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# AY-Q65

## Anti-Vandal Piezo PROX & PIN Reader

Installation and Programming Manual



**ROSSLARE**  
SECURITY PRODUCTS

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# Notice and Disclaimer

This manual's sole purpose is to assist installers and/or users in the safe and efficient installation and usage of the system and/or product, and/or software described herein.

**BEFORE ATTEMPTING TO INSTALL AND/OR USE THE SYSTEM, THE INSTALLER AND THE USER MUST READ THIS MANUAL AND BECOME FAMILIAR WITH ALL SAFETY REQUIREMENTS AND OPERATING PROCEDURES.**

- The system must not be used for purposes other than those for which it was designed.
- The use of the software associated with the system and/or product, if applicable, is subject to the terms of the license provided as part of the purchase documents.
- ROSSLARE ENTERPRISES LIMITED and/or its related companies and/or subsidiaries' (hereafter: "ROSSLARE") exclusive warranty and liability is limited to the warranty and liability statement provided in an appendix at the end of this document.
- This manual describes the maximum configuration of the system with the maximum number of functions, including future options. Therefore, not all functions described in this manual may be available in the specific system and/or product configuration you purchased.
- Incorrect operation or installation, or failure of the user to effectively maintain the system, relieves the manufacturer (and seller) from all or any responsibility for consequent noncompliance, damage, or injury.
- The text, images and graphics contained in the manual are for the purpose of illustration and reference only.
- In no event shall manufacturer be liable for any special, direct, indirect, incidental, consequential, exemplary or punitive damages (including, without limitation, any and all damages from business interruption, loss of profits or revenue, cost of capital or loss of use of any property or capital or injury).
- All graphics in this manual are for reference only, some deviation between the image(s) and the actual product may occur.
- All wiring diagrams are intended for reference only, the photograph or graphic of the PCB(s) are intended for clearer illustration and understanding of the product and may differ from the actual PCB(s).

# 1. Introduction

The AY-Q65 is a vandal resistant programmable Wiegand and Clock & Data proximity card and piezoelectric keypad reader. The AY-Q65 supports multiple Proximity Card and Keypad formats providing a high level of compatibility and connectivity with host controllers.

The unit can be programmed to output proximity card data in either 26-Bit Wiegand or Clock & Data format.

The keypad can also be programmed to output eight different data formats.

The AY-Q65 package contains the following items:

- AY-Q65 access control unit
- Installation kit
- Installation and operating instructions

Additional non-supplied equipment required:

- Compatible host controller
- Power supply – 5 to 16 VDC (from a regulated power supply)

Other Rosslare accessories can be found at Rosslare's website:

<http://www.rosslaresecurity.com>

## 2. Technical Specifications

### Electrical Characteristics

<b>Power Supply Type</b>	Linear type – recommended
<b>Operating Voltage Range</b>	5–16 VDC
<b>Input Current</b>	Standby: 55 mA Max: 80 mA
<b>Card Read Distance*</b>	2.5 in. (65 mm) maximum read range
<b>Proximity Card Modulation</b>	<ul style="list-style-type: none"><li>• 26-Bit Wiegand, ASK at 125 KHz</li><li>• Clock &amp; Data, ASK at 125 KHz</li></ul>
<b>Proximity Card Compatibility</b>	All 26-Bit EM cards
<b>Keypad Transmit Format</b>	<ul style="list-style-type: none"><li>• Single Key, Wiegand 6-Bit (Rosslare Format)</li><li>• Single Key, Wiegand 6-Bit with Nibble and Parity Bits</li><li>• Single Key, Wiegand 8-Bit, Nibbles Complemented</li><li>• 4 Keys Binary + Facility Code, Wiegand 26-Bit</li><li>• 1 to 5 Keys + Facility Code, Wiegand 26-Bit</li><li>• 6 Keys BCD and Parity Bits, Wiegand 26-Bit</li><li>• Single Key, 3x4 Matrix Keypad</li><li>• 1 to 8 Keys BCD, Clock &amp; Data</li></ul>
<b>LED Control Input</b>	Dry Contact, N.O.
<b>Tamper Output</b>	Open Collector, active low, maximum sink current is 32 mA

\* Measured using Rosslare Proximity Card (AT-11/14) or equivalent. Range also depends on electrical environment and proximity to metal



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### Environmental Characteristics

