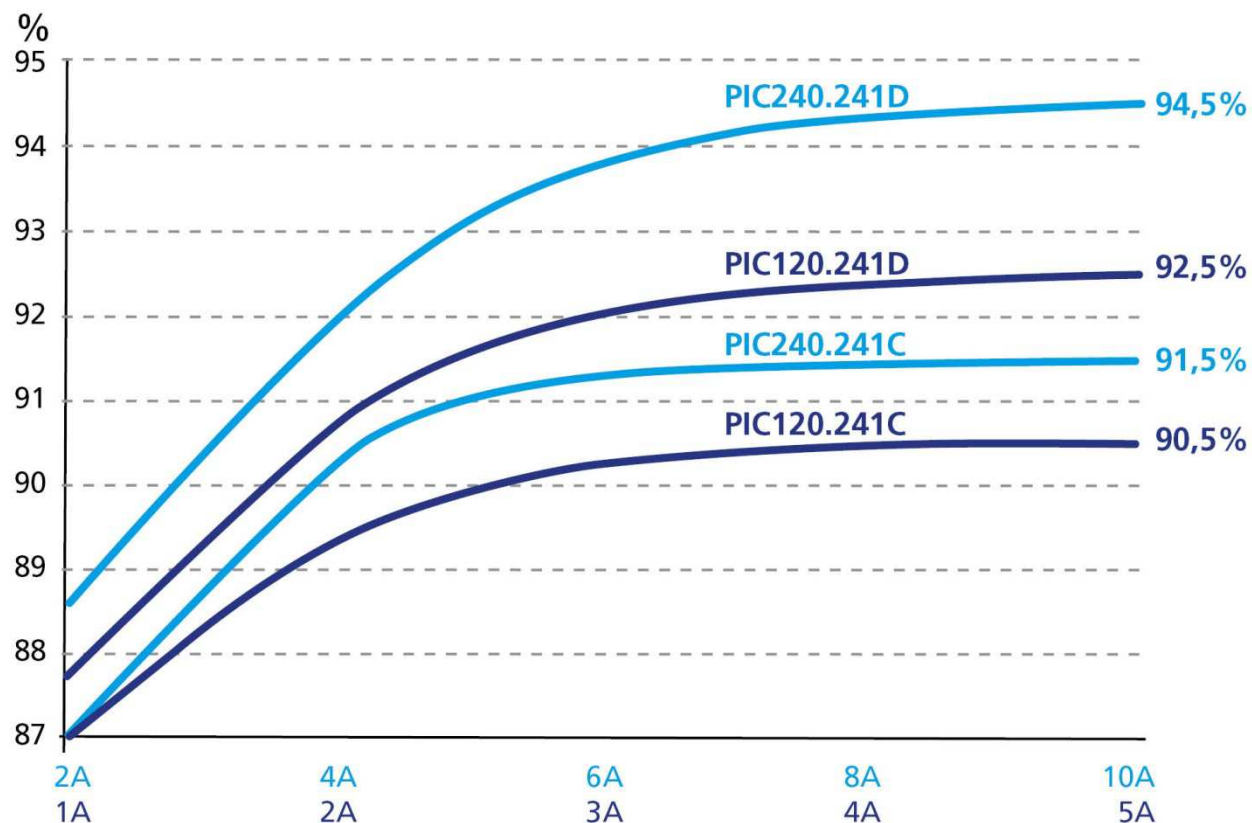
To ensure that your application continues to function properly, PIANO includes a DC-OK signal, an operational temperature range of up to +55°C (without derating) and large input and output terminals all within a light and compact housing. The 24V/10A unit, with a width of only 49mm, is the same size as the smallest “new to market” high-end products from other vendors. Additionally, for applications that do not necessarily need a mains voltage of 100-120V, the user can further reduce their costs by choosing one of the PIANO versions that is specifically developed for 200-240V.

