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Aranet Radio Module TDSPRMU1

User Manual

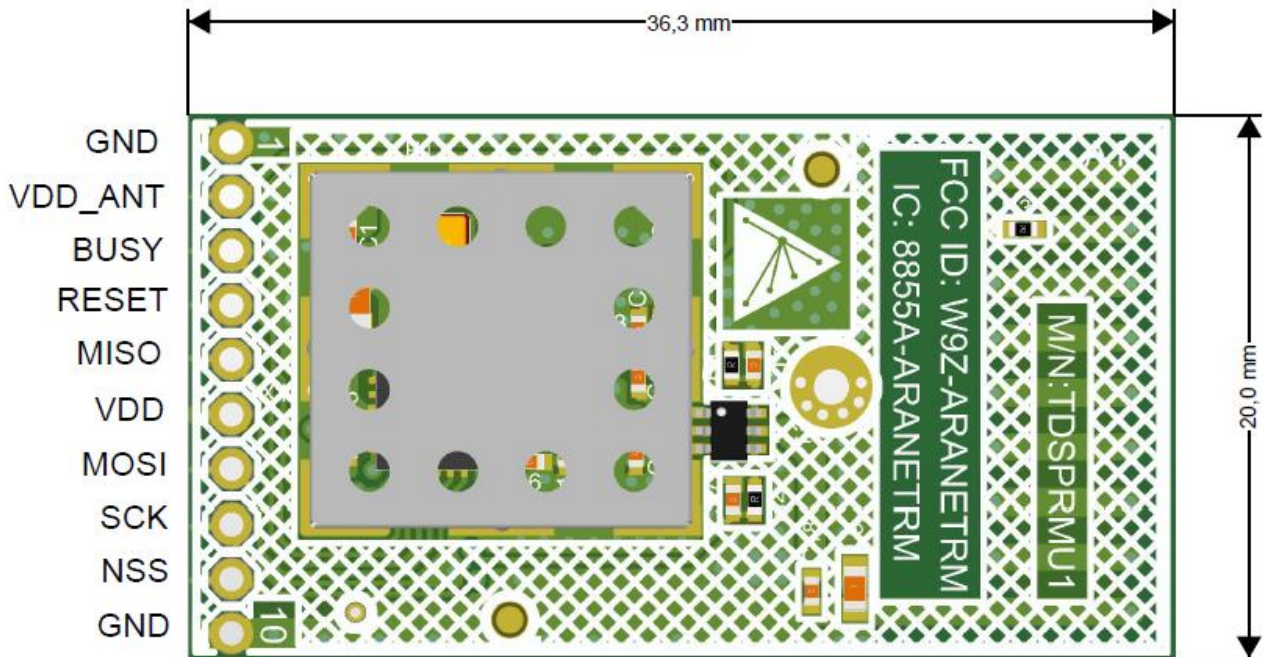
OVERVIEW

Aranet TDSPRMU1 is 915 MHz radio module with integrated PCB antenna for IoT applications.

FEATURES

- Semtech SX1261 engine
- LoRa modulation
- 14 dBm RF output power
- -134 dBm receiver sensitivity @ 125 kHz BW, SF11
- -128 dBm receiver sensitivity @ 500 kHz BW, SF12
- PCB integrated antenna, 0 dBi
- Integrated antenna switch

MECHANICAL DIMENSIONS



PIN DESCRIPTION

PIN	Definition	Direction (In/Out)	Function
1	GND	-	Ground connection
2	VDD_ANT	In	Antenna switch supply
3	BUSY	Out	Busy indicator
4	RESET	In	Reset
5	MISO	Out	Serial Peripheral Interface slave output
6	VDD	In	Power supply
7	MOSI	In	Serial Peripheral Interface slave input
8	SCK	In	Serial Peripheral Interface clock
9	NSS	In	Serial Peripheral Interface Slave Select
10	GND	-	Ground connection



SPECIFICATIONS

Symbol	Parameter	Min	Typ	Max	Unit
VDD	Positive power supply voltage	2.7	3.0	3.3	V
VDD_ANT	Antenna switch supply voltage	2.7	3.0	3.3	V
IDDSTB	Standby current consumption	-	1	-	µA
IDDRX	Supply current receiver mode	-	5	-	mA
IDDTX	Supply current transmitter mode @+14dBm, VDD 3.3V	-	26	35	mA
IDD ANT	Antenna switch supply current	-	9	20	µA
	Temperature range	-40		+85	°C
	Frequency stability	-25	-	+25	ppm
	Frequency band	902	-	928	MHz

MANDATORY MODES

- Maximum transmitter duty cycle 10%.
- Maximum transmitting time 0.4 seconds.
- Bandwidth 125kHz or 500kHz.
- Frequency hopping for 125kHz bandwidth.
- Frequency setting registers:
 - Register Addresses: 0x0911, 0x0912.
 - Register Names: XTA Trim, XTB Trim
 - Register Values: 0x14 (Hex) 20 (Decimal)



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OEM INTEGRATION INSTRUCTIONS

This device complies with CFR47, subpart C, paragraph 15.247 FCC Rules. This enables the Aranet Radio Module TDSPRMU1 to be incorporated within a finished product and utilize TDSPRMU1 certification for the finished product with the following conditions:

- (1) the module must be installed in the host equipment such that 20 cm is maintained between the antenna and users, and the transmitter module may not be co-located with any other transmitter or antenna;
- (2) the only antenna to be used is the integrated PCB antenna, external antennas are not supported;
- (3) the finished product will display a label which is directly visible as follows:
"Contains FCC ID: W9Z-ARANETRM"

Please note that although the radio characteristics are covered by the TDSPRMU1 modular FCC ID of the grant, it is still the responsibility of the manufacturer to perform final checks on the product, such as ensuring the radiated transmitted power is within limits, and to assess the worst case spurious emission is within the FCC requirements of CFR47 Part 15.

FCC Declaration of Conformity

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception,



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which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

ISED Declaration of Conformity

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) This device may not cause interference. (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient des émetteurs / récepteurs exemptés de licence conformes aux RSS (RSS) d'Innovation, Sciences et Développement économique Canada. Le fonctionnement est soumis aux deux conditions suivantes: (1) Cet appareil ne doit pas causer d'interférences. (2) Cet appareil doit accepter toutes les interférences, y compris celles susceptibles de provoquer un fonctionnement indésirable de l'appareil.

ISED Radiation Exposure Statement:

This modular complies with IC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

End product labeling:

If the IC number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label must use wording: "Contains IC: 8855A-ARANETRM".