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<b>Operating Temp. Range</b>	-25°F to 145°F (-32°C to 63°C)
<b>Operating Humidity</b>	0 to 95% (non-condensing) Suitable for outdoor use (meets IP65)

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### Dimensions

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<b>Length x Width x Depth</b>	4.72 x 3 x 0.85 in. (120 x 76 x 22 mm)
<b>Weight</b>	0.97 lb (440 g)

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### 3. Key Features

- Built-in proximity card reader (125 KHz ASK Modulation)
- Programmable Proximity Card Transmission Format
  - Clock & Data
  - Wiegand 26-Bit
- Built-in piezoelectric keypad for PIN code entry
- Programmable keypad transmission format
- Built-in case and back tamper
- Tamper output & LED Control Input
- Programmable Facility Code
- Two tri-colored LEDs
- Internal buzzer provides audible interface feedback.
- Comes with mounting template for easier installation
- Comes with installation kit that includes a security screw and a security screw tool.

## 4. Installation

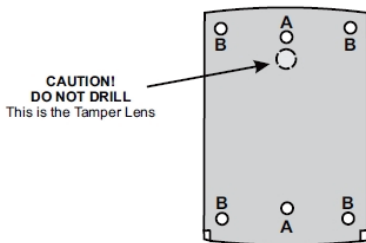
### 4.1 Mounting the AY-Q65

Before starting, select the location to mount the AY-Q65 reader.

This location should be at shoulder height.

1. Drill holes into the back of the metal according to how you want to mount the AY-Q65. For US Gang Box installation there are two hole indicators on the back of the metal cover specifically aligned for the US Gang Box (see "A" in Figure 1). For a four-screw custom installation, there are four indicators on the back (see "B" in Figure 1).

**Figure 1: Drill Holes for AC-Q65 Controller**



2. Route the interface cable from the reader to the controller. A linear type power supply is recommended.
3. Screw the AY-Q65 back cover to its mounting location.
4. Return the front cover of the AY-Q65 to the mounted back plate.
5. Secure the front cover by using the supplied security screw in the Installation Kit. An L-Shaped tool is provided for use when tightening the security screw.

### 4.2 Wiring the AY-Q65

The reader is supplied with a 16-inch pigtail, having a 6-conductor cable.

*To connect the reader to the controller.*

1. Prepare the reader cable by cutting the cable jacket back 1¼ inches and strip the wire ½ inch. Prepare the controller cable by cutting the cable jacket back 1¼ inches and strip the wire ½ inch.
2. Splice the reader pigtail wires to the corresponding controller wires and cover each connection (see Table 1).



**Table 1: Wire Color Guide**

<b>Color</b>	<b>Description</b>
RED	VDC
BLACK	GROUND
WHITE	Data 1 / Clock
GREEN	Data 0 / Data
BROWN	LED Control
PURPLE	Tamper

3. If the tamper output is being utilized, connect the purple wire to the correct input on the controller.
4. Trim and cover all conductors that are not used.

## 5. Transmit Mode

When the AY-Q65 is in Transmit mode, it is ready to receive data from a presented Proximity card or an entered PIN code.

When the reader is in Transmit Mode, the **Transmit**  **Program**   
Transmit LED is red and the Program LED is off.

When a proximity card or keyboard entry is being transmitted, the Transmit LED flashes green.

Keyboard data can be sent via one of eight different keypad transmission formats (see Section 6.3).

Proximity cards presented to the reader are always sent in either Wiegand 26-Bit or Clock & Data formats (see Section 6.4).

# 6. Programming the AY-Q65

Programming the AY-Q65 is done solely via the unit's keypad driven programming menu system. To reach the programming menu system, the AY-Q65 must first be placed into Programming mode (see Section 6.1).

During the AY-Q65's manufacturing process, certain codes and settings are pre-programmed. These settings are called the default factory settings.

Table 2 shows the names of all the AY-Q65 menus.

Default factory settings are marked by an \* sign.

