MULTI PROX

Proximity Card and Pin Reader

Installation Manual

PUBLICATION INFORMATION

60A9 - Draft Release Version 0.1.2
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INTRODUCTION

Thank you for choosing the Multi Prox Proximity and Pin Reader from Integrated Control Technology. The Multi Prox Proximity and Pin Reader is an advanced technology radio frequency identification device (RFID) specifically designed to enhance the functionality of security, building automation and access control by providing independent multiple format compatibility for both card and pin, high speed data transmission, built in Standalone operation and sabotage protection.

The Multi Prox Proximity and Pin Reader is designed to operate as a **Normal Wiegand Proximity and Pin Reader** or as a complete **Standalone Single Door Controller**.

The Multi Prox Proximity and Pin Reader can be programmed to perform and operate using independent card and pin output formats. Therefore, before installing the Multi Prox Proximity and Pin Reader, we highly recommend you read this manual carefully and ensure that the formats you program will operate with the configured access control or security product.

When operating the Multi Prox Proximity and Pin Reader in Standalone mode you must use the **Nano Prox Access Manager Application** which allows a personal computer to perform user programming and configuration.

For more information on the Multi Prox Proximity and Pin Reader and other Integrated Control Technology products please login to www.integratedcontroltechnology.com

LEGEND

Indicates a warning or advisory message relating to the section or location.

Indicates a hint or suggestion that relates to the section or location.

[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.

Italics Italic text shows a reference to a section or page.

TERMINOLOGY

To ensure that you program the Multi Prox effectively please familiarize yourself with the following terms used throughout this manual.

Wiegand
The data transmission method used to communicate data to a controller or reader expansion device. Data is sent on a D0 (Data 0) and D1 (Data 1) interface in an open collector connection.

Programming Card
The Nano Prox Series of readers utilize built in programming functions that allow many options to be configured. To program these options you must have a Programming Card. These are typically marked with the text “ICT Programming Card” in place of the normal facility code and card number.

Facility Code
The facility code is the code that is common to a group of cards or facility; this is also referred to as the site code or family number. Facility codes are not normally printed on a card.

Card Number
The card number identifies the card to the system; the card number is printed in the lower right of the card or across the back of the tag.

Pin Number
The pin number identifies a user in the system, this is entered by the user into the keypad on the Multi Prox.

Index
The Index is the location in memory where a user is stored. This is from 0 - 119, where index 0 would be User 1.

Pre Alarm Time
When the door contact is opened during the door unlock time a pre-alarm warning will be sounded after the pre alarm time has expired to indicate the door left open alarm will be generated.

Door Left Open Time
When the door contact is left open during the door unlock time the beeper will be sounded continuously after the time has expired to indicate the door has been left open. Closing the door silences the Door Left Open Alarm.

REX (Request to Exit)
The REX or Request to Exit input is used to exit a door, the input can be connected to an exit detector, push button or other egress device to allow free exit of the door.

MOUNTING

When mounting the Multi Prox Proximity and Pin Reader please respect the following guidelines.

- Avoid wiring the Multi Prox cables in the same conduit with AC power cables, lock power, or signal wiring.
- Maintain all reader wiring a minimum of 12" (30cm) away from other wiring such as AC power, computer data wiring, telephone wiring and wiring to electric lock devices.
- Avoid installing within 3.5 feet (1.1m) of computer monitors or CRTs. The minimum distance will vary depending on the type of monitor or CRT.
- Avoid installing in proximity to sources of broad spectrum EMI noise such as motors, pumps, generators, DC to AC converters, uninterruptible power supplies, AC switching relays, light dimmers, computer monitors and CRTs.
- Avoid installing in proximity to potential sources of high power RF signal transmitters such as cellular telephones and two way radios.

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 LED's 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 colours.

