

FCC part 15 statement and warnings

NOTE: 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.

Warning!

Changes or modifications to this equipment not expressly approved by **Rosslare Enterprises Ltd.** could void the user's authority to operate the equipment.

Warning!

This product was tested with shielded cables, which must be used with the unit to insure compliance.

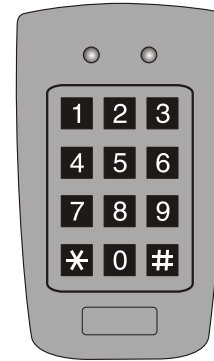


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ROSSLARE
SECURITY PRODUCTS

INSTRUCTION MANUAL



AYC-F64

**PROXIMITY CARD &
BACKLIT KEYPAD READER
WIEGAND AND CLOCK & DATA**

InteliDoor 
Smart Access Control

07/04

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Introduction

The AYC-F64 is a waterproof programmable Wiegand and Clock & Data proximity card and keypad reader. The AYC-F64 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 26-Bit Wiegand, Clock & Data or Wiegand Card + PIN format.

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

The AYC-F64 utilizes flash firmware for easy upgrades.

Equipment provided

The following is provided as part of every AYC-F64 package:

- AYC-F64 Access Control Unit.
- Installation Kit
- Installation and Operating Instructions

Additional Equipment Required

1) Compatible Host Controller

2) Power Supply

5 to 16V DC (From a Regulated Power Supply)

Other Rosslare accessories can be found at Rosslare's Web Site:

<http://www.rosslaresecurity.com>

Technical Specification

Electrical Characteristics

Operating Voltage Range:

5 to 16V DC

From a Regulated Power Supply
(Linear type recommended)

Maximum Input Current:

Standby: 85mA

Not including attached devices

Max: 95mA

Not including attached devices

Built-In Proximity Reader

Read Range*

3.0" (80mm)

Modulation Options:

- 1) 26-Bit Wiegand, ASK at 125KHz
- 2) Clock & Data, ASK at 125KHz

Compatible Cards

All 26-Bit EM Cards

Built-In Keypad Reader

Transmission Formats:

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

LED Control Input

Dry Contact, N.O.

Tamper Output

Open Collector, active low, maximum sink current is 32mA

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

Environmental Characteristics

Operating Temperature:

-22°F to 150°F (-30°C to 65°C)

Operating Humidity:

0 to 95% (Non-Condensing)

Suitable for outdoor use. (IP 65)

Mechanical Characteristics

Dimensions:

4.72" (120mm) L x 2.80" (71mm) W x 0.95" (24mm) D

Weight:

0.54 lbs (244g)

Key Features

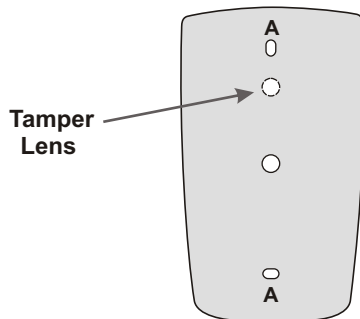
Here are some of the AYC-F64's key features:

- Built-In Proximity Card Reader (125 KHz ASK Modulation)
- Programmable Proximity Card Transmission Format
 - 1) Clock & Data
 - 2) 26-Bit Wiegand
 - 3) Wiegand Card + PIN
- Built-In Backlit 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.

Installation

Mounting the AYC-F64 Controller

- 1) Before starting, select the location to mount the AYC-F64 reader. This location should be at shoulder height.
- 2) For wall mounting use the mounting template as a guide to drill the mounting and cable holes in the wall. For US Gang Box installation there are two hole indicators on the back of the metal cover specifically aligned for the US Gang Box. (Shown marked as "A" in diagram below).



- 3) Route the interface cable from the Reader to the Controller. A linear type power supply is recommended.
- 4) Screw the AYC-F64 back cover to its mounting location.
- 5) Return the front cover of the AYC-F64 to the mounted back plate.
- 6) Secure the front cover by using the supplied security screw in the controllers Installation Kit. An L-Shaped tool is provided for use when tightening the security screw.

Wiring the AYC-F64

The reader is supplied with a 16-inch pigtail, having a 6-conductor cable. To connect the reader to the Controller, perform the following steps.

- 1) Prepare the reader cable by cutting the cable jacket back 1 ¼ inches and strip the wire ½ inch. Prepare the controller cable by cutting the cable jacket back 1 ¼ inches and strip the wire ½ inch.
- 2) Splice the reader pigtail wires to the corresponding controller wires and cover each connection.

Table shows how you should wire the Reader to the controller.

COLOR	OUTPUT
Red	+V DC
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.

Transmit Mode

When the AYC-F64 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 LED is red and the Program LED is off



When a Proximity Card or Keyboard entry is being transmitted, the Transmit LED will flash green.

