TSEC Multi-Technology Card Reader

Installation Manual

ICT®eSecurity.

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Contents

1   Welcome

Thank you for choosing the TSEC Card Reader from Integrated Control Technology. The TSEC Reader is an advanced technology high frequency smart card radio frequency identification device (RFID) specifically designed to enhance the functionality of security, building automation and access control by providing multiple format compatibility, high speed data transmission and sabotage protection.

The TSEC Reader is designed to operate as a Wiegand Proximity Reader or using Intelligent RS-485 Communications, and can be programmed to read and output different card formats.

Before installing this product, we highly recommend you read this manual carefully and ensure that the data formats you program will operate with the configured access control or security product.

Current features include:

- Multi card technology provides support for DESFire, Mifare, and 125KHz cards
- Encrypted RS-485 or standard Wiegand connection
- Fully encapsulated design with environment IP Rating of IP65 for outdoor and indoor operation
- Bi color LED (blue and green) with independent or single LED control
- Programmable Wiegand data formats from 26 or 34 Bit with card configured output
- Keypad output on Wiegand data using 4 Bit buffered, 26 Bit, 34 Bit and ARK formats (keypad versions only)
- Read range up to 60mm (2.36") with proximity ISO cards

When receiving this product you should find the kit contains the items listed below. If you do not have the correct contents, please contact your distributor immediately.

- TSEC Multi-Technology Card Reader Installation Guide
- TSEC Card Reader
- M3 x 8mm Plastite screw
- Mounting template sticker

For more information on the TSEC Card Reader range and other Integrated Control Technology products please visit the ICT website (http://www.ict.co).

1.1   Document Conventions

This document uses the following conventions:

⚠	Important warnings or cautionary messages to prevent equipment damage, data loss, or other similar conditions
ℹ	Notes with additional information such as an explanation, a comment, or a clarification about the subject
❓	Tips containing practical information that may help you solve a problem or describing actions that may save you time
UL ULC	Information relating to UL and ULC compliance
[TEXT]	Bold text enclosed in brackets is used to show a section number or address of a programmable option or information on programming shortcut sequences

2 TSEC Editions

The TSEC Reader comes in three main editions (Standard, Extra, and Mini) and with a range of optional features. Each edition is available with support for either 125KHz or Mifare/DESFire cards. The Standard and Extra are also available in a combo model combining support for Mifare, DESFire, and 125 KHz cards from a single reader, and with an optional keypad. All models are available in either black or white.

	Keypad	125KHz	Mifare/DESFire
Standard			
PRX-TSEC-STD TSEC Standard Card Reader		✔	✔
PRX-TSEC-STD-KP TSEC Standard Card Reader with Keypad	✔	✔	✔
PRX-TSEC-STD-125 TSEC Standard 125KHz Card Reader		✔	
PRX-TSEC-STD-125-KP TSEC Standard 125KHz Card Reader with Keypad	✔	✔	
PRX-TSEC-STD-DF TSEC Standard DESFire Card Reader			✔
PRX-TSEC-STD-DF-KP TSEC Standard DESFire Card Reader with Keypad	✔		✔
Extra			
PRX-TSEC-EXTRA TSEC Extra Card Reader		✔	✔
PRX-TSEC-EXTRA-KP TSEC Extra Card Reader with Keypad	✔	✔	✔
PRX-TSEC-EXTRA-125 TSEC Extra 125KHz Card Reader		✔	
PRX-TSEC-EXTRA-125-KP TSEC Extra 125KHz Card Reader with Keypad	✔	✔	
PRX-TSEC-EXTRA-DF TSEC Extra DESFire Card Reader			✔
PRX-TSEC-EXTRA-DF-KP TSEC Extra DESFire Card Reader with Keypad	✔		✔
Mini			
PRX-TSEC-MINI TSEC Mini Card Reader		✔	✔
PRX-TSEC-MINI-125 TSEC Mini 125KHz Card Reader		✔	
PRX-TSEC-MINI-DF TSEC Mini DESFire Card Reader			✔

3   Mifare Technology

3.1   About Mifare

Based on the international standard ISO/IEC 14443 Type A, Mifare is a technology used for contactless RFID smart card systems consisting of card and reader components.

The most widely deployed RFID technology in the world and used in thousands of diverse applications, Mifare has established an excellent reputation as a technology that delivers convenience and flexibility for contactless RFID.

- Fully compliant with the international standard ISO/IEC 14443 Type A
- Proven and reliable, with more than 1 billion smart card ICs and 7 million reader components sold Mifare has a market share of 80% in the automatic fare collection industry (Source: Frost & Sullivan 2001)
- Future-proof product portfolio covering reader components as well as contactless and dual interface smart card ICs
- Multi-application memory to store several services on the same card allowing many integration possibilities
- Fast transaction speed
- High security and fraud protection

3.2   Mifare Modules

The Mifare products can be expanded to accommodate large numbers of modules using the encrypted RS-485 Network. Modules that are currently available are listed below. Integrated Control Technology provides a number of reader and tag/card options in the Mifare range. You can take advantage of the ICT Mifare product range while transitioning from legacy equipment using our dual technology cards which feature both low security formats and Mifare. For more information, please contact our support team (see page 25).

