

# Preon32Shuttle – Expansion module

## Expansion of radio module Preon32

### Product features

- Expansion of the radio module "Preon32" to a complete development platform
- Programming via USB bus in the system
- Headers for external peripherals and easy integration into test setups for prototyping
- Buttons for user interaction
- 4 LEDs for user defined status indication of system states
- Power supply circuit with a linear regulator
- Power supply via USB interface (5 V) or external source such as batteries (3.6 - 13.2 V)



### Description

The "Preon32Shuttle" is an expansion board for the radio module "Preon32". The module contains external components such as LEDs, buttons and headers for experimental circuits. The integrated USB interface allows easy programming, the readout of sensor data and writing configuration data such as system properties in conjunction with the Preon32 radio module. For this purpose, a USB to UART Bridge is built on the expansion board. The control lines of this interface are used to set the boot mode and reset the microcontroller, so that complete control of the system from a connected computer is possible.

For connection of external peripherals a variety of interfaces, e.g. CAN, I<sup>2</sup>C, SPI, USB, analog and digital input/output pins, are available on the headers.

The module is powered by the integrated power supply circuit, either from an external battery voltage or via the USB. The used linear regulator has a wide input voltage range from 3.6 to 13.2 V and a low quiescent current consumption of only 2  $\mu$ A typical.

### Applications

- Evaluation of Preon32 radio module
- Easy plug connection of sensor module VariSen by Virtenio
- Fast realization of wireless sensor applications
- Testing of new applications in wireless networks
- Development platform for prototyping in development, research and teaching

**Table 1: Technical data for the expansion board Preon32Shuttle**

<b>Preon32Shuttle</b>	
<b>Connections:</b>	1x Micro-USB connector
	1x 2-pin Molex PicoBlade socket for external battery
	2x 16-pin headers on 2.54 mm grid
<b>Peripherals:</b>	4x SMD LEDs (green, yellow, red, amber)
	1x User button
	1x Reset button
<b>With Preon32</b>	
<b>Serial interfaces:</b>	1x USB2.0 full-speed
	1x CAN interface (2.0B Active)
	3x SPIs (18 Mbit / s)
	2x USARTs synchronous / asynchronous transmission up to 4.5 Mbit / s
	2x I <sup>2</sup> C interface with up to 400 kbit / s
<b>Analog interfaces:</b>	2x 12-bit A / D converter, 1 MSPS, 11 channels
	2x 12-bit D / A converter
<b>Other interfaces:</b>	27x Digital input and output pins (GPIOs)
	15x External interrupt inputs
<b>General</b>	
<b>Dimensions:</b>	32 x 33 x 14 mm (L x W x H)
<b>Supply voltage:</b>	3.6 to 13.2 V