734B Access Control Module

INSTALLATION AND PROGRAMMING GUIDE
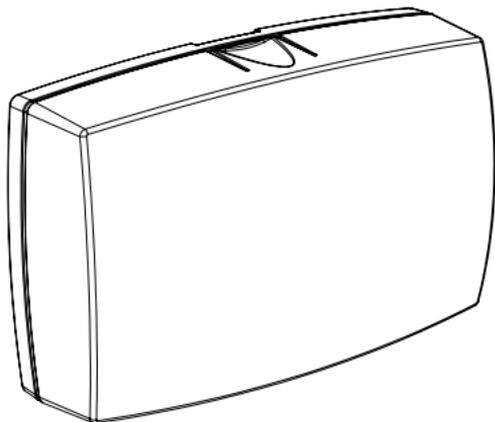

DMP

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ABOUT THE 734B

The 734B Access Control Module allows you to use the powerful built-in access control capability of DMP Panels or install it as a standalone access control device. The module is designed specifically to support BIN tables for the banking industry. Use the 734B to control access to ATM vestibules or any other location you allow cardholders to access outside of normal business hours. The 734B includes the following features:

Power Supply

The 734B operates at 12/24 VDC from the power supply supporting a door's magnetic lock or door-strike.

⚠ **Warning:** To avoid the risk of equipment damage, do not exceed 750 mA total output current for zones connected to the module.

Zone Terminals

Zones 1 - 4 on the 734B can be programmed for a variety of burglary or access control applications.

Annunciators

An onboard programmable piezo provides local annunciation at the 734B. You can also connect a variety of switched ground annunciators to the 734B for remote annunciation.

Indicator LEDs

The 734B provides three indicator LEDs:

- RELAY (red) turns on for the same duration as the door strike relay.
- WIEGAND (yellow) turns on for one second to indicate receipt of valid input.
- DATA (green) indicates that the module is communicating with the panel.

Form C Relay

The 10 Amp Form C relay draws up to 35 mA of current. Refer to "Wire the Access Control Lock" and "Isolation Relay (optional)" in this document for more information.

Programming Connection

The 734B also provides a keypad programming connection that allows you to use a standard DMP LCD keypad for initial setup. Programming can be completed using a keypad connected to the 734B or from XR150/XR550 Series panels.

Keypad In and Out Connections

The keypad in (KYPD IN) connection receives and transmits data to the panel Keypad Bus or AX-Bus.

The keypad out (KYPD OUT) connection receives and transmits data out to other keypads or modules. Install a dual connector four-position harness to allow daisy chain connection to other devices, up to the maximum number of devices supported. XR150 Series panels support up to 8 devices. XR550 Series panels support up to 16 devices. When using the AX-Buses with XR550 devices, you can have 32 doors, expandable to 96.

⚡ **Caution:** When the 734B is powered with 24 VDC, the only device that can be connected to the KYPD OUT header is another 734B powered with 24 VDC.

