USER MANUAL

Xpress CM100

Brand name: ID TECH

Product Name: Xpress CM100

Model no.:   IDCA-1261

FCC ID: WQJ-IDCA-12X1-2

IC ID: 9847A-12X12

Crystal: 27.12MHz (RF chip), 8MHz (MCU)

Work frequency: 13.56MHz

Federal Communications Commission (FCC) Statement

15.21

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

15.105(b)

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

1) this device may not cause harmful interference and
2) this device must accept any interference received, including interference that may cause undesired operation of the device.

Canada, Industry Canada (IC)

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This Class B digital apparatus complies with Canadian ICES-003
Cet appareil numérique de classe B est conforme à la norme NMB-003.

This device complies with Industry Canada licence-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux   appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

LIMITED WARRANTY

ID TECH warrants to the original purchaser for a period of 24 months from the date of invoice that this product is in good working order and free from defects in material and workmanship under normal use and service. ID TECH's obligation under this warranty is limited to, at its option, replacing, repairing, or giving credit for any product which has, within the warranty period, been returned to the factory of origin, transportation charges and insurance prepaid, and which is, after examination, disclosed to ID TECH's satisfaction to be thus defective. The expense of removal and reinstallation of any item or items of equipment is not included in this warranty. No person, firm, or corporation is authorized to assume for ID TECH any other liabilities in connection with the sales of any product. In no event shall ID TECH be liable for any special, incidental or consequential damages to purchaser or any third party caused by any defective item of equipment, whether that defect is warranted against or not. Purchaser's sole and exclusive remedy for defective equipment, which does not conform to the requirements of sales, is to have such equipment replaced or repaired by ID TECH. For limited warranty service during the warranty period, please contact ID TECH to obtain a Return Material Authorization (RMA) number & instructions for returning the product.

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1. Introduction

Xpress CM100 reader is a contactless smart card reader. Its primary use is in reading contactless cards for POS payment where contactless cards are used for credit and debit transactions. The ID TECH Contactless Reader supports retail applications for quick, convenient purchases where customer queuing must be minimized.   It supports financial association & payment industry requirements for contactless payments. The reader accepts data from a variety of contactless sources, including credit cards and key fobs. The Reader complies with ISO/IEC 14443 Implementation Specifications. Both Type A & B modulation standards are supported.

Customers hold their card or fob near the reader's Landing Plane to initiate a purchase transaction. The area is clearly identified by the Contactless Symbol. Four LEDs provide easy visibility for cardholder and assurance of card acceptance.

The Xpress CM100 reader is a peripheral device for existing Point of Sale and Electronic Cash Register terminals, providing a new technology upgrade without replacing existing equipment. The reader is connected to existing systems through an RS232 or USB port. A general purpose API is available to support terminal software applications. The API provides hooks for application interfacing to the reader; direct interface programming is not required. The SDK sample code is written in C for compiling directly into the terminal application. This document provides the information for installing and using the Xpress products. A separate document is available for application support information.

2. Features & benefits

- The reader is compact to fit in small areas
- The reader can be tilted & elevated to achieve the best operation position
- Provides audio and LED Feedback for each card presentation
- Reads contactless cards used for Debit or Credit purchases
- Meets card association standards and is association certified
- Communication interface is RS232 or USB
- SDK is available to support terminal application programming
- Meets ANSI and ISO standards for a proximity card reading device
- Outdoor model has sealed enclosure and conformal coated PCA

3.   Product Configurations

The Xpress product has two configurations.

Configuration	Model Number	Description
RS232	IDCA-1221	Xpress CM100 reader with RS232 interface cable/connector & power supply
USB	IDCA-1261	Xpress CM100 reader with USB cable/connector

4.   Terms, Standards & Related Documents

ANSI   American National Standard Institute
API   Application Programming Interface
EMI   Electromagnetic Interference
EMV   Europay, MasterCard, Visa
ESD   Electrostatic Discharge
Host   A PC, terminal, or controller running Application Software
IFD   Interface Device
ISO   International Organization for Standardization
JPOS   Java for Retail Point-of-Sale
MTBF   Mean Time Between Failures
OPOS   OLE for Retail Point-of-Sale
RoHS   Restrictions of Hazardous Substances
SDK   Software Development Kit
PC   Personal Computer or similar hardware device
PCD   Proximity Coupling Device
PCI   Payment Card Industry
PICC   Proximity Integrated Circuit Card
USB   Universal Serial Bus

