Ultra low power

868 MHz Radio Module

**FEATURES**
- Up to 2000 m range
- Long Range mode: up to 10km
- Suitable for long distance applications with low data rates and short distance application with high data rates
- Robust RF protocol stack
- Command mode
- Ultra low energy consumption in Low Power Mode (< 1 µA)

**Integrated MCU**
32-bit ARM Cortex-M3 Processor with 128kb flash + 20kb RAM

**RANGE OF APPLICATION**
Data collection, remote monitoring, remote control and wireless sensor networks, serial cable replacement. Its compact dimensions and low power consumption make the radio module ideal for battery-powered devices.

The AMB8826 is a compact low-cost radio data transmission module for wireless half-duplex communication. The integrated microprocessor controls data communication, handling packet and checksum generation, addressing, monitoring of channel access and re-transmission of lost packets. The host system does not have to perform any radio-specific tasks.

The module can be configured in many ways and supports data transfer with fast channel and address switching. An opportunity to assess the quality of the radio link is also provided by using the measured field strength (RSSI value).

The AMB8826 is connected to a host system via the UART interface with baud rates of up to 115.2 kBaud. A simple command interface in the same style as for AMB8626 is available.

Using appropriate firmware, the module is also suitable for autonomously recording and transmitting digital or analogue signals.

The AMB8826 is an SMT device, suitable for automatic component assembly and available in tape and reel.

**Network Topologies**
The embedded software protocol stack supports star, peer-to-peer and flooding mesh networks.
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Specifications

TA = 25°C, VCC = 3 V if nothing else stated.

Performance
- RF data rate: 10 to 100 kcps (gross), 0.625 to 100 kbps (net)
- UART data rate: Typ. 115200 Baud
- Output power: Up to +14 dBm (@ 50 Ohm)
- RF sensitivity: Down to -124 dBm (@ 50 Ohm, 0.625 kbps)
- Range*: Up to 10 km

General
- Power supply: 2.2 - 3.8 V
- Power consumption:
  - Tx: typ. 17 mA @ 10dB, 26 mA@ 14dBm
  - Rx: 8 mA
- Low Power: typ. 0.2 µA (shutdown)
- Dimensions: 17 x 27 x 3.2 mm
- Operating temperature: -40 to +85 °C
- Weight: Approx. 3 g
- Antenna: Integrated antenna or RF pad

RF-Technology
- Addressing: Up to 65535 nodes in 255 networks
- Frequency range: 865.00 – 870.00 MHz
- Modulation: (G)FSK, (G)MSK, OOK, DSSS

* Range stated assumes line-of-sight and an antenna height above ground of 6 m. Actual range may vary depending on antenna choice, board design and environment.

Dimensions and Pin Assignment

<table>
<thead>
<tr>
<th>No.</th>
<th>Pad Name</th>
<th>No.</th>
<th>Pad Name</th>
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<tbody>
<tr>
<td>1</td>
<td>RF¹</td>
<td>23</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
<td>22</td>
<td>IO30 / Reserved</td>
</tr>
<tr>
<td>3</td>
<td>VCC</td>
<td>21</td>
<td>IO29 / TX_IND</td>
</tr>
<tr>
<td>4</td>
<td>IO3 / TX</td>
<td>20</td>
<td>IO28 / RX_IND</td>
</tr>
<tr>
<td>5</td>
<td>IO2 / RX</td>
<td>19</td>
<td>/RESET</td>
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<tr>
<td>6</td>
<td>IO1 / RTS</td>
<td>18</td>
<td>IO27 / Reserved</td>
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<tr>
<td>7</td>
<td>IO4 / Reserved for /CTS</td>
<td>17</td>
<td>IO26 / Reserved</td>
</tr>
<tr>
<td>8</td>
<td>IO6 / Reserved</td>
<td>16</td>
<td>IO25 / Reserved</td>
</tr>
<tr>
<td>9</td>
<td>IO6 / Reserved</td>
<td>15</td>
<td>IO24 / Reserved</td>
</tr>
<tr>
<td>10</td>
<td>IO7 / Reserved</td>
<td>14</td>
<td>IO23 / Wake-Up</td>
</tr>
<tr>
<td>11</td>
<td>IO14 / Reserved</td>
<td>13</td>
<td>IO18 / Reserved</td>
</tr>
<tr>
<td>12</td>
<td>IO15 / BOOT</td>
<td>i1 - i4</td>
<td>JTAG</td>
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¹ only on AMB8826-1

Ordering Information

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<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>AMB8826</td>
<td>Radio Module 868 MHz with integrated PCB antenna</td>
</tr>
<tr>
<td>AMB8826-1</td>
<td>Radio Module 868 MHz with RF pad</td>
</tr>
<tr>
<td>AMB8826-1-EV</td>
<td>Evaluation Kit with Module AMB8826-1</td>
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<tr>
<td>AMB8826-(1)-TR</td>
<td>Radio Module 868 MHz, Tape &amp; Reel</td>
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