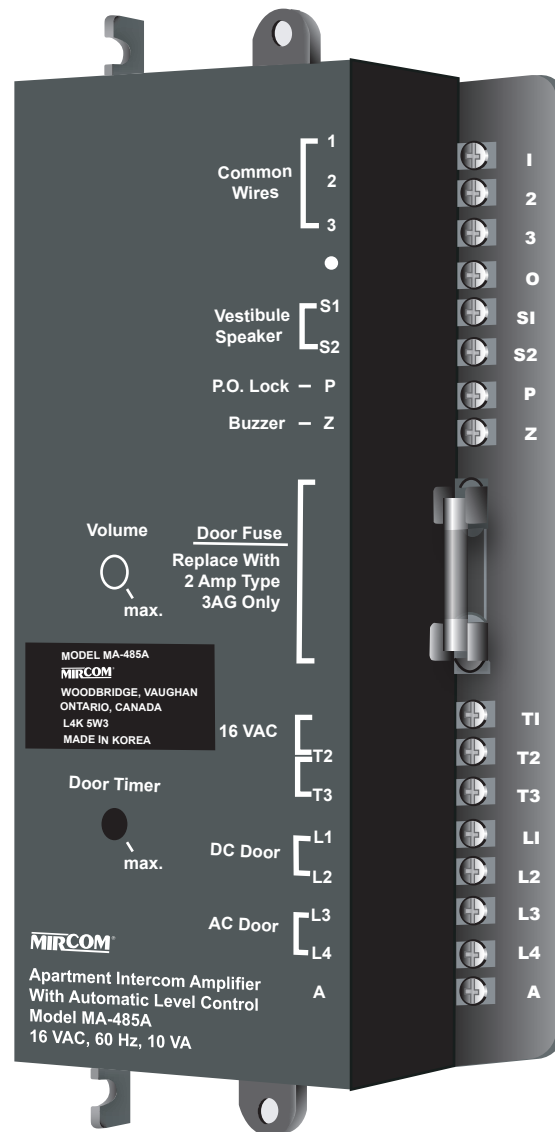


# MA-485A

## Apartment Intercom Amplifier





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# 1.0 Introduction

## 1.1 About the MA-485A

The MA-485A is a communications amplifier designed for communication between the IS-489 suite stations and the vestibule (lobby) panel, as well as selective door opening. It incorporates an Automatic Level Control (ALC) circuit that provides clean, clear voice communication in both directions. The MA-485A amplifier provides AC (buzzing) and DC (silent) door strike action. For multiple vestibule applications, RL-401A relay units are required. One RL-401A relay unit is required for every two vestibule used.

## 1.2 Contact Us



For General Inquiries, Customer Service and Technical Support you can contact us Monday to Friday 8:00 A.M. to 5:00 P.M. E.S.T.

### 1.2.1 General Inquiries

<b>Toll Free</b>	1-888-660-4655 (North America Only)
<b>Local</b>	905-660-4655
<b>Email</b>	mail@mircom.com

### 1.2.2 Customer Service

<b>Toll Free</b>	1-888-MIRCOM5 (North America Only)
<b>Local</b>	905-695-3535
<b>Toll Free Fax</b>	1-888-660-4113 (North America Only)
<b>Local Fax</b>	905-660-4113
<b>Email</b>	salessupport@mircom.com

### 1.2.3 Technical Support

<b>Toll Free</b>	1-888-MIRCOM5 (North America Only)
	888-647-2665
<b>International</b>	905-647-2665
<b>Email</b>	techsupport@mircom.com

### 1.2.4 Website

[www.mircom.com](http://www.mircom.com)

## 2.0 Mechanical Installation

Amplifiers and relays are normally mounted within the vestibule enclosures. Where such enclosures are located out-doors, the amplifiers and relay unit must be installed in a dry indoor location where the ambient temperature is kept within 32 to 104°F (0 to 40°C). *Do not* mount transformer closer than 12 inches to the amplifier or vestibule speaker; observe local electrical codes. For installation of vestibule enclosures refer to instructions supplied with the enclosures.

### 2.1 Vestibule Enclosure Series

- M-3000 Custom Standard Series
- M-5000 Custom Tamper Resistant Series
- K-Series Compact Modular Series

### 2.2 Compatible Mircom Suite Stations

- IS-401B Standard Suite Station
- IS-489 Single Gang Station
- IS-489-1 Single Gang Station with Office Call
- IS-51-3 Vandal Resistant Dual Gang Station

### 2.3 Compatible Mirtone Suite Stations

- IS-401 Standard Suite Station
- IS-401-1 Suite Station with Office Call
- IS-421 Dual Cone Speaker Station
- IS-51-2 Dual Gang Station
- IS-485 Single Gang Station
- IS-485-1 Single Gang Suite Station with Office Call

