



Rev A2
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UNT1422 RFID MODULE HARDWARE INTEGRATION GUIDE

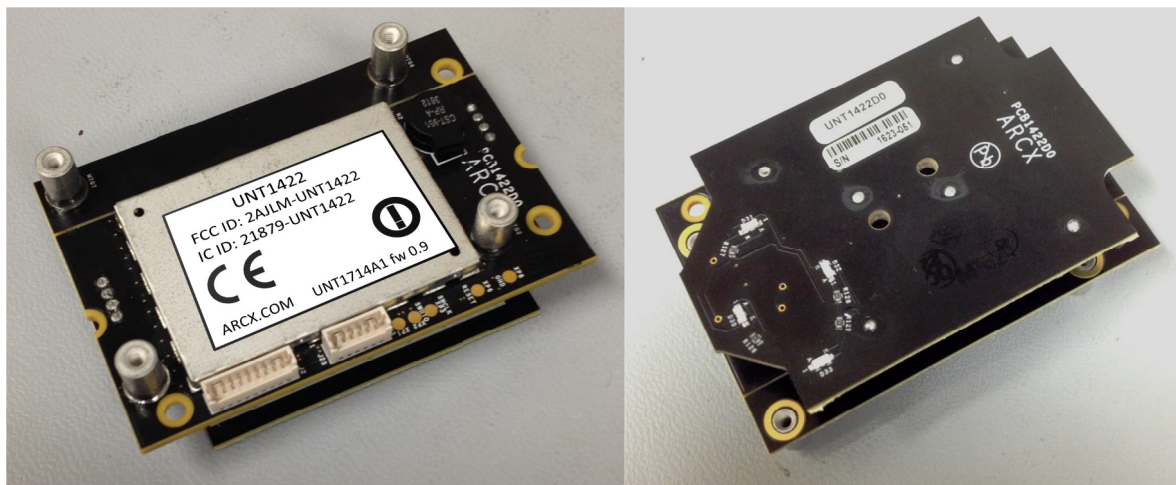




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1. Introduction

The UNT1422 RFID module allows contactless communication with RFID tags at both 125KHz and 13.56MHz. The UNT1422 consists of two PCBs. The first PCB contains power, microprocessor, connectors and RF circuitry. The second PCB is detachable and consists of loop antennae for both 125KHz and 13.56MHz signaling. It also contains LEDs for indication of card detection.

At 13.56MHz the module supports the following modes:

- ISO/IEC 14443A/MIFARE
- ISO/IEC 14443B
- FeliCa scheme
- ISO/IEC 15693
- ICode EPC UID / EPC OTP
- ISO/IEC 18000-3 Mode 3

At 125KHz the module communicates with proximity badges in accordance with ISO/IEC 18000-2.

2. Antenna Configuration

The UNT1422 supports a SISO antenna for 125KHz operation. The UNT1422 also supports a SISO antenna for 13.56MHz operation. Both of these are realized as loop antennae on the same companion PCB.



3. Connections

The UNT1422 is designed to be connected as a bidirectional device using EIA232 on port J2 or as a unidirectional device using port J23.

J2 Bidirectional Port

J2 provides all necessary signals for operating as a transceiver. Data signaling is EIA-232. The current operating baud rate is 9600bps. For more information regarding signal timing and protocols refer to UNT1422 Programmers Guide.

This is a 9 pin 1.25mm connector (Molex 53047-0910). The mating connector is Molex 51021-0900.

Pin	Signal Name	Description	Direction	Max V operating	Min V operating
1	GND	Ground		0	0
2	RXD	Receive data	In	13.2	-13.2
3	TXD	Transmit data	Out	5	-5
4	RESET	Reset, active high*	In	13.2	0
5	GND	Ground		0	0
6	PWR_IN	5V		5.25	4.75
7	RTS	Ready to send	Out	5	-5
8	CTS	Clear to send*	In	13.2	-13.2
9	PWR_IN	5V		5.25	4.75

*Please note that the state of CTS is sampled at the end of reset. If CTS (at J2) is high when sampled after the falling edge of RESET (at J2) occurs (sampled within 3 ms of edge), the onboard microprocessor will go into ISP mode. In this mode, a new firmware image written to the module will be used to update the code stored in Flash memory. For more information please consult the UM10441 LPC1224/25/26/27 User manual.

J23 Receive Only Port

J23 provides all necessary signals for operating as a receiver. Signaling is 5V for data and card detect. For more information regarding signal timing and protocols refer to UNT1422 Programmers Guide.

This is a 6 pin 1.25mm connector (Molex 53047-0610). The mating connector is Molex 51021-0600.