Readers

- Mifare Desfire Nano Proximity Card Reader (PRX-NPROX-DF)
- TSEC Multi-Technology Standard Card Reader (PRX-TSEC-STD)
- TSEC Multi-Technology Standard Card and PIN Reader (PRX-TSEC-STD-KP)
- TSEC Multi-Technology Extra Card Reader (PRX-TSEC-EXTRA)
- TSEC Multi-Technology Extra Card and PIN Reader (PRX-TSEC-EXTRA-KP)
- TSEC Multi-Technology Mini Card Reader (PRX-TSEC-MINI)

Cards

- Mifare 1K (S50) Proximity Clamshell Card (PRX-CLAM-MF)
- Mifare 1K (S50) Proximity Card ISO (PRX-ISO-MF)
- Mifare 1K (S50) Proximity Card ISO Mag (PRX-ISO-MAG-MF)
- Mifare 1K (S50) Proximity Standard Key Tag (PRX-TAG-MF)
- Mifare 1K (S50) Proximity Blue Key Tag (PRX-TAG-MF-BLU)
- Mifare Desfire EV1 Proximity Card ISO 2K (PRX-ISO-DF)
- Mifare Desfire EV1 Proximity Blue Key Tag 2K (PRX-TAG-DF-BLU)

3.3   About ICT Secured Mifare Card Format

ICT Secured Mifare is the compromise between secured card and cost. Card data is protected with a diversified authentication key and encrypted with an AES256 algorithm. These cards are not as secure as DESFire EV1 but still provide high security against cloning. This card mode can be used on all Mifare 1K (S50) cards and tags.

Readers

- Mifare Desfire Nano Proximity Card Reader (PRX-NPROX-DF)
- TSEC Multi-Technology Standard Card Reader (PRX-TSEC-STD)
- TSEC Multi-Technology Standard Card and PIN Reader (PRX-TSEC-STD-KP)
- TSEC Multi-Technology Extra Card Reader (PRX-TSEC-EXTRA)
- TSEC Multi-Technology Extra Card and PIN Reader (PRX-TSEC-EXTRA-KP)
- TSEC Multi-Technology Mini Card Reader (PRX-TSEC-MINI)

3.4   About Mifare DESFire EV1

Mifare DESFire EV1 is an ideal solution for service providers wanting to use multi-application smart cards in transport schemes, e-government or identity applications. It complies fully with the requirements for fast and highly secure data transmission, flexible memory organization, and interoperability with existing infrastructure.

- Fully compliant with the international standard ISO/IEC 14443 Type A 1-4
- Available in 2, 4 and 8 Kbytes EEPROM version with fast programming
- Secure, high speed command set
- Unique 7-byte serial number
- Open DES/3DES crypto algorithm in hardware
- Open AES 128 bits crypto algorithm in hardware

Mifare DESFire EV1 provides many benefits to end users. Cardholders can experience convenient contactless ticketing while also having the possibility to use the same device for related applications such as payment at vending machines, access control, or event ticketing. In other words, the Mifare DESFire EV1 solution offers enhanced consumer-friendly system design, in combination with security and reliability.

Readers

- Mifare Desfire Nano Proximity Card Reader (PRX-NPROX-DF)
- TSEC Multi-Technology Standard Card Reader (PRX-TSEC-STD)
- TSEC Multi-Technology Standard Card and PIN Reader (PRX-TSEC-STD-KP)
- TSEC Multi-Technology Extra Card Reader (PRX-TSEC-EXTRA)
- TSEC Multi-Technology Extra Card and PIN Reader (PRX-TSEC-EXTRA-KP)
- TSEC Multi-Technology Mini Card Reader (PRX-TSEC-MINI)

Cards

- Mifare DESFire EV1 Proximity Card ISO 2K (PRX-ISO-DF)
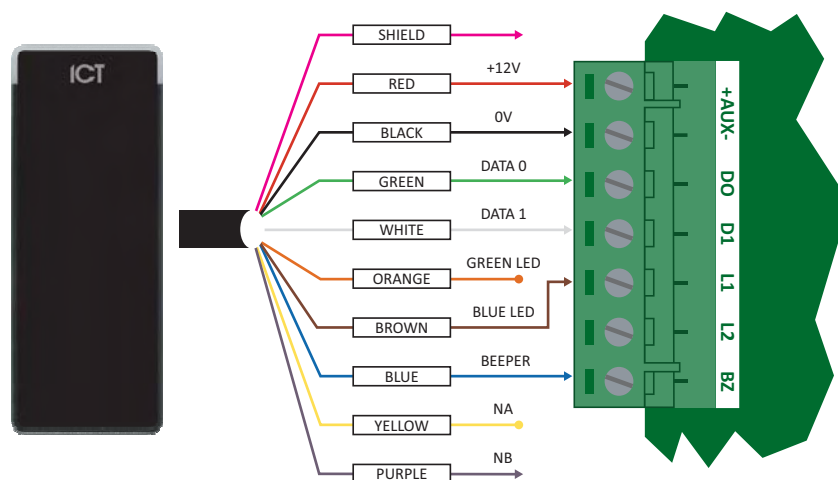- Mifare DESFire EV1 Proximity Blue Key Tag 2K (PRX-TAG-DF-BLU)

