

OEM-800N11KU
OEM-800N21KU
OEM-805N11KU
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LOW PROFILE INTEGRATED RFID READER

Version 1.1
1/16/2020

VERSION HISTORY

<u>Version #</u>	<u>Date</u>	<u>Revised By</u>	<u>Reason for change</u>
V1.0	1/13/2020	John Spears	Initial Release
V1.1	1/16/2020	John Spears	Added part numbers

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1.0 OVERVIEW

1.1 Model Number

OEM-805N21XU

1.2 Description

The Low Profile Integrated Dual Band Card Reader is capable of reading both 125 kHz and 13.56 MHz credentials. It is designed to be embedded into devices such as a Keyboard. The reader has the ability to be configured to read four different card configurations. These configurations include frequency, card type and data formatting. The reader communicates to the host through USB using the USB HID protocol, mimicking key output of a USB keyboard. Alternative format can be the RF IDEas' SDK format over USB.

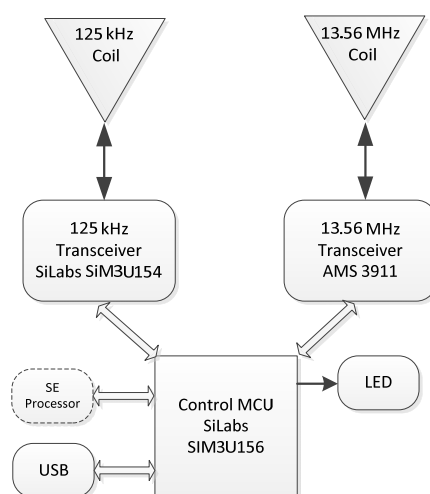
1.3 Theory of Operation

This card reader operates on 5 VDC provided through USB and is composed of three major functions.

Control Microcontroller: Host Interface, Configuration, Transceiver Control

125 kHz Transceiver: Signal Generation, Amplification, Detection, Decoding

13.56 MHz Transceiver: Signal Generation, Amplification, Detection, Decoding



A magnetic field is produced by the reader and is coupled to the card through a transformer formed by a coil in the reader and a coil in the card. Data communication takes place by modulating the amplitude of the carrier. The reader modulates the carrier when it is transmitting to the card. The card responds by modulating the reader's magnetic field through changing its load on the reader's magnetic field. There are three different modulation techniques used dependent on card type. Amplitude, frequency and phase sub-carrier modulation are implemented through amplitude modulation of the carrier. The Control Microcontroller receives the data from the transceivers and formats it per the card type. For HID® iCLASS® ID, SE™ and SEOS™ card types, an HID® SE Processor provides encryption and key management. The SE Processor is included either by placement on the board or by added it to the system through the insertion of a 4FF size SIM card.

The Control Microcontroller also configures the transceivers, stores all the parameters for both card configurations, drives the user interface and communicates to the host thru a USB interface operating at full speed. Communication with the host is done through a full speed USB interface.

2.0 SPECIFICATIONS

2.1 Electrical

Voltage input:	
Operating:	4.35 to 5.25 VDC
Absolute Maximum:	6.0 VDC
Current consumption:	
USB Suspend Maximum:	TBD
Typical Operating Current:	
Non-SE version	65.0mA
SE version	65.0mA
Maximum Peak Operating Current:	
Non-SE version	165mA
SE version	185mA

Note : SE version refers to the SIM card co-processor

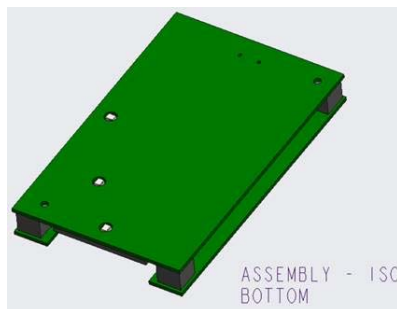
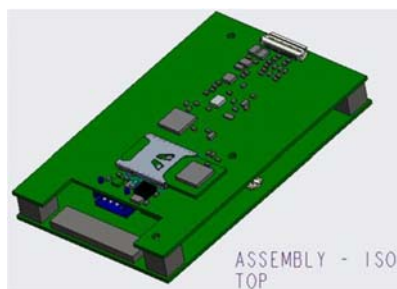
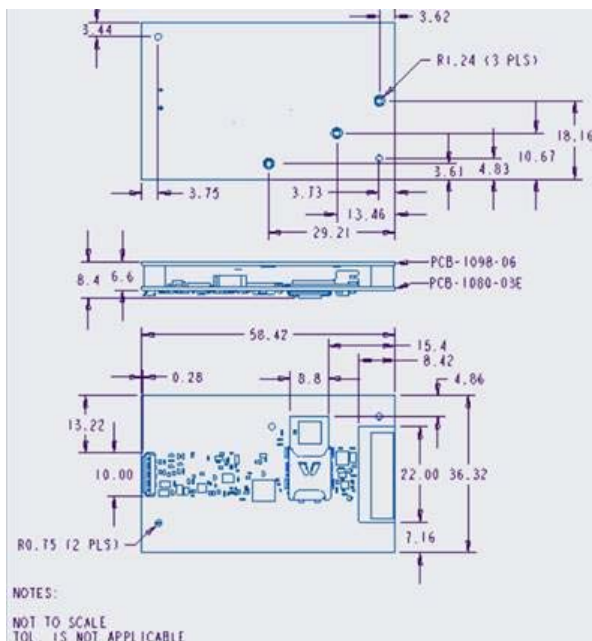
2.2 Mechanical