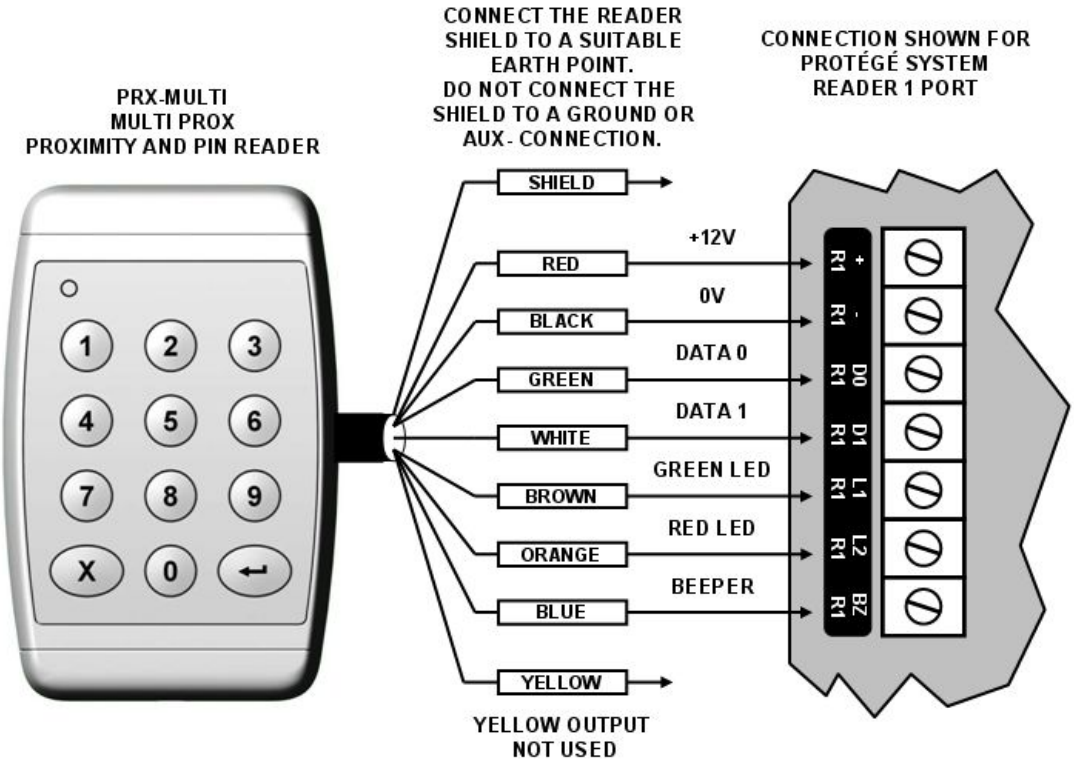

Figure 1 - Dual LED Connection

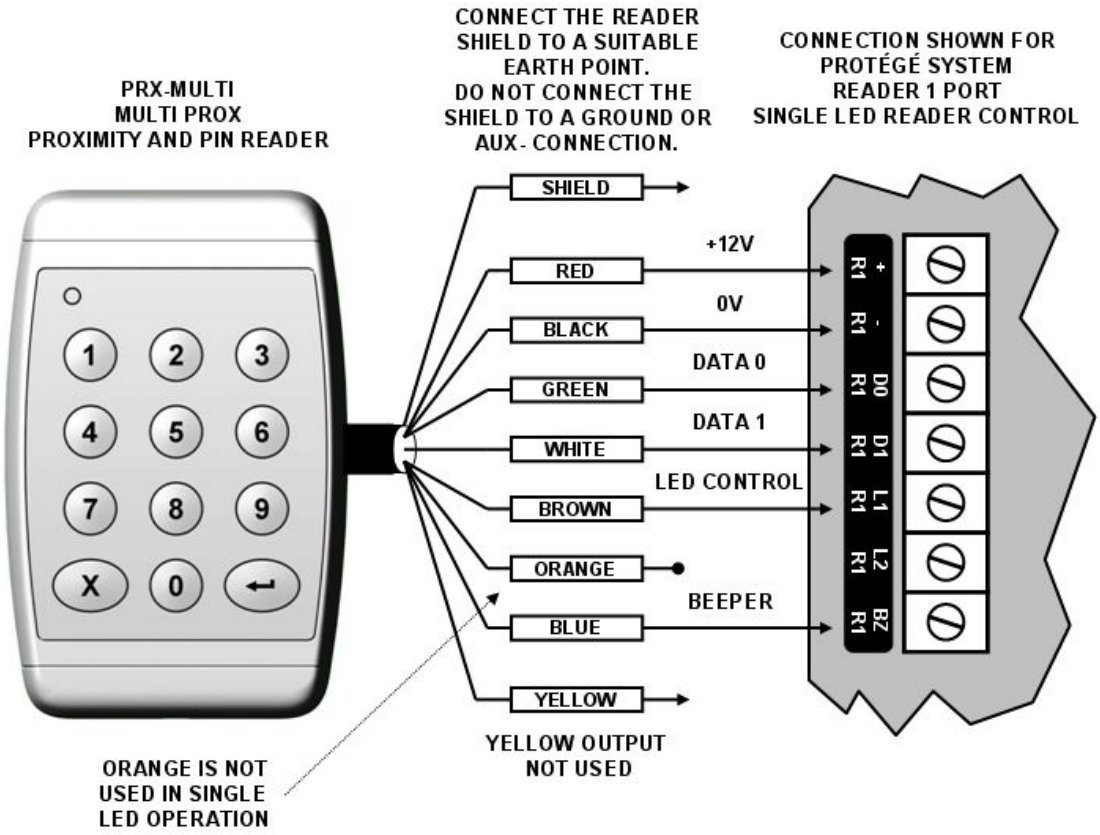

Figure 2 - Single LED Connection

Using the recommended cables listed in the technical specifications in section 7, 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 Figure 1 for Dual LED Operation or Figure 2 for Single LED Operation.

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. For more information refer to Figure 1 and Figure 2.

