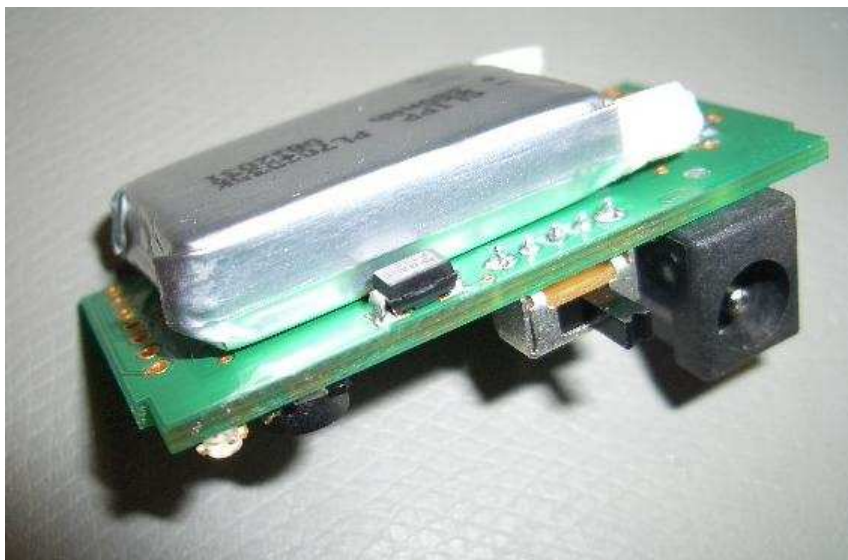


AmbiComp

Accu Sandwich Module



The Accu Sandwich Module provides the necessary power supply voltages for other sandwich modules within an AmbiComp system. A built-in lithium polymer accumulator serves as power source. To charge the accumulator, an external supply voltage of 5 V is needed. In case another power supply module (e.g., BPRISM) is running in parallel, a priority logic disconnects the accumulator supply from the system. All functions of the AccuSM are controlled and monitored by a microcontroller.



Features

- Regulated 5.0 Volt, with a maximum of 0.85 A
- Regulated 3.3 Volt, with a maximum of 0.8 A
- Intelligent charging logic
- External charging connector
- Priority logic prefers an external power supply
- Microcontroller for controlling and monitoring
- Two LEDs for status display

Specification

The *Accu Sandwich Module* provides the power for the other AmbiComp modules in an AmbiComp system.

An 8-Bit RISC microcontroller, type AVR* ATmega164P from Atmel*, performs the controlling and monitoring of the module. It is also responsible for the communication with other modules via the back plane.

An accumulator in lithium polymer technology (LiPo) with a capacity of 380 mAh serves as power source. The accumulator is built in and cannot be replaced.

To charge the accumulator, an external supply voltage of 5 V is needed. This can be provided either via an external power supply plug, e.g., from a wall plug power

supply, or, if available, the alternative 5 V sourcing via the back plane BP1 can also be used.

During the charging process, an intelligent charging circuit monitors the generation of heat with the help of a temperature-dependant resistor (NTC) as well as the interrupting voltage of 4.2 V. This information is also available for the microcontroller. A red LED indicates the charging status.

Depending on the availability of external power sources, three modes of operation can be distinguished:

1. No external power source: Power supply is provided solely by the accumulator. The voltage from the accumulator is switched by the charging logic to its output and reaches the voltage regulators via an electronic switch.