PCB FEATURES

Reader Inputs

Status Indicator Outputs

Zones

1	2	3	4	5	6	7	8	9	10	11	12	13	14
RED	WHT	GRN	BLK	LC	RA	AS	Z1	GND	Z2	Z3	GND	Z4+	Z4-

Address DIP Switches

ON
1 2 3 4

U1

Door Relay Terminal

NO	C	NC

To Panel Keypad Bus or AX-Bus

Piezo

Piezo + -

RED	YEL	GRN
RELAY ON	WIGAND READ LED	DATA XMT LED

PROG   RED   KYPD IN   RED   KYPD OUT   RED

Indicator LEDs

Keypad Programming Header
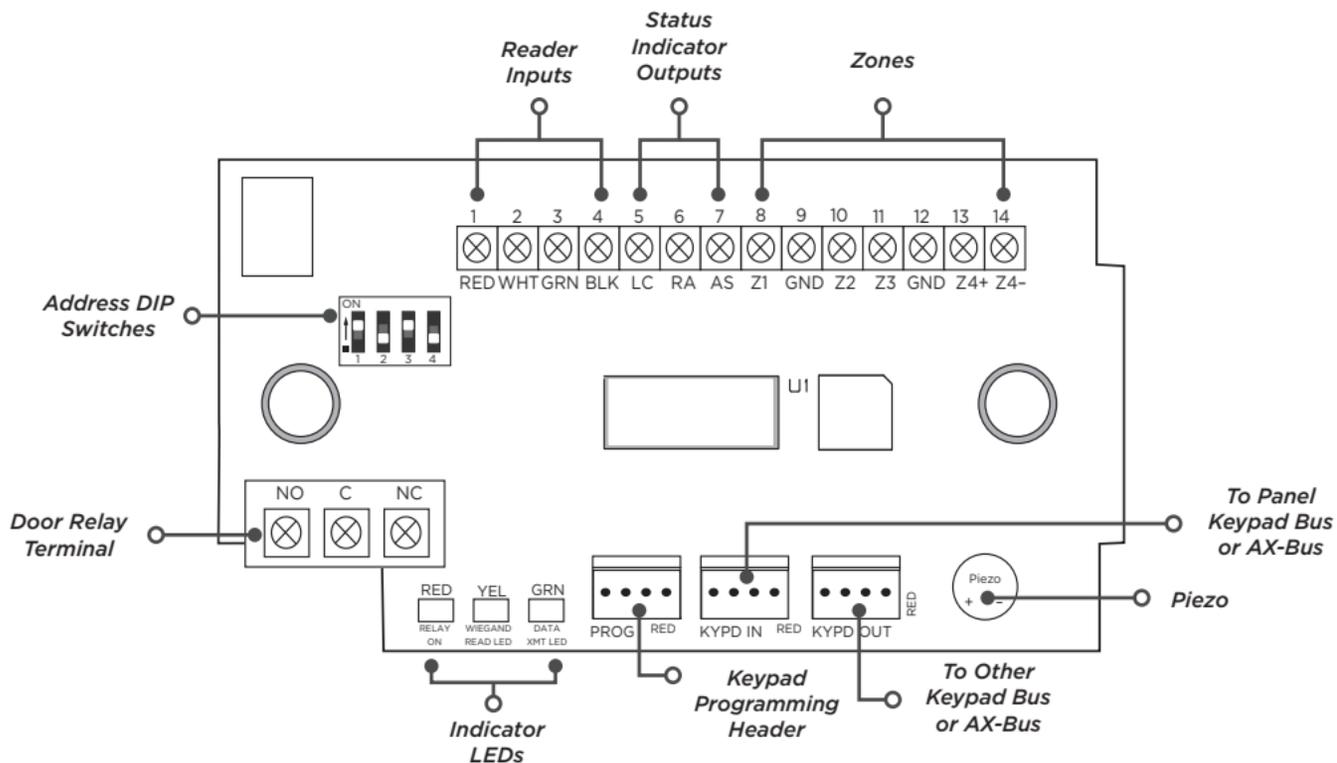
To Other Keypad Bus or AX-Bus

Figure 1: PCB Features

INSTALL THE 734B

1 *Mount the 734B*

The module comes in a high-impact plastic housing that you can mount directly to a wall, backboard, or other flat surface.

For easy installation, the back and ends of the 734B housing have wire entrances. The back also contains multiple mounting holes that allow you to mount the module on a single-gang switch box. DMP recommends mounting the 734B near the protected door. Refer to Figure 2 for mounting hole locations on the housing base.

1. Remove the PCB from the plastic housing by loosening the clips on one side and gently lifting it out of the housing base.

2. Insert the included screws in the desired mounting hole locations and tighten them to secure the housing to the surface.

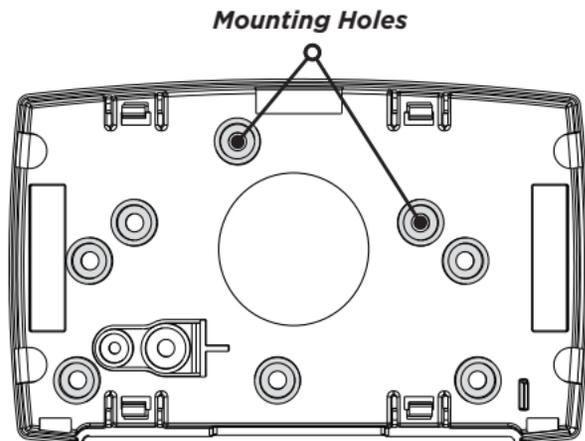3. Reinstall the PCB in the housing base.

Mounting Holes

Figure 2: Mounting Hole Locations

2 *Wire the Access Control Lock*

The 734B provides a Form C (SPDT) relay for controlling locks and other electronically-controlled barriers. The three relay terminals marked NO C NC allow you to connect the device wiring to the relay for module control.

Use an additional power supply to power magnetic locks and door strikes. See Figure 3 and Figure 4 for typical magnetic lock and door strike wiring.

The Form C relay draws up to 35 mA of current and contacts are rated for 10 Amps (resistive) at 12/24 VDC. When connecting multiple locks to the Form C relay, the total current for all locks cannot exceed 10 Amps. If the total current for all locks exceeds 10 Amps, problems may arise and an isolation relay may be needed. Refer to "Isolation Relay (optional)" for more information.
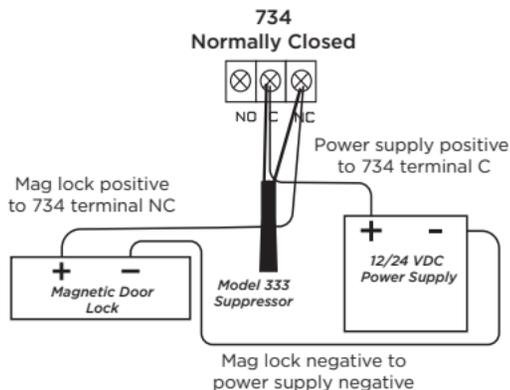