4 Mounting

The TSEC Reader is intended to provide the reading component of access control, time and attendance and alarm systems. It is intended to be mounted on a wall with adequate air flow around and through it.
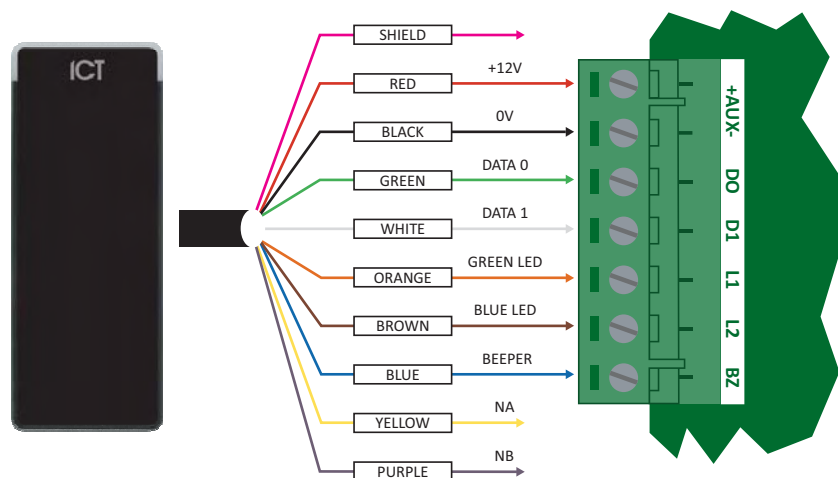
4.1 Mounting Instructions

1. Select where to mount the reader, ensuring it is mounted a minimum of 1.1m (3.5ft) away from other wiring, such as ACM power, computer data wiring, telephone wiring and wiring to electric lock devices. Use the template sticker provided in the kit as a guide to correctly position the unit.

2. Hold the rear case half against the wall and mark the mounting holes and cable entry area. The cable entry area should align with a hole cut through the plaster wall-board. Cables are intended to be run inside the wall. Use appropriate screws (not supplied) to affix the case to the wall.

3. Run the wiring. Refer to later sections of this manual for the electrical connections. Leave about 20cm (8") of wire protruding through the center of the mounted half of the case.

4. Connect the wiring to the reader electronics, then use the top case to press gently on the bottom mounted case until the screw hole for securing the top and bottom case together lines up.

5. To complete the installation, use the M3 x 8mm Plastite screw provided in the kit to secure and fasten the top case to the bottom mounted case.

5   Wiegand Connection

When using the standard Wiegand Interface to the access controller or reader expander two wiring methods can be used. Dual LED operation allows the signalling of both LEDs independently using the LED control lines and is ideal to show the status of alarm or other integrated signals. Single LED allows a single LED line to control both LED colors.

Single LED Connection (Default)

Dual LED Connection

Using the recommended cables as listed under the Technical Specifications, splice these cables together with the pigtail of the reader and seal the splice. Route the cable from the reader to the host controller. Connect the cables as shown in the diagrams above for either Dual LED Operation or Single LED Operation.
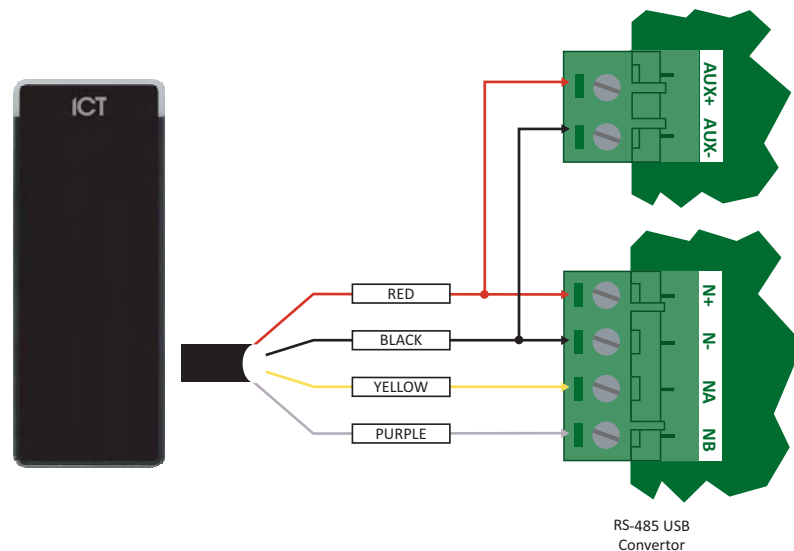
Connect the reader shield to a suitable earth point. DO NOT connect the shield to a ground or AUX connection. DO NOT connect the shield wires together at the reader cable splice. With the shield wire already terminated at the reader terminate the shield at the controller.

Compatible access control card reader communication formats are: 26-, 34-, and 37-Bit Wiegand.

6   RS-485 Connection

Connection of an RS-485 Interface allows the TSEC Reader to communicate using an intelligent protocol or to send data to an ASCII capable terminal. The connection diagram below shows the interface requirements. This example shows a single reader connection however you can connect up to 32 devices. When connected in this way, the other wires should not be connected to ground and be appropriately isolated.

RS-485 Interface

Connect the reader shield to a suitable earth point. DO NOT connect the shield to a ground or AUX connection.