## 3.0 Electrical Installation

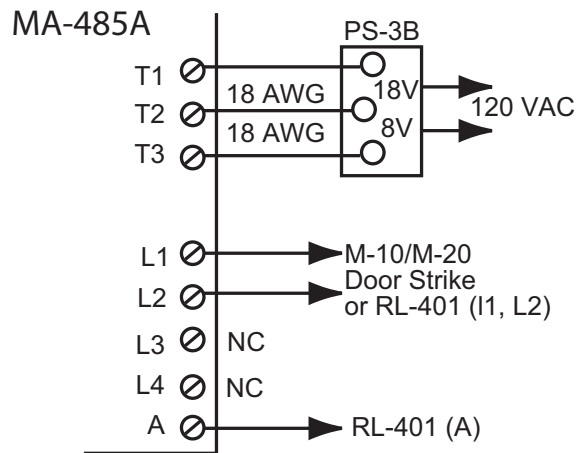
### 3.1 Amplifier

- The door timing may be adjusted on the MA-485A as required, from 1 to 15 seconds.
- For connections to terminals S1 and S2, use twisted pair for wiring distance up to three feet; otherwise use shielded twisted pair and connect the shield at the source end only.
- Use twisted pair wire from terminals 1 and 2 to the suite stations.

### 3.2 Door Strike

#### 3.2.1 Silent DC Door Strike Operation

- Connect Mircom M-10/M-20 Door Strike to amplifier terminals L1 and L2 for DC (silent) door strike operation and connect remaining terminals as shown in *Figure 1*.



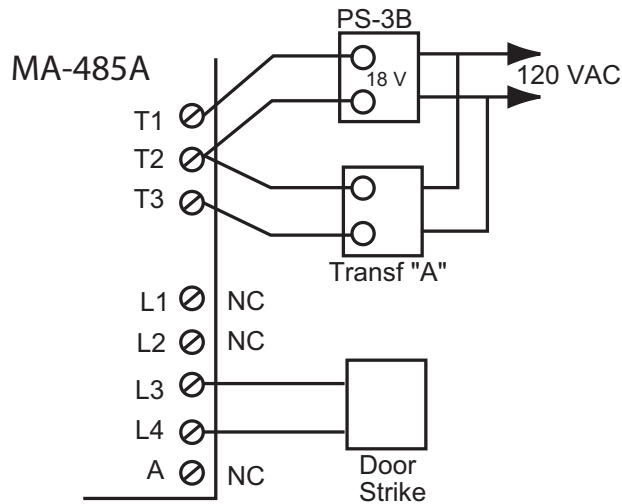
**Figure 1 Connection for Silent DC Door Strike**

#### 3.2.2 Buzzing AC Door Strike Operation

- Connect Mircom M-10/M-20 Door Strike to terminals L3 and L4 for AC (buzzing) door strike operation Door Strike Other Than Mircom M-10/M-20

### 3.2.3 Door Strike Other Than Mircom M-10/M-20

Connect door strike other than M-10/M-20 as shown in *Figure 2*. Choose transfer “A” to suit the door strike, refer to door strike specifications below.



**Figure 2 Connection for Door Strike Other Than M-10**

### 3.2.4 Door Strike Electrical Requirements

#### Amplifier Set Up

AC (buzzing) Door Strike with PS-3B Transformer  
 DC (silent) Door Strike  
 Other than PS-3b Transformer

#### Door Strike Electrical Requirements

8-16 Volts AC, 1 Ampere maximum  
 2-6 Volts DC, minimum 2 ohms resistance  
 4-30 Volts AC, 1 Ampere maximum



## 4.0 Specifications

### 4.1 MA-485A Amplifier

- Power Input, Communication: 16 VAC 0.3A or 18-28 VDC 0.2 A
- Power Input, Door Strike: 8-30 VAC 1.5A or 8-30 VDC, 1A
- Power Output, Communication: 500 mW / 45 Ohms
- Power Output, Door Strike: 3-30 VAC, 1.5A or 3-30 VDC, 1A
- Door Strike Timing: 1-15 Seconds, Adjustable

### 4.2 PS-3B Transformer

<b>Power Input</b>	110-120 VAC
<b>Power Output</b>	8 Volts, 13 VA
	16 Volts, 17 VA
	24 Volts, 20 VA

### 4.3 Wiring Specifications

- The following conductor pairs require twisted pair wiring for distances up to three feet, twisted shielded pair wiring for greater distances is recommended: S1 and S2, S3 and S4, S5 and S6.
- Use adequate wire sizes in order to keep resistance of each conductor below the following

<b>Power Lines:</b>	T1, T2, T3, L1, L2, L3, L4, L5, L6, X1, X2, X3, X4
<b>Communication Lines:</b>	1, 2, 3, S1, S2, S3, S4, S5, S6
<b>Function Lines:</b>	P, P1, P2, A, Z, Z2, Z

**Table 1 Wire Chart**

Distance		Power Wires	Communication Wires	Function
(meters)	(feet)	(AWG)	(AWG)	(AWG)
50	164	#18	#22	#22
75	246	#16	#22	#22
100	328	#14	#20	#22
150	492	#14	#18	#22
200	656	#12	#18	#22

## 5.0 Multiple Stations in a Suite

If desired, two suite stations may be installed in any suite by parallel connecting the three common wires as well as the selective call terminals (#4) of both stations. The call tone will be heard at both stations. Reply can be made from either station.

