

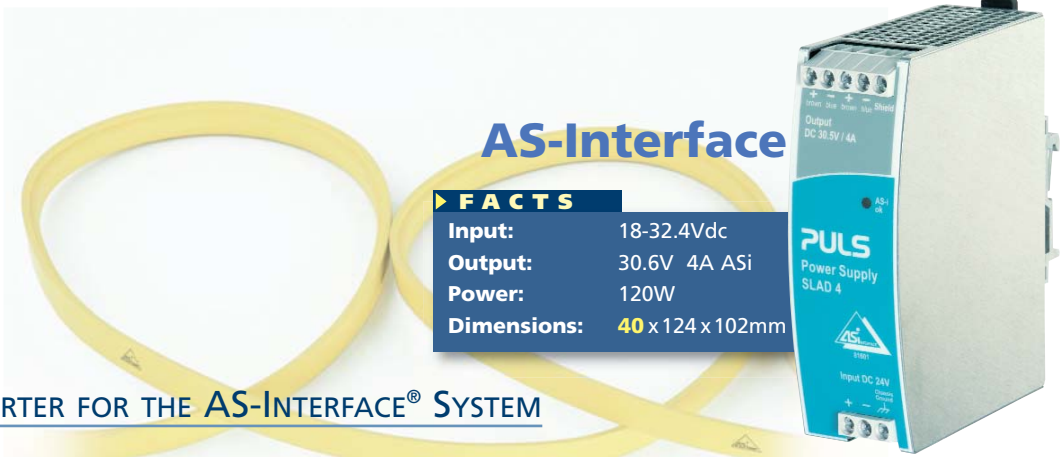
# PULS *Today*



## Current News on DIN-Rail Power Supplies

May 2008 – Global Issue

- Small: 22.5mm Wide Power Supply
- Versatile: New DC/DC Converters
- Ecological: Highest Efficiencies
- Informative: New Webpage



# AS-Interface

## FACTS

- Input:** 18-32.4Vdc
- Output:** 30.6V 4A ASI
- Power:** 120W
- Dimensions:** 40 x 124 x 102mm

## DC/DC CONVERTER FOR THE AS-INTERFACE® SYSTEM

The AS-Interface® fieldbus system is a network technology where power and data are provided by the same single two-conductor wire. Therefore, a special power supply with an output voltage of 30.6V and an integrated data decoupling circuit is required.

The SLAD4.100 is the first DC/DC converter available and compliments the SilverLine AS-Interface power supplies with AC input. This means hazardous power line voltages on the machine can be avoided. The DC/DC converter is simply powered from a 24Vdc bus.

Another interesting application is the design of uninterruptible AS-Interface® systems. The DC/DC converter can be supplied from standard 24V DC-UPS systems which are commonly available for industrial applications. This provides protection in the event of power failures, power fluctuations and on unexpected shutdown. Expensive loss of data, system downtime and long restart cycles can be

avoided as well as the consequential losses of such situations.

The compact flat design as well as the terminal location on the bottom and top side of the unit, allows smooth integration into 120mm deep on-machine cabinets. 120mm deep on-machine cabinets. In addition, the device is configured with a soft-start feature which does not cause any unnecessary voltage losses on long supply lines during the switch-on process.

This DC/DC converter compliments the range of AS-Interface® power supplies from PULS. AS-Interface units with a 1-phase or 3-phase input have been available for a number of years from PULS.

## NEW WEB SITE

Many suggestions and requirements from customers have been included in our new-look web site – now featuring an array of additional information, documents and data files. This makes working with PULS devices even more quick and simple. For many of our units you can find the following information:


- The most important features and parameters of individual devices concisely listed
- Mechanical dimensions
- Functional diagrams
- Output characteristic curves
- CE Declaration of Conformity
- Related products
- Suitable accessories for individual devices
- E-Plan macros
- 2-D CAD design data file formats (.dxf and .dwg files)
- 3-D CAD design data file formats (.stp and .dwt files)
- 3-D formats can be displayed on most PCs using free viewer software from Autodesk®.
- Many various approval certificates and approval reports
- Links to corresponding UL and CSA sites where our products are listed
- Ordering information

A new datasheet archive has also been added for old and obsolete products such as the AP and DP units.

It always pays to visit [www.pulspower.com](http://www.pulspower.com). This can make your work much easier and save lots of time.