Figure 3: Typical Magnetic Lock Wiring
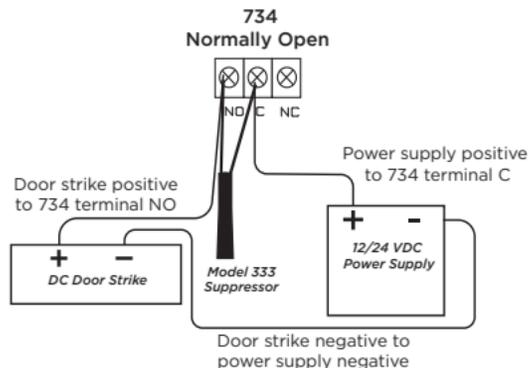
Figure 4: Typical Door Strike Wiring

KYPD IN / KYPD OUT Connections

- KYPD IN (Keypad In): Receives and transmits data to the panel Keypad bus/AX-Bus.
- KYPD OUT (Keypad Out): Receives and transmits data out to other keypad(s) or module(s). Install a dual-connector harness to allow connection to other devices up to the maximum number of devices supported.

When the 734B is powered from 24 VDC, do not connect devices to KYPD OUT header.

Status LEDs

The 734B board contains three status LEDs.

- The Red LED turns on for the same duration as the door strike relay.
- The Yellow LED turns on for one second to indicate receipt of a valid input determined by card format programming.
- The Green LED indicates data sent to the panel.

3 *Isolation Relay (optional)*

The Form C relay can control a device that draws less than 10 Amps of current. If a device draws more than 10 Amps of current, or the sum of all devices controlled by the Form C relay exceeds 10 Amps, an isolation relay must be used. Refer to Figure 5 and Figure 6 for isolation relay wiring.
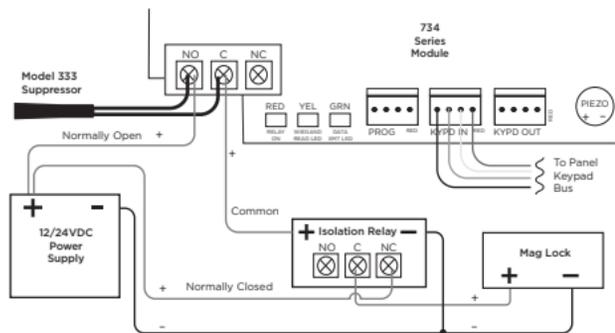
Figure 5: Magnetic Lock with an Isolation Relay
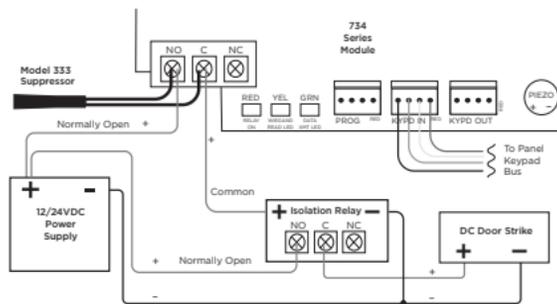
Figure 6: Door Strike with an Isolation Relay

4 *Install the 333 Suppressor*

Use the included 333 suppressor with the 734B to suppress any surges caused by energizing a magnetic lock or door strike.

Install the 333 across the module's C (common) and NO (normally open) or NC (normally closed) terminals.

If the device being controlled by the relay is connected to the NO and C terminals, install the suppressor on the NO and C terminals.

Conversely, if the device is connected to the NC and C terminals, install the 333 Suppressor on NC and C terminals.

The suppressor wire is non-polarized. Install the suppressor as shown in Figure 7.
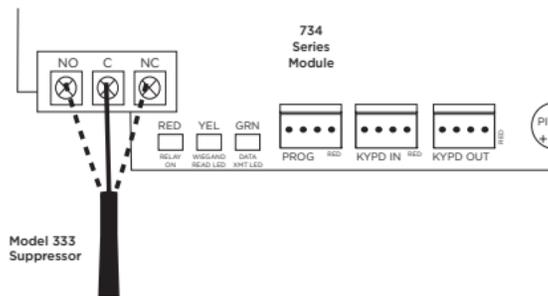
Figure 7: 333 Suppressor Installation on the 734B

5 *Wire the Zone Terminals*

Terminals 8 through 12 connect grounded zones 1 through 3. Zones 2 and 3 can also be used for access control with zone 2 providing a bypass feature and zone 3 providing request to exit functionality.

Use the supplied 311 1k Ohm End-of-Line (EOL) resistors on each zone. Refer to the panel programming guide for programming instructions. See Table 1 and Figure 8 for more information on wiring the zone terminals.

