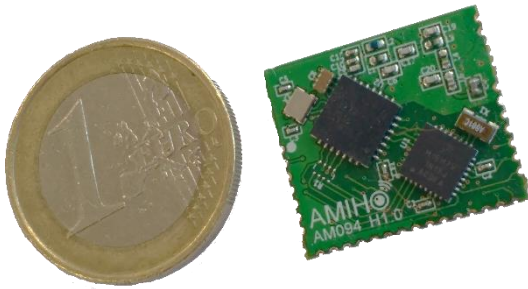




AM094-LW 868 MHz module with LoRaWAN™ protocol



LoRa Alliance Member™

The AMIHO AM094-LW is a high performance, bidirectional transceiver module at 868 MHz which includes the LoRaWAN protocol stack, ideal for IoT and Smart City applications using LoRa® networks.

It features NXP's Kinetis® family of MCUs and Semtech's LoRa® radio.

The AM094-LW radio module provides a highly integrated long range solution for 868 MHz applications embedded modem. It is also suitable for other 868 MHz ISM-band communications standards. The module supports very low current standby for battery powered applications. Key applications include connectivity for the **Internet of Things, Smart Cities, Building Automation, Smart Metering** and similar applications. Design support services are available upon request.

Benefits

- Long range bidirectional module
- LoRaWAN 1.0 compliant firmware stack included
- Full access to MCU – run your own code
- Link budget 151 dB
- AES128 encryption/decryption
- Low power - 2.2 μ A in sleep mode
- Compact footprint
- Ready to connect to networks which implement LoRaWAN protocol
- Firmware updates by bootloader
- Evaluation kit available on request

Features

Wireless modem

- Use in stand-alone modem mode, or embed user application on-board

Transmit RF Performance

- +14dBm at 3.3V

Link RF Performance

- Receive sensitivity to -119dBm in FSK mode
- Receive sensitivity to -137dBm in Spread Spectrum mode

- AT command set Interface

Long-Range Operation

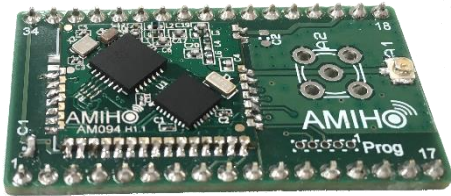
- Spread spectrum operating mode using LoRa®
- Increases link budget by up to 25dB
- Exceptional transmission range (up to 15km)
- For use in radio-poor environments

Hardware

- NXP Kinetis family ARM® 32-bit Cortex M0+ MCU
- Semtech SX1272 transceiver

Software:

- LoRaWAN 1.0 Class A
- LoRaWAN Class B and C supported



AM094-LW module, carrier mounted. Fully compatible with AMIHO universal evaluation system and suitable for prototyping on 2.54mm breadboards.

| Technical Specifications | |
|-----------------------------------------------------------------------------------|-------------------------------------|
| RF modem | SX1272 Sub-1 GHz Smart Radio |
| MCU | ARM® 32-bit Cortex M0+ MCU |
| Program memory | 128 KB flash |
| Data memory | 16KB RAM |
| | Dataflash emulated in program flash |
| Supply Voltage | 1.8 - 3.6 V modem |
| Max output power | +14dBm at 3.3V |
| Sensitivity | |
| 1.2 kbits/s FSK | -119 dBm |
| 38.4 kbits/s FSK | -106 dBm |
| 125 kHz Bandwidth | -137 dBm |
| | (SF=12 Spread Spectrum) |
| Current Consumption | |
| RX | 12 mA |
| TX (13dBm) | 32 mA |
| Deep sleep | 2.2 µA |
| Temperature range | -40 °C / +85 °C |
| Hardware | |
| CMOS UART interface | |
| 16 bit high-speed ADC | |
| 12 bit high-speed DAC | |
| Additional GPIO and interrupts, with software-configured Count and Wake-up inputs | |
| Software wire debug interface (SWD) | |

| Software |
|---------------------------------------------------------------------------------------------------------------------|
| LoRaWAN 1.0 compliant stack |
| AT command interface for stand-alone modem operation, optional binary mode for reduced compact modem communications |
| Software-definable frequency bandwidth and power level within entire 868 MHz ISM-band for other applications |
| LoRaWAN Class A LoRaWAN Class B and C operation supported |
| API to add user application code |
| Physical Dimensions |
| 20.3 x 17.8 x 2.5 mm size (standard footprint) |
| 1.27mm half-holes for mass production |
| External edge RF connection |
| Ordering Information |
| AM094-LW 868 MHz module compatible with networks which implement LoRa and LoRaWAN |
| AE094-LW Evaluation Kit for AM094-LW and LoRaWAN 1.0 software stack 868 MHz |
| AM094-00 868 MHz LoRa® and Wireless Meter-Bus module |



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