



**AN-342**

# Programming Door Chimes

Application Note



The specifications and descriptions of products and services contained in this document were correct at the time of printing. Integrated Control Technology Limited reserves the right to change specifications or withdraw products without notice. No part of this document may be reproduced, photocopied, or transmitted in any form or by any means (electronic or mechanical), for any purpose, without the express written permission of Integrated Control Technology Limited. Designed and manufactured by Integrated Control Technology Limited, Protege® and the Protege® Logo are registered trademarks of Integrated Control Technology Limited. All other brand or product names are trademarks or registered trademarks of their respective holders.

Copyright © Integrated Control Technology Limited 2003-2022. All rights reserved.

Last Published: 18-Mar-22 9:20 AM

# Contents

<b>Introduction</b>	<b>4</b>
<b>Programming Scenario</b>	<b>5</b>
Example 1: Using the Physical Door Record	6
Example 2: Using a Virtual Door Record	8
Programming Method Comparison	10

# Introduction

---

Many retail shops and other premises that are open to the public need a method of alerting staff members when a customer enters the building. These businesses typically use a 'door chime', which makes a beep, chime or bell sound when the door is opened.

While there are various standalone devices which can provide an audible notification, you can also program your Protege GX or Protege WX system to activate the keypad or reader beepers when someone opens the door. This removes the need for any additional hardware, gives you control over the pattern and duration of the chime sound, and allows you to activate and deactivate the function on a schedule.

This application note will describe a common method for programming a door chime in Protege GX and Protege WX. This method uses the door's pre-alarm function to pulse the keypad or reader beeper when the door is opened. We will show two variant approaches which you could use, depending on the needs of your site.

# Programming Scenario

---

For this programming scenario we will use a retail shop called Paeroa Antiques World. The shop has a front door and a back door, both of which are unlocked during the day. The owner would like to set up a door chime on both doors so that there is a pulsing beep when a customer enters the building.

We will demonstrate two methods of programming a door chime on the two different doors.

## Hardware Required

To fully program and test this scenario you will need a two-door controller (or one-door controller with additional reader expander), two card readers and a keypad.

Most of the programming can be completed with any version of Protege GX or Protege WX, but to program the door alarm options (Example 2) you will need the following versions:

Component	Version
Protege GX software	4.3.264 or higher
<b>Protege GX Controllers</b>	
PRT-CTRL-DIN	2.08.911 or higher
PRT-CTRL-DIN-1D	
<b>Protege WX Controllers</b>	
PRT-WX-DIN	4.00.624 or higher
PRT-WX-DIN-1D	

## Preliminary Programming

Before you begin:

- **Protege GX:** Program a new controller called Antiques Paeroa with an onboard reader expander and keypad. Bring the controller online and configure the onboard reader expander.
- **Protege WX:** Start with a default database. Use the expanders wizard to add a keypad.
- Two doors should be programmed by default for the onboard reader expander. Rename them to Front Door and Back Door. The **Door position input** and **Lock output** should already be assigned.
- Add a schedule called Opening Hours (9am-4pm, Mon-Sat).
- Add a user with access to both doors.

If you are programming door chimes in your own system, you can use your existing doors, schedules and users.

# Example 1: Using the Physical Door Record

For the front door, we will use the pre-alarm of the existing door record to control the door chime output.

## Programming the Door

---

1. Navigate to **Programming | Doors** and select the Front Door.
2. Set the **Unlock schedule** to Opening Hours (9am-4pm, Mon-Sat).
3. Set the **Door pre-alarm delay time** to 1 second.  
Leave the **Door left open alarm time** as the default setting (45 seconds).
4. Navigate to the **Outputs** tab and set the following:
  - **Pre alarm output:** KP1 Beeper
  - **Pre alarm pulse on time:** 1
  - **Pre alarm pulse off time:** 6

The pulse on and pulse off times can be varied as desired. If you are using the keypad or reader beepers for entry and exit delays it is recommended to use a different pulse pattern for the door chime so that end users do not get confused.

5. Click **Save**.

## Validating the Chime Function

---

1. Set the controller time to 8:59:55 AM so that we can test the operation when the door is unlocked by schedule.
  - **Protege GX:** Navigate to **Sites | Controllers** and right click on Antiques Paeroa. Enter the new time and select **Set controller date time**.
  - **Protege WX:** Navigate to **Scheduling | Time**. Enter the new **Time** and click **Save**, then press F5 to refresh the page.

2. After 5 seconds the schedule will become valid and the door will unlock.

3. Open the door sense input. After a delay of 1 second the keypad will start beeping periodically.

You will see the following events:

```
Door Front Door Opened
Door Front Door Pre Alarm
Output KP1 Beeper On By Front Door Function Pre-alarm
```

4. Close the front door. The beeper will stop, and you will see the following events:

```
Door Front Door Closed
Output KP1 Beeper Off By Front Door Function Pre-alarm
```

5. Open the front door again, and this time leave it open for 45 seconds. After this period the keypad beeper will be deactivated and the reader outputs will start pulsing to indicate that the door has been left open for too long. You will see the following events:

```
Door Front Door Left Open
Trouble Input RD1 DR1 Door Left Open Opened
Output KP1 Beeper Off By Front Door Function Pre-alarm
Output RD1 Beeper R1 On By Front Door Function Left Open
```

6. Close the door to deactivate the alarm.

## Summary

- The programming for this method is simple, and uses the same door record which controls the physical door.
- When someone opens the door the chime will pulse. It will continue pulsing until the door is closed or the left open alarm is activated.