More than two stations may be connected in any suite, provided that the call selective wire is connected to no more than two stations, that is, the call terminal (#4) will be left unconnected at additional stations resulting in no audible call tone at such stations. Reply can be made from any station.

The amplifier and relay unit are normally mounted within the lobby enclosure. When the enclosures are located outdoors, the amplifier and relay unit must be installed in a dry location where the ambient temperature is maintained between 0 °C and 40 °C (32 °F to 104 °F).

For installation of lobby enclosures refer to instructions supplied with enclosures.

PS-3B transformers may be mounted within the enclosures or at the main fuse panel. Care must be taken to locate transformers at least 12 inches away from the amplifier and the lobby microphone.

Observe local electrical codes regarding the installation of Class-2 transformers.

Suite station handsets can be mounted on single gang electrical boxes.

## 6.0 Operating Instructions

### 6.1 Single Entrance

1. Operating a call button transmits an audible tone to the corresponding suite, the tone is also heard at the vestibule speaker.
2. Occupant replies by depressing TALK switch while speaking to the visitor, and hears visitor's reply by depressing the LISTEN button.
3. Occupant may admit visitor by depressing DOOR switch, this will actuate the electric door strike.
4. Operating the optional Post Office Lock actuates the door strike.

### 6.2 Two or More Entrances

The system operates as described in items 1 through 4 single entrance applications, with the following differences:

1. Communication and Door Strike operation is automatically directed to the call originating vestibule.
2. A Busy Light (DL-003) will illuminate at the other entrance vestibule(s) to inform users that the system is being used. The light will extinguish after 30 seconds.

## 7.0 Troubleshooting

### 7.1 System Dead

In case of a total malfunction check all connections as per diagrams. If trouble persists, refer to chart below and measure terminal voltages. If the voltages on terminals 1 and 3 do not agree with the voltage chart below, disconnect wires and recheck, look for faults in the suite stations or wiring if voltages return to normal. Vestibule speaker and door strike wires should be checked with an ohmmeter for proper resistance (speaker 40 ohms, M10/M20 Door Strike 2 ohms) and lack of ground shorts. If malfunction cannot be traced to faulty wiring or station, replace amplifier.

### 7.2 Distortion

Volume adjusted too high, use a 1/8" screwdriver to adjust.

### 7.3 Hum

Voice degrading hum or buzz may result from any of the following: power transformer is too close to the amplifier or speaker, communication wires not twisted, building ground not connected, wrong connections to trivolt transformer, shield is not connected when shielded wire is used.

## 7.4 Amplifier Voltage Chart

**Table 2 Amplifier Voltage Chart**

Test Condition	See Note	-----Amplifier Terminals-----								
		1 VDC	3 VDC	S1 VDC	Z VDC	P VDC	T1 VAC	L1 VAC	L3 VAC	A VDC
System powered, not in use	2	11.5	0	0	22	11.5	17	X	17	0
System powered, not in use	3	11.5	0	0	22	11.5	17	0	8	0
Door Button Depressed	2	8.5	8.5	0	20	11.5	15	X	0	10
Door button depressed	3	8.5	8.5	0	20	11.5	15	4	X	10
Call button depressed	4	11.5	X	0	.5	11.5	17	X	X	0
Listen Button Depressed	5	11.5	*	0	22	11.5	17	X	X	0
Talk button depressed	6	0	0	a	22	11.5	17	X	X	0

a. 0-4 VA



1. All voltages are read with a 20,000 ohms per volt meter, reference is terminal 2 except when measuring (terminal L1, reference is L2. Readings are based on 120V AC line and are subject to 10% variations due to tolerance.
2. AC door strike connection.
3. DC door strike connection.
4. Depressing CALL button connects suite station speaker to terminals 2 and Z.
5. Depressing LISTEN button connects suite station speaker to terminals 2 and 3.
6. Depressing TALK button connects suite station speaker to terminals 2 and 1.
7. X denotes voltage reading irrelevant.