**Table 2: Programming Menus**

<b>Menu Description</b>	<b>Menu Number</b>
<b>Selecting Keypad Transmission Format</b> Single Key, Wiegand 6-Bit (Rosslare Format) Single Key, Wiegand 6-Bit with Nibble + Parity Bits Single Key, 8-Bit Wiegand, Nibbles Complemented 4 Keys Binary + Facility code, Wiegand 26-Bit 1 to 5 Keys + Facility code, Wiegand 26-Bit 6 Keys BCD and Parity Bits, Wiegand 26-Bit Single Key, 3x4 Matrix Keypad 1 to 8 Keys BCD, Clock & Data Single Key	<b>1</b> *
<b>Selecting Proximity Card Transmission Format</b> Wiegand 26-Bit Clock & Data	<b>2</b> *
<b>Changing the Programming Code</b>	<b>3</b>
<b>Changing the Facility Code</b>	<b>4</b>
<b>Return to Factory Default Settings</b>	<b>0</b>

## 6.1 Entering Programming Mode

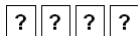
*To enter Programming mode:*

1. Press the # key 4 times within 2 seconds.

The Transmit LED turns off and the Program LED turns red.

Transmit   Program  
Red

2. Enter your 4-digit Programming code.



If the Programming code is valid, the Program LED turns green and the AY-Q65 enters Programming mode.

Transmit   Program  
Green



Note

- The factory default Programming code is 1234.
- If a Programming code is not entered within 30 seconds, the AY-Q65 returns to Transmit Mode

## 6.2 Exiting Programming Mode

*To exit Programming mode at any time:*

1. Press the # key.

You hear a beep.

The Program LED turns off and the Transmit LED turns red.

Transmit   Program  
Red

This indicates that the AY-Q65 has returned to Transmit mode.

Wrong entries may reset the reader back to Transmit mode.

While in Programming mode, if no key is pressed for 30 seconds, the AY-Q65 exits Programming mode and returns to Transmit mode.

## 6.3 Selecting Keypad Transmission Format

The AY-Q65 has eight different keypad transmission selectable formats (see Section 6.3.1).

### *To select a keypad transmission format:*

1. Enter Programming mode.

Transmit   Program  
Green

Press "1" to enter Menu 1.

1

2. The Transmit LED turns red.

Transmit   Program  
Red Green

Enter the appropriate option number for the keypad transmission format that you wish to select.

?

Three beeps are emitted on success.

The system returns to Transmit mode.

The Program LED turns off and the Transmit LED turns red.

Transmit   Program  
Red

If an incorrect option number is entered, a long beep is sounded. The reader returns to Transmit mode and the keypad transmission format remains unchanged.



Note

- Only one keypad transmission format can be active at any one time
- When using the keypad transmission format "1 to 8 keys BCD, Clock & Data" (Option 8), an additional input is required to specify the number of keys in the PIN code.

### 6.3.1 Keypad Transmission Format Option Number

See Table 3 to determine the option number for the Keypad Transmission Format you wish to select.



Table 3: Keypad Transmission Format

Keypad Transmission Format	Option Number
Single Key, Wiegand 6-Bit (Rosslare Format)	1*
Single Key, Wiegand 6-Bit with Nibble + Parity Bits	2
Single Key, Wiegand 8-Bit, Nibbles Complemented	3
4 Keys Binary + Facility code, Wiegand 26-Bit	4
1 to 5 Keys + Facility code, Wiegand 26-Bit	5
6 Keys BCD and Parity Bits, Wiegand 26-Bit	6
Single Key, 3x4 Matrix Keypad	7
1 to 8 Keys BCD, Clock & Data Single Key	8

\* Option 1 is the default factory setting

More information on each of the different keypad transmission formats is available below and on the following pages.

### 6.3.1.1 Single Key, 6-Bit Wiegand (Rosslare Format)

Each key press immediately sends 4 bits with 2 parity bits added; even parity for the first 3 bits and odd parity for the last 3 bits.

0 = 1 1010 0    6 = 1 0110 0  
 1 = 0 0001 0    7 = 1 0111 1  
 2 = 0 0010 0    8 = 1 1000 1  
 3 = 0 0011 1    9 = 1 1001 0  
 4 = 1 0100 1    \* = 1 1011 1 = "B" in Hexadecimal  
 5 = 1 0101 0    # = 0 1101 1 = "C" in Hexadecimal

### 6.3.1.2 Single Key, 6-Bit Wiegand, Nibble & Parities

Each key press immediately sends 4 bits with 2 parity bits added; even parity for the first 3 bits and odd parity for the last 3 bits.