AUX BUTTON INPUT

Button input wiring configuration is shown in Figure 3. For programming options refer to the Protégé System Manual or the access controller manual for the system that the Multi Prox is connected to.

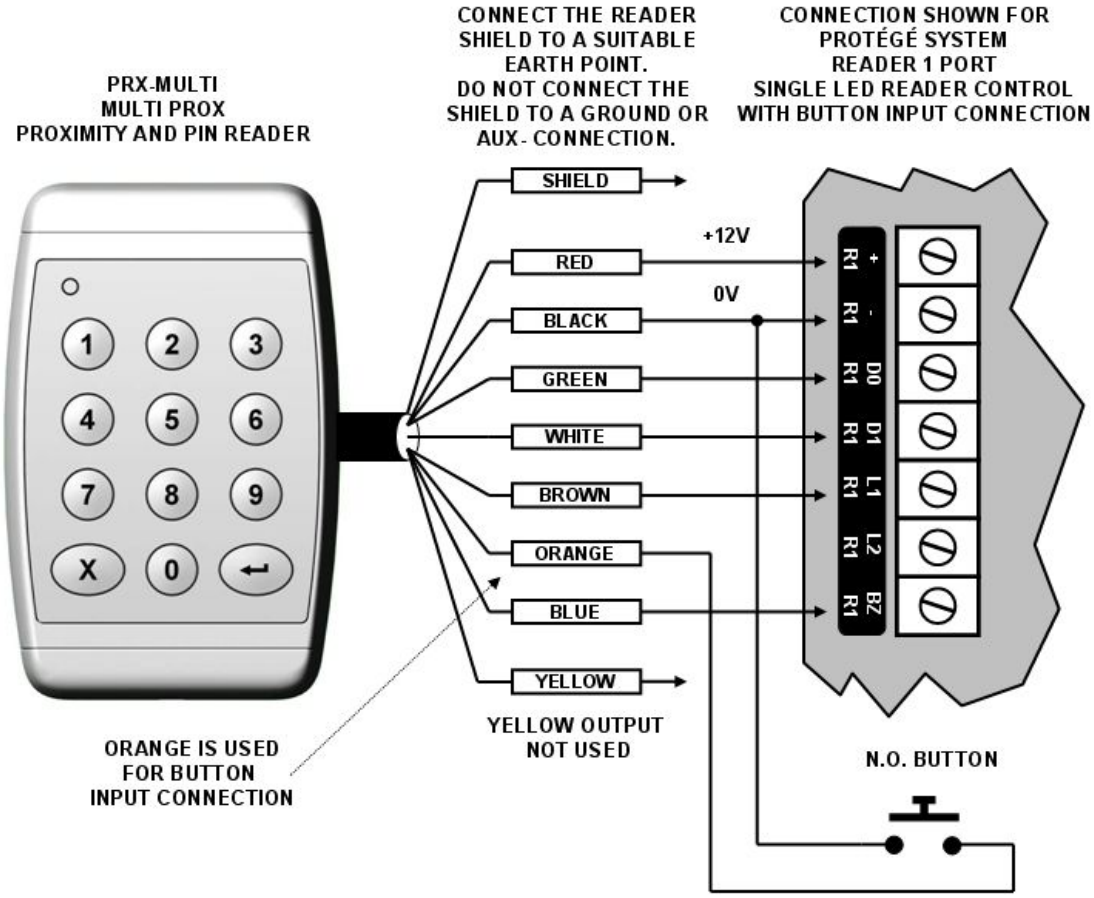

Figure 3 - Button Input Wiring

Connect a normally open button or switch as shown in Figure 3 and complete the programming within the Protégé Integrated System for the functionality required.