7.4.1 Figure 3: MA-485 Door Strike Field Modification

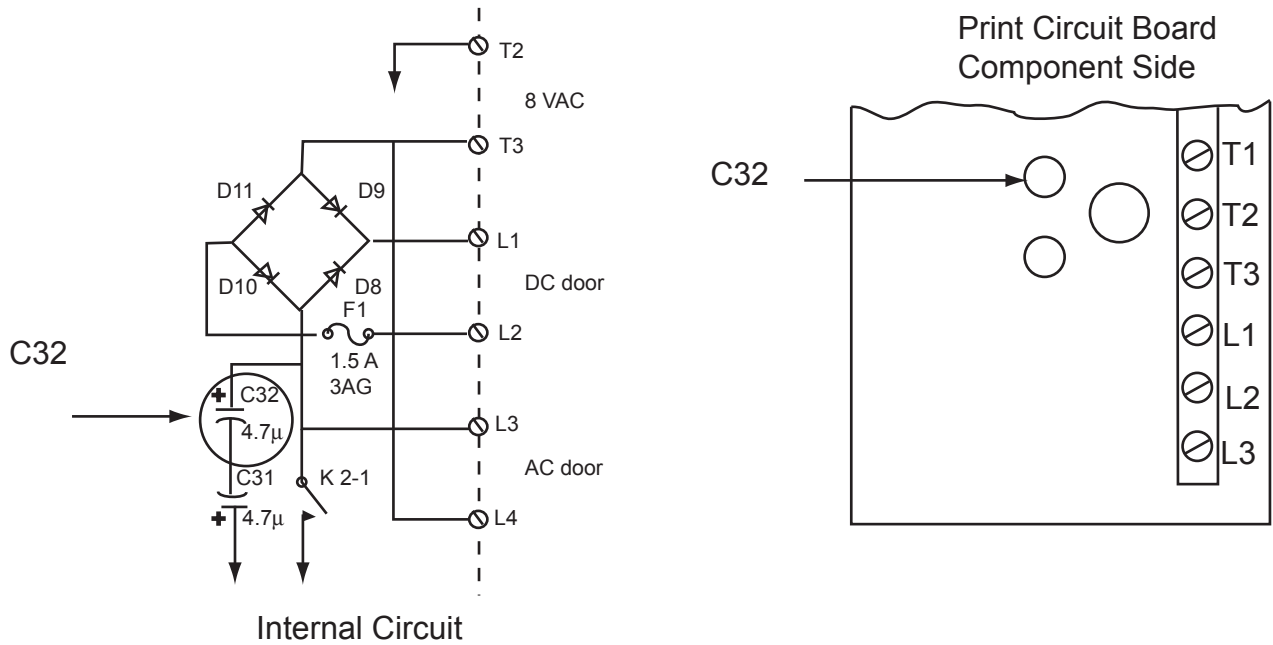


Figure 3 MA-485 Door Strike Field Modification



**Note:** When using Door Strikes other than Mircom's M-10, M-10HD, or M-20, the Door Strike will not de-energize after the present time setting. To resolve this, remove the bottom cover plate housing cabinet, then remove or clip out Capacitor C32 4.7 ufd.