Zone #	Recommended Device
1	Any burglary device
2	Door contact
3	REX (PIR or Button)
4	Any Device

Table 1: 734B Zone Uses

Zone 3 can also be wired normally closed with an in-line 1k Ohm resistor
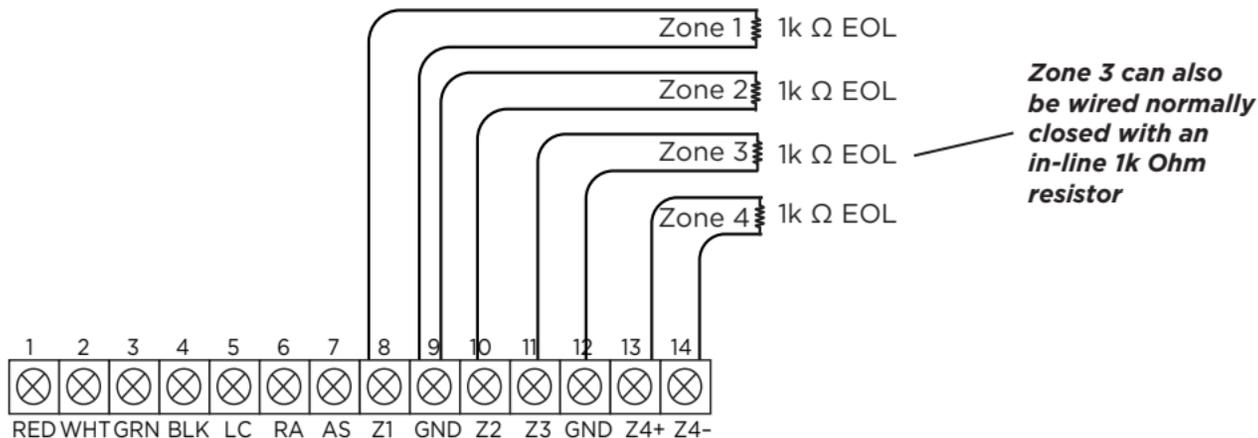
Figure 8: 734B Zone Terminal Wiring

6 *Connect a Magstripe Reader*

The 734B is compatible with ABA Track 2 Clock-and-Data magnetic stripe readers. The module provides direct 12/24 VDC, 200 mA output to the reader on the RED terminal connection. Figure 9 shows a reader with wire colors RED, WHT, GRN, and BLK connecting to terminals 1, 2, 3, and 4.

The green wire is Data and the white wire is Clock. The red wire connects 12/24 VDC, 200 mA maximum power and the black wire is ground.

The wire colors may be different depending on the reader being installed. Refer to the literature provided with the reader for wire coding, wire distance, cable type (such as shielded), and other specifications.

Magstripe Reader LED Operation
To provide visual indication of a valid card read, the magstripe reader can be wired to illuminate the green LED for the duration of the door strike.

Connect the orange or brown wire to LC terminal 5 to have the green LED stay on for the duration of the relay activation.

Magstripe Reader Annunciation
Connect the yellow wire to RA terminal 6 to have the remote annunciator turn on anytime the panel instructs the 734B onboard piezo to turn on.

Status Indicator Outputs

Terminals 5, 6, and 7 provide connections for Remote LED Control, Remote Annunciation, and Armed Status indicators.

LC (Remote LED Control)

Remote LED Control provides an unsupervised switched ground for a visual indicator that turns on when the relay activates. Connect the wire from the LC Terminal to an LED. The LED turns on for the duration the door strike relay is on. HID readers optionally provide a connection for LED reader control.

LC Wire Color	LED Color
Orange	Green
Brown	Red

RA (Remote Annunciation)

Remote Annunciation provides an unsupervised switched ground for a remote annunciator that turns on when the Zone 2 Bypass timer expires. Connect the wire from the RA Terminal to a remote annunciator. The remote annunciator silences when the RA restores. The remote annunciator (RA) switched ground operates even if the speaker is programmed not to operate.

AS (Armed Status)

Armed Status provides an unsupervised switched ground for a visual or audible armed status indicator that turns on when the burglary areas are armed, such as SYSTEM ON or ALL SYSTEM ON. Connect a wire from the AS Terminal to an armed status indicator.

Caution: Status indicator outputs support a maximum of 100 mA per terminal. Exceeding the maximum rating on LC, RA, or AS terminals can damage equipment.