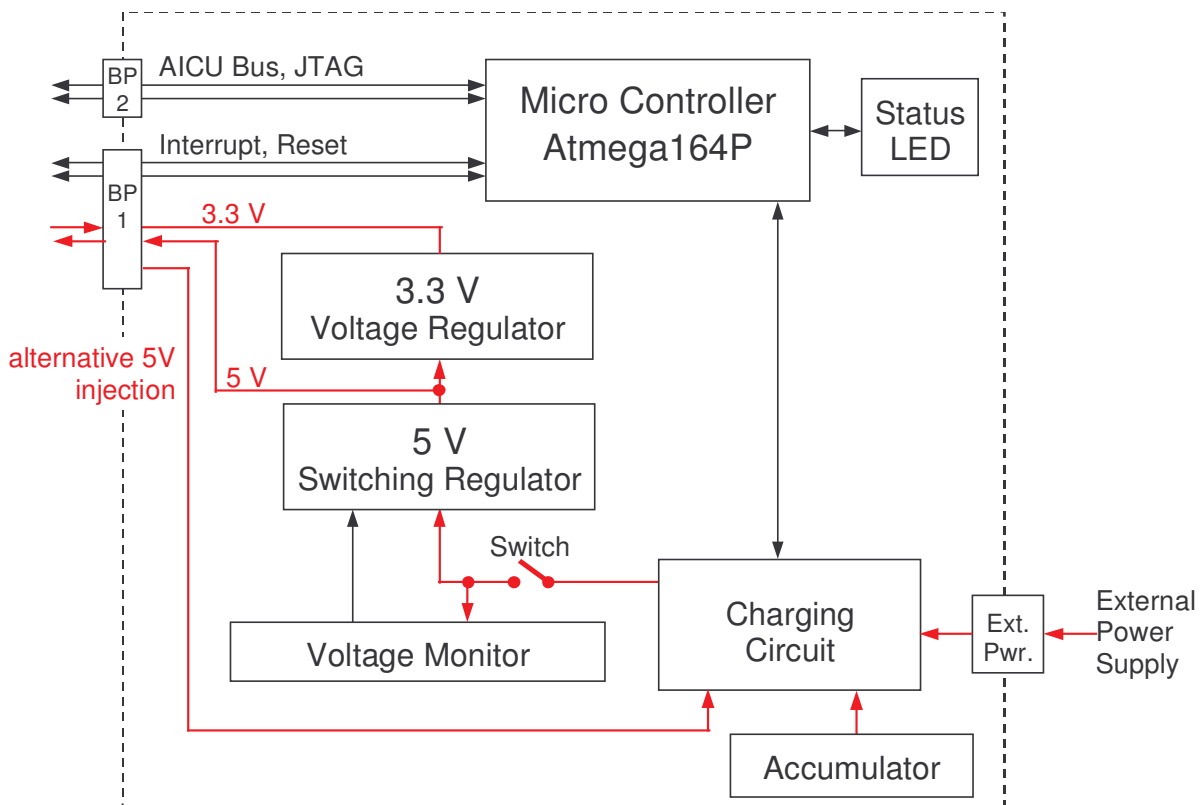
2. One of the 5 V supply voltages is available, either via external power plug or via the alternative 5 V supply:

The charging circuit charges the accumulator and switches the 5 V to its output.

3. Both 5 V voltages are available: Same scheme as described above, but the power from the external plug is preferred.

In case another power supply module (e.g., BPRISM) is running in parallel, a priority logic disconnects the accumulator supply from the system.

The voltage regulation for the 5 V supply is performed by a switching regulator. The maximum current allowed is 400 mA. The switching regulator is followed by a linear voltage regulator for 3.3 V. Here the maximum current is also 400 mA.



* Atmel and AVR are registered trademarks of Atmel Corporation, San Jose, California, or its subsidiaries.

It is to be noted that the 3.3 V are generated from the 5 V, which means the sum of the two currents must not exceed the value of 400 mA.

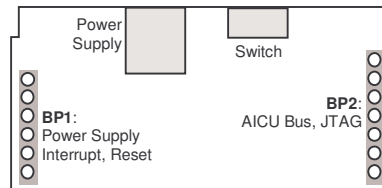
Both voltages are placed on the bus interface BP1 from where other modules are supplied.

Via a manual switch, the whole module except the charging circuit can be switched off.

As soon as the accumulator voltage drops below 2.7 V a voltage monitoring circuit generates a reset signal and then switches off the power supply

Back plane:

Via an AmbiComp-specific interconnection scheme ("back plane"), the *Accu Sandwich Module* can be connected with other AmbiComp modules.



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

Power Supply

For charging of the accumulator, either an external wall plug power supply with 5 V can be used or the alternative 5 V supply.

Quiescent current in case of external power supply (wall plug connector or alternative 5 V supply) is about 25 mA, in case of accumulator supply it is about 17 mA (at nominal accumulator voltage of 3.7 V). The two status LEDs are not considered. Each

of them consumes additional 2 mA.

The power consumption depends on the consumers connected.

Mechanical Data

The module measures 49.8 mm x 24 mm. The height is 20 mm.

Environmental Conditions

The *Accu Sandwich Module* is designed for indoor use. The operating temperature range is -10 to +70°C.

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

The module conforms to the RoHS requirements.

Order Code

102 000 10