

TCM 515B – 2.4 GHz Bluetooth Low Energy (BLE) TRANSCEIVER

Circuit Functions

TCM 515B provides radio transceiver functionality according to the Bluetooth Low Energy standard in the 2.4 GHz radio band. A standardized serial interface (EnOcean Serial Protocol 3, ESP3) enables communication with an external host. Digital and analog inputs are available for monitoring the status or data from external sensors.

High level operation Principle

TCM 515B transmits and receives bluetooth telegrams within the 2.4 GHz radio frequency band (2402MHz ... 2480MHz) using the BLE advertising frame format.

In receive mode TCM 515B forwards the content of received valid BLE radio telegrams unmodified to a sensor application SW or an external host via the ESP3 interface. The sensor application can use the data of received telegrams for instance to adjust parameters such as update intervals.

In transmit mode TCM 515B receives a precomputed message payload from an external host or periodically from an application SW. A full BLE advertising frame will then be transmitted with a dedicated transmission sequence, ensuring a duty cycle limit of 39% per 100ms time frame. For more information please refer to chapters 2.2 -2.4 of the user manual.

Ground system and antennas

TCM515B is a shielded module with common ground plane. Radio telegrams are received or transmitted based on a whip or PCB antenna connected via the host PCB. For information about antennas please refer to chapter 4.2.4 - Antenna description of the user manual.