Keyboard data can be sent via one of eight different Keypad Transmission Formats. (Refer to page 11 for more information on "Selecting Keypad Transmission Formats")

Proximity Cards presented to the reader are always sent in either 26-Bit Wiegand, Clock & Dat or, Card + PIN Wiegand format. (Refer to page 17 for more information on "Selecting Proximity Card Transmission Formats")

Programming the AYC-F64

Programming the AYC-F64 is done solely via the unit's keypad driven Programming Menu System. To reach the Programming Menu System the AYC-F64 must first be placed into Programming Mode. See "Entering Programming Mode" on the next page for more information.

During the AYC-F64's manufacturing process certain codes and settings are pre-programmed. These settings are called the "Default Factory Settings".

The table below shows the names of all the AYC-F64 Menus.

Programming Menu

Default Factory Settings are marked by a "*" sign.

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

Entering Programming Mode

1) Press the "#" key 4 times.

- Transmit LED will turn off
- Program LED will turn red

Transmit Program
RED

2) Enter your 4-digit Programming Code.

If the Programming Code is valid the Program LED will turn green and the AYC-F64 will be in Programming Mode.

Transmit Program
GREEN

Note: - The factory default Programming Code is 1234
- If a Programming Code is not entered within 30 seconds, the AYC-F64 will return to Transmit Mode.

Exiting Programming Mode

1) To exit the Programming Mode at any time:

Press the "#" key.

- You will hear a beep
- The Program LED will be off
- The Transmit LED will turn green

Transmit Program
GREEN

This indicates that the AYC-F64 has returned to Transmit Mode.

2) Wrong entries may reset the reader back to Transmit Mode.

3) While in Programming Mode if no key is pressed for 30 seconds the AYC-F64 will exit Programming Mode and return to Transmit Mode.

Selecting Keypad Transmission Format

The AYC-F64 has eight different keypad transmission formats to select from. Follow the steps below to select the appropriate keypad transmission format that you wish to use.

1) Enter Programming Mode

Transmit Program
GREEN

2) Press "1" to enter **Menu 1**

- The Transmit LED will turn red

Transmit Program
RED GREEN

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

If an incorrect option number is entered the reader will return to Transmit Mode and the keypad transmission format will remain unchanged

Look on the next page for more information on the keypad transmission formats.

4) System returns to Transmit Mode

- You will hear one beep
- The Program LED will turn off
- The Transmit LED will turn red

Transmit Program
RED

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.

Keypad Transmission Format Option Number

See the table below to determine the Option Number for the Keypad Transmission Format you wish to select.

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

OPTION 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

OPTION 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

OPTION 3 Single Key, 8-Bit Wiegand, Nibbles Complemented

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

OPTION 4 4 Keys Binary + Facility Code, 26-Bit Wiegand

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 page 19 for more information on "Changing the Facility Code")

The keypad PIN code must be 4 digits long and can range between 0001 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 will clear the PIN code entry buffer, generate 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 will clear the PIN code entry buffer, generate 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.

OPTION 5 1 to 5 Keys + Facility Code, 26-Bit Wiegand

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 page 19 for more information on "Setting the Facility Code")

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 will clear the PIN code entry buffer, generate 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 will clear the PIN code entry buffer, generate 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.

OPTION 6 6 Keys BCD and parity bits, 26-Bit Wiegand

Sends buffer of 6 keys, adds parity and sends a 26-Bit Binary-Coded Decimal (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 will clear the PIN code entry buffer, generate 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 = The first key entered. D = Fourth key entered.
B = Second key entered. E = Fifth key entered.
C = Third key entered. F = Sixth key entered.

OPTION 7 Single Key, 3x4 Matrix Keypad (MD-P64)

This unique mode is intended to let the host controller scan the AYC-F64's 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 AYC-F64 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 will be 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 will not effect 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)

OPTION 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 will transmit 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 are pressed during PIN code entry, the keypad will clear the PIN code entry buffer, generate 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 will clear the PIN code entry buffer, generate a medium length beep and is ready to receive a new keypad PIN code.

Selecting Proximity Card Transmission Format

The AYC-F64 has two different proximity card transmission formats to select from. Follow the steps below to select the appropriate Proximity Card reader transmission format that you wish to use.

- 1) Enter Programming Mode Transmit Program
GREEN
- 2) Press "2" to enter **Menu 2** 2
 - The Transmit LED will turn green Transmit Program
GREEN GREEN
- 3) Enter the appropriate option number for the proximity card transmission format that you wish to select. (See options below) ?

If an incorrect option number is entered the reader will return to Transmit Mode and the keypad transmission format will remain unchanged.

- 4) System returns to Transmit Mode Transmit Program
RED
 - You will hear one beep
 - The Program LED will turn off
 - The Transmit LED will turn red

Proximity Card Transmission Format Option Number

OPTION 1 26-Bit Wiegand

OPTION 2 Clock & Data

OPTION 3 Wiegand Card + PIN

Note : "Wiegand Card + PIN" Transmission Format

This unique mode is intended to let host controllers get card and keypad data simultaneously. This option overrides the selected Keypad Transmission Format and sends the keypad data as described below.

