

# Sun protection factor P



Professional protection  
for professional  
photovoltaic systems  
SIBA fuses for  
solar energy systems



Our Protection.  
Your Benefit.





# P - as in permanent practical experience

- SIBA photovoltaic fuses have been protecting solar energy systems for over ten years.
- From small-scale house installations to large-scale solar power plants, from bungalow rooftops in Germany to American supermarkets, from sports arenas in Asia all the way to self-sufficient systems in rural India: customers around the globe put their trust in SIBA fuses.
- SIBA products for photovoltaic applications profit from our decades old experience with fuses for power semiconductors and electrical components – and our R&D engineers constantly work on developing new products for the industry.





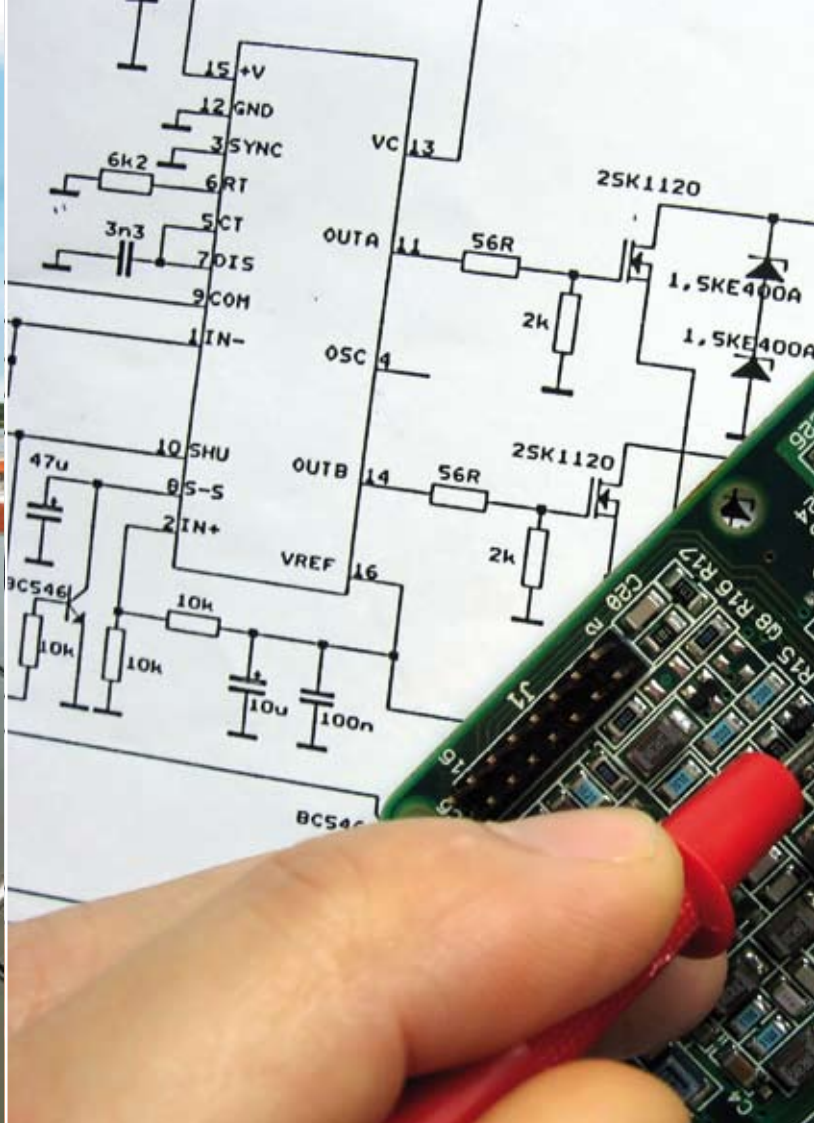
photos: SMA Solar Technology AG (2), SIBA (2)

Even though photovoltaics has garnered public attention only in recent years and although „really large“ solar-driven power plants in the megawatt range have hit the media only recently – the foundation for the breakthrough of solar energy was laid in 1991, when the Act on the Sale of Electricity to the Grid established that energy firms be remunerated for electricity generated from renewable resources. Since then the number of installed PV generators has climbed steeply. And it is also from the beginning that SIBA fuses have been protecting photovoltaic system components – from power inverters all the way to the wiring.

And although photovoltaic installations pose new and unique challenges, our experience with their requirements goes a long way back. For one, PV installations are small (and recently also mid-size) power generating units – and SIBA fuses have stood for product competence in the world of energy supply already for a long time. For another, we are the experts when it comes to protecting power semiconductors – components which play a central role also in modern power inverters. Our photovoltaic fuses are therefore designed to protect semiconductor products from harm.