External Button Input Mode and single LED operation must be enabled when using this wiring configuration.

PROGRAMMING

By default the Multi Prox Proximity Reader is factory configured to send card data in 26 Bit Wiegand Format, send pin data in ARK-501 format, it will read all card formats and operate in the dual LED line mode. This configuration can be changed to suit system operating requirements.

The programming mode can only be entered within the first 2 minutes from when the card reader powers up.

ENTERING PROGRAMMING MODE

To program the Card Reader badge hold the CLEAR key down for 3 seconds, the Card Reader will beep twice and illuminate the RED LED to indicate programming mode has been entered. Once in programming mode, if there is no activity on the Multi Prox for 30 seconds, programming mode is automatically exited with a long beep.

If there is no activity on the keypad for 30 seconds the normal mode will be resumed.

ADDRESS SELECTION

To select an address to program enter the corresponding number into the keypad and press enter. If the address is valid the Card Reader will beep twice and the RED LED will start flashing.

Address	***Programming Option***
1	Card Reading Format
2	Card Data Output Format
3	LED Configuration
4	Intelligent Tamper Mode
5	Auxiliary Button Input Mode
6	Pin Data Output Format
7	Wiegand Site Code
8	Standalone Operating Mode
9	Standalone Entry Mode
10	Add Standalone Super Card
11	Add Standalone Super Pin
12	Multi Prox RS485 Address
13	Door Pre-Alarm Time
14	Door Left Open Time
15	Default
16	Client Code Configuration

For example to program address three (LED Configuration) press, '3' on the keypad and then ENTER. The card reader will then respond by beeping twice and flashing the RED LED to indicate data entry mode has been entered and that the user can enter the desired option.

Entering an address value that does not exist or not entering any data when an address is selected will result in the reader timing out and a long *Beep* tone being generated.

DATA PROGRAMMING

To program a data value in the selected address location the same method as the address programming is used. Enter the value in using the keypad and press ENTER. The card reader will then respond by beeping twice indicating the data was programmed correctly and return to the address selection mode. An invalid entry will result in a long tone being generated. The data can be entered again or allow the Multi Prox to timeout to select another address.

In the following sections the default configuration setting of each address is shown in bold text.

ADDRESS 1 - CARD/TAG FORMAT

The card/tag transponder format defines how the Multi Prox will decode cards and tags that are presented during standalone and normal operation.

Setting	*Function*
1	**Read all card tag types.**
2	ICT Prox Format
3	Postech Format
4	HID Format
5	ICT and HID Format
6	ICT and Postech Format
7	Postech and HID Format

ADDRESS 2 - CARD DATA INTERFACE

The card data interface format defines how the card data is sent using the DO and D1 data interface.

Setting	*Function*
1	**26 Bit Wiegand Format**
2	34 Bit Wiegand Format

3	Card Defined Wiegand Format
4	36 Bit (IEI) Wiegand Format

ADDRESS 3 - LED CONTROL

The LED Control Configuration settings allow the LED lines to operate in either multiple LED or single LED control.

Setting	***Function***
1	**Dual LED Input; Red LED control line controls Red LED. Green LED control line controls Green LED.**
2	Red LED Always On; Red LED control line will turn Red LED off and Green LED on.
3	Green LED Always On; Red LED control line will turn Green LED off and Red LED on.

ADDRESS 4 - INTELLIGENT TAMPER

Enabling the intelligent reader tamper mode will force the Multi Prox reader to check in to the device it is connected to every 30 seconds.

Setting	***Function***
1	**Disabled**
2	Enabled

Only enable Intelligent Reader Tamper Mode if the access control system or reader interface supports intelligent tamper operation.

ADDRESS 5 - EXTERNAL BUTTON

External button input allows the second LED input to be used as a multiple function input for Area Arming, Request to Exit and Request to Enter buttons. Enabling the external button input

mode requires the Multi Prox to be configured in Single LED Mode Operation.