After a card is presented to AYC-F64, the Program LED starts to flash in Green and indicates that AYC-F64 is waiting for the PIN code. If the entry of one to five digit keypad PIN code is disturbed and no digit key or # key is pressed within 5 seconds, the keypad will clear the card buffer and the PIN code entry buffer, generate a medium length beep and ready to receive a new card.

The keypad PIN code can be one to five digits long in the range between 0 to 99,999. When entering a keypad PIN code, the # key must be pressed to signify the end of the PIN entry. When pressing the # key press, the data is sent by the Wiegand data lines. If the * key is pressed, the keypad will clear the card buffer and the PIN code entry buffer, generate a medium length beep and is ready to receive a new card.

AYC-F64 output card data in 26-Bit Wiegand with following keypad data in 26-Bit Wiegand format.






Card Data : (EP) AAAA AAAA AAAA BBBB BBBB BBBB (OP)
where EP =Even parity for first 12 A bits.
OP =Odd parity for last B 12 bits.

PIN Data : (EP) 0000 AAAA BBBB CCCC DDDD EEEE (OP)
where A =The first key entered. D =Fourth key entered.
B =Second key entered. E =Fifth key entered.
C =Third key entered.
EP =Even parity for first 12 bits.
OP =Odd parity for last 12 bits.

If the PIN code is less than 5 digits, all the most significant nibbles are filled with 0.

Example : (EP) 0000 0000 0000 0000 AAAA BBBB (OP)
where: A =The first key entered. B =Second key entered.
EP =Even parity for first 12 bits.
OP =Odd parity for last 12 bits.

Changing the Programming Code

- 1) Enter Programming Mode  **Transmit** **Program** GREEN
- 2) Press "3" to enter **Menu 3** 
 - The Transmit LED will flash red.  **Transmit** **Program** RED GREEN
- 3) Enter the new 4-digit code you wish to set as the Programming Code 
- 4) System returns to Transmit Mode  **Transmit** **Program**
 - You will hear one beep
 - The Program LED will turn off
 - The Transmit LED will turn red

Note: - Programming Code can not be erased, i.e. the code 0000 is not valid and will not erase the Programming

Changing the Facility Code

1) Enter Programming Mode



2) Press "4" to enter **Menu 4**

4

- The Transmit LED will flash orange.



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

? ? ?

4) System returns to Transmit Mode



- You will hear one beep
- The Program LED will turn off
- The Transmit LED will turn red

Note: - Facility codes can be in the range of 000 to 255.

Return to Factory Default Settings

Warning:

You must be very careful before using this command! Doing so will erase the entire memory which includes all User and Special Codes, and return all codes to their factory default settings.

1) Enter Programming Mode



2) Press "0" to enter **Menu 0**

- The Transmit LED will flash red
- The Program LED will flash red

3) Enter your 4-digit Programming Code.

? ? ? ?

- If the Programming Code is valid, all memory will be erased, you will hear three beeps and the controller will return to Normal Mode
- If the Programming Code is invalid you will hear a long beep and the controller will return to Normal Mode without erasing the memory of the controller.

Replacing a lost Programming Code

In the event that the Programming Code is forgotten, the AYC-F64 may be reprogrammed in the field using the following instructions:

1) Remove power from the reader.

2) Activate 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.

Limited Lifetime Warranty

ROSSLARE ENTERPRISES LIMITED'S (Rosslare) LIMITED LIFETIME WARRANTY is applicable worldwide. This warranty supersedes any other warranty. Rosslare's LIMITED LIFETIME WARRANTY is subject to the following conditions:

WARRANTY

Warranty of Rosslare's products extends to the original purchaser of the Rosslare product and is not transferable.

WARRANTY DURATION

Rosslare warrants this product against defects in material and/or workmanship for the life of the product from the date of original purchase to the original purchaser.

WARRANTY COVERAGE

Rosslare will repair or replace, at its option, any product which under normal conditions of use and service proves to be defective in material or workmanship. No charge will be made 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. This warranty does not cover expenses incurred in the transportation, removal or reinstallation of the product, whether or not proven defective. Replacement or repairs furnished under this warranty are subject to the same terms and conditions of the original warranty.

EXCLUSIONS AND LIMITATIONS

Specifically excluded from this warranty are failures caused by abuse, neglect, misuse, improper operation, normal wear, accident, improper maintenance or modification. This warranty does not cover repair or replacement where normal use has exhausted the life of a part or instrument. 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 LIFETIME WARRANTY TERMS

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 warranty represents the full extent of Rosslare's responsibility. Repair, replacement, or refund of the original purchase price, of the product is the exclusive remedy. This limited lifetime 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.

Certifications:

Canada/UL 294 Listed
FCC Certification, United States
Canada Certification

Technical Support

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