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MT20 Enrollment Reader

User Guide

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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.

FCC Part 15.21 Statement

Changes or modifications not expressly approved by the XceedID Corporation to this device could void the user's authority to operate the device.

FCC part 15.105 Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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.

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Customer Service

U.S.A.: 877-671-7011

www.allegion.com/us

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Revision

Check **www.allegion.com/us** for latest product revisions.

Contact Information

Should a system design engineer or developer need assistance, contact XCeedID at:

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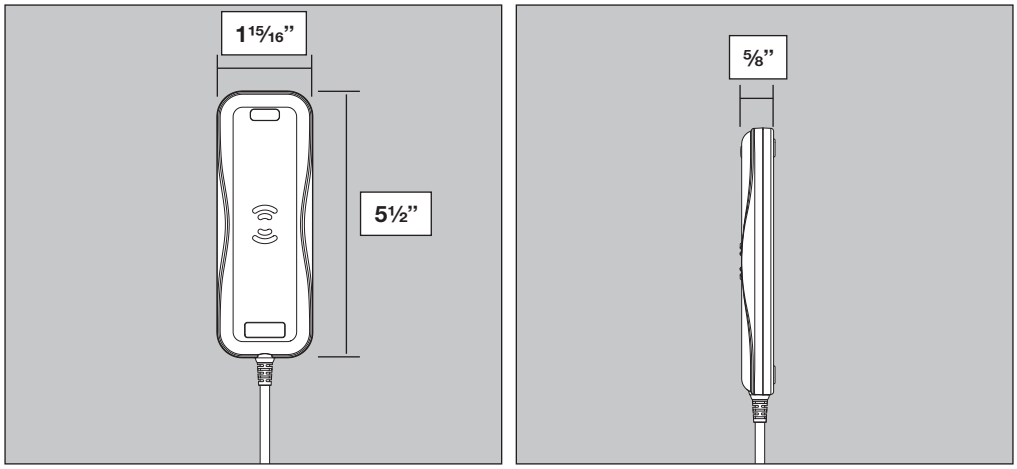
General Description

The MT20 Reader is a multi-tech ISO14443 and ISO15963 contactless credential access reader. The included hardware and firmware will enable the use of many 125kHz and 13.56 MHz credentials and applications.

Specificiations

Physical Dimensions

Case height: 5½" long; width: 1 15/16"; thickness: ⅝"; cable length: 5' 5" long.



Electrical Specifications

Symbol	Parameter	Min	Typical	Max	Units
T	Operating Temperature	0	25	40	Celsius
F	Frequency		125kHz and 13.56 MHz	+2.4	GHz
USB	Voltage Input	4.75	5	5.25	Volts
I_{AVG}	Average System Current		160		mAmps
I_{MAX}	Maximum System Current		200		mAmps

Card Specifications

Card Read Ranges		
Card Frequency	**Card Type**	**Read Range**
125 kHz	ASK, FSK	Up to 2.5" (6.3 cm)
13.56 MHz	ISO 15693	Up to 3.0" (7.6 cm)
13.56 MHz	ISO 14443A MIFARE® Standard	Up to 2.0" (5.1 cm)
13.56 MHz	ISO 14443A MIFARE® DESFire EV1	Up to 1" (2.5 cm)

Card Technologies Supported

125kHz Technologies

GE®/CASI® Proximity

HID® Proximity (except Long Format)

AWID® Proximity

LenelProx®

13.56MHz Technologies

ISO14443 MIFARE DESFire EV1 with PACSA enabled (format in the card - up to 48 bits)

ISO14443 Secure MIFARE Classic:

- XCeedID MIFARE app enabled (format in the card - up to 48 bits)
- OESM (dormant - ready to be enabled by end-user)

ISO14443 PIV enabled 75-bit format (other formats available)

iClass/Inside UID enabled 40-bit format

ISO15693 UID enabled 40-bit format

ISO14443 UID disabled (can be enabled if PIV, EV1, and MIFARE are all disabled)

Felica CSN

aptiQmobile

Operational Behavior

Communication

The MT20 Reader can communicate over USB or BLE. USB is the preferred default communication channel.