Whether for the protection of string inverters, central inverters or directly on modules to protect circuits - manufacturers around the world have been relying on SIBA fuses in the area of PV generation for many years. Furthermore, SIBA fuses do their job in the most diverse of installations and meet a broad range of requirements – whether in Spain, where free-standing solar farms need to withstand high ambient temperatures, or in house installations, where switching units need to be kept as compact as possible.

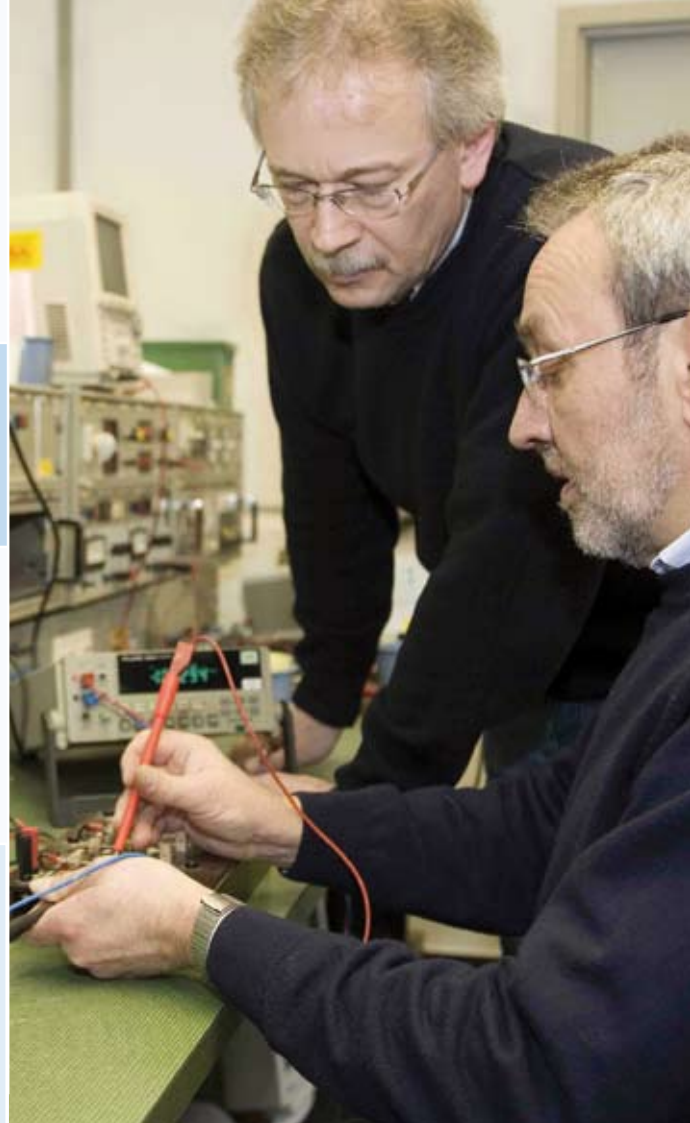
[SIBA PV fuses have been protecting solar technology investments for decades.](#)



# P - as in professional product development

- SIBA offers product lines specially developed for photovoltaic systems. Our fuses trip reliably also in the case of PV-typical minor overcurrents – without doing so prematurely.
- A broad range of proprietary products – suited for DC voltages as high as 900 V and more – covers most of the requirements of PV-based power generation. Specialized products can be manufactured upon request.
- SIBA fuses are trend-setters: they come in ever-smaller dimensions while maintaining the same high rated voltage.
- Our cooperation with leading manufacturers of solar energy systems and photovoltaic components ensures that SIBA is always a step ahead of the competition.





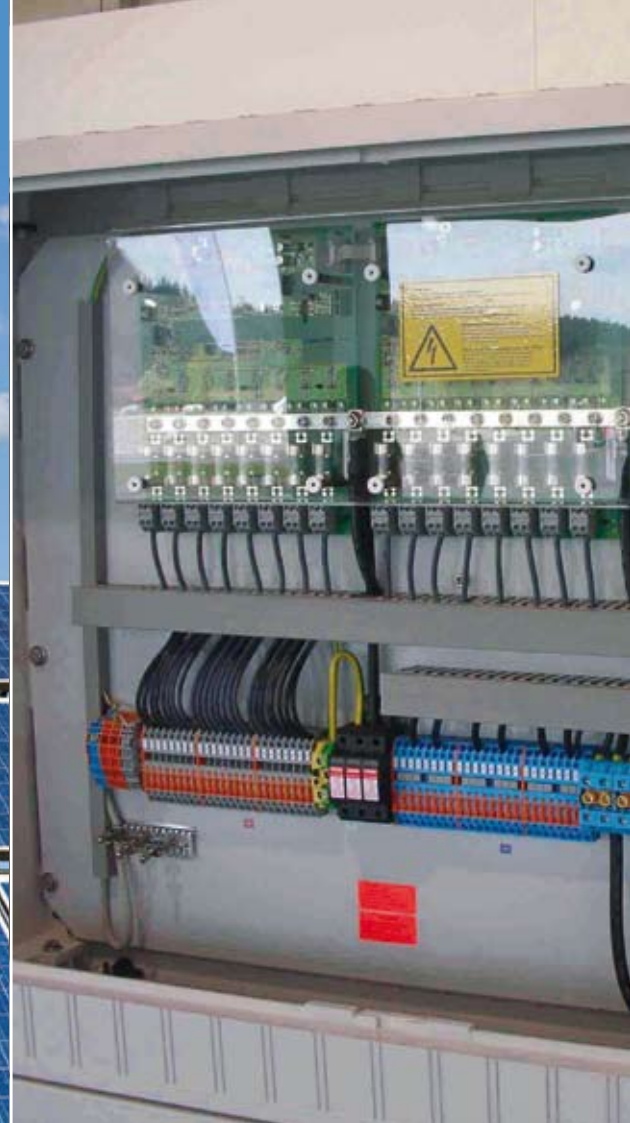
photos: Fronius International GmbH (2), SMA Solar Technology AG (2), Kaco Gerätetechnik GmbH (1), Xantrex Technology, Inc. (1), SIBA (1), istockphoto/ Zmij (1)