Setting	*Function*
1	**Disabled**
2	Enabled

Only enable the External Button Input Mode if the Multi Prox is connected using the single LED control lines.

ADDRESS 6 - PIN DATA INTERFACE

The pin data interface format defines how the pin data is sent using the DO and D1 data interface.

Setting	*Function*	*Max Pin*
1	**ARK-501**	**99999999**
2	26 Bit Wiegand Format	65535
3	4 Bit	99999999
4	4 Bit with Parity	99999999
5	4 Bit Buffered	99999999
6	4 Bit Buffered with Parity	99999999
7	36 Bit Wiegand Format	1048575

ARK-501, 4 bit and 4 bit with parity send every button press instantly down the data interface. 26 bit Wiegand, 36 Bit Wiegand, 4 bit buffered and 4 bit buffered with parity buffers the key presses and sends them when the user presses ENTER. Pressing the CLEAR key wipes the buffer. If the max pin number is exceeded a long beep is generated and no data is sent.

Max Pin Numbers are based on using an Integrated Control Technology Reader Module.

When using the format 4 bit Buffered with Parity a Reader Expander set with the card format of 26 bit will decode pin codes that are 6 digits long as card numbers and

handle it as a card. This is the same for HID 34 Bit with 8 digit pin codes. Where possible avoid these combinations.

ADDRESS 7 – WIEGAND SITE CODE

When the either 26 bit or 36 bit Wiegand formats are selected they are sent with this site code. The default value is '0'. The site code can be set from 0 - 255, select this address and enter the site code required.

When using the Multi Prox with an ICT reader module leave the site code as 0 for the pin to be processed correctly as a pin code.

ADDRESS 8 - OPERATION MODE

The Multi Prox Proximity Reader provides a high level of flexibility and can be configured to operate in five different modes.

Setting	***Function***
1	**Normal Pin and Prox Reader**
2	Input Mode. Standalone with 3 inputs and 2 outputs.
3	RS232 Serial Communication Mode. Standalone operation with an RS-232 connection, 2 inputs and 1 output
4	RS485 Serial Communication Mode. Standalone operation with an RS-485 connection, 2 inputs and 1 output
5	Smart RS485 Communication Mode. Communicates with the ELT-KLCD and PRT-RDI2 directly

ADDRESS 9 - STANDALONE ENTRY MODE

Access can be granted when in Standalone mode using a card, pin number or combination of both.

Setting	*Function*
1	**Card or Pin**
2	Card Only
3	Pin Only
4	Card and Pin

ADDRESS 10 – SUPER USER CARD

This adds a Super User Card to the Multi Prox. A super user can open the door when a Multi Prox when operating in Standalone Mode. A super user can also change the state of the door; see Standalone Operation on page 18. To program a super user select address 10, the Multi Prox Proximity Reader will emit 2 beeps and then flash the RED LED, enter the index that you want to add the user into and press ENTER. The Multi Prox will respond with 2 beeps, and start flashing faster. Now present the card you want to add. The Multi Prox will emit 3 beeps to confirm the card can be added. Multiple super users can be programmed by selecting address 10 for each additional user.

To delete a user's card, enter the index for the user and press ENTER with out presenting a card.

ADDRESS 11 – SUPER USER PIN

This adds a Super User pin to the Multi Prox. A super user can open the door when a Multi Prox when operating in Standalone Mode. A super user can also change the state of the door; see Standalone Operation on page 18. To program a super user select address 11, the Multi Prox Proximity Reader will emit two

beeps and then flash the RED LED, enter the index that you want to add the user into and press ENTER. The Multi Prox will respond with 2 beeps, and start flashing faster. Now enter the pin number you want to add to the Multi Prox. The Multi Prox will emit 3 beeps to confirm the pin has been added. Multiple super users can be programmed by selecting address 10 for each additional user.

To delete a user's pin, enter the index for the user and press ENTER with out entering a pin number.

ADDRESS 12 – DEVICE ADDRESS

The Multi Prox Proximity Reader can be assigned an address to allow more than 1 module to be connected in a RS485 network. The Multi Prox is set to address 0 by default, to change this enter the address between 0-127 you require.