Warning: When connecting the Reader in RS-485 Mode you must isolate all unused wiring. DO NOT terminate any unused connections to ground or a voltage or to another connection. Doing so may damage the unit and will void any warranty.

The RS-485 Connection has not been evaluated for UL/ULC installations.
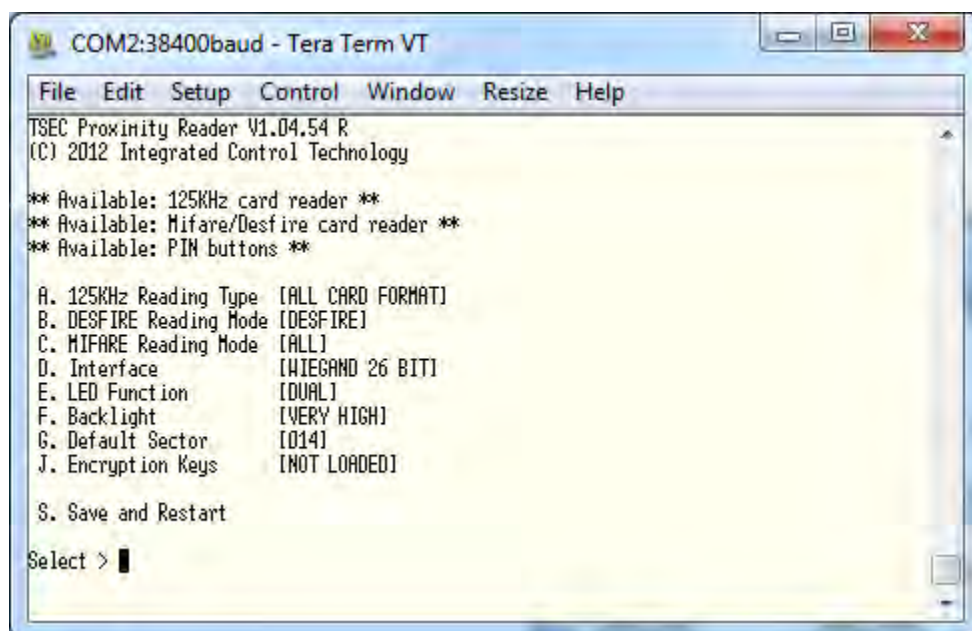
7 Programming Interface

The TSEC Reader and Mifare series of readers utilize built in programming functions that allow many options to be configured via a RS-485 Serial Interface. To program these options you must have a programming card. These are marked with the text **MF PROG CARD** in place of the normal facility code and card number. A Nano/Vario programming card will NOT work with the Mifare series of card readers. It is also possible to enter the installer menu by shorting together brown and white wires when the reader is powered up.

7.1 Installer Programming

The reader can be configured to operate in a number of modes, have encryption keys configured and read cards in various formats. To configure these options you enter program mode with the reader connected to a RS-485 USB Converter (ACC-485-USB).

7.2 Entering Programming Mode

1. Complete the wiring connections as shown for using an RS-485 USB Converter (see page 11).

   Ensure that the unconnected wires are not shorting to each other or any other connection point. You can still configure the units if they are terminated to a reader interface you will require the +, - and NA, NB connections to be connected to the RS-485 USB Converter.

2. Power up the card reader and RS-485 USB Converter.

3. Open Hyper Terminal or a similar serial terminal program, set the communications port to the RS-485 USB Converter and set the parameters to 38400, N, 8, 1 and VT100 terminal emulation.

4. Make a short between the brown and white wires together and power up the reader. A configuration menu will appear.

> Data entry and the menu will time out after 40 seconds of no activity and restart the reader, any programming changes will be lost.

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8   Configuration

8.1   125KHz Reading Mode

Reading mode determines how the data on the 125KHz card will be processed by the Reader. The following options are available by pressing the **A** key with the main menu displayed. To change the programmed reading mode, press the **A** key and the available modes will toggle on the screen.

Setting	Description
All Card Format	All 125KHz cards will be read (no filtering)
ICT	Can only read ICT programmed cards
POSTECH	Can only read POSTECH programmed cards
HID	Can only read HID programmed cards
ICT & HID	Can only read ICT and HID programmed cards
ICT & POSTECH	Can only read ICT and POSTECH programmed cards
POSTECH & HID	Can only read POSTECH and HID programmed cards
Disable	No 125KHz cards will be read

8.2   DESFire Reading Mode

Reading mode determines how the data on the DESFire card will be processed by the Reader. The following options are available by pressing the **B** key with the main menu displayed. To change the programmed reading mode press the **B** key and the available modes will toggle on the screen.

Setting	Description
CSN	Card serial number (CSN) or electronic serial number (ESN) reading converts the serial number of the card to a site code and card number.
CSN Reverse	Reverse card serial number reading converts the serial number of the card to a site code and card number. The data sent is the binary reverse order of the CSN.
DESfire	DESFire is the most secure reading mode. All card access is secured with a different AES 128 bits encryption key. The ICT DESFire card data is also protected with another AES 256 bit encryption key.
Disable	No DESFire cards will be read.

8.3   Mifare Reading Mode

Reading mode determines how the data on the Mifare card will be processed by the Reader. The following options are available by pressing the **C** key with the main menu displayed. To change the programmed reading mode press the **C** key and the available modes will toggle on the screen.