Related Documents

ISO/IEC 14443   Identification cards, Physical Characteristic
ISO/IEC 14443   Identification cards, Contactless ICC/Proximity cards
EMV   EMV Contactless Specifications for Payment Systems Version 2.0.1
EMVCL   EMV Contactless Communication Protocol Specification Version 2.0.1,
July 2009
PayPass   PayPass-M/Chip Reader Card Application Interface Specification V2.1
PayPass   PayPass-M/Chip Application Note 18
PayPass   PayPass MagStripe Terminal Specification V3.3
PayPass   PayPass MagStripe Terminal Specification V3.3
Visa   Visa Contactless Payment Specification Version2.1
Visa   Test Plan for Visa Contactless Payment Specification Version2.1 MSD
                     Contactless Reader V2.1.1b

Visa	Test Plan for Visa Contactless Payment Specification Version2.1 qVSDC Contactless Reader V2.1.1b
American Express	Expresspay 2.0.1 Terminal Specification August 2010
Discover	Discover Network RF Contactless Specification – Supplement Guide for Functional Portion Version 2.12

5.   Installation

The Xpress CM100 reader should be installed in a suitable location where the unit's environmental specifications are not exceeded. Metal plane, high heat, extreme cold, and liquids must be avoided for reliable operation. Avoid locations with direct sunlight as the UV radiation will shorten the life of the plastics and may cause color fading.

The reader location should allow convenient and practical access for the customer and allow the clerk to observe operation so assistance can be provided when necessary. The customer must be able to conveniently present their card and touch the operational area, the Landing Plain, marked by the Contactless Symbol.

There are two communication options. The two options are RS232 and USB.   The Xpress CM100 is factory pre-configured with one of the two communication interfaces. Units are factory supplied with either an RS232 or a USB communications interface cable. The factory set interface option cannot be changed. The cable types cannot be interchanged.

RS232 Configured Units
Connect the RJ-45 connector or by using the RJ45 to DE9 adaptor connector into the Host equipment communication port. An A/C power adaptor is required to supply power to the RS232 configured unit. To apply power to the unit, first connect the output connector of the power adaptor into the housing of the DB9 (RS232) connector. Then, plug the power supply module into a wall power receptacle to power up the unit. This power connection sequence is preferred; the sequence is not required.

WARNING: The power adaptor can have input (wall) voltage limitations.