Setting	*Function*
0	**Address 0**
1	Address 1
|	| | |
127	Address 127

ADDRESS 13 – DOOR PRE ALARM

When the Multi Prox Proximity Reader is operating in standalone mode the Orange Wire or Input Two (I2) on the PRX-SAM Interface Board is used to monitor the Door Contact. The Pre-Alarm Time sets the period of time the door can be left open before a warning beep will be generated. The beeper will progress to a constant tone if the door exceeds the period of time set in the Door Left Open setting. The beeper will be silenced when the door is closed.

Setting	*Function*
1	**Disabled**

2	10 seconds
3	20 seconds
4	30 seconds
5	45 seconds
6	60 seconds
7	120 seconds
8	240 seconds

ADDRESS 14 – DOOR LEFT OPEN

When the Multi Prox Proximity Reader is operating in standalone mode the Orange Wire or Input Two (I2) on the PRX-SAM Interface Board is used to monitor the Door Contact. The Door Left Open Time sets the period of time the door can be left open before a constant beep output will be generated. The beeper will be silenced when the door is closed.

Setting	***Function***
1	**Disabled**
2	10 seconds
3	20 seconds
4	30 seconds
5	45 seconds
6	60 seconds
7	120 seconds
8	240 seconds

ADDRESS 15 – DEFAULT

Selecting address 15 will default the Multi Prox Proximity Reader to the factory defaults indicated in this manual and it will reset all standalone users.

When you default the Multi Prox Proximity Reader will restart the unit and exit programming mode. This process takes 30 seconds.

ADDRESS 16 – SETUP CLIENT CODE

The Multi Prox Proximity Reader can be configured to operate in a high security mode locking the reader and cards to a specific client code. Once this address has been selected you must present a valid ICT Client Programming card to set client code for the Multi Prox Proximity Reader.

Setting this option will only allow cards with a valid client code for the card reader to be read. It is also recommended to set the Card/Tag Format (Address 1) to ICT Format to prevent other card formats from being read.

STANDALONE OPERATION

The Multi Prox can also operate in a Standalone mode when used with the PRX-SAM Interface Board. This enables single door control for a 125 user system.

PROGRAMMING USERS

Users must be programmed through the **Nano Prox Access Manager Application** that can be freely downloaded from our website, www.integratedcontroltechnology.com. Using this software user's can be added very quickly through the Windows®™ interface; by either presenting a card to the Multi Prox, typing the details in by hand or importing the details from a spreadsheet. Site information can also be saved and downloaded to multiple Multi Prox's for larger sites. Set up of the Multi Prox pre-alarm time, left open time and super user settings can also be configured from this software.

SUPER USER MODE

Super users have the ability to toggle the lock output by holding down the ZERO KEY for 2 seconds before presenting their card, or entering their pin number. When the door is unlocked in a super user mode the Multi Prox will respond with 4 beeps.

There are 5 super user modes available, that can be changed using the NanoProx PC software.

- Unlock Latched (default option)
- Unlock for 2 hours
- Unlock for 4 hours
- Unlock for 8 hours
- Super User Mode disabled

SPECIFICATION

Power Supply

Voltage	12VDC (9.5 - 14.0VDC)
Current	120mA (Peak, Reading)

Read Range

Card	Up to 12cm (4")
Tag	Up to 8cm (2.5")

Standalone Operation

Users	120 (Unlimited Super/Master User)
Access Level	3 (Master, Super, User)

Interface

Wiegand	Multiple Format 26, 34, 37 Bit Data 0 and Data 1
Distance	150 Meters (500 feet)

Frequency

Field	125KHz Pulse Width Modulated

Cable Type

Multi Conductor	22Awg Alpha 5196, 5198 18Awg Alpha 5386, 5388 18Awg Beldon 9553

Temperature

Operating	-35˚- +65˚ Celsius -31˚ - 149˚ Fahrenheit

**Specifications are subject to change without notice, please visit www.integratedcontroltechnology.com for the updated information. Read range is specified using an ICT card format and the card is presented parallel to the reader using installation procedures detailed in this manual without any electrical interference present.*

WARRANTY

The Seller warrants its products to be free from defects in materials and workmanship under normal use for a period of one year. 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. The Seller does not install or connect the products and because the products may be used in conjunction with products not manufactured by Seller, Seller cannot guarantee the performance of the security system. Seller's obligation and liability under this warranty is expressly limited to repairing or replacing, at Seller's option, any product not meeting the specifications. In no event shall the Seller 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.

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