Setting	Description
CSN	Card serial number (CSN) or electronic serial number (ESN) reading converts the serial number of the card to a site code and card number.
CSN Reverse	Reverse card serial number reading converts the serial number of the card to a site code and card number. The data sent is the binary reverse order of the CSN.
Secured Mifare	Secured Mifare provides medium protection access. This mode can read only ICT Secured Mifare cards. Each card has a diversified access key and the data is protected with a unique AES 256 bit encryption key.
ICT Card	Setting the reading mode to ICT Card, allows the reader to read the standard Mifare ICT cards.
Sector	Sector based reading is used to read custom sector and allows the data from the Mifare sector to be read and then converted to Wiegand data. Using ICT Mifare format cards, custom key can also be used to increase the card security.
All	This mode allows the reader to read Secured Mifare and ICT Card format.
Disable	No Mifare cards will be read.

CSN and CSN Reverse modes of operation are not secure. The CSN and ESN numbers found in ISO compliant RFID devices are transmitted without encryption and can be fraudulently generated. The CSN modes are made available for legacy system compatibility and not recommended for new installations.

8.4 Interface

The interface programming configures how the Reader sends information to the connected system. To change the programmed reading mode press the **D** key and the available modes will toggle on the screen.

Note that Secured Mifare and Desfire cards send their code in the interface mode for which the card has been programmed.

Setting	Description
26 Bit Wiegand	Standard 26 Bit Wiegand data sent on the D0 and D1 data lines. Truncation of site/facility codes will occur for any card or tag programmed with a site code above 255.
27 Bit Tecom Wiegand	Tecom formatted 27 Bit Wiegand sent on the D0 and D1 data lines. Truncation of site/facility codes will occur for any card or tag programmed with a site code above 2048.
32 Bit Wiegand	Standard 32 Bit Wiegand data sent on the D0 and D1 data lines. No truncation will typically occur however it is recommended to use industry standard 34 Bit. 32 Bit Wiegand has no parity or other error checking.
34 Bit Wiegand	Standard 34 Bit Wiegand data sent on the D0 and D1 data lines.
HOTEL	Send card information in HOTEL format.
37 Bit Wiegand	Standard 37 Bit Wiegand data sent on the D0 and D1 data lines.
64 Bit Wiegand	Standard 64 Bit Wiegand data sent on the D0 and D1 data lines.
SERIAL ASCII	RS-232 Serial data sent with communication port parameters set to 38400, N, 8, 1 and VT100 terminal emulation.

8.5 LED Function

The LED function allows the configuration of dual or single line led operation. The default is single LED mode. To change the LED operation mode press the **E** key and the available modes will toggle on the screen.

8.6 Backlight

The backlight function allows the configuration of the backlight intensity. To change the backlight operation level press the **F** key and the backlight display will change intensity levels.
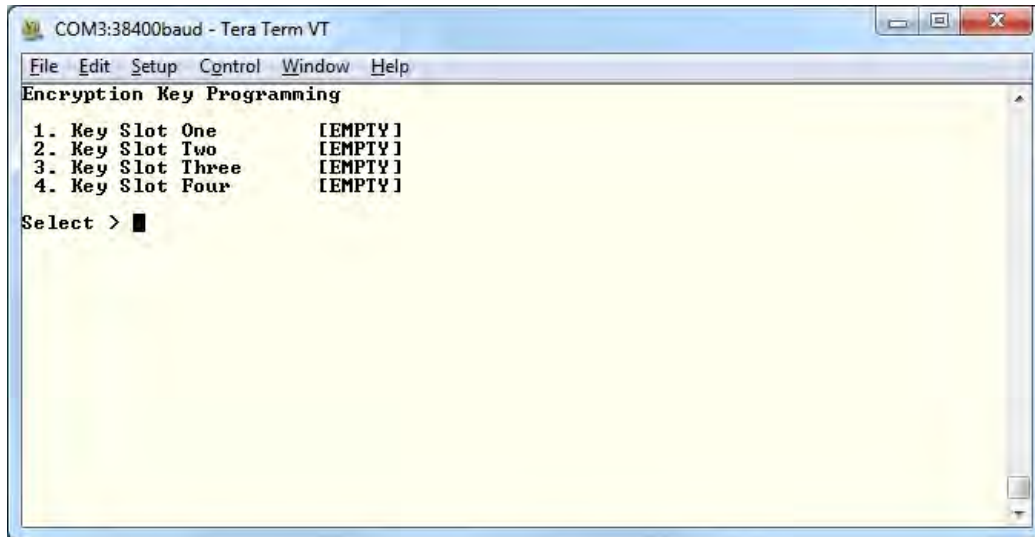
8.7 Default Sector

