

# PULS



ELECTRONIC  
PROTECTION  
CONCEPT FOR  
24VDC SYSTEMS



1. More cost-effective than current solutions
2. In addition, industry's first input voltage monitor included

# The better concept for protecting 24VDC branches

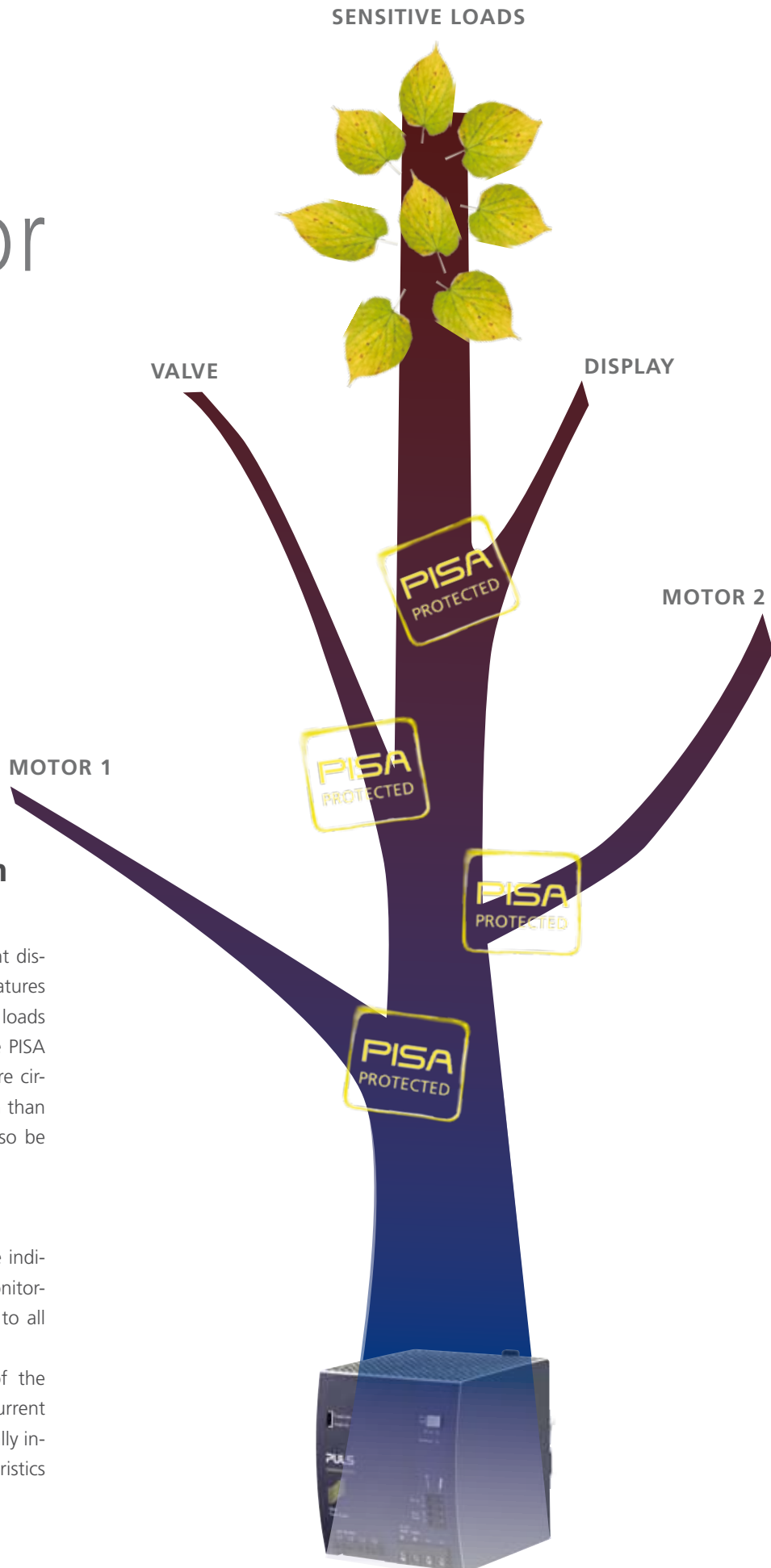
## PISA – Unique System Protection Concept

PISA is a new and innovative concept for current distribution and protection of branch circuits. It features a comprehensive protection package for 24VDC loads which are supplied from one power supply. The PISA module is clearly superior to traditional miniature circuit breakers and also provides better protection than costly electronic fuses. The PISA module can also be used to build NEC Class 2 circuits.

### PISA is unique

In addition to the over-current protection of the individual outputs, the PISA module also includes monitoring of the 24V supply voltage which is unique to all other products available.

This monitor protects against voltage drops of the power supply voltage by actively limiting the current for less critical loads. The protection is conceptually independent of the lengths of wires or the characteristics of the power supply.





**VERY  
COST  
EFFECTIVE  
SOLUTION**

**DUAL PROTECTION:**  
Voltage and current  
monitoring

### **PISA permits 100% current for your application**

With conventional protection designs, the power supply must be oversized to allow for the "extra current" which is needed for a fast trip in case of a fault in the system.

Electronic fuses usually require a tripping current, which is 1.5 to 1.8 times higher than the rated current. For miniature circuit breakers, the factor is even higher than those values. If this sizing not taken into account, shutting down the faulty branch is delayed and a drop of the supply voltage is most likely.