### 7.4.2 Single Vestibule Connection Diagram AC or DC Door Strike Operation

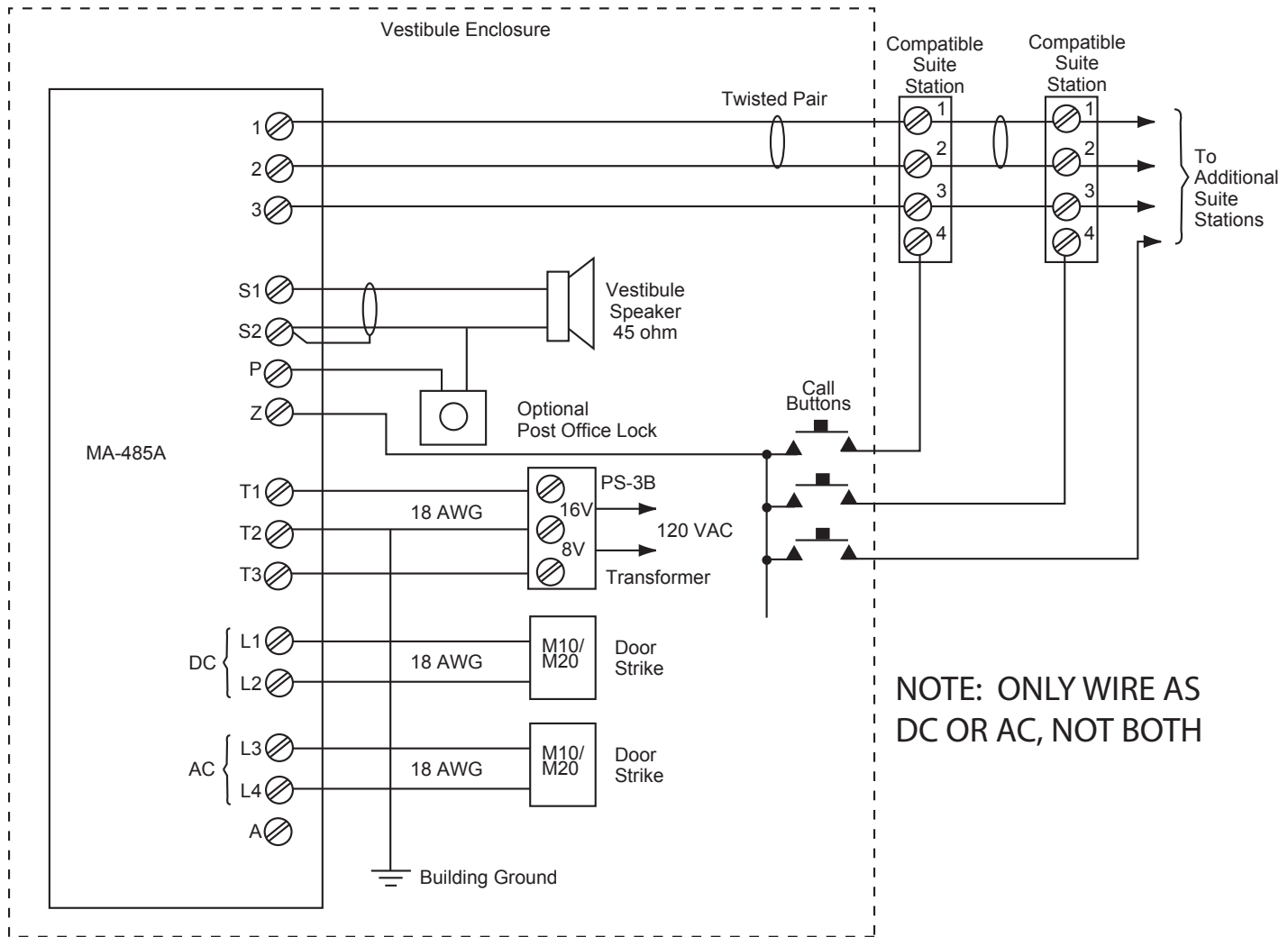


Figure 4 Single Vestibule Connection Diagram AC or DC Door Strike Operation

### 7.4.3 Dual Vestibule Connection Diagram AC Door Strike Operation

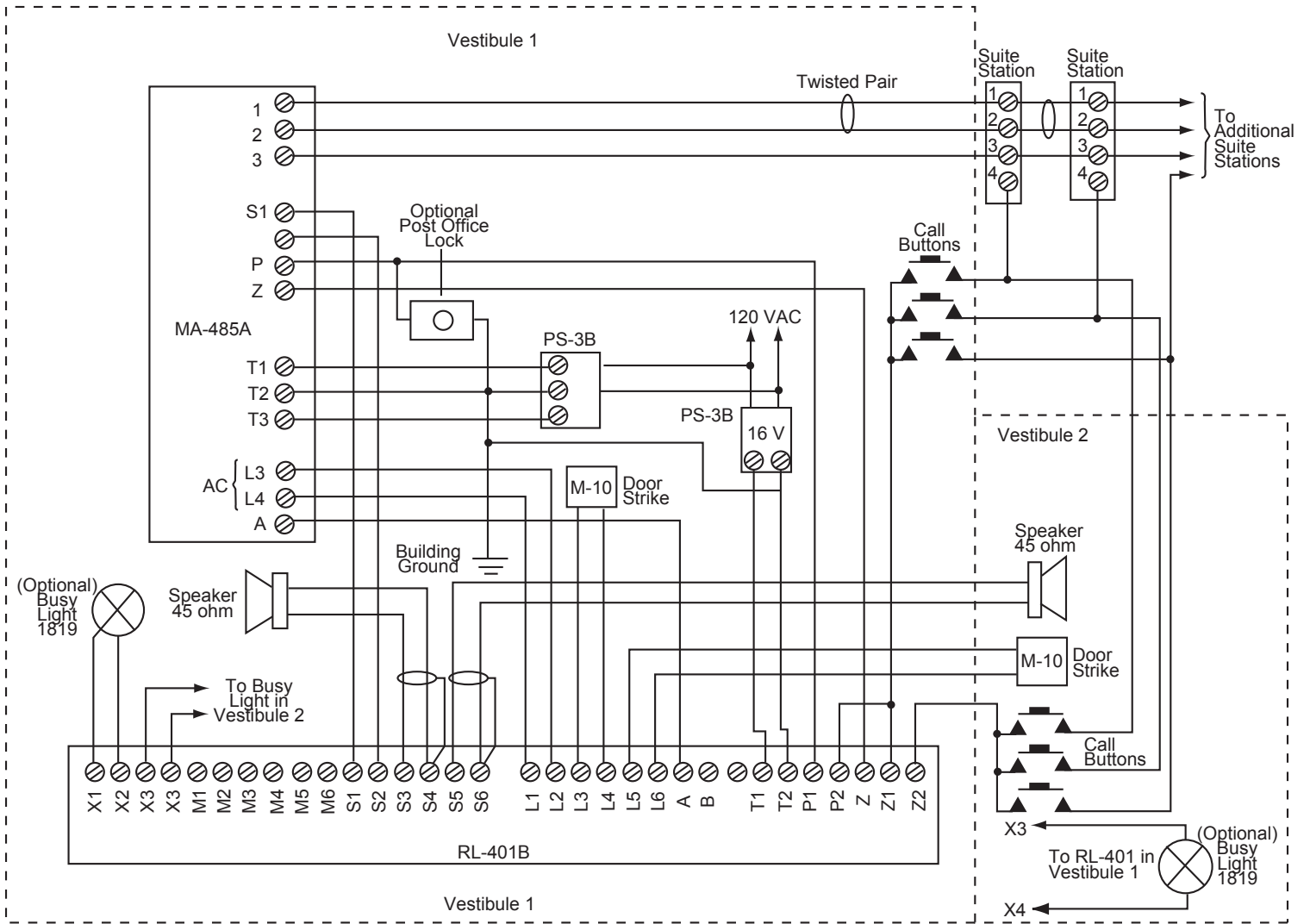


Figure 5 Dual Vestibule Connection Diagram AC Door Strike Operation



### 7.4.4 Dual Vestibule Connection Diagram DC Door Strike Operation

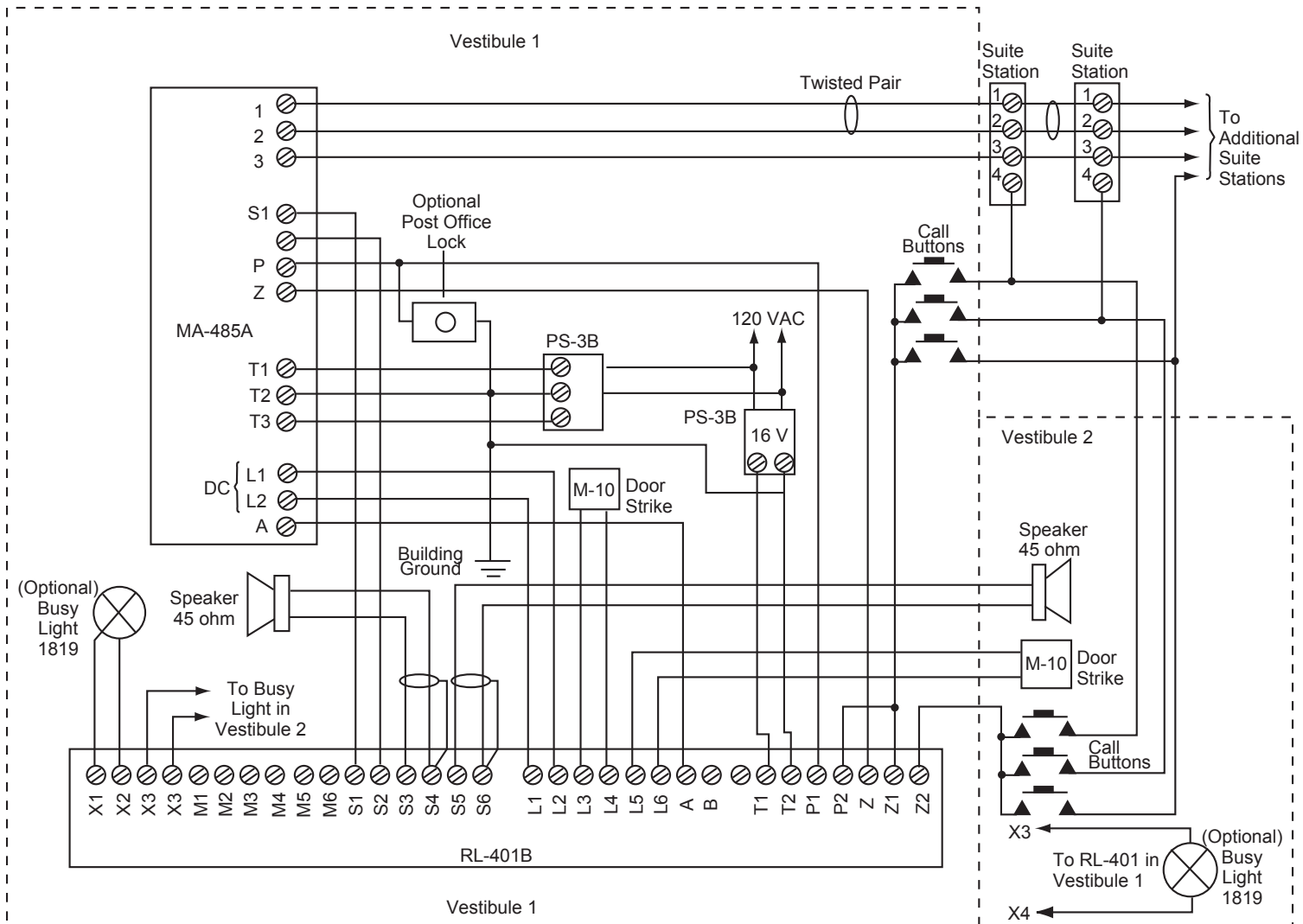


Figure 6 Dual Vestibule Connection Diagram DC Door Strike Operation

## 8.0 Warranty and Warning Information

### Warning Please Read Carefully



**Note to End Users** This equipment is subject to terms and conditions of sale as follows:

#### Note to Installers

This warning contains vital information. As the only individual in contact with system users, it is your responsibility to bring each item in this warning to the attention of the users of this system. Failure to properly inform system end-users of the circumstances in which the system might fail may result in over-reliance upon the system. As a result, it is imperative that you properly inform each customer for whom you install the system of the possible forms of failure.

#### System Failures

This system has been carefully designed to be as effective as possible. There are circumstances, such as fire or other types of emergencies where it may not provide protection. Alarm systems of any type may be compromised deliberately or may fail to operate as expected for a variety of reasons. Some reasons for system failure include:

#### Inadequate Installation

A Fire Alarm system must be installed in accordance with all the applicable codes and standards in order to provide adequate protection. An inspection and approval of the initial installation, or, after any changes to the system, must be conducted by the Local Authority Having Jurisdiction. Such inspections ensure installation has been carried out properly.