0 = 0 0000 1    6 = 1 0110 0  
 1 = 0 0001 0    7 = 1 0111 1  
 2 = 0 0010 0    8 = 1 1000 1  
 3 = 0 0011 1    9 = 1 1001 0  
 4 = 1 0100 1    \* = 1 1010 0 = "B" in Hexadecimal  
 5 = 1 0101 0    # = 1 1011 1 = "C" in Hexadecimal

### 6.3.1.3 Single Key, 8-Bit Wiegand, Nibbles Complemented

This option inverts the most significant bits in the message leaving the least 4 significant bits as Binary Coded Decimal (BCD) representation of the key. The host system receives an 8-bit message.

0 = 11110000    6 = 10010110  
1 = 11100001    7 = 10000111  
2 = 11010010    8 = 01111000  
3 = 11000011    9 = 01101001  
4 = 10110100    \* = 01011010 = "A" in Hexadecimal  
5 = 10100101    # = 01001011 = "B" in Hexadecimal

### 6.3.1.4 4 Keys Binary + Facility Code, 26-Bit Wiegand

This option buffers 4 keys and outputs keypad data with a three-digit facility code like a standard 26-Bit card output.

The facility code is set in Programming Menu number four and can be in the range 000 to 255. The factory default setting for the Facility code is 000 (see Section 6.6).

The keypad PIN code must be 4 digits long and can range between 0000 and 9999. On the fourth key press of the 4-digit PIN code, the data is sent across the Wiegand Data lines as binary data in the same format as a 26-Bit card.

If the "\*" key or the "#" key are pressed during PIN code entry, the keypad clears the PIN code entry buffer, generates a beep and is ready to receive a new 4-digit keypad PIN code.

If the entry of the 4-digit keypad PIN code is disrupted and no number key is pressed within 5 seconds, the keypad clears the PIN code entry buffer, generates a beep and is ready to receive a new 4-digit keypad PIN code.

(EP) FFFF FFFF AAAA AAAA AAAA AAAA (OP)

Where: EP = Even parity for first 12 bits.

OP = Odd parity for last 12 bits

F = 8-Bit Facility Code

A = 24-Bit code generated from keyboard

### **6.3.1.5 1 to 5 Keys + Facility Code, 26-Bit Wiegand**

This option buffers up to 5 keys and outputs keypad data with a facility code like a 26-Bit card output.

The facility code is set in Programming Menu number four and can be in the range 000 to 255. The factory default setting for the facility code is 000 (see Section 6.6).

The keypad PIN code can be one to five digits long and can range between 1 and 65,535. When entering a keypad PIN code that is less than 5 digits long, the "\*" key must be pressed to signify the end of PIN code entry. For keypad PIN codes that are 5 digits long, on the fifth key press of the 5-digit PIN code, the data is sent across the Wiegand Data lines as binary data in the same format as a 26- Bit Card.

If the "\*" key or the "#" key are pressed during PIN code entry or a PIN code greater than 65,535 is entered, the keypad clears the PIN code entry buffer, generates a beep and is ready to receive a new 4-digit keypad PIN code.

If the entry of the 1 to 5 digit keypad PIN code is disrupted and no number key or "\*" key is pressed within 5 seconds, the keypad clears the PIN code entry buffer, generates a medium length beep and is ready to receive a new 1 to 5-digit keypad PIN code.

(EP) FFFF FFFF AAAA AAAA AAAA AAAA (OP)

Where: EP = Even parity for first 12 bits

OP = Odd parity for last 12 bits

F = 8-Bit Facility Code

A = 24-Bit code generated from keyboard

### **6.3.1.6 6 Keys BCD and parity bits, 26-Bit Wiegand**

Sends buffer of 6 keys, adds parity and sends a 26-Bit BCD message. Each key is a four bit equivalent of the decimal number.

The keypad PIN code must be 6 key presses long. On the sixth key press of the 6-digit PIN code, the data is sent across the Wiegand Data lines as a BCD message.

If the entry of the 6-digit keypad PIN code is disrupted and no number key is pressed within 5 seconds, the keypad clears the PIN code entry buffer, generates a medium length beep and is ready to receive a new 6-digit keypad PIN code.

(EP) AAAA BBBB CCCC DDDD EEEE FFFF (OP)

Where:

A = First key entered	D = Fourth key entered
B = Second key entered	E = Fifth key entered
C = Third key entered	F = Sixth key entered

### 6.3.1.7 Single Key, 3x4 Matrix Keypad (MD-P64)

This unique mode is intended to let the host controller scan the AY-Q65 keypad while still keeping the proximity card readers 26-Bit Wiegand or Clock & Data formats active.