Output

The USB connection uses Human Iinterface Device (HID) Keyboard Interface that requires the user to put the cursor in the desired field to receive the output. The default output of the enrollment reader will be Facility Code followed by Badge ID in a 9 digit form. If you require a different output, please contact Allegion Technical Support at 1-877-671-7011, option 2.

RF Field

Every 100ms the RF field turns on and the reader polls for cards. The 13.56 MHZ field is on for approximately 42 ms in the default reader configuration, which is maximum complexity. The 125 kHZ field is on for approximately 20 ms in the default reader configuration, which is maximum complexity.

Design References

ISO14443

ISO15963

OSDP Specification

Application Note Micore Reader IC Family from NXP Semiconductors - See XceedID website (www.allegion.com/us).

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Appendix A

Terms and Abbreviations

- **125 kHz:** Radio waves operating at 125 thousand cycles per second. This technology has historically been the standard in proximity card/reader but is beginning to be replaced by faster, more secure 13.56 MHz technology.
- **13.56 MHz:** Radio waves operating at 13.56 million cycles per second allowing read/write and secure, encrypted card and reader communication. Because of the faster communication (compared to 125 kHz proximity technology) between a card and reader, this technology is better suited for biometrics and secure, authenticated transactions.
- **ASK:** Amplitude Shift Keying or modulation – Refers to the process of altering the height of the radio waves to signify the zeros and ones in the binary communication
    - – ASK is the most common form of modulation used in RFID. It is used in both ISO 14443 and ISO 15693 specifications for reader to card communication.
- **CSN:** Card Serial Number. Also known as the UID or Unique Identifier which is specified in the ISO specifications.
- **DESFire®:** A flexible, high security, ISO 14443 compliant, contactless smart card technology by NXP.
- **Firmware:** Essentially software in the form of ROM or EEPROM that does not lose memory when power is not maintained.
- **FSK:** Frequency Shift Keying or modulation – the process of altering the frequency of radio waves to signify the zeros and ones in the binary communication.
- **ISO 14443:** International standard regulating contactless, proximity technology, typically representing a read range distance up to 10 centimeters. The advantage products utilizing ISO 14443 have over those utilizing ISO 15693 is that the transaction speed is faster, making security and transaction speed superior for large packets of information such as biometric templates. ISO 14443 is actually divided into two sub-divisions of the standard, A & B. ISO 14443A has grown to be the leading standard for access control and transportation and 14443B for banking.
- **ISO 15693:** International standard regulating contactless, vicinity technology, typically representing a distance over 10 centimeters. The advantage ISO 15693 has over ISO 14443 is greater convenience due to longer read ranges and less power consumption.
- **MIFARE®:** A proprietary contactless and dual interface smart card chip technology produced by NXP. Mifare is a well proven RF communication technology for transmitting data between a card and a reader device and is fully compliant with ISO 14443A.
- **Modulation:** The changing of radio waves in a specific manner in order to represent data.
- **OSDP (Open Supervised Device Protocol):** OSDP is a communication protocol for interfacing one or more Peripheral Devices to a Control Panel.
- **Protocol:** How computers talk to each other – a communication system.
- **Proximity:** A card/credential and reader system utilizing RFID technology in which the credential and reader utilize microprocessors and antennas to communicate without having to come in contact with one another. This technology is usually associated with 125 kHz frequency readers, the historical standard RFID technology in access control.
- **Smart Card:** A card or credential that contains a built-in microprocessor and memory used for identification and transactions in a number of applications (security, financial, etc.). The card has read/write capability to transfer data from a reader typically to a panel or computer.
- **UID:** See CSN above.
- **Wiegand Format:** The most common data format in an access control system consisting of 26 bits of information.

About Allegion

Allegion (NYSE: ALLE) creates peace of mind by pioneering safety and security. As a $2 billion provider of security solutions for homes and businesses, Allegion employs more than 7,800 people and sells products in more than 120 countries across the world. Allegion comprises 23 global brands, including strategic brands CISA®, Interflex®, LCN®, Schlage® and Von Duprin®.

For more, visit **www.allegion.com**.

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