

## Why Inverters Get Hot?

Sungrow inverter gets hot due to two main reasons:

- **Ambient Temperature**
- **High Inverter Output**

Sungrow inverters use the entire chassis of the inverter as a heat sink to dissipate heat, so the front panel may be hot to touch hence, if the ambient temperature is high or the inverter is running at high output, the internal temperature of the inverter will rise, and may possibly even exceed 60 degrees which can be too hot to touch. Please refer to Figure 1. It is a warning label that is attached on every inverter.



Figure 1 Warning Label

This is because low voltage inverters with power outputs of kilowatts have high currents flowing through relatively small electrical components thus, causing Joule heating (heat due to electrical resistance). Due to the heat dissipated, the inverter will get hot.

This will certainly not impose an additional fire hazard, however, there are additional risks of pain and burns. 44°C is the temperature of any material that can be safely touched for an unlimited time (Ungar & Stroud 2010). The metal body of the inverter

may exceed this temperature during operation. Hence, we advise not to touch it during operation.

Furthermore, all Sungrow inverters are tested under 45 degrees ambient temperature with internal temperature being over 60 degrees, and the inverter can run OK. Therefore, **the inverter is safe to use, and it will not catch fire.** (All certificates have been received for Sungrow inverters).

Please watch below Tech Talk 'Why Inverters Get Hot'

<https://youtu.be/5W6j-iCwC2s>

If you have any concerns, please contact Sungrow Service Department on 1800 786 476 or email to [service@sungrowpower.com.au](mailto:service@sungrowpower.com.au), Monday- Friday 9am - 5pm (AEDT).

## References:

[1] Bradwell, S 2013, IP 68 protected fans from ebm-papst, emp-papst, viewed 29 November 2016, <[http://www.ebmpapst.com.au/en/news/latestnews/news\\_detail\\_4864.php](http://www.ebmpapst.com.au/en/news/latestnews/news_detail_4864.php)>.

[2] Ungar, E & Stroud, K 2010, A New Approach to Defining Human Touch Temperature Standards, NASA/Johnson Space Center, viewed 29 November 2016, <<https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20100020960.pdf>>.