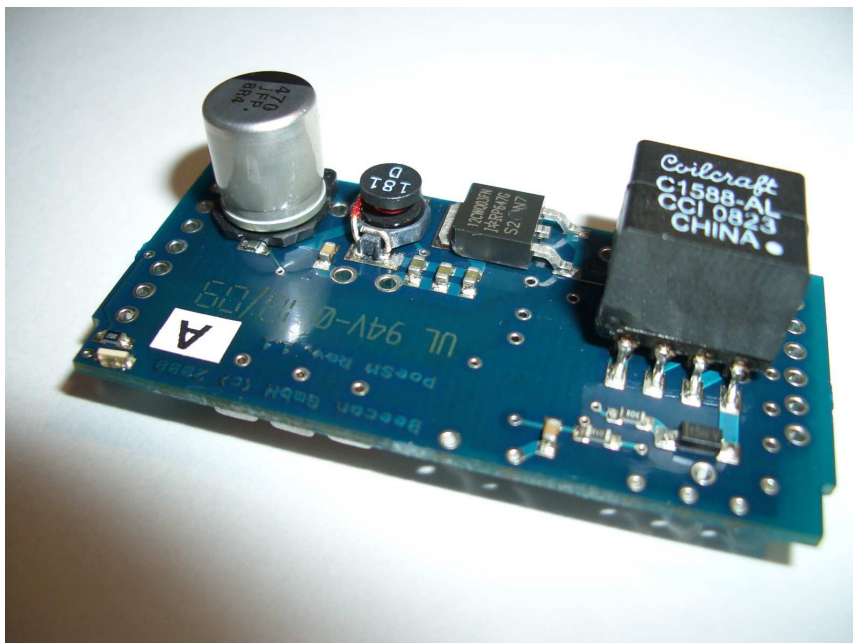


AmbiComp

Power-over-Ethernet Sandwich Module



The Power-over-Ethernet Sandwich Module is a component of the AmbiComp project, which, in conjunction with an Ethernet Sandwich Module, allows supplying power to an AmbiComp system via an Ethernet cable. The Ethernet Sandwich Module performs the separation between the Ethernet data and the power and provides a raw voltage of 48 V for the Power-over-Ethernet Sandwich Module, which generates the necessary supply voltages of 5 V und 3.3 V.



Features

- PoE power supply conformant to the IEEE standard 802.3af
- Maximum power at 5 V: 7 Watt (equals 1.4 A)
- Integrated voltage regulator for 3.3 V (provides up to 1 A)
- Both voltages are short circuit protected
- Galvanic isolation between primary and secondary side
- Red status LED
- Injection of secondary power supply available

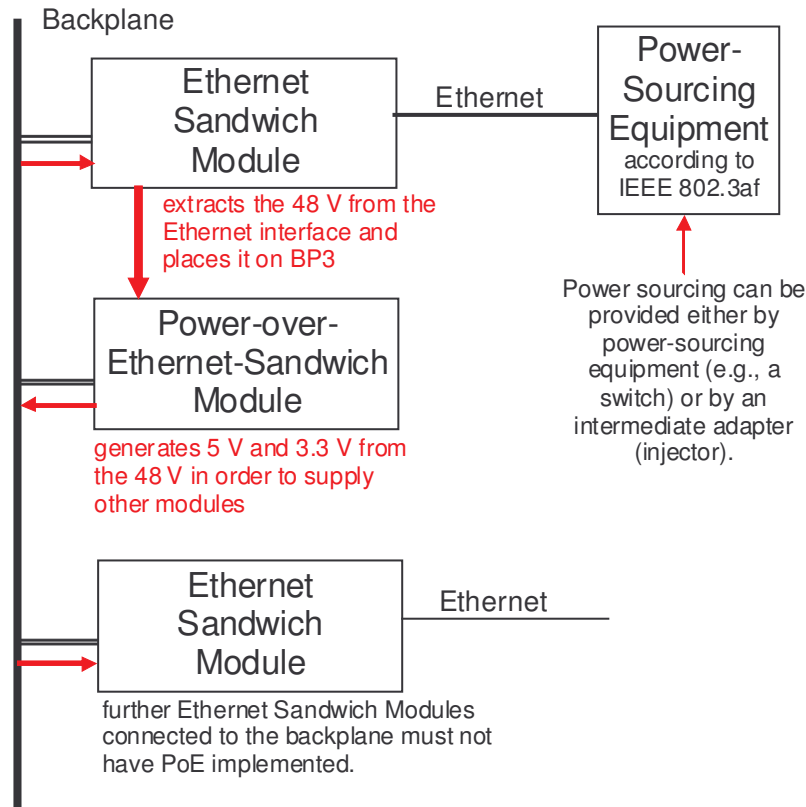
AmbiComp Power Supply

The AmbiComp system can be supplied with electrical power from a multitude of sources, ranging from the use of a plain AC adaptor plug (see data sheet on BPPRISM) to customer-specific solutions.

