AN-205

Area Counting

Application Note

Last Published: 22-Oct-21 11:30 AM

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Area Counting

Area counting is used to monitor and control how many people are in a specified area. The system utilizes this information to respond when the area becomes full or empty. Typically, this is used to prevent too many people accessing a restricted area, or to automatically arm an intruder detection area when the last person leaves.

Area counting relies on having both entry and exit readers on all access points to the area. As a user enters the area, the count is increased by one. When a user leaves the area, the count is decreased by one.

When an area reaches its maximum occupancy, the system automatically denies any further access until a user exits and the count is once again below the defined maximum for the area.

Typical Area Counting Usage

- Car parking buildings typically have limited parking spaces. Area counting can be used to prevent too many cars from entering the building, and automatically illuminate a 'Car Park Full' sign when capacity is reached.
- The financial sector has strict protocols for entering high security areas such as secure vaults. Area counting can be used to monitor when a vault is occupied to prevent others from entering, based on the number of people already inside the vault area.
- In large corporate office environments it is impractical for staff to check whether they are the last person out of the building. Area counting can be used to monitor when the last person leaves, then automatically arm the intruder detection system and turn off lighting and HVAC.

Prerequisites

Area counting requires:

- An operational Protege GX or Protege WX system.

It is assumed that the following have already been configured:

- Any areas which are required.
- The following door options for any entry and exit points:
  - **Area Inside Door**
  - **Area Outside Door**
  - **Door Position Input**

It is recommended that the door types used in an area counting context are programmed with antipassback. This reduces the chance of errors in the area count, which is especially important when the count is used to arm an area or prevent arming.

Overview

After area counting has been enabled in an area, there are a number of options for utilizing the information saved by the system:

- Define the maximum number of users permitted in an area.
- Indicate when an area is at maximum occupancy.
- Set the area to arm when there are no users remaining within.
- Prevent the area from arming when there are users inside.

Implementing Area Counting

Enabling Area Counting

1. Navigate to **Programming | Areas** and select the area to enable area counting in.
2. Select the **Options (1)** tab.
3. In the **Reporting Options** section, enable the **Enable User Counting** option.
4. The **Clear User Count When Armed** option ensures that the user count in the area will be set to zero when the area is armed. It is recommended that this option is enabled when user counting is enabled, otherwise the user count may need to be cleared manually.
5. Click **Save**.

Setting the Maximum Number of Users Allowed in the Area

Once area counting is enabled, you can use it to restrict the number of users in the area.

The **Max User Count** defines the maximum number of users that the system will allow to occupy an area. For example, if the **Max User Count** is set to 10, the 11th user who attempts to enter the area will be denied access.

1. Navigate to **Programming | Areas** and select the area to configure.
2. Select the **Configuration** tab.
3. In the **Setup** section, enter the maximum area occupancy in the **Max User Count** field.
4. Click **Save**.

Important: The **Max User Count** cannot be left at zero for area counting. If occupancy restriction is not required, an unrealistically high value should be set to implement area counting without restricting access.

Indicating an Area Has Reached Maximum Occupancy

1. Navigate to **Programming | Areas** and select the area to configure.
2. Select the **Outputs** tab, then set the **User Count Reached Output**.

   This is the programmed output (such as a 'Car Park Full' sign) that will be triggered when the area count reaches the **Max User Count**.
3. Click **Save**.

Setting the Area to Arm upon the Last Person Exiting

It can be convenient to set the area to automatically arm when the last person leaves, ensuring that the area will be armed even if the last person does not actively arm it.

It is highly recommended that this feature is used alongside antipassback settings to ensure an accurate user count. If not, the area may arm while there are people still inside, or fail to arm after the last user leaves.

1. Navigate to **Programming | Areas** and select the area to configure.
2. Select the **Options (1)** tab.
3. In the **Reporting Options** section, enable the **Arm on User Count At 0** option.
4. Click **Save**.

Area Count on Door Opening

In general, a user is determined to have entered/exited the area when they present a valid credential and are granted access. The area count is incremented/decremented accordingly.

In some environments where there is potential for users to badge and be granted access without entering or exiting, it is preferable to only update the area count when the door is actually opened.

This can be achieved by enabling the Area Count on Door Opening option.

This option requires Protege GX controller firmware version 2.08.1161 or higher, or Protege WX version 4.00.649 or higher.

1. Navigate to **Programming | Areas** and select the area(s) to apply this option to.
2. Go to the **Configuration** tab, and in the **Commands** field add `AreaCountOnDoorOpening = true`
3. Click **Save**.

The area count will be updated only if the door has been opened after entry/exit is granted.

Allow Reading Opened/Unlocked

When a user presents their credential and is granted access while the door is already open this is treated as though the user opened the door, and the area count is updated accordingly.

This is controlled by the Allow Reading Opened/Unlocked option and can be disabled for any readers that require more controlled access for area counting.

1. Navigate to **Expanders | Reader Expanders** and select the reader expander(s) the affected readers are connected to.
2. Go to the **Reader 1**/**Reader 2** tabs as required and disable the **Allow Reading Opened/Unlocked** option.
3. Click **Save**.

When this option is disabled the reader performs no action when a card is presented while the door is unlocked or open. The user will not be granted access and the area count will not be updated.

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