

Standards Update

Socket-outlets incorporating USB charging ports

“The introduction of BS 1363-2:2016 will have an impact on the way 13A socket outlets, incorporating USB charging ports, are manufactured and tested.”

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When did the standard change?

BS 1363-2:2016 was published in August 2016 and replaces BS 1363-2:1995+A4:2012. The new standard will come into force August 2019. However, all parties including manufacturers, specifiers and installers are encouraged to adopt the new standard at the earliest opportunity.

Why change the standard?

The standard was updated to ensure that it remained in line with the evolution of the product(s) to which it applies. The new standard includes in its scope socket-outlets incorporating electronic components, including USB circuits intended for charging portable devices.

Over recent years it has become ever more popular to incorporate USB charging port(s) into traditional British Standard 13A socket-outlets. These socket-outlets replace power supplies which are supplied with the product requiring charging.

This potential mismatch between the required charging current and available charging current has been a point of concern for safety bodies such as Electrical Safety First and Trading Standards. Issues were identified around the risk of electric shock or fire if the extra low voltage parts of the USB power supply were not sufficiently segregated and separated from the low voltage (230V) parts of the product or from the fixed wiring of the installation in which the product is installed.

What changed in the standard?

A range of additions and amendments have been made to create BS 1363-2:2016 for socket-outlets incorporating USB charging ports including:

- **General**
 - USB circuits incorporated in a socket outlet shall conform to the requirements of:
 - BS EN 60950-1:2006+A2:2013
 - BS EN 62368-1:2014
 - BS EN 61558-2-16:2009+A1:2013 and BS EN 61558-2-6:2009 and BS EN 62680-1-1:2015
- **Temperature rise**
 - Socket outlets with USB circuits intended for charging portable devices will be tested as before for the low voltage outlets in accordance with annex G, but with the addition of fully loading the extra low voltage circuits for the duration of the test.
- **Power rating and identification markings**
 - For the USB charging ports shall be visible after the socket outlet is installed and shall include:
 - Symbol for nature of supply, for D.C. only
 - Rated Current in mA or A
 - Rated output voltage
- **Overcurrent and earth fault protection in primary circuits**
 - Overcurrent protection shall be provided on the primary side of the USB circuit.
 - Where overcurrent protection is not provided within the USB circuit itself, provision will be made for overcurrent protection to the USB circuit within the socket outlet.
 - The USB circuit shall not rely on the building or installation protection device for over current protection.

- **Number and location of protective devices**
 - A single overcurrent protection device shall be provided and it shall be located in the line circuit, either within the USB circuit or in the supply to the USB circuit within the socket-outlet.
- **Electrical insulation**
 - Double or reinforced insulation shall be provided between the primary and secondary circuits of the USB circuit. The output of the USB shall be SELV or equivalent.
 - When installed in the socket outlet, double or reinforced insulation shall be provided between the primary circuit and accessible parts of the socket outlet.
- **Clearances, creepage distances and distances through insulation**
 - The USB circuit shall be designed and constructed to conform to the requirements of Overvoltage Category III. USB circuits of Overvoltage Category II can be used where additional overvoltage protection is provided within the socket-outlet i.e. a varistor or equivalent.
 - USB circuits are generally tested as Overvoltage Category II whereas socket-outlets are Overvoltage Category III.
- **Disconnection from the mains supply**
 - The requirement in BS EN 60950-1:2006+A2:2013 for the provision of a disconnect device shall not apply.
 - The disconnect device specified in BS EN 60950-1:2006+A2:2013 is for servicing purposes and is achieved by disconnection of the socket-outlet from the low voltage supply for fixed socket outlets and by disconnection by the plug for portable socket outlets.
- **Mechanical strength**
 - The requirements of BS 1363-2:2016, Clause 20 shall be applied to the USB circuit when incorporated in the socket outlet . The mechanical strength requirements of BS EN 60950-1:2006+A2:2013 are not applicable.
- **Performance requirements**
 - USB circuits intended for charging portable devices shall conform to the requirements for dedicated charging ports (DCP) of BS EN 62680-1-1:2015

As can be seen from the additions to the standard with reference to socket outlets with USB charging points choosing the correct standard is relevant.