One variant uses the "Power-over-Ethernet" (PoE) technique according to the standard IEEE 802.3af. For this, either the unused copper pairs can be used, or phantom powering is possible via the data wires.

The *Ethernet Sandwich Module* separates the data from the power as shown in the figure below.

The extracted raw supply voltage is then further processed in the *Power-over-Ethernet Sandwich Module* to 5 V and 3.3 V as needed by the AmbiComp modules.



Power supply with "Power-over-Ethernet"

Specification

The *Power-over-Ethernet Sandwich Module* obtains its primary raw voltage of 48 V from the *Ethernet Sandwich Module* via the backplane bus connector BP3.

A DC/DC converter, which provides galvanic isolation in conjunction with a transformer, converts the raw voltage into the first supply voltage of 5 V. The

maximum current drain amounts to 1.4 A.

The DC/DC converter operates at a frequency of 250 kHz. The ripple at the 5 V output amounts to 60 mV (measured at full load).

This DC/DC converter is followed by a linear voltage regulator for 3.3 V. Here the maximum power drain amounts to 1 A.

It is to be noted that the 3.3 V are generated from the 5 V, which means the sum of the current drains from 5 V and 3.3 V must not exceed the above-mentioned value of 1.4 A.

Both power sources are short circuit protected.

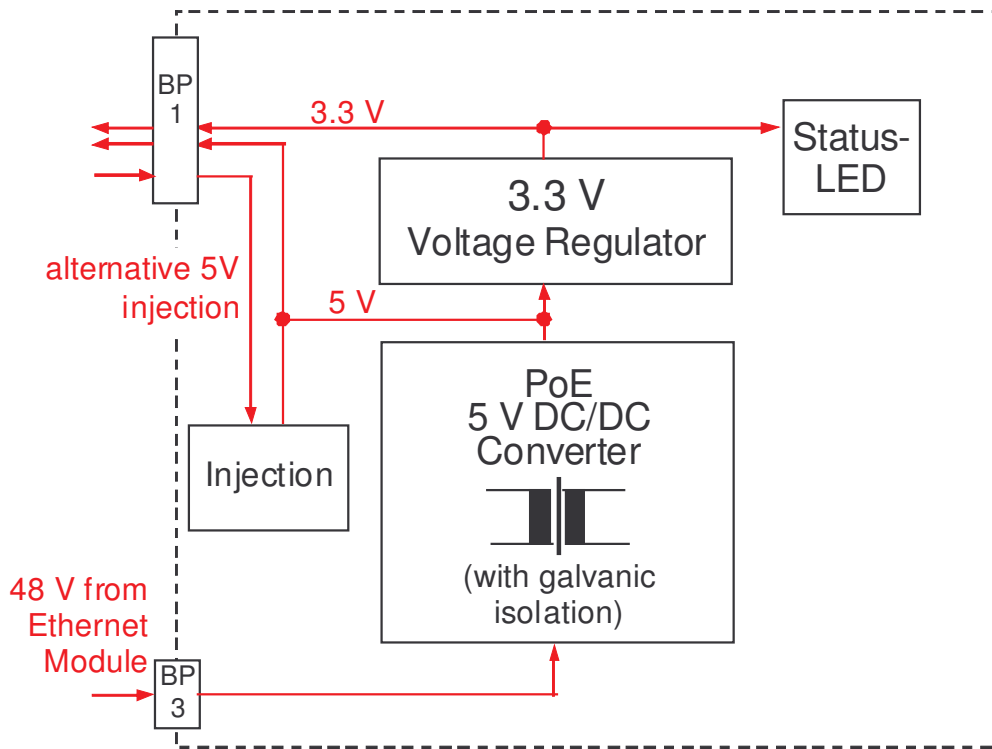
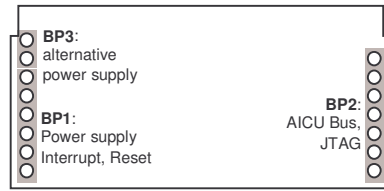
Both voltages are placed on the bus interface BP1 from which other modules are supplied.

In case stabilized 5 V are already available from another source, the module can be used just to provide the stabilized 3.3 V.

However, in such a dual power configuration, PoE has higher priority. The external voltage is decoupled via a diode.

The quiescent current consumption is 78 mA (incl. power LED).

Detailed dimensioning and pin layout are contained in the data sheet "Sandwich Modules - General Information".



Mechanical Data

The module measures 49.8 mm x 24 mm. The height is 15 mm.

Environmental Conditions

The *Power over Ethernet Sandwich Module* is designed for indoor use.

The operating temperature range is 0 to +70 °C.

The storage temperature range is -40 to +85 °C.

The module conforms to the RoHS requirements

Order Code

104 000 1X