Pin	Signal Name	Description	Direction	Max V operating	Min V operating
1	PWR_IN	5V		5.25	4.75
2	GND	Ground		0	0
3	DATA0	Data 0	Out	5.25	0
4	DATA1	Data 1	Out	5.25	0
5	CD	Card Detect	Out	5.25	0
6	nRESET	Reset, active low	In	3.45	3.15

J11 LEDs/125KHz antenna

J11 provides the connection to a 125KHz loop antenna and an LED to indicate card detection.

This is a 4 pin 2mm connector (Samtec MTMM-104-07-T-S-300). The mating connector is Samtec MMS-104-02-X-SV.

Pin	Signal Name	Description	Direction	Max V operating	Min V operating
1	P5V	5V for LED	Out	5.25	4.75
2	ANT+	125KHz antenna +			
3	ANT-	125KHz antenna -			
4	PIO_27	LED on	Out	5.25	0

J12 13.56MHz antenna

J12 provides the connection to a 13.56MHz loop antenna.

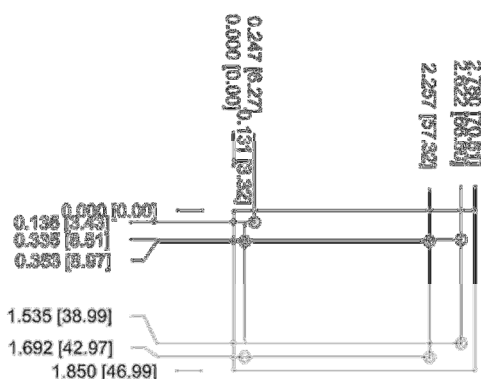
This is a 4 pin 2mm connector (Samtec MTMM-104-07-T-S-300). The mating connector is Samtec MMS-104-02-X-SV.

Pin	Signal Name	Description	Direction	Max V operating	Min V operating
1					
2	ANT+	13.56MHz antenna +			
3	ANT-	13.56MHz antenna -			
4					



4. Mechanical

The UNT1422 dimensions are shown below.



5. Power Supply

The UNT1422 requires a 5V +/-5% power supply.

5.1 Power Sequence

There are no power sequencing requirements.

5.2 Current Consumption

Peak current: 185mA
Average current: 110mA

6. Antennae

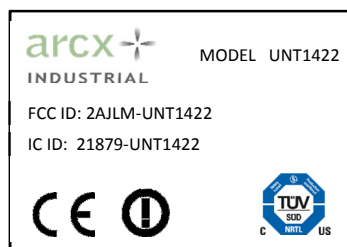
The UNT1422 uses a companion antennae board with maximum gains of:

Antenna	Max Gain dBi	Description	Max system radiated Power dBuV/m @3m
13.56MHz	TBD	ARCX UNT1422 PCB	91
125KHz	TBD	ARCX UNT1422 PCB	62



This is the only approved antenna for the UNT1422 at this time.

7. Certification Information



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, 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.

This device makes use of radio frequency bands which are not harmonized throughout the European Community and is marked accordingly. For use in the European Community, the end user should ensure that operation is permitted according to the regional radio frequency spectrum authority.



7.1 Labeling Requirements for Inclusion into Customer Equipment

7.1.1 FCC

For including this certified modular in your equipment (host) for North American markets, if

1. the module's FCC ID is not visible when installed in the host, or,
2. the host is marketed so that end users do not have straightforward commonly used methods for access to remove the module so that the FCC ID of the module is visible,

Then an additional permanent label referring to the enclosed module: "Contains Transmitter Module FCC ID: 2AJLM-UNT1422" or "Contains FCC ID: 2AJLM-UNT1422" must be used. The host OEM user manual must also contain clear instructions on how end users can find and/or access the module and the FCC ID.

7.1.2 Industry Canada

For including this certified modular in your equipment (host) for Canadian markets, if

1. the module's Industry Canada (IC) ID is not visible when installed in the host, or,
2. the host is marketed so that end users do not have straightforward commonly used methods for access to remove the module so that the IC ID of the module is visible,

Then an additional permanent label referring to the enclosed module: "Contains Transmitter Module IC ID: 21879-UNT1422" or "Contains IC ID: 21879-UNT1422" must be used. The host OEM user manual must also contain clear instructions on how end users can find and/or access the module and the IC ID.

7.1.3 European Union (CE)

For including this certified module in your equipment (host) for European markets the following additional labeling applies:

The host product must be marked with the class 2 Equipment Class Identifier (ECI) which is the alert symbol (exclamation mark, "!" inside a circle).