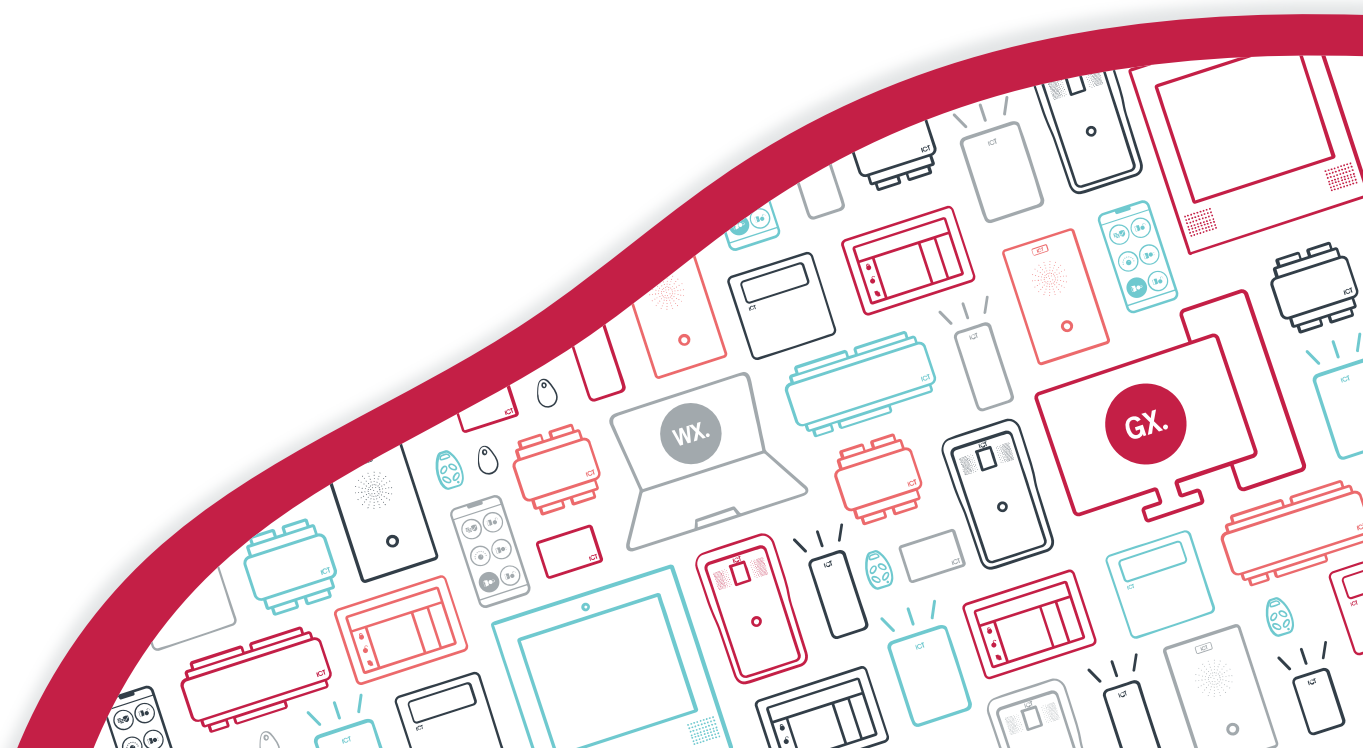
AN-285

Programming Additional Lock Outputs in Protege GX

Application Note



Last Published: 30-Jul-21 02:25 PM

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Introduction

For doors that contain multiple locks or outputs in the opening sequence, additional lock outputs allow the Protege GX system to precisely control the sequential operation of those outputs, with the flexibility to customize them to accommodate complex opening scenarios.

Additional lock outputs can be beneficial in situations such as:

- Installing more than one lock on a door to enable specific opening stages and conditions.
- Doors with automatic door openers.
- Doors with unique access or emergency exit requirements.