An optional interface board must be used between the AY-Q65 and the host system. Each key press is immediately sent on DATA0 as an ASCII character at a baud rate of 9600 bits per second.

When a key is pressed, DATA1 is pulled "low" until the key is released at which point DATA1 is set to "high". This allows the controller to detect the duration of the key press.

The MD-P64 interface unit outputs the data received to 7 outputs emulating a keyboard. The interface unit does not affect any data that it receives from the proximity reader whether it is 26-Bit Wiegand or Clock & Data.

Key pressed = ASCII Value

0 = '0' (0x30 hex)	6 = '6' (0x36 hex)
1 = '1' (0x31 hex)	7 = '7' (0x37 hex)
2 = '2' (0x32 hex)	8 = '8' (0x38 hex)
3 = '3' (0x33 hex)	9 = '9' (0x39 hex)
4 = '4' (0x34 hex)	* = '*' (0x2A hex)
5 = '5' (0x35 hex)	# = '#' (0x23 hex)

### 6.3.1.8 1 to 8 Keys BCD, Clock & Data

Buffers up to 8 keys and outputs keypad data without a facility code like standard Clock and Data card output.

The keypad PIN code can be one to eight digits long. The PIN code length is selected while programming the reader for Option 8. The reader transmits the data when it receives the last key press of the PIN code. The data is sent across the two data output lines as binary data in Clock & Data format.

If the "\*" key or the "#" key is pressed during PIN code entry, the keypad clears the PIN code entry buffer, generates a beep, and is ready to receive a new keypad PIN code.

If the entry of the digit keypad PIN code is disrupted and no number key or "#" key is pressed within 5 seconds, the keypad clears the PIN code entry buffer, generates a medium length beep and is ready to receive a new keypad PIN code.

## 6.4 Selecting Proximity Card Transmission Format

The AY-Q65 has two different selectable proximity card transmission formats.

- Option 1 – 26-Bit Wiegand
- Option 2 – Clock & Data

*To select the Proximity Card transmission format:*

1. Enter Programming mode.

Transmit   Program  
Green

2. Press "2" to enter Menu 2.

**2**

The Transmit LED turns red.

Transmit   Program  
Red Green

3. Enter the appropriate option number for the proximity card transmission format that you wish to select.

**?**

Three beeps are emitted on success.

The system returns to Transmit mode.

Transmit   Program  
Red

The Program LED turns off and the Transmit LED turns red.

If an incorrect option number is entered, the reader returns to Transmit mode and the keypad transmission format remains unchanged.

### 6.4.1 Proximity Card Transmission Format Option Number

- 26-Bit Wiegand  
Wiegand 26-Bit transmission format select option "1"
- Clock & Data  
Clock & Data transmission format select option "2"

## 6.5 Changing the Programming Code

*To change the Programming code:*

1. Enter Programming mode.

Transmit   Program  
Green

2. Press "3" to enter Menu 3.

**3**

The Transmit LED turns red.

Transmit   Program  
Red Green

3. Enter the new 4-digit code you wish to set as the Programming code.

**?** **?** **?** **?**

Three beeps are emitted on success.

The system returns to Transmit mode.

Transmit   Program  
Red

The Program LED turns off and the Transmit LED remains red.



The Programming code cannot be erased; the code 0000 is not valid and does not erase the Programming code.

Note

## 6.6 Changing the Facility Code

*To change the Facility code:*

1. Enter Programming mode.

Transmit   Program  
Green

2. Press "4" to enter Menu 4.

4

The Transmit LED turns red.

Transmit   Program  
Red Green

3. Enter the new 3-digit code you wish to set as the Facility code.

? ? ?

Three beeps are emitted on success.

The system returns to Transmit mode.

Transmit   Program  
Red

The Program LED turns off and the Transmit LED remains red.



Facility codes can be in the range between 000 and 255.

Note

## 6.7 Return to Factory Default Settings



Warning

You must be very careful before using this command! Doing so erases the entire memory, which includes all user and special codes. In addition, all codes are returned to their factory default settings.

*To return to factory default settings:*

1. Enter Programming mode.

Transmit   Program  
Green

2. Press "0" to enter Menu 0.

0

The Transmit LED and the Program LED flash red.