The PISA module has clear benefits due to the supply voltage monitoring and safeguard circuit. There is no need for an oversized power supply as 100% of the current can be used for your application. There is also no risk of incorrect sizing or incorrect planning as well as no issues when systems are modified, retrofitted or expanded.

### **Why PISA?**

- PISA is more cost-effective than electronic circuit breakers.
- PISA protected systems can work with smaller power supplies as 100% of the power supply current can be used for the application.
- With PISA, "bulky" as well as sensitive loads can be supplied from one common power supply.
- PISA saves space on the DIN-rail.
- PISA avoids planning errors.
- PISA serves as a diagnostic tool by identifying the faulty branch.
- PISA can be used to build multiple NEC CLASS 2 circuits with one large power supply.

### **PISA – size cut in half**

Only a width of 45mm on the DIN-rail is required to supply up to four load branches in comparison to conventional miniature circuit breakers with auxiliary contacts. This is a space saving of 57%.

### **The PISA concept – highest supply priority for PLCs**

Just as in real life, when there are bottlenecks you need to allocate priorities. The same applies when supplying electrical loads with current. If the loads require more current than the power supply can provide, for example short circuits, high inrush current surges or overloads, PISA provides the sensitive electronic circuits with the highest priority.

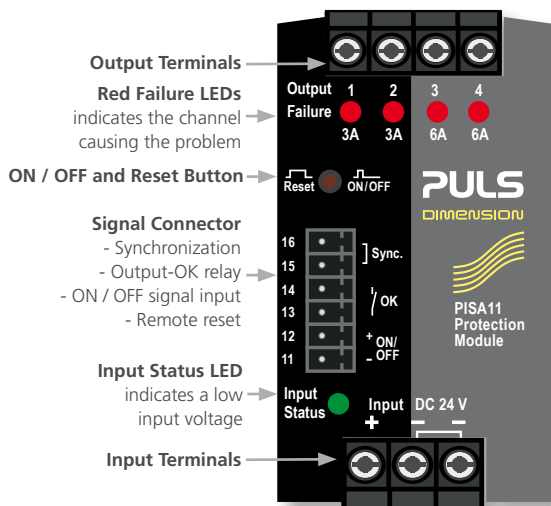
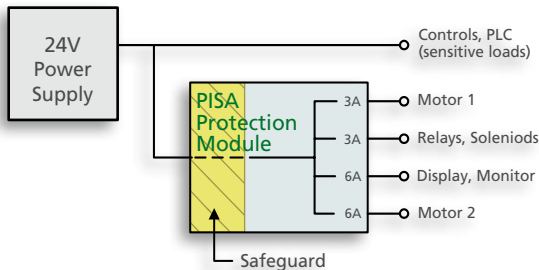
Less critical loads that do not react to short voltage interruptions or that could be the cause of the faults on the 24V supply voltage are connected to the outputs of the PISA module. The PISA output currents will be limited when there is a need to ensure a sufficient supply voltage for sensitive loads, which are connected directly to the power supply output. In addition, each of the four PISA outputs is equipped with a redundant electronic current measurement to protect the wires from being overloaded.



## PISA details

The PISA protection module has four output channels to which the current is distributed. Sensitive loads such as PLCs are connected directly to the power supply. Less critical loads that are not affected by short voltage interruptions or that could even be the cause of a fault on the 24V supply voltage are connected to one of the four outputs of the PISA safeguard circuit. This protection circuit located in the input stage of the PISA module works like a valve. It only permits so much current that the input voltage – which corresponds to the power supply output voltage – does not drop below a specific value, which can be critical for the sensitive loads. Each output is equipped with an electronic over-current monitoring that protects the wires from being overloaded. In case of an overload of the power supply, all output currents will be limited in order to protect the input voltage.

- Input voltage: DC 24V ±25%
- Input voltage protection level: 21V
- Variety of fixed output currents:  
See model list below
- Temperature range up to +70°C
- Dimensions WxHxD: 45x75x91mm  
(without plug connector)
- All 4 output channels will shut down simultaneously
- Approvals: UL 508, UL 2367, UL 60950-1, IEC/EN 60950-1, NEC Class 2



**P**rotects  
Protection module

**I**nterrupts  
Interrupts in case of a failure

**S**ecures  
Secures supply voltage

**A**ssists  
Reports failures and helps troubleshooting

## Model overview

<b>PISA11.401</b>	Protection module with 4 outputs: 4x1A
<b>PISA11.402</b>	Protection module with 4 outputs: 4x2A
<b>PISA11.403</b>	Protection module with 4 outputs: 4x3A
<b>PISA11.404</b>	Protection module with 4 outputs: 4x4A
<b>PISA11.406</b>	Protection module with 4 outputs: 4x6A*
<b>PISA11.410</b>	Protection module with 4 outputs: 4x10A*
<b>PISA11.203206</b>	Protection module with 4 outputs: 2x3A & 2x6A
<b>PISA11.206212</b>	Protection module with 4 outputs: 2x6A & 2x12A*
<b>PISA11.CLASS2</b>	Protection module with 4 NEC Class 2 outputs (3.7A); Listed as Limited Power Source, < 100VA per output channel

\*total module current max. 20A

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