ABA Track 2 Clock-and-Data Magstripe Reader
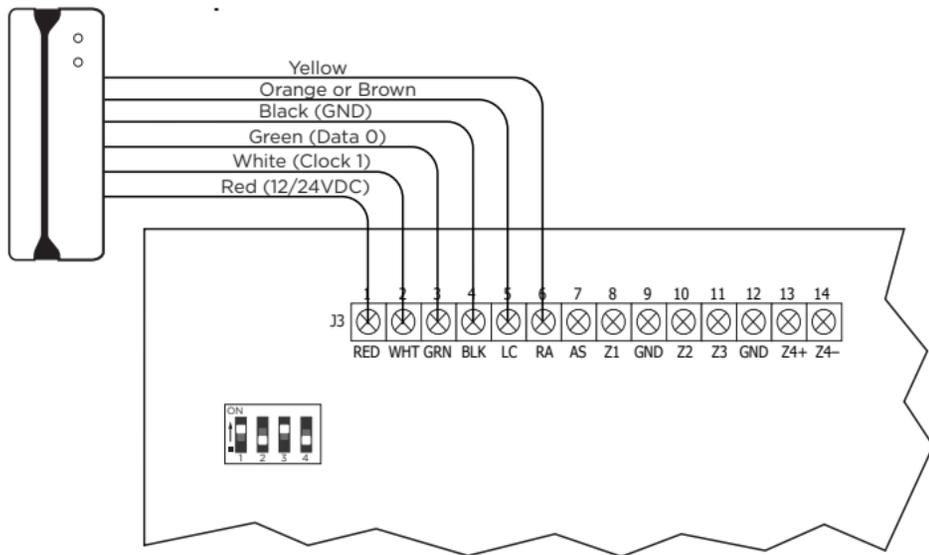
Figure 9: Magstripe Reader Wiring

7 *Set the 734B Address*

To set the 734B address, move the DIP switches on the PCB to the appropriate positions. See the following sections, Figure 10 and Table 2 to determine how to set Keypad Bus or AX-Bus addresses.

If the 734B is the only device programmed into the panel, set it to address 2 or higher.

Keypad Bus Addresses Explained
Each Keypad Bus address can accommodate one door output and four expansion zones. A 734B with an address of 2 on the Keypad Bus would represent door 2 and zones 21-24. A 734B with a keypad address of 14 would represent door 14 and zones 141-144.

AX-Bus Addresses Explained
XR550 panels are capable of access control expansion using any of the five AX/LX-Bus headers (AX/LX500, 600, 700, 800, and 900). An AX-Bus address can accommodate one door output and one expansion zone. Because the 734B has a built-in four-zone expander, three extra zones will be mapped to the 734B automatically.

A 734B with an address of 1 on AX500 would represent door 501 and zones 501-504. A 734B with an address of 2 on AX500 would represent door 505 and zones 505-508. A 734B with an address of 1 on AX700 would represent door 701 and zones 701-704.

Note: Hardwired zone expanders and modules do not communicate on an AX-Bus. Doors connected to the AX-Bus do not have programmable device or communication types and do not have assignable display areas.
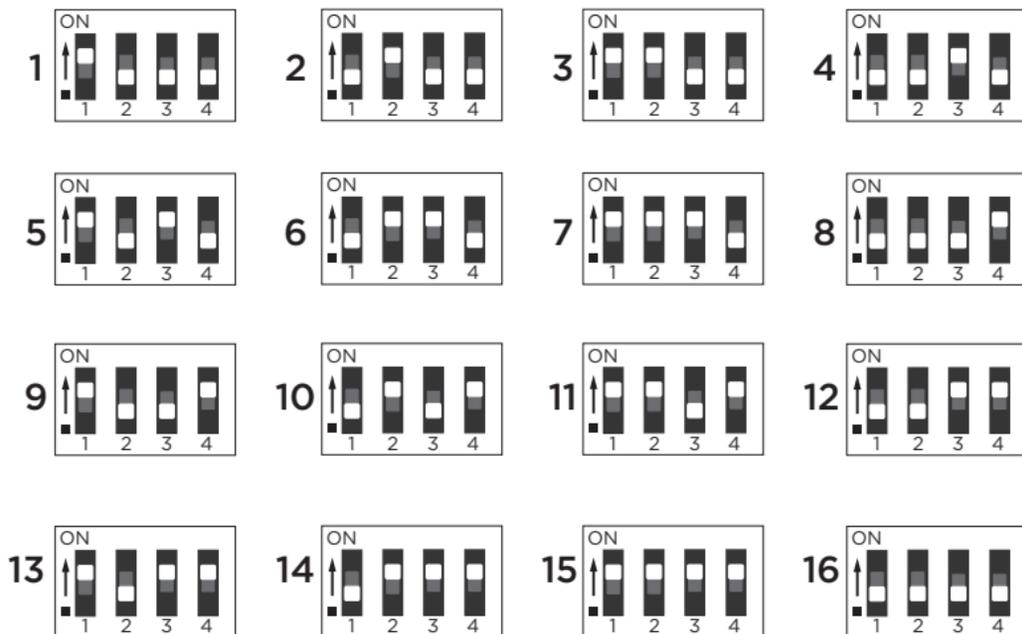

Figure 10: Keypad/AX Bus Addresses

734B Address Table

To set the module's address, move the DIP switches to the appropriate positions. Refer to Figure 10 for Keypad Bus and AX-Bus DIP switch positions.