Solar energy – a renewable resource even experts tend to underestimate once in a while. The risks to life and limb associated with PV arrays can be sizeable. After all, solar energy modules constantly deliver energy – except at night. Like a battery, they cannot be switched off – because they are energized as long as they are sunlit and produce high voltages. Even house installations can easily reach several hundred volts DC, and direct voltages topping 900 volts are quite common in the case of solar farms.

Thousands of euros spent on a single roof and an expensive electronic inverter – even discrete solar arrays installed by home owners make for an investment worthy of the best protection available. Disturbances not only damage sensitive modules or components such as inverters – they also cost a lot of money. And if saving money is not reason enough to invest in SIBA fuses, what is?

When it comes to meeting the special requirements of PV installations, not every fuse will do. Here, short-circuit currents are only marginally higher than the current constantly flowing in solar arrays. Thanks to the constant efforts of our product development engineers to develop state-of-the-art products, our PV fuses will not trip prematurely, and yet react reliably. Our R&D department constantly strives to keep the dimensions of SIBA fuses as small as possible – despite high rated voltages and significant thermal loads.

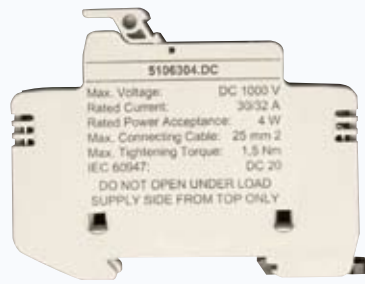
SIBA PV fuses: Always ahead of what is required.



# P – as in PV-fuses in perfection

- Cylindrical shapes from 6.3 x 32 mm to 20 x 127 mm, different NH sizes
- The original: our 10 x 38 mm fuse was one of the first photovoltaic fuses on the market.
- Rated voltages from 400 to 1,500 volts
- Various connection options: SIBA fuses can be soldered directly onto the circuit boards, inserted into solderable clips, fitted with mounting links or used in fuse holders.





photos: istockphoto (1), SIBA (5)

SIBA is constantly enlarging its product range geared at PV applications. One example of this are fuses for higher voltages that are as small as or even smaller than existing ones. We also supply tailor-made products for special requirements. Call us for the solution that is just right for you!

### Overview of SIBA standard PV products

| Dimensions | Rated Voltage | Rated Current |
|------------|---------------|---------------|
| mm/size    | V             | A             |
| 6,3 x 32   | 400 V DC      | 6,3 - 20      |
| 10 x 38    | 1000 V DC     | 0,5 - 20 **   |
| 14 x 51    | 1000 V DC     | 10 - 25       |
| 10 x 51    | 1100 V DC     | 6 - 20        |
| 10 x 85    | 1100 V DC     | 2 - 20        |
| NH1L       | 1100 V DC     | 50 - 200*     |
| NH3L       | 1100 V DC     | 50 - 400      |
| 20 x 127   | 1500 V DC     | 2 - 63        |

\* UL pending

\*\* cUL rec.

Further technical details on request!

### What the experts say:

When we started out there were few suppliers who had 1000 V DC fuses in their lineup. Not to mention compact dimensions and full-range characteristics. It was then that we set up a development project with SIBA culminating in the 10 x 38 mm PV fuse, which safely trips also in overload situations.

**Hans Wimmer**

Managing Director, HaWi-Energietechnik GmbH

Besides other attributes such as high quality manufacturing and specifications ideally suited for photovoltaic applications it is SIBA's flexibility with regard to customer requirements that I find remarkable.

**Gerd Rösser**

Development engineer, KACO Gerätetechnik GmbH

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