CS5.241 1-Phase Input, 24V, 5A



**Power Supply**

- 115 / 230V Auto-select input
- Efficiency up to 90.2%
- Negligibly low input inrush current
- 20% Power reserves can be used continuously up to +45°C
- Full output power between -25 and +60°C

**Output:** 24 - 28Vdc  
5 - 4.3A  
120W

**Inputs:** AC 100 - 120 / 200 - 240Vac

**Size:** 32 x 124 x 117mm (W x H x D)  
**Weight:** 500g

**Basic Information**

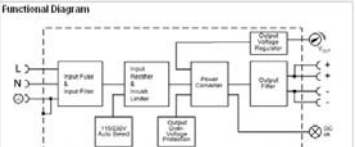
- Accessories
- Download Center
- Approvals
- Order Info

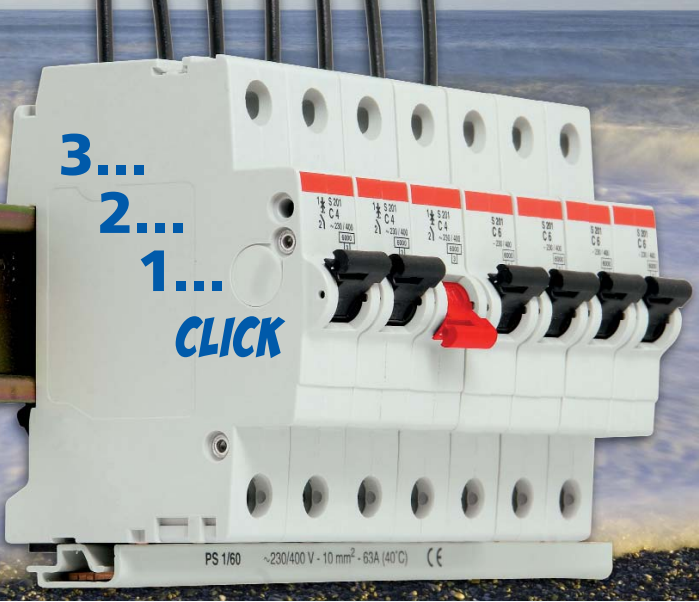
- Data sheet (508 kB)
- Related Products
- Functional Diagram
- Mechanical Dimension

**Family Description**

- Output Diagram

**Functional Diagram**





## ISOLATION OF FAULTY 24V LOAD BRANCHES WITH MINIATURE CIRCUIT BREAKERS (MCBs)

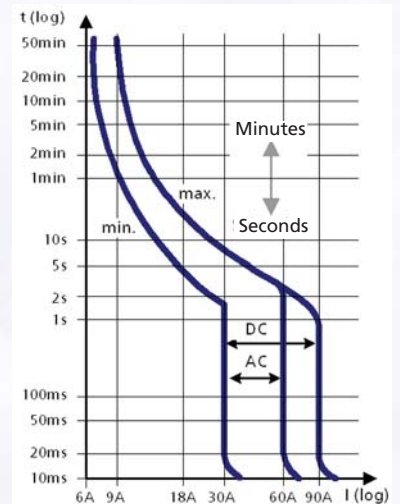
High dynamic peak currents and continuous current flow during overload conditions have always been important features on PULS power supplies. Nevertheless, there are limitations in the selection of suitable miniature circuit breakers (MCB) and you should not be confused by the marketing hype from some manufacturers who have newly discovered this issue.

Standard MCBs are one of the most efficient and economical ways to open circuits on faulty branches. If for example, a sensor cable becomes trapped in the door of a switch cabinet, this branch should then be selectively isolated without shutting down the entire control system. Regulatory standards do not require such an isolation, but it is becoming increasingly common in custom specific requirements.

MCBs are designed, to protect wires and circuits. If the ampere value and the characteristics of the MCB are adapted to the wire size which is used, the wiring is considered to be safe regardless of whether the MCB cuts-out the faulty branch or not. In order to avoid an undesired tripping of the MCB by high load inrush current peaks, MCBs allow a multiple of the nominal current for several milliseconds. But if for example, an activation is required within 10ms to avoid a reset of the controller (this is roughly the ride-through-time of controllers), power supply units must be equipped with correspondingly high current reserves.