When the Default Sector reading mode is selected, the sector number where the reader will read cards data can be defined. It can be used with custom encryption keys. The default value is 14.
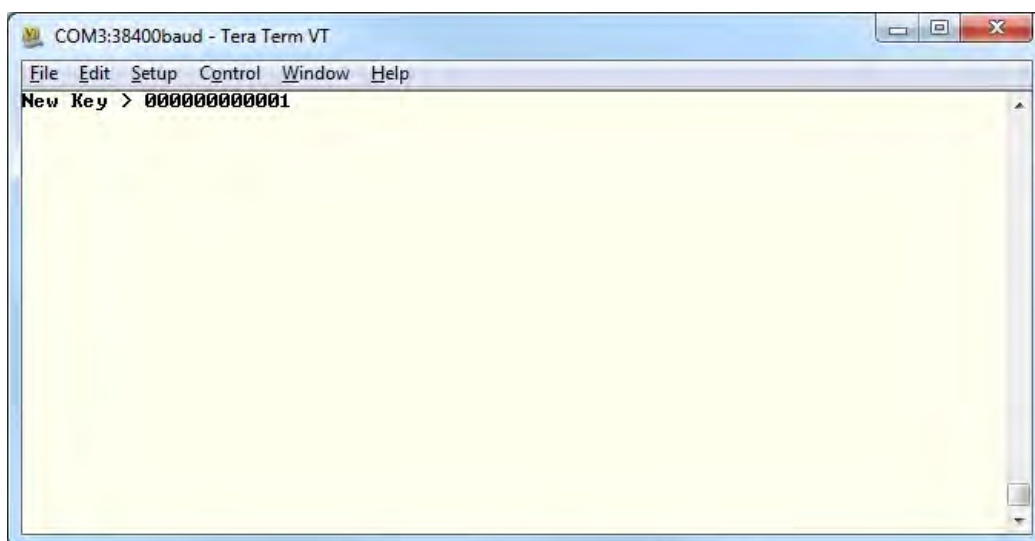
8.8   Encryption Keys

You are able to program custom keys in to the Reader by selecting the encryption option program the key required in to the location that is available. You can delete encryption keys by programming a key location with all **FFFFFFFFFFFF** however you are not able to view programmed keys.

To change the encryption keys select **J** from the menu, you will be shown the key selection screen below. Select the key slot to program the key in to. Press **ESC** to cancel your entry.

```
COM3:38400baud - Tera Term VT

File  Edit  Setup  Control  Window  Help
Encryption Key Programming

1. Key Slot One        [EMPTY]
2. Key Slot Two        [EMPTY]
3. Key Slot Three      [EMPTY]
4. Key Slot Four       [EMPTY]

Select > █
```
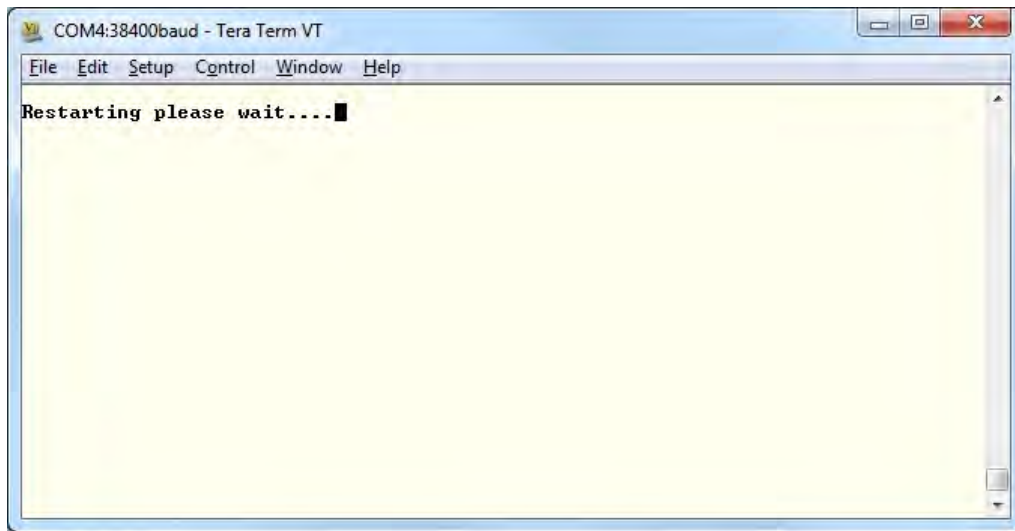
Once you have selected the desired key slot you will be prompted to enter the 6 byte hexadecimal encryption key. This key cannot be read out of the reader and to erase a key program **FFFFFFFFFFFF** in to a key slot.

```
COM3:38400baud - Tera Term VT

File  Edit  Setup  Control  Window  Help
New Key > 000000000001
```
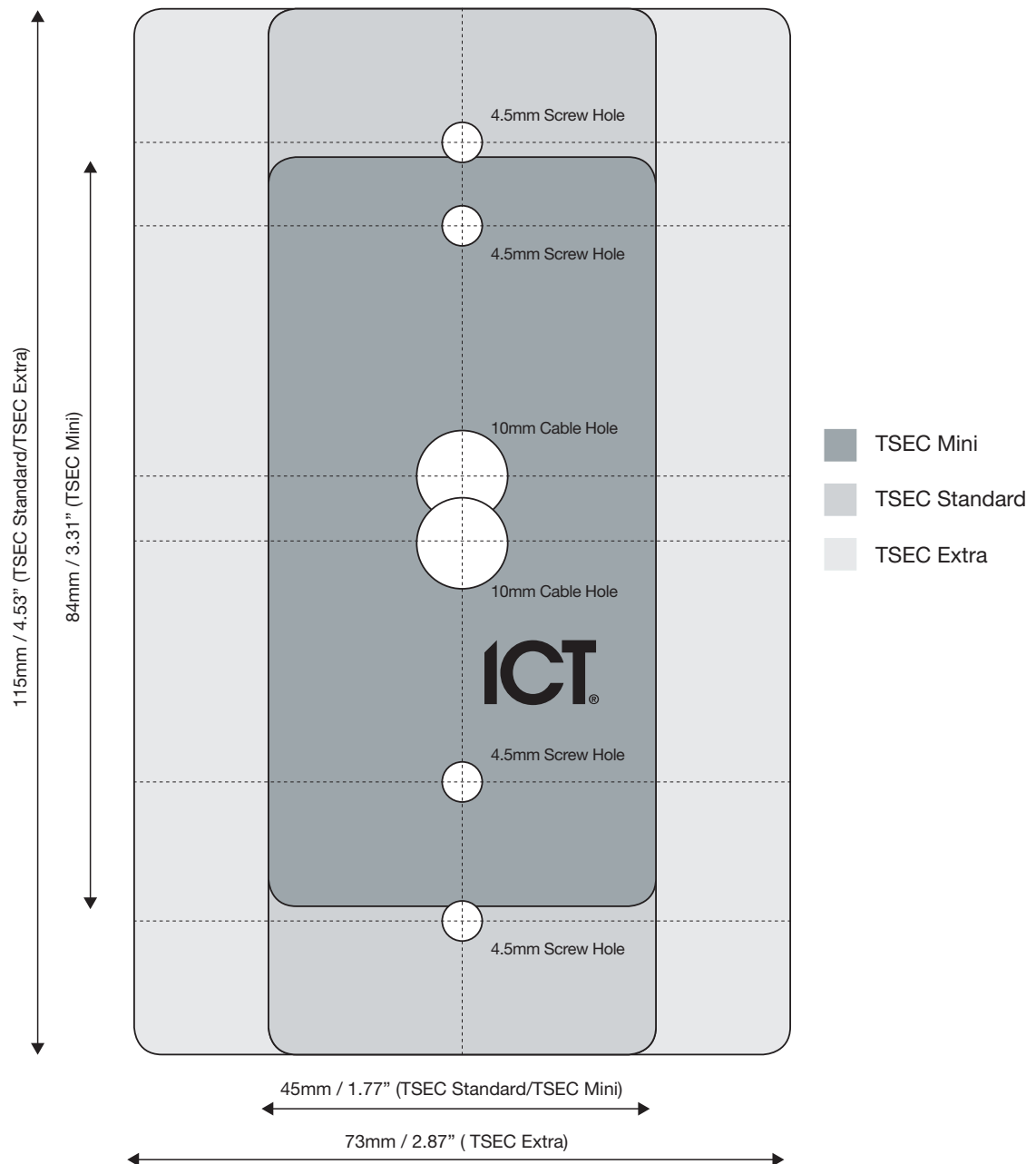
8.9 Save and Restart