Keypad Bus		AX-Bus											
DEVICE/DOOR	ZONES	DEVICE/DOOR	ZONES	DEVICE/DOOR	ZONES	DEVICE/DOOR	ZONES	DEVICE/DOOR	ZONES	DEVICE/DOOR	ZONES	DEVICE/DOOR	ZONES
1	11-14	501	501-504	601	601-604	701	701-704	801	801-804	901	901-904		
2	21-24	505	505-508	605	605-608	705	705-708	805	805-808	905	905-908		
3	31-34	509	509-512	609	609-612	709	709-712	809	809-812	909	909-912		
4	41-44	513	513-516	613	613-616	713	713-716	813	813-816	913	913-916		
5	51-54	517	517-520	617	617-620	717	717-720	817	817-820	917	917-920		
6	61-64	521	521-524	621	621-624	721	721-724	821	821-824	921	921-924		
7	71-74	525	525-528	625	625-628	725	725-728	825	825-828	925	925-928		
8	81-84	529	529-532	629	629-632	729	729-732	829	829-832	929	929-932		
9	91-94	533	533-536	633	633-636	733	733-736	833	833-836	933	933-936		
10	101-104	537	537-540	637	637-640	737	737-740	837	837-840	937	937-940		
11	111-114	541	541-544	641	641-644	741	741-744	841	841-844	941	941-944		
12	121-124	545	545-548	645	645-648	745	745-748	845	845-848	945	945-948		
13	131-134	549	549-552	649	649-652	749	749-752	849	849-852	949	949-952		
14	141-144	553	553-556	653	653-656	753	753-756	853	853-856	953	953-956		
15	151-154	557	557-560	657	657-660	757	757-760	857	857-860	957	957-960		
16	161-164	561	561-564	661	661-664	761	761-764	861	861-864	961	961-964		

Table 2: Device Addresses and 734B Zone Numbers

PROGRAM THE PANEL

To access the Programmer menu, reset the panel, enter **6653** (PROG), then press **CMD**.

After completing each of the following steps, press **CMD** to advance to the next option. Refer to the panel programming guide as needed.

```
DEVICE SETUP
```

DEVICE SETUP
Advance to **DEVICE SETUP**, then press any select area or top row key to enter the setup menu.

```
DEVICE SETUP
DEVICE NO: -
```

Device Number
Set the module's address. For information about valid addresses, refer to Table 2.

```
DEVICE SETUP
*UNUSED*
```

Device Name
Press any select area or top row key, then enter a name for the module.

```
DEVICE SETUP
TYPE:        DOOR
```

Device Type
Press any select area or top row key, then select **DOOR** as the device type.

```
DEVICE SETUP
COMM TYPE:  AX-BUS
```

Communication Type
If the module is connected to the Keypad Bus, select **KPD** (Keypad Bus). If the module is connected to the AX-Bus, select **AX-BUS**. Press any select area or top row key to display available options.

Configure additional options as needed. To configure specific options for the module locally, do not program **CARD OPTIONS** or **734 OPTIONS** in Device Setup.

PROGRAM THE 734B

When you program a 734B, you can use a keypad connected to the 734B programming header and set to address 1. For 12 V applications, connect the keypad to the module using a Model 330 4-wire harness. For 24 V applications, connect the keypad to the module using a Model 330-24 4-wire programming harness with in-line resistor.

⚡ **Caution:** Do not connect a keypad using a standard Model 330 harness if using a 24 V power supply! Damage to the keypad could occur.

You can also program the 734B from an XR150/XR550 Series panel. If you choose to program the 734B from the panel, all future programming should be performed through the panel. The panel's programming overrides any programming performed from a keypad connected to the 734B. While the 734B is in programming mode, it will not be able to communicate with the panel.

You can complete the following programming steps with Dealer Admin, Entré, locally from a keypad connected to the 734B, or from the panel.

📓 **Note:** If you program BINs from the panel or Dealer Admin, formats used by the module will be subtracted from the total number of available formats for all connected 734B modules. BINs longer than 6 digits cannot be programmed from Dealer Admin.

There are three methods to program Bank Identification Number (BIN) codes. The first method allows you to program BINs as user codes and process them at the panel, allowing up to 10,000 BINs. The second method allows you to program BINs as user codes and process them locally, allowing up to 64 BINs. The third method allows you to program the 734B as a standalone access control module and allows up to 64 BINs. For more information about programming options, refer to "Programming Reference."

Program BINs as User Codes (Process at Panel)

Processes BINs at the panel. Allows up to 10,000 BIN codes. This method also allows you to use schedules, run reports, make users inactive, and use Virtual Keypad Access.

1. At **ENABLE LOCAL PROCESSING**, select **NO**.
2. At **NO COMM WITH PNL**, select any option.
3. Program BINs as user codes at the panel. All BIN codes are processed at the panel and saved in panel programming as user codes.

Program BINs Locally (Process Locally)

Processes the BINs at the module. Allows up to 64 BIN codes. This method also allows you to use schedules, run reports, make users inactive, and use Virtual Keypad Access.