- Because the pre-alarm is controlling the door chime it is not possible to generate a separate pre-alarm warning before the left open alarm is activated.
- It is not possible to deactivate the chime function based on a schedule (without also deactivating the left open alarm).

## Example 2: Using a Virtual Door Record

For the back door, we will control the chime output using a 'virtual' door. This allows more control over the timing and schedule of the chime function, but uses an additional door record to control the output.

**Protege GX:** You will need an additional door license for each 'virtual' door used for a chime function.

**Protege WX:** Each 'virtual' door will count towards the total number of doors available on the controller (maximum 128).

### Programming the Virtual Door

---

1. Navigate to **Programming | Doors** and add a new door with the name Back Door Chime Function.
2. Set the **Unlock schedule** to Opening Hours (9am-4pm, Mon-Sat).
3. Set the **Door pre-alarm delay time** to 1 second.
4. Set the **Door left open alarm time** to 2 seconds.

This can be modified to produce a longer door chime.

5. In the **Outputs** tab, set the following:
  - **Pre alarm output:** RD1 Beeper R2
  - **Pre alarm pulse on time:** 1
  - **Pre alarm pulse off time:** 2
6. In the **Inputs** tab, set the following:
  - **Door position input:** RD1 Input 5

This is the same as the **Door position input** for the Back Door.

  - **Forced door sends door open:** Enabled
7. In the **Alarm options** tab, **Pre-alarm options** section, set the **Alarm operating schedule** to Opening Hours (9am-4pm, Mon-Sat).
8. Uncheck the **Enable left open alarms** option.
9. Click **Save**.

### Validating the Chime Function

---

1. Set the controller time to 8:59:55 AM so that we can test the operation when the door is unlocked by schedule.
  - **Protege GX:** Navigate to **Sites | Controllers** and right click on Antiques Paeroa. Enter the new time and select **Set controller date time**.
  - **Protege WX:** Navigate to **Scheduling | Time**. Enter the new **Time** and click **Save**, then press F5 to refresh the page.
2. After 5 seconds the schedule will become valid and the door will unlock.
3. Open the door sense input. The events will show that both the Back Door and Back Door Chime Function are opened.

```
Door Back Door Opened
Door Back Door Chime Function Opened
```

4. After a delay of 1 second the virtual door's pre-alarm function will be activated, causing the card readers to beep briefly.

You will see the following events:

```
Door Back Door Chime Function Pre Alarm
Output RD1 Beeper R2 On By Back Door Chime Function Function Pre-alarm
```



5. The card readers will beep for 1 second, then turn off. Note that the trouble input for 'Door Left Open' does not open because we have disabled the left open alarm.

```
Output RD1 Beeper R2 (748) Off By Back Door Chime Function Function Pre-  
alarm
```

6. Close the door.
7. Open the door contact again, and this time leave it open. First, the readers will beep briefly for the door chime. After 30 seconds the pre-alarm for the Back Door will start, causing the readers to beep. After 45 seconds the left open alarm will be activated.

Unlike the first scenario, the pre-alarm of the physical door can be activated independently of the door chime.













8. Set the controller time to 3:59:55 PM so that we can test the operation outside of the unlock schedule.
  - **Protege GX:** Navigate to **Sites | Controllers** and right click on Antiques Paeroa. Enter the new time and select **Set controller date time**.
  - **Protege WX:** Navigate to **Scheduling | Time**. Enter the new **Time** and click **Save**, then press F5 to refresh the page.
9. After 5 seconds the schedule will become invalid and the door will lock.
10. Badge a card to unlock the Back Door and open the door contact. You will notice that the card readers do not beep for the door chime. This is because we have deactivated the pre-alarm of the Back Door Chime Function outside of the unlock schedule.

## Summary

- The programming for this method requires an additional virtual door record to control the chime function for each physical door. This will require a spare door license in Protege GX, and will count towards your total door limit in Protege WX.
- When someone opens the door the chime will pulse only for the programmed time (as short as 1 second).
- The pre-alarm function on the physical door record can be used as normal, as it is not required to control the door chime.
- It is possible to deactivate the door chime function based on a schedule.

## Programming Method Comparison

This table compares the pros and cons of each programming method to help you select which one is right for your site.

Category	Method 1: Physical Door	Method 2: Virtual Door
Licensing / Capacity	 Protege GX: No additional door licenses required. Protege WX: Not counted towards your total door capacity.	 Protege GX: Each door chime requires one additional door license. Protege WX: Each door chime adds one additional door towards your total limit.
Outputs	 Any output connected to the Protege system can be used.	 Any output connected to the Protege system can be used.
Timing	 The door chime continues beeping until door is closed.	 The door chime only beeps for the selected time.
Schedule	 The door chime cannot be disabled on schedule.	 The door chime can be disabled on schedule.
Pre-alarm	 The physical door's pre-alarm is used for the door chime and cannot be used as a warning.	 The physical door's pre-alarm is not used for the door chime and is fully operational.
Left open alarm	 The physical door's left open alarm is operational.	 The physical door's left open alarm is operational.

Designers & manufacturers of integrated electronic access control, security and automation products.  
Designed & manufactured by Integrated Control Technology Ltd.  
Copyright © Integrated Control Technology Limited 2003-2022. All rights reserved.

**Disclaimer:** Whilst every effort has been made to ensure accuracy in the representation of this product, neither Integrated Control Technology Ltd nor its employees shall be liable under any circumstances to any party in respect of decisions or actions they may make as a result of using this information. In accordance with the ICT policy of enhanced development, design and specifications are subject to change without notice.