Standards and Approvals

- IEC / UL 60950-1
- UL 508 in preparation
- EMC Emission EN 550551/022 Class B
- EMC IEC / EN 61000-6-1 / 61000-6-2 / 61000-6-4
- Degree of pollution IEC 62103: 2
- Mechanical Shock IEC 60068-2-27: 30g 6ms, 11ms 20g
- Vibration IEC 60068-2-6: 2g



Efficiency at 230V, 25°C and Full Load



Best-in-Class Efficiency

The efficiencies of the PIANO series are between 90.5 and 94.5% at 230V and thus very high, especially for devices in this price range.

Your Benefit:

All users can appreciate the advantages and savings of the unit's high efficiency and low heat generation which in turn makes the high reliability, long service lifetime and compact design all possible.

Innovative Housing



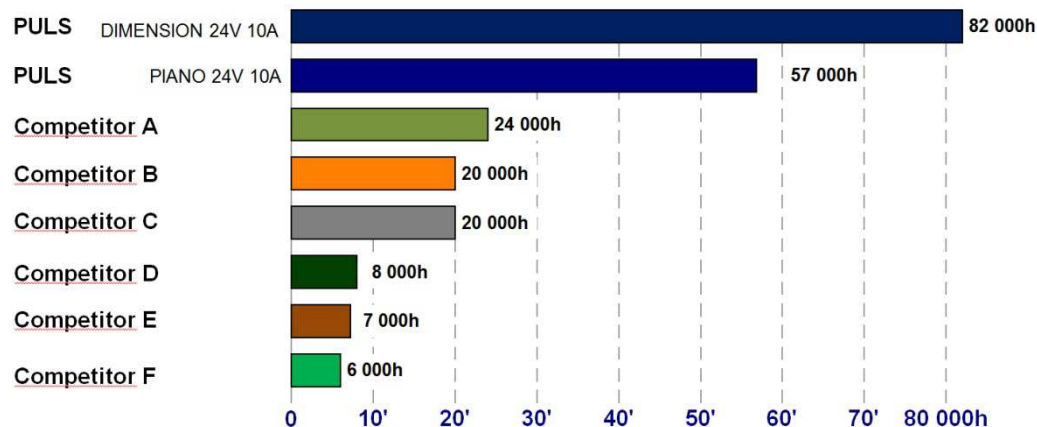
High Quality Housing

The stylish housing of the PIANO series is made of a high quality polycarbonate. This material is characterized by its high strength, impact toughness and hardness, which is why this material is most commonly used in sophisticated products like SLR cameras, smartphones and laptops. The design has been extensively and rigorously testing and passed with significant safety margins.

Your Benefit:

The sleek housing promotes a striking first impression and its quick installation and resistant to corrosion upholds this sentiment. The light weight design is especially advantageous against high mechanical shock and vibrational stresses.