#### Power Failure

Control units, smoke detectors and many other connected devices require an adequate power supply for proper operation. If the system or any device connected to the system operates from batteries, it is possible for the batteries to fail. Even if the batteries have not failed, they must be fully charged, in good condition and installed correctly. If a device operates only by AC power, any interruption, however brief, will render that device inoperative while it does not have power. Power interruptions of any length are often accompanied by voltage fluctuations which may damage electronic equipment such as a fire alarm system. After a power interruption has occurred, immediately conduct a complete system test to ensure that the system operates as intended.

#### Failure of Replaceable Batteries

Systems with wireless transmitters have been designed to provide several years of battery life under normal conditions. The expected battery life is a function of the device environment, usage and type. Ambient conditions such as high humidity, high or low temperatures, or large temperature fluctuations may reduce the expected battery life. While each transmitting device has a low battery monitor which identifies when the batteries need to be replaced, this monitor may fail to operate as expected. Regular testing and maintenance will keep the system in good operating condition.

## **Compromise of Radio Frequency (Wireless) Devices**

Signals may not reach the receiver under all circumstances which could include metal objects placed on or near the radio path or deliberate jamming or other inadvertent radio signal interference.

## **System Users**

A user may not be able to operate a panic or emergency switch possibly due to permanent or temporary physical disability, inability to reach the device in time, or unfamiliarity with the correct operation. It is important that all system users be trained in the correct operation of the alarm system and that they know how to respond when the system indicates an alarm.