Prerequisites

The following components must be installed and operational.

Component	Version
Protege GX	4.2.251 or higher
PRT-CTRL-DIN	2.08.1068 or higher
PRT-CTRL-DIN-1D	

Programming Additional Lock Outputs

Additional lock outputs allow precise configuration of a door opening sequence. Up to 5 additional lock outputs or output groups can be programmed on a door, allowing control of additional locks, door actuators or opening devices, each with their own individual activation and delay time.

1. Navigate to **Programming | Doors** and select the door to program additional lock outputs for.
2. In the **Outputs** tab, set the **Lock Output / Output Group** and **Lock Activation Time** (in seconds) for the primary lock output.
3. Check the **Enable Additional Lock Outputs** option. This will reveal the settings for lock outputs 2-6.
4. Enter the settings for one or more additional lock outputs:
   - **Lock 2-6 Output / Output Group**: The output or output group that controls the additional lock for the door. This can also be used for other devices such as door pumps.
   - **Lock 2-6 Activation Time**: Determines the duration (in seconds) this additional lock output will remain activated.
   - **Lock 2-6 Delay Before Activation**: Determines the delay (in seconds) between the activation of the primary lock output and this additional lock output. This is useful for programming doors where one lock must be open before another device can be activated.

     Important: All **Delay Before Activation** times must be completed before any other lock output is deactivated. This means that all outputs must be activated before any outputs are deactivated.
5. Click **Save**.

Additional Lock Output Timing

The following principles apply to the timings of additional lock outputs:

- The lock outputs will always be activated in the same order, based on the programmed delay times.
- The lock outputs will always be deactivated in the same order, based on the combined delay and activation times.

These principles ensure that there is no mechanical breakage caused by the devices activating or deactivating in the wrong order.

The timings of additional lock outputs can be quite complex. It is **strongly recommended** to validate that the lock timings are working as expected, especially when used alongside any features which may affect the lock opening or closing timers. For example, you may wish to consider the following situations:

- If an extended unlock time is used, the activation times of all lock outputs are extended. This ensures that the locks still close in the same order as originally programmed. This applies when using the following features:
  - **REX Activation Time** (**Programming | Doors | Inputs**)
  - **Door Extended Access Time** (**Programming | Doors | Advanced Options**)
  - The **Extended Lock Time** calendar action
- If the door is actively relocked, the lock outputs will close in the same order as originally programmed (i.e. they will not all be deactivated at the same time). This applies in the following situations:
  - When the door is relocked after being latch unlocked.
  - When the door is automatically relocked by the **Relock on Door Close** and **Relock on Door Open** features (**Programming | Doors | Options**).
- If the **Lock Activation Time** of the primary lock output is set to 0, the door will be latch unlocked/relocked on access as normal.

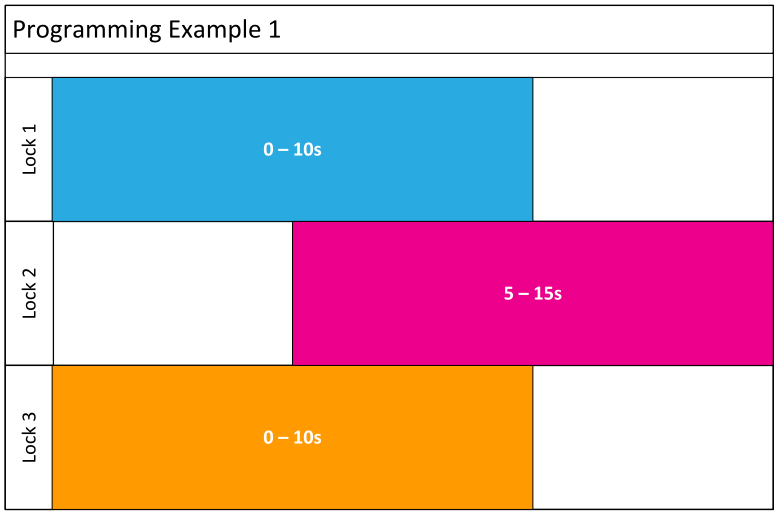
Programming Examples

When programming additional lock outputs, it is important to ensure that all lock outputs are activated before any are deactivated. The examples below demonstrate correct and incorrect programming.