Service Lifetime



All values at 40°C ambient temperature and 100% load

Best-in-Class Service Lifetime

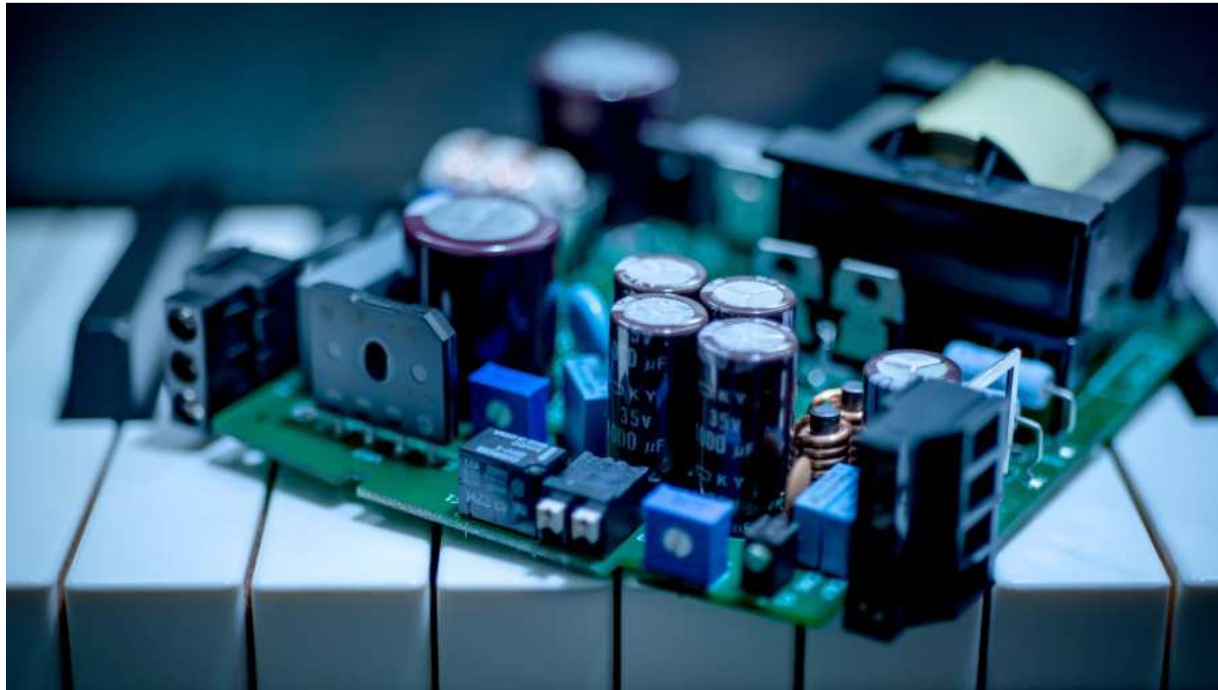
The Service lifetime of the new PIANO-series is remarkably high when compared to similar products on the market. The outstanding service lifetime was achieved by the highly efficient and sophisticated thermal design of the PIANO but also by choosing to use high end components with long service lifetimes (e.g. electrolytic capacitors).

24V / 5A at +25°C / +40°C: 133,000 / 47,000 hours
 24V / 10A at +25°C / +40°C: 126,000 / 57,000 hours
 Data for the 200-240V version at 100% load

Your Benefit:

These affordable devices can even be used in high-end applications.

High Reliability / MTBF



High Mean Time Between Failure

A high MTBF value expresses the outstanding reliability of the PIANO series. These high reliability figures are attributed to the unit's low internal temperatures (thermal design) as well as an intelligent design that uses fewer and unstressed components.

MTBF:

24V/ 5A at +25°C/+40°C: 3.2/1.7 Million hours

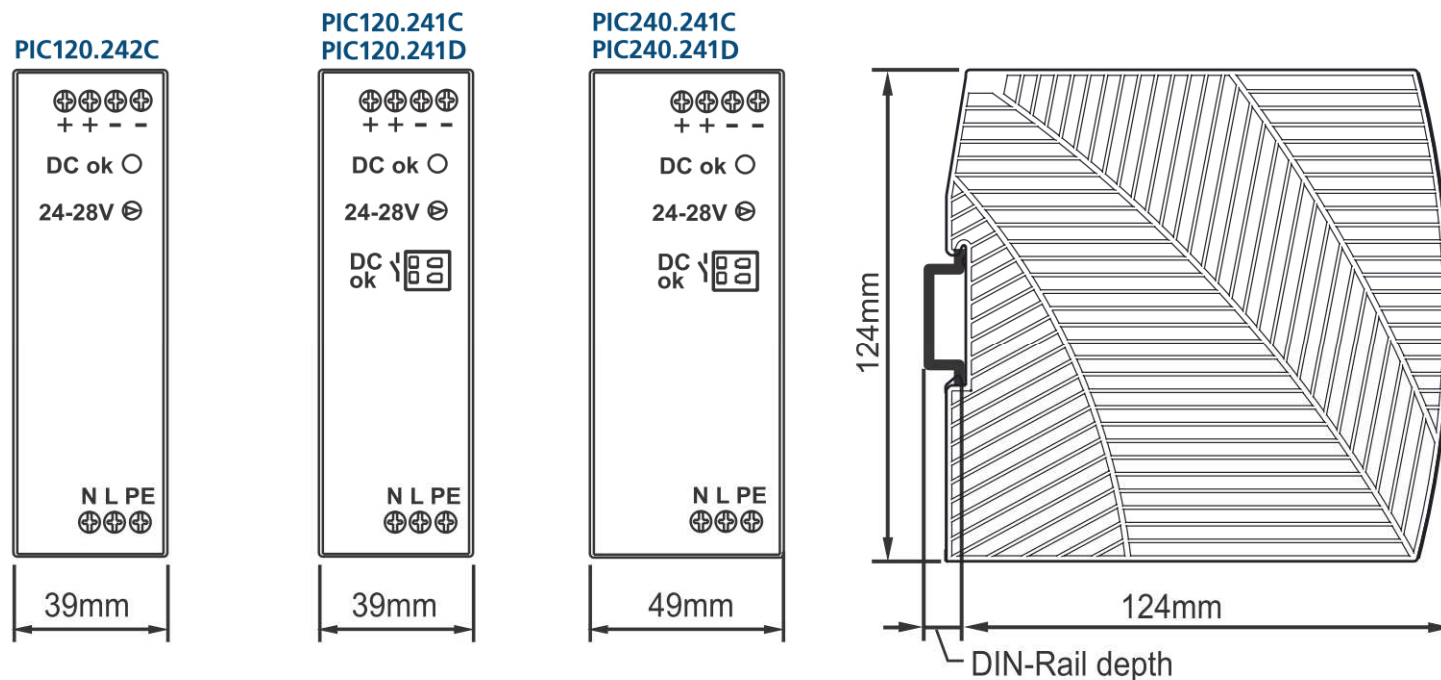
24V/10A at +25°C/+40°C: 1.6/0.9 Million hours

Data for the 200-240V version at 100% load,
calculated by SN29500, IEC 61709

Your Benefit:

Set it and forget it.