## **Automatic Alarm Initiating Devices**

Smoke detectors, heat detectors and other alarm initiating devices that are a part of this system may not properly detect a fire condition or signal the control panel to alert occupants of a fire condition for a number of reasons, such as: the smoke detectors or heat detector may have been improperly installed or positioned; smoke or heat may not be able to reach the alarm initiating device, such as when the fire is in a chimney, walls or roofs, or on the other side of closed doors; and, smoke and heat detectors may not detect smoke or heat from fires on another level of the residence or building.

## **Software**

Most Mircom products contain software. With respect to those products, Mircom does not warrant that the operation of the software will be uninterrupted or error-free or that the software will meet any other standard of performance, or that the functions or performance of the software will meet the user's requirements. Mircom shall not be liable for any delays, breakdowns, interruptions, loss, destruction, alteration or other problems in the use of a product arising out of, or caused by, the software.

Every fire is different in the amount and rate at which smoke and heat are generated. Smoke detectors cannot sense all types of fires equally well. Smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches or arson.

Even if the smoke detector or heat detector operates as intended, there may be circumstances when there is insufficient warning to allow all occupants to escape in time to avoid injury or death.

## **Alarm Notification Appliances**

Alarm Notification Appliances such as sirens, bells, horns, or strobes may not warn people or waken someone sleeping if there is an intervening wall or door. If notification appliances are located on a different level of the residence or premise, then it is less likely that the occupants will be alerted or awakened. Audible notification appliances may be interfered with by other noise sources such as stereos, radios, televisions, air conditioners or other appliances, or passing traffic. Audible notification appliances, however loud, may not be heard by a hearing-impaired person.

## Telephone Lines

If telephone lines are used to transmit alarms, they may be out of service or busy for certain periods of time. Also the telephone lines may be compromised by such things as criminal tampering, local construction, storms or earthquakes.