You must select the **Save and Restart** option to save your programming changes and restart the device by pressing the **S** key. Failing to select this option and powering the unit down will result in a loss of your programming changes.

9   Technical Diagram

The dimensions shown below outline the essential details needed to help ensure the correct installation of the TSEC Reader.

4.5mm Screw Hole

4.5mm Screw Hole

10mm Cable Hole

10mm Cable Hole

ICT®

4.5mm Screw Hole

4.5mm Screw Hole

115mm / 4.53" (TSEC Standard/TSEC Extra)

84mm / 3.31" (TSEC Mini)

TSEC Mini

TSEC Standard

TSEC Extra

45mm / 1.77" (TSEC Standard/TSEC Mini)

73mm / 2.87" (TSEC Extra)

10 Technical Specifications

The following technical specifications are important and vital to the correct operation of the TSEC Reader. Failure to adhere to the specifications will result in any warranty or guarantee that was provided becoming null and void.

Integrated Control Technology continually strives to increase the performance of its products. As a result these specifications may change without notice. We recommend consulting the ICT website (http://www.ict.co) for the latest documentation and product information.

Operating Voltage	12VDC (9.5 to 14VDC)
Operating Current	Standard: 140mA (peak, reading) Extra: 162mA (peak, reading) Mini: 118mA (peak, reading)
Card Read Range	Mifare 60mm (2.36")* DESFire EV1 ISO 15mm (0.6")* 125kHz Clamshell 40mm (1.57")
Tag Read Range	Mifare 35mm (1.18")* DESFire EV1 ISO 6mm (0.23")* 125kHz 25mm (0.98")
Wiegand Interface	Multiple format 26 or 34 Bit data 0 and data 1, card defined.
Max Cable Distance	150m (492ft)
Frequency	13.56 MHz ISO/IEC 14443 Type A* 125KHz pulse width modulated
Multi Conductor Cable	22Awg alpha 5196, 5198, 18Awg alpha 5386, 5388
Environment IP Rating	IP65
Operating Temperature	-35° to 65°C (-31° to 149°F)
Storage Temperature	-10° to 85°C (14° to 185°F)
Dimensions (H x W x D)	Standard: 115 x 45 x 18mm (4.53 x 1.77 x 0.71") Extra: 115 x 73 x 18mm (4.53 x 2.87 x 0.71") Mini: 84 x 45 x 17mm (3.31 x 1.77 x 0.67")
Weight	Standard: 110g (3.89oz) Extra: 155.8g (5.5oz) Mini: 80g (2.82oz)

*Mifare/DESFire and Combo models only

The size of conductor used for the supply of power to the unit should be adequate to prevent voltage drop at the terminals of no more than 5% of the rated supply voltage. Specifications are subject to change without notice, please visit www.incontrol.co.nz for updated information.