Small Size, Light Weight



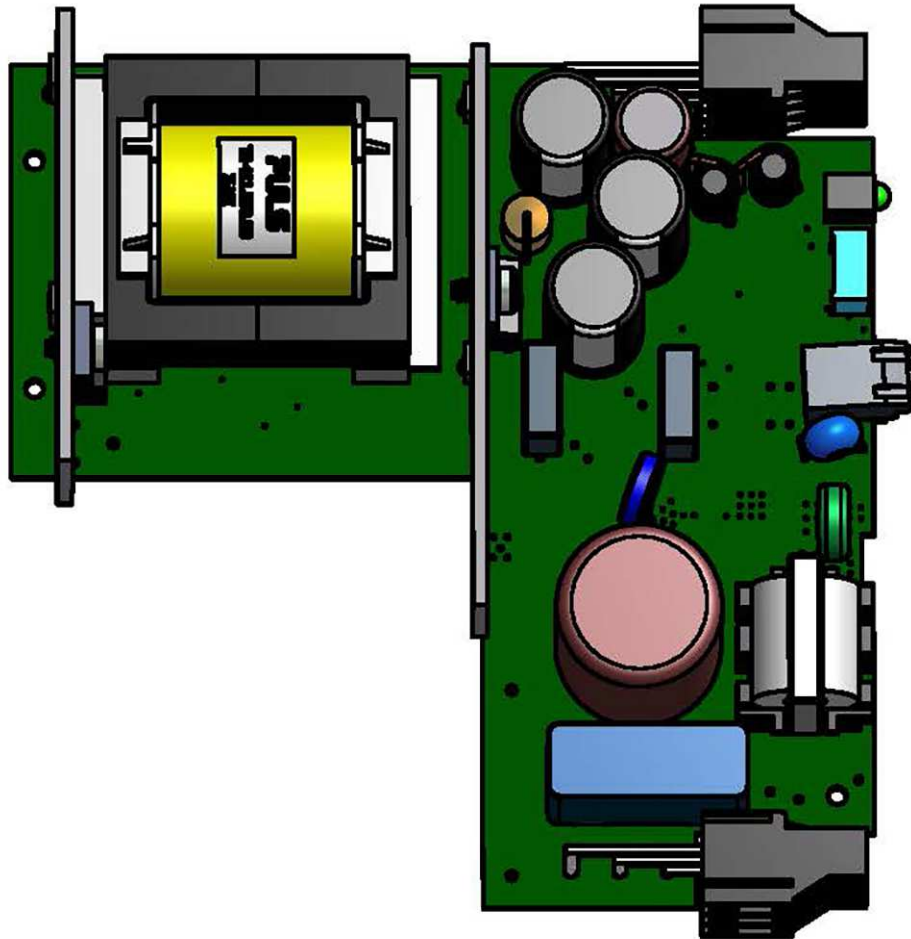
Compact Design

With a width of only 49mm, the 24V / 10A unit is small but definitely worth noticing. It is the same size as the smallest and “newest to market” high-end products from other vendors. The 120W devices weigh between 350-370g and the 240W units weigh a maximum of 550g.

Your Benefit:

Space on the DIN-rail is always precious and therefore a smaller power supply can provide a solution. The low weight reduces stress on the DIN-rail and makes the device sturdy, even at high shock and vibration levels.

Cost-Effective Single Board Design



Single Board Design

The single board concept in conjunction with the polycarbonate housing leads to easier manufacturing and testing procedures while increasing the process reliability.

Your Benefit:

Lower production costs means that the savings are passed on to the customer.

Comfortable and Easy to Use



Large Screw Terminals

Conductor cross-sections of up to 6 mm² for solid wires and 4 mm² for stranded wires are easily assembled. The large screws promote easy and comfortable wire fixation which can prevent unsafe connections.

Your Benefit:

Fast, easy and safe wiring.

Floating DC-OK Signal Output with Relay



DC-OK Signal Output

All PIANO power supplies have a DC-OK LED. They also have the ability to report the DC-OK signal via a floating relay contact with the exception of a further cost-reduced version. A mechanical relay was used due to its ease of use when compared to a semiconductor relay.

Your Benefit:

Increased system reliability is achieved through a simple monitoring function.

Data overview /Output 24V / Adjustment Range 24-28V

Output current at 24V	5A			10A	
Output	120W			240W	
0-20MHz ripple max.	100mVpp			100mVpp	
Nominal input voltage	AC 200-240V	AC 200-240V	AC 100-120V/ 200-240V	AC 200-240V	AC 100-240V
Tolerance range of $\pm 10\%$					
Range adjustment			auto select		wide range
Power factor 120V/230V	0.54	0.54	0.57/0.52	0.52	0.96/0.91
Inrush limitation	Passive/NTC			Passive/NTC	Active/Relay
Efficiency 120V/230V, typ.	90.5%	90.5%	91.5%/92.5%	91.2%	93.4%/94.5%
No load losses 120V/230V, typ.	0.5W	0.5W	1.5W/0.6W	4.4W	1.0W/0.9W
Temperature range ¹⁾	-10°C ... +70°C			-10°C ... +70°C	-25°C ... +70°C
MTBF ²⁾	3.200kh	3.300kh	1.500kh	1.600kh	1.400kh
Dimensions WxHxD (mm)	39x124x124			49x124x124	
Weight	350g	350g	370g	550g	540g
DC-OK signal with relay	Yes	No	Yes	Yes	Yes
Order number	PIC120.241C	PIC120.242C	PIC120.241D	PIC240.241C	PIC240.241D

¹⁾Derating from +55°C to +70°C: 2.5%/°C, PIC120.241D at nominal voltage 100V/200V from +50°C

²⁾MTBF at +25°C, full load, according to SN29500