The current reserve of the power supply unit is only one of three important factors that decide if a MCB activates or not. The impedance of wires is often overlooked. The best current reserve in the power supply does not help if the Ohm's law limits the current flow. The size of the output capacitor plays another important role in the power supply.

We have put together technical details and measurements in our application note AN38 which you can use to decide whether the use of a MCB provides the desired effect or not.



Tripping Characteristic MCB, 6A C-Characteristic

## CD5: UNIVERSAL 120W DC/DC-CONVERTER

A whole new series of DC/DC converters was recently launched in the DIMENSION family. The field applications of these units are very diverse:

- Generation of a stabilized control voltage in battery powered applications.
- Galvanic isolation to avoid earth (ground) loops.
- Mobile applications in ships, fork-lift, trucks, etc.
- Improvement of the 24V regulation at the end of a long wire run.

All CD5 converters have input to output isolation and are rated for a temperature range from  $-25^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$ . The units can deliver an additional 20% power reserve and can be operated at this level continuously up to  $+45^{\circ}\text{C}$ .

The shallow depth of the units permit installation in the usual 120mm deep on-machine-cabinets and the width of only 32mm saves space on the DIN rail.

Other features include a built-in soft start, electronic inrush current limitation, input polarity protection and the comprehensive approvals package.

The version CD5.241-S1 has two built-in relay contacts. The „Input-Low“ contact can be used to detect a battery that is discharged and the „DC-OK“ contact makes it possible to build redundant systems. Furthermore, this unit is equipped with quick-connect spring-clamp terminals for the 24V in and output connections.

**FACTS**

	Input	Output
CD5.121	18-32.4V	12-15V, 96W
CD5.241	18-32.4V	24-28V, 120W
CD5.242	36-60V	24-28V, 120W
CD5.243	8-16V	24-28V, 96W
CD5.241-S1*	18-32.4V	24-28V, 120W

**Temperature:**  $-25^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$   
**Dimensions:** (WxLxH) **32**x124x102mm

\*) Option -S1 with spring-clamp terminals, DC-OK and Input-low Signal

# MiniLine

You will love it!



#### FACTS

<b>Input:</b>	100-240Vac <sup>-15%/+10%</sup>
<b>Output:</b>	5V, 12-15V or 24-28V
<b>Power:</b>	15W
<b>Temperature:</b>	-10°C to +60°C
<b>Dimensions:</b> (WxLxH)	22.5 x 75 x 91mm

## EXCELLENT COST/PERFORMANCE RATIO

For the low-power requirements, three new units have been added to the MiniLine DIN-rail power supply family. With a width of only 22.5mm, three different output voltages are available; ML15.051 (5V), ML15.121 (12-15V) and ML15.241 (24-28V).

- 85 to 264Vac Wide-range input voltage
- 85 to 375Vdc Wide DC-input voltage range
- Highest reliability: MTBF 4.4/7.2 Million hours (40°C/25°C)
- Lifetime expectancy >100 000h
- Low no-load losses: 0.85W at 230V and 0.55W at 120V
- Full output power up to 60°C
- Easy: Large connection terminals
- Compatible with input fluctuations down to 60Vac and up to 300Vac
- 3 Year warranty

The units have a plastic housing and can be operated with or without protective earth (Ground) on the input side. The protective earth is not required for safety but does improve the electromagnetic immunity well above the minimum standards.

A highlight is the large screw terminals on the small unit. This makes the proper inserting of wires easy and allows for large wire cross-sections. The new terminals allow stranded wires up to 4mm<sup>2</sup> or multiple wires with smaller cross-section on each connection point.

The new 15W power supplies supplement the MiniLine family and provide the user with further savings of space and price performance improvements.



# 15 Watt



# DC-UPS

## FACTS

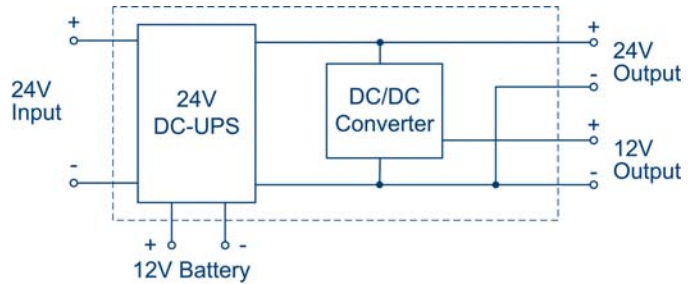
**Input:** 24Vdc  
**Output:** 24V, 10A and 12V, 5A  
**Power:** 240W  
**Dimensions:** (WxLxH) 49 x 124 x 117mm



## 24V AND 12V DUAL-OUTPUT IN ONE DEVICE

Remotely monitored systems such as in water treatment operations, often require two supply voltages, 24V for the controller and 12V for the radio modem for data transmission. For such applications, PULS has developed a special DC-UPS device for a reliable supply of these two type of loads. With just one single DC-UPS and one single battery, both output voltages can be provided with power simultaneously in normal operation and in the event of power failures.