1. At **ENABLE LOCAL PROCESSING**, select **YES**.
2. At **NO COMM WITH PNL**, select **OFF**, **ANY**, **ON**, or **LAST**.
3. Program BINs in the 734B. All BIN codes are processed locally.
4. Program the 734B serial number as a user code in the panel. The 734B processes all valid access locally and sends the serial number to the panel as a user code.

Program the Module in Standalone Mode

Processes BINs at the module. Allows up to 64 BIN codes. This method also allows you to use the 734B as a standalone access control system without requiring a panel.

1. At **ENABLE LOCAL PROCESSING**, select **YES**.
2. At **BIN CODE x**, press a top row select key and enter the BIN code.
3. At **NO COMM WITH PNL**, select **BIN**. All BIN codes are processed and saved locally in module programming.

PROGRAMMING REFERENCE

```
734B  PROGRAMMING
VER  VVV  MM/DD/YY
```

PROGRAMMER MENU

When you connect the keypad to the 734B module, the version number and release date display. Press **CMD** to enter the Programming Menu.

```
SERIAL #:      123456
```

SERIAL NUMBER

Enter the device serial number. Range is 100000 - 999999. Press **CMD** to advance to initialization question.

```
INITIALIZE ALL?
            NO  YES
```

INITIALIZATION OPTION

These options can set the 734B module's programming memory back to factory defaults. Press any select key or area to enter the Initialization Menu.

```
ARE YOU SURE?
            YES  NO
```

Initialize Confirm Option: After selecting **YES** to clear the Access Options, the 734B displays **SURE? YES NO** for confirmation to clear the memory. This is a safeguard against accidentally erasing the programming. No memory is cleared from the programming until you answer **YES** to the **SURE?** option. Selecting **NO** leaves communication options unchanged.

```
ACTIVATE ZONE 2
BYPASS?    NO  YES
```

Activate Zone 2 Bypass

Select **YES** to activate the zone 2 bypass operation. Selecting **NO** allows standard zone operation on zone 2. The default is **NO**.

If the door being released by the 734B module is protected (contact installed), a programmable bypass entry/exit timer can be provided by connecting its contact wiring to module zone 2. When the onboard Form C relay activates and the user opens the door connected to zone 2, the zone is delayed for the number of seconds programmed in **ZONE 2 BYPASS TIME** allowing the user to enter/exit during an armed period.

If zone 2 does not restore (door closed) within the programmed time, the piezo sounds every other second during the last ten seconds. If zone 2 restores prior to the end of the programmed time, the piezo silences. If the zone does not restore before the programmed time, the 734B ends the bypass and indicates the open or short zone condition to the panel.

```
ZONE 2 BYPASS
TIME:          40
```

Zone 2 Bypass Time
Enter the number of seconds to elapse before the bypass timer expires. The range is 20-250 seconds. Press any select key or area to enter the number of seconds. The default is **40** seconds. Figure 11 shows how the bypass option works.
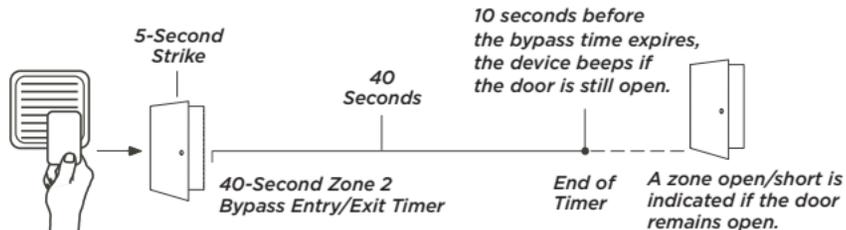

Figure 11: Zone 2 Bypass Timeline

```
RELOCK ON ZONE 2
CHANGE?   NO  YES
```

Relock on Zone 2 Change
Selecting **YES** turns the relay off when zone 2 changes state. Selecting **NO** leaves the relay on when zone 2 changes state. Turning off the relay allows a long strike time to be automatically ended upon zone 2 change and relocks the door. The default is **NO**.

Note: If using the 734B as a standalone access control unit not connected to a panel, set **RELOCK ON ZONE 2 CHANGE** to **NO**.

```
ACTIVATE ZONE 3
REX?   NO  YES
```

Activate Zone 3 Request to Exit

Selecting **YES** activates the zone 3 Request to Exit (REX) option. Selecting **NO** allows standard zone operation on zone 3. Default setting is **NO**.

Connect a motion sensing device or a mechanical switch to zone 3 to provide REX capability to the system. Zone 3 can be used to activate the strike relay and bypass or activate bypass only. For zone wiring details, refer to Figure 8.

Activate Strike Relay and Bypass
Wire zone 3 as normally open with a 1k Ohm EOL resistor.

When zone 3 shorts, the onboard Form C relay activates for the programmed number of seconds. See "Zone 3 REX Strike Time". During this time, the user can open the protected door to start the programmed zone 2 bypass entry/exit timer. After the programmed number of seconds, the relay restores the door to its locked state.

Activate Bypass Only
Wire zone 3 as normally closed with an in-line 1k Ohm resistor.