2.2.1 Finch OEM

Weight

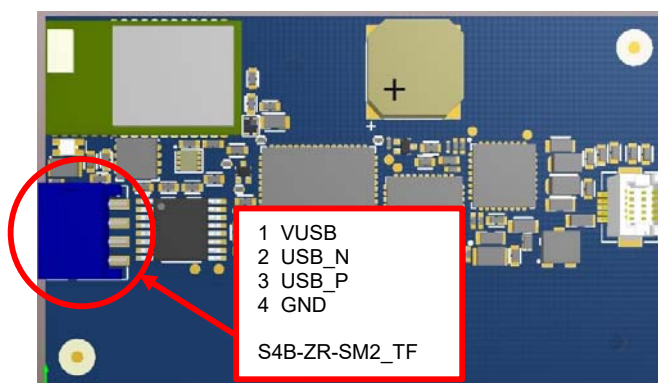
Reader with antennas: < 9 grams

Dimensions in mm



2.3 Communications

Interface: USB 2.0, full speed
 Device Class: HID
 Protocol: USB HID
 Connector: S4B-ZR-SM2_TF
 Pinout:
 1) VUSB (5V)
 2) USB_N
 3) USB_P
 4) GND



2.4 Indicators

Tricolor LED: Red, Green or Amber
 Audio Alert at 2.8kHz

2.5 Read Height

2.5cm typical, dependent on card type, credential form factor and environment

2.6 Environmental

Operating Temperature: -30°C to +65°C
 Operating Humidity Range: 5% to 95% relative humidity, non-condensing

2.7 Certifications

FCC, CE, RSM, Industry Canada, RoHS, REACH

2.8 Detailed Pin Descriptions

Pin	Pin Name	Pad Type*	Description	Comment
1	VBUS_5V	PI	5V Module power supply	4.35V - 5.25V input, 185mA peak
2	Data- (D-)	I/O	USB Differential data signal D-	
3	Data+ (D+)	I/O	USB Differential data signal D+	
4	GND	PI	Power Supply Ground	

2.9 Supported Card Types

2.9.1 125 kHz

AWID (RDR-698x Compatible)
 Cardax UID (RDR-6C8x Compatible)
 CASI-RUSCO (GE Security, UTC) (RDR-628x Compatible)
 CDVI
 COTAG
 Deister UID
 DIGITAG
 Dimpna UID

EM 410x (RDR-6E8x Compatible)
 EM 410x Alternate
 Farpointe Data (Pyramid) PSC-1 26 Bit (RDR-647x Compatible)
 Farpointe Data (Pyramid) UID
 G-Prox™ II ID
 G-Prox™ II UID (IRDR-6G8x Compatible)
 HID® Prox (RDR-608x Compatible)
 HID® Prox UID
 Hitag® 1 & S (RDR-6H8x Compatible)
 Hitag® 1 & S Alternate
 Hitag® 2 (RDR-6H8x Compatible)
 Hitag® 2 Alternate
 ID Teck (RDR-6A8x Compatible)
 ID Teck Alternate (128 bits)
 Indala® ASP 26 bit (Motorola) (RDR-638x Compatible)
 Indala® ASP UID (Motorola)
 Indala® ASP+ UID (Motorola)
 ioProx (Kantech) (RDR-678x Compatible) Isonas
 Keri NXT UID
 Keri PSC-1 26 Bit: (RDR-647x Compatible)
 Keri UID (RDR-6K8x Compatible)
 Nedap
 NexKey, Quadrakey, KeyMate, 2SmartKey (Honeywell)
 Nexwatch (Honeywell) (RDR-6N8x Compatible)
 Paradox
 Postech
 Pyramid (Farpointe Data) PSC-1 26 Bit
 Pyramid (Farpointe Data) UID
 Radio Key® (Secura Key -02) RKCx-02 (RDR-6Z8x Compatible)
 ReadyKey® Pro UID (RDR-6R8x Compatible)
 Rosslare
 Russwin UID
 Secura Key -01 RKCx-01

2.9.2 13.56 MHz CSN

CEPAS e-TAG
 FeliCa (NFC Type 3)
 HID® iCLASS®
 I-Code
 ISO 14443B(SRX)
 I-tag
 LEGIC® Advant
 MIFARE® Classic (32 bits)
 MIFARE® DESFire®
 MIFARE® DESFire® EV1
 MIFARE® Plus
 MIFARE® Ultralight
 my-d CSN (Infiniton)
 NFC Type 1
 NFC Type 2
 NFC Type 4
 NTWare
 Oyster
 RDR-758x Equivalent (iCLASS, ISO 14443A, ISO 15693)
 Tag-It (Texas instruments)

2.9.3 13.56 MHz ID (with HID SE Processor SIM)

HID® iCLASS® ID
HID® iCLASS SE®
HID® iCLASS Seos®



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