The DC-UPS model UB10.245 has one 24V input and two outputs (24V and 12V) which are buffered with only one 12V battery in the event of a power failure (1-battery concept). The benefit of this dual-output device is quite apparent. The user saves on a separate power supply, a DC-UPS and a battery for the 12V output. Furthermore, the output voltages are stabilised in normal operation as well as in the event of a power failure – the voltages do not drop as is the case when the battery voltage is simply transferred to the output.



**1 - Battery Concept**

## „BEST PRODUCT AWARD“ FOR OUR NEW DC-UPS

The PULS DC-UPS, UB10.241 has been awarded in the category „Electromechanical & Electrical Engineering“ by the A&D magazine (Automation & Drives) which is a famous magazine with focus on industrial automation. The readers of the A&D Magazine have voted and choose the One-Battery-Concept as a remarkable innovation.

We are very proud to have received the third place of hundreds of new presented products.

## LONGEST POSSIBLE BATTERY LIFE IS IMPORTANT TO US

In order for everything to run smoothly for implementation on site, PULS fully recharges batteries before delivery, saving the user from having to do so. Lead-acid batteries (VRLA types) as used in conventional DC UPS's discharge more quickly than expected during storage. Discharged batteries also age significantly more quickly compared to when in a state of charge, considerably shortening their useful life. Storage up to 8 months is possible without any recharging.





## Efficient Power Supplies for a Greener World

**PULS**  
*today*

### HIGHEST LEVELS OF EFFICIENCY

### CARING FOR THE ENVIRONMENT AND SAVING MONEY AT THE SAME TIME

Having just about mastered the distressing and rocky path into the era of RoHS and lead-free, we now find ourselves faced with new buzzwords, such as the EuP-Directive (Ecodesign), the Energy Certificate or the Energy Star. These activities demonstrate how important environmental thinking will be for our future.

Amongst other things, these initiatives concern themselves with the power consumption of electrically operated devices. Many users are often surprised that the energy costs of a power supply during an average life span can be significantly higher than the purchase costs.

#### The contribution of PULS:

Without doubt the greatest contribution towards proactive climate and environmental protection by PULS is the prevention of unnecessary power consumption and by managing resources responsibly. Advanced technologies in the design of power supply units allow the construction of highly efficient devices with reduced levels of loss and wasted heat. PULS consistently utilizes, develops and offers these technologies to users in various forms. This pays off for everyone: The environment is protected and the reduction of energy and system expenses means that you often save a great deal of money.

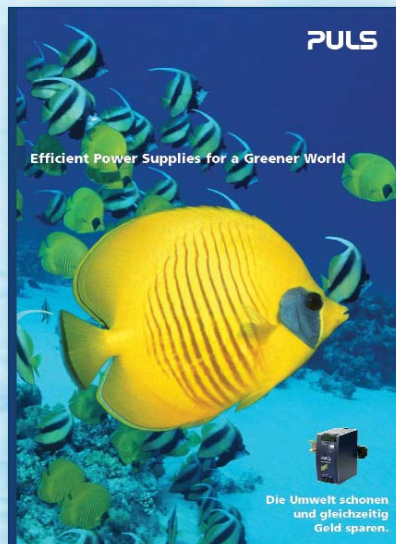
The compact and lightweight design of PULS devices saves space on the DIN-rail and allows smaller-sized control cabinets. This also lowers transportation and installation costs. Even cooling and ventilation are easier to implement by virtue of the much lower heat loss.

All of these benefits mean savings on electricity costs for the user and savings on production costs for machine- and panel builders.

Please refer to our „Saving Energy“ brochure for facts and figures on potential savings.

#### DID YOU KNOW, ...

... that using just one highly efficient PULS 24V, 20A device can save up to 250kg CO<sub>2</sub> per year?



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