When zone 3 opens from a normal state, only a bypass occurs and the onboard relay does not activate.

```
ZN 3 REX STRIKE
TIME:          5
```

Zone 3 REX Strike Time
Enter the number of REX seconds to elapse. The range is 5 to 250 seconds. Press any select key or area to enter the number of seconds. The default is **5** seconds.

```
ACTIVATE ONBOARD
SPEAKER?  NO  YES
```

Activate Onboard Speaker
Select **YES** to enable the onboard piezo for local annunciation, such as alarm and trouble annunciations. Select **NO** to turn the speaker off for all operations. This does not affect remote annunciator open collector (RA) operation. The default is **NO**.

```
BIN CODE LENGTH
6
```

BIN Code Length
Enter the length of the BIN code. Range is 1 - 8. The default BIN code length is **6**.

```
LOCAL PROCESSING
ENABLE?  NO  YES
```

Enable Local Processing
To enable local programming, select **YES**. To advance to **NO COMM WITH PNL**, select **NO**. Default is **NO**.

```
BIN CODE 1
123456
```

BIN Code
Program up to 64 consecutive BIN codes according to the length chosen in **BIN CODE LENGTH**. Press **CMD**, enter the BIN code, then press **CMD** again. To advance to the next prompt, leave the BIN code blank and press **CMD**.

No Communication with Panel

NO COMM WITH PNL
OFF

Define the relay action when communication with the panel has not occurred for 5 seconds. Default is **OFF**. Press any select key or area to change the default relay action:

OFF BIN ANY ON

Press the first select key or area to choose **OFF** (Relay Always Off). The relay does not turn on when a BIN code is received. **OFF** does not affect any REX operation. If communication is lost during a door strike, the relay remains on for the door strike duration but turns off at the end of the door strike timer.

OFF **BIN** ANY ON

Press the second select key or area to choose **BIN** (Accept BIN Code). Door access is granted when the received BIN code matches any programmed BIN code.

OFF BIN **ANY** ON

Press the third select key or area to choose **ANY** (Any BIN Code Read). Access is granted when any BIN code is received.

OFF BIN ANY **ON**

Press the fourth select key or area to choose **ON** (Relay Always On). The relay is always on. Press **CMD** to display the next action.

LAST

Press the first select key or area to choose **LAST** (Keep Last State). The relay remains in the same state and does not change when communication is lost.

REMOVE KEYPAD

REMOVE KEYPAD

After programming is saved, the **REMOVE KEYPAD** option continually displays with no timeout if the keypad remains connected to the module. After five seconds, the piezo begins sounding continually. To disconnect the keypad and silence the piezo, remove the keypad harness.

KEYPAD BUS WIRING SPECIFICATIONS

- DMP recommends using 18 or 22-gauge unshielded wire for all keypad and AX-Bus/LX-Bus circuits. Do not use twisted pair or shielded wire for AX-Bus/LX-Bus and Keypad Bus data circuits. All 22-gauge wire must be connected to a power-limited circuit and jacket wrapped.

- On Keypad Bus circuits, to maintain auxiliary power integrity when using 22-gauge wire do not exceed 500 ft. When using 18-gauge wire do not exceed 1,000 ft. To increase the wire length or to add devices, install an additional power supply that is listed for Fire Protective Signaling, power limited, and regulated (12/24 VDC nominal) with battery backup.

  Note: Each panel allows a specific number of supervised keypads. Add additional keypads in the unsupervised mode.

- Maximum distance for any one bus circuit (length of wire) is 2,500 ft regardless of the wire gauge. This distance can be in the form of one long wire run or multiple branches with all wiring totaling no more than 2,500 ft. As wire distance from the panel increases, DC voltage on the wire decreases. Maximum number of AX-Bus/LX-Bus devices per 2,500 ft circuit is 40.

- Maximum voltage drop between the panel (or auxiliary power supply) and any device is 2 VDC. If the voltage at any device is less than the required level, add an auxiliary power supply at the end of the circuit. When voltage is too low, the devices cannot operate properly.

For additional information refer to the panel's Installation Guide or the 710 Installation Sheet (LT-0310).

PRODUCT SPECIFICATIONS

Primary Power   8.5 VDC to 28.5 VDC

Current Draw
  Standby   240 mA (Includes 200 mA for magstripe reader)
  Alarm   260 mA (Includes 200 mA for magstripe reader)
  Form C Relay   35 mA at 12/24 VDC

Zones   5 VDC, 2 mA max

Dimensions   4.5 W x 2.75 H x 1.75 D in
                           11.43 W x 7 H x 4.45 D cm

Weight   5.6 oz   0.16 kg

COMPATIBILITY

XR150/XR550 Series Panels

Readers

The 734B Access Control module has been tested with various magnetic stripe card readers. To be compatible, magstripe readers must use Clock-and-Data output in ABA Track 2 format. Verify all reader wiring with reader manufacturer to ensure proper operation.