11 UL and ULC Installation Requirements

ℹ️ Only UL / ULC listed compatible products are intended to be connected to a UL / ULC listed access control system.

11.1 CAN/ULC-S319-05

- This card reader is CAN/ULC-S319 Listed for Class I applications only.
- Exit devices and wiring must be installed within the protected area.
- The card reader must be connected with shielded, grounded cable.
- Fail secure locking mechanism shall only be installed where allowed by the local authority having jurisdiction (AHJ) and shall not impair the operation of panic hardware and emergency egress.
- If fire resistance is required for door assembly, portal locking device(s) must be evaluated to ULC-S533 and CAN/ULC-S104.
- Must be installed with CAN/ULC-S319 Listed portal locking device(s) for ULC installations.
- Input power must be supplied by a Class 2 or power limited device.

11.2 UL294

- This card reader is UL 294 Listed for Class 1 applications only.
- Exit devices and wiring must be installed within the protected area.
- The card reader must be connected with shielded, grounded cable.
- Fail secure locking mechanism shall only be installed where allowed by the local authority having jurisdiction (AHJ) and shall not impair the operation of panic hardware and emergency egress.
- If fire resistance is required for door assembly, portal locking device(s) must be evaluated to UL10B or UL10C.
- Must be installed with UL 1034 Listed electronic locks for UL installations.
- Input power must be supplied by a Class 2 or power limited device.

12 FCC Compliance Statements

FCC PART 15, WARNINGS: INFORMATION TO USER

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 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 deter-mined 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:

• Re-orient 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.

• Changes or modifications not authorized by the party responsible for compliance could void the user's authority to operate this product.

This device complies with Part 15 of the FCC rules.

Operation is subject to the following two conditions:

• This device may not cause harmful interference.

• This device must accept any interference received, including interference that may cause undesired operation.

NOTE: THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

13 Industry Canada Statement

This class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

14 Ordering Information

Please use the following product codes when placing an order from the TSEC Card Reader range.

Standard Range:

- **PRX-TSEC-STD -** TSEC Standard Card Reader
- **PRX-TSEC-STD-KP -** TSEC Standard Card Reader with Keypad
- **PRX-TSEC-STD-125 -** TSEC Standard 125KHz Card Reader
- **PRX-TSEC-STD-125-KP -** TSEC Standard 125KHz Card Reader with Keypad
- **PRX-TSEC-STD-DF -** TSEC Standard DESFire Card Reader
- **PRX-TSEC-STD-DF-KP -** TSEC Standard DESFire Card Reader with Keypad

Extra Range:

- **PRX-TSEC-EXTRA -** TSEC Extra Card Reader
- **PRX-TSEC-EXTRA-KP -** TSEC Extra Card Reader with Keypad
- **PRX-TSEC-EXTRA-125 -** TSEC Extra 125KHz Card Reader
- **PRX-TSEC-EXTRA-125-KP -** TSEC Extra 125KHz Card Reader with Keypad
- **PRX-TSEC-EXTRA-DF -** TSEC Extra DESFire Card Reader
- **PRX-TSEC-EXTRA-DF-KP -** TSEC Extra DESFire Card Reader with Keypad

Mini Range:

- **PRX-TSEC-MINI -** TSEC Mini Card Reader
- **PRX-TSEC-MINI-125 -** TSEC Mini 125KHz Card Reader
- **PRX-TSEC-MINI-DF -** TSEC Mini DESFire Card Reader

Manuals and additional literature are available on the ICT Website (http://www.incontrol.co.nz) under the Support section.

15 Warranty

Integrated Control Technology (ICT) warrants its products to be free from defects in materials and workmanship under normal use for a period of two years. Except as specifically stated herein, all express or implied warranties whatsoever, statutory or otherwise, including without limitation, any implied warranty of merchantability and fitness for a particular purpose, are expressly excluded. ICT does not install or connect the products and because the products may be used in conjunction with products not manufactured by ICT, ICT cannot guarantee the performance of the security system. ICT's obligation and liability under this warranty is expressly limited to repairing or replacing, at ICT's option, any product not meeting the specifications. In no event shall ICT be liable to the buyer or any other person for any loss or damages whether direct or indirect or consequential or incidental, including without limitation, any damages for lost profits, stolen goods, or claims by any other party caused by defective goods or otherwise arising from the improper, incorrect or otherwise faulty installation or use of the merchandise sold.

16 Contact

Integrated Control Technology welcomes all feedback.

Please visit our website (http://www.ict.co) or use the contact information below.

Integrated Control Technology

P.O. Box 302-340	11 Canaveral Drive
North Harbour Post Centre	Albany
Auckland	North Shore City 0632
New Zealand	Auckland
	New Zealand

Phone: +64-9-476-7124

Toll Free Numbers:

0800 ICT 111 (0800 428 111) - New Zealand

1800 ICT 111 (1800 428 111) - Australia

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