Programming Example 1

Lock Output	Activation Time	Delay
Lock 1	10	-
Lock 2	10	5
Lock 3	10	0

In this example, Locks 1 and 3 deactivate after 10s. Lock 2 has already activated after its 5 second delay, and turns off at 15s.

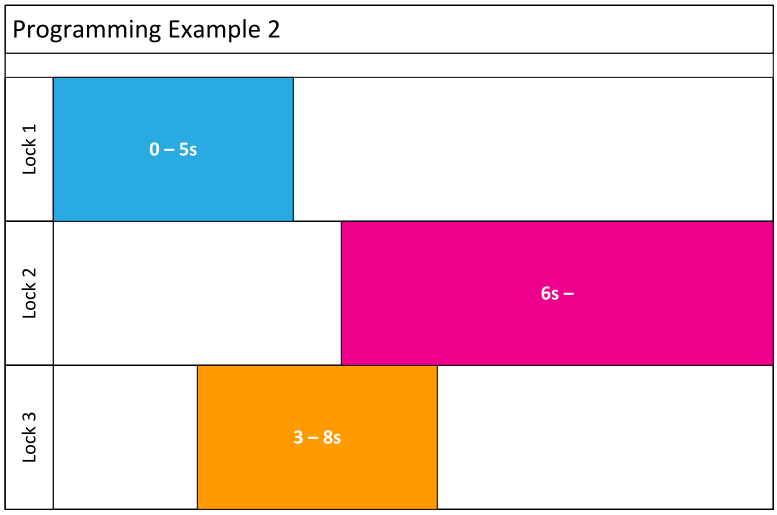


Programming Example 2

Lock Output	Activation Time	Delay
Lock 1	5	-
Lock 2	5	6
Lock 3	5	3

In this example, Lock 1 deactivates after 5s. Lock 3 activates at 3s and deactivates at 8s. Because Lock 1 has already finished before Lock 2 activates at 6s, Lock 2 does not deactivate correctly at 11s.

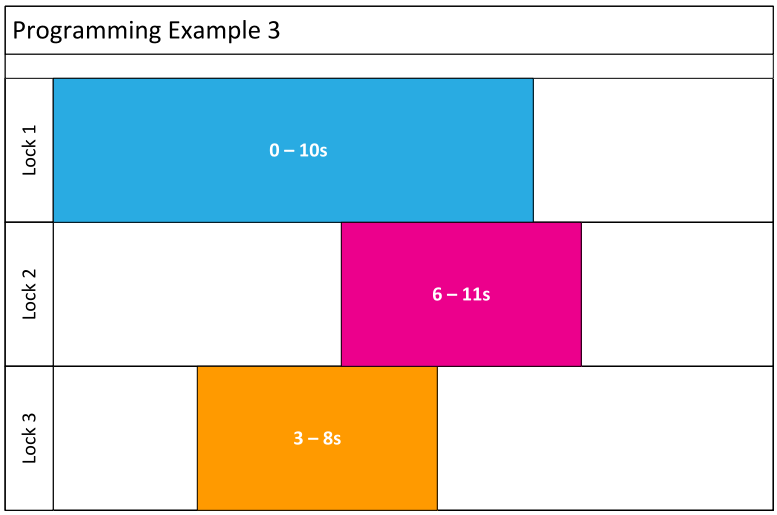
This is invalid programming.



Programming Example 3

Lock Output	Activation Time	Delay
Lock 1	10	-
Lock 2	5	6
Lock 3	5	3

In this example, Lock 2 activates before any other lock output has finished, and so is deactivated correctly at 11s.



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