USB Configured Units
Plug the USB connector into a USB communication port on the Host. No A/C power adaptor is needed to power up the USB unit.
The power is supplied by the USB connection. When the USB connector is installed into the Host, power is applied.
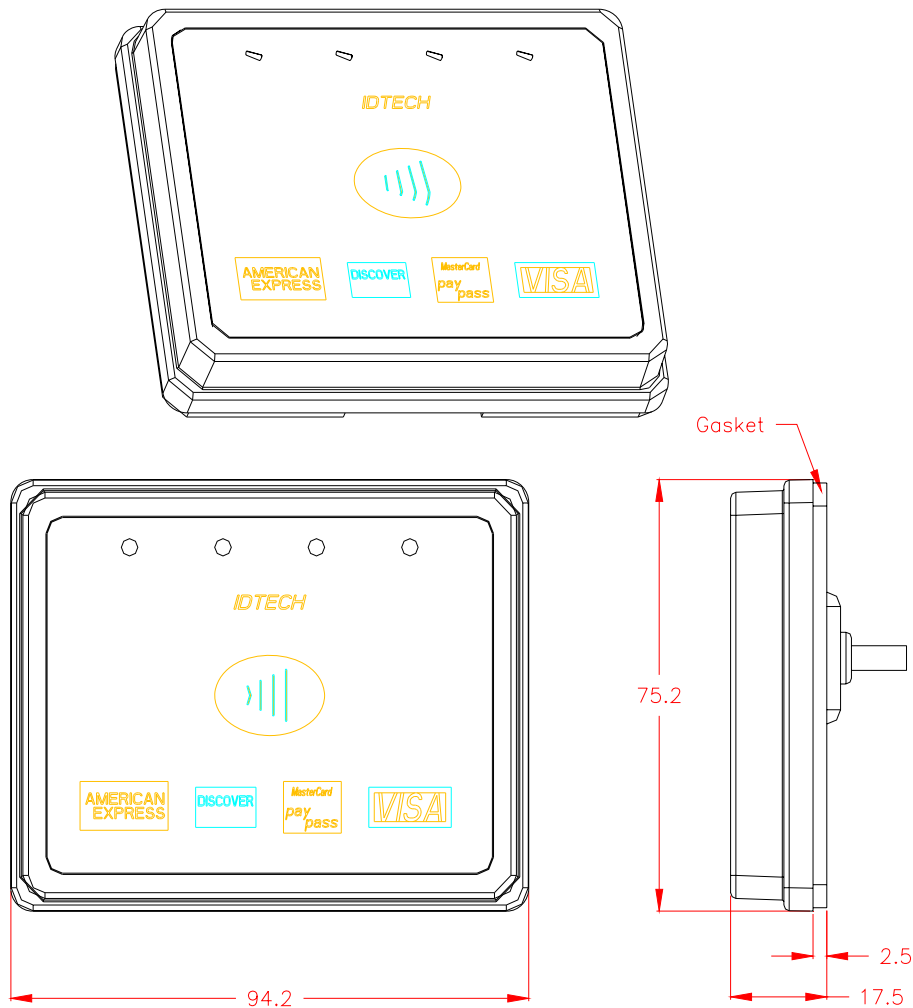
Figure 1, Xpress CM100 reader

6. Operation

General

All units are operated through a POS application command & response (API message) structure. The POS application runs on terminal equipment, a PC, or similar device. Commands cause Xpress operations; the Xpress provides command responses back to the POS application. Responses are results from commands and can include data. No commands or operations infringe on security requirements. The full command and response protocol operations are provided in a separate document "Xpress CM100 reader API Manual".

Power-Up Sequence

Each time power is applied to the Xpress, the unit performs a Power-Up sequence that

includes a self-test. The LED shows a Power-Up sequence.

Audio & LED operation
There is an audio output device providing a single tone audio & LED feedback to signal a card reading & acceptance event. The feedback sequence is an industry standard for card acceptance.

7.   Maintenance

There are no serviceable components in the Xpress CM100 reader. Maintenance is limited to periodic cleaning of the unit to remove oils and dirt.

To clean the unit, use a soft cloth moistened with warm water and a small amount of mild detergent. Disconnect or remove power from the unit and wipe the exterior with the moistened cloth. Caution should be used not to saturate the any area, which would permit liquid to enter the unit. Wipe the unit only enough to clean the surface oil and dirt.

Appendix A   Specifications

Power Requirements

Power is supplied to the unit in the following manner:

> RS232C interface - A/C power adapter, 5VDC +/- 10%
>
> USB interface – Hub supplied power is less than 350mA

Operating Environment

Temperature Range

Operating: 0 to 40° C

Storage: -40 to 80° C (-40 F to 176 F)

Relative Humidity Range: 10% to 95 % non-condensing

Mechanical

Dimensions: 94.2mm(W)x75.2mm(H)x15mm(D)

Front Overlay:
Printed Mylar with Contactless Symbol, Card Association Logos, & Brand

Mounting: unit can be mounted to Kiosk (Flush or on the surface) by using three plastic screws attached with it.

Reliability

Electrostatic Discharge (ESD)

> Units will withstand minimum 8KV direct contact and 12KV electrostatic air discharge without resetting.

Drop Test:

> Withstands 3 ft drop to concrete, 6 surfaces & 4 corners
> No functional damage

Minimum calculated MTBF:

> 200,000 power on hours at 20 °C

Electromagnetic Interference (EMI)

> FCC part 15 Class B
> CISPRA B