## Insufficient Time

There may be circumstances when the system will operate as intended, yet the occupants will not be protected from the emergency due to their inability to respond to the warnings in a timely manner. If the system is monitored, the response may not occur in time enough to protect the occupants or their belongings.

## Component Failure

Although every effort has been made to make this system as reliable as possible, the system may fail to function as intended due to the failure of a component.

## Inadequate Testing

Most problems that would prevent an alarm system from operating as intended can be discovered by regular testing and maintenance. The complete system should be tested as required by national standards and the Local Authority Having Jurisdiction and immediately after a fire, storm, earthquake, accident, or any kind of construction activity inside or outside the premises. The testing should include all sensing devices, keypads, consoles, alarm indicating devices and any other operational devices that are part of the system.

## Security and Insurance

Regardless of its capabilities, an alarm system is not a substitute for property or life insurance. An alarm system also is not a substitute for property owners, renters, or other occupants to act prudently to prevent or minimize the harmful effects of an emergency situation.

**IMPORTANT NOTE:** End-users of the system must take care to ensure that the system, batteries, telephone lines, etc. are tested and examined on a regular basis to ensure the minimization of system failure.

## Limited Warranty

Mircom Technologies Ltd. together with its subsidiaries and affiliates (collectively, the “Mircom Group of Companies”) warrants the original purchaser that for a period of three years from the date of shipment, the product shall be free of defects in materials and workmanship under normal use. During the warranty period, Mircom shall, at its option, repair or replace any defective product upon return of the product to its factory, at no charge for labor and materials. Any replacement and/or repaired parts are warranted for the remainder of the original warranty or ninety (90) days, whichever is longer. The original owner must promptly notify Mircom in writing that there is defect in material or workmanship, such written notice to be received in all events prior to expiration of the warranty period.

## International Warranty

The warranty for international customers is the same as for any customer within Canada and the United States, with the exception that Mircom shall not be responsible for any customs fees, taxes, or VAT that may be due.

## Conditions to Void Warranty

This warranty applies only to defects in parts and workmanship relating to normal use. It does not cover:

- damage incurred in shipping or handling;
- damage caused by disaster such as fire, flood, wind, earthquake or lightning;
- damage due to causes beyond the control of Mircom such as excessive voltage, mechanical shock or
- water damage;
- damage caused by unauthorized attachment, alterations, modifications or foreign objects;
- damage caused by peripherals (unless such peripherals were supplied by Mircom);
- defects caused by failure to provide a suitable installation environment for the products;
- damage caused by use of the products for purposes other than those for which it was designed;
- damage from improper maintenance;
- damage arising out of any other abuse, mishandling or improper application of the products.

## Warranty Procedure

To obtain service under this warranty, please return the item(s) in question to the point of purchase. All authorized distributors and dealers have a warranty program. Anyone returning goods to Mircom must first obtain an authorization number. Mircom will not accept any shipment whatsoever for which prior authorization has not been obtained. NOTE: Unless specific pre-authorization in writing is obtained from Mircom management, no credits will be issued for custom fabricated products or parts or for complete fire alarm system. Mircom will at its sole option, repair or replace parts under warranty. Advance replacements for such items must be purchased.

Note: Mircom's liability for failure to repair the product under this warranty after a reasonable number of attempts will be limited to a replacement of the product, as the exclusive remedy for breach of warranty.

## Disclaimer of Warranties

This warranty contains the entire warranty and shall be in lieu of any and all other warranties, whether expressed or implied (including all implied warranties of merchantability or fitness for a particular purpose) And of all other obligations or liabilities on the part of Mircom neither assumes nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

This disclaimer of warranties and limited warranty are governed by the laws of the province of Ontario, Canada.

## Out of Warranty Repairs

Mircom will at its option repair or replace out-of-warranty products which are returned to its factory according to the following conditions. Anyone returning goods to Mircom must first obtain an authorization number. Mircom will not accept any shipment whatsoever for which prior authorization has not been obtained.

Products which Mircom determines to be repairable will be repaired and returned. A set fee which Mircom has predetermined and which may be revised from time to time, will be charged for each unit repaired.

Products which Mircom determines not to be repairable will be replaced by the nearest equivalent product available at that time. The current market price of the replacement product will be charged for each replacement unit.

The preceding information is accurate as of the date of publishing and is subject to change or revision without prior notice at the sole discretion of the Company.

**WARNING:** Mircom recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

**NOTE:** Under no circumstances shall Mircom be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability, or any other legal theory. Such damages include, but are not limited to, loss of profits, loss of the product or any associated equipment, cost of capital, cost of substitute or replacement equipment, facilities or services, down time, purchaser's time, the claims of third parties, including customers, and injury to property.

**MIRCOM MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS GOODS DELIVERED, NOR IS THERE ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, EXCEPT FOR THE WARRANTY CONTAINED HEREIN.**





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