3. Enter your 4-digit Programming code.

? ? ? ?

If the Programming code is valid, all memory is erased. You hear three beeps and the controller returns to Normal mode.

If the Programming code is invalid, you hear a long beep and the controller returns to Normal mode without erasing the memory of the controller

### 6.8 Replacing a lost Programming Code

In the event that the Programming code is forgotten, the AY-Q65 may be reprogrammed in the field using the following instructions:

1. Remove power from the reader.
2. Activate the tamper by removing the reader from the wall or removing the reader's case.
3. Apply power to the reader.
4. You now have 10 seconds to enter Programming Mode using the factory default Programming code **1234**.



### A. Limited Warranty

ROSSLARE'S FIVE-YEAR LIMITED WARRANTY is applicable worldwide. This warranty supersedes any other warranty. ROSSLARE'S FIVE-YEAR LIMITED WARRANTY is subject to the following conditions:

#### **WARRANTY**

Warranty of ROSSLARE'S products extends to the original purchaser (Customer) of the ROSSLARE product and is not transferable.

#### **PRODUCTS COVERED BY THIS WARRANTY AND DURATION**

ROSSLARE warrants the Anti-Vandal Piezo PROX & PIN Reader to be free from defects in materials and assembly in the course of normal use and service. The warranty period commences with the date of shipment to the original purchaser and extends for a period of 5 years (60 months).

#### **WARRANTY REMEDY COVERAGE**

In the event of a breach of warranty, ROSSLARE will credit Customer with the price of the Product paid by Customer, provided that the warranty claim is delivered to ROSSLARE by the Customer during the warranty period in accordance with the terms of this warranty. Unless otherwise requested by a ROSSLARE representative, return of the failed product(s) is not immediately required.

If ROSSLARE has not contacted the Customer within a sixty (60) day holding period following the delivery of the warranty claim, Customer will not be required to return the failed product(s). All returned Product(s), as may be requested at ROSSLARE'S sole discretion, shall become the property of ROSSLARE.

To exercise the warranty, the user must contact ROSSLARE Enterprises Ltd. to obtain an RMA number after which, the product must be returned to the Manufacturer freight prepaid and insured.

In the event ROSSLARE chooses to perform a product evaluation within the sixty (60) day holding period and no defect is found, a minimum US\$ 50.00 or equivalent charge will be applied to each Product for labor required in the evaluation.

## Limited Warranty

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ROSSLARE will repair or replace, at its discretion, any product that under normal conditions of use and service proves to be defective in material or workmanship. No charge will be applied for labor or parts with respect to defects covered by this warranty, provided that the work is done by ROSSLARE or a ROSSLARE authorized service center.

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This warranty does not cover expenses incurred in the transportation, freight cost to the repair center, removal or reinstallation of the product, whether or not proven defective.

Specifically excluded from this warranty are any failures resulting from Customer's improper testing, operation, installation, or damage resulting from use of the Product in other than its normal and customary manner, or any maintenance, modification, alteration, or adjustment or any type of abuse, neglect, accident, misuse, improper operation, normal wear, defects or damage due to lightning or other electrical discharge. This warranty does not cover repair or replacement where normal use has exhausted the life of a part or instrument, or any modification or abuse of, or tampering with, the Product if Product disassembled or repaired in such a manner as to adversely affect performance or prevent adequate inspection and testing to verify any warranty claim.

ROSSLARE does not warrant the installation, maintenance, or service of the Product. Service life of the product is dependent upon the care it receives and the conditions under which it has to operate.

In no event shall ROSSLARE be liable for incidental or consequential damages.

### **LIMITED WARRANTY TERMS**

This warranty sets forth the full extent of ROSSLARE'S warranty.

The terms of this warranty may not be varied by any person, whether or not purporting to represent or act on behalf of ROSSLARE.

This limited warranty is provided in lieu of all other warranties. All other warranties expressed or implied, including without limitation, implied warranties of merchantability and fitness for a particular purpose, are specifically excluded.

In no event shall ROSSLARE be liable for damages in excess of the purchase price of the product, or for any other incidental, consequential or special damages, including but not limited to loss of use, loss of time, commercial loss, inconvenience, and loss of profits, arising out of the installation, use, or inability to use such product, to the fullest extent that any such loss or damage may be disclaimed by law.

This warranty shall become null and void in the event of a violation of the provisions of